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ADVISORY GROUP FOR AEROSPACE RESEARCH AND DEVELOPMENT
(ORGANISATION DU TRAITE DE L'ATLANTIQUE NORD)

AGARD Advisory Report No.138
EXPERIMENTAL DATA BASE FOR COMPUTER
PROGRAM ASSESSMENT

REPORT OF THE FLUID DYNAMICS PANEL
WORKING GROUP 04

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AGARD Advisory Report No.138 Advisory Group for Aerospace Research and Development, NATO EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT – Report of the Fluid Dynamics Panel Working Group 04 Published May 1979 642 pages The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability. P.T.O.	AGARD-AR-138 Aerodynamic characteristics Computer programs Assessments Mathematical models Data processing Aerodynamic configurations	AGARD Advisory Report No.138 Advisory Group for Aerospace Research and Development, NATO EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT – Report of the Fluid Dynamics Panel Working Group 04 Published May 1979 642 pages The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability. P.T.O.	AGARD-AR-138 Aerodynamic characteristics Computer programs Assessments Mathematical models Data processing Aerodynamic configurations
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PREFACE

The economical advantages of applying transonic flow technology to aircraft design has created a large number of computational methods to predict and analyse transonic flows. The proof of validity and the refinement of such methods depend primarily on experimental results. Consequently errors inherent to data generated by any individual test facility may enter the computer codes thus restricting their applicability.

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Professor Dr. J.BARCHE
Chairman
Fluid Dynamics Panel Working
Group 04

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1. INTRODUCTION AND OVERVIEW OF CONFIGURATIONS

by

Jürgen Barche

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1.1 Objectives and Scope of Work

The well-known economical advantages of applying transonic flow technology to aircraft design has created a world-wide interest in methods predicting and analysing such flows. Consequently, a large number of computer codes exist today reflecting past and present theoretical and numerical standards in the solution of the basic flow equations. Since proof of validity and refinements of computational methods are primarily based on experimental results, errors inherent to data generated by any individual test facility may easily enter a computational method thus restricting its general applicability and compatibility.

To improve the applicability of transonic technology to practical aircraft design the AGARD Fluid Dynamics Panel (FDP) established the Specialist Working Group WG 04:

EXPERIMENTAL DATA BASE FOR COMPUTER PROGRAM ASSESSMENT

with the

OBJECTIVES

"To assess, screen and identify the highest quality 2-D (section) and 3-D (wing-body) data available, particularly in the transonic speed regime, which is urgently needed as reference data in the development and refinement of costly computer programs for aircraft design. Data will be analysed with consideration for relevancy to geometric configurations suitable for analytic comparison needs, test instrumentation, procedures, conditions, corrections, and adequacy of range of test variables."

As a consequence of the urgent need for the Data Base a period of only one year was given the Group to accomplish its task. To guide the Working Group FDP defined the

SCOPE OF WORK

"The Group will recommend at the earliest possible date the best 2-D and 3-D data available, if acceptable as a base data set, and provide detailed geometric descriptions of models. The Group will define required additional testing to establish adequacy of and confidence in the data. A programme of action will be recommended including which facilities should be utilized to obtain the needed data in an expedient manner without excessive demands on any one country or facility. The final selected data will be published as an AGARD report."

1.2 Group Members and Meetings

To assess, screen and identify the highest quality data available for the Data Base and to assemble these data into a final report specialists in theoretical and experimental transonic flow research have been nominated by the delegates of the Fluid Dynamics Panel. The WG thus formed had the following members:

T.W. Binion	ARO-AEDC	USA
G. Bucciantini	Aeritalia	Italy
P.J. Bobbitt	NASA-Langley	USA
H. Körner	DFVLR-Braunschweig	Germany
M. Monnerie	ONERA	France
L.H. Ohman	NAE	Canada
J. Slooff	NLR	Netherlands
E. Stanewsky	DFVLR-Göttingen	Germany
H. Viviani	ONERA	France
K.G. Winter	RAE-Bedford	UK

The Group was chaired by

J. Barche	DFVLR-Göttingen	Germany

and assisted by numerous specialists from industry and research institutes of various countries.

To accomplish the tasks two meetings were arranged. The first one was held at AGARD-Headquarters at Neuilly, France, during Dec. 8 through Dec. 10, 1976. Here evaluation criteria were established, and configurations and data previously submitted by the members were reviewed and a pre-selection carried out according to these criteria. The second meeting was hosted by ONERA at Modane from Sept. 22 through Sept. 24, 1977. Topics of this meeting were the final selection of configurations and data to be included in the Data Base,

recommendations for additional testing on existing and new configurations and the set-up of guide lines and a final time schedule for the preparation of this AGARD report.

1.3 Overview of Configurations

1.3.1 Evaluation and classification

To select the highest quality data from all data submitted by the WG members, a general set of EVALUATION CRITERIA was used covering items related to (see Table 1.1)

- the type of model
- the actual model geometry
- the range of freestream conditions and testing techniques employed, and
- the wind tunnel and instrumentation used in gathering a specific set of data.

The application of the criteria was supported by questionnaires which had to be completed for each configuration submitted. These questionnaires also form the basis for the presentation of all information on models, wind tunnels, test environments, etc. in this report.

To facilitate the selection of data by a potential user, the configurations and associated data analysed and presented here are divided into three categories:

- two-dimensional configurations (airfoils)
- wings and wing-body combinations, and
- body-alone configurations.

The data for each category are presented in Appendices A, B, and C, respectively, with a "Guide to the data" preceding each set of configurations.

1.3.2 Two-dimensional configurations

The final selection of two-dimensional configurations was based on the criteria listed in Table 1.1 with emphasis, however, placed on the knowledge of

- the transition location
- the magnitude of wall interference corrections and
- the availability of measured boundary conditions, and on
- the number of facilities in which a model was tested.

The model uniqueness was used as an additional criterion of same weight in order to provide a wide range of test cases without, however, disregarding the criteria mentioned above.

The list of two-dimensional configurations finally selected starts with the conventional airfoil NACA 0012 which has been and still is widely used as reference model for the investigation of wall interference effects.

The symmetrical shock-free supercritical airfoil NLR QE 0.11-0.75-1.375, designed by the Nieuwland Hodograph method, was tested specifically to verify experimentally the existence of shock-free supercritical flow.

The CAST 7 is a 12% thick supercritical design of moderate rear loading. The data set for this airfoil includes results from boundary-layer profiles and tunnel wall pressure measurements as well as surface pressures. The NLR 7301 represents with 16.5% the thickest of all supercritical airfoils submitted. For the supercritical configuration SKF 1.1 data with extended maneuver flap are included while for the subcritical design RAE 2822 a set of boundary layer data is provided covering subcritical as well as supercritical local flows with at least one example of shock induced boundary layer separation. For the supercritical airfoil NAE 75-0.36-13.2, designed for low lift, upper and lower wall pressures are included. The MBB A3 is the thinnest airfoil of the set (8.9%); furthermore, the supercritical wing of the 3-D configuration "MBB-AVA Pilot Model" of data set B3 is based on this airfoil. Similarly airfoil 9a, the last in the list of 2-D configurations and a Whitcomb design, is used on the TF-8A supercritical wing research airplane, presented as data set B5.

The airfoils included here together with characteristic geometric parameters and particular features of a specific data set are listed in Table 1.2; the complete data sets are given in Appendix A.

1.3.3 Three-dimensional configurations

Due to the increased complexity of testing and computing three-dimensional flows, the number of 3-D configurations found adequate for inclusion into the Data Base was less than the number of 2-D configurations. It is assumed, however, that the five configurations and associated data selected represent a sufficiently wide range of geometries and experimental results to allow an assessment and future refinement of three-dimensional computational methods.

As simplest examples of three-dimensional flows two half-wing models have been included. The first one is the low aspect-ratio wing ONERA M6 tested over a wide range of Reynolds numbers. The second, the ONERA AFV-D with a rectangular planform, was tested at sweep angles between zero and 60° with corresponding aspect ratios of 2.7 to 8, respectively. Wing-body interference effects are demonstrated and can be assessed by the results for the wing-fuselage configurations "MBB-AVA Pilot Model" with a wing based on the supercritical airfoil MBB A3 of data set A8 and the "RAE Wing A". Both models represent rather low aspect ratio designs. The supercritical wing research airplane TF-8A - AR = 6.8 - was chosen as an example of a complete model with vertical and horizontal tail. The model was developed for flight-testing a wing based on the Whitcomb supercritical airfoil of data set A9.

The three-dimensional configurations included here are listed in Table 1.3; the complete data sets are presented in Appendix B.

1.3.4 Body-alone configurations

It was also felt that experimental results for representative body-alone configurations should be included here. Four configurations were selected. The first, an ogive-circular-cylinder model, represents a typical missile-type body while the second, MBB-AVA Body of Revolution, is more representative of an aircraft fuselage. The latter model was used extensively to investigate the influence of various aft-body shapes on the flow development. The NAE T3, a cone-cylinder model, and the ONERA C5, a body of revolution with a distribution of cross section area representative of a complete transport type aircraft, were extensively used to study wall interference effects.

The body-alone configurations included are listed in Table 1.4; the data sets are given in Appendix C.

EVALUATION CRITERIA

Table 1.1

- TYPE OF MODEL
 - Application of data
 - Complexity of model
 - Type of design pressure distribution
 - Pressure gradients in the supersonic region
 - Sustained adverse pressure gradients and demand on boundary layer
 - Presence of shock waves
 - Sensitivity to changes in Reynolds number and location of transition
 - Type of geometry
- ACTUAL MODEL GEOMETRY
 - Accuracy in determining actual model geometry
 - Deviations from desired geometry
 - Aeroelastic effects
- RANGE OF FREESTREAM CONDITIONS AND TESTING TECHNIQUE
 - Freestream conditions
 - Mach number
 - Model attitude
 - Reynolds number
 - Temperature equilibrium
 - Testing technique
 - Transition, free or forced
 - Location and type of transition fixing
 - Transition verification
- WIND TUNNEL AND INSTRUMENTATION
 - Test section/model size
 - Tunnel width/model span
 - Tunnel height/chord
 - Blockage ratio
 - Wall corrections applied
 - Flow quality in test section proper
 - Length/test section height
 - 2-D aspect ratio
 - Was model tested in other tunnels or in free flight
 - Agreement of results

Table 1.2

TWO-DIMENSIONAL CONFIGURATIONS			
no.	designation	test facility ¹⁾	remarks
A 1	NACA 0012	ONERA S3MA NAE 5x5 ft,2-D insert	conventional symmetrical airfoil, $t/c = 12\%$, widely used to determine wall corrections, high Re-data and W/T wall pressures included
A 2	NLR QE 0.11- 0.75-1.375	NAE 5x5 ft,2-D insert NLR Pilot Tunnel	shock-free symmetrical airfoil, $t/c = 11.7\%$, high Re-number data included, design $M_\infty = 0.786$ (theory)
A 3	CAST 7	DFVLR 1x1 Meter DFVLR TWB ARA 18"x 8"	shock-free supercritical airfoil, moderate rear loading, $t/c = 11.8\%$, design: $M_\infty = 0.76$, $C_L = 0.57$, wall pressure and boundary layer data included
A 4	NLR 7301	NLR Pilot Tunnel	aft-loaded shock-free supercritical airfoil, $t/c = 16.3\%$, design (theory): $M_\infty = 0.721$, $C_L = 0.60$ thickest airfoil of the set
A 5	SKF 1.1	DFVLR 1x1 Meter ONERA S3MA	supercritical airfoil with maneuver flap, $t/c = 12.07\%$, design: $M_\infty = 0.769$, $C_L = 0.532$, W/T wall pressures included
A 6	RAE 2822	RAE 8x6 ft	rear loaded, subcritical airfoil, $t/c = 12.1\%$, design: $M_\infty = 0.66$, $C_L = 0.56$, B/L measurements for sub- and supercritical conditions included
A 7	NAE 75-0.36-13.2	NAE 5x5 ft,2-D insert	low-lift supercritical airfoil, $t/c = 13\%$, design: $M_\infty = 0.75$, $C_L = 0.36$, high Re-data and wall pressures included
A 8	MBB A 3	ARA 18"x 8" Politecnico Torino (PT)	shock-free supercritical airfoil, $t/c = 8.9\%$, design: $M_\infty = 0.75$, $C_L = 0.58$, thinnest airfoil of the set, used on wing of data set B 3, pressure distributions near top and bottom W/T wall included
A 9	Airfoil 9a	NASA-Langley 8 ft	supercritical airfoil, $t/c = 10\%$, design: $M_\infty = 0.79$, $C_L = 0.70$, airfoil used on TF-8 A supercritical wing research airplane - see data set B 5 -

1) only facilities for which data are included are listed

Table 1.3

THREE-DIMENSIONAL CONFIGURATIONS			
no.	designation	test facility ¹⁾	remarks
B 1	ONERA Wing M 6	ONERA S2 MA	half wing, $AR = 3.8$, $\Lambda_{LE} = 30^\circ$, $TR = 0.562$, peaky profil ONERA D, Re-numbers between $1.5 \cdot 10^6$ and $15 \cdot 10^6$
B 2	AFV-D Wing	ONERA S2 MA	half wing, rectangular planform, variable sweep $0^\circ \leq \Lambda \leq 60^\circ$ $AR_{max} = 8$, peaky profil ONERA D
B 3	MBB-AVA Pilot Model	DFVLR 1x1 Meter	wing/body model, $AR = 4.5$, $\Lambda_{LE} = 35^\circ$, $\Lambda_{TE} = 14.25^\circ$, $TR = 0.33$, wing based on supercritical airfoil MBB-A 3 - see A8 -
B 4	RAE Wing A	RAE 8x6 ft	wing/body model, $AR = 6$, $\Lambda_{LE} = 36.65^\circ$, $\Lambda_{TE} = 22.34^\circ$, $TR = 0.33$, airfoil RAE 101
B 5	TF-8 A	NASA-Langley 8 ft Flight tests	wing/body/vertical and horizontal tail, $AR = 6.8$, $\Lambda_{25} = 42.34^\circ$, $\Lambda_{TE} = 35.10^\circ$, $TR = 0.36$, wing based on supercritical airfoil 9a - see A9 -

1) See foot-note of Table 1.2

Table 1.4

BODY-ALONE CONFIGURATIONS			
no.	designation	test facility ¹⁾	remarks
C 1	1.5 D-Ogive Circular-Cylinder	DFVLR 1x1 Meter	ogive: $L = 1.5D$, cylinder: $L = 20 D$, $D = 45 \text{ mm}$
C 2	MBB-AVA-Body of Revolution No.3	DFVLR 1x1 Meter	cubic fore and aftbody plus cylindrical center part, $L = 774 \text{ mm}$, $D_{max} = 120 \text{ mm}$
C 3	NAE Calibration Model T3	NAE 5x5 ft trisonic W/T	10° cone-cylinder model, overall $L/D = 12$, $D = 127 \text{ mm}$
C 4	ONERA Calibration Model C5	Ames 11x11 ft transonic W/T	body of revolution with elliptical nose, base diameter: 85.2 mm , max. diameter: 152.7 mm , $L_{total} = 1057.8 \text{ mm}$

1) See foot-note of Table 1.2

2. LIMITATIONS OF AVAILABLE DATA

by

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2.1 General Remarks

In making wind tunnel tests at transonic speeds for the purposes of aircraft design, emphasis is placed on the attainment of high Reynolds number in order to approach as near as possible to flight conditions. On the other hand, for the purpose of providing data to assist in the development of calculation methods the test requirements may be considered from a somewhat different point of view. It is quite clear, for the type of pressure distributions associated with modern wing designs, that viscous effects are significant even at full-scale Reynolds numbers; for example, it is not uncommon to find a reduction of as much as 20% in lift for a typical design condition compared to expectations from inviscid flow calculations. It is probably true to say that viscous effects will continue to be an important aspect of all subsonic aerodynamic designs in which the vital function is to decelerate the flow over a surface from the high velocity, which provides the lift, to the maximum pressure recovery at the trailing edge without flow separation. The more rapidly this deceleration can be performed, the greater the extent of the surface over which the lift can be maintained; hence, in general, the most successful design will be the one which achieves the most rapid pressure recovery without separation of the boundary layer. The consequence of this is that boundary-layer growth and its effects will be large. Any worthwhile calculation method will have to include the boundary-layer effects. Thus, for the purposes of validating calculation methods the requirement for achieving high Reynolds number may not be so great. Of course, the Reynolds number must not be so low that the character of the flow is changed, thereby demanding a completely different representation from that at the target full-scale Reynolds numbers at which the calculation methods must aim. In addition, the position of transition must be known.

The other dominant factor requiring attention is the test environment. It is unfortunate that the facilities required for testing at transonic speeds introduce two difficulties. Whereas the use of ventilated tunnels ameliorates the constraint effect of the walls, the precise nature of the boundary conditions at the walls is generally unknown and the fluctuating disturbances introduced into the flow are increased compared with solid walls. Experiments are required in which the constraint effects are not only small--even at the expense of reduced Reynolds numbers, on the basis of the argument above--but in which the boundary conditions are determined directly by flow-field measurements. As far as flow disturbances are concerned the emphasis so far has been placed too strongly on the measurement of pressure fluctuations and insufficiently on the identification, separately, of the vorticity-mode or acoustic-mode of the disturbance field. Further discussion of the various factors which may influence the reliability of the data is given in the following sections. Significant advances have been made in recent years toward a better understanding of some of these effects and further work is in progress.^{1*}

2.2 Flow Non-Uniformity

Spatial velocity and angularity gradients, of course, affect the flow uniformity and could be interpreted as local changes in wing twist or sweep. In general practice, wind tunnels are calibrated with an empty test section by measuring the centerline static pressure distribution from which the centerline Mach number distribution is calculated using an average total pressure measurement from the stilling chamber. Flow angularity is either inferred from upright and inverted model tests or, on occasion, from point measurements made with various types of probes. Rarely, however, are detailed spatial measurements of the velocity and flow angularity fields made in regions occupied by typical models. For most test objectives these presumably small gradients may be of little consequence. For precise data assessment, however, they can be significant. The flow uniformity information which does exist on each of the tunnels is given with the respective data sets.

2.3 Three-Dimensional Effects in Two-Dimensional Tests

The influence of the walls normal to the span (the sidewalls in most instances) has not been studied adequately in two-dimensional (2D) tests. For a lift-curve slope of 2π the simple model of Preston² gives as the downwash correction at the centerline of an airfoil of aspect ratio A, spanning a tunnel of width b, with displacement thickness of the boundary layer on the sidewalls δ^* , as

$$\frac{\Delta\alpha}{\alpha} = -\frac{4}{A} \frac{\delta^*}{b} \quad (1)$$

*Superscript numbers refer to references listed at the end of each section of the report.

Preston's model does not correspond closely to experiments. The results of Bernard-Guelle³ and the more recent unpublished work by Chevallier at ONERA have led to an approximate empirical result

$$\frac{\Delta C_L}{C_L} \approx -3 \frac{\delta^*}{b} \quad (2)$$

which appears to be independent of the airfoil aspect ratio. The result holds only for flow with no strong shock waves. For supercritical flows the magnitude of the constant of proportionality varied rapidly between zero and 8 with angle of attack and Mach number. At present, there is no theoretical basis for a data correction nor any evidence that the empirical corrections devised are directly applicable to other facilities. However, values of the ratio of the displacement thickness of the boundary layer on the sidewall to the semi-width of the tunnel are given in the data sets so that the effect may be evaluated when a reliable method for doing so is devised.

It is known that three-dimensional (3D) effects readily develop in the turbulent boundary layer of flows which are nominally two dimensional. This three-dimensionality is likely to be amplified by interaction with a shock wave or in a separated flow. In a definitive experiment it is, therefore, essential to determine spanwise variations of the boundary-layer properties and to eliminate them if possible. Spanwise variations can arise from variations in transition position caused by irregularities in the free stream, in the airfoil surface, or in a transition trip. For the two cases (A3 and A6) for which boundary-layer results are presented the measurements do not satisfy the simple form of the boundary-layer integral momentum equation. For A3 the discrepancies are irregular; but, for A6, in accordance with boundary-layer experiments for other airfoils, the measured growth of momentum thickness in regions of adverse pressure gradients tends to exceed that calculated from the measured shape parameter, skin friction, and pressure gradient. In the past this type of discrepancy has been variously attributed to the effects of the normal stress terms omitted from the momentum equation, to the effects of normal pressure gradients, or to convergence of the flow. The explanation is not identified in the present data; however, because the measurements are made over an appreciable spanwise extent, flow convergence is unlikely to be the full explanation. It is important that the effect should be explored further in future measurements.

2.4 Support Interference for Complete Model Tests

Examples have been published where major influences of the effect of the model-support sting have been shown on afterbody and tail-surface pressure⁴ and on afterbody drag.⁵ These examples were, however, rather extreme in that the insertion of the sting into the models involved large distortions of the aft end, and the stings passed beneath the tail-planes in fairly close proximity. The configurations (B3, B4, B5) of the present data sets which were sting supported all had relatively large bases and it was not considered necessary to include information on the geometry of the stings.

2.5 Aeroelastic Effects

The term aeroelastic in the context of this report means the static deformation of the test article caused by the aerodynamic loads. The aeroelastic problem is to determine the deformed coordinates and attitude of the test article at the test conditions of interest. The aeroelastic effects can be manifested in the 2D case as spanwise changes in incidence and distortion of the airfoil and in the 3D case as changes in attitude, dihedral, wing twist and chordwise deformations. The deformations are aggravated under conditions of high dynamic pressure, thin wings and swept wings. However, most 2D wind tunnel models are relatively short span and solidly constructed so that aeroelastic deformations are negligible. A possible exception is the thin-trailing-edge, rear-loaded configurations which would be affected by aeroelastic deflection of the rear portion of the airfoil, if it occurs. For 3D models, wing bending, wing twist, and model support deflections can significantly affect the model coordinates and attitude. State-of-the-art correction methods⁶ generally require the specification of stiffness coefficients applicable to the particular configurations. Aeroelastic corrections have been applied to the RAE wing model (B4), and wing-bending data are presented for the NASA F-8A model (B5).

2.6 Flow Unsteadiness

Of the three modes of flow unsteadiness--turbulence, noise, and temperature spottiness--noise appears to be the most important in present transonic wind tunnels.⁷ However, the measurement of turbulence at transonic speeds is not straightforward, and the information in most transonic tunnels is limited to measurement of pressure fluctuations. Although there is still no completely reliable method of predicting boundary-layer transition location for the general case with various types of disturbances, it is well established that tunnel noise does influence transition location,⁸ presuming of course transition is not fixed by mechanical roughness. Hence, for those cases in which the unit Reynolds number is below about 3×10^7 per meter, noise can have, indirectly, a significant effect on measured data. The noise influence can perhaps be characterized by an "effective" Reynolds number for non-laminar boundary layers. Unfortunately, a priori definition of the proper effective Reynolds number is not yet possible.⁹ Much more understanding of the physics of boundary-layer/turbulence/noise interaction is needed before the effective Reynolds number concept can be used with confidence for transonic testing. Turbulence/

noise information has been given, when available, for the data presented. It is hoped that at some later date this information may be used to assess the turbulence/noise effects on the data with free transition.

Although there are indications^{10,11} that free-stream turbulence can have an influence on attached boundary layers and may affect the conditions for separation onset, neither effect has been fully investigated. There is little evidence to show that noise, after it affects transition location, further affects either the development of the turbulent boundary layer or separation, per se. Experiments dealing with this problem have produced either inconclusive or negative results.¹²

2.7 Wall Interference

Perhaps the largest unknown in the data presented herein is the effect of wall interference. In classical wall interference theory¹³ the wall interference effects were manifested as an incremental velocity (blockage), incidence (upwash), drag (bouyancy), and lift and pitching moment (streamline curvature). The magnitude of the corrections is dependent upon the test section shape, wall geometry, and a model-to-tunnel-size parameter. The theory has been successfully applied to relatively low-speed solid and open wall wind tunnels in which the wall boundary conditions are well known (zero velocity normal to the wall or constant boundary pressure for the solid or open wall, respectively), and the model could be represented by a single vortex or doublet. With the advent of the ventilated wall wind tunnel in the late 1940's, the concept of a homogeneous wall boundary condition was introduced^{14,15} in which the discrete wall slots or holes were replaced by an equivalent homogeneous wall. However, independent verification of the homogeneous concept has never been satisfactorily demonstrated even at low speeds.

In those cases in which the theory has been used, the equivalent homogeneous boundary condition was determined numerically to satisfy empirical criteria, i.e., the boundary condition was used as a best-fit constant. Concern about tunnel boundary effects in the transonic speed range has led to a re-examination, in recent years, of the ventilated wall interference at transonic speeds. The results¹⁶ reveal that the boundary condition is a strong function of the wall configuration and the boundary-layer development along the wall. The effect of the wall boundary layer appears so strong that its modification by the model-imposed pressure gradient is significant. Thus, not only is the boundary condition unique for a particular tunnel, it is also unique for the particular model-tunnel combination,¹⁷ and the test conditions, i.e., Mach number, model incidence, and Reynolds number.^{18,19,20} Since the transonic interference field is dependent upon the model shape, it is not appropriate to represent the model by a single vortex and doublet. The model must be represented by an appropriate distribution of equivalent thickness and lift. Although the test condition bounds are not clear, there are some cases with supercritical flow^{18,20} which do appear to be amenable to simple Mach number/incidence corrections. For cases in which the supercritical flow region cannot be considered small with respect to the tunnel dimensions, the corrections are no longer manifested simply as a blockage, bouyancy, upwash, and curvature effects, but as a more complicated distortion of the flow field,¹⁶ which can strongly influence the airfoil shock and separation pattern. In the worst cases there simply is not an equivalent free-air flow condition corresponding to the one the model is subjected to in the wind tunnel.

Unfortunately, precise quantitative assessment of the effects of wall interference in ventilated wind tunnels operating at transonic conditions is beyond the present state-of-the-art except in those two-dimensional cases in which sufficient measurements have been taken near the tunnel boundaries to allow realistic prescribed boundary conditions to be used.^{16,18} However, some qualitative information can be obtained from 2D inviscid analyses. TSFOIL developed by Murman, et al.,²¹ was employed to determine the possible sensitivity to wall interference of several of the airfoil/tunnel/test condition combinations presented herein. The analysis employs a finite difference solution to the transonic small perturbation equation for a 2D flow past a lifting airfoil in free air or with ideal homogeneous boundary conditions at the tunnel wall. It should be emphasized that the method cannot be considered exact because of the small-perturbation assumptions which are expected to be less reliable in a confined than in an unconfined flow. The treatment of shock waves is also not correct, no allowance is made for viscous effects, the test section is considered to be infinitely long, and the wall boundary conditions used are idealized for either porous or slotted walls as the case may be. It is convenient to characterize the tunnel boundary condition in terms of an ideal wall interference parameter, P , defined such that $P = 0$ corresponds to a solid wall and $P = 1$ corresponds to an open jet. For a slotted wall, P is a function of the tunnel semi-height and the number, width, and spacing of the slots, whereas for a porous wall, P is a function of Mach number, the pressure drop across the wall, and the velocity normal to the wall. Calculations have been made for free air, a solid wall ($P = 0$), $P = 0.2$ which corresponds to a slightly ventilated wall (perhaps a 0.5 to 1% porous wall or a slotted wall with four slots and 4% open area), and $P = 0.5$ which corresponds to a rather open tunnel (perhaps a 5% to 6% open, 60 degree, inclined hole wall, a 20% open normal hole wall or a slotted wall with 8 slots and 7% open area) which would have small blockage interference at subcritical conditions. These examples of wall configurations corresponding to $P = 0.2$ and 0.5 should not be construed as having any universal significance. Because of the many variables which influence ventilated wall crossflow characteristics, values of P for a given tunnel may deviate substantially from the examples cited.

The theoretical effects of variations in the homogeneous boundary condition for the RAE 2822 airfoil in a tunnel with a height-to-airfoil-chord ratio, H/c , of four is shown in Fig. 2.1. At subcritical conditions, Fig. 2.1a, the perturbed pressure distributions

exhibit the effects expected from classical theory. The flow over the airfoil is accelerated, compared to free air, in a solid wall tunnel and decelerated if the tunnel is too open. The magnitude of the interference only qualitatively conforms to classical theory which predicts zero interference in the neighborhood of $P = 0.5$. Simple classical theory does not, however, consider the effects of model thickness and lift distribution. The interference at $P = 0$ and 0.2 is well within experimental accuracy. At the supercritical condition, however, Fig. 2.1b, the interference is significant at all values of P . The fact that the terminal shock location with $P = 0$ and 0.2 agrees with the free-air location is fortuitous. Since the sonic line intersects the tunnel wall with $P = 0$ and 0.2 forming a bounded supersonic channel flow, the terminal shock must move to the airfoil trailing edge which is where the shock happens to be in the free air. The tunnel wall does cause a distortion of the supersonic region, compared to the unbounded case, which results in the increased static pressure over the airfoil upper surface. At the higher value of P , the boundary condition causes a sufficient decrease in local velocities so that the sonic line is much lower than the unbounded case.

Other calculations are available for the RAE 2822 airfoil at one condition which compare the pressure distribution obtained with wall constraint included and at an equivalent free-air condition. The equivalent free-air condition was obtained by applying the classical constraint and blockage corrections. The calculations were made with the RAE VISTRAN program,²² which includes airfoil boundary-layer effects, combined, in the case of wall constraint included, with the method of Catherall.²³ The comparison is shown in Fig. 2.1c where it can be seen that apart from the region of the shock wave on the upper surface there is good correspondence between the two calculations. It would, however, be dangerous to generalize from this one example that such good correspondence could be obtained for all conditions with supercritical flow.

The theoretical interference at zero lift is illustrated in Fig. 2.2 for the NLR QE 0.11-0.75-1.375 airfoil in tunnels with $H/c = 3$ and 6 , respectively. In each case the interference closely resembles classical theory in that the interference is negligible at $P = 0.5$. The calculations also imply that $H/c = 6$ is sufficiently large to avoid interference effects regardless of the boundary condition. This is not the case at lifting conditions, however, as shown in Fig. 2.3 where the interference on the Cast 7 airfoil is presented for $P = 0.2$ and 0.5 and several values of H/c . At $P = 0.2$, even at conditions in which the sonic line does not reach the wall, the calculations indicate the tunnel is too open to attain the correct expansion over the upper surface and that $H/c = 6.6$ is not large enough to make the interference negligible. The situation is worse with $P = 0.5$.

Finally, the calculations shown in Fig. 2.4 are presented to illustrate that it is difficult to generalize, even with a homogeneous boundary condition, the effects of wall interference at supercritical conditions. The SKF 1.1 and Cast 7 airfoil have very similar contours; yet, comparison of Figs. 2.4a and b shows the interference can be somewhat different for the same test and boundary condition. In order to provide some feel for the magnitude of the interference effects, calculations were also made using TSFOIL to determine the free-air conditions corresponding to the pressure distributions obtained for the Cast 7 airfoil with $P = 0.2$ and 0.5 at $M_\infty = 0.76$, $\alpha = 0.2^\circ$, Fig. 2.4b. For $P = 0.2$ the equivalent free-air condition is $M = 0.77$, $\alpha = -0.2^\circ$; whereas, for $P = 0.5$ the equivalent free-air condition is $M = 0.77$, $\alpha = -0.7^\circ$. To obtain the free-air data at $M = 0.76$, $\alpha = 0.2^\circ$, the test with $P = 0.2$ and 0.5 should be conducted at $M = 0.75$, $\alpha = 0.7^\circ$ and $M = 0.76$, $\alpha = 1.8^\circ$, respectively.

Unfortunately, interference calculations for 3D models at transonic speeds is beyond the state-of-the-art. It is felt, however, that H/c and the extent of the supercritical region are the critical parameters for the assessment of wall interference. Both of these factors are much more favorable for the 3D data presented herein than they are for the 2D data. Thus, it is expected that the wall interference effects are significantly less in the 3D data.

Blockage factors were calculated for the body of revolution data with the largest blockage ratio, C-1, using a subsonic theory with the Prandtl-Glauert correction.²⁴ The results indicate perturbations in C_p of less than 10^{-2} at free-stream Mach numbers equal to or less than 0.9 .

2.8 Wave Reflections

The only evidence of wave reflections affecting the data is contained in the pressure distributions from the bodies of revolution, Appendix C. Each body which was tested at Mach numbers greater than unity was disturbed by waves reflected from the tunnel wall. The disturbed regions at zero incidence are quite evident and should pose no interpretation problem. The data upstream of the wave-model intersection are, of course, not affected. At supersonic Mach numbers and non-zero incidence, however, pressure gradients appear along the bodies which, although caused by shed vortices, resemble disturbances caused by spurious waves. Thus, the effects of reflected waves are not so evident in those cases, and the data should be interpreted carefully.

2.9 Measured Boundary Conditions

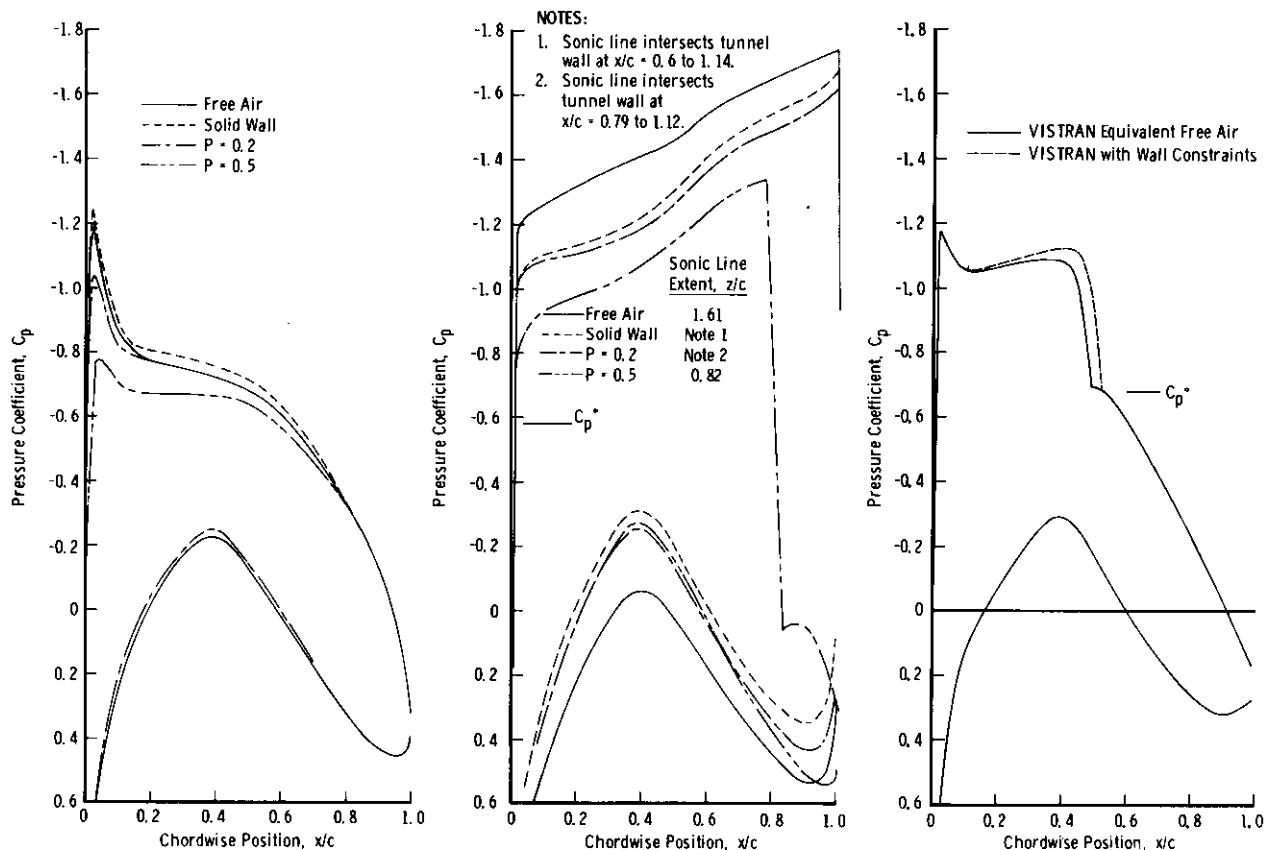
Five sets of the 2D data (A1, A3, A5, A7, and A8) contain pressures measured along or near the tunnel walls. These data, along with an appropriate assumption regarding the upstream and downstream velocity profiles, provide an outer boundary condition for the theoretical calculations which contains the effects of the tunnel walls. Theories which employ the measured boundary conditions should provide more physically realistic solutions than those which do not. It should be recognized, however, that significant local

gradients can occur in the wall pressures for a number of reasons not associated with the model-induced flow field. In addition, while three techniques have been used to measure the boundary pressures--orifices in the wall (A1, A3, and A5), orifices in an elliptical rail parallel to the free stream (A7), and a traversing static probe away from the wall (A8)--an investigation has not been conducted to determine if either method is satisfactory to measure the static pressure in the highly non-uniform velocity fields which can exist along the walls above and below the model. Thus, it seems justifiable for the user to employ a smoothed version of the wall pressure distribution, if necessary, to avoid numerical instability problems in the theoretical solutions.

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a. $M_\infty = 0.6$, $\alpha = 2.57$ deg b. $M_\infty = 0.75$, $\alpha = 3.19$ deg c. $M_\infty = 0.725$, $\alpha = 2.62$ deg

Fig. 2.1 Theoretical Wall Interference, RAE 2822 Airfoil, $H/c = 4$

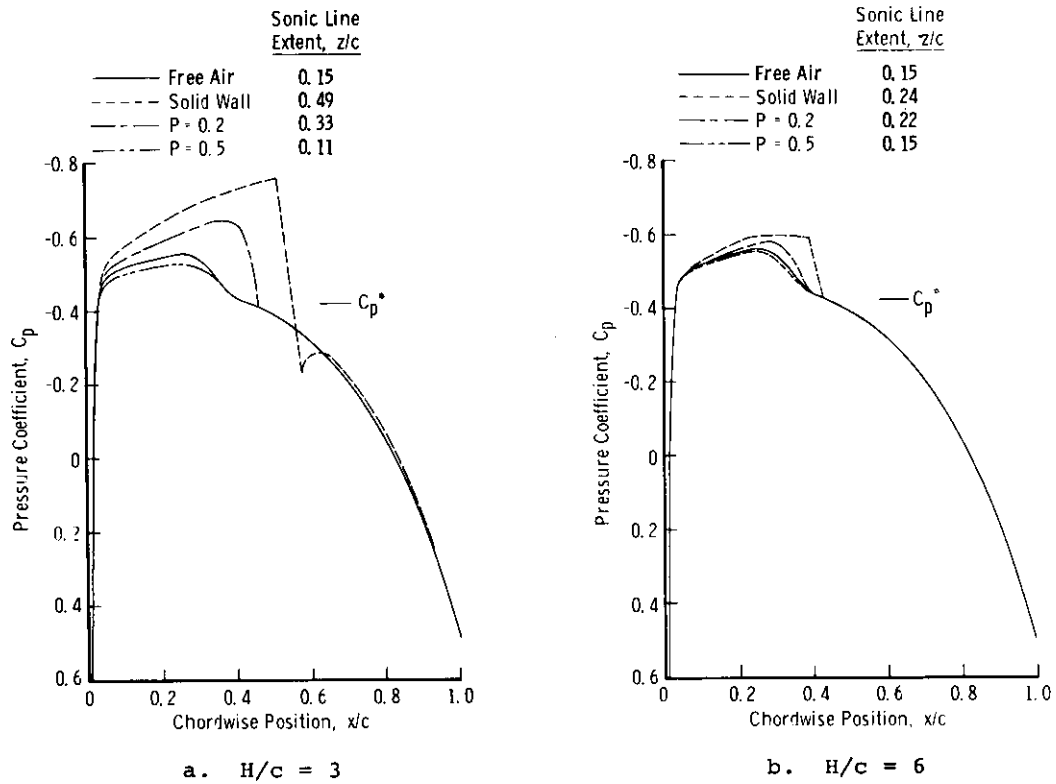


Fig. 2.2 Theoretical Wall Interference Effects on NRL QE 0.11-0.075-1.375 Airfoil, $M_\infty = 0.8$, $\alpha = 0$

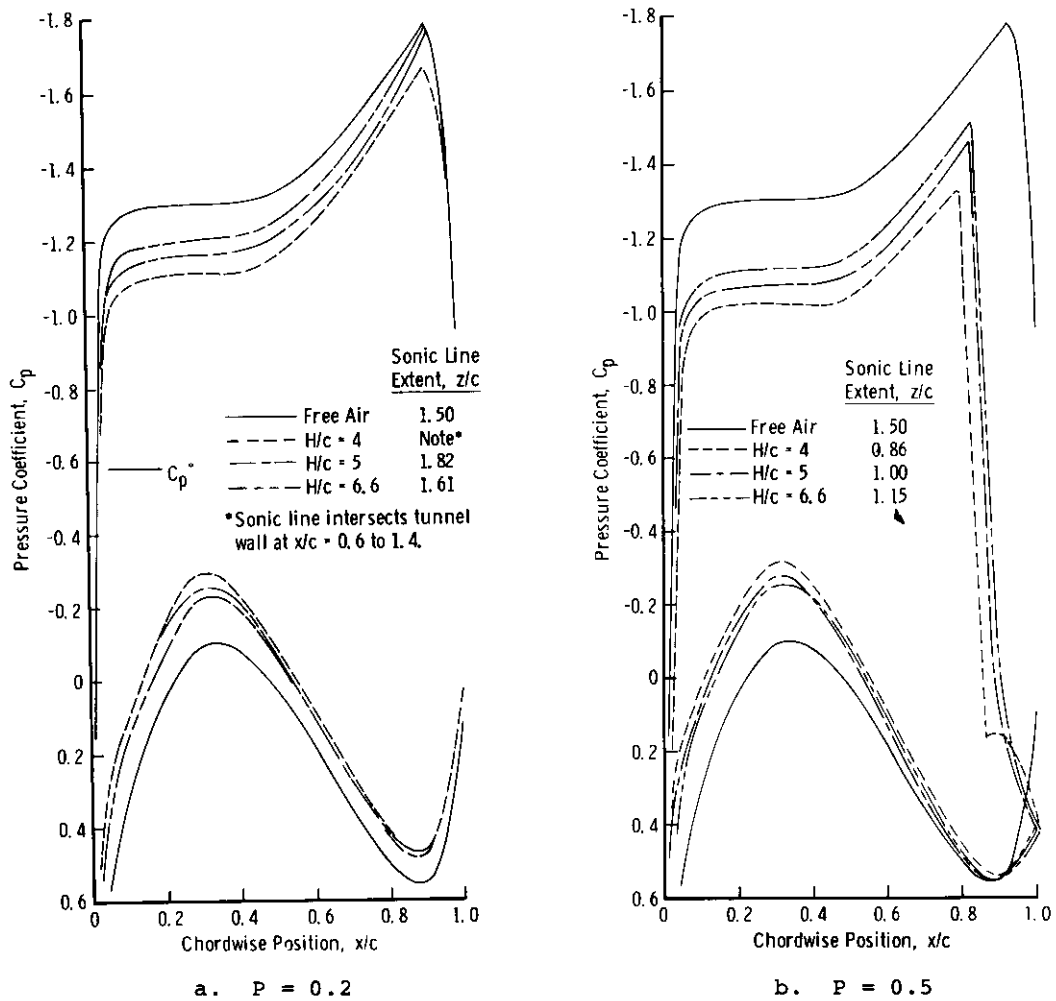


Fig. 2.3 Theoretical Effect of Tunnel Height on 2D Cast 7 Airfoil, $M_\infty = 0.76$, $\alpha = 1.5$ deg

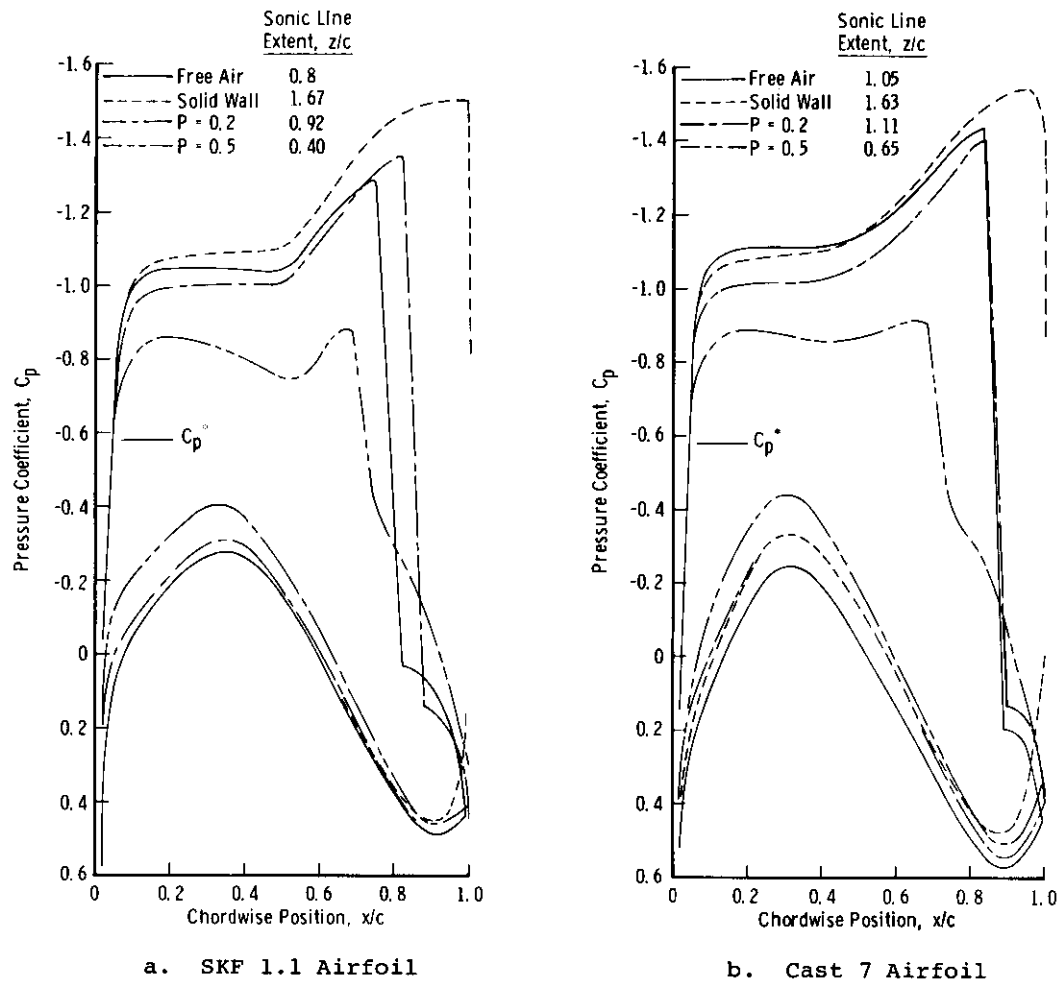


Fig. 2.4 Theoretical Wall Interference, $M_\infty = 0.76$, $\alpha = 0.2^\circ$, $H/c = 5$

3. RECOMMENDATIONS FOR FUTURE TESTING

by

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3.1 General remarks

In the terms of reference of the Working Group it was stated that "The group will define required additional testing to establish adequacy of and confidence in the data and will specify the preferred measurable parameters and method of presentation to enhance the usefulness and utilization of results. A programme of action will be recommended including which facilities should be utilised to obtain the needed data in an expedient manner without excessive demands on one country or facility." Having assessed the most suitable data available the Group concludes that, although some recommendations for specific improvements to the test data can be made, the assessment indicates that there is a need for refined test cases for future use and suggestions for such test cases are made accordingly.

It should be stated that the emphasis in the recommendation is on the acquisition of highly reliable data for the intended purpose of the Working Group. This emphasis leads to an outlook different from that which would be reached if the purpose were intended to lead to improvements in tunnel techniques in general testing or to the acquisition of data for design purposes.

3.2 Two-dimensional tests

In the design of practical wings for aircraft it is clear that a successful outcome will result only if the design process takes full account of the three-dimensional features of the flow, the planform, the camber and twist, the thickness variation and the influence of the body. For a low aspect ratio wing these features will have a dominating influence and the performance of an isolated section may not have a direct correspondence to a section in the wing; on the other hand for a wing of high aspect ratio, sections in the mid semi-span region will have characteristics closely related to those of the section in two-dimensional flow. For such wings it is appropriate to utilise two-dimensional tests and calculations as a starting point for wing design. Thus, there is a need for reliable test results to validate calculation methods. For this purpose an ideal test should take place in interference-free and disturbance-free flow, should cover a range of conditions and should include measurements of pressure distribution, drag by wake traverse and determination of boundary-layer properties.

As noted in Chapter 2, there are still some uncertainties as to what constitutes the appropriate wall correction for each case. However, for those cases in which wall boundary conditions have been measured, a basis does exist for applying the correction, the finite-difference calculations now becoming available providing a more refined means of assessment than has been possible in the past with the classical methods. For a solid-wall tunnel, given the upstream conditions approaching the model, the boundary conditions are fully specified at the wall, provided the wall boundary-layer displacement surface is known. If the wall boundary layer can be ignored, the boundary conditions are of course specified by the zero normal velocity at the wall. In this case measurement of the wall-pressure distribution gives a means of checking the calculated interference. Alternatively by representing the measured perturbations at the wall by an appropriate singularity distribution the interference at the model may be calculated for subcritical flows. For a ventilated tunnel the technique proposed by Mokry et al¹ uses measured pressures to deduce wall porosity, by matching the pressures to a theoretical model of the interference. To provide a check on this type of estimation for a ventilated wall, equivalent to the zero normal velocity condition for a solid wall, measurements of v as well as u near the wall are required. Such measurements could also be used to derive directly the wall boundary conditions. It is therefore suggested that for a datum test case the full boundary conditions should be measured including determination of the flow upstream and downstream of the model. To make use of these boundary conditions a complete finite-difference flow-field calculation would be required. For flows with shock waves it is by no means clear that the outcome would be a set of tunnel corrections. Because of the non-linear nature of the problem, it is possible that there are some cases of constrained flow for which there exists no corresponding free-air solution which approximates the constrained flow with acceptable accuracy. In these cases the free flow could only be obtained by a further calculation, so that the tunnel tests essentially become a step in the development of a calculation method.

It is observed in Chapter 2 that a further possible shortcoming of the test results is the presence of three-dimensional effects arising either from the influence of the side-wall boundary layer or self-induced in the aerofoil boundary-layer flow. A reliable test case should explore these effects. Thus the main recommendation is that a datum test should be undertaken in which the following measurements be made:

- (1) The boundary conditions for the inviscid flow in the vicinity of the roof and floor
- (2) Upstream and downstream boundary conditions
- (3) Determination of sidewall boundary-layer thickness for at least two values of the thickness changed, for instance, by applying suction
- (4) Flow disturbance level including identification of acoustic and vorticity contributions

- (5) Aerofoil pressure distribution and its spanwise variation
- (6) Drag by wake traverse and its spanwise variation
- (7) Boundary-layer development
- (8) Wake development near the trailing edge
- (9) Determination of the aeroelastic deformation of the aerofoil

The full set of measurements above are intended for a test to be undertaken in a two-dimensional test facility. If the measurements could be made in a self-correcting wind tunnel, in which the condition of zero interference caused by the tunnel walls which are parallel to the span of the aerofoil could be demonstrated, then, of course, measurement (1) would be incidental to the correction procedure. The datum test could, however, be made in a general purpose wind tunnel of size 2 to 3m (for example the NASA Langley 8-foot Tunnel, Ames 11 foot Tunnel or ARA 9 foot x 8 foot Tunnel) on an aerofoil of relatively small chord, say 0.3m. Because both the tunnel height : model chord ratio and model aspect ratio would then be of the order of 10, the constraint and blockage effects and sidewall interference effects should be small, reducing the importance of making measurements (1), (2) and (3) but because of the high aspect ratio measurement (9) would be important. The minimum test conditions should include both a case with a wholly subcritical flow and a case with a supercritical flow with a strong shock wave. The chosen aerofoil should be of advanced design and could be one of those for which data are already presented in this report (eg A3, A7, A8 or A9, with the extensive tests already made on A3 making it a prime candidate.) The achievement of a high Reynolds number would be advantageous but is not an over-riding criterion and would be restricted by the considerations of the load on a model of such high aspect ratio. The Reynolds number should however be sufficiently high that transition can be fixed without resorting to an excessively large trip. The use of air jets for tripping should be considered.

The above proposal is expensive and ambitious. A compromise is to see how far the present data might be improved. The cases for which the proposal is most nearly met are A3, A6, A7 and A8. For A3 the measurement of boundary conditions in the DFVLR 1m x 1m tunnel, in which the boundary layer measurements were made, would make this a more complete test case. For A6 no measurements of boundary conditions were made and there would be some difficulty in doing so because the tunnel has only 5 slots per wall, and several measurement positions would be required to ensure that an average condition was being determined. For A7 and A8 boundary conditions have in part been measured: the addition of boundary-layer measurements would further improve the usefulness of the data. There are however some reservations on A8 on account of the low Reynolds numbers of the tests for which the boundary conditions have been measured.

Other recommendations are that data should be sought for an aerofoil thinner than those in the current data base, (the lowest value of thickness-chord ratio is 9%) and that there is a general need for data containing results of boundary-layer measurements, including flows with separation.

3.3 Three-dimensional tests

The same type of recommendation as for two dimensions is made for a three-dimensional (wing-body) model. Of the five test cases selected B1 and B2 are half models without fuselage. B3 and B5 are aimed at aircraft design and only B4 had an initial aim of providing data on a wing-body combination with minimum wind-tunnel interference. The model has a blockage of 0.6%, a ratio of span to tunnel width of 0.375, and of mean chord to tunnel height of 0.08. However this case has the drawback that the wing does not have the type of pressure distribution appropriate to a modern design, the Reynolds number is also low - one million - although in the context of the wing section used this raised no problems because of careful attention to the choice of boundary-layer trip. Case B5, although of complex geometry, may be particularly valuable since the model represents an actual aircraft for which flight test data are available. Furthermore, the same model was tested in both the Langley 8 foot and 16 foot transonic tunnels. The data in B5 are from the 8 foot tunnel where special measures were taken to minimize blockage effects.

For the reasons given above it is felt justifiable to make a recommendation for two datum test series:

- (1) a wing-body combination with a wing of high aspect ratio, say 7 or greater and thickness 12% with 30° sweep
- (2) a wing-body combination with a wing of low aspect ratio, say 4 and thickness 6% with tapered planform and leading edge sweep 45°.

The models should have sections of supercritical type with aft-loading. It would be advantageous if at some conditions of the test a three-shock pattern were exhibited (forward and rear shocks inboard merging to a single shock outboard), since this type of flow is a severe test of calculation methods. Both models should be tested in a minimum interference environment say blockage less than 0.5%, and span : tunnel width less than 0.5 and tunnel height : chord ratio greater than 10. If possible the boundary conditions should be measured in the vicinity of all four walls. This would be a far more difficult task to accomplish than for a two-dimensional test and a compromise would probably have to be accepted of measuring only a static pressure distribution (and even this would not be

straightforward). The same comments apply, as for two-dimensional models, as regards Reynolds number. A minimum value of about 2×10^6 should be aimed at but even more care would be needed on the selection of the transition trip because of the wing taper and consequent variation of Reynolds number across the span. The aeroelastic distortion should be measured or estimated.

The model of case B3, tested in a larger tunnel, would provide an approximation to the second of the two proposed datum tests.

3.4 Bodies

The test cases provide a reasonable variety of geometry and have blockage ratio as low as 0.15%. Even so, as noted in Chapter 2, interference effects are present in most of the results and the occurrence of reflected disturbances limits the usefulness for Mach numbers near unity and above. A further shortcoming is that there is little information on boundary-layer development. It is however difficult to formulate a simple practical recommendation which would result in a significant improvement in the quality and usefulness of the information. On the basis of the analysis given by Binion² the results for configuration C4 (ONERA model C5) in the NASA Ames 11ft tunnel are virtually interference-free and this configuration therefore forms a good test case. The measurement of boundary-layer developments to complement the pressure distributions would provide a complete test case.

REFERENCES

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2	Binion T W	Tests of the ONERA Calibration models in three transonic wind tunnels. AEDC-TR-76-133. November 1976.

CONCLUDING REMARKS

by

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This report presents an experimental data base intended as support in the development of new and the refinement of existing computer codes in the transonic speed regime. The data are believed to belong to the "highest quality" experimental results available today. As is outlined in Chapter 2, however, there are certain limitations, which a user should keep in mind:

In analysing a large number of potential test cases a lack of information on the test environment was observed with the largest unknown being the effect of the test section wall interference on the flow about the test article. Calculations carried out on the basis of two-dimensional inviscid small-perturbation theory - see Chapter 2 - clearly demonstrate the appreciable influence of the geometry of the test section walls on the airfoil pressure distribution. Hence, to get the full benefit of the costly tests in transonic flow much more emphasis must be placed on reducing wall interference effects by optimizing the wall geometry and by establishing correction procedures that will produce results more presentative of free-air conditions.

Unfortunately, the precise quantitative assessment of the effects of wall interference in ventilated wind tunnels operating at transonic conditions is beyond the present state-of-the-art. An exception are those tests in which sufficient measurements have been taken near the tunnel boundaries - including velocity distributions upstream and downstream of the model - to allow realistic prescribed boundary conditions to be used in a computer code.

As is pointed out in Chapter 3, however, it is still doubtful that this information also might lead to a useful set of tunnel corrections if large supersonic regions with terminating shock waves are present.

To obtain more complete test cases for computer program assessment in the near future additional tests on two- and three-dimensional configurations are recommended in Chapter 3. The essence of the recommendation is that a datum test should be undertaken where the entire boundary conditions be determined, disturbance levels and their influence be identified and the effect of the side wall boundary layer thickness - in the case of the 2D tests - be investigated. Measurements should include surface pressures, wake traverses and the determination of the boundary layer and wake development. The additional testing could be directed towards supplementing the present data - prime candidates being A3, A6, A7, A8 and B3 ; see table 1.2 and 1.3 - or towards carrying out a full set of new measurements. The latter has the advantage that the model and test environment most appropriate for the present objective can be selected, while a disadvantage lies in the somewhat longer time it would take to realize a full set of new measurements.

In spite of the limitations of the present data and the need for additional testing, it is believed that the data base presented here will largely meet the set objective. This is mainly due to the fact that for all of the configurations selected a fairly large amount of information on actual model geometry, wall interference, wall boundary conditions and on test conditions as well as an estimation of the data accuracy is presented. This will enable the user to judge the merit of each individual data set and allow him to draw conclusions concerning the quality of and necessary refinements to his computer code.

APPENDIX A

2-D CONFIGURATIONS

0. Guide to the data

The objective of this data base being to compile, in the interest of the experimental verification of computational methods for 2-D transonic flows, the best available 2-D airfoil test data, much effort has been put in providing the potential user with all the available information on the geometrical and physical environments in which the airfoils were tested. This, supposedly, should help the user in forming his own judgement on the usefulness of each data set for his specific purpose.

For consistency and to facilitate the use of the data specific information on each data set has been put into one single format. The format contains information on model geometry, wind tunnel/model configuration (wall interference!), test set-up, test conditions, instrumentation, accuracy etc, as well as a guide to the actual data tables and graphs. Background information and additional remarks are given in the introduction to each data set. The (potential) user is, in his own interest, encouraged to take full notice of both the format and background information.

In order to help the user in selecting information to meet his needs from the nine different 2-D airfoil configurations included in this data base some important specific properties of the various configurations and tests are summarized below.

- Airfoil geometry

Of each airfoil either the actual measured coordinates are given or the nominal (theoretical) coordinates plus the deviation from those measured on the model. In this way one possible source of discrepancy between computational and experimental results is practically eliminated.

- Wall interference

Although in all cases it has been attempted to reduce wind tunnel wall interference as much as possible and to provide the best available data on wall interference corrections, there is, as mentioned already in Chapter 2 of this report, no absolute certainty about the real magnitude of wall interference effects. Where corrections have been applied, the method of doing this is indicated in order that the uncorrected data may be recovered, should the user wish to do so.

In two sets of data (A7, NAE tests and A8, Politecnico di Torino tests) this problem has been circumvented by measuring static pressures at a small distance from both the top and bottom ventilated walls. In data sets A3 (DFVLR TWB tests) and A5 (ONERA tests) pressures have been measured at the top and bottom walls. With the assumption of parallel flow at the reference static pressure point upstream of the model and at some distance downstream, and the assumption that the wall pressures are sufficiently representative for a "homogeneous" boundary condition, these data sets provide the possibility of solving the problem of an airfoil in a channel with given (measured) boundary conditions on the channel boundaries. In a comparison between computational results thus obtained and the experimental results, wall interference, as a source of discrepancy, may, in principle, be eliminated.

In two other sets of data (A1 and A2), concerning symmetrical airfoils at zero angle of attack, one type of wall interference, that due to lift, is absent. From the point of view of concern about wall interference effects these data sets are of special interest. For the remaining lifting cases possible discrepancies between theory and experiment due to lift-induced wall interference may, of course, be reduced by the familiar procedure of comparing for the same lift rather than for the same angle of attack. However, by doing so, the possibility is introduced of confusing tunnel interference effects and real airfoil (such as viscous) effects.

- Test conditions

In many practical applications it is often more important to be able to predict the variation of the aerodynamic coefficients with Mach number, angle of attack and Reynolds number than to predict the absolute level. For this reason most data sets contain one Mach number sweep at constant angle of attack, at least one angle-of-attack sweep at constant Mach number, and in one case (A3, TWB tests) also Reynolds number sweeps at constant angle of attack and Mach number.

Mach number sweeps of sufficiently wide range are contained by data sets A1, A2, A3, A4, A5, A7, A8, and A9. Angle-of-attack sweeps of sufficiently wide range can be found in A3, A4, A5, A7, A8 and A9.

At the practical level of airfoil design it is of equal if not even greater importance to be able to predict the difference between the aerodynamic characteristics of one airfoil and another. In aerodynamic testing this is, for obvious reasons, preferably established in one and the same wind tunnel. Checking the predictive capabilities of computational methods in this respect would seem very important if not a prerequisite. Although the present data base was not compiled for this specific purpose it contains several examples of different airfoils tested in one and the same tunnel;

NAE 5 x 5 ft: NACA 0012 (A1), NLR QE (A2), NAE 75-036-13.2 (A7)

ARA 8x18 inch : CAST 7(A3), MBB A.3(A8)
ONERA S3 MA : NACA 0012 (A1), SKF 1.1 (A5)
NLR Pilot Tunnel : NLR QE (A2), NLR 7301 (A4)

A special case is formed by the SKF 1.1 set (A5) which contains data for several flap deflections.

- Reynolds numbers

The data cover a Reynolds number range of $0.4 - 40 \times 10^6$.
"High Reynolds number" data ($> 10 \times 10^6$) can be found in data sets A1, A2, A3, A7,
"moderate Reynolds number" data ($4-10 \times 10^6$) in A1, A3, A5, A6, A8, A9,
"moderately low Re.no." data ($1-4 \times 10^6$) in A2, A3, A4, A5, A6 and
"low ($< 1 \times 10^6$) Re. no." data in A8.

- Transition position

A very important parameter for the aerodynamic characteristics of an airfoil, in particular in transonic flow, is the position of boundary layer transition. In view of the modest state of the art of transition prediction methods (due, of course, to the complexity of the mechanism of transition), data on the position of transition should form an essential part of an experimental data base for computer program assessment. In the following data sets the majority of data points was taken with transition fixed by a roughness strip: A2 (NLR data), A3, A4, A6, A9. In data sets A4 and A9 the boundary layer trip was positioned relatively far aft, so that under flow conditions with significant adverse pressure gradients near the leading edge natural transition may have taken place in front of the trip. In A4 it has been indicated when this was the case. The location of natural boundary layer transition was determined by means of flow visualization techniques in data sets A2 (NLR data) and A4. For the remaining data sets A1, A5, A7 and A8 the position of transition, if not evident from the pressure distribution, may be estimated by means of one of the prediction methods available in the literature. The uncertainty involved with such procedure should not be too large in cases with high adverse pressure gradients near the nose. More caution is required in cases of flat or slightly sloping pressure distributions.

- Boundary layer data

Boundary layer and wake data allowing the detailed comparison of computed and measured flow fields can be found in data sets A3 and A6.

It is finally mentioned that, in case further information on a specific data set is required, the formats contain the name and address of the person to be contacted at the organization that performed the wind tunnel tests.

1. NACA 0012 AIRFOIL

J.J. THIBERT, M. GRANDJACQUES - ONERA

L.H. OHMAN - NAE/NRC

1.1. Introduction

The NACA 0012 airfoil was selected for the following reasons :

- i. This airfoil has been tested in most wind tunnels in the world and these data can be used for comparisons with other test results.
- ii. Tests were performed at moderate Reynolds numbers in the ONERA S3MA wind tunnel and at high Reynolds number in the 2-D insert of the NAE 5 ft x 5 ft transonic wind tunnel, so there are differences between the two test configurations (height/chord ratio 3.71 versus 5 span/chord ratio 2.67 versus 1.27). The ONERA data include static pressure distributions on top and bottom walls which can be used to determine wall interference corrections.
- iii. The data at zero angle of attack (which are not affected by wall interference due to lift) for various Reynolds number are good tests for methods involving coupled inviscid flow and boundary layer computations.

ONERA S3MA data are given in section 1.2 while NAE data are given in section 1.3.

1.2. DATA SET FROM ONERA TUNNEL

1. Airfoil

1.1. Airfoil designation

NACA 0012

1.2. Type of airfoil

symmetrical (see fig. 1.11)

1.2.1. airfoil geometry

$$Y = \pm 0.60 (0.2969 \sqrt{X} - 0.126 X - 0.3516 X^2 + 0.2843 X^3 - 0.1015 X^4)$$

nose radius

0.0158 chord

maximum thickness

0.012 chord

base thickness

0.0025 chord

1.2.2. design condition

mathematical definition corresponding to pre-existing efficient airfoils

1.3. Additional remarks

none

1.4. References on airfoil

ref. 1

2. Model geometry

2.1. Chord length

0.210 m

2.2. Span

0.560 m

2.3. Actual model co-ordinates and accuracy

See table 1.1 and figure 1.1

2.4. Maximum thickness

0.1205 chord

2.5. Base thickness

0.0023 chord

2.6. Additional remarks

none

2.7. References on model

none

3. Wind tunnel

3.1. Designation

S3 Modane or S3 MA

3.2. Type of tunnel

blow down

3.2.1. stagnation pressure

variable between 1 and 4 bar

3.2.2. stagnation temperature

T_1 mean = 273 K varying slightly during a blow down
see figure 1.2

3.2.3. humidity/dew point

humidity < 0.5g H₂O / Kg air

3.3. Test section

rectangular See figure 1.3

3.3.1. dimensions

height = 0.78 m ; width = 0.56 m

3.3.2. type of walls

9.7 % perforated top and bottom walls. Solid side walls, separate top and bottom plenums, holes are normal to the flow direction

3.4. Flow field (empty test section)

3.4.1. reference static pressure

taken at side wall 8.19 chords upstream of the model

3.4.2. flow angularity

< | 0.05° |

3.4.3. Mach number distribution

see figure 1.4

3.4.4. pressure gradient

flaps (fig.1.3) are adjusted to give zero Mach number gradient between the leading edge of the model and the wake rake for the empty test section

3.4.5. turbulence / noise level

see figure 1.5

3.4.6. side wall boundary layer

$$\delta \left(\frac{U}{U_e} = 0.99 \right) = \begin{matrix} 60 \text{ mm for } M = 0.4 \\ 50 \text{ mm for } M = 0.6 \\ 43 \text{ mm for } M = 0.8 \end{matrix}$$

at 0.25 chords of the profile and $P_1 = 1.2$ bar

3.5. Additional remarks

none

3.6. References on wind tunnel

ref. 2 and 3

4. Tests

4.1. Type of measurements

- surface pressure
- wake pitot pressure
- top and bottom wall pressure distributions

4.2. Tunnel/model dimensions

4.2.1. height/chord ratio

3.71

4.2.2. width/chord ratio

2.67

4.3. Flow conditions included in present data base

4.3.1. angle of attack

4.3.2. Mach number

M	α° Force measurements	α° pressure measurements
0.3	-2 < α < +14	0/4
0.4	-2 < α < +12	-
0.5	-2 < α < +10	0/2/4/6/8
0.6	-2 < α < +9	4
0.7	-2 < α < +9	0/4
0.75	-2 < α < +7	0/1/2/3/4
0.8	-2 < α < +6	0
0.83	-2 < α < +6	0

4.3.3. Reynolds number

see figure 1.6

4.3.4. transition

- position of free transition
- transition fixing

Free

was not determined

none

4.3.5. temperature equilibrium

No

4.4. Additional remarks

the leading edge of the model is located 71 mm ahead of the origin of the wall pressure hole abscissa (window axis fig 1.4)
 see reference 4

4.5. References on tests

5. Instrumentation

5.1. Surface pressure measurements

5.1.1. pressure holes

- size
- spanwise station (s)
- chordwise positions

$\phi = 0,4$ mm ; depth 1 to 2 mm

See figure 1.7

See table 1.2

5.1.2. type of transducers and scanning devices

+ 25 PSI Statham differential pressure transducers
 accuracy : ± 0.015 PSI
 see table 1.2 for hole coordinates on top and bottom walls

5.1.3. other

5.2. Wake measurements

Yes

5.2.1. type/size of instrument(s)

moving rake: See figure 1.8

5.2.2. streamwise position (s)

wake rake at one chord downstream of the trailing edge at mid-span

5.2.3. type of transducers and scanning devices

+ 10 PSI Statham differential pressure transducers
 accuracy : ± 0.008 PSI

5.3. Boundary layer measurements

None

5.3.1. type/size of instruments

5.3.2. locations	
5.3.3. type of transducers and scanning devices	
5.4. Skin friction measurements	None
5.4.1. type/size of instruments	
5.4.2. locations	
5.4.3. type of transducer	
5.5. Flow visualisation	None
5.5.1. flow field	
5.5.2. surface flow	
5.6. Other	None
5.7. Additional remarks	
5.8. References on instrumentation	
6. Data	
6.1. Accuracy (wall interference excluded)	
6.1.1. angle of attack setting	$\pm 0.04^\circ$
6.1.2. free stream Mach number :	± 0.003
- setting	
- variation during one pressure scan	
6.1.3. pressure coefficients	$\Delta C_p \leq 0.005 + 0.01 C_p \quad \text{à } Mo = 0.7$
6.1.4. aerodynamic coefficients	see 6.1.6.
6.1.5. boundary layer quantities	
6.1.6. repeatability	$M \geq 0.5 \quad C_z \pm 0.005 \quad C_m \pm 0.001 \quad C_{xs} \pm 0.0006$ $M = 0.3 \quad C_z \pm 0.011 \quad C_m \pm 0.002 \quad C_{xs} \pm 0.0003$
6.1.7. remarks	None
6.2. Wall interference corrections (indicate estimated accuracy)	For $M \sim 0.75$ and $\alpha \sim 2^\circ$ the magnitude of the wall corrections are
6.2.1. angle of attack	$\Delta \alpha \sim 0.5^\circ$
6.2.2. blockage (solid/wake)	$\Delta M \sim 0.0016$
6.2.3. streamline curvature (lift)	$\Delta C_z \sim 0.002$
6.2.4. other	$\Delta C_m \sim 0.0006$
6.2.5. remarks	The porosity factor has been determined to provide the same $C_{z\alpha}$ for the corrected tests with porous and solid walls. ($P = 0.6$ is the value retained for all the tests).
6.2.6. references on wall interference correction	reference 5
6.3. Presentation of data	
6.3.1. aerodynamic coefficients	see table 1.3 for conditions of § 4.3 and figure 1.9

6.3.2. surface pressures	see table 1.4 and figure 1.10 $\alpha = 0^\circ$ Mo = 0.3/0.5/0.7/0.75/0.8/0.83 $\alpha = 4^\circ$ Mo = 0.3/0.5/0.6/0.7/0.75 (p. A1.9, 10, 11) and in addition Mo = 0.5 $\alpha = 2/6/8$ (p. A1.12) Mo = 0.75 $\alpha = 1/2/3$ (p. A1.13)
6.3.3. boundary layer quantities	
6.3.4. wall interference corrections included ?	See table 1.3
6.3.5. corrections for model deflection	None
6.3.6. empty test section calibration taken into account ?	Yes
6.3.7. other corrections included ?	No
6.3.8. additional remarks	None
6.4. Were tests carried out in different facilities on the current aerofoil ? If so, what facilities. Are data included in the present data base ?	Yes at NAE TBWT - some data included in section 1.3 CALSPAN - no data included
6.5. To be contacted for further information on tests	J.J. THIBERT ONERA 92320 CHATILLON (FRANCE)

7. References

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4. M. Grandjacques Essais à S_{MA} des profils NACA 0012 et NACA 0012 à bord d'attaque cambré en écoulement plan
PV n° 61/1369 ANG (not published)
5. M. Mokry Higher-order theory of two dimensional subsonic wall interference in a perforated wall wind tunnel
NRC Aero Report LR 553 (1971)

8. List of symbols

P1 = P10 stagnation pressure (daPa)
 P0 = reference static pressure
 MO = upstream Mach number
 PD = dynamic pressure (daPa)
 T10 = stagnation temperature (°K)
 ALPHA = angle of attack (degré)
 CZ = lift coefficient in aerodynamic axes
 CM = pitching moment
 CxS = wake drag coefficient
 X/L } = coordinates related to chord
 Z/L }
 P = pressure measurement on the model
 CP = pressure coefficient
 Re = Reynolds number related to chord

Subscript :

C indicates a corrected value

Table 1.1 ACTUAL NACA 0012 COORDINATES

Chord : 210 mm

X mm	Upper surface Z mm	Lower surface Z mm	X mm	Upper surface Z mm	Lower surface Z mm
0	0		60	12.660	- 12.570
1	2.490	- 2.490	65	12.680	- 12.575
2	3.515	- 3.495	70	12.635	- 12.540
3	4.275	- 4.225	75	12.540	- 12.440
4	4.890	- 4.835	80	12.395	- 12.285
5	5.420	- 5.365	85	12.215	- 12.095
6	5.890	- 5.850	90	12.015	- 11.880
7	6.310	- 6.255	95	11.790	- 11.650
8	6.685	- 6.635	100	11.520	- 11.370
9	7.035	- 6.990	105	11.220	- 11.075
10	7.365	- 7.315	110	10.885	- 10.750
12	7.955	- 7.905	115	10.530	- 10.390
14	8.465	- 8.420	120	10.155	- 10.020
16	8.925	- 8.880	125	9.760	- 9.620
18	9.340	- 9.380	130	8.860	- 9.195
20	9.710	- 9.670	135	8.935	- 8.760
22	10.055	- 10.005	140	8.490	- 8.300
24	10.370	- 10.310	145	8.020	- 7.825
26	10.650	- 10.590	150	7.530	- 7.330
28	10.905	- 10.835	155	7.025	- 6.825
30	11.130	- 11.065	160	6.505	- 6.295
32	11.345	- 11.270	165	5.980	- 5.750
34	11.530	- 11.460	170	5.430	- 5.190
36	11.700	- 11.630	180	4.285	- 4.020
38	11.855	- 11.790	185	3.680	- 3.405
40	11.990	- 11.930	190	3.070	- 2.785
42	12.115	- 12.050	195	2.440	- 2.150
44	12.220	- 12.150	200	1.800	- 1.510
46	12.320	- 12.240	205	1.130	- 0.835
48	12.400	- 12.320	209,90	0.380	- 0.110
50	12.480	- 12.380			
55	12.600	- 12.500			

TABLE 1.2 COORDINATES OF PRESSURE HOLES

MODEL						WALLS			
Lower Surface			Upper Surface			Top		Bottom	
N°	X/C	Z/C	N°	X/C	Z/C	N°	X	N°	X
1	0	0	32	0.9701	0.00547	1	-1.79000	35	0.73000
2	0.0197	-0.02334	33	0.9102	0.01323	2	-1.49000	36	0.63000
3	0.0296	-0.02823	34	0.8797	0.01702	3	-1.14000	37	0.58500
4	0.0590	-0.03813	35	0.8503	0.02056	4	-0.64000	38	0.54500
5	0.0697	-0.04084	36	0.8198	0.02408	5	-0.54000	39	0.45500
6	0.0989	-0.04670	37	0.7900	0.02738	6	-0.49000	40	0.40500
7	0.1195	-0.04986	38	0.7304	0.03367	7	-0.39000	41	0.29000
8	0.1801	-0.05613	39	0.6994	0.03679	8	-0.34000	42	0.25000
9	0.1997	-0.05742	40	0.6696	0.03961	9	-0.25000	43	0.20000
10	0.2200	-0.05841	41	0.6396	0.04225	10	-0.20000	44	0.15000
11	0.2400	-0.05910	42	0.6095	0.04486	11	-0.15000	45	0.13000
12	0.2902	-0.05996	43	0.5792	0.04727	12	-0.13000	46	0.11000
13	0.3200	-0.05996	44	0.5494	0.04953	13	-0.11000	47	0.09000
14	0.3495	-0.05953	45	0.5192	0.05171	14	-0.09000	48	0.07000
15	0.4103	-0.05750	46	0.4893	0.05364	15	-0.07000	49	0.05000
16	0.4396	-0.05622	47	0.4591	0.05538	16	-0.05000	50	0.03000
17	0.4698	-0.05470	48	0.3994	0.05804	17	-0.03000	51	0.01000
18	0.5001	-0.05292	49	0.3691	0.05900	18	-0.01000	52	-0.01000
19	0.5302	-0.05092	50	0.3393	0.05979	19	0.01000	53	-0.03000
20	0.5899	-0.04647	51	0.3102	0.06005	20	0.03000	54	-0.05000
21	0.6201	-0.04398	52	0.2793	0.05996	21	0.05000	55	-0.07000
22	0.6496	-0.04139	53	0.2492	0.05944	22	0.07000	56	-0.09000
23	0.7099	-0.03564	54	0.2293	0.05879	23	0.09000	57	-0.11000
24	0.7393	-0.03263	55	0.2096	0.05791	24	0.11000	58	-0.13000
25	0.7699	-0.02941	56	0.1895	0.05680	25	0.13000	59	-0.15000
26	0.7998	-0.02609	57	0.1697	0.05536	26	0.15000	60	-0.20000
27	0.8298	-0.02276	58	0.1496	0.05352	27	0.20000	61	-0.25000
28	0.8598	-0.01924	59	0.1293	0.05121	28	0.25000	62	-0.29000
29	0.8895	-0.01569	60	0.1098	0.04848	29	0.35000	63	-0.34000
30	0.9195	-0.01193	61	0.0995	0.04681	30	0.39000	64	-0.44000
31	0.9497	-0.00804	62	0.0893	0.04497	31	0.49000	65	-0.54000
			63	0.0803	0.04319	32	0.57000	66	-0.64000
			64	0.0505	0.03577	33	0.62000	67	-0.83000
			65	0.0298	0.02841	34	0.72000	68	-1.23000
			66	0.0191	0.02314				

The abscissa
of the model
leading edge
is - .071 m

Table 1.3 AERODYNAMIC COEFFICIENTS

NACA 0012 in S_3 M.A
 without wall corrections

Mo	α°	$Re/10^6$	C_z	C_m	C_{XS}
0.301	-2.02	1.84	-0.164	-0.0026	0.0074
0.30	-0.02	1.85	0.005	-0.0009	0.0072
0.299	2.07	1.75	0.189	-0.0012	0.0076
0.299	4.04	1.86	0.350	0.0011	0.0090
0.299	6.07	1.86	0.528	0.0023	0.0098
0.299	8.07	1.87	0.703	0.0052	0.0114
0.299	10.09	1.86	0.882	0.0048	0.0136
0.299	11.06	1.85	0.948	0.0045	0.0149
0.299	12.04	1.84	1.037	0.0060	0.0171
0.299	13.06	1.82	1.074	0.0107	0.0200
0.299	14.06	1.81	1.121	0.0109	0.0234
0.401	-2.02	2.29	-0.177	-0.0031	0.0076
0.403	-0.03	2.34	0.009	-0.0007	0.0072
0.401	1.93	2.34	0.184	0.0002	0.0073
0.401	3.93	2.34	0.363	0.0011	0.0080
0.40	5.93	2.34	0.547	0.0027	0.0093
0.40	7.93	2.32	0.727	0.0040	0.0111
0.401	9.93	2.31	0.903	0.0086	0.0139
0.401	11.04	2.30	0.971	0.0136	0.0186
0.401	12.05	2.30	1.003	0.0171	0.0261
0.504	-2.12	2.88	-0.192	-0.0018	0.0071
0.502	-0.02	2.89	0.010	-0.0009	0.00695
0.502	2.06	2.91	0.198	0.0005	0.0070
0.504	4.06	2.93	0.391	0.0030	0.0079
0.503	6.05	2.93	0.586	0.0046	0.0090
0.503	7.01	2.90	0.675	0.0086	0.0099
0.503	8.02	2.85	0.772	0.0137	0.0118
0.502	9.01	2.83	0.848	0.0215	0.0168
0.502	10.03	2.82	0.90	0.0228	0.0250
0.602	-2.04	3.28	-0.206	-0.0017	0.0071
0.604	-0.05	3.34	0.003	-0.0006	0.0067
0.602	1.93	3.31	0.199	0.0012	0.0068
0.602	4.04	3.29	0.421	0.0047	0.0077
0.601	6.03	3.24	0.629	0.0135	0.0101
0.604	7.04	3.20	0.729	0.0214	0.0152
0.602	8.02	3.17	0.810	0.0254	0.0237
0.601	9	3.15	0.859	0.0291	0.0369

NACA 0012 in S_3 MA
 wall corrections included

Mo_C	α°_C	C_{zC}	C_{mC}	C_{XSC}
0.301	-1.84	-0.162	-0.0031	0.0074
0.30	-0.05	0.005	-0.0008	0.0072
0.30	1.82	0.187	-0.0006	0.0076
0.30	3.59	0.345	0.0021	0.0090
0.299	5.41	0.523	0.0038	0.0098
0.299	7.195	0.697	0.0072	0.0114
0.299	8.99	0.875	0.0072	0.0136
0.299	9.89	0.944	0.0069	0.0149
0.299	10.77	1.035	0.0082	0.0171
0.299	11.74	1.075	0.0124	0.0200
0.299	12.69	1.126	0.0122	0.0234
0.401	-1.81	-0.174	-0.0036	0.0076
0.403	-0.65	0.009	-0.0006	0.0072
0.401	1.665	0.181	0.0008	0.0073
0.401	3.43	0.358	0.0023	0.0080
0.400	5.19	0.539	0.0044	0.0093
0.400	6.95	0.718	0.0063	0.0111
0.401	8.72	0.893	0.0111	0.0139
0.401	9.75	0.965	0.0151	0.0186
0.401	10.72	1.003	0.0171	0.0261
0.504	-1.87	-0.189	-0.0024	0.0071
0.503	-0.06	0.009	-0.0009	0.0069
0.502	1.77	0.195	0.0011	0.0070
0.504	3.51	0.386	0.0043	0.0079
0.504	5.23	0.580	0.0064	0.0090
0.503	6.07	0.668	0.0107	0.0099
0.503	6.95	0.766	0.0159	0.0118
0.502	7.85	0.844	0.0233	0.0168
0.502	8.80	0.901	0.0236	0.0250
0.603	-1.75	-0.203	-0.0024	0.0071
0.604	-0.08	0.002	-0.0004	0.0067
0.603	1.61	0.196	0.0020	0.0068
0.602	3.38	0.416	0.0062	0.0077
0.60	5.08	0.621	0.0157	0.0101
0.603	5.93	0.722	0.0239	0.0152
0.602	6.80	0.807	0.0273	0.0237
0.60	7.70	0.863	0.0297	0.0370

Table 1.3 AERODYNAMIC COEFFICIENTS (CON'D)

NACA 0012 in S_3 M.A

without wall corrections

Mo	α°	$Re/10^6$	C_z	C_m	C_{XS}
0.702	-2.10	3.76	-0.229	-0.0048	0.0069
0.703	-0.05	3.79	0.002	-0.0009	0.00685
0.702	1.88	3.81	0.222	0.0031	0.0068
0.703	4.03	3.75	0.491	0.0116	0.0112
0.700	1.92	3.57	0.219	0.0034	0.0069
0.704	3.95	3.55	0.479	0.0113	0.0110
0.705	5	3.54	0.610	0.0137	0.0196
0.702	6	3.54	0.693	0.0162	0.0294
0.702	6.98	3.51	0.750	0.0178	0.0425
0.702	8.02	3.50	0.795	0.0098	0.0630
0.703	9.02	3.49	0.785	0.0080	0.0847
0.754	-2.12	3.94	-0.274	-0.0048	0.0096
0.757	-1.02	3.99	-0.116	-0.0040	0.0073
0.756	-0.01	4.01	0.010	-0.0004	0.0068
0.754	0.99	3.96	0.127	0.0036	0.0072
0.753	1.95	3.88	0.258	0.0055	0.0088
0.754	2.98	3.80	0.408	0.0043	0.0143
0.756	3.99	3.76	0.533	0.0015	0.0245
0.757	4.95	3.73	0.625	-0.0014	0.0370
0.753	5.96	3.72	0.693	-0.0029	0.0508
0.754	6.98	3.73	0.721	-0.0113	0.0716
0.803	-2.13	4.03	-0.137	0.0120	0.0206
0.800	-0.95	4.08	-0.141	0.0028	0.0120
0.803	0.05	4.09	0.005	0.0009	0.0106
0.805	1.04	4.03	0.153	-0.0045	0.0137
0.802	2.02	3.94	0.307	-0.0115	0.0199
0.805	3.03	3.85	0.441	-0.0218	0.0306
0.800	4.02	3.81	0.534	-0.0289	0.040
0.803	4.99	3.82	0.592	-0.0384	0.0506
0.801	6.02	3.82	0.656	-0.0415	0.0703
0.830	-2.04	4.05	-0.269	0.0231	0.0266
0.832	-0.95	4.10	-0.139	0.0140	0.0207
0.829	0.05	4.08	0.010	-0.0011	0.0175
0.831	1.04	4.00	0.170	-0.0192	0.0217
0.831	2.02	3.91	0.321	-0.0342	0.0291
0.832	3.06	3.86	0.409	-0.0374	0.0355
0.827	4.02	3.85	0.495	-0.0436	0.0462
0.829	5.01	3.83	0.549	-0.0444	0.0629
0.828	6.0	3.85	0.601	-0.0473	0.0762

NACA 0012 in S_3 M.A

wall corrections included

Mo	α°	C_{ZC}	C_{mC}	C_{XSC}
0.702	-1.75	-0.225	-0.0058	0.0069
0.703	-0.08	0.002	-0.0009	0.0068
0.702	1.50	0.218	0.0042	0.0068
0.703	3.22	0.483	0.0139	0.0112
0.70	1.55	0.215	0.0045	0.0069
0.703	3.15	0.471	0.0136	0.0110
0.704	3.99	0.601	0.0165	0.0196
0.701	4.86	0.687	0.0181	0.0295
0.7	5.74	0.749	0.0191	0.0427
0.699	6.67	0.797	0.0103	0.0634
0.698	7.70	0.792	-0.0082	0.0854
0.753	-1.67	-0.269	-0.0065	0.0096
0.756	-0.84	-0.114	-0.0047	0.0073
0.755	-0.05	0.010	-0.0003	0.0068
0.754	0.74	0.124	0.0044	0.0072
0.752	1.49	0.253	0.0071	0.0088
0.753	2.26	0.399	0.0067	0.0143
0.754	3.02	0.523	0.0047	0.0246
0.755	3.79	0.620	0.0005	0.0372
0.749	4.60	0.691	-0.0017	0.0511
0.749	5.65	0.724	-0.0110	0.0722
0.801	-1.56	-0.310	0.0099	0.0207
0.798	-0.72	-0.137	0.0018	0.0120
0.801	0.03	0.005	0.0010	0.0106
0.803	0.72	0.149	-0.0035	0.0137
0.799	1.25	0.300	-0.0097	0.020
0.801	2.0	0.435	-0.0201	0.0308
0.796	2.93	0.531	-0.0277	0.0402
0.798	3.78	0.591	-0.0377	0.0510
0.795	4.76	0.658	-0.0410	0.0709
0.826	-1.54	-0.266	0.0218	0.0268
0.829	-0.67	-0.137	0.0134	0.0208
0.826	-0.22	0.010	-0.0016	0.0177
0.827	0.50	0.166	-0.0183	0.0212
0.826	1.29	0.317	-0.0332	0.0294
0.827	2.08	0.407	-0.0368	0.0357
0.822	2.87	0.494	-0.0433	0.0466
0.823	3.79	0.550	-0.0443	0.0635
0.820	4.78	0.605	-0.0472	0.0770

Table 1.4 PRESSURE DISTRIBUTIONS

MACH = 0.30 ALPHA = -0.02				RE = 1.85 x 10 ⁶				MACH = 0.5 ALPHA = -0.02				RE = 2.39 x 10 ⁶			
MODEL				WALLS				MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP
1	0.9980	32	0.1172	1	0.0203	35	0.0551	1	1.0621	32	-0.1304	1	0.0350	35	0.0782
2	-0.1115	33	0.0513	2	0.0131	36	-0.0114	2	-0.0965	33	-0.0588	2	0.0293	36	0.0009
3	-0.2491	34	0.0150	3	-0.0008	37	-0.0185	3	-0.2619	34	0.0255	3	0.0157	37	-0.0072
4	-0.3847	35	-0.0089	4	-0.0040	38	-0.0171	4	-0.4024	35	-0.0008	4	0.0147	38	-0.0094
5	-0.4068	36	-0.0345	5	-0.0003	39	-0.0213	5	-0.4310	36	-0.0257	5	0.0163	39	-0.0128
6	-0.4336	37	-0.0772	6	-0.0024	40	-0.0198	6	-0.4641	37	-0.0632	6	0.0156	40	-0.0134
7	-0.4188	38	-0.0965	7	-0.0047	41	-0.0211	7	-0.4667	38	-0.0953	7	0.0130	41	-0.0145
8	-0.4162	39	-0.1157	8	0.0025	42	-0.0240	8	-0.4468	39	-0.1240	8	0.0202	42	-0.0178
9	-0.4087	40	-0.1413	9	-0.0045	43	-0.0295	9	-0.4476	40	-0.1430	9	0.0152	43	-0.0252
10	-0.3987	41	-0.1515	10	-0.0069	44	-0.0225	10	-0.4340	41	-0.1636	10	0.0132	44	-0.0172
11	-0.3818	42	-0.1664	11	-0.0031	45	-0.0197	11	-0.4120	42	-0.1766	11	0.0168	45	-0.0133
12	-0.3630	43	-0.1709	12	-0.0205	46	-0.0226	12	-0.3843	43	-0.1868	12	0.0011	46	-0.0139
13	-0.3495	44	-0.2036	13	-0.0158	47	-0.0252	13	-0.3760	44	-0.2188	13	0.0041	47	-0.0150
14	-0.3392	45	-0.2039	14	-0.0177	48	-0.0210	14	-0.3688	45	-0.2243	14	-0.0023	48	-0.0150
15	-0.3106	46	-0.2408	15	-0.0248	49	-0.0239	15	-0.2979	46	-0.2590	15	-0.0094	49	-0.0122
16	-0.2261	47	-0.2368	16	0.0025	50	-0.0239	16	-0.2524	47	-0.2695	16	0.0216	50	-0.0043
17	-0.2331	48	-0.2935	17	-0.0233	51	-0.0168	17	-0.2495	48	-0.2891	17	-0.0096	51	-0.0076
18	-0.2116	49	-0.3266	18	-0.0266	52	-0.0182	18	-0.2289	49	-0.3503	18	-0.0060	52	-0.0077
19	-0.1948	50	-0.3367	19	-0.0229	53	-0.0154	19	-0.2081	50	-0.3759	19	-0.0072	53	-0.0054
20	-0.1776	51	-0.3575	20	-0.0229	54	-0.0196	20	-0.1779	51	-0.3918	20	-0.0080	54	-0.0037
21	-0.1514	52	-0.3651	21	-0.0177	55	-0.0140	21	-0.1554	52	-0.4093	21	-0.0018	55	-0.0020
22	-0.1455	53	-0.3939	22	-0.0303	56	-0.0168	22	-0.1461	53	-0.4336	22	-0.0168	56	-0.0026
23	-0.1027	54	-0.4029	23	-0.0246	57	-0.0140	23	-0.1005	54	-0.4429	23	-0.0077	57	0.0053
24	-0.0797	55	-0.4108	24	-0.0276	58	-0.0125	24	-0.0813	55	-0.4522	24	-0.0113	58	0.0053
25	-0.0746	56	-0.4189	25	-0.0242	59	-0.0111	25	-0.0645	56	-0.4626	25	-0.0103	59	0.0155
26	-0.0394	57	-0.4326	26	-0.0180	60	-0.0139	26	-0.0452	57	-0.4749	26	-0.0061	60	0.0104
27	-0.0247	58	-0.4405	27	-0.0204	61	-0.0027	27	-0.0324	58	-0.4764	27	-0.0050	61	0.0104
28	0.0064	59	-0.4263	28	-0.0176	62	-0.0013	28	0.0177	59	-0.4759	28	-0.0055	62	0.0109
29	0.0240	60	-0.4361	29	-0.0174	63	0.0044	29	0.0404	60	-0.4752	29	-0.0051	63	0.0143
30	0.0686	61	-0.4284	30	-0.0220	64	0.0029	30	0.0727	61	-0.4684	30	-0.0076	64	0.0110
31	0.0996	62	-0.4101	31	-0.0147	65	-0.0041	31	0.1101	62	-0.4520	31	-0.0032	65	0.0076
		63	-0.4129	32	-0.0215	66	0.0086			63	-0.4546	32	-0.0098	66	0.0143
		64	-0.3431	33	-0.0083	67	0.0043			64	-0.3777	33	-0.0091	67	0.0098
		65	-0.2848	34	0.0780	68	0.0086			65	-0.2810	34	0.1007	68	0.0036
		66	-0.1336							66	-0.1355				

MACH = 0.703 ALPHA = -0.05				RE = 3.79 x 10 ⁶				MACH = 0.756 ALPHA = -0.01				RE = 4.01 x 10 ⁶			
MODEL				WALLS				MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP
1	1.1252	32	0.1675	1	0.0401	35	0.0896	1	1.1452	32	0.1801	1	0.0442	35	0.1019
2	-0.0193	33	0.0746	2	0.0294	36	-0.0013	2	-0.0414	33	0.0845	2	0.0330	36	0.0018
3	-0.2345	34	0.0360	3	0.0152	37	-0.0094	3	-0.1827	34	0.0431	3	0.0162	37	-0.0073
4	-0.4544	35	0.0038	4	0.0144	38	-0.0107	4	-0.4264	35	0.0107	4	0.0188	38	-0.0094
5	-0.4953	36	-0.0271	5	0.0170	39	-0.0154	5	-0.4752	36	-0.0220	5	0.0205	39	-0.0113
6	-0.5662	37	-0.0594	6	0.0158	40	-0.0144	6	-0.5886	37	-0.0534	6	0.0234	40	-0.0121
7	-0.5864	38	-0.1014	7	0.0178	41	-0.0184	7	-0.6318	38	-0.1022	7	0.0247	41	-0.0163
8	-0.5840	39	-0.1329	8	0.0247	42	-0.0235	8	-0.6743	39	-0.1357	8	0.0311	42	-0.0221
9	-0.5865	40	-0.1578	9	0.0173	43	-0.0312	9	-0.6977	40	-0.1633	9	0.0281	43	-0.0334
10	-0.5691	41	-0.1809	10	0.0261	44	-0.0238	10	-0.6719	41	-0.1844	10	0.0328	44	-0.0240
11	-0.5419	42	-0.2015	11	0.0171	45	-0.0198	11	-0.6272	42	-0.2088	11	0.0250	45	-0.0209
12	-0.4958	43	-0.2168	12	-0.0016	46	-0.0201	12	-0.5554	43	-0.2275	12	0.0049	46	-0.0209
13	-0.3759	44	-0.2474	13	0.0039	47	-0.0221	13	-0.4108	44	-0.2589	13	0.0092	47	-0.0241
14	-0.4391	45	-0.2675	14	-0.0037	48	-0.0212	14	-0.4863	45	-0.2874	14	0.0010	48	-0.0234
15	-0.3815	46	-0.3043	15	-0.0087	49	-0.0189	15	-0.4136	46	-0.3267	15	-0.0057	49	-0.0213
16	-0.3241	47	-0.3231	16	0.0154	50	-0.0182	16	-0.3447	47	-0.3528	16	0.0216	50	-0.0198
17	-0.3155	48	-0.3552	17	-0.0156	51	-0.0135	17	-0.3345	48	-0.3868	17	-0.0141	51	-0.0143
18	-0.2868	49	-0.3849	18	-0.0149	52	-0.0128	18	-0.3059	49	-0.4206	18	0.0127	52	-0.0125
19	-0.2602	50	-0.4297	19	-0.0146	53	-0.0104	19	-0.2764	50	-0.4915	19	-0.0133	53	0.0088
20	-0.2157	51	-0.4863	20	-0.0171	54	-0.0071	20	-0.2234	51	-0.5564	20	-0.0169	54	0.0049
21	-0.1324	52	-0.5084	21	-0.0110	55	-0.0037	21	-0.1901	52	-0.5950	21	0.0120	55	-0.0027
22	-0.1688	53	-0.5449	22	-0.0272	56	-0.0020	22	-0.1739	53	-0.6448	22	-0.0275	56	0.0003
23	-0.1171	54	-0.5614	23	-0.0166	57	0.0047	23	-0.1178	54	-0.6625	23	-0.0162	57	0.0088
24	-0.0915	55	-0.5692	24	-0.0202	58	0.0084	24	-0.0915	55	-0.6856	24	-0.0197	58	0.0134
25	-0.0714	56	-0.5857	25	-0.0189	59	0.0090	25	-0.0681	56	-0.7143	25	-0.0182	59	0.0141
26	-0.0354	57	-0.6004	26	-0.0127	60	0.0154	26	-0.0342	57	-0.7202	26	-0.0134	60	0.0235
27	-0.0143	58	-0.5959	27	-0.0130	61	0.0174	27	-0.0094	58	-0.6924	27	-0.0096	61	0.0241
28	0.0249	59	-0.5873	28	-0.0117	62	0.0205	28	0.0353	59	-0.6623	28	-0.0088	62	0.0265
29	0.0555	60	-0.5644	29	-0.0069	63	0.0218	29	0.0649	60	-0.6211	29	-0.0031	63	0.0302
30	0.1008	61	-0.5556	30	-0.0095	64	0.0141	30	0.1109	61	-0.5769	30	-0.0051	64	0.0192
31	0.1449	62	-0.5204	31	-0.0051	65	0.0100	31	0.1572	62	-0.5462	31	-0.0022	65	0.0137
		63	-0.5058	32	-0.0150	66	0.0177			63	-0.5240	32	-0.0118	66	0.0192
		64	-0.3780	33	0.0046	67	0.0103			64	-0.3676	33	0.0076	67	0.0119
		65	-0.2391	34	0.1165	68	-0.0028			65	-0.2062	34	0.1284	68	0.0033
		66	-0.0464							66	-0.0195				

Table 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0,803 ALPHA = 0,05				RE = 4.09 x 10 ⁶				MACH = 0,829 ALPHA = 0,05				RE = 4.08 x 10 ⁶			
MODEL				WALLS				MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP
1	1.1677	32	0.2003	1	0.0495	35	0.1122	1	1.1785	32	0.2153	1	0.0531	35	0.1140
2	0.1009	33	0.1046	2	0.0360	36	0.0032	2	0.1341	33	0.1269	2	0.0381	36	0.0019
3	-0.1212	34	0.0596	3	0.0168	37	-0.0098	3	-0.0717	34	0.0877	3	0.0178	37	-0.0098
4	-0.3696	35	0.0308	4	0.0225	38	-0.0100	4	-0.3244	35	0.0594	4	0.0271	38	-0.0112
5	-0.4149	36	-0.0033	5	0.0275	39	-0.0122	5	-0.3688	36	0.0317	5	0.0347	39	-0.0144
6	-0.5484	37	-0.0325	6	0.0306	40	-0.0120	6	-0.5063	37	0.0070	6	0.0384	40	-0.0152
7	-0.5926	38	-0.0795	7	0.0334	41	-0.0162	7	-0.5449	38	-0.0223	7	0.0446	41	-0.0196
8	-0.6845	39	-0.1113	8	0.0422	42	-0.0230	8	-0.6492	39	-0.0431	8	0.0529	42	-0.0267
9	-0.7245	40	-0.1373	9	0.0382	43	-0.0343	9	-0.6886	40	-0.0503	9	0.0509	43	-0.0397
10	-0.7604	41	-0.1564	10	0.0348	44	-0.0278	10	-0.7182	41	-0.0535	10	0.0481	44	-0.0344
11	-0.7740	42	-0.1719	11	0.0321	45	-0.0255	11	-0.7337	42	-0.0628	11	0.0445	45	-0.0330
12	-0.8005	43	-0.1825	12	0.0103	46	-0.0254	12	-0.7744	43	-0.1322	12	0.0210	46	-0.0335
13	-0.8060	44	-0.1959	13	0.0131	47	-0.0297	13	-0.7842	44	-0.4231	13	0.0204	47	-0.0377
14	-0.8279	45	-0.1940	14	0.0056	48	-0.0295	14	-0.8230	45	-0.7810	14	0.0108	48	-0.0383
15	-0.7818	46	-0.1878	15	-0.0052	49	-0.0265	15	-0.8424	46	-0.8069	15	-0.0015	49	-0.0368
16	-0.3267	47	-0.2155	16	0.0177	50	-0.0254	16	-0.8250	47	-0.8359	16	0.0174	50	-0.0345
17	-0.1841	48	-0.7910	17	-0.0175	51	-0.0198	17	-0.7842	48	-0.8509	17	-0.0195	51	-0.0271
18	-0.2164	49	-0.8381	18	-0.0194	52	-0.0161	18	-0.7757	49	-0.8444	18	-0.0221	52	-0.0216
19	-0.2164	50	-0.8499	19	-0.0197	53	-0.0104	19	-0.5482	50	-0.8206	19	-0.0243	53	-0.0141
20	-0.1939	51	-0.8321	20	-0.0218	54	-0.0047	20	-0.0695	51	-0.7972	20	-0.0290	54	-0.0008
21	-0.1636	52	-0.8114	21	-0.0184	55	-0.0001	21	-0.0640	52	-0.7761	21	-0.0257	55	0.0020
22	-0.1532	53	-0.7929	22	-0.0348	56	0.0044	22	-0.0734	53	-0.7510	22	-0.0416	56	0.0079
23	-0.1033	54	-0.7716	23	-0.0219	57	0.0132	23	-0.0440	54	-0.7289	23	-0.0297	57	0.0219
24	-0.0730	55	-0.7567	24	-0.0258	58	0.0203	24	-0.0289	55	-0.7127	24	-0.0320	58	0.0295
25	-0.0505	56	-0.7397	25	-0.0230	59	0.0231	25	-0.0129	56	-0.6934	25	-0.0287	59	0.0339
26	-0.0157	57	-0.7114	26	-0.0182	60	0.0338	26	0.0198	57	-0.6619	26	-0.0219	60	0.0459
27	-0.0100	58	-0.6635	27	-0.0128	61	0.0352	27	0.0375	58	-0.6165	27	-0.0167	61	0.0486
28	0.0526	59	-0.6188	28	-0.0110	62	0.0384	28	0.0772	59	-0.5716	28	-0.0136	62	0.0500
29	0.0836	60	-0.5601	29	-0.0050	63	0.0387	29	0.1072	60	-0.5073	29	-0.0066	63	0.0489
30	0.1276	61	-0.5221	30	-0.0059	64	0.0280	30	0.1510	61	-0.4742	30	-0.0074	64	0.0361
31	0.1753	62	-0.4876	31	-0.0043	65	0.0204	31	0.1954	62	-0.4383	31	-0.0031	65	0.0282
		63	-0.4662	32	-0.0161	66	0.0241			63	-0.4187	32	-0.0142	66	0.0298
		64	-0.3094	33	-0.0058	67	0.0142			64	-0.2558	33	0.0062	67	0.0156
		65	-0.1492	34	0.1331	68	-0.0023			65	-0.1026	34	0.1425	68	-0.0036
		66	0.0466							66	0.0890				

MACH = 0,3 ALPHA = 4,04				RE = 1.86 x 10 ⁶				MACH = 0,504 ALPHA = 4,06				RE = 2.93 x 10 ⁶			
MODEL				WALLS				MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP
1	0.5702	32	0.1173	1	0.0136	35	0.0084	1	0.7056	32	0.1377	1	0.0339	35	0.0252
2	0.5750	33	0.0377	2	0.0124	36	-0.0368	2	0.6124	33	0.0444	2	0.0272	36	-0.0246
3	0.3896	34	0.0011	3	-0.0044	37	-0.0439	3	0.4186	34	0.0028	3	0.0163	37	-0.0347
4	0.1498	35	-0.0409	4	-0.0018	38	-0.0510	4	0.1616	35	-0.0386	4	0.0160	38	-0.0370
5	0.0729	36	-0.0732	5	-0.0003	39	-0.0567	5	0.1093	36	-0.0625	5	0.0186	39	-0.0426
6	0.0054	37	-0.1029	6	-0.0041	40	-0.0567	6	0.0081	37	-0.0918	6	0.0212	40	-0.0404
7	-0.0268	38	-0.1465	7	0.0030	41	-0.0581	7	-0.0357	38	-0.1391	7	0.0231	41	-0.0443
8	-0.1013	39	-0.1721	8	0.0082	42	-0.0567	8	-0.1172	39	-0.1785	8	0.0327	42	-0.0527
9	-0.1121	40	-0.1971	9	0.0068	43	-0.0652	9	-0.1306	40	-0.2057	9	0.0351	43	-0.0571
10	-0.1481	41	-0.2199	10	0.0103	44	-0.0596	10	-0.1381	41	-0.2316	10	0.0401	44	-0.0520
11	-0.1481	42	-0.2379	11	0.0200	45	-0.0582	11	-0.1369	42	-0.2565	11	0.0471	45	-0.0487
12	-0.1346	43	-0.2523	12	0.0046	46	-0.0552	12	-0.1506	43	-0.2815	12	0.0347	46	-0.0482
13	-0.1392	44	-0.2964	13	0.0117	47	-0.0553	13	-0.1597	44	-0.3174	13	0.0408	47	-0.0523
14	-0.1591	45	-0.3114	14	0.0106	48	-0.0553	14	-0.1653	45	-0.3417	14	0.0372	48	-0.0494
15	-0.1411	46	-0.3510	15	0.0082	49	-0.0539	15	-0.1497	46	-0.3892	15	0.0357	49	-0.0476
16	-0.1129	47	-0.3720	16	0.0330	50	-0.0552	16	-0.1277	47	-0.4116	16	0.0604	50	-0.0477
17	-0.1397	48	-0.4174	17	0.0013	51	-0.0525	17	-0.1317	48	-0.4664	17	0.0333	51	-0.0445
18	-0.1386	49	-0.4564	18	0.0110	52	-0.0613	18	-0.1199	49	-0.5148	18	0.0355	52	-0.0420
19	-0.1049	50	-0.4983	19	0.0134	53	-0.0526	19	-0.1120	50	-0.5622	19	0.0361	53	-0.0410
20	-0.0887	51	-0.5362	20	0.0108	54	-0.0497	20	-0.0935	51	-0.5986	20	0.0357	54	-0.0354
21	-0.0778	52	-0.5576	21	0.0181	55	-0.0493	21	-0.0542	52	-0.6319	21	0.0407	55	-0.0347
22	-0.0701	53	-0.5927	22	0.0063	56	-0.0525	22	-0.0569	53	-0.6688	22	0.0271	56	-0.0341
23	-0.0254	54	-0.6338	23	0.0122	57	-0.0411	23	-0.0403	54	-0.7134	23	0.0358	57	-0.0275
24	-0.0146	55	-0.6653	24	0.0046	58	-0.0440	24	-0.0200	55	-0.7523	24	0.0321	58	-0.0253
25	-0.0173	56	-0.6653	25	0.0084	59	-0.0427	25	-0.0288	56	-0.7679	25	0.0317	59	-0.0230
26	0.0136	57	-0.7122	26	0.0119	60	-0.0370	26	0.0080	57	-0.8012	26	0.0364	60	-0.0135
27	0.0068	58	-0.7679	27	0.0072	61	-0.0298	27	0.0128	58	-0.8409	27	0.0300	61	-0.0118
28	0.0445	59	-0.8402	28	0.0035	62	-0.0271	28	0.0405	59	-0.9505	28	0.0291	62	-0.0062
29	0.0445	60	-0.8851	29	-0.0003	63	-0.0157	29	0.0458	60	-1.0079	29	0.0230	63	-0.0006
30	0.0781	61	-0.9120	30	-0.0050	64	-0.0115	30	0.0862	61	-1.0295	30	0.0170	64	0.0005
31	0.0982	62	-0.9194	31	-0.0085	65	-0.0101	31	0.1138	62	-1.0349	31	0.0158	65	-0.0006
		63	-0.9717	32	-0.0158	66	-0.0001			63	-1.0947	32	0.0012	66	0.0112
		64	-1.0495	33	0.0028	67	-0.0016			64	-1.1965	33	0.0248	67	0.0067
		65	-1.1854	34	0.0913	68	-0.0242			65	-1.2935	34	0.1244	68	-0.0012
		66	-1.1898							66	-1.2863				

TABLE 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0.60 ALPHA = 3.94				RE = 4.65 x 10 ⁶				MACH = 0.703 ALPHA = 4.03				RE = 3.75 x 10 ⁶			
MODEL				WALLS				MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP
1	0.8110	32	0.1643	1	0.0412	35	0.0327	1	0.9258	32	0.1758	1	0.0405	35	0.0292
2	0.6187	33	0.0664	2	0.0340	36	-0.0243			33	0.0301	2	0.0288	36	-0.0286
3	0.4190	34	0.0230	3	0.0225	37	-0.0302	2	0.6183	34	0.0385	3	0.0180	37	-0.0364
4	0.1596	35	-0.0085	4	0.0243	38	-0.0320	3	0.4196	35	0.0010	4	0.0232	38	-0.0398
5	0.1038	36	-0.0476	5	0.0252	39	-0.0398	4	0.1658	36	-0.0415	5	0.0299	39	-0.0462
6	-0.0019	37	-0.0868	6	0.0268	40	-0.0362	5	0.1070	37	-0.0715	6	0.0356	40	-0.0448
7	-0.0481	38	-0.1351	7	0.0339	41	-0.0404	6	-0.0040	38	-0.1248	7	0.0428	41	-0.0489
8	-0.1269	39	-0.1768	8	0.0438	42	-0.0473	7	-0.0568	39	-0.1653	8	0.0543	42	-0.0572
9	-0.1428	40	-0.2063	9	0.0478	43	-0.0560	8	-0.1425	40	-0.1959	9	0.0636	43	-0.0654
10	-0.1495	41	-0.2332	10	0.0547	44	-0.0509	9	0.1659	41	-0.2236	10	0.0772	44	-0.0596
11	-0.1484	42	-0.2613	11	0.0620	45	-0.0472	10	-0.1697	42	-0.2532	11	0.0767	45	-0.0589
12	-0.1615	43	-0.2875	12	0.0445	46	-0.0466	11	-0.1712	43	-0.2785	12	0.0616	46	-0.0597
13	-0.1663	44	-0.3280	13	0.0524	47	-0.0484	12	-0.1818	44	-0.3112	13	0.0692	47	-0.0627
14	-0.1767	45	-0.3538	14	0.0492	48	-0.0503	13	-0.1331	45	-0.3408	14	0.0649	48	-0.0624
15	-0.1555	46	-0.3952	15	0.0443	49	-0.0490	14	-0.1969	46	-0.3848	15	0.0606	49	-0.0637
16	-0.1294	47	-0.4242	16	0.0737	50	-0.0478	15	-0.1787	47	-0.4078	16	0.0854	50	-0.0620
17	-0.1336	48	-0.4881	17	0.0425	51	-0.0428	16	-0.1482	48	-0.4394	17	0.0571	51	-0.0552
18	-0.1121	49	-0.5392	18	0.0459	52	-0.0409	17	-0.1503	49	-0.4579	18	0.0596	52	-0.0543
19	-0.0799	50	-0.5903	19	0.0472	53	-0.0400	18	-0.1422	50	-0.4507	19	0.0590	53	-0.0505
20	-0.0718	51	-0.6299	20	0.0460	54	-0.0352	19	-0.1339	51	-0.5166	20	0.0557	54	-0.0465
21	-0.0525	52	-0.6692	21	0.0476	55	-0.0333	20	-0.0759	52	-1.3149	21	0.0590	55	-0.0414
22	-0.0535	53	-0.7135	22	0.0371	56	-0.0317	21	-0.0609	53	-1.3904	22	0.0476	56	-0.0374
23	-0.0248	54	-0.7668	23	0.0453	57	-0.0234	22	-0.0654	54	-1.4324	23	0.0543	57	-0.0270
24	-0.0120	55	-0.8087	24	0.0392	58	-0.0168	23	-0.0321	55	-1.4741	24	0.0476	58	-0.0193
25	-0.0031	56	-0.8130	25	0.0400	59	-0.0162	24	-0.0171	56	-1.4748	25	0.0494	59	-0.0172
26	-0.0187	57	-0.8685	26	0.0435	60	-0.0049	25	-0.0081	57	-1.4485	26	0.0507	60	-0.0001
27	0.0261	58	-0.8991	27	0.0418	61	0.0005	26	0.0158	58	-1.4120	27	0.0471	61	0.0066
28	0.0595	59	-0.9399	28	0.0380	62	0.0068	27	0.0242	59	-1.3828	28	0.0411	62	0.0144
29	0.0749	60	-1.0987	29	0.0292	63	0.0142	28	0.0574	60	-1.3536	29	0.0303	63	0.0221
30	0.1049	61	-1.1304	30	0.0231	64	0.0115	29	0.0782	61	-1.3478	30	0.0227	64	0.0188
31	0.1373	62	-1.1199	31	0.0201	65	0.0101	30	0.1128	62	-1.3371	31	0.0163	65	0.0161
		63	-1.1755	32	0.0007	66	0.0199	31	0.1412	63	-1.3400	32	-0.0025	66	0.0235
		64	-1.2831	33	0.0278	67	0.0139			64	-1.2471	33	0.0197	67	0.0127
		65	-1.3756	34	0.1358	68	0.0035			65	-1.1663	34	0.1426	68	-0.0118
		66	-1.2518							66	-0.9440				

MACH = 0.756 ALPHA = 3.99				RE = 3.76 x 10 ⁶			
MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	1.0060	32	0.1882	1	0.0452	35	0.0296
2	0.5974	33	0.1034	2	0.0339	36	-0.0346
3	0.4077	34	0.0667	3	0.0185	37	-0.0424
4	0.1539	35	0.0364	4	0.0327	38	-0.0464
5	0.0892	36	0.0047	5	0.0414	39	-0.0516
6	-0.0213	37	-0.0238	6	0.0469	40	-0.0525
7	-0.0727	38	-0.0626	7	0.0572	41	-0.0565
8	-0.1651	39	-0.0921	8	0.0707	42	-0.0631
9	-0.1845	40	-0.1107	9	0.0787	43	-0.0721
10	-0.1964	41	-0.1313	10	0.0930	44	-0.0667
11	-0.1918	42	-0.1520	11	0.0917	45	-0.0661
12	-0.2076	43	-0.1717	12	0.0765	46	-0.0725
13	-0.1515	44	-0.2268	13	0.0830	47	-0.0774
14	-0.2154	45	-0.2875	14	0.0787	48	-0.0783
15	-0.1975	46	-0.4184	15	0.0743	49	-0.0780
16	-0.1630	47	-0.6367	16	0.0990	50	-0.0764
17	-0.1617	48	-1.2817	17	0.0684	51	-0.0704
18	-0.1517	49	-1.2959	18	0.0699	52	-0.0659
19	-0.1405	50	-1.3351	19	0.0688	53	-0.0603
20	-0.0823	51	-1.3470	20	0.0641	54	-0.0519
21	-0.0620	52	-1.3421	21	0.0650	55	-0.0451
22	-0.0664	53	-1.3375	22	0.0563	56	-0.0384
23	-0.0317	54	-1.3247	23	0.0621	57	-0.0248
24	-0.0172	55	-1.3183	24	0.0568	58	-0.0144
25	-0.0063	56	-1.2919	25	0.0548	59	-0.0096
26	0.0202	57	-1.2614	26	0.0583	60	0.0105
27	0.0315	58	-1.2161	27	0.0544	61	0.0220
28	0.0665	59	-1.1826	28	0.0483	62	0.0305
29	0.0882	60	-1.1476	29	0.0341	63	0.0360
30	0.1232	61	-1.1392	30	0.0266	64	0.0305
31	0.1602	62	-1.1217	31	0.0165	65	0.0269
		63	-1.1210	32	-0.0051	66	0.0318
		64	-1.0082	33	0.0174	67	0.0156
		65	-0.9121	34	0.1535	68	-0.0166
		66	-0.7002				

Table 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0.502 RE = 2.91×10^6
 ALPHA = 2.06

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.9775	32	-0.1395	1	0.0350	35	0.0448
2	0.3095	33	0.0509	2	0.0293	36	-0.0179
3	0.1139	34	0.0111	3	0.0167	37	-0.0253
4	-0.1166	35	-0.0164	4	0.0172	38	-0.0275
5	-0.1462	36	-0.0486	5	0.0160	39	-0.0326
6	-0.2361	37	-0.0793	6	0.0172	40	-0.0320
7	-0.2560	38	-0.1183	7	0.0192	41	-0.0349
8	-0.2730	39	-0.1469	8	0.0245	42	-0.0383
9	-0.2946	40	-0.1749	9	0.0224	43	-0.0451
10	-0.2832	41	-0.1956	10	0.0241	44	-0.0389
11	-0.2703	42	-0.2186	11	0.0285	45	-0.0338
12	-0.2690	43	-0.2380	12	0.0149	46	-0.0337
13	-0.2685	44	-0.2676	13	0.0192	47	-0.0338
14	-0.2679	45	-0.2855	14	0.0132	48	-0.0339
15	-0.2467	46	-0.3265	15	0.0112	49	-0.0316
16	-0.2009	47	-0.3370	16	0.0389	50	-0.0299
17	-0.1851	48	-0.3839	17	0.0070	51	-0.0264
18	-0.1696	49	-0.4189	18	0.0113	52	-0.0254
19	-0.1448	50	-0.4515	19	0.0111	53	-0.0225
20	-0.1274	51	-0.4743	20	0.0096	54	-0.0208
21	-0.1036	52	-0.4828	21	0.0133	55	-0.0214
22	-0.1060	53	-0.5479	22	0.0011	56	-0.0202
23	-0.0720	54	-0.5906	23	0.0082	57	-0.0126
24	-0.0522	55	-0.6146	24	0.0045	58	-0.0112
25	-0.0511	56	-0.6366	25	0.0054	59	-0.0106
26	-0.0136	57	-0.6610	26	0.0104	60	-0.0027
27	-0.0055	58	-0.6819	27	0.0084	61	-0.0005
28	0.0284	59	-0.7060	28	0.0058	62	0.0030
29	0.0461	60	-0.7268	29	0.0057	63	0.0080
30	0.0816	61	-0.7264	30	0.0024	64	0.0052
31	0.1186	62	-0.7339	31	0.0041	65	0.0046
		63	-0.7556	32	-0.0048	66	0.0125
		64	-0.7430	33	0.0151	67	0.0086
		65	-0.7447	34	0.1149	68	0.0040
		66	-0.6492				

MACH = 0.503
 ALPHA = 6.05

RE = 2.93×10^6

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	0.2243	32	0.1391	1	0.0341	35	0.0039
2	0.8195	33	0.0478	2	0.0286	36	-0.0391
3	0.6508	34	0.0081	3	0.0188	37	-0.0458
4	0.3836	35	-0.0280	4	0.0210	38	-0.0525
5	0.3157	36	-0.0662	5	0.0255	39	-0.0590
6	0.2049	37	-0.1027	6	0.0279	40	-0.0579
7	0.1534	38	-0.1605	7	0.0352	41	-0.0584
8	0.0449	39	-0.2007	8	0.0481	42	-0.0634
9	0.0162	40	-0.2370	9	0.0562	43	-0.0684
10	0.0039	41	-0.2621	10	0.0635	44	-0.0691
11	-0.0036	42	-0.2936	11	0.0741	45	-0.0664
12	-0.0382	43	-0.3213	12	0.0609	46	-0.0646
13	-0.0525	44	-0.3599	13	0.0682	47	-0.0691
14	-0.0707	45	-0.3921	14	0.0630	48	-0.0674
15	-0.0516	46	-0.4387	15	0.0628	49	-0.0641
16	-0.0431	47	-0.4732	16	0.0884	50	-0.0641
17	-0.0487	48	-0.5469	17	0.0603	51	-0.0604
18	-0.0552	49	-0.6029	18	0.0659	52	-0.0570
19	-0.0392	50	-0.6581	19	0.0650	53	-0.0570
20	-0.0314	51	-0.7029	20	0.0625	54	-0.0525
21	-0.0281	52	-0.7505	21	0.0671	55	-0.0502
22	-0.0234	53	-0.8108	22	0.0559	56	-0.0453
23	-0.0059	54	-0.8662	23	0.0619	57	-0.0380
24	0.0170	55	-0.9199	24	0.0563	58	-0.0335
25	0.0270	56	-0.9497	25	0.0557	59	-0.0329
26	0.0466	57	-1.0176	26	0.0604	60	-0.0217
27	0.0397	58	-1.0812	27	0.0534	61	-0.0150
28	0.0641	59	-1.1083	28	0.0468	62	-0.0089
29	0.0715	60	-1.2320	29	0.0379	63	0.0011
30	0.0982	61	-1.3027	30	0.0256	64	0.0039
31	0.1183	62	-1.3091	31	0.0194	65	0.0022
		63	-1.3641	32	0.0014	66	0.0145
		64	-1.7160	33	0.0223	67	0.0067
		65	-1.9819	34	0.1219	68	-0.0084
		66	-2.1297				

MACH = 0.503
 ALPHA = 8.02

RE = 2.85×10^6

MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP
1	-0.3212	32	0.1199	1	0.0335	35	-0.0104
2	0.9500	33	0.0480	2	0.0286	36	-0.0493
3	0.8216	34	0.0089	3	0.0176	37	-0.0493
4	0.5659	35	-0.0355	4	0.0251	38	-0.0599
5	0.4984	36	-0.0698	5	0.0327	39	-0.0696
6	0.3796	37	-0.1014	6	0.0354	40	-0.0656
7	0.3083	38	-0.1653	7	0.0487	41	-0.0689
8	0.1805	39	-0.2076	8	0.0621	42	-0.0763
9	0.1510	40	-0.2464	9	0.0756	43	-0.0825
10	0.1131	41	-0.2829	10	0.0855	44	-0.0758
11	0.1136	42	-0.3151	11	0.0985	45	-0.0674
12	0.0707	43	-0.3489	12	0.0878	46	-0.0729
13	0.0477	44	-0.3962	13	0.0949	47	-0.0668
14	0.0296	45	-0.4287	14	0.0903	48	-0.0667
15	0.0318	46	-0.4845	15	0.0929	49	-0.0764
16	0.0281	47	-0.5242	16	0.1187	50	-0.0740
17	0.0195	48	-0.6176	17	0.0949	51	-0.0684
18	0.0131	49	-0.6791	18	0.0964	52	-0.0690
19	0.0169	50	-0.7379	19	0.0984	53	-0.0667
20	0.0137	51	-0.7978	20	0.0943	54	-0.0634
21	0.0164	52	-0.8611	21	0.0969	55	-0.0611
22	0.0153	53	-0.9362	22	0.0866	56	-0.0571
23	0.0234	54	-1.0015	23	0.0928	57	-0.0504
24	0.0288	55	-1.0684	24	0.0853	58	-0.0442
25	0.0293	56	-1.1154	25	0.0830	59	-0.0436
26	0.0395	57	-1.1928	26	0.0825	60	-0.0307
27	0.0395	58	-1.2805	27	0.0698	61	-0.0222
28	0.0572	59	-1.3293	28	0.0643	62	-0.0137
29	0.0706	60	-1.4941	29	0.0465	63	-0.0036
30	0.0979	61	-1.5717	30	0.0356	64	0.0048
31	0.1054	62	-1.6000	31	0.0292	65	0.0021
		63	-1.6727	32	0.0075	66	0.0139
		64	-2.3213	33	0.0267	67	0.0082
		65	-3.0205	34	0.1284	68	-0.0132
		66	-3.2976				

TABLE 1.4 PRESSURE DISTRIBUTIONS (CON'D)

MACH = 0.754 ALPHA = 0.99								RE = 3.96 x 10 ⁶								MACH = 0.753 ALPHA = 1.95								RE = 3.88 x 10 ⁶							
MODEL				WALLS				MODEL				WALLS				MODEL				WALLS				MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP
1	1.1395	32	0.1832	1	0.0443	35	0.0786	1	1.1140	32	0.1835	1	0.0449	35	0.0619	1	1.1140	32	0.1835	1	0.0449	35	0.0619	1	1.1140	32	0.1835	1	0.0449	35	0.0619
2	0.1960	33	0.0859	2	0.0325	36	-0.0088	2	0.3405	33	0.0901	2	0.0327	36	-0.0166	2	0.3405	33	0.0901	2	0.0327	36	-0.0166	2	0.3405	33	0.0901	2	0.0327	36	-0.0166
3	-0.0246	34	0.0435	3	0.0165	37	-0.0148	3	0.1395	34	0.0461	3	0.0174	37	-0.0232	3	0.1395	34	0.0461	3	0.0174	37	-0.0232	3	0.1395	34	0.0461	3	0.0174	37	-0.0232
4	-0.2767	35	0.0095	4	0.0167	38	-0.0164	4	-0.1273	35	0.0107	4	0.0211	38	-0.0266	4	-0.1273	35	0.0107	4	0.0211	38	-0.0266	4	-0.1273	35	0.0107	4	0.0211	38	-0.0266
5	-0.3196	36	-0.0264	5	0.0217	39	-0.0206	5	-0.1735	36	-0.0257	5	0.0240	39	-0.0299	5	-0.1735	36	-0.0257	5	0.0240	39	-0.0299	5	-0.1735	36	-0.0257	5	0.0240	39	-0.0299
6	-0.4329	37	-0.0594	6	0.0238	40	-0.0201	6	-0.2961	37	-0.0567	6	0.0279	40	-0.0300	6	-0.2961	37	-0.0567	6	0.0279	40	-0.0300	6	-0.2961	37	-0.0567	6	0.0279	40	-0.0300
7	-0.4621	38	-0.1091	7	0.0257	41	-0.0249	7	-0.3245	38	-0.1070	7	0.0325	41	-0.0346	7	-0.3245	38	-0.1070	7	0.0325	41	-0.0346	7	-0.3245	38	-0.1070	7	0.0325	41	-0.0346
8	-0.5178	39	-0.1464	8	0.0348	42	-0.0308	8	-0.3897	39	-0.1432	8	0.0417	42	-0.0416	8	-0.3897	39	-0.1432	8	0.0417	42	-0.0416	8	-0.3897	39	-0.1432	8	0.0417	42	-0.0416
9	-0.5361	40	-0.1745	9	0.0330	43	-0.0412	9	-0.4059	40	-0.1736	9	0.0446	43	-0.0517	9	-0.4059	40	-0.1736	9	0.0446	43	-0.0517	9	-0.4059	40	-0.1736	9	0.0446	43	-0.0517
10	-0.5274	41	-0.1996	10	0.0412	44	-0.0348	10	-0.4040	41	-0.1964	10	0.0525	44	-0.0449	10	-0.4040	41	-0.1964	10	0.0525	44	-0.0449	10	-0.4040	41	-0.1964	10	0.0525	44	-0.0449
11	-0.5017	42	-0.2240	11	0.0332	45	-0.0317	11	-0.3926	42	-0.2216	11	0.0478	45	-0.0434	11	-0.3926	42	-0.2216	11	0.0478	45	-0.0434	11	-0.3926	42	-0.2216	11	0.0478	45	-0.0434
12	-0.4696	43	-0.2445	12	0.0159	46	-0.0342	12	-0.3793	43	-0.2430	12	0.0306	46	-0.0440	12	-0.3793	43	-0.2430	12	0.0306	46	-0.0440	12	-0.3793	43	-0.2430	12	0.0306	46	-0.0440
13	-0.4097	44	-0.2793	13	0.0199	47	-0.0355	13	-0.3212	44	-0.2702	13	0.0359	47	-0.0482	13	-0.3212	44	-0.2702	13	0.0359	47	-0.0482	13	-0.3212	44	-0.2702	13	0.0359	47	-0.0482
14	-0.4509	45	-0.3060	14	0.0113	48	-0.0348	14	-0.3660	45	-0.2920	14	0.0292	48	-0.0482	14	-0.3660	45	-0.2920	14	0.0292	48	-0.0482	14	-0.3660	45	-0.2920	14	0.0292	48	-0.0482
15	-0.3929	46	-0.3499	15	0.0053	49	-0.0333	15	-0.3381	46	-0.3248	15	0.0254	49	-0.0467	15	-0.3381	46	-0.3248	15	0.0254	49	-0.0467	15	-0.3381	46	-0.3248	15	0.0254	49	-0.0467
16	-0.2948	47	-0.3741	16	0.0314	50	-0.0330	16	-0.2380	47	-0.3302	16	0.0508	50	-0.0455	16	-0.2380	47	-0.3302	16	0.0508	50	-0.0455	16	-0.2380	47	-0.3302	16	0.0508	50	-0.0455
17	-0.2937	48	-0.4087	17	-0.0018	51	-0.0265	17	-0.2348	48	-0.2820	17	0.0172	51	-0.0397	17	-0.2348	48	-0.2820	17	0.0172	51	-0.0397	17	-0.2348	48	-0.2820	17	0.0172	51	-0.0397
18	-0.2677	49	-0.4346	18	-0.0016	52	-0.0234	18	-0.2186	49	-0.5305	18	0.0181	52	-0.0367	18	-0.2186	49	-0.5305	18	0.0181	52	-0.0367	18	-0.2186	49	-0.5305	18	0.0181	52	-0.0367
19	-0.2455	50	-0.4017	19	-0.0025	53	-0.0216	19	-0.2031	50	-0.9996	19	0.0170	53	-0.0324	19	-0.2031	50	-0.9996	19	0.0170	53	-0.0324	19	-0.2031	50	-0.9996	19	0.0170	53	-0.0324
20	-0.2019	51	-0.6393	20	-0.0039	54	-0.0183	20	-0.1671	51	-1.0231	20	0.0138	54	-0.0278	20	-0.1671	51	-1.0231	20	0.0138	54	-0.0278	20	-0.1671	51	-1.0231	20	0.0138	54	-0.0278
21	-0.1716	52	-0.8390	21	-0.0008	55	-0.0146	21	-0.1375	52	-1.0762	21	0.0170	55	-0.0241	21	-0.1375	52	-1.0762	21	0.0170	55	-0.0241	21	-0.1375	52	-1.0762	21	0.0170	55	-0.0241
22	-0.1562	53	-0.9035	22	-0.0162	56	-0.0109	22	-0.1312	53	-1.0830	22	0.0043	56	-0.0214	22	-0.1312	53	-1.0830	22	0.0043	56	-0.0214	22	-0.1312	53	-1.0830	22	0.0043	56	-0.0214
23	-0.1046	54	-0.9191	23	-0.0064	57	-0.0015	23	-0.0834	54	-1.0762	23	0.0147	57	-0.0104	23	-0.0834	54	-1.0762	23	0.0147	57	-0.0104	23	-0.0834	54	-1.0762	23	0.0147	57	-0.0104
24	-0.0799	55	-0.9171	24	-0.0087	58	0.0035	24	-0.0625	55	-1.0743	24	0.0107	58	-0.0052	24	-0.0625	55	-1.0743	24	0.0107	58	-0.0052	24	-0.0625	55	-1.0743	24	0.0107	58	-0.0052
25	-0.0595	56	-0.9128	25	-0.0060	59	0.0053	25	-0.0436	56	-1.0624	25	0.0132	59	-0.0022	25	-0.0436	56	-1.0624	25	0.0132	59	-0.0022	25	-0.0436	56	-1.0624	25	0.0132	59	-0.0022
26	-0.0278	57	-0.8939	26	-0.0006	60	0.0154	26	-0.0149	57	-1.0362	26	0.0161	60	0.0116	26	-0.0149	57	-1.0362	26	0.0161	60	0.0116	26	-0.0149	57	-1.0362	26	0.0161	60	0.0116
27	-0.0052	58	-0.8551	27	0.0017	61	0.0184	27	0.0052	58	-0.9945	27	0.0187	61	0.0174	27	0.0052	58	-0.9945	27	0.0187	61	0.0174	27	0.0052	58	-0.9945	27	0.0187	61	0.0174
28	0.0338	59	-0.8179	28	0.0022	62	0.0226	28	0.0448	59	-0.9550	28	0.0189	62	0.0222	28	0.0448	59	-0.9550	28	0.0189	62	0.0222	28	0.0448	59	-0.9550	28	0.0189	62	0.0222
29	0.0657	60	-0.7626	29	0.0052	63	0.0266	29	0.0718	60	-0.9078	29	0.0174	63	0.0277	29	0.0718	60	-0.9078	29	0.0174	63	0.0277	29	0.0718	60	-0.9078	29	0.0174	63	0.0277
30	0.1078	61	-0.7269	30	0.0028	64	0.0175	30	0.1128	61	-0.8842	30	0.0131	64	0.0182	30	0.1128	61	-0.8842	30	0.0131	64	0.0182	30	0.1128	61	-0.8842	30	0.0131	64	0.0182
31	0.1531	62	-0.6928	31	0.0065	65	0.0117	31	0.1552	62	-0.8617	31	0.0108	65	0.0146	31	0.1552	62	-0.8617	31	0.0108	65	0.0146	31	0.1552	62	-0.8617	31	0.0108	65	0.0146
		63	-0.6799	32	-0.0064	66	0.0196			63	-0.8504	32	-0.0044	66	0.0214			63	-0.8504	32	-0.0044	66	0.0214			63	-0.8504	32	-0.0044	66	0.0214
		64	-0.5366	33	0.0162	67	0.0116			64	-0.6981	33	0.0175	67	0.0122			64	-0.6981	33	0.0175	67	0.0122			64	-0.6981	33	0.0175	67	0.0122
		65	-0.3911	34	0.1439	68	-0.0045			65	-0.5767	34	0.1494	68	-0.0070			65	-0.5767	34	0.1494	68	-0.0070			65	-0.5767	34	0.1494	68	-0.0070
		66	-0.1927							66	-0.3741							66	-0.3741							66	-0.3741				

MACH = 0.754 ALPHA = 2.98								RE = 3.80 x 10 ⁶							
MODEL				WALLS				MODEL				WALLS			
N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP	N°	CP
1	1.0651	32	0.1891	1	0.0450	35	0.0462	1	0.0450	35	0.0462	1	0.0450	35	0.0462
2	0.4850	33	0.0952	2	0.0331	36	-0.0247	2	0.0331	36	-0.0247	2	0.0331	36	-0.0247
3	0.2767	34	0.0555	3	0.0186	37	-0.0320	3	0.0186	37	-0.0320	3	0.0186	37	-0.0320
4	0.0237	35	0.0165	4	0.0260	38	-0.0345	4	0.0260	38	-0.0345	4	0.0260	38	-0.0345
5	-0.0325	36	-0.0130	5	0.0326	39	-0.0381	5	0.0326	39	-0.0381	5	0.0326	39	-0.0381
6	-0.1491	37	-0.0449	6	0.0373	40	-0.0387	6	0.0373	40	-0.0387	6	0.0373	40	-0.

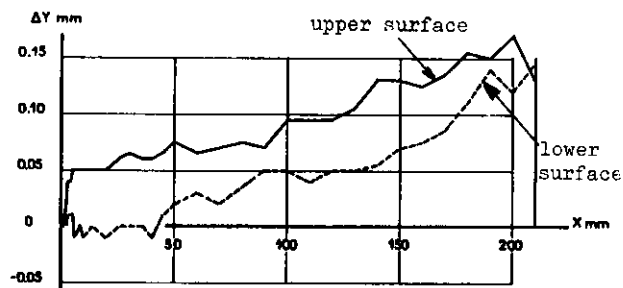


Fig. 1.1. DEVIATION OF REALIZED MODEL FROM THEORITICAL SHAPE

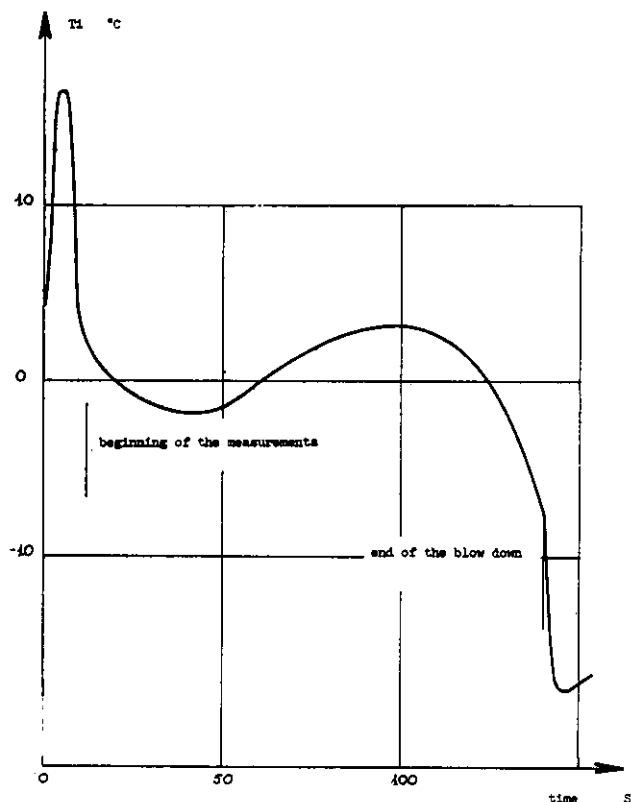


Fig. 1.2 EVOLUTION OF THE STAGNATION TEMPERATURE DURING A BLOW DOWN

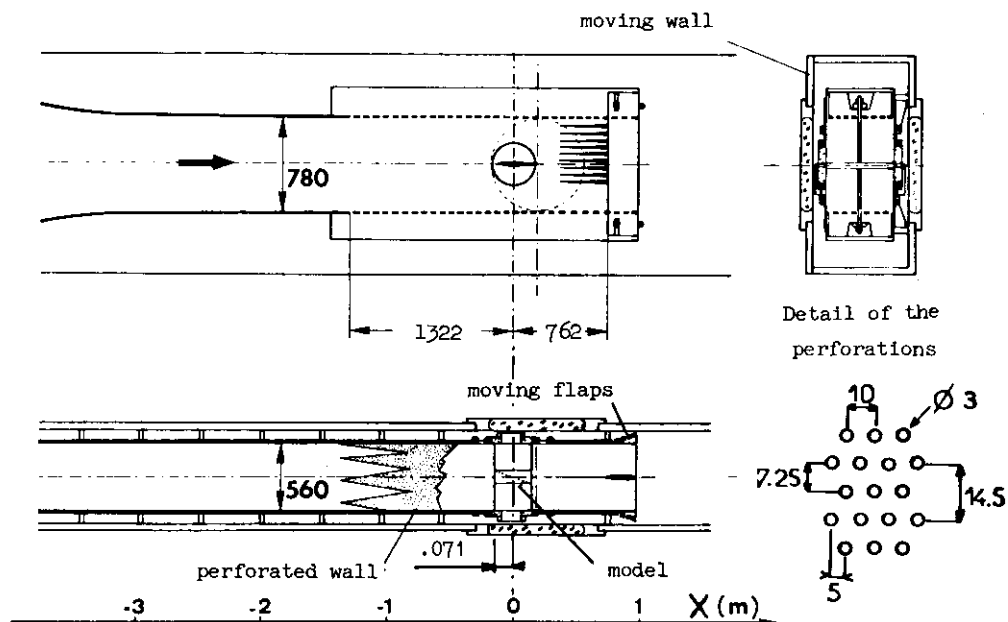


Fig. 1.3 MODEL INSTALLATION IN THE S3MA TRANSONIC WIND TUNNEL

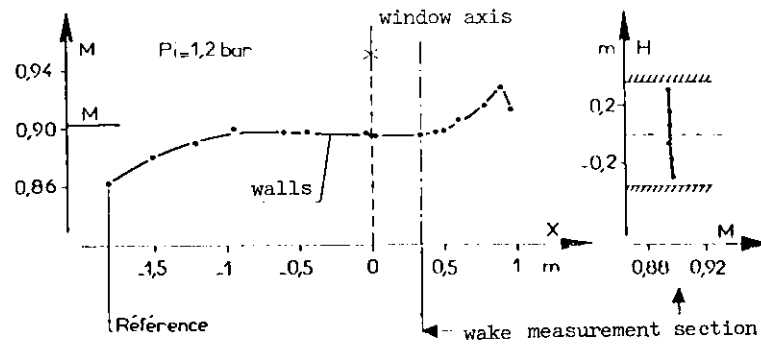


Fig. 1.4a Mach number distribution in the wind tunnel

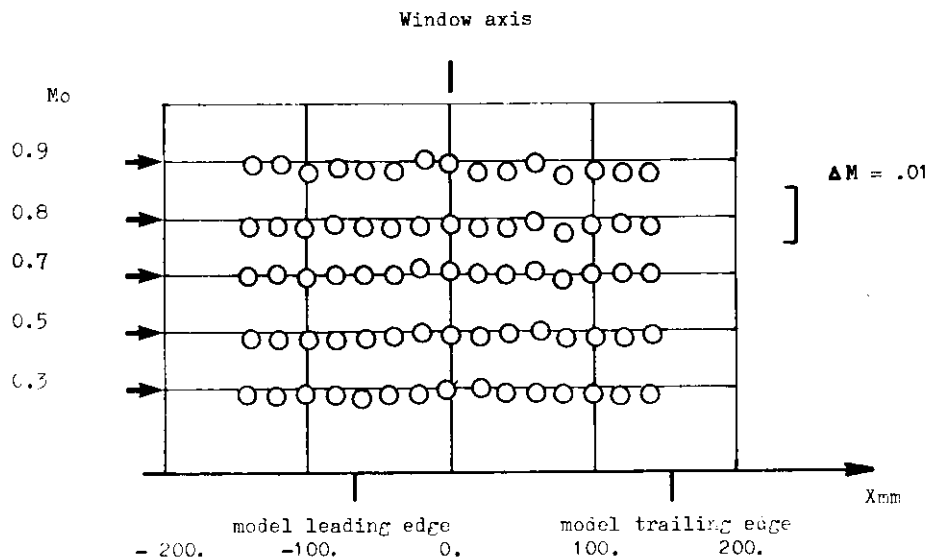


Fig. 1.4b Mach number distributions in the model region

Fig. 1.4 S3MA TUNNEL EMPTY TEST SECTION CALIBRATION DATA

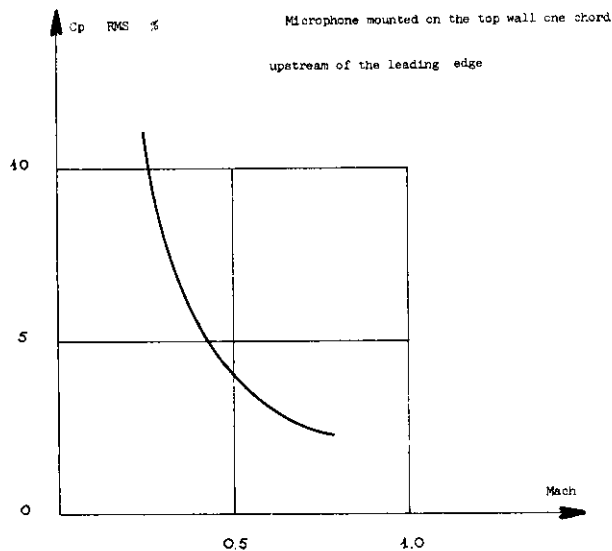


Fig. 1.5 NOISE LEVEL

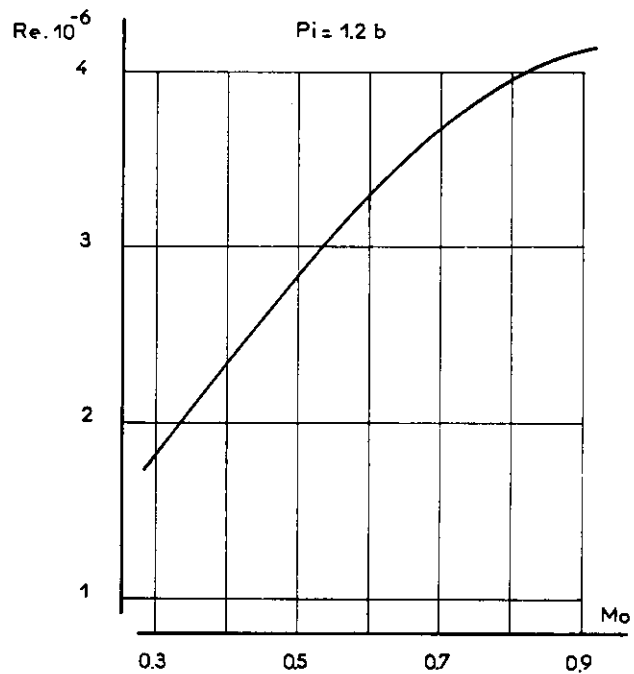


Fig. 1.6 REYNOLDS NUMBER BASED ON CHORD LENGTH

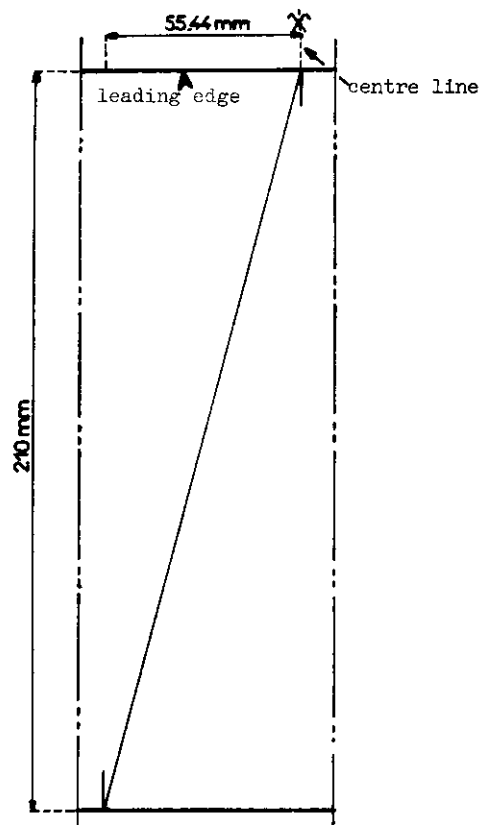
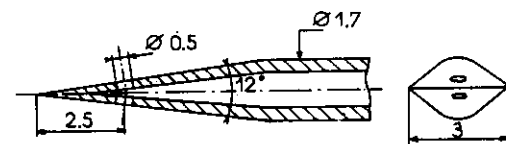
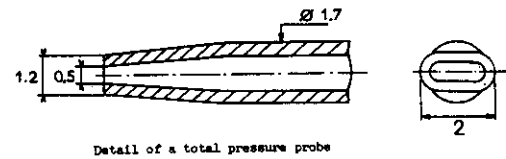
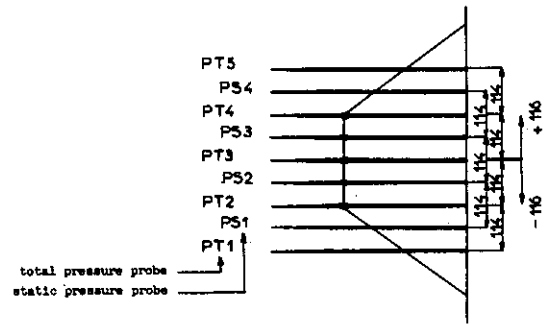
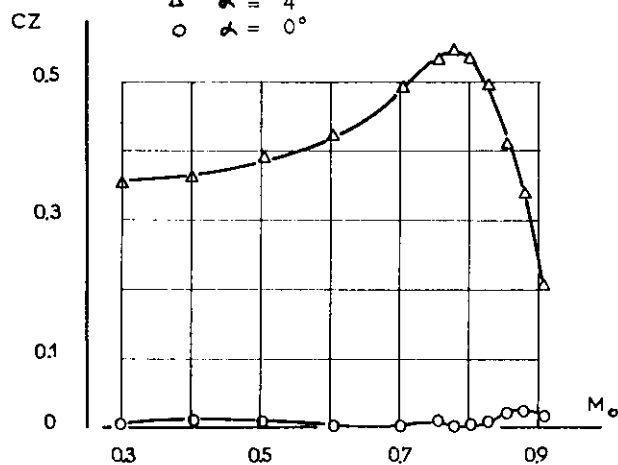
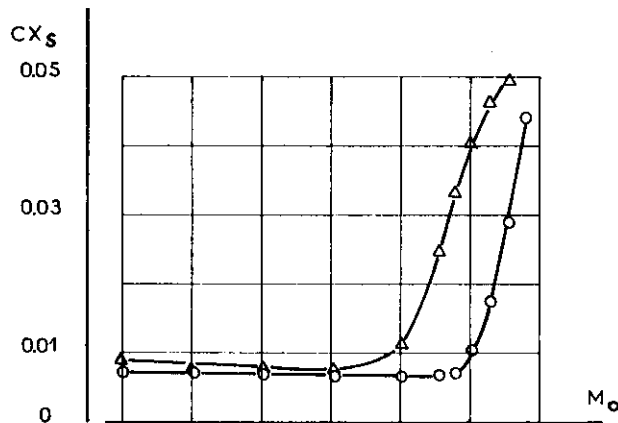


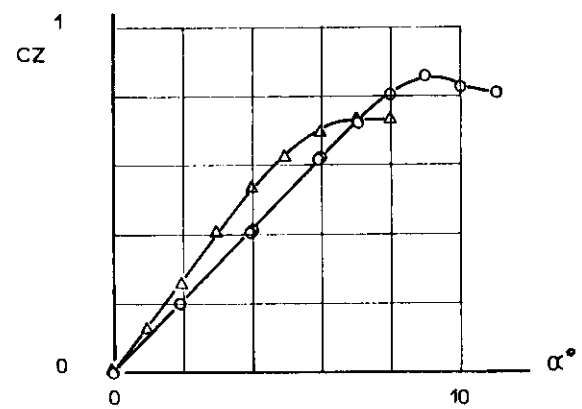
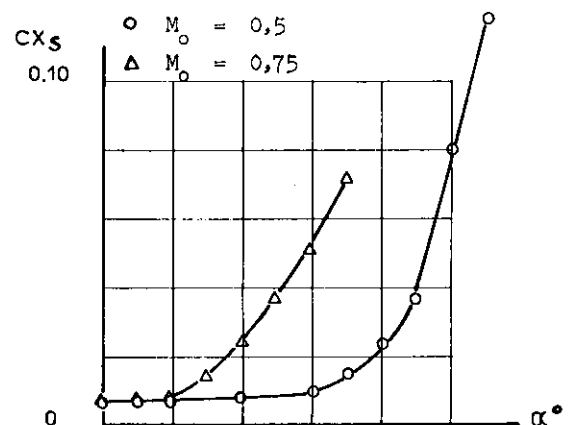
Fig. 1.7 SPANWISE LOCATION OF THE MODEL PRESSURE HOLES



Detail of a static pressure probe
 Fig. 1.8 WAKE RAKE



Lift and drag versus Mach number



Lift and drag versus angle of attack

FIG. 1.9 EVOLUTIONS OF THE AERODYNAMIC COEFFICIENTS

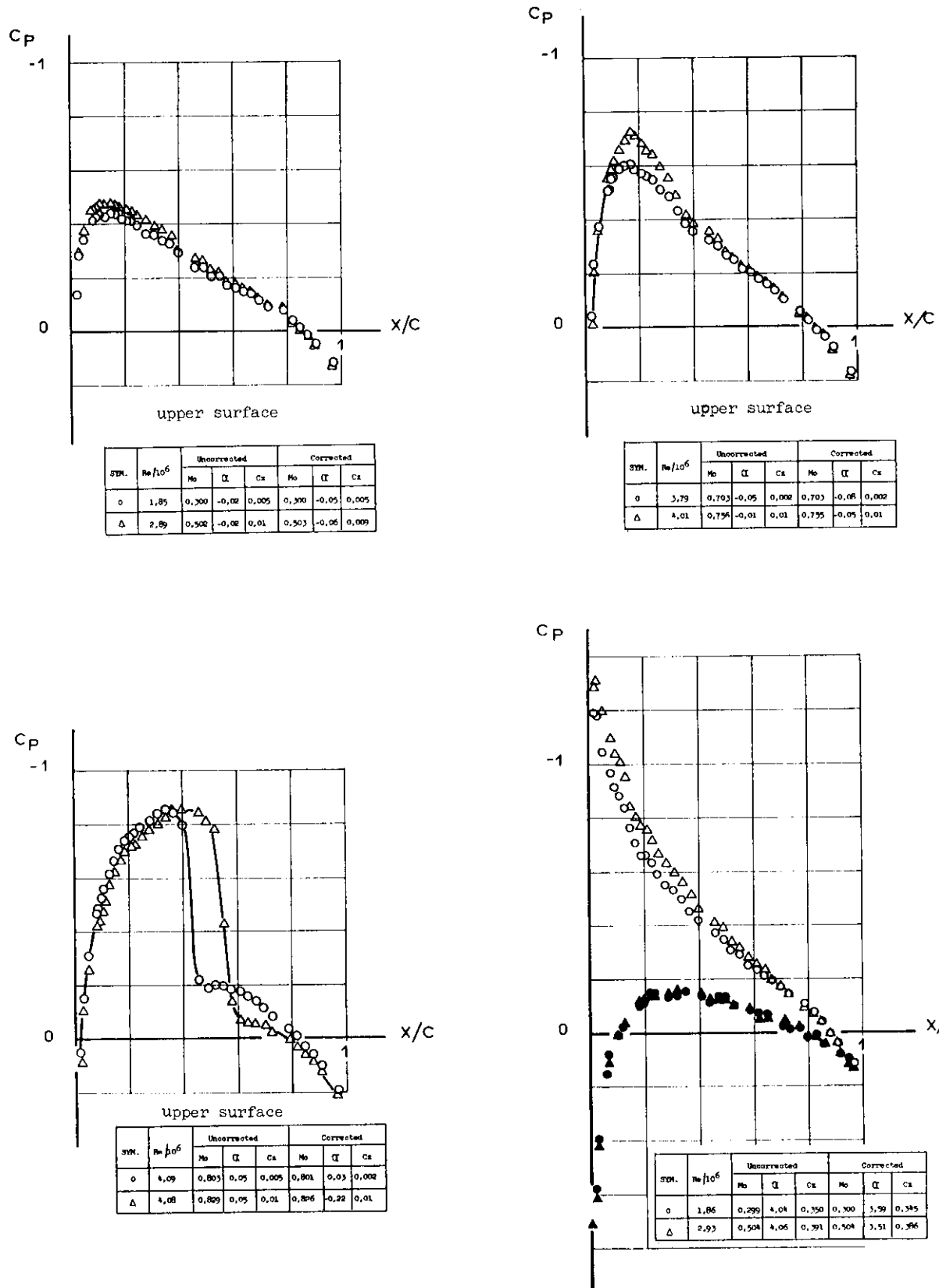


FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS

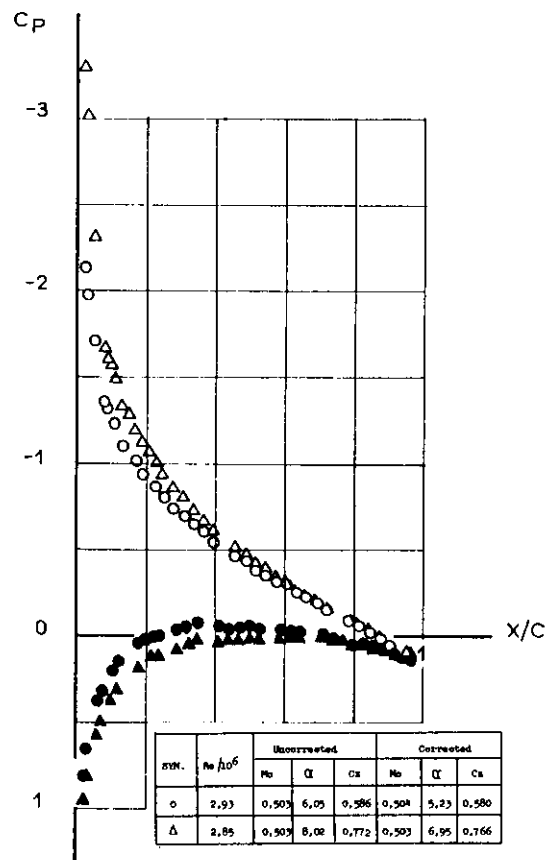
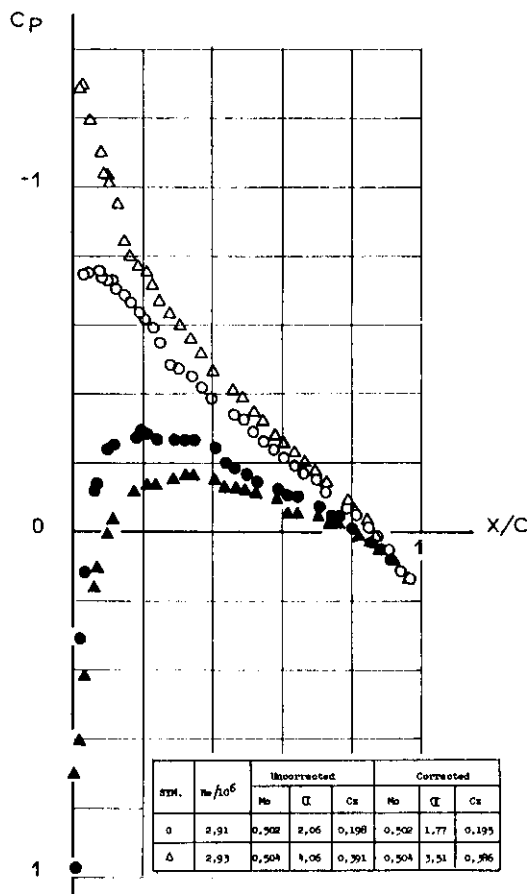
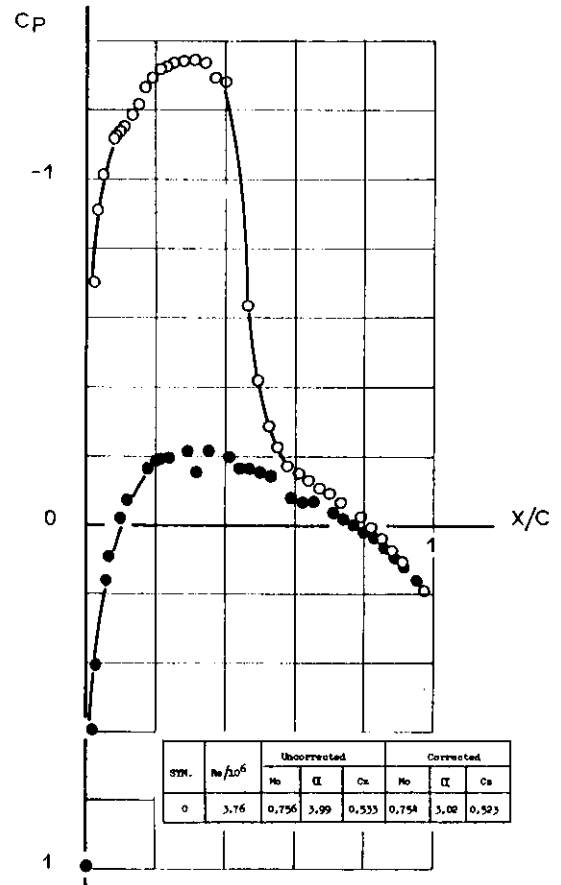
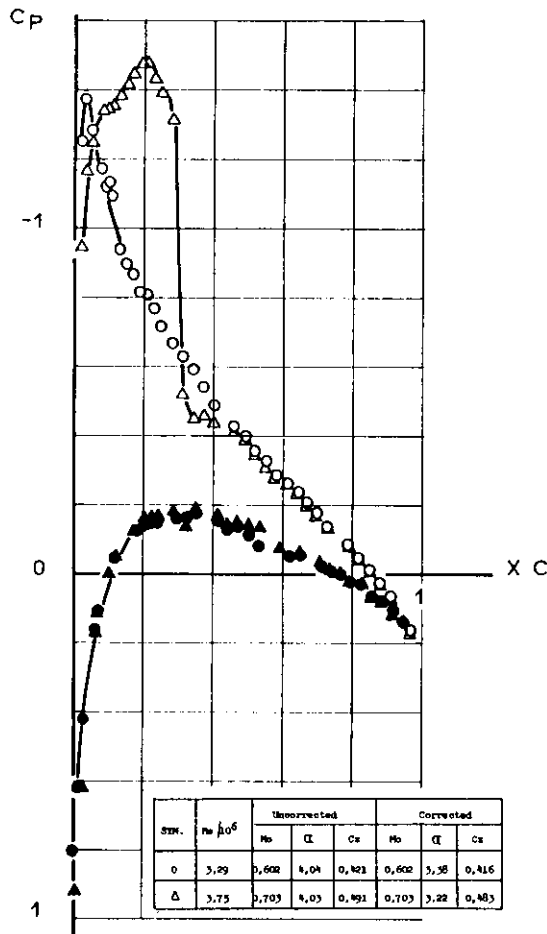


FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS (CON'D)

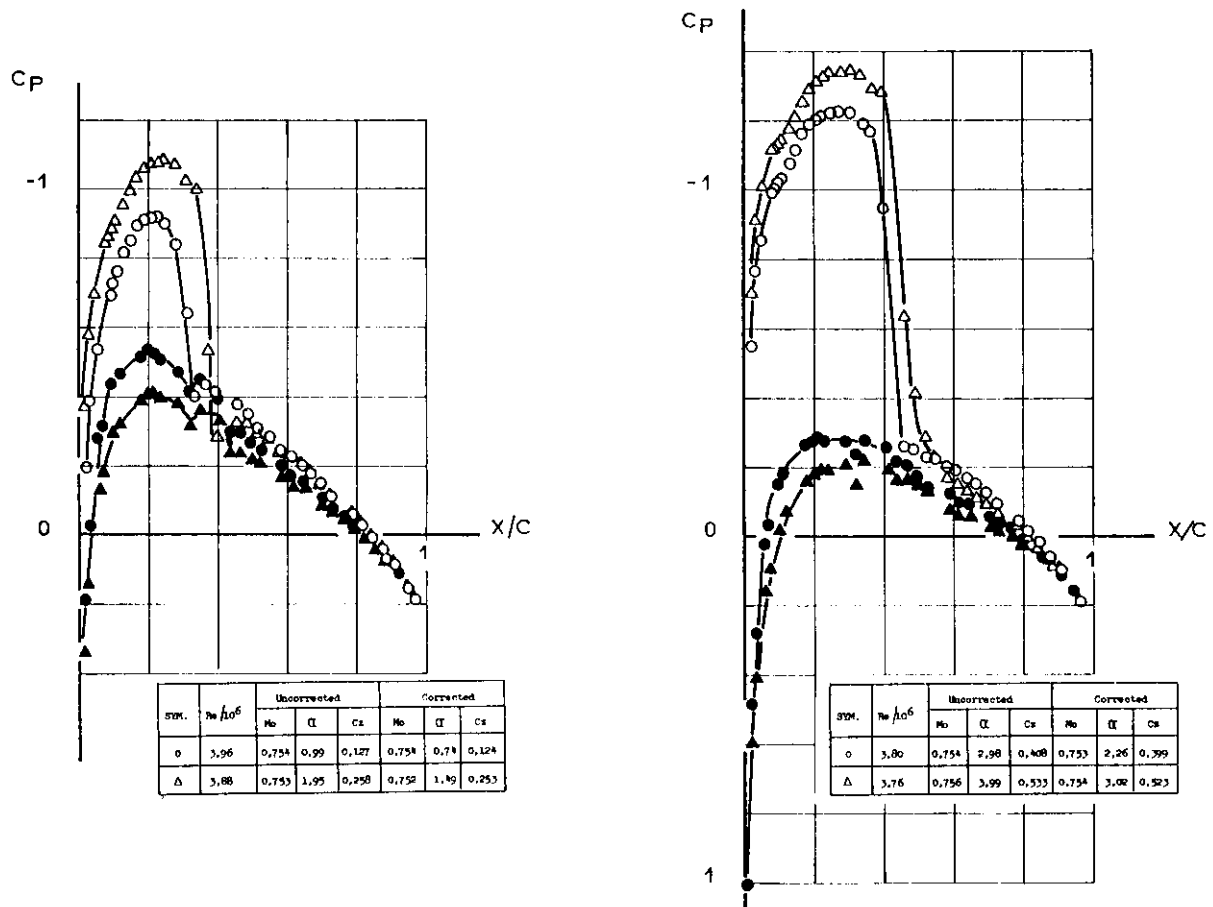


FIG.1.10 SURFACE PRESSURE DISTRIBUTIONS (CON'D)

1.3 DATA SET FROM NAE HIGH SPEED TUNNEL

These data are extracted from a larger body of data obtained in a collaborative program with ONERA. The selected data is primarily aimed at providing high Reynolds number experimental results under as close to interference free conditions as possible.

1. Airfoil

1.1 Airfoil designation	NACA 0012
1.2 Type of airfoil	symmetrical
1.2.1 airfoil geometry	Figure 1.11
nose radius	$r/c = 1.58\%$
maximum thickness	$t/c = 12\%$
base thickness	0.252% chord
1.2.2 design condition	-
1.3 Additional remarks	None
1.4 References on airfoil	1

2. Model geometry

2.1 Chord length	0.300 m
2.2 Span	0.381 m
2.3 Actual model co-ordinates and accuracy	Table 1.5
2.4 Maximum thickness	$t/c = 12\%$
2.5 Base thickness	0.252% chord
2.6 Additional remarks	None
2.7 References on model	2

3. Wind tunnel

3.1 Designation	NAE 5-ft x 5-ft trisonic W/T with 2-D insert
3.2 Type of tunnel	Blowdown
3.2.1 stagnation pressure	2-11 bars
3.2.2 stagnation temperature	293 K, max drop ~5K during a run
3.2.3 humidity/dew point	0.0002 kg H ₂ O/Kg air
3.3 Test section	Rectangular, Fig. 1.12
3.3.1 dimensions	0.38m x 1.52m
3.3.2 type of walls	Perforated top and bottom 20.5% porosity φ 12.7 mm normal holes at 26.4 mm spacing
3.4 Flow field (empty test section)	
3.4.1 reference static pressure	at sidewall 6.48 chord upstream of model LE
3.4.2 flow angularity	-not determined
3.4.3 Mach number distribution	Fig. 1.13
3.4.4 pressure gradient	Fig. 1.13
3.4.5 turbulence/noise level	free stream $\left(\frac{\Delta p}{q}\right)_{rms} = 0.008$ at $M_{\infty} = 0.8$
3.4.6 side wall boundary layer	$\delta^* \leq 2.5$ mm $\frac{2\delta^*}{B} \leq 0.013$
3.5 Additional remarks	sidewall suction over an area 1.8 x 2.4 chord around model
3.6 References on wind tunnel	3, 4

4. Tests

4.1 Type of measurements	force balance surface pressure wake pitot pressure
4.2 Tunnel/model dimensions	
4.2.1 height/chord ratio	5/1
4.2.3 width/chord ratio	1.27/1

4.3 Flow conditions included in present data base

4.3.1 angle of attack	nominally 0°	} see Table 1.6
4.3.2 Mach number	0.5 - 0.93	
4.3.3 Reynolds number	17 to 43 x 10 ⁶	
4.3.4 transition	free transition	
-position of free transition	not established	
-transition fixing		
4.3.5 temperature equilibrium	yes	

4.4 Additional remarks

4.5 References on tests 2

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 pressure holes	80
-size	φ 0.40 mm
-spanwise station(s)	centre span in a line 15° to flow direction
-chordwise positions	see Table 1.5
5.1.2 type of transducers and scanning devices	Two D9 scanivalves with 200 psia Kulite VQS-500-200A
5.1.3 other	scan rate for 5.1.2 20 ports/sec.

5.2 Wake measurements

5.2.1 type/size of instrument(s)	Traversing probe, see Fig.1.12 OD/ID = 2.286/1.524 mm
5.2.2 streamwise position(s)	1.27 x chord downstream of TE
5.2.3 type of transducers and scanning devices	50 psid Statham PM 131 TC

5.3 Boundary layer measurements

5.3.1 type/size of instruments	-
5.3.2 locations	
5.3.3 type of transducers and scanning devices	

5.4 Skin friction measurements

5.4.1 type/size of instruments	-
5.4.3 type of transducer	

5.5 Flow visualisation

5.5.1 flow field	
5.5.2 surface flow	at $\alpha_g = 5^\circ$ $M_\infty = 0.76$ $Re = 24 \times 10^6$ and different sidewall suction (Data not included in Data Base)

5.6 other

5.7 Additional remarks two three-component balances for force measurements

5.8 References on instrumentation 2, 4

6. Data

6.1 Accuracy (wall interference excluded)

6.1.1 angle of attack setting	± 0.02°

- 6.1.2 free stream Mach number:
- setting ± 0.003
 - variation during one pressure scan ± 0.003
- 6.1.3 pressure coefficients $\Delta C_p \leq \begin{matrix} 0.017 & (q = 12) \\ 0.004 & (q = 50) \end{matrix} + 0.007 |C_p|$
- 6.1.4 aerodynamic coefficients
- 6.1.5 boundary layer quantities
- 6.1.6 repeatability
- Generally
- | | | | | | |
|------------------|--------------|------------------|--------------|------------------|--------------|
| ΔC_{N_P} | ± 0.005 | ΔC_{X_P} | ± 0.0005 | ΔC_{M_P} | ± 0.0005 |
| ΔC_{N_B} | ± 0.005 | ΔC_{X_B} | ± 0.0005 | ΔC_{M_B} | ± 0.0005 |
| ΔC_{D_W} | ± 0.0015 | | | | |
- 6.1.7 remarks
- 6.2 Wall interference corrections (indicate estimated accuracy) No corrections
- 6.2.5 remarks since supplied data are for nearly zero lift all wall corrections can be considered negligible.
- 6.2.6 references on wall interference correction 5, 6
- 6.3 Presentation of data
- 6.3.1 aerodynamic coefficients Table 1.6
- 6.3.2 surface pressures Table 1.7 - 1.15, Figure 1.14 - 1.22
- 6.3.3 boundary layer quantities
- 6.3.4 wall interference corrections included ? No
- 6.3.5 corrections for model deflection No
- 6.3.6 empty test section calibration taken into account ? Yes
- 6.3.7 other corrections included ? No
- 6.3.8 additional remarks Wake drag data are those obtained from probe on ξ only.
- 6.4 Were tests carried out in different facilities on the current airfoil ? Yes, in ONERA S3 wind tunnel.
 If so, what facilities. Are data included in the present data base ?
- 6.5 To be contacted for further information on tests. L.H. Ohman - High Speed Aerodynamics Laboratory
 NAE/NRC Ottawa, Ontario, Canada.

7. References

1. I.H. Abbott / A.E. von Doenhoff Theory of wing sections.
Dover Publications Inc., New York
2. R.C. Dixon High Reynolds Number Investigation of an ONERA model of the NACA 0012 Airfoil Section
NRC/NAE LTR-HA-5x5/0069 1975
3. L.H. Ohman et al The NAE High Reynolds Number 15in x 16in two-dimensional test facility
NRC/NAE LTR-HA-4 April, 1970
4. L.H. Ohman The NAE 15in x 60in two-dimensional test facility: new features and some related observations, results of new centre line calibration at 20.5% porosity
NRC/NAE LTR-HA-15 March, 1973
5. D.J. Peake / A.J. Bowker A simple streamwise momentum analysis to indicate an empirical correction to angle of incidence in two-dimensional, transonic flow, due to a perforated floor and ceiling of the wind tunnel.
NRC/NAE LTR-HA-11 January, 1973
6. M. Mokry et al Wall interference on 2D supercritical airfoils, using wall pressure measurements to determine

the porosity factors for tunnel floor and ceiling.

February, 1974

B	tunnel width = model span
C	model chord
H	tunnel height
M, MLOC	local Mach number
M_{∞} , MTUN	free stream Mach number
P	local static pressure
P_{∞} , PS	free stream static pressure
PO	free stream total pressure
Re	Reynolds number based on model chord
q_{∞} , Q	free stream dynamic pressure
V/U	relative sidewall suction <u>velocity $\perp$ sidewall</u> free stream velocity
C_p , CP	$\frac{P-P_{\infty}}{q_{\infty}}$ pressure coefficient
C_N , CN	normal force coefficient
C_X , CX	chord force coefficient
C_M , CMC4	pitching moment coefficient, about 1/4 chord
C_{DW}	wake drag coefficient
X	streamwise coordinate model origin: LE W/T origin: balance $\mathcal{L}$ = 0.364 model X/C
α_g	geometric angle of attack, angle between chordline and tunnel $\mathcal{L}$
subscript P refers to pressure data	
B	balance data
d	design data
m	model data
L	lower surface
U	upper surface

Table 1.5 Model Geometry and Pressure Hole Locations

Pressure Hole	(X/C) m	(Y/C) m	(Y/C) d	(Y/C) - (Y/C) m d
42U	0.97000	0.00510	0.00539	-0.00029
40U	0.90920	0.01300	0.01333	-0.00033
38U	0.84930	0.02030	0.02061	-0.00031
37U	0.81940	0.02380	0.02406	-0.00026
36U	0.78960	0.02710	0.02738	-0.00028
35U	0.75950	0.03040	0.03061	-0.00021
34U	0.72950	0.03350	0.03371	-0.00021
33U	0.69960	0.03650	0.03668	-0.00018
32U	0.66930	0.03940	0.03956	-0.00016
31U	0.63950	0.04210	0.04226	-0.00016
30U	0.60960	0.04470	0.04484	-0.00014
29U	0.58390	0.04680	0.04693	-0.00013
28U	0.54960	0.04940	0.04955	-0.00015
27U	0.51990	0.05160	0.05164	-0.00004
26U	0.48920	0.05360	0.05361	-0.00001
25U	0.45910	0.05530	0.05533	-0.00003
24U	0.42960	0.05670	0.05680	-0.00010
23U	0.39900	0.05800	0.05807	-0.00007
22U	0.36960	0.05890	0.05902	-0.00012
21U	0.33880	0.05960	0.05969	-0.00009
20U	0.30910	0.06000	0.06000	0.00000
19U	0.27930	0.06000	0.05992	0.00008
18U	0.24940	0.05950	0.05940	0.00010
17U	0.22940	0.05880	0.05877	0.00003
16U	0.20930	0.05800	0.05788	0.00012
15U	0.18930	0.05680	0.05671	0.00009
14U	0.16880	0.05530	0.05519	0.00011
13U	0.14950	0.05350	0.05340	0.00010
12U	0.12950	0.05140	0.05113	0.00027
11U	0.10940	0.04860	0.04834	0.00026
10U	0.09920	0.04700	0.04669	0.00031
9U	0.08950	0.04530	0.04496	0.00034
8U	0.07900	0.04320	0.04286	0.00034
7U	0.06960	0.04110	0.04077	0.00033
6U	0.05960	0.03860	0.03827	0.00033
5U	0.04960	0.03580	0.03543	0.00037
4U	0.03990	0.03260	0.03224	0.00036
3U	0.02930	0.02850	0.02810	0.00040
2U	0.01920	0.02360	0.02316	0.00044
1U	0.00880	0.01660	0.01603	0.00057
OLE	0.00000	0.00000	0.00000	0.00000
1L	0.00940	-0.01680	-0.01654	-0.00026
2L	0.01940	-0.02340	-0.02327	-0.00013
3L	0.02970	-0.02840	-0.02827	-0.00013
4L	0.03950	-0.03210	-0.03210	-0.00000
5L	0.04980	-0.03550	-0.03549	-0.00001
6L	0.05920	-0.03820	-0.03816	-0.00004
7L	0.07000	-0.04090	-0.04086	-0.00004
8L	0.07910	-0.04270	-0.04288	0.00018
9L	0.08950	-0.04500	-0.04496	-0.00004
10L	0.09960	-0.04680	-0.04676	-0.00004
11L	0.11980	-0.04990	-0.04985	-0.00005
12L	0.13980	-0.05230	-0.05236	0.00006
13L	0.15980	-0.05430	-0.05440	0.00010
14L	0.17940	-0.05600	-0.05602	0.00002
15L	0.19960	-0.05730	-0.05735	0.00005
16L	0.21960	-0.05830	-0.05837	0.00007
17L	0.23990	-0.05910	-0.05913	0.00003
18L	0.25950	-0.05960	-0.05963	0.00003
19L	0.28950	-0.06000	-0.05999	-0.00001
20L	0.31930	-0.06000	-0.05993	-0.00007
21L	0.34960	-0.05960	-0.05949	-0.00011
22L	0.37960	-0.05880	-0.05872	-0.00008
23L	0.40980	-0.05770	-0.05765	-0.00005
24L	0.43940	-0.05640	-0.05634	-0.00006
25L	0.46980	-0.05480	-0.05474	-0.00006
26L	0.49960	-0.05300	-0.05297	-0.00003
27L	0.52990	-0.05110	-0.05096	-0.00014
28L	0.55990	-0.04890	-0.04879	-0.00011
29L	0.59010	-0.04650	-0.04644	-0.00006
30L	0.61940	-0.04410	-0.04401	-0.00009
31L	0.64980	-0.04150	-0.04134	-0.00016
34L	0.73920	-0.03290	-0.03272	-0.00018
35L	0.76960	-0.02970	-0.02954	-0.00016
36L	0.79980	-0.02650	-0.02625	-0.00025
37L	0.82950	-0.02310	-0.02291	-0.00019
38L	0.86020	-0.01960	-0.01932	-0.00028
39L	0.88970	-0.01610	-0.01575	-0.00035
40L	0.91980	-0.01240	-0.01198	-0.00042
41L	0.94980	-0.00850	-0.00809	-0.00041

TABLE 1.6

AERODYNAMICS COEFFICIENTS

TABLE	FIG	M_∞	Re		α_g°	PRESSURE			BALANCE			C_{D_W}	RUN NO.	SCAN NO.
			10^{-6}			C_{N_P}	C_{X_P}	C_{M_P}	C_{N_B}	C_{X_B}	C_{M_B}			
1.7	1.14	0.490	17.5	-0.12		-0.020	0.0011	0.001	-0.019	0.0031	0.002	0.0081	2777	2
1.8	1.15	0.693	22.2	-0.13		-0.017	0.0033	-0.002	-0.020	0.0075	0.001	0.0078	2763	2
1.9	1.16	0.696	36.7	-0.13		-0.025	0.0027	-0.002	-0.021	0.0074	0.001	0.0081	2767	1
1.10	1.17	0.776	23.7	-0.13		-0.017	0.0060	-0.002	-0.020	0.0101	0.000	0.0082	2788	1
1.11	1.18	0.814	24.7	-0.13		-0.020	0.0121	-0.001	-0.019	0.0168	0.000	0.0132	2753	2
1.12	1.19	0.817	32.3	-0.13		-0.009	0.0137	-0.004	-0.011	0.0179	0.000	0.0147	2801	1
1.13	1.20	0.835	24.7	-0.13		-0.004	0.0198	-0.003	-0.007	0.0246	-0.001	0.0198	2789	1
1.14	1.21	0.918	25.9	-0.17		0.060	0.0678	-0.038	0.007	0.0703	-0.013	0.0603	2775	2
1.15	1.22	0.930	42.8	-0.18		0.018	0.0764	-0.023	0.002	0.0770	-0.011	0.0610	2784	1

TABLE 1.7

SURFACE PRESSURE MEASUREMENTS

SCAN	RUN NUMBER 2777							ONERA 2D TESTS	
	M	RE/F6	P0	T0	P1	Q	V/U		
2	0.490	17.51	87.44	536.52	74.16	12.50	0.0073		
	TUBE	X/C	CP	MLOC	P/P0	P/PS	MTUN		
	1U	0.0088	0.194	0.440	0.876	1.032	0.490		
	2U	0.0192	-0.114	0.519	0.832	0.981	0.490		
	3U	0.0293	-0.239	0.549	0.815	0.960	0.490		
	4U	0.0399	-0.341	0.573	0.801	0.943	0.490		
	5U	0.0496	-0.345	0.574	0.800	0.943	0.489		
	6U	0.0596	-0.386	0.583	0.794	0.936	0.490		
	7U	0.0696	-0.417	0.592	0.789	0.930	0.491		
	8U	0.0790	-0.456	0.601	0.783	0.924	0.491		
	9U	0.0895	-0.450	0.599	0.785	0.925	0.491		
	10U	0.0992	-0.468	0.602	0.783	0.922	0.490		
	11U	0.1094	-0.477	0.605	0.781	0.921	0.490		
	12U	0.1295	-0.467	0.604	0.782	0.922	0.491		
	13U	0.1495	-0.475	0.607	0.780	0.920	0.492		
	14U	0.1688	-0.444	0.600	0.784	0.926	0.492		
	15U	0.1893	-0.450	0.600	0.784	0.925	0.491		
	16U	0.2093	-0.437	0.598	0.786	0.927	0.492		
	17U	0.2295	-0.409	0.591	0.790	0.932	0.491		
	18U	0.2494	-0.419	0.592	0.789	0.930	0.491		
	19U	0.2793	-0.391	0.587	0.792	0.935	0.491		
	20U	0.3091	-0.376	0.584	0.794	0.937	0.492		
	21U	0.3388	-0.357	0.579	0.797	0.940	0.492		
	22U	0.3697	-0.338	0.572	0.801	0.944	0.489		
	23U	0.3991	-0.325	0.568	0.804	0.946	0.489		
	24U	0.4296	-0.299	0.562	0.807	0.951	0.489		
	25U	0.4592	-0.279	0.558	0.810	0.954	0.489		
	26U	0.4893	-0.261	0.554	0.812	0.956	0.490		
	27U	0.5199	-0.236	0.547	0.816	0.961	0.489		
	28U	0.5497	-0.216	0.544	0.818	0.964	0.490		
	29U	0.5840	-0.194	0.538	0.821	0.968	0.490		
	30U	0.6097	-0.178	0.535	0.823	0.970	0.491		
	31U	0.6395	-0.170	0.535	0.823	0.971	0.492		
	32U	0.6693	-0.144	0.529	0.827	0.976	0.493		
	33U	0.6996	-0.112	0.521	0.831	0.981	0.493		
	34U	0.7296	-0.092	0.516	0.834	0.984	0.493		
	35U	0.7596	-0.082	0.513	0.836	0.986	0.492		
	36U	0.7896	-0.060	0.508	0.839	0.990	0.492		
	37U	0.8194	-0.041	0.502	0.842	0.993	0.491		
	38U	0.8494	-0.014	0.495	0.846	0.998	0.491		
	40U	0.9093	0.049	0.479	0.855	1.008	0.491		
	42U	0.9700	0.142	0.454	0.868	1.023	0.490		
	OLE	0.0000	1.063	0.046	0.999	1.175	0.489		
	1L	0.0094	0.113	0.450	0.865	1.018	0.489		
	2L	0.0194	-0.135	0.522	0.830	0.978	0.489		
	3L	0.0297	-0.347	0.574	0.800	0.943	0.489		
	4L	0.0395	-0.361	0.577	0.798	0.940	0.489		
	5L	0.0498	-0.394	0.585	0.793	0.935	0.490		
	6L	0.0592	-0.439	0.596	0.786	0.927	0.490		
	7L	0.0700	-0.472	0.602	0.783	0.922	0.489		
	8L	0.0791	-0.460	0.601	0.784	0.924	0.490		
	9L	0.0895	-0.522	0.619	0.773	0.912	0.492		
	10L	0.0996	-0.497	0.612	0.777	0.917	0.492		
	11L	0.1198	-0.499	0.611	0.778	0.917	0.491		
	12L	0.1398	-0.502	0.613	0.776	0.916	0.492		
	13L	0.1598	-0.497	0.612	0.776	0.917	0.492		
	14L	0.1794	-0.481	0.609	0.779	0.919	0.492		
	15L	0.1995	-0.475	0.608	0.780	0.920	0.493		
	16L	0.2196	-0.458	0.601	0.784	0.924	0.490		
	17L	0.2399	-0.452	0.601	0.784	0.924	0.491		
	18L	0.2596	-0.440	0.597	0.786	0.927	0.491		
	19L	0.2895	-0.421	0.593	0.788	0.930	0.491		
	20L	0.3193	-0.401	0.587	0.792	0.934	0.490		
	21L	0.3496	-0.391	0.585	0.793	0.935	0.490		
	22L	0.3796	-0.368	0.580	0.797	0.939	0.490		
	23L	0.4098	-0.347	0.575	0.800	0.942	0.490		
	24L	0.4394	-0.304	0.566	0.805	0.949	0.491		
	25L	0.4699	-0.291	0.563	0.807	0.951	0.491		
	26L	0.4996	-0.239	0.550	0.814	0.960	0.491		
	27L	0.5299	-0.240	0.549	0.815	0.960	0.490		
	28L	0.5600	-0.221	0.546	0.817	0.963	0.491		
	29L	0.5902	-0.208	0.542	0.819	0.965	0.490		
	30L	0.6194	-0.188	0.537	0.822	0.969	0.490		
	31L	0.6499	-0.171	0.534	0.823	0.971	0.492		
	34L	0.7393	-0.085	0.513	0.836	0.986	0.491		
	35L	0.7697	-0.072	0.510	0.837	0.988	0.492		
	36L	0.7998	-0.061	0.508	0.839	0.990	0.492		
	37L	0.8296	-0.049	0.505	0.840	0.992	0.492		
	38L	0.8603	-0.014	0.496	0.846	0.998	0.492		
	39L	0.8898	0.012	0.489	0.850	1.002	0.491		
	40L	0.9199	0.046	0.479	0.855	1.007	0.491		
	41L	0.9499	0.104	0.465	0.863	1.017	0.491		

TABLE 1.8

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2763							
ONERA 2D TESTS							
SCAN	M	RE/E6	P0	T0	PI	Q	V/U
2	0.693	22.15	87.24	540.31	63.32	21.25	0.0027
TUBE	X/C	CP	MLCC	P/P0	P/PS	MTUN	
1U	0.0088	0.312	0.571	0.802	1.104	0.692	
2U	0.0192	-0.031	0.703	0.719	0.990	0.692	
3U	0.0293	-0.173	0.757	0.684	0.943	0.693	
4U	0.0395	-0.323	0.814	0.647	0.893	0.694	
5U	0.0496	-0.320	0.813	0.648	0.894	0.694	
6U	0.0596	-0.419	0.850	0.624	0.861	0.694	
7U	0.0696	-0.464	0.866	0.613	0.845	0.694	
8U	0.0790	-0.508	0.881	0.604	0.831	0.693	
9U	0.0895	-0.512	0.883	0.602	0.829	0.693	
10U	0.0992	-0.544	0.896	0.594	0.819	0.694	
11U	0.1094	-0.557	0.901	0.591	0.814	0.694	
12U	0.1295	-0.562	0.902	0.590	0.813	0.693	
13U	0.1495	-0.569	0.904	0.589	0.811	0.692	
14U	0.1688	-0.543	0.894	0.595	0.819	0.693	
15U	0.1893	-0.556	0.901	0.591	0.814	0.694	
16U	0.2093	-0.532	0.891	0.598	0.823	0.693	
17U	0.2295	-0.508	0.884	0.602	0.830	0.695	
18U	0.2494	-0.515	0.885	0.601	0.828	0.694	
19U	0.2793	-0.478	0.873	0.609	0.840	0.695	
20U	0.3091	-0.460	0.864	0.615	0.847	0.693	
21U	0.3388	-0.428	0.849	0.624	0.859	0.691	
22U	0.3697	-0.399	0.843	0.628	0.867	0.694	
23U	0.3991	-0.391	0.839	0.631	0.870	0.694	
24U	0.4296	-0.356	0.826	0.640	0.882	0.693	
25U	0.4592	-0.334	0.818	0.645	0.889	0.694	
26U	0.4893	-0.306	0.807	0.652	0.898	0.694	
27U	0.5199	-0.274	0.796	0.659	0.909	0.694	
28U	0.5497	-0.251	0.786	0.665	0.917	0.693	
29U	0.5840	-0.235	0.781	0.669	0.922	0.694	
30U	0.6097	-0.220	0.773	0.674	0.928	0.691	
31U	0.6395	-0.194	0.764	0.680	0.936	0.692	
32U	0.6693	-0.174	0.756	0.685	0.943	0.692	
33U	0.6996	-0.125	0.739	0.696	0.959	0.693	
34U	0.7296	-0.103	0.732	0.701	0.966	0.694	
35U	0.7596	-0.091	0.728	0.703	0.970	0.694	
36U	0.7896	-0.058	0.717	0.710	0.981	0.695	
37U	0.8194	-0.041	0.706	0.718	0.987	0.691	
38U	0.8494	-0.009	0.694	0.725	0.997	0.691	
40U	0.9093	0.067	0.668	0.742	1.022	0.694	
42U	0.9700	0.170	0.629	0.766	1.056	0.694	
0LE	0.0000	1.133	0.032	0.999	1.378	0.694	
1L	0.0094	0.224	0.607	0.780	1.074	0.693	
2L	0.0194	-0.077	0.722	0.707	0.974	0.694	
3L	0.0297	-0.301	0.806	0.652	0.900	0.694	
4L	0.0395	-0.353	0.825	0.640	0.883	0.694	
5L	0.0498	-0.435	0.855	0.621	0.856	0.694	
6L	0.0592	-0.500	0.879	0.605	0.833	0.693	
7L	0.0700	-0.527	0.890	0.598	0.824	0.694	
8L	0.0791	-0.540	0.895	0.595	0.820	0.694	
9L	0.0895	-0.645	0.932	0.571	0.786	0.692	
10L	0.0996	-0.602	0.916	0.581	0.800	0.692	
11L	0.1198	-0.614	0.919	0.579	0.797	0.691	
12L	0.1398	-0.584	0.913	0.583	0.804	0.695	
13L	0.1598	-0.609	0.921	0.578	0.797	0.694	
14L	0.1794	-0.593	0.915	0.582	0.802	0.694	
15L	0.1996	-0.576	0.907	0.587	0.808	0.693	
16L	0.2196	-0.554	0.900	0.592	0.815	0.694	
17L	0.2399	-0.546	0.897	0.594	0.818	0.694	
18L	0.2596	-0.532	0.888	0.600	0.824	0.691	
19L	0.2895	-0.509	0.878	0.605	0.832	0.691	
20L	0.3193	-0.462	0.866	0.614	0.846	0.694	
21L	0.3496	-0.436	0.855	0.620	0.855	0.693	
22L	0.3796	-0.414	0.845	0.627	0.863	0.692	
23L	0.4098	-0.388	0.835	0.634	0.872	0.692	
24L	0.4394	-0.357	0.826	0.640	0.882	0.693	
25L	0.4699	-0.339	0.818	0.644	0.888	0.693	
26L	0.4996	-0.267	0.793	0.661	0.911	0.694	
27L	0.5299	-0.260	0.791	0.662	0.914	0.694	
28L	0.5600	-0.257	0.788	0.664	0.915	0.693	
29L	0.5902	-0.230	0.779	0.670	0.924	0.694	
30L	0.6194	-0.211	0.772	0.675	0.930	0.694	
31L	0.6499	-0.186	0.762	0.681	0.938	0.693	
34L	0.7393	-0.086	0.726	0.704	0.971	0.694	
35L	0.7697	-0.074	0.720	0.708	0.976	0.693	
36L	0.7998	-0.056	0.713	0.713	0.981	0.692	
37L	0.8296	-0.030	0.702	0.720	0.990	0.691	
38L	0.8603	0.005	0.691	0.727	1.002	0.693	
39L	0.8898	0.043	0.678	0.735	1.014	0.695	
40L	0.9199	0.071	0.667	0.743	1.024	0.694	
41L	0.9499	0.134	0.644	0.757	1.045	0.695	

TABLE 1.9

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2767					ONERA 2D TESTS		
SCAN	M	RE/E6	P0	T0	P1	Q	V/U
1	0.696	36.70	146.00	545.97	105.62	35.82	0.0028
TUBE	X/C	CP	MLDC	P/P0	P/PS	MTUN	
1U	0.0088	0.316	0.574	0.800	1.107	0.697	
2U	0.0192	-0.049	0.715	0.711	0.984	0.697	
3U	0.0293	-0.182	0.766	0.679	0.939	0.698	
4U	0.0399	-0.350	0.828	0.638	0.883	0.697	
5U	0.0496	-0.331	0.821	0.643	0.889	0.697	
6U	0.0596	-0.430	0.858	0.619	0.856	0.697	
7U	0.0696	-0.472	0.876	0.607	0.840	0.699	
8U	0.0790	-0.523	0.895	0.595	0.823	0.698	
9U	0.0895	-0.528	0.895	0.595	0.822	0.697	
10U	0.0992	-0.556	0.905	0.588	0.813	0.697	
11U	0.1094	-0.570	0.913	0.583	0.807	0.698	
12U	0.1295	-0.571	0.912	0.584	0.807	0.698	
13U	0.1495	-0.590	0.918	0.580	0.802	0.697	
14U	0.1688	-0.553	0.904	0.589	0.814	0.697	
15U	0.1893	-0.567	0.910	0.585	0.809	0.698	
16U	0.2093	-0.546	0.901	0.591	0.816	0.697	
17U	0.2295	-0.523	0.892	0.597	0.824	0.697	
18U	0.2494	-0.528	0.895	0.595	0.822	0.697	
19U	0.2793	-0.502	0.883	0.602	0.832	0.696	
20U	0.3091	-0.474	0.874	0.609	0.841	0.696	
21U	0.3388	-0.445	0.862	0.616	0.850	0.696	
22U	0.3697	-0.434	0.861	0.617	0.853	0.698	
23U	0.3991	-0.415	0.855	0.621	0.860	0.699	
24U	0.4296	-0.380	0.841	0.629	0.872	0.699	
25U	0.4592	-0.366	0.833	0.635	0.878	0.697	
26U	0.4893	-0.327	0.820	0.643	0.890	0.698	
27U	0.5199	-0.294	0.809	0.650	0.901	0.699	
28U	0.5497	-0.269	0.799	0.657	0.909	0.698	
29U	0.5840	-0.251	0.791	0.662	0.916	0.697	
30U	0.6097	-0.220	0.777	0.671	0.927	0.695	
31U	0.6395	-0.205	0.773	0.674	0.931	0.696	
32U	0.6693	-0.180	0.764	0.680	0.940	0.697	
33U	0.6996	-0.135	0.746	0.692	0.955	0.696	
34U	0.7296	-0.123	0.740	0.695	0.959	0.694	
35U	0.7596	-0.104	0.734	0.699	0.965	0.696	
36U	0.7896	-0.073	0.723	0.706	0.976	0.696	
37U	0.8194	-0.051	0.714	0.712	0.983	0.695	
38U	0.8494	-0.019	0.703	0.720	0.994	0.696	
40U	0.9093	0.055	0.676	0.737	1.018	0.697	
42U	0.9700	0.154	0.636	0.762	1.051	0.696	
0LE	0.0000	1.114	0.090	0.994	1.375	0.697	
1L	0.0094	0.178	0.630	0.766	1.060	0.699	
2L	0.0194	-0.115	0.742	0.694	0.961	0.699	
3L	0.0297	-0.341	0.826	0.640	0.886	0.698	
4L	0.0395	-0.413	0.852	0.623	0.862	0.697	
5L	0.0498	-0.468	0.873	0.609	0.842	0.697	
6L	0.0592	-0.533	0.898	0.593	0.820	0.698	
7L	0.0700	-0.556	0.908	0.587	0.812	0.699	
8L	0.0791	-0.577	0.914	0.582	0.805	0.698	
9L	0.0895	-0.667	0.948	0.561	0.776	0.697	
10L	0.0996	-0.628	0.932	0.571	0.789	0.696	
11L	0.1198	-0.642	0.935	0.569	0.785	0.695	
12L	0.1398	-0.611	0.925	0.575	0.795	0.695	
13L	0.1598	-0.624	0.930	0.573	0.791	0.696	
14L	0.1794	-0.624	0.927	0.574	0.792	0.694	
15L	0.1996	-0.605	0.922	0.577	0.797	0.695	
16L	0.2196	-0.577	0.911	0.584	0.806	0.696	
17L	0.2399	-0.569	0.910	0.585	0.809	0.697	
18L	0.2596	-0.543	0.899	0.592	0.818	0.696	
19L	0.2895	-0.520	0.890	0.598	0.826	0.695	
20L	0.3193	-0.518	0.892	0.597	0.825	0.697	
21L	0.3496	-0.498	0.884	0.602	0.832	0.698	
22L	0.3796	-0.471	0.874	0.608	0.841	0.697	
23L	0.4098	-0.439	0.861	0.617	0.852	0.697	
24L	0.4394	-0.394	0.844	0.627	0.868	0.697	
25L	0.4699	-0.365	0.835	0.633	0.877	0.698	
26L	0.4996	-0.297	0.810	0.650	0.900	0.699	
27L	0.5299	-0.303	0.810	0.649	0.899	0.697	
28L	0.5600	-0.275	0.801	0.656	0.908	0.698	
29L	0.5902	-0.248	0.791	0.662	0.917	0.698	
30L	0.6194	-0.236	0.785	0.666	0.921	0.697	
31L	0.6499	-0.197	0.770	0.675	0.934	0.697	
34L	0.7393	-0.089	0.730	0.701	0.970	0.698	
35L	0.7697	-0.082	0.727	0.703	0.973	0.697	
36L	0.7998	-0.066	0.721	0.707	0.978	0.697	
37L	0.8295	-0.038	0.710	0.715	0.987	0.696	
38L	0.8607	-0.006	0.698	0.722	0.998	0.696	
39L	0.8998	0.029	0.685	0.731	1.010	0.695	
40L	0.9199	0.064	0.672	0.739	1.021	0.697	
41L	0.9499	0.117	0.652	0.752	1.039	0.697	

TABLE 1.10

SURFACE PRESSURE MEASUREMENTS

SCAN		RUN NUMBER 2788		ONERA 2D TESTS			Q	V/U
1	M	PE/E6	PC	TO	PI			
	0.776	23.74	87.15	538.49	59.50	24.70		0.0025
TUBE	X/C	CP	MLCC	P/P0	P/PS	MTUN		
1U	0.0088	0.397	0.604	0.782	1.167	0.779		
2U	0.0192	0.048	0.758	0.684	1.020	0.778		
3U	0.0293	-0.107	0.824	0.641	0.955	0.778		
4U	0.0399	-0.267	0.892	0.597	0.888	0.776		
5U	0.0496	-0.296	0.904	0.589	0.876	0.776		
6U	0.0596	-0.384	0.946	0.562	0.838	0.778		
7U	0.0696	-0.441	0.971	0.547	0.815	0.778		
8U	0.0790	-0.501	0.997	0.530	0.790	0.777		
9U	0.0895	-0.509	1.000	0.528	0.787	0.776		
10U	0.0992	-0.602	1.044	0.502	0.748	0.777		
11U	0.1094	-0.604	1.044	0.502	0.748	0.777		
12U	0.1295	-0.677	1.075	0.484	0.719	0.774		
13U	0.1495	-0.734	1.108	0.464	0.691	0.778		
14U	0.1688	-0.723	1.101	0.468	0.697	0.777		
15U	0.1893	-0.733	1.105	0.466	0.693	0.777		
16U	0.2093	-0.719	1.099	0.469	0.699	0.777		
17U	0.2295	-0.705	1.093	0.473	0.705	0.777		
18U	0.2494	-0.717	1.099	0.469	0.699	0.777		
19U	0.2793	-0.694	1.087	0.476	0.710	0.777		
20U	0.3091	-0.544	1.016	0.519	0.773	0.776		
21U	0.3388	-0.488	0.992	0.534	0.796	0.777		
22U	0.3697	-0.467	0.981	0.540	0.805	0.777		
23U	0.3991	-0.447	0.973	0.545	0.813	0.777		
24U	0.4295	-0.412	0.958	0.555	0.827	0.778		
25U	0.4592	-0.384	0.946	0.562	0.839	0.778		
26U	0.4893	-0.348	0.928	0.574	0.854	0.777		
27U	0.5199	-0.317	0.913	0.583	0.868	0.776		
28U	0.5497	-0.283	0.899	0.592	0.881	0.776		
29U	0.5840	-0.257	0.887	0.600	0.892	0.775		
30U	0.6097	-0.230	0.876	0.607	0.904	0.776		
31U	0.6395	-0.206	0.866	0.613	0.914	0.777		
32U	0.6693	-0.179	0.856	0.620	0.925	0.778		
33U	0.6996	-0.138	0.836	0.633	0.943	0.776		
34U	0.7296	-0.114	0.826	0.640	0.953	0.777		
35U	0.7596	-0.094	0.819	0.644	0.961	0.778		
36U	0.7896	-0.058	0.804	0.654	0.976	0.778		
37U	0.8194	-0.034	0.794	0.660	0.986	0.779		
38U	0.8494	0.001	0.778	0.671	1.000	0.778		
40U	0.9093	0.084	0.742	0.694	1.035	0.778		
42U	0.9700	0.186	0.697	0.723	1.077	0.777		
CLE	0.0000	1.171	0.004	1.000	1.491	0.778		
1L	0.0094	0.312	0.641	0.759	1.131	0.778		
2L	0.0194	0.011	0.773	0.674	1.004	0.777		
3L	0.0297	-0.213	0.859	0.611	0.911	0.777		
4L	0.0395	-0.268	0.892	0.597	0.888	0.776		
5L	0.0498	-0.359	0.932	0.571	0.850	0.775		
6L	0.0592	-0.450	0.973	0.545	0.812	0.776		
7L	0.0700	-0.487	0.989	0.535	0.797	0.775		
8L	0.0791	-0.482	0.988	0.536	0.798	0.777		
9L	0.0895	-0.693	1.089	0.475	0.709	0.778		
10L	0.0996	-0.652	1.067	0.488	0.728	0.777		
11L	0.1198	-0.646	1.063	0.490	0.730	0.776		
12L	0.1398	-0.671	1.078	0.481	0.719	0.778		
13L	0.1599	-0.728	1.105	0.466	0.694	0.778		
14L	0.1794	-0.755	1.116	0.459	0.684	0.777		
15L	0.1996	-0.785	1.131	0.451	0.671	0.776		
16L	0.2196	-0.786	1.132	0.450	0.670	0.777		
17L	0.2399	-0.789	1.135	0.448	0.669	0.778		
18L	0.2596	-0.793	1.138	0.447	0.667	0.778		
19L	0.2895	-0.780	1.132	0.450	0.671	0.779		
20L	0.3193	-0.681	1.080	0.481	0.716	0.776		
21L	0.3495	-0.457	0.978	0.542	0.808	0.778		
22L	0.3795	-0.445	0.974	0.545	0.813	0.778		
23L	0.4098	-0.417	0.962	0.552	0.824	0.779		
24L	0.4394	-0.395	0.949	0.561	0.835	0.776		
25L	0.4699	-0.368	0.938	0.568	0.845	0.777		
26L	0.4996	-0.299	0.908	0.587	0.874	0.778		
27L	0.5299	-0.291	0.905	0.588	0.878	0.778		
28L	0.5600	-0.280	0.895	0.595	0.883	0.774		
29L	0.5902	-0.248	0.884	0.602	0.896	0.777		
30L	0.6194	-0.219	0.872	0.610	0.909	0.777		
31L	0.6499	-0.196	0.862	0.616	0.918	0.777		
34L	0.7393	-0.088	0.815	0.647	0.963	0.777		
35L	0.7697	-0.071	0.807	0.651	0.970	0.777		
36L	0.7998	-0.046	0.798	0.658	0.981	0.778		
37L	0.8296	-0.021	0.787	0.665	0.991	0.777		
38L	0.8603	0.015	0.770	0.676	1.006	0.776		
39L	0.8898	0.057	0.753	0.687	1.024	0.777		
40L	0.9199	0.094	0.737	0.697	1.039	0.777		
41L	0.9499	0.145	0.714	0.712	1.061	0.777		

TABLE 1.11

SURFACE PRESSURE MEASUREMENTS

SCAN		RUN NUMBER 2753		ONFRA 2D TESTS			
2	M	RE/E6	PC	T0	PI	Q	V/U
	0.814	24.70	87.20	532.51	55.37	26.19	0.0025
TUBE	X/C	CP	MLOC	P/P0	P/PS	MTUN	
1U	0.0088	0.425	0.618	0.773	1.196	0.815	
2U	0.0192	0.084	0.776	0.672	1.039	0.814	
3U	0.0293	-0.056	0.840	0.630	0.974	0.814	
4U	0.0399	-0.208	0.911	0.584	0.904	0.815	
5U	0.0496	-0.218	0.916	0.582	0.899	0.814	
6U	0.0596	-0.322	0.964	0.551	0.852	0.814	
7U	0.0696	-0.386	0.995	0.532	0.822	0.814	
8U	0.0790	-0.442	1.022	0.515	0.796	0.814	
9U	0.0895	-0.451	1.025	0.513	0.793	0.813	
10U	0.0992	-0.517	1.057	0.494	0.763	0.813	
11U	0.1094	-0.562	1.081	0.480	0.741	0.814	
12U	0.1295	-0.607	1.102	0.468	0.722	0.813	
13U	0.1495	-0.670	1.138	0.447	0.692	0.815	
14U	0.1688	-0.679	1.142	0.445	0.688	0.814	
15U	0.1893	-0.727	1.166	0.431	0.666	0.813	
16U	0.2093	-0.735	1.171	0.429	0.662	0.813	
17U	0.2295	-0.748	1.180	0.424	0.656	0.814	
18U	0.2494	-0.775	1.197	0.414	0.641	0.816	
19U	0.2793	-0.794	1.207	0.409	0.633	0.816	
20U	0.3091	-0.822	1.223	0.400	0.620	0.816	
21U	0.3388	-0.816	1.221	0.402	0.622	0.816	
22U	0.3697	-0.807	1.213	0.406	0.628	0.815	
23U	0.3991	-0.776	1.196	0.415	0.642	0.815	
24U	0.4296	-0.789	1.201	0.412	0.637	0.814	
25U	0.4592	-0.560	1.078	0.481	0.743	0.813	
26U	0.4893	-0.281	0.944	0.564	0.871	0.813	
27U	0.5199	-0.243	0.928	0.574	0.888	0.815	
28U	0.5497	-0.228	0.920	0.579	0.895	0.814	
29U	0.5840	-0.219	0.916	0.581	0.899	0.815	
30U	0.6097	-0.196	0.907	0.587	0.909	0.816	
31U	0.6395	-0.181	0.900	0.592	0.916	0.816	
32U	0.6693	-0.167	0.892	0.597	0.923	0.814	
33U	0.6996	-0.125	0.872	0.610	0.942	0.814	
34U	0.7296	-0.104	0.862	0.616	0.952	0.814	
35U	0.7596	-0.082	0.852	0.622	0.962	0.814	
36U	0.7896	-0.052	0.838	0.632	0.976	0.814	
37U	0.8194	-0.018	0.824	0.641	0.991	0.816	
38U	0.8494	0.013	0.809	0.650	1.005	0.815	
40U	0.9093	0.090	0.774	0.673	1.042	0.815	
42U	0.9700	0.199	0.724	0.705	1.092	0.815	
0LE	0.0000	1.187	0.004	1.000	1.544	0.813	
1L	0.0094	0.344	0.656	0.749	1.158	0.814	
2L	0.0194	0.046	0.794	0.660	1.022	0.814	
3L	0.0297	-0.159	0.888	0.599	0.927	0.815	
4L	0.0395	-0.213	0.913	0.583	0.902	0.814	
5L	0.0498	-0.304	0.957	0.556	0.860	0.815	
6L	0.0592	-0.403	1.003	0.527	0.814	0.814	
7L	0.0700	-0.438	1.021	0.516	0.798	0.815	
8L	0.0791	-0.439	1.019	0.517	0.798	0.813	
9L	0.0895	-0.581	1.091	0.474	0.733	0.814	
10L	0.0996	-0.590	1.098	0.470	0.727	0.816	
11L	0.1198	-0.645	1.127	0.453	0.702	0.816	
12L	0.1398	-0.630	1.116	0.460	0.710	0.814	
13L	0.1598	-0.675	1.140	0.446	0.690	0.814	
14L	0.1794	-0.722	1.165	0.432	0.668	0.814	
15L	0.1996	-0.753	1.182	0.423	0.654	0.814	
16L	0.2196	-0.766	1.190	0.418	0.646	0.815	
17L	0.2399	-0.787	1.202	0.412	0.637	0.815	
18L	0.2596	-0.804	1.211	0.407	0.629	0.815	
19L	0.2895	-0.832	1.228	0.398	0.615	0.816	
20L	0.3193	-0.836	1.230	0.397	0.614	0.815	
21L	0.3496	-0.862	1.242	0.390	0.603	0.814	
22L	0.3796	-0.869	1.248	0.388	0.599	0.814	
23L	0.4098	-0.869	1.249	0.387	0.599	0.815	
24L	0.4394	-0.845	1.231	0.396	0.612	0.813	
25L	0.4699	-0.526	1.054	0.490	0.757	0.814	
26L	0.4996	-0.265	0.937	0.568	0.878	0.814	
27L	0.5299	-0.208	0.910	0.585	0.904	0.814	
28L	0.5600	-0.205	0.907	0.587	0.906	0.813	
29L	0.5902	-0.192	0.903	0.590	0.912	0.814	
30L	0.6194	-0.178	0.895	0.595	0.918	0.813	
31L	0.6499	-0.163	0.889	0.599	0.925	0.813	
34L	0.7393	-0.075	0.848	0.625	0.965	0.813	
35L	0.7697	-0.058	0.841	0.629	0.973	0.814	
36L	0.7998	-0.036	0.832	0.636	0.983	0.815	
37L	0.8296	-0.008	0.820	0.643	0.996	0.816	
38L	0.8603	0.024	0.805	0.653	1.011	0.815	
39L	0.8898	0.061	0.788	0.664	1.028	0.816	
40L	0.9199	0.101	0.770	0.676	1.047	0.816	
41L	0.9499	0.154	0.745	0.692	1.071	0.814	

TABLE 1.12

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2801				ONERA 2D TESTS			
SCAN	M	RE/E6	P0	T0	P1	Q	V/U
1	C.817	32.26	116.63	549.92	75.23	35.15	0.3025
TUBE	X/C	CP	MLQC	P/P0	P/PS	MTUN	
1U	0.0088	0.427	0.622	0.771	1.199	0.821	
2U	0.0192	0.095	0.776	0.672	1.045	0.820	
3U	0.0293	-0.051	0.842	0.629	0.976	0.818	
4U	0.0399	-0.212	0.817	0.580	0.901	0.818	
5U	0.0496	-0.197	0.910	0.585	0.908	0.818	
6U	0.0596	-0.328	0.972	0.546	0.848	0.818	
7U	0.0696	-0.385	1.001	0.528	0.820	0.819	
8U	0.0790	-0.438	1.029	0.511	0.795	0.820	
9U	0.0895	-0.449	1.032	0.509	0.790	0.819	
10U	0.0992	-0.517	1.063	0.491	0.760	0.817	
11U	0.1094	-0.570	1.091	0.474	0.735	0.818	
12U	0.1295	-0.598	1.106	0.465	0.722	0.818	
13U	0.1495	-0.668	1.144	0.444	0.689	0.819	
14U	0.1688	-0.685	1.152	0.439	0.682	0.818	
15U	0.1893	-0.731	1.177	0.425	0.661	0.818	
16U	0.2093	-0.747	1.184	0.421	0.654	0.817	
17U	0.2295	-0.752	1.186	0.420	0.652	0.817	
18U	0.2494	-0.779	1.200	0.413	0.639	0.817	
19U	0.2793	-0.800	1.212	0.406	0.629	0.816	
20U	0.3091	-0.839	1.231	0.396	0.613	0.815	
21U	0.3388	-0.840	1.230	0.397	0.613	0.814	
22U	0.3697	-0.829	1.230	0.397	0.615	0.817	
23U	0.3991	-0.825	1.227	0.398	0.617	0.817	
24U	0.4296	-0.794	1.211	0.407	0.631	0.817	
25U	0.4592	-0.776	1.201	0.412	0.639	0.818	
26U	0.4893	-0.375	0.997	0.530	0.824	0.820	
27U	0.5199	-0.263	0.942	0.565	0.878	0.819	
28U	0.5497	-0.216	0.920	0.579	0.899	0.819	
29U	0.5840	-0.208	0.915	0.582	0.903	0.818	
30U	0.6097	-0.184	0.907	0.587	0.914	0.821	
31U	0.6395	-0.178	0.902	0.590	0.917	0.819	
32U	0.6693	-0.167	0.896	0.594	0.922	0.818	
33U	0.6996	-0.128	0.879	0.605	0.940	0.819	
34U	0.7296	-0.104	0.868	0.612	0.951	0.819	
35U	0.7596	-0.085	0.860	0.617	0.960	0.820	
36U	0.7896	-0.055	0.845	0.627	0.974	0.819	
37U	0.8194	-0.037	0.831	0.636	0.983	0.814	
38U	0.8494	0.002	0.813	0.648	1.001	0.814	
40U	0.9093	0.079	0.779	0.670	1.037	0.814	
42U	0.9700	0.190	0.728	0.703	1.087	0.814	
0LE	0.0000	1.188	0.015	1.000	1.551	0.818	
1L	0.0094	0.359	0.652	0.752	1.166	0.818	
2L	0.0194	0.051	0.794	0.660	1.024	0.817	
3L	0.0297	-0.174	0.898	0.593	0.919	0.817	
4L	0.0395	-0.235	0.928	0.574	0.891	0.818	
5L	0.0495	-0.299	0.958	0.555	0.861	0.818	
6L	0.0592	-0.399	1.007	0.524	0.814	0.819	
7L	0.0700	-0.433	1.024	0.514	0.798	0.819	
8L	0.0791	-0.423	1.021	0.516	0.802	0.820	
9L	0.0895	-0.597	1.106	0.465	0.722	0.814	
10L	0.0996	-0.593	1.105	0.466	0.724	0.819	
11L	0.1108	-0.636	1.130	0.451	0.703	0.821	
12L	0.1398	-0.642	1.131	0.451	0.701	0.813	
13L	0.1599	-0.649	1.137	0.448	0.697	0.820	
14L	0.1794	-0.705	1.165	0.432	0.672	0.819	
15L	0.1995	-0.744	1.185	0.421	0.654	0.819	
16L	0.2196	-0.757	1.184	0.421	0.652	0.814	
17L	0.2399	-0.782	1.198	0.414	0.639	0.814	
18L	0.2596	-0.797	1.206	0.410	0.633	0.814	
19L	0.2895	-0.826	1.222	0.401	0.620	0.814	
20L	0.3193	-0.842	1.240	0.392	0.608	0.813	
21L	0.3496	-0.868	1.254	0.384	0.596	0.818	
22L	0.3796	-0.871	1.259	0.382	0.593	0.820	
23L	0.4098	-0.871	1.262	0.380	0.592	0.821	
24L	0.4394	-0.863	1.253	0.385	0.597	0.819	
25L	0.4699	-0.839	1.242	0.391	0.607	0.820	
26L	0.4996	-0.299	0.959	0.554	0.861	0.819	
27L	0.5299	-0.221	0.922	0.578	0.897	0.818	
28L	0.5600	-0.196	0.909	0.586	0.909	0.813	
29L	0.5902	-0.191	0.907	0.587	0.911	0.818	
30L	0.6194	-0.169	0.895	0.595	0.921	0.817	
31L	0.6499	-0.158	0.891	0.598	0.927	0.817	
34L	0.7393	-0.066	0.849	0.625	0.969	0.818	
35L	0.7697	-0.056	0.845	0.627	0.973	0.818	
36L	0.7998	-0.033	0.834	0.634	0.984	0.819	
37L	0.8296	-0.010	0.819	0.644	0.995	0.814	
38L	0.8603	0.025	0.804	0.654	1.011	0.815	
39L	0.8998	0.062	0.788	0.664	1.029	0.816	
40L	0.9199	0.102	0.770	0.676	1.048	0.817	
41L	0.9499	0.153	0.747	0.691	1.071	0.817	

TABLE 1.13

SURFACE PRESSURE MEASUREMENTS

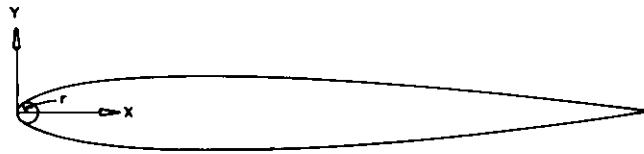
RUN NUMBER 2789				ONERA 2D TESTS			
SCAN	M	RE/E6	P0	T0	PI	Q	V/U
1	0.835	24.65	87.17	538.04	55.22	25.93	0.0025
TUBE	X/C	CP	MLDC	P/P0	P/PS	MTUN	
1U	0.0088	0.439	0.627	0.767	1.213	0.837	
2U	0.0192	0.103	0.788	0.664	1.050	0.837	
3U	0.0293	-0.033	0.852	0.622	0.994	0.837	
4U	0.0399	-0.178	0.919	0.579	0.914	0.835	
5U	0.0496	-0.208	0.934	0.570	0.899	0.835	
6U	0.0596	-0.302	0.982	0.540	0.853	0.836	
7U	0.0696	-0.356	1.008	0.524	0.828	0.836	
8U	0.0790	-0.414	1.036	0.507	0.800	0.835	
9U	0.0895	-0.437	1.047	0.500	0.788	0.835	
10U	0.0992	-0.470	1.066	0.489	0.772	0.836	
11U	0.1094	-0.528	1.096	0.471	0.744	0.836	
12U	0.1295	-0.581	1.124	0.455	0.718	0.836	
13U	0.1495	-0.628	1.150	0.440	0.696	0.836	
14U	0.1688	-0.657	1.164	0.432	0.682	0.835	
15U	0.1893	-0.702	1.190	0.418	0.660	0.835	
16U	0.2093	-0.709	1.194	0.416	0.657	0.836	
17U	0.2295	-0.728	1.204	0.411	0.648	0.835	
18U	0.2494	-0.765	1.221	0.401	0.632	0.833	
19U	0.2793	-0.776	1.229	0.397	0.627	0.834	
20U	0.3091	-0.806	1.248	0.387	0.611	0.835	
21U	0.3388	-0.823	1.259	0.382	0.602	0.835	
22U	0.3697	-0.825	1.261	0.381	0.600	0.835	
23U	0.3991	-0.822	1.258	0.382	0.602	0.835	
24U	0.4296	-0.800	1.246	0.388	0.613	0.835	
25U	0.4592	-0.775	1.233	0.395	0.625	0.836	
26U	0.4893	-0.800	1.248	0.388	0.612	0.836	
27U	0.5199	-0.809	1.254	0.385	0.607	0.836	
28U	0.5497	-0.472	1.067	0.488	0.771	0.836	
29U	0.5840	-0.212	0.937	0.568	0.897	0.836	
30U	0.6097	-0.162	0.912	0.584	0.922	0.835	
31U	0.6395	-0.134	0.900	0.592	0.935	0.837	
32U	0.6693	-0.117	0.891	0.597	0.943	0.836	
33U	0.6996	-0.088	0.878	0.606	0.957	0.836	
34U	0.7296	-0.073	0.871	0.611	0.964	0.836	
35U	0.7596	-0.058	0.864	0.615	0.972	0.836	
36U	0.7896	-0.034	0.852	0.622	0.984	0.837	
37U	0.8194	-0.014	0.841	0.630	0.993	0.835	
38U	0.8494	0.019	0.825	0.640	1.009	0.835	
40U	0.9093	0.093	0.791	0.662	1.045	0.836	
42U	0.9700	0.202	0.739	0.696	1.097	0.835	
0LE	0.0000	1.191	0.049	0.998	1.576	0.836	
1L	0.0094	0.389	0.651	0.753	1.188	0.835	
2L	0.0194	0.722	7.950	6.591	0.342	8.296	
3L	0.0297	-0.106	0.885	0.601	0.948	0.835	
4L	0.0395	-0.168	0.914	0.582	0.918	0.835	
5L	0.0498	-0.261	0.961	0.553	0.873	0.836	
6L	0.0592	-0.349	1.004	0.526	0.831	0.836	
7L	0.0700	-0.388	1.024	0.514	0.812	0.836	
8L	0.0791	-0.383	1.021	0.515	0.815	0.836	
9L	0.0895	-0.539	1.102	0.467	0.738	0.836	
10L	0.0995	-0.543	1.105	0.466	0.736	0.837	
11L	0.1198	-0.596	1.131	0.451	0.712	0.835	
12L	0.1398	-0.608	1.139	0.446	0.705	0.837	
13L	0.1598	-0.623	1.147	0.442	0.698	0.836	
14L	0.1794	-0.669	1.173	0.427	0.675	0.836	
15L	0.1996	-0.707	1.194	0.416	0.657	0.836	
16L	0.2195	-0.726	1.202	0.412	0.650	0.835	
17L	0.2399	-0.751	1.218	0.403	0.637	0.836	
18L	0.2596	-0.770	1.228	0.398	0.628	0.835	
19L	0.2895	-0.801	1.245	0.389	0.613	0.835	
20L	0.3193	-0.815	1.255	0.384	0.606	0.835	
21L	0.3496	-0.834	1.270	0.376	0.594	0.837	
22L	0.3796	-0.851	1.280	0.371	0.585	0.837	
23L	0.4098	-0.861	1.286	0.368	0.582	0.837	
24L	0.4394	-0.861	1.282	0.370	0.583	0.835	
25L	0.4699	-0.835	1.267	0.378	0.596	0.835	
26L	0.4995	-0.788	1.240	0.391	0.619	0.836	
27L	0.5299	-0.727	1.205	0.410	0.648	0.836	
28L	0.5600	-0.283	0.972	0.546	0.863	0.836	
29L	0.5902	-0.205	0.934	0.570	0.900	0.836	
30L	0.6194	-0.141	0.903	0.590	0.931	0.836	
31L	0.6499	-0.116	0.890	0.598	0.943	0.836	
34L	0.7393	-0.047	0.858	0.619	0.977	0.835	
35L	0.7697	-0.039	0.853	0.622	0.982	0.835	
36L	0.7998	-0.016	0.844	0.628	0.992	0.836	
37L	0.8296	0.004	0.832	0.635	1.002	0.835	
38L	0.8603	0.035	0.818	0.645	1.017	0.835	
39L	0.8898	0.066	0.802	0.655	1.032	0.834	
40L	0.9199	0.100	0.786	0.665	1.048	0.833	
41L	0.9499	0.157	0.761	0.682	1.076	0.835	

TABLE 1.14
 SURFACE PRESSURE MEASUREMENTS

RUN NUMBER 2775				ONERA 2D TESTS			
SCAN	M	RE/E6	PO	TO	P1	Q	V/U
2	0.918	25.94	87.28	533.97	50.59	29.86	0.0025
TUBE	X/C	CP	MLOC	P/P0	P/PS	MTUN	
1U	0.0088	0.554	0.628	0.767	1.326	0.920	
2U	0.0192	0.249	0.790	0.663	1.147	0.921	
3U	0.0293	0.125	0.854	0.621	1.073	0.920	
4U	0.0399	-0.026	0.933	0.571	0.985	0.918	
5U	0.0496	-0.035	0.935	0.569	0.980	0.916	
6U	0.0596	-0.127	0.987	0.537	0.925	0.918	
7U	0.0696	-0.181	1.018	0.518	0.894	0.919	
8U	0.0790	-0.243	1.052	0.497	0.857	0.918	
9U	0.0895	-0.274	1.068	0.487	0.840	0.917	
10U	0.0992	-0.303	1.089	0.475	0.822	0.920	
11U	0.1094	-0.324	1.102	0.468	0.808	0.921	
12U	0.1295	-0.395	1.143	0.444	0.767	0.920	
13U	0.1495	-0.451	1.174	0.427	0.736	0.917	
14U	0.1688	-0.457	1.176	0.426	0.733	0.916	
15U	0.1893	-0.511	1.210	0.407	0.702	0.917	
16U	0.2093	-0.526	1.220	0.402	0.693	0.917	
17U	0.2295	-0.541	1.234	0.395	0.682	0.919	
18U	0.2494	-0.571	1.252	0.386	0.665	0.918	
19U	0.2793	-0.598	1.270	0.376	0.649	0.919	
20U	0.3091	-0.629	1.291	0.365	0.631	0.919	
21U	0.3388	-0.652	1.309	0.357	0.616	0.920	
22U	0.3697	-0.669	1.312	0.355	0.610	0.915	
23U	0.3991	-0.681	1.324	0.349	0.602	0.917	
24U	0.4296	-0.671	1.317	0.353	0.608	0.917	
25U	0.4592	-0.673	1.318	0.352	0.607	0.917	
26U	0.4893	-0.676	1.321	0.351	0.605	0.917	
27U	0.5199	-0.650	1.307	0.358	0.618	0.919	
28U	0.5497	-0.658	1.314	0.354	0.612	0.920	
29U	0.5840	-0.674	1.326	0.349	0.603	0.920	
30U	0.6097	-0.690	1.334	0.345	0.595	0.919	
31U	0.6395	-0.695	1.337	0.343	0.592	0.919	
32U	0.6693	-0.699	1.339	0.342	0.591	0.918	
33U	0.6996	-0.696	1.336	0.344	0.593	0.917	
34U	0.7296	-0.707	1.344	0.340	0.586	0.917	
35U	0.7596	-0.715	1.351	0.337	0.581	0.919	
36U	0.7896	-0.710	1.349	0.338	0.583	0.919	
37U	0.8194	-0.594	1.271	0.376	0.649	0.921	
38U	0.8494	-0.257	1.062	0.491	0.849	0.920	
40U	0.9093	-0.082	0.964	0.551	0.951	0.919	
42U	0.9700	-0.006	0.923	0.577	0.996	0.919	
0LE	0.0000	1.232	0.046	0.999	1.720	0.917	
1L	0.0094	0.498	0.656	0.750	1.291	0.917	
2L	0.0194	0.214	0.805	0.653	1.125	0.917	
3L	0.0297	0.047	0.891	0.597	1.027	0.915	
4L	0.0395	-0.016	0.925	0.576	0.991	0.916	
5L	0.0498	-0.093	0.971	0.547	0.944	0.920	
6L	0.0592	-0.175	1.016	0.519	0.897	0.920	
7L	0.0700	-0.218	1.039	0.505	0.872	0.919	
8L	0.0791	-0.251	1.055	0.495	0.853	0.917	
9L	0.0895	-0.331	1.102	0.468	0.806	0.913	
10L	0.0995	-0.342	1.110	0.463	0.799	0.919	
11L	0.1198	-0.419	1.156	0.427	0.754	0.919	
12L	0.1398	-0.427	1.161	0.434	0.749	0.919	
13L	0.1598	-0.450	1.175	0.427	0.736	0.919	
14L	0.1794	-0.491	1.199	0.413	0.712	0.918	
15L	0.1996	-0.527	1.221	0.401	0.692	0.917	
16L	0.2196	-0.536	1.230	0.397	0.685	0.919	
17L	0.2399	-0.561	1.246	0.388	0.670	0.919	
18L	0.2596	-0.580	1.260	0.381	0.658	0.920	
19L	0.2895	-0.615	1.285	0.369	0.637	0.921	
20L	0.3193	-0.637	1.296	0.363	0.626	0.918	
21L	0.3496	-0.663	1.316	0.353	0.610	0.920	
22L	0.3796	-0.681	1.331	0.346	0.598	0.921	
23L	0.4098	-0.691	1.338	0.343	0.593	0.920	
24L	0.4394	-0.707	1.343	0.341	0.587	0.917	
25L	0.4699	-0.718	1.353	0.336	0.579	0.918	
26L	0.4996	-0.667	1.318	0.352	0.608	0.919	
27L	0.5299	-0.693	1.334	0.345	0.594	0.918	
28L	0.5600	-0.705	1.347	0.339	0.585	0.920	
29L	0.5902	-0.716	1.357	0.334	0.578	0.921	
30L	0.6194	-0.726	1.363	0.331	0.573	0.920	
31L	0.6499	-0.737	1.365	0.330	0.569	0.917	
34L	0.7393	-0.238	1.047	0.500	0.861	0.917	
35L	0.7697	-0.190	1.020	0.516	0.889	0.915	
36L	0.7998	-0.146	0.997	0.531	0.914	0.917	
37L	0.8296	-0.132	0.992	0.534	0.922	0.920	
38L	0.8603	-0.112	0.980	0.541	0.934	0.919	
39L	0.8898	-0.088	0.966	0.550	0.948	0.919	
40L	0.9199	-0.067	0.955	0.557	0.960	0.918	
41L	0.9499	-0.028	0.935	0.570	0.984	0.919	

TABLE 1.15
 SURFACE PRESSURE MEASUREMENTS

		RUN NUMBER 2784				JNRA 2D TESTS		
SCAN	M	RE/E6	P0	T0	P1	Q	V/U	
1	0.930	42.75	145.92	541.94	83.47	50.56	0.0025	
	TJBE	X/C	CP	MLCC	P/P0	P/PS	MTUN	
0LE	0.0000	1.235	0.065	0.997	1.743	0.930		
1L	0.0094	0.494	0.670	0.741	1.299	0.933		
2L	0.0194	0.222	0.815	0.647	1.135	0.934		
3L	0.0297	0.049	0.906	0.587	1.029	0.933		
4L	0.0395	-0.020	0.942	0.565	0.988	0.931		
5L	0.0498	-0.095	0.983	0.539	0.942	0.931		
6L	0.0592	-0.179	1.032	0.509	0.891	0.932		
7L	0.0700	-0.230	1.059	0.493	0.862	0.931		
8L	0.0791	-0.241	1.065	0.489	0.855	0.930		
9L	0.0895	-0.339	1.125	0.454	0.795	0.932		
10L	0.0996	-0.330	1.121	0.456	0.799	0.933		
11L	0.1199	-0.405	1.167	0.431	0.755	0.933		
12L	0.1398	-0.428	1.177	0.425	0.743	0.930		
13L	0.1598	-0.444	1.188	0.419	0.733	0.930		
14L	0.1794	-0.480	1.211	0.407	0.711	0.930		
15L	0.1996	-0.510	1.230	0.397	0.693	0.930		
16L	0.2196	-0.535	1.246	0.389	0.679	0.929		
17L	0.2399	-0.557	1.262	0.380	0.665	0.930		
18L	0.2596	-0.565	1.266	0.378	0.660	0.930		
19L	0.2895	-0.602	1.293	0.365	0.637	0.931		
20L	0.3193	-0.629	1.313	0.355	0.620	0.931		
21L	0.3496	-0.657	1.333	0.345	0.604	0.931		
22L	0.3796	-0.674	1.346	0.339	0.593	0.931		
23L	0.4098	-0.684	1.353	0.336	0.588	0.931		
24L	0.4394	-0.689	1.356	0.335	0.585	0.930		
25L	0.4699	-0.698	1.362	0.332	0.580	0.930		
26L	0.4996	-0.646	1.328	0.348	0.609	0.932		
27L	0.5299	-0.683	1.351	0.337	0.589	0.930		
28L	0.5600	-0.693	1.359	0.333	0.582	0.931		
29L	0.5902	-0.706	1.367	0.329	0.575	0.930		
30L	0.6194	-0.721	1.376	0.325	0.568	0.929		
31L	0.6499	-0.721	1.380	0.324	0.566	0.931		
34L	0.7393	-0.715	1.378	0.324	0.568	0.932		
35L	0.7697	-0.728	1.387	0.320	0.561	0.931		
36L	0.7998	-0.729	1.097	0.470	0.823	0.931		
37L	0.8296	-0.154	1.016	0.519	0.907	0.931		
38L	0.8603	-0.132	1.003	0.527	0.920	0.930		
39L	0.8898	-0.098	0.986	0.538	0.940	0.931		
40L	0.9199	-0.070	0.970	0.547	0.958	0.931		
41L	0.9499	-0.038	0.951	0.559	0.977	0.930		
1U	0.0088	0.589	0.616	0.774	1.354	0.931		
2U	0.0192	0.268	0.789	0.664	1.161	0.931		
3U	0.0293	0.138	0.857	0.619	1.082	0.931		
4U	0.0399	0.012	0.925	0.576	1.007	0.931		
5U	0.0496	-0.007	0.935	0.569	0.996	0.931		
6U	0.0596	-0.099	0.985	0.538	0.940	0.930		
7U	0.0696	-0.152	1.017	0.518	0.908	0.932		
8U	0.0790	-0.219	1.053	0.496	0.868	0.931		
9U	0.0895	-0.250	1.071	0.486	0.850	0.930		
10U	0.0992	-0.280	1.086	0.477	0.832	0.929		
11U	0.1094	-0.305	1.102	0.467	0.817	0.930		
12U	0.1295	-0.363	1.139	0.446	0.781	0.931		
13U	0.1495	-0.426	1.178	0.425	0.743	0.931		
14U	0.1688	-0.426	1.179	0.424	0.743	0.931		
15U	0.1893	-0.476	1.211	0.407	0.712	0.932		
16U	0.2093	-0.499	1.224	0.400	0.699	0.931		
17U	0.2295	-0.511	1.232	0.396	0.692	0.930		
18U	0.2494	-0.547	1.257	0.383	0.670	0.931		
19U	0.2793	-0.574	1.275	0.374	0.653	0.931		
20U	0.3091	-0.604	1.294	0.364	0.636	0.930		
21U	0.3388	-0.633	1.316	0.354	0.618	0.931		
22U	0.3697	-0.639	1.323	0.350	0.613	0.933		
23U	0.3991	-0.650	1.333	0.345	0.606	0.934		
24U	0.4296	-0.647	1.330	0.347	0.608	0.933		
25U	0.4592	-0.654	1.330	0.347	0.606	0.930		
26U	0.4893	-0.665	1.337	0.344	0.600	0.930		
27U	0.5199	-0.663	1.337	0.344	0.601	0.931		
28U	0.5497	-0.637	1.321	0.351	0.615	0.932		
29U	0.5840	-0.660	1.335	0.344	0.602	0.931		
30U	0.6097	-0.667	1.344	0.340	0.596	0.933		
31U	0.6395	-0.679	1.353	0.336	0.589	0.933		
32U	0.6693	-0.685	1.356	0.335	0.586	0.932		
33U	0.6996	-0.675	1.345	0.340	0.594	0.930		
34U	0.7296	-0.692	1.357	0.334	0.584	0.930		
35U	0.7596	-0.704	1.366	0.330	0.577	0.930		
36U	0.7896	-0.685	1.352	0.336	0.588	0.930		
37U	0.8194	-0.724	1.382	0.322	0.564	0.931		
38U	0.8494	-0.607	1.295	0.364	0.635	0.930		
40U	0.9093	-0.116	0.994	0.532	0.930	0.930		
42U	0.9700	-0.026	0.944	0.564	0.934	0.929		



$$C_{f,x} = 0.60 \left[0.29690 \sqrt{\frac{x}{c}} - 0.12600 \frac{x}{c} - 0.35160 \left(\frac{x}{c} \right)^2 + 0.28430 \left(\frac{x}{c} \right)^3 - 0.10150 \left(\frac{x}{c} \right)^4 \right]$$

$$C_{f,c} = 0.0158$$

(Ref. 1)

FIG. 1.11 NACA 0012 AIRFOIL

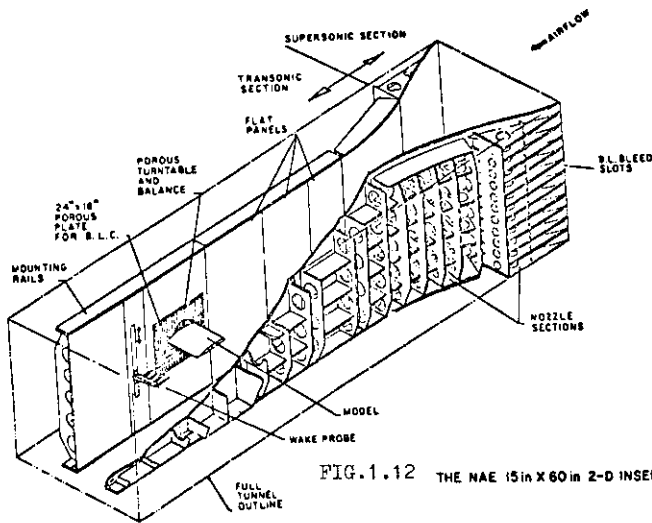


FIG.1.12 THE NAE 15in X 60in 2-D INSERT

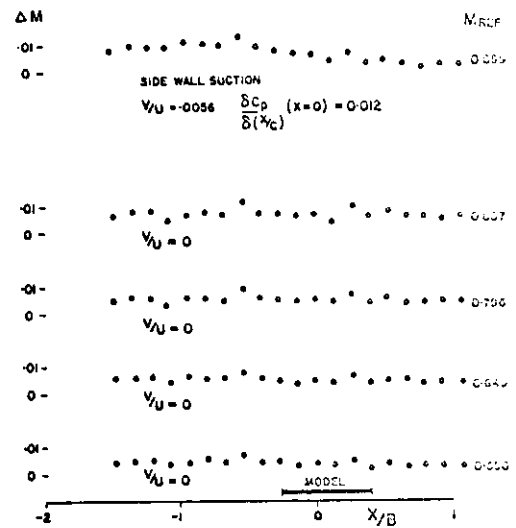


FIG.1.13 MACH NUMBER DISTRIBUTION, EMPTY TEST SECTION
 NAE 15in X 60in 2-D INSERT.

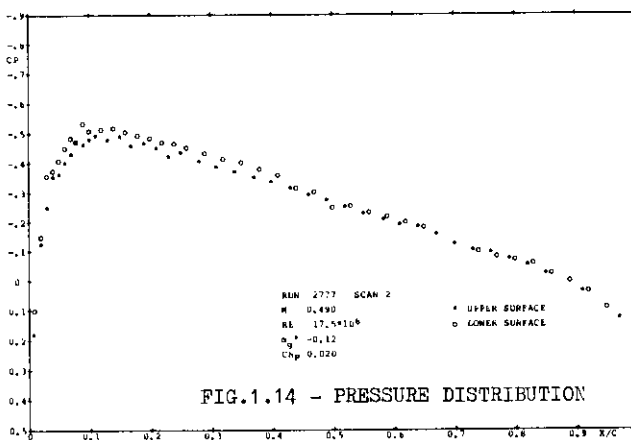


FIG.1.14 - PRESSURE DISTRIBUTION

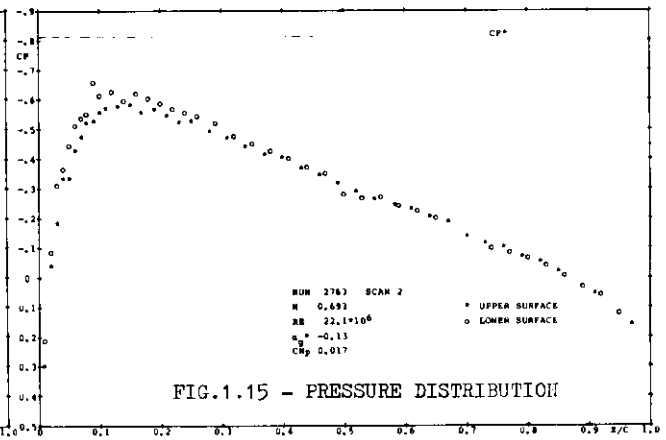
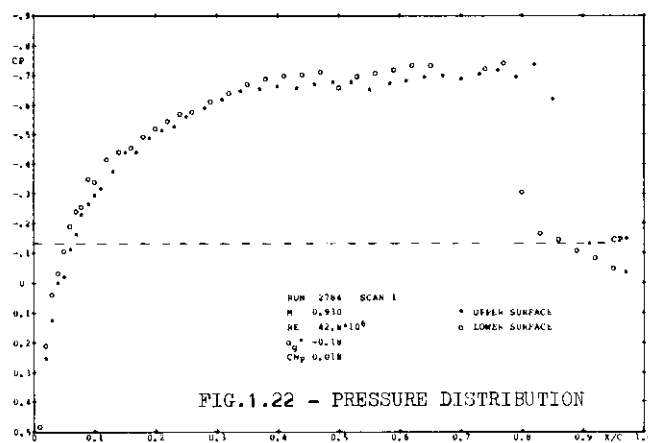
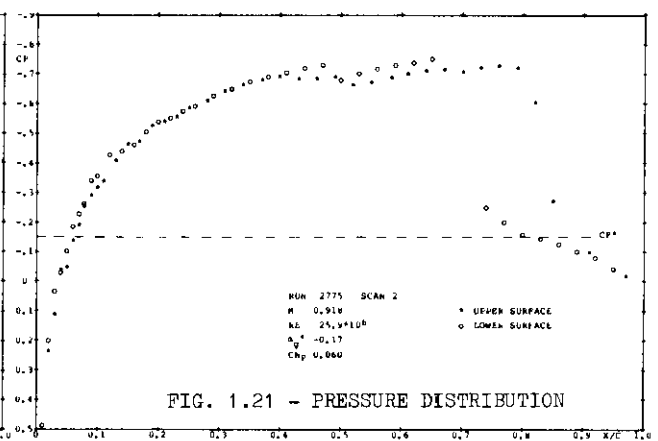
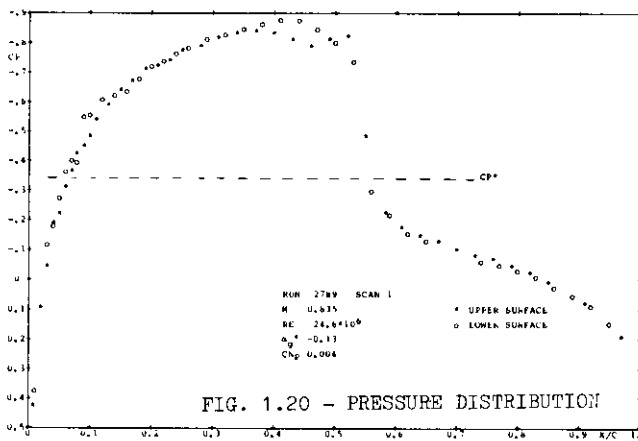
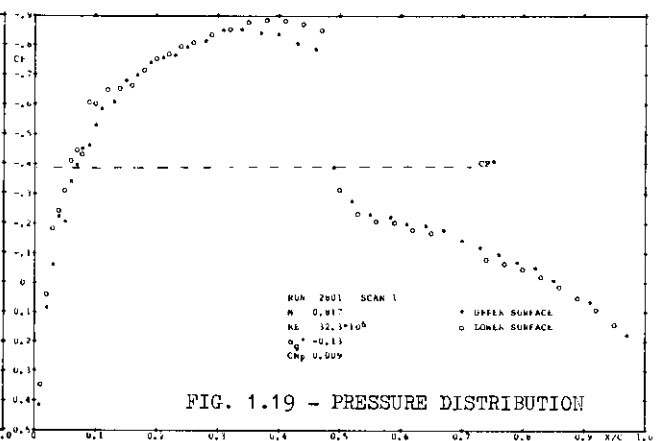
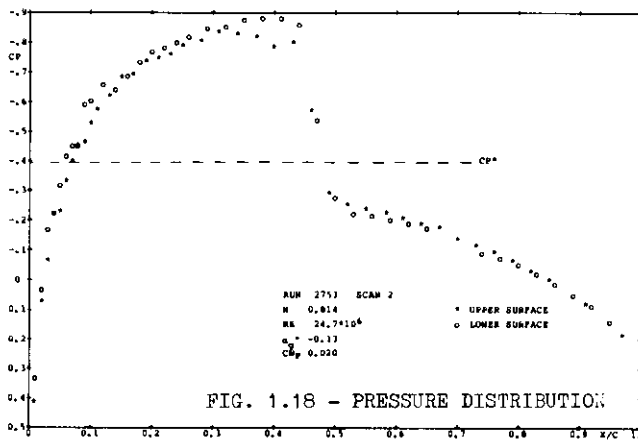
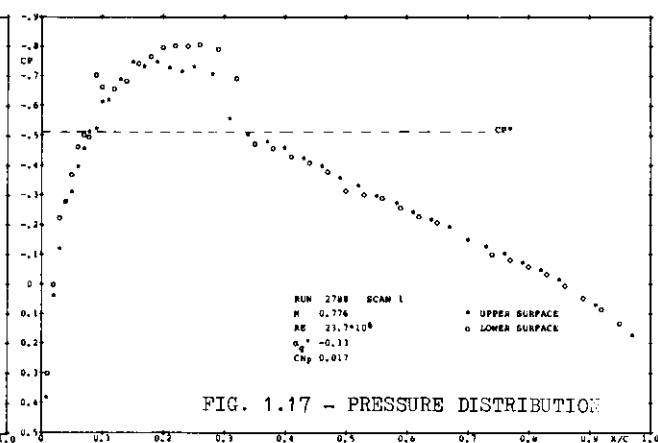
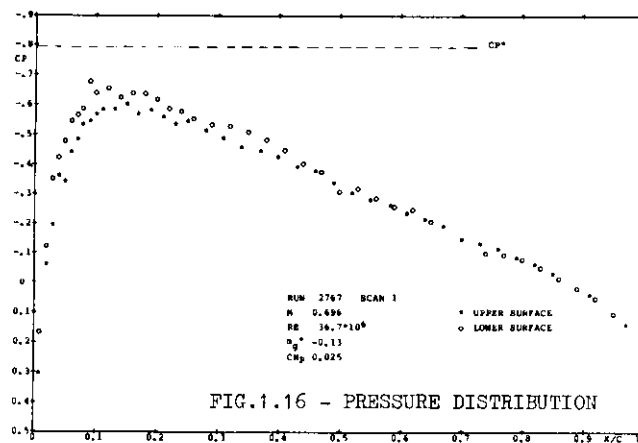


FIG.1.15 - PRESSURE DISTRIBUTION



2. NLR QE 0.11 - 0.75 - 1.375 airfoil

contributed by

National Aerospace Laboratory NLR
Amsterdam, The Netherlands

and

National Aeronautical Establishment
Ottawa, Canada

2.1 Introduction

The NLR (Q)uasi (E)lliptical airfoil 0.11-0.75-1.375 was selected primarily for the following reasons:

- i. It is a symmetrical ("shock-free") airfoil and thus provides, at zero incidence, a case where the aerodynamic characteristics (such as shock position) of a supercritical airfoil, as measured in the wind tunnel, are not affected by wall interference due to lift. One significant source of possible discrepancy between interference free computational results and wind tunnel experiment is thus absent.
- ii. Tests were performed at low Reynolds number ($\approx 2 \times 10^6$), both with free and fixed transition, in the NLR Pilot Tunnel and at high Reynolds number ($\approx 20 \times 10^6$) in the 2-D insert of the NAE 5 ft x 5 ft transonic wind tunnel. In spite of the fact that there are vast differences between the two tunnel configurations (slotted versus porous walls, height/chord ratio 3.1 versus 6.0, span/chord ratio 2.3 versus 1.5) there is a comforting degree of similarity between the two data sets, suggesting that blockage effects in both tunnels were indeed small.

It should finally be mentioned that the tests were performed specifically to verify experimentally the existence of supercritical shock-free flow on an airfoil that was designed theoretically to exhibit this feature. For this reason more than usual care was taken to perform the experiments as accurately as possible.

2.2. DATA SET FROM NLR TUNNEL

1. Airfoil

1.1. Airfoil designation	NLR QE 0.11-0.75-1.375
1.2. Type of airfoil	symmetrical, "peaky"-type shock-free supercritical designed by means of Nieuwland hodograph method
1.2.1. airfoil geometry	see fig. 2.1 and tables 2.1 , 2.2
nose radius	$R/c = 4.4\%$
maximum thickness	$t/c = 11.7\%$
base thickness	zero
1.2.2. design condition	potential flow (hodograph theory):
	$M = 0.786, \alpha = 0^\circ$
	experiment (NLR Pilot tunnel)
	$M_t = 0.789, \alpha = 0^\circ$
design pressure distribution	see fig. 2.1 , table 2.1
1.3. Additional remarks	none
1.4. References on airfoil	ref. 1

2. Model geometry

2.1. Chord length	0.1795 m
2.2. Span	0.42 m
2.3. Actual model co-ordinates and accuracy	fig. 2.2
2.4. Maximum thickness	$t/c = 11.7\%$
2.5. Base thickness	0.05 mm
2.6. Additional remarks	finite trailing-edge (base) thickness was obtained by cutting-off theoretical airfoil at 99.7 % chord
2.7. References on model	see ref. 2

3. Wind tunnel

3.1. Designation	NLR Pilot tunnel
3.2. Type of tunnel	continuous, closed circuit
3.2.1. stagnation pressure	atmospheric
3.2.2. stagnation temperature	313 ± 1 K
3.2.3. humidity/dew point	varies with atmospheric condition (stagnation temperature chosen such that condensation is avoided)
3.3. Test section	see fig. 2.3
3.3.1. dimensions	rectangular
	height 0.55 m, width 0.42 m
3.3.2. type of walls	10% slotted top and bottom walls, solid side walls
	separate top and bottom plenums
3.4. Flow field (empty test section)	
3.4.1. reference static pressure	taken at side wall 3.6 chords upstream of model
3.4.2. flow angularity	upwash $\Delta\alpha = 0.12^\circ$ ($\pm 0.03^\circ$)
	(with respect to tunnel reference plane)
3.4.3. Mach number distribution	see fig. 2.4a
3.4.4. pressure gradient	see fig. 2.4b
3.4.5. turbulence/noise level	see fig. 2.5 and ref. 5
3.4.6. side wall boundary layer	thickness 10% of test section semi-width, no special treatment
3.5. Additional remarks	for two-dimensionality of the flow
3.6. References on wind tunnel	see ref. 4 ref. 3

4. Tests

4.1. Type of measurements	surface pressures wake pitot pressures surface flow visualization flow field visualization
4.2. Tunnel/model dimensions	
4.2.1. height/chord ratio	3.1
4.2.2. width/chord ratio	2.3.
4.3. Flow conditions included in present data base	
4.3.1. angle of attack	zero
4.3.2. Mach number	0.30 to 0.85
4.3.3. Reynolds number	about 2×10^6 (see fig. 2.6)
4.3.4. transition	free and fixed
- position of free transition	see fig. 2.7
- transition fixing	grit no. 220 carborundum at 5-10% chord

4.3.5. temperature equilibrium	yes
4.4. Additional remarks	with free transition a laminar separation bubble was present between 9 and 18% chord at design condition
4.5. References on tests	ref. 2
5. Instrumentation	
5.1. Surface pressure measurements	
5.1.1. pressure holes	
- size	diameter 0.1 mm on first 20% chord, 0.25 mm aft of 20% chord; depth 1 mm
- spanwise station(s)	staggered ($\pm$ 25 mm around center line)
- chordwise positions	table 2.3
5.1.2. type of transducers and scanning devices	one $\pm$ 7.5 psi and one $\pm$ 5 psi Statham differential transducer + Scanivalves; reference pressure p_{∞}
5.1.3. other	none
5.2. Wake measurements	
5.2.1. type/size of instrument(s)	single translating total-head pressure tube of 1.5 mm diameter
5.2.2. streamwise position(s)	0.8 chords downstream of trailing edge
5.2.3. type of transducers and scanning devices	+ 2.5 psi Statham differential pressure transducer referenced to p_o
5.3. Boundary layer measurements	none
5.3.1. type/size of instruments	
5.3.2. locations	
5.3.3. type of transducers and scanning devices	
5.4. Skin friction measurements	none
5.4.1. type/size of instruments	
5.4.2. locations	
5.4.3. type of transducer	
5.5. Flow visualization	
5.5.1. flow field	shadow and Schlieren pictures
5.5.2. surface flow	detection of transition position by sublimation technique (acenaphtene) and surface oil flow
5.6. other	no
5.7. Additional remarks	none
5.8. References on instrumentation	none
6. Data	
6.1. Accuracy (wall interference excluded)	
6.1.1. angle of attack setting	$\pm 0.02^\circ$
6.1.2. free stream Mach number:	
- setting	} ± 0.002
- variation during one pressure scan	
6.1.3. pressure coefficients	± 0.002 to ± 0.020 , depending on local pressure level and dynamic pressure
6.1.4. aerodynamic coefficients	unknown
6.1.5. boundary layer quantities	n.a.
6.1.6. repeatability	unknown
6.1.7. remarks	none
6.2. Wall interference corrections (indicate estimated accuracy)	
6.2.1. angle of attack	n.a.
6.2.2. blockage (solid/wake)	$ \Delta M < 0.005$
6.2.3. streamline curvature	n.a.
6.2.4. other	
6.2.5. remarks	wall interference in NLR Pilot tunnel is presently being reassessed
6.2.6. references on wall interference corrections	ref. 6
6.3. Presentation of data	
6.3.1. aerodynamic coefficients	fig. 2.8 , table 2.4
6.3.2. surface pressures	fig. 2.9 , table 2.4
6.3.3. boundary layer quantities	n.a.
6.3.4. wall interference corrections included?	no

- 6.3.5. corrections for model deflection no
 6.3.6. Empty test section calibration taken into account? no
 6.3.7. other corrections included? no
 6.3.8. additional remarks fixed transition surface pressure data are affected by disturbances due to transition band
 6.4. Were tests carried out in different facilities on the current aerofoil? Yes, NAE 5 x 5 ft 2-D insert
 If so, what facilities. Are data included in the present data base? Data included in present data base
 6.5. To be contacted for further information on tests J.A. van Egmond
 National Aerospace Laboratory NLR
 Anthony Fokkerweg 2
 Amsterdam 1017
 Netherlands

7. References

1. Boerstoel, J.W. A survey of symmetrical transonic potential flows around quasi-elliptical aerofoil sections
 NLR Report T. 136, 1967
2. Spee, B.M., and Uylenhoet, R. Pressure measurements on symmetrical quasi-elliptical aerofoil sections designed for shock-free transonic flow
 NLR TR 69041
3. Zwaaneveld, J. Principal data of the NLL Pilot Tunnel
 NLR MP. 185
4. Dambrink, H.A. Investigation of the two-dimensionality of the flow around a profile in the NLR 0.55x0.42 m² transonic wind tunnel
 NLR Memorandum AC-72-018
5. Ross, R. and Rohne, P.B. Noise environment in the NLR transonic wind tunnel HST
 NLR TR 74128 U
6. Smith, J. Values of wall interference corrections for the NLR Pilot Tunnel with 10% open test section
 NLR Memorandum AC-74-01

8. List of symbols

8.1. used in text and figures

C_p	(CP) pressure coefficient
C_p^*	critical pressure coefficient
c	airfoil chord length
C_d	(CD) drag coefficient
C_l	lift coefficient
C_m	pitching moment coefficient (with respect to $.25c$)
i	integer indicating pressure hole number
M	(MA-NO) free stream Mach number
M_m	maximum local Mach number
p	local static pressure
p_∞	free stream static pressure
p_o	free stream stagnation pressure
q	dynamic pressure
Re_c	Reynolds number based on chord
R_o	leading edge radius
t	airfoil maximum thickness
x, z	airfoil coordinate system
x_t, z_t	windtunnel coordinate system
α	(ALFA) angle of attack
subscript	
t	refers to uncorrected values

8.2. used in data tables

alpha	α (degrees) (with respect to flow direction)
cd	C_d
cpi, cp	C_p
cpw	wake total head deficit pressure coefficient
i	integer indicating pressure hole number
ma.nom	nominal, "set" Mach number
macs	M_t at beginning of scanning cycle
mace	M_t , at end of scanning cycle
p	local static pressure (kgf/m^2)
p_o	free stream stagnation pressure (kgf/m^2)
re	Re_c
c/R_o	curvature of nose
θ	surface slope

AEROFOIL SECTION 0.11 0.75 - 1.375					
M_∞	α	$(\frac{t}{c})_{max}$	$x(\frac{t}{c})_{max}$	x_{m_p}/c	c/R_0
0.78612	1.306	0.1172	0.3245	0.0182	22.902
x/c	z/c	ρ	p/p_0	θ	
0	0	1.1642	1.00000	1.57080	
0.00100	0.00927	1.0440	0.96543	1.35608	
0.00197	0.01293	0.9269	0.93174	1.26769	
0.00291	0.01562	0.8127	0.89889	1.20019	
0.00382	0.01778	0.7014	0.86687	1.14370	
0.00469	0.01959	0.5930	0.83566	1.09428	
0.00554	0.02113	0.4874	0.80530	1.04994	
0.00633	0.02246	0.3845	0.77567	1.00953	
0.00710	0.02362	0.2844	0.74688	0.97228	
0.00774	0.02464	0.1870	0.71887	0.93764	
0.00849	0.02553	0.0922	0.69156	0.90524	
0.00896	0.02631	0.0000	0.66508	0.87476	
0.00971	0.02699	-0.0896	0.63930	0.84596	
0.01024	0.02758	-0.1768	0.61419	0.81865	
0.01073	0.02809	-0.2614	0.58986	0.79265	
0.01118	0.02853	-0.3437	0.56622	0.76778	
0.01158	0.02890	-0.4235	0.54322	0.74390	
0.01182	0.02913	-0.4754	0.52828	0.72843	
0.01194	0.02923	-0.5010	0.52091	0.72081	
0.01226	0.02951	-0.5762	0.50106	0.69831	
0.01256	0.02975	-0.6492	0.47829	0.67615	
0.01283	0.02997	-0.7199	0.45797	0.65399	
0.01311	0.03017	-0.7885	0.43821	0.63135	
0.01342	0.03039	-0.8549	0.41914	0.60741	
0.01381	0.03066	-0.9192	0.40061	0.58071	
0.01444	0.03106	-0.9815	0.38267	0.54758	
0.01611	0.03200	-1.0418	0.36536	0.48926	
0.02033	0.03401	-1.0418	0.36536	0.40170	
0.02906	0.03714	-0.9815	0.38267	0.29875	
0.04699	0.04157	-0.9192	0.40061	0.19961	
0.07251	0.04584	-0.8549	0.41914	0.14053	
0.10589	0.04984	-0.7885	0.43821	0.10097	
0.15050	0.05357	-0.7199	0.45797	0.06820	
0.20673	0.05656	-0.6492	0.47829	0.03937	
0.27574	0.05832	-0.5762	0.50106	0.01289	
0.36312	0.05826	-0.5010	0.52091	-0.01319	
0.39644	0.05766	-0.4754	0.52828	-0.02197	
0.46620	0.05553	-0.4235	0.54322	-0.03945	
0.56833	0.05021	-0.3437	0.56622	-0.06460	
0.65802	0.04339	-0.2614	0.58986	-0.08770	
0.73301	0.03538	-0.1768	0.61419	-0.10840	
0.79462	0.02867	-0.0896	0.63930	-0.12630	
0.84588	0.02136	0.0000	0.66508	-0.14100	
0.88839	0.01559	0.0922	0.69156	-0.15130	
0.92366	0.01012	0.1870	0.71887	-0.15551	
0.95324	0.00552	0.2844	0.74688	-0.14998	
0.97808	0.00202	0.3845	0.77567	-0.12601	
0.99877	0.00002	0.4874	0.80530	-0.03432	
1.00000	0	0.4924	0.80674	0	

TABLE 2.1

Main characteristics of aerofoil section 0.11-0.75-1.375

0.000000	0.000000
0.000056	0.002222
0.000228	0.004444
0.000444	0.006667
0.000667	0.008889
0.000889	0.011111
0.001111	0.013333
0.001333	0.015556
0.001556	0.017778
0.001778	0.019999
0.002000	0.022222
0.002222	0.024444
0.002444	0.026667
0.002667	0.028889
0.002889	0.031111
0.003111	0.033333
0.003333	0.035556
0.003556	0.037778
0.003778	0.039999
0.004000	0.042222
0.004222	0.044444
0.004444	0.046667
0.004667	0.048889
0.004889	0.051111
0.005111	0.053333
0.005333	0.055556
0.005556	0.057778
0.005778	0.059999
0.006000	0.062222
0.006222	0.064444
0.006444	0.066667
0.006667	0.068889
0.006889	0.071111
0.007111	0.073333
0.007333	0.075556
0.007556	0.077778
0.007778	0.079999
0.008000	0.082222
0.008222	0.084444
0.008444	0.086667
0.008667	0.088889
0.008889	0.091111
0.009111	0.093333
0.009333	0.095556
0.009556	0.097778
0.009778	0.099999
0.010000	0.102222
0.010222	0.104444
0.010444	0.106667
0.010667	0.108889
0.010889	0.111111
0.011111	0.113333
0.011333	0.115556
0.011556	0.117778
0.011778	0.119999
0.012000	0.122222
0.012222	0.124444
0.012444	0.126667
0.012667	0.128889
0.012889	0.131111
0.013111	0.133333
0.013333	0.135556
0.013556	0.137778
0.013778	0.139999
0.014000	0.142222
0.014222	0.144444
0.014444	0.146667
0.014667	0.148889
0.014889	0.151111
0.015111	0.153333
0.015333	0.155556
0.015556	0.157778
0.015778	0.159999
0.016000	0.162222
0.016222	0.164444
0.016444	0.166667
0.016667	0.168889
0.016889	0.171111
0.017111	0.173333
0.017333	0.175556
0.017556	0.177778
0.017778	0.179999
0.018000	0.182222
0.018222	0.184444
0.018444	0.186667
0.018667	0.188889
0.018889	0.191111
0.019111	0.193333
0.019333	0.195556
0.019556	0.197778
0.019778	0.199999
0.020000	0.202222
0.020222	0.204444
0.020444	0.206667
0.020667	0.208889
0.020889	0.211111
0.021111	0.213333
0.021333	0.215556
0.021556	0.217778
0.021778	0.219999
0.022000	0.222222
0.022222	0.224444
0.022444	0.226667
0.022667	0.228889
0.022889	0.231111
0.023111	0.233333
0.023333	0.235556
0.023556	0.237778
0.023778	0.239999
0.024000	0.242222
0.024222	0.244444
0.024444	0.246667
0.024667	0.248889
0.024889	0.251111
0.025111	0.253333
0.025333	0.255556
0.025556	0.257778
0.025778	0.259999
0.026000	0.262222
0.026222	0.264444
0.026444	0.266667
0.026667	0.268889
0.026889	0.271111
0.027111	0.273333
0.027333	0.275556
0.027556	0.277778
0.027778	0.279999
0.028000	0.282222
0.028222	0.284444
0.028444	0.286667
0.028667	0.288889
0.028889	0.291111
0.029111	0.293333
0.029333	0.295556
0.029556	0.297778
0.029778	0.299999
0.030000	0.302222
0.030222	0.304444
0.030444	0.306667
0.030667	0.308889
0.030889	0.311111
0.031111	0.313333
0.031333	0.315556
0.031556	0.317778
0.031778	0.319999
0.032000	0.322222
0.032222	0.324444
0.032444	0.326667
0.032667	0.328889
0.032889	0.331111
0.033111	0.333333
0.033333	0.335556
0.033556	0.337778
0.033778	0.339999
0.034000	0.342222
0.034222	0.344444
0.034444	0.346667
0.034667	0.348889
0.034889	0.351111
0.035111	0.353333
0.035333	0.355556
0.035556	0.357778
0.035778	0.359999
0.036000	0.362222
0.036222	0.364444
0.036444	0.366667
0.036667	0.368889
0.036889	0.371111
0.037111	0.373333
0.037333	0.375556
0.037556	0.377778
0.037778	0.379999
0.038000	0.382222
0.038222	0.384444
0.038444	0.386667
0.038667	0.388889
0.038889	0.391111
0.039111	0.393333
0.039333	0.395556
0.039556	0.397778
0.039778	0.399999
0.040000	0.402222
0.040222	0.404444
0.040444	0.406667
0.040667	0.408889
0.040889	0.411111
0.041111	0.413333
0.041333	0.415556
0.041556	0.417778
0.041778	0.419999
0.042000	0.422222
0.042222	0.424444
0.042444	0.426667
0.042667	0.428889
0.042889	0.431111
0.043111	0.433333
0.043333	0.435556
0.043556	0.437778
0.043778	0.439999
0.044000	0.442222
0.044222	0.444444
0.044444	0.446667
0.044667	0.448889
0.044889	0.451111
0.045111	0.453333
0.045333	0.455556
0.045556	0.457778
0.045778	0.459999
0.046000	0.462222
0.046222	0.464444
0.046444	0.466667
0.046667	0.468889
0.046889	0.471111
0.047111	0.473333
0.047333	0.475556
0.047556	0.477778
0.047778	0.479999
0.048000	0.482222
0.048222	0.484444
0.048444	0.486667
0.048667	0.488889
0.048889	0.491111
0.049111	0.493333
0.049333	0.495556
0.049556	0.497778
0.049778	0.499999
0.050000	0.502222
0.050222	0.504444
0.050444	0.506667
0.050667	0.508889
0.050889	0.511111
0.051111	0.513333
0.051333	0.515556
0.051556	0.517778
0.051778	0.519999
0.052000	0.522222
0.052222	0.524444
0.052444	0.526667
0.052667	0.528889
0.052889	0.531111
0.053111	0.533333
0.053333	0.535556
0.053556	0.537778
0.053778	0.539999
0.054000	0.542222
0.054222	0.544444
0.054444	0.546667
0.054667	0.548889
0.054889	0.551111
0.055111	0.553333
0.055333	0.555556
0.055556	0.557778
0.055778	0.559999
0.056000	0.562222
0.056222	0.564444
0.056444	0.566667
0.056667	0.568889
0.056889	0.571111
0.057111	0.573333
0.057333	0.575556
0.057556	0.577778
0.057778	0.579999
0.058000	0.582222
0.058222	0.584444
0.058444	0.586667
0.058667	0.588889
0.058889	0.591111
0.059111	0.593333
0.059333	0.595556
0.059556	0.597778
0.059778	0.599999
0.060000	0.602222
0.060222	0.604444
0.060444	0.606667
0.060667	0.608889
0.060889	0.611111
0.061111	0.613333
0.061333	0.615556
0.061556	0.617778
0.061778	0.619999
0.062000	0.622222
0.062222	0.624444
0.062444	0.626667
0.062667	0.628889
0.062889	0.631111
0.063111	0.633333
0.063333	0.635556
0.063556	0.637778
0.063778	0.639999
0.064000	0.642222
0.064222	0.644444
0.064444	0.646667
0.064667	0.648889
0.064889	0.651111
0.065111	0.653333
0.065333	0.655556
0.065556	0.657778
0.065778	0.659999
0.066000	0.662222
0.066222	0.664444
0.066444	0.666667
0.066667	0.668889
0.066889	0.671111
0.067111	0.673333
0.067333	0.675556
0.067556	0.677778
0.067778	0.679999
0.068000	0.682222
0.068222	0.684444
0.068444	0.686667
0.068667	0.688889
0.068889	0.691111
0.069111	0.693333
0.069333	0.695556
0.069556	0.697778
0.069778	0.699999
0.070000	0.702222
0.070222	0.704444
0.070444	0.706667
0.070667	0.708889
0.070889	0.711111
0.071111	0.713333
0.071333	0.715556
0.071556	0.717778
0.071778	0.719999
0.072000	0.722222
0.072222	0.724444
0.072444	0.726667
0.072667	0.728889
0.072889	0.731111
0.073111	0.733333
0.073333	0.735556
0.073556	0.737778
0.073778	0.739999
0.074000	0.742222
0.074222	0.744444
0.074444	0.746667
0.074667	0.748889
0.074889	0.751111
0.075111	0.753333
0.075333	0.755556
0.075556	0.757778
0.075778	0.759999
0.076000	0.762222
0.076222	0.764444
0.076444	0.766667
0.076667	0.768889
0.076889	0.771111
0.077111	0.773333
0.077333	0.775556
0.077556	0.777778
0.077778	0.779999
0.078000	0.782222
0.078222	0.784444
0.078444	0.786667
0.078667	0.788889
0.078889	0.791111
0.079111	0.793333
0.079333	0.795556
0.079556	0.797778
0.079778	0.799999
0.080000	0.802222
0.080222	0.804444
0.080444	0.806667
0.080667	0.808889
0.080889	0.811111
0.081111	0.813333
0.081333	0.815556
0.081556	0.817778
0.081778	0.819999
0.082000	0.822222
0.082222	0.824444
0.082444	0.826667
0.082667	0.828889
0.082889	0.831111
0.083111	0.833333
0.083333	0.835556
0.083556	0.837778
0.083778	0.839999
0.084000	0.842222
0.084222	0.844444
0.084444	0.846667
0.084667	0.848889
0.084889	0.851111
0.085111	0.853333
0.085333	0.855556
0.085556	0.857778
0.085778	0.859999
0.086000	0.862222
0.086222	0.864444
0.086444	0.866667
0.086667	0.868889
0.086889	0.871111
0.087111	0.873333
0.087333	0.875556
0.087556	0.877778
0.087778	0.879999
0.088000	0.882222
0.088222	0.884444
0.088444	0.886667
0.088667	0.888889
0.088889	0.891111
0.089111	0.893333
0.089333	0.895556
0.089556	0.897778
0.089778	0.899999
0.090000	0.902222
0.090222	0.904444
0.090444	0.906667
0.090667	0.908889
0.090889	0.911111
0.091111	0.913333
0.091333	0.915

upper surface			lower surface		
i	x/o	y/o	i	x/o	y/o
1	0	0	26	0.8997	0.0137
2	0.0013	0.0106	27	0.7995	0.0277
3	0.0046	0.0194	28	0.6999	0.0393
4	0.0094	0.0268	29	0.6010	0.0481
5	0.0198	0.0338	30	0.4999	0.0539
6	0.0342	0.0384	31	0.3998	0.0575
7	0.0492	0.0421	32	0.2998	0.0587
8	0.0745	0.0459	33	0.2008	0.0565
9	0.0992	0.0491	34	0.1500	0.0537
10	0.1493	0.0536	35	0.0999	0.0493
11	0.1994	0.0564	36	0.0499	0.0422
12	0.2491	0.0579	37	0.0251	0.0368
13	0.2996	0.0586	38	0.0108	0.0282
14	0.3496	0.0583	39	0.0056	0.0212
15	0.3992	0.0576	40	0.0019	0.0128
16	0.4492	0.0561			
17	0.4997	0.0539			
18	0.5593	0.0514			
19	0.6193	0.0467			
20	0.6792	0.0414			
21	0.7390	0.0349			
22	0.7993	0.0277			
23	0.8593	0.0197			
24	0.9198	0.0107			
25	0.9914	0.0006			

upper surface		
i	x/o	y/o
41	0.0200	0.0338
42	0.2997	0.0586
43	0.6194	0.0467

TABLE 2.3 Co-ordinates of the model pressure holes

alpha	0.00		cd	0.0095		alpha	0.00		cd	0.0118
ma.nom	0.300	6				ma.nom	0.300	6		
re	1.07	10	mae	0.303		re	1.10	10	mae	0.300
po	10144		mae	0.302		po	10446		mae	0.299

MODEL				WAKE				MODEL				WAKE					
i	cp	p/po	i	x/c	cpw	i	x/c	cpw	i	cp	p/po	i	x/c	cpw	i	x/c	cpw
1	1.026	25	0.777	1	0.0000	0.000	21	0.0733	0.165	1	1.029	25	0.161	0.9489	1	0.0000	0.000
2	0.811	26	0.042	2	0.0049	0.002	22	0.0782	0.117	2	0.794	26	0.041	0.9419	2	0.0230	0.000
3	0.334	27	-0.087	3	0.0098	0.003	23	0.0831	0.073	3	0.279	27	-0.080	0.9346	3	0.0462	0.000
4	-0.405	28	-0.168	4	0.0146	0.006	24	0.0879	0.010	4	-0.523	28	-0.164	0.9297	4	0.0695	0.000
5	-0.863	29	-0.220	5	0.0195	0.012	25	0.0928	0.018	5	-0.894	29	-0.214	0.9267	5	0.0929	0.000
6	-0.689	30	-0.252	6	0.0244	0.028	26	0.0977	0.007	6	-0.693	30	-0.262	0.9239	6	0.1165	0.000
7	-0.580	31	-0.283	7	0.0293	0.055	27	0.1002	0.005	7	-0.556	31	-0.286	0.9224	7	0.1401	0.000
8	-0.482	32	-0.318	8	0.0342	0.097	28	0.1050	0.000	8	-0.516	32	-0.307	0.9212	8	0.1639	0.000
9	-0.433	33	-0.360	9	0.0391	0.145				9	-0.449	33	-0.339	0.9193	9	0.1878	0.000
10	-0.388	34	-0.381	10	0.0440	0.193				10	-0.384	34	-0.355	0.9184	10	0.2117	0.000
11	-0.360	35	-0.430	11	0.0486	0.212				11	-0.365	35	-0.413	0.9149	11	0.2357	0.000
12	-0.339	36	-0.570	12	0.0537	0.230				12	-0.347	36	-0.547	0.9070	12	0.2598	0.000
13	-0.322	37	-0.776	13	0.0586	0.243				13	-0.326	37	-0.950	0.8831	13	0.2840	0.000
14	-0.294	38	-0.622	14	0.0635	0.255				14	-0.307	38	-0.982	0.8812	14	0.3082	0.000
15	-0.280	39	0.240	15	0.0684	0.260				15	-0.294	39	-1.011	0.8795	15	0.3325	0.000
16	-0.266	40	0.751	16	0.0733	0.258				16	-0.278	40	-0.942	0.8836	16	0.3568	0.000
17	-0.252	41	-0.867	17	0.0782	0.253				17	-0.267	41	-0.912	0.8854	17	0.3812	0.000
18	-0.234	42	-0.318	18	0.0831	0.242				18	-0.256	42	-0.923	0.8803	18	0.4056	0.002
19	-0.210	43	-0.210	19	0.0859	0.227				19	-0.245	43	-0.926	0.8764	19	0.4291	0.003
20	-0.178			20	0.0884	0.208				20	-0.231			0.8764	20	0.4530	0.019
21	-0.140									21	-0.215			0.8764	21	0.4739	0.004
22	-0.087									22	-0.200			0.8764	22	0.4935	0.007
23	-0.017									23	-0.184			0.8764	23	0.5130	0.014
24	-0.077									24	-0.167			0.8764	24	0.5319	0.007

alpha	0.00		cd	0.0098		alpha	0.00		cd	0.0118
ma.nom	0.500	6				ma.nom	0.500	6		
re	1.65	10	mae	0.502		re	1.70	10	mae	0.502
po	10113		mae	0.502		po	10358		mae	0.501

MODEL				WAKE				MODEL				WAKE					
i	cp	p/po	i	x/c	cpw	i	x/c	cpw	i	cp	p/po	i	x/c	cpw	i	x/c	cpw
1	1.064	25	0.185	1	0.0000	0.000	21	0.0611	0.270	1	1.073	25	0.174	0.8687	1	0.0000	0.000
2	0.857	26	0.043	2	0.0049	0.001	22	0.0635	0.254	2	0.853	26	0.045	0.8496	2	0.0232	0.000
3	0.394	27	-0.096	3	0.0098	0.003	23	0.0660	0.236	3	0.279	27	-0.092	0.8295	3	0.0465	0.000
4	-0.370	28	-0.184	4	0.0146	0.010	24	0.0684	0.213	4	-0.493	28	-0.185	0.8157	4	0.0699	0.000
5	-0.936	29	-0.242	5	0.0195	0.026	25	0.0708	0.191	5	-0.959	29	-0.240	0.8077	5	0.0934	0.000
6	-0.746	30	-0.280	6	0.0244	0.052	26	0.0733	0.166	6	-0.741	30	-0.291	0.8001	6	0.1171	0.000
7	-0.637	31	-0.322	7	0.0293	0.070	27	0.0757	0.141	7	-0.606	31	-0.322	0.7956	7	0.1409	0.000
8	-0.525	32	-0.342	8	0.0342	0.091	28	0.0782	0.117	8	-0.547	32	-0.344	0.7923	8	0.1647	0.000
9	-0.473	33	-0.374	9	0.0391	0.114	29	0.0806	0.094	9	-0.498	33	-0.381	0.7868	9	0.1887	0.000
10	-0.428	34	-0.421	10	0.0440	0.139	30	0.0831	0.072	10	-0.423	34	-0.403	0.7836	10	0.2127	0.000
11	-0.376	35	-0.469	11	0.0486	0.162	31	0.0855	0.054	11	-0.400	35	-0.477	0.7726	11	0.2368	0.000
12	-0.360	36	-0.622	12	0.0537	0.188	32	0.0880	0.026	12	-0.378	36	-0.604	0.7540	12	0.2610	0.000
13	-0.345	37	-0.839	13	0.0586	0.211	33	0.0904	0.011	13	-0.359	37	-0.995	0.6962	13	0.2852	0.000
14	-0.328	38	-0.620	14	0.0635	0.235	34	0.1002	0.004	14	-0.337	38	-1.045	0.6888	14	0.3095	0.000
15	-0.312	39	0.295	15	0.0684	0.253	35	0.1050	0.001	15	-0.324	39	-1.072	0.6844	15	0.3338	0.000
16	-0.297	40	0.794	16	0.0733	0.268	36	0.1099	0.000	16	-0.304	40	-0.981	0.6983	16	0.3581	0.000
17	-0.280	41	-0.937	17	0.0782	0.279				17	-0.288	41	-0.977	0.6988	17	0.3825	0.001
18	-0.257	42	-0.343	18	0.0831	0.284				18	-0.260	42	-0.955	0.7907	18	0.4069	0.001
19	-0.231	43	-0.229	19	0.0859	0.284				19	-0.237	43	-0.945	0.8069	19	0.4317	0.001
20	-0.196			20	0.0884	0.279				20	-0.219			0.8137	20	0.4562	0.001
21	-0.153									21	-0.204			0.8203	21	0.4802	0.001
22	-0.096									22	-0.188			0.8288	22	0.5047	0.001
23	-0.020									23	-0.172			0.8388	23	0.5292	0.001
24	0.081									24	-0.155			0.8505	24	0.5542	0.001

TABLE 2.4.1 Free transition data

TABLE 2.4.2 Fixed transition data

alpha ma,nom re po										cd 0.0097 mcs mce										cd 0.0115 mcs mce																			
0.00 0.600 1.89 10099										0.601 0.601										0.598 0.598																			
6 10																																							
MODEL										WAKE										MODEL										WAKE									
i	cpi	i	cpi	i	z/t/c	cpw	i	z/t/c	cpw	i	cp	p/po	i	cp	p/po	i	z/t/c	cpw	i	z/t/c	cpw																		
1	1.093	25	0.194	1	0.0000	0.000	21	0.0611	0.251	1	1.094	1.0002	25	0.180	0.8195	1	0.0000	0.000	23	0.4118	0.044																		
2	0.895	26	0.049	2	0.0049	0.004	22	0.0635	0.231	2	0.889	0.9577	26	0.049	0.7938	2	0.0232	0.000	24	0.4167	0.081																		
3	0.447	27	-0.101	3	0.0098	0.011	23	0.0660	0.211	3	0.447	0.7648	27	-0.091	0.7648	3	0.0465	0.000	25	0.4266	0.127																		
4	-0.314	28	-0.199	4	0.0147	0.028	24	0.0684	0.186	4	-0.425	0.7000	28	-0.201	0.7444	4	0.0699	0.000	26	0.4265	0.177																		
5	-0.999	29	-0.262	5	0.0195	0.055	25	0.0708	0.162	5	-1.009	0.5847	29	-0.263	0.7324	5	0.0934	0.000	27	0.4314	0.229																		
6	-0.802	30	-0.306	6	0.0244	0.096	26	0.0733	0.136	6	-0.785	0.6230	30	-0.320	0.7208	6	0.1171	0.000	28	0.4362	0.272																		
7	-0.688	31	-0.352	7	0.0269	0.119	27	0.0757	0.112	7	-0.653	0.6550	31	-0.355	0.7139	7	0.1409	0.000	29	0.4411	0.306																		
8	-0.570	32	-0.376	8	0.0293	0.143	28	0.0782	0.090	8	-0.594	0.6666	32	-0.381	0.7087	8	0.1647	0.000	30	0.4460	0.323																		
9	-0.514	33	-0.412	9	0.0317	0.169	29	0.0806	0.069	9	-0.537	0.6780	33	-0.417	0.7016	9	0.1887	0.000	31	0.4509	0.323																		
10	-0.464	34	-0.455	10	0.0342	0.193	30	0.0831	0.051	10	-0.458	0.6935	34	-0.443	0.6966	10	0.2127	0.000	32	0.4558	0.299																		
11	-0.411	35	-0.510	11	0.0366	0.216	31	0.0879	0.026	11	-0.435	0.6980	35	-0.525	0.6804	11	0.2368	0.000	33	0.4607	0.263																		
12	-0.397	36	-0.577	12	0.0391	0.239	32	0.0928	0.010	12	-0.412	0.7026	36	-0.656	0.6544	12	0.2610	0.000	34	0.4656	0.219																		
13	-0.377	37	-0.502	13	0.0415	0.258	33	0.0977	0.004	13	-0.392	0.7066	37	-1.050	0.5765	13	0.2852	0.000	35	0.4705	0.169																		
14	-0.356	38	-0.581	14	0.0440	0.275	34	0.1026	0.001	14	-0.368	0.7113	38	-1.086	0.5694	14	0.3095	0.000	36	0.4753	0.117																		
15	-0.342	39	-0.648	15	0.0464	0.285	35	0.1075	0.000	15	-0.354	0.7141	39	-1.100	0.5667	15	0.3338	0.000	37	0.4802	0.073																		
16	-0.324	40	-0.833	16	0.0489	0.292				16	-0.332	0.7183	40	-0.967	0.5590	16	0.3581	0.000	38	0.4851	0.041																		
17	-0.305	41	-1.000	17	0.0513	0.294				17	-0.314	0.7219	41	-1.023	0.5819	17	0.3825	0.000	39	0.4900	0.019																		
18	-0.279	42	-0.376	18	0.0537	0.290				18	-0.292	0.7260	42	-0.983	0.7084	18	0.3874	0.000	40	0.4949	0.006																		
19	-0.245	43	-0.248	19	0.0562	0.283				19	-0.272	0.7342	43	-0.262	0.7323	19	0.3923	0.001	41	0.4998	0.001																		
20	-0.210			20	0.0586	0.269				20	-0.244	0.7417				20	0.3972	0.003	42	0.5047	0.000																		
21	-0.164									21	-0.167	0.7510				21	0.4021	0.009	43	0.5095	0.000																		
22	-0.101									22	-0.103	0.7637				22	0.4069	0.023																					
23	-0.018									23	-0.020	0.7801																											
24	0.088									24	0.083	0.8004																											

alpha ma,nom re po										cd 0.0096 mcs mce										cd 0.0118 mcs mce																			
0.00 0.700 2.14 10312										0.702 0.702										0.702 0.701																			
6 10																																							
MODEL										WAKE										MODEL										WAKE									
i	cpi	i	cpi	i	z/t/c	cpw	i	z/t/c	cpw	i	cp	p/po	i	cp	p/po	i	z/t/c	cpw	i	z/t/c	cpw																		
1	1.132	25	0.206	1	0.0000	0.000	21	0.0782	0.158	1	1.135	1.0017	25	0.190	0.7678	1	0.0000	0.000	27	0.4495	0.191																		
2	0.948	26	0.062	2	0.0049	0.002	22	0.0831	0.110	2	0.928	0.9504	26	0.059	0.7353	2	0.0230	0.000	28	0.4544	0.242																		
3	0.532	27	-0.102	3	0.0098	0.006	23	0.0879	0.068	3	0.532	0.7678	27	-0.100	0.6959	3	0.0462	0.000	29	0.4593	0.286																		
4	-0.184	28	-0.216	4	0.0146	0.016	24	0.0928	0.037	4	-0.289	0.6493	28	-0.218	0.6668	4	0.0695	0.000	30	0.4642	0.316																		
5	-1.097	29	-0.293	5	0.0195	0.036	25	0.0977	0.017	5	-1.104	0.4478	29	-0.293	0.6483	5	0.0929	0.000	31	0.4691	0.336																		
6	-0.900	30	-0.347	6	0.0244	0.067	26	0.1026	0.007	6	-0.861	0.5077	30	-0.361	0.6315	6	0.1165	0.000	32	0.4739	0.336																		
7	-0.777	31	-0.402	7	0.0293	0.108	27	0.1075	0.002	7	-0.737	0.5384	31	-0.403	0.6210	7	0.1401	0.000	33	0.4788	0.320																		
8	-0.647	32	-0.434	8	0.0342	0.156	28	0.1124	0.001	8	-0.692	0.5496	32	-0.438	0.6123	8	0.1639	0.000	34	0.4837	0.296																		
9	-0.582	33	-0.474	9	0.0391	0.206	29	0.1173	0.000	9	-0.608	0.5703	33	-0.483	0.6013	9	0.1878	0.000	35	0.4886	0.238																		
10	-0.520	34	-0.514	10	0.0440	0.253				10	-0.517	0.5928	34	-0.506	0.5955	10	0.2117	0.000	36	0.4935	0.193																		
11	-0.472	35	-0.585	11	0.0488	0.284				11	-0.494	0.5986	35	-0.603	0.5716	11	0.2357	0.000	37	0.4984	0.142																		
12	-0.444	36	-0.775	12	0.0513	0.297				12	-0.468	0.6050	36	-0.740	0.5377	12	0.2598	0.000	38	0.5033	0.094																		
13	-0.428	37	-1.012	13	0.0537	0.304				13	-0.443	0.6113	37	-1.129	0.4444	13	0.2840	0.000	39	0.5081	0.059																		
14	-0.404	38	-0.440	14	0.0562	0.306				14	-0.415	0.6181	38	-1.075	0.4549	14	0.3082	0.000	40	0.5130	0.032																		
15	-0.387	39	-0.435	15	0.0586	0.304				15	-0.397	0.6225	39	-1.034	0.4649	15	0.3325	0.000	41	0.5179	0.015																		
16	-0.365	40	-0.890	16	0.0611	0.298				16	-0.373	0.6286	40	-0.838	0.5134	16	0.3568	0.000	42	0.5249	0.005																		
17	-0.343	41	-1.087	17	0.0635	0.286				17	-0.350	0.6342	41	-1.126	0.4422	17	0.3812	0.000	43	0.5297	0.002																		
18	-0.313	42	-0.426	18	0.0660	0.271				18	-0.315	0.6429	42	-0.438	0.6123	18	0.4056	0.000	44	0.5326	0.001																		
19	-0.276	43	-0.275	19	0.0684	0.253				19	-0.277	0.6523	43	-0.288	0.6495	19	0.4104	0.001	45	0.5375	0.001																		
20	-0.228			20	0.0733	0.208				20	-0.231	0.6635				20	0.4153	0.002	46	0.5423	0.001																		
21	-0.174									21	-0.176	0.6772				21	0.4202	0.005	47	0.5472	0.001																		
22	-0.102									22	-0.103	0.6953				22	0.4251	0.014	48	0.5521	0.000																		
23	-0.010									23	-0.012	0.7119				23	0.4300	0.029	49	0.5765	0.000																		
24	0.102									24	0.095	0.7443				24	0.4349	0.055	50	0.6008	0.000																		
																25	0.4397	0.094	51	0.6752	0.000																		
																26	0.4446	0.139																					

alpha ma,nom re po										cd 0.0098 mcs mce										cd 0.0118 mcs mce																			
0.00 0.740 2.23 10416										0.741 0.741										0.740 0.740																			
6 10																																							
MODEL										WAKE										MODEL										WAKE									
i	cpi	i	cpi	i	z/t/c	cpw	i	z/t/c	cpw	i	cp	p/po	i	cp	p/po	i	z/t/c	cpw	i	z/t/c	cpw																		
1	1.147	25	0.211	1	0.0000	0.000	21	0.0782	0.212	1	1.146	1.0003	25	0.136	0.7472	1	0.0000	0.000	24	0.4167	0.106																		
2	0.970	26	0.068	2	0.0049	0.000	22	0.0831	0.163	2	0.964	0.9513	26	0.067	0.7126	2	0.0232	0.000	25	0.4216	0.153																		
3	0.572	27	-0.101	3	0.0098	0.002	23	0.0879	0.115	3	0.572	0.767	27	-0.098	0.6687	3	0.0465	0.000	26	0.4265	0.207																		
4	-0.107	28	-0.221	4	0.0146	0.008	24	0.0928	0.073	4	-0.204	0.6404	28	-0.223	0.6353	4	0.0699	0.000	27	0.4314	0.255																		
5	-1.077	29	-0.307	5	0.0195	0.021	25	0.0977	0.041	5	-1.091	0.4040	29	-0.305	0.6135	5	0.0934	0.000	28	0.4367	0.292																		
6	-0.968	30																																					

alpha 0.00				cd 0.0099					
ma.nom 0.770 6									
re. 2.28 10				maccs 0.771					
po 10412				mace 0.770					
MODEL				WAKE					
i	cp1	i	cp1	i	x_t/c	cpw	i	x_t/c	cpw
1	1.159	25	0.221	1	0.0000	0.000	21	0.0782	0.216
2	0.985	26	0.076	2	0.0049	0.000	22	0.0831	0.168
3	0.599	27	-0.098	3	0.0098	0.002	23	0.0879	0.120
4	-0.055	28	-0.226	4	0.0146	0.008	24	0.0928	0.078
5	-1.020	29	-0.319	5	0.0195	0.021	25	0.0977	0.045
6	-0.988	30	-0.386	6	0.0244	0.044	26	0.1026	0.023
7	-0.937	31	-0.454	7	0.0293	0.076	27	0.1075	0.010
8	-0.799	32	-0.494	8	0.0342	0.118	28	0.1124	0.003
9	-0.714	33	-0.538	9	0.0391	0.167	29	0.1172	0.001
10	-0.612	34	-0.602	10	0.0440	0.214	30	0.1221	0.000
11	-0.507	35	-0.683	11	0.0488	0.257	31	0.1270	0.000
12	-0.523	36	-0.904	12	0.0537	0.289			
13	-0.495	37	-1.000	13	0.0586	0.299			
14	-0.464	38	-0.277	14	0.0635	0.306			
15	-0.441	39	0.517	15	0.0681	0.308			
16	-0.413	40	0.935	16	0.0635	0.306			
17	-0.383	41	-1.011	17	0.0659	0.300			
18	-0.344	42	-0.495	18	0.0684	0.289			
19	-0.298	43	-0.298	19	0.0708	0.275			
20	-0.242			20	0.0733	0.258			
21	-0.177								
22	-0.095								
23	0.005								
24	0.119								

alpha 0.00				cd 0.0089					
ma.nom 0.789									
re. 2.31 10				maccs 0.789					
po 10400				mace 0.789					
MODEL				WAKE					
i	cp1	i	cp1	i	x_t/c	cpw	i	x_t/c	cpw
1	1.168	25	0.239	1	0.0000	0.000	21	0.0782	0.191
2	0.999	26	0.085	2	0.0049	0.000	22	0.0831	0.138
3	0.620	27	-0.096	3	0.0098	0.002	23	0.0879	0.094
4	-0.018	28	-0.229	4	0.0146	0.007	24	0.0928	0.057
5	-0.967	29	-0.326	5	0.0195	0.018	25	0.0977	0.028
6	-0.947	30	-0.396	6	0.0244	0.038	26	0.1026	0.012
7	-0.910	31	-0.452	7	0.0293	0.073	27	0.1075	0.005
8	-0.849	32	-0.552	8	0.0342	0.112	28	0.1124	0.001
9	-0.787	33	-0.615	9	0.0391	0.163	29	0.1172	0.000
10	-0.673	34	-0.657	10	0.0440	0.211	30	0.1221	0.000
11	-0.618	35	-0.762	11	0.0488	0.254			
12	-0.579	36	-0.891	12	0.0537	0.284			
13	-0.468	37	-0.954	13	0.0586	0.292			
14	-0.464	38	-0.233	14	0.0586	0.297			
15	-0.453	39	0.510	15	0.0611	0.297			
16	-0.425	40	0.950	16	0.0635	0.293			
17	-0.394	41	-0.953	17	0.0659	0.283			
18	-0.352	42	-0.461	18	0.0684	0.271			
19	-0.303	43	-0.303	19	0.0708	0.254			
20	-0.242			20	0.0733	0.236			
21	-0.174								
22	-0.089								
23	0.015								
24	0.134								

alpha	0.00			cd	0.0083
ma.nom	0.800	6			
re.	2.32	10		maccs	0.800
po	10397			mace	0.800

MODEL				WAKE					
i	epi	i	epi	i	x_t/c	cpw	i	x_t/c	cpw
1	1.174	25	0.254	1	0.0000	0.000	21	0.0782	0.181
2	1.006	26	0.092	2	0.0049	0.000	22	0.0831	0.130
3	0.635	27	-0.093	3	0.0098	0.001	23	0.0879	0.082
4	0.005	28	-0.227	4	0.0146	0.004	24	0.0928	0.046
5	-0.935	29	-0.326	5	0.0195	0.011	25	0.0977	0.022
6	-0.921	30	-0.387	6	0.0244	0.029	26	0.1026	0.009
7	-0.889	31	-0.440	7	0.0293	0.058	27	0.1075	0.004
8	-0.838	32	-0.618	8	0.0342	0.099	28	0.1124	0.002
9	-0.791	33	-0.667	9	0.0391	0.146	29	0.1172	0.001
10	-0.740	34	-0.703	10	0.0440	0.198	30	0.1221	0.000
11	-0.695	35	-0.761	11	0.0488	0.244			
12	-0.640	36	-0.864	12	0.0537	0.277			
13	-0.586	37	-0.921	13	0.0586	0.289			
14	-0.458	38	-0.208	14	0.0586	0.294			
15	-0.399	39	0.554	15	0.0611	0.295			
16	-0.416	40	0.957	16	0.0635	0.290			
17	-0.395	41	-0.925	17	0.0659	0.282			
18	-0.355	42	-0.587	18	0.0684	0.269			
19	-0.305	43	-0.304	19	0.0708	0.251			
20	-0.243			20	0.0733	0.230			
21	-0.175								
22	-0.087								
23	0.018								
24	0.141								

TABLE 2.4.1 Free transition data (con'd)

alpha 0.00						cd 0.0122					
ma.nom. 0.770 6											
re 2.26 10						maccs 0.771					
po 10333						mace 0.771					
MODEL						WAKE					
i	cp	p/po	i	cp	p/po	i	x_t/c	cpw	i	x_t/c	cpw
1	1.162	1.0013	25	0.200	0.7113	1	0.0000	0.000	28	0.4544	0.252
2	0.977	0.9496	26	0.073	0.6360	2	0.0230	0.000	29	0.4593	0.293
3			27	-0.094	0.6493	3	0.0462	0.000	30	0.4642	0.327
4	-0.140	0.6364	28	-0.226	0.6123	4	0.0695	0.000	31	0.4691	0.342
5	-1.024	0.3888	29	-0.317	0.5868	5	0.0929	0.000	32	0.4739	0.345
6	-0.952	0.4088	30	-0.400	0.5635	6	0.1165	0.000	33	0.4789	0.331
7	-0.822	0.4454	31	-0.456	0.5478	7	0.1401	0.000	34	0.4837	0.302
8	-0.822	0.4453	32	-0.505	0.5341	8	0.1639	0.000	35	0.4886	0.263
9	-0.877	0.4434	33	-0.555	0.5203	9	0.1878	0.000	36	0.4935	0.216
10	-0.550	0.5215	34	-0.544	0.5233	10	0.2117	0.000	37	0.4984	0.161
11	-0.564	0.5177	35	-0.850	0.4174	11	0.2357	0.000	38	0.5033	0.119
12	-0.539	0.5245	36	-0.768	0.4604	12	0.2598	0.000	39	0.5081	0.078
13	-0.506	0.5338	37	-0.959	0.4070	13	0.2840	0.000	40	0.5130	0.048
14	-0.471	0.5438	38	-0.881	0.4287	14	0.3082	0.000	41	0.5179	0.029
15	-0.448	0.5500	39	-0.841	0.4399	15	0.3325	0.000	42	0.5228	0.015
16	-0.417	0.5587	40	-0.654	0.4923	16	0.3568	0.000	43	0.5277	0.009
17	-0.388	0.5670	41	-1.030	0.3870	17	0.3812	0.001	44	0.5326	0.005
18	-0.344	0.5792	42	-0.507	0.5349	18	0.4056	0.001	45	0.5375	0.004
19	-0.298	0.5921	43	-0.309	0.5890	19	0.4104	0.002	46	0.5423	0.002
20	-0.244	0.6073				20	0.4153	0.005	47	0.5477	0.002
21	-0.179	0.6255				21	0.4202	0.011	48	0.5521	0.001
22	-0.097	0.6484				22	0.4251	0.029	49	0.5565	0.001
23	-0.001	0.6755				23	0.4300	0.043	50	0.5608	0.000
24	0.107	0.7058				24	0.4349	0.073	51	0.5652	0.000
						25	0.4397	0.108	52	0.6494	0.000
						26	0.4446	0.154	53	0.6737	0.000
						27	0.4495	0.205			

alpha 0.00 ma.nom. 0.790 6 re 2.29 10 po 10327						cd 0.0121 maccs 0.790 mace 0.789					
MODEL						WAKE					
i	ap	p/po	i	cp	p/po	i	x_t/c	cpw	i	x_t/c	cpw
1	1.167	1.0003	25	0.208	0.7230	1	0.0000	0.000	27	0.4495	0.217
2	0.998	0.9516	26	0.081	0.6863	2	0.0230	0.000	28	0.4544	0.259
3			27	-0.086	0.6380	3	0.0462	0.000	29	0.4593	0.300
4	-0.097	0.6348	28	-0.222	0.5985	4	0.0695	0.000	30	0.4647	0.329
5	-0.963	0.3847	29	-0.320	0.5704	5	0.0929	0.000	31	0.4691	0.343
6	-0.926	0.3951	30	-0.408	0.5447	6	0.1165	0.000	32	0.4739	0.342
7	-0.786	0.4325	31	-0.472	0.5264	7	0.1401	0.000	33	0.4788	0.326
8	-0.779	0.4374	32	-0.528	0.5100	8	0.1639	0.000	34	0.4837	0.296
9	-0.813	0.4276	33	-0.538	0.5071	9	0.1878	0.000	35	0.4886	0.255
10	-0.740	0.4488	34	-0.735	0.4502	10	0.2117	0.000	36	0.4935	0.211
11	-0.514	0.5141	35	-0.838	0.4205	11	0.2357	0.000	37	0.4984	0.159
12	-0.554	0.5025	36	-0.752	0.4452	12	0.2598	0.000	38	0.5033	0.117
13	-0.530	0.5004	37	-0.893	0.4044	13	0.2840	0.000	39	0.5081	0.078
14	-0.488	0.5217	38	-0.816	0.4269	14	0.3082	0.000	40	0.5130	0.047
15	-0.464	0.5287	39	-0.775	0.4385	15	0.3325	0.000	41	0.5179	0.025
16	-0.428	0.5389	40	-0.593	0.4913	16	0.3568	0.000	42	0.5228	0.012
17	-0.397	0.5481	41	-0.965	0.3836	17	0.3812	0.001	43	0.5277	0.006
18	-0.349	0.5619	42	-0.525	0.5109	18	0.4056	0.002	44	0.5326	0.003
19	-0.299	0.5764	43	-0.310	0.5737	19	0.4104	0.004	45	0.5375	0.002
20	-0.241	0.5932				20	0.4153	0.006	46	0.5423	0.001
21	-0.174	0.6126				21	0.4202	0.013	47	0.5472	0.001
22	-0.090	0.6367				22	0.4251	0.027	48	0.5521	0.001
23	0.008	0.6652				23	0.4300	0.047	49	0.5565	0.001
24	0.116	0.6965				24	0.4349	0.081	50	0.6008	0.000
						25	0.4397	0.119	51	0.6252	0.000
						26	0.4446	0.166			

alpha 0.00 re.nom. 0.800 6 re 2.31 10 po 10326						cd 0.0121 maccs 0.800 mace 0.801					
MODEL						WAKE					
i	ap	p/po	i	cp	p/po	i	x_t/c	cpw	i	x_t/c	cpw
1	1.169	0.9997	25	0.211	0.7179	1	0.0000	0.000	29	0.4593	0.305
2	1.004	0.9509	26	0.084	0.6806	2	0.0330	0.000	30	0.4642	0.331
3			27	-0.084	0.6313	3	0.0462	0.000	31	0.4691	0.346
4	-0.079	0.6331	28	-0.221	0.5909	4	0.0695	0.000	32	0.4739	0.344
5	-0.914	0.3615	29	0.302	0.5612	5	0.0929	0.000	33	0.4768	0.326
6	-0.903	0.3963	30	-0.414	0.5345	6	0.1165	0.000	34	0.4837	0.295
7	-0.776	0.4278	31	-0.474	0.5166	7	0.1401	0.000	35	0.4886	0.255
8	-0.771	0.4293	32	-0.500	0.5099	8	0.1639	0.000	36	0.4935	0.207
9	-0.788	0.4241	33	-0.717	0.4453	9	0.1878	0.000	37	0.4984	0.162
10	-0.753	0.4346	34	-1.043	0.4375	10	0.2117	0.000	38	0.5033	0.116
11	-0.714	0.4460	35	-0.816	0.4162	11	0.2357	-0.000	39	0.5081	0.076
12	-0.669	0.4592	36	-0.744	0.4371	12	0.2598	0.000	40	0.5130	0.047
13	-0.476	0.5159	37	-0.860	0.4031	13	0.2840	0.000	41	0.5179	0.025
14	-0.431	0.5145	38	-0.783	0.4257	14	0.3082	0.000	42	0.5226	0.013
15	-0.477	0.5174	39	-0.744	0.4378	15	0.3325	0.000	43	0.5277	0.005
16	-0.435	0.5281	40	-0.563	0.4904	16	0.3568	0.001	44	0.5326	0.003
17	-0.401	0.5379	41	-0.932	0.3819	17	0.3812	0.002	45	0.5375	0.002
18	-0.353	0.5522	42	-0.473	0.5169	18	0.4056	0.002	46	0.5423	0.001
19	-0.300	0.5679	43	-0.311	0.5645	19	0.4104	0.004	47	0.5472	0.001
20	-0.241	0.5852				20	0.4155	0.006	48	0.5521	0.001
21	-0.171	0.6055				21	0.4202	0.015	49	0.5565	0.001
22	-0.086	0.6306				22	0.4251	0.076	50	0.6008	0.001
23	-0.013	0.6598				23	0.4300	0.051	51	0.6252	0.001
24	0.120	0.6711				24	0.4349	0.064	52	0.6494	0.001
						25	0.4397	0.124	53	0.6737	0.001
						26	0.4446	0.173	54	0.6978	0.000
						27	0.4495	0.223	55	0.7219	0.000

alpha 0.00
 ma.nom 0.820 6
 re. 2.35 10
 po 10375

cd 0.0091
 mace 0.821
 mace 0.819

MODEL**WAKE**

i	cp	i	cp	i	x/c	cpw	i	x/c	cpw
1	1.183	25	0.289	1	0.0000	0.000	21	0.3387	0.295
2	1.019	26	0.114	2	0.0956	0.001	22	0.3411	0.277
3	0.656	27	-0.071	3	0.1438	0.005	23	0.3436	0.258
4	0.044	28	-0.196	4	0.2410	0.002	24	0.3485	0.209
5	-0.876	29	-0.275	5	0.2664	0.002	25	0.3534	0.152
6	-0.868	30	-0.629	6	0.2752	0.002	26	0.3582	0.095
7	-0.839	31	-0.696	7	0.2849	0.005	27	0.3631	0.053
8	-0.796	32	-0.699	8	0.2898	0.005	28	0.3680	0.024
9	-0.762	33	-0.674	9	0.2947	0.016	29	0.3729	0.010
10	-0.732	34	-0.686	10	0.2996	0.079	30	0.3778	0.004
11	-0.722	35	-0.721	11	0.3045	0.083	31	0.3827	0.002
12	-0.721	36	-0.808	12	0.3094	0.136	32	0.3876	0.002
13	-0.726	37	-0.855	13	0.3143	0.192	33	0.3925	0.002
14	-0.729	38	-0.157	14	0.3191	0.243	34	0.4242	0.002
15	-0.699	39	-0.582	15	0.3240	0.286	35	0.4850	0.004
16	-0.654	40	-0.972	16	0.3265	0.301	36	0.6298	0.000
17	-0.514	41	-0.867	17	0.3289	0.312			
18	-0.224	42	-0.721	18	0.3314	0.315			
19	-0.243	43	-0.253	19	0.3338	0.314			
20	-0.213			20	0.3362	0.307			
21	-0.154								
22	-0.072								
23	0.033								
24	0.162								

alpha 0.00
 ma.nom 0.820 6
 re 2.35 10
 po 10366

cd 0.0143
 mace 0.821
 mace 0.821

MODEL**WAKE**

i	cp	p/po	i	cp	p/po	i	x/c	cpw	i	x/c	cpw
1	1.166	0.9957	25	0.215	0.1074	1	0.0000	0.000	36	0.4593	0.311
2	1.019	0.9915	26	0.093	0.6709	2	0.0230	0.000	37	0.4642	0.337
3			27	-0.071	0.6214	3	0.0462	0.000	38	0.4691	0.349
4	-0.034	0.6325	28	-0.202	0.5818	4	0.0695	0.000	39	0.4739	0.350
5	-0.870	0.3794	29	-0.280	0.5581	5	0.0929	0.000	40	0.4788	0.336
6	-0.896	0.3836	30	-0.342	0.5395	6	0.1165	0.000	41	0.4837	0.309
7	-0.733	0.4211	31	-0.724	0.4238	7	0.1401	0.000	42	0.4886	0.273
8	-0.731	0.4155	32	-0.726	0.4230	8	0.1639	0.000	43	0.4935	0.227
9	-0.739	0.4193	33	-0.711	0.4276	9	0.1878	0.000	44	0.4984	0.183
10	-0.731	0.4216	34	-0.711	0.4277	10	0.2117	0.001	45	0.5033	0.139
11	-0.721	0.4247	35	-0.760	0.4176	11	0.2357	0.001	46	0.5081	0.098
12	-0.713	0.4271	36	-0.712	0.4273	12	0.2598	0.002	47	0.5130	0.063
13	-0.727	0.4227	37	-0.798	0.4012	13	0.2840	0.003	48	0.5179	0.042
14	-0.733	0.4211	38	-0.723	0.4241	14	0.3082	0.005	49	0.5228	0.027
15	-0.720	0.4250	39	-0.682	0.4363	15	0.3325	0.006	50	0.5277	0.019
16	-0.472	0.5001	40	-0.511	0.4883	16	0.3446	0.006	51	0.5326	0.015
17	-0.332	0.5423	41	-0.871	0.3793	17	0.3568	0.006	52	0.5375	0.014
18	-0.319	0.5463	42	-0.732	0.4212	18	0.3665	0.008	53	0.5423	0.013
19	-0.278	0.5588	43	-0.287	0.5561	19	0.3763	0.009	54	0.5472	0.013
20	-0.228	0.5739				20	0.3812	0.010	55	0.5521	0.013
21	-0.160	0.5943				21	0.3860	0.010	56	0.5613	0.013
22	-0.076	0.6197				22	0.3909	0.011	57	0.5716	0.012
23	0.071	0.6493				23	0.3958	0.011	58	0.5814	0.011
24	0.127	0.6812				24	0.4007	0.011	59	0.5911	0.009
						25	0.4056	0.011	60	0.6008	0.008
						26	0.4104	0.013	61	0.6130	0.006
						27	0.4153	0.017	62	0.6252	0.006
						28	0.4202	0.025	63	0.6494	0.005
						29	0.4251	0.041	64	0.6737	0.004
						30	0.4300	0.069	65	0.6978	0.003
						31	0.4349	0.099	66	0.7219	0.002
						32	0.4397	0.140	67	0.7460	0.001
						33	0.4446	0.184	68	0.7699	0.000
						34	0.4495	0.232	69	0.7938	0.000
						35	0.4544	0.274	70	0.8175	0.000

alpha 0.00
 ma.nom 0.850 6
 re 2.38 10
 po 10335

cd 0.0201
 mace 0.851
 mace 0.851

MODEL**WAKE**

i	cp	i	cp	i	x/c	cpw	i	x/c	cpw
1	1.199	25	0.304	1	0.0000	0.000	21	0.6866	0.151
2	1.040	26	0.160	2	0.1328	0.003	22	0.6964	0.090
3	0.691	27	0.029	3	0.2714	0.009	23	0.7012	0.066
4	0.101	28	-0.135	4	0.4142	0.018	24	0.7061	0.048
5	-0.789	29	-0.688	5	0.4624	0.020	25	0.7110	0.035
6	-0.785	30	-0.716	6	0.5109	0.015	26	0.7159	0.025
7	-0.761	31	-0.715	7	0.5596	0.015	27	0.7208	0.021
8	-0.725	32	-0.673	8	0.5840	0.018	28	0.7256	0.018
9	-0.698	33	-0.641	9	0.5889	0.022	29	0.7305	0.017
10	-0.671	34	-0.610	10	0.5986	0.036	30	0.7354	0.015
11	-0.677	35	-0.662	11	0.6084	0.072	31	0.8036	0.015
12	-0.688	36	-0.732	12	0.6182	0.129	32	0.8521	0.021
13	-0.699	37	-0.770	13	0.6279	0.199	33	0.9004	0.020
14	-0.712	38	-0.091	14	0.6377	0.256	34	1.0432	0.009
15	-0.727	39	0.620	15	0.6475	0.291	35	1.1817	0.003
16	-0.741	40	0.998	16	0.6524	0.296	36	1.3145	0.000
17	-0.750	41	-0.777	17	0.6573	0.293			
18	-0.692	42	-0.698	18	0.6621	0.282			
19	-0.687	43	-0.690	19	0.6670	0.265			
20	-0.274			20	0.6768	0.214			
21	-0.016								
22	0.019								
23	0.091								
24	0.195								

alpha 0.00
 ma.nom 0.850 6
 re 2.37 10
 po 10296

cd 0.0243
 mace 0.850
 mace 0.850

MODEL**WAKE**

i	op	p/po	i	op	p/po	i	π/c	cpw	i	π/c	cpw
1	1.158	0.9837	25	0.197	0.6855	1	0.0000	0.000	35	0.4607	0.314
2	1.036	0.9502	26	0.100	0.6548	2	0.0232	0.000	36	0.4656	0.295
3			27	-0.026	0.6151	3	0.0465	0.000	37	0.4705	0.267
4	0.024	0.6306	28	-0.153	0.5750	4	0.0699	0.001	38	0.4753	0.241
5	-0.785	0.3758	29	-0.551	0.4495	5	0.0934	0.001	39	0.4802	0.212
6	-0.779	0.3777	30	-0.777	0.3782	6	0.1171	0.003	40	0.4851	0.182
7	-0.661	0.4150	31	-0.734	0.3917	7	0.1409	0.005	41	0.4900	0.152
8	-0.636	0.4033	32	-0.680	0.4085	8	0.1647	0.010	42	0.4949	0.125
9	-0.607	0.4144	33	-0.653	0.4167	9	0.1887	0.013	43	0.4998	0.103
10	-0.670	0.4120	34	-0.651	0.4181	10	0.2127	0.016	44	0.5047	0.084
11	-0.631	0.4064	35	-0.680	0.4089	11	0.2368	0.019	45	0.5095	0.068
12	-0.631	0.4007	36	-0.644	0.4203	12	0.2610	0.023	46	0.5144	0.058
13	-0.636	0.4037	37	-0.714	0.3983	13	0.2852	0.026	47	0.5193	0.052
14	-0.705	0.4009	38	-0.636	0.4220	14	0.3095	0.030	48	0.5242	0.047
15	-0.776	0.3943	39	-0.601	0.4337	15	0.3338	0.034	49	0.5291	0.044
16	-0.739	0.3903	40	-0.434	0.4863	16	0.3581	0.038	50	0.5339	0.043
17	-0.760	0.3837	41	-0.782	0.3766	17	0.3770	0.042	51	0.5413	0.042
18	-0.713	0.3977	42	-0.634	0.4046	18	0.3776	0.046	52	0.5535	0.040
19	-0.333	0.5184	43	-0.337	0.5170	19	0.3825	0.053	53	0.5718	0.037
20	-0.177	0.5675				20	0.3874	0.061	54	0.6029	0.033
21	-0.163	0.5910				21	0.3923	0.073	55	0.6266	0.028
22	-0.031	0.6135				22	0.3972	0.093	56	0.6506	0.024
23	0.046	0.6377				23	0.4021	0.112	57	0.6748	0.021
24	0.125	0.6677				24	0.4069	0.136	58	0.6989	0.017
						25	0.4118	0.169	59	0.7229	0.014
						26	0.4167	0.198	60	0.7469	0.012
						27	0.4216	0.230	61	0.7707	0.010
						28	0.4265	0.262	62	0.7945	0.005
						29	0.4314	0.287	63	0.8181	0.004
						30	0.4362	0.310	64	0.8411	0.002
						31	0.4411	0.325	65	0.8651	0.001
						32	0.4460	0.333	66	0.8884	0.000
						33	0.4509	0.334	67	0.9116	0.000
						34	0.4556	0.328	68	0.9346	0.000

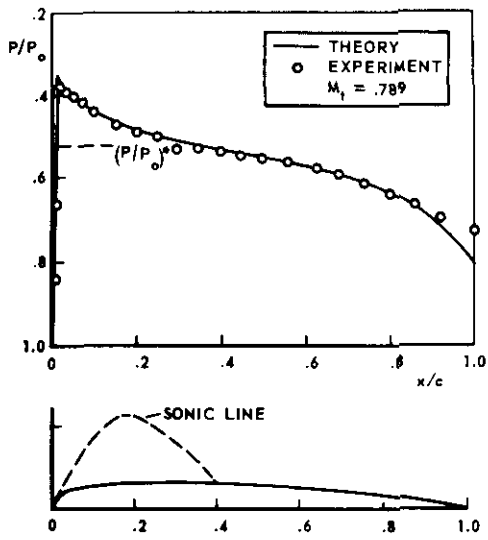


Fig. 2.1 Airfoil shape and design pressure distribution

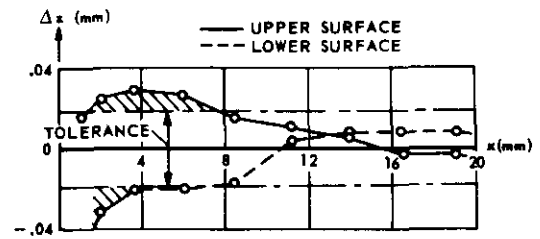


Fig. 2.2 Deviation of realised model profile from theoretical shape (nose region)

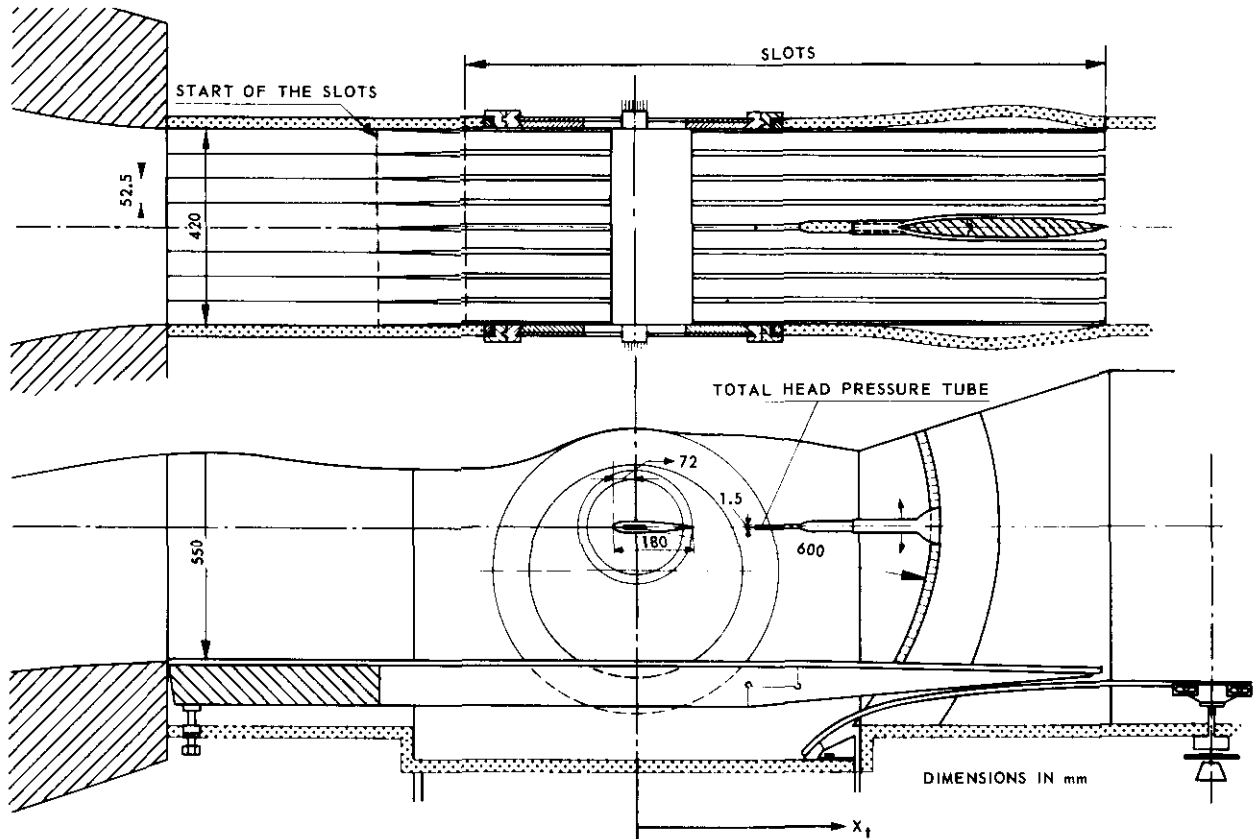


Fig. 2.3 Transonic test section of the NLR pilot tunnel

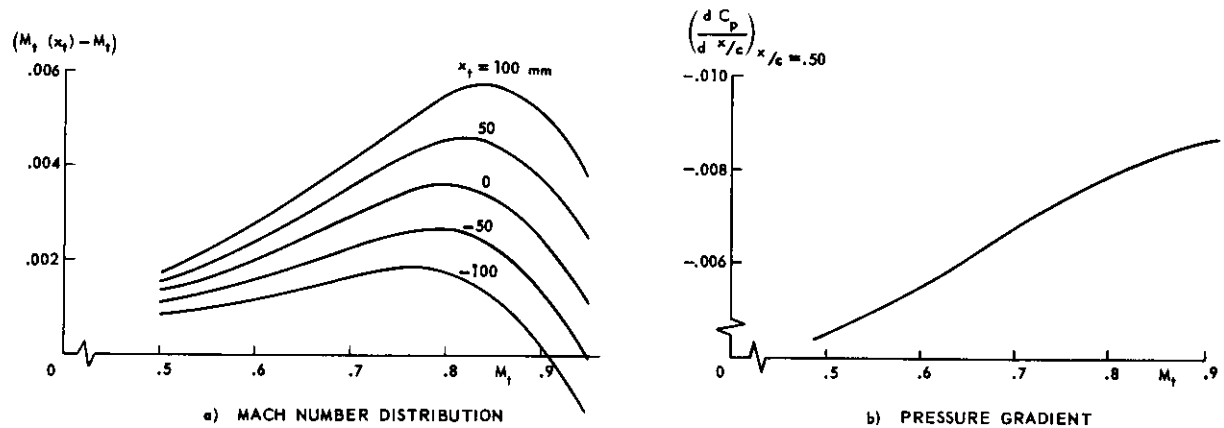


Fig.2.4 NLR pilot tunnel empty test section calibration data

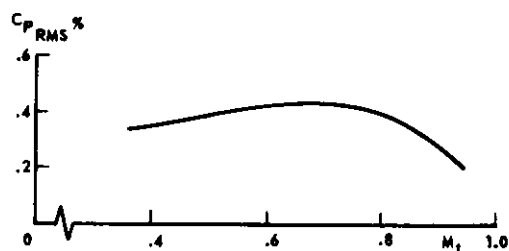


Fig.2.5 Noise level in NLR pilot tunnel (measured in stream)

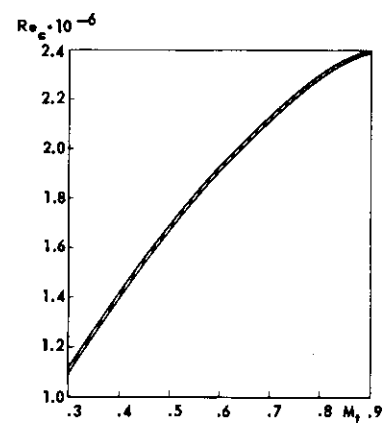


Fig.2.6 Reynolds number based on chord length as function of Mach number

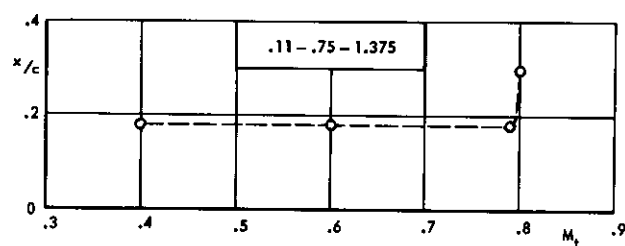


Fig.2.7 Transition position as a function of Mach number ($\alpha=0^\circ$)

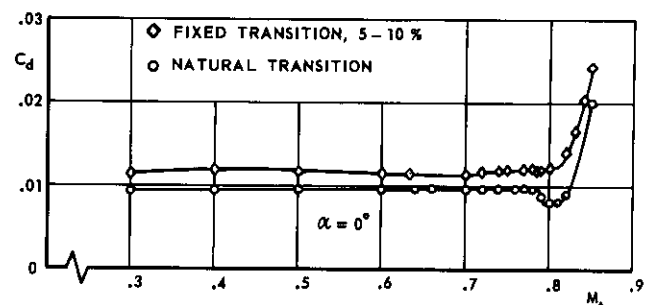


Fig.2.8 Drag versus Mach number

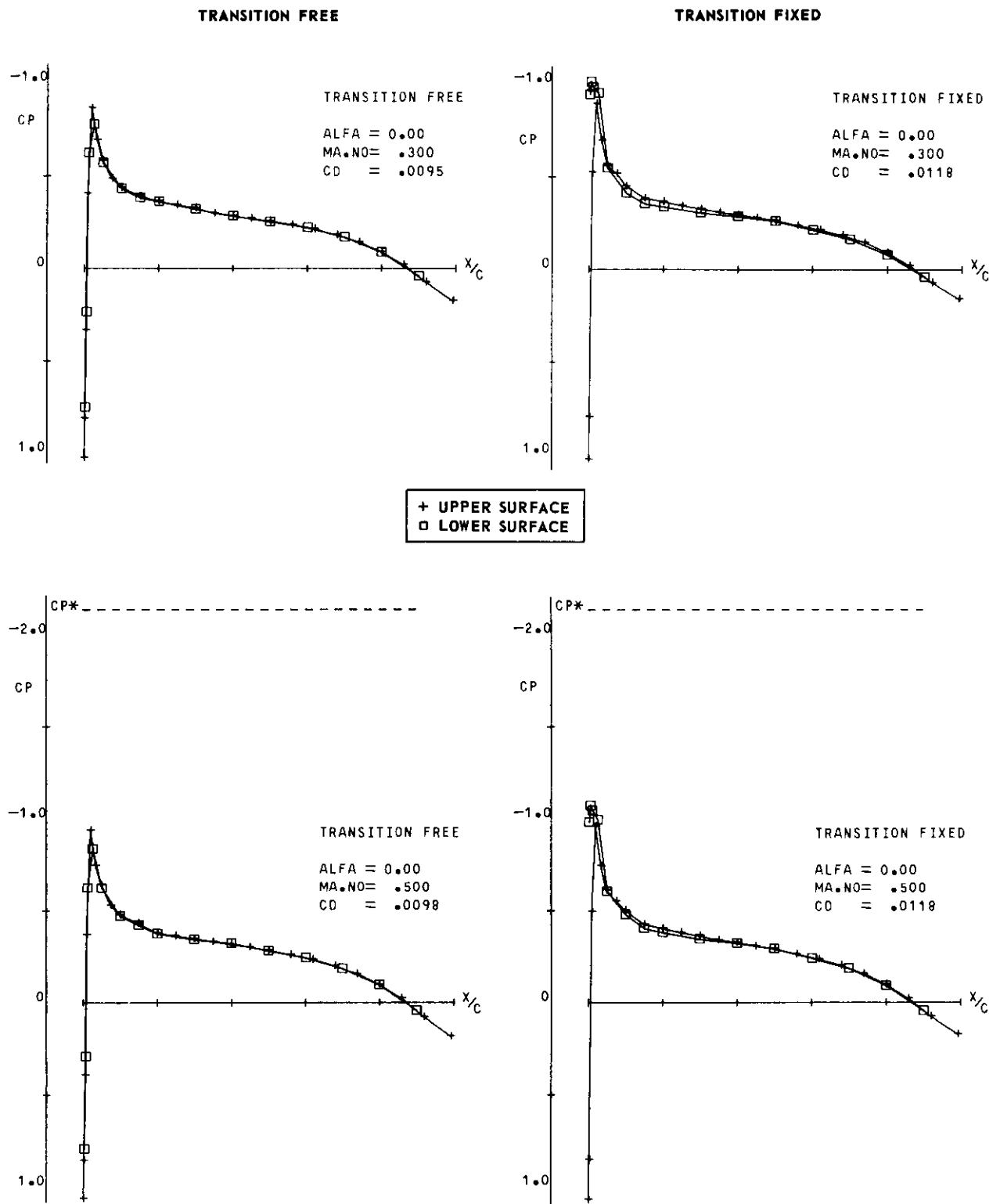


Fig.2.9 Pressure distributions

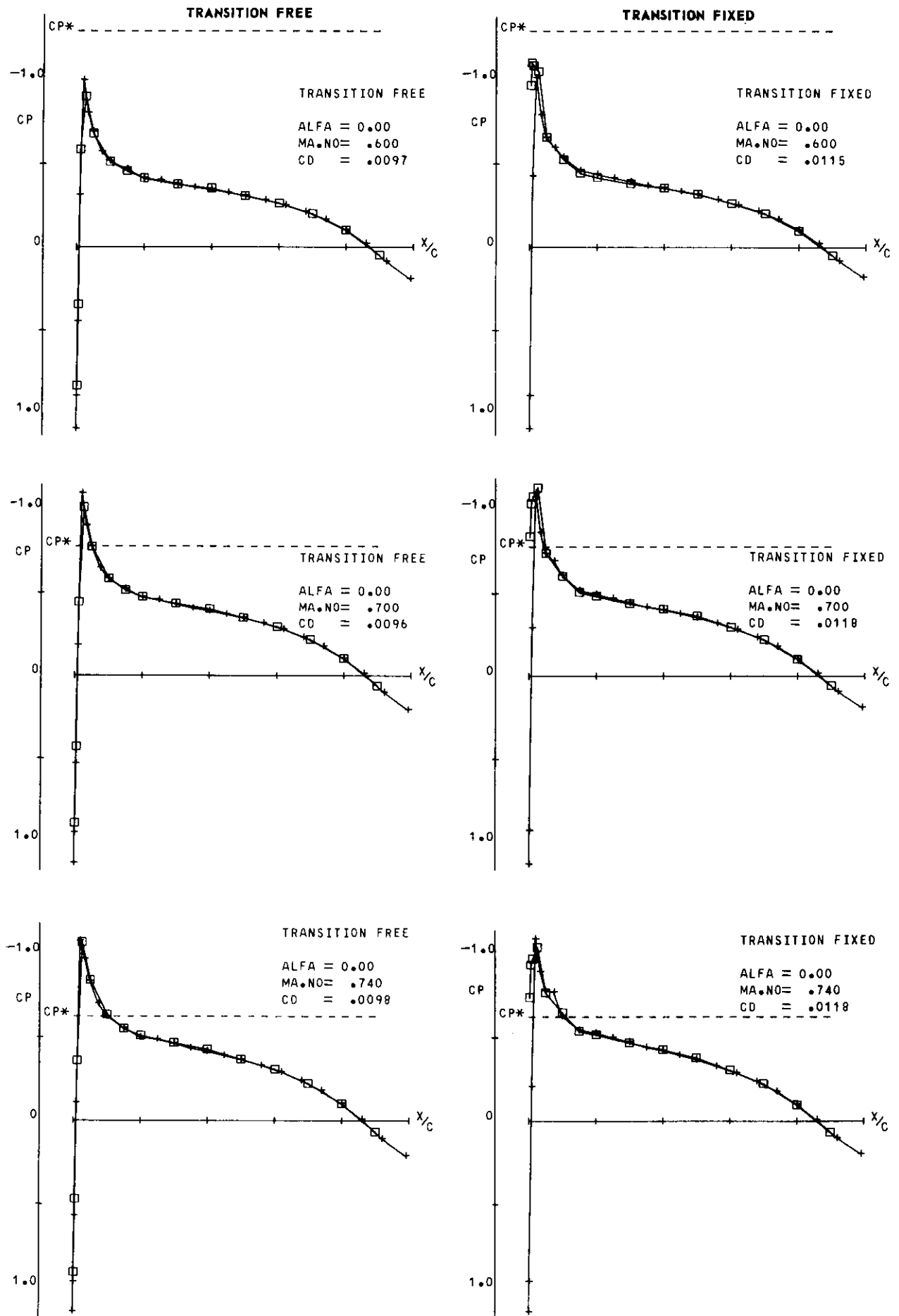


Fig.2.9 Pressure distributions (con'd)

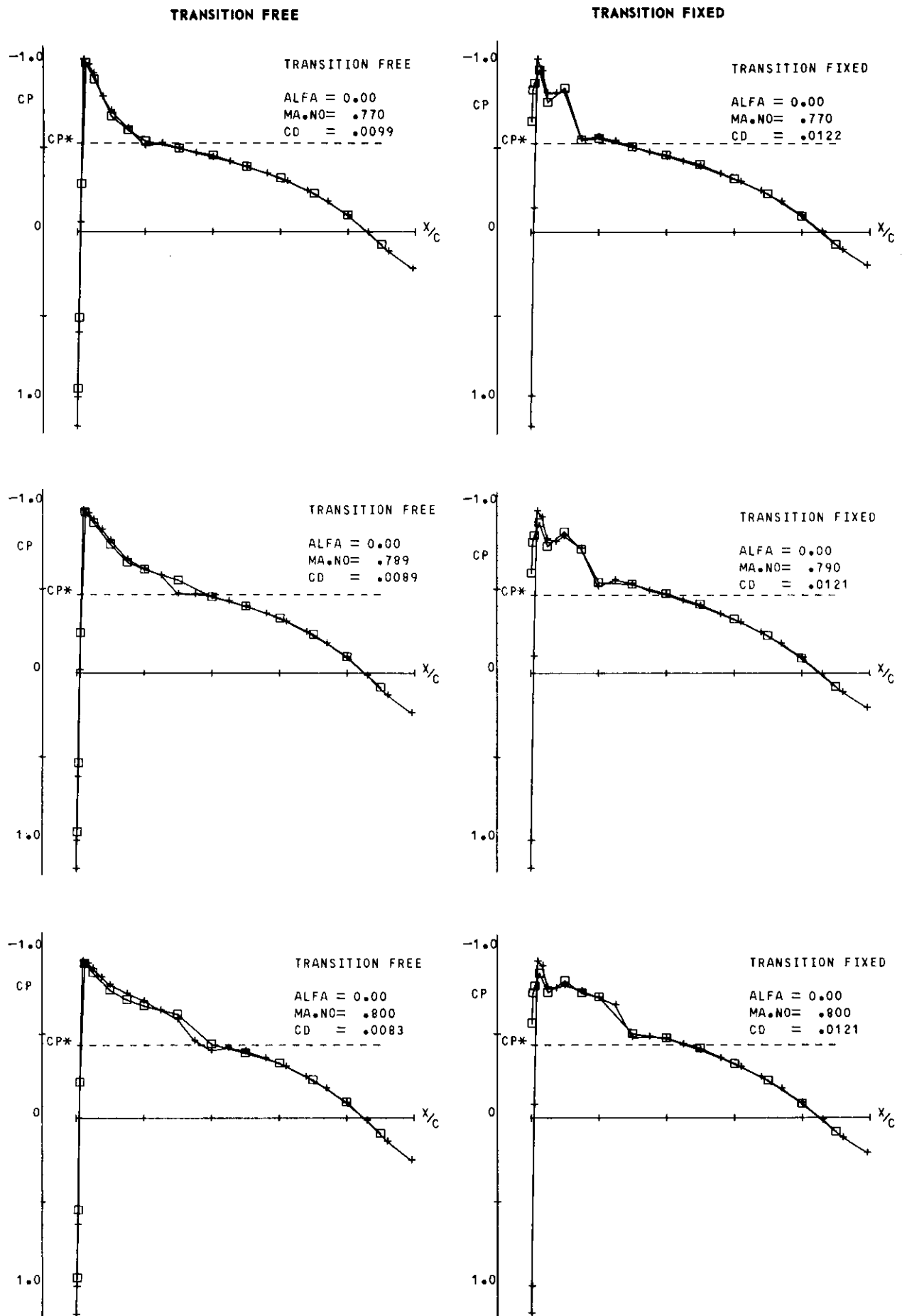


Fig. 2.9 Pressure distributions (con'd)

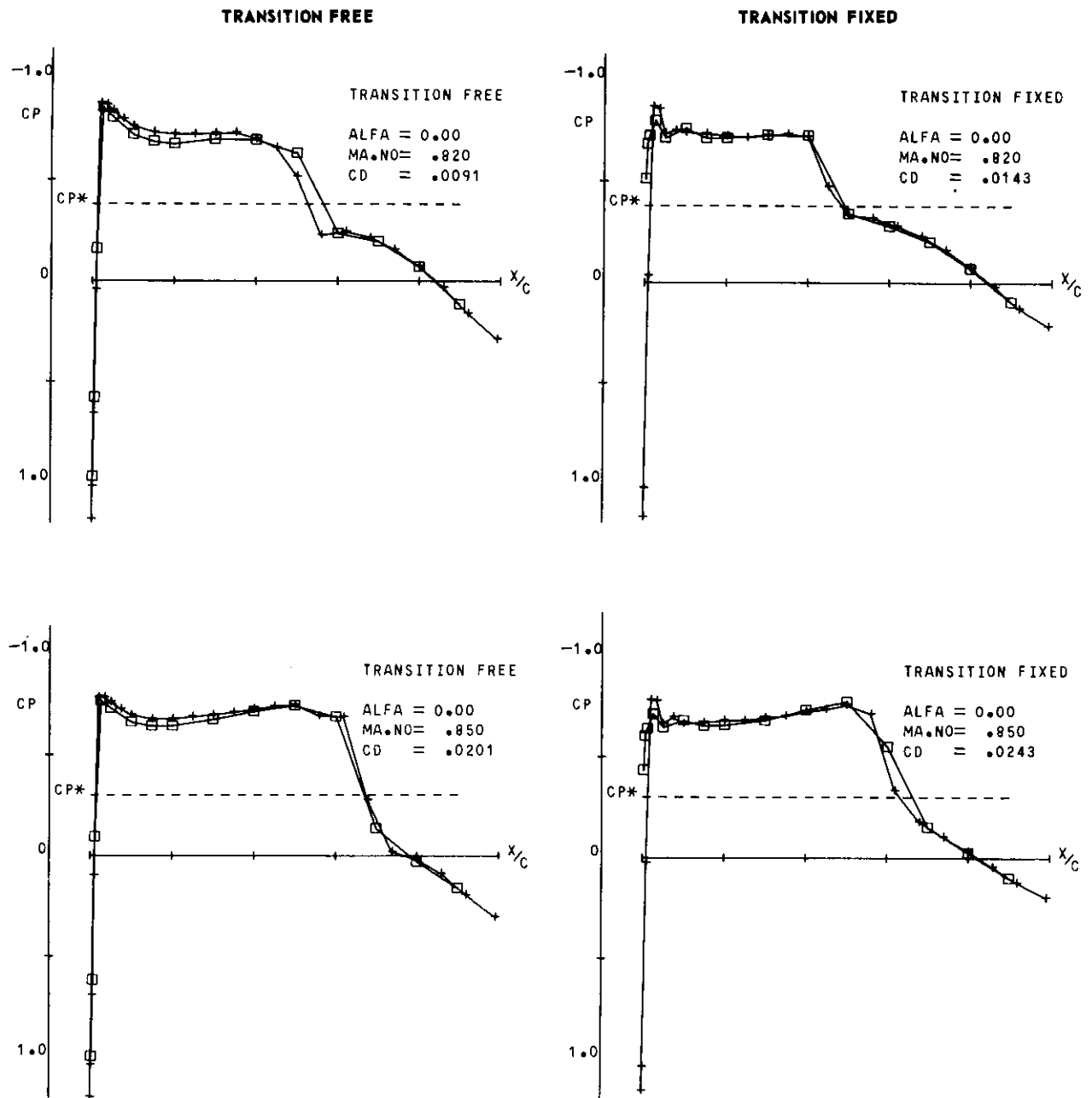


Fig.2.9 Pressure distributions (concluded)

2.3 DATA SET FROM NAE TUNNEL

1. Airfoil

1.1. Airfoil designation

NLR QE 0.11-0.75-1.375

1.2. Type of airfoil

symmetrical, "peaky"-type shock-free super-critical designed by means of Nieuwland hodograph method

1.2.1. airfoil geometry

see fig. 2.10 and tables 2.6, 2.7

nose radius

$R/c = 4.4\%$

maximum thickness

$t/c = 11.7\%$

base thickness

zero

1.2.2. design condition

potential flow (hodograph theory)

$M = 0.786, \alpha = 0^\circ$

experiment

$M_t = 0.789, \alpha = 0^\circ$

design pressure distribution

see fig. 2.10, table 2.6

1.3. Additional remarks

none

1.4. References on airfoil

ref. 1.

2. Model geometry

2.1. Chord length

10 inch (0.254 m)

2.2. Span

15 inch (0.381 m)

2.3. Actual model co-ordinates and accuracy

table 2.7 (theoretical coordinates obtained by spline fit through table 2.6 data), fig. 2.11

2.4. Maximum thickness

$t/c = 11.7\%$

2.5. Base thickness

0.010 inch (0.25 mm)

2.6. Additional remarks

finite trailing edge (base) thickness obtained by symmetric increase of thickness from 95% - 100% chord

2.7. References on model

see ref. 2

3. Wind tunnel

3.1. Designation

NAE 5ft x 5ft transonic W/T with 2-d insert

3.2. Type of tunnel

blowdown

3.2.1. stagnation pressure

2 - 11 bars

3.2.2. stagnation temperature

293°K, max. drop 5° during run

3.2.3. humidity / dew point

0.0002 kg H₂O / kg air

3.3. Test section

figure 2.12

3.3.1. dimensions

60 x 15 inch

3.3.2. type of walls

perforated;
top and bottom walls 20.5% open
Ø 12.7 mm straight holes at 26.4 mm spacing
solid sidewalls (except for small porous area around model location)

3.4. Flow field (empty test section)

3.4.1. reference static pressure

at sidewall, 7.7 chords upstream of model L.E.

3.4.2. flow angularity

$\Delta\alpha = -0.29^\circ \pm 0.02^\circ$

3.4.3. Mach number distribution

figure 2.13

3.4.4. pressure gradient

figure 2.13

3.4.5. turbulence/noise level

$\left(\frac{\Delta p}{q}\right)_{rms} = 0.008$ at $M = 0.8$

3.4.6. side wall boundary layer

$\delta^* \approx 2.5 \text{ mm}, \frac{2\delta^*}{B} \approx 0.013$

3.5. Additional remarks

side wall suction applied through porous material around model location with objective to prevent side wall b.l. separation

3.6. References on wind tunnel

ref 3, 4

4. Tests

4.1. Type of measurements

force balance measurements, surface pressures, wake pitot pressures

4.2. Tunnel/model dimensions

4.2.1. height/chord ratio

6.0

4.2.3. width/chord ratio

1.5

4.3. Flow conditions included in present data base	
4.3.1. angle of attack	0°
4.3.2. Mach number	0.4 to 0.86
4.3.3. Reynolds number	$\approx 21 \times 10^6$
4.3.4. transition	free only
- position of free transition	near leading edge; exact position unknown
- transition fixing	n.a.
4.3.5. temperature equilibrium	yes
4.4. Additional remarks	
4.5. References on tests	Ref. 2
5. <u>Instrumentation</u>	
5.1. Surface pressure measurements	
5.1.1. pressure holes	
- size	0.51 mm
- spanwise station(s)	at mid span; staggered near leading edge
- chordwise positions	see table 2.7
5.1.2. type of transducers and scanning devices	48 port Dg Scanivalves + 200 psia Kulite
5.1.3. other	VQS - 500-200A pressure transducers
5.2. Wake measurements	
5.2.1. type/size of instrument(s)	traversing probe, see figure 2.12
5.2.2. streamwise position(s)	diameter outer/inner 1.6/0.51 mm
5.2.3. type of transducers and scanning devices	1.5 chords downstream of T.E
5.3. Boundary layer measurements	25 psid Statham FM 131 TC
5.3.1. type/size of instruments	none
5.3.2. locations	
5.3.3. type of transducers and scanning devices	
5.4. Skin friction measurements	none
5.4.1. type/size of instruments	
5.4.2. locations	
5.4.3. type of transducer	
5.5. Flow visualisation	none
5.5.1. flow field	
5.5.2. surface flow	
5.6. other	three-component side-wall balances
5.7. Additional remarks	
5.8. References on instrumentation	ref. 4
6. <u>Data</u>	
6.1. Accuracy (wall interference excluded)	
6.1.1. angle of attack setting	$\pm 0.02^\circ$
6.1.2. free stream Mach number:	
- setting	± 0.003
- variation during one pressure scan	± 0.003
6.1.3. pressure coefficients	-
6.1.4. aerodynamic coefficients	-
6.1.5. boundary layer quantities	n.a.
6.1.6. repeatability	$\Delta c_n \approx \pm 0.002$, $\Delta c_m \approx \pm 0.0005$
	$\Delta c_{dw} \approx \pm 0.0002$ subsonic
	± 0.0010 transonic
6.1.7. remarks	

6.2. Wall interference corrections
 (indicate estimated accuracy)

6.2.1. angle of attack	$\Delta\alpha \approx -1.2 c_l$ at $M = 0.75$
6.2.2. blockage (solid/wake)	solid/wake blockage negligible, lift-induced blockage $\Delta M \approx -0.012 c_l$ at $M = 0.75$
6.2.3. streamline curvature (lift)	-
6.2.4. other	-
6.2.5. remarks	values given estimated for $P_{up} = 1.5$ and $P_{lo} = 0.5$
6.2.6. references on wall interference correction	5,6

6.3. Presentation of data

6.3.1. aerodynamic coefficients	table 2.8 , fig. 2.14
6.3.2. surface pressures	table 2.8 , fig. 2.15
6.3.3. boundary layer quantities	n.a.
6.3.4. wall interference corrections included?	No
6.3.5. corrections for model deflec- tion	angle of attack includes deflection due to side wall support
6.3.6. Empty test section calibration taken into account?	Yes
6.3.7. other corrections included?	No
6.3.8. additional remarks	wake drag data given is the average from two probes about $\pm 0.1c$ off centerline

6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?	Yes. In NLR Pilot Tunnel, but on different model. Included in data base

- 6.5. To be contacted for further
information on tests

7. References

1. Boerstoeel J.W.	A survey of symmetrical transonic potential flows around quasi-elliptical aerofoil sections NLR TRT.136, 1967
2. Kacprzyński J.J.	Wind tunnel tests of a Boerstoeel shockless symmetrical airfoil 0.11-0.75-1.375 NAE Report 5X5/0061, 1972
3. Ohman L.H.	The NAE high Reynolds number 15-ins x 60-ins two-dimensional test facility NRC/NAE LTR-HA-4 1970
4. Ohman L.H.	The NAE 15-ins x 60 ins two-dimensional test facility; new features and some related observations. Result of new centre line calibration at 20.5% porosity. NRC/NAE LTR-HA-15 1973
5. Peake D.J. / Bowker A.J.	A simple streamwise momentum analysis to indicate an empirical correction to angle of incidence in two-dimensional, transonic flow, due to a perforated floor and ceiling of the wind tunnel NRC/NAE LTR-HA-11 1973
6. Mokry M. et al	Wall interference on 2D supercritical airfoils, using wall pressure measurements to determine the porosity factors for tunnel floor and ceiling. NRC/NAE LR-575 1974

8. List of Symbols

8.1. used in text and figures

B	width of test section
C_p	pressure coefficient
C_p^*	critical pressure coefficient
c	airfoil chord length
C_d	drag coefficient
C_l	lift coefficient
C_m	pitching moment coefficient (with respect to .25c)
i	integer indicating pressure hole number
M	maximum local Mach number
M^m	Mach number
P	wall porosity factor
p	local static pressure
p_∞	free stream static pressure
p_o	free stream stagnation pressure
q	dynamic pressure
Re_c	Reynolds number based on chord
R_o	leading edge radius
t	airfoil maximum thickness
x	streamwise coordinate, model origin:L.E
z	W/T origin; Balance @ .4 model x/c
α	airfoil thickness coordinate
	angle of attack
subscript	
t	refers to uncorrected values

8.2. used in data tables

C	chord length
CC	tangential force coefficient (from balance)
CDW	drag coefficient (from wake measurements)
CM	c_m (balance)
CN	normal force coefficient (balance)
M LOC	Local Mach number
P/PO	p/p_o
WT ANGLE	α_t

NLR QE 0.11 - 0.75 - 1.375 AIRFOIL

No.	Pressure Hole Location X/C	Upper surface			
		(X/C) _{mod.}	(Z/C) _h	(Z/C) _{mod.}	(Z/C) _{mod.}
1	0.002	-	0.02204	-	-
2	0.004	0.00610	0.02204	0.02205	0.00001
3	0.006	0.00800	0.02489	0.02485	-0.00004
4	0.008	0.01000	0.02731	0.02725	-0.00006
5	0.010	0.01210	0.02937	0.02915	-0.00022
6	0.012	0.01390	0.03072	0.03055	-0.00017
7	0.014	0.01590	0.03189	0.03165	-0.00024
8	0.016	0.01795	0.03292	0.03285	-0.00007
9	0.018	0.01970	0.03374	0.03360	-0.00014
10	0.020	0.02190	0.03469	0.03450	-0.00019
11	0.022	0.02390	0.03539	0.03510	-0.00009
12	0.024	0.02585	0.03576	0.03568	-0.00008
13	0.026	0.02780	0.03608	0.03610	-0.00002
14	0.028	0.02970	0.03756	0.03725	-0.00031
15	0.030	0.03170	0.03878	0.03885	0.00007
16	0.032	0.03370	0.03994	0.04005	0.00011
17	0.034	0.03580	0.04225	0.04220	-0.00005
18	0.036	0.03790	0.04389	0.04385	-0.00004
19	0.038	0.03990	0.04690	0.04675	-0.00015
20	0.040	0.04200	0.04927	0.04905	-0.00022
21	0.042	0.04400	0.05120	0.05097	-0.00023
22	0.044	0.04600	0.05282	0.05265	-0.00017
23	0.046	0.04800	0.05427	0.05398	-0.00029
24	0.048	0.05000	0.05532	0.05515	-0.00017
25	0.050	0.05200	0.05635	0.05610	-0.00025
26	0.052	0.05400	0.05709	0.05685	-0.00034
27	0.054	0.05600	0.05760	0.05748	-0.00012
28	0.056	0.05800	0.05808	0.05785	-0.00023
29	0.058	0.06000	0.05857	0.05815	-0.00042
30	0.060	0.06200	0.05855	0.05835	-0.00020
31	0.062	0.06400	0.05852	0.05845	-0.00007
32	0.064	0.06600	0.05850	0.05835	-0.00015
33	0.066	0.06800	0.05847	0.05820	-0.00027
34	0.068	0.07000	0.05798	0.05797	-0.00001
35	0.070	0.07200	0.05768	0.05755	-0.00013
36	0.072	0.07400	0.05614	0.05605	-0.00009
37	0.074	0.07600	0.05405	0.05395	-0.00012
38	0.076	0.07800	0.05142	0.05120	-0.00012
39	0.078	0.08000	0.04759	0.04787	-0.00012
40	0.080	0.08200	0.04319	0.04405	-0.00014
41	0.082	0.08400	0.03813	0.03943	-0.00017
42	0.084	0.08600	0.03210	0.03385	-0.00018
43	0.086	0.08800	0.02510	0.02788	-0.00015
44	0.088	0.09000	0.01774	0.02098	-0.00022
45	0.090	0.09200	0.00936	0.01358	-0.00031
46	0.092	0.09400	-0.00174	-0.00573	-0.00031
47	0.094	0.09600	-0.00428	-0.00925	-0.00003
48	0.096	0.09800	-0.00634	-0.01245	0.00009
49	0.098	0.10000	-0.00855	-0.01585	0.00010
50	0.100	0.10200	-0.01015	-0.01970	0.00012
51	0.102	0.10400	-0.01200	-0.02390	0.00015
52	0.104	0.10600	-0.01400	-0.02808	0.00043
53	0.106	0.10800	-0.01600	-0.03178	0.00043
54	0.108	0.11000	-0.01800	-0.03500	0.00043
55	0.110	0.11200	-0.02000	-0.03765	0.00043
56	0.112	0.11400	-0.02200	-0.04000	0.00043
57	0.114	0.11600	-0.02400	-0.04200	0.00043
58	0.116	0.11800	-0.02600	-0.04390	0.00043
59	0.118	0.12000	-0.02800	-0.04500	0.00043
60	0.120	0.12200	-0.03000	-0.04600	0.00043

TABLE 2.6 Main characteristics of aerofoil section 0.11 - 0.75 - 1.375

AEROFOIL SECTION 0.11 0.75 - 1.375									
α	α_{max}	α_{min}	α_{max}	α_{min}	α_{max}	α_{min}	α_{max}	α_{min}	α_{max}
0.76512	1.106	0.1172	0.3242	0.0182	22.92	0.0000	1.5780	0.0000	0.0000
0	0	0	1.1642	0	0	0	0	0	0
0.00100	0.00927	0.00927	1.0440	0.96543	1.35608	0.00197	0.01293	0.01293	1.26769
0.00200	0.01542	0.01542	0.9269	0.93174	1.26769	0.00382	0.02178	0.02178	1.20019
0.00300	0.02178	0.02178	0.8127	0.86687	1.14370	0.00569	0.03011	0.03011	1.09428
0.00400	0.02812	0.02812	0.7014	0.83566	1.04994	0.00754	0.03845	0.03845	1.00953
0.00500	0.03446	0.03446	0.5930	0.80530	0.94994	0.00939	0.04678	0.04678	0.92228
0.00600	0.04080	0.04080	0.4874	0.77567	0.85524	0.01124	0.05511	0.05511	0.83764
0.00700	0.04714	0.04714	0.3844	0.74688	0.76688	0.01309	0.06344	0.06344	0.75228
0.00800	0.05348	0.05348	0.2844	0.71887	0.67228	0.01494	0.07177	0.07177	0.66764
0.00900	0.05982	0.05982	0.1870	0.69156	0.58524	0.01679	0.08010	0.08010	0.58228
0.01000	0.06616	0.06616	0.0900	0.66508	0.50000	0.01864	0.08843	0.08843	0.49764
0.01100	0.07250	0.07250	-0.0086	0.63910	0.41524	0.02049	0.09677	0.09677	0.41228
0.01200	0.07884	0.07884	-0.1068	0.61312	0.33000	0.02234	0.10510	0.10510	0.32764
0.01300	0.08518	0.08518	-0.2050	0.58714	0.24524	0.02419	0.11343	0.11343	0.24228
0.01400	0.09152	0.09152	-0.3032	0.56116	0.16000	0.02604	0.12177	0.12177	0.15764
0.01500	0.09786	0.09786	-0.4014	0.53518	0.07524	0.02789	0.13010	0.13010	0.07228
0.01600	0.10420	0.10420	-0.5000	0.50920	0.00000	0.02974	0.13843	0.13843	0.00000
0.01700	0.11054	0.11054	-0.5982	0.48322	-0.08524	0.03159	0.14677	0.14677	-0.08000
0.01800	0.11688	0.11688	-0.6964	0.45724	-0.17000	0.03344	0.15510	0.15510	-0.16524
0.01900	0.12322	0.12322	-0.7946	0.43126	-0.25524	0.03529	0.16343	0.16343	-0.25000
0.02000	0.12956	0.12956	-0.8928	0.40528	-0.34000	0.03714	0.17177	0.17177	-0.33524
0.02100	0.13590	0.13590	-1.0000	0.37930	-0.42524	0.03899	0.18010	0.18010	-0.42000
0.02200	0.14224	0.14224	-1.1082	0.35332	-0.51000	0.04084	0.18843	0.18843	-0.50524
0.02300	0.14858	0.14858	-1.2164	0.32734	-0.59524	0.04269	0.19677	0.19677	-0.59000
0.02400	0.15492	0.15492	-1.3246	0.30136	-0.68000	0.04454	0.20510	0.20510	-0.67524
0.02500	0.16126	0.16126	-1.4328	0.27538	-0.76524	0.04639	0.21343	0.21343	-0.76000
0.02600	0.16760	0.16760	-1.5410	0.24940	-0.85000	0.04824	0.22177	0.22177	-0.84524
0.02700	0.17394	0.17394	-1.6492	0.22342	-0.93524	0.05009	0.23010	0.23010	-0.93000
0.02800	0.18028	0.18028	-1.7574	0.19744	-1.02000	0.05194	0.23843	0.23843	-1.01524
0.02900	0.18662	0.18662	-1.8656	0.17146	-1.10524	0.05379	0.24677	0.24677	-1.10000
0.03000	0.19296	0.19296	-1.9738	0.14548	-1.19000	0.05564	0.25510	0.25510	-1.08524
0.03100	0.19930	0.19930	-2.0820	0.11950	-1.27524	0.05749	0.26343	0.26343	-1.07000
0.03200	0.20564	0.20564	-2.1902	0.09352	-1.36000	0.05934	0.27177	0.27177	-1.05524
0.03300	0.21198	0.21198	-2.2984	0.06754	-1.44524	0.06119	0.28010	0.28010	-1.04000
0.03400	0.21832	0.21832	-2.4066	0.04156	-1.53000	0.06304	0.28843	0.28843	-1.02524
0.03500	0.22466	0.22466	-2.5148	0.01558	-1.61524	0.06489	0.29677	0.29677	-1.01000
0.03600	0.23100	0.23100	-2.6230	0.00000	-1.70000	0.06674	0.30510	0.30510	-0.99524
0.03700	0.23734	0.23734	-2.7312	0.00000	-1.78524	0.06859	0.31343	0.31343	-0.98000
0.03800	0.24368	0.24368	-2.8394	0.00000	-1.87000	0.07044	0.32177	0.32177	-0.96524
0.03900	0.25002	0.25002	-2.9476	0.00000	-1.95524	0.07229	0.33010	0.33010	-0.95000
0.04000	0.25636	0.25636	-3.0558	0.00000	-2.04000	0.07414	0.33843	0.33843	-0.93524
0.04100	0.26270	0.26270	-3.1640	0.00000	-2.12524	0.07599	0.34677	0.34677	-0.92000
0.04200	0.26904	0.26904	-3.2722	0.00000	-2.21000	0.07784	0.35510	0.35510	-0.90524
0.04300	0.27538	0.27538	-3.3804	0.00000	-2.29524	0.07969	0.36343	0.36343	-0.89000
0.04400	0.28172	0.28172	-3.4886	0.00000	-2.38000	0.08154	0.37177	0.37177	-0.87524
0.04500	0.28806	0.28806	-3.5968	0.00000	-2.46524	0.08339	0.38010	0.38010	-0.86000
0.04600	0.29440	0.29440	-3.7050	0.00000	-2.55000	0.08524	0.38843	0.38843	-0.84524
0.04700	0.30074	0.30074	-3.8132	0.00000	-2.63524	0.08709	0.39677	0.39677	-0.83000
0.04800	0.30708	0.30708	-3.9214	0.00000	-2.72000	0.08894	0.40510	0.40510	-0.81524
0.04900	0.31342	0.31342	-4.0296	0.00000	-2.80524	0.09079	0.41343	0.41343	-0.80000
0.05000	0.31976	0.31976	-4.1378	0.00000	-2.89000	0.09264	0.42177	0.42177	-0.78524
0.05100	0.32610	0.32610	-4.2460	0.00000	-2.97524	0.09449	0.43010	0.43010	-0.77000
0.05200	0.33244	0.33244	-4.3542	0.00000	-3.06000	0.09634	0.43843	0.43843	-0.75524
0.05300	0.33878	0.33878	-4.4624	0.00000	-3.14524	0.09819	0.44677	0.44677	-0.74000
0.05400	0.34512	0.34512	-4.5706	0.00000	-3.23000	0.10004	0.45510	0.45510	-0.72524
0.05500	0.35146	0.35146	-4.6788	0.00000	-3.31524	0.10189	0.46343	0.46343	-0.71000
0.05600	0.35780	0.35780	-4.7870	0.00000	-3.40000	0.10374	0.47177	0.47177	-0.69524
0.05700	0.36414	0.36414	-4.8952	0.00000	-3.48524	0.10559	0.48010	0.48010	-0.68000
0.05800	0.37048	0.37048	-5.0034	0.00000	-3.57000	0.10744	0.48843	0.48843	-0.66524
0.05900	0.37682	0.37682	-5.1116	0.00000	-3.65524	0.10929	0.49677	0.49677	-0.65000
0.06000	0.38316	0.38316	-5.2198	0.00000	-3.74000	0.11114	0.50510	0.50510	-0.63524
0.06100	0.38950	0.38950	-5.3280	0.00000	-3.82524	0.11299	0.51343	0.51343	-0.62000
0.06200	0.39584	0.39584	-5.4362	0.00000	-3.91000	0.11484	0.52177	0.52177	-0.60524
0.06300	0.40218	0.40218	-5.5444	0.00000	-4.00000	0.11669	0.53010	0.53010	-0.59000
0.06400	0.40852	0.40852	-5.6526	0.00000	-4.08524	0.11854	0.53843	0.53843	-0.57524
0.06500	0.41486	0.41486	-5.7608	0.00000	-4.17000	0.12039	0.54677	0.54677	-0.56000
0.06600	0.42120	0.42120	-5.8690	0.00000	-4.25524	0.12224	0.55510	0.55510	-0.54524
0.06700	0.42754	0.42754	-5.9772	0.00000	-4.34000	0.12409	0.56343	0.56343	-0.53000
0.06800	0.43388	0.43388	-6.0854	0.00000	-4.42524	0.12594	0.57177	0.57177	-0.51524
0.06900	0.44022	0.44022	-6.1936	0.00000	-4.51000	0.12779	0.58010	0.58010	-0.50000
0.07000	0.44656	0.44656	-6.3018	0.00000	-4.59524	0.12964	0.58843	0.58843	-0.48524
0.07100	0.45290	0.45290	-6.4100	0.00000	-4.68000	0.13149	0.59677	0.59677	-0.47000
0.07200	0.45924	0.45924	-6.5182	0.00000	-4.76524	0.13334	0.60510	0.60510	-0.45524
0.07300	0.46558	0.46558	-6.6264	0.00000	-4.85000	0.13519	0.61343	0.61343	-0.44000
0.07400	0.47192	0.47192	-6.7346	0.00000	-4.93524	0.13704	0.62177	0.62177	-0.42524
0.07500	0.47826	0.47826	-6.8428	0.00000	-5.02000	0.13889	0.63010	0.63010	-0.41000
0.07600	0.48460	0.48460	-6.9510	0.00000	-5.10524	0.14074	0.63843	0.63843	-0.39524
0.07700	0.49094	0.49094	-7.0592	0.00000	-5.19000	0.14259	0.64677	0.64677	-0.38000
0.07800	0.49728	0.49728	-7.1674	0.00000	-5.27524	0.14444	0.65510	0.65510	-0.36524
0.07900	0.50362	0.50362	-7.2756	0.00000	-5.36000	0.14629	0.66343	0.66343	-0.35000
0.08000	0.50996	0.50996	-7.3838	0.00000	-5.44524	0.14814	0.67177	0.67177	-0.33524
0.08100	0.51630	0.51630	-7.4920	0.00000	-5.53000	0.15000	0.68010	0.68010	-0.32000
0.08200	0.52264	0.52264	-7.6002	0.00000	-5.61524	0.15185	0.68843	0.68843	-0.30524
0.08300	0.52898	0.52898	-7.7084	0.00000	-5.70000	0.15370	0.69677	0.69677	-0.29000
0.08400	0.53532	0.53532	-7.8166	0.00000	-5.78524	0.15555	0.70510	0.70510	-0.27524
0.08500	0.54166	0.54166	-7.9248	0.00000	-5.87000	0.15740	0.71343	0.71343	-0.26000
0.08600	0.54800	0.54800	-8.0330	0.00000	-5.95524	0.15925	0.72177	0.72177	-0.24524
0.08700	0.55434	0.55434	-8.1412	0.00000	-6.04000	0.16110	0.73010	0.73010	-0.23000
0.08800	0.56068	0.56068	-8.2494	0.00000	-6.12524	0.16295	0.73843	0.73843	-0.21524
0.08900	0.56702	0.56702	-8.3576	0.00000	-6.21000	0.16480	0.74677	0.74677	-0.20000
0.09000	0.57336	0.57336	-8.4658	0.00000	-6.29524	0.16665	0.75510	0.75510	-0.18524
0.09100	0.57970	0.57970	-8.5740	0.00000	-6.38000	0.16850	0.76343	0.76343	-0.17000
0.09200	0.58604	0.58604	-8.6822	0.00000	-6.46524	0.17035	0.77177	0.77177	-0.15524
0.09300	0.59238	0.59238	-8.7904	0.00000	-6.55000	0.17220	0.78010	0.78010	-0.14000
0.09400	0.59872	0.59872	-8.8986	0.00000	-6.63524	0.17405	0.78843	0.78843	-0.12524
0.09500	0.60506	0.60506	-9.0068	0.00000	-6.72000	0.17590	0.79677	0.79677	-0.11000
0.09600	0.61140	0.61140	-9.1150	0.00000	-6.80524	0.17775	0.80510	0.80510	-0.09524
0.09700	0.61774	0.61774	-9.2232	0.00000	-6.89000	0.17960	0.81343	0.81343	-0.08000
0.09800	0.62408	0.62408	-9.3314	0.00000	-6.97524	0.18145	0.82177	0.82177	-0

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 773 SCAN 1
 MACH NUMBER=0.438
 REYNOLDS NO.=19.08*10**6
 W.T.ANGLE= 0.21 DEG
 CN =-0.017
 CM = 0.0060
 CC = 0.0029
 CDW= 0.0088

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/P0	M LOC
0.004	0.4614	0.931	0.321
0.010	-0.5604	0.811	0.556
0.100	-0.4664	0.822	0.538
0.200	-0.3813	0.832	0.520
0.300	-0.3456	0.836	0.512
0.400	-0.3114	0.840	0.505
0.500	-0.2727	0.844	0.498
0.600	-0.2304	0.850	0.488
0.700	-0.1739	0.856	0.476
0.800	-0.0856	0.866	0.457
0.900	0.0562	0.883	0.426

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/P0	M LOC
0.0	1.0535	1.001	
0.002	0.7697	0.967	0.220
0.004	0.4752	0.932	0.319
0.006	0.1695	0.896	0.399
0.008	-0.1784	0.855	0.479
0.010	-0.5006	0.816	0.546
0.012	-0.7689	0.784	0.601
0.014	-0.8551	0.773	0.619
0.016	-0.9603	0.760	0.639
0.018	-0.9472	0.763	0.634
0.020	-0.9167	0.768	0.625
0.022	-0.8826	0.773	0.618
0.024	-0.8590	0.776	0.613
0.025	-0.7793	0.785	0.598
0.026	-0.7953	0.783	0.602
0.028	-0.6821	0.797	0.580
0.030	-0.7629	0.789	0.592
0.035	-0.6644	0.801	0.573
0.040	-0.6398	0.803	0.569
0.050	-0.5625	0.812	0.555
0.060	-0.5434	0.814	0.551
0.080	-0.4596	0.818	0.544
0.100	-0.4559	0.823	0.535
0.120	-0.4263	0.827	0.528
0.140	-0.4008	0.829	0.524
0.160	-0.3877	0.831	0.522
0.180	-0.3777	0.832	0.519
0.200	-0.3715	0.833	0.518
0.220	-0.3602	0.835	0.515
0.240	-0.3527	0.834	0.516
0.260	-0.3437	0.835	0.514
0.280	-0.3350	0.837	0.511
0.300	-0.3309	0.837	0.511
0.320	-0.3277	0.837	0.511
0.340	-0.3205	0.837	0.511
0.360	-0.2938	0.840	0.506
0.380	-0.3079	0.838	0.509
0.400	-0.3115	0.838	0.508
0.450	-0.2952	0.842	0.503
0.500	-0.2719	0.845	0.497
0.550	-0.2464	0.848	0.491
0.600	-0.2251	0.850	0.487
0.650	-0.2034	0.853	0.483
0.700	-0.1781	0.856	0.477
0.750	-0.1493	0.860	0.469
0.800	-0.0908	0.867	0.455
0.850	-0.0253	0.875	0.442
0.900	0.0489	0.883	0.425
0.950	0.1528	0.895	0.401

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 775 SCAN 1
 MACH NUMBER=0.518
 REYNOLDS NO.=21.81*10**6
 W.T.ANGLE= 0.17 DEG
 CN =-0.011
 CM = 0.0042
 CC = 0.0039
 CDW= 0.0082

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/P0	M LOC
0.004	0.5127	0.914	0.360
0.010	-0.5529	0.749	0.656
0.100	-0.4963	0.757	0.643
0.200	-0.4138	0.770	0.624
0.300	-0.3712	0.775	0.614
0.400	-0.3302	0.781	0.605
0.500	-0.2906	0.786	0.596
0.600	-0.2549	0.792	0.586
0.700	-0.1894	0.802	0.570
0.800	-0.0944	0.817	0.546
0.900	0.0562	0.841	0.504

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/P0	M LOC
0.0	1.0573	0.998	0.048
0.002	0.7916	0.957	0.251
0.004	0.4871	0.909	0.371
0.006	0.1695	0.858	0.472
0.008	-0.1712	0.804	0.567
0.010	-0.4891	0.753	0.649
0.012	-0.7927	0.706	0.724
0.014	-0.9044	0.687	0.752
0.016	-1.0361	0.666	0.784
0.018	-1.0245	0.667	0.784
0.020	-0.9995	0.670	0.779
0.022	-0.9595	0.677	0.768
0.024	-0.9126	0.686	0.754
0.025	-0.8734	0.694	0.742
0.026	-0.8550	0.698	0.735
0.028	-0.7784	0.713	0.713
0.030	-0.7868	0.710	0.717
0.035	-0.7327	0.720	0.702
0.040	-0.6773	0.730	0.686
0.050	-0.6157	0.740	0.670
0.060	-0.5559	0.750	0.655
0.080	-0.5201	0.750	0.654
0.100	-0.4791	0.758	0.643
0.120	-0.4575	0.762	0.636
0.140	-0.4357	0.766	0.629
0.160	-0.4193	0.769	0.624
0.180	-0.4062	0.772	0.620
0.200	-0.4074	0.772	0.619
0.220	-0.3966	0.774	0.617
0.240	-0.3858	0.774	0.616
0.260	-0.3737	0.775	0.614
0.280	-0.3556	0.776	0.613
0.300	-0.3545	0.775	0.615
0.320	-0.3475	0.776	0.614
0.340	-0.3367	0.778	0.610
0.360	-0.3162	0.780	0.606
0.380	-0.3251	0.779	0.608
0.400	-0.3220	0.778	0.609
0.450	-0.3080	0.780	0.607
0.500	-0.2880	0.784	0.601
0.550	-0.2563	0.790	0.590
0.600	-0.2358	0.794	0.584
0.650	-0.2166	0.799	0.576
0.700	-0.1790	0.806	0.564
0.750	-0.1457	0.810	0.557
0.800	-0.0907	0.820	0.541
0.850	-0.0358	0.829	0.525
0.900	0.0488	0.843	0.500
0.950	0.1602	0.860	0.469

TABLE 2.8 Force data and surface pressure distributions

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 776 SCAN 1
 MACH NUMBER=0.568
 REYNOLDS NO.=21.46*10**6
 W.T.ANGLE= 0.22 DEG
 CN =-0.009
 CM = 0.0033
 CC = 0.0037
 CDW= 0.0086

RUN 777 SCAN 1
 MACH NUMBER=0.631
 REYNOLDS NO.=21.97*10**6
 W.T.ANGLE= 0.20 DEG
 CN =-0.012
 CM = 0.0027
 CC = 0.0041
 CDW=*****

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.5518	0.903	0.384
0.010	-0.4566	0.720	0.702
0.100	-0.4994	0.712	0.714
0.200	-0.4200	0.727	0.690
0.300	-0.3759	0.736	0.677
0.400	-0.3393	0.743	0.666
0.500	-0.2953	0.750	0.655
0.600	-0.2572	0.758	0.642
0.700	-0.1944	0.770	0.623
0.800	-0.0964	0.787	0.596
0.900	0.0608	0.815	0.549

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.5836	0.890	0.412
0.010	-0.4335	0.674	0.773
0.100	-0.5497	0.648	0.812
0.200	-0.4587	0.667	0.783
0.300	-0.4075	0.678	0.766
0.400	-0.3631	0.688	0.752
0.500	-0.3245	0.696	0.739
0.600	-0.2705	0.708	0.721
0.700	-0.2036	0.722	0.699
0.800	-0.1002	0.744	0.665
0.900	0.0706	0.779	0.608

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.0853	1.000	
0.002	0.8088	0.949	0.273
0.004	0.5042	0.893	0.405
0.006	0.1791	0.834	0.516
0.008	-0.1468	0.774	0.616
0.010	-0.4936	0.710	0.717
0.012	-0.7949	0.655	0.802
0.014	-0.9179	0.633	0.836
0.016	-1.0661	0.606	0.878
0.018	-1.0891	0.602	0.883
0.020	-1.0299	0.615	0.864
0.022	-0.9889	0.624	0.850
0.024	-0.9317	0.635	0.833
0.025	-0.9099	0.640	0.825
0.026	-0.8959	0.644	0.819
0.028	-0.8440	0.656	0.801
0.030	-0.8529	0.656	0.800
0.035	-0.7893	0.669	0.781
0.040	-0.7106	0.682	0.760
0.050	-0.6659	0.690	0.748
0.060	-0.6257	0.698	0.735
0.080	-0.5435	0.705	0.725
0.100	-0.4968	0.714	0.711
0.120	-0.4755	0.718	0.705
0.140	-0.4581	0.720	0.701
0.160	-0.4317	0.724	0.695
0.180	-0.4258	0.725	0.693
0.200	-0.4197	0.726	0.692
0.220	-0.4058	0.729	0.688
0.240	-0.3983	0.728	0.689
0.260	-0.3776	0.731	0.684
0.280	-0.3764	0.732	0.683
0.300	-0.3762	0.732	0.683
0.320	-0.3706	0.733	0.681
0.340	-0.3560	0.736	0.678
0.360	-0.3374	0.739	0.672
0.380	-0.3399	0.739	0.672
0.400	-0.3425	0.739	0.672
0.450	-0.3244	0.743	0.666
0.500	-0.2994	0.749	0.657
0.550	-0.2754	0.754	0.649
0.600	-0.2517	0.759	0.641
0.650	-0.2234	0.765	0.631
0.700	-0.1918	0.772	0.619
0.750	-0.1584	0.780	0.607
0.800	-0.0984	0.791	0.589
0.850	-0.0296	0.803	0.569
0.900	0.0555	0.818	0.544
0.950	0.1618	0.838	0.510

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1211	1.004	
0.002	0.8523	0.947	0.281
0.004	0.5614	0.885	0.422
0.006	0.2342	0.815	0.549
0.008	-0.0673	0.751	0.654
0.010	-0.4291	0.674	0.773
0.012	-0.7553	0.603	0.882
0.014	-0.9222	0.566	0.940
0.016	-1.1184	0.523	1.009
0.018	-1.1301	0.520	1.014
0.020	-1.0693	0.534	0.992
0.022	-1.0383	0.540	0.981
0.024	-0.9870	0.550	0.966
0.025	-0.9785	0.552	0.963
0.026	-0.9510	0.558	0.953
0.028	-0.9306	0.561	0.947
0.030	-0.8935	0.572	0.931
0.035	-0.8599	0.583	0.913
0.040	-0.7864	0.602	0.883
0.050	-0.7052	0.621	0.855
0.060	-0.6415	0.630	0.840
0.080	-0.5895	0.640	0.826
0.100	-0.5270	0.653	0.806
0.120	-0.5017	0.658	0.797
0.140	-0.4766	0.663	0.789
0.160	-0.4640	0.667	0.784
0.180	-0.4539	0.669	0.780
0.200	-0.4460	0.671	0.777
0.220	-0.4333	0.674	0.773
0.240	-0.4294	0.675	0.771
0.260	-0.4129	0.678	0.767
0.280	-0.4063	0.679	0.765
0.300	-0.4005	0.680	0.764
0.320	-0.3961	0.681	0.762
0.340	-0.3800	0.683	0.758
0.360	-0.3653	0.685	0.755
0.380	-0.3680	0.684	0.758
0.400	-0.3628	0.685	0.756
0.450	-0.3427	0.689	0.749
0.500	-0.3172	0.695	0.740
0.550	-0.2854	0.701	0.731
0.600	-0.2645	0.705	0.724
0.650	-0.2362	0.711	0.715
0.700	-0.2025	0.718	0.704
0.750	-0.1562	0.730	0.687
0.800	-0.0955	0.746	0.662
0.850	-0.0315	0.761	0.637
0.900	0.0616	0.782	0.604
0.950	0.1807	0.805	0.566

TABLE 2.8 Force data and surface pressure distributions (con'd)

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 779 SCAN 1
 MACH NUMBER=0.691
 REYNOLDS NO.=21.14*10**6
 W.T.ANGLE= 0.18 DEG
 CN =-0.013
 CM = 0.0020
 CC = 0.0046
 CDW= 0.0082

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/P0	M LOC
0.004	0.6434	0.883	0.420
0.010	-0.3296	0.648	0.810
0.100	-0.5883	0.585	0.910
0.200	-0.5016	0.605	0.870
0.300	-0.4411	0.619	0.850
0.400	-0.3987	0.630	0.840
0.500	-0.3468	0.642	0.820
0.600	-0.2873	0.655	0.800
0.700	-0.2118	0.674	0.770
0.800	-0.1011	0.701	0.730
0.900	0.0761	0.744	0.664

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/P0	M LOC
0.0	1.1235	1.000	0.020
0.002	0.8664	0.937	0.300
0.004	0.6119	0.875	0.440
0.006	0.3061	0.800	0.570
0.008	-0.0104	0.723	0.690
0.010	-0.3326	0.645	0.810
0.012	-0.6437	0.568	0.930
0.014	-0.8090	0.527	1.000
0.016	-1.0848	0.459	1.110
0.018	-1.2154	0.427	1.170
0.020	-1.2481	0.420	1.180
0.022	-1.2492	0.421	1.180
0.024	-1.1228	0.452	1.120
0.025	-1.0862	0.463	1.110
0.026	-0.9878	0.487	1.060
0.028	-0.8704	0.515	1.020
0.030	-0.8732	0.514	1.020
0.035	-0.8561	0.518	1.010
0.040	-0.8187	0.530	0.990
0.050	-0.7582	0.547	0.970
0.060	-0.6895	0.566	0.940
0.080	-0.6300	0.573	0.930
0.100	-0.5693	0.588	0.900
0.120	-0.5346	0.597	0.890
0.140	-0.5151	0.602	0.880
0.160	-0.4976	0.607	0.870
0.180	-0.4852	0.610	0.870
0.200	-0.4813	0.611	0.870
0.220	-0.4621	0.616	0.860
0.240	-0.4570	0.615	0.860
0.260	-0.4450	0.618	0.850
0.280	-0.4334	0.620	0.850
0.300	-0.4253	0.622	0.850
0.320	-0.4248	0.622	0.850
0.340	-0.4034	0.627	0.840
0.360	-0.3901	0.630	0.840
0.380	-0.3946	0.628	0.840
0.400	-0.3888	0.629	0.840
0.450	-0.3665	0.635	0.830
0.500	-0.3396	0.643	0.820
0.550	-0.3045	0.651	0.800
0.600	-0.2797	0.659	0.790
0.650	-0.2466	0.667	0.780
0.700	-0.2076	0.676	0.760
0.750	-0.1582	0.688	0.750
0.800	-0.0921	0.704	0.720
0.850	-0.0178	0.723	0.690
0.900	0.0762	0.748	0.650
0.950	0.1886	0.776	0.610

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 780 SCAN 1
 MACH NUMBER=0.736
 REYNOLDS NO.=21.94*10**6
 W.T.ANGLE= 0.17 DEG
 CN =-0.015
 CM = 0.0017
 CC = 0.0054
 CDW= 0.0086

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/P0	M LOC
0.004	0.6789	0.877	0.430
0.010	-0.2385	0.635	0.830
0.100	-0.6281	0.532	0.990
0.200	-0.5444	0.554	0.950
0.300	-0.4769	0.572	0.930
0.400	-0.4199	0.587	0.900
0.500	-0.3659	0.601	0.880
0.600	-0.3008	0.619	0.850
0.700	-0.2162	0.641	0.820
0.800	-0.0971	0.673	0.770
0.900	0.0891	0.722	0.699

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/P0	M LOC
0.0	1.1478	1.001	
0.002	0.9110	0.939	0.300
0.004	0.6442	0.868	0.450
0.006	0.3716	0.796	0.580
0.008	-0.0920	0.721	0.700
0.010	-0.2187	0.639	0.820
0.012	-0.5170	0.559	0.950
0.014	-0.6886	0.512	1.020
0.016	-0.9537	0.443	1.140
0.018	-1.0864	0.409	1.200
0.020	-1.1300	0.396	1.230
0.022	-1.1569	0.388	1.240
0.024	-1.1351	0.393	1.230
0.025	-1.1595	0.388	1.240
0.026	-1.1398	0.394	1.230
0.028	-1.1128	0.403	1.210
0.030	-1.1127	0.403	1.210
0.035	-1.0577	0.418	1.190
0.040	-0.9971	0.435	1.160
0.050	-0.7329	0.506	1.030
0.060	-0.6766	0.524	1.000
0.080	-0.6854	0.517	1.010
0.100	-0.6014	0.539	0.980
0.120	-0.5725	0.547	0.970
0.140	-0.5508	0.552	0.960
0.160	-0.5411	0.555	0.950
0.180	-0.5251	0.559	0.950
0.200	-0.5162	0.561	0.940
0.220	-0.4909	0.568	0.930
0.240	-0.4990	0.566	0.940
0.260	-0.4848	0.569	0.930
0.280	-0.4689	0.573	0.920
0.300	-0.4590	0.575	0.920
0.320	-0.4511	0.578	0.920
0.340	-0.4342	0.581	0.910
0.360	-0.4154	0.585	0.910
0.380	-0.4203	0.584	0.910
0.400	-0.4198	0.585	0.910
0.450	-0.3578	0.591	0.900
0.500	-0.3545	0.601	0.880
0.550	-0.3202	0.610	0.870
0.600	-0.2939	0.618	0.850
0.650	-0.2601	0.627	0.840
0.700	-0.2181	0.639	0.820
0.750	-0.1586	0.655	0.800
0.800	-0.0901	0.674	0.770
0.850	-0.0114	0.695	0.740
0.900	0.0792	0.720	0.700
0.950	0.1970	0.753	0.650

TABLE 2.8 Force data and surface pressure distributions (con'd)

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 768 SCAN 1
 MACH NUMBER=0.789
 REYNOLDS NO.=20.83*10**6
 W.T.ANGLE= 0.12 DEG
 CN =-0.025
 CM = 0.0007
 CC = 0.0063
 CDW= 0.0092

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.7316	0.875	0.440
0.010	-0.1247	0.627	0.840
0.100	-0.7754	0.440	1.150
0.200	-0.7456	0.447	1.130
0.300	-0.4978	0.519	1.010
0.400	-0.4747	0.526	1.000
0.500	-0.4055	0.546	0.970
0.600	-0.3246	0.570	0.930
0.700	-0.2235	0.599	0.880
0.800	-0.0883	0.638	0.820
0.900	0.1052	0.694	0.742

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1776	1.003	
0.002	0.9515	0.937	0.300
0.004	0.7097	0.867	0.450
0.006	0.4567	0.793	0.580
0.008	0.1887	0.716	0.700
0.010	-0.0988	0.632	0.830
0.012	-0.3835	0.549	0.960
0.014	-0.5419	0.502	1.040
0.016	-0.7801	0.433	1.160
0.018	-0.8954	0.399	1.220
0.020	-0.9555	0.381	1.260
0.022	-1.0014	0.369	1.280
0.024	-0.9913	0.374	1.270
0.025	-1.0097	0.370	1.280
0.026	-1.0066	0.371	1.280
0.028	-0.9821	0.380	1.260
0.030	-0.9891	0.378	1.260
0.035	-0.9514	0.389	1.240
0.040	-0.9611	0.388	1.240
0.050	-0.9052	0.405	1.210
0.060	-0.8636	0.418	1.180
0.080	-0.8222	0.426	1.170
0.100	-0.7734	0.439	1.150
0.120	-0.7630	0.442	1.140
0.140	-0.7349	0.451	1.130
0.160	-0.7161	0.457	1.120
0.180	-0.6965	0.462	1.110
0.200	-0.6300	0.481	1.070
0.220	-0.4903	0.521	1.010
0.240	-0.5043	0.515	1.020
0.260	-0.4739	0.522	1.010
0.280	-0.5070	0.513	1.020
0.300	-0.5231	0.509	1.030
0.320	-0.5431	0.503	1.040
0.340	-0.5256	0.508	1.030
0.360	-0.5003	0.514	1.020
0.380	-0.4894	0.517	1.010
0.400	-0.4901	0.517	1.010
0.450	-0.4565	0.526	1.000
0.500	-0.4010	0.544	0.970
0.550	-0.3507	0.560	0.950
0.600	-0.3165	0.571	0.930
0.650	-0.2705	0.584	0.910
0.700	-0.2205	0.600	0.880
0.750	-0.1596	0.618	0.860
0.800	-0.0814	0.640	0.820
0.850	0.0014	0.665	0.780
0.900	0.0997	0.694	0.740
0.950	0.2116	0.727	0.690

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 766 SCAN 1
 MACH NUMBER=0.799
 REYNOLDS NO.=20.97*10**6
 W.T.ANGLE= 0.29 DEG
 CN = 0.003
 CM = 0.0026
 CC = 0.0068
 CDW= 0.0091

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/PO	M LOC
0.004	0.7443	0.875	0.440
0.010	-0.0852	0.631	0.840
0.100	-0.7167	0.445	1.140
0.200	-0.7115	0.448	1.130
0.300	-0.7104	0.450	1.130
0.400	-0.4392	0.529	1.000
0.500	-0.3954	0.541	0.970
0.600	-0.3138	0.565	0.940
0.700	-0.2159	0.595	0.890
0.800	-0.0831	0.633	0.830
0.900	0.1127	0.691	0.747

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/PO	M LOC
0.0	1.1766	1.002	
0.002	0.9549	0.936	0.300
0.004	0.7038	0.862	0.460
0.006	0.4531	0.789	0.590
0.008	0.1828	0.709	0.710
0.010	-0.0918	0.627	0.840
0.012	-0.3643	0.546	0.970
0.014	-0.5392	0.495	1.050
0.016	-0.7837	0.425	1.170
0.018	-0.8930	0.392	1.230
0.020	-0.9491	0.375	1.270
0.022	-0.9955	0.361	1.300
0.024	-0.9875	0.365	1.290
0.025	-0.9920	0.365	1.290
0.026	-0.9868	0.366	1.280
0.028	-0.9866	0.367	1.280
0.030	-0.9886	0.367	1.280
0.035	-0.9649	0.374	1.270
0.040	-0.9651	0.376	1.270
0.050	-0.9129	0.392	1.230
0.060	-0.8654	0.406	1.210
0.080	-0.8184	0.418	1.190
0.100	-0.7835	0.428	1.170
0.120	-0.7847	0.428	1.170
0.140	-0.7594	0.434	1.160
0.160	-0.7513	0.435	1.150
0.180	-0.7430	0.437	1.150
0.200	-0.7499	0.436	1.150
0.220	-0.7155	0.445	1.140
0.240	-0.7582	0.432	1.160
0.260	-0.7531	0.433	1.160
0.280	-0.7558	0.433	1.160
0.300	-0.7460	0.435	1.150
0.320	-0.7323	0.438	1.150
0.340	-0.6913	0.450	1.130
0.360	-0.4844	0.512	1.020
0.380	-0.4218	0.531	0.990
0.400	-0.4272	0.529	0.990
0.450	-0.4330	0.527	1.000
0.500	-0.3907	0.540	0.980
0.550	-0.3455	0.553	0.960
0.600	-0.3148	0.564	0.940
0.650	-0.2728	0.576	0.920
0.700	-0.2187	0.593	0.890
0.750	-0.1549	0.611	0.860
0.800	-0.0773	0.634	0.830
0.850	0.0041	0.659	0.790
0.900	0.1076	0.690	0.740
0.950	0.2180	0.722	0.690

TABLE 2.8 Force data and surface pressure distributions (con'd)

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 760 SCAN 1
 MACH NUMBER=0.815
 REYNOLDS NO.=21.20*10**6
 W.T.ANGLE= 0.10 DEG
 CN =-0.019
 CM = 0.0029
 CC = 0.0094
 CDW= 0.0134

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/P0	M LOC
0.004	0.7616	0.874	0.443
0.010	-0.0525	0.628	0.844
0.100	-0.7105	0.429	1.170
0.200	-0.7241	0.426	1.176
0.300	-0.7646	0.415	1.196
0.400	-0.7498	0.421	1.185
0.500	-0.3670	0.536	0.988
0.600	-0.2692	0.566	0.940
0.700	-0.1982	0.588	0.906
0.800	-0.0709	0.626	0.847
0.900	0.1218	0.683	0.758

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/P0	M LOC
0.0	1.1930	1.004	
0.002	0.9707	0.936	0.308
0.004	0.7316	0.864	0.463
0.006	0.4869	0.790	0.591
0.008	0.2330	0.713	0.713
0.010	-0.0421	0.630	0.841
0.012	-0.3087	0.549	0.967
0.014	-0.4729	0.499	1.049
0.016	-0.7102	0.427	1.174
0.018	-0.8120	0.397	1.230
0.020	-0.8718	0.380	1.262
0.022	-0.9204	0.368	1.287
0.024	-0.9307	0.368	1.287
0.025	-0.9350	0.368	1.287
0.026	-0.9378	0.368	1.287
0.028	-0.9307	0.371	1.281
0.030	-0.9292	0.373	1.276
0.035	-0.9168	0.378	1.265
0.040	-0.9232	0.378	1.265
0.050	-0.8717	0.395	1.233
0.060	-0.8076	0.416	1.193
0.080	-0.7827	0.411	1.203
0.100	-0.7453	0.422	1.182
0.120	-0.7376	0.423	1.181
0.140	-0.7193	0.427	1.174
0.160	-0.7191	0.427	1.174
0.180	-0.7228	0.425	1.177
0.200	-0.7264	0.424	1.179
0.220	-0.6852	0.436	1.158
0.240	-0.7334	0.420	1.187
0.260	-0.7372	0.418	1.190
0.280	-0.7386	0.418	1.191
0.300	-0.7512	0.414	1.197
0.320	-0.7588	0.413	1.200
0.340	-0.7579	0.413	1.200
0.360	-0.7526	0.414	1.198
0.380	-0.7468	0.416	1.194
0.400	-0.7015	0.430	1.168
0.450	-0.6735	0.440	1.150
0.500	-0.4312	0.515	1.023
0.550	-0.2905	0.559	0.950
0.600	-0.2875	0.562	0.947
0.650	-0.2585	0.571	0.933
0.700	-0.2113	0.586	0.909
0.750	-0.1492	0.606	0.878
0.800	-0.0729	0.629	0.842
0.850	0.0129	0.656	0.800
0.900	0.1131	0.687	0.754
0.950	0.2222	0.720	0.702

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 781 SCAN 3
 MACH NUMBER=0.834
 REYNOLDS NO.=20.97*10**6
 W.T.ANGLE= 0.23 DEG
 CN =-0.003
 CM = 0.0023
 CC = 0.0157
 CDW= 0.0171

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/P0	M LOC
0.004	0.7760	0.874	0.443
0.010	-0.0248	0.627	0.845
0.100	-0.6793	0.426	1.176
0.200	-0.6914	0.421	1.185
0.300	-0.7420	0.404	1.216
0.400	-0.7865	0.390	1.243
0.500	-0.7350	0.406	1.213
0.600	-0.6704	0.425	1.177
0.700	-0.1289	0.593	0.898
0.800	-0.0153	0.627	0.845
0.900	0.1451	0.676	0.770

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/P0	M LOC
0.0	1.1893	1.001	
0.002	0.9633	0.932	0.319
0.004	0.7319	0.861	0.468
0.006	0.4949	0.788	0.594
0.008	0.2491	0.712	0.715
0.010	-0.0064	0.632	0.837
0.012	-0.2774	0.549	0.968
0.014	-0.4501	0.495	1.056
0.016	-0.6627	0.428	1.172
0.018	-0.7713	0.395	1.234
0.020	-0.8308	0.376	1.270
0.022	-0.8615	0.366	1.291
0.024	-0.8501	0.369	1.285
0.025	-0.8521	0.368	1.287
0.026	-0.8502	0.368	1.285
0.028	-0.8564	0.368	1.287
0.030	-0.8517	0.369	1.284
0.035	-0.8359	0.375	1.273
0.040	-0.8292	0.376	1.270
0.050	-0.7999	0.385	1.252
0.060	-0.7640	0.398	1.227
0.080	-0.7624	0.397	1.229
0.100	-0.7275	0.408	1.208
0.120	-0.7232	0.410	1.205
0.140	-0.7038	0.417	1.192
0.160	-0.7072	0.417	1.192
0.180	-0.7089	0.417	1.193
0.200	-0.7134	0.415	1.196
0.220	-0.6933	0.422	1.182
0.240	-0.7339	0.411	1.203
0.260	-0.7374	0.410	1.206
0.280	-0.7358	0.410	1.206
0.300	-0.7380	0.408	1.209
0.320	-0.7421	0.405	1.214
0.340	-0.7640	0.398	1.227
0.360	-0.7591	0.400	1.225
0.380	-0.7698	0.395	1.233
0.400	-0.7753	0.393	1.237
0.450	-0.7284	0.408	1.209
0.500	-0.7191	0.410	1.205
0.550	-0.7486	0.400	1.223
0.600	-0.5322	0.467	1.103
0.650	-0.1809	0.576	0.925
0.700	-0.1218	0.595	0.895
0.750	-0.0792	0.608	0.874
0.800	-0.0209	0.627	0.845
0.850	0.0574	0.650	0.809
0.900	0.1460	0.678	0.767
0.950	0.2419	0.708	0.720

TABLE 2.8 Force data and surface pressure distributions (con'd)

SHOCKLESS SYMMETRICAL AIRFOIL 0.1100-0.7500-1.375

RUN 782 SCAN 1
 MACH NUMBER=0.862
 REYNOLDS NO.=21.27*10**6
 W.T.ANGLE= 0.17 DEG
 CN =-0.005
 CM = 0.0011
 CC = 0.0361
 CDW= 0.0343

PRESSURE DISTRIBUTION ON THE LOWER SURFACE

X/C	CP	P/P0	M LOC
0.004	0.8069	0.874	0.443
0.010	0.0344	0.627	0.845
0.100	-0.6167	0.419	1.188
0.200	-0.6440	0.411	1.202
0.300	-0.7050	0.393	1.237
0.400	-0.7544	0.377	1.268
0.500	-0.7156	0.390	1.243
0.600	-0.7732	0.372	1.278
0.700	-0.3242	0.516	1.020
0.800	-0.0335	0.609	0.873
0.900	0.1391	0.664	0.788

PRESSURE DISTRIBUTION ON THE UPPER SURFACE

X/C	CP	P/P0	M LOC
0.0	1.2087	1.002	
0.002	1.0015	0.935	0.311
0.004	0.7867	0.865	0.459
0.006	0.5549	0.790	0.590
0.008	0.3092	0.711	0.716
0.010	0.0520	0.627	0.845
0.012	-0.2115	0.542	0.978
0.014	-0.3642	0.493	1.058
0.016	-0.5691	0.427	1.174
0.018	-0.6669	0.396	1.232
0.020	-0.7207	0.378	1.265
0.022	-0.7566	0.367	1.288
0.024	-0.7568	0.369	1.285
0.025	-0.7694	0.366	1.290
0.026	-0.7744	0.366	1.291
0.028	-0.7625	0.370	1.282
0.030	-0.7769	0.367	1.289
0.035	-0.7629	0.372	1.278
0.040	-0.7594	0.376	1.269
0.050	-0.7456	0.384	1.254
0.060	-0.7056	0.398	1.227
0.080	-0.6752	0.403	1.218
0.100	-0.6555	0.409	1.207
0.120	-0.6570	0.408	1.208
0.140	-0.6438	0.412	1.202
0.160	-0.6401	0.412	1.202
0.180	-0.6360	0.412	1.201
0.200	-0.6397	0.410	1.205
0.220	-0.6122	0.417	1.192
0.240	-0.6534	0.401	1.222
0.260	-0.6583	0.398	1.227
0.280	-0.6660	0.396	1.232
0.300	-0.6696	0.394	1.235
0.320	-0.6770	0.391	1.240
0.340	-0.6878	0.388	1.247
0.360	-0.6914	0.387	1.248
0.380	-0.7095	0.381	1.260
0.400	-0.7231	0.378	1.267
0.450	-0.7409	0.372	1.279
0.500	-0.6746	0.394	1.236
0.550	-0.7100	0.384	1.255
0.600	-0.7544	0.371	1.280
0.650	-0.7790	0.364	1.295
0.700	-0.5171	0.449	1.134
0.750	-0.1770	0.559	0.951
0.800	-0.0661	0.595	0.894
0.850	0.0296	0.628	0.844
0.900	0.1290	0.661	0.792
0.950	0.2190	0.691	0.747

TABLE 2.8 Force data and surface pressure distributions (concluded)

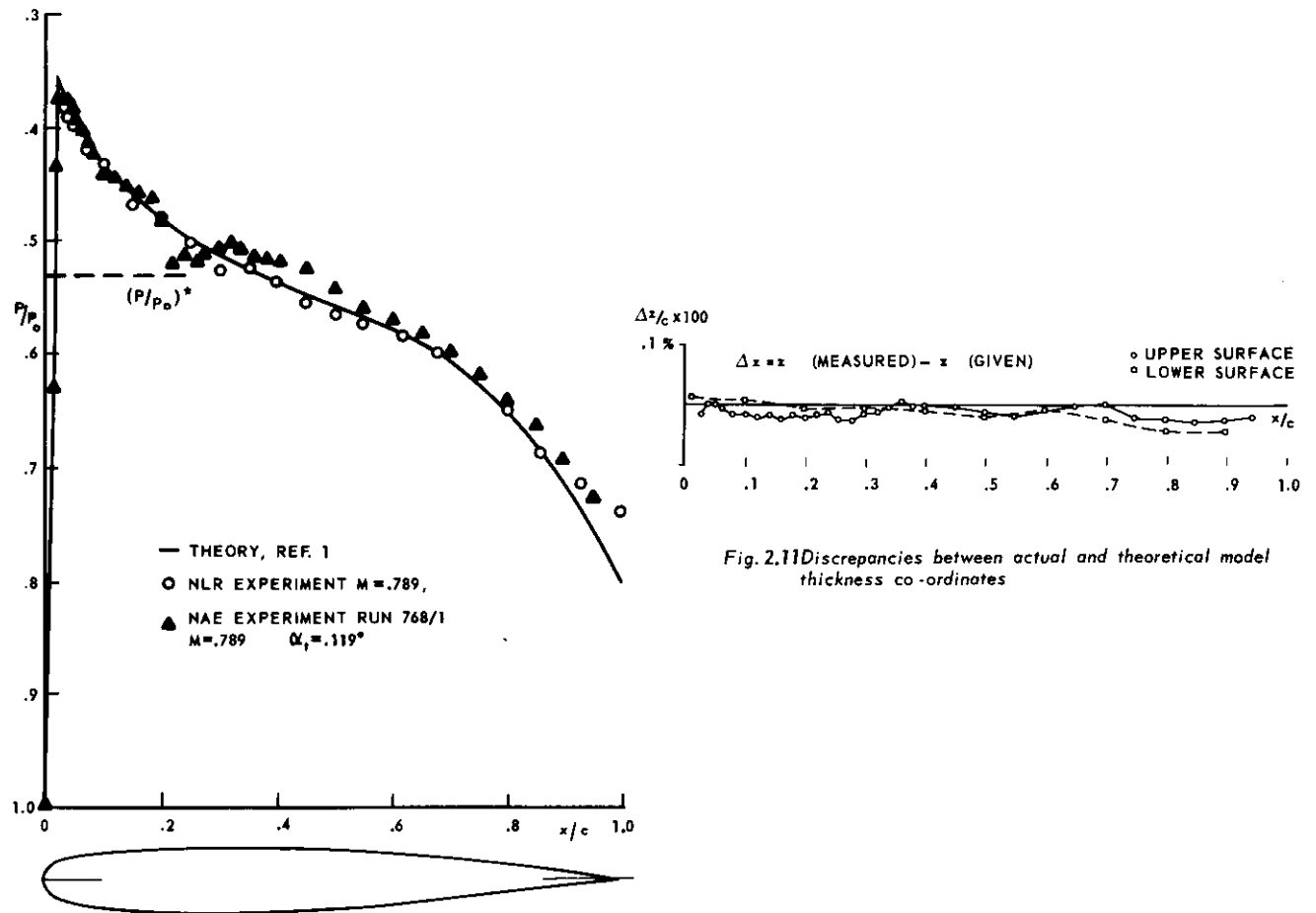


Fig. 2.11 Discrepancies between actual and theoretical model thickness co-ordinates

Fig. 2.10 Airfoil shape and design pressure distribution

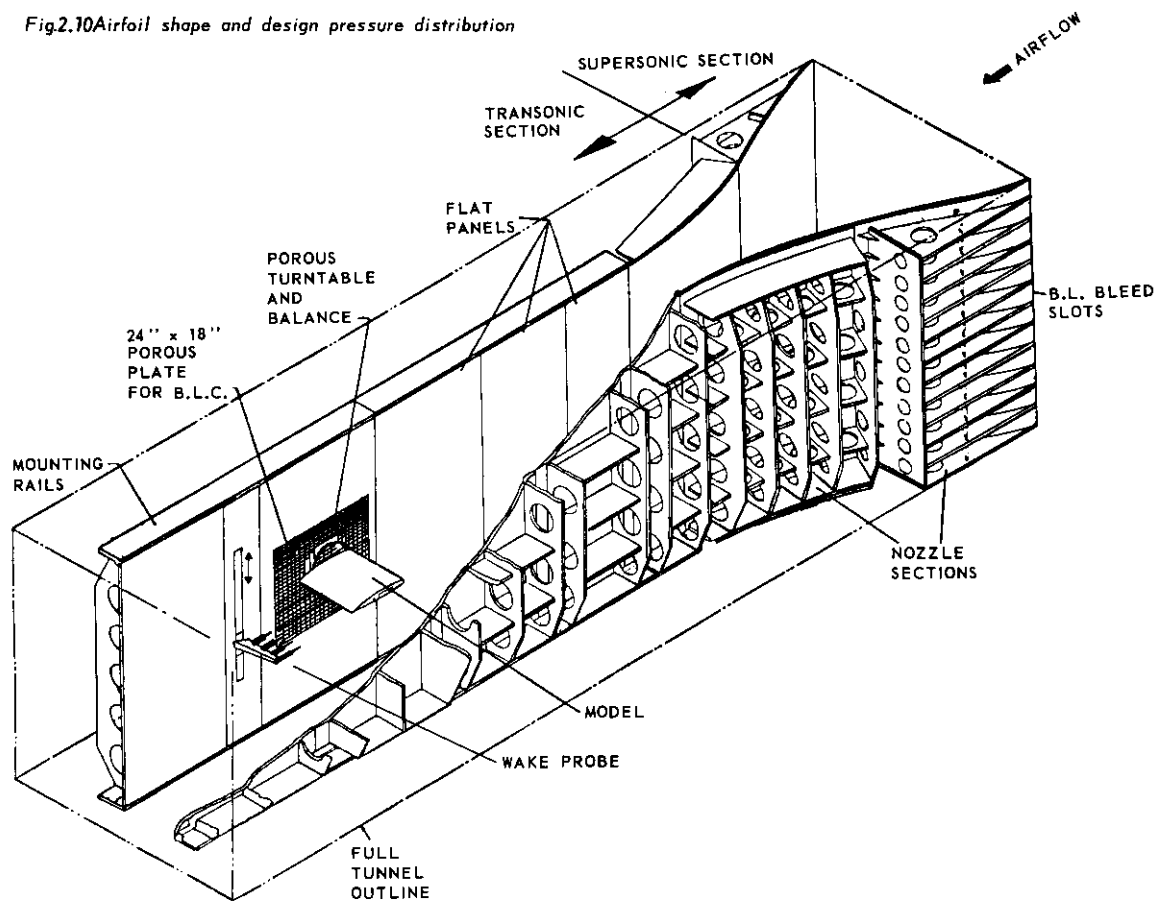


Fig. 2.12 The NAE 15 in x 20 in 2-D insert

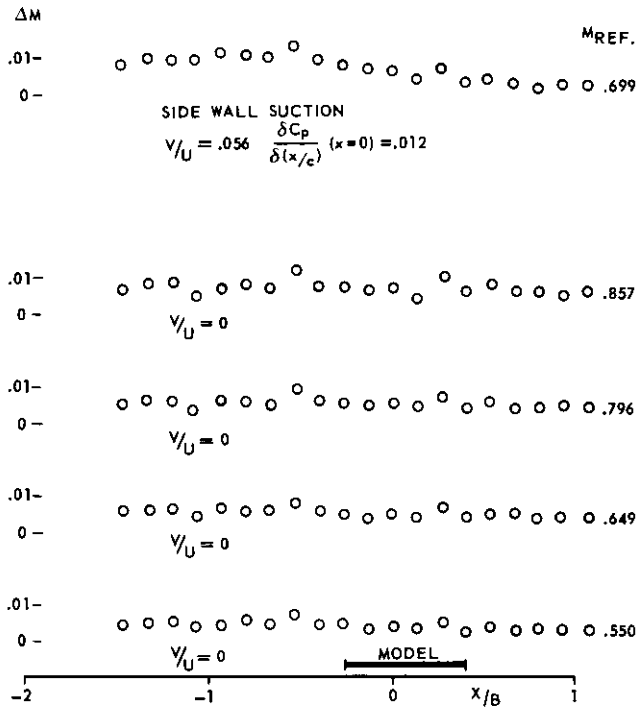


Fig. 2.13 Mach number distribution, empty test section
 NAE 15 in x 60 in 2-D insert

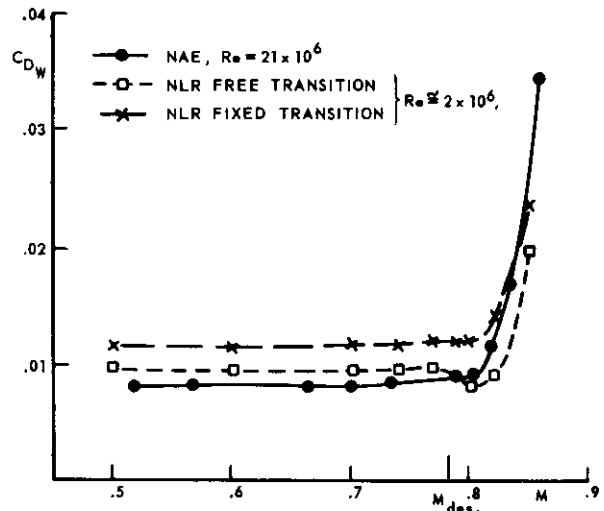


Fig. 2.14 Wake drag data

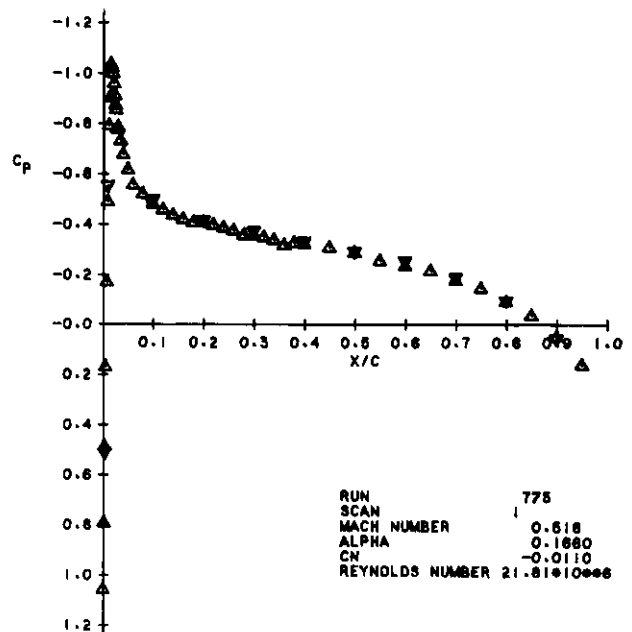
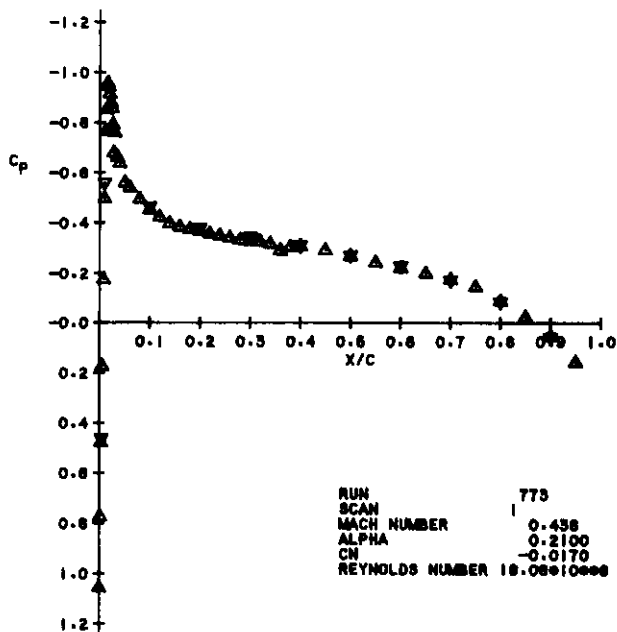


Fig. 2.15 Surface pressure distributions

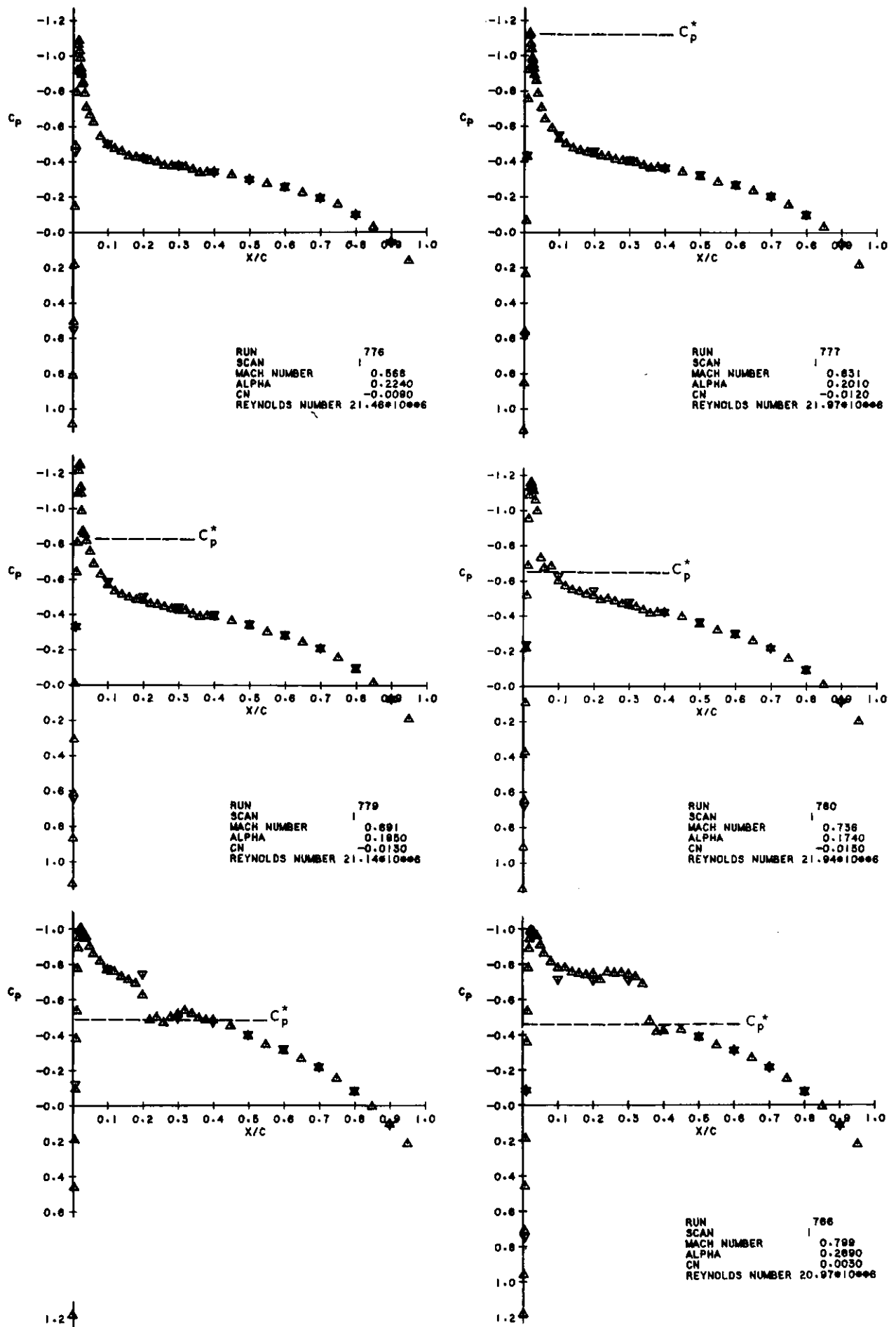


Fig.2.15 Surface pressure distributions (con'd)

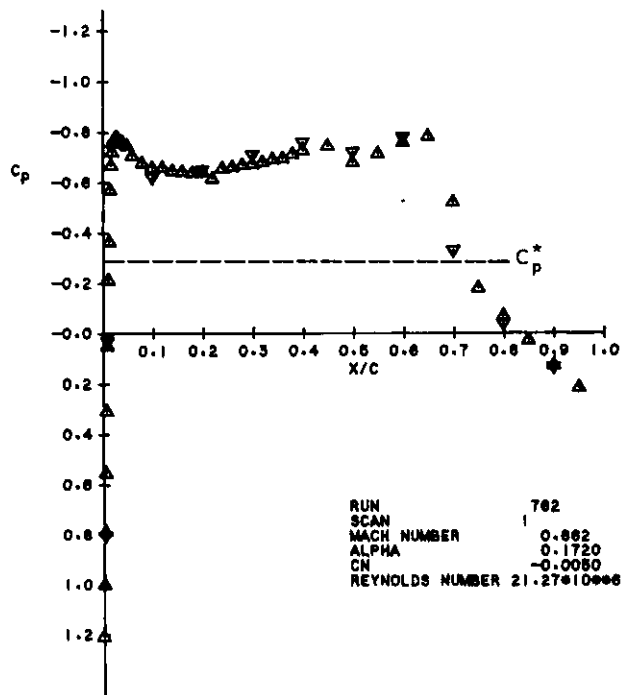
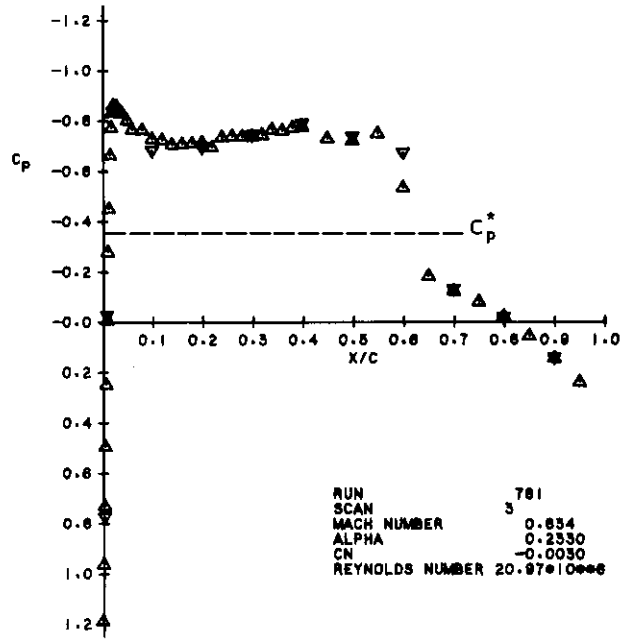
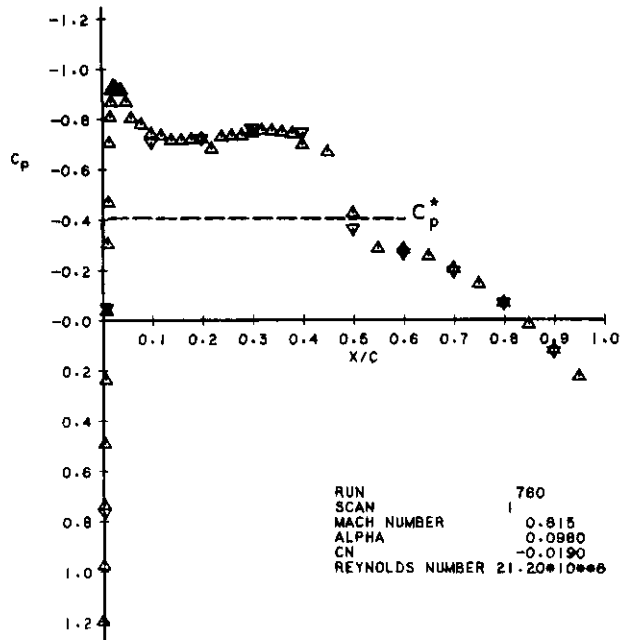


Fig.2.15 Surface pressure distributions (concluded)

3. Supercritical Airfoil CAST 7 - Surface pressure, wake and boundary layer measurements

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3.1 Introduction

This data set contains selected experimental results for the supercritical airfoil CAST 7 from

- surface pressure, wake and wall pressure measurements in the
0.34 m x 0.60 m Transonic Wind Tunnel Braunschweig (TWB) of the DFVLR,
- surface pressure and wake measurements in the 8in x 18in (0.2 m x 0.46 m)
transonic tunnel of the ARA Bedford and
- boundary layer and flow field measurements in the 1 x 1 Meter Transonic
Tunnel of the DFVLR-AVA Göttingen (DFVLR 1 x 1 Meter)

The flow conditions included here are listed in Table 3.3. All test cases presented were run with transition fixed at about 7.5 % chord on upper and lower surfaces. Tests at increasing Reynolds numbers and observation of the corresponding drag behavior indicated that transition occurred at the location of the roughness band.

The test sections of the ARA tunnel and the DFVLR-TWB consist of solid side walls and slotted top and bottom walls. Tests with different size models of the same airfoil - the NPL 3111 in the ARA tunnel and the NACA 0012 in the DFVLR-TWB - have shown that blockage corrections for these tunnels are zero up to $M_{\infty} = 0.80$, the highest freestream Mach number included here. Downwash (angle of attack) and curvature (lift and pitching moment) corrections derived from the ARA tests are given in Section 6.2 of this data set. The ARA data are included in corrected form. The DFVLR-TWB tests have indicated that downwash and curvature corrections are small and essentially only required at Mach numbers around $M_{\infty} = 0.60$. Since correction procedures for that range have not yet been finalized, only uncorrected data are included.

A description of the DFVLR 1 x 1 Meter Transonic Tunnel including correction procedures is given in Chapter A5 of this report. Since the flow about the model in the case of the present boundary layer measurements is not only affected by wall constraints but also by the cover of the probe drive mechanism, starting one chord length downstream of the model trailing edge, no attempt was made to correct the data, i.e., to find freestream conditions that would correspond to the measured surface pressure distributions in a 'free air' test environment.

The boundary layer velocity profiles were determined from the measured total and static pressures assuming constant total temperature across the boundary layer. The relations used to derive the various boundary layer parameters from the velocity profiles are given in the List of Symbols (8). All data related to the boundary layer measurements are presented in a form (Table 3.6) that allows re-analysis of the results by the user.

In concluding the Introduction it should be mentioned that the airfoil CAST 7 is extremely sensitive to small changes at freestream conditions close to the design point, i.e., $M_{\infty} \approx 0.76$ and $\alpha \approx 0.5$. This is demonstrated by the Mach number sweep of Figure 3.8 (p A3-30, top righthand figure) and the angle of attack sweep of Figure 3.9 (p A3-32, top left hand figure). This sensitivity is also shown by the higher lift and lower drag of Run 2520, Figure 3.8 (p A3-30), as compared to the corresponding data of Run 2486, Figure 3.7 (p A3-28), the difference in lift and drag being mainly due to wear of the roughness band.

1. Airfoil

1.1. Airfoil designation

1.2. Type of airfoil

1.2.1. airfoil geometry

nose radius

maximum thickness

base thickness

1.2.2. design condition

design pressure distribution

1.4. Reference on airfoil

2. Model geometry

2.1. Chord length

2.2. Span

2.3. Actual model co-ordinates and accuracy

2.4. Maximum thickness

2.5. Base thickness

2.6. Additional remarks

2.7. References on model

3. Wind tunnel

3.1. Designation

3.2. Type of tunnel

3.2.1. stagnation pressure

3.2.2. stagnation temperature

3.2.3. humidity / dew point

3.3. Test section

¹⁾ All information given here applies to tunnels ① and ②. For information on the DFVLR 1x1 Meter Transonic Tunnel see data set of Chapter A 5.

CAST 7

Supercritical airfoil designed by a modified Murman/Cole/Krupp-method. Shockfree design, roof-top pressure distribution, medium rear loading.

$R = 1.15 \%$

$t/c = 11.8 \%$ at 35% c

$t_{TE}/c = 0.5 \%$

$M_{\infty} = 0.76$

$c_L = 0.573$

$\alpha = 0^\circ$

Table 3.1
and Figure 3.1

Table 3.2 and Figure 3.2

Reference on design method and airfoil: [1, 2]

No. ¹⁾	Model	Chord [mm]	Span [mm]	Tested in tunnel
①	SP 120 ²⁾	200	340	DFVLR-TWB (0.34m x 0.60m)
②	CP 7 ²⁾	127	200	8in x 18in ARA - Bedford
③	SP 125 ³⁾	250	1000	DFVLR 1 x 1 Me- ter

1) Numbers ① ② ③ are hereafter used to identify wind tunnels, models, etc. of ARA Bedford and DFVLR

2) Pressure distribution and wake measurements

3) Boundary layer and flow field measurements

Table 3.1 and Figure 3.1

① ② $t/c = 11.73 \%$

① 0.36% ② 0.50%

Models SP 120 and SP 125 were designed and built by DFVLR-AVA

Model CP 7 was designed and built by ARA Bedford

[1, 2, 5]

1)

① DFVLR Transonic Wind Tunnel Braunschweig (TWB)

② ARA 8in x 18in (0.2m x 0.46m)

③ DFVLR 1 x 1 Meter

Blow down

① Variable between 1.5 and 4.5 bar

② Variable between 1.3 and 4.0 bar

① ~ 260 K.

② ~ 290 K.

① 210 K

② 240 K

Temperature decrease during
a run : ① 7° ② 5°

Two-dimensional (Figure 3.3)

and ② For information on the DFVLR 1x1 Meter

3.3.1. dimensions

① 0.34 m x 0.60 m

② 0.203 m x 0.457 m

3.3.2. type of walls

① ② Side walls solid, top and bottom walls slotted. ① Open area ratio 2.35 % (Figure 3.3)
 ② Open area ratio 3.2 %; each slotted wall has six slots 0.94 mm wide and two slots 0.46 mm wide

3.4. Flow field (empty test section)

3.4.1. reference static pressure

① Pressure orifice on top wall (Figure 3.4)

② Wall static pressure 650 mm upstream of model centreline on top wall

3.4.2. flow angularity

① $\pm 0.07^\circ$ ② : $\pm 0.05^\circ$

3.4.3. Mach number distribution

① Figure 3.4

①

M_∞	0.47	0.6	0.7	0.75	0.8
ΔM^*	0.003	0.003	0.004	0.0045	0.0045

* Variation over a distance ranging from one chord length upstream to one chord length downstream of model

② $\Delta M < 0.002$ at $M_\infty \leq 0.82$ on centreline over model chord length

3.4.4. pressure gradient

① Figure 3.4

② Mach number gradient along length of model: < 0.002 at $M_\infty \leq 0.82$

3.4.5. turbulence / noise level

① Has not yet been determined.

② Under investigation using Kulite transducers

3.4.6. side wall boundary layer

① No special treatment. Boundary layer growth is compensated by diverging top and bottom walls.

② Top and bottom walls diverge, $2 \delta^*/b = 0.015$ at $M_\infty = 0.70$

3.6. References on wind tunnel

[3, 4]

4. Tests

4.1. Type of measurements

① ② Surface pressure and wake measurements

① Upper and lower wall pressures

③ Boundary layer measurements

② ③ Schlieren observations

4.2. Tunnel/ model dimensions

4.2.1. height/ chord ratio

4.2.2. width/ chord ratio

Tunnel	H/c	b/c
DFVLR - TWB	3	1.7
DFVLR 1 x 1 Meter	4	4
8in x 18in ARA	3.6	1.6

Table 3.3

4.3. Flow conditions included in present data base

4.3.4. transition

- transition fixing

Glass spheres

- width : ① ② ③ 1.0 % c

- Diameter ① 0.065 mm
- ② 0.058 mm
- ③ 0.090 mm

Note: The type and location of tripping devices is indicated in the diagrams. Example: 0.09 BA, 30 L/25 L means glass spheres with an average dia. of 0.09 mm at 30 % c on upper and 25 % c on lower surface

4.3.5. temperature equilibrium

- ① ② See 3.2.2.

- ③ yes

4.5. References on tests

[3, 5]

5. Instrumentation

5.1. Surface pressure measurements

5.1.1. pressure holes

- size

- ① ③ Diameter 0.5 mm (SP 120, SP 125)

- ② Diameter 0.3 mm (CP 7)

- spanwise station(s)

- ① Centreline orifices are staggered in the nose region over a range ± 7.5 mm wide

- ② Orifices are staggered in a diamond pattern over a range ± 38 mm wide

- chordwise positions

Figure 3.1 and Tables 3.4/ 3.5/ 3.6

5.1.2. type of transducers and scanning devices

- ① Druck Ltd. differential pressure transducers plus Scanivalves

Range: ± 50 psid, Accuracy: ± 0.06 % FS

- ② Statham transducer plus Scanivalves

Range : 49 psi , Accuracy: ± 0.03 % FS

5.2. Wake measurements

5.2.1. type/size of instruments

- ① Traversable rake consisting of 7 probes 30 mm apart. Every second probe is a static probe, the probe is traversed over a distance of 60 mm. Measuring points are 1.3 mm apart.

- ② Rake consisting of 48 pitot probes, spaced 1.27 mm in the center region with a diameter of 0.5 mm, and 3 static probes. Rake is adjusted for optimal position with respect to wake

5.2.2. streamwise positions

- ① 1 chord length } downstream of trailing edge
 ② 2 chord lengths }

5.2.3. type of transducers and scanning devices

- ① Druck Ltd. differential pressure transducers. Each probe is equipped with its own transducer. Range and accuracy: same as 5.1.2.

- ② Statham transducer plus Scanivalve

Range: 7.25 psi, Accuracy: ± 0.04 % FS

5.3. Boundary layer measurements

Tunnel: DFVLR 1 x 1 Meter

Model: SP 125 (c = 250 mm)

5.3.1. type/size of instruments

Boundary layer probe, consisting of a 0.15 mm pitot probe, a static probe and a probe to measure the flow direction (Figure 3.5)

5.3.2. locations

Upper surface: $x/c = 0.3$ to 0.99
 (probe traverses in x)

5.3.3. type of transducers and scanning devices

CEC and Statham differential pressure transducers

Range: ± 10 and ± 15 psid. Accuracy: $\approx \pm 0.4$ % FS

5.4. Skin friction measurements

Skin friction was determined from measured boundary layer profiles using a modified Ludwig - Tillmann formulation [6]. See List of Symbols (8).

5.5. Flow visualization

5.5.1. flow field

- ② ③ Schlieren observation with single pass system

6. Data

6.1. Accuracy (wall interference excluded)

6.1.1. angle of attack setting

- ① $\pm 0.02^\circ$ ② : $\pm 0.01^\circ$

6.1.2. free stream Mach number:

- setting

- ① ± 0.002 ② : ± 0.001

- variation during one pressure scan

- ① ± 0.002 ② : Negligible

6.1.3. pressure coefficients

- ① $\Delta c_p \approx \pm 1\%$ including an error of $\Delta M = \pm 0.002$, evaluated at $M_\infty = 0.76$ and max. $|c_p|$

- ② $\Delta c_p = \pm 0.5\%$

Obtained by integrating pressure distribution

6.1.4. aerodynamic coefficients

6.1.5. boundary layer quantities

- ③ Probe position: Δz (normal to surface) = ± 0.01 mm. The boundary layer thickness upstream of the shock is about 1.8 mm. Δx (chordwise) = ± 1 mm.

6.1.6. repeatability

- ① Average values for the range of freestream conditions included:
 $\Delta c_p \approx \pm 0.5\%$, $\Delta c_L \approx \pm 0.3\%$, $\Delta c_m \approx \pm 0.5\%$,
 $\Delta c_D \approx \pm 2\%$

- ② $\Delta c_p = \pm 0.5\%$, $\Delta c_L = \pm 0.5\%$, $\Delta c_m = \pm 0.5\%$
 $\Delta c_D = \pm 2\%$

6.2. Wall interference corrections

6.2.1. angle of attack

- ① See 6.2.3.

- ②
$$\Delta \alpha = \frac{c \cdot c_L \cdot \delta_o}{h} + \frac{c^2 \cdot \delta_1}{\beta \cdot h^2} \left[\frac{c_L}{4} + c_m \right]$$

$$h = 457 \text{ mm}, c = 127 \text{ mm}, \delta_o = -0.03, \\ \delta_1 = 0.11$$

6.2.2. blockage (solid/wake)

- ① ② Slot width was selected experimentally to give zero blockage corrections

6.2.3. streamline curvature (lift)

- ① Experiments with three different size models of the airfoils NACA 0012 and DFVLR-R2 showed that only small corrections are required. Data are not yet sufficiently analysed to establish final correction procedures.

- ②
$$\Delta c_L = -\frac{\pi}{2} \cdot \left(\frac{c}{\beta h} \right)^2 \delta_1 c_L$$

$$\Delta c_m = -\frac{1}{4} \cdot \Delta c_L$$

$$\alpha = \alpha_g + \Delta \alpha$$

$$\text{corrected } c_i = c_i + \Delta c_i$$

6.2.5. remarks

See the Introduction

6.2.6. references on wall interference correction

[3, 4]

6.3. Presentation of data

6.3.1. aerodynamic coefficients	Tables: 3.4/ 3.5 Figure : 3.6
6.3.2. surface pressure	Tables: 3.4/ 3.5 Figures: 3.7/3.8/3.9
6.3.3. boundary layer quantities	Table: 3.6 Figure: 3.10 Schlieren pictures: Figure 3.10
6.3.4. wall interference corrections included?	① ③ No ② Yes
6.3.5. corrections for model deflection	No
6.3.6. Empty test section calibration taken into account?	Yes
6.3.8. additional remarks	No special notation is used to identify corrected and uncorrected data.
6.4. Were tests carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?	See 2.1. of this questionnaire and Table 3.3 A comparison of ARA and DFVLR-TWB pressure distributions is given in Figure 3.7
6.5. To be contacted for further information on tests	① W. Puffert DFVLR D-3300 Braunschweig ② T.E.B. Bateman Aircraft Research Association (ARA) Manton Lane Bedford, MK41 7PF England ③ E. Stanewsky DFVLR-AVA Bunsenstraße 10 D-3400 Göttingen

7. References

[1] KÜHL, P. ZIMMER, H.	The design of airfoils for transport aircraft with improved high speed characteristics DORNIER GmbH, Report 74/16B, 1974
[2] STANEWSKY, E. ZIMMER, H.	Development and wind tunnel tests of three supercritical airfoils for transport aircraft. Z. Flugwiss. 23 (1975), Heft 7/8
[3] STANEWSKY, E. PUFFERT, W. MÜLLER, R.	The DFVLR Transonic Wind Tunnel Braunschweig: Calibration results for the modified test section and results for the airfoil CAST 7. DFVLR Report IB 151-77/10, 1977
[4] HAMMOND, B.F.L.	Some notes on model testing in the ARA two-dimensional facility. Aircraft Research Association Memo No. 170, 1975
[5] HAMMOND, B.F.L.	ARA model test note T 28/4, Aircraft Research Association, Bedford
[6] SASMAN, P.K. CRESCI, R.J.	Compressible turbulent boundary layer with pressure gradient and heat transfer. AIAA Journal, Vol.4, No.1, January 1966, pp 19-25

8. List of symbols

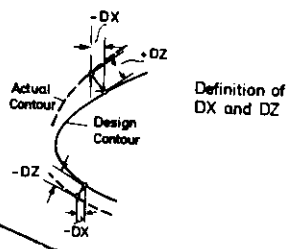
b	span, tunnel width	Relations used in the reduction of the boundary layer data
c, l, L	model chord	$\delta^* = \int_0^\delta (1 - \frac{\rho}{\rho_e} \cdot \frac{u}{u_e}) \cdot dz$
c_p	pressure coefficient	$\Theta = \int_0^\delta \frac{\rho}{\rho_e} \cdot \frac{u}{u_e} (1 - \frac{u}{u_e}) \cdot dz$
c_p^*	pressure coefficient at $M_L=1$	$H = \delta^* / \Theta$
c_A, c_L	lift coefficient	$c_f = \{ 0.246 \cdot e^{(-1.561 \cdot Hi)} \cdot Re_\Theta^{-0.268} \} /$
c_m, c_{m25}	pitching moment coefficient (based on 0.25 c)	$\{ \frac{\bar{\tau}}{\tau_o} (1 + \frac{\gamma-1}{2} \cdot Me^2) \}^{0.7963}$
c_W, c_D	drag coefficient	$\bar{\tau} / \tau_o = 0.5 \cdot \frac{T_w}{T_{te}} + 0.22 \cdot P_r^{1/3} + \frac{0.5-0.22 \cdot P_r^{1/3}}{1 + \frac{\gamma-1}{2} \cdot Me^2}$
M, Ma, M_∞	freestream Mach number	$Hi = (H - \frac{\gamma-1}{2} \cdot Me^2) / (\frac{T_w}{T_{te}} [1 + \frac{\gamma-1}{2} \cdot Me^2])$
ML	local Mach number (airfoil surface, $f(p / p_o)$)	Assumptions: $P_r = 1$
MB	local Mach number (boundary layer, $f(p_B/p_T)$)	$T_w / T_{te} = 1$
H, h	tunnel height, shape factor	T_w Wall temperature
P	static pressure	T_{te} total temperature at edge of boundary layer ($T_{te} = T_o$)
p_o, H	freestream total pressure	
P_T	total pressure in the boundary layer	
Re, R, E-6* RE	Reynolds number, based on freestream conditions and chord length	
R	nose radius	
T_o	freestream total temperature	
u	velocity in the boundary layer	
t	maximum thickness	
x, y, z	coordinates (Figure 3.1) (z is in the case of the boundary layer measurements taken normal to the airfoil surface)	<u>Subscripts</u>
α	angle of attack	∞ freestream conditions
δ, DEL	boundary layer thickness ($u/u_e = 0.99$)	TE trailing edge
δ^*, DEL^*	displacement thickness	u upper surface
$\Theta, THETA$	momentum thickness	l lower surface
γ	ratio of specific heats	e, E edge of boundary layer
		B boundary layer

Table 3.1 Coordinates of the airfoil CAST 7

a. Model: SP 120 (TWB tests)

Upper surface				Lower surface			
XUS (mm)	ZUS (mm)	DX (mm)	DZUS (mm)	XLS (mm)	ZLS (mm)	DX (mm)	DZLS (mm)
Design	Design			Design	Design		
0.000	0.000			200.000	-0.931		0.102
0.033	0.428	-0.043	0.007	192.389	-0.286	0.008	0.107
0.711	2.041	-0.082	0.053	188.578	-0.043	0.007	0.130
1.152	2.653	-0.063	0.050	184.763	0.130	0.005	0.130
2.001	3.581	-0.010	0.011	180.946	0.227	0.002	0.129
3.591	4.813	0.021	-0.032	177.127	0.237	-0.001	0.132
6.261	6.220	-0.001	0.003	173.310	0.164	-0.004	0.133
9.052	7.374	-0.001	0.002	169.494	0.009	-0.007	0.132
13.678	8.788	-0.002	0.008	161.873	-0.511	-0.010	0.125
17.413	9.636	-0.002	0.012	158.072	-0.858	-0.013	0.131
24.970	10.886	0.000	-0.001	150.480	-1.681	-0.016	0.137
32.578	11.781	0.003	-0.026	146.689	-2.140	-0.017	0.136
40.211	12.433	0.001	-0.017	139.114	-3.117	-0.020	0.148
47.857	12.909	0.001	-0.022	135.329	-3.623	-0.019	0.142
55.511	13.252	0.001	-0.031	127.760	-4.641	-0.019	0.140
63.168	13.488	0.001	-0.046	120.189	-5.642	-0.018	0.140
70.828	13.634	0.001	-0.057	112.612	-6.599	-0.016	0.132
82.319	13.703	-0.000	-0.069	105.026	-7.485	-0.015	0.133
89.980	13.645	-0.001	-0.069	97.431	-8.279	-0.013	0.130
97.640	13.504	-0.002	-0.073	93.629	-8.634	-0.011	0.120
105.298	13.273	-0.002	-0.054	86.016	-9.243	-0.008	0.109
112.951	12.939	-0.002	-0.040	78.393	-9.702	-0.005	0.101
120.599	12.490	-0.003	-0.047	70.761	-9.985	-0.002	0.088
128.238	11.911	-0.005	-0.057	63.124	-10.071	-0.000	0.069
139.672	10.767	-0.008	-0.065	55.488	-9.943	-0.001	0.043
147.273	9.807	-0.011	-0.083	47.859	-9.597	0.001	0.019
154.852	8.687	-0.015	-0.091	40.243	-9.034	0.001	0.007
162.409	7.427	-0.019	-0.107	32.645	-8.269	-0.002	-0.013
168.179	6.752	-0.025	-0.137	25.066	-7.324	-0.004	-0.032
173.707	5.392	-0.029	-0.152	13.748	-5.562	-0.006	-0.035
181.225	3.854	-0.032	-0.161	9.015	-4.619	-0.013	-0.059
188.737	2.354	-0.034	-0.171	4.109	-3.486	-0.013	-0.149
192.493	1.598	-0.034	-0.187	1.733	-2.673	-0.008	-0.015
196.247	0.838	-0.032	-0.157	0.217	-1.052	-0.091	-0.038
200.000	0.071		-0.150	0.000	0.000		

For plot of measured error of manufactured airfoil see Fig. 3.1



b. Model: CP 7 (ARA tests)

		Upper Surface (mm)			Lower Surface (mm)		
x/c	x (mm)	Design	Actual	Δz	Design	Actual	Error
0.115	14.605	6.734	6.739	+0.005	-4.468	-4.496	+0.028
0.155	19.685	7.376	7.376	0	-5.131	-5.156	+0.025
0.215	27.305	8.016	7.998	-0.018	-5.883	-5.893	+0.010
0.275	34.925	8.402	8.379	-0.023	-6.304	-6.312	+0.008
0.335	42.545	8.618	8.603	-0.015	-6.383	-6.383	0
0.395	50.165	8.700	8.694	-0.006	-6.142	-6.137	-0.005
0.455	57.785	8.656	8.651	-0.005	-5.626	-5.618	-0.008
0.515	65.405	8.479	8.476	-0.003	-4.895	-4.879	-0.016
0.575	73.025	8.146	8.146	0	-4.003	-3.980	-0.023
0.635	80.645	7.630	7.628	-0.002	-3.010	-2.985	-0.025
0.695	88.265	6.886	6.891	+0.005	-1.989	-1.938	-0.031
0.755	95.885	5.890	5.883	-0.007	-1.026	-0.991	-0.035
0.815	103.125	4.651	4.641	-0.010	-0.264	-0.221	-0.043
0.875	111.125	3.226	3.221	-0.005	0.132	0.168	-0.036
0.920	116.840	2.096	2.088	-0.008	0.099	0.117	-0.018
0.950	120.650	1.334	1.334	0	-0.079	-0.081	+0.002
0.978	124.143	0.627	0.625	-0.002	-0.333	-0.356	+0.023
1.000	127.000	0.043	0.038	-0.005	-0.589	-0.599	+0.010

Leading edge inspected by Acrulite templates and Shadowgraph technique.

Accuracy: ±0.007 mm

Table 3.2 Design pressure distribution

Theory:

Pressure distribution at (x, o + -)

 $Re = 6 \cdot 10^6$ Boundary layer: turbulent $M_\infty = 0.760$ $\alpha = 0.0$ $C_L = 0.573$ $C_m = -0.13551$ $C_D = 0.00458$ $C_p^* = -0.5587$

X/C	CPU	CPL
-0.82500	0.04514	0.04514
-0.57500	0.07580	0.07580
-0.35000	0.12695	0.12695
-0.17500	0.24443	0.24443
-0.07500	0.46224	0.46230
-0.03500	0.70025	0.70054
-0.01500	0.92820	0.92899
-0.00250	1.13935	1.14075
0.00250	0.91234	0.91148
0.00750	0.53289	0.55421
0.01250	0.35108	0.43495
0.01750	0.20055	0.36309
0.02500	0.00269	0.27578
0.03500	-0.21409	0.18454
0.04750	-0.43172	0.10294
0.06500	-0.63032	0.03330
0.08750	-0.75432	-0.02564
0.11500	-0.82038	-0.09227
0.15500	-0.88311	-0.19051
0.21500	-0.93414	-0.32130
0.27500	-0.90771	-0.39377
0.33500	-0.89268	-0.39120
0.39500	-0.88736	-0.32924
0.45500	-0.86930	-0.23556
0.51500	-0.79782	-0.12840
0.57500	-0.63271	-0.01747
0.63500	-0.55584	0.09305
0.69500	-0.52752	0.19929
0.75500	-0.39632	0.29214
0.81500	-0.24718	0.36020
0.87500	-0.10430	0.39477
0.92000	-0.00883	0.39337
0.95000	0.05860	0.37630
0.97750	0.13893	0.34661
1.00000	0.24843	0.32973
1.02500	0.29324	0.29335
1.09000	0.17804	0.17779
1.22500	0.10612	0.10588
1.47500	0.06025	0.06001
1.85000	0.03818	0.03595
2.40000	0.01785	0.01765

Experiment ARA: Table 3.5 and Figure 3.2

Experiment DFVLR-TWB: Figure 3.2

Note: The location of the pressure orifices is given with the surface pressure distributions in Tables 3.4, 3.5 and 3.6 and in Figure 3.1

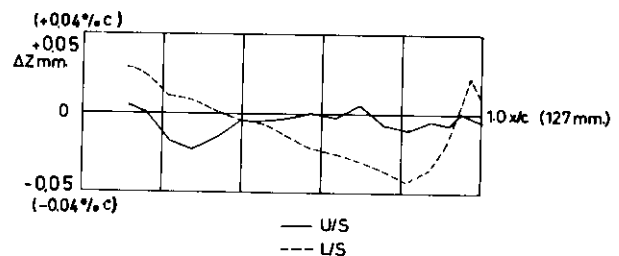
ARA CAST 7 airfoil (Model CP 7)
Measured errors of manufactured airfoil

Table 3.3 Flow conditions included in present data set

1. Pressure distribution and wake rake measurements						
M_∞	α°	$Re \cdot 10^{-6}$	Transition	Wind Tunnel	Model	Run
0.70	-2 to 5	6	.06 BA, 7/7 L	DFVLR - TWB	SP120	2495-2502
0.76	-2 to 3	6				2484-2493
0.4 to 0.8	0.5	6				2511-2524
0.76	0.5, 2.0	4.1 to 13.5	.06 BA, 7/7 L	DFVLR - TWB	SP 120	2504-2510; 2525-2531
0.70	-0.19 to 4.59 ¹⁾	6	.06 BA, 8/8L	ARA 18 in x 8 in	CP 7	58 - 63
0.76	0.26 to 2.68 ¹⁾	6				106 - 112, 154 ²⁾
0.60 to 0.80	≈ 0.74 ¹⁾	6	.06 BA, 8/8L	ARA 18 in x 8 in	CP 7	37, 59, 69, 89, 109 119, 131, 150
2. Boundary layer measurements						
0.765	2.5	2.4	.09 BA, 7.5/7.5L	DFVLR 1x1 Meter	SP 125	157-166, 193-195
0.765	2.5	2.4	.09 BA, 7.5/7.5L	DFVLR 1x1 Meter	SP 125	167-177, 197-199

Transition .06BA, 7/7L means: Roughness band of .06 mm diameter glass spheres in 7 % c on upper and lower surface.

1) Corrected angles of attack

2) Compared to design pressure distribution (Figure 3.2)

Table 3.4 DFVLR-TWB tests. Aerodynamic coefficients, airfoil surface and top and bottom wall pressure distributions

Transition at 7 % c on upper and lower surface.

a. Aerodynamic coefficients

b. Airfoil surface and top and bottom wall pressures

Note: The upper surface and top wall pressures are listed first.

NR.	MACH	E-6*RE	ALPHA	CA	CM	CW
2493	.697	5.88	-2.00	.1083	-.10867	-.009632
2495	.701	6.86	-1.00	.2478	-.11850	-.009341
2496	.703	5.90	.00	.3910	-.11876	-.009554
2497	.701	5.97	1.00	.5422	-.11877	-.010476
2498	.701	5.94	2.00	.7088	-.10979	-.012468
2499	.702	5.96	3.00	.9057	-.11369	-.021677
2500	.699	5.95	4.00	1.0637	-.12300	-.039833
2501	.700	5.91	4.50	1.0297	-.11697	-.060949
2502	.699	5.90	5.00	1.0187	-.11890	
2490	.761	5.98	-2.00	.1067	-.11769	-.010196
2484	.761	5.97	-1.00	.2627	-.11974	-.010101
2485	.759	5.98	.00	.4268	-.12195	-.010441
2486	.761	6.00	.50	.5164	-.12232	-.011146
2491	.760	5.99	.75	.5709	-.12591	-.011030
2487	.760	5.92	1.00	.6297	-.13114	-.013638
2488	.759	6.00	1.50	.7187	-.14159	-.019940
2489	.760	5.94	2.00	.7258	-.13538	-.041963
2492	.761	5.99	3.00	.7384	-.12548	-.061552
2511	.407	5.40	.50	.3818	-.09001	-.009730
2512	.499	5.76	.50	.3997	-.09495	-.008745
2514	.602	5.86	.50	.4272	-.10208	-.008973
2515	.650	5.80	.50	.4448	-.10659	-.009466
2516	.702	5.88	.50	.4674	-.11216	-.010174
2517	.717	5.81	.50	.4801	-.11450	-.009903
2518	.739	5.87	.50	.4965	-.11774	-.010352
2519	.751	5.96	.50	.5126	-.12174	-.011314
2520	.759	5.97	.50	.5228	-.12355	-.010731
2524	.765	5.88	.50	.5270	-.12508	-.011194
2521	.770	5.99	.50	.5470	-.13383	-.012007
2522	.779	5.89	.50	.5340	-.13716	-.016398
2523	.801	5.92	.50	.4506	-.13460	-.022780
2504	.759	4.11	.50	.5160	-.12051	-.012377
2505	.761	5.10	.50	.5228	-.12249	-.011555
2506	.768	5.81	.50	.5863	-.12340	-.010599
2507	.763	7.63	.50	.5327	-.12652	-.010580
2508	.762	10.07	.50	.5426	-.12923	-.009927
2509	.758	11.77	.50	.5408	-.12904	-.010390
2510	.760	13.41	.50	.5413	-.12921	-.010124
2525	.760	4.09	2.00	.7116	-.13192	-.040254
2526	.760	5.03	2.00	.7279	-.13535	-.038594
2527	.760	5.94	2.00	.7387	-.13966	-.038199
2531	.762	7.81	2.00	.7402	-.14236	-.039436
2538	.759	9.96	2.00	.7718	-.14771	-.031793
2529	.758	11.78	2.00	.7736	-.14793	-.032559
2528	.759	13.49	2.00	.7772	-.14957	-.031563

NR.	MACH	E-6*RE	ALPHA
2484	.761	5.97	-1.00
X/L	CP	XW/L	CPW
.000	1.0890	-5.25	-.0079
.004	.8990	-4.50	-.0076
.006	.6525	-3.75	-.0047
.015	.3836	-3.00	-.0012
.025	.1382	-2.25	-.0021
.040	-.1296	-1.50	-.0106
.060	-.2650	-1.25	-.0078
.080	-.5417	-1.00	-.0060
.100	-.5497	-.75	-.0021
.140	-.5488	-.50	-.0054
.180	-.5763	-.25	-.0024
.220	-.5883	.00	-.0056
.260	-.5838	.25	-.0052
.300	-.5722	.50	-.1191
.340	-.5528	.75	-.1087
.380	-.5607	1.00	-.1112
.420	-.5733	1.25	-.0862
.460	-.5840	1.50	-.0700
.500	-.5925	1.75	-.0571
.540	-.6505	2.00	-.0487
.580	-.6895	2.25	-.0404
.620	-.6546	2.50	-.0392
.700	-.5328	2.75	-.0393
.800	-.2892	3.50	-.0299
.900	-.0640	-5.25	-.0030
.950	.0359	-4.50	-.0058
.975	.0740	-3.75	-.0002
1.000	.1059	-3.00	.0034
.000	1.0890	-8.25	.0101
.004	.1818	-1.50	.0189
.008	-.4822	-1.25	.0189
.020	-.4556	-1.00	.0220
.050	-.1968	-.75	.0192
.100	-.3150	-.50	.0189
.150	-.4042	-.25	.0089
.200	-.5113	.00	-.0023
.250	-.6211	.25	-.0117
.350	-.5550	.50	-.0092
.450	-.3376	.75	-.0061
.550	-.1370	1.00	.0033
.650	.0454	1.25	.0158
.750	.1967	1.50	.0096
.850	.2921	1.75	.0065
1.000	.1059	2.00	.0033
		2.25	-.0079
		2.50	-.0076
		2.75	-.0047
		3.50	-.0012

NR.	MACH	E-6*RE	ALPHA
2485	.759	5.98	.00
X/L	CP	XW/L	CPW
.000	1.1379	-5.25	-.0060
.004	.7756	-4.50	-.0052
.006	.5019	-3.75	-.0006
.015	.2197	-3.00	-.0046
.025	-.0229	-2.25	-.0050
.040	-.2627	-1.50	-.0064
.060	-.4000	-1.25	-.0069
.080	-.0358	-1.00	-.0019
.100	-.6331	-.75	-.0063
.140	-.7663	-.50	-.0175
.180	-.6658	-.25	-.0427
.220	-.7871	.00	-.0838
.260	-.0052	.25	-.1378
.300	-.8074	.50	-.1706
.340	-.6161	.75	-.1407
.380	-.6088	1.00	-.1390
.420	-.6430	1.25	-.1125
.460	-.6692	1.50	-.0852
.500	-.6636	1.75	-.0648
.540	-.6931	2.00	-.0539
.580	-.7712	2.25	-.0466
.620	-.7893	2.50	-.0443
.700	-.5325	2.75	-.0438
.800	-.2920	3.50	-.0349
.900	-.0650	-5.25	-.0015
.950	.0324	-4.50	-.0006
.975	.0681	-3.75	.0063
1.000	.0940	-3.00	.0096
.000	1.1379	-2.25	.0162
.004	.1296	-1.50	.0254
.008	-.1208	-1.25	.0283
.020	-.1620	-1.00	.0318
.050	-.0542	-.75	.0318
.100	-.1726	-.50	.0350
.150	-.2725	-.25	.0316
.200	-.3786	.00	.0301
.250	-.4666	.25	.0223
.350	-.4604	.50	.0206
.450	-.2861	.75	.0265
.550	-.1065	1.00	.0314
.650	-.0680	1.25	.0328
.750	.2183	1.50	.0279
.850	.3129	1.75	.0197
1.000	.0940	2.00	.0144
		2.25	-.0080
		2.50	-.0052
		2.75	-.0006
		3.50	.0046

L model chord

XW location of wall orifices(with reference to model leading edge)

CPW wall pressure coefficient

CP airfoil surface pressure coefficients

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2486	.761	6.00	.50	2487	.760	5.92	1.00	2488	.759	6.00	1.50	2489	.760	5.94	2.00
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.1486	-5.25	-.0079	.000	1.1487	-5.25	-.0097	.000	1.1416	-5.25	-.0102	.000	1.1551	-5.25	-.0067
.004	.7052	-4.50	-.0048	.004	.6300	-4.50	-.0050	.004	.5594	-4.50	-.0046	.004	.5241	-4.50	-.0015
.008	.4244	-3.75	-.0008	.008	.3432	-3.75	-.0004	.008	.2679	-3.75	-.0001	.008	.2201	-3.75	-.0001
.015	-.1400	-3.00	.0055	.015	-.0609	-3.00	.0045	.015	-.0224	-3.00	.0061	.015	-.0607	-3.00	.0112
.025	-.0975	-2.25	.0075	.025	-.1792	-2.25	.0108	.025	-.0583	-2.25	.0141	.025	-.2995	-2.25	.0150
.040	-.3547	-1.50	.0110	.040	-.4249	-1.50	.0139	.040	-.4998	-1.50	.0114	.040	-.5332	-1.50	.0156
.060	-.4520	-1.25	.0117	.060	-.5022	-1.25	.0060	.060	-.5605	-1.25	.0082	.060	-.6103	-1.25	.0113
.080	-.8573	-1.00	.0068	.080	-.9080	-1.00	.0023	.080	-.9362	-1.00	.0017	.080	-.9431	-1.00	.0054
.100	-.9001	-.75	-.0082	.100	-.9475	-.75	-.0135	.100	-.9954	-.75	-.0114	.100	-.10175	-.75	-.0127
.140	-.9237	-.50	-.0035	.140	-.10139	-.50	-.0337	.140	-.10733	-.50	-.0332	.140	-.10965	-.50	-.0357
.180	-.8923	-.25	-.0555	.180	-.9809	-.25	-.0711	.180	-.10618	-.25	-.0763	.180	-.10947	-.25	-.0792
.220	-.9075	.00	-.1106	.220	-.9992	.00	-.1384	.220	-.10685	.00	-.1507	.220	-.11113	.00	-.1598
.260	-.8975	.25	-.1788	.260	-.10240	.25	-.2226	.260	-.10945	.25	-.2509	.260	-.11287	.25	-.2634
.300	-.8516	.50	-.2044	.300	-.10160	.50	-.2552	.300	-.10993	.50	-.3042	.300	-.11339	.50	-.3231
.340	-.8994	.75	-.1626	.340	-.10020	.75	-.1912	.340	-.10910	.75	-.2186	.340	-.11325	.75	-.2319
.380	-.9002	1.00	-.1632	.380	-.10130	1.00	-.1932	.380	-.10644	1.00	-.2184	.380	-.11231	1.00	-.2333
.420	-.8986	1.25	-.1269	.420	-.10219	1.25	-.1462	.420	-.10990	1.25	-.1663	.420	-.11436	1.25	-.1727
.460	-.6211	1.50	-.0953	.460	-.10295	1.50	-.1126	.460	-.11248	1.50	-.1201	.460	-.11621	1.50	-.1274
.500	-.5792	1.75	-.0741	.500	-.10106	1.75	-.0850	.500	-.11157	1.75	-.0926	.500	-.11713	1.75	-.0976
.540	-.6467	2.00	-.0611	.540	-.10113	2.00	-.0760	.540	-.11353	2.00	-.0793	.540	-.11676	2.00	-.0778
.580	-.7438	2.25	-.0516	.580	-.10085	2.25	-.0644	.580	-.11534	2.25	-.0679	.580	-.11820	2.25	-.0690
.620	-.7973	2.50	-.0479	.620	-.6019	2.50	-.0556	.620	-.8585	2.50	-.0579	.620	-.5865	2.50	-.0607
.700	-.5327	2.75	-.0477	.700	-.4815	2.75	-.0496	.700	-.4735	2.75	-.0564	.700	-.4674	2.75	-.0605
.800	-.2893	3.50	-.0379	.800	-.2778	3.50	-.0433	.800	-.2707	3.50	-.0486	.800	-.3818	3.50	-.0485
.900	-.0669	-5.25	-.0039	.900	-.0719	-5.25	-.0000	.900	-.0917	-5.25	-.0037	.900	-.1974	-5.25	-.0007
.950	.0253	-4.50	-.0061	.950	.0174	-4.50	-.0003	.950	-.0120	-4.50	-.0029	.950	-.1272	-4.50	-.0013
.975	.0640	-3.75	.0032	.975	.0570	-3.75	.0053	.975	.0159	-3.75	.0060	.975	-.0637	-3.75	.0046
1.000	.0888	-3.00	.0114	1.000	.0777	-3.00	.0126	1.000	.0508	-3.00	.0135	1.000	-.0760	-3.00	.0157
.000	1.1486	-2.25	.0158	.000	1.1487	-2.25	.0217	.000	1.1416	-2.25	.0220	.000	1.1551	-2.25	.0289
.004	.2741	-1.50	.0287	.004	.4061	-1.50	.0346	.004	.5020	-1.50	.0384	.004	.5810	-1.50	.0429
.008	.0274	-1.25	.0355	.008	.1768	-1.25	.0411	.008	.2807	-1.25	.0433	.008	.3623	-1.25	.0474
.020	-.0444	-1.00	.0407	.020	.0751	-1.00	.0474	.020	.1556	-1.00	.0511	.020	.2241	-1.00	.0599
.050	.0183	-.75	.0421	.050	.0907	-.75	.0503	.050	.1435	-.75	.0605	.050	.1912	-.75	.0625
.100	-.1071	-.50	.0465	.100	-.0453	-.50	.0538	.100	-.0804	-.50	.0650	.100	.0389	-.50	.0696
.150	-.2141	-.25	.0440	.150	-.1544	-.25	.0601	.150	-.1130	-.25	.0682	.150	-.0784	-.25	.0739
.200	-.3208	.00	.0430	.200	-.2607	.00	.0597	.200	-.2193	.00	.0701	.200	-.1846	.00	.0736
.250	-.4143	.25	.0393	.250	-.3521	.25	.0513	.250	-.3116	.25	.0658	.250	-.2787	.25	.0689
.350	-.4126	.50	.0400	.350	-.3673	.50	.0525	.350	-.3331	.50	.0622	.350	-.3194	.50	.0626
.450	-.2615	.75	.0408	.450	-.28392	.75	.0520	.450	-.2215	.75	.0599	.450	-.2130	.75	.0626
.550	-.0892	1.00	.0410	.550	-.0723	1.00	.0511	.550	-.0615	1.00	.0584	.550	-.0670	1.00	.0568
.650	.0796	1.25	.0409	.650	.0869	1.25	.0501	.650	-.0954	1.25	.0531	.650	.0531	1.25	.0516
.750	.2307	1.50	.0314	.750	.2352	1.50	.0368	.750	.2370	1.50	.0407	.750	.2282	1.50	.0350
.850	.3186	1.75	.0245	.850	.3238	1.75	.0255	.850	.3254	1.75	.0296	.850	.3048	1.75	.0283
1.000	.0888	2.00	.0158	1.000	.0777	2.00	.0135	1.000	.0508	2.00	.0154	1.000	-.0760	2.00	.0168
		2.25	-.0079			2.25	-.0097			2.25	-.0102			2.25	-.0067
		2.50	-.0048			2.50	-.0050			2.50	-.0046			2.50	-.0015
		2.75	-.0008			2.75	-.0004			2.75	-.0001			2.75	-.0001
		3.50	-.0055			3.50	-.0045			3.50	-.0061			3.50	-.0112

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2493	.697	5.80	-2.00	2490	.761	5.98	-2.00	2491	.760	5.99	.75	2492	.761	5.99	3.00
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	.9682	-5.25	-.0072	.000	1.0231	-5.25	-.0105	.000	1.1552	-5.25	-.0109	.000	1.1449	-5.25	-.0107
.004	.9725	-4.50	-.0072	.004	1.0012	-4.50	-.0077	.004	.6731	-4.50	-.0078	.004	.4119	-4.50	-.0036
.008	.7474	-3.75	-.0072	.008	.7827	-3.75	-.0034	.008	.3846	-3.75	-.0016	.008	.1023	-3.75	.0017
.015	.4930	-3.00	-.0021	.015	.5308	-3.00	.0010	.015	.1006	-3.00	.0016	.015	-.1709	-3.00	.0125
.025	.2541	-2.25	.0006	.025	.2977	-2.25	.0050	.025	-.1359	-2.25	.0002	.025	-.4097	-2.25	.0181
.040	-.0140	-1.50	.0064	.040	.0311	-1.50	.0119	.040	-.3846	-1.50	.0110	.040	-.6304	-1.50	.0224
.060	-.1524	-1.25	.0079	.060	-.1190	-1.25	.0137	.060	-.4687	-1.25	.0056	.060	-.7957	-1.25	.0141
.080	-.3146	-1.00	.0064	.080	-.3223	-1.00	.0141	.080	-.0889	-1.00	.0015	.080	-.9577	-1.00	.0097
.100	-.3593	-.75	.0012	.100	-.3662	-.75	.0109	.100	-.9254	-.75	-.0135	.100	-.10631	-.75	.0107
.140	-.3707	-.50	-.0032	.140	-.3899	-.50	.0056	.140	-.9788	-.50	-.0097	.140	-.11657	-.50	-.0346
.180	-.3919	-.25	-.0148	.180	-.4226	-.25	-.0077	.180	-.9376	-.25	-.0646	.180	-.11679	-.25	-.0804
.220	-.4010	.00	-.0338	.220	-.4445	.00	-.0327	.220	-.9685	.00	-.1271	.220	-.11869	.00	-.1593
.260	-.4027	.25	-.0494	.260	-.4476	.25	-.0567	.260	-.9468	.25	-.1983	.260	-.12095	.25	-.2746
.300	-.4088	.50	-.0614	.300	-.4552	.50	-.0795	.300	-.9653	.50	-.2316	.300	-.12216	.50	-.3468
.340	-.4040	.75	-.0646	.340	-.4529	.75	-.0806	.340	-.9416	.75	-.1773	.340	-.12240	.75	-.2460
.380	-.4123	1.00	-.0629	.380	-.4666	1.00	-.0769	.380	-.9580	1.00	-.1804	.380	-.12250	1.00	-.2463
.420	-.4231	1.25	-.0553	.420	-.4824	1.25	-.0671	.420	-.9563	1.25	-.1366	.420	-.12189	1.25	-.1876
.460	-.4326	1.50	-.0474	.460	-.4991	1.50	-.0513	.460	-.9644	1.50	-.1020	.460	-.10979	1.50	-.1386
.500	-.4528	1.75	-.0402	.500	-.5199	1.75	-.0410	.500	-.9278	1.75	-.0807	.500	-.0832	1.75	-.1073
.540	-.4828	2.00	-.0407	.540	-.5728	2.00	-.0395	.540	-.7612	2.00	-.0716	.540	-.0650	2.00	-.0882
.580	-.4940	2.25	-.0364	.580	-.6053	2.25	-.0358	.580	-.6091	2.25	-.0603	.580	-.5728	2.25	-.0725
.620	-.4891	2.50	-.0320	.620	-.5926	2.50	-.0359	.620	-.6313	2.50	-.0518	.620	-.5379	2.50	-.0675
.700	-.4497	2.75	-.0348	.700	-.5120	2.75	-.0359	.700	-.5496	2.75	-.0513	.700	-.4794	2.75	-.0612
.800	-.2794	3.50	-.0244	.800	-.2837	3.50	-.0354	.800	-.2974	3.50	-.0474	.800	-.3845	3.50	-.0542
.900	-.0721	-5.25	-.0038	.900	-.0609	-5.25	-.0059	.900	-.0712	-5.25	-.0019	.900	-.3266	-5.25	-.0059
.950	.0340	-4.50	-.0055	.950	.0458	-4.50	-.0060	.950	.0235	-4.50	-.0042	.950	-.2857	-4.50	-.0019
.975	.0702	-3.75	-.0024	.975	.0926	-3.75	-.0021	.975	.0605	-3.75	.0033	.975	-.2714	-3.75	.0053
1.000	.1189	-3.00	.0030	1.000	.1269	-3.00	.0043	1.000	.0895	-3.00	.0129	1.000	-.2176	-3.00	.0176
.000	.9682	-2.25	.0066	.000	1.0231	-2.25	.0096	.000	1.1552	-2.25	.0190	.000	1.1449	-2.25	.0298
.004	.5967	-1.50	.0115	.004	.4685	-1.50	.0158	.004</							

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2495	.701	6.06	-1.00	2496	.703	5.98	.00	2497	.701	5.97	1.00	2498	.701	5.94	2.00
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.0689	-5.25	-.0065	.000	1.1251	-5.25	-.0073	.000	1.1343	-5.25	-.0059	.000	1.1169	-5.25	-.0089
.004	.8566	-4.50	-.0036	.004	.7036	-4.50	-.0037	.004	.5109	-4.50	-.0022	.004	.3046	-4.50	-.0056
.008	.5941	-3.75	-.0009	.008	.4117	-3.75	-.0004	.008	.1967	-3.75	-.0008	.008	-.00245	-3.75	-.0020
.015	.3159	-3.00	.0057	.015	.1210	-3.00	.0039	.015	-.0977	-3.00	.0038	.015	-.3168	-3.00	.0046
.025	.0722	-2.25	.0068	.025	-.1279	-2.25	.0049	.025	-.3483	-2.25	.0070	.025	-.5620	-2.25	.0064
.040	-.1910	-1.50	.0064	.040	-.3874	-1.50	.0036	.040	-.5981	-1.50	.0045	.040	-.7902	-1.50	.0027
.060	-.3217	-1.25	.0045	.060	-.5109	-1.25	.0018	.060	-.6716	-1.25	-.0002	.060	-.8428	-1.25	-.0019
.080	-.5244	-1.00	.0061	.080	-.8129	-1.00	-.0007	.080	-1.1153	-1.00	-.0075	.080	-1.1977	-1.00	-.0126
.100	-.5407	-.75	-.0035	.100	-.7515	-.75	-.0123	.100	-1.1438	-.75	-.0178	.100	-1.2833	-.75	-.0273
.140	-.5233	-.50	-.0108	.140	-.6902	-.50	-.0218	.140	-.9994	-.50	-.0351	.140	-1.3540	-.50	-.0541
.180	-.5235	-.25	-.0234	.180	-.6677	-.25	-.0435	.180	-.7980	-.25	-.0676	.180	-1.3168	-.25	-.1001
.220	-.5189	.00	.0073	.220	-.6441	.00	-.0736	.220	-.7883	.00	-.1101	.220	-1.2779	.00	-.1534
.260	-.5110	.25	.0718	.260	-.6187	.25	-.1095	.260	-.7362	.25	-.1493	.260	-1.2778	.25	-.2069
.300	-.5091	.50	.0895	.300	-.6025	.50	-.1255	.300	-.7058	.50	-.1717	.300	-.7169	.50	-.2212
.340	-.4946	.75	.0841	.340	-.5808	.75	-.1151	.340	-.6685	.75	-.1428	.340	-.6552	.75	-.1769
.380	-.4974	1.00	.0865	.380	-.5715	1.00	-.1140	.380	-.6541	1.00	-.1425	.380	-.6643	1.00	-.1797
.420	-.5020	1.25	.0736	.420	-.5646	1.25	-.0978	.420	-.6419	1.25	-.1172	.420	-.6790	1.25	-.1464
.460	-.4993	1.50	.0617	.460	-.5683	1.50	-.0747	.460	-.6421	1.50	-.0959	.460	-.6804	1.50	-.1088
.500	-.5097	1.75	.0488	.500	-.5776	1.75	-.0625	.500	-.6408	1.75	-.0726	.500	-.6874	1.75	-.0903
.540	-.5423	2.00	.0477	.540	-.6043	2.00	-.0552	.540	-.6668	2.00	-.0634	.540	-.7071	2.00	-.0736
.580	-.5512	2.25	-.0368	.580	-.6041	2.25	-.0463	.580	-.6534	2.25	-.0540	.580	-.6989	2.25	-.0660
.620	-.5405	2.50	.0367	.620	-.5856	2.50	-.0433	.620	-.6273	2.50	-.0535	.620	-.6669	2.50	-.0509
.700	-.4829	2.75	.0347	.700	-.5069	2.75	-.0406	.700	-.5330	2.75	-.0467	.700	-.5583	2.75	-.0533
.800	-.2916	3.50	.0271	.800	-.3022	3.50	-.0347	.800	-.3116	3.50	-.0381	.800	-.3253	3.50	-.0402
.900	-.0755	-5.25	.0012	.900	-.0819	-5.25	-.0014	.900	-.0855	-5.25	.0014	.900	-.0888	-5.25	-.0003
.950	.0341	-4.50	.0020	.950	-.0262	-4.50	-.0020	.950	-.0207	-4.50	-.0019	.950	-.0178	-4.50	-.0013
.975	.0752	-3.75	.0014	.975	.0667	-3.75	.0046	.975	-.0639	-3.75	.0041	.975	.0582	-3.75	.0063
1.000	.1126	-3.00	.0073	1.000	.0995	-3.00	.0075	1.000	-.0926	-3.00	.0084	1.000	.0890	-3.00	.0126
.000	1.0689	-2.25	.0111	.000	1.1251	-2.25	.0138	.000	1.1343	-2.25	.0215	.000	1.1169	-2.25	.0213
.004	.8566	-1.50	.0169	.004	.7036	-1.50	.0112	.004	.5109	-1.50	.0291	.004	.3046	-1.50	.0346
.008	.5941	-1.25	.0185	.008	.4117	-1.25	.0112	.008	.1967	-1.25	.0344	.008	.0905	-1.25	.0435
.015	.3159	-1.00	.0200	.015	.1210	-1.00	.0255	.015	-.0977	-1.00	.0346	.015	.3204	-1.00	.0517
.025	.0722	-.75	.0167	.025	-.1279	-.75	.0275	.025	-.3483	-.75	.0407	.025	.2469	-.75	.0607
.040	-.1910	-.50	.0157	.040	-.3874	-.50	.0231	.040	-.5981	-.50	.0492	.040	.0962	-.50	.0655
.060	-.3217	-.25	.0115	.060	-.5109	-.25	.0312	.060	-.6716	-.25	.0503	.060	-.1214	-.25	.0726
.080	-.5244	.00	.0074	.080	-.8129	.00	.0317	.080	-.1153	.00	.0514	.080	-.1162	.00	.0792
.100	-.5407	.25	.0081	.100	-.7515	.25	.0244	.100	-.1438	.25	.0525	.100	-.1962	.25	.0781
.140	-.5233	.50	.0021	.140	-.6902	.50	.0301	.140	-.9994	.50	.0493	.140	-.2292	.50	.0751
.180	-.5235	.75	.0054	.180	-.6677	.75	.0281	.180	-.7980	.75	.0515	.180	-.1493	.75	.0745
.220	-.5189	1.00	.0081	.220	-.6441	1.00	.0318	.220	-.7883	1.00	.0513	.220	-.0330	1.00	.0678
.260	-.5110	1.25	.0173	.260	-.6187	1.25	.0329	.260	-.7362	1.25	.0480	.260	.1050	1.25	.0605
.300	-.5091	1.50	.0118	.300	-.6025	1.50	.0326	.300	-.7058	1.50	.0347	.300	.2452	1.50	.0482
.340	-.4946	1.75	.0089	.340	-.5808	1.75	.0319	.340	-.6685	1.75	.0267	.340	.3276	1.75	.0361
.380	-.4974	2.00	.0055	.380	-.5715	2.00	.0319	.380	-.6541	2.00	.0214	.380	.0890	2.00	.0281
.420	-.5020	2.25	-.0065	.420	-.5646	2.25	-.0373	.420	-.6419	2.25	-.0259	.420	-.6790	2.25	-.0089
.460	-.4993	2.50	-.0036	.460	-.5683	2.50	-.0337	.460	-.6421	2.50	-.0222	.460	-.6804	2.50	-.0056
.500	-.5097	2.75	-.0009	.500	-.5776	2.75	-.0304	.500	-.6408	2.75	-.0188	.500	-.6874	2.75	-.0020
.540	-.5423	3.50	.0057	.540	-.6043	3.50	.0339	.540	-.6668	3.50	.0338	.540	-.7071	3.50	.0046
.580	-.5512	2.25	-.0368	.580	-.6041	2.25	-.0463	.580	-.6534	2.25	-.0540	.580	-.6989	2.25	-.0660
.620	-.5405	2.50	.0367	.620	-.5856	2.50	-.0433	.620	-.6273	2.50	-.0535	.620	-.6669	2.50	-.0509
.700	-.4829	2.75	.0347	.700	-.5069	2.75	-.0406	.700	-.5330	2.75	-.0467	.700	-.5583	2.75	-.0533
.800	-.2916	3.50	.0271	.800	-.3022	3.50	-.0347	.800	-.3116	3.50	-.0381	.800	-.3253	3.50	-.0402
.900	-.0755	-5.25	.0012	.900	-.0819	-5.25	-.0014	.900	-.0855	-5.25	.0014	.900	-.0888	-5.25	-.0003
.950	.0341	-4.50	.0020	.950	-.0262	-4.50	-.0020	.950	-.0207	-4.50	-.0019	.950	-.0178	-4.50	-.0013
.975	.0752	-3.75	.0014	.975	.0667	-3.75	.0046	.975	-.0639	-3.75	.0041	.975	.0582	-3.75	.0063
1.000	.1126	-3.00	.0073	1.000	.0995	-3.00	.0075	1.000	-.0926	-3.00	.0084	1.000	.0890	-3.00	.0126
.000	1.0689	-2.25	.0111	.000	1.1251	-2.25	.0138	.000	1.1343	-2.25	.0215	.000	1.1169	-2.25	.0213
.004	.8566	-1.50	.0169	.004	.7036	-1.50	.0112	.004	.5109	-1.50	.0291	.004	.3046	-1.50	.0346
.008	.5941	-1.25	.0185	.008	.4117	-1.25	.0112	.008	.1967	-1.25	.0344	.008	.0905	-1.25	.0435
.015	.3159	-1.00	.0200	.015	.1210	-1.00	.0255	.015	-.0977	-1.00	.0346	.015	.3204	-1.00	.0517
.025	.0722	-.75	.0167	.025	-.1279	-.75	.0275	.025	-.3483	-.75	.0407	.025	.2469	-.75	.0607
.040	-.1910	-.50	.0157	.040	-.3874	-.50	.0231	.040	-.5981	-.50	.0492	.040	.0962	-.50	.0655
.060	-.3217	-.25	.0115	.060	-.5109	-.25	.0312	.060	-.6716	-.25	.0503	.060	-.1214	-.25	.0726
.080	-.5244	.00	.0074	.080	-.8129	.00	.0317	.080	-.1153	.00	.0514	.080	-.1162	.00	.0792
.100	-.5407	.25	.0081	.100	-.7515	.25	.0244	.100	-.1438	.25	.0525	.100	-.1962	.25	.0781
.140	-.5233	.50	.0021	.140	-.6902	.50	.0301	.140	-.9994	.50	.0493	.140	-.2292	.50	.0751
.180	-.5235	.75	.0054	.180	-.6677	.75	.0281	.180	-.7980	.75	.0515	.180	-.1493	.75	.0745
.220	-.5189	1.00	.0081	.220	-.6441	1.00	.0318	.220	-.7883	1.00	.0513	.220	-.0330	1.00	.0678
.260	-.5110	1.25	.0173	.260	-.6187	1.25	.0329	.260	-.7362	1.25	.0480	.260	.1050	1.25	.0605
.300	-.5091	1.50	.0118	.300	-.6025	1.50	.0326	.300	-.7058	1.50	.0347	.300	.2452	1.50	.0482
.340	-.4946	1.75	.0089	.340	-.5808	1.75	.0319	.340	-.6685	1.75	.0267	.340	.3276	1.75	.0361
.380	-.4974	2.00	.0055	.380	-.5715	2.00	.0319	.380	-.6541	2.00	.0214	.380	.0890	2.00	.0281
.420	-.5020	2.25	-.0065	.420	-.5646	2.25	-.0373	.420	-.6419	2.25	-.0259	.420	-.6790	2.25	-.0089
.460	-.4993	2.50	-.0036	.460	-.5683	2.50	-.0337	.460	-.6421	2.50	-.0222	.460	-.6804	2.50	-.0056
.500	-.5097	2.75	-.0009	.500	-.5776	2.75	-.0304	.500	-.6408	2.75	-.0188	.500	-.6874	2.75	-.0020
.540	-.5423	3.50	.0057	.540	-.6043	3.50	.0339	.540	-.6668	3.50	.0338	.540	-.7071	3.50	.0046
.580	-.5512	2.25	-.0368	.580	-.6041	2.25	-.0463	.580	-.6534	2.25	-.0540	.580	-.6989	2.25	-.0660
.620	-.5405	2.50	.0367	.620	-.5856	2.50	-.0433	.620	-.6273	2.50	-.0535	.620	-.6669	2.50	-.0509
.700	-.4829	2.75	.0347	.700	-.5069	2.75	-.0406	.700	-.5330	2.75	-.0467	.700	-.5583	2.75	-.0533
.800	-.2916	3.50	.0271	.800	-.3022	3.50	-.0347	.800							

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2504	.759	4.11	.50	2505	.761	5.10	.50	2506	.760	5.81	.50	2507	.763	7.83	.50
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.1454	-5.25	-.0095	.000	1.1460	-5.25	-.0084	.000	1.1518	-5.25	-.0082	.000	1.1498	-5.25	-.0078
.004	.6958	-4.50	-.0059	.004	.7001	-4.50	-.0073	.004	.7077	-4.50	-.0050	.004	.7117	-4.50	-.0055
.008	.4124	-3.75	-.0011	.008	.4160	-3.75	-.0016	.008	.4220	-3.75	-.0013	.008	.4280	-3.75	-.0003
.015	.1278	-3.00	-.0030	.015	.1356	-3.00	-.0027	.015	.1368	-3.00	-.0055	.015	.1491	-3.00	-.0038
.025	-.1066	-2.25	-.0074	.025	-.1074	-2.25	-.0084	.025	-.1021	-2.25	-.0188	.025	-.0877	-2.25	-.0186
.040	-.3799	-1.50	-.0118	.040	-.3642	-1.50	-.0099	.040	-.3552	-1.50	-.0189	.040	-.3448	-1.50	-.0093
.060	-.4911	-1.25	-.0077	.060	-.4714	-1.25	-.0060	.060	-.4605	-1.25	-.0093	.060	-.4168	-1.25	-.0069
.080	-.6429	-1.00	-.0038	.080	-.6531	-1.00	-.0021	.080	-.6586	-1.00	-.0039	.080	-.6824	-1.00	-.0033
.100	-.8979	-.75	-.0184	.100	-.8972	-.75	-.0087	.100	-.9013	-.75	-.0112	.100	-.8936	-.75	-.0077
.140	-.9084	-.50	-.0236	.140	-.9196	-.50	-.0299	.140	-.9200	-.50	-.0252	.140	-.9260	-.50	-.0227
.180	-.9040	-.25	-.0587	.180	-.8908	-.25	-.0685	.180	-.8913	-.25	-.0548	.180	-.8883	-.25	-.0588
.220	-.9217	.00	-.1139	.220	-.9121	.00	-.1138	.220	-.9101	.00	-.1146	.220	-.9128	.00	-.1154
.260	-.9027	.25	-.1741	.260	-.9024	.25	-.1770	.260	-.9010	.25	-.1757	.260	-.9003	.25	-.1814
.300	-.8734	.50	-.2042	.300	-.8627	.50	-.2112	.300	-.8698	.50	-.2092	.300	-.8697	.50	-.2116
.340	-.9126	.75	-.1653	.340	-.9044	.75	-.1678	.340	-.9002	.75	-.1662	.340	-.8910	.75	-.1699
.380	-.9268	1.00	-.1658	.380	-.9189	1.00	-.1660	.380	-.9093	1.00	-.1687	.380	-.9141	1.00	-.1699
.420	-.9243	1.25	-.1300	.420	-.9130	1.25	-.1283	.420	-.9048	1.25	-.1303	.420	-.9122	1.25	-.1333
.460	-.8393	1.50	-.0949	.460	-.8467	1.50	-.0978	.460	-.8365	1.50	-.0959	.460	-.8881	1.50	-.0995
.500	-.6186	1.75	-.0768	.500	-.6112	1.75	-.0770	.500	-.5852	1.75	-.0745	.500	-.6749	1.75	-.0763
.540	-.6883	2.00	-.0682	.540	-.6130	2.00	-.0651	.540	-.6830	2.00	-.0618	.540	-.6479	2.00	-.0669
.580	-.7230	2.25	-.0561	.580	-.7186	2.25	-.0544	.580	-.7322	2.25	-.0524	.580	-.6766	2.25	-.0512
.620	-.7547	2.50	-.0546	.620	-.7614	2.50	-.0494	.620	-.8052	2.50	-.0514	.620	-.7431	2.50	-.0503
.700	-.5357	2.75	-.0503	.700	-.5366	2.75	-.0455	.700	-.5396	2.75	-.0442	.700	-.5589	2.75	-.0462
.800	-.2904	3.50	-.0414	.800	-.2932	3.50	-.0407	.800	-.2910	3.50	-.0394	.800	-.2985	3.50	-.0394
.900	-.0685	-5.25	-.0044	.900	-.0686	-5.25	-.0025	.900	-.0685	-5.25	-.0032	.900	-.0689	-5.25	-.0032
.950	.0160	-4.50	-.0026	.950	.0224	-4.50	-.0021	.950	.0253	-4.50	-.0048	.950	.0333	-4.50	-.0053
.975	.0478	-3.75	-.0058	.975	.0553	-3.75	-.0068	.975	.0615	-3.75	-.0031	.975	.0716	-3.75	-.0019
1.000	.0703	-3.00	-.0076	1.000	.0821	-3.00	-.0111	1.000	.0902	-3.00	-.0095	1.000	.1026	-3.00	-.0084
.000	1.1454	-2.25	-.0160	.000	1.1460	-2.25	-.0201	.000	1.1518	-2.25	-.0158	.000	1.1498	-2.25	-.0180
.004	.2679	-1.50	-.0293	.004	.2799	-1.50	-.0301	.004	.2824	-1.50	-.0254	.004	.2892	-1.50	-.0281
.008	.0347	-1.25	-.0300	.008	.0385	-1.25	-.0344	.008	.0387	-1.25	-.0333	.008	.0266	-1.25	-.0310
.015	-.0459	-1.00	-.0368	.015	-.0363	-1.00	-.0396	.015	-.0325	-1.00	-.0378	.015	-.0374	-1.00	-.0382
.050	.0038	-.75	-.0415	.050	.0151	-.75	-.0413	.050	.0245	-.75	-.0308	.050	.0246	-.75	-.0398
.100	-.1152	-.50	-.0461	.100	-.1091	-.50	-.0441	.100	-.1052	-.50	-.0439	.100	-.1073	-.50	-.0449
.150	-.2251	-.25	-.0440	.150	-.2163	-.25	-.0432	.150	-.2109	-.25	-.0441	.150	-.2131	-.25	-.0440
.200	-.3313	.00	-.0416	.200	-.3212	.00	-.0441	.200	-.3148	.00	-.0383	.200	-.3157	.00	-.0428
.250	-.4268	.25	-.0337	.250	-.4143	.25	-.0405	.250	-.4075	.25	-.0380	.250	-.4111	.25	-.0372
.350	-.4290	.50	-.0337	.350	-.4189	.50	-.0371	.350	-.4100	.50	-.0379	.350	-.4111	.50	-.0369
.450	-.2761	.75	-.0372	.450	-.2644	.75	-.0412	.450	-.2613	.75	-.0393	.450	-.2688	.75	-.0397
.550	-.0897	1.00	-.0330	.550	-.0896	1.00	-.0405	.550	-.0878	1.00	-.0384	.550	-.0932	1.00	-.0403
.650	.0727	1.25	-.0372	.650	.0771	1.25	-.0427	.650	.0772	1.25	-.0398	.650	.0768	1.25	-.0375
.750	.2163	1.50	-.0387	.750	.2246	1.50	-.0332	.750	.2293	1.50	-.0323	.750	.2330	1.50	-.0313
.850	.3031	1.75	-.0195	.850	.3112	1.75	-.0255	.850	.3175	1.75	-.0244	.850	.3249	1.75	-.0221
1.000	.0703	2.00	-.0106	1.000	.0821	2.00	-.0155	1.000	.0902	2.00	-.0158	1.000	.1026	2.00	-.0141
		2.25	-.0095			2.25	-.0084			2.25	-.0082			2.25	-.0078
		2.50	-.0059			2.50	-.0073			2.50	-.0050			2.50	-.0055
		2.75	-.0011			2.75	-.0016			2.75	-.0013			2.75	-.0003
		3.50	-.0030			3.50	-.0027			3.50	-.0055			3.50	-.0038

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2508	.762	10.07	.50	2509	.758	11.77	.50	2510	.760	13.41	.50	2511	.407	5.48	.50
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.1543	-5.25	-.0086	.000	1.1547	-5.25	-.0104	.000	1.1569	-5.25	-.0118	.000	1.0354	-5.25	-.0138
.004	.7110	-4.50	-.0059	.004	.7139	-4.50	-.0081	.004	.7113	-4.50	-.0064	.004	.3556	-4.50	-.0160
.008	.4294	-3.75	-.0019	.008	.4324	-3.75	-.0055	.008	.4252	-3.75	-.0019	.008	.0385	-3.75	-.0127
.015	-.1445	-3.00	-.0050	.015	-.1439	-3.00	-.0045	.015	-.1458	-3.00	-.0050	.015	-.2307	-3.00	-.0041
.025	-.0919	-2.25	-.0104	.025	-.0840	-2.25	-.0060	.025	-.0828	-2.25	-.0080	.025	-.4227	-2.25	-.0013
.040	-.3452	-1.50	-.0088	.040	-.3459	-1.50	-.0079	.040	-.3471	-1.50	-.0110	.040	-.5772	-1.50	-.0076
.060	-.4165	-1.25	-.0090	.060	-.4546	-1.25	-.0059	.060	-.4624	-1.25	-.0085	.060	-.6214	-1.25	-.0162
.080	-.6083	-1.00	-.0063	.080	-.6477	-1.00	-.0081	.080	-.6324	-1.00	-.0018	.080	-.6737	-1.00	-.0190
.100	-.9037	-.75	-.0075	.100	-.9233	-.75	-.0100	.100	-.9158	-.75	-.0063	.100	-.6578	-.75	-.0316
.140	-.9282	-.50	-.0236	.140	-.9069	-.50	-.0277	.140	-.9124	-.50	-.0256	.140	-.5898	-.50	-.0381
.180	-.8819	-.25	-.0549	.180	-.8938	-.25	-.0590	.180	-.8990	-.25	-.0556	.180	-.5545	-.25	-.0516
.220	-.9148	.00	-.1127	.220	-.9161	.00	-.1136	.220	-.9187	.00	-.1136	.220	-.5188	.00	-.0658
.260	-.9077	.25	-.1805	.260	-.9061	.25	-.1826	.260	-.9063	.25	-.1863	.260	-.5012	.25	-.0827
.300	-.8773	.50	-.2186	.300	-.8559	.50	-.2147	.300	-.8652	.50	-.2156	.300	-.4814	.50	-.0840
.340	-.8890	.75	-.1709	.340	-.9028	.75	-.1678	.340	-.8963	.75	-.1682	.340	-.4638	.75	-.0840
.380	-.9119	1.00	-.1718	.380	-.9113	1.00	-.1659	.380	-.9110	1.00	-.1709	.380	-.4625	1.00	-.0855
.420	-.9068	1.25	-.1307	.420	-.9022	1.25	-.1356	.420	-.9020	1.25	-.1306	.420	-.4568	1.25	-.0791
.460	-.8866	1.50	-.0979	.460	-.8847	1.50	-.0998	.460	-.8773	1.50	-.0959	.460	-.4440	1.50	-.0636
.500	-.8483	1.75	-.0741	.500	-.8532	1.75	-.0771	.500	-.8574	1.75	-.0749	.500	-.4537	1.75	-.0623
.540	-.6297	2.00	-.0609	.540	-.6571	2.00	-.0668	.540	-.6860	2.00	-.0623	.540	-.4783	2.00	-.0610
.580	-.6822	2.25	-.0523	.580	-.7664	2.25	-.0502	.580	-.7464	2.25	-.0548	.580	-.4786	2.25	-.0515
.620	-.7584	2.50	-.0486	.620	-.8049	2.50	-.0485	.620	-.8096	2.50	-.0472	.620	-.4516	2.50	-.0374
.700	-.5572	2.75	-.0447	.700	-.5458	2.75	-.0442	.700	-.5494	2.75	-.0456	.700	-.4083	2.75	-.0398
.800	-.3084	3.50	-.0413	.800	-.3058	3.50	-.0396	.800	-.3044	3.50	-.0394	.800	-.2574	3.50	-.0306
.900	-.0674	-5.25	-.0064	.900	-.0686	-5.25	-.0055	.900	-.0678	-5.25	-.0036	.900	-.0807	-5.25	-.0042
.950	.0374	-4.50	-.0060	.950	.0404	-4.50	-.0071	.950	.0410	-4.50	-.0049	.950	.0619	-4.50	-.0053
.975	.0800	-3.75	-.0024	.975	.0831	-3.75	-.0017	.975	.0841	-3.75	-.0029	.975	.0628	-3.75	-.0019
1.000	.1113	-3.00	-.0094	1.000	.1151	-3.00	-.0087	1.000	.1188	-3.00	-.0097	1.000	.0992	-3.00	-.0060
.000	1.1543	-2.25	-.0183	.000	1.1547	-2.25	-.0158	.000	1.1569	-2.25	-.0160	.000	1.0354	-2.25	-.0077
.004															

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2512	.499	5.76	.50	2514	.602	5.86	.50	2515	.658	5.88	.50	2516	.702	5.88	.50
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.0631	-5.25	-.0186	.000	1.0882	-5.25	-.0058	.000	1.1056	-5.25	-.0075	.000	1.1260	-5.25	-.0089
.004	.4047	-4.50	-.0093	.004	.4805	-4.50	-.0024	.004	.5319	-4.50	-.0060	.004	.6074	-4.50	-.0039
.008	.0889	-3.75	-.0053	.008	.1615	-3.75	-.0028	.008	.2136	-3.75	-.0028	.008	.2984	-3.75	-.0035
.015	-.1958	-3.00	-.0008	.015	-.1301	-3.00	-.0001	.015	-.0837	-3.00	-.0007	.015	.0019	-3.00	-.0005
.025	-.4112	-2.25	-.0048	.025	-.3766	-2.25	-.0001	.025	-.3334	-2.25	-.0003	.025	-.2499	-2.25	-.0002
.040	-.5878	-1.50	-.0062	.040	-.5927	-1.50	-.0001	.040	-.5743	-1.50	-.0018	.040	-.5101	-1.50	-.0001
.060	-.6494	-1.25	-.0151	.060	-.6840	-1.25	-.0028	.060	-.6938	-1.25	-.0064	.060	-.6554	-1.25	-.0024
.080	-.7145	-1.00	-.0152	.080	-.7742	-1.00	-.0096	.080	-.8393	-1.00	-.0071	.080	-.8154	-1.00	-.0069
.100	-.6951	-.75	-.0265	.100	-.7630	-.75	-.0195	.100	-.8133	-.75	-.0200	.100	-.8174	-.75	-.0142
.140	-.6306	-.50	-.0391	.140	-.6905	-.50	-.0323	.140	-.7278	-.50	-.0333	.140	-.7903	-.50	-.0294
.180	-.5881	-.25	-.0502	.180	-.6461	-.25	-.0488	.180	-.6914	-.25	-.0526	.180	-.7567	-.25	-.0563
.220	-.5601	.00	-.0709	.220	-.6152	.00	-.0784	.220	-.6608	.00	-.0873	.220	-.7292	.00	-.0929
.260	-.5324	.25	-.0866	.260	-.5877	.25	-.0982	.260	-.6342	.25	-.1147	.260	-.6900	.25	-.1361
.300	-.5157	.50	-.0954	.300	-.5687	.50	-.1111	.300	-.6109	.50	-.1286	.300	-.6634	.50	-.1536
.340	-.4936	.75	-.0946	.340	-.5441	.75	-.1044	.340	-.5888	.75	-.1171	.340	-.6284	.75	-.1266
.380	-.4869	1.00	-.0906	.380	-.5350	1.00	-.1006	.380	-.5733	1.00	-.1169	.380	-.6214	1.00	-.1314
.420	-.4808	1.25	-.0840	.420	-.5342	1.25	-.0992	.420	-.5667	1.25	-.1080	.420	-.6138	1.25	-.1097
.460	-.4735	1.50	-.0729	.460	-.5263	1.50	-.0742	.460	-.5637	1.50	-.0795	.460	-.6119	1.50	-.0858
.500	-.4810	1.75	-.0626	.500	-.5261	1.75	-.0629	.500	-.5617	1.75	-.0711	.500	-.6123	1.75	-.0667
.540	-.4983	2.00	-.0544	.540	-.5428	2.00	-.0565	.540	-.5800	2.00	-.0625	.540	-.6361	2.00	-.0614
.580	-.4977	2.25	-.0457	.580	-.5406	2.25	-.0516	.580	-.5789	2.25	-.0532	.580	-.6367	2.25	-.0530
.620	-.4798	2.50	-.0485	.620	-.5205	2.50	-.0468	.620	-.5571	2.50	-.0498	.620	-.6121	2.50	-.0463
.700	-.4347	2.75	-.0409	.700	-.4690	2.75	-.0385	.700	-.4966	2.75	-.0432	.700	-.5269	2.75	-.0438
.800	-.2764	3.50	-.0264	.800	-.3818	3.50	-.0298	.800	-.3871	3.50	-.0350	.800	-.3115	3.50	-.0378
.900	-.0900	-5.25	-.0045	.900	-.0907	-5.25	-.0046	.900	-.0898	-5.25	-.0044	.900	-.0829	-5.25	-.0020
.950	.0126	-4.50	-.0045	.950	.0197	-4.50	-.0006	.950	.0186	-4.50	-.0019	.950	.0238	-4.50	-.0023
.975	.0565	-3.75	-.0062	.975	.0629	-3.75	-.0066	.975	.0629	-3.75	-.0075	.975	.0646	-3.75	-.0021
1.000	.0965	-3.00	-.0040	1.000	.1034	-3.00	-.0112	1.000	.0994	-3.00	-.0084	1.000	.0970	-3.00	-.0038
.000	1.0631	-2.25	-.0063	.000	1.0882	-2.25	-.0167	.000	1.1056	-2.25	-.0150	.000	1.1260	-2.25	-.0137
.004	.3448	-1.50	-.0176	.004	.3457	-1.50	-.0237	.004	.3366	-1.50	-.0224	.004	.3166	-1.50	-.0240
.008	.1269	-1.25	-.0171	.008	.1167	-1.25	-.0277	.008	.1041	-1.25	-.0257	.008	.0862	-1.25	-.0279
.020	.0372	-1.00	-.0284	.020	.0236	-1.00	-.0319	.020	.0147	-1.00	-.0318	.020	-.0020	-1.00	-.0311
.050	.0465	-.75	-.0280	.050	.0394	-.75	-.0324	.050	.0348	-.75	-.0318	.050	.0280	-.75	-.0361
.100	-.0528	-.50	-.0280	.100	-.0669	-.50	-.0373	.100	-.0758	-.50	-.0382	.100	-.0880	-.50	-.0398
.150	-.1370	-.25	-.0332	.150	-.1535	-.25	-.0409	.150	-.1670	-.25	-.0414	.150	-.1815	-.25	-.0415
.200	-.2060	.00	-.0341	.200	-.2336	.00	-.0416	.200	-.2502	.00	-.0398	.200	-.2741	.00	-.0430
.250	-.2587	.25	-.0350	.250	-.2872	.25	-.0441	.250	-.3161	.25	-.0418	.250	-.3445	.25	-.0378
.350	-.0618	.50	-.0388	.350	-.2871	.50	-.0463	.350	-.3172	.50	-.0395	.350	-.3484	.50	-.0386
.450	-.1806	.75	-.0352	.450	-.2052	.75	-.0418	.450	-.2166	.75	-.0415	.450	-.2334	.75	-.0412
.550	-.0762	1.00	-.0395	.550	-.0781	1.00	-.0445	.550	-.0821	1.00	-.0411	.550	-.0834	1.00	-.0397
.650	.0574	1.25	-.0338	.650	.0669	1.25	-.0437	.650	.0711	1.25	-.0402	.650	.0707	1.25	-.0385
.750	.2002	1.50	-.0289	.750	.2099	1.50	-.0337	.750	.2154	1.50	-.0348	.750	.2204	1.50	-.0321
.850	.2868	1.75	-.0208	.850	.2962	1.75	-.0269	.850	.3027	1.75	-.0237	.850	.3124	1.75	-.0274
1.000	.0965	2.00	-.0158	1.000	.1034	2.00	-.0177	1.000	.0994	2.00	-.0177	1.000	.0970	2.00	-.0176
		2.25	-.0106			2.25	-.0058			2.25	-.0075			2.25	-.0089
		2.50	-.0093			2.50	-.0024			2.50	-.0060			2.50	-.0039
		2.75	-.0053			2.75	-.0028			2.75	-.0028			2.75	-.0035
		3.50	-.0008			3.50	-.0001			3.50	-.0007			3.50	-.0005
NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2517	.717	5.81	.50	2518	.739	5.87	.50	2519	.751	5.96	.50	2520	.759	5.97	.50
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.1355	-5.25	-.0052	.000	1.1398	-5.25	-.0096	.000	1.1453	-5.25	-.0094	.000	1.1476	-5.25	-.0084
.004	.6263	-4.50	-.0020	.004	.6587	-4.50	-.0049	.004	.6931	-4.50	-.0063	.004	.6958	-4.50	-.0052
.008	.3268	-3.75	-.0010	.008	.3681	-3.75	-.0003	.008	.3919	-3.75	-.0026	.008	.4149	-3.75	-.0003
.015	.0297	-3.00	-.0030	.015	.0782	-3.00	-.0040	.015	.1111	-3.00	-.0051	.015	.1319	-3.00	-.0055
.025	-.2151	-2.25	-.0057	.025	-.1704	-2.25	-.0070	.025	-.1378	-2.25	-.0074	.025	-.1116	-2.25	-.0107
.040	-.4782	-1.50	-.0077	.040	-.4244	-1.50	-.0070	.040	-.3905	-1.50	-.0082	.040	-.3656	-1.50	-.0112
.060	-.6255	-1.25	-.0011	.060	-.5678	-1.25	-.0056	.060	-.5370	-1.25	-.0060	.060	-.5148	-1.25	-.0110
.080	-.9694	-1.00	-.0003	.080	-.8896	-1.00	-.0016	.080	-.8466	-1.00	-.0026	.080	-.8160	-1.00	-.0040
.100	-.8128	-.75	-.0144	.100	-.9703	-.75	-.0132	.100	-.9285	-.75	-.0097	.100	-.9007	-.75	-.0073
.140	-.7779	-.50	-.0276	.140	-.9287	-.50	-.0272	.140	-.9139	-.50	-.0240	.140	-.8958	-.50	-.0258
.180	-.7876	-.25	-.0560	.180	-.9005	-.25	-.0577	.180	-.9032	-.25	-.0578	.180	-.8929	-.25	-.0582
.220	-.7697	.00	-.0973	.220	-.8575	.00	-.1027	.220	-.9096	.00	-.1084	.220	-.9124	.00	-.1092
.260	-.7160	.25	-.1354	.260	-.7998	.25	-.1535	.260	-.8672	.25	-.1619	.260	-.8951	.25	-.1733
.300	-.6855	.50	-.1602	.300	-.6767	.50	-.1773	.300	-.8811	.50	-.1851	.300	-.8845	.50	-.2066
.340	-.6477	.75	-.1365	.340	-.6601	.75	-.1478	.340	-.8641	.75	-.1546	.340	-.9081	.75	-.1620
.380	-.6411	1.00	-.1376	.380	-.6673	1.00	-.1472	.380	-.8648	1.00	-.1544	.380	-.9062	1.00	-.1631
.420	-.6394	1.25	-.1107	.420	-.6739	1.25	-.1182	.420	-.8681	1.25	-.1200	.420	-.8963	1.25	-.1264
.460	-.6399	1.50	-.0865	.460	-.6736	1.50	-.0870	.460	-.8674	1.50	-.0928	.460	-.8831	1.50	-.0977
.500	-.6382	1.75	-.0685	.500	-.6736	1.75	-.0716	.500	-.8672	1.75	-.0722	.500	-.8788	1.75	-.0723
.540	-.6660	2.00	-.0581	.540	-.7122	2.00	-.0509	.540	-.7345	2.00	-.0618	.540	-.6447	2.00	-.0648
.580	-.6634	2.25	-.0535	.580	-.7243	2.25	-.0538	.580	-.7962	2.25	-.0528	.580	-.7539	2.25	-.0524
.620	-.6358	2.50	-.0416	.620	-.6713	2.50	-.0488	.620	-.7729	2.50	-.0478	.620	-.8167	2.50	-.0515
.700	-.5374	2.75	-.0415	.700	-.5557	2.75	-.0458	.700	-.5483	2.75	-.0466	.700	-.5402	2.75	-.0488
.800	-.3127	3.50	-.0326	.800	-.3054	3.50	-.0373	.800	-.3816	3.50	-.0373	.800	-.2962	3.50	-.0400
.900	-.0812	-5.25	-.0002	.900	-.0740	-5.25	-.0047	.900	-.0724	-5.25	-.0037	.900	-.0694	-5.25	-.0011
.950	.0236	-4.50	-.0009	.950	.0262	-4.50	-.0016	.950	.0265	-4.50	-.0043	.950	.0282	-4.50	-.0023
.975	.0649	-3.75	-.0060	.975	.0674	-3.75	-.0062	.975	.0655	-3.75	-.0040	.975	.0643	-3.75	-.0042
1.000	.0954	-3.00	-.0081	1.000	.0936	-3.00	-.0106	1.000	.0926	-3.00	-.0073	1.000	.0951	-3.00	-.0124
.000	1.1355	-2.25	-.0150	.000	1.1398	-2.25	-.0179	.000	1.1453	-2.25	-.0180	.000	1.1476	-2.25	-.0200
.004	.3														

Table 3.4 Continued

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2521	.770	5.99	.50	2522	.779	5.89	.50	2523	.801	5.92	.50	2524	.765	5.88	.50
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.1567	-5.25	-.0077	.000	1.1597	-5.25	-.0088	.000	1.1559	-5.25	-.0124	.000	1.1450	-5.25	-.0100
.004	.7184	-4.50	-.0037	.004	.7649	-4.50	-.0057	.004	.8109	-4.50	-.0059	.004	.7175	-4.50	-.0048
.008	.4418	-3.75	-.0017	.008	.4798	-3.75	-.0061	.008	.5472	-3.75	-.0012	.008	.4372	-3.75	-.0001
.015	.1583	-3.00	.0072	.015	.2053	-3.00	.0087	.015	.2804	-3.00	.0077	.015	.1515	-3.00	.0038
.025	-.0000	-2.25	.0118	.025	-.0414	-2.25	.0098	.025	-.0440	-2.25	.0139	.025	-.0090	-2.25	.0078
.040	-.3355	-1.50	.0103	.040	-.2886	-1.50	.0150	.040	-.2071	-1.50	.0208	.040	-.3436	-1.50	.0123
.060	-.4790	-1.25	.0103	.060	-.4464	-1.25	.0155	.060	-.3601	-1.25	.0223	.060	-.4890	-1.25	.0063
.080	-.7084	-1.00	.0073	.080	-.7373	-1.00	.0092	.080	-.6617	-1.00	.0225	.080	-.7925	-1.00	.0042
.100	-.8647	-.75	-.0049	.100	-.8247	-.75	.0083	.100	-.7372	-.75	.0105	.100	-.8810	-.75	-.0078
.140	-.8662	-.50	-.0186	.140	-.8082	-.50	-.0182	.140	-.7301	-.50	-.0015	.140	-.8758	-.50	-.0031
.180	-.8702	-.25	-.0535	.180	-.8287	-.25	-.0494	.180	-.7593	-.25	-.0328	.180	-.8733	-.25	-.0588
.220	-.8957	.00	-.1122	.220	-.8571	.00	-.1089	.220	-.7793	.00	-.0676	.220	-.8970	.00	-.1110
.260	-.8958	.25	-.1912	.260	-.8649	.25	-.1935	.260	-.7888	.25	-.1728	.260	-.8931	.25	-.1835
.300	-.8845	.50	-.2272	.300	-.8523	.50	-.2446	.300	-.7822	.50	-.2440	.300	-.8706	.50	-.2136
.340	-.9040	.75	-.1780	.340	-.8795	.75	-.1879	.340	-.8162	.75	-.1844	.340	-.9041	.75	-.1717
.380	-.9203	1.00	-.1783	.380	-.8987	1.00	-.1666	.380	-.8382	1.00	-.1846	.380	-.9158	1.00	-.1692
.420	-.9236	1.25	-.1357	.420	-.9080	1.25	-.1445	.420	-.8510	1.25	-.1388	.420	-.9121	1.25	-.1347
.460	-.9273	1.50	-.1044	.460	-.9235	1.50	-.1041	.460	-.8688	1.50	-.0972	.460	-.9106	1.50	-.1038
.500	-.8953	1.75	-.0811	.500	-.9058	1.75	-.0784	.500	-.8661	1.75	-.0733	.500	-.8611	1.75	-.0755
.540	-.9060	2.00	-.0656	.540	-.9213	2.00	-.0648	.540	-.8830	2.00	-.0622	.540	-.8767	2.00	-.0634
.580	-.9154	2.25	-.0523	.580	-.9631	2.25	-.0515	.580	-.9236	2.25	-.0516	.580	-.8652	2.25	-.0539
.620	-.8150	2.50	-.0505	.620	-.9811	2.50	-.0516	.620	-.9529	2.50	-.0516	.620	-.6409	2.50	-.0479
.700	-.5014	2.75	-.0463	.700	-.5082	2.75	-.0482	.700	-.4409	2.75	-.0516	.700	-.5275	2.75	-.0466
.800	-.2015	3.50	-.0429	.800	-.2563	3.50	-.0442	.800	-.2823	3.50	-.0472	.800	-.2884	3.50	-.0363
.900	-.0674	-5.25	-.0008	.900	-.0068	-5.25	-.0040	.900	-.1908	-5.25	-.0053	.900	-.0688	-5.25	-.0030
.950	.0227	-4.50	-.0020	.950	-.0030	-4.50	-.0040	.950	-.1403	-4.50	-.0032	.950	.0287	-4.50	-.0030
.975	.0579	-3.75	.0068	.975	.0288	-3.75	.0049	.975	-.1211	-3.75	.0018	.975	.0629	-3.75	.0058
1.000	.0865	-3.00	.0125	1.000	.0581	-3.00	.0140	1.000	.0765	-3.00	.0100	1.000	.0879	-3.00	.0094
.000	1.1567	-2.25	.0233	.000	1.1597	-2.25	.0176	.000	1.1559	-2.25	.0212	.000	1.1450	-2.25	.0181
.004	.2724	-1.50	.0332	.004	.2457	-1.50	.0325	.004	.1741	-1.50	.0332	.004	.2030	-1.50	.0293
.008	.0243	-1.25	.0377	.008	-.0012	-1.25	.0384	.008	-.0032	-1.25	.0380	.008	.0392	-1.25	.0313
.015	-.0418	-1.00	.0427	.015	-.0593	-1.00	.0412	.015	-.0295	-1.00	.0449	.015	-.0335	-1.00	.0403
.050	.0138	-.75	.0483	.050	.0046	-.75	.0484	.050	-.0025	-.75	.0452	.050	.0181	-.75	.0409
.100	-.1077	-.50	.0511	.100	-.1138	-.50	.0450	.100	-.1459	-.50	.0447	.100	-.1010	-.50	.0469
.150	-.2188	-.25	.0484	.150	-.2277	-.25	.0441	.150	-.2613	-.25	.0363	.150	-.2075	-.25	.0474
.200	-.3264	.00	.0475	.200	-.3369	.00	.0426	.200	-.3856	.00	.0278	.200	-.3155	.00	.0459
.250	-.4233	.25	.0371	.250	-.4440	.25	.0344	.250	-.5078	.25	.0176	.250	-.4150	.25	.0394
.300	-.4290	.50	.0381	.300	-.4505	.50	.0335	.300	-.5885	.50	.0161	.300	-.4161	.50	.0375
.350	-.4271	.75	.0432	.350	-.4731	.75	.0350	.350	-.7167	.75	.0175	.350	-.2586	.75	.0398
.400	-.0907	1.00	.0412	.400	-.0989	1.00	.0414	.400	-.8127	1.00	.0220	.400	-.0895	1.00	.0430
.450	.0010	1.25	.0454	.450	.0745	1.25	.0382	.450	.0514	1.25	.0276	.450	.0794	1.25	.0403
.500	.2321	1.50	.0303	.500	.2273	1.50	.0307	.500	.2077	1.50	.0231	.500	.2297	1.50	.0289
.550	.3223	1.75	.0213	.550	.3170	1.75	.0223	.550	.2926	1.75	.0188	.550	.3214	1.75	.0254
1.000	.0865	2.00	.0142	1.000	.0581	2.00	.0130	1.000	-.0765	2.00	.0078	1.000	.0879	2.00	.0173
		2.25	-.0077			2.25	-.0088			2.25	-.0124			2.25	-.0100
		2.50	-.0037			2.50	-.0057			2.50	-.0059			2.50	-.0048
		2.75	.0017			2.75	.0001			2.75	-.0012			2.75	.0001
		3.50	.0072			3.50	.0087			3.50	.0077			3.50	.0038

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2525	.760	4.09	2.00	2526	.760	5.03	2.00	2527	.760	5.94	2.00	2528	.759	13.49	2.00
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.1506	-5.25	-.0102	.000	1.1497	-5.25	-.0084	.000	1.1524	-5.25	-.0098	.000	1.1550	-5.25	-.0084
.004	.5176	-4.50	-.0027	.004	.5074	-4.50	-.0015	.004	.5132	-4.50	-.0045	.004	.5193	-4.50	-.0047
.008	.2891	-3.75	.0001	.008	.2856	-3.75	.0003	.008	.2872	-3.75	.0044	.008	.2235	-3.75	.0047
.015	-.0702	-3.00	.0086	.015	-.0791	-3.00	.0065	.015	-.0732	-3.00	.0112	.015	-.0366	-3.00	.0103
.025	-.3153	-2.25	.0160	.025	-.3227	-2.25	.0131	.025	-.3135	-2.25	.0161	.025	-.2803	-2.25	.0149
.040	-.5691	-1.50	.0160	.040	-.5602	-1.50	.0167	.040	-.5501	-1.50	.0168	.040	-.5389	-1.50	.0158
.060	-.7521	-1.25	.0117	.060	-.7528	-1.25	.0126	.060	-.7416	-1.25	.0116	.060	-.7227	-1.25	.0149
.080	-.8654	-1.00	.0059	.080	-.8581	-1.00	.0057	.080	-.8860	-1.00	.0018	.080	-.8879	-1.00	.0078
.100	-.8113	-.75	-.0133	.100	-.8110	-.75	-.0131	.100	-.8101	-.75	-.0113	.100	-.8119	-.75	-.0094
.140	-.0943	-.50	-.0366	.140	-.10987	-.50	-.0366	.140	-.10939	-.50	-.0364	.140	-.10983	-.50	-.0331
.180	-.10907	-.25	-.0813	.180	-.10925	-.25	-.0800	.180	-.10864	-.25	-.0794	.180	-.10905	-.25	-.0787
.220	-.10943	.00	-.1566	.220	-.10894	.00	-.1603	.220	-.10944	.00	-.1595	.220	-.10984	.00	-.1572
.260	-.11197	.25	-.2609	.260	-.11171	.25	-.2625	.260	-.11156	.25	-.2663	.260	-.11319	.25	-.2703
.300	-.11429	.50	-.3174	.300	-.11474	.50	-.3226	.300	-.11405	.50	-.3299	.300	-.11396	.50	-.3434
.340	-.11389	.75	-.2260	.340	-.11448	.75	-.2345	.340	-.11465	.75	-.2326	.340	-.11480	.75	-.2389
.380	-.11385	1.00	-.2252	.380	-.11428	1.00	-.2295	.380	-.11468	1.00	-.2325	.380	-.11342	1.00	-.2392
.420	-.11484	1.25	-.1733	.420	-.11537	1.25	-.1767	.420	-.11439	1.25	-.1788	.420	-.11446	1.25	-.1779
.460	-.11655	1.50	-.1284	.460	-.11684	1.50	-.1290	.460	-.11655	1.50	-.1259	.460	-.11642	1.50	-.1323
.500	-.11638	1.75	-.0987	.500	-.11713	1.75	-.0995	.500	-.11679	1.75	-.0975	.500	-.11763	1.75	-.0974
.540	-.10142	2.00	-.0812	.540	-.11586	2.00	-.0841	.540	-.11997	2.00	-.0824	.540	-.12077	2.00	-.0787
.580	-.6348	2.25	-.0675	.580	-.6774	2.25	-.0708	.580	-.7997	2.25	-.0694	.580	-.12357	2.25	-.0695
.620	-.5487	2.50	-.0623	.620	-.5780	2.50	-.0673	.620	-.6161	2.50	-.0604	.620	-.0851	2.50	-.0640
.660	-.4607	2.75	-.0555	.660	-.4660	2.75	-.0599	.660	-.4784	2.75	-.0602	.660	-.5007	2.75	-.0547
.700	-.3288	3.50	-.0456	.700	-.3363	3.50	-.0489	.700	-.3306	3.50	-.0478	.700	-.2965	3.50	-.0513
.750	-.2181	-5.25	-.0025	.750	-.1930	-5.25	-.0009	.750	-.1952	-5.25	-.0018	.750	-.1308	-5.25	-.0031
.800	-.1607	-4.50	.0005	.800	-.1382	-4.50	.0012	.800	-.1175	-4.50	.0003	.800	-.0448	-4.50	-.0033
.850	-.0853	-3.75	.0093	.850	-.1092	-3.75	.0082	.850	-.1013	-3.75	.0092	.850	-.0844	-3.75	.0094
1.000	-.0853	-3.00	.0163	1.000	-.0743	-3.00	.0155	1.000	-.0551	-3.00	.0188	1.000	-.0816	-3.00	.0157
.000	1.1506	-2.25	.0276	.000	1.1497	-2.25	.0226	.000	1.1524	-2.25	.0225	.000	1.1550	-2.25	.0278
.004	.5687	-1.50	.0443	.004	.5834										

Table 3.4 Concluded

NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA	NR.	MACH	E-6*RE	ALPHA
2529	.758	11.78	2.00	2530	.759	9.96	2.00	2531	.762	7.81	2.00
X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW	X/L	CP	XW/L	CPW
.000	1.1520	-5.25	-.0104	.000	1.1495	-5.25	-.0103	.000	1.1538	-5.25	-.0107
.004	.5245	-4.50	-.0049	.004	.5143	-4.50	-.0051	.004	.5313	-4.50	-.0053
.008	.2230	-3.75	-.0009	.008	.2265	-3.75	-.0010	.008	.2253	-3.75	-.0008
.015	-.0514	-3.00	.0096	.015	-.0753	-3.00	.0112	.015	-.0497	-3.00	.0086
.025	-.2879	-2.25	.0128	.025	-.2968	-2.25	.0161	.025	-.2838	-2.25	.0148
.040	-.5370	-1.50	.0139	.040	-.5348	-1.50	.0170	.040	-.5211	-1.50	.0171
.060	-.7280	-1.25	.0125	.060	-.7389	-1.25	.0118	.060	-.7086	-1.25	.0110
.080	-.8977	-1.00	.0089	.080	-.8915	-1.00	.0083	.080	-.8786	-1.00	.0042
.100	-1.0184	-.75	-.0141	.100	-1.0226	-.75	-.0116	.100	-.9986	-.75	-.0139
.140	-1.1018	-.50	-.0344	.140	-1.1047	-.50	-.0361	.140	-1.0776	-.50	-.0330
.180	-1.1021	-.25	-.0843	.180	-1.1019	-.25	-.0784	.180	-1.0793	-.25	-.0786
.220	-1.1053	.00	-.1638	.220	-1.1033	.00	-.1618	.220	-1.0866	.00	-.1600
.260	-1.1384	.25	-.2712	.260	-1.1305	.25	-.2689	.260	-1.1133	.25	-.2615
.300	-1.1514	.50	-.3429	.300	-1.1546	.50	-.3422	.300	-1.1294	.50	-.3297
.340	-1.1492	.75	-.2394	.340	-1.1537	.75	-.2405	.340	-1.1339	.75	-.2349
.380	-1.1427	1.00	-.2423	.380	-1.1440	1.00	-.2371	.380	-1.1251	1.00	-.2340
.420	-1.1473	1.25	-.1789	.420	-1.1506	1.25	-.1816	.420	-1.1327	1.25	-.1765
.460	-1.1723	1.50	-.1312	.460	-1.1759	1.50	-.1307	.460	-1.1575	1.50	-.1281
.500	-1.1677	1.75	-.1017	.500	-1.1761	1.75	-.1020	.500	-1.1622	1.75	-.0949
.540	-1.2098	2.00	-.0830	.540	-1.2077	2.00	-.0864	.540	-1.1899	2.00	-.0842
.580	-1.2420	2.25	-.0694	.580	-1.2316	2.25	-.0684	.580	-.9737	2.25	-.0686
.620	-.8296	2.50	-.0629	.620	-.7653	2.50	-.0643	.620	-.6275	2.50	-.0685
.700	-.4961	2.75	-.0590	.700	-.5036	2.75	-.0614	.700	-.4861	2.75	-.0596
.800	-.3041	3.50	-.0532	.800	-.3073	3.50	-.0522	.800	-.3190	3.50	-.0480
.900	-.1215	4.25	-.0034	.900	-.1502	4.25	-.0260	.900	-.1898	4.25	-.0051
.950	-.0538	4.50	-.0036	.950	-.0635	4.50	-.0248	.950	-.1373	4.50	-.0042
.975	-.0290	3.75	.0043	.975	-.0324	3.75	.0055	.975	-.1037	3.75	.0052
1.000	.0141	3.00	.0149	1.000	-.0059	3.00	.0145	1.000	-.0548	3.00	.0137
.000	1.1520	-2.25	.0263	.000	1.1495	-2.25	.0281	.000	1.1538	-2.25	.0255
.004	.5813	-1.50	.0420	.004	.5761	-1.50	.0416	.004	.5698	-1.50	.0428
.008	.3615	-1.25	.0492	.008	.3601	-1.25	.0475	.008	.3471	-1.25	.0467
.020	.2341	-1.00	.0545	.020	.2241	-1.00	.0622	.020	.2223	-1.00	.0573
.050	.1913	-.75	.0609	.050	.1901	-.75	.0625	.050	.1852	-.75	.0616
.100	.0458	-.50	.0712	.100	.0501	-.50	.0700	.100	.0404	-.50	.0700
.150	-.0685	-.25	.0724	.150	-.0668	-.25	.0762	.150	-.0717	-.25	.0757
.200	-.1773	.00	.0766	.200	-.1826	.00	.0789	.200	-.1897	.00	.0785
.250	-.2696	.25	.0735	.250	-.2720	.25	.0687	.250	-.2797	.25	.0657
.350	-.3029	.50	.0672	.350	-.3076	.50	.0676	.350	-.3154	.50	.0646
.450	-.2021	.75	.0642	.450	-.2076	.75	.0615	.450	-.2088	.75	.0610
.550	-.0633	1.00	.0616	.550	-.0652	1.00	.0605	.550	-.0707	1.00	.0586
.650	.0941	1.25	.0577	.650	.0928	1.25	.0509	.650	.0836	1.25	.0513
.750	.2451	1.50	.0383	.750	.2395	1.50	.0373	.750	.2304	1.50	.0378
.850	.3274	1.75	.0272	.850	.3256	1.75	.0249	.850	.3129	1.75	.0270
1.000	.0141	2.00	.0148	1.000	-.0059	2.00	.0118	1.000	-.0548	2.00	.0144
		2.25	-.0104			2.25	-.0103			2.25	-.0107
		2.50	-.0049			2.50	-.0051			2.50	-.0053
		2.75	.0009			2.75	.0018			2.75	.0008
		3.50	.0096			3.50	.0112			3.50	.0086

Table 3.5 ARA tests. Airfoil surface pressure distributions.

Note: The aerodynamic coefficients are listed in the respective plots.
 Transition at 8 % c on upper and lower surfaces. Re = 6 . 10⁶

α/c Lower	Run	37	58	59	60	61	62	63	69	89
	M	0.602	0.702	0.701	0.701	0.700	0.700	0.700	0.722	0.741
	α°	0.78	-0.19	0.76	1.71	2.64	3.60	4.59	0.75	0.74
	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H
1.000	0.104	.8031	0.112	.7473	0.104	.7459	0.100	.7450	0.102	.7460
0.953	0.017	.7858	0.027	.7262	0.024	.7261	0.023	.7257	0.022	.7262
0.888	-0.107	.7612	-0.099	.6951	-0.101	.6950	-0.103	.6944	-0.107	.6944
0.819	-0.249	.7329	-0.251	.6572	-0.257	.6564	-0.263	.6549	-0.265	.6552
0.749	-0.389	.7052	-0.411	.6176	-0.425	.6149	-0.436	.6119	-0.433	.6136
0.698	-0.458	.6915	-0.494	.5968	-0.518	.5919	-0.537	.5869	-0.528	.5901
0.659	-0.496	.6839	-0.541	.5854	-0.572	.5783	-0.598	.5718	-0.582	.5767
0.619	-0.512	.6807	-0.559	.5808	-0.600	.5715	-0.632	.5634	-0.609	.5702
0.579	-0.532	.6768	-0.579	.5758	-0.628	.5645	-0.666	.5549	-0.625	.5661
0.540	-0.533	.6765	-0.576	.5765	-0.633	.5633	-0.677	.5523	-0.614	.5690
0.499	-0.540	.6751	-0.577	.5762	-0.640	.5615	-0.687	.5498	-0.603	.5716
0.460	-0.544	.6743	-0.575	.5769	-0.644	.5605	-0.692	.5485	-0.610	.5699
0.419	-0.555	.6722	-0.578	.5760	-0.655	.5579	-0.697	.5472	-0.679	.5529
0.379	-0.555	.6722	-0.569	.5784	-0.651	.5587	-0.681	.5513	-1.072	.4555
0.339	-0.552	.6727	-0.554	.5820	-0.643	.5607	-0.668	.5546	-1.438	.3649
0.300	-0.575	.6681	-0.566	.5791	-0.667	.5549	-0.661	.5563	-1.462	.3591
0.250	-0.608	.6617	-0.583	.5748	-0.708	.5446	-1.136	.4385	-1.465	.3582
0.199	-0.661	.6510	-0.629	.5634	-0.780	.5249	-1.281	.4025	-1.486	.3531
0.149	-0.727	.6379	-0.674	.5523	-0.868	.5049	-1.274	.4043	-1.459	.3597
0.101	-0.797	.6240	-0.676	.5517	-1.095	.4487	-1.229	.4155	-1.409	.3722
0.075	-0.885	.6066	-0.705	.5446	-0.940	.4872	-1.190	.4251	-1.360	.3843
0.050	-0.819	.6197	-0.531	.5877	-0.769	.5295	-0.973	.4790	-1.129	.4413
0.026	-0.513	.6805	-0.152	.6818	-0.381	.6256	-0.596	.5723	-0.809	.5207
0.016	-0.295	.7238	0.096	.7435	-0.141	.6853	-0.376	.6268	-0.612	.5694
0.008	0.097	.8018	0.462	.8344	0.252	.7827	0.040	.7300	-0.168	.6792
0.002	0.685	.9187	0.950	.9554	0.799	.9182	0.630	.8763	0.449	.8318
Lower										
0	1.088	.9988	1.124	.9987	1.127	.9995	1.099	.9926	1.028	.9752
0.003	0.784	.9383	0.533	.8518	0.770	.9111	0.934	.9517	1.044	.9790
0.011	0.088	.8000	-0.326	.6387	0.041	.7303	0.321	.7996	0.538	.8539
0.020	0.174	.8171	-0.104	.6937	0.150	.7573	0.345	.8056	0.508	.8465
0.040	0.141	.8104	-0.043	.7089	0.128	.7518	0.278	.7891	0.410	.8221
0.070	0.047	.7919	-0.099	.6950	0.034	.7285	0.164	.7609	0.282	.7904
0.100	0.003	.7831	-0.149	.6826	-0.012	.7172	0.104	.7458	0.210	.7726
0.149	-0.094	.7638	-0.239	.6602	-0.118	.6909	-0.011	.7173	0.088	.7425
0.229	-0.210	.7407	-0.361	.6300	-0.253	.6574	-0.157	.6812	-0.066	.7045
0.320	-0.253	.7321	-0.391	.6225	-0.303	.6451	-0.223	.6648	-0.145	.6850
0.390	-0.227	.7374	-0.341	.6348	-0.270	.6532	-0.204	.6695	-0.138	.6865
0.459	-0.163	.7502	-0.247	.6583	-0.192	.6725	-0.140	.6854	-0.087	.6992
0.539	-0.053	.7720	-0.105	.6936	-0.065	.7040	-0.027	.7133	0.013	.7239
0.640	0.087	.7997	0.062	.7350	0.089	.7423	0.115	.7485	0.142	.7560
0.740	0.218	.8258	0.210	.7716	0.229	.7770	0.248	.7815	0.267	.7869
0.859	0.319	.8460	0.320	.7991	0.334	.8030	0.347	.8062	0.362	.8102
0.952	0.263	.8347	0.269	.7864	0.275	.7884	0.281	.7898	0.292	.7929

Table 3.5 Concluded

Run M α° x/c Upper	98		106		107		108		154		109	
	0.752		0.760		0.759		0.761		0.761		0.761	
	0.73		-1.17		-0.22		0.26		0.49		0.71	
	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H
1.000	0.107	.7165	0.123	.7163	0.112	.7136	0.107	.7106	0.106	.7105	0.104	.7101
0.953	0.033	.6964	0.040	.6935	0.036	.6926	0.034	.6905	0.035	.6908	0.033	.6906
0.888	-0.089	.6632	-0.083	.6595	-0.085	.6592	-0.084	.6578	-0.085	.6579	-0.083	.6584
0.819	-0.247	.6203	-0.239	.6165	-0.242	.6162	-0.239	.6149	-0.240	.6150	-0.233	.6170
0.749	-0.426	.5714	-0.414	.5684	-0.420	.5671	-0.414	.5666	-0.418	.5659	-0.398	.5716
0.698	-0.539	.5408	-0.517	.5398	-0.530	.5367	-0.519	.5375	-0.529	.5350	-0.487	.5469
0.659	-0.614	.5205	-0.582	.5220	-0.600	.5174	-0.602	.5146	-0.600	.5154	-0.526	.5360
0.619	-0.659	.5082	-0.616	.5127	-0.666	.4994	-0.806	.4582	-0.625	.5085	-0.562	.5263
0.579	-0.677	.5034	-0.641	.5057	-0.748	.4767	-0.793	.4618	-0.644	.5034	-0.908	.4307
0.540	-0.626	.5170	-0.622	.5109	-0.742	.4785	-0.727	.4800	-0.739	.4771	-0.969	.4137
0.499	-0.590	.5270	-0.603	.5163	-0.728	.4823	-0.666	.4969	-0.876	.4393	-0.973	.4127
0.460	-0.839	.4592	-0.587	.5206	-0.710	.4873	-0.609	.5127	-0.894	.4344	-0.990	.4080
0.419	-0.982	.4202	-0.576	.5236	-0.678	.4961	-0.754	.4728	-0.930	.4242	-0.995	.4065
0.379	-0.987	.4190	-0.547	.5316	-0.640	.5064	-0.849	.4465	-0.930	.4244	-0.986	.4091
0.339	-0.964	.4253	-0.521	.5388	-0.619	.5124	-0.823	.4535	-0.885	.4367	-0.968	.4139
0.300	-1.009	.4129	-0.522	.5385	-0.610	.5147	-0.851	.4458	-0.942	.4210	-0.997	.4061
0.250	-1.013	.4119	-0.526	.5374	-0.755	.4749	-0.887	.4357	-0.948	.4194	-0.994	.4070
0.199	-0.999	.4157	-0.543	.5329	-0.790	.4653	-0.891	.4347	-0.936	.4225	-0.975	.4121
0.149	-0.983	.4200	-0.542	.5331	-0.746	.4774	-0.840	.4489	-0.900	.4325	-0.954	.4178
0.101	-0.960	.4264	-0.476	.5512	-0.745	.4776	-0.863	.4425	-0.877	.4390	-0.927	.4253
0.075	-0.786	.4735	-0.454	.5573	-0.661	.5007	-0.712	.4843	-0.727	.4805	-0.756	.4727
0.050	-0.632	.5155	-0.255	.6122	-0.439	.5618	-0.519	.5375	-0.559	.5267	-0.600	.5158
0.026	-0.244	.6210	0.127	.7175	-0.050	.6688	-0.133	.6444	-0.173	.6333	-0.214	.6223
0.016	-0.010	.6848	0.371	.7846	0.194	.7360	0.105	.7101	0.060	.6979	0.019	.6866
0.008	0.366	.7868	0.705	.8768	0.546	.8329	0.467	.8103	0.430	.8000	0.390	.7892
0.002	0.875	.9254	1.082	.9806	1.002	.9586	0.947	.9429	0.922	.9360	0.892	.9279
Lower												
0	1.147	.9992	1.093	.9834	1.141	.9969	1.150	.9992	1.153	1.0000	1.151	.9994
0.003	0.744	.8897	0.283	.7605	0.526	.8276	0.635	.8567	0.666	.8653	0.732	.8836
0.011	-0.010	.6848	-0.921	.4287	-0.393	.5745	-0.198	.6264	-0.109	.6512	-0.033	.6724
0.020	0.122	.7206	-0.653	.5026	-0.152	.6410	-0.005	.6798	0.056	.6967	0.107	.7110
0.040	0.113	.7180	-0.234	.6180	-0.043	.6708	0.021	.6870	0.065	.6993	0.103	.7098
0.070	0.023	.6936	-0.284	.6042	-0.115	.6511	-0.056	.6655	-0.019	.6761	0.014	.6853
0.100	-0.025	.6807	-0.330	.5914	-0.174	.6347	-0.096	.6545	-0.063	.6638	-0.032	.6725
0.149	-0.136	.6504	-0.411	.5691	-0.270	.6083	-0.205	.6245	-0.173	.6335	-0.144	.6416
0.229	-0.288	.6091	-0.578	.5230	-0.425	.5656	-0.361	.5813	-0.330	.5902	-0.300	.5985
0.320	-0.348	.5927	-0.599	.5175	-0.470	.5532	-0.417	.5659	-0.389	.5738	-0.363	.5811
0.390	-0.305	.6045	-0.470	.5530	-0.394	.5743	-0.356	.5826	-0.336	.5885	-0.316	.5942
0.459	-0.212	.6297	-0.327	.5924	-0.275	.6071	-0.248	.6125	-0.234	.6167	-0.219	.6209
0.539	-0.071	.6682	-0.149	.6414	-0.113	.6516	-0.094	.6550	-0.084	.6580	-0.074	.6610
0.640	0.093	.7128	0.040	.6934	0.065	.7007	0.079	.7028	0.086	.7050	0.092	.7069
0.740	0.238	.7522	0.196	.7363	0.217	.7424	0.228	.7441	0.233	.7458	0.238	.7472
0.859	0.346	.7814	0.313	.7687	0.330	.7737	0.340	.7751	0.343	.7761	0.347	.7774
0.952	0.286	.7651	0.271	.7571	0.277	.7591	0.281	.7588	0.284	.7596	0.285	.7602

Run M α° x/c Upper	110		111		119		131		150		112	
	0.760		0.759		0.771		0.779		0.799		0.761	
	1.18		1.67		0.72		0.71		0.73		2.68	
	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H	C_p	p/H
1.000	0.089	.7063	0.044	.6945	0.087	.6996	0.053	.6845	-0.051	.6416	-0.154	.6385
0.953	0.024	.6884	-0.014	.6785	0.024	.6817	-0.006	.6678	-0.110	.6241	-0.227	.6183
0.888	-0.085	.6584	-0.112	.6515	-0.082	.6521	-0.102	.6405	-0.173	.6056	-0.276	.6047
0.819	-0.218	.6216	-0.237	.6171	-0.214	.6151	-0.220	.6067	-0.251	.5829	-0.341	.5868
0.749	-0.355	.5838	-0.375	.5792	-0.352	.5762	-0.357	.5677	-0.346	.5550	-0.415	.5665
0.698	-0.450	.5577	-0.482	.5496	-0.459	.5464	-0.494	.5289	-0.450	.5243	-0.471	.5508
0.659	-0.556	.5283	-0.583	.5218	-0.664	.4886	-0.877	.4197	-0.782	.4270	-0.518	.5380
0.619	-0.970	.4141	-0.876	.4411	-1.049	.3806	-1.043	.3726	-0.995	.3645	-0.567	.5244
0.579	-1.123	.3719	-1.198	.3523	-1.027	.3867	-1.015	.3805	-0.962	.3741	-0.613	.5115
0.540	-1.094	.3799	-1.160	.3627	-0.997	.3953	-0.982	.3898	-0.926	.3847	-0.721	.4819
0.499	-1.087	.3817	-1.162	.3621	-0.981	.3998	-0.961	.3959	-0.902	.3917	-1.112	.3737
0.460	-1.093	.3802	-1.155	.3641	-0.988	.3979	-0.966	.3945	-0.900	.3922	-1.232	.3406
0.419	-1.081	.3835	-1.142	.3677	-0.983	.3990	-0.958	.3969	-0.889	.3955	-1.221	.3436
0.379	-1.067	.3874	-1.131	.3708	-0.968	.4033	-0.941	.4016	-0.872	.4005	-1.205	.3480
0.339	-1.059	.3895	-1.118	.3745	-0.952	.4078	-0.923	.4068	-0.847	.4079	-1.201	.3491
0.300	-1.065	.3878	-1.126	.3720	-0.973	.4020	-0.941	.4015	-0.862	.4035	-1.203	.3485
0.250	-1.051	.3918	-1.120	.3738	-0.966	.4040	-0.932	.4042	-0.848	.4076	-1.194	.3512
0.199	-1.056	.3903	-1.102	.3788	-0.942	.4105	-0.907	.4113	-0.823	.4148	-1.175	.3563
0.149	-1.008	.4036	-1.073	.3869	-0.918	.4173	-0.879	.4194	-0.780	.4274	-1.145	.3647
0.101	-0.969	.4143	-0.984	.4112	-0.889	.4256	-0.844	.4292	-0.742	.4387	-1.076	.3837
0.075	-0.877	.4397	-0.950	.4207	-0.718	.4735	-0.678	.4764	-0.598	.4809	-1.027	.3972
0.050	-0.672	.4963	-0.731	.4809	-0.561	.5177	-0.520	.5216	-0.425	.5318	-0.804	.4388
0.026	-0.288	.6022	-0.358	.5838	-0.178	.6252	-0.138	.6301	-0.049	.6421	-0.453	.5558
0.016	-0.058	.6658	-0.139	.6441	0.053	.6901	0.091	.6953	0.182	.7098	-0.246	.6132
0.008	0.316	.7689	0.246	.7501	0.420	.7929	0.454	.7987	0.531	.8125	0.149	.7222
0.002	0.836	.9126	0.781	.8975	0.912	.9310	0.934	.9354	0.987	.9464	0.701	.8749
Lower												
0	1.151	.9994	1.144	.9977	1.155	.9994	1.159	.9995	1.167	.9991	1.129	.9931
0.003	0.813	.9061	0.875	.9234	0.718	.8768	0.680	.8630	0.618	.8379	0.950	.9439
0.011	0.103	.7101	0.206	.7393	-0.057	.6591	-0.098	.6416	-0.206	.5960	0.346	.7767
0.020	0.201	.7373	0.273	.7577	0.093	.7013	0.067	.6886	-0.003	.6557	0.371	.7838
0.040	0.174	.7298	0.229	.7456	0.094	.7015	0.077	.6913	0.036	.6669	0.306	.7656
0.070	0.077	.7029	0.124	.7166	0.007	.6770	-0.009	.6670	-0.049	.6421	0.190	.7336
0.100	0.024	.6883	0.067	.7008	-0.040	.6638	-0.055	.6538	-0.094	.6288	0.124	.7153
0.149	-0.091	.6565	-0.051	.6682	-0.153	.6322	-0.169	.6214	-0.210	.5948	-0.002	.6807
0.229	-0.248	.6132	-0.211	.6243	-0.315	.5867	-0.339	.5730	-0.406	.5374	-0.171	.6338
0.320	-0.318	.5939	-0.287	.6033	-0.382	.5677	-0.413	.5519	-0.543	.4969	-0.264	.6081
0.390	-0.282	.6040	-0.260	.6108	-0.331	.5821	-0.355	.5685	-0.423	.5322	-0.251	.6118
0.459	-0.195	.6280	-0.181	.6325	-0.229	.6108	-0.245	.5997	-0.292	.5708	-0.184	.6303
0.539	-0.058	.6657	-0.051	.6684	-0.080	.6527	-0.091	.6437	-0.122	.6206	-0.063	.6637
0.640	0.102	.7099	0.104	.7109	0.089	.7000	0.081	.6926	0.057	.6733	0.084	.7047
0.740	0.244	.7492	0.243	.7492	0.236	.7413	0.229	.7347	0.209	.7177	0.217	.7411
0.859	0.350	.7784	0.345	.7776	0.345	.7718	0.337	.7634	0.314	.7488	0.308	.7666
0.952	0.284	.7600	0.267	.7560	0.280	.7536	0.267	.7454	0.225	.7227	0.188	.7338

RUN 159 HA=0.764 ALFA= 2.52 PIWF=375.3 PO=552.3 TO=305.1 RE=0.24E 07 X/C= 0.5500 ZE= 5.528 ME=0.918 UB=297.48 CPE=-0.3661										RUN 158 HA=0.764 ALFA= 2.52 PIWF=375.3 PO=552.4 TO=304.8 RE=0.24E 07 X/C= 0.5000 ZE= 5.527 ME=0.925 UB=299.02 CPE=-0.3901										
DEL= 2.362 DEL*= 0.7944 THETA= 0.3520 H=2.257 CF=0.00154 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))										DEL= 2.423 DEL*= 0.9179 THETA= 0.3789 H=2.423 CF=0.00122 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))										
BOUNDARY LAYER PROFILES										BOUNDARY LAYER PROFILES										
Z	PT/PO	CPB	U/UE	MB	X/C	CP	HL			Z	PT/PO	CPB	U/UE	MB	X/C	CP	HL			
UPPER SIDE										UPPER SIDE										
0.0	0.5701	-0.3934	0.0	0.0	0.0	1.1265	0.106			0.0	0.5641	-0.4152	0.0	0.0	0.0	1.1277	0.103			
0.070	0.6107	-0.3930	0.3663	0.3141	0.0040	0.4789	0.555			0.070	0.5955	-0.4148	0.3237	0.2791	0.0040	0.4756	0.555			
0.142	0.6203	-0.3927	0.4202	0.3621	0.0080	0.2056	0.852			0.116	0.6033	-0.4145	0.3596	0.3101	0.0080	0.2030	0.851			
0.218	0.6300	-0.3925	0.4507	0.3891	0.0150	0.1442	0.702			0.192	0.6075	-0.4142	0.3773	0.3261	0.0150	0.1462	0.701			
0.258	0.6447	-0.3922	0.4997	0.4321	0.0250	0.0453	0.956			0.252	0.6151	-0.4139	0.4072	0.3521	0.0250	0.0456	0.956			
0.302	0.6505	-0.3920	0.5047	0.4371	0.0400	0.0579	1.015			0.315	0.6188	-0.4135	0.4208	0.3641	0.0400	0.0579	1.016			
0.414	0.6609	-0.3914	0.5333	0.4631	0.0600	0.0732	1.087			0.367	0.6267	-0.4132	0.4482	0.3891	0.0600	0.0730	1.087			
0.523	0.6707	-0.3909	0.5584	0.4851	0.0800	0.0942	1.194			0.416	0.6297	-0.4130	0.4580	0.3971	0.0800	0.0943	1.194			
0.638	0.6775	-0.3903	0.5749	0.5001	0.1000	0.0954	1.218			0.513	0.6340	-0.4124	0.4712	0.4091	0.1000	0.0958	1.218			
0.761	0.6922	-0.3898	0.6085	0.5311	0.1400	0.1033	1.238			0.629	0.6423	-0.4118	0.4960	0.4321	0.1400	0.1031	1.237			
0.858	0.7047	-0.3893	0.6350	0.5561	0.1800	0.1071	1.258			0.737	0.6497	-0.4112	0.5167	0.4501	0.1800	0.1063	1.256			
0.982	0.7216	-0.3879	0.6676	0.5861	0.2200	0.1057	1.255			0.849	0.6648	-0.4106	0.5565	0.4871	0.2200	0.1065	1.253			
1.120	0.7362	-0.3888	0.6956	0.6131	0.2600	0.1076	1.258			0.961	0.6841	-0.4100	0.6020							

Table 3.6 Continued

RUN 161 NA=0.765 ALFA= 2.52 PINF=375.2 PO=552.7 TO=304.0
 RE=0.24E 07
 X/C= 0.7000 ZE= 5.896 NE=0.872 UE=284.08 CPE=-0.2427

DEL= 4.101 DEL**= 1.0479 THETA= 0.5137 H=2.040 CP=0.00177
 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	HL
0.0	0.5988	-0.2875	0.0	0.0	0.0	1.1283	0.103
0.070	0.6474	-0.2857	0.4063	0.334	0.0040	0.4786	0.554
0.108	0.6524	-0.2854	0.4615	0.380	0.0080	-0.2028	0.852
0.153	0.6726	-0.2835	0.4941	0.408	0.0150	0.1469	0.702
0.209	0.6795	-0.2834	0.5143	0.425	0.0250	-0.4456	0.957
0.276	0.6870	-0.2820	0.5350	0.443	0.0400	-0.5801	1.018
0.354	0.6937	-0.2805	0.5521	0.458	0.0600	-0.7312	1.088
0.421	0.6983	-0.2791	0.5631	0.468	0.0800	-0.9466	1.194
0.548	0.7066	-0.2766	0.5823	0.484	0.1000	-1.0941	1.219
0.634	0.7132	-0.2749	0.5973	0.497	0.1200	-1.0317	1.239
0.757	0.7214	-0.2724	0.6147	0.513	0.1800	-1.0692	1.259
0.865	0.7292	-0.2703	0.6310	0.527	0.2200	-1.0631	1.256
0.977	0.7386	-0.2694	0.6507	0.544	0.2600	-1.0691	1.259
1.086	0.7439	-0.2729	0.6642	0.556	0.3000	-1.0760	1.263
1.216	0.7539	-0.2745	0.6854	0.575	0.3400	-1.0626	1.255
1.306	0.7613	-0.2763	0.7010	0.589	0.3800	-1.0630	1.256
1.433	0.7733	-0.2764	0.7231	0.609	0.4200	-1.0171	1.231
1.638	0.7909	-0.2755	0.7532	0.636	0.4600	-0.5987	1.026
1.847	0.8101	-0.2754	0.7843	0.665	0.5000	-0.4447	0.957
2.022	0.8279	-0.2755	0.8114	0.690	0.5400	-0.4032	0.939
2.205	0.8442	-0.2761	0.8350	0.712	0.5800	-0.3937	0.934
2.407	0.8690	-0.2748	0.8676	0.743	0.6200	-0.3779	0.928
2.574	0.8849	-0.2739	0.8871	0.762	0.6600	-0.3416	0.912
2.768	0.9053	-0.2733	0.9113	0.785	0.7000	-0.2875	0.888
2.974	0.9272	-0.2719	0.9355	0.808	0.7500	-0.1959	0.849
3.175	0.9465	-0.2698	0.9553	0.828	0.8000	-0.0956	0.806
3.336	0.9596	-0.2684	0.9683	0.841	0.8500	0.0051	0.763
3.712	0.9826	-0.2624	0.9884	0.861	0.9000	0.0978	0.723
4.101	0.9929	-0.2561	0.9956	0.868	0.9500	0.1726	0.691
4.470	0.9952	-0.2521	0.9960	0.868	0.9750	0.2041	0.677
5.597	0.9949	-0.2449	0.9927	0.865	1.0000	0.2302	0.666
7.556	0.9932	-0.2433	0.9844	0.863	LOWER SIDE		
9.165	0.9889	-0.2393	0.9804	0.857	1.0000	0.2302	0.666
11.164	0.9856	-0.2345	0.9792	0.852	0.9500	0.4057	0.588
13.056	0.9830	-0.2301	0.9747	0.847	0.9000	0.4497	0.567
15.063	0.9823	-0.2258	0.9721	0.844	0.8500	0.4477	0.568
18.768	0.9835	-0.2175	0.9696	0.842	0.8000	0.4200	0.581
22.574	0.9843	-0.2068	0.9657	0.838	0.7500	0.3664	0.605
26.100	0.9858	-0.1992	0.9639	0.836	0.6500	0.2822	0.661
29.985	0.9873	-0.1898	0.9612	0.834	0.5500	0.1066	0.719
33.683	0.9887	-0.1821	0.9593	0.832	0.4500	-0.0352	0.780
37.306	0.9899	-0.1764	0.9580	0.831	0.3500	-0.1245	0.818
41.063	0.9922	-0.1671	0.9563	0.829	0.2500	-0.1016	0.808
					0.2000	-0.0348	0.780
					0.1500	-0.0518	0.743
					0.1000	0.1655	0.694
					0.0500	0.2832	0.643
					0.0200	0.3781	0.600
					0.0080	0.4624	0.561
					0.0040	0.7174	0.435
					0.0	1.1283	0.103

RUN 163 NA=0.764 ALFA= 2.52 PINF=375.5 PO=552.7 TO=302.3
 RE=0.24E 07
 X/C= 0.4500 ZE= 2.728 NE=0.968 UE=309.54 CPE=-0.4829

DEL= 2.208 DEL**= 0.7859 THETA= 0.3242 H=2.424 CP=0.00133
 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	HL
0.0	0.5202	-0.5733	0.0	0.0	0.0	1.1195	0.118
0.070	0.5626	-0.5649	0.3641	0.327	0.0040	0.4691	0.558
0.126	0.5725	-0.5625	0.4012	0.351	0.0080	-0.2091	0.853
0.186	0.5697	-0.5573	0.3891	0.345	0.0150	0.1414	0.704
0.301	0.5832	-0.5474	0.4239	0.382	0.0250	-0.4495	0.958
0.421	0.6006	-0.5371	0.4709	0.426	0.0400	-0.5840	1.018
0.536	0.6207	-0.5271	0.5195	0.471	0.0600	-0.7363	1.089
0.633	0.6390	-0.5188	0.5593	0.509	0.0800	-0.9530	1.196
0.742	0.6575	-0.5094	0.5945	0.543	0.1000	-0.9966	1.218
0.876	0.6831	-0.4979	0.6331	0.587	0.1200	-1.0332	1.238
0.999	0.7049	-0.4967	0.6783	0.626	0.1800	-1.0698	1.252
1.104	0.7310	-0.5035	0.7258	0.673	0.2200	-1.0603	1.252
1.245	0.7594	-0.5126	0.7729	0.721	0.2600	-1.0658	1.255
1.331	0.7914	-0.5037	0.8108	0.761	0.3000	-1.0700	1.257
1.413	0.8125	-0.5042	0.8369	0.788	0.3400	-1.0560	1.250
1.522	0.8291	-0.5057	0.8568	0.809	0.3800	-1.0574	1.251
1.637	0.8619	-0.4900	0.8849	0.839	0.4200	-0.8290	1.133
1.772	0.8884	-0.4826	0.9084	0.865	0.4600	-0.8881	0.975
1.865	0.9058	-0.4859	0.9264	0.885	0.5000	-0.4190	0.944
2.007	0.9432	-0.4778	0.9564	0.918	0.5400	-0.4029	0.937
2.104	0.9643	-0.4752	0.9731	0.937	0.5800	-0.4151	0.943
2.208	0.9769	-0.4825	0.9862	0.952	0.6200	-0.4127	0.942
2.305	0.9839	-0.4978	0.9977	0.965	0.6600	-0.3977	0.935
2.406	0.9885	-0.5121	1.0069	0.976	0.7000	-0.3573	0.917
2.581	0.9924	-0.4996	0.9972	0.964	0.7500	-0.2617	0.876
2.757	0.9937	-0.4780	0.9976	0.965	0.8000	-0.1366	0.822
2.965	0.9935	-0.4685	0.9937	0.960	0.8500	-0.0147	0.770
3.689	0.9938	-0.4579	0.9899	0.956	0.9000	0.0917	0.725
5.730	0.9937	-0.4058	0.9694	0.933	0.9500	0.1765	0.688
7.693	0.9932	-0.3553	0.9093	0.910	0.9750	0.2105	0.674
9.391	0.9881	-0.3076	0.8265	0.885	1.0000	0.2367	0.662
11.197	0.9867	-0.2844	0.9159	0.873	LOWER SIDE		
13.055	0.9836	-0.2709	0.9078	0.864	1.0000	0.2367	0.662
15.136	0.9844	-0.2531	0.9014	0.857	0.9500	0.4057	0.587
16.786	0.9829	-0.2447	0.8967	0.852	0.9000	0.4553	0.564
18.701	0.9827	-0.2483	0.8980	0.854	0.8500	0.4519	0.566
22.533	0.9834	-0.2346	0.8931	0.848	0.8000	0.4256	0.578
26.104	0.9837	-0.2244	0.8893	0.844	0.7500	0.3708	0.603
29.943	0.9855	-0.2400	0.8972	0.853	0.6500	0.2490	0.657
33.589	0.9849	-0.2489	0.9002	0.856	0.5500	0.1124	0.716
37.271	0.9851	-0.2470	0.8997	0.855	0.4500	-0.0288	0.776
39.186	0.9866	-0.2483	0.9015	0.857	0.3500	-0.1169	0.814
					0.2500	-0.0942	0.804
					0.2000	-0.0282	0.776
					0.1500	0.0575	0.740
					0.1000	0.1704	0.691
					0.0500	0.2872	0.640
					0.0200	0.3822	0.598
					0.0080	0.4629	0.561
					0.0040	0.7221	0.431
					0.0	1.1195	0.118

RUN 162 NA=0.765 ALFA= 2.52 PINF=375.4 PO=552.9 TO=303.4
 RE=0.24E 07
 X/C= 0.8000 ZE= 7.366 NE=0.787 UE=259.31 CPE=-0.0485

DEL= 5.169 DEL**= 1.5357 THETA= 0.7397 H=2.076 CP=0.00142
 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	HL
					UPPER SIDE		
0.0	0.6554	-0.0842	0.0	0.0	0.0	1.1285	0.103
0.070	0.6848	-0.0820	0.3325	0.248	0.0040	0.4772	0.554
0.128	0.6945	-0.0814	0.3815	0.286	0.0080	-0.2019	0.851
0.180	0.6998	-0.0802	0.4045	0.303	0.0150	0.1486	0.701
0.240	0.7037	-0.0788	0.4201	0.315	0.0250	-0.4433	0.956
0.292	0.7074	-0.0777	0.4342	0.326	0.0400	-0.5776	1.016
0.400	0.7128	-0.0752	0.4528	0.340	0.0600	-0.7293	1.087
0.535	0.7179	-0.0722	0.4689	0.353	0.0800	-0.9463	1.194
0.624	0.7219	-0.0702	0.4815	0.362	0.1000	-0.9922	1.218
0.736	0.7263	-0.0677	0.4943	0.372	0.1400	-1.0293	1.237
0.848	0.7313	-0.0652	0.5090	0.383	0.1800	-1.0665	1.257
0.975	0.7374	-0.0622	0.5260	0.397	0.2200	-1.0587	1.253
1.109	0.7433	-0.0618	0.5464	0.413	0.2600	-1.0691	1.259
1.266	0.7509	-0.0654	0.5707	0.431	0.3000	-1.0720	1.260
1.479	0.7621	-0.0676	0.6039	0.458	0.3400	-1.0611	1.254
1.684	0.7740	-0.0696	0.6367	0.484	0.3800	-1.0611	1.256
1.841	0.7820	-0.0705	0.6570	0.500	0.4200	-1.0169	1.231
2.024	0.7946	-0.0714	0.6870	0.524	0.4600	-0.5672	1.012
2.214	0.8077	-0.0706	0.7150	0.547	0.5000	-0.4455	0.957
2.412	0.8197	-0.0697	0.7390	0.566	0.5400	-0.4067	0.940
2.594	0.8332	-0.0688	0.7649	0.587	0.5800	-0.3968	0.936
2.818	0.8485	-0.0681	0.7927	0.610	0.6200	-0.3830	0.930
2.964	0.8611	-0.0680	0.8148	0.628	0.6600	-0.3456	0.913
3.322	0.8898	-0.0685	0.8618	0.668	0.7000	-0.2869	0.888
3.718	0.9193	-0.0665	0.9043	0.704	0.7500	-0.1902	0.846
4.087	0.9470	-0.0640	0.9409	0.736	0.8000	-0.0842	0.801
4.449	0.9674	-0.0617	0.9656	0.757	0.8500	0.0205	0.756
4.826	0.9842	-0.0597	0.9851	0.774	0.9000	0.1073	0.719
5.169	0.9915	-0.0585	0.9931	0.781	0.9500	0.1767	0.689
5.579	0.9945	-0.0554	0.9952	0.783	0.9750	0.2018	0.678
7.434	0.9956	-0.0484	0.9930	0.781	1.0000	0.2234	0.669
					LOWER SIDE		
9.344	0.9926	-0.0460	0.9883	0.777	1.0000	0.2234	0.669
11.218	0.9881	-0.0451	0.9825	0.772	1.0000	0.2234	0.669
14.900	0.9847	-0.0455	0.9787	0.768	0.9500	0.4024	0.589
18.632	0.9841	-0.0456	0.9779	0.768	0.9000	0.4492	0.567
22.543	0.9846	-0.0447	0.9782	0.768	0.8500	0.4466	0.569
26.098	0.9857	-0.0411	0.9789	0.769	0.8000	0.4200	0.581
30.023	0.9899	-0.0371	0.9795	0.769	0.7500	0.3659	0.606
33.665	0.9909	-0.0386	0.9802	0.770	0.6500	0.2420	0.661
37.314	0.9920	-0.0330	0.9817	0.771	0.5500	0.1052	0.720
41.482	0.9916	-0.0350	0.9818	0.771	0.4500	-0.0371	0.781
44.680	0.9902	-0.0402	0.9826	0.772	0.4000	-0.2449	0.818
					0.2500	-0.1020	0.808
					0.2000	-0.0344	0.780
					0.1500	0.0520	0.743
					0.1000	0.1693	0.692
					0.0500	0.2872	0.641
					0.0200	0.3814	0.599
					0.0080	0.4647	0.560
					0.0040	0.7160	0.435
					0.0	1.1285	0.103

Table 3.6 Continued

RUN 165 NA=0.764 ALPHA= 2.52 PINF=376.0 PO=553.5 TO=304.0
RE=0.24E 07
I/C= 0.4000 ZE= 2.825 NE=1.224 UE=375.32 CPE=-1.0132

DEL= 1.367 DEL*= 0.3485 THETA= 0.1541 H=2.262 CP=0.00273
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPHA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	I/C	CP	NL
					UPPER SIDE		
0.0	0.4154	-0.9503	0.0	0.0	0.0	1.1235	0.111
0.070	0.4992	-0.9555	0.4753	0.5241	0.0040	0.4715	0.557
0.110	0.5116	-0.9570	0.5057	0.5604	0.0080	-0.2080	0.853
0.170	0.5387	-0.9607	0.5642	0.6291	0.0150	0.1395	0.704
0.214	0.5793	-0.9634	0.6388	0.7161	0.0250	-0.4490	0.958
0.252	0.6021	-0.9657	0.6693	0.7591	0.0400	-0.5827	1.018
0.289	0.6093	-0.9679	0.6802	0.7731	0.0600	-0.7312	1.086
0.330	0.6279	-0.9704	0.7055	0.8051	0.0800	-0.9498	1.194
0.382	0.6428	-0.9736	0.7251	0.8311	0.1000	-0.9948	1.218
0.401	0.6567	-0.9748	0.7415	0.8521	0.1400	-1.0314	1.237
0.431	0.6596	-0.9766	0.7456	0.8571	0.1800	-1.0680	1.257
0.460	0.6804	-0.9788	0.7687	0.8881	0.2200	-1.0632	1.254
0.509	0.6934	-0.9813	0.7829	0.9071	0.2600	-1.0687	1.257
0.554	0.7157	-0.9841	0.8053	0.9381	0.3000	-1.0733	1.259
0.588	0.7193	-0.9861	0.8094	0.9431	0.3400	-1.0613	1.253
0.636	0.7477	-0.9891	0.8354	0.9791	0.3800	-1.0614	1.253
0.673	0.7677	-0.9913	0.8525	1.0031	0.4200	-0.8393	1.139
0.700	0.7613	-0.9929	0.8481	0.9971	0.4600	-0.4753	0.969
0.733	0.7722	-0.9950	0.8576	1.0101	0.5000	-0.4302	0.949
0.774	0.7937	-0.9975	0.8748	1.0351	0.5400	-0.4132	0.942
0.841	0.8251	-1.0016	0.8986	1.0701	0.5800	-0.4204	0.945
0.920	0.8462	-1.0063	0.9145	1.0931	0.6200	-0.4287	0.949
0.987	0.8755	-1.0265	0.9402	1.1311	0.6600	-0.4187	0.944
1.073	0.8900	-1.0196	0.9463	1.1411	0.7000	-0.3689	0.921
1.140	0.9178	-1.0246	0.9636	1.1671	0.7500	-0.2536	0.873
1.244	0.9475	-1.0197	0.9780	1.1891	0.8000	-0.1331	0.821
1.289	0.9559	-1.0332	0.9870	1.2041	0.8500	-0.0119	0.769
1.367	0.9639	-1.0202	0.9896	1.2081	0.9000	0.0937	0.724
1.558	0.9857	-1.0157	0.9959	1.2181	0.9500	0.1781	0.688
1.707	0.9920	-1.0112	0.9974	1.2201	0.9750	0.2112	0.673
1.897	0.9924	-1.0255	1.0024	1.2281	1.0000	0.2406	0.661
					LOWER SIDE		
2.666	0.9894	-1.0109	0.9961	1.2181	1.0000	0.2406	0.661
3.763	0.9889	-1.0118	0.9961	1.2181	1.0000	0.2406	0.661
5.853	0.9875	-0.9947	0.9897	1.2081	0.9500	0.4160	0.582
7.614	0.9867	-0.9941	0.9891	1.2071	0.9000	0.4531	0.565
11.252	0.9865	-1.0061	0.9931	1.2131	0.8500	0.4483	0.567
15.065	0.9875	-1.0139	0.9961	1.2181	0.8000	0.4206	0.580
18.864	0.9882	-0.9973	0.9910	1.2101	0.7500	0.3659	0.605
22.700	0.9882	-0.9973	0.9876	1.2051	0.6500	0.2419	0.660
26.170	0.9895	-0.9736	0.9837	1.1981	0.5500	0.1053	0.719
30.173	0.9910	-0.9638	0.9812	1.1941	0.4500	-0.0361	0.780
33.886	0.9922	-0.9489	0.9768	1.1831	0.3500	-0.1235	0.817
37.435	0.9931	-0.9311	0.9714	1.1791	0.2500	-0.1008	0.807
					0.2000	-0.0326	0.778
					0.1500	0.0550	0.741
					0.1000	0.1710	0.691
					0.0500	0.2876	0.640
					0.0200	0.3836	0.597
					0.0080	0.4632	0.560
					0.0040	0.7248	0.430
					0.0	1.1235	0.111

RUN 193 NA=0.765 ALPHA= 2.50 PINF=374.9 PO=552.3 TO=304.3
RE=0.24E 07
I/C= 0.3000 ZE= 7.036 NE=0.788 UE=259.83 CPE=-0.0608

DEL= 4.414 DEL*= 1.2764 THETA= 0.6391 H=1.997 CP=0.00165
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPHA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	I/C	CP	NL
					UPPER SIDE		
0.0	0.6542	-0.0886	0.0	0.0	0.0	1.1138	0.128
0.070	0.6897	-0.0880	0.3673	0.2751	0.0040	0.4657	0.560
0.124	0.6972	-0.0877	0.4028	0.3021	0.0080	-0.2112	0.855
0.199	0.7055	-0.0871	0.4378	0.3291	0.0150	0.1385	0.706
0.273	0.7123	-0.0866	0.4638	0.3491	0.0250	-0.4472	0.958
0.389	0.7211	-0.0858	0.4952	0.3731	0.0400	-0.5786	1.017
0.516	0.7276	-0.0848	0.5167	0.3901	0.0600	-0.7758	1.109
0.631	0.7331	-0.0840	0.5337	0.4031	0.0800	-0.9089	1.175
0.736	0.7382	-0.0833	0.5491	0.4151	0.1000	-0.9670	1.204
0.848	0.7441	-0.0825	0.5660	0.4281	0.1400	-1.0046	1.224
1.034	0.7555	-0.0797	0.5963	0.4521	0.1800	-1.0423	1.244
1.169	0.7641	-0.0788	0.6186	0.4701	0.2200	-1.0787	1.264
1.381	0.7775	-0.0775	0.6513	0.4961	0.2600	-1.0518	1.249
1.546	0.7865	-0.0778	0.6730	0.5131	0.3000	-1.0623	1.255
1.762	0.8004	-0.0777	0.7039	0.5381	0.3400	-1.0583	1.253
1.941	0.8137	-0.0778	0.7321	0.5611	0.3800	-1.0542	1.251
2.124	0.8275	-0.0781	0.7597	0.5831	0.4200	-1.0345	1.240
2.284	0.8381	-0.0767	0.7788	0.5991	0.4600	-0.5917	1.023
2.475	0.8533	-0.0760	0.8056	0.6211	0.5000	-0.4210	0.946
2.684	0.8705	-0.0761	0.8349	0.6461	0.5400	-0.4002	0.937
3.053	0.8991	-0.0760	0.8796	0.6831	0.5800	-0.3982	0.936
3.437	0.9276	-0.0755	0.9201	0.7181	0.6200	-0.3828	0.930
3.788	0.9547	-0.0748	0.9557	0.7491	0.6600	-0.3537	0.917
4.184	0.9761	-0.0743	0.9819	0.7721	0.7000	-0.2960	0.892
4.414	0.9838	-0.0733	0.9906	0.7801	0.7500	-0.1987	0.850
4.568	0.9880	-0.0717	0.9948	0.7831	0.8000	-0.0886	0.803
4.941	0.9927	-0.0690	0.9989	0.7871	0.8500	0.0191	0.757
5.299	0.9967	-0.0640	0.9987	0.7871	0.9000	0.1115	0.717
5.531	0.9931	-0.0610	0.9955	0.7881	0.9500	0.1875	0.684
5.523	0.9887	-0.0579	0.9889	0.7781	0.9750	0.2172	0.671
11.325	0.9869	-0.0559	0.9857	0.7751	1.0000	0.2415	0.661
					LOWER SIDE		
13.154	0.9862	-0.0546	0.9843	0.7741	1.0000	0.2415	0.661
15.135	0.9859	-0.0531	0.9831	0.7731	1.0000	0.2415	0.661
17.131	0.9855	-0.0522	0.9822	0.7721	0.9500	0.4047	0.588
18.840	0.9859	-0.0520	0.9826	0.7731	0.9000	0.4429	0.570
20.598	0.9863	-0.0508	0.9825	0.7721	0.8500	0.4382	0.573
22.519	0.9871	-0.0493	0.9827	0.7731	0.8000	0.4125	0.584
24.687	0.9882	-0.0468	0.9828	0.7731	0.7500	0.3629	0.607
26.478	0.9889	-0.0445	0.9825	0.7721	0.6500	0.2442	0.660
28.363	0.9900	-0.0426	0.9828	0.7731	0.5500	0.1068	0.719
30.001	0.9911	-0.0412	0.9835	0.7731	0.4500	-0.0288	0.777
31.796	0.9913	-0.0403	0.9833	0.7731	0.3500	-0.1123	0.813
33.650	0.9921	-0.0396	0.9839	0.7741	0.2500	-0.0947	0.805
35.553	0.9913	-0.0401	0.9832	0.7731	0.2000	-0.0235	0.775
36.325	0.9907	-0.0407	0.9827	0.7731	0.1500	0.0645	0.737
					0.1000	0.1814	0.687
					0.0500	0.2908	0.639
					0.0200	0.3847	0.597
					0.0080	0.4758	0.555
					0.0040	0.7166	0.435
					0.0	1.1138	0.128

RUN 166 NA=0.765 ALPHA= 2.52 PINF=374.8 PO=552.3 TO=304.8
RE=0.24E 07
I/C= 0.3000 ZE= 1.900 NE=1.249 UE=381.52 CPE=-1.0548

DEL= 1.320 DEL*= 0.3369 THETA= 0.1452 H=2.320 CP=0.00267
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALPHA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	I/C	CP	NL
					UPPER SIDE		
0.0	0.3789	-1.0776	0.0	0.0	0.0	1.1274	0.105
0.070	0.5385	-1.0754	0.6327	0.7251	0.0040	0.0040	0.4776
0.100	0.5560	-1.0750	0.6592	0.7591	0.0080	-0.2040	0.852
0.130	0.5443	-1.0742	0.6410	0.7361	0.0150	0.1470	0.702
0.193	0.5686	-1.0726	0.6758	0.7801	0.0250	-0.4408	0.955
0.238	0.5781	-1.0714	0.6881	0.7961	0.0400	-0.5748	1.015
0.283	0.5900	-1.0703	0.7030	0.8161	0.0600	-0.7281	1.087
0.316	0.6149	-1.0694	0.7329	0.8561	0.0800	-0.9462	1.194
0.354	0.6266	-1.0684	0.7457	0.8731	0.1000	-0.9925	1.218
0.432	0.6448	-1.0664	0.7644	0.8981	0.1400	-1.0308	1.239
0.503	0.6616	-1.0646	0.7807	0.9201	0.1800	-1.0690	1.259
0.585	0.6971	-1.0625	0.8131	0.9661	0.2200	-1.0623	1.256
0.663	0.7350	-1.0604	0.8444	1.0101	0.2600	-1.0715	1.261
0.746	0.7769	-1.0583	0.8754	1.0551	0.3000	-1.0776	1.264
0.801	0.7904	-1.0569	0.8844	1.0691	0.3400	-1.0566	1.253
0.872	0.8105	-1.0550	0.8975	1.0881	0.3800	-1.0591	1.254
0.966	0.8105	-1.0526	0.8965	1.0871	0.4200	-0.7784	1.111
1.029	0.9001	-1.0509	0.9503	1.1691	0.4600	-0.5208	0.991
1.104	0.9239	-1.0536	0.9640	1.1911	0.5000	-0.4572	0.963
1.171	0.9339	-1.0554	0.9699	1.2001	0.5400	-0.4666	0.967
1.246	0.9567	-1.0578	0.9822	1.2201	0.5800	-0.4950	0.979
1.320	0.9713	-1.0612	0.9904	1.2311	0.6200	-0.4840	0.975
1.395	0.9806	-1.0626	0.9954	1.2411	0.6600	-0.4258	0.989
1.469	0.9853	-1.0646	0.9982	1.2461	0.7000	-0.3497	0.993
1.682	0.9942	-1.0636	1.0020	1.2521	0.7500	-0.2330	0.997
1.913	0.9940	-1.0508	0.9976	1.2451	0.8000	-0.0052	0.865
2.081	0.9928	-1.0514	0.9973	1.2441	0.8500	-0.0145	0.759
2.253	0.9917	-1.0518	0.9969	1.2431	0.9000	-0.1082	0.719
2.462	0.9910	-1.0521	0.9967	1.2431	0.9500	-0.1777	0.699
2.652	0.9899	-1.0525	0.9963	1.2431	0.9750	-0.2044	0.677
3.040	0.9894	-1.0575	0.9977	1.2451	1.0000	-0.2283	0.667
3.772	0.9905	-1.1600	0.9991	1.2471	LOWER SIDE		
5.634	0.9919	-1.0620	1.0004	1.2491	1.0000	-0.2283	0.667
7.566	0.9921	-1.0445	0.9947	1.2401	0.9500	-0.4095	0.586
9.365	0.9917	-1.0321	0.9904	1.2331	0.9000	-0.4547	0.565
11.458	0.9924	-1.0302	0.9901	1.2331	0.8500	-0.4534	0.566
15.204	0.9930	-1.0144	0.9852	1.2251	0.8000	-0.4295	0.577
18.913	0.9930	-0.9971	0.9795	1.2151	0.7500	-0.3743	0.602
22.499	0.9928	-0.9785	0.9733	1.2054	0.6500	-0.2475	0.658
26.148	0.9926	-0.9628	0.9680	1.1971	0.5500	-0.1008	0.722
31.563	0.9933	-0.9442	0.9623	1.1881	0.4500	-0.0465	0.785
34.884	0.9940	-0.9271	0.9571	1.1801	0.3500	-0.1372	0.824
36.757	0.9940	-0.9172	0.9539	1.1751	0.2500	-0.1155	0.815
					0.2000	-0.0442	0.784
					0.1500	-0.0441	0.746
					0.1000	-0.1602	0.696
					0.0500	-0.2799	0.644
					0.0200	-0.3760	0.601
					0.0080	-0.4590	0.563
					0.0040	-0.7252	0.430
					0.0	1.1274	0.105

Table 3.6 Continued

RUN 195 MA=0.766 ALFA= 2.50 PINF=375.3 PO=553.3 TO=302.5
 RE=0.24E 07
 X/C= 0.9900 ZE=11.165 ME=0.666 UE=222.61 CPE=0.2150
 DEL= 9.363 DEL*= 3.8507 THETA= 1.4626 H=2.633 CP=0.00008
 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	MB	X/C	CP	ML
0.0	0.7467	0.2459	0.0	0.0	0.0	1.1098	0.135
0.070	0.7478	0.2444	0.0830	0.0531	0.0040	0.4633	0.562
0.107	0.7484	0.2436	0.1035	0.0661	0.0080	-0.2107	0.856
0.160	0.7488	0.2425	0.1191	0.0761	0.0150	0.1405	0.706
0.238	0.7491	0.2409	0.1337	0.0851	0.0250	-0.4463	0.959
0.305	0.7495	0.2395	0.1459	0.0931	0.0400	-0.5799	1.018
0.421	0.7504	0.2370	0.1701	0.1091	0.0600	-0.7758	1.111
0.544	0.7514	0.2344	0.1918	0.1231	0.0800	-0.9085	1.176
0.648	0.7525	0.2322	0.2118	0.1351	0.1000	-0.9669	1.206
0.820	0.7536	0.2286	0.2338	0.1501	0.1400	-1.0029	1.225
1.033	0.7555	0.2254	0.2602	0.1671	0.1800	-1.0389	1.244
1.234	0.7572	0.2259	0.2735	0.1751	0.2200	-1.0748	1.264
1.592	0.7608	0.2301	0.2931	0.1881	0.2600	-1.0520	1.252
1.966	0.7648	0.2330	0.3166	0.2031	0.3000	-1.0603	1.256
2.324	0.7706	0.2342	0.3537	0.2271	0.3400	-1.0555	1.242
2.701	0.7783	0.2353	0.3973	0.2551	0.3800	-1.0499	1.250
3.070	0.7857	0.2358	0.4358	0.2801	0.4200	-1.0339	1.242
3.447	0.7941	0.2361	0.4758	0.3071	0.4600	-0.6363	1.055
3.835	0.8044	0.2358	0.5205	0.3361	0.5000	-0.4272	0.940
4.227	0.8167	0.2359	0.5682	0.3681	0.5400	-0.4034	0.940
4.585	0.8268	0.2366	0.6032	0.3911	0.5800	-0.4047	0.940
4.936	0.8386	0.2364	0.6418	0.4171	0.6200	-0.3917	0.935
5.305	0.8536	0.2363	0.6871	0.4471	0.6600	-0.3583	0.920
5.693	0.8688	0.2361	0.7292	0.4761	0.7000	-0.3016	0.895
6.443	0.9019	0.2327	0.8127	0.5331	0.7500	-0.2050	0.854
7.171	0.9334	0.2311	0.8807	0.5811	0.8000	-0.0788	0.800
7.943	0.9655	0.2303	0.9420	0.6241	0.8500	-0.0348	0.751
8.742	0.9879	0.2295	0.9811	0.6521	0.9000	0.1318	0.709
9.363	0.9918	0.2251	0.9903	0.6591	0.9500	0.2063	0.677
9.432	0.9936	0.2257	0.9928	0.6611	0.9750	0.2337	0.665
10.204	0.9955	0.2181	1.0006	0.6671	1.0000	0.2541	0.656
11.271	0.9939	0.2145	1.0002	0.6661	1.0000	0.2541	0.656
13.216	0.9891	0.2078	0.9965	0.6641	1.0000	0.2541	0.656
15.122	0.9861	0.2022	0.9950	0.6631	1.0000	0.2541	0.656
16.898	0.9852	0.1975	0.9963	0.6631	1.0000	0.2541	0.656
18.887	0.9849	0.1932	0.9985	0.6651	1.0000	0.2541	0.656
20.898	0.9849	0.1879	1.0017	0.6671	1.0000	0.2541	0.656
22.566	0.9848	0.1829	1.0045	0.6691	1.0000	0.2541	0.656
24.447	0.9852	0.1784	1.0080	0.6721	1.0000	0.2541	0.656
26.630	0.9854	0.1736	1.0113	0.6741	1.0000	0.2541	0.656
28.357	0.9857	0.1692	1.0145	0.6771	1.0000	0.2541	0.656
29.958	0.9862	0.1658	1.0173	0.6791	1.0000	0.2541	0.656
32.141	0.9869	0.1622	1.0206	0.6811	1.0000	0.2541	0.656
34.014	0.9872	0.1583	1.0235	0.6831	1.0000	0.2541	0.656
37.421	0.9884	0.1520	1.0291	0.6871	1.0000	0.2541	0.656
37.969	0.9888	0.1511	1.0302	0.6881	1.0000	0.2541	0.656

RUN 168 MA=0.786 ALFA= 2.52 PINF=362.7 PO=545.0 TO=303.3
 RE=0.24E 07
 X/C= 0.7000 ZE= 7.192 ME=0.864 UE=281.38 CPE=-0.1721
 DEL= 4.126 DEL*= 1.5513 THETA= 0.6404 H=2.422 CP=0.00099
 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	MB	X/C	CP	ML
0.0	0.6050	-0.2105	0.0	0.0	0.0	1.1416	0.096
0.070	0.6288	-0.2098	0.2893	0.2341	0.0040	0.5209	0.548
0.122	0.6381	-0.2096	0.3396	0.2761	0.0080	-0.1416	0.848
0.156	0.6455	-0.2093	0.3513	0.2851	0.0150	0.2058	0.694
0.204	0.6427	-0.2090	0.3612	0.2941	0.0250	-0.3766	0.954
0.290	0.6440	-0.2083	0.3660	0.2981	0.0400	-0.5103	1.015
0.365	0.6468	-0.2078	0.3779	0.3071	0.0600	-0.6669	1.091
0.454	0.6518	-0.2071	0.3988	0.3251	0.0800	-0.8760	1.198
0.521	0.6516	-0.2066	0.3972	0.3231	0.1000	-0.9224	1.223
0.629	0.6575	-0.2058	0.4200	0.3621	0.1400	-0.9634	1.245
0.678	0.6594	-0.2055	0.4268	0.3681	0.1800	-1.0043	1.268
0.749	0.6653	-0.2050	0.4480	0.3661	0.2200	-1.0063	1.269
0.850	0.6665	-0.2042	0.4513	0.3691	0.2600	-1.0116	1.272
0.958	0.6708	-0.2034	0.4655	0.3811	0.3000	-1.0218	1.278
1.129	0.6783	-0.2066	0.4937	0.4041	0.3400	-1.0201	1.277
1.301	0.6861	-0.2099	0.5209	0.4271	0.3800	-1.0244	1.280
1.484	0.7034	-0.2093	0.5687	0.4681	0.4200	-1.0184	1.274
1.671	0.7135	-0.2080	0.5932	0.4891	0.4600	-1.0280	1.282
1.865	0.7332	-0.2130	0.6434	0.5331	0.5000	-1.0274	1.281
2.268	0.7640	-0.2127	0.7062	0.5891	0.5400	-0.5568	1.037
2.622	0.8162	-0.2099	0.7942	0.6681	0.5800	-0.4035	0.966
2.984	0.8624	-0.2073	0.8594	0.7281	0.6200	-0.3257	0.930
3.379	0.9098	-0.2035	0.9169	0.7831	0.6600	-0.2678	0.904
3.749	0.9597	-0.1984	0.9695	0.8341	0.7000	-0.2105	0.879
4.126	0.9859	-0.1935	0.9935	0.8581	0.7500	-0.1321	0.844
4.506	0.9941	-0.1886	0.9993	0.8631	0.8000	-0.0517	0.808
5.629	0.9963	-0.1782	0.9967	0.8611	0.8500	0.0333	0.771
7.484	0.9955	-0.1733	0.9938	0.8581	0.9000	0.1084	0.738
9.570	0.9928	-0.1692	0.9893	0.8531	0.9500	0.1740	0.708
11.335	0.9852	-0.1663	0.9805	0.8451	0.9750	0.2002	0.697
13.096	0.9806	-0.1632	0.9744	0.8391	1.0000	0.2311	0.683
15.025	0.9781	-0.1612	0.9710	0.8351	1.0000	0.2311	0.683
16.788	0.9765	-0.1601	0.9689	0.8331	1.0000	0.2311	0.683
18.958	0.9750	-0.1590	0.9658	0.8301	1.0000	0.2311	0.683
21.092	0.9740	-0.1580	0.9649	0.8291	1.0000	0.2311	0.683
22.648	0.9736	-0.1579	0.9649	0.8291	1.0000	0.2311	0.683
24.741	0.9759	-0.1534	0.9652	0.8301	1.0000	0.2311	0.683
26.335	0.9775	-0.1489	0.9647	0.8291	1.0000	0.2311	0.683
30.096	0.9806	-0.1389	0.9633	0.8281	1.0000	0.2311	0.683
33.622	0.9830	-0.1309	0.9620	0.8271	1.0000	0.2311	0.683
37.316	0.9846	-0.1234	0.9602	0.8251	1.0000	0.2311	0.683
41.118	0.9867	-0.1172	0.9595	0.8241	1.0000	0.2311	0.683

RUN 167 MA=0.784 ALFA= 2.52 PINF=363.3 PO=545.3 TO=304.1 RE=0.24E 07 X/C= 0.8000 ZE= 7.921 ME=0.792 UE=260.92 CPE=-0.0180 DEL= 5.876 DEL*= 1.9678 THETA= 0.8648 H=2.275 CP=0.00104 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))							
BOUNDARY LAYER PROFILES				SURFACE PRESSURES			
Z	PT/PO	CPB	U/UZ	MB	X/C	CP	ML
					UPPER SIDE		
0.0	0.6581	-0.0284	0.0	0.0	0.0	1.1213	0.132
0.070	0.6707	-0.0297	0.2240	0.1681	0.0040	0.5019	0.557
0.104	0.6772	-0.0295	0.2725	0.2041	0.0080	-0.1569	0.854
0.179	0.6804	-0.0303	0.2953	0.2211	0.0150	0.1887	0.701
0.242	0.6822	-0.0309	0.3077	0.2311	0.0250	-0.3913	0.959
0.309	0.6848	-0.0316	0.3244	0.2441	0.0400	-0.5237	1.020
0.391	0.6878	-0.0325	0.3422	0.2571	0.0600	-0.6788	1.095
0.481	0.6911	-0.0334	0.3608	0.2711	0.0800	-0.8870	1.201
0.548	0.6909	-0.0341	0.3610	0.2711	0.1000	-0.9307	1.225
0.611	0.6938	-0.0347	0.3760	0.2831	0.1400	-0.9708	1.247
0.738	0.6987	-0.0360	0.4010	0.3021	0.1800	-1.0109	1.269
0.835	0.7016	-0.0370	0.4151	0.3131	0.2200	-1.0127	1.270
1.011	0.7079	-0.0409	0.4460	0.3371	0.2600	-1.0167	1.273
1.238	0.7191	-0.0389	0.4859	0.3681	0.3000	-1.0288	1.279
1.406	0.7267	-0.0362	0.5093	0.3861	0.3400	-1.0274	1.279
1.559	0.7322	-0.0344	0.5253	0.3981	0.3800	-1.0299	1.280
1.750	0.7395	-0.0300	0.5441	0.4131	0.4200	-1.0278	1.272
2.111	0.7608	-0.0249	0.6006	0.4581	0.4600	-1.0278	1.279
2.492	0.7826	-0.0225	0.6537	0.5001	0.5000	-1.0111	1.269
2.880	0.8055	-0.0200	0.7035	0.5401	0.5400	-0.5528	1.034
3.227	0.8313	-0.0165	0.7532	0.5811	0.5800	-0.4103	0.967
3.619	0.8641	-0.0150	0.8113	0.6291	0.6200	-0.3399	0.935
4.104	0.9043	-0.0192	0.8774	0.6851	0.6600	-0.2807	0.909
4.365	0.9331	-0.0221	0.9197	0.7211	0.7000	-0.2202	0.882
4.742	0.9560	-0.0259	0.9518	0.7491	0.7500	-0.1356	0.844
5.108	0.9740	-0.0271	0.9747	0.7691	0.8000	-0.0284	0.797
5.496	0.9844	-0.0268	0.9869	0.7801	0.8500	0.0580	0.759
5.876	0.9910	-0.0256	0.9940	0.7861	0.9000	0.1314	0.726
6.220	0.9934	-0.0253	0.9966	0.7891	0.9500	0.1872	0.702
7.335	0.9953	-0.0136	0.9960	0.7881	0.9750	0.2152	0.689
9.223	0.9941	-0.0135	0.9916	0.7841	1.0000	0.2391	0.678
11.085	0.9896	-0.0121	0.9857	0.7791	LOWER SIDE		
14.828	0.9816	-0.0090	0.9746	0.7691	1.0000	0.2391	0.678
18.973	0.9814	-0.0066	0.9731	0.7681	0.9500	0.4209	0.595
22.414	0.9827	-0.0062	0.9744	0.7691	0.9000	0.4765	0.569
26.011	0.9836	-0.0054	0.9751	0.7701	0.8500	0.4751	0.570
29.772	0.9844	-0.0057	0.9762	0.7711	0.8000	0.4456	0.584
33.507	0.9847	-0.0073	0.9775	0.7721	0.7500	0.3904	0.609
37.507	0.9851	-0.0091	0.9784	0.7731	0.6500	0.2646	0.667
41.108	0.9854	-0.0118	0.9805	0.7741	0.5500	0.1234	0.730
44.977	0.9851	-0.0135	0.9809	0.7751	0.4500	-0.0229	0.794
					0.3500	-0.1167	0.836
					0.2500	-0.0972	0.827
					0.2000	-0.0281	0.797
					0.1500	0.0573	0.759
					0.1000	0.1700	0.709
					0.0500	0.2866	0.658
					0.0200	0.3715	0.618
					0.0000	0.4558	0.579
					0.0040	0.7348	0.437
					0.0	1.1213	0.132

Table 3.6 Continued

RUN 170 MA=0.785 ALFA= 2.52 PINF=362.9 PO=545.1 TO=303.4
RE=0.24E 07
X/C= 0.6200 ZE= 4.204 ME=0.916 UE=296.06 CPE=-0.3006

DEL= 3.403 DEL*= 1.3735 THETA= 0.5089 H=2.699 CP=0.00077
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	MB	X/C	CP	RL
UPPER SIDE							
0.0	0.5713	-0.3288	0.0	0.0	0.0	1.1382	0.102
0.070	0.5900	-0.3284	0.2516	0.2141	0.0040	0.5152	0.551
0.130	0.5961	-0.3282	0.2885	0.2461	0.0080	-0.1434	0.848
0.234	0.6000	-0.3277	0.3092	0.2641	0.0150	0.2017	0.696
0.302	0.6010	-0.3274	0.3138	0.2681	0.0250	-0.3794	0.954
0.376	0.6037	-0.3270	0.3270	0.2791	0.0400	-0.5119	1.016
0.563	0.6083	-0.3261	0.3475	0.2971	0.0600	-0.6689	1.091
0.742	0.6167	-0.3252	0.3830	0.3281	0.0800	-0.8766	1.197
0.947	0.6273	-0.3242	0.4229	0.3631	0.1000	-0.9239	1.222
1.108	0.6412	-0.3222	0.4692	0.4031	0.1400	-0.9649	1.285
1.305	0.6620	-0.3246	0.5316	0.4601	0.1800	-1.0059	1.268
1.492	0.6860	-0.3270	0.5937	0.5171	0.2200	-1.0089	1.270
1.705	0.7149	-0.3286	0.6567	0.5751	0.2600	-1.0142	1.273
1.858	0.7459	-0.3284	0.7141	0.6291	0.3000	-1.0243	1.279
2.063	0.7805	-0.3267	0.7690	0.6821	0.3400	-1.0224	1.277
2.268	0.8099	-0.3227	0.8091	0.7211	0.3800	-1.0274	1.280
2.429	0.8418	-0.3189	0.8488	0.7601	0.4200	-1.0156	1.274
2.619	0.8743	-0.3195	0.8877	0.7991	0.4600	-1.0289	1.281
2.820	0.9191	-0.3175	0.9346	0.8471	0.5000	-1.0273	1.280
2.981	0.9430	-0.3187	0.9587	0.8721	0.5400	-1.0539	1.331
3.152	0.9639	-0.3188	0.9782	0.8931	0.5800	-1.0401	0.966
3.339	0.9790	-0.3154	0.9903	0.9061	0.6200	-1.3288	0.931
3.403	0.9803	-0.3135	0.9906	0.9061	0.6600	-0.2730	0.906
3.552	0.9891	-0.3129	0.9980	0.9141	0.7000	-0.2222	0.883
3.746	0.9924	-0.3081	0.9988	0.9151	0.7500	-0.1506	0.852
4.115	0.9946	-0.3011	0.9977	0.9141	0.8000	-0.0660	0.814
4.477	0.9946	-0.2975	0.9962	0.9121	0.8500	0.0209	0.776
5.623	0.9947	-0.2861	0.9914	0.9071	0.9000	0.1017	0.740
7.634	0.9948	-0.2762	0.9873	0.9031	0.9500	0.1788	0.708
9.335	0.9932	-0.2676	0.9823	0.8971	0.9750	0.2043	0.695
11.249	0.9845	-0.2610	0.9717	0.8861	1.0000	0.2320	0.682
13.143	0.9807	-0.2556	0.9660	0.8801	LOWER SIDE		
15.014	0.9791	-0.2499	0.9621	0.8761	1.0000	0.2320	0.682
16.887	0.9783	-0.2450	0.9592	0.8731	0.9500	0.4168	0.598
18.746	0.9771	-0.2406	0.9562	0.8701	0.9000	0.4645	0.575
20.570	0.9772	-0.2361	0.9543	0.8681	0.8500	0.4606	0.577
22.466	0.9771	-0.2308	0.9520	0.8651	0.8000	0.4336	0.590
24.309	0.9775	-0.2251	0.9499	0.8631	0.7500	0.3797	0.615
26.268	0.9781	-0.2198	0.9481	0.8611	0.6500	0.2560	0.671
29.872	0.9796	-0.2098	0.9451	0.8581	0.5500	0.1217	0.731
33.608	0.9808	-0.1996	0.9418	0.8551	0.4500	-0.0258	0.796
37.328	0.9820	-0.1910	0.9393	0.8521	0.3500	-0.1136	0.835
41.078	0.9842	-0.1831	0.9379	0.8511	0.2500	-0.0945	0.827
					0.2000	-0.0245	0.796
					0.1500	0.0614	0.758
					0.1000	0.1749	0.708
					0.0500	0.2919	0.655
					0.0200	0.3826	0.614
					0.0080	0.4708	0.572
					0.0040	0.7135	0.449
					0.0	1.1382	0.102

RUN 172 MA=0.785 ALFA= 2.52 PINF=363.1 PO=545.3 TO=303.9
RE=0.24E 07
X/C= 0.5800 ZE= 4.139 ME=0.948 UE=304.94 CPE=-0.3697

DEL= 3.111 DEL*= 1.3046 THETA= 0.4589 H=2.843 CP=0.00068
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	MB	X/C	CP	RL
UPPER SIDE							
0.0	0.5480	-0.4110	0.0	0.0	0.0	1.1279	0.121
0.070	0.5631	-0.4100	0.2237	0.1961	0.0040	0.5071	0.558
0.212	0.5777	-0.4094	0.2539	0.2231	0.0080	-0.1526	0.852
0.279	0.5700	-0.4089	0.2674	0.2351	0.0150	0.1921	0.700
0.410	0.5759	-0.4079	0.2993	0.2631	0.0250	-0.3846	0.956
0.514	0.5840	-0.4072	0.3386	0.2981	0.0400	-0.5187	1.018
0.634	0.5902	-0.4063	0.3652	0.3221	0.0600	-0.6754	1.094
0.734	0.6002	-0.4055	0.4041	0.3571	0.0800	-0.8825	1.200
0.884	0.6085	-0.4044	0.4329	0.3831	0.1000	-0.9275	1.224
0.973	0.6155	-0.4089	0.4609	0.4091	0.1400	-0.9675	1.246
1.081	0.6277	-0.3996	0.4893	0.4351	0.1800	-1.0076	1.268
1.216	0.6392	-0.4032	0.5247	0.4681	0.2200	-1.0100	1.270
1.413	0.6670	-0.4002	0.5905	0.5301	0.2600	-1.0134	1.272
1.611	0.7034	-0.3924	0.6597	0.5961	0.3000	-1.0246	1.278
1.794	0.7386	-0.3873	0.7181	0.6531	0.3400	-1.0240	1.278
1.988	0.7755	-0.3917	0.7767	0.7111	0.3800	-1.0300	1.281
2.156	0.8149	-0.3903	0.8282	0.7641	0.4200	-1.0153	1.273
2.328	0.8506	-0.3945	0.8725	0.8101	0.4600	-1.0287	1.280
2.522	0.8966	-0.3926	0.9199	0.8601	0.5000	-1.0233	1.277
2.701	0.9331	-0.3874	0.9522	0.8951	0.5400	-0.5575	1.037
2.902	0.9619	-0.3875	0.9777	0.9231	0.5800	-0.4110	0.968
3.111	0.9804	-0.3899	0.9941	0.9411	0.6200	-0.3331	0.933
3.309	0.9881	-0.3858	0.9986	0.9461	0.6600	-0.2831	0.910
3.514	0.9911	-0.3798	0.9986	0.9461	0.7000	-0.2388	0.890
3.682	0.9923	-0.3746	0.9974	0.9451	0.7500	-0.1660	0.858
4.406	0.9937	-0.3727	0.9974	0.9451	0.8000	-0.0740	0.817
5.518	0.9951	-0.3432	0.9868	0.9331	0.8500	0.0176	0.777
7.656	0.9952	-0.3183	0.9767	0.9221	0.9000	0.1035	0.739
9.558	0.9944	-0.3026	0.9695	0.9141	0.9500	0.1781	0.706
11.205	0.9877	-0.2889	0.9583	0.9021	0.9750	0.2056	0.694
13.115	0.9854	-0.2734	0.9498	0.8921	1.0000	0.2352	0.680
14.966	0.9847	-0.2586	0.9431	0.8851	LOWER SIDE		
16.772	0.9842	-0.2467	0.9376	0.8791	1.0000	0.2352	0.680
18.712	0.9838	-0.2364	0.9330	0.8741	0.9500	0.4095	0.601
22.525	0.9838	-0.2191	0.9257	0.8661	0.9000	0.4663	0.574
26.078	0.9832	-0.2013	0.9178	0.8581	0.8500	0.4642	0.575
29.794	0.9833	-0.1897	0.9129	0.8531	0.8000	0.4388	0.587
33.514	0.9822	-0.1873	0.9109	0.8501	0.7500	0.3852	0.612
37.543	0.9819	-0.1877	0.9108	0.8501	0.6500	0.2611	0.669
41.186	0.9821	-0.1827	0.9089	0.8481	0.5500	0.1255	0.729
					0.4500	-0.0262	0.796
					0.3500	-0.1137	0.835
					0.2500	-0.0933	0.826
					0.2000	-0.0236	0.795
					0.1500	0.0635	0.757
					0.1000	0.1778	0.706
					0.0500	0.2931	0.654
					0.0200	0.3822	0.613
					0.0080	0.4687	0.573
					0.0040	0.7076	0.452
					0.0	1.1279	0.121

RUN 171 MA=0.785 ALFA= 2.52 PINF=361.1 PO=545.5 TO=304.3
RE=0.24E 07
X/C= 0.6000 ZE= 4.112 ME=0.930 UE=300.12 CPE=-0.3337

DEL= 3.154 DEL*= 1.2965 THETA= 0.4824 H=2.687 CP=0.00081
(DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	FT/PO	CPB	U/UE	MB	X/C	CP	ML
UPPER SIDE							
0.0	0.5580	-0.3742	0.0	0.0	0.0	1.1294	0.119
0.070	0.5760	-0.3731	0.2450	0.2111	0.0040	0.5094	0.554
0.150	0.5811	-0.3726	0.2763	0.2381	0.0080	-0.1478	0.851
0.217	0.5846	-0.3718	0.2952	0.2551	0.0150	0.1947	0.699
0.284	0.5895	-0.3711	0.3201	0.2771	0.0250	-0.3851	0.957
0.363	0.5894	-0.3702	0.3182	0.2751	0.0400	-0.5194	1.020
0.549	0.5989	-0.3681	0.3603	0.3121	0.0600	-0.6748	1.094
0.743	0.6097	-0.3659	0.4018	0.3491	0.0800	-0.8787	1.199
0.978	0.6241	-0.3651	0.4523	0.3941	0.1000	-0.9229	1.223
1.109	0.6465	-0.3638	0.5192	0.4551	0.1400	-0.9624	1.244
1.296	0.6687	-0.3559	0.5698	0.5011	0.1800	-1.0019	1.266
1.490	0.6965	-0.3529	0.6298	0.5571	0.2200	-1.0061	1.269
1.669	0.7263	-0.3499	0.6855	0.6101	0.2600	-1.0092	1.271
1.870	0.7546	-0.3519	0.7350	0.6581	0.3000	-1.0223	1.278
2.046	0.7819	-0.3485	0.7748	0.6971	0.3400	-1.0175	1.275
2.258	0.8282	-0.3462	0.8361	0.7581	0.3800	-1.0258	1.280
2.437	0.8636	-0.3478	0.8791	0.8021	0.4200	-1.0126	1.273
2.628	0.9015	-0.3480	0.9200	0.8441	0.4600	-1.0269	1.281
2.792	0.9307	-0.3483	0.9489	0.8751	0.5000	-1.0211	1.277
2.975	0.9568	-0.3489	0.9734	0.9011	0.5400	-0.5568	1.038
3.154	0.9781	-0.3476	0.9914	0.9201	0.5800	-0.4116	0.969
3.363	0.9885	-0.3443	0.9988	0.9281	0.6200	-0.3369	0.935
3.553	0.9923	-0.3404	1.0004	0.9301	0.6600	-0.2828	0.911
3.747	0.9928	-0.3397	1.0005	0.9301	0.7000	-0.2311	0.888
4.098	0.9930	-0.3361	0.9991	0.9291	0.7500	-0.1579	0.855
4.493	0.9926	-0.3233	0.9935	0.9221	0.8000	-0.3697	0.816
4.844	0.9921	-0.3215	0.9925	0.9211	0.8500	-0.0196	0.777
5.240	0.9929	-0.3214	0.9949	0.9221	0.9000	-0.1048	0.739
5.616	0.9926	-0.3178	0.9941	0.9201	0.9500	-0.1780	0.707
6.333	0.9927	-0.3174	0.9911	0.9201	0.9750	-0.2074	0.693
7.094	0.9933	-0.3083	0.9878	0.9161	1.0000	-0.2330	0.682
8.053	0.9941	-0.3027	0.9861	0.9141	LOWER SIDE		
9.322	0.9932	-0.2918	0.9808	0.9091	1.0000	-0.2330	0.682
11.217	0.9857	-0.2795	0.9691	0.8961	0.9500	-0.4195	0.597
13.247	0.9825	-0.2687	0.9617	0.8881	0.9000	-0.4679	0.574
15.124	0.9810	-0.2594	0.9564	0.8831	0.8500	-0.4652	0.575
18.773	0.9802	-0.2437	0.9490	0.8751	0.8000	-0.4375	0.588
22.601	0.9800	-0.2286	0.9423	0.8681	0.7500	-0.3823	0.614
26.142	0.9799	-0.2202	0.9386	0.8641	0.6500	-0.2610	0.669
30.120	0.9795	-0.2119	0.9347	0.8601	0.5500	-0.1267	0.729
33.982	0.9788	-0.2027	0.9301	0.8551	0.4500	-0.0237	0.796
41.411	0.9814	-0.1871	0.9258	0.8501	0.3500	-0.1099	0.834
					0.2500	-0.0872	0.824
					0.2000	-0.0211	0.795
					0.1500	0.0675	0.756
					0.1000	0.1834	0.704
					0.0500	0.2968	0.653
					0.0200	0.3842	0.613
					0.0080	0.4692	0.573
					0.0040	0.7158	0.448
					0.0	1.1294	0.119

Table 3.6 Continued

RUN 176 HA=0.785 ALFA= 2.52 PINF=363.1 PO=545.5 TO=301.9 RE=0.248 07 X/C= 0.5200 ZE= 2.652 HE=1.093 DE=341.99 CPE=-0.6801 DEL= 2.054 DEL*= 0.6238 THETA= 0.2471 H=2.549 CP=0.00143 (DISTANCES(MM) U (M/S) P (MMHG) T (DEG.K) ALFA (DEG.))									
BOUNDARY LAYER PROFILES					SURFACE PRESSURES				
Z	PT/PO	CPH	U/UE	MB	X/C	CP	HL		
UPPER SIDE									
0.0	0.4457	-0.7659	0.0	0.0	0.0	1.1359	0.107		
0.070	0.5133	-0.7507	0.4375	0.4381	0.0040	0.5135	0.552		
0.132	0.5270	-0.7476	0.4752	0.4771	0.0080	-0.1465	0.850		
0.166	0.5299	-0.7429	0.4792	0.4811	0.0150	0.1979	0.697		
0.207	0.5450	-0.7372	0.5139	0.5181	0.0250	-0.3820	0.956		
0.252	0.5553	-0.7310	0.5336	0.5391	0.0400	-0.5189	1.019		
0.293	0.5587	-0.7253	0.5370	0.5421	0.0600	-0.6731	1.093		
0.319	0.5633	-0.7217	0.5446	0.5511	0.0800	-0.8806	1.199		
0.349	0.5655	-0.7175	0.5462	0.5521	0.1000	-0.9266	1.224		
0.446	0.5841	-0.7040	0.5761	0.5851	0.1400	-0.9668	1.246		
0.502	0.6000	-0.6963	0.6019	0.6131	0.1800	-1.0070	1.269		
0.572	0.6187	-0.6864	0.6294	0.6431	0.2200	-1.0100	1.271		
0.651	0.6410	-0.6755	0.6598	0.6771	0.2600	-1.0141	1.273		
0.714	0.6586	-0.6667	0.6817	0.7011	0.3000	-1.0244	1.279		
0.807	0.6883	-0.6538	0.7166	0.7411	0.3400	-1.0254	1.279		
0.946	0.7122	-0.6460	0.7434	0.7721	0.3800	-1.0301	1.282		
1.076	0.7328	-0.6346	0.7625	0.7941	0.4200	-1.0179	1.275		
1.143	0.7707	-0.6990	0.8352	0.8811	0.4600	-1.0295	1.282		
1.166	0.8013	-0.7685	0.8958	0.9571	0.5400	-0.5026	1.011		
1.193	0.8241	-0.7427	0.9039	0.9671	0.5800	-0.3912	0.960		
1.505	0.8541	-0.7773	0.9428	1.0171	0.6200	-0.3406	0.937		
1.628	0.8818	-0.7543	0.9538	1.0311	0.6600	-0.2927	0.915		
1.849	0.9178	-0.8046	0.9989	1.0911	0.7000	-0.2492	0.896		
2.054	0.9743	-0.7717	1.0414	1.1221	0.7500	-0.1812	0.865		
2.263	0.9743	-0.6898	0.9908	1.0801	0.8000	-0.0856	0.823		
2.412	0.9934	-0.6632	0.9927	1.0831	0.8500	0.0128	0.779		
2.610	0.9957	-0.7056	1.0096	1.1061	0.9000	0.1058	0.738		
2.964	0.9972	-0.7158	1.0142	1.1121	0.9500	0.1834	0.704		
3.737	0.9970	-0.7239	1.0170	1.1161	0.9750	0.2179	0.689		
5.647	0.9924	-0.6955	1.0039	1.0981	1.0000	0.2479	0.675		
LOWER SIDE									
7.546	0.9907	-0.7231	1.0131	1.1111	1.0000	0.2479	0.675		
9.371	0.9843	-0.8288	1.0486	1.1601	0.9500	0.4255	0.594		
11.386	0.9843	-0.8818	1.0685	1.1881	0.9000	0.4705	0.572		
14.968	0.9832	-0.8880	1.0702	1.1901	0.8500	0.4657	0.575		
18.733	0.9835	-0.8780	1.0666	1.1851	0.8000	0.4372	0.588		
22.636	0.9840	-0.8656	1.0622	1.1791	0.7500	0.3824	0.614		
26.296	0.9843	-0.8564	1.0589	1.1741	0.7000	0.3406	0.637		
29.994	0.9843	-0.8473	1.0555	1.1691	0.6500	0.2927	0.659		
33.591	0.9853	-0.8359	1.0518	1.1641	0.6000	0.2492	0.681		
37.479	0.9856	-0.8332	1.0510	1.1611	0.5500	0.2087	0.703		
40.195	0.9855	-0.8257	1.0481	1.1591	0.5000	0.1682	0.725		
					0.2500	-0.0942	0.827		
					0.2000	-0.0234	0.795		
					0.1500	0.0614	0.758		
					0.1000	0.1766	0.707		
					0.0500	0.2903	0.656		
					0.0200	0.3801	0.615		
					0.0080	0.4663	0.574		
					0.0040	0.7183	0.447		
					0.0	1.1359	0.107		

RUN 176 HA=0.785 ALFA= 2.52 PINF=363.4 PO=545.9 TO=302.1 RE=0.242 07 X/C= 0.4500 ZE= 2.586 HE=1.278 DE=386.63 CPE=-1.0299 DEL= 1.748 DEL*= 0.4520 THETA= 0.1953 H=2.315 CP=0.00258 (DISTANCES(MM) U(M/S) P(MMHG) T(DEG.K) ALFA(DEG.))									
BOUNDARY LAYER PROFILES					SURFACE PRESSURES				
Z	PT/PO	CPB	U/UE	MB	X/C	CP	HL		
UPPER SIDE									
0.0	0.3714	-1.0239	0.0	0.0	0.0	1.1292	0.120		
0.070	0.4743	-1.0242	0.5238	0.6021	0.0040	0.5085	0.554		
0.102	0.4824	-1.0244	0.5410	0.6231	0.0080	-0.1480	0.851		
0.139	0.4947	-1.0245	0.5656	0.6541	0.0150	0.1927	0.700		
0.173	0.5106	-1.0247	0.5946	0.6911	0.0250	-0.3828	0.956		
0.210	0.5242	-1.0249	0.6176	0.7201	0.0400	-0.5180	1.019		
0.251	0.5191	-1.0251	0.6095	0.7101	0.0600	-0.6734	1.094		
0.303	0.5452	-1.0253	0.6503	0.7621	0.0800	-0.8800	1.199		
0.345	0.5721	-1.0255	0.6876	0.8121	0.1000	-0.9260	1.224		
0.438	0.5827	-1.0260	0.7014	0.8301	0.1400	-0.9667	1.247		
0.505	0.6091	-1.0263	0.7329	0.8731	0.1800	-1.0075	1.269		
0.580	0.6412	-1.0267	0.7674	0.9211	0.2200	-1.0091	1.270		
0.651	0.6564	-1.0270	0.7824	0.9421	0.2600	-1.0135	1.273		
0.725	0.6859	-1.0274	0.8097	0.9811	0.3000	-1.0238	1.279		
0.803	0.7139	-1.0278	0.8334	1.0161	0.3400	-1.0253	1.280		
0.893	0.7421	-1.0282	0.8555	1.0481	0.3800	-1.0272	1.281		
0.949	0.7562	-1.0285	0.8660	1.0641	0.4200	-1.0145	1.273		
1.024	0.7772	-1.0282	0.8806	1.0861	0.4600	-1.0270	1.281		
1.117	0.8137	-1.0279	0.9045	1.1231	0.5000	-0.9952	1.263		
1.195	0.8358	-1.0253	0.9171	1.1431	0.5400	-0.5608	1.039		
1.262	0.8518	-1.0269	0.9271	1.1591	0.5800	-0.4172	0.972		
1.341	0.8739	-1.0265	0.9395	1.1781	0.6200	-0.3467	0.940		
1.430	0.9001	-1.0254	0.9532	1.2001	0.6600	-0.3076	0.922		
1.505	0.9229	-1.0271	0.9655	1.2201	0.7000	-0.2683	0.904		
1.583	0.9419	-1.0241	0.9738	1.2341	0.7500	-0.1908	0.870		
1.665	0.9577	-1.0270	0.9824	1.2481	0.8000	-0.0841	0.822		
1.748	0.9711	-1.0280	0.9889	1.2591	0.8500	0.0187	0.777		
1.919	0.9853	-1.0268	0.9950	1.2701	0.9000	0.1111	0.736		
2.124	0.9913	-1.0298	0.9986	1.2761	0.9500	0.1874	0.702		
2.307	0.9912	-1.0285	0.9982	1.2751	0.9750	0.2204	0.688		
2.505	0.9909	-1.0301	0.9986	1.2761	1.0000	0.2473	0.675		
LOWER SIDE									
3.039	0.9890	-1.0307	0.9979	1.2751	1.0000	0.2473	0.675		
3.792	0.9875	-1.0342	0.9985	1.2751	0.9500	0.4224	0.595		
5.833	0.9937	-1.0313	0.9954	1.2701	0.9000	0.4714	0.572		
7.602	0.9912	-1.0203	0.9927	1.2661	0.8500	0.4690	0.573		
9.777	0.9916	-1.0119	0.9927	1.2651	0.8000	0.4421	0.586		
11.535	0.9921	-1.0094	0.9921	1.2651	0.7500	0.3888	0.611		
15.139	0.9927	-1.0000	0.9892	1.2601	0.7000	0.3467	0.643		
18.979	0.9925	-0.9913	0.9861	1.2551	0.6500	0.2643	0.668		
22.516	0.9934	-0.9821	0.9834	1.2501	0.6000	0.1769	0.707		
26.199	0.9942	-0.9716	0.9803	1.2451	0.5500	-0.0247	0.796		
29.833	0.9938	-0.9587	0.9758	1.2371	0.5000	-0.1123	0.835		
38.053	0.9931	-0.9282	0.9652	1.2201	0.4500	-0.0926	0.826		
					0.4000	-0.0234	0.796		
					0.3500	0.0627	0.758		
					0.3000	0.1769	0.707		
					0.2500	0.2918	0.655		
					0.2000	0.3810	0.614		
					0.1500	0.4657	0.575		
					0.1000	0.7150	0.448		
					0.0	1.1292	0.120		

RUN 175 HA=0.785 ALFA= 2.52 PINF=363.3 PO=545.7 TO=302.4 RE=0.248 07 X/C= 0.5000 ZE= 3.710 HE=1.243 DE=378.72 CPE=-0.9662 DEL= 2.018 DEL*= 0.5660 THETA= 0.2466 H=2.295 CP=0.00237 (DISTANCES (MM) U (M/S) P

Table 3.6 Concluded

RUN 197 HA=0.785 ALPHA= 2.50 PINF=362.5 PO=544.6 TO=303.4
 RE=0.248 07
 X/C= 0.8000 ZE= 6.962 HE=0.792 HE=260.67 CPE=-0.0254
 DEL= 5.013 DEL*= 1.7311 THETA= 0.7812 H=2.216 CF=0.00116
 (DISTANCES (MM) U (M/S) P (MMHG) T (DEG.K) ALPHA (DEG.))

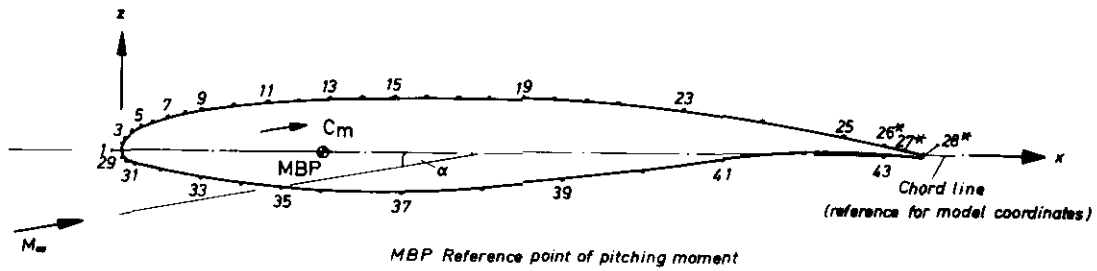
BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	NL
					UPPER SIDE		
0.0	0.6538	-0.0410	0.0	0.0	0.0	1.1324	0.114
0.070	0.6769	-0.0410	0.2976	0.223	0.0040	0.5116	0.553
0.144	0.6854	-0.0410	0.3464	0.260	0.0080	-0.1485	0.851
0.222	0.6902	-0.0411	0.3714	0.279	0.0150	0.1976	0.698
0.338	0.6940	-0.0411	0.3896	0.293	0.0250	-0.3788	0.954
0.465	0.6983	-0.0412	0.4091	0.308	0.0400	-0.5140	1.017
0.562	0.7018	-0.0412	0.4243	0.320	0.0600	-0.7094	1.111
0.666	0.7042	-0.0413	0.4362	0.328	0.0800	-0.8407	1.179
0.797	0.7087	-0.0414	0.4524	0.342	0.1000	-0.9077	1.214
0.931	0.7112	-0.0414	0.4622	0.349	0.1400	-0.9461	1.235
1.125	0.7169	-0.0406	0.4823	0.365	0.1800	-0.9845	1.256
1.319	0.7253	-0.0418	0.5127	0.388	0.2200	-1.0243	1.279
1.693	0.7452	-0.0428	0.5753	0.438	0.2600	-1.0038	1.267
2.051	0.7654	-0.0432	0.6304	0.481	0.3000	-1.0155	1.274
2.431	0.7893	-0.0428	0.6870	0.527	0.3400	-1.0181	1.276
2.812	0.8164	-0.0425	0.7438	0.573	0.3800	-1.0251	1.279
3.193	0.8541	-0.0414	0.8123	0.630	0.4200	-1.0147	1.274
3.573	0.8893	-0.0400	0.8682	0.677	0.4600	-1.0275	1.274
3.939	0.9208	-0.0385	0.9125	0.715	0.5000	-1.0339	1.285
4.308	0.9481	-0.0363	0.9482	0.746	0.5400	-0.6161	1.066
4.666	0.9697	-0.0344	0.9741	0.769	0.5800	-0.4024	0.965
5.013	0.9827	-0.0328	0.9888	0.782	0.6200	-0.3232	0.929
5.405	0.9905	-0.0318	0.9975	0.790	0.6600	-0.2717	0.906
5.793	0.9929	-0.0301	0.9993	0.791	0.7000	-0.2177	0.882
6.360	0.9939	-0.0278	0.9994	0.791	0.7500	-0.1338	0.844
7.107	0.9937	-0.0246	0.9975	0.790	0.8000	-0.0410	0.803
7.920	0.9935	-0.0230	0.9965	0.789	0.8500	-0.0481	0.764
9.368	0.9916	-0.0207	0.9931	0.786	0.9000	0.1285	0.728
11.561	0.9819	-0.0176	0.9802	0.774	0.9500	0.1941	0.699
13.088	0.9796	-0.0165	0.9769	0.771	0.9750	0.2209	0.687
15.181	0.9792	-0.0152	0.9757	0.770	1.0000	0.2434	0.677
					LOWER SIDE		
17.334	0.9797	-0.0132	0.9754	0.770	1.0000	0.2434	0.677
18.946	0.9800	-0.0123	0.9752	0.770	0.9500	0.4124	0.600
21.084	0.9804	-0.0115	0.9753	0.770	0.9000	0.4554	0.580
22.476	0.9808	-0.0111	0.9756	0.770	0.8500	0.4512	0.582
24.386	0.9815	-0.0108	0.9763	0.771	0.8000	0.4241	0.594
26.312	0.9820	-0.0104	0.9767	0.771	0.7500	0.3751	0.617
28.263	0.9829	-0.0099	0.9774	0.772	0.6500	0.2550	0.672
29.875	0.9833	-0.0091	0.9775	0.774	0.5500	0.1168	0.734
33.666	0.9848	-0.0088	0.9793	0.774	0.4500	-0.0220	0.795
36.289	0.9851	-0.0085	0.9794	0.774	0.3500	-0.1115	0.835
					0.2500	-0.0932	0.826
					0.2000	-0.0192	0.794
					0.1500	0.0695	0.705
					0.1000	0.1882	0.705
					0.0500	0.2931	0.655
					0.0200	0.3831	0.614
					0.0080	0.4664	0.574
					0.0040	0.7103	0.451
					0.0	1.1324	0.114

RUN 198 HA=0.785 ALPHA= 2.50 PINF=362.5 PO=544.8 TO=302.9
 RE=0.248 07
 X/C= 0.9000 ZE= 9.728 HE=0.725 HE=240.51 CPE= 0.1304
 DEL= 7.559 DEL*= 2.9771 THETA= 1.2205 H=2.439 CF=0.00071
 (DISTANCES (MM) U (M/S) P (MMHG) T (DEG.K) ALPHA (DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	NL
					UPPER SIDE		
0.0	0.7033	0.1317	0.0	0.0	0.0	1.1268	0.124
0.070	0.7147	0.1314	0.2204	0.152	0.0040	0.5049	0.556
0.115	0.7139	0.1312	0.2129	0.147	0.0080	-0.1540	0.854
0.160	0.7159	0.1311	0.2318	0.160	0.0150	0.1913	0.701
0.238	0.7179	0.1308	0.2498	0.173	0.0250	-0.3834	0.957
0.301	0.7195	0.1305	0.2640	0.183	0.0400	-0.5165	1.018
0.454	0.7219	0.1299	0.2831	0.196	0.0600	-0.7125	1.113
0.645	0.7235	0.1292	0.2959	0.205	0.0800	-0.8437	1.180
0.846	0.7259	0.1284	0.3140	0.217	0.1000	-0.9082	1.215
1.219	0.7347	0.1284	0.3668	0.254	0.1400	-0.9437	1.234
1.581	0.7407	0.1304	0.3949	0.274	0.1800	-0.9792	1.254
1.943	0.7451	0.1351	0.4100	0.285	0.2200	-1.0180	1.276
2.346	0.7524	0.1366	0.4413	0.307	0.2600	-1.0002	1.266
2.771	0.7642	0.1316	0.4968	0.347	0.3000	-1.0132	1.274
3.085	0.7759	0.1255	0.5464	0.382	0.3400	-1.0184	1.276
3.462	0.7936	0.1223	0.6065	0.426	0.3800	-1.0232	1.279
3.835	0.8119	0.1237	0.6575	0.463	0.4200	-1.0119	1.272
4.189	0.8238	0.1267	0.6861	0.484	0.4600	-1.0222	1.278
4.577	0.8452	0.1278	0.7367	0.521	0.5000	-1.0246	1.280
4.939	0.8668	0.1247	0.7861	0.559	0.5400	-0.5902	1.053
5.324	0.8878	0.1231	0.8290	0.591	0.5800	-0.4045	0.966
5.708	0.9096	0.1233	0.8689	0.622	0.6200	-0.3247	0.930
6.051	0.9271	0.1232	0.8989	0.645	0.6600	-0.2723	0.906
6.447	0.9524	0.1233	0.9394	0.677	0.7000	-0.2206	0.883
6.820	0.9695	0.1231	0.9651	0.697	0.7500	-0.1377	0.846
7.201	0.9785	0.1240	0.9776	0.707	0.8000	-0.0594	0.803
7.559	0.9869	0.1249	0.9891	0.716	0.8500	-0.0524	0.762
7.939	0.9927	0.1261	0.9965	0.722	0.9000	0.1317	0.727
8.671	0.9957	0.1295	0.9986	0.724	0.9500	0.1940	0.700
9.406	0.9962	0.1303	0.9989	0.724	0.9750	0.2184	0.689
10.212	0.9960	0.1296	0.9989	0.724	1.0000	0.2386	0.680
					LOWER SIDE		
11.305	0.9936	0.1319	0.9944	0.720	1.0000	0.2386	0.680
12.186	0.9893	0.1301	0.9895	0.716	0.9500	0.4121	0.600
13.145	0.9836	0.1249	0.9843	0.712	0.9000	0.4541	0.580
15.036	0.9806	0.1202	0.9829	0.711	0.8500	0.4501	0.582
16.999	0.9794	0.1179	0.9825	0.711	0.8000	0.4241	0.594
18.928	0.9801	0.1159	0.9847	0.712	0.7500	0.3748	0.617
20.674	0.9808	0.1163	0.9854	0.713	0.7000	0.3248	0.670
22.824	0.9811	0.1150	0.9866	0.714	0.6500	0.2594	0.617
24.689	0.9823	0.1133	0.9892	0.716	0.6000	0.1222	0.731
26.342	0.9830	0.1119	0.9909	0.717	0.5500	-0.0205	0.795
29.958	0.9842	0.1078	0.9949	0.721	0.5000	-0.1112	0.835
34.089	0.9857	0.1034	0.9995	0.724	0.4500	-0.0910	0.826
37.451	0.9867	0.1002	1.0027	0.727	0.4000	-0.0132	0.791
					0.3500	0.0803	0.750
					0.3000	0.1992	0.697
					0.2500	0.2992	0.652
					0.2000	0.3836	0.613
					0.1500	0.4649	0.575
					0.1000	0.7113	0.451
					0.0500	1.1268	0.124
					0.0	1.1268	0.124

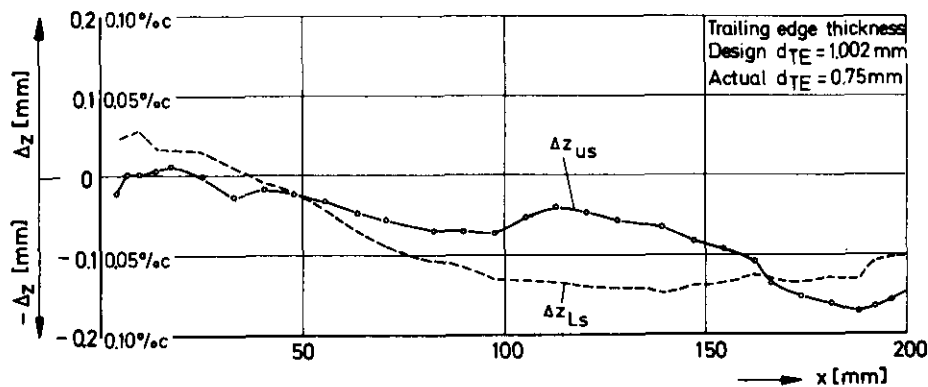
RUN 199 HA=0.785 ALPHA= 2.50 PINF=362.8 PO=544.9 TO=303.3
 RE=0.248 07
 X/C= 0.9900 ZE=12.564 HE=0.685 HE=228.65 CPE= 0.2142
 DEL=10.910 DEL*= 4.7815 THETA= 1.6995 H=2.814 CF=0.00037
 (DISTANCES (MM) U (M/S) P (MMHG) T (DEG.K) ALPHA (DEG.))

BOUNDARY LAYER PROFILES					SURFACE PRESSURES		
Z	PT/PO	CPB	U/UE	HB	X/C	CP	NL
					UPPER SIDE		
0.0	0.7324	0.2322	0.0	0.0	0.0	1.1327	0.113
0.070	0.7363	0.2314	0.1370	0.090	0.0040	0.5129	0.552
0.148	0.7368	0.2305	0.1485	0.097	0.0080	-0.1482	0.851
0.227	0.7375	0.2295	0.1630	0.107	0.0150	0.1936	0.699
0.313	0.7376	0.2285	0.1684	0.110	0.0250	-0.3812	0.955
0.432	0.7380	0.2271	0.1784	0.117	0.0400	-0.5147	1.017
0.660	0.7383	0.2244	0.1916	0.126	0.0600	-0.7104	1.112
0.999	0.7392	0.2224	0.2082	0.137	0.0800	-0.8418	1.179
1.369	0.7416	0.2210	0.2366	0.155	0.1000	-0.9086	1.214
1.753	0.7431	0.2209	0.2512	0.165	0.1400	-0.9458	1.235
2.189	0.7466	0.2221	0.2772	0.182	0.1800	-0.9831	1.255
2.518	0.7487	0.2207	0.2965	0.195	0.2200	-1.0242	1.279
3.085	0.7560	0.2202	0.3472	0.229	0.2600	-1.0049	1.268
3.633	0.7641	0.2186	0.3970	0.262	0.3000	-1.0165	1.274
4.219	0.7755	0.2184	0.4545	0.300	0.3400	-1.0185	1.275
4.943	0.7930	0.2172	0.5301	0.351	0.3800	-1.0228	1.278
5.708	0.8152	0.2157	0.6102	0.406	0.4200	-1.0142	1.273
6.466	0.8413	0.2158	0.6879	0.460	0.4600	-1.0270	1.280
7.174	0.8684	0.2155	0.7579	0.509	0.5000	-1.0316	1.283
7.947	0.8989	0.2148	0.8271	0.558	0.5400	-0.6489	1.081
8.686	0.9303	0.2121	0.8915	0.605	0.5800	-0.4034	0.965
9.428	0.9638	0.2129	0.9501	0.648	0.6200	-0.3265	0.930</



Geometric data: Chord $c = 200$ mm Maximum $t/c = 11.8\%$ at $x/c = 35\%$ Cross section $F_p \approx 3063\text{mm}^2$
 Trailing edge thickness $z_{TE}/c = 0.38\%$ Diameter of pressure orifices $d_B = 0.5$ mm

a. Contour and location of pressure orifices



b. Measured error of manufactured airfoil (also see Table 3.1a)

Figure 3.1 Airfoil CAST 7 - Model SP 120 ($c = 200$ mm): Contour, location of pressure orifices and deviation from design coordinates (see Table 3.1b for deviation on ARA model)

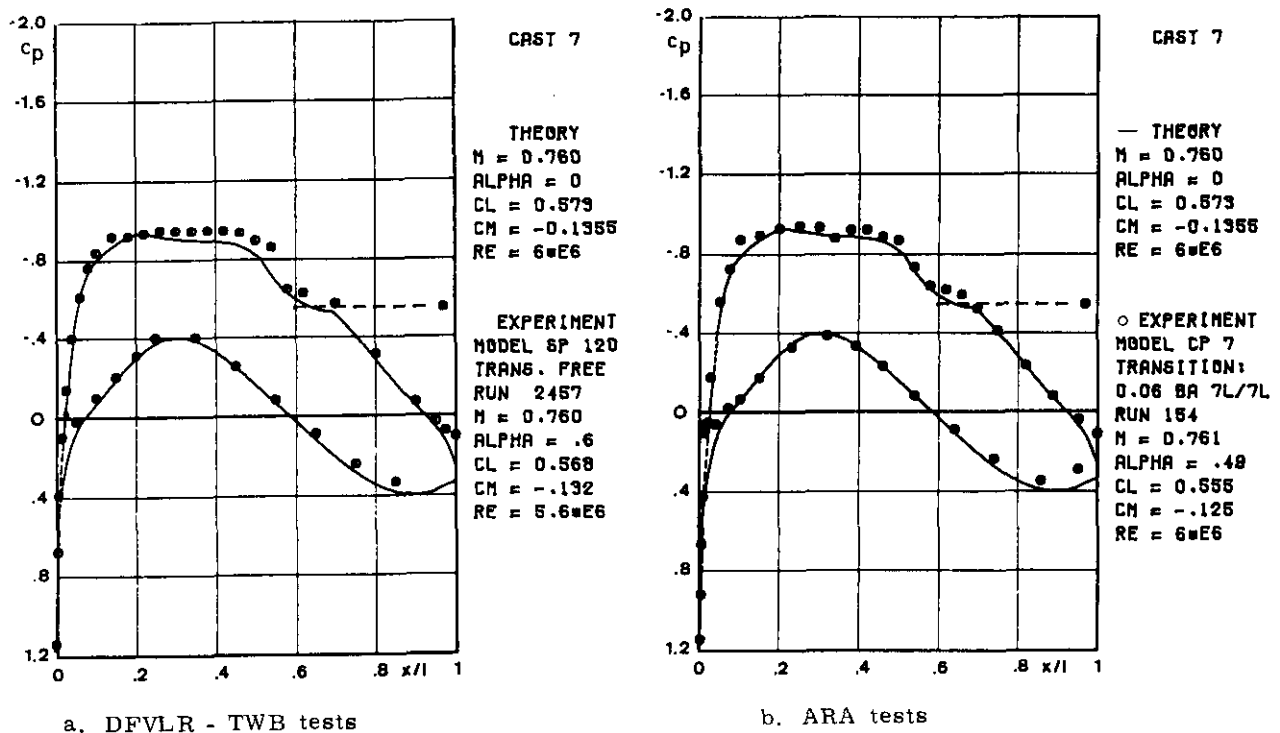
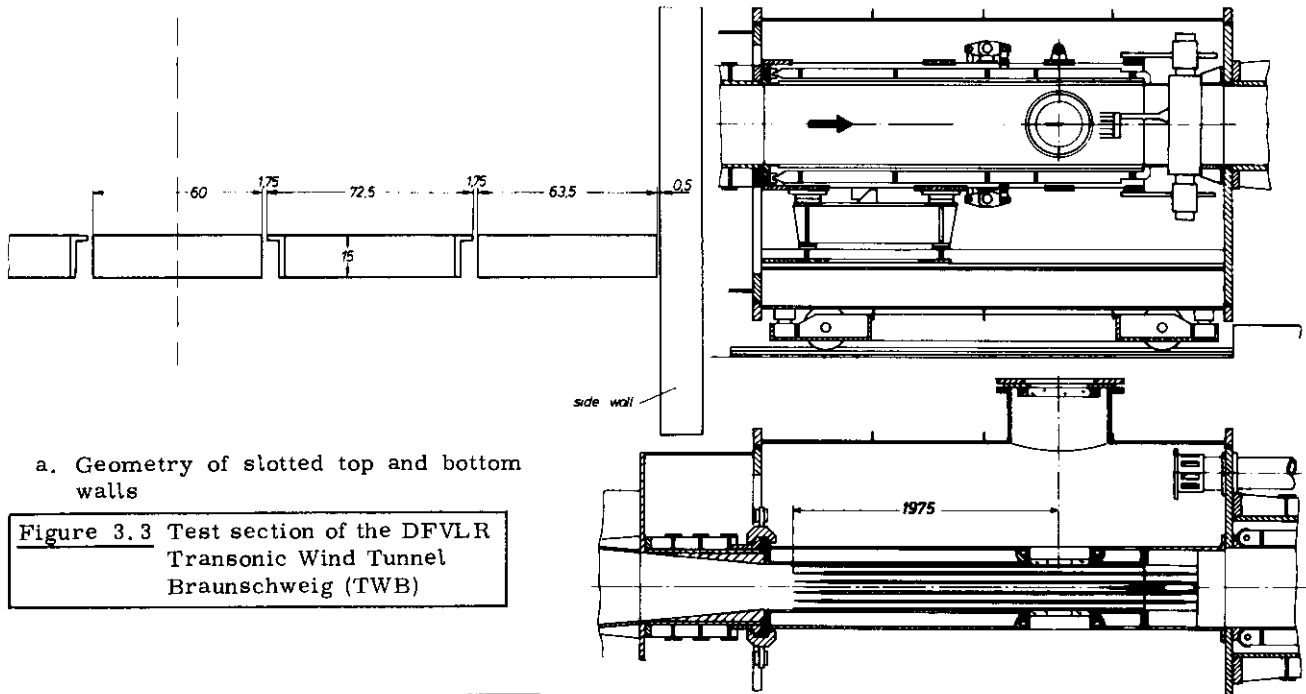
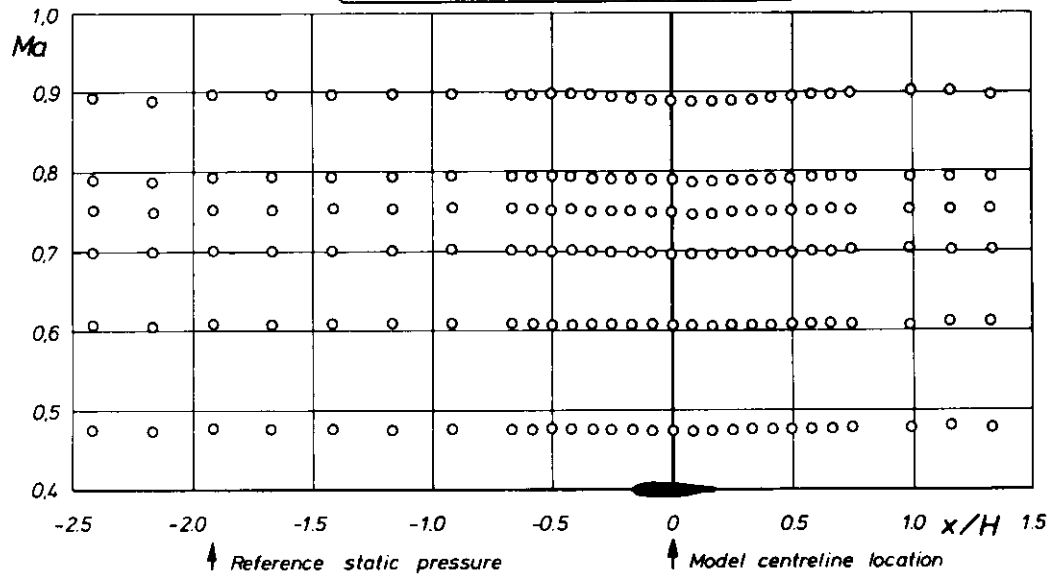


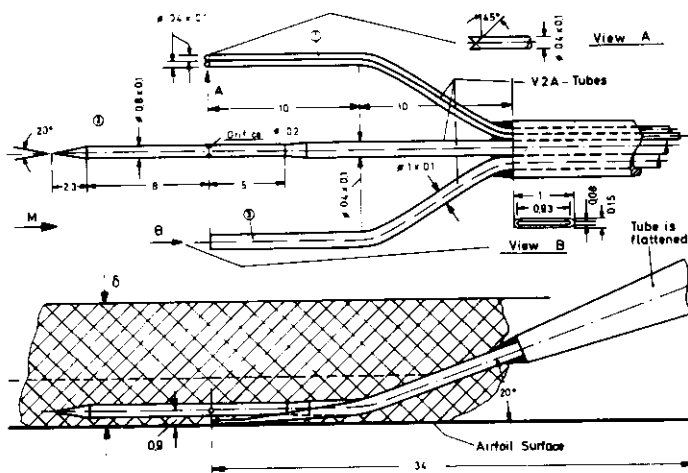
Figure 3.2 Design pressure distribution. Comparison between theory and experiment.



$H = 0.6 \text{ m}$
 Wall divergence
 (top and bottom
 walls) = 0.253°



- ① Directional Probe
- ② Static Probe
- ③ Pitot Probe



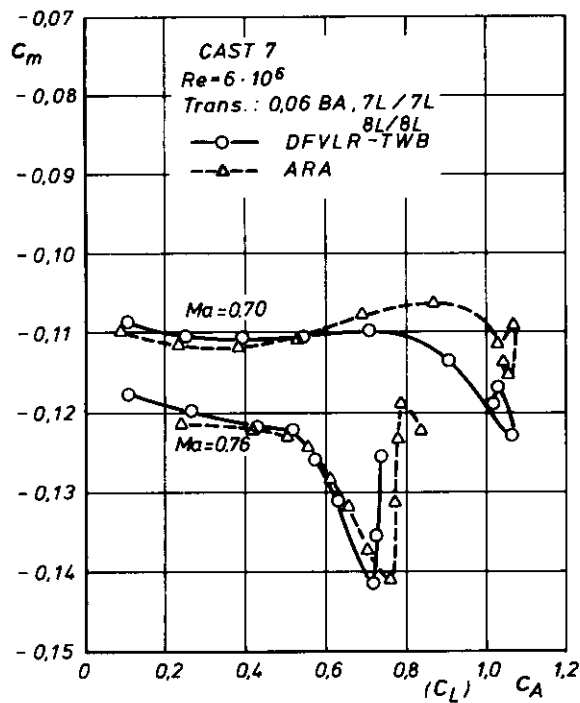
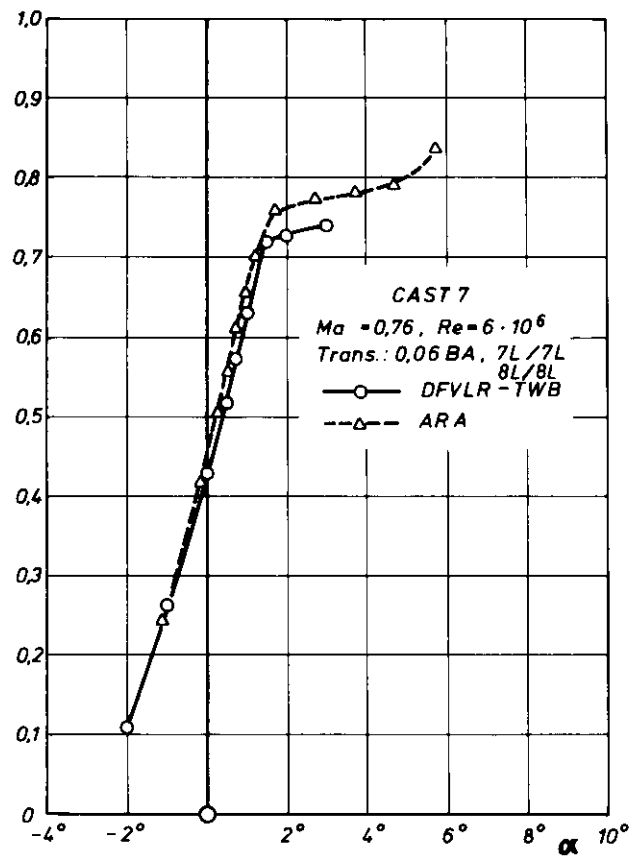
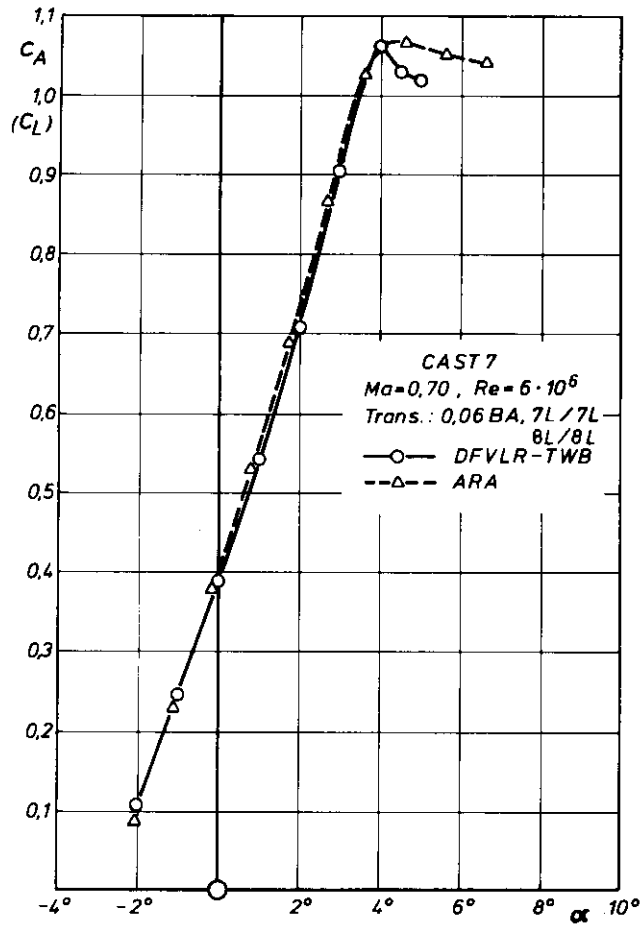
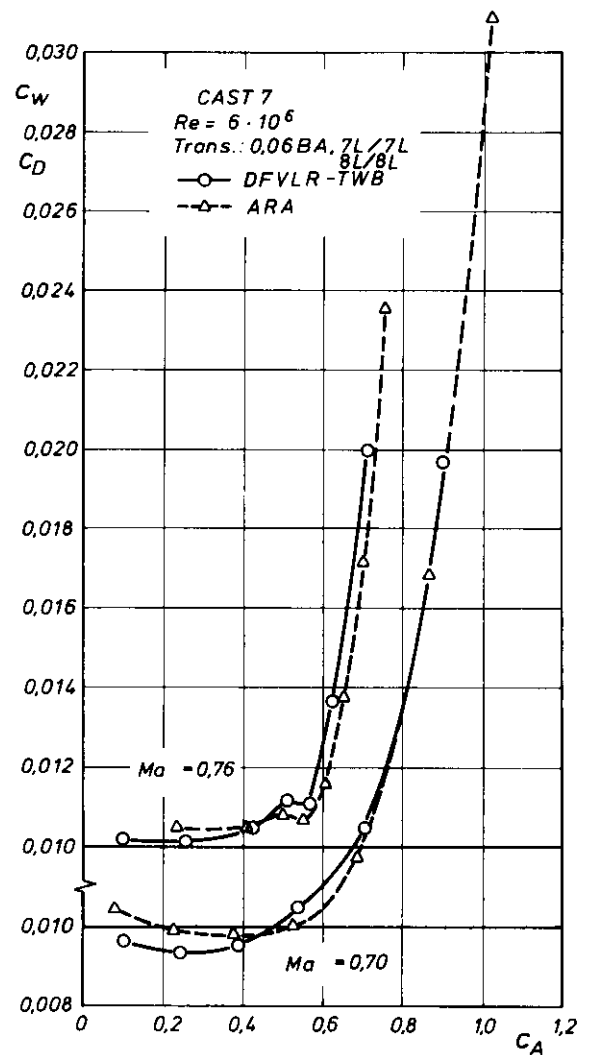


Figure 3.6 DFVLR-TWB and ARA tests. Aerodynamic coefficients.

a. Angle of attack variation



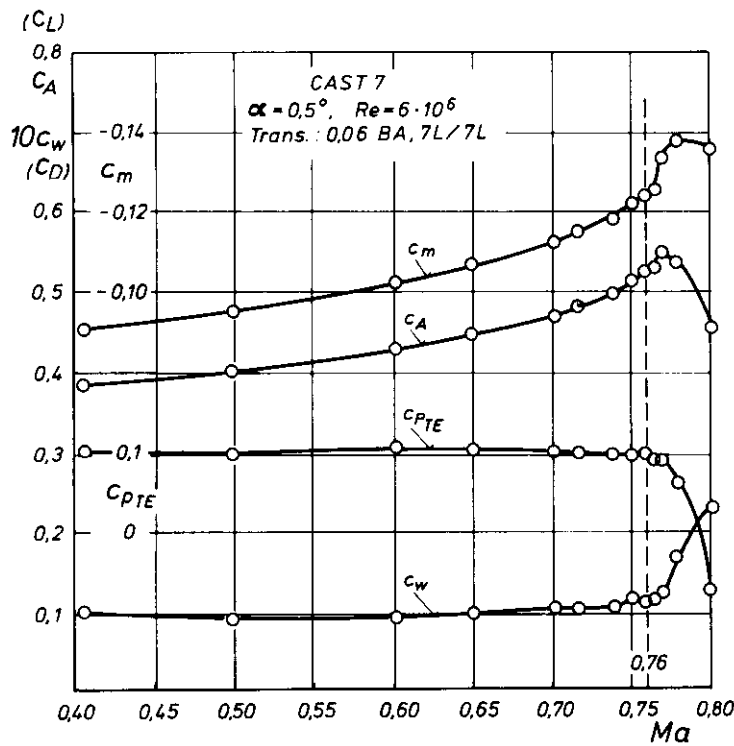


Figure 3.6 Continued

b. Mach number variation
 (TWB tests)

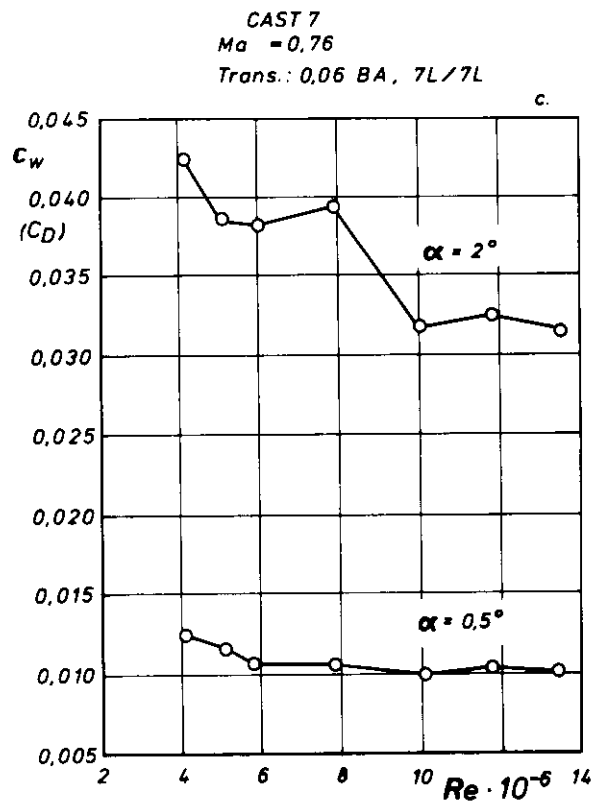
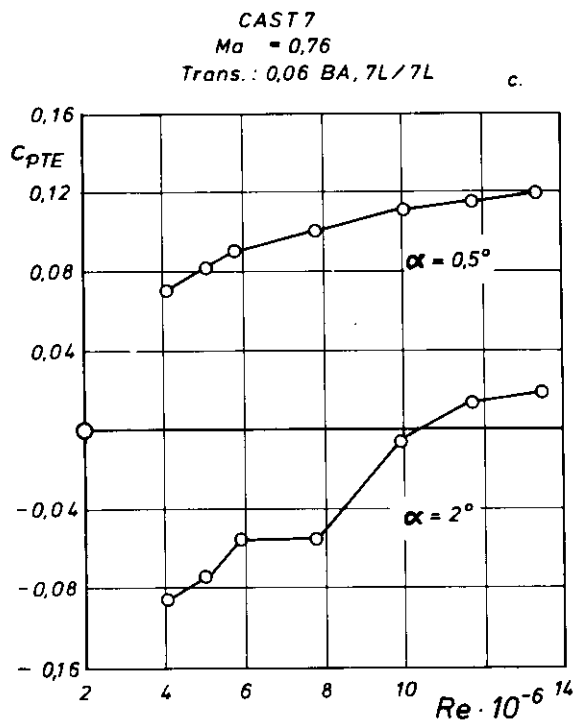
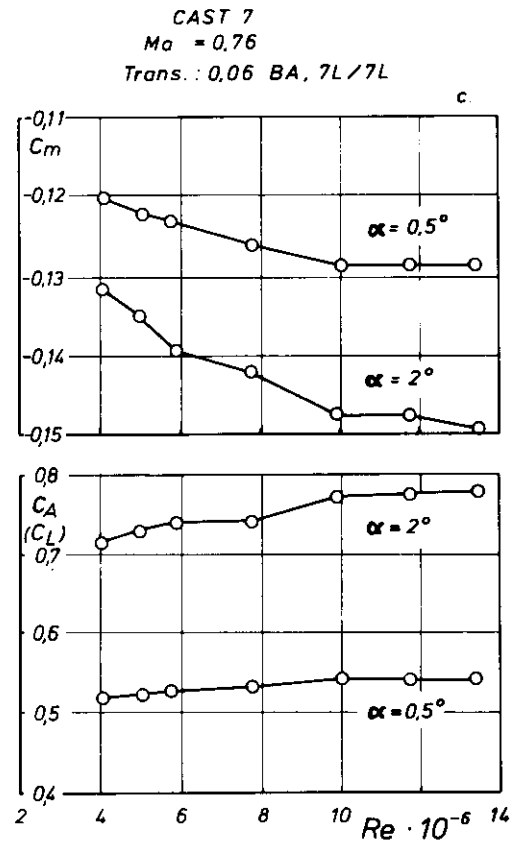


Figure 3.6 Concluded

c. Reynolds number variation (TWB tests)

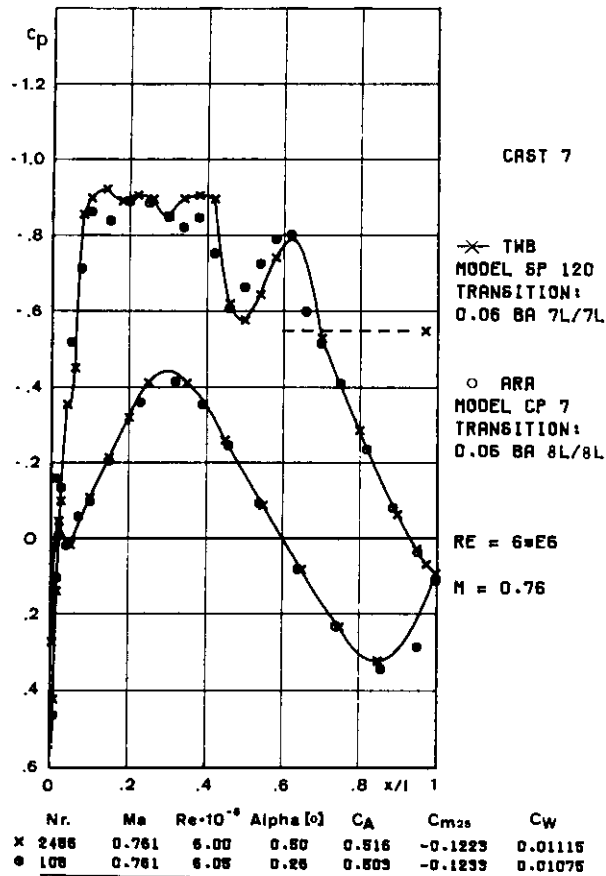
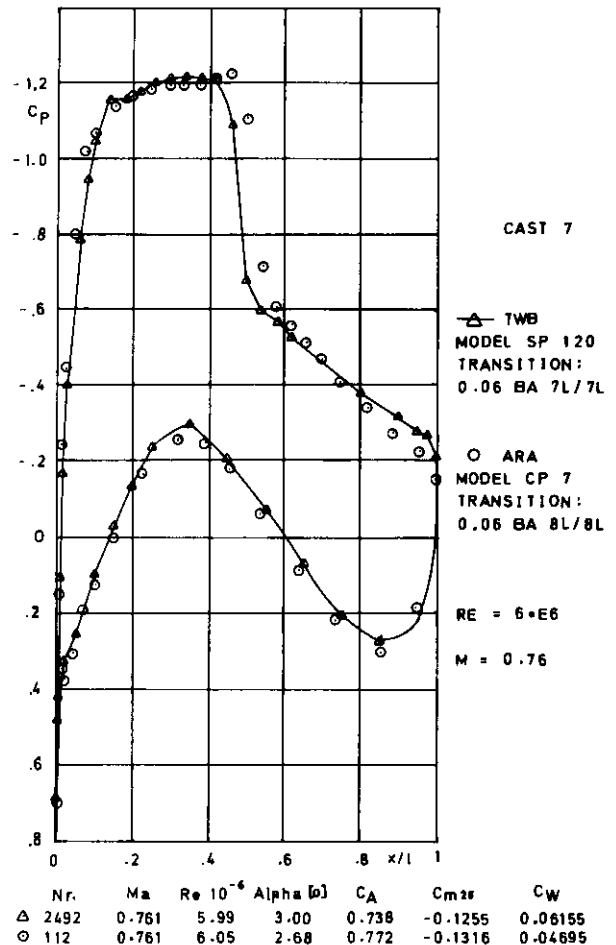
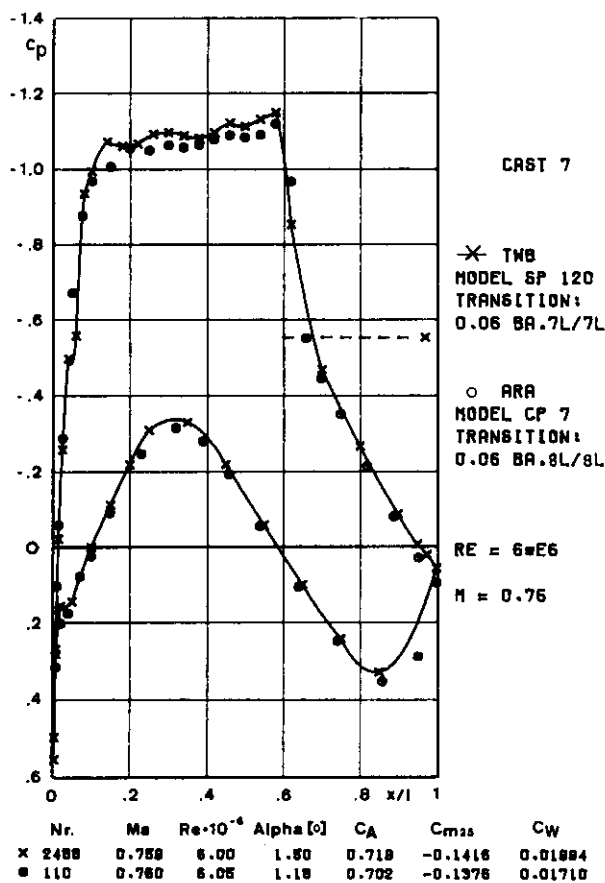
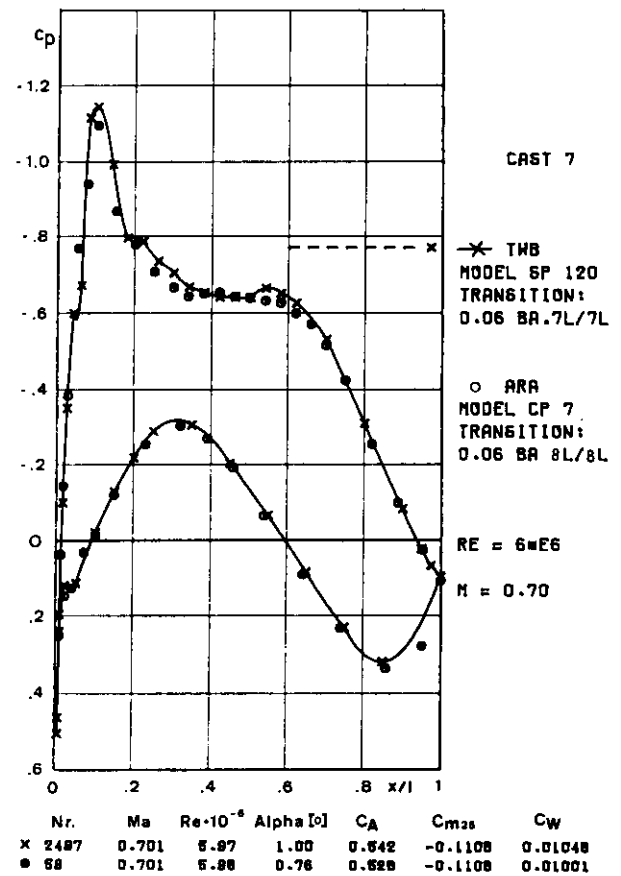


Figure 3.7 Comparison of pressure distributions from ARA and DFVLR-TWB tests



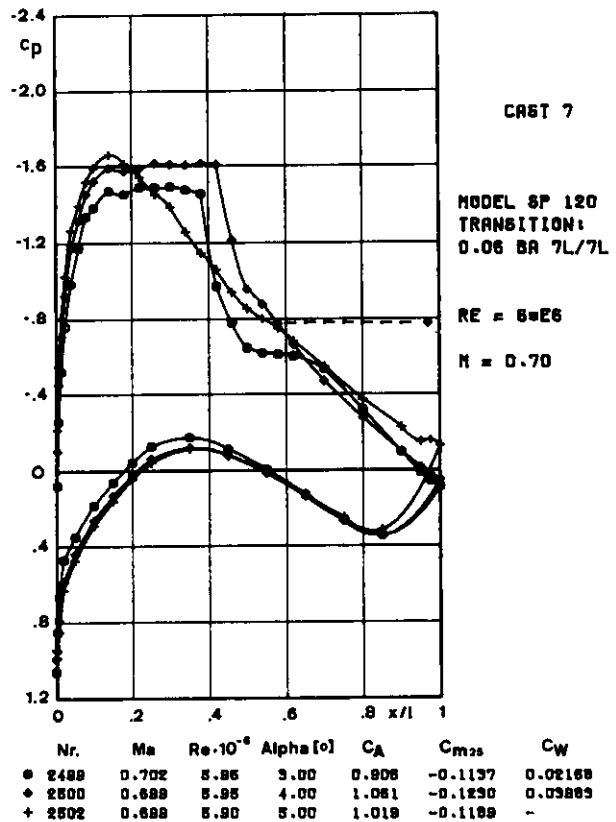
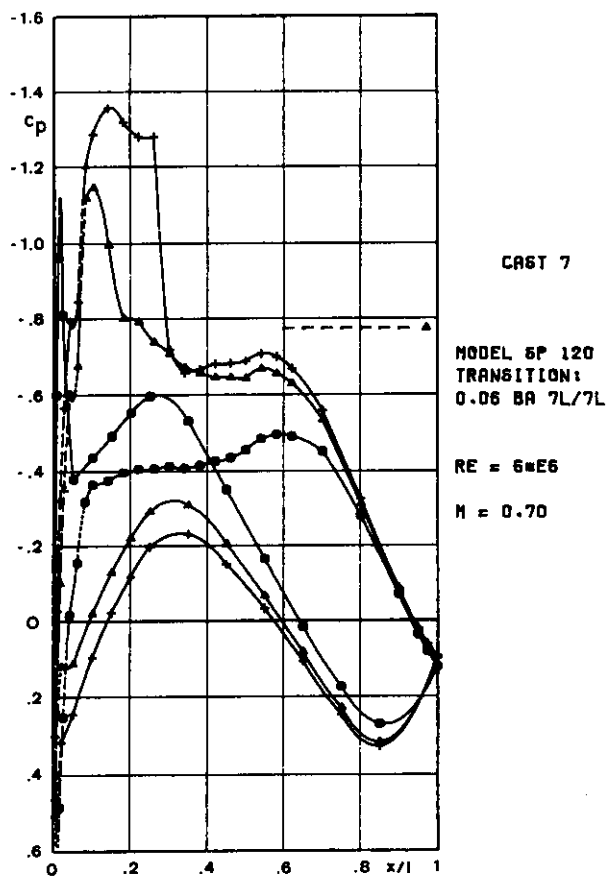
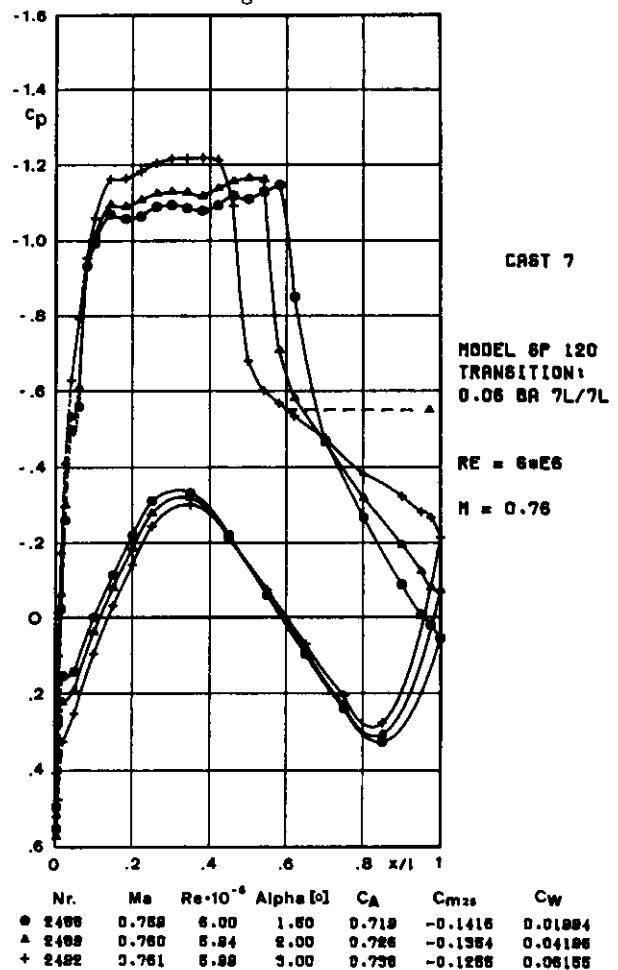
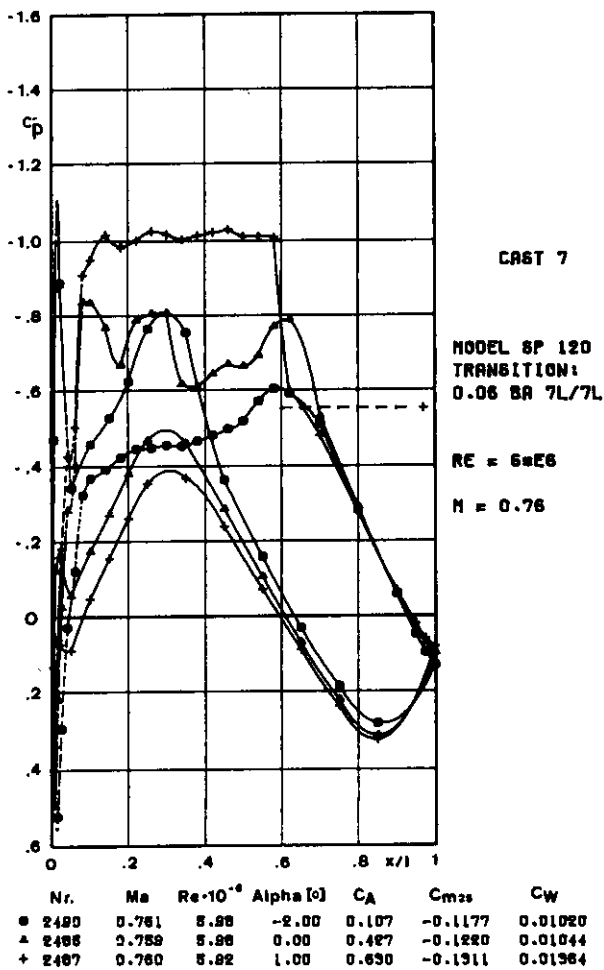


Figure 3.8 DFVLR-TWB tests. Surface pressure distributions

a. Angle of attack variation



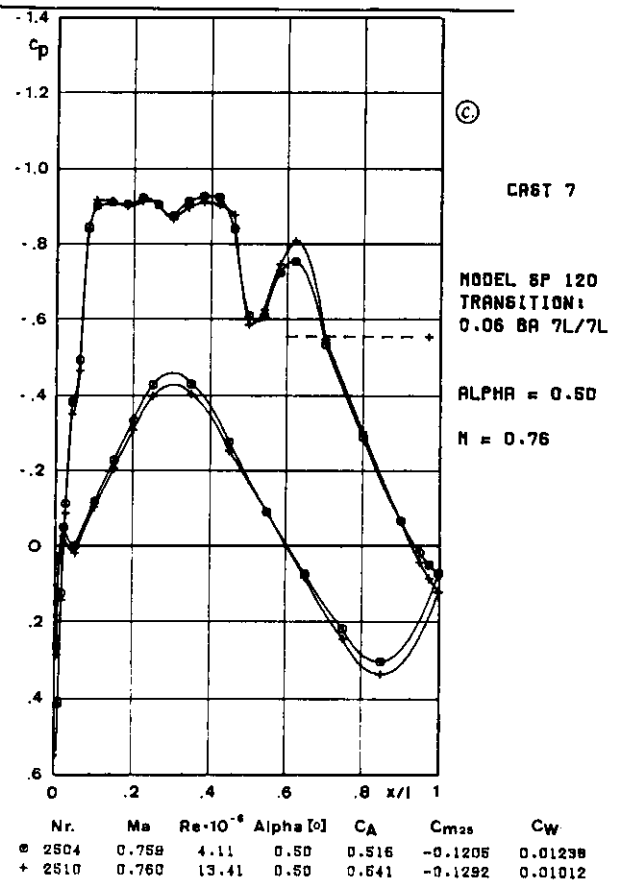
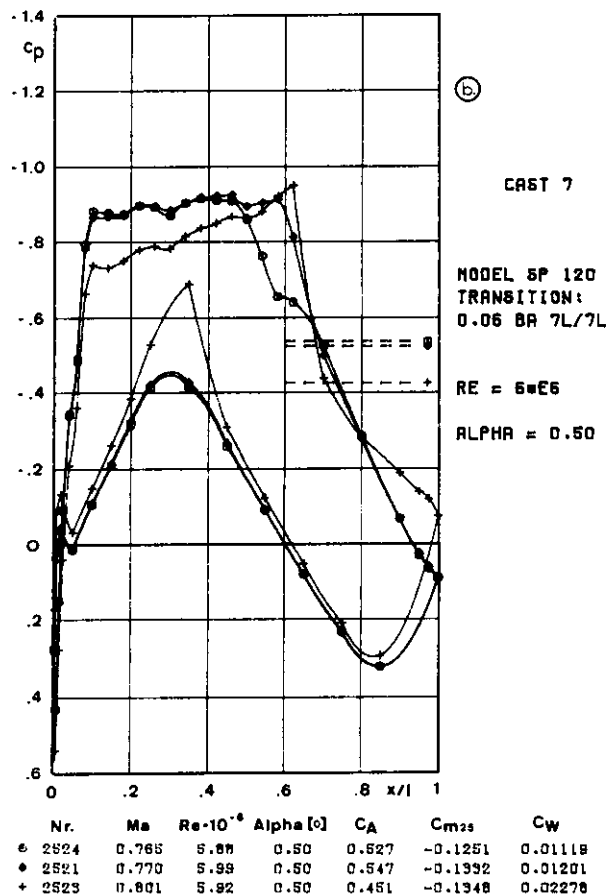
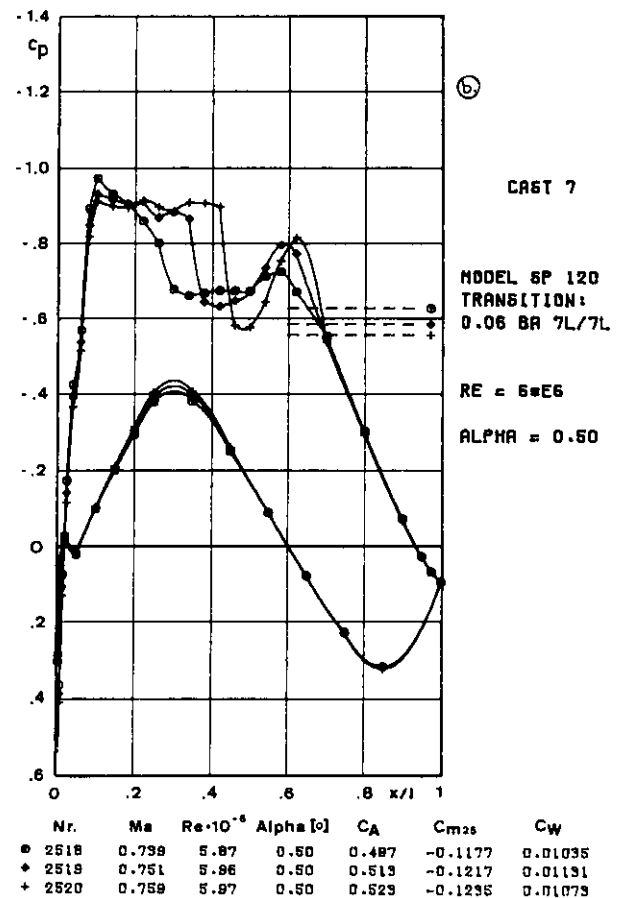
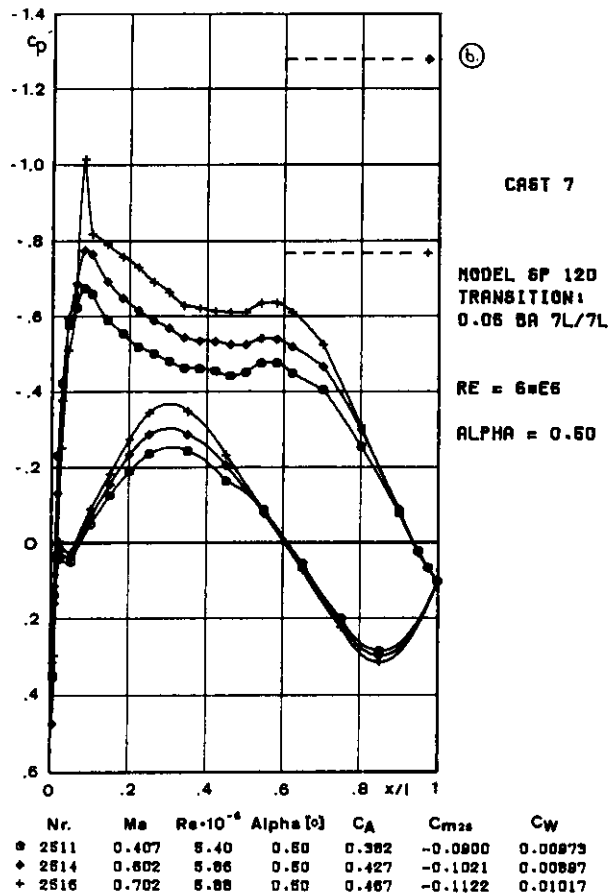


Figure 3.8 Continued.

b. Mach number variation

c. Reynolds number variation

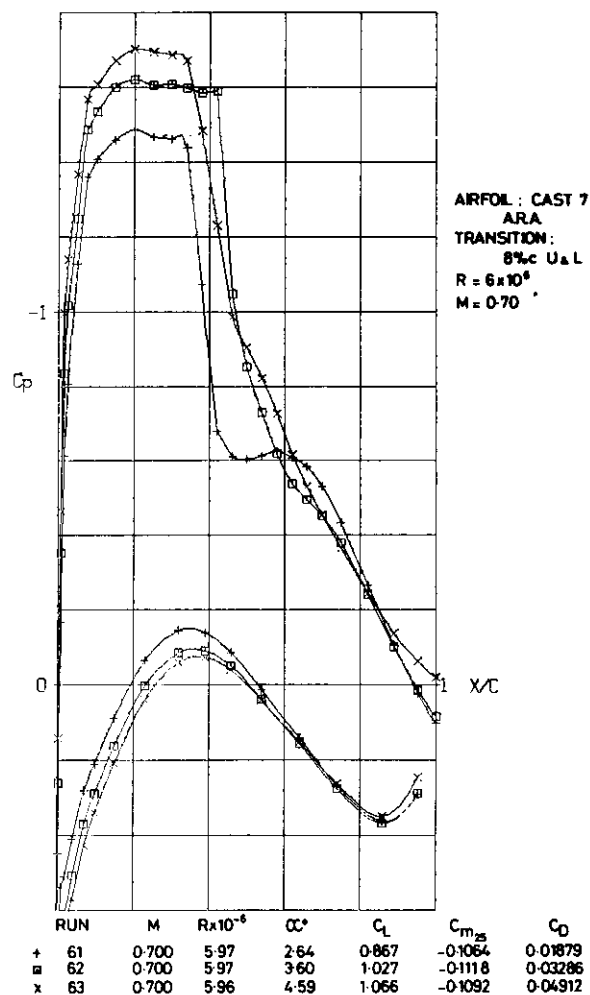
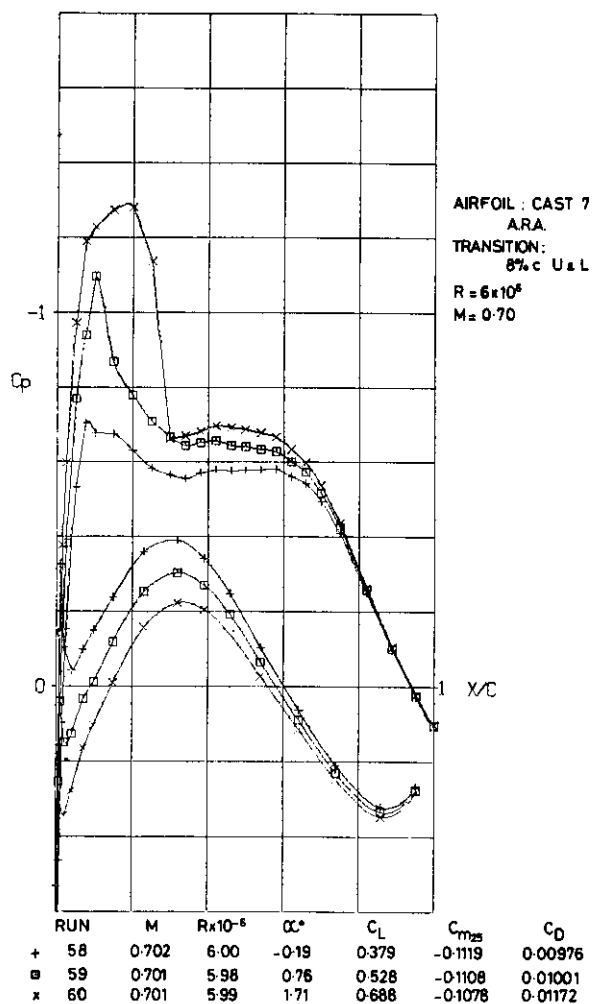
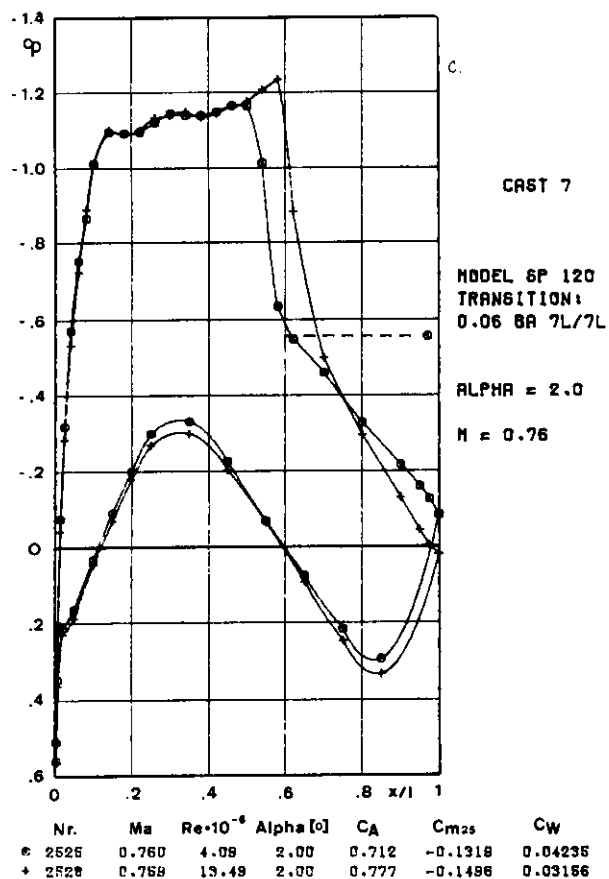


Figure 3.9 ARA tests. Surface pressure distributions

a. Angle of attack variation

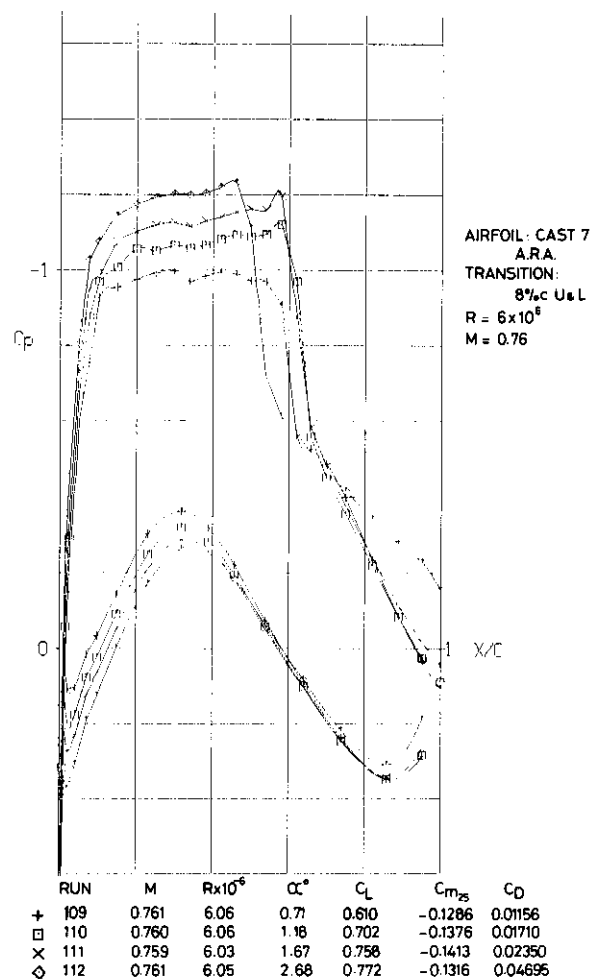
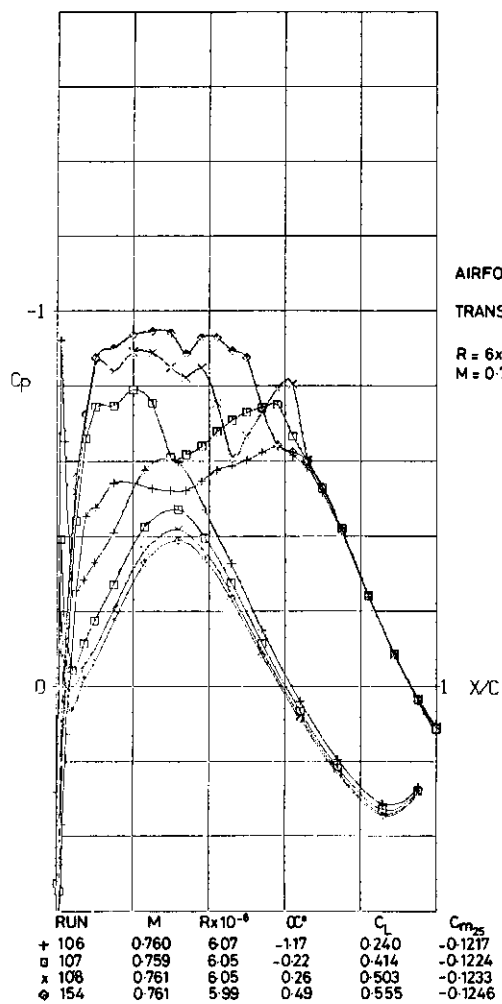


Figure 3.9 Continued

a. Angle of attack variation

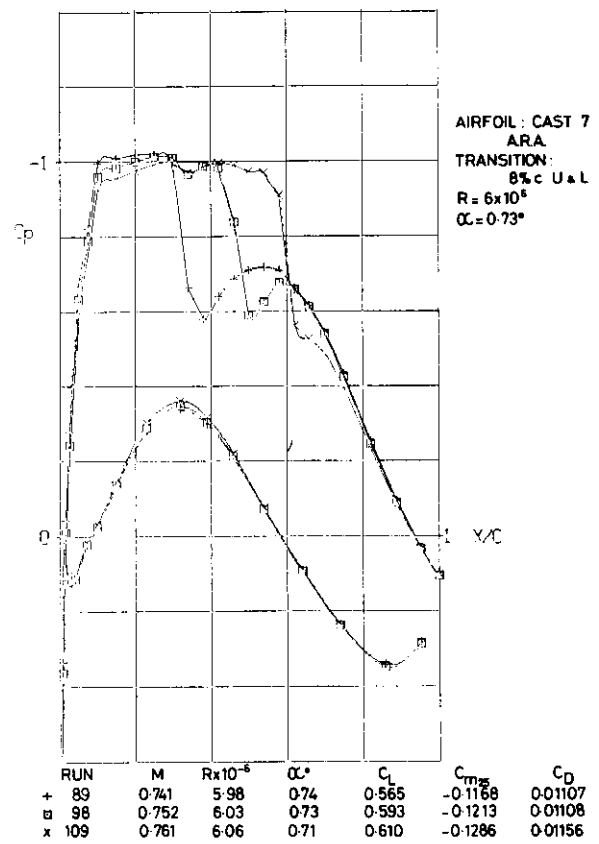
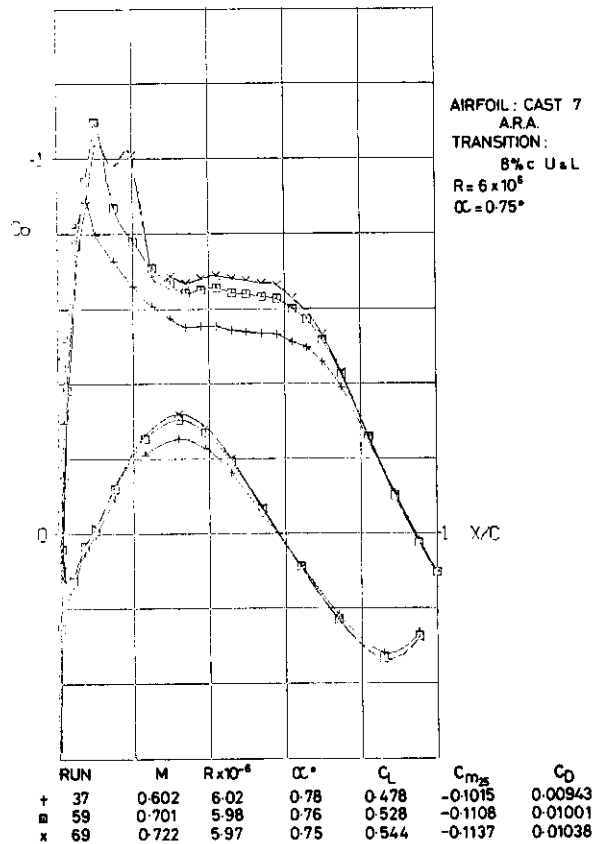
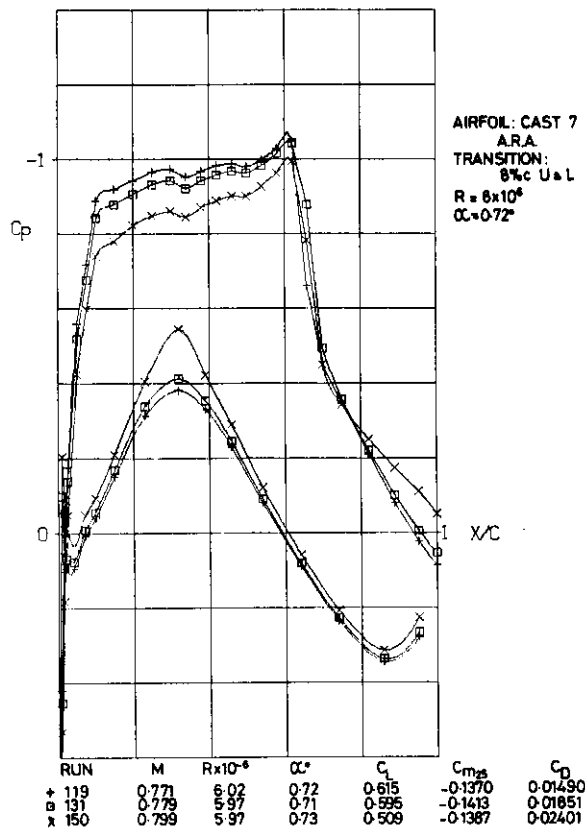
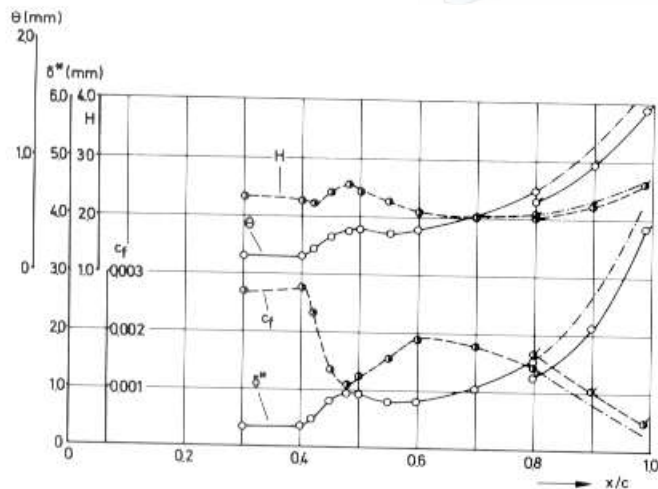


Figure 3.9 Concluded

b. Mach number variation



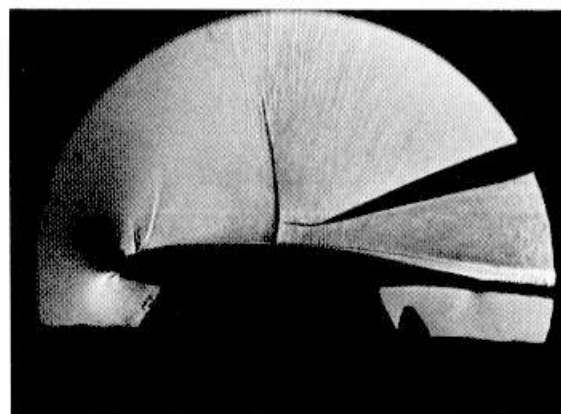
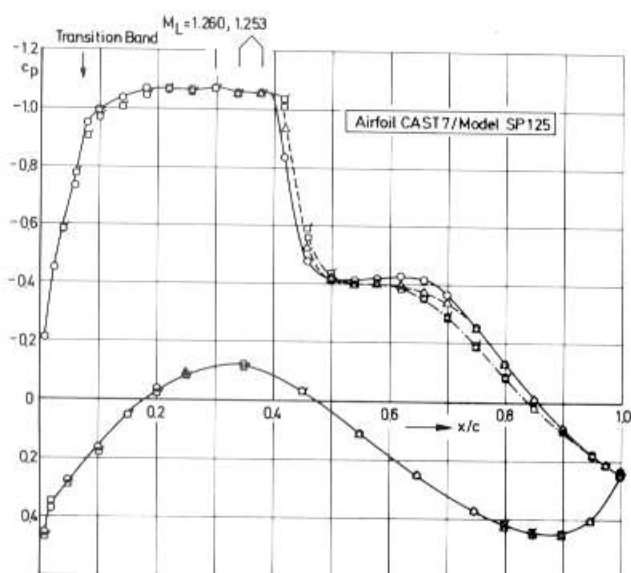


Sym	Run	M_∞	α°	Probe location	
				x/c	C_N
o	165	0.764	2.52	0.40	0.695
Δ	158	0.764	2.52	0.50	0.695
$\square$	162	0.765	2.52	0.80	0.689
σ	193*	0.765	2.50	0.80	0.687

* Transition band was renewed before measuring boundary layer profiles at $x/c \geq 0.80$. Boundary layer profile at $x/c = 0.80$ was obtained with old and new transition band for comparison. The flagged symbols denote measurements with transition band renewed.

Data are not corrected for wall constraints or blockage due to cover of probe drive mechanism (see Introduction).

Skin friction was determined by a modified Ludwig-Tillmann Formulation [6]

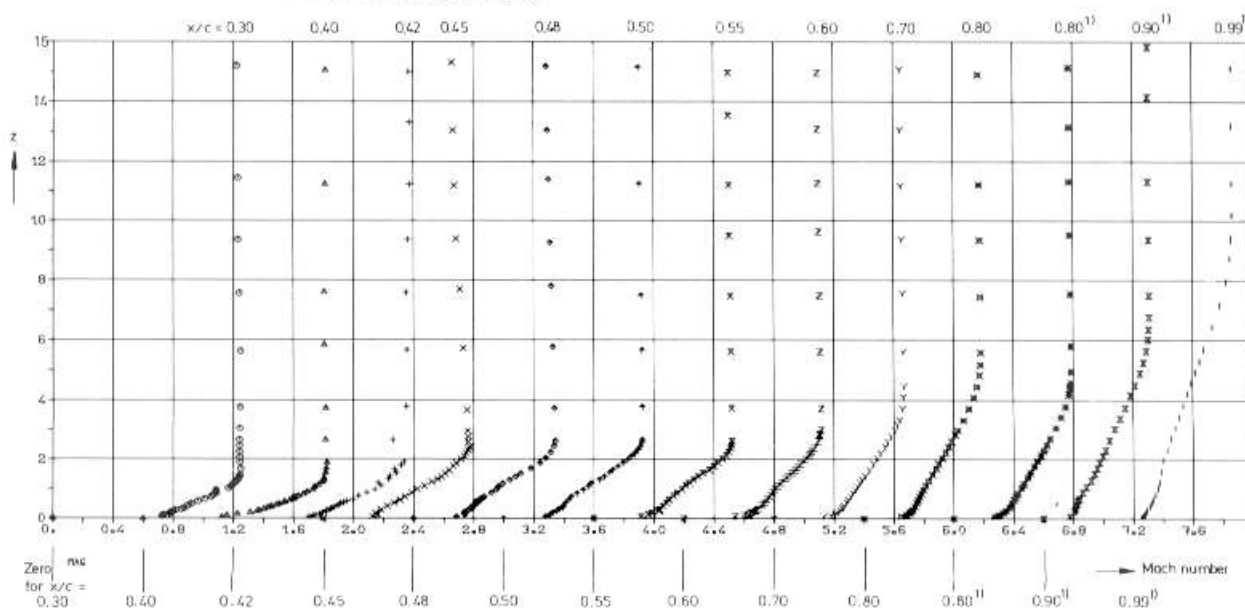


Schlieren picture corresponds to Run 158 with $(x/c)_{\text{probe}} = 0.50$

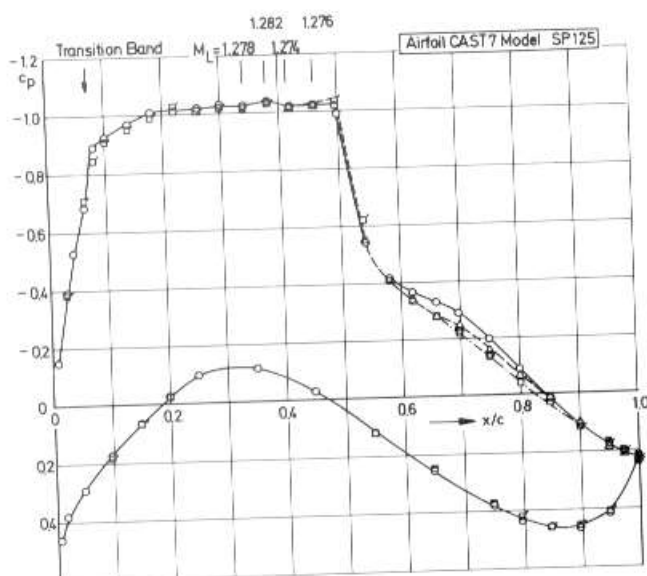
Figure 3.10 DFVLR 1x1 Meter tests. Surface pressure distribution and boundary layer measurements Model: SP 125 $c = 250$ mm. Transition: 0.09 BA, 7.5/7.5L

a. $M_\infty = 0.765$ $\alpha = 2.52^\circ$ $Re = 2.4 \cdot 10^6$

Sym o Δ + x $\circ$ $\bullet$ x z y $\square$ σ i
 Run 166 165 164 163 157 158 159 160 161 162 193 194 195

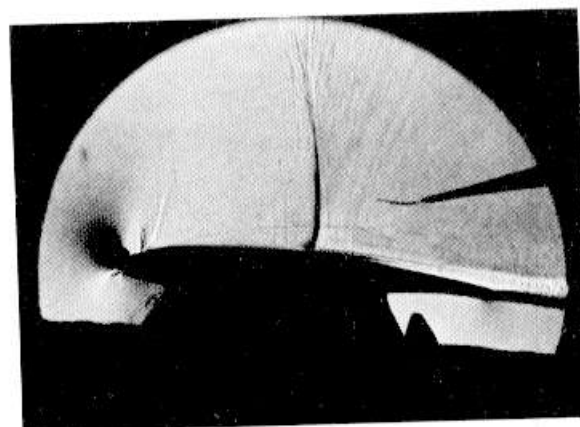


¹⁾ Transition band renewed (also see Legend)



Sym	Run	M_∞	α°	Probe location	
				x/c	c_N
o	177	0.785	2.52	0.42	0.721
Δ	171	0.785	2.52	0.60	0.716
□	167	0.784	2.52	0.80	0.706
σ	197*	0.785	2.50	0.80	0.707

For comments see Legend of Figure 3.10a



Schlieren picture corresponds to Run 168
 with $(x/c)_{\text{probe}} = 0.70$

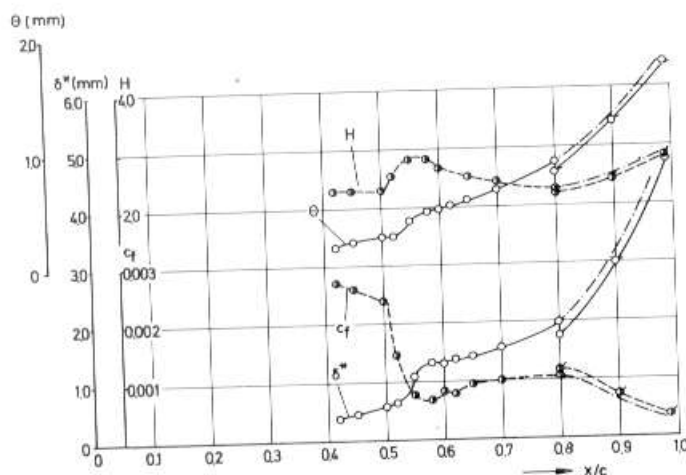
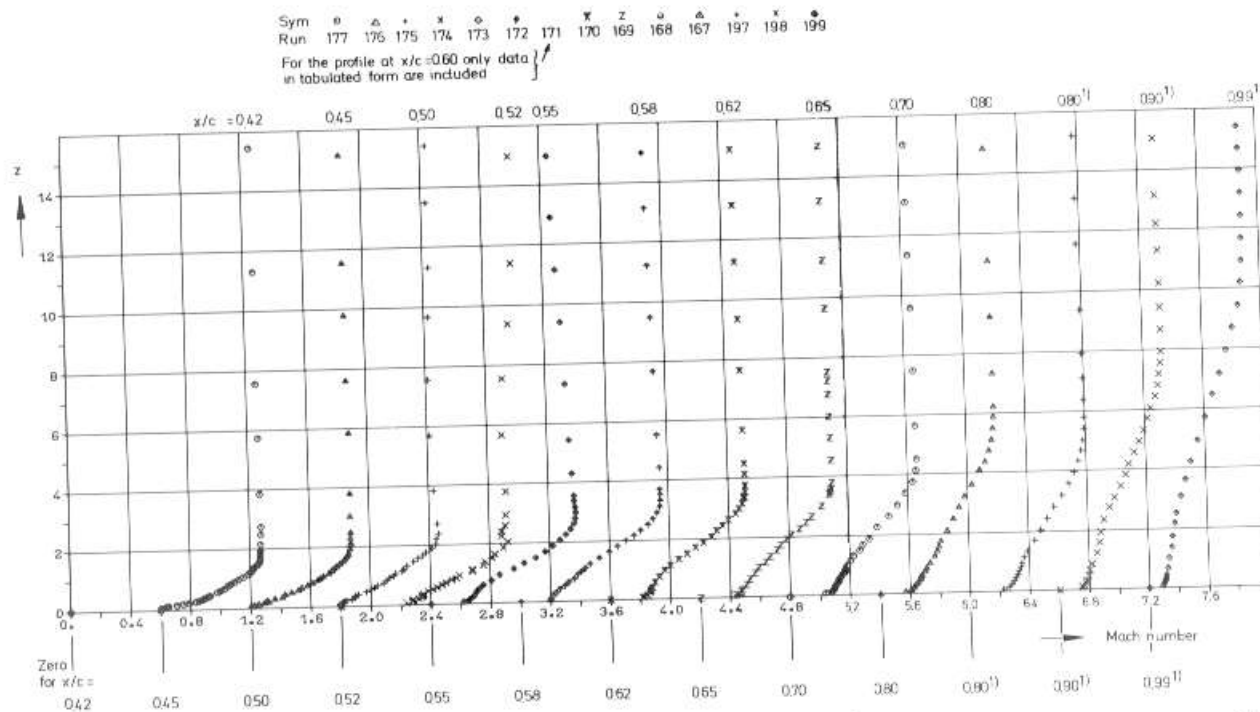


Figure 3.10 Concluded

b. $M_\infty = 0.785 \quad \alpha = 2.52^\circ$

$Re = 2.4 \cdot 10^6$



⁽¹⁾ Transition band renewed (also see Legend to Figure 3.10a)

AR-138

4. NLR 7301 airfoil

contributed by

National Aerospace Laboratory NLR
Amsterdam, The Netherlands

4.1 Introduction

The NLR 7301 airfoil was selected because it represents the thickest (16.7%) of all supercritical airfoils submitted for inclusion in this data base and appears to be close to the limits of useful exploitation of the supercritical shock-free airfoil concept.

Because of the rather extreme nose radius the airfoil represents probably a hard test case for cartesian grid based methods, in particular if also based on the transonic small perturbation assumption.

The fact that the airfoil represents a rather extreme specimen of thick, supercritical airfoils is, in the present low Reynolds number tests ($\approx 2 \times 10^6$), reflected, i.e., in the typical variations with angle of attack and Mach number of the aerodynamic coefficients. It appears that, even at subcritical conditions, and both with free and fixed transition, the boundary layer on either the upper surface, or the lower, or both, is stressed to the limits or beyond. As a result the effects of variations in transition position and transition fixing are rather dramatic. This situation suggests that the airfoil would be a difficult test case for all methods involving coupled inviscid flow and boundary layer computations. Note that when transition was free, it occurred generally through a laminar separation bubble which is often reflected in the pressure distribution (see e.g. fig. 4.10, $\alpha = .85^\circ$, $M = 0.5 - 0.7$, lower surface 50% chord). With fixed transition at 30% chord the trip caused generally a local perturbation of the pressure distribution.

A point of concern (although not a privilege of the present tests) is the amount of wall interference contained by the test data. The wall interference corrections given in section 6.2 of the data set have been determined by correlating classical ventilated wall interference theory with the downwash determined experimentally by means of solid/slotted wall comparisons and by means of the "drag balance" method (difference between wake drag and pressure + friction drag). At the time of the preparation of this data set, work was in progress to determine wall interference from measured static pressure distributions near the top and bottom wall. The reader is encouraged to watch the literature for publication of this work. It is emphasized that the observed difference between potential flow and experimental design Mach number for shock-free flow for this airfoil of 0.026 (fig. 4.1) is not a measure of the blockage in the tests. The difference can be explained by the viscous de-cambering near the trailing-edge. The decambering causes a reduction in circulation and an associated loss in upper surface supersonic velocity. To restore the local (shock-free) Mach number distribution the angle of attack and free stream Mach number have to be increased above the potential flow values.

It is worth mentioning that the tests were done with the specific purpose of verifying for the first time the aerodynamic characteristics of a supercritical shock-free airfoil designed by means of the Boerstoeel hodograph method. The airfoil has also been tested under oscillatory conditions in the same tunnel. At the time of preparation of this data set a program of high Reynolds number tests in the Lockheed Georgia Compressible Flow Facility was partially completed and tests in the NASA Ames 11 ft x 11 ft tunnel (steady and unsteady, $Re \approx 15 \times 10^6$) were about to be started.

4.2 DATA SET.

1. Airfoil

1.1. Airfoil designation	NLR 7301 (also NLR HT 7310810)
1.2. Type of airfoil	thick, aft-loaded, shock-free supercritical; designed by means of Boerstoeel hodograph method
1.2.1. airfoil geometry	see fig. 4.1 and table 4.1
nose radius	$R_o/c \approx 5\%$
maximum thickness	$t/c = 16.3\%$
base thickness	zero
1.2.2. design condition	potential flow (hodograph theory): $M = 0.721$ $c_l = 0.60$ experiment (free transition, NLR Pilot Tunnel): $M_t = 0.747$, $c_l \approx 0.45$
design pressure distribution	see fig. 4.1, table 4.1
1.3. Additional remarks	design method described in ref. 1
1.4. References on airfoil	none

2. Model geometry

2.1. Chord length	0.18 m
2.2. Span	0.42 m
2.3. Actual model co-ordinates and accuracy	see table 4.2 and fig. 4.2
2.4. Maximum thickness	$t/c = 16.3\%$
2.5. Base thickness	0.1% chord
2.6. Additional remarks	finite trailing-edge (base) thickness was obtained by cutting-off theoretical airfoil at 98.5% chord
2.7. References on model	none

3. Wind tunnel

3.1. Designation	NLR Pilot tunnel
3.2. Type of tunnel	continuous, closed circuit
3.2.1. stagnation pressure	atmospheric
3.2.2. stagnation temperature	313 ± 1 K
3.2.3. humidity/dew point	varies with atmospheric condition (stagnation temperature chosen such that condensation is avoided)
3.3. Test section	see fig. 4.3
3.3.1. dimensions	rectangular height 0.55 m, width 0.42 m
3.3.2. type of walls	10% slotted top and bottom walls, solid side walls separate top and bottom plenums
3.4. Flow field (empty test section)	
3.4.1. reference static pressure	taken at side wall 3.6 chords upstream of model
3.4.2. flow angularity	upwash $\Delta\alpha = 0.12^\circ (\pm 0.03^\circ)$ (with respect to tunnel reference plane)
3.4.3. Mach number distribution	see fig. 4.4a
3.4.4. pressure gradient	see fig. 4.4b
3.4.5. turbulence/noise level	see fig. 4.5 and ref. 4
3.4.6. side wall boundary layer	thickness 10% of test section semi-width, no special treatment
3.5. Additional remarks	for two-dimensionality of the flow see ref. 3
3.6. References on wind tunnel	ref. 2

4. Tests

4.1. Type of measurements	surface pressures (lift, pitching moment) wake pitot pressures (drag) surface flow visualization flow field visualization
4.2. Tunnel/model dimensions	
4.2.1. height/chord ratio	3.1
4.2.2. width/chord ratio	2.3.
4.3. Flow conditions included in present data base	

4.3.1. angle of attack	-4° to + 4° for $M_t = 0.747$
4.3.2. Mach number	0.30 to 0.85 for $a_t = 0.85^\circ$
4.3.3. Reynolds number	about 2×10^6 (see fig. 4.6)
4.3.4. transition	free and fixed
- position of free transition	see fig. 4.7
- transition fixing	size 130 (90-106 μ) ballotini (glass beads) bands of 2mm width at 30% chord on upper and lower surface
4.3.5. temperature equilibrium	Yes
4.4. Additional remarks	1) without boundary layer trip transition occured generally through a laminar separation bubble. 2) there are indications for incipient rear separation at all flow conditions except at low c_l and around the design condition with free transition
4.5. References on tests	ref. 5

5. Instrumentation

5.1. Surface pressure measurements	
5.1.1. pressure holes	
- size	diameter 0.25 mm; depth 1mm
- spanwise station(s)	staggered (± 20 mm) around centre line
- chordwise positions	see table 4.3 and fig. 4.2a
5.1.2. type of transducers and scanning devices	one ± 7.5 psi and two ± 5 psi Statham differential pressure transducers + 48 steps Scanivalves; reference pressure p_∞ measured with C.E.C. 15 psi absolute pressure transducer (accuracy ± 0.05 %)
5.1.3. other	no
5.2. Wake measurements	
5.2.1. type/size of instrument(s)	wake rake (fig. 4.3); 69 tubes, spacing according to table 4.4 tube diameter outer/inner : 1.0/0.7 mm 0.8 chords downstream of trailing edge
5.2.2. streamwise position(s)	two ± 2.5 psi Statham differential pressure transducers + 48 steps Scanivalves; reference pressure p_o , measured with C.E.C.
5.2.3. type of transducers and scanning devices	15 psi absolute pressure transducer (accu- racy ± 0.05 %)
5.3. Boundary layer measurements	no
5.3.1. type/size of instruments	
5.3.2. locations	
5.3.3. type of transducers and scanning devices	
5.4. Skin friction measurements	no
5.4.1. type/size of instruments	
5.4.2. locations	
5.4.3. type of transducer	
5.5. Flow visualisation	
5.5.1. flow field	shadowgraph pictures
5.5.2. surface flow	detection of transition position by sublimation technique (acenaphtene)
5.6. other	no
5.7. Additional remarks	length of pressure tubes 4m; scanning rate 2 pressures/sec.
5.8. References on instrumentation	none

6. Data

6.1. Accuracy (wall interference excluded)

6.1.1. angle of attack setting	$\pm 0.02^\circ$
6.1.2. free stream Mach number:	
- setting	± 0.001
- variation during one pressure scan	± 0.001
6.1.3. pressure coefficients	$\Delta C_p = \pm 0.002$ to 0.02 depending on local pressure level and dynamic pressure
6.1.4. aerodynamic coefficients	unknown
6.1.5. boundary layer quantities	n.a.
6.1.6. repeatability	$\Delta c_l \approx \pm 0.004$; $\Delta c_d \approx \pm 0.0005$; $\Delta c_m \approx \pm 0.001$
6.1.7. remarks	none

6.2. Wall interference corrections (indicate estimated accuracy)

6.2.1. angle of attack	$\Delta \alpha = -1.4 \times c_l + 0.56 (c_m + 0.25c_l) / \sqrt{1-M^2}$ (degrees) (+ 15%)
6.2.2. blockage (solid/wake)	$ \Delta M \leq 0.005$ $ \Delta q \leq 0.5\%$
6.2.3. streamline curvature	$\Delta c_l = -0.015 \times c_l / (1-M^2)$, ($\pm 30\%$) $\Delta c_m = -0.25 \Delta c_l$, ($\pm 30\%$)
6.2.4. other	
6.2.5. remarks	wall interference is presently being reassessed
6.2.6. references on wall interference corrections	ref. 6

6.3. Presentation of data

6.3.1. aerodynamic coefficients	figs. 4.8, 4.9, table 4.5
6.3.2. surface pressures	table 4.5; fig. 4.10 (table 4.5 includes wake rake pressures)
6.3.3. boundary layer quantities	-
6.3.4. wall interference corrections included?	tabulated data for α , c_l and c_m are presented with and without corrections for downwash and streamline curvature. No blockage corrections. No corrections on c_d and C_p . Figures present only uncorrected values
6.3.5. corrections for model deflection	no
6.3.6. Empty test section calibration taken into account?	no
6.3.7. other corrections included?	no
6.3.8. additional remarks	fixed transition surface pressure data are affected by local disturbances due to transition band (in particular holes number 15, 47 and 48)

6.4. Were test carried out in different facilities on the current aerofoil? If so, what facilities. Are data included in the present data base?

- 1) Tests at various Reynolds numbers ($3-30 \times 10^6$) conducted in Lockheed Ga. Compressible Flow Facility. Not included in present data base
- 2) Unsteady (oscillating airfoil) tests on other model in same tunnel. Not included in data base.
- 3) Unsteady (oscillating airfoil) tests at 15×10^6 Re number planned in 2-d test set-up of NASA Ames 11 x 11 foot Tunnel. Not included in data base

6.5. To be contacted for further information on tests

J. Zwaaneveld
 National Aerospace Laboratory NLR
 Anthony Fokkerweg 2
 Amsterdam 1017
 Netherlands

7. References

1. J.W. Boerstoeel
G.H. Huizing "Transonic shock-free aerofoil design by analytic hodograph methods"
NLR MP 73023 U
Also AIAA Paper 74-539
2. J. Zwaaneveld Principal Data of the NLR Pilot Tunnel
Report MP. 185
3. H.A. Dambrink Investigation of the 2-dimensionality of the flow around a profile in the NLR 0.55 x 0.42 m² transonic wind tunnel
NLR Memorandum AC-72-018
4. R. Ross
P. Rohne Noise environment in the NLR transonic wind tunnel HST
NLR TR 74128 U
5. J. Zwaaneveld Aerodynamic characteristics of the supercritical shock-free airfoil section NLR 7301
6. J. Smith Values of wall interference corrections for the NLR Pilot Tunnel with 10% open test section
NLR Memorandum AC-74-01

8. List of Symbols

8.1. used in text and figures

C_p	pressure coefficient
C_p^*	critical pressure coefficient
c	airfoil chord length
c_d	drag coefficient
c_l	lift coefficient
c_m	pitching moment coefficient (with respect to .25c)
M	free stream Mach number
p_∞	free stream static pressure
p_o	free stream stagnation pressure
q	dynamic pressure
Re_c	Reynolds number
R_o	leading edge radius
t	airfoil maximum thickness
x, z	airfoil coordinate system
x_t, z_t	windtunnel coordinate system
α	angle of attack
subscript	
t	refers to uncorrected values

8.2. used in data tables

ALPHA	α
ALPHAT	α_t (with respect to tunnel reference plane)
CDPB	pressure drag coefficient, uncorrected
CDP	pressure drag coefficient, corrected for wall interference
CLB	c_{l_t}
CL	c_l , corrected for wall interference
CMB	c_{m_t}
CM	c_m , corrected for wall interference
CPIB	C_p (uncorrected)
CPWB	total head deficit pressure coefficient in wake
MAB	free stream Mach number, uncorrected
PI	local static pressure (kgf/m ²)
PO	stagnation pressure (kgf/m ²)
QB	free stream dynamic pressure (kgf/m ²)
REC	Re_c
1/R	curvature
THETA	surface slope

MACH INF = 0.720957
 INCIDENCE = -0.358998 DEGR

CL = 0.594936
 CM = 0.594924
 CT = 0.003728

CP(MACH=0) = 1.136786
 CP(MACH=1) = -0.695936

UPPER PART OF AEROFOIL

X	Z	THETA	1/R	M	CP
-0.00000	-0.00041	89.7175	1.8411	0.0002	1.137
0.00110	0.01105	78.9392	1.3731	0.2008	1.029
0.00422	0.02171	68.9825	1.6341	0.3932	0.744
0.00943	0.03217	57.7134	1.8171	0.6135	0.265
0.01510	0.03976	47.4163	2.1241	0.8257	-0.265
0.02005	0.04434	39.0787	2.5351	1.0120	-0.725
0.02722	0.04909	27.9208	2.1991	1.2221	-1.192
0.03274	0.05173	23.5938	8.3071	0.12738	-1.296
0.06994	0.06306	12.1222	2.7511	0.12738	-1.296
0.08380	0.06584	10.3503	1.7781	0.12652	-1.279
0.09544	0.06778	9.2952	1.3861	0.12566	-1.262
0.10759	0.06963	8.4118	1.1381	0.12479	-1.244
0.12087	0.07153	7.6114	9.6411	1.2393	-1.227
0.13533	0.07334	6.8614	8.3411	1.2307	-1.210
0.15107	0.07521	6.1473	7.3371	1.2221	-1.192
0.16857	0.07695	5.4501	6.5361	1.2135	-1.174
0.18765	0.07872	4.7675	5.8881	1.2048	-1.156
0.20878	0.08053	4.0970	5.3521	1.1962	-1.138
0.23193	0.08211	3.4060	4.9101	1.1875	-1.120
0.25751	0.08337	2.7129	4.5421	1.1789	-1.102
0.28580	0.08456	2.0029	4.2431	1.1702	-1.083
0.31682	0.08535	1.2693	4.0141	1.1616	-1.065
0.35092	0.08578	0.5038	3.8611	1.1529	-1.046
0.38690	0.08585	-0.2843	3.7981	1.1442	-1.027
0.42357	0.08551	-1.0827	3.8381	1.1355	-1.008
0.46180	0.08454	-1.8614	3.9881	1.1268	-0.989
0.49889	0.08334	-2.5809	4.2371	1.1180	-0.969
0.53146	0.08203	-3.2298	4.5621	1.1093	-0.950
0.55777	0.08074	-3.8041	4.9391	1.1005	-0.930
0.57514	0.07951	-4.3156	5.3471	1.0918	-0.910
0.58754	0.07836	-4.7739	5.7441	1.0830	-0.890
0.59984	0.07712	-5.1915	6.1141	1.0742	-0.870
0.60838	0.07628	-5.5757	6.4571	1.0653	-0.850
0.59984	0.07534	-5.9334	6.7451	1.0565	-0.829
0.60838	0.07443	-6.2704	6.9681	1.0476	-0.809
0.61624	0.07355	-6.5894	7.1191	1.0388	-0.788
0.62365	0.07267	-6.8961	7.2011	1.0299	-0.767
0.63073	0.07179	-7.1910	7.2161	1.0209	-0.746
0.63758	0.07091	-7.4761	7.1761	1.0120	-0.725
0.64433	0.07000	-7.7535	7.0411	1.0030	-0.703
0.65097	0.06908	-8.0250	6.9701	0.9940	-0.682
0.65745	0.06812	-8.2916	6.8271	0.9850	-0.660
0.66433	0.06714	-8.5519	6.6661	0.9759	-0.638
0.66912	0.06626	-8.8056	6.4951	0.9668	-0.616
0.67201	0.06536	-9.0539	6.3141	0.9577	-0.594
0.67502	0.06443	-9.2964	6.1231	0.9485	-0.572
0.67816	0.06348	-9.5334	5.9221	0.9393	-0.550
0.68138	0.06251	-9.7649	5.7111	0.9301	-0.528
0.68467	0.06152	-9.9910	5.4901	0.9209	-0.506
0.68795	0.06051	-10.2116	5.2591	0.9117	-0.484
0.69122	0.05948	-10.4267	5.0181	0.9025	-0.462
0.69447	0.05843	-10.6374	4.7671	0.8933	-0.440
0.69776	0.05736	-10.8437	4.5061	0.8841	-0.418
0.70100	0.05627	-11.0457	4.2351	0.8749	-0.396
0.70419	0.05516	-11.2434	3.9541	0.8657	-0.374
0.70733	0.05403	-11.4368	3.6631	0.8565	-0.352
0.71042	0.05288	-11.6259	3.3621	0.8473	-0.330
0.71346	0.05171	-11.8107	3.0511	0.8381	-0.308
0.71645	0.05052	-11.9912	2.7301	0.8289	-0.286
0.71939	0.04931	-12.1674	2.4091	0.8197	-0.264
0.72228	0.04808	-12.3393	2.0881	0.8105	-0.242
0.72512	0.04683	-12.5069	1.7671	0.8013	-0.220
0.72791	0.04556	-12.6702	1.4461	0.7921	-0.198
0.73065	0.04427	-12.8292	1.1251	0.7829	-0.176
0.73334	0.04296	-12.9839	0.8041	0.7737	-0.154
0.73598	0.04163	-13.1343	0.4831	0.7645	-0.132
0.73857	0.04028	-13.2803	0.1621	0.7553	-0.110
0.74111	0.03891	-13.4219	0.0000	0.7461	-0.088
0.74360	0.03752	-13.5592		0.7369	-0.066

LOWER PART OF AEROFOIL

X	Z	THETA	1/R	M	CP
0.00090	-0.01007	-78.1070	-2.8151	0.2008	1.029
0.00380	-0.01817	-63.2287	-2.3791	0.3932	0.744
0.00973	-0.02674	-47.4469	-2.3861	0.6135	0.265
0.01514	-0.03170	-37.8363	-1.9111	0.7245	-0.009
0.02032	-0.03528	-31.8054	-1.4871	0.7861	-0.164
0.03171	-0.04119	-23.7468	-7.8791	0.8452	-0.314
0.03871	-0.04403	-20.7632	-6.0861	0.8644	-0.362
0.05012	-0.04794	-17.1851	-4.3381	0.8834	-0.410
0.07181	-0.05373	-13.0435	-2.3901	0.8928	-0.433
0.08768	-0.05710	-11.1493	-1.7511	0.8959	-0.441
0.10248	-0.05982	-9.7987	-1.4061	0.8991	-0.449
0.11694	-0.06217	-8.7150	-1.1861	0.9022	-0.457
0.13181	-0.06430	-7.7675	-1.0281	0.9053	-0.464
0.14697	-0.06626	-6.9198	-0.9116	0.9084	-0.472
0.16344	-0.06814	-6.1020	-0.8174	0.9115	-0.480
0.18130	-0.06997	-5.2977	-0.7407	0.9146	-0.488
0.20175	-0.07172	-4.4710	-0.6763	0.9177	-0.495
0.22541	-0.07338	-3.5902	-0.6225	0.9208	-0.503
0.25401	-0.07492	-2.6688	-0.5792	0.9239	-0.511
0.28706	-0.07620	-1.4290	-0.5503	0.9270	-0.518
0.36063	-0.07674	0.1428	-0.5334	0.9301	-0.526
0.45235	-0.07265	4.4294	-0.5293	0.9301	-0.526
0.46724	-0.07139	5.2431	-1.0571	0.9239	-0.511
0.47815	-0.07032	5.9586	-1.0841	0.9146	-0.488
0.48580	-0.06950	6.4272	-1.0291	0.9053	-0.464
0.48941	-0.06793	7.1442	-0.6121	0.8865	-0.418
0.50546	-0.06709	7.4544	-0.7864	0.8771	-0.394
0.51934	-0.06521	8.0380	-0.6340	0.8580	-0.346
0.52692	-0.06411	8.3230	-0.6340	0.8484	-0.322
0.53485	-0.06293	8.6082	-0.6046	0.8387	-0.297
0.54321	-0.06164	8.8935	-0.5826	0.8290	-0.273
0.54604	-0.06119	8.9913	-0.5767	0.8257	-0.265
0.56393	-0.05827	9.5760	-0.5401	0.8061	-0.215
0.58260	-0.05502	10.1729	-0.5456	0.7861	-0.164
0.60128	-0.05158	10.7615	-0.5351	0.7654	-0.113
0.61930	-0.04806	11.3087	-0.4973	0.7454	-0.061
0.63654	-0.04454	11.7694	-0.4062	0.7245	-0.009
0.65364	-0.04090	12.1112	-0.2719	0.7032	0.045
0.67152	-0.03702	12.3224	-1.3561	0.6815	0.099
0.69071	-0.03283	12.4071	-1.8261	0.6594	0.153
0.71144	-0.02826	12.3602	-0.9588	0.6367	0.209
0.73341	-0.02348	12.1462	-0.4442	0.6135	0.265
0.75693	-0.01851	11.6662	-0.6311	0.5896	0.322
0.78360	-0.01321	10.7331	-0.7284	0.5649	0.380
0.81704	-0.00733	9.0608	-0.8211	0.5394	0.439
0.86310	-0.00121	5.9425	-1.3861	0.5130	0.498
0.96020	0.00109	-3.5723	-1.8461	0.5130	0.498
0.97814	0.00032	-5.5151	-1.9381	0.5264	0.469
0.98897	0.00145	-6.7713	-2.1111	0.5394	0.439
0.99454	0.00225	-7.5880	-2.1621	0.5523	0.409
0.99918	0.00275	-7.9294	-2.8911	0.5649	0.380
1.00000		-9.4533		0.5686	0.372

CO-ORDINATES OF SONIC LINE

X	Z
0.01953	0.03685
0.01957	0.03899
0.02006	0.04234
0.02107	0.04632
0.02236	0.05165
0.02389	0.05877
0.02612	0.06767
0.03006	0.07841
0.03697	0.09241
0.04823	0.11389
0.06577	0.15016
0.08293	0.18694
0.10739	0.23590
0.14366	0.29554
0.19795	0.36670
0.25361	0.44100
0.29768	0.49149
0.34505	0.54832
0.39593	0.60824
0.44531	0.64851
0.49159	0.68641
0.53311	0.72819
0.58503	0.78263
0.63623	0.84834
0.67200	0.88666

TABLE 4.1 Technical tables of aerofoil NLR HT 7310810

UPPER PART

LOWER PART

X	Z	X	Z	X	Z	X	Z
0.0000012	-.0004162	0.4297667	+.0090434	0.0000012	-.0004162	0.4594475	-.0725326
0.0002895	+.0052191	0.4386049	+.0078957	0.0002395	-.0056237	0.4688157	-.0717156
0.0005870	+.0076749	0.4474429	+.0076992	0.0004747	-.0076027	0.4745806	-.0711708
0.0008861	+.0095945	0.4562811	+.0074905	0.0007164	-.0090430	0.4856332	-.0700287
0.0011758	+.0112217	0.4651193	+.0072324	0.0009431	-.0102206	0.4933971	-.0691512
0.0014662	+.0126337	0.4727811	+.0069899	0.0011795	-.0112149	0.5001765	-.0683376
0.0017468	+.0138934	0.4806030	+.0067235	0.0014054	-.0121076	0.5067021	-.0675138
0.0020176	+.0150413	0.4883450	+.0064327	0.0016514	-.0129293	0.5133493	-.0666367
0.0022988	+.0160874	0.4960870	+.0061171	0.0017744	-.0133248	0.5202298	-.0656939
0.0025701	+.0170734	0.50276310	+.0058307	0.0018974	-.0137103	0.5274553	-.0646685
0.0028314	+.0179878	0.5091759	+.0055260	0.0021635	-.0144608	0.5351272	-.0635414
0.0042209	+.0220528	0.5157191	+.0052024	0.0024397	-.0151309	0.5431744	-.0623191
0.0056121	+.0254172	0.5222632	+.0048603	0.0031756	-.0169044	0.5516579	-.0609873
0.0069239	+.0281722	0.5302975	+.0044136	0.0039110	-.0184354	0.5595499	-.0605234
0.0081862	+.0305312	0.5383313	+.0039359	0.0046153	-.0197634	0.5636167	-.0590373
0.0094795	+.0326594	0.5436882	+.0036020	0.0052785	-.0209240	0.5726834	-.0575037
0.0107530	+.0346503	0.5525071	+.0030196	0.0059313	-.0219729	0.5821558	-.0558514
0.0119867	+.0363594	0.5613241	+.0023374	0.0066246	-.0230061	0.5916280	-.0541483
0.0131194	+.0378449	0.5686577	+.0019492	0.0073932	-.0240399	0.6011052	-.0523934
0.0141918	+.0391576	0.5759893	+.0012713	0.0082348	-.0251336	0.6105822	-.0505882
0.0153049	+.0404096	0.5822243	+.0007557	0.0091007	-.0261687	0.6191243	-.0487990
0.0164386	+.0416066	0.5884593	+.0001773	0.00994563	-.0271155	0.6288662	-.0469581
0.0175319	+.04276834	0.5938567	+.00797321	0.0104213	-.0280247	0.6377625	-.0451694
0.0185343	+.0436147	0.5992561	+.00792287	0.01117280	-.0289408	0.64663786	-.0433366
0.0194052	+.0443882	0.6040014	+.00787704	0.0127561	-.0298940	0.6555035	-.0414889
0.0202255	+.0450763	0.6087491	+.00782972	0.0134976	-.0309976	0.6637283	-.0396149
0.0211270	+.0457913	0.6130854	+.00778517	0.0154631	-.0321417	0.6724786	-.0376348
0.0223832	+.0467230	0.6174214	+.00773934	0.0170910	-.0333305	0.6810888	-.0356373
0.0240550	+.0476651	0.6254040	+.00765152	0.0174505	-.0339544	0.6915939	-.0334759
0.0255447	+.0488004	0.6329203	+.00755459	0.0184101	-.0345387	0.7013389	-.0313082
0.0265278	+.0493759	0.6401197	+.00747769	0.0194713	-.0351686	0.7119449	-.0289698
0.0274908	+.0499059	0.6470765	+.00739003	0.0207325	-.0357755	0.7223508	-.0266371
0.0276023	+.0499651	0.6539319	+.00730023	0.0214376	-.0365060	0.7279285	-.0254030
0.0276428	+.0499866	0.6604756	+.00720440	0.0231427	-.0372055	0.7335062	-.0241734
0.0279647	+.0501553	0.6674601	+.00711319	0.0245494	-.0379883	0.7390839	-.0229494
0.0281700	+.0502615	0.6742447	+.00701454	0.0259567	-.0387330	0.7446616	-.0217322
0.0285818	+.0504716	0.6811995	+.00691019	0.0268947	-.0392137	0.7506223	-.0204404
0.0291330	+.0507471	0.6881543	+.00680263	0.0296142	-.0405379	0.7565831	-.0191598
0.0296602	+.0510052	0.6951093	+.00669196	0.0323335	-.0417721	0.7625439	-.0178924
0.0300455	+.0511909	0.7020644	+.00657827	0.0341073	-.0425358	0.7685048	-.0166403
0.0304510	+.0513850	0.7093750	+.00645554	0.0358810	-.0432701	0.7752698	-.0152405
0.0310492	+.0516694	0.7166857	+.00632973	0.0376546	-.0439771	0.7820344	-.0138861
0.0316879	+.0519702	0.7239965	+.00620092	0.0394291	-.0446659	0.7888000	-.0125201
0.0331276	+.0526347	0.7313074	+.00606892	0.0412036	-.0453548	0.7955653	-.0112058
0.0378375	+.0564577	0.7390044	+.00592594	0.0429781	-.0460437	0.8040480	-.0096069
0.0425480	+.0564729	0.7467015	+.00578191	0.0447526	-.0467324	0.8125308	-.0080674
0.0472580	+.0581064	0.7543987	+.00563396	0.0465271	-.0474213	0.8210139	-.0065919
0.0519705	+.0595825	0.7620959	+.00548323	0.0483016	-.0481102	0.8294972	-.0051844
0.0566824	+.0609237	0.7703087	+.00531951	0.0500761	-.0488050	0.8379806	-.0039577
0.0613945	+.0621505	0.7785216	+.00515299	0.0518506	-.0495000	0.8464640	-.0027236
0.0661071	+.0632814	0.7867346	+.00499392	0.0536251	-.0502049	0.8549474	-.0015077
0.0708199	+.0643330	0.7949477	+.00484122	0.0554000	-.0509098	0.8634308	-.0002946
0.0764002	+.0654949	0.8038922	+.00468276	0.0571749	-.0516147	0.8719142	-.0011324
0.0808444	+.0663708	0.8128369	+.00453096	0.0589498	-.0523196	0.8803976	-.0019652
0.0848829	+.0671354	0.8217815	+.00437675	0.0607247	-.0530245	0.8888810	-.0027980
0.0894097	+.0678502	0.8307263	+.00422354	0.0624996	-.0537294	0.8973644	-.0036308
0.0926554	+.0685253	0.8406234	+.00407033	0.0642745	-.0544343	0.9058478	-.0044636
0.0967347	+.0692149	0.8505207	+.00391712	0.0660494	-.0551392	0.9143312	-.0052964
0.1028790	+.0702150	0.8604179	+.00376391	0.0678243	-.0558441	0.9228146	-.0061292
0.1090235	+.0711645	0.8703152	+.00361070	0.0695992	-.0565490	0.9312980	-.0069620
0.1174453	+.0723954	0.8802125	+.00345749	0.0713741	-.0572539	0.9397814	-.0077948
0.1225001	+.0730979	0.8901098	+.00330428	0.0731490	-.0579588	0.9482648	-.0086276
0.1298374	+.0740738	0.9000071	+.00315107	0.0749239	-.0586637	0.9567482	-.0094604
0.1371749	+.0750587	0.9137643	+.00299786	0.0766988	-.0593686	0.9652316	-.0102932
0.1451619	+.0760436	0.9236616	+.00284465	0.0784737	-.0600735	0.9737150	-.0111260
0.1531492	+.0770285	0.9335589	+.00269144	0.0802486	-.0607784	0.9821984	-.0119588
0.1620297	+.0778222	0.9434562	+.00253823	0.0820235	-.0614833	0.9906818	-.0127916
0.1709107	+.0786159	0.9533535	+.00238502	0.0837984	-.0621882	0.9991652	-.0136244
0.1757516	+.0794104	0.9632508	+.00223181	0.0855733	-.0628931	1.0076486	-.0144572
0.1830134	+.0798669	0.9731481	+.00207860	0.0873482	-.0635980	1.0161320	-.0152900
0.1902757	+.0805103	0.9830454	+.00192539	0.0891231	-.0643029	1.0246154	-.0161228
0.1956374	+.0809654	0.9929427	+.00177218	0.0908980	-.0650078	1.0330988	-.0169556
0.2009991	+.0814040	1.0028400	+.00161897	0.0926729	-.0657127	1.0415822	-.0177884
0.2063608	+.0818267	1.0127373	+.00146576	0.0944478	-.0664176	1.0500656	-.0186212
0.2117226	+.0822338	1.0226346	+.00131255	0.0962227	-.0671225	1.0585490	-.0194540
0.2175970	+.0826623	1.0325319	+.00115934	0.0980076	-.0678274	1.0670324	-.0202868
0.2234714	+.0830729	1.0424292	+.00100613	0.0997925	-.0685323	1.0755158	-.0211196
0.2293459	+.0834659	1.0523265	+.00085292	0.1015774	-.0692372	1.0839992	-.0219524
0.2352205	+.0838419	1.0622238	+.00069971	0.1033623	-.0699421	1.0924826	-.0227852
0.2417117	+.0842377	1.0721211	+.00054650	0.1051472	-.0706470	1.1009660	-.0236180
0.2482030	+.0846135	1.0820184	+.00039329	0.1069321	-.0713519	1.1094494	-.0244508
0.2546944	+.0849698	1.0919157	+.00024008	0.1087170	-.0720568	1.1179328	-.0252836
0.2611859	+.0853068	1.1018130	+.00008687	0.1105019	-.0727617	1.1264162	-.0261164
0.2683650	+.0856577	1.1117103	+.00000000	0.1122868	-.0734666	1.1348996	-.0269492
0.2755442	+.0859859			0.1140717	-.0741715	1.1433830	-.0277820
0.2827236	+.0862914			0.1158566	-.0748764	1.1518664	-.0286148
0.2899029	+.0865757			0.1176415	-.0755813	1.1603498	-.0294476
0.2970775	+.0868622			0.1194264	-.0762862	1.1688332	-.0302804
0.3042521	+.0871487			0.1212113	-.0769911	1.1773166	-.0311132
0.3114267	+.0874352			0.1230062	-.0776960	1.1857999	-.0319460
0.3186013	+.0877217			0.1248011	-.0784009	1.1942833	-.0327788
0.3257759	+.0880082			0.1265960	-.0791058	1.2027667	-.0336116
0.3329505	+.0882947			0.1283909	-.0798107	1.2112501	-.0344444
0.3401251	+.0885812			0.1301858	-.0805156	1.2197335	-.0352772
0.3473007	+.0888677			0.1319807	-.0812205	1.2282169	-.0361100
0.3544753	+.0891542			0.1337756	-.0819254	1.2367003	-.0369428
0.3616509	+.0894407			0.1355705	-.0826303	1.2451837	-.0377756
0.3688255	+.0897272			0.1373654	-.0833352	1.2536671	-.0386084
0.3759999	+.0900137			0.1391603	-.0840401	1.2621505	-.0394412
0.3831745	+.0902999			0.1409552	-.0847450	1.2706339	-.0402740
0.3903491	+.0905864			0.1427501	-.0854499	1.2791173	-.0411068
0.3975237	+.0908729			0.1445450	-.0861548	1.2876007	-.0419396
0.4046983	+.0911594			0.1463399	-.0868597	1.2960841	-.0427724
0.4118729	+.0914459			0.1481348	-.0875646	1.3045675	-.0436052
0.4190475	+.0917324			0.1499297	-.0882695	1.3130509	-.0444380
0.4262221	+.0920189			0.1517246	-.0889744	1.3215343	-.0452708
0.4333967	+.0923054			0.1535195	-.0896793	1.3300177	-.0461036
0.4405713	+.0925919			0.1553144	-.0903842	1.3385011	-.0469364
0.4477459	+.0928784			0.1571093	-.0910891	1.3469845	-.0477692
0.4549205	+.0931649			0.1589042	-.0917940	1.3554679	-.0486020
0.4620951	+.0934514			0.1606991	-.0924989	1.3639513	-.0494348</

Upper Surface			Lower Surface		
hole	x/c	z/c	hole	x/c	z/c
1	0	-.0004	32	.9781	.0037
2	.0033	.0196	33	.9487	.0047
3	.0124	.0369	34	.9188	.0043
4	.0207	.0454	35	.8785	.0013
5	.0299	.0511	36	.8377	-.0039
6	.0397	.0554	37	.7994	-.0104
7	.0499	.0590	38	.7597	-.0185
8	.0600	.0618	39	.7193	-.0273
9	.0748	.0651	40	.6791	-.0361
10	.0998	.0697	41	.6393	-.0447
11	.1300	.0741	42	.5996	-.0526
12	.1649	.0781	43	.5496	-.0613
13	.1995	.0813	44	.4998	-.0684
14	.2498	.0847	45	.4497	-.0733
15	.2998	.0869	46	.3999	-.0760
16	.3497	.0881	47	.3499	-.0770
17	.3993	.0883	48	.2998	-.0767
18	.4492	.0876	49	.2499	-.0750
19	.4996	.0860	50	.2000	-.0718
20	.5493	.0832	51	.1649	-.0685
21	.5993	.0792	52	.1300	-.0643
22	.6493	.0736	53	.1000	-.0598
23	.6993	.0661	54	.0650	-.0525
24	.7494	.0573	55	.0370	-.0437
25	.7982	.0475	56	.0180	-.0340
26	.8385	.0388	57	.0079	-.0247
27	.8786	.0297	58	.0018	-.0134
28	.9184	.0207			
29	.9479	.0140			
30	.9784	.0074			
31	1.0000	.0030			

chord = 180.05 mm

TABLE 4.3 Co-ordinates of the model pressure holes

Tube	z (mm)	Tube	z (mm)
1	192.0	36	- 2.0
2	176.0	37	- 4.0
3	160.0	38	- 6.0
4	144.0	39	- 8.0
5	128.0	40	- 10.0
6	112.0	41	- 12.0
7	96.0	42	- 14.0
8	88.0	43	- 16.0
9	80.0	44	- 18.0
10	72.0	45	- 20.0
11	64.0	46	- 22.0
12	60.0	47	- 24.0
13	56.0	48	- 26.0
14	52.0	49	- 28.0
15	48.0	50	- 30.0
16	44.0	51	- 32.0
17	40.0	52	- 36.0
18	36.0	53	- 40.0
19	32.0	54	- 44.0
20	30.0	55	- 48.0
21	28.0	56	- 52.0
22	26.0	57	- 56.0
23	24.0	58	- 60.0
24	22.0	59	- 64.0
25	20.0	60	- 72.0
26	18.0	61	- 80.0
27	16.0	62	- 88.0
28	14.0	63	- 96.0
29	12.0	64	-112.0
30	10.0	65	-128.0
31	8.0	66	-144.0
32	6.0	67	-160.0
33	4.0	68	-176.0
34	2.0	69	-192.0
35	0.0		

TABLE 4.4 z-ordinates of the wake rake total pressure tubes

TRANSITION FREE

MAN	.299	ALPHA	.8900	ALPHA	.3966
REF	.11E+07	CLB	.3153	CL	.3100
QH	610.	CDPB	.0014	CDP	-.0010
		CMH	-.0864	CM	-.0674
				CD	.0104

MODEL PRESSUREHOLE NUMBER	CPIN	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIN	PI/PO	WAKE RAKE PRESSUREHOLE NUMBER	CPIN	PI/PO	WAKE RAKE PRESSUREHOLE NUMBER	CPIN	PI/PO
1	1.017	0.9997	41	-0.063	0.9362	1	0.000	41	0.062		
2	0.339	0.9716	42	-0.269	0.9240	2	0.000	42	0.012		
3	-0.501	0.9104	43	-0.296	0.9224	3	0.000	43	0.001		
4	-1.355	0.8719	44	-0.344	0.9196	4	0.000	44	0.000		
5	-1.257	0.8654	45	-0.385	0.9172	5	0.000	45	0.000		
6	-1.124	0.8735	46	-0.394	0.9166	6	0.000	46	0.000		
7	-1.078	0.8764	47	-0.381	0.9175	7	0.000	47	0.000		
8	-0.994	0.8814	48	-0.374	0.9179	8	0.000	48	0.000		
9	-0.900	0.8869	49	-0.367	0.9183	9	0.000	49	0.000		
10	-0.782	0.8938	50	-0.352	0.9192	10	0.000	50	0.000		
11	-0.705	0.8984	51	-0.345	0.9196	11	0.000	51	0.000		
12	-0.658	0.9011	52	-0.332	0.9203	12	0.000	52	0.000		
13	-0.613	0.9034	53	-0.335	0.9201	13	0.000	53	0.000		
14	-0.568	0.9064	54	-0.314	0.9213	14	0.000	54	0.000		
15	-0.561	0.9069	55	-0.281	0.9233	15	0.000	55	0.000		
16	-0.548	0.9076	56	-0.079	0.9252	16	0.000	56	0.000		
17	-0.538	0.9082	57	0.368	0.9613	17	0.000	57	0.000		
18	-0.533	0.9085	58	0.460	0.9905	18	0.000	58	0.000		
19	-0.526	0.9089				19	0.000	59	0.000		
20	-0.519	0.9097				20	0.000	60	0.000		
21	-0.495	0.9107				21	0.000	61	0.000		
22	-0.451	0.9133				22	0.000	62	0.000		
23	-0.377	0.9177				23	0.000	63	0.000		
24	-0.295	0.9251				24	0.000	64	0.000		
25	-0.149	0.9287				25	0.000	65	0.000		
26	-0.109	0.9334				26	0.000	66	0.000		
27	-0.032	0.9388				27	0.000	67	0.000		
28	0.062	0.9423				28	0.000	68	0.000		
29	0.090	0.9451				29	0.000	69	0.000		
30	0.135	0.9478				30	0.000				
31	0.207	0.9520				31	0.000				
32	0.260	0.9563				32	0.000				
33	0.322	0.9594				33	0.001				
34	0.351	0.9603				34	0.003				
35	0.391	0.9644				35	0.027				
36	0.291	0.9570				36	0.091				
37	0.244	0.9536				37	0.183				
38	0.158	0.9482				38	0.292				
39	0.092	0.9432				39	0.232				
40	0.016	0.9408				40	0.153				

TRANSITION FIXED

MAN	0.300	ALPHA	0.9500	ALPHA	0.4187
REF	.11E+07	CLB	0.3079	CL	0.3027
QH	612	CDPB	0.0089	CDP	-0.0014
		CMH	-0.0844	CM	-0.0831
				CD	.0109

MODEL PRESSUREHOLE NUMBER	CPIN	PI/PO	MODEL PRESSUREHOLE NUMBER	CPIN	PI/PO	WAKE RAKE PRESSUREHOLE NUMBER	CPIN	PI/PO	WAKE RAKE PRESSUREHOLE NUMBER	CPIN	PI/PO
1	1.007	0.9991	41	-0.095	0.9434	1	0.000	41	0.000		
2	0.522	0.9703	42	-0.189	0.9294	2	0.000	42	-0.002		
3	-0.499	0.9094	43	-0.259	0.9245	3	0.000	43	0.000		
4	-1.149	0.8714	44	-0.345	0.9190	4	0.000	44	0.000		
5	-1.244	0.8655	45	-0.380	0.9160	5	0.000	45	0.000		
6	-1.123	0.8729	46	-0.389	0.9161	6	0.000	46	0.000		
7	-1.077	0.8750	47	-0.365	0.9174	7	0.000	47	0.000		
8	-0.991	0.8807	48	-0.453	0.9134	8	0.000	48	0.000		
9	-0.895	0.8863	49	-0.362	0.9179	9	0.000	49	0.000		
10	-0.779	0.8939	50	-0.346	0.9184	10	0.000	50	0.000		
11	-0.701	0.8970	51	-0.330	0.9193	11	0.000	51	0.000		
12	-0.654	0.9004	52	-0.328	0.9200	12	0.000	52	0.000		
13	-0.608	0.9035	53	-0.331	0.9194	13	0.000	53	0.000		
14	-0.561	0.9067	54	-0.312	0.9208	14	0.000	54	0.000		
15	-0.564	0.9060	55	-0.281	0.9227	15	0.000	55	0.000		
16	-0.547	0.9070	56	-0.081	0.9346	16	0.000	56	0.000		
17	-0.543	0.9072	57	0.375	0.9614	17	0.000	57	0.000		
18	-0.531	0.9070	58	0.459	0.9903	18	0.000	58	0.000		
19	-0.526	0.9083				19	0.000	59	0.000		
20	-0.506	0.9094				20	0.000	60	0.000		
21	-0.490	0.9103				21	0.000	61	0.000		
22	-0.449	0.9133				22	0.000	62	0.000		
23	-0.375	0.9175				23	0.000	63	0.000		
24	-0.279	0.9229				24	0.000	64	0.000		
25	-0.185	0.9285				25	0.000	65	0.000		
26	-0.183	0.9337				26	0.000	66	0.000		
27	-0.025	0.9370				27	0.000	67	0.000		
28	0.048	0.9423				28	0.000	68	0.000		
29	0.095	0.9450				29	0.000	69	0.000		
30	0.137	0.9475				30	0.000				
31	0.199	0.9512				31	0.029				
32	0.261	0.9548				32	0.097				
33	0.295	0.9569				33	0.193				
34	0.362	0.9573				34	0.249				
35	0.290	0.9566				35	0.240				
36	0.259	0.9548				36	0.171				
37	0.208	0.9518				37	0.076				
38	0.145	0.9480				38	0.017				
39	0.080	0.9442				39	0.002				
40	-0.008	0.9390				40	0.002				

TABLE 4.5 Aerodynamic test data

TRANSITION FREE

MAN .102 ALPHAT .8500 ALPHA .3909
REC .171+07 CLR .5256 CL .5107
OR 1070 CDPH .8020 CDP -.0007
CMR -.0739 CM -.0722
CO .0094

MODEL PRESSUREHOLE NUMBER	CP18	P1/P0	MODEL PRESSUREHOLE NUMBER	CP18	P1/P0	WAKE WAKE PRESSUREHOLE NUMBER	CPWB	WAKE WAKE PRESSUREHOLE NUMBER	CPWB
1	1.058	0.9999	41	-0.092	0.6785	1	0.000	41	-0.000
2	0.612	0.9554	42	-0.135	0.6191	2	0.000	42	0.000
3	0.497	0.7031	43	-0.153	0.7884	3	0.000	43	0.000
4	-1.316	0.7122	44	-0.286	0.7834	4	0.000	44	0.000
5	-1.585	0.6442	45	-0.441	0.7168	5	0.000	45	0.000
6	-1.197	0.6444	46	-0.453	0.7750	6	0.000	46	0.000
7	-1.562	0.6699	47	-0.437	0.7773	7	0.000	47	0.000
8	-1.072	0.6832	48	-0.432	0.7781	8	0.000	48	0.000
9	-0.474	0.6979	49	-0.423	0.7793	9	0.000	49	0.000
10	-0.850	0.7110	50	-0.404	0.7822	10	0.000	50	0.000
11	-0.759	0.7245	51	-0.398	0.7831	11	0.000	51	0.000
12	-0.495	0.7391	52	-0.385	0.7853	12	0.000	52	0.000
13	-0.450	0.7456	53	-0.390	0.7843	13	0.000	53	0.000
14	-0.411	0.7485	54	-0.367	0.7877	14	0.000	54	0.000
15	-0.413	0.7500	55	-0.334	0.7926	15	0.000	55	0.000
16	-0.401	0.7526	56	-0.107	0.8262	16	0.000	56	0.000
17	-0.388	0.7544	57	0.374	0.8976	17	0.000	57	0.000
18	-0.387	0.7551	58	0.685	0.9734	18	0.000	58	0.000
19	-0.387	0.7574	59	0.000		19	0.000	59	0.000
20	-0.387	0.7595	60	0.000		20	0.000	60	0.000
21	-0.387	0.7617	61	0.000		21	0.000	61	0.000
22	-0.387	0.7638	62	0.000		22	0.000	62	0.000
23	-0.387	0.7659	63	0.000		23	0.000	63	0.000
24	-0.387	0.7680	64	0.000		24	0.000	64	0.000
25	-0.387	0.7701	65	0.000		25	0.000	65	0.000
26	-0.387	0.7722	66	0.000		26	0.000	66	0.000
27	-0.387	0.7743	67	0.000		27	0.000	67	0.000
28	-0.387	0.7764	68	0.000		28	0.000	68	0.000
29	-0.387	0.7785	69	0.000		29	0.000	69	0.000
30	-0.387	0.7806	70	0.000		30	0.000	70	0.000
31	-0.387	0.7827	71	0.000		31	0.000	71	0.000
32	-0.387	0.7848	72	0.000		32	0.000	72	0.000
33	-0.387	0.7869	73	0.000		33	0.000	73	0.000
34	-0.387	0.7890	74	0.000		34	0.000	74	0.000
35	-0.387	0.7911	75	0.000		35	0.000	75	0.000
36	-0.387	0.7932	76	0.000		36	0.000	76	0.000
37	-0.387	0.7953	77	0.000		37	0.000	77	0.000
38	-0.387	0.7974	78	0.000		38	0.000	78	0.000
39	-0.387	0.7995	79	0.000		39	0.000	79	0.000
40	-0.387	0.8016	80	0.000		40	0.000	80	0.000

MAN .249 ALPHAT .8500 ALPHA .3032
REC .191+07 CLR .3306 CL .3227
OR 2018 CDPH .0038 CDP .0007
CMR -.0765 CM -.0745
CO .0098

MODEL PRESSUREHOLE NUMBER	CP18	P1/P0	MODEL PRESSUREHOLE NUMBER	CP18	P1/P0	WAKE WAKE PRESSUREHOLE NUMBER	CPWB	WAKE WAKE PRESSUREHOLE NUMBER	CPWB
1	1.057	0.9999	41	-0.102	0.7643	1	0.000	41	-0.000
2	0.706	0.9236	42	-0.137	0.7574	2	0.000	42	0.000
3	-0.268	0.7316	43	-0.406	0.7043	3	0.000	43	0.000
4	-1.057	0.5760	44	-0.444	0.6972	4	0.000	44	0.000
5	-1.395	0.5093	45	-0.454	0.6871	5	0.000	45	0.000
6	-1.240	0.5559	46	-0.509	0.6883	6	0.000	46	0.000
7	-1.235	0.5400	47	-0.491	0.6887	7	0.000	47	0.000
8	-1.189	0.5579	48	-0.485	0.6888	8	0.000	48	0.000
9	-1.044	0.5786	49	-0.475	0.6908	9	0.000	49	0.000
10	-0.923	0.6025	50	-0.455	0.6947	10	0.000	50	0.000
11	-0.813	0.6242	51	-0.446	0.6965	11	0.000	51	0.000
12	-0.737	0.6391	52	-0.431	0.6994	12	0.000	52	0.000
13	-0.698	0.6460	53	-0.436	0.6985	13	0.000	53	0.000
14	-0.679	0.6504	54	-0.410	0.7038	14	0.000	54	0.000
15	-0.665	0.6536	55	-0.373	0.7115	15	0.000	55	0.000
16	-0.652	0.6558	56	-0.123	0.7601	16	0.000	56	0.000
17	-0.640	0.6582	57	0.378	0.8589	17	0.000	57	0.000
18	-0.636	0.6599	58	0.900	0.9619	18	0.000	58	0.000
19	-0.629	0.6622	59	0.000		19	0.000	59	0.000
20	-0.603	0.6655	60	0.000		20	0.000	60	0.000
21	-0.584	0.6691	61	0.000		21	0.000	61	0.000
22	-0.568	0.6725	62	0.000		22	0.000	62	0.000
23	-0.471	0.7014	63	0.000		23	0.000	63	0.000
24	-0.301	0.7250	64	0.000		24	0.000	64	0.000
25	-0.186	0.7477	65	0.000		25	0.000	65	0.000
26	-0.092	0.7662	66	0.000		26	0.000	66	0.000
27	-0.009	0.7826	67	0.000		27	0.000	67	0.000
28	0.040	0.7962	68	0.000		28	0.000	68	0.000
29	0.101	0.8044	69	0.000		29	0.000	69	0.000
30	0.136	0.8113	70	0.000		30	0.000	70	0.000
31	0.180	0.8275	71	0.000		31	0.000	71	0.000
32	0.200	0.8437	72	0.000		32	0.000	72	0.000
33	0.200	0.8536	73	0.000		33	0.000	73	0.000
34	0.200	0.8566	74	0.000		34	0.000	74	0.000
35	0.200	0.8596	75	0.000		35	0.000	75	0.000
36	0.200	0.8626	76	0.000		36	0.000	76	0.000
37	0.200	0.8656	77	0.000		37	0.000	77	0.000
38	0.200	0.8686	78	0.000		38	0.000	78	0.000
39	0.200	0.8716	79	0.000		39	0.000	79	0.000
40	0.200	0.8746	80	0.000		40	0.000	80	0.000

MAN .649 ALPHAT .8500 ALPHA .3033
REC .201+07 CLR .3303 CL .3214
OR 2273 CDPH .0046 CDP .0019
CMR -.0772 CM -.0781
CO .0101

MODEL PRESSUREHOLE NUMBER	CP18	P1/P0	MODEL PRESSUREHOLE NUMBER	CP18	P1/P0	WAKE WAKE PRESSUREHOLE NUMBER	CPWB	WAKE WAKE PRESSUREHOLE NUMBER	CPWB
1	1.107	0.9999	41	-0.104	0.7301	1	0.000	41	-0.000
2	0.755	0.9210	42	-0.141	0.7216	2	0.000	42	0.000
3	-0.163	0.7169	43	-0.447	0.6539	3	0.000	43	0.000
4	-0.928	0.5472	44	-0.478	0.6470	4	0.000	44	0.000
5	-1.439	0.4335	45	-0.534	0.6384	5	0.000	45	0.000
6	-1.280	0.4646	46	-0.582	0.6305	6	0.000	46	0.000
7	-1.307	0.4526	47	-0.534	0.6344	7	0.000	47	0.000
8	-1.217	0.4428	48	-0.528	0.6358	8	0.000	48	0.000
9	-1.103	0.5077	49	-0.516	0.6389	9	0.000	49	0.000
10	-0.992	0.5327	50	-0.491	0.6440	10	0.000	50	0.000
11	-0.847	0.5649	51	-0.480	0.6466	11	0.000	51	0.000
12	-0.759	0.5943	52	-0.463	0.6503	12	0.000	52	0.000
13	-0.729	0.5911	53	-0.470	0.6466	13	0.000	53	0.000
14	-0.713	0.5944	54	-0.440	0.6555	14	0.000	54	0.000
15	-0.700	0.5977	55	-0.394	0.6658	15	0.000	55	0.000
16	-0.689	0.6001	56	-0.133	0.7257	16	0.000	56	0.000
17	-0.676	0.6033	57	0.379	0.8576	17	0.000	57	0.000
18	-0.672	0.6038	58	0.905	0.9545	18	0.000	58	0.000
19	-0.653	0.6081	59	0.000		19	0.000	59	0.000
20	-0.638	0.6123	60	0.000		20	0.000	60	0.000
21	-0.609	0.6179	61	0.000		21	0.000	61	0.000
22	-0.533	0.6448	62	0.000		22	0.000	62	0.000
23	-0.425	0.6587	63	0.000		23	0.000	63	0.000
24	-0.296	0.6875	64	0.000		24	0.000	64	0.000
25	-0.174	0.7145	65	0.000		25	0.000	65	0.000
26	-0.079	0.7356	66	0.000		26	0.000	66	0.000
27	0.000	0.7500	67	0.000		27	0.000	67	0.000
28	0.044	0.7676	68	0.000		28	0.000	68	0.000
29	0.102	0.7740	69	0.000		29	0.000	69	0.000
30	0.132	0.7824	70	0.000		30	0.000	70	0.000
31	0.210	0.8017	71	0.000		31	0.000	71	0.000
32	0.304	0.8209	72	0.000		32	0.000	72	0.000
33	0.358	0.8327	73	0.000		33	0.000	73	0.000
34	0.413	0.8461	74	0.000		34	0.000	74	0.000
35	0.464	0.8592	75	0.000		35	0.000	75	0.000
36	0.511	0.8729	76	0.000		36	0.000	76	0.000
37	0.556	0.8871	77	0.000		37	0.000	77	0.000
38	0.600	0.9019	78	0.000		38	0.000	78	0.000
39	0.643	0.9172	79	0.000		39	0.000	79	0.000
40	0.686	0.9330	80	0.000		40	0.000	80	0.000

TRANSITION FIXED

MAN .500 ALPHAT .8500 ALPHA .4140
REC .177+07 CLR .3109 CL .3045
OR 1714 CDPH .0020 CDP -.0003
CMR -.0669 CM -.0653
CO .0110

MODEL PRESSUREHOLE NUMBER	CP18	P1/P0	MODEL PRESSUREHOLE NUMBER	CP18	P1/P0	WAKE WAKE PRESSUREHOLE NUMBER	CPWB	WAKE WAKE PRESSUREHOLE NUMBER	CPWB
1	1.052	0.9983	41	-0.111	0.6270	1	0.000	41	-0.000
2	0.617	0.9341	42	-0.149	0.6144	2	0.000	42	0.000
3	-1.115	0.6747	43	-0.298	0.7094	3	0.000	43	

TRANSITION FREE

MAN	.699	ALPHAT	.8500	ALPHA	.3860
REC	.21E+07	CLB	.3268	CL	.3169
OR	.2627	CDPB	.0049	CDP	.0043
		CMR	-.0770	CM	-.0745
				CD	.0105
MODEL			MODEL		
PRESSUREHOLE			PRESSUREHOLE		
NUMBER	CP18	P1/P0	NUMBER	CP18	P1/P0
1	1.122	0.9987	41	-0.104	0.6958
2	0.812	0.9214	42	-0.155	0.6851
3	-0.039	0.7117	43	-0.111	0.5952
4	-0.754	0.5353	44	-0.535	0.5894
5	-1.277	0.4062	45	-0.540	0.5754
6	-1.252	0.4171	46	-0.614	0.5648
7	-1.248	0.4152	47	-0.599	0.5735
8	-1.274	0.4068	48	-0.588	0.5762
9	-1.248	0.4151	49	-0.574	0.5787
10	-1.113	0.4455	50	-0.545	0.5869
11	-1.027	0.4678	51	-0.529	0.5907
12	-0.834	0.5143	52	-0.506	0.5966
13	-0.704	0.5476	53	-0.512	0.5949
14	-0.749	0.5365	54	-0.471	0.6051
15	-0.745	0.5374	55	-0.419	0.6179
16	-0.718	0.5391	56	-0.341	0.6365
17	-0.726	0.5422	57	-0.340	0.6153
18	-0.724	0.5425	58	-0.311	0.6462
19	-0.711	0.5453			
20	-0.677	0.5591			
21	-0.658	0.5658			
22	-0.743	0.5973			
23	-0.415	0.6485			
24	-0.277	0.6533			
25	-0.151	0.6841			
26	-0.059	0.7064			
27	0.016	0.7123			
28	0.069	0.7194			
29	0.100	0.7451			
30	0.112	0.7511			
31	0.216	0.7747			
32	0.404	0.7974			
33	0.564	0.8150			
34	0.749	0.8314			
35	0.873	0.8436			
36	0.941	0.8556			
37	0.978	0.8700			
38	0.992	0.8849			
39	0.112	0.7491			
40	0.110	0.7234			

MAN	.724	ALPHAT	.8500	ALPHA	.3780
REC	.22E+07	CLB	.3341	CL	.3233
OR	.2645	CDPB	.0046	CDP	.0059
		CMR	-.0766	CM	-.0758
				CD	.0104
MODEL			MODEL		
PRESSUREHOLE			PRESSUREHOLE		
NUMBER	CP18	P1/P0	NUMBER	CP18	P1/P0
1	1.139	0.9999	41	-0.094	0.6408
2	0.837	0.9221	42	-0.152	0.6658
3	0.022	0.7104	43	-0.151	0.5624
4	-0.661	0.5510	44	-0.570	0.5575
5	-1.171	0.4019	45	-0.625	0.5433
6	-1.153	0.4045	46	-0.640	0.5342
7	-1.173	0.4013	47	-0.637	0.5401
8	-1.201	0.3904	48	-0.629	0.5426
9	-1.234	0.3854	49	-0.609	0.5478
10	-1.197	0.3993	50	-0.572	0.5570
11	-1.097	0.4218	51	-0.553	0.5620
12	-1.006	0.4444	52	-0.524	0.5649
13	-0.942	0.4645	53	-0.530	0.5640
14	-0.812	0.5067	54	-0.481	0.5807
15	-0.729	0.5364	55	-0.420	0.5965
16	-0.787	0.5013	56	-0.335	0.6702
17	-0.770	0.5057	57	-0.387	0.6054
18	-0.774	0.5034	58	0.315	0.9423
19	-0.723	0.5124			
20	-0.716	0.5194			
21	-0.657	0.5323			
22	-0.539	0.5614			
23	-0.419	0.5966			
24	-0.274	0.6342			
25	-0.145	0.6474			
26	-0.050	0.6819			
27	0.024	0.7114			
28	0.074	0.7204			
29	0.112	0.7341			
30	0.137	0.7407			
31	0.224	0.7642			
32	0.318	0.7474			
33	0.378	0.7621			
34	0.591	0.8066			
35	0.863	0.8404			
36	0.951	0.8760			
37	0.994	0.7794			
38	0.703	0.7577			
39	0.123	0.7470			
40	0.020	0.7101			

MAN	.747	ALPHAT	.8500	ALPHA	.2152
REC	.22E+07	CLB	.3456	CL	.3488
OR	.2769	CDPB	.0049	CDP	.0049
		CMR	-.0943	CM	-.0984
				CD	
MODEL			MODEL		
PRESSUREHOLE			PRESSUREHOLE		
NUMBER	CP18	P1/P0	NUMBER	CP18	P1/P0
1	1.145	0.9999	41	-0.063	0.6732
2	0.854	0.9200	42	-0.116	0.6508
3	0.039	0.7063	43	-0.136	0.5941
4	-0.599	0.5286	44	-0.569	0.5367
5	-1.091	0.3958	45	-0.644	0.5165
6	-1.088	0.3956	46	-0.640	0.5122
7	-1.130	0.3851	47	-0.620	0.5227
8	-1.152	0.3793	48	-0.631	0.5198
9	-1.161	0.3713	49	-0.604	0.5271
10	-1.156	0.3782	50	-0.561	0.5388
11	-1.124	0.3862	51	-0.536	0.5456
12	-1.093	0.3951	52	-0.504	0.5541
13	-1.071	0.4011	53	-0.509	0.5528
14	-1.057	0.4050	54	-0.451	0.5685
15	-1.039	0.4121	55	-0.384	0.5865
16	-1.018	0.4211	56	-0.294	0.6594
17	-0.944	0.4736	57	-0.420	0.6037
18	-0.960	0.4312	58	0.329	0.9410
19	-0.915	0.4433			
20	-0.804	0.4817			
21	-0.745	0.4492			
22	-0.674	0.5052			
23	-0.545	0.5608			
24	-0.507	0.4874			
25	-0.179	0.6419			
26	-0.068	0.6719			
27	0.037	0.6989			
28	0.116	0.7216			
29	0.179	0.7385			
30	0.230	0.7524			
31	0.304	0.7722			
32	0.377	0.7920			
33	0.429	0.8037			
34	0.411	0.8018			
35	0.404	0.7993			
36	0.381	0.7951			
37	0.314	0.7762			
38	0.236	0.7544			
39	0.156	0.7324			
40	0.057	0.7057			

TRANSITION FIXED

MAN	.699	ALPHAT	.8500	ALPHA	.4364
REC	.21E+07	CLB	.2791	CL	.2862
OR	.2532	CDPB	.0071	CDP	.0049
		CMR	-.0650	CM	-.0628
				CD	.0122
MODEL			MODEL		
PRESSUREHOLE			PRESSUREHOLE		
NUMBER	CP18	P1/P0	NUMBER	CP18	P1/P0
1	1.123	0.9988	41	-0.125	0.6904
2	0.803	0.9196	42	-0.234	0.6634
3	-0.036	0.7125	43	-0.172	0.6294
4	-0.747	0.5368	44	-0.525	0.5916
5	-1.272	0.4071	45	-0.603	0.5710
6	-1.235	0.4161	46	-0.633	0.5651
7	-1.250	0.4125	47	-0.597	0.5730
8	-1.274	0.4066	48	-0.731	0.5406
9	-1.232	0.4164	49	-0.569	0.5807
10	-1.130	0.4471	50	-0.546	0.5865
11	-1.019	0.4696	51	-0.530	0.5904
12	-0.741	0.5388	52	-0.507	0.5960
13	-0.706	0.5468	53	-0.513	0.5946
14	-0.727	0.5417	54	-0.470	0.6052
15	-0.794	0.5201	55	-0.422	0.6170
16	-0.736	0.5394	56	-0.358	0.6465
17	-0.727	0.5415	57	0.581	0.8134
18	-0.712	0.5454	58	0.906	0.9451
19	-0.694	0.5488			
20	-0.666	0.5577			
21	-0.620	0.5801			
22	-0.592	0.5923			
23	-0.598	0.6230			
24	-0.259	0.6573			
25	-0.136	0.6877			
26	-0.046	0.7098			
27	0.000	0.7277			
28	0.074	0.7396			
29	0.103	0.7468			
30	0.126	0.7520			
31	0.189	0.7705			
32	0.273	0.7886			
33	0.314	0.7989			
34	0.327	0.8050			
35	0.304	0.7963			
36	0.272	0.7884			
37	0.222	0.7762			
38	0.157	0.7405			
39	0.086	0.7026			
40	-0.012	0.7183			

MAN	.726	ALPHAT	.8500	ALPHA	.4295
REC	.22E+07	CLB	.3012	CL	.2914
OR	.2644	CDPB	.0042	CDP	.0062
		CMR	-.0647	CM	-.0622
				CD	.0124
MODEL			MODEL		
PRESSUREHOLE			PRESSUREHOLE		
NUMBER	CP18	P1/P0	NUMBER	CP18	P1/P0
1	1.133	0.9980	41	-0.116	0.6754
2	0.833	0.9205	42	-0.230	0.6442
3	0.030	0.7117	43	-0.378	0.6056
4	-0.657	0.5344	44	-0.546	0.5819
5	-1.150	0.4050	45	-0.650	0.5651
6	-1.145	0.4045	46	-0.649	0.5642
7	-1.166	0.4004	47	-0.634	0.5690
8	-1.194	0.3955	48	-0.605	0.5746
9	-1.229	0.3846	49	-0.605	0.5667
10	-1.180	0.3944	50	-0.574	0.5847
11	-1.085	0.4220	51	-0.554	0.5899
12	-1.003	0.4437	52	-0.528	0.5966
13	-0.949	0.4672	53	-0.533	0.5953
14	-0.844	0.5023	54	-0.484	0.5780
15	-0.751	0.5345	55	-0.429	0.5924
16	-0.749	0.4943	56	-0.346	0.6660
17	-0.740	0.5059	57	0.386	0.8042
18	-0.743	0.5072	58	0.909	0.9404
19	-0.702	0.5113			
20	-0.644	0.5236			
21	-0.447	0.5371			
22	-0.347	0.5644			
23	-0.259	0.6014			
24	-0.251	0.6384			
25	-0.121	0.6714			
26	0.002	0.7044			
27	0.035	0.7129			
28	0.084	0.7250			
29	0.102	0.7350			
30	0.133	0.7505			
31	0.206	0.7574			
32	0.279	0.7762			
33	0.315	0.7846			
34	0.421	0.7874			
35	0.504	0.7825			
36	0.571	0.7741			
37	0.623	0.7619			
38	0.612	0.7463			
39	0.591	0.7275			
40	0.552	0.7027			

WAKE RATE		WAKE RATE	
PRESSURE	CPWB	PRESSURE	CPWB
NUMBER	NUMBER	NUMBER	NUMBER
1	0.000	41	0.001
2	0.000	42	0.007
3	0.000	43	0.003
4	0.000	44	0.000
5	0.000	45	0.000
6	0.000	46	0.000
7	0.000	47	0.000
8	0.000	48	0.000
9	0.000	49	0.000
10	0.000	50	0.000
11	0.000	51	0.000
12	0.000	52	0.000
13	0.000	53	0.000
14	0.000	54	0.000
15	0.000	55	0.000
16	0.000	56	0.000
17	0.000	57	0.000
18	0.000	58	0.000
19	0.000	59	0.000
20	0.000	60	0.000
21	0.000	61	0.000
22	0.000	62	0.000
23	0.000	63	0.000
24	0.000	64	0.000
25	0.000	65	0.000
26	0.001	66	0.000
27	0.001	67	0.000
28	0.002	68	0.000
29	0.003	69	0.000
30	0.005		
31	0.010		
32	0.037		
33	0.095		
34	0.151		
35	0.220		
36	0.274		
37	0.275		
38	0.230		
39	0.160		
40	0.082		

TRANSITION FREE

MAN .774 ALPHAT .8500 ALPHA .2544
REC .23E+07 CLB .4355 CL .3596
OR .2499 CDPH .0220 CDP .0177
CMH .-1.077 CM .-1.077 CD

MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	WAKE WAKE PRESSUREHOLE NUMBER	CPH	WAKE WAKE PRESSUREHOLE NUMBER	CPH
1	1.158	0.9994	41	-0.141	0.4612	1	0.000	41	0.005
2	0.896	0.9255	42	-0.118	0.4355	2	0.000	42	0.001
3	0.193	0.7124	43	-0.260	0.5090	3	0.000	43	0.000
4	-0.492	0.5534	44	-0.724	0.4684	4	0.000	44	0.001
5	-0.963	0.4110	45	-0.758	0.4645	5	0.000	45	0.000
6	-0.960	0.4111	46	-0.007	0.4649	6	0.000	46	0.000
7	-0.990	0.3734	47	-0.761	0.4580	7	0.000	47	0.000
8	-1.021	0.3444	48	-0.721	0.4691	8	0.000	48	0.000
9	-1.047	0.3766	49	-0.644	0.4853	9	0.000	49	0.000
10	-1.042	0.3766	50	-0.601	0.5030	10	0.000	50	0.000
11	-1.014	0.3854	51	-0.571	0.5116	11	0.000	51	0.000
12	-0.992	0.3956	52	-0.537	0.5210	12	0.000	52	0.000
13	-0.942	0.3996	53	-0.504	0.5391	13	0.000	53	0.000
14	-0.978	0.3967	54	-0.473	0.5392	14	0.001	54	0.000
15	-0.978	0.3966	55	-0.401	0.5597	15	0.001	55	0.000
16	-0.962	0.3754	56	-0.107	0.6426	16	0.003	56	0.000
17	-0.904	0.3821	57	0.409	0.7661	17	0.006	57	0.000
18	-1.014	0.3663	58	0.428	0.9364	18	0.009	58	0.000
19	-1.042	0.3787	59	0.410	0.910	19	0.010	59	0.000
20	-0.997	0.3814	60	0.009	0.900	20	0.009	60	0.000
21	-0.976	0.3890	61	0.008	0.910	21	0.008	61	0.000
22	-0.968	0.3994	62	0.007	0.920	22	0.007	62	0.000
23	-0.961	0.5044	63	0.006	0.930	23	0.006	63	0.000
24	-0.944	0.5019	64	0.005	0.940	24	0.005	64	0.000
25	-0.905	0.4930	65	0.004	0.950	25	0.004	65	0.000
26	-0.923	0.4664	66	0.007	0.960	26	0.007	66	0.000
27	0.155	0.6883	67	0.013	0.970	27	0.013	67	0.000
28	0.134	0.7076	68	0.025	0.980	28	0.025	68	0.000
29	0.166	0.7197	69	0.030	0.990	29	0.030	69	0.000
30	0.212	0.7325	70	0.103	1.000	30	0.103	70	0.000
31	0.246	0.7543	71	0.110	1.010	31	0.110	71	0.000
32	0.365	0.7757	72	0.214	1.020	32	0.214	72	0.000
33	0.407	0.7870	73	0.262	1.030	33	0.262	73	0.000
34	0.434	0.7811	74	0.262	1.040	34	0.262	74	0.000
35	0.451	0.7800	75	0.290	1.050	35	0.290	75	0.000
36	0.377	0.7793	76	0.256	1.060	36	0.256	76	0.000
37	0.320	0.7651	77	0.234	1.070	37	0.234	77	0.000
38	0.249	0.7408	78	0.215	1.080	38	0.215	78	0.000
39	0.165	0.7192	79	0.055	1.090	39	0.055	79	0.000
40	0.066	0.6913	80	0.018	1.100	40	0.018	80	0.000

MAN .800 ALPHAT .8500 ALPHA .4251
REC .23E+07 CLB .4355 CL .3596
OR .2499 CDPH .0220 CDP .0177
CMH .-1.077 CM .-1.077 CD

MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	WAKE WAKE PRESSUREHOLE NUMBER	CPH	WAKE WAKE PRESSUREHOLE NUMBER	CPH
1	1.167	0.9991	41	-0.119	0.4596	1	0.000	41	0.005
2	0.928	0.9246	42	-0.359	0.5562	2	0.000	42	0.001
3	0.204	0.7173	43	-0.620	0.4713	3	0.000	43	0.000
4	-0.599	0.5587	44	-0.745	0.4309	4	0.000	44	0.000
5	-0.951	0.4056	45	-0.749	0.4356	5	0.000	45	0.000
6	-0.934	0.4093	46	-0.805	0.4192	6	0.000	46	0.000
7	-0.869	0.4805	47	-0.793	0.4226	7	0.000	47	0.000
8	-0.908	0.3894	48	-0.739	0.4385	8	0.000	48	0.000
9	-0.945	0.3760	49	-0.753	0.4574	9	0.001	49	0.000
10	-0.937	0.3804	50	-0.610	0.4764	10	0.002	50	0.000
11	-0.916	0.3847	51	-0.573	0.4875	11	0.004	51	0.000
12	-0.901	0.3911	52	-0.504	0.4961	12	0.009	52	0.000
13	-0.879	0.3929	53	-0.566	0.4896	13	0.011	53	0.000
14	-0.869	0.3915	54	-0.507	0.5177	14	0.016	54	0.000
15	-0.857	0.3892	55	-0.439	0.5309	15	0.021	55	0.000
16	-0.824	0.3844	56	-0.103	0.6255	16	0.022	56	0.000
17	-0.857	0.3797	57	0.411	0.7766	17	0.019	57	0.000
18	-0.867	0.3731	58	0.429	0.9290	18	0.015	58	0.000
19	-0.861	0.3726	59	0.416	0.910	19	0.016	59	0.000
20	-0.820	0.3853	60	0.016	0.900	20	0.016	60	0.000
21	-0.813	0.3876	61	0.020	0.910	21	0.020	61	0.000
22	-0.805	0.3889	62	0.026	0.920	22	0.026	62	0.000
23	-0.821	0.4813	63	0.034	0.930	23	0.034	63	0.000
24	-0.795	0.5692	64	0.046	0.940	24	0.046	64	0.000
25	-0.762	0.6082	65	0.056	0.950	25	0.056	65	0.000
26	-0.718	0.6324	66	0.087	0.960	26	0.087	66	0.000
27	-0.710	0.6529	67	0.115	0.970	27	0.115	67	0.000
28	0.146	0.6649	68	0.147	0.980	28	0.147	68	0.000
29	0.185	0.6610	69	0.187	0.990	29	0.187	69	0.000
30	0.213	0.6720	70	0.231	1.000	30	0.231	70	0.000
31	0.186	0.7106	71	0.263	1.010	31	0.263	71	0.000
32	0.244	0.7277	72	0.295	1.020	32	0.295	72	0.000
33	0.354	0.7351	73	0.324	1.030	33	0.324	73	0.000
34	0.256	0.7511	74	0.341	1.040	34	0.341	74	0.000
35	0.277	0.7226	75	0.345	1.050	35	0.345	75	0.000
36	0.179	0.7085	76	0.281	1.060	36	0.281	76	0.000
37	0.119	0.6956	77	0.128	1.070	37	0.128	77	0.000
38	0.069	0.6762	78	0.094	1.080	38	0.094	78	0.000
39	-0.107	0.6536	79	0.266	1.090	39	0.266	79	0.000
40	-0.191	0.6291	80	0.227	1.100	40	0.227	80	0.000

MAN .824 ALPHAT .8500 ALPHA .5683
REC .23E+07 CLB .4355 CL .3596
OR .3109 CDPH .0220 CDP .0177
CMH .-1.077 CM .-1.077 CD

MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	WAKE WAKE PRESSUREHOLE NUMBER	CPH	WAKE WAKE PRESSUREHOLE NUMBER	CPH
1	1.180	0.9994	41	-0.371	0.5269	1	0.000	41	0.232
2	0.956	0.9311	42	-0.441	0.5054	2	0.000	42	0.207
3	0.263	0.7201	43	-0.575	0.4645	3	0.000	43	0.174
4	-0.122	0.5817	44	-0.727	0.4183	4	0.000	44	0.148
5	-0.758	0.4089	45	-0.713	0.4224	5	0.000	45	0.131
6	-0.742	0.4136	46	-0.743	0.4134	6	0.001	46	0.098
7	-0.776	0.4036	47	-0.748	0.4057	7	0.005	47	0.082
8	-0.813	0.3921	48	-0.715	0.4218	8	0.007	48	0.070
9	-0.854	0.3794	49	-0.649	0.4422	9	0.012	49	0.051
10	-0.848	0.3811	50	-0.582	0.4625	10	0.017	50	0.046
11	-0.832	0.3864	51	-0.509	0.4720	11	0.024	51	0.033
12	-0.821	0.3895	52	-0.436	0.4757	12	0.024	52	0.020
13	-0.810	0.3904	53	-0.352	0.4717	13	0.027	53	0.013
14	-0.827	0.3874	54	-0.260	0.5056	14	0.024	54	0.008
15	-0.840	0.3836	55	-0.368	0.5277	15	0.024	55	0.007
16	-0.859	0.3782	56	-0.078	0.6161	16	0.024	56	0.004
17	-0.880	0.3787	57	0.426	0.7687	17	0.026	57	0.006
18	-0.907	0.3634	58	0.439	0.9260	18	0.028	58	0.005
19	-0.900	0.3654	59	0.404	0.910	19	0.046	59	0.004
20	-0.864	0.3764	60	0.059	0.900	20	0.059	60	0.002
21	-0.858	0.3761	61	0.073	0.910	21	0.073	61	0.001
22	-0.823	0.3890	62	0.080	0.920	22	0.080	62	0.000
23	-0.822	0.4404	63	0.123	0.930	23	0.123	63	0.000
24	-0.836	0.5367	64	0.140	0.940	24	0.140	64	0.000
25	-0.840	0.5666	65	0.170	0.950	25	0.170	65	0.000
26	-0.817	0.5630	66	0.214	0.960	26	0.214	66	0.000
27	-0.780	0.6070	67	0.247	0.970	27	0.247	67	0.000
28	-0.729	0.6252	68	0.272	0.980	28	0.272	68	0.000
29	-0.611	0.6560	69	0.299	0.990	29	0.299	69	0.000
30	0.026	0.6474	70	0.321	1.000	30	0.321	70	0.000
31	0.068	0.6604	71	0.342	1.010	31	0.342	71	0.000
32	0.109	0.6750	72	0.351	1.020	32	0.351	72	0.000
33	0.093	0.6602	73	0.369	1.030	33	0.369	73	0.000
34	0.044	0.6305	74	0.370	1.040	34	0.370	74	0.000
35	-0.021	0.6154	75	0.364	1.050	35	0.364	75	0.000
36	-0.069	0.6167	76	0.350	1.060	36	0.350	76	0.000
37	-0.124	0.6014	77	0.340	1.070	37	0.340	77	0.000
38	-0.177	0.5857	78	0.307	1.080	38	0.307	78	0.000
39	-0.245	0.5651	79	0.265	1.090	39	0.265	79	0.000
40	-0.302	0.5477	80	0.262	1.100	40	0.262	80	0.000

TRANSITION FIXED

MAN .774 ALPHAT .8500 ALPHA .3570
REC .23E+07 CLB .4355 CL .3596
OR .2499 CDPH .0220 CDP .0177
CMH .-1.077 CM .-1.077 CD

TRANSITION FREE

MAR	.749	ALPHAT	-4.0000	ALPHA	-3.0001
REC	.22E+07	CLB	-2106	CL	-2111
QR	.2754	CDPB	-0366	CDP	-0358
		CMR	-0766	CM	-0705
				CO	-0316
MODEL	CP1R	P1/PO	MODEL	CP1R	P1/PO
PRESSUREHOLE			PRESSUREHOLE		
NUMBER			NUMBER		
1	1.068	0.9788	41	-0.152	0.6448
2	1.082	0.9623	42	-0.238	0.6282
3	1.068	0.9434	43	-0.345	0.5965
4	0.893	0.7150	44	-0.512	0.5013
5	-0.161	0.6463	45	-0.711	0.4978
6	-0.201	0.6356	46	-1.136	0.3829
7	-0.284	0.6130	47	-1.226	0.3585
8	-0.289	0.6117	48	-1.185	0.3695
9	-0.293	0.6108	49	-1.252	0.3514
10	-0.282	0.6137	50	-1.234	0.3563
11	-0.279	0.6090	51	-1.240	0.3548
12	-0.256	0.5890	52	-1.259	0.3497
13	-0.262	0.5821	53	-1.279	0.3442
14	-0.405	0.5804	54	-1.236	0.3559
15	-0.440	0.5789	55	-1.131	0.3841
16	-0.486	0.5584	56	-0.859	0.4630
17	-0.520	0.5492	57	-0.170	0.6438
18	-0.567	0.5366	58	0.546	0.4375
19	-0.615	0.5236			
20	-0.646	0.5152			
21	-0.646	0.5097			
22	-0.618	0.5099			
23	-0.579	0.5333			
24	-0.503	0.5533			
25	-0.177	0.6439			
26	-0.105	0.6613			
27	-0.020	0.6745			
28	0.055	0.7047			
29	0.110	0.7316			
30	0.154	0.7519			
31	0.167	0.7548			
32	0.179	0.7582			
33	0.164	0.7361			
34	0.147	0.7294			
35	0.112	0.7202			
36	0.071	0.7105			
37	0.052	0.6985			
38	-0.008	0.6775			
39	-0.041	0.6766			
40	-0.109	0.6655			

MAR	.749	ALPHAT	-2.0000	ALPHA	-2.0731
REC	.22E+07	CLB	-0097	CL	-0093
QR	.2757	CDPB	-0043	CDP	-0083
		CMR	-0996	CM	-0909
				CO	-0108

MODEL	CP1R	P1/PO	MODEL	CP1R	P1/PO
PRESSUREHOLE			PRESSUREHOLE		
NUMBER			NUMBER		
1	1.131	0.9916	41	-0.066	0.6725
2	1.016	0.9644	42	-0.155	0.6483
3	0.379	0.7924	43	-0.307	0.6074
4	-0.184	0.6404	44	-0.708	0.4989
5	-0.491	0.4577	45	-0.949	0.4259
6	-0.507	0.5534	46	-0.996	0.4213
7	-0.604	0.5270	47	-1.106	0.3935
8	-0.753	0.5700	48	-1.070	0.4032
9	-0.567	0.5570	49	-1.043	0.4085
10	-0.514	0.5515	50	-1.028	0.4127
11	-0.501	0.5523	51	-1.030	0.4120
12	-0.523	0.5490	52	-1.025	0.4135
13	-0.537	0.5453	53	-1.052	0.4061
14	-0.765	0.5382	54	-1.023	0.4140
15	-0.688	0.5353	55	-0.883	0.4517
16	-0.637	0.5237	56	-0.587	0.5318
17	-0.642	0.5169	57	-0.037	0.7002
18	-0.674	0.5083	58	0.495	0.4778
19	-0.707	0.4992			
20	-0.673	0.4984			
21	-0.627	0.5208			
22	-0.610	0.5255			
23	-0.307	0.6073			
24	-0.135	0.6524			
25	-0.054	0.6751			
26	0.034	0.6992			
27	0.121	0.7228			
28	0.164	0.7403			
29	0.248	0.7473			
30	0.307	0.7732			
31	0.367	0.7892			
32	0.385	0.7952			
33	0.390	0.7953			
34	0.370	0.7901			
35	0.341	0.7822			
36	0.290	0.7683			
37	0.218	0.7489			
38	0.140	0.7280			
39	0.046	0.7025			
40					

MAR	.749	ALPHAT	-1.0000	ALPHA	-1.2461
REC	.22E+07	CLB	-1840	CL	-1842
QR	.2757	CDPB	-0667	CDP	-0659
		CMR	-1097	CM	-1012
				CO	-0074

MODEL	CP1R	P1/PO	MODEL	CP1R	P1/PO
PRESSUREHOLE			PRESSUREHOLE		
NUMBER			NUMBER		
1	1.131	0.9916	41	-0.080	0.6688
2	0.960	0.9490	42	-0.178	0.6423
3	0.253	0.7585	43	-0.342	0.5980
4	-0.161	0.5929	44	-0.755	0.4866
5	-0.125	0.5947	45	-0.781	0.4796
6	-0.709	0.4990	46	-0.825	0.4678
7	-0.824	0.4679	47	-0.899	0.4482
8	-0.875	0.4549	48	-0.876	0.4531
9	-0.808	0.4724	49	-0.836	0.4687
10	-0.698	0.5021	50	-0.794	0.4758
11	-0.652	0.5145	51	-0.786	0.4781
12	-0.644	0.5138	52	-0.825	0.4677
13	-0.667	0.5100	53	-0.856	0.4594
14	-0.687	0.5151	54	-0.781	0.4797
15	-0.699	0.5177	55	-0.711	0.4962
16	-0.713	0.5212	56	-0.416	0.5782
17	-0.742	0.4902	57	0.174	0.7374
18	-0.764	0.4841	58	0.766	0.47024
19	-0.788	0.4751			
20	-0.796	0.4757			
21	-0.749	0.4882			
22	-0.711	0.4986			
23	-0.605	0.5572			
24	-0.254	0.6714			
25	-0.171	0.6944			
26	-0.066	0.6721			
27	0.030	0.6785			
28	0.119	0.7225			
29	0.188	0.7406			
30	0.250	0.7479			
31	0.314	0.7767			
32	0.366	0.7945			
33	0.417	0.8028			
34	0.464	0.7985			
35	0.392	0.7961			
36	0.368	0.7896			
37	0.308	0.7735			
38	0.228	0.7520			
39	0.145	0.7295			
40	0.043	0.7019			

TRANSITION FIXED

MAR	.749	ALPHAT	-4.0000	ALPHA	-3.7354
REC	.22E+07	CLB	-2600	CL	-2511
QR	.2774	CDPB	-0403	CDP	-0391
		CMR	-0594	CM	-0467
				CO	-0363
MODEL	CP1R	P1/PO	MODEL	CP1R	P1/PO
PRESSUREHOLE			PRESSUREHOLE		
NUMBER			NUMBER		
1	1.068	0.9788	41	-0.228	0.6292
2	1.045	0.9628	42	-0.267	0.6175
3	0.577	0.8456	43	-0.376	0.5878
4	0.103	0.7173	44	-0.471	0.5621
5	-0.153	0.6480	45	-0.607	0.5294
6	-0.191	0.6370	46	-0.759	0.4900
7	-0.276	0.6148	47	-1.224	0.3585
8	-0.282	0.6131	48	-1.298	0.3383
9	-0.287	0.6119	49	-1.281	0.3429
10	-0.275	0.6150	50	-1.280	0.3431
11	-0.291	0.6108	51	-1.277	0.3439
12	-0.326	0.6008	52	-1.279	0.3436
13	-0.358	0.5937	53	-1.284	0.3421
14	-0.392	0.5833	54	-1.286	0.3352
15	-0.457	0.5659	55	-1.134	0.3826
16	-0.452	0.5671	56	-0.850	0.4594
17	-0.511	0.5512	57	-0.170	0.6435
18	-0.452	0.5401	58	0.547	0.4361
19	-0.625	0.4238			
20	-0.628	0.4257			
21	-0.653	0.5128			
22	-0.777	0.5336			
23	-0.956	0.5660			
24	-0.925	0.6016			
25	-0.705	0.6340			
26	-0.115	0.6584			
27	0.026	0.6798			
28	0.043	0.7010			
29	0.084	0.7121			
30	0.120	0.7220			
31	0.129	0.7244			
32	0.136	0.7267			
33	0.119	0.7217			
34	0.086	0.7126			
35	0.031	0.6976			
36	0.001	0.6897			
37	-0.038	0.6792			
38	-0.078	0.6684			
39	-0.122	0.6564			
40	-0.160	0.6461			

MAR	.749	ALPHAT	-2.0000	ALPHA	-1.9333
RFL	.22E+07	CLB	-1057	CL	-1020
QR	.2781	CDPB	-0132	CDP	-0131
		CMR	-0721	CM	-0738
				CO	-0168

MODEL	CP1R	P1/PO	MODEL	CP1R	P1/PO
PRESSUREHOLE			PRESSUREHOLE		
NUMBER			NUMBER		
1	1.110	0.9687	41	-0.098	0.6626
2	1.016	0.9644	42	-0.199	0.6355
3	0.399	0.7974	43	-0.388	0.5979
4	-0.156	0.6472	44	-0.518	0.5490
5	-0.458	0.5852	45	-1.252	0.3503
6	-0.475	0.5608	46	-1.174	0.3702
7	-0.570	0.5351	47	-1.139	0.3809
8	-0.558	0.5381	48	-1.136	0.3819
9	-0.559	0.5345	49	-1.073	0.3989
10	-0.447	0.5575	50	-1.056	0.4034
11	-0.476	0.5405	51	-1.052	0.4045
12	-0.442	0.5361	52	-1.047	0.4089
13	-0.451	0.5401	53	-1.073	0.3989
14	-0.530	0.5457	54	-1.035	0.4091
15	-0.542	0.5498	55	-0.901	0.4455
16	-0.551	0.5494	56	-0.632	0.5236
17	-0.596	0.5274	57	-0.032	0.6953
18	-0.629	0.5180	58	0.686	0.4749
19	-0.663	0.5099			
20	-0.644	0.5165			
21	-0.634	0.5177			
22	-0.527	0.5467			
23	-0.398	0.5812			
24	-0.260	0.6249			
25	-0.134	0.6530			
26	-0.036	0.6795			
27	0.050	0.7024			
28	0.121	0.7219			
29	0.165	0.7340			
30	0.204	0.7444			
31	0.252	0.7574			
32	0.299	0.7703			
33	0.347	0.7750			

TRANSITION FREE

MAR .744 ALPHAT 0.0000 ALPHA -.3574
REC .22E+07 CLR .2350 CL .2260
QR 2754. CDPH .0871 CDP .0054
CMB -.0892 CM -.0051 CD .0105

MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	WAKE WAKE PRESSUREHOLE PRESSUREHOLE NUMBER	CPH	PI/PO	WAKE WAKE PRESSUREHOLE PRESSUREHOLE NUMBER	CPH	PI/PO
1	1.148	1.0000	41	-0.097	0.6640	1	0.000	41	0.000	41	0.000
2	0.916	0.9374	42	-0.167	0.5491	2	0.000	42	-0.000	42	-0.000
3	0.161	0.7334	43	-0.381	0.5875	3	0.000	43	0.000	43	0.000
4	-0.462	0.5601	44	-0.697	0.5020	4	0.000	44	0.000	44	0.000
5	-0.937	0.4372	45	-0.760	0.4049	5	0.000	45	0.000	45	0.000
6	-0.854	0.4596	46	-0.747	0.4776	6	0.000	46	0.000	46	-0.000
7	-0.945	0.4349	47	-0.804	0.4732	7	0.000	47	0.000	47	0.000
8	-1.007	0.4282	48	-0.791	0.4764	8	0.000	48	0.000	8	0.000
9	-1.050	0.4067	49	-0.700	0.4677	9	0.000	49	0.000	9	0.000
10	-0.986	0.4239	50	-0.701	0.5010	10	0.000	50	0.000	10	0.000
11	-0.874	0.4543	51	-0.677	0.5074	11	0.000	51	0.000	11	0.000
12	-0.799	0.4759	52	-0.655	0.5132	12	0.000	52	0.000	12	0.000
13	-0.732	0.4817	53	-0.683	0.5051	13	0.000	53	0.000	13	0.000
14	-0.747	0.4885	54	-0.625	0.5214	14	0.000	54	0.000	14	0.000
15	-0.768	0.4829	55	-0.571	0.5360	15	0.000	55	0.000	15	0.000
16	-0.718	0.4962	56	-0.549	0.5177	16	0.000	56	0.000	16	-0.000
17	-0.754	0.4866	57	-0.269	0.7662	17	0.000	57	0.000	17	0.000
18	-0.794	0.4754	58	0.861	0.9224	18	0.000	58	0.000	18	0.000
19	-0.826	0.4671				19	0.000	59	0.000	19	0.000
20	-0.874	0.4543				20	0.000	60	0.000	20	0.000
21	-0.866	0.5103				21	0.000	61	0.000	21	0.000
22	-0.541	0.5442				22	0.000	62	0.000	22	0.000
23	-0.402	0.5002				23	0.000	63	0.000	23	0.000
24	-0.261	0.4597				24	0.000	64	0.000	24	0.000
25	-0.135	0.4537				25	0.000	65	0.000	25	0.000
26	-0.039	0.4747				26	0.001	66	0.000	26	0.000
27	0.044	0.5052				27	0.000	67	0.000	27	0.000
28	0.094	0.7167				28	0.001	68	0.000	28	0.001
29	0.137	0.7274				29	0.002	69	0.000	29	0.000
30	0.164	0.7381				30	0.008	70	0.000	30	0.005
31	0.248	0.7572				31	0.026			31	0.063
32	0.330	0.7793				32	0.081			32	0.133
33	0.362	0.7934				33	0.159			33	0.211
34	0.363	0.7836				34	0.234			34	0.263
35	0.376	0.7934				35	0.277			35	0.279
36	0.353	0.7855				36	0.257			36	0.247
37	0.242	0.7630				37	0.179			37	0.165
38	0.211	0.7871				38	0.093			38	0.094
39	0.128	0.7247				39	0.033			39	0.044
40	0.028	0.6976				40	0.008			40	0.014

MAR .744 ALPHAT .9500 ALPHA .2749
REC .22E+07 CLR .4857 CL .4668
QR 2801. CDPH .0120 CDP .0063
CMB -.1013 CM -.0970 CD .0081

MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	MODEL PRESSUREHOLE NUMBER	CPH	PI/PO	WAKE WAKE PRESSUREHOLE PRESSUREHOLE NUMBER	CPH	PI/PO	WAKE WAKE PRESSUREHOLE PRESSUREHOLE NUMBER	CPH	PI/PO
1	1.145	0.9994	41	-0.053	0.6763	1	0.000	41	0.000	41	0.000
2	0.847	0.9190	42	-0.114	0.6597	2	0.000	42	0.000	42	0.000
3	0.046	0.7034	43	-0.336	0.5454	3	0.000	43	0.000	43	0.000
4	-0.618	0.5237	44	-0.585	0.5408	4	0.000	44	0.000	44	0.000
5	-1.110	0.3911	45	-0.604	0.5274	5	0.000	45	0.000	45	0.000
6	-1.122	0.3878	46	-0.645	0.5165	6	0.000	46	0.000	46	0.000
7	-1.161	0.3674	47	-0.625	0.5218	7	0.000	47	0.000	47	0.000
8	-1.170	0.3728	48	-0.613	0.5252	8	0.000	48	0.000	8	0.000
9	-1.203	0.3660	49	-0.548	0.5318	9	0.000	49	0.000	9	0.000
10	-1.177	0.3729	50	-0.345	0.5446	10	0.000	50	0.000	10	0.000
11	-1.151	0.3803	51	-0.519	0.5504	11	0.000	51	0.000	11	0.000
12	-1.120	0.3888	52	-0.444	0.5586	12	0.000	52	0.000	12	0.000
13	-1.095	0.3949	53	-0.487	0.5592	13	0.000	53	0.000	13	0.000
14	-1.087	0.3974	54	-0.426	0.5749	14	0.000	54	0.000	14	0.000
15	-1.071	0.4016	55	-0.359	0.5936	15	0.000	55	0.000	15	0.000
16	-1.061	0.4044	56	-0.071	0.6714	16	0.000	56	0.000	16	0.000
17	-1.049	0.4077	57	0.022	0.8056	17	0.000	57	0.000	17	0.000
18	-1.004	0.4300	58	0.938	0.9435	18	0.000	58	0.000	18	0.000
19	-1.010	0.4180				19	0.000	59	0.000	19	0.001
20	-0.970	0.4287				20	0.000	60	0.000	20	0.001
21	-0.845	0.4707				21	0.000	61	0.000	21	0.001
22	-0.540	0.5062				22	0.000	62	0.000	22	0.001
23	-0.433	0.5737				23	0.001	63	0.000	23	0.002
24	-0.303	0.6086				24	0.001	64	0.000	24	0.002
25	-0.177	0.6422				25	0.001	65	0.000	25	0.002
26	-0.072	0.6710				26	0.001	66	0.000	26	0.004
27	0.024	0.6971				27	0.001	67	0.000	27	0.004
28	0.115	0.7235				28	0.003	68	0.000	28	0.006
29	0.176	0.7381				29	0.004	69	0.000	29	0.008
30	0.236	0.7543				30	0.012			30	0.055
31	0.312	0.7747				31	0.034			31	0.111
32	0.398	0.7957				32	0.077			32	0.189
33	0.494	0.8063				33	0.096			33	0.257
34	0.537	0.8086				34	0.200			34	0.276
35	0.421	0.7852				35	0.258			35	0.239
36	0.302	0.7962				36	0.230			36	0.170
37	0.322	0.7791				37	0.136			37	0.088
38	0.244	0.7563				38	0.047			38	0.032
39	0.164	0.7347				39	0.008			39	0.010
40	0.062	0.7072				40	0.003			40	0.008

MAR .744 ALPHAT 2.0000 ALPHA 1.1403
REC .22E+07 CLR .6352 CL .6113
QR 2754. CDPH .0256 CDP .0161
CMB -.1180 CM -.0199 CD .0199

MODEL PRESSUREHOLE			MODEL PRESSUREHOLE		
NUMBER	CPH	PI/PO	NUMBER	CPH	PI/PO
1	1.142	0.9983	41	-0.052	0.6761
2	0.747	0.9026	42	-0.086	0.6668
3	-0.059	0.6794	43	-0.347	0.5962
4	-0.704	0.4997	44	-0.493	0.5570
5	-1.197	0.3667	45	-0.572	0.5354
6	-1.244	0.3536	46	-0.579	0.5335
7	-1.296	0.3399	47	-0.524	0.5445
8	-1.120	0.3333	48	-0.522	0.5491
9	-1.327	0.3316	49	-0.467	0.5586
10	-1.292	0.3409	50	-0.457	0.5719
11	-1.254	0.3516	51	-0.407	0.5799
12	-1.229	0.3603	52	-0.344	0.5914
13	-1.215	0.3614	53	-0.357	0.5937
14	-1.207	0.3639	54	-0.267	0.6125
15	-1.207	0.3639	55	-0.203	0.6351
16	-1.204	0.3621	56	0.080	0.7116
17	-1.220	0.3604	57	0.552	0.8390
18	-1.229	0.3540	58	0.997	0.9592
19	-1.184	0.3702			
20	-1.163	0.3759			
21	-1.159	0.3771			
22	-0.617	0.5233			
23	-0.404	0.6044			
24	-0.204	0.6543			
25	-0.111	0.6600			
26	-0.033	0.6814			
27	0.049	0.7024			
28	0.111	0.7149			
29	0.156	0.7327			
30	0.197	0.7431			
31	0.279	0.7622			
32	0.361	0.7874			
33	0.410	0.8017			
34	0.410	0.8017			
35	0.410	0.8017			
36	0.410	0.8017			
37	0.410	0.8017			
38	0.410	0.8017			
39	0.410	0.8017			
40	0.410	0.8017			
41	0.410	0.8017			
42	0.410	0.8017			
43	0.410	0.8017			
44	0.410	0.8017			
45	0.410	0.8017			
46	0.410	0.8017			
47	0.410	0.8017			
48	0.410	0.8017			
49	0.410	0.8017			
50	0.410	0.8017			
51	0.410	0.8017			
52	0.410	0.8017			
53	0.410	0.8017			
54	0.410	0.8017			
55	0.410	0.8017			
56	0.410	0.8017			
57	0.410	0.8017			
58	0.410	0.8017			
59	0.410	0.8017			
60	0.410	0.8017			
61	0.410	0.8017			
62	0.410	0.8017			
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71	0.410	0.8017			
72	0.410	0.8017			
73	0.410	0.8017			
74	0.410	0.8017			
75	0.410	0.8017			
76	0.410	0.8017			
77	0.410	0.8017			
78	0.410	0.8017			
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80	0.410	0.8017			
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90	0.410	0.8017			
91	0.410	0.8017			
92	0.410	0.8017			
93	0.410	0.8017			
94	0.410	0.8017			
95	0.410	0.8017			
96	0.410	0.8017			
97	0.410	0.8017			
98	0.410	0.8017			
99	0.410	0.8017			
100	0.410	0.8017			

TRANSITION FREE

MAB .748 ALPHAT 4.0000 ALPHA 2.9634
 RFC .22E+07 CLD .7603 CL .7367
 QH .2759. CPH .0564 CDP .0530
 CMH -.1113 CM -.1047
 CD .0531

MODEL PRESSUREHOLE	MODEL PRESSUREHOLE	MODEL PRESSUREHOLE	MODEL PRESSUREHOLE	MODEL PRESSUREHOLE	MODEL PRESSUREHOLE
NUMBER	CPH	PI/PO	NUMBER	CPH	PI/PO
1	1.120	0.9825	41	-0.773	0.5704
2	0.688	0.8760	42	-0.153	0.6466
3	-0.178	0.6420	43	-0.361	0.5927
4	-0.444	0.4621	44	-0.466	0.5644
5	-1.132	0.3302	45	-0.535	0.5462
6	-1.403	0.3112	46	-0.514	0.5512
7	-1.444	0.2946	47	-0.442	0.5708
8	-1.483	0.2795	48	-0.415	0.5786
9	-1.449	0.2713	49	-0.364	0.5919
10	-1.437	0.3019	50	-0.302	0.6085
11	-1.412	0.3086	51	-0.261	0.6194
12	-1.349	0.3148	52	-0.207	0.6343
13	-1.476	0.3186	53	-0.176	0.6419
14	-1.467	0.3204	54	-0.084	0.6663
15	-1.466	0.3214	55	0.021	0.6957
16	-1.364	0.3404	56	0.204	0.7708
17	-1.351	0.3252	57	0.716	0.8835
18	-1.411	0.3361	58	1.670	0.9789
19	-1.102	0.3385			
20	-1.135	0.3855			
21	-0.484	0.5042			
22	-0.400	0.5551			
23	-0.186	0.5854			
24	-0.292	0.6131			
25	-0.224	0.6297			
26	-0.174	0.6429			
27	-0.134	0.6525			
28	-0.092	0.6652			
29	-0.069	0.6714			
30	-0.049	0.6767			
31	0.044	0.7165			
32	0.244	0.7762			
33	0.434	0.7881			
34	0.615	0.7860			
35	0.760	0.7872			
36	0.734	0.7826			
37	0.708	0.7661			
38	0.200	0.7447			
39	0.124	0.7240			
40	0.057	0.7000			

TRANSITION FIXED

MAB .748 ALPHAT 4.0000 ALPHA 3.1254
 RFC .22E+07 CLD .6588 CL .6365
 QH .2777. CPH .0632 CDP .0531
 CMH -.0892 CM -.0844
 CD .0649

MODEL PRESSUREHOLE	MODEL PRESSUREHOLE	MODEL PRESSUREHOLE	MODEL PRESSUREHOLE	MODEL PRESSUREHOLE	MODEL PRESSUREHOLE
NUMBER	CPH	PI/PO	NUMBER	CPH	PI/PO
1	1.122	0.9859	41	-0.121	0.6573
2	0.686	0.8774	42	-0.228	0.6283
3	-0.163	0.6459	43	-0.357	0.5935
4	-0.433	0.4650	44	-0.503	0.5540
5	-1.120	0.3135	45	-0.573	0.5352
6	-1.490	0.3143	46	-0.541	0.5384
7	-1.455	0.2967	47	-0.484	0.5591
8	-1.445	0.2687	48	-0.592	0.5301
9	-1.401	0.2900	49	-0.380	0.5874
10	-1.441	0.3066	50	-0.323	0.6027
11	-1.411	0.3087	51	-0.281	0.6141
12	-1.391	0.3143	52	-0.228	0.6284
13	-1.390	0.3172	53	-0.195	0.6378
14	-1.373	0.3191	54	-0.104	0.6619
15	-1.382	0.3185	55	0.002	0.6906
16	-1.382	0.3185	56	0.278	0.7649
17	-1.245	0.3424	57	0.705	0.8803
18	-1.191	0.3643	58	1.666	0.9780
19	-0.428	0.5053			
20	-0.401	0.5276			
21	-0.530	0.5469			
22	-0.466	0.5841			
23	-0.222	0.5758			
24	-0.344	0.5958			
25	-0.213	0.6055			
26	-0.166	0.6180			
27	-0.112	0.6326			
28	-0.194	0.6375			
29	-0.167	0.6444			
30	-0.124	0.6553			
31	0.021	0.6957			
32	0.171	0.7361			
33	0.260	0.7602			
34	0.294	0.7694			
35	0.291	0.7685			
36	0.263	0.7609			
37	0.234	0.7476			
38	0.152	0.7309			
39	0.081	0.7119			
40	-0.015	0.6865			

TABLE 4.5 Aerodynamic test data (concluded)

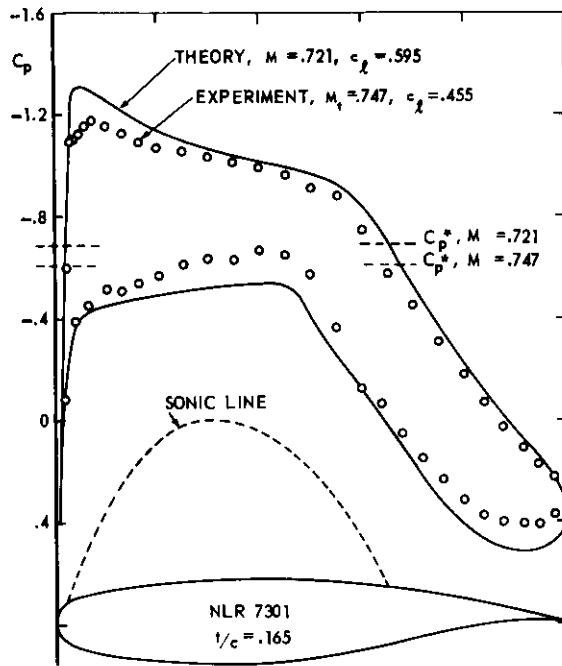


Fig. 4.1 Airfoil shape and design pressure distribution

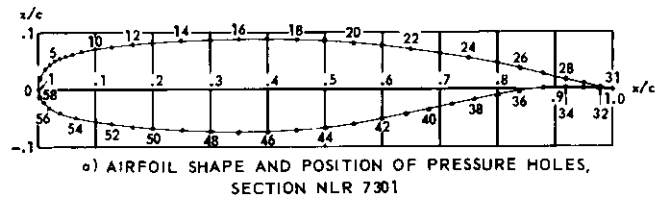


Fig. 4.2 Model shape and position of pressure holes

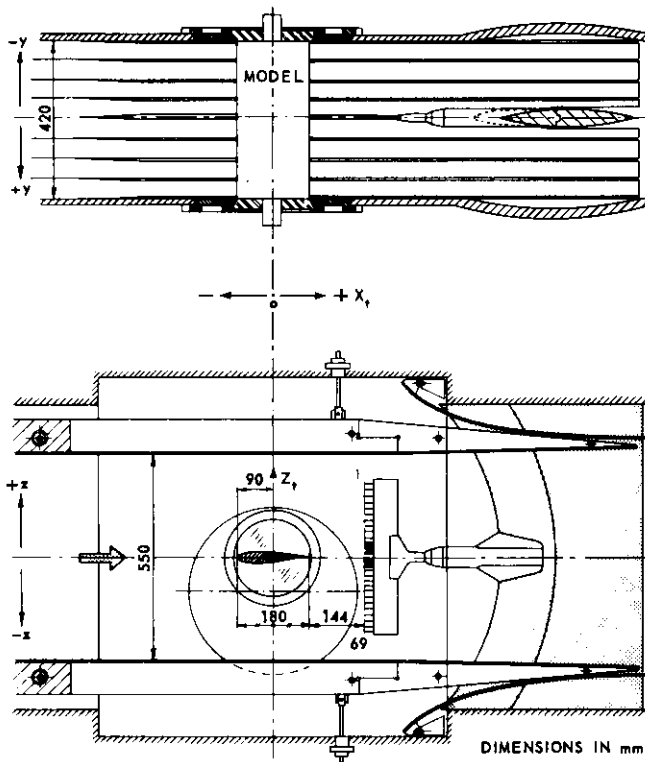


Fig. 4.3 Model installation in the transonic test section of the NLR pilot tunnel

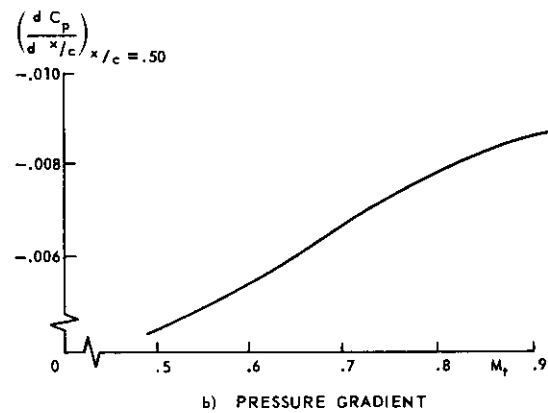
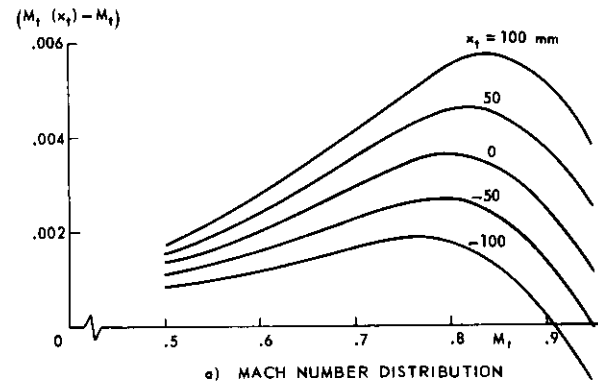


Fig. 4.4 NLR pilot tunnel empty test section calibration data

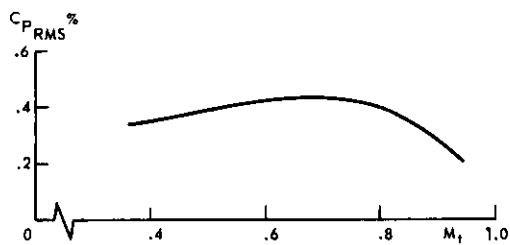


Fig. 4.5 Noise level in NLR pilot tunnel measured in stream

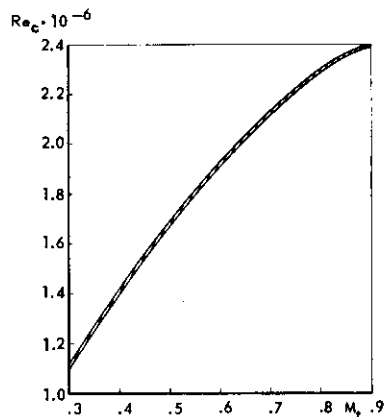


Fig. 4.6 Reynolds number based on chord length as function of Mach number

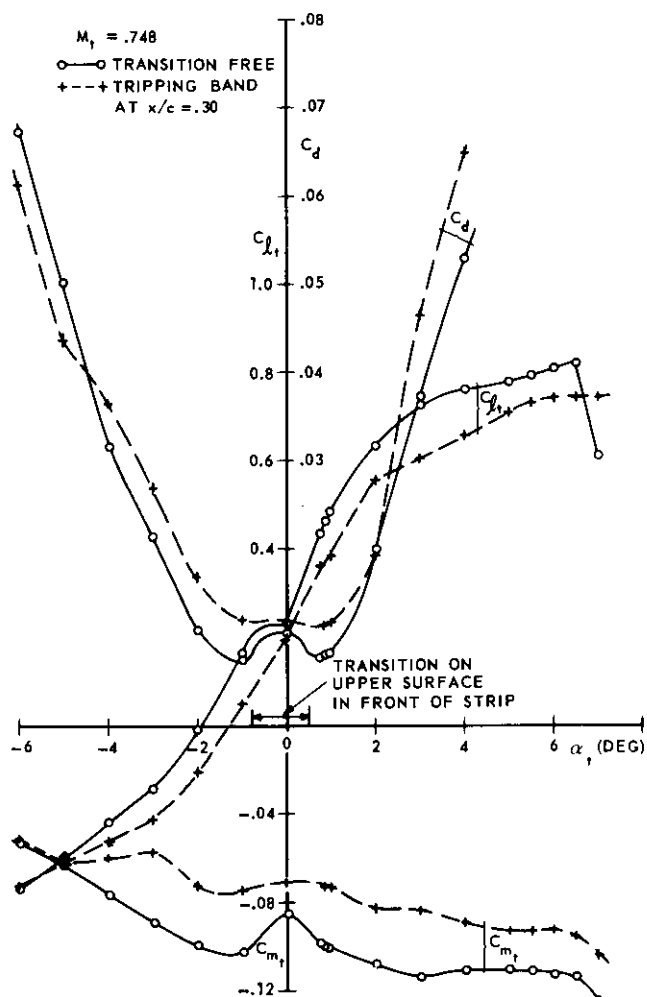


Fig. 4.8 Lift, drag and pitching moment as a function of angle of attack at $M = .748$

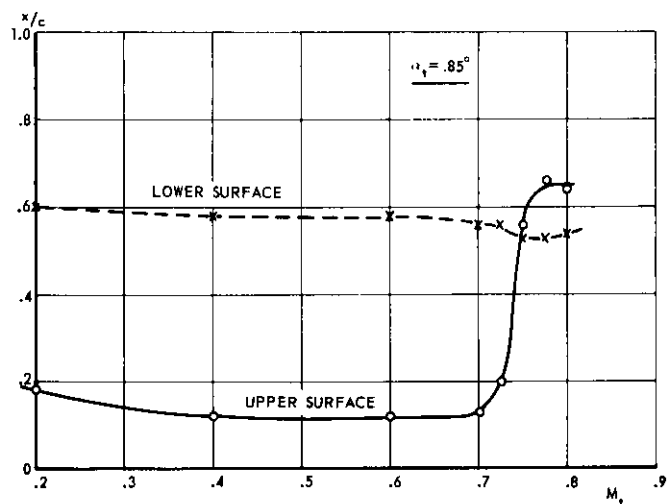
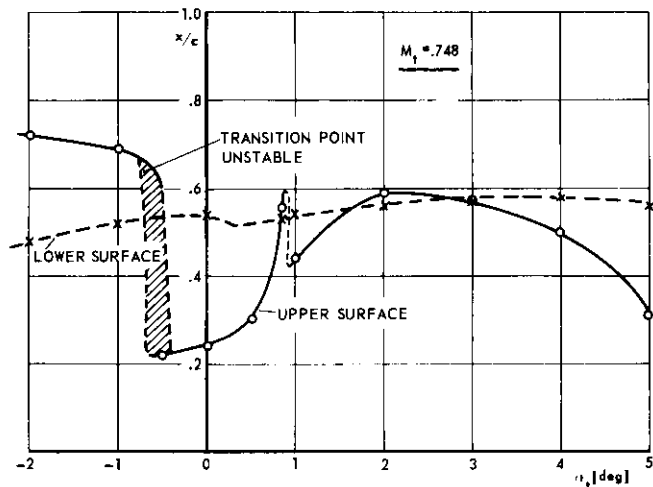


Fig. 4.7 Location of natural transition

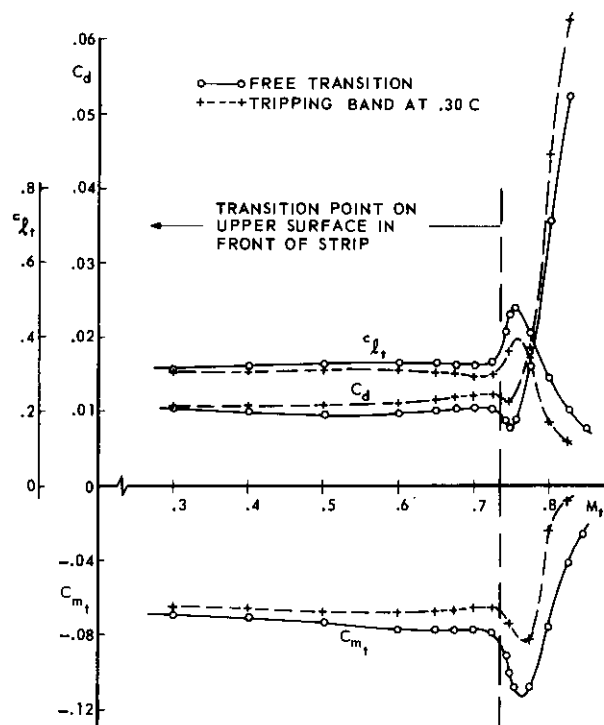


Fig. 4.9 Lift, drag and pitching moment as a function of Mach number at $\alpha_t = .85^\circ$

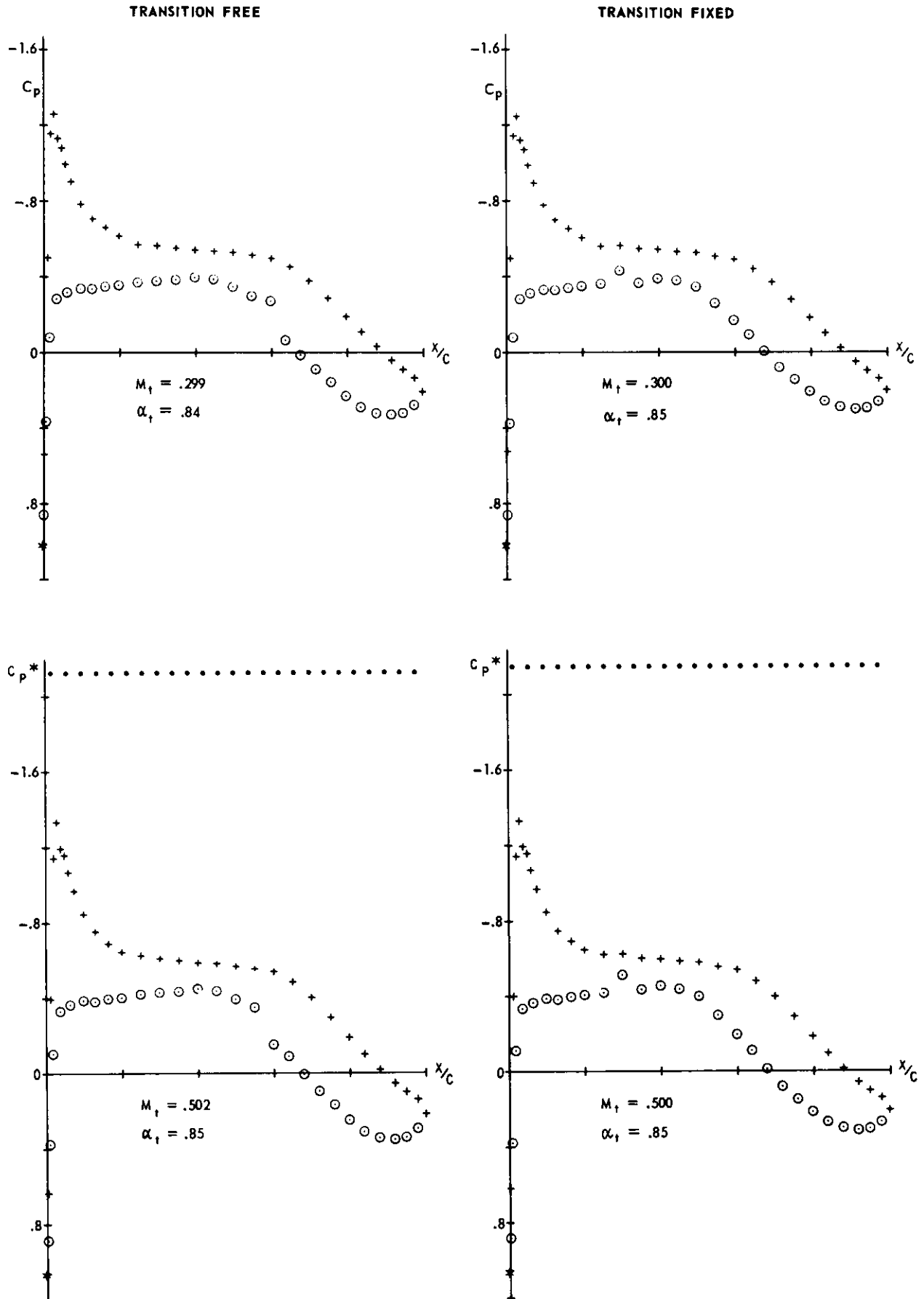


Fig. 4.10 Surface pressure distributions

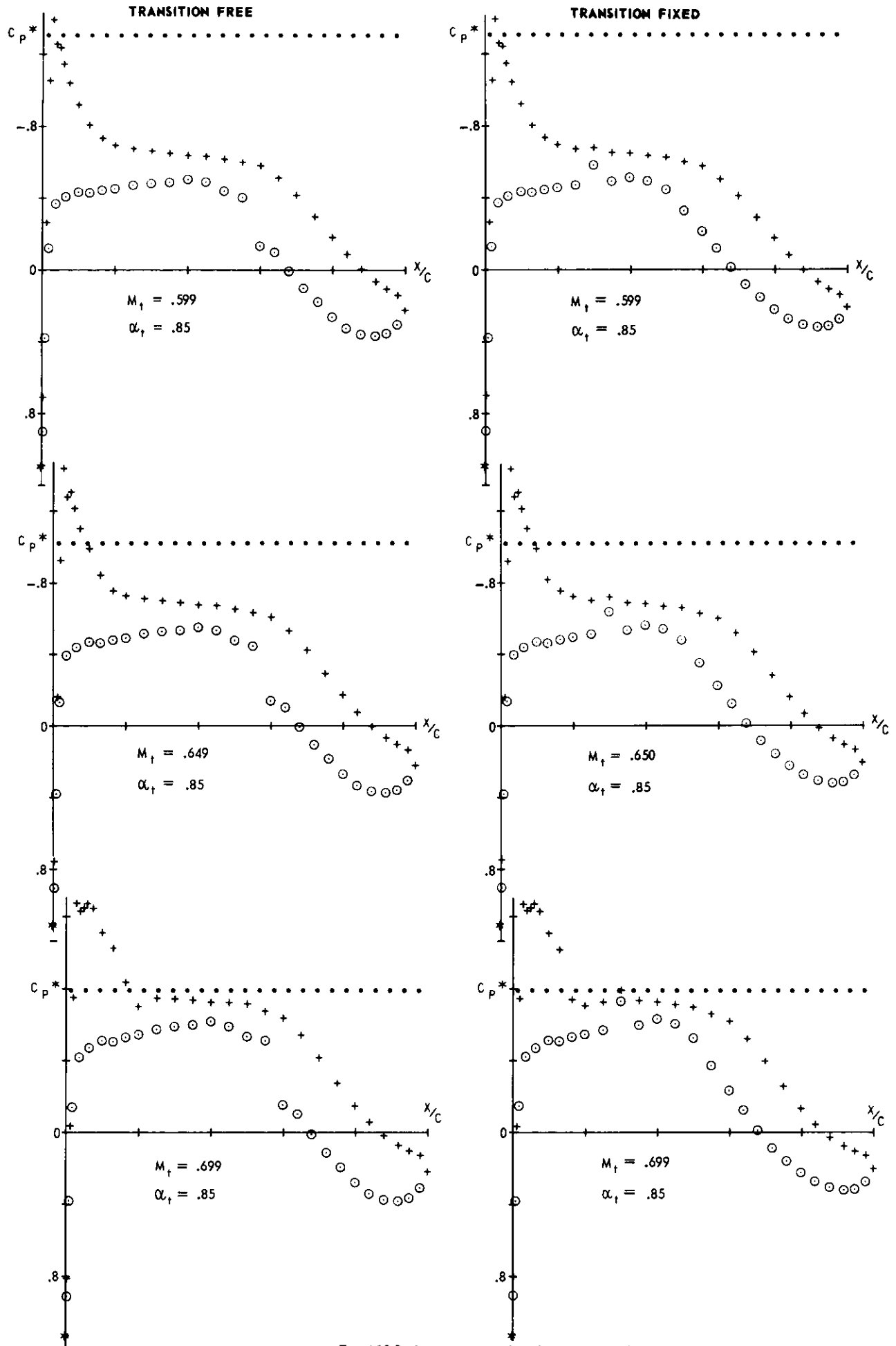


Fig. 4.10 Surface pressure distributions (con'd)

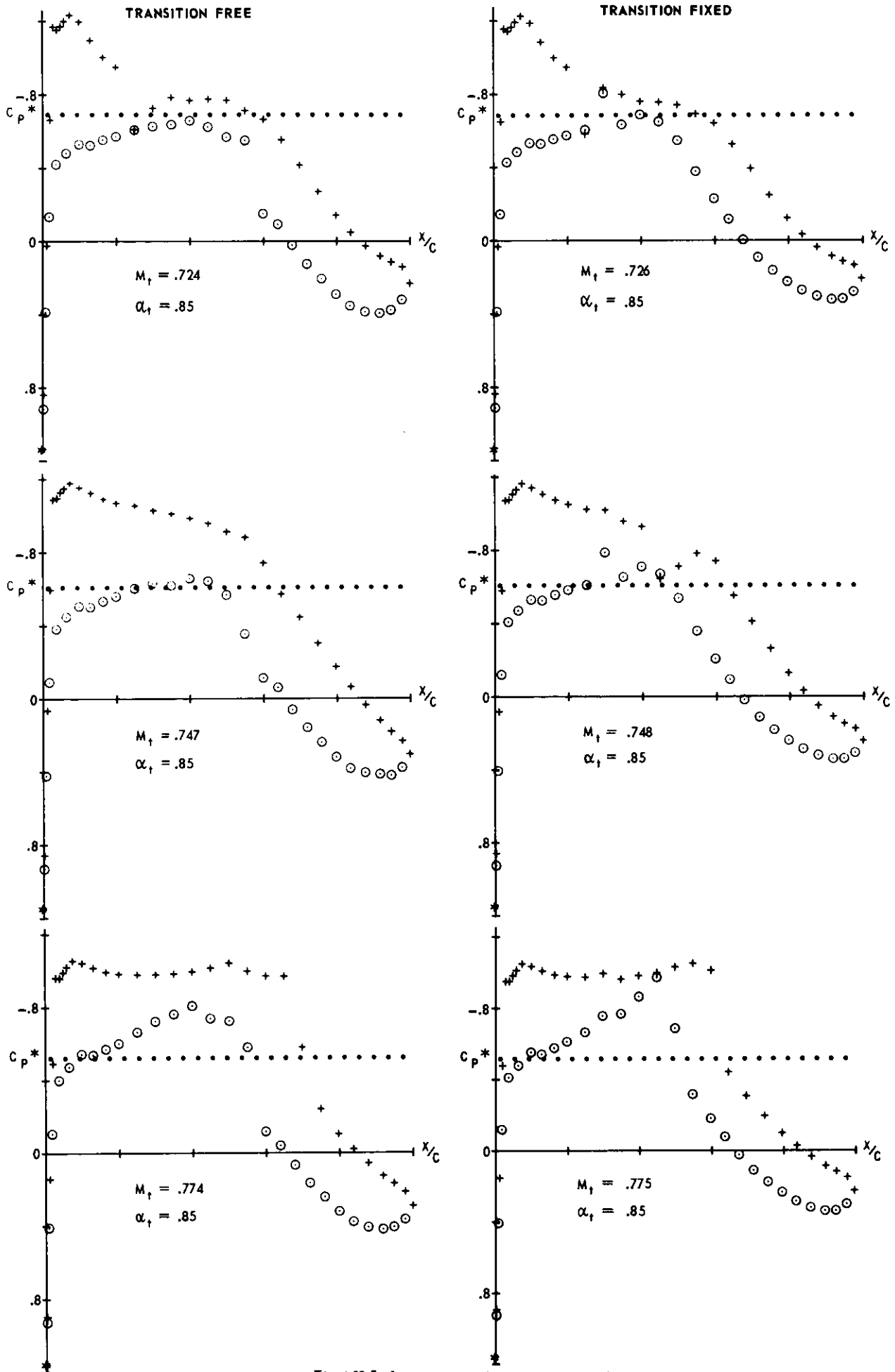


Fig. 4.10 Surface pressure distributions (con'd)

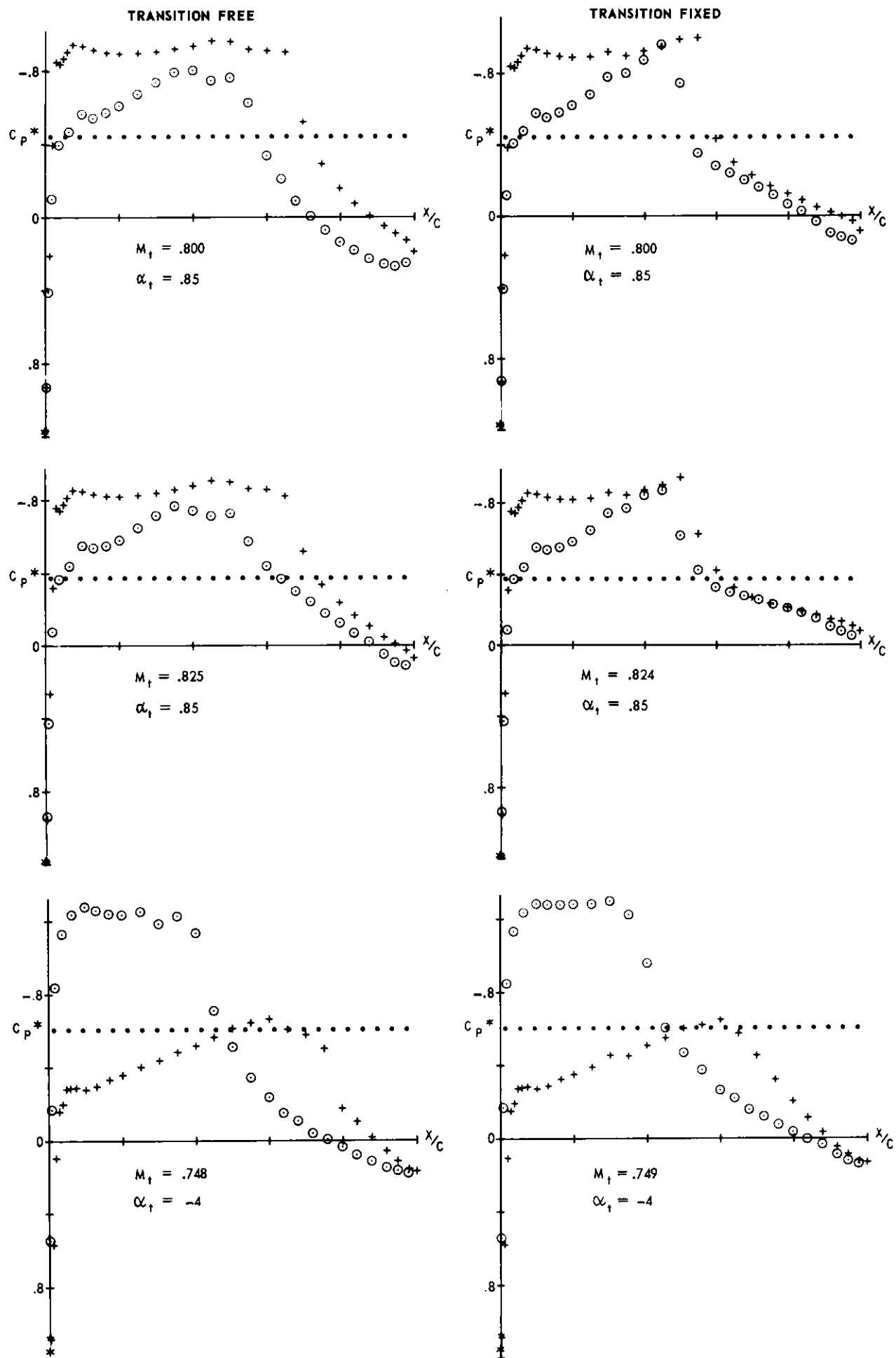


Fig. 4.10 Surface pressure distributions (con'd)

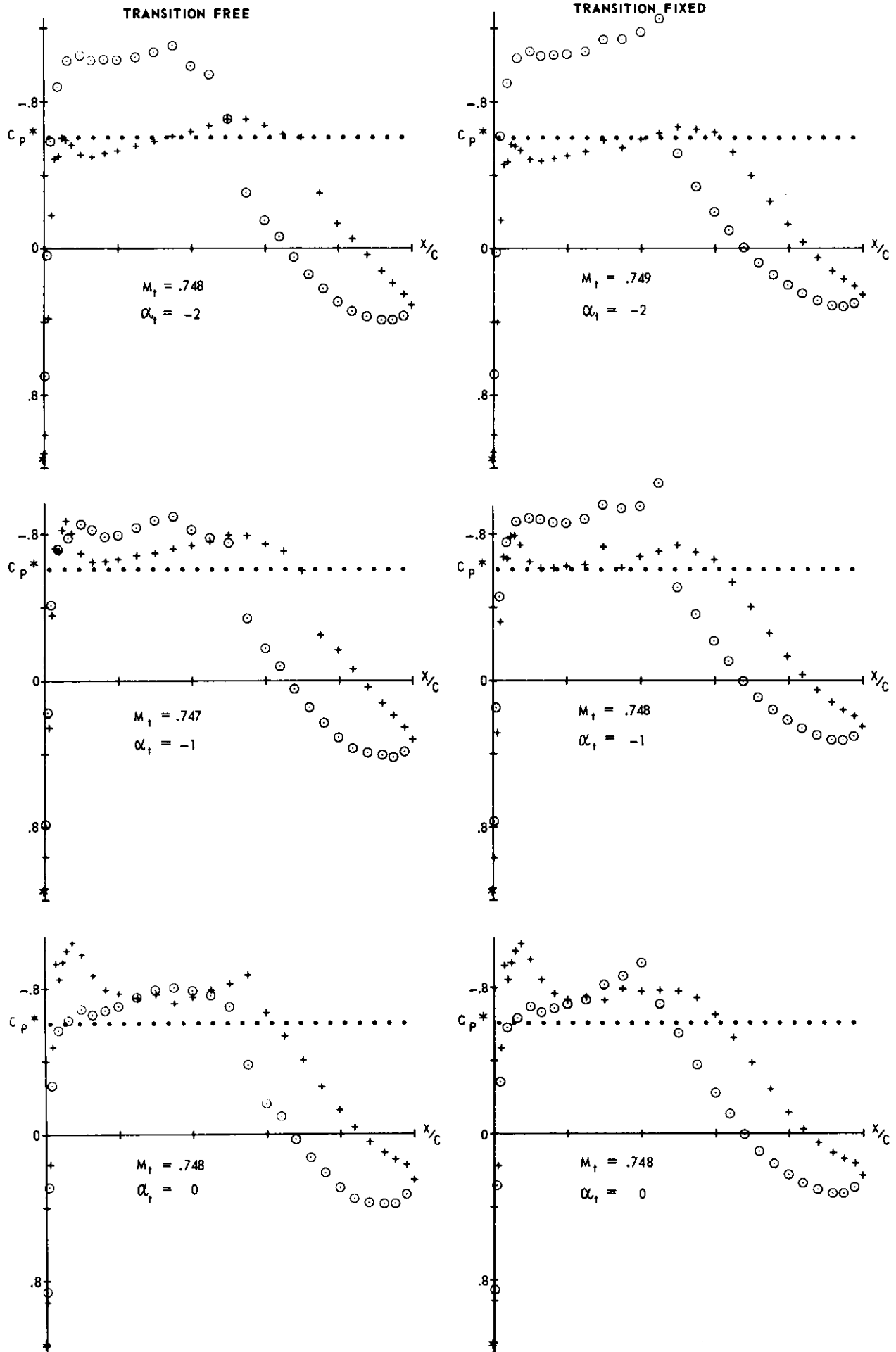


Fig. 4.10 Surface pressure distributions (con'd)

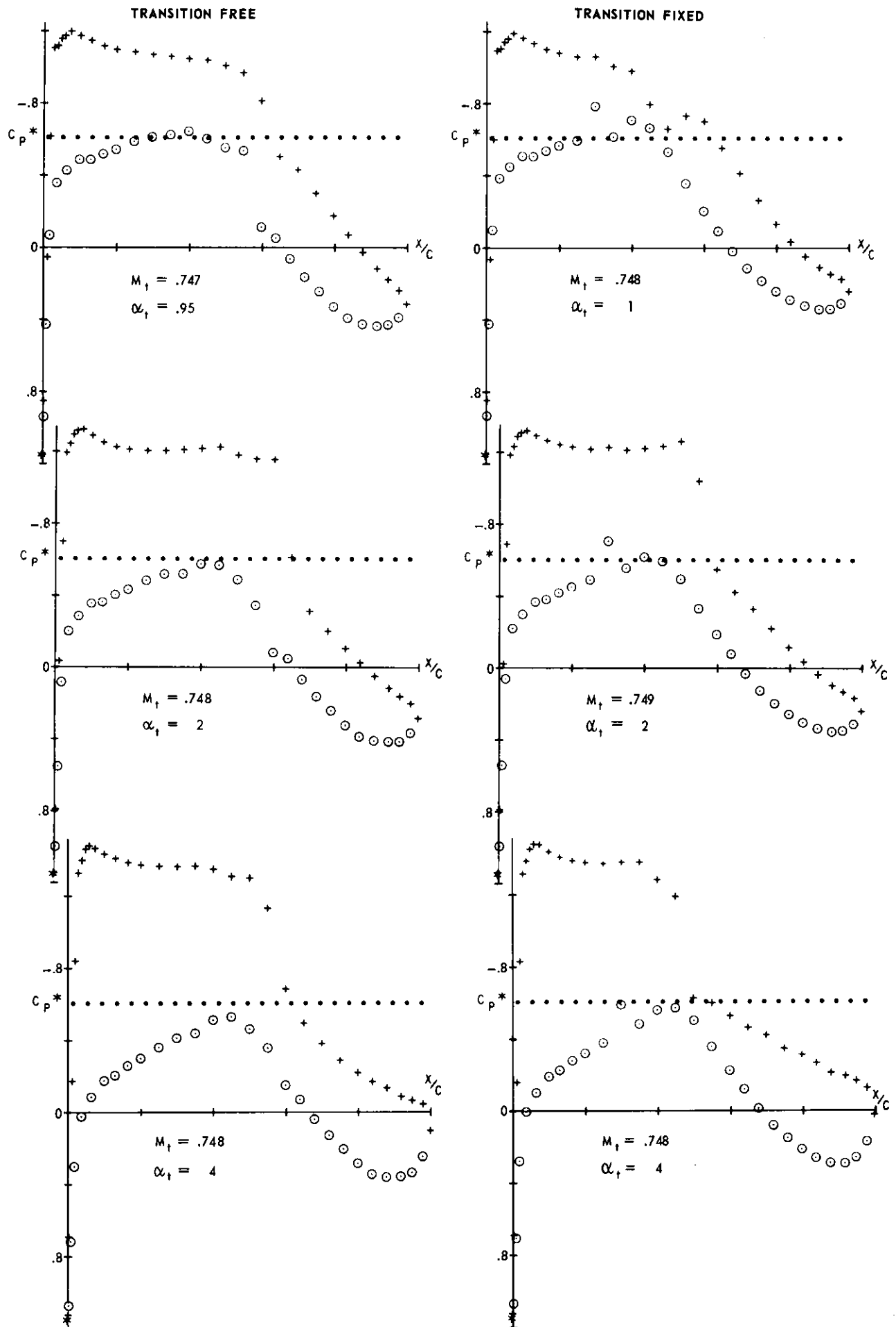


Fig 4.10 Surface pressure distributions (concluded)

5. Airfoil SKF 1.1 with Maneuver Flap

E. Stanewsky and J.J. Thibert

Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt
 and
 Office National d'Études et de Recherches Aérospatiales

5.1 Introduction

This data set contains experimental results for the supercritical airfoil SKF 1.1 with deflected maneuver flap obtained in the wind tunnels ONERA S3 Modane and DFVLR 1x1 Meter with the same model. Included are results for

- the Configuration 5 which showed the best performance of the six configurations investigated (Figure 5.2),
- the Configuration 4 which differs from Configuration 5 in the slot width between flap and airfoil and
- the airfoil with retracted maneuver flap (basic airfoil). Here, only a few results are shown in order to demonstrate the sensitivity of this airfoil to changes in Reynolds number and to transition fixing.

Freestream conditions (Table 5.5) include angle of attack variations at $M_\infty = 0.70$ and $M_\infty = 0.76$ and a Mach number variation at $\alpha_g = 2^\circ$ (ONERA-tests) and $\alpha_g = 3^\circ$ (DFVLR-tests). The ONERA-data contain in addition to the results obtained in the perforated test section two test cases for the test section with all four walls closed.

The data presented here are not corrected for wall constraints. Wall interference effects are reduced by the use of the ventilated test section walls; however, the test sections of both tunnels are too open so that the data are not interference-free¹⁾. Semi-empirical correction procedures are given in Section 6.2 of the data set. These allow an estimate of the effective freestream conditions; however, it is uncertain whether the freestream conditions thus determined and the corresponding data truly represent a free-air, i.e., no constraint, state (also see Chapter 2 of the report).

The majority of the DFVLR-tests was carried out at $Re \approx 2.3 \cdot 10^6$ and free transition. Under these circumstances transition generally occurs due to strong adverse pressure gradients; the transition location can, therefore, in most instances be identified from the pressure distributions. At the Reynolds number of the ONERA-tests ($Re \approx 7.7 \cdot 10^6$) transition is generally triggered close to the leading edge due to disturbances emanating from the pressure orifices.

The effect of increasing Reynolds number and of transition fixing on the flow about the basic airfoil is demonstrated in Figures 5.7/5.8. Changes - besides being small and negative (drag increase!) - are mainly caused by an upstream movement of the transition point when increasing the Reynolds number or fixing transition upstream of the point where it would occur naturally, as is the case here, and the corresponding thickening of the boundary layer. Differences between the ONERA - and DFVLR - data - and this applies to nearly all results presented in this data set - are mainly due to differences in the wall boundary conditions (effective angle of attack) as can be seen by comparing results at equal lift coefficients.

1)

The DFVLR 1x1 Meter Tunnel has a slanted-hole perforation with an open area ratio of 6 %. This corresponds to an open area ratio of about 20 % for a test section with normal holes. The normal-hole perforation of the S3 Modane is 9.7 % open. The data (see, for instance, Figure 5.9) clearly reflect the difference in open area ratio.

5.2 Data set

1. Airfoil

1.1 Airfoil designation

SKF 1.1¹⁾

1.2 Type of airfoil

Supercritical airfoil with maneuver flap. Basic airfoil designed by a modified Murman/Cole/Krupp - method. Shockfree design, moderate rear loading.

1.2.1. airfoil geometry

nose radius

$R = 1.6 \%$

maximum thickness

$t/c = 12.07 \%$ at 36% c } Table 5.1 and Figures 5.1 and 5.2

base thickness

$t_{TE}/c = 0.5 \%$

1.2.2. design condition

$M_{\infty} = 0.769$

$c_L = 0.532$

$\alpha = 0.750$

Basic airfoil

design pressure distribution

Table 5.4 and Fig. 5.3

1.3. Additional remarks

- References on design method:

[1], [2]

1.4. References on airfoil

[3], [4]

2. Model geometry

2.1. Chord length

$c = 0.20$ m for the basic airfoil

$c \approx 0.213$ m (Config. 5)²⁾

$c \approx 0.206$ m (Config. 4) } Figure 5.2

2.2. Span

① $b = 1.0$ m ② $b = 0.56$ m

2.3. Actual model coordinates and accuracy

Table 5.2 and Figure 5.1

2.4. Maximum thickness

$t/c \approx 12.03 \%$

$t_{TE}/c = 0.5 \%$

Basic airfoil

2.5. Base thickness

3. Wind tunnel

3.1. Designation

① DFVLR 1x1 Meter Transonic Tunnel

② S3 Modane (S3MA)

3.2. Type of tunnel

① Continuous, closed circuit ② Blow down

3.2.1. stagnation pressure

① Variable between 0.4 and 1.6 bar

② Variable between 1.0 and 4.0 bar

3.2.2. stagnation temperature

① ≈ 305 K

② Varies slightly during blow down: $273 \text{ K} \pm 4^\circ$

3.2.3. humidity/dew point

① ≈ 240 K

② Air is dried but dew point is not known.

3.3. Test section

① Square ② Rectangular

1)

The same model was tested in the DFVLR 1x1 Meter Transonic Tunnel and the ONERA S3 Modane. On subsequent pages ① refers to the DFVLR tunnel, ② to the S3 Modane (S3MA)

2)_c = 200 mm is used to reduce all data

3.3.1. dimensions

- ① 1m x 1m ② 0.56 m x 0.78 m

3.3.2. type of walls

- ① 6 % open perforated (fixed porosity) walls with holes slanted 30° to the flow direction (Fig. 5.4)
 ② 9.7 % open perforated top and bottom walls, solid side walls, holes normal to flow direction (Fig. 5.4)

3.4. Flow field (empty test section)

3.4.1. reference static pressure

- ① Plenum chamber pressure

3.4.2. flow angularity

- ② Side wall pressure orifice 8.19 chords upstream of the model
 ① $\pm 0.05^\circ$ ② $< 0.05^\circ$

3.4.3. Mach number distribution

3.4.4. pressure gradient

① $M_\infty^{1)}$	0.50	0.80	1.0	1.2
in x: ΔM	0.005	0.003	0.006	0.015
in z: ΔM		0.003		
$\partial M / \partial (x/c)$	0.0037	-	-	-

1) Figure 5.5a

3.4.5. turbulence/noise level

- ② Flaps are adjusted to give zero pressure gradient for the empty test section (Figure 5.5b)

- ① Low noise level ($\sqrt{n \cdot F(n)} < 0.001$). Measured on body of revolution NACA RM 12. Low turbulence level (measurements are in progress)

- ② Figure 5.6

3.4.6. side wall boundary layer

- ① $2 \delta/b \approx 0.18$ at $M_\infty = 0.76$, measured at $x/c = 0$ and $p_o = 1$ bar

- ② $2 \delta/b = 0.21$ at $M_\infty = 0.40$
 0.18 at $M_\infty = 0.60$
 0.15 at $M_\infty = 0.80$

measured at $x/c = 0.25$ and $p_o = 1$ bar

3.5. Additional remarks

Reference on noise level: [5]

3.6. References on wind tunnel

[6], [7]

4. Tests

4.1. Type of measurements

- Surface pressure distributions
- Wake rake
- Shadograph pictures (ONERA-tests)
- Upper and lower wall pressure distributions (ONERA-tests)

4.2. Tunnel/model dimensions

4.2.1. height/chord ratio

- ① $H/c = 5$

- ② $H/c = 3.9$

4.2.2. width/chord ratio

- ① $b/c = 5$

- ② $b/c = 2.8$

} Basic airfoil

4.3. Flow conditions included in present data base

4.3.1. angle of attack

4.3.2. Mach number

Table 5.5

4.3.3. Reynolds number	① $Re \approx 2.2 \cdot 10^6$ ② $Re \approx 7 \cdot 10^6$
4.3.4. transition	Free
- position of free transition	Was not determined. ① Transition occurs generally due to adverse pressure gradients. ② Transition occurs close to leading edge, since relatively high Reynolds number.
- transition fixing	See Fig. 5.7/5.8 for effect of Reynolds number and transition fixing (basic airfoil only)
4.3.5. temperature equilibrium	① Yes ② See 3.2.2.
4.5. References on tests	[8,9,10]
5. <u>Instrumentation</u>	
5.1. Surface pressure measurements	
5.1.1. pressure holes	
- size	Diameter = 0.5 mm (d/c = 0.0025)
- spanwise station(s)	- Center line orifices were staggered in the nose region ± 7.5 mm - 16 orifices were located in spanwise direction at $x/c = 0.50$ on the upper surface (Table 5.3)
- chordwise positions	Table 5.3 and Figure 5.1
5.1.2. type of transducers and scanning devices	① CEC and Statham differential pressure transducers plus Scanivalves Range: ± 10 psi Accuracy: ± 0.40 % FS ② Statham differential pressure transducer Range: ± 25 psi Accuracy: ± 0.12 % FS
5.2. Wake measurements	
5.2.1. type/size of instrument(s)	① Wake rake consisting of 47 Pitot probes and 14 static probes. Pitot probes are spaced 2.5 mm apart in the center region (Figure 5.4a) ID/OD = 0.4/1mm
5.2.2. streamwise position(s)	2 chords downstream of trailing edge
5.2.3. type of transducers and scanning devices	CEC and Statham differential pressure transducers plus Scanivalves Range: ± 5 psi Accuracy: ± 0.3 % FS ② - Figure 5.4b and c - ID/OD = 0.5/1.2 mm - 1 chord downstream of trailing edge - Statham differential pressure transducer Range: ± 10 psi Accuracy: ± 0.20 % FS
5.5. Flow visualisation	
5.5.1. flow field	Shadowgraph pictures (ONERA-tests) [11]. Not included in data set.
6. <u>Data</u>	
6.1. Accuracy (wall interference excluded)	
6.1.1. angle of attack setting	① $\pm 0.02^\circ$ ② $\pm 0.02^\circ$
6.1.2. free stream Mach number	
- setting	① ± 0.001 ② ± 0.002
- variation during one pressure scan	① ± 0.001 ② Not known

6.1.3. pressure coefficients

- ① $\Delta c_p \approx \pm 1\%$ assuming worst possible combination of errors including an error of $\Delta M_\infty = \pm 0.002$, evaluated at $M_\infty = 0.76$ and max. $|c_p|$
 Obtained by integrating pressure distributions

6.1.4. aerodynamic coefficients

- ② $\Delta c_L = \pm 0.002$ $\Delta c_D = \pm 0.0003$
 $\Delta c_m = \pm 0.0003$

6.1.6. repeatability

- ① Average over the range of M_∞ and α investigated:
 $\Delta c_p \approx \pm 0.40\%$, $\Delta c_L \approx \pm 0.3\%$
 $\Delta c_D \approx \pm 1.2\%$, $\Delta c_m \approx \pm 0.40\%$
 ② $M_\infty > 0.5$
 $\Delta c_L = \pm 0.005$ $\Delta c_D = \pm 0.0002$
 $\Delta c_m = \pm 0.001$

6.2. Wall interference corrections

The data included are uncorrected.

6.2.1. angle of attack

The effective angle of attack can be approximated by:

- ① $\Delta \alpha = -0.0466 \cdot c_L$
 ② at $M_\infty \approx 0.75$ and $\alpha_g \approx 2^\circ$: $\Delta \alpha \approx 0.5^\circ$
 $(\alpha_{\text{corrected}} = \alpha_g + \Delta \alpha)$

6.2.2. blockage (solid/wake)

- ① Not yet well established, but can be approximated by
 $\Delta M_\infty = -(1+0.2 M_\infty^2) \cdot M_\infty \cdot (0.003)$ for $c_L = 0$
 ② at $M_\infty \approx 0.75$: $\Delta M \approx 0.0016$
 $(M_{\infty \text{corrected}} = M_\infty + \Delta M_\infty)$

6.2.3. streamline curvature (lift)

- ① Can be approximated by:
 $\Delta c_L = 0.0126 \frac{1}{\beta^2} \cdot c_L$
 $\Delta c_m = -\frac{1}{4} \Delta c_L$
 ② at $M_\infty \approx 0.75$ and $\alpha_g \approx 2^\circ$:
 $\Delta c_L \approx 0.002$ $\Delta c_m \approx 0.0006$
 $(c_{i \text{corrected}} = c_i + \Delta c_i)$

6.2.5. remarks

- ① Correction factors were obtained empirically by testing different size models of the same airfoil
 ② Porosity factors were determined by matching $c_{L\alpha}$ for tests with solid and porous test section walls. The data obtained with solid walls were corrected using the method of [12]

6.2.6. references on wall interference

- ② [12]

6.3. Presentation of data

6.3.1. aerodynamic coefficients	- Basic airfoil: Tables 5.6/5.7, Figure 5.7 (Effect of Reynolds number and transition fixing only) - Airfoil with extended maneuver flap: Tables 5.6/5.7, Figures 5.9/5.10
6.3.2. surface pressures	- Basic Airfoil: Table 5.8, Figure 5.8 (Effect of Reynolds number and transition fixing only) - Airfoil with extended maneuver flap: Tables 5.8/5.9, Figures 5.12/5.13 - Comparison ONERA-DFVLR: Figure 5.11 - Wall pressure distributions (ONERA-tests): Table 5.9
6.3.4. wall interference corrections included?	No
6.3.5. corrections for model deflection ?	No
6.3.6. Empty test section calibration taken into account?	Yes
6.4. Were tests carried out in different facilities on the current aerofoil ? If so, what facilities. Are data included in the present data base?	Data set includes results from ONERA-S3MA- and DFVLR-1x1 Meter Transonic Tunnel-tests.
6.5. To be contacted for further information on tests	① E. Stanewsky DFVLR-AVA Göttingen 10 Bunsenstraße D-3400 Göttingen ② J.J. Thibert ONERA 92320 Chatillon (France)

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8. List of symbols

a	speed of sound	<u>Subscripts</u>	
b	span, tunnel width	∞	freestream conditions
c, L	model chord	K	maneuver flap
c_p	pressure coefficient $[(p-p_\infty)/q_\infty]$	TE	trailing edge
c_p^*	pressure coefficient at $M_L = 1$	US	upper surface
c_L	lift coefficient	LS	lower surface
c_m	pitching moment coefficient (based on $0.25c$)		
c_D	drag coefficient		
f	frequency of pressure fluctuation		
F(n)	frequency function $\int_0^\infty F(n) \cdot dn = c_p^2 \text{ RMS}$		
n	reduced frequency, $f \cdot c/V_\infty$		
M_∞, M	freestream Mach number $[a_\infty/V_\infty]$		
M_L	local Mach number		
H	tunnel height		
q	dynamic pressure		
Re, Rec	Reynolds number, $\rho_\infty V_\infty \cdot c/\mu_\infty$		
t	maximum thickness		
V_∞	freestream velocity		
x			
y	coordinates (see Fig. 5.1)		
z			
α_g, α	geometric angle of attack		
β	$\sqrt{1-M_\infty^2}$		
δ	maximum thickness, t/c boundary layer thickness (sidewall)		
ρ	density		
μ	dynamic viscosity		

Table 5.1 Design coordinates for the airfoil SKF 1.1 including maneuver flap
 Basic airfoil - Upper surface

Note: For actual model coordinates see Table 5.2

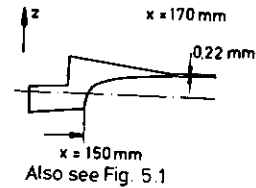
No.	x (mm)	z (mm)	No.	x (mm)	z (mm)	No.	x (mm)	z (mm)
1	0.000	0.179	91	115.022	12.994	53	83.033	-10.254
2	0.001	0.348	92	116.738	12.899	54	81.033	-10.331
3	0.011	0.517	93	118.453	12.794	55	79.033	-10.396
4	0.028	0.685	94	120.168	12.681	56	77.319	-10.444
5	0.053	0.852	95	121.881	12.558	57	75.605	-10.484
6	0.094	1.051	96	123.595	12.427	58	73.892	-10.515
7	0.145	1.247	97	125.307	12.287	59	72.178	-10.538
8	0.207	1.440	98	127.019	12.139	60	70.464	-10.552
9	0.279	1.630	99	129.021	11.954	61	68.749	-10.558
10	0.361	1.815	100	131.022	11.759	62	67.035	-10.554
11	0.452	1.995	101	133.022	11.553	63	65.321	-10.542
12	0.553	2.171	102	135.021	11.337	64	63.607	-10.521
13	0.693	2.386	103	137.019	11.112	65	61.893	-10.492
14	0.845	2.593	104	139.016	10.877	66	60.179	-10.453
15	1.009	2.791	105	141.019	10.633	67	58.465	-10.407
16	1.182	2.981	106	143.020	10.378	68	56.752	-10.351
17	1.364	3.164	107	145.020	10.115	69	55.039	-10.288
18	1.553	3.339	108	147.019	9.842	70	53.038	-10.205
19	1.876	3.612	109	149.016	9.560	71	51.038	-10.111
20	2.210	3.870	110	151.013	9.268	72	49.038	-10.007
21	2.553	4.117	111	153.016	8.966	73	47.039	-9.894
22	3.048	4.450	112	155.017	8.653	74	45.040	-9.771
23	3.553	4.768	113	157.018	8.332	75	43.041	-9.638
24	4.046	5.063	114	159.017	8.001	76	41.325	-9.516
25	4.546	5.346	115	161.014	7.662	77	39.610	-9.386
26	5.052	5.618	116	163.010	7.314	78	37.895	-9.246
27	5.545	5.868	117	165.412	6.886	79	36.181	-9.097
28	6.043	6.109	118	167.813	6.447	80	34.468	-8.938
29	6.545	6.341	119	170.212	5.999	81	32.756	-8.767
30	7.052	6.564	120	172.610	5.543	82	31.045	-8.586
31	7.670	6.823	121	175.006	5.081	83	29.444	-8.407
32	8.293	7.073	122	179.506	4.198	84	27.843	-8.219
33	8.920	7.311	123	184.004	3.304	85	26.244	-8.023
34	9.551	7.539	124	190.002	2.102	86	24.645	-7.818
35	10.243	7.777	125	195.501	0.989	87	23.048	-7.606
36	10.940	8.003	126	200.000	0.071	88	21.671	-7.417
37	11.640	8.217				89	20.296	-7.220
38	12.344	8.421				90	18.922	-7.015
39	13.050	8.615				91	17.549	-6.801
40	13.945	8.848				92	16.047	-6.554
41	14.842	9.068				93	14.548	-6.295
42	15.742	9.276				94	13.050	-6.023
43	16.644	9.473				95	12.173	-5.855
44	17.549	9.660				96	11.297	-5.681
45	18.645	9.874				97	10.423	-5.499
46	19.742	10.076				98	9.550	-5.307
47	20.842	10.266				99	8.714	-5.110
48	21.944	10.466				100	7.881	-4.900
49	23.048	10.616				101	7.052	-4.676
50	24.377	10.810				102	6.381	-4.481
51	25.709	10.993				103	5.714	-4.275
52	27.041	11.165				104	5.052	-4.056
53	28.375	11.328				105	4.549	-3.879
54	29.710	11.482				106	4.049	-3.693
55	31.045	11.628				107	3.553	-3.498
56	32.756	11.804				108	3.050	-3.286
57	34.468	11.967				109	2.553	-3.060
58	36.181	12.119				110	2.296	-2.933
59	37.895	12.261				111	2.043	-2.800
60	39.610	12.394				112	1.795	-2.656
61	41.325	12.517				113	1.553	-2.502
62	43.041	12.632				114	1.364	-2.367
63	45.040	12.756				115	1.181	-2.223
64	47.039	12.870				116	1.008	-2.069
65	49.038	12.975				117	0.844	-1.905
66	51.038	13.071				118	0.692	-1.731
67	53.038	13.159				119	0.553	-1.548
68	55.039	13.239				120	0.461	-1.408
69	57.438	13.325				121	0.376	-1.264
70	59.837	13.402				122	0.300	-1.116
71	62.236	13.469				123	0.232	-0.964
72	64.635	13.526				124	0.173	-0.808
73	67.035	13.575				125	0.122	-0.649
74	70.034	13.624				126	0.081	-0.487
75	73.034	13.660				127	0.048	-0.322
76	76.033	13.683				128	0.023	-0.156
77	79.033	13.695				129	0.007	0.011
78	82.032	13.696						
79	85.031	13.687						
80	88.030	13.669						
81	91.029	13.642						
82	94.028	13.608						
83	97.027	13.564						
84	100.026	13.510						
85	103.025	13.444						
86	105.026	13.392						
87	107.026	13.331						
88	109.026	13.262						
89	111.025	13.184						
90	113.024	13.095						

Lower surface

1	200.000	-0.945
2	197.751	-0.847
3	195.501	-0.762
4	193.668	-0.703
5	191.836	-0.656
6	190.003	-0.620
7	188.503	-0.600
8	187.003	-0.589
9	185.503	-0.587
10	184.004	-0.595
11	182.718	-0.600
12	181.432	-0.631
13	180.146	-0.661
14	178.861	-0.699
15	177.576	-0.745
16	176.291	-0.800
17	175.006	-0.864
18	173.504	-0.949
19	172.003	-1.046
20	170.502	-1.155
21	169.002	-1.273
22	167.503	-1.402
23	166.005	-1.539
24	164.507	-1.683
25	163.010	-1.835
26	160.608	-2.090
27	158.208	-2.356
28	155.809	-2.633
29	153.410	-2.916
30	151.013	-3.205
31	145.014	-3.944
32	139.016	-4.698
33	127.019	-6.220
34	124.021	-6.598
35	121.023	-6.971
36	118.023	-7.336
37	115.023	-7.688
38	113.025	-7.915
39	111.027	-8.134
40	109.028	-8.345
41	107.028	-8.548
42	105.027	-8.743
43	103.025	-8.925
44	101.028	-9.105
45	99.029	-9.272
46	97.030	-9.430
47	95.031	-9.578
48	93.030	-9.716
49	91.029	-9.844
50	89.031	-9.962
51	87.032	-10.070
52	85.033	-10.167

Basic airfoil - Inner contour

Nr.	x (mm)	z (mm)
1	150.00	-1.13
2	150.50	0.56
3	151.00	1.31
4	151.50	1.80
5	152.25	2.57
6	153.00	3.12
7	154.00	3.72
8	155.00	4.20
9	156.50	4.78
10	158.50	5.35
11	160.50	5.72
12	163.50	6.06
13	166.50	6.09
14	170.00	5.84

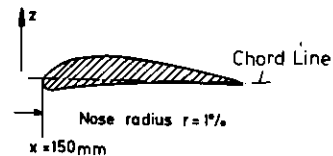


Note: The coordinates given here are actual model coordinates

Maneuver flap

US = Upper surface, LS = Lower surface

Nr.	x (mm)	z _{US} (mm)	z _{LS} (mm)
1	150.00	-1.13	-1.13
2	150.50	0.52	-2.41
3	151.00	1.31	-2.81
4	151.50	1.88	-3.01
5	152.25	2.57	-3.07
6	153.00	3.12	-3.00
7	154.00	3.72	-2.88
8	155.00	4.20	-2.76
9	156.50	4.78	-2.59
10	158.50	5.35	-2.34
11	160.50	5.72	-2.12
12	163.50	6.06	-1.80
13	166.50	6.09	-1.51
14	170.00	5.84	-1.20
15	172.50	5.51	-1.01
16	175.00	5.08	-0.865
17	179.50	4.21	-0.70
18	184.00	3.30	-0.956
19	190.00	2.10	-0.62
20	195.50	0.988	-0.76
21	200.00	0.070	-0.946



Note: The coordinates given here are actual coordinates. They are based on the chord line of the basic airfoil

Table 5.2 Measured coordinates of the airfoil SKF 1.1¹⁾

Upper surface				Lower surface			
x_{US}	z_{US}	z_{US}	Δz_{US} ③ - ②	x_{LS}	z_{LS}	z_{LS}	Δz_{LS} ⑨ - ⑧
	Design	Actual			Design	Actual	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
①	②	③	④	⑦	⑧	⑨	⑩
0.000	0.179	-	-	0.000	-	-	-
1.009	2.791	2.794	0.003	1.008	- 2.069	- 2.024	- 0.045
2.553	4.117	4.146	0.029	2.553	- 3.060	- 3.050	- 0.010
4.546	5.346	5.326	0.020	4.549	- 3.879	- 3.920	0.041
7.052	6.564	6.574	0.010	7.052	- 4.676	- 4.708	0.032
10.243	7.777	7.798	0.021	10.423	- 5.499	- 5.530	0.031
15.742	9.276	9.278	0.002	14.548	- 6.295	- 6.334	0.039
20.842	10.266	10.248	- 0.018	20.296	- 7.220	- 7.264	0.044
25.709	10.993	10.960	- 0.033	26.244	- 8.023	- 8.036	0.013
32.756	11.804	11.743	- 0.061	32.756	- 8.767	- 8.702	- 0.065
45.040	12.756	12.766	0.010	45.040	- 9.771	- 9.674	- 0.097
55.039	13.239	13.322	0.083	55.039	- 10.288	- 10.180	- 0.108
67.035	13.575	13.618	0.043	67.035	- 10.542	- 10.426	- 0.116
82.032	13.696	13.676	- 0.020	83.033	- 10.254	- 10.198	- 0.056
100.026	13.510	13.448	- 0.062	101.029	- 9.105	- 9.098	- 0.017
115.022	12.994	12.850	- 0.144	115.023	- 7.688	- 7.670	- 0.018
131.022	11.759	11.734	- 0.025	127.019	- 6.220	- 6.152	- 0.068
147.019	9.842	9.804	- 0.038	145.014	- 3.944	- 3.936	- 0.008
163.010	7.314	7.242	- 0.072	163.010	- 1.835	- 1.844	0.009
172.610	5.543	5.452	- 0.091	172.003	- 1.046	- 1.112	0.066
190.002	2.102	1.996	- 0.106	190.003	- 0.620	0.670	0.050
200.000	0.071	-	-	200.000	- 0.945	-	-

Note:

For plot of measured error of the manufactured airfoil see Figure 5.1

1) Only basic airfoil model. For maneuver flap see Table 5.1

Table 5.3 Coordinates of the pressure orifices - Basic airfoil

Upper surface						Lower surface						Spanwise orifices (Upper surface)					
	No. 1)	x	z	x/c	z/c		No. 1)	x	z	x/c	z/c		No. 1)	x	y	x/c	y/c
		mm	mm					mm	mm					mm	mm		
1	1	0,00	0,18	0,0000	0,0009	1	1	0,00	0,18	0,0000	0,0009	1	120	100	150,0	0,500	0,750
2	2	0,65	2,32	0,0032	0,0116	2	48	0,65	- 1,68	0,0032	- 0,0084	2	121		130,0		0,650
3	3	1,75	3,51	0,0087	0,0175	3	47	1,40	- 2,39	0,0070	- 0,0119	3	122		110,0		0,550
4	4	3,10	4,48	0,0155	0,0224	4	46	3,65	- 3,54	0,0182	- 0,0177	4	123		90,0		0,450
5	5	5,00	5,59	0,0250	0,0279	5	45	9,75	- 5,35	0,0487	- 0,0267	5	124		70,0		0,350
6	6	6,90	6,50	0,0345	0,0325	6	44	19,75	- 7,14	0,0987	- 0,0357	6	125		50,0		0,250
7	7	12,90	8,57	0,0645	0,0428	7	43	30,00	- 8,47	0,1500	- 0,0423	7	126		30,0		0,150
8	8	15,95	9,32	0,0797	0,0466	8	42	40,00	- 9,42	0,2000	- 0,0471	8	127		10,0		0,050
9	9	19,80	10,09	0,0990	0,0504	9	41	49,85	- 10,05	0,2492	- 0,0502	9	128		- 10,0		- 0,050
10	10	28,00	11,28	0,1400	0,0564	10	40	69,85	- 10,56	0,3492	- 0,0528	10	129		- 30,0		- 0,150
11	11	34,00	11,92	0,1700	0,0596	11	39	89,85	- 9,91	0,4492	- 0,0495	11	130		- 50,0		- 0,250
12	12	44,00	12,62	0,2200	0,0634	12	38	110,00	- 8,24	0,5500	- 0,0412	12	131		- 70,0		- 0,350
13	13	51,90	13,11	0,2595	0,0655	13	37	129,00	- 5,97	0,6450	- 0,0298	13	132		- 90,0		- 0,450
14	14	59,90	13,40	0,2995	0,0670	14	36	150,00	- 3,33	0,7500	- 0,0166	14	133		- 110,0		- 0,550
15	15	67,95	13,59	0,3397	0,0679	15	35	160,00	- 2,16	0,8000	- 0,0108	15	134		- 130,0		- 0,650
16	16	76,00	13,68	0,3800	0,0684	16	34	169,80	- 1,21	0,8490	- 0,0060	16	135	100	- 150,0	0,500	- 0,750
17	17	84,00	13,69	0,4200	0,0684	17	33	179,85	- 0,67	0,8992	- 0,0033						
18	18	92,00	13,63	0,4600	0,0681	18	32	189,90	- 0,62	0,9495	- 0,0031						
19	19	100,00	13,51	0,5000	0,0675	19	31	200,00	- 0,94	1,0000	- 0,0047						
20	20	107,90	13,30	0,5395	0,0665												
21	21	115,90	12,95	0,5795	0,0647												
22	22	124,00	12,39	0,6200	0,0619												
23	23	132,00	11,66	0,6600	0,0583												
24	24	140,00	10,76	0,7000	0,0538												
25	25	149,70	9,46	0,7485	0,0473												
26	26	159,70	7,89	0,7985	0,0394												
27	27	169,80	6,08	0,8490	0,0304												
28	28	179,80	4,12	0,8990	0,0206												
29	29	189,80	2,12	0,9495	0,0106												
30	30	194,90	1,11	0,9745	0,0055												
31	31	200,00	0,07	1,0000	0,0003												

1) See Figure 5.1. The coordinates shown here are actual coordinates (except spanwise orifices)

Table 5.3 Continued - Airfoil minus maneuver flap

No.	x	z	x/c	z/c	Upper surface		Lower surface	
					No.	x	No.	x
1	0.000	0.18	0.0000	0.0009	1	0.00	1	0.00
2	0.65	0.22	0.0032	0.0116	2	0.65	2	0.65
3	1.75	0.51	0.0087	0.0175	3	1.40	3	1.40
4	3.10	0.87	0.0155	0.0224	4	3.85	4	3.85
5	5.00	1.10	0.0230	0.0279	5	5.75	5	5.75
6	6.50	1.29	0.0345	0.0325	6	7.14	6	7.14
7	8.75	1.40	0.0458	0.0428	7	9.30	7	9.30
8	10.00	1.59	0.0566	0.0466	8	10.00	8	10.00
9	11.25	1.76	0.0664	0.0504	9	11.00	9	11.00
10	12.50	1.92	0.0750	0.0544	10	12.00	10	12.00
11	13.75	2.07	0.0828	0.0586	11	13.00	11	13.00
12	15.00	2.20	0.0900	0.0634	12	14.00	12	14.00
13	16.25	2.32	0.0965	0.0685	13	15.00	13	15.00
14	17.50	2.44	0.1025	0.0740	14	16.00	14	16.00
15	18.75	2.55	0.1080	0.0799	15	17.00	15	17.00
16	20.00	2.66	0.1130	0.0864	16	18.00	16	18.00
17	21.25	2.76	0.1176	0.0934	17	19.00	17	19.00
18	22.50	2.86	0.1219	0.1009	18	20.00	18	20.00
19	23.75	2.95	0.1259	0.1089	19	21.00	19	21.00
20	25.00	3.04	0.1295	0.1176	20	22.00	20	22.00
21	26.25	3.12	0.1328	0.1270	21	23.00	21	23.00
22	27.50	3.20	0.1359	0.1371	22	24.00	22	24.00
23	28.75	3.27	0.1386	0.1479	23	25.00	23	25.00
24	30.00	3.34	0.1410	0.1594	24	26.00	24	26.00
25	31.25	3.40	0.1432	0.1716	25	27.00	25	27.00
26	32.50	3.46	0.1451	0.1844	26	28.00	26	28.00
27	33.75	3.51	0.1467	0.1978	27	29.00	27	29.00
28	35.00	3.56	0.1480	0.2118	28	30.00	28	30.00
29	36.25	3.60	0.1490	0.2264	29	31.00	29	31.00
30	37.50	3.64	0.1500	0.2416	30	32.00	30	32.00
31	38.75	3.67	0.1509	0.2574	31	33.00	31	33.00
32	40.00	3.70	0.1516	0.2738	32	34.00	32	34.00
33	41.25	3.73	0.1522	0.2908	33	35.00	33	35.00
34	42.50	3.75	0.1527	0.3084	34	36.00	34	36.00
35	43.75	3.77	0.1530	0.3266	35	37.00	35	37.00
36	45.00	3.79	0.1533	0.3454	36	38.00	36	38.00
37	46.25	3.81	0.1535	0.3648	37	39.00	37	39.00
38	47.50	3.83	0.1537	0.3848	38	40.00	38	40.00
39	48.75	3.84	0.1538	0.4054	39	41.00	39	41.00
40	50.00	3.85	0.1539	0.4266	40	42.00	40	42.00
41	51.25	3.86	0.1540	0.4484	41	43.00	41	43.00
42	52.50	3.87	0.1541	0.4708	42	44.00	42	44.00
43	53.75	3.88	0.1542	0.4938	43	45.00	43	45.00
44	55.00	3.89	0.1543	0.5174	44	46.00	44	46.00
45	56.25	3.90	0.1544	0.5416	45	47.00	45	47.00
46	57.50	3.91	0.1545	0.5664	46	48.00	46	48.00
47	58.75	3.92	0.1546	0.5918	47	49.00	47	49.00
48	60.00	3.93	0.1547	0.6178	48	50.00	48	50.00
49	61.25	3.94	0.1548	0.6444	49	51.00	49	51.00
50	62.50	3.95	0.1549	0.6716	50	52.00	50	52.00
51	63.75	3.96	0.1550	0.6994	51	53.00	51	53.00
52	65.00	3.97	0.1551	0.7278	52	54.00	52	54.00
53	66.25	3.98	0.1552	0.7568	53	55.00	53	55.00
54	67.50	3.99	0.1553	0.7864	54	56.00	54	56.00
55	68.75	4.00	0.1554	0.8166	55	57.00	55	57.00
56	70.00	4.01	0.1555	0.8474	56	58.00	56	58.00
57	71.25	4.02	0.1556	0.8788	57	59.00	57	59.00
58	72.50	4.03	0.1557	0.9108	58	60.00	58	60.00
59	73.75	4.04	0.1558	0.9434	59	61.00	59	61.00
60	75.00	4.05	0.1559	0.9766	60	62.00	60	62.00
61	76.25	4.06	0.1560	1.0104	61	63.00	61	63.00
62	77.50	4.07	0.1561	1.0448	62	64.00	62	64.00
63	78.75	4.08	0.1562	1.0798	63	65.00	63	65.00
64	80.00	4.09	0.1563	1.1154	64	66.00	64	66.00
65	81.25	4.10	0.1564	1.1516	65	67.00	65	67.00
66	82.50	4.11	0.1565	1.1884	66	68.00	66	68.00
67	83.75	4.12	0.1566	1.2258	67	69.00	67	69.00
68	85.00	4.13	0.1567	1.2638	68	70.00	68	70.00
69	86.25	4.14	0.1568	1.3024	69	71.00	69	71.00
70	87.50	4.15	0.1569	1.3416	70	72.00	70	72.00
71	88.75	4.16	0.1570	1.3814	71	73.00	71	73.00
72	90.00	4.17	0.1571	1.4218	72	74.00	72	74.00
73	91.25	4.18	0.1572	1.4628	73	75.00	73	75.00
74	92.50	4.19	0.1573	1.5044	74	76.00	74	76.00
75	93.75	4.20	0.1574	1.5466	75	77.00	75	77.00
76	95.00	4.21	0.1575	1.5894	76	78.00	76	78.00
77	96.25	4.22	0.1576	1.6328	77	79.00	77	79.00
78	97.50	4.23	0.1577	1.6768	78	80.00	78	80.00
79	98.75	4.24	0.1578	1.7214	79	81.00	79	81.00
80	100.00	4.25	0.1579	1.7666	80	82.00	80	82.00
81	101.25	4.26	0.1580	1.8124	81	83.00	81	83.00
82	102.50	4.27	0.1581	1.8588	82	84.00	82	84.00
83	103.75	4.28	0.1582	1.9058	83	85.00	83	85.00
84	105.00	4.29	0.1583	1.9534	84	86.00	84	86.00
85	106.25	4.30	0.1584	2.0016	85	87.00	85	87.00
86	107.50	4.31	0.1585	2.0504	86	88.00	86	88.00
87	108.75	4.32	0.1586	2.0998	87	89.00	87	89.00
88	110.00	4.33	0.1587	2.1498	88	90.00	88	90.00
89	111.25	4.34	0.1588	2.2004	89	91.00	89	91.00
90	112.50	4.35	0.1589	2.2516	90	92.00	90	92.00
91	113.75	4.36	0.1590	2.3034	91	93.00	91	93.00
92	115.00	4.37	0.1591	2.3558	92	94.00	92	94.00
93	116.25	4.38	0.1592	2.4088	93	95.00	93	95.00
94	117.50	4.39	0.1593	2.4624	94	96.00	94	96.00
95	118.75	4.40	0.1594	2.5166	95	97.00	95	97.00
96	120.00	4.41	0.1595	2.5714	96	98.00	96	98.00
97	121.25	4.42	0.1596	2.6268	97	99.00	97	99.00
98	122.50	4.43	0.1597	2.6828	98	100.00	98	100.00
99	123.75	4.44	0.1598	2.7394	99	101.00	99	101.00
100	125.00	4.45	0.1599	2.7966	100	102.00	100	102.00



1) See Figure 5.1. The coordinates shown here are actual coordinates
 2) There was no orifice at x = 170 mm for the configuration with
 deflected maneuver flap

Pressure orifices on maneuver flap 1)

Upper surface					Lower surface				
No. 2)	x _k	z _k	x _k /c +	z _k /c	No. 2)	x _k	z _k	x _k /c +	z _k /c
100	0.00	- 1.13	0.00	- 0.0057	100	0.00	- 1.13	0.00	- 0.0057
101	0.65	0.79	0.0033	0.0040	118	0.80	- 2.68	0.0110	- 0.0134
102	2.20	2.84	0.0110	0.0127	117	2.20	- 3.07	0.0265	- 0.0154
103	5.20	4.29	0.0260	0.0215	116	5.30	- 2.73	0.0265	- 0.0137
104	8.20	5.28	0.0410	0.0284	115	12.65	- 1.89	0.0633	- 0.0095
105	12.40	5.97	0.0630	0.0299	114	20.05	- 1.20	0.1003	- 0.0060
106	16.50	6.09	0.0825	0.0305	113	30.05	- 0.68	0.1503	- 0.0034
107	20.50	5.78	0.1025	0.0217	112	40.25	- 0.44	0.2013	- 0.0032
108	28.85	4.34	0.1443	0.0056	111	50.00	- 0.00	0.2500	- 0.0022
109	38.90	2.72	0.2250	0.0022					
110	45.00	1.09	- 0.44	- 0.0022					
111	50.00	- 0.44							

Table 5.6 DFVLR 1x1 Meter tests. Aerodynamic coefficients¹⁾

Run	M _∞	α °	Re · 10 ⁻⁶	c _L	c _m	c _D	Transition	Configuration
60	0.760	2.5	2.31	0.5687	-0.0935	0.0106	Free	Basic airfoil
63	0.760	5.0	2.31	0.8048	-0.0971	0.0296	Free	
84	0.760	2.5	2.33	0.5606	-0.0868	0.0121	220K, 30/25L ³⁾	
87	0.760	5.0	2.33	0.7803	-0.0899	0.0316	220K, 30/25L	
157	0.760	2.5	3.61	0.5772	-0.0922	0.0121	Free	Basic airfoil
160	0.760	5.0	3.59	0.7879	-0.0986	0.0384	Free	
234	0.70	0.0	2.22	0.7605	-0.2599	0.0141	Free	
235	0.701	3.0	2.22	1.1806	-0.2552	0.0183	Free	
236	0.700	5.0	2.22	1.4795	-0.2687	0.0407	Free	5 ²⁾
237	0.700	7.0	2.22	1.4795	-0.2409	0.0993	Free	
240	0.760	0.0	2.32	0.8085	-0.2917	0.0197	Free	
241	0.760	3.0	2.31	1.2230	-0.3150	0.0412	Free	
242	0.759	5.0	2.31	1.3241	-0.2930	0.0578	Free	5
243	0.761	7.0	2.31	1.3811	-0.2741	0.1088	Free	
223	0.600	3.0	2.01	1.0543	-0.2333	0.0139	Free	
229	0.650	3.0	2.12	1.1154	-0.2419	0.0150	Free	
230	0.650	6.0	2.12	1.4738	-0.2211	0.0362	Free	4 ²⁾
271	0.600	3.0	2.03	0.8430	-0.1563	0.0141	Free	
277	0.650	3.0	2.13	0.8976	-0.1615	0.0149	Free	
278	0.650	6.0	2.12	1.2941	-0.1560	0.0321	Free	

- 1) All data are uncorrected
 2) See Figure 5.2
 3) See Foot-note '2) of Table 5.5
 4) Solid test section walls

Table 5.7 ONERA S3MA tests. Aerodynamic coefficients¹⁾

Run	M _∞	α °	Re · 10 ⁻⁶	c _L	c _m	c _D	Transition	Configuration
9617	0.703	2.07	7.34	1.149	-0.2517	0.0224	Free	5 ²⁾
	0.703	4.08	7.25	1.446	-0.2604	0.0401		
9618	0.702	6.03	7.28	1.461	-0.2525	0.1079		
9621	0.760	2.05	7.73	1.206	-0.3031	0.0354		
	0.761	4.07	7.73	1.253	-0.2728	0.0681	Free	5
9606	0.499	2.05	5.55	0.997	-0.2286	0.0107		
9610	0.600	2.06	6.61	1.038	-0.2390	0.0122		
9612	0.649	2.06	6.97	1.076	-0.2442	0.0128		
9625 ⁴⁾	0.702	2.11	7.52	1.398	-0.3126	0.0756	Free	Basic airfoil
	0.702	4.06	7.51	1.300	-0.2691	0.1404		
9573	0.760	2.04	3.50	0.6037	-0.0965	0.0127	Free	Basic airfoil
9589	0.760	2.10	7.60	0.6180	-0.0935	0.0128		

Table 5.8 DFVLR 1x1 Meter tests. Pressure distributions

a. Basic airfoil (See Table 5.6 for test conditions and aerodynamic coefficients)

Run 60					Run 84					Run 157				
NR	X/L	CP	ML		NR	X/L	CP	ML		NR	X/L	CP	ML	
UPPER SURFACE					UPPER SURFACE					UPPER SURFACE				
1	0.0	1.1531	0.0		1	0.0	1.1504	0.0279		1	0.0	1.1515	0.0215	
2	0.0032	0.5220	0.5256		2	0.0032	0.5189	0.5305		2	0.0032	0.5168	0.5321	
3	0.0087	0.1140	0.7114		3	0.0087	0.1124	0.7116		3	0.0087	0.1096	0.7130	
4	0.0155	-0.0616	0.7860		4	0.0155	-0.0586	0.7843		4	0.0155	-0.0553	0.7834	
5	0.0250	-0.2658	0.8727		5	0.0250	-0.2711	0.8748		5	0.0250	-0.2685	0.8740	
6	0.0345	-0.4678	0.9601		6	0.0345	-0.4698	0.9609		6	0.0345	-0.4700	0.9615	
7	0.0645	-0.7182	1.0732		7	0.0645	-0.7151	1.0723		7	0.0645	-0.7147	1.0720	
8	0.0797	-0.8822	1.1514		8	0.0797	-0.8783	1.1504		8	0.0797	-0.8807	1.1519	
9	0.0990	-0.9690	1.1947		9	0.0990	-0.9620	1.1927		9	0.0990	-0.9691	1.1960	
10	0.1400	-0.9891	1.2053		10	0.1400	-0.9825	1.2028		10	0.1400	-0.9873	1.2056	
11	0.1700	-1.0053	1.2130		11	0.1700	-0.9964	1.2103		11	0.1700	-1.0011	1.2128	
12	0.2200	-1.0125	1.2167		12	0.2200	-1.0030	1.2131		12	0.2200	-1.0030	1.2131	
13	0.2595	-1.0159	1.2198		13	0.2595	-1.0118	1.2151		13	0.2595	-1.0053	1.2133	
14	0.2995	-1.0315	1.2273		14	0.2995	-1.0579	1.2396		14	0.2995	-1.0192	1.2209	
15	0.3397	-1.0332	1.2285		15	0.3397	-1.0483	1.2351		15	0.3397	-1.0315	1.2270	
16	0.3800	-1.0358	1.2299		16	0.3800	-1.0388	1.2305		16	0.3800	-1.0419	1.2331	
17	0.4200	-1.0042	1.2134		17	0.4200	-1.0173	1.2199		17	0.4200	-1.0317	1.2281	
18	0.4600	-0.9515	1.1864		18	0.4600	-0.9384	1.1797		18	0.4600	-0.9953	1.2094	
19	0.5000	-0.5863	1.0127		19	0.5000	-0.5645	1.0034		19	0.5000	-0.9587	1.1906	
20	0.5395	-0.4587	0.9559		20	0.5395	-0.4580	0.9562		20	0.5395	-0.5610	1.0021	
21	0.5795	-0.4613	0.9566		21	0.5795	-0.4703	0.9618		21	0.5795	-0.4727	0.9624	
22	0.6200	-0.4901	0.9695		22	0.6200	-0.4893	0.9702		22	0.6200	-0.4710	0.9619	
23	0.6600	-0.5043	0.9753		23	0.6600	-0.4892	0.9702		23	0.6600	-0.4774	0.9650	
24	0.7000	-0.4104	0.9346		24	0.7000	-0.3968	0.9295		24	0.7000	-0.3949	0.9288	
25	0.7485	-0.3201	0.8954		25	0.7485	-0.3045	0.8898		25	0.7485	-0.3076	0.8908	
26	0.7985	-0.1975	0.8432		26	0.7985	-0.1852	0.8387		26	0.7985	-0.1929	0.8422	
27	0.8490	-0.0781	0.7930		27	0.8490	-0.0692	0.7855		27	0.8490	-0.0800	0.7946	
28	0.8990	0.0232	0.7501		28	0.8990	0.0266	0.7491		28	0.8990	0.0140	0.7546	
29	0.9495	0.1145	0.7111		29	0.9495	0.1111	0.7128		29	0.9495	0.0990	0.7182	
30	0.9745	0.1558	0.6934		30	0.9745	0.1486	0.6969		30	0.9745	0.1361	0.7022	
31	1.0000	0.1910	0.6780		31	1.0000	0.1388	0.7016		31	1.0000	0.1385	0.7014	
LOWER SURFACE					LOWER SURFACE					LOWER SURFACE				
1	0.0	1.1531	0.0		1	0.0	1.1504	0.0279		1	0.0	1.1515	0.0215	
2	0.0032	0.8791	0.3367		2	0.0032	0.8819	0.3350		2	0.0032	0.8728	0.3411	
3	0.0070	0.5864	0.4983		3	0.0070	0.5855	0.4993		3	0.0070	0.5650	0.5093	
4	0.0182	0.2646	0.6461		4	0.0182	0.2706	0.6439		4	0.0182	0.2530	0.6516	
5	0.0487	0.0623	0.7331		5	0.0487	0.0618	0.7342		5	0.0487	0.0534	0.7374	
6	0.0987	-0.0609	0.7854		6	0.0987	-0.0611	0.7863		6	0.0987	-0.0490	0.7810	
7	0.1500	-0.1227	0.8112		7	0.1500	-0.1179	0.8103		7	0.1500	-0.1099	0.8070	
8	0.2000	-0.1817	0.8366		8	0.2000	-0.1740	0.8340		8	0.2000	-0.1695	0.8322	
9	0.2492	-0.2535	0.8669		9	0.2492	-0.2290	0.8575		9	0.2492	-0.2431	0.8632	
10	0.3492	-0.2932	0.8840		10	0.3492	-0.2735	0.8763		10	0.3492	-0.2912	0.8841	
11	0.4492	-0.2842	0.8866		11	0.4492	-0.2729	0.8761		11	0.4492	-0.2833	0.8811	
12	0.5500	-0.1255	0.8131		12	0.5500	-0.1319	0.8163		12	0.5500	-0.1407	0.8202	
13	0.6450	0.0757	0.7276		13	0.6450	0.0531	0.7376		13	0.6450	0.0472	0.7402	
14	0.7500	0.2244	0.6638		14	0.7500	0.1974	0.6759		14	0.7500	0.1940	0.6773	
15	0.8000	0.2665	0.6456		15	0.8000	0.2438	0.6558		15	0.8000	0.2441	0.6558	
16	0.8490	0.3161	0.6237		16	0.8490	0.2897	0.6358		16	0.8490	0.2900	0.6357	
17	0.8992	0.3312	0.6170		17	0.8992	0.3052	0.6290		17	0.8992	0.3034	0.6296	
18	0.9495	0.3088	0.6273		18	0.9495	0.2853	0.6379		18	0.9495	0.2801	0.6398	
19	1.0000	0.1910	0.6780		19	1.0000	0.1388	0.7016		19	1.0000	0.1385	0.7014	

Table 5.8 Continued

b. Continued¹⁾

Run 236				Run 236				Run 237			
		SECTION HS 2)				FLAP				SECTION HS	
NR	X/L	CP	ML	UPPER SURFACE	CP	ML		UPPER SURFACE	CP	ML	
1	0.0	0.8196	0.3392	0.0130	-0.3908	0.8495		1	0.0	0.6449	0.4304
2	0.0032	-0.4598	0.8759	0.0440	-0.1278	0.7491		2	0.0032	-0.7691	0.9961
3	0.0387	-0.9439	1.3686	0.1040	-0.1263	0.7487		3	0.0087	-1.2951	1.2217
4	0.0155	-0.9589	1.0743	0.1640	-0.5733	0.9162		4	0.0155	-1.3824	1.2630
5	0.0250	-1.0624	1.1184	0.2480	-0.7499	0.9890		5	0.0250	-1.3884	1.2667
6	0.0345	-1.2281	1.1919	0.3300	-0.8565	1.0320		6	0.0345	-1.4765	1.3102
7	0.0645	-1.4636	1.3041	0.4100	-0.6910	0.9661		7	0.0645	-1.6364	1.3956
8	0.0797	-1.5879	1.3690	0.5770	-0.2245	0.7877		8	0.0797	-1.7415	1.4555
9	0.0990	-1.6520	1.4043	0.7380	-0.0374	0.7149		9	0.0990	-1.8016	1.4920
10	0.1400	-1.6653	1.4116	0.9000	0.1004	0.6614		10	0.1400	-1.8086	1.4963
11	0.1700	-1.6751	1.4169	1.0000	0.2103	0.6183		11	0.1700	-1.8138	1.4996
12	0.2200	-1.6614	1.4091					12	0.2200	-1.7869	1.4829
13	0.2595	-1.5467	1.4029					13	0.2595	-1.7660	1.4702
14	0.2995	-1.6558	1.4080					14	0.2995	-1.7277	1.4479
15	0.3397	-1.6497	1.4052					15	0.3397	-1.6793	1.4193
16	0.3800	-1.6465	1.4023					16	0.3800	-1.6305	1.3913
17	0.4200	-1.6338	1.3952					17	0.4200	-1.4167	1.2806
18	0.4600	-1.6131	1.3837					18	0.4600	-1.2881	1.2185
19	0.5000	-1.6222	1.3878					19	0.5000	-1.0908	1.1300
20	0.5395	-1.6228	1.3881					20	0.5395	-0.9067	1.0518
21	0.5795	-1.0723	1.1213					21	0.5795	-0.7937	1.0062
22	0.6200	-0.7076	1.0518					22	0.6200	-0.7211	0.9770
23	0.6500	-0.7683	1.0036					23	0.6500	-0.6953	0.9655
24	0.7000	-0.6485	0.9481					24	0.7000	-0.6512	0.9491
25	0.7525	-0.4666	0.8779					25	0.7525	-0.5838	0.9231
26	0.7815	-0.4065	0.8547					26	0.7815	-0.5581	0.9129
27	0.8275	-0.3452	0.8311					27	0.8275	-0.5155	0.8957
28	0.8500	-0.3152	0.8202					28	0.8500	-0.4947	0.8885
LOWER SURFACE				Run 237 FLAP				LOWER SURFACE			
1	0.0	0.8196	0.3392	0.0130	-0.4545	0.8732		1	0.0	0.6449	0.4304
2	0.0032	1.1325	0.0	0.0440	-0.1813	0.7691		2	0.0032	1.1269	0.0243
3	0.0070	1.0565	0.1634	0.1040	-0.2125	0.7807		3	0.0070	1.1118	0.0770
4	0.0182	0.8008	0.3496	0.1640	-0.7391	0.9841		4	0.0182	0.9070	0.2849
5	0.0487	0.5447	0.4772	0.2480	-0.7563	0.9907		5	0.0487	0.6537	0.4262
6	0.0987	0.3724	0.5513	0.3300	-0.7637	0.9939		6	0.0987	0.4698	0.5105
7	0.1500	0.2924	0.5847	0.4100	-0.6070	0.9319		7	0.1500	0.3807	0.5485
8	0.2000	0.2135	0.6163	0.5770	-0.3176	0.8212		8	0.2000	0.2927	0.5846
9	0.2492	0.1511	0.6410	0.7380	-0.1970	0.7754		9	0.2492	0.2154	0.6158
10	0.3492	0.0956	0.6626	0.9000	-0.1170	0.7448		10	0.3492	0.1449	0.6436
11	0.4492	0.0837	0.6677	1.0000	-0.0316	0.7122		11	0.4492	0.1081	0.6578
12	0.5500	0.1487	0.6425					12	0.5500	0.1621	0.6366
13	0.6450	0.3081	0.5787					13	0.6450	0.2996	0.5818
14	0.7000	0.3228	0.5725					14	0.7000	0.3063	0.5791
15	0.7500	0.3253	0.5715					15	0.7500	0.3001	0.5817
16	0.7525	0.3130	0.5764					16	0.7525	0.2856	0.5876
17	0.7670	0.2985	0.5832					17	0.7670	0.2705	0.5937
18	0.7900	0.2943	0.5839					18	0.7900	0.2671	0.5952
19	0.8025	0.3610	0.5564					19	0.8025	0.3301	0.5693
20	0.8500	-0.3152	0.8202					20	0.8500	-0.4947	0.8885
				Run 240 FLAP				Run 241			
		SECTION HS				FLAP				SECTION HS	
		CP	ML			CP	ML			CP	ML
1	0.0	1.1600	0.0	0.0	0.6600	0.4620		1	0.0	1.1061	0.1338
2	0.0032	0.7392	0.4196	0.0130	-0.5460	0.9951		2	0.0032	0.2799	0.6404
3	0.0087	0.3592	0.6047	0.0440	-0.2217	0.8544		3	0.0087	-0.1343	0.8175
4	0.0155	0.1628	0.6907	0.1040	-0.1751	0.8346		4	0.0155	-0.2641	0.8721
5	0.0250	-0.3588	0.7850	0.1640	-0.6155	1.0769		5	0.0250	-0.4569	0.9549
6	0.0345	-0.2570	0.8691	0.2480	-0.6144	1.0267		6	0.0345	-0.6591	1.0446
7	0.0645	-0.5230	0.9849	0.3300	-1.1281	1.2799		7	0.0645	-0.8930	1.1547
8	0.0797	-0.6790	1.0557	0.4100	-1.0842	1.2557		8	0.0797	-1.0296	1.2243
9	0.0990	-0.7625	1.0948	0.5770	-0.2749	0.8768		9	0.0990	-1.1144	1.2703
10	0.1400	-0.7756	1.1007	0.7380	-0.0264	0.7713		10	0.1400	-1.1368	1.2833
11	0.1700	-0.7862	1.1052	0.9000	0.1038	0.7164		11	0.1700	-1.1533	1.2928
12	0.2200	-0.7647	1.0948	1.0000	0.1741	0.6854		12	0.2200	-1.1600	1.2976
13	0.2595	-0.7395	1.0842					13	0.2595	-1.1642	1.3015
14	0.2995	-0.7920	1.1083					14	0.2995	-1.1852	1.3134
15	0.3397	-0.8106	1.1172					15	0.3397	-1.1926	1.3173
16	0.3800	-0.8294	1.1263					16	0.3800	-1.2018	1.3214
17	0.4200	-0.8199	1.1217					17	0.4200	-1.1983	1.3182
18	0.4600	-0.8155	1.1195					18	0.4600	-1.1944	1.3148
19	0.5000	-0.8491	1.1361					19	0.5000	-1.2196	1.3281
20	0.5395	-0.8857	1.1543					20	0.5395	-1.2503	1.3464
21	0.5795	-0.8931	1.1563					21	0.5795	-1.2741	1.3625
22	0.6200	-0.9013	1.1609					22	0.6200	-1.3030	1.3791
23	0.6500	-0.9675	1.1942					23	0.6500	-1.3523	1.4105
24	0.7000	-1.0975	1.2672					24	0.7000	-1.4137	1.4510
25	0.7525	-1.0879	1.2583					25	0.7525	-1.4392	1.2846
26	0.7815	-0.6816	1.0569					26	0.7815	-0.8701	1.1449
27	0.8275	-0.4484	0.9522					27	0.8275	-0.7946	1.1084
28	0.8500	-0.3344	0.9042					28	0.8500	-0.7577	1.0914
LOWER SURFACE				Run 241 FLAP				LOWER SURFACE			
1	0.0	1.1600	0.0	0.0130	-0.5125	0.9798		1	0.0	1.1061	0.1338
2	0.0032	0.6898	0.4440	0.0440	-0.2047	0.8469		2	0.0032	0.1097	0.2131
3	0.0070	0.3251	0.6199	0.1040	-0.2324	0.8549		3	0.0070	0.8196	0.3736
4	0.0182	0.0362	0.7436	0.1640	-1.0957	1.2615		4	0.0182	0.5167	0.5319
5	0.0487	-0.1096	0.8068	0.2480	-0.6625	1.0471		5	0.0487	0.2883	0.6257
6	0.0987	-0.1752	0.8364	0.3300	-0.5863	1.0130		6	0.0987	0.1507	0.6953
7	0.1500	-0.2052	0.8474	0.4100	-0.4367	0.9469		7	0.1500	0.0904	0.7210
8	0.2000	-0.2310	0.8582	0.5770	-0.1570	0.8268		8	0.2000	0.0326	0.7458
9	0.2492	-0.2708	0.8750	0.7380	-0.0124	0.7650		9	0.2492	-0.0220	0.7694
10	0.3492	-0.2561	0.8687	0.9000	0.0389	0.7220		10	0.3492	-0.0559	0.7837
11	0.4492	-0.2032	0.8469	1.0000	0.1567	0.6931		11	0.4492	-0.0453	0.7787
12	0.5500	-0.0005	0.7612					12	0.5500	0.0535	0.7359
13	0.6450	0.1667	0.6884					13	0.6450	0.2410	0.6566
14	0.7000	0.2238	0.6646					14	0.7000	0.2703	0.6433
15	0.7500	0.2576	0.6498					15	0.7500	0.2829	0.6376
16	0.7525	0.2447	0.6551					16	0.7525	0.2764	0.6410
17	0.7670	0.2322	0.6604					17	0.7670	0.2617	0.6478
18	0.7900	0.2326	0.6608					18	0.7900	0.2570	0.6492
19	0.8025	0.2863	0.6372					19	0.8025	0.3310	0.6169
20	0.8500	-0.3344	0.9042					20	0.8500	-0.7577	1.0914

¹⁾ See Table 5.6 for test conditions and aerodynamic coefficients. ²⁾ Section HS: See Figure 5.1

Table 5.8 Continued

b. Continued¹⁾

Run 242				Run 242				Run 243			
NR	X/L	SECTION HS	ML	NR	X/L	SECTION HS	ML	NR	X/L	SECTION HS	ML
UPPER SURFACE	CP			UPPER SURFACE	CP			UPPER SURFACE	CP		
1	0.0	1.0002	0.2493	1	0.0	0.7212	0.4288	1	0.0	0.8691	0.3441
2	0.0032	-0.0263	0.7711	2	0.0032	-0.5011	0.9734	2	0.0032	-0.3143	0.8956
3	0.0387	-0.4555	0.9538	3	0.0387	-0.1856	0.8377	3	0.0087	-0.7853	1.1067
4	0.0155	-0.5251	0.9854	4	0.0155	-0.1605	0.8265	4	0.0155	-0.8202	1.1223
5	0.0250	-0.6749	1.0524	5	0.0250	-0.6644	1.0465	5	0.0250	-0.8859	1.1559
6	0.0245	-0.8652	1.1471	6	0.0245	-0.6847	1.0566	6	0.0345	-1.0268	1.2288
7	0.0645	-1.0870	1.2561	7	0.0645	-0.8257	1.1225	7	0.0645	-1.2392	1.3457
8	0.0797	-1.2141	1.3261	8	0.0797	-0.6900	1.0571	8	0.0797	-1.3615	1.4199
9	0.0990	-1.2849	1.3681	9	0.0990	-0.2819	0.8779	9	0.0990	-1.4236	1.4605
10	0.1400	-1.3072	1.3816	10	0.1400	-0.1511	0.8143	10	0.1400	-1.4488	1.4770
11	0.1700	-1.3247	1.3915	11	0.1700	-0.0366	0.7741	11	0.1700	-1.4658	1.4892
12	0.2200	-1.3337	1.3986	12	0.2200	0.0772	0.7254	12	0.2200	-1.4657	1.4906
13	0.2595	-1.3372	1.4007					13	0.2595	-1.4659	1.4918
14	0.2995	-1.3488	1.4092					14	0.2995	-1.4828	1.5036
15	0.3397	-1.3581	1.4133					15	0.3397	-1.4871	1.5045
16	0.3800	-1.3617	1.4174					16	0.3800	-1.4912	1.5053
17	0.4200	-1.3612	1.4157					17	0.4200	-1.4786	1.4991
18	0.4600	-1.3525	1.4111					18	0.4600	-1.4524	1.4825
19	0.5000	-1.3733	1.4234					19	0.5000	-1.3707	1.4277
20	0.5395	-1.4014	1.4405					20	0.5395	-1.2427	1.3471
21	0.5795	-1.4109	1.4477					21	0.5795	-1.0842	1.2599
22	0.6200	-1.3648	1.4161					22	0.6200	-0.9154	1.1778
23	0.6600	-1.0965	1.2598					23	0.6600	-0.7904	1.1102
24	0.7000	-0.8522	1.1353					24	0.7000	-0.6800	1.0582
25	0.7525	-0.7560	1.0898					25	0.7525	-0.6261	1.0339
26	0.7815	-0.6428	1.0372					26	0.7815	-0.5916	1.0182
27	0.8275	-0.5316	0.9869					27	0.8275	-0.5426	0.9970
28	0.8500	-0.4772	0.9630					28	0.8500	-0.5187	0.9842
LOWER SURFACE				LOWER SURFACE				LOWER SURFACE			
1	0.0	1.0002	0.2493	1	0.0	0.7343	0.4223	1	0.0	0.8691	0.3441
2	0.0032	1.1284	0.0968	2	0.0032	-0.5057	0.9785	2	0.0032	1.1559	0.0
3	0.0070	0.9836	0.2616	3	0.0070	-0.1889	0.8412	3	0.0070	1.0823	0.1690
4	0.0182	0.6990	0.4408	4	0.0182	-0.1491	0.8243	4	0.0182	0.8386	0.3633
5	0.0437	0.4525	0.5617	5	0.0437	-0.7798	1.1035	5	0.0437	0.5871	0.4996
6	0.0987	0.2922	0.6236	6	0.0987	-0.7161	1.0727	6	0.0987	0.4073	0.5840
7	0.1500	0.2151	0.6671	7	0.1500	-0.8561	1.1401	7	0.1500	0.3195	0.6240
8	0.2000	0.1397	0.6596	8	0.2000	-0.7009	1.0661	8	0.2000	0.2302	0.6624
9	0.2492	0.0748	0.7277	9	0.2492	-0.4114	0.9363	9	0.2492	0.1528	0.6957
10	0.3492	0.0173	0.7526	10	0.3492	-0.3025	0.8994	10	0.3492	0.0776	0.7277
11	0.4492	0.0037	0.7579	11	0.4492	-0.4114	0.9363	11	0.4492	0.0453	0.7410
12	0.5500	0.0757	0.7273	12	0.5500	-0.3025	0.8994	12	0.5500	0.1087	0.7144
13	0.6450	0.2538	0.6538	13	0.6450	-0.1413	0.8202	13	0.6450	0.2664	0.6468
14	0.7000	0.2725	0.6420					14	0.7000	0.2790	0.6409
15	0.7500	0.2904	0.6346					15	0.7500	0.2981	0.6358
16	0.7525	0.2749	0.6412					16	0.7525	0.2735	0.6433
17	0.7670	0.2586	0.6492					17	0.7670	0.2615	0.6490
18	0.7900	0.2521	0.6510					18	0.7900	0.2546	0.6526
19	0.8025	0.2177	0.6224					19	0.8025	0.3128	0.6261
20	0.8500	-0.4772	0.9630					20	0.8500	-0.5187	0.9842

Run 223				Run 223				Run 229			
NR	X/L	SECTION HS	ML	NR	X/L	SECTION HS	ML	NR	X/L	SECTION HS	ML
UPPER SURFACE	CP			UPPER SURFACE	CP			UPPER SURFACE	CP		
1	0.0	0.9516	0.2654	1	0.0	0.6458	0.3661	1	0.0	0.9361	0.2381
2	0.0032	-0.4629	0.7440	2	0.0032	-0.5057	0.7566	2	0.0032	-0.7422	0.7340
3	0.0387	-0.9383	0.8887	3	0.0387	-0.2501	0.6786	3	0.0387	-0.7122	0.8951
4	0.0155	-1.0133	0.9112	4	0.0155	-0.2811	0.6880	4	0.0155	-0.8054	0.9271
5	0.0250	-1.1832	0.9645	5	0.0250	-0.7021	0.8164	5	0.0250	-0.9828	0.9899
6	0.0345	-1.3855	1.0293	6	0.0345	-0.8235	0.8533	6	0.0345	-1.2036	1.0709
7	0.0645	-1.5322	1.0777	7	0.0645	-1.0331	0.9182	7	0.0645	-1.4342	1.1607
8	0.0797	-1.5287	1.0762	8	0.0797	-0.8673	0.8669	8	0.0797	-1.5686	1.2157
9	0.0990	-1.4314	1.0443	9	0.0990	-0.3305	0.7036	9	0.0990	-1.6411	1.2470
10	0.1400	-1.1495	0.9533	10	0.1400	-0.1043	0.6335	10	0.1400	-1.5494	1.2081
11	0.1700	-0.9413	0.8890	11	0.1700	0.0590	0.5808	11	0.1700	-1.4827	1.1806
12	0.2200	-0.9242	0.8835	12	0.2200	0.1749	0.5424	12	0.2200	-1.1357	1.0460
13	0.2595	-0.9060	0.8790					13	0.2595	-0.8627	0.9475
14	0.2995	-0.9369	0.8576					14	0.2995	-0.8536	0.9443
15	0.3397	-0.9072	0.8486					15	0.3397	-0.8313	0.9367
16	0.3800	-0.7793	0.8396					16	0.3800	-0.8108	0.9290
17	0.4200	-0.7586	0.8335					17	0.4200	-0.7942	0.9232
18	0.4600	-0.7581	0.8334					18	0.4600	-0.8024	0.9260
19	0.5000	-0.7735	0.8380					19	0.5000	-0.8280	0.9353
20	0.5395	-0.7781	0.8392					20	0.5395	-0.8394	0.9393
21	0.5795	-0.7725	0.8375					21	0.5795	-0.8360	0.9381
22	0.6200	-0.7711	0.8371					22	0.6200	-0.8343	0.9375
23	0.6600	-0.7712	0.8369					23	0.6600	-0.8315	0.9362
24	0.7000	-0.6988	0.8151					24	0.7000	-0.7378	0.9040
25	0.7525	-0.6177	0.7905					25	0.7525	-0.6427	0.8719
26	0.7815	-0.5593	0.7728					26	0.7815	-0.5746	0.8479
27	0.8275	-0.4622	0.7429					27	0.8275	-0.4686	0.8118
28	0.8500	-0.4148	0.7291					28	0.8500	-0.4168	0.7936
LOWER SURFACE				LOWER SURFACE				LOWER SURFACE			
1	0.0	0.9516	0.2654	1	0.0	0.6458	0.3661	1	0.0	0.9361	0.2381
2	0.0032	1.0844	0.0495	2	0.0032	-0.5064	0.8243	2	0.0032	1.0823	0.0940
3	0.0070	0.9470	0.2050	3	0.0070	-0.2267	0.7786	3	0.0070	0.9217	0.2481
4	0.0182	0.6399	0.3685	4	0.0182	-0.7509	0.7769	4	0.0182	0.6146	0.4122
5	0.0437	0.3776	0.4716	5	0.0437	-0.7076	0.8938	5	0.0437	0.3618	0.5170
6	0.0987	0.2192	0.5270	6	0.0987	-0.7881	0.9216	6	0.0987	0.2083	0.5752
7	0.1500	0.1511	0.5498	7	0.1500	-1.1275	1.0414	7	0.1500	0.1402	0.6001
8	0.2000	0.0851	0.5718	8	0.2000	-0.9382	0.9745	8	0.2000	0.0746	0.6237
9	0.2492	0.0318	0.5892	9	0.2492	-0.3220	0.7615	9	0.2492	0.0197	0.6432
10	0.3492	-0.0069	0.6016	10	0.3492	-0.3067	0.6834	10	0.3492	-0.0157	0.6557
11	0.4492	-0.0051	0.6014	11	0.4492	0.0536	0.6275	11	0.4492	-0.0140	0.6551
12	0.5500	0.0644	0.5789	12	0.5500	0.1754	0.5878	12	0.5500	0.0604	0.6289
13	0.6450	0.2337	0.5225					13	0.6450	0.2401	0.5633
14	0.7000	0.2489	0.5173					14	0.7000	0.2542	0.5579
15	0.7500	0.2453	0.5182					15	0.7500	0.2603	0.5556
16	0.7525	0.2294	0.5238					16	0.7525	0.2463	0.5608
17	0.7670	0.2172	0.5279					17	0.7670	0.2393	0.5623
18	0.7900	0.2089	0.5304					18	0.7900	0.2244	0.5693
19	0.8025	0.2722	0.5088					19	0.8025	0.2894	0.5449
20	0.8500	-0.4148	0.7291					20	0.8500	-0.4168	0.7936

¹⁾ See Table 5.6 for test conditions and aerodynamic coefficients. ²⁾ Section HS: See Figure 5.1

Table 5.8 Concluded

b. Concluded 1)

Run 230				Run 230				Run 278			
NR	X/L	SECTION HS	ML	NR	FLAP	ML		NR	X/L	SECTION HS	ML
UPPER SURFACE	CP			UPPER SURFACE	CP			UPPER SURFACE	CP		
1	0.0	0.5566	0.4375	1	0.0	0.6957	0.3744	1	0.0	0.6164	0.4111
2	0.0032	-0.9978	0.9959	2	0.0032	-0.4188	0.7946	2	0.0032	-0.9042	0.9622
3	0.0087	-1.5639	1.2142	3	0.0087	-0.1624	0.7065	3	0.0087	-1.4656	1.1733
4	0.0155	-1.6360	1.2443	4	0.0155	-0.2027	0.7202	4	0.0155	-1.5058	1.1893
5	0.0250	-1.6271	1.2401	5	0.0250	-0.6519	0.8743	5	0.0250	-1.4961	1.1857
6	0.0345	-1.6980	1.2713	6	0.0345	-0.8112	0.9297	6	0.0345	-1.6063	1.2312
7	0.0645	-1.8846	1.3571	7	0.0645	-0.9503	0.9786	7	0.0645	-1.8361	1.3336
8	0.0797	-2.0064	1.4175	8	0.0797	-0.7793	0.9188	8	0.0797	-1.9639	1.3954
9	0.0690	-2.0724	1.4514	9	0.0690	-0.2819	0.7479	9	0.0690	-2.0252	1.4260
10	0.1400	-2.0699	1.4520	10	0.1400	-0.0790	0.6777	10	0.1400	-2.0225	1.4252
11	0.1700	-2.0694	1.4524	11	0.1700	0.0687	0.6255	11	0.1700	-2.0234	1.4244
12	0.2200	-2.0247	1.4282	12	0.2200	0.1847	0.5837	12	0.2200	-1.9486	1.3866
13	0.2595	-1.9894	1.4094					13	0.2595	-1.8861	1.3578
14	0.2995	-1.9405	1.3849					14	0.2995	-1.7588	1.2985
15	0.3397	-1.5557	1.2108					15	0.3397	-1.7719	1.0972
16	0.3800	-1.1719	1.0594					16	0.3800	-0.7859	0.9203
17	0.4200	-0.9066	0.9627					17	0.4200	-0.6626	0.8778
18	0.4600	-0.7397	0.9045					18	0.4600	-0.6519	0.9738
19	0.5000	-0.6827	0.8847					19	0.5000	-0.6830	0.8845
20	0.5395	-0.6962	0.8894					20	0.5395	-0.7015	0.8909
21	0.5795	-0.7099	0.8946					21	0.5795	-0.7011	0.8933
22	0.6200	-0.7252	0.8999					22	0.6200	-0.6993	0.8902
23	0.6600	-0.7300	0.9013					23	0.6600	-0.6901	0.8870
24	0.7000	-0.6679	0.8801					24	0.7000	-0.6200	0.8633
25	0.7525	-0.5876	0.8526					25	0.7525	-0.5428	0.8366
26	0.7815	-0.5335	0.8336					26	0.7815	-0.4997	0.8216
27	0.8275	-0.4336	0.7997					27	0.8275	-0.4396	0.8011
28	0.8500	-0.3848	0.7828					28	0.8500	-0.4103	0.7910
LOWER SURFACE				LOWER SURFACE				LOWER SURFACE			
1	0.0	0.5566	0.4375	1	0.0	0.6957	0.3744	1	0.0	0.6164	0.4111
2	0.0032	1.1054	0.0384	2	0.0032	0.9690	0.2129	2	0.0032	1.1133	0.0
3	0.0070	1.0992	0.0591	3	0.0070	0.6440	0.3988	3	0.0070	1.0856	0.0883
4	0.0182	0.8941	0.2664	4	0.0182	0.6209	0.4094	4	0.0182	0.8586	0.2879
5	0.0487	0.6346	0.4033	5	0.0487	0.5711	0.4314	5	0.0487	0.5916	0.4220
6	0.0987	0.4482	0.4828	6	0.0987	0.4010	0.4444	6	0.0987	0.4050	0.4097
7	0.1500	0.2595	0.5179	7	0.1500	0.4906	0.4654	7	0.1500	0.3158	0.5344
8	0.2000	0.2726	0.5520	8	0.2000	0.3929	0.5047	8	0.2000	0.2288	0.5671
9	0.2492	0.2051	0.5761	9	0.2492	0.3050	0.5477	9	0.2492	0.1671	0.5919
10	0.3492	0.1392	0.6000	10	0.3492	0.2400	0.5837	10	0.3492	0.0948	0.6157
11	0.4492	0.1150	0.6088					11	0.4492	0.0725	0.6238
12	0.5500	0.1712	0.5986					12	0.5500	0.1345	0.6016
13	0.6450	0.3108	0.5365					13	0.6450	0.2972	0.5413
14	0.7000	0.3186	0.5333					14	0.7000	0.3275	0.5298
15	0.7500	0.3136	0.5256					15	0.7500	0.4237	0.4922
16	0.7525	0.2883	0.5453					16	0.7525	0.4145	0.4957
17	0.7670	0.2780	0.5491					17	0.7670	0.4327	0.4884
18	0.7900	0.2750	0.5502					18	0.7900	0.4434	0.4844
19	0.8075	0.3277	0.5300					19	0.8075	0.3828	0.5094
20	0.8500	-0.3848	0.7828					20	0.8500	-0.4103	0.7910

Run 271				Run 271				Run 277			
NR	X/L	SECTION HS	ML	NR	FLAP	ML		NR	X/L	SECTION HS	ML
UPPER SURFACE	CP			UPPER SURFACE	CP			UPPER SURFACE	CP		
1	0.0	0.9237	0.2211	1	0.0	0.1857	0.5397	1	0.0	0.9857	0.2007
2	0.0032	-0.2810	0.6879	2	0.0032	0.3692	0.4745	2	0.0032	-0.1162	0.6903
3	0.0087	-0.7508	0.8312	3	0.0087	0.3379	0.4858	3	0.0087	-0.5794	0.8494
4	0.0155	-0.8422	0.8590	4	0.0155	0.2777	0.5071	4	0.0155	-0.6890	0.8866
5	0.0250	-1.0250	0.9149	5	0.0250	0.1045	0.5658	5	0.0250	-0.8843	0.9549
6	0.0345	-1.2113	0.9727	6	0.0345	-0.1389	0.6438	6	0.0345	-1.0987	1.0320
7	0.0645	-1.3527	1.0179	7	0.0645	-0.3465	0.7083	7	0.0645	-1.3207	1.1159
8	0.0797	-1.3412	1.0142	8	0.0797	-0.2873	0.6897	8	0.0797	-1.4663	1.1732
9	0.0990	-1.2553	0.9864	9	0.0990	-0.1326	0.6417	9	0.0990	-1.5020	1.1885
10	0.1400	-1.0394	0.9187	10	0.1400	-0.1135	0.6357	10	0.1400	-1.3019	1.1091
11	0.1730	-0.8797	0.8702	11	0.1730	-0.1081	0.6342	11	0.1730	-1.1541	1.0538
12	0.2200	-0.8455	0.8597	12	0.2200	-0.0890	0.6283	12	0.2200	-0.9905	0.9939
13	0.2595	-0.8186	0.8515					13	0.2595	-0.8624	0.9477
14	0.2995	-0.7531	0.8316					14	0.2995	-0.8002	0.9255
15	0.3397	-0.7244	0.8231					15	0.3397	-0.7666	0.9141
16	0.3800	-0.6961	0.8145					16	0.3800	-0.7345	0.9024
17	0.4200	-0.6751	0.8079					17	0.4200	-0.7096	0.8938
18	0.4600	-0.6725	0.8069					18	0.4600	-0.7102	0.8939
19	0.5000	-0.6851	0.8137					19	0.5000	-0.7256	0.8996
20	0.5395	-0.6845	0.8106					20	0.5395	-0.7276	0.9000
21	0.5795	-0.6787	0.8093					21	0.5795	-0.7186	0.8979
22	0.6200	-0.6721	0.8073					22	0.6200	-0.7110	0.8955
23	0.6600	-0.6643	0.8047					23	0.6600	-0.7026	0.8923
24	0.7000	-0.5993	0.7850					24	0.7000	-0.6196	0.8632
25	0.7525	-0.5240	0.7619					25	0.7525	-0.5350	0.8317
26	0.7815	-0.4829	0.7496					26	0.7815	-0.4861	0.8167
27	0.8275	-0.4278	0.7329					27	0.8275	-0.4256	0.7961
28	0.8500	-0.4009	0.7246					28	0.8500	-0.3961	0.7863
LOWER SURFACE				LOWER SURFACE				LOWER SURFACE			
1	0.0	0.9237	0.2211	1	0.0	0.1857	0.5397	1	0.0	0.9857	0.2007
2	0.0032	1.0591	0.0982	2	0.0032	0.5203	0.4178	2	0.0032	1.0551	0.1330
3	0.0070	0.8870	0.2444	3	0.0070	0.4356	0.3702	3	0.0070	0.8627	0.2866
4	0.0182	0.6564	0.3995	4	0.0182	0.3747	0.3957	4	0.0182	0.5415	0.4437
5	0.0487	0.3080	0.4955	5	0.0487	0.2530	0.4323	5	0.0487	0.2907	0.5438
6	0.0987	0.1576	0.5481	6	0.0987	0.4359	0.4498	6	0.0987	0.1419	0.5987
7	0.1500	0.0916	0.5638	7	0.1500	0.3660	0.4757	7	0.1500	0.0765	0.6220
8	0.2000	0.0282	0.5905	8	0.2000	0.2341	0.5221	8	0.2000	0.0129	0.6447
9	0.2492	-0.0264	0.6080	9	0.2492	0.1149	0.6899	9	0.2492	-0.0408	0.6639
10	0.3492	-0.0618	0.6193	10	0.3492	-0.0539	0.6827	10	0.3492	-0.0774	0.6765
11	0.4492	-0.0570	0.6178					11	0.4492	-0.0710	0.6746
12	0.5500	0.0170	0.5943					12	0.5500	0.0099	0.6462
13	0.6450	0.2143	0.5289					13	0.6450	0.2123	0.5733
14	0.7000	0.2520	0.5158					14	0.7000	0.2566	0.5570
15	0.7500	0.2608	0.4774					15	0.7500	0.3702	0.5136
16	0.7525	0.3509	0.4813					16	0.7525	0.3603	0.5177
17	0.7670	0.3700	0.4744					17	0.7670	0.2796	0.5102
18	0.7900	0.3784	0.4712					18	0.7900	0.3869	0.5065
19	0.8075	0.3157	0.4937					19	0.8075	0.3275	0.5296
20	0.8500	-0.4009	0.7246					20	0.8500	-0.3961	0.7863

1) See Table 5.6 for test conditions and aerodynamic coefficients. 2) Section HS: See Figure 5.1

Table 5.9 ONERA S3MA tests. Pressure distributions²⁾

a. Airfoil surface pressures

Run	9617		9617		9618		9621		9621	
M _∞	0.703		0.703		0.702		0.760		0.761	
α°	4.08		2.07		6.03		2.05		4.07	
X/C	CP	ML	CP	ML	CP	ML	CP	ML	CP	ML
Upper surface										
8.2750	-0.3710	.8435	-0.4112	.8609	-0.6049	.9841	-0.6636	1.0302	-0.6808	1.0357
7.8150	-0.4314	.8867	-0.5082	.8980	-0.6541	.9843	-0.7252	1.0794	-0.6905	1.0607
7.5250	-0.4938	.8908	-0.5925	.9308	-0.7045	.9746	-0.7900	1.1087	-0.6941	1.0616
7.0000	-0.5481	.9118	-0.6025	.9352	-0.7479	.9916	-0.8583	1.1415	-0.7084	1.0688
6.6000	-0.6485	.9509	-0.7482	.9930	-0.8068	1.3329	-1.3329	1.4082	-0.7250	1.0781
6.2000	-0.7845	1.0052	-0.7661	.9956	-0.8630	1.0384	-1.2658	1.3631	-0.7461	1.0867
5.7950	-0.8903	1.0488	-0.7378	.9884	-0.9002	1.0541	-1.2438	1.3478	-0.8454	1.1838
5.3950	-1.0714	1.1260	-0.7068	.9770	-0.9513	1.0748	-1.2193	1.3321	-1.0260	1.2252
5.0000	-1.6056	1.3843	-0.6625	.9522	-0.9859	1.0832	-1.1941	1.3165	-1.3208	1.3900
4.6000	-1.5996	1.3806	-0.6209	.9419	-1.1074	1.1416	-1.1700	1.3040	-1.3304	1.3981
4.2000	-1.6308	1.3993	-0.6826	.9665	-1.2237	1.1964	-1.1833	1.3129	-1.3537	1.4107
3.8000	-1.6952	1.4007	-1.2140	1.1992	-1.3124	1.2362	-1.1805	1.3108	-1.3433	1.4062
3.3975	-1.6559	1.4122	-1.3654	1.2639	-1.4663	1.3107	-1.1874	1.3162	-1.3553	1.4132
2.9950	-1.6315	1.3986	-1.3362	1.2488	-1.6510	1.4119	-1.1426	1.2918	-1.3165	1.3898
2.5950	-1.6269	1.3967	-1.3490	1.2551	-1.7136	1.4688	-1.1333	1.2858	-1.3063	1.3821
2.2000	-1.5957	1.3789	-1.3350	1.2480	-1.7212	1.4512	-1.1102	1.2697	-1.2753	1.3688
1.7000	-1.6931	1.4385	-1.4297	1.2949	-1.8354	1.5222	-1.1573	1.2968	-1.3289	1.3978
1.4000	-1.7131	1.4469	-1.4621	1.3164	-1.8563	1.5356	-1.1938	1.3165	-1.3486	1.4092
0.9900	-1.6579	1.4155	-1.4008	1.2807	-1.8006	1.5017	-1.1264	1.2776	-1.2885	1.3726
0.7975	-1.5717	1.3672	-1.2895	1.2279	-1.7198	1.4607	-1.0077	1.2147	-1.1920	1.3170
0.6000	-1.4624	1.3104	-1.1849	1.1784	-1.6242	1.3973	-0.8757	1.1485	-1.0622	1.2458
0.3450	-1.8070	1.1862	-0.9285	1.0664	-1.4391	1.2982	-0.6397	1.0356	-0.8467	1.1386
0.2500	-1.0658	1.1228	-0.7393	.9861	-1.3848	1.2700	-0.4649	.9380	-0.6766	1.0506
0.1550	-0.9958	1.0981	-0.5728	.9232	-1.3924	1.2744	-0.2937	.8844	-0.5491	.9987
0.0875	-0.9851	1.0884	-0.4760	.8855	-1.3035	1.2326	-0.1685	.8309	-0.4718	.9525
0.0325	-0.4648	.8804	-0.0273	.7135	-0.7270	.9821	-0.2404	.6565	-0.0368	.7785
Lower surface										
0.0000	.7906	.3563	.9924	.2232	.6332	.4375	1.0868	.1621	.9853	.2610
0.0325	1.1218	.0520	1.1258	.0000	1.1193	.0601	1.1528	.0000	1.1531	.0000
0.0416	1.1296	.0000	1.0753	.1397	1.1295	.0000	1.0517	.2009	1.1270	.1017
0.0700	1.0546	.1640	.9008	.2909	1.1064	.0905	.8444	.3585	.9935	.2545
0.1826	.8138	.3436	.6115	.4484	.9070	.2863	.5552	.5135	.7188	.4308
0.4875	.5573	.4731	.3666	.5570	.6541	.4275	.3297	.6174	.4724	.5530
0.9875	.3964	.5438	.2387	.6098	.4764	.5092	.2231	.6642	.3254	.6201
1.5000	.2950	.5860	.1520	.6439	.3689	.5552	.1212	.7071	.2266	.6638
2.0000	.2516	.6033	.1126	.6595	.3093	.5796	.0923	.7204	.1799	.6835
2.4925	.1747	.6338	.0407	.6873	.2187	.6170	.0087	.7559	.0977	.7189
2.9925	.1076	.6604	-.0004	.7034	.1393	.6482	.0236	.7697	.0314	.7474
3.4925	.0983	.6643	.0086	.6997	.1128	.6580	.0098	.7636	.0203	.7513
3.9925	.1595	.6395	.0968	.6657	.1581	.6405	.0863	.7226	.0937	.7209
4.4925	.2508	.6031	.2065	.6218	.2357	.6097	.2045	.6724	.2013	.6742
5.0000	.2983	.5842	.2583	.6012	.2777	.5931	.2575	.6503	.2402	.6569
5.5000	.3120	.5783	.2887	.5892	.2817	.5909	.2879	.6374	.2735	.6425
6.0000	.2999	.5836	.2763	.5941	.2646	.5982	.2800	.6401	.2586	.6486
6.5000	.2834	.5900	.2576	.6015	.2454	.6057	.2593	.6491	.2451	.6551
7.0000	.2788	.5919	.2517	.6039	.2410	.6075	.2589	.6493	.2412	.6568
8.0250	.3764	.5519	.3498	.5638	.3466	.5645	.3549	.6069	.3411	.6123

Flap pressures										
Run/ α°	X/C	CP	ML	CP	ML	CP	ML	CP	ML	CP
Upper surface										
1.06220	.2092	.6200	.1995	.6248	-.0542	.7229	.1723	.6773	-.0628	.7871
1.03900	.0853	.6695	.0793	.6723	-.1042	.7477	.1035	.7169	-.1200	.8117
1.00140	.0541	.7234	.0715	.7307	-.1779	.7709	.0052	.7684	-.4842	.8399
.96250	.0541	.7234	.0715	.7307	-.1779	.7709	.0052	.7684	-.2596	.8751
.92300	.0540	.9540	.0790	.7012	-.4828	.8867	.4725	.9615	-.4452	.9509
.90350	.0723	.9223	.1218	.7418	-.3629	.9146	.5915	.9168	-.5559	.9999
.86200	.0746	.9223	.1327	.9205	-.7549	1.0088	.9453	1.1826	-1.0239	1.2274
.84600	.1570	.7683	.1854	.7667	.2685	.8051	.2297	.8571	.2254	.9384
.83000	.1473	.7580	.1790	.7717	.2254	.7880	.2021	.8450	.2112	.8494
.82050	.3574	.8362	.4060	.8580	-.2320	.8636	.4368	.9558	-.4873	.9691
.81600	.6743	.4175	-.6504	.4302	.6631	.4221	.6804	.4617	.6787	.4591
Lower surface										
.81850	.9733	.2383	.9727	.2396	.9636	.2459	1.0081	.2421	.9888	.2681
.82500	.9478	.4302	.6350	.4370	.6320	.4381	.6707	.4559	.6378	.4732
.84050	.6286	.4394	.6146	.4471	.6107	.4483	.6424	.4702	.6110	.4870
.85600	.5864	.4599	.5690	.4683	.5592	.4720	.5919	.4955	.5574	.5127
.87750	.5829	.4751	.4804	.4824	.5096	.4947	.5598	.5114	.5171	.5326
.91450	.5092	.4872	.4905	.5036	.4520	.5202	.5081	.5361	.4516	.5630
.96400	.4089	.5379	.3361	.5488	.3174	.5763	.4110	.5810	.3174	.6295

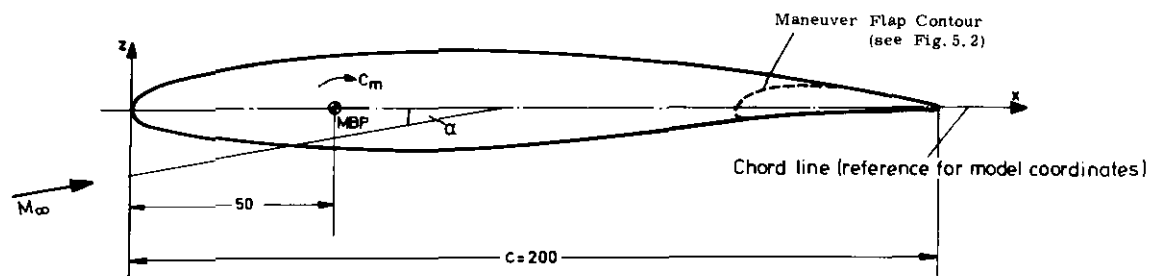
Table 5.9 Concluded

b. Top and bottom wall pressures

Run	9617	9617	9618	9621	9621	9606	9610	9612	9625 ¹⁾	9625 ¹⁾
M _∞	0.703	0.703	0.702	0.760	0.761	0.499	0.600	0.649	0.702	0.702
α ^o	4.08	2.07	6.03	2.05	4.07	2.05	2.06	2.06	2.11	4.06
X (m) ²⁾	CP	CP	CP	CP	CP	CP	CP	CP	CP	CP
Top wall										
.73000	-.0720	-.0315	-.0909	-.0454	-.0635	-.0269	-.0177	-.0244	.0667	.0477
.63000	-.1090	-.0764	-.1870	-.0897	-.1078	-.0608	-.0615	-.0638	-.0306	-.0560
.58500	-.1172	-.0850	-.1470	-.0980	-.1181	-.0734	-.0693	-.0760	-.0351	-.0584
.54500	-.1301	-.0906	-.1468	-.1025	-.1204	-.0826	-.0747	-.0781	-.0542	-.0792
.45500	-.1366	-.0971	-.1594	-.1140	-.1330	-.0801	-.0828	-.0896	-.0901	-.1095
.40500	-.1369	-.0933	-.1620	-.1097	-.1303	-.0818	-.0806	-.0862	-.1061	-.1293
.29000	-.1416	-.1025	-.1697	-.1166	-.1385	-.0878	-.0835	-.0893	-.1528	-.1778
.25000	-.1473	-.1089	-.1710	-.1247	-.1442	-.0888	-.0915	-.0933	-.1902	-.2186
.20000	-.1558	-.1157	-.1792	-.1336	-.1563	-.0948	-.0969	-.1023	-.2419	-.2676
.15000	-.1466	-.1113	-.1717	-.1300	-.1507	-.0914	-.0922	-.1001	-.2936	-.3159
.13000	-.1453	-.1095	-.1738	-.1313	-.1517	-.0919	-.0931	-.0968	-.3202	-.3437
.11000	-.1496	-.1122	-.1701	-.1353	-.1552	-.0870	-.0904	-.0969	-.3534	-.3737
.09000	-.1584	-.1186	-.1815	-.1461	-.1727	-.0941	-.0984	-.1036	-.3892	-.4097
.07000	-.1623	-.1201	-.1855	-.1508	-.1763	-.0936	-.0996	-.1028	-.4123	-.4253
.05000	-.1660	-.1194	-.1877	-.1537	-.1831	-.0890	-.0945	-.0989	-.4493	-.4608
.03000	-.1732	-.1219	-.1997	-.1574	-.1886	-.0912	-.0986	-.1030	-.4881	-.4904
.01000	-.1648	-.1166	-.1850	-.1453	-.1747	-.0799	-.0882	-.0965	-.4936	-.5093
-.01000	-.1648	-.1144	-.1816	-.1425	-.1683	-.0817	-.0880	-.0950	-.5026	-.5065
-.03000	-.1620	-.1118	-.1805	-.1852	-.1586	-.0840	-.0869	-.0940	-.4779	-.4794
-.05000	-.1515	-.1050	-.1722	-.1218	-.1428	-.0761	-.0818	-.0881	-.4471	-.4428
-.07000	-.1440	-.1007	-.1628	-.1077	-.1269	-.0758	-.0796	-.0869	-.4114	-.4117
-.09000	-.1335	-.0948	-.1475	-.0960	-.1089	-.0722	-.0780	-.0811	-.3690	-.3696
-.11000	-.1076	-.0760	-.1217	-.0708	-.0799	-.0691	-.0637	-.688	-.3173	-.3183
-.13000	-.0914	-.0659	-.1038	-.0582	-.0596	-.0560	-.0566	-.0597	-.2822	-.2793
-.15000	-.0447	-.0574	-.0896	-.0419	-.0457	-.0548	-.0544	-.0557	-.2531	-.2581
-.20000	-.0451	-.0323	-.0449	-.0057	-.0051	-.0488	-.0362	-.0342	-.1865	-.1814
-.25000	-.0184	-.0071	-.0075	.0219	.0281	-.0242	-.0180	-.0145	-.1349	-.1300
-.29000	.0089	-.0082	.0140	.394	.0457	-.0179	-.0086	-.0012	-.1105	-.1027
-.34000	.0236	.0208	.0272	.462	.0548	-.0081	.0013	.0083	-.0664	-.0649
-.44000	.0249	.0168	.0325	.0419	.0489	-.0066	.0025	.0070	-.0470	-.0427
-.54000	.0331	.0229	.0395	.0430	.0497	.0025	.0073	.0133	-.0216	-.0202
-.64000	.0338	.0818	.0447	.0463	.0532	.0074	.0184	.0234	-.0030	-.0023
-.83000	.0191	.0128	.0204	.0212	.0255	.0021	.0084	.0085	.0015	.0054
-.1.2300	.0169	.0165	.0172	.0205	.0200	.0148	.0170	.0179	.0121	.0109
Bottom wall										
-.1.79000	.0327	.0329	.0369	.0415	.0422	.0294	.0330	.0338	.0160	.0134
-.1.49000	.0197	.0189	.0194	.0211	.0220	.0143	.0137	.0129	.0089	.0120
-.1.14000	.0112	.0124	.0121	.0143	.0132	.0098	.0116	.0133	.0060	.0042
-.64000	.0346	.0389	.0611	.0533	.0618	.0235	.0267	.0306	.0211	.0192
-.54000	.0741	.0564	.0845	.0742	.0837	.0316	.0437	.0470	.0314	.0338
-.49000	.0790	.0600	.0884	.0751	.0869	.0336	.0425	.0497	.0321	.0303
-.39000	.1071	.0810	.1148	.0968	.1130	.0489	.0622	.0672	.0477	.0365
-.34000	.1222	.0945	.1355	.1139	.1326	.0575	.0756	.0845	.0618	.0609
-.25000	.1466	.1147	.1617	.1336	.1528	.0809	.0926	.1019	.0745	.0750
-.20000	.1640	.1299	.1788	.1463	.1654	.0891	.1070	.1161	.0836	.0727
-.15000	.1825	.1427	.1546	.1611	.1804	.1099	.1234	.1291	.0952	.0865
-.13000	.1686	.1280	.1714	.1469	.1640	.0905	.1065	.1145	.0789	.0697
-.11000	.1810	.1431	.1907	.1583	.1781	.1038	.1189	.1277	.0873	.0769
-.09000	.1882	.1480	.1964	.1669	.1838	.1109	.1218	.1343	.0899	.0793
-.07000	.1840	.1439	.1866	.1598	.1771	.1025	.1216	.1327	.0871	.0679
-.05000	.2044	.1705	.2129	.1852	.1988	.1274	.1433	.1557	.1091	.0891
-.03000	.1861	.1457	.1948	.1623	.1780	.1084	.1251	.1380	.0839	.0594
-.01000	.1895	.1499	.1963	.1680	.1788	.1144	.1294	.1386	.0862	.0582
.01000	.1846	.1501	.1867	.1657	.1746	.1118	.1290	.1370	.0813	.0582
.03000	.1810	.1484	.1834	.1618	.1698	.1072	.1267	.1387	.0802	.0526
.05000	.1881	.1536	.1853	.1695	.1767	.1154	.1306	.1421	.0844	.0551
.07000	.1673	.1342	.1642	.1519	.1531	.1021	.1147	.1252	.0651	.0342
.09000	.1745	.1439	.1664	.1586	.1629	.1092	.1253	.1374	.0660	.0360
.11000	.1854	.1373	.1512	.1487	.1510	.1007	.1159	.1256	.0605	.0250
.13000	.1631	.1343	.1533	.1473	.1485	.1020	.1162	.1240	.0603	.0274
.15000	.1614	.1337	.1539	.1469	.1458	.1002	.1208	.1267	.0587	.0269
.20000	.1395	.1195	.1284	.1322	.1262	.0943	.1064	.1143	.0448	.0096
.25000	.1164	.1039	.1009	.1125	.1013	.0828	.0878	.0962	.0308	.0018
.35000	.0719	.0691	.0593	.0773	.0624	.0547	.0615	.0645	.0077	-.0251
.39000	.0503	.0515	.0351	.0572	.0427	.0451	.0487	.0508	-.0057	-.0370
.49000	.0201	.0238	.0022	.0202	.0149	.0283	.0302	.0338	-.0174	-.0402
.57000	-.0183	-.0096	-.0421	-.0189	-.0280	.0036	.0023	-.0009	-.0320	-.0563
.62000	.0070	.0132	-.0175	.0056	-.0037	.0286	.0253	.0212	.0014	-.0246
.72000	.1289	.1379	.1127	.1392	.1392	.1261	.1319	.1346	.1063	.0902

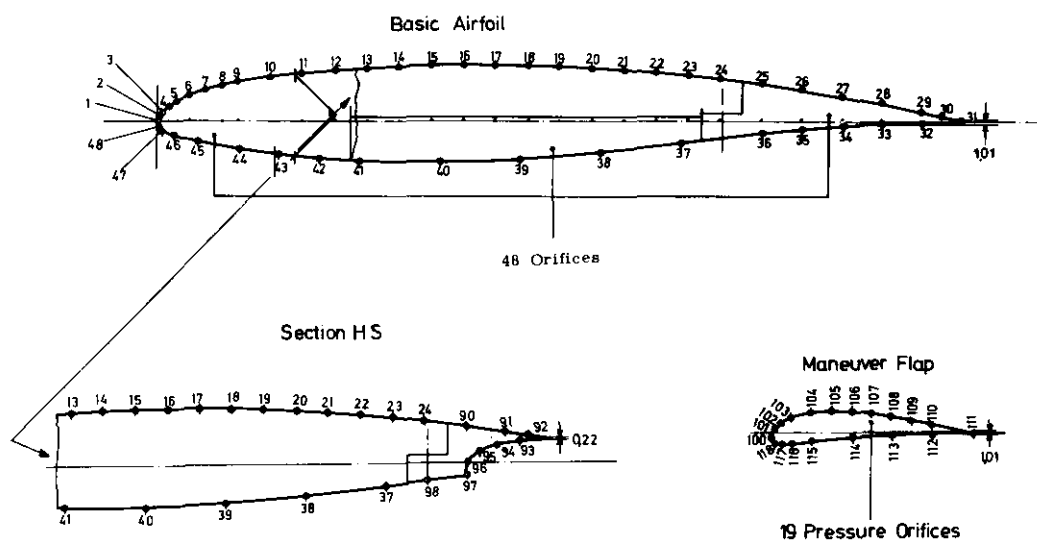
1) Solid test section walls

2) The leading edge of the model is located 0.107 m upstream of x = 0 for the wall pressure orifices

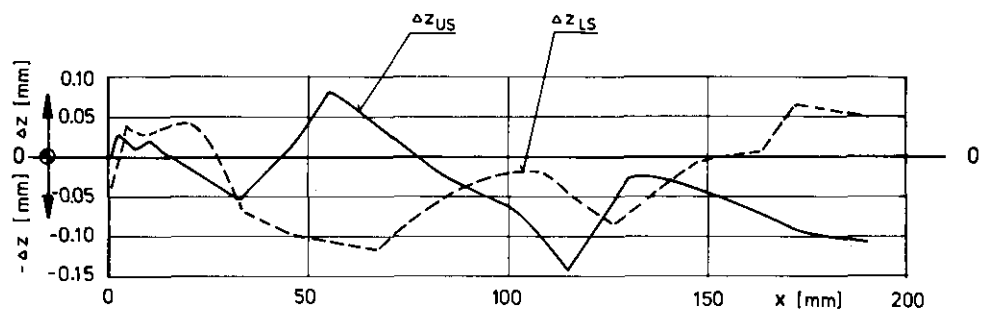


Geometric data: Chord $c = 200$ mm Max. $t/c = 12.07\%$ at 36% c Trailing edge thickness $t_{TE}/c = 0.5\%$ Maneuver flap chord $c_K = 50$ mm
 All dimensions given are in millimeters

a. Airfoil contour (also see Table 5.1)

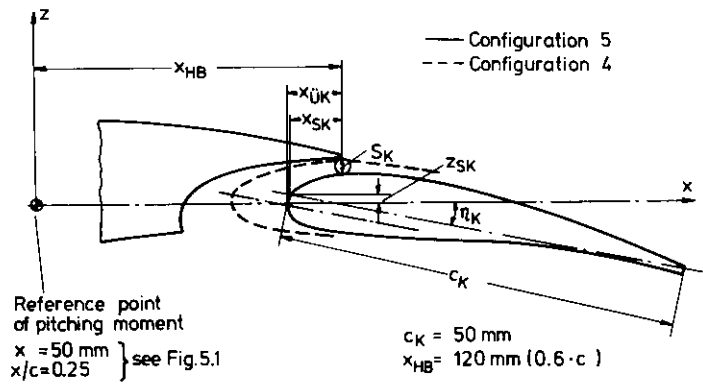


b. Location of pressure orifices (also see Table 5.3)



c. Measured errors of manufactured airfoil (also see Table 5.2)

Figure 5.1 Airfoil SKF 1.1 - Contour and location of pressure orifices



Configuration	η_K°	s_K	x_{UK}	x_{SK}	z_{SK}
		% c	% c	mm	mm
1	2	0.05	9.05	-17.90	0.40
2	5	0.05	8.33	-15.70	1.10
3	5	1.65	4.00	-7.00	-1.60
4	10	0.05	6.93	-13.60	2.00
5	10	1.55	3.48	-6.70	0.70
6	15	1.55	3.45	-6.40	0.00

Only data for these configurations are included. At ONERA only Configuration 5 in addition to the basic airfoil was tested.

Figure 5.2 Flap configurations investigated

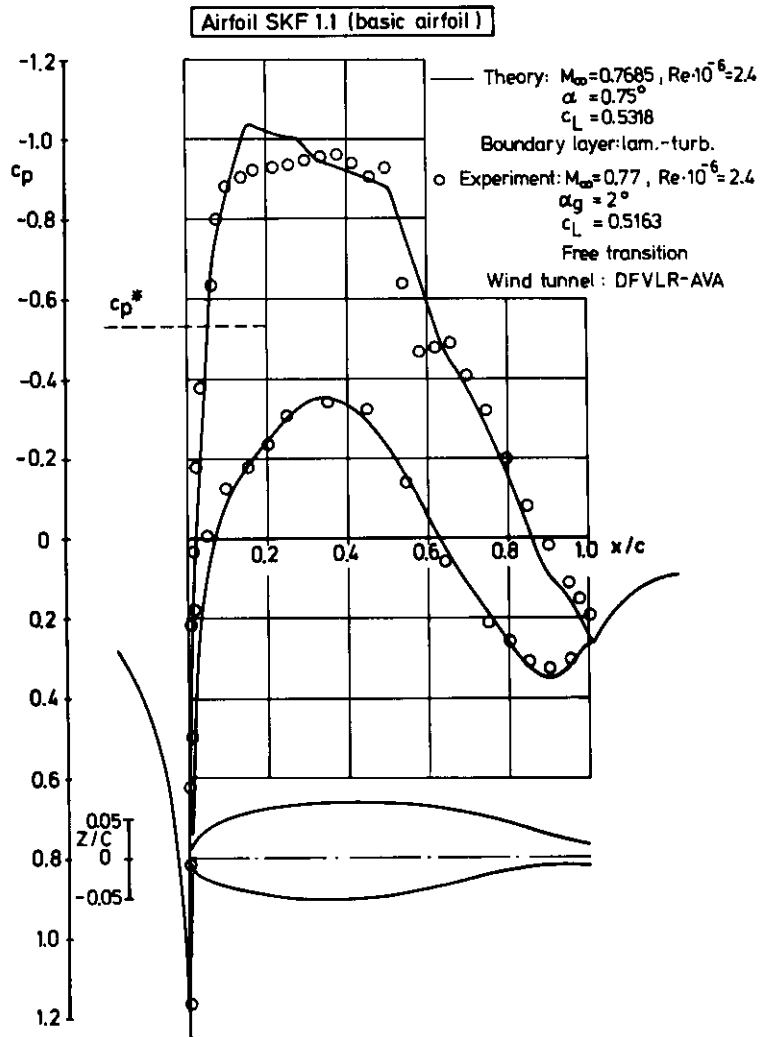
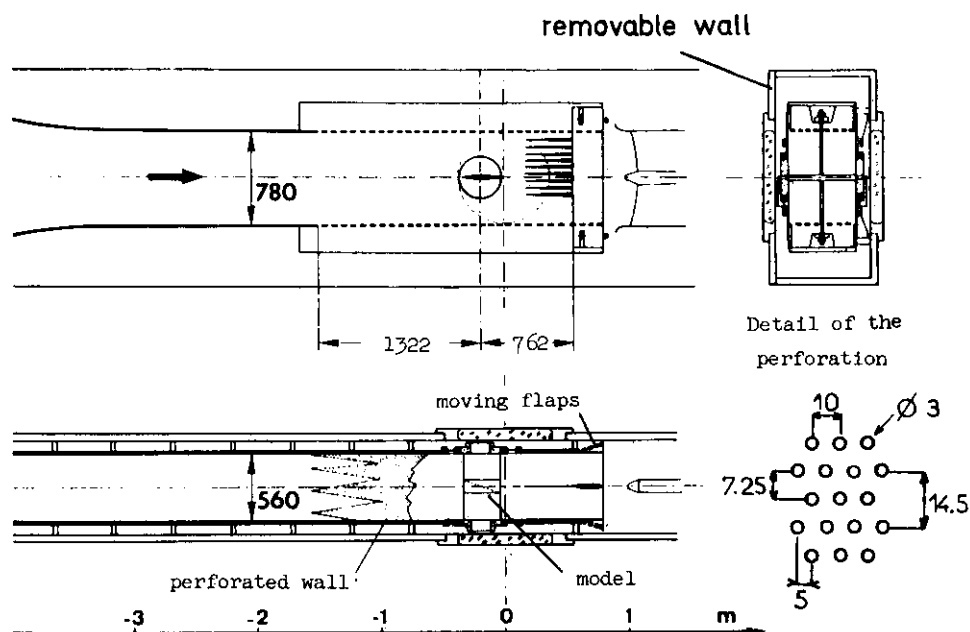
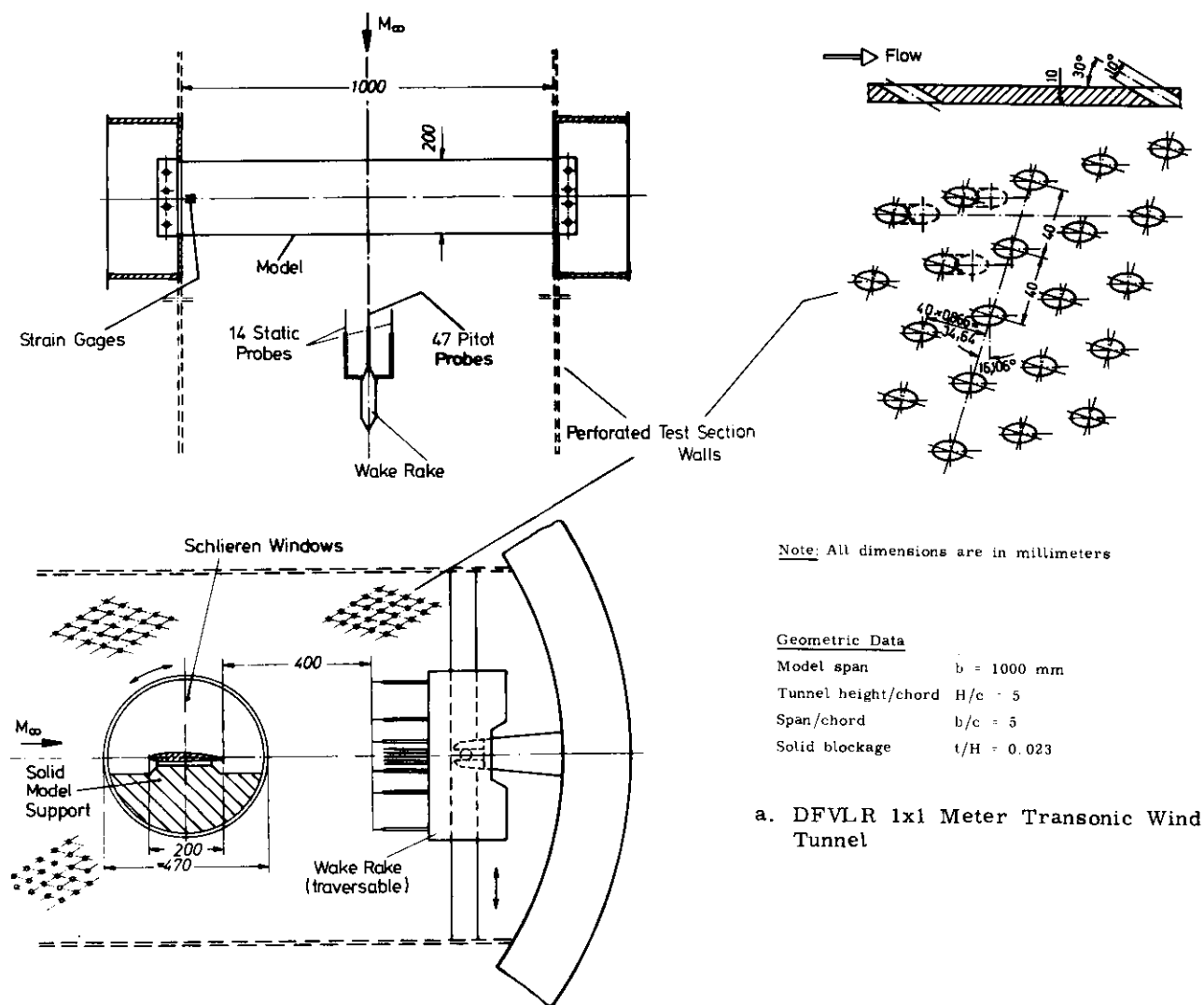


Figure 5.3 Design pressure distribution



MODEL INSTALLATION IN THE S₃MA TRANSONIC WIND TUNNEL

Figure 5.4 Test set-up

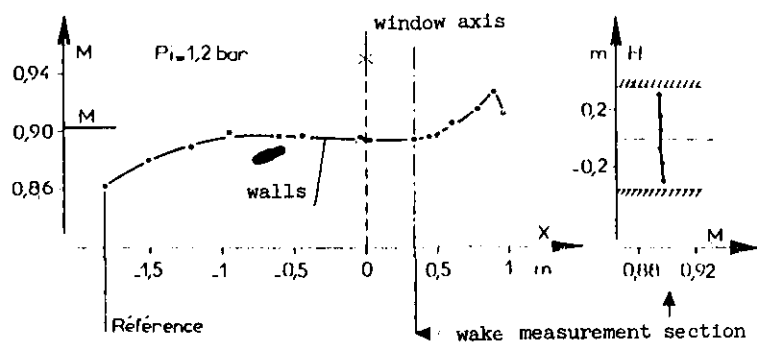
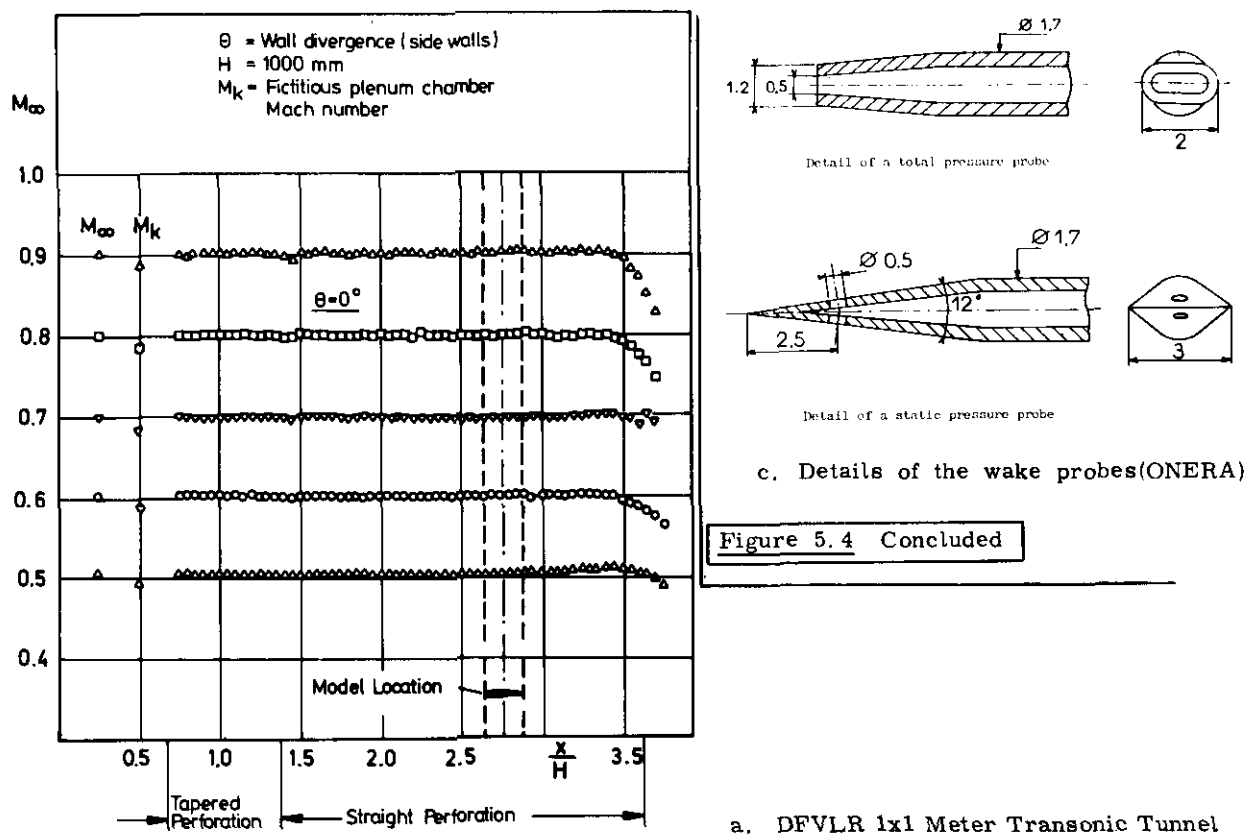


Figure 5.5 Empty test section Mach number distribution

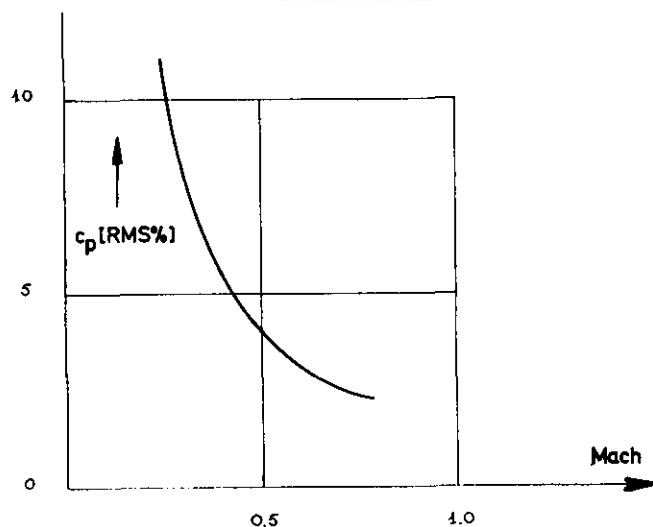


Figure 5.6 Noise level (ONERA S3MA)

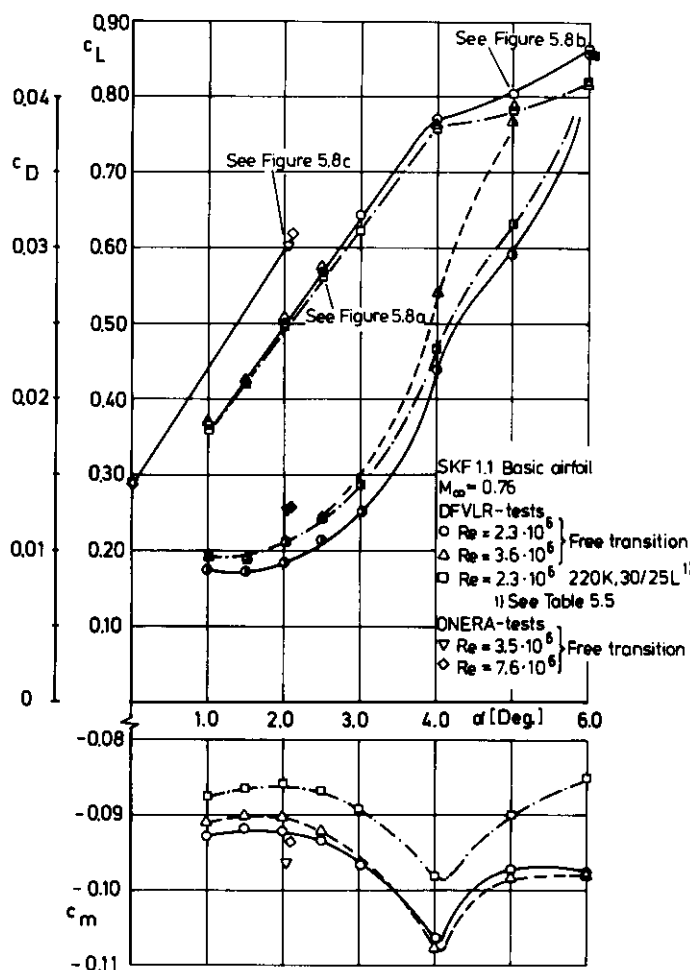


Figure 5.7 Effect of Reynolds number and transition fixing - Aerodynamic coefficients

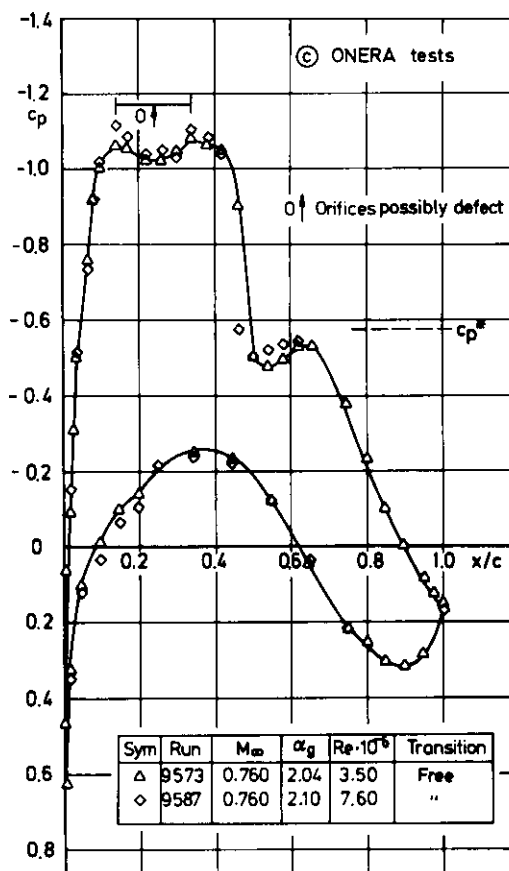
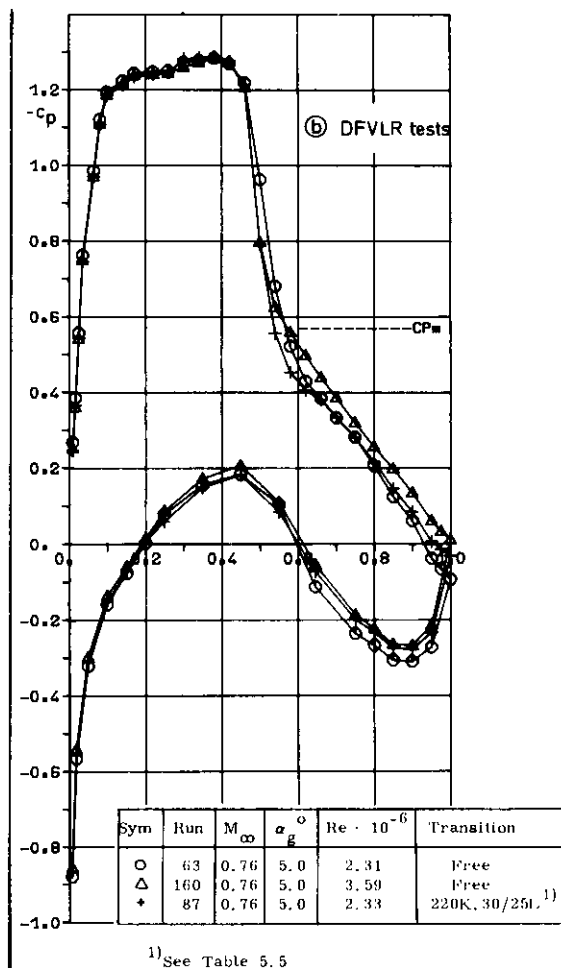
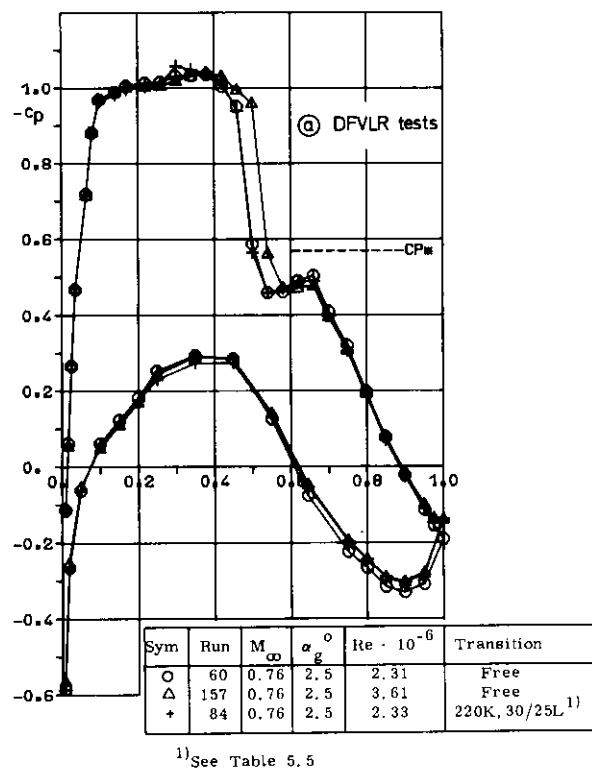


Figure 5.8 Effect of Reynolds number and transition fixing - Pressure distributions

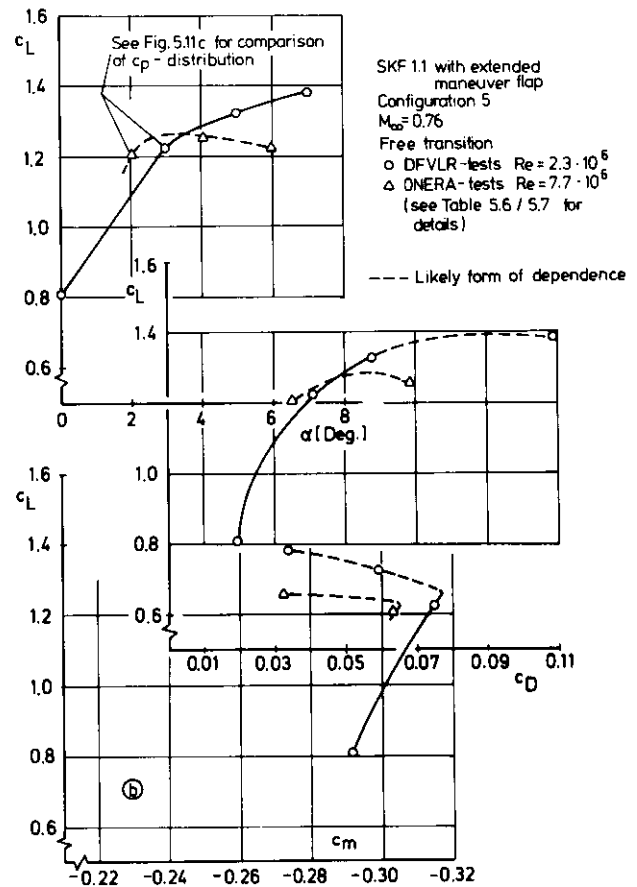
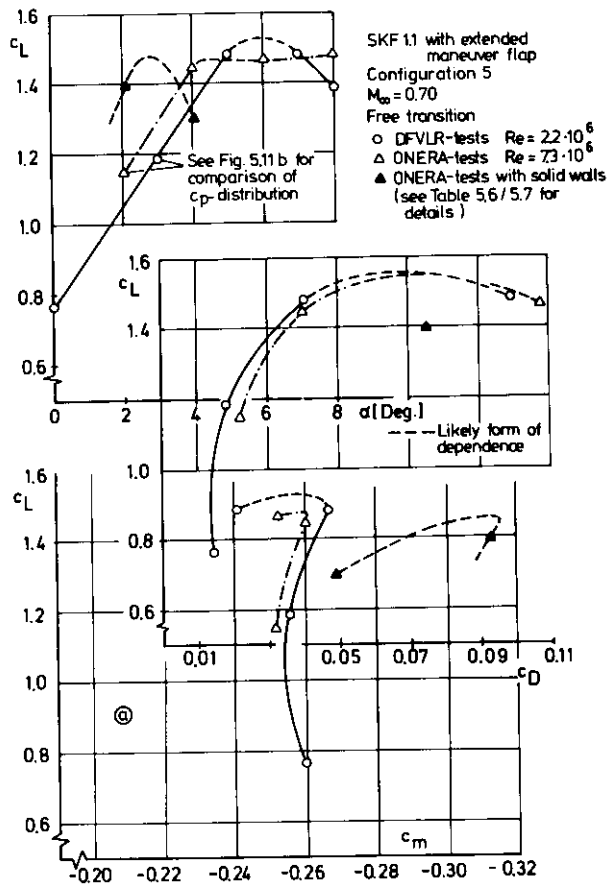


Figure 5.9 Aerodynamic coefficients - Angle of attack variation

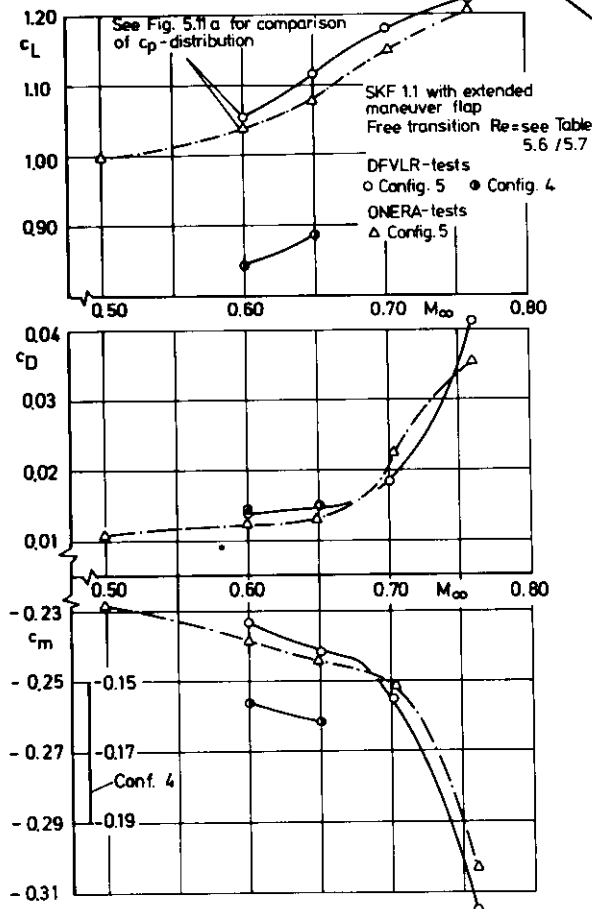
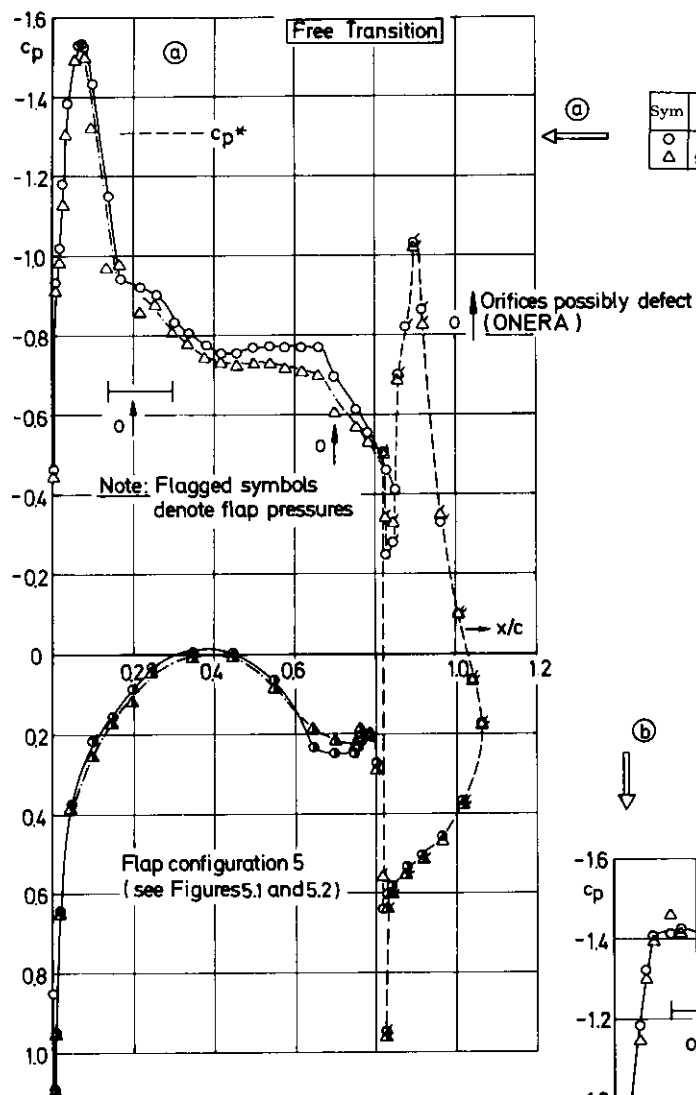


Figure 5.10 Aerodynamic coefficients - Mach number variation



Sym	Run	M_∞	α_g°	$Re \cdot 10^{-6}$	c_L	Tunnel
○	223	0.60	3.0	2.01	1.054	DFVLR 1x1 M
△	9610	0.60	2.06	6.61	1.038	ONERA S3 MA

Sym	Run	M_∞	α_g°	$Re \cdot 10^{-6}$	c_L	Tunnel
○	235	0.701	3.0	2.22	1.181	DFVLR 1x1 M
△	2619 ¹⁾	0.700	2.07	7.30	1.148	ONERA S3MA

¹⁾ Also see data for Run 9617, $\alpha_g = 2.07^\circ$
 Run 2619 is not included in tabulated form.

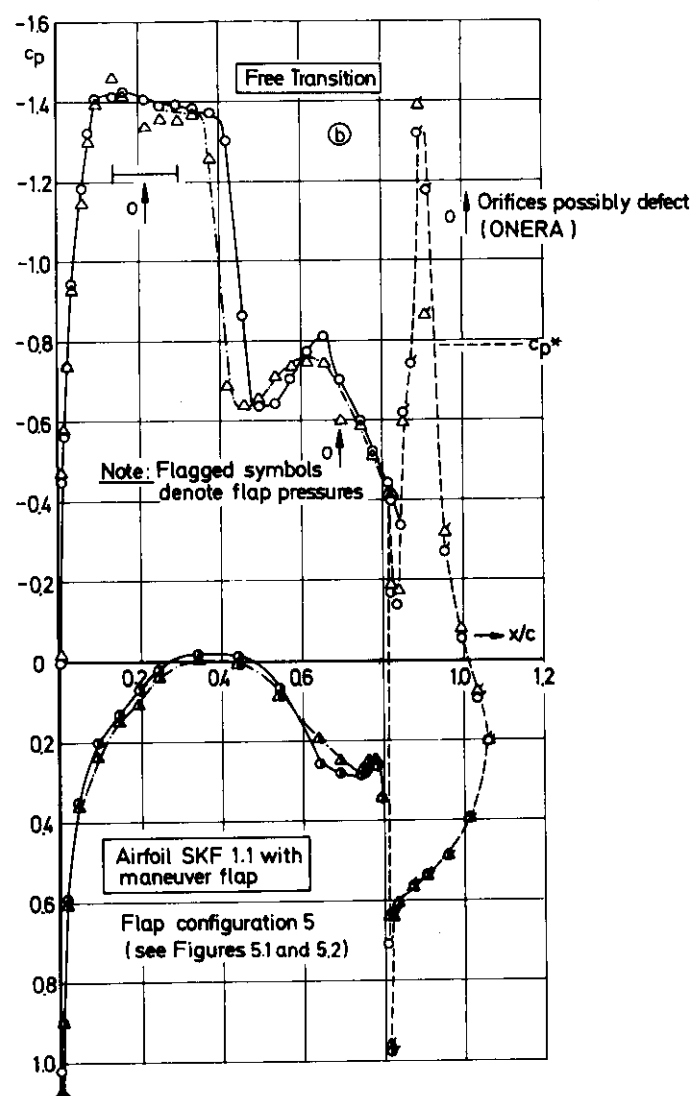
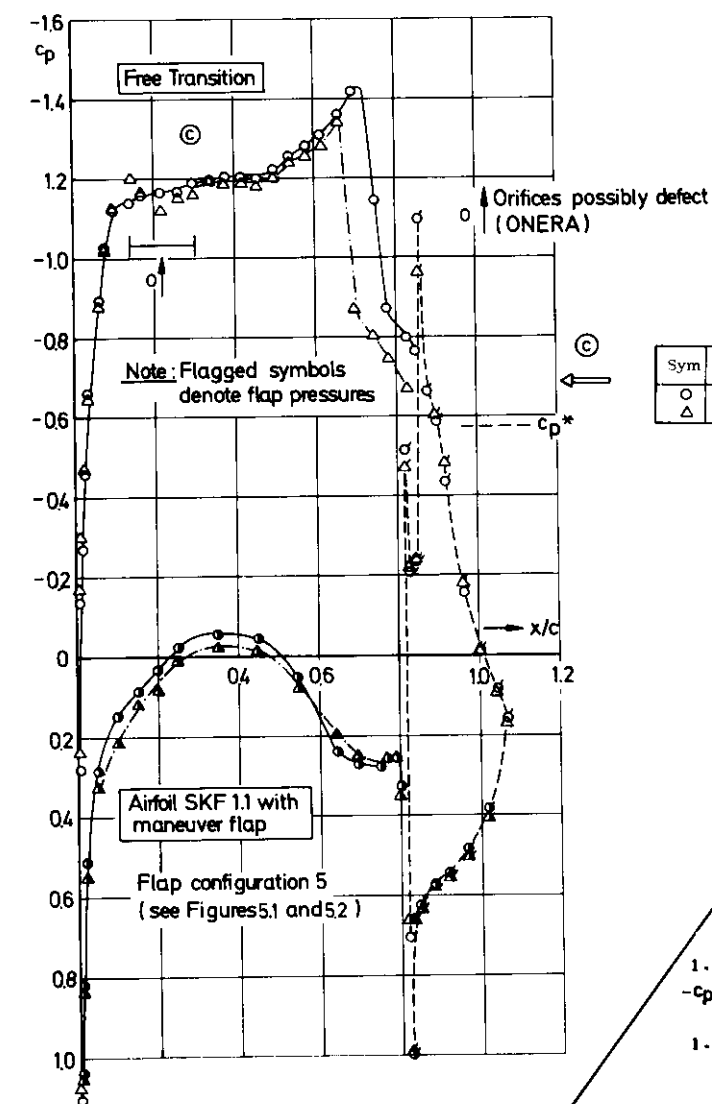


Figure 5.11 Comparison of pressure distributions from ONERA and DFVLR tests



Sym	Run	M _∞	α _g °	Re · 10 ⁻⁶	c _L	Tunnel
○	241	0.76	3.0	2.31	1.223	DFVLR 1x1 M
△	9621	0.76	2.05	7.73	1.206	ONERA S3 MA

Figure 5.11 Concluded

Sym	Run	Conf.	M _∞	α _g °
○	234	5	0.70	0.0
△	235	5	0.701	3.0

Note: See Table 5.6 for test conditions and aerodynamic coefficients

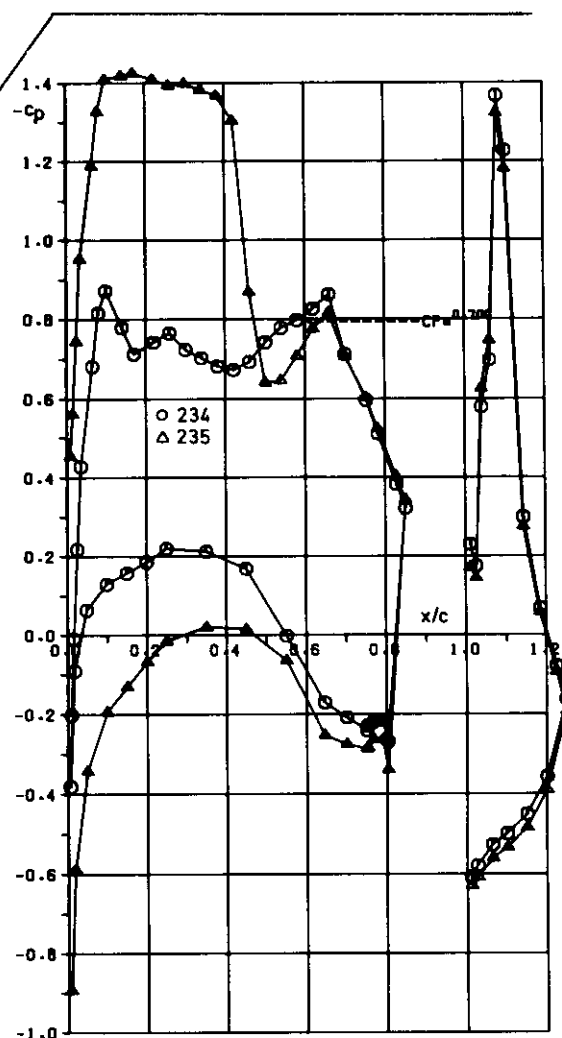
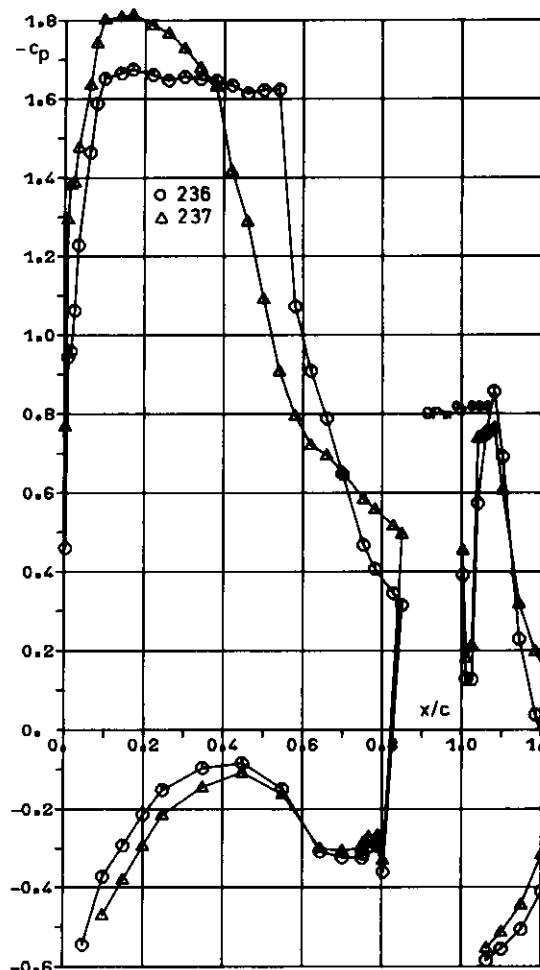
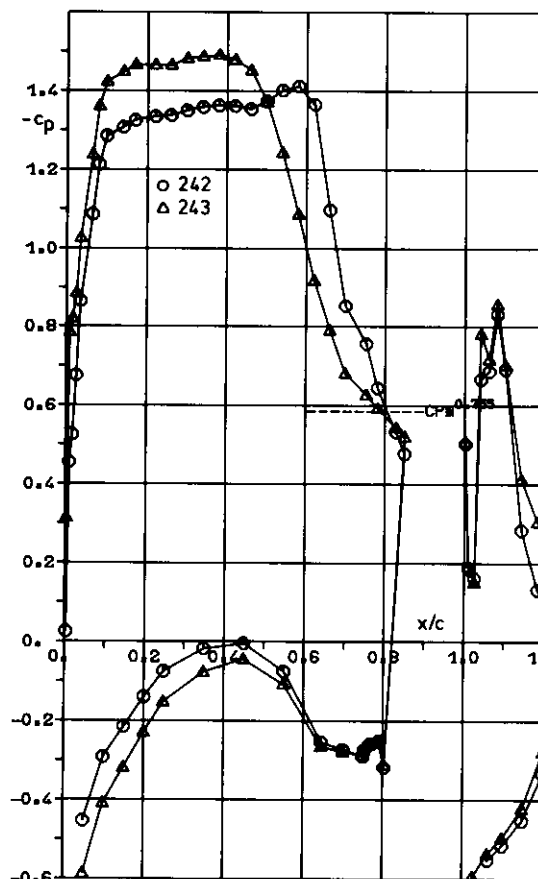


Figure 5.12 DFVLR 1x1 Meter tests, Pressure distributions



Sym	Run	Conf.	M_∞	α°
○	236	5	0.70	5.0
△	237	5	0.70	7.0



Sym	Run	Conf.	M_∞	α°
○	240	5	0.76	0.0
△	241	5	0.76	3.0
○	242	5	0.759	5.0
△	243	5	0.761	7.0

Note: See Table 5.6 for test conditions and aerodynamic coefficients

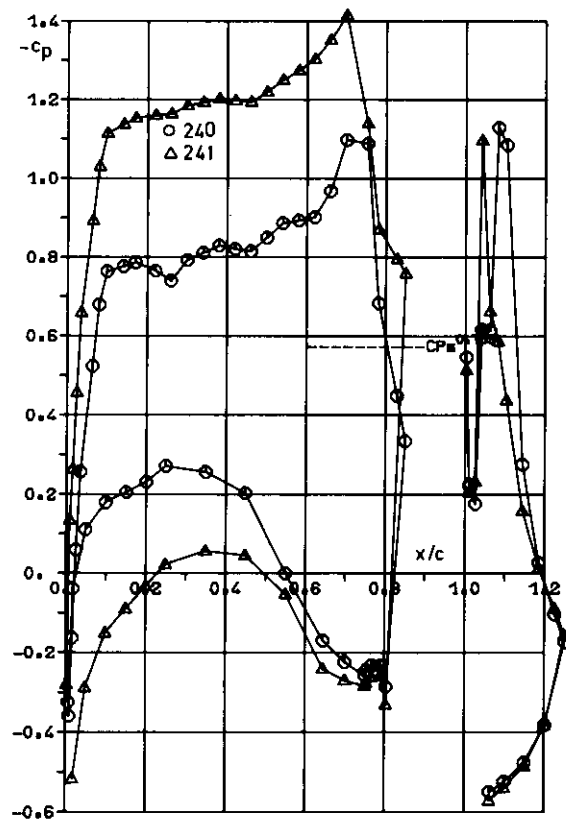
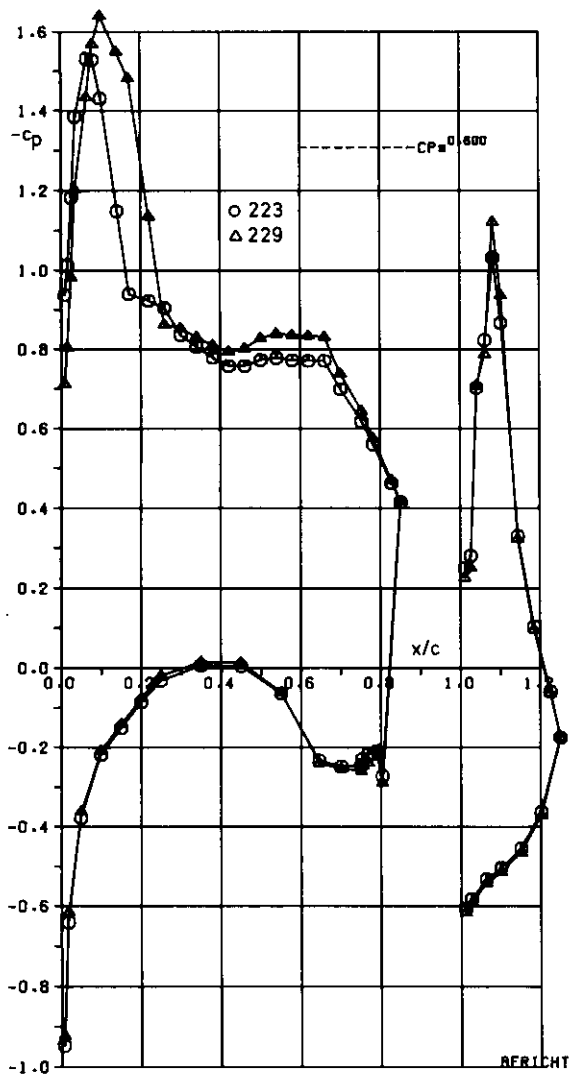
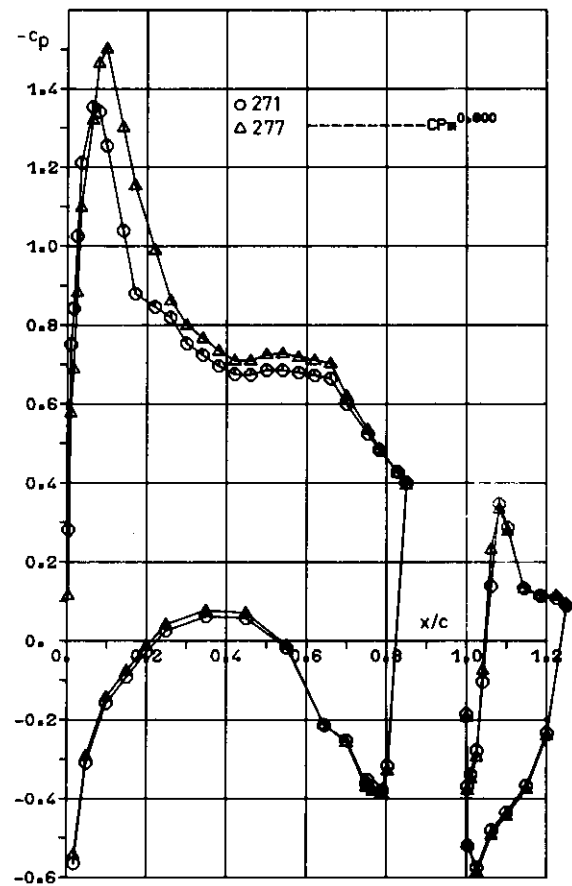


Figure 5.12 Continued



Sym	Run	Conf.	M_∞	α_g°
○	223	5	0.60	3.0
△	229	5	0.65	3.0



Sym	Run	Conf.	M_∞	α_g°
○	271	4	0.60	3.0
△	277	4	0.65	3.0
○	230	5	0.65	6.0
△	278	4	0.65	6.0

Note: See Table 5.6 for test conditions and aerodynamic coefficients

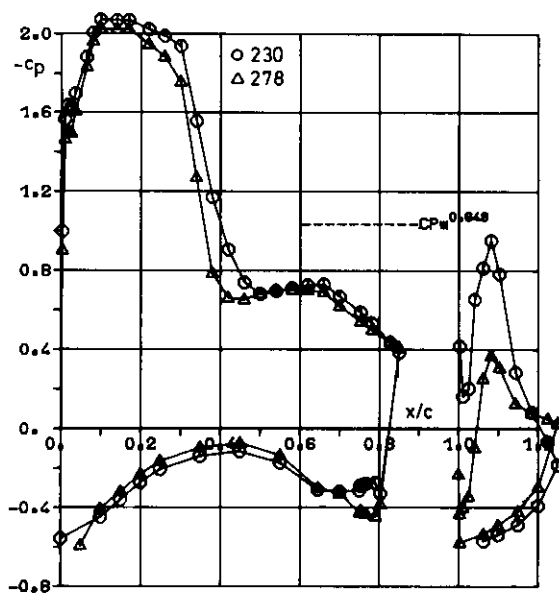
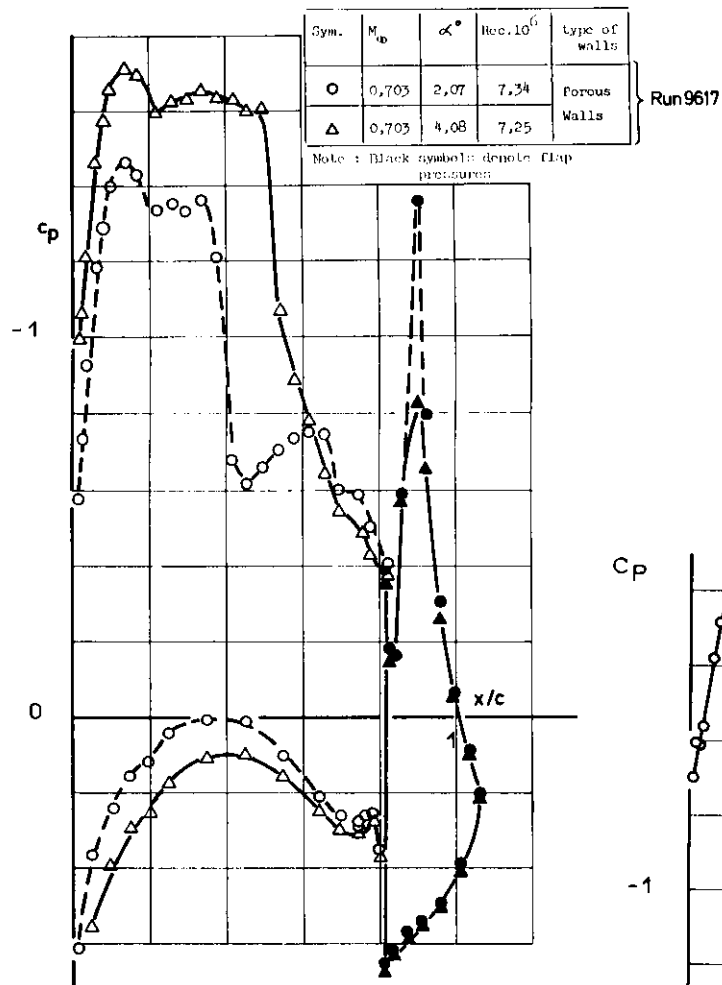
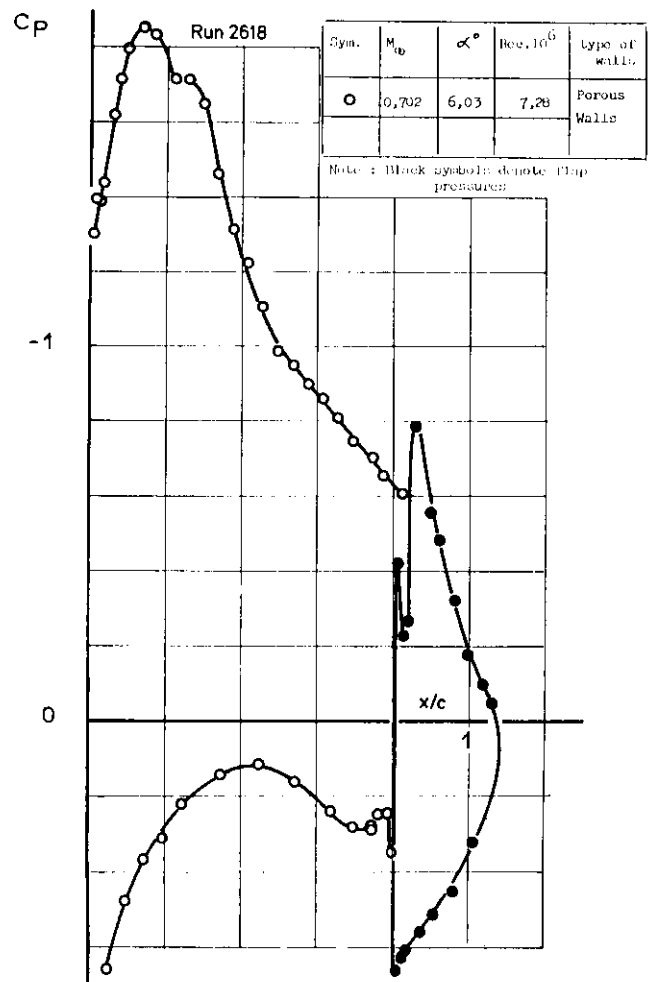
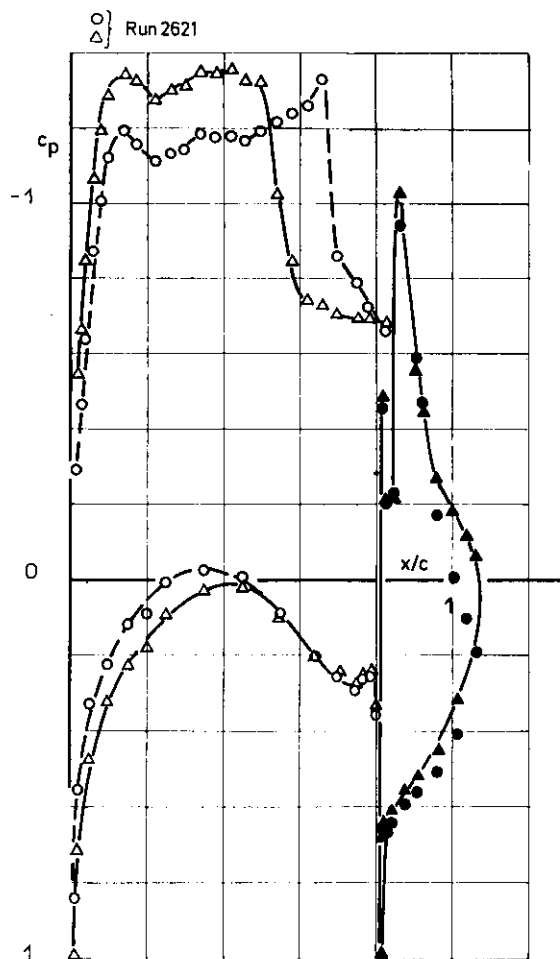


Figure 5.12 Concluded



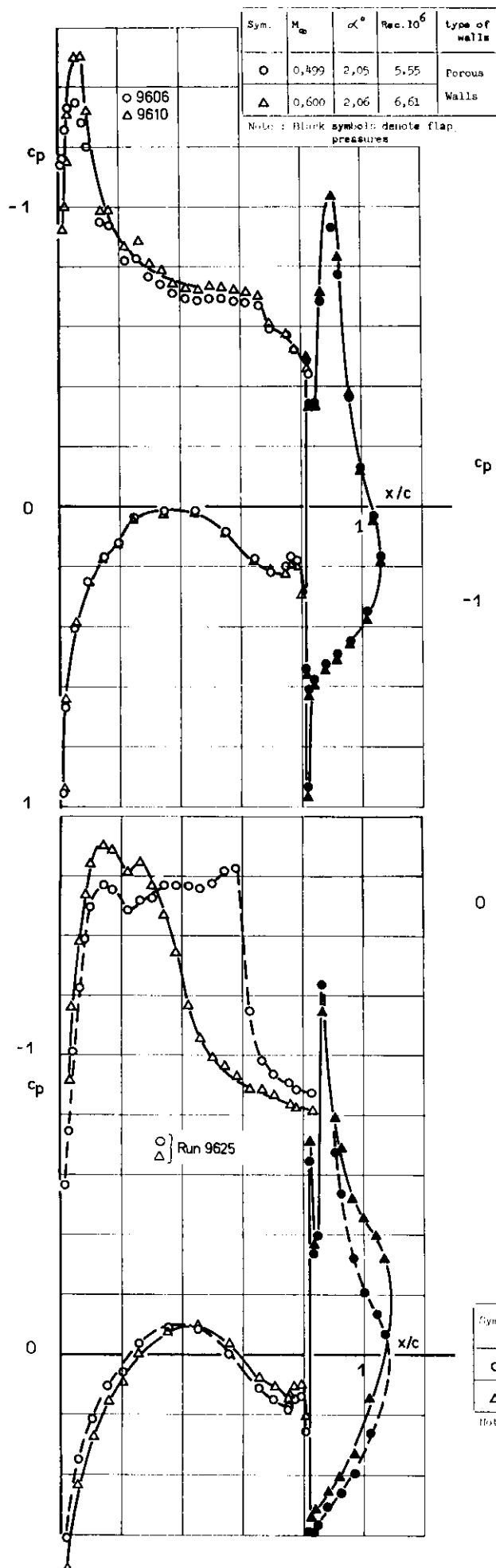
Note:
 See Table 5.7 for aerodynamic coefficients



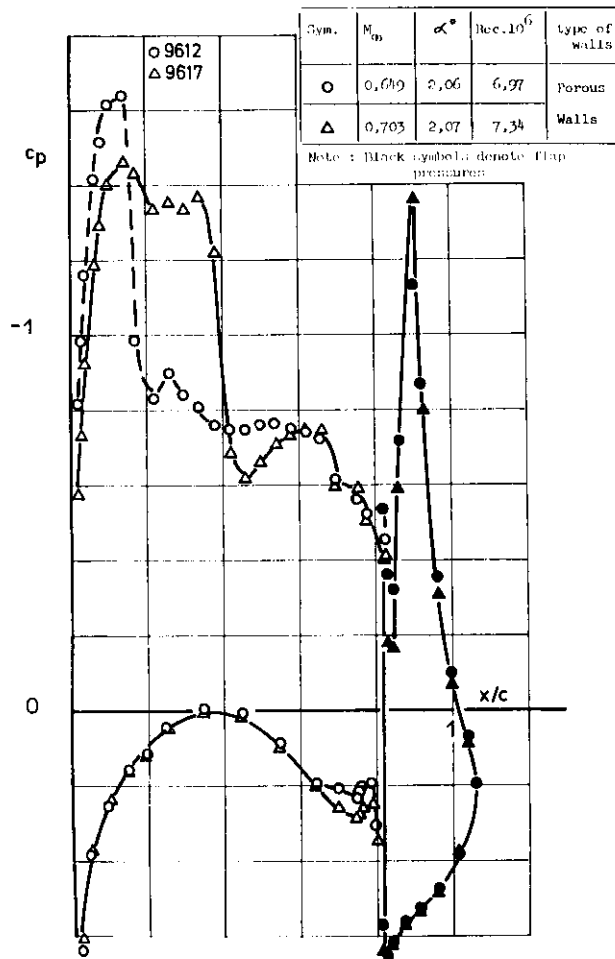
Sym.	M_{∞}	α°	$\text{Re} \cdot 10^6$	Type of walls
○	0,766	2,05	7,73	Porous
△	0,766	4,07	7,73	Walls

Note : Black symbols denote flap pressures

Figure 5.13 ONERA S3MA tests.
 Pressure distributions



Note: See Table 5.7 for aerodynamic coefficients



Sym.	M_∞	α°	$Re \cdot 10^6$	Type of wall:
○	0,700	2,11	7,52	Solid
△	0,700	4,06	7,52	Walls

Note : Black symbols denote flap pressures

Figure 5.13 Concluded

6. AEROFOIL RAE 2822 - PRESSURE DISTRIBUTIONS, AND BOUNDARY LAYER AND WAKE MEASUREMENTS

by

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1. INTRODUCTION

The examples presented have been selected to give a range of conditions from wholly subcritical flow to conditions where a comparatively strong shock wave exists in the flow above the upper surface of the aerofoil. In at least one example some boundary layer separation occurs due to the shock wave but reattachment occurs ahead of the trailing edge of the aerofoil.

The data include surface pressure measurements and mean flow boundary layer and wake profiles deduced from traverses of pitot and static pressure measuring probes. Where the measurements have been made close to the aerofoil (*ie* $x/c \leq 1.025$) the probes have been mounted from within the model, thus keeping the probe support interference to a minimum.

In all examples presented, attempts have been made to fix boundary-layer transition near to the leading edge of the aerofoil ($x/c = 0.03$ or $x/c = 0.11$), but as the measurements were made for a range of Reynolds numbers and Mach numbers, in some cases without changing the transition trip, the roughness size may be larger than would normally be used at the higher Reynolds numbers. In some examples the presence of the roughness has clearly had a strong local effect on the pressure distribution. The local disturbance to the boundary layers has not been measured but the downstream developments, of course, include the influence of the trip.

In parts of the flow the normal boundary-layer assumptions are violated by the normal pressure gradients which are significant near the trailing edge of the aerofoil and in the region of a shock wave. Ideally it is necessary to take account of the normal pressure gradients in defining the boundary layer integral parameters and in one example the data are presented with and without allowance for the normal pressure gradients (Case 9 - configurations C1 and C2 respectively). Where boundary layers are measured downstream of a shock wave the total pressure measured by the pitot tube is affected by the total head loss due to the shock wave. However the edge of the boundary layer was usually well defined. For traverses made in the near wake the measurements have been treated as two separate boundary layers, without extrapolation to a surface but with the division between the two parts taken at the point of minimum velocity ratio. Examples are given of traverses made well behind the trailing edge of the aerofoil the purpose of which has been to determine the total drag. Consequently the traverse has included as far as possible the complete region behind the shock wave as well as the viscous wake. The definition of momentum thickness is then different from that used for the boundary layers where shock losses outside the viscous layer are excluded.

In the data reduction it has been assumed that the flow is two-dimensional, and so the surface pressure distribution measured near the centre section of the aerofoil (see Fig 6.4) has been used in nearly all cases as the value of the static pressure at the aerofoil surface for determining the velocity profiles and any variation of the static pressure within a profile is only taken into account if actual measurements exist. The variation of the static pressure through the boundary layer and/or wake has normally been obtained from a traverse at one spanwise station and used at others. Although for the main part of the data this assumption is satisfactory, there are cases, for instance when the boundary layer is close to separation, where a significant difference may exist. The data presented in the tables have as far as possible been presented so that re-analysis is possible by the reader.

2. BOUNDARY LAYER AND WAKE ANALYSIS

2.1 Measured profiles

The local Mach number (M_L), within the boundary layer or wake, has been obtained from values of total pressure (P_0) and static pressure (P_L) at the measurement point from the equation

$$M_L = \sqrt{5} \left\{ \left(\frac{P_L}{P_0} \right)^{-2/7} - 1 \right\}^{1/2} \quad (1)$$

When $M_L \leq 1$ then $P_0 = P_{0M}$, the measured value of the pitot pressure, and M_L can be obtained directly.

When $M_L > 1$ then $P_0 \neq P_{0M}$ and is given by

$$\frac{P_{0M}}{P_0} = \left(\frac{6M_L^2}{M_L^2 + 5} \right)^{7/2} \left(\frac{6}{7M_L^2 - 1} \right)^{5/2} \quad (2)$$

Thus for $M_L > 1$ equations (1) and (2) were solved by iteration. Where the variation of static pressure has not been measured at the appropriate x/c location, the static pressure is assumed to be constant through the layer. The static pressure used in determining the local conditions is quoted for each point or profile as appropriate.

In regions of the flow where the static pressure varies significantly across the boundary layer, such as the trailing edge region, the velocity ratio (u/U_P) has been defined by assuming that the total temperature is constant throughout the flow and that the reference velocity can be determined from the local static pressure and the total pressure at the edge of the boundary layer. When the static pressure is taken as constant through the layer the same assumptions apply except that the local static pressure is taken to be the value measured at the surface. Thus the quantities measured in the boundary layer are referred to a fictitious flow which has the same static pressure distribution as measured, but a constant total pressure equal to that at the edge of the boundary layer. With these assumptions we get;

$$\frac{u}{U_P} = \frac{M_L}{M_P} \left(\frac{1 + 0.2M_P^2}{1 + 0.2M_L^2} \right)^{\frac{1}{2}} \quad (3)$$

and

$$\frac{\rho u}{\rho_P U_P} = \frac{M_L}{M_P} \left(\frac{1 + 0.2M_L^2}{1 + 0.2M_P^2} \right)^{\frac{1}{2}} \quad (4)$$

where

$$M_P = \sqrt{5} \left\{ \frac{(1 + 0.2M_\infty^2)}{(1 + 0.7M_\infty^2(C_P)_P)^{2/7}} - 1 \right\}^{\frac{1}{2}} \quad (5)$$

and M_∞ is the Mach number of the undisturbed stream and $(C_P)_P$ is the coefficient of static pressure.

2.2 Calculation of boundary layer integral quantities

The definitions of the displacement and momentum thicknesses, for compressible flow, are usually taken as

$$\delta^* = \int_0^\delta \left(1 - \frac{\rho u}{\rho_\delta U_\delta} \right) dz \quad (6)$$

and

$$\theta = \int_0^\delta \frac{\rho u}{\rho_\delta U_\delta} \left(1 - \frac{u}{U_\delta} \right) dz \quad (7)$$

when the usual boundary layer assumptions are made. However, near the trailing edge of an aerofoil, if account is to be taken of the change in static pressure across the layer when determining the decrement in mass or momentum flux through the boundary layer then the definitions need modification. In the data presented here the following definitions are used,

$$\int_0^{\delta^*} \rho_P U_P dz = \int_0^\delta \rho_P U_P \left(1 - \frac{\rho u}{\rho_P U_P} \right) dz \quad (8)$$

and

$$\int_0^\theta \rho_P U_P^2 dz = \int_0^\delta \rho_P U_P^2 \frac{\rho u}{\rho_P U_P} \left(1 - \frac{u}{U_P} \right) dz \quad (9)$$

which differ slightly from those recommended by Myring¹ for use in making comparisons with calculations. The main difference is that Myring takes the reference density and velocity as those for the equivalent inviscid flow for $z \geq \delta^*$ with constant values for $0 \leq z \leq \delta^*$, whereas we use as reference the density and velocity of a fictitious flow defined by the total pressure at the edge of the boundary layer and the measured local static pressure across the layer as noted above. Also the definition for momentum thickness is different*. The value obtained with Myring's definition, but with the reference quantities used here, may be up to 4% greater near the trailing edge than the values quoted. For the displacement thickness the two definitions are equivalent.

For convenience, values of $\rho_P U_P$ and $\rho_P U_P^2$ were obtained as ratios to their values at the wall or near the centre of the wake (i.e. point of lowest total pressure). The values of ρ_P , U_P , M_P , $(C_P)_P$ at the wall or centre of the wake are termed respectively ρ_W , U_W , M_W , $(C_P)_W$. Thus

* A reassessment of Myring's proposals is given by Zwaaneveld².

$$\frac{\rho_P U_P}{\rho_W U_W} = \frac{M_P}{M_W} \left(\frac{1 + 0.2 M_P^2}{1 + 0.2 M_W^2} \right)^{\frac{1}{2}} \left(\frac{1 + 0.7 (C_P)_P M_\infty^2}{1 + 0.7 (C_P)_W M_\infty^2} \right) \quad (10)$$

and

$$\frac{\rho_P U_P^2}{\rho_W U_W^2} = \left(\frac{M_P}{M_W} \right)^2 \left(\frac{1 + 0.7 (C_P)_P M_\infty^2}{1 + 0.7 (C_P)_W M_\infty^2} \right). \quad (11)$$

The experimental values for δ^* and θ were then obtained by numerical integration of Eq.(8) and (9) using Eq.(10) and (11). As described in the next section analytic expressions were used to extend the profiles to the wall from the measured point nearest to the wall.

2.3 Extrapolation of the measured profiles to the surface

The extrapolation is based on the logarithmic form of the velocity profiles given by Winter and Gaudet³ and the corresponding equation for the viscous sublayer,

$$\frac{u}{u_\tau} = 6.05 \log_{10} \left(\frac{zu_\tau}{v_\delta} \right) + 4.05 \quad (12)$$

and

$$\frac{u}{u_\tau} = \frac{zu_\tau}{v_\delta}. \quad (13)$$

These equations are modified slightly, so that they are written in terms of the local skin friction coefficient, and in terms of quantities measured in the experiments as follows

$$\frac{u}{U_P} = \frac{U_W}{U_P} \left[\frac{C_f}{2} (1 + 0.2 M_W^2) \right]^{\frac{1}{2}} \left[6.05 \log_{10} \left\{ Re_W \frac{z}{c} \left[\frac{C_f}{2} (1 + 0.2 M_W^2) \right]^{\frac{1}{2}} \right\} + 4.05 \right] \quad (14)$$

and

$$\frac{u}{U_P} = \frac{U_W}{U_P} Re_W \frac{z}{c} \frac{C_f}{2} (1 + 0.2 M_W^2)^{\frac{1}{2}} \quad (15)$$

where

$$\frac{Re_W}{Re} = \frac{M_W}{M_\infty} \left(\frac{(1 + 0.2 M_\infty^2)}{(1 + 0.2 M_W^2)} \right)^{5/2} \left(\frac{T_0 + 117(1 + 0.2 M_W^2)}{T_0 + 117(1 + 0.2 M_\infty^2)} \right) \quad (16)$$

and Re is the Reynolds number for the experiments and based on the aerofoil chord and T_0 is the corresponding stagnation temperature in K.

From the values of u/U_P deduced previously it is possible using Eq.(14) to obtain an apparent skin friction coefficient (C_f) as a function of height above the aerofoil surface, which can then be used to extrapolate the profile to the aerofoil surface using in addition the profile for the viscous sublayer as given in Eq.(15). In practice a mean value has been obtained for the skin friction coefficient by averaging the values obtained for all measured points with $u/U_P \leq 0.6$ or, where there are less than three points meeting this condition, by averaging the values for the three points closest to the surface. The spread of values used is indicated by the vertical bars in Fig 6.6 with the symbol indicating the value used in the extrapolation to the surface*. The profile is assumed to change to the form of the viscous sublayer at the point where the two equations intersect, i.e

$$\frac{z_s}{c} = \frac{10.135}{Re_W \left[\frac{C_f}{2} (1 + 0.2 M_W^2) \right]^{\frac{1}{2}}} \quad (17)$$

A check was made to see that measurements were not used in the extrapolation procedure if they were within the sublayer thickness of the surface. This did not occur unless the boundary layer was close to separation.

The contributions to the displacement and momentum thicknesses from the first measured point to the surface were then obtained by numerical integration using Eq.(14) and (15), with Eq.(3) and (4) to derive the density ratio.

* Near the trailing edge, the larger height of the vertical bar is caused by the boundary layer not obeying the law of the wall form up to $u/U_P = 0.6$, as the boundary layer approaches separation.

3. DATA SET

1. Aerofoil

- 1.1 Aerofoil designation RAE 2822
- 1.2 Type of aerofoil rear-loaded, subcritical, roof-top type pressure distribution at design conditions. Designed by second order method given in Ref 4
- 1.2.1 aerofoil geometry see Fig 6.1 and Table 6.1
- nose radius 0.00827 chord
- maximum thickness 0.121 chord
- base thickness 0
- 1.2.2 design condition $M_{\infty} = 0.66$, $C_L = 0.56$ ($\alpha = 1.06^\circ$)
- design pressure distribution see Fig 6.2 and Ref 5
- 1.3 Additional remarks characteristics of aerofoil section are described in Ref 5

2. Model geometry

- 2.1 Chord length 0.61 m
- 2.2 Span (exposed) 1.83 m
- 2.3 Actual model co-ordinates and accuracy see Table 6.1
- 2.4 Maximum thickness 73.76 mm
- 2.5 Base thickness 0.06 mm (0.0001c)

3. Wind tunnel (Test conditions in brackets)

- 3.1 Designation RAE 8ft x 6ft transonic wind tunnel
- 3.2 Type of tunnel continuous, closed circuit
- 3.2.1 stagnation pressure 10 to 355 kN/m² (36 to 100 kN/m²)
- 3.2.2 stagnation temperature 290 to 323 K (308 to 323 K)
- 3.2.3 humidity <0.003 absolute humidity
- 3.3 Test section
- 3.3.1 dimensions height = 1.83 m, width = 2.43 m, rectangular with corner fillets 160.5 mm x 45°
- 3.3.2 type of walls 1.6% slotted side-walls having 5 slots 5.84 mm wide at 353 mm centres symmetrical about the centre line of each wall, solid roof and floor, large volume single plenum chamber
- 3.4 Flow field (empty test section)
- 3.4.1 reference static pressure plenum chamber
- 3.4.2 flow angularity $\pm 0.03^\circ$ in the incidence plane
 $\pm 0.125^\circ$ in the plane normal to the incidence plane
- 3.4.3 Mach number distribution } $\Delta M < \pm 0.001$ on the centre line in the region 0.75 m upstream to 1.25 m downstream of 0.25c for
- 3.4.4 pressure gradient } $0.3 < M < 0.8$
- 3.4.5 turbulence/noise level see Fig 6.3 (from Ref 6)
- 3.4.6 roof/floor boundary layer not measured, approximately 4% to 5% of the test section semi-height at the model, no special treatment

4. Tests

- 4.1 Type of measurements surface pressures
 wake pitot and static pressures
 boundary layer pitot and static pressures
 oilflow determination of flow separations

4.2 Tunnel/model dimensions

4.2.1 height/chord ratio	3.0	} NB model mounted vertically
4.2.2 width/chord ratio	4.0	

4.3 Flow conditions included in present data base

4.3.1 angle of attack	}	see Table 6.2
4.3.2 Mach number		
4.3.3 Reynolds number		
4.3.4 transition		fixed
- transition fixing		ballotini (glass spheres), see Table 6.2
4.3.5 temperature equilibrium		yes

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 pressure holes	
- size	0.35 mm diameter x/c = 0 to 0.01875 0.65 mm diameter x/c = 0.02709 to 0.95 0.35 mm diameter x/c = 0.975 to 1.0 depth/diameter ratio $\approx$ 2.0
- position	see Table 6.3 and 6.4, and Fig 6.4 tunnel centre line at y/c = 1.625
5.1.2 type of transducer and scanning devices	differential-pressure capsule-manometers with stagnation reference pressure. 1 atmosphere range calibrated to give $\pm 0.03\%$ FSD accuracy. Pressure readings frozen when steady and then scanned

5.2 Wake measurements

5.2.1 type	pitot	static
- size	0.5 mm OD 0.25 mm ID	1.0 mm OD
5.2.2 locations	see Table 6.5	
5.2.3 type of transducers and scanning devices		
5.2.3.1 pressure measurements	as 5.1.2	
5.2.3.2 positional measurements	x/c = 1.0 and 1.025, thin-film potentiometers calibrated to ± 0.05 mm accuracy x/c = 2.0, tunnel centre-line-rig roll-unit giving ± 0.5 mm accuracy	

5.3 Boundary-layer measurements

5.3.1 type	pitot	static
- size	rectangular (x/c < 0.6) 1.2 mm x 0.15 mm overall 1.0 mm x 0.05 mm orifice circular (x/c > 0.6) 0.5 mm OD 0.25 mm ID	1.0 mm OD
5.3.2 locations	see Table 6.5	
5.3.3 type of transducers and scanning devices		
5.3.3.1 pressure measurements	as 5.1.2	
5.3.3.2 positional measurements	thin-film potentiometers calibrated to give an accuracy of travel of 0.1% FSD for a range varying between 10 mm and 40 mm	

5.5 Flow visualization

5.5.2 surface flow	oilflow recorded on video tape (case 10)

6. Data

6.1 Accuracy (wall interference excluded)

- 6.1.1 angle of attack setting $\pm 0.01^\circ$
- 6.1.2 free stream Mach number
 - setting ± 0.001
 - variation during one boundary layer or wake traverse ± 0.002
- 6.1.3 pressure coefficients $\Delta C_p < \pm 0.0026$ $Re = 6.5 \times 10^6$
 $< \pm 0.0064$ $Re = 2.7 \times 10^6$
- 6.1.7 remarks datum angle of attack determined from measurements made on a symmetrical aerofoil

6.2 Wall interference corrections

6.2.1 angle of attack

$$\Delta \alpha = \frac{c C_L}{h} \delta_0 + \frac{c^2}{\beta h^2} \delta_1 \left(\frac{1}{4} C_L + C_m \right) \text{ radians}$$

$$\Delta C_L = - \frac{\pi}{2} \left(\frac{c}{\beta h} \right)^2 \delta_1 C_L$$

$$\Delta C_m = \frac{\pi}{8} \left(\frac{c}{\beta h} \right)^2 \delta_1 C_L$$

with

M	δ_0	δ_1
< 0.7	-0.065 $\pm$ 8%	0.175 $\pm$ 17%
0.725	-0.040	0.100

(derived experimentally as in Ref 8 by tests with aerofoils of different chord)

$$NB - w_i = \frac{\delta_0 c C_L}{h} \text{ and } \frac{\partial w_i}{\partial x} = \frac{\delta_1 c C_L}{\beta h^2}$$

see Ref 7

6.2.2 blockage

set to zero by selecting slot width
see Ref 8

6.2.3 streamline curvature

see 6.2.1

6.3 Presentation of data

6.3.1 aerodynamic coefficients

 C_N , C_m and C_D - see Table 6.2

6.3.2 surface pressures

 C_p and p/H vs x/c see Table 6.7 and Fig 6.5

6.3.3 boundary layer quantities

 u/U_p , $C_{p_{static}}$ vs z/c see Table 6.8 C_f , δ^* , θ , H see Table 6.9 and Fig 6.6

6.3.4 wall interference corrections included?

no

6.3.5 corrections for model deflection

wing twist measured and found to be $< 0.01^\circ$

6.3.6 empty test section calibrations taken into account?

yes

6.3.7 other corrections included?

'displacement' correction to position of circular section pitot tubes of $0.18 \times OD$ ($\Delta z/c = 0.00015$), no correction to position of rectangular pitot tubes

6.3.8 additional remarks

 C_N and C_m deduced from:

C_p - with erroneous manometer readings eliminated
 x/c - design values for pressure holes
 NB - the manometers were read in groups designated by Bank number. The variation of Mach number with Bank number is given in Table 6.7 and the associated x/c positions can be obtained from Tables 6.3 and 6.6

 z/c

datum for boundary layers the model surface, datum for wakes the chordal plane except $x/c = 1.025$ where the datum is arbitrary

Tables 6.7 and 6.8

the contents of these tables are available on paper tape

6.4 Were tests carried out in different facilities on the current aerofoil?

no

6.5 To be contacted for further information on tests

Mr M.C.P. Firmin
 Mr P.H. Cook
 Aerodynamics Department,
 Royal Aircraft Establishment,
 Farnborough.

7. References

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TD Memorandum ESDU 72025 (1973)
- 5 M.C.P. Firmin G.F. Moss Proposals for investigation of shock wave boundary layer interactions in the RAE 8ft x 6 ft (2.4m x 1.8m) transonic wind tunnel.
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- 6 D.G. Mabey Boundary layer transition measurements on the AEDC 10° cone in three RAE wind tunnels and their implications.
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AGARDograph 109 (1966)
- 8 M.C.P. Firmin T.A. Cook Detailed exploration of the compressible viscous flow over two-dimensional aerofoils at high Reynolds numbers.
(Lecture, International Council of Aeronautical Sciences 6th Congress, Munich, September 1968)
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ICAS Paper 68-09

8. List of symbols[†]

$c(C)$	chord length
C_D	drag coefficient
C_f	local skin friction coefficient based on conditions at the wall (see section 2.2)
C_L	lift coefficient
C_m	pitching moment coefficient (Ref 0.25c)
C_N	normal force coefficient
$C_p(CP)$	pressure coefficient
C_p^*	critical pressure coefficient
$(C_p)_P$	pressure coefficient at point P
h	height of tunnel
H	total head pressure, also δ^*/θ
$M_\infty(M)$	free-stream Mach number
M_L	local Mach number
M_p	Mach number defined by local static pressure and the total pressure at the edge of the boundary layer or wake

[†] Additional symbols in brackets are used in line-printer output.

P	surface static pressure
P_0	total pressure
$Re(RE)$	free-stream Reynolds number
t	maximum thickness of aerofoil section
$u(U)$	local velocity within the boundary layer or wake
$U_p(UP)$	velocity obtained from the pitot pressure measured at the edge of the boundary layer or wake and static pressure measured at the appropriate value of z/c
U_w	value for U_p at wall or centre of the wake
u_{τ}^i	equivalent incompressible friction velocity (see Ref 3)
w_i	non-dimensional mean wall-interference velocity at mid-chord
$x(X)$	chordwise ordinate (datum at leading edge)
$y(Y)$	spanwise ordinate (datum 76 mm outside working section at the tunnel roof, see Fig 6.4) ($y/c = 1.625$ for tunnel centre line)
$z(Z)$	section ordinate, also position in the boundary layer from the model surface and the distance across the wake
$\alpha(ALPHA)$	geometric incidence
δ	z/c for $u/U_p = 0.995$
δ_0	interference parameter associated with w_i
δ_1	interference parameter associated with streamline curvature
δ^*	displacement thickness
θ	momentum thickness
	} corrected for normal static pressure gradient when measured, see Eq.(8) and (9)
ν_{δ}	kinematic viscosity at edge of boundary layer
ρ_p	density at point in boundary layer defined in the same way as U_p
ρ_w	ρ_p at the wall or centre of the wake

Table 6.1

SECTION RAE2822
 STATION Y/C= 1.504

X/C	DESIGN ORDINATES Z/C		MEASURED ORDINATES Z/C			
	UPPER	LOWER	UPPER	ERROR	LOWER	ERROR
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
0.00060	0.00316	0.00316	0.00323	0.00006	0.00317	0.00001
0.00241	0.00631	0.00631	0.00642	0.00011	0.00658	0.00027
0.00541	0.00942	0.00944	0.00945	0.00003	0.00957	0.00013
0.00961	0.01248	0.01256	0.01269	0.00021	0.01273	0.00017
0.01498	0.01549	0.01565	0.01579	0.00030	0.01580	0.00015
0.02153	0.01844	0.01871	0.01875	0.00031	0.01880	0.00010
0.02923	0.02135	0.02172	0.02163	0.00028	0.02180	0.00007
0.03806	0.02422	0.02469	0.02445	0.00023	0.02472	0.00003
0.04801	0.02706	0.02759	0.02726	0.00020	0.02761	0.00003
0.05904	0.02987	0.03042	0.03004	0.00016	0.03042	0.00000
0.07114	0.03264	0.03317	0.03280	0.00016	0.03315	-0.00002
0.08427	0.03536	0.03584	0.03552	0.00016	0.03584	-0.00001
0.09840	0.03801	0.03843	0.03817	0.00016	0.03844	0.00001
0.11349	0.04059	0.04093	0.04073	0.00015	0.04094	0.00001
0.12952	0.04307	0.04333	0.04321	0.00014	0.04333	0.00000
0.14645	0.04546	0.04561	0.04558	0.00012	0.04561	-0.00000
0.16422	0.04773	0.04777	0.04778	0.00005	0.04775	-0.00002
0.18280	0.04987	0.04981	0.04987	-0.00000	0.04977	-0.00003
0.20215	0.05188	0.05169	0.05187	-0.00002	0.05167	-0.00002
0.22221	0.05375	0.05343	0.05377	0.00002	0.05340	-0.00002
0.24295	0.05547	0.05499	0.05556	0.00009	0.05498	-0.00001
0.26430	0.05703	0.05638	0.05713	0.00011	0.05638	-0.00000
0.28622	0.05841	0.05755	0.05848	0.00007	0.05753	-0.00001
0.30866	0.05963	0.05846	0.05967	0.00005	0.05843	-0.00003
0.33156	0.06066	0.05905	0.06070	0.00004	0.05900	-0.00005
0.35486	0.06150	0.05924	0.06153	0.00005	0.05919	-0.00005
0.37851	0.06213	0.05897	0.06220	0.00006	0.05893	-0.00004
0.40245	0.06256	0.05822	0.06263	0.00007	0.05817	-0.00006
0.42663	0.06278	0.05698	0.06285	0.00007	0.05689	-0.00009
0.45099	0.06277	0.05526	0.06286	0.00008	0.05515	-0.00010
0.47547	0.06253	0.05310	0.06261	0.00008	0.05297	-0.00013
0.50000	0.06203	0.05056	0.06212	0.00010	0.05044	-0.00012
0.52453	0.06125	0.04772	0.06135	0.00010	0.04761	-0.00011
0.54901	0.06019	0.04464	0.06030	0.00010	0.04452	-0.00012
0.57336	0.05885	0.04140	0.05895	0.00010	0.04127	-0.00013
0.59754	0.05722	0.03804	0.05733	0.00011	0.03791	-0.00013
0.62149	0.05534	0.03463	0.05547	0.00012	0.03463	-0.00000
0.64514	0.05326	0.03121	0.05339	0.00013	0.03110	-0.00011
0.66845	0.05099	0.02781	0.05112	0.00013	0.02770	-0.00011
0.69134	0.04857	0.02449	0.04857	0.00000	0.02438	-0.00011
0.71378	0.04603	0.02129	0.04612	0.00010	0.02118	-0.00011
0.73570	0.04338	0.01823	0.04338	-0.00000	0.01812	-0.00011
0.75705	0.04064	0.01536	0.04075	0.00011	0.01524	-0.00012
0.77778	0.03785	0.01269	0.03795	0.00011	0.01256	-0.00013
0.79785	0.03502	0.01024	0.03514	0.00013	0.01013	-0.00012
0.81720	0.03218	0.00803	0.03231	0.00014	0.00792	-0.00011
0.83578	0.02935	0.00605	0.02948	0.00014	0.00594	-0.00011
0.85355	0.02655	0.00431	0.02670	0.00014	0.00422	-0.00010
0.87048	0.02382	0.00283	0.02397	0.00015	0.00273	-0.00010
0.88651	0.02115	0.00159	0.02131	0.00016	0.00149	-0.00011
0.90160	0.01858	0.00060	0.01874	0.00016	0.00049	-0.00011
0.91574	0.01611	-0.00016	0.01627	0.00016	-0.00027	-0.00012
0.92886	0.01377	-0.00069	0.01393	0.00016	-0.00081	-0.00011
0.94096	0.01156	-0.00103	0.01170	0.00014	-0.00113	-0.00010
0.95200	0.00951	-0.00120	0.00964	0.00013	-0.00125	-0.00005
0.96194	0.00762	-0.00121	0.00775	0.00013	-0.00125	-0.00004
0.97077	0.00592	-0.00111	0.00606	0.00014	-0.00113	-0.00002
0.97847	0.00440	-0.00093	0.00455	0.00015	-0.00094	-0.00000
0.98502	0.00309	-0.00072	0.00326	0.00017	-0.00071	0.00001
0.99039	0.00200	-0.00050	0.00218	0.00018	-0.00048	0.00002
0.99459	0.00114	-0.00030	0.00132	0.00019	-0.00026	0.00004
0.99759	0.00051	-0.00014	0.00069	0.00018	-0.00009	0.00005
0.99940	0.00013	-0.00004	0.00030	0.00018	0.00001	0.00004
1.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Table 6.2

TEST CASES

Case number	1	2	3	6	7	8	9	10	12	13	13A
M_∞	0.676	0.676	0.600	0.725	0.725	0.728	0.730	0.750	0.730	0.745	0.740
α°	2.40	-2.18	2.57	2.92	2.55	3.22	3.19	3.19	3.19	3.19	3.19
$Re \times 10^{-6}$ (based on chord)	5.7	5.7	6.3	6.5	6.5	6.5	6.5	6.2	2.7	2.7	2.7
Transition trip	Diameter (mm)	0.127	0.127	1.270	0.254	0.254	0.254	0.762	0.762	0.762	0.762
	x/c	0.11	0.11	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Probe configuration	B	B	B	B	B	B	C1 C2 D1	C1	C D	D	C2
C_N	0.566	-0.121	0.522	0.743	0.658	0.802	0.803	0.743	0.721	0.705	0.733
C_m (0.25c)	-0.082	-0.028	-0.073	-0.095	-0.090	-0.100	-0.099	-0.106	-0.078	-0.087	-0.086
C_D	0.0085	0.0079	0.0101	0.0127	0.0107	0.0175	0.0168	0.0242	0.0133 0.0134	-	0.0188

NB 1) see table 6.5 for probe configurations.

- 2) Case 9 - Configuration C2 is the results of C1 analysed with the assumption of constant static pressure across the boundary layer or wake.

Configuration D1 measurements include repeats of C1.

- 3) Case 12 - Configuration D measurements include repeats of C.

Table 6.3

DESIGN LOCATION OF SURFACE PRESSURE HOLES

Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c
0		0	1.6250	40	U	0.70000	1.75625	81	L	0.45000	1.49375	122	U	0.98750	2.84917
1	U	0.00021	1.63334	41	U	0.75000	1.73209	82	L	0.47500	1.51459	123	U	0.99375	2.84375
2	U	0.00075	1.64167	42	U	0.77500	1.73209	83	L	0.50000	1.49375	124	L	0.05000	2.58372
3	U	0.00155	1.65000	43	U	0.80000	1.72084	84	L	0.52500	1.51459	125	L	0.10000	2.59712
4	U	0.00255	1.65834	44	U	0.82500	1.70959	85	L	0.55000	1.49375	126	L	0.15000	2.61052
5	U	0.00359	1.66667	45	U	0.85000	1.69834	86	L	0.57500	1.51459	127	L	0.20000	2.62391
6	U	0.00475	1.67500	46	U	0.87500	1.68709	87	L	0.60000	1.49375	128	L	0.25000	2.63731
7	U	0.00600	1.68334	47	U	0.90000	1.67584	88	L	0.61959	1.51459	129	L	0.30000	2.65071
8	U	0.00730	1.69167	48	U	0.92500	1.66459	89	L	0.65000	1.49375	130	L	0.35000	2.66411
9	U	0.00871	1.70000	49	U	0.95000	1.65334	90	L	0.67709	1.51459	131	L	0.40000	2.67750
10	U	0.01042	1.70834	50	U	0.97500	1.64209	91	L	0.70000	1.49375	132	L	0.45000	2.69090
11	U	0.01250	1.71667	51	U	0.98750	1.63667	92	L	0.75000	1.39709	133	L	0.50000	2.70430
12	U	0.01459	1.72500	52	U	0.99375	1.63125	93	L	0.77500	1.39709	134	L	0.55000	2.71770
13	U	0.01875	1.73334	53	L	0.00021	1.61667	94	L	0.80000	1.40834	135	L	0.60000	2.73109
14	U	0.02709	1.74584	54	L	0.00075	1.60834	95	L	0.82500	1.41959	136	L	0.65000	2.74449
15	U	0.03750	1.74584	55	L	0.00155	1.60000	96	L	0.85000	1.43084	137	L	0.70000	2.75789
16	U	0.05000	1.74584	56	L	0.00255	1.59167	97	L	0.87500	1.44209	138	L	0.77500	2.77542
17	U	0.06250	1.74584	57	L	0.00359	1.58334	98	L	0.90000	1.45334	139	L	0.82500	2.78667
18	U	0.07500	1.74584	58	L	0.00475	1.57500	99	L	0.92500	1.46459	140	L	0.87500	2.79792
19	U	0.10000	1.74584	59	L	0.00600	1.56667	100	L	0.95000	1.47584	141	L	0.92500	2.80917
20	U	0.15000	1.74584	60	L	0.00730	1.55834	101	L	0.97500	1.48709	142	L	0.97500	2.82042
21	U	0.20000	1.75625	61	L	0.00871	1.55000	102	L	0.98750	1.49250	143	L	0.98750	2.82584
22	U	0.22084	1.73542	62	L	0.01042	1.54167	103	L	0.99375	1.49792	144	L	0.99375	2.83125
222	U	0.25000	1.74584	63	L	0.01250	1.53334	104	U	0.05000	2.66474	145	U	0.20000	0.91667
23	U	0.27917	1.73542	64	L	0.01459	1.52500	105	U	0.10000	2.68294	146	U	0.20000	1.25417
24	U	0.30000	1.75625	65	L	0.01859	1.51667	106	U	0.15000	2.70114	1466	U	0.20000	1.42084
25	U	0.32500	1.73542	66	L	0.02709	1.50417	107	U	0.20000	2.71934	147	U	0.20000	1.58750
26	U	0.35000	1.75625	67	L	0.03750	1.50417	108	U	0.30000	2.75573	148	U	0.20000	2.02500
27	U	0.37500	1.73542	68	L	0.05000	1.50417	109	U	0.35000	2.77393	149	U	0.20000	2.24167
28	U	0.40000	1.75625	69	L	0.06250	1.50417	110	U	0.40000	2.79213	150	U	0.20000	2.48334
29	U	0.42500	1.73542	70	L	0.07500	1.50417	111	U	0.45000	2.81033	151	U	0.20000	2.88542
30	U	0.45000	1.75625	71	L	0.10000	1.50417	112	U	0.50000	2.82853	152	U	0.70000	1.22917
31	U	0.47500	1.73542	72	L	0.15000	1.50417	113	U	0.55000	2.84673	153	U	0.70000	1.40000
32	U	0.50000	1.75625	73	L	0.20000	1.49375	114	U	0.60000	2.86492	154	U	0.70000	2.00417
33	U	0.52500	1.73542	74	L	0.25000	1.51459	115	U	0.65000	2.88312	155	U	0.70000	2.25000
34	U	0.55000	1.75625	75	L	0.30000	1.49375	116	U	0.70000	2.90132	156	U	0.70000	2.41667
35	U	0.57500	1.73542	76	L	0.32500	1.51459	117	U	0.77500	2.89959	157	U	0.70000	2.61667
36	U	0.60000	1.75625	77	L	0.35000	1.49375	118	U	0.82500	2.88834	158	U	0.70000	3.05000
37	U	0.61959	1.73542	78	L	0.37500	1.51459	119	U	0.87500	2.87709				
38	U	0.65000	1.75625	79	L	0.40000	1.49375	120	U	0.92500	2.86584				
39	U	0.67709	1.73542	80	L	0.42500	1.51459	121	U	0.97500	2.85459				

Table 6.4

MEASURED LOCATION OF SURFACE PRESSURE HOLES
 (Accuracy of measurement = ± 0.00004)

Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c	Hole No.	Surface	x/c	y/c
0	U			40	U	0.69975	1.75666	81	L	0.44996	1.49427	122	U	0.98817	2.84947
1	U			41	U	0.75025	1.73372	82	L	0.47500	1.51503	123	U	0.99419	2.84410
2	U	0.00109	1.64164	42	U	0.77521	1.73366	83	L	0.50005	1.49418	124	L		
3	U	0.00159	1.64995	43	U	0.80006	1.72254	84	L	0.52499	1.51512	125	L	0.09977	2.59894
4	U	0.00259	1.65821	44	U	0.82513	1.75300	85	L	0.55006	1.49432	126	L	0.14972	2.61248
5	U	0.00356	1.66656	45	U	0.85005	1.69996	86	L	0.57492	1.51504	127	L	0.19988	2.62567
6	U	0.00462	1.67489	46	U	0.87519	1.68878	87	L	0.59993	1.49410	128	L	0.24980	2.63922
7	U	0.00579	1.68329	47	U	0.90009	1.67750	88	L	0.62355	1.51484	129	L	0.29973	2.65277
8	U	0.00710	1.69171	48	U	0.92505	1.66625	89	L	0.64980	1.49405	130	L	0.34973	2.66474
9	U	0.00863	1.69995	49	U	0.95008	1.65504	90	L	0.67696	1.51616	131	L	0.39980	2.67824
10	U	0.01022	1.70825	50	U	0.97540	1.64373	91	L	0.70009	1.49426	132	L	0.44978	2.69159
11	U	0.01244	1.71677	51	U	0.98787	1.63824	92	L	0.75018	1.51427	133	L	0.49972	2.70498
12	U	0.01440	1.72501	52	U	0.99394	1.63288	93	L	0.77529	1.51956	134	L	0.54985	2.71847
13	U			53	L			94	L	0.80015	1.53076	135	L	0.59973	2.73313
14	U	0.02671	1.74684	54	L			95	L	0.82508	1.54196	136	L	0.64985	2.74526
15	U	0.03719	1.74620	55	L	0.00149	1.59965	96	L	0.85020	1.55327	137	L	0.69970	2.75957
16	U	0.04978	1.74620	56	L	0.00219	1.59125	97	L	0.87506	1.56449	138	L	0.77558	2.77702
17	U	0.06230	1.74622	57	L	0.00327	1.58303	98	L	0.90003	1.57590	139	L	0.82556	2.78831
18	U	0.07478	1.74615	58	L	0.00444	1.57482	99	L	0.92508	1.58745	140	L	0.87555	2.79960
19	U	0.09972	1.74632	59	L	0.00565	1.56632	100	L	0.95003	1.59973	141	L	0.92540	2.81024
20	U	0.14919	1.74643	60	L	0.00700	1.55803	101	L	0.97493	1.61074	142	L	0.97564	2.82202
21	U	0.19965	1.75676	61	L	0.00827	1.54969	102	L	0.98762	1.61497	143	L	0.98813	2.82653
22	U	0.22176	1.73527	62	L	0.00998	1.54136	103	L	0.99387	1.62050	144	L	0.99433	2.83192
222	U	0.25015	1.75603	63	L	0.01209	1.53302	104	U			145	U	0.19978	0.19978
23	U	0.27777	1.73515	64	L	0.01434	1.52478	105	U	0.09959	2.68358	146	U	0.19972	1.25447
24	U	0.29988	1.75664	64	L	0.01833	1.51649	106	U	0.14921	2.70171	1466	U	0.19969	1.42107
25	U	0.32492	1.73591	66	L	0.02658	1.50435	107	U	0.19972	2.72004	147	U	0.19965	1.58787
26	U	0.34963	1.75680	67	L	0.03734	1.50428	108	U	0.29965	2.75663	148	U	0.19965	2.02552
27	U	0.37463	1.73592	68	L	0.04986	1.50436	109	U	0.34969	2.77446	149	U	0.19969	2.24209
28	U	0.39957	1.75680	69	L	0.06230	1.50435	110	U	0.39970	2.79381	150	U	0.19955	2.48377
29	U	0.42546	1.73577	70	L	0.07482	1.50443	111	U	0.44863	2.81097	151	U	0.19964	2.88576
30	U	0.44974	1.75659	71	L	0.09983	1.50417	112	U	0.49967	2.82919	152	U	0.69981	1.23005
31	U	0.47470	1.73590	72	L	0.14978	1.50442	113	U	0.54963	2.84722	153	U	0.69985	1.40097
32	U	0.49980	1.75664	73	L	0.19986	1.49523	114	U	0.59829	2.86562	154	U	0.69982	2.00629
33	U	0.52483	1.73580	74	L	0.24986	1.51500	115	U	0.64983	2.88361	155	U	0.69978	2.25214
34	U	0.54971	1.75666	75	L	0.29986	1.49412	116	U	0.69971	2.90174	156	U	0.69978	2.41767
35	U	0.57498	1.73583	76	L	0.32493	1.51488	117	U	0.77555	2.90015	157	U	0.69978	2.61758
36	U	0.59977	1.75710	77	L	0.34992	1.49391	118	U	0.82545	2.88883	158	U	0.69960	3.05087
37	U	0.619321	1.73589	78	L	0.37497	1.51495	119	U	0.87523	2.87747				
38	U	0.64981	1.75670	79	L	0.39998	1.49391	120	U						
39	U	0.67703	1.73585	80	L	0.42494	1.51472	121	U	0.97570	2.85490				

Table 6.5

BOUNDARY LAYER AND WAKE TRAVERSES

Configuration	x/c	y/c			Surface	Type of probe
B	0.152	1.17	2.42		Lower	Pitot
	0.179	1.04	2.29		Upper	Pitot
	0.319	1.15	2.40		Upper	Pitot
	0.75	2.18			Upper	Pitot
	0.90	2.64			Upper	Pitot
	0.95	2.44			Upper	Pitot
	1.00	2.02			Wake	Pitot
	1.025	2.82			Wake	Pitot
	2.00	1.5			Wake	Pitot and static
C C1 extra static at x/c = 0.498 C2 no statics except at x/c = 2.0	0.152	1.17			Lower	Pitot
	0.179	1.04			Upper	Pitot
	0.319	1.15			Upper	Pitot
	0.404	1.20			Upper	Pitot
	0.498	1.34			Upper	Pitot
	0.574	1.31			Upper	Pitot and static
	0.65	2.60			Upper	Pitot and static
	0.75	2.21			Upper	Pitot
	0.90	2.43			Upper	Pitot and static
	1.00	2.02			Wake	Pitot and static
	1.025	2.82			Wake	Pitot and static
	2.00	1.5			Wake	Pitot and static
D D1 extra static at x/c = 0.498 y/c = 1.34 D2 no statics except at x/c = 2.0	0.152	1.17	2.00	2.42	Lower	Pitot
	0.179	1.04	1.88	2.29	Upper	Pitot
	0.319	1.15	1.98	2.40	Upper	Pitot
	0.404	1.20	2.03	2.45	Upper	Pitot
	0.498	1.34	2.17	2.59	Upper	Pitot
	0.574	1.31	2.14	2.56	Upper	Pitot and static at y/c = 1.31
	0.65	2.60			Upper	Pitot and static
	0.75	2.21			Upper	Pitot
	0.90	2.43			Upper	Pitot and static
	1.00	2.02			Wake	Pitot and static
	1.025	2.82			Wake	Pitot and static
	2.00	1.5			Wake	Pitot and static

Table 6.6

SURFACE PRESSURE HOLE CONNECTIONS

Case numbers	1,2,3,6,7,8					9,10,12,13				
Bank No. Manometer No.	1	2	3	4	5	1	2	3	4	5
1	0	15	29	44		0	19	37	107	
2	1	16	30	45		1	20	38	108	
3	2	17	31	46		2	21	39	109	
4	3	18	32	47		3	22	40	110	
5	4	19	33	48		4	222	41	111	
6	5	20	34	49		5	23	42	112	
7	6	21	35	50		6	24	43	113	
8	7	22	36	51		7	25	44	114	
9	8	222	37	52		8	26	45	115	
10	9	23	38	117		9	27	46	116	
11	10	24	39	118		10	28	47	117	
12	11	25	40	119		11	29	48	118	
13	12	26	41	120		12	30	49	119	
14	13	27	42	121		13	31	50	120	
15	14	28	43	122		14	32	51	121	
16	53	68	83	123		15	33	52	122	
17	54	69	84	98		16	34	104	123	
18	55	70	85	99	146	17	35	105	130	
19	56	71	86	100	1466	18	36	106	131	
20	57	72	87	101	147	53	72	91	132	
21	58	73	88	102	148	54	73	92	133	
22	59	74	89	103	149	55	74	93	134	
23	60	75	90	138	150	56	75	94	135	
24	61	76	91	139	151	57	76	95	136	
25	62	77	92	140	152	58	77	96	137	
26	63	78	93	141	153	59	78	97	138	
27	64	79	94	142	154	60	79	98	139	
28	65	80	95	143	155	61	80	99	140	
29	66	81	96	144	156	62	81	100	141	
30	67	82	97	145	157	63	82	101	142	
31	124		107	104	158	64	83	102	143	
32	125		108	105		65	84	103	144	
33	126		109	106		66	85	124	145	
34	127		110			67	86	125	146	
35	128		111			68	87	126	1466	
36	129		112			69	88	127	147	
37	130	134	113			70	89	128	148	
38	131	135	114			71	90	129	149	
39	132	136	115			152	155	158	150	
40	133	137	116			153	156		151	
41						154	157			

Table 6.7

SURFACE PRESSURE DISTRIBUTION

CASE I M = 0.676 ALPHA = 2.40 RE = 5700000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.6768	84.29	5678000
2	0.6766	84.48	5690000
3	0.6773	84.48	5692000
4	0.6769	84.43	5691000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9938	0.7699	0.1449	0.0000	0.9330	0.8359
0.9875	0.7671	0.1328	0.0002	0.9799	1.0348
0.9750	0.7611	0.1075	0.0008	0.9944	1.0962
0.9500	0.7491	0.0567	0.0016	0.9985	1.1135
0.9250	0.7350	-0.0030	0.0026	0.9941	1.0946
0.9000	0.7223	-0.0570	0.0036	0.9825	1.0456
0.8750	0.7105	-0.1070	0.0048	0.9681	0.9847
0.8500	0.6988	-0.1565	0.0060	0.9539	0.9243
0.8250	0.6875	-0.2043	0.0073	0.9386	0.8598
0.8000	0.6770	-0.2477	0.0087	0.9275	0.8124
0.7750	0.6665	-0.2920	0.0104	0.9136	0.7538
0.7500	0.6564	-0.3348	0.0125	0.8982	0.6886
0.7000	0.6347	-0.4265	0.0146	0.8845	0.6302
0.6771	0.6261	-0.4632	0.0186	0.8645	0.5457
0.6500	0.6130	-0.5186	0.0271	0.8392	0.4384
0.6196	0.6004	-0.5720	0.0375	0.8124	0.3249
0.6000	0.5931	-0.6029	0.0500	0.7901	0.2296
0.5750	0.5831	-0.6451	0.0625	0.7755	0.1678
0.5500	0.5755	-0.6773	0.0750	0.7640	0.1190
0.5250	0.5685	-0.7069	0.1000	0.7452	0.0391
0.5000	0.5648	-0.7227	0.1500	0.7210	-0.0632
0.4750	0.5609	-0.7393	0.2000	0.7025	-0.1416
0.4500	0.5590	-0.7471	0.2500	0.6851	-0.2157
0.4250	0.5569	-0.7559	0.3000	0.6691	-0.2834
0.4000	0.5545	-0.7694	0.3250	0.6614	-0.3158
0.3750	0.5528	-0.7766	0.3500	0.6548	-0.3441
0.3500	0.5523	-0.7788	0.3750	0.6513	-0.3589
0.3250	0.5524	-0.7782	0.4000	0.6516	-0.3575
0.3000	0.5496	-0.7900	0.4250	0.6566	-0.3365
0.2800	0.5443	-0.8126	0.4500	0.6646	-0.3024
0.2500	0.5412	-0.8259	0.4750	0.6734	-0.2651
0.2208	0.5465	-0.8033	0.5000	0.6842	-0.2169
0.2000	0.5474	-0.7996	0.5250	0.6942	-0.1747
0.1500	0.5397	-0.8322	0.5500	0.7051	-0.1284
0.1000	0.5317	-0.8661	0.5750	0.7150	-0.0865
0.0750	0.5307	-0.8705	0.6000	0.7252	-0.0434
0.0625	0.5276	-0.8833	0.6196	0.7317	-0.0158
0.0500	0.5208	-0.9122	0.6500	0.7421	0.0279
0.0375	0.5098	-0.9591	0.6771	0.7515	0.0679
0.0271	0.4915	-1.0355	0.7000	0.7587	0.0984
0.0188	0.4863	-1.0575	0.7500	0.7728	0.1581
0.0146	0.5091	-0.9606	0.7750	0.7786	0.1828
0.0125	0.5232	-0.9008	0.8000	*	*
0.0104	0.5384	-0.8367	0.8250	*	*
0.0087	0.5490	-0.7917	0.8500	0.7947	0.2508
0.0073	0.5626	-0.7340	0.8750	0.7978	0.2639
0.0060	0.5816	-0.6536	0.9000	0.8011	0.2770
0.0048	0.6052	-0.5533	0.9250	0.8027	0.2837
0.0036	0.6366	-0.4205	0.9500	0.8020	0.2808
0.0026	0.6649	-0.3002	0.9750	0.7968	0.2588
0.0016	0.7205	-0.0646	0.9875	0.7910	0.2343
0.0008	0.7585	0.0965	0.9938	0.7857	0.2117
0.0002	0.8387	0.4361			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 2 M = 0.676 ALPHA = -2.18 RE = 5700000

BANK	MACH NO	H (KN/SQ.M)	REYNOLDS NO
1	0.6772	84.69	5707000
2	0.6775	84.55	5699000
3	0.6770	84.45	5690000
4	0.6774	84.55	5699000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9938	0.7794	0.1862	0.0000	0.9599	0.9503
0.9875	0.7753	0.1690	0.0002	0.9073	0.7272
0.9750	0.7674	0.1356	0.0008	0.8680	0.5609
0.9500	0.7526	0.0729	0.0016	0.8001	0.2733
0.9250	0.7398	0.0186	0.0026	0.7634	0.1178
0.9000	0.7289	-0.0276	0.0036	0.7238	-0.0500
0.8750	0.7186	-0.0712	0.0048	0.6890	-0.1974
0.8500	0.7105	-0.1052	0.0060	0.6631	-0.3068
0.8250	0.7021	-0.1411	0.0073	0.6427	-0.3934
0.8000	0.6943	-0.1753	0.0087	0.6317	-0.4399
0.7750	0.6870	-0.2062	0.0104	0.6211	-0.4847
0.7500	0.6804	-0.2343	0.0125	0.6080	-0.5402
0.7000	0.6663	-0.2938	0.0146	0.5983	-0.5814
0.6771	0.6609	-0.3167	0.0186	0.5870	-0.6295
0.6500	0.6511	-0.3581	0.0271	0.5893	-0.6237
0.6196	0.6409	-0.3761	0.0375	0.5789	-0.6637
0.6000	0.6438	-0.3895	0.0500	0.5732	-0.6861
0.5750	0.6397	-0.4065	0.0625	0.5738	-0.6836
0.5500	0.6378	-0.4145	0.0750	0.5747	-0.6801
0.5250	0.6368	-0.4188	0.1000	0.5744	-0.6813
0.5000	0.6381	-0.4134	0.1500	0.5783	-0.6645
0.4750	0.6390	-0.4095	0.2000	0.5756	-0.6760
0.4500	0.6428	-0.3937	0.2500	0.5679	-0.7087
0.4250	0.6450	-0.3840	0.3000	0.5600	-0.7420
0.4000	0.6477	-0.3710	0.3250	0.5560	-0.7592
0.3750	0.6510	-0.3570	0.3500	0.5540	-0.7676
0.3500	0.6555	-0.3377	0.3750	0.5570	-0.7547
0.3250	0.6603	-0.3178	0.4000	0.5667	-0.7136
0.3000	0.6639	-0.3022	0.4250	0.5817	-0.6501
0.2800	0.6641	-0.3017	0.4500	0.5989	-0.5773
0.2500	0.6711	-0.2721	0.4750	0.6157	-0.5065
0.2208	0.6804	-0.2325	0.5000	0.6337	-0.4319
0.2000	0.6864	-0.2072	0.5250	0.6491	-0.3666
0.1500	0.7019	-0.1415	0.5500	0.6650	-0.2994
0.1000	0.7226	-0.0540	0.5750	0.6797	-0.2371
0.0750	0.7407	0.0225	0.6000	0.6934	-0.1791
0.0625	0.7524	0.0721	0.6196	0.7026	-0.1403
0.0500	0.7649	0.1251	0.6500	0.7165	-0.0813
0.0375	0.7823	0.1987	0.6771	0.7288	-0.0292
0.0271	0.8021	0.2816	0.7000	0.7379	0.0095
0.0188	0.8265	0.3849	0.7500	0.7559	0.0857
0.0146	0.8489	0.4302	0.7750	0.7636	0.1184
0.0125	0.8623	0.5368	0.8000	*	*
0.0104	0.8794	0.6090	0.8250	*	*
0.0087	0.8933	0.6681	0.8500	0.7842	0.2056
0.0073	0.9082	0.7312	0.8750	0.7887	0.2245
0.0060	0.9248	0.8013	0.9000	0.7931	0.2443
0.0048	0.9413	0.8712	0.9250	0.7965	0.2585
0.0036	0.9588	0.9456	0.9500	0.7981	0.2653
0.0026	0.9734	1.0074	0.9750	0.7963	0.2577
0.0016	0.9912	1.0825	0.9875	0.7936	0.2462
0.0008	0.9986	1.1141	0.9938	0.7909	0.2347
0.0002	0.9973	1.1084			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 3 M=0.600 ALPHA=2.57 RE=6300000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.6010	101.78	6335000
2	0.6007	102.02	6348000
3	0.6004	101.88	6337000
4	0.6005	101.83	6335000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9938	0.8085	0.1256	0.0000	0.9238	0.7087
0.9875	0.8059	0.1123	0.0002	0.9736	0.9606
0.9750	0.8011	0.0882	0.0008	0.9905	1.0455
0.9500	0.7924	0.0441	0.0016	0.9991	1.0891
0.9250	0.7813	-0.0121	0.0026	0.9980	1.0834
0.9000	0.7718	-0.0603	0.0036	0.9906	1.0464
0.8750	0.7626	-0.1064	0.0048	0.9801	0.9934
0.8500	0.7539	-0.1506	0.0060	0.9693	0.9386
0.8250	0.7455	-0.1932	0.0073	0.9570	0.8766
0.8000	0.7359	-0.2417	0.0087	0.9476	0.8301
0.7750	0.7274	-0.2849	0.0104	0.9363	0.7720
0.7500	0.7205	-0.3197	0.0125	0.9234	0.7070
0.7000	0.7044	-0.4011	0.0146	0.9126	0.6522
0.6771	0.6981	-0.4331	0.0186	0.8968	0.5725
0.6500	0.6889	-0.4797	0.0271	0.8806	0.5311
0.6196	0.6806	-0.5214	0.0375	0.8549	0.3612
0.6000	0.6756	-0.5467	0.0500	0.8336	0.2527
0.5750	0.6689	-0.5809	0.0625	0.8207	0.1877
0.5500	0.6645	-0.6028	0.0750	0.8107	0.1372
0.5250	0.6596	-0.6275	0.1000	0.7945	0.0552
0.5000	0.6569	-0.6412	0.1500	0.7740	-0.0483
0.4750	0.6551	-0.6504	0.2000	0.7598	-0.1199
0.4500	0.6533	-0.6597	0.2500	0.7462	-0.1888
0.4250	0.6522	-0.6652	0.3000	0.7342	-0.2497
0.4000	0.6505	-0.6725	0.3250	0.7282	-0.2800
0.3750	0.6488	-0.6811	0.3500	0.7234	-0.3043
0.3500	0.6462	-0.6840	0.3750	0.7205	-0.3187
0.3250	0.6467	-0.6917	0.4000	0.7211	-0.3159
0.3000	0.6459	-0.6959	0.4250	0.7243	-0.2996
0.2800	0.6428	-0.7113	0.4500	0.7297	-0.2723
0.2500	0.6403	-0.7240	0.4750	0.7359	-0.2408
0.2208	0.6405	-0.7230	0.5000	0.7434	-0.2039
0.2000	0.6388	-0.7316	0.5250	0.7504	-0.1684
0.1500	0.6323	-0.7643	0.5500	0.7587	-0.1268
0.1000	0.6250	-0.8011	0.5750	0.7665	-0.0871
0.0750	0.6211	-0.8210	0.6000	0.7741	-0.0488
0.0625	0.6207	-0.8232	0.6196	0.7804	-0.0167
0.0500	0.6219	-0.8172	0.6500	0.7872	0.0176
0.0375	*	*	0.6771	0.7946	0.0548
0.0271	0.6020	-0.9156	0.7000	0.8003	0.0836
0.0186	0.6081	-0.8846	0.7500	0.8113	0.1394
0.0146	0.5917	-0.9676	0.7750	0.8158	0.1623
0.0125	0.5895	-0.9788	0.8000	*	*
0.0104	0.5937	-0.9577	0.8250	*	*
0.0087	0.5961	-0.9456	0.8500	0.8283	0.2254
0.0073	0.5982	-0.9348	0.8750	0.8312	0.2398
0.0060	0.6138	-0.8561	0.9000	0.8340	0.2544
0.0048	0.6292	-0.7784	0.9250	0.8353	0.2610
0.0036	0.6546	-0.6500	0.9500	0.8350	0.2596
0.0026	0.6783	-0.5303	0.9750	0.8302	0.2349
0.0016	0.7253	-0.2932	0.9875	0.8250	0.2089
0.0008	0.7704	-0.0652	0.9938	0.8207	0.1870
0.0002	0.8295	0.2329			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 6 M=0.725 ALPHA=2.92 RE=6500000

BANK	MACH NO	H(KN/SO.M)	REYNOLDS NO
1	0.7250	93.09	6537000
2	0.7261	92.85	6526000
3	0.7264	92.81	6525000
4	0.7262	92.61	6509000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9938	0.7412	0.1432	0.0000	0.9207	0.8328
0.9875	0.7383	0.1318	0.0002	0.9744	1.0396
0.9750	0.7321	0.1082	0.0008	0.9914	1.1053
0.9500	0.7194	0.0592	0.0016	0.9988	1.1338
0.9250	0.7070	0.0115	0.0026	0.9958	1.1223
0.9000	0.6945	-0.0365	0.0036	0.9854	1.0823
0.8750	0.6830	-0.0808	0.0048	0.9712	1.0273
0.8500	0.6703	-0.1296	0.0060	0.9573	0.9736
0.8250	0.6586	-0.1746	0.0073	0.9420	0.9148
0.8000	0.6471	-0.2186	0.0087	0.9305	0.8703
0.7750	0.6337	-0.2702	0.0104	0.9161	0.8148
0.7500	0.6252	-0.3029	0.0125	0.9002	0.7537
0.7000	0.6022	-0.3913	0.0146	0.8858	0.6980
0.6771	0.5931	-0.4263	0.0186	0.8645	0.6159
0.6500	0.5797	-0.4778	0.0271	0.8459	0.5444
0.6196	0.5645	-0.5361	0.0375	0.8095	0.4040
0.6000	0.5532	-0.5798	0.0500	0.7843	0.3088
0.5750	0.5279	-0.6769	0.0625	0.7679	0.2454
0.5500	0.4664	-0.9137	0.0750	0.7542	0.1926
0.5250	0.3867	-1.2201	0.1000	0.7312	0.1042
0.5000	0.3377	-1.2164	0.1500	0.7020	-0.0081
0.4750	0.3910	-1.2036	0.2000	0.6797	-0.0940
0.4500	0.3935	-1.1940	0.2500	0.6585	-0.1754
0.4250	0.3966	-1.1819	0.3000	0.6390	-0.2506
0.4000	0.4027	-1.1501	0.3250	0.6286	-0.2904
0.3750	0.4056	-1.1490	0.3500	0.6206	-0.3214
0.3500	0.4112	-1.1273	0.3750	0.6156	-0.3406
0.3250	0.4139	-1.1168	0.4000	0.6157	-0.3403
0.3000	0.4159	-1.1091	0.4250	0.6211	-0.3194
0.2800	0.4151	-1.1010	0.4500	0.6293	-0.2881
0.2500	0.4252	-1.0736	0.4750	0.6399	-0.2469
0.2208	0.4324	-1.0456	0.5000	0.6499	-0.2079
0.2000	0.4330	-1.0433	0.5250	0.6608	-0.1657
0.1500	0.4418	-1.0096	0.5500	0.6735	-0.1169
0.1000	0.4472	-0.9866	0.5750	0.6849	-0.0731
0.0750	0.4331	-1.0432	0.6000	0.6961	-0.0301
0.0625	0.4253	-1.0730	0.6196	0.7038	-0.0003
0.0500	0.4203	-1.0923	0.6500	0.7151	0.0431
0.0375	0.4230	-1.0820	0.6771	0.7256	0.0836
0.0271	0.4342	-1.0435	0.7000	0.7334	0.1134
0.0188	0.4361	-1.0362	0.7500	0.7489	0.1731
0.0146	0.4661	-0.9204	0.7750	0.7556	0.1958
0.0125	0.4797	-0.8680	0.8000	*	*
0.0104	0.4962	-0.8041	0.8250	*	*
0.0087	0.5062	-0.7658	0.8500	0.7720	0.2618
0.0073	0.5168	-0.7250	0.8750	0.7761	0.2778
0.0060	0.5422	-0.6269	0.9000	0.7796	0.2907
0.0048	0.5671	-0.5309	0.9250	0.7812	0.2972
0.0036	0.5837	-0.4667	0.9500	0.7804	0.2937
0.0026	0.6335	-0.2746	0.9750	0.7736	0.2676
0.0016	0.6913	-0.0521	0.9875	0.7603	0.2396
0.0008	0.7318	0.1042	0.9938	0.7598	0.2146
0.0002	0.8142	0.4219			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 7 M=0.725 ALPHA=2.55 RE=6500000

BANK	MACH NO	H(KN/50.M)	REYNOLDS NO
1	0.7257	94.09	6611000
2	0.7262	93.85	6597000
3	0.7258	93.17	6547000
4	0.7256	93.32	6556000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9938	0.7435	0.1506	0.0000	0.9374	0.8976
0.9875	0.7400	0.1372	0.0002	0.9829	1.0728
0.9750	0.7343	0.1150	0.0008	0.9957	1.1224
0.9500	0.7225	0.0699	0.0016	0.9977	1.1298
0.9250	0.7093	0.0189	0.0026	0.9919	1.1074
0.9000	0.6973	-0.0272	0.0036	0.9785	1.0558
0.8750	0.6842	-0.0779	0.0048	*	*
0.8500	0.6720	-0.1248	0.0060	0.9466	0.9331
0.8250	0.6595	-0.1731	0.0073	0.9305	0.8712
0.8000	0.6453	-0.2251	0.0087	0.9176	0.8213
0.7750	0.6341	-0.2702	0.0104	0.9028	0.7646
0.7500	0.6226	-0.3143	0.0125	0.8861	0.7002
0.7000	0.5990	-0.4051	0.0146	0.8715	0.6439
0.6771	0.5889	-0.4441	0.0186	0.8502	0.5619
0.6500	0.5756	-0.4955	0.0271	0.8261	0.4689
0.6196	0.5631	-0.5436	0.0375	0.7948	0.3487
0.6000	0.5560	-0.5710	0.0500	0.7717	0.2603
0.5750	0.5460	-0.6095	0.0625	0.7554	0.1978
0.5500	0.5299	-0.6712	0.0750	0.7419	0.1460
0.5250	0.4677	-0.9107	0.1000	0.7196	0.0600
0.5000	0.4131	-1.1210	0.1500	0.6915	-0.0482
0.4750	0.4159	-1.1104	0.2000	*	*
0.4500	0.4209	-1.0911	0.2500	0.6492	-0.2110
0.4250	0.4228	-1.0836	0.3000	0.6296	-0.2863
0.4000	0.4289	-1.0586	0.3250	0.6193	-0.3259
0.3750	0.4336	-1.0428	0.3500	0.6123	-0.3528
0.3500	0.4360	-1.0312	0.3750	0.6066	-0.3747
0.3250	0.4378	-1.0244	0.4000	0.6072	-0.3725
0.3000	0.4374	-1.0258	0.4250	0.6135	-0.3481
0.2800	0.4378	-1.0243	0.4500	0.6222	-0.3146
0.2500	0.4437	-1.0017	0.4750	0.6338	-0.2700
0.2208	0.4505	-0.9756	0.5000	0.6454	-0.2267
0.2000	0.4501	-0.9771	0.5250	0.6570	-0.1818
0.1500	0.4558	-0.9549	0.5500	0.6699	-0.1323
0.1000	0.4769	-0.8737	0.5750	0.6821	-0.0852
0.0750	0.4917	-0.8169	0.6000	0.6938	-0.0403
0.0625	0.4770	-0.8734	0.6196	*	*
0.0500	0.4485	-0.9833	0.6500	0.7132	0.0346
0.0375	0.4394	-1.0183	0.6771	0.7241	0.0766
0.0271	0.4696	-0.9037	0.7000	0.7319	0.1064
0.0188	0.4660	-0.9178	0.7500	0.7476	0.1670
0.0146	0.4928	-0.8145	0.7750	0.7543	0.1926
0.0125	0.5081	-0.7554	0.8000	*	*
0.0104	0.5259	-0.6870	0.8250	*	*
0.0087	0.5371	-0.6438	0.8500	0.7710	0.2571
0.0073	0.5489	-0.5985	0.8750	0.7754	0.2738
0.0060	0.5746	-0.4995	0.9000	0.7797	0.2900
0.0048	0.5936	-0.4069	0.9250	0.7813	0.2960
0.0036	0.6321	-0.2782	0.9500	0.7808	0.2942
0.0026	0.6638	-0.1562	0.9750	0.7742	0.2690
0.0016	0.7216	0.0665	0.9875	*	*
0.0008	0.7599	0.2141	0.9938	0.7612	0.2188
0.0002	0.8400	0.5227			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 8 M=0.728 ALPHA=3.22 RE=6500000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7291	94.08	6628000
2	0.7286	94.06	6625000
3	0.7293	94.16	6636000
4	0.7265	94.08	6625000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9938	0.7397	0.1424	0.0000	0.9104	0.7970
0.9875	0.7366	0.1307	0.0002	0.9685	1.0194
0.9750	0.7308	0.1084	0.0008	0.9862	1.0949
0.9500	0.7188	0.0623	0.0016	0.9987	1.1350
0.9250	0.7070	0.0171	0.0026	0.9972	1.1295
0.9000	0.6956	-0.0264	0.0036	0.9857	1.0969
0.8750	0.6841	-0.0706	0.0048	0.9760	1.0483
0.8500	0.6725	-0.1149	0.0060	0.9631	0.9987
0.8250	0.6609	-0.1594	0.0073	0.9485	0.9430
0.8000	0.6491	-0.2063	0.0087	0.9373	0.9000
0.7750	0.6368	-0.2494	0.0104	*	*
0.7500	0.6250	-0.2948	0.0125	0.9078	0.7874
0.7000	0.5974	-0.3726	0.0146	0.8939	0.7338
0.6771	0.5884	-0.4349	0.0186	0.8728	0.6531
0.6500	0.5712	-0.5007	0.0271	0.8473	0.5557
0.6196	0.5504	-0.5800	0.0375	0.8160	0.4358
0.6000	0.5340	-0.6428	0.0500	0.7909	0.3369
0.5750	0.4985	-0.7787	0.0625	0.7739	0.2738
0.5500	0.3929	-1.1829	0.0750	0.7599	0.2201
0.5250	0.3558	-1.3132	0.1000	0.7365	0.1305
0.5000	0.3654	-1.2682	0.1500	0.7065	0.0155
0.4750	0.3711	-1.2661	0.2000	0.6840	-0.0705
0.4500	0.3750	-1.2514	0.2500	0.6619	-0.1551
0.4250	0.3804	-1.2305	0.3000	0.6419	-0.2321
0.4000	0.3851	-1.2155	0.3250	0.6312	-0.2728
0.3750	0.3894	-1.1990	0.3500	*	*
0.3500	0.3931	-1.1851	0.3750	0.6176	-0.3252
0.3250	0.3969	-1.1706	0.4000	0.6172	-0.3264
0.3000	0.4000	-1.1586	0.4250	0.6227	-0.3055
0.2800	0.4018	-1.1516	0.4500	0.6303	-0.2763
0.2500	0.4079	-1.1282	0.4750	0.6409	-0.2359
0.2208	0.4164	-1.0957	0.5000	0.6532	-0.1868
0.2000	0.4167	-1.0947	0.5250	0.6637	-0.1466
0.1500	0.4173	-1.0904	0.5500	0.6760	-0.0995
0.1000	0.4220	-1.0744	0.5750	0.6871	-0.0570
0.0750	0.4107	-1.1175	0.6000	0.6982	-0.0145
0.0625	0.4118	-1.1133	0.6196	0.7061	0.0155
0.0500	0.4098	-1.1209	0.6500	0.7169	0.0568
0.0375	0.4007	-1.1558	0.6771	0.7261	0.0922
0.0271	0.4035	-1.1432	0.7000	0.7346	0.1246
0.0188	0.4232	-1.0676	0.7500	*	*
0.0146	0.4501	-0.9648	0.7750	0.7565	0.2083
0.0125	0.4626	-0.9170	0.8000	*	*
0.0104	0.4777	-0.8592	0.8250	*	*
0.0087	0.4872	-0.8225	0.8500	0.7724	0.2693
0.0073	0.4981	-0.7808	0.8750	0.7763	0.2842
0.0060	0.5241	-0.6814	0.9000	0.7801	0.2974
0.0048	0.5488	-0.5870	0.9250	0.7817	0.3034
0.0036	0.5825	-0.4560	0.9500	0.7805	0.2988
0.0026	0.6147	-0.3347	0.9750	0.7733	0.2713
0.0016	0.6749	-0.1041	0.9875	0.7661	0.2439
0.0008	0.7149	0.0490	0.9938	0.7592	0.2174
0.0002	0.7987	0.3698			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 9 M=0.730 ALPHA=5.19 RE=6500000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7307	89.59	6519000
2	0.7322	90.07	6511000
3	0.7290	90.41	6519000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9937	0.7374	0.1347	0.0000	0.9097	0.7963
0.9875	0.7344	0.1232	0.0002	0.9672	1.0157
0.9750	0.7286	0.1012	0.0007	0.9870	1.0912
0.9500	0.7171	0.0570	0.0015	0.9976	1.1315
0.9250	0.7052	0.0114	0.0025	0.9961	1.1257
0.9000	0.6937	-0.0325	0.0036	0.9879	1.0944
0.8750	0.6823	-0.0760	0.0047	0.9754	1.0467
0.8500	0.6702	-0.1226	0.0060	0.9624	0.9971
0.8250	0.6590	-0.1654	0.0073	0.9474	0.9400
0.8000	0.6472	-0.2103	0.0087	0.9361	0.8967
0.7750	0.6360	-0.2535	0.0104	0.9223	0.8441
0.7500	0.6243	-0.2983	0.0125	0.9067	0.7849
0.7000	0.5999	-0.3915	0.0146	0.8926	0.7309
0.6771	0.5880	-0.4370	0.0186	0.8714	0.6501
0.6500	0.5729	-0.4949	0.0271	0.8492	0.5652
0.6196	0.5538	-0.5681	0.0375	0.8162	0.4393
0.6000	0.5336	-0.6338	0.0500	0.7914	0.3447
0.5750	0.5017	-0.7552	0.0625	0.7738	0.2776
0.5500	0.4045	-1.1249	0.0750	0.7604	0.2263
0.5250	0.3560	-1.3097	0.1000	*	*
0.5000	0.3624	-1.2853	0.1500	0.7054	0.0203
0.4750	0.3692	-1.2593	0.2000	0.6833	-0.0641
0.4500	0.3737	-1.2420	0.2500	0.6617	-0.1462
0.4250	0.3772	-1.2290	0.3000	0.6411	-0.2246
0.4000	0.3826	-1.2085	0.3250	0.6309	-0.2635
0.3750	0.3870	-1.1917	0.3500	0.6223	-0.2960
0.3500	0.3920	-1.1727	0.3750	0.6170	-0.3162
0.3250	0.3938	-1.1658	0.4000	0.6164	-0.3187
0.3000	0.3970	-1.1535	0.4250	0.6216	-0.2987
0.2792	*	*	0.4500	0.6299	-0.2673
0.2500	0.4082	-1.1110	0.4750	0.6399	-0.2292
0.2208	0.4140	-1.0890	0.5000	0.6518	-0.1836
0.2000	0.4154	-1.0834	0.5250	0.6622	-0.1441
0.1500	0.4116	-1.0981	0.5500	0.6746	-0.0971
0.1000	0.4078	-1.1123	0.5750	0.6864	-0.0522
0.0750	0.3946	-1.1697	0.6000	0.6972	-0.0108
0.0625	0.3926	-1.1771	0.6196	0.7045	0.0168
0.0500	0.3873	-1.1973	0.6500	0.7157	0.0594
0.0375	0.3934	-1.1741	0.6771	*	*
0.0271	0.4611	-0.9157	0.7000	0.7335	0.1200
0.0187	0.4275	-1.0439	0.7500	0.7488	0.1786
0.0146	0.4493	-0.9608	0.7750	0.7554	0.2038
0.0125	0.4623	-0.9113	0.8000	0.7618	0.2281
0.0104	0.4765	-0.8572	0.8250	0.7667	0.2471
0.0087	0.4863	-0.8198	0.8500	0.7716	0.2657
0.0073	0.5000	-0.7675	0.8750	0.7751	0.2792
0.0060	0.5222	-0.6827	0.9000	0.7784	0.2917
0.0047	0.5477	-0.5852	0.9250	0.7796	0.2965
0.0036	0.5803	-0.4609	0.9500	0.7785	0.2922
0.0025	0.6134	-0.3348	0.9750	0.7711	0.2640
0.0015	0.6729	-0.1075	0.9875	0.7644	0.2381
0.0007	0.7139	0.0491	0.9937	0.7571	0.2100
0.0002	0.7996	0.3761			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 10 M=0.750 ALPHA=3.19 RE=6200000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7502	85.11	6335000
2	0.7491	84.97	6270000
3	0.7510	84.77	6239000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9937	0.6988	0.0399	0.0000	0.9277	0.8821
0.9875	0.6962	0.0305	0.0002	0.9773	1.0652
0.9750	0.6916	0.0134	0.0007	0.9925	1.1212
0.9500	0.6820	-0.0218	0.0015	0.9972	1.1386
0.9250	0.6745	-0.0495	0.0025	0.9927	1.1219
0.9000	0.6623	-0.0944	0.0036	0.9809	1.0785
0.8750	0.6516	-0.1338	0.0047	0.9650	1.0199
0.8500	0.6390	-0.1801	0.0060	0.9504	0.9659
0.8250	0.6281	-0.2202	0.0073	0.9341	0.9057
0.8000	0.6155	-0.2668	0.0087	0.9215	0.8594
0.7750	0.6036	-0.3106	0.0104	0.9068	0.8053
0.7500	0.5916	-0.3545	0.0125	0.8902	0.7438
0.7000	0.5676	-0.4431	0.0146	0.8755	0.6896
0.6771	0.5572	-0.4814	0.0186	0.8544	0.6120
0.6500	0.5446	-0.5279	0.0271	0.8325	0.5311
0.6196	0.5295	-0.5834	0.0375	0.7971	0.4005
0.6000	0.5186	-0.6301	0.0500	0.7722	0.3089
0.5750	0.4890	-0.7394	0.0625	0.7543	0.2427
0.5500	0.4002	-1.0674	0.0750	0.7403	0.1914
0.5250	0.3477	-1.2612	0.1000	0.7160	0.1016
0.5000	0.3532	-1.2412	0.1500	0.6862	-0.0109
0.4750	0.3602	-1.2150	0.2000	0.6627	-0.0977
0.4500	0.3663	-1.1927	0.2500	0.6388	-0.1859
0.4250	0.3735	-1.1660	0.3000	0.6163	-0.2692
0.4000	0.3774	-1.1515	0.3250	0.6043	-0.3133
0.3750	0.3829	-1.1314	0.3500	0.5944	-0.3501
0.3500	0.3888	-1.1096	0.3750	0.5881	-0.3734
0.3250	0.3909	-1.1016	0.4000	0.5867	-0.3795
0.3000	0.3958	-1.0836	0.4250	0.5934	-0.3537
0.2792	*	*	0.4500	0.6086	-0.2977
0.2500	0.4072	-1.0414	0.4750	0.6149	-0.2743
0.2208	0.4159	-1.0096	0.5000	0.6276	-0.2275
0.2000	0.4190	-0.9979	0.5250	0.6398	-0.1822
0.1500	0.4198	-0.9948	0.5500	0.6531	-0.1330
0.1000	0.4230	-0.9831	0.5750	0.6659	-0.0859
0.0750	0.4089	-1.0304	0.6000	0.6777	-0.0421
0.0625	0.4019	-1.0566	0.6196	0.6859	-0.0120
0.0500	0.3929	-1.0896	0.6500	0.6975	0.0310
0.0375	0.3957	-1.0791	0.6771	*	*
0.0271	0.4953	-0.7120	0.7000	0.7161	0.1037
0.0187	0.4569	-0.8535	0.7500	0.7322	0.1630
0.0146	0.4718	-0.7986	0.7750	0.7388	0.1875
0.0125	0.4820	-0.7611	0.8000	0.7453	0.2112
0.0104	0.5056	-0.6741	0.8250	0.7502	0.2295
0.0087	0.5152	-0.6388	0.8500	0.7548	0.2464
0.0073	0.5290	-0.5879	0.8750	0.7582	0.2586
0.0060	0.5514	-0.5053	0.9000	0.7610	0.2690
0.0047	0.5770	-0.4109	0.9250	0.7612	0.2698
0.0036	0.6097	-0.2901	0.9500	0.7584	0.2595
0.0025	0.6433	-0.1664	0.9750	0.7475	0.2193
0.0015	0.7022	0.0506	0.9875	0.7365	0.1789
0.0007	0.7421	0.1981	0.9937	0.7262	0.1410
0.0002	0.8258	0.5064			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 12 M=0.730 ALPHA=3.19 RE=2700000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7286	36.24	2708000
2	0.7294	36.34	2715000
3	0.7280	36.53	2723000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9937	0.7274	0.0943	0.0000	0.9129	0.8063
0.9875	0.7258	0.0878	0.0002	0.9690	1.0211
0.9750	0.7223	0.0747	0.0007	0.9880	1.0939
0.9500	0.7130	0.0390	0.0015	0.9975	1.1303
0.9250	0.7044	0.0060	0.0025	0.9954	1.1221
0.9000	0.6945	-0.0319	0.0036	0.9864	1.0878
0.8750	0.6834	-0.0748	0.0047	0.9731	1.0368
0.8500	0.6715	-0.1202	0.0060	0.9601	0.9868
0.8250	0.6619	-0.1570	0.0073	0.9455	0.9312
0.8000	0.6494	-0.2052	0.0087	0.9332	0.8938
0.7750	0.6383	-0.2478	0.0104	0.9195	0.8313
0.7500	0.6285	-0.2851	0.0125	0.9035	0.7701
0.7000	0.6045	-0.3773	0.0146	0.8899	0.7180
0.6771	0.5951	-0.4135	0.0186	0.8696	0.6402
0.6500	0.5830	-0.4597	0.0271	0.8458	0.5489
0.6196	0.5709	-0.5062	0.0375	0.8129	0.4232
0.6000	0.5597	-0.5442	0.0500	0.7867	0.3227
0.5750	0.5502	-0.5805	0.0625	0.7693	0.2561
0.5500	0.5395	-0.6213	0.0750	0.7571	0.2091
0.5250	0.5218	-0.6892	0.1000	0.7355	0.1263
0.5000	0.4724	-0.8781	0.1500	0.7027	0.0028
0.4750	0.4095	-1.1188	0.2000	0.6801	-0.0834
0.4500	0.3936	-1.1795	0.2500	0.6591	-0.1640
0.4250	0.3932	-1.1812	0.3000	0.6381	-0.2441
0.4000	0.3961	-1.1700	0.3250	0.6281	-0.2826
0.3750	0.3965	-1.1610	0.3500	0.6198	-0.3144
0.3500	0.4028	-1.1444	0.3750	0.6141	-0.3362
0.3250	0.4027	-1.1448	0.4000	0.6139	-0.3370
0.3000	0.4058	-1.1329	0.4250	0.6187	-0.3185
0.2792	*	*	0.4500	0.6270	-0.2868
0.2500	0.4152	-1.0971	0.4750	0.6369	-0.2488
0.2208	0.4222	-1.0701	0.5000	0.6489	-0.2031
0.2000	0.4233	-1.0661	0.5250	0.6599	-0.1608
0.1500	0.4204	-1.0771	0.5500	0.6719	-0.1151
0.1000	0.4172	-1.0893	0.5750	0.6832	-0.0716
0.0750	0.3988	-1.1635	0.6000	0.6939	-0.0306
0.0625	0.3907	-1.1944	0.6196	0.7012	-0.0028
0.0500	0.3850	-1.2163	0.6500	0.7125	0.0405
0.0375	0.3899	-1.1976	0.6771	0.7224	0.0782
0.0271	0.4652	-0.9091	0.7000	0.7289	0.0997
0.0187	0.4318	-1.0371	0.7500	0.7443	0.1590
0.0146	0.4519	-0.9603	0.7750	0.7510	0.1846
0.0125	0.4654	-0.9085	0.8000	0.7562	0.2045
0.0104	0.4800	-0.8524	0.8250	0.7617	0.2256
0.0087	0.4912	-0.8097	0.8500	0.7657	0.2410
0.0073	0.5049	-0.7571	0.8750	0.7691	0.2542
0.0060	0.5271	-0.6718	0.9000	0.7714	0.2627
0.0047	0.5528	-0.5736	0.9250	0.7729	0.2687
0.0036	0.5849	-0.4504	0.9500	0.7713	0.2623
0.0025	0.6185	-0.3219	0.9750	0.7633	0.2318
0.0015	0.6779	-0.0941	0.9875	0.7546	0.1983
0.0007	0.7188	0.0626	0.9937	0.7482	0.1737
0.0002	0.8050	0.3926			

Table 6.7 (continued)

SURFACE PRESSURE DISTRIBUTION

CASE 13 M=0.745 ALPHA=3.19 RE=2700000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7428	37.55	2710000
2	0.7460	37.31	2698000
3	0.7468	36.83	2667000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9937	0.7102	0.0727	0.0000	0.9245	0.8636
0.9875	0.7084	0.0658	0.0002	0.9755	1.0543
0.9750	0.7044	0.0509	0.0007	0.9913	1.1134
0.9500	0.6962	0.0207	0.0015	0.9972	1.1352
0.9250	0.6876	-0.0112	0.0025	0.9933	1.1208
0.9000	0.6789	-0.0435	0.0036	0.9824	1.0800
0.8750	0.6696	-0.0781	0.0047	0.9672	1.0233
0.8500	0.6593	-0.1163	0.0060	0.9529	0.9698
0.8250	0.6495	-0.1527	0.0073	0.9374	0.9117
0.8000	0.6393	-0.1903	0.0087	0.9242	0.8626
0.7750	0.6291	-0.2282	0.0104	0.9069	0.7978
0.7500	0.6182	-0.2687	0.0125	0.8935	0.7478
0.7000	0.5961	-0.3505	0.0146	0.8785	0.6919
0.6771	0.5852	-0.3910	0.0186	0.8576	0.6139
0.6500	0.5720	-0.4401	0.0271	0.8336	0.5242
0.6196	0.5556	-0.5010	0.0375	0.8004	0.4002
0.6000	0.5417	-0.5550	0.0500	0.7735	0.2998
0.5750	0.5174	-0.6453	0.0625	0.7560	0.2343
0.5500	0.4558	-0.8741	0.0750	0.7424	0.1834
0.5250	0.3645	-1.2131	0.1000	0.7197	0.0988
0.5000	0.3660	-1.2075	0.1500	0.6875	-0.0136
0.4750	0.3773	-1.1654	0.2000	0.6642	-0.0999
0.4500	0.3807	-1.1528	0.2500	0.6417	-0.1838
0.4250	0.3787	-1.1604	0.3000	0.6193	-0.2667
0.4000	0.3836	-1.1419	0.3250	0.6079	-0.3092
0.3750	0.3879	-1.1261	0.3500	0.5994	-0.3408
0.3500	0.3936	-1.1050	0.3750	0.5927	-0.3656
0.3250	0.3914	-1.1132	0.4000	0.5930	-0.3644
0.3000	0.3972	-1.1287	0.4250	0.5978	-0.3465
0.2792	*	*	0.4500	*	*
0.2500	0.4249	-0.9889	0.4750	0.6185	-0.2697
0.2208	0.4207	-1.0044	0.5000	0.6311	-0.2230
0.2000	0.4222	-0.9988	0.5250	0.6432	-0.1782
0.1500	0.4228	-0.9967	0.5500	0.6558	-0.1312
0.1000	0.4269	-0.9815	0.5750	0.6687	-0.0834
0.0750	0.4048	-1.0776	0.6000	0.6796	-0.0428
0.0625	0.3968	-1.1075	0.6196	0.6875	-0.0135
0.0500	0.3887	-1.1375	0.6500	0.6996	0.0313
0.0375	0.3916	-1.1268	0.6771	0.7091	0.0669
0.0271	0.4855	-0.7762	0.7000	0.7172	0.0984
0.0187	0.4496	-0.9100	0.7500	0.7328	0.1563
0.0146	0.4677	-0.8424	0.7750	0.7396	0.1817
0.0125	0.4815	-0.7909	0.8000	0.7455	0.2034
0.0104	0.4975	-0.7313	0.8250	0.7508	0.2230
0.0087	0.5095	-0.6864	0.8500	0.7555	0.2404
0.0073	0.5237	-0.6331	0.8750	0.7587	0.2524
0.0060	0.5460	-0.5500	0.9000	0.7619	0.2644
0.0047	0.5723	-0.4519	0.9250	0.7620	0.2646
0.0036	0.6041	-0.3331	0.9500	*	*
0.0025	0.6380	-0.2065	0.9750	0.7508	0.2231
0.0015	0.6964	0.0117	0.9875	0.7410	0.1869
0.0007	0.7369	0.1630	0.9937	0.7329	0.1566
0.0002	0.8216	0.4792			

Table 6.7 (concluded)

SURFACE PRESSURE DISTRIBUTION

CASE 13A M=0.740 ALPHA=3.19 RE=2700000

BANK	MACH NO	H(KN/SQ.M)	REYNOLDS NO
1	0.7392	36.38	2749000
2	0.7393	36.48	2749000
3	0.7387	36.58	2753000

UPPER SURFACE			LOWER SURFACE		
X/C	P/H	CP	X/C	P/H	CP
0.9937	0.7206	0.0929	0.0000	0.9187	0.8386
0.9875	0.7184	0.0847	0.0002	0.9717	1.0377
0.9750	0.7144	0.0698	0.0007	0.9896	1.1049
0.9500	0.7057	0.0368	0.0015	0.9974	1.1345
0.9250	0.6963	0.0014	0.0025	0.9945	1.1235
0.9000	0.6867	-0.0347	0.0036	0.9846	1.0861
0.8750	0.6768	-0.0718	0.0047	0.9705	1.0332
0.8500	0.6656	-0.1141	0.0060	0.9570	0.9825
0.8250	0.6554	-0.1522	0.0073	0.9409	0.9221
0.8000	0.6445	-0.1935	0.0087	0.9289	0.8769
0.7750	0.6342	-0.2323	0.0104	0.9150	0.8246
0.7500	0.6229	-0.2747	0.0125	0.8985	0.7628
0.7000	0.5994	-0.3631	0.0146	0.8844	0.7098
0.6771	0.5894	-0.4005	0.0186	0.8629	0.6287
0.6500	0.5761	-0.4507	0.0271	0.8397	0.5416
0.6196	0.5622	-0.5031	0.0375	0.8065	0.4166
0.6000	0.5505	-0.5448	0.0500	0.7795	0.3154
0.5750	0.5319	-0.6147	0.0625	0.7622	0.2504
0.5500	0.4938	-0.7580	0.0750	0.7489	0.2005
0.5250	0.3975	-1.1199	0.1000	0.7271	0.1185
0.5000	0.3673	-1.2331	0.1500	0.6959	0.0015
0.4750	0.3706	-1.2210	0.2000	0.6729	-0.0849
0.4500	0.3756	-1.2020	0.2500	0.6511	-0.1667
0.4250	0.3783	-1.1919	0.3000	0.6292	-0.2492
0.4000	0.3836	-1.1720	0.3250	0.6189	-0.2877
0.3750	0.3883	-1.1544	0.3500	0.6103	-0.3200
0.3500	0.3937	-1.1339	0.3750	0.6042	-0.3431
0.3250	0.3947	-1.1305	0.4000	0.6040	-0.3439
0.3000	0.3991	-1.1139	0.4250	0.6086	-0.3266
0.2792	*	*	0.4500	0.6178	-0.2918
0.2500	0.4084	-1.0788	0.4750	0.6283	-0.2526
0.2208	0.4178	-1.0435	0.5000	0.6406	-0.2061
0.2000	0.4193	-1.0377	0.5250	0.6517	-0.1646
0.1500	0.4168	-1.0474	0.5500	0.6644	-0.1170
0.1000	0.4162	-1.0494	0.5750	0.6765	-0.0715
0.0750	0.4008	-1.1083	0.6000	0.6871	-0.0314
0.0625	0.3933	-1.1365	0.6196	0.6947	-0.0031
0.0500	0.3868	-1.1609	0.6500	0.7062	0.0402
0.0375	0.3911	-1.1446	0.6771	0.7168	0.0801
0.0271	0.4724	-0.8389	0.7000	0.7239	0.1053
0.0187	0.4389	-0.9649	0.7500	0.7391	0.1624
0.0146	0.4589	-0.8898	0.7750	0.7460	0.1884
0.0125	0.4716	-0.8422	0.8000	0.7514	0.2088
0.0104	0.4872	-0.7834	0.8250	0.7569	0.2296
0.0087	0.4975	-0.7446	0.8500	0.7612	0.2455
0.0073	0.5112	-0.6933	0.8750	0.7646	0.2586
0.0060	0.5344	-0.6060	0.9000	0.7669	0.2669
0.0047	0.5549	-0.5100	0.9250	0.7679	0.2709
0.0036	0.5920	-0.3896	0.9500	0.7662	0.2646
0.0025	0.6262	-0.2611	0.9750	0.7575	0.2317
0.0015	0.6846	-0.0413	0.9875	0.7493	0.2007
0.0007	0.7264	0.1158	0.9937	0.7410	0.1698
0.0002	0.8117	0.4363			

Table 6.8

BOUNDARY LAYER AND WAKE PROFILES

CASE 1 PROBES B

M= 0.676 ALPHA= 2.40 RE=5700000

X/C= 0.152 Y/C= 1.17 LOWER
 CONSTANT CP(STATIC)=-0.066

Z/C	U/UP
0.00015	0.6434
0.00023	0.7073
0.00032	0.7830
0.00038	0.8079
0.00051	0.8536
0.00067	0.8838
0.00073	0.8997
0.00084	0.9215
0.00094	0.9443
0.00103	0.9629
0.00113	0.9764
0.00113	0.9767
0.00122	0.9849
0.00133	0.9913
0.00145	0.9960
0.00152	0.9980
0.00163	0.9990
0.00177	0.9997
0.00184	1.0000
0.00192	1.0000
0.00207	1.0000

X/C= 0.152 Y/C= 2.42 LOWER
 CONSTANT CP(STATIC)=-0.066

Z/C	U/UP
0.00011	0.5896
0.00019	0.6514
0.00027	0.7236
0.00038	0.7748
0.00050	0.8095
0.00060	0.8396
0.00074	0.8733
0.00080	0.8881
0.00093	0.9208
0.00103	0.9364
0.00117	0.9608
0.00133	0.9820
0.00147	0.9915
0.00163	0.9969
0.00180	0.9993
0.00197	1.0000
0.00213	1.0000

X/C= 0.179 Y/C= 1.04 UPPER
 CONSTANT CP(STATIC)=-0.813

Z/C	U/UP
0.00023	0.7030
0.00030	0.7303
0.00049	0.7745
0.00064	0.8030
0.00069	0.8166
0.00079	0.8398
0.00090	0.8587
0.00102	0.8794
0.00113	0.8944
0.00115	0.8937
0.00121	0.9057
0.00128	0.9160
0.00138	0.9308
0.00146	0.9412
0.00159	0.9508
0.00167	0.9633
0.00177	0.9723
0.00188	0.9804
0.00200	0.9863
0.00213	0.9908
0.00225	0.9944
0.00236	0.9965
0.00250	0.9973
0.00261	0.9982
0.00280	0.9992
0.00290	0.9995
0.00306	0.9996
0.00320	0.9999
0.00330	0.9999
0.00340	1.0000
0.00355	1.0000

X/C= 0.179 Y/C= 2.29 UPPER
 CONSTANT CP(STATIC)=-0.813

Z/C	U/UP
0.00018	0.6325
0.00027	0.6762
0.00033	0.7050
0.00042	0.7313
0.00051	0.7623
0.00055	0.7749
0.00057	0.7763
0.00063	0.7939
0.00070	0.8123
0.00074	0.8225
0.00086	0.8446
0.00093	0.8599
0.00107	0.8840
0.00113	0.8986
0.00124	0.9137
0.00134	0.9292
0.00145	0.9442
0.00155	0.9579
0.00165	0.9697
0.00180	0.9811
0.00190	0.9869
0.00203	0.9928
0.00215	0.9953
0.00228	0.9973
0.00245	0.9988
0.00259	0.9992
0.00272	0.9995
0.00288	0.9996
0.00307	0.9997
0.00322	1.0000
0.00338	1.0000

X/C= 0.319 Y/C= 1.15 UPPER
 CONSTANT CP(STATIC)=-0.781

Z/C	U/UP
0.00027	0.6025
0.00038	0.6314
0.00051	0.6701
0.00063	0.6958
0.00069	0.7068
0.00079	0.7254
0.00089	0.7413
0.00100	0.7579
0.00112	0.7702
0.00112	0.7715
0.00118	0.7805
0.00124	0.7916
0.00137	0.8045
0.00145	0.8144
0.00155	0.8262
0.00166	0.8369
0.00174	0.8479
0.00185	0.8591
0.00199	0.8716
0.00212	0.8826
0.00223	0.8936
0.00236	0.9037
0.00249	0.9137
0.00256	0.9208
0.00280	0.9373
0.00298	0.9458
0.00312	0.9566
0.00323	0.9652
0.00340	0.9711
0.00347	0.9752
0.00365	0.9827
0.00377	0.9865
0.00388	0.9900
0.00405	0.9934
0.00416	0.9949
0.00432	0.9966
0.00448	0.9979
0.00457	0.9983
0.00467	0.9990
0.00480	0.9994
0.00494	0.9997
0.00507	0.9999
0.00516	1.0000
0.00532	1.0000

X/C= 0.319 Y/C= 2.40 UPPER
 CONSTANT CP(STATIC)=-0.781

Z/C	U/UP
0.00016	0.5767
0.00016	0.5767
0.00023	0.6187
0.00030	0.6480
0.00035	0.6584
0.00047	0.6834
0.00057	0.6985
0.00069	0.7208
0.00076	0.7317
0.00083	0.7452
0.00095	0.7569
0.00104	0.7713
0.00114	0.7851
0.00126	0.7973
0.00137	0.8144
0.00150	0.8230
0.00161	0.8376
0.00171	0.8468
0.00183	0.8580
0.00190	0.8749
0.00211	0.8865
0.00225	0.8979
0.00241	0.9092
0.00260	0.9224
0.00276	0.9357
0.00293	0.9448
0.00307	0.9545
0.00322	0.9620
0.00335	0.9663
0.00344	0.9723
0.00359	0.9771
0.00373	0.9837
0.00385	0.9886
0.00401	0.9921
0.00422	0.9952
0.00433	0.9970
0.00443	0.9981
0.00463	0.9994
0.00480	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES**CASE 1 PROBES B (concluded)**

M= 0.676 ALPHA= 2.40 RE=5700000

X/C= 0.750 Y/C= 2.18 UPPER			X/C= 0.900 Y/C= 2.64 UPPER			X/C= 0.950 Y/C= 2.44 UPPER		
CONSTANT CP(STATIC)=-0.335			CONSTANT CP(STATIC)=-0.057			CONSTANT CP(STATIC)= 0.057		
Z/C	U/Up		Z/C	U/Up		Z/C	U/Up	
0.00073	0.5330		0.00098	0.4344		0.00096	0.3300	
0.00133	0.5742		0.00123	0.4531		0.00132	0.3446	
0.00158	0.5926		0.00156	0.4724		0.00176	0.3711	
0.00206	0.6212		0.00206	0.4954		0.00230	0.3916	
0.00287	0.6690		0.00239	0.5082		0.00266	0.4086	
0.00351	0.7035		0.00289	0.5332		0.00338	0.4338	
0.00447	0.7471		0.00347	0.5560		0.00427	0.4687	
0.00526	0.7890		0.00388	0.5719		0.00427	0.4669	
0.00677	0.8588		0.00463	0.6049		0.00525	0.5025	
0.00771	0.8946		0.00559	0.6438		0.00695	0.5657	
0.00849	0.9230		0.00566	0.6445		0.00780	0.6025	
0.00927	0.9480		0.00653	0.6835		0.00856	0.6368	
0.01099	0.9830		0.00824	0.7573		0.00864	0.6365	
0.01157	0.9919		0.00925	0.7956		0.00940	0.6699	
0.01273	0.9982		0.01004	0.8306		0.01092	0.7322	
0.01337	1.0000		0.01012	0.8305		0.01168	0.7654	
0.01459	1.0002		0.01091	0.8630		0.01281	0.8060	
0.01530	1.0000		0.01272	0.9204		0.01386	0.8446	
0.01712	1.0002		0.01350	0.9439		0.01490	0.8806	
0.01823	1.0000		0.01475	0.9700		0.01594	0.9143	
			0.01577	0.9867		0.01705	0.9428	
			0.01685	0.9948		0.01815	0.9673	
			0.01778	0.9971		0.01916	0.9806	
			0.01903	0.9991		0.02018	0.9909	
			0.02113	0.9991		0.02127	0.9969	
			0.02332	1.0000		0.02127	0.9966	
			0.02332	1.0000		0.02245	0.9987	
			0.02530	1.0000		0.02345	0.9996	
						0.02738	1.0000	
						0.02949	1.0000	

X/C= 1.000 Y/C= 2.02 WAKE			X/C= 1.025 Y/C= 2.82 WAKE			X/C= 2.000 Y/C= 1.50 WAKE		
CONSTANT CP(STATIC)= 0.145			CONSTANT CP(STATIC)= 0.145			Z/C	U/Up	CP(STATIC)
Z/C	U/Up		Z/C	U/Up		-0.06370	1.0000	-0.0004
-0.02590	1.0000		-0.02731	1.0000		-0.05082	0.9993	0.0022
-0.02402	1.0000		-0.02546	0.9998		-0.04677	0.9989	0.0021
-0.02158	0.9991		-0.02325	0.9981		-0.03051	0.9849	0.0002
-0.01935	0.9964		-0.02091	0.9931		-0.02315	0.9687	0.0002
-0.01745	0.9852		-0.01909	0.9820		-0.01987	0.9599	0.0002
-0.01513	0.9585		-0.01674	0.9555		-0.01412	0.9422	-0.0007
-0.01289	0.9255		-0.01449	0.9166		-0.01001	0.9306	-0.0032
-0.01090	0.8894		-0.01252	0.8781		-0.00754	0.9225	-0.0033
-0.00857	0.8412		-0.01018	0.8383		-0.00754	0.9237	-0.0037
-0.00641	0.7918		-0.00798	0.7982		-0.00754	0.9231	-0.0022
-0.00434	0.7548		-0.00591	0.7395		-0.00589	0.9177	-0.0022
-0.00217	0.6942		-0.00380	0.6442		-0.00011	0.9103	-0.0046
-0.00129	0.6039		-0.00296	0.5873		0.00267	0.9064	-0.0041
-0.00055	0.2369		-0.00167	0.4577		0.00681	0.9078	-0.0065
0.00033	0.2519		0.00078	0.4289		0.01095	0.9112	-0.0046
0.00242	0.3137		0.00299	0.4694		0.01593	0.9196	-0.0065
0.00457	0.3801		0.00507	0.5336		0.02092	0.9310	-0.0032
0.00662	0.4519		0.00715	0.5986		0.02757	0.9471	-0.0036
0.00882	0.5254		0.00931	0.6778		0.03090	0.9576	-0.0036
0.01111	0.6115		0.01120	0.7426		0.03674	0.9705	-0.0032
0.01302	0.6849		0.01337	0.8166		0.04174	0.9802	-0.0032
0.01507	0.7667		0.01545	0.8860		0.04759	0.9900	-0.0022
0.01716	0.8416		0.01743	0.9320		0.05343	0.9947	-0.0027
0.01927	0.9082		0.01948	0.9703		0.07350	0.9998	-0.0042
0.02139	0.9608		0.02157	0.9919		0.09456	1.0000	-0.0037
0.02345	0.9893		0.02354	0.9970				
0.02540	0.9981		0.02536	0.9994				
0.02739	0.9998		0.02742	1.0002				
0.02927	1.0000		0.02742	0.9996				
			0.02937	1.0000				

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 2 PROBES B

M= 0.476 ALPHA=-2.18 RE= 5700000

X/C= 0.152 Y/C= 1.17 LOWER
 CONSTANT CP(STATIC)=-0.665

Z/C	U/Up
0.00017	0.6710
0.00023	0.7145
0.00027	0.7444
0.00034	0.7793
0.00038	0.7964
0.00047	0.8213
0.00054	0.8389
0.00067	0.8667
0.00082	0.9022
0.00088	0.9219
0.00101	0.9413
0.00122	0.9735
0.00143	0.9910
0.00163	0.9974
0.00171	0.9986
0.00184	0.9994
0.00201	0.9998
0.00218	0.9999
0.00235	1.0000
0.00245	1.0000
0.00268	1.0000

X/C= 0.152 Y/C= 2.42 LOWER
 CONSTANT CP(STATIC)=-0.665

Z/C	U/Up
0.00013	0.6476
0.00021	0.7087
0.00035	0.7627
0.00042	0.8015
0.00060	0.8400
0.00078	0.8851
0.00100	0.9278
0.00125	0.9718
0.00137	0.9835
0.00153	0.9931
0.00172	0.9986
0.00187	0.9996
0.00205	0.9999
0.00248	1.0000
0.00272	1.0000
0.00292	1.0000
0.00319	1.0000

X/C= 0.179 Y/C= 1.04 UPPER
 CONSTANT CP(STATIC)=-0.180

Z/C	U/Up
0.00012	0.6272
0.00015	0.6775
0.00023	0.7304
0.00027	0.7492
0.00044	0.7760
0.00049	0.7922
0.00064	0.8202
0.00081	0.8571
0.00088	0.8745
0.00100	0.8926
0.00123	0.9257
0.00140	0.9518
0.00159	0.9721
0.00167	0.9796
0.00182	0.9886
0.00196	0.9942
0.00215	0.9978
0.00227	0.9986
0.00242	0.9991
0.00261	0.9994
0.00283	0.9997
0.00294	0.9997
0.00318	0.9997
0.00347	0.9998
0.00368	1.0000
0.00394	1.0000
0.00421	1.0000

X/C= 0.179 Y/C= 2.29 UPPER
 CONSTANT CP(STATIC)=-0.180

Z/C	U/Up
0.00015	0.6505
0.00026	0.7149
0.00033	0.7430
0.00048	0.7874
0.00054	0.8116
0.00067	0.8357
0.00073	0.8502
0.00096	0.8973
0.00100	0.9078
0.00110	0.9255
0.00119	0.9382
0.00127	0.9502
0.00140	0.9677
0.00150	0.9791
0.00167	0.9894
0.00185	0.9955
0.00208	0.9985
0.00235	0.9996
0.00246	0.9995
0.00262	0.9995
0.00281	0.9999
0.00298	1.0000
0.00312	1.0000
0.00354	0.9999
0.00377	0.9999
0.00398	0.9998
0.00423	1.0000

X/C= 0.319 Y/C= 1.15 UPPER
 CONSTANT CP(STATIC)=-0.314

Z/C	U/Up
0.00013	0.5356
0.00018	0.5810
0.00025	0.6241
0.00030	0.6391
0.00037	0.6586
0.00046	0.6829
0.00052	0.6965
0.00060	0.7193
0.00079	0.7487
0.00087	0.7631
0.00097	0.7782
0.00115	0.8059
0.00135	0.8303
0.00154	0.8520
0.00163	0.8624
0.00175	0.8762
0.00194	0.8913
0.00208	0.9072
0.00221	0.9186
0.00237	0.9309
0.00254	0.9465
0.00280	0.9615
0.00296	0.9685
0.00319	0.9804
0.00347	0.9909
0.00370	0.9954
0.00395	0.9979
0.00418	0.9994
0.00446	0.9998
0.00469	0.9999
0.00501	1.0000
0.00519	1.0000
0.00537	1.0000
0.00555	1.0000

X/C= 0.319 Y/C= 2.40 UPPER
 CONSTANT CP(STATIC)=-0.314

Z/C	U/Up
0.00014	0.5635
0.00021	0.6334
0.00033	0.6727
0.00038	0.6873
0.00061	0.7334
0.00063	0.7423
0.00075	0.7574
0.00082	0.7693
0.00092	0.7806
0.00104	0.7988
0.00116	0.8138
0.00130	0.8321
0.00149	0.8511
0.00168	0.8724
0.00197	0.8960
0.00206	0.9056
0.00220	0.9181
0.00238	0.9328
0.00255	0.9447
0.00271	0.9546
0.00317	0.9768
0.00339	0.9861
0.00359	0.9913
0.00384	0.9961
0.00400	0.9976
0.00410	0.9984
0.00426	0.9991
0.00475	1.0000
0.00527	1.0000
0.00564	1.0000
0.00595	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 2 PROBES B (concluded)

M= 0.676 ALPHA=-2.18 RE= 5700000

X/C= 0.750 Y/C= 2.18 UPPER

CONSTANT CP(STATIC)=-0.234

Z/C	U/Up
0.00075	0.5773
0.00109	0.6100
0.00126	0.6299
0.00193	0.6705
0.00241	0.6998
0.00313	0.7428
0.00370	0.7725
0.00417	0.8038
0.00513	0.8490
0.00608	0.8940
0.00711	0.9308
0.00813	0.9659
0.00976	0.9932
0.01139	0.9998
0.01284	1.0000
0.01405	1.0000
0.01583	1.0000
0.01758	1.0000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)=-0.028

Z/C	U/Up
0.00080	0.4989
0.00105	0.5172
0.00146	0.5469
0.00179	0.5660
0.00204	0.5785
0.00254	0.6009
0.00279	0.6109
0.00320	0.6349
0.00403	0.6723
0.00469	0.7004
0.00527	0.7303
0.00628	0.7764
0.00738	0.8238
0.00839	0.8667
0.00964	0.9119
0.01130	0.9629
0.01326	0.9930
0.01506	0.9991
0.01654	0.9996
0.01848	0.9996
0.02050	0.9999
0.02229	1.0000
0.02379	1.0000

X/C= 0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.073

Z/C	U/Up
0.00069	0.4280
0.00104	0.4601
0.00122	0.4744
0.00167	0.5021
0.00248	0.5398
0.00301	0.5671
0.00355	0.5948
0.00453	0.6381
0.00561	0.6860
0.00659	0.7317
0.00779	0.7817
0.00930	0.8470
0.01107	0.9141
0.01272	0.9631
0.01420	0.9877
0.01610	0.9990
0.01805	1.0000
0.01982	1.0000
0.02133	1.0001
0.02326	1.0000
0.02475	1.0000

X/C= 1.000 Y/C=2.02 WAKE

CONSTANT CP(STATIC)= 0.186

Z/C	U/Up
-0.02864	0.9933
-0.02731	0.9877
-0.02565	0.9758
-0.02350	0.9538
-0.02141	0.9228
-0.01934	0.8893
-0.01702	0.8491
-0.01496	0.8092
-0.01280	0.7713
-0.01073	0.7431
-0.00848	0.7116
-0.00623	0.6825
-0.00408	0.6601
-0.00287	0.6405
-0.00155	0.5935
-0.00068	0.3836
0.00059	0.3250
0.00147	0.3714
0.00309	0.4383
0.00474	0.5069
0.00688	0.6070
0.00890	0.6941
0.01119	0.7870
0.01335	0.8742
0.01516	0.9339
0.01623	0.9643
0.01792	0.9895
0.02019	0.9988
0.02155	0.9997
0.02631	0.9997
0.02788	1.0000
0.02943	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.186

Z/C	U/Up
-0.02893	0.9937
-0.02750	0.9913
-0.02591	0.9862
-0.02380	0.9735
-0.02175	0.9550
-0.01975	0.9260
-0.01740	0.8920
-0.01531	0.8507
-0.01315	0.8127
-0.01108	0.7773
-0.00883	0.7398
-0.00655	0.6992
-0.00439	0.6605
-0.00321	0.6138
-0.00186	0.5526
-0.00102	0.5085
0.00015	0.4927
0.00113	0.5092
0.00264	0.5638
0.00441	0.6174
0.00638	0.7133
0.00856	0.7877
0.01071	0.8658
0.01293	0.9365
0.01460	0.9746
0.01559	0.9886
0.01724	0.9962
0.01946	0.9984
0.02076	0.9995
0.02542	0.9995
0.02684	1.0000
0.02864	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/Up	CP(STATIC)
-0.20766	1.0000	-0.0014
-0.16639	1.0000	-0.0052
-0.14172	0.9998	-0.0009
-0.12682	1.0000	-0.0052
-0.10852	0.9998	-0.0028
-0.10019	0.9996	-0.0062
-0.09184	0.9973	-0.0047
-0.08432	0.9893	-0.0033
-0.07513	0.9714	-0.0047
-0.06760	0.9487	-0.0038
-0.05924	0.9236	-0.0058
-0.04974	0.9092	-0.0043
-0.04139	0.9119	-0.0057
-0.03304	0.9285	-0.0052
-0.02470	0.9514	-0.0063
-0.01555	0.9757	-0.0077
-0.00807	0.9899	-0.0072
0.00022	0.9979	-0.0071
0.00850	1.0000	-0.0081
0.02497	1.0000	-0.0076
0.04132	1.0000	-0.0081

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 3 PROPS B

M= 0.600 ALPHA= 2.57 PE=6300000

X/C= 0.152 Y/C= 1.17 LOWER
 CONSTANT CP(STATIC)= -0.051

Z/C	U/UP
0.00017	0.6747
0.00026	0.7311
0.00036	0.7649
0.00045	0.7986
0.00054	0.8219
0.00077	0.8670
0.00100	0.8990
0.00122	0.9246
0.00137	0.9420
0.00163	0.9569
0.00185	0.9679
0.00207	0.9744
0.00220	0.9783
0.00242	0.9801
0.00265	0.9844
0.00291	0.9873
0.00312	0.9897
0.00333	0.9914
0.00358	0.9937
0.00379	0.9946
0.00400	0.9961
0.00422	0.9970
0.00443	0.9978
0.00462	0.9984
0.00483	0.9987
0.00494	0.9989
0.00520	0.9993
0.00543	0.9994
0.00563	0.9996
0.00590	0.9998
0.00622	1.0000
0.00661	1.0000
0.00712	1.0000

X/C= 0.152 Y/C= 2.42 LOWER
 CONSTANT CP(STATIC)= -0.051

Z/C	U/UP
0.00012	0.6038
0.00025	0.7183
0.00053	0.7667
0.00064	0.8114
0.00078	0.8483
0.00090	0.8767
0.00115	0.9140
0.00139	0.9408
0.00161	0.9595
0.00180	0.9694
0.00213	0.9778
0.00231	0.9803
0.00250	0.9844
0.00275	0.9859
0.00295	0.9875
0.00322	0.9901
0.00345	0.9926
0.00368	0.9933
0.00391	0.9952
0.00413	0.9959
0.00442	0.9966
0.00482	0.9980
0.00503	0.9991
0.00563	0.9995
0.00597	1.0000
0.00756	1.0000

X/C= 0.179 Y/C= 1.04 UPPER
 CONSTANT CP(STATIC)= -0.745

Z/C	U/UP
0.00015	0.6152
0.00023	0.6647
0.00038	0.6953
0.00052	0.7279
0.00062	0.7502
0.00083	0.7840
0.00108	0.8094
0.00128	0.8280
0.00146	0.8415
0.00167	0.8548
0.00190	0.8678
0.00212	0.8770
0.00229	0.8854
0.00252	0.8950
0.00270	0.9030
0.00297	0.9122
0.00313	0.9184
0.00333	0.9250
0.00357	0.9320
0.00380	0.9377
0.00402	0.9432
0.00420	0.9487
0.00442	0.9533
0.00459	0.9590
0.00480	0.9636
0.00494	0.9668
0.00519	0.9724
0.00543	0.9769
0.00562	0.9800
0.00592	0.9840
0.00625	0.9885
0.00660	0.9923
0.00713	0.9962
0.00752	0.9980
0.00795	0.9990
0.00834	1.0000
0.00877	1.0000
0.00926	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 3 PROBES B (continued)

M= 0.600 ALPHA= 2.57 RE=6300000

X/C= 0.179 Y/C= 2.29 UPPER
 CONSTANT CP(STATIC)= -0.745

Z/C	U/UP
0.00017	0.6048
0.00028	0.6616
0.00042	0.6909
0.00049	0.7119
0.00058	0.7279
0.00070	0.7425
0.00086	0.7588
0.00102	0.7744
0.00132	0.7937
0.00153	0.8094
0.00175	0.8225
0.00195	0.8317
0.00220	0.8463
0.00244	0.8546
0.00268	0.8634
0.00289	0.8761
0.00312	0.8836
0.00337	0.8911
0.00357	0.8998
0.00382	0.9069
0.00405	0.9134
0.00427	0.9215
0.00450	0.9315
0.00473	0.9364
0.00498	0.9456
0.00519	0.9512
0.00540	0.9567
0.00564	0.9641
0.00584	0.9671
0.00617	0.9744
0.00651	0.9804
0.00690	0.9868
0.00738	0.9918
0.00785	0.9948
0.00831	0.9974
0.00871	0.9986
0.00918	0.9994
0.00963	0.9998
0.01020	0.9999
0.01065	1.0000
0.01113	1.0000

X/C= 0.319 Y/C= 1.15 UPPER
 CONSTANT CP(STATIC)= -0.693

Z/C	U/UP
0.00017	0.5467
0.00028	0.5765
0.00042	0.6072
0.00055	0.6284
0.00080	0.6565
0.00098	0.6839
0.00121	0.7029
0.00141	0.7152
0.00160	0.7295
0.00185	0.7457
0.00205	0.7539
0.00220	0.7640
0.00241	0.7780
0.00264	0.7880
0.00288	0.8001
0.00309	0.8095
0.00325	0.8167
0.00350	0.8287
0.00371	0.8378
0.00393	0.8456
0.00417	0.8554
0.00440	0.8661
0.00457	0.8715
0.00481	0.8810
0.00493	0.8867
0.00522	0.8985
0.00545	0.9074
0.00563	0.9126
0.00588	0.9235
0.00619	0.9340
0.00656	0.9458
0.00711	0.9605
0.00754	0.9707
0.00797	0.9788
0.00838	0.9858
0.00880	0.9911
0.00927	0.9946
0.00975	0.9970
0.01013	0.9984
0.01060	0.9991
0.01096	0.9995
0.01145	0.9998
0.01211	1.0000

X/C= 0.319 Y/C= 2.40 UPPER
 CONSTANT CP(STATIC)= -0.693

Z/C	U/UP
0.00016	0.5770
0.00025	0.6337
0.00036	0.6745
0.00050	0.6985
0.00057	0.7177
0.00066	0.7330
0.00077	0.7487
0.00093	0.7658
0.00110	0.7833
0.00140	0.8049
0.00160	0.8197
0.00181	0.8326
0.00200	0.8427
0.00222	0.8562
0.00244	0.8649
0.00268	0.8754
0.00289	0.8850
0.00313	0.8916
0.00339	0.9021
0.00360	0.9098
0.00385	0.9132
0.00408	0.9216
0.00430	0.9261
0.00453	0.9327
0.00476	0.9359
0.00500	0.9436
0.00521	0.9493
0.00541	0.9515
0.00566	0.9574
0.00585	0.9597
0.00615	0.9658
0.00647	0.9707
0.00691	0.9752
0.00746	0.9822
0.00790	0.9859
0.00836	0.9904
0.00879	0.9933
0.00923	0.9959
0.00963	0.9969
0.01015	0.9983
0.01063	0.9989
0.01112	0.9995
0.01163	1.0000
0.01210	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 3 PROBES B (concluded)

M= 0.600 ALPHA= 2.57 RE=6300000

X/C= 0.750 Y/C= 2.18 UPPER

CONSTANT CP(STATIC)= -0.320

Z/C	U/UP
0.00073	0.5063
0.00139	0.5633
0.00245	0.6163
0.00342	0.6568
0.00440	0.6983
0.00607	0.7622
0.00757	0.8161
0.00928	0.8716
0.01112	0.9230
0.01310	0.9645
0.01511	0.9893
0.01684	0.9977
0.01857	0.9995
0.02032	0.9999
0.02218	0.9999
0.02386	1.0000
0.02547	1.0000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)= -0.060

Z/C	U/UP
0.00085	0.4041
0.00160	0.4436
0.00270	0.4868
0.00367	0.5219
0.00472	0.5590
0.00655	0.6249
0.00832	0.6768
0.01026	0.7386
0.01230	0.8091
0.01448	0.8730
0.01665	0.9266
0.01867	0.9630
0.02091	0.9893
0.02319	0.9979
0.02509	0.9996
0.02695	1.0000
0.02905	1.0000
0.03115	1.0000
0.03305	1.0000

X/C= 0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.046

Z/C	U/UP
0.00057	0.3053
0.00080	0.3234
0.00149	0.3570
0.00225	0.3874
0.00325	0.4250
0.00432	0.4565
0.00723	0.5506
0.00891	0.6061
0.01094	0.6721
0.01314	0.7426
0.01540	0.8106
0.01766	0.8727
0.01964	0.9221
0.02179	0.9665
0.02416	0.9899
0.02605	0.9972
0.02812	0.9998
0.03028	1.0000
0.03241	1.0000

X/C= 1.000 Y/C= 2.02 WAKE

CONSTANT CP(STATIC)= 0.126

Z/C	U/UP
-0.02453	1.0000
-0.02226	1.0000
-0.01995	0.9987
-0.01772	0.9917
-0.01558	0.9745
-0.01343	0.9431
-0.01110	0.8987
-0.00885	0.8516
-0.00673	0.8091
-0.00435	0.7591
-0.00310	0.7362
-0.00230	0.7156
-0.00122	0.6789
-0.00033	0.4668
0.00078	0.2272
0.00164	0.2535
0.00250	0.2756
0.00456	0.3345
0.00683	0.4057
0.00886	0.4615
0.01115	0.5356
0.01316	0.5996
0.01528	0.6734
0.01732	0.7393
0.01928	0.8066
0.02137	0.8726
0.02367	0.9295
0.02584	0.9725
0.02775	0.9913
0.02959	0.9983
0.03173	1.0000
0.03372	1.0000
0.03553	1.0000
0.03761	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.126

Z/C	U/UP
-0.02429	1.0000
-0.02212	0.9987
-0.02003	0.9934
-0.01787	0.9787
-0.01592	0.9536
-0.01390	0.9182
-0.01166	0.8745
-0.00944	0.8291
-0.00750	0.7909
-0.00520	0.7375
-0.00389	0.6691
-0.00319	0.6016
-0.00214	0.5017
-0.00126	0.4290
-0.00049	0.3919
0.00066	0.3772
0.00152	0.3854
0.00348	0.4274
0.00562	0.4844
0.00750	0.5432
0.00983	0.6058
0.01193	0.6689
0.01400	0.7377
0.01603	0.7876
0.01787	0.8514
0.01976	0.8970
0.02191	0.9377
0.02408	0.9715
0.02599	0.9885
0.02780	0.9955
0.02992	0.9985
0.03196	0.9998
0.03380	0.9998
0.03574	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.06090	1.0000	0.0005
-0.05448	1.0000	0.0010
-0.04723	1.0000	0.0005
-0.03833	0.9998	0.0000
-0.03020	0.9978	-0.0024
-0.02531	0.9947	-0.0010
-0.02122	0.9899	-0.0014
-0.01713	0.9822	-0.0014
-0.01385	0.9759	-0.0043
-0.00892	0.9631	-0.0033
-0.00481	0.9512	-0.0052
0.00014	0.9346	-0.0072
0.00427	0.9218	-0.0067
0.00675	0.9132	-0.0058
0.01171	0.9019	-0.0061
0.01503	0.8967	-0.0071
0.01948	0.8939	-0.0076
0.02363	0.8944	-0.0086
0.02861	0.8994	-0.0077
0.03694	0.9174	-0.0076
0.04527	0.9447	-0.0077
0.05362	0.9644	-0.0067
0.06114	0.9820	-0.0057
0.06867	0.9930	-0.0072
0.07786	0.9977	-0.0052
0.08673	0.9999	-0.0057
0.09877	0.9997	-0.0043
0.10962	0.9999	-0.0062
0.11880	0.9999	-0.0067
0.11963	0.9999	-0.0075
0.16103	0.9999	-0.0062
0.16273	0.9998	-0.0076
0.24180	0.9998	-0.0105
0.31828	1.0000	-0.0143

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 6 PROBES B

M= 0.725 ALPHA= 2.92 RE=6500000

X/C= 0.152 V/C= 1.17 LOWER
 CONSTANT CP(STATIC)= -0.012

Z/C	U/UP
0.00017	0.6854
0.00028	0.7374
0.00032	0.7580
0.00042	0.7840
0.00049	0.8121
0.00062	0.8364
0.00076	0.8667
0.00093	0.8998
0.00122	0.9337
0.00140	0.9582
0.00162	0.9755
0.00185	0.9883
0.00210	0.9943
0.00222	0.9976
0.00247	0.9996
0.00312	0.9999
0.00362	1.0001
0.00401	1.0000

X/C= 0.152 V/C= 2.42 LOWER
 CONSTANT CP(STATIC)= -0.012

Z/C	U/UP
0.00012	0.5873
0.00038	0.7174
0.00062	0.7617
0.00082	0.8134
0.00102	0.8578
0.00126	0.8986
0.00152	0.9313
0.00176	0.9581
0.00194	0.9743
0.00227	0.9917
0.00259	0.9984
0.00306	1.0006
0.00358	0.9999
0.00400	1.0000
0.00448	1.0000
0.00491	1.0000

X/C= 0.179 V/C= 1.04 UPPER
 CONSTANT CP(STATIC)= -1.029

Z/C	U/UP
0.00017	0.6102
0.00027	0.6563
0.00038	0.6792
0.00050	0.7140
0.00060	0.7401
0.00073	0.7655
0.00085	0.7879
0.00108	0.8205
0.00128	0.8541
0.00150	0.8836
0.00171	0.9041
0.00192	0.9260
0.00214	0.9470
0.00235	0.9676
0.00274	0.9855
0.00315	0.9949
0.00359	0.9996
0.00406	1.0000
0.00444	1.0000
0.00477	1.0000

X/C= 0.179 V/C= 2.20 UPPER
 CONSTANT CP(STATIC)= -1.029

Z/C	U/UP
0.00015	0.5634
0.00024	0.6278
0.00035	0.6856
0.00046	0.7135
0.00060	0.7480
0.00072	0.7718
0.00093	0.7976
0.00113	0.8294
0.00141	0.8630
0.00164	0.8884
0.00190	0.9118
0.00211	0.9294
0.00236	0.9538
0.00275	0.9742
0.00323	0.9941
0.00378	0.9991
0.00414	0.9998
0.00459	1.0000
0.00507	1.0000

X/C= 0.310 V/C= 1.15 UPPER
 CONSTANT CP(STATIC)= -1.115

Z/C	U/UP
0.00017	0.5675
0.00028	0.6267
0.00038	0.6579
0.00046	0.6734
0.00057	0.6949
0.00071	0.7165
0.00081	0.7345
0.00098	0.7523
0.00118	0.7733
0.00139	0.7974
0.00169	0.8183
0.00191	0.8342
0.00215	0.8498
0.00237	0.8669
0.00256	0.8804
0.00297	0.9041
0.00341	0.9297
0.00384	0.9516
0.00425	0.9698
0.00469	0.9838
0.00493	0.9918
0.00538	0.9965
0.00577	0.9995
0.00618	1.0000
0.00653	1.0000

X/C= 0.310 V/C= 2.40 UPPER
 CONSTANT CP(STATIC)= -1.115

Z/C	U/UP
0.00013	0.5462
0.00021	0.5929
0.00032	0.6444
0.00045	0.6709
0.00057	0.6998
0.00070	0.7200
0.00087	0.7447
0.00117	0.7736
0.00144	0.8012
0.00169	0.8197
0.00191	0.8376
0.00207	0.8510
0.00236	0.8721
0.00269	0.8917
0.00323	0.9266
0.00370	0.9505
0.00405	0.9656
0.00453	0.9832
0.00510	0.9932
0.00549	0.9983
0.00589	0.9994
0.00631	0.9999
0.00674	1.0000
0.00768	1.0000
0.00921	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 6 PROBES 8 (concluded)

M=0.725 ALPHA=2.92 RE=6500000

X/C=0.900 Y/C=2.64 UPPER

CONSTANT CP(STATIC)=-0.037

Z/C	U/U _B
0.00113	0.3642
0.00162	0.3904
0.00208	0.4067
0.00300	0.4304
0.00394	0.4443
0.00466	0.4540
0.00606	0.5240
0.00923	0.6201
0.01217	0.7167
0.01500	0.8130
0.01790	0.8929
0.02074	0.9586
0.02337	0.9845
0.02633	0.9980
0.02890	1.0000

X/C=0.950 Y/C=2.44 UPPER

CONSTANT CP(STATIC)=0.059

Z/C	U/U _B
0.00073	0.2874
0.00112	0.3057
0.00173	0.3306
0.00235	0.3514
0.00280	0.3671
0.00472	0.4116
0.00686	0.4657
0.01000	0.5512
0.01291	0.6350
0.01596	0.7254
0.01885	0.8088
0.02173	0.8843
0.02433	0.9370
0.02733	0.9795
0.03005	0.9959
0.03243	0.9997
0.03509	1.0000

X/C=1.000 Y/C=2.02 WAKE

CONSTANT CP(STATIC)=0.143

Z/C	U/U _B
-0.02583	1.0000
-0.02270	1.0000
-0.01978	0.9976
-0.01683	0.9850
-0.01397	0.9513
-0.01092	0.8969
-0.00805	0.8419
-0.00505	0.7869
-0.00293	0.7452
-0.00095	0.6699
0.00033	0.2257
0.00113	0.2574
0.00405	0.3233
0.00692	0.3841
0.00983	0.4377
0.01273	0.5291
0.01562	0.6058
0.01855	0.6930
0.02137	0.7739
0.02374	0.8333
0.02632	0.8921
0.02928	0.9425
0.03181	0.9753
0.03451	0.9916
0.03708	0.9993
0.03975	1.0000

X/C=1.025 Y/C=2.82 WAKE

CONSTANT CP(STATIC)=0.143

Z/C	U/U _B
-0.02567	1.0000
-0.02614	0.9994
-0.02310	0.9981
-0.02022	0.9912
-0.01742	0.9691
-0.01476	0.9284
-0.01188	0.8767
-0.00913	0.8240
-0.00650	0.7688
-0.00449	0.6657
-0.00361	0.5758
-0.00273	0.4879
-0.00182	0.4204
-0.00069	0.3903
0.00237	0.4001
0.00312	0.4551
0.00792	0.5302
0.01076	0.6091
0.01357	0.6858
0.01645	0.7726
0.01910	0.8440
0.02140	0.9028
0.02399	0.9472
0.02665	0.9803
0.02905	0.9944
0.03182	0.9986
0.03432	1.0000

X/C=2.000 Y/C=1.50 WAKE

Z/C	U/U _B	CP(STATIC)
-0.07712	1.0000	0.0071
-0.07398	1.0000	0.0055
-0.06134	1.0003	0.0047
-0.04938	0.9998	0.0062
-0.04135	0.9993	0.0059
-0.03086	0.9970	0.0036
-0.02030	0.9889	0.0038
-0.01215	0.9767	0.0007
-0.00478	0.9586	0.0002
0.00591	0.9303	-0.0017
0.02077	0.9035	-0.0010
0.02853	0.9022	-0.0006
0.04682	0.9247	-0.0026
0.05849	0.9456	-0.0010
0.07269	0.9715	-0.0009
0.08105	0.9793	0.0003
0.09527	0.9898	-0.0021
0.10948	0.9903	-0.0017
0.11950	0.9915	-0.0013
0.12951	0.9913	-0.0032
0.14933	0.9949	-0.0041
0.23173	0.9990	-0.0085
0.32972	0.9999	-0.0144
0.39742	1.0000	-0.0160

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 7 PROPER 2

M=0.725 ALPHA= 2.55 RE=6500000

X/C= 0.152 Y/C= 1.17 LOWER		X/C= 0.152 Y/C= 2.47 LOWER		X/C= 0.179 Y/C= 1.04 UPPER	
CONSTANT CP(STATIC)= -0.051		CONSTANT CP(STATIC)= -0.051		CONSTANT CP(STATIC)= -0.968	
Z/C	U/UP	Z/C	U/UP	Z/C	U/UP
0.00015	0.6703	0.00034	0.7308	0.00031	0.6937
0.00036	0.7652	0.00064	0.7910	0.00050	0.7407
0.00067	0.8036	0.00080	0.8364	0.00089	0.8171
0.00088	0.8502	0.00104	0.8755	0.00108	0.8427
0.00087	0.8857	0.00121	0.9059	0.00128	0.8730
0.00108	0.9139	0.00145	0.9335	0.00150	0.8981
0.00126	0.9399	0.00170	0.9588	0.00179	0.9404
0.00149	0.9618	0.00187	0.9743	0.00190	0.9454
0.00182	0.9868	0.00224	0.9926	0.00226	0.9704
0.00205	0.9945	0.00254	0.9987	0.00250	0.9836
0.00233	0.9990	0.00286	1.0000	0.00293	0.9956
0.00261	0.9999	0.00334	1.0000	0.00313	0.9980
0.00287	1.0000			0.00329	0.9989
0.00305	1.0000			0.00344	0.9995
0.00326	1.0002			0.00373	1.0000
0.00345	1.0000			0.00393	1.0000
0.00366	1.0000			0.00410	0.9999
				0.00434	1.0000

X/C= 0.179 Y/C= 2.29 UPPER		X/C= 0.319 Y/C= 1.15 UPPER		X/C= 0.319 Y/C= 2.40 UPPER	
CONSTANT CP(STATIC)= -0.968		CONSTANT CP(STATIC)= -1.025		CONSTANT CP(STATIC)= -1.025	
Z/C	U/UP	Z/C	U/UP	Z/C	U/UP
0.00015	0.5995	0.00015	0.5562	0.00016	0.5545
0.00033	0.6893	0.00023	0.6073	0.00034	0.6273
0.00044	0.7334	0.00048	0.6743	0.00045	0.6699
0.00065	0.7752	0.00065	0.7052	0.00065	0.7067
0.00083	0.8037	0.00092	0.7386	0.00084	0.7344
0.00104	0.8327	0.00109	0.7623	0.00105	0.7628
0.00125	0.8611	0.00126	0.7798	0.00125	0.7898
0.00150	0.8840	0.00147	0.8007	0.00151	0.8103
0.00170	0.9028	0.00169	0.8199	0.00170	0.8262
0.00193	0.9226	0.00208	0.8502	0.00191	0.8431
0.00215	0.9363	0.00223	0.8632	0.00212	0.8565
0.00246	0.9598	0.00255	0.8844	0.00239	0.8793
0.00277	0.9772	0.00283	0.9023	0.00270	0.9003
0.00312	0.9919	0.00303	0.9166	0.00306	0.9257
0.00337	0.9958	0.00323	0.9283	0.00332	0.9379
0.00355	0.9981	0.00344	0.9374	0.00350	0.9476
0.00377	0.9991	0.00361	0.9449	0.00373	0.9583
0.00411	0.9998	0.00380	0.9549	0.00408	0.9689
0.00434	0.9999	0.00402	0.9650	0.00430	0.9771
0.00448	1.0000	0.00419	0.9713	0.00444	0.9827
		0.00443	0.9789	0.00471	0.9895
		0.00470	0.9858	0.00493	0.9940
		0.00489	0.9903	0.00511	0.9961
		0.00538	0.9961	0.00534	0.9977
		0.00577	0.9985	0.00574	0.9995
		0.00628	0.9993	0.00610	0.9999
		0.00670	0.9996	0.00656	1.0001
		0.00725	1.0000	0.00711	1.0000
		0.00744	1.0000	0.00756	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 7 PROBES B (concluded)

M=0.725 ALPHA= 2.55 RE=6500000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)= -0.027

Z/C	U/Up
0.00064	0.3199
0.00103	0.3371
0.00169	0.3744
0.00206	0.3883
0.00262	0.4102
0.00422	0.4649
0.00543	0.5066
0.00702	0.5658
0.00843	0.6130
0.01002	0.6703
0.01143	0.7199
0.01301	0.7815
0.01446	0.8407
0.01591	0.8889
0.01754	0.9313
0.01911	0.9592
0.02076	0.9849
0.02312	0.9977
0.02602	1.0001
0.02843	1.0000
0.03354	1.0000

X/C=0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.070

Z/C	U/Up
0.00057	0.2783
0.00102	0.3007
0.00156	0.3224
0.00203	0.3339
0.00248	0.3495
0.00417	0.3963
0.00563	0.4366
0.00700	0.4809
0.00845	0.5327
0.01000	0.5817
0.01150	0.6294
0.01322	0.6817
0.01471	0.7400
0.01627	0.7892
0.01782	0.8420
0.01942	0.8796
0.02109	0.9265
0.02347	0.9650
0.02637	0.9905
0.02895	0.9992
0.03157	1.0000

X/C= 1.000 Y/C= 2.02 WAKE

CONSTANT CP(STATIC)= 0.151

Z/C	U/Up
-0.02511	1.0000
-0.02188	0.9992
-0.01831	0.9902
-0.01468	0.9617
-0.01182	0.9072
-0.00856	0.8187
-0.00512	0.7738
-0.00280	0.7353
-0.00197	0.7099
-0.00106	0.6630
0.00024	0.1992
0.00097	0.2245
0.00174	0.2421
0.00418	0.3078
0.00743	0.3927
0.01016	0.4713
0.01355	0.5777
0.01610	0.6702
0.01897	0.7588
0.02162	0.8456
0.02421	0.9147
0.02670	0.9586
0.02969	0.9910
0.03210	0.9985
0.03346	0.9992
0.03480	1.0002
0.03613	1.0000

X/C= 1.025 Y/C= 2.82 WAKE

CONSTANT CP(STATIC)= 0.151

Z/C	U/Up
-0.02433	1.0000
-0.02223	0.9949
-0.01868	0.9787
-0.01578	0.9423
-0.01281	0.8846
-0.00950	0.8209
-0.00642	0.7574
-0.00440	0.6466
-0.00361	0.5654
-0.00273	0.4766
-0.00182	0.4110
-0.00099	0.3779
0.00015	0.3673
0.00273	0.4026
0.00574	0.4856
0.00844	0.5688
0.01170	0.6710
0.01434	0.7523
0.01708	0.8316
0.01964	0.9046
0.02217	0.9553
0.02455	0.9799
0.02713	0.9953
0.02935	0.9990
0.03245	0.9998
0.03511	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/Up	CP(STATIC)
-0.16180	1.0000	0.0113
-0.11863	1.0000	0.0086
-0.09549	0.9994	0.0117
-0.08216	0.9994	0.0128
-0.07267	0.9996	0.0090
-0.06190	0.9994	0.0113
-0.05348	0.9993	0.0101
-0.03895	0.9989	0.0046
-0.03000	0.9951	0.0073
-0.02265	0.9890	0.0009
-0.01446	0.9749	0.0029
-0.00624	0.9544	0.0006
0.00200	0.9296	-0.0049
0.01027	0.9135	-0.0009
0.01803	0.9040	-0.0006
0.02800	0.9073	-0.0001
0.03633	0.9172	-0.0014
0.04383	0.9325	-0.0030
0.05050	0.9496	-0.0014
0.06053	0.9692	-0.0022
0.06805	0.9810	-0.0005
0.07390	0.9874	-0.0010
0.08478	0.9933	-0.0029
0.09063	0.9937	-0.0034
0.09983	0.9952	0.0009
0.10901	0.9969	-0.0010
0.11735	0.9972	-0.0019
0.16129	0.9990	-0.0046
0.24590	0.9998	-0.0066
0.31622	0.9997	-0.0121
0.38609	1.0000	-0.0137

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 8 PROFFS B

M=0.72R ALPHA= 3.22 RE=650000

X/C= 0.152 Y/C= 1.17 LOWER
 CONSTANT CP(STATIC)= 0.012

Z/C	U/UP
0.00015	0.6623
0.00027	0.7215
0.00040	0.7725
0.00057	0.8253
0.00072	0.8555
0.00087	0.8896
0.00104	0.9134
0.00120	0.9314
0.00139	0.9556
0.00155	0.9689
0.00168	0.9796
0.00186	0.9888
0.00202	0.9934
0.00220	0.9962
0.00226	0.9985
0.00243	0.9993
0.00262	1.0000
0.00275	0.9999
0.00293	1.0000

X/C= 0.152 Y/C= 2.42 LOWER
 CONSTANT CP(STATIC)= 0.012

Z/C	U/UP
0.00012	0.5899
0.00016	0.6346
0.00038	0.7318
0.00058	0.7799
0.00073	0.8211
0.00088	0.8441
0.00093	0.8541
0.00110	0.8801
0.00128	0.9054
0.00141	0.9275
0.00163	0.9491
0.00174	0.9669
0.00198	0.9799
0.00226	0.9921
0.00243	0.9968
0.00271	0.9993
0.00290	0.9998
0.00312	1.0000
0.00326	1.0001
0.00347	1.0000
0.00370	1.0000

X/C= 0.179 Y/C= 1.04 UPPER
 CONSTANT CP(STATIC)= -1.093

Z/C	U/UP
0.00011	0.5585
0.00020	0.6105
0.00036	0.6795
0.00061	0.7421
0.00074	0.7731
0.00094	0.8078
0.00117	0.8389
0.00123	0.8471
0.00143	0.8780
0.00153	0.8942
0.00167	0.9088
0.00187	0.9267
0.00200	0.9399
0.00215	0.9533
0.00234	0.9679
0.00249	0.9779
0.00267	0.9859
0.00277	0.9923
0.00293	0.9961
0.00304	0.9980
0.00322	0.9988
0.00332	0.9993
0.00351	0.9998
0.00366	0.9999
0.00398	0.9998
0.00415	1.0000

X/C= 0.179 Y/C= 2.29 UPPER
 CONSTANT CP(STATIC)= -1.093

Z/C	U/UP
0.00015	0.5988
0.00020	0.6429
0.00035	0.7095
0.00053	0.7530
0.00065	0.7767
0.00093	0.8108
0.00097	0.8193
0.00116	0.8487
0.00132	0.8702
0.00148	0.8877
0.00170	0.9066
0.00184	0.9240
0.00209	0.9395
0.00225	0.9583
0.00248	0.9718
0.00280	0.9863
0.00296	0.9921
0.00317	0.9957
0.00333	0.9982
0.00350	0.9994
0.00371	0.9997
0.00393	0.9999
0.00409	1.0000
0.00438	1.0000
0.00470	1.0000

X/C= 0.319 Y/C= 1.15 UPPER
 CONSTANT CP(STATIC)= -1.168

Z/C	U/UP
0.00023	0.6037
0.00032	0.6380
0.00047	0.6759
0.00073	0.7171
0.00086	0.7380
0.00107	0.7618
0.00121	0.7789
0.00130	0.7882
0.00153	0.8097
0.00166	0.8226
0.00181	0.8335
0.00199	0.8453
0.00210	0.8555
0.00227	0.8657
0.00245	0.8783
0.00255	0.8876
0.00273	0.8972
0.00288	0.9057
0.00307	0.9167
0.00315	0.9238
0.00334	0.9323
0.00344	0.9380
0.00365	0.9484
0.00380	0.9573
0.00406	0.9670
0.00428	0.9749
0.00453	0.9824
0.00484	0.9893
0.00540	0.9969
0.00560	0.9979
0.00593	0.9995
0.00614	0.9996
0.00642	0.9999
0.00667	1.0000
0.00688	1.0000

X/C= 0.319 Y/C= 2.40 UPPER
 CONSTANT CP(STATIC)= -1.168

Z/C	U/UP
0.00016	0.5732
0.00020	0.6057
0.00038	0.6614
0.00055	0.6990
0.00066	0.7197
0.00068	0.7234
0.00080	0.7430
0.00089	0.7504
0.00096	0.7580
0.00105	0.7652
0.00122	0.7825
0.00138	0.7985
0.00156	0.8130
0.00174	0.8294
0.00196	0.8426
0.00210	0.8542
0.00234	0.8708
0.00252	0.8853
0.00283	0.9043
0.00305	0.9148
0.00320	0.9272
0.00338	0.9365
0.00362	0.9484
0.00375	0.9558
0.00392	0.9643
0.00420	0.9722
0.00444	0.9819
0.00469	0.9888
0.00505	0.9931
0.00524	0.9962
0.00552	0.9983
0.00581	0.9995
0.00612	0.9999
0.00635	0.9998
0.00667	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE B PROBES B (concluded)

M=0.728 ALPHA= 3.22 RE=6500000

X/C= 0.900 Y/C= 2.64 UPPER

CONSTANT CP(STATIC)= -0.026

Z/C	U/UP
0.00122	0.3608
0.00253	0.3977
0.00351	0.4280
0.00491	0.4543
0.00640	0.4954
0.00797	0.5398
0.00957	0.5740
0.01106	0.6101
0.01257	0.6687
0.01402	0.7035
0.01564	0.7520
0.01718	0.8077
0.01885	0.8541
0.02058	0.8881
0.02219	0.9227
0.02387	0.9504
0.02633	0.9782
0.02898	0.9934
0.03212	0.9995
0.03422	0.9999
0.03672	1.0000

X/C= 0.950 Y/C= 2.44 UPPER

CONSTANT CP(STATIC)= 0.062

Z/C	U/UP
0.00078	0.2927
0.00170	0.3267
0.00300	0.3565
0.00407	0.3824
0.00545	0.4014
0.00698	0.4367
0.00858	0.4802
0.01013	0.5098
0.01320	0.5919
0.01474	0.6191
0.01640	0.6629
0.01795	0.7157
0.01963	0.7628
0.02123	0.7929
0.02289	0.8360
0.02463	0.8720
0.02715	0.9176
0.02996	0.9568
0.03312	0.9837
0.03508	0.9930
0.03782	0.9959
0.04029	1.0003
0.04301	1.0000

X/C= 1.025 Y/C= 2.87 WAKE

CONSTANT CP(STATIC)= 0.142

Z/C	U/UP
-0.02635	1.0000
-0.02338	0.9992
-0.02060	0.9940
-0.01800	0.9779
-0.01504	0.9386
-0.01225	0.8865
-0.00932	0.8305
-0.00668	0.7774
-0.00493	0.6977
-0.00396	0.6173
-0.00309	0.5377
-0.00229	0.4644
-0.00145	0.4208
-0.00031	0.3966
0.00246	0.4065
0.00547	0.4569
0.00783	0.5077
0.01076	0.5788
0.01340	0.6362
0.01630	0.7136
0.01823	0.7718
0.02133	0.8430
0.02399	0.8940
0.02623	0.9363
0.02775	0.9555
0.02935	0.9737
0.03090	0.9863
0.03245	0.9917
0.03379	0.9945
0.03518	0.9962
0.03654	1.0000

X/C= 2.000 Y/C= 1.50 WAKE

Z/C	U/UP	CP(STATIC)
-0.31541	1.0000	0.0217
-0.26876	0.9996	0.0196
-0.22542	0.9993	0.0181
-0.17790	0.9990	0.0177
-0.12886	0.9991	0.0165
-0.08738	0.9986	0.0204
-0.06715	0.9986	0.0138
-0.06007	0.9992	0.0130
-0.05295	0.9987	0.0118
-0.04099	0.9977	0.0134
-0.03458	0.9964	0.0118
-0.02572	0.9926	0.0094
-0.01924	0.9859	0.0106
-0.01112	0.9743	0.0099
-0.00214	0.9560	0.0075
0.00603	0.9377	0.0083
0.01510	0.9170	0.0040
0.02335	0.9045	0.0051
0.03109	0.9006	0.0044
0.03937	0.9024	0.0048
0.04270	0.9044	0.0055
0.04768	0.9087	0.0044
0.05684	0.9195	0.0032
0.06518	0.9292	0.0016
0.07185	0.9371	0.0106
0.08105	0.9496	0.0024
0.08773	0.9619	0.0044
0.09860	0.9738	0.0056
0.10613	0.9756	0.0032
0.11365	0.9788	0.0032
0.12118	0.9816	0.0044
0.13036	0.9825	0.0032
0.14453	0.9857	0.0048
0.17934	0.9912	0.0021
0.26876	0.9974	-0.0007
0.34468	0.9998	-0.0070
0.40594	1.0000	-0.0098

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES C1

M = 0.730 ALPHA = 3.19 RE = 6500000.

X/C = 0.152 Y/C = 1.17 LOWER

CONSTANT CP(STATIC) = 0.020

Z/C	U/UP
0.00014	0.6042
0.00034	0.7507
0.00067	0.8407
0.00083	0.8727
0.00103	0.9114
0.00128	0.9379
0.00163	0.9748
0.00198	0.9917
0.00224	0.9969
0.00261	0.9989
0.00301	0.9997
0.00338	1.0000

X/C = 0.179 Y/C = 1.04 UPPER

CONSTANT CP(STATIC) = -1.090

Z/C	U/UP
0.00017	0.5487
0.00040	0.6363
0.00123	0.7458
0.00166	0.8465
0.00209	0.8969
0.00251	0.9408
0.00285	0.9676
0.00333	0.9904
0.00366	0.9983
0.00416	1.0000
0.00499	1.0001
0.00527	1.0000

X/C = 0.319 Y/C = 1.15 UPPER

CONSTANT CP(STATIC) = -1.160

Z/C	U/UP
0.00042	0.6617
0.00082	0.7295
0.00154	0.7943
0.00186	0.8268
0.00225	0.8569
0.00268	0.8853
0.00307	0.9113
0.00358	0.9385
0.00387	0.9541
0.00440	0.9749
0.00466	0.9844
0.00507	0.9922
0.00543	0.9964
0.00584	0.9986
0.00647	0.9999
0.00705	0.9997
0.00766	1.0002
0.00816	0.9999
0.00871	1.0000

X/C = 0.404 Y/C = 1.20 UPPER

CONSTANT CP(STATIC) = -1.210

Z/C	U/UP
0.00023	0.5531
0.00059	0.6672
0.00084	0.7100
0.00128	0.7486
0.00168	0.7863
0.00240	0.8389
0.00308	0.8776
0.00370	0.9101
0.00467	0.9478
0.00515	0.9720
0.00585	0.9880
0.00671	0.9963
0.00753	0.9995
0.00830	0.9992
0.00874	1.0000
0.00975	1.0000

X/C = 0.498 Y/C = 1.34 UPPER

Z/C	U/UP	CP(STATIC)
0.00040	0.6292	-1.2813
0.00068	0.6922	-1.2808
0.00115	0.7366	-1.2800
0.00178	0.7894	-1.2788
0.00271	0.8266	-1.2772
0.00311	0.8575	-1.2765
0.00417	0.8946	-1.2746
0.00459	0.9182	-1.2739
0.00523	0.9402	-1.2728
0.00607	0.9621	-1.2713
0.00662	0.9780	-1.2703
0.00731	0.9899	-1.2691
0.00776	0.9952	-1.2683
0.00857	0.9991	-1.2669
0.00900	0.9995	-1.2661
0.00953	0.9999	-1.2652
0.01005	1.0000	-1.2643

X/C = 0.574 Y/C = 1.31 UPPER

Z/C	U/UP	CP(STATIC)
0.00055	0.2927	-0.7700
0.00099	0.3740	-0.7700
0.00150	0.4329	-0.7700
0.00192	0.4825	-0.7700
0.00260	0.5427	-0.7700
0.00304	0.5968	-0.7700
0.00350	0.6363	-0.7700
0.00398	0.6804	-0.7700
0.00452	0.7216	-0.7700
0.00510	0.7632	-0.7652
0.00541	0.7829	-0.7623
0.00609	0.8256	-0.7560
0.00640	0.8426	-0.7531
0.00688	0.8720	-0.7486
0.00734	0.8966	-0.7444
0.00778	0.9143	-0.7403
0.00856	0.9478	-0.7330
0.00923	0.9702	-0.7268
0.00988	0.9862	-0.7208
0.01065	0.9935	-0.7136
0.01120	0.9979	-0.7084
0.01170	0.9995	-0.7038
0.01220	1.0000	-0.6991

X/C = 0.650 Y/C = 2.60 UPPER

Z/C	U/UP	CP(STATIC)
0.00057	0.3500	-0.4947
0.00197	0.3958	-0.4935
0.00361	0.4893	-0.4921
0.00550	0.6007	-0.4906
0.00712	0.7084	-0.4893
0.01051	0.9024	-0.4865
0.01185	0.9684	-0.4853
0.01316	0.9904	-0.4843
0.01493	0.9985	-0.4828
0.01645	0.9995	-0.4816
0.01815	0.9998	-0.4801
0.01952	0.9998	-0.4790
0.02040	1.0000	-0.4782

X/C = 0.750 Y/C = 2.21 UPPER

CONSTANT CP(STATIC) = -0.300

Z/C	U/UP
0.00085	0.3432
0.00168	0.3850
0.00231	0.3991
0.00258	0.4062
0.00383	0.4339
0.00533	0.4958
0.00829	0.6174
0.00968	0.7008
0.01232	0.8044
0.01333	0.8553
0.01490	0.8995
0.01619	0.9434
0.01765	0.9745
0.01890	0.9836
0.01958	0.9944
0.02038	0.9966
0.02202	0.9983
0.02480	0.9991
0.02637	1.0002
0.02779	1.0000

X/C = 0.900 Y/C = 2.43 UPPER

Z/C	U/UP	CP(STATIC)
0.00065	0.3595	-0.0309
0.00199	0.4081	-0.0332
0.00350	0.4503	-0.0359
0.00530	0.4910	-0.0390
0.00688	0.5252	-0.0418
0.00975	0.6031	-0.0469
0.01156	0.6542	-0.0500
0.01279	0.6854	-0.0505
0.01464	0.7262	-0.0505
0.01602	0.7652	-0.0505
0.01759	0.8190	-0.0505
0.01889	0.8494	-0.0505
0.01978	0.8919	-0.0505
0.02075	0.9102	-0.0505
0.02257	0.9352	-0.0505
0.02420	0.9649	-0.0505
0.02607	0.9710	-0.0505
0.02810	0.9955	-0.0505
0.02985	0.9977	-0.0505
0.03149	0.9997	-0.0505
0.03343	1.0000	-0.0505
0.03512	1.0000	-0.0505

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES C1 (concluded)

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 1.000	Y/C= 2.02	WAKE	X/C= 1.025	Y/C= 2.82	WAKE	X/C= 2.000	Y/C= 1.50	WAKE
Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)
-0.02070	0.9978	0.1843	-0.03052	1.0000	0.1518	-0.38178	1.0000	0.0409
-0.02062	0.9974	0.1842	-0.02826	0.9994	0.1512	-0.37465	0.9999	0.0440
-0.01842	0.9926	0.1820	-0.02530	0.9998	0.1505	-0.35317	0.9998	0.0428
-0.01565	0.9734	0.1792	-0.02259	0.9981	0.1499	-0.31800	0.9993	0.0362
-0.01300	0.9336	0.1764	-0.01952	0.9898	0.1491	-0.26914	0.9994	0.0296
-0.01002	0.8725	0.1734	-0.01670	0.9680	0.1485	-0.21062	0.9985	0.0294
-0.00734	0.8169	0.1707	-0.01382	0.9229	0.1478	-0.13711	0.9988	0.0273
-0.00440	0.7584	0.1670	-0.01081	0.8688	0.1471	-0.10512	0.9985	0.0265
-0.00153	0.6566	0.1582	-0.00923	0.8392	0.1467	-0.05862	0.9980	0.0225
0.00022	0.2171	0.1538	-0.00840	0.8262	0.1465	-0.05148	0.9989	0.0233
0.00102	0.2514	0.1515	-0.00763	0.8095	0.1463	-0.04431	0.9988	0.0225
0.00174	0.2635	0.1494	-0.00636	0.7858	0.1460	-0.04031	0.9986	0.0273
0.00284	0.2995	0.1461	-0.00416	0.7111	0.1455	-0.03630	0.9974	0.0280
0.00496	0.3634	0.1399	-0.00211	0.5395	0.1450	-0.03147	0.9978	0.0263
0.00679	0.4031	0.1346	-0.00048	0.4257	0.1446	-0.02825	0.9957	0.0187
0.00825	0.4334	0.1303	0.00104	0.4058	0.1427	-0.02340	0.9936	0.0228
0.00945	0.4658	0.1268	0.00220	0.4165	0.1404	-0.02016	0.9914	0.0306
0.01060	0.4934	0.1235	0.00410	0.4532	0.1366	-0.01529	0.9863	0.0245
0.01234	0.5237	0.1201	0.00646	0.4916	0.1319	-0.01203	0.9816	0.0194
0.01464	0.5744	0.1188	0.00831	0.5278	0.1296	-0.00551	0.9712	0.0210
0.01631	0.6109	0.1179	0.01018	0.5728	0.1276	-0.00142	0.9642	0.0184
0.01810	0.6571	0.1170	0.01245	0.6158	0.1252	0.00103	0.9552	0.0196
0.02190	0.7436	0.1149	0.01454	0.6750	0.1230	0.00678	0.9411	0.0150
0.02353	0.7717	0.1140	0.01633	0.7076	0.1211	0.01088	0.9322	0.0152
0.02535	0.8142	0.1130	0.01836	0.7512	0.1189	0.01418	0.9238	0.0138
0.02834	0.8580	0.1114	0.01931	0.7784	0.1179	0.01995	0.9124	0.0132
0.02984	0.8805	0.1105	0.02025	0.7895	0.1169	0.02408	0.9075	0.0117
0.03113	0.8985	0.1098	0.02159	0.8216	0.1155	0.02739	0.9022	0.0170
0.03269	0.9314	0.1090	0.02322	0.8514	0.1138	0.03070	0.9002	0.0097
0.03385	0.9470	0.1084	0.02469	0.8771	0.1122	0.03514	0.9001	0.0060
0.03770	0.9793	0.1063	0.02636	0.9119	0.1104	0.03929	0.9002	0.0149
0.03893	0.9884	0.1056	0.02757	0.9300	0.1091	0.04344	0.9024	0.0072
0.04047	0.9956	0.1047	0.03032	0.9712	0.1062	0.04760	0.9063	0.0114
0.04178	0.9970	0.1040	0.03182	0.9771	0.1046	0.05092	0.9099	0.0124
0.04284	0.9977	0.1034	0.03327	0.9872	0.1031	0.05675	0.9197	0.0118
0.04305	1.0001	0.1033	0.03499	0.9956	0.1013	0.06009	0.9252	0.0118
0.04361	1.0000	0.1030	0.03654	0.9981	0.0996	0.06426	0.9302	0.0110
			0.03793	0.9999	0.0981	0.06927	0.9374	0.0191
			0.03855	1.0000	0.0975	0.07260	0.9430	0.0163
						0.07678	0.9477	0.0192
						0.08096	0.9564	0.0145
						0.08932	0.9657	0.0164
						0.09852	0.9722	0.0148
						0.10772	0.9778	0.0203
						0.11691	0.9794	0.0229
						0.12276	0.9819	0.0100
						0.13027	0.9828	0.0162
						0.13861	0.9851	0.0142
						0.14694	0.9858	0.0116
						0.16271	0.9882	0.0090
						0.18084	0.9900	0.0101
						0.22170	0.9946	0.0083
						0.26157	0.9967	0.0035
						0.33727	0.9993	-0.0010
						0.40633	0.9996	-0.0076
						0.46421	1.0000	-0.0066

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROFS C2

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 0.408 Y/C= 1.34 UPPER

CONSTANT CP(STATIC)=-1.282

Z/C	U/UP
0.00040	0.6290
0.00068	0.6920
0.00115	0.7366
0.00178	0.7894
0.00271	0.8267
0.00311	0.8575
0.00417	0.8947
0.00439	0.9182
0.00523	0.9402
0.00607	0.9620
0.00662	0.9779
0.00731	0.9898
0.00776	0.9951
0.00857	0.9990
0.00900	0.9993
0.00933	0.9999
0.01005	1.0000

X/C= 0.574 Y/C= 1.31 UPPER

CONSTANT CP(STATIC)=-0.770

Z/C	U/UP
0.00055	0.2926
0.00090	0.3738
0.00150	0.4327
0.00192	0.4823
0.00260	0.5425
0.00304	0.5966
0.00350	0.6361
0.00396	0.6801
0.00452	0.7214
0.00510	0.7641
0.00541	0.7843
0.00609	0.8277
0.00640	0.8448
0.00688	0.8742
0.00734	0.8987
0.00778	0.9163
0.00856	0.9492
0.00923	0.9710
0.00988	0.9866
0.01065	0.9937
0.01120	0.9979
0.01170	0.9995
0.01220	1.0000

X/C= 0.650 Y/C= 2.60 UPPER

CONSTANT CP(STATIC)=-0.495

Z/C	U/UP
0.00057	0.3504
0.00197	0.3973
0.00361	0.4913
0.00550	0.6027
0.00712	0.7102
0.01051	0.9033
0.01185	0.9687
0.01316	0.9906
0.01493	0.9986
0.01645	0.9995
0.01815	0.9998
0.01952	0.9999
0.02040	1.0000

X/C= 0.750 Y/C= 2.21 UPPER

CONSTANT CP(STATIC)=-0.300

Z/C	U/UP
0.00085	0.3432
0.00148	0.3850
0.00231	0.3991
0.00258	0.4062
0.00383	0.4339
0.00533	0.4958
0.00829	0.6174
0.00968	0.7008
0.01232	0.8044
0.01333	0.8553
0.01490	0.8995
0.01619	0.9434
0.01765	0.9745
0.01890	0.9836
0.01958	0.9944
0.02038	0.9966
0.02202	0.9983
0.02480	0.9991
0.02637	1.0002
0.02779	1.0000

X/C= 0.900 Y/C= 2.43 UPPER

CONSTANT CP(STATIC)=-0.030

Z/C	U/UP
0.00065	0.3585
0.00199	0.4043
0.00350	0.4446
0.00530	0.4834
0.00688	0.5162
0.00975	0.5934
0.01156	0.6446
0.01279	0.6766
0.01466	0.7188
0.01602	0.7591
0.01739	0.8145
0.01889	0.8457
0.01978	0.8803
0.02075	0.9082
0.02257	0.9337
0.02420	0.9641
0.02607	0.9703
0.02810	0.9955
0.02985	0.9977
0.03149	0.9997
0.03343	1.0000
0.03512	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBES C2 (concluded)

M= 0.730 ALPHA= 3.19 RE= 6500000.

X/C= 1.000 Y/C= 2.02 WAKE
 CONSTANT CP(STATIC)= 0.1347

Z/C	U/UP
-0.02070	0.9979
-0.02062	0.9975
-0.01842	0.9930
-0.01565	0.9749
-0.01300	0.9371
-0.01002	0.8788
-0.00734	0.8257
-0.00440	0.7691
-0.00153	0.6688
0.00022	0.2641
0.00102	0.2876
0.00174	0.2939
0.00284	0.3204
0.00496	0.3712
0.00679	0.4032
0.00825	0.4284
0.00945	0.4577
0.01060	0.4827
0.01234	0.5110
0.01464	0.5629
0.01630	0.6002
0.01810	0.6475
0.02190	0.7362
0.02353	0.7650
0.02535	0.8086
0.02834	0.8536
0.02984	0.8768
0.03113	0.8953
0.03269	0.9291
0.03385	0.9452
0.03770	0.9786
0.03893	0.9881
0.04047	0.9935
0.04178	0.9968
0.04284	0.9976
0.04303	1.0000
0.04361	1.0000

X/C= 1.025 Y/C= 2.82 WAKE
 CONSTANT CP(STATIC)= 0.1347

Z/C	U/UP
-0.03052	1.0000
-0.02824	0.9994
-0.02530	0.9998
-0.02259	0.9982
-0.01952	0.9900
-0.01670	0.9685
-0.01387	0.9241
-0.01081	0.8709
-0.00923	0.8417
-0.00840	0.8289
-0.00763	0.8125
-0.00636	0.7891
-0.00414	0.7156
-0.00211	0.5477
-0.00048	0.4371
0.00104	0.4161
0.00220	0.4238
0.00410	0.4556
0.00646	0.4892
0.00831	0.5237
0.01018	0.5678
0.01245	0.6101
0.01454	0.6694
0.01633	0.7018
0.01836	0.7457
0.01931	0.7733
0.02025	0.7844
0.02159	0.8170
0.02322	0.8473
0.02469	0.8735
0.02638	0.9092
0.02757	0.9278
0.03032	0.9703
0.03182	0.9763
0.03327	0.9868
0.03499	0.9954
0.03654	0.9980
0.03793	0.9998
0.03853	1.0000

BOUNDARY LAYER AND WAKE PROFILES

Table 6.8 (continued)

CASE 9 PROCEED 01

M = 0.750 ALPHA = 3.19 RF = 6500000.

X/C= 0.152 V/C= 1.17 LOWER		X/C= 0.152 V/C= 2.00 LOWER		X/C= 0.152 V/C= 2.42 LOWER	
0.00016	U/UP	0.00016	U/UP	0.00016	U/UP
0.00030	U/UP	0.00030	U/UP	0.00030	U/UP
0.00044	U/UP	0.00044	U/UP	0.00044	U/UP
0.00058	U/UP	0.00058	U/UP	0.00058	U/UP
0.00072	U/UP	0.00072	U/UP	0.00072	U/UP
0.00086	U/UP	0.00086	U/UP	0.00086	U/UP
0.00100	U/UP	0.00100	U/UP	0.00100	U/UP
0.00114	U/UP	0.00114	U/UP	0.00114	U/UP
0.00128	U/UP	0.00128	U/UP	0.00128	U/UP
0.00142	U/UP	0.00142	U/UP	0.00142	U/UP
0.00156	U/UP	0.00156	U/UP	0.00156	U/UP
0.00170	U/UP	0.00170	U/UP	0.00170	U/UP
0.00184	U/UP	0.00184	U/UP	0.00184	U/UP
0.00198	U/UP	0.00198	U/UP	0.00198	U/UP
0.00212	U/UP	0.00212	U/UP	0.00212	U/UP
0.00226	U/UP	0.00226	U/UP	0.00226	U/UP
0.00240	U/UP	0.00240	U/UP	0.00240	U/UP
0.00254	U/UP	0.00254	U/UP	0.00254	U/UP
0.00268	U/UP	0.00268	U/UP	0.00268	U/UP
0.00282	U/UP	0.00282	U/UP	0.00282	U/UP
0.00296	U/UP	0.00296	U/UP	0.00296	U/UP
0.00310	U/UP	0.00310	U/UP	0.00310	U/UP
0.00324	U/UP	0.00324	U/UP	0.00324	U/UP
0.00338	U/UP	0.00338	U/UP	0.00338	U/UP
0.00352	U/UP	0.00352	U/UP	0.00352	U/UP
0.00366	U/UP	0.00366	U/UP	0.00366	U/UP
0.00380	U/UP	0.00380	U/UP	0.00380	U/UP
0.00394	U/UP	0.00394	U/UP	0.00394	U/UP
0.00408	U/UP	0.00408	U/UP	0.00408	U/UP
0.00422	U/UP	0.00422	U/UP	0.00422	U/UP
0.00436	U/UP	0.00436	U/UP	0.00436	U/UP
0.00450	U/UP	0.00450	U/UP	0.00450	U/UP
0.00464	U/UP	0.00464	U/UP	0.00464	U/UP
0.00478	U/UP	0.00478	U/UP	0.00478	U/UP
0.00492	U/UP	0.00492	U/UP	0.00492	U/UP
0.00506	U/UP	0.00506	U/UP	0.00506	U/UP
0.00520	U/UP	0.00520	U/UP	0.00520	U/UP
0.00534	U/UP	0.00534	U/UP	0.00534	U/UP
0.00548	U/UP	0.00548	U/UP	0.00548	U/UP
0.00562	U/UP	0.00562	U/UP	0.00562	U/UP
0.00576	U/UP	0.00576	U/UP	0.00576	U/UP
0.00590	U/UP	0.00590	U/UP	0.00590	U/UP
0.00604	U/UP	0.00604	U/UP	0.00604	U/UP
0.00618	U/UP	0.00618	U/UP	0.00618	U/UP
0.00632	U/UP	0.00632	U/UP	0.00632	U/UP
0.00646	U/UP	0.00646	U/UP	0.00646	U/UP
0.00660	U/UP	0.00660	U/UP	0.00660	U/UP
0.00674	U/UP	0.00674	U/UP	0.00674	U/UP
0.00688	U/UP	0.00688	U/UP	0.00688	U/UP
0.00702	U/UP	0.00702	U/UP	0.00702	U/UP
0.00716	U/UP	0.00716	U/UP	0.00716	U/UP
0.00730	U/UP	0.00730	U/UP	0.00730	U/UP
0.00744	U/UP	0.00744	U/UP	0.00744	U/UP
0.00758	U/UP	0.00758	U/UP	0.00758	U/UP
0.00772	U/UP	0.00772	U/UP	0.00772	U/UP
0.00786	U/UP	0.00786	U/UP	0.00786	U/UP
0.00800	U/UP	0.00800	U/UP	0.00800	U/UP
0.00814	U/UP	0.00814	U/UP	0.00814	U/UP
0.00828	U/UP	0.00828	U/UP	0.00828	U/UP
0.00842	U/UP	0.00842	U/UP	0.00842	U/UP
0.00856	U/UP	0.00856	U/UP	0.00856	U/UP
0.00870	U/UP	0.00870	U/UP	0.00870	U/UP
0.00884	U/UP	0.00884	U/UP	0.00884	U/UP
0.00898	U/UP	0.00898	U/UP	0.00898	U/UP
0.00912	U/UP	0.00912	U/UP	0.00912	U/UP
0.00926	U/UP	0.00926	U/UP	0.00926	U/UP
0.00940	U/UP	0.00940	U/UP	0.00940	U/UP
0.00954	U/UP	0.00954	U/UP	0.00954	U/UP
0.00968	U/UP	0.00968	U/UP	0.00968	U/UP
0.00982	U/UP	0.00982	U/UP	0.00982	U/UP
0.00996	U/UP	0.00996	U/UP	0.00996	U/UP
0.01010	U/UP	0.01010	U/UP	0.01010	U/UP
0.01024	U/UP	0.01024	U/UP	0.01024	U/UP
0.01038	U/UP	0.01038	U/UP	0.01038	U/UP
0.01052	U/UP	0.01052	U/UP	0.01052	U/UP
0.01066	U/UP	0.01066	U/UP	0.01066	U/UP
0.01080	U/UP	0.01080	U/UP	0.01080	U/UP
0.01094	U/UP	0.01094	U/UP	0.01094	U/UP
0.01108	U/UP	0.01108	U/UP	0.01108	U/UP
0.01122	U/UP	0.01122	U/UP	0.01122	U/UP
0.01136	U/UP	0.01136	U/UP	0.01136	U/UP
0.01150	U/UP	0.01150	U/UP	0.01150	U/UP
0.01164	U/UP	0.01164	U/UP	0.01164	U/UP
0.01178	U/UP	0.01178	U/UP	0.01178	U/UP
0.01192	U/UP	0.01192	U/UP	0.01192	U/UP
0.01206	U/UP	0.01206	U/UP	0.01206	U/UP
0.01220	U/UP	0.01220	U/UP	0.01220	U/UP
0.01234	U/UP	0.01234	U/UP	0.01234	U/UP
0.01248	U/UP	0.01248	U/UP	0.01248	U/UP
0.01262	U/UP	0.01262	U/UP	0.01262	U/UP
0.01276	U/UP	0.01276	U/UP	0.01276	U/UP
0.01290	U/UP	0.01290	U/UP	0.01290	U/UP
0.01304	U/UP	0.01304	U/UP	0.01304	U/UP
0.01318	U/UP	0.01318	U/UP	0.01318	U/UP
0.01332	U/UP	0.01332	U/UP	0.01332	U/UP
0.01346	U/UP	0.01346	U/UP	0.01346	U/UP
0.01360	U/UP	0.01360	U/UP	0.01360	U/UP
0.01374	U/UP	0.01374	U/UP	0.01374	U/UP
0.01388	U/UP	0.01388	U/UP	0.01388	U/UP
0.01402	U/UP	0.01402	U/UP	0.01402	U/UP
0.01416	U/UP	0.01416	U/UP	0.01416	U/UP
0.01430	U/UP	0.01430	U/UP	0.01430	U/UP
0.01444	U/UP	0.01444	U/UP	0.01444	U/UP
0.01458	U/UP	0.01458	U/UP	0.01458	U/UP
0.01472	U/UP	0.01472	U/UP	0.01472	U/UP
0.01486	U/UP	0.01486	U/UP	0.01486	U/UP
0.01500	U/UP	0.01500	U/UP	0.01500	U/UP
0.01514	U/UP	0.01514	U/UP	0.01514	U/UP
0.01528	U/UP	0.01528	U/UP	0.01528	U/UP
0.01542	U/UP	0.01542	U/UP	0.01542	U/UP
0.01556	U/UP	0.01556	U/UP	0.01556	U/UP
0.01570	U/UP	0.01570	U/UP	0.01570	U/UP
0.01584	U/UP	0.01584	U/UP	0.01584	U/UP
0.01598	U/UP	0.01598	U/UP	0.01598	U/UP
0.01612	U/UP	0.01612	U/UP	0.01612	U/UP
0.01626	U/UP	0.01626	U/UP	0.01626	U/UP
0.01640	U/UP	0.01640	U/UP	0.01640	U/UP
0.01654	U/UP	0.01654	U/UP	0.01654	U/UP
0.01668	U/UP	0.01668	U/UP	0.01668	U/UP
0.01682	U/UP	0.01682	U/UP	0.01682	U/UP
0.01696	U/UP	0.01696	U/UP	0.01696	U/UP
0.01710	U/UP	0.01710	U/UP	0.01710	U/UP
0.01724	U/UP	0.01724	U/UP	0.01724	U/UP
0.01738	U/UP	0.01738	U/UP	0.01738	U/UP
0.01752	U/UP	0.01752	U/UP	0.01752	U/UP
0.01766	U/UP	0.01766	U/UP	0.01766	U/UP
0.01780	U/UP	0.01780	U/UP	0.01780	U/UP
0.01794	U/UP	0.01794	U/UP	0.01794	U/UP
0.01808	U/UP	0.01808	U/UP	0.01808	U/UP
0.01822	U/UP	0.01822	U/UP	0.01822	U/UP
0.01836	U/UP	0.01836	U/UP	0.01836	U/UP
0.01850	U/UP	0.01850	U/UP	0.01850	U/UP
0.01864	U/UP	0.01864	U/UP	0.01864	U/UP
0.01878	U/UP	0.01878	U/UP	0.01878	U/UP
0.01892	U/UP	0.01892	U/UP	0.01892	U/UP
0.01906	U/UP	0.01906	U/UP	0.01906	U/UP
0.01920	U/UP	0.01920	U/UP	0.01920	U/UP
0.01934	U/UP	0.01934	U/UP	0.01934	U/UP
0.01948	U/UP	0.01948	U/UP	0.01948	U/UP
0.01962	U/UP	0.01962	U/UP	0.01962	U/UP
0.01976	U/UP	0.01976	U/UP	0.01976	U/UP
0.01990	U/UP	0.01990	U/UP	0.01990	U/UP
0.02004	U/UP	0.02004	U/UP	0.02004	U/UP
0.02018	U/UP	0.02018	U/UP	0.02018	U/UP
0.02032	U/UP	0.02032	U/UP	0.02032	U/UP
0.02046	U/UP	0.02046	U/UP	0.02046	U/UP
0.02060	U/UP	0.02060	U/UP	0.02060	U/UP
0.02074	U/UP	0.02074	U/UP	0.02074	U/UP
0.02088	U/UP	0.02088	U/UP	0.02088	U/UP
0.02102	U/UP	0.02102	U/UP	0.02102	U/UP
0.02116	U/UP	0.02116	U/UP	0.02116	U/UP
0.02130	U/UP	0.02130	U/UP	0.02130	U/UP
0.02144	U/UP	0.02144	U/UP	0.02144	U/UP
0.02158	U/UP	0.02158	U/UP	0.02158	U/UP
0.02172	U/UP	0.02172	U/UP	0.02172	U/UP
0.02186	U/UP	0.02186	U/UP	0.02186	U/UP
0.02200	U/UP	0.02200	U/UP	0.02200	U/UP
0.02214	U/UP	0.02214	U/UP	0.02214	U/UP
0.02228	U/UP	0.02228	U/UP	0.02228	U/UP
0.02242	U/UP	0.02242	U/UP	0.02242	U/UP
0.02256	U/UP	0.02256	U/UP	0.02256	U/UP
0.02270	U/UP	0.02270	U/UP	0.02270	U/UP
0.02284	U/UP	0.02284	U/UP	0.02284	U/UP
0.02298	U/UP	0.02298	U/UP	0.02298	U/UP
0.02312	U/UP	0.02312	U/UP	0.02312	U/UP
0.02326	U/UP	0.02326	U/UP	0.02326	U/UP
0.02340	U/UP	0.02340	U/UP	0.02340	U/UP
0.02354	U/UP	0.02354	U/UP	0.02354	U/UP
0.02368	U/UP	0.02368	U/UP	0.02368	U/UP
0.02382	U/UP	0.02382	U/UP	0.02382	U/UP
0.02396	U/UP	0.02396	U/UP	0.02396	U/UP
0.02410	U/UP	0.02410	U/UP	0.02410	U/UP
0.02424	U/UP	0.02424	U/UP	0.02424	U/UP
0.02438	U/UP	0.02438	U/UP	0.02438	U/UP
0.02452	U/UP	0.02452	U/UP	0.02452	U/UP
0.02466	U/UP	0.02466	U/UP	0.02466	U/UP
0.02480	U/UP	0.02480	U/UP	0.02480	U/UP
0.02494	U/UP	0.02494	U/UP	0.02494	U/UP
0.02508	U/UP	0.02508	U/UP	0.02508	U/UP
0.02522	U/UP	0.02522	U/UP	0.02522	U/UP
0.02536	U/UP	0.02536	U/UP	0.02536	U/UP
0.02550	U/UP	0.02550	U/UP	0.02550	U/UP
0.02564	U/UP	0.02564	U/UP	0.02564	U/UP
0.02578	U/UP	0.02578	U/UP	0.02578	U/UP
0.02592	U/UP	0.02592	U/UP	0.02592	U/UP
0.02606	U/UP	0.02606	U/UP	0.02606	U/UP
0.02620	U/UP	0.02620	U/UP	0.02620	U/UP
0.02634	U/UP	0.02634	U/UP	0.02634	U/UP
0.02648	U/UP	0.02648	U/UP	0.02648	U/UP
0.02662	U/UP	0.02662	U/UP	0.02662	U/UP
0.02676	U/UP	0.02676	U/UP	0.02676	U/UP
0.02690	U/UP	0.02690	U/UP	0.02690	U/UP
0.02704</					

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBLE D1 (continued)

M = 0.730 ALPHA = 3.10 RPN = 6500000.

X/C = 0.404 Y/C = 1.20 UPPER X/C = 0.404 Y/C = 2.03 UPPER X/C = 0.404 Y/C = 2.45 UPPER
 CONSTANT CP(STATIC) = -1.210 CONSTANT CP(STATIC) = -1.210 CONSTANT CP(STATIC) = -1.210

Z/C	U/UP
0.00019	0.5103
0.00031	0.5799
0.00051	0.6663
0.00071	0.6900
0.00112	0.7411
0.00148	0.7706
0.00200	0.8090
0.00228	0.8331
0.00273	0.8607
0.00323	0.8891
0.00358	0.9048
0.00422	0.9389
0.00488	0.9641
0.00538	0.9847
0.00641	0.9952
0.00729	0.9988
0.00793	1.0000
0.00870	1.0002
0.00971	1.0000

Z/C	U/UP
0.00021	0.6191
0.00052	0.6877
0.00110	0.7432
0.00143	0.7911
0.00232	0.8402
0.00342	0.8975
0.00396	0.9240
0.00507	0.9735
0.00610	0.9945
0.00723	0.9996
0.00840	1.0004
0.00913	0.9996
0.00986	1.0000

Z/C	U/UP
0.00018	0.5257
0.00086	0.7167
0.00175	0.7791
0.00277	0.8403
0.00308	0.8771
0.00346	0.8944
0.00387	0.9249
0.00479	0.9501
0.00538	0.9811
0.00644	0.9935
0.00718	0.9993
0.00800	0.9999
0.00875	1.0000

X/C = 0.498	Y/C = 1.34	UPPER	X/C = 0.498	Y/C = 2.17	UPPER	X/C = 0.498	Y/C = 2.59	UPPER
Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)
0.00016	0.5294	-1.2817	0.00025	0.5867	-1.2816	0.00029	0.5994	-1.2815
0.00032	0.6040	-1.2814	0.00070	0.6917	-1.2808	0.00038	0.6332	-1.2813
0.00044	0.6376	-1.2812	0.00121	0.7386	-1.2799	0.00050	0.6533	-1.2811
0.00095	0.6979	-1.2803	0.00187	0.7832	-1.2787	0.00115	0.7313	-1.2800
0.00119	0.7257	-1.2799	0.00277	0.8321	-1.2771	0.00183	0.7778	-1.2788
0.00167	0.7578	-1.2791	0.00316	0.8544	-1.2764	0.00265	0.8291	-1.2773
0.00198	0.7804	-1.2785	0.00415	0.9001	-1.2747	0.00305	0.8510	-1.2766
0.00246	0.8042	-1.2777	0.00505	0.9339	-1.2731	0.00341	0.8629	-1.2760
0.00305	0.8321	-1.2766	0.00596	0.9657	-1.2715	0.00389	0.8880	-1.2751
0.00338	0.8468	-1.2760	0.00702	0.9889	-1.2696	0.00468	0.9151	-1.2737
0.00425	0.8812	-1.2745	0.00770	0.9941	-1.2684	0.00522	0.9386	-1.2728
0.00477	0.9059	-1.2736	0.00835	0.9994	-1.2673	0.00592	0.9629	-1.2716
0.00553	0.9297	-1.2722	0.00904	1.0003	-1.2660	0.00663	0.9808	-1.2703
0.00626	0.9548	-1.2709	0.01076	1.0000	-1.2639	0.00744	0.9924	-1.2680
0.00702	0.9735	-1.2696				0.00797	0.9973	-1.2679
0.00768	0.9843	-1.2684				0.00879	0.9989	-1.2665
0.00833	0.9950	-1.2673				0.00956	0.9998	-1.2651
0.00916	0.9984	-1.2658				0.00993	1.0000	-1.2645
0.01009	1.0000	-1.2642						
0.01080	0.9998	-1.2629						
0.01144	1.0000	-1.2618						

X/C = 0.574	Y/C = 1.31	UPPER	X/C = 0.574	Y/C = 2.14	UPPER	X/C = 0.574	Y/C = 2.56	UPPER
Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)
0.00023	0.2836	-0.7700	0.00026	0.3172	-0.7700	0.00044	0.3383	-0.7700
0.00053	0.2735	-0.7700	0.00047	0.3342	-0.7700	0.00095	0.3571	-0.7700
0.00086	0.3046	-0.7700	0.00076	0.3417	-0.7700	0.00167	0.4281	-0.7700
0.00109	0.3179	-0.7700	0.00115	0.3859	-0.7700	0.00199	0.4703	-0.7700
0.00160	0.3777	-0.7700	0.00149	0.4355	-0.7700	0.00227	0.4846	-0.7700
0.00200	0.4205	-0.7700	0.00215	0.5036	-0.7700	0.00258	0.5293	-0.7700
0.00255	0.4550	-0.7700	0.00252	0.5290	-0.7700	0.00317	0.5630	-0.7700
0.00305	0.5174	-0.7700	0.00335	0.6058	-0.7700	0.00369	0.6045	-0.7700
0.00360	0.5676	-0.7700	0.00405	0.6672	-0.7700	0.00416	0.6541	-0.7700
0.00410	0.6210	-0.7700	0.00468	0.7158	-0.7691	0.00488	0.6979	-0.7672
0.00470	0.6691	-0.7689	0.00549	0.7746	-0.7616	0.00525	0.7379	-0.7639
0.00527	0.7104	-0.7636	0.00609	0.8012	-0.7560	0.00577	0.7771	-0.7589
0.00596	0.7572	-0.7572	0.00656	0.8338	-0.7516	0.00649	0.8102	-0.7523
0.00655	0.8016	-0.7517	0.00712	0.8596	-0.7464	0.00715	0.8537	-0.7461
0.00707	0.8401	-0.7469	0.00804	0.9094	-0.7378	0.00750	0.8789	-0.7429
0.00783	0.8807	-0.7398	0.00885	0.9448	-0.7303	0.00833	0.9137	-0.7352
0.00835	0.9194	-0.7350	0.00985	0.9816	-0.7210	0.00884	0.9431	-0.7304
0.00908	0.9525	-0.7282	0.01065	0.9922	-0.7135	0.00970	0.9707	-0.7224
0.00991	0.9727	-0.7205	0.01140	0.9972	-0.7065	0.01051	0.9897	-0.7149
0.01075	0.9854	-0.7127	0.01224	0.9997	-0.6988	0.01147	0.9974	-0.7059
0.01186	0.9954	-0.7023	0.01310	1.0000	-0.6908	0.01237	0.9996	-0.6976
0.01279	0.9986	-0.6937				0.01326	1.0000	-0.6893
0.01359	1.0000	-0.6862						
0.01453	0.9998	-0.6775						
0.01542	1.0000	-0.6692						

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 9 PROBER D1 (concluded)

M = 0.730 ALPHA = 3.19 RF = 6500000.

X/C = 0.650 Y/C = 2.60 UPPER

Z/C	U/UP	CP(STATIC)
0.00057	0.3655	-0.4947
0.00127	0.3880	-0.4941
0.00384	0.5500	-0.4903
0.00797	0.6759	-0.4885
0.00968	0.7611	-0.4871
0.01178	0.8700	-0.4854
0.01380	0.9496	-0.4837
0.01655	0.9906	-0.4815
0.01858	1.0011	-0.4798
0.02067	0.9994	-0.4780
0.02237	1.0000	-0.4767

X/C = 0.750 Y/C = 2.21 UPPER

CONSTANT CP(STATIC) = -0.300

Z/C	U/UP
0.00057	0.3211
0.00092	0.3305
0.00168	0.3508
0.00265	0.3763
0.00321	0.4002
0.00383	0.4174
0.00437	0.4295
0.00455	0.4893
0.00832	0.5824
0.01015	0.6752
0.01155	0.7415
0.01270	0.8305
0.01450	0.9024
0.01688	0.9637
0.01844	0.9903
0.02055	0.9916
0.02249	0.9994
0.02603	0.9993
0.02792	1.0000

X/C = 0.900 Y/C = 2.43 UPPER

Z/C	U/UP	CP(STATIC)
0.00088	0.3730	-0.0313
0.00144	0.3926	-0.0323
0.00381	0.4367	-0.0364
0.00580	0.4850	-0.0399
0.00779	0.5381	-0.0434
0.00924	0.5826	-0.0460
0.01177	0.6405	-0.0504
0.01387	0.6906	-0.0505
0.01640	0.7350	-0.0505
0.01840	0.8113	-0.0505
0.02067	0.8408	-0.0505
0.02288	0.8975	-0.0505
0.02490	0.9173	-0.0505
0.02732	0.9600	-0.0505
0.02977	0.9837	-0.0505
0.03141	0.9939	-0.0505
0.03320	0.9958	-0.0505
0.03512	0.9985	-0.0505
0.03706	0.9999	-0.0505
0.03881	1.0000	-0.0515

X/C = 1.000 Y/C = 2.02 WAKE

Z/C	U/UP	CP(STATIC)
-0.01994	0.9799	0.1835
-0.01774	0.9657	0.1813
-0.01533	0.9463	0.1788
-0.01300	0.9155	0.1764
-0.01056	0.8880	0.1740
-0.00819	0.8399	0.1715
-0.00591	0.8122	0.1692
-0.00415	0.7732	0.1662
-0.00250	0.7437	0.1612
-0.00137	0.6495	0.1577
-0.00089	0.3428	0.1563
0.00102	0.1140	0.1515
0.00276	0.1833	0.1464
0.00425	0.2207	0.1420
0.00535	0.2474	0.1388
0.00736	0.2816	0.1329
0.00929	0.3217	0.1273
0.01134	0.3796	0.1213
0.01342	0.4343	0.1195
0.01543	0.4893	0.1184
0.01716	0.5157	0.1175
0.01935	0.5758	0.1163
0.02190	0.6374	0.1149
0.02393	0.7101	0.1138
0.02796	0.8238	0.1116
0.02984	0.8501	0.1105
0.03223	0.8969	0.1092
0.03400	0.9319	0.1083
0.03583	0.9331	0.1073
0.03718	0.9707	0.1065
0.03871	0.9777	0.1057
0.04040	0.9870	0.1048
0.04235	0.9988	0.1037
0.04277	0.9999	0.1035
0.04375	0.9993	0.1029
0.04547	1.0006	0.1020
0.04588	0.9996	0.1018
0.04649	1.0000	0.1014

X/C = 1.025 Y/C = 2.82 WAKE

Z/C	U/UP	CP(STATIC)
-0.03052	1.0000	0.1518
-0.02817	0.9988	0.1512
-0.02581	0.9971	0.1507
-0.02344	0.9976	0.1501
-0.02092	0.9926	0.1495
-0.01845	0.9785	0.1489
-0.01619	0.9526	0.1483
-0.01441	0.9232	0.1479
-0.01273	0.8928	0.1475
-0.01148	0.8723	0.1472
-0.01098	0.8622	0.1471
-0.00932	0.8339	0.1467
-0.00915	0.8272	0.1467
-0.00738	0.7969	0.1462
-0.00577	0.7577	0.1458
-0.00458	0.7090	0.1456
-0.00244	0.5250	0.1450
-0.00010	0.6090	0.1446
0.00203	0.4081	0.1407
0.00418	0.4467	0.1365
0.00638	0.4937	0.1321
0.00815	0.5274	0.1298
0.01068	0.5869	0.1271
0.01354	0.6550	0.1241
0.01576	0.7118	0.1217
0.01803	0.7647	0.1193
0.02049	0.8224	0.1167
0.02245	0.8582	0.1146
0.02508	0.9045	0.1118
0.02703	0.9352	0.1097
0.02912	0.9604	0.1076
0.03054	0.9741	0.1060
0.03266	0.9842	0.1037
0.03463	0.9924	0.1016
0.03661	1.0012	0.0995
0.03774	1.0001	0.0989
0.03786	0.9999	0.0982
0.03828	1.0000	0.0978

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 10 PROBES C1

M= 0.750 ALPHA= 3.19 RE= 6200000.

X/C= 0.152 Y/C= 1.17 LOWER
 CONSTANT CP(STATIC)=-0.010

Z/C	U/UP
0.00032	0.6893
0.00079	0.8522
0.00113	0.9127
0.00138	0.9403
0.00156	0.9583
0.00169	0.9712
0.00193	0.9861
0.00206	0.9909
0.00235	0.9969
0.00248	0.9983
0.00279	0.9990
0.00318	0.9999
0.00349	1.0000

X/C= 0.179 Y/C= 1.04 UPPER
 CONSTANT CP(STATIC)=-0.995

Z/C	U/UP
0.00028	0.5745
0.00053	0.6595
0.00059	0.6907
0.00092	0.7500
0.00121	0.7941
0.00135	0.8200
0.00167	0.8552
0.00208	0.8897
0.00226	0.9132
0.00266	0.9451
0.00298	0.9693
0.00335	0.9849
0.00357	0.9940
0.00382	0.9977
0.00414	0.9998
0.00448	0.9999
0.00481	1.0000

X/C= 0.319 Y/C= 1.15 UPPER
 CONSTANT CP(STATIC)=-1.095

Z/C	U/UP
0.00031	0.6468
0.00042	0.6816
0.00080	0.7345
0.00128	0.7830
0.00150	0.8056
0.00186	0.8358
0.00222	0.8631
0.00255	0.8833
0.00284	0.8997
0.00306	0.9144
0.00341	0.9335
0.00369	0.9475
0.00407	0.9655
0.00443	0.9778
0.00481	0.9877
0.00509	0.9930
0.00544	0.9968
0.00585	0.9988
0.00627	0.9996
0.00668	0.9998
0.00702	1.0000
0.00738	1.0000

X/C= 0.404 Y/C= 1.20 UPPER
 CONSTANT CP(STATIC)=-1.152

Z/C	U/UP
0.00015	0.5293
0.00068	0.6854
0.00120	0.7557
0.00176	0.7944
0.00196	0.8078
0.00248	0.8467
0.00293	0.8706
0.00316	0.8851
0.00374	0.9127
0.00426	0.9373
0.00467	0.9543
0.00530	0.9744
0.00589	0.9892
0.00644	0.9953
0.00706	0.9983
0.00753	0.9990
0.00809	0.9997
0.00870	0.9997
0.00934	1.0000

X/C= 0.498 Y/C= 1.34 UPPER
 CONSTANT CP(STATIC)=-1.2347

Z/C	U/UP	CP(STATIC)
0.00036	0.5879	-1.2347
0.00095	0.7044	-1.2342
0.00143	0.7455	-1.2338
0.00155	0.7572	-1.2337
0.00218	0.7949	-1.2331
0.00258	0.8184	-1.2328
0.00295	0.8341	-1.2325
0.00342	0.8598	-1.2321
0.00397	0.8850	-1.2316
0.00448	0.9018	-1.2312
0.00507	0.9241	-1.2307
0.00558	0.9440	-1.2302
0.00618	0.9594	-1.2297
0.00658	0.9704	-1.2294
0.00692	0.9787	-1.2291
0.00742	0.9878	-1.2287
0.00794	0.9932	-1.2282
0.00840	0.9970	-1.2278
0.00896	0.9986	-1.2274
0.00948	0.9995	-1.2269
0.00993	0.9993	-1.2265
0.01039	1.0000	-1.2261

X/C= 0.574 Y/C= 1.31 UPPER
 CONSTANT CP(STATIC)=-1.2322

Z/C	U/UP	CP(STATIC)
0.00034	0.1143	-0.7522
0.00065	0.3129	-0.7540
0.00106	0.4296	-0.7566
0.00138	0.4893	-0.7587
0.00155	0.5205	-0.7597
0.00196	0.5771	-0.7623
0.00233	0.6264	-0.7646
0.00265	0.6529	-0.7666
0.00317	0.6924	-0.7695
0.00352	0.7198	-0.7721
0.00390	0.7419	-0.7745
0.00422	0.7732	-0.7764
0.00457	0.7860	-0.7786
0.00494	0.8194	-0.7809
0.00535	0.8400	-0.7836
0.00577	0.8694	-0.7862
0.00616	0.8885	-0.7886
0.00663	0.9122	-0.7916
0.00701	0.9224	-0.7939
0.00743	0.9413	-0.7966
0.00790	0.9584	-0.8046
0.00838	0.9738	-0.8137
0.00887	0.9836	-0.8231
0.00928	0.9874	-0.8309
0.00966	0.9937	-0.8381
0.01001	0.9948	-0.8449
0.01058	0.9973	-0.8557
0.01099	0.9986	-0.8636
0.01136	0.9992	-0.8706
0.01181	0.9998	-0.8791
0.01254	1.0000	-0.8932
0.01285	1.0000	-0.8991

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 10 PROBES C1 (continued)

M= 0.750 ALPHA= 3.19 RE= 6200000.

X/C= 0.650 Y/C= 2.60 UPPER			X/C= 0.750 Y/C= 2.21 UPPER			X/C= 0.900 Y/C= 2.43 UPPER		
Z/C	U/UP	CP(STATIC)	CONSTANT CP(STATIC)=-0.355			Z/C	U/UP	CP(STATIC)
0.00100	0.0963	-0.5250	Z/C	U/UP		0.00088	0.2463	-0.1014
0.00162	0.1133	-0.5250	0.00099	0.0661		0.00167	0.2558	-0.1029
0.00240	0.1198	-0.5250	0.00279	0.0665		0.00262	0.2587	-0.1048
0.00344	0.1389	-0.5250	0.00328	0.0584		0.00514	0.2737	-0.1096
0.00490	0.2277	-0.5250	0.00403	0.0500		0.00672	0.3060	-0.1126
0.00610	0.2827	-0.5250	0.00499	0.0504		0.00836	0.3497	-0.1158
0.00770	0.3887	-0.5250	0.00735	0.1070		0.00974	0.3745	-0.1184
0.00948	0.5250	-0.5250	0.00869	0.1596		0.01177	0.4259	-0.1223
0.01117	0.6539	-0.5250	0.01021	0.2166		0.01364	0.4573	-0.1259
0.01284	0.7798	-0.5220	0.01163	0.2763		0.01548	0.4982	-0.1294
0.01453	0.8904	-0.5190	0.01304	0.3371		0.01694	0.5424	-0.1322
0.01645	0.9612	-0.5156	0.01457	0.3911		0.01776	0.5737	-0.1338
0.01805	0.9890	-0.5127	0.01618	0.4511		0.01890	0.6012	-0.1350
0.01878	0.9954	-0.5114	0.01758	0.5245		0.01955	0.6140	-0.1348
0.01997	0.9986	-0.5093	0.01827	0.5710		0.02210	0.6689	-0.1338
0.02061	0.9989	-0.5081	0.01939	0.6281		0.02390	0.7259	-0.1331
0.02146	0.9991	-0.5066	0.01995	0.6534		0.02561	0.7726	-0.1324
0.02273	0.9994	-0.5043	0.02207	0.7454		0.02710	0.7915	-0.1319
0.02415	0.9996	-0.5018	0.02362	0.8104		0.02880	0.8360	-0.1312
0.02565	0.9997	-0.4991	0.02496	0.8665		0.03090	0.8634	-0.1304
0.02753	0.9994	-0.4957	0.02616	0.8980		0.03267	0.8867	-0.1297
0.02938	0.9996	-0.4924	0.02747	0.9318		0.03467	0.9372	-0.1289
0.03127	1.0000	-0.4890	0.02913	0.9541		0.03596	0.9459	-0.1284
0.03291	1.0000	-0.4861	0.03063	0.9687		0.03678	0.9545	-0.1281
			0.03215	0.9856		0.03755	0.9640	-0.1278
			0.03317	0.9869		0.03992	0.9766	-0.1269
			0.03373	0.9925		0.04097	0.9821	-0.1265
			0.03428	0.9936		0.04195	0.9915	-0.1261
			0.03516	0.9939		0.04396	0.9951	-0.1253
			0.03606	0.9968		0.04604	0.9961	-0.1245
			0.03685	0.9976		0.04670	0.9972	-0.1242
			0.03760	0.9998		0.04736	0.9975	-0.1240
			0.03906	1.0000		0.04913	1.0004	-0.1233
						0.05029	1.0000	-0.1228
						0.05113	1.0000	-0.1225

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 10 PROBES C1 (concluded)

M= 0.750 ALPHA= 3.19 RE= 6200000.

X/C= 1.000 Y/C= 2.02 WAKE			X/C= 1.025 Y/C= 2.02 WAKE			X/C= 2.000 Y/C= 1.50 WAKE		
Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)
-0.01926	1.0000	0.0787	-0.02910	1.0000	0.1287	-0.14581	1.0000	0.0255
-0.01743	0.9918	0.0742	-0.02717	0.9992	0.1279	-0.13638	0.9991	0.0320
-0.01565	0.9815	0.0699	-0.02522	0.9995	0.1271	-0.12313	0.9988	0.0225
-0.01348	0.9556	0.0646	-0.02310	0.9978	0.1262	-0.11342	0.9993	0.0250
-0.01203	0.9318	0.0610	-0.02158	0.9966	0.1255	-0.10663	0.9991	0.0264
-0.01064	0.9042	0.0576	-0.02010	0.9923	0.1249	-0.09904	0.9996	0.0248
-0.00880	0.8700	0.0512	-0.01812	0.9818	0.1241	-0.09138	0.9988	0.0251
-0.00773	0.8490	0.0459	-0.01703	0.9698	0.1236	-0.08289	0.9991	0.0253
-0.00616	0.8256	0.0382	-0.01560	0.9527	0.1230	-0.07277	0.9983	0.0265
-0.00516	0.8078	0.0332	-0.01450	0.9362	0.1226	-0.06650	0.9990	0.0237
-0.00449	0.7942	0.0299	-0.01382	0.9254	0.1223	-0.06020	0.9980	0.0222
-0.00373	0.7838	0.0262	-0.01315	0.9129	0.1220	-0.05228	0.9977	0.0218
-0.00282	0.7655	0.0217	-0.01222	0.8964	0.1216	-0.04271	0.9937	0.0236
-0.00210	0.7346	0.0181	-0.01140	0.8815	0.1213	-0.03550	0.9904	0.0220
-0.00145	0.6081	0.0149	-0.01073	0.8687	0.1210	-0.02663	0.9837	0.0170
-0.00043	0.1563	0.0114	-0.00998	0.8549	0.1207	-0.01854	0.9747	0.0166
0.00005	0.1510	0.0090	-0.00940	0.8458	0.1204	-0.01203	0.9662	0.0198
0.00076	0.1987	0.0058	-0.00865	0.8343	0.1192	-0.00306	0.9477	0.0134
0.00150	0.1759	0.0018	-0.00780	0.8174	0.1178	0.00595	0.9287	0.0144
0.00417	0.2297	-0.0104	-0.00611	0.7887	0.1148	0.01418	0.9174	0.0078
0.00551	0.2557	-0.0124	-0.00492	0.7555	0.1127	0.02078	0.9092	0.0032
0.00687	0.2399	-0.0144	-0.00342	0.6696	0.1101	0.03152	0.9004	0.0117
0.00825	0.2615	-0.0165	-0.00187	0.5498	0.1074	0.03929	0.8988	0.0136
0.00905	0.2873	-0.0177	-0.00048	0.4508	0.1050	0.04760	0.9012	0.0099
0.00985	0.2698	-0.0189	0.00033	0.4216	0.1035	0.05509	0.9051	0.0072
0.01126	0.2992	-0.0210	0.00154	0.3999	0.1020	0.06426	0.9140	0.0093
0.01350	0.2852	-0.0244	0.00310	0.3997	0.0992	0.07177	0.9193	0.0050
0.01551	0.3091	-0.0260	0.00533	0.4118	0.0953	0.07929	0.9309	0.0067
0.01755	0.3589	-0.0267	0.00743	0.4375	0.0917	0.08932	0.9412	0.0088
0.01919	0.3724	-0.0272	0.00967	0.4825	0.0877	0.09768	0.9497	0.0098
0.02074	0.4065	-0.0277	0.01153	0.5173	0.0845	0.10437	0.9547	0.0100
0.02243	0.4176	-0.0283	0.01329	0.5447	0.0814	0.11273	0.9607	0.0109
0.02425	0.4372	-0.0298	0.01519	0.5761	0.0781	0.12276	0.9668	0.0090
0.02581	0.4306	-0.0294	0.01715	0.6093	0.0747	0.12944	0.9703	0.0128
0.02675	0.4839	-0.0297	0.01883	0.6273	0.0731	0.13778	0.9717	0.0148
0.02735	0.5010	-0.0299	0.01986	0.6550	0.0726	0.14611	0.9752	0.0117
0.02841	0.5100	-0.0302	0.02049	0.6703	0.0722	0.16437	0.9791	0.0068
0.02917	0.5098	-0.0305	0.02174	0.6892	0.0715	0.18089	0.9822	0.0089
0.03051	0.5185	-0.0309	0.02252	0.7024	0.0711	0.19976	0.9851	0.0116
0.03215	0.5593	-0.0314	0.02408	0.7245	0.0702	0.22413	0.9868	0.0068
0.03370	0.5965	-0.0319	0.02584	0.7611	0.0692	0.26157	0.9900	0.0078
0.03511	0.6071	-0.0324	0.02757	0.7920	0.0682	0.33582	0.9945	0.0057
0.03654	0.6334	-0.0329	0.02909	0.8134	0.0674	0.40633	0.9981	-0.0015
0.03789	0.6800	-0.0333	0.03061	0.8379	0.0665	0.46367	0.9985	-0.0050
0.03914	0.6873	-0.0337	0.03228	0.8667	0.0656	0.51265	0.9991	-0.0051
0.04005	0.7222	-0.0340	0.03365	0.8827	0.0648	0.54738	0.9999	-0.0095
0.04123	0.7366	-0.0344	0.03478	0.9036	0.0642	0.56943	1.0000	-0.0095
0.04207	0.7585	-0.0347	0.03605	0.9181	0.0634			
0.04270	0.7581	-0.0349	0.03703	0.9255	0.0629			
0.04312	0.7890	-0.0350	0.03780	0.9357	0.0625			
0.04389	0.7592	-0.0353	0.03821	0.9444	0.0622			
0.04458	0.7962	-0.0355	0.03985	0.9552	0.0613			
0.04520	0.7860	-0.0357	0.04053	0.9586	0.0609			
0.04602	0.7989	-0.0360	0.04147	0.9629	0.0604			
0.04669	0.8030	-0.0362	0.04234	0.9681	0.0599			
0.04675	0.8045	-0.0362	0.05015	1.0000	0.0486			
0.06265	1.0000	-0.0412						

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES C

M = 0.730 ALPHA = 3.19 RE = 2700000.

X/C = 0.152 Y/C = 1.17 LOWER

CONSTANT CP(STATIC) = 0.003

Z/C	U/UP
0.00014	0.5708
0.00026	0.7134
0.00053	0.8132
0.00071	0.8509
0.00095	0.8930
0.00114	0.9147
0.00129	0.9373
0.00144	0.9530
0.00160	0.9669
0.00184	0.9833
0.00199	0.9894
0.00219	0.9947
0.00234	0.9972
0.00250	0.9982
0.00285	0.9996
0.00305	1.0000
0.00322	1.0000

X/C = 0.179 Y/C = 1.04 UPPER

CONSTANT CP(STATIC) = -1.072

Z/C	U/UP
0.00023	0.5074
0.00042	0.6029
0.00061	0.6646
0.00084	0.7277
0.00098	0.7477
0.00119	0.7689
0.00150	0.8021
0.00164	0.8263
0.00192	0.8545
0.00207	0.8630
0.00221	0.8817
0.00253	0.9093
0.00275	0.9237
0.00295	0.9386
0.00321	0.9527
0.00353	0.9667
0.00370	0.9823
0.00408	0.9912
0.00444	0.9954
0.00488	0.9992
0.00527	0.9997
0.00563	0.9998
0.00601	1.0000

X/C = 0.404 Y/C = 1.20 UPPER

CONSTANT CP(STATIC) = -1.176

Z/C	U/UP
0.00030	0.5509
0.00039	0.5824
0.00059	0.6448
0.00108	0.7003
0.00128	0.7173
0.00168	0.7558
0.00200	0.7789
0.00237	0.8050
0.00267	0.8205
0.00301	0.8376
0.00354	0.8646
0.00370	0.8762
0.00414	0.8974
0.00438	0.9091
0.00471	0.9189
0.00523	0.9413
0.00560	0.9542
0.00593	0.9662
0.00648	0.9766
0.00706	0.9857
0.00745	0.9923
0.00809	0.9973
0.00866	0.9988
0.00938	0.9999
0.01008	0.9997
0.01087	1.0000

X/C = 0.498 Y/C = 1.34 UPPER

CONSTANT CP(STATIC) = -0.916

Z/C	U/UP
0.00032	0.4965
0.00071	0.5409
0.00087	0.5442
0.00114	0.5839
0.00144	0.6083
0.00182	0.6426
0.00214	0.6566
0.00242	0.6794
0.00299	0.7190
0.00323	0.7283
0.00379	0.7595
0.00405	0.7667
0.00427	0.7870
0.00467	0.8144
0.00492	0.8276
0.00530	0.8461
0.00577	0.8623
0.00628	0.8871
0.00652	0.8967
0.00707	0.9230
0.00760	0.9367
0.00831	0.9624
0.00913	0.9759
0.00966	0.9865
0.01008	0.9926
0.01084	0.9970
0.01150	0.9985
0.01214	0.9992
0.01273	0.9996
0.01359	0.9999
0.01441	1.0000
0.01517	1.0000

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES C (concluded)

M= 0.730 ALPHA= 3.19 RF= 2700000.

[illegible]

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES**CASE 12 PROBES D****M = 0.730 ALPHA = 3.19 RE = 2700000.**

X/C = 0.152 V/C = 1.17 LOWER				X/C = 0.152 V/C = 2.42 LOWER			
CONSTANT CP(STATIC) = 0.003				CONSTANT CP(STATIC) = 0.003			
Z/C	U/UP			Z/C	U/UP		
0.00014	0.5707			0.00013	0.5558		
0.00021	0.4816			0.00018	0.5821		
0.00032	0.7528			0.00054	0.8001		
0.00051	0.7969			0.00067	0.8352		
0.00065	0.8295			0.00076	0.8540		
0.00074	0.8498			0.00090	0.8737		
0.00097	0.8848			0.00103	0.8912		
0.00115	0.9031			0.00110	0.9040		
0.00132	0.9208			0.00127	0.9237		
0.00147	0.9438			0.00140	0.9383		
0.00163	0.9616			0.00155	0.9535		
0.00182	0.9783			0.00167	0.9640		
0.00199	0.9874			0.00185	0.9782		
0.00225	0.9928			0.00203	0.9864		
0.00238	0.9961			0.00218	0.9923		
0.00252	0.9979			0.00227	0.9947		
0.00285	0.9993			0.00246	0.9972		
0.00305	0.9993			0.00271	0.9987		
0.00331	1.0000			0.00300	1.0000		
0.00363	1.0000			0.00317	0.9996		
0.00382	1.0000			0.00342	1.0004		
				0.00367	1.0001		
				0.00396	1.0000		
X/C = 0.179 V/C = 1.04 UPPER				X/C = 0.179 V/C = 1.88 UPPER			
CONSTANT CP(STATIC) = 1.072				CONSTANT CP(STATIC) = 1.072			
Z/C	U/UP			Z/C	U/UP		
0.00017	0.5192			0.00014	0.4785		
0.00023	0.5639			0.00016	0.5261		
0.00040	0.6191			0.00023	0.5994		
0.00045	0.6605			0.00036	0.6470		
0.00061	0.6940			0.00047	0.6830		
0.00071	0.7146			0.00054	0.6981		
0.00086	0.7396			0.00062	0.7190		
0.00119	0.7833			0.00091	0.7574		
0.00140	0.8051			0.00121	0.7610		
0.00162	0.8313			0.00140	0.8172		
0.00187	0.8521			0.00175	0.8432		
0.00206	0.8717			0.00222	0.8661		
0.00228	0.8920			0.00250	0.9137		
0.00255	0.9135			0.00279	0.9380		
0.00282	0.9352			0.00311	0.9592		
0.00318	0.9548			0.00337	0.9770		
0.00348	0.9744			0.00368	0.9875		
0.00380	0.9872			0.00399	0.9941		
0.00424	0.9956			0.00430	0.9973		
0.00467	0.9992			0.00486	0.9986		
0.00512	1.0003			0.00486	0.9986		
0.00549	1.0000			0.00521	1.0002		
0.00581	1.0000			0.00565	0.9999		
				0.00598	0.9999		
				0.00621	1.0000		
X/C = 0.179 V/C = 2.29 UPPER				X/C = 0.179 V/C = 2.29 UPPER			
CONSTANT CP(STATIC) = 1.072				CONSTANT CP(STATIC) = 1.072			
Z/C	U/UP			Z/C	U/UP		
0.00015	0.4820			0.00015	0.4820		
0.00030	0.6334			0.00030	0.6334		
0.00048	0.6811			0.00048	0.6811		
0.00069	0.7150			0.00069	0.7150		
0.00073	0.7206			0.00073	0.7206		
0.00100	0.7670			0.00100	0.7670		
0.00130	0.7988			0.00130	0.7988		
0.00160	0.8314			0.00160	0.8314		
0.00250	0.8525			0.00250	0.8525		
0.00209	0.8765			0.00209	0.8765		
0.00321	0.9665			0.00321	0.9665		
0.00356	0.9821			0.00356	0.9821		
0.00390	0.9925			0.00390	0.9925		
0.00421	0.9971			0.00421	0.9971		
0.00456	0.9994			0.00456	0.9994		
0.00475	0.9997			0.00475	0.9997		
0.00515	0.9999			0.00515	0.9999		
0.00557	0.9997			0.00557	0.9997		
0.00590	1.0000			0.00590	1.0000		

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES D (continued)

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.319 Y/C= 1.15 UPPER X/C= 0.319 Y/C= 1.98 UPPER X/C= 0.319 Y/C= 2.40 UPPER

CONSTANT CP(STATIC)=-1.142

CONSTANT CP(STATIC)=-1.142

CONSTANT CP(STATIC)=-1.142

Z/C	U/UP
0.00012	0.5107
0.00020	0.6290
0.00046	0.6769
0.00068	0.7098
0.00087	0.7384
0.00105	0.7549
0.00125	0.7715
0.00150	0.7924
0.00181	0.8151
0.00218	0.8357
0.00245	0.8550
0.00274	0.8763
0.00316	0.8984
0.00374	0.9228
0.00417	0.9425
0.00457	0.9583
0.00495	0.9697
0.00523	0.9782
0.00543	0.9820
0.00584	0.9906
0.00618	0.9953
0.00659	0.9978
0.00686	0.9985
0.00744	0.9995
0.00752	0.9998
0.00754	0.9998
0.00754	0.9995
0.00781	1.0003
0.00781	1.0002
0.00788	0.9999
0.00810	1.0001
0.00833	1.0000

Z/C	U/UP
0.00025	0.5867
0.00038	0.6383
0.00050	0.6686
0.00060	0.6812
0.00072	0.6987
0.00098	0.7283
0.00126	0.7527
0.00146	0.7708
0.00176	0.7912
0.00222	0.8226
0.00255	0.8431
0.00283	0.8631
0.00312	0.8789
0.00342	0.8953
0.00369	0.9087
0.00400	0.9232
0.00431	0.9365
0.00457	0.9471
0.00495	0.9610
0.00527	0.9729
0.00567	0.9827
0.00607	0.9899
0.00643	0.9946
0.00676	0.9978
0.00676	0.9980
0.00681	0.9977
0.00712	0.9990
0.00752	0.9997
0.00784	0.9998
0.00809	0.9998
0.00845	1.0000

Z/C	U/UP
0.00013	0.4808
0.00053	0.6587
0.00079	0.7058
0.00112	0.7365
0.00138	0.7585
0.00169	0.7801
0.00197	0.8025
0.00226	0.8258
0.00258	0.8454
0.00295	0.8668
0.00331	0.8865
0.00368	0.9056
0.00402	0.9216
0.00444	0.9387
0.00467	0.9484
0.00498	0.9618
0.00545	0.9768
0.00578	0.9853
0.00616	0.9920
0.00647	0.9953
0.00675	0.9981
0.00675	0.9982
0.00680	0.9977
0.00714	0.9992
0.00742	0.9997
0.00772	1.0001
0.00790	1.0000

X/C= 0.404 Y/C= 1.20 UPPER

X/C= 0.404 Y/C= 2.03 UPPER

X/C= 0.404 Y/C= 2.45 UPPER

CONSTANT CP(STATIC)=-1.176

CONSTANT CP(STATIC)=-1.176

CONSTANT CP(STATIC)=-1.176

Z/C	U/UP
0.00020	0.4758
0.00044	0.5816
0.00060	0.6278
0.00076	0.6673
0.00100	0.6906
0.00116	0.7067
0.00148	0.7297
0.00165	0.7468
0.00189	0.7681
0.00212	0.7818
0.00239	0.8024
0.00295	0.8330
0.00326	0.8500
0.00358	0.8695
0.00395	0.8875
0.00435	0.9021
0.00477	0.9201
0.00521	0.9389
0.00565	0.9574
0.00630	0.9735
0.00696	0.9851
0.00749	0.9934
0.00826	0.9983
0.00910	0.9995
0.00980	1.0000
0.01051	1.0001
0.01113	0.9999
0.01163	1.0000

Z/C	U/UP
0.00035	0.5798
0.00061	0.6174
0.00079	0.6459
0.00088	0.6737
0.00115	0.7047
0.00142	0.7239
0.00167	0.7516
0.00180	0.7617
0.00206	0.7772
0.00249	0.8009
0.00298	0.8243
0.00342	0.8474
0.00396	0.8648
0.00530	0.9250
0.00570	0.9462
0.00628	0.9652
0.00685	0.9800
0.00732	0.9907
0.00790	0.9953
0.00840	0.9972
0.00882	0.9983
0.00943	0.9990
0.01066	0.9992
0.01137	0.9991
0.01204	0.9995
0.01275	1.0000

Z/C	U/UP
0.00033	0.5666
0.00049	0.6437
0.00062	0.6867
0.00118	0.7241
0.00158	0.7446
0.00181	0.7681
0.00193	0.7728
0.00244	0.8050
0.00287	0.8309
0.00328	0.8583
0.00360	0.8771
0.00397	0.8955
0.00453	0.9180
0.00520	0.9394
0.00572	0.9565
0.00643	0.9759
0.00693	0.9881
0.00756	0.9956
0.00809	0.9982
0.00870	0.9998
0.00912	1.0000
0.00970	1.0001
0.01053	1.0000

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES D (continued)

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.498 Y/C= 1.34 UPPER X/C= 0.498 Y/C= 2.17 UPPER X/C= 0.498 Y/C= 2.59 UPPER
 CONSTANT CP(STATIC)=-0.916 CONSTANT CP(STATIC)=-0.916 CONSTANT CP(STATIC)=-0.916

Z/C	U/UP
0.00028	0.4312
0.00047	0.5011
0.00060	0.5068
0.00083	0.5404
0.00099	0.5481
0.00111	0.5687
0.00143	0.5881
0.00151	0.6030
0.00187	0.6334
0.00210	0.6518
0.00242	0.6662
0.00306	0.7200
0.00336	0.7260
0.00366	0.7582
0.00409	0.7843
0.00453	0.7957
0.00491	0.8137
0.00529	0.8381
0.00578	0.8640
0.00645	0.8801
0.00685	0.9039
0.00740	0.9256
0.00808	0.9412
0.00885	0.9638
0.00953	0.9828
0.01005	0.9919
0.01063	0.9954
0.01108	0.9976
0.01123	0.9986
0.01190	0.9997
0.01246	1.0009
0.01307	1.0000
0.01344	0.9983
0.01344	0.9988
0.01344	0.9991
0.01353	0.9997
0.01432	1.0004
0.01498	1.0000

Z/C	U/UP
0.00015	0.3939
0.00038	0.4531
0.00057	0.4827
0.00070	0.5107
0.00076	0.5339
0.00099	0.5557
0.00121	0.5829
0.00131	0.5943
0.00150	0.6093
0.00194	0.6461
0.00240	0.6824
0.00268	0.7077
0.00310	0.7310
0.00381	0.7774
0.00434	0.8029
0.00477	0.8272
0.00519	0.8454
0.00570	0.8736
0.00603	0.8983
0.00653	0.9176
0.00702	0.9335
0.00738	0.9442
0.00786	0.9591
0.00833	0.9707
0.00891	0.9858
0.00947	0.9925
0.00996	0.9963
0.01067	0.9987
0.01067	0.9989
0.01067	0.9990
0.01134	0.9998
0.01196	1.0003
0.01243	1.0001
0.01278	1.0000

Z/C	U/UP
0.00041	0.5234
0.00057	0.5351
0.00065	0.5401
0.00074	0.5459
0.00091	0.5607
0.00112	0.5734
0.00141	0.5977
0.00176	0.6173
0.00203	0.6330
0.00227	0.6536
0.00232	0.6584
0.00279	0.6869
0.00322	0.7155
0.00375	0.7398
0.00400	0.7632
0.00448	0.7788
0.00480	0.8040
0.00529	0.8299
0.00573	0.8512
0.00623	0.8755
0.00678	0.8999
0.00732	0.9230
0.00790	0.9389
0.00829	0.9524
0.00862	0.9647
0.00902	0.9744
0.00966	0.9858
0.01003	0.9927
0.01060	0.9961
0.01108	0.9982
0.01158	0.9989
0.01158	0.9993
0.01212	0.9994
0.01264	0.9995
0.01305	0.9998
0.01341	1.0000
0.01403	1.0000

X/C= 0.574 Y/C= 2.14 UPPER

X/C= 0.574 Y/C= 2.56 UPPER

Z/C	U/UP	CP(STATIC)
0.00018	0.4013	-0.5797
0.00031	0.4352	-0.5795
0.00052	0.4547	-0.5792
0.00057	0.4543	-0.5792
0.00068	0.4769	-0.5790
0.00086	0.4642	-0.5787
0.00094	0.4938	-0.5786
0.00110	0.4897	-0.5784
0.00120	0.4864	-0.5782
0.00133	0.5052	-0.5780
0.00164	0.5362	-0.5776
0.00195	0.5304	-0.5771
0.00218	0.5465	-0.5768
0.00252	0.5676	-0.5763
0.00310	0.5890	-0.5754
0.00343	0.6197	-0.5749
0.00383	0.6540	-0.5744
0.00414	0.6771	-0.5739
0.00451	0.6891	-0.5733
0.00480	0.6954	-0.5729
0.00518	0.7185	-0.5723
0.00549	0.7328	-0.5719
0.00582	0.7572	-0.5714
0.00621	0.7804	-0.5708
0.00653	0.8083	-0.5704
0.00702	0.8226	-0.5696
0.00741	0.8483	-0.5691
0.00781	0.8734	-0.5685
0.00840	0.8999	-0.5676
0.00848	0.9072	-0.5675
0.00856	0.9097	-0.5674
0.00891	0.9318	-0.5669
0.00932	0.9488	-0.5662
0.00969	0.9592	-0.5657
0.00994	0.9683	-0.5653
0.01052	0.9809	-0.5645
0.01093	0.9893	-0.5639
0.01135	0.9929	-0.5632
0.01170	0.9965	-0.5627
0.01202	0.9971	-0.5623
0.01258	0.9986	-0.5614
0.01299	0.9997	-0.5608
0.01396	1.0002	-0.5594
0.01521	1.0001	-0.5575
0.01683	1.0000	-0.5552

Z/C	U/UP	CP(STATIC)
0.00032	0.3974	-0.5795
0.00055	0.4281	-0.5792
0.00084	0.4494	-0.5788
0.00105	0.4698	-0.5784
0.00127	0.4849	-0.5781
0.00131	0.4869	-0.5781
0.00172	0.5116	-0.5775
0.00205	0.5329	-0.5770
0.00247	0.5475	-0.5764
0.00267	0.5657	-0.5761
0.00305	0.5814	-0.5755
0.00333	0.6022	-0.5751
0.00377	0.6344	-0.5744
0.00411	0.6562	-0.5739
0.00450	0.6840	-0.5734
0.00493	0.7036	-0.5727
0.00538	0.7289	-0.5721
0.00587	0.7500	-0.5713
0.00620	0.7684	-0.5709
0.00647	0.7926	-0.5704
0.00681	0.8084	-0.5700
0.00733	0.8352	-0.5692
0.00761	0.8577	-0.5688
0.00803	0.8762	-0.5682
0.00840	0.8964	-0.5676
0.00879	0.9170	-0.5670
0.00879	0.9302	-0.5670
0.00882	0.9308	-0.5670
0.00923	0.9440	-0.5664
0.00966	0.9568	-0.5657
0.01000	0.9658	-0.5652
0.01029	0.9769	-0.5648
0.01080	0.9836	-0.5641
0.01132	0.9904	-0.5633
0.01166	0.9936	-0.5628
0.01194	0.9964	-0.5624
0.01236	0.9981	-0.5618
0.01287	0.9990	-0.5610
0.01317	0.9996	-0.5606
0.01448	1.0000	-0.5586
0.01600	1.0000	-0.5564
0.01728	1.0000	-0.5545

BOUNDARY LAYER AND WAKE PROFILES

CASE 12 PROBES D (concluded)

M= 0.730 ALPHA= 3.19 RE= 2700000.

X/C= 0.650	Y/C= 2.60	UPPER	X/C= 0.750	Y/C= 2.21	UPPER	X/C= 0.900	Y/C= 2.43	UPPER
Z/C	U/UP	CP(STATIC)	CONSTANT CP(STATIC)=-0.288			Z/C	U/UP	CP(STATIC)
0.00083	0.4554	-0.4595				0.00080	0.2719	-0.0303
0.00135	0.4777	-0.4592	Z/C	U/UP		0.00128	0.2929	-0.0306
0.00214	0.5285	-0.4586	0.00078	0.3670		0.00207	0.3120	-0.0309
0.00214	0.5247	-0.4586	0.00148	0.4122		0.00207	0.3207	-0.0309
0.00344	0.6013	-0.4577	0.00189	0.4297		0.00326	0.3488	-0.0315
0.00525	0.6804	-0.4564	0.00238	0.4457		0.00503	0.3939	-0.0324
0.00695	0.7704	-0.4552	0.00300	0.4789		0.00661	0.4422	-0.0332
0.00873	0.8556	-0.4540	0.00300	0.4631		0.00827	0.4904	-0.0340
0.01043	0.9158	-0.4528	0.00300	0.4684		0.00962	0.5287	-0.0346
0.01251	0.9770	-0.4513	0.00341	0.4799		0.01215	0.5942	-0.0359
0.01470	0.9975	-0.4498	0.00390	0.4912		0.01449	0.6558	-0.0370
0.01693	0.9995	-0.4482	0.00403	0.5215		0.01662	0.7259	-0.0381
0.01896	1.0000	-0.4468	0.00513	0.5710		0.01847	0.7784	-0.0390
0.02087	1.0000	-0.4454	0.00669	0.6271		0.02049	0.8406	-0.0400
			0.00819	0.6919		0.02208	0.8761	-0.0408
			0.00965	0.7598		0.02419	0.9252	-0.0418
			0.01096	0.8120		0.02590	0.9485	-0.0426
			0.01277	0.8820		0.02808	0.9773	-0.0437
			0.01477	0.9410		0.02998	0.9916	-0.0446
			0.01669	0.9809		0.03162	0.9950	-0.0454
			0.01846	0.9955		0.03348	0.9983	-0.0464
			0.02019	0.9994		0.03517	0.9996	-0.0472
			0.02159	0.9994		0.03859	1.0003	-0.0494
			0.02332	0.9999		0.04011	1.0000	-0.0510
			0.02473	1.0000				

X/C= 1.000	Y/C= 2.02	WAKE	X/C= 1.025	Y/C= 2.82	WAKE	X/C= 2.000	Y/C= 1.50	WAKE
Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)	Z/C	U/UP	CP(STATIC)
-0.02032	0.9856	0.1490	-0.03085	1.0000	0.1231	-0.06650	1.0000	0.0263
-0.02025	0.9849	0.1490	-0.02901	1.0000	0.1227	-0.05148	1.0003	0.0230
-0.01850	0.9726	0.1487	-0.02691	0.9993	0.1221	-0.04351	1.0000	0.0142
-0.01652	0.9482	0.1407	-0.02480	0.9993	0.1216	-0.03389	0.9990	0.0210
-0.01445	0.9222	0.1322	-0.02267	0.9960	0.1210	-0.03067	0.9978	0.0186
-0.01227	0.8904	0.1233	-0.02084	0.9897	0.1205	-0.02744	0.9967	0.0152
-0.01056	0.8644	0.1164	-0.01845	0.9730	0.1199	-0.02178	0.9929	0.0186
-0.00827	0.8350	0.1070	-0.01686	0.9529	0.1195	-0.02016	0.9899	0.0210
-0.00675	0.8209	0.1039	-0.01517	0.9270	0.1190	-0.01447	0.9842	0.0171
-0.00507	0.7964	0.1027	-0.01273	0.8851	0.1184	-0.00959	0.9764	0.0166
-0.00266	0.7517	0.1010	-0.01073	0.8461	0.1179	-0.00633	0.9708	0.0186
-0.00043	0.0000	0.0997	-0.00823	0.7997	0.1172	-0.00224	0.9611	0.0195
0.00174	0.0000	0.0982	-0.00823	0.8025	0.1172	0.00267	0.9495	0.0084
0.00386	0.0000	0.0967	-0.00823	0.8036	0.1172	0.00513	0.9419	0.0152
0.00598	0.0092	0.0952	-0.00602	0.7527	0.1166	0.00513	0.9428	0.0195
0.00784	0.1805	0.0939	-0.00375	0.6438	0.1160	0.00513	0.9435	0.0210
0.00970	0.2335	0.0926	-0.00171	0.4707	0.1155	0.01006	0.9295	0.0152
0.01143	0.3134	0.0914	0.00033	0.3045	0.1150	0.01418	0.9188	0.0152
0.01333	0.3631	0.0901	0.00245	0.2800	0.1145	0.01830	0.9119	0.0210
0.01528	0.4328	0.0887	0.00443	0.3008	0.1140	0.02325	0.9047	0.0142
0.01880	0.5201	0.0863	0.00662	0.3515	0.1113	0.02739	0.9011	0.0162
0.02090	0.5658	0.0848	0.00847	0.3971	0.1082	0.03070	0.8983	0.0166
0.02259	0.6278	0.0836	0.01043	0.4528	0.1049	0.03348	0.8984	0.0162
0.02464	0.7066	0.0822	0.01287	0.5141	0.1030	0.04012	0.9006	0.0152
0.02620	0.7396	0.0811	0.01495	0.5696	0.1013	0.04427	0.9036	0.0196
0.02804	0.7913	0.0798	0.01706	0.6302	0.0995	0.04760	0.9076	0.0148
0.02984	0.8477	0.0786	0.01875	0.6865	0.0982	0.05259	0.9168	0.0069
0.03176	0.8852	0.0772	0.02088	0.7371	0.0964	0.05509	0.9211	0.0099
0.03370	0.9291	0.0759	0.02283	0.7971	0.0941	0.05925	0.9287	0.0153
0.03550	0.9599	0.0746	0.02508	0.8437	0.0912	0.06509	0.9378	0.0069
0.03680	0.9764	0.0737	0.02713	0.8939	0.0885	0.06760	0.9459	0.0144
0.03815	0.9849	0.0728	0.02902	0.9321	0.0860	0.07344	0.9520	0.0099
0.03949	0.9916	0.0718	0.03046	0.9557	0.0841	0.07762	0.9603	0.0104
0.04192	0.9951	0.0701	0.03213	0.9744	0.0819	0.08096	0.9649	0.0030
0.04333	0.9972	0.0691	0.03373	0.9849	0.0798	0.08597	0.9724	0.0095
0.04458	0.9986	0.0683	0.03542	0.9930	0.0776	0.09016	0.9765	0.0129
0.04554	0.9997	0.0676	0.03640	0.9939	0.0763	0.09434	0.9795	0.0124
0.04635	1.0000	0.0670	0.03654	0.9958	0.0761	0.09768	0.9842	0.0100
			0.03780	0.9973	0.0745	0.10605	0.9865	0.0218
			0.03924	1.0000	0.0726	0.11273	0.9913	0.0101
						0.12109	0.9937	0.0125
						0.13194	0.9956	0.0136
						0.14694	0.9963	0.0156
						0.16437	0.9967	0.0101
						0.18007	0.9984	0.0201
						0.19731	0.9981	0.0116
						0.22976	1.0000	0.0089
						0.24655	0.9997	0.0035
						0.26235	1.0000	0.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D

M = 0.745 ALPHA = 3.19 RE = 2700000.

X/C = 0.152 Y/C = 1.17 LOWER
 CONSTANT CP(STATIC) = -0.018

Z/C	U/Up
0.00014	0.5739
0.00025	0.6962
0.00032	0.7556
0.00044	0.7901
0.00055	0.8057
0.00069	0.8361
0.00079	0.8566
0.00088	0.8765
0.00097	0.8877
0.00111	0.9046
0.00120	0.9221
0.00131	0.9333
0.00146	0.9456
0.00152	0.9546
0.00167	0.9638
0.00173	0.9720
0.00185	0.9823
0.00202	0.9893
0.00213	0.9917
0.00243	0.9967
0.00273	0.9993
0.00297	0.9993
0.00318	1.0000
0.00362	1.0000
0.00408	1.0000

X/C = 0.152 Y/C = 2.00 LOWER
 CONSTANT CP(STATIC) = -0.018

Z/C	U/Up
0.00017	0.6056
0.00023	0.6911
0.00029	0.7229
0.00038	0.7533
0.00044	0.7753
0.00060	0.8132
0.00070	0.8365
0.00079	0.8580
0.00089	0.8733
0.00106	0.9005
0.00118	0.9159
0.00132	0.9331
0.00137	0.9410
0.00146	0.9499
0.00158	0.9620
0.00166	0.9684
0.00175	0.9751
0.00186	0.9824
0.00197	0.9862
0.00203	0.9888
0.00212	0.9916
0.00223	0.9937
0.00232	0.9945
0.00262	0.9977
0.00295	1.0000
0.00319	0.9989
0.00344	0.9984
0.00392	0.9994
0.00505	1.0000
0.00559	1.0000
0.00608	1.0000

X/C = 0.152 Y/C = 2.42 LOWER
 CONSTANT CP(STATIC) = -0.018

Z/C	U/Up
0.00013	0.5681
0.00018	0.6472
0.00026	0.7312
0.00043	0.7990
0.00052	0.8162
0.00062	0.8370
0.00075	0.8563
0.00082	0.8691
0.00093	0.8836
0.00103	0.8982
0.00120	0.9200
0.00125	0.9276
0.00133	0.9359
0.00142	0.9461
0.00150	0.9535
0.00157	0.9609
0.00170	0.9711
0.00179	0.9771
0.00190	0.9829
0.00210	0.9901
0.00222	0.9944
0.00239	0.9971
0.00275	0.9994
0.00293	1.0000
0.00331	1.0000

X/C = 0.179 Y/C = 1.04 UPPER
 CONSTANT CP(STATIC) = -0.996

Z/C	U/Up
0.00017	0.4893
0.00024	0.5565
0.00034	0.6074
0.00038	0.6324
0.00045	0.6522
0.00053	0.6810
0.00063	0.6959
0.00073	0.7176
0.00086	0.7372
0.00094	0.7468
0.00106	0.7585
0.00129	0.7901
0.00146	0.8097
0.00156	0.8223
0.00194	0.8608
0.00218	0.8832
0.00240	0.9028
0.00265	0.9216
0.00318	0.9602
0.00367	0.9841
0.00401	0.9933
0.00435	0.9973
0.00483	0.9997
0.00535	0.9998
0.00570	0.9997
0.00606	1.0000

X/C = 0.179 Y/C = 1.88 UPPER
 CONSTANT CP(STATIC) = -0.996

Z/C	U/Up
0.00023	0.5492
0.00030	0.5996
0.00036	0.6331
0.00051	0.6754
0.00060	0.6934
0.00067	0.7139
0.00078	0.7252
0.00084	0.7441
0.00091	0.7515
0.00100	0.7645
0.00113	0.7753
0.00121	0.7859
0.00153	0.8214
0.00185	0.8589
0.00211	0.8784
0.00237	0.9024
0.00290	0.9434
0.00341	0.9761
0.00399	0.9927
0.00454	0.9984
0.00499	0.9997
0.00569	0.9998
0.00642	1.0000
0.00685	1.0000

X/C = 0.179 Y/C = 2.29 UPPER
 CONSTANT CP(STATIC) = -0.996

Z/C	U/Up
0.00017	0.5063
0.00035	0.6414
0.00053	0.6853
0.00071	0.7195
0.00098	0.7556
0.00134	0.8029
0.00149	0.8201
0.00194	0.8679
0.00241	0.9097
0.00292	0.9484
0.00337	0.9755
0.00390	0.9924
0.00430	0.9979
0.00479	0.9999
0.00530	1.0004
0.00576	1.0000

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D (continued)

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 0.319 Y/C= 1.15 UPPER		X/C= 0.319 Y/C= 1.98 UPPER		X/C= 0.319 Y/C= 2.40 UPPER	
CONSTANT CP(STATIC)=-1.110		CONSTANT CP(STATIC)=-1.110		CONSTANT CP(STATIC)=-1.110	
Z/C	U/UP	Z/C	U/UP	Z/C	U/UP
0.00012	0.4724	0.00022	0.5609	0.00033	0.6455
0.00038	0.6382	0.00027	0.6040	0.00072	0.7100
0.00059	0.6769	0.00035	0.6321	0.00085	0.7268
0.00070	0.6948	0.00050	0.6678	0.00140	0.7775
0.00109	0.7442	0.00062	0.6902	0.00195	0.8145
0.00128	0.7660	0.00068	0.6975	0.00252	0.8494
0.00150	0.7838	0.00080	0.7066	0.00301	0.8791
0.00173	0.8013	0.00090	0.7201	0.00354	0.9068
0.00230	0.8414	0.00098	0.7239	0.00397	0.9287
0.00275	0.8705	0.00110	0.7348	0.00454	0.9517
0.00305	0.8916	0.00121	0.7433	0.00505	0.9718
0.00346	0.9082	0.00128	0.7498	0.00552	0.9838
0.00401	0.9326	0.00156	0.7778	0.00588	0.9913
0.00450	0.9535	0.00189	0.8042	0.00623	0.9955
0.00487	0.9664	0.00214	0.8178	0.00653	0.9979
0.00532	0.9792	0.00242	0.8388	0.00699	0.9991
0.00566	0.9862	0.00293	0.8692	0.00726	0.9996
0.00609	0.9924	0.00345	0.8961	0.00760	0.9995
0.00649	0.9970	0.00400	0.9225	0.00794	1.0001
0.00685	0.9990	0.00454	0.9468	0.00835	0.9998
0.00710	0.9993	0.00510	0.9664	0.00887	1.0001
0.00760	1.0000	0.00572	0.9846	0.00929	1.0000
0.00800	1.0000	0.00612	0.9915		
		0.00650	0.9958		
		0.00698	0.9985		
		0.00743	0.9997		
		0.00780	0.9994		
		0.00818	1.0001		
		0.00861	1.0000		

X/C= 0.404 Y/C= 1.20 UPPER		X/C= 0.404 Y/C= 2.45 UPPER	
CONSTANT CP(STATIC)=-1.148		CONSTANT CP(STATIC)=-1.148	
Z/C	U/UP	Z/C	U/UP
0.00019	0.5186	0.00018	0.5202
0.00031	0.5920	0.00038	0.6309
0.00059	0.6421	0.00042	0.6424
0.00068	0.6683	0.00082	0.6925
0.00084	0.6900	0.00119	0.7258
0.00092	0.7056	0.00151	0.7482
0.00116	0.7196	0.00182	0.7730
0.00128	0.7333	0.00225	0.7998
0.00140	0.7435	0.00290	0.8362
0.00152	0.7543	0.00318	0.8530
0.00168	0.7645	0.00375	0.8925
0.00188	0.7793	0.00467	0.9284
0.00205	0.7891	0.00577	0.9614
0.00220	0.8041	0.00655	0.9832
0.00242	0.8159	0.00752	0.9955
0.00254	0.8238	0.00823	0.9988
0.00277	0.8330	0.00905	1.0000
0.00318	0.8545	0.01081	1.0000
0.00346	0.8682		
0.00362	0.8780		
0.00422	0.9054		
0.00462	0.9243		
0.00506	0.9406		
0.00543	0.9552		
0.00650	0.9816		
0.00741	0.9939		
0.00797	0.9979		
0.00858	0.9988		
0.00938	0.9999		
0.01025	1.0000		

Table 6.8 (continued)

CASE 13 PROBES D (continued)

M = 0.745 ALPHA = 3.19 RE = 2700000.

X/C = 0.498 Y/C = 1.34 UPPER

CONSTANT CP(STATIC) = -1.202

Z/C	U/UP
0.00020	0.4756
0.00028	0.5886
0.00036	0.6276
0.00055	0.6525
0.00068	0.6693
0.00087	0.6818
0.00095	0.6944
0.00115	0.7029
0.00123	0.7124
0.00135	0.7214
0.00155	0.7345
0.00175	0.7433
0.00198	0.7591
0.00218	0.7706
0.00225	0.7764
0.00249	0.7848
0.00274	0.8075
0.00313	0.8215
0.00329	0.8302
0.00406	0.8591
0.00441	0.8755
0.00474	0.8885
0.00510	0.9016
0.00605	0.9333
0.00679	0.9540
0.00735	0.9673
0.00787	0.9777
0.00858	0.9894
0.00937	0.9956
0.00999	0.9974
0.01058	0.9987
0.01093	0.9993
0.01150	0.9992
0.01231	0.9986
0.01277	1.0000
0.01321	0.9995
0.01392	1.0000

X/C = 0.498 Y/C = 2.17 UPPER

CONSTANT CP(STATIC) = -1.202

Z/C	U/UP
0.00037	0.5723
0.00046	0.6244
0.00075	0.6651
0.00085	0.6808
0.00098	0.6921
0.00120	0.7144
0.00132	0.7239
0.00145	0.7387
0.00169	0.7470
0.00175	0.7594
0.00185	0.7632
0.00200	0.7728
0.00217	0.7804
0.00228	0.7877
0.00270	0.8130
0.00312	0.8394
0.00352	0.8530
0.00388	0.8729
0.00463	0.9015
0.00545	0.9291
0.00633	0.9529
0.00717	0.9734
0.00793	0.9869
0.00885	0.9964
0.00937	0.9980
0.01005	0.9993
0.01073	0.9996
0.01150	1.0000

X/C = 0.498 Y/C = 2.50 UPPER

CONSTANT CP(STATIC) = -1.202

Z/C	U/UP
0.00031	0.5791
0.00036	0.5941
0.00038	0.6095
0.00041	0.6260
0.00043	0.6416
0.00048	0.6540
0.00053	0.6646
0.00057	0.6689
0.00076	0.6946
0.00079	0.6985
0.00119	0.7177
0.00124	0.7243
0.00159	0.7462
0.00180	0.7599
0.00200	0.7790
0.00238	0.7976
0.00297	0.8233
0.00324	0.8370
0.00387	0.8676
0.00465	0.8933
0.00553	0.9214
0.00621	0.9455
0.00696	0.9681
0.00760	0.9805
0.00832	0.9911
0.00896	0.9974
0.00974	0.9987
0.01024	0.9988
0.01136	1.0000
0.01198	1.0001
0.01239	1.0000

X/C = 0.574 Y/C = 1.31 UPPER

Z/C	U/UP	CP(STATIC)
0.00023	0.2044	-0.6600
0.00040	0.2163	-0.6600
0.00053	0.2216	-0.6600
0.00065	0.2289	-0.6600
0.00095	0.2517	-0.6600
0.00111	0.2665	-0.6600
0.00123	0.2784	-0.6600
0.00190	0.3323	-0.6600
0.00223	0.3582	-0.6600
0.00253	0.3882	-0.6600
0.00310	0.4376	-0.6600
0.00374	0.4870	-0.6600
0.00411	0.5388	-0.6600
0.00458	0.5663	-0.6600
0.00510	0.6145	-0.6593
0.00613	0.7089	-0.6517
0.00663	0.7358	-0.6480
0.00700	0.7675	-0.6453
0.00747	0.7903	-0.6418
0.00809	0.8371	-0.6372
0.00845	0.8545	-0.6346
0.00873	0.8825	-0.6325
0.00933	0.9056	-0.6280
0.00988	0.9258	-0.6240
0.01019	0.9412	-0.6217
0.01053	0.9482	-0.6192
0.01092	0.9573	-0.6163
0.01140	0.9736	-0.6128
0.01179	0.9827	-0.6099
0.01234	0.9891	-0.6059
0.01282	0.9882	-0.6024
0.01312	0.9908	-0.6001
0.01378	0.9922	-0.5953
0.01507	1.0000	-0.5857

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D (continued)

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 0.650 Y/C= 2.60 UPPER			X/C= 0.750 Y/C= 2.21 UPPER			X/C= 0.900 Y/C= 2.43 UPPER		
Z/C	U/UP	CP(STATIC)	CONSTANT CP(STATIC)=-0.2720			Z/C	U/UP	CP(STATIC)
0.00061	0.2061	-0.4400	0.00057	0.1992		0.00057	0.1878	-0.0473
0.00090	0.2392	-0.4400				0.00239	0.2382	-0.0527
0.00129	0.2383	-0.4400	0.00105	0.1999		0.00625	0.2995	-0.0606
0.00158	0.2649	-0.4400	0.00154	0.2161		0.00782	0.3376	-0.0614
0.00178	0.2878	-0.4400	0.00203	0.2190		0.00942	0.3915	-0.0622
0.00217	0.3025	-0.4400	0.00217	0.2175		0.01195	0.4405	-0.0635
0.00246	0.3256	-0.4400	0.00258	0.2359		0.01425	0.4997	-0.0647
0.00265	0.3344	-0.4400	0.00286	0.2449		0.01633	0.5432	-0.0658
0.00285	0.3911	-0.4400	0.00335	0.2574		0.01845	0.5359	-0.0669
0.00323	0.3332	-0.4400	0.00369	0.2578		0.02048	0.6434	-0.0680
0.00362	0.3373	-0.4400	0.00554	0.2860		0.02190	0.6745	-0.0687
0.00381	0.3738	-0.4400	0.00723	0.3324		0.02346	0.7063	-0.0695
0.00410	0.4134	-0.4400	0.00886	0.3711		0.02478	0.7389	-0.0702
0.00439	0.3885	-0.4400	0.01037	0.4373		0.02752	0.7998	-0.0716
0.00458	0.3757	-0.4400	0.01138	0.4724		0.02791	0.8062	-0.0718
0.00487	0.4106	-0.4400	0.01194	0.5082		0.02845	0.8198	-0.0721
0.00516	0.4238	-0.4400	0.01375	0.5894		0.02905	0.8299	-0.0724
0.00545	0.4364	-0.4400	0.01572	0.6868		0.02965	0.8304	-0.0727
0.00554	0.4418	-0.4400	0.01763	0.7648		0.03122	0.8676	-0.0735
0.00583	0.4879	-0.4400	0.01950	0.8302		0.03249	0.9064	-0.0742
0.00602	0.4746	-0.4400	0.02128	0.9069		0.03350	0.9226	-0.0747
0.00640	0.4740	-0.4400	0.02242	0.9379		0.03472	0.9347	-0.0754
0.00858	0.5450	-0.4400	0.02366	0.9597		0.03587	0.9493	-0.0760
0.01064	0.5969	-0.4400	0.02483	0.9823		0.03659	0.9524	-0.0763
0.01276	0.6648	-0.4400	0.02616	0.9882		0.03758	0.9698	-0.0769
0.01479	0.7303	-0.4378	0.02688	0.9964		0.03891	0.9755	-0.0775
0.01681	0.7845	-0.4356	0.02718	0.9974		0.04038	0.9867	-0.0783
0.01906	0.8511	-0.4332	0.02759	0.9987		0.04151	0.9847	-0.0789
0.02150	0.9304	-0.4306	0.02806	0.9992		0.04297	0.9937	-0.0796
0.02384	0.9768	-0.4280	0.02858	0.9989		0.04441	0.9995	-0.0804
0.02619	0.9967	-0.4270	0.02988	0.9997		0.04595	1.0002	-0.0812
0.02820	1.0002	-0.4270	0.03095	0.9999		0.04733	1.0000	-0.0819
0.02937	0.9998	-0.4270	0.03171	1.0000		0.04801	0.9997	-0.0823
0.03058	1.0000	-0.4270				0.04833	0.9991	-0.0825
						0.04899	1.0000	-0.0828
						0.04970	1.0001	-0.0831
						0.05062	1.0000	-0.0836

Table 6.8 (continued)

BOUNDARY LAYER AND WAKE PROFILES

CASE 13 PROBES D (concluded)

M= 0.745 ALPHA= 3.19 RE= 2700000.

X/C= 1.025	Y/C= 2.82	WAKE
Z/C	U/UP	CP(STATIC)
-0.02515	1.0000	0.1130
Incomplete traverse		
-0.02047	0.9435	0.1112
-0.01945	0.9243	0.1107
-0.01807	0.9000	0.1101
-0.01670	0.8886	0.1095
-0.01567	0.8593	0.1091
-0.01420	0.8435	0.1084
-0.01412	0.8342	0.1084
-0.01291	0.8192	0.1079
-0.01205	0.7943	0.1075
-0.01096	0.7785	0.1070
-0.00971	0.7393	0.1065
-0.00838	0.6786	0.1059
-0.00713	0.6535	0.1054
-0.00619	0.5953	0.1050
-0.00560	0.5272	0.1047
-0.00484	0.4696	0.1044
-0.00390	0.3808	0.1040
-0.00167	0.2801	0.1032
0.00031	0.2711	0.1023
0.00214	0.3045	0.1009
0.00391	0.3416	0.0993
0.00533	0.3532	0.0980
0.00722	0.3865	0.0962
0.00875	0.4217	0.0948
0.00987	0.4563	0.0937
0.01067	0.4752	0.0930
0.01188	0.4995	0.0919
0.01318	0.5397	0.0907
0.01430	0.5618	0.0896
0.01589	0.5922	0.0881
0.01762	0.6259	0.0865
0.01832	0.6431	0.0859
0.01894	0.6581	0.0853
0.01941	0.6643	0.0849
0.01990	0.6619	0.0844
0.02080	0.6844	0.0836
0.02275	0.7336	0.0817
0.02426	0.7593	0.0803
0.02590	0.7991	0.0788
0.02723	0.8218	0.0776
0.02927	0.8582	0.0757
0.03129	0.8970	0.0738
0.03335	0.9255	0.0719
0.03537	0.9493	0.0700
0.03724	0.9655	0.0683
0.03874	0.9792	0.0669
0.04034	0.9849	0.0654
0.04204	0.9917	0.0636
0.04368	0.9965	0.0623
0.04537	1.0000	0.0607
0.04562	1.0008	0.0605
0.04575	1.0015	0.0603
0.04588	1.0004	0.0602
0.04607	1.0004	0.0600
0.04626	1.0008	0.0599
0.04639	1.0001	0.0597
0.04657	0.9995	0.0596
0.04670	0.9994	0.0595
0.04695	1.0012	0.0592
0.04708	1.0000	0.0591
0.04727	0.9995	0.0589
0.04752	0.9996	0.0587
0.04770	0.9989	0.0585
0.04820	1.0002	0.0581
0.04832	1.0002	0.0579
0.04845	1.0000	0.0578

Table 6.8 (continued)
BOUNDARY LAYER AND WAKE PROFILES

CASE 13A PROBES C2

M= 0.740 ALPHA= 3.19 RE= 2700000.

X/C= 0.152 Y/C= 1.17 LOWER		X/C= 0.179 Y/C= 1.04 UPPER	
CONSTANT CP(STATIC)= 0.000		CONSTANT CP(STATIC)=-1.038	
Z/C	U/UP	Z/C	U/UP
0.00018	0.6065	0.00017	0.4915
0.00032	0.7205	0.00038	0.5995
0.00040	0.7587	0.00044	0.6444
0.00048	0.7908	0.00055	0.6772
0.00065	0.8269	0.00067	0.6992
0.00079	0.8618	0.00084	0.7220
0.00087	0.8712	0.00118	0.7669
0.00099	0.8872	0.00137	0.7993
0.00112	0.9060	0.00166	0.8236
0.00125	0.9253	0.00193	0.8491
0.00158	0.9626	0.00193	0.8599
0.00178	0.9757	0.00209	0.8713
0.00202	0.9888	0.00235	0.8930
0.00222	0.9939	0.00256	0.9156
0.00222	0.9939	0.00279	0.9358
0.00242	0.9970	0.00302	0.9505
0.00268	0.9994	0.00325	0.9647
0.00290	0.9996	0.00340	0.9719
0.00312	1.0000	0.00364	0.9800
0.00334	1.0000	0.00385	0.9882
		0.00406	0.9940
		0.00426	0.9964
		0.00446	0.9982
		0.00457	0.9993
		0.00488	0.9997
		0.00514	1.0003
		0.00563	1.0001
		0.00593	1.0000

X/C= 0.404 Y/C= 1.20 UPPER		X/C= 0.498 Y/C= 1.34 UPPER	
CONSTANT CP(STATIC)=-1.172		CONSTANT CP(STATIC)=-1.232	
Z/C	U/UP	Z/C	U/UP
0.00043	0.6158	0.00032	0.5642
0.00055	0.6638	0.00047	0.6246
0.00063	0.6789	0.00055	0.6436
0.00084	0.6942	0.00083	0.6589
0.00108	0.7176	0.00091	0.6812
0.00144	0.7543	0.00122	0.7159
0.00148	0.7555	0.00136	0.7225
0.00172	0.7754	0.00149	0.7387
0.00200	0.7890	0.00166	0.7500
0.00225	0.8061	0.00210	0.7663
0.00289	0.8417	0.00269	0.7991
0.00323	0.8620	0.00304	0.8193
0.00366	0.8826	0.00349	0.8374
0.00394	0.9012	0.00391	0.8569
0.00398	0.9035	0.00391	0.8589
0.00426	0.9138	0.00421	0.8682
0.00478	0.9331	0.00463	0.8824
0.00511	0.9483	0.00485	0.8956
0.00552	0.9634	0.00519	0.9106
0.00596	0.9752	0.00556	0.9237
0.00640	0.9843	0.00599	0.9377
0.00667	0.9874	0.00621	0.9422
0.00721	0.9929	0.00658	0.9523
0.00753	0.9963	0.00685	0.9613
0.00793	0.9985	0.00723	0.9699
0.00830	0.9991	0.00750	0.9756
0.00862	0.9995	0.00782	0.9805
0.00882	0.9999	0.00804	0.9844
0.00934	1.0001	0.00849	0.9901
0.00983	1.0000	0.00898	0.9942
		0.00978	0.9980
		0.01016	0.9988
		0.01016	0.9986
		0.01078	0.9993
		0.01151	1.0000
		0.01216	0.9996
		0.01386	1.0000

Table 6.8 (concluded)

BOUNDARY LAYER AND WAKE PROFILES**CASE 13A PROBES C2 (concluded)****M = 0.740 ALPHA = 3.19 RE = 2700000.**

X/C = 0.650 Y/C = 2.60 UPPER			X/C = 0.750 Y/C = 2.21 UPPER			X/C = 0.900 Y/C = 2.43 UPPER		
CONSTANT CP(STATIC) = -0.450			CONSTANT CP(STATIC) = -0.275			CONSTANT CP(STATIC) = -0.034		
Z/C	U/UP		Z/C	U/UP		Z/C	U/UP	
0.00083	0.3412		0.00057	0.2729		0.00080	0.2196	
0.00118	0.3522		0.00105	0.2969		0.00112	0.2254	
0.00205	0.3877		0.00175	0.3029		0.00191	0.2492	
0.00404	0.4753		0.00245	0.3360		0.00381	0.2827	
0.00507	0.5587		0.00279	0.3399		0.00639	0.3499	
0.00686	0.6374		0.00307	0.3443		0.00813	0.4038	
0.00864	0.7573		0.00397	0.3654		0.00945	0.4381	
0.01025	0.8387		0.00574	0.4117		0.00945	0.4432	
0.01034	0.8351		0.00805	0.5107		0.01082	0.4813	
0.01168	0.9083		0.00957	0.5913		0.01318	0.5446	
0.01357	0.9745		0.01089	0.6356		0.01479	0.5832	
0.01517	0.9939		0.01089	0.6439		0.01647	0.6485	
0.01525	0.9951		0.01210	0.6945		0.01980	0.7501	
0.01709	0.9994		0.01378	0.7760		0.02148	0.7921	
0.01871	0.9998		0.01522	0.8252		0.02148	0.7995	
0.02046	1.0000		0.01815	0.9167		0.02304	0.8379	
0.02181	1.0000		0.01976	0.9685		0.02445	0.8836	
			0.02111	0.9827		0.02609	0.9173	
			0.02111	0.9853		0.02772	0.9463	
			0.02249	0.9931		0.02933	0.9707	
			0.02368	0.9977		0.03090	0.9846	
			0.02622	0.9995		0.03375	0.9961	
			0.02753	0.9998		0.03552	0.9967	
			0.02877	1.0000		0.03707	1.0000	
						0.03889	1.0000	
						0.04077	1.0000	

X/C = 1.000 Y/C = 2.02 WAKE			X/C = 1.025 Y/C = 2.82 WAKE			X/C = 2.000 Y/C = 1.50 WAKE		
CONSTANT CP(STATIC) = 0.0929			CONSTANT CP(STATIC) = 0.0929			Z/C	U/UP	CP(STATIC)
Z/C	U/UP		Z/C	U/UP		-0.37450	1.0000	0.0381
-0.02047	0.9912		-0.03094	1.0000		-0.35289	1.0000	0.0339
-0.01873	0.9882		-0.02868	1.0000		-0.31842	0.9996	0.0325
-0.01698	0.9735		-0.02683	0.9982		-0.26968	0.9987	0.0283
-0.01477	0.9456		-0.02454	0.9919		-0.21062	0.9990	0.0216
-0.01300	0.9154		-0.02267	0.9797		-0.17677	0.9983	0.0272
-0.01087	0.8784		-0.02059	0.9470		-0.14220	0.9986	0.0277
-0.00911	0.8408		-0.01778	0.9119		-0.12535	0.9983	0.0263
-0.00709	0.7824		-0.01543	0.8684		-0.10512	0.9983	0.0272
-0.00424	0.7367		-0.01315	0.8251		-0.10512	0.9980	0.0183
-0.00202	0.6548		-0.01090	0.7851		-0.08521	0.9986	0.0268
0.00038	0.1978		-0.01090	0.7890		-0.06572	0.9983	0.0324
0.00245	0.1703		-0.00857	0.7310		-0.05862	0.9979	0.0187
0.00457	0.1880		-0.00602	0.5756		-0.04989	0.9970	0.0215
0.01242	0.3203		-0.00383	0.3497		-0.04191	0.9962	0.0197
0.01391	0.3362		-0.00181	0.3151		-0.03389	0.9929	0.0210
0.01559	0.4085		0.00022	0.3178		-0.02582	0.9897	0.0211
0.01716	0.4516		0.00178	0.3464		-0.01854	0.9817	0.0183
0.01873	0.5081		0.00352	0.3791		-0.00959	0.9673	0.0187
0.02028	0.5391		0.00525	0.4062		-0.00142	0.9546	0.0215
0.02190	0.5646		0.00702	0.4449		0.00595	0.9380	0.0116
0.02337	0.5954		0.00879	0.4945		0.01418	0.9216	0.0158
0.02495	0.6234		0.01060	0.5252		0.02243	0.9065	0.0140
0.02495	0.6249		0.01220	0.5631		0.02243	0.9085	0.0116
0.02652	0.6689		0.01396	0.6091		0.03070	0.8996	0.0073
0.02811	0.6913		0.01396	0.6035		0.03929	0.8958	0.0106
0.02961	0.7635		0.01576	0.6498		0.04760	0.9021	0.0140
0.03113	0.8168		0.01763	0.6981		0.05592	0.9097	0.0101
0.03113	0.7859		0.01931	0.7441		0.06426	0.9225	0.0187
0.03254	0.8323		0.02104	0.7913		0.07260	0.9307	0.0144
0.03423	0.8572		0.02104	0.7815		0.08180	0.9423	0.0097
0.03550	0.8837		0.02260	0.8233		0.08932	0.9538	0.0126
0.03550	0.8846		0.02446	0.8568		0.09768	0.9633	0.0159
0.03673	0.9199		0.02577	0.8895		0.11273	0.9758	0.0073
0.03807	0.9360		0.02577	0.8836		0.13778	0.9837	0.0112
0.04178	0.9796		0.02727	0.9160		0.16106	0.9885	0.0078
0.04256	0.9887		0.02884	0.9402		0.20140	0.9921	0.0074
0.04284	0.9917		0.03039	0.9656		0.22170	0.9935	0.0064
0.04312	0.9917		0.03128	0.9658		0.30019	0.9976	0.0060
0.04333	0.9929		0.03320	0.9843		0.33727	0.9983	0.0050
0.04375	0.9939		0.03418	0.9866		0.37321	0.9984	-0.0057
0.04431	0.9940		0.03485	0.9913		0.40633	0.9984	-0.0008
0.04472	0.9955		0.03506	0.9935		0.46528	0.9993	-0.0052
0.04486	0.9963		0.03549	0.9947		0.51265	0.9994	-0.0013
0.04520	0.9974		0.03612	0.9955		0.54824	0.9997	-0.0042
0.04575	0.9986		0.03654	0.9970		0.56972	1.0001	-0.0136
0.04649	1.0000		0.03675	0.9974		0.57685	1.0000	-0.0033
			0.03724	0.9981				
			0.03780	0.9988				
			0.03903	1.0000				

Table 6.9

BOUNDARY LAYER AND WAKE PARAMETERS

Case 1 $M_\infty = 0.676$, $\alpha = 2.40^\circ$, $Re = 5.7 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004348	0.000236	0.000140	1.692
0.152	2.42	Lower	0.004037	0.000277	0.000163	1.700
0.179	1.04	Upper	0.003783	0.000391	0.000216	1.811
0.179	2.29	Upper	0.003455	0.000402	0.000216	1.864
0.319	1.15	Upper	0.002811	0.000801	0.000436	1.836
0.319	2.40	Upper	0.003067	0.000773	0.000430	1.799
0.75	2.18	Upper	0.001806	0.002813	0.001553	1.812
0.90	2.64	Upper	0.001308	0.004740	0.002482	1.910
0.95	2.44	Upper	0.000930	0.006818	0.003244	2.102
1.00	2.02	Upper wake	-	0.009472	0.004044	2.342
1.00	2.02	Lower wake	-	0.003189	0.002046	1.559
1.00	2.02	Total wake	-	0.012661	0.006090	2.079
1.025	2.82	Wake	-	0.010994	0.006091	1.805
2.00	1.50	Wake	-	0.005321	0.004239	1.256

Case 2 $M_\infty = 0.676$, $\alpha = -2.18^\circ$, $Re = 5.7 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004021	0.000271	0.000150	1.813
0.152	2.42	Lower	0.004029	0.000285	0.000157	1.809
0.179	1.04	Upper	0.004351	0.000321	0.000197	1.632
0.179	2.29	Upper	0.004138	0.000307	0.000184	1.667
0.319	1.15	Upper	0.003163	0.000650	0.000385	1.688
0.319	2.40	Upper	0.003411	0.000629	0.000380	1.654
0.75	2.18	Upper	0.002123	0.002124	0.001230	1.728
0.90	2.64	Upper	0.001668	0.003364	0.001887	1.783
0.95	2.44	Upper	0.001435	0.004072	0.002207	1.845
1.00	2.02	Upper wake	-	0.006364	0.003074	2.070
1.00	2.02	Lower wake	-	0.006052	0.003793	1.596
1.00	2.02	Total wake	-	0.012416	0.006867	1.808
1.025	2.82	Wake	-	0.009963	0.006036	1.650
2.00	1.50	Wake	-	0.004949	0.003935	1.258

Case 3 $M_\infty = 0.600$, $\alpha = 2.57^\circ$, $Re = 6.3 \times 10^6$, Probes B

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004241	0.000343	0.000229	1.497
0.152	2.42	Lower	0.003990	0.000369	0.000240	1.536
0.179	1.04	Upper	0.003400	0.000850	0.000542	1.569
0.179	2.29	Upper	0.003196	0.001072	0.000678	1.581
0.319	1.15	Upper	0.002609	0.001629	0.000990	1.645
0.319	2.40	Upper	0.003101	0.001089	0.000698	1.561
0.75	2.18	Upper	0.001688	0.003556	0.002061	1.726
0.90	2.64	Upper	0.001173	0.006077	0.003255	1.867
0.95	2.44	Upper	0.000875	0.007912	0.003928	2.015
1.00	2.02	Upper wake	-	0.010887	0.004662	2.335
1.00	2.02	Lower wake	-	0.003157	0.002090	1.511
1.00	2.02	Total wake	-	0.014044	0.006752	2.080
1.025	2.82	Wake	-	0.012665	0.006849	1.849
2.00	1.50	Wake	-	0.006204	0.005030	1.233

BOUNDARY LAYER AND WAKE PARAMETERS

x/c	y/c	Surface	C _f	δ*/c	θ/c	H
0.152	1.17	Lower	0.004210	0.000305	0.000188	1.622
0.152	2.42	Lower	0.003640	0.000419	0.000250	1.673
0.179	1.04	Upper	0.003016	0.000610	0.000305	2.001
0.179	2.29	Upper	0.002913	0.000641	0.000322	1.994
0.319	1.15	Upper	0.002726	0.001025	0.000513	1.998
0.319	2.40	Upper	0.002739	0.001001	0.000500	2.002
0.75	2.18	Upper	-	-	-	-
0.90	2.64	Upper	0.000924	0.007850	0.003761	2.087
0.95	2.44	Upper	0.000740	0.010243	0.004663	2.197
1.00	2.02	Upper wake	-	0.012949	0.005530	2.342
1.00	2.02	Lower wake	-	0.003192	0.002005	1.592
1.00	2.02	Total wake	-	0.016141	0.007535	2.142
1.025	2.82	Wake	-	0.013899	0.007135	1.948
2.00	1.50	Wake	-	0.008103	0.006319	1.282

NB x/c = 2.0, includes shock losses.

x/c	y/c	Surface	C _f	δ*/c	θ/c	H
0.152	1.17	Lower	0.004180	0.000311	0.000190	1.635
0.152	2.42	Lower	0.003839	0.000382	0.000231	1.649
0.179	1.04	Upper	0.003230	0.000535	0.000273	1.959
0.179	2.29	Upper	0.003162	0.000595	0.000307	1.936
0.319	1.15	Upper	0.002723	0.000997	0.000508	1.965
0.319	2.40	Upper	0.002677	0.000966	0.000490	1.974
0.75	2.18	Upper	-	-	-	-
0.90	2.64	Upper	0.000892	0.007295	0.003409	2.140
0.95	2.44	Upper	0.000787	0.009263	0.004185	2.213
1.00	2.02	Upper wake	-	0.011919	0.004823	2.471
1.00	2.02	Lower wake	-	0.003374	0.002083	1.619
1.00	2.02	Total wake	-	0.015293	0.006906	2.214
1.025	2.82	Wake	-	0.013314	0.006796	1.959
2.00	1.50	Wake	-	0.006902	0.005346	1.291

NB x/c = 2.0, includes shock losses.

x/c	y/c	Surface	C _f	δ*/c	θ/c	H
0.152	1.17	Lower	0.004121	0.000311	0.000191	1.631
0.152	2.42	Lower	0.003799	0.000388	0.000236	1.647
0.179	1.04	Upper	0.002947	0.000601	0.000292	2.056
0.179	2.29	Upper	0.003149	0.000584	0.000291	2.005
0.319	1.15	Upper	0.002705	0.001011	0.000497	2.035
0.319	2.40	Upper	0.002783	0.000995	0.000490	2.028
0.75	2.18	Upper	-	-	-	-
0.90	2.64	Upper	0.000929	0.009289	0.004415	2.104
0.95	2.44	Upper	0.000777	0.011954	0.005466	2.187
1.00	2.02	Upper wake	-	-	-	-
1.00	2.02	Lower wake	-	-	-	-
1.00	2.02	Total wake	-	-	-	-
1.025	2.82	Wake	-	0.014895	0.007690	1.937
2.00	1.50	Wake	-	0.011161	0.008758	1.274

NB x/c = 2.0, includes shock losses.

BOUNDARY LAYER AND WAKE PARAMETERS

Case 9 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$ Probes C1

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.003983	0.000325	0.000196	1.661
0.179	1.04	Upper	0.002700	0.000803	0.000378	2.123
0.319	1.15	Upper	0.002723	0.001060	0.000516	2.052
0.404	1.20	Upper	0.002489	0.001311	0.000626	2.093
0.498	1.34	Upper	0.002533	0.001533	0.000731	2.097
0.574	1.31	Upper	0.001049	0.003395	0.001418	2.394
0.65	2.60	Upper	0.000901	0.004956	0.002043	2.426
0.75	2.21	Upper	0.000831	0.006884	0.002999	2.296
0.90	2.43	Upper	0.000959	0.008958	0.004360	2.055
1.00	2.02	Upper wake	-	0.014433	0.006510	2.217
1.00	2.02	Lower wake	-	0.003233	0.001982	1.631
1.00	2.02	Total wake	-	0.017666	0.008492	2.080
1.025	2.82	Wake	-	0.014709	0.007907	1.860
2.00	1.50	Wake	-	0.010809	0.008430	1.282

NB x/c = 2.0, includes shock losses

Case 9 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$ Probes C2

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	-	-	-	-
0.179	1.04	Upper	-	-	-	-
0.319	1.15	Upper	-	-	-	-
0.404	1.20	Upper	-	-	-	-
0.498	1.34	Upper	0.002532	0.001539	0.000735	2.094
0.574	1.31	Upper	0.001048	0.003391	0.001422	2.385
0.65	2.60	Upper	0.000906	0.004942	0.002050	2.410
0.75	2.21	Upper	-	-	-	-
0.90	2.43	Upper	0.000985	0.009080	0.004372	2.077
1.00	2.02	Upper wake	-	0.014452	0.006498	2.224
1.00	2.02	Lower wake	-	0.003101	0.001936	1.602
1.00	2.02	Total wake	-	0.017553	0.008433	2.081
1.025	2.82	Wake	-	0.014694	0.007873	1.867
2.00	1.50	Wake	-	-	-	-

NB Reanalysis of data for probes C1 taking static pressure coefficient as constant

Case 9 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$ Probes D1

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.003933	0.000331	0.000201	1.649
0.152	2.00	Lower	0.003619	0.000371	0.000222	1.667
0.152	2.42	Lower	0.003990	0.000326	0.000198	1.650
0.179	1.04	Upper	0.002717	0.000744	0.000359	2.075
0.179	1.88	Upper	0.002776	0.000754	0.000364	2.069
0.179	2.29	Upper	0.002764	0.000753	0.000359	2.095
0.319	1.15	Upper	0.002573	0.001000	0.000481	2.077
0.319	1.98	Upper	0.002595	0.001050	0.000507	2.070
0.319	2.40	Upper	0.002581	0.001051	0.000507	2.075
0.404	1.20	Upper	0.002381	0.001285	0.000614	2.093
0.404	2.03	Upper	0.002765	0.001232	0.000602	2.048
0.404	2.45	Upper	0.002491	0.001332	0.000628	2.119
0.498	1.34	Upper	0.002487	0.001712	0.000820	2.087
0.498	2.17	Upper	0.002528	0.001528	0.000722	2.117
0.498	2.59	Upper	0.002537	0.001552	0.000738	2.103
0.574	1.31	Upper	0.000840	0.003977	0.001540	2.582
0.574	2.14	Upper	0.000967	0.003547	0.001488	2.383
0.574	2.56	Upper	0.001034	0.003697	0.001534	2.411
0.65	2.60	Upper	0.000982	0.005912	0.002522	2.344
0.75	2.21	Upper	0.000808	0.007260	0.003009	2.413
0.90	2.43	Upper	0.000980	0.009824	0.004845	2.028
1.00	2.02	Upper wake	-	0.017673	0.006410	2.757
1.00	2.02	Lower wake	-	0.003256	0.002049	1.589
1.00	2.02	Total wake	-	0.020929	0.008459	2.474
1.025	2.82	Wake	-	0.014680	0.007847	1.871
2.00	1.50	Wake	-	-	-	-

NB For traverses $0.65 \leq x/c \leq 1.025$, probes situated upstream may affect results

Table 6.9 (continued)

BOUNDARY LAYER AND WAKE PARAMETERSCase 10 $M_\infty = 0.750$, $\alpha = 3.19^\circ$, $Re = 6.2 \times 10^6$ Probes C1

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.003983	0.000359	0.000213	1.688
0.179	1.04	Upper	0.002602	0.000810	0.000386	2.097
0.319	1.15	Upper	0.002871	0.001022	0.000500	2.043
0.404	1.20	Upper	0.002596	0.001293	0.000613	2.109
0.498	1.34	Upper	0.002421	0.001660	0.000775	2.143
0.574	1.31	Upper	†	0.002857	0.001209	2.364
0.65	2.60	Upper	†	0.009403	0.002437	3.859
0.75	2.21	Upper	†	0.017408	0.004016	4.335
0.90	2.43	Upper	0.000591	0.016740	0.006588	2.541
†1.00	2.02	Upper wake	-	0.029063	0.010528	2.761
1.00	2.02	Lower wake	-	0.002931	0.001710	1.714
†1.00	2.02	Total wake	-	0.031994	0.012239	2.614
†1.025	2.82	Wake	-	0.019007	0.009871	1.926
2.00	1.50	Wake	-	0.015919	0.012314	1.293

NB x/c = 2.0, includes shock losses
 † Linear extrapolation to edge of wake
 ‡ Near separation, method of deduction not accurate

Case 12 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$ Probes C

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.005053	0.000340	0.000197	1.725
0.179	1.04	Upper	0.002993	0.000946	0.000444	2.130
0.319	1.15	Upper	-	-	-	-
0.404	1.20	Upper	0.002844	0.001591	0.000759	2.097
0.498	1.34	Upper	0.002213	0.002571	0.001231	2.088
0.574	1.31	Upper	-	-	-	-
0.65	2.60	Upper	0.001683	0.003977	0.001940	2.051
0.75	2.21	Upper	0.001323	0.005814	0.002729	2.131
0.90	2.43	Upper	0.000961	0.009854	0.004231	2.329
1.00	2.02	Upper wake	-	0.015553	0.005857	2.656
1.00	2.02	Lower wake	-	0.003846	0.002191	1.755
1.00	2.02	Total wake	-	0.019399	0.008048	2.410
1.025	2.82	Wake	-	0.018150	0.008295	2.188
2.00	1.50	Wake	-	0.008693	0.006722	1.293

NB x/c = 2.0, includes shock losses

Case 12 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$ Probes D

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.005077	0.000355	0.000209	1.696
0.152	2.00	Lower	-	-	-	-
0.152	2.42	Lower	0.004618	0.000379	0.000213	1.781
0.179	1.04	Upper	0.003239	0.000894	0.000427	2.094
0.179	1.88	Upper	0.003288	0.000851	0.000411	2.068
0.179	2.29	Upper	0.003382	0.000859	0.000411	2.087
0.319	1.15	Upper	0.003685	0.001163	0.000576	2.018
0.319	1.98	Upper	0.003402	0.001282	0.000627	2.044
0.319	2.40	Upper	0.003197	0.001318	0.000633	2.081
0.404	1.20	Upper	0.002749	0.001614	0.000762	2.117
0.404	2.03	Upper	0.002850	0.001697	0.000810	2.094
0.404	2.45	Upper	0.003137	0.001543	0.000743	2.075
0.498	1.34	Upper	0.002068	0.002665	0.001264	2.108
0.498	2.17	Upper	0.002054	0.002474	0.001162	2.129
0.498	2.59	Upper	0.002222	0.002679	0.001274	2.104
0.574	1.31	Upper	-	-	-	-
0.574	2.14	Upper	0.001775	0.003441	0.001645	2.092
0.574	2.56	Upper	0.001638	0.003575	0.001656	2.159
0.65	2.60	Upper	0.001598	0.004084	0.001964	2.080
0.75	2.21	Upper	0.001261	0.005830	0.002707	2.154
0.90	2.43	Upper	0.000903	0.010859	0.004767	2.278
1.00	2.02	Upper wake	-	0.019805	0.005295	3.740
1.00	2.02	Lower wake	-	0.003847	0.001931	1.992
1.00	2.02	Total wake	-	0.023653	0.007227	3.273
1.025	2.82	Wake	-	0.018124	0.008298	2.184
2.00	1.50	Wake	-	0.008766	0.006774	1.294

NB For traverses $0.65 \leq x/c \leq 1.025$, probes situated upstream may affect results.
 x/c = 2.0, includes shock losses

Table 6.9 (concluded)

BOUNDARY LAYER AND WAKE PARAMETERS

Case 13 $M_\infty = 0.745$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$ Probes D

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.005023	0.000354	0.000205	1.723
0.152	2.00	Lower	0.005003	0.000356	0.000207	1.721
0.152	2.42	Lower	0.005038	0.000342	0.000199	1.716
0.179	1.04	Upper	0.003115	0.000893	0.000425	2.100
0.179	1.88	Upper	0.003318	0.000870	0.000419	2.075
0.179	2.29	Upper	0.003385	0.000860	0.000412	2.087
0.319	1.15	Upper	0.003241	0.001230	0.000590	2.085
0.319	1.98	Upper	0.003387	0.001289	0.000624	2.065
0.319	2.40	Upper	0.003466	0.001229	0.000597	2.059
0.404	1.20	Upper	0.003061	0.001524	0.000726	2.099
0.404	2.03	Upper	-	-	-	-
0.404	2.45	Upper	0.003248	0.001516	0.000724	2.095
0.498	1.34	Upper	0.003048	0.001880	0.000893	2.106
0.498	2.17	Upper	0.002958	0.001752	0.000826	2.120
0.498	2.59	Upper	0.003070	0.001766	0.000840	2.103
0.574	1.31	Upper	0.000828	0.004791	0.001754	2.732
0.574	2.14	Upper	-	-	-	-
0.574	2.56	Upper	-	-	-	-
0.65	2.60	Upper	0.000793	0.009960	0.003987	2.498
0.75	2.21	Upper	0.000578	0.011946	0.004037	2.959
0.90	2.43	Upper	0.000749	0.016542	0.006569	2.518
1.00	2.02	Upper wake	-	-	-	-
1.00	2.02	Lower wake	-	-	-	-
1.00	2.02	Total wake	-	-	-	-
+1.025	2.82	Wake	-	0.021960	0.010036	2.188
2.00	1.50	Wake	-	-	-	-

NB For traverses $0.65 \leq x/c \leq 1.025$, probes situated upstream may affect results,
 + Linear extrapolation to edge of wake

Case 13A $M_\infty = 0.740$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$ Probes C2

x/c	y/c	Surface	C_f	δ^*/c	θ/c	H
0.152	1.17	Lower	0.004894	0.000360	0.000208	1.733
0.179	1.04	Upper	0.003116	0.000919	0.000430	2.135
0.319	1.15	Upper	-	-	-	-
0.404	1.20	Upper	0.003178	0.001479	0.000704	2.100
0.498	1.34	Upper	0.002995	0.001863	0.000874	2.131
0.574	1.31	Upper	-	-	-	-
0.65	2.60	Upper	0.001100	0.005524	0.002285	2.418
0.75	2.21	Upper	0.000848	0.008696	0.003465	2.510
0.90	2.43	Upper	0.000775	0.012874	0.005084	2.532
1.00	2.02	Upper wake	-	0.020360	0.006964	2.924
1.00	2.02	Lower wake	-	0.003717	0.002157	1.723
1.00	2.02	Total wake	-	0.024077	0.009121	2.640
1.025	2.82	Wake	-	0.018937	0.008884	2.132
2.00	1.50	Wake	-	0.012273	0.009502	1.292

NB $x/c = 2.0$, includes shock losses

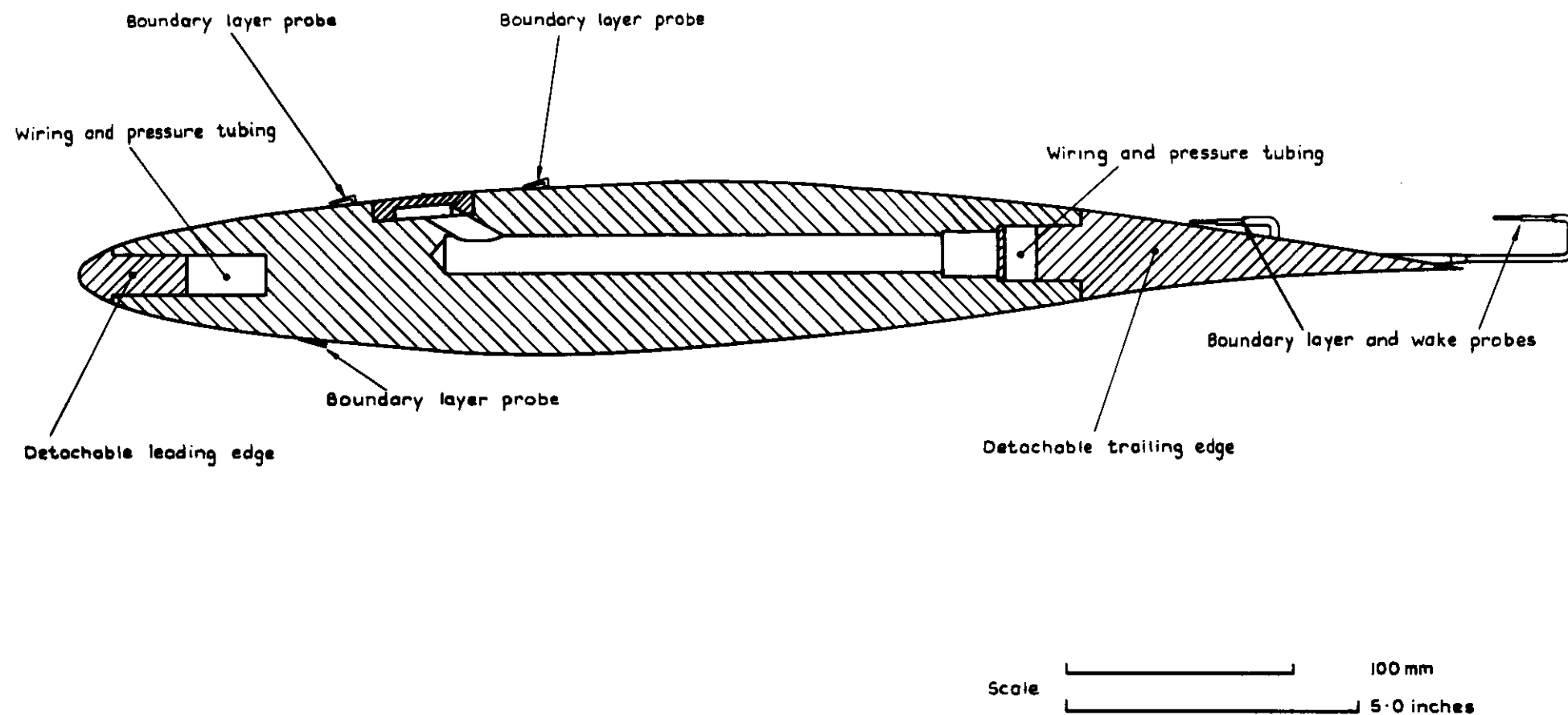


Fig 6.1 Cross-section through a normal chord illustrating the suction ducts and various probes

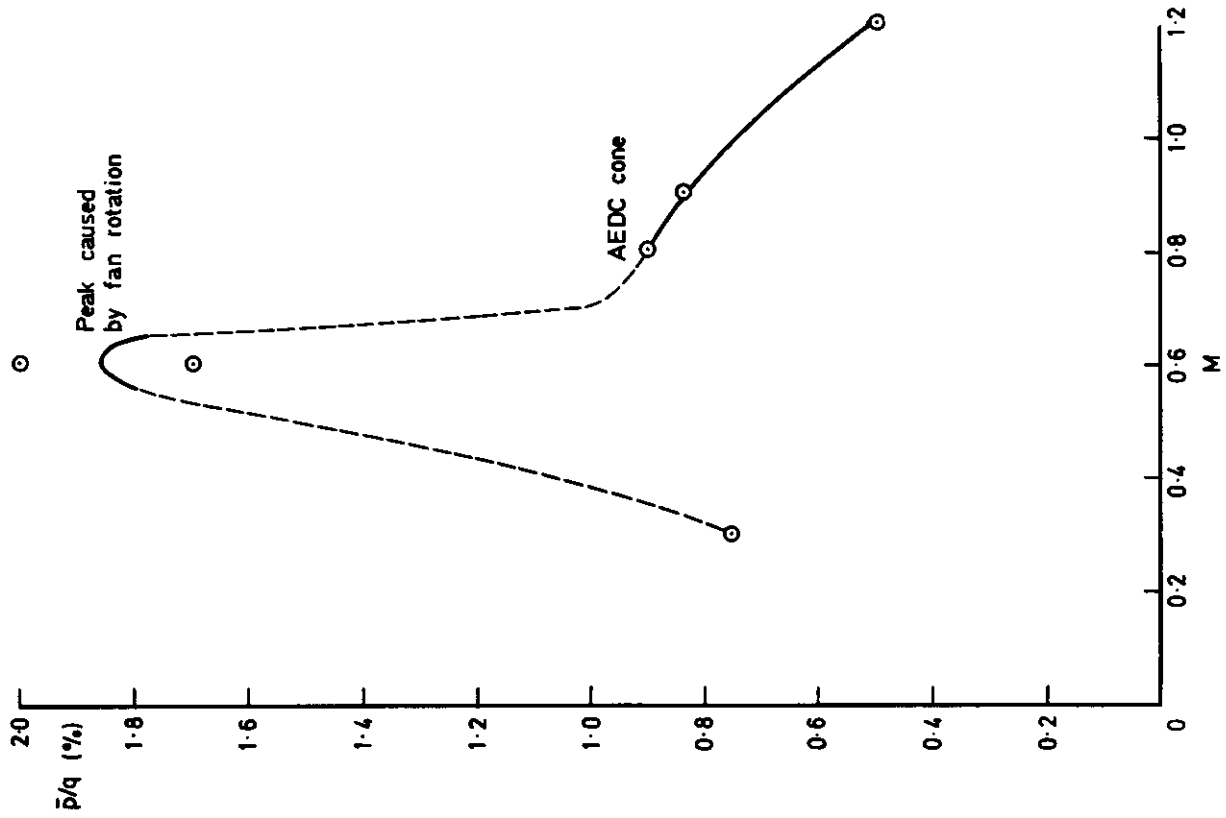


Fig 6.3 RAE 8ft x 6ft tunnel - variation of tunnel pressure fluctuations with Mach number

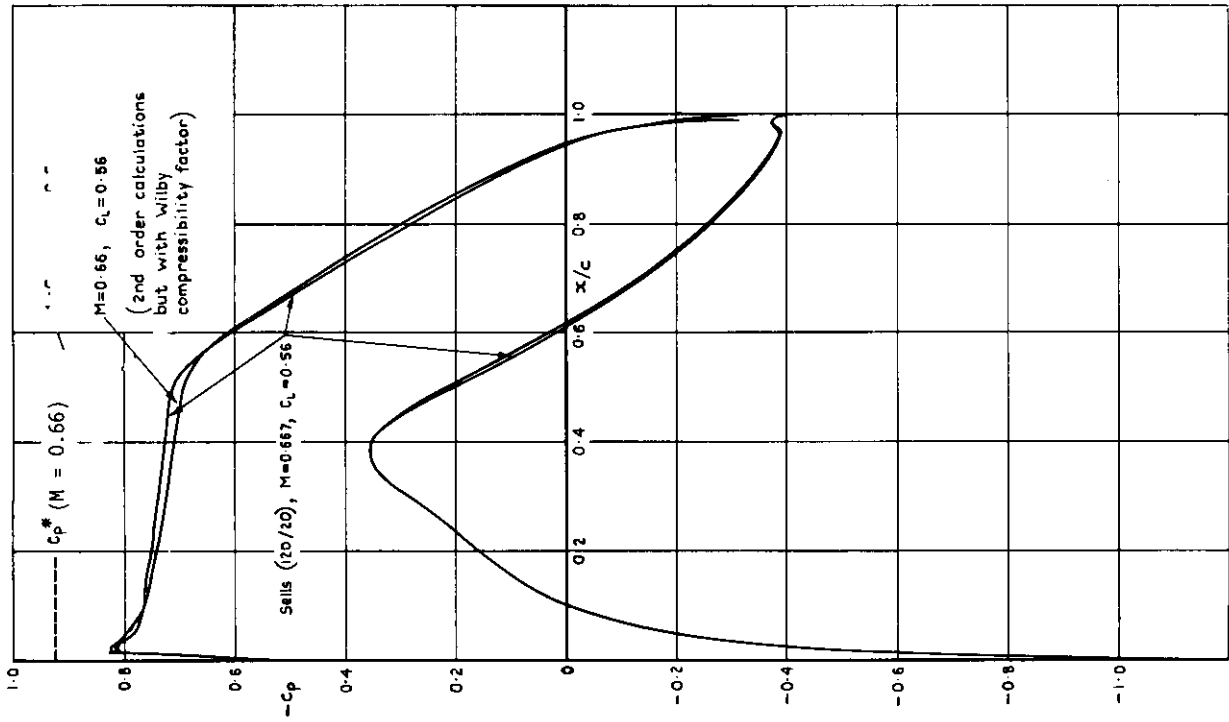


Fig 6.2 Calculated inviscid pressure distributions RAE 2822 section, $\alpha = 1.06$ degrees

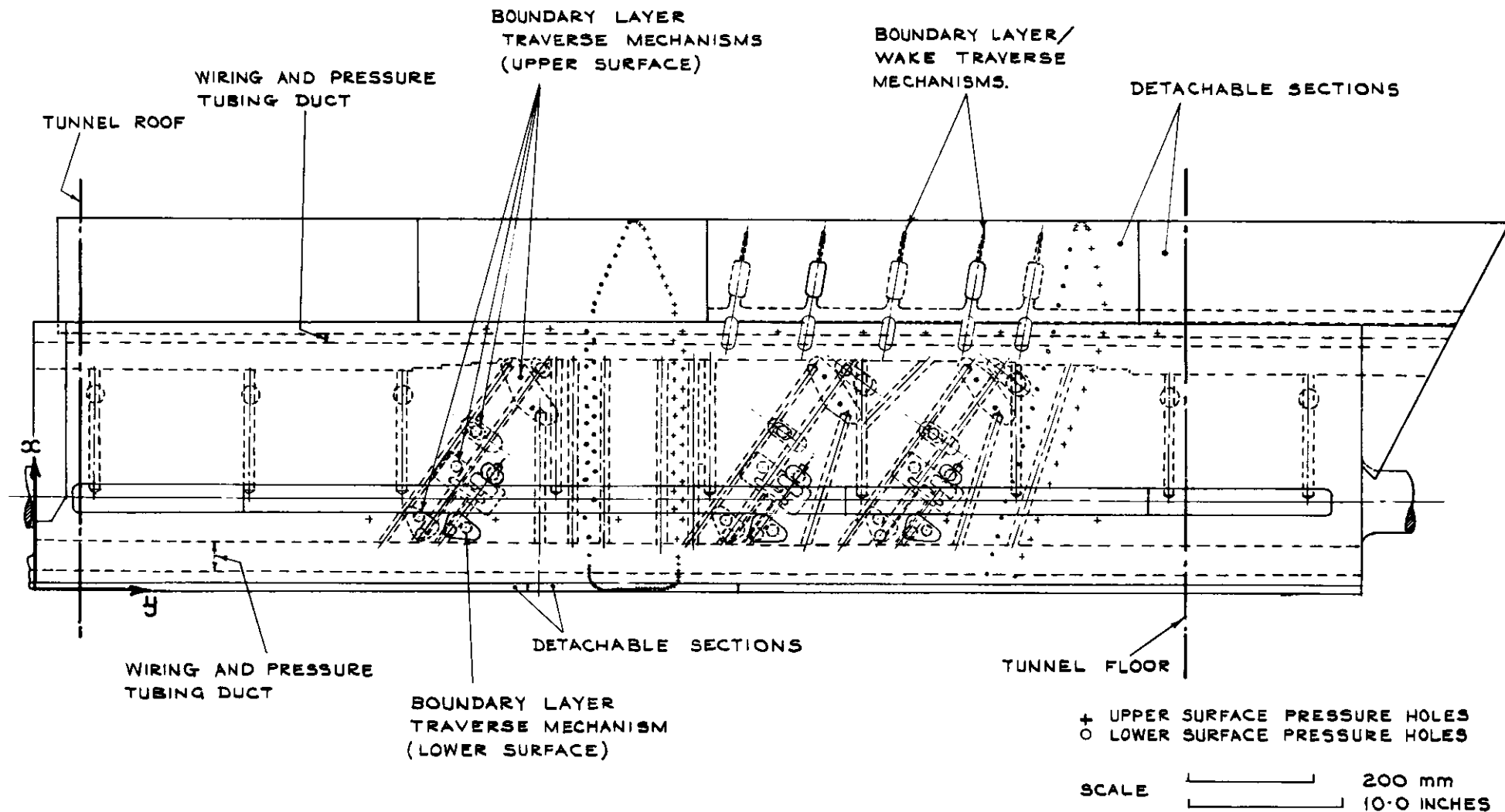
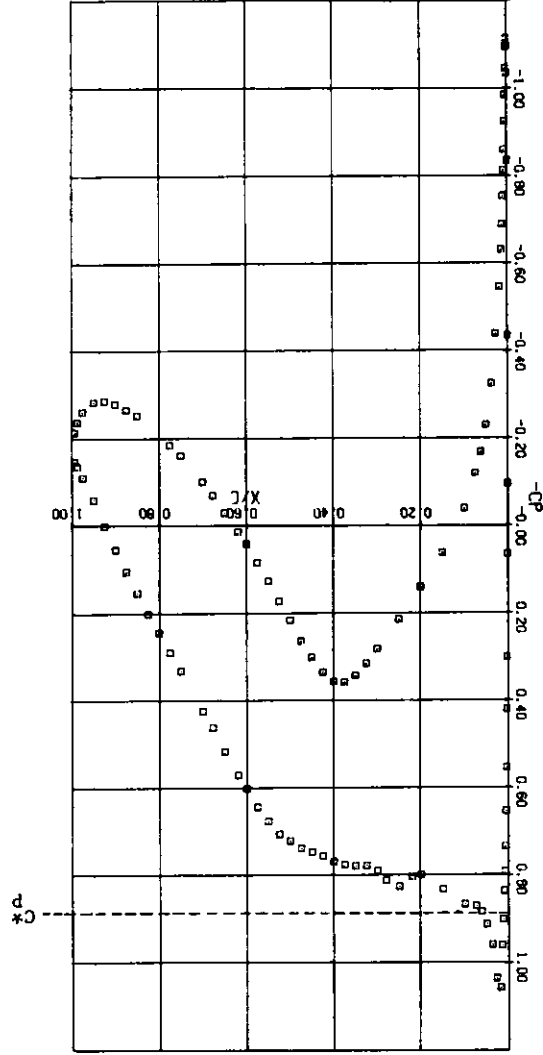


Fig 6.4 Plan view of model showing locations of traverse mechanisms and surface pressure holes

Case 1 $M_\infty = 0.676$, $\alpha = 2.40^\circ$, $Re = 5.7 \times 10^6$



Case 2 $M_\infty = 0.676$, $\alpha = -2.18^\circ$, $Re = 5.7 \times 10^6$

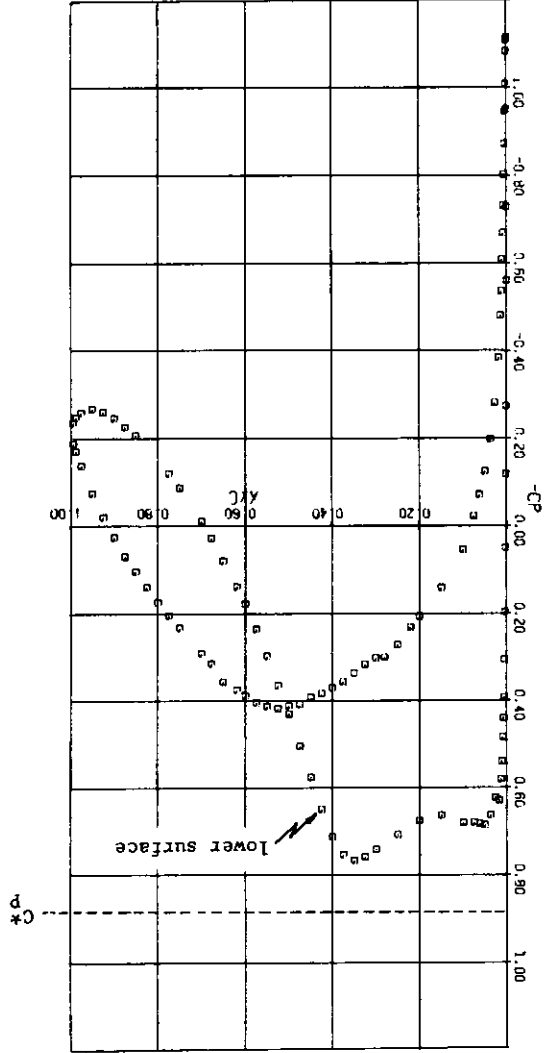


Fig 6.5 Surface pressure distribution

Case 3 $M_\infty = 0.600$, $\alpha = 2.57^\circ$, $Re = 6.3 \times 10^6$

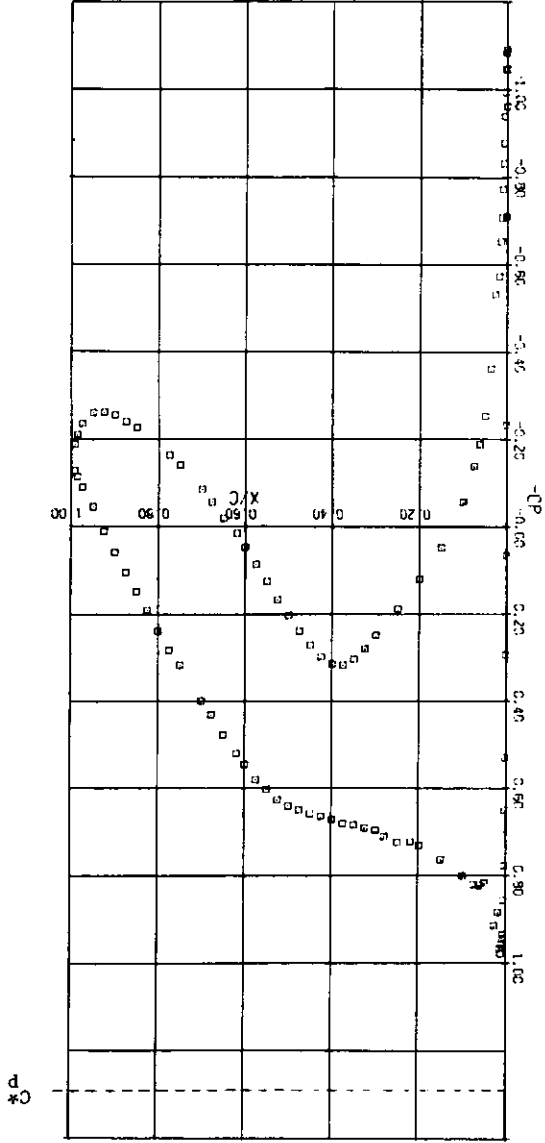
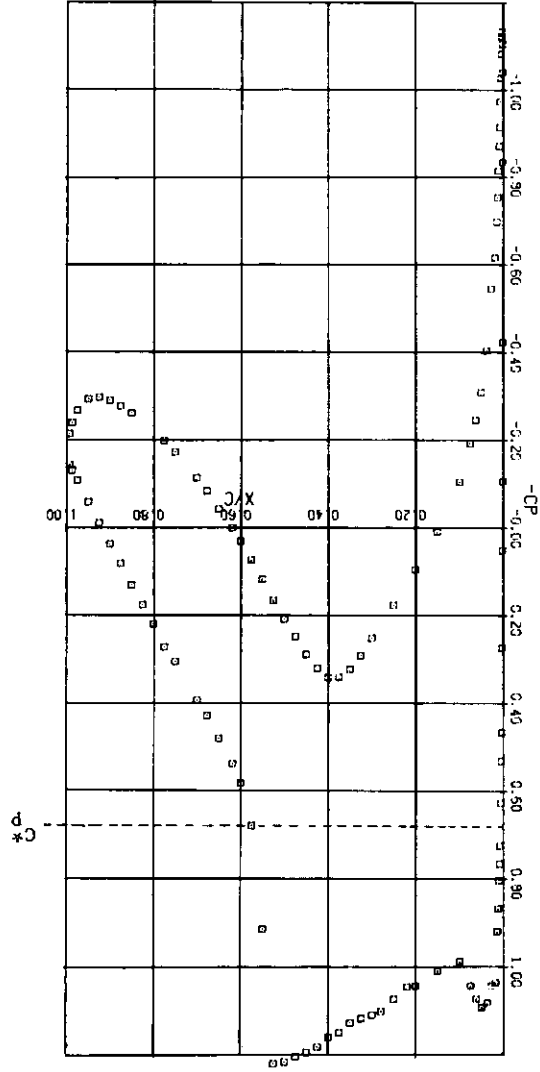
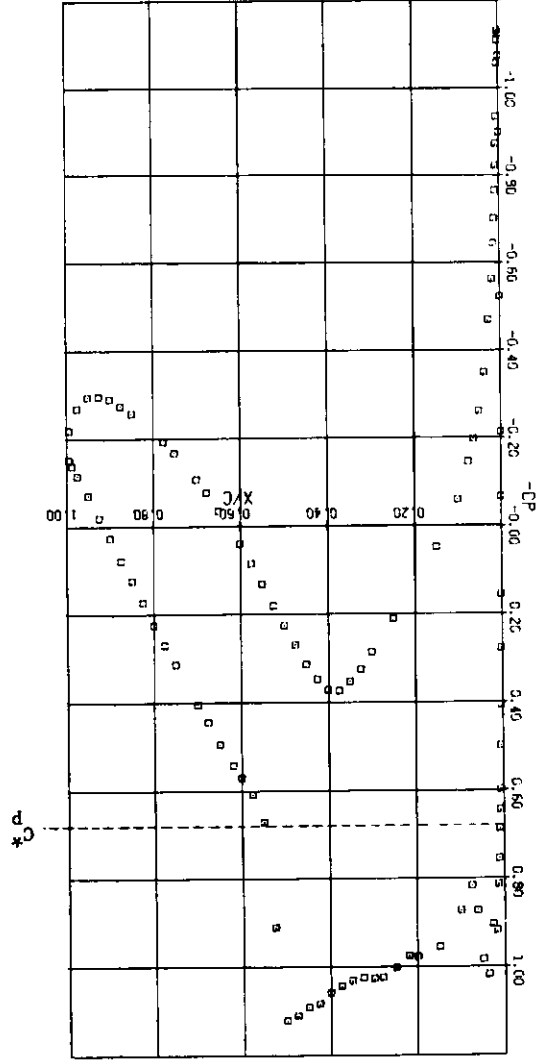


Fig 6.5 (contd) Surface pressure distribution

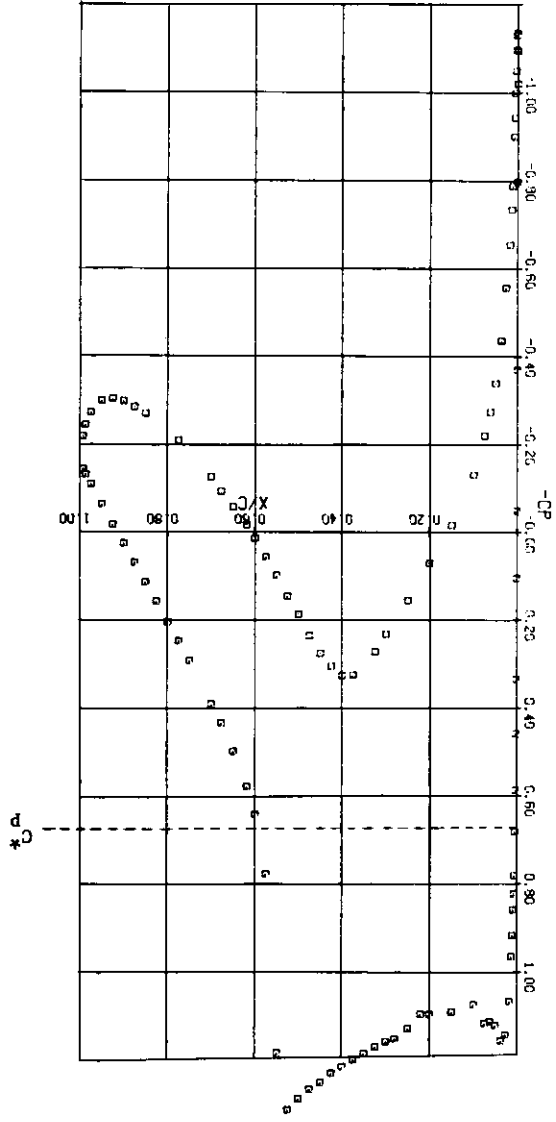
Case 6 $M_\infty = 0.725$, $\alpha = 2.92^\circ$, $Re = 6.5 \times 10^6$

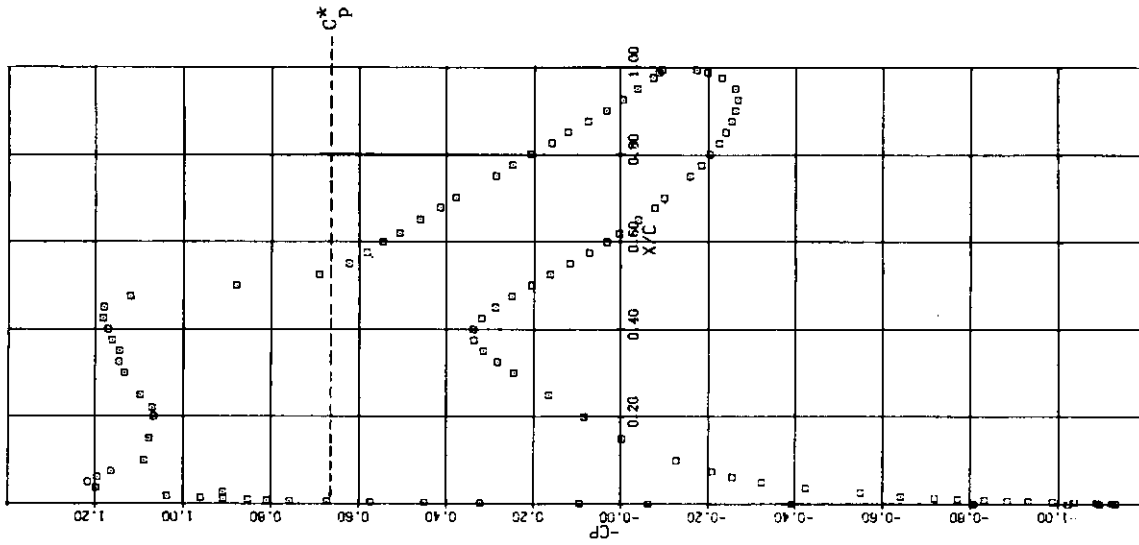


Case 7 $M_\infty = 0.725$, $\alpha = 2.55^\circ$, $Re = 6.5 \times 10^6$

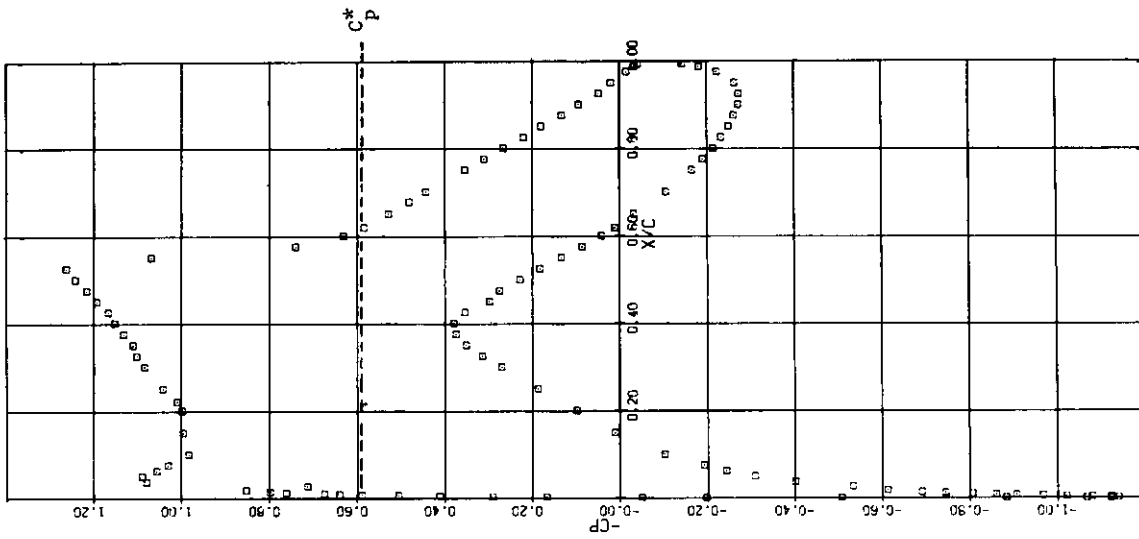


Case 8 $M_\infty = 0.728$, $\alpha = 3.22^\circ$, $Re = 6.5 \times 10^6$

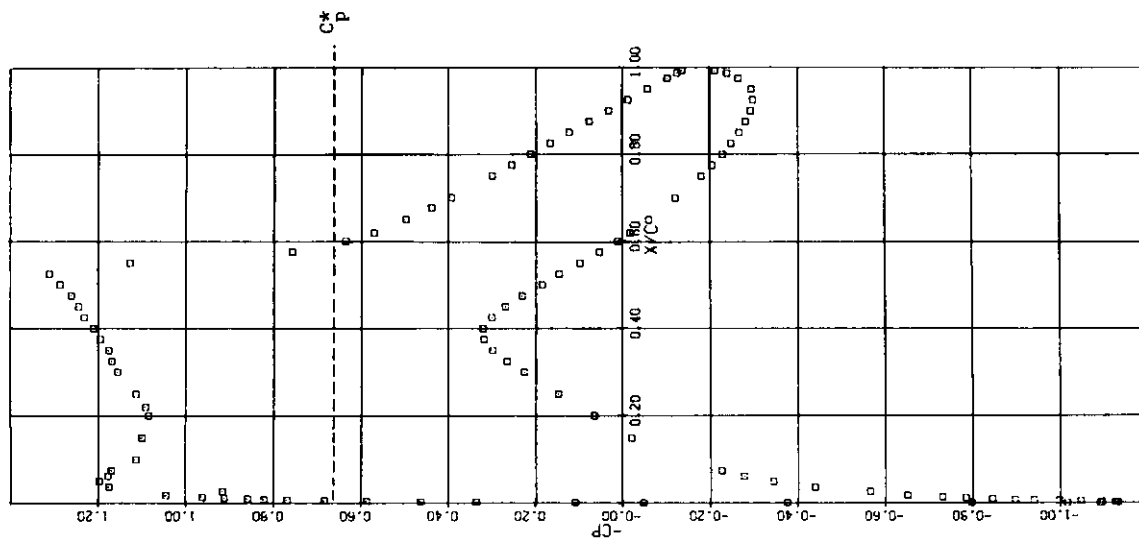




Case 12 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$

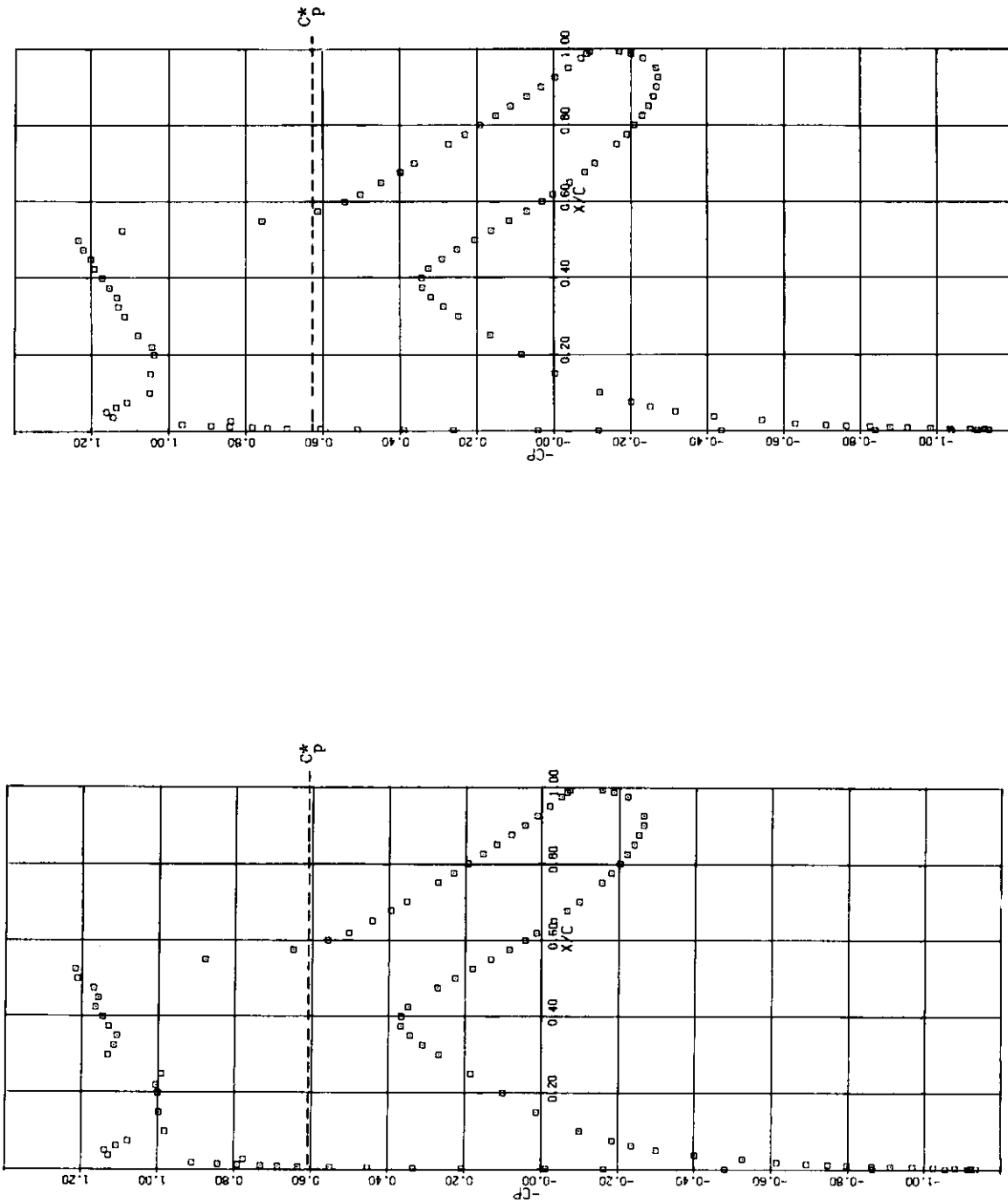


Case 10 $M_\infty = 0.750$, $\alpha = 3.19^\circ$, $Re = 6.2 \times 10^6$



Case 9 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$

Fig 6.5 (contd) Surface pressure distribution



Case 13 $M_\infty = 0.745$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$

Case 13a $M_\infty = 0.740$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$

Fig 6.5 (concl'd) Surface pressure distribution

Fig 6.6 Boundary layer and wake parameters

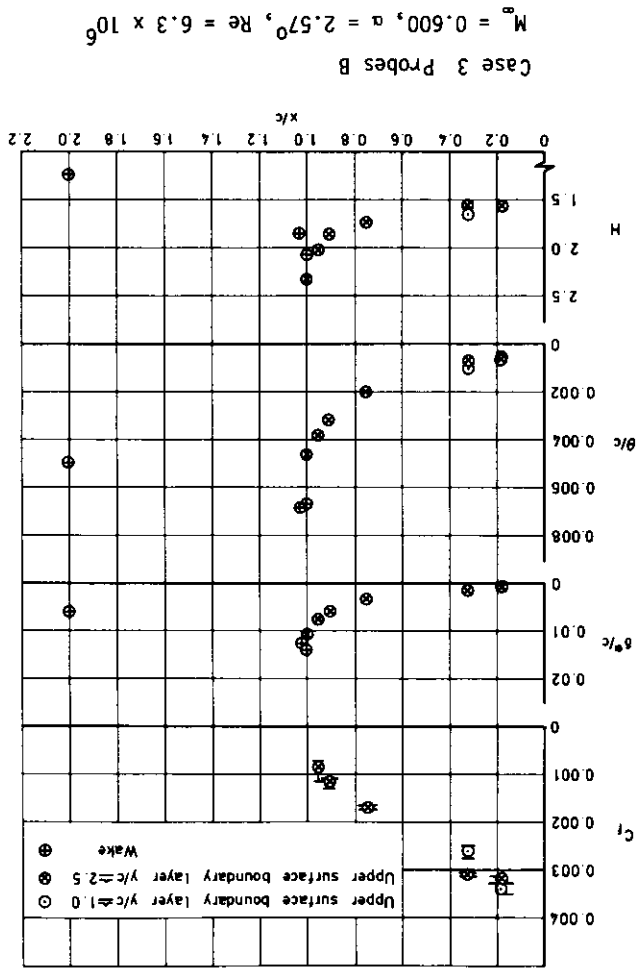
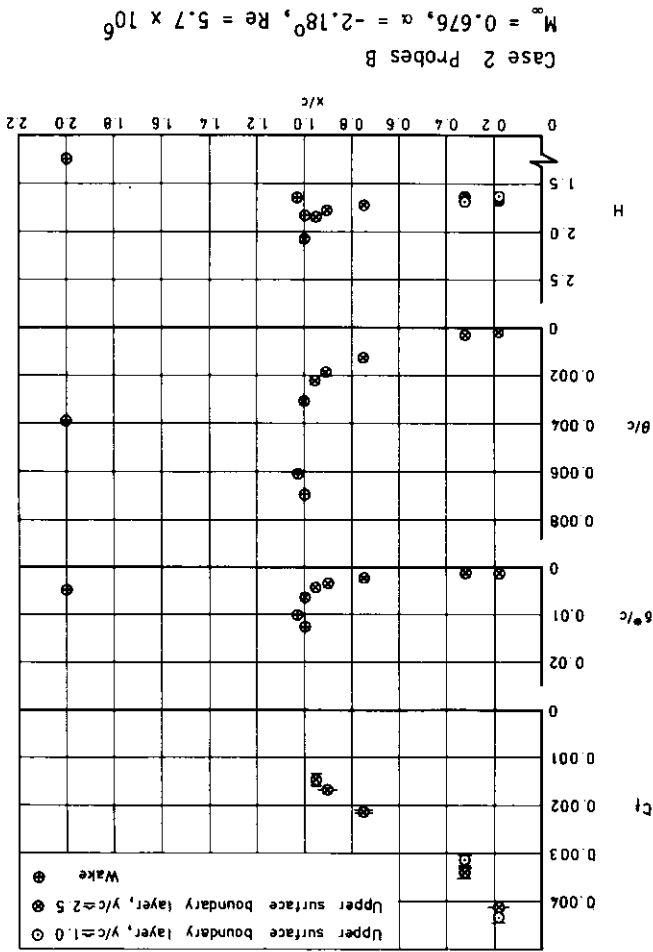
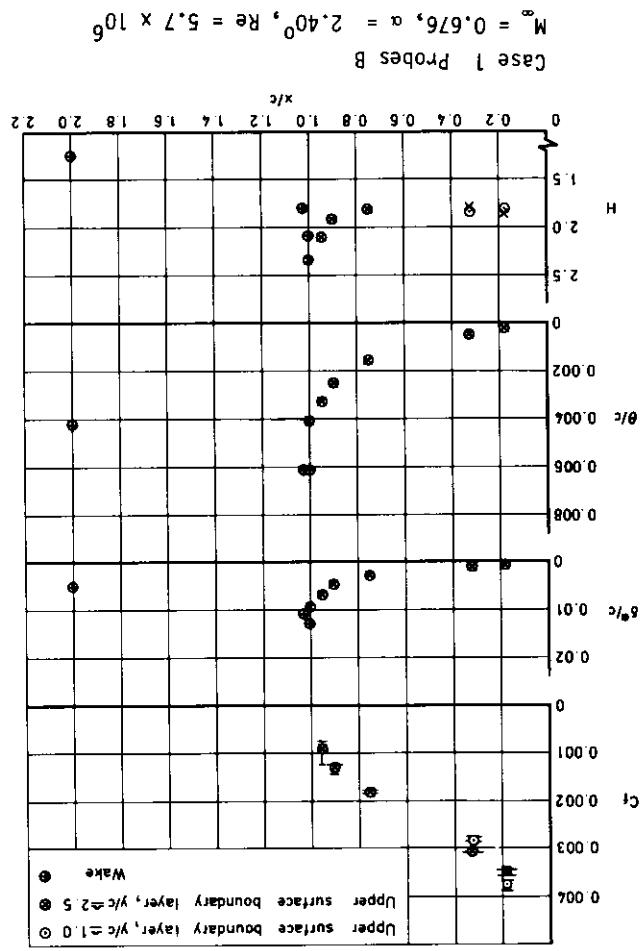
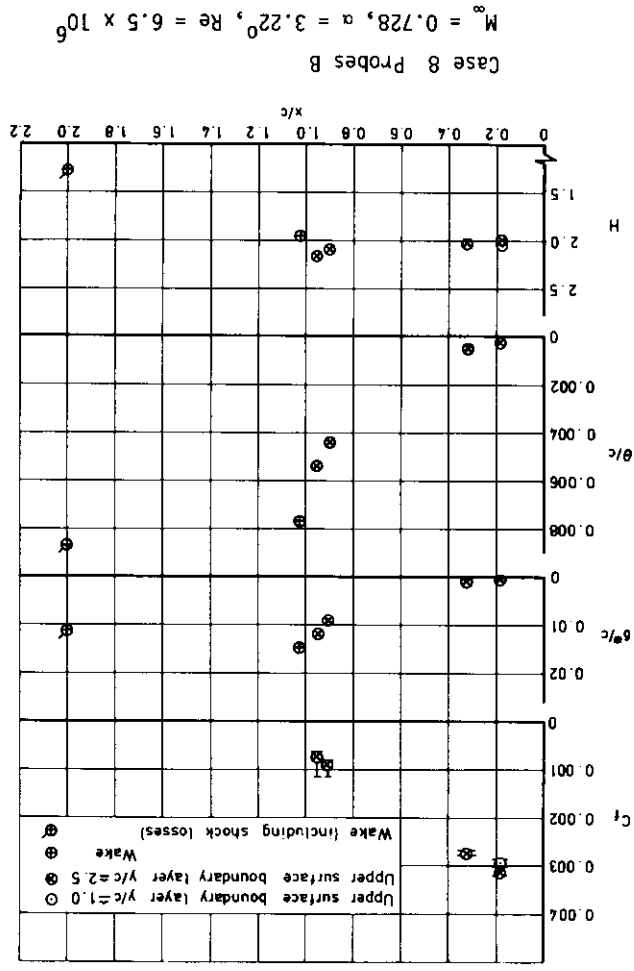
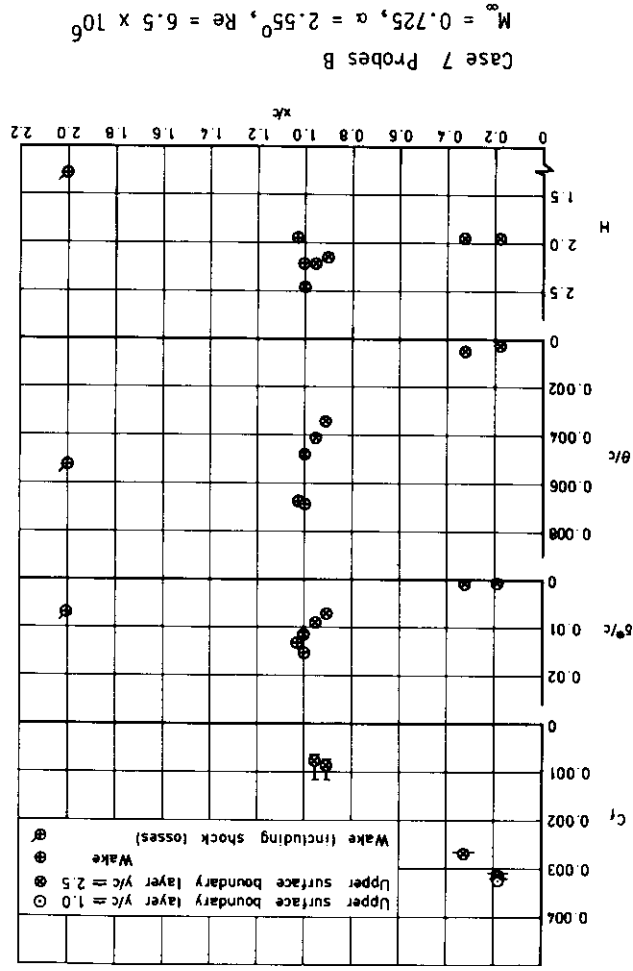
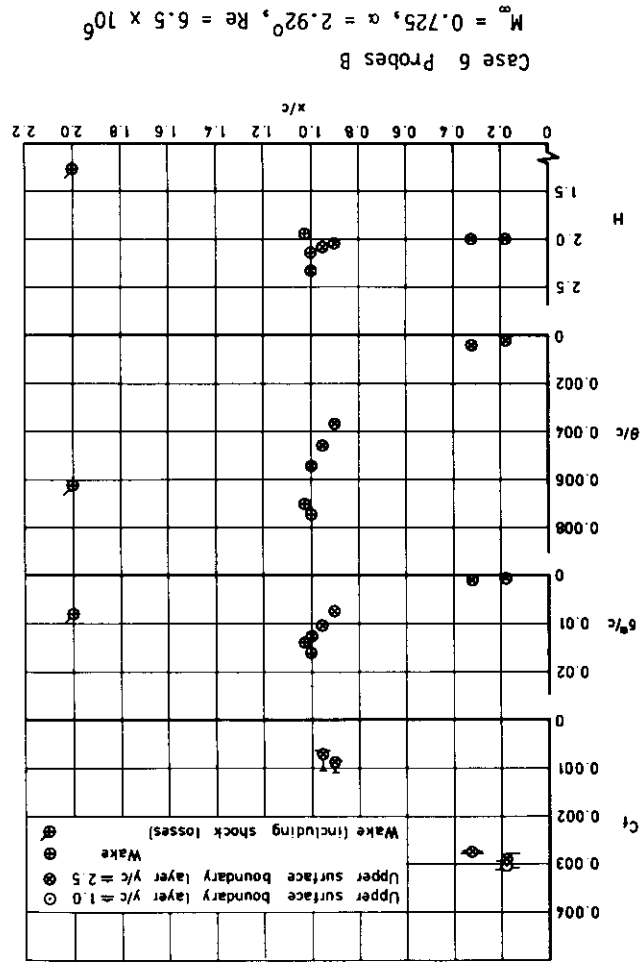
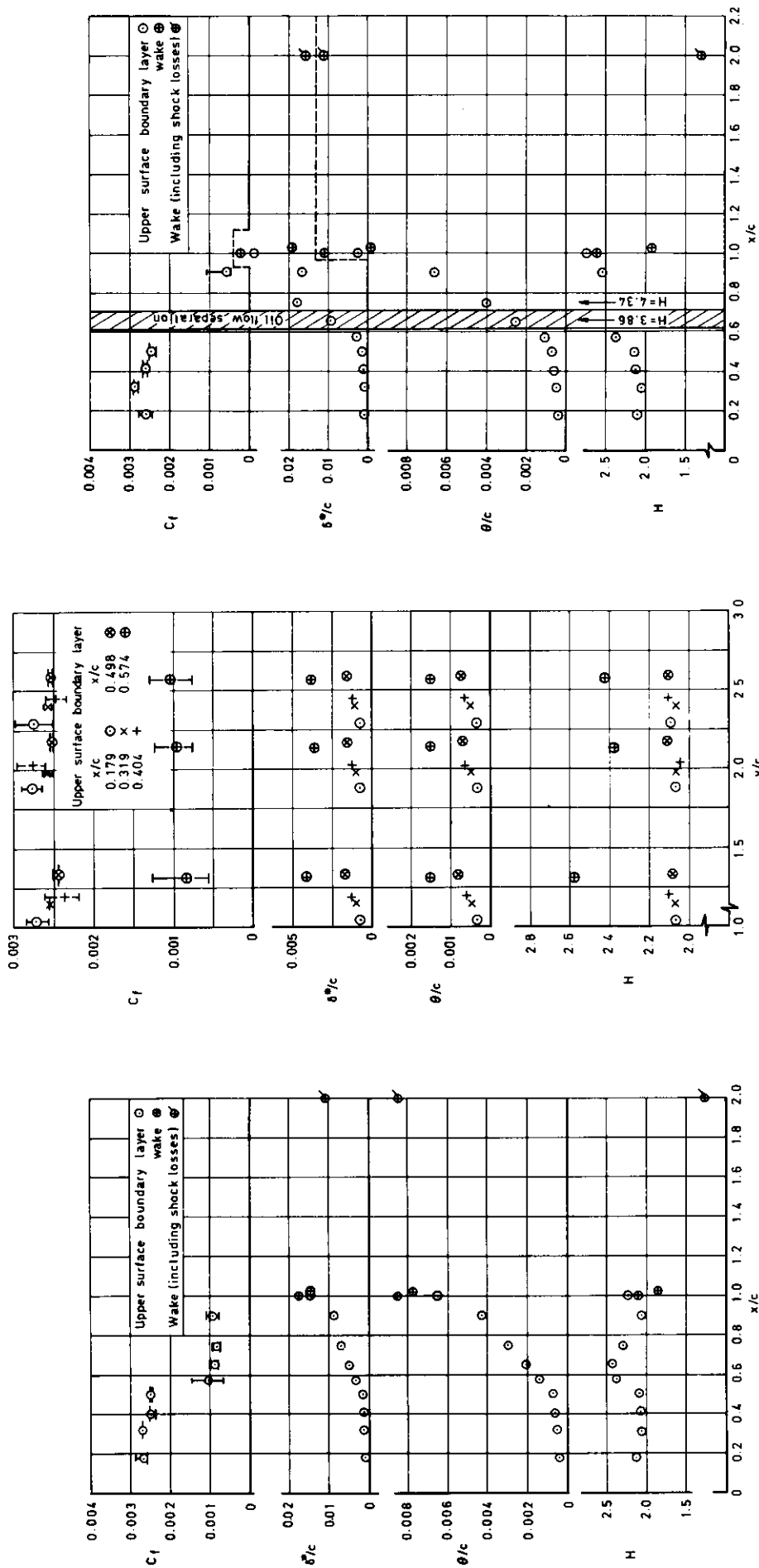


Fig 6.6 (contd) Boundary layer and wake parameters



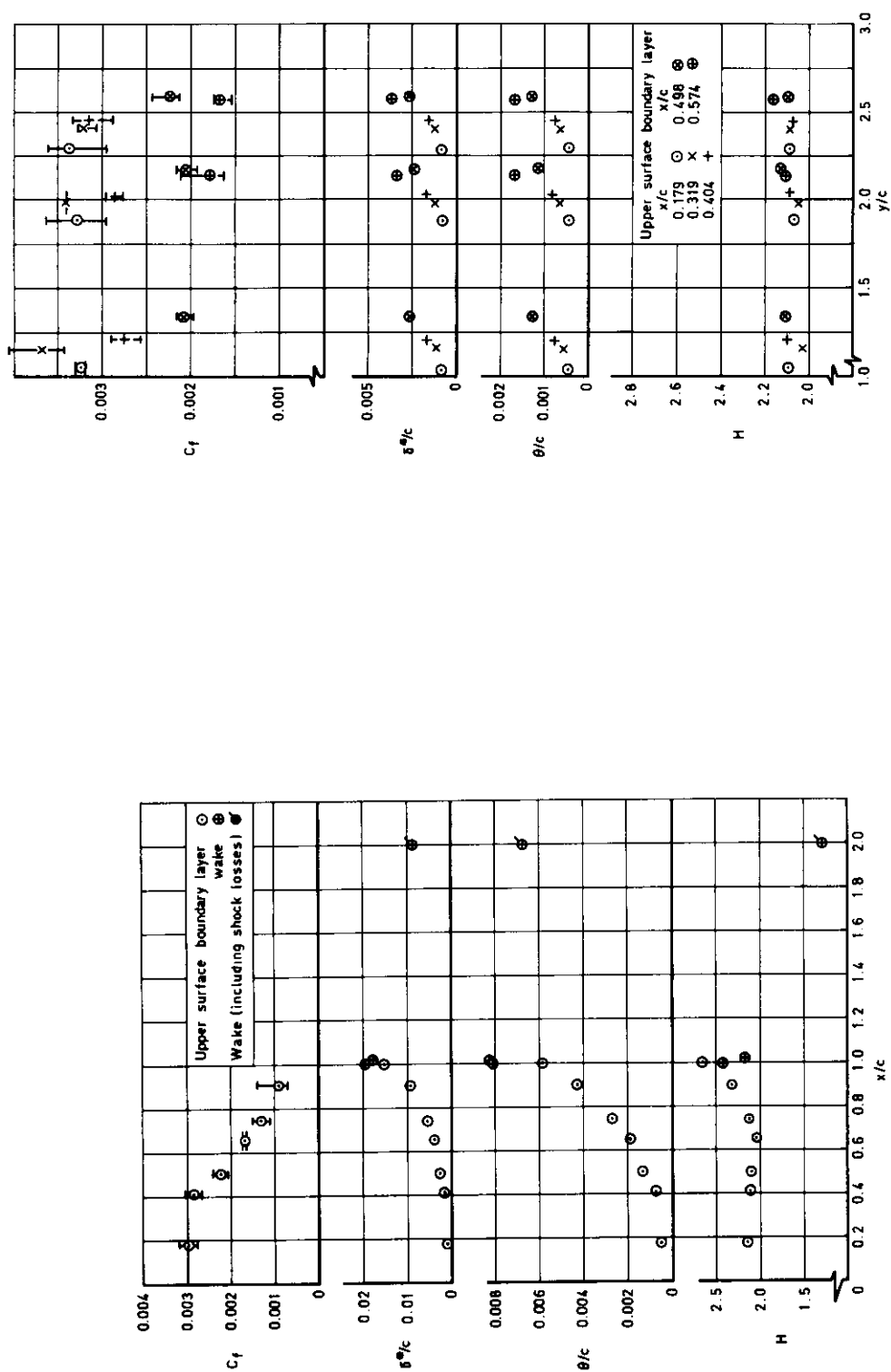


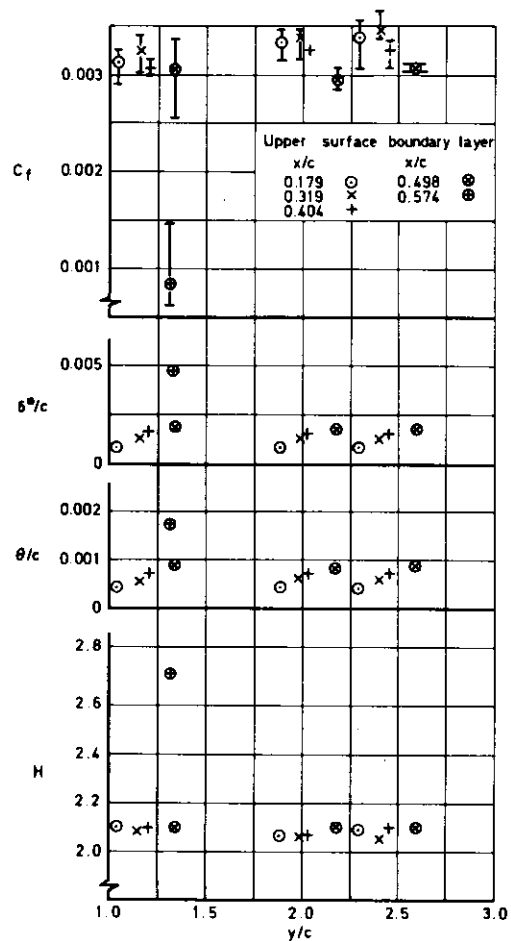
Case 9 Probes D1
 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$

Case 9 Probes C1
 $M_\infty = 0.730$, $\alpha = 3.19^\circ$, $Re = 6.5 \times 10^6$

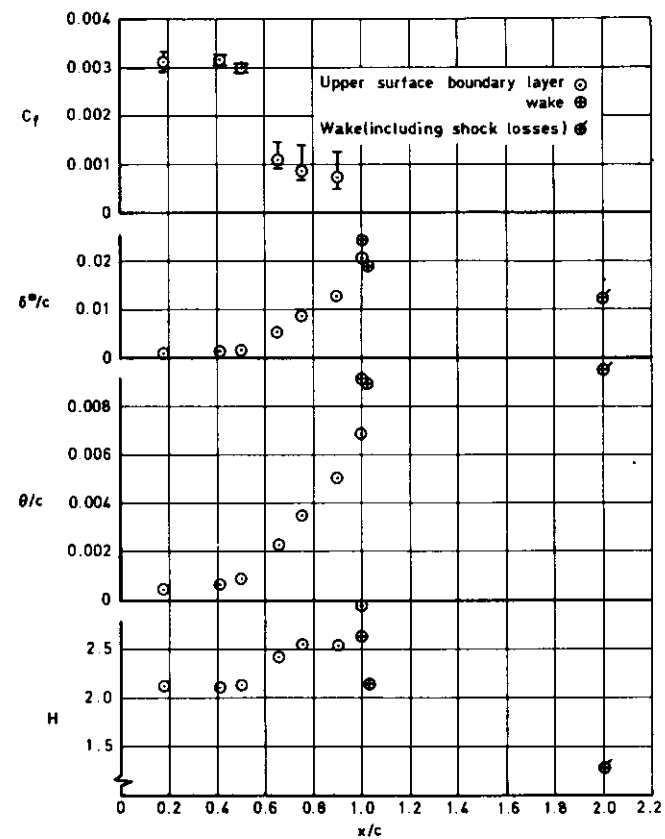
Case 10 Probes C1
 $M_\infty = 0.750$, $\alpha = 3.19^\circ$, $Re = 6.2 \times 10^6$

Fig 6.6 (contd) Boundary layer and wake parameters





Case 13 Probes D
 $M_\infty = 0.745$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$



Case 13a Probes C2
 $M_\infty = 0.740$, $\alpha = 3.19^\circ$, $Re = 2.7 \times 10^6$

Fig 6.6 (concl'd) Boundary layer and wake parameters

7. PRESSURE DISTRIBUTIONS FOR AIRFOIL NAE 75-036-13: 2
 AT REYNOLDS NUMBERS FROM 14 TO 30 MILLION

submitted by

High Speed Aerodynamics Laboratory, NAE/NRC, Canada

This is a 13% thick section designed for a lift coefficient of 0.36 at a Mach number of 0.75, but with the constraint that the lower surface Mach number must not exceed 0.93. The data comprise pressure distributions with trailing edge pressure, wake drag, aerodynamic coefficients from balance measurements as well as pressure integration and floor and ceiling pressure distributions.

1. Airfoil

1.1 Airfoil designation	NAE 75-036-13:2 (also DHC JJK 13)
1.2 Type of airfoil	Low lift, near shockless, supercritical
1.2.1 airfoil geometry	Fig. 7.1, Table 7.1
nose radius	$r/c \sim 2.2\%$
maximum thickness	$t/c = 13\%$
base thickness	0
1.2.2 design condition	Potential flow, direct method
	$\left. \begin{array}{l} M_d = 0.75 \\ C_{L_d} = 0.36 \end{array} \right\} C_{p_{min}} \text{ (lower surface)} \geq C_p^* + 0.2$
	T.E. angle $\approx 15^\circ$
	Viscous calcs for $Re = 20 \times 10^6$
design pressure distribution	-
1.3 Additional remarks	Buffet free operation required up to $M = M_d + 0.05$ $C_{L_d} = 1.5 C_{L_d}$
1.4 References on airfoil	1, 2

2. Model Geometry

2.1 Chord length	0.254 m
2.2 Span	0.381 m
2.3 Actual model co-ordinates and accuracy	Table 7.2 Y_d in Table 7.2 obtained by cubic spline fit to values given in Table 7.1
2.4 Maximum thickness	$t/c = 13\%$
2.5 Base thickness	0.1% chord
2.6 Additional remarks	surface finish $\leq 0.25 \mu m$ theoretical shape altered after 95% chord to accommodate finite TE
2.7 References on model	2

2. Wind tunnel

3.1 Designation	NAE 5-ft x 5-ft trisonic W/T with 2-D insert
3.2 Type of tunnel	Blowdown
3.2.1 stagnation pressure	2 - 11 bars
3.2.2 stagnation temperature	293 K, max drop $\sim 5K$ during a run
3.2.3 humidity/dew point	0.0002 kg H_2O /Kg air
3.3 Test section	Rectangular, Fig. 7.2
3.3.1 dimensions	0.38m x 1.52m
3.3.2 type of walls	Perforated top and bottom 20.5% porosity $\phi 12.7mm$ normal holes at 26.4 mm spacing

3.4 Flow field (empty test section)

- 3.4.1 reference static pressure
- 3.4.2 flow angularity
- 3.4.3 Mach no. distribution
- 3.4.4 pressure gradient
- 3.4.5 turbulence/noise level
- 3.4.6 side wall boundary layer

at sidewall, 7.7 chord upstream of model LE
 not determined
 Fig. 7.3
 Fig. 7.3
 free stream $\left(\frac{\Delta p}{q}\right)_{\text{rms}} = 0.008$ at $M_{\infty} = 0.8$
 $\delta^* \leq 2.5$ mm
 $\frac{2 \delta^*}{B} \leq 0.013$

3.5 Additional remarks

sidewall suction over an area 1.8x2.4 chord around model

3.6 References on wind tunnel

3,4

4. Tests

4.1 Type of measurements

Force balance
 surface pressure
 wake pitot pressure

4.2 Tunnel/model dimensions

- 4.2.1 height/chord ratio 6/1
- 4.2.3 width/chord ratio 1.5/1

4.3 Flow conditions included in present data base Fig. 7.4 and Table 7.3

- 4.3.1 angle of attack 0 to 4° for $M_{\infty} = 0.75$
 2° for other M_{∞}
- 4.3.2 Mach number 0.5 to 0.84
- 4.3.3 Reynolds number 14, 25 and 30 x 10⁶ based on 10" chord.
- 4.3.4 transition free transition
 - position of free transition Not established
 - transition fixing
- 4.3.5 temperature equilibrium Yes

4.4 Additional remarks

4.5 Reference on tests

2

5. Instrumentation

5.1 Surface pressure measurements

- 5.1.1 pressure holes 80
 - size ϕ 0.37 mm, depth/diameter ratio ~1.7
 - spanwise station(s) centre span
 - chordwise positions Table 7.2
- 5.1.2 type of transducers and scanning devices Two D9 scanivalves with 200 psia Kulite VQS-500-200A
- 5.1.3 other scan rate for 5.1.2 20 ports/sec.

5.2 Wake measurements

- 5.2.1 type/size of instrument(s) Traversing probe, see Fig. 7.2
 OD/ID = 1.6/0.51 mm
- 5.2.2 streamwise position(s) 1.5 x chord downstream T.E.
- 5.2.3 type of transducers and scanning devices 50 psid Statham PM 131 TC

5.5 Flow visualisation

5.5.2 surface flow

at $C_N = 0.36$, $M = 0.75$, 0.8 , $Re = 25 \times 10^6$

5.7 Additional remarks

Two three-component side wall balances for force measurements

5.8 References on instrumentation

4

6. Data

6.1 Accuracy (wall interference excluded)

6.1.1 angle of attack setting

$\pm 0.02^\circ$

6.1.2 free stream Mach number:

-setting

± 0.003

-variation during one pressure scan

± 0.003

6.1.6 repeatability

Generally:

$\Delta C_{Np} < \pm 0.005$ $\Delta C_{Xp} < \pm 0.0005$ $\Delta C_{Mp} < \pm 0.0005$

$\Delta C_{NB} < \pm 0.005$ $\Delta C_{XB} < \pm 0.0005$ $\Delta C_{MB} < \pm 0.0005$

$\Delta C_{DW} < \pm 0.0015$

6.2 Wall interference corrections (indicate estimated accuracy)

6.2.1 angle of attack

$\Delta \alpha \sim -1.2 C_L$ at $M = 0.75$

(estim. for $P_U = 1.5$, $P_L = 0.5$)

6.2.2 blockage (solid/wake) " (lift)

Negligible

$\Delta M \approx -0.013 C_L$ at $M = 0.75$

(estim. for $P_U = 1.5$, $P_L = 0.5$)

6.2.3 streamline curvature (lift)

Negligible

6.2.4 other

6.2.5 remarks

Results from pressure measurements with wall mounted rails, with pressure ports 4.8 cm from the wall, are included for evaluating wall corrections. Tables 7.4 - 7.20

6.2.6 references on wall interference correction

5, 6

6.3 Presentation of data

6.3.1 aerodynamic coefficients

Table 7.3

6.3.2 surface pressures

Table 7.4-7.20
Figure 7.5-7.21

6.3.3 boundary layer quantities

6.3.4 wall interference corrections included ?

No

6.3.5 corrections for model deflection

No

6.3.6 empty test section calibration taken into account ?

Yes

6.3.7 other correction included ?

No

6.3.8 additional remarks

wake drag data are those obtained from probe on C_L only

6.4 Were tests carried out in different facilities on the current airfoil ? If so, what facilities. Are data included in the present data base ?

No

6.5 To be contacted for further information on tests

D.J. Jones, High Speed Aerodynamics Laboratory,
 NAE/NRC,
 Montreal Road,
 Ottawa, Ontario, Canada K1A 0R6

7. References

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3. L.H. Ohman et al The NAE high Reynolds number 15in x 16in two-dimensional
 test facility. NRC/NAE LTR-HA-4 April, 1970
4. L.H. Ohman The NAE 15in x 60in two-dimensional test facility: new
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5. D.J. Peake,
 A.J. Bowker A simple streamwise momentum analysis to indicate an empirical
 correction to angle of incidence in two-dimensional, transonic
 flow, due to a perforated floor and ceiling of the wind tunnel
 NRC/NAE LTR-HA-11 January, 1973
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 pressure measurements to determine the porosity factors for
 tunnel floor and ceiling. NRC/NAE LR-575 February, 1974

8. List of symbols

B	tunnel width = model span
$\bar{c}$	model chord
H	tunnel height
M	local Mach number
M_∞	free stream Mach number
P	local static pressure
P_∞	free stream static pressure
PO	free stream total pressure
Re	Reynolds number based on model chord
P_U, P_L	porosity factor for upper and lower walls (ceiling and floor of W/T). See reference 6
q_∞, Q	free stream dynamic pressure
V/U	relative sidewall suction; $\frac{\text{velocity} \perp \text{sidewall}}{\text{free stream velocity}}$
C_p, CP	$\frac{p - p_\infty}{q_\infty}$ pressure coefficient
C_N, CN	normal force coefficient
C_X, CX	chord force coefficient
$C_M, CMC4$	pitching moment coefficient about 1/4 chord
CL	lift coefficient
CDP	pressure drag coefficient
C_{DW}	wake drag coefficient
X	streamwise coordinate, model origin: LE W/T origin: balance $\bar{c} = 0.4$ model X/c
α_g	geometric angle of attack, angle between chordline and tunnel centre line.

subscript P refers to pressure data

B	balance data
d	design data
m	to model data

TABLE 7.1 GEOMETRY OF AIRFOIL NAE 75-036-13:2

X	Y	X	Y	X	Y
1.0000000000	0.0	0.1126026511	-0.0457400717	0.5523374677	0.0653434992
0.9588627219	-0.0025380601	0.1006855965	-0.0437880531	0.5711979270	0.0645132651
0.9497243166	-0.0032185803	0.0893458126	-0.0417665169	0.5899974704	0.0635518432
0.9397662282	-0.0039974563	0.0786110759	-0.0396950990	0.6087096930	0.0625036743
0.9290056229	-0.0048585348	0.0685327649	-0.0375878215	0.6272829175	0.0614152700
0.9174426794	-0.0057985671	0.0591621995	-0.0354067944	0.6456207633	0.0603144020
0.9050719142	-0.0068275258	0.0504946497	-0.0331038274	0.6636392474	0.0591498396
0.8918876648	-0.0079767257	0.0425026417	-0.0306794271	0.6813043952	0.0578714125
0.8778962493	-0.0093075596	0.0351843238	-0.0281558484	0.6986052990	0.0564346239
0.8631553054	-0.0108950250	0.0285677314	-0.0255403407	0.7155507803	0.0548132360
0.8477554917	-0.0127766207	0.0226559639	-0.0228067972	0.7321501374	0.0530047454
0.8317796376	-0.0149654262	0.0174276233	-0.0199506432	0.7484040260	0.0510125272
0.8153115511	-0.0174696930	0.0128520094	-0.0169846304	0.7643131614	0.0488414094
0.7984392643	-0.0202913359	0.0089095235	-0.0139730759	0.7798804045	0.0465055369
0.7812631726	-0.0234245956	0.0056819320	-0.0109855086	0.7951023579	0.0440255525
0.7639027238	-0.0268456899	0.0032637711	-0.0079333000	0.8099714518	0.0414229706
0.7464876771	-0.0304865353	0.0015838144	-0.0047051162	0.8244790435	0.0387208425
0.7291263342	-0.0342253694	0.0005211232	-0.0013293617	0.8386152983	0.0359458551
0.7118707895	-0.0379012600	0.0001209378	0.0055720881	0.8523659110	0.0331282951
0.6946936250	-0.0413526781	0.0007786751	0.0089869462	0.8657134175	0.0302999951
0.6774995327	-0.0444772728	0.0020155311	0.0123039149	0.8786356449	0.0274950266
0.6601991057	-0.0472533256	0.0038598776	0.0154602826	0.8911036849	0.0247504972
0.6427395344	-0.0496788028	0.0063722730	0.0183953494	0.9030751586	0.0220994577
0.6250831465	-0.0517869776	0.0096784197	0.0211086795	0.9145035148	0.0195598528
0.6071890593	-0.0535653718	0.0138361417	0.0237286985	0.9253491759	0.0171405934
0.5890001655	-0.0550666824	0.0187317729	0.0263369754	0.9355786443	0.0148491189
0.5705260038	-0.0564164296	0.0242959857	0.0288453512	0.9451606870	0.0126925260
0.5518553853	-0.0576529652	0.0305774808	0.0311898850	0.9540667534	0.0106776990
0.5330401659	-0.0587904677	0.0376430154	0.0333898552	1.0000000000	0.0
0.5141375065	-0.0598358773	0.0454972908	0.0355092548		
0.4951956868	-0.0607833937	0.0541231595	0.0375852734		
0.4762558341	-0.0616254285	0.0634580851	0.0396570191		
0.4573546648	-0.0623550164	0.0734440088	0.0417036340		
0.4385300875	-0.0629680753	0.0840565562	0.0436983742		
0.4198209047	-0.0634485483	0.0952787399	0.0456231311		
0.4012560514	-0.0637767315	0.1070998311	0.0474640541		
0.3828586936	-0.0639327765	0.1195113659	0.0492120497		
0.3646319509	-0.0639030337	0.1325066090	0.0508648530		
0.3465782404	-0.0636887550	0.1460770369	0.0524319485		
0.3287088275	-0.0633063316	0.1601989865	0.0539268367		
0.3110473156	-0.0627698302	0.1748388410	0.0553531088		
0.2936185002	-0.0620881133	0.1899665594	0.0567063503		
0.2764459848	-0.0612707362	0.2055557370	0.0579809770		
0.2595542669	-0.0603280589	0.2215807438	0.0591710359		
0.2429699898	-0.0592708625	0.2380197048	0.0602709502		
0.2267201543	-0.0581104532	0.2548545599	0.0612763688		
0.2108338475	-0.0568587743	0.2720716596	0.0621936145		
0.1953449845	-0.0555280671	0.2896448970	0.0630438924		
0.1802969575	-0.0541263260	0.3075250983	0.0638387799		
0.1657267809	-0.0526405424	0.3256675005	0.0645711422		
0.1516562104	-0.0510608107	0.3440346122	0.0652311444		
0.1381024718	-0.0493831933	0.3625930548	0.0658095479		
0.1250799298	-0.0476080589	0.3813108206	0.0662971735		
		0.4001580477	0.0666856766		
		0.4191055894	0.0669666529		
		0.4381252527	0.0671324134		
		0.4571908116	0.0671758652		
		0.4762765169	0.0670903325		
		0.4953578115	0.0668703318		
		0.5144102573	0.0665101409		
		0.5334110260	0.0660050511		

TABLE 7.2 MODEL GEOMETRY AND PRESSURE HOLE LOCATIONS

(INCH UNITS).

UPPER SURFACE													
HOLE	STATION	X	X _m	Y _d	Y _m	Y _m -Y _d	HOLE	STATION	X	X _m	Y _d	Y _m	Y _m -Y _d
1	.0005		.0000	.0400	.0335	-	17	2.000	1.9989	.5753	.5758	.0005	
2	.050		.0475	.1660	.1689	.0029	18	2.250	2.2492	.5940	.5943	.0003	
3	.100		.0988	.2126	.2142	.0016	19	2.375	2.3739	.6023	.6024	.0001	
4	.200		.1982	.2687	.2697	.0010	20	2.750	2.7488	.6234	.6237	.0003	
5	.300		.2994	.3097	.3106	.0009	21	3.000	2.9992	.6351	.6358	.0007	
6	.400		.3980	.3401	.3409	-.0008	22	3.250	3.2485	.6454	.6459	.0005	
7	.500		.4989	.3660	.3670	.0010	23	3.500	3.4986	.6542	.6546	.0004	
8	.600		.5985	.3887	.3900	.0013	24	3.750	3.7486	.6614	.6614	.0000	
9	.700		.6983	.4098	.4099	.0001	25	4.000	3.9993	.6668	.6669	.0001	
10	.800		.7982	.4292	.4301	.0009	26	4.250	4.2484	.6703	.6702	-.0001	
11	.900		.8967	.4468	.4481	.0013	27	4.500	4.4987	.6717	.6717	-.0000	
12	1.000		.9987	.4636	.4643	.0007	28	4.750	4.7490	.6710	.6709	-.0001	
13	1.200	1.1991	.4927	.4932	.0005		29	5.000	4.9987	.6680	.6677	-.0003	
14	1.400	1.3989	.5173	.5181	.0008		30	5.200	5.1997	.6638	.6632	-.0006	
15	1.600	1.5991	.5390	.5396	.0006		31	5.400	5.3980	.6580	.6575	-.0005	
16	1.800	1.7984	.5581	.5588	.0007		32	5.600	5.5989	.6503	.6497	-.0006	

TABLE 7.2 (Cont.)

UPPER SURFACE						LOWER SURFACE					
HOLE	STATION X	X _m	Y _d	Y _m	Y _m - Y _d	HOLE	STATION X	X _m	Y _d	Y _m	Y _m - Y _d
33	5.800	5.7989	.6409	.6405	-.0004	53	.050	.0479	-.0994	-.1016	-.0022
34	6.000	5.9987	.6300	.6299	-.0001	54	.100	.1010	-.1496	-.1498	-.0002
35	6.200	6.1988	.6185	.6182	-.0003	55	.200	.1997	-.2141	-.2135	.0006
36	6.400	6.3992	.6067	.6062	-.0005	56	.300	.2988	-.2610	-.2603	.0007
37	6.600	6.5986	.5941	.5935	-.0006	57	.400	.3995	-.2983	-.2978	.0015
38	6.800	6.7997	.5797	.5790	-.0013	58	.500	.5003	-.3297	-.3286	.0011
39	7.000	6.9990	.5632	.5627	-.0005	59	.750	.7490	-.3894	-.3882	.0012
40	7.200	7.1982	.5437	.5434	-.0003	60	1.000	.9995	-.4366	-.4356	.0010
41	7.400	7.3991	.5208	.5209	.0001	61	1.500	1.4991	-.5085	-.5069	.0016
42	7.600	7.5998	.4945	.4950	.0005	Bal. Pins 1.750					
43	7.800	7.7997	.4649	.4659	.0010	62	2.000	1.9976	-.5592	-.5582	.0010
44	8.000	7.9971	.4324	.4301	-.0023	63	2.500	2.5006	-.5974	-.5962	.0012
45	8.200	8.1992	.3959	.3965	.0006	64	3.000	2.9974	-.6234	-.6227	.0017
46	8.400	8.3997	.3567	.3573	.0006	65	3.500	3.4996	-.6374	-.6367	.0007
47	8.600	8.5985	.3157	.3162	.0005	66	4.000	3.9998	-.6379	-.6375	.0004
48	8.800	8.7994	.2721	.2729	.0008	67	4.500	4.4983	-.6261	-.6255	.0006
49	9.000	8.9988	.2281	.2290	.0009	68	5.000	4.9984	-.6056	-.6049	.0017
50	9.250	9.2486	.1725	.1738	.0013	69	5.625	5.6233	-.5698	-.5697	.0001
51	9.500	9.4988	.1163	.1180	.0017	70	6.000	5.9997	-.5420	-.5419	.0001
52	10.000	10.0010	.0050			Bal. Pins 6.250					
						71	6.500	6.4988	-.4874	-.4872	.0002
						72	7.000	6.9991	-.4033	-.4030	.0003
						73	7.250	7.2491	-.3513	-.3512	-.0001
						74	7.500	7.4988	-.2976	-.2977	-.0001
						75	7.750	7.7496	-.2464	-.2464	-.0000
						76	8.000	7.9987	-.2004	-.2007	-.0003
						77	8.250	8.2475	-.1600	-.1602	-.0002
						78	8.500	8.5003	-.1248	-.1251	-.0003
						79	9.000	9.0000	-.0726	-.0726	.0000
						80	9.500	9.5021	-.0318	-.0342	-.0024
						T.E.	10.000	10.0011	-.0050		

TABLE 7.3

AERODYNAMIC COEFFICIENTS											
				PRESSURE				BALANCE			CD _W
TABLE	FIG.	M _∞	Re x 10 ⁻⁶	C _N ⁰	C _{Np}	C _{Mp}	C _{xp}	C _{NB}	C _{MB}	C _{xB}	
4	5	.511	14.35	1.989	0.335	-0.0416	-0.00669	0.324	-0.0431	-0.001	0.00792
5	6	.699	14.34	1.994	0.366	-0.0426	-0.00547	0.359	-0.0450	-0.002	0.00906
6	7	.754	13.84	1.994	0.389	-0.0408	-0.00530	0.381	-0.0454	0.000	0.00922
7	8	.794	14.29	1.474	0.351	-0.0596	0.00416	0.328	-0.0518	0.006	0.01084
8	9	.702	25.53	1.999	0.381	-0.0477	-0.00557	0.374	-0.0480	-0.003	0.00850
9	10	.754	25.18	-0.047	0.102	-0.0498	0.00295	0.096	-0.0505	0.010	0.00907
10	11	.755	25.41	0.962	0.246	-0.0501	0.00125	0.237	-0.0506	0.007	0.00859
11	12	.756	25.15	1.485	0.326	-0.0489	-0.00128	0.321	-0.0495	0.003	0.0091
12	13	.757	25.29	1.742	0.368	-0.0485	-0.00243	0.359	-0.0491	0.001	0.00893
13	14	.757	25.37	2.011	0.403	-0.0476	-0.00442	0.399	-0.0484	-0.002	0.00910
14	15	.754	25.37	2.513	0.461	-0.0438	-0.00889	0.452	-0.0445	-0.005	0.00996
15	16	.751	25.14	3.034	0.534	-0.0394	-0.01398	0.521	-0.0404	-0.010	0.01245
16	17	.752	25.30	4.057	0.659	-0.0410	-0.01832	0.631	-0.0372	-0.015	0.01967
17	18	.806	24.87	1.465	0.338	-0.0572	0.00366	0.333	-0.0592	0.008	0.01208
18	19	.841	25.19	1.001	0.113	-0.0043	0.02548	0.097	-0.0097	0.028	0.03481
19	20	.756	29.69	2.013	0.400	-0.0478	-0.00401	0.388	-0.0476	-0.001	0.01012
20	21	.801	29.96	2.000	0.393	-0.0538	0.00073	0.374	-0.0521	0.005	0.01165

SURFACE PRESSURE MEASUREMENTS

TABLE 7.4

RUN NUMBER = 4979
 SCAN NUMBER = 2
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.511
 FREYNOLDS NUMBER = 0.1435E 08
 INCIDENCE (NGPTH) = 1.989
 PO = 81.84PSIA
 Q = 12.50PSI
 V/U (SIDEWALL) = 0.0052
 CN = 0.335
 CX = -0.00669
 CMC4 = -0.0416
 CL = 0.3354
 CDP = 0.0050

ORIFICE	X/C	CP	M (LOCAL)
TE UPPER	1.0000	0.2395	0.445
51	0.9500	0.1311	0.476
50	0.9250	0.0706	0.494
49	0.9000	0.0101	0.510
47	0.8600	-0.1096	0.542
46	0.8400	-0.1619	0.556
45	0.8200	-0.2163	0.570
43	0.7800	-0.3197	0.596
42	0.7600	-0.3571	0.605
41	0.7400	-0.3739	0.610
40	0.7200	-0.3664	0.614
39	0.7000	-0.3426	0.615
38	0.6800	-0.3476	0.616
37	0.6600	-0.3514	0.615
36	0.6400	-0.3677	0.615
35	0.6200	-0.3962	0.617
34	0.6000	-0.4098	0.619
33	0.5800	-0.4271	0.623
32	0.5600	-0.4390	0.628
31	0.5400	-0.4465	0.630
30	0.5200	-0.4478	0.630
29	0.5000	-0.4575	0.631
28	0.4750	-0.4641	0.634
27	0.4500	-0.4646	0.635
26	0.4250	-0.4695	0.635
25	0.4000	-0.4660	0.634
24	0.3750	-0.4652	0.634
23	0.3500	-0.4712	0.635
22	0.3250	-0.4696	0.635
21	0.3000	-0.4770	0.638
19	0.2375	-0.5164	0.644
18	0.2250	-0.5202	0.646
17	0.2000	-0.5387	0.651
16	0.1800	-0.5613	0.656
15	0.1600	-0.5867	0.662
14	0.1400	-0.6121	0.668
13	0.1200	-0.6306	0.672
12	0.1000	-0.6795	0.685
11	0.0900	-0.6605	0.686
10	0.0800	-0.7046	0.691
9	0.0700	-0.7083	0.692
8	0.0600	-0.7401	0.701
7	0.0500	-0.8073	0.717
6	0.0400	-0.8663	0.734
5	0.0300	-1.0001	0.761
3	0.0100	-1.0077	0.765
2	0.0050	-0.6179	0.671
1	0.0000	0.9098	0.198
53	0.0050	0.8811	0.205
54	0.0100	0.6324	0.317
55	0.0200	0.3384	0.417
56	0.0300	0.1674	0.468
57	0.0400	0.1021	0.487
58	0.0500	0.0424	0.503
59	0.0750	-0.0256	0.522
62	0.2000	-0.1815	0.562
63	0.2500	-0.2124	0.571
64	0.3000	-0.2410	0.579
65	0.3500	-0.2655	0.585
66	0.4000	-0.2678	0.585
67	0.4500	-0.2484	0.580
68	0.5000	-0.2385	0.578
69	0.5625	-0.2396	0.575

ORIFICE	X/C	CP	M (LOCAL)
70	0.6000	-0.2560	0.579
71	0.6500	-0.2369	0.575
72	0.7000	-0.1131	0.543
73	0.7250	-0.0281	0.521
74	0.7500	0.0429	0.503
75	0.7750	0.1148	0.483
76	0.8000	0.1602	0.471
77	0.8250	0.1695	0.462
78	0.8500	0.2091	0.456
79	0.9000	0.2193	0.453
90	0.9500	0.2266	0.451
TE LOWER	1.0000	0.2395	0.445

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.003	0.514	0.007	0.511
-4.2000	0.006	0.513	0.006	0.510
-3.9000	-0.002	0.516	0.005	0.512
-3.6000	0.006	0.513	0.002	0.512
-3.3000	0.005	0.514	0.006	0.513
-3.0000	0.001	0.514	0.005	0.512
-2.7000	-0.001	0.515	0.015	0.510
-2.4000	-0.003	0.516	0.012	0.510
-2.1000	-0.002	0.515	0.011	0.511
-1.8000	0.002	0.515	0.012	0.510
-1.5000	-0.015	0.519	0.019	0.509
-1.3500	-0.009	0.517	-0.005	0.514
-1.2000	-0.011	0.517	0.015	0.509
-1.0500	-0.007	0.517	0.020	0.509
-0.9000	-0.009	0.517	0.016	0.510
-0.7500	-0.010	0.517	0.017	0.509
-0.6500	-0.015	0.519	0.015	0.510
-0.5500	-0.011	0.518	0.017	0.508
-0.4500	-0.011	0.518	0.012	0.509
-0.3500	-0.017	0.519	0.022	0.508
-0.2500	-0.017	0.518	0.011	0.512
-0.1500	-0.017	0.518	0.020	0.509
-0.0500	-0.017	0.519	0.025	0.508
0.0500	-0.019	0.519	0.029	0.507
0.1500	-0.021	0.518	0.023	0.509
0.2500	-0.019	0.518	0.029	0.507
0.3500	-0.017	0.518	0.024	0.509
0.4500	-0.019	0.518	0.027	0.507
0.5500	-0.019	0.520	0.021	0.509
0.6500	-0.012	0.516	0.026	0.508
0.7500	-0.013	0.517	0.001	0.514
0.9000	-0.012	0.516	0.024	0.509
1.0500	-0.007	0.515	0.020	0.510
1.2000	-0.006	0.516	0.019	0.510
1.3500	-0.016	0.518	0.021	0.509
1.5000	-0.011	0.516	0.023	0.509
1.8000	-0.008	0.516	0.018	0.510
2.1000	-0.013	0.516	0.018	0.509
2.4000	0.007	0.512	0.015	0.511
2.7000	-0.011	0.515	0.003	0.514

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER = 4976
 SCAN NUMBER = 3
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.699
 REYNOLDS NUMBER = 0.1434E 08
 INCIDENCE (NORTH) = 1.994
 P0 = 65.11PSIA
 Q = 16.07PSI
 V/U (SIDEWALL) = 0.0058
 CN = 0.366
 CX = -0.00547
 CMC4 = -0.0426
 CL = 0.3658
 CDP = 0.0073

TABLE 7.5

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2366	0.610
51	0.9500	0.1692	0.638
50	0.9250	0.1149	0.660
49	0.9000	0.0506	0.684
47	0.8600	-0.0697	0.731
46	0.8400	-0.1258	0.753
45	0.8200	-0.1986	0.781
43	0.7800	-0.3249	0.828
42	0.7600	-0.3704	0.847
41	0.7400	-0.4172	0.864
40	0.7200	-0.4481	0.876
39	0.7000	-0.4558	0.879
38	0.6800	-0.4549	0.879
37	0.6600	-0.4491	0.876
36	0.6400	-0.4509	0.877
35	0.6200	-0.4679	0.880
34	0.6000	-0.4707	0.885
33	0.5800	-0.4976	0.895
32	0.5600	-0.5172	0.901
31	0.5400	-0.5409	0.911
30	0.5200	-0.5490	0.914
29	0.5000	-0.5574	0.919
28	0.4750	-0.5585	0.920
27	0.4500	-0.5671	0.922
26	0.4250	-0.5669	0.923
25	0.4000	-0.5547	0.918
24	0.3750	-0.5576	0.918
23	0.3500	-0.5635	0.920
22	0.3250	-0.5598	0.919
21	0.3000	-0.5548	0.921
19	0.2375	-0.6128	0.940
18	0.2250	-0.6237	0.945
17	0.2000	-0.6625	0.960
16	0.1800	-0.6828	0.967
15	0.1600	-0.7038	0.976
14	0.1400	-0.7287	0.987
13	0.1200	-0.7596	0.998
12	0.1000	-0.8355	1.029
11	0.0900	-0.8074	1.018
10	0.0800	-0.7890	1.010
9	0.0700	-0.7609	0.998
8	0.0600	-0.7562	0.996
7	0.0500	-0.9474	1.075
6	0.0400	-1.1341	1.156
5	0.0300	-1.1160	1.147
3	0.0100	-0.7740	1.003
2	0.0050	-0.2577	0.803
1	0.0000	1.0388	0.180
53	0.0050	0.8899	0.298
54	0.0100	0.6424	0.434
55	0.0200	0.3661	0.558
56	0.0300	0.1862	0.632
57	0.0400	0.0888	0.670
58	0.0500	0.0370	0.692
59	0.0750	-0.0378	0.719
62	0.2000	-0.2201	0.787
63	0.2500	-0.2627	0.803
64	0.3000	-0.3025	0.820
65	0.3500	-0.3306	0.831
66	0.4000	-0.3398	0.833
67	0.4500	-0.3107	0.827
68	0.5000	-0.2949	0.817
69	0.5625	-0.2749	0.816

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3138	0.824
71	0.6500	-0.2894	0.815
72	0.7000	-0.1363	0.756
73	0.7250	-0.0312	0.716
74	0.7500	0.0553	0.682
75	0.7750	0.1312	0.652
76	0.8000	0.1756	0.635
77	0.8250	0.2144	0.620
78	0.8500	0.2318	0.612
79	0.9000	0.2444	0.607
80	0.9500	0.2492	0.606
TE LOWER	1.0000	0.2366	0.610

STATIC PRESSURES AT CEILING AND FLOOR

X/C	CEILING CP	M	FLOOR CP	M
-4.5000	0.012	0.699	0.008	0.701
-4.2000	0.018	0.696	0.013	0.698
-3.9000	0.006	0.702	0.016	0.698
-3.6000	0.016	0.698	0.016	0.699
-3.3000	0.020	0.697	0.016	0.698
-3.0000	0.016	0.698	0.019	0.697
-2.7000	0.012	0.699	0.016	0.698
-2.4000	0.013	0.699	0.020	0.697
-2.1000	0.005	0.702	0.018	0.697
-1.8000	0.003	0.703	0.022	0.696
-1.5000	-0.002	0.704	0.025	0.694
-1.3500	-0.003	0.704	0.021	0.697
-1.2000	-0.000	0.703	0.026	0.694
-1.0500	-0.001	0.704	0.029	0.693
-0.9000	-0.001	0.705	0.028	0.693
-0.7500	-0.002	0.705	0.028	0.694
-0.6500	-0.007	0.707	0.027	0.694
-0.5500	-0.010	0.707	0.021	0.696
-0.4500	-0.010	0.709	0.027	0.694
-0.3500	-0.016	0.711	0.025	0.695
-0.2500	-0.019	0.711	0.027	0.693
-0.1500	-0.023	0.713	0.030	0.693
-0.0500	-0.024	0.713	0.033	0.692
0.0500	-0.027	0.714	0.036	0.690
0.1500	-0.021	0.713	0.037	0.689
0.2500	-0.020	0.713	0.042	0.689
0.3500	-0.025	0.714	0.043	0.688
0.4500	-0.021	0.712	0.037	0.690
0.5500	-0.016	0.711	0.038	0.690
0.6500	-0.020	0.712	0.035	0.690
0.7500	-0.014	0.710	0.005	0.702
0.9000	-0.009	0.708	0.034	0.691
1.0500	-0.012	0.709	0.034	0.691
1.2000	-0.009	0.708	0.032	0.691
1.3500	-0.009	0.708	0.030	0.693
1.5000	-0.006	0.706	0.036	0.690
1.8000	-0.008	0.707	0.032	0.690
2.1000	-0.003	0.706	0.032	0.692
2.4000	-0.004	0.706	0.028	0.693
2.7000	-0.010	0.707	0.018	0.696

SURFACE PRESSURE MEASUREMENTS

TABLE 7.6

RUN NUMBER = 4974
 SCAN NUMBER = 5
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.754
 REYNOLDS NUMBER = 0.1384E 08
 INCIDENCE(NORTH) = 1.904
 PO = 60.15PSIA
 Q = 16.41PSI
 V/U (SIDEWALL) = 0.0052
 CN = 0.389
 CX = -0.00530
 CMC4 = -0.0408
 CL = 0.3888
 CDP = 0.0082

ORIFICE	X/C	CP	M(LTICAL)
TE UPPER	1.0000	0.2329	0.659
51	0.9500	0.1765	0.684
50	0.9250	0.1347	0.703
49	0.9000	0.0807	0.777
47	0.8600	-0.0308	0.774
46	0.8400	-0.0909	0.799
45	0.8200	-0.1643	0.828
43	0.7800	-0.3071	0.388
42	0.7600	-0.3625	0.912
41	0.7400	-0.4132	0.934
40	0.7200	-0.4470	0.949
39	0.7000	-0.4689	0.957
38	0.6800	-0.4771	0.960
37	0.6600	-0.4722	0.959
36	0.6400	-0.4697	0.958
35	0.6200	-0.4790	0.962
34	0.6000	-0.4911	0.968
33	0.5800	-0.5285	0.986
32	0.5600	-0.5699	1.003
31	0.5400	-0.6083	1.020
30	0.5200	-0.6187	1.025
29	0.5000	-0.6371	1.035
28	0.4750	-0.6481	1.039
27	0.4500	-0.6503	1.040
26	0.4250	-0.6462	1.038
25	0.4000	-0.6255	1.029
24	0.3750	-0.6067	1.021
23	0.3500	-0.6004	1.017
22	0.3250	-0.5880	1.011
21	0.3000	-0.5780	1.007
19	0.2375	-0.7812	1.103
18	0.2250	-0.8183	1.120
17	0.2000	-0.8538	1.134
16	0.1800	-0.8645	1.138
15	0.1600	-0.8543	1.134
14	0.1400	-0.8621	1.137
13	0.1200	-0.9050	1.158
12	0.1000	-0.9077	1.160
11	0.0900	-0.8931	1.151
10	0.0800	-0.9120	1.159
9	0.0700	-0.9395	1.175
8	0.0600	-0.9677	1.189
7	0.0500	-0.9861	1.198
6	0.0400	-0.9989	1.206
5	0.0300	-0.9169	1.166
4	0.0100	-0.5857	1.010
3	0.0050	-0.0957	0.900
1	0.0000	1.0857	0.161
53	0.0050	0.3893	0.329
54	0.0100	0.6324	0.475
55	0.0200	0.3578	0.605
56	0.0300	0.1889	0.679
57	0.0400	0.0977	0.718
58	0.0500	0.0356	0.744
59	0.0750	-0.0443	0.777
62	0.2000	-0.2364	0.859
63	0.2500	-0.2894	0.880
64	0.3000	-0.3397	0.902
65	0.3500	-0.3782	0.919
66	0.4000	-0.3879	0.923
67	0.4500	-0.3560	0.909
68	0.5000	-0.3267	0.907
69	0.5625	-0.3327	0.899

ORIFICE	X/C	CP	M(LTICAL)
70	0.6000	-0.3609	0.713
71	0.6500	-0.3134	0.894
72	0.7000	-0.1314	0.817
73	0.7250	-0.0209	0.769
74	0.7500	0.0654	0.731
75	0.7750	0.1362	0.700
76	0.8000	0.1835	0.680
77	0.8250	0.2195	0.665
78	0.8500	0.2396	0.656
79	0.9000	0.2519	0.650
80	0.9500	0.2557	0.650
TE LOWER	1.0000	0.2329	0.659

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.020	0.751	0.013	0.755
-4.2000	0.021	0.749	0.013	0.753
-3.9000	0.008	0.756	0.017	0.751
-3.6000	0.023	0.749	0.018	0.753
-3.3000	0.022	0.749	0.017	0.751
-3.0000	0.027	0.748	0.022	0.749
-2.7000	0.026	0.748	0.025	0.748
-2.4000	0.020	0.750	0.025	0.748
-2.1000	0.019	0.752	0.022	0.749
-1.8000	0.014	0.753	0.023	0.751
-1.5000	0.004	0.756	0.030	0.746
-1.3500	0.007	0.756	0.009	0.755
-1.2000	0.007	0.756	0.037	0.744
-1.0500	0.003	0.757	0.030	0.745
-0.9000	0.002	0.759	0.032	0.745
-0.7500	0.002	0.759	0.035	0.746
-0.6500	-0.006	0.762	0.027	0.746
-0.5500	-0.001	0.759	0.027	0.749
-0.4500	-0.005	0.762	0.024	0.749
-0.3500	-0.009	0.763	0.031	0.746
-0.2500	-0.015	0.765	0.028	0.747
-0.1500	-0.021	0.767	0.036	0.744
-0.0500	-0.022	0.768	0.035	0.744
0.0500	-0.028	0.770	0.041	0.742
0.1500	-0.021	0.770	0.040	0.741
0.2500	-0.021	0.769	0.044	0.741
0.3500	-0.025	0.771	0.046	0.740
0.4500	-0.022	0.770	0.043	0.742
0.5500	-0.017	0.765	0.039	0.743
0.6500	-0.016	0.768	0.042	0.741
0.7500	-0.014	0.763	0.037	0.759
0.9000	-0.014	0.765	0.040	0.741
1.0500	-0.008	0.762	0.037	0.743
1.2000	-0.006	0.761	0.037	0.743
1.3500	-0.002	0.760	0.038	0.743
1.5000	-0.003	0.760	0.026	0.744
1.8000	0.005	0.757	0.032	0.744
2.1000	0.001	0.754	0.032	0.746
2.4000	0.004	0.755	0.028	0.747
2.7000	-0.008	0.762	0.021	0.750

SURFACE PRESSURE MEASUREMENTS

TABLE 7.7

RUN NUMBER = 4970
 SCAN NUMBER = 4
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.794
 REYNOLDS NUMBER = 0.1429E 08
 INCIDENCE(NORTH) = 1.474
 P0 = 60.19PSIA
 Q = 17.52PSI
 V/U (SIDEWALL) = 0.0049
 CN = 0.335
 CX = 0.00066
 CMC4 = -0.0496
 CL = 0.3353
 CDP = 0.0093

ORIFICE	X/C	CP	(MLTICAL)
TE UPPER	1.0000	0.2407	0.690
51	0.9500	0.1874	0.715
50	0.9250	0.1485	0.733
49	0.9000	0.1002	0.754
47	0.8600	-0.0103	0.804
46	0.8400	-0.0687	0.830
45	0.8200	-0.1328	0.860
43	0.7800	-0.2673	0.919
42	0.7600	-0.3240	0.945
41	0.7400	-0.3743	0.970
40	0.7200	-0.4017	0.983
39	0.7000	-0.4074	0.985
38	0.6800	-0.3999	0.982
37	0.6600	-0.4040	0.985
36	0.6400	-0.4524	1.008
35	0.6200	-0.5324	1.047
34	0.6000	-0.7354	1.149
33	0.5800	-0.7871	1.175
32	0.5600	-0.7541	1.162
31	0.5400	-0.7972	1.174
30	0.5200	-0.7844	1.171
29	0.5000	-0.7751	1.168
28	0.4750	-0.7534	1.155
27	0.4500	-0.7611	1.160
26	0.4250	-0.7662	1.164
25	0.4000	-0.7661	1.163
24	0.3750	-0.7514	1.160
23	0.3500	-0.7593	1.159
22	0.3250	-0.7527	1.157
21	0.3000	-0.7704	1.167
19	0.2375	-0.7687	1.164
18	0.2250	-0.7726	1.166
17	0.2000	-0.7585	1.160
16	0.1800	-0.7524	1.156
15	0.1600	-0.7324	1.143
14	0.1400	-0.7044	1.130
13	0.1200	-0.6672	1.112
12	0.1000	-0.6363	1.097
11	0.0900	-0.6072	1.082
10	0.0800	-0.6345	1.096
9	0.0700	-0.6588	1.109
8	0.0600	-0.6760	1.118
7	0.0500	-0.7349	1.148
6	0.0400	-0.7457	1.154
5	0.0300	-0.7019	1.131
3	0.0100	-0.3713	0.945
2	0.0050	0.1165	0.746
1	0.0000	1.1411	0.105
53	0.0050	0.8177	0.397
54	0.0100	0.5474	0.545
55	0.0200	0.2671	0.579
56	0.0300	0.0967	0.756
57	0.0400	-0.0034	0.800
58	0.0500	-0.0620	0.827
59	0.0750	-0.1263	0.857
62	0.2000	-0.3184	0.943
63	0.2500	-0.3716	0.968
64	0.3000	-0.4324	0.998
65	0.3500	-0.5079	1.034
66	0.4000	-0.5238	1.041
67	0.4500	-0.4369	0.998
68	0.5000	-0.3914	0.977
69	0.5625	-0.3922	0.978

ORIFICE	X/C	CP	(MLTICAL)
70	0.6000	-0.4239	0.993
71	0.6500	-0.3539	0.961
72	0.7000	-0.1363	0.861
73	0.7250	-0.0243	0.810
74	0.7500	0.0605	0.772
75	0.7750	0.1317	0.740
76	0.8000	0.1932	0.717
77	0.8250	0.2167	0.702
78	0.8500	0.2413	0.690
79	0.9000	0.2596	0.681
80	0.9500	0.2666	0.678
TE LOWER	1.0000	0.2407	0.690

STATIC PRESSURES AT CEILING AND FLOOR

CEILING		FLOOR	
X/C	CP	M	M
-4.5000	0.017	0.792	0.016
-4.2000	0.023	0.788	0.015
-3.9000	0.007	0.797	0.015
-3.6000	0.024	0.789	0.014
-3.3000	0.025	0.789	0.015
-3.0000	0.025	0.787	0.018
-2.7000	0.027	0.787	0.020
-2.4000	0.024	0.789	0.021
-2.1000	0.015	0.792	0.023
-1.8000	0.010	0.795	0.022
-1.5000	0.009	0.795	0.027
-1.2500	0.012	0.794	0.003
-1.2000	0.008	0.795	0.024
-1.0500	0.011	0.795	0.024
-0.9000	0.006	0.797	0.028
-0.7500	0.003	0.798	0.025
-0.6500	0.001	0.798	0.023
-0.5500	-0.005	0.802	0.021
-0.4500	-0.007	0.802	0.019
-0.3500	-0.015	0.805	0.021
-0.2500	-0.017	0.808	0.024
-0.1500	-0.023	0.810	0.024
-0.0500	-0.026	0.812	0.027
0.0500	-0.028	0.812	0.028
0.1500	-0.027	0.811	0.033
0.2500	-0.027	0.811	0.034
0.3500	-0.027	0.811	0.037
0.4500	-0.023	0.810	0.028
0.5500	-0.021	0.810	0.028
0.6500	-0.016	0.806	0.027
0.7500	-0.015	0.807	-0.002
0.9000	-0.014	0.805	0.027
1.0500	-0.009	0.804	0.032
1.2000	-0.010	0.804	0.032
1.3500	-0.009	0.804	0.030
1.5000	-0.006	0.801	0.031
1.8000	-0.004	0.802	0.032
2.1000	-0.002	0.799	0.029
2.4000	0.001	0.799	0.028
2.7000	-0.007	0.802	0.015

SURFACE PRESSURE MEASUREMENTS

TABLE 7.8

RUN NUMBER = 4944
 SCAN NUMBER = 2
 CONFIGURATION = DHCJK
 TEST MACH NUMBER = 0.702
 REYNOLDS NUMBER = 0.2553E 08
 INCIDENCE(NORTH) = 1.999
 P0 = 114.80PSIA
 Q = 28.52PSI
 V/U (SIDEWALL) = 0.0051
 CN = 0.381
 CX = -0.00557
 CMC4 = -0.0477
 CL = 0.3814
 CDP = 0.0077

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2569	0.604
51	0.9500	0.1698	0.640
50	0.9250	0.1096	0.664
49	0.9000	0.0440	0.690
47	0.8600	-0.0824	0.740
46	0.8400	-0.1453	0.764
45	0.8200	-0.2144	0.791
43	0.7800	-0.3485	0.842
42	0.7600	-0.3938	0.859
41	0.7400	-0.4376	0.876
40	0.7200	-0.4530	0.883
39	0.7000	-0.4723	0.890
38	0.6800	-0.4741	0.890
37	0.6600	-0.4663	0.887
36	0.6400	-0.4647	0.886
35	0.6200	-0.4748	0.890
34	0.6000	-0.4863	0.895
33	0.5800	-0.5098	0.905
32	0.5600	-0.5304	0.911
31	0.5400	-0.5545	0.921
30	0.5200	-0.5598	0.923
29	0.5000	-0.5676	0.927
28	0.4750	-0.5824	0.934
27	0.4500	-0.5761	0.931
26	0.4250	-0.5808	0.934
25	0.4000	-0.5734	0.930
24	0.3750	-0.5676	0.926
23	0.3500	-0.5778	0.931
22	0.3250	-0.5677	0.927
21	0.3000	-0.5856	0.934
19	0.2375	-0.6292	0.952
18	0.2250	-0.6457	0.959
17	0.2000	-0.6630	0.966
16	0.1800	-0.6894	0.977
15	0.1600	-0.7147	0.986
14	0.1400	-0.7383	0.995
13	0.1200	-0.7794	1.012
12	0.1000	-0.8386	1.036
11	0.0800	-0.8178	1.028
10	0.0800	-0.7978	1.018
9	0.0700	-0.7760	1.009
8	0.0600	-0.7833	1.012
7	0.0500	-1.0354	1.118
6	0.0400	-1.1473	1.168
5	0.0300	-1.0944	1.145
3	0.0100	-0.7402	0.994
2	0.0050	-0.2595	0.307
1	0.0000	1.0377	0.183
53	0.0050	0.8898	0.301
54	0.0100	0.5339	0.441
55	0.0200	0.3619	0.563
56	0.0300	0.1958	0.631
57	0.0400	0.0860	0.673
58	0.0500	0.0285	0.696
59	0.0750	-0.0459	0.726
60	0.1000	-0.2185	0.791
63	0.2500	-0.2563	0.806
64	0.3000	-0.2970	0.821
65	0.3500	-0.3298	0.834
66	0.4000	-0.3335	0.835
67	0.4500	-0.3089	0.826
68	0.5000	-0.2908	0.819
69	0.5625	-0.2962	0.820

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3219	0.830
71	0.6500	-0.2900	0.818
72	0.7000	-0.1316	0.758
73	0.7250	-0.0270	0.718
74	0.7500	0.0657	0.681
75	0.7750	0.1450	0.650
76	0.8000	0.1905	0.632
77	0.8250	0.2246	0.618
78	0.8500	0.2452	0.610
79	0.9000	0.2526	0.607
80	0.9500	0.2607	0.604
TE LOWER	1.0000	0.2569	0.604

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.008	0.704	0.002	0.707
-4.2000	0.014	0.702	0.007	0.703
-3.9000	0.004	0.705	0.007	0.705
-3.6000	0.013	0.703	0.003	0.706
-3.3000	0.014	0.702	0.006	0.705
-3.0000	0.017	0.701	0.010	0.703
-2.7000	0.016	0.701	0.011	0.703
-2.4000	0.013	0.702	0.011	0.703
-2.1000	0.005	0.705	0.014	0.703
-1.8000	0.005	0.705	0.012	0.702
-1.5000	0.000	0.707	0.019	0.700
-1.3500	-0.000	0.707	-0.002	0.708
-1.2000	-0.004	0.708	0.020	0.700
-1.0500	-0.001	0.708	0.020	0.700
-0.9000	-0.001	0.709	0.019	0.700
-0.7500	-0.005	0.710	0.020	0.700
-0.6500	-0.014	0.712	0.018	0.700
-0.5500	-0.008	0.710	0.014	0.702
-0.4500	-0.015	0.714	0.017	0.700
-0.3500	-0.019	0.715	0.019	0.701
-0.2500	-0.019	0.715	0.018	0.700
-0.1500	-0.026	0.718	0.024	0.699
-0.0500	-0.024	0.716	0.025	0.698
0.0500	-0.025	0.718	0.029	0.696
0.1500	-0.028	0.719	0.037	0.693
0.2500	-0.026	0.718	0.032	0.696
0.3500	-0.027	0.718	0.038	0.692
0.4500	-0.024	0.716	0.030	0.695
0.5500	-0.020	0.715	0.032	0.695
0.6500	-0.021	0.716	0.031	0.694
0.7500	-0.017	0.714	-0.006	0.709
0.8500	-0.014	0.712	0.029	0.696
1.0500	-0.011	0.713	0.032	0.695
1.2000	-0.008	0.711	0.032	0.695
1.3500	-0.010	0.711	0.030	0.696
1.5000	-0.008	0.711	0.028	0.697
1.8000	-0.006	0.710	0.029	0.696
2.1000	-0.003	0.711	0.030	0.697
2.4000	-0.002	0.708	0.024	0.699
2.7000	-0.010	0.710	0.013	0.702

SURFACE PRESSURE MEASUREMENTS

TABLE 7.9

RUN NUMBER = 4936
 SCAN NUMBER = 1
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.754
 REYNOLDS NUMBER = 0.2518E 08
 INCIDENCE (NORTH) = -0.047
 P0 = 109.96PSIA
 Q = 30.01PSI
 V/U (SIDEWALL) = 0.0036
 CN = 0.102
 CX = 0.00295
 CMC4 = -0.0498
 CL = 0.1023
 CDP = 0.0029

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2758	0.541
51	0.9500	0.1807	0.681
50	0.9250	0.1239	0.706
49	0.9000	0.0616	0.733
47	0.8600	-0.0679	0.789
46	0.8400	-0.1384	0.819
45	0.8200	-0.2028	0.847
43	0.7800	-0.3477	0.907
42	0.7600	-0.4043	0.930
41	0.7400	-0.4509	0.951
40	0.7200	-0.4735	0.961
39	0.7000	-0.4820	0.965
38	0.6800	-0.4755	0.962
37	0.6600	-0.4620	0.955
36	0.6400	-0.4503	0.950
35	0.6200	-0.4540	0.953
34	0.6000	-0.4673	0.958
33	0.5800	-0.4959	0.969
32	0.5600	-0.5257	0.983
31	0.5400	-0.5380	0.991
30	0.5200	-0.5400	0.991
29	0.5000	-0.5401	0.990
28	0.4750	-0.5407	0.991
27	0.4500	-0.5190	0.983
26	0.4250	-0.5163	0.982
25	0.4000	-0.4955	0.972
24	0.3750	-0.4870	0.965
23	0.3500	-0.4817	0.962
22	0.3250	-0.4579	0.954
21	0.3000	-0.4537	0.953
19	0.2375	-0.4684	0.960
18	0.2250	-0.4707	0.961
17	0.2000	-0.4699	0.962
16	0.1800	-0.4708	0.963
15	0.1600	-0.4764	0.963
14	0.1400	-0.4781	0.962
13	0.1200	-0.4674	0.958
12	0.1000	-0.4707	0.960
11	0.0900	-0.4368	0.945
10	0.0800	-0.4150	0.935
9	0.0700	-0.3930	0.925
8	0.0600	-0.3924	0.925
7	0.0500	-0.4100	0.934
6	0.0400	-0.4177	0.936
5	0.0300	-0.4260	0.939
3	0.0100	-0.0662	0.788
2	0.0050	0.3410	0.613
1	0.0000	1.1501	*****
53	0.0050	0.5762	0.503
54	0.0100	0.2988	0.632
55	0.0200	-0.0150	0.767
56	0.0300	-0.2105	0.849
57	0.0400	-0.3047	0.886
58	0.0500	-0.3552	0.907
59	0.0750	-0.3957	0.927
62	0.2000	-0.4877	0.965
63	0.2500	-0.5201	0.980
64	0.3000	-0.5635	1.000
65	0.3500	-0.6163	1.023
66	0.4000	-0.5738	1.005
67	0.4500	-0.4939	0.971
68	0.5000	-0.4431	0.949
69	0.5625	-0.4175	0.936

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.4457	0.947
71	0.6500	-0.3841	0.921
72	0.7000	-0.1693	0.931
73	0.7250	-0.0511	0.782
74	0.7500	0.0305	0.745
75	0.7750	0.1127	0.711
76	0.8000	0.1591	0.691
77	0.8250	0.1971	0.675
78	0.8500	0.2214	0.664
79	0.9000	0.2445	0.655
P0	0.9500	0.2613	0.648
TE LOWER	1.0000	0.2758	0.541

STATIC PRESSURES AT CEILING AND FLOOR

	X/C	CEILING CP	M	FLOOR CP	M
-4.5000	0.007	0.756	0.007	0.756	
-4.2000	0.016	0.753	0.013	0.753	
-3.9000	0.000	0.759	0.007	0.757	
-3.6000	0.016	0.754	0.006	0.758	
-3.3000	0.021	0.751	0.006	0.757	
-3.0000	0.019	0.752	0.005	0.757	
-2.7000	0.016	0.751	0.008	0.756	
-2.4000	0.012	0.754	0.009	0.755	
-2.1000	0.006	0.755	0.014	0.755	
-1.8000	0.009	0.756	0.004	0.757	
-1.5000	0.004	0.757	0.007	0.756	
-1.3500	0.006	0.757	-0.005	0.761	
-1.2000	0.002	0.757	0.004	0.757	
-1.0500	0.011	0.754	0.005	0.757	
-0.9000	0.007	0.758	0.002	0.758	
-0.7500	0.001	0.759	-0.000	0.760	
-0.6500	-0.000	0.760	-0.001	0.760	
-0.5500	-0.003	0.760	0.001	0.760	
-0.4500	-0.003	0.761	-0.006	0.761	
-0.3500	-0.005	0.761	-0.001	0.762	
-0.2500	-0.004	0.760	-0.008	0.764	
-0.1500	-0.005	0.761	-0.008	0.762	
-0.0500	-0.008	0.762	-0.005	0.763	
0.0500	-0.003	0.763	-0.002	0.761	
0.1500	-0.010	0.764	-0.004	0.760	
0.2500	-0.013	0.766	-0.002	0.761	
0.3500	-0.010	0.765	-0.001	0.759	
0.4500	-0.013	0.764	-0.009	0.762	
0.5500	-0.010	0.763	-0.005	0.762	
0.6500	-0.009	0.763	-0.010	0.763	
0.7500	-0.010	0.763	-0.010	0.763	
0.9000	-0.011	0.763	-0.005	0.762	
1.0500	-0.004	0.763	-0.005	0.761	
1.2000	-0.006	0.762	-0.007	0.762	
1.3500	-0.010	0.763	-0.009	0.761	
1.5000	-0.004	0.761	0.000	0.760	
1.8000	-0.004	0.760	-0.002	0.760	
2.1000	-0.007	0.762	0.000	0.761	
2.4000	0.003	0.758	-0.001	0.759	
2.7000	-0.003	0.760	-0.013	0.763	

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER = 4936
 SCAN NUMBER = 3
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.755
 REYNOLDS NUMBER = 0.2541F 08
 INCIDENCE (NORTH) = 0.962
 P0 = 109.88PSIA
 Q = 30.06PSI
 V/U (SIDEWALL) = 0.0035
 CN = 0.246
 CX = 0.00125
 CMC4 = -0.0501
 CL = 0.2456
 CDP = 0.0054

TABLE 7.10

ORIFICE	X/C	CP	M (LOCAL)
TE UPPER	1.0000	0.2699	0.645
51	0.9500	0.1880	0.682
50	0.9250	0.1268	0.707
49	0.9000	0.0593	0.735
47	0.8600	-0.0591	0.786
46	0.8400	-0.1348	0.817
45	0.8200	-0.2059	0.846
43	0.7800	-0.3491	0.908
42	0.7600	-0.4029	0.932
41	0.7400	-0.4558	0.955
40	0.7200	-0.4865	0.969
39	0.7000	-0.4988	0.974
38	0.6800	-0.4912	0.972
37	0.6600	-0.4815	0.967
36	0.6400	-0.4761	0.963
35	0.6200	-0.4816	0.965
34	0.6000	-0.4873	0.969
33	0.5800	-0.5327	0.989
32	0.5600	-0.5716	1.004
31	0.5400	-0.5986	1.016
30	0.5200	-0.6095	1.022
29	0.5000	-0.6180	1.027
28	0.4750	-0.6135	1.025
27	0.4500	-0.6019	1.021
26	0.4250	-0.5991	1.020
25	0.4000	-0.5780	1.010
24	0.3750	-0.5627	1.004
23	0.3500	-0.5556	1.002
22	0.3250	-0.5374	0.994
21	0.3000	-0.5441	0.995
19	0.2375	-0.5726	1.007
18	0.2250	-0.5916	1.014
17	0.2000	-0.6029	1.018
16	0.1800	-0.6132	1.023
15	0.1600	-0.6272	1.030
14	0.1400	-0.6350	1.034
13	0.1200	-0.6754	1.053
12	0.1000	-0.6823	1.056
11	0.0900	-0.6253	1.031
10	0.0800	-0.5917	1.017
9	0.0700	-0.5633	1.003
8	0.0600	-0.5858	1.011
7	0.0500	-0.6177	1.025
6	0.0400	-0.6377	1.036
5	0.0300	-0.7186	1.073
3	0.0100	-0.2864	0.880
2	0.0050	0.1217	0.708
1	0.0000	1.1248	0.107
53	0.0050	0.7218	0.429
54	0.0100	0.4744	0.553
55	0.0200	0.1656	0.691
56	0.0300	-0.0233	0.771
57	0.0400	-0.1165	0.811
58	0.0500	-0.1601	0.831
59	0.0750	-0.2110	0.852
62	0.2000	-0.3606	0.914
63	0.2500	-0.4080	0.934
64	0.3000	-0.4580	0.956
65	0.3500	-0.4947	0.972
66	0.4000	-0.4773	0.965
67	0.4500	-0.4291	0.943
68	0.5000	-0.3955	0.928
69	0.5625	-0.3802	0.923

ORIFICE	X/C	CP	M (LOCAL)
70	0.6000	-0.4010	0.933
71	0.6500	-0.3539	0.912
72	0.7000	-0.1563	0.826
73	0.7250	-0.0389	0.777
74	0.7500	0.0503	0.739
75	0.7750	0.1241	0.708
76	0.8000	0.1713	0.687
77	0.8250	0.2101	0.671
78	0.8500	0.2357	0.660
79	0.9000	0.2506	0.653
80	0.9500	0.2572	0.650
TE LOWER	1.0000	0.2699	0.645

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.005	0.758	0.006	0.758
-4.2000	0.016	0.754	0.012	0.756
-3.9000	-0.001	0.761	0.010	0.756
-3.6000	0.015	0.755	0.010	0.756
-3.3000	0.015	0.755	0.004	0.758
-3.0000	0.013	0.754	0.010	0.756
-2.7000	0.018	0.755	0.007	0.758
-2.4000	0.009	0.757	0.012	0.756
-2.1000	0.006	0.759	0.011	0.755
-1.8000	-0.002	0.760	0.013	0.756
-1.5000	0.004	0.759	0.011	0.755
-1.3500	0.004	0.759	0.001	0.760
-1.2000	0.003	0.759	0.012	0.755
-1.0500	0.007	0.760	0.012	0.756
-0.9000	-0.003	0.763	0.010	0.757
-0.7500	-0.006	0.763	0.011	0.755
-0.6500	-0.010	0.764	0.012	0.756
-0.5500	-0.012	0.764	0.012	0.755
-0.4500	-0.012	0.766	0.013	0.756
-0.3500	-0.019	0.768	0.005	0.757
-0.2500	-0.016	0.768	0.001	0.759
-0.1500	-0.019	0.769	0.002	0.759
-0.0500	-0.022	0.769	0.009	0.758
0.0500	-0.021	0.768	0.007	0.757
0.1500	-0.017	0.768	0.014	0.755
0.2500	-0.022	0.769	0.012	0.756
0.3500	-0.018	0.768	0.017	0.753
0.4500	-0.019	0.769	0.008	0.758
0.5500	-0.021	0.768	0.008	0.758
0.6500	-0.018	0.767	0.006	0.756
0.7500	-0.014	0.767	-0.011	0.765
0.9000	-0.009	0.765	0.002	0.758
1.0500	-0.014	0.765	0.008	0.757
1.2000	-0.012	0.766	0.012	0.756
1.3500	-0.011	0.765	0.011	0.758
1.5000	-0.008	0.763	0.011	0.757
1.8000	-0.009	0.764	0.013	0.755
2.1000	-0.007	0.763	0.011	0.757
2.4000	-0.004	0.762	0.014	0.757
2.7000	-0.007	0.764	0.002	0.760

SURFACE PRESSURE MEASUREMENTS

TABLE 7.11

RUN NUMBER = 5001
 SCAN NUMBER = 1
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.756
 REYNOLDS NUMBER = 0.2515E 08
 INCIDENCE (NORTH) = 1.485
 P0 = 109.99PSIA
 Q = 30.14PSI
 V/U (SIDEWALL) = 0.0047
 CN = 0.325
 CX = -0.00128
 CMC4 = -0.0489
 CL = 0.3259
 CDP = 0.0072

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2599	0.646
51	0.9500	0.1890	0.677
50	0.9250	0.1325	0.702
49	0.9000	0.0667	0.729
47	0.8600	-0.0536	0.784
46	0.8400	-0.1191	0.812
45	0.8200	-0.1938	0.843
43	0.7800	-0.3375	0.905
42	0.7600	-0.3928	0.929
41	0.7400	-0.4526	0.955
40	0.7200	-0.4834	0.969
39	0.7000	-0.5010	0.979
38	0.6800	-0.4962	0.976
37	0.6600	-0.4909	0.973
36	0.6400	-0.4830	0.969
35	0.6200	-0.4892	0.972
34	0.6000	-0.5085	0.980
33	0.5800	-0.5513	0.998
32	0.5600	-0.5922	1.019
31	0.5400	-0.6283	1.035
30	0.5200	-0.6321	1.036
29	0.5000	-0.6486	1.044
28	0.4750	-0.6564	1.047
27	0.4500	-0.6465	1.042
26	0.4250	-0.6485	1.042
25	0.4000	-0.6183	1.028
24	0.3750	-0.6163	1.026
23	0.3500	-0.6039	1.021
22	0.3250	-0.5896	1.016
21	0.3000	-0.5833	1.014
19	0.2375	-0.5850	1.013
18	0.2250	-0.6606	1.048
17	0.2000	-0.7911	1.108
16	0.1800	-0.8164	1.120
15	0.1600	-0.8187	1.122
14	0.1400	-0.8179	1.122
13	0.1200	-0.7957	1.111
12	0.1000	-0.7555	1.093
11	0.0900	-0.6844	1.062
10	0.0800	-0.6569	1.049
9	0.0700	-0.6377	1.039
8	0.0600	-0.6875	1.061
7	0.0500	-0.8095	1.119
6	0.0400	-0.8630	1.144
5	0.0300	-0.8156	1.120
3	0.0100	-0.4357	0.949
2	0.0050	0.0376	0.746
1	0.0000	1.1049	0.137
53	0.0050	0.8171	0.376
54	0.0100	0.5654	0.510
55	0.0200	0.2776	0.642
56	0.0300	0.0916	0.722
57	0.0400	-0.0116	0.766
58	0.0500	-0.0659	0.789
59	0.0750	-0.1377	0.820
62	0.2000	-0.3045	0.893
63	0.2500	-0.3457	0.911
64	0.3000	-0.3995	0.934
65	0.3500	-0.4412	0.951
66	0.4000	-0.4340	0.948
67	0.4500	-0.3948	0.931
68	0.5000	-0.3650	0.917
69	0.5625	-0.3457	0.903

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3723	0.915
71	0.6500	-0.3354	0.900
72	0.7000	-0.1500	0.821
73	0.7250	-0.0283	0.771
74	0.7500	0.0533	0.740
75	0.7750	0.1349	0.706
76	0.8000	0.1818	0.685
77	0.8250	0.2165	0.670
78	0.8500	0.2390	0.660
79	0.9000	0.2544	0.653
80	0.9500	0.2570	0.651
TE LOWER	1.0000	0.2599	0.646

STATIC PRESSURES AT CEILING AND FLOOR

X/C	CEILING		FLOOR	
	CP	M	CP	M
-4.5000	0.001	0.762	-0.001	0.758
-4.2000	0.014	0.756	0.011	0.753
-3.9000	-0.002	0.763	0.006	0.759
-3.6000	0.010	0.758	0.007	0.758
-3.3000	0.011	0.758	0.002	0.761
-3.0000	0.014	0.756	0.007	0.759
-2.7000	0.012	0.756	0.005	0.760
-2.4000	0.009	0.759	0.010	0.757
-2.1000	0.001	0.760	0.010	0.757
-1.8000	0.001	0.762	0.013	0.753
-1.5000	-0.002	0.764	0.010	0.758
-1.3500	-0.002	0.764	-0.006	0.764
-1.2000	-0.004	0.765	0.010	0.757
-1.0500	-0.002	0.762	0.015	0.757
-0.9000	-0.007	0.765	0.010	0.758
-0.7500	-0.012	0.766	0.017	0.755
-0.6500	-0.016	0.769	0.012	0.758
-0.5500	-0.012	0.768	0.010	0.755
-0.4500	-0.014	0.768	0.016	0.751
-0.3500	-0.020	0.771	0.011	0.756
-0.2500	-0.027	0.774	0.004	0.760
-0.1500	-0.029	0.774	0.011	0.758
-0.0500	-0.032	0.776	0.012	0.756
0.0500	-0.033	0.775	0.016	0.756
0.1500	-0.027	0.772	0.023	0.754
0.2500	-0.031	0.775	0.021	0.754
0.3500	-0.034	0.773	0.024	0.753
0.4500	-0.030	0.771	0.014	0.755
0.5500	-0.026	0.773	0.013	0.755
0.6500	-0.029	0.770	0.017	0.756
0.7500	-0.019	0.771	-0.014	0.768
0.9000	-0.011	0.763	0.014	0.757
1.0500	-0.016	0.767	0.017	0.756
1.2000	-0.011	0.768	0.018	0.755
1.3500	-0.012	0.767	0.015	0.755
1.5000	-0.007	0.765	0.015	0.756
1.8000	-0.009	0.765	0.018	0.754
2.1000	-0.005	0.764	0.013	0.756
2.4000	-0.004	0.764	0.014	0.756
2.7000	-0.004	0.759	0.003	0.762

SURFACE PRESSURE MEASUREMENTS

TABLE 7.12

RUN NUMBER = 5001
 SCAN NUMBER = 2
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.757
 REYNOLDS NUMBER = 0.2529E 08
 INCIDENCE(NORTH) = 1.742
 PO = 109.93PSIA
 Q = 30.17PSI
 V/U (SIDEWALL) = 0.0047
 CN = 0.368
 CX = -0.00243
 CMC4 = -0.0485
 CL = 0.3678
 CDP = 0.0087

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2533	0.652
51	0.9500	0.1764	0.685
50	0.9250	0.1294	0.706
49	0.9000	0.0718	0.730
47	0.8600	-0.0559	0.783
46	0.8400	-0.1246	0.814
45	0.8200	-0.1947	0.845
43	0.7800	-0.3360	0.907
42	0.7600	-0.3920	0.932
41	0.7400	-0.4496	0.957
40	0.7200	-0.4819	0.970
39	0.7000	-0.4989	0.977
38	0.6800	-0.4990	0.978
37	0.6600	-0.4949	0.975
36	0.6400	-0.4900	0.973
35	0.6200	-0.4929	0.976
34	0.6000	-0.5056	0.983
33	0.5800	-0.5524	1.004
32	0.5600	-0.5940	1.018
31	0.5400	-0.6250	1.033
30	0.5200	-0.6334	1.037
29	0.5000	-0.6800	1.059
28	0.4750	-0.6789	1.052
27	0.4500	-0.6815	1.058
26	0.4250	-0.6525	1.045
25	0.4000	-0.6295	1.035
24	0.3750	-0.6162	1.029
23	0.3500	-0.5981	1.021
22	0.3250	-0.5648	1.006
21	0.3000	-0.5571	1.003
19	0.2375	-0.8224	1.121
18	0.2250	-0.8316	1.127
17	0.2000	-0.8368	1.132
16	0.1800	-0.8402	1.135
15	0.1600	-0.8206	1.127
14	0.1400	-0.8080	1.121
13	0.1200	-0.7700	1.102
12	0.1000	-0.7619	1.098
11	0.0900	-0.7836	1.107
10	0.0800	-0.7801	1.106
9	0.0700	-0.8656	1.147
8	0.0600	-0.9053	1.166
7	0.0500	-0.9233	1.177
6	0.0400	-0.9187	1.177
5	0.0300	-0.8424	1.139
3	0.0100	-0.4982	0.976
2	0.0050	-0.0232	0.773
1	0.0000	1.1056	0.136
53	0.0050	0.8587	0.350
54	0.0100	0.6045	0.491
55	0.0200	0.3184	0.625
56	0.0300	0.1396	0.703
57	0.0400	0.0327	0.748
58	0.0500	-0.0247	0.773
59	0.0750	-0.0907	0.801
62	0.2000	-0.2715	0.879
63	0.2500	-0.3204	0.901
64	0.3000	-0.3723	0.924
65	0.3500	-0.4035	0.937
66	0.4000	-0.4114	0.939
67	0.4500	-0.3729	0.921
68	0.5000	-0.3421	0.907
69	0.5625	-0.3504	0.910

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.3710	0.918
71	0.6500	-0.3332	0.903
72	0.7000	-0.1373	0.818
73	0.7250	-0.0256	0.770
74	0.7500	0.0599	0.738
75	0.7750	0.1402	0.704
76	0.8000	0.1904	0.683
77	0.8250	0.2235	0.668
78	0.8500	0.2442	0.658
79	0.9000	0.2574	0.651
80	0.9500	0.2644	0.648
TE LOWER	1.0000	0.2533	0.652

STATIC PRESSURES AT CFILING AND FLOOR

	CFILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.003	0.761	0.003	0.759
-4.2000	0.014	0.756	0.003	0.760
-3.9000	0.003	0.763	0.007	0.761
-3.6000	0.010	0.758	0.002	0.759
-3.3000	0.011	0.758	0.005	0.762
-3.0000	0.019	0.755	0.009	0.761
-2.7000	0.015	0.756	0.009	0.759
-2.4000	0.012	0.759	0.010	0.759
-2.1000	0.004	0.760	0.010	0.758
-1.8000	0.003	0.761	0.012	0.756
-1.5000	-0.004	0.766	0.010	0.758
-1.3500	-0.003	0.764	-0.009	0.768
-1.2000	-0.004	0.765	0.019	0.757
-1.0500	-0.001	0.763	0.017	0.756
-0.9000	-0.005	0.764	0.015	0.756
-0.7500	-0.010	0.767	0.014	0.755
-0.6500	-0.012	0.767	0.017	0.756
-0.5500	-0.014	0.768	0.014	0.754
-0.4500	-0.019	0.770	0.009	0.757
-0.3500	-0.022	0.772	0.013	0.757
-0.2500	-0.028	0.775	0.015	0.755
-0.1500	-0.031	0.777	0.019	0.754
-0.0500	-0.037	0.779	0.020	0.754
0.0500	-0.035	0.778	0.028	0.751
0.1500	-0.035	0.774	0.029	0.751
0.2500	-0.036	0.776	0.024	0.751
0.3500	-0.033	0.774	0.033	0.750
0.4500	-0.030	0.774	0.024	0.752
0.5500	-0.027	0.775	0.023	0.753
0.6500	-0.022	0.769	0.023	0.752
0.7500	-0.019	0.771	-0.013	0.769
0.9000	-0.021	0.769	0.024	0.752
1.0500	-0.018	0.770	0.026	0.753
1.2000	-0.013	0.768	0.026	0.752
1.3500	-0.011	0.769	0.024	0.752
1.5000	-0.008	0.767	0.022	0.753
1.8000	-0.007	0.768	0.024	0.752
2.1000	-0.009	0.768	0.023	0.753
2.4000	-0.003	0.764	0.019	0.755
2.7000	-0.014	0.767	0.008	0.760

SURFACE PRESSURE MEASUREMENTS

TABLE 7.13

RUN NUMBER = 5001
 SCAN NUMBER = 3
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.757
 REYNOLDS NUMBER = 0.2537E 08
 INCIDENCE(NORTH) = 2.011
 P0 = 109.93PSIA
 Q = 30.17PSI
 V/U (SIDEWALL) = 0.0047
 CN = 0.403
 CX = -0.00442
 CMC4 = -0.0476
 CL = 0.4026
 CDP = 0.0097

ORIFICE	X/C	CP	M(LOCAL)	ORIFICE	X/C	CP	M(LOCAL)
TF UPPER	1.0000	0.2492	0.655	70	0.6000	-0.3615	0.915
51	0.9500	0.1758	0.686	71	0.6500	-0.3248	0.900
50	0.9250	0.1272	0.707	72	0.7000	-0.1353	0.819
49	0.9000	0.0676	0.733	73	0.7250	-0.0200	0.770
47	0.8600	-0.0499	0.783	74	0.7500	0.0639	0.735
46	0.8400	-0.1195	0.812	75	0.7750	0.1459	0.700
45	0.8200	-0.1916	0.843	76	0.8000	0.1972	0.678
43	0.7800	-0.3315	0.904	77	0.8250	0.2278	0.665
42	0.7600	-0.3938	0.931	78	0.8500	0.2505	0.655
41	0.7400	-0.4467	0.954	79	0.9000	0.2667	0.648
40	0.7200	-0.4834	0.971	80	0.9500	0.2684	0.647
39	0.7000	-0.4938	0.977	TF LOWER	1.0000	0.2492	0.655
38	0.6800	-0.4992	0.979				
37	0.6600	-0.4935	0.976				
36	0.6400	-0.4825	0.972				
35	0.6200	-0.4869	0.975				
34	0.6000	-0.5059	0.992				
33	0.5800	-0.5582	1.004				
32	0.5600	-0.5915	1.017				
31	0.5400	-0.6354	1.037				
30	0.5200	-0.6495	1.044				
29	0.5000	-0.6838	1.059				
28	0.4750	-0.6843	1.058				
27	0.4500	-0.6838	1.059				
26	0.4250	-0.6580	1.048				
25	0.4000	-0.6325	1.036				
24	0.3750	-0.6039	1.022				
23	0.3500	-0.5774	1.011				
22	0.3250	-0.5253	0.990				
21	0.3000	-0.5365	0.994				
19	0.2375	-0.8696	1.147				
18	0.2250	-0.8754	1.150				
17	0.2000	-0.8920	1.159				
16	0.1900	-0.8922	1.159				
15	0.1600	-0.8723	1.149				
14	0.1400	-0.8864	1.157				
13	0.1200	-0.8990	1.163				
12	0.1000	-0.8910	1.161				
11	0.0900	-0.8791	1.156				
10	0.0800	-0.9038	1.168				
9	0.0700	-0.9336	1.182				
8	0.0600	-0.9545	1.194				
7	0.0500	-0.9736	1.206				
6	0.0400	-0.9737	1.204				
5	0.0300	-0.8917	1.161				
3	0.0100	-0.5721	1.009				
2	0.0050	-0.0641	0.789				
1	0.0000	1.0892	0.158				
54	0.0050	0.6846	0.333				
54	0.0100	0.6540	0.466				
55	0.0200	0.3609	0.606				
56	0.0300	0.1768	0.686				
57	0.0400	0.0699	0.732				
58	0.0500	0.0122	0.757				
59	0.0750	-0.0563	0.787				
62	0.2000	-0.2410	0.864				
63	0.2500	-0.2914	0.886				
64	0.3000	-0.3428	0.909				
65	0.3500	-0.3645	0.927				
66	0.4000	-0.3657	0.928				
67	0.4500	-0.3477	0.911				
68	0.5000	-0.3259	0.901				
69	0.5625	-0.3295	0.902				

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.008	0.758	-0.001	0.762
-4.2000	0.021	0.754	0.006	0.759
-3.9000	-0.000	0.763	0.005	0.760
-3.6000	0.015	0.756	0.007	0.759
-3.3000	0.016	0.756	0.009	0.761
-3.0000	0.018	0.754	0.011	0.760
-2.7000	0.015	0.756	0.011	0.759
-2.4000	0.014	0.757	0.010	0.758
-2.1000	0.001	0.761	0.010	0.758
-1.8000	0.001	0.762	0.008	0.758
-1.5000	-0.001	0.763	0.018	0.756
-1.3500	0.001	0.762	-0.009	0.766
-1.2000	0.000	0.762	0.016	0.756
-1.0500	0.002	0.763	0.022	0.755
-0.9000	-0.002	0.763	0.018	0.756
-0.7500	-0.011	0.767	0.019	0.753
-0.6500	-0.009	0.766	0.019	0.756
-0.5500	-0.014	0.768	0.020	0.753
-0.4500	-0.020	0.770	0.013	0.756
-0.3500	-0.025	0.772	0.019	0.754
-0.2500	-0.030	0.777	0.024	0.752
-0.1500	-0.036	0.778	0.023	0.752
-0.0500	-0.034	0.779	0.029	0.749
0.0500	-0.040	0.779	0.032	0.749
0.1500	-0.032	0.775	0.036	0.747
0.2500	-0.036	0.777	0.030	0.748
0.3500	-0.033	0.776	0.038	0.747
0.4500	-0.038	0.778	0.026	0.750
0.5500	-0.024	0.775	0.028	0.750
0.6500	-0.028	0.774	0.030	0.749
0.7500	-0.024	0.774	-0.005	0.764
0.9000	-0.023	0.771	0.027	0.750
1.0500	-0.019	0.770	0.032	0.749
1.2000	-0.012	0.769	0.034	0.749
1.3500	-0.014	0.770	0.027	0.751
1.5000	-0.013	0.768	0.030	0.750
1.8000	-0.014	0.769	0.035	0.748
2.1000	-0.010	0.767	0.030	0.749
2.4000	-0.004	0.765	0.027	0.752
2.7000	-0.013	0.767	0.014	0.756

SURFACE PRESSURE MEASUREMENTS

TABLE 7.14

RUN NUMBER = 4937
 SCAN NUMBER = 3
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.754
 REYNOLDS NUMBER = 0.2537E 08
 INCIDENCE (NORTH) = 2.513
 P0 = 109.90PSIA
 Q = 29.98PSI
 V/U (SIDEWALL) = 0.0036
 CN = 0.461
 CX = -0.00889
 CMC4 = -0.0438
 CL = 0.4614
 CDP = 0.0114

ORIFICE	X/C	CP	M (LOCAL)
TE UPPER	1.0000	0.2601	0.547
51	0.9500	0.1868	0.680
50	0.9250	0.1388	0.701
49	0.9000	0.0747	0.728
47	0.8600	-0.0569	0.782
46	0.8400	-0.1207	0.810
45	0.8200	-0.1886	0.839
43	0.7800	-0.3263	0.898
42	0.7600	-0.3825	0.923
41	0.7400	-0.4354	0.946
40	0.7200	-0.4736	0.961
39	0.7000	-0.4917	0.968
38	0.6800	-0.4890	0.967
37	0.6600	-0.4868	0.965
36	0.6400	-0.4829	0.963
35	0.6200	-0.4809	0.967
34	0.6000	-0.5038	0.973
33	0.5800	-0.5444	0.991
32	0.5600	-0.5886	1.009
31	0.5400	-0.6214	1.023
30	0.5200	-0.6431	1.033
29	0.5000	-0.6577	1.042
28	0.4750	-0.6630	1.045
27	0.4500	-0.6497	1.039
26	0.4250	-0.6156	1.024
25	0.4000	-0.5841	1.009
24	0.3750	-0.5334	0.988
23	0.3500	-0.5096	0.978
22	0.3250	-0.4955	0.972
21	0.3000	-0.7647	1.092
19	0.2375	-0.9723	1.191
18	0.2250	-0.9729	1.193
17	0.2000	-0.9809	1.198
16	0.1900	-0.9862	1.201
15	0.1600	-0.9889	1.203
14	0.1400	-0.9985	1.209
13	0.1200	-1.0029	1.210
12	0.1000	-1.0170	1.216
11	0.0900	-1.0042	1.208
10	0.0800	-1.0257	1.219
9	0.0700	-1.0369	1.224
8	0.0600	-1.0688	1.240
7	0.0500	-1.0663	1.239
6	0.0400	-1.0806	1.248
5	0.0300	-0.9941	1.203
3	0.0100	-0.6946	1.056
2	0.0050	-0.1984	0.841
1	0.0000	1.0614	0.189
53	0.0050	0.9264	0.303
54	0.0100	0.6971	0.442
55	0.0200	0.4133	0.579
56	0.0300	0.2365	0.658
57	0.0400	0.1401	0.700
58	0.0500	0.0931	0.721
59	0.0750	0.0043	0.758
62	0.2000	-0.1895	0.840
63	0.2500	-0.2465	0.864
64	0.3000	-0.3026	0.887
65	0.3500	-0.3415	0.904
66	0.4000	-0.3457	0.905
67	0.4500	-0.3188	0.993
68	0.5000	-0.3034	0.887
69	0.5625	-0.3096	0.880

ORIFICE	X/C	CP	M (LOCAL)
70	0.6000	-0.3323	0.900
71	0.6500	-0.2936	0.885
72	0.7000	-0.1212	0.811
73	0.7250	-0.0167	0.765
74	0.7500	0.0777	0.727
75	0.7750	0.1515	0.695
76	0.8000	0.1957	0.676
77	0.8250	0.2294	0.661
78	0.8500	0.2535	0.650
79	0.9000	0.2631	0.646
80	0.9500	0.2675	0.644
TE LOWER	1.0000	0.2601	0.547

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING	FLOOR
X/C	CP	M
-4.5000	0.008	0.756
-4.2000	0.020	0.750
-3.9000	0.000	0.759
-3.6000	0.018	0.751
-3.3000	0.014	0.753
-3.0000	0.018	0.749
-2.7000	0.024	0.750
-2.4000	0.014	0.753
-2.1000	0.013	0.754
-1.8000	0.004	0.755
-1.5000	0.004	0.758
-1.3500	0.002	0.758
-1.2000	0.003	0.759
-1.0500	0.001	0.759
-0.9000	-0.006	0.761
-0.7500	-0.008	0.762
-0.6500	-0.013	0.764
-0.5500	-0.011	0.762
-0.4500	-0.016	0.766
-0.3500	-0.024	0.768
-0.2500	-0.024	0.769
-0.1500	-0.030	0.773
-0.0500	-0.033	0.772
0.0500	-0.031	0.773
0.1500	-0.036	0.774
0.2500	-0.036	0.774
0.3500	-0.034	0.773
0.4500	-0.023	0.770
0.5500	-0.025	0.769
0.6500	-0.021	0.769
0.7500	-0.019	0.766
0.9000	-0.016	0.766
1.0500	-0.016	0.766
1.2000	-0.014	0.765
1.3500	-0.011	0.763
1.5000	-0.005	0.762
1.8000	-0.007	0.762
2.1000	-0.006	0.763
2.4000	-0.003	0.761
2.7000	-0.016	0.765

SURFACE PRESSURE MEASUREMENTS

RUN NUMBER = 4938
 SCAN NUMBER = 1
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.751
 REYNOLDS NUMBER = 0.2514E 08
 INCIDENCE (NORTH) = 3.034
 PO = 109.96PSIA
 Q = 29.87PSI
 V/U (SIDEWALL) = 0.0036
 CN = 0.534
 CX = -0.01398
 CMC4 = -0.0394
 CL = 0.5342
 COP = 0.0143

TABLE 7-15

ORIFICE	X/C	CP	M (LOCAL)	ORIFICE	X/C	CP	M (LOCAL)
TE UPPER	1.0000	0.2790	0.636				
51	0.9500	0.1936	0.672	70	0.6000	-0.3083	0.984
50	0.9250	0.1382	0.697	71	0.6500	-0.2823	0.974
49	0.9000	0.0712	0.726	72	0.7000	-0.1108	0.903
47	0.8600	-0.0454	0.778	73	0.7250	-0.0033	0.759
46	0.8400	-0.1118	0.806	74	0.7500	0.0854	0.720
45	0.8200	-0.1855	0.835	75	0.7750	0.1597	0.689
43	0.7800	-0.3211	0.892	76	0.8000	0.2074	0.669
42	0.7600	-0.3739	0.914	77	0.8250	0.2371	0.656
41	0.7400	-0.4256	0.935	78	0.8500	0.2583	0.647
40	0.7200	-0.4648	0.951	79	0.9000	0.2706	0.642
39	0.7000	-0.4722	0.956	80	0.9500	0.2724	0.641
38	0.6800	-0.4763	0.958	TE LOWER	1.0000	0.2790	0.636
37	0.6600	-0.4735	0.956				
36	0.6400	-0.4716	0.955				
35	0.6200	-0.4806	0.960				
34	0.6000	-0.4928	0.965				
33	0.5800	-0.5349	0.982				
32	0.5600	-0.5642	0.995				
31	0.5400	-0.5800	1.004				
30	0.5200	-0.5821	1.006				
29	0.5000	-0.5873	1.007				
28	0.4750	-0.5877	1.006				
27	0.4500	-0.5302	0.981				
26	0.4250	-0.5260	0.980				
25	0.4000	-0.4724	0.957				
24	0.3750	-0.4949	0.966				
23	0.3500	-0.6796	1.047				
22	0.3250	-1.0317	1.216				
21	0.3000	-1.0589	1.231				
19	0.2375	-1.0787	1.248				
18	0.2250	-1.0922	1.254				
17	0.2000	-1.1127	1.261				
16	0.1900	-1.1221	1.264				
15	0.1600	-1.1296	1.269				
14	0.1400	-1.1360	1.271				
13	0.1200	-1.1410	1.272				
12	0.1000	-1.1481	1.275				
11	0.0900	-1.1235	1.264				
10	0.0800	-1.1390	1.273				
9	0.0700	-1.1462	1.276				
8	0.0600	-1.1597	1.283				
7	0.0500	-1.1665	1.288				
6	0.0400	-1.1628	1.286				
5	0.0300	-1.0446	1.221				
3	0.0100	-0.8470	1.127				
2	0.0050	-0.3354	0.899				
1	0.0000	1.0236	0.225				
53	0.0050	0.9791	0.262				
54	0.0100	0.7648	0.403				
55	0.0200	0.4951	0.540				
56	0.0300	0.3123	0.623				
57	0.0400	0.2225	0.661				
58	0.0500	0.1529	0.691				
59	0.0750	0.0746	0.724				
62	0.2000	-0.1430	0.816				
63	0.2500	-0.2003	0.841				
64	0.3000	-0.2543	0.864				
65	0.3500	-0.2992	0.883				
66	0.4000	-0.3140	0.890				
67	0.4500	-0.2862	0.879				
68	0.5000	-0.2769	0.875				
69	0.5625	-0.2743	0.869				

STATIC PRESSURES AT CEILING AND FLOOR

	X/C	CEILING CP	M	FLOOR CP	M
	-4.5000	0.014	0.751	0.008	0.753
	-4.2000	0.019	0.750	0.020	0.746
	-3.9000	-0.001	0.757	0.017	0.750
	-3.6000	0.019	0.748	0.019	0.751
	-3.3000	0.020	0.748	0.012	0.751
	-3.0000	0.023	0.747	0.018	0.749
	-2.7000	0.017	0.748	0.019	0.747
	-2.4000	0.017	0.750	0.022	0.746
	-2.1000	0.009	0.752	0.026	0.745
	-1.8000	0.006	0.754	0.031	0.742
	-1.5000	0.003	0.756	0.030	0.743
	-1.3500	-0.002	0.758	0.014	0.750
	-1.2000	-0.003	0.758	0.032	0.742
	-1.0500	-0.002	0.757	0.042	0.738
	-0.9000	-0.004	0.758	0.039	0.739
	-0.7500	-0.008	0.760	0.042	0.741
	-0.6500	-0.015	0.764	0.042	0.738
	-0.5500	-0.018	0.763	0.039	0.741
	-0.4500	-0.020	0.764	0.042	0.736
	-0.3500	-0.026	0.768	0.039	0.740
	-0.2500	-0.029	0.768	0.039	0.742
	-0.1500	-0.035	0.770	0.042	0.739
	-0.0500	-0.039	0.772	0.047	0.736
	0.0500	-0.037	0.772	0.051	0.736
	0.1500	-0.030	0.772	0.053	0.734
	0.2500	-0.034	0.773	0.050	0.735
	0.3500	-0.034	0.772	0.053	0.735
	0.4500	-0.031	0.768	0.047	0.736
	0.5500	-0.028	0.768	0.048	0.736
	0.6500	-0.027	0.768	0.043	0.737
	0.7500	-0.019	0.764	-0.004	0.758
	0.9000	-0.015	0.761	0.045	0.738
	1.0500	-0.017	0.764	0.047	0.737
	1.2000	-0.010	0.760	0.043	0.739
	1.3500	-0.013	0.762	0.040	0.738
	1.5000	-0.006	0.759	0.043	0.738
	1.8000	-0.012	0.760	0.041	0.741
	2.1000	-0.006	0.758	0.039	0.740
	2.4000	-0.003	0.756	0.031	0.743
	2.7000	-0.006	0.757	0.019	0.748

SURFACE PRESSURE MEASUREMENTS

TABLE 7.16

RUN NUMBER = 4938
 SCAN NUMBER = 2
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.752
 REYNOLDS NUMBER = 0.2530E 08
 INCIDENCE (NORTH) = 4.057
 P0 = 109.93PSIA
 Q = 29.91PSI
 V/U (SIDEWALL) = 0.0036
 CN = 0.659
 CX = -0.01832
 CMF4 = -0.0410
 CL = 0.6582
 CDP = 0.0283

ORIFICE	X/C	CP	M (LOCAL)
TE UPPER	1.0000	0.2791	0.638
51	0.9500	0.1821	0.681
50	0.9250	0.1262	0.705
49	0.9000	0.0617	0.731
47	0.8600	-0.0579	0.781
46	0.8400	-0.1248	0.809
45	0.8200	-0.1877	0.836
43	0.7800	-0.3124	0.889
42	0.7600	-0.3618	0.909
41	0.7400	-0.4023	0.927
40	0.7200	-0.4237	0.937
39	0.7000	-0.4348	0.941
38	0.6800	-0.4328	0.940
37	0.6600	-0.4199	0.934
36	0.6400	-0.4139	0.932
35	0.6200	-0.4145	0.932
34	0.6000	-0.4153	0.932
33	0.5800	-0.4339	0.940
32	0.5600	-0.4202	0.935
31	0.5400	-0.4238	0.937
30	0.5200	-0.4135	0.934
29	0.5000	-0.4199	0.937
28	0.4750	-0.4458	0.947
27	0.4500	-0.6070	1.018
26	0.4250	-1.0416	1.225
25	0.4000	-1.2044	1.313
24	0.3750	-1.2050	1.314
23	0.3500	-1.2032	1.313
22	0.3250	-1.2076	1.315
21	0.3000	-1.2154	1.318
19	0.2375	-1.2224	1.321
18	0.2250	-1.2371	1.328
17	0.2000	-1.2330	1.327
16	0.1800	-1.2464	1.335
15	0.1600	-1.2462	1.335
14	0.1400	-1.2547	1.339
13	0.1200	-1.2436	1.333
12	0.1000	-1.2462	1.336
11	0.0900	-1.2245	1.323
10	0.0800	-1.2424	1.332
9	0.0700	-1.2231	1.321
8	0.0600	-1.2312	1.326
7	0.0500	-1.2361	1.329
6	0.0400	-1.2367	1.328
5	0.0300	-1.1560	1.283
3	0.0100	-0.9520	1.179
2	0.0050	-0.4209	0.937
1	0.0000	0.9654	0.274
53	0.0050	1.0302	0.220
54	0.0100	0.8469	0.355
55	0.0200	0.5977	0.491
56	0.0300	0.4261	0.573
57	0.0400	0.3237	0.619
58	0.0500	0.2541	0.650
59	0.0750	0.1685	0.686
62	0.2000	-0.0675	0.786
63	0.2500	-0.1345	0.814
64	0.3000	-0.1855	0.836
65	0.3500	-0.2296	0.855
66	0.4000	-0.2511	0.863
67	0.4500	-0.2285	0.853
68	0.5000	-0.2323	0.854
69	0.5625	-0.2509	0.863

ORIFICE	X/C	CP	M (LOCAL)
70	0.6000	-0.2806	0.877
71	0.6500	-0.2674	0.871
72	0.7000	-0.1047	0.801
73	0.7250	0.0000	0.757
74	0.7500	0.0936	0.718
75	0.7750	0.1660	0.687
76	0.8000	0.2179	0.665
77	0.8250	0.2493	0.651
78	0.8500	0.2722	0.641
79	0.9000	0.2825	0.636
80	0.9500	0.2795	0.637
TE LOWER	1.0000	0.2791	0.638

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.012	0.752	0.010	0.753
-4.2000	0.022	0.747	0.015	0.751
-3.9000	-0.003	0.759	0.015	0.751
-3.6000	0.020	0.749	0.013	0.752
-3.3000	0.018	0.750	0.014	0.751
-3.0000	0.021	0.749	0.015	0.750
-2.7000	0.022	0.749	0.022	0.748
-2.4000	0.018	0.750	0.025	0.746
-2.1000	0.012	0.753	0.032	0.744
-1.8000	-0.002	0.758	0.036	0.743
-1.5000	0.000	0.758	0.041	0.740
-1.2500	0.004	0.756	0.013	0.751
-1.2000	-0.003	0.759	0.038	0.740
-1.0500	-0.006	0.761	0.048	0.737
-0.9000	-0.009	0.761	0.049	0.736
-0.7500	-0.012	0.763	0.045	0.738
-0.6500	-0.017	0.763	0.048	0.736
-0.5500	-0.026	0.768	0.048	0.737
-0.4500	-0.024	0.768	0.050	0.737
-0.3500	-0.032	0.772	0.050	0.736
-0.2500	-0.036	0.772	0.055	0.733
-0.1500	-0.045	0.776	0.057	0.734
-0.0500	-0.044	0.776	0.061	0.732
0.0500	-0.047	0.777	0.060	0.733
0.1500	-0.044	0.775	0.066	0.730
0.2500	-0.047	0.777	0.064	0.731
0.3500	-0.041	0.774	0.070	0.728
0.4500	-0.037	0.773	0.063	0.732
0.5500	-0.036	0.772	0.060	0.732
0.6500	-0.030	0.770	0.053	0.735
0.7500	-0.028	0.769	-0.003	0.759
0.9000	-0.021	0.767	0.051	0.736
1.0500	-0.020	0.766	0.058	0.733
1.2000	-0.019	0.765	0.061	0.732
1.3500	-0.024	0.767	0.053	0.736
1.5000	-0.014	0.763	0.050	0.736
1.6000	-0.022	0.765	0.054	0.734
2.1000	-0.014	0.763	0.046	0.738
2.4000	-0.007	0.760	0.037	0.742
2.7000	-0.015	0.764	0.026	0.746

SURFACE PRESSURE MEASUREMENTS

TABLE 7.17

RUN NUMBER = 4999
 SCAN NUMBER = 1
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.806
 REYNOLDS NUMBER = 0.2487E 08
 INCIDENCE (NORTH) = 1.465
 PO = 105.03 PSIA
 Q = 31.14 PSI
 V/U (SIDEWALL) = 0.0044
 CN = 0.338
 CX = 0.00366
 CMC4 = -0.0572
 CL = 0.3379
 CDP = 0.0123

ORIFICE	X/C	CP	M (LOCAL)	ORIFICE	X/C	CP	M (LOCAL)
TE UPPER	1.0000	0.2493	0.695	70	0.6300	-0.4404	1.014
51	0.9500	0.1932	0.720	71	0.6500	-0.3682	0.979
50	0.9250	0.1501	0.740	72	0.7000	-0.1419	0.873
49	0.9000	0.0984	0.763	73	0.7250	-0.0249	0.820
47	0.8600	0.0042	0.807	74	0.7500	0.0581	0.787
46	0.8400	-0.0483	0.831	75	0.7750	0.1370	0.750
45	0.8200	-0.1143	0.861	76	0.8000	0.1854	0.727
43	0.7800	-0.2173	0.908	77	0.8250	0.2210	0.710
42	0.7600	-0.2663	0.932	78	0.8500	0.2469	0.698
41	0.7400	-0.3017	0.950	79	0.9000	0.2635	0.691
40	0.7200	-0.3320	0.965	80	0.9500	0.2694	0.688
39	0.7000	-0.4001	0.998	TE LOWER	1.0000	0.2493	0.695
38	0.6800	-0.5439	1.069				
37	0.6600	-0.8401	1.224				
36	0.6400	-0.8668	1.238				
35	0.6200	-0.8685	1.242				
34	0.6000	-0.8742	1.246				
33	0.5800	-0.8750	1.245				
32	0.5600	-0.8466	1.231				
31	0.5400	-0.8348	1.226				
30	0.5200	-0.8018	1.209				
29	0.5000	-0.7943	1.204				
28	0.4750	-0.7916	1.201				
27	0.4500	-0.8045	1.207				
26	0.4250	-0.7915	1.201				
25	0.4000	-0.7782	1.196				
24	0.3750	-0.7683	1.192				
23	0.3500	-0.7495	1.184				
22	0.3250	-0.7475	1.184				
21	0.3000	-0.7489	1.184				
19	0.2375	-0.7627	1.178				
18	0.2250	-0.7613	1.178				
17	0.2000	-0.7521	1.173				
16	0.1800	-0.7389	1.165				
15	0.1600	-0.7157	1.153				
14	0.1400	-0.6928	1.142				
13	0.1200	-0.6606	1.126				
12	0.1000	-0.6491	1.121				
11	0.0900	-0.6360	1.116				
10	0.0800	-0.6236	1.109				
9	0.0700	-0.6380	1.116				
8	0.0600	-0.6627	1.128				
7	0.0500	-0.6948	1.146				
6	0.0400	-0.6913	1.146				
5	0.0300	-0.6437	1.119				
3	0.0100	-0.2571	0.933				
2	0.0050	0.1721	0.735				
1	0.0000	1.1411	0.119				
53	0.0050	0.8202	0.404				
54	0.0100	0.5649	0.545				
55	0.0200	0.2769	0.685				
56	0.0300	0.0950	0.770				
57	0.0400	-0.0042	0.817				
58	0.0500	-0.0676	0.847				
59	0.0750	-0.1384	0.881				
62	0.2000	-0.3295	0.968				
63	0.2500	-0.3880	0.995				
64	0.3000	-0.4554	1.026				
65	0.3500	-0.5487	1.072				
66	0.4000	-0.6185	1.107				
67	0.4500	-0.6223	1.110				
68	0.5000	-0.3796	0.990				
69	0.5625	-0.3980	0.994				

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.007	0.812	0.002	0.807
-4.2000	0.020	0.803	0.008	0.805
-3.9000	-0.001	0.812	0.006	0.806
-3.6000	0.013	0.806	0.006	0.806
-3.3000	0.018	0.808	0.007	0.808
-3.0000	0.021	0.804	0.012	0.806
-2.7000	0.020	0.807	0.008	0.807
-2.4000	0.016	0.805	0.014	0.803
-2.1000	0.010	0.810	0.016	0.801
-1.8000	0.004	0.811	0.015	0.802
-1.5000	0.005	0.811	0.016	0.803
-1.3500	0.004	0.810	-0.005	0.812
-1.2000	0.005	0.812	0.019	0.802
-1.0500	0.006	0.814	0.020	0.802
-0.9000	0.000	0.813	0.017	0.803
-0.7500	-0.004	0.816	0.018	0.801
-0.6500	-0.004	0.814	0.017	0.804
-0.5500	-0.014	0.819	0.014	0.802
-0.4500	-0.018	0.821	0.015	0.802
-0.3500	-0.023	0.824	0.013	0.803
-0.2500	-0.030	0.824	0.015	0.806
-0.1500	-0.034	0.826	0.014	0.807
-0.0500	-0.039	0.828	0.014	0.806
0.0500	-0.040	0.827	0.020	0.805
0.1500	-0.038	0.826	0.026	0.801
0.2500	-0.041	0.828	0.020	0.803
0.3500	-0.041	0.827	0.024	0.801
0.4500	-0.038	0.826	0.015	0.808
0.5500	-0.032	0.826	0.016	0.807
0.6500	-0.031	0.822	0.014	0.806
0.7500	-0.025	0.823	-0.007	0.818
0.9000	-0.018	0.817	0.016	0.806
1.0500	-0.018	0.817	0.020	0.803
1.2000	-0.015	0.818	0.020	0.802
1.3500	-0.014	0.818	0.018	0.808
1.5000	-0.012	0.814	0.020	0.807
1.8000	-0.010	0.816	0.024	0.801
2.1000	-0.007	0.813	0.020	0.803
2.4000	-0.006	0.814	0.019	0.808
2.7000	-0.010	0.813	0.009	0.810

SURFACE PRESSURE MEASUREMENTS

TABLE 7.18

RUN NUMBER = 4951
 SCAN NUMBER = 3
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.841
 REYNOLDS NUMBER = 0.2519E 08
 INCIDENCE(NORTH) = 1.001
 P0 = 102.99PSIA
 Q = 32.09PSI
 V/U (SIDEWALL) = 0.0033
 CN = 0.113
 CX = 0.02548
 CMC4 = -0.0043
 CL = 0.1130
 COP = 0.0275

DRIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.1206	0.783
51	0.9500	0.0849	0.806
50	0.9250	0.0526	0.821
49	0.9000	0.0438	0.824
47	0.8600	0.0013	0.846
46	0.8400	-0.0226	0.858
45	0.8200	-0.0479	0.869
43	0.7800	-0.1161	0.903
42	0.7600	-0.1574	0.923
41	0.7400	-0.2177	0.952
40	0.7200	-0.3825	1.035
39	0.7000	-0.6685	1.191
38	0.6800	-0.8137	1.278
37	0.6600	-0.7912	1.265
36	0.6400	-0.7895	1.263
35	0.6200	-0.7902	1.261
34	0.6000	-0.7777	1.254
33	0.5800	-0.7729	1.254
32	0.5600	-0.7504	1.237
31	0.5400	-0.7336	1.228
30	0.5200	-0.7062	1.212
29	0.5000	-0.7001	1.208
28	0.4750	-0.6744	1.194
27	0.4500	-0.6554	1.185
26	0.4250	-0.6669	1.192
25	0.4000	-0.6539	1.185
24	0.3750	-0.6505	1.182
23	0.3500	-0.6387	1.177
22	0.3250	-0.6322	1.174
21	0.3000	-0.6313	1.174
19	0.2375	-0.6181	1.164
18	0.2250	-0.6145	1.161
17	0.2000	-0.6025	1.154
16	0.1800	-0.5999	1.152
15	0.1600	-0.5815	1.142
14	0.1400	-0.5622	1.132
13	0.1200	-0.5301	1.113
12	0.1000	-0.4986	1.091
11	0.0900	-0.4253	1.058
10	0.0800	-0.4032	1.047
9	0.0700	-0.3913	1.036
8	0.0600	-0.4151	1.053
7	0.0500	-0.4243	1.056
6	0.0400	-0.4527	1.071
5	0.0300	-0.4159	1.054
3	0.0100	-0.0461	0.968
2	0.0050	0.3286	0.687
1	0.0000	1.1786	0.068
53	0.0050	0.7499	0.466
54	0.0100	0.4921	0.606
55	0.0200	0.1914	0.755
56	0.0300	0.0285	0.834
57	0.0400	-0.0742	0.883
58	0.0500	-0.1391	0.916
59	0.0750	-0.1981	0.945
62	0.2000	-0.3879	1.043
63	0.2500	-0.4238	1.062
64	0.3000	-0.4959	1.101
65	0.3500	-0.5811	1.148
66	0.4000	-0.6567	1.190
67	0.4500	-0.7090	1.221
69	0.5000	-0.7348	1.236
69	0.5625	-0.7668	1.248

DRIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.8194	1.283
71	0.6500	-0.3631	1.025
72	0.7000	-0.2127	0.949
73	0.7250	-0.1999	0.943
74	0.7500	-0.1863	0.941
75	0.7750	-0.1861	0.941
76	0.8000	-0.1502	0.924
77	0.8250	-0.1498	0.923
78	0.8500	-0.0926	0.895
79	0.9000	0.0213	0.840
80	0.9500	0.1164	0.793
TE LOWER	1.0000	0.1296	0.783

STATIC PRESSURES AT CEILING AND FLOOR

X/C	CEILING CP	M	FLOOR CP	M
-4.5000	0.014	0.942	0.007	0.842
-4.2000	0.028	0.836	0.017	0.838
-3.9000	0.006	0.947	0.020	0.837
-3.6000	0.028	0.834	0.015	0.840
-3.3000	0.028	0.835	0.013	0.839
-3.0000	0.024	0.829	0.019	0.836
-2.7000	0.034	0.832	0.022	0.835
-2.4000	0.031	0.835	0.026	0.833
-2.1000	0.026	0.834	0.024	0.834
-1.8000	0.021	0.836	0.019	0.837
-1.5000	0.023	0.838	0.027	0.833
-1.3500	0.029	0.836	0.007	0.843
-1.2000	0.022	0.839	0.031	0.831
-1.0500	0.025	0.826	0.024	0.835
-0.9000	0.023	0.836	0.024	0.835
-0.7500	0.020	0.838	0.018	0.838
-0.6500	0.016	0.842	0.017	0.838
-0.5500	0.007	0.842	0.011	0.841
-0.4500	0.005	0.844	0.010	0.842
-0.3500	-0.001	0.846	0.004	0.844
-0.2500	-0.002	0.848	0.002	0.849
-0.1500	-0.010	0.850	0.000	0.845
-0.0500	-0.012	0.852	0.002	0.846
0.0500	-0.021	0.856	0.005	0.843
0.1500	-0.020	0.857	0.004	0.848
0.2500	-0.026	0.859	0.002	0.845
0.3500	-0.027	0.859	0.001	0.849
0.4500	-0.028	0.859	-0.006	0.850
0.5500	-0.024	0.857	-0.002	0.848
0.6500	-0.025	0.857	-0.004	0.847
0.7500	-0.015	0.854	-0.013	0.855
0.9000	-0.013	0.853	-0.007	0.849
1.0500	-0.013	0.852	-0.009	0.854
1.2000	-0.008	0.850	-0.007	0.853
1.3500	-0.010	0.850	-0.004	0.850
1.5000	-0.002	0.847	-0.007	0.852
1.8000	0.004	0.845	-0.002	0.851
2.1000	0.004	0.844	0.004	0.846
2.4000	-0.001	0.846	0.002	0.848
2.7000	-0.005	0.848	-0.004	0.852

SURFACE PRESSURE MEASUREMENTS

PUN NUMBER = 4982
 SCAN NUMBER = 1
 CONFIGURATION = CHCJJK
 TEST MACH NUMBER = 0.756
 REYNOLDS NUMBER = 0.2969E 08
 INCIDENCE (NORTH) = 2.013
 PO = 129.80PSIA
 Q = 35.57PSI
 V/U (SIDEWALL) = 0.0036
 CN = 0.400
 CX = -0.00401
 CMC4 = -0.0478
 CL = 0.3995
 COP = 0.0100

TABLE 7.19

ORIFICE	X/C	CP	M (LOCAL)
TE UPPER	1.0000	0.2557	0.651
51	0.9500	0.1741	0.686
50	0.9250	0.1252	0.708
49	0.9000	0.0675	0.733
47	0.8600	-0.0660	0.787
46	0.8400	-0.1302	0.814
45	0.8200	-0.1983	0.844
43	0.7800	-0.3426	0.906
42	0.7600	-0.4015	0.931
41	0.7400	-0.4549	0.954
40	0.7200	-0.4864	0.968
39	0.7000	-0.5073	0.977
38	0.6800	-0.5034	0.975
37	0.6600	-0.4979	0.974
36	0.6400	-0.4858	0.969
35	0.6200	-0.4747	0.974
34	0.6000	-0.5156	0.983
33	0.5800	-0.5561	1.001
32	0.5600	-0.6017	1.020
31	0.5400	-0.6315	1.035
30	0.5200	-0.6458	1.044
29	0.5000	-0.7019	1.071
28	0.4750	-0.7020	1.071
27	0.4500	-0.6759	1.060
26	0.4250	-0.6663	1.054
25	0.4000	-0.6376	1.039
24	0.3750	-0.6117	1.028
23	0.3500	-0.5932	1.019
22	0.3250	-0.5621	1.005
21	0.3000	-0.5337	0.993
19	0.2375	-0.8553	1.136
18	0.2250	-0.8551	1.135
17	0.2000	-0.8714	1.145
16	0.1800	-0.8775	1.149
15	0.1600	-0.8623	1.141
14	0.1400	-0.8726	1.146
13	0.1200	-0.8861	1.152
12	0.1000	-0.8903	1.155
11	0.0900	-0.8830	1.151
10	0.0800	-0.9049	1.161
9	0.0700	-0.9245	1.172
8	0.0600	-0.9647	1.194
7	0.0500	-0.9770	1.201
6	0.0400	-0.9909	1.207
5	0.0300	-0.9119	1.168
3	0.0100	-0.5617	1.003
2	0.0050	-0.0655	0.791
1	0.0000	1.0840	0.166
53	0.0050	0.8802	0.338
54	0.0100	0.6464	0.471
55	0.0200	0.3547	0.609
56	0.0300	0.1714	0.689
57	0.0400	0.0757	0.731
58	0.0500	0.0140	0.757
59	0.0750	-0.0569	0.787
62	0.2000	-0.2498	0.868
63	0.2500	-0.3001	0.889
64	0.3000	-0.3497	0.911
65	0.3500	-0.3891	0.929
66	0.4000	-0.3873	0.929
67	0.4500	-0.3582	0.914
68	0.5000	-0.3401	0.905
69	0.5625	-0.3394	0.904

ORIFICE	X/C	CP	M (LOCAL)
70	0.6000	-0.3679	0.917
71	0.6500	-0.3251	0.900
72	0.7000	-0.1381	0.821
73	0.7250	-0.0265	0.772
74	0.7500	0.0577	0.738
75	0.7750	0.1400	0.702
76	0.8000	0.1875	0.682
77	0.8250	0.2296	0.664
78	0.8500	0.2506	0.655
79	0.9000	0.2605	0.650
80	0.9500	0.2606	0.648
TE LOWER	1.0000	0.2557	0.651

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.009	0.759	0.002	0.761
-4.2000	0.014	0.755	0.002	0.760
-3.9000	0.002	0.762	0.003	0.759
-3.6000	0.013	0.759	-0.002	0.760
-3.3000	0.015	0.757	0.005	0.760
-3.0000	0.016	0.756	0.007	0.758
-2.7000	0.017	0.756	0.009	0.757
-2.4000	0.007	0.759	0.008	0.757
-2.1000	0.005	0.761	0.013	0.755
-1.8000	0.000	0.761	0.009	0.757
-1.5000	-0.008	0.765	0.018	0.754
-1.3500	-0.000	0.763	-0.004	0.762
-1.2000	-0.006	0.765	0.020	0.753
-1.0500	-0.004	0.764	0.020	0.752
-0.9000	-0.006	0.766	0.020	0.752
-0.7500	-0.009	0.766	0.016	0.752
-0.6500	-0.017	0.767	0.018	0.752
-0.5500	-0.014	0.767	0.016	0.754
-0.4500	-0.018	0.772	0.010	0.756
-0.3500	-0.025	0.775	0.019	0.752
-0.2500	-0.030	0.774	0.015	0.754
-0.1500	-0.039	0.776	0.022	0.754
-0.0500	-0.036	0.777	0.027	0.753
0.0500	-0.041	0.778	0.029	0.751
0.1500	-0.044	0.778	0.028	0.750
0.2500	-0.043	0.777	0.031	0.751
0.3500	-0.041	0.778	0.037	0.747
0.4500	-0.042	0.779	0.029	0.751
0.5500	-0.031	0.775	0.028	0.751
0.6500	-0.031	0.775	0.028	0.749
0.7500	-0.026	0.771	-0.003	0.763
0.9000	-0.028	0.772	0.025	0.751
1.0500	-0.018	0.768	0.023	0.752
1.2000	-0.016	0.767	0.030	0.750
1.3500	-0.018	0.769	0.027	0.751
1.5000	-0.013	0.766	0.025	0.752
1.8000	-0.011	0.766	0.027	0.750
2.1000	-0.014	0.766	0.025	0.753
2.4000	-0.006	0.763	0.020	0.754
2.7000	-0.016	0.767	0.009	0.758

SURFACE PRESSURE MEASUREMENTS

TABLE 7.20

RUN NUMBER = 4986
 SCAN NUMBER = 1
 CONFIGURATION = DHCJJK
 TEST MACH NUMBER = 0.801
 REYNOLDS NUMBER = 0.2996E 08
 INCIDENCE(NORTH) = 2.000
 PQ = 127.00PSIA
 Q = 37.41PSI
 V/U (SIDEWALL) = 0.0034
 CN = 0.393
 CX = 0.00073
 CMC4 = -0.0538
 CL = 0.3931
 CDP = 0.0145

ORIFICE	X/C	CP	M(LOCAL)
TE UPPER	1.0000	0.2575	0.688
51	0.9500	0.1866	0.722
50	0.9250	0.1439	0.741
49	0.9000	0.0877	0.766
47	0.8600	-0.0259	0.817
46	0.8400	-0.0740	0.839
45	0.8200	-0.1418	0.871
43	0.7800	-0.2557	0.926
42	0.7600	-0.3040	0.950
41	0.7400	-0.3301	0.963
40	0.7200	-0.3328	0.965
39	0.7000	-0.3581	0.976
38	0.6800	-0.3519	0.972
37	0.6600	-0.3729	0.981
36	0.6400	-0.7095	1.147
35	0.6200	-0.7740	1.181
34	0.6000	-0.8873	1.245
33	0.5800	-0.8978	1.250
32	0.5600	-0.8704	1.232
31	0.5400	-0.8663	1.231
30	0.5200	-0.8576	1.228
29	0.5000	-0.8474	1.221
28	0.4750	-0.8507	1.223
27	0.4500	-0.8173	1.205
26	0.4250	-0.7863	1.189
25	0.4000	-0.8045	1.198
24	0.3750	-0.8283	1.212
23	0.3500	-0.8292	1.212
22	0.3250	-0.8239	1.210
21	0.3000	-0.8241	1.210
19	0.2375	-0.8212	1.203
18	0.2250	-0.8175	1.202
17	0.2000	-0.8002	1.194
16	0.1800	-0.7927	1.191
15	0.1600	-0.7695	1.181
14	0.1400	-0.7615	1.179
13	0.1200	-0.7394	1.168
12	0.1000	-0.7466	1.172
11	0.0900	-0.7115	1.153
10	0.0800	-0.7279	1.160
9	0.0700	-0.7863	1.189
8	0.0600	-0.7961	1.193
7	0.0500	-0.8088	1.200
6	0.0400	-0.7922	1.192
5	0.0300	-0.7226	1.154
3	0.0100	-0.3595	0.972
2	0.0050	0.0919	0.766
1	0.0000	1.1272	0.137
53	0.0050	0.8440	0.386
54	0.0100	0.6195	0.514
55	0.0200	0.3248	0.659
56	0.0300	0.1564	0.736
57	0.0400	0.0532	0.783
58	0.0500	-0.0126	0.813
59	0.0750	-0.0887	0.848
62	0.2000	-0.2800	0.936
63	0.2500	-0.3390	0.964
64	0.3000	-0.4151	0.998
65	0.3500	-0.4937	1.035
66	0.4000	-0.5298	1.053
67	0.4500	-0.4319	1.007
68	0.5000	-0.3931	0.989
69	0.5625	-0.3935	0.987

ORIFICE	X/C	CP	M(LOCAL)
70	0.6000	-0.4395	1.011
71	0.6500	-0.3753	0.980
72	0.7000	-0.1451	0.372
73	0.7250	-0.0318	0.319
74	0.7500	0.0609	0.780
75	0.7750	0.1461	0.741
76	0.8000	0.1905	0.719
77	0.8250	0.2230	0.703
78	0.8500	0.2493	0.692
79	0.9000	0.2682	0.684
80	0.9500	0.2731	0.682
TE LOWER	1.0000	0.2575	0.688

STATIC PRESSURES AT CEILING AND FLOOR

	CEILING		FLOOR	
X/C	CP	M	CP	M
-4.5000	0.007	0.804	-0.000	0.806
-4.2000	0.018	0.799	0.000	0.805
-3.9000	-0.005	0.807	0.007	0.805
-3.6000	0.015	0.801	0.002	0.804
-3.3000	0.016	0.800	0.007	0.804
-3.0000	0.023	0.797	0.009	0.803
-2.7000	0.022	0.798	0.012	0.805
-2.4000	0.015	0.799	0.015	0.803
-2.1000	0.012	0.802	0.014	0.800
-1.8000	0.003	0.805	0.016	0.800
-1.5000	0.005	0.805	0.021	0.797
-1.3500	0.003	0.804	-0.002	0.811
-1.2000	0.002	0.806	0.021	0.798
-1.0500	0.005	0.806	0.022	0.800
-0.9000	-0.000	0.808	0.023	0.798
-0.7500	-0.002	0.808	0.022	0.796
-0.6500	-0.009	0.811	0.022	0.799
-0.5500	-0.016	0.813	0.017	0.797
-0.4500	-0.023	0.817	0.017	0.795
-0.3500	-0.028	0.820	0.017	0.799
-0.2500	-0.031	0.822	0.020	0.798
-0.1500	-0.039	0.828	0.018	0.799
-0.0500	-0.042	0.826	0.022	0.797
0.0500	-0.048	0.829	0.029	0.794
0.1500	-0.046	0.826	0.035	0.792
0.2500	-0.048	0.827	0.022	0.797
0.3500	-0.048	0.827	0.029	0.792
0.4500	-0.045	0.827	0.025	0.796
0.5500	-0.035	0.823	0.029	0.794
0.6500	-0.037	0.822	0.022	0.796
0.7500	-0.027	0.821	-0.007	0.811
0.9000	-0.025	0.818	0.021	0.797
1.0500	-0.025	0.817	0.026	0.794
1.2000	-0.016	0.817	0.026	0.794
1.3500	-0.019	0.816	0.025	0.796
1.5000	-0.016	0.815	0.024	0.797
1.8000	-0.014	0.814	0.027	0.794
2.1000	-0.012	0.815	0.025	0.797
2.4000	-0.009	0.814	0.022	0.798
2.7000	-0.019	0.814	0.012	0.802

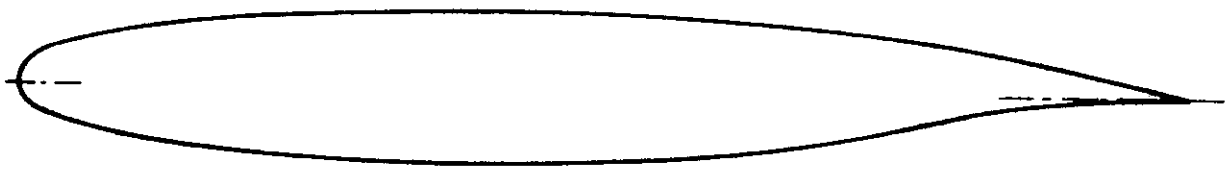


FIG. 7-1 NAE 75-036-13:2 AIRFOIL

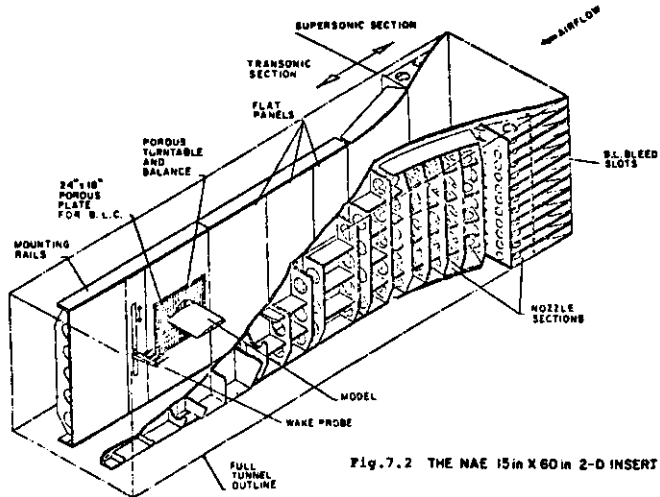


Fig. 7.2 THE NAE 15in X 60in 2-D INSERT

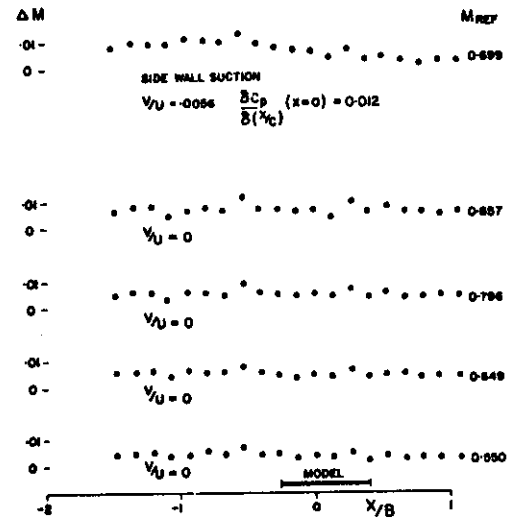
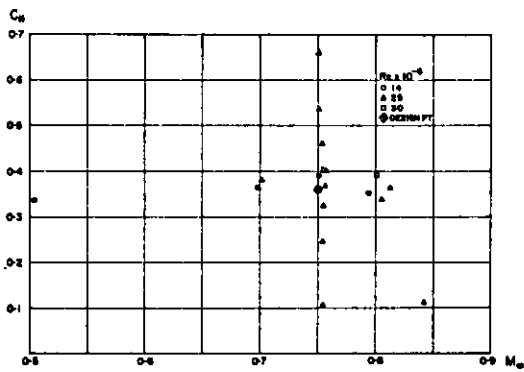
Fig. 7.3 MACH NUMBER DISTRIBUTION, EMPTY TEST SECTION
NAE 15in X 60in 2-D INSERT.

Fig. 7.4 TEST CONDITIONS FOR PRESENTED DATA

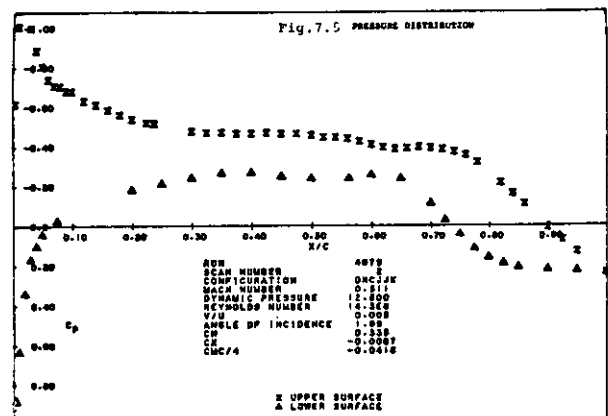


Fig. 7.5 PRESSURE DISTRIBUTION

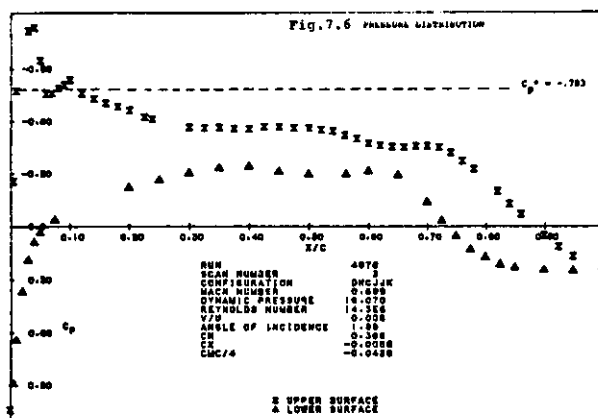


Fig. 7.6 PRESSURE DISTRIBUTION

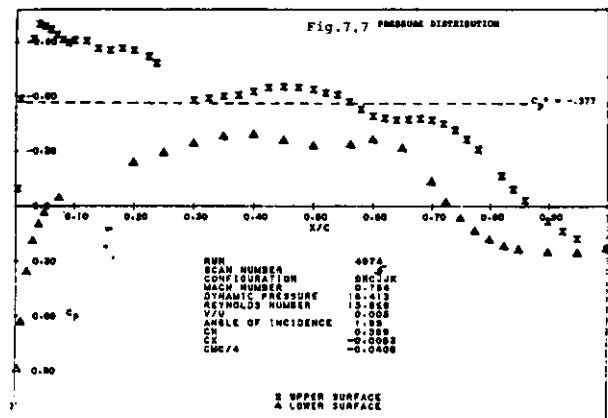
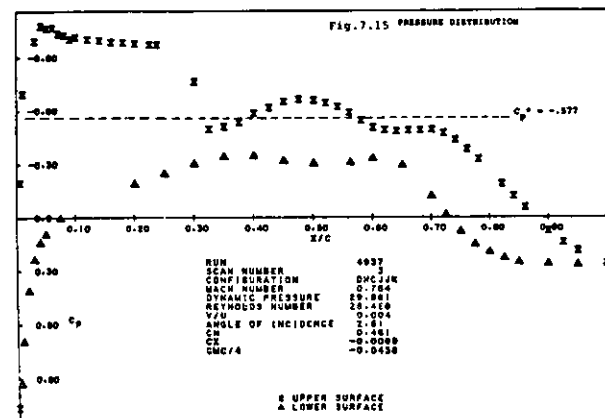
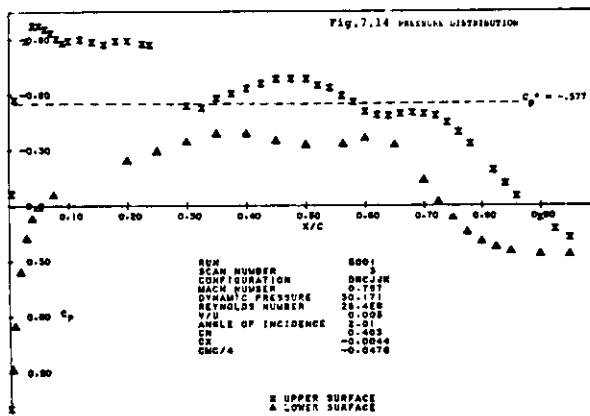
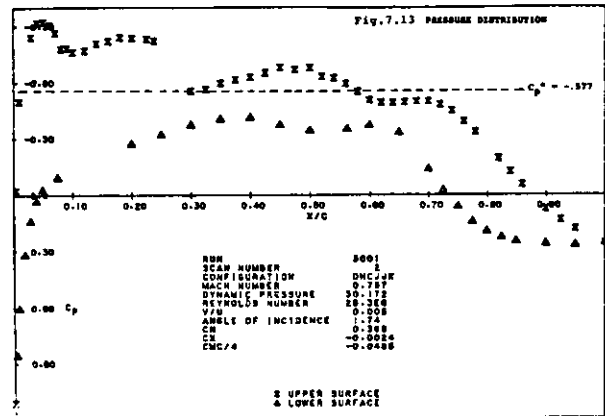
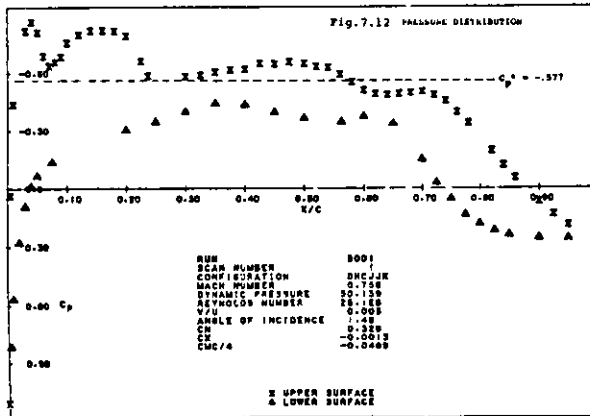
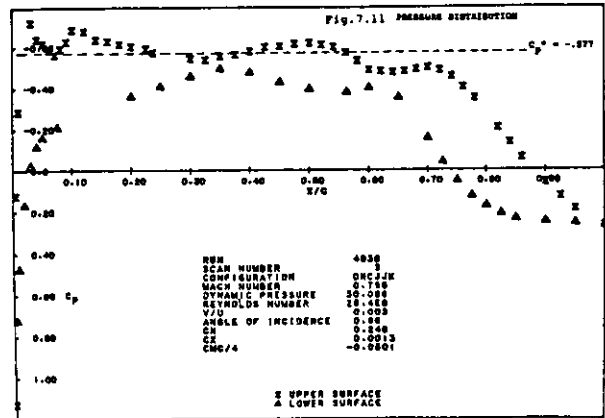
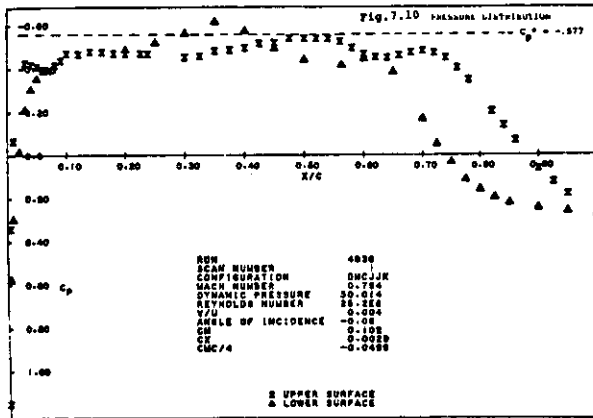
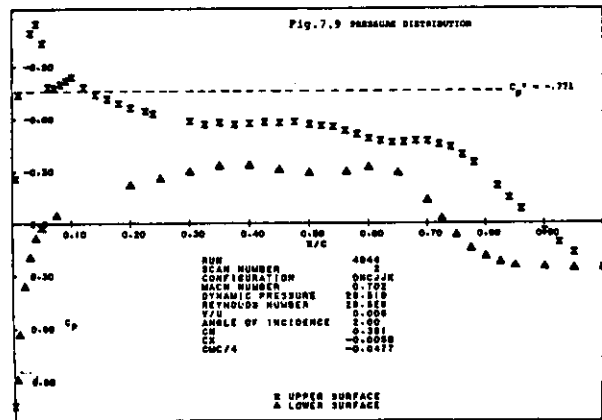
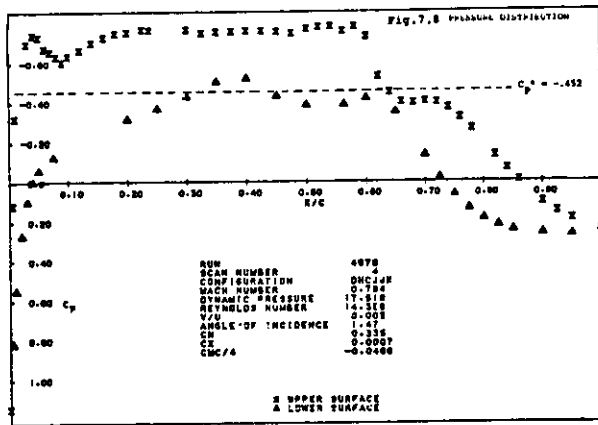
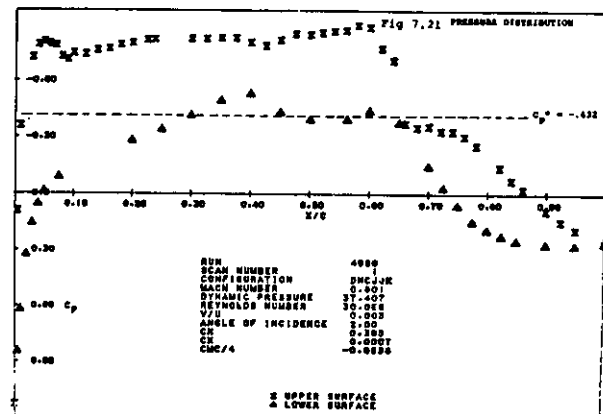
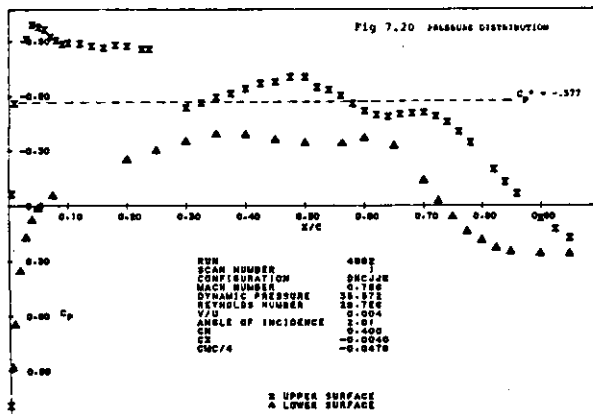
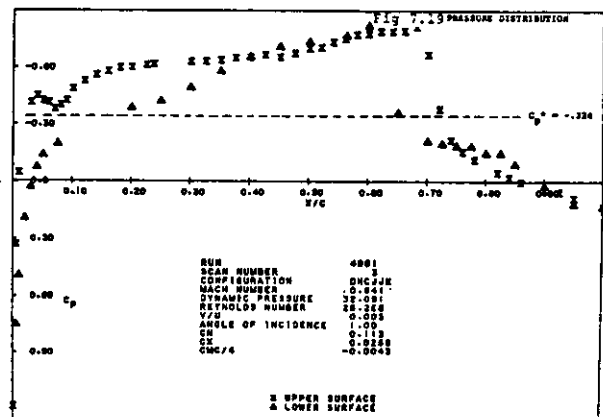
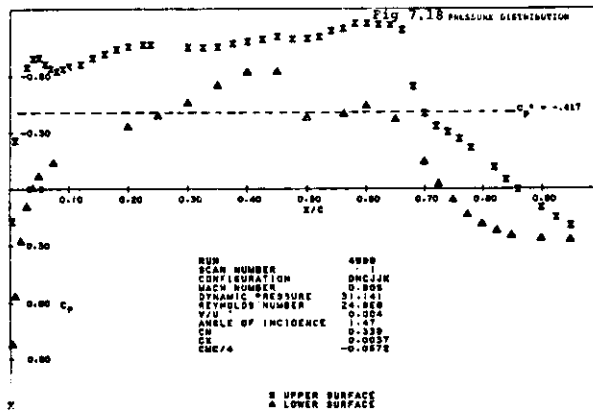
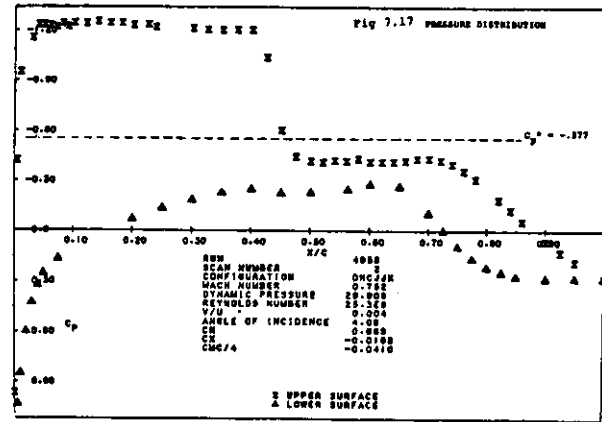
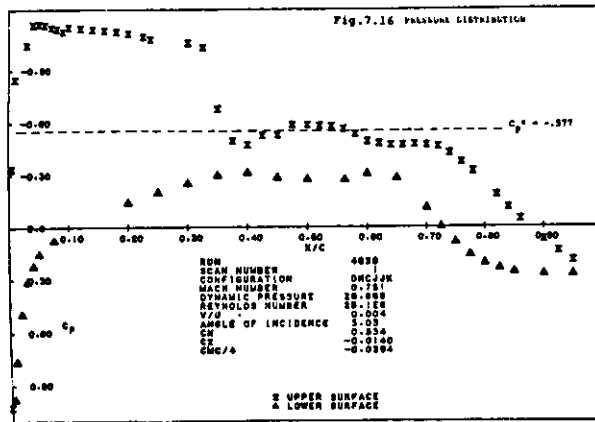


Fig. 7.7 PRESSURE DISTRIBUTION





8. SUPERCRITICAL AIRFOIL MBB-A3

Surface pressure distributions, wake and boundary condition measurements.

by

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8.1 INTRODUCTION

The present data set, obtained testing the same model of the MBB-A3 airfoil at the A.R.A. Bedford wind tunnel and at the Turin Polytechnic wind tunnel (P.T.), covers a wide range of conditions: wholly subsonic flow, supercritical shockless or near shockless flow, supercritical flow with relatively strong shock wave producing, in some extreme cases, boundary layer separation. Moreover due to the great difference in Reynolds number between the two tunnels (the P.T. transonic facility is operated at low Reynolds number because of power limitations), different conditions of potential flow-boundary layer interaction are presented. In the cases of measurements with free transition, the Polytechnic of Turin experiments show a λ shaped shock wave, typical of shock wave impinging on a laminar boundary layer; on the contrary for the A.R.A. results the interaction appears to be turbulent (it has to be noticed that even though the results from A.R.A. are transition free, the disturbances from the pressure holes are likely to promote transition upstream of the shock waves). Also on the lower surface the flow field shows different behaviour, due to the different growth of the boundary layer, particularly in the rear part of the section where a concavity is present.

The pressure distributions on the airfoil obtained in the two tunnels become comparable when the transition is fixed in the P.T. experiments, both on the upper and on the lower surface and when wall interference corrections are applied (see Fig.8.6 and comments to Tables 8.4).

The MBB-A3 profile, designed by the Eberle hodograph method is supercritical, shockless, sloping roof-top. Moreover the MBB-A3 airfoil is the section for the MBB-AVA-Pilot Model (one of the 3-d configurations selected for the present data collection) and is the thinnest section for which data are presented. For all the cases reported surface pressure measurements are presented; experiments from A.R.A. wind tunnel include wake total and static pressure survey (only the values of the drag coefficients are reported here); data from P.T. wind tunnel include static pressure distributions above and below the model at a distance from the chord of about 2/3 of half-height of the test section. The last information is important in view of the aim of this data collection; if measured boundary conditions are available and are used for the assessment of computer programs, empirical corrections for tunnel wall interference are not necessary.

About the A.R.A. data the effective freestream conditions can be estimated applying the semi-empirical wall interference correction procedures given in the questionnaire (see 6.2.5).

Both A.R.A. and P.T. data presented here are not corrected for wall interference effects.

8.2 DATA SET

1. Airfoil

1.1 Airfoil designation	MBB-A3
1.2 Type of airfoil	Supercritical shockless
1.2.1 airfoil geometry	Fig.8.1; Tables 8.1 and 8.2
nose radius	0.0075 c
maximum thickness	8.9%
base thickness	0
1.2.2 design condition	$M_\infty = 0.76$, $\alpha = 1.3^\circ$, $C_L = 0.58$
design pressure distribution	Fig.8.2 (reprinted from ref.[1])
1.3 Additional remarks	None
1.4 References on airfoil	[1], [2]

2. Model geometry

2.1 Chord length	0.127 m
2.2 Span	0.203 m; 0.4 m (see 2.6)
2.3 Actual model co-ordinates and accuracy	Table 8.2
2.4 Maximum thickness	8.9%
2.5 Base thickness	0
2.6 Additional remarks	The span of the same model, previously tested at the A.R.A. Bedford wind tunnel, has been increased for the tests in the Turin Polytechnic wind tunnel (Picture 1).
2.7 References on model	[1], [2]

3. Wind tunnels

3.1 Designation	A.R.A. Bedford 2D transonic tunnel (A.R.A.) Galleria transonica e supersonica, Politecnico di Torino (P.T.)

3.2 Type of tunnel	Blow down (A.R.A.); continuous (P.T.)
3.2.1 stagnation pressure	From 1.5 to 4 atmospheres (A.R.A.) up to 0.46 atmospheres (P.T.)
3.2.2 stagnation temperature	290°K (A.R.A.); 300°K (P.T.)
3.2.3 humidity/dew point	240°K (A.R.A.); 223°K (P.T.)
3.3 Test Section	Rectangular (A.R.A.); square (P.T.)
3.3.1 dimensions	0.457 m x 0.203 m (A.R.A.) 0.40 m x 0.40 m (P.T.)
3.3.2 type of walls	Slotted top and bottom (A.R.A.-P.T.) open-area ratio of 3.2% (A.R.A.) open-area ratio of 50%; porosity is controlled by a moving plate inside the plenum chamber (see Fig. 8.5 and Picture 1) (P.T.)
3.4 Flow field (empty test section)	
3.4.1 reference static pressure	On the top liner, 5 chords upstream of model L.E. (A.R.A.) at sidewall 2 chords upstream of model L.E. (P.T.)
3.4.2 flow angularity	$\pm 0.05^\circ$ (A.R.A.)
3.4.3 Mach number distribution	Mach number gradient along the model: 0.001 up to $M_\infty = 0.65$, increasing to 0.002 at $M_\infty = 0.82$ and to 0.003 at $M_\infty = 0.85$ (A.R.A.) Fig. 8.3a (P.T.)
3.4.4 pressure gradient	See 3.4.3
3.4.5 turbulence/noise level	Under investigation using Kulite transducers (A.R.A.) (ΔC_p) _{R.M.S} = 0.014 at $M_\infty = 0.75$, see also Fig. 8.3b (P.T.)
3.4.6 side wall boundary layer	$\delta^* = 1.5$ mm for $M_\infty = 0.7$ (A.R.A.) $\delta(U = 0.99 U_e) = \left. \begin{array}{l} 31 \text{ mm for } M_\infty = 0.6 \\ 29.5 \text{ mm for } M_\infty = 0.7 \\ 28 \text{ mm for } M_\infty = 0.75 \\ 27 \text{ mm for } M_\infty = 0.8 \end{array} \right\} \text{ (P.T.)}$
3.5 Additional remarks	None
3.6 References on wind tunnel	[1], [4] (A.R.A.); [3] (P.T.)
4. <u>Tests</u>	
4.1 Type of measurements	Surface pressures (A.R.A.-P.T.) wake pitot and static pressures (A.R.A.) static pressures above and below the model at a distance of 132 mm from the model chord (P.T.)
4.2 Tunnel/model dimensions	
4.2.1 height/chord ratio	3.6 (A.R.A.); 3.15 (P.T.)
4.2.3 width/chord ratio	1.6 (A.R.A.); 3.15 (P.T.)
4.3 Flow conditions included in present data base	
4.3.1 angle of attack	See Table 8.4a and 8.4b
4.3.2 Mach number	See Table 8.4a and 8.4b
4.3.3 Reynolds number	See Table 8.4a and 8.4b
4.3.4 transition	No artificial trip, however pressure holes probably induce transition forward of shock wave. (A.R.A.) free and fixed (P.T.) not established ballotini (glass spheres), see Table 8.4b
- position of free transition	
- transition fixing	
4.3.5 temperature equilibrium	Δt° during run $\simeq 5^\circ\text{K}$ (A.R.A.); yes (P.T.)
4.4 Additional remarks	None
4.5 References on tests	[1], [2] (A.R.A.)
5. <u>Instrumentation</u>	
5.1 Surface pressure measurements	
5.1.1 pressure holes	
- size	$\phi = 0.25$ mm on first 13% chord, 0.3 mm aft of 13% chord
- spanwise stations	staggered along a V line in the central part of the model
- chordwise positions	see Table 8.3
5.1.2 type of transducers and scanning devices	Scanivalve system with 25 P.S.I. differential transducer; backing pressure reservoir set at 22 P.S.I. (A.R.A.)
5.1.3 other	A manometer board is photographed; liquid: dibutyl phthalate (P.T.)

5.2 Wake measurements							
5.2.1 type/size of instrument(s)	Rake of 48 pitot and 3 static tubes; see Fig. 8.4 (A.R.A.)						
5.2.2 streamwise position(s)	250 mm downstream of T.E. (A.R.A.)						
5.2.3 type of transducer and scanning devices	Scanivalve system with 7.5 P.S.I. differential transducer; backing pressure by uppermost rake pitot (A.R.A.)						
5.5 Flow visualization							
5.5.1 flow field	Schlieren photography (A.R.A.)						
5.5.2 surface flow	Two dimensionality was checked by oil flow (P.T.)						
5.6 Boundary conditions measurements	Static pressure distribution in the vicinity of the upper and lower walls (P.T.)						
5.6.1 type/size of instruments	Two conical static pressure probes with four orifices see Fig. 8.5 (P.T.)						
5.6.2 locations	132 mm from the model chord, moving in streamwise direction, at a distance of 200 mm from the sidewalls (P.T.)						
5.7 Additional remarks	None						
5.8 References on instrumentation	[4] (A.R.A.)						
6. Data							
6.1 Accuracy (wall interference excluded)							
6.1.1 angle of attack setting	$\pm 0.003^\circ$ (A.R.A.); $\pm 0.005^\circ$ (P.T.)						
6.1.2 free stream Mach number:							
- setting	± 0.001 (A.R.A.); ± 0.005 (P.T.)						
- variation during one pressure scan	Variation negligible, pressures all sealed simultaneously in separate reservoirs and recorded after end of run (A.R.A.); none (P.T.) for static pressure measurements on the model; ± 0.005 (P.T.) for static pressure measurements in the vicinity of the upper and lower test section walls						
6.1.3 pressure coefficients	$\Delta C_p = \pm 0.5\%$ (A.R.A.); model surface $\Delta C_p < \pm 1\%$ of maximum value (P.T.); boundaries $\Delta C_p < \pm 4\%$ of maximum value (P.T.)						
6.1.4 aerodynamic coefficients	C_L and C_M obtained from surface pressure distributions (A.R.A.-P.T.); C_D obtained from wake total head and static pressures using an energy method [5] (A.R.A.)						
6.1.5 boundary layer quantities	Model boundary layer not measured (A.R.A.-P.T.)						
6.1.6 repeatability	$\Delta C_p = \Delta C_L = \Delta C_M = \pm 0.5\%$; $\Delta C_D = \pm 2\%$ (A.R.A.) $\Delta C_p < \pm 1\%$ of maximum value (P.T.)						
6.1.7 remarks	The two probes used for the static pressure measurements (P.T.) on the upper and lower boundaries have been calibrated and their behaviour for small angle of yaw, ψ , has been verified. For $M_\infty = 0.75$ <table> <tr> <td>$\psi = 2^\circ$</td> <td>$\Delta p/q = 0.002$</td> </tr> <tr> <td>$\psi = 5^\circ$</td> <td>$\Delta p/q = 0.005$</td> </tr> <tr> <td>$\psi = 7^\circ$</td> <td>$\Delta p/q = 0.009$</td> </tr> </table>	$\psi = 2^\circ$	$\Delta p/q = 0.002$	$\psi = 5^\circ$	$\Delta p/q = 0.005$	$\psi = 7^\circ$	$\Delta p/q = 0.009$
$\psi = 2^\circ$	$\Delta p/q = 0.002$						
$\psi = 5^\circ$	$\Delta p/q = 0.005$						
$\psi = 7^\circ$	$\Delta p/q = 0.009$						
6.2 Wall interference corrections							
6.2.1 angle of attack	See 6.2.5 (A.R.A.); $\Delta \alpha \approx -1.4 C_L$ at $M_\infty = 0.75$ (P.T.)						
6.2.2 blockage (solid/wake)	Negligible (A.R.A.-P.T.)						
6.2.3 streamline curvature (lift)	See 6.2.1						
6.2.4 other							
6.2.5 remarks	Standard expressions used for downwash and curvature effects: $\Delta \alpha = (c/h) C_L \delta_0 + (c/h)^2 (0.25 C_L + C_M) \delta_1 / B$ $\Delta C_L = -(\pi/2) (c/Bh)^2 \delta_1 C_L$ $\Delta C_M = (\pi/8) (c/Bh)^2 \delta_1 C_L$ the constants δ_0 and δ_1 for A.R.A. tunnel [4] have been derived testing at same Re three models of the NPL 3111 (RAE 2815) section having chord lengths of 3", 5" and 7"; $\delta_0 = -0.03$, $\delta_1 = 0.11$ (A.R.A.)						
6.2.6 references on wall interference correction	[4], [6]						
6.3 Presentation of data							
6.3.1 aerodynamic coefficients	C_L , C_M and C_D see Tables 8.4a (A.R.A.) and 8.4b (P.T.)						
6.3.2 surface pressures	C_p and p/p_0 vs. x/c see Tables 8.5 (A.R.A.), 8.6 (P.T.) and Figs. 8.6 (A.R.A.-P.T.); 8.7 (A.R.A.), 8.8 (P.T.)						

- 6.3.3 pressures on boundaries See Table 8.7 and Fig. 8.8 (P.T.)
- 6.3.4 wall interference corrections included? No (A.R.A.-P.T.)
- 6.3.5 corrections for model deflection No (A.R.A.-P.T.)
- 6.3.6 empty test section calibration taken into account? No (A.R.A.-P.T.)
- 6.3.7 other corrections included? No (A.R.A.-P.T.)
- 6.3.8 additional remarks
- Wall interference corrections for A.R.A. data can be calculated by expressions given in 6.2.5;
 - wall interference corrections for P.T. data are not necessary for the assessment of computer programs if the actual boundary conditions, which are given, are used.
- 6.4 Were tests carried out in different facilities on the current airfoil? If so, what facilities. Are data included in the present data base? Yes, A.R.A. and P.T. wind tunnels; yes
- 6.5 To be contacted for further information on tests
- Mr. B.F.L. HAMMOND - A.R.A. Manton Lane, Bedford, MK41 7PF (England)
 Mr. M. ONORATO - Istituto di Meccanica Applicata Politecnico di Torino - C.so Duca degli Abruzzi, 24 - 10129 TORINO (Italy)

7. References

- [1] A. Eberle; P. Sacher: *MBB 4.02-4 Tragflügelentwurf für transsonische Strömungen*, 1973
- [2] B.F.L. Hammond: *A.R.A. Tests on Airfoil S 126/3*, 1974
- [3] C. Ferrari; G. Jarre; S. Nocilla: *La Ricerca Scientifica*, vol. 2, n. 2, 1963
- [4] B.F.L. Hammond: *Some Notes on Model Testing in the A.R.A. Two-Dimensional Facility*, A.R.A. Mem. n. 170, 1975
- [5] *Computation for Two-Dimensional Airfoils*, A.R.A. Mem. n. 73
- [6] H.C. Garner; E.W.E. Rogers; W.F.A. Acum; F.C. Maskell: *Subsonic Wind Tunnel Wall Corrections*, AGARDograph, 109, 1966

8. List of Symbols

- M_∞ free stream Mach number
 U flow velocity
 p local static pressure
 p_∞ free stream static pressure
 p_0 free stream total pressure
 $\Delta p = p_{\text{true}} - p_{\text{measured}}$
 q dynamic pressure
 q_∞ free stream dynamic pressure
 Re Reynolds number based on model chord
 $C_p = (p - p_\infty) / q_\infty$ pressure coefficient
 C_L lift coefficient
 C_N normal force coefficient
 C_M pitching moment coefficient (0.25 c)
 C_D drag coefficient
 c airfoil chord
 h tunnel height
 x/c nondimensional streamwise coordinate; origin L.E.
 z/c nondimensional ordinate of the airfoil contour
 α angle of attack, deg
 $\beta = \sqrt{1 - M_\infty^2}$
 δ boundary layer thickness
 δ^* boundary layer displacement thickness

Subscripts

- u upper contour
 l lower contour
 t thickness
 c chamber
 e external flow

Table 8.1

MBB-A3 - THEORETICAL CONTOUR

x/c	z_u/c	z_l/c	z_t/c	z_c/c
0.002500	0.009472	-0.003676	0.006574	0.002898
0.007500	0.015110	-0.005750	0.010430	0.004680
0.012500	0.018602	-0.007000	0.012801	0.005801
0.017500	0.021271	-0.008040	0.0146555	0.0066155
0.022500	0.023441	-0.008880	0.0161605	0.0072805
0.027500	0.025271	-0.009590	0.0174305	0.0078405
0.032500	0.026860	-0.010215	0.0185375	0.0083225
0.037500	0.028280	-0.010776	0.019528	0.008752
0.042500	0.029574	-0.011290	0.020432	0.009142
0.048000	0.030889	-0.011819	0.021354	0.009535
0.054050	0.032229	-0.012380	0.0223045	0.0099245
0.060700	0.033593	-0.012992	0.0232925	0.0103005
0.068050	0.034991	-0.013666	0.0253285	0.0106625
0.076100	0.036412	-0.014401	0.0254065	0.0110055
0.084950	0.037847	-0.015203	0.026525	0.011322
0.094700	0.039313	-0.016077	0.027695	0.011618
0.105400	0.040803	-0.017024	0.0289135	0.0118895
0.117200	0.042312	-0.018051	0.0301815	0.0121305
0.130150	0.043834	-0.019151	0.0314925	0.0123415
0.144400	0.045361	-0.020327	0.032844	0.012517
0.160100	0.046890	-0.021576	0.035233	0.012657
0.177350	0.048399	-0.022886	0.0356425	0.0127565
0.196350	0.049878	-0.024248	0.037063	0.012815
0.217200	0.051306	-0.025636	0.038471	0.012835
0.240000	0.052654	-0.027015	0.0398345	0.0128195
0.265450	0.053916	-0.028370	0.041143	0.012773
0.290750	0.054934	-0.029509	0.0422215	0.0127125
0.316000	0.055728	-0.030421	0.0430745	0.0126535
0.341300	0.056308	-0.031096	0.043702	0.0126060
0.366550	0.056676	-0.031516	0.044096	0.012580
0.391850	0.056833	-0.031669	0.044251	0.012582
0.417100	0.056780	-0.031541	0.0441605	0.0126195
0.442400	0.056509	-0.031119	0.043814	0.012695
0.467650	0.056016	-0.030393	0.0432045	0.0128115
0.492900	0.055295	-0.029353	0.042324	0.012971
0.518200	0.054328	-0.027998	0.041163	0.013165
0.540950	0.053243	-0.026550	0.0398965	0.0133465
0.561400	0.052091	-0.025107	0.038599	0.013492
0.579850	0.050905	-0.023725	0.037315	0.013590
0.596400	0.049722	-0.022444	0.036083	0.013639
0.611350	0.048555	-0.021269	0.034912	0.013643
0.625000	0.047410	-0.020188	0.033799	0.013611
0.636850	0.046353	-0.019247	0.032800	0.013553
0.647750	0.045329	-0.018381	0.031855	0.013474
0.657550	0.044366	-0.017604	0.030985	0.013381
0.667300	0.043370	-0.016835	0.0301025	0.0132675
0.678100	0.042221	-0.015989	0.029105	0.013116
0.689950	0.040906	-0.015073	0.0279895	0.0129165
0.702950	0.039401	-0.014089	0.026745	0.012656
0.717300	0.037664	-0.013033	0.0253485	0.0123155
0.733050	0.035672	-0.011914	0.023793	0.011879
0.750400	0.033385	-0.010734	0.0220595	0.0113255
0.769500	0.030772	-0.009503	0.0201375	0.0106345
0.790500	0.027816	-0.008234	0.018025	0.009791
0.813550	0.024526	-0.006941	0.0157335	0.0087925
0.838950	0.020920	-0.005632	0.013276	0.007644
0.864350	0.017419	-0.004440	0.0109295	0.0064895
0.887200	0.014355	-0.003471	0.008913	0.005442
0.907800	0.011642	-0.002689	0.0071705	0.0044815
0.926300	0.009265	-0.002060	0.0056625	0.0036025
0.942050	0.007258	-0.001572	0.004415	0.002843
0.955400	0.005573	-0.001186	0.0033795	0.0021935
0.966750	0.004149	-0.000873	0.002511	0.001638
0.978100	0.002730	-0.000569	0.0016495	0.0010805
0.989450	0.001314	-0.000273	0.0007935	0.0005205
1.000000	0.000000	0.000000	0.000000	0.000000

Table 8.2

ACTUAL MODEL CO-ORDINATES AND ACCURACY

x/c	z_u/c	$\Delta z_u/c$	z_l/c	$\Delta z_l/c$
0.08477	0.03784	0.00008	0.01517	± 0.00000
0.10518	0.04081	0.00010	0.01690	-0.00008
0.12988	0.04371	-0.00002	0.01898	-0.00012
0.15976	0.04686	0.00008	0.02136	-0.00016
0.19594	0.04978	0.00002	0.02391	-0.00028
0.23950	0.05253	± 0.00000	0.02662	-0.00032
0.29014	0.05473	-0.00008	0.02900	-0.00044
0.34058	0.05616	-0.00002	0.03048	-0.00054
0.39103	0.05670	± 0.00000	0.03099	-0.00060
0.44147	0.05640	0.00002	0.03038	-0.00068
0.49187	0.05520	0.00004	0.02868	-0.00060
0.53982	0.05323	0.00010	0.02589	-0.00050
0.57863	0.05085	0.00006	0.02315	-0.00052
0.61007	0.04858	0.00014	0.02070	-0.00052
0.63552	0.04626	0.00002	0.01880	-0.00040
0.65617	0.04431	0.00004	0.01710	-0.00046
0.67668	0.04217	0.00004	0.01549	-0.00046
0.70148	0.03932	± 0.00000	0.01359	-0.00046
0.73151	0.03561	0.00002	0.01132	-0.00056
0.76789	0.03070	± 0.00000	0.00898	-0.00050
0.81185	0.02451	0.00004	0.00643	-0.00050
0.86254	0.01744	0.00008	0.00391	-0.00052
0.90590	0.01158	-0.00004	0.00220	-0.00048
0.94008	0.00726	0.00004	0.00106	-0.00050
0.96472	0.00417	0.00004	0.00040	-0.00046
0.98738	0.00136	0.00006	0.00012	-0.00014

Table 8.3

MBB-A3 - PRESSURE POINT POSITIONS

Upper Surface		Lower Surface	
n.	x/c	n.	x/c
1	0.0004	1	0.0000 (Leading Edge)
2	0.0037	2	0.0009
3	0.0065	3	0.0031
4	0.0109	4	0.0053
5	0.0154	5	0.0114
6	0.0200	6	0.0190
7	0.0305	7	0.0495
8	0.0506	8	0.0997
9	0.0753	9	0.1471
10	0.1005	10	0.1988
11	0.1495	11	0.2989
12	0.2003	12	0.3998
13	0.2498	13	0.4990
14	0.2992	14	0.5986
15	0.3498	15	0.7286
16	0.4002	16	0.8680
17	0.4499	17	0.9484
18	0.4983		
19	0.5493		
20	0.5994		
21	0.6487		
22	0.7196		
23	0.8001		
24	0.8483		
25	0.9283		
26	1.0000 (Trailing Edge)		

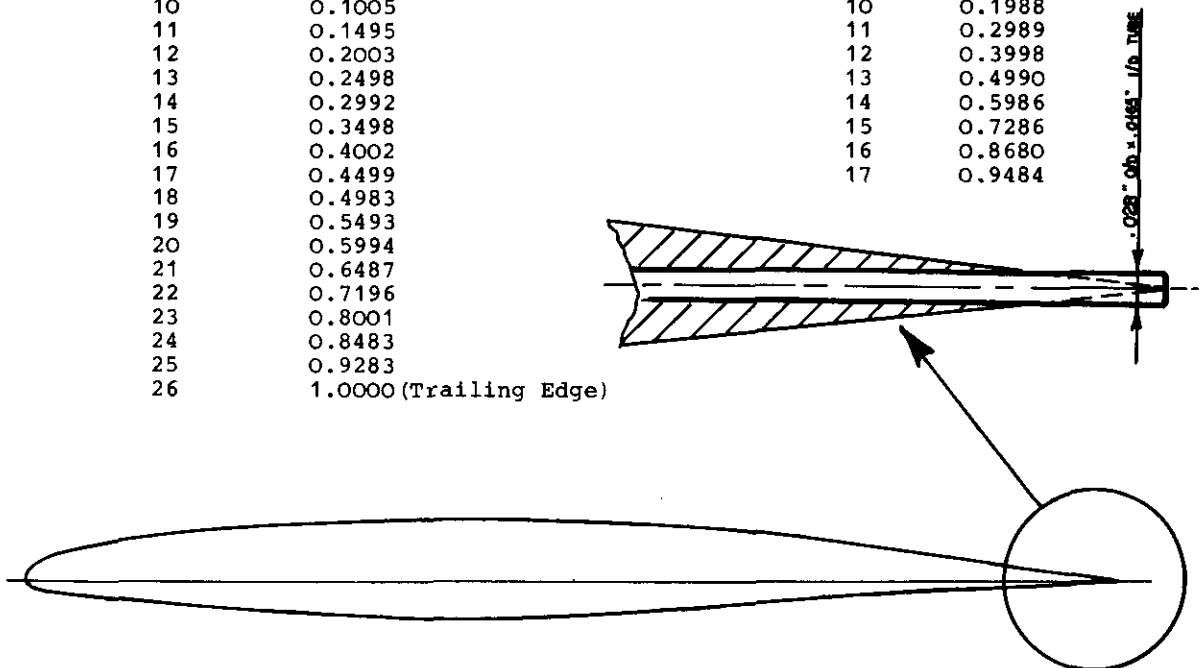


Table 8.4a

FLOW CONDITIONS INCLUDED
 MBB-A3 Airfoil A.R.A. Bedford Tunnel

Run	M_∞	α°	$Re \times 10^{-6}$ based on chord	C_L	C_M (0.25c)	C_D
84	0.700	2.01	6.08	0.501	-0.0494	0.00785
86	0.700	3.02	6.26	0.649	-0.0455	0.00877
88	0.699	4.01	6.21	0.841	-0.0393	0.01561
93	0.698	5.00	6.17	1.003	-0.0414	0.03085
94	0.698	5.49	6.17	1.024	-0.0405	0.03720
4	0.750	1.71	6.18	0.512	-0.0566	0.00831
13	0.755	1.89	6.01	0.553	-0.0562	0.00818
17	0.759	1.50	6.00	0.487	-0.0578	0.00780
18	0.760	1.89	6.01	0.564	-0.0577	0.00803
22	0.760	2.21	6.01	0.626	-0.0583	0.00870
23	0.760	2.75	6.00	0.734	-0.0643	0.01518
24	0.758	3.73	5.98	0.880	-0.0851	0.04110
25	0.761	4.74	6.00	0.920	-0.1039	0.06458
16	0.765	1.89	6.00	0.574	-0.0597	0.00832
44	0.771	1.90	6.09	0.594	-0.0648	0.00952
100	0.798	2.01	6.20	0.641	-0.0992	0.02744
106	0.801	5.01	6.13	0.837	-0.1174	0.07859
113	0.850	2.01	6.08	0.515	-0.1165	0.03236
118	0.851	4.47	6.12	0.716	-0.1227	0.05897

Table 8.4b

FLOW CONDITIONS INCLUDED
 MBB-A3 Airfoil - Polytechnic of Turin Tunnel

Run	M_∞	α°	$Re \times 10^{-6}$ based on chord	C_N	C_M (0.25c)	Transition trip ($^\circ$)	Boundary conditions
P33	0.751	1.12	0.400	0.368	-0.0484	no	yes
P36	0.768	2.25	0.406	0.483	-0.0413	no	yes
P96	0.759	2.83	0.403	0.566	-0.0380	yes	yes
P97	0.759	3.48	0.403	0.618	-0.0369	yes	yes
P37	0.754	4.61	0.401	0.712	-0.0343	no	yes
P78	0.765	4.61	0.405	0.783	-0.0497	yes	no
P39	0.802	1.30	0.419	0.399	-0.0614	no	yes
P99	0.795	2.00	0.414	0.511	-0.0593	yes	yes
P40	0.793	2.90	0.414	0.562	-0.0568	no	yes
P108	0.797	3.90	0.416	0.685	-0.0656	yes	yes
P41	0.799	5.43	0.419	0.704	-0.0617	no	yes
P81	0.800	5.43	0.419	0.754	-0.0720	yes	no
P100	0.849	0.80	0.434	0.375	-0.0871	yes	yes
P13	0.848	1.77	0.433	0.355	-0.0791	no	no
P82	0.851	1.77	0.436	0.419	-0.0772	yes	no
P109	0.842	2.00	0.432	0.521	-0.0910	yes	yes
P102	0.841	3.20	0.432	0.592	-0.0841	yes	yes
P85	0.855	4.18	0.438	0.619	-0.0831	yes	no

($^\circ$) Transition trip device: ballotini, average diameter 0.2mm, position $x/c = 0.28 \div 0.30$ on upper surface, $x/c = 0.39 \div 0.41$ on lower surface.
 The location of transition has not been verified. Transition likely occurs close to the leading edge for the A.R.A. tests and at the position of the tripping device (may be in some cases near downstream) for the P.T. tests.
 The different location of transition between A.R.A. and P.T. experiments may explain the adverse Reynolds number effect on separation shown in Fig. 8.6.

Table 8.5

SURFACE PRESSURE DISTRIBUTION - A.R.A. BEDFORD

Run	84		86		88		93		94	
M_∞	0.700		0.700		0.699		0.698		0.698	
α°	2.01		3.02		4.01		5.00		5.49	
x/c										
Upper	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀
1.000	0.103	.7462	0.102	.7460	0.099	.7461	0.083	.7427	0.068	.7391
0.928	0.060	.7355	0.056	.7345	0.052	.7345	0.042	.7324	0.028	.7292
0.848	-0.044	.7099	-0.052	.7080	-0.057	.7075	-0.064	.7062	-0.078	.7031
0.800	-0.116	.6921	-0.125	.6897	-0.131	.6895	-0.130	.6902	-0.142	.6876
0.720	-0.272	.6533	-0.288	.6495	-0.294	.6491	-0.275	.6545	-0.280	.6534
0.649	-0.397	.6225	-0.421	.6166	-0.425	.6168	-0.382	.6280	-0.383	.6281
0.599	-0.468	.6049	-0.501	.5969	-0.501	.5980	-0.437	.6145	-0.437	.6147
0.549	-0.538	.5900	-0.569	.5799	-0.564	.5826	-0.448	.6117	-0.445	.6128
0.498	-0.564	.5811	-0.614	.5689	-0.589	.5764	-0.482	.6033	-0.518	.5949
0.450	-0.587	.5755	-0.646	.5609	-0.584	.5777	-0.712	.5467	-0.776	.5314
0.400	-0.595	.5734	-0.661	.5573	-0.552	.5855	-0.902	.4999	-0.939	.4911
0.350	-0.612	.5693	-0.681	.5522	-0.564	.5824	-1.606	.3265	-1.366	.3861
0.299	-0.622	.5669	-0.686	.5509	-1.149	.4382	-1.631	.3202	-1.682	.3083
0.250	-0.658	.5580	-0.698	.5480	-1.462	.3610	-1.637	.3188	-1.694	.3053
0.200	-0.670	.5549	-0.558	.5828	-1.511	.3489	-1.672	.3102	-1.723	.2984
0.150	-0.722	.5419	-1.191	.4261	-1.512	.3487	-1.673	.3100	-1.726	.2975
0.101	-0.805	.5215	-1.324	.3933	-1.566	.3353	-1.719	.2985	-1.772	.2862
0.075	-0.838	.5132	-1.346	.3876	-1.568	.3349	-1.731	.2957	-1.786	.2829
0.051	-1.058	.4589	-1.393	.3761	-1.635	.3182	-1.792	.2805	-1.845	.2683
0.031	-1.062	.4578	-1.363	.3834	-1.600	.3268	-1.744	.2923	-1.797	.2801
0.020	-0.856	.5089	-1.286	.4025	-1.519	.3469	-1.669	.3108	-1.720	.2991
0.015	-0.817	.5184	-1.218	.4195	-1.441	.3661	-1.595	.3292	-1.650	.3162
0.011	-0.566	.5806	-0.871	.5052	-1.117	.4460	-1.289	.4045	-1.351	.3897
0.007	-0.182	.6757	-0.465	.6058	-0.694	.5505	-0.888	.5034	-0.959	.4864
0.004	0.221	.7754	-0.029	.7136	-0.247	.6607	-0.421	.6183	-0.485	.6029
0.0004	0.958	.9578	0.801	.9188	0.616	.8736	0.466	.8370	0.410	.8234
Lower										
0.000	1.125	.9990	1.121	.9981	1.060	.9832	0.957	.9580	0.910	.9463
0.001	0.877	.9376	1.044	.9790	1.116	.9969	1.127	.9997	1.126	.9996
0.003	0.421	.8248	0.726	.9004	0.921	.9489	1.022	.9739	1.049	.9806
0.005	0.444	.8306	0.708	.8960	0.864	.9348	0.958	.9581	0.986	.9650
0.011	0.307	.7966	0.520	.8494	0.682	.8900	0.789	.9164	0.822	.9247
0.019	0.246	.7816	0.434	.8281	0.584	.8659	0.688	.8916	0.716	.8988
0.050	0.236	.7790	0.361	.8100	0.472	.8381	0.550	.8575	0.574	.8637
0.100	0.172	.7633	0.269	.7873	0.360	.8105	0.425	.8269	0.445	.8319
0.147	0.098	.7450	0.184	.7664	0.269	.7879	0.328	.8030	0.346	.8077
0.199	0.035	.7294	0.114	.7489	0.191	.7688	0.246	.7828	0.262	.7869
0.299	-0.067	.7040	0.001	.7210	0.071	.7391	0.120	.7517	0.132	.7548
0.400	-0.111	.6932	-0.053	.7077	0.007	.7233	0.048	.7340	0.056	.7363
0.499	-0.120	.6910	-0.074	.7025	-0.025	.7156	0.008	.7241	0.013	.7255
0.599	0.002	.7211	0.034	.7293	0.071	.7392	0.094	.7453	0.094	.7456
0.729	0.106	.7470	0.128	.7524	0.152	.7593	0.166	.7630	0.163	.7624
0.868	0.155	.7591	0.168	.7622	0.183	.7668	0.189	.7686	0.182	.7671
0.948	0.178	.7647	0.185	.7664	0.195	.7697	0.195	.7702	0.185	.7680
Run	4		13		17		18		22	
M_∞	0.750		0.755		0.759		0.760		0.760	
α°	1.71		1.89		1.50		1.89		2.21	
x/c										
Upper	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀
1.000	0.119	.7208	0.120	.7180	0.120	.7156	0.121	.7153	0.122	.7154
0.928	0.067	.7067	0.069	.7041	0.071	.7020	0.072	.7016	0.072	.7018
0.848	-0.032	.6800	-0.029	.6770	-0.027	.6752	-0.027	.6743	-0.026	.6746
0.800	-0.112	.6583	-0.111	.6547	-0.107	.6529	-0.109	.6518	-0.108	.6522
0.720	-0.278	.6133	-0.278	.6090	-0.274	.6070	-0.277	.6056	-0.271	.6071
0.649	-0.420	.5747	-0.418	.5707	-0.413	.5687	-0.417	.5668	-0.400	.5714
0.599	-0.517	.5485	-0.521	.5426	-0.515	.5405	-0.519	.5387	-0.479	.5497
0.549	-0.611	.5231	-0.618	.5159	-0.609	.5148	-0.609	.5139	-0.502	.5435
0.498	-0.633	.5172	-0.646	.5082	-0.650	.5034	-0.593	.5184	-0.601	.5162
0.450	-0.685	.5028	-0.688	.4968	-0.701	.4894	-0.698	.4894	-0.972	.4137
0.400	-0.687	.5023	-0.627	.5136	-0.657	.5016	-0.826	.4541	-0.972	.4138
0.350	-0.659	.5099	-0.786	.4700	-0.682	.4946	-0.865	.4433	-0.985	.4100
0.299	-0.663	.5090	-0.876	.4454	-0.729	.4816	-0.888	.4369	-0.968	.4147
0.250	-0.805	.4704	-0.860	.4497	-0.798	.4628	-0.877	.4400	-0.949	.4202
0.200	-0.802	.4712	-0.887	.4423	-0.786	.4659	-0.894	.4351	-0.974	.4131
0.150	-0.792	.4741	-0.857	.4506	-0.748	.4764	-0.856	.4457	-0.940	.4224
0.101	-0.817	.4673	-0.889	.4418	-0.730	.4815	-0.882	.4386	-0.958	.4175

Table 8.5 (contd.)

x/c	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0
Upper										
0.075	-0.866	.4540	-0.905	.4374	-0.764	.4721	-0.892	.4357	-0.962	.4164
0.051	-0.933	.4358	-0.948	.4257	-0.845	.4493	-0.930	.4252	-0.985	.4100
0.031	-0.773	.4791	-0.788	.4695	-0.688	.4930	-0.770	.4693	-0.835	.4514
0.020	-0.626	.5188	-0.651	.5068	-0.535	.5351	-0.633	.5074	-0.712	.4854
0.015	-0.595	.5273	-0.626	.5137	-0.496	.5459	-0.606	.5146	-0.698	.4893
0.011	-0.351	.5936	-0.373	.5829	-0.260	.6108	-0.356	.5835	-0.431	.5630
0.007	0.038	.6990	0.017	.6898	0.113	.7135	0.033	.6910	-0.035	.6722
0.004	0.414	.8010	0.395	.7932	0.487	.8166	0.408	.7945	0.341	.7761
0.0004	1.061	.9764	1.054	.9734	1.089	.9824	1.059	.9741	1.033	.9668
Lower										
0.000	1.144	.9987	1.148	.9992	1.142	.9971	1.151	.9993	1.151	.9993
0.001	0.762	.8953	0.804	.9051	0.695	.8738	0.799	.9023	0.885	.9260
0.003	0.257	.7584	0.318	.7722	0.159	.7262	0.312	.7678	0.420	.7977
0.005	0.319	.7750	0.369	.7859	0.243	.7495	0.362	.7819	0.449	.8058
0.011	0.214	.7466	0.257	.7554	0.156	.7254	0.254	.7520	0.324	.7713
0.019	0.163	.7328	0.198	.7391	0.111	.7130	0.197	.7362	0.262	.7543
0.050	0.188	.7396	0.215	.7440	0.159	.7263	0.215	.7413	0.256	.7526
0.100	0.134	.7251	0.158	.7282	0.115	.7141	0.158	.7254	0.190	.7343
0.147	0.060	.7049	0.080	.7069	0.042	.6940	0.080	.7040	0.109	.7121
0.199	0.010	.6915	0.028	.6927	-0.008	.6804	0.028	.6896	0.055	.6970
0.299	-0.097	.6623	-0.073	.6651	-0.113	.6515	-0.082	.6594	-0.057	.6660
0.400	-0.142	.6502	-0.131	.6492	-0.160	.6385	-0.132	.6454	-0.110	.6514
0.499	-0.141	.6504	-0.131	.6493	-0.153	.6403	-0.131	.6456	-0.114	.6504
0.599	-0.011	.6857	-0.004	.6840	-0.018	.6775	-0.003	.6810	0.009	.6844
0.729	0.100	.7158	0.106	.7140	0.097	.7093	0.107	.7115	0.115	.7137
0.868	0.165	.7334	0.162	.7295	0.159	.7262	0.165	.7273	0.171	.7291
0.948	0.189	.7398	0.190	.7372	0.190	.7348	0.194	.7353	0.198	.7366
Run	23		24		25		16		44	
M_∞	0.760		0.758		0.761		0.765		0.771	
α°	2.75		3.73		4.74		1.89		1.90	
x/c	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0
Upper										
1.000	0.115	.7140	0.050	.6973	-0.137	.6437	0.123	.7131	0.123	.7095
0.928	0.073	.7040	0.004	.6846	-0.248	.6130	0.074	.6995	0.079	.6969
0.848	-0.019	.6769	-0.115	.6521	-0.381	.5765	-0.025	.6721	-0.019	.6696
0.800	-0.092	.6568	-0.195	.6301	-0.445	.5586	-0.106	.6495	-0.096	.6480
0.720	-0.231	.6185	-0.352	.5869	-0.537	.5333	-0.271	.6037	-0.250	.6046
0.649	-0.329	.5915	-0.505	.5449	-0.607	.5140	-0.406	.5662	-0.357	.5745
0.599	-0.386	.5757	-0.552	.5319	-0.629	.5080	-0.495	.5416	-0.398	.5632
0.549	-0.710	.4866	-0.713	.4876	-0.662	.4989	-0.540	.5291	-0.807	.4482
0.498	-1.135	.3694	-1.260	.3373	-0.694	.4901	-0.707	.4827	-0.949	.4083
0.450	-1.143	.3672	-1.282	.3313	-0.776	.4673	-0.859	.4404	-0.934	.4125
0.400	-1.116	.3746	-1.247	.3410	-1.027	.3982	-0.877	.4352	-0.905	.4208
0.350	-1.090	.3816	-1.224	.3474	-1.251	.3361	-0.901	.4287	-0.912	.4186
0.299	-1.077	.3854	-1.209	.3514	-1.283	.3275	-0.894	.4306	-0.901	.4217
0.250	-1.068	.3877	-1.202	.3535	-1.277	.3291	-0.879	.4348	-0.878	.4283
0.200	-1.084	.3833	-1.215	.3498	-1.291	.3252	-0.893	.4309	-0.889	.4252
0.150	-1.051	.3925	-1.184	.3582	-1.264	.3325	-0.851	.4424	-0.844	.4378
0.101	-1.057	.3910	-1.197	.3547	-1.278	.3288	-0.872	.4368	-0.857	.4341
0.075	-1.059	.3904	-1.191	.3563	-1.270	.3309	-0.879	.4348	-0.861	.4330
0.051	-1.068	.3878	-1.212	.3505	-1.303	.3218	-0.914	.4249	-0.892	.4244
0.031	-0.941	.4228	-1.124	.3748	-1.220	.3449	-0.754	.4696	-0.733	.4691
0.020	-0.879	.4399	-1.083	.3860	-1.174	.3574	-0.616	.5080	-0.596	.5073
0.015	-0.850	.4480	-1.029	.4007	-1.117	.3731	-0.588	.5156	-0.566	.5159
0.011	-0.550	.5307	-0.702	.4907	-0.789	.4639	-0.339	.5847	-0.295	.5920
0.007	-0.146	.6420	-0.298	.6018	-0.390	.5740	0.048	.6924	0.059	.6916
0.004	0.243	.7491	0.095	.7098	0.003	.6824	0.420	.7958	0.434	.7967
0.0004	0.982	.9530	0.899	.9304	0.831	.9112	1.064	.9748	1.071	.9756
Lower										
0.000	1.150	.9993	1.141	.9971	1.117	.9899	1.152	.9991	1.154	.9990
0.001	0.967	.9487	1.066	.9764	1.111	.9884	0.794	.8998	0.788	.8961
0.003	0.575	.8407	0.760	.8925	0.869	.9215	0.340	.7636	0.298	.7586
0.005	0.574	.8405	0.743	.8876	0.825	.9093	0.358	.7785	0.352	.7738
0.011	0.434	.8018	0.569	.8398	0.649	.8609	0.251	.7488	0.248	.7444
0.019	0.358	.7810	0.481	.8156	0.555	.8348	0.194	.7329	0.193	.7291
0.050	0.322	.7710	0.408	.7956	0.462	.8091	0.214	.7386	0.214	.7349
0.100	0.241	.7487	0.309	.7685	0.351	.7785	0.158	.7229	0.158	.7192
0.147	0.156	.7253	0.219	.7436	0.255	.7521	0.080	.7014	0.080	.6973
0.199	0.098	.7093	0.154	.7259	0.186	.7331	0.028	.6867	0.028	.6828
0.299	-0.019	.6769	0.028	.6913	0.051	.6957	-0.082	.6562	-0.086	.6507
0.400	-0.076	.6612	-0.038	.6732	-0.025	.6748	-0.133	.6420	-0.132	.6378
0.499	-0.087	.6583	-0.060	.6671	-0.059	.6654	-0.133	.6422	-0.132	.6378

Table 8.5 (contd.)

Table 8.5 (contd.)										
x/c Upper	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀
0.599	0.028	.6899	0.042	.6952	0.034	.6911	-0.003	.6783	0.000	.6747
0.729	0.127	.7172	0.129	.7191	0.109	.7118	0.108	.7092	0.112	.7064
0.868	0.178	.7313	0.166	.7293	0.127	.7166	0.166	.7252	0.171	.7230
0.948	0.202	.7379	0.173	.7311	0.098	.7088	0.196	.7335	0.203	.7317
Run	100		106		113		118			
M _∞	0.798		0.801		0.850		0.851			
α°	2.01		5.01		2.01		4.47			
x/c Upper	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀		
1.000	0.095	.6854	-0.341	.5554	-0.167	.5707	-0.387	.5009		
0.928	0.030	.6665	-0.474	.5161	-0.274	.5367	-0.474	.4736		
0.848	-0.122	.6220	-0.550	.4937	-0.326	.5203	-0.496	.4666		
0.800	-0.214	.5950	-0.568	.4886	-0.347	.5138	-0.506	.4635		
0.720	-0.369	.5497	-0.580	.4851	-0.388	.5008	-0.516	.4604		
0.649	-0.533	.5016	-0.596	.4803	-0.784	.3760	-0.534	.4548		
0.599	-1.055	.3485	-0.592	.4814	-0.910	.3360	-0.702	.4017		
0.549	-1.011	.3615	-0.611	.4760	-0.861	.3517	-0.990	.3107		
0.498	-0.972	.3730	-0.644	.4662	-0.822	.3639	-1.011	.3042		
0.450	-0.924	.3869	-0.767	.4300	-0.780	.3771	-0.973	.3161		
0.400	-0.906	.3922	-1.102	.3314	-0.738	.3902	-0.932	.3290		
0.350	-0.887	.3979	-1.129	.3234	-0.716	.3972	-0.903	.3383		
0.299	-0.848	.4092	-1.105	.3306	-0.682	.4079	-0.874	.3472		
0.250	-0.826	.4158	-1.101	.3317	-0.651	.4177	-0.859	.3521		
0.200	-0.829	.4148	-1.105	.3304	-0.634	.4232	-0.854	.3535		
0.150	-0.772	.4315	-1.069	.3412	-0.562	.4459	-0.808	.3681		
0.101	-0.781	.4289	-1.077	.3388	-0.530	.4559	-0.799	.3709		
0.075	-0.763	.4340	-1.053	.3459	-0.508	.4628	-0.775	.3787		
0.051	-0.790	.4262	-1.070	.3409	-0.537	.4539	-0.773	.3793		
0.031	-0.697	.4535	-1.015	.3570	-0.452	.4805	-0.689	.4057		
0.020	-0.477	.5178	-0.928	.3828	-0.212	.5565	-0.560	.4463		
0.015	-0.418	.5351	-0.853	.4047	-0.137	.5800	-0.508	.4627		
0.011	-0.194	.6008	-0.558	.4914	0.061	.6425	-0.242	.5467		
0.007	0.144	.6998	-0.193	.5987	0.376	.7420	0.090	.6516		
0.004	0.507	.8060	0.186	.7102	0.704	.8454	0.433	.7598		
0.0004	1.090	.9768	0.903	.9212	1.169	.9920	1.054	.9558		
Lower										
0.000	1.164	.9984	1.166	.9987	1.156	.9881	1.192	.9993		
0.001	0.747	.8763	1.074	.9716	0.575	.8046	0.966	.9279		
0.003	0.240	.7279	0.766	.8810	-0.051	.6072	0.547	.7957		
0.005	0.309	.7479	0.749	.8760	0.090	.6516	0.565	.8013		
0.011	0.213	.7199	0.580	.8263	0.048	.6383	0.433	.7597		
0.019	0.173	.7082	0.499	.8024	0.031	.6329	0.372	.7405		
0.050	0.205	.7176	0.427	.7811	0.125	.6628	0.347	.7326		
0.100	0.157	.7036	0.328	.7521	0.100	.6549	0.269	.7081		
0.147	0.084	.6821	0.235	.7247	0.028	.6320	0.180	.6800		
0.199	0.018	.6629	0.152	.7002	-0.040	.6105	0.098	.6541		
0.299	-0.097	.6291	0.010	.6587	-0.180	.5664	-0.053	.6064		
0.400	-0.152	.6131	-0.079	.6324	-0.267	.5389	-0.159	.5729		
0.499	-0.154	.6124	-0.126	.6185	-0.258	.5417	-0.210	.5569		
0.599	-0.007	.6555	-0.016	.6509	-0.065	.6028	-0.062	.6037		
0.729	0.114	.6910	0.067	.6754	0.070	.6452	0.041	.6361		
0.868	0.167	.7066	0.057	.6725	0.104	.6560	0.037	.6347		
0.948	0.186	.7120	-0.009	.6530	0.069	.6451	-0.025	.6153		

Table 8.6

SURFACE PRESSURE DISTRIBUTION - POLYTECHNIC OF TURIN (P.T.)

Run	P33		P36		P96		P97		P37	
M_{∞}	0.751		0.768		0.759		0.759		0.754	
α°	1.12		2.25		2.83		3.48		4.61	
x/c										
Upper	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀
1.000	0.143	.7268	0.136	.7149	0.107	.7120	0.107	.7120	0.090	.7103
0.928	0.083	.7105	0.077	.6984	0.051	.6966	0.049	.6961	0.043	.6976
0.848	0.000	.6880	-0.013	.6731	-0.035	.6729	-0.035	.6729	-0.036	.6760
0.800	-0.060	.6717	-0.082	.6538	-0.103	.6541	-0.102	.6545	-0.093	.6605
0.720	-0.334	.5974	-0.215	.6167	-0.247	.6145	-0.237	.6174	-0.205	.6299
0.649	-0.476	.5587	-0.366	.5744	-0.359	.5835	-0.345	.5874	-0.296	.6050
0.599	-0.507	.5503	-0.529	.5289	-0.428	.5647	-0.402	.5720	-0.357	.5885
0.549	-0.537	.5423	-0.558	.5209	-0.461	.5555	-0.430	.5642	-0.462	.5598
0.498	-0.568	.5339	-0.696	.4824	-0.487	.5483	-0.480	.5502	-0.744	.4827
0.450	-0.593	.5269	-0.734	.4716	-0.608	.5150	-0.696	.4908	-1.026	.4056
0.400	-0.612	.5218	-0.761	.4641	-0.833	.4532	-0.952	.4203	-1.083	.3901
0.350	-0.623	.5190	-0.802	.4528	-0.931	.4261	-1.026	.4000	-1.100	.3854
0.299	-0.633	.5162	-0.852	.4387	-	-	-	-	-1.133	.3764
0.250	-0.650	.5115	-0.879	.4312	-	-	-	-	-1.200	.3581
0.200	-0.659	.5092	-0.877	.4317	-0.963	.4174	-1.052	.3928	-1.240	.3473
0.150	-0.657	.5096	-0.852	.4387	-1.005	.4058	-1.078	.3855	-1.235	.3487
0.101	-0.645	.5129	-0.849	.4396	-1.020	.4015	-1.091	.3822	-1.240	.3473
0.075	-0.633	.5162	-0.849	.4396	-1.022	.4010	-1.091	.3822	-1.235	.3487
0.051	-0.652	.5110	-0.857	.4373	-1.024	.4005	-1.084	.3841	-1.228	.3506
0.031	-0.550	.5386	-0.723	.4749	-0.903	.4338	-0.957	.4189	-1.130	.3774
0.020	-0.430	.5713	-0.600	.5092	-0.800	.4623	-0.871	.4425	-1.056	.3976
0.015	-0.337	.5965	-0.509	.5345	-0.717	.4850	-0.780	.4676	-0.963	.4230
0.011	-0.143	.6493	-0.307	.5909	-0.505	.5435	-0.572	.5251	-0.730	.4865
0.007	0.193	.7403	0.042	.6886	-0.149	.6415	-0.217	.6227	-0.362	.5871
0.004	0.568	.8422	0.439	.7994	0.249	.7511	0.188	.7342	0.086	.7094
0.0004	1.097	.9860	1.064	.9741	0.959	.9467	0.933	.9395	0.878	.9257
Lower										
0.000	1.080	.9813	1.112	.9878	1.071	.9776	1.080	.9800	1.095	.9850
0.001	0.521	.8295	0.739	.8835	0.861	.9197	0.926	.9375	1.033	.9680
0.003	0.017	.6927	0.313	.7642	0.505	.8216	0.600	.8477	0.760	.8933
0.005	0.045	.7002	0.292	.7586	0.466	.8110	0.545	.8327	0.673	.8698
0.011	0.026	.6950	0.224	.7393	0.354	.7801	0.417	.7975	0.558	.8382
0.019	0.007	.6899	0.176	.7261	0.288	.7618	0.351	.7791	0.462	.8119
0.050	0.064	.7053	0.156	.7205	0.233	.7468	0.274	.7579	0.358	.7837
0.100	0.028	.6955	0.097	.7041	0.160	.7265	0.196	.7366	0.260	.7569
0.147	-0.036	.6782	0.030	.6853	0.080	.7048	0.110	.7130	0.167	.7315
0.199	-0.091	.6633	-0.035	.6670	0.014	.6864	0.040	.6937	0.088	.7099
0.299	-0.188	.6371	-0.145	.6364	-0.088	.6584	-0.065	.6647	-0.038	.6755
0.400	-0.227	.6264	-0.198	.6214	-	-	-	-	-0.115	.6544
0.499	-0.184	.6381	-0.168	.6299	-0.116	.6507	-0.105	.6536	-0.115	.6544
0.599	-0.120	.6554	-0.097	.6496	-0.037	.6724	-0.030	.6743	-0.041	.6746
0.729	0.028	.6955	-0.005	.6754	0.075	.7033	0.079	.7043	0.021	.6915
0.868	0.153	.7296	0.158	.7210	0.119	.7154	0.123	.7164	0.152	.7273
0.948	0.157	.7305	0.158	.7210	0.124	.7168	0.126	.7173	0.133	.7221
Run	P78		P39		P99		P40		P108	
M_{∞}	0.765		0.802		0.795		0.793		0.797	
α°	4.61		1.30		2.00		2.90		3.90	
x/c										
Upper	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀
1.000	0.065	.6968	0.151	.6992	0.126	.6961	0.103	.6907	0.046	.6715
0.928	0.016	.6829	0.103	.6851	0.074	.6808	0.061	.6785	-0.007	.6562
0.848	-0.056	.6630	0.024	.6616	-0.010	.6565	-0.021	.6546	-0.098	.6295
0.800	-0.109	.6482	-0.035	.6443	-0.070	.6388	-0.078	.6381	-0.162	.6109
0.720	-0.220	.6175	-0.337	.5552	-0.201	.6006	-0.229	.5940	-0.292	.5727
0.649	-0.330	.5867	-0.625	.4703	-0.352	.5567	-0.542	.5030	-0.437	.5302
0.599	-0.422	.5612	-0.640	.4660	-0.571	.4927	-0.793	.4302	-0.573	.4906
0.549	-0.554	.5243	-0.654	.4618	-0.835	.4159	-0.825	.4208	-0.780	.4299
0.498	-0.849	.4424	-0.673	.4562	-0.922	.3906	-0.828	.4199	-0.969	.3746
0.450	-1.141	.3610	-0.710	.4454	-0.918	.3915	-0.844	.4152	-1.010	.3626
0.400	-1.213	.3410	-0.754	.4323	-0.900	.3968	-0.877	.4058	-1.051	.3507
0.350	-1.255	.3293	-0.767	.4285	-0.886	.4011	-0.933	.3894	-1.087	.3402
0.299	-	-	-0.757	.4313	-	-	-0.945	.3861	-	-
0.250	-	-	-0.732	.4388	-	-	-0.925	.3917	-	-
0.200	-1.219	.3393	-0.698	.4487	-0.769	.4350	-0.909	.3964	-1.020	.3598
0.150	-1.212	.3415	-0.641	.4656	-0.756	.4388	-0.875	.4063	-1.007	.3636

Table 8.6 (contd.)

x/c Upper	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀
0.101	-1.210	.3419	-0.600	.4778	-0.733	.4455	-0.861	.4105	-0.992	.3679
0.075	-1.204	.3436	-0.565	.4881	-0.725	.4479	-0.849	.4138	-0.979	.3717
0.051	-1.198	.3454	-0.562	.4890	-0.725	.4479	-0.838	.4171	-0.960	.3774
0.031	-1.095	.3740	-0.431	.5275	-0.576	.4913	-0.707	.4551	-0.811	.4209
0.020	-1.025	.3935	-0.299	.5664	-0.453	.5271	-0.583	.4912	-0.723	.4466
0.015	-0.927	.4208	-0.204	.5946	-0.367	.5524	-0.496	.5166	-0.640	.4710
0.011	-0.701	.4836	-0.013	.6509	-0.170	.6097	-0.295	.5748	-0.429	.5326
0.007	-0.330	.5867	0.307	.7451	0.157	.7052	0.045	.6738	-0.095	.6304
0.004	0.089	.7033	0.655	.8479	0.517	.8102	0.439	.7883	0.291	.7431
0.0004	0.889	.9260	1.130	.9877	1.085	.9758	1.066	.9705	0.983	.9455
Lower										
0.000	1.112	.9880	1.088	.9755	1.108	.9825	1.124	.9874	1.100	.9798
0.001	1.051	.9711	0.471	.7935	0.674	.8560	0.793	.8911	0.919	.9269
0.003	0.776	.8944	-0.059	.6372	0.214	.7219	0.389	.7738	0.583	.8285
0.005	0.702	.8740	-0.016	.6499	0.229	.7262	0.357	.7644	0.542	.8166
0.011	0.578	.8393	-0.019	.6490	0.164	.7071	0.283	.7428	0.421	.7813
0.019	0.489	.8146	-0.029	.6462	0.126	.6961	0.229	.7273	0.354	.7617
0.050	0.382	.7847	0.029	.6630	0.129	.6971	0.197	.7179	0.286	.7416
0.100	0.282	.7570	0.016	.6593	0.088	.6851	0.142	.7020	0.206	.7183
0.147	0.188	.7310	-0.049	.6401	0.013	.6632	0.060	.6780	0.122	.6939
0.199	0.109	.7089	-0.110	.6222	-0.044	.6465	-0.016	.6560	0.049	.6724
0.299	-0.014	.6747	-0.217	.5903	-0.147	.6164	-0.136	.6212	-0.075	.6362
0.400	-	-	-0.262	.5772	-	-	-0.202	.6020	-	-
0.499	-0.072	.6586	-0.210	.5927	-0.156	.6140	-0.178	.6090	-0.127	.6209
0.599	-0.014	.6747	-0.153	.6096	-0.061	.6417	-0.102	.6311	-0.051	.6433
0.729	0.090	.7037	0.073	.6762	0.069	.6794	-0.024	.6536	0.065	.6772
0.868	0.121	.7124	0.161	.7020	0.128	.6966	0.152	.7048	0.104	.6887
0.948	0.111	.7093	0.169	.7043	0.141	.7004	0.139	.7010	0.093	.6853

Run	P41	P81	P100	P82	P13
M _∞	0.799	0.800	0.849	0.851	0.848
α°	5.43	5.43	0.80	1.77	1.77

x/c Upper	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀
1.000	-0.129	.6192	-0.169	.6063	0.098	.6552	0.000	.6229	-0.022	.6178
0.928	-0.183	.6031	-0.238	.5860	0.030	.6338	-0.082	.5971	-0.093	.5954
0.848	-0.244	.5852	-0.298	.5683	-0.085	.5977	-0.165	.5708	-0.190	.5649
0.800	-0.276	.5758	-0.328	.5597	-0.159	.5744	-0.206	.5579	-0.264	.5416
0.720	-0.345	.5556	-0.382	.5437	-0.316	.5249	-0.263	.5398	-0.444	.4849
0.649	-0.424	.5325	-0.441	.5264	-0.773	.3808	-0.406	.4946	-0.622	.4290
0.599	-0.498	.5108	-0.485	.5135	-0.903	.3399	-0.826	.3620	-0.637	.4243
0.549	-0.601	.4806	-0.567	.4893	-0.858	.3542	-0.904	.3374	-0.634	.4252
0.498	-0.781	.4279	-0.696	.4513	-0.802	.3718	-0.863	.3504	-0.638	.4239
0.450	-0.957	.3760	-0.915	.3870	-0.760	.3851	-0.816	.3654	-0.661	.4167
0.400	-1.001	.3633	-1.067	.3425	-0.716	.3989	-0.786	.3749	-0.715	.3997
0.350	-1.004	.3624	-1.071	.3412	-0.683	.4094	-0.765	.3814	-0.727	.3959
0.299	-1.023	.3567	-	-	-	-	-	-	-0.844	.3591
0.250	-1.079	.3402	-	-	-	-	-	-	-0.662	.4163
0.200	-1.134	.3242	-1.143	.3200	-0.530	.4574	-0.629	.4244	-0.627	.4273
0.150	-1.118	.3289	-1.125	.3252	-0.498	.4674	-0.580	.4399	-0.561	.4480
0.101	-1.105	.3327	-1.117	.3278	-0.443	.4850	-0.529	.4559	-0.510	.4641
0.075	-1.092	.3365	-1.102	.3321	-0.399	.4988	-0.499	.4653	-0.476	.4747
0.051	-1.071	.3426	-1.087	.3364	-0.370	.5078	-0.483	.4705	-0.458	.4806
0.031	-0.964	.3742	-0.981	.3675	-0.239	.5492	-0.348	.5131	0.323	.7262
0.020	-0.883	.3977	-0.908	.3891	-0.105	.5910	-0.210	.5566	0.187	.6835
0.015	-0.793	.4241	-0.817	.4159	-0.014	.6200	-0.115	.5867	0.092	.6534
0.011	-0.573	.4887	-0.598	.4802	0.168	.6771	0.070	.6449	0.094	.6543
0.007	-0.222	.5918	-0.247	.5834	0.453	.7670	0.380	.7430	0.404	.7516
0.004	0.194	.7139	0.154	.7013	0.755	.8621	0.709	.8468	0.738	.8567
0.0004	0.941	.9330	0.914	.9246	1.140	.9834	1.166	.9911	1.174	.9939
Lower										
0.000	1.128	.9876	1.118	.9846	1.054	.9563	1.118	.9760	1.122	.9778
0.001	1.036	.9608	1.046	.9634	0.341	.7318	0.514	.7852	0.509	.7847
0.003	0.758	.8792	0.771	.8827	-0.258	.5430	-0.031	.6130	-0.078	.6000
0.005	0.679	.8562	0.702	.8624	-0.174	.5696	0.023	.6302	-0.023	.6174
0.011	0.559	.8208	0.577	.8257	-0.148	.5777	0.022	.6298	-0.013	.6204
0.019	0.474	.7959	0.488	.7993	-0.134	.5820	0.016	.6281	-0.020	.6183
0.050	0.373	.7662	0.383	.7687	-0.033	.6139	0.063	.6427	0.040	.6373
0.100	0.275	.7374	0.286	.7402	-0.017	.6191	0.053	.6397	0.032	.6348
0.147	0.180	.7096	0.191	.7121	-0.076	.6005	-0.023	.6156	-0.035	.6136
0.199	0.093	.6842	0.106	.6871	-0.137	.5810	-0.089	.5949	-0.113	.5890
0.299	-0.056	.6404	-0.028	.6478	-0.234	.5506	-0.194	.5618	-0.250	.5458

Table 8.6 (contd.)

x/c Upper	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀
0.400	-0.154	.6116	-	-	-	-	-	-	-0.347	.5154
0.499	-0.167	.6079	-0.110	.6236	-0.396	.4997	-0.466	.4757	-0.318	.5246
0.599	-0.090	.6305	-0.056	.6396	-0.082	.5986	-0.097	.5923	-0.269	.5399
0.729	-0.024	.6498	0.038	.6672	0.056	.6419	0.049	.6384	0.036	.6360
0.868	0.074	.6785	0.038	.6672	0.115	.6605	0.089	.6509	0.106	.6581
0.948	0.016	.6616	-0.028	.6478	0.121	.6624	0.068	.6444	0.067	.6458

Run	P109	P102	P85
M _∞	0.842	0.841	0.855
α°	2.00	3.20	4.18

x/c Upper	C _p	p/p ₀	C _p	p/p ₀	C _p	p/p ₀
1.000	0.054	.6460	-0.019	.6229	-0.167	.5671
0.928	-0.017	.6239	-0.079	.6043	-0.233	.5461
0.848	-0.136	.5867	-0.176	.5739	-0.287	.5290
0.800	-0.219	.5608	-0.246	.5524	-0.318	.5192
0.720	-0.392	.5067	-0.398	.5051	-0.375	.5012
0.649	-0.656	.4244	-0.576	.4499	-0.438	.4811
0.599	-0.863	.3599	-0.745	.3971	-0.505	.4597
0.549	-0.935	.3374	-0.866	.3595	-0.825	.3583
0.498	-0.922	.3416	-0.907	.3469	-0.955	.3168
0.450	-0.890	.3515	-0.944	.3354	-0.965	.3138
0.400	-0.851	.3637	-0.939	.3368	-0.961	.3151
0.350	-0.822	.3726	-0.917	.3437	-0.942	.3211
0.299	-	-	-	-	-	-
0.250	-	-	-	-	-	-
0.200	-0.714	.4065	-0.814	.3760	-0.846	.3514
0.150	-0.658	.4239	-0.788	.3841	-0.813	.3621
0.101	-0.620	.4357	-0.761	.3925	-0.786	.3707
0.075	-0.597	.4427	-0.742	.3984	-0.764	.3775
0.051	-0.581	.4479	-0.715	.4070	-0.736	.3865
0.031	-0.422	.4973	-0.573	.4510	-0.620	.4233
0.020	-0.294	.5373	-0.461	.4859	-0.512	.4576
0.015	-0.207	.5646	-0.375	.5129	-0.426	.4849
0.011	-0.023	.6220	-0.188	.5709	-0.232	.5465
0.007	0.282	.7170	0.129	.6698	0.094	.6501
0.004	0.613	.8200	0.481	.7795	0.458	.7656
0.0004	1.112	.9757	1.068	.9621	1.071	.9603
Lower						
0.000	1.101	.9724	1.115	.9766	1.148	.9847
0.001	0.611	.8196	0.784	.8735	0.884	.9008
0.003	0.136	.6714	0.382	.7481	0.504	.7802
0.005	0.161	.6794	0.366	.7433	0.473	.7703
0.011	0.116	.6653	0.280	.7165	0.389	.7438
0.019	0.094	.6582	0.236	.7029	0.332	.7254
0.050	0.115	.6649	0.208	.6940	0.280	.7091
0.100	0.083	.6549	0.153	.6768	0.209	.6865
0.147	0.014	.6333	0.070	.6510	0.120	.6582
0.199	-0.053	.6126	-0.002	.6286	0.039	.6325
0.299	-0.166	.5773	-0.123	.5908	-0.090	.5915
0.400	-	-	-	-	-	-
0.499	-0.284	.5406	-0.231	.5568	-0.302	.5243
0.599	-0.077	.6050	-0.082	.6037	-0.093	.5906
0.729	0.059	.6474	0.045	.6431	0.024	.6278
0.868	0.107	.6624	0.077	.6532	0.034	.6308
0.948	0.100	.6601	0.054	.6460	-0.031	.6103

Table 8.7

PRESSURE DISTRIBUTION ABOVE AND BELOW THE MODEL AT A DISTANCE OF 132 mm FROM THE CHORD
 Polytechnic of Turin

Run	P33		P36		P96		P97		P37	
M_∞	0.751		0.768		0.759		0.759		0.754	
α°	1.12		2.25		2.83		3.48		4.61	
x/c										
Upper Side	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0
-0.63	-0.029	.6801	-0.041	.6655	-0.041	.6712	-0.043	.6707	-0.050	.6723
-0.47	-0.031	.6797	-0.047	.6636	-0.052	.6683	-0.050	.6687	-0.056	.6706
-0.32	-0.035	.6786	-0.064	.6589	-0.069	.6634	-0.064	.6649	-0.070	.6668
-0.16	-0.048	.6749	-0.079	.6546	-0.094	.6567	-0.090	.6576	-0.104	.6574
0.00	-0.073	.6683	-0.111	.6457	-0.133	.6460	-0.134	.6456	-0.147	.6456
0.16	-0.093	.6627	-0.150	.6349	-0.169	.6359	-0.182	.6325	-0.192	.6334
0.32	-0.111	.6578	-0.174	.6283	-0.182	.6325	-0.208	.6253	-0.230	.6231
0.47	-0.114	.6571	-0.170	.6293	-0.168	.6364	-0.203	.6267	-0.225	.6245
0.63	-0.110	.6582	-0.139	.6380	-0.138	.6446	-0.164	.6374	-0.190	.6339
0.79	-0.096	.6620	-0.110	.6462	-0.107	.6530	-0.131	.6465	-0.158	.6428
0.94	-0.076	.6675	-0.083	.6537	-0.083	.6596	-0.096	.6562	-0.118	.6536
1.26	-0.046	.6756	-0.048	.6633	-0.040	.6716	-0.062	.6654	-0.085	.6626
1.57	-0.030	.6799	-0.037	.6664	-0.039	.6719	-0.047	.6697	-0.065	.6682
Lower Side										
-0.63	-0.004	.6871	0.004	.6780	0.017	.6872	0.017	.6872	0.012	.6890
-0.47	-0.001	.6876	0.008	.6791	0.022	.6885	0.031	.6911	0.015	.6899
-0.32	0.005	.6893	0.011	.6798	0.027	.6899	0.025	.6894	0.022	.6919
-0.16	0.008	.6901	0.012	.6801	0.029	.6904	0.032	.6913	0.031	.6944
0.00	0.008	.6902	0.018	.6820	0.029	.6904	0.036	.6923	0.038	.6963
0.16	0.006	.6896	0.015	.6810	0.025	.6894	0.037	.6928	0.041	.6970
0.32	0.002	.6886	0.016	.6813	0.025	.6894	0.034	.6918	0.038	.6963
0.47	0.001	.6884	0.017	.6815	0.027	.6899	0.034	.6918	0.034	.6951
0.63	0.006	.6898	0.019	.6822	0.029	.6904	0.032	.6913	0.033	.6949
0.79	0.009	.6905	0.028	.6845	0.032	.6913	0.032	.6913	0.034	.6951
0.94	0.022	.6940	0.029	.6850	0.032	.6913	0.034	.6918	0.035	.6954
1.26	0.025	.6949	0.031	.6855	0.030	.6909	0.037	.6928	0.036	.6956
1.57	0.027	.6954	0.029	.6850	0.029	.6904	0.036	.6923	0.034	.6951

Run	P39		P99		P40		P108		P41	
M_∞	0.802		0.795		0.793		0.797		0.799	
α°	1.30		2.00		2.90		3.90		5.43	
x/c										
Upper Side	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0	C_p	p/p_0
-0.63	-0.025	.6471	-0.037	.6486	-0.033	.6510	-0.035	.6478	-0.039	.6453
-0.47	-0.026	.6469	-0.040	.6476	-0.038	.6496	-0.039	.6466	-0.040	.6451
-0.32	-0.029	.6459	-0.055	.6433	-0.056	.6445	-0.052	.6430	-0.051	.6420
-0.16	-0.047	.6408	-0.083	.6352	-0.078	.6379	-0.081	.6345	-0.076	.6345
0.00	-0.077	.6319	-0.106	.6285	-0.119	.6262	-0.133	.6192	-0.125	.6203
0.16	-0.106	.6234	-0.147	.6166	-0.178	.6088	-0.197	.6006	-0.195	.5996
0.32	-0.133	.6154	-0.181	.6066	-0.216	.5980	-0.262	.5815	-0.269	.5779
0.47	-0.139	.6136	-0.197	.6018	-0.217	.5975	-0.293	.5724	-0.312	.5652
0.63	-0.136	.6145	-0.176	.6080	-0.175	.6097	-0.233	.5901	-0.258	.5812
0.79	-0.107	.6229	-0.122	.6237	-0.132	.6224	-0.153	.6135	-0.171	.6067
0.94	-0.079	.6314	-0.081	.6357	-0.088	.6351	-0.106	.6271	-0.136	.6170
1.26	-0.039	.6431	-0.044	.6467	-0.051	.6459	-0.065	.6392	-0.089	.6307
1.57	-0.030	.6457	-0.030	.6505	-0.044	.6480	-0.048	.6440	-0.070	.6364
Lower Side										
-0.63	0.001	.6548	0.013	.6631	0.022	.6672	0.020	.6638	0.038	.6679
-0.47	0.004	.6557	0.015	.6636	0.026	.6681	0.021	.6643	0.039	.6683
-0.32	0.006	.6564	0.018	.6646	0.026	.6681	0.029	.6667	0.045	.6700
-0.16	0.013	.6583	0.025	.6665	0.019	.6663	0.036	.6686	0.043	.6695
0.00	0.008	.6569	0.025	.6665	0.016	.6653	0.042	.6705	0.037	.6676
0.16	0.005	.6562	0.020	.6650	0.021	.6667	0.037	.6691	0.032	.6662
0.32	0.001	.6550	0.017	.6643	0.022	.6672	0.033	.6676	0.026	.6646
0.47	0.001	.6550	0.016	.6638	0.031	.6695	0.029	.6667	0.022	.6634
0.63	0.003	.6555	0.016	.6638	0.033	.6702	0.028	.6662	0.022	.6634
0.79	0.011	.6578	0.020	.6650	0.034	.6705	0.029	.6667	0.024	.6639
0.94	0.016	.6592	0.025	.6665	0.035	.6710	0.029	.6667	0.029	.6653
1.26	0.025	.6620	0.030	.6681	0.035	.6710	0.034	.6681	0.030	.6658
1.57	0.029	.6632	0.031	.6684	0.034	.6705	0.034	.6681	0.034	.6667

Table 8.7 (contd.)

Run	P100		P109		P102	
M_∞	0.849		0.842		0.841	
α°	0.80		2.00		3.20	
x/c	C_p	p/p ₀	C_p	p/p ₀	C_p	p/p ₀
Upper Side						
-0.63	-0.008	.6218	-0.018	.6235	-0.026	.6212
-0.47	-0.008	.6218	-0.018	.6235	-0.026	.6212
-0.32	-0.014	.6199	-0.027	.6207	-0.042	.6162
-0.16	-0.031	.6146	-0.049	.6136	-0.055	.6121
0.00	-0.066	.6037	-0.092	.6005	-0.099	.5983
0.16	-0.118	.5870	-0.152	.5817	-0.170	.5763
0.32	-0.170	.5709	-0.220	.5605	-0.251	.5510
0.47	-0.208	.5590	-0.259	.5483	-0.326	.5276
0.63	-0.212	.5576	-0.242	.5534	-0.340	.5233
0.79	-0.129	.5837	-0.163	.5784	-0.197	.5677
0.94	-0.050	.6084	-0.069	.6075	-0.082	.6035
1.26	-0.016	.6194	-0.029	.6200	-0.035	.6183
1.57	-0.008	.6218	-0.020	.6228	-0.028	.6205
Lower Side						
-0.63	0.018	.6300	0.018	.6347	0.023	.6364
-0.47	0.020	.6305	0.025	.6370	0.025	.6369
-0.32	0.018	.6300	0.030	.6384	0.041	.6419
-0.16	0.012	.6281	0.024	.6366	0.035	.6402
0.00	0.003	.6253	0.018	.6347	0.028	.6378
0.16	-0.011	.6210	0.008	.6314	0.015	.6340
0.32	-0.015	.6196	0.003	.6300	0.002	.6300
0.47	-0.011	.6210	0.006	.6309	0.000	.6292
0.63	0.002	.6248	0.017	.6342	0.012	.6331
0.79	0.020	.6305	0.027	.6375	0.020	.6355
0.94	0.027	.6329	0.032	.6389	0.032	.6393
1.26	0.030	.6338	0.035	.6399	0.037	.6407
1.57	0.030	.6338	0.035	.6399	0.038	.6412



Fig. 8.1. MBB-A3 Airfoil

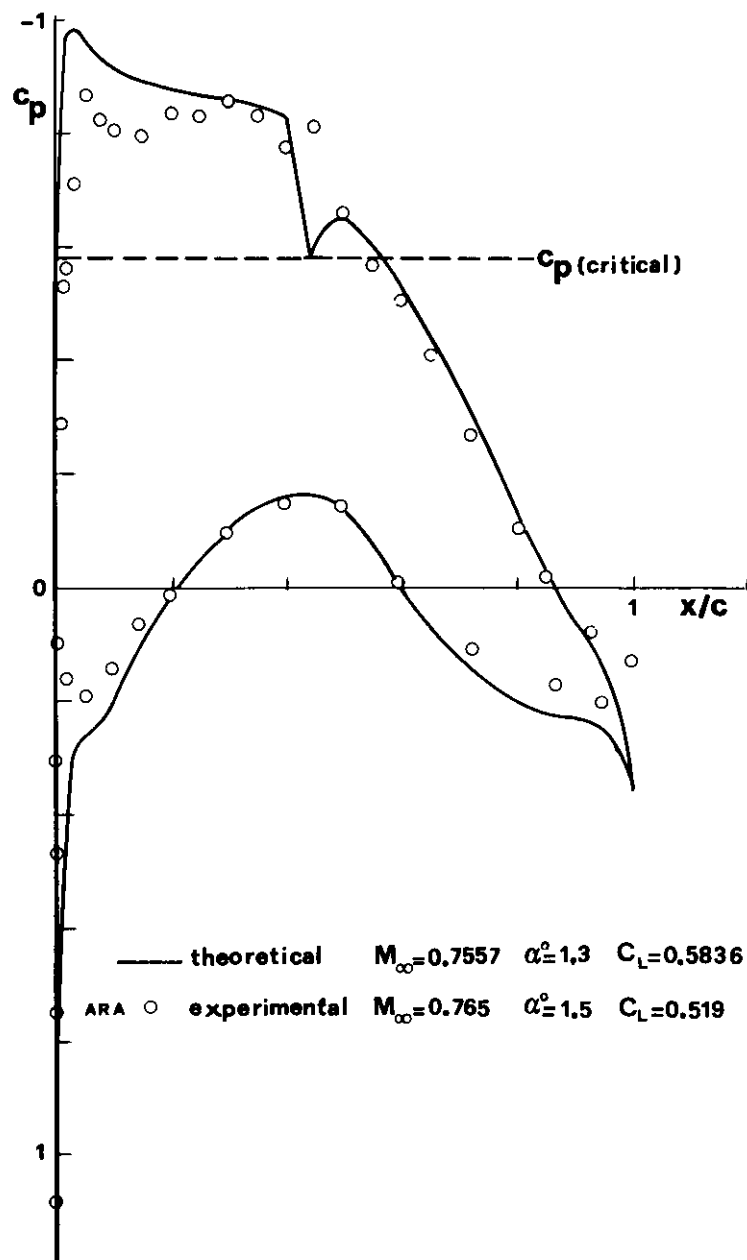


Fig. 8.2. MBB-A3 Airfoil - Pressure distribution at design point
 (reprinted from ref. [1])

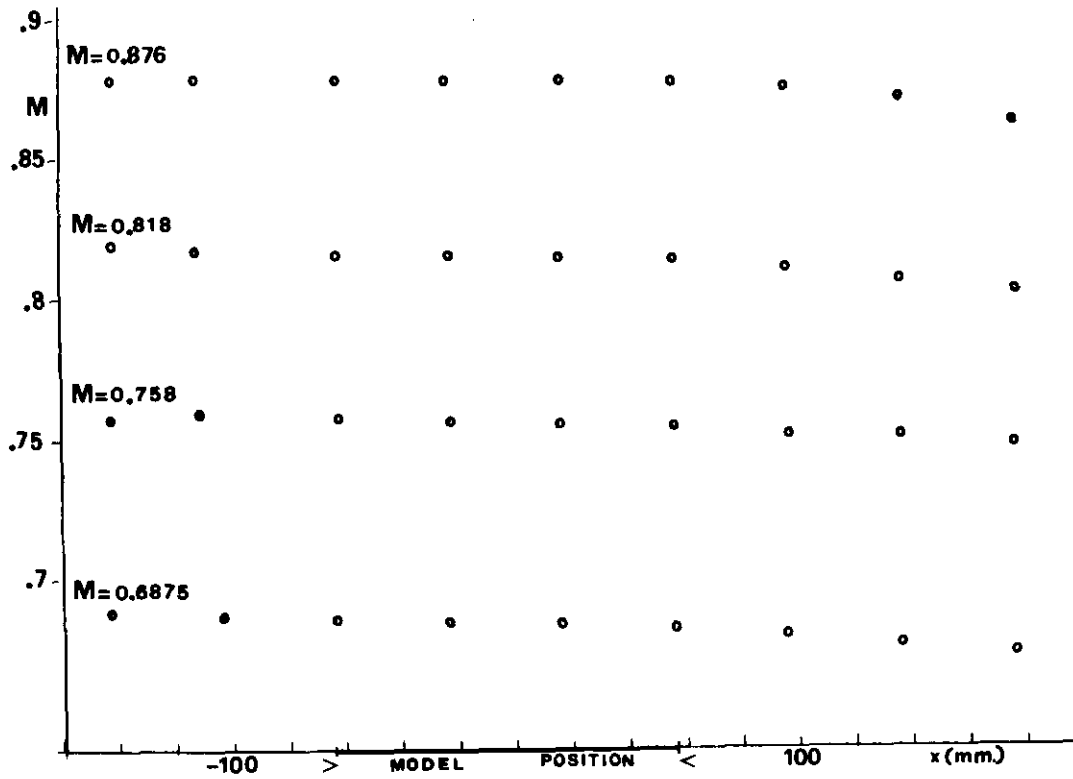


Fig.8.3a. Turin Polytechnic Wind Tunnel - Longitudinal Mach number distributions in empty test section.

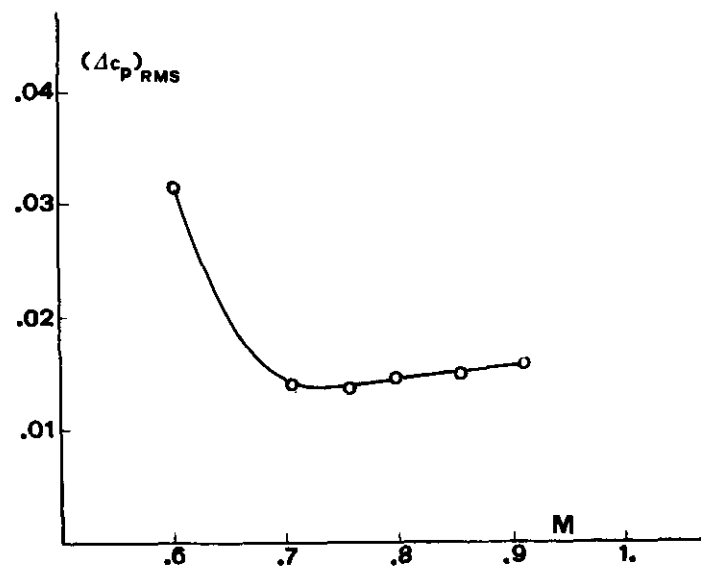


Fig.8.3b. Turin Polytechnic Wind Tunnel - Variation of tunnel pressure fluctuations with Mach number.

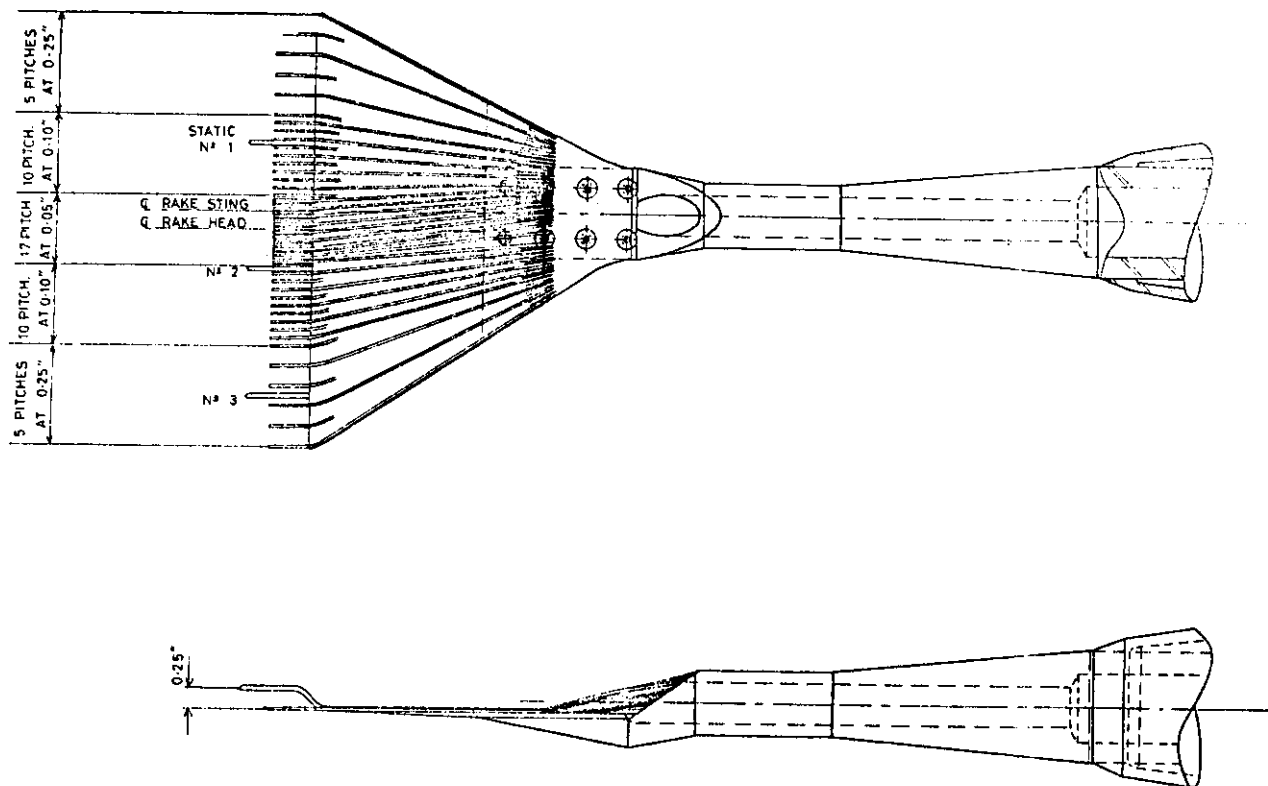


Fig.8.4. ARA Bedford Wind Tunnel - Wake Rake

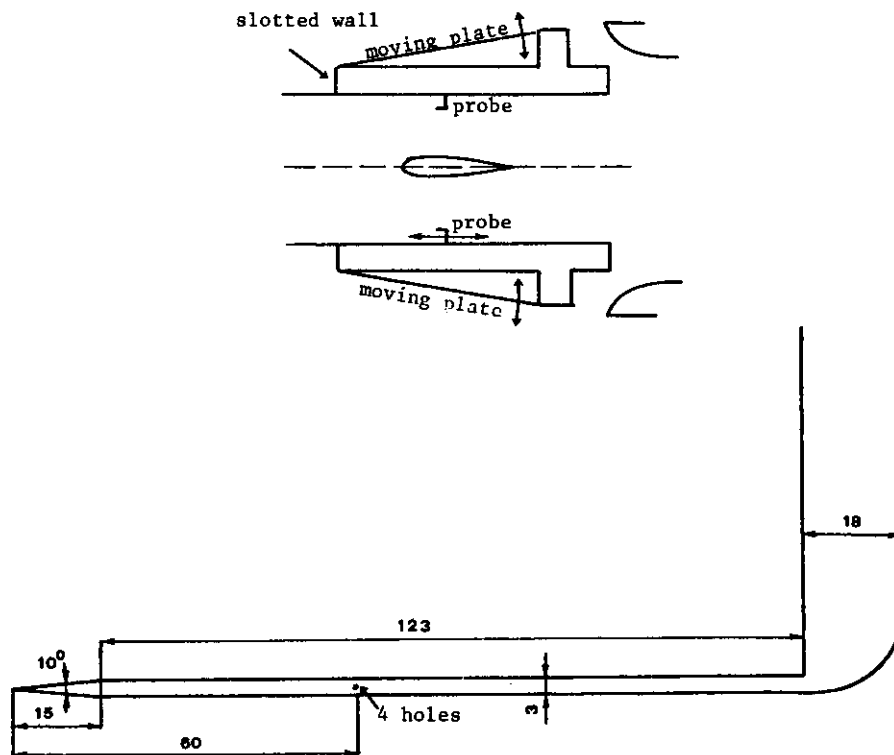


Fig.8.5. Turin Polytechnic Wind Tunnel - Static pressure probe for boundary conditions measurements and sketch of installation (all dimensions in mm).

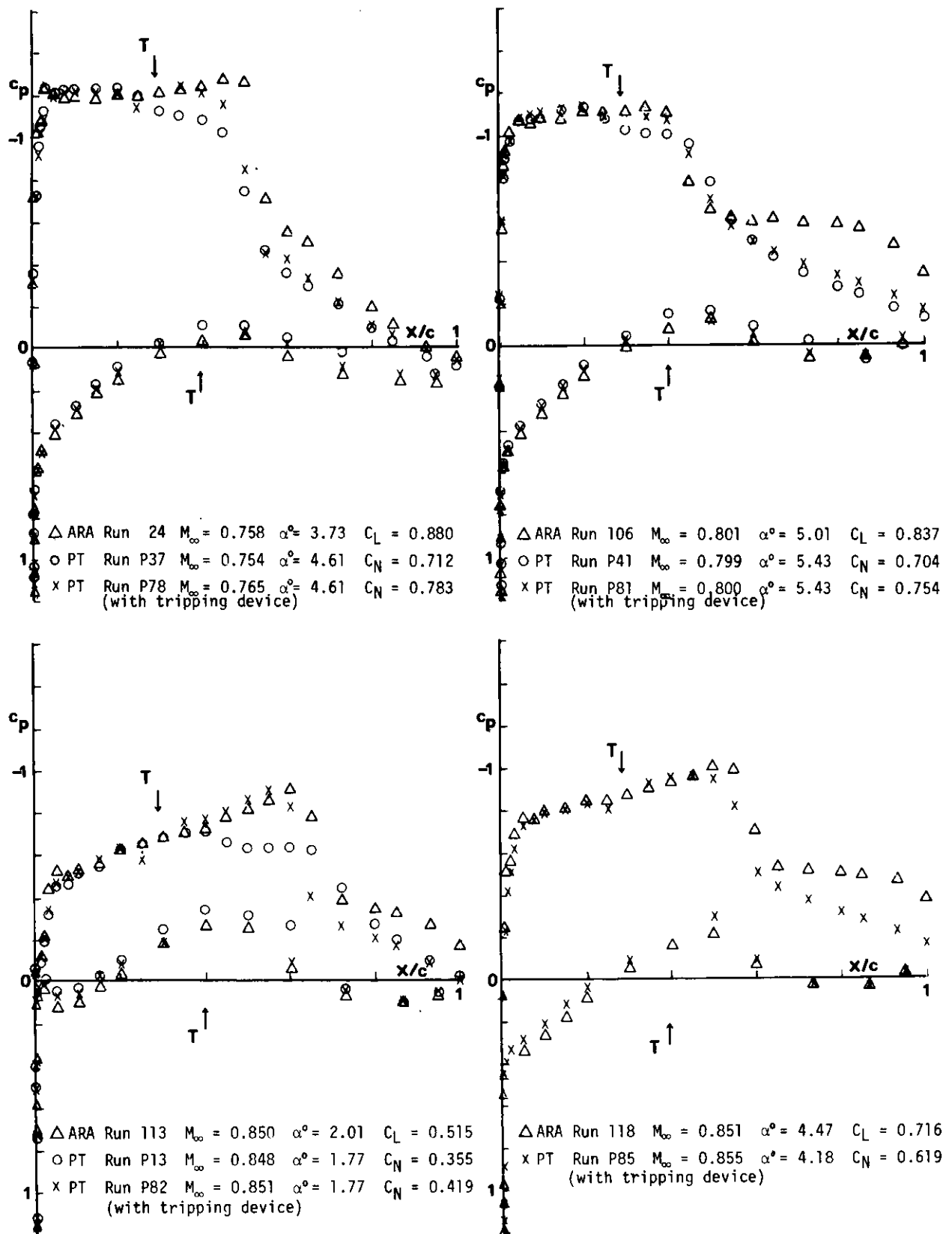


Fig.8.6. MBB-A3 Airfoil - Comparison between results obtained at the A.R.A Bedford wind tunnel and at the Turin Polytechnic wind tunnel.
 T tripping device.

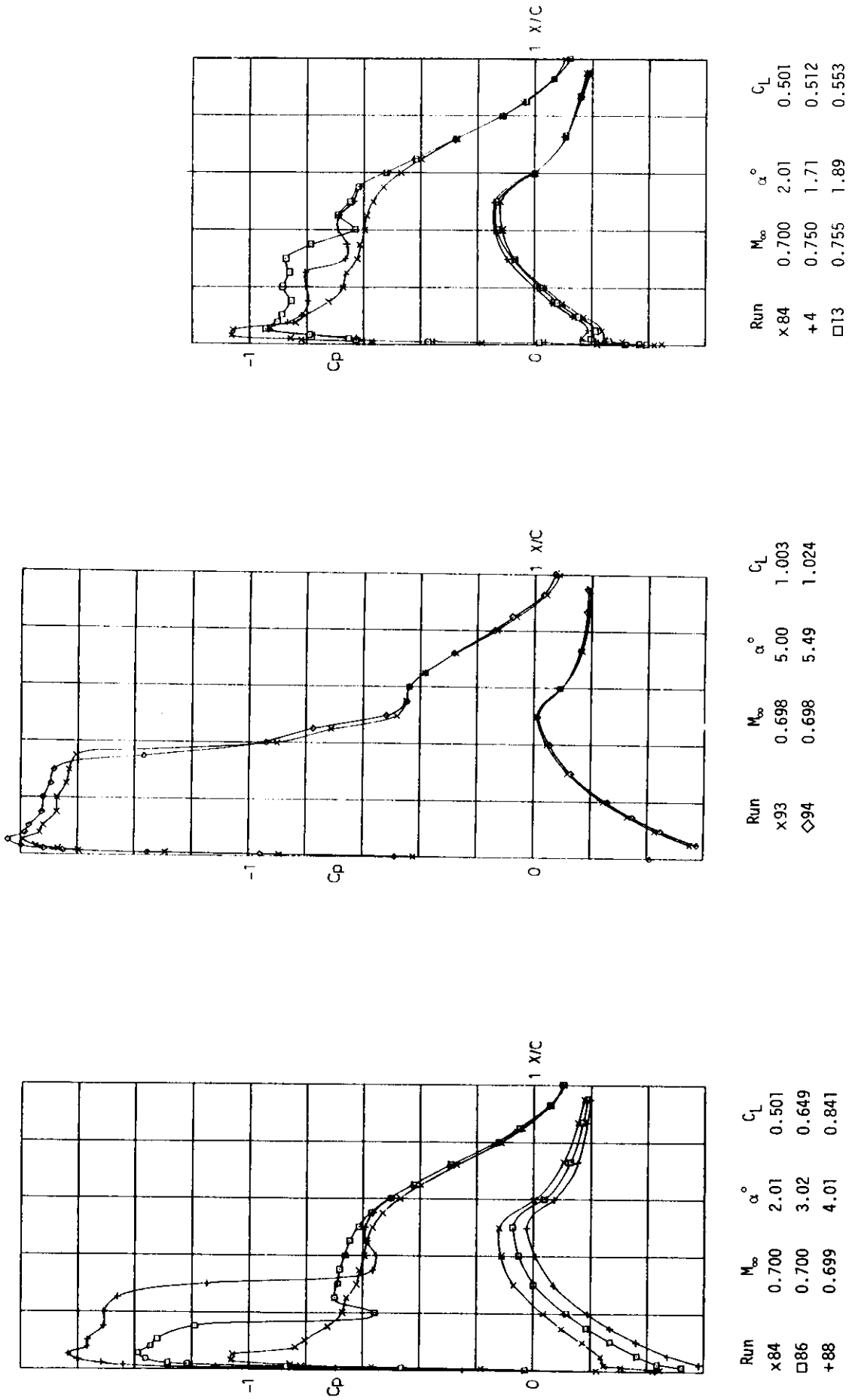


Fig.8.7. MBB-A3 Airfoil - Results obtained at the A.R.A. Bedford wind tunnel

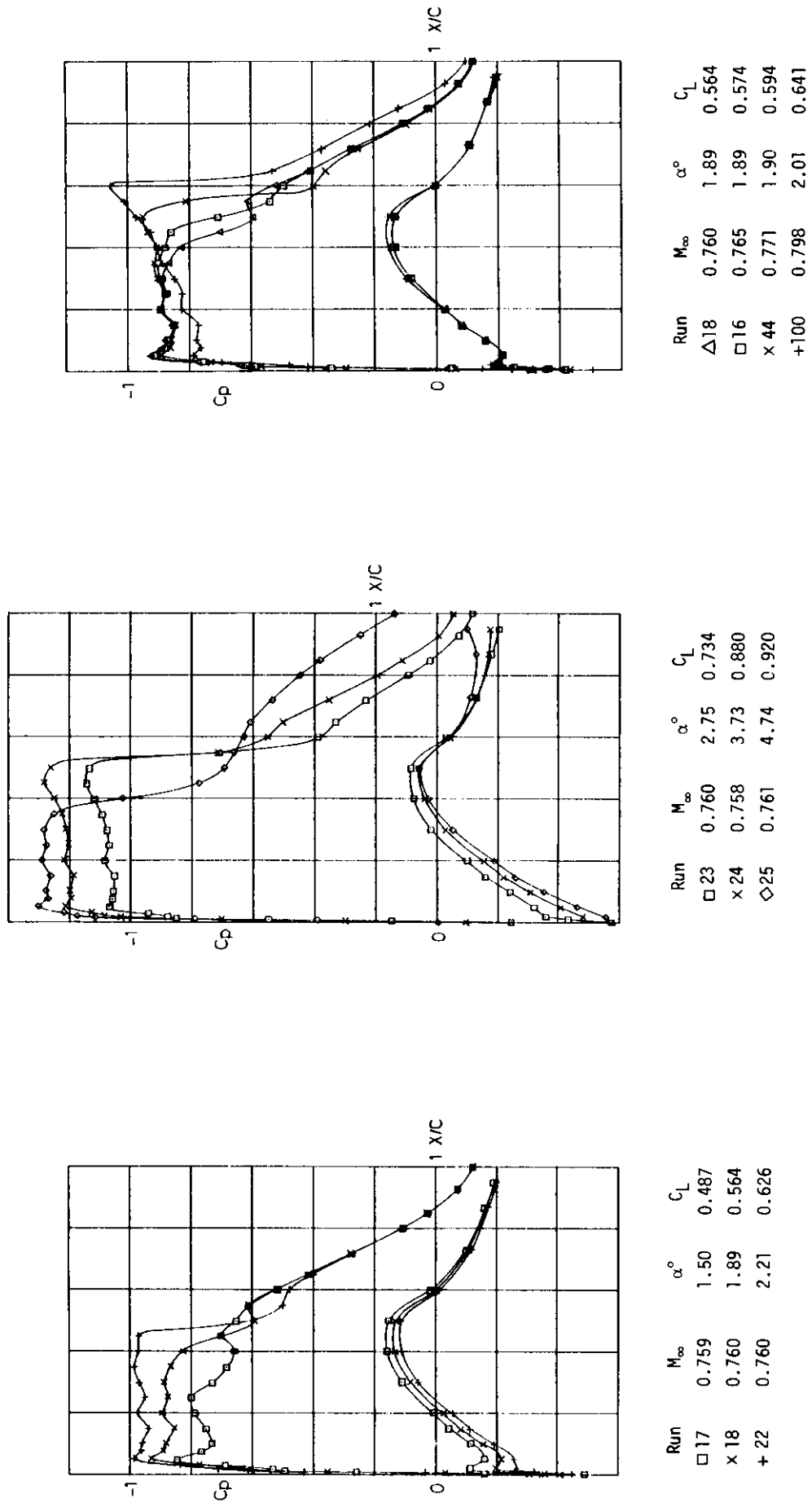


Fig. 8.7. (contd.)

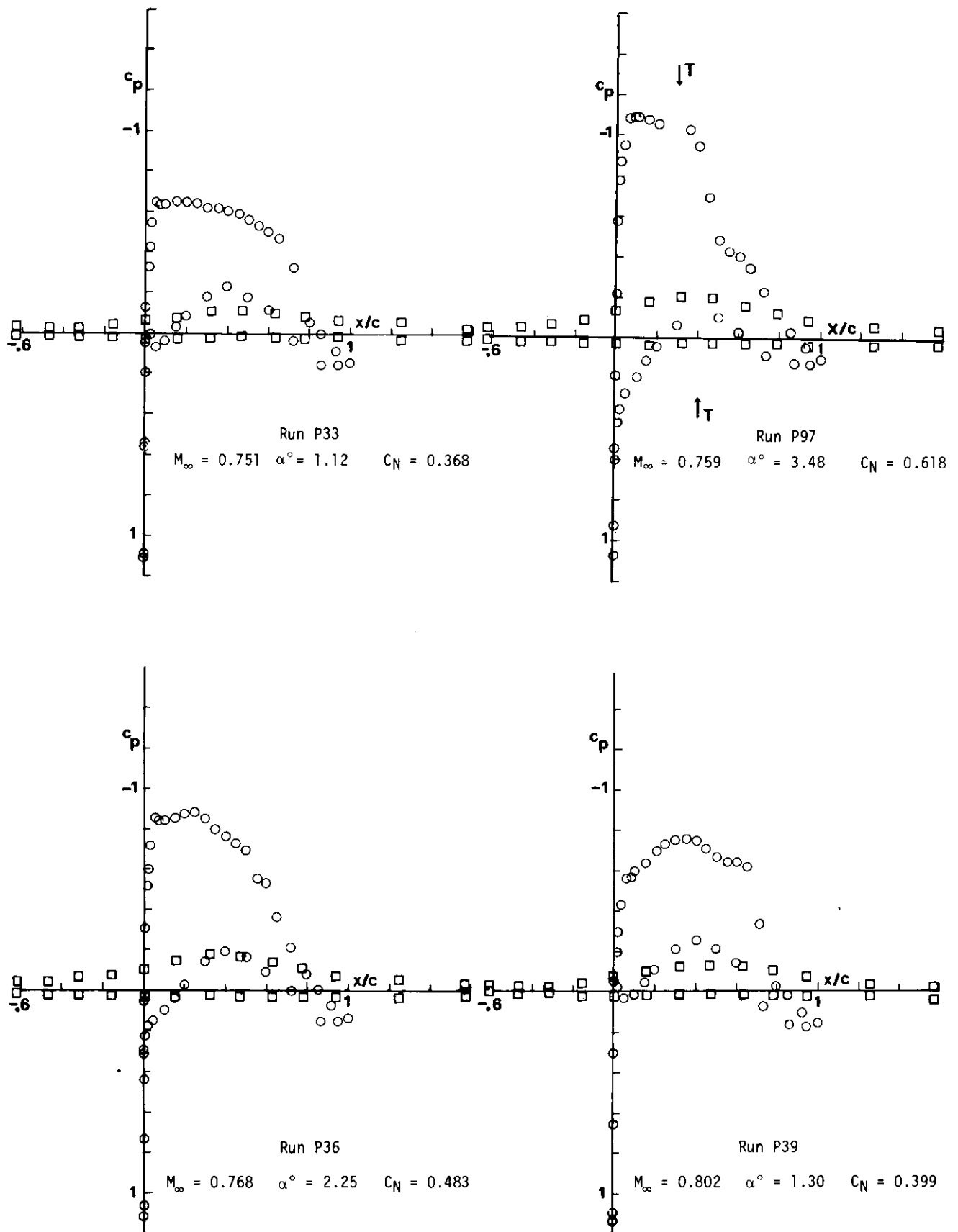


Fig.8.8. MBB-A3 Airfoil - Results obtained at the Turin Polytechnic wind tunnel
 ○ pressure coefficients on the model surface
 □ pressure coefficients at a distance of 132 mm from the model chord above and below the model
 T tripping device

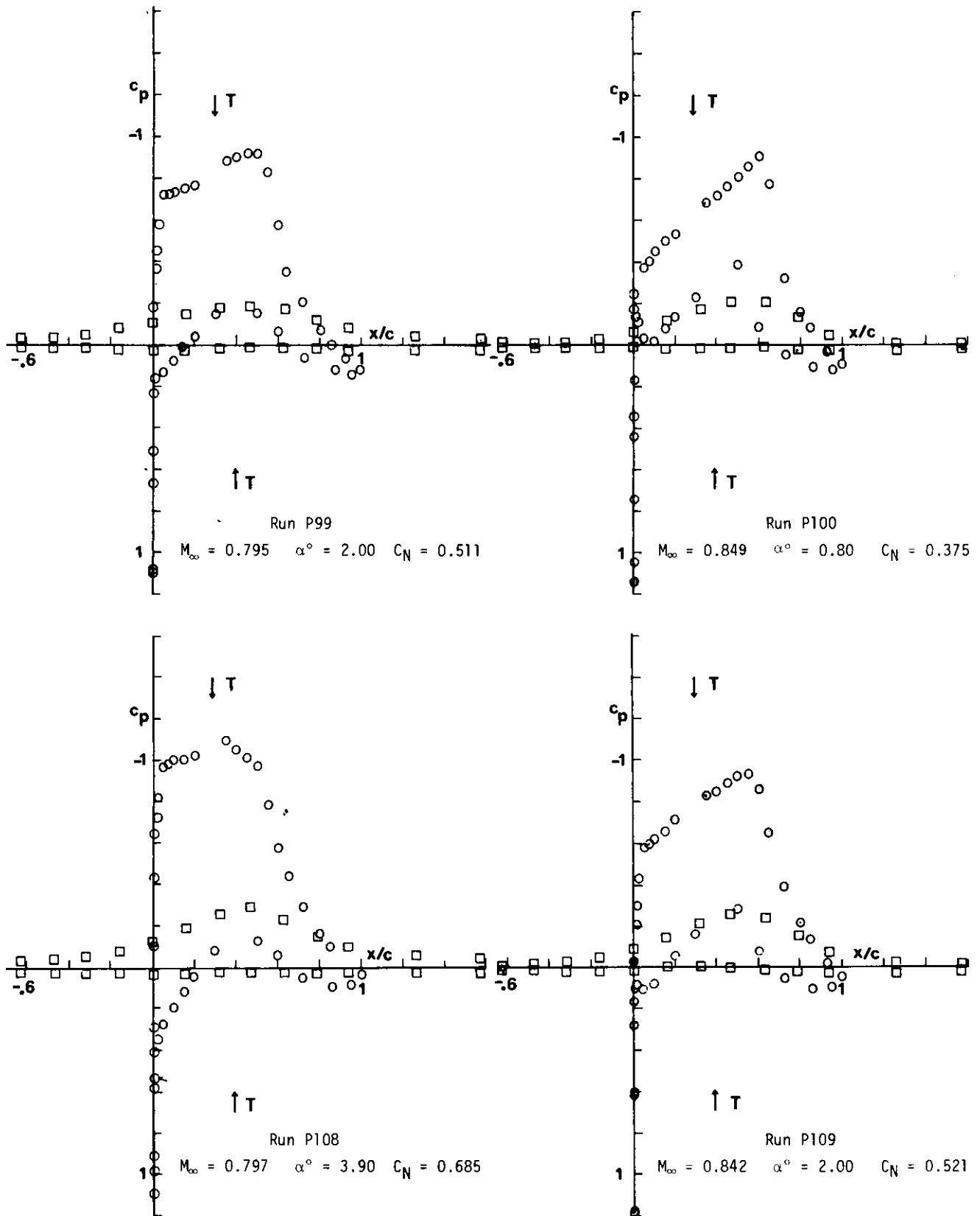
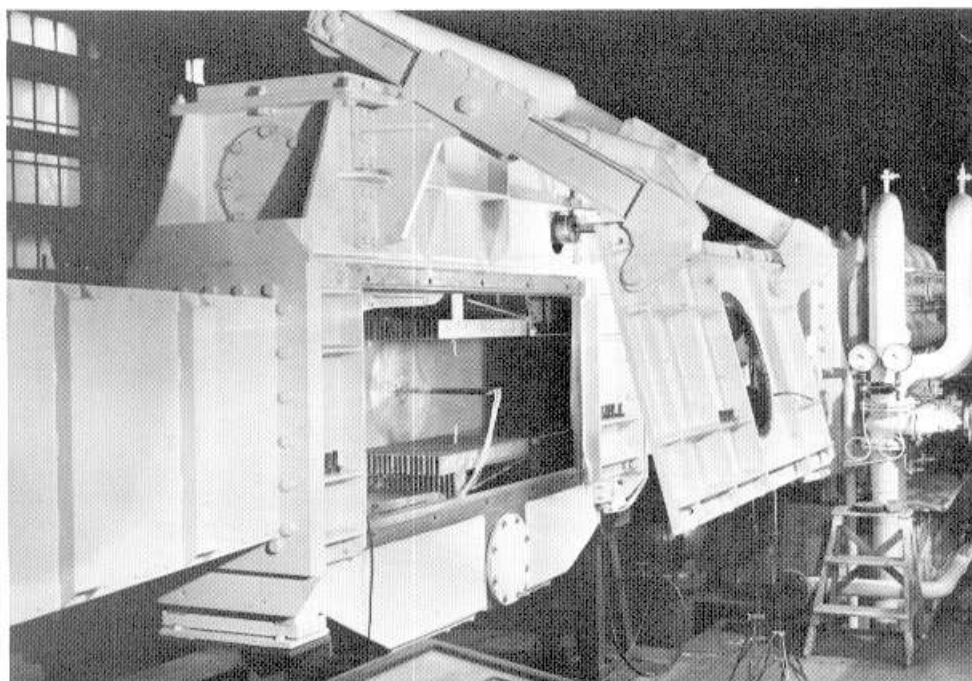
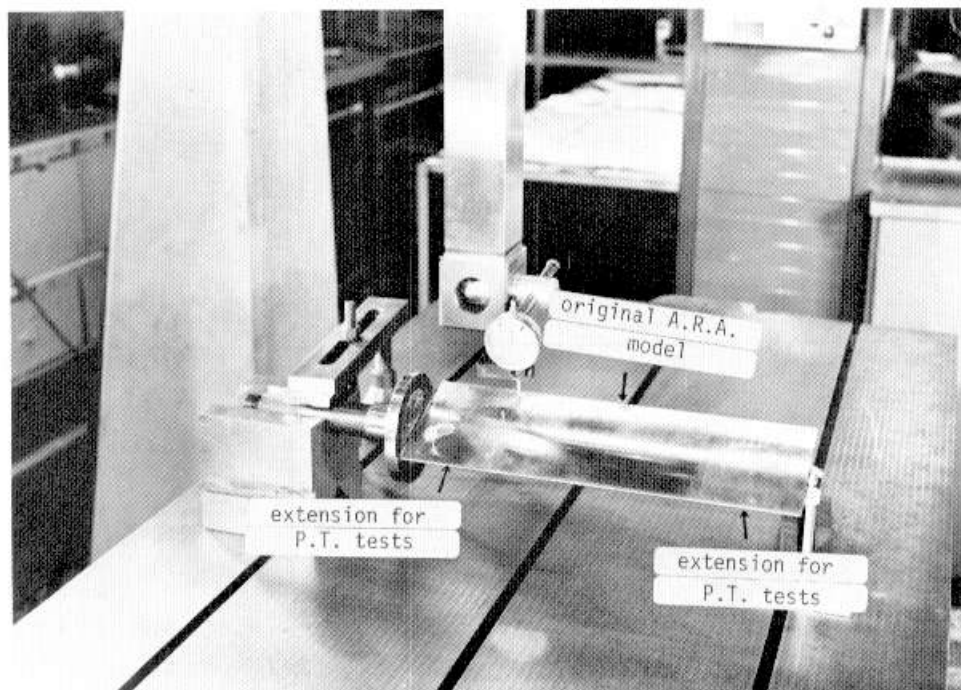
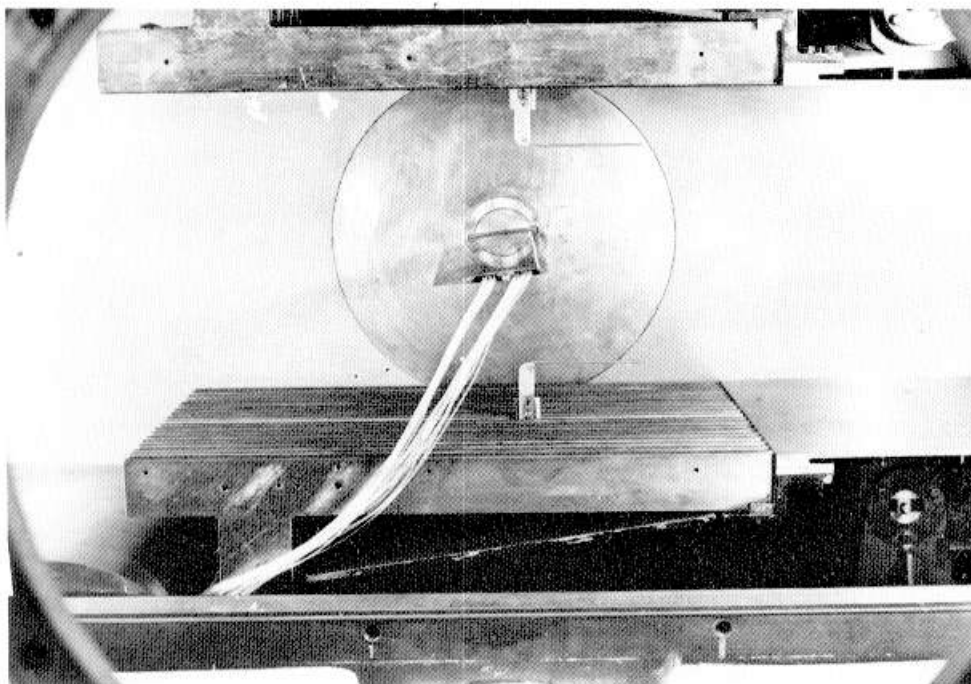
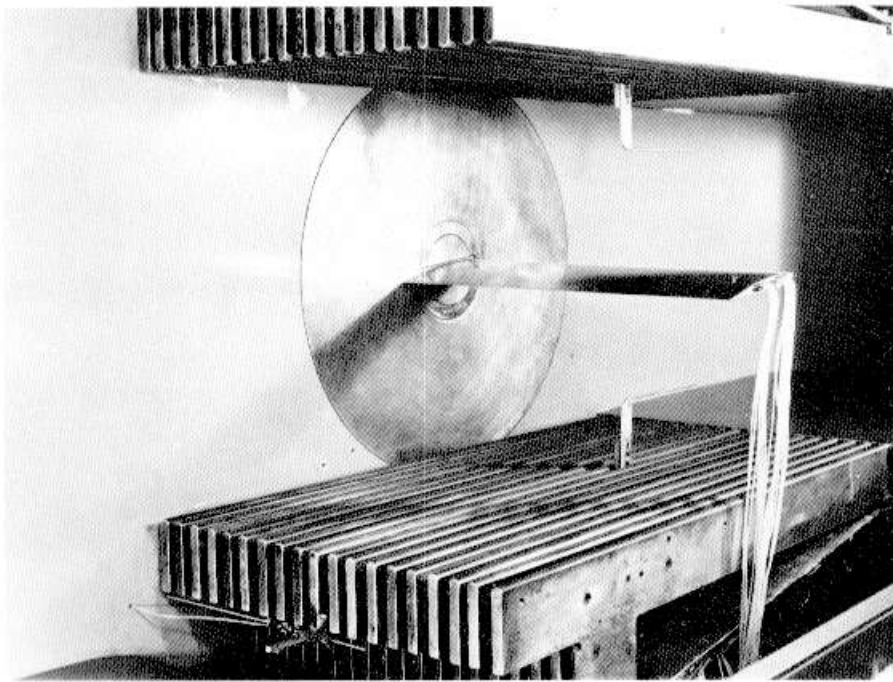


Fig.8.8. (contd.)





Picture 1 (contd.)

9. EXPERIMENTAL INVESTIGATION OF A 10 PERCENT THICK NASA SUPERCRITICAL AIRFOIL SECTION

by

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9.1 INTRODUCTION

This contribution contains representative samples of data obtained for a supercritical airfoil section tested in the Langley 8-foot transonic pressure tunnel. Airfoils with various trailing edge geometries and two maximum thicknesses were tested in the investigation, but only data for a 10 percent maximum thickness airfoil with a 1.0 percent thick trailing edge with cavity are presented in this compilation. Drag, normal-force, pitching-moment and pressure-distribution data are included for small angles of attack and Mach numbers from 0.60 to 0.81.

9.2 DATA SET

1. General Description

1.1	Airfoil designation	Supercritical airfoil 9a.
1.2	Type of airfoil	Supercritical.
1.2.1	Airfoil geometry	
	Nose radius	0.0212 c
	Base thickness	0.01 c
	Maximum thickness	0.10 c
1.2.2	Design condition	$C_n = 0.7$ $M = 0.79$
	Design pressure distribution	Flat top. Rear loaded.
1.3	Additional remarks	Airfoil tested with various trailing edge cavities.
1.4	References on airfoil	NASA TM X-2336 "Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section," by Charles D. Harris

2. Model geometry

2.1	Chord length	0.635 m (25.0 in.)
2.2	Span	2.18 m (85.8 in.)
2.3	Actual model co-ordinates and accuracy	See Table I and figure 9.1.
2.4	Maximum thickness	.0635 m
2.5	Base thickness	.635 cm
2.6	Additional remarks	
2.7	References on model	NASA TM X-2336 "Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section," by Charles D. Harris

3. Wind tunnel

3.1	Designation	8-Foot Transonic Pressure Tunnel
3.2	Type of tunnel	Continuous flow, pressure tunnel
3.2.1	Stagnation pressure	Can be varied from approx. 15 to 68 k N/m ²
3.2.2	Stagnation temperature	322 K (120 F)
3.2.3	Humidity/dew point	Air dried sufficiently to avoid condensation.
3.3	Test section	
3.3.1	Dimensions	2.2 m x 2.2 m x 4.3 m
3.3.2	Type of walls	Slotted top and bottom, solid sides (3% overall open area ratio)
3.4	Flow field (empty test section)	
3.4.1	Reference static pressure	Measured in plenum. Values in Table II.
3.4.2	Flow angularity	Maximum lateral velocity components are about 0.005 of free stream at all Mach numbers.
3.4.3	Mach number distribution	Streamwise variations of approximately ± 0.002 over Mach number range.
3.4.4	Pressure gradient	
3.4.5	Turbulence/noise level	Lateral fluctuating velocity components $\tilde{v}/U_\infty$ and $\tilde{w}/U_\infty$ have not been measured. $\tilde{u}/U_\infty$ varies from 0.002 at M = 0.2 to about 0.02 at high Mach numbers.
3.4.6	Sidewall boundary layer	Thickness varies but is on the order of 7 to 8 cm.
3.5	Additional remarks	
3.6	References on wind tunnel	

4. Tests

4.1	Type of measurements	Surface pressure; wake profiles.
4.2	Tunnel/model dimensions	
4.2.1	Height/chord ratio	3.46
4.2.2	Width/chord ratio	3.46
4.3	Flow conditions included in present data base	
4.3.1	Angle of attack	0.5° to 2.5°
4.3.2	Mach number	From 0.60 to 0.80
4.3.3	Reynolds number	See figure 9.2. Reynolds number simulations based on refs. 2 and 3.
4.3.4	Transition	
	- position of free transition	
	- transition fixing	No. 90 carborundum grains; 0.25 cm wide (0.10 in.) bands along $x/c = 0.28$ on upper and lower surfaces.
4.3.5	Temperature equilibrium	
4.4	Additional remarks	
4.5	References on tests	

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 Pressure holes

- size 0.51 mm (0.020 inch) inside dia.
- spanwise station(s) 0.32 chord from tunnel center line
- chordwise positions Concentrated near the leading and trailing edges as illustrated in figure 9.3. See Table III.

5.1.2 Type of transducers and scanning devices

Electronically actuated differential-pressure scanning valves with transducer ranges of $+69\text{kN/m}^2$ (10 lb/inch²) for the upper surface and $+52\text{kN/m}^2$ (7.5 lb/inch²) for the lower surface. Accuracy within 0.5 percent of full scale.

5.1.3 Other

5.2 Wake measurements

5.2.1 Type/size of instrument(s)

See figure 9.4. 52 pitot probes spaced 0.0036c in region of boundary-layer losses, 0.072c in region of shock losses.

6 static pressure probes spaced about 0.06c in region of boundary layer losses, about 0.2c in region of shock losses.

5.2.2 Streamwise position(s)

Approximately 1 chord length downstream of trailing edge

5.2.3 Type of transducers and scanning devices

Electronically actuated differential-pressure scanning valves with transducer ranges of $+17\text{kN/m}^2$ (2.5 lb/inch²) in boundary-layer wake and $+7\text{kN/m}^2$ (1 lb/inch²) for shock and static losses. Accuracy within 0.5 percent of full-scale.

5.3 Boundary layer measurements

5.3.1 Type/size of instruments

5.3.2 Locations

5.3.3 Type of transducers and scanning devices

5.4 Skin friction measurements

5.4.1 Type/size of instruments

5.4.2 Locations

5.4.3 Type of transducer

5.5 Flow visualization

5.5.1 Flow field

5.5.2 Surface flow

Two dimensionality of flow was determined by fluorescent oil flow.

5.6 Other

5.7 Additional remarks

5.8 References on instrumentation

6. Data

6.1	Accuracy (wall interference excluded)	
6.1.1	Angle of attack setting	<u>+0.05°</u>
6.1.2	Free stream Mach number:	
	- setting	<u>+0.003</u>
	- variation during one pressure scan	None
6.1.3	Pressure coefficients	Less than 2% of maximum value.
6.1.4	Aerodynamic coefficients	Less than 2% of maximum value.
6.1.5	Boundary layer quantities	
6.1.6	Repeatability	Repeatability checked but not plotted.
6.1.7	Remarks	
6.2	Wall interference corrections (indicate estimated accuracy)	
6.2.1	Angle of attack	No corrections applied.
6.2.2	Blockage (solid/wake)	
6.2.3	Streamline curvature (lift)	
6.2.4	Other	
6.2.5	Remarks	
6.2.6	References on wall interference correction	
6.3	Presentation of data	
6.3.1	Aerodynamic coefficients	See figure 9.5.
6.3.2	Surface pressures	See figure 9.6 and Table IV.
6.3.3	Boundary layer quantities	None
6.3.4	Wall interference corrections included?	No
6.3.5	Corrections for model deflection	None
6.3.6	Empty test section calibration taken into account?	
6.3.7	Other corrections included?	
6.3.8	Additional remarks	
6.4	Were tests carried out in different facilities on the current airfoil? If so, what facilities. Are data included in the present data base?	No
6.5	To be contacted for further information on tests	Charles D. Harris NASA Langley Research Center Mail Stop 359 Hampton, VA 23665

7. References

1. NASA TM X-2336 entitled "Wind-Tunnel Investigation of Effects of Trailing-Edge Geometry on NASA Supercritical Airfoil Section," by Charles D. Harris.
2. NASA TN D-5003 entitled "Preliminary Study of Effects of Reynolds Number and Boundary-Layer Transition on Shock-Induced Separation," by James A. Blackwell, Jr.
3. NACA TN 4363 entitled "Simplified Method for Determination of Critical Height of Distributed Roughness Particles for Boundary-Layer Transition at Mach Numbers From 0 to 5," by Albert L. Braslow and Eugene C. Knox.

8. List of symbols

Values are given in both SI and U. S. Customary Units. The measurements and calculations were made in the U. S. Customary Units.

C_p	pressure coefficient, $\frac{p_L - p_\infty}{q_\infty}$
$C_{p, \text{sonic}}$	pressure coefficient corresponding to local Mach number of 1.0
c	chord of airfoil, cm (inches)
c_d	section drag coefficient, $\sum c'_d \frac{\Delta z}{c}$
c_m	section pitching-moment coefficient, $\sum_l C_p \frac{\Delta x}{c} (0.25 - \frac{x}{c}) - \sum_u C_p \frac{\Delta x}{c} (0.25 - \frac{x}{c})$
c_n	section normal-force coefficient, $\sum_l C_p \frac{\Delta x}{c} - \sum_u C_p \frac{\Delta x}{c}$
M	Mach number
p	static pressure, N/m ² (lb/ft ²)
q	dynamic pressure, N/m ² (lb/ft ²)
R	Reynolds number based on airfoil chord
t	airfoil thickness, cm (inches)
$\tilde{u}, \tilde{v}, \tilde{w}$	free stream fluctuating velocity components
U_∞	free stream velocity
x	ordinate along airfoil reference line measured from airfoil leading edge, cm (inches)
y	ordinate vertical to airfoil reference line, cm (inches)
z	vertical distance in wake profile, cm (inches)
α	angle of attack of airfoil reference line, degrees

Subscripts:

L	local point on airfoil
l	lower surface
te	trailing edge
∞	free stream value

TABLE I. AIRFOIL COORDINATES

x/c	Experimental (airfoil 9a)	
	y/c	
	Upper	Lower
0.0075	0.0160	-0.0165
.0125	.0196	-.0201
.0250	.0250	-.0259
.0375	.0286	-.0299
.050	.0314	-.0329
.075	.0358	-.0374
.100	.0389	-.0407
.125	.0415	-.0432
.150	.0433	-.0451
.175	.0448	-.0465
.200	.0461	-.0476
.250	.0479	-.0491
.300	.0491	-.0498
.350	.0498	-.0500
.400	.0500	-.0494
.450	.0499	-.0485
.500	.0494	-.0468
.550	.0485	-.0440
.575	.0480	-.0420
.600	.0474	-.0393
.625	.0465	-.0357
.650	.0456	-.0310
.675	.0445	-.0255
.700	.0433	-.0200
.725	.0419	-.0152
.750	.0401	-.0109
.775	.0382	-.0072
.800	.0359	-.0041
.825	.0332	-.0014
.850	.0300	.0005
.875	.0264	.0015
.900	.0220	.0016
.925	.0167	.0004
.950	.0103	-.0025
.975	.0035	-.0073
.990	-.0016	-.0120
1.000	-----	-.0157

TABLE II. TUNNEL STATIC PRESSURES

Mach Number	Static Pressure (MN/m ²)
0.80	0.0664
0.79	0.0671
0.76	0.0691
0.70	0.0730
0.60	0.0794

TABLE III

CHORDWISE LOCATION OF PRESSURE TAPS

UPPER SURFACE	LOWER SURFACE
X/C	X/C
0.0000	.0040
.0020	.0100
.0200	.0200
.0300	.0300
.0500	.0500
.0700	.0700
.1000	.1000
.1500	.1500
.2000	.2000
.2500	.2500
.3000	.3000
.3500	.3500
.4000	.4000
.4500	.4500
.5000	.5000
.5500	.5500
.6000	.6000
.6500	.6500
.7000	.7000
.7500	.7500
.8000	.8000
.8500	.8500
.9000	.9000
.9300	.9300
.9500	.9500
.9700	.9700
.9800	.9800
1.0000	

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK

MACH = 0.60 $\alpha = 1^\circ$				MACH = 0.60 $\alpha = 2^\circ$				MACH = 0.70 $\alpha = 1^\circ$			
STATION		STATION		STATION		STATION		STATION		STATION	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE	
0.0000	1.0498	.0040	.6720	0.0000	.9588	.0040	.8463	0.0000	1.1132	.0040	.6574
.0020	-.0428	.0100	.4172	.0020	-.3468	.0100	.6150	.0020	.2141	.0100	.3913
.0200	-1.4012	.0200	.1752	.0200	-2.1421	.0200	.3933	.0200	-1.2942	.0200	.1638
.0300	-1.2324	.0300	.0866	.0300	-1.9079	.0300	.2611	.0300	-1.2371	.0300	.0221
.0500	-.9981	.0500	-.0013	.0500	-.9844	.0500	.1668	.0500	-1.1600	.0500	-.0622
.0700	-.8742	.0700	-.0575	.0700	-1.0976	.0700	.0899	.0700	-1.1205	.0700	-.1064
.1000	-.7242	.1000	-.0936	.1000	-.8771	.1000	.0198	.1000	-.8338	.1000	-.1454
.1500	-.6483	.1500	-.1215	.1500	-.7687	.1500	-.0213	.1500	-.6774	.1500	-.1475
.2000	-.5816	.2000	-.0942	.2000	-.6750	.2000	-.0181	.2000	-.6274	.2000	-.1255
.2500	-.5341	.2500	-.0822	.2500	-.6200	.2500	-.0187	.2500	-.5859	.2500	-.1154
.3000	-.5160	.3000	-.0804	.3000	-.5798	.3000	-.0173	.3000	-.5611	.3000	-.1090
.3500	-.4755	.3500	-.0744	.3500	-.5393	.3500	-.0173	.3500	-.5170	.3500	-.1035
.4000	-.4571	.4000	-.0842	.4000	-.5234	.4000	-.0334	.4000	-.5099	.4000	-.1062
.4500	-.4530	.4500	-.0804	.4500	-.4980	.4500	-.0394	.4500	-.4955	.4500	-.1142
.5000	-.4548	.5000	-.1100	.5000	-.4994	.5000	-.0621	.5000	-.4970	.5000	-.1317
.5500	-.4556	.5500	-.1304	.5500	-.4891	.5500	-.0902	.5500	-.5046	.5500	-.1512
.6000	-.4615	.6000	-.1129	.6000	-.4957	.6000	-.0776	.6000	-.5158	.6000	-.1252
.6500	-.4781	.6500	.0209	.6500	-.5068	.6500	.0397	.6500	-.5373	.6500	.0231
.7000	-.4969	.7000	.2492	.7000	-.5223	.7000	.2642	.7000	-.5632	.7000	.2612
.7500	-.5120	.7500	.3423	.7500	-.5411	.7500	.3437	.7500	-.5918	.7500	.3570
.8000	-.5190	.8000	.4067	.8000	-.5363	.8000	.4121	.8000	-.5912	.8000	.4220
.8500	-.5042	.8500	.4514	.8500	-.5061	.8500	.4623	.8500	-.5544	.8500	.4718
.9000	-.4497	.9000	.4796	.9000	-.4386	.9000	.4905	.9000	-.4478	.9000	.4984
.9300	-.3391	.9300	.4770	.9300	-.3327	.9300	.4816	.9300	-.3162	.9300	.4968
.9500	-.2230	.9500	.4562	.9500	-.2118	.9500	.4640	.9500	-.1996	.9500	.4775
.9700	-.1490	.9700	.4158	.9700	-.1424	.9700	.4249	.9700	-.1119	.9700	.4331
.9800	-.1025	.9800	.3847	.9800	-.1030	.9800	.3813	.9800	-.0810	.9800	.4081
1.0000	-.0414			1.0000	-.0447			1.0000	-.0386		

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

MACH = 0.70 $\alpha = 2^\circ$				MACH = 0.76 $\alpha = .5^\circ$				MACH = 0.76 $\alpha = 1^\circ$			
STATION		STATION		STATION		STATION		STATION		STATION	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE	
0.0000	1.0702	.0040	.7966	0.0000	1.1564	.0040	.5077	0.0000	1.1516	.0040	.5964
.0020	.0392	.0100	.5551	.0020	.4621	.0100	.2389	.0020	.3584	.0100	.3706
.0200	-1.5572	.0200	.3456	.0200	-.8400	.0200	-.0103	.0200	-.9955	.0200	.1088
.0300	-1.5575	.0300	.2167	.0300	-.8693	.0300	-.1290	.0300	-.9989	.0300	-.0172
.0500	-1.5053	.0500	.1087	.0500	-.8627	.0500	-.1858	.0500	-.9638	.0500	-.0875
.0700	-1.5079	.0700	.0527	.0700	-.9193	.0700	-.2430	.0700	-1.0253	.0700	-.1486
.1000	-1.4661	.1000	-.0017	.1000	-.8987	.1000	-.2702	.1000	-1.0383	.1000	-.1829
.1500	-1.3508	.1500	-.0480	.1500	-.8611	.1500	-.2759	.1500	-.9921	.1500	-.1872
.2000	-.4735	.2000	-.0409	.2000	-.7848	.2000	-.2341	.2000	-.9723	.2000	-.1613
.2500	-.5699	.2500	-.0367	.2500	-.4263	.2500	-.2006	.2500	-.9546	.2500	-.1506
.3000	-.5870	.3000	-.0443	.3000	-.5153	.3000	-.1605	.3000	-.8834	.3000	-.1399
.3500	-.5507	.3500	-.0420	.3500	-.5024	.3500	-.1627	.3500	-.3952	.3500	-.1284
.4000	-.5424	.4000	-.0459	.4000	-.5024	.4000	-.1703	.4000	-.4363	.4000	-.1296
.4500	-.5427	.4500	-.0570	.4500	-.4937	.4500	-.1710	.4500	-.4646	.4500	-.1414
.5000	-.5348	.5000	-.0889	.5000	-.5092	.5000	-.1782	.5000	-.4960	.5000	-.1560
.5500	-.5368	.5500	-.1089	.5500	-.5193	.5500	-.2029	.5500	-.5282	.5500	-.1769
.6000	-.5439	.6000	-.0898	.6000	-.5425	.6000	-.1668	.6000	-.5569	.6000	-.1428
.6500	-.5663	.6500	.0436	.6500	-.5866	.6500	.0169	.6500	-.6039	.6500	.0323
.7000	-.5825	.7000	.2795	.7000	-.6421	.7000	.2546	.7000	-.6533	.7000	.2641
.7500	-.6008	.7500	.3716	.7500	-.6921	.7500	.3477	.7500	-.7100	.7500	.3600
.8000	-.5920	.8000	.4394	.8000	-.7327	.8000	.4145	.8000	-.7393	.8000	.4319
.8500	-.5566	.8500	.4907	.8500	-.5819	.8500	.4659	.8500	-.5873	.8500	.4853
.9000	-.4519	.9000	.5196	.9000	-.4205	.9000	.4961	.9000	-.4337	.9000	.5153
.9300	-.3169	.9300	.5114	.9300	-.2649	.9300	.5083	.9300	-.2772	.9300	.5124
.9500	-.1887	.9500	.4895	.9800	-.0702	.9500	.4912	.9500	-.1640	.9500	.4986
.9700	-.1250	.9700	.4536	1.0000	-.0416	.9700	.4504	.9700	-.1039	.9700	.4539
.9800	-.0840	.9800	.4103			.9800	.4094	.9800	-.0698	.9800	.4146
1.0000	-.0439							1.0000	-.0395		

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

MACH = 0.76 $\alpha = 2^\circ$				MACH = 0.76 $\alpha = 2.5^\circ$				MACH = 0.79 $\alpha = .5^\circ$			
STATION		STATION		STATION		STATION		STATION		STATION	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE	
0.0000	1.1213	.0040	.7727	0.0000	1.1003	.0040	.8438	0.0000	1.1760	.0040	.5027
.0020	.2473	.0100	.5089	.0020	.1577	.0100	.6172	.0020	.5420	.0100	.2303
.0200	-.2136	.0200	.2970	.0200	-.1.3014	.0200	.3967	.0200	-.6972	.0200	-.0292
.0300	-.1.2176	.0300	.1675	.0300	-.1.3114	.0300	.2712	.0300	-.7559	.0300	-.1517
.0500	-.1.2041	.0500	.0898	.0500	-.1.2810	.0500	.1716	.0500	-.7561	.0500	-.2056
.0700	-.1.2163	.0700	.0275	.0700	-.1.3067	.0700	.1010	.0700	-.8336	.0700	-.2731
.1000	-.1.2057	.1000	-.0304	.1000	-.1.2818	.1000	.0465	.1000	-.8125	.1000	-.2886
.1500	-.1.1920	.1500	-.0639	.1500	-.1.2538	.1500	-.0074	.1500	-.8173	.1500	-.3121
.2000	-.1.1592	.2000	-.0604	.2000	-.1.2393	.2000	.0040	.2000	-.7934	.2000	-.2523
.2500	-.1.1452	.2500	-.0512	.2500	-.1.2023	.2500	.0079	.2500	-.7934	.2500	-.2242
.3000	-.1.1375	.3000	-.0520	.3000	-.1.2213	.3000	-.0074	.3000	-.7992	.3000	-.1876
.3500	-.1.0609	.3500	-.0508	.3500	-.1.1524	.3500	-.0013	.3500	-.7295	.3500	-.1833
.4000	-.1.0450	.4000	-.0598	.4000	-.1.1362	.4000	-.0180	.4000	-.6608	.4000	-.1894
.4500	-.1.0427	.4500	-.0678	.4500	-.1.1111	.4500	-.0386	.4500	-.3683	.4500	-.1835
.5000	-.1.0080	.5000	-.0810	.5000	-.1.0829	.5000	-.0578	.5000	-.4375	.5000	-.2013
.5500	-.9560	.5500	-.1109	.5500	-.1.0890	.5500	-.0746	.5500	-.4642	.5500	-.2284
.6000	-.4174	.6000	-.0909	.6000	-.1.0903	.6000	-.0658	.6000	-.5057	.6000	-.1797
.6500	-.4423	.6500	.0708	.6500	-.1.1085	.6500	.0842	.6500	-.5619	.6500	.0208
.7000	-.5099	.7000	.2990	.7000	-.7878	.7000	.3129	.7000	-.6341	.7000	.2655
.7500	-.5828	.7500	.3952	.7500	-.4599	.7500	.4098	.7500	-.7076	.7500	.3538
.8000	-.6434	.8000	.4587	.8000	-.4628	.8000	.4737	.8000	-.7949	.8000	.4222
.8500	-.5768	.8500	.5032	.8500	-.4498	.8500	.5235	.8500	-.9064	.8500	.4813
.9000	-.4481	.9000	.5383	.9000	-.3790	.9000	.5533	.9000	-.3321	.9000	.5136
.9300	-.2985	.9300	.5363	.9300	-.2665	.9300	.5478	.9300	-.2068	.9300	.5117
.9500	-.1730	.9500	.5226	.9500	-.1515	.9500	.5247	.9800	-.0835	.9500	.4963
.9700	-.0945	.9700	.4787	.9700	-.0873	.9700	.4874	1.0000	-.0784	.9700	.4563
.9800	-.0559	.9800	.4415	.9800	-.0466	.9800	.4427			.9800	.4127
1.0000	-.0147			1.0000	-.0060						

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONTINUED)

MACH = 0.79 $\alpha = 1^\circ$				MACH = 0.79 $\alpha = 2^\circ$				MACH = 0.80 $\alpha = .5^\circ$			
STATION		STATION		STATION		STATION		STATION		STATION	
X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE		UPPER SURFACE		LOWER SURFACE	
0.0000	1.1727	.0040	.5835	0.0000	1.1586	.0040	.7159	0.0000	1.1728	.0040	.4683
.0020	.4744	.0100	.3201	.0020	.3466	.0100	.4867	.0020	.5692	.0100	.2176
.0200	-.8352	.0200	.0890	.0200	-1.0004	.0200	.2427	.0200	-.6453	.0200	-.0546
.0300	-.8389	.0300	-.0398	.0300	-1.0203	.0300	.1063	.0300	-.7043	.0300	-.1737
.0500	-.8520	.0500	-.1110	.0500	-1.0223	.0500	.0342	.0500	-.7088	.0500	-.2288
.0700	-.9175	.0700	-.1510	.0700	-1.0404	.0700	-.0186	.0700	-.7631	.0700	-.3070
.1000	-.9127	.1000	-.2024	.1000	-1.0377	.1000	-.0818	.1000	-.7799	.1000	-.3273
.1500	-.8964	.1500	-.2197	.1500	-1.0598	.1500	-.0984	.1500	-.7772	.1500	-.3342
.2000	-.8936	.2000	-.1959	.2000	-1.0387	.2000	-.0857	.2000	-.7742	.2000	-.2844
.2500	-.8870	.2500	-.1793	.2500	-1.0208	.2500	-.0723	.2500	-.7653	.2500	-.2516
.3000	-.8593	.3000	-.1355	.3000	-1.0178	.3000	-.0788	.3000	-.7826	.3000	-.2156
.3500	-.8269	.3500	-.1375	.3500	-.9525	.3500	-.0784	.3500	-.7135	.3500	-.2027
.4000	-.8226	.4000	-.1467	.4000	-.9561	.4000	-.0798	.4000	-.7068	.4000	-.2079
.4500	-.8062	.4500	-.1381	.4500	-.9364	.4500	-.0945	.4500	-.6768	.4500	-.2008
.5000	-.7906	.5000	-.1630	.5000	-.9331	.5000	-.1200	.5000	-.6580	.5000	-.2278
.5500	-.7898	.5500	-.1855	.5500	-.9407	.5500	-.1432	.5500	-.3774	.5500	-.2442
.6000	-.7614	.6000	-.1512	.6000	-.9359	.6000	-.1126	.6000	-.4290	.6000	-.1965
.6500	-.6179	.6500	.0421	.6500	-.9535	.6500	.0513	.6500	-.4822	.6500	.0108
.7000	-.4982	.7000	.2738	.7000	-.9845	.7000	.2853	.7000	-.5735	.7000	.2573
.7500	-.5688	.7500	.3715	.7500	-1.0387	.7500	.3838	.7500	-.6719	.7500	.3471
.8000	-.6748	.8000	.4402	.8000	-.5370	.8000	.4517	.8000	-.7767	.8000	.4133
.8500	-.7682	.8500	.4976	.8500	-.3640	.8500	.4935	.8500	-.8999	.8300	.4650
.9000	-.3585	.9000	.5223	.9000	-.2490	.9000	.5295	.9000	-.3313	.9000	.5022
.9300	-.2265	.9300	.5349	.9300	-.1998	.9300	.5246	.9300	-.2071	.9300	.5053
.9500	-.1298	.9500	.5079	.9500	-.1583	.9500	.5007	.9800	-.1080	.9500	.4909
.9700	-.0855	.9700	.4732	.9700	-.1175	.9700	.4606	1.0000	-.0762	.9700	.4463
.9800	-.0546	.9800	.4269	.9800	-.1321	.9800	.4266			.9800	.4122
1.0000	-.0291			1.0000	-.1014						

TABLE IV. TABULATED PRESSURE DISTRIBUTION FOR RANGE OF MACH NUMBERS AND ANGLES OF ATTACK (CONCLUDED)

MACH = 0.80		$\alpha = 1^\circ$	
STATION		STATION	
X/C	CP	X/C	CP
UPPER SURFACE		LOWER SURFACE	
0.0000	1.1789	.0040	.5638
.0020	.5003	.0100	.3113
.0200	-.7830	.0200	.0554
.0300	-.8073	.0300	-.0586
.0500	-.7758	.0500	-.1211
.0700	-.8694	.0700	-.1957
.1000	-.8637	.1000	-.2214
.1500	-.8345	.1500	-.2384
.2000	-.8481	.2000	-.2197
.2500	-.8642	.2500	-.1909
.3000	-.8357	.3000	-.1570
.3500	-.7964	.3500	-.1633
.4000	-.8031	.4000	-.1631
.4500	-.7830	.4500	-.1556
.5000	-.7833	.5000	-.1680
.5500	-.7778	.5500	-.1853
.6000	-.7887	.6000	-.1604
.6500	-.8073	.6500	.0382
.7000	-.8395	.7000	.2740
.7500	-.8902	.7500	.3664
.8000	-.9330	.8000	.4347
.8500	-.4040	.8500	.4904
.9000	-.2626	.9000	.5194
.9300	-.1814	.9300	.5265
.9500	-.1192	.9500	.5108
.9700	-.0843	.9700	.4682
.9800	-.0717	.9800	.4332
1.0000	-.0673		

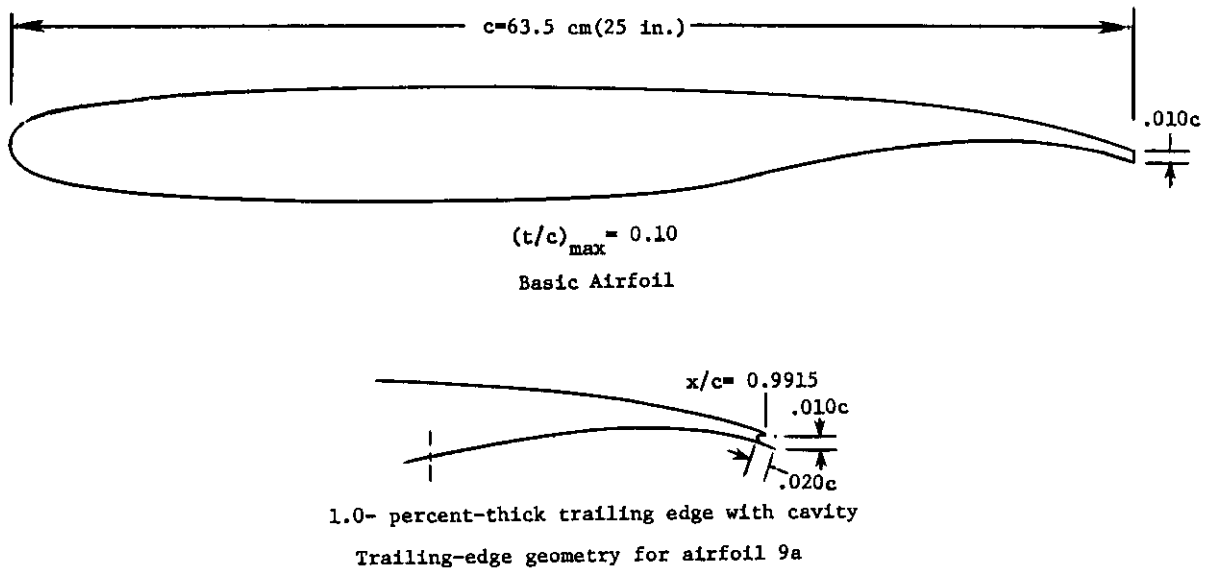


Figure 9.1.- Airfoil Geometry

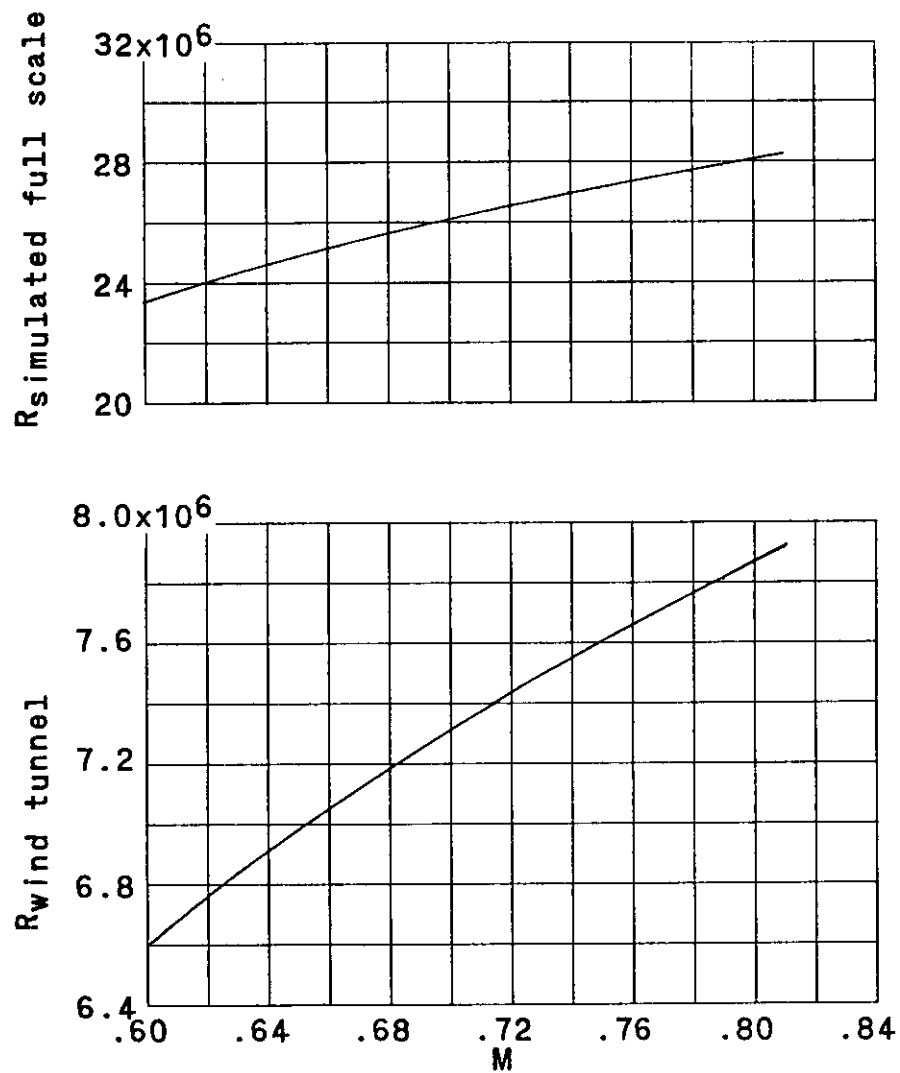


Figure 9.2.- Variation with Mach number of test wind-tunnel Reynolds number and simulated full-scale Reynolds number.

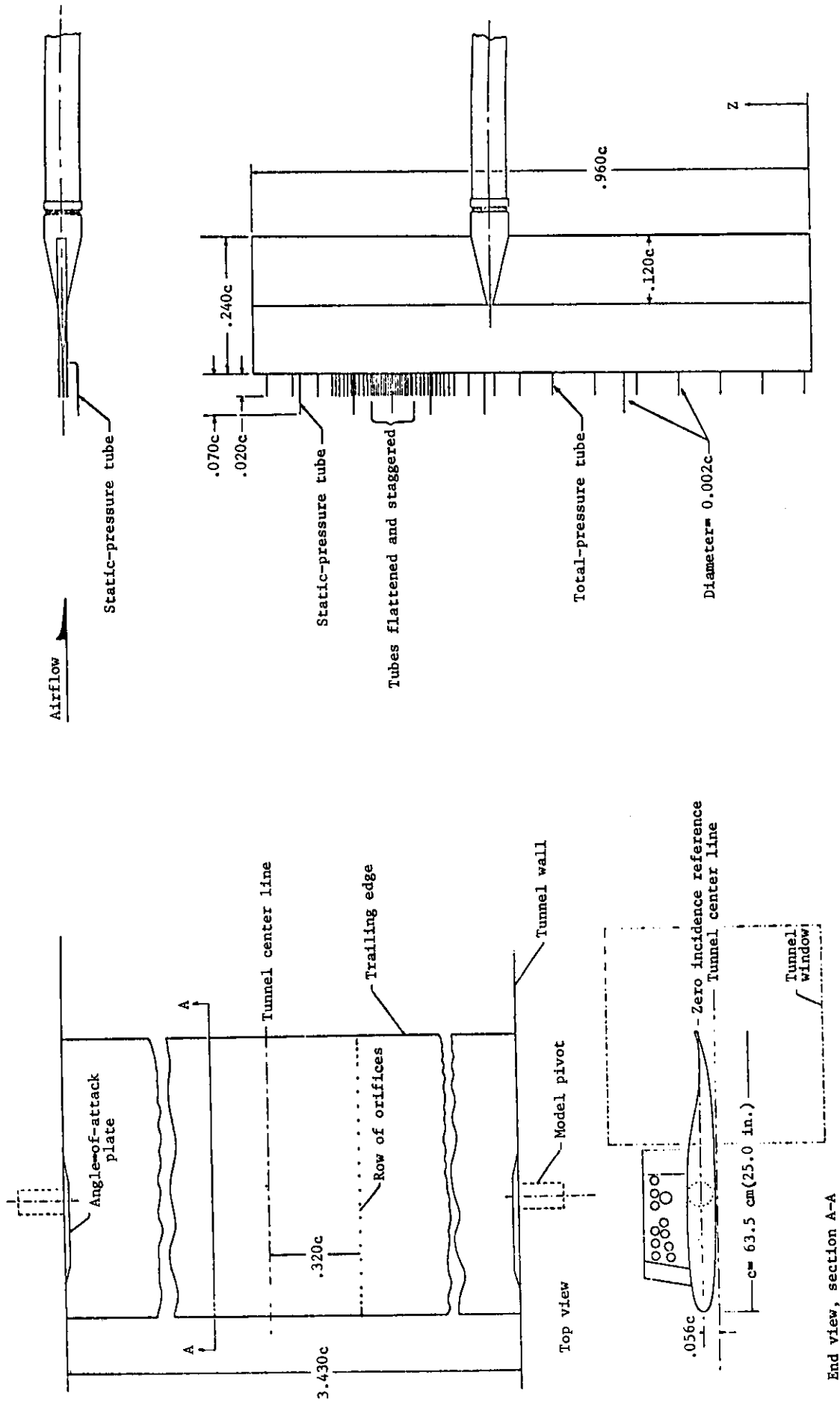


Figure 9.3.- Airfoil mounted in tunnel.

Figure 9.4.- Profile-drag rake.

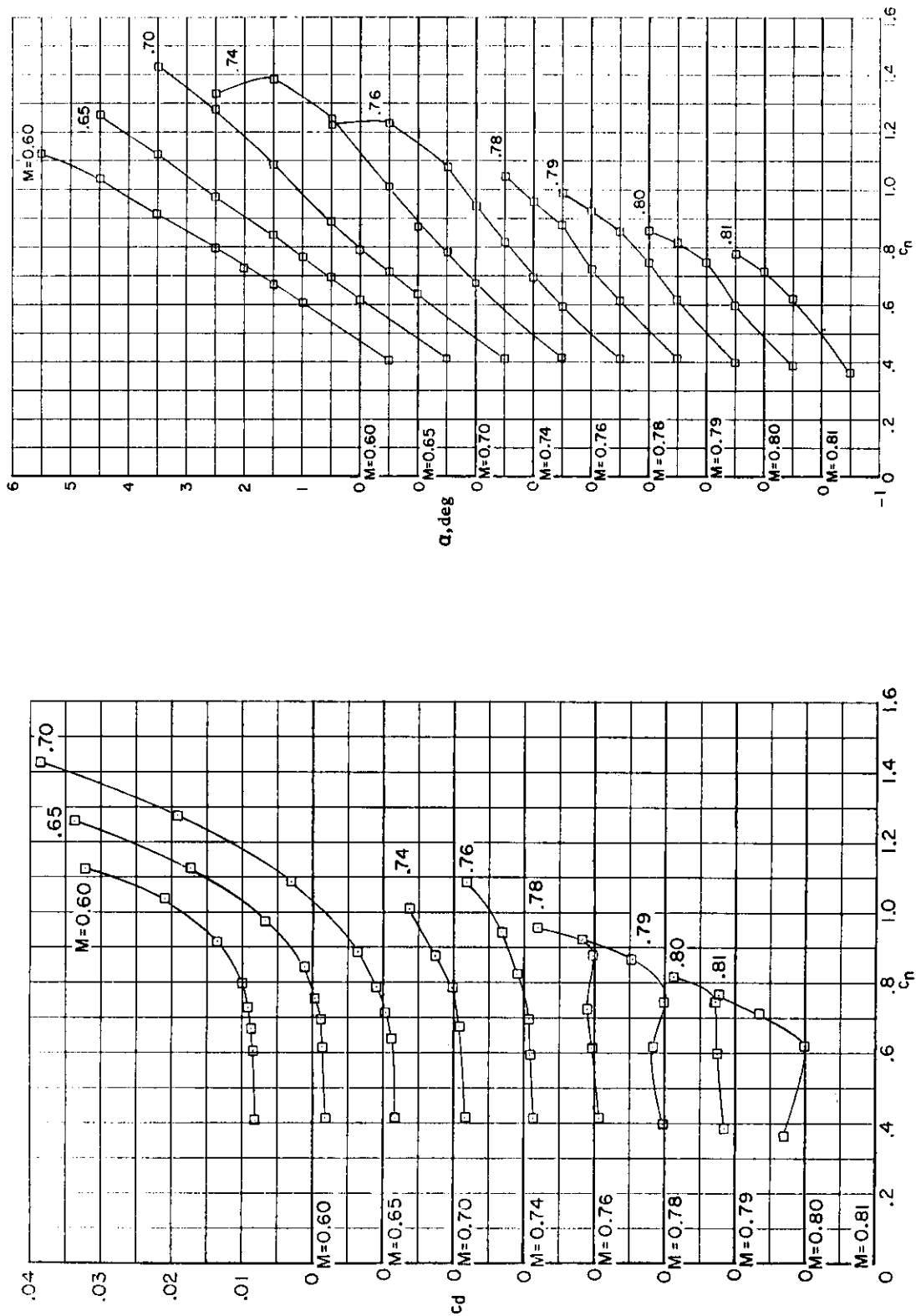


Figure 9.5.- Variation of section drag coefficient, angle of attack, and section pitching-moment coefficient at various Mach numbers.

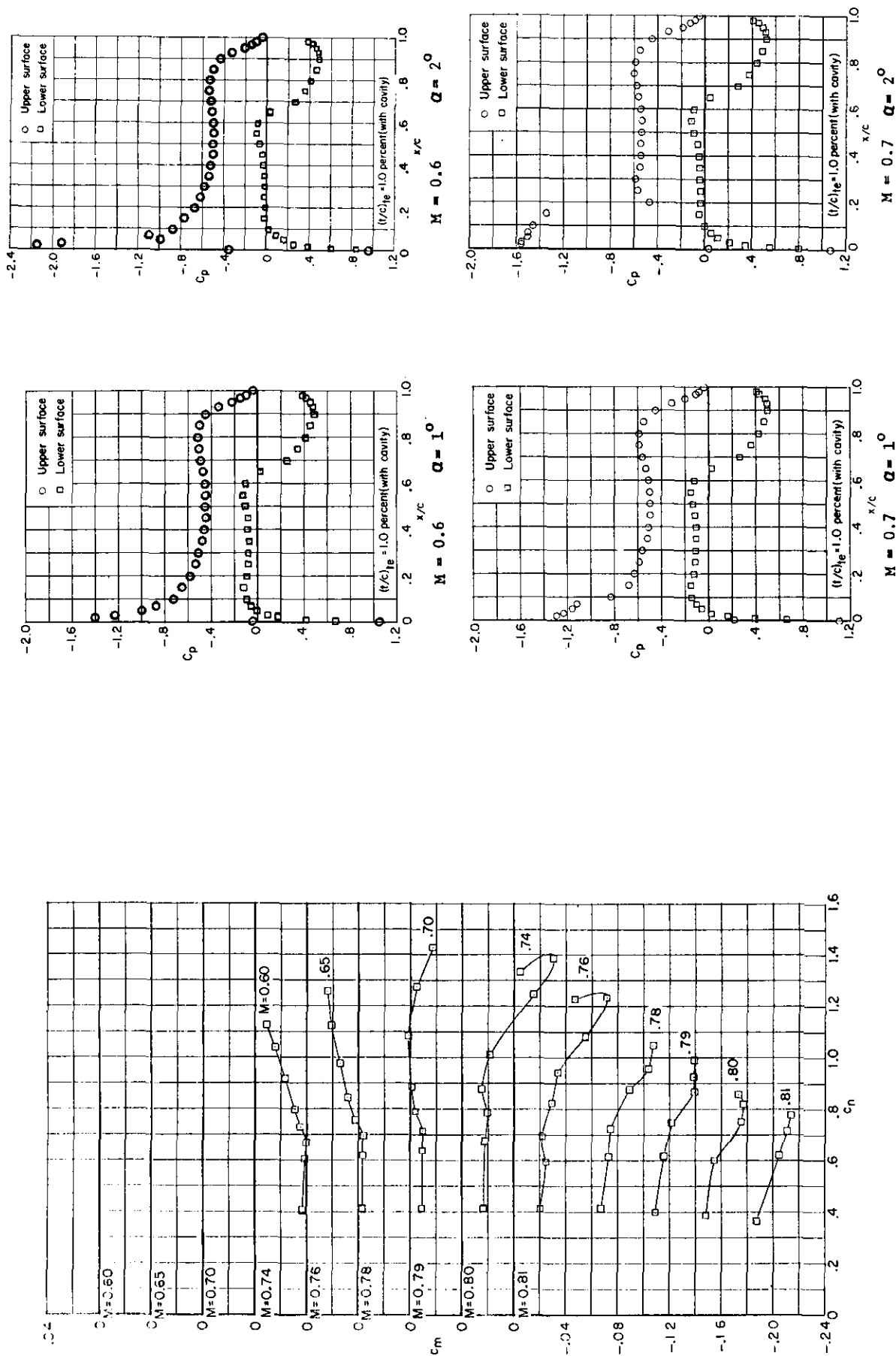


Figure 9.6.- Chordwise pressure distributions for various Mach numbers and angles of attack.

Figure 9.5.- Concluded.

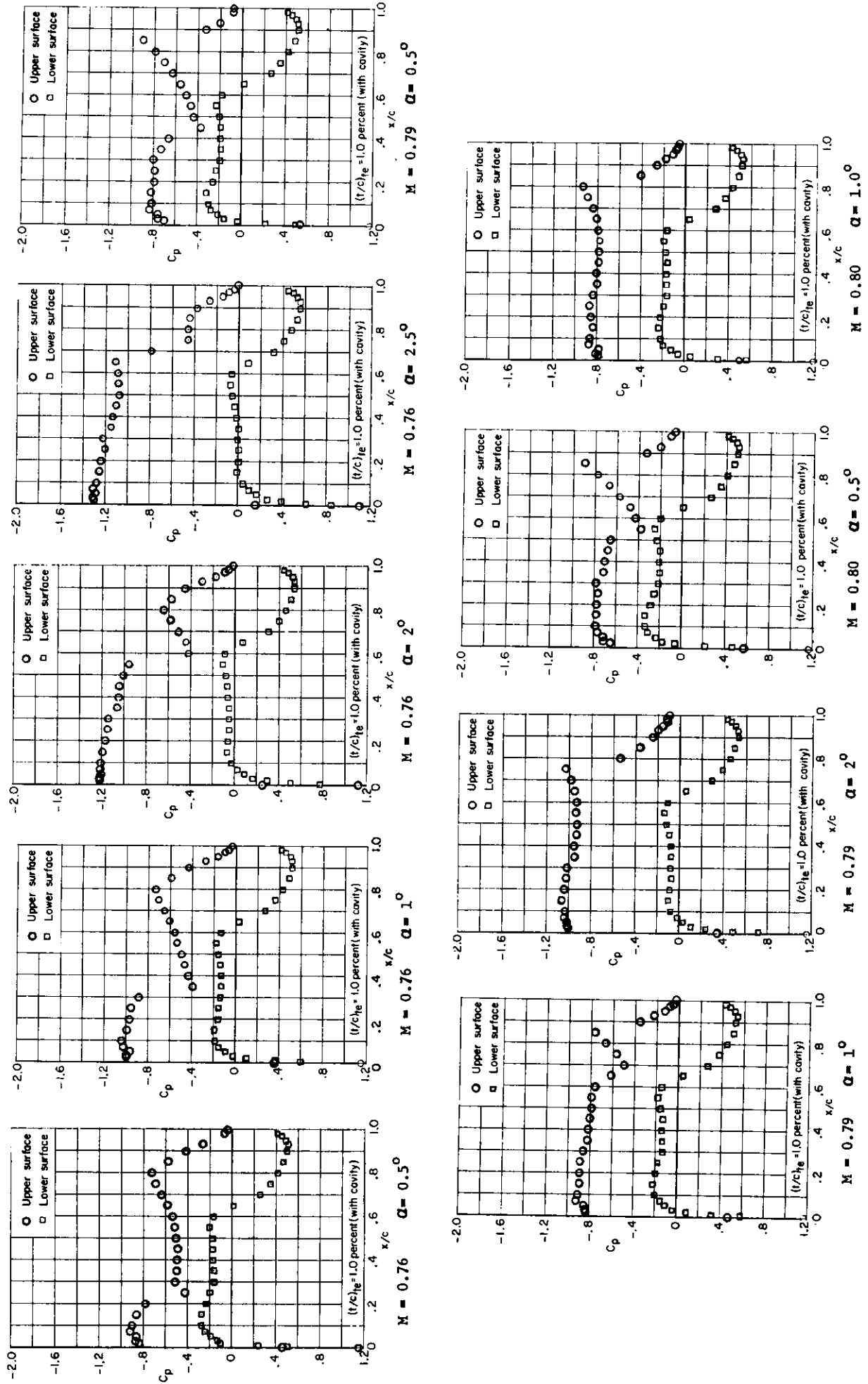


Figure 9.6.- Concluded.

APPENDIX B

3D Configurations

O. Guide to the data.- The purpose of this compilation is to make readily available data of high quality for a variety of wing and wing/body configurations for use in validating theoretical methods. The accuracy of the latest numerical methods in solving various forms of the transonic flow equations is a particular concern, therefore, special emphasis has been placed on the inclusion of high-subsonic-speed data. A further desire has been to include configurations ranging from simple to the most complex. Configuration B-2 (ONERA AFVD), for example, is an untapered wing with constant airfoil section from root to tip and no body while configuration B-5 is a complete aircraft configuration with as complicated a wing geometry as one is likely to encounter.

To facilitate the utilization of this data base a single format has been used to present the information for all the configurations, paralleling very closely that used for the 2D configuration. Sections are included giving a general description of the model, the geometric characteristics of the model, the characteristics of the wind tunnel used, details of how the tests were conducted, the types and accuracies of the instrumentation and, finally, a listing of the data tables and plots appended. References are given for most of the configurations from which the reader may obtain additional details on the model, the test procedures, the data obtained and the wind tunnel used.

A brief summary of the geometric characteristics and test conditions for the five wing and wing/body data sets are given below. It can be seen that the Reynolds numbers range from 1 to approximately 11.7 million (B-4 and B-1 respectively) and Mach numbers from 0.4 (B-4) to 0.99 (B-5). With the exception of B-4 aeroelastic corrections have not been applied to the data. Measured angles of attack have been corrected for induced wall effects in both B-4 and B-5; sufficient data is given in B-1, B-2 and B-3 to enable the reader to apply corrections if he desires.

Finally, it should be noted that if additional information is desired on the tests or wind tunnel facilities, addresses of the organizations which carried out the tests are given in item 3.10 of each data set.

MODEL GEOMETRY AND TEST CONDITIONS FOR WING AND WING/BODY DATA

Data Set	Wing Wing/Body	Leading Edge Sweep	Aspect Ratio	Taper Ratio	Data Presented For -		
					Mach Range	Angle of Attack Range	RN Range Based on m.a.c.
B-1	Semi-span Wing	30° 30°	3.8	0.562	0.7 to 0.92	0° to 6°	~11.7 x 10 ⁶
B-2	Semi-span Wing	Variable, data given for 0°, 30° and 50°	8.0 for 0° sweep and 2.7 for 60° sweep	1.0	0.7 to 0.92	0° to 6°	2.5 x 10 ⁶ based on chord normal to L.E.
B-3	Wing/body	35°	4.5	0.33	0.65 to 0.92	-2 to 8°	1.12 x 10 ⁶ to 1.34 x 10 ⁶
B-4	Wing/body	36.65°	6.0	0.33	0.4 to 0.9	0° to 2°	1 x 10 ⁶
B-5	Wing/body	44.34°	6.8	0.36	0.5 to 0.99	-4° to 11°	2.37 x 10 ⁶ to 2.68 x 10 ⁶

1. PRESSURE DISTRIBUTIONS ON THE ONERA-M6-WING
 AT TRANSONIC MACH NUMBERS

by

V. SCHMITT and F. CHARPIN

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 92320 - CHATILLON - FRANCE

1.1 - INTRODUCTION -

In 1972, the ONERA Aerodynamics Department designed a swept back wing very well instrumented to be used as an experimental support for basic studies of three-dimensional flows at high Reynolds numbers from low to transonic speeds.

Wind tunnel data from this model called M6-wing have been constituting a good base both for computer program assessment and for understanding various flow phenomena like shock wave-boundary layer interaction or flow separation.

The selected data set was obtained in the ONERA S2MA wind tunnel at Mach numbers of 0.7, 0.84, 0.88 and 0.92 for angles of attack up to 6 degrees and a Reynolds number of about 12 million.

1.2 - DATA SET -

1. General description

1.1 Model designation or name	ONERA Wing M6
1.2 Model type (e.g., full span wing-body; semi-span wing)	semi-span wing (see also figures B1-1 and B1-2)
1.3 Design requirements/conditions	this model was designed to be used for studies of three-dimensional flows from low to transonic speeds at high Reynolds numbers.
1.4 Additional remarks	it is derived from the ONERA calibration model series M and represents the external third of the wing.

2. Model geometry

2.1 Wing data

2.1.1 Wing planform	swept back (see figure B1-1)
2.1.2 Aspect ratio	3.8
2.1.3 Leading-edge sweep	30°
2.1.4 Trailing-edge sweep	15.8°
2.1.5 Taper ratio	0.562
2.1.6 Twist	without twist
2.1.7 Mean aerodynamic chord	c = 0.64607 m
2.1.8 Span or semispan	b = 1.1963 m
2.1.9 Number of airfoil sections used to define wing	1
2.1.10 Spanwise location of reference section and section coordinates (note if ordinates are design or actual measured values)	y/b = 0 section coordinates of the symmetrical profile (design values) : see table B1-1. The section is ONERA D normal to the generator at 40.18 % chord
2.1.11 Lofting procedure between reference sections	conical generation
2.1.12 Form of wing-body fillet, strakes	no body, no strake, no fillets

2.1.13 Form of wing tip	truncation parallel to wing root and addition of a half body of revolution
2.2 Body data (detail description of body geometry)	no body
2.3 Fabrication tolerances/waviness	0.15 mm
2.4 Additional remarks	see also figure B1-1
3. <u>Wind tunnel</u>	
3.1 Designation	S2MA (ONERA - Modane Center)
3.2 Type of tunnel	
3.2.1 Continuous or blowdown. Indicate minimum run time if applicable	continuous
3.2.2 Stagnation pressure	from 0.3 bar to a limit stagnation pressure depending slightly on the Mach number : $P_{o_{max}} \leq 2.5$ bar
3.2.3 Stagnation temperature	from 287°K to 320°K
3.3 Test section	
3.3.1 Shape of test section	square
3.3.2 Size of test section (width, height, length)	height : 1.770 m width : 1.750 m perforated length : 5.4 m
3.3.3 Type of test section walls: closed, open, slotted, perforated Open area ratio (give range if variable) Slot/hole geometry (e.g., 30-degree slanted holes) Treatment of side wall boundary layer:	vertical solid walls - horizontal perforated walls maximum geometric porosity : 6 % - possibility of changing the porosity with sliding plates sixty degree inclined holes (diameter : 18 mm)
Full span models	no treatment
Half-model testing	B.L. diverter
3.4 Flow field (empty test section)	
3.4.1 Reference static pressure	on the vertical wall, 2.685 m upstream of the balance axis
3.4.2 Flow angularity	unknown
3.4.3 Mach Number distribution	$\Delta M/\text{meter} = \pm 3 \times 10^{-3}/\text{m}$ for $0.7 < M \leq 0.92$
3.4.4 Pressure gradient	according to 3.4.3
3.4.5 Turbulence/noise level	velocity turbulence : 0.2 % - ref. 1
3.4.6 Side wall boundary layer	displacement thickness : $\delta_1 = 12$ to 18 mm boundary layer thickness : $\delta = 90$ to 170 mm
3.5 Freestream Mach number (or velocity)	
3.5.1 Range	from $M_o = 0.1$ to 1.35
3.5.2 Pressures used to determine Mach number (e.g. settling chamber total pressure and plenum chamber pressure)	settling chamber total pressure and static pressure on the vertical wall
3.5.3 Accuracy of Mach number determination (ΔM)	$\Delta M = \pm 0.001$
3.5.4 Maximum Mach number variation in x, y, z-direction (empty tunnel ; specify at what Mach number)	see 3.4.3
Maximum variation of flow direction	upwash ~ 0.3 degree (function of the model size)

Maximum Mach number variation
 during a run

the Mach number is adjustable at ± 0.001 ; during a continuous angle of attack variation the Mach number is not kept strictly constant and depends on model size and Mo .

3.6 Reynolds number range

3.6.1 Unit Reynolds number range
 (give range at representative
 Mach numbers ; $1/m$)

Mo : 0.25 0.50 0.72 1. 1.35
 $(Re/m)_{max} 10^{-6}$: 14 21 33 27 27

3.6.2 Means of varying Reynolds number
 (e.g., by pressurization)

stagnation pressure $Po = 0.3$ to 2.5 bar for $M \leq 0.7$
 0.3 to 1.75 bar for $M \geq 1$
 0.3 to 2.1 bar for $M = 0.8$
 0.3 to 1.9 bar for $M = 0.9$

3.7 Temperature range and dewpoint.
 Can temperature be controlled ?

stagnation temperature $To = 292 K \pm 5$ to $315 K \pm 5$
 cannot be controlled
 humidity $< 0.2g H_2O / Kg$ air

3.8 Model attitudes

3.8.1 Angle of attack, yaw, roll

motorization for the 3 angles up to 35°
 (for complete model)

3.8.2 Accuracy in determining angles

0.03 degree

3.9 Organization operating the tunnel and
 location of tunnel

ONERA - Centre de Modane-Avrieux

3.10 Who is to be contacted for additional
 information

ONERA - Direction GME - Châtillon - FRANCE

3.11 Literature concerning this facility

ref. 2, 3

3.12 Additional remarks

on line data return

4. Tests

4.1 Type of tests

pressure distributions, aerodynamic forces and
 moments, flow studies by visualization (wall
 streamlines and boundary layer transition),
 unsteady measurements

4.2 Wing span or semispan to tunnel width

0.7

4.3 Test conditions

4.3.1 Angle of attack

during pressure measurements : $\alpha_{max} \leq 14^\circ$ for all
 Mach numbers and $Re_c < 18 \times 10^6$ (for force
 measurements, because of the limited capacity of the
 balance, there is a large variation of α_{max} with
 M and Re)

4.3.2 Mach number

$0.27 < Mo < 1.33$

4.3.3 Dynamic pressure

$1600 < q_0 < 60700 N/m^2$

4.3.4 Reynolds number

$1.5 \times 10^6 < Re_c < 15 \times 10^6$

4.3.5 Stagnation temperature

$\sim 300 K$

4.6 Transition

4.4.1 Free or fixed

free

4.4.2 Position of free transition

variable

4.4.3 Position of fixed transition,
 width of strips, size and type
 of roughness elements

not relevant

4.4.4 Were checks made to determine if
 transition occurred at trip
 locations ?

not relevant

4.5 Bending or torsion under load

4.5.1 Describe any aeroelastic
 measurements made during tests

unsteady bending measured by strain-gauge
 on the wing root

4.5.2 Describe results of any bench calibrations not relevant

4.6 Were different sized models used in wind-tunnel investigation ?
If so, indicate sizes no

4.7 Areas and lengths used to form coefficients $S = 0.7532 \text{ m}^2$ $c = 0.64607 \text{ m}$

4.8 References on tests ref. 4, 5

4.9 Related reports ref. 6, 7

5. Instrumentation

5.1 Surface pressure measurements

5.1.1 Pressure orifices in wing. Location and number on upper and lower surfaces 271 pressure orifices divided in 7 sections
(y/b = 0.20/0.44/0.65/0.80/0.90/0.96 and 0.99)
see also figure B1-1 and table B1-2

5.1.2 Pressure orifices on fuselage. Location and number not relevant

5.1.3 Pressure orifices on components, give components and orifice location not relevant

5.1.4 Geometry of orifices $\phi 0.8 \text{ mm}$

5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy 6 transducers GEC 4312
($\pm 12.5 \text{ PSID}$ - Accuracy : $\pm 0.012 \text{ PSI}$)
6 scanivalves (type D)

5.2 Force measurements

5.2.1 Type and location of balance wall dynamometric 5 components balance $\phi 120 \text{ mm}$

5.2.2 Forces and moments that can be measured. Maximum loads and accuracy
axial force : $12000 \pm 12 \text{ N}$
normal force : $65000 \pm 65 \text{ N}$
rolling moment : $8000 \pm 8 \text{ mN}$
pitching moment : $2500 \pm 2.5 \text{ mN}$
yawing moment : $1400 \pm 1.4 \text{ mN}$
not relevant

5.2.3 Forces and moments on components not relevant

5.3 Boundary layer and flow-field measurements none

5.4 Surface flow visualization

5.4.1 Indicate method used to determine
- streamline pattern by means of fluid paints

- boundary-layer transition by sublimation

5.4.2 Accuracy of method qualitative methods

5.5 Skin friction measurements none

5.6 Simulation of exhaust jet not relevant

5.7 Additional remarks there is strain gauge, kulite and accelerometer instrumentation for buffeting analysis

6. Data

6.1 Accuracy

6.1.1 Pressure coefficients at $Mo = 0.84$; $\Delta C_p = \pm 0.02$

6.1.2 Aerodynamic coefficients at $Mo = 0.84$: $\Delta C_x = \pm 0.002$, $\Delta C_l = \pm 0.002$
 $\Delta C_z = \pm 0.009$, $\Delta C_m = \pm 0.0006$
 $\Delta C_n = \pm 0.0003$

- 6.1.3 Boundary layer and wake quantities not relevant
- 6.1.4 Repeatability see tables B1-2 and B1-3 or B1-10 and B1-11
- 6.2 Wall interference corrections no corrections
- 6.3 Data presentation
- 6.3.1 Aerodynamic coefficients none
- 6.3.2 Surface pressure coefficients $C_p (x/l)$ for all sections defined 5.1.1
- 6.3.3 Flow conditions for
- aerodynamic coefficient data not relevant
 - pressure data $Mo = 0.70/0.84/0.88/0.92$ at $Re \sim 11.7 \cdot 10^6$
 and angles of attack $\alpha = 0^\circ$ to 6°
- detail : T2 means table B1-2
 F3 means figure B1-3

$\alpha \backslash Mo$	0.70	0.84	0.88	0.92
0°	T2/3	T10/11 F3	T18	T25
1°	T4	T12 F4	T19	T26
2°	T5	T13 F5	T20	T27
3°	T6 F10	T14 F6/11	T21 F12	T28 F13
4°	T7	T15 F7	T22	T29
5°	T8	T16 F8	T23	T30
6°	T9	T17 F9	T24	T31

- 6.3.4 Boundary layer and/or wake data none
- 6.3.5 Flow conditions for boundary layer and/or wake data not relevant
- 6.3.6 Wall interference corrections included ? no
- 6.3.7 Aeroelastic corrections included ? no
- 6.3.8 Other corrections ? no
- 6.4 Were tests carried out in different facilities on the current model ? If so, what facilities. Are data included in present data base ? not at transonic Mach numbers

7. References

- X. VAUCHERET Fluctuations acoustiques engendrées par les parois perméables d'une soufflerie transsonique
 AGARD CP 174 (Octobre 1975)
- M. PIERRE The aerodynamic test center of Modane-Avrieux
 G. PASSO ONERA Technical Note n° 166E (1972)

- 3 M. PIERRE
G. FASSO Exploitation du centre d'essais aérothermodynamiques de Modane-Avrieux
Note technique ONERA n° 181 (1971)
4. M. GOUSSE Etude de l'écoulement autour de l'aile M6 en transsonique à S2MA
P.V. n° 2/0065 GY (1973) - not published
5. F. CHARPIN Etude de l'écoulement autour de l'aile M6 en transsonique à S2MA
P.V. n° 5/1713 ANG (1974) - not published
6. B. MONNERIE
F. CHARPIN Essais de tremblement (buffeting) d'une aile en flèche en transsonique
L'Aéronautique et l'Astronautique n° 50 (1975-1), p. 3-16
7. C. ARMAND Etude de la couche limite par détecteurs à film chaud en écoulement
subsonique et transsonique
La Recherche Aérospatiale n° 1976-3, p. 127-133

8. List of symbols

b	: semi-span
l	: local chord
c	: mean aerodynamic chord
S	: wing area
x	: distance measured along the local chord from the leading-edge of the wing section
y	: distance measured spanwise
z	: distance from the plane of the wing
X	: distance measured chordwise from wing apex
α	: angle of attack
Mo	: free stream Mach number
M	: local Mach number
Po	: stagnation pressure
po	: free stream static pressure
qo	: free stream dynamic pressure
p	: local static pressure
Cp	: pressure coefficient $C_p = \frac{p - p_o}{q_o}$
To	: stagnation temperature
Re _c	: Reynolds number based on c
CX	: axial force coefficient
CZ	: normal force coefficient
C _l	: rolling moment coefficient
C _m	: pitching moment coefficient
C _n	: yawing moment coefficient

M6 WING STREAMWISE SECTION COORDINATES (DESIGN VALUES)

x/l	z/l		x/l	z/l
0.0	0.0		0.3761446	0.0489296
0.0000165	0.0006914		0.4018567	0.0488202
0.0000696	0.0014416		0.4274223	0.0486833
0.0001675	0.0022554		0.4528441	0.0479351
0.0003232	0.0031382		0.4781197	0.0471661
0.0005509	0.0040959		0.5032514	0.0461903
0.0008657	0.0051363		0.5282426	0.0450209
0.0012868	0.0062598		0.5530937	0.0436741
0.0018364	0.0074784		0.5778043	0.0421684
0.0025441	0.0087958		0.6023757	0.0405241
0.0034428	0.0102163		0.6268104	0.0387613
0.0045704	0.0117419		0.6511093	0.0368990
0.0059751	0.0133708		0.6752726	0.0349542
0.0077112	0.0150951		0.6993027	0.0329402
0.0098413	0.0168984		0.7231995	0.0308662
0.0124479	0.0187537		0.7469658	0.0287365
0.0156171	0.0206720		0.7705998	0.0265505
0.0194609	0.0226545		0.7941055	0.0243027
0.0241067	0.0247004		0.8174829	0.0219942
0.0297008	0.0268245		0.8407324	0.0195838
0.0364261	0.0290317		0.8638564	0.0170915
0.0444852	0.0313278		0.8868235	0.0145051
0.0541248	0.0337923		0.90961005	0.0122349
0.0656303	0.0363372		0.9225336	0.0102727
0.0793366	0.0389522		0.9363346	0.0085827
0.0956354	0.0417090		0.9479946	0.0071423
0.1149796	0.0446214		0.9578511	0.0059224
0.1378963	0.0476994		0.9661860	0.0048907
0.1649376	0.0509507		0.9732361	0.0040190
0.1971327	0.0543310		0.9792020	0.0032796
0.2187096	0.0578258		0.9842508	0.0026547
0.2453310	0.0614387		0.9885252	0.0021257
0.2717978	0.0651798		0.9921438	0.0016778
0.2991113	0.0690592		0.9952090	0.0012985
0.3242726	0.0730883		0.9979030	0.0009773
0.3502830	0.0772683		1.0000000	0.0007052

TABLE B1- 1

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2309

MO = .6998
 ALPHA = .04
 REC = 11.74*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP			
12	.95050	-.00724	.100	.94937	-.00735	-.127	.94999	-.00737	.133	.94937	-.00731	.159			
11	.81597	-.02193	-.070	.81705	-.02182	-.045	.81986	-.02152	-.329	.82223	-.02125	-.016			
10	.66593	-.03557	-.167	.66698	-.03579	-.156	.67008	-.03553	-.145	.67216	-.03537	-.131			
9	.56588	-.04301	-.240	.56705	-.04294	-.229	.57033	-.04272	-.211	.57230	-.04261	-.196			
8	.46599	-.04773	-.291	.46706	-.04769	-.282	.47037	-.04760	-.279	.47220	-.04753	-.265			
7	.36590	-.04889	-.296	.36705	-.04889	-.289	.37069	-.04890	-.310	.37235	-.04891	-.280			
6	.26570	-.04702	-.281	.26705	-.04706	-.294	.27010	-.04716	-.286	.27230	-.04723	-.296			
5	.16594	-.04194	-.261	.16699	-.04202	-.292	.17010	-.04224	-.275	.17242	-.04238	-.273			
4	.06993	-.02971	-.332	.06909	-.02958	-.362	.05016	-.02975	-.319	.05017	-.02974	-.340			
3	.02002	-.02768	-.517	.01922	-.02242	-.522	.02010	-.02275	-.485	.01997	-.02268	-.481			
2	.00593	-.01333	.201	.00520	-.01261	.194	.00591	-.01326	.245	.00611	-.01355	.237			
1	.00034	.00292	.802	.00031	.00277	.802	.00042	.00317	.796	.00000	.00000	.790			
34	.00216	.00802	.603	.00108	.00553	.573	.00222	.00806	.532	.00210	.00787	.517			
33	.00866	.01592	.085	.00789	.01531	.004	.00914	.01640	-.066	.00893	.01619	-.062			
32	.02037	.02285	-.338	.01906	.02232	-.481	.02036	.02273	-.570	.02012	.02276	-.513			
31	.03525	.02701	-.388	.03407	.02674	-.442	.03508	.02698	-.481	.03550	.02701	-.483			
30	.06036	.03130	-.266	.05911	.03113	-.296	.06022	.03128	-.333	.06011	.03127	-.335			
29	.09959	.03617	-.238	.09913	.03613	-.277	.10029	.03626	-.313	.10019	.03623	-.310			
28	.15077	.04080	-.235	.14927	.04071	-.268	.15032	.04078	-.295	.15024	.04078	-.303			
27	.20944	.04413	-.249	.19909	.04405	-.294	.20029	.04411	-.301	.20016	.04410	-.303			
26	.25039	.04647	-.261	.25080	.04649	-.291	.25024	.04647	-.301	.25021	.04647	-.298			
25	.30050	.04800	-.269	.29925	.04798	-.297	.30008	.04803	-.312	.30021	.04799	-.298			
24	.35050	.04879	-.284	.34927	.04878	-.290	.35024	.04879	-.315	.35015	.04879	-.298			
23	.40047	.04886	-.298	.39931	.04886	-.308	.40037	.04886	-.308	.39977	.04885	-.283			
22	.45030	.04812	-.297	.44997	.04815	-.287	.45010	.04813	-.293	.45009	.04813	-.274			
21	.50039	.04648	-.277	.49927	.04652	-.276	.50024	.04647	-.285	.50020	.04648	-.252			
20	.55025	.04394	-.255	.54927	.04398	-.243	.55042	.04392	-.240	.55033	.04393	-.221			
19	.60029	.04075	-.228	.59931	.04083	-.210	.60071	.04073	-.203	.60018	.04078	-.182			
18	.65932	.03711	-.200	.64917	.03719	-.180	.65026	.03711	-.165	.65015	.03711	-.144			
17	.71026	.03219	-.159	.70087	.03229	-.129	.71034	.03218	-.128	.70977	.03222	-.107			
16	.78026	.02561	-.113	.77912	.02572	-.078	.78008	.02563	-.069	.78012	.02562	-.049			
15	.85021	.01814	-.059	.84933	.01826	-.007	.85001	.01815	-.006	.85010	.01815	.016			
14	.92027	.01021	-.032	.91929	.01032	.080	.92012	.01023	.089	.92005	.01023	.101			
13	.98518	.00265	.164	.98387	.00283	.186	.98611	.00251	.198	.98498	.00267	.195			

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00731	.142	.94953	-.00734	.134	.94946	-.00735	.114		
14	.84954	-.01827	.027	.84954	-.01823	.035	.84958	-.01821	.034		
13	.74903	-.02851	-.057	.74963	-.02854	-.038	.75002	-.02850	-.030		
12	.64988	-.03713	-.121	.64980	-.03714	-.101	.64957	-.03715	-.080		
11	.54983	-.04397	-.241	.54955	-.04396	-.149	.54967	-.04398	-.127		
10	.44990	-.04814	-.242	.44998	-.04814	-.210	.44970	-.04816	-.192		
9	.35016	-.04880	-.258	.34990	-.04880	-.219	.34973	-.04879	-.192		
8	.25012	-.04666	-.275	.24997	-.04665	-.247	.24978	-.04665	-.206		
7	.15054	-.04081	-.280	.15015	-.04078	-.271	.14996	-.04076	-.231		
6	.10029	-.03625	-.290	.10019	-.03624	-.301	.10039	-.03627	-.274		
5	.06550	-.02973	-.411	.06521	-.03198	-.335	.06536	-.03230	-.321		
4	.04030	-.02788	-.412	.03999	-.02803	-.431	.04023	-.02813	-.484		
3	.02030	-.02282	-.512	.01985	-.02268	-.527	.01985	-.02266	-.531		
2	.00587	-.01314	.244	.00567	-.01305	.197	.00578	-.01313	.062		
1	.00057	.00379	.781	.00068	.00449	.753	.00050	.00361	.690		
45	.00184	.00727	.085	.00193	.00749	.454	.00193	.00757	.417		
44	.00526	.01361	.092	.00623	.01365	.092	.00630	.01368	-.017		
43	.01228	.01873	-.309	.01207	.01851	-.310	.01265	.01889	-.406		
42	.02004	.02272	-.591	.01983	.02268	-.660	.02012	.02277	-.588		
41	.02988	.02521	-.579	.02991	.02584	-.569	.02999	.02583	-.645		
40	.04066	.02966	-.397	.04072	.02967	-.443	.04095	.02970	-.435		
39	.07448	.03322	-.231	.07488	.03329	-.376	.07482	.03327	-.314		
38	.09994	.03621	-.318	.09991	.03620	-.327	.09990	.03621	-.290		
37	.13986	.03995	-.317	.13983	.03994	-.296	.13976	.03995	-.250		
36	.17979	.04286	-.298	.17977	.04272	-.269	.17991	.04288	-.232		
35	.22001	.04515	-.290	.22010	.04514	-.258	.21990	.04514	-.218		
34	.25964	.04681	-.278	.25925	.04681	-.245	.25976	.04682	-.216		
33	.29888	.04800	-.271	.29994	.04799	-.240	.29986	.04800	-.202		
32	.33785	.04869	-.261	.34028	.04869	-.227	.33979	.04868	-.195		
31	.37936	.04892	-.253	.37994	.04891	-.224	.37976	.04892	-.190		
30	.41959	.04867	-.249	.41988	.04867	-.217	.41988	.04868	-.201		
29	.45975	.04789	-.245	.45975	.04790	-.208	.45970	.04789	-.172		
28	.49960	.04650	-.215	.49994	.04649	-.182	.49987	.04649	-.157		
27	.53959	.04452	-.187	.53988	.04450	-.169	.53975	.04452	-.131		
26	.57961	.04214	-.156	.57991	.04210	-.131	.57985	.04214	-.103		
25	.61987	.03938	-.133	.61970	.03939	-.107	.61976	.03940	-.085		
24	.65968	.03637	-.107	.65979	.03635	-.090	.65966	.03636	-.068		
23	.69970	.03309	-.087	.69976	.03308	-.060	.69979	.03308	-.050		
22	.73960	.02949	-.064	.73970	.02946	-.045	.73980	.02946	-.031		
21	.77960	.02567	-.031	.77952	.02567	-.017	.77942	.02570	-.010		
20	.81937	.02157	.007	.81965	.02154	.015	.81985	.02150	.018		
19	.85955	.01709	.044	.85980	.01707	.049	.85943	.01712	.046		
18	.89940	.01246	.092	.89977	.01241	.031	.89961	.01243	.073		
17	.94727	.00755	.141	.94861	.00742	.135	.94959	.00733	.115		
16	.98526	.00266	.201	.98482	.00272	.186	.98455	.00274	.158		

TABLE B1-2

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2551

MO = .6977
 ALPHA = .06
 REC = 11.67*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP			
12	.95030	-.00726	.097	.94937	-.00735	.125	.94999	-.00737	.133	.94957	-.00731	.140			
11	.81597	-.02193	-.066	.81705	-.02182	-.044	.81986	-.02152	-.029	.82223	-.02125	-.016			
10	.66593	-.03587	-.165	.66593	-.03579	-.152	.67008	-.03553	-.145	.67216	-.03537	-.130			
9	.56588	-.04301	-.237	.56705	-.04294	-.228	.57033	-.04272	-.208	.57230	-.04261	-.195			
8	.46599	-.04773	-.287	.46706	-.04769	-.279	.47037	-.04760	-.274	.47220	-.04753	-.265			
7	.36580	-.04889	-.291	.36705	-.04889	-.286	.37009	-.04890	-.306	.37235	-.04891	-.279			
6	.26579	-.04702	-.279	.26705	-.04706	-.281	.27010	-.04716	-.281	.27230	-.04723	-.283			
5	.16594	-.04194	-.258	.16699	-.04202	-.286	.17010	-.04224	-.268	.17242	-.04238	-.271			
4	.06993	-.02971	-.321	.06909	-.02958	-.348	.05016	-.02975	-.313	.05017	-.02974	-.325			
3	.02032	-.02268	-.500	.01922	-.02242	-.519	.02010	-.02275	-.466	.01999	-.02268	-.466			
2	.00593	-.01333	.207	.00520	-.01261	.207	.00591	-.01326	.256	.00611	-.01355	.253			
1	.00034	.00292	.807	.00031	.00277	.803	.00042	.00317	.795	.00000	.00000	.790			
34	.00216	.00802	.598	.00109	.00553	.572	.00222	.00806	.522	.00210	.00787	.513			
33	.00366	.01592	.073	.00789	.01531	.003	.00914	.01640	-.067	.00893	.01619	-.102			
32	.02077	.02285	-.396	.01905	.02232	-.492	.02236	.02273	-.568	.02012	.02276	-.609			
31	.03525	.02761	-.396	.03402	.02674	-.443	.03508	.02698	-.490	.03550	.02701	-.497			
30	.06016	.02130	-.280	.05911	.03113	-.309	.06022	.03128	-.338	.06011	.03127	-.341			
29	.09959	.03617	-.231	.09913	.03613	-.289	.10029	.03626	-.312	.10019	.03623	-.316			
28	.15017	.04080	-.241	.14927	.04071	-.266	.15032	.04078	-.294	.15024	.04078	-.303			
27	.20044	.04413	-.251	.19909	.04405	-.289	.20029	.04411	-.302	.20016	.04410	-.304			
26	.25079	.04667	-.262	.25000	.04649	-.288	.25024	.04647	-.299	.25021	.04647	-.301			
25	.30050	.04800	-.268	.29925	.04798	-.298	.30008	.04800	-.303	.30021	.04799	-.296			
24	.35050	.04879	-.281	.34927	.04878	-.298	.35024	.04879	-.305	.35015	.04879	-.298			
23	.40047	.04986	-.293	.39911	.04886	-.305	.40037	.04886	-.305	.39977	.04885	-.284			
22	.45040	.04812	-.292	.44897	.04815	-.282	.45010	.04813	-.293	.45009	.04813	-.273			
21	.50039	.04668	-.276	.49927	.04652	-.273	.50024	.04649	-.272	.50020	.04648	-.258			
20	.55035	.04594	-.251	.54927	.04598	-.240	.55042	.04592	-.235	.55053	.04593	-.221			
19	.60029	.04475	-.228	.59931	.04483	-.206	.60071	.04473	-.199	.60018	.04478	-.180			
18	.65012	.03711	-.192	.64917	.03719	-.175	.65026	.03711	-.160	.65015	.03711	-.142			
17	.70006	.03219	-.153	.70497	.03229	-.127	.71034	.03218	-.129	.70977	.03222	-.105			
16	.75002	.02561	-.110	.77912	.02572	-.075	.78008	.02563	-.065	.78012	.02562	-.048			
15	.80021	.01814	-.034	.84903	.01826	-.005	.85001	.01815	.007	.85010	.01815	.016			
14	.92027	.01021	.054	.91929	.01032	.082	.92012	.01023	.091	.92035	.01023	.102			
13	.96513	.00265	.164	.98387	.00283	.188	.98511	.00251	.198	.98478	.00257	.195			

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00731	.140	.94953	-.00734	.133	.94946	-.00735	.114		
14	.84954	-.01822	.027	.84934	-.01823	.033	.84958	-.01821	.034		
13	.75003	-.02851	-.056	.74963	-.02854	-.041	.75002	-.02850	-.031		
12	.64988	-.03713	-.119	.64980	-.03714	-.100	.64957	-.03715	-.079		
11	.54983	-.04397	-.239	.54955	-.04396	-.149	.54967	-.04398	-.125		
10	.44990	-.04814	-.239	.44993	-.04814	-.209	.44970	-.04816	-.177		
9	.35016	-.04880	-.256	.34990	-.04880	-.219	.34973	-.04879	-.191		
8	.25012	-.04646	-.269	.24997	-.04645	-.243	.24976	-.04645	-.202		
7	.15054	-.04081	-.275	.15016	-.04078	-.272	.14996	-.04076	-.227		
6	.10029	-.03625	-.284	.10019	-.03624	-.298	.10039	-.03627	-.272		
5	.06550	-.03203	-.414	.06521	-.03198	-.329	.06536	-.03200	-.315		
4	.04030	-.02788	-.414	.03999	-.02803	-.437	.04025	-.02813	-.483		
3	.02030	-.02282	-.510	.01985	-.02268	-.523	.01985	-.02266	-.524		
2	.00587	-.01314	.249	.00567	-.01305	.156	.00578	-.01313	.124		
1	.00057	.00379	.785	.00061	.00449	.735	.00030	.00361	.691		
45	.00184	.00727	.071	.00193	.00749	.469	.00193	.00757	.451		
44	.00626	.01161	.071	.00623	.01165	.071	.00630	.01168	.005		
43	.01228	.01873	-.309	.01209	.01851	-.315	.01265	.01889	-.404		
42	.02005	.02227	-.603	.01985	.02268	-.650	.02012	.02277	-.695		
41	.02948	.02581	-.571	.02991	.02584	-.585	.02999	.02583	-.652		
40	.04966	.02966	-.400	.04972	.02967	-.443	.04995	.02970	-.432		
39	.07449	.03322	-.335	.07488	.03329	-.373	.07482	.03327	-.315		
38	.09994	.03621	-.316	.09991	.03620	-.324	.09990	.03621	-.286		
37	.13096	.03995	-.314	.13083	.03994	-.296	.13076	.03995	-.247		
36	.17979	.04296	-.296	.17999	.04272	-.271	.17991	.04288	-.225		
35	.22061	.04515	-.289	.22010	.04514	-.256	.21990	.04514	-.217		
34	.25964	.04691	-.277	.25996	.04681	-.243	.25976	.04682	-.212		
33	.29989	.04800	-.270	.29994	.04799	-.237	.29986	.04800	-.201		
32	.33985	.04869	-.262	.34008	.04869	-.227	.33979	.04868	-.194		
31	.37986	.04892	-.258	.37994	.04891	-.222	.37976	.04892	-.190		
30	.41959	.04877	-.251	.41983	.04867	-.216	.41988	.04868	-.201		
29	.45975	.04789	-.244	.45976	.04790	-.205	.45970	.04789	-.171		
28	.49960	.04650	-.211	.49994	.04649	-.178	.49987	.04649	-.156		
27	.53959	.04452	-.190	.53988	.04450	-.168	.53975	.04452	-.131		
26	.57961	.04214	-.154	.57991	.04210	-.129	.57985	.04214	-.104		
25	.61987	.03938	-.133	.61970	.03939	-.108	.61976	.03940	-.086		
24	.65964	.03637	-.106	.65979	.03635	-.088	.65966	.03636	-.068		
23	.69970	.03308	-.086	.69976	.03308	-.058	.69979	.03308	-.047		
22	.73940	.02949	-.061	.73970	.02946	-.046	.73980	.02946	-.030		
21	.77960	.02567	-.031	.77962	.02567	-.018	.77942	.02570	-.009		
20	.81937	.02157	.009	.81965	.02154	.017	.81985	.02150	.019		
19	.85955	.01709	.045	.85980	.01707	.049	.85943	.01712	.048		
18	.89940	.01246	.082	.89977	.01241	.080	.89961	.01243	.078		
17	.94777	.00755	.140	.94361	.00742	.134	.94959	.00753	.115		
16	.99506	.00266	.201	.98462	.00272	.182	.98455	.00274	.153		

TABLE B1-3

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2310

MO = .7003
 ALPHA = 1.08
 REC = 11.74*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP			
12	.95050	-.00726	.106	.94937	-.00735	.128	.94999	-.00757	.137	.94997	-.00751	.141			
11	.81597	-.02193	-.058	.81705	-.02182	-.033	.81986	-.02152	-.021	.82223	-.02125	-.012			
10	.66593	-.03587	-.150	.66698	-.03579	-.134	.67008	-.03553	-.128	.67216	-.03537	-.119			
9	.56588	-.04301	-.211	.56705	-.04294	-.203	.57033	-.04272	-.188	.57250	-.04261	-.179			
8	.46599	-.04773	-.261	.46705	-.04769	-.249	.47037	-.04760	-.245	.47223	-.04753	-.240			
7	.36590	-.04889	-.250	.36705	-.04889	-.250	.37009	-.04890	-.264	.37235	-.04891	-.246			
6	.26579	-.04702	-.235	.26705	-.04706	-.235	.27010	-.04716	-.230	.27233	-.04723	-.238			
5	.16594	-.04194	-.196	.16699	-.04202	-.224	.17010	-.04224	-.202	.17242	-.04238	-.207			
4	.04903	-.02971	-.232	.04909	-.02958	-.235	.05016	-.02975	-.187	.05017	-.02974	-.205			
3	.02002	-.02268	-.326	.01922	-.02242	-.304	.02010	-.02275	-.259	.01999	-.02268	-.257			
2	.00593	-.01333	.334	.00520	-.01261	.353	.00591	-.01326	.396	.00611	-.01355	.392			
1	.00034	.00292	.794	.00031	.00277	.787	.00042	.00317	.776	.00033	.00300	.770			
34	.00216	.00402	.517	.00108	.00553	.467	.00222	.00806	.404	.00210	.00787	.393			
33	.00946	.01592	-.064	.00759	.01531	-.175	.00914	.01643	-.276	.00893	.01619	-.270			
32	.02037	.02785	-.573	.01906	.02232	-.719	.02036	.02273	-.339	.02012	.02276	-.318			
31	.03525	.02701	-.538	.03402	.02674	-.619	.03508	.02698	-.691	.03530	.02701	-.724			
30	.06036	.03170	-.358	.05911	.03113	-.409	.06022	.03128	-.456	.06011	.03127	-.460			
29	.09959	.03617	-.302	.09913	.03613	-.361	.10029	.03626	-.404	.10019	.03625	-.405			
28	.15037	.04080	-.287	.14927	.04071	-.333	.15032	.04078	-.366	.15024	.04078	-.374			
27	.20044	.04413	-.301	.19909	.04405	-.351	.20029	.04411	-.357	.20016	.04410	-.360			
26	.25039	.04647	-.305	.25080	.04649	-.342	.25024	.04647	-.352	.25021	.04647	-.344			
25	.30050	.04800	-.311	.29925	.04798	-.339	.30008	.04800	-.354	.30021	.04799	-.336			
24	.35050	.04870	-.313	.34927	.04878	-.328	.35024	.04879	-.350	.35015	.04879	-.331			
23	.40047	.04886	-.329	.39931	.04886	-.337	.40037	.04886	-.338	.39977	.04885	-.306			
22	.45040	.04912	-.321	.44897	.04815	-.314	.45010	.04813	-.324	.45039	.04813	-.293			
21	.50039	.04686	-.305	.49927	.04652	-.298	.50024	.04649	-.304	.50020	.04649	-.266			
20	.55025	.04394	-.272	.54927	.04398	-.260	.55042	.04392	-.255	.55033	.04393	-.233			
19	.60029	.04075	-.247	.59931	.04083	-.224	.60071	.04073	-.214	.60018	.04073	-.189			
18	.65032	.03711	-.211	.64917	.03719	-.190	.65026	.03711	-.172	.65015	.03711	-.149			
17	.71026	.03219	-.169	.70997	.03229	-.137	.71034	.03219	-.132	.70977	.03222	-.107			
16	.78026	.02561	-.116	.77981	.02572	-.081	.78008	.02563	-.069	.78012	.02562	-.048			
15	.85021	.01814	-.038	.84905	.01826	-.007	.85001	.01815	.007	.85010	.01815	.018			
14	.92027	.01021	.056	.91929	.01032	.083	.92012	.01023	.093	.92033	.01023	.103			
13	.98518	.00265	.169	.98387	.00283	.189	.98511	.00251	.203	.98498	.00257	.199			

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00731	.140	.94953	-.00734	.127	.94946	-.00735	.101		
14	.84954	-.01821	-.029	.84934	-.01823	.031	.84958	-.01821	.027		
13	.75053	-.02951	-.052	.74963	-.02854	-.038	.75002	-.02850	-.034		
12	.64988	-.03743	-.111	.64980	-.03714	-.097	.64957	-.03715	-.079		
11	.54985	-.04597	-.221	.54955	-.04396	-.140	.54967	-.04398	-.123		
10	.44990	-.04814	-.221	.44998	-.04814	-.196	.44970	-.04815	-.167		
9	.35016	-.04880	-.228	.34990	-.04880	-.199	.34973	-.04879	-.175		
8	.25012	-.04644	-.231	.24997	-.04645	-.218	.24976	-.04645	-.185		
7	.15054	-.04081	-.211	.15016	-.04078	-.224	.14996	-.04076	-.202		
6	.10029	-.03625	-.201	.10019	-.03624	-.230	.10039	-.03627	-.232		
5	.06550	-.03203	-.254	.06521	-.03198	-.245	.06536	-.03200	-.263		
4	.04030	-.02788	-.256	.03999	-.02803	-.285	.04025	-.02813	-.376		
3	.02030	-.02282	-.280	.01983	-.02268	-.314	.01985	-.02266	-.438		
2	.00587	-.01314	.391	.00567	-.01305	.342	.00578	-.01313	.127		
1	.00057	.00370	.757	.00068	.00449	.730	.00050	.00361	.671		
45	.00184	.00727	-.106	.00190	.00749	.323	.00193	.00757	.307		
44	.00626	.01361	-.110	.00623	.01363	-.082	.00630	.01368	-.185		
43	.01229	.01873	-.547	.01209	.01851	-.535	.01265	.01889	-.615		
42	.02006	.02272	-.886	.01983	.02268	-.949	.02012	.02277	-.935		
41	.02998	.02581	-.816	.02991	.02584	-.805	.02999	.02583	-.832		
40	.04766	.02966	-.532	.04972	.02967	-.562	.04995	.02973	-.504		
39	.07449	.03322	-.434	.07488	.03329	-.460	.07482	.03327	-.361		
38	.09994	.03621	-.400	.09991	.03620	-.388	.09990	.03621	-.326		
37	.13986	.03993	-.380	.13983	.03994	-.338	.13976	.03995	-.276		
36	.17979	.04286	-.346	.17999	.04272	-.301	.17991	.04285	-.256		
35	.22001	.04513	-.325	.22010	.04514	-.280	.21990	.04514	-.236		
34	.25964	.04681	-.308	.25966	.04681	-.264	.25976	.04682	-.229		
33	.29998	.04800	-.296	.29994	.04799	-.256	.29986	.04800	-.215		
32	.33985	.04869	-.283	.34009	.04869	-.244	.33979	.04865	-.207		
31	.37986	.04892	-.276	.37994	.04891	-.234	.37976	.04892	-.201		
30	.41959	.04867	-.263	.41988	.04867	-.226	.41988	.04868	-.208		
29	.45975	.04789	-.254	.45976	.04790	-.213	.45975	.04789	-.176		
28	.49960	.04650	-.221	.49994	.04649	-.185	.49987	.04649	-.161		
27	.53959	.04452	-.195	.53988	.04450	-.170	.53975	.04452	-.134		
26	.57961	.04214	-.159	.57991	.04210	-.130	.57985	.04214	-.106		
25	.61967	.03938	-.135	.61970	.03939	-.107	.61976	.03940	-.087		
24	.65969	.03637	-.106	.65979	.03635	-.087	.65966	.03636	-.068		
23	.69970	.03308	-.084	.69976	.03308	-.057	.69979	.03308	-.050		
22	.73940	.02949	-.059	.73970	.02946	-.040	.73980	.02946	-.030		
21	.77960	.02567	-.027	.77962	.02567	-.012	.77942	.02570	-.010		
20	.81957	.02157	-.013	.81965	.02154	.021	.81985	.02150	.016		
19	.85955	.01709	.049	.85980	.01707	.054	.85943	.01712	.040		
18	.89940	.01246	.088	.89977	.01241	.086	.89961	.01243	.066		
17	.94727	.00755	.146	.94861	.00742	.139	.94959	.00733	.094		
16	.98596	.00266	.204	.98462	.00272	.188	.98455	.00274	.124		

TABLE B1-4

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2311

MO = .7001
 ALPHA = 2.06
 REC = 11.74*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00724	.112	.94937	-.00735	.130	.94999	-.00737	.140	.94937	-.00731	.143
11	.91597	-.02193	-.045	.87705	-.02182	-.019	.81986	-.02152	-.012	.82223	-.02125	-.007
10	.66593	-.03587	-.124	.66698	-.03579	-.114	.67008	-.03553	-.111	.67216	-.03537	-.106
9	.56598	-.04101	-.182	.56735	-.04294	-.176	.57035	-.04272	-.163	.57230	-.04261	-.161
8	.46599	-.04773	-.224	.46706	-.04769	-.212	.47037	-.04760	-.213	.47220	-.04753	-.213
7	.36580	-.04884	-.212	.36705	-.04889	-.202	.37009	-.04890	-.223	.37235	-.04891	-.210
6	.26577	-.04702	-.186	.26705	-.04706	-.175	.27010	-.04716	-.182	.27233	-.04723	-.191
5	.16594	-.04194	-.139	.16697	-.04202	-.154	.17010	-.04224	-.136	.17242	-.04238	-.141
4	.04991	-.02971	-.130	.04909	-.02958	-.118	.05316	-.02975	-.070	.05017	-.02974	-.083
3	.02002	-.02268	-.172	.01922	-.02242	-.120	.02010	-.02275	-.072	.01999	-.02268	-.061
2	.00593	-.01153	.444	.00520	-.01261	.481	.00591	-.01326	.521	.00611	-.01355	.514
1	.00914	.00292	.776	.00031	.00277	.758	.00042	.00317	.727	.00000	.00000	.728
34	.00216	.00802	.418	.00103	.00553	.339	.00222	.00806	.257	.00210	.00797	.227
33	.00846	.01592	-.222	.00789	.01531	-.378	.00914	.01640	-.490	.00893	.01619	-.484
32	.02917	.02285	-.770	.01906	.02232	-.998	.02036	.02273	-1.132	.02012	.02276	-1.261
31	.03275	.02701	-.679	.03402	.02674	-.843	.03508	.02698	-.886	.03530	.02731	-1.082
30	.04016	.03130	-.451	.03911	.03113	-.527	.04022	.03128	-.579	.04011	.03127	-.583
29	.00959	.03617	-.374	.00913	.03613	-.448	.10029	.03626	-.494	.10019	.03623	-.495
28	.15037	.04780	-.342	.14927	.04671	-.401	.15032	.04678	-.435	.15024	.04678	-.442
27	.20044	.04413	-.347	.19909	.04405	-.405	.20029	.04411	-.416	.20016	.04410	-.413
26	.25039	.04647	-.342	.25080	.04649	-.389	.25024	.04647	-.396	.25021	.04647	-.387
25	.30050	.04800	-.344	.29925	.04798	-.380	.30008	.04803	-.391	.30021	.04799	-.369
24	.35050	.04879	-.346	.34927	.04878	-.362	.35024	.04879	-.380	.35015	.04879	-.357
23	.40047	.04886	-.357	.39931	.04886	-.366	.40037	.04886	-.362	.39977	.04885	-.327
22	.45030	.04812	-.346	.44997	.04815	-.339	.45010	.04813	-.347	.45009	.04813	-.310
21	.50019	.04648	-.323	.49927	.04652	-.319	.50024	.04649	-.323	.50020	.04648	-.277
20	.55005	.04794	-.289	.54927	.04798	-.276	.55042	.04792	-.269	.55033	.04793	-.240
19	.60029	.04075	-.259	.59931	.04083	-.238	.60071	.04073	-.224	.60018	.04078	-.194
18	.65032	.03711	-.219	.64917	.03719	-.199	.65026	.03711	-.180	.65015	.03711	-.151
17	.70026	.03219	-.174	.70097	.03229	-.143	.70134	.03218	-.137	.70077	.03222	-.109
16	.75026	.02561	-.118	.74912	.02572	-.085	.75008	.02563	-.070	.75012	.02562	-.047
15	.80021	.01814	-.039	.80033	.01826	-.005	.80001	.01815	.009	.80012	.01815	.019
14	.92377	.01021	.061	.91929	.01032	.086	.92012	.01023	.098	.92005	.01023	.107
13	.94513	.00265	.173	.94387	.00283	.193	.94511	.00251	.205	.94498	.00267	.203

SECTION 5				SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00773	.139	.94953	-.00734	.122	.94946	-.00735	.085
14	.84954	-.01822	.031	.84934	-.01823	.027	.84958	-.01821	.014
13	.75013	-.02851	-.047	.74963	-.02854	-.039	.75002	-.02850	-.042
12	.64988	-.03713	-.102	.64980	-.03714	-.096	.64957	-.03715	-.082
11	.54993	-.04197	-.198	.54955	-.04396	-.133	.54967	-.04398	-.119
10	.44990	-.04814	-.197	.44998	-.04814	-.181	.44970	-.04816	-.158
9	.35016	-.04880	-.199	.34993	-.04880	-.181	.34973	-.04879	-.163
8	.25012	-.04646	-.137	.24997	-.04645	-.190	.24976	-.04645	-.165
7	.15054	-.04091	-.143	.15016	-.04078	-.179	.14996	-.04076	-.169
6	.10019	-.03625	-.123	.10019	-.03624	-.168	.10039	-.03627	-.194
5	.06550	-.02703	-.120	.06521	-.03198	-.155	.06536	-.03200	-.209
4	.04019	-.02288	-.119	.03999	-.02803	-.166	.04025	-.02813	-.272
3	.02730	-.02282	-.095	.01985	-.02268	-.140	.01785	-.02266	-.270
2	.00587	-.01184	.512	.00567	-.01305	.440	.00578	-.01313	.247
1	.00057	.00159	.709	.00065	.00449	.683	.00050	.00361	.633
45	.00184	.00727	-.303	.00193	.00749	.174	.00193	.00757	.173
44	.00626	.01161	-.311	.00623	.01165	-.265	.00630	.01168	-.362
43	.01223	.01873	-.781	.01203	.01851	-.757	.01265	.01889	-.826
42	.02006	.02272	-1.254	.01983	.02288	-1.279	.02012	.02277	-1.247
41	.02988	.02591	-1.159	.02991	.02584	-1.162	.02999	.02585	-1.124
40	.04965	.02966	-.636	.04972	.02967	-.678	.04995	.02970	-.566
39	.07448	.03322	-.536	.07488	.03329	-.547	.07482	.03327	-.406
38	.09994	.03621	-.481	.09991	.03620	-.445	.09990	.03621	-.362
37	.11944	.03995	-.439	.11983	.03994	-.377	.11976	.03995	-.304
36	.17970	.04286	-.392	.17999	.04272	-.331	.17991	.04288	-.279
35	.22001	.04515	-.360	.22010	.04514	-.303	.21990	.04514	-.255
34	.25964	.04681	-.335	.25996	.04681	-.284	.25976	.04682	-.246
33	.29934	.04800	-.318	.29934	.04799	-.272	.29986	.04800	-.231
32	.33945	.04869	-.301	.34008	.04869	-.257	.33979	.04868	-.221
31	.37946	.04892	-.289	.37994	.04891	-.247	.37976	.04892	-.211
30	.41959	.04867	-.274	.41988	.04867	-.235	.41988	.04868	-.218
29	.45975	.04789	-.264	.45976	.04790	-.221	.45970	.04789	-.187
28	.49960	.04650	-.229	.49994	.04649	-.191	.49987	.04649	-.169
27	.53959	.04452	-.200	.53985	.04450	-.175	.53975	.04452	-.143
26	.57961	.04214	-.162	.57991	.04210	-.133	.57985	.04214	-.114
25	.61987	.03979	-.136	.61970	.03939	-.108	.61976	.03940	-.094
24	.65968	.03767	-.105	.65979	.03635	-.088	.65966	.03636	-.077
23	.69970	.03504	-.084	.69976	.03308	-.058	.69979	.03308	-.063
22	.73940	.02949	-.053	.73973	.02946	-.042	.73980	.02946	-.049
21	.77960	.02567	-.022	.77962	.02567	-.015	.77942	.02570	-.034
20	.81977	.02157	.016	.81965	.02154	.020	.81985	.02150	-.019
19	.85955	.01769	.051	.85930	.01767	.050	.85943	.01771	-.008
18	.89940	.01246	.092	.89977	.01241	.084	.89961	.01245	.001
17	.94727	.00755	.149	.94561	.00742	.136	.94959	.00733	-.007
16	.98506	.00266	.205	.98367	.00272	.185	.98455	.00274	.009

TABLE B1-5

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2312

MO = .6090
 ALPHA = 3.76
 REC = 11.74*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	-.114	.94937	-.00735	-.134	.94999	-.00737	-.139	.94937	-.00731	-.138			
11	.81597	-.02193	-.031	.81705	-.02182	-.011	.81986	-.02152	-.003	.82223	-.02125	-.002			
10	.66593	-.03587	-.108	.66693	-.03579	-.095	.67008	-.03553	-.094	.67216	-.03537	-.094			
9	.56595	-.04301	-.155	.56705	-.04294	-.150	.57033	-.04272	-.140	.57230	-.04261	-.141			
8	.46599	-.04773	-.190	.46706	-.04769	-.175	.47037	-.04760	-.182	.47220	-.04753	-.184			
7	.36590	-.04980	-.170	.36705	-.04889	-.159	.37009	-.04890	-.183	.37235	-.04891	-.173			
6	.26579	-.04702	-.141	.26705	-.04706	-.126	.27010	-.04716	-.130	.27230	-.04723	-.141			
5	.16594	-.04194	-.080	.16699	-.04202	-.093	.17010	-.04224	-.075	.17242	-.04238	-.078			
4	.06993	-.02971	-.038	.06909	-.02958	-.011	.05016	-.02975	.039	.05017	-.02974	.019			
3	.02302	-.02268	-.021	.01922	-.02242	.037	.02010	-.02275	.097	.01999	-.02268	.103			
2	.00593	-.01333	.546	.00520	-.01261	.580	.00591	-.01326	.620	.00611	-.01355	.618			
1	.00034	.00292	.737	.00031	.00277	.703	.00042	.00317	.660	.00000	.00000	.666			
34	.00716	.00802	.304	.00789	.00553	.202	.00222	.00806	.097	.00210	.00787	.075			
33	.00466	.01592	-.398	.00789	.01531	-.560	.00914	.01640	-.687	.00893	.01619	-.685			
32	.02037	.02785	-.985	.01906	.02232	-1.270	.02036	.02273	-1.401	.02012	.02276	-1.491			
31	.05525	.02701	-.855	.03402	.02674	-1.534	.03508	.02698	-1.568	.03530	.02701	-1.556			
30	.06036	.07130	-.552	.05911	.03113	-.633	.06022	.03128	-.661	.06011	.03127	-.634			
29	.09959	.05617	-.450	.09913	.03613	-.535	.10029	.03626	-.579	.10019	.03623	-.570			
28	.15037	.04080	-.405	.14727	.04071	-.468	.15032	.04078	-.499	.15024	.04078	-.500			
27	.20044	.04413	-.400	.19739	.04405	-.460	.20029	.04411	-.473	.20016	.04410	-.458			
26	.25019	.04647	-.387	.25080	.04649	-.434	.25024	.04647	-.443	.25021	.04647	-.422			
25	.30050	.04800	-.384	.29927	.04798	-.420	.30008	.04800	-.430	.30021	.04799	-.397			
24	.35050	.04879	-.381	.34927	.04878	-.398	.35024	.04879	-.413	.35015	.04879	-.377			
23	.40047	.04886	-.356	.39931	.04886	-.397	.40037	.04886	-.389	.39977	.04885	-.344			
22	.45010	.04813	-.365	.44897	.04815	-.362	.45010	.04813	-.365	.45039	.04813	-.321			
21	.50019	.04649	-.334	.49927	.04652	-.338	.50024	.04649	-.336	.50020	.04648	-.285			
20	.55025	.04704	-.304	.54927	.04698	-.292	.55042	.04692	-.277	.55033	.04693	-.243			
19	.60029	.04705	-.272	.59931	.04683	-.248	.60071	.04673	-.231	.60018	.04678	-.196			
18	.65013	.04711	-.251	.64912	.04719	-.208	.65026	.04711	-.182	.65015	.04711	-.153			
17	.70026	.04719	-.176	.70097	.04729	-.150	.70034	.04719	-.136	.70077	.04722	-.108			
16	.75026	.02561	-.119	.74912	.02572	-.087	.75008	.02563	-.068	.75012	.02562	-.043			
15	.80031	.01814	-.038	.80003	.01826	-.006	.80001	.01815	.014	.80010	.01815	.022			
14	.91027	.01021	.063	.91029	.01032	.088	.92012	.01023	.102	.92005	.01023	.113			
13	.95019	.00765	.173	.95037	.00283	.194	.95011	.00251	.205	.95048	.00267	.201			

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00731	-.130	.94953	-.00734	-.114	.94946	-.00735	-.065		
14	.84954	-.01822	-.029	.84934	-.01823	.023	.84958	-.01821	-.003		
13	.75003	-.02951	-.044	.74965	-.02854	-.041	.75002	-.02850	-.054		
12	.64999	-.03213	-.095	.64980	-.03714	-.094	.64997	-.03715	-.090		
11	.54985	-.04707	-.180	.54955	-.04396	-.127	.54967	-.04393	-.122		
10	.44990	-.04814	-.178	.44998	-.04814	-.171	.44970	-.04816	-.154		
9	.35016	-.04880	-.172	.34993	-.04880	-.165	.34973	-.04879	-.156		
8	.25012	-.04646	-.149	.24997	-.04645	-.165	.24976	-.04645	-.150		
7	.15054	-.04081	-.092	.15016	-.04078	-.138	.14996	-.04076	-.145		
6	.10029	-.03625	-.050	.10019	-.03624	-.108	.10039	-.03627	-.160		
5	.06550	-.03207	.001	.06521	-.03198	-.075	.06536	-.03200	-.160		
4	.04030	-.02788	-.002	.03999	-.02803	-.066	.04025	-.02813	-.183		
3	.02030	-.02282	.067	.01985	-.02268	.015	.01985	-.02266	-.124		
2	.00547	-.01314	.602	.00567	-.01305	.556	.00578	-.01313	.374		
1	.00057	.00379	.641	.00068	.00449	.614	.00050	.00361	.574		
45	.00184	.00727	-.501	.00195	.00749	.016	.00193	.00757	.028		
44	.00674	.01361	-.500	.00623	.01365	-.434	.00630	.01368	-.534		
43	.01228	.01873	-.983	.01209	.01851	-.965	.01265	.01889	-1.027		
42	.02006	.02772	-1.486	.01983	.02268	-1.465	.02012	.02277	-1.457		
41	.02988	.02581	-1.669	.02991	.02584	-1.562	.02999	.02583	-1.692		
40	.04746	.02966	-.673	.04972	.02967	-.728	.04995	.02970	-.606		
39	.07444	.03322	-.599	.07484	.03329	-.584	.07482	.03327	-.436		
38	.09994	.03621	-.546	.09991	.03620	-.485	.09990	.03621	-.394		
37	.13096	.03995	-.490	.13983	.03994	-.409	.13976	.03995	-.333		
36	.17479	.04284	-.429	.17999	.04272	-.357	.17991	.04288	-.305		
35	.22001	.04515	-.392	.22010	.04514	-.327	.21990	.04514	-.279		
34	.25364	.04681	-.359	.25996	.04681	-.301	.25976	.04682	-.266		
33	.29994	.04800	-.339	.29994	.04799	-.288	.29986	.04800	-.250		
32	.35095	.04869	-.317	.35038	.04869	-.269	.35979	.04868	-.237		
31	.37946	.04902	-.302	.37944	.04891	-.258	.37976	.04892	-.227		
30	.41959	.04867	-.287	.41986	.04867	-.245	.41988	.04868	-.232		
29	.45975	.04789	-.274	.45976	.04790	-.230	.45970	.04787	-.205		
28	.49960	.04650	-.236	.49994	.04649	-.197	.49987	.04649	-.184		
27	.53959	.04452	-.204	.53988	.04450	-.178	.53975	.04452	-.161		
26	.57961	.04294	-.167	.57991	.04210	-.138	.57985	.04214	-.135		
25	.61967	.04167	-.140	.61970	.03939	-.114	.61976	.03940	-.121		
24	.65968	.04037	-.108	.65979	.03635	-.093	.65966	.03636	-.112		
23	.69970	.03898	-.085	.69976	.03303	-.064	.69979	.03308	-.102		
22	.73943	.03740	-.054	.73970	.02946	-.045	.73980	.02946	-.099		
21	.77960	.02567	-.022	.77962	.02567	-.018	.77942	.02570	-.100		
20	.81937	.02157	.017	.81965	.02154	.016	.81985	.02150	-.109		
19	.85955	.01709	.053	.85980	.01707	.046	.85943	.01712	-.128		
18	.89940	.01244	.093	.89977	.01241	.077	.89961	.01243	-.156		
17	.94727	.00755	.144	.94861	.00742	.127	.94959	.00733	-.204		
16	.98506	.00266	.201	.98467	.00272	.178	.98455	.00274	-.168		

TABLE B1-6

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2313

MO = .7009
 ALPHA = 4.08
 REC = 11.77*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP		X/L	Z/L	CP	
12	.95030	-.00726	.112	.94937	-.00735	-.131		.94999	-.00737	.133		.94937	-.00731	.133	
11	.81597	-.02193	-.025	.81705	-.02182	-.004		.81986	-.02152	-.002		.82223	-.02125	-.002	
10	.66593	-.03587	-.091	.66698	-.03579	-.075		.67008	-.03553	-.080		.67216	-.03537	-.085	
9	.56598	-.04301	-.131	.56725	-.04294	-.126		.57033	-.04272	-.118		.57230	-.04261	-.124	
8	.46599	-.04773	-.165	.46726	-.04769	-.146		.47037	-.04760	-.153		.47220	-.04753	-.161	
7	.36590	-.04889	-.136	.36705	-.04889	-.124		.37009	-.04890	-.145		.37235	-.04891	-.139	
6	.26579	-.04702	-.102	.26705	-.04706	-.083		.27010	-.04716	-.085		.27250	-.04723	-.096	
5	.16594	-.04494	-.029	.16699	-.04202	-.039		.17010	-.04224	-.016		.17242	-.04238	-.021	
4	.04995	-.02971	-.049	.04929	-.02958	-.081		.05016	-.02975	.136		.05017	-.02974	.116	
3	.02002	-.02269	.114	.01922	-.02242	.179		.02010	-.02275	.235		.01999	-.02268	.263	
2	.00593	-.01333	.628	.00520	-.01261	.661		.00591	-.01326	.695		.00611	-.01355	.689	
1	.00044	.00092	.675	.00031	.00277	.630		.00042	.00317	.572		.00000	.00600	.587	
34	.00216	.00802	.178	.00103	.00553	.653		.00222	.00806	-.057		.00210	.00787	-.077	
33	.00966	.01592	-.567	.00789	.01531	-.741		.00914	.01643	-.866		.00893	.01619	-.355	
32	.02037	.02285	-1.177	.01906	.02232	-1.440		.02036	.02273	-1.574		.02012	.02276	-1.654	
31	.03525	.02701	-1.338	.03402	.02674	-1.730		.03508	.02698	-1.864		.03530	.02701	-1.498	
30	.06036	.03130	-.664	.05911	.03113	-.698		.06022	.03123	-1.103		.06011	.03127	-1.354	
29	.09959	.03617	-.533	.09913	.03613	-.613		.10029	.03626	-.636		.10019	.03623	-.600	
28	.15037	.04086	-.471	.14927	.04071	-.535		.15032	.04078	-.564		.15024	.04073	-.548	
27	.20344	.04413	-.455	.19909	.04405	-.524		.20029	.04411	-.524		.20016	.04410	-.501	
26	.25039	.04647	-.439	.25080	.04649	-.487		.25324	.04647	-.489		.25021	.04647	-.455	
25	.30050	.04800	-.432	.29925	.04798	-.465		.30008	.04800	-.466		.30021	.04799	-.422	
24	.35050	.04979	-.426	.34927	.04878	-.454		.35024	.04879	-.443		.35015	.04879	-.400	
23	.40047	.04896	-.423	.39931	.04886	-.427		.40037	.04886	-.414		.39977	.04885	-.362	
22	.45030	.04812	-.406	.44997	.04815	-.388		.45010	.04813	-.382		.45009	.04813	-.354	
21	.50030	.04648	-.371	.49927	.04652	-.359		.50024	.04649	-.348		.50020	.04648	-.294	
20	.55025	.04394	-.327	.54927	.04398	-.308		.55042	.04392	-.286		.55033	.04393	-.251	
19	.60029	.04075	-.289	.59931	.04083	-.260		.60071	.04073	-.235		.60018	.04078	-.199	
18	.65012	.03711	-.244	.64917	.03719	-.215		.65026	.03711	-.185		.65015	.03711	-.153	
17	.70026	.03219	-.193	.70397	.03229	-.153		.70334	.03218	-.135		.70977	.03222	-.106	
16	.75026	.02561	-.130	.77912	.02572	-.084		.78008	.02563	-.063		.78012	.02562	-.039	
15	.85021	.01814	-.042	.84903	.01826	-.002		.85001	.01815	-.020		.85010	.01815	.030	
14	.92027	.01021	.059	.91929	.01032	.094		.92012	.01023	.106		.92005	.01023	.113	
13	.98518	.00265	.176	.98387	.00283	.191		.98611	.00251	.198		.98498	.00267	.192	

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP	
15	.94977	-.00733	.122	.94957	-.00734	.101		.94946	-.00735	.042	
14	.84954	-.01822	.024	.84934	-.01823	.011		.84958	-.01821	-.025	
13	.74903	-.02951	-.044	.74963	-.02854	-.048		.75002	-.02850	-.072	
12	.64943	-.03713	-.092	.64980	-.03714	-.098		.64957	-.03715	-.105	
11	.54983	-.04597	-.165	.54955	-.04596	-.126		.54967	-.04595	-.132	
10	.44990	-.04814	-.162	.44999	-.04814	-.164		.44970	-.04818	-.157	
9	.35016	-.04880	-.147	.34993	-.04880	-.151		.34973	-.04879	-.155	
8	.25012	-.04646	-.116	.24997	-.04645	-.145		.24976	-.04645	-.143	
7	.15054	-.04081	-.038	.15016	-.04078	-.103		.14996	-.04076	-.142	
6	.10029	-.03625	.018	.10019	-.03624	-.056		.10039	-.03627	-.136	
5	.06550	-.03203	.102	.06521	-.03198	-.002		.06536	-.03200	-.121	
4	.04030	-.02788	.101	.03999	-.02803	.036		.04025	-.02813	-.107	
3	.02030	-.02282	.206	.01985	-.02268	.151		.02058	-.02266	.005	
2	.00597	-.01314	.672	.00567	-.01305	.626		.00578	-.01313	.463	
1	.00157	.00779	.554	.00192	.00749	.528		.00205	.00761	.497	
45	.00184	.00727	-.673	.00192	.00749	-.136		.00193	.00757	-.120	
44	.00525	.01161	-.673	.00623	.01165	-.598		.00630	.01168	-.694	
43	.01224	.01823	-1.142	.01202	.01851	-1.148		.01265	.01889	-1.184	
42	.02006	.02272	-1.644	.01993	.02268	-1.608		.02012	.02277	-1.620	
41	.02998	.02581	-1.874	.02991	.02584	-1.816		.02999	.02583	-1.612	
40	.04945	.02966	-1.740	.04972	.02967	-1.422		.04995	.02970	-.917	
39	.07443	.03322	-.652	.07488	.03329	-.652		.07482	.03327	-.539	
38	.09994	.03621	-.569	.09991	.03620	-.517		.09990	.03621	-.426	
37	.13986	.03995	-.523	.13983	.03994	-.430		.13976	.03995	-.363	
36	.17979	.04296	-.461	.17999	.04272	-.378		.17991	.04288	-.336	
35	.22001	.04515	-.421	.22013	.04514	-.350		.21990	.04514	-.308	
34	.25944	.04681	-.385	.25996	.04681	-.324		.25976	.04682	-.295	
33	.29948	.04900	-.361	.29994	.04799	-.308		.29986	.04800	-.278	
32	.33985	.04869	-.335	.34008	.04869	-.288		.33979	.04868	-.265	
31	.37946	.04892	-.315	.37994	.04891	-.273		.37976	.04892	-.252	
30	.41959	.04867	-.296	.41983	.04867	-.258		.41988	.04868	-.259	
29	.45975	.04789	-.283	.45976	.04790	-.243		.45970	.04789	-.233	
28	.49960	.04650	-.241	.49994	.04649	-.207		.49987	.04649	-.217	
27	.53959	.04452	-.210	.53988	.04450	-.189		.53975	.04452	-.199	
26	.57961	.04214	-.169	.57991	.04210	-.147		.57985	.04214	-.182	
25	.61987	.03938	-.143	.61970	.03939	-.124		.61976	.03940	-.180	
24	.65978	.03607	-.110	.65979	.03635	-.102		.65966	.03636	-.183	
23	.69970	.03304	-.085	.69976	.03308	-.072		.69979	.03308	-.193	
22	.73940	.02949	-.057	.73970	.02946	-.054		.73980	.02946	-.215	
21	.77960	.02567	-.024	.77962	.02567	-.027		.77942	.02570	-.252	
20	.81937	.02157	.016	.81965	.02154	.004		.81985	.02150	-.305	
19	.85955	.01709	.052	.85980	.01707	.033		.85943	.01712	-.341	
18	.89940	.01246	.089	.89977	.01241	.060		.89961	.01243	-.365	
17	.94727	.00755	.140	.94761	.00742	.103		.94959	.00733	-.374	
16	.98506	.00266	.190	.98462	.00272	.156		.98455	.00274	-.276	

TABLE B1-7

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2541

MO = .7019
 ALPHA = 5.06
 REC = 11.66*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP			
12	.95039	-.00726	-.108	.94937	-.00735	-.127	.94999	-.00737	-.130	.94937	-.00731	-.130			
11	.81597	-.02193	-.015	.81705	-.02182	-.001	.81986	-.02152	-.004	.82223	-.02125	-.000			
10	.66593	-.03597	-.074	.66698	-.03579	-.061	.67008	-.03553	-.069	.67216	-.03537	-.076			
9	.56598	-.04301	-.107	.56705	-.04294	-.108	.57033	-.04272	-.099	.57230	-.04261	-.111			
8	.46599	-.04773	-.133	.46706	-.04769	-.118	.47037	-.04760	-.124	.47223	-.04753	-.142			
7	.36590	-.04889	-.102	.36705	-.04889	-.091	.37009	-.04890	-.109	.37255	-.04891	-.112			
6	.26579	-.04702	-.059	.26705	-.04706	-.038	.27010	-.04716	-.041	.27230	-.04723	-.059			
5	.16594	-.04194	.018	.16699	-.04202	.012	.17010	-.04224	.041	.17242	-.04238	.030			
4	.06993	-.03971	.146	.06909	-.03958	.176	.05316	-.02975	.216	.05017	-.02974	.203			
3	.02007	-.02768	.237	.01922	-.02242	.295	.02010	-.02275	.350	.01999	-.02268	.356			
2	.00593	-.01333	.693	.00520	-.01261	.725	.00591	-.01326	.746	.00611	-.01355	.741			
1	.00034	.00292	.613	.00031	.00277	.554	.00042	.00317	.480	.00000	.00000	.495			
34	.00216	.00002	.037	.00113	.00553	-.076	.06222	.00806	-.196	.00217	.00787	-.207			
33	.00366	.01592	-.726	.00789	.01531	-.893	.00914	.01640	-.996	.00893	.01619	-1.059			
32	.02037	.02285	-1.343	.01936	.02232	-1.597	.02036	.02273	-1.696	.02012	.02276	-1.780			
31	.03525	.02701	-1.755	.03402	.02674	-1.877	.03508	.02698	-2.002	.03550	.02701	-2.036			
30	.06096	.03130	-.725	.05911	.03113	-1.450	.06022	.03128	-1.890	.06011	.03127	-1.937			
29	.09959	.03617	-.605	.09913	.03613	-.644	.10029	.03626	-.643	.10019	.03623	-.727			
28	.15197	.04080	-.546	.14927	.04071	-.588	.15032	.04078	-.586	.15024	.04078	-.566			
27	.20744	.04413	-.507	.19909	.04405	-.572	.20029	.04411	-.560	.20016	.04410	-.523			
26	.25099	.04647	-.486	.25080	.04649	-.524	.25024	.04647	-.517	.25021	.04647	-.484			
25	.30050	.04800	-.464	.29925	.04798	-.500	.30008	.04800	-.491	.30021	.04799	-.445			
24	.35010	.04879	-.456	.34927	.04878	-.470	.35024	.04879	-.462	.35015	.04885	-.416			
23	.40047	.04886	-.442	.39931	.04886	-.447	.40037	.04886	-.429	.39977	.04885	-.376			
22	.45010	.04817	-.427	.44897	.04815	-.404	.45010	.04813	-.395	.45009	.04813	-.361			
21	.50039	.04648	-.386	.49927	.04652	-.371	.50024	.04649	-.350	.50020	.04648	-.307			
20	.55025	.04394	-.342	.54927	.04398	-.317	.55042	.04392	-.289	.55035	.04393	-.255			
19	.60029	.04078	-.298	.59931	.04083	-.265	.60071	.04073	-.241	.60018	.04078	-.204			
18	.65032	.03711	-.247	.64917	.03719	-.217	.65026	.03711	-.184	.65015	.03711	-.156			
17	.70026	.03251	-.192	.70012	.03229	-.155	.70034	.03218	-.137	.70077	.03222	-.108			
16	.75021	.02814	-.141	.74912	.02872	-.084	.75008	.02863	-.061	.75012	.02866	-.041			
15	.80027	.01021	-.040	.80027	.01032	-.000	.80001	.01015	-.021	.80010	.01015	-.027			
14	.92027	.01021	.040	.91929	.01032	.093	.92026	.01023	.105	.92005	.01023	.108			
13	.98513	.00765	.171	.98587	.00863	.186	.98611	.00851	.194	.98493	.00857	.186			

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00711	.113	.94953	-.00734	.083	.94946	-.00735	.017		
14	.84954	-.01822	.019	.84934	-.01823	.002	.84958	-.01821	-.048		
13	.75003	-.02951	-.045	.74965	-.02854	-.057	.75002	-.02850	-.095		
12	.64988	-.03713	-.086	.64980	-.03714	-.097	.64957	-.03715	-.118		
11	.54981	-.04397	-.148	.54955	-.04396	-.124	.54967	-.04398	-.141		
10	.44990	-.04814	-.147	.44998	-.04814	-.157	.44970	-.04816	-.162		
9	.35016	-.04880	-.123	.34992	-.04880	-.140	.34973	-.04879	-.156		
8	.25012	-.04466	-.083	.24997	-.04465	-.129	.24976	-.04465	-.142		
7	.15054	-.04081	-.011	.15015	-.04078	-.070	.14996	-.04076	-.120		
6	.10079	-.03625	.076	.10019	-.03624	-.007	.10039	-.03627	-.114		
5	.06550	-.03203	.184	.06521	-.03198	.059	.06536	-.03200	-.083		
4	.04030	-.02788	.185	.03999	-.02803	.108	.04025	-.02813	-.040		
3	.02030	-.02282	.311	.01985	-.02268	.252	.01985	-.02266	.398		
2	.00597	-.01314	.718	.00567	-.01305	.639	.00578	-.01313	.557		
1	.00057	.00379	.465	.00068	.00449	.444	.00056	.00361	.413		
45	.00184	.00727	-.842	.00190	.00749	-.251	.00193	.00757	-.259		
44	.00676	.01361	-.841	.00623	.01365	-.784	.00630	.01368	-.825		
43	.01278	.01873	-1.289	.01209	.01851	-1.267	.01265	.01889	-1.313		
42	.02006	.02772	-1.766	.01983	.02268	-1.725	.02012	.02277	-1.705		
41	.02988	.02781	-1.999	.02991	.02584	-1.892	.02999	.02585	-1.930		
40	.04966	.02966	-1.891	.04972	.02967	-1.643	.04995	.02970	-1.154		
39	.07448	.03322	-1.267	.07488	.03329	-1.017	.07482	.03327	-.805		
38	.09994	.03621	-.762	.09991	.03620	-.720	.09990	.03621	-.557		
37	.11996	.03995	-.556	.11993	.03994	-.478	.11976	.03995	-.409		
36	.17979	.04286	-.484	.17999	.04272	-.394	.17991	.04288	-.359		
35	.22001	.04515	-.436	.22010	.04514	-.362	.21990	.04516	-.337		
34	.25964	.04681	-.396	.25996	.04681	-.335	.25976	.04682	-.320		
33	.29998	.04800	-.369	.29994	.04799	-.320	.29986	.04800	-.305		
32	.33995	.04869	-.344	.34003	.04869	-.298	.33979	.04868	-.290		
31	.37996	.04992	-.324	.37994	.04891	-.286	.37976	.04892	-.284		
30	.41959	.04867	-.303	.41988	.04867	-.269	.41988	.04868	-.301		
29	.45975	.04789	-.287	.45976	.04790	-.248	.45970	.04789	-.272		
28	.49960	.04650	-.245	.49994	.04649	-.217	.49987	.04649	-.270		
27	.53959	.04457	-.213	.53988	.04450	-.199	.53973	.04452	-.263		
26	.57961	.04214	-.176	.57991	.04210	-.159	.57985	.04214	-.269		
25	.61997	.03938	-.146	.61973	.03939	-.136	.61974	.03940	-.282		
24	.65969	.03637	-.115	.65977	.03635	-.112	.65966	.03636	-.310		
23	.69970	.03308	-.090	.69976	.03308	-.082	.69979	.03308	-.344		
22	.73940	.02949	-.063	.73970	.02946	-.070	.73980	.02946	-.388		
21	.77960	.02567	-.032	.77962	.02567	-.047	.77942	.02570	-.436		
20	.81937	.02157	-.004	.81965	.02154	-.019	.81985	.02153	-.479		
19	.85955	.01709	.040	.85980	.01707	.006	.85943	.01712	-.498		
18	.89947	.01246	.077	.89977	.01241	.030	.89961	.01243	-.483		
17	.94727	.00755	.125	.94561	.00742	.073	.94959	.00733	-.448		
16	.98506	.00266	.173	.98462	.00272	.123	.98455	.00274	-.301		

TABLE B1-8

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2542

MO = .6971
 ALPHA = 6.00
 REC = 11.63*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95010	-.00726	-.113	.94937	-.00735	-.129	.94999	-.00737	-.130	.94937	-.00731	-.124			
11	.81597	-.02193	-.003	.81705	-.02182	-.011	.81986	-.02152	-.011	.82223	-.02125	-.005			
10	.66593	-.03587	-.046	.66698	-.03579	-.044	.67008	-.03553	-.050	.67216	-.03537	-.062			
9	.56583	-.04101	-.078	.56705	-.04294	-.080	.57333	-.04272	-.077	.57250	-.04261	-.092			
8	.46599	-.04773	-.094	.46706	-.04769	-.084	.47037	-.04760	-.091	.47220	-.04753	-.110			
7	.36580	-.04989	-.055	.36705	-.04889	-.048	.37009	-.04890	-.069	.37235	-.04891	-.074			
6	.26579	-.04702	-.007	.26705	-.04706	-.008	.27010	-.04715	-.008	.27250	-.04723	-.013			
5	.16594	-.04194	.080	.16699	-.04202	.071	.17010	-.04224	.097	.17262	-.04238	.062			
4	.04993	-.02971	.224	.04909	-.02958	.262	.05016	-.02975	.297	.05017	-.02974	.284			
3	.02002	-.02268	.347	.01922	-.02242	.414	.02010	-.02275	.456	.01999	-.02268	.456			
2	.00593	-.01333	.747	.00520	-.01261	.773	.00591	-.01326	.783	.00611	-.01355	.774			
1	.00034	.00292	.950	.00031	.00277	.965	.00042	.00317	.970	.00000	.00000	.993			
34	.00216	.00802	-.101	.00103	.00553	-.221	.00222	.00806	-.348	.00210	.00787	-.363			
33	.00866	.01597	-.889	.00789	.01531	-1.069	.00914	.01640	-1.159	.00893	.01619	-1.235			
32	.02037	.02285	-1.551	.01906	.02232	-1.758	.02036	.02273	-1.848	.02012	.02276	-1.922			
31	.03525	.02701	-1.898	.03402	.02674	-2.033	.03508	.02698	-2.139	.03530	.02701	-2.175			
30	.06716	.03117	-1.022	.06591	.03113	-1.767	.06022	.03128	-2.073	.06011	.03127	-2.067			
29	.09959	.03617	-.669	.09913	.03613	-.839	.10029	.03626	-1.223	.10019	.03625	-1.335			
28	.15037	.04090	-.406	.14927	.04071	-.605	.15032	.04078	-.572	.15024	.04078	-.584			
27	.20344	.04413	-.357	.20309	.04405	-.601	.20329	.04411	-.563	.20016	.04410	-.519			
26	.25019	.04447	-.527	.25086	.04449	-.556	.25024	.04447	-.528	.25021	.04447	-.495			
25	.30050	.04800	-.497	.29925	.04798	-.525	.30008	.04803	-.505	.30021	.04799	-.453			
24	.35050	.04879	-.484	.34927	.04878	-.491	.35024	.04879	-.475	.35015	.04879	-.424			
23	.40047	.04886	-.466	.39931	.04886	-.467	.40037	.04886	-.438	.39977	.04885	-.381			
22	.45019	.04812	-.441	.44897	.04815	-.415	.45010	.04813	-.406	.45009	.04813	-.345			
21	.50039	.04648	-.401	.49927	.04652	-.380	.50024	.04649	-.361	.50020	.04648	-.306			
20	.55025	.04594	-.348	.54927	.04598	-.322	.55042	.04592	-.297	.55033	.04593	-.258			
19	.60029	.04075	-.306	.59931	.04083	-.267	.60071	.04073	-.244	.60018	.04073	-.201			
18	.65032	.03711	-.252	.64917	.03719	-.218	.65026	.03711	-.189	.65015	.03711	-.154			
17	.71026	.03219	-.195	.70997	.03229	-.153	.71034	.03218	-.141	.70977	.03222	-.105			
16	.78026	.02561	-.126	.77912	.02572	-.078	.78008	.02563	-.063	.78012	.02562	-.041			
15	.85021	.01814	-.037	.84935	.01826	-.004	.85001	.01815	-.020	.85010	.01815	-.026			
14	.92327	.01021	.066	.91929	.01032	.094	.92012	.01023	.105	.92005	.01023	.103			
13	.98518	.00265	-.174	.98387	.00283	.183	.98511	.00251	.192	.98498	.00267	.178			

SECTION 5				SECTION 6				SECTION 7				
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.099	.94953	-.00734	-.062	.94946	-.00735	-.003			
14	.84954	-.01822	.017	.84934	-.01823	-.009	.84958	-.01821	-.069			
13	.75003	-.02851	-.040	.74965	-.02854	-.060	.75002	-.02850	-.113			
12	.64982	-.03713	-.077	.64980	-.03714	-.100	.64957	-.03715	-.135			
11	.54993	-.04397	-.126	.54955	-.04396	-.119	.54967	-.04398	-.151			
10	.44990	-.04814	-.126	.44998	-.04814	-.148	.44970	-.04816	-.168			
9	.35016	-.04880	-.095	.34990	-.04880	-.125	.34973	-.04879	-.155			
8	.25012	-.04646	-.043	.24997	-.04645	-.105	.24976	-.04645	-.134			
7	.15014	-.04081	-.063	.15016	-.04078	-.033	.14996	-.04076	-.106			
6	.10029	-.03625	.137	.10019	-.03624	.044	.10039	-.03627	-.089			
5	.06550	-.03273	.273	.06521	-.03198	.124	.06536	-.03200	-.038			
4	.04030	-.02788	.272	.03999	-.02803	.189	.04025	-.02813	.027			
3	.02010	-.02282	.413	.01985	-.02268	.351	.01985	-.02266	.191			
2	.00587	-.01314	.750	.00567	-.01305	.663	.00578	-.01313	.567			
1	.00057	.00779	.358	.00069	.00449	.335	.00050	.00361	.314			
45	.00184	.00727	-1.014	.00193	.00749	-.407	.00193	.00757	-.412			
44	.00626	.01361	-1.015	.00623	.01365	-.945	.00630	.01368	-.992			
43	.01228	.01873	-1.444	.01209	.01851	-1.443	.01265	.01889	-1.461			
42	.02006	.02727	-1.903	.01983	.02268	-1.866	.02012	.02277	-1.666			
41	.02988	.02581	-2.033	.02991	.02584	-1.929	.02999	.02583	-1.441			
40	.04966	.02966	-1.961	.04972	.02967	-1.534	.04995	.02970	-1.258			
39	.07443	.03321	-1.491	.07488	.03329	-1.208	.07482	.03327	-1.038			
38	.09994	.03621	-1.218	.09991	.03620	-.916	.09990	.03621	-.732			
37	.13986	.03995	-.876	.13983	.03994	-.622	.13976	.03995	-.488			
36	.17979	.04296	-.624	.17999	.04272	-.478	.17991	.04288	-.409			
35	.22001	.04515	-.479	.22010	.04514	-.406	.21990	.04514	-.379			
34	.25964	.04681	-.408	.25996	.04681	-.365	.25976	.04682	-.360			
33	.29948	.04800	-.362	.29994	.04799	-.335	.29986	.04800	-.335			
32	.33945	.04869	-.336	.34009	.04869	-.312	.33979	.04868	-.318			
31	.37986	.04892	-.312	.37994	.04891	-.292	.37976	.04892	-.306			
30	.41959	.04867	-.290	.41983	.04867	-.277	.41988	.04868	-.333			
29	.45975	.04789	-.276	.45975	.04790	-.256	.45970	.04789	-.303			
28	.49940	.04650	-.238	.49994	.04649	-.225	.49987	.04649	-.309			
27	.53959	.04452	-.209	.53988	.04450	-.206	.53975	.04452	-.321			
26	.57961	.04214	-.174	.57991	.04210	-.168	.57985	.04214	-.356			
25	.61987	.03958	-.146	.61970	.03939	-.145	.61976	.03940	-.385			
24	.65984	.03657	-.117	.65979	.03635	-.127	.65966	.03636	-.434			
23	.69970	.03308	-.092	.69976	.03308	-.097	.69979	.03308	-.465			
22	.73940	.02949	-.063	.73975	.02946	-.087	.73986	.02946	-.515			
21	.77940	.02567	-.035	.77962	.02567	-.067	.77942	.02570	-.563			
20	.81937	.02157	-.001	.81965	.02154	-.041	.81985	.02150	-.599			
19	.85955	.01709	.031	.85980	.01707	-.021	.85943	.01712	-.589			
18	.89940	.01244	.064	.89977	.01241	-.001	.89961	.01243	-.546			
17	.94727	.00755	.106	.94361	.00742	.038	.94959	.00733	-.459			
16	.98576	.00266	.147	.98462	.00272	.090	.98455	.00274	-.278			

TABLE B1-9

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2305

MO = .8399
 ALPHA = .04
 REC = 11.72*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP			
12	.95099	-.00726	-.103	.94937	-.00735	-.143	.94999	-.00737	-.157	.94937	-.00731	-.163			
11	.91597	-.02193	-.097	.81705	-.02182	-.050	.81986	-.02152	-.026	.82223	-.02125	-.008			
10	.66598	-.03587	-.233	.66698	-.03579	-.200	.67008	-.03553	-.174	.67216	-.03537	-.149			
9	.56598	-.04301	-.328	.56705	-.04294	-.308	.57033	-.04272	-.271	.57250	-.04261	-.238			
8	.46599	-.04773	-.399	.46706	-.04769	-.409	.47037	-.04760	-.397	.47222	-.04753	-.367			
7	.36590	-.04889	-.356	.36705	-.04889	-.397	.37009	-.04890	-.444	.37235	-.04891	-.407			
6	.26570	-.04702	-.315	.26705	-.04706	-.358	.27010	-.04716	-.391	.27253	-.04723	-.426			
5	.16594	-.04194	-.276	.16699	-.04202	-.336	.17010	-.04224	-.352	.17242	-.04238	-.426			
4	.06993	-.02971	-.327	.04909	-.02958	-.377	.05016	-.02975	-.357	.05017	-.02974	-.424			
3	.02002	-.02268	-.512	.01922	-.02242	-.520	.02010	-.02275	-.512	.01999	-.02268	-.557			
2	.00593	-.01333	-.278	.00520	-.01261	-.265	.00591	-.01326	-.295	.00611	-.01355	-.275			
1	.00034	.00292	.840	.00031	.00277	.831	.00042	.00317	.822	.00000	.00000	.813			
34	.00216	.00902	.649	.00105	.00553	.622	.00222	.00806	.580	.00210	.00787	.562			
33	.00346	.01592	.158	.00789	.01531	.084	.00914	.01640	.019	.00893	.01619	.016			
32	.02137	.02785	-.355	.01905	.02232	-.459	.02036	.02273	-.535	.02012	.02275	-.410			
31	.03525	.02701	-.391	.03402	.02674	-.470	.03508	.02698	-.567	.03530	.02701	-.505			
30	.04036	.03130	-.257	.03911	.03113	-.309	.04022	.03128	-.361	.04011	.03127	-.403			
29	.09959	.03617	-.230	.09913	.03613	-.304	.10029	.03626	-.363	.10019	.03623	-.382			
28	.15037	.04080	-.239	.14927	.04071	-.304	.15032	.04078	-.360	.15024	.04073	-.389			
27	.20044	.04413	-.265	.19909	.04405	-.347	.20029	.04411	-.383	.20016	.04410	-.419			
26	.25019	.04647	-.289	.25080	.04649	-.363	.25024	.04647	-.402	.25021	.04647	-.433			
25	.30050	.04800	-.306	.29925	.04798	-.383	.30008	.04800	-.436	.30021	.04799	-.450			
24	.35050	.04879	-.335	.34927	.04878	-.401	.35024	.04879	-.451	.35015	.04879	-.461			
23	.40047	.04886	-.369	.39931	.04886	-.428	.40037	.04886	-.444	.39977	.04885	-.368			
22	.45030	.04812	-.402	.44927	.04815	-.423	.45010	.04813	-.424	.45009	.04813	-.358			
21	.50039	.04649	-.386	.49927	.04652	-.395	.50024	.04649	-.376	.50020	.04648	-.317			
20	.55025	.04394	-.357	.54927	.04398	-.333	.55042	.04392	-.306	.55013	.04393	-.266			
19	.60029	.04071	-.314	.59931	.04083	-.280	.60021	.04073	-.247	.60013	.04078	-.211			
18	.65032	.03711	-.271	.64917	.03719	-.230	.65026	.03711	-.192	.65015	.03711	-.157			
17	.70026	.03219	-.217	.70097	.03229	-.166	.70034	.03219	-.145	.70077	.03222	-.113			
16	.75026	.02581	-.152	.75012	.02572	-.094	.75008	.02563	-.070	.75012	.02562	-.046			
15	.80021	.01814	-.057	.80003	.01826	-.006	.80001	.01815	.017	.80010	.01815	.031			
14	.92027	.01021	.053	.91927	.01032	.094	.92012	.01023	.110	.92035	.01023	.123			
13	.98518	.00265	.175	.98387	.00283	.203	.98511	.00251	.221	.98495	.00267	.220			

SECTION 5				SECTION 6				SECTION 7				
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94777	-.00731	-.163	.94953	-.00734	-.152	.94946	-.00735	-.133			
14	.84754	-.01927	-.039	.84934	-.01823	-.045	.84958	-.01821	-.045			
13	.75003	-.02951	-.057	.74963	-.02854	-.039	.75002	-.02850	-.031			
12	.64988	-.03713	-.135	.64980	-.03714	-.113	.64957	-.03715	-.092			
11	.54981	-.04197	-.210	.54955	-.04396	-.180	.54967	-.04398	-.152			
10	.44990	-.04814	-.310	.44998	-.04814	-.268	.44970	-.04816	-.229			
9	.35016	-.04880	-.345	.34990	-.04880	-.291	.34973	-.04879	-.251			
8	.25012	-.04646	-.471	.24977	-.04645	-.328	.24976	-.04645	-.283			
7	.15054	-.04081	-.409	.15015	-.04078	-.377	.14996	-.04076	-.291			
6	.10029	-.03625	-.391	.10019	-.03624	-.507	.10039	-.03627	-.522			
5	.06559	-.03203	-.521	.06521	-.03198	-.453	.06536	-.03200	-.648			
4	.04030	-.02789	-.520	.03999	-.02803	-.601	.04025	-.02813	-.790			
3	.02010	-.02282	-.563	.01985	-.02268	-.573	.01985	-.02266	-.672			
2	.00587	-.01314	-.276	.00567	-.01305	-.228	.00578	-.01313	-.100			
1	.00057	.00379	.803	.00068	.00449	.772	.00050	.00361	.710			
45	.00184	.00727	.155	.00190	.00749	.495	.00193	.00757	.460			
44	.00426	.01361	.155	.00623	.01365	.158	.00630	.01368	.051			
43	.01229	.01873	-.236	.01209	.01851	-.243	.01265	.01889	-.337			
42	.02076	.02727	-.613	.01983	.02268	-.686	.02012	.02277	-.713			
41	.02998	.02581	-.753	.02921	.02584	-.792	.02999	.02593	-.913			
40	.04766	.02966	-.468	.04972	.02967	-.590	.04995	.02970	-.746			
39	.07448	.03322	-.418	.07488	.03329	-.516	.07482	.03327	-.693			
38	.09224	.03621	-.415	.09221	.03620	-.535	.09090	.03621	-.553			
37	.13986	.03995	-.448	.13933	.03994	-.602	.13976	.03995	-.283			
36	.17979	.04286	-.461	.17999	.04272	-.500	.17991	.04243	-.296			
35	.22001	.04515	-.499	.22010	.04514	-.319	.21990	.04514	-.290			
34	.25964	.04681	-.403	.25996	.04681	-.318	.25976	.04632	-.285			
33	.29948	.04800	-.339	.29994	.04799	-.313	.29986	.04800	-.270			
32	.33983	.04869	-.341	.34008	.04869	-.303	.33979	.04868	-.258			
31	.37986	.04892	-.337	.37994	.04891	-.289	.37976	.04892	-.248			
30	.41959	.04867	-.322	.41985	.04867	-.277	.41988	.04865	-.253			
29	.45975	.04789	-.305	.45976	.04790	-.269	.45970	.04789	-.217			
28	.49960	.04650	-.264	.49994	.04649	-.225	.49987	.04647	-.194			
27	.53959	.04452	-.227	.53985	.04450	-.200	.53975	.04452	-.159			
26	.57941	.04214	-.184	.57971	.04210	-.153	.57985	.04214	-.124			
25	.61987	.03918	-.151	.61970	.03939	-.122	.61976	.03940	-.101			
24	.65964	.03677	-.118	.65979	.03653	-.100	.65966	.03636	-.079			
23	.69940	.03308	-.093	.69976	.03308	-.067	.69979	.03303	-.055			
22	.73940	.02946	-.065	.73973	.02946	-.049	.73980	.02948	-.034			
21	.77960	.02567	-.027	.77962	.02567	-.015	.77942	.02570	-.007			
20	.81957	.02157	.017	.81965	.02154	.024	.81985	.02150	.025			
19	.85955	.01709	.058	.85980	.01707	.060	.85943	.01712	.057			
18	.89940	.01264	.101	.89977	.01261	.098	.89961	.01263	.092			
17	.94777	.00735	.163	.94861	.00742	.154	.94959	.00733	.135			
16	.98506	.00264	.222	.98462	.00272	.203	.98455	.00274	.175			

TABLE B1-10

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2396

MO = .8371
 ALPHA = .03
 REC = 11.69*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95070	-.00726	-.102	.94937	-.00735	-.138	.94999	-.00737	-.152	.94987	-.00731	-.159			
11	.91597	-.02193	-.093	.81705	-.02182	-.049	.81986	-.02152	-.027	.82223	-.02125	-.009			
10	.66593	-.03587	-.234	.66698	-.03579	-.198	.67008	-.03553	-.173	.67216	-.03537	-.149			
9	.56599	-.04701	-.320	.56705	-.04294	-.308	.57033	-.04272	-.270	.57230	-.04261	-.236			
8	.46599	-.04773	-.419	.46736	-.04769	-.405	.47037	-.04760	-.392	.47220	-.04753	-.346			
7	.36590	-.04899	-.351	.36705	-.04889	-.397	.37009	-.04890	-.436	.37235	-.04891	-.392			
6	.26579	-.04707	-.329	.26705	-.04706	-.357	.27016	-.04716	-.389	.27230	-.04723	-.422			
5	.16594	-.04194	-.284	.16699	-.04202	-.339	.17010	-.04224	-.352	.17242	-.04236	-.371			
4	.04993	-.02971	-.330	.04939	-.02958	-.387	.05016	-.02975	-.405	.05017	-.02974	-.394			
3	.02007	-.02764	-.482	.01927	-.02242	-.512	.02010	-.02275	-.498	.01999	-.02268	-.517			
2	.00593	-.01533	-.282	.00520	-.01261	-.263	.00591	-.01326	-.294	.00611	-.01355	-.275			
1	.00014	.00292	.840	.00031	.00277	.831	.00042	.00317	.822	.00060	.00600	.815			
34	.00216	.00802	.654	.00108	.00553	.623	.00222	.00806	.582	.00210	.00797	.564			
33	.00866	.01592	.165	.00789	.01531	.091	.00914	.01640	.022	.00893	.01619	.026			
32	.02077	.02285	-.318	.01906	.02232	-.416	.02336	.02273	-.521	.02612	.02276	-.567			
31	.03575	.02701	-.473	.03402	.02674	-.495	.03508	.02698	-.616	.03530	.02701	-.735			
30	.06376	.02130	-.240	.05911	.03113	-.314	.06022	.03128	-.373	.06011	.03127	-.394			
29	.09959	.02617	-.228	.09913	.03613	-.302	.10029	.03626	-.359	.10019	.03623	-.385			
28	.15037	.04090	-.237	.14927	.04071	-.304	.15032	.04078	-.359	.15024	.04078	-.392			
27	.20044	.04413	-.263	.19909	.04405	-.347	.20029	.04411	-.380	.20016	.04410	-.419			
26	.25079	.04647	-.287	.25080	.04649	-.360	.25024	.04647	-.399	.25021	.04647	-.429			
25	.30050	.04900	-.303	.29925	.04798	-.379	.30008	.04800	-.429	.30021	.04799	-.446			
24	.35050	.04879	-.334	.34927	.04878	-.396	.35024	.04877	-.441	.35015	.04879	-.430			
23	.40147	.04886	-.365	.39931	.04886	-.420	.40037	.04885	-.434	.39977	.04885	-.454			
22	.45070	.04812	-.392	.44897	.04815	-.413	.45010	.04815	-.419	.45009	.04815	-.434			
21	.50019	.04648	-.378	.49927	.04652	-.387	.50024	.04649	-.376	.50020	.04648	-.394			
20	.55025	.04594	-.351	.54927	.04598	-.331	.55042	.04592	-.308	.55033	.04593	-.264			
19	.60029	.04075	-.309	.59931	.04083	-.277	.60071	.04073	-.247	.60018	.04078	-.208			
18	.65072	.03711	-.268	.64917	.03719	-.227	.65026	.03711	-.195	.65015	.03711	-.160			
17	.70076	.03219	-.213	.70097	.03229	-.164	.71034	.03218	-.144	.70977	.03222	-.114			
16	.75076	.02561	-.151	.75012	.02572	-.195	.76036	.02563	-.071	.76012	.02562	-.045			
15	.80071	.01814	-.053	.80001	.01826	-.006	.85001	.01815	.015	.85010	.01815	.031			
14	.92027	.01071	-.050	.91929	.01132	-.094	.92012	.01023	-.108	.92005	.01023	-.120			
13	.98519	.00265	.173	.98387	.00283	.199	.98611	.00251	.214	.98498	.00267	.216			

SECTION 5				SECTION 6				SECTION 7							
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.159	.94953	-.00734	-.149	.94946	-.00735	-.131						
14	.84954	-.01822	-.038	.84934	-.01823	-.044	.84958	-.01821	-.043						
13	.75003	-.02851	-.058	.74965	-.02854	-.039	.75002	-.02850	-.033						
12	.64988	-.03713	-.136	.64963	-.03714	-.112	.64957	-.03715	-.093						
11	.54993	-.04597	-.308	.54955	-.04596	-.178	.54967	-.04598	-.153						
10	.44990	-.04814	-.310	.44998	-.04814	-.266	.44970	-.04816	-.228						
9	.35016	-.04880	-.344	.34990	-.04880	-.289	.34973	-.04879	-.251						
8	.25012	-.04646	-.375	.24997	-.04645	-.329	.24976	-.04643	-.283						
7	.15054	-.04081	-.414	.15015	-.04078	-.482	.14996	-.04076	-.297						
6	.05079	-.03625	-.394	.05019	-.03624	-.513	.05039	-.03627	-.379						
5	.00590	-.03203	-.676	.00521	-.03198	-.469	.00536	-.03200	-.666						
4	.04030	-.02788	-.681	.03999	-.02803	-.728	.04025	-.02813	-.959						
3	.02070	-.02792	-.544	.01995	-.02268	-.567	.01985	-.02266	-.675						
2	.00597	-.01314	-.277	.00567	-.01305	-.227	.00578	-.01313	-.098						
1	.00057	.00779	.803	.00068	.00449	.773	.00050	.00361	.709						
45	.00184	.00727	.164	.00190	.00749	.496	.00193	.00757	.460						
44	.00626	.01361	.166	.00623	.01365	-.165	.00630	.01368	.053						
43	.01229	.01873	-.229	.01209	.01851	-.236	.01265	.01889	-.327						
42	.02006	.02272	-.571	.01993	.02268	-.653	.02012	.02277	-.710						
41	.02998	.02581	-.532	.02991	.02584	-.489	.02999	.02583	-.521						
40	.04966	.02966	-.471	.04977	.02967	-.599	.04995	.02970	-.838						
39	.07449	.03322	-.410	.07488	.03329	-.526	.07482	.03327	-.702						
38	.09904	.03621	-.425	.09991	.03620	-.542	.09990	.03621	-.426						
37	.11396	.03995	-.447	.11393	.03994	-.601	.11376	.03995	-.489						
36	.17979	.04246	-.463	.17999	.04272	-.311	.17991	.04289	-.299						
35	.22001	.04515	-.489	.22010	.04514	-.325	.21990	.04514	-.290						
34	.25764	.04681	-.353	.25996	.04681	-.319	.25976	.04682	-.284						
33	.29989	.04900	-.351	.29994	.04799	-.311	.29986	.04800	-.269						
32	.35985	.04869	-.342	.36003	.04869	-.299	.35979	.04868	-.256						
31	.47976	.04992	-.334	.47994	.04891	-.287	.47976	.04892	-.247						
30	.41959	.04867	-.319	.41988	.04867	-.273	.41988	.04868	-.251						
29	.45975	.04789	-.303	.45976	.04790	-.257	.45970	.04789	-.217						
28	.49960	.04650	-.263	.49994	.04649	-.222	.49987	.04649	-.194						
27	.53959	.04452	-.225	.53988	.04450	-.197	.53975	.04452	-.160						
26	.57961	.04214	-.183	.57991	.04210	-.152	.57985	.04214	-.124						
25	.61987	.03938	-.150	.61970	.03939	-.122	.61976	.03940	-.102						
24	.65964	.03737	-.118	.65979	.03635	-.100	.65966	.03636	-.080						
23	.69970	.03508	-.093	.69976	.03308	-.066	.69979	.03308	-.056						
22	.73940	.02949	-.064	.73970	.02946	-.046	.73980	.02945	-.034						
21	.77960	.02567	-.027	.77962	.02567	-.014	.77942	.02570	-.007						
20	.81947	.02157	.017	.81965	.02154	.024	.81985	.02150	.024						
19	.85955	.01709	.057	.85950	.01707	.060	.85943	.01712	.057						
18	.89940	.01246	.100	.89977	.01241	.098	.89961	.01243	.091						
17	.94777	.00755	.160	.94761	.00742	.151	.94959	.00733	.132						
16	.98506	.00266	.216	.98562	.00272	.198	.98455	.00274	.172						

TABLE B1-11

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2306

MO = .9398
 ALPHA = 1.07
 REC = 11.71*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP			
12	.95050	-.00726	.103	.94937	-.00735	.140	.94999	-.00737	.154	.94987	-.00731	.160			
11	.81597	-.02193	-.094	.81735	-.02182	-.053	.81986	-.02152	-.026	.82223	-.02125	-.010			
10	.66593	-.03587	-.217	.66695	-.03579	-.193	.67008	-.03553	-.168	.67216	-.03537	-.147			
9	.56598	-.04301	-.298	.56705	-.04294	-.288	.57033	-.04272	-.258	.57230	-.04261	-.231			
8	.46599	-.04773	-.353	.46736	-.04769	-.366	.47037	-.04760	-.365	.47220	-.04753	-.334			
7	.36590	-.04889	-.310	.36705	-.04889	-.343	.37009	-.04890	-.382	.37235	-.04891	-.371			
6	.26570	-.04702	-.264	.26705	-.04706	-.298	.27010	-.04716	-.321	.27230	-.04723	-.355			
5	.16594	-.04194	-.215	.16699	-.04202	-.266	.17010	-.04224	-.269	.17242	-.04238	-.288			
4	.04793	-.02971	-.251	.04909	-.02958	-.265	.05016	-.02975	-.237	.05017	-.02974	-.266			
3	.02002	-.02268	-.328	.01922	-.02242	-.327	.02010	-.02275	-.293	.01999	-.02268	-.309			
2	.00593	-.01333	.378	.00520	-.01261	.376	.00591	-.01326	.409	.00611	-.01355	.395			
1	.00034	.00292	.835	.00031	.00277	.824	.00042	.00317	.810	.00000	.00000	.805			
34	.00216	.00902	.582	.00103	.00553	.544	.00222	.00906	.494	.00210	.00787	.472			
33	.00446	.01592	.041	.00739	.01531	-.044	.00914	.01640	-.115	.00893	.01619	-.118			
32	.02017	.02285	-.505	.01736	.02232	-.659	.02336	.02273	-.695	.02012	.02276	-.779			
31	.03525	.02701	-.551	.03402	.02674	-.854	.03508	.02698	-.773	.03530	.02701	-1.009			
30	.06016	.03130	-.556	.05913	.03113	-.417	.06022	.03128	-.580	.06011	.03127	-.324			
29	.09959	.03617	-.514	.09915	.03613	-.598	.10029	.03626	-.461	.10019	.03623	-.467			
28	.15037	.04090	-.509	.14927	.04071	-.576	.15032	.04078	-.445	.15024	.04078	-.492			
27	.20344	.04413	-.527	.19909	.04405	-.418	.20029	.04411	-.469	.20016	.04410	-.512			
26	.25010	.04647	-.547	.25080	.04649	-.429	.25024	.04647	-.486	.25021	.04647	-.526			
25	.30050	.04800	-.558	.29925	.04798	-.441	.30008	.04800	-.509	.30021	.04799	-.546			
24	.35050	.04870	-.589	.34927	.04878	-.467	.35024	.04879	-.541	.35015	.04879	-.572			
23	.40047	.04886	-.421	.39931	.04886	-.504	.40037	.04886	-.540	.39977	.04885	-.556			
22	.45010	.04812	-.459	.44897	.04815	-.515	.45010	.04815	-.440	.45009	.04813	-.547			
21	.50030	.04648	-.449	.49927	.04652	-.423	.50024	.04649	-.379	.50020	.04648	-.319			
20	.55025	.04394	-.398	.54927	.04398	-.349	.55042	.04392	-.308	.55033	.04393	-.269			
19	.60079	.04075	-.344	.59931	.04083	-.289	.60071	.04073	-.249	.60018	.04078	-.211			
18	.65012	.03711	-.290	.64917	.03719	-.236	.65026	.03711	-.194	.65015	.03711	-.160			
17	.70024	.03219	-.230	.70097	.03229	-.167	.70134	.03218	-.144	.70097	.03222	-.112			
16	.78076	.02561	-.160	.77912	.02572	-.093	.78008	.02563	-.068	.78012	.02562	-.043			
15	.85021	.01814	-.061	.84923	.01826	-.003	.85001	.01815	-.021	.85010	.01815	.035			
14	.92027	.01021	.051	.91929	.01032	.099	.92012	.01023	.113	.92005	.01023	.126			
13	.98518	.00265	.175	.98587	.00283	.206	.98611	.00251	.222	.98498	.00267	.221			

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00731	.157	.94953	-.00734	.143	.94946	-.00735	.115		
14	.84954	-.01822	.034	.84934	-.01823	.037	.84958	-.01821	.031		
13	.75003	-.02851	-.060	.74963	-.02854	-.044	.75002	-.02850	-.040		
12	.64998	-.03713	-.135	.64980	-.03714	-.116	.64957	-.03715	-.098		
11	.54993	-.04307	-.209	.54995	-.04396	-.178	.54967	-.04398	-.154		
10	.44990	-.04814	-.299	.44998	-.04814	-.260	.44970	-.04815	-.225		
9	.35016	-.04880	-.328	.34970	-.04880	-.277	.34973	-.04879	-.243		
8	.25017	-.04644	-.557	.24997	-.04645	-.513	.24976	-.04645	-.271		
7	.15054	-.04081	-.529	.15015	-.04078	-.534	.14996	-.04076	-.290		
6	.10020	-.03625	-.287	.10019	-.03624	-.408	.10039	-.03627	-.385		
5	.06550	-.03203	-.335	.06521	-.03198	-.354	.06536	-.03200	-.355		
4	.04030	-.02788	-.336	.03999	-.02803	-.392	.04025	-.02813	-.376		
3	.02010	-.02297	-.338	.01955	-.02268	-.374	.01985	-.02266	-.524		
2	.00597	-.01314	.393	.00567	-.01305	.341	.00578	-.01313	.148		
1	.00057	.00079	.785	.00068	.00449	.758	.00050	.00361	.699		
45	.00194	.00727	.028	.00190	.00749	.410	.00193	.00757	.379		
44	.00676	.01361	.029	.00623	.01365	.045	.00630	.01368	-.060		
43	.01278	.01873	-.377	.01209	.01851	-.372	.01265	.01889	-.460		
42	.02706	.02272	-.790	.01983	.02268	-.819	.02012	.02277	-.944		
41	.02988	.02581	-.992	.02991	.02584	-1.009	.02999	.02583	-1.070		
40	.04946	.02966	-.943	.04972	.02967	-.990	.04995	.02970	-1.077		
39	.07448	.03322	-.433	.07488	.03329	-.816	.07482	.03327	-1.017		
38	.09994	.03621	-.478	.09991	.03620	-.568	.09990	.03621	-.564		
37	.13986	.03995	-.548	.13983	.03994	-.681	.13976	.03995	-.279		
36	.17979	.04286	-.558	.17999	.04272	-.563	.17991	.04288	-.294		
35	.22001	.04515	-.584	.22010	.04514	-.299	.21990	.04514	-.293		
34	.25964	.04681	-.403	.25976	.04681	-.509	.25976	.04682	-.293		
33	.29998	.04800	-.295	.29994	.04799	-.515	.29996	.04800	-.282		
32	.35995	.04869	-.518	.34031	.04869	-.308	.33979	.04868	-.269		
31	.37986	.04892	-.534	.37994	.04891	-.298	.37976	.04892	-.260		
30	.41959	.04967	-.527	.41985	.04967	-.285	.41988	.04868	-.263		
29	.45975	.04989	-.510	.45976	.04990	-.266	.45970	.04789	-.227		
28	.49960	.04650	-.268	.49994	.04649	-.228	.49987	.04649	-.202		
27	.53959	.04452	-.229	.53985	.04450	-.201	.53975	.04452	-.167		
26	.57961	.04214	-.184	.57998	.04210	-.152	.57985	.04214	-.129		
25	.61967	.03993	-.149	.61970	.03939	-.121	.61976	.03940	-.106		
24	.65968	.03677	-.116	.65979	.03635	-.098	.65966	.03636	-.084		
23	.69970	.03308	-.090	.69976	.03308	-.065	.69979	.03308	-.060		
22	.73960	.02949	-.060	.73970	.02946	-.045	.73980	.02946	-.038		
21	.77960	.02567	-.022	.77967	.02567	-.011	.77942	.02570	-.013		
20	.81957	.02157	-.021	.81965	.02154	-.028	.81985	.02150	.016		
19	.85955	.01709	.064	.85980	.01707	.064	.85943	.01712	.042		
18	.89940	.01246	.104	.89977	.01241	.102	.89961	.01243	.071		
17	.94777	.00755	.167	.94861	.00742	.155	.94959	.00733	.097		
16	.98506	.00266	.223	.98462	.00272	.204	.98455	.00274	.122		

TABLE B1-12

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2307

MO = .8386
 ALPHA = 2.06
 REC = 11.72*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95070	-.00726	.105	.94937	-.00735	.139	.94999	-.00737	.155	.94937	-.00731	.160
11	.81507	-.02193	-.084	.81705	-.02182	-.044	.81786	-.02152	-.023	.82275	-.02125	-.009
10	.66593	-.03587	-.194	.66698	-.03579	-.170	.67008	-.03553	-.159	.67216	-.03537	-.141
9	.56598	-.04701	-.260	.56705	-.04694	-.258	.57035	-.04672	-.238	.57230	-.04661	-.220
8	.46599	-.04773	-.305	.46736	-.04769	-.310	.47037	-.04760	-.323	.47220	-.04753	-.312
7	.36590	-.04889	-.259	.36705	-.04880	-.284	.37009	-.04880	-.325	.37235	-.04891	-.328
6	.26579	-.04702	-.213	.26705	-.04706	-.233	.27010	-.04715	-.257	.27230	-.04723	-.290
5	.16594	-.04194	-.146	.16699	-.04202	-.193	.17010	-.04224	-.192	.17242	-.04239	-.213
4	.04793	-.02771	-.129	.04903	-.02958	-.142	.05016	-.02975	-.116	.05017	-.02974	-.142
3	.02002	-.02268	-.176	.01922	-.02242	-.152	.02010	-.02275	-.122	.01999	-.02268	-.128
2	.00593	-.01133	.472	.00520	-.01261	.480	.00591	-.01326	.507	.00611	-.01355	.494
1	.00074	.00292	.822	.00031	.00277	.807	.00042	.00317	.785	.00000	.00000	.783
34	.00216	.00902	.516	.00108	.00553	.467	.00222	.00806	.463	.00213	.00787	.582
33	.00866	.01592	-.067	.00759	.01531	-.158	.00914	.01640	-.230	.00893	.01619	-.226
32	.02037	.02295	-.611	.01905	.02232	-.758	.02036	.02273	-.923	.02012	.02276	-.992
31	.03525	.02701	-.941	.03402	.02674	-1.039	.03508	.02698	-1.095	.03550	.02701	-1.124
30	.06036	.03130	-.423	.05911	.03113	-.906	.06022	.03128	-1.023	.06011	.03127	-1.051
29	.09959	.03617	-.387	.09913	.03613	-.450	.10029	.03626	-.508	.10019	.03623	-.916
28	.15037	.04080	-.372	.14927	.04071	-.453	.15032	.04078	-.505	.15024	.04078	-.439
27	.20044	.04413	-.387	.19909	.04405	-.487	.20029	.04411	-.544	.20016	.04410	-.563
26	.25039	.04647	-.400	.25090	.04649	-.499	.25024	.04647	-.555	.25021	.04647	-.585
25	.30050	.04800	-.403	.29925	.04798	-.505	.30008	.04800	-.573	.30021	.04799	-.603
24	.35050	.04879	-.432	.34927	.04878	-.521	.35024	.04879	-.608	.35015	.04879	-.637
23	.40047	.04886	-.464	.39931	.04886	-.561	.40037	.04886	-.625	.39977	.04885	-.298
22	.45030	.04912	-.502	.44927	.04915	-.597	.45010	.04913	-.538	.45009	.04913	-.314
21	.50039	.04644	-.520	.49927	.04652	-.505	.50024	.04649	-.341	.50020	.04648	-.303
20	.55025	.04394	-.454	.54927	.04398	-.343	.55042	.04392	-.290	.55033	.04393	-.260
19	.60029	.04075	-.362	.59931	.04083	-.285	.60071	.04073	-.238	.60018	.04078	-.206
18	.65032	.03711	-.296	.64917	.03719	-.231	.65026	.03711	-.187	.65015	.03711	-.156
17	.71026	.03219	-.234	.70997	.03229	-.164	.71034	.03218	-.138	.70977	.03222	-.108
16	.78026	.02561	-.156	.77912	.02572	-.090	.78008	.02563	-.063	.78012	.02562	-.039
15	.85021	.01814	-.059	.84905	.01826	.002	.85001	.01815	.025	.85010	.01815	.037
14	.92027	.01071	.058	.91929	.01032	.103	.92012	.01023	.118	.92035	.01023	.128
13	.98518	.00265	.179	.98387	.00283	.207	.98611	.00251	.223	.98498	.00267	.222

SECTION 5				SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94777	-.00731	.153	.94953	-.00734	.136	.94946	-.00735	.093
14	.84954	-.01822	.032	.84934	-.01823	.028	.84958	-.01821	.013
13	.75073	-.02851	-.067	.74763	-.02854	-.051	.75002	-.02850	-.054
12	.64988	-.03713	-.134	.64980	-.03714	-.118	.64957	-.03715	-.105
11	.54993	-.04397	-.283	.54953	-.04396	-.176	.54967	-.04398	-.157
10	.44990	-.04814	-.284	.44998	-.04814	-.251	.44970	-.04816	-.220
9	.35015	-.04880	-.303	.34990	-.04880	-.262	.34973	-.04879	-.233
8	.25012	-.04644	-.319	.24977	-.04645	-.294	.24976	-.04645	-.251
7	.15054	-.04081	-.250	.15016	-.04078	-.331	.14996	-.04076	-.308
6	.10029	-.03623	-.199	.10019	-.03624	-.317	.10039	-.03627	-.347
5	.06550	-.03203	-.195	.06521	-.03198	-.257	.06556	-.03200	-.456
4	.04030	-.02788	-.194	.03999	-.02803	-.256	.04025	-.02813	-.448
3	.02030	-.02282	-.169	.01985	-.02268	-.217	.01985	-.02266	-.363
2	.00587	-.01314	.486	.00567	-.01305	.434	.00578	-.01313	.234
1	.00057	.00379	.760	.00068	.00449	.729	.00050	.00361	.671
43	.00194	.00727	-.079	.00190	.00749	-.053	.00193	.00757	.297
44	.00626	.01361	-.079	.00623	.01365	-.059	.00630	.01368	-.158
43	.01228	.01873	-.484	.01209	.01851	-.490	.01265	.01889	-.564
42	.02036	.02272	-.900	.01983	.02268	-.909	.02012	.02277	-.937
41	.02998	.02581	-1.103	.02991	.02584	-1.121	.02999	.02583	-1.169
40	.04965	.02966	-1.092	.04972	.02967	-1.130	.04995	.02970	-1.206
39	.07448	.03222	-1.017	.07489	.03329	-1.071	.07482	.03327	-1.183
38	.09904	.03621	-.953	.09991	.03620	-1.009	.09990	.03621	-1.104
37	.13946	.03995	-.878	.13983	.03994	-.997	.13976	.03995	-.367
36	.17979	.04286	-.542	.17999	.04272	-.361	.17991	.04288	-.172
35	.22001	.04515	-.609	.22010	.04514	-.192	.21990	.04514	-.235
34	.25944	.04681	-.619	.25996	.04681	-.239	.25976	.04682	-.270
33	.29998	.04800	-.268	.29924	.04799	-.283	.29986	.04800	-.275
32	.33995	.04869	-.286	.34003	.04869	-.292	.33979	.04868	-.272
31	.37996	.04892	-.310	.37924	.04891	-.293	.37776	.04892	-.267
30	.41959	.04867	-.315	.41988	.04867	-.293	.41988	.04868	-.273
29	.45975	.04789	-.306	.45976	.04790	-.267	.45970	.04789	-.238
28	.49960	.04650	-.266	.49924	.04649	-.229	.49987	.04649	-.212
27	.53959	.04457	-.228	.53958	.04450	-.204	.53975	.04452	-.180
26	.57761	.04214	-.182	.57721	.04210	-.154	.57985	.04214	-.144
25	.61787	.03938	-.149	.61970	.03939	-.124	.61976	.03940	-.124
24	.65948	.03637	-.115	.65979	.03635	-.101	.65966	.03635	-.106
23	.69970	.03308	-.090	.69976	.03308	-.069	.69979	.03308	-.088
22	.73940	.02949	-.060	.73973	.02946	-.049	.73980	.02946	-.074
21	.77960	.02567	-.021	.77967	.02567	-.018	.77942	.02570	-.060
20	.81937	.02157	.022	.81965	.02154	.020	.81985	.02150	.049
19	.85955	.01709	.062	.85980	.01707	.054	.85943	.01712	-.040
18	.89940	.01246	.104	.89977	.01241	.089	.89961	.01243	-.037
17	.94727	.00755	.164	.94861	.00742	.143	.94959	.00733	-.044
16	.98506	.00266	.220	.98462	.00272	.196	.98455	.00274	-.026

TABLE B1-13

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2308

MO = .9395
 ALPHA = 3.06
 REC = 11.72*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP		X/L	Z/L	CP	
12	.95030	-.00726	-.101	.94937	-.00735	-.143		.94999	-.00737	-.157		.94937	-.00731	-.162	
11	.81597	-.02193	-.079	.81705	-.02182	-.036		.81986	-.02132	-.016		.82223	-.02125	-.005	
10	.66591	-.03587	-.171	.66698	-.03579	-.151		.67008	-.03555	-.143		.67216	-.03537	-.131	
9	.56581	-.04301	-.229	.56705	-.04294	-.228		.57033	-.04272	-.213		.57230	-.04261	-.205	
8	.46599	-.04773	-.263	.46706	-.04769	-.269		.47037	-.04765	-.279		.47220	-.04753	-.285	
7	.36590	-.04889	-.215	.36705	-.04889	-.233		.37009	-.04890	-.270		.37235	-.04899	-.283	
6	.26579	-.04702	-.164	.26735	-.04706	-.181		.27010	-.04716	-.196		.27230	-.04723	-.230	
5	.16594	-.04194	-.092	.16699	-.04202	-.130		.17010	-.04224	-.121		.17242	-.04258	-.143	
4	.04993	-.02971	-.046	.04909	-.02958	-.045		.05016	-.02975	-.009		.05017	-.02974	-.027	
3	.02002	-.03268	-.034	.01922	-.02242	-.007		.02010	-.02275	-.026		.01999	-.02268	-.025	
2	.00593	-.01333	.549	.00520	-.01261	.565		.00591	-.01326	.590		.00611	-.01355	.580	
1	.00034	.00292	.801	.00031	.00277	.781		.00042	.00317	.752		.00000	.00000	.752	
34	.00216	.00802	.444	.00109	.00553	.388		.00222	.00806	.325		.00210	.00797	.304	
33	.00866	.01592	-.168	.00789	.01531	-.256		.00914	.01640	-.324		.00893	.01619	-.324	
32	.02037	.02285	-.707	.01905	.02232	-.842		.02036	.02273	-.918		.02012	.02276	-.976	
31	.03525	.02701	-1.069	.03402	.02674	-1.127		.03508	.02698	-1.181		.03530	.02701	-1.206	
30	.06036	.03130	-.629	.05911	.03113	-1.092		.06022	.03128	-1.140		.06011	.03127	-1.161	
29	.09959	.04617	-.465	.09913	.03613	-.889		.10029	.03626	-1.031		.10019	.03623	-1.058	
28	.15037	.04080	-.442	.14927	.04071	-.488		.15032	.04078	-.941		.15024	.04078	-.996	
27	.20044	.04413	-.435	.19909	.04405	-.538		.20029	.04411	-.544		.20016	.04410	-.954	
26	.25039	.04647	-.459	.25080	.04649	-.561		.25024	.04647	-.594		.25021	.04647	-.618	
25	.30050	.04800	-.462	.29925	.04798	-.559		.30008	.04800	-.632		.30021	.04799	-.628	
24	.35050	.04879	-.480	.34927	.04878	-.580		.35024	.04879	-.664		.35015	.04879	-.677	
23	.40047	.04886	-.505	.39931	.04886	-.614		.40037	.04886	-.692		.39977	.04885	-.303	
22	.45030	.04912	-.547	.44897	.04815	-.647		.45010	.04813	-.725		.45039	.04813	-.245	
21	.50039	.04648	-.576	.49927	.04652	-.701		.50024	.04649	-.301		.50020	.04648	-.244	
20	.55025	.04594	-.580	.54927	.04398	-.374		.55042	.04392	-.236		.55033	.04393	-.222	
19	.60029	.04075	-.397	.59931	.04083	-.263		.60071	.04073	-.205		.60018	.04078	-.181	
18	.65037	.03711	-.307	.64917	.03719	-.213		.65026	.03711	-.164		.65015	.03711	-.139	
17	.70026	.03219	-.238	.70397	.03229	-.151		.71034	.03218	-.121		.70977	.03222	-.097	
16	.75026	.02561	-.160	.77912	.02572	-.081		.78008	.02563	-.052		.78012	.02562	-.031	
15	.80021	.01814	-.058	.84923	.01826	.010		.85001	.01815	.032		.85010	.01815	.043	
14	.92027	.01021	.059	.91929	.01032	.109		.92012	.01023	.123		.92025	.01023	.132	
13	.98518	.00265	.176	.98387	.00283	.211		.98611	.00251	.227		.98498	.00267	.225	

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP	
15	.94977	-.00731	.150	.94953	-.00734	.126		.94946	-.00735	-.070	
14	.84954	-.01822	.030	.84934	-.01823	.021		.84958	-.01821	-.009	
13	.75003	-.02851	-.062	.74963	-.02854	-.056		.75002	-.02850	-.072	
12	.64988	-.03713	-.130	.64980	-.03714	-.121		.64957	-.03715	-.118	
11	.54983	-.04397	-.270	.54955	-.04396	-.173		.54967	-.04398	-.165	
10	.44990	-.04814	-.268	.44998	-.04814	-.240		.44970	-.04816	-.217	
9	.35016	-.04880	-.288	.34920	-.04880	-.254		.34973	-.04879	-.230	
8	.25012	-.04646	-.277	.24997	-.04645	-.301		.24976	-.04645	-.274	
7	.15054	-.04081	-.182	.15016	-.04078	-.293		.14996	-.04076	-.318	
6	.10029	-.03625	-.121	.10019	-.03624	-.241		.10039	-.03627	-.342	
5	.06550	-.03203	-.078	.06521	-.03198	-.170		.06536	-.03200	-.376	
4	.04030	-.02788	-.079	.03999	-.02803	-.158		.04025	-.02813	-.336	
3	.02030	-.02262	-.018	.01985	-.02268	-.074		.01985	-.02266	-.227	
2	.00587	-.01314	.562	.00567	-.01305	.510		.00578	-.01313	.315	
1	.00057	.00379	.726	.00068	.00449	.690		.00050	.00361	.656	
45	.00184	.00727	-.182	.00190	.00749	-.229		.00193	.00757	-.210	
44	.00626	.01361	-.181	.00623	.01365	-.152		.00630	.01368	-.254	
43	.01229	.01873	-.576	.01209	.01851	-.598		.01265	.01889	-.651	
42	.02060	.02272	-.985	.01983	.02268	-.983		.02012	.02277	-1.018	
41	.02988	.02581	-1.187	.02891	.02584	-1.196		.02999	.02583	-1.244	
40	.04966	.02966	-1.194	.04972	.02967	-1.227		.04995	.02970	-1.201	
39	.07448	.03322	-1.140	.07488	.03329	-1.177		.07482	.03327	-1.275	
38	.09994	.03621	-1.093	.09991	.03620	-1.134		.09990	.03621	-1.209	
37	.13986	.03995	-1.048	.13983	.03994	-1.127		.13974	.03995	-.918	
36	.17979	.04246	-1.002	.17999	.04272	-1.136		.17991	.04288	-.785	
35	.22001	.04515	-.999	.22010	.04514	-.559		.21990	.04514	-.245	
34	.25964	.04681	-.981	.25996	.04681	-.282		.25976	.04682	-.207	
33	.29993	.04800	-.941	.29994	.04799	-.159		.29986	.04800	-.219	
32	.33955	.04869	-.195	.34003	.04869	-.179		.33979	.04868	-.234	
31	.37946	.04892	-.180	.37994	.04891	-.218		.37976	.04892	-.246	
30	.41959	.04867	-.208	.41985	.04867	-.238		.41988	.04868	-.272	
29	.45975	.04789	-.238	.45976	.04790	-.242		.45970	.04789	-.245	
28	.49960	.04650	-.220	.49994	.04649	-.216		.49987	.04649	-.233	
27	.53959	.04452	-.200	.53985	.04450	-.197		.53975	.04452	-.213	
26	.57961	.04214	-.162	.57991	.04210	-.152		.57985	.04214	-.192	
25	.61987	.03938	-.138	.61970	.03939	-.126		.61976	.03940	-.182	
24	.65964	.03637	-.107	.65979	.03635	-.104		.65966	.03636	-.176	
23	.69970	.03308	-.085	.69976	.03308	-.074		.69979	.03308	-.175	
22	.73940	.02946	-.057	.73970	.02946	-.056		.73980	.02946	-.182	
21	.77960	.02567	-.021	.77962	.02567	-.027		.77942	.02570	-.195	
20	.81917	.02157	.021	.81965	.02154	.009		.81985	.02150	-.218	
19	.85955	.01769	.059	.85980	.01707	.040		.85943	.01712	-.238	
18	.89940	.01246	.099	.89977	.01241	.072		.89961	.01243	-.256	
17	.94727	.00755	.156	.94861	.00742	.122		.94959	.00733	-.280	
16	.98526	.00266	.211	.98462	.00272	.178		.98455	.00274	-.218	

TABLE B1-14

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2563

MO = .9350
 ALPHA = 4.08
 REC = 11.81*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95039	-.00726	.097	.94957	-.00735	.146	.94999	-.00737	.159	.94987	-.00731	.160
11	.81597	-.02193	-.069	.81705	-.02182	-.027	.81986	-.02152	-.009	.82223	-.02125	-.006
10	.66593	-.03587	-.147	.66698	-.03579	-.131	.67008	-.03553	-.128	.67216	-.03537	-.124
9	.56588	-.04501	-.196	.56705	-.04294	-.192	.57033	-.04272	-.186	.57250	-.04261	-.192
8	.46599	-.04773	-.219	.46706	-.04769	-.222	.47037	-.04760	-.236	.47220	-.04753	-.261
7	.36580	-.04889	-.170	.36705	-.04889	-.182	.37009	-.04890	-.218	.37235	-.04891	-.242
6	.26579	-.04702	-.113	.26705	-.04706	-.123	.27010	-.04716	-.140	.27230	-.04723	-.178
5	.16594	-.04194	-.036	.16699	-.04202	-.065	.17010	-.04224	-.060	.17242	-.04238	-.082
4	.04993	-.02971	.058	.04909	-.02958	.053	.05016	-.02975	.086	.05017	-.02974	.054
3	.07002	-.02268	.088	.01922	-.02242	.118	.02010	-.02275	.151	.01999	-.02268	.151
2	.00593	-.01333	.622	.00520	-.01261	.638	.00591	-.01326	.657	.00611	-.01355	.649
1	.00054	.00092	.772	.00051	.00277	.747	.00042	.00317	.709	.00000	.00000	.710
34	.00216	.00862	.362	.00125	.00553	.306	.00222	.00806	.228	.00210	.00787	.220
33	.00846	.01597	-.268	.00789	.01531	-.354	.00914	.01640	-.407	.00893	.01619	-.466
32	.02037	.02285	-.795	.01906	.02232	-.943	.02336	.02275	-1.309	.02012	.02276	-1.066
31	.03575	.02701	-1.161	.03402	.02674	-1.212	.03508	.02698	-1.275	.03530	.02701	-1.298
30	.06036	.03130	-1.112	.05911	.03113	-1.192	.06022	.03129	-1.239	.06011	.03127	-1.262
29	.09959	.03617	-.540	.09913	.03613	-1.091	.10029	.03626	-1.149	.10019	.03623	-1.172
28	.15037	.04080	-.504	.14927	.04071	-.902	.15032	.04078	-1.080	.15024	.04078	-1.124
27	.20044	.04413	-.514	.19909	.04405	-.542	.20029	.04411	-1.034	.20016	.04410	-1.039
26	.25039	.04647	-.506	.25080	.04649	-.594	.25024	.04647	-.823	.25021	.04647	-1.071
25	.30050	.04800	-.505	.29925	.04798	-.603	.30008	.04800	-.634	.30021	.04799	-1.054
24	.35050	.04879	-.530	.34927	.04878	-.630	.35024	.04879	-.673	.35015	.04879	-.588
23	.40047	.04886	-.538	.39931	.04886	-.658	.40037	.04886	-.717	.39977	.04885	-.337
22	.45030	.04812	-.574	.44897	.04815	-.680	.45010	.04813	-.712	.45009	.04813	-.201
21	.50039	.04648	-.599	.49927	.04652	-.740	.50024	.04647	-.264	.50020	.04648	-.167
20	.55025	.04594	-.614	.54927	.04598	-.376	.55042	.04592	-.217	.55033	.04593	-.159
19	.60029	.04075	-.408	.59931	.04083	-.245	.60071	.04073	-.185	.60018	.04078	-.137
18	.65032	.03711	-.307	.64917	.03719	-.198	.65026	.03711	-.144	.65015	.03711	-.108
17	.70026	.03219	-.231	.70897	.03229	-.140	.71034	.03218	-.107	.70977	.03222	-.077
16	.75026	.02561	-.152	.77012	.02572	-.069	.78068	.02563	-.037	.78012	.02562	-.021
15	.80021	.01814	-.050	.84903	.01826	.016	.85001	.01815	.042	.85010	.01815	.044
14	.92027	.01021	.065	.91929	.01032	.114	.92012	.01023	.130	.92005	.01023	.128
13	.98518	.00265	.178	.98387	.00283	.215	.98611	.00251	.229	.98498	.00267	.218

SECTION 5			SECTION 6			SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.137	.94953	-.00734	.111	.94946	-.00735	.043
14	.84954	-.01822	.025	.84954	-.01823	.009	.84958	-.01821	-.333
13	.75003	-.02881	-.061	.74965	-.02854	-.064	.75002	-.02850	-.092
12	.64988	-.03713	-.125	.64980	-.03714	-.124	.64957	-.03715	-.134
11	.54973	-.04397	-.258	.54955	-.04396	-.174	.54967	-.04398	-.175
10	.44990	-.04814	-.256	.44998	-.04814	-.237	.44970	-.04816	-.223
9	.35016	-.04880	-.262	.34992	-.04880	-.260	.34973	-.04879	-.243
8	.25012	-.04646	-.226	.24997	-.04645	-.282	.24976	-.04645	-.294
7	.15054	-.04081	-.116	.15015	-.04078	-.243	.14996	-.04076	-.302
6	.10029	-.03625	-.047	.10019	-.03624	-.165	.10039	-.03627	-.303
5	.06550	-.03203	.020	.06521	-.03198	-.085	.06536	-.03200	-.298
4	.04030	-.02788	.021	.03999	-.02803	-.061	.04025	-.02813	-.237
3	.02030	-.02282	.109	.01985	-.02268	.049	.01985	-.02266	-.105
2	.00587	-.01314	.628	.00567	-.01305	.530	.00578	-.01313	.619
1	.00057	.00370	.682	.00068	.00449	.644	.00050	.00361	.597
45	.00184	.00727	-.287	.00190	.00749	.162	.00193	.00757	.123
44	.00676	.01361	-.287	.00623	.01365	-.275	.00630	.01368	-.338
43	.01229	.01873	-.667	.01209	.01851	-.686	.01265	.01889	-.740
42	.02006	.02727	-1.075	.01983	.02728	-1.050	.02012	.02727	-1.104
41	.02998	.02581	-1.269	.02891	.02584	-1.277	.02999	.02583	-1.323
40	.04964	.02966	-1.295	.04972	.02967	-1.319	.04995	.02970	-1.378
39	.07445	.03322	-1.244	.07458	.03329	-1.279	.07482	.03327	-1.362
38	.09994	.03621	-1.204	.09991	.03620	-1.237	.09990	.03621	-1.298
37	.13966	.03995	-1.165	.13983	.03994	-1.229	.13976	.03995	-.995
36	.17970	.04286	-1.142	.17999	.04272	-1.241	.17991	.04288	-.907
35	.22001	.04519	-1.113	.22010	.04514	-.698	.21990	.04514	-.669
34	.25944	.04681	-1.107	.25996	.04681	-.599	.25976	.04682	-.308
33	.29988	.04800	-.526	.29994	.04799	-.537	.29986	.04800	-.233
32	.33985	.04869	-.428	.34028	.04869	-.209	.33979	.04868	-.230
31	.37984	.04892	-.295	.37994	.04891	-.181	.37976	.04892	-.232
30	.41959	.04867	-.182	.41988	.04867	-.187	.41988	.04868	-.263
29	.45975	.04789	-.144	.45976	.04790	-.198	.45970	.04789	-.242
28	.49940	.04650	-.139	.49994	.04649	-.183	.49987	.04649	-.235
27	.53959	.04452	-.137	.53988	.04450	-.176	.53975	.04452	-.268
26	.57961	.04214	-.121	.57991	.04210	-.141	.57985	.04214	-.291
25	.61987	.03938	-.108	.61990	.03939	-.120	.61976	.03940	-.299
24	.65965	.03637	-.088	.65979	.03635	-.106	.65966	.03636	-.317
23	.69970	.03308	-.069	.69976	.03308	-.074	.69979	.03308	-.324
22	.73947	.02949	-.046	.73970	.02946	-.067	.73980	.02946	-.350
21	.77960	.02567	-.016	.77962	.02567	-.041	.77942	.02570	-.375
20	.81917	.02157	.021	.81965	.02154	-.010	.81985	.02150	-.400
19	.85955	.01709	.054	.85980	.01707	.016	.85943	.01712	-.411
18	.89940	.01246	.093	.89977	.01241	.042	.89761	.01243	-.404
17	.94727	.00755	.144	.94561	.00742	.091	.94959	.00733	-.383
16	.98506	.00266	.198	.98462	.00272	.147	.98455	.00274	-.259

TABLE B1- 15

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2564

MO = .8447
 ALPHA = 5.06
 REC = 11.78*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.097	.94937	-.00735	.144	.94999	-.00737	.158	.94987	-.00731	.133	.94987	-.00731	.133
11	.81597	-.02193	-.062	.81705	-.02182	-.023	.81986	-.02152	-.010	.82223	-.02125	-.012	.82223	-.02125	-.012
10	.66593	-.03587	-.129	.66698	-.03579	-.119	.67008	-.03553	-.122	.67216	-.03537	-.126	.67216	-.03537	-.126
9	.56588	-.04301	-.169	.56705	-.04294	-.173	.57033	-.04272	-.172	.57230	-.04261	-.191	.57230	-.04261	-.191
8	.46599	-.04775	-.184	.46706	-.04769	-.195	.47037	-.04760	-.212	.47220	-.04753	-.247	.47220	-.04753	-.247
7	.36580	-.04889	-.130	.36705	-.04889	-.146	.37009	-.04890	-.181	.37235	-.04891	-.210	.37235	-.04891	-.210
6	.26579	-.04702	-.068	.26705	-.04706	-.081	.27010	-.04716	-.096	.27230	-.04723	-.133	.27230	-.04723	-.133
5	.16594	-.04194	.015	.16697	-.04202	-.014	.17010	-.04224	-.064	.17242	-.04238	-.029	.17242	-.04238	-.029
4	.06493	-.02971	.129	.06490	-.02958	.132	.05016	-.02975	.162	.05017	-.02974	.137	.05017	-.02974	.137
3	.02002	-.02268	.199	.01922	-.02242	.223	.02010	-.02275	.256	.01999	-.02268	.253	.01999	-.02268	.253
2	.00593	-.01333	.686	.00520	-.01261	.697	.00591	-.01326	.710	.00611	-.01335	.698	.00611	-.01335	.698
1	.00034	.00292	.746	.00031	.00277	.717	.00042	.00317	.672	.00000	.00000	.675	.00000	.00000	.675
34	.00214	.00802	.305	.00108	.00553	.246	.00222	.00806	.166	.00210	.00787	.161	.00210	.00787	.161
33	.00866	.01592	-.328	.00789	.01531	-.414	.00914	.01640	-.466	.00893	.01619	-.520	.00893	.01619	-.520
32	.02017	.02285	-.858	.01906	.02232	-.987	.02036	.02273	-1.045	.02012	.02276	-1.107	.02012	.02276	-1.107
31	.03525	.02701	-1.205	.03402	.02674	-1.235	.03508	.02698	-1.304	.03530	.02701	-1.327	.03530	.02701	-1.327
30	.06016	.03130	-1.175	.05911	.03113	-1.230	.06022	.03128	-1.276	.06011	.03127	-1.298	.06011	.03127	-1.298
29	.09959	.03617	-.651	.09913	.03613	-1.147	.10029	.03626	-1.202	.10019	.03623	-1.224	.10019	.03623	-1.224
28	.15037	.04080	-.650	.14927	.04071	-1.072	.15032	.04078	-1.140	.15024	.04078	-1.179	.15024	.04078	-1.179
27	.20044	.04413	-.587	.19909	.04405	-1.029	.20029	.04411	-1.112	.20016	.04410	-1.153	.20016	.04410	-1.153
26	.25039	.04647	-.608	.25080	.04649	-.657	.25232	.04647	-1.091	.25021	.04647	-1.140	.25021	.04647	-1.140
25	.30050	.04800	-.530	.29925	.04798	-.621	.30008	.04800	-1.080	.30021	.04799	-1.131	.30021	.04799	-1.131
24	.35050	.04879	-.572	.34927	.04878	-.644	.35024	.04879	-1.068	.35015	.04879	-1.742	.35015	.04879	-1.742
23	.40047	.04886	-.577	.39951	.04886	-.688	.40037	.04886	-.769	.39977	.04885	-.570	.39977	.04885	-.570
22	.45050	.04812	-.610	.44897	.04815	-.702	.45010	.04813	-.756	.45009	.04813	-.520	.45009	.04813	-.520
21	.50039	.04648	-.618	.49927	.04652	-1.760	.50024	.04649	-.385	.50020	.04648	-.447	.50020	.04648	-.447
20	.55025	.04394	±1.642	.54927	.04398	±1.772	.55042	.04392	±1.222	.55033	.04393	±1.368	.55033	.04393	±1.368
19	.60029	.04075	±1.645	.59951	.04083	±1.284	.60071	.04073	±1.151	.60018	.04078	±1.247	.60018	.04078	±1.247
18	.65032	.03711	±1.349	.64917	.03719	±1.173	.65026	.03711	±1.106	.65015	.03711	±1.144	.65015	.03711	±1.144
17	.71026	.03219	±1.238	.70897	.03229	±1.111	.71034	.03218	±1.074	.70977	.03222	±1.061	.70977	.03222	±1.061
16	.78026	.02561	±1.149	.77912	.02572	±1.046	.78008	.02563	±1.014	.78012	.02562	±1.018	.78012	.02562	±1.018
15	.85021	.01814	±1.051	.84933	.01826	.034	.85001	.01815	.053	.85010	.01815	.065	.85010	.01815	.065
14	.92727	.01071	.066	.91929	.01032	.123	.92012	.01023	.138	.92005	.01023	.121	.92005	.01023	.121
13	.98519	.00265	.173	.98387	.00283	.215	.98611	.00251	.228	.98498	.00267	.172	.98498	.00267	.172

SECTION 5				SECTION 6				SECTION 7							
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.100	.94953	-.00734	.085	.94946	-.00735	.021	.94946	-.00735	.021	.94946	-.00735	.021
14	.84954	-.01822	.005	.84934	-.01823	±1.008	.84958	-.01821	±1.058	.84958	-.01821	±1.058	.84958	-.01821	±1.058
13	.75003	-.02851	±1.070	.74963	-.02854	±1.078	.75002	-.02850	±1.118	.75002	-.02850	±1.118	.75002	-.02850	±1.118
12	.64988	-.03713	±1.132	.64980	-.03714	±1.135	.64957	-.03715	±1.160	.64957	-.03715	±1.160	.64957	-.03715	±1.160
11	.54983	-.04397	±1.262	.54955	-.04396	±1.184	.54967	-.04398	±1.201	.54967	-.04398	±1.201	.54967	-.04398	±1.201
10	.44990	-.04814	±1.262	.44998	-.04814	±1.261	.44970	-.04816	±1.249	.44970	-.04816	±1.249	.44970	-.04816	±1.249
9	.35016	-.04880	±1.250	.34970	-.04880	±1.285	.34973	-.04879	±1.312	.34973	-.04879	±1.312	.34973	-.04879	±1.312
8	.25012	-.04646	±1.192	.24977	-.04645	±1.277	.24976	-.04645	±1.313	.24976	-.04645	±1.313	.24976	-.04645	±1.313
7	.15054	-.04081	±1.064	.15016	-.04078	±1.201	.14996	-.04076	±1.290	.14996	-.04076	±1.290	.14996	-.04076	±1.290
6	.10029	-.03625	.012	.10019	-.03624	±1.109	.10039	-.03627	±1.272	.10039	-.03627	±1.272	.10039	-.03627	±1.272
5	.06550	-.03203	.100	.06521	-.03198	±1.021	.06536	-.03200	±1.240	.06536	-.03200	±1.240	.06536	-.03200	±1.240
4	.04030	-.02788	.100	.03999	-.02803	.016	.04025	-.02813	±1.163	.04025	-.02813	±1.163	.04025	-.02813	±1.163
3	.02030	-.02282	.203	.01985	-.02268	.144	.01985	-.02266	±1.012	.01985	-.02266	±1.012	.01985	-.02266	±1.012
2	.00587	-.01314	.674	.00567	-.01305	.589	.00578	-.01313	.691	.00578	-.01313	.691	.00578	-.01313	.691
1	.00057	.00379	.644	.00065	.00449	.604	.00050	.00361	.559	.00050	.00361	.559	.00050	.00361	.559
45	.00184	.00727	±1.353	.00193	.00749	.101	.00193	.00737	.063	.00193	.00737	.063	.00193	.00737	.063
44	.00626	.01361	±1.353	.00623	.01365	±1.335	.00630	.01368	±1.402	.00630	.01368	±1.402	.00630	.01368	±1.402
43	.01223	.01873	±1.719	.01209	.01851	±1.733	.01265	.01889	±1.789	.01265	.01889	±1.789	.01265	.01889	±1.789
42	.02004	.02277	±1.108	.01953	.02268	±1.092	.02012	.02277	±1.139	.02012	.02277	±1.139	.02012	.02277	±1.139
41	.02958	.02581	±1.298	.02971	.02584	±1.302	.02999	.02583	±1.349	.02999	.02583	±1.349	.02999	.02583	±1.349
40	.04966	.02966	±1.327	.04972	.02967	±1.349	.04995	.02970	±1.404	.04995	.02970	±1.404	.04995	.02970	±1.404
39	.07448	.03522	±1.285	.07488	.03329	±1.315	.07482	.03327	±1.396	.07482	.03327	±1.396	.07482	.03327	±1.396
38	.09994	.03621	±1.250	.09991	.03620	±1.280	.09990	.03621	±1.336	.09990	.03621	±1.336	.09990	.03621	±1.336
37	.13986	.03995	±1.219	.13953	.03994	±1.274	.13976	.03993	±1.049	.13976	.03993	±1.049	.13976	.03993	±1.049
36	.17979	.04286	±1.197	.17999	.04272	±1.288	.17991	.04288	±1.986	.17991	.04288	±1.986	.17991	.04288	±1.986
35	.22001	.04515	±1.185	.22010	.04514	±1.080	.21990	.04514	±1.949	.21990	.04514	±1.949	.21990	.04514	±1.949
34	.25964	.04681	±1.045	.25996	.04681	±1.735	.25976	.04682	±1.897	.25976	.04682	±1.897	.25976	.04682	±1.897
33	.29988	.04800	±1.830	.29994	.04799	±1.615	.29986	.04800	±1.536	.29986	.04800	±1.536	.29986	.04800	±1.536
32	.33985	.04869	±1.581	.34008	.04869	±1.460	.33979	.04868	±1.316	.33979	.04868	±1.316	.33979	.04868	±1.316
31	.37986	.04892	±1.549	.37994	.04891	±1.319	.37976	.04892	±1.212	.37976	.04892	±1.212	.37976	.04892	±1.212
30	.41959	.04867	±1.479	.41988	.04867	±1.253	.41988	.04868	±1.254	.41988	.04868	±1.254	.41988	.04868	±1.254
29	.45975	.04789	±1.394	.45976	.04790	±1.233	.45970	.04789	±1.259	.45970	.04789	±1.259	.45970	.04789	±1.259
28	.49960	.04650	±1.292	.49994	.04649	±1.211	.49987	.04649	±1.271	.49987	.04649	±1.271	.49987	.04649	±1.271
27	.53959	.04457	±1.218	.53989	.04450	±1.198	.53975	.04452	±1.275	.53975	.04452	±1.275	.53975	.04452	±1.275
26	.57961	.04214	±1.148	.57991	.04210	±1.155	.57985	.04214	±1.320	.57985	.04214	±1.320	.57985	.04214	±1.320
25	.61987	.03978	±1.106	.61970	.03939	±1.131	.61976	.03940	±1.387	.61976	.03940	±1.387	.61976	.03940	±1.387
24	.65968	.03637	±1.072	.65979	.03635	±1.112	.65966	.03636	±1.447	.65966	.03636	±1.447	.65966	.03636	±1.447
23	.69970	.03308	±1.041	.69975	.03308	±1.082	.69979	.03308	±1.476	.69979	.03308	±1.476	.69979	.03308	±1.476
22	.73940	.02946	±1.020	.73970	.02946	±1.076	.73980	.02946	±1.509	.73980	.02946	±1.509	.73980	.02946	±1.509
21	.77960	.02567	.008	.77962	.02567	±1.054	.77942	.02570	±1.533	.77942	.02570	±1.533	.77942	.02570	±1.533
20	.81937	.02157	.037	.81965	.02154	±1.027	.81985	.0							

TABLE B1- 16

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2565

MO = .8372
 ALPHA = 6.06
 REC = 11.71*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.096	.94937	-.00735	.139	.94999	-.00737	.147	.94937	-.00731	.374
11	.81597	-.02193	-.050	.81705	-.02182	-.010	.81986	-.02152	-.008	.82223	-.02125	-.034
10	.66593	-.03527	-.099	.66693	-.03579	-.095	.67008	-.03555	-.101	.67216	-.03537	-.123
9	.56588	-.04301	-.129	.56705	-.04294	-.132	.57033	-.04272	-.143	.57233	-.04261	-.168
8	.46599	-.04773	-.138	.46706	-.04769	-.147	.47037	-.04760	-.165	.47220	-.04753	-.208
7	.36593	-.04889	-.084	.36705	-.04889	-.094	.37009	-.04890	-.130	.37235	-.04891	-.159
6	.26579	-.04702	-.022	.26705	-.04706	-.026	.27010	-.04716	-.040	.27230	-.04723	-.078
5	.16594	-.04194	.066	.16693	-.04202	.046	.17010	-.04224	.054	.17262	-.04238	.029
4	.04993	-.02021	.206	.04903	-.02058	.211	.05016	-.02075	.240	.05017	-.02074	.219
3	.02002	-.02268	.294	.01922	-.02242	.330	.02010	-.02275	.361	.01999	-.02268	.356
2	-.00593	-.01533	.733	.00520	-.01261	.751	.00591	.01326	.757	.00611	-.01355	.745
1	.00034	.00292	.702	.00031	.00277	.665	.00042	.00317	.610	.00000	.00000	.616
34	.00216	.00802	.219	.00104	.00553	.152	.00222	.00806	.067	.00210	.00787	.358
33	.00566	.01592	-.428	.00789	.01531	-.526	.00914	.01640	-.579	.00893	.01619	-.629
32	.02037	.02285	-.971	.01906	.02232	-1.096	.02036	.02273	-1.144	.02012	.02276	-1.206
31	.03525	.02701	-1.292	.03402	.02674	-1.333	.03508	.02698	-1.398	.03530	.02701	-1.423
30	.06036	.03130	-1.274	.05911	.03113	-1.325	.06022	.03128	-1.376	.06011	.03127	-1.396
29	.09959	.03617	-1.092	.09913	.03613	-1.252	.10029	.03626	-1.307	.10019	.03623	-1.336
28	.15037	.04080	-.706	.14927	.04071	-1.132	.15032	.04078	-1.247	.15024	.04078	-1.288
27	.20344	.04413	-.731	.19939	.04405	-1.151	.20029	.04411	-1.221	.20016	.04410	-1.206
26	.25039	.04647	-.627	.25080	.04649	-1.109	.25024	.04647	-1.200	.25021	.04647	-.808
25	.30250	.04800	-.619	.29925	.04798	-.777	.30008	.04800	-1.191	.30021	.04799	-.696
24	.35050	.04879	-.614	.34927	.04878	-.685	.35024	.04879	-1.160	.35015	.04879	-.638
23	.40047	.04886	-.620	.39931	.04886	-.718	.40037	.04886	-.687	.39977	.04885	-.597
22	.45030	.04912	-.649	.44997	.04815	-.744	.45016	.04813	-.589	.45039	.04813	-.557
21	.50039	.04648	-.644	.49927	.04652	-.787	.50024	.04647	-.486	.50020	.04648	-.486
20	.55025	.04594	-.665	.54927	.04398	-.382	.55022	.04392	-.346	.55033	.04393	-.411
19	.60029	.04075	-.527	.59931	.04083	-.212	.60071	.04073	-.226	.60018	.04078	-.325
18	.65032	.03711	-.302	.64917	.03719	-.164	.65026	.03711	-.159	.65015	.03711	-.255
17	.70026	.03219	-.223	.70397	.03229	-.116	.71034	.03218	-.111	.70977	.03222	-.153
16	.78026	.02561	-.144	.77912	.02572	-.037	.78008	.02563	-.040	.78012	.02562	-.081
15	.85021	.01814	-.051	.84903	.01826	-.022	.85001	.01815	-.027	.85010	.01815	-.005
14	.92027	.01021	.059	.91929	.01032	.115	.92012	.01023	.108	.92025	.01023	.044
13	.98518	.00265	.169	.98387	.00283	.209	.98611	.00251	.211	.98493	.00267	.093

SECTION 5				SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.063	.94953	-.00734	.051	.94946	-.00735	-.005
14	.84954	-.01822	-.024	.84934	-.01823	-.034	.84958	-.01821	-.085
13	.74903	-.02851	-.087	.74935	-.02854	-.096	.75002	-.02850	-.147
12	.64998	-.03713	-.141	.64980	-.03714	-.152	.64957	-.03715	-.187
11	.54983	-.04397	-.242	.54955	-.04396	-.191	.54967	-.04398	-.221
10	.44999	-.04814	-.240	.44998	-.04814	-.258	.44970	-.04815	-.264
9	.35016	-.04880	-.210	.34970	-.04880	-.262	.34973	-.04879	-.307
8	.25012	-.04646	-.139	.24997	-.04645	-.239	.24976	-.04645	-.288
7	.15054	-.04081	-.008	.15015	-.04078	-.149	.14996	-.04076	-.254
6	.10029	-.03625	.074	.10019	-.03624	-.049	.10039	-.03627	-.227
5	.06550	-.03203	.185	.06521	-.03198	.044	.06536	-.03200	-.170
4	.04030	-.02788	.184	.03999	-.02803	.096	.04025	-.02813	-.083
3	.02030	-.02282	.303	.01985	-.02268	.239	.01985	-.02266	.081
2	.00587	-.01514	.715	.00567	-.01305	.622	.00578	-.01313	.513
1	.00057	.00379	.580	.00068	.00449	.543	.00050	.00361	.500
45	.00184	.00727	-.468	.00190	.00749	-.004	.00193	.00737	-.037
44	.00626	.01361	-.469	.00623	.01365	-.443	.00630	.01368	-.516
43	.01228	.01873	-.834	.01209	.01851	-.842	.01265	.01889	-.894
42	.02006	.02272	-1.202	.01983	.02268	-1.191	.02012	.02277	-1.233
41	.02998	.02581	-1.392	.02991	.02584	-1.394	.02999	.02583	-1.436
40	.04966	.02966	-1.422	.04972	.02967	-1.441	.04995	.02970	-1.492
39	.07449	.03322	-1.385	.07488	.03329	-1.410	.07482	.03327	-1.481
38	.09994	.03621	-1.352	.09991	.03620	-1.382	.09990	.03621	-1.424
37	.13986	.03995	-1.322	.13983	.03994	-1.374	.13976	.03995	-1.117
36	.17979	.04286	-1.296	.17999	.04272	-1.212	.17991	.04288	-1.059
35	.22001	.04515	-1.218	.22010	.04514	-.870	.21990	.04514	-.939
34	.25944	.04681	-.844	.25996	.04681	-.774	.25976	.04682	-.742
33	.29988	.04800	-.663	.29994	.04799	-.626	.29986	.04800	-.441
32	.33995	.04869	-.577	.34008	.04869	-.458	.33979	.04868	-.267
31	.37986	.04892	-.514	.37994	.04891	-.344	.37976	.04892	-.249
30	.41959	.04867	-.412	.41988	.04867	-.281	.41988	.04868	-.303
29	.45975	.04789	-.343	.45974	.04790	-.256	.45970	.04789	-.290
28	.49960	.04650	-.275	.49994	.04649	-.238	.49987	.04649	-.306
27	.53959	.04452	-.233	.53958	.04450	-.227	.53775	.04452	-.307
26	.57961	.04214	-.194	.57991	.04210	-.196	.57985	.04214	-.345
25	.61987	.03938	-.161	.61970	.03939	-.175	.61976	.03940	-.407
24	.65998	.03637	-.123	.65979	.03635	-.156	.65966	.03636	-.480
23	.69970	.03308	-.091	.69976	.03308	-.126	.69979	.03308	-.527
22	.73940	.02949	-.073	.73972	.02946	-.124	.73980	.02946	-.571
21	.77940	.02567	-.045	.77962	.02567	-.104	.77942	.02570	-.580
20	.81937	.02157	-.008	.81965	.02154	-.082	.81985	.02150	-.579
19	.85955	.01709	.010	.85980	.01707	-.064	.85943	.01712	-.542
18	.89940	.01246	.044	.89977	.01241	-.043	.89961	.01243	-.469
17	.94727	.00755	.074	.94861	.00742	-.002	.94959	.00733	-.360
16	.98506	.00266	.103	.98452	.00272	.052	.98455	.00274	-.214

TABLE B1-17

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2300

MO = .9840

ALPHA = .03

REC = 11.71*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.115	.94937	-.00735	.160	.94999	-.00737	.181	.94987	-.00731	.188
11	.81597	-.02193	-.107	.81705	-.02182	-.031	.81986	-.02152	.013	.82223	-.02125	.029
10	.66593	-.03587	-.323	.66698	-.03579	-.205	.67008	-.03553	-.131	.67216	-.03537	-.062
9	.56588	-.04301	-.481	.56705	-.04294	-.582	.57033	-.04272	-.632	.57230	-.04261	-.256
8	.46599	-.04773	-.411	.46736	-.04769	-.494	.47037	-.04760	-.550	.47220	-.04753	-.636
7	.36580	-.04889	-.341	.36705	-.04889	-.416	.37009	-.04890	-.492	.37235	-.04891	-.531
6	.26579	-.04702	-.305	.26705	-.04706	-.356	.27010	-.04716	-.400	.27230	-.04723	-.443
5	.16594	-.04194	-.256	.16699	-.04202	-.323	.17010	-.04224	-.348	.17242	-.04238	-.371
4	.04993	-.02971	-.296	.04903	-.02958	-.335	.05016	-.02975	-.326	.05017	-.02974	-.425
3	.02002	-.02268	-.476	.01927	-.02242	-.473	.02010	-.02275	-.468	.01999	-.02268	-.492
2	.00593	-.01333	.318	.00520	-.01261	.300	.00591	-.01326	.322	.00611	-.01355	.303
1	.00034	.00292	.959	.00031	.00277	.847	.00042	.00317	.835	.00000	.00000	.827
34	.00216	.00502	.674	.00103	.00553	.644	.00222	.00806	.606	.00210	.00787	.586
33	.00566	.01592	.190	.00789	.01531	.124	.00914	.01640	.066	.00893	.01619	.065
32	.02017	.02285	-.319	.01905	.02232	-.417	.02036	.02273	-.471	.02012	.02276	-.542
31	.03525	.02701	-.378	.03402	.02674	-.461	.03508	.02698	-.637	.03530	.02701	-.688
30	.06916	.03130	-.237	.06911	.03113	-.289	.06022	.03128	-.310	.06011	.03127	-.319
29	.09959	.03617	-.214	.09915	.03613	-.286	.10029	.03626	-.345	.10019	.03623	-.372
28	.15037	.04080	-.221	.14927	.04071	-.288	.15032	.04078	-.343	.15024	.04078	-.395
27	.20044	.04431	-.251	.19909	.04405	-.334	.20029	.04411	-.379	.20016	.04410	-.426
26	.25039	.04647	-.275	.25080	.04649	-.357	.25024	.04647	-.407	.25021	.04647	-.451
25	.30050	.04800	-.290	.29925	.04798	-.373	.30008	.04800	-.433	.30021	.04799	-.485
24	.35050	.04879	-.324	.34927	.04878	-.398	.35024	.04879	-.485	.35015	.04879	-.536
23	.40047	.04886	-.358	.39931	.04886	-.449	.40037	.04886	-.514	.39977	.04885	-.570
22	.45030	.04812	-.407	.44897	.04815	-.491	.45010	.04813	-.567	.45009	.04813	-.624
21	.50039	.04648	-.441	.49927	.04652	-.549	.50024	.04647	-.630	.50020	.04648	-.681
20	.55035	.04394	-.479	.54927	.04398	-.568	.55042	.04392	-.654	.55033	.04393	-.585
19	.60039	.04075	-.505	.59931	.04083	-.577	.60071	.04073	-.501	.60018	.04078	-.140
18	.65032	.03711	-.404	.64917	.03719	-.241	.65026	.03711	-.164	.65015	.03711	-.067
17	.70026	.03219	-.244	.70097	.03229	-.147	.70134	.03218	-.088	.70097	.03222	-.042
16	.75026	.02561	-.164	.75012	.02572	-.072	.75008	.02563	-.022	.75012	.02562	.002
15	.80021	.01914	-.062	.80003	.01826	.018	.80001	.01815	.054	.80010	.01815	.064
14	.90027	.01021	.059	.90029	.01032	.118	.90012	.01023	.138	.90005	.01023	.148
13	.95018	.00265	.180	.95037	.00283	.221	.95011	.00251	.240	.95008	.00267	.239

SECTION 5				SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.181	.94953	-.00734	.172	.94946	-.00735	.151
14	.84954	-.01822	.064	.84954	-.01823	.064	.84958	-.01821	.064
13	.75003	-.02851	-.027	.74965	-.02854	-.017	.75002	-.02850	-.013
12	.64988	-.03713	-.089	.64980	-.03714	-.086	.64957	-.03715	-.071
11	.54973	-.04397	-.163	.54955	-.04396	-.141	.54967	-.04398	-.127
10	.44990	-.04814	-.161	.44998	-.04814	-.201	.44976	-.04816	-.192
9	.35014	-.04880	-.633	.34990	-.04880	-.527	.34973	-.04879	-.398
8	.25012	-.04646	-.516	.24977	-.04645	-.550	.24976	-.04645	-.465
7	.15054	-.04081	-.406	.15016	-.04078	-.569	.14996	-.04076	-.540
6	.10029	-.03625	-.376	.10019	-.03624	-.472	.10039	-.03627	-.625
5	.06550	-.03203	-.556	.06521	-.03198	-.430	.06536	-.03200	-.589
4	.04030	-.02788	-.556	.03999	-.02803	-.651	.04025	-.02813	-.818
3	.02030	-.02282	-.502	.01985	-.02268	-.505	.01985	-.02266	-.588
2	.00587	-.01314	.308	.00567	-.01305	.264	.00578	-.01313	.150
1	.00057	.00379	.817	.00068	.00449	.787	.00050	.00361	.729
45	.00144	.00777	.198	.00190	.00749	.513	.00193	.00757	.489
44	.00676	.01361	.197	.00623	.01365	.201	.00630	.01368	.098
43	.01228	.01973	-.176	.01239	.01851	-.182	.01265	.01887	-.270
42	.02006	.02272	-.548	.01933	.02268	-.604	.02012	.02277	-.635
41	.02991	.02581	-.732	.02991	.02584	-.748	.02999	.02583	-.837
40	.04966	.02966	-.503	.04972	.02967	-.623	.04995	.02970	-.772
39	.07448	.03322	-.397	.07488	.03329	-.474	.07482	.03327	-.633
38	.09994	.03621	-.402	.09991	.03620	-.506	.09990	.03621	-.648
37	.13996	.03995	-.446	.13983	.03994	-.581	.13976	.03993	-.588
36	.17997	.04286	-.468	.17999	.04272	-.632	.17991	.04288	-.515
35	.22001	.04515	-.502	.22010	.04514	-.610	.21990	.04514	-.499
34	.25964	.04681	-.537	.25996	.04681	-.535	.25976	.04682	-.494
33	.29988	.04800	-.591	.29994	.04799	-.535	.29986	.04800	-.470
32	.33985	.04869	-.640	.34008	.04869	-.535	.33979	.04868	-.427
31	.37996	.04892	-.655	.37994	.04891	-.528	.37976	.04892	-.298
30	.41999	.04867	-.629	.41985	.04867	-.290	.41988	.04868	-.211
29	.45995	.04789	-.623	.45976	.04790	-.187	.45970	.04789	-.182
28	.49994	.04650	-.191	.49994	.04649	-.167	.49987	.04649	-.164
27	.53999	.04452	-.126	.53988	.04450	-.115	.53975	.04452	-.132
26	.57961	.04214	-.105	.57991	.04210	-.115	.57985	.04214	-.101
25	.61987	.03938	-.089	.61970	.03939	-.092	.61976	.03940	-.079
24	.65968	.03637	-.071	.65977	.03635	-.074	.65966	.03636	-.060
23	.69970	.03308	-.054	.69976	.03308	-.043	.69979	.03308	-.038
22	.73940	.02949	-.032	.73970	.02944	-.024	.73980	.02946	-.015
21	.77940	.02567	.002	.77962	.02567	.005	.77942	.02570	.010
20	.81937	.02157	.043	.81965	.02154	.044	.81985	.02150	.042
19	.85955	.01709	.082	.85980	.01707	.080	.85943	.01712	.073
18	.89940	.01244	.124	.89977	.01241	.118	.89961	.01243	.110
17	.94777	.00755	.183	.94861	.00742	.174	.94959	.00733	.152
16	.98504	.00266	.241	.98462	.00272	.222	.98455	.00274	.194

TABLE B1-18

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2301

MO = .8833
 ALPHA = 1.08
 REC = 11.77*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	-.108	.94937	-.00735	-.155	.94999	-.00737	-.175	.94937	-.00731	-.181			
11	.81597	-.02193	-.104	.81705	-.02182	-.041	.81986	-.02152	-.002	.82223	-.02125	-.014			
10	.66593	-.01587	-.267	.66491	-.03579	-.201	.67008	-.03553	-.150	.67216	-.03537	-.189			
9	.56588	-.04301	-.422	.56705	-.04294	-.501	.57033	-.04272	-.488	.57230	-.04261	-.184			
8	.46599	-.04773	-.579	.46706	-.04769	-.453	.47037	-.04760	-.503	.47220	-.04753	-.582			
7	.36590	-.04889	-.306	.36705	-.04889	-.368	.37009	-.04890	-.441	.37235	-.04891	-.482			
6	.26579	-.04702	-.252	.26705	-.04706	-.297	.27010	-.04716	-.362	.27230	-.04723	-.583			
5	.16594	-.04194	-.200	.16699	-.04202	-.256	.17010	-.04224	-.272	.17242	-.04238	-.297			
4	.04993	-.02971	-.212	.04909	-.02958	-.253	.05016	-.02975	-.234	.05017	-.02974	-.271			
3	.02092	-.02268	-.306	.01922	-.02242	-.307	.02010	-.02275	-.287	.01999	-.02268	-.510			
2	.00593	-.01333	-.407	.00520	-.01261	-.400	.00591	-.01326	-.418	.00611	-.01355	-.402			
1	.00034	.00292	.856	.00031	.00277	.844	.00042	.00317	.828	.00000	.00000	.320			
34	.00716	.00802	.618	.00108	.00553	.581	.00222	.00806	.533	.00213	.00787	.518			
33	.00866	.01592	.094	.00789	.01531	.021	.00914	.01640	-.038	.00893	.01619	-.038			
32	.02037	.02285	-.430	.01906	.02232	-.551	.02036	.02273	-.590	.02012	.02276	-.660			
31	.03525	.02701	-.450	.03402	.02674	-.803	.03508	.02698	-.863	.03550	.02701	-.883			
30	.06036	.03130	-.520	.05911	.03113	-.320	.06022	.03128	-.750	.06011	.03127	-.788			
29	.09959	.03617	-.285	.09913	.03613	-.368	.10029	.03626	-.410	.10019	.03623	-.382			
28	.15037	.04080	-.285	.14927	.04071	-.358	.15032	.04078	-.425	.15024	.04078	-.454			
27	.20044	.04413	-.306	.19909	.04405	-.394	.20029	.04411	-.450	.20016	.04410	-.496			
26	.25039	.04647	-.530	.25080	.04649	-.417	.25024	.04647	-.474	.25021	.04647	-.516			
25	.30050	.04800	-.537	.29925	.04798	-.424	.30008	.04800	-.495	.30021	.04799	-.547			
24	.35050	.04879	-.365	.34927	.04878	-.451	.35024	.04879	-.538	.35015	.04879	-.581			
23	.40047	.04886	-.194	.39951	.04886	-.488	.40037	.04886	-.569	.39977	.04885	-.617			
22	.45039	.04812	-.440	.44897	.04815	-.533	.45010	.04815	-.609	.45009	.04815	-.671			
21	.50039	.04648	-.470	.49927	.04652	-.591	.50024	.04649	-.665	.50020	.04648	-.726			
20	.55025	.04394	-.509	.54927	.04398	-.614	.55042	.04392	-.690	.55033	.04393	-.674			
19	.60029	.04075	-.559	.59951	.04083	-.628	.60071	.04073	-.698	.60018	.04073	-.754			
18	.65032	.03711	-.697	.64917	.03719	-.492	.65026	.03711	-.700	.65015	.03711	-.739			
17	.70026	.03219	-.518	.70887	.03229	-.152	.71034	.03218	-.079	.70977	.03222	-.323			
16	.78026	.02561	-.167	.77012	.02572	-.060	.78008	.02563	-.004	.78012	.02562	.019			
15	.85021	.01814	-.055	.84903	.01826	.028	.85001	.01815	-.068	.85010	.01815	.075			
14	.92027	.01021	.062	.91929	.01032	.123	.92012	.01023	.147	.92005	.01023	.154			
13	.98518	.00265	.182	.98387	.00283	.220	.98611	.00251	.241	.98498	.00267	.239			

SECTION 5				SECTION 6				SECTION 7				
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.176	.94953	-.00734	-.163	.94946	-.00735	-.153			
14	.84954	-.01827	-.054	.84936	-.01823	-.053	.84958	-.01821	-.047			
13	.75003	-.02851	-.040	.74963	-.02854	-.029	.75012	-.02850	-.027			
12	.64998	-.02713	-.107	.64980	-.03714	-.098	.64957	-.03715	-.382			
11	.54985	-.04397	-.601	.54955	-.04396	-.153	.54967	-.04398	-.137			
10	.44990	-.04814	-.601	.44995	-.04814	-.200	.44970	-.04816	-.198			
9	.35016	-.04880	-.580	.34990	-.04880	-.511	.34973	-.04879	-.566			
8	.25012	-.04646	-.458	.24997	-.04645	-.521	.24976	-.04645	-.459			
7	.15054	-.04081	-.130	.15016	-.04078	-.501	.14996	-.04076	-.503			
6	.10029	-.03625	-.291	.10019	-.03624	-.392	.10039	-.03627	-.564			
5	.06550	-.03203	-.345	.06521	-.03198	-.342	.06536	-.03200	-.528			
4	.04010	-.02782	-.345	.03999	-.02803	-.396	.04025	-.02813	-.563			
3	.02030	-.02282	-.341	.01985	-.02268	-.369	.01985	-.02266	-.490			
2	.00587	-.01314	-.399	.00567	-.01305	-.349	.00578	-.01313	-.209			
1	.00057	.00179	.303	.00068	.00149	.775	.00050	.00361	.718			
45	.00194	.00727	.099	.00190	.00749	.451	.00193	.00757	.426			
44	.00626	.01361	.099	.00623	.01365	.115	.00630	.01368	.014			
43	.01278	.01873	-.284	.01209	.01851	-.293	.01265	.01889	-.362			
42	.02006	.02272	-.673	.01983	.02268	-.699	.02012	.02277	-.727			
41	.02988	.02581	-.858	.02991	.02584	-.883	.02999	.02583	-.941			
40	.04944	.02966	-.844	.04972	.02967	-.879	.04995	.02970	-.958			
39	.07444	.03322	-.752	.07488	.03329	-.807	.07482	.03327	-.941			
38	.09994	.03621	-.610	.09991	.03620	-.743	.09990	.03621	-.884			
37	.13986	.03995	-.436	.13983	.03994	-.587	.13976	.03995	-.498			
36	.17977	.04296	-.527	.17999	.04272	-.675	.17991	.04288	-.499			
35	.22001	.04815	-.566	.22010	.04514	-.643	.21990	.04514	-.513			
34	.25944	.04681	-.597	.25995	.04681	-.579	.25976	.04682	-.523			
33	.29988	.04800	-.646	.29924	.04799	-.566	.29986	.04800	-.497			
32	.33985	.04869	-.694	.34008	.04869	-.563	.33979	.04868	-.451			
31	.37986	.04892	-.705	.37996	.04891	-.549	.37976	.04892	-.562			
30	.41959	.04867	-.649	.41988	.04867	-.393	.41988	.04868	-.233			
29	.45975	.04789	-.668	.45976	.04790	-.200	.45970	.04787	-.191			
28	.49940	.04650	-.239	.49994	.04649	-.164	.49987	.04649	-.168			
27	.53959	.04452	-.132	.53988	.04450	-.146	.53975	.04452	-.135			
26	.57961	.04214	-.096	.57921	.04210	-.108	.57985	.04214	-.102			
25	.61977	.03938	-.077	.61973	.03939	-.085	.61976	.03940	-.081			
24	.65966	.03637	-.058	.65979	.03635	-.068	.65966	.03636	-.364			
23	.69970	.03308	-.042	.69976	.03308	-.038	.69979	.03308	-.044			
22	.73947	.02949	-.021	.73970	.02946	-.020	.73980	.02946	-.023			
21	.77960	.02567	.012	.77962	.02567	.010	.77942	.02570	.001			
20	.81957	.02157	.050	.81965	.02154	.047	.81955	.02153	.028			
19	.85955	.01709	.087	.85930	.01707	.083	.85943	.01712	.053			
18	.89940	.01246	.128	.89977	.01241	.120	.89961	.01243	.080			
17	.94727	.00755	.186	.94861	.00742	.173	.94959	.00733	.103			
16	.98506	.00266	.241	.98462	.00272	.221	.98455	.00274	.153			

TABLE B1-19

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2302

MO = .8803
 ALPHA = 2.05
 REC = 11.78*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.100	.94957	-.00735	.149	.94999	-.00737	.171	.94987	-.00731	.178
11	.81597	-.02193	-.111	.81705	-.02182	-.047	.81986	-.02152	-.012	.82223	-.02125	-.006
10	.66593	-.03527	-.242	.66698	-.03579	-.204	.67008	-.03553	-.168	.67216	-.03537	-.121
9	.56588	-.04301	-.330	.56705	-.04294	-.322	.57033	-.04272	-.305	.57250	-.04261	-.174
8	.46599	-.04773	-.353	.46706	-.04769	-.405	.47037	-.04760	-.448	.47220	-.04755	-.528
7	.36590	-.04889	-.267	.36705	-.04889	-.323	.37009	-.04890	-.388	.37235	-.04891	-.431
6	.26579	-.04702	-.211	.26705	-.04706	-.250	.27010	-.04716	-.287	.27250	-.04723	-.329
5	.16594	-.04194	-.144	.16699	-.04202	-.198	.17010	-.04224	-.207	.17262	-.04238	-.231
4	.06993	-.02971	-.124	.06909	-.02958	-.148	.05016	-.02975	-.130	.05017	-.02974	-.154
3	.02002	-.02268	-.175	.01922	-.02242	-.160	.02010	-.02275	-.141	.01999	-.02269	-.153
2	.00593	-.01533	.480	.00520	-.01261	.480	.00591	-.01326	.500	.00611	-.01355	.485
1	.00034	.00292	.840	.00031	.00277	.828	.00042	.00317	.810	.00030	.00000	.306
34	.00214	.00802	.557	.00105	.00553	.515	.00222	.00836	.465	.00210	.00787	.448
33	.00866	.01592	-.001	.00789	.01531	-.072	.00914	.01640	-.133	.00893	.01619	-.127
32	.02037	.02885	-.523	.01906	.02232	-.647	.02036	.02273	-.694	.02012	.02276	-.757
31	.03525	.02701	-.863	.03402	.02674	-.915	.03508	.02698	-.958	.03530	.02701	-.991
30	.06036	.03130	-.369	.05911	.03113	-.858	.06022	.03123	-.901	.06011	.03127	-.910
29	.09959	.03617	-.358	.09913	.03613	-.366	.10029	.03626	-.789	.10019	.03623	-.813
28	.15037	.04090	-.349	.14927	.04071	-.418	.15032	.04078	-.430	.15024	.04078	-.741
27	.20044	.04413	-.366	.19909	.04405	-.456	.20029	.04411	-.496	.20016	.04410	-.494
26	.25030	.04647	-.379	.25080	.04649	-.475	.25024	.04647	-.529	.25021	.04647	-.551
25	.30050	.04800	-.386	.29925	.04798	-.478	.30008	.04802	-.562	.30021	.04799	-.595
24	.35050	.04879	-.411	.34927	.04878	-.498	.35024	.04879	-.584	.35015	.04879	-.640
23	.40047	.04886	-.430	.39931	.04886	-.536	.40037	.04886	-.618	.39977	.04885	-.659
22	.45030	.04812	-.477	.44897	.04815	-.565	.45010	.04813	-.656	.45039	.04813	-.706
21	.50039	.04648	-.502	.49927	.04652	-.527	.50024	.04649	-.706	.50020	.04648	-.762
20	.55025	.04594	-.536	.54927	.04598	-.655	.55042	.04592	-.727	.55033	.04593	-.495
19	.60029	.04025	-.593	.59931	.04083	-.668	.60071	.04073	-.736	.60018	.04078	-.184
18	.65032	.03711	-.618	.64917	.03719	-.661	.65026	.03711	-.722	.65015	.03711	-.080
17	.70026	.03219	-.580	.70897	.03229	-.180	.71034	.03218	-.381	.70977	.03222	-.019
16	.75021	.02561	-.174	.74912	.02572	-.056	.75008	.02565	.004	.75012	.02562	.027
15	.80021	.01814	-.059	.80003	.01826	.034	.80001	.01815	.075	.80010	.01815	.080
14	.85027	.01021	.062	.85029	.01032	.126	.85012	.01023	.151	.85005	.01023	.155
13	.90518	.00265	-.178	.90587	.00283	.218	.90611	.00251	.240	.90498	.00267	.237

SECTION 5				SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.170	.94953	-.00734	.151	.94946	-.00735	.106
14	.84954	-.01822	.045	.84934	-.01823	.041	.84958	-.01821	.024
13	.75003	-.02251	-.050	.74963	-.02284	-.040	.75002	-.02250	-.046
12	.64988	-.02713	-.122	.64980	-.02714	-.110	.64957	-.02715	-.098
11	.54933	-.04197	-.518	.54955	-.04196	-.167	.54967	-.04198	-.152
10	.44900	-.04814	-.527	.44988	-.04814	-.197	.44970	-.04816	-.203
9	.35016	-.04890	-.519	.34993	-.04880	-.490	.34975	-.04879	-.581
8	.25012	-.04646	-.410	.24997	-.04645	-.479	.24976	-.04645	-.456
7	.15054	-.04081	-.272	.15015	-.04078	-.435	.14996	-.04076	-.459
6	.10029	-.03624	-.216	.10012	-.03624	-.332	.10039	-.03627	-.507
5	.06550	-.03203	-.221	.06521	-.03198	-.262	.06536	-.03200	-.466
4	.04030	-.02788	-.221	.03999	-.02803	-.270	.04025	-.02813	-.454
3	.02010	-.02282	-.195	.01985	-.02268	-.237	.01995	-.02266	-.372
2	.00597	-.01314	.472	.00567	-.01305	.422	.00578	-.01313	.248
1	.00057	.00037	.785	.00063	.00049	.753	.00056	.00031	.696
45	.00144	.00727	.011	.00193	.00749	.381	.00193	.00757	.359
44	.00626	.01361	.011	.00623	.01365	.030	.00630	.01368	-.068
43	.01228	.01973	-.374	.01209	.01851	-.375	.01265	.01887	-.451
42	.02096	.02272	-.765	.01983	.02268	-.775	.02012	.02277	-.306
41	.02988	.02581	-.957	.02991	.02584	-.974	.02999	.02583	-.1.324
40	.04766	.02966	-.955	.04972	.02967	-.986	.04995	.02970	-.1.061
39	.07448	.03322	-.887	.07483	.03329	-.941	.07482	.03327	-.1.051
38	.09994	.03621	-.840	.09991	.03620	-.894	.09990	.03621	-.1.066
37	.13086	.03995	-.796	.13083	.03994	-.895	.13076	.03995	-.826
36	.17079	.04286	-.769	.17072	.04272	-.912	.17091	.04288	-.722
35	.22001	.04515	-.560	.22010	.04514	-.864	.21990	.04514	-.674
34	.25964	.04681	-.590	.25996	.04681	-.518	.25976	.04682	-.478
33	.29988	.04800	-.661	.29994	.04799	-.491	.29986	.04800	-.394
32	.33985	.04869	-.725	.34008	.04869	-.512	.33979	.04868	-.344
31	.37986	.04892	-.768	.37994	.04891	-.457	.37976	.04892	-.320
30	.41995	.04867	-.675	.41983	.04867	-.294	.41988	.04868	-.250
29	.45975	.04789	-.555	.45976	.04790	-.215	.45970	.04789	-.211
28	.49960	.04650	-.199	.49994	.04649	-.177	.49987	.04647	-.185
27	.53959	.04457	-.134	.53988	.04450	-.153	.53975	.04452	-.152
26	.57961	.04214	-.102	.57991	.04210	-.114	.57985	.04214	-.123
25	.61989	.03938	-.081	.61970	.03939	-.091	.61976	.03940	-.106
24	.65968	.03637	-.060	.65979	.03635	-.074	.65966	.03636	-.093
23	.69970	.03308	-.042	.69976	.03308	-.043	.69979	.03308	-.079
22	.73940	.02940	-.020	.73970	.02946	-.026	.73980	.02946	-.070
21	.77940	.02567	.011	.77952	.02567	.002	.77942	.02570	-.060
20	.81957	.02157	.050	.81965	.02154	.040	.81985	.02153	-.051
19	.85955	.01709	.086	.85983	.01707	.073	.85943	.01712	-.046
18	.89940	.01246	.127	.89977	.01241	.109	.89961	.01243	-.045
17	.94727	.00755	.182	.94861	.00742	.160	.94959	.00733	-.061
16	.98504	.00266	.276	.98462	.00272	.211	.98455	.00274	-.042

TABLE B1- 20

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2304

MO = .8900
 ALPHA = 3.06
 REC = 11.77*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00776	.094	.94957	-.00735	.146	.94999	-.00737	.166	.94987	-.00731	.174
11	.81597	-.02193	-.104	.81705	-.02182	-.045	.81986	-.02152	-.016	.82223	-.02125	.001
10	.66593	-.03587	-.212	.66698	-.03579	-.190	.67008	-.03553	-.170	.67216	-.03537	-.134
9	.56588	-.04301	-.279	.56705	-.04294	-.285	.57033	-.04272	-.289	.57230	-.04261	-.213
8	.46599	-.04773	-.297	.46706	-.04769	-.334	.47037	-.04760	-.373	.47220	-.04753	-.464
7	.36590	-.04889	-.220	.36705	-.04889	-.265	.37009	-.04890	-.327	.37235	-.04891	-.369
6	.26579	-.04707	-.159	.26705	-.04706	-.192	.27010	-.04716	-.224	.27250	-.04723	-.270
5	.16594	-.04194	-.083	.16699	-.04202	-.133	.17010	-.04224	-.139	.17242	-.04238	-.165
4	.06993	-.02971	-.036	.06909	-.02958	-.348	.05316	-.02975	-.026	.05017	-.02974	-.051
3	.02002	-.02268	-.041	.01922	-.02242	-.020	.02010	-.02275	-.004	.01999	-.02268	-.011
2	.00593	-.01335	.558	.00520	-.01261	.562	.00591	-.01326	.578	.00611	-.01355	.561
1	.00034	.00292	.827	.00031	.00277	.811	.00042	.00317	.785	.00000	.00000	.784
34	.00216	.00402	.502	.00103	.00553	.450	.00222	.00806	.396	.00210	.00787	.379
33	.00246	.01592	-.080	.00789	.01531	-.157	.00914	.01640	-.217	.00893	.01619	-.209
32	.02037	.02245	-.598	.01905	.02232	-.715	.02036	.02273	-.778	.02012	.02276	-.830
31	.03515	.02701	-.948	.03402	.02674	-.991	.03508	.02698	-1.031	.03530	.02701	-1.051
30	.06356	.03130	-.828	.05911	.03113	-.963	.06322	.03128	-.996	.06611	.03127	-1.010
29	.09959	.03612	-.436	.09913	.03613	-.835	.10029	.03626	-.906	.10019	.03623	-.922
28	.15717	.04000	-.384	.14927	.04071	-.425	.15032	.04078	-.843	.15024	.04078	-.878
27	.20044	.04413	-.425	.19909	.04405	-.490	.20029	.04411	-.768	.20016	.04410	-.855
26	.25090	.04647	-.442	.25080	.04649	-.521	.25024	.04647	-.523	.25021	.04647	-.845
25	.30050	.04800	-.428	.29925	.04798	-.522	.30008	.04800	-.579	.30021	.04799	-.711
24	.35050	.04879	-.456	.34927	.04878	-.540	.35024	.04879	-.626	.35015	.04879	-.625
23	.40047	.04886	-.470	.39931	.04886	-.582	.40037	.04886	-.646	.39977	.04885	-.673
22	.45010	.04812	-.504	.44897	.04815	-.598	.45010	.04813	-.694	.45039	.04813	-.731
21	.50039	.04648	-.523	.49927	.04652	-.655	.50024	.04649	-.749	.50020	.04643	-.777
20	.55025	.04394	-.555	.54927	.04398	-.683	.55042	.04392	-.761	.55033	.04393	-.652
19	.60029	.04075	-.615	.59931	.04083	-.699	.60071	.04073	-.781	.60018	.04078	-.198
18	.65012	.03711	-.660	.64917	.03719	-.718	.65026	.03711	-.259	.65015	.03711	-.094
17	.71026	.03219	-.449	.70897	.03229	-.222	.71034	.03218	-.103	.70977	.03222	-.016
16	.77026	.02561	-.180	.77912	.02572	-.060	.78008	.02563	.006	.78012	.02562	.043
15	.85021	.01814	-.054	.84903	.01826	-.040	.85001	.01815	.086	.85010	.01815	.094
14	.92027	.01021	.066	.91927	.01032	.131	.92012	.01023	.160	.92005	.01023	.162
13	.98518	.00265	.173	.98387	.00283	.218	.98611	.00251	.240	.98498	.00267	.235

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00771	.167	.94953	-.00734	.143	.94946	-.00735	.083		
14	.84964	-.01822	.041	.84934	-.01823	.034	.84958	-.01821	.002		
13	.75003	-.02851	-.053	.74963	-.02854	-.046	.75002	-.02850	-.362		
12	.64999	-.03711	-.127	.64980	-.03714	-.113	.64957	-.03715	-.110		
11	.54981	-.04397	-.480	.54955	-.04396	-.170	.54967	-.04398	-.160		
10	.44990	-.04814	-.482	.44998	-.04814	-.229	.44970	-.04816	-.221		
9	.35015	-.04880	-.443	.34970	-.04880	-.450	.34973	-.04879	-.455		
8	.25012	-.04464	-.348	.24997	-.04645	-.424	.24976	-.04645	-.418		
7	.15054	-.04091	-.203	.15016	-.04078	-.366	.14996	-.04076	-.407		
6	.10029	-.03625	-.139	.10019	-.03624	-.258	.10039	-.03627	-.441		
5	.06590	-.03203	-.105	.06521	-.03198	-.180	.06536	-.03200	-.384		
4	.04030	-.02788	-.105	.03999	-.02803	-.176	.04025	-.02813	-.355		
3	.02030	-.02272	-.058	.01985	-.02268	-.105	.01985	-.02266	-.246		
2	.00597	-.01314	.545	.00567	-.01305	.495	.00578	-.01313	.365		
1	.00057	.00059	.759	.00068	.00449	.725	.00050	.00361	.673		
45	.00184	.00727	-.073	.00190	.00749	.310	.00193	.00757	.290		
44	.00626	.01361	-.072	.00623	.01365	-.047	.00630	.01368	-.145		
43	.01228	.01873	-.450	.01209	.01851	-.462	.01265	.01889	-.522		
42	.02005	.02272	-.839	.01983	.02268	-.838	.02012	.02277	-.970		
41	.02998	.02581	-1.031	.02991	.02584	-1.042	.02999	.02583	-1.088		
40	.04966	.02066	-1.039	.04972	.02067	-1.070	.04995	.02070	-1.136		
39	.07444	.03322	-.901	.07488	.03329	-1.029	.07482	.03327	-1.131		
38	.09994	.03321	-.950	.09991	.03620	-.988	.09990	.03621	-1.085		
37	.13996	.03995	-.917	.13983	.03994	-.992	.13976	.03995	-.898		
36	.17979	.04296	-.889	.17992	.04272	-1.014	.17991	.04288	-.807		
35	.22001	.04515	-.894	.22010	.04514	-.992	.21990	.04514	-.772		
34	.25964	.04681	-.890	.25996	.04681	-.839	.25976	.04682	-.756		
33	.29988	.04300	-.906	.29984	.04799	-.796	.29986	.04800	-.725		
32	.33985	.04769	-.933	.34008	.04869	-.769	.33979	.04868	-.714		
31	.37986	.04892	-.944	.37994	.04891	-.632	.37976	.04892	-.402		
30	.41959	.04867	-.610	.41988	.04867	-.239	.41988	.04868	-.278		
29	.45998	.04659	-.350	.45975	.04790	-.169	.45970	.04789	-.183		
28	.49994	.04452	-.224	.49994	.04649	-.122	.49987	.04649	-.155		
27	.53990	.04214	-.133	.53988	.04450	-.103	.53975	.04452	-.156		
26	.57961	.04274	-.074	.57991	.04210	-.079	.57985	.04214	-.159		
25	.61987	.03938	-.048	.61970	.03939	-.264	.61976	.03940	-.169		
24	.65968	.03637	-.030	.65979	.03635	-.056	.65966	.03636	-.186		
23	.69970	.03308	-.016	.69976	.03308	-.032	.69979	.03308	-.200		
22	.73940	.02949	-.001	.73970	.02946	-.024	.73980	.02946	-.215		
21	.77940	.02567	.024	.77962	.02567	.000	.77942	.02570	-.229		
20	.81937	.02157	.058	.81965	.02154	.032	.81985	.02150	-.244		
19	.85955	.01709	.090	.85980	.01707	.059	.85943	.01712	-.246		
18	.89940	.01246	.127	.89977	.01241	.086	.89961	.01243	-.249		
17	.94727	.00755	.179	.94861	.00742	.135	.94959	.00733	-.255		
16	.98506	.00266	.233	.98462	.00272	.188	.98455	.00274	-.182		

TABLE B1- 21

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2591

MO = .8831
 ALPHA = 4.07
 REC = 11.78*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	-.087	.94937	-.00735	-.133	.94999	-.00737	-.151	.94937	-.00731	-.141
11	.81597	-.02193	-.100	.81763	-.02182	-.045	.81986	-.02152	-.027	.82223	-.02125	-.018
10	.66593	-.03587	-.189	.66699	-.03579	-.174	.67008	-.03553	-.170	.67216	-.03537	-.150
9	.56598	-.04301	-.239	.56705	-.04294	-.254	.57033	-.04272	-.258	.57230	-.04261	-.248
8	.46599	-.04773	-.252	.46706	-.04769	-.280	.47037	-.04760	-.317	.47220	-.04753	-.399
7	.36590	-.04889	-.179	.36705	-.04889	-.215	.37009	-.04890	-.266	.37235	-.04891	-.312
6	.26579	-.04702	-.114	.26705	-.04706	-.139	.27010	-.04716	-.166	.27230	-.04723	-.211
5	.16594	-.04194	-.034	.16699	-.04202	-.075	.17010	-.04224	-.076	.17242	-.04238	-.102
4	.06993	-.02971	-.054	.06909	-.02958	-.041	.05016	-.02975	.064	.05017	-.02974	.044
3	.02002	-.02268	.071	.01922	-.02242	.102	.02010	-.02275	.120	.01999	-.02268	.116
2	.00593	-.01333	.619	.00520	-.01261	.634	.00591	-.01326	.644	.00611	-.01355	.636
1	.00034	.00292	.A07	.00031	.00277	.789	.00042	.00317	.759	.00060	.00000	.758
34	.00216	.00902	.438	.00133	.00553	.393	.00222	.00806	.324	.00210	.00787	.322
33	.00866	.01592	-.157	.00789	.01531	-.227	.00914	.01640	-.268	.00893	.01619	-.317
32	.02937	.02785	-.660	.01906	.02732	-.785	.02036	.02273	-.838	.02012	.02276	-.934
31	.03525	.02701	-1.011	.03402	.02674	-1.039	.03508	.02698	-1.091	.03550	.02701	-1.108
30	.06036	.03130	-.971	.05911	.03113	-1.027	.06022	.03128	-1.056	.06011	.03127	-1.077
29	.09959	.03617	-.464	.09713	.03613	-.938	.10029	.03626	-.983	.10019	.03623	-1.003
28	.15037	.04080	-.555	.14927	.04071	-.866	.15032	.04078	-.931	.15024	.04076	-.962
27	.20044	.04413	-.580	.19909	.04405	-.637	.20029	.04411	-.907	.20016	.04410	-.945
26	.25039	.04647	-.452	.25080	.04649	-.546	.25024	.04647	-.888	.25021	.04647	-.938
25	.30050	.04800	-.426	.29925	.04798	-.511	.30008	.04800	-.882	.30021	.04799	-.934
24	.35050	.04879	-.475	.34927	.04878	-.554	.35024	.04879	-.632	.35015	.04879	-.943
23	.40047	.04886	-.491	.39931	.04886	-.604	.40037	.04886	-.631	.39977	.04885	-.947
22	.45030	.04812	-.531	.44897	.04813	-.625	.45010	.04813	-.683	.45009	.04813	-.618
21	.50019	.04648	-.546	.49927	.04652	-.674	.50024	.04649	-.743	.50020	.04648	-.443
20	.55025	.04594	-.564	.54927	.04598	-.703	.55042	.04592	-.775	.55033	.04593	-.389
19	.60029	.04075	-.622	.59931	.04083	-.716	.60071	.04073	-.712	.60018	.04078	-.313
18	.65012	.03711	-.670	.64917	.03719	-.729	.65026	.03711	-.233	.65015	.03711	-.231
17	.71026	.03219	-.563	.70897	.03229	-.252	.71034	.03218	-.096	.70977	.03222	-.151
16	.77076	.02561	-.185	.77912	.02572	-.064	.78008	.02563	-.002	.78132	.02562	-.039
15	.83071	.01814	-.051	.84903	.01826	.C42	.85001	.01815	.075	.85010	.01815	.056
14	.92027	.01021	.068	.91927	.01032	.129	.92012	.01023	.149	.92035	.01023	.129
13	.98518	.00265	.172	.98387	.00283	.207	.98511	.00251	.224	.98478	.00267	.199

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00731	.095	.94953	-.00734	.089	.94946	-.00735	-.046		
14	.84954	-.01822	.002	.84934	-.01823	-.007	.84958	-.01821	-.038		
13	.75001	-.02951	-.074	.74983	-.02854	-.074	.75002	-.02850	-.098		
12	.64988	-.03713	-.145	.64980	-.03714	-.133	.64957	-.03715	-.145		
11	.54983	-.04597	-.438	.54955	-.04396	-.194	.54967	-.04398	-.183		
10	.44990	-.04814	-.439	.44998	-.04814	-.364	.44970	-.04816	-.280		
9	.35016	-.04886	-.378	.34997	-.04880	-.417	.34973	-.04879	-.439		
8	.25012	-.04686	-.292	.24997	-.04645	-.374	.24976	-.04645	-.387		
7	.15054	-.04081	-.142	.15015	-.04078	-.308	.14996	-.04076	-.356		
6	.05029	-.03625	-.069	.05019	-.03624	-.190	.05039	-.03627	-.380		
5	.00550	-.03203	-.016	.00521	-.03198	-.102	.00536	-.03200	-.313		
4	.00430	-.02788	-.015	.00399	-.02803	-.091	.00405	-.02813	-.257		
3	.00230	-.02282	.066	.00195	-.02268	.011	.00195	-.02266	-.132		
2	.00187	-.01314	.609	.00367	-.01305	.525	.00578	-.01313	.430		
1	.00057	.00379	.731	.00068	.00449	.695	.00050	.00361	.646		
45	.00144	.00727	-.144	.00192	.00749	-.270	.00193	.00757	.229		
44	.00626	.01361	-.145	.00623	.01365	-.134	.00630	.01368	-.203		
43	.01224	.01873	-.509	.01209	.01851	-.526	.01265	.01889	-.583		
42	.02006	.02272	-.896	.01983	.02268	-.870	.02012	.02277	-.930		
41	.02988	.02581	-1.084	.02991	.02584	-1.092	.02999	.02583	-1.138		
40	.04966	.02966	-1.105	.04972	.02967	-1.131	.04995	.02990	-1.191		
39	.07448	.03327	-1.061	.07488	.03329	-1.095	.07482	.03327	-1.188		
38	.09994	.03621	-1.021	.09991	.03620	-1.055	.09990	.03621	-1.140		
37	.13046	.02995	-.995	.13983	.03994	-1.060	.13976	.03995	-.946		
36	.17979	.04286	-.972	.17999	.04272	-1.083	.17991	.04288	-.845		
35	.22001	.04515	-.971	.22010	.04514	-1.060	.21990	.04514	-.827		
34	.25964	.04681	-.974	.25996	.04681	-.815	.25976	.04682	-.807		
33	.29988	.04800	-.955	.29994	.04799	-.580	.29986	.04800	-.727		
32	.33985	.04819	-.601	.34008	.04869	-.497	.33979	.04868	-.585		
31	.37986	.04892	-.481	.37994	.04891	-.455	.37976	.04892	-.454		
30	.41959	.04867	-.459	.41988	.04867	-.423	.41988	.04868	-.330		
29	.45975	.04789	-.430	.45976	.04790	-.379	.45970	.04789	-.260		
28	.49960	.04650	-.408	.49994	.04649	-.316	.49987	.04649	-.221		
27	.53959	.04452	-.369	.53988	.04450	-.267	.53975	.04452	-.207		
26	.57941	.04214	-.308	.57991	.04210	-.198	.57985	.04214	-.192		
25	.61987	.03978	-.253	.61970	.03939	-.155	.61976	.03940	-.201		
24	.65969	.03767	-.198	.65979	.03635	-.122	.65966	.03636	-.237		
23	.69970	.03508	-.144	.69976	.03308	-.079	.69979	.03308	-.281		
22	.73960	.02960	-.084	.73970	.02946	-.055	.73980	.02946	-.312		
21	.77960	.02567	-.030	.77967	.02567	-.018	.77942	.02570	-.343		
20	.81947	.02157	.020	.81965	.02154	.012	.81985	.02150	-.357		
19	.85955	.01709	.053	.85950	.01707	.036	.85943	.01712	-.365		
18	.89940	.01246	.078	.89977	.01241	.054	.89961	.01243	-.353		
17	.94727	.00755	.108	.94861	.00742	.089	.94959	.00733	-.310		
16	.99506	.00266	.143	.99467	.00272	.131	.98455	.00274	-.189		

TABLE B1- 22

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2592

MO = .8809
 ALPHA = 5.07
 REC = 11.78*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP		X/L	Z/L	CP	
12	.95030	-.00726	.088	.94937	-.00735	.129		.94999	-.00737	.116		.94987	-.00731	.012	
11	.81597	-.02193	-.086	.81705	-.02182	-.048		.81986	-.02152	-.048		.82223	-.02125	-.071	
10	.66595	-.03587	-.153	.66699	-.03579	-.159		.67008	-.03553	-.170		.67216	-.03537	-.172	
9	.56539	-.04301	-.192	.56705	-.04294	-.215		.57033	-.04272	-.230		.57230	-.04261	-.250	
8	.46599	-.04773	-.199	.46706	-.04769	-.230		.47037	-.04760	-.265		.47220	-.04753	-.326	
7	.36590	-.04889	-.130	.36735	-.04889	-.164		.37009	-.04893	-.212		.37235	-.04891	-.253	
6	.26579	-.04702	-.064	.26735	-.04706	-.089		.27010	-.04716	-.112		.27250	-.04723	-.153	
5	.16594	-.04194	.020	.16699	-.04202	-.016		.17010	-.04224	-.014		.17242	-.04238	-.038	
4	.06593	-.02971	.135	.06409	-.02958	.124		.05016	-.02975	.148		.05017	-.02974	.132	
3	.02002	-.02268	.186	.01922	-.02242	.208		.02010	-.02275	.235		.01999	-.02268	.233	
2	.00599	-.01133	.620	.00520	-.01261	.690		.00591	-.01326	.703		.00611	-.01355	.693	
1	.00114	.00292	.776	.00031	.00277	.754		.00042	.00317	.718		.00000	.00000	.720	
34	.00214	.00802	.372	.00159	.00553	.326		.00222	.00806	.248		.00210	.00787	.248	
33	.00846	.01592	-.736	.00789	.01531	-.813		.00914	.01643	-.359		.00893	.01619	-.399	
32	.02017	.02285	-.740	.01906	.02232	-.862		.02036	.02273	-.910		.02012	.02276	-.963	
31	.03575	.02701	-1.078	.03402	.02674	-1.107		.03508	.02698	-1.161		.03550	.02701	-1.179	
30	.06156	.03130	-1.057	.05911	.03113	-1.106		.06022	.03128	-1.134		.06011	.03127	-1.151	
29	.09959	.03617	-.639	.09913	.03613	-1.029		.10029	.03626	-1.068		.10019	.03623	-1.095	
28	.15377	.04080	-.592	.14927	.04071	-.963		.15032	.04078	-1.020		.15024	.04078	-1.050	
27	.20144	.04413	-.632	.19909	.04405	-.939		.20209	.04411	-.999		.20016	.04410	-1.033	
26	.25939	.04647	-.679	.25080	.04649	-.816		.25024	.04647	-.984		.25021	.04647	-1.225	
25	.30050	.04800	-.472	.29925	.04798	-.664		.30008	.04800	-.981		.30021	.04799	-.832	
24	.35050	.04879	-.508	.34927	.04878	-.606		.35024	.04879	-.984		.35015	.04879	-.560	
23	.40047	.04886	-.528	.39931	.04886	-.607		.40037	.04886	-.989		.39977	.04885	-.499	
22	.45030	.04917	-.567	.44897	.04815	-.648		.45010	.04813	-.969		.45009	.04813	-.466	
21	.50039	.04649	-.579	.49927	.04652	-.701		.50024	.04649	-.592		.50020	.04648	-.441	
20	.55025	.04194	-.585	.54927	.04398	-.726		.55042	.04392	-.458		.55033	.04393	-.413	
19	.60029	.04075	-.640	.59931	.04083	-.739		.60071	.04073	-.369		.60018	.04073	-.389	
18	.65032	.03711	-.686	.64917	.03719	-.698		.65026	.03711	-.297		.65015	.03711	-.352	
17	.70026	.03219	-.524	.70089	.03229	-.176		.71034	.03218	-.209		.70977	.03222	-.302	
16	.75026	.02561	-.175	.77912	.02572	-.035		.78008	.02563	-.106		.78012	.02562	-.241	
15	.80021	.01814	-.039	.84903	.01826	.051		.85001	.01815	-.018		.85010	.01815	-.171	
14	.92077	.01021	.074	.91929	.01032	.130		.92012	.01023	.068		.92035	.01023	-.074	
13	.98518	.00265	.175	.98587	.00283	.204		.98611	.00251	.171		.98498	.00257	-.031	

SECTION 5				SECTION 6				SECTION 7						
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP		X/L	Z/L	CP
15	.94977	-.00731	.009	.94953	-.00734	.013		.94946	-.00735	-.013				
14	.84954	-.01827	-.055	.84934	-.01823	-.055		.84958	-.01821	-.078				
13	.75003	-.02851	-.114	.74965	-.02854	-.113		.75002	-.02850	-.138				
12	.64988	-.03713	-.169	.64980	-.03711	-.165		.64957	-.03715	-.182				
11	.54983	-.04397	-.271	.54955	-.04396	-.207		.54967	-.04398	-.209				
10	.44970	-.04814	-.369	.44998	-.04814	-.349		.44970	-.04816	-.325				
9	.35016	-.04880	-.318	.34973	-.04880	-.367		.34975	-.04877	-.415				
8	.25012	-.04646	-.277	.24977	-.04645	-.331		.24976	-.04645	-.354				
7	.15054	-.04081	-.080	.15016	-.04078	-.235		.14996	-.04075	-.312				
6	.10029	-.03625	-.001	.10019	-.03624	-.125		.10039	-.03627	-.303				
5	.06550	-.03203	.083	.06521	-.03198	-.032		.06536	-.03200	-.241				
4	.04030	-.02788	.083	.03999	-.02803	.002		.04025	-.02813	-.173				
3	.02007	-.02282	.178	.01985	-.02268	.120		.01985	-.02266	-.029				
2	.00587	-.01514	.666	.00567	-.01505	.585		.00578	-.01513	.477				
1	.00057	.00179	.690	.00068	.00449	.653		.00050	.00361	.606				
45	.00184	.00727	-.234	.00193	.00749	-.192		.00193	.00757	.154				
44	.00626	.01361	-.234	.00623	.01365	-.224		.00630	.01369	-.285				
43	.01278	.01873	-.589	.01207	.01851	-.608		.01265	.01889	-.658				
42	.02006	.02272	-.967	.01983	.02268	-.950		.02012	.02277	-1.001				
41	.02988	.02581	-1.150	.02991	.02584	-1.156		.02999	.02583	-1.202				
40	.04966	.02966	-1.181	.04972	.02967	-1.200		.04995	.02970	-1.256				
39	.07448	.03322	-1.139	.07468	.03329	-1.170		.07482	.03327	-1.254				
38	.09994	.03621	-1.102	.09991	.03620	-1.137		.09990	.03621	-1.209				
37	.13986	.03995	-1.077	.13983	.03994	-1.136		.13976	.03995	-.991				
36	.17979	.04286	-1.043	.17999	.04272	-.953		.17991	.04283	-.781				
35	.22001	.04515	-.833	.22010	.04514	-.688		.21990	.04514	-.650				
34	.25964	.04681	-.575	.25994	.04681	-.576		.25976	.04682	-.539				
33	.29998	.04800	-.526	.29994	.04799	-.531		.29986	.04800	-.485				
32	.33985	.04869	-.501	.34003	.04869	-.498		.33979	.04868	-.448				
31	.37996	.04892	-.480	.37994	.04891	-.462		.37976	.04892	-.402				
30	.41989	.04867	-.468	.41988	.04867	-.436		.41988	.04868	-.353				
29	.45975	.04789	-.441	.45976	.04790	-.392		.45970	.04789	-.304				
28	.49940	.04650	-.416	.49994	.04649	-.350		.49987	.04649	-.282				
27	.53959	.04452	-.394	.53988	.04450	-.321		.53975	.04452	-.273				
26	.57961	.04214	-.366	.57991	.04210	-.269		.57985	.04214	-.248				
25	.61987	.03938	-.315	.61970	.03939	-.243		.61976	.03940	-.259				
24	.65968	.03737	-.279	.65979	.03635	-.208		.65966	.03636	-.283				
23	.69970	.03508	-.234	.69978	.03308	-.175		.69979	.03308	-.295				
22	.73940	.02949	-.189	.73970	.02946	-.150		.73980	.02946	-.310				
21	.77960	.02567	-.166	.77962	.02567	-.131		.77942	.02570	-.310				
20	.81957	.02157	-.126	.81965	.02154	-.117		.81985	.02150	-.306				
19	.85955	.01709	-.090	.85980	.01707	-.088		.85943	.01712	-.315				
18	.89940	.01246	-.049	.89977	.01241	-.071		.89961	.01243	-.283				
17	.94777	.00755	-.013	.94861	.00742	-.026		.94959	.00733	-.250				
16	.98506	.00266	.003	.98462	.00272	-.023		.98455	.00274	-.175				

TABLE B1-23

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2593

MO = .8868
 ALPHA = 6.07
 REC = 11.83*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP			
12	.95030	-.00726	.078	.94957	-.00735	.111	.94999	-.00737	.010	.94937	-.00731	-.084			
11	.81597	-.02193	-.078	.81705	-.02182	-.056	.81986	-.02152	-.082	.82223	-.02125	-.125			
10	.66593	-.03587	-.129	.66698	-.03579	-.141	.67308	-.03553	-.177	.67216	-.03537	-.197			
9	.56588	-.04301	-.155	.56705	-.04294	-.184	.57033	-.04272	-.211	.57230	-.04261	-.265			
8	.46599	-.04773	-.153	.46706	-.04769	-.183	.47037	-.04760	-.225	.47220	-.04753	-.300			
7	.36580	-.04889	-.084	.36705	-.04889	-.116	.37009	-.04890	-.166	.37235	-.04891	-.212			
6	.26579	-.04702	-.013	.26705	-.04706	-.033	.27010	-.04716	-.060	.27230	-.04723	-.106			
5	.16594	-.04194	.077	.16697	-.04202	.042	.17010	-.04224	.044	.17242	-.04238	.014			
4	.04993	-.02971	.210	.04907	-.02958	.204	.05016	-.02975	.224	.05017	-.02974	.206			
3	.02002	-.02268	.300	.01922	-.02242	.312	.02010	-.02275	.332	.01999	-.02268	.326			
2	.00593	-.01333	.746	.00523	-.01261	.747	.00591	-.01326	.753	.00611	-.01355	.738			
1	.00034	-.00292	.753	.00031	-.00277	.724	.00042	-.00317	.683	.00000	.00000	.687			
34	.00016	.00002	.315	.00018	.00053	.261	.00222	.00806	.189	.00210	.00787	.186			
33	.00366	.01592	-.294	.00789	.01531	-.375	.00914	.01640	-.422	.00893	.01619	-.461			
32	.02077	.02785	-.802	.01906	.02632	-.913	.02036	.02273	-.953	.02012	.02276	-1.007			
31	.03525	.02701	-1.114	.03402	.02674	-1.141	.03508	.02698	-1.196	.03530	.02701	-1.215			
30	.06036	.02130	-1.100	.05911	.02113	-1.140	.06022	.02128	-1.175	.06011	.02127	-1.192			
29	.09959	.03617	-.964	.09913	.03613	-1.078	.10029	.03626	-1.117	.10019	.03623	-1.132			
28	.15937	.04080	-.618	.14927	.04071	-1.024	.15032	.04078	-1.071	.15024	.04078	-1.099			
27	.20044	.04413	-.651	.19909	.04405	-1.002	.20029	.04411	-1.035	.20016	.04410	-1.005			
26	.25039	.04647	-.710	.25080	.04649	-.975	.25024	.04647	-1.040	.25021	.04647	-.778			
25	.30050	.04800	-.744	.29925	.04798	-.934	.30005	.04800	-1.039	.30021	.04799	-.596			
24	.35050	.04879	-.537	.34927	.04878	-.753	.35024	.04879	-1.035	.35015	.04879	-.544			
23	.40047	.04886	-.563	.39931	.04886	-.772	.40037	.04887	-.633	.39977	.04885	-.496			
22	.45030	.04812	-.599	.44997	.04815	-.708	.45010	.04813	-.561	.45009	.04813	-.472			
21	.50039	.04648	-.616	.49927	.04652	-.710	.50024	.04649	-.535	.50020	.04648	-.457			
20	.55025	.04394	-.589	.54927	.04398	-.737	.55042	.04392	-.519	.55033	.04393	-.439			
19	.60029	.04075	-.642	.59931	.04083	-.756	.60071	.04073	-.483	.60018	.04078	-.407			
18	.65032	.03711	-.689	.64917	.03719	-.499	.65026	.03711	-.455	.65015	.03711	-.387			
17	.71026	.03219	-.438	.70897	.03229	-.166	.71034	.03218	-.408	.70977	.03222	-.363			
16	.76024	.02561	-.190	.75912	.02572	-.055	.76008	.02563	-.339	.76012	.02562	-.318			
15	.85021	.01914	-.047	.84903	.01826	.030	.85001	.01815	-.245	.85013	.01815	-.278			
14	.92927	.01021	.064	.91929	.01032	.105	.92012	.01023	-.148	.92005	.01021	-.233			
13	.98518	.00265	.159	.98387	.00283	.181	.98611	.00251	-.001	.98498	.00267	-.168			

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP		
15	.94977	-.00731	-.092	.94953	-.00734	-.077	.94946	-.00735	-.090		
14	.84954	-.01822	-.110	.84934	-.01823	-.105	.84958	-.01821	-.126		
13	.75003	-.02851	-.156	.74963	-.02854	-.151	.75002	-.02850	-.165		
12	.64994	-.03713	-.194	.64980	-.03714	-.188	.64957	-.03715	-.199		
11	.54983	-.04597	-.360	.54955	-.04596	-.223	.54967	-.04598	-.223		
10	.44990	-.04814	-.361	.44998	-.04814	-.385	.44970	-.04816	-.529		
9	.35016	-.04880	-.276	.34973	-.04880	-.343	.34973	-.04879	-.399		
8	.25012	-.04646	-.175	.24997	-.04645	-.290	.24976	-.04645	-.334		
7	.15054	-.04081	-.021	.15015	-.04078	-.174	.14996	-.04076	-.275		
6	.10029	-.03625	.062	.10019	-.03624	-.060	.10039	-.03627	-.246		
5	.06550	-.03303	.167	.06521	-.033198	.037	.06536	-.03300	-.170		
4	.04030	-.02788	.168	.03999	-.02803	.084	.04025	-.02813	-.090		
3	.02930	-.02282	.277	.01985	-.02268	.218	.01985	-.02266	.067		
2	.00587	-.01314	.715	.00567	-.01305	.632	.00578	-.01313	.524		
1	.00057	.00379	.654	.00068	.00449	.617	.00050	.00361	.575		
45	.00184	.00727	-.304	.00190	.00749	.132	.00193	.00757	.096		
44	.00676	.01361	-.304	.00623	.01365	-.286	.00630	.01368	-.350		
43	.01228	.01873	-.446	.01209	.01851	-.659	.01265	.01889	-.709		
42	.02006	.02272	-1.006	.01983	.02268	-.995	.02012	.02277	-1.037		
41	.02994	.02581	-1.186	.02991	.02584	-1.188	.02999	.02583	-1.230		
40	.04966	.02966	-1.218	.04972	.02967	-1.234	.04995	.02970	-1.284		
39	.07448	.03322	-1.180	.07488	.03320	-1.210	.07482	.03327	-1.272		
38	.09994	.03621	-1.145	.09991	.03620	-1.165	.09990	.03621	-1.194		
37	.13946	.03995	-.994	.13983	.03994	-.922	.13976	.03995	-.780		
36	.17970	.04286	-.773	.17990	.04272	-.734	.17991	.04288	-.663		
35	.22001	.04515	-.609	.22010	.04514	-.597	.21990	.04514	-.519		
34	.25944	.04681	-.561	.25994	.04681	-.536	.25976	.04682	-.475		
33	.29988	.04800	-.544	.29994	.04799	-.507	.29986	.04800	-.452		
32	.33985	.04949	-.497	.34004	.04869	-.470	.33979	.04868	-.417		
31	.37946	.04892	-.462	.37994	.04891	-.435	.37976	.04892	-.375		
30	.41959	.04867	-.469	.41988	.04867	-.429	.41988	.04865	-.373		
29	.45975	.04789	-.432	.45976	.04790	-.384	.45970	.04789	-.320		
28	.49960	.04650	-.420	.49974	.04649	-.375	.49987	.04649	-.315		
27	.53959	.04452	-.387	.53983	.04450	-.337	.53975	.04452	-.294		
26	.57941	.04214	-.365	.57991	.04210	-.308	.57985	.04214	-.298		
25	.61937	.03934	-.359	.61970	.03939	-.311	.61976	.03940	-.309		
24	.65968	.03637	-.334	.65979	.03635	-.285	.65966	.03636	-.311		
23	.69970	.03308	-.299	.69976	.03308	-.257	.69979	.03308	-.307		
22	.73940	.02940	-.284	.73970	.02946	-.249	.73981	.02946	-.320		
21	.77960	.02567	-.271	.77962	.02567	-.246	.77942	.02570	-.283		
20	.81917	.02157	-.252	.81965	.02154	-.221	.81985	.02150	-.298		
19	.85945	.01709	-.225	.85985	.01707	-.221	.85943	.01712	-.286		
18	.89940	.01244	-.193	.89777	.01241	-.205	.89961	.01243	-.283		
17	.94727	.00755	-.159	.94861	.00742	-.175	.94959	.00733	-.258		
16	.98506	.00266	-.147	.98462	.00272	-.172	.98455	.00274	-.211		

TABLE B1- 24

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2296

MO = .9207
 ALPHA = .03
 REC = 11.78*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.105	.94937	-.00735	.150	.94999	-.00737	.168	.94937	-.00731	.177			
11	.81597	-.02193	-.194	.81705	-.02182	-.067	.81986	-.02152	-.039	.82223	-.02125	-.015			
10	.66593	-.03597	-.511	.66698	-.03579	-.554	.67008	-.03553	-.521	.67216	-.03537	-.392			
9	.56588	-.04301	-.439	.56705	-.04294	-.533	.57033	-.04272	-.586	.57250	-.04261	-.689			
8	.46592	-.04773	-.367	.46706	-.04769	-.446	.47037	-.04760	-.515	.47220	-.04753	-.583			
7	.36587	-.04889	-.109	.36705	-.04889	-.371	.37009	-.04890	-.443	.37255	-.04891	-.483			
6	.26579	-.04702	-.270	.26705	-.04706	-.319	.27010	-.04716	-.363	.27250	-.04723	-.404			
5	.16594	-.04194	-.231	.16699	-.04202	-.290	.17010	-.04224	-.311	.17242	-.04238	-.336			
4	.04993	-.02921	-.232	.04909	-.02958	-.325	.05316	-.02975	-.317	.05017	-.02974	-.397			
3	.02002	-.02268	-.428	.01922	-.02242	-.417	.02010	-.02275	-.411	.01999	-.02268	-.433			
2	.00593	-.01333	.353	.00520	-.01261	.356	.00591	-.01326	.355	.00611	-.01355	.337			
1	.00034	.00092	.874	.00031	.00277	.864	.00042	.00317	.852	.00000	.00000	.842			
34	.00216	.00802	.693	.00108	.00553	.667	.00222	.00806	.627	.00213	.00787	.610			
33	.00966	.01592	.221	.00789	.01531	.161	.00914	.01640	.108	.00893	.01619	.110			
32	.02077	.02295	-.280	.01705	.02232	-.368	.02036	.02273	-.411	.02012	.02276	-.476			
31	.03575	.02701	-.372	.03402	.02674	-.465	.03508	.02698	-.625	.03530	.02701	-.658			
30	.06036	.02130	-.206	.05911	.03113	-.258	.06022	.03128	-.278	.06011	.03127	-.263			
29	.09959	.02617	-.188	.09913	.03613	-.251	.10029	.03626	-.314	.10019	.03623	-.328			
28	.15037	.04080	-.194	.14927	.04071	-.256	.15032	.04078	-.312	.15024	.04078	-.347			
27	.20044	.04413	-.221	.19909	.04405	-.299	.20029	.04411	-.343	.20016	.04410	-.391			
26	.25039	.04647	-.250	.25080	.04649	-.324	.25024	.04647	-.371	.25021	.04647	-.433			
25	.30030	.04800	-.260	.29925	.04798	-.339	.30008	.04800	-.399	.30021	.04799	-.439			
24	.35050	.04879	-.287	.34927	.04878	-.364	.35024	.04879	-.441	.35015	.04879	-.484			
23	.40067	.04886	-.317	.39931	.04886	-.401	.40037	.04886	-.474	.39977	.04885	-.521			
22	.45070	.04812	-.363	.44937	.04815	-.444	.45010	.04813	-.517	.45009	.04813	-.574			
21	.50039	.04648	-.392	.49927	.04652	-.503	.50024	.04649	-.576	.50020	.04649	-.629			
20	.55025	.04394	-.433	.54927	.04398	-.528	.55042	.04392	-.600	.55033	.04393	-.685			
19	.60029	.04075	-.488	.59931	.04083	-.547	.60071	.04073	-.631	.60018	.04078	-.719			
18	.65032	.03711	-.536	.64917	.03719	-.576	.65026	.03711	-.646	.65015	.03711	-.619			
17	.70026	.03219	-.490	.70097	.03229	-.575	.70034	.03218	-.635	.70077	.03222	-.681			
16	.74076	.02561	-.382	.73912	.02572	-.193	.74008	.02563	-.110	.74012	.02562	-.378			
15	.88021	.01814	-.091	.88003	.01826	-.004	.88001	.01815	.319	.88010	.01815	.327			
14	.92027	.01021	.048	.91929	.01032	.106	.92012	.01023	.124	.92035	.01023	.133			
13	.98519	.00265	.165	.98587	.00283	.197	.98511	.00251	.217	.98498	.00267	.213			
SECTION 5				SECTION 6				SECTION 7							
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	.187	.94953	-.00734	.188	.94946	-.00735	.174						
14	.84954	-.01822	.089	.84954	-.01823	.106	.84958	-.01821	.103						
13	.75003	-.02851	-.076	.74963	-.02854	.033	.75002	-.02850	.052						
12	.64988	-.03713	-.228	.64980	-.03714	-.109	.64957	-.03715	-.039						
11	.54983	-.04597	-.615	.54955	-.04596	-.625	.54967	-.04598	-.594						
10	.44990	-.04914	-.614	.44998	-.04814	-.574	.44970	-.04816	-.538						
9	.35016	-.04880	-.586	.34990	-.04880	-.528	.34973	-.04879	-.500						
8	.25012	-.04666	-.464	.24997	-.04645	-.532	.24976	-.04645	-.458						
7	.15054	-.04081	-.361	.15016	-.04078	-.510	.14996	-.04076	-.510						
6	.10079	-.03625	-.335	.10017	-.03624	-.417	.10039	-.03627	-.370						
5	.06550	-.03203	-.571	.06521	-.03198	-.360	.06536	-.03200	-.322						
4	.04030	-.02788	-.571	.03992	-.02803	-.633	.04025	-.02813	-.761						
3	.02030	-.02282	-.433	.01985	-.02268	-.435	.01985	-.02266	-.513						
2	.00587	-.01314	.741	.00567	-.01305	.300	.00578	-.01313	.181						
1	.00057	.00179	.852	.00054	.00449	.803	.00050	.00361	.748						
45	.00154	.00727	.238	.00190	.00749	.548	.00193	.00757	.521						
44	.00626	.01361	.236	.00623	.01365	.245	.00630	.01368	.147						
43	.01228	.01873	-.121	.01209	.01851	-.124	.01265	.01889	-.205						
42	.02006	.02272	-.480	.01953	.02268	-.527	.02012	.02277	-.557						
41	.02988	.02581	-.657	.02991	.02584	-.672	.02999	.02583	-.751						
40	.04063	.02966	-.491	.04072	.02967	-.620	.04095	.02970	-.722						
39	.07448	.01322	-.361	.07485	.03329	-.407	.07482	.03327	-.568						
38	.09994	.03621	-.156	.09991	.03620	-.441	.09990	.03621	-.591						
37	.13096	.03995	-.402	.13083	.03994	-.521	.13076	.03995	-.549						
36	.17979	.04285	-.417	.17999	.04272	-.574	.17991	.04288	-.497						
35	.22001	.04415	-.456	.22010	.04514	-.577	.21990	.04514	-.483						
34	.25944	.04681	-.485	.25936	.04681	-.546	.25976	.04682	-.490						
33	.29998	.04907	-.536	.29994	.04799	-.525	.29986	.04800	-.479						
32	.33985	.04949	-.585	.34004	.04869	-.528	.33979	.04868	-.494						
31	.37986	.04892	-.619	.37994	.04891	-.543	.37976	.04892	-.502						
30	.41959	.04847	-.617	.41988	.04867	-.560	.41988	.04868	-.541						
29	.45975	.04789	-.634	.45976	.04790	-.588	.45970	.04789	-.550						
28	.49960	.04650	-.636	.49994	.04649	-.605	.49987	.04649	-.575						
27	.53959	.04452	-.658	.53983	.04450	-.636	.53975	.04452	-.593						
26	.57961	.04214	-.664	.57991	.04210	-.592	.57985	.04214	-.428						
25	.61987	.03938	-.349	.61970	.03939	-.179	.61976	.03940	-.101						
24	.65968	.03637	-.164	.65979	.03635	-.072	.65966	.03636	-.011						
23	.69970	.03308	-.096	.69976	.03308	-.012	.69979	.03308	.029						
22	.73940	.02949	-.039	.73970	.02946	.028	.73980	.02946	.051						
21	.77960	.02567	.012	.77962	.02567	.059	.77942	.02570	.068						
20	.81937	.02157	.061	.81965	.02154	.049	.81965	.02150	.089						
19	.85955	.01709	.104	.85983	.01707	.120	.85943	.01712	.115						
18	.89940	.01246	.143	.89977	.01241	.149	.89961	.01243	.143						
17	.94727	.00755	.187	.94861	.00742	.191	.94959	.00733	.176						
16	.98504	.00266	.220	.98462	.00272	.225	.98455	.00274	.212						

TABLE B1- 25

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2297

MO = .9208
 ALPHA = 1.07
 REC = 11.79*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP		X/L	Z/L	CP	
12	.95030	-.00726	.092	.94937	-.00735	.155		.94999	-.00737	.154		.94987	-.00731	.162	
11	.91507	-.02193	-.180	.91705	-.02182	-.164		.81986	-.02152	-.039		.92225	-.02125	-.100	
10	.66573	-.03587	-.472	.66693	-.03579	-.522		.67008	-.03555	-.592		.67216	-.03537	-.632	
9	.56588	-.04301	-.415	.56705	-.04294	-.510		.57033	-.04272	-.557		.57230	-.04261	-.649	
8	.46599	-.04773	-.343	.46706	-.04769	-.415		.47037	-.04760	-.469		.47220	-.04753	-.548	
7	.36580	-.04889	-.270	.36705	-.04889	-.335		.37009	-.04890	-.405		.37235	-.04891	-.440	
6	.26579	-.04702	-.231	.26705	-.04706	-.269		.27010	-.04715	-.307		.27230	-.04723	-.367	
5	.16594	-.04194	-.171	.16697	-.04202	-.227		.17010	-.04224	-.246		.17242	-.04231	-.262	
4	.04925	-.02971	-.190	.04909	-.02958	-.222		.05016	-.02975	-.206		.05017	-.02974	-.237	
3	.02092	-.02268	-.279	.01922	-.02242	-.276		.02010	-.02275	-.253		.01999	-.02268	-.276	
2	.00505	-.01333	.432	.00520	-.01261	.421		.00591	-.01326	.439		.00611	-.01355	.424	
1	.00934	.00292	.871	.00931	.00277	.856		.00942	.00317	.844		.00900	.00300	.835	
34	.00216	.01802	.640	.00108	.00553	.609		.00222	.00806	.565		.00210	.00757	.548	
33	.00546	.01597	.135	.00739	.01531	.071		.00914	.01640	.014		.00893	.01619	.020	
32	.02037	.02285	-.369	.01906	.02232	-.478		.02036	.02273	-.513		.02012	.02271	-.376	
31	.03525	.02701	-.649	.03402	.02674	-.726		.03508	.02698	-.773		.03500	.02706	-.794	
30	.06056	.03130	-.288	.05911	.03113	-.320		.06022	.03128	-.486		.06011	.03127	-.709	
29	.09059	.03617	-.258	.08913	.03613	-.321		.10029	.03626	-.336		.10019	.03623	-.389	
28	.15047	.04090	-.256	.14927	.04071	-.324		.15032	.04078	-.378		.15024	.04078	-.393	
27	.20044	.04413	-.279	.19909	.04405	-.358		.20029	.04411	-.406		.20016	.04410	-.443	
26	.25010	.04667	-.299	.25080	.04669	-.384		.25024	.04667	-.432		.25021	.04667	-.470	
25	.30000	.04800	-.308	.29925	.04798	-.388		.30008	.04800	-.463		.30021	.04799	-.504	
24	.35050	.04979	-.334	.34927	.04878	-.407		.35024	.04879	-.486		.35015	.04879	-.542	
23	.40047	.04986	-.350	.39931	.04886	-.444		.40037	.04886	-.520		.39977	.04885	-.559	
22	.45010	.04912	-.395	.44897	.04815	-.474		.45010	.04813	-.557		.45009	.04813	-.608	
21	.50039	.04649	-.417	.49927	.04652	-.552		.50024	.04649	-.605		.50020	.04648	-.663	
20	.55025	.04394	-.453	.54927	.04398	-.561		.55042	.04392	-.627		.55033	.04393	-.715	
19	.60029	.04075	-.511	.59931	.04083	-.575		.60071	.04073	-.658		.60018	.04078	-.750	
18	.65032	.03711	-.559	.64917	.03719	-.598		.65032	.03711	-.676		.65015	.03711	-.773	
17	.70076	.03219	-.578	.70097	.03229	-.602		.70034	.03218	-.605		.70077	.03222	-.175	
16	.75026	.02561	-.413	.75012	.02572	-.190		.75008	.02563	-.101		.75012	.02562	-.075	
15	.80021	.01814	-.094	.80003	.01826	-.009		.80001	.01815	.004		.80010	.01815	.001	
14	.92027	.01021	.051	.91929	.01032	.099		.92012	.01023	.103		.92025	.01023	.099	
13	.98518	.00265	.165	.98387	.00283	.187		.98611	.00251	.194		.98498	.00267	.177	

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP	
15	.94977	-.00731	.165	.94953	-.00734	.169		.94946	-.00735	.155	
14	.84954	-.01822	.084	.84936	-.01823	.089		.84958	-.01821	.085	
13	.75003	-.02851	-.025	.74965	-.02854	.033		.75002	-.02850	.043	
12	.64988	-.03713	-.345	.64980	-.03714	-.118		.64957	-.03715	-.027	
11	.54983	-.04397	-.593	.54955	-.04396	-.613		.54967	-.04398	-.586	
10	.44990	-.04814	-.592	.44990	-.04814	-.558		.44970	-.04816	-.527	
9	.35016	-.04880	-.541	.34990	-.04880	-.522		.34973	-.04879	-.484	
8	.25012	-.04666	-.411	.24977	-.04665	-.495		.24976	-.04665	-.459	
7	.15054	-.04081	-.287	.15016	-.04078	-.447		.14996	-.04076	-.471	
6	.10029	-.03625	-.251	.10017	-.03624	-.335		.10039	-.03627	-.512	
5	.06550	-.03203	-.310	.06521	-.03198	-.296		.06536	-.03200	-.466	
4	.04010	-.02788	-.311	.03999	-.02803	-.361		.04025	-.02813	-.513	
3	.02030	-.02282	-.302	.01985	-.02268	-.322		.01985	-.02266	-.429	
2	.00587	-.01314	.421	.00567	-.01305	.379		.00578	-.01313	.224	
1	.00057	.00379	.822	.00068	.00449	.794		.00050	.00361	.740	
45	.00184	.00727	.154	.00190	.00749	.490		.00193	.00757	.445	
44	.00626	.01361	.153	.00623	.01365	.166		.00630	.01368	.072	
43	.01228	.01873	-.214	.01209	.01851	-.209		.01265	.01889	-.288	
42	.02006	.02272	-.545	.01983	.02268	-.608		.02012	.02277	-.635	
41	.02988	.02581	-.765	.02991	.02584	-.785		.02999	.02585	-.840	
40	.04966	.02966	-.753	.04972	.02967	-.784		.04995	.02970	-.860	
39	.07448	.03322	-.680	.07488	.03329	-.726		.07482	.03327	-.851	
38	.09994	.03621	-.612	.09991	.03620	-.679		.09990	.03621	-.814	
37	.13986	.03995	-.589	.13953	.03994	-.517		.13976	.03995	-.672	
36	.17979	.04286	-.451	.17997	.04272	-.587		.17991	.04288	-.423	
35	.22001	.04515	-.503	.22010	.04514	-.604		.21990	.04514	-.466	
34	.25964	.04681	-.536	.25996	.04681	-.545		.25976	.04682	-.500	
33	.29988	.04800	-.584	.29994	.04799	-.544		.29986	.04800	-.500	
32	.33985	.04869	-.634	.34038	.04869	-.550		.33979	.04868	-.514	
31	.37986	.04892	-.675	.37994	.04891	-.568		.37976	.04892	-.524	
30	.41959	.04867	-.663	.41988	.04867	-.583		.41988	.04868	-.562	
29	.45975	.04789	-.649	.45976	.04790	-.610		.45970	.04789	-.571	
28	.49960	.04650	-.647	.49994	.04649	-.620		.49987	.04649	-.593	
27	.53959	.04452	-.671	.53988	.04450	-.643		.53975	.04452	-.603	
26	.57961	.04214	-.405	.57991	.04210	-.313		.57985	.04214	-.246	
25	.61977	.03938	-.201	.61970	.03939	-.134		.61976	.03940	-.093	
24	.65964	.03637	-.142	.65977	.03635	-.263		.65966	.03636	-.019	
23	.69970	.03308	-.097	.69976	.03308	-.014		.69979	.03308	.021	
22	.73940	.02949	-.049	.73970	.02946	-.022		.73980	.02946	.039	
21	.77960	.02567	-.004	.77962	.02567	.052		.77942	.02570	.057	
20	.81977	.02157	.041	.81965	.02154	.085		.81985	.02150	.077	
19	.85985	.01709	.086	.85980	.01707	.116		.85943	.01712	.097	
18	.89940	.01246	.127	.89977	.01241	.147		.89961	.01243	.122	
17	.94727	.00755	.169	.94861	.00742	.189		.94959	.00733	.148	
16	.98506	.00266	.199	.98467	.00272	.221		.98455	.00274	.173	

TABLE B1- 26

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2298

MO = .9180
 ALPHA = 2.05
 REC = 11.76*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP		X/L	Z/L	CP	
12	.95030	-.00726	.083	.94737	-.00735	.101		.94999	-.00737	.152		.94937	-.00731	.140	
11	.91597	-.02193	-.159	.81705	-.02182	-.089		.81986	-.02152	-.030		.82223	-.02125	.024	
10	.66593	-.03587	-.720	.66699	-.03579	-.481		.67008	-.03553	-.557		.67216	-.03537	-.642	
9	.56588	-.04301	-.396	.56705	-.04294	-.481		.57033	-.04272	-.527		.57250	-.04261	-.620	
8	.46579	-.04773	-.317	.46706	-.04769	-.390		.47237	-.04760	-.436		.47223	-.04753	-.510	
7	.36530	-.04889	-.239	.36735	-.04889	-.302		.37009	-.04890	-.366		.37235	-.04891	-.405	
6	.26579	-.04702	-.185	.26705	-.04706	-.224		.27010	-.04716	-.262		.27250	-.04723	-.300	
5	.16594	-.04194	-.119	.16699	-.04202	-.173		.17010	-.04224	-.180		.17242	-.04238	-.203	
4	.06993	-.02971	-.100	.04909	-.02958	-.124		.05016	-.02975	-.107		.05017	-.02974	-.131	
3	.02002	-.02268	-.152	.01922	-.02242	-.140		.02010	-.02275	-.117		.01999	-.02268	-.134	
2	.00593	-.01333	.499	.00520	-.01261	.498		.00591	-.01326	.514		.00611	-.01355	.498	
1	.00034	.00792	.860	.00031	.00777	.847		.00042	.00817	.829		.00000	.00000	.825	
34	.00214	.00802	.591	.00108	.00553	.553		.00222	.00806	.504		.00210	.00797	.489	
33	.00566	.01592	.052	.00789	.01531	-.011		.02914	.01640	-.064		.00813	.01619	-.358	
32	.02037	.02285	-.447	.01908	.02232	-.560		.02036	.02273	-.601		.02012	.02276	-.658	
31	.03525	.02701	-.780	.03402	.02674	-.819		.03508	.02698	-.854		.03510	.02701	-.875	
30	.06036	.03130	-.527	.05911	.03113	-.776		.06032	.03128	-.806		.06011	.03127	-.812	
29	.09959	.03617	-.336	.09913	.03613	-.317		.10329	.03624	-.214		.10019	.03623	-.728	
28	.15917	.04080	-.305	.14727	.04071	-.375		.15032	.04078	-.411		.15024	.04078	-.680	
27	.20344	.04413	-.339	.19009	.04405	-.411		.20029	.04411	-.428		.20016	.04410	-.587	
26	.25039	.04647	-.361	.25081	.04649	-.435		.25024	.04647	-.471		.25021	.04647	-.470	
25	.30050	.04800	-.350	.29725	.04798	-.435		.30008	.04800	-.513		.30021	.04799	-.526	
24	.35050	.04879	-.380	.34927	.04878	-.453		.35024	.04879	-.542		.35015	.04879	-.576	
23	.40047	.04886	-.392	.39931	.04886	-.493		.40037	.04886	-.555		.39977	.04885	-.608	
22	.45010	.04812	-.425	.44397	.04815	-.507		.45010	.04813	-.602		.45009	.04813	-.653	
21	.50039	.04648	-.444	.49927	.04652	-.562		.50024	.04649	-.655		.50020	.04648	-.686	
20	.55025	.04394	-.471	.54927	.04398	-.591		.55042	.04392	-.666		.55033	.04393	-.743	
19	.60029	.04075	-.533	.59931	.04083	-.605		.60071	.04073	-.686		.60018	.04078	-.728	
18	.65032	.03711	-.584	.64717	.03719	-.625		.65026	.03711	-.703		.65015	.03711	-.731	
17	.70026	.03219	-.611	.70897	.03229	-.629		.71034	.03218	-.658		.70977	.03222	-.763	
16	.75024	.02561	-.425	.77912	.02572	-.173		.78008	.02563	-.101		.78012	.02562	-.085	
15	.80021	.01814	-.097	.84903	.01826	-.017		.85001	.01815	-.009		.85010	.01815	.005	
14	.92027	.01021	.051	.91927	.01032	.082		.92012	.01023	.079		.92035	.01023	.085	
13	.98519	.00265	.161	.98387	.00283	.167		.98611	.00251	.170		.98498	.00267	.150	

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP	
15	.94777	-.00731	.145	.94953	-.00734	.154		.94946	-.00735	.132	
14	.84744	-.01822	.073	.84936	-.01823	.071		.84958	-.01821	.061	
13	.74767	-.02851	-.006	.74967	-.02854	.029		.75002	-.02850	.024	
12	.64988	-.03713	-.339	.64980	-.03714	-.089		.64957	-.03715	-.006	
11	.54933	-.04397	-.566	.54955	-.04396	-.619		.54967	-.04393	-.590	
10	.44900	-.04814	-.566	.44994	-.04814	-.567		.44970	-.04815	-.549	
9	.35016	-.04880	-.507	.34990	-.04880	-.506		.34973	-.04877	-.506	
8	.25012	-.04646	-.370	.24977	-.04645	-.459		.24976	-.04645	-.443	
7	.15054	-.04081	-.231	.15016	-.04078	-.391		.14996	-.04076	-.433	
6	.10020	-.03625	-.184	.10019	-.03624	-.289		.10039	-.03627	-.467	
5	.06550	-.03203	-.194	.06521	-.03198	-.218		.06536	-.03200	-.416	
4	.04030	-.02788	-.193	.03999	-.02803	-.237		.04025	-.02813	-.401	
3	.02030	-.02282	-.169	.01955	-.02268	-.204		.01985	-.02266	-.327	
2	.00587	-.01314	.489	.00567	-.01305	.443		.00578	-.01313	.272	
1	.00057	.00379	.806	.00068	.00449	.776		.00050	.00361	.725	
45	.00194	.00727	.076	.00193	.00749	.429		.00193	.00757	.407	
44	.00676	.01361	.077	.00623	.01365	.093		.00650	.01368	.001	
43	.01278	.01873	-.292	.01207	.01851	-.290		.01265	.01889	-.362	
42	.02006	.02277	-.664	.01983	.02268	-.674		.02012	.02277	-.704	
41	.02988	.02581	-.868	.02991	.02584	-.864		.02999	.02583	-.911	
40	.04966	.02966	-.850	.04772	.02967	-.877		.04985	.02970	-.947	
39	.07448	.03327	-.790	.07488	.03329	-.837		.07482	.03327	-.941	
38	.09994	.03621	-.749	.09991	.03620	-.794		.09990	.03621	-.911	
37	.11996	.03995	-.716	.11983	.03994	-.802		.11976	.03995	-.771	
36	.17979	.04286	-.697	.17999	.04272	-.824		.17991	.04288	-.680	
35	.22011	.04515	-.699	.22016	.04514	-.809		.21990	.04514	-.640	
34	.25744	.04681	-.615	.25796	.04681	-.704		.25976	.04682	-.625	
33	.29989	.04900	-.564	.29994	.04799	-.612		.29986	.04800	-.600	
32	.31985	.04849	-.634	.34003	.04869	-.473		.33979	.04868	-.440	
31	.37986	.04892	-.696	.37994	.04891	-.511		.37776	.04892	-.463	
30	.41959	.04867	-.676	.41983	.04867	-.546		.41988	.04868	-.529	
29	.45975	.04789	-.664	.45976	.04790	-.591		.45970	.04789	-.557	
28	.49940	.04650	-.659	.49994	.04649	-.616		.49987	.04649	-.591	
27	.53959	.04452	-.534	.53983	.04450	-.573		.53975	.04452	-.573	
26	.57961	.04214	-.251	.57991	.04210	-.191		.57985	.04214	-.216	
25	.61987	.03938	-.176	.61970	.03939	-.097		.61976	.03940	-.128	
24	.65968	.03677	-.128	.65979	.03635	-.047		.65966	.03636	-.044	
23	.69970	.03308	-.084	.69976	.03308	-.010		.69979	.03308	-.001	
22	.73940	.02949	-.043	.73970	.02946	.019		.73980	.02946	.013	
21	.77960	.02567	-.003	.77962	.02567	.045		.77942	.02570	.017	
20	.81977	.02157	.040	.81985	.02154	.077		.81985	.02150	.023	
19	.85955	.01709	.078	.85980	.01707	.105		.85943	.01712	.029	
18	.89940	.01246	.112	.89977	.01241	.134		.89961	.01243	.042	
17	.94727	.00735	.152	.94861	.00742	.178		.94959	.00733	.056	
16	.98506	.00266	.191	.98462	.00272	.217		.98455	.00274	.087	

TABLE B1- 27

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2299

MO = .9190
 ALPHA = 3.07
 REC = 11.77*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	-.063	.94937	-.00735	-.081	.94999	-.00737	-.092	.94937	-.00731	-.103
11	.81577	-.02193	-.173	.81703	-.02182	-.103	.81986	-.02152	-.074	.82223	-.02125	-.004
10	.66593	-.03587	-.289	.66699	-.03579	-.344	.67008	-.03553	-.490	.67216	-.03537	-.608
9	.56598	-.04301	-.362	.56705	-.04294	-.429	.57033	-.04272	-.488	.57230	-.04261	-.582
8	.46599	-.04773	-.286	.46706	-.04769	-.349	.47037	-.04760	-.398	.47223	-.04753	-.471
7	.36590	-.04889	-.196	.36703	-.04889	-.253	.37009	-.04890	-.323	.37235	-.04891	-.360
6	.26579	-.04702	-.140	.26705	-.04706	-.172	.27010	-.04716	-.209	.27230	-.04723	-.251
5	.16594	-.04194	-.063	.16699	-.04202	-.111	.17010	-.04224	-.121	.17242	-.04239	-.144
4	.04993	-.02971	-.010	.04909	-.02958	-.032	.05016	-.02975	-.011	.05017	-.02974	-.036
3	.02902	-.02268	-.027	.01922	-.02242	-.008	.02010	-.02275	-.007	.01999	-.02269	-.002
2	.00593	-.01333	-.570	.00520	-.01261	-.571	.00591	-.01326	-.585	.00611	-.01355	-.569
1	.00034	.00292	.849	.00031	.00277	.831	.00042	.00317	.810	.00000	.00000	.809
34	.00216	.00002	.544	.00108	.00553	.495	.00222	.00806	.446	.00210	.00797	.428
33	.00866	.01192	-.015	.00789	.01531	-.084	.00914	.01640	-.137	.00893	.01619	-.129
32	.02337	.02285	-.510	.01906	.02232	-.619	.02036	.02273	-.673	.02012	.02276	-.722
31	.03525	.02701	-.850	.03402	.02674	-.882	.03508	.02698	-.917	.03510	.02701	-.935
30	.06066	.05130	-.769	.05911	.03113	-.857	.06022	.03128	-.887	.06011	.03127	-.897
29	.09959	.03617	-.385	.09913	.03613	-.748	.10029	.03626	-.809	.10019	.03623	-.817
28	.15373	.04080	-.426	.14927	.04071	-.532	.15032	.04078	-.756	.15024	.04078	-.782
27	.20044	.04413	-.359	.19909	.04405	-.423	.20029	.04411	-.728	.20016	.04410	-.769
26	.25359	.04647	-.420	.25080	.04649	-.465	.25024	.04647	-.618	.25021	.04647	-.764
25	.30050	.04900	-.388	.29925	.04798	-.507	.30008	.04800	-.505	.30021	.04799	-.759
24	.35050	.04879	-.417	.34927	.04878	-.484	.35024	.04879	-.563	.35015	.04879	-.751
23	.40947	.04886	-.432	.39931	.04886	-.531	.40037	.04886	-.607	.39977	.04885	-.591
22	.45030	.04812	-.463	.44897	.04815	-.551	.45010	.04813	-.621	.45009	.04813	-.648
21	.50079	.04648	-.487	.49927	.04652	-.590	.50024	.04649	-.675	.50020	.04644	-.711
20	.55025	.04394	-.547	.54951	.04398	-.615	.55042	.04392	-.697	.55033	.04393	-.763
19	.60029	.04075	-.600	.60017	.04085	-.627	.60071	.04073	-.719	.60018	.04078	-.730
18	.65032	.03711	-.632	.64987	.03719	-.644	.65026	.03711	-.721	.65015	.03711	-.714
17	.70026	.03299	-.681	.69972	.03299	-.664	.70034	.03299	-.720	.70027	.03299	-.714
16	.75026	.02561	-.748	.74912	.02572	-.172	.75008	.02563	-.100	.75012	.02562	-.086
15	.80021	.01814	-.815	.80003	.01826	-.039	.80001	.01815	-.027	.80010	.01815	-.016
14	.92027	.01021	-.039	.91923	.01032	-.047	.92012	.01023	-.046	.92005	.01023	.052
13	.98518	.00265	-.146	.98587	.00283	-.116	.98611	.00251	-.117	.98498	.00257	.111

SECTION 5				SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.117	.94953	-.00734	-.124	.94946	-.00735	-.107
14	.84954	-.01822	-.051	.84934	-.01823	-.054	.84958	-.01821	-.040
13	.75003	-.02851	-.033	.74963	-.02854	-.014	.75002	-.02850	-.014
12	.64998	-.03713	-.611	.64980	-.03714	-.216	.64957	-.03715	-.072
11	.54983	-.04397	-.525	.54955	-.04396	-.602	.54967	-.04398	-.606
10	.44999	-.04814	-.525	.44998	-.04814	-.546	.44970	-.04816	-.541
9	.35016	-.04880	-.454	.34990	-.04880	-.477	.34973	-.04879	-.493
8	.25012	-.04646	-.321	.24977	-.04645	-.420	.24976	-.04645	-.420
7	.15054	-.04081	-.176	.15016	-.04078	-.330	.14996	-.04076	-.389
6	.05029	-.03625	-.114	.05019	-.03624	-.223	.05039	-.03627	-.408
5	.00550	-.03203	-.088	.00521	-.03198	-.146	.00536	-.03200	-.343
4	.04030	-.02788	-.089	.03999	-.02803	-.152	.04025	-.02813	-.314
3	.02010	-.02282	-.048	.01985	-.02268	-.087	.01985	-.02266	-.213
2	.00587	-.01314	-.555	.00567	-.01305	-.507	.00578	-.01313	-.358
1	.00037	.00379	.785	.00068	.00449	.755	.00050	.00361	.705
45	.00184	.00727	.003	.00190	.00749	.367	.00193	.00757	.348
44	.00624	.01361	.004	.00623	.01365	.026	.00630	.01363	-.064
43	.01229	.01873	-.356	.01209	.01851	-.367	.01265	.01889	-.426
42	.02006	.02272	-.728	.01983	.02268	-.727	.02012	.02277	-.759
41	.02988	.02581	-.912	.02991	.02584	-.922	.02999	.02583	-.967
40	.04066	.02946	-.922	.04072	.02967	-.915	.04095	.02970	-.1013
39	.07445	.03322	-.876	.07488	.03329	-.915	.07482	.03327	-.1013
38	.09904	.03621	-.838	.09991	.03620	-.878	.09990	.03621	-.977
37	.13996	.03995	-.818	.13993	.03994	-.884	.13976	.03995	-.825
36	.17979	.04296	-.791	.17997	.04272	-.909	.17991	.04288	-.741
35	.22001	.04515	-.801	.22010	.04514	-.907	.21990	.04514	-.712
34	.25964	.04681	-.803	.25996	.04681	-.783	.25976	.04682	-.703
33	.29988	.04800	-.820	.29994	.04799	-.744	.29986	.04800	-.684
32	.33995	.04869	-.848	.34004	.04869	-.729	.33979	.04868	-.681
31	.37986	.04892	-.880	.37994	.04891	-.729	.37976	.04892	-.689
30	.41959	.04867	-.886	.41984	.04867	-.729	.41988	.04868	-.715
29	.45975	.04789	-.693	.45976	.04790	-.698	.45970	.04789	-.714
28	.49960	.04650	-.369	.49994	.04649	-.347	.49987	.04647	-.478
27	.53959	.04452	-.284	.53988	.04450	-.255	.53975	.04452	-.360
26	.57961	.04214	-.237	.57991	.04210	-.205	.57985	.04214	-.274
25	.61947	.03938	-.203	.61970	.03939	-.159	.61976	.03940	-.155
24	.65968	.03637	-.163	.65979	.03635	-.112	.65966	.03636	-.059
23	.69970	.03308	-.119	.69976	.03308	-.064	.69979	.03308	.005
22	.73940	.02944	-.075	.73970	.02946	-.025	.73980	.02945	.018
21	.77960	.02567	-.037	.77962	.02567	.011	.77942	.02570	.008
20	.81937	.02157	.006	.81965	.02154	.048	.81985	.02150	-.001
19	.85955	.01709	.043	.85950	.01707	.075	.85943	.01712	-.006
18	.89940	.01246	.081	.89977	.01241	.103	.89961	.01243	.003
17	.94727	.00755	.119	.94861	.00742	.137	.94959	.00733	.021
16	.98506	.00266	-.156	.98462	.00272	-.171	.98455	.00274	.069

TABLE B1- 28

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2583

MO = .9262
 ALPHA = 4.09
 REC = 11.73*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	-.048	.94937	-.00735	-.043	.94999	-.00737	-.045	.94937	-.00731	-.025	.94937	-.00731	-.025
11	.81597	-.02193	-.205	.81705	-.02182	-.139	.81986	-.02152	-.148	.82223	-.02125	-.071	.82223	-.02125	-.071
10	.66593	-.03587	-.247	.66693	-.03579	-.303	.67008	-.03553	-.394	.67216	-.03537	-.549	.67216	-.03537	-.549
9	.56599	-.04301	-.311	.56705	-.04294	-.363	.57033	-.04272	-.436	.57230	-.04261	-.533	.57230	-.04261	-.533
8	.46599	-.04773	-.247	.46736	-.04769	-.314	.47037	-.04760	-.351	.47220	-.04753	-.426	.47220	-.04753	-.426
7	.36580	-.04889	-.150	.36735	-.04889	-.205	.37009	-.04890	-.267	.37235	-.04891	-.308	.37235	-.04891	-.308
6	.26579	-.04702	-.088	.26705	-.04706	-.122	.27010	-.04715	-.152	.27230	-.04723	-.193	.27230	-.04723	-.193
5	.16594	-.04194	-.007	.16699	-.04202	-.051	.17016	-.04224	-.058	.17242	-.04238	-.081	.17242	-.04238	-.081
4	.06993	-.02971	.075	.04909	-.02958	.057	.05016	-.02975	.078	.05017	-.02974	.060	.05017	-.02974	.060
3	.02002	-.02268	.093	.01922	-.02242	.114	.02010	-.02275	.129	.01999	-.02268	.120	.01999	-.02268	.120
2	.00593	-.01333	.637	.00523	-.01261	.645	.00591	-.01326	.656	.00611	-.01355	.666	.00611	-.01355	.666
1	.00034	.00292	.458	.00031	.00277	.823	.00042	.00317	.795	.00000	.00000	.796	.00000	.00000	.796
34	.00216	.00802	.494	.00178	.00553	.454	.00222	.00806	.393	.00210	.00787	.393	.00210	.00787	.393
33	.00366	.01592	-.071	.00789	.01531	-.135	.00914	.01640	-.171	.00893	.01619	-.216	.00893	.01619	-.216
32	.02037	.02285	-.555	.01906	.02232	-.667	.02036	.02273	-.711	.02012	.02276	-.754	.02012	.02276	-.754
31	.03525	.02701	-.859	.03402	.02674	-.910	.03508	.02693	-.954	.03530	.02701	-.971	.03530	.02701	-.971
30	.06036	.03130	-.855	.05911	.03113	-.902	.06022	.03128	-.923	.06011	.03127	-.942	.06011	.03127	-.942
29	.09959	.05637	-.390	.09913	.05613	-.827	.10029	.05626	-.860	.10019	.05623	-.881	.10019	.05623	-.881
28	.15037	.04080	-.478	.14927	.04071	-.769	.15032	.04078	-.818	.15024	.04078	-.841	.15024	.04078	-.841
27	.20044	.04413	-.517	.19909	.04405	-.742	.20029	.04411	-.803	.20016	.04410	-.830	.20016	.04410	-.830
26	.25039	.04647	-.564	.25080	.04649	-.540	.25024	.04647	-.792	.25021	.04647	-.831	.25021	.04647	-.831
25	.30050	.04800	-.379	.29925	.04798	-.569	.30008	.04800	-.793	.30021	.04799	-.831	.30021	.04799	-.831
24	.35050	.04879	-.418	.34927	.04878	-.581	.35024	.04879	-.797	.35015	.04879	-.844	.35015	.04879	-.844
23	.40047	.04886	-.437	.39931	.04886	-.515	.40037	.04886	-.716	.39977	.04885	-.853	.39977	.04885	-.853
22	.45010	.04812	-.472	.44897	.04815	-.543	.45010	.04813	-.657	.45009	.04813	-.778	.45009	.04813	-.778
21	.50019	.04644	-.487	.49927	.04652	-.599	.50024	.04649	-.699	.50020	.04648	-.851	.50020	.04648	-.851
20	.55025	.04394	-.478	.54927	.04398	-.620	.55042	.04392	-.653	.55033	.04393	-.808	.55033	.04393	-.808
19	.60029	.04075	-.536	.59931	.04083	-.635	.60071	.04073	-.697	.60018	.04078	-.886	.60018	.04078	-.886
18	.65032	.03711	-.583	.64917	.03719	-.633	.65026	.03711	-.605	.65015	.03711	-.859	.65015	.03711	-.859
17	.71026	.03219	-.634	.70897	.03229	-.633	.71034	.03218	-.687	.70977	.03222	-.812	.70977	.03222	-.812
16	.77026	.02561	-.643	.77912	.02572	-.170	.78008	.02563	-.106	.78012	.02562	-.262	.78012	.02562	-.262
15	.83021	.01814	-.140	.84903	.01826	-.045	.85001	.01815	-.051	.85010	.01815	-.187	.85010	.01815	-.187
14	.92027	.01021	.021	.91929	.01032	.020	.92012	.01023	.004	.92005	.01023	-.118	.92005	.01023	-.118
13	.98515	.00265	.131	.98337	.00283	.074	.98611	.00251	.061	.98496	.00267	-.344	.98496	.00267	-.344

SECTION 5				SECTION 6				SECTION 7				
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.009	.94953	-.00734	-.006	.94946	-.00735	-.009			
14	.84954	-.01922	-.004	.84934	-.01823	-.005	.84958	-.01821	-.022			
13	.75003	-.02851	-.117	.74963	-.02854	-.030	.75002	-.02850	-.022			
12	.64993	-.03713	-.580	.64980	-.03714	-.594	.64957	-.03715	-.376			
11	.54983	-.04597	-.476	.54953	-.04596	-.574	.54967	-.04598	-.591			
10	.44990	-.04816	-.476	.44998	-.04814	-.509	.44970	-.04816	-.520			
9	.35016	-.04880	-.392	.34990	-.04880	-.428	.34973	-.04879	-.459			
8	.25012	-.04646	-.264	.24997	-.04645	-.367	.24976	-.04645	-.376			
7	.15054	-.04081	-.113	.15016	-.04078	-.271	.14996	-.04076	-.339			
6	.10029	-.03625	-.043	.10019	-.03624	-.151	.10039	-.03627	-.346			
5	.06550	-.03203	.007	.06521	-.03198	-.066	.06536	-.03200	-.263			
4	.04030	-.02788	.004	.03999	-.02803	-.066	.04025	-.02813	-.217			
3	.02030	-.02282	.077	.01985	-.02268	.031	.01985	-.02266	-.100			
2	.00547	-.01314	.624	.00567	-.01305	.554	.00578	-.01313	.469			
1	.00057	.00379	.773	.00063	.00449	.737	.00050	.00361	.691			
45	.00184	.00727	-.050	.00190	.00749	.344	.00193	.00757	.305			
44	.00426	.01361	-.051	.00423	.01365	-.037	.00436	.01368	-.101			
43	.01228	.01873	-.398	.01209	.01851	-.410	.01265	.01889	-.465			
42	.02006	.02272	-.765	.01983	.02268	-.739	.02012	.02277	-.797			
41	.02993	.02581	-.946	.02971	.02584	-.951	.02999	.02583	-.996			
40	.04766	.02966	-.966	.04772	.02967	-.990	.04995	.02970	-1.048			
39	.07448	.03322	-.922	.07488	.03329	-.955	.07482	.03327	-1.050			
38	.09994	.03621	-.890	.09991	.03620	-.923	.09990	.03621	-1.009			
37	.13986	.03995	-.871	.13983	.03994	-.930	.13976	.03995	-.849			
36	.17979	.04286	-.852	.17999	.04272	-.955	.17991	.04288	-.765			
35	.22001	.04515	-.857	.22010	.04514	-.944	.21990	.04514	-.742			
34	.25964	.04681	-.861	.25996	.04681	-.756	.25976	.04682	-.731			
33	.29998	.04800	-.868	.29994	.04799	-.553	.29986	.04800	-.621			
32	.33985	.04869	-.658	.34008	.04869	-.472	.33979	.04863	-.582			
31	.37986	.04892	-.418	.37994	.04891	-.413	.37976	.04892	-.470			
30	.41959	.04867	-.399	.41988	.04867	-.383	.41988	.04868	-.408			
29	.45975	.04789	-.395	.45976	.04790	-.356	.45970	.04789	-.365			
28	.49960	.04650	-.360	.49994	.04649	-.314	.49987	.04649	-.289			
27	.53957	.04452	-.351	.53988	.04450	-.296	.53975	.04452	-.265			
26	.57961	.04214	-.326	.57991	.04210	-.263	.57985	.04214	-.236			
25	.61987	.03939	-.303	.61970	.03939	-.232	.61976	.03940	-.210			
24	.65963	.03637	-.286	.65979	.03635	-.222	.65966	.03636	-.198			
23	.69970	.03308	-.264	.69976	.03308	-.207	.69979	.03308	-.163			
22	.73960	.02946	-.230	.73972	.02946	-.178	.73980	.02946	-.135			
21	.77960	.02567	-.219	.77962	.02567	-.163	.77942	.02570	-.116			
20	.81937	.02157	-.193	.81965	.02154	-.146	.81985	.02150	-.102			
19	.85955	.01709	-.174	.85983	.01707	-.131	.85943	.01712	-.105			
18	.89940	.01246	-.162	.89977	.01241	-.117	.89961	.01243	-.094			
17	.94727	.00755	-.109	.94861	.00742	-.081	.94959	.00733	-.086			
16	.98506	.00266	-.085	.98462	.00272	-.068	.98455	.00274	-.063			

TABLE B1- 29

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2584

MO = .9181
 ALPHA = 5.06
 REC = 11.69*10**6

SECTION 1				SECTION 2			SECTION 3			SECTION 4		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
12	.95030	-.00726	.049	.94937	-.00735	.046	.94999	-.00737	.053	.94937	-.00731	-.042
11	.81597	-.02193	-.145	.81705	-.02182	-.109	.81986	-.02152	-.111	.82223	-.02125	-.089
10	.66593	-.03587	-.199	.66698	-.03579	-.232	.67008	-.03553	-.298	.67216	-.03537	-.409
9	.56588	-.04701	-.221	.56705	-.04694	-.270	.57033	-.04672	-.328	.57230	-.04661	-.452
8	.46599	-.06773	-.213	.46736	-.06769	-.250	.47037	-.06760	-.307	.47220	-.06753	-.590
7	.36580	-.08889	-.120	.36705	-.08889	-.161	.37009	-.08890	-.219	.37235	-.08891	-.269
6	.26579	-.04702	-.050	.26735	-.04706	-.275	.27010	-.04716	-.106	.27230	-.04723	-.150
5	.16594	-.04194	.034	.16699	-.04202	-.001	.17010	-.04224	-.005	.17242	-.04238	-.033
4	.04993	-.02971	.148	.04909	-.02958	.158	.05016	-.02975	.154	.05017	-.02974	.132
3	.02002	-.02268	.192	.01922	-.02242	.212	.02010	-.02275	.232	.01999	-.02268	.223
2	.00593	-.01333	.694	.00520	-.01261	.700	.00591	-.01326	.707	.00611	-.01355	.695
1	.00034	.00292	.809	.00031	.00277	.788	.00042	.00317	.758	.00000	.00000	.760
34	.00216	.00802	.431	.00108	.00553	.581	.00222	.00806	.317	.00210	.00787	.316
33	.00866	.01592	-.155	.00789	.01531	-.221	.00914	.01640	-.261	.00893	.01619	-.300
32	.02037	.02285	-.633	.01926	.02232	-.751	.02036	.02273	-.794	.02012	.02276	-.840
31	.03525	.02701	-.969	.03432	.02674	-.989	.03508	.02698	-1.036	.03530	.02701	-1.051
30	.06016	.05136	-.942	.05911	.05113	-.991	.06022	.05128	-1.029	.06011	.05127	-1.028
29	.09959	.03617	-.741	.09913	.03613	-.721	.10029	.03626	-.952	.10019	.03623	-.966
28	.15037	.04680	-.514	.14927	.04671	-.522	.15032	.04678	-.913	.15024	.04678	-.936
27	.20044	.04413	-.563	.19939	.04405	-.849	.20029	.04411	-.896	.20016	.04410	-.924
26	.25039	.04647	-.409	.25080	.04649	-.820	.25024	.04647	-.886	.25021	.04647	-.919
25	.30050	.04800	-.650	.29925	.04798	-.625	.30008	.04800	-.887	.30021	.04799	-.921
24	.35050	.04879	-.452	.34927	.04878	-.650	.35024	.04879	-.895	.35015	.04879	-.929
23	.40047	.04886	-.489	.39931	.04886	-.674	.40037	.04886	-.904	.39927	.04885	-.926
22	.45030	.04812	-.518	.44897	.04815	-.624	.45010	.04813	-.910	.45009	.04813	-.965
21	.50039	.04648	-.539	.49927	.04652	-.631	.50024	.04649	-.893	.50020	.04646	-.935
20	.55075	.04594	-.511	.54927	.04598	-.658	.55042	.04592	-.731	.55033	.04593	-.945
19	.60029	.04075	-.565	.59931	.04083	-.676	.60071	.04073	-.480	.60018	.04076	-.597
18	.65032	.03711	-.616	.64917	.03719	-.676	.65026	.03711	-.572	.65015	.03711	-.580
17	.70026	.03219	-.662	.70097	.03229	-.632	.70134	.03218	-.285	.70077	.03222	-.550
16	.75026	.02561	-.566	.74913	.02572	-.138	.75008	.02563	-.186	.75012	.02562	-.317
15	.80021	.01814	-.125	.80003	.01826	-.039	.80001	.01815	-.085	.80010	.01815	-.266
14	.92027	.01021	.024	.91929	.01032	.026	.92012	.01023	.017	.92005	.01023	-.221
13	.98518	.00265	.127	.98387	.00283	.090	.98611	.00251	.089	.98498	.00267	-.150

SECTION 5				SECTION 6			SECTION 7		
NP	X/L	Z/L	CP	X/L	Z/L	CP	X/L	Z/L	CP
15	.94977	-.00731	-.077	.94953	-.00734	-.266	.94946	-.00735	-.071
14	.84954	-.01822	-.071	.84934	-.01823	-.077	.84958	-.01821	-.092
13	.75003	-.02951	-.086	.74963	-.02854	-.068	.75002	-.02850	-.094
12	.64988	-.03713	-.481	.64980	-.03714	-.198	.64957	-.03715	-.087
11	.54983	-.04597	-.442	.54953	-.04396	-.551	.54967	-.04398	-.560
10	.44990	-.04814	-.443	.44992	-.04814	-.489	.44970	-.04816	-.513
9	.35016	-.04880	-.343	.34970	-.04880	-.598	.34973	-.04879	-.442
8	.25012	-.04646	-.224	.24997	-.04645	-.331	.24976	-.04645	-.360
7	.15054	-.04081	-.066	.15015	-.04078	-.227	.14996	-.04076	-.306
6	.10029	-.03625	.012	.10019	-.03624	-.106	.10039	-.03627	-.302
5	.06550	-.03263	.083	.06521	-.03198	-.011	.06536	-.03200	-.229
4	.04010	-.02788	.083	.03997	-.02803	.011	.04025	-.02813	-.154
3	.02010	-.02282	.176	.01985	-.02268	.122	.01985	-.02266	-.020
2	.00587	-.01314	.671	.00567	-.01305	.580	.00578	-.01313	.676
1	.00057	.00379	.732	.00068	.00449	.698	.00056	.00361	.653
45	.00184	.00727	-.140	.00193	.00749	.265	.00193	.00757	.231
44	.00626	.01561	-.139	.00623	.01565	-.128	.00630	.01568	-.188
43	.01228	.01873	-.481	.01209	.01851	-.501	.01265	.01889	-.548
42	.02076	.02272	-.846	.01983	.02268	-.827	.02012	.02277	-.876
41	.02999	.02581	-1.024	.02991	.02584	-1.026	.02999	.02583	-1.070
40	.04966	.02966	-1.051	.04972	.02967	-1.071	.04995	.02970	-1.124
39	.07449	.03322	-1.015	.07488	.03329	-1.342	.07482	.03327	-1.126
38	.09994	.03621	-.981	.09991	.03620	-1.011	.09990	.03621	-1.085
37	.13986	.03995	-.961	.13983	.03994	-1.014	.13976	.03995	-.908
36	.17979	.04286	-.943	.17999	.04272	-.864	.17991	.04288	-.726
35	.22001	.04515	-.943	.22010	.04514	-.659	.21990	.04514	-.641
34	.25964	.04681	-.850	.25996	.04681	-.551	.25976	.04682	-.553
33	.29988	.04800	-.604	.29994	.04799	-.501	.29986	.04800	-.477
32	.33985	.04869	-.485	.34008	.04869	-.472	.33979	.04868	-.431
31	.37986	.04892	-.450	.37994	.04891	-.434	.37976	.04892	-.400
30	.41959	.04867	-.437	.41988	.04867	-.401	.41988	.04868	-.385
29	.45975	.04789	-.414	.45976	.04790	-.379	.45970	.04789	-.340
28	.49960	.04650	-.378	.49994	.04649	-.335	.49987	.04649	-.293
27	.53959	.04452	-.375	.53988	.04450	-.320	.53975	.04452	-.290
26	.57961	.04214	-.326	.57991	.04210	-.292	.57985	.04214	-.267
25	.61987	.03938	-.338	.61970	.03939	-.291	.61976	.03940	-.253
24	.65968	.03637	-.303	.65979	.03635	-.255	.65966	.03630	-.222
23	.69970	.03308	-.279	.69976	.03308	-.238	.69979	.03303	-.198
22	.73940	.02949	-.267	.73970	.02946	-.220	.73980	.02946	-.189
21	.77960	.02567	-.257	.77962	.02567	-.214	.77942	.02570	-.198
20	.81957	.02157	-.234	.81965	.02154	-.206	.81985	.02150	-.192
19	.85955	.01709	-.228	.85980	.01707	-.192	.85943	.01712	-.261
18	.89940	.01246	-.196	.89977	.01241	-.173	.89961	.01243	-.181
17	.94727	.00755	-.181	.94861	.00742	-.164	.94959	.00733	-.169
16	.98506	.00266	-.142	.98462	.00272	-.125	.98455	.00274	-.140

M6 WING - SURFACE PRESSURE DISTRIBUTIONS

TEST 2585

MO = .9298
 ALPHA = 6.07
 REC = 11.71*10**6

SECTION 1				SECTION 2				SECTION 3				SECTION 4			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP		X/L	Z/L	CP	
12	.95030	-.00726	.028	.94937	-.00735	-.019		.94999	-.00737	-.043		.94987	-.00731	-.117	
11	.81597	-.02193	-.150	.81705	-.02182	-.148		.81986	-.02152	-.205		.82223	-.02125	-.197	
10	.66593	-.03587	-.160	.66693	-.03579	-.226		.67008	-.03553	-.304		.67216	-.03557	-.397	
9	.56388	-.04301	-.175	.56705	-.04294	-.227		.57033	-.04272	-.283		.57230	-.04261	-.388	
8	.46590	-.04773	-.153	.46706	-.04769	-.203		.47037	-.04760	-.253		.47220	-.04753	-.329	
7	.36980	-.04989	-.066	.36735	-.04889	-.109		.37009	-.04890	-.165		.37235	-.04891	-.210	
6	.26594	-.04702	.006	.26705	-.04706	-.022		.27010	-.04716	-.048		.27230	-.04723	-.090	
5	.16594	-.04194	.099	.16699	-.04202	.062		.17016	-.04224	.060		.17242	-.04238	.032	
4	.06993	-.02971	.275	.04909	-.02958	.215		.05016	-.02975	.236		.05017	-.02974	.218	
3	.02002	-.02268	.310	.01922	-.02242	.320		.02010	-.02275	.336		.01999	-.02268	.330	
2	.00593	-.01333	.756	.00520	-.01261	.756		.00591	-.01326	.762		.00611	-.01355	.747	
1	.00034	.00292	.794	.00031	.00277	.749		.00042	.00317	.731		.00030	.00090	.736	
34	.00216	.00402	.383	.00123	.00553	.335		.00222	.00826	.269		.00210	.00787	.270	
33	.00966	.01592	-.196	.00789	.01531	-.249		.00914	.01640	-.310		.00893	.01619	-.342	
32	.02037	.02285	-.683	.01906	.02232	-.783		.02036	.02273	-.819		.02012	.02276	-.868	
31	.01525	.02701	-.982	.03402	.02674	-1.004		.03508	.02698	-1.053		.03550	.02701	-1.068	
30	.06136	.03110	-.973	.05911	.03113	-1.006		.06022	.03128	-1.035		.06011	.03127	-1.049	
29	.09959	.03617	-.855	.09913	.03613	-.950		.10029	.03626	-.983		.10019	.03623	-.995	
28	.15037	.04080	-.529	.14927	.04071	-.904		.15032	.04078	-.945		.15024	.04078	-.968	
27	.20044	.04413	-.565	.19959	.04405	-.889		.20029	.04411	-.932		.20016	.04410	-.958	
26	.25079	.04647	-.623	.25080	.04649	-.870		.25024	.04647	-.924		.25021	.04647	-.954	
25	.30050	.04800	-.670	.29925	.04798	-.862		.30008	.04800	-.925		.30021	.04799	-.965	
24	.35050	.04879	-.676	.34927	.04878	-.895		.35024	.04879	-.932		.35015	.04879	-.956	
23	.40047	.04986	-.530	.39931	.04886	-.704		.40037	.04886	-.942		.39977	.04885	-.495	
22	.45070	.04912	-.543	.44997	.04815	-.735		.45010	.04813	-.951		.45009	.04813	-.465	
21	.50039	.04648	-.565	.49927	.04652	-.783		.50024	.04649	-.916		.50020	.04648	-.447	
20	.55025	.04194	-.538	.54927	.04398	-.683		.55042	.04392	-.562		.55033	.04393	-.432	
19	.60079	.04075	-.559	.59931	.04083	-.683		.60071	.04073	-.520		.60018	.04078	-.411	
18	.65032	.03711	-.607	.64917	.03719	-.691		.65026	.03711	-.497		.65015	.03711	-.355	
17	.70072	.03210	-.656	.70097	.03229	-.530		.70134	.03218	-.454		.70077	.03222	-.371	
16	.75026	.02561	-.694	.74912	.02572	-.146		.75008	.02563	-.396		.75012	.02562	-.349	
15	.80021	.01914	-.174	.80033	.01826	-.069		.80001	.01815	-.316		.80010	.01815	-.319	
14	.92027	.01021	-.012	.91927	.01032	-.611		.92012	.01023	-.221		.92005	.01023	-.228	
13	.98518	.00265	.096	.98337	.00283	.041		.98611	.00251	-.118		.98498	.00267	-.262	

SECTION 5				SECTION 6				SECTION 7			
NP	X/L	Z/L	CP	X/L	Z/L	CP		X/L	Z/L	CP	
15	.94977	-.00731	-.134	.94953	-.00734	-.132		.94946	-.00735	-.142	
14	.84954	-.01822	-.098	.84934	-.01823	-.107		.84958	-.01821	-.140	
13	.75003	-.02851	-.274	.74963	-.02854	-.089		.75002	-.02850	-.104	
12	.64988	-.03713	-.450	.64980	-.03714	-.456		.64957	-.03715	-.342	
11	.54983	-.04307	-.390	.54955	-.04396	-.511		.54967	-.04398	-.524	
10	.44990	-.04814	-.290	.44993	-.04814	-.446		.44970	-.04816	-.480	
9	.35016	-.04880	-.280	.34993	-.04880	-.351		.34973	-.04879	-.402	
8	.25012	-.04646	-.160	.24997	-.04645	-.276		.24976	-.04645	-.318	
7	.15054	-.04081	.001	.15013	-.04078	-.155		.14996	-.04076	-.248	
6	.10079	-.03625	.083	.10019	-.03624	-.034		.10039	-.03627	-.229	
5	.06550	-.03203	.178	.06521	-.03198	.063		.06536	-.03200	-.134	
4	.04030	-.02788	.177	.03999	-.02803	.101		.04025	-.02813	-.060	
3	.02030	-.02282	.278	.01985	-.02268	.225		.01985	-.02266	.085	
2	.00587	-.01314	.725	.00567	-.01305	.655		.00578	-.01313	.561	
1	.00057	.00379	.706	.00065	.00449	.671		.00050	.00361	.631	
45	.00184	.00727	-.195	.00190	.00749	.222		.00193	.00757	-.185	
44	.00626	.01361	-.195	.00623	.01365	-.176		.00630	.01368	-.237	
43	.01223	.01873	-.520	.01209	.01851	-.535		.01265	.01889	-.581	
42	.02006	.02772	-.866	.01983	.02268	-.855		.02012	.02277	-.897	
41	.02989	.02581	-1.038	.02991	.02584	-1.042		.02999	.02583	-1.080	
40	.04966	.02966	-1.070	.04977	.02967	-1.087		.04995	.02970	-1.135	
39	.07449	.03322	-1.038	.07488	.03329	-1.064		.07482	.03327	-1.140	
38	.09994	.03621	-1.009	.09991	.03620	-1.035		.09990	.03621	-1.100	
37	.13986	.03995	-.991	.13983	.03994	-.988		.13976	.03995	-.855	
36	.17979	.04286	-.970	.17999	.04272	-.696		.17991	.04288	-.615	
35	.22001	.04515	-.897	.22010	.04514	-.592		.21990	.04514	-.554	
34	.25944	.04681	-.624	.25996	.04681	-.542		.25976	.04682	-.497	
33	.29988	.04800	-.510	.29994	.04799	-.697		.29986	.04800	-.444	
32	.33935	.04969	-.488	.34005	.04869	-.470		.33979	.04868	-.413	
31	.37976	.04992	-.461	.37974	.04891	-.432		.37976	.04892	-.392	
30	.41959	.04867	-.443	.41983	.04867	-.410		.41988	.04868	-.361	
29	.45975	.04789	-.411	.45976	.04790	-.365		.45970	.04789	-.327	
28	.49960	.04650	-.406	.49924	.04649	-.355		.49987	.04647	-.325	
27	.53959	.04452	-.375	.53988	.04450	-.332		.53975	.04452	-.299	
26	.57961	.04214	-.360	.57991	.04210	-.314		.57985	.04214	-.296	
25	.61977	.03938	-.357	.61970	.03939	-.307		.61976	.03940	-.295	
24	.65968	.03637	-.341	.65979	.03635	-.307		.65966	.03636	-.295	
23	.69970	.03308	-.332	.69976	.03308	-.292		.69979	.03308	-.287	
22	.73940	.02949	-.304	.73973	.02946	-.290		.73980	.02946	-.277	
21	.77960	.02567	-.289	.77962	.02567	-.285		.77942	.02570	-.272	
20	.81977	.02157	-.290	.81965	.02154	-.294		.81985	.02150	-.282	
19	.85955	.01709	-.270	.85980	.01707	-.284		.85943	.01712	-.276	
18	.89940	.01246	-.281	.89977	.01241	-.272		.89961	.01243	-.262	
17	.94727	.00755	-.241	.94861	.00742	-.231		.94959	.00733	-.239	
16	.98506	.00266	-.229	.98462	.00272	-.216		.98455	.00274	-.223	

TABLE B1- 31

FIGURE B1-1

SWEPT WING M6

Aspect ratio $A = 3.8$ Taper ratio $\lambda = 0.56$ Sweep angle $\Lambda_{25\%} = 26.7^\circ$

ROWS OF PRESSURE TAPS

N°	y/b	upper	under
1	0.20	23	11
2	0.44	23	11
3	0.65	23	11
4	0.80	23	11
5	0.90	31	14
6	0.95	31	14
7	0.99	31	14

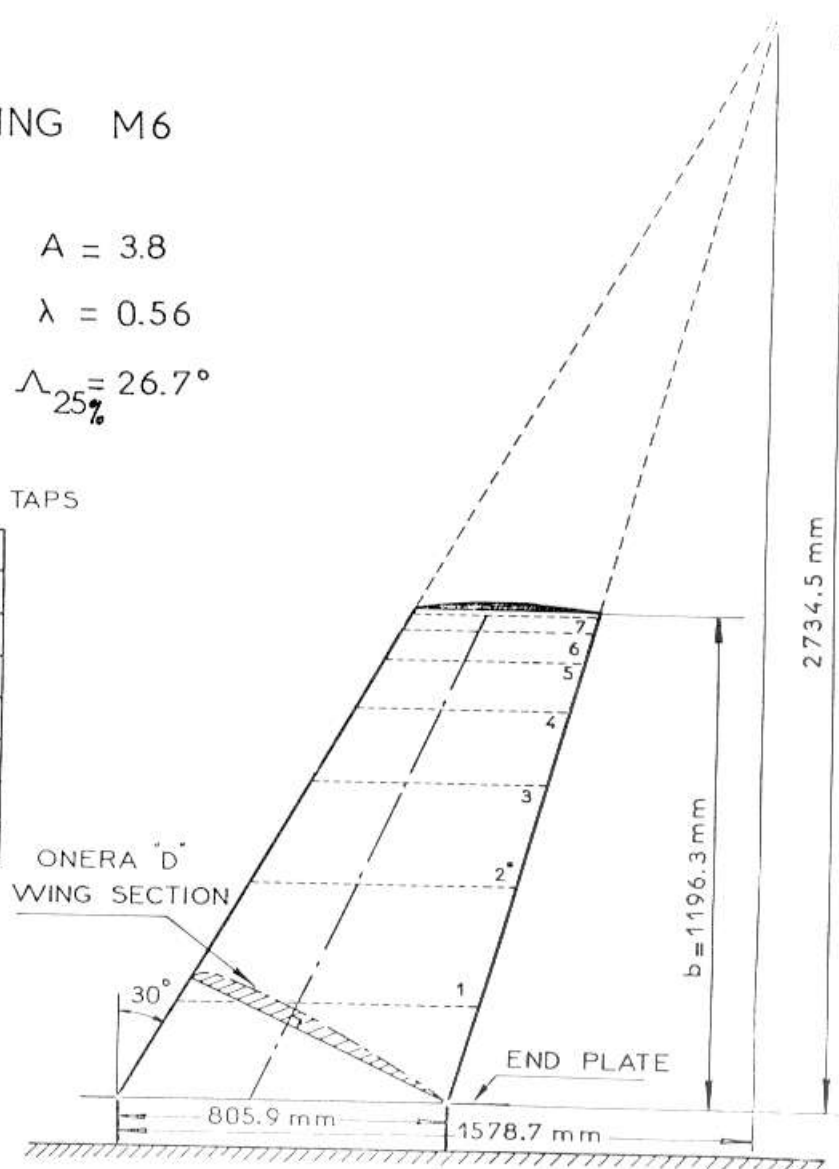


FIGURE B1-2

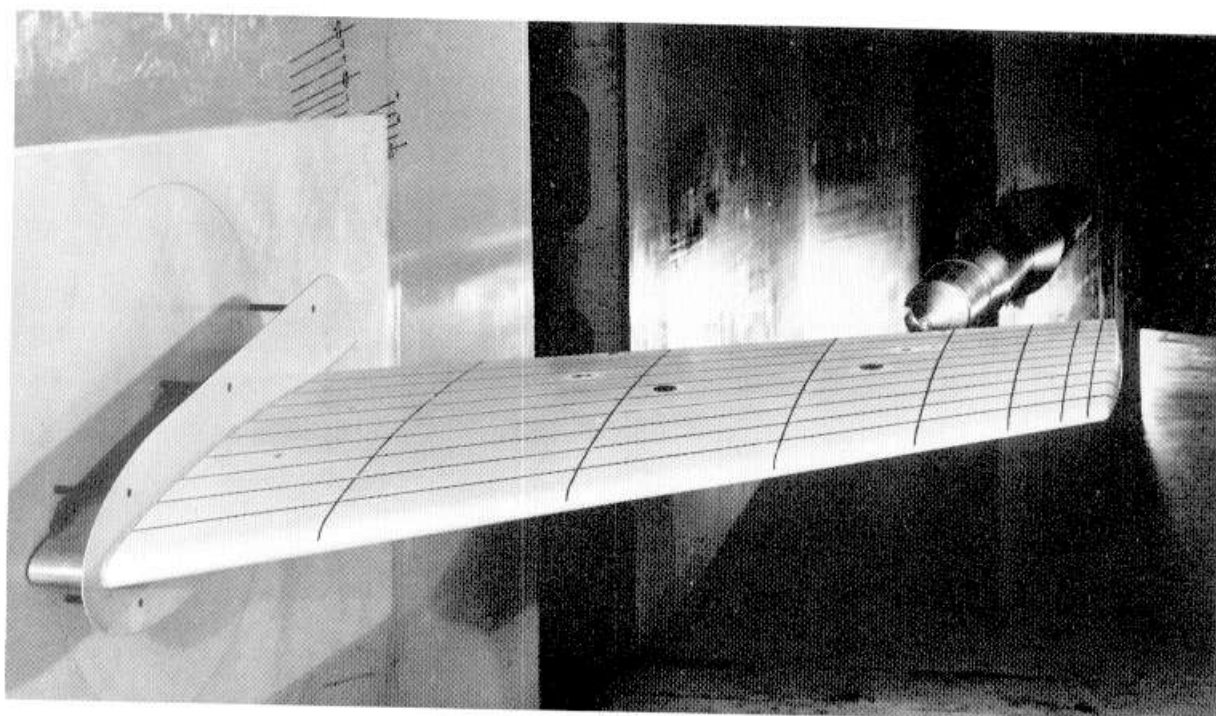


FIGURE B1- 3

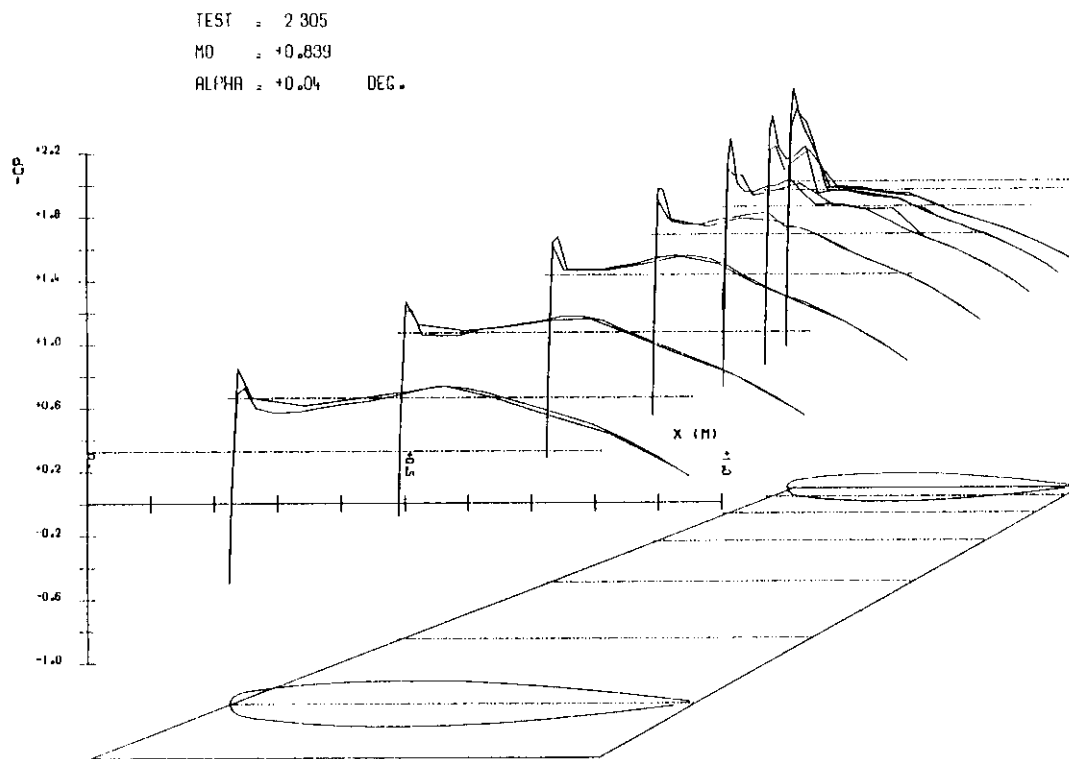


FIGURE B1- 4

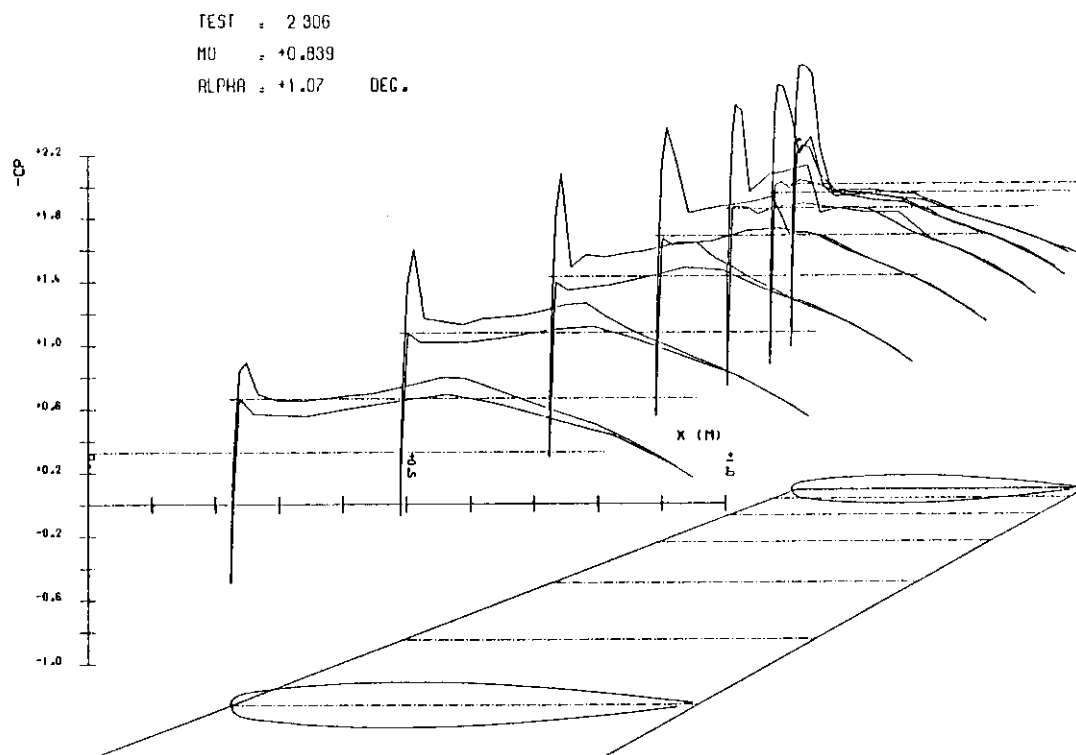


FIGURE B1- 5

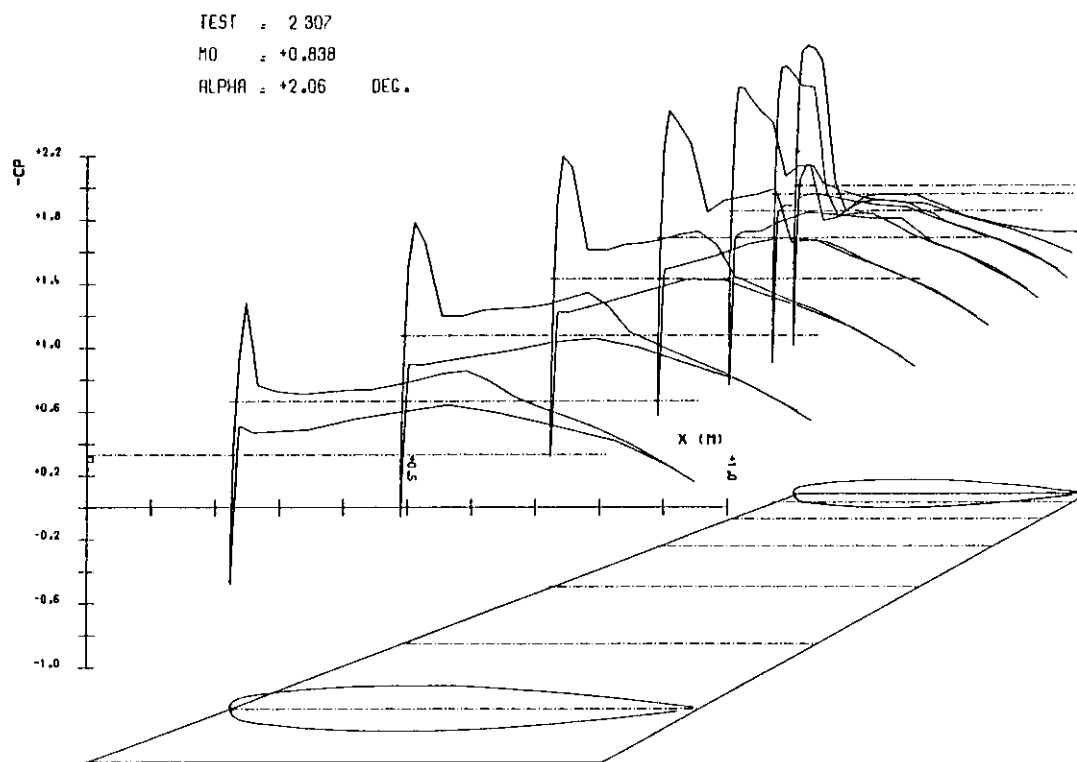


FIGURE B1- 6

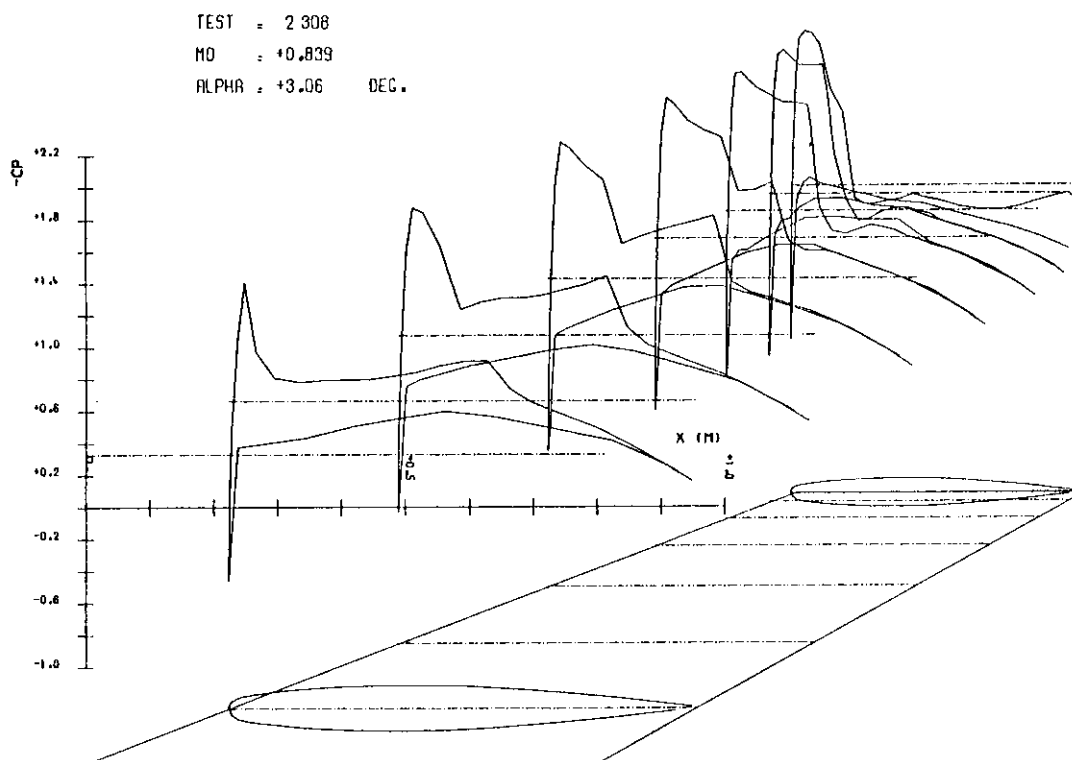


FIGURE B1- 7

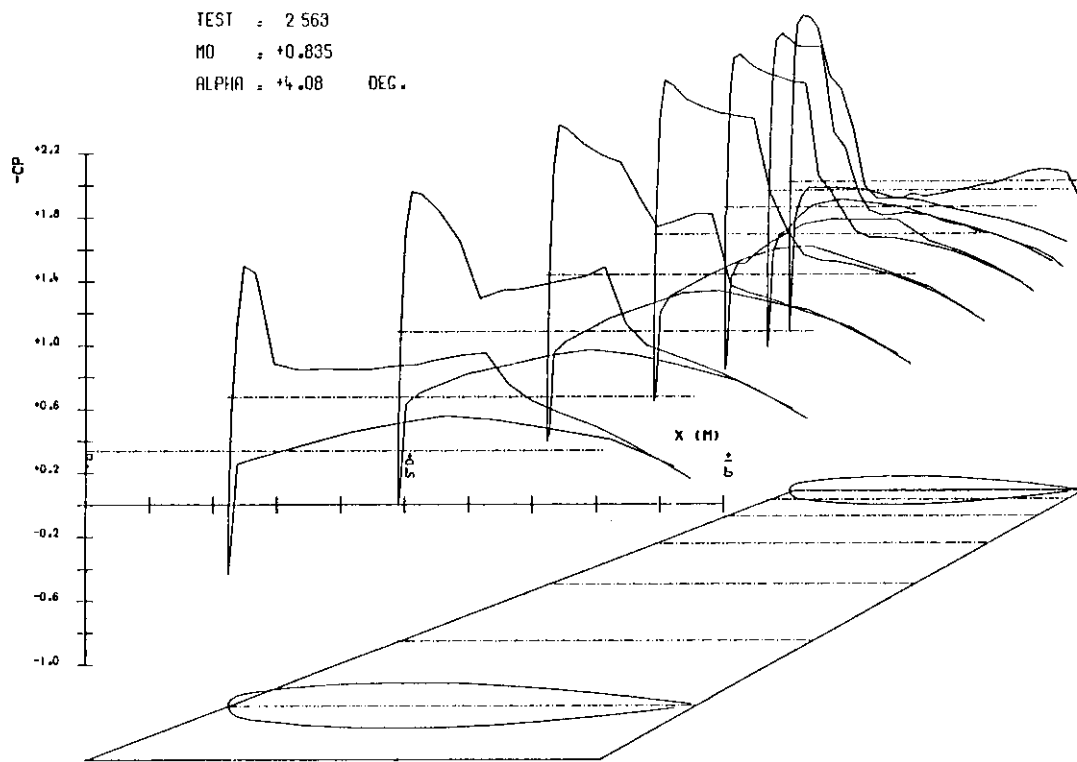


FIGURE B1- 8

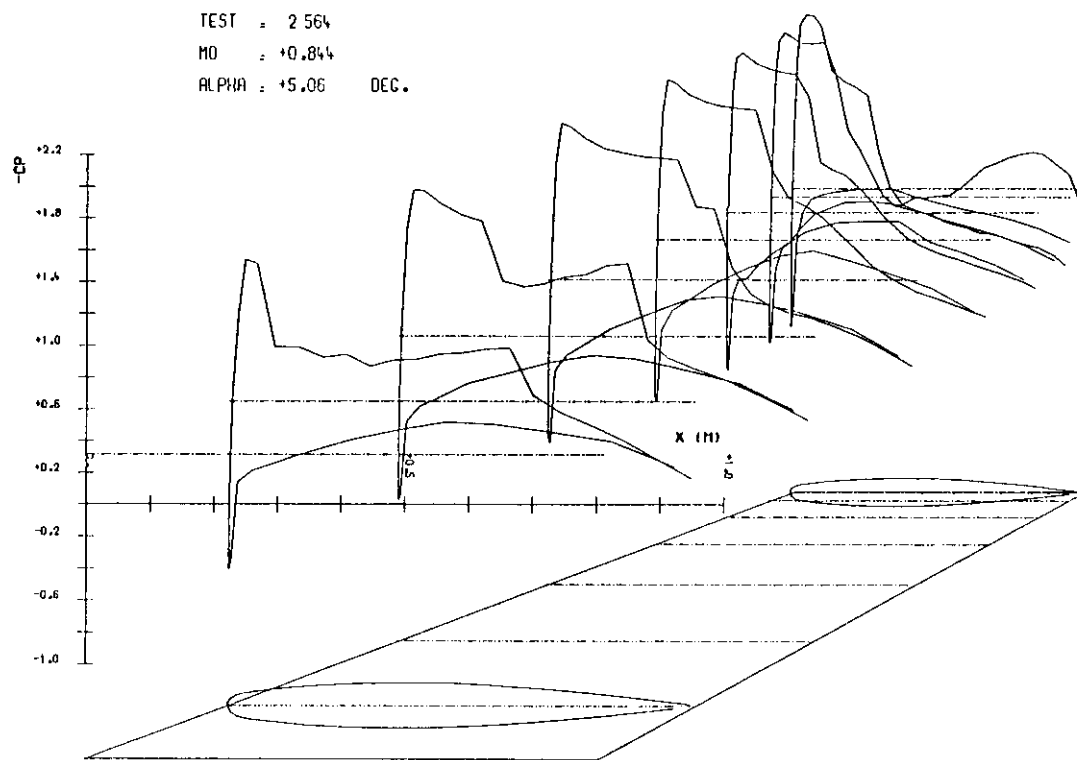


FIGURE B1- 9

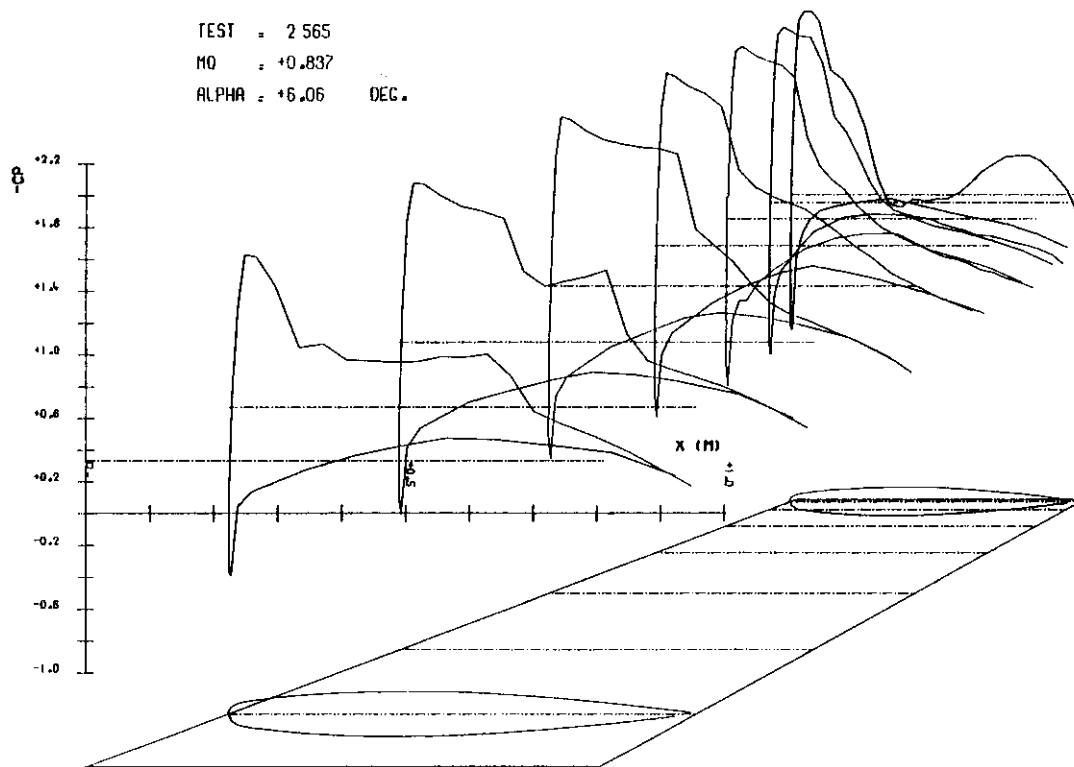


FIGURE B1- 10

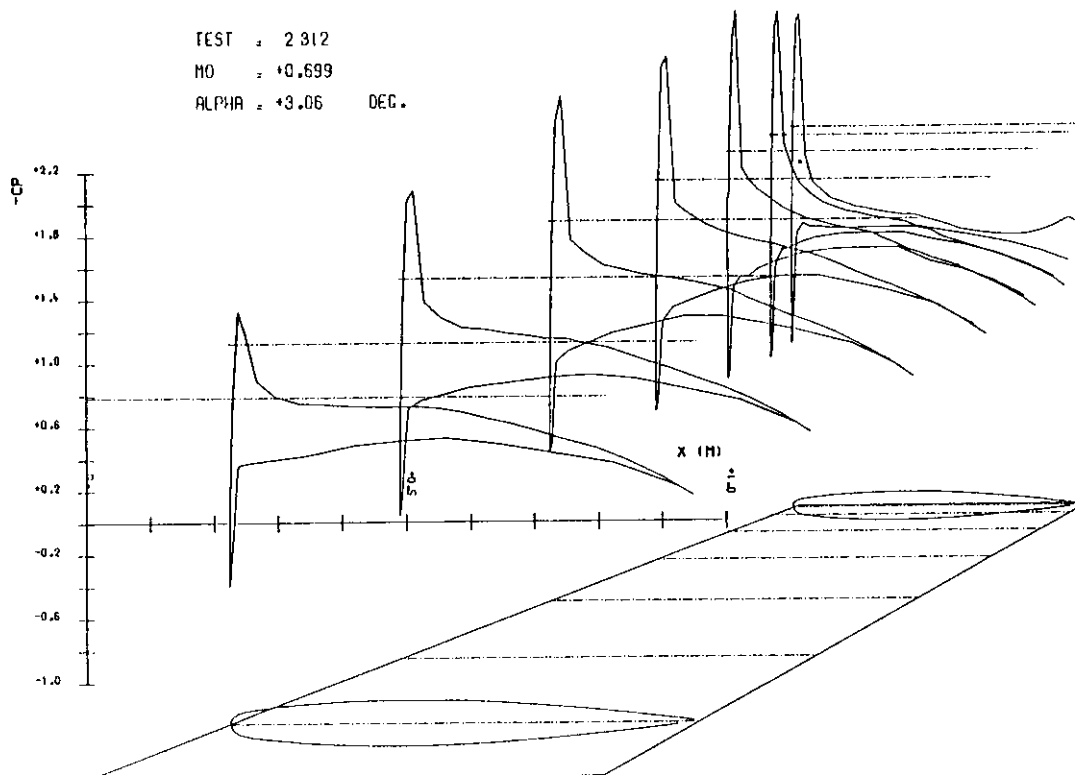


FIGURE B1-11

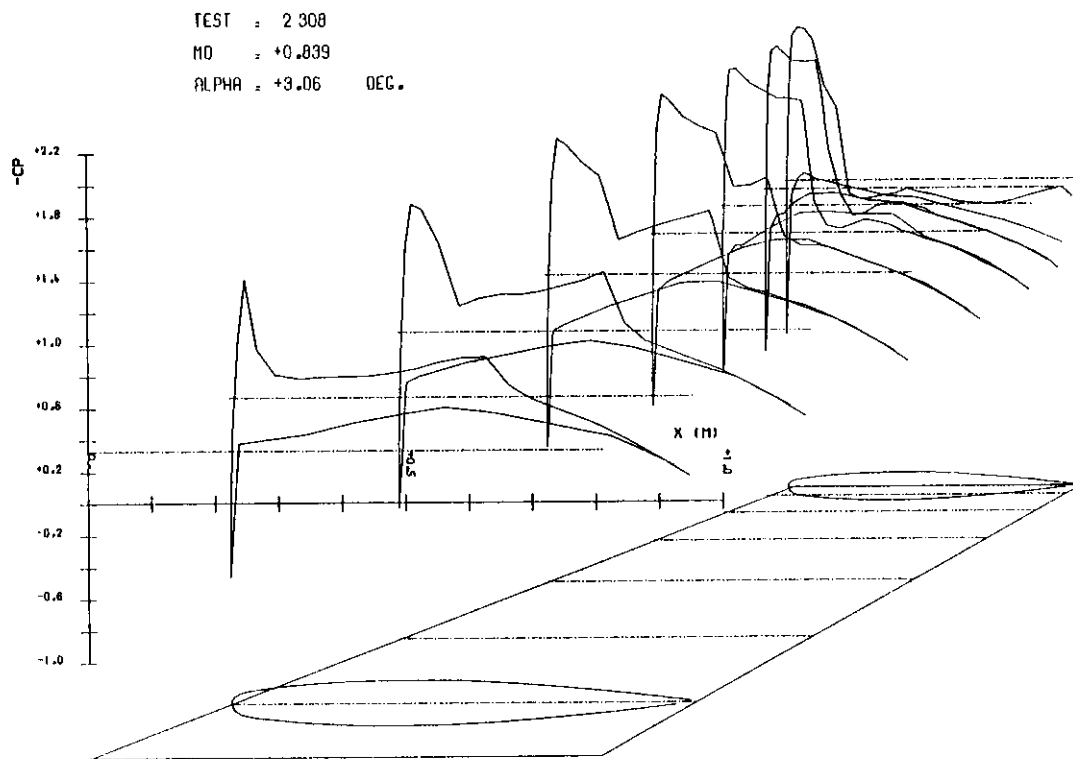


FIGURE B1-12

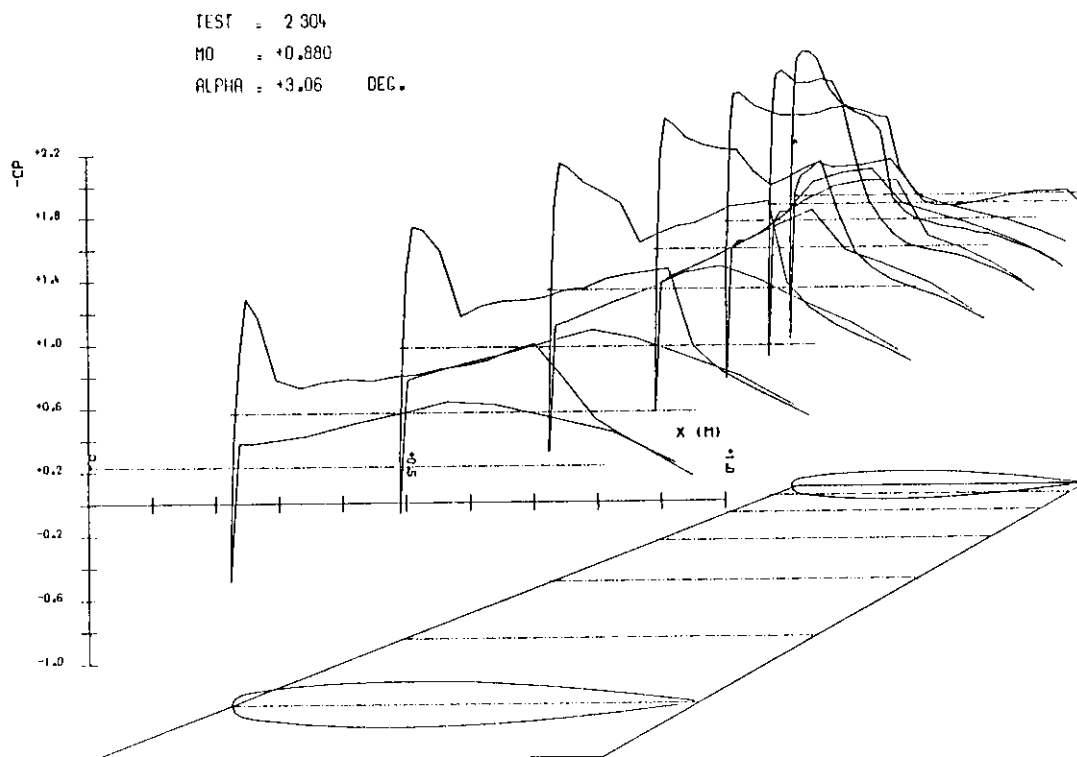
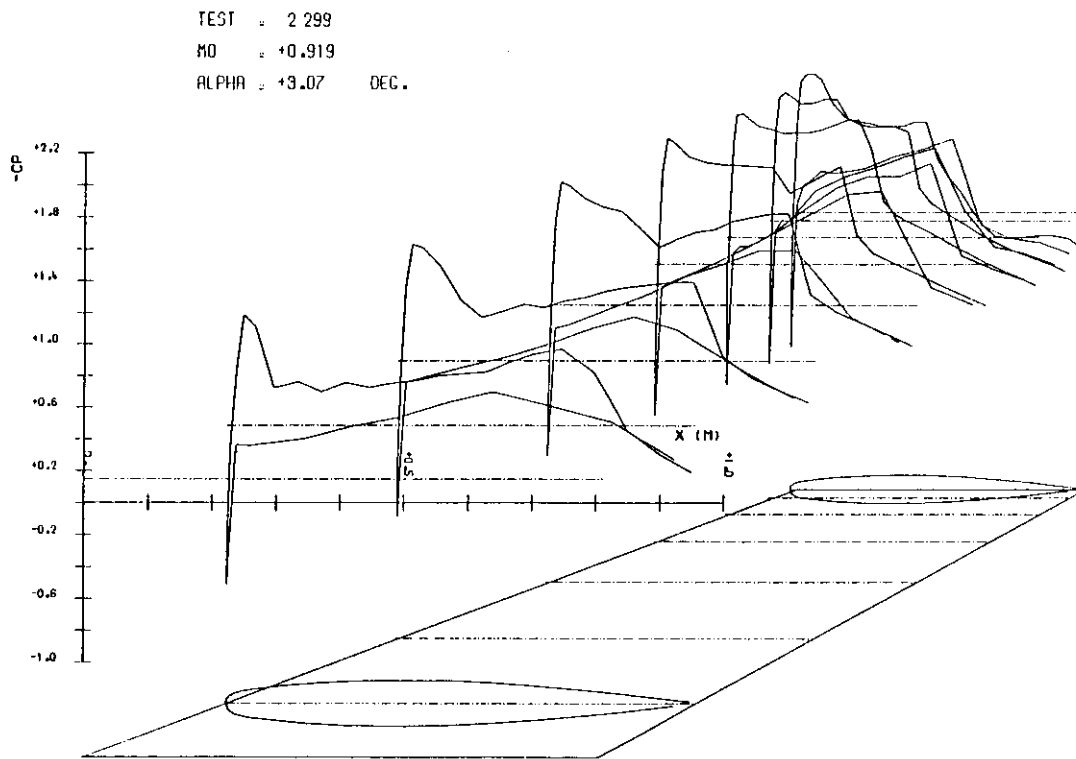


FIGURE B1- 13



AE-138

2. TRANSONIC MEASUREMENTS ON THE -ONERA AFV D- VARIABLE SWEEP WING IN THE -ONERA S2 MA- WIND TUNNEL

by

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2.1 - INTRODUCTION -

The ONERA AFV D Variable Sweep Wing designed with the symmetrical ONERA D peaky type airfoil has been chosen as a basic tool to study three-dimensional flows and to provide an experimental data base for comparisons with calculation methods from low to transonic speeds at sweep angles from 0° to 60°.

This contribution contains selected data from those obtained in the ONERA S2MA Transonic Wind Tunnel.

Tables and graphs are presented for three values of the wing sweep angle.

2.2 - DATA SET -

1. General description

1.1 Model designation or name	ONERA VARIABLE SWEEP WING AFV D
1.2 Model type (e.g. full span wing-body, semi-span wing)	semi-span wing : see fig. B2-1
1.3 Design requirements/conditions	variable sweep angle
1.4 Additional remarks	the reference section of the wing is the "ONERA D" Airfoil : $(\frac{c}{b})_{\max} = 0.105$; $\frac{t}{c} = 0.0143$ See table B2-1

2. Model geometry

2.1 Wing data	
2.1.1 Wing planform	rectangular
2.1.2 Aspect ratio	$2.7 \leq A \leq 8$
2.1.3 Leading-edge sweep	$0^\circ \leq \Lambda \leq 60^\circ$
2.1.4 Trailing-edge sweep	$0^\circ \leq \Lambda \leq 60^\circ$
2.1.5 Taper ratio	1
2.1.6 Twist	without twist
2.1.7 Mean aerodynamic chord	$c = 0.2 \text{ m for } \Lambda = 0^\circ$
2.1.8 Span or semispan	$0.43 \leq b \leq 0.8 \text{ m for } 0^\circ \leq \Lambda \leq 60^\circ$
2.1.9 Number of airfoil sections used to define wing	1
2.1.10 Spanwise location of reference section and section coordinates (note if ordinates are design or actual measured values)	$\eta = 0 \text{ at } \Lambda = 0^\circ$ profile D ordinates : see table B2-1 (design values)
2.1.11 Lofting procedure between reference sections	cylindrical generation
2.1.12 Form of wing-body fillet, strakes	no body, no strake, no fillets
2.1.13 Form of wing tip	truncation normal to the leading edge
2.2 Body data (detail description of body geometry)	no body
2.3 Fabrication tolerances/waviness	0.08/0.1 mm

2.4 Additional remarks

inspection has shown some slight differences between the design and the real model : see table B2-41

3. Wind tunnel

3.1 Designation

S2 MA (ONERA - Modane Center)

3.2 Type of tunnel

3.2.1 Continuous or blowdown.
Indicate minimum run time if applicable

continuous

3.2.2 Stagnation pressure

from 0.3 to a limit stagnation pressure depending slightly on the Mach number ; $P_0 \text{ max} \leq 2.5 \text{ bar}$

3.2.3 Stagnation temperature

from 287 to 320 K

3.3 Test section

3.3.1 Shape of test section

square

3.3.2 Size of test section (width, height, length)

height: 1.770 m width : 1.750 m
perforated length : 5.4 m3.3.3 Type of test section walls:
closed, open, slotted, perforated
Open area ratio (give range if variable)
Slot/hole geometry (e.g., 30-degree slanted holes)
Treatment of side wall boundary layervertical solid walls
horizontal perforated walls
maximum geometric porosity : 6 % - Possibility of changing the porosity with sliding plates
sixty degree inclined holes (diameter : 18 mm)

Full span models

no treatment

Half-model testing

b.l. diverter

3.4 Flow field (empty test section)

see 3.11

3.4.1 Reference static pressure

on the vertical wall 2.685m upstream of the balance axis
unknown

3.4.2 Flow angularity

3.4.3 Mach number distribution

 $\Delta M/\text{meter in } x\text{-direction} : \pm 3 \times 10^{-3}/\text{m. for } 0.7 \leq M \leq 0.92$

3.4.4 Pressure gradient

according to 3.4.3

3.4.5 Turbulence/noise level

velocity turbulence $\sim 0.2\%$ - ref. 1

3.4.6 Side wall boundary layer

displacement thickness $\delta_1 = 12 \text{ to } 18 \text{ mm}$
boundary layer thickness $\delta \sim 90 \text{ to } 170 \text{ mm}$

3.5 Freestream Mach number (or velocity)

3.5.1 Range

from $M_0 = 0.1$ to $M_0 = 1.35$

3.5.2 Pressures used to determine Mach number (e.g., settling chamber total pressure and plenum chamber pressure)

settling chamber stagnation pressure and static pressure on the vertical wall

3.5.3 Accuracy of Mach number determination (ΔM) $\Delta M = \pm 0.001$

3.5.4 Maximum Mach number variation in x, y, z-direction (empty tunnel : specify at what Mach number)

see 3.4.3

Maximum variation of flow direction

upwash $\sim 0.3^\circ$ degree (dependent on model size)

Maximum Mach number variation during a run

function of the model size
(see 6.3.9)

3.6 Reynolds number range

3.6.1 Unit Reynolds number range.
(give range at representative Mach numbers ; $1/\text{m}$)

$M_0 :$	0.25 ; 0.50 ; 0.72 ; 1. ; 1.35
$(\text{RE}/\text{m})_{\text{max}} \cdot 10^{-6} :$	14. 21. 33. 27. 27.

- 3.6.2 Means of varying Reynolds number
 (e.g. by pressurization) stagnation pressure $P_0 = 0.3$ to 2.5 bar for $M_0 \leq 0.7$
 0.3 to 1.75 bar for $M_0 \geq 1.$
 0.3 to 2.1 bar for $M_0 = 0.8$
 0.3 to 1.9 bar for $M_0 = 0.9$
- 3.7 Temperature range and dewpoint
 Can temperature be controlled ? stagnation temperature $T_0 = 292 \text{ K} \pm 5$ to
 315 K ± 5 ; cannot be controlled
 humidity $< 0.2 \text{ g H}_2\text{O/Kg air}$
- 3.8 Model attitudes
- 3.8.1 Angle of attack, yaw, roll angle of attack : α - motorization up to 35°
 sweep angle : $\Lambda = 0/30/40/50/60^\circ$
- 3.8.2 Accuracy in determining angles $\Delta\alpha = 0.03$ degree
- 3.9 Organisation operating the tunnel and location of tunnel ONERA - Centre de Modane-Avrieux
- 3.10 Who is to be contacted for additional information Direction GME - ONERA - Châtillon (FRANCE)
- 3.11 Literature concerning this facility ref. 2,3
- 3.12 Additional remarks

4. Tests

- 4.1 Type of tests steady measurements of :
 - aerodynamic forces
 - pressure distributions at various span sections
 (1 to L.E.)
 for : $\Lambda = 0/30/40/50/60^\circ$
- 4.2 Wing span or semispan to tunnel width 0.46 at $\Lambda = 0^\circ$
- 4.3 Test conditions
- 4.3.1 Angle of attack $\alpha \leq 30^\circ$; limited by the structure of the wing
- 4.3.2 Mach number $0.275 \leq M_0 \leq 1.300$
- 4.3.3 Dynamic pressure $5000 \leq q_0 \leq 35000 \text{ N/m}^2$
- 4.3.4 Reynolds number $RE = \frac{V_0 \cdot c}{\nu} = 2.5 \times 10^6$
 (c = chord normal to L.E.)
- 4.3.5 Stagnation temperature $\sim 300 \text{ K}$
- 4.4 Transition
- 4.4.1 Free or fixed free
- 4.4.2 Position of free transition variable
- 4.4.3 Position of fixed transition, width of strips, size and type of roughness elements not relevant
- 4.4.4 Were checks made to determine if transition occurred at trip locations ? not relevant
- 4.5 Bending or torsion under load
- 4.5.1 Describe any aeroelastic measurements made during tests bending and torsion measured by strain gauges on the wing root (for safety control only)
- 4.5.2 Describe results of any bench calibrations not relevant

- 4.6 Were different sized models used in wind-tunnel investigation ? If so, indicate sizes no
- 4.7 Areas and lengths used to form coefficients varying with sweep (see table B2-41)
- 4.8 References on tests ref. 4
- 4.9 Related reports none

5. Instrumentation

5.1 Surface pressure measurements

- 5.1.1 Pressure orifices in wing. Location and number on upper and lower surfaces at $\Lambda = 0^\circ$: sections at $\text{ETA} = 0.3/0.45/0.60/0.75/0.85/0.95$
 number : 28 on upper surface
 13 on lower surface
 see fig. B2-1 and table B2-2 for the exact locations
- 5.1.2 Pressure orifices on fuselage. Location and number not relevant
- 5.1.3 Pressure orifices on components, give components and orifice location not relevant
- 5.1.4 Geometry of orifices $\varnothing 0.4 \text{ mm}$
- 5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy 6 transducers CEC : $\pm 12.5 \text{ PSID}$
 Accuracy : $\pm 0.012 \text{ PSI}$
 6 scanivalves (D)
 7 kulites

5.2 Force measurements

- 5.2.1 Type and location of balance wall balance $\varnothing 120 \text{ mm}$ (5 components : X, Z, l, m, n)
 see fig. B2-2
- 5.2.2 Forces and moments that can be measured. Maximum loads and accuracy axial force : $1200 \pm 1.2 \text{ daN}$
 normal force : $6500 \pm 6.5 \text{ daN}$
 rolling moment : $800 \pm 0.8 \text{ mdaN}$
 pitching moment : $250 \pm 0.25 \text{ mdaN}$
 yawing moment : $140 \pm 0.14 \text{ mdaN}$

6. Data

6.1 Accuracy

- 6.1.1 Pressure coefficient $\Delta C_p = \pm 0.02$ (at $M_o = 0.84$)
- 6.1.2 Aerodynamic coefficients ≤ 0.005
- 6.1.3 Boundary layer and wake quantities not relevant
- 6.1.4 Repeatability not tested here but for pressure distributions generally as 6.1.1

6.2 Wall interference corrections

wall interference corrections were not made :
 $\frac{S}{C} = \frac{\text{Wing area}}{\text{test section area}} \leq 0.05$

6.3 Data presentation

- 6.3.1 Aerodynamic coefficients graphs of $C_L (\alpha)$ for $\Lambda = 0^\circ/30^\circ/50^\circ$ (fig. B2-3)
- 6.3.2 Surface pressure coefficients $C_p (x/c)$ for 6 sections defined 5.1.1
 (detail, see page B2-5 : T3 means table B2-3
 F4 means figure B2-4)

$$\Lambda = 0^\circ$$

$M_o \propto$	0°	2°	4°	6°
0.7	T3 F4	T4	T5 F5	T6
0.78	T7 F6	T8	T9 F7	
0.84	T10 F8	T11 F9	T12	
0.92	T13 F10	T14 F11		

$$\Lambda = 30^\circ$$

$M_o \propto$	0°	2°	4°	6°
0.7	T15 F12		T16 F13	T17
0.78	T18 F14	T19	T20 F15	
0.84	T21 F16	T22 F17	T23	
0.88		T24	T25	
0.92	T26 F18	T27 F19		

$$\Lambda = 50^\circ$$

$M_o \propto$	0°	2°	4°	6°
0.7	T28 F20	T29		T30 F21
0.78	T31 F22	T32	T33 F23	
0.84	T34 F24	T35 F25	T36	
0.88		T37	T38	
0.92	T39 F26	T40 F27		

6.3.3 Flow conditions for

- aerodynamic coefficient data

- pressure data

6.3.4 Boundary layer and/or wake data

6.3.5 Flow conditions for boundary layer and/or wake data

$M_o = 0.70/0.78/0.84/0.92$ for $\Lambda = 0^\circ/30^\circ/50^\circ$ plus
 $M_o = 0.88$ for $\Lambda = 30^\circ/50^\circ$

idem

none

not relevant

- 6.3.6 Wall interference corrections included ? no, see 6.2
- 6.3.7 Aeroelastic corrections included ? no
- 6.3.8 Other corrections ? no
- 6.3.9 Additional remarks for the force measurements, the Mach number is not kept strictly constant during the angle of attack variation. See table 42.
- 6.4 Were tests carried out in different facilities on the current model ? If so, what facilities. Are data included in present data base ? no

7. References

1. X. VAUCHERET Fluctuations acoustiques engendrées par les parois perméables d'une soufflerie transsonique
AGARD CP 174 (octobre 1975)
2. M. PIERRE The aerothermodynamic test center of Modane-Avrieux
G. FASSO ONERA Technical Note n° 166E (1972)
3. M. PIERRE Exploitation du centre d'essais aérothermodynamique de Modane-Avrieux
G. FASSO Note Technique ONERA n° 181 (1971)
4. J.C. RAYNAL Essai de l'aile à flèche variable équipée du profil D à S2MA
Procès-Verbal d'Essais ONERA n° 1/3072 AYG (not published)

8 - List of symbols

A	: aspect ratio
b	: semi-span
c	: geometric chord (normal to L.E.)
$\bar{c}$	: aerodynamic chord (= root chord)
e/c	: airfoil thickness
r L.E.	: L.E. radius
x	: distance measured chordwise
y	: distance measured spanwise
z	: distance from the plane of the wing
S	: wing area
α	: angle of attack
η (ETA)	: spanwise location $\eta = y/b$
λ (lambda)	: taper ratio
Λ (LAMBDA)	: sweep angle
C	: test section area of the wind tunnel
M	: local Mach number
Mo	: free stream Mach number
p	: local static pressure
P_o	: stagnation pressure
p_o	: free stream static pressure
q_o	: free stream dynamic pressure
To	: stagnation pressure
Cp	: pressure coefficient $C_p = \frac{p - p_o}{q_o}$

C_{p_c} : critical pressure coefficient $C_{p_c} = C_p$ for $M = 1$
 X : axial force
 Y : lateral force
 Z : normal force
 l : rolling moment
 m : pitching moment
 n : yawing moment
 C_L : lift coefficient [based on wall balance measurements]

9. Abbreviations

B.L. : boundary layer
L.E. : leading edge
T.E. : trailing edge

TABLE 1
PROFILE D ORDINATES

X/C	Z/C	X/C	Z/C
.000000	.000000	.072500	-.035193
.000050	-.001342	.077500	-.035912
.000200	-.002685	.082500	-.036604
.000500	-.004245	.087500	-.037269
.001000	-.006002	.092500	-.037908
.001700	-.007820	.105000	-.039405
.002600	-.009658	.120000	-.041028
.003700	-.011494	.135000	-.042486
.005000	-.013310	.155000	-.044213
.006500	-.015091	.195000	-.047057
.008300	-.016913	.235000	-.049242
.010300	-.018639	.275000	-.050853
.012500	-.020259	.315000	-.051902
.015000	-.021821	.355000	-.052369
.017500	-.023144	.395000	-.052230
.020000	-.024277	.435000	-.051476
.022500	-.025254	.475000	-.050123
.025000	-.026106	.520000	-.047942
.027500	-.026857	.580000	-.044120
.030000	-.027528	.640000	-.039509
.032500	-.028136	.690000	-.035239
.035000	-.028696	.730000	-.031601
.037500	-.029221	.770000	-.027763
.040000	-.029719	.810000	-.023691
.042500	-.030198	.850000	-.019335
.045000	-.030663	.890000	-.014658
.047500	-.031119	.930000	-.009698
.052500	-.032003	.970000	-.004621
.057500	-.032850	.990000	-.002090
.062500	-.033663	1.000000	-.000780
.067500	-.034444		

TABLE 2
PRESSURE HOLES ORDINATES.ETA=0,60
 UPPER SURFACE LOWER SURFACE

X/C	Z/C	X/C	Z/C
+.00000	+.00050	+.00731	-.01594
+.00993	+.01844	+.02214	-.02523
+.03027	+.02740	+.04011	-.03008
+.04954	+.03135	+.07529	-.03589
+.07515	+.03548	+.14011	-.04320
+.10060	+.03868	+.26028	-.05062
+.13953	+.04287	+.35027	-.05252
+.17976	+.04601	+.45005	-.05124
+.22010	+.04845	+.55019	-.04623
+.26019	+.05036	+.64982	-.03906
+.30001	+.05161	+.74975	-.02969
+.34026	+.05226	+.85020	-.01927
+.37958	+.05236	+.96999	-.00444
+.41998	+.05186		
+.46006	+.05076		
+.50001	+.04912		
+.53980	+.04678		
+.57986	+.04424		
+.61994	+.04129		
+.65968	+.03795		
+.69978	+.03446		
+.74009	+.03071		
+.77873	+.02685		
+.81984	+.02254		
+.85977	+.01800		
+.90014	+.01319		
+.93985	+.00584		

ONERA VARIABLE SWEEP WING : AFV D COND = 0.2 M S2MA WIND TUNNEL

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KEYOLDS NUMBER = 250000.
LAMBDA= 0. DEG  ALPHA= .01 DEG  MO= .012

```

	ETA = .5000		ETA = .4500		ETA = .6000		ETA = .7500		EIA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0216	.9700	.1539	.9700	.1616	.9700	.1565	.9700	.1551	.9700	-.0151
14	.7500	-.1112	.8500	-.0212	.8500	-.0151	.8500	-.0103	.8500	-.0898	.7500	-.1675
13	.6500	-.2064	.7500	-.1128	.7500	-.0999	.7500	-.0975	.7500	-.3452	.6500	-.2459
12	.5500	-.2951	.6500	-.2040	.6500	-.1939	.6500	-.1675	.6500	-.3198	.5500	-.3472
11	.4500	-.3774	.5500	-.2947	.5500	-.2730	.5500	-.2677	.5500	-.3452	.4500	-.3766
9	.3500	-.4146	.4500	-.3879	.4500	-.3682	.4500	-.3472	.4500	-.3766	.3500	-.3238
8	.2600	-.4049	.3500	-.4158	.3500	-.3932	.3500	-.3722	.3500	-.3557	.2600	-.3468
7	.1400	-.3916	.2600	-.3791	.2600	-.3722	.2600	-.3468	.2600	-.3286	.1400	-.3150
6	.0750	-.4190	.1400	-.3924	.1400	-.3710	.1400	-.3468	.1400	-.3286	.0750	-.3150
5	.0400	-.6740	.0750	-.6074	.0750	-.5674	.0750	-.5162	.0750	-.5013	.0400	-.5296
4	.0210	-.7765	.0400	-.6962	.0400	-.6712	.0400	-.6042	.0400	-.5296	.0210	-.5469
3	.0070	.1842	.0070	.2055	.0070	.2249	.0070	.2735	.0070	.2965	.0070	.2899
2	.0000	1.1311	.0000	1.1298	.0000	1.1282	.0000	.3649	.0000	1.1280	.0000	1.1282
1	.0100	-.0252	.0100	-.0236	.0100	-.0849	.0100	-.0160	.0100	-.1249	.0100	-.6574
42	.0500	-.5509	.0500	-.5868	.0500	-.5836	.0500	-.6365	.0500	-.6544	.0500	-.4424
40	.0500	-.3940	.0500	-.4275	.0500	-.4335	.0500	-.4408	.0500	-.4610	.0500	-.3326
39	.0750	-.3375	.0750	-.3698	.0750	-.3742	.0750	-.4013	.0750	-.3428	.0750	-.2927
38	.1000	-.3391	.1000	-.3754	.1000	-.3662	.1000	-.3710	.1000	-.3476	.1000	-.3004
37	.1400	-.3557	.1400	-.3957	.1400	-.3666	.1400	-.3581	.1400	-.3476	.1400	-.2931
36	.1800	-.3605	.1800	-.3855	.1800	-.3686	.1800	-.3807	.1800	-.3615	.1800	-.3004
35	.2200	-.3690	.2200	-.3900	.2200	-.3690	.2200	-.3573	.2200	-.3254	.2200	-.2790
34	.2600	-.3714	.2600	-.3896	.2600	-.3644	.2600	-.3795	.2600	-.3504	.2600	-.2830
33	.3000	-.3746	.3000	-.3799	.3000	-.3609	.3000	-.3819	.3000	-.3532	.3000	-.2955
32	.3400	-.3746	.3400	-.3900	.3400	-.3683	.3400	-.3726	.3400	-.3577	.3400	-.2697
31	.3800	-.3807	.3800	-.3980	.3800	-.3843	.3800	-.3734	.3800	-.3480	.3800	-.2266
30	.4200	-.3887	.4200	-.3803	.4200	-.3605	.4200	-.3698	.4200	-.3456	.4200	-.2019
29	.4600	-.3520	.4600	-.3637	.4600	-.3391	.4600	-.3327	.4600	-.3254	.4600	-.1822
28	.5000	-.3407	.5000	-.3294	.5000	-.3101	.5000	-.3181	.5000	-.2863	.5000	-.1485
27	.5400	-.2754	.5400	-.2845	.5400	-.2758	.5400	-.2685	.5400	-.2445	.5400	-.1289
26	.5800	-.2487	.5800	-.2584	.5800	-.2391	.5800	-.2354	.5800	-.2136	.5800	-.1104
25	.6200	-.2217	.6200	-.2104	.6200	-.2052	.6200	-.2088	.6200	-.1842	.6200	-.0878
24	.7000	-.1487	.7000	-.1915	.7000	-.1717	.7000	-.1721	.7000	-.1596	.7000	-.0591
23	.7400	-.1496	.7400	-.1245	.7400	-.1071	.7400	-.1031	.7400	-.0898	.7400	-.0236
22	.7800	-.0805	.7800	-.0966	.7800	-.0761	.7800	-.0680	.7800	-.0656	.7800	.0123
21	.8200	-.0531	.8200	-.0559	.8200	-.0577	.8200	-.0297	.8200	.0167	.8200	.0571
20	.8600	-.0091	.8600	-.0030	.8600	.0103	.8600	.0167	.8600	.0623	.8600	.0123
19	.9000	.0450	.9000	.0438	.9000	.0546	.9000	.0623	.9000	.0696	.9000	.0571
18	.9400	.0950	.9400	.0966	.9400	.1079	.9400	.1745	.9400	.1737	.9400	.1737
17												
16												

TABLE 5

ONERA VARIABLE SWEEP WING : AFV D COND = 0.2 M S2MA WIND TUNNEL

KEYNOLDS NUMBER = 2300000.
 LAMBOA = 0.0 DEG ALPHA = 4.01 DEG MO = 0.001

	ETA = .5000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0083	.9700	.1552	.9700	.1584	.9700	.1552	.9700	.1582	.9700	.1582
14	.7500	-.0512	.8500	-.0071	.7500	-.0043	.8500	-.0007	.7500	-.0548	.7500	-.0548
13			.7500	-.0617	.7500	-.0524	.7500	-.0548	.7500	-.0548	.7500	-.0548
12			.6500	-.1199	.6500	-.1280	.6500	-.1862	.6500	-.1862	.6500	-.1862
11			.6500	-.1385	.6500	-.1765	.6500	-.2218	.6500	-.2218	.6500	-.2218
10			.5500	-.1810	.5500	-.2146	.5500	-.2028	.5500	-.2028	.5500	-.2028
9			.4500	-.2069	.4500	-.2198	.4500	-.2028	.4500	-.2028	.4500	-.2028
8			.3500	-.1915	.3500	-.1939	.3500	-.1389	.3500	-.1389	.3500	-.1389
7			.2600	-.1264	.2600	-.1309	.2600	-.0326	.2600	-.0326	.2600	-.0326
6			.1400	-.0201	.1400	-.0255	.1400	-.0677	.1400	-.0677	.1400	-.0677
5			.0750	.0814	.0750	.0842	.0750	.1206	.0750	.1206	.0750	.1206
4			.0400	.1295	.0400	.1247	.0400	.1206	.0400	.1206	.0400	.1206
3			.0210	.1861	.0220	.2128	.0220	.1970	.0220	.1970	.0220	.1970
2			.0070	.8161	.0070	.8193	.0070	.8096	.0070	.8096	.0070	.8096
1			.0000	1.0097	.0000	1.0223	.0000	.3228	.0000	.3228	.0000	.3228
42			.0100	-.8202	.0100	-.7758	.0100	-.6266	.0100	-.6266	.0100	-.6266
41			.0300	-.1.7603	.0300	-.1.7886	.0300	-.1.7401	.0300	-.1.7401	.0300	-.1.7401
40			.0500	-.1.7243	.0500	-.1.7514	.0500	-.1.7109	.0500	-.1.7109	.0500	-.1.7109
39			.0750	-.1.6091	.0750	-.1.6309	.0750	-.1.5848	.0750	-.1.5848	.0750	-.1.5848
38			.1000	-.1.4999	.1000	-.1.5229	.1000	-.1.4574	.1000	-.1.4574	.1000	-.1.4574
37			.1400	-.1.4105	.1400	-.1.4324	.1400	-.1.3875	.1400	-.1.3875	.1400	-.1.3875
36			.1800	-.5461	.1800	-.5691	.1800	-.4867	.1800	-.4867	.1800	-.4867
35			.2200	-.5089	.2200	-.5162	.2200	-.5392	.2200	-.5392	.2200	-.5392
34			.2600	-.5473	.2600	-.5665	.2600	-.5421	.2600	-.5421	.2600	-.5421
33			.3000	-.5469	.3000	-.5429	.3000	-.5311	.3000	-.5311	.3000	-.5311
32			.3400	-.5376	.3400	-.5441	.3400	-.5036	.3400	-.5036	.3400	-.5036
31			.3800	-.5239	.3800	-.5360	.3800	-.4850	.3800	-.4850	.3800	-.4850
30			.4200	-.5129	.4200	-.5000	.4200	-.4624	.4200	-.4624	.4200	-.4624
29			.4600	-.4535	.4600	-.4640	.4600	-.4098	.4600	-.4098	.4600	-.4098
28			.5000	-.4268	.5000	-.4331	.5000	-.3819	.5000	-.3819	.5000	-.3819
27			.5400	-.3500	.5400	-.3544	.5400	-.3209	.5400	-.3209	.5400	-.3209
26			.5800	-.3088	.5800	-.3136	.5800	-.2760	.5800	-.2760	.5800	-.2760
25			.6200	-.2659	.6200	-.2570	.6200	-.2376	.6200	-.2376	.6200	-.2376
24			.7000	-.1693	.7000	-.2226	.7000	-.1927	.7000	-.1927	.7000	-.1927
23			.7400	-.1288	.7400	-.1806	.7400	-.1531	.7400	-.1531	.7400	-.1531
22			.7800	-.0811	.7800	-.1329	.7800	-.1086	.7800	-.1086	.7800	-.1086
21			.8200	-.0411	.8200	-.0945	.8200	-.0674	.8200	-.0674	.8200	-.0674
20			.8600	.0111	.8600	-.0434	.8600	-.0217	.8600	-.0217	.8600	-.0217
19			.9000	.0481	.9000	.0115	.9000	.0276	.9000	.0276	.9000	.0276
18			.9400	.0832	.9400	.0632	.9400	.0758	.9400	.0758	.9400	.0758
17			.9800	.1214	.9800	.1170	.9800	.1815	.9800	.1815	.9800	.1815
16						.1752						

CONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

KEYNOLDS NUMBER = 250000.
LAMBDA = 0.DEG ALPHA = 0.00DEG MOE = .0996

	ETA = .5000			ETA = .4500			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP	X/C	X/C	CP	X/C	X/C	CP	X/C	X/C	CP	X/C	X/C	CP	X/C	X/C	CP	
15	.8500	.0187	.9700	.1409	.1433	.9700	.9700	.1393	.9700	.9700	.1160	.8500	.8500	.0224	.8500	.8500	.0274	
16	.7500	-.0319	.8500	.0162	.0166	.8500	.8500	.0179	.8500	.8500	.0224	.7500	.7500	.0224	.7500	.7500	.0274	
17	.6500	-.0809	.6500	-.0772	-.0817	.6500	.6500	-.0817	.6500	.6500	.0224	.6500	.6500	.0224	.6500	.6500	.0274	
18	.5500	-.1116	.5500	-.1141	-.1133	.5500	.5500	-.1133	.5500	.5500	.0224	.5500	.5500	.0224	.5500	.5500	.0274	
19	.4500	-.1238	.4500	-.1327	-.1339	.4500	.4500	-.1339	.4500	.4500	.0224	.4500	.4500	.0224	.4500	.4500	.0274	
20	.3500	-.0841	.3500	-.0918	-.0934	.3500	.3500	-.0934	.3500	.3500	.0224	.3500	.3500	.0224	.3500	.3500	.0274	
21	.2600	-.0056	.2600	-.0121	-.0117	.2600	.2600	-.0117	.2600	.2600	.0224	.2600	.2600	.0224	.2600	.2600	.0274	
22	.1400	.1320	.1400	.1267	.1243	.1400	.1400	.1243	.1400	.1400	.0224	.1400	.1400	.0224	.1400	.1400	.0274	
23	.0750	.2647	.0750	.3574	.2611	.0750	.0750	.2611	.0750	.0750	.0224	.0750	.0750	.0224	.0750	.0750	.0274	
24	.0400	.3623	.0400	.4813	.3493	.0400	.0400	.3493	.0400	.0400	.0224	.0400	.0400	.0224	.0400	.0400	.0274	
25	.0210	.4618	.0210	.5762	.4671	.0210	.0210	.4671	.0210	.0210	.0224	.0210	.0210	.0224	.0210	.0210	.0274	
26	.0070	.9767	.0070	.9762	.9694	.0070	.0070	.9694	.0070	.0070	.0224	.0070	.0070	.0224	.0070	.0070	.0274	
27	.0000	.8585	.0000	.8824	.8751	.0000	.0000	.8751	.0000	.0000	.0224	.0000	.0000	.0224	.0000	.0000	.0274	
28	.0100	-.11250	.0100	-.10684	-.11437	.0100	.0100	-.11437	.0100	.0100	.0224	.0100	.0100	.0224	.0100	.0100	.0274	
29	.0300	-.19770	.0300	-.19976	-.19721	.0300	.0300	-.19721	.0300	.0300	.0224	.0300	.0300	.0224	.0300	.0300	.0274	
30	.0500	-.19750	.0500	-.19936	-.19345	.0500	.0500	-.19345	.0500	.0500	.0224	.0500	.0500	.0224	.0500	.0500	.0274	
31	.0750	-.18957	.0750	-.19151	-.18677	.0750	.0750	-.18677	.0750	.0750	.0224	.0750	.0750	.0224	.0750	.0750	.0274	
32	.1000	-.18349	.1000	-.18548	-.18147	.1000	.1000	-.18147	.1000	.1000	.0224	.1000	.1000	.0224	.1000	.1000	.0274	
33	.1400	-.17678	.1400	-.17872	-.17467	.1400	.1400	-.17467	.1400	.1400	.0224	.1400	.1400	.0224	.1400	.1400	.0274	
34	.1800	-.17156	.1800	-.17265	-.16686	.1800	.1800	-.16686	.1800	.1800	.0224	.1800	.1800	.0224	.1800	.1800	.0274	
35	.2200	-.16593	.2200	-.16705	-.16314	.2200	.2200	-.16314	.2200	.2200	.0224	.2200	.2200	.0224	.2200	.2200	.0274	
36	.2600	-.16152	.2600	-.16083	-.15162	.2600	.2600	-.15162	.2600	.2600	.0224	.2600	.2600	.0224	.2600	.2600	.0274	
37	.3000	-.8584	.3000	-.8041	.5916	.3000	.3000	.5916	.3000	.3000	.0224	.3000	.3000	.0224	.3000	.3000	.0274	
38	.3400	-.5350	.3400	-.5147	.3400	.3400	.3400	.4403	.3400	.3400	.0224	.3400	.3400	.0224	.3400	.3400	.0274	
39	.3800	-.4140	.3800	-.4229	.3800	.3800	.3800	.4125	.3800	.3800	.0224	.3800	.3800	.0224	.3800	.3800	.0274	
40	.4200	-.4022	.4200	-.3986	.4200	.4200	.4200	.3949	.4200	.4200	.0224	.4200	.4200	.0224	.4200	.4200	.0274	
41	.4600	-.3767	.4600	-.3864	.4600	.4600	.4600	.3767	.4600	.4600	.0224	.4600	.4600	.0224	.4600	.4600	.0274	
42	.5000	-.3699	.5000	-.3593	.5000	.5000	.5000	.3472	.5000	.5000	.0224	.5000	.5000	.0224	.5000	.5000	.0274	
43	.5400	-.3120	.5400	-.3176	.5400	.5400	.5400	.3128	.5400	.5400	.0224	.5400	.5400	.0224	.5400	.5400	.0274	
44	.5800	-.2820	.5800	-.2877	.5800	.5800	.5800	.2691	.5800	.5800	.0224	.5800	.5800	.0224	.5800	.5800	.0274	
45	.6200	-.2476	.6200	-.2367	.6200	.6200	.6200	.2294	.6200	.6200	.0224	.6200	.6200	.0224	.6200	.6200	.0274	
46	.7000	-.1606	.7000	-.2084	.6600	.6600	.6600	.1902	.6600	.6600	.0224	.6600	.6600	.0224	.6600	.6600	.0274	
47	.7400	-.1209	.7400	-.1707	.7000	.7000	.7000	.1549	.7000	.7000	.0224	.7000	.7000	.0224	.7000	.7000	.0274	
48	.7800	-.0752	.7800	-.1250	.7400	.7400	.7400	.1092	.7400	.7400	.0224	.7400	.7400	.0224	.7400	.7400	.0274	
49	.8200	-.0369	.8200	-.0894	.7800	.7800	.7800	.0716	.7800	.7800	.0224	.7800	.7800	.0224	.7800	.7800	.0274	
50	.8600	.0114	.8600	-.0420	.8200	.8200	.8200	.0275	.8200	.8200	.0224	.8200	.8200	.0224	.8200	.8200	.0274	
51	.9000	.0664	.9000	.0134	.8600	.8600	.8600	.0223	.8600	.8600	.0224	.8600	.8600	.0224	.8600	.8600	.0274	
52	.9400	.1179	.9400	.0604	.9000	.9000	.9000	.0697	.9000	.9000	.0224	.9000	.9000	.0224	.9000	.9000	.0274	
53	.9800	.1717	.9800	.1122	.9400	.9400	.9400	.1219	.9400	.9400	.0224	.9400	.9400	.0224	.9400	.9400	.0274	

TABLE 7

ONEKA VARIABLE SWEEP WING : AFV D CURD = 0.2 M S2MA WING TUNNEL

KEYNOLDS NUMBER = 2500000.
 LAMRDA= 0.0 DEG ALPHA= .01 DEG MO= .081Y

	ETA = .5000			ETA = .4500			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP	
15	.8500	-.0133		.9700	.1593		.9700	.1770		.9700	.1704		.9700	.1662		.8500	-.0119	
14	.7500	-.1134		.8500	-.0088		.8500	-.0046		.8500	.0003		.8500	-.00910		.7500	-.0861	
13				.7500	-.1120		.7500	-.0998		.7500	-.0931		.7500	-.1802		.6500	-.1561	
12				.6500	-.2156		.6500	-.2065		.6500	-.2912		.6500	-.3814		.5500	-.2510	
11		-.2226		.5500	-.3279		.5500	-.3097		.5500	-.4161		.5500	-.5071		.4500	-.3020	
10		-.3328		.4500	-.4899		.4500	-.4556		.4500	-.5500		.4500	-.6493		.3500	-.5297	
9		-.4724		.3500	-.5298		.3500	-.5001		.3500	-.6005		.3500	-.6921		.2500	-.3090	
8		-.5228		.2500	-.4700		.2500	-.4493		.2500	-.5339		.2500	-.6221		.1500	-.3283	
7		-.4850		.1500	-.4406		.1500	-.4091		.1500	-.4839		.1500	-.5730		.0500	-.3720	
6		-.4129		.0500	-.4402		.0500	-.3965		.0500	-.4556		.0500	-.5353				
5		-.7159		.0400	-.6907		.0400	-.6348		.0400	-.5749		.0400	-.6509				
4		-.6925		.0200	-.6390		.0200	-.6176		.0200	-.5574		.0200	-.6398				
3		-.2809		.0070	-.2970		.0070	-.3086		.0070	-.3492		.0070	-.4917				
2		1.1658		.0000	1.1623		.0000	1.1606		.0000	.3855		.0000	1.1606				
1		.0489		.0100	.0580		.0100	.0010		.0100	.0769		.0100	.0340				
42		-.5896		.0300	-.6351		.0300	-.6516		.0300	-.7205		.0300	.7229				
41		-.4125		.0500	-.4460		.0500	-.4560		.0500	-.4945		.0500	.5210				
40		-.3551		.0750	-.3832		.0750	-.3891		.0750	-.4213		.0750	.3793				
39		-.3590		.1000	-.4080		.1000	-.3993		.1000	-.3993		.1000	.3699				
38		-.3933		.1200	-.4003		.1200	-.4133		.1200	-.3958		.1200	.3870				
37		-.4101		.1400	-.4420		.1400	-.4259		.1400	-.4371		.1400	.3954				
36		-.4359		.1600	-.4664		.1600	-.4458		.1600	-.4539		.1600	.4224				
35		-.4483		.1800	-.4637		.1800	-.4385		.1800	-.4525		.1800	.3828				
34		-.4504		.2000	-.4679		.2000	-.4458		.2000	-.4609		.2000	.4217				
33		-.4500		.2200	-.4657		.2200	-.4405		.2200	-.4518		.2200	.4255				
32		-.4689		.2400	-.4797		.2400	-.4340		.2400	-.4546		.2400	.4140				
31		-.4871		.2600	-.4797		.2600	-.4267		.2600	-.4514		.2600	.4112				
30		-.4283		.2800	-.4648		.2800	-.4154		.2800	-.3951		.2800	.3737				
29		-.4028		.3000	-.3965		.3000	-.3671		.3000	-.3639		.3000	.3265				
28		-.3157		.3200	-.3216		.3200	-.3192		.3200	-.3017		.3200	.2730				
27		-.2742		.3400	-.2681		.3400	-.2681		.3400	-.2590		.3400	.2338				
26		-.2394		.3600	-.2247		.3600	-.2271		.3600	-.2261		.3600	.1991				
25		-.1599		.3800	-.1995		.3800	-.1844		.3800	-.1816		.3800	.1676				
24		-.1229		.4000	-.1666		.4000	-.1544		.4000	-.1460		.4000	.1425				
23		-.0909		.4200	-.1236		.4200	-.1117		.4200	-.1029		.4200	.0903				
22		-.0477		.4400	-.0890		.4400	-.0767		.4400	-.0641		.4400	.0615				
21		-.0025		.4600	-.0575		.4600	-.0515		.4600	-.0207		.4600	.0144				
20		-.0545		.4800	-.0570		.4800	.0171		.4800	.0276		.4800	.0293				
19		-.1070		.5000	.0575		.5000	.0675		.5000	.0755		.5000	.0818				
18		-.1116		.5200	.1116		.5200	.1221		.5200	.1675		.5200	.1319				
17		-.1756		.5400	.1756		.5400	.1875		.5400	.1875		.5400	.1895				

TABLE 9

CNEMA VARIABLE SHEEP WING : AFV U CURD = 0.2 M S2MA WIND TUNNEL

KEYMOLDS NUMBER = 2500000,
 LAMRDA= 0.066 ALPHAE = 0.020 DEG MO= .7787

	ETA = .3000			ETA = .4000			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP	
15	.8500	-.0007		.9700	.1744		.9700	.1776		.9700	.1766		.9700	.1510		.8500	-.0292	
14	.7500	-.0605		.8500	-.0063		.8500	.0056		.8500	.0091		.7500	-.0801		.7500	-.0837	
13				.7500	-.0640		.7500	-.0503		.7500	-.0605		.6500	-.1597		.6500	-.1357	
12				.6500	-.1350		.6500	-.1481		.6500	-.1481		.5500	-.2240		.5500	-.2078	
11				.5500	-.2187		.5500	-.2149		.5500	-.2110		.4500	-.2726		.4500	-.2529	
10				.4500	-.2718		.4500	-.2676		.4500	-.2613		.3500	-.2574		.3500	-.2483	
9				.3500	-.2455		.3500	-.2427		.3500	-.2388		.2500	-.1836		.2500	-.2015	
8				.2500	-.1681		.2500	-.1621		.2500	-.1624		.1500	-.0749		.1500	-.1410	
7				.1500	-.0506		.1500	-.0475		.1500	-.0549		.0500	-.0278		.0500	-.0640	
6				.0500	.0817		.0500	.0556		.0500	.0450		.0500	.0510		.0500	-.0700	
5				.0400	.0834		.0400	.0809		.0400	.0883		.0400	.1495		.0400	.0299	
4				.0200	.1544		.0200	.1431		.0200	.1526		.0200	.7814		.0200	.7143	
3				.0070	.7800		.0070	.7818		.0070	.7881		.0070	1.1022		.0070	1.1134	
2				.0000	1.1071		.0000	1.0987		.0000	.3591		.0000	1.4983		.0000	1.4333	
1				.0100	-.6592		.0100	-.5043		.0100	-.3590		.0100	-.1.3227		.0100	-.1.3600	
41	.0300	-.1.3153		.0300	-.1.3491		.0300	-.1.3445		.0300	-.1.3220		.0300	-.1.3227		.0300	-.1.3600	
40	.0500	-.1.3012		.0500	-.1.3304		.0500	-.1.3083		.0500	-.1.3174		.0500	-.1.3040		.0500	-.1.2984	
39	.0750	-.1.2341		.0750	-.1.2601		.0750	-.1.2481		.0750	-.1.2618		.0750	-.1.2432		.0750	-.1.2108	
38	.1000	-.1.1208		.1000	-.1.2214		.1000	-.1.2119		.1000	-.1.2167		.1000	-.1.2084		.1000	-.1.1222	
37	.1500	-.1.1549		.1500	-.1.1831		.1500	-.1.1711		.1500	-.1.1757		.1500	-.1.1686		.1500	-.1.0519	
36	.1800	-.1.1356		.1800	-.1.1584		.1800	-.1.1458		.1800	-.1.1542		.1800	-.1.1580		.1800	-.1.0423	
35	.2200	-.1.1349		.2200	-.1.1584		.2200	-.1.1440		.2200	-.1.1553		.2200	-.1.1169		.2200	-.1.0482	
34	.2600	-.1.1349		.2600	-.1.1560		.2600	-.1.1450		.2600	-.1.1451		.2600	-.1.0779		.2600	-.1.0462	
33	.3000	-.1.1304		.3000	-.1.1598		.3000	-.1.1409		.3000	-.1.1416		.3000	-.1.0654		.3000	-.1.0458	
32	.3400	-.1.1437		.3400	-.1.1623		.3400	-.1.1495		.3400	-.1.1229		.3400	-.1.0618		.3400	-.1.0460	
31	.3800	-.1.1342		.3800	-.1.1613		.3800	-.1.1282		.3800	-.1.0062		.3800	-.1.3777		.3800	-.1.0489	
30	.4200	-.1.1471		.4200	-.1.1257		.4200	-.1.0888		.4200	-.1.0895		.4200	-.1.3851		.4200	-.1.0420	
29	.4600	-.1.1479		.4600	-.1.0143		.4600	-.1.0888		.4600	-.1.0895		.4600	-.1.3812		.4600	-.1.0457	
28	.5000	-.1.1475		.5000	-.1.0143		.5000	-.1.0888		.5000	-.1.0895		.5000	-.1.3812		.5000	-.1.0457	
27	.5400	-.1.1475		.5400	-.1.0143		.5400	-.1.0888		.5400	-.1.0895		.5400	-.1.3812		.5400	-.1.0457	
26	.5800	-.1.1475		.5800	-.1.0143		.5800	-.1.0888		.5800	-.1.0895		.5800	-.1.3812		.5800	-.1.0457	
25	.6200	-.1.1475		.6200	-.1.0143		.6200	-.1.0888		.6200	-.1.0895		.6200	-.1.3812		.6200	-.1.0457	
24	.7000	-.1.0942		.7000	-.1.1111		.7000	-.1.062		.7000	-.1.062		.7000	-.1.3812		.7000	-.1.0457	
23	.7400	-.1.0707		.7400	-.1.0893		.7400	-.1.062		.7400	-.1.062		.7400	-.1.3812		.7400	-.1.0457	
22	.7800	-.1.0316		.7800	-.1.0584		.7800	-.1.062		.7800	-.1.062		.7800	-.1.3812		.7800	-.1.0457	
21	.8200	-.1.0056		.8200	-.1.0327		.8200	-.1.062		.8200	-.1.062		.8200	-.1.3812		.8200	-.1.0457	
20	.8600	-.0387		.8600	-.0055		.8600	-.1.062		.8600	-.1.062		.8600	-.1.3812		.8600	-.1.0457	
19	.9000	-.0011		.9000	-.0542		.9000	-.1.062		.9000	-.1.062		.9000	-.1.3812		.9000	-.1.0457	
18	.9400	-.1.1414		.9400	-.0974		.9400	-.1.062		.9400	-.1.062		.9400	-.1.3812		.9400	-.1.0457	
17				.9400	-.1.1453		.9400	-.1.1533		.9400	-.1.1533		.9400	-.1.1474		.9400	-.1.0449	
16				.9800	-.2040		.9800	-.1.533		.9800	-.2110		.9800	-.2057		.9800	-.0463	

ONEKA VARIABLE SWEEP WING : AFV D CURD = 0.2 M S2MA WIND TUNNEL

KEYNOLDS NUMBER = 250000.
LAMRDA= 0. DEG ALPHA= . U2DEG MOZ. 0402

No.	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	.0255	.9700	.1874	.9700	.1967	.9700	.1890	.9700	.1861	.9700	.1861
14	.7500	-.0838	.8500	.0309	.8500	.0374	.8500	.0280	.8500	.0280	.8500	.0280
13			.7500	-.0841	.7500	-.0632	.7500	-.0658	.7500		.7500	
12	.6500	-.2991	.6500	-.2839	.6500	-.2280	.6500		.6500		.6500	
11	.5500	-.7656	.5500	-.7815	.5500	-.7533	.5500	-.7085	.5500		.5500	
10	.4500	-.6916	.4500	-.7170	.4500	-.7000	.4500	-.6666	.4500		.4500	
9	.3500	-.5805	.3500	-.5925	.3500	-.5715	.3500	-.5547	.3500		.3500	
8	.2600	-.5159	.2600	-.5245	.2600	-.5001	.2600	-.4863	.2600		.2600	
7	.1400	-.3858	.1400	-.3845	.1400	-.3758	.1400	-.3871	.1400		.1400	
6	.0750	-.5149	.0750	-.5149	.0750	-.4881	.0750	-.4201	.0750		.0750	
5	.0400	-.7273	.0400	-.7176	.0400	-.6675	.0400	-.6315	.0400		.0400	
4	.0210	-.5458	.0220	-.5114	.0220	-.4956	.0220	-.4532	.0220		.0220	
3	.0070	.3818	.0070	.3792	.0070	.3843	.0070	.4149	.0070		.0070	
2	.0000	1.1946	.0000	1.1895	.0000	1.1892	.0000	.4001	.0000		.0000	
1	.0100	.1254	.0100	.1379	.0100	.0888	.0100	.1672	.0100		.0100	
42	.0300	-.6235	.0300	-.6611	.0300	-.6682	.0300	-.6810	.0300		.0300	
41	.0500	-.4224	.0500	-.4536	.0500	-.4626	.0500	-.5244	.0500		.0500	
40	.0750	-.5135	.0750	-.5488	.0750	-.5385	.0750	-.4227	.0750		.0750	
39	.1000	-.5247	.1000	-.5787	.1000	-.5617	.1000	-.3752	.1000		.1000	
38	.1400	-.3819	.1400	-.3795	.1400	-.3919	.1400	-.3941	.1400		.1400	
37	.1800	-.4083	.1800	-.4298	.1800	-.4253	.1800	-.3967	.1800		.1800	
36	.2200	-.4613	.2200	-.4921	.2200	-.4648	.2200	-.4892	.2200		.2200	
35	.2600	-.4963	.2600	-.5107	.2600	-.4998	.2600	-.5358	.2600		.2600	
34	.3000	-.5178	.3000	-.5345	.3000	-.5136	.3000	-.5702	.3000		.3000	
33	.3400	-.5544	.3400	-.5740	.3400	-.5875	.3400	-.5959	.3400		.3400	
32	.3800	-.5809	.3800	-.6152	.3800	-.6219	.3800	-.6132	.3800		.3800	
31	.4200	-.6550	.4200	-.6550	.4200	-.6560	.4200	-.6688	.4200		.4200	
30	.4600	-.6653	.4600	-.6926	.4600	-.6839	.4600	-.6878	.4600		.4600	
29	.5000	-.7234	.5000	-.7347	.5000	-.7148	.5000	-.7087	.5000		.5000	
28	.5400	-.7094	.5400	-.7578	.5400	-.7427	.5400	-.7003	.5400		.5400	
27	.5800	-.7273	.5800	-.7795	.5800	-.7502	.5800	-.3678	.5800		.5800	
26	.6200	-.5117	.6200	-.5160	.6200	-.3376	.6200	-.2129	.6200		.6200	
25			.5600	-.2195	.6600	-.1744	.6600	-.1528	.6600		.6600	
24	.7000	-.1204	.7000	-.1275	.7000	-.1088	.7000	-.1127	.7000		.7000	
23	.7400	-.0767	.7400	-.0751	.7400	-.0616	.7400	-.0722	.7400		.7400	
22	.7800	-.0401	.7800	-.0436	.7800	-.0291	.7800	-.0359	.7800		.7800	
21	.8200	-.0151	.8200	-.0038	.8200	.0107	.8200	.0068	.8200		.8200	
20	.8600	.0790	.8600	.0428	.8600	.0521	.8600	.0525	.8600		.8600	
19	.9000	.0782	.9000	.0868	.9000	.0981	.9000	.0978	.9000		.9000	
18	.9400	.1260	.9400	.1531	.9400	.1447	.9400	.0978	.9400		.9400	
17			.9000	.1895	.9800		.9800	.2028	.9800		.9800	
16												

ONERA VARIABLE SWEEP WING : AFV D CORD = 0,2 M

S2MA WIND TUNNEL

TABLE 12

REYNOLDS NUMBER = 2500000,
 LAMRDA= 0,DEG ALPHA= 4,040DEG MO= ,8420

	ETA = ,3000		ETA = ,4500		ETA = ,6000		ETA = ,7500		ETA = ,8500		ETA = ,9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	,8500	-,0881	,9700	,0270	,9700	,0542	,9700	,1615	,9700	,1827	,8500	-,0359
13	,7500	-,1301	,8500	-,0894	,8500	-,0670	,8500	-,0186				
12			,7500	-,1474	,7500	-,1170	,7500	-,0987	,7500	-,0930	,7500	-,1051
11	,6500	-,2251	,6500	-,2189	,6500	-,1689			,6500	-,1721	,6500	-,1651
10	,5500	-,4007	,5500	-,4324	,5500	-,3971	,5500	-,3506	,5500	-,3270	,5500	-,2795
9	,4500	-,4711	,4500	-,4926	,4500	-,4766	,4500	-,4689	,4500	-,4445	,4500	-,3625
8	,3500	-,3378	,3500	-,3458	,3500	-,3417	,3500	-,3394	,3500	-,3554	,3500	-,3381
7	,2600	-,2253	,2600	-,2346	,2600	-,2224	,2600	-,1917	,2600	-,2446	,2600	-,2631
6	,1400	-,0904	,1400	-,0994	,1400	-,0865	,1400	-,0958	,1400	-,1164	,1400	-,1901
5	,0750	,0115			,0750	,0215	,0750	,0070	,0750	-,0095	,0750	-,1016
4	,0400	,0221	,0400	,0141	,0400	,0227	,0400	,0285	,0400	-,0039	,0400	-,1208
3	,0210	,0401	,0220	,0740	,0220	,0692	,0220	,0788	,0220	,0862	,0220	-,0141
2	,0070	,7404	,0070	,7410	,0070	,7413	,0070	,7490	,0070	,7490	,0070	,6974
1	,0000	1,1647	,0000	1,1641	,0000	1,1625	,0000	,3881	,0000	1,1596	,0000	1,1605
42	,0100	-,2212	,0100	-,1933	,0100	-,2471	,0100	-,1125	,0100	-,2526	,0100	-,2141
41	,0300	-,10134	,0300	-,10420	,0300	-,10375	,0300	-,10202	,0300	-,10237	,0300	-,10795
40	,0500	-,10093	,0500	-,10291	,0500	-,10070	,0500	-,10202	,0500	-,10202	,0500	-,10317
39	,0750	-,9522	,0750	-,9702	,0750	-,9599	,0750	-,9801	,0750	-,9750	,0750	-,9914
38	,1000	-,9192	,1000	-,9442	,1000	-,9350	,1000	-,9449	,1000	-,9509	,1000	-,9497
37	,1400	-,9009	,1400	-,9215	,1400	-,9074	,1400	-,9256	,1400	-,9298	,1400	-,9083
36	,1800	-,8977	,1800	-,9102	,1800	-,8990	,1800	-,9199	,1800	-,9192	,1800	-,8711
35	,2200	-,9051	,2200	-,9247	,2200	-,9074	,2200	-,9324	,2200	-,9288	,2200	-,7660
34	,2600	-,9125	,2600	-,9269	,2600	-,9186	,2600	-,9352	,2600	-,9384	,2600	-,5619
33	,3000	-,9259	,3000	-,9397	,3000	-,9231	,3000	-,9442	,3000	-,9442	,3000	-,5548
32	,3400	-,9410	,3400	-,9561	,3400	-,9490	,3400	-,9561	,3400	-,9679	,3400	-,5670
31	,3800	-,9612	,3800	-,9779	,3800	-,9686	,3800	-,9647	,3800	-,9830	,3800	-,6015
30	,4200	-,9945	,4200	-,10016	,4200	-,9747	,4200	-,10166	,4200	-,9708	,4200	-,6154
29	,4600	-,9751	,4600	-,9721	,4600	-,9413	,4600	-,10224	,4600	-,9442	,4600	-,5939
28	,5000	-,9442	,5000	-,9545	,5000	-,9349	,5000	-,10077	,5000	-,9391	,5000	-,5769
27	,5400	-,9389	,5400	-,9445	,5400	-,8968	,5400	-,9330	,5400	-,7820	,5400	-,4580
26	,5800	-,8343	,5800	-,7907	,5800	-,6673	,5800	-,5554	,5800	-,3663	,5800	-,3058
25	,6200	-,6048	,6200	-,5689	,6200	-,4965	,6200	-,4500	,6200	-,1755	,6200	-,2256
24			,6600	-,4423	,6600	-,4032	,6600	-,3683	,6600	-,1095	,6600	-,1849
23	,7000	-,3490	,7000	-,3532	,7000	-,3301	,7000	-,2644	,7000	-,0840	,7000	-,1516
22	,7400	-,2545	,7400	-,2676	,7400	-,2571	,7400	-,1500	,7400	-,0343	,7400	-,1192
21	,7800	-,2087	,7800	-,2256	,7800	-,1888	,7800	-,0599	,7800	-,0119	,7800	-,0824
20	,8200	-,1635	,8200	-,1638	,8200	-,1365	,8200	,0151	,8200	,0317	,8200	-,0385
19	,8600	-,0917	,8600	-,1074	,8600	-,0708	,8600	,0651	,8600	,0689	,8600	,0032
18	,9000	-,0357	,9000	-,0522	,9000	-,0170	,9000	,1106	,9000	,1170	,9000	,0545
17	,9400	,0269	,9400	,0026	,9400	,0359			,9400	,1628		
16			,9800	,0510			,9800	,2032	,9800	,2154		

CONEMA VARIABLE SWEEP WING : APV 0 CUHD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 250000.
LAMRDA= 0.DEG ALPHA= -.01DFG MD= .722T

	ETA = .5000			ETA = .4500			ETA = .6000			ETA = .7500			EIA = .8500			EIA = .9500		
	X/C	CP	A/C	LP	X/C	LP	X/C	LP	X/C	CP	X/C	LP	X/C	CP	X/C	CP		
15	.8500	-.0944	.9700	-.2414	.9700	-.2158	.9700	-.1527	.9700	-.1527	.9700	-.0504	.9700	-.0504	.9700	-.2420		
14	.7500	-.0975	.8500	-.2288	.8500	-.2075	.8500	-.1516	.8500	-.1516	.8500	-.0504	.8500	-.0504	.8500	-.2420		
13	.6500	-.0776	.7500	-.1695	.7500	-.1692	.7500	-.1516	.7500	-.1516	.7500	-.0504	.7500	-.0504	.7500	-.2420		
12	.5500	-.6319	.6500	-.1575	.6500	-.1575	.6500	-.1516	.6500	-.1516	.6500	-.0504	.6500	-.0504	.6500	-.2420		
11	.4500	-.5701	.5500	-.1518	.5500	-.1518	.5500	-.1516	.5500	-.1516	.5500	-.0504	.5500	-.0504	.5500	-.2420		
10	.3500	-.4653	.4500	-.1465	.4500	-.1465	.4500	-.1516	.4500	-.1516	.4500	-.0504	.4500	-.0504	.4500	-.2420		
9	.2500	-.3858	.3500	-.1388	.3500	-.1388	.3500	-.1516	.3500	-.1516	.3500	-.0504	.3500	-.0504	.3500	-.2420		
8	.1400	-.2933	.2400	-.1259	.2400	-.1259	.2400	-.1516	.2400	-.1516	.2400	-.0504	.2400	-.0504	.2400	-.2420		
7	.0750	-.1049	.1750	-.0949	.1750	-.0949	.1750	-.1516	.1750	-.1516	.1750	-.0504	.1750	-.0504	.1750	-.2420		
6	.0400	-.5740	.0400	-.5567	.0400	-.5567	.0400	-.1516	.0400	-.1516	.0400	-.0504	.0400	-.0504	.0400	-.2420		
5	.0210	-.5535	.0210	-.5535	.0210	-.5535	.0210	-.1516	.0210	-.1516	.0210	-.0504	.0210	-.0504	.0210	-.2420		
4	.0070	.4977	.0070	.4936	.0070	.4936	.0070	.4936	.0070	.4936	.0070	.4936	.0070	.4936	.0070	.4936		
3	.0000	1.2307	.0000	1.2293	.0000	1.2293	.0000	1.2293	.0000	1.2293	.0000	1.2293	.0000	1.2293	.0000	1.2293		
2	.0100	.2450	.0100	.2450	.0100	.2450	.0100	.2450	.0100	.2450	.0100	.2450	.0100	.2450	.0100	.2450		
1	.0300	.4685	.0300	.4685	.0300	.4685	.0300	.4685	.0300	.4685	.0300	.4685	.0300	.4685	.0300	.4685		
43	.0500	-.5343	.0500	-.5593	.0500	-.5593	.0500	-.1516	.0500	-.1516	.0500	-.0504	.0500	-.0504	.0500	-.2420		
42	.0750	-.2719	.0750	-.2511	.0750	-.2511	.0750	-.1516	.0750	-.1516	.0750	-.0504	.0750	-.0504	.0750	-.2420		
39	.1000	-.1946	.1000	-.1744	.1000	-.1744	.1000	-.1516	.1000	-.1516	.1000	-.0504	.1000	-.0504	.1000	-.2420		
38	.1200	-.2509	.1200	-.2551	.1200	-.2551	.1200	-.1516	.1200	-.1516	.1200	-.0504	.1200	-.0504	.1200	-.2420		
37	.1400	-.2912	.1400	-.3067	.1400	-.3067	.1400	-.1516	.1400	-.1516	.1400	-.0504	.1400	-.0504	.1400	-.2420		
36	.1600	-.3422	.1600	-.3534	.1600	-.3534	.1600	-.1516	.1600	-.1516	.1600	-.0504	.1600	-.0504	.1600	-.2420		
35	.1800	-.3719	.1800	-.3858	.1800	-.3858	.1800	-.1516	.1800	-.1516	.1800	-.0504	.1800	-.0504	.1800	-.2420		
34	.2000	-.4091	.2000	-.4091	.2000	-.4091	.2000	-.1516	.2000	-.1516	.2000	-.0504	.2000	-.0504	.2000	-.2420		
33	.2200	-.4315	.2200	-.4315	.2200	-.4315	.2200	-.1516	.2200	-.1516	.2200	-.0504	.2200	-.0504	.2200	-.2420		
32	.2400	-.4539	.2400	-.4539	.2400	-.4539	.2400	-.1516	.2400	-.1516	.2400	-.0504	.2400	-.0504	.2400	-.2420		
31	.2600	-.4763	.2600	-.4763	.2600	-.4763	.2600	-.1516	.2600	-.1516	.2600	-.0504	.2600	-.0504	.2600	-.2420		
30	.2800	-.4987	.2800	-.4987	.2800	-.4987	.2800	-.1516	.2800	-.1516	.2800	-.0504	.2800	-.0504	.2800	-.2420		
29	.3000	-.5211	.3000	-.5211	.3000	-.5211	.3000	-.1516	.3000	-.1516	.3000	-.0504	.3000	-.0504	.3000	-.2420		
28	.3200	-.5435	.3200	-.5435	.3200	-.5435	.3200	-.1516	.3200	-.1516	.3200	-.0504	.3200	-.0504	.3200	-.2420		
27	.3400	-.5659	.3400	-.5659	.3400	-.5659	.3400	-.1516	.3400	-.1516	.3400	-.0504	.3400	-.0504	.3400	-.2420		
26	.3600	-.5883	.3600	-.5883	.3600	-.5883	.3600	-.1516	.3600	-.1516	.3600	-.0504	.3600	-.0504	.3600	-.2420		
25	.3800	-.6107	.3800	-.6107	.3800	-.6107	.3800	-.1516	.3800	-.1516	.3800	-.0504	.3800	-.0504	.3800	-.2420		
24	.4000	-.6331	.4000	-.6331	.4000	-.6331	.4000	-.1516	.4000	-.1516	.4000	-.0504	.4000	-.0504	.4000	-.2420		
23	.4200	-.6555	.4200	-.6555	.4200	-.6555	.4200	-.1516	.4200	-.1516	.4200	-.0504	.4200	-.0504	.4200	-.2420		
22	.4400	-.6779	.4400	-.6779	.4400	-.6779	.4400	-.1516	.4400	-.1516	.4400	-.0504	.4400	-.0504	.4400	-.2420		
21	.4600	-.6999	.4600	-.6999	.4600	-.6999	.4600	-.1516	.4600	-.1516	.4600	-.0504	.4600	-.0504	.4600	-.2420		
20	.4800	-.7223	.4800	-.7223	.4800	-.7223	.4800	-.1516	.4800	-.1516	.4800	-.0504	.4800	-.0504	.4800	-.2420		
19	.5000	-.7447	.5000	-.7447	.5000	-.7447	.5000	-.1516	.5000	-.1516	.5000	-.0504	.5000	-.0504	.5000	-.2420		
18	.5200	-.7671	.5200	-.7671	.5200	-.7671	.5200	-.1516	.5200	-.1516	.5200	-.0504	.5200	-.0504	.5200	-.2420		
17	.5400	-.7895	.5400	-.7895	.5400	-.7895	.5400	-.1516	.5400	-.1516	.5400	-.0504	.5400	-.0504	.5400	-.2420		
16	.5600	-.8119	.5600	-.8119	.5600	-.8119	.5600	-.1516	.5600	-.1516	.5600	-.0504	.5600	-.0504	.5600	-.2420		

TABLE 14

ONEKA VARIABLE SWEEP WING : AFV D COND = 0.2 M SZMA WIND TUNNEL

 KEYMULUS NUMBER = 2500000,
 LAMRDA = 0.0 DEG ALPHA = 2.030FC MD = .0196

	ETA = .5000			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP	A/C	X/C	CP	A/C	X/C	CP	A/C	X/C	CP	A/C	X/C	CP	A/C
15	.8500	-.6109	.9700	-.2124	-.2558	.9700	.9700	-.2117	.9700	.9700	.0811	.9700	.8500	-.4565	.8500
16	.7500	-.6198	.8500	-.6201	-.6201	.8500	.8500	-.6172	.8500	.7500	-.6095	.7500	.7500	-.4922	.7500
17	.6500	-.6037	.7500	-.6165	-.6201	.6500	.6500	-.6140	.6500	.6500	-.5985	.6500	.6500	-.4946	.6500
18	.5500	-.5659	.5500	-.5702	-.5666	.5500	.5500	-.5742	.5500	.5500	-.5645	.5500	.5500	-.4908	.5500
19	.4500	-.4765	.4500	-.4928	-.4881	.4500	.4500	-.4984	.4500	.4500	-.5019	.4500	.4500	-.4627	.4500
20	.3500	-.3620	.3500	-.3623	-.3623	.3500	.3500	-.3705	.3500	.3500	-.3935	.3500	.3500	-.3620	.3500
21	.2500	-.2841	.2500	-.2934	-.2818	.2500	.2500	-.2956	.2500	.2500	-.3212	.2500	.2500	-.3150	.2500
22	.1400	-.1624	.1400	-.1717	-.1556	.1400	.1400	-.1682	.1400	.1400	-.1866	.1400	.1400	-.2774	.1400
23	.0750	-.0838	.0750	-.0938	-.0898	.0750	.0750	-.0955	.0750	.0750	-.1087	.0750	.0750	-.2059	.0750
24	.0400	-.1729	.0400	-.1834	-.1673	.0400	.0400	-.1504	.0400	.0400	-.1907	.0400	.0400	-.3454	.0400
25	.0210	-.1717	.0220	-.1271	-.1349	.0220	.0220	-.1116	.0220	.0220	-.0812	.0220	.0220	-.1516	.0220
26	.0070	.6251	.0070	.6260	.6251	.0070	.0070	.6412	.0070	.0070	.6465	.0070	.0070	.6138	.0070
27	.0000	1.2288	.0000	1.2276	1.2253	.0000	.0000	.4261	.0000	.0000	1.2232	.0000	.0000	1.2194	.0000
28	.0100	.1065	.0100	.1275	.0811	.0100	.0100	.1785	.0100	.0100	.0714	.0100	.0100	.0889	.0100
29	.0300	.6180	.0300	.6493	.6618	.0300	.0300	-.6434	.0300	.0300	-.6551	.0300	.0300	-.7176	.0300
30	.0500	.6119	.0500	-.6294	-.6224	.0500	.0500	-.6306	.0500	.0500	-.6461	.0500	.0500	-.6665	.0500
31	.0750	-.5654	.0750	-.5675	-.5661	.0750	.0750	-.5894	.0750	.0750	-.5912	.0750	.0750	-.6166	.0750
32	.1000	-.5156	.1000	-.5401	-.5381	.1000	.1000	-.5614	.1000	.1000	-.5661	.1000	.1000	-.5961	.1000
33	.1400	-.5189	.1400	-.5226	-.5211	.1400	.1400	-.5486	.1400	.1400	-.5541	.1400	.1400	-.5953	.1400
34	.1800	-.5197	.1800	-.5225	-.5214	.1800	.1800	-.5477	.1800	.1800	-.5591	.1800	.1800	-.6072	.1800
35	.2200	-.5258	.2200	-.5471	-.5439	.2200	.2200	-.5693	.2200	.2200	-.5769	.2200	.2200	-.5734	.2200
36	.2600	-.5408	.2600	-.5570	-.5617	.2600	.2600	-.5813	.2600	.2600	-.6020	.2600	.2600	-.5521	.2600
37	.3000	-.5467	.3000	-.5740	-.5745	.3000	.3000	-.5988	.3000	.3000	-.6189	.3000	.3000	-.5982	.3000
38	.3400	-.5856	.3400	-.6002	-.6096	.3400	.3400	-.6212	.3400	.3400	-.6571	.3400	.3400	-.4484	.3400
39	.3800	-.6090	.3800	-.6294	-.6393	.3800	.3800	-.6358	.3800	.3800	-.6852	.3800	.3800	-.4829	.3800
40	.4200	-.6645	.4200	-.6700	-.6694	.4200	.4200	-.6945	.4200	.4200	-.7257	.4200	.4200	-.5245	.4200
41	.4600	-.6860	.4600	-.6995	-.7001	.4600	.4600	-.7158	.4600	.4600	-.7526	.4600	.4600	-.5275	.4600
42	.5000	-.7119	.5000	-.7336	-.7319	.5000	.5000	-.7371	.5000	.5000	-.7657	.5000	.5000	-.5410	.5000
43	.5400	-.7348	.5400	-.7590	-.7552	.5400	.5400	-.7654	.5400	.5400	-.7421	.5400	.5400	-.5343	.5400
44	.5800	-.7601	.5800	-.7759	-.7695	.5800	.5800	-.7859	.5800	.5800	-.7421	.5800	.5800	-.5614	.5800
45	.6200	-.7821	.6200	-.7859	-.7815	.6200	.6200	-.8051	.6200	.6200	-.7152	.6200	.6200	-.5497	.6200
46	.6600	-.7894	.6600	-.7894	-.7814	.6600	.6600	-.7565	.6600	.6600	-.7044	.6600	.6600	-.5416	.6600
47	.7000	-.7759	.7000	-.7704	-.7421	.7000	.7000	-.7355	.7000	.7000	-.7114	.7000	.7000	-.5465	.7000
48	.7400	-.7661	.7400	-.7561	-.7421	.7400	.7400	-.7380	.7400	.7400	-.7021	.7400	.7400	-.5529	.7400
49	.7800	-.7436	.7800	-.7438	-.7193	.7800	.7800	-.7298	.7800	.7800	-.6904	.7800	.7800	-.4625	.7800
50	.8200	-.7316	.8200	-.7117	-.6218	.8200	.8200	-.6275	.8200	.8200	-.2940	.8200	.8200	-.1703	.8200
51	.8600	-.6735	.8600	-.5661	-.4496	.8600	.8600	-.2984	.8600	.8600	-.0623	.8600	.8600	-.0605	.8600
52	.9000	-.5754	.9000	-.4712	-.3279	.9000	.9000	-.2832	.9000	.9000	.0262	.9000	.9000	-.0115	.9000
53	.9400	-.5671	.9400	-.3086	-.2488	.9400	.9400	-.1977	.9400	.9400	.1521	.9400	.9400		.9400
54	.9800	-.2275	.9800			.9800	.9800		.9800	.9800		.9800			.9800

TABLE 16

ONFRA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDA=30, DEG ALPHA= 4.01 DEG MO= .6992

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0050	.9700	.0869	.9700	.0922	.9700	.0922	.9700	.0974	.8500	.0355
14	.7500	-.0674	.8500	-.0050	.8500	.0152	.8500	.0152	.7500	-.0237	.7500	-.0018
13	.6500	-.0966	.7500	-.0414	.6500	-.0832	.6500	-.0528	.6500	-.0788	.6500	-.0427
12	.5500	-.1229	.6500	-.0966	.5500	-.1116	.5500	-.1116	.5500	-.1120	.5500	-.0816
11	.4500	-.1326	.5500	-.1217	.4500	-.1334	.4500	-.1326	.4500	-.1379	.4500	-.1233
10	.3500	-.1221	.4500	-.1423	.3500	-.1435	.3500	-.1201	.3500	-.1294	.3500	-.1428
9	.2600	-.0792	.3500	-.1221	.2600	-.1035	.2600	-.0731	.2600	-.0840	.2600	-.1375
8	.1600	-.0006	.2600	-.0771	.1600	-.0577	.1600	-.0731	.1600	-.0840	.1600	-.0950
7	.0750	.0772	.1600	-.0022	.0750	.0899	.0750	.0895	.0750	-.0063	.0750	-.0131
6	.0400	.1274	.0750	.0877	.0400	.0877	.0400	.0893	.0400	.0792	.0400	.0298
5	.0210	.1740	.0400	.1383	.0210	.1383	.0210	.1513	.0210	.1302	.0210	.1351
4	.0070	.6224	.0210	.2036	.0070	.2141	.0070	.2242	.0070	.2246	.0070	.1588
3	.0000	.6418	.0070	.6426	.0000	.6414	.0000	.6438	.0000	.6406	.0000	.6386
2	.0100	-.0670	.0000	.6556	.0100	.6293	.0100	.1788	.0100	.6216	.0100	.6386
1	.0300	-.13959	.0300	-.0605	.0300	-.10294	.0300	-.0834	.0300	-.10606	.0300	-.10184
41	.0500	-.13514	.0500	-.14458	.0500	-.14348	.0500	-.15175	.0500	-.14194	.0500	-.13464
40	.0750	-.6033	.0750	-.14182	.0750	-.13895	.0750	-.13498	.0750	-.13639	.0750	-.12935
39	.1000	-.5307	.1000	-.7033	.1000	-.7534	.1000	-.7483	.1000	-.7664	.1000	-.7790
38	.1200	-.4027	.1200	-.5851	.1200	-.5923	.1200	-.6057	.1200	-.5599	.1200	-.5567
37	.1400	-.3837	.1400	-.5445	.1400	-.5389	.1400	-.5336	.1400	-.5069	.1400	-.4492
36	.1600	-.4099	.1600	-.5312	.1600	-.4951	.1600	-.4996	.1600	-.4563	.1600	-.4218
35	.1800	-.4364	.1800	-.4959	.1800	-.4725	.1800	-.4708	.1800	-.4437	.1800	-.3821
34	.2000	-.4238	.2000	-.4656	.2000	-.4725	.2000	-.4372	.2000	-.3821	.2000	-.3562
33	.2200	-.4108	.2200	-.4332	.2200	-.4364	.2200	-.4105	.2200	-.3756	.2200	-.3137
32	.2400	-.3878	.2400	-.4052	.2400	-.4064	.2400	-.3890	.2400	-.3566	.2400	-.2955
31	.2600	-.3637	.2600	-.3688	.2600	-.3824	.2600	-.3659	.2600	-.3388	.2600	-.2740
30	.2800	-.3376	.2800	-.3465	.2800	-.3464	.2800	-.3404	.2800	-.3040	.2800	-.2408
29	.3000	-.3307	.3000	-.3272	.3000	-.3246	.3000	-.2971	.3000	-.2813	.3000	-.2100
28	.3200	-.3224	.3200	-.3072	.3200	-.2914	.3200	-.2797	.3200	-.2456	.3200	-.1711
27	.3400	-.2924	.3400	-.2732	.3400	-.2558	.3400	-.2383	.3400	-.2031	.3400	-.1432
26	.3600	-.2720	.3600	-.2448	.3600	-.2165	.3600	-.2067	.3600	-.1739	.3600	-.1128
25	.3800	-.2484	.3800	-.2035	.3800	-.1869	.3800	-.1776	.3800	-.1359	.3800	-.0759
24	.4000	-.1322	.4000	-.1752	.4000	-.1561	.4000	-.1387	.4000	-.1156	.4000	-.0488
23	.4200	-.1265	.4200	-.1472	.4200	-.1286	.4200	-.1160	.4200	-.0913	.4200	-.0277
22	.4400	-.0893	.4400	-.1156	.4400	-.0962	.4400	-.0796	.4400	-.0528	.4400	-.0050
21	.4600	-.0593	.4600	-.0832	.4600	-.0666	.4600	-.0480	.4600	-.0326	.4600	.0185
20	.4800	-.0108	.4800	-.0476	.4800	-.0302	.4800	-.0123	.4800	.0023	.4800	.0448
19	.5000	.0245	.5000	-.0058	.5000	.0047	.5000	.0197	.5000	.0334	.5000	.0703
18	.5200	.0638	.5200	.0322	.5200	.0428	.5200	.0545	.5200	.0752	.5200	.0995
17	.5400	.0687	.5400	.0687	.5400	.0752	.5400	.1197	.5400	.1355	.5400	.1355
16	.5600	.0638	.5600	.1055	.5600	.0752	.5600	.1197	.5600	.1355	.5600	.1355

ONERA VARIABLE SWEEP WING : AFV D CORD = 0,2 M

S2MA WIND TUNNEL

TABLE 18

REYNOLDS NUMBER = 2500000,
LAMBDA=30,DEG ALPHA= -.02DEG MO= ,7818

B2-24

	ETA = ,3000		ETA = ,4500		ETA = ,6000		ETA = ,7500		ETA = ,8500		ETA = ,9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15												
14	,8500	-,0514	,9700	,0907	,9700	,1072	,9700	,1128	,9700	,1233	,8500	,0547
13	,7500	-,1175	,8500	-,0342	,8500	-,0206	,8500	-,0059				
12			,7500	-,0986	,7500	-,0815	,7500	-,0699	,7500	-,0496	,7500	,0134
11	,6500	-,1858	,6500	-,1669	,6500	-,1504			,6500	-,1112	,6500	-,0356
10	,5500	-,2445	,5500	-,2316	,5500	-,2074	,5500	-,1973	,5500	-,1714	,5500	-,1007
9	,4500	-,2977	,4500	-,3005	,4500	-,2753	,4500	-,2624	,4500	-,2400	,4500	-,1746
8	,3500	-,3149	,3500	-,3152	,3500	-,2953	,3500	-,2876	,3500	-,2697	,3500	-,2277
7	,2600	-,3023	,2600	-,2802	,2600	-,2813	,2600	-,2697	,2600	-,2687	,2600	-,2834
6	,1400	-,2816	,1400	-,3019	,1400	-,2876	,1400	-,2753	,1400	-,2816	,1400	-,3499
5	,0750	-,3100			,0750	-,3079	,0750	-,2988	,0750	-,2928	,0750	-,3520
4	,0400	-,4402	,0400	-,4587	,0400	-,4328	,0400	-,4003	,0400	-,3996	,0400	-,4559
3	,0210	-,5602	,0220	-,5333	,0220	-,5081	,0220	-,4724	,0220	-,4192	,0220	-,4538
2	,0070	-,1096	,0070	,1233	,0070	,1404	,0070	,1702	,0070	,1824	,0070	,1464
1	,0000	,8249	,0000	,8253	,0000	,8239	,0000	,2517	,0000	,8221	,0000	,8214
42	,0100	-,0556	,0100	-,0615	,0100	-,0958	,0100	,0263	,0100	-,1249	,0100	-,1816
41	,0300	-,4241	,0300	-,4570	,0300	-,4542	,0300	-,5007	,0300	-,5193	,0300	-,6466
40	,0500	-,5089	,0500	-,5425	,0500	-,5404	,0500	-,3737	,0500	-,3905	,0500	-,4776
39	,0750	-,2722	,0750	-,3019	,0750	-,3005	,0750	-,3184	,0750	-,3303	,0750	-,3908
38	,1000	-,2736	,1000	-,3009	,1000	-,2974	,1000	-,3037	,1000	-,3089	,1000	-,3922
37	,1400	-,2799	,1400	-,2963	,1400	-,2921	,1400	-,2942	,1400	-,3058	,1400	-,3656
36	,1800	-,2949	,1800	-,3079	,1800	-,2865	,1800	-,3037	,1800	-,2942	,1800	-,3611
35	,2200	-,3068	,2200	-,3135	,2200	-,2939	,2200	-,3082	,2200	-,3103	,2200	-,3408
34	,2600	-,3096	,2600	-,3117	,2600	-,2876	,2600	-,3054	,2600	-,2785	,2600	-,3250
33	,3000	-,3110	,3000	-,3107	,3000	-,2830	,3000	-,3023	,3000	-,2963	,3000	-,2869
32	,3400	-,3131	,3400	-,3100	,3400	-,2956	,3400	-,3016	,3400	-,2946	,3400	-,2683
31	,3800	-,3173	,3800	-,3194	,3800	-,2967	,3800	-,2977	,3800	-,2928	,3800	-,2575
30	,4200	-,3226	,4200	-,3037	,4200	-,2774	,4200	-,2911	,4200	-,2732	,4200	-,2267
29	,4600	-,3026	,4600	-,2907	,4600	-,2666	,4600	-,2568	,4600	-,2543	,4600	-,1990
28	,5000	-,2904	,5000	-,2620	,5000	-,2477	,5000	-,2519	,5000	-,2277	,5000	-,1644
27	,5400	-,2477	,5400	-,2368	,5400	-,2193	,5400	-,2141	,5400	-,1896	,5400	-,1452
26	,5800	-,2267	,5800	-,2179	,5800	-,1896	,5800	-,1879	,5800	-,1644	,5800	-,1144
25	,6200	-,2150	,6200	-,1854	,6200	-,1641	,6200	-,1697	,6200	-,1315	,6200	-,0804
24			,6600	-,1641	,6600	-,1413	,6600	-,1343	,6600	-,1147	,6600	-,0552
23	,7000	-,1452	,7000	-,1455	,7000	-,1210	,7000	-,1151	,7000	-,0948	,7000	-,0346
22	,7400	-,1343	,7400	-,1210	,7400	-,0972	,7400	-,0822	,7400	-,0570	,7400	-,0136
21	,7800	-,1018	,7800	-,0962	,7800	-,0696	,7800	-,0535	,7800	-,0409	,7800	,0081
20	,8200	-,0853	,8200	-,0668	,8200	-,0423	,8200	-,0251	,8200	-,0076	,8200	,0344
19	,8600	-,0496	,8600	-,0241	,8600	-,0062	,8600	,0060	,8600	,0228	,8600	,0603
18	,9000	-,0094	,9000	,0120	,9000	,0277	,9000	,0407	,9000	,0655	,9000	,0942
17	,9400	,0788	,9400	,0515	,9400	,0694			,9400	,0939		
16			,9800	,0977			,9800	,1233	,9800	,1355		

TABLE 19

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDAS=30.DEG ALPHA= 2.01DEG M0= .7784

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0404	.9700	-.0746	.9700	-.0954	.9700	-.1014	.9700	-.1105	.8500	-.0472
14	.7500	-.0721	.8500	-.0341	.8500	-.0200	.8500	-.0035	.7500	-.0366	.7500	-.0064
13	.6500	-.1632	.7500	-.0686	.7500	-.0538	.7500	-.0443	.6500	-.0915	.6500	-.0197
12	.5500	-.2016	.6500	-.1439	.6500	-.1193	.5500	-.1756	.5500	-.1437	.5500	-.0844
11	.4500	-.2319	.5500	-.1974	.5500	-.1805	.4500	-.2143	.4500	-.2100	.4500	-.1604
9	.3500	-.2259	.4500	-.2354	.4500	-.2192	.3500	-.2143	.3500	-.2171	.3500	-.2002
7	.2600	-.1924	.3500	-.2304	.3500	-.2072	.2600	-.2153	.2600	-.2152	.2600	-.2252
6	.1400	-.1439	.2600	-.1984	.2600	-.1791	.1400	-.1819	.1400	-.1752	.1400	-.2234
5	.0750	-.1010	.1400	-.1537	.1400	-.1383	.0750	-.1319	.0750	-.1400	.0750	-.1675
4	.0200	-.1235	.0750	-.1302	.0750	-.0950	.0200	-.0908	.0200	-.0922	.0200	-.1773
3	.0070	-.1358	.0200	-.1122	.0200	-.1062	.0070	-.0862	.0070	-.1010	.0070	-.1101
2	.0000	-.1414	.0070	-.0943	.0070	-.0943	.0000	-.0718	.0000	-.0528	.0000	-.0937
1	.0000	-.1499	.0000	-.0819	.0000	-.0706	.0000	-.4507	.0000	-.7787	.0000	-.7769
42	.0100	-.4282	.0100	-.4324	.0100	-.4848	.0100	-.3191	.0100	-.4971	.0100	-.5267
41	.0300	-.8807	.0300	-.9591	.0300	-.9848	.0300	-.10401	.0300	-1.0316	.0300	-1.1238
40	.0500	-.7264	.0500	-.8998	.0500	-.9116	.0500	-.9616	.0500	-.9500	.0500	-1.0267
39	.0750	-.3634	.0750	-.3754	.0750	-.3708	.0750	-.4078	.0750	-.3905	.0750	-.5056
38	.1000	-.4226	.1000	-.4641	.1000	-.4560	.1000	-.4489	.1000	-.4204	.1000	-.4950
37	.1400	-.4215	.1400	-.4440	.1400	-.4398	.1400	-.4419	.1400	-.4359	.1400	-.4665
36	.1800	-.4211	.1800	-.4504	.1800	-.4455	.1800	-.4359	.1800	-.4085	.1800	-.4335
35	.2200	-.4211	.2200	-.4324	.2200	-.4109	.2200	-.4190	.2200	-.4095	.2200	-.3019
34	.2600	-.4190	.2600	-.4152	.2600	-.3916	.2600	-.4014	.2600	-.3645	.2600	-.3687
33	.3000	-.4043	.3000	-.3958	.3000	-.3719	.3000	-.3835	.3000	-.3649	.3000	-.3195
32	.3400	-.3983	.3400	-.3891	.3400	-.3747	.3400	-.3691	.3400	-.3466	.3400	-.2964
31	.3800	-.3923	.3800	-.3881	.3800	-.3617	.3800	-.3532	.3800	-.3321	.3800	-.2794
30	.4200	-.3801	.4200	-.3617	.4200	-.3346	.4200	-.3346	.4200	-.3037	.4200	-.2435
29	.4600	-.3592	.4600	-.3416	.4600	-.3142	.4600	-.2934	.4600	-.2786	.4600	-.2121
28	.5000	-.3353	.5000	-.3036	.5000	-.2846	.5000	-.2755	.5000	-.2478	.5000	-.1734
27	.5400	-.2857	.5400	-.2677	.5400	-.2466	.5400	-.2322	.5400	-.1908	.5400	-.1456
26	.5800	-.2509	.5800	-.2428	.5800	-.2132	.5800	-.2030	.5800	-.1699	.5800	-.1112
25	.6200	-.2329	.6200	-.2030	.6200	-.1805	.6200	-.1756	.6200	-.1330	.6200	-.0732
24	.6600	-.1734	.6600	-.1734	.6600	-.1805	.6600	-.1358	.6600	-.1149	.6600	-.0429
23	.7000	-.1548	.7000	-.1495	.7000	-.1269	.7000	-.1126	.7000	-.0876	.7000	-.0214
22	.7400	-.1358	.7400	-.1175	.7400	-.0957	.7400	-.0774	.7400	-.0496	.7400	.0021
21	.7800	-.0971	.7800	-.0862	.7800	-.0637	.7800	-.0436	.7800	-.0257	.7800	.0264
20	.8200	-.0694	.8200	-.0514	.8200	-.0309	.8200	-.0116	.8200	.0081	.8200	.0517
19	.8600	-.0201	.8600	-.0084	.8600	-.0071	.8600	.0218	.8600	.0408	.8600	.0778
18	.9000	.0042	.9000	.0306	.9000	.0433	.9000	.0581	.9000	.0820	.9000	.1098
17	.9400	.0577	.9400	.0711	.9400	.0827	.9400	.1327	.9400	.1105	.9400	.1482
16	.9800	.1137	.9800	.1137	.9800	.0827	.9800	.1327	.9800	.1482	.9800	.1482

TABLE 21

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

KEYNOLDS NUMBER = 2500000,
 LAMRDA=30, DEG ALPHA= .01 DEG MO= .8413

	ETA = .5000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0637	.9700	.0896	.9700	.1092	.9700	.1153	.9700	.1272	.8500	.0350
14	.7500	-.1397	.8500	-.0380	.8500	-.0265	.8500	-.0104	.7500	-.0582	.7500	.0014
13			.7500	.1109	.7500	-.0919	.7500	-.0807			.6500	-.0618
12	.6500	-.2190	.6500	.1885	.6500	.1718	.6500	-.2331			.5500	-.1330
11	.5500	-.2937	.5500	.2681	.5500	.2379	.5500	-.2331			.5500	-.2106
10	.4500	-.3585	.4500	.3537	.4500	.3255	.4500	-.3165			.4500	-.3043
9	.3500	-.3800	.3500	.3774	.3500	.3492	.3500	-.3479			.3500	-.3242
8	.2600	-.3447	.2600	.3351	.2600	.3319	.2600	-.3075			.2600	-.4066
7	.1400	-.3033	.1400	.3415	.1400	.3274	.1400	-.3120			.1400	-.4082
6	.0750	-.5293	.0750	.3434	.0750	.3434	.0750	-.3348			.0750	-.3848
5	.0400	-.4737	.0400	-.5074	.0400	.4817	.0400	-.4496			.0400	-.5006
4	.0210	-.5693	.0220	.5603	.0220	.5305	.0220	-.4997			.0220	-.4682
3	.0070	.1487	.0070	.1557	.0070	.1708	.0070	.1949			.0070	.1727
2	.0000	.8371	.0000	.8371	.0000	.8326	.0000	.8529			.0000	.8413
1	.0100	-.0226	.0100	-.0323	.0100	-.0685	.0100	-.0608			.0100	-.0929
42	.0300	.4384	.0300	.4904	.0300	.4865	.0300	-.5404			.0300	-.5603
41	.0500	-.3214	.0500	-.3659	.0500	.3678	.0500	-.4066			.0500	-.5186
40	.0750	.2873	.0750	.3268	.0750	.3274	.0750	.3470			.0750	-.4217
39	.1000	-.2002	.1000	.3316	.1000	.3309	.1000	-.3367			.1000	-.4089
38	.1400	-.3011	.1400	.3316	.1400	.3313	.1400	-.3370			.1400	-.4111
37	.1800	-.3169	.1800	.3508	.1800	.3306	.1800	-.3489			.1800	-.4336
36	.2200	-.3390	.2200	.3637	.2200	.3457	.2200	-.3515			.2200	-.4336
35	.2600	-.3563	.2600	.3653	.2600	.3450	.2600	-.3582			.2600	-.4236
34	.3000	-.3643	.3000	.3774	.3000	.3586	.3000	-.3560			.3000	-.3611
33	.3400	-.3717	.3400	.3774	.3400	.3524	.3400	-.3576			.3400	-.3268
32	.3800	-.3887	.3800	.3855	.3800	.3511	.3800	-.3540			.3800	-.3043
31	.4200	-.3980	.4200	.3924	.4200	.3319	.4200	-.3454			.4200	-.2910
30	.4600	-.3781	.4600	.3524	.4600	.3213	.4600	-.3021			.4600	-.2180
29	.5000	-.3582	.5000	.3094	.5000	.2905	.5000	-.2940			.5000	-.1757
28	.5400	-.3094	.5400	.2745	.5400	.2555	.5400	-.2460			.5400	-.1668
27	.5800	-.2822	.5800	-.2494	.5800	.2206	.5800	-.2161			.5800	-.1137
26	.6200	-.2562	.6200	-.2129	.6200	.1917	.6200	-.1920			.6200	-.0759
25			.6600	.1882	.6600	.1641	.6600	-.1551			.6600	-.0473
24			.7000	.1676	.7000	.1407	.7000	-.1314			.7000	-.0284
23	.7400	.1615	.7400	.1378	.7400	.1118	.7400	-.0945			.7400	-.0076
22	.7800	.1266	.7800	-.1118	.7800	-.0833	.7800	-.0631			.7800	.0168
21	.8200	-.1699	.8200	-.0901	.8200	-.0522	.8200	-.0316			.8200	.0418
20	.8600	-.0695	.8600	-.0319	.8600	.0155	.8600	.0024			.8600	.0704
19	.9000	-.0262	.9000	.0037	.9000	.0248	.9000	.0390			.9000	.1018
18	.9400	.0134	.9400	.0467	.9400	.0637	.9400	.1253			.9400	.0964
17			.9800	.0941	.9800	.0637	.9800	.1362			.9800	.1362

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

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REYNOLDS NUMBER = 250000.  
LAMBDA=30.DEG ALPHA= 4.02DEG MO=.8423
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	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0433	.9700	.1067	.9700	.1268	.9700	.1304	.9700	.1304	.8500	.0442
14	.7500	-.1186	.8500	-.0353	.8500	.0067	.8500	.0067	.7500	-.0423	.7500	-.0064
13			.7500	-.0622	.7500	-.0394	.7500	-.0333	.7500	-.0423	.6500	-.0718
12	.6500	-.1525	.6500	-.1458	.6500	-.1141	.6500	-.1141	.6500	-.1230	.6500	-.0718
11	.5500	-.1910	.5500	-.1794	.5500	-.1586	.5500	-.1666	.5500	-.1230	.5500	-.1435
9	.4500	-.2015	.4500	-.2089	.4500	-.1903	.4500	-.1961	.4500	-.1230	.4500	-.2451
8	.3500	-.1862	.3500	-.1862	.3500	-.1576	.3500	-.1794	.3500	-.2195	.3500	-.2970
7	.2600	-.1230	.2600	-.1317	.2600	-.1154	.2600	-.1198	.2600	-.2195	.2600	-.2659
6	.1400	-.0378	.1400	-.0449	.1400	-.0324	.1400	-.0321	.1400	-.1429	.1400	-.1493
5	.0750	.0400	.0750	.0602	.0750	.0474	.0750	.0445	.0750	-.0346	.0750	-.0435
4	.0400	.0953	.0400	.1204	.0400	.0775	.0400	.0730	.0400	-.0346	.0400	-.0164
3	.0210	.0683	.0210	.1204	.0210	.0768	.0210	.1509	.0210	.1573	.0210	.0839
2	.0070	.5677	.0070	.5827	.0070	.5943	.0070	.6000	.0070	.6007	.0070	.5276
1	.0000	.7698	.0000	.7711	.0000	.7551	.0000	.7149	.0000	.7378	.0000	.7432
42	.0100	-.4934	.0100	-.4899	.0100	-.5424	.0100	-.5877	.0100	-.5953	.0100	-.5828
41	.0300	-.11700	.0300	-.12059	.0300	-.12056	.0300	-.12184	.0300	-.12146	.0300	-.12471
40	.0500	-.11460	.0500	-.11822	.0500	-.11755	.0500	-.12011	.0500	-.12130	.0500	-.12293
39	.0750	-.10637	.0750	-.11159	.0750	-.11204	.0750	-.11572	.0750	-.11594	.0750	-.11742
38	.1000	-.09938	.1000	-.10778	.1000	-.10829	.1000	-.11156	.1000	-.11249	.1000	-.11342
37	.1400	-.0262	.1400	-.10275	.1400	-.10384	.1400	-.10736	.1400	-.10844	.1400	-.10925
36	.1800	-.6350	.1800	-.0839	.1800	-.10082	.1800	-.10438	.1800	-.10576	.1800	-.10316
35	.2200	-.5732	.2200	-.9371	.2200	-.0909	.2200	-.10329	.2200	-.10409	.2200	-.09996
34	.2600	-.6273	.2600	-.8897	.2600	-.0788	.2600	-.10102	.2600	-.09994	.2600	-.07254
33	.3000	-.6366	.3000	-.5873	.3000	-.9602	.3000	-.0743	.3000	-.09621	.3000	-.3098
32	.3400	-.6590	.3400	-.6651	.3400	-.9355	.3400	-.9285	.3400	-.7059	.3400	-.1625
31	.3800	-.6706	.3800	-.7221	.3800	-.7516	.3800	-.5543	.3800	-.2454	.3800	-.1432
30	.4200	-.7052	.4200	-.7628	.4200	-.7053	.4200	-.2509	.4200	-.1993	.4200	-.1615
29	.4600	-.7212	.4600	-.7628	.4600	-.7608	.4600	-.1903	.4600	-.1689	.4600	-.1634
28	.5000	-.7212	.5000	-.7947	.5000	-.7493	.5000	-.1990	.5000	-.1439	.5000	-.1634
27	.5400	-.6783	.5400	-.2743	.5400	-.2227	.5400	-.1759	.5400	-.1170	.5400	-.1337
26	.5800	-.6601	.5800	-.2349	.5800	-.1996	.5800	-.1612	.5800	-.1099	.5800	-.0987
25	.6200	-.6964	.6200	-.2006	.6200	-.1721	.6200	-.1445	.6200	-.0888	.6200	-.0600
24	.6600	-.7006	.6600	-.1689	.6600	-.1413	.6600	-.1080	.6600	-.0782	.6600	-.0388
23	.7000	-.1766	.7000	-.1410	.7000	-.1118	.7000	-.0897	.7000	-.0651	.7000	-.0208
22	.7400	-.1407	.7400	-.1090	.7400	-.0820	.7400	-.0571	.7400	-.0292	.7400	.0013
21	.7800	-.1087	.7800	-.0750	.7800	-.0500	.7800	-.0279	.7800	-.0154	.7800	.0243
20	.8200	-.0654	.8200	-.0394	.8200	-.0180	.8200	.0009	.8200	.0189	.8200	.0450
19	.8400	-.0257	.8400	.0009	.8400	.0205	.8400	.0314	.8400	.0474	.8400	.0762
18	.9000	.0131	.9000	.0378	.9000	.0586	.9000	.0660	.9000	.0913	.9000	.1079
17	.9400	.0474	.9400	.0724	.9400	.0974	.9400	.0900	.9400	.1469	.9400	.1079
16			.9800	.1044		.0974	.9800	.1502	.9800	.1560		

	ETA = .3000			ETA = .4500			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP	
15	.8500	-.0860		.9700	.0624		.9700	.0973		.9700	.1110		.9700	.1309		.8500	.0636	
14	.7500	-.1472		.8500	-.0585		.8500	-.0355		.8500	-.0163		.8500			.7500		
13				.7500	-.1035		.7500	-.0839		.7500	-.0793		.7500	-.0514		.6500	.0459	
12	.6500	-.2552		.6500	-.1766		.6500	-.1448		.6500			.6500	-.1035		.5500	.0456	
11	.5500	-.2972		.5500	-.2816		.5500	-.2479		.5500	-.2537		.5500	-.2666		.4500	.0918	
10	.4500	-.3320		.4500	-.3348		.4500	-.3030		.4500	-.3014		.4500	-.3256		.3500	.3559	
9	.3500	-.3091		.3500	-.3253		.3500	-.2984		.3500	-.3008		.3500	-.3229		.2500	.4449	
8	.2500	-.2451		.2500	-.2730		.2500	-.2555		.2500	-.2494		.2500	-.2510		.1500	.3819	
7	.1500	-.1772		.1500	-.2072		.1500	-.1916		.1500	-.1867		.1500	-.1953		.0500	.2788	
6	.0500	-.1283		.0500			.0500	-.1442		.0500	-.1383		.0500	-.1359			.1980	
5	.0400	-.1650		.0400	-.1919		.0400	-.1683		.0400	-.1576		.0400	-.1576			.2204	
4	.0210	-.1882		.0210	-.1723		.0210	-.1601		.0210	-.1344		.0210	-.1032			.1657	
3	.0070	.3837		.0070	.3938		.0070	.4069		.0070	.4231		.0070	.4323			.3815	
2	.0000	.8341		.0000	.8344		.0000	.8258		.0000	.2503		.0000	.8191			.8749	
1	.0100	-.2210		.0100	-.2204		.0100	-.2595		.0100	-.1200		.0100	-.2794			.3027	
42	.0300	-.8626		.0300	-.9070		.0300	-.9321		.0300	-.9220		.0300	-.9367			.3027	
41	.0500	-.7304		.0500	-.7385		.0500	-.7898		.0500	-.9058		.0500	-.9189			.3027	
40	.0750	-.6628		.0750	-.7338		.0750	-.7867		.0750	-.8476		.0750	-.8476			.3027	
39	.1000	-.2926		.1000	-.6852		.1000	-.7158		.1000	-.8764		.1000	-.8033			.3027	
38	.1500	-.4269		.1500	-.3535		.1500	-.4202		.1500	-.7161		.1500	-.7561			.3027	
37	.1800	-.4584		.1800	-.4994		.1800	-.4202		.1800	-.6533		.1800	-.7091			.3027	
36	.2200	-.6670		.2200	-.5520		.2200	-.5263		.2200	-.5003		.2200	-.5573			.3027	
35	.2600	-.4798		.2600	-.5509		.2600	-.5511		.2600	-.5603		.2600	-.4826			.3027	
34	.3000	-.4847		.3000	-.5401		.3000	-.5444		.3000	-.6028		.3000	-.5661			.3027	
33	.3400	-.4973		.3400	-.5680		.3400	-.5971		.3400	-.6206		.3400	-.5661			.3027	
32	.3800	-.5129		.3800	-.6041		.3800	-.6295		.3800	-.6331		.3800	-.6215			.3027	
31	.4200	-.5609		.4200	-.6334		.4200	-.6533		.4200	-.6585		.4200	-.6215			.3027	
30	.4600	-.5667		.4600	-.6650		.4600	-.6677		.4600	-.6585		.4600					

TABLE 25

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDA=30. DEG ALPHA= 4.02 DEG NO= .8815

	ETA = .5000		ETA = .4500		ETA = .4000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.1055	.9700	.0203	.9700	.0794	.9700	.1367	.9700	.1449	.8500	.0468
14	.7500	-.1657	.8500	-.0651	.8500	-.0334	.8500	-.0005	.7500	-.0532	.7500	-.0127
13	.6500	-.1971	.7500	-.0864	.7500	-.0654	.7500	-.0535	.6500	-.1577	.6500	-.0043
12	.5500	-.2327	.6500	-.1876	.6500	-.1471	.5500	-.2029	.5500	-.2272	.5500	-.1977
11	.4500	-.2607	.5500	-.2339	.5500	-.1971	.4500	-.2361	.4500	-.2675	.4500	-.3562
9	.3500	-.2663	.4500	-.2565	.4500	-.2330	.3500	-.2166	.3500	-.2425	.3500	-.3499
8	.2600	-.1431	.3500	-.2266	.3500	-.2111	.2600	-.1507	.2600	-.1699	.2600	-.2973
7	.1400	-.0550	.2600	-.1638	.2600	-.1507	.1400	-.0623	.1400	-.0764	.1400	-.1709
6	.0750	.0203	.1400	-.0748	.1400	-.0639	.0750	-.0126	.0750	.0069	.0750	-.0463
5	.0400	.0355	.0750	.0117	.0750	.0126	.0400	.0520	.0400	.0331	.0400	-.0376
4	.0210	.0724	.0400	.0297	.0400	.0297	.0210	.0992	.0210	.1135	.0210	.0596
3	.0070	.5439	.0210	.0824	.0210	.0824	.0070	.5668	.0070	.5608	.0070	.5089
2	.0000	.8045	.0070	.5509	.0070	.5586	.0000	.2294	.0000	.7704	.0000	.7719
1	.0100	-.3720	.0000	.0018	.0000	.7869	.0100	-.2733	.0100	-.4574	.0100	-.4638
42	.0300	-.10213	.0100	-.3659	.0100	-.4150	.0300	-.10536	.0300	-.10612	.0300	-1.1170
41	.0500	-.9006	.0300	-1.0304	.0300	-1.0524	.0500	-1.0475	.0500	-1.0624	.0500	-1.0804
40	.0750	-.9304	.0500	-1.0304	.0500	-1.0280	.0750	-1.0109	.0750	-1.0133	.0750	-1.0338
39	.1000	-.3947	.0750	-.9411	.0750	-.9445	.1000	-.9756	.1000	-.9844	.1000	-1.0012
38	.1400	-.8076	.1000	-.9012	.1000	-.9091	.1400	-.9426	.1400	-.9557	.1400	-.9774
37	.1800	-.7677	.1400	-.8734	.1400	-.8865	.1800	-.9210	.1800	-.9371	.1800	-.9652
36	.2200	-.5110	.1800	-.8488	.1800	-.8789	.2200	-.9198	.2200	-.9326	.2200	-.9576
35	.2600	-.5762	.2200	-.8094	.2200	-.8768	.2600	-.9115	.2600	-.9347	.2600	-.9246
34	.3000	-.5820	.2600	-.7488	.2600	-.8692	.3000	-.9158	.3000	-.9332	.3000	-.8960
33	.3400	-.6131	.3000	-.6012	.3000	-.8750	.3400	-.9216	.3400	-.9309	.3400	-.8489
32	.3800	-.6320	.3400	-.6187	.3400	-.8750	.3800	-.9198	.3800	-.9335	.3800	-.8153
31	.4200	-.6851	.3800	-.6789	.3800	-.8570	.4200	-.8939	.4200	-.9073	.4200	-.8361
30	.4600	-.6957	.4200	-.7189	.4200	-.8314	.4600	-.8731	.4600	-.8967	.4600	-.8288
29	.5000	-.7159	.4600	-.7567	.4600	-.7415	.5000	-.7951	.5000	-.8167	.5000	-.8124
28	.5400	-.7662	.5000	-.7802	.5000	-.7415	.5400	-.7894	.5400	-.8067	.5400	-.8090
27	.5800	-.6787	.5400	-.7988	.5400	-.7826	.5800	-.7458	.5800	-.7900	.5800	-.8088
26	.6200	-.6787	.5800	-.7930	.5800	-.7601	.6200	-.7458	.6200	-.7594	.6200	-.8088
25	.6600	-.6875	.6200	-.8159	.6200	-.7452	.6600	-.7458	.6600	-.7594	.6600	-.8088
24	.7000	-.4510	.6600	-.8336	.6600	-.7197	.7000	-.7458	.7000	-.7594	.7000	-.8088
23	.7400	-.2647	.7000	-.8080	.7000	-.7197	.7400	-.7458	.7400	-.7594	.7400	-.8088
22	.7800	-.1763	.7400	-.7456	.7400	-.7197	.7800	-.7458	.7800	-.7594	.7800	-.8088
21	.8200	-.1248	.7800	-.6559	.7800	-.6160	.8200	-.6495	.8200	-.6684	.8200	-.8088
20	.8600	-.0334	.8200	-.6218	.8200	-.6111	.8600	-.6495	.8600	-.6684	.8600	-.8088
19	.9000	-.0504	.8600	-.6059	.8600	-.6040	.9000	-.6495	.9000	-.6684	.9000	-.8088
18	.9400	-.0306	.9000	-.0309	.9000	-.6040	.9400	-.6495	.9400	-.6684	.9400	-.8088
17	.9800	-.0206	.9400	-.0309	.9400	-.6040	.9800	-.6495	.9800	-.6684	.9800	-.8088
16			.9800	.0520	.9800	.0913		.1699		.1693		

TABLE 27

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDA=30.DEG ALPHA= 1.99DEG MO= .9248

	ETA = .5000			ETA = .4500			ETA = .4000			ETA = .3500			ETA = .3000			ETA = .2500			ETA = .2000			ETA = .1500			ETA = .1000			ETA = .0500		
	X/C	CP	X/C	X/C	CP	X/C	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.3104	.9700	.092	.092	.9700	.0403	.0557	.9700	.0557	.9700	.0557	.9700	.0557	.9700	.0557	.9700	.0557	.9700	.0557	.9700	.0557	.9700	.0557	.9700	.0557	.9700	.0557	.9700	.0557
14	.7500	-.3356	.8500	-.0302	-.0302	.8500	-.0567	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549	.8500	-.0549
13	.6500	-.3652	.7500	-.0716	-.0716	.7500	-.1256	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256	.7500	-.1256
12	.5500	-.3803	.6500	-.1195	-.1195	.6500	-.1941	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941	.6500	-.1941
11	.4500	-.3739	.5500	-.1616	-.1616	.5500	-.2825	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825	.5500	-.2825
10	.3500	-.3740	.4500	-.2059	-.2059	.4500	-.3766	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766	.4500	-.3766
9	.2500	-.3814	.3500	-.2510	-.2510	.3500	-.4264	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264	.3500	-.4264
8	.1500	-.4103	.2500	-.3041	-.3041	.2500	-.5076	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076	.2500	-.5076
7	.0750	-.4118	.1500	-.3571	-.3571	.1500	-.5559	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559	.1500	-.5559
6	.0400	-.4571	.0750	-.4193	-.4193	.0750	-.6077	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077	.0750	-.6077
5	.0210	-.4906	.0400	-.4693	-.4693	.0400	-.6554	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554	.0400	-.6554
4	.0070	-.5076	.0210	-.5076	-.5076	.0210	-.7072	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072	.0210	-.7072
3	.0000	-.5272	.0070	-.5554	-.5554	.0070	-.7551	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551	.0070	-.7551
2	.0000	-.5572	.0000	-.6072	-.6072	.0000	-.7792	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792	.0000	-.7792
1	.0000	-.5872	.0000	-.6554	-.6554	.0000	-.8072	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072	.0000	-.8072
42	.0400	-.6284	.0400	-.7072	-.7072	.0400	-.7792	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792	.0400	-.7792
41	.0300	-.6795	.0300	-.7551	-.7551	.0300	-.8072	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072	.0300	-.8072
40	.0500	-.6552	.0500	-.7339	-.7339	.0500	-.7792	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792	.0500	-.7792
39	.0750	-.6431	.0750	-.7072	-.7072	.0750	-.7551	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551	.0750	-.7551
38	.1000	-.6392	.1000	-.6873	-.6873	.1000	-.7339	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339	.1000	-.7339
37	.1400	-.6392	.1400	-.6873	-.6873	.1400	-.7339	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339	.1400	-.7339
36	.1800	-.6392	.1800	-.6873	-.6873	.1800	-.7339	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339	.1800	-.7339
35	.2200	-.6392	.2200	-.6873	-.6873	.2200	-.7339	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339	.2200	-.7339
34	.2600	-.6392	.2600	-.6873	-.6873	.2600	-.7339	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339	.2600	-.7339
33	.3000	-.6392	.3000	-.6873	-.6873	.3000	-.7339	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339	.3000	-.7339
32	.3400	-.6392	.3400	-.6873	-.6873	.3400	-.7339	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339	.3400	-.7339
31	.3800	-.6392	.3800	-.6873	-.6873	.3800	-.7339	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339	.3800	-.7339
30	.4200	-.6392	.4200	-.6873	-.6873	.4200	-.7339	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339	.4200	-.7339
29	.4600	-.6392	.4600	-.6873	-.6873	.4600	-.7339	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339	.4600	-.7339
28	.5000	-.6392	.5000	-.6873	-.6873	.5000	-.7339	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339	.5000	-.7339
27	.5400	-.6392	.5400	-.6873	-.6873	.5400	-.7339	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339	.5400	-.7339
26	.5800	-.6392	.5800	-.6873	-.6873	.5800	-.7339	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339	.5800	-.7339
25	.6200	-.6392	.6200	-.6873	-.6873	.6200	-.7339	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339	.6200	-.7339
24	.7000	-.5330	.7000	-.4035	-.4035	.7000	-.3593	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593	.7000	-.3593
23	.7400	-.5172	.7400	-.3766	-.3766	.7400	-.3272	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272	.7400	-.3272
22	.7800	-.4938	.7800	-.3510	-.3510	.7800	-.3014	-.3014	.7800	-.3014	.7800</																			

TABLE 28

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDA=50.DEG ALPHA= .01DEC MO= .7001

	ETA = .5000			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP	X/C	X/C	CP	X/C	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C
15	.8500	-.0645	.9700	.9700	.0523	.9700	.9700	.0511	.9700	.0592	.8500	.0752	.8500	.0752	.8500
14	.7500	-.0888	.8500	.8500	-.0314	.8500	.8500	-.0039	.8500	-.0282	.7500	-.0055	.7500	-.0055	.7500
13	.6500	-.1151	.7500	.7500	-.0597	.7500	.7500	-.0350	.7500	-.0597	.6500	-.0431	.6500	-.0431	.6500
12	.5500	-.1345	.6500	.6500	-.0916	.6500	.6500	-.0726	.6500	-.0848	.5500	-.0848	.5500	-.0848	.5500
11	.4500	-.1555	.5500	.5500	-.1216	.5500	.5500	-.0933	.5500	-.1098	.4500	-.1224	.4500	-.1224	.4500
10	.3500	-.1598	.4500	.4500	-.1462	.4500	.4500	-.1292	.4500	-.1220	.3500	-.1410	.3500	-.1410	.3500
9	.2600	-.1547	.3500	.3500	-.1515	.3500	.3500	-.1317	.3500	-.1220	.2600	-.1571	.2600	-.1571	.2600
8	.1400	-.1402	.2600	.2600	-.1155	.2600	.2600	-.1224	.2600	-.1175	.1400	-.1802	.1400	-.1802	.1400
7	.0750	-.1701	.1400	.1400	-.0491	.1400	.1400	-.1248	.1400	-.1353	.0750	-.1854	.0750	-.1854	.0750
6	.0400	-.2340	.0400	.0400	-.2396	.0400	.0400	-.1571	.0400	-.1490	.0400	-.2376	.0400	-.2376	.0400
5	.0210	-.2643	.0210	.0210	-.2918	.0210	.0210	-.2174	.0210	-.2032	.0210	-.2546	.0210	-.2546	.0210
4	.0070	-.0286	.0070	.0070	-.0103	.0070	.0070	-.0720	.0070	-.0558	.0070	-.0047	.0070	-.0047	.0070
3	.0000	-.4146	.0000	.0000	-.4158	.0000	.0000	.0054	.0000	.0280	.0000	.4409	.0000	.4409	.0000
2	.0100	-.0767	.0100	.0100	-.0459	.0100	.0100	.0162	.0100	.0172	.0100	-.0552	.0100	-.0552	.0100
1	.0300	-.1954	.0300	.0300	-.1992	.0300	.0300	-.0480	.0300	-.0172	.0300	-.0961	.0300	-.0961	.0300
41	.0500	-.1444	.0500	.0500	-.1555	.0500	.0500	-.1911	.0500	-.2113	.0500	-.2845	.0500	-.2845	.0500
40	.0750	-.1298	.0750	.0750	-.1389	.0750	.0750	-.1462	.0750	-.1592	.0750	-.2146	.0750	-.2146	.0750
39	.1000	-.1300	.1000	.1000	-.1389	.1000	.1000	-.1280	.1000	-.1398	.1000	-.1850	.1000	-.1850	.1000
38	.1400	-.1345	.1400	.1400	-.1385	.1400	.1400	-.1260	.1400	-.1337	.1400	-.1915	.1400	-.1915	.1400
37	.1800	-.1389	.1800	.1800	-.1430	.1800	.1800	-.1232	.1800	-.1309	.1800	-.1822	.1800	-.1822	.1800
36	.2200	-.1454	.2200	.2200	-.1426	.2200	.2200	-.1195	.2200	-.1313	.2200	-.1648	.2200	-.1648	.2200
35	.2600	-.1458	.2600	.2600	-.1377	.2600	.2600	-.1203	.2600	-.1313	.2600	-.1648	.2600	-.1648	.2600
34	.3000	-.1450	.3000	.3000	-.1305	.3000	.3000	-.1102	.3000	-.1264	.3000	-.1721	.3000	-.1721	.3000
33	.3400	-.1462	.3400	.3400	-.1300	.3400	.3400	-.1127	.3400	-.1232	.3400	-.1620	.3400	-.1620	.3400
32	.3800	-.1474	.3800	.3800	-.1414	.3800	.3800	-.1183	.3800	-.1288	.3800	-.1531	.3800	-.1531	.3800
31	.4200	-.1515	.4200	.4200	-.1418	.4200	.4200	-.1195	.4200	-.1260	.4200	-.1454	.4200	-.1454	.4200
30	.4600	-.1446	.4600	.4600	-.1284	.4600	.4600	-.1139	.4600	-.1260	.4600	-.1424	.4600	-.1424	.4600
29	.5000	-.1389	.5000	.5000	-.1143	.5000	.5000	-.1042	.5000	-.1110	.5000	-.1026	.5000	-.1026	.5000
28	.5400	-.1268	.5400	.5400	-.1090	.5400	.5400	-.0916	.5400	-.0965	.5400	-.0957	.5400	-.0957	.5400
27	.5800	-.1135	.5800	.5800	-.1054	.5800	.5800	-.0763	.5800	-.0900	.5800	-.0783	.5800	-.0783	.5800
26	.6200	-.1082	.6200	.6200	-.0900	.6200	.6200	-.0686	.6200	-.0803	.6200	-.0577	.6200	-.0577	.6200
25	.7000	-.0601	.7000	.7000	-.0787	.7000	.7000	-.0589	.7000	-.0585	.7000	-.0395	.7000	-.0395	.7000
24	.7400	-.0674	.7400	.7400	-.0763	.7400	.7400	-.0516	.7400	-.0585	.7400	-.0314	.7400	-.0314	.7400
23	.7800	-.0540	.7800	.7800	-.0694	.7800	.7800	-.0447	.7800	-.0407	.7800	-.0176	.7800	-.0176	.7800
22	.8200	-.0548	.8200	.8200	-.0540	.8200	.8200	-.0350	.8200	-.0257	.8200	-.0055	.8200	-.0055	.8200
21	.8600	-.0439	.8600	.8600	-.0439	.8600	.8600	-.0197	.8600	-.0136	.8600	-.0094	.8600	-.0094	.8600
20	.9000	-.0403	.9000	.9000	-.0439	.9000	.9000	-.0136	.9000	-.0031	.9000	-.0062	.9000	-.0062	.9000
19	.9400	-.0346	.9400	.9400	-.0407	.9400	.9400	-.0031	.9400	.0155	.9400	.0325	.9400	.0325	.9400
18	.9800	-.0346	.9800	.9800	-.0407	.9800	.9800	.0139	.9800	.0155	.9800	.0325	.9800	.0325	.9800
17	.9400	-.0346	.9400	.9400	-.0407	.9400	.9400	.0139	.9400	.0155	.9400	.0325	.9400	.0325	.9400
16	.9800	-.0346	.9800	.9800	-.0407	.9800	.9800	.0139	.9800	.0155	.9800	.0325	.9800	.0325	.9800

TABLE 29

S2MA WIND TUNNEL

CHORD VARIABLE SLEEVE WING : AFV D CORD = 0.2 M

REYNOLDS NUMBER = 2500000.
 LAMBDA=50. DEG ALPHA= 2.00 DEG MO= .6996

	ETA = .5000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0356	.9700	-.0284	.9700	-.0511	.9700	-.0519	.9700	-.0567	.8500	-.0284
14	.7500	-.0513	.8500	-.0203	.8500	-.0048	.8500	-.0049	.8500	-.0141	.7500	-.0001
13			.7500	-.0360	.7500	-.0182	.7500	-.0194	.7500	-.0380	.6500	-.0327
12			.6500	-.0623	.6500	-.0505			.6500	-.0619	.5500	-.0809
11			.5500	-.0825	.5500	-.0586			.5500	-.0821	.4500	-.1104
10			.4500	-.0983	.4500	-.0849			.4500	-.0805	.3500	-.1222
9			.3500	-.0992	.3500	-.0849			.3500	-.0744	.2600	-.1262
8			.2600	-.0817	.2600	-.0704			.2600	-.0469	.1400	-.1031
7			.1400	-.0602	.1400	-.0416			.1400	-.0417	.0750	-.0671
6			.0750	-.0356	.0750	-.0190			.0750	-.0190		
5			.0400	-.0388	.0400	-.0169			.0400	-.0117		
4			.0200	-.0328	.0200	-.0029			.0200	-.0243		
3			.0070	-.0142	.0070	-.0070			.0070	-.0270		
2			.0000	-.0000	.0000	-.0000			.0000	-.03635		
1			.0000	-.0000	.0000	-.0000			.0000	-.04504		
42			.0100	-.0136	.0100	-.0346			.0100	-.0300		
41			.0300	-.0432	.0300	-.0690			.0300	-.04904		
40			.0500	-.0632	.0500	-.1013			.0500	-.03703		
39			.0750	-.0753	.0750	-.1310			.0750	-.02484		
38			.1000	-.0912	.1000	-.1607			.1000	-.02339		
37			.1400	-.1209	.1400	-.2073			.1400	-.02080		
36			.1800	-.1570	.1800	-.2558			.1800	-.01881		
35			.2200	-.1946	.2200	-.3026			.2200	-.01987		
34			.2600	-.2331	.2600	-.3480			.2600	-.01675		
33			.3000	-.2714	.3000	-.3914			.3000	-.01683		
32			.3400	-.3038	.3400	-.4353			.3400	-.01626		
31			.3800	-.3334	.3800	-.4723			.3800	-.01663		
30			.4200	-.3613	.4200	-.5067			.4200	-.01452		
29			.4600	-.3873	.4600	-.5371			.4600	-.01436		
28			.5000	-.4115	.5000	-.5611			.5000	-.01278		
27			.5400	-.4329	.5400	-.5888			.5400	-.01040		
26			.5800	-.4444	.5800	-.6128			.5800	-.00930		
25			.6200	-.4442	.6200	-.6308			.6200	-.00712		
24			.7000	-.0983	.6600	-.0971			.6600	-.0679		
23			.7400	-.0930	.7000	-.0890			.7000	-.0554		
22			.7800	-.0756	.7400	-.0760			.7400	-.0319		
21			.8200	-.0744	.7800	-.0682			.7800	-.0262		
20			.8600	-.0570	.8200	-.0549			.8200	-.0080		
19			.9000	-.0315	.8600	-.0226			.8600	-.0094		
18			.9400	-.0262	.9000	-.0163			.9000	-.0365		
17					.9400	-.0349			.9400	-.0474		
16					.9800	-.0612			.9800	-.0677		

REYNOLDS NUMBER = 2500000.
 LAMBDAA=50. DEG ALPHA= 6.01DEG MO= .7000

ONEPA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

TABLE 30

15	X/C	CP	ETA = .9500
16	X/C	CP	ETA = .8500
17	X/C	CP	ETA = .7500
18	X/C	CP	ETA = .6000
19	X/C	CP	ETA = .5000
20	X/C	CP	ETA = .4500
21	X/C	CP	ETA = .4000
22	X/C	CP	ETA = .3500
23	X/C	CP	ETA = .3000
24	X/C	CP	ETA = .2500
25	X/C	CP	ETA = .2000
26	X/C	CP	ETA = .1500
27	X/C	CP	ETA = .1000
28	X/C	CP	ETA = .0500
29	X/C	CP	ETA = .0000
30	X/C	CP	ETA = .0000
31	X/C	CP	ETA = .0000
32	X/C	CP	ETA = .0000
33	X/C	CP	ETA = .0000
34	X/C	CP	ETA = .0000
35	X/C	CP	ETA = .0000
36	X/C	CP	ETA = .0000
37	X/C	CP	ETA = .0000
38	X/C	CP	ETA = .0000
39	X/C	CP	ETA = .0000
40	X/C	CP	ETA = .0000
41	X/C	CP	ETA = .0000
42	X/C	CP	ETA = .0000
1	X/C	CP	ETA = .0000
2	X/C	CP	ETA = .0000
3	X/C	CP	ETA = .0000
4	X/C	CP	ETA = .0000
5	X/C	CP	ETA = .0000
6	X/C	CP	ETA = .0000
7	X/C	CP	ETA = .0000
8	X/C	CP	ETA = .0000
9	X/C	CP	ETA = .0000
10	X/C	CP	ETA = .0000
11	X/C	CP	ETA = .0000
12	X/C	CP	ETA = .0000
13	X/C	CP	ETA = .0000
14	X/C	CP	ETA = .0000

TABLE 31

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDA=50.DEG ALPHA= .00DEG MOE .7807

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0785	.9700	.0253	.9700	.0452	.9700	.0452	.9700	.0519	.8500	.0214
14	.7500	-.1031	.8500	-.0378	.8500	-.0214	.8500	-.0126	.7500	-.0354	.7500	-.0133
13			.7500	-.0673	.7500	-.0459	.7500	-.0435	.6500	-.0701	.6500	-.0550
12	.6500	-.1290	.6500	-.1009	.6500	-.0834	.5500	-.1020	.5500	-.0960	.5500	-.1045
11	.5500	-.1518	.5500	-.1314	.5500	-.1034	.4500	-.1297	.4500	-.1227	.4500	-.1444
9	.4500	-.1718	.4500	-.1609	.4500	-.1413	.3500	-.1399	.3500	-.1314	.3500	-.1616
8	.3500	-.1732	.3500	-.1644	.3500	-.1409	.2600	-.1381	.2600	-.1343	.2600	-.1830
7	.2600	-.1697	.2600	-.1290	.2600	-.1374	.1400	-.1360	.1400	-.1397	.1400	-.1900
6	.1400	-.1560	.1400	-.1619	.1400	-.1402	.0750	-.1679	.0750	-.1637	.0750	-.1995
5	.0750	-.1823			.0750	-.1718	.0400	-.2170	.0400	-.2177	.0400	-.2634
4	.0400	-.2475	.0220	-.2538	.0220	-.2352	.0220	-.2710	.0220	-.2440	.0220	-.2661
3	.0210	-.3176	.0070	-.3039	.0070	-.2853	.0070	-.2710	.0070	-.2440	.0070	-.2661
2	.0070	-.0270	.0000	-.0077	.0000	.0049	.0000	.0274	.0000	.0365	.0000	-.0039
1	.0000	.4140	.0000	.4161	.0000	.4119	.0000	.1118	.0000	.4281	.0000	.4459
42	.0100	-.0407	.0100	-.0505	.0100	-.0557	.0100	-.0224	.0100	-.0613	.0100	-.0908
41	.0300	-.1977	.0300	-.2121	.0300	-.2031	.0300	-.2247	.0300	-.2254	.0300	-.2969
40	.0500	-.1518	.0500	-.1672	.0500	-.1595	.0500	-.1711	.0500	-.1756	.0500	-.2243
39	.0750	-.1420	.0750	-.1504	.0750	-.1402	.0750	-.1500	.0750	-.1518	.0750	-.1949
38	.1000	-.1430	.1000	-.1472	.1000	-.1441	.1000	-.1427	.1000	-.1427	.1000	-.1988
37	.1400	-.1448	.1400	-.1462	.1400	-.1357	.1400	-.1371	.1400	-.1339	.1400	-.1882
36	.1800	-.1504	.1800	-.1535	.1800	-.1321	.1800	-.1406	.1800	-.1178	.1800	-.1809
35	.2200	-.1574	.2200	-.1546	.2200	-.1343	.2200	-.1420	.2200	-.1420	.2200	-.1844
34	.2600	-.1574	.2600	-.1476	.2600	-.1248	.2600	-.1371	.2600	-.1181	.2600	-.1928
33	.3000	-.1570	.3000	-.1416	.3000	-.1227	.3000	-.1360	.3000	-.1307	.3000	-.1840
32	.3400	-.1584	.3400	-.1402	.3400	-.1350	.3400	-.1402	.3400	-.1286	.3400	-.1746
31	.3800	-.1616	.3800	-.1546	.3800	-.1353	.3800	-.1381	.3800	-.1399	.3800	-.1655
30	.4200	-.1630	.4200	-.1483	.4200	-.1251	.4200	-.1360	.4200	-.1214	.4200	-.1567
29	.4600	-.1581	.4600	-.1402	.4600	-.1276	.4600	-.1150	.4600	-.1258	.4600	-.1402
28	.5000	-.1525	.5000	-.1237	.5000	-.1174	.5000	-.1199	.5000	-.1139	.5000	-.1206
27	.5400	-.1409	.5400	-.1181	.5400	-.1017	.5400	-.1055	.5400	-.0937	.5400	-.1146
26	.5800	-.1300	.5800	-.1143	.5800	-.0880	.5800	-.0971	.5800	-.0862	.5800	-.0897
25	.6200	-.1244	.6200	-.0939	.6200	-.0764	.6200	-.0887	.6200	-.0667	.6200	-.0662
24			.6600	-.0855	.6600	-.0610	.6600	-.0655	.6600	-.0666	.6600	-.0466
23	.7000	-.0838	.7000	-.0820	.7000	-.0624	.7000	-.0648	.7000	-.0587	.7000	-.0375
22	.7400	-.0838	.7400	-.0740	.7400	-.0526	.7400	-.0480	.7400	-.0347	.7400	-.0228
21	.7800	-.0697	.7800	-.0596	.7800	-.0414	.7800	-.0322	.7800	-.0319	.7800	-.0080
20	.8200	-.0697	.8200	-.0491	.8200	-.0203	.8200	-.0200	.8200	-.0161	.8200	-.0063
19	.8600	-.0606	.8600	-.0277	.8600	-.0130	.8600	-.0098	.8600	-.0010	.8600	-.0232
18	.9000	-.0571	.9000	-.0110	.9000	-.0060	.9000	.0088	.9000	.0263	.9000	-.0449
17	.9400	-.0529	.9400	.0063	.9400	.0235			.9400	.0344		
16			.9800	.0267	.9800	.0235	.9800	.0494	.9800	.0554		

TABLE 32

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDA=50.DEG ALPHA= 2.01DEG MO= .7802

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0495	.9700	.0206	.9700	.0427	.9700	.0427	.9700	.0490	.8500	.0210
14	.7500	-.0657	.8500	-.0285	.8500	-.0148	.8500	-.0053	.7500	-.0243	.7500	-.0092
13			.7500	-.0481	.7500	-.0295	.7500	-.0299			.6500	-.0481
12			.6500	-.0720	.6500	-.0590			.6500	-.0499	.5500	-.0937
11	.6500	-.0925	.5500	-.0916	.5500	-.0688	.5500	-.0716	.5500	-.0706	.4500	-.1992
10	.5500	-.1130	.4500	-.1113	.4500	-.0955	.4500	-.0920	.4500	-.0867	.3500	-.1383
9	.4500	-.1222	.3500	-.1130	.3500	-.0944	.3500	-.0952	.3500	-.0846	.2600	-.1443
8	.3500	-.1190	.2600	-.0934	.2600	-.0822	.2600	-.0801	.2600	-.0846	.1400	-.1120
7	.2600	-.1022	.1400	-.0706	.1400	-.0516	.1400	-.0492	.1400	-.0534	.0750	-.0713
6	.1400	-.0727			.0750	-.0292	.0750	-.0246	.0750	-.0243	.0400	-.0604
5	.0750	-.0457	.0400	-.0394	.0400	-.0197	.0400	-.0064	.0400	-.0120	.0220	-.0131
4	.0400	-.0457	.0200	-.0201	.0200	-.0008	.0200	.0098	.0200	.0231	.0070	.0203
3	.0200	-.0453	.0070	.0424	.0070	.0553	.0070	.0690	.0070	.0232	.0000	.0788
2	.0070	.0150	.0000	.0760	.0000	.0620	.0000	.0978	.0000	.0364	.0100	-.04716
1	.0000	.0332	.0100	-.0207	.0100	-.0470	.0100	-.03849	.0100	-.04667	.0300	-.0586
42	.0100	-.0353	.0300	-.0560	.0300	-.0577	.0300	-.05323	.0300	-.05316	.0500	-.04688
41	.0300	-.04579	.0500	-.0479	.0500	-.03478	.0500	-.04063	.0500	-.03593	.0750	-.02909
40	.0500	-.0392	.0750	-.0750	.0750	-.0471	.0750	-.02860	.0750	-.02657	.1000	-.02979
39	.0750	-.0372	.1000	-.0548	.1000	-.0593	.1000	-.0502	.1000	-.02466	.1400	-.02579
38	.1000	-.0325	.1400	-.0397	.1400	-.0323	.1400	-.02323	.1400	-.02257	.1800	-.02471
37	.1400	-.0208	.1800	-.0229	.1800	-.02134	.1800	-.02267	.1800	-.02066	.2200	-.02372
36	.1800	-.0239	.2200	-.0222	.2200	-.02081	.2200	-.02169	.2200	-.02158	.2600	-.02341
35	.2200	-.0257	.2600	-.02162	.2600	-.01962	.2600	-.02039	.2600	-.02168	.3000	-.02151
34	.2600	-.0253	.3000	-.0222	.3000	-.01843	.3000	-.01937	.3000	-.02158	.3400	-.02057
33	.3000	-.0213	.3400	-.0209	.3400	-.01857	.3400	-.01913	.3400	-.02187	.3800	-.02027
32	.3400	-.02109	.3800	-.0209	.3800	-.01829	.3800	-.01839	.3800	-.02227	.4200	-.02190
31	.3800	-.0206	.4200	-.01867	.4200	-.01639	.4200	-.01730	.4200	-.021597	.4600	-.02172
30	.4200	-.02071	.4600	-.01776	.4600	-.01443	.4600	-.01492	.4600	-.021587	.5000	-.02130
29	.4600	-.01965	.5000	-.01608	.5000	-.01464	.5000	-.01474	.5000	-.021397	.5400	-.02132
28	.5000	-.01881	.5400	-.01488	.5400	-.01302	.5400	-.01313	.5400	-.021173	.5800	-.02094
27	.5400	-.01650	.5800	-.01397	.5800	-.01102	.5800	-.01180	.5800	-.021046	.6200	-.02073
26	.5800	-.01618	.6200	-.01197	.6200	-.00966	.6200	-.01050	.6200	-.020804	.6600	-.020516
25	.6200	-.01590	.6600	-.01060	.6600	-.00808	.6600	-.00794	.6600	-.020643	.7000	-.020401
24	.6600	-.01176	.7000	-.00923	.7000	-.00737	.7000	-.00745	.7000	-.020408	.7400	-.02032
23	.7000	-.01162	.7400	-.00864	.7400	-.00590	.7400	-.00555	.7400	-.020338	.7800	-.020067
22	.7400	-.00990	.7800	-.0081	.7800	-.00478	.7800	-.00362	.7800	-.020159	.8200	-.020098
21	.7800	-.00937	.8200	-.00552	.8200	-.00257	.8200	-.00222	.8200	-.020077	.8600	-.020076
20	.8200	-.00759	.8600	-.00313	.8600	-.00134	.8600	-.00081	.8600	-.020029	.9000	-.02000
19	.8600	-.00545	.9000	-.00109	.9000	.00087	.9000	.00140	.9000	.00392		
18	.9000	-.00418	.9400	.00105	.9400	.00266						
17	.9400		.9800	.00347			.9800	.00526				
16									.9800	.00603		

REYNOLDS NUMBER = 2500000.																	
LAMBDA=50. DEG ALPHA= 3.90 DEG MO= .7793																	
ETA = .3000			ETA = .4500			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP	
15	.8500	-.0253	.9700	.0232	.9700	.0390	.9700	.0386	.9700	.0386	.9700	.0439	.8500	.0179	.8500	.0179	.8500
14	.7500	-.0339	.8500	-.0123	.8500	-.0053	.7500	.0024	.8500	.0024	.7500	.0158	.7500	.0095	.7500	.0095	.7500
13			.7500	-.0250	.7500	-.0120	.6500	-.0148	.7500	-.0148	.6500	.0373	.6500	.0078	.6500	.0078	.6500
12			.6500	-.0439	.6500	-.0359	.5500	-.0411	.6500	-.0411	.5500	.0450	.5500	.0095	.5500	.0095	.5500
11	.6500	-.0531	.5500	-.0562	.5500	-.0373	.4500	-.0474	.5500	-.0474	.4500	.0366	.4500	.0078	.4500	.0078	.4500
10	.5500	-.0597	.4500	-.0615	.4500	-.0520	.3500	-.0324	.4500	-.0324	.3500	.0158	.3500	.0095	.3500	.0095	.3500
9	.4500	-.0608	.3500	-.0415	.3500	-.0313	.2600	-.0028	.3500	-.0028	.2600	.0305	.2600	.0078	.2600	.0078	.2600
8	.3500	-.0439	.2600	.0200	.2600	-.0053	.1400	.0379	.2600	.0379	.1400	.0850	.1400	.0095	.1400	.0095	.1400
7	.2600	-.0274	.1400	.0232	.1400	.0379	.0750	.0896	.1400	.0896	.0750	.1324	.0750	.0078	.0750	.0078	.0750
6	.1400	.0144	.0750	.1121	.0750	.0910	.0400	.1416	.0750	.1416	.0400	.2009	.0400	.0095	.0400	.0095	.0400
5	.0750	.0639	.0400	.1700	.0400	.1296	.0220	.1953	.0750	.1953	.0220	.3928	.0220	.0078	.0220	.0078	.0220
4	.0400	.0976	.0220	.3759	.0220	.1897	.0070	.3928	.0400	.3928	.0070	.1999	.0070	.0095	.0070	.0095	.0070
3	.0220	.1402	.0070	.7301	.0070	.1943	.0000	.0646	.0220	.0646	.0000	.0995	.0000	.0078	.0000	.0078	.0000
2	.0070	.3475	.0000	-.8738	.0100	-.0272	.0100	-.9104	.0070	-.9104	.0100	.0955	.0100	.0095	.0100	.0095	.0100
1	.0000	.2350	.0300	-.9367	.0300	-.0314	.0300	-.6659	.0300	-.6659	.0300	.0955	.0300	.0078	.0300	.0078	.0300
42	.0300	-.8453	.0750	.4287	.0750	-.4044	.0750	-.4462	.0750	-.4462	.0750	.4076	.0750	.0095	.0750	.0095	.0750
41	.0500	-.5653	.1000	.3928	.1000	-.3921	.1000	-.3805	.1000	-.3805	.1000	.3682	.1000	.0078	.1000	.0078	.1000
39	.0750	-.3900	.1400	.3524	.1400	-.3422	.1400	-.3345	.1400	-.3345	.1400	.3247	.1400	.0095	.1400	.0095	.1400
38	.1000	-.3658	.1800	.3408	.1800	-.3061	.1800	-.3138	.1800	-.3138	.1800	.2850	.1800	.0078	.1800	.0078	.1800
37	.1400	-.3349	.2200	.3138	.2200	-.2888	.2200	-.2916	.2200	-.2916	.2200	.2867	.2200	.0095	.2200	.0095	.2200
36	.1800	-.3233	.2600	.2923	.2600	-.2667	.2600	-.2671	.2600	-.2671	.2600	.2614	.2600	.0078	.2600	.0078	.2600
35	.2200	-.3152	.3000	.2702	.3000	-.2516	.3000	-.2519	.3000	-.2519	.3000	.2330	.3000	.0095	.3000	.0095	.3000
34	.2600	-.3071	.3400	.2590	.3400	-.2446	.3400	-.2418	.3400	-.2418	.3400	.2217	.3400	.0078	.3400	.0078	.3400
33	.3000	-.2874	.3800	.2600	.3800	-.2351	.3800	-.2263	.3800	-.2263	.3800	.2172	.3800	.0095	.3800	.0095	.3800
32	.3400	-.2836	.4200	.2351	.4200	-.2119	.4200	-.2112	.4200	-.2112	.4200	.1905	.4200	.0078	.4200	.0078	.4200
31	.3800	-.2772	.4600	.2245	.4600	-.2063	.4600	-.1810	.4600	-.1810	.4600	.1841	.4600	.0095	.4600	.0095	.4600
30	.4200	-.2692	.5000	.2038	.5000	-.1834	.5000	-.1757	.5000	-.1757	.5000	.1623	.5000	.0078	.5000	.0078	.5000
29	.4600	-.2655	.5400	.1855	.5400	-.1616	.5400	-.1557	.5400	-.1557	.5400	.1342	.5400	.0095	.5400	.0095	.5400
28	.5000	-.2442	.5800	-.1590	.5800	-.1392	.5800	-.1266	.5800	-.1266	.5800	.1181	.5800	.0078	.5800	.0078	.5800
27	.5400	-.2203	.6200	-.1490	.6200	-.1226	.6200	-.1024	.6200	-.1024	.6200	.0914	.6200	.0095	.6200	.0095	.6200
26	.5800	-.2105	.6600	-.1311	.6600	-.1024	.6600	-.0931	.6600	-.0931	.6600	.0854	.6600	.0078	.6600	.0078	.6600
25	.6200	-.2006	.7000	-.1191	.7000	-.0910	.7000	-.0844	.7000	-.0844	.7000	.0692	.7000	.0095	.7000	.0095	.7000
24	.7000	-.1550	.7400	-.1026	.7400	-.0710	.7400	-.0612	.7400	-.0612	.7400	.0439	.7400	.0078	.7400	.0078	.7400
23	.7400	-.1451	.7800	-.0808	.7800	-.0573	.7800	-.0401	.7800	-.0401	.7800	.0355	.7800	.0095	.7800	.0095	.7800
22	.7800	-.1290	.8200	-.0633	.8200	-.0376	.8200	-.0186	.8200	-.0186	.8200	.0165	.8200	.0078	.8200	.0078	.8200
21	.8200	-.1205	.8600	-.0376	.8600	-.0151	.8600	-.0045	.8600	-.0045	.8600	.0017	.8600	.0095	.8600	.0095	.8600
20	.8600	-.0995	.9000	-.0151	.9000	.0074	.9000	.0028	.9000	.0028	.9000	.0017	.9000	.0078	.9000	.0078	.9000
19	.9000	-.0742	.9400	-.0074	.9400	.0028	.9400	.0010	.9400	.0010	.9400	.0017	.9400	.0095	.9400	.0095	.9400
18	.9400	-.0541	.9800	.0032	.9800	.0010	.9800	.0005	.9800	.0005	.9800	.0017	.9800	.0078	.9800	.0078	.9800
17			.9800	.0323	.9800	.0028	.9800	.0010	.9800	.0010	.9800	.0017	.9800	.0095	.9800	.0095	.9800
16												.0495		.0078		.0078	

TABLE 34

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDAS=50.DEG ALPHA= .03DEG MO= .8437

	ETA = .5000			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP	
15	.8500	-.0994		.9700	.0173		.9700	.0368		.9700	.0387		.9700	.0454	
14	.7500	-.1269		.8500	-.0480		.8500	-.0288		.8500	-.0217		.7500	-.0692	
13	.6500	-.1564		.7500	-.0812		.7500	-.0582		.7500	-.0540		.6500	-.0876	
12	.5500	-.1765		.6500	-.1183		.6500	-.0950		.6500	-.1180		.5500	-.1161	
11	.4500	-.1970		.5500	-.1497		.5500	-.1209		.5500	-.1474		.4500	-.1449	
10	.3500	-.1967		.4500	-.1807		.4500	-.1564		.4500	-.1674		.3500	-.1525	
9	.2600	-.1893		.3500	-.1867		.3500	-.1644		.3500	-.1580		.2600	-.1519	
8	.1400	-.1736		.2600	-.1487		.2600	-.1541		.2600	-.1544		.1400	-.1554	
7	.0750	-.1979		.1400	-.1861		.1400	-.1583		.1400	-.1509		.0750	-.1784	
6	.0400	-.2657		.0750	-.2776		.0750	-.1890		.0750	-.1835		.0400	-.2354	
5	.0210	-.3329		.0400	-.3268		.0400	-.2555		.0400	-.2373		.0210	-.2657	
4	.0070	-.3016		.0210	-.3016		.0210	-.3051		.0210	-.2894		.0070	-.2785	
3	.0000	-.4093		.0070	-.4116		.0070	-.0048		.0070	.0208		.0000	-.0086	
2	.0100	-.0569		.0000	.4116		.0000	.4109		.0000	.1071		.0100	.4534	
1	.0300	-.2190		.0100	-.0656		.0100	-.0671		.0100	-.0288		.0300	-.0908	
42	.0500	-.1704		.0300	-.2366		.0300	-.2245		.0300	-.2433		.0500	-.3102	
41	.0750	-.1557		.0500	-.1864		.0500	-.1749		.0500	-.1867		.0750	-.2338	
40	.1000	-.1560		.0750	-.1701		.0750	-.1560		.0750	-.1644		.1000	-.2631	
39	.1200	-.1637		.1000	-.1676		.1000	-.1599		.1000	-.1567		.1200	-.2401	
38	.1400	-.1637		.1200	-.1666		.1200	-.1522		.1200	-.1513		.1400	-.2653	
37	.1600	-.1724		.1400	-.1717		.1400	-.1487		.1400	-.1525		.1600	-.1986	
36	.1800	-.1781		.1600	-.1733		.1600	-.1516		.1600	-.1534		.1800	-.2056	
35	.2000	-.1772		.1800	-.1704		.1800	-.1426		.1800	-.1519		.2000	-.2165	
34	.2200	-.1781		.2000	-.1631		.2000	-.1391		.2000	-.1503		.2200	-.2104	
33	.2400	-.1784		.2200	-.1618		.2200	-.1516		.2200	-.1554		.2400	-.2063	
32	.2600	-.1839		.2400	-.1765		.2400	-.1522		.2400	-.1544		.2600	-.2002	
31	.2800	-.1877		.2600	-.1730		.2600	-.1429		.2600	-.1525		.2800	-.1935	
30	.3000	-.1879		.2800	-.1663		.2800	-.1452		.2800	-.1311		.3000	-.1727	
29	.3200	-.1775		.3000	-.1452		.3000	-.1330		.3000	-.1388		.3200	-.1500	
28	.3400	-.1679		.3200	-.1369		.3200	-.1164		.3200	-.1206		.3400	-.1401	
27	.3600	-.1599		.3400	-.1311		.3400	-.1020		.3400	-.1126		.3600	-.1432	
26	.3800	-.1554		.3600	-.1145		.3600	-.0908		.3600	-.1030		.3800	-.1067	
25	.4000	-.1081		.3800	-.1033		.3800	-.0799		.3800	-.0812		.4000	-.0640	
24	.4200	-.1097		.4000	-.0994		.4000	-.0735		.4000	-.0793		.4200	-.0521	
23	.4400	-.0931		.4200	-.0908		.4200	-.0665		.4200	-.0611		.4400	-.0339	
22	.4600	-.0943		.4400	-.0745		.4400	-.0512		.4400	-.0435		.4600	-.0176	
21	.4800	-.0835		.4600	-.0646		.4600	-.0403		.4600	-.0317		.4800	-.0006	
20	.5000	-.0783		.4800	-.0412		.4800	-.0118		.4800	-.0195		.5000	-.0173	
19	.5200	-.0755		.5000	-.0246		.5000	-.0042		.5000	.0000		.5200	.0413	
18	.5400	-.0755		.5200	-.0051		.5200	.0160		.5200	.0422		.5400	.0483	
17	.5600	-.0755		.5400	.0176		.5400	.0422		.5400	.0422		.5600	.0483	
16	.5800	-.0755		.5600	.0176		.5600	.0422		.5600	.0422		.5800	.0483	

	ETA = .3000			ETA = .4500			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP	
15	.8500	-.0652		.9700	.0133		.9700	.0329		.9700	.0341		.9700	.0402		.8500		
14	.7500	-.0908		.8500	-.0376		.8500	-.0235		.8500	-.0158		.7500			.7500		
13				.7500	-.0578		.7500	-.0411		.7500	-.0415							
12	.6500	-.1196		.6500	-.0850		.6500	-.0713		.6500			.7500	.0389		.6500		
11	.5500	-.1347		.5500	-.1062		.5500	-.0841		.5500	-.0860		.6500	-.0677		.5500		
10	.4500	-.1436		.4500	-.1241		.4500	-.1084		.4500	-.1062		.5500	-.0837		.4500		
9	.3500	-.1350		.3500	-.1260		.3500	-.1116		.3500	-.1084		.4500	-.1023		.3500		
8	.2600	-.1161		.2600	-.1058		.2600	-.0924		.2600	-.0905		.3500	-.0994		.2600		
7	.1400	-.0857		.1400	-.0812		.1400	-.0636		.1400	-.0584		.2600	-.0956		.1400		
6	.0750	-.0559					.0750	-.0370		.0750	-.0331		.1400	-.0623		.0750		
5	.0400	-.0600		.0400	-.0524		.0400	-.0338		.0400	-.0168		.0750	-.0325		.0400		
4	.0210	-.0591		.0220	-.0283		.0220	-.0085		.0220	-.0011		.0400	-.0219		.0210		
3	.0070	.0249		.0070	.2369		.0070	.2481		.0070	.2641		.0220	-.0162		.0070		
2	.0000	.3724		.0000	.3756		.0000	.3641		.0000	.0928		.0070	.2702		.0000		
1	.0100	-.3900		.0100	-.4275		.0100	-.4528		.0100	-.3935		.0000	.3692		.0100		
42	.0300	-.4806		.0300	-.5357		.0300	-.5421		.0300	-.5706		.0100	-.4864		.0300		
41	.0500	-.4284		.0500	-.4778		.0500	-.4400		.0500	-.4829		.0300	-.5671		.0500		
40	.0750	-.2593		.0750	-.2936		.0750	-.2679		.0750	-.2945		.0500	-.4448		.0750		
39	.1000	-.2580		.1000	-.2840		.1000	-.2840		.1000	-.2734		.0750	-.2843		.1000		
38	.1400	-.2478		.1400	-.2647		.1400	-.2574		.1400	-.2564		.1000	-.2663		.1400		
37	.1800	-.2519		.1800	-.2705		.1800	-.2391		.1800	-.2478		.1400	-.2494		.1800		
36	.2200	-.2561		.2200	-.2561		.2200	-.2333		.2200	-.2391		.1800	-.2276		.2200		
35	.2600	-.2574		.2600	-.2465		.2600	-.2221		.2600	-.2260		.2200	-.2381		.2600		
34	.3000	-.2449		.3000	-.2340		.3000	-.2100		.3000	-.2154		.2600	-.2093		.3000		
33	.3400	-.2466		.3400	-.2269		.3400	-.2122		.3400	-.2125		.3000	-.2087		.3400		
32	.3800	-.2442		.3800	-.2333		.3800	-.2087		.3800	-.2048		.3400	-.2037		.3800		
31	.4200	-.2417		.4200	-.2119		.4200	-.1898		.4200	-.1949		.3800	-.2045		.4200		
30	.4600	-.2340		.														

TABLE 37

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDAS=50.DEG ALPHA= 2.02DEG MO= .8823

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0884	.9700	.0014	.9700	.0252	.9700	.0249	.9700	.0310	.8500	.0072
14	.7500	-.1183	.8500	-.0513	.8500	-.0339	.8500	-.0248	.7500	-.0531	.7500	-.0339
13	.6500	-.1411	.7500	-.0720	.6500	-.0500	.7500	-.0528	.6500	-.0820	.6500	-.0878
12	.5500	-.1548	.6500	-.0997	.5500	-.0823	.5500	-.0976	.5500	-.1125	.5500	-.1490
11	.4500	-.1621	.5500	-.1237	.4500	-.0951	.4500	-.1173	.4500	-.1495	.4500	-.1886
10	.3500	-.1515	.4500	-.1411	.3500	-.1225	.4500	-.1495	.3500	-.1886	.3500	-.2438
9	.2500	-.1307	.3500	-.1621	.2500	-.1495	.3500	-.1886	.2500	-.2438	.2500	-.3081
8	.1400	-.0994	.2500	-.1886	.1400	-.1621	.2500	-.2438	.1400	-.3081	.1400	-.3886
7	.0750	-.0680	.1400	-.2074	.0750	-.1886	.1400	-.2438	.0750	-.3281	.0750	-.4228
6	.0400	-.0434	.0750	-.2281	.0400	-.2074	.0750	-.2438	.0400	-.3586	.0400	-.4686
5	.0210	-.0273	.0220	-.2491	.0220	-.2281	.0220	-.2438	.0220	-.3886	.0220	-.5086
4	.0070	-.0142	.0070	-.2697	.0070	-.2491	.0070	-.2660	.0070	-.4228	.0070	-.5586
3	.0000	-.3702	.0000	-.3714	.0000	-.3604	.0000	-.3897	.0000	-.4686	.0000	-.6086
2	.0100	-.3841	.0100	-.4280	.0100	-.4560	.0100	-.4802	.0100	-.5233	.0100	-.6086
1	.0300	-.4953	.0300	-.5641	.0300	-.5729	.0300	-.6043	.0300	-.6524	.0300	-.7586
42	.0500	-.4417	.0500	-.5184	.0500	-.5202	.0500	-.5339	.0500	-.5624	.0500	-.6086
41	.0750	-.2772	.0750	-.3116	.0750	-.2717	.0750	-.3016	.0750	-.3319	.0750	-.3886
40	.1000	-.2854	.1000	-.3025	.1000	-.2898	.1000	-.3166	.1000	-.3419	.1000	-.4086
39	.1200	-.2599	.1200	-.2931	.1200	-.2898	.1200	-.3166	.1200	-.3419	.1200	-.4086
38	.1400	-.2797	.1400	-.2931	.1400	-.2714	.1400	-.2845	.1400	-.3166	.1400	-.3886
37	.1600	-.2809	.1600	-.2837	.1600	-.2574	.1600	-.2660	.1600	-.2943	.1600	-.3686
36	.1800	-.2839	.1800	-.2733	.1800	-.2359	.1800	-.2443	.1800	-.2743	.1800	-.3486
35	.2000	-.2733	.2000	-.2605	.2000	-.2291	.2000	-.2350	.2000	-.2643	.2000	-.3286
34	.2200	-.2733	.2200	-.2507	.2200	-.2291	.2200	-.2303	.2200	-.2595	.2200	-.3086
33	.2400	-.2754	.2400	-.2370	.2400	-.2261	.2400	-.2218	.2400	-.2495	.2400	-.2886
32	.2600	-.2736	.2600	-.2297	.2600	-.2066	.2600	-.2117	.2600	-.2380	.2600	-.2686
31	.2800	-.2656	.2800	-.2081	.2800	-.1840	.2800	-.1846	.2800	-.2179	.2800	-.2486
30	.3000	-.2553	.3000	-.1932	.3000	-.1639	.3000	-.1630	.3000	-.2079	.3000	-.2286
29	.3200	-.2352	.3200	-.1801	.3200	-.1431	.3200	-.1493	.3200	-.1979	.3200	-.2086
28	.3400	-.2285	.3400	-.1575	.3400	-.1277	.3400	-.1344	.3400	-.1859	.3400	-.1886
27	.3600	-.2248	.3600	-.1411	.3600	-.1082	.3600	-.1097	.3600	-.1759	.3600	-.1686
26	.3800	-.2180	.3800	-.1311	.3800	-.0821	.3800	-.0808	.3800	-.1606	.3800	-.1486
25	.4000	-.2158	.4000	-.1152	.4000	-.0654	.4000	-.0630	.4000	-.1456	.4000	-.1286
24	.4200	-.2152	.4200	-.0939	.4200	-.0498	.4200	-.0430	.4200	-.1256	.4200	-.1086
23	.4400	-.2175	.4400	-.0781	.4400	-.0393	.4400	-.0290	.4400	-.1056	.4400	-.0886
22	.4600	-.2146	.4600	-.0609	.4600	-.0239	.4600	-.0159	.4600	-.0856	.4600	-.0686
21	.4800	-.2127	.4800	-.0474	.4800	-.0105	.4800	-.0037	.4800	-.0656	.4800	-.0486
20	.5000	-.2106	.5000	-.0366	.5000	-.0016	.5000	-.0000	.5000	-.0456	.5000	-.0286
19	.5200	-.2084	.5200	-.0274	.5200	-.0000	.5200	-.0000	.5200	-.0256	.5200	-.0086
18	.5400	-.2061	.5400	-.0194	.5400	-.0000	.5400	-.0000	.5400	-.0036	.5400	-.0000
17	.5600	-.2037	.5600	-.0124	.5600	-.0000	.5600	-.0000	.5600	-.0000	.5600	-.0000
16	.5800	-.2012	.5800	-.0064	.5800	-.0000	.5800	-.0000	.5800	-.0000	.5800	-.0000

TABLE 38

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMBDAS=50.DEG ALPHA= 4.05DEG MO= .8811

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.0552	.9700	.0076	.9700	.0207	.9700	.0228	.9700	.0274	.8500	-.0022
14	.7500	-.0619	.8500	-.0308	.8500	-.0208	.8500	-.0150	.7500	-.0409	.7500	-.0409
13			.7500	-.0433	.7500	-.0311	.7500	-.0333			.6500	-.0918
12	.6500	-.0729	.6500	-.0632	.6500	-.0525	.5500	-.0595	.6500	-.0610	.5500	-.1348
11	.5500	-.0775	.5500	-.0775	.5500	-.0580	.4500	-.0644	.5500	-.0702	.4500	-.1422
10	.4500	-.0793	.4500	-.0824	.4500	-.0609	.3500	-.0676	.4500	-.0522	.3500	-.1302
9	.3500	-.0610	.3500	-.0625	.3500	-.0507	.2600	-.0141	.3500	-.0199	.2600	-.1016
8	.2600	-.0442	.2600	-.0022	.2600	-.0134	.1400	.0311	.2600	.0259	.1400	-.0314
7	.1400	.0009	.1400	.0076	.1400	.0244	.0750	.0832	.1400	.0829	.0750	.0399
6	.0750	.0515			.0750	.0829	.0400	.1375	.0750	.1317	.0400	.0866
5	.0400	.0823	.0400	.0997	.0400	.1204	.0220	.1909	.0400	.1988	.0220	.1453
4	.0210	.1207	.0220	.1552	.0220	.1814	.0070	.3891	.0220	.3894	.0070	.3440
3	.0070	.3321	.0070	.3632	.0070	.3763	.0000	.0631	.0070	.2235	.0000	.2874
2	.0000	.2659	.0000	.2488	.0000	.2202	.0100	.8231	.0100	.8548	.0100	.8353
1	.0100	.7167	.0100	.7585	.0100	.8115	.0300	.8893	.0300	.9454	.0300	.9927
42	.0300	.8990	.0300	.9695	.0300	.9919	.0500	.8850	.0500	.9567	.0500	.9826
41	.0500	.8262	.0500	.9704	.0500	.9167	.0750	.7566	.0750	.8115	.0750	.8027
40	.0750	.4117	.0750	.6828	.0750	.7380	.1000	.5907	.1000	.4514	.1000	.3760
39	.1000	.4160	.1000	.5343	.1000	.5602	.1400	.3742	.1400	.3187	.1400	.3437
38	.1400	.3983	.1400	.4410	.1400	.3709	.1800	.3635	.1800	.3394	.1800	.3309
37	.1800	.3919	.1800	.4178	.1800	.3431	.2200	.3324	.2200	.3157	.2200	.3157
36	.2200	.3992	.2200	.3629	.2200	.3422	.2600	.3086	.2600	.2876	.2600	.2894
35	.2600	.3971	.2600	.3462	.2600	.3276	.3000	.2937	.3000	.2824	.3000	.2638
34	.3000	.3767	.3000	.3245	.3000	.3019	.3400	.2745	.3400	.2714	.3400	.2592
33	.3400	.3791	.3400	.3019	.3400	.2766	.3800	.2595	.3800	.2641	.3800	.2640
32	.3800	.3852	.3800	.3096	.3800	.2629	.4200	.2470	.4200	.2202	.4200	.2339
31	.4200	.3852	.4200	.2824	.4200	.2464	.4600	.2126	.4600	.2104	.4600	.2068
30	.4600	.3690	.4600	.2724	.4600	.2370	.5000	.2080	.5000	.1854	.5000	.1812
29	.5000	.3501	.5000	.2473	.5000	.2187	.5400	.1876	.5400	.1562	.5400	.1462
28	.5400	.3144	.5400	.2275	.5400	.1946	.5800	.1665	.5800	.1412	.5800	.1360
27	.5800	.2946	.5800	.2071	.5800	.1690	.6200	.1427	.6200	.1142	.6200	.1071
26	.6200	.2791	.6200	.1790	.6200	.1467	.6600	.1123	.6600	.0891	.6600	.0833
25	.7000	.2208	.6600	.1519	.6600	.1272	.7000	.0891	.7000	.0644	.7000	.0644
24	.7400	.2114	.7000	.1446	.7000	.1104	.7400	.0833	.7400	.0589	.7400	.0394
23	.7800	.1867	.7400	.1263	.7400	.0940	.7800	.0589	.7800	.0358	.7800	.0162
22	.8200	.1742	.7800	.1010	.7800	.0732	.8200	.0391	.8200	.0363	.8200	.0024
21	.8600	.1492	.8200	.0815	.8200	.0558	.8600	.0250	.8600	.0174	.8600	.0000
20	.9000	.1214	.8600	.0552	.8600	.0339	.9000	.0034	.9000	.0125	.9000	.0405
19	.9400	.0964	.9000	.0311	.9000	.0128	.9400	.0088	.9400	.0231	.9400	
18			.9400	.0080	.9400	.0088	.9800	.0326	.9800	.0414		
17			.9800	.0161								

TABLE 39

ONERA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

REYNOLDS NUMBER = 2500000.
 LAMDA=50.0 DEG ALPHA= .03 DEG MO= .9225

	ETA = .3000		ETA = .4500		ETA = .6000		ETA = .7500		ETA = .8500		ETA = .9500	
	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP	X/C	CP
15	.8500	-.1527	.9700	.0097	.9700	.0306	.9700	.0280	.9700	.0300	.8500	.0123
14	.7500	-.2022	.8500	-.0599	.8500	-.0369	.8500	-.0325	.7500	-.0742	.7500	-.0413
13			.7500	-.0966	.7500	-.0678	.7500	-.0683			.6500	-.1248
12			.6500	-.1379	.6500	-.1088			.6500	-.1117	.5500	-.2132
11			.5500	-.1757	.5500	-.1367	.5500	-.1347	.5500	-.1379	.5500	-.2374
10			.4500	-.2112	.4500	-.1737	.4500	-.1649	.4500	-.1626	.4500	-.2773
9			.3500	-.2266	.3500	-.1908	.3500	-.1868	.3500	-.1687	.3500	-.2403
8			.2600	-.2185	.2600	-.2074	.2600	-.1734	.2600	-.1644	.2600	-.2013
7			.1400	-.2054	.1400	-.2359	.1400	-.1824	.1400	-.1725	.1400	-.2028
6			.0750	-.2098	.0750	-.2089	.0750	-.1972	.0750	-.1882	.0750	-.2607
5			.0400	-.2778	.0400	-.3104	.0400	-.2505	.0400	-.2464	.0400	-.2685
4	.0210	-.3358	.0220	-.3338	.0220	-.3244	.0220	-.3040	.0220	-.2688	.0220	.0117
3	.0070	-.0186	.0070	-.0168	.0070	-.0055	.0070	.0309	.0070	.0422	.0070	.4700
2	.0000	.4039	.0000	.3999	.0000	.4066	.0000	.1089	.0000	.4357	.0000	.0730
1	.0100	-.0654	.0100	-.0843	.0100	-.0742	.0100	-.0343	.0100	-.0718	.0100	.3154
41	.0300	-.2400	.0300	-.2744	.0300	-.2540	.0300	-.2656	.0300	-.2584	.0300	.2319
40	.0500	-.1891	.0500	-.2223	.0500	-.1970	.0500	-.2048	.0500	-.2013	.0500	.1970
39	.0750	-.1786	.0750	-.2066	.0750	-.1804	.0750	-.1824	.0750	-.1789	.0750	.2048
38	.1000	-.1796	.1000	-.2051	.1000	-.1821	.1000	-.1745	.1000	-.1722	.1000	.2051
37	.1400	-.1795	.1400	-.2080	.1400	-.1766	.1400	-.1716	.1400	-.1644	.1400	.1946
36	.1800	-.1891	.1800	-.2167	.1800	-.1705	.1800	-.1705	.1800	-.1475	.1800	.2019
35	.2200	-.2010	.2200	-.2185	.2200	-.1780	.2200	-.1702	.2200	-.1719	.2200	.2226
34	.2600	-.2092	.2600	-.2167	.2600	-.1699	.2600	-.1708	.2600	-.1527	.2600	.2357
33	.3000	-.2103	.3000	-.2100	.3000	-.1617	.3000	-.1684	.3000	-.1620	.3000	.2418
32	.3400	-.2141	.3400	-.1952	.3400	-.1751	.3400	-.1751	.3400	-.1655	.3400	.2444
31	.3800	-.2188	.3800	-.2112	.3800	-.1769	.3800	-.1731	.3800	-.1775	.3800	.2345
30	.4200	-.2240	.4200	-.2051	.4200	-.1641	.4200	-.1728	.4200	-.1644	.4200	.1987
29	.4600	-.2205	.4600	-.1981	.4600	-.1476	.4600	-.1472	.4600	-.1716	.4600	.1524
28	.5000	-.2162	.5000	-.1734	.5000	-.1545	.5000	-.1582	.5000	-.1577	.5000	.1079
27	.5400	-.2071	.5400	-.1626	.5400	-.1353	.5400	-.1385	.5400	-.1364	.5400	.0803
26	.5800	-.2016	.5800	-.1548	.5800	-.1163	.5800	-.1289	.5800	-.1262	.5800	.0520
25	.6200	-.2007	.6200	-.1379	.6200	-.1065	.6200	-.1181	.6200	-.1091	.6200	.0399
24	.7000	-.1754	.7000	-.1242	.7000	-.0960	.7000	-.0963	.7000	-.1108	.7000	.0143
23	.7400	-.1734	.7400	-.1123	.7400	-.0887	.7400	-.0948	.7400	-.1021	.7400	.0082
22	.7800	-.1591	.7800	-.1123	.7800	-.0788	.7800	-.0756	.7800	-.0779	.7800	.0329
21	.8200	-.1550	.8200	-.0922	.8200	-.0654	.8200	-.0573	.8200	-.0727	.8200	
20	.8600	-.1402	.8600	-.0817	.8600	-.0517	.8600	-.0451	.8600	-.0517	.8600	
19	.9000	-.1309	.9000	-.0567	.9000	-.0224	.9000	-.0328	.9000	-.0349	.9000	
18	.9400	-.1326	.9400	-.0375	.9400	-.0136	.9400	-.0119	.9400	-.0043	.9400	
17			.9800	-.0174	.9800	.0082			.9800	.0082		
16				.0065				.0329				

CONRA VARIABLE SWEEP WING : AFV D CORD = 0.2 M S2MA WIND TUNNEL

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      REYNOLDS NUMBER = 250000.
      LAMBDA=50.DEG  ALPHA= 2.00DEG  MO= .9212

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	ETA = .3000			ETA = .4500			ETA = .6000			ETA = .7500			ETA = .8500			ETA = .9500		
	X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP		X/C	CP	
15	.8500	-.1119		.9700	.0040		.9700	.0265		.9700	.0230		.9700	.0250		.8500	.0040	
14	.7500	-.1323		.8500	-.0513		.8500	-.0327		.8500	-.0277		.7500	-.0615		.7500	-.0469	
13				.7500	-.0720		.7500	-.0504								.6500	-.1774	
12	.6500	-.1551		.6500	-.1011		.6500	-.0825		.5500	-.0991		.5500	-.0901		.5500	-.1889	
10	.5500	-.1647		.5500	-.1271		.5500	-.0974		.4500	-.1195		.4500	-.1128		.4500	-.2023	
9	.4500	-.1696		.4500	-.1486		.4500	-.1233		.3500	-.1218		.3500	-.1064		.3500	-.1801	
8	.3500	-.1591		.3500	-.1521		.3500	-.1253		.2600	-.0968		.2600	-.1014		.2600	-.1468	
7	.2600	-.1329		.2600	-.1344		.2600	-.1058		.1400	-.0685		.1400	-.1032		.1400	-.0580	
6	.1400	-.1026		.1400	-.1090		.0750	-.0761		.0750	-.0411		.0750	-.0353		.0750	-.0580	
5	.0750	-.0729					.0400	-.0493		.0400	-.0228		.0400	-.0234		.0400	-.0484	
4	.0400	-.0767		.0400	-.0819		.0220	-.0655		.0220	-.0038		.0220	-.0160		.0220	-.0046	
3	.0210	-.0773		.0220	-.0577		.0070	-.0207		.0070	-.0070		.0070	-.0146		.0070	-.0086	
2	.0070	.1917		.0070	.2162		.0000	.2407		.0000	.2619		.0000	.2718		.0000	.2086	
1	.0000	.3759		.0000	.3697		.0000	.3630		.0000	.0941		.0000	.3785		.0000	.4073	
42	.0100	.42		.0100	.4170		.0100	-.4607		.0100	-.4141		.0100	-.4872		.0100	-.4738	
41	.0300	-.4852		.0300	-.5860		.0300	-.6227		.0300	-.6248		.0300	-.6216		.0300	-.6560	
40	.0500	-.4397		.0500	-.5388		.0500	-.5872		.0500	-.5735		.0500	-.5744		.0500	-.6082	
39	.0750	-.2611		.0750	-.3229		.0750	-.2600		.0750	-.2973		.0750	-.2780		.0750	-.3080	
38	.1000	-.2891		.1000	-.3413		.1000	-.2611		.1000	-.2804		.1000	-.3232		.1000	-.3332	
37	.1400	-.2774		.1400	-.3258		.1400	-.2629		.1400	-.2871		.1400	-.2745		.1400	-.2978	
36	.1800	-.2754		.1800	-.3322		.1800	-.2576		.1800	-.2766		.1800	-.2508		.1800	-.2888	
35	.2200	-.2897		.2200	-.3168		.2200	-.2623		.2200	-.2620		.2200	-.2582		.2200	-.2865	
34	.2600	-.2932		.2600	-.3115		.2600	-.2602		.2600	-.2576		.2600	-.2352		.2600	-.2882	
33	.3000	-.2894		.3000	-.3077		.3000	-.2541		.3000	-.2390		.3000	-.2337		.3000	-.2664	
32	.3400	-.2941		.3400	-.3121		.3400	-.2541		.3400	-.2396		.3400	-.2258		.3400	-.2742	
31	.3800	-.3005		.3800	-.3162		.3800	-.2468		.3800	-.2259		.3800	-.2329		.3800	-.2728	
30	.4200	-.3057		.4200	-.3263		.4200	-.2197		.4200	-.2098		.4200	-.2014		.4200	-.2716	
29	.4600	-.2987		.4600	-.3145		.4600	-.2026		.4600	-.1827		.4600	-.1865		.4600	-.2495	
28	.5000	-.2868		.5000	-.1967		.5000	-.1836		.5000	-.1883		.5000	-.1865		.5000	-.2221	
27	.5400	-.2652		.5400	-.1842		.5400	-.1632		.5400	-.1667		.5400	-.1609		.5400	-.2055	
26	.5800	-.2588		.5800	-.1752		.5800	-.1408		.5800	-.1521		.5800	-.1466		.5800	-.1775	
25	.6200	-.2637		.6200	-.1545		.6200	-.1268		.6200	-.1367		.6200	-.1230		.6200	-.1323	
24				.6600	-.1396		.6600	-.1096		.6600	-.1119		.6600	-.1094		.6600	-.0944	
23	.7000	-.2343		.7000	-.1300		.7000	-.1006		.7000	-.1038		.7000	-.1032		.7000	-.0711	
22	.7400	-.2384		.7400	-.1151		.7400	-.0842		.7400	-.0828		.7400	-.0767		.7400	-.0464	
21	.7800	-.2209		.7800	-.0933		.7800	-.0682		.7800	-.0612		.7800	-.0671		.7800	-.0339	
20	.8200	-.2034		.8200	-.0761		.8200	-.0493		.8200	-.0446		.8200	-.0421		.8200	-.0021	
19	.8600	-.1693		.8600	-.0507		.8600	-.0213		.8600	-.0306		.8600	-.0236		.8600	-.0207	
18	.9000	-.1393		.9000	-.0280		.9000	-.0064		.9000	-.0070		.9000	-.0175		.9000	-.0457	
17	.9400	-.1265		.9400	-.0041		.9400	-.0122		.9800	.0344		.9800	.0381				
16				.9800	.0192													

TABLE 41

WING GEOMETRY

1: Theoretical wing geometry

2: Measured wing geometry

Λ°	Root chord c(m)		Semi span b(m)		Aspect ratio A		Wing area S(m ²)	
	1	2	1	2	1	2	1	2
0	0,200	0,200	0,800	0,795	8,00	7,95	0,1600	0,1590
30	0,231	0,231	0,721	0,714	6,71	6,64	0,1550	0,1533
40	0,261	0,261	0,645	0,637	5,49	5,43	0,1515	0,1495
50	0,311	0,312	0,547	0,539	4,09	4,04	0,1463	0,1437
60	0,400	0,401	0,430	0,422	2,69	2,66	0,1373	0,1341

TABLE 42

FREE STREAM MACH NUMBER VARIATION WITH INCIDENCE DURING FORCE MEASUREMENTS

Λ°	α°	2	4	6	8	10	12	14	16
	M_∞ at $\alpha=0^\circ$	$\Delta M_\infty = [M_\infty \alpha=0^\circ - M_\infty]$							
0	0.781	0.001	0.003	0.005	0.009				
	0.921	0.000	0.004	0.014	0.025				
30	0.781	0.001	0.003	0.005	0.010	0.019	0.019	0.016	0.016
	0.921	0.000	0.002	0.009					
60	0.783	-0.002	0.000	0.005	0.011	0.015	0.015	0.016	0.016
	0.926	0.000	0.004	0.014	0.030				

FIG 1

VARIABLE SWEEP WING AFV D

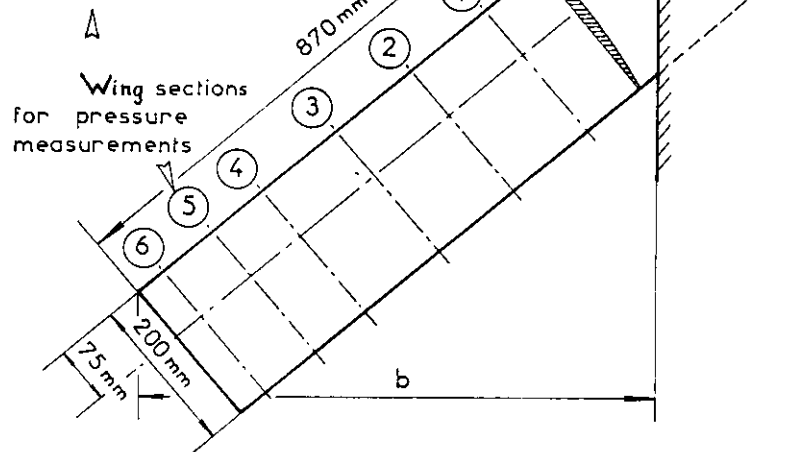
Aspect ratio $8 \geq A \geq 2.71$

Taper ratio $\lambda = 1$

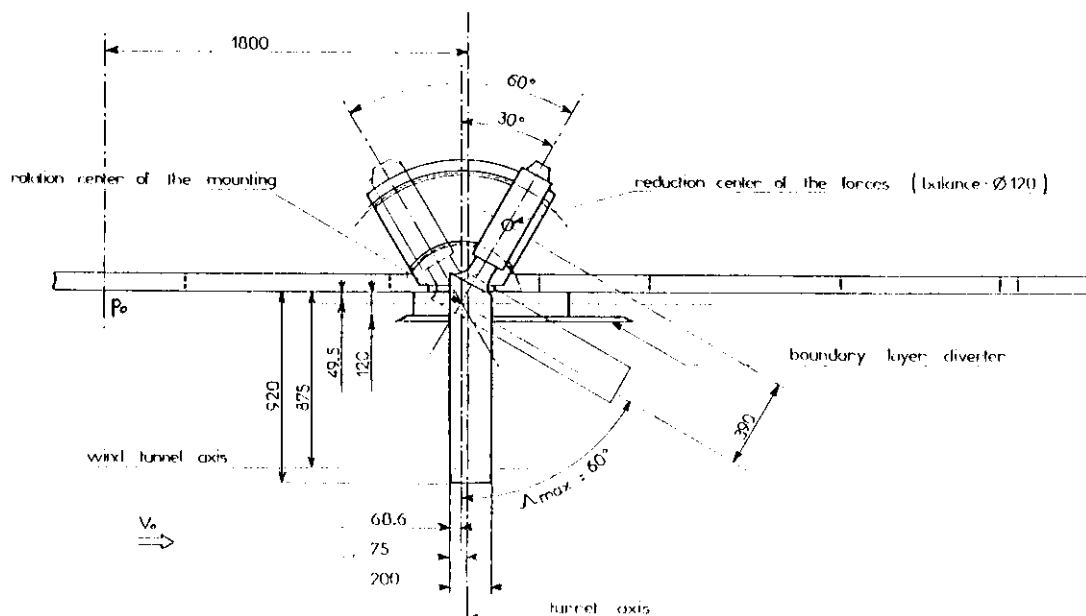
Sweep angle $0^\circ \leq \Lambda \leq 60^\circ$

Number of
pressure holes (246)

N°	y/b	upper	lower
1	0,30	28	13
2	0,45	28	13
3	0,60	28	13
4	0,75	28	13
5	0,85	28	13
6	0,95	28	13

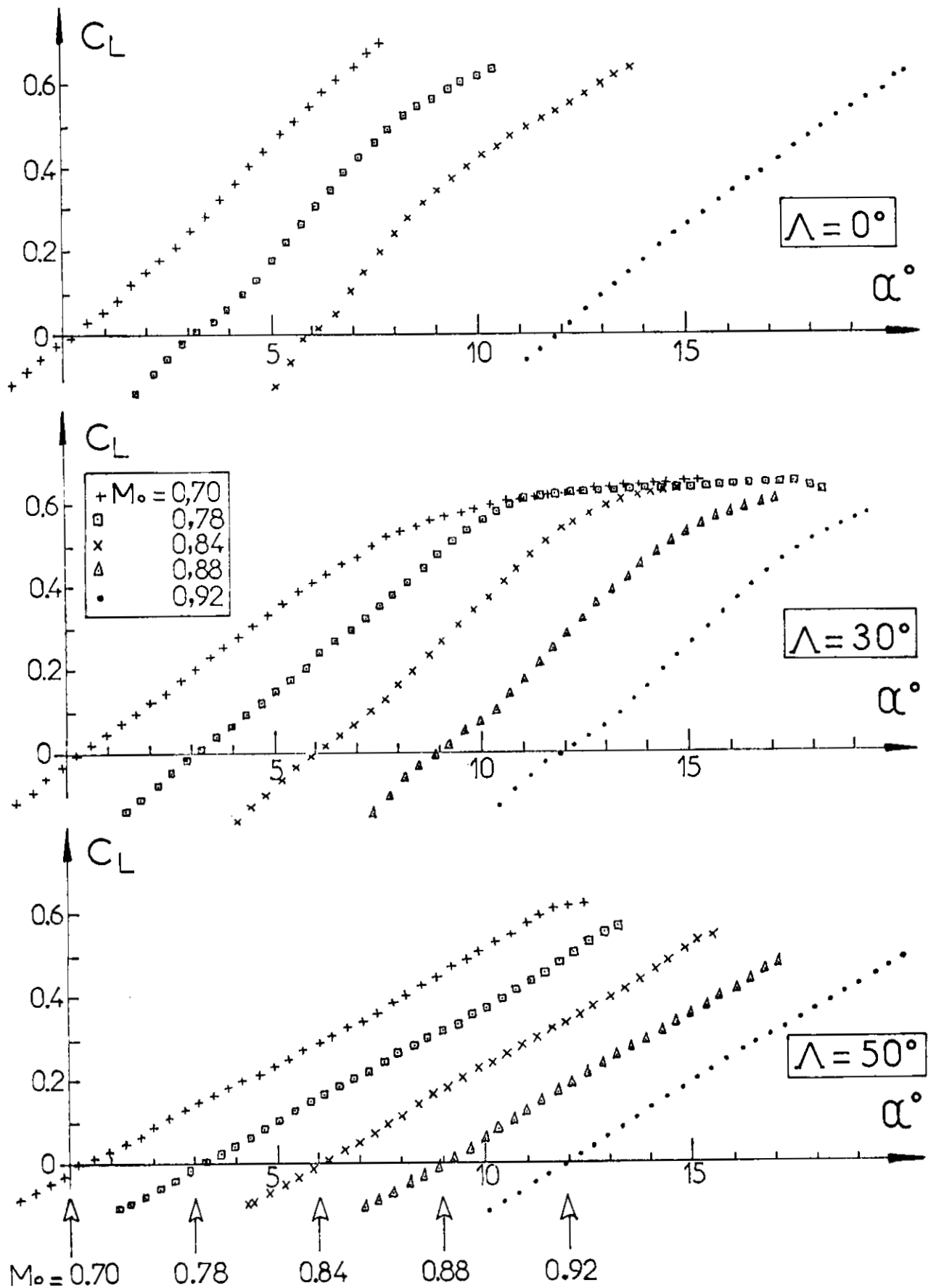
FIG 2

S2MA WIND TUNNEL : WING MOUNTING



NOTE : dimensions in mm

FIG 3
 VARIABLE SWEEP WING AFV D
 S2MA WIND TUNNEL $Re = 2.5 \times 10^6$

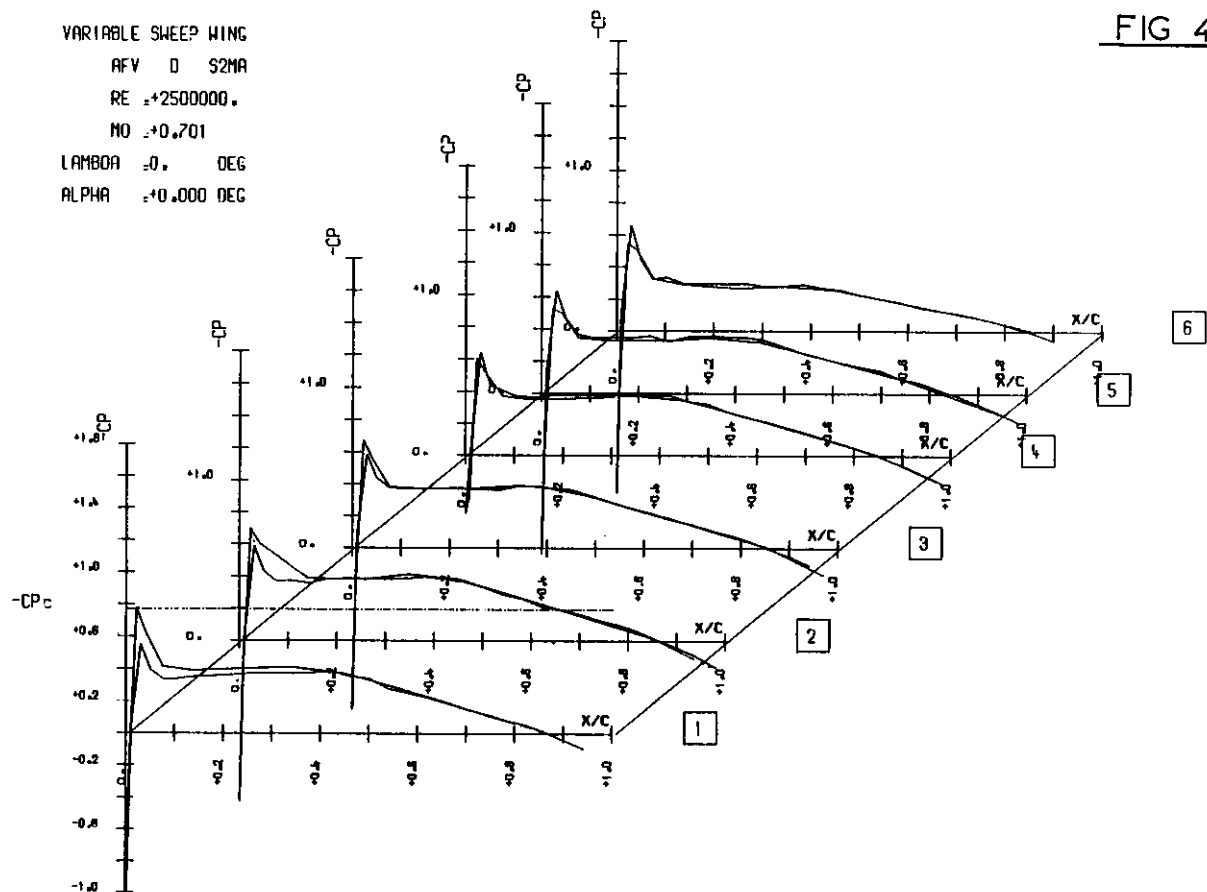


VARIABLE SWEEP WING

AFV 0 S2MA

RE ± 2500000 MO ± 0.701 LAMBDA ± 0 DEGALPHA ± 0.000 DEG

FIG 4

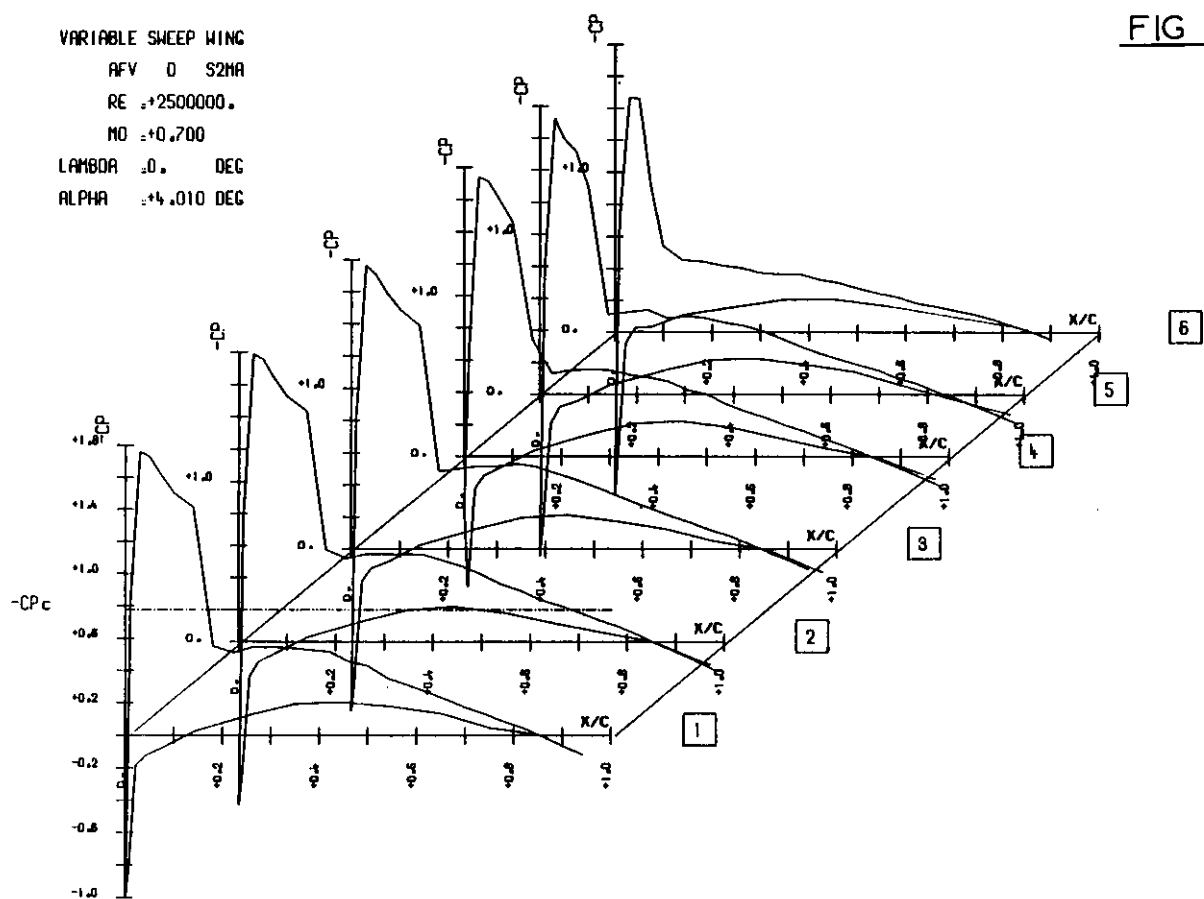


VARIABLE SWEEP WING

AFV 0 S2MA

RE ± 2500000 MO ± 0.700 LAMBDA ± 0 DEGALPHA ± 4.010 DEG

FIG 5



VARIABLE SWEEP WING

AFV D S2MA

RE ± 2500000

MO ± 0.782

LAMBDA ± 0 DEG

ALPHA ± 0.010 DEG

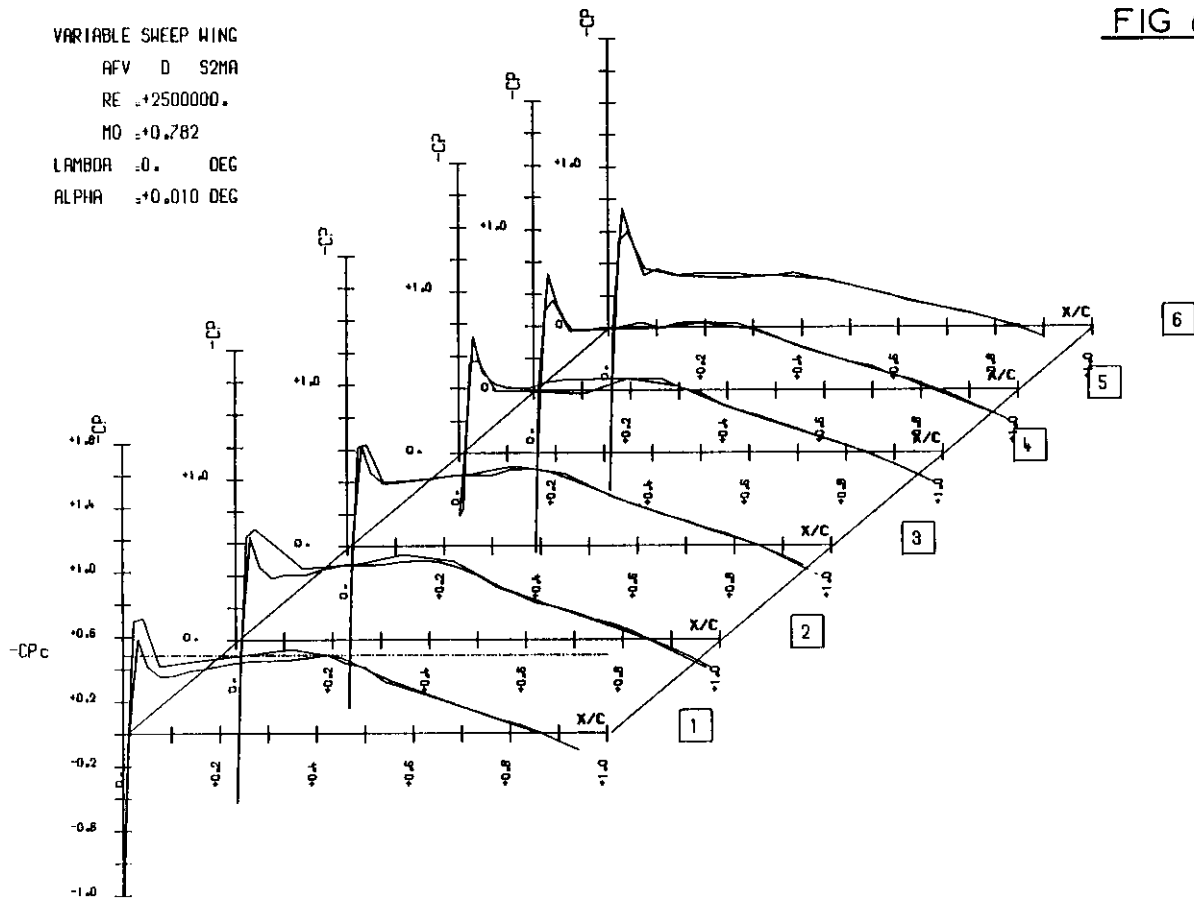


FIG 6

VARIABLE SWEEP WING

AFV D S2MA

RE ± 2500000

MO ± 0.779

LAMBDA ± 0 DEG

ALPHA ± 4.020 DEG

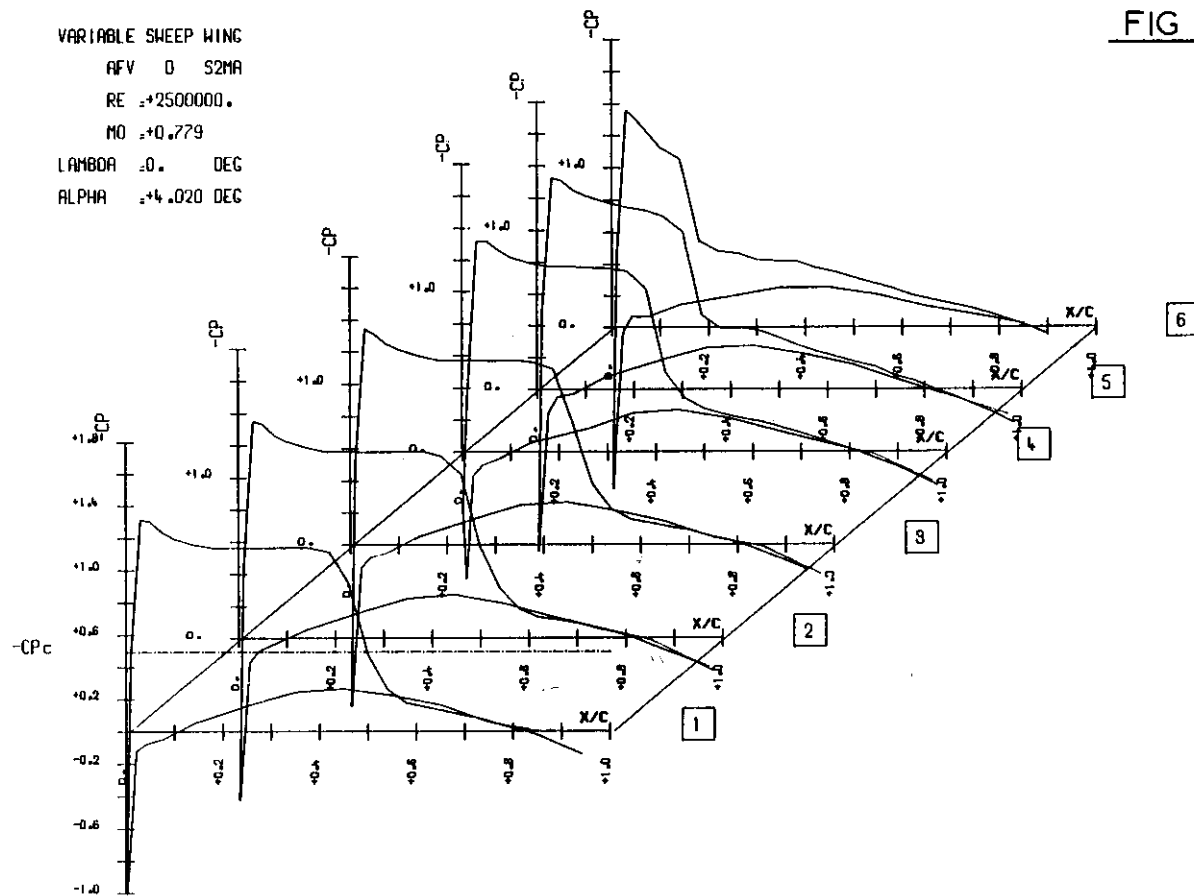


FIG 7

VARIABLE SWEEP WING

AFV D S2MA

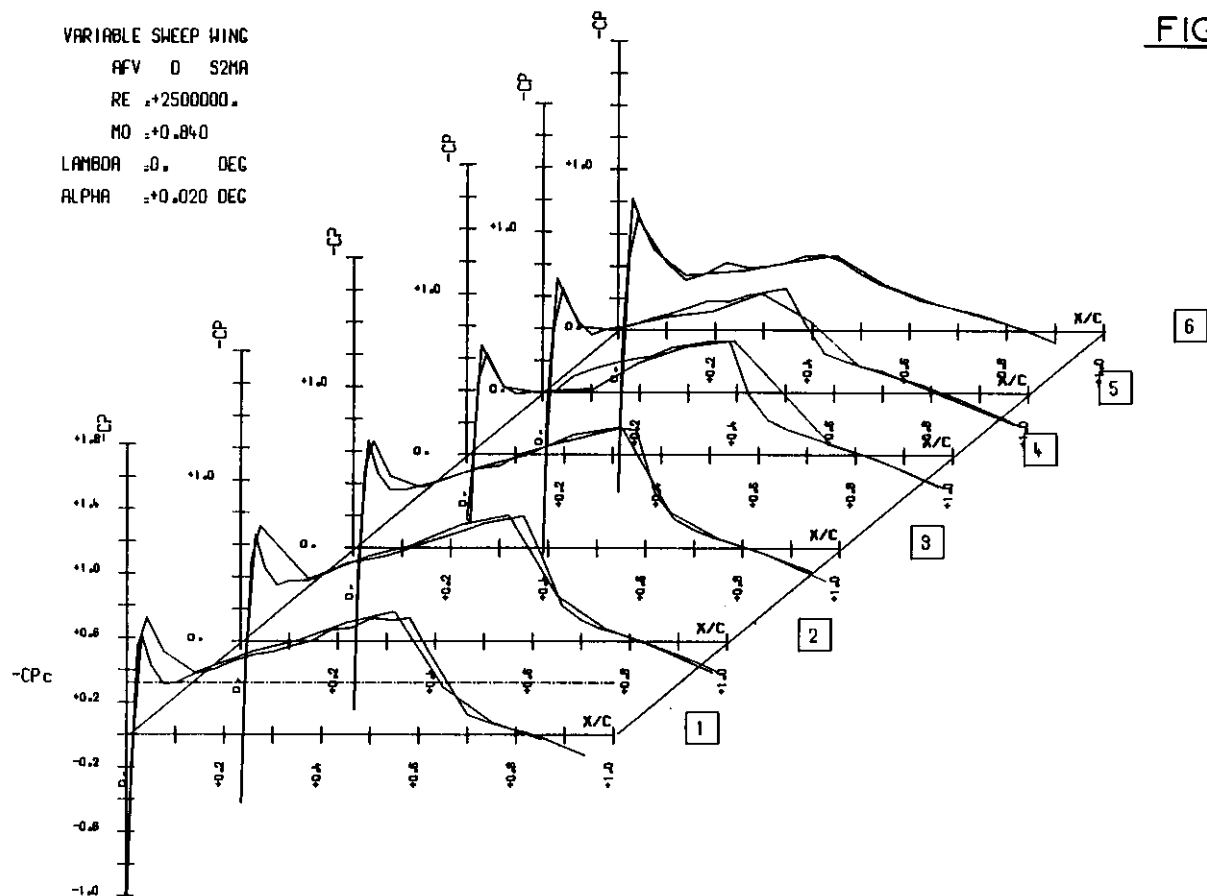
RE ± 2500000 MO ± 0.840 LAMBDA ± 0 DEGALPHA ± 0.020 DEG

FIG 8

VARIABLE SWEEP WING

AFV D S2MA

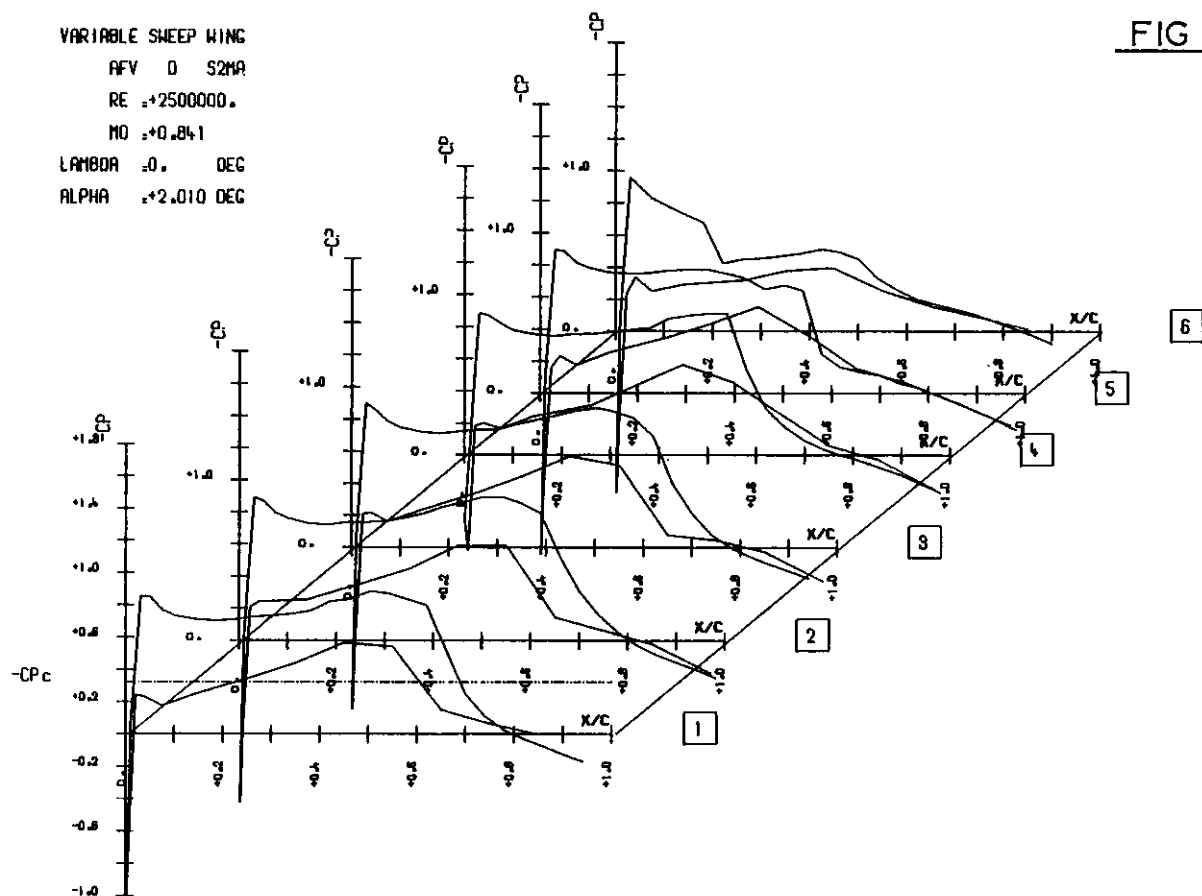
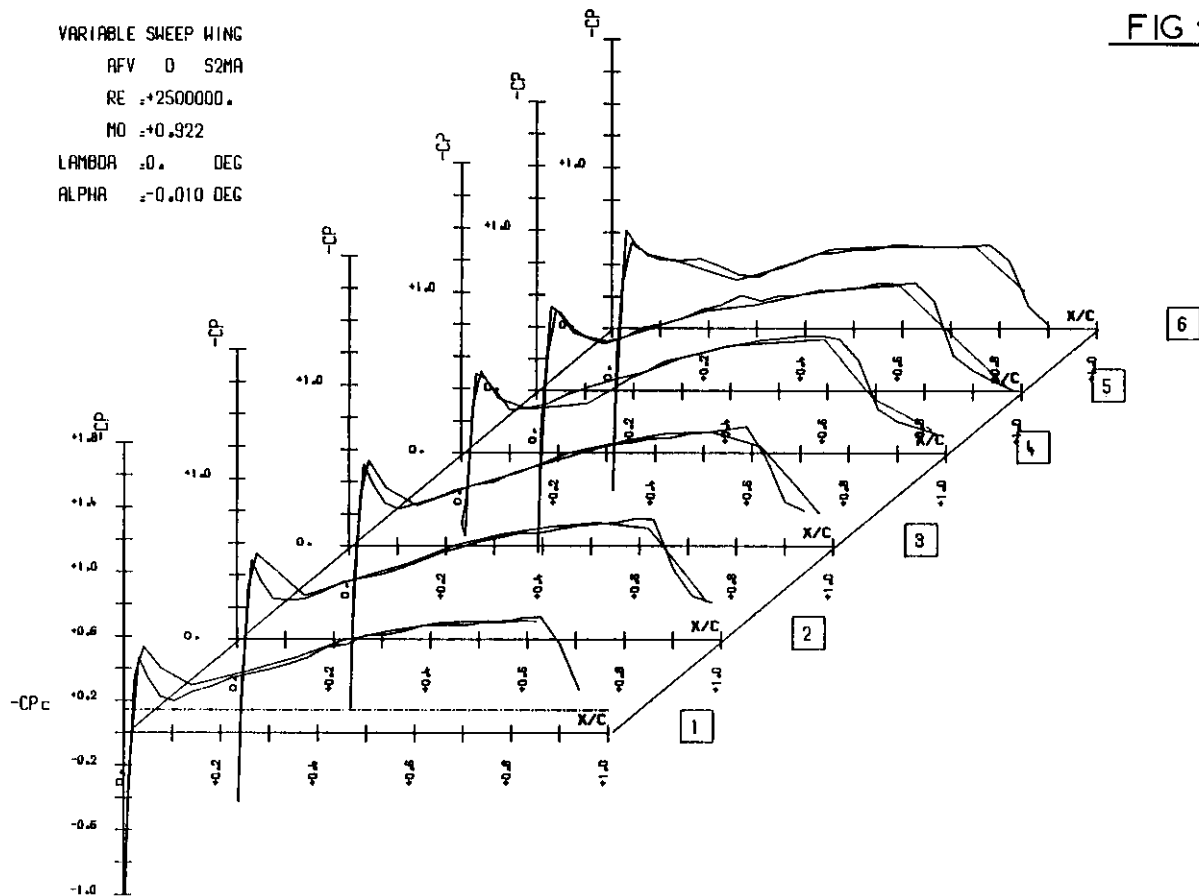
RE ± 2500000 MO ± 0.841 LAMBDA ± 0 DEGALPHA ± 2.010 DEG

FIG 9

VARIABLE SWEEP WING

AFV 0 S2MA
 RE ± 2500000
 MO ± 0.922
 LAMBDA ± 0 DEG
 ALPHA ± 0.010 DEG

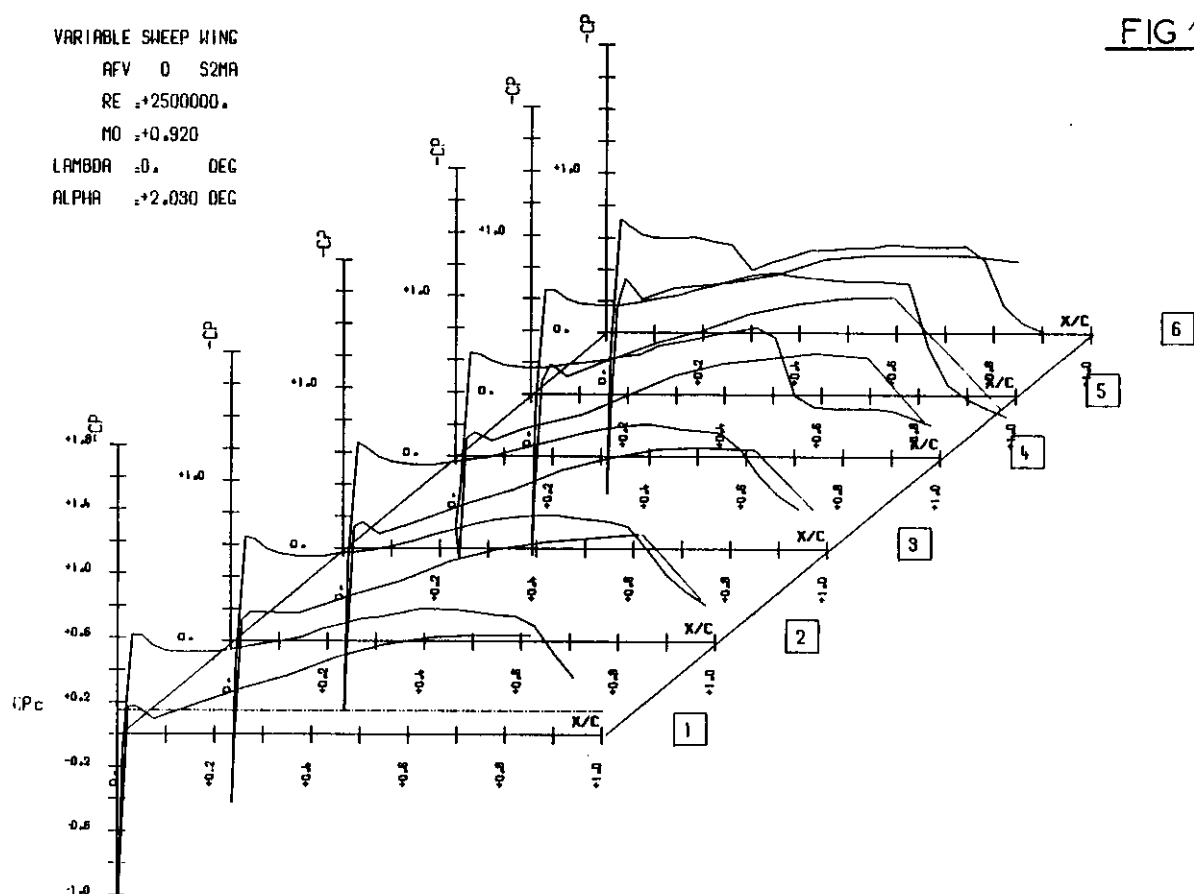
FIG 10



VARIABLE SWEEP WING

AFV 0 S2MA
 RE ± 2500000
 MO ± 0.920
 LAMBDA ± 0 DEG
 ALPHA ± 2.030 DEG

FIG 11



VARIABLE SWEEP WING

AFV D S2MA

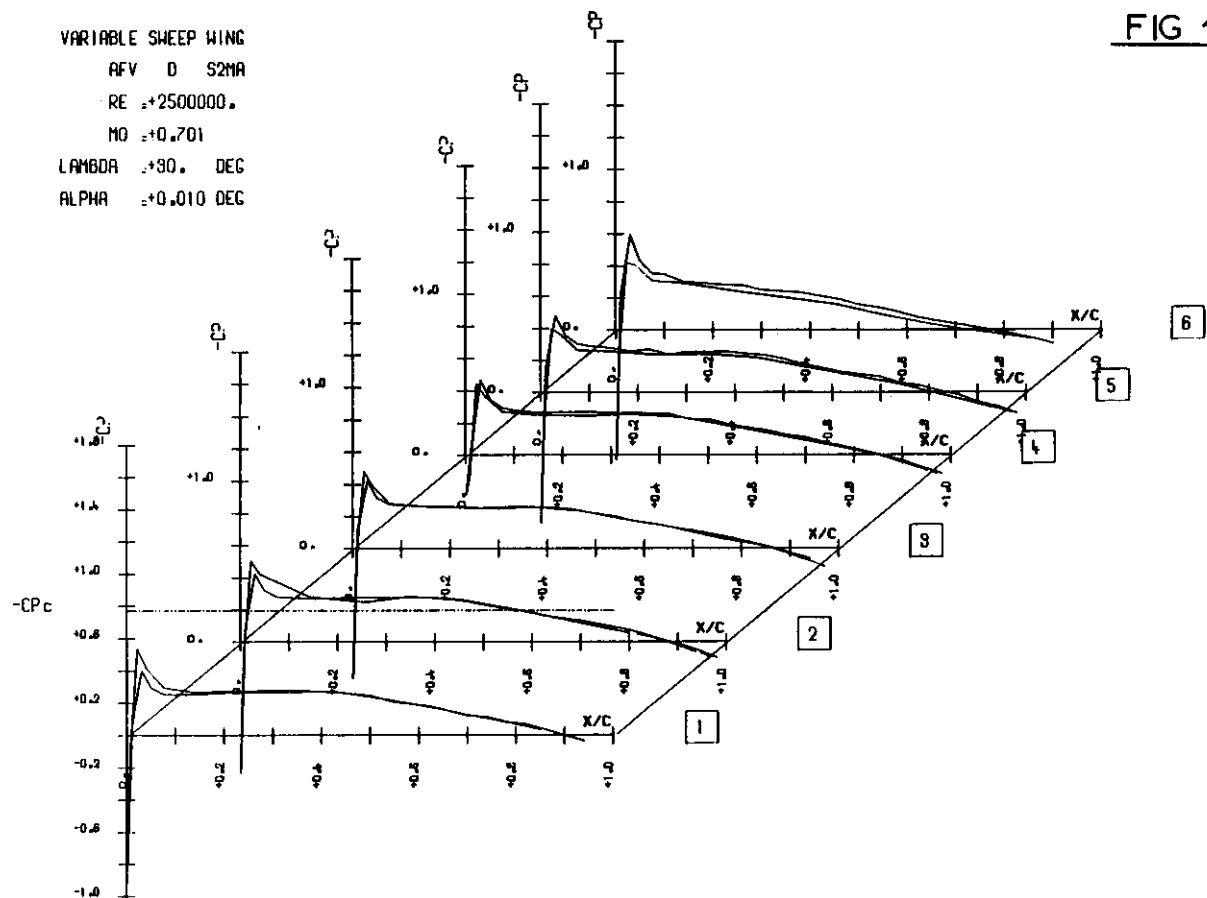
RE ± 2500000 MO ± 0.701 LAMBDA ± 30 DEGALPHA ± 0.010 DEG

FIG 12

VARIABLE SWEEP WING

AFV D S2MA

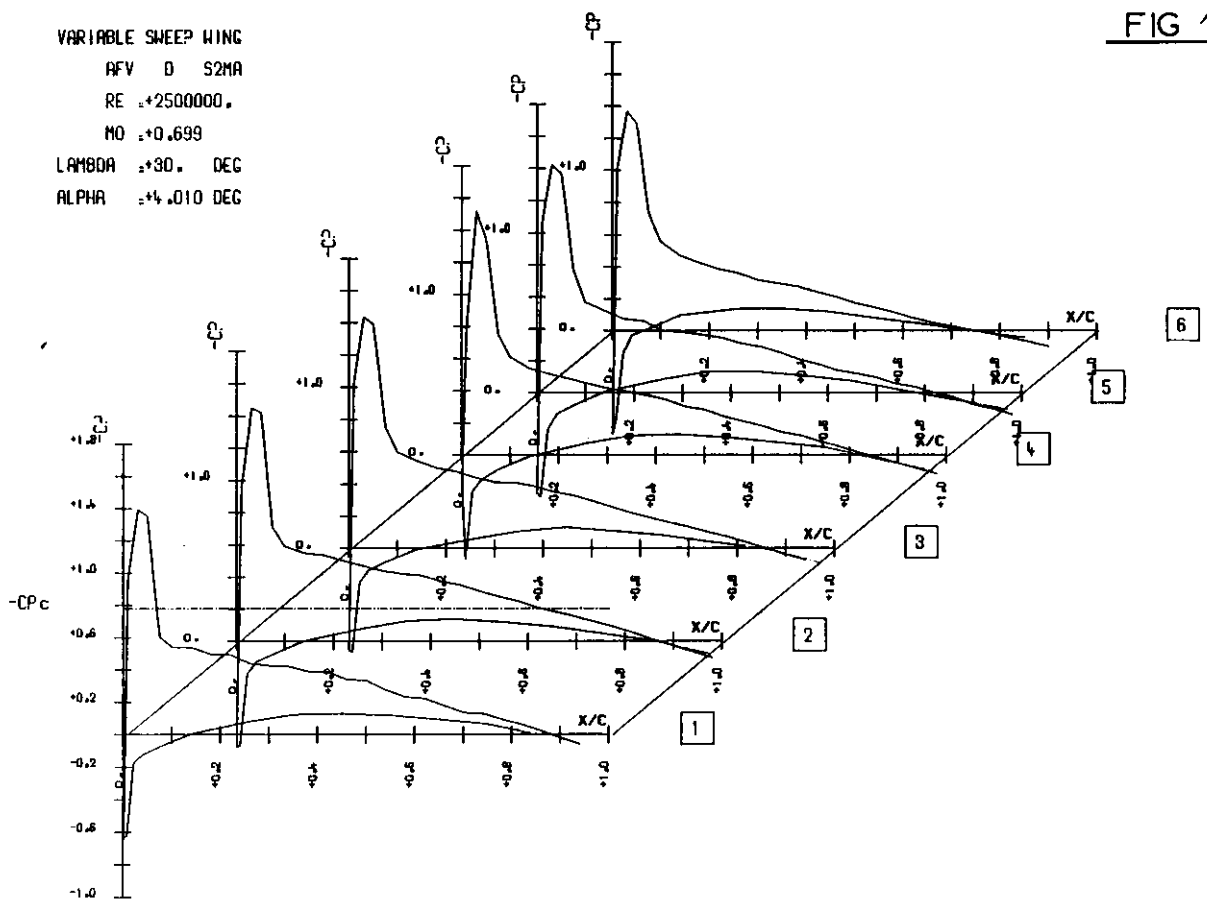
RE ± 2500000 MO ± 0.699 LAMBDA ± 30 DEGALPHA ± 0.010 DEG

FIG 13

VARIABLE SWEEP WING

AFV D S2MA

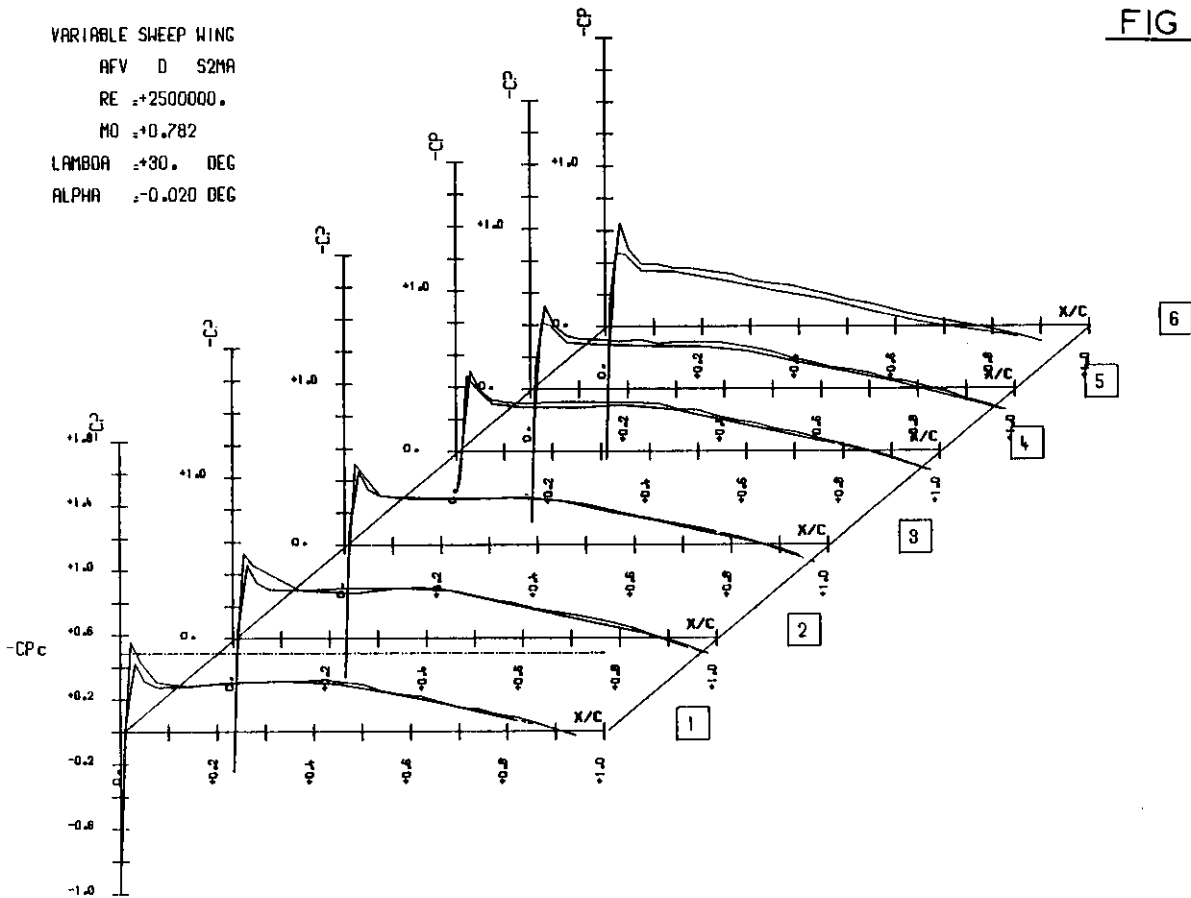
RE ± 2500000

MO ± 0.782

LAMBDA ± 30 DEG

ALPHA ± 0.020 DEG

FIG 14



VARIABLE SWEEP WING

AFV D S2MA

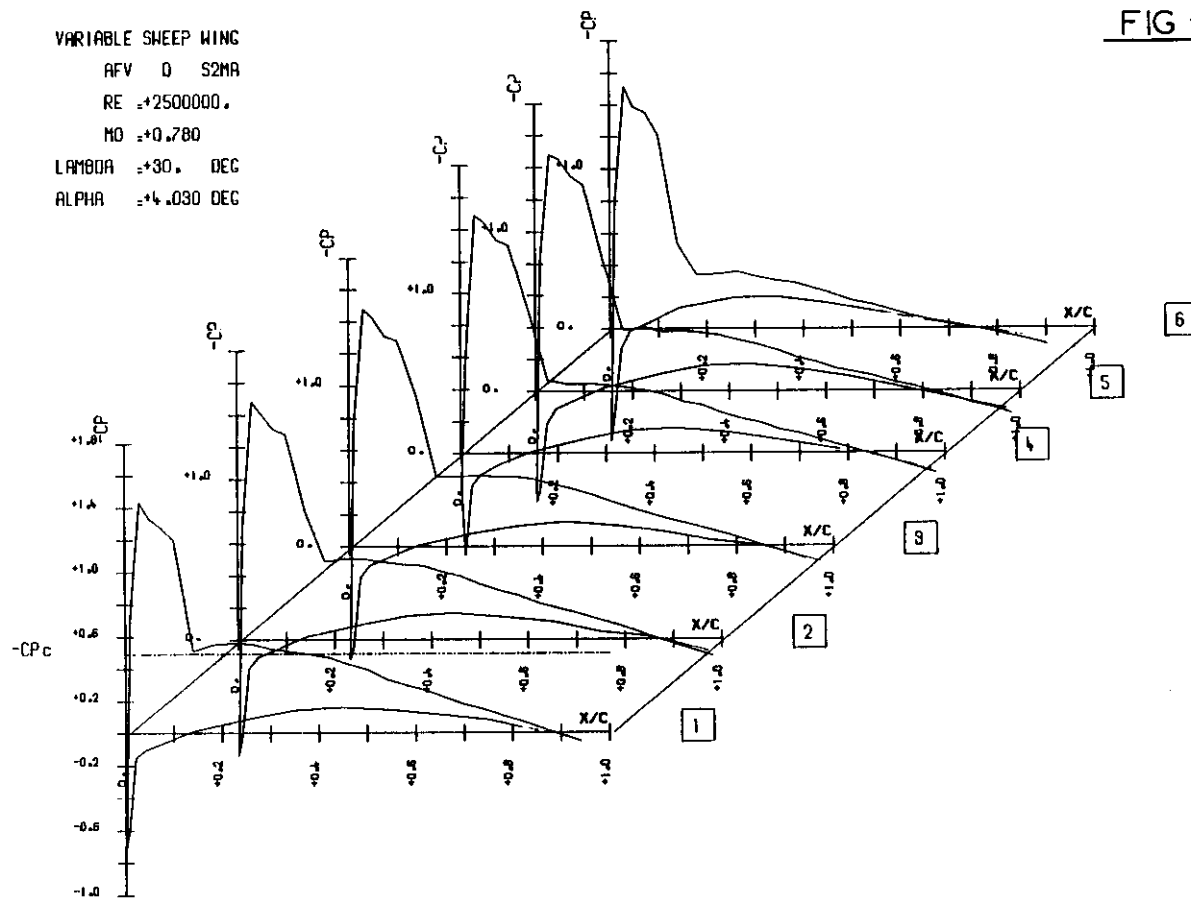
RE ± 2500000

MO ± 0.780

LAMBDA ± 30 DEG

ALPHA ± 0.030 DEG

FIG 15



VARIABLE SWEEP WING
 AFV 0 S2MA
 RE ± 2500000 .
 MO ± 0.841
 LAMBDA ± 30 DEG
 ALPHA ± 0.010 DEG

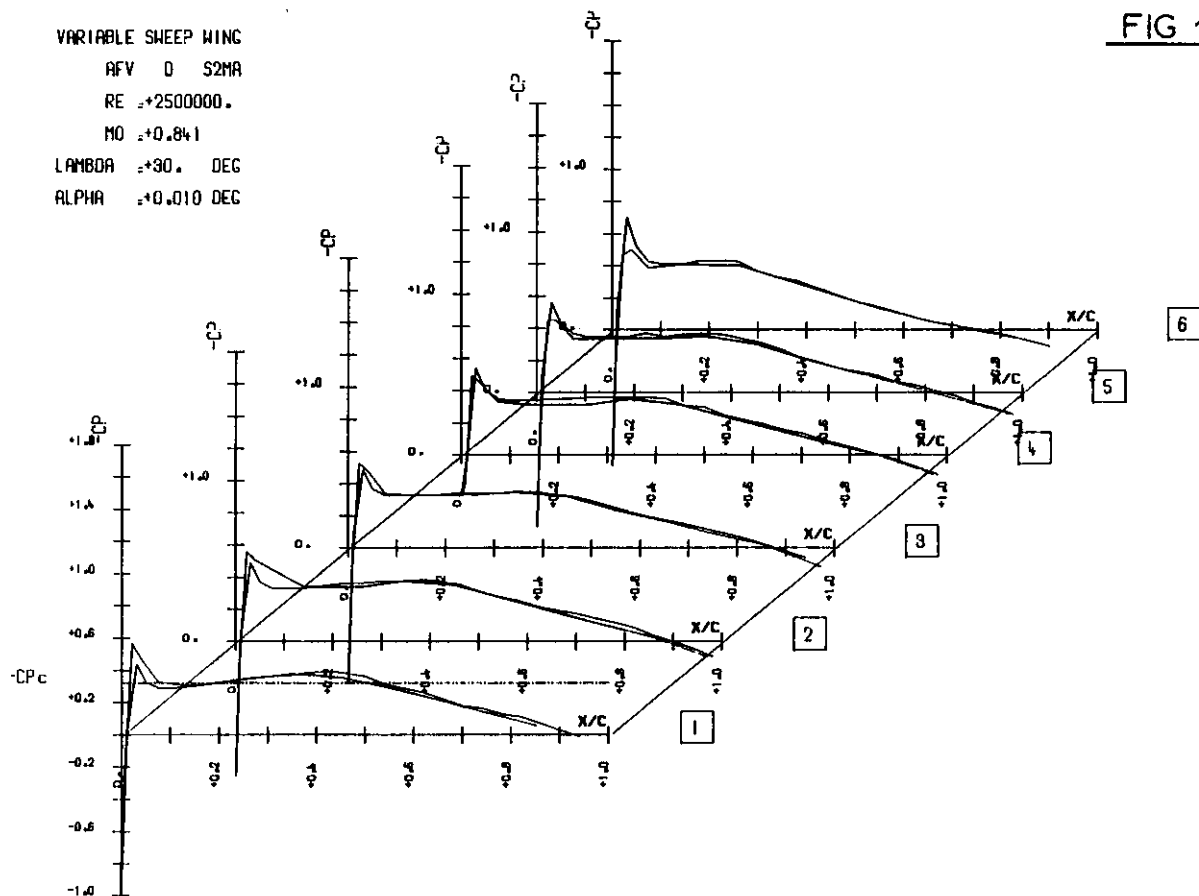
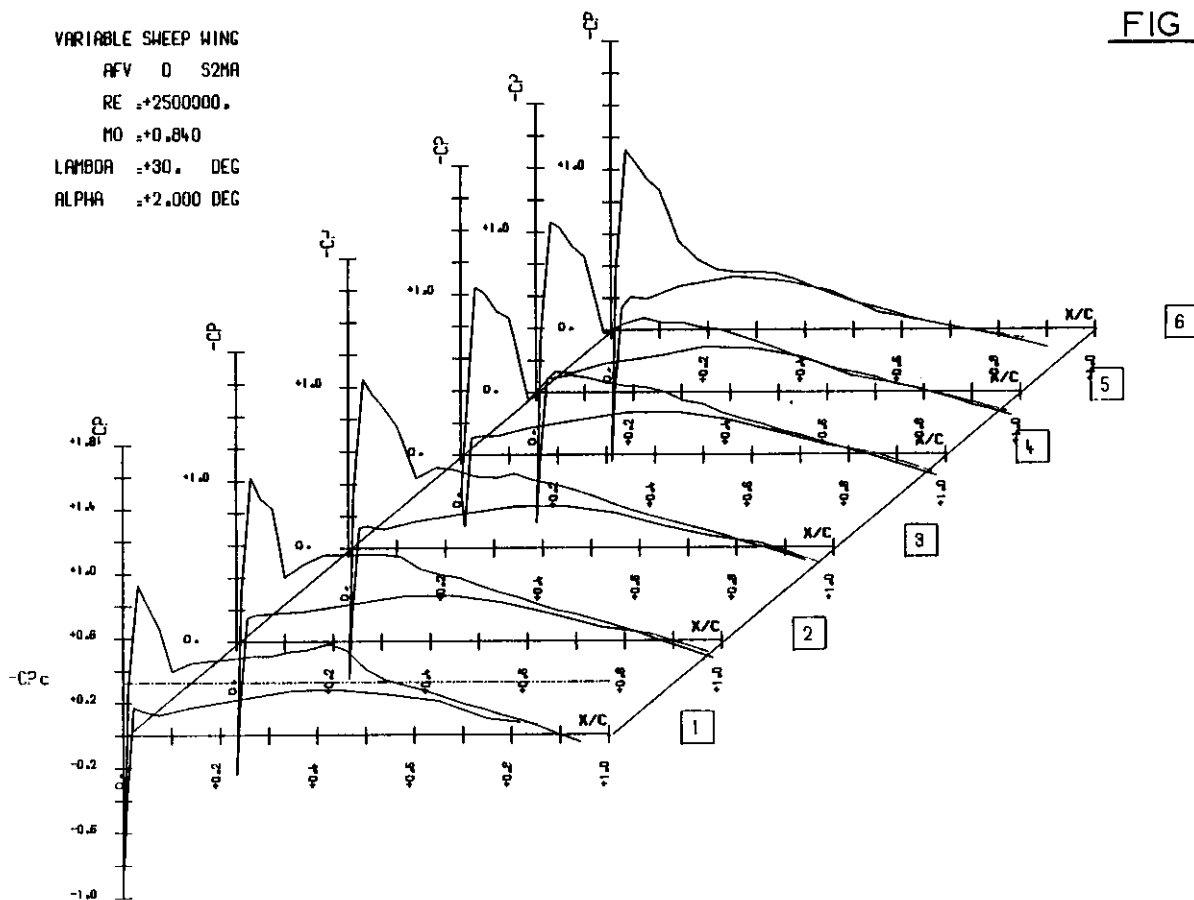


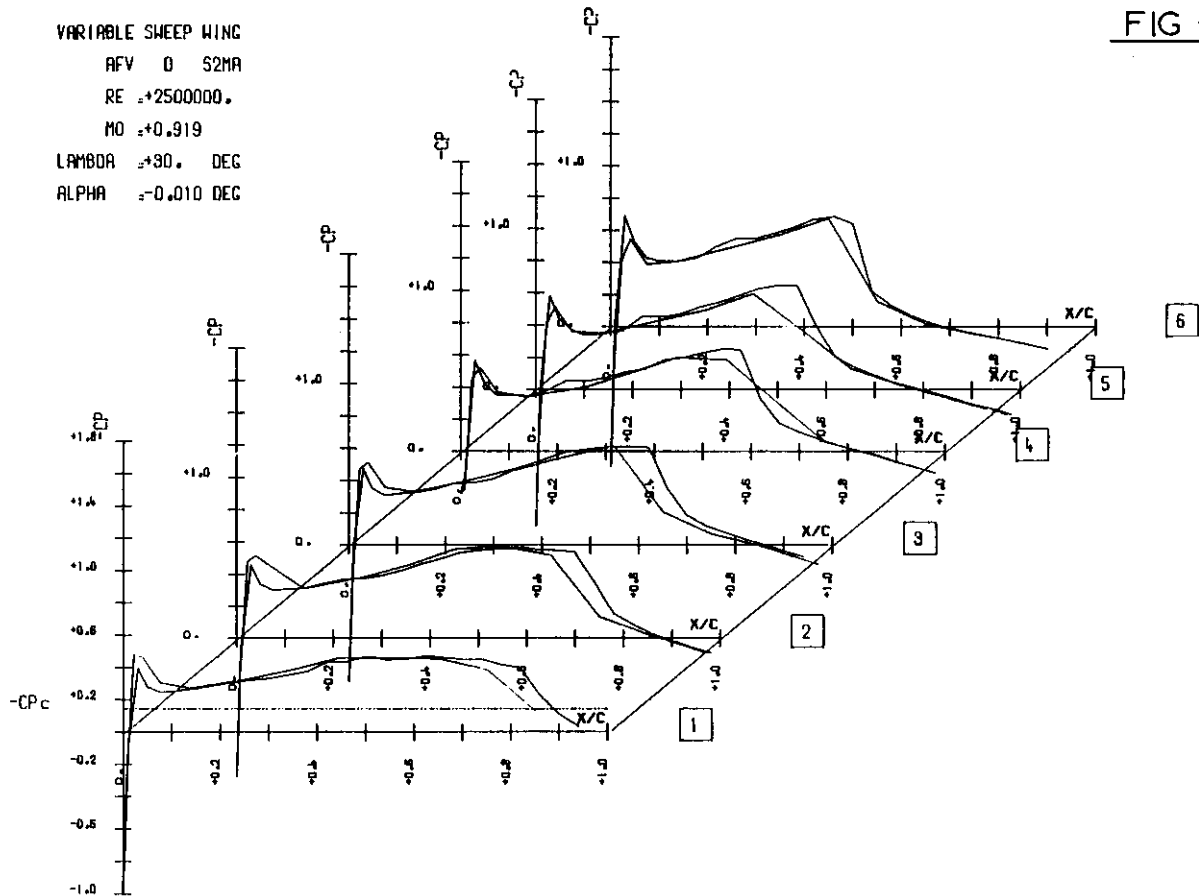
FIG 17

VARIABLE SWEEP WING
 AFV 0 S2MA
 RE ± 2500000 .
 MO ± 0.840
 LAMBDA ± 30 DEG
 ALPHA ± 2.000 DEG



VARIABLE SWEEP WING
 AFV 0 S2MA
 RE ± 2500000
 MO ± 0.919
 LAMBDA ± 30 DEG
 ALPHA ± 0.010 DEG

FIG 18



VARIABLE SWEEP WING
 AFV 0 S2MA
 RE ± 2500000
 MO ± 0.925
 LAMBDA ± 30 DEG
 ALPHA ± 1.990 DEG

FIG 19

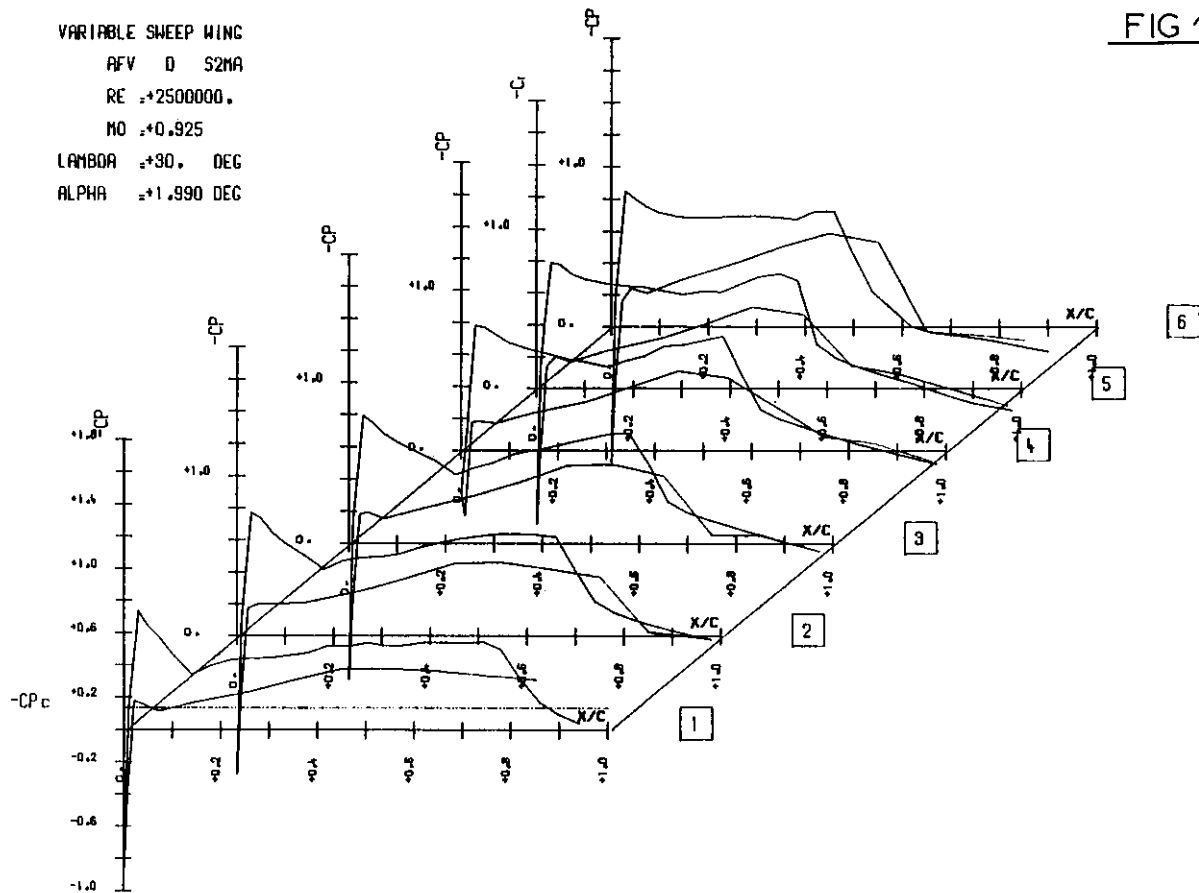


FIG 20

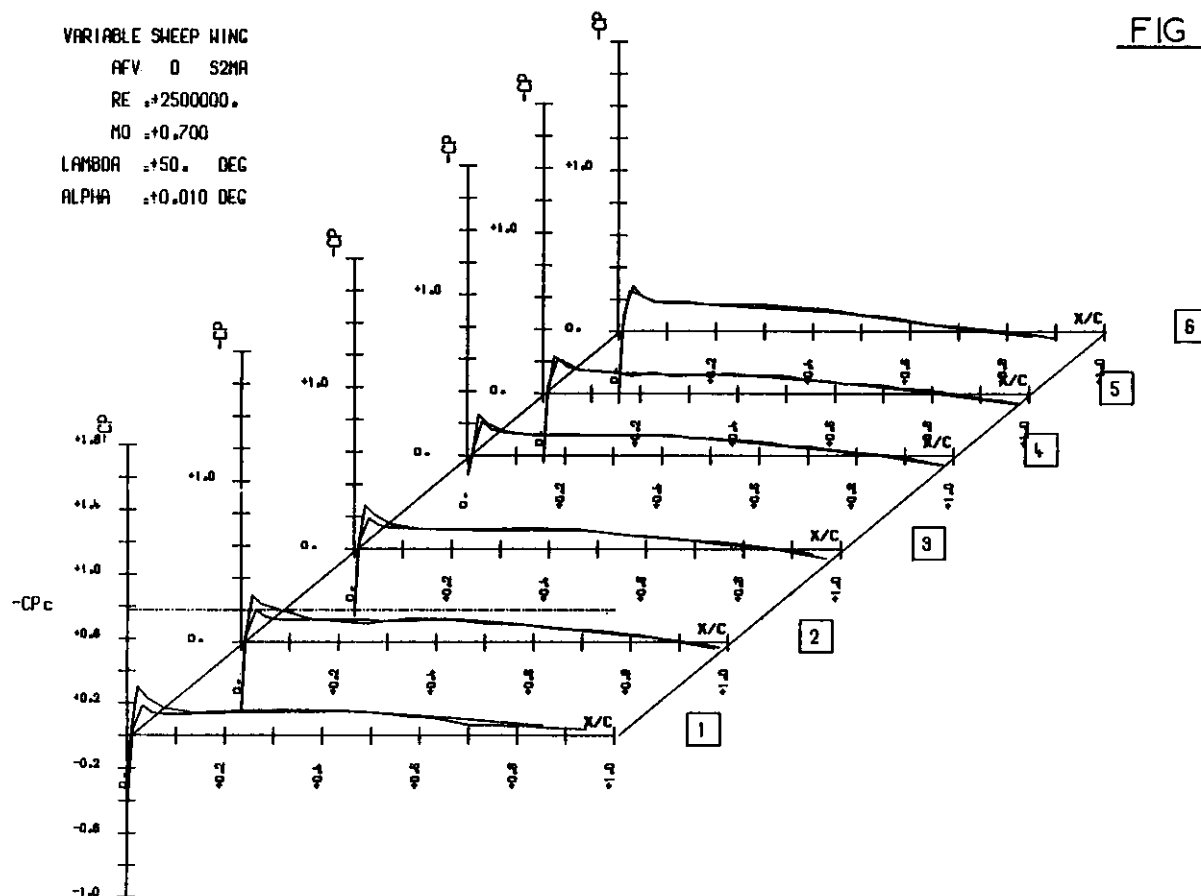


FIG 21

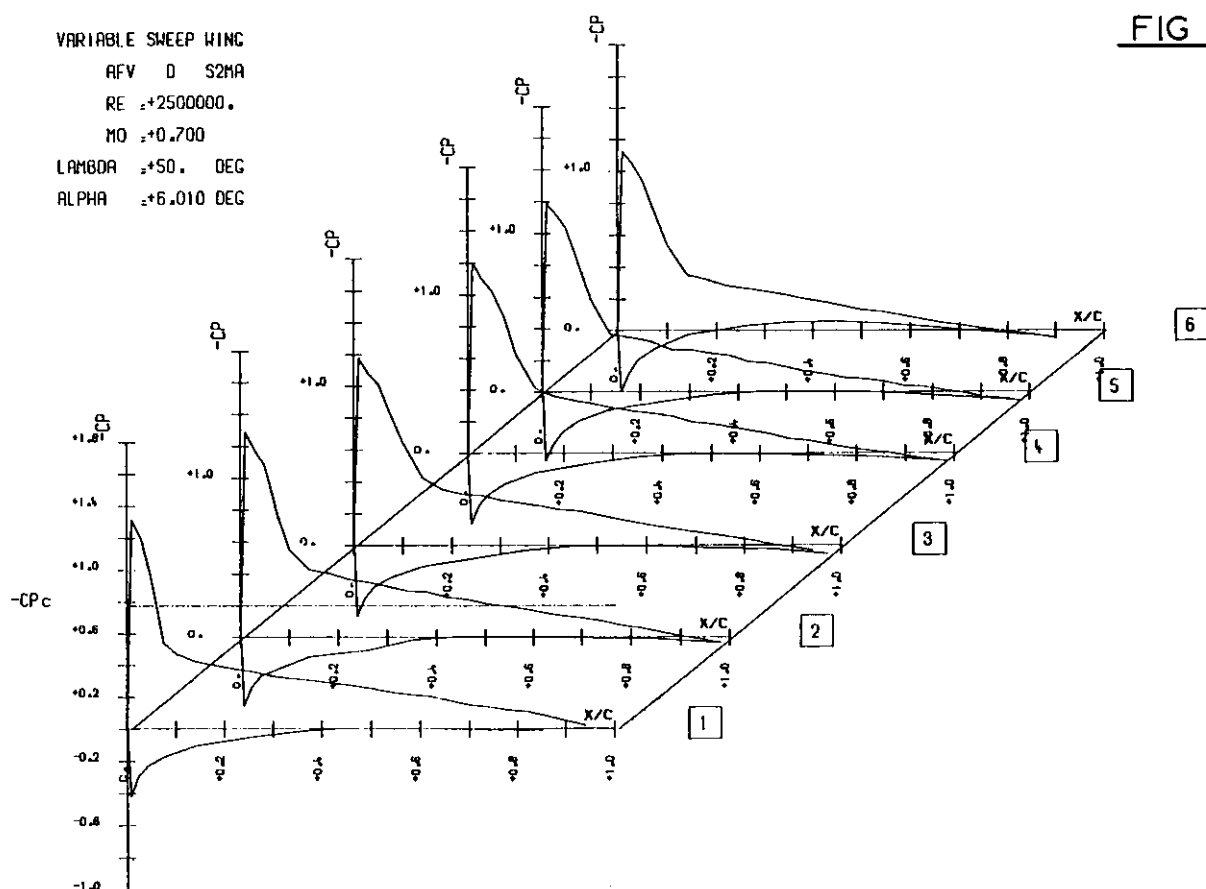


FIG 22

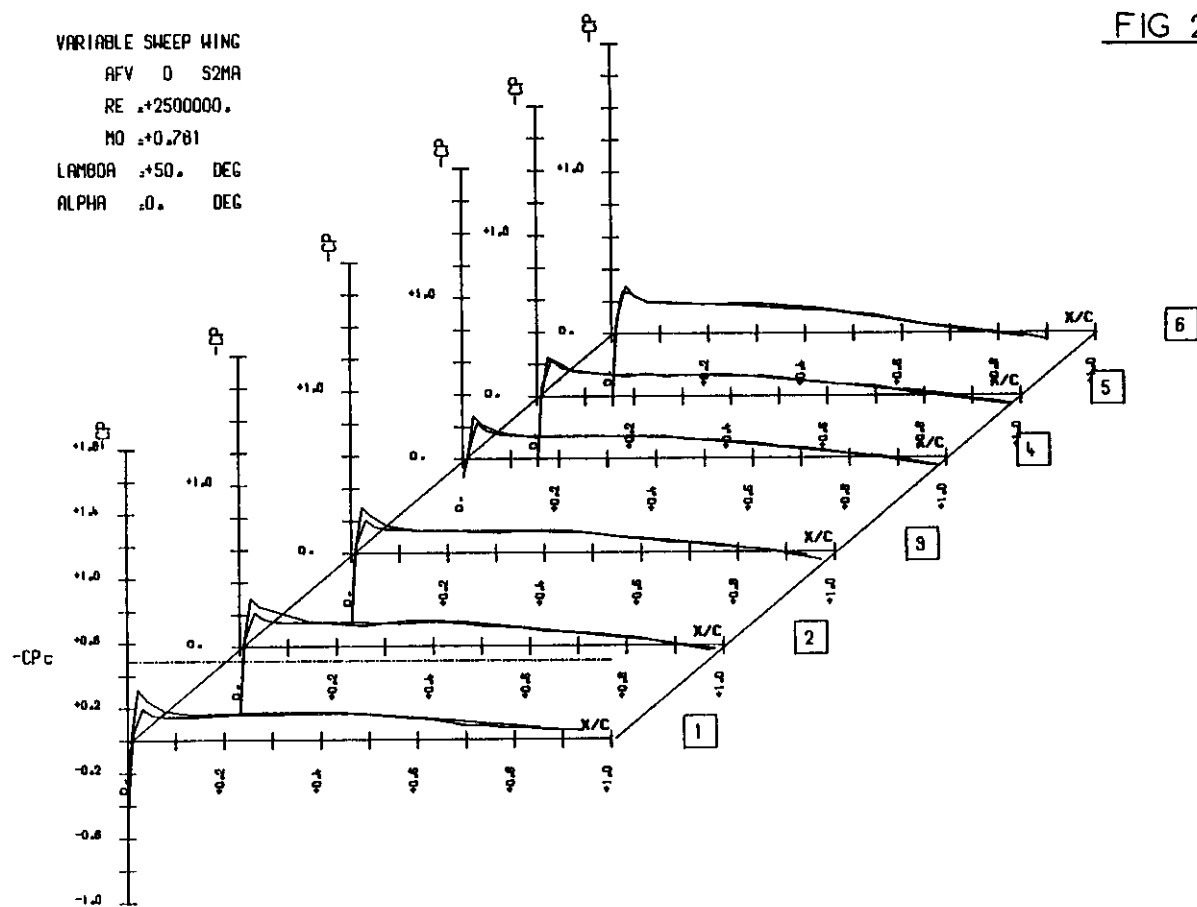
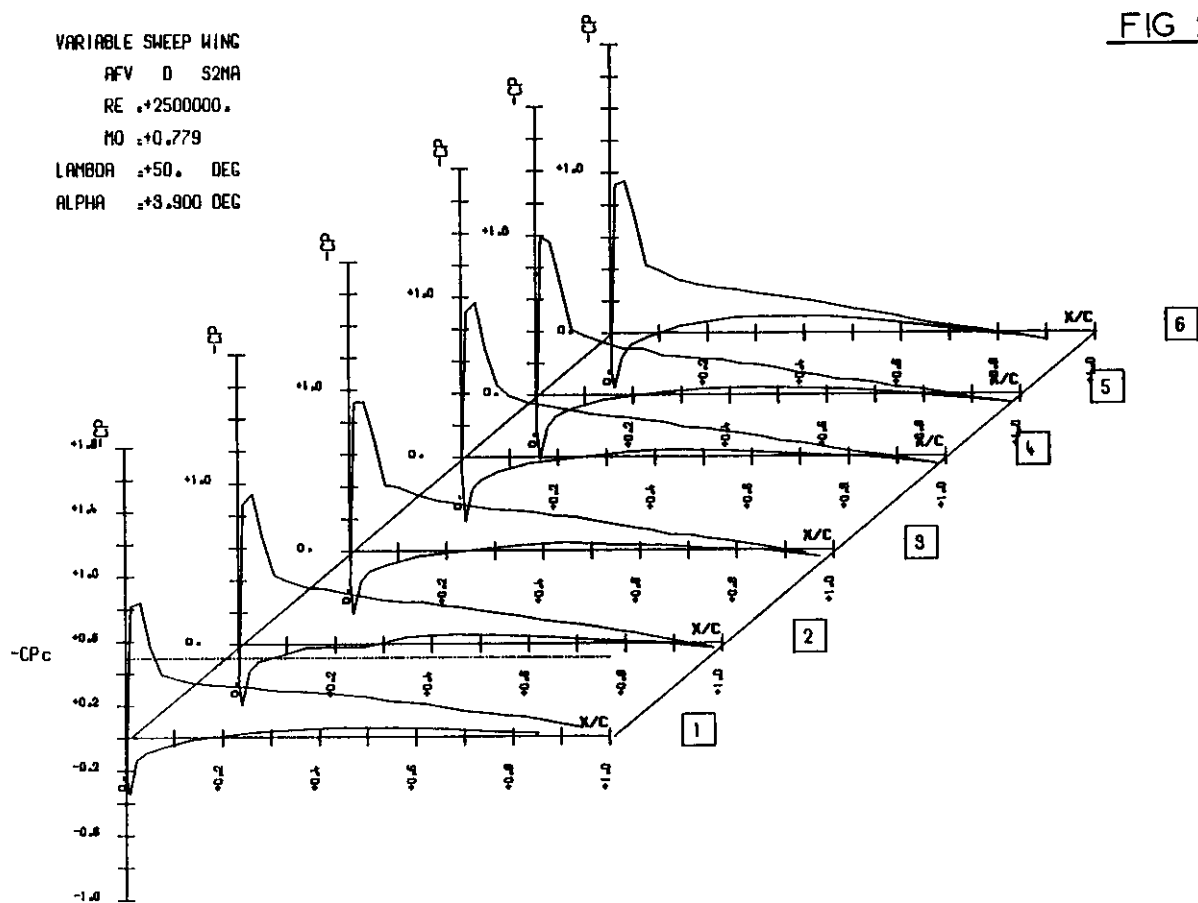


FIG 23

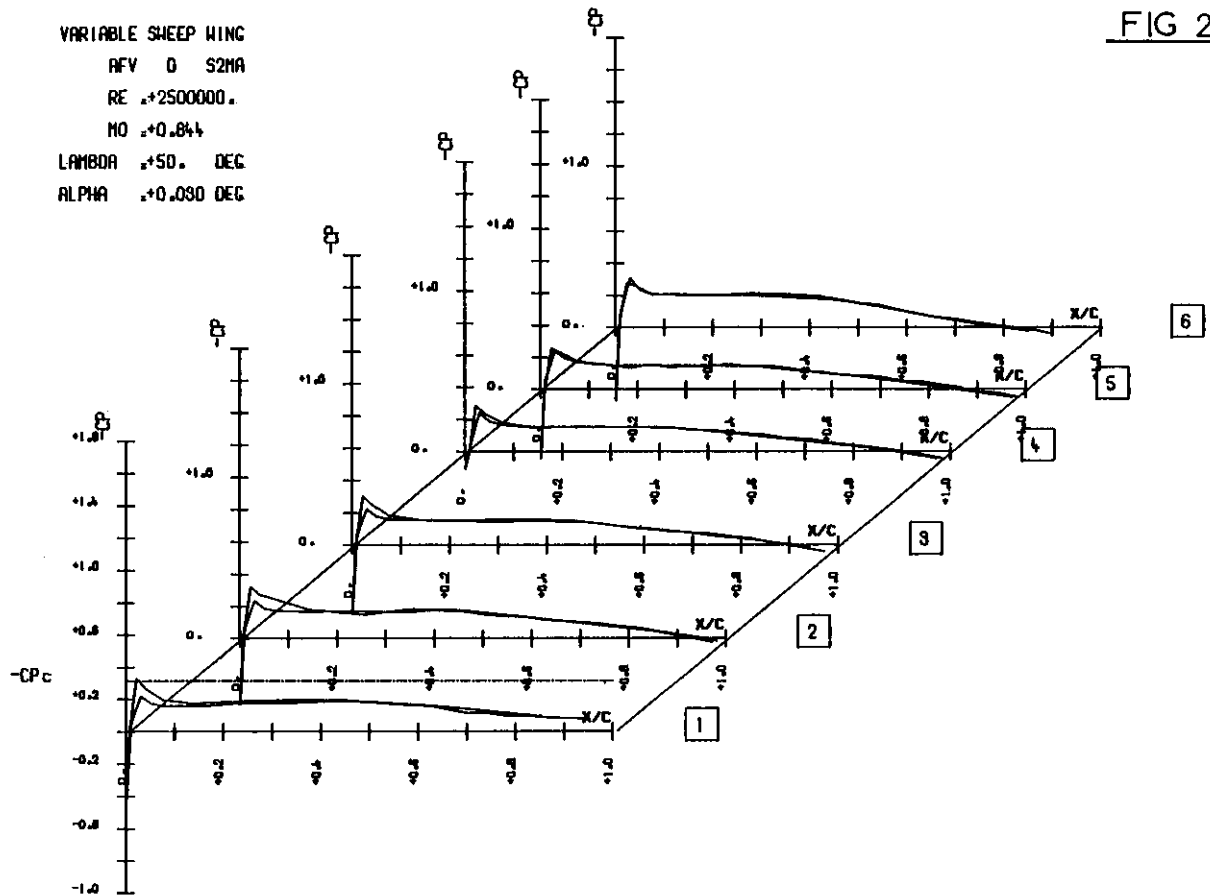


VARIABLE SHEEP WING

AFV 0 S2MA

RE ± 2500000 .MO ± 0.844 LAMBDA ± 50 DEGALPHA ± 0.030 DEG

FIG 24



VARIABLE SHEEP WING

AFV 0 S2MA

RE ± 2500000 .MO ± 0.842 LAMBDA ± 50 DEGALPHA ± 2.010 DEG

FIG 25

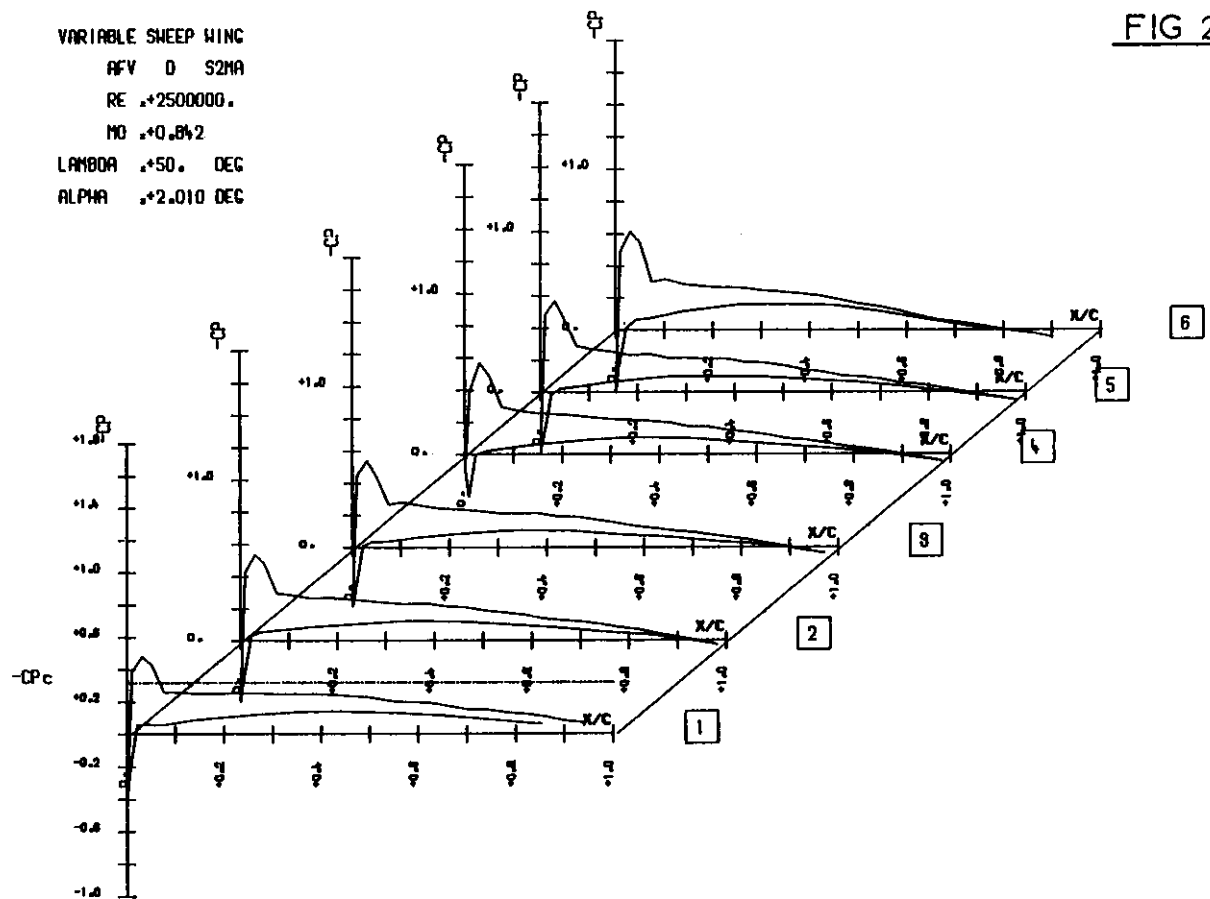


FIG 26

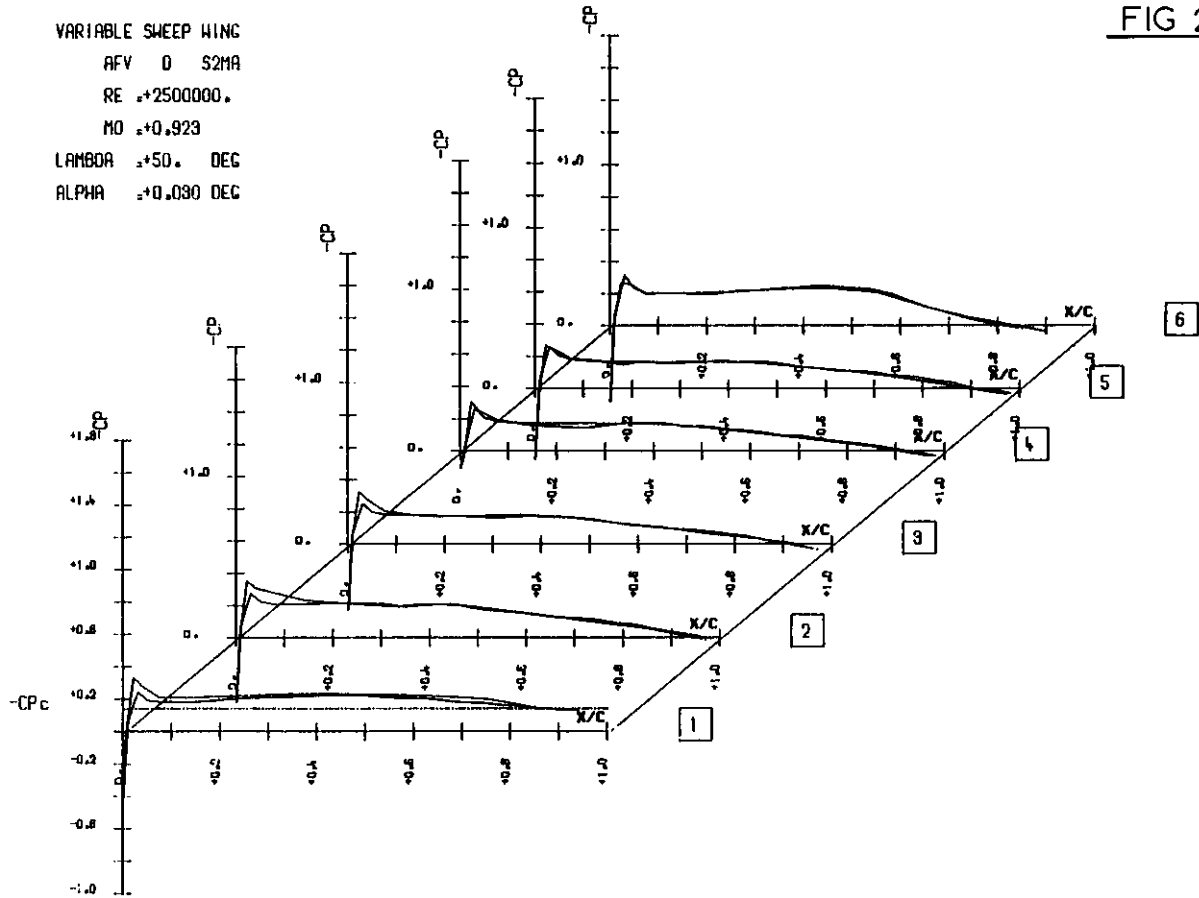
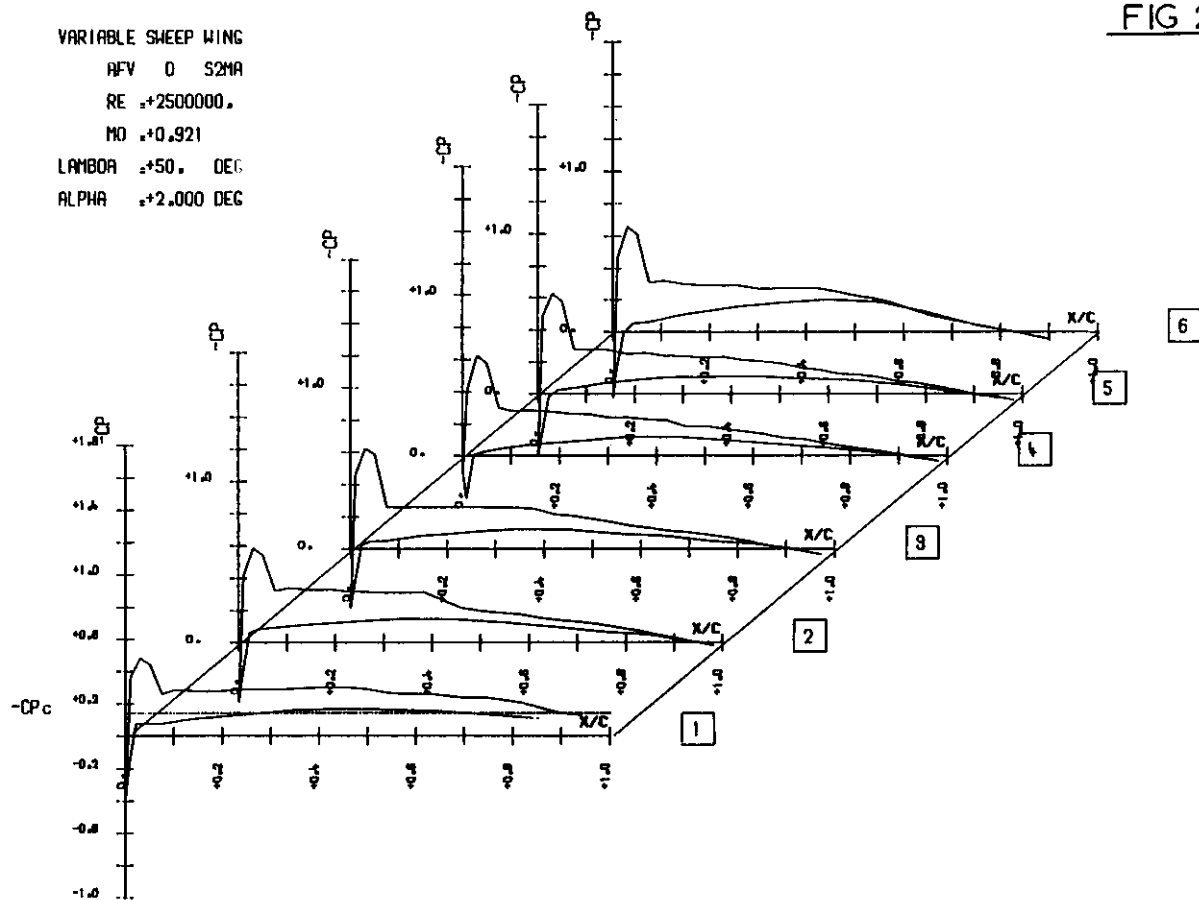


FIG 27



AR 138

3. MBB-AVA Pilot-Model with Supercritical Wing - Surface Pressure and Force Measurements

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and

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Messerschmitt-Bölkow-Blohm GmbH, München

3.1 Introduction

These data contain pressure and force measurements on the MBB-AVA Pilot-Model which is a fighter type wing-body combination with a supercritical wing. The airfoil, incorporated in this wing is MBB-A3, an airfoil designed by the Eberle hodograph-method. Selected experimental results of this airfoil are given in contribution A8.

The measurements have been performed in the DFVLR 1x1 m Transonic Wind-Tunnel Göttingen.

The selected pressure data for this model contain an α sweep at $M = 0.8$ and a Mach number sweep for $\alpha = 2^\circ$. This gives a certain range of different supercritical flow types on the wing, including flows with extensive rear separations. Tests have shown that separation always begins at the trailing edge and first occurs at the wing tip. Leading edge vortex shedding has not been observed.

3.2 Data

1. General Description

1.1 Model Designation or Name	MBB-AVA Pilot-Model with Supercritical Wing
1.2 Model Type (e.g., Full Span Wing-Body, Semi-Span Wing)	Full span wing-body
1.3 Design Requirements/Conditions	Fighter-type wing-body combination with supercritical wing
1.4 Additional Remarks	Airfoil section perpendicular to leading edge is MBB-A3

2. Model Geometry

2.1 Wing Data	See fig. 3.1
2.1.1 Wing Planform	Swept wing (see fig. 3.1)
2.1.2 Aspect Ratio	4.5
2.1.3 Leading-Edge Sweep	35°
2.1.4 Trailing-Edge Sweep	14.25°
2.1.5 Taper Ratio	0.33
2.1.6 Twist	-3°
2.1.7 Mean Aerodynamic Chord	0.11875 m
2.1.8 Span or Semispan	0.4915 m (span)
2.1.9 Number of Airfoil Sections Used to Define Wing	1
2.1.10 Spanwise Location of Reference Section and Section Coordinates (Note if Ordinates are Design or Actual Measured Values)	The same airfoil section is used over the whole wing, coordinates table 3.1, measured coordinates of wing table 3.2
2.1.11 Lofting Procedure Between Reference Sections	Straight generators
2.1.12 Form of Wing-Body Fillet, Strakes	-
2.1.13 Form of Wing Tip	See fig. 3.1

2.2	Body Data (Detail Description of Body Geometry)	See fig. 3.1 and 3.2, table 3.3																				
2.3	Wing-Body Combination																					
2.3.1	Relative Body Diameter (Average Body Diameter at Wing Location Divided by Wing Span)	$\cong 0.1$																				
2.3.2	Relative Vertical Location of Wing (Height Above or Below Axis Divided by Average Body Radius at Wing Location)	$\cong 0.5$																				
2.3.3	Wing Setting Angle	2° (see fig. 3.1)																				
2.3.4	Dihedral	0°																				
2.4	Cross Sectional Area Development																					
2.5	Fabrication Tolerances/Waviness	< 0.15 mm, measured coordinates are given in table 3.2																				
3.	Wind Tunnel																					
3.1	Designation	DFVLR 1x1 Meter Transonic Tunnel																				
3.2	Type of Tunnel																					
3.2.1	Continuous or Blowdown. Indicate Minimum Run Time if Applicable	Continuous, closed circuit																				
3.2.2	Stagnation Pressure	Variable between 0.4 and 1.6 bar																				
3.2.3	Stagnation Temperature	≈ 305 K																				
3.3	Test Section																					
3.3.1	Shape of Test Section	Square																				
3.3.2	Size of Test Section (Width, Height, Length)	1m x 1m with usable length of 1.5 m																				
3.3.3	Type of Test Section Walls (Closed, Open, Slotted, Perforated)	Perforated																				
	Open Area Ratio (Give Range if Variable)	6 % fixed porosity																				
	Slot/Hole Geometry (e.g., 30-Degree Slanted Holes)	30° slanted holes																				
	Treatment of Side Wall Boundary Layer																					
	Full span models	None																				
	Half-model testing																					
3.4	Flow Field (Empty Test Section)																					
3.4.1	Reference Static Pressure	Plenum chamber pressure																				
3.4.2	Flow Angularity	$\pm 0.05^{\circ}$																				
3.4.3	Mach Number Distribution																					
3.4.4	Pressure Gradient	<table><tr><td>M</td><td>0.5</td><td>0.8</td><td>1.0</td><td>1.2</td></tr><tr><td>in x: ΔM</td><td>0.005</td><td>0.003</td><td>0.006</td><td>0.015</td></tr><tr><td>in z: ΔM</td><td></td><td>0.003</td><td></td><td></td></tr><tr><td>$\partial M / \partial (x/c)$</td><td>0.0037</td><td></td><td></td><td></td></tr></table>	M	0.5	0.8	1.0	1.2	in x: ΔM	0.005	0.003	0.006	0.015	in z: ΔM		0.003			$\partial M / \partial (x/c)$	0.0037			
M	0.5	0.8	1.0	1.2																		
in x: ΔM	0.005	0.003	0.006	0.015																		
in z: ΔM		0.003																				
$\partial M / \partial (x/c)$	0.0037																					
3.4.5	Turbulence/Noise Level	Low noise level ($\sqrt{n \cdot F(n)} < 0.001$). Measured on body of revolution NACA RM 12. Low turbulence level (measurements are in progress).																				
3.5	Freestream Mach Number (or Velocity)	-																				
3.5.1	Range	Transonic: M = 0.5 - 1.2 Supersonic: M = 1.33 - 2.2																				
3.5.2	Pressure Used to Determine Mach Number (e.g., Settling Chamber Total Pressure and Plenum Chamber Pressure)	Transonic range: settling chamber total pressure/ plenum chamber pressure																				
3.5.3	Accuracy of Mach Number Determination (ΔM)	$\Delta M = 0.003$																				
3.5.4	Maximum Mach Number Variation During a Run	± 0.001																				

- 3.6 Reynolds Number Range
- 3.6.1 Unit Reynolds Number Range (Give Range at Representative Mach Numbers; 1/m) $Re = 5-25 \cdot 10^6 \text{ m}^{-1}$ for $M \geq 0.6$
- 3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization) Pressurization
- 3.7 Temperature Range and Dewpoint, Can Temperature be Controlled? Depends on ambient temperature, 243 °K no
- 3.8 Model Attitudes
- 3.8.1 Angle of Attack, 360°
- 3.8.2 Accuracy in Determining Angles $\pm 16^\circ / \pm 1^\circ \text{ to } 11^\circ / 360^\circ$
 $\pm 0.02 / \pm 0.1^\circ / \pm 0.1^\circ$
- 3.9 Organization Operating the Tunnel and Location of Tunnel DFVLR-AVA, Bunsenstrasse 10
 D-3400 Göttingen Germany (FRG)
- 3.10 Who is to be Contacted for Additional Information Dr.-Ing. W. Lorenz-Meyer
 Bunsenstrasse 10, D-3400 Göttingen
- 3.11 Literature Concerning this Facility |1|, |2|, |3|
- 3.12 Additional Remarks

4. Tests

- 4.1 Type of Tests Force, static pressure on wing
- 4.2 Wing Span or Semispan to Tunnel Width 0.4915
- 4.3 Test Conditions
- 4.3.1 Angle of Attack $-2^\circ \leq \alpha \leq 8^\circ$
- 4.3.2 Mach Number $0.65 \leq M \leq 0.92$
- 4.3.3 Dynamic Pressure Stagnation pressure const. ≈ 0.794 bar
 for all Mach numbers
- 4.3.4 Reynolds Number $M = 0.65 \quad Re = 1.12 \cdot 10^6$
 $M = 0.8 \quad Re = 1.26 \cdot 10^6$
 $M = 0.88 \quad Re = 1.32 \cdot 10^6$
 $M = 0.92 \quad Re = 1.34 \cdot 10^6$
- 4.3.5 Stagnation Temperature ≈ 305 K
- 4.4 Transition
- 4.4.1 Free or Fixed Free
- 4.4.2 Position of Free Transition Not determined
- 4.4.3 Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements
- 4.4.4 Were Checks Made to Determine if Transition Occured at Trip Locations?
- 4.5 Bending or Torsion Under Load
- 4.5.1 Describe Any Aeroelastic Measurements Made During Tests
- 4.5.2 Describe Results of Any Bench Calibrations
- 4.6 Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes
- 4.7 Areas and Length Used to Form Coefficients Wing area 537.5 cm²
 Mean aerodynamic chord 11.88 cm
- 4.8 References on Tests |4|, |5|
- 4.9 Related Reports

5. Instrumentation

5.1 Surface Pressure Measurements

- 5.1.1 Pressure Orifices in Wing. Location and Number on Upper and Lower Surfaces 8 sections, 14 orifices for each section on upper side, 10 orifices on lower side (see fig.3.1, table 3.4)
- 5.1.2 Pressure Orifices on Fuselage. Location and Number
- 5.1.3 Pressure Orifices on Components, Give Component and Orifice Location
- 5.1.4 Geometry of Orifices Circular, 0.3 mm diameter, some 0.5 mm
- 5.1.5 Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy CEC 4-312 - 0002
Scanivalve Types d; J; S
±5 psi, ±0.4 %, Total arrangement ±0.7 %

5.2 Force Measurements

- 5.2.1 Type and Location of Balance Task 1.5"C, internal balance
- 5.2.2 Forces and Moments that Can be Measured. Maximum Loads and Accuracy
N = 2000 lb
X = 130 lb
Y = 900 lb
±0.65 %, total arrangement ±1.0 %
- 5.2.3 Forces and Moments on Components -
Type and Location of Balance
Maximum Loads and Accuracy

6. Data

6.1 Accuracy

- 6.1.1 Pressure Coefficients ±1% assuming the worst possible combination of errors including an error of $\Delta M = \pm 0.002$ evaluated at maximum $|c_p|$
- 6.1.2 Aerodynamic Coefficients 0.5 %
- 6.1.3 Boundary Layer and Wake Quantities - -
- 6.1.4 Repeatability within 1 %
- 6.1.5 Additional Remarks -

6.2 Wall Interference Corrections

No corrections, see |6|

6.3 Data Presentation

- 6.3.1 Aerodynamic Coefficients Table 3.14
Figure 3.12
- 6.3.2 Surface Pressure Coefficients Tables 3.5 - 3.13
Figures 3.3 - 3.11
- 6.3.3 Flow Conditions for

- Aerodynamic coefficient data
- Pressure data

polars for $M = 0.8$

M	0.8					
α	-2°	0°	2°	4°	6°	8°

M	0.65	0.88	0.92
α	2°		

- 6.3.4 Boundary Layer and/or Wake Data -
- 6.3.5 Flow Conditions for Boundary Layer and/or Wake Data -
- 6.3.6 Wall Interference Corrections Included? No
- 6.3.7 Aeroelastic Corrections Included? No
- 6.3.8 Other Corrections? No
- 6.3.9 Additional Remarks -

6.4 Were Tests Carried Out in Different Facilities on the Current Model? No
 If so, What Facilities. Are Data Included in Present Data Base?

7. References

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DLR-FB 71-86, 1971.
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- [6] Lorenz-Meyer, W. Kanalkorrekturen für den Transsonischen Windkanal der Aerodynamischen Versuchsanstalt Göttingen bei Messungen an 3-dim. Modellen.
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8. List of Symbols

x, y, z	coordinates (fig. 3.1)
x', z'	coordinates adjusted to chord line
c	chord length
α	angle of attack (versus fuselage center line)
α_{TW}	angle of attack of section (versus fuselage center line)
M	free-stream Mach number
ML	local Mach number
Re	Reynolds number (based on mean aerodynamic chord)
C_p	pressure coefficient
C_p^*	pressure coefficient at $ML = 1$
C_L	lift coefficient
C_D	drag coefficient
C_M	pitching moment coefficient
$F(n)$	frequency function
n	reduced frequency
$HS, S1 \dots S7$	designation of sections on wing
$R1 \dots R21$	designation of sections on fuselage
Subscripts	
u	upper side
l	lower side

x'/c	z'_u/c	z'_l/c	x'/c	z'_{ul}/c	z'_l/c
0.0	0.0	0.0	0.46764994	0.05168439	-0.02804276
0.00250000	0.00982777	-0.00381661	0.49289989	0.05071530	-0.02692189
0.00750000	0.01565005	-0.00595551	0.51819992	0.04953286	-0.02552682
0.01250000	0.01924124	-0.00724055	0.54094982	0.04828609	-0.02407820
0.01750000	0.02197274	-0.00830524	0.56139994	0.04701714	-0.02266148
0.02250000	0.02418222	-0.00916079	0.57984984	0.04575074	-0.02132278
0.02750000	0.02603555	-0.00988014	0.59639996	0.04451726	-0.02009462
0.03250000	0.02763603	-0.01051012	0.61134994	0.04332332	-0.01897731
0.03750000	0.02905858	-0.01107267	0.62500000	0.04216964	-0.01795656
0.04250000	0.03034812	-0.01158552	0.63684994	0.04111803	-0.01707330
0.04799999	0.03165161	-0.01211079	0.64774990	0.04010996	-0.01626466
0.05404999	0.03297216	-0.01266547	0.65754986	0.03917050	-0.01554247
0.06070000	0.03430759	-0.01326836	0.66729993	0.03820658	-0.01483070
0.06804997	0.03566648	-0.01392980	0.67809993	0.03710360	-0.01405105
0.07609999	0.03703678	-0.01464810	0.68994993	0.03585198	-0.01321070
0.08494997	0.03840749	-0.01542814	0.70294994	0.03443204	-0.01231219
0.09469998	0.03979396	-0.01627368	0.71729994	0.03280832	-0.01135277
0.10539997	0.04118749	-0.01718441	0.73304987	0.03096390	-0.01034154
0.11719996	0.04258029	-0.01816545	0.75039989	0.02886695	-0.00928134
0.13014996	0.04396465	-0.01920807	0.76949996	0.02649507	-0.00818220
0.14439994	0.04532958	-0.02031292	0.79049987	0.02383909	-0.00705677
0.16009992	0.04666926	-0.02147442	0.81354994	0.02091323	-0.00591856
0.17734981	0.04795947	-0.02267816	0.83894986	0.01773962	-0.00477579
0.19634992	0.04918690	-0.02391202	0.86434996	0.01468950	-0.00374426
0.21719980	0.05032904	-0.02514784	0.88719982	0.01204593	-0.00291268
0.23999995	0.05135601	-0.02634904	0.90779996	0.00973445	-0.00224648
0.26544994	0.05225340	-0.02749516	0.92629987	0.00770964	-0.00171418
0.29074997	0.05290646	-0.02841986	0.94204986	0.00601928	-0.00130371
0.31599987	0.05333761	-0.02911612	0.95539993	0.00460874	-0.00098079
0.34129989	0.05355927	-0.02957801	0.96674985	0.00342286	-0.00072021
0.36654997	0.05357844	-0.02979353	0.97809994	0.00224680	-0.00046829
0.39184994	0.05339843	-0.02975516	0.98944992	0.00107884	-0.00022414
0.41709989	0.05302519	-0.02945522	1.00000000	0.0	0.0
0.44239986	0.05245347	-0.02888565			

Table 3.1: Basic airfoil section (streamwise)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
1.888	2.865	109.950	4.808	103.480	-2.172
4.121	3.914	115.422	4.174	97.156	-2.669
6.355	4.625	122.042	3.456	91.700	-3.108
9.082	5.254	129.682	2.724	86.976	-3.471
12.724	5.863	133.107	2.332	77.725	-4.064
15.797	6.253	136.195	1.996	73.929	-4.272
19.513	6.642	138.969	1.696	66.350	-4.556
24.003	7.076	143.330	1.220	62.554	-4.629
26.588	7.300	146.728	0.814	58.764	-4.660
32.565	7.687	146.676	0.095	51.180	-4.590
35.985	7.847	144.973	0.087	47.379	-4.489
43.599	8.068	143.270	0.072	39.806	-4.181
47.386	8.122	138.905	-0.030	35.990	-3.972
54.969	8.158	136.130	-0.138	29.446	-3.574
58.764	8.142	133.042	-0.290	24.010	-3.204
66.348	8.030	129.617	-0.445	17.575	-2.741
70.136	7.928	125.814	-0.786	12.734	-2.372
81.133	7.408	122.009	-1.037	9.096	-2.066
86.966	7.006	118.556	-1.247	5.619	-1.730
93.739	6.457	112.545	-1.604	2.613	-1.301
100.084	5.873	107.581	-1.902		

Table 3.2a: Measured wing contour, left-hand side in flight direction, section HS ($\alpha_{TW} = 1.88^\circ$), see figure 3.1.

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
106.518	-0.397	15.723	-2.226	39.917	6.007
105.281	-0.399	12.763	-1.978	42.673	5.989
100.876	-0.423	10.312	-1.770	45.423	5.954
96.618	-0.491	7.410	-1.519	50.932	5.825
91.364	-0.668	5.227	-1.318	56.440	5.603
86.090	-0.929	2.995	-1.075	63.157	5.181
81.725	-1.183	1.924	2.356	68.075	4.771
76.558	-1.492	4.085	3.162	73.860	4.215
72.678	-1.783	6.608	3.748	78.130	3.748
66.589	-2.286	9.247	4.206	83.818	3.070
61.149	-2.681	11.474	4.516	86.106	2.786
53.684	-3.141	14.169	4.827	88.617	2.476
48.181	-3.356	17.430	5.136	94.143	1.788
42.672	-3.432	21.377	5.440	96.631	1.478
37.164	-3.399	26.130	5.719	98.871	1.202
31.657	-3.213	28.902	5.835	102.594	0.745
23.649	-2.791	31.658	5.819	105.279	0.400
19.311	-2.497	34.409	5.974		

Table 3.2b: Measured wing contour, left-hand side in flight direction, section S4 ($\alpha_{TW} = 1.26^\circ$)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
2.050	1.627	36.085	2.969	49.187	-0.534
3.374	2.001	38.895	2.725	46.693	-0.677
5.291	2.549	41.526	2.471	43.743	-0.887
6.562	2.534	45.621	2.034	40.921	-1.102
8.101	2.707	47.892	1.773	37.117	-1.397
9.962	2.890	50.634	1.446	32.249	-1.726
11.034	2.984	53.795	1.064	27.529	-1.940
13.512	3.170	56.494	0.729	22.806	-1.990
16.513	3.329	59.447	0.339	18.086	-1.905
21.234	3.454	60.154	-0.305	12.208	-1.619
22.806	3.461	59.448	-0.311	8.976	-1.376
25.954	3.455	57.537	-0.224	5.278	-1.044
30.673	3.298	55.204	-0.334	2.637	-0.791
32.248	3.223	52.202	-0.403	1.088	-0.509

Table 3.2c: Measured wing contour, left-hand side in flight direction,
 section S7 ($\alpha_{TW} = -0.26^\circ$)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
0.272	1.539	89.453	6.870	122.006	-0.977
1.084	2.390	91.696	6.697	118.551	-1.150
1.867	2.897	95.523	6.374	115.402	-1.325
3.368	3.610	100.090	5.934	109.936	-1.652
4.866	4.119	103.487	5.563	105.425	-1.956
8.102	4.962	107.589	5.100	98.616	-2.434
10.197	5.396	112.553	4.501	93.734	-2.787
12.728	5.833	118.567	3.743	89.444	-3.088
15.797	6.253	122.023	3.301	84.192	-3.447
17.571	6.427	125.830	2.816	81.126	-3.651
21.650	6.855	129.637	2.337	73.919	-4.086
24.003	7.078	133.059	1.910	66.345	-4.363
29.436	7.534	136.148	1.567	58.763	-4.467
32.562	7.748	138.922	1.262	54.969	-4.481
35.982	7.917	143.283	0.766	47.387	-4.390
39.801	8.050	144.982	0.565	39.807	-4.153
43.598	8.141	148.379	0.142	35.990	-3.975
47.385	8.213	146.683	-0.258	29.444	-3.598
51.181	8.269	144.981	-0.275	24.007	-3.243
54.970	8.291	143.278	-0.292	21.653	-3.074
58.766	8.276	141.276	-0.319	17.572	-2.768
62.555	8.215	138.914	-0.366	14.197	-2.494
66.351	8.114	136.139	-0.439	10.200	-2.149
70.138	7.974	133.051	-0.540	5.622	-1.697
73.925	7.804	129.625	-0.665	3.372	-1.385
77.720	7.611	125.815	-0.815	1.882	-1.117
84.201	7.232				

Table 3.2d: Measured wing contour, right-hand side in flight direction,
 section HS ($\alpha_{TW} = 1.91^\circ$)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
1.927	2.351	64.959	5.028	91.359	-0.554
3.563	2.931	68.074	4.764	88.594	-0.682
5.234	3.417	71.620	4.425	81.719	-1.083
7.407	3.917	75.148	4.053	75.137	-1.507
9.240	4.253	78.127	3.721	68.064	-2.017
10.300	4.418	81.734	3.300	61.136	-2.497
14.158	4.932	86.100	2.735	56.430	-2.797
17.420	5.256	88.603	2.367	50.926	-3.084
19.300	5.408	94.145	1.788	45.421	-3.218
23.641	5.703	96.635	1.510	39.916	-3.289
26.125	5.830	98.875	1.244	34.410	-3.218
31.655	6.018	100.889	1.017	28.904	-3.043
37.165	6.102	102.602	0.824	23.649	-2.793
39.917	6.106	105.290	0.507	19.309	-2.530
42.674	6.085	106.521	0.356	12.756	-2.061
48.181	5.962	107.749	-0.159	9.245	-1.753
50.933	5.862	105.277	-0.220	6.606	-1.491
53.683	5.742	102.588	-0.258	3.541	-1.129
58.919	5.455	100.873	-0.283	1.374	-0.734
61.147	5.311	96.614	-0.374		

Table 3.2e: Measured wing contour, right-hand side in flight direction,
 section S4 ($\alpha_{TW} = 1.30^\circ$)

x' [mm]	z' [mm]	x' [mm]	z' [mm]	x' [mm]	z' [mm]
1.435	1.419	42.195	2.368	38.039	-1.228
2.666	1.798	44.636	2.113	34.932	-1.458
4.736	2.295	47.890	1.762	32.244	-1.644
6.556	2.577	52.219	1.282	29.099	-1.830
8.976	2.913	55.221	0.942	25.953	-1.959
11.024	3.121	58.630	0.553	22.805	-2.023
13.506	3.291	60.151	-0.186	19.656	-2.013
16.510	3.426	58.614	-0.219	14.920	-1.876
19.659	3.501	56.484	-0.256	12.200	-1.743
22.807	3.520	53.780	-0.310	11.016	-1.673
25.955	3.496	50.618	-0.416	7.269	-1.416
29.102	3.403	47.878	-0.548	4.208	-1.154
32.250	3.255	44.630	-0.743	2.310	-0.902
36.086	2.984	40.304	-1.059	0.765	-0.504
38.895	2.724				

Table 3.2f: Measured wing contour, right-hand side in flight direction,
 section S7 ($\alpha_{TW} = -0.18^\circ$)

x [mm]	y [mm]	x [mm]	y [mm]	x [mm]	y [mm]
-19.408	0.974	-10.636	0.553	-2.568	0.251
-19.779	2.318	-10.887	2.532	-2.803	2.824
-20.586	3.653	-11.626	4.692	-3.407	5.217
-21.722	4.678	-12.439	6.168	-4.481	7.639
-22.940	5.286	-13.602	7.825	-5.636	9.450
-24.329	5.571	-15.084	8.915	-7.940	11.941
-25.910	5.444	-16.164	9.603	-9.582	13.182
-27.387	4.858	-18.312	10.515	-11.921	14.452
-28.723	3.753	-20.454	10.928	-14.745	15.379
-29.668	2.187	-23.133	10.838	-16.978	15.716
-29.912	1.343	-24.981	10.378	-19.502	15.712
-29.986	-0.225	-27.166	9.337	-21.779	15.356
-29.781	-1.225	-29.745	7.089	-23.680	14.789
-28.783	-3.095	-31.076	5.059	-25.329	14.065
-27.233	-4.346	-31.763	3.314	-26.932	13.129
-25.755	-4.877	-32.180	0.995	-29.147	11.333
-24.153	-4.959	-32.092	-1.306	-31.086	9.051
-22.773	-4.637	-31.594	-3.284	-32.279	7.017
-21.916	-4.218	-30.878	-4.875	-33.169	4.746
-20.975	-3.502	-29.792	-6.476	-33.802	1.278
-20.119	-2.431	-27.842	-8.327	-33.714	-1.690
-19.623	-1.370	-26.096	-9.379	-33.443	-3.231
		-23.799	-10.173	-32.570	-5.892
		-20.574	-10.405	-31.085	-8.559
		-18.225	-9.957	-29.134	-10.859
		-16.618	-9.316	-26.580	-12.874
		-15.018	-8.345	-23.387	-14.414
		-13.269	-6.739	-20.432	-15.137
		-12.049	-5.019	-16.723	-15.227
		-11.253	-3.288	-13.156	-14.465
		-10.795	-1.560	-10.493	-13.276
				-8.481	-11.928
				-6.388	-9.932
				-4.649	-7.491
				-3.490	-5.008
				-2.779	-2.302

Section R1

Section R2

Section R3

Table 3.3: Measured fuselage contour,
 see figure 3.2.

z [mm]	y [mm]	z [mm]	y [mm]
5.013	1.850	-35.067	0.032
4.482	5.094	-34.659	-3.751
3.193	8.653	-33.518	-7.455
1.688	11.307	-31.740	-10.760
-1.059	14.574	-29.393	-13.655
-3.314	16.443	-26.694	-16.000
-5.876	17.993	-22.855	-18.160
-7.518	18.738	-18.998	-19.357
-10.217	19.599	-16.121	-19.735
-13.659	20.121	-12.270	-19.577
-16.195	20.123	-8.471	-18.676
-20.067	19.505	-5.316	-17.312
-23.210	18.415	-2.705	-15.594
-26.091	16.833	-0.749	-13.831
-28.499	14.955	1.501	-11.074
-30.800	12.485	2.855	-8.838
-32.616	9.598	3.894	-6.501
-34.002	6.610	4.664	-3.840
-34.790	3.492	5.089	-0.615

Section R4

z [mm]	y [mm]	z [mm]	y [mm]
20.575	1.674	-35.354	4.052
20.266	3.993	-35.641	0.387
19.526	6.684	-35.248	-4.094
18.039	9.897	-34.424	-7.235
16.072	12.936	-32.866	-10.915
13.548	15.659	-28.824	-16.395
10.260	18.227	-26.247	-18.578
7.155	20.039	-22.440	-20.782
4.332	21.276	-18.349	-22.163
1.165	22.234	-14.346	-22.721
-2.302	22.827	-9.005	-22.848
-6.172	23.074	-4.400	-22.785
-9.912	23.098	0.508	-22.254
-14.321	22.986	4.721	-21.017
-17.899	22.651	7.973	-19.459
-21.654	21.436	11.376	-17.248
-24.694	19.909	14.828	-14.130
-28.126	17.385	17.566	-10.531
-30.851	14.478	19.359	-6.894
-33.010	11.016	20.341	-3.261
-34.457	7.622		

Section R5

z [mm]	y [mm]	z [mm]	y [mm]
36.285	1.386	-35.680	-0.576
35.758	4.537	-35.355	-4.042
34.870	7.280	-34.733	-6.886
33.568	10.022	-33.466	-10.420
31.432	13.285	-31.253	-14.345
28.988	15.983	-27.850	-18.203
26.146	18.293	-24.831	-20.562
23.216	20.082	-20.927	-22.588
19.921	21.582	-16.885	-23.692
16.954	22.575	-11.970	-24.143
13.313	23.410	-8.326	-24.240
9.542	23.910	-4.446	-24.293
4.933	24.193	0.328	-24.281
-0.149	24.324	5.225	-24.122
-5.167	24.369	9.838	-23.783
-9.461	24.336	14.142	-23.176
-14.394	24.091	18.882	-21.912
-18.832	23.332	22.181	-20.552
-23.139	21.683	25.126	-18.901
-26.738	19.356	27.187	-17.439
-29.352	16.922	29.870	-15.037
-32.334	12.878	31.952	-12.584
-34.204	8.939	34.213	-8.837
-35.165	5.675	35.764	-4.652
-35.604	2.698	36.314	-1.204

Section R6

z [mm]	y [mm]	z [mm]	y [mm]
46.011	3.208	-35.774	0.835
44.928	7.869	-35.553	-3.751
43.167	11.815	-34.869	-7.325
40.725	15.342	-33.189	-11.746
36.879	18.978	-31.383	-14.751
34.055	20.812	-28.559	-18.033
32.569	21.559	-25.042	-20.892
29.417	22.756	-21.324	-22.839
25.252	23.722	-17.235	-24.000
21.271	24.194	-12.121	-24.437
16.767	24.433	-7.671	-24.490
11.287	24.507	-2.835	-24.491
6.632	24.515	2.952	-24.479
1.269	24.530	8.839	-24.463
-4.219	24.540	13.369	-24.449
-9.976	24.519	18.714	-24.350
-14.207	24.376	24.657	-23.635
-18.542	23.730	28.964	-22.851
-21.456	22.746	32.766	-21.340
-24.838	20.953	36.317	-19.204
-27.914	18.598	39.671	-16.246
-30.643	15.676	41.773	-13.682
-32.535	12.879	44.061	-9.783
-33.825	10.324	45.449	-6.020
-35.085	6.636	46.177	-1.419

Section R7

z [mm]	y [mm]	z [mm]	y [mm]
48.396	4.210	-35.165	-7.102
47.798	8.025	-33.968	-10.704
46.516	12.226	-32.241	-13.922
44.612	16.053	-29.203	-17.718
41.204	20.113	-25.355	-20.888
38.540	22.040	-21.040	-23.067
31.620	24.237	-16.578	-24.143
25.920	24.542	-11.811	-24.434
20.625	24.559	-6.361	-24.467
14.802	24.535	0.112	-24.465
8.070	24.533	5.629	-24.457
2.568	24.537	10.730	-24.458
-2.237	24.536	16.544	-24.463
-7.714	24.531	23.192	-24.454
-13.590	24.439	28.860	-24.330
-19.061	23.666	35.049	-23.469
-23.393	21.956	39.586	-21.204
-27.668	19.071	43.276	-17.735
-31.446	14.974	45.905	-13.632
-33.942	10.584	47.418	-9.816
-35.409	5.948	48.310	-5.670
-35.815	1.788	48.613	-0.980
-35.767	-2.380		

Section R8

z [mm]	y [mm]	z [mm]	y [mm]
47.137	1.652	-35.860	2.814
46.951	6.245	-35.865	-0.008
46.196	10.277	-35.844	-3.359
44.163	15.747	-35.574	-6.133
41.673	19.370	-34.745	-9.239
38.376	22.124	-33.393	-12.363
37.490	22.637	-30.935	-16.122
34.524	23.853	-28.542	-18.653
30.751	24.491	-23.309	-22.192
26.199	24.554	-18.567	-23.916
22.265	24.557	-13.484	-24.458
17.871	24.556	-8.301	-24.457
12.921	24.554	-2.973	-24.457
7.739	24.553	3.749	-24.456
2.246	24.553	9.493	-24.455
-2.917	24.553	15.961	-24.455
-8.610	24.549	22.250	-24.452
-13.150	24.537	28.367	-24.443
-16.995	24.253	33.590	-24.040
-22.564	22.580	37.486	-22.605
-26.158	20.550	41.073	-19.961
-29.322	17.914	43.480	-16.927
-32.321	14.201	45.368	-12.997
-34.233	10.549	46.600	-8.588
-35.334	7.260	47.122	-3.957

Section R9

Table 3.3 continued: Measured fuselage contour

z [mm]	y [mm]	z [mm]	y [mm]
45.587	6.094	-35.787	-4.242
44.950	9.682	-34.571	-10.340
42.843	15.521	-32.007	-15.090
38.870	20.670	-28.883	-18.728
35.430	22.893	-24.988	-21.591
34.320	23.357	-20.854	-23.437
29.579	24.423	-16.122	-24.426
25.606	24.473	-11.111	-24.476
20.941	24.485	-6.139	-24.477
14.957	24.523	-0.481	-24.473
8.459	24.520	5.944	-24.472
1.974	24.519	11.713	-24.473
-4.130	24.519	17.580	-24.472
-10.108	24.518	23.915	-24.472
-16.158	24.415	30.002	-24.422
-21.624	23.188	35.709	-22.894
-29.367	18.292	39.656	-20.005
-32.930	13.660	43.167	-15.068
-34.878	9.409	44.860	-10.249
-35.725	5.337	45.713	-4.944
-35.796	1.696	45.773	-0.121

Section R10

z [mm]	y [mm]	z [mm]	y [mm]
43.054	2.599	-35.664	-2.792
42.562	6.188	-35.412	-8.025
41.196	13.232	-33.080	-14.275
39.048	17.480	-29.953	-18.450
35.961	20.887	-26.378	-21.374
32.576	23.000	-21.966	-23.461
31.304	23.519	-17.354	-24.478
25.833	24.446	-11.273	-24.524
19.496	24.483	-5.496	-24.524
13.512	24.482	1.952	-24.521
5.072	24.481	9.169	-24.518
-1.462	24.482	15.909	-24.516
-7.798	24.478	22.814	-24.505
-13.861	24.477	27.716	-24.376
-19.308	24.093	31.602	-23.500
-23.539	22.828	34.740	-21.850
-27.162	20.821	37.303	-19.694
-31.893	16.053	40.029	-15.922
-34.192	12.054	41.796	-11.540
-35.462	7.857	42.868	-6.451
-35.653	2.989	43.052	-2.229

Section R12

z [mm]	y [mm]	z [mm]	y [mm]
37.060	3.305	-35.586	-4.203
36.906	6.166	-35.465	-9.270
36.349	9.346	-34.754	-12.725
35.619	11.979	-33.669	-15.265
34.411	14.898	-31.987	-17.929
33.108	17.344	-29.335	-20.698
31.425	19.464	-26.627	-22.393
29.432	21.247	-23.491	-23.797
26.882	22.817	-20.361	-24.445
22.927	24.202	-16.761	-24.498
20.058	24.478	-12.344	-24.500
17.489	24.489	-7.145	-24.499
14.356	24.506	-1.296	-24.500
10.861	24.499	4.361	-24.500
6.262	24.499	9.444	-24.499
0.738	24.497	13.938	-24.498
-3.377	24.498	19.411	-24.471
-8.734	24.496	23.239	-24.403
-14.417	24.492	26.430	-23.355
-18.737	24.468	29.042	-21.741
-23.713	23.713	31.804	-19.269
-28.432	21.413	34.006	-16.084
-31.281	18.757	35.511	-12.559
-33.269	15.952	36.453	-9.155
-35.176	11.253	36.967	-5.962
-35.473	7.914	37.051	-2.257
-35.481	4.028		

Section R14

z [mm]	y [mm]	z [mm]	y [mm]
44.406	2.439	-35.689	0.358
44.212	6.409	-35.737	-4.160
43.372	10.582	-35.034	-9.290
41.790	14.967	-32.933	-14.031
39.615	18.510	-30.062	-17.933
35.715	21.972	-26.758	-20.807
32.927	23.363	-22.104	-23.219
28.870	24.337	-16.673	-24.464
22.880	24.446	-8.803	-24.500
17.325	24.496	-1.963	-24.497
11.532	24.495	4.432	-24.492
5.016	24.495	11.247	-24.490
-0.954	24.494	17.040	-24.490
-7.232	24.493	23.292	-24.517
-13.689	24.493	28.487	-24.475
-19.501	23.971	32.587	-23.667
-24.524	22.137	36.517	-21.647
-28.287	19.630	38.734	-19.711
-31.029	16.808	41.117	-16.498
-33.618	12.867	43.003	-12.115
-34.996	9.530	44.132	-7.355
-35.675	6.015	44.408	-2.825

Section R11

z [mm]	y [mm]	z [mm]	y [mm]
41.424	2.288	-35.752	4.507
41.195	5.876	-35.756	1.530
40.610	9.425	-35.960	-1.918
39.745	12.796	-35.763	-5.362
38.649	15.441	-35.261	-9.836
37.360	17.679	-34.371	-12.430
35.759	19.951	-33.270	-14.643
33.488	21.612	-31.584	-17.128
30.938	23.065	-29.699	-19.210
27.654	24.125	-26.857	-21.463
24.840	24.478	-23.510	-23.165
20.569	24.507	-19.626	-24.268
14.911	24.505	-16.212	-24.500
10.167	24.504	-11.778	-24.498
6.745	24.504	-5.956	-24.501
1.938	24.505	-0.743	-24.501
-2.105	24.505	4.562	-24.500
-7.306	24.502	9.553	-24.498
-13.739	24.498	14.088	-24.498
-18.632	24.356	17.699	-24.496
-23.856	23.024	22.311	-24.499
-27.970	20.714	26.783	-24.287
-31.323	17.450	30.917	-23.128
-33.180	14.811	34.363	-21.202
-34.469	12.282	36.930	-18.325
-35.297	9.821	38.561	-15.733
-35.715	7.175	40.045	-12.282

Section R13

z [mm]	y [mm]	z [mm]	y [mm]
35.671	0.490	-35.404	-1.562
35.656	4.107	-35.409	-5.848
35.303	8.015	-35.374	-10.114
34.500	11.329	-34.412	-14.092
33.518	14.102	-33.094	-16.701
32.282	16.587	-31.069	-19.407
30.701	18.845	-28.794	-21.431
28.852	20.700	-25.952	-23.065
26.127	22.529	-23.273	-24.021
22.335	24.070	-19.775	-24.503
18.965	24.479	-15.600	-24.499
15.184	24.502	-11.482	-24.499
10.731	24.501	-7.259	-24.501
6.216	24.502	-2.673	-24.500
1.845	24.500	3.466	-24.500
-2.411	24.493	7.169	-24.499
-7.202	24.498	11.241	-24.496
-13.550	24.494	15.382	-24.495
-18.222	24.495	19.806	-24.454
-22.613	24.149	24.116	-23.537
-26.816	22.666	27.580	-21.713
-30.424	20.056	30.520	-19.093
-33.265	16.349	32.590	-16.068
-34.583	13.636	33.871	-13.196
-35.311	10.531	34.893	-9.898
-35.392	6.959	35.450	-7.123
-35.399	2.842	35.669	-3.648

Section R15

Table 3.3 continued: Measured fuselage contour

z [mm]	y [mm]	z [mm]	y [mm]	z [mm]	y [mm]	z [mm]	y [mm]
34.353	2.742	-35.332	-7.942	33.007	3.331	-35.241	-0.986
34.116	6.982	-35.035	-12.568	32.733	7.429	-35.249	-6.792
33.321	10.792	-33.250	-16.332	31.891	11.033	-35.130	-12.150
31.967	14.581	-31.817	-18.904	30.656	14.463	-34.021	-15.728
30.008	18.003	-29.697	-21.040	29.317	17.065	-32.295	-18.663
27.916	20.345	-27.347	-22.595	27.802	19.106	-29.600	-21.438
25.558	22.138	-24.288	-23.878	25.230	21.475	-25.386	-23.687
22.932	23.450	-20.913	-24.489	22.460	23.088	-22.318	-24.408
19.531	24.331	-16.882	-24.498	19.430	24.102	-18.112	-24.497
14.454	24.502	-12.808	-24.497	15.308	24.501	-13.570	-24.497
9.821	24.501	-8.157	-24.498	10.344	24.503	-9.432	-24.498
5.006	24.500	-3.900	-24.498	5.459	24.502	-4.972	-24.498
1.211	24.496	0.515	-24.497	1.238	24.498	-0.524	-24.498
-3.979	24.500	5.601	-24.496	-2.991	24.502	4.236	-24.497
-8.567	24.498	9.956	-24.495	-7.099	24.500	9.515	-24.495
-13.832	24.495	14.708	-24.493	-11.178	24.497	15.055	-24.496
-19.789	24.492	19.209	-24.368	-15.860	24.496	19.703	-24.064
-24.485	23.811	23.391	-23.276	-19.682	24.495	23.545	-22.583
-27.823	22.379	27.237	-20.979	-24.299	24.018	26.869	-20.123
-30.828	20.006	30.370	-17.522	-28.539	22.232	29.172	-17.335
-33.464	16.383	32.323	-13.760	-30.990	20.188	31.282	-12.954
-35.068	12.253	33.628	-9.618	-33.151	17.318	32.524	-8.536
-35.309	7.650	34.251	-5.754	-34.762	13.728	32.991	-5.255
-35.313	2.248	34.347	-1.556	-35.229	9.255	33.006	-0.955
-35.317	-2.765			-35.226	4.523		

Section R16

Section R17

z [mm]	y [mm]	z [mm]	y [mm]	z [mm]	y [mm]	z [mm]	y [mm]	z [mm]	y [mm]
30.955	7.717	-34.006	16.296	27.305	13.875	25.393	14.221	23.855	12.257
30.708	8.890	-34.926	13.494	26.795	15.032	24.763	15.503	23.348	13.450
30.320	10.420	-35.134	10.606	25.926	16.704	23.563	17.458	22.749	14.690
29.975	11.547	-35.145	6.412	24.641	18.576	22.450	18.902	22.144	15.789
29.389	13.084	-35.144	1.007	23.620	19.737	20.608	20.768	21.124	17.311
28.499	15.229	-35.160	-6.415	21.044	21.903	18.577	22.276	19.851	18.852
27.559	16.980	-35.161	-11.122	19.276	22.901	16.016	23.582	18.185	20.417
26.492	18.512	-34.586	-14.988	16.639	23.888	13.142	24.316	15.833	22.036
24.944	20.215	-33.631	-17.108	13.739	24.426	9.248	24.389	13.551	23.130
23.194	21.659	-31.025	-20.658	10.730	24.506	4.114	24.501	10.165	24.145
20.457	23.194	-28.186	-22.757	7.022	24.507	-1.215	24.478	7.328	24.430
17.841	24.075	-25.413	-23.905	1.259	24.503	-11.093	24.497	4.040	24.452
14.261	24.501	-22.338	-24.476	-5.570	24.501	-22.442	24.483	0.372	24.458
10.308	24.507	-17.665	-24.495	-10.801	24.501	-26.424	23.713	-3.974	24.466
4.683	24.506	-12.260	-24.495	-22.648	24.507	-30.029	21.697	-8.941	24.461
0.205	24.505	-6.979	-24.495	-27.764	23.329	-32.889	18.271	-12.154	24.144
-4.722	24.504	-0.427	-24.495	-32.977	18.690	-34.269	14.443	-18.956	21.608
-10.324	24.502	6.546	-24.492	-34.734	14.744	-34.445	9.313	-21.754	19.538
-14.939	24.500	20.359	-23.236	-35.039	11.145	-34.433	4.485		
-20.171	24.501	23.759	-21.243	-35.047	6.730	-34.417	-0.832		
-23.639	24.323	26.421	-18.622	-35.061	0.941	-34.425	-6.165		
-26.940	23.407	28.082	-16.104	-35.062	-5.298	-34.420	-11.416		
-29.995	21.608	29.390	-13.159	-35.074	-12.043	-33.934	-15.883		
-32.622	18.697	30.397	-10.381	-33.582	-17.781	-32.058	-19.662		
				-30.112	-21.876	-29.769	-21.996		
				-27.275	-23.472	-26.536	-23.767		

Section R18

Section R19

Section R20

Section R21

Table 3.3 continued: Measured fuselage contour

Spanwise position of pressure orifices		Chordwise position of pressure orifices	
Designation	y/s (s = halfspan)	x/c	
H5	0.133	0*	+ only on lower side
H1	0.198	0.025	* only on upper side
H2	0.262	0.05	
H3	0.375	0.075	Note:
H4	0.505	0.1	The orifices on the upper side are
H5	0.648	0.15	located on the right wing side in
H6	0.786	0.2	flight direction.
H7	0.928	0.3*	the orifices on the lower side
		0.4	on the left one.
		0.5	
		0.6	
		0.7*	
		0.8	
		0.9	
		0.98*	

Table 3.4: Location of pressure orifices

NR	X/C	SECTION 1		X/C	SECTION 2		X/C	SECTION 3	
		CP	ML		CP	ML		CP	ML
UPPER	SIDE								
1	0.0	0.4375	0.3867	0.0	0.7581	0.4340	0.0	0.7390	0.4444
2	0.0250	0.4244	0.3707	0.0250	0.7571	0.4357	0.0250	0.7390	0.4444
3	0.0500	0.4107	0.3547	0.0500	0.7561	0.4374	0.0500	0.7390	0.4444
4	0.0750	0.3971	0.3387	0.0750	0.7551	0.4391	0.0750	0.7390	0.4444
5	0.1000	0.3834	0.3227	0.1000	0.7541	0.4408	0.1000	0.7390	0.4444
6	0.1500	0.3552	0.2867	0.1500	0.7521	0.4448	0.1500	0.7390	0.4444
7	0.2000	0.3270	0.2507	0.2000	0.7501	0.4488	0.2000	0.7390	0.4444
8	0.3000	0.2588	0.1827	0.3000	0.7461	0.4528	0.3000	0.7390	0.4444
9	0.4000	0.1906	0.1147	0.4000	0.7421	0.4568	0.4000	0.7390	0.4444
10	0.5000	0.1224	0.0467	0.5000	0.7381	0.4608	0.5000	0.7390	0.4444
11	0.6000	0.0542	-0.0213	0.6000	0.7341	0.4648	0.6000	0.7390	0.4444
12	0.7000	-0.0140	-0.0893	0.7000	0.7301	0.4688	0.7000	0.7390	0.4444
13	0.8000	-0.0818	-0.1573	0.8000	0.7261	0.4728	0.8000	0.7390	0.4444
14	0.9000	-0.1496	-0.2253	0.9000	0.7221	0.4768	0.9000	0.7390	0.4444
15	1.0000	-0.2174	-0.2933	1.0000	0.7181	0.4808	1.0000	0.7390	0.4444
LOWER	SIDE								
1	0.0	0.4375	0.3867	0.0	0.7581	0.4340	0.0	0.7390	0.4444
2	0.0250	0.4244	0.3707	0.0250	0.7571	0.4357	0.0250	0.7390	0.4444
3	0.0500	0.4107	0.3547	0.0500	0.7561	0.4374	0.0500	0.7390	0.4444
4	0.0750	0.3971	0.3387	0.0750	0.7551	0.4391	0.0750	0.7390	0.4444
5	0.1000	0.3834	0.3227	0.1000	0.7541	0.4408	0.1000	0.7390	0.4444
6	0.1500	0.3552	0.2867	0.1500	0.7521	0.4448	0.1500	0.7390	0.4444
7	0.2000	0.3270	0.2507	0.2000	0.7501	0.4488	0.2000	0.7390	0.4444
8	0.3000	0.2588	0.1827	0.3000	0.7461	0.4528	0.3000	0.7390	0.4444
9	0.4000	0.1906	0.1147	0.4000	0.7421	0.4568	0.4000	0.7390	0.4444
10	0.5000	0.1224	0.0467	0.5000	0.7381	0.4608	0.5000	0.7390	0.4444
11	0.6000	0.0542	-0.0213	0.6000	0.7341	0.4648	0.6000	0.7390	0.4444
12	0.7000	-0.0140	-0.0893	0.7000	0.7301	0.4688	0.7000	0.7390	0.4444
13	0.8000	-0.0818	-0.1573	0.8000	0.7261	0.4728	0.8000	0.7390	0.4444
14	0.9000	-0.1496	-0.2253	0.9000	0.7221	0.4768	0.9000	0.7390	0.4444
15	1.0000	-0.2174	-0.2933	1.0000	0.7181	0.4808	1.0000	0.7390	0.4444

NR	X/C	SECTION 4		X/C	SECTION 5		X/C	SECTION 6	
		CP	ML		CP	ML		CP	ML
UPPER	SIDE								
1	0.0	0.7025	0.4650	0.0	0.6899	0.4715	0.0	0.6168	0.5103
2	0.0250	0.6899	0.4510	0.0250	0.6809	0.4775	0.0250	0.6238	0.5163
3	0.0500	0.6774	0.4370	0.0500	0.6719	0.4835	0.0500	0.6308	0.5223
4	0.0750	0.6649	0.4230	0.0750	0.6629	0.4895	0.0750	0.6378	0.5283
5	0.1000	0.6524	0.4090	0.1000	0.6539	0.4955	0.1000	0.6448	0.5343
6	0.1500	0.6152	0.3722	0.1500	0.6169	0.4915	0.1500	0.6078	0.5303
7	0.2000	0.5780	0.3354	0.2000	0.5809	0.4875	0.2000	0.5708	0.5263
8	0.3000	0.4774	0.2507	0.3000	0.4799	0.4735	0.3000	0.4638	0.5223
9	0.4000	0.3768	0.1660	0.4000	0.3789	0.4595	0.4000	0.3578	0.5183
10	0.5000	0.2762	0.0813	0.5000	0.2809	0.4455	0.5000	0.2418	0.5143
11	0.6000	0.1756	-0.0033	0.6000	0.1829	0.4315	0.6000	0.1308	0.5103
12	0.7000	0.0750	-0.0880	0.7000	0.0809	0.4175	0.7000	0.0298	0.5063
13	0.8000	-0.0256	-0.1727	0.8000	-0.0249	0.4035	0.8000	-0.0712	0.5023
14	0.9000	-0.1262	-0.2573	0.9000	-0.1299	0.3895	0.9000	-0.1652	0.4983
15	1.0000	-0.2268	-0.3420	1.0000	-0.2339	0.3755	1.0000	-0.2592	0.4943
LOWER	SIDE								
1	0.0	0.7025	0.4650	0.0	0.6899	0.4715	0.0	0.6168	0.5103
2	0.0250	0.6899	0.4510	0.0250	0.6809	0.4775	0.0250	0.6238	0.5163
3	0.0500	0.6774	0.4370	0.0500	0.6719	0.4835	0.0500	0.6308	0.5223
4	0.0750	0.6649	0.4230	0.0750	0.6629	0.4895	0.0750	0.6378	0.5283
5	0.1000	0.6524	0.4090	0.1000	0.6539	0.4955	0.1000	0.6448	0.5343
6	0.1500	0.6152	0.3722	0.1500	0.6169	0.4915	0.1500	0.6078	0.5303
7	0.2000	0.5780	0.3354	0.2000	0.5809	0.4875	0.2000	0.5708	0.5263
8	0.3000	0.4774	0.2507	0.3000	0.4799	0.4735	0.3000	0.4638	0.5223
9	0.4000	0.3768	0.1660	0.4000	0.3789	0.4595	0.4000	0.3578	0.5183
10	0.5000	0.2762	0.0813	0.5000	0.2809	0.4455	0.5000	0.2418	0.5143
11	0.6000	0.1756	-0.0033	0.6000	0.1829	0.4315	0.6000	0.1308	0.5103
12	0.7000	0.0750	-0.0880	0.7000	0.0809	0.4175	0.7000	0.0298	0.5063
13	0.8000	-0.0256	-0.1727	0.8000	-0.0249	0.4035	0.8000	-0.0712	0.5023
14	0.9000	-0.1262	-0.2573	0.9000	-0.1299	0.3895	0.9000	-0.1652	0.4983
15	1.0000	-0.2268	-0.3420	1.0000	-0.2339	0.3755	1.0000	-0.2592	0.4943

Table 3.5: Pressure data ($M = 0.8$ $\alpha = -2^\circ$)

NR	X/C	SECTION HS		X/C	SECTION 1		X/C	SECTION 2		X/C	SECTION 3	
		CP	ML		CP	ML		CP	ML		CP	ML
UPPER	SIDE											
1	0.0	0.4443	0.3825	0.0	0.7674	0.4281	0.0	0.7382	0.4451	0.0	0.6997	0.4709
2	0.0250	0.4318	0.3685	0.0250	0.7664	0.4291	0.0250	0.7372	0.4461	0.0250	0.6987	0.4719
3	0.0500	0.4193	0.3545	0.0500	0.7654	0.4301	0.0500	0.7362	0.4471	0.0500	0.6977	0.4729
4	0.0750	0.4068	0.3405	0.0750	0.7644	0.4311	0.0750	0.7352	0.4481	0.0750	0.6967	0.4739
5	0.1000	0.3943	0.3265	0.1000	0.7634	0.4321	0.1000	0.7342	0.4491	0.1000	0.6957	0.4749
6	0.1500	0.3618	0.2805	0.1500	0.7614	0.4341	0.1500	0.7322	0.4511	0.1500	0.6947	0.4759
7	0.2000	0.3293	0.2345	0.2000	0.7594	0.4361	0.2000	0.7302	0.4531	0.2000	0.6937	0.4769
8	0.3000	0.2568	0.1685	0.3000	0.7574	0.4381	0.3000	0.7282	0.4551	0.3000	0.6927	0.4779
9	0.4000	0.1843	0.1025	0.4000	0.7554	0.4401	0.4000	0.7262	0.4571	0.4000	0.6917	0.4789
10	0.5000	0.1118	0.0365	0.5000	0.7534	0.4421	0.5000	0.7242	0.4591	0.5000	0.6907	0.4799
11	0.6000	0.0393	-0.0295	0.6000	0.7514	0.4441	0.6000	0.7222	0.4611	0.6000	0.6897	0.4809
12	0.7000	-0.0332	-0.1035	0.7000	0.7494	0.4461	0.7000	0.7202	0.4631	0.7000	0.6887	0.4819
13	0.8000	-0.1057	-0.1775	0.8000	0.7474	0.4481	0.8000	0.7182	0.4651	0.8000	0.6877	0.4829
14	0.9000	-0.1782	-0.2515	0.9000	0.7454	0.4501	0.9000	0.7162	0.4671	0.9000	0.6867	0.4839
15	1.0000	-0.2507	-0.3255	1.0000	0.7434	0.4521	1.0000	0.7142	0.4691	1.0000	0.6857	0.4849
LOWER	SIDE											
1	0.0	0.4443	0.3825	0.0	0.7674	0.4281	0.0	0.7382	0.4451	0.0	0.6997	0.4709
2	0.0250	0.4318	0.3685	0.0250	0.7664	0.4291	0.0250	0.7372	0.4461	0.0250	0.6987	0.4719
3	0.0500	0.4193	0.3545	0.0500	0.7654	0.4301	0.0500	0.7362	0.4471	0.0500	0.6977	0.4729
4	0.0750	0.4068	0.3405	0.0750	0.7644	0.4311	0.0750	0.7352	0.4481	0.0750	0.6967	0.4739
5	0.1000	0.3943	0.3265	0.1000	0.7634	0.4321	0.1000	0.7342	0.4491	0.1000	0.6957	0.4749
6	0.1500	0.3618	0.2805	0.1500	0.7614	0.4341	0.1500	0.7322	0.4511	0.1500	0.6947	0.4759
7	0.2000	0.3293	0.2345	0.2000	0.7594	0.4361	0.2000	0.7302	0.4531	0.2000	0.6937	0.4769
8	0.3000	0.2568	0.1685	0.3000	0.7574	0.4381	0.3000	0.7282	0.4551	0.3000	0.6927	0.4779
9	0.4000	0.1843	0.1025	0.4000	0.7554	0.4401	0.4000	0.7262	0.4571	0.4000	0.6917	0.4789
10	0.5000	0.1118	0.0365	0.5000	0.7534	0.4421	0.5000	0.7242	0.4591	0.5000	0.6907	0.4799
11	0.6000	0.0393	-0.0295	0.6000	0.7514	0.4441	0.6000	0.7222	0.4611	0.6000	0.6897	0.4809
12	0.7000	-0.0332	-0.1035	0.7000	0.7494	0.4461	0.7000	0.7202	0.4631	0.7000	0.6887	0.4819
13	0.8000	-0.1057	-0.1775	0.8000	0.7474	0.4481	0.8000	0.7182	0.4651	0.8000	0.6877	0.4829
14	0.9000	-0.1782	-0.2515	0.9000	0.7454	0.4501	0.9000	0.7162	0.4671	0.9000	0.6867	0.4839
15	1.0000	-0.2507	-0.3255	1.0000	0.7434	0.4521	1.0000	0.7142	0.4691	1.0000	0.6857	0.4849

NR	X/C	SECTION 4		X/C	SECTION 5		X/C	SECTION 6		X/C	SECTION 7	
		CP	ML		CP	ML		CP	ML		CP	ML
UPPER	SIDE											
1	0.0	0.6891	0.4719	0.0	0.6634	0.4964	0.0	0.6785	0.4779	0.0	0.6776	0.4783
2	0.0250	0.6766	0.4579	0.0250	0.6564	0.4974	0.0250	0.6715	0.4789	0.0250	0.6767	0.4793
3	0.0500	0.6641	0.4439	0.0500	0.6494	0.4984	0.0500	0.6645	0.4799	0.0500	0.6629	0.4802
4	0.0750	0.6516	0.4299	0.0750	0.6424	0.4994	0.0750	0.6575	0.4809	0.0750	0.6551	0.4815
5	0.1000	0.6391	0.4159	0.1000	0.6354	0.5004	0.1000	0.6505	0.4819	0.1000	0.6481	0.4821
6	0.1500	0.6066	0.3799	0.1500	0.6029	0.4964	0.1500	0.6180	0.4829	0.1500	0.6156	0.4831
7	0.2000	0.5741	0.3439	0.2000	0.5704	0.4924	0.2000	0.5855	0.4839	0.2000	0.5831	0.4841
8	0.3000	0.4735	0.2599	0.3000	0.4699	0.4884	0.3000	0.4850	0.4849	0.3000	0.4826	0.4851
9	0.4000	0.3729	0.1759	0.4000	0.3693	0.4844	0.4000	0.3841		0.4000	0.3817	
10	0.5000	0.2723	0.0919	0.5000	0.2687	0.4804	0.5000	0.2833		0.5000	0.2809	
11	0.6000	0.1717	0.0075	0.6000	0.1681	0.4764	0.6000	0.1835		0.6000	0.1811	
12	0.7000	0.0711	-0.0769	0.7000	0.0675	0.4724	0.7000	0.0827		0.7000	0.0803	
13	0.8000	-0.0295	-0.1523	0.8000	-0.0259	0.4684	0.8000	0.0079		0.8000	-0.0045	
14	0.9000	-0.1289	-0.2287	0.9000	-0.1253	0.4644	0.9000	-0.0923		0.9000	-0.1089	
15	1.0000	-0.2283	-0.3051	1.0000	-0.1217	0.4604	1.0000	-0.1987		1.0000	-0.2155	
LOWER	SIDE											
1	0.0	0.6891	0.4719	0.0	0.6634	0.4964	0.0	0.6785	0.4779	0.0	0.6776	0.4783
2	0.0250	0.6766	0.4579	0.0250	0.6564	0.4974	0.0250	0.6715	0.4789	0.0250	0.6767	0.4793
3	0.0500	0.6641	0.4439	0.0500	0.6494	0.4984	0.0500	0.6645	0.4799	0.0500	0.6629	0.4802
4	0.0750	0.6516	0.4299	0.0750	0.6424	0.4994	0.0750	0.6575	0.4809	0.0750	0.6551	0.4815
5	0.1000	0.6391	0.4159	0.1000	0.6354	0.5004	0.1000	0.6505	0.4819	0.1000	0.6481	0.4821
6	0.1500	0.6066	0.3799	0.1500	0.6029	0.4964	0.1500	0.6180	0.4829	0.1500	0.6156	0.4831
7	0.2000	0.5741	0.3439	0.2000	0.5704	0.4924	0.2000	0.5855	0.4839	0.2000	0.5831	0.4841
8	0.3000	0.4735	0.2599	0.3000	0.4699	0.4884	0.3000	0.4850	0.4849	0.3000	0.4826	0.4851
9	0.4000	0.3729	0.1759	0.4000	0.3693	0.4844	0.4000	0.3841		0.4000	0.3817	
10	0.5000	0.2723	0.0919	0.5000	0.2687	0.4804	0.5000	0.2833		0.5000	0.2809	
11	0.6000	0.1717	0.0075	0.6000	0.1681	0.4764	0.6000	0.1835		0.6000	0.1811	
12	0.7000	0.0711	-0.0769	0.7000	0.0675	0.4724	0.7000	0.0827		0.7000	0.0803	
13	0.8000	-0.0295	-0.1523	0.8000	-0.0259	0.4684	0.8000	0.0079		0.8000	-0.0045	
14	0.9000	-0.1289	-0.2287	0.9000	-0.1253	0.4644	0.9000	-0.0923		0.9000	-0.1089	
15	1.0000	-0.2283	-0.3051	1.0000	-0.1217	0.4604	1.0000	-0.1987		1.0000	-0.2155	

NR	X/C	SECTION HS		X/C	SECTION 1		X/C	SECTION 2		X/C	SECTION 3	
		CP	ML		CP	ML		CP	ML		CP	ML
UPPER SIDE												
1	0.0	0.7887	0.4164	0.0	0.7075	0.4624	0.0	0.6565	0.4897	0.0	0.6018	0.5187
2	0.0250	-0.4668	1.0160	0.0250	-0.7004	1.1333	0.0250	-0.7073	1.1361	0.0250	-0.7709	1.1757
3	0.0500	-0.3917	1.0756	0.0500	-0.7312	1.1471	0.0500	-0.7524	1.1604	0.0500	-0.9974	1.2408
4	0.0750	-0.5327	1.0495	0.0750	-0.6526	1.1087	0.0750	-0.7590	1.1641	0.0750	-0.9153	1.2521
5	0.1000	-0.4737	1.0177	0.1000	-0.5740	1.0687	0.1000	-0.6827	1.1245	0.1000	-0.8152	1.1955
6	0.1500	-0.3931	0.9818	0.1500	-0.4938	1.0296	0.1500	-0.5933	1.0787	0.1500	-0.7159	1.1145
7	0.2000	-0.4373	1.0026	0.2000	-0.5169	1.0410	0.2000	-0.5507	1.0574	0.2000	-0.6587	1.1116
8	0.2500	-0.4402	1.0037	0.2500	-0.5305	1.0477	0.2500	-0.5594	1.0617	0.2500	-0.6439	1.1338
9	0.3000	-0.4563	1.0171	0.3000	-0.5029	1.0340	0.3000	-0.5443	1.0564	0.3000	-0.5784	1.0771
10	0.3500	-0.4935	1.0299	0.3500	-0.5135	1.0374	0.3500	-0.5228	1.0437	0.3500	-0.5188	1.0420
11	0.4000	-0.3998	0.9853	0.4000	-0.4056	0.9875	0.4000	-0.4007	0.9852	0.4000	-0.3759	0.9737
12	0.4500	-0.2762	0.9357	0.4500	-0.2854	0.9305	0.4500	-0.2538	0.9163	0.4500	-0.2412	0.9104
13	0.5000	-0.1546	0.8714	0.5000	-0.1194	0.8549	0.5000	-0.0945	0.8454	0.5000	-0.0881	0.8410
14	0.5500	-0.0306	0.8150	0.5500	0.0017	0.8052	0.5500	0.0149	0.7941	0.5500	0.0201	0.7923
15	1.0000	0.0933	0.7585	1.0000	0.1228	0.7454	1.0000	0.1283	0.7429	1.0000	0.1287	0.7420
LOWER SIDE												
1	0.0	0.7887	0.4164	0.0	0.7075	0.4624	0.0	0.6565	0.4897	0.0	0.6018	0.5187
2	0.0500	0.2615	0.8819	0.0500	0.2202	0.7011	0.0500	0.1934	0.7134	0.0500	0.1915	0.7142
3	0.1000	0.2185	0.7018	0.1000	0.1773	0.7204	0.1000	0.1653	0.7262	0.1000	0.1710	0.7144
4	0.1500	0.1619	0.7277	0.1500	0.1224	0.7452	0.1500	0.1068	0.7527	0.1500	0.0770	0.7657
5	0.2000	0.1131	0.7498	0.2000	0.0771	0.7660	0.2000	0.0609	0.7733	0.2000	0.0271	0.7857
6	0.2500	-0.0477	0.8223	0.2500	-0.1027	0.8474	0.2500	-0.1130	0.8520	0.2500	-0.1101	0.8546
7	0.3000	-0.0920	0.8391	0.3000	-0.0944	0.8438	0.3000	-0.0925	0.8426	0.3000	-0.0847	0.8403
8	0.3500	-0.0292	0.8138	0.3500	-0.0297	0.8144	0.3500	-0.0105	0.8060	0.3500	-0.0106	0.8058
9	0.4000	0.1027	0.7541	0.4000	0.1160	0.7484	0.4000	0.1359	0.7398	0.4000	0.1418	0.7367
10	0.4500	0.1253	0.7442	0.4500	0.1440	0.7357	0.4500	0.1591	0.7292	0.4500	0.1487	0.7334
11	1.0000	0.0933	0.7585	1.0000	0.1228	0.7454	1.0000	0.1283	0.7429	1.0000	0.1282	0.7420
SECTION 4												
UPPER SIDE												
1	0.0	0.5726	0.5137	0.0	0.4296	0.6031	0.0	0.5965	0.5211	0.0	0.6008	0.5155
2	0.0250	-0.8479	1.2128	0.0250	-0.7742	1.1719	0.0250	-1.1168	1.3719	0.0250	-1.0740	1.3717
3	0.0500	-1.0313	1.3189	0.0500	-1.0817	1.3495	0.0500	-1.1888	1.4195	0.0500	-1.1123	1.3492
4	0.0750	-1.0234	1.3115	0.0750	-1.1282	1.3789	0.0750	-1.0701	1.3433	0.0750	-1.0726	1.3154
5	0.1000	-0.8438	1.2665	0.1000	-1.1064	1.3445	0.1000	-1.0749	1.3178	0.1000	-0.9164	1.2278
6	0.1500	-0.8514	1.2138	0.1500	-0.9981	1.2987	0.1500	-0.9067	1.2455	0.1500	-0.5817	1.0755
7	0.2000	-0.7767	1.1735	0.2000	-0.9205	1.2531	0.2000	-0.8111	1.2010	0.2000	-0.7234	0.9492
8	0.2500	-0.6952	1.1391	0.2500	-0.7424	1.1555	0.2500	-0.6947	0.9873	0.2500	-0.3735	0.7371
9	0.3000	-0.5932	1.0915	0.3000	-0.5374	1.0511	0.3000	-0.5177	0.8461	0.3000	-0.5504	0.7148
10	0.3500	-0.4925	1.0252	0.3500	-0.4664	1.0163	0.3500	-0.4958	0.8897	0.3500	-0.1543	0.8709
11	0.4000	-0.3602	0.9660	0.4000	-0.3425	0.9575	0.4000	-0.3685	0.8316	0.4000	-0.2464	0.8327
12	0.4500	-0.2174	0.8976	0.4500	-0.2070	0.8950	0.4500	-0.2459	0.7804	0.4500	0.3013	0.8093
13	0.5000	-0.0812	0.8177	0.5000	-0.0715	0.8133	0.5000	0.1603	0.7284	0.5000	0.0720	0.7444
14	0.5500	0.0260	0.7809	0.5500	0.0239	0.7901	0.5500	0.0	0.0	0.5500	0.0	0.0
15	1.0000	0.1332	0.7407	1.0000	0.1194	0.7469	0.5500	0.0	0.0	0.5500	0.0	0.0
LOWER SIDE												
1	0.0	0.5726	0.5137	0.0	0.4296	0.6031	0.0	0.5965	0.5211	0.0	0.5999	0.5194
2	0.0500	0.2107	0.7056	0.0500	0.2265	0.6760	0.0500	0.1964	0.7165	0.0500	0.1701	0.7466
3	0.1000	0.1151	0.7493	0.1000	0.1274	0.7432	0.1000	0.1043	0.7535	0.1000	0.0360	0.7856
4	0.1500	0.0877	0.7617	0.1500	0.0723	0.7481	0.1500	0.0526	0.7768	0.1500	-0.0155	0.8061
5	0.2000	0.0542	0.7767	0.2000	0.0281	0.7483	0.2000	0.0074	0.7973	0.2000	-0.0443	0.8200
6	0.2500	-0.0200	0.8468	0.2500	-0.1026	0.8472	0.2500	-0.1128	0.8520	0.2500	-0.1754	0.8803
7	0.3000	-0.0730	0.8339	0.3000	-0.0728	0.8339	0.3000	-0.0765	0.8357	0.3000	-0.1202	0.8693
8	0.3500	0.0046	0.7989	0.3500	-0.0077	0.8041	0.3500	-0.0299	0.8145	0.3500	-0.2435	0.8230
9	0.4000	0.1422	0.7365	0.4000	0.1407	0.7369	0.4000	0.1383	0.7383	0.4000	-0.1177	0.7480
10	0.4500	0.1542	0.7312	0.4500	0.1607	0.7281	0.4500	0.1484	0.7337	0.4500	0.1005	0.7558
11	1.0000	0.1332	0.7407	1.0000	0.1194	0.7469	1.0000	0.1603	0.7284	1.0000	0.0720	0.7614

NR	X/C	SECTION HS		X/C	SECTION 1		X/C	SECTION 2		X/C	SECTION 3	
		CP	ML		CP	ML		CP	ML		CP	ML
UPPER	SIDE											
1	0.0	0.5166	0.5608	0.0	0.4374	0.5993	0.0	0.2992	0.6644	0.0	0.2627	0.6813
2	0.0250	-1.0615	1.3359	0.0250	-1.1883	1.4180	0.0250	-1.2361	1.4510	0.0250	-1.2832	1.4847
3	0.0500	-1.0622	1.1362	0.0500	-1.3223	1.5143	0.0500	-1.2998	1.4970	0.0500	-1.4343	1.6041
4	0.0750	-1.0056	1.3016	0.0750	-1.2140	1.4746	0.0750	-1.2780	1.4884	0.0750	-1.5008	1.6697
5	0.1000	-0.9768	1.2852	0.1000	-1.2180	1.4787	0.1000	-1.2672	1.4740	0.1000	-1.4111	1.5541
6	0.1500	-0.5717	1.0676	0.1500	-0.7223	1.1442	0.1500	-1.1125	1.3683	0.1500	-1.3864	1.6810
7	0.2000	-0.5360	1.0497	0.2000	-0.7010	1.1328	0.2000	-0.8620	1.2188	0.2000	-1.3768	1.5567
8	0.2500	-0.6455	1.1043	0.2500	-0.7504	1.1797	0.2500	-0.8616	1.2186	0.2500	-0.9347	1.7518
9	0.3000	-0.6635	1.1135	0.3000	-0.7392	1.1490	0.3000	-0.8056	1.1879	0.3000	-0.8717	1.7177
10	0.3500	-0.7443	1.1578	0.3500	-0.7839	1.1770	0.3500	-0.8454	1.1743	0.3500	-0.9018	1.7082
11	0.4000	-0.4586	1.0123	0.4000	-0.7520	0.9806	0.4000	-0.3823	0.9798	0.4000	-0.4245	0.8009
12	0.4500	-0.5717	1.0123	0.4500	-0.2681	0.7316	0.4500	-0.2761	0.9261	0.4500	-0.2767	0.9156
13	0.5000	-0.1778	0.9411	0.5000	-0.1377	0.8634	0.5000	-0.1294	0.8592	0.5000	-0.1544	0.8776
14	0.5500	-0.0572	0.8274	0.5500	-0.0303	0.8140	0.5500	-0.0213	0.8100	0.5500	-0.0377	0.8175
15	1.0000	0.0593	0.7738	1.0000	0.0790	0.7648	1.0000	0.0867	0.7613	1.0000	0.0701	0.7647
LOWER	SIDE											
1	0.0	0.5166	0.5608	0.0	0.4374	0.5993	0.0	0.2992	0.6644	0.0	0.2627	0.6813
2	0.0500	0.4793	0.5695	0.0500	0.4757	0.5808	0.0500	0.4478	0.5943	0.0500	0.4447	0.6007
3	0.1000	0.4215	0.6072	0.1000	0.3827	0.6254	0.1000	0.3696	0.6316	0.1000	0.3446	0.6472
4	0.1500	0.3476	0.6419	0.1500	0.3127	0.6580	0.1500	0.3010	0.6637	0.1500	0.2737	0.6761
5	0.2000	0.2726	0.6673	0.2000	0.2533	0.6854	0.2000	0.2359	0.6934	0.2000	0.2110	0.7048
6	0.2500	0.1925	0.7587	0.2500	0.0381	0.7832	0.2500	0.0270	0.7885	0.2500	0.0220	0.7907
7	0.3000	0.0360	0.7845	0.3000	0.0153	0.7937	0.3000	0.0118	0.7950	0.3000	0.0131	0.7946
8	0.3500	0.0445	0.7715	0.3500	0.0637	0.7717	0.3500	0.0611	0.7729	0.3500	0.0623	0.7773
9	0.4000	0.1441	0.7352	0.4000	0.1449	0.7349	0.4000	0.1579	0.7290	0.4000	0.1652	0.7258
10	0.4500	0.1420	0.7360	0.4500	0.1519	0.7317	0.4500	0.1628	0.7269	0.4500	0.1475	0.7338
11	1.0000	0.0593	0.7738	1.0000	0.0790	0.7648	1.0000	0.0867	0.7613	1.0000	0.0701	0.7647
NR	X/C	SECTION 4		X/C	SECTION 5		X/C	SECTION 6		X/C	SECTION 7	
		CP	ML		CP	ML		CP	ML		CP	ML
UPPER	SIDE											
1	0.0	0.1554	0.7302	0.0	-0.2037	0.8928	0.0	0.2597	0.6827	0.0	0.2844	0.6713
2	0.0250	-1.1157	1.5094	0.0250	-1.1217	1.3745	0.0250	-0.8202	1.1944	0.0250	-0.5706	1.0558
3	0.0500	-1.4861	1.6499	0.0500	-1.0543	1.3313	0.0500	-0.8016	1.1847	0.0500	-0.5550	1.0501
4	0.0750	-1.4191	1.5908	0.0750	-1.0588	1.3344	0.0750	-0.7998	1.1850	0.0750	-0.5514	1.0575
5	0.1000	-1.4069	1.5806	0.1000	-1.0651	1.3341	0.1000	-0.7602	1.1636	0.1000	-0.5272	1.0444
6	0.1500	-1.3711	1.5522	0.1500	-0.9774	1.2967	0.1500	-0.6963	1.1304	0.1500	-0.4902	1.0274
7	0.2000	-1.2620	1.4542	0.2000	-0.9369	1.2616	0.2000	-0.6287	1.0953	0.2000	-0.4458	1.0156
8	0.2500	-0.9895	1.2924	0.2500	-0.8425	1.2086	0.2500	-0.5706	1.0668	0.2500	-0.4103	0.9949
9	0.3000	-0.8587	1.2177	0.3000	-0.7558	1.1615	0.3000	-0.5090	1.0363	0.3000	-0.3810	0.9750
10	0.3500	-0.7077	1.1363	0.3500	-0.6539	1.1134	0.3500	-0.4554	1.0104	0.3500	-0.3498	0.9606
11	0.4000	-0.5537	1.0582	0.4000	-0.5713	1.0649	0.4000	-0.3994	0.9841	0.4000	-0.3109	0.9418
12	0.4500	-0.4256	0.9904	0.4500	-0.4890	1.0266	0.4500	-0.3612	0.9661	0.4500	-0.2771	0.9244
13	0.5000	-0.3132	0.9438	0.5000	-0.4024	0.9853	0.5000	-0.3230	0.9499	0.5000	0.0	0.0
14	0.5500	-0.1677	0.8767	0.5500	-0.3263	0.9498	0.5500	0.0	0.0	0.5500	0.0	0.0
15	1.0000	-0.0223	0.8105	1.0000	-0.2502	0.9143	1.0000	0.0	0.0	1.0000	0.0	0.0
LOWER	SIDE											
1	0.0	0.1554	0.7302	0.0	-0.2037	0.8928	0.0	0.2597	0.6827	0.0	0.2844	0.6713
2	0.0500	0.4597	0.5888	0.0500	0.4766	0.5806	0.0500	0.4342	0.6009	0.0500	0.3651	0.6176
3	0.1000	0.3306	0.6478	0.1000	0.3376	0.6467	0.1000	0.3101	0.6497	0.1000	0.1903	0.7146
4	0.1500	0.2733	0.6764	0.1500	0.2629	0.6812	0.1500	0.2326	0.6949	0.1500	0.1433	0.7359
5	0.2000	0.2191	0.7012	0.2000	0.2053	0.7074	0.2000	0.1708	0.7231	0.2000	0.0706	0.7493
6	0.2500	0.0290	0.7876	0.2500	0.0247	0.7874	0.2500	-0.0216	0.8103	0.2500	-0.1488	0.8540
7	0.3000	0.0192	0.7917	0.3000	0.0210	0.7913	0.3000	-0.0330	0.8155	0.3000	-0.1445	0.8458
8	0.3500	0.0040	0.7877	0.3500	0.0508	0.7777	0.3500	-0.0116	0.8057	0.3500	-0.0877	0.8401
9	0.4000	0.1402	0.7371	0.4000	0.0977	0.7562	0.4000	0.0404	0.7821	0.4000	0.0194	0.7916
10	0.4500	0.1191	0.7463	0.4500	0.0581	0.7740	0.4500	0.0173	0.7925	0.4500	-0.0125	0.8062
11	1.0000	-0.0223	0.8105	1.0000	-0.2502	0.9143	1.0000	-0.3230	0.9480	1.0000	-0.2721	0.9244

Table 3.9: Pressure data ($M = 0.8$ $\alpha = 6^\circ$)

NR	X/C	SECTION HS		X/C	SECTION 1		X/C	SECTION 2		X/C	SECTION 3	
		CP	ML		CP	ML		CP	ML		CP	ML
UPPER	SIDE											
1	0.0	0.3444	0.6433	0.0	0.2865	0.6701	0.0	0.1300	0.7416	0.0	0.1093	0.7508
2	0.0250	-1.2681	1.4738	0.0250	-1.3606	1.5439	0.0250	-1.4009	1.5763	0.0250	-1.3724	1.5538
3	0.0500	-1.2582	1.4743	0.0500	-1.3032	1.6650	0.0500	-1.4157	1.5801	0.0500	-1.3773	1.4873
4	0.0750	-1.2665	1.4717	0.0750	-1.3934	1.5702	0.0750	-1.4130	1.5857	0.0750	-1.2444	1.4768
5	0.1000	-1.1299	1.3795	0.1000	-1.3739	1.5540	0.1000	-1.4037	1.5780	0.1000	-1.2553	1.4513
6	0.1500	-0.7624	1.1648	0.1500	-1.1366	1.3845	0.1500	-1.3801	1.5666	0.1500	-1.1669	1.4030
7	0.2000	-0.6447	1.1042	0.2000	-0.8546	1.2150	0.2000	-1.2324	1.4495	0.2000	-1.1129	1.3478
8	0.2500	-0.6272	1.1454	0.2500	-0.8445	1.2099	0.2500	-0.8629	1.2094	0.2500	-0.9889	1.2146
9	0.3000	-0.6909	1.1274	0.3000	-0.8566	1.1102	0.3000	-0.7017	1.1374	0.3000	-0.8554	1.2146
10	0.3500	-0.5809	1.0721	0.3500	-0.6646	1.1141	0.3500	-0.7001	1.1321	0.3500	-0.7502	1.1321
11	0.4000	-0.5520	1.0580	0.4000	-0.5457	1.0542	0.4000	-0.5444	1.0551	0.4000	-0.7456	1.1344
12	0.4500	-0.4238	0.9957	0.4500	-0.3934	0.9907	0.4500	-0.4161	0.9914	0.4500	-0.4471	1.0266
13	0.5000	-0.2704	0.9234	0.5000	-0.2224	0.9331	0.5000	-0.2533	0.9153	0.5000	-0.4272	0.9244
14	0.5500	-0.1357	0.8621	0.5500	-0.1084	0.8494	0.5500	-0.1230	0.8560	0.5500	-0.2926	0.8467
15	1.0000	-0.0010	0.8038	1.0000	0.0000	0.7960	1.0000	0.0072	0.7972	1.0000	-0.1671	0.8170
LOWER	SIDE											
1	0.0	0.3444	0.6433	0.0	0.2865	0.6701	0.0	0.1300	0.7416	0.0	0.1093	0.7508
2	0.0500	0.5965	0.5208	0.0500	0.5693	0.5346	0.0500	0.5427	0.5481	0.0500	0.5252	0.5546
3	0.1000	0.5046	0.5671	0.1000	0.4657	0.5857	0.1000	0.4493	0.5976	0.1000	0.4168	0.6001
4	0.1500	0.4282	0.6039	0.1500	0.3897	0.6225	0.1500	0.3741	0.6295	0.1500	0.3701	0.6447
5	0.2000	0.3645	0.6338	0.2000	0.3205	0.6547	0.2000	0.3074	0.6627	0.2000	0.2701	0.6770
6	0.2500	0.1461	0.7346	0.2500	0.0903	0.7596	0.2500	0.0746	0.7665	0.2500	0.0609	0.7730
7	0.3000	0.0804	0.7642	0.3000	0.0574	0.7747	0.3000	0.0498	0.7778	0.3000	0.0410	0.7819
8	0.3500	0.0963	0.7569	0.3500	0.0908	0.7596	0.3500	0.0843	0.7621	0.3500	0.0740	0.7472
9	0.4000	0.1486	0.7330	0.4000	0.1438	0.7358	0.4000	0.1474	0.7340	0.4000	0.1400	0.7372
10	0.4500	0.1265	0.7430	0.4500	0.1312	0.7416	0.4500	0.1300	0.7418	0.4500	0.1300	0.7418
11	1.0000	-0.0010	0.8008	1.0000	0.0099	0.7960	1.0000	0.0072	0.7972	1.0000	-0.1671	0.8170
NR	X/C	SECTION 4		X/C	SECTION 5		X/C	SECTION 6		X/C	SECTION 7	
		CP	ML		CP	ML		CP	ML		CP	ML
UPPER	SIDE											
1	0.0	-0.0474	0.8221	0.0	-0.4630	1.0138	0.0	-0.1393	0.7373	0.0	-0.1659	0.7256
2	0.0250	-1.0485	1.2977	0.0250	-0.8457	1.2040	0.0250	-0.5913	1.0766	0.0250	-0.4487	1.0173
3	0.0500	-0.9905	1.2933	0.0500	-0.8123	1.2015	0.0500	-0.5796	1.0710	0.0500	-0.4648	1.0393
4	0.0750	-2.3952	1.2955	0.0750	-0.7535	1.1876	0.0750	-0.5746	1.0683	0.0750	-0.4358	1.0001
5	0.1000	-1.0204	1.2989	0.1000	-0.7953	1.1826	0.1000	-0.5676	1.0655	0.1000	-0.4261	0.9970
6	0.1500	-0.7156	1.2853	0.1500	-0.7708	1.1698	0.1500	-0.5585	1.0615	0.1500	-0.4159	0.9929
7	0.2000	-0.9668	1.2673	0.2000	-0.7609	1.1639	0.2000	-0.5369	1.0609	0.2000	-0.4072	0.9885
8	0.2500	-0.8724	1.2275	0.2500	-0.7207	1.1425	0.2500	-0.5165	1.0199	0.2500	-0.4068	0.9846
9	0.3000	-0.8011	1.1863	0.3000	-0.6721	1.1179	0.3000	-0.4915	1.0290	0.3000	-0.4002	0.9846
10	0.3500	-0.7294	1.1476	0.3500	-0.6251	1.0945	0.3500	-0.4751	1.0194	0.3500	-0.4024	0.9846
11	0.4000	-0.6444	1.1013	0.4000	-0.5818	1.0730	0.4000	-0.4490	1.0075	0.4000	-0.3937	0.9846
12	0.4500	-0.5632	1.0633	0.4500	-0.5311	1.0485	0.4500	-0.4287	0.9976	0.4500	-0.3849	0.9846
13	0.5000	-0.4920	1.0282	0.5000	-0.4839	1.0270	0.5000	-0.4084	0.9882	0.5000	-0.3741	0.9846
14	0.5500	-0.4071	0.9874	0.5500	-0.4514	1.0087	0.5500	0.0	0.0	0.5500	0.0	0.0
15	1.0000	-0.3222	0.9477	1.0000	-0.4070	0.9884	0.5500	0.0	0.0	0.5500	0.0	0.0
LOWER	SIDE											
1	0.0	-0.0474	0.8221	0.0	-0.4630	1.0138	0.0	-0.1393	0.7373	0.0	-0.1659	0.7256
2	0.0500	0.5345	0.5522	0.0500	0.5427	0.5479	0.0500	0.4496	0.5705	0.0500	0.4222	0.5061
3	0.1000	0.4017	0.6167	0.1000	0.3989	0.6176	0.1000	0.3620	0.6309	0.1000	0.2414	0.6093
4	0.1500	0.3331	0.6468	0.1500	0.3183	0.6555	0.1500	0.2849	0.6710	0.1500	0.1910	0.7147
5	0.2000	0.2709	0.6773	0.2000	0.2525	0.6857	0.2000	0.2149	0.7033	0.2000	0.1132	0.7479
6	0.2500	0.2070	0.7073	0.2500	0.2043	0.7002	0.2500	0.2039	0.7086	0.2500	-0.1345	0.8151
7	0.3000	0.2564	0.7352	0.3000	0.2041	0.7096	0.3000	-0.0287	0.8133	0.3000	-0.1431	0.8555
8	0.3500	0.2331	0.7554	0.3500	0.2041	0.7096	0.3500	-0.0210	0.8100	0.3500	-0.1084	0.8846
9	0.4000	0.0590	0.7738	0.4000	0.0408	0.7819	0.4000	0.0083	0.7970	0.4000	-0.0133	0.8806
10	0.4500	0.1028	0.7540	0.4500	0.0585	0.7738	0.4500	-0.0391	0.8186	0.4500	-0.0826	0.8979
11	0.5000	0.0383	0.7832	0.5000	0.0078	0.7967	0.5000	-0.0391	0.8186	0.5000	-0.0826	0.8979
12	1.0000	-0.3222	0.9477	1.0000	-0.4090	0.9884	1.0000	-0.4084	0.9887	1.0000	-0.3341	0.9733

NR UPPER SIDE	X/C	SECTION HS		X/C	SECTION 1		X/C	SECTION 2		X/C	SECTION 3	
		CP	ML		CP	ML		CP	ML		CP	ML
1	0.0	0.6700	0.3775	0.0	0.6132	0.4107	0.0	0.5471	0.4419	0.0	0.4556	0.4618
2	0.0250	-0.5756	0.8717	0.0250	-0.7477	0.9221	0.0250	-0.7810	0.9209	0.0250	-0.8831	0.9550
3	0.0500	-0.6340	0.8703	0.0500	-0.7368	0.9040	0.0500	-0.7360	0.9043	0.0500	-0.8547	0.9456
4	0.0750	-0.6551	0.8647	0.0750	-0.6791	0.8731	0.0750	-0.7033	0.8829	0.0750	-0.7831	0.9237
5	0.1000	-0.6492	0.8608	0.1000	-0.5578	0.8425	0.1000	-0.6324	0.8684	0.1000	-0.6862	0.8870
6	0.1250	-0.5656	0.7765	0.1250	-0.4276	0.8021	0.1250	-0.4999	0.8226	0.1250	-0.5578	0.8439
7	0.2000	-0.3884	0.7445	0.2000	-0.4565	0.8071	0.2000	-0.4890	0.8187	0.2000	-0.5553	0.8348
8	0.2500	-0.3015	0.7719	0.2500	-0.4768	0.7974	0.2500	-0.4632	0.8034	0.2500	-0.4655	0.8119
9	0.3000	-0.3336	0.7857	0.3000	-0.4707	0.7744	0.3000	-0.4039	0.7894	0.3000	-0.4304	0.7916
10	0.3500	-0.3376	0.7675	0.3500	-0.4154	0.7768	0.3500	-0.3840	0.7830	0.3500	-0.3647	0.7819
11	0.4000	-0.2837	0.7462	0.4000	-0.2997	0.7540	0.4000	-0.3139	0.7550	0.4000	-0.3133	0.7588
12	0.4500	-0.2791	0.7759	0.4500	-0.2760	0.7762	0.4500	-0.2265	0.7750	0.4500	-0.2262	0.7768
13	0.5000	-0.1240	0.6538	0.5000	-0.1003	0.6457	0.5000	-0.0781	0.6844	0.5000	-0.0647	0.6845
14	0.5500	-0.0743	0.6606	0.5500	-0.0070	0.6513	0.5500	-0.0039	0.6506	0.5500	-0.0039	0.6494
15	1.0000	0.2073	0.6276	1.0000	0.0563	0.6161	1.0000	0.0964	0.6161	1.0000	0.1044	0.6132
LOWER SIDE												
1	0.0	0.6700	0.3775	0.0	0.6132	0.4107	0.0	0.5471	0.4419	0.0	0.4556	0.4618
2	0.0500	0.2455	0.5615	0.0500	0.2103	0.5748	0.0500	0.1912	0.5816	0.0500	0.2020	0.5777
3	0.1000	0.1691	0.5785	0.1000	0.1660	0.5909	0.1000	0.1555	0.5946	0.1000	0.1418	0.5998
4	0.1500	0.1661	0.5580	0.1500	0.1111	0.6106	0.1500	0.1026	0.6137	0.1500	0.0861	0.6164
5	0.2000	0.1102	0.5145	0.2000	0.1039	0.6258	0.2000	0.1066	0.6309	0.2000	0.0423	0.6353
6	0.2500	-0.0744	0.6624	0.2500	-0.0784	0.6779	0.2500	-0.0894	0.6884	0.2500	-0.0831	0.6776
7	0.3000	-0.0675	0.6724	0.3000	-0.0727	0.6759	0.3000	-0.0740	0.6762	0.3000	-0.0655	0.6731
8	0.3500	-0.0151	0.6557	0.3500	-0.0178	0.6565	0.3500	-0.0161	0.6567	0.3500	-0.0067	0.6526
9	0.4000	0.0263	0.6163	0.4000	0.0185	0.6115	0.4000	0.1201	0.6076	0.4000	0.1331	0.6028
10	0.4500	0.1740	0.6059	0.4500	0.1289	0.6044	0.4500	0.1401	0.6002	0.4500	0.1375	0.6012
11	1.0000	0.3073	0.6746	1.0000	0.3953	0.6161	1.0000	0.0964	0.6161	1.0000	0.1044	0.6132
LOWER SIDE												
1	0.0	0.6700	0.3775	0.0	0.6132	0.4107	0.0	0.5471	0.4419	0.0	0.4556	0.4618
2	0.0500	-0.5756	0.8717	0.0500	-0.7477	0.9221	0.0500	-0.7810	0.9209	0.0500	-0.8831	0.9550
3	0.1000	-0.6340	0.8703	0.1000	-0.7368	0.9040	0.1000	-0.7360	0.9043	0.1000	-0.8547	0.9456
4	0.1500	-0.6551	0.8647	0.1500	-0.6791	0.8731	0.1500	-0.7033	0.8829	0.1500	-0.7831	0.9237
5	0.2000	-0.6492	0.8608	0.2000	-0.5578	0.8425	0.2000	-0.6324	0.8684	0.2000	-0.6862	0.8870
6	0.2500	-0.5656	0.7765	0.2500	-0.4276	0.8021	0.2500	-0.4999	0.8226	0.2500	-0.5578	0.8439
7	0.3000	-0.3884	0.7445	0.3000	-0.4565	0.8071	0.3000	-0.4890	0.8187	0.3000	-0.5553	0.8348
8	0.3500	-0.3015	0.7719	0.3500	-0.4768	0.7974	0.3500	-0.4632	0.8034	0.3500	-0.4655	0.8119
9	0.4000	-0.3336	0.7857	0.4000	-0.4707	0.7744	0.4000	-0.4039	0.7894	0.4000	-0.4304	0.7916
10	0.4500	-0.3376	0.7675	0.4500	-0.4154	0.7768	0.4500	-0.3840	0.7830	0.4500	-0.3647	0.7819
11	0.5000	-0.2837	0.7462	0.5000	-0.2997	0.7540	0.5000	-0.3139	0.7550	0.5000	-0.3133	0.7588
12	0.5500	-0.2791	0.7759	0.5500	-0.2760	0.7762	0.5500	-0.2265	0.7750	0.5500	-0.2262	0.7768
13	0.6000	-0.1240	0.6538	0.6000	-0.1003	0.6457	0.6000	-0.0781	0.6844	0.6000	-0.0647	0.6845
14	0.6500	-0.0743	0.6606	0.6500	-0.0070	0.6513	0.6500	-0.0039	0.6506	0.6500	-0.0039	0.6494
15	1.0000	0.2073	0.6276	1.0000	0.0563	0.6161	1.0000	0.0964	0.6161	1.0000	0.1044	0.6132
LOWER SIDE												
1	0.0	0.6700	0.3775	0.0	0.6132	0.4107	0.0	0.5471	0.4419	0.0	0.4556	0.4618
2	0.0500	0.2455	0.5615	0.0500	0.2103	0.5748	0.0500	0.1912	0.5816	0.0500	0.2020	0.5777
3	0.1000	0.1691	0.5785	0.1000	0.1660	0.5909	0.1000	0.1555	0.5946	0.1000	0.1418	0.5998
4	0.1500	0.1661	0.5580	0.1500	0.1111	0.6106	0.1500	0.1026	0.6137	0.1500	0.0861	0.6164
5	0.2000	0.1102	0.5145	0.2000	0.1039	0.6258	0.2000	0.1066	0.6309	0.2000	0.0423	0.6353
6	0.2500	-0.0744	0.6624	0.2500	-0.0784	0.6779	0.2500	-0.0894	0.6884	0.2500	-0.0831	0.6776
7	0.3000	-0.0675	0.6724	0.3000	-0.0727	0.6759	0.3000	-0.0740	0.6762	0.3000	-0.0655	0.6731
8	0.3500	-0.0151	0.6557	0.3500	-0.0178	0.6565	0.3500	-0.0161	0.6567	0.3500	-0.0067	0.6526
9	0.4000	0.0263	0.6163	0.4000	0.0185	0.6115	0.4000	0.1201	0.6076	0.4000	0.1331	0.6028
10	0.4500	0.1740	0.6059	0.4500	0.1289	0.6044	0.4500	0.1401	0.6002	0.4500	0.1375	0.6012
11	1.0000	0.3073	0.6746	1.0000	0.3953	0.6161	1.0000	0.0964	0.6161	1.0000	0.1044	0.6132

Table 3.11: Pressure data (M = 0.65 $\alpha = 2^\circ$)

NR UPPER	X/C SIDE	SECTION HS		X/C	SECTION 1		X/C	SECTION 2		X/C	SECTION 3	
		CP	ML		CP	ML		CP	ML		CP	ML
1	0.0	1.2174	0.0	0.0	1.1399	0.1809	0.0	1.0566	0.2713	0.0	1.0001	0.3197
2	0.0250	-1.4793	1.1370	0.0250	-0.7509	1.3054	0.0250	-0.7334	1.2939	0.0250	-0.7520	1.3266
3	0.0500	-1.7119	1.2757	0.0500	-0.8834	1.3997	0.0500	-0.9659	1.4626	0.0500	-1.0266	1.5131
4	0.0750	-0.6533	1.7420	0.0750	-0.8813	1.3972	0.0750	-1.0414	1.6240	0.0750	-1.2079	1.6807
5	0.1000	-0.5756	1.1340	0.1000	-0.7452	1.3151	0.1000	-0.9442	1.4448	0.1000	-1.1196	1.5937
6	0.1500	-0.5092	1.1544	0.1500	-0.6777	1.2576	0.1500	-0.7877	1.3305	0.1500	-0.9357	1.4723
7	0.2000	-0.4492	1.1781	0.2000	-0.6081	1.2737	0.2000	-0.7778	1.3737	0.2000	-0.9304	1.4341
8	0.2500	-0.4307	1.2278	0.2500	-0.7537	1.3074	0.2500	-0.8306	1.4605	0.2500	-0.7611	1.4550
9	0.3000	-0.6777	1.2336	0.3000	-0.7209	1.3874	0.3000	-0.8048	1.3423	0.3000	-0.8568	1.4087
10	0.3500	-0.7815	1.3762	0.3500	-0.9693	1.4640	0.3500	-1.0409	1.4817	0.3500	-0.9869	1.4787
11	0.4000	-0.8378	1.3656	0.4000	-0.9205	1.4265	0.4000	-1.0258	1.5107	0.4000	-1.1325	1.4362
12	0.4500	-0.8927	1.4757	0.4500	-0.9764	1.4702	0.4500	-1.0309	1.5151	0.4500	-0.8454	1.3739
13	0.5000	-0.5230	1.2461	0.5000	-0.3527	1.0655	0.5000	-0.2632	1.0169	0.5000	-0.2155	0.9915
14	0.5500	-0.1182	0.4606	0.5500	-0.0609	0.9111	0.5500	-0.0494	0.9052	0.5500	-0.0435	0.9022
15	1.0000	0.2926	0.7728	1.0000	0.2339	0.7636	1.0000	0.1645	0.7970	1.0000	0.1286	0.8151
LOWER SIDE												
1	0.0	1.2174	0.0	0.0	1.1399	0.1809	0.0	1.0566	0.2713	0.0	1.0001	0.3197
2	0.0500	0.3443	0.4864	0.0500	0.3312	0.7231	0.0500	0.2570	0.7534	0.0500	0.2376	0.7602
3	0.1000	0.3214	0.7179	0.1000	0.5586	0.7496	0.1000	0.2270	0.7656	0.1000	0.1662	0.7992
4	0.1500	0.2442	0.7569	0.1500	0.7793	0.7893	0.1500	0.1442	0.8073	0.1500	0.0754	0.8358
5	0.2000	0.1827	0.7878	0.2000	0.0951	0.8319	0.2000	0.0597	0.8498	0.2000	0.0027	0.8766
6	0.2500	-0.1157	0.9393	0.2500	-0.2101	0.9886	0.2500	-0.2404	1.0047	0.2500	-0.2516	1.0107
7	0.3000	-0.2789	0.9880	0.3000	-0.2251	0.9965	0.3000	-0.2160	0.9918	0.3000	-0.2053	0.9941
8	0.3500	-0.1979	0.9301	0.3500	-0.0699	0.9260	0.3500	-0.0756	0.9186	0.3500	-0.0537	0.9074
9	0.4000	0.1361	0.8113	0.4000	0.1392	0.8097	0.4000	0.1713	0.7935	0.4000	0.1895	0.7844
10	0.4500	0.1693	0.7946	0.4500	0.1864	0.7860	0.4500	0.2089	0.7747	0.4500	0.1993	0.7800
11	1.0000	0.2927	0.7328	1.0000	0.2309	0.7636	1.0000	0.1645	0.7970	1.0000	0.1286	0.8151

NR	X/C	SECTION 1		X/C	SECTION 2		X/C	SECTION 3	
		CP	ML		CP	ML		CP	ML
1	0.0	1.2735	0.0	0.0	1.1108	0.2431	0.0	1.0540	0.2933
2	0.0250	-0.7019	1.0865	0.0250	-0.5849	1.2623	0.0250	-0.4341	1.2967
3	0.0500	-0.4479	1.1594	0.0500	-0.4350	1.4471	0.0500	-0.4823	1.4453
4	0.0750	-0.4958	1.2049	0.0750	-0.4920	1.5688	0.0750	-1.0740	1.4724
5	0.1000	-0.5617	1.2490	0.1000	-0.5791	1.4982	0.1000	-1.3508	1.4532
6	0.1500	-0.5387	1.2332	0.1500	-0.7376	1.3729	0.1500	-0.9024	1.5038
7	0.2000	-0.5149	1.2172	0.2000	-0.6955	1.3345	0.2000	-0.8451	1.4573
8	0.3000	-0.5604	1.2556	0.3000	-0.7660	1.3938	0.3000	-0.8817	1.4487
9	0.4000	-0.5717	1.2556	0.4000	-0.7332	1.3680	0.4000	-0.8767	1.4438
10	0.5000	-0.7310	1.3455	0.5000	-0.8444	1.4569	0.5000	-0.9209	1.5239
11	0.6000	-0.7701	1.3963	0.6000	-0.8444	1.4569	0.6000	-1.0383	1.6342
12	0.7000	-0.8256	1.4411	0.7000	-0.8444	1.4569	0.7000	-1.1075	1.7094
13	0.8000	-0.7827	1.4269	0.8000	-0.7827	1.4269	0.8000	-0.8123	1.5114
14	0.9000	-0.4323	1.1466	0.9000	-0.4323	1.1466	0.9000	-0.1756	1.3146
15	1.0000	-0.0218	0.9303	1.0000	0.4376	0.6872	1.0000	0.0611	0.8950
LOWER SIDE									
1	0.0	1.2735	0.0	0.0	1.1108	0.2431	0.0	1.0540	0.2933
2	0.0250	-0.4084	0.7026	0.0250	-0.2661	0.7777	0.0250	0.2352	0.7541
3	0.0500	-0.3472	0.7350	0.0500	-0.2416	0.7912	0.0500	0.1575	0.8348
4	0.0750	-0.2695	0.7759	0.0750	-0.1580	0.8749	0.0750	0.0727	0.8775
5	0.1000	-0.2139	0.8104	0.1000	-0.0834	0.8744	0.1000	-0.0102	0.9240
6	0.1500	-0.1251	0.9864	0.1500	-0.2966	1.0715	0.1500	-0.3213	1.0981
7	0.2000	-0.2793	1.3742	0.2000	-0.2927	1.0812	0.2000	-0.2817	1.0754
8	0.3000	-0.1592	1.0054	0.3000	-0.4180	0.9825	0.3000	-0.1168	0.9820
9	0.4000	-0.0994	0.8653	0.4000	-0.1313	0.8486	0.4000	-0.1469	0.8810
10	0.5000	0.1189	0.8556	0.5000	0.1395	0.8447	0.5000	-0.1481	0.8824
11	1.0000	-0.0218	0.9303	1.0000	0.4376	0.6872	1.0000	0.0611	0.8950
UPPER SIDE									
1	0.0	1.0215	0.3265	0.0	1.0332	0.3192	0.0	1.0215	0.3262
2	0.0250	-0.6537	1.3113	0.0250	-1.0204	1.6142	0.0250	-0.9131	1.5152
3	0.0500	-0.9454	1.5804	0.0500	-1.1634	1.7720	0.0500	-1.1670	1.7797
4	0.0750	-1.0568	1.6505	0.0750	-1.1430	1.7479	0.0750	-1.1795	1.7955
5	0.1000	-1.0921	1.6916	0.1000	-1.1504	1.7568	0.1000	-1.1551	1.7631
6	0.1500	-1.0845	1.6911	0.1500	-1.1958	1.8113	0.1500	-1.0857	1.6946
7	0.2000	-1.0029	1.5974	0.2000	-1.0988	1.6974	0.2000	-1.0571	1.6533
8	0.3000	-0.9835	1.5781	0.3000	-1.1126	1.7124	0.3000	-0.7152	1.3550
9	0.4000	-1.0164	1.6102	0.4000	-1.1248	1.7293	0.4000	-0.5330	1.2282
10	0.5000	-1.0484	1.6427	0.5000	-1.1395	1.7709	0.5000	-0.4778	1.1947
11	0.6000	-1.1369	1.7406	0.6000	-1.0879	1.6854	0.6000	-0.4399	1.1519
12	0.7000	-1.0707	1.6642	0.7000	-1.0423	1.6364	0.7000	-0.3239	1.0937
13	0.8000	-0.8708	1.4786	0.8000	-0.6122	1.2810	0.8000	-0.2380	1.0499
14	0.9000	-0.1238	0.9859	0.9000	-0.2563	1.0604	0.9000	0.0	0.0
15	1.0000	0.6231	0.5859	1.0000	0.0510	0.8913	1.0000	0.0	0.0
LOWER SIDE									
1	0.0	1.0215	0.3265	0.0	1.0302	0.3192	0.0	1.0215	0.3262
2	0.0500	0.2185	0.8033	0.0500	0.0831	0.8739	0.0500	-0.0629	0.9523
3	0.1000	0.1351	0.8467	0.1000	0.0060	0.9146	0.1000	-0.1089	0.9783
4	0.1500	0.0582	0.8879	0.1500	-0.0071	0.9222	0.1500	-0.1534	1.0026
5	0.2000	-0.0209	0.9301	0.2000	-0.0761	0.9575	0.2000	-0.2487	1.0564
6	0.3000	-0.3122	1.0728	0.3000	-0.3324	1.1044	0.3000	-0.6876	1.3346
7	0.4000	-0.2748	1.0764	0.4000	-0.2817	1.0756	0.4000	-0.5564	1.2441
8	0.5000	-0.0797	0.9729	0.5000	-0.1453	0.9977	0.5000	-0.4499	1.1757
9	0.6000	0.1438	0.8420	0.6000	0.1203	0.8543	0.6000	0.0976	0.8664
10	0.7000	0.1450	0.8415	0.7000	0.1105	0.8558	0.7000	0.0014	0.9170
11	1.0000	0.6231	0.5859	1.0000	0.0510	0.8913	1.0000	-0.2380	1.0499

Table 3.13: Pressure data ($M = 0.92$; $\alpha = 2^\circ$)

M	α	C_L	C_M	C_D
0.800	-0.90	0.15984	-0.03969	0.01207
0.801	0.17	0.24408	-0.03442	0.01479
0.800	1.25	0.32807	-0.02913	0.01912
0.800	1.26	0.32871	-0.02879	0.01918
0.800	2.28	0.41169	-0.02271	0.02497
0.800	3.34	0.50299	-0.01772	0.03384
0.800	4.40	0.58418	-0.01214	0.04702
0.800	0.16	0.24388	-0.03478	0.01465

Table 3.14: Force data ($M = 0.8$)

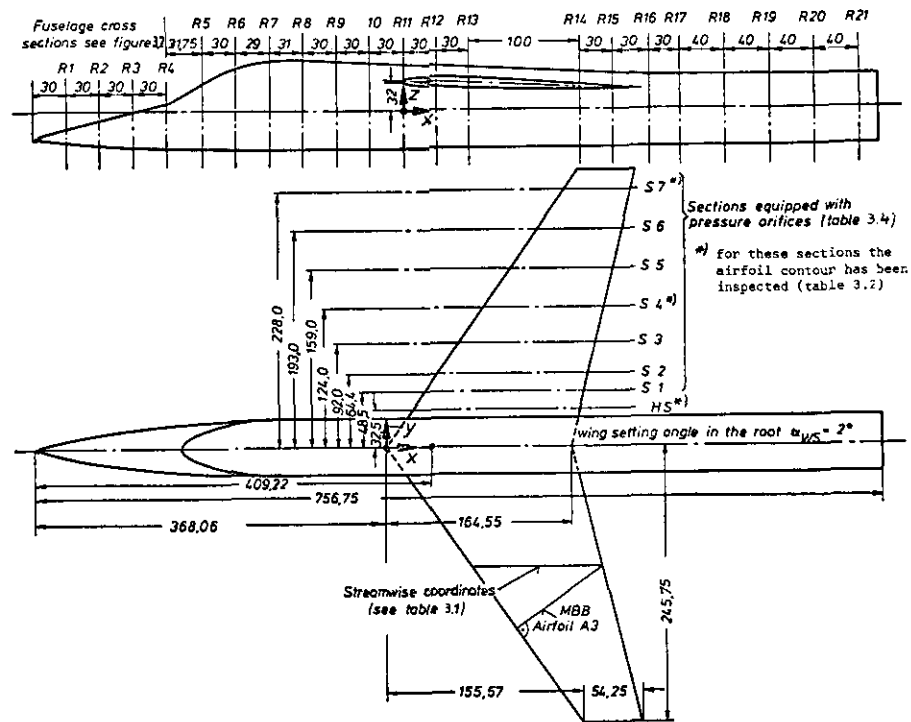


Fig. 3.1: MBB-AVA-Pilot model with supercritical wing

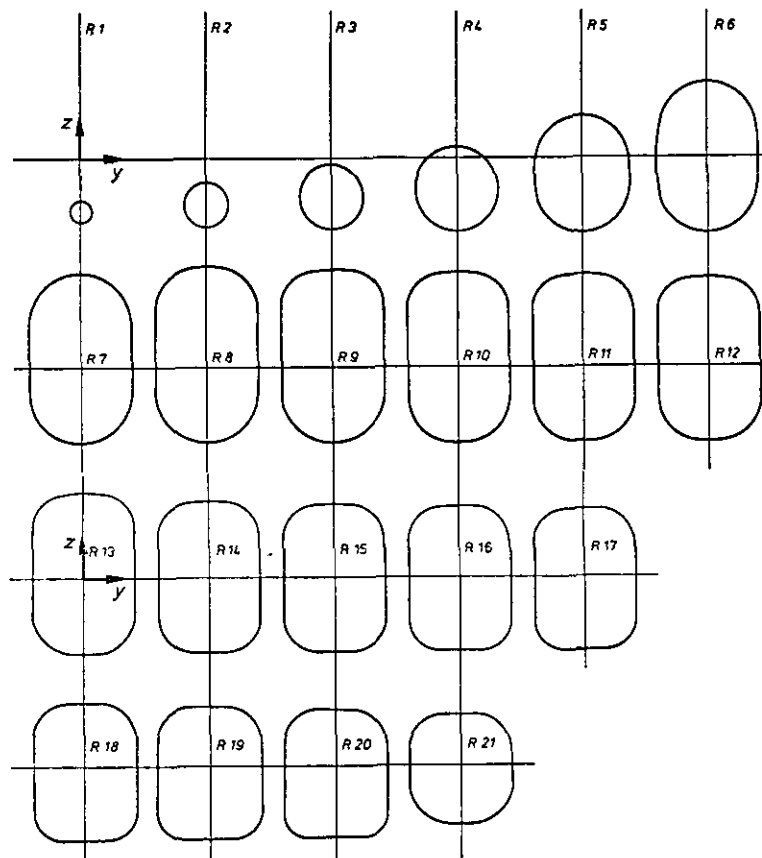


Fig. 3.2: Cross sections of the fuselage

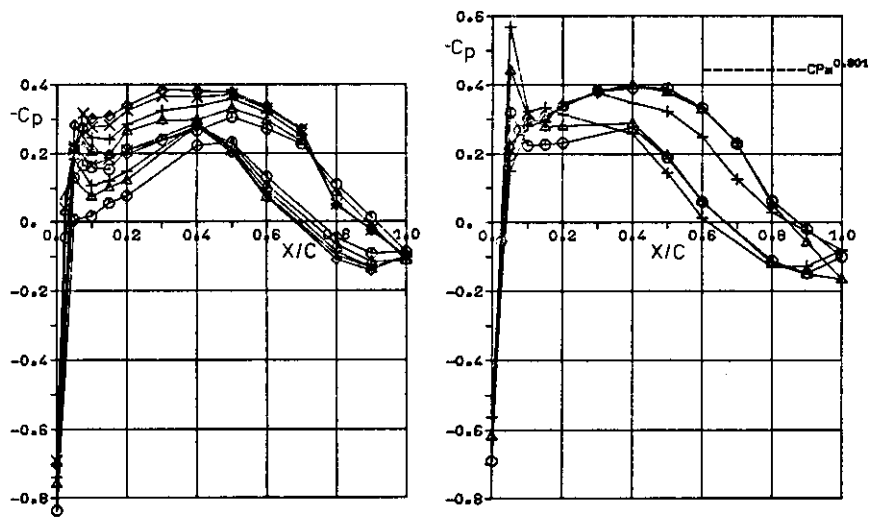


Fig. 3.3: Pressure distribution on the wing
 $(M = 0.8; \alpha = -2^\circ)$

Fig. 3.4: Pressure distribution on the wing
 $(M = 0.8; \alpha = 0^\circ)$

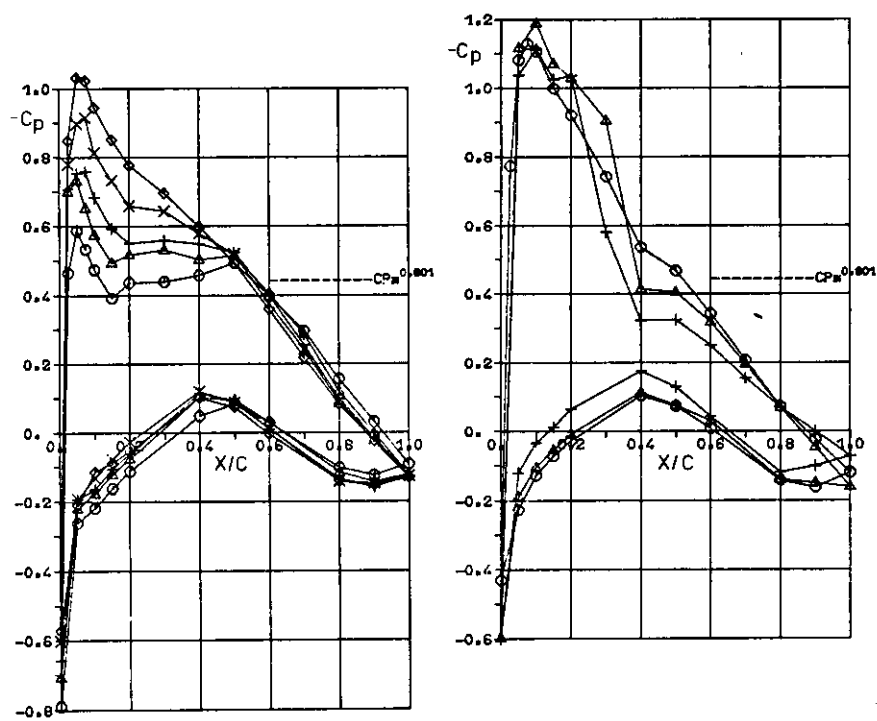
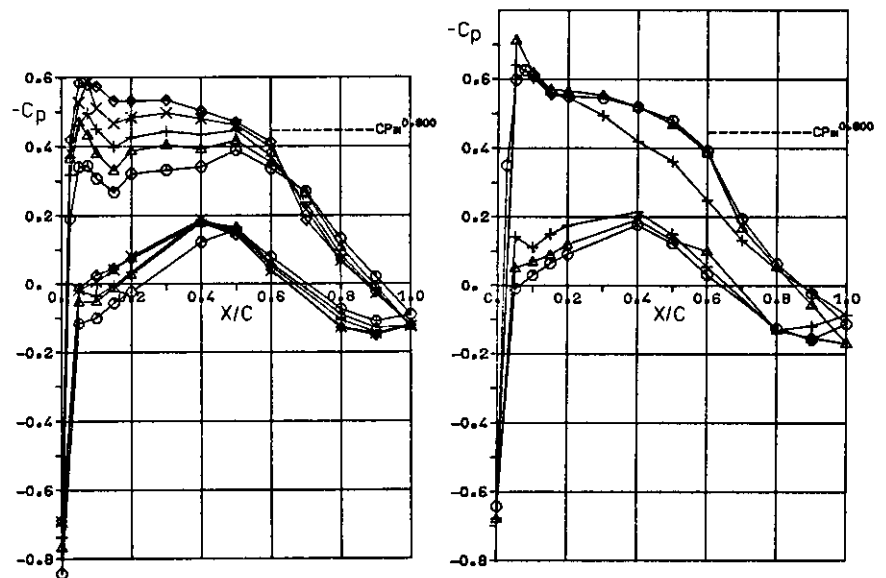


Fig. 3.5: Pressure distribution on the wing
 $(M = 0.8; \alpha = 2^\circ)$

Symbols			
left diagram		right diagram	
○	HS	○	S5
△	S1	△	S6
+	S2	+	S7
x	S3		
◇	S4		

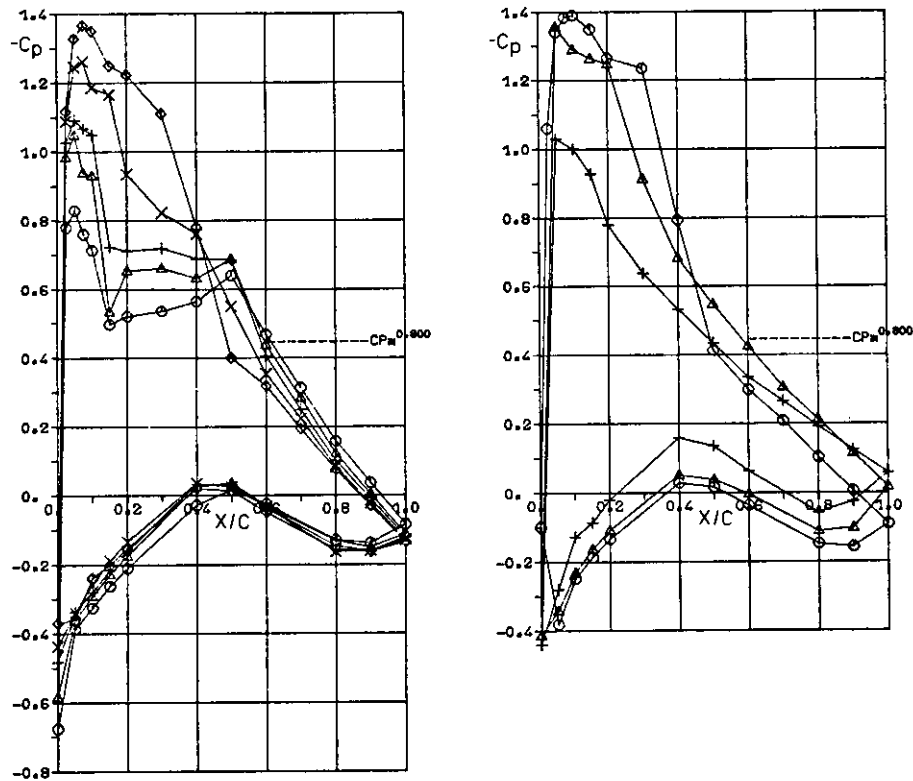


Fig. 3.6: Pressure distribution on the wing ($M = 0.8$; $\alpha = 4^\circ$)

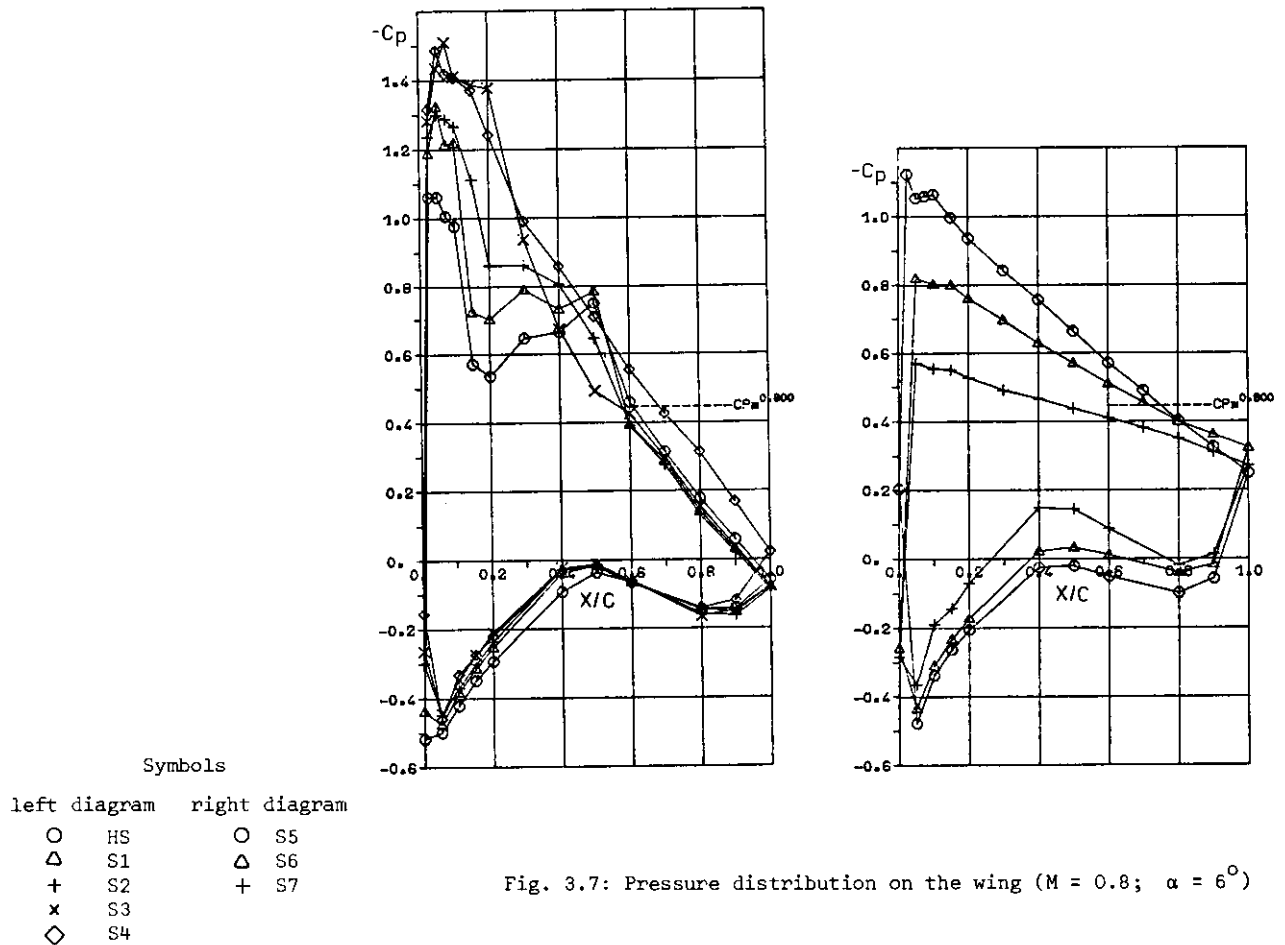


Fig. 3.7: Pressure distribution on the wing ($M = 0.8$; $\alpha = 6^\circ$)

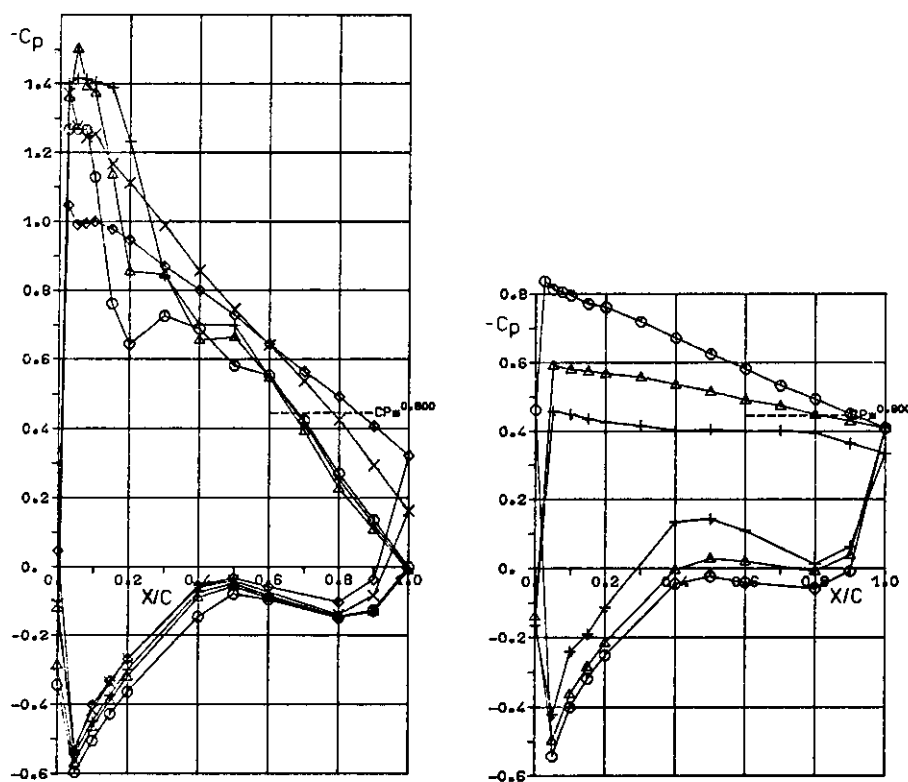


Fig. 3.8: Pressure distribution on the wing ($M = 0.8$; $\alpha = 8^\circ$)

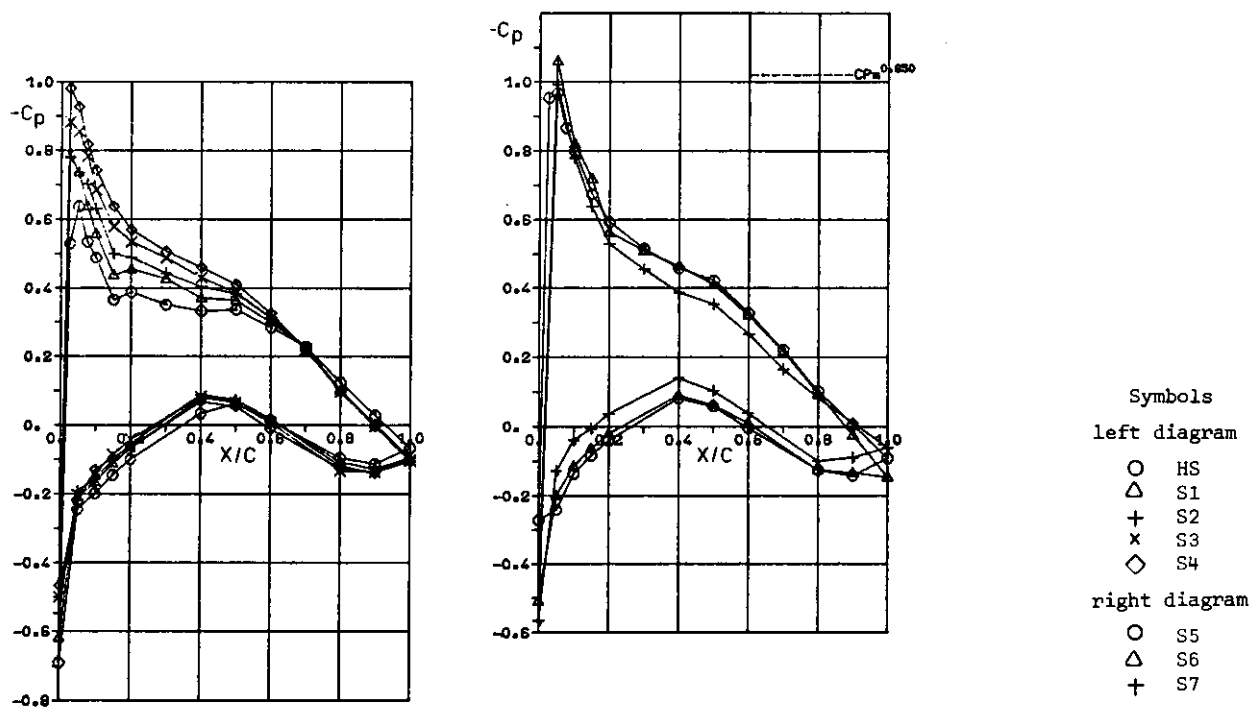


Fig. 3.9: Pressure distribution on the wing ($M = 0.65$; $\alpha = 2^\circ$)

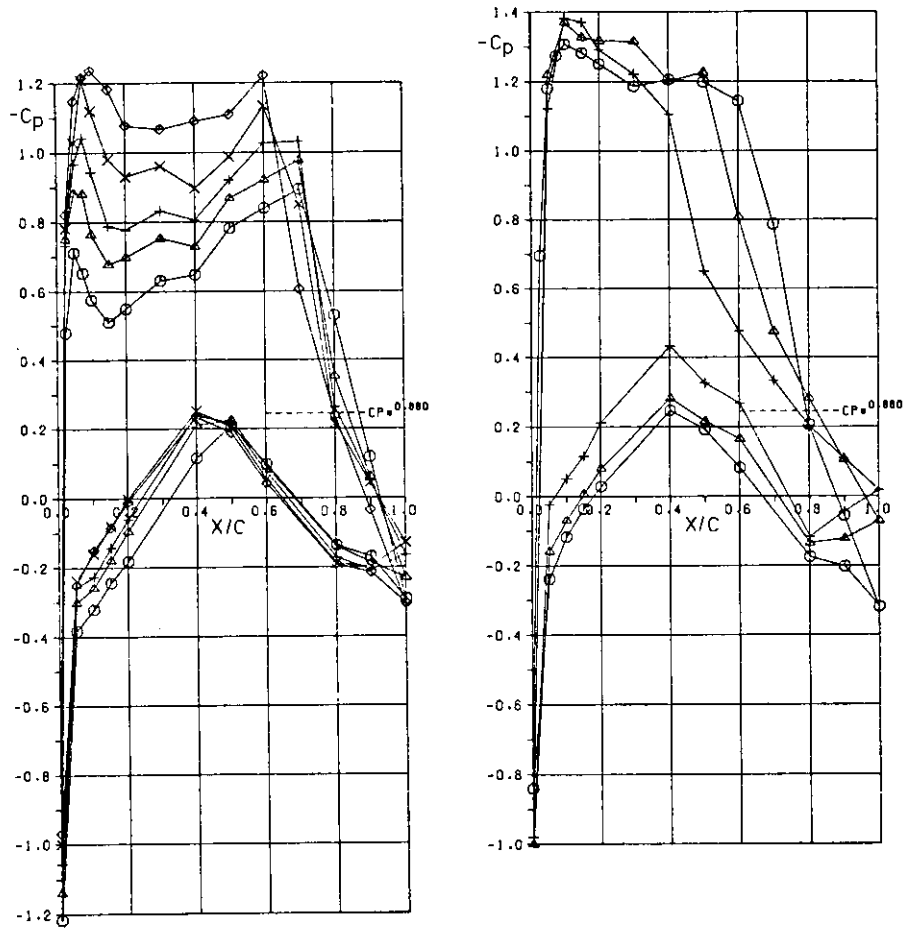


Fig. 3.10: Pressure distribution on the wing ($M = 0.88$; $\alpha = 2^\circ$)

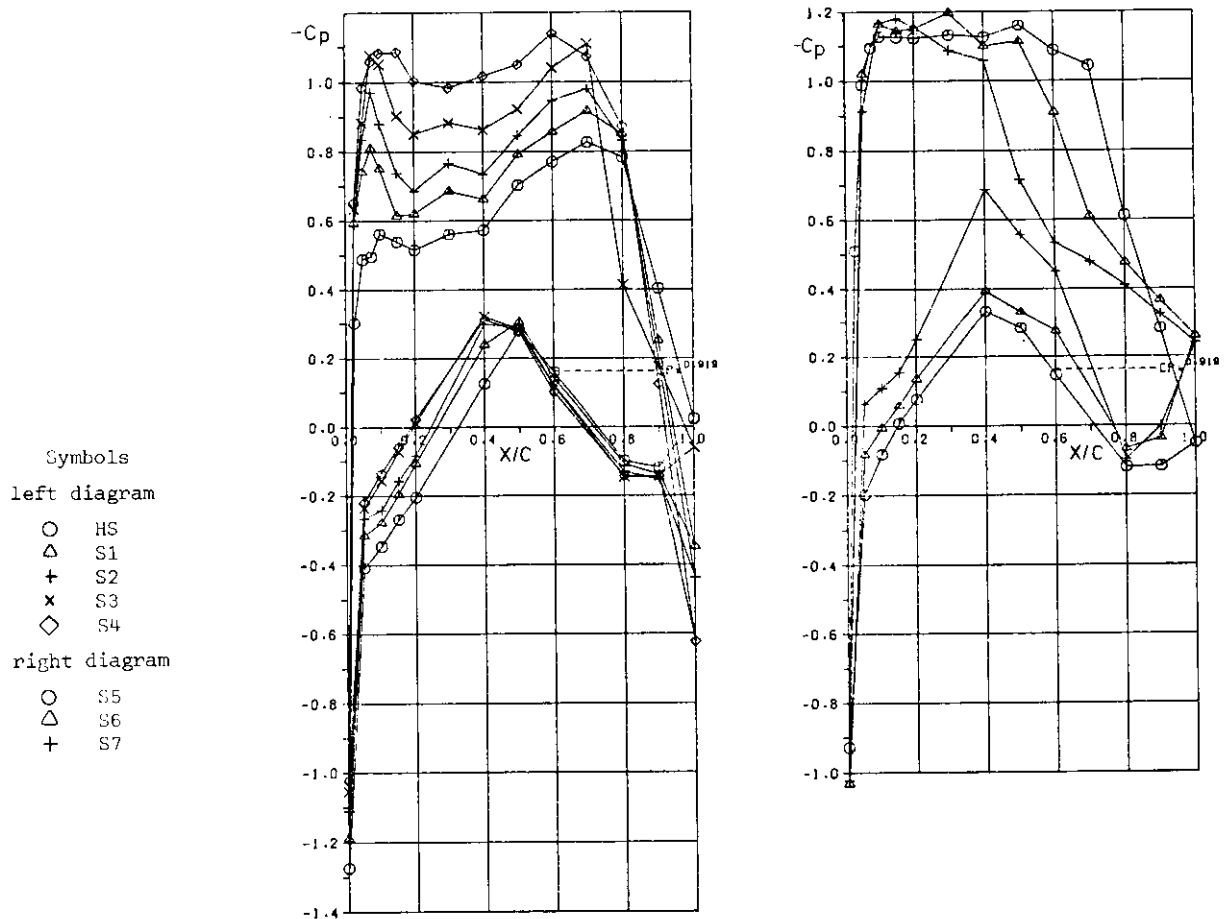


Fig. 3.11: Pressure distribution on the wing ($M = 0.92$; $\alpha = 2^\circ$)

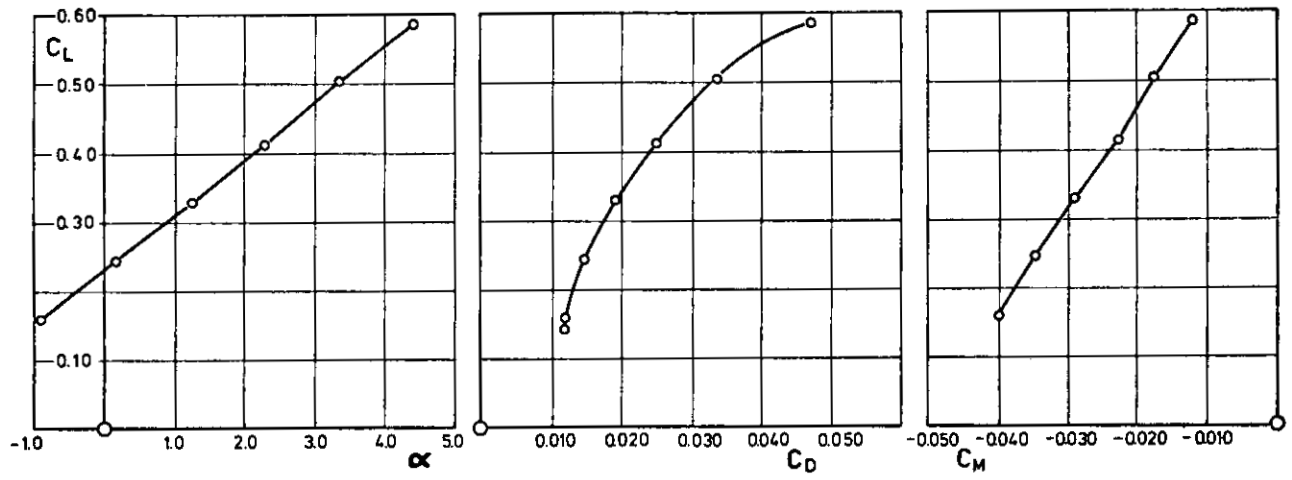


Fig. 3.12: Polars ($M = 0.8$)

4. PRESSURE DISTRIBUTION MEASURED IN THE RAE 8ft x 6ft TRANSONIC WIND TUNNEL ON RAE WING 'A' IN COMBINATION WITH AN AXI-SYMMETRIC BODY AT MACH NUMBERS OF 0.4, 0.8 AND 0.9

by

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1. INTRODUCTION

This contribution contains selected data from measurements of surface pressure distributions made in the RAE 8ft x 6ft transonic wind tunnel on RAE research wing 'A' in combination with an axisymmetric body. Wing A is a wing of simple planform without dihedral or twist and is based on a uncambered RAE 101 aerofoil section. The tests were made on a complete model of a size that renders the tunnel wall interference relatively small. Although the test Reynolds number (one million based on the geometric mean chord) is low, it raises no particular problems for the cases presented here, since the adverse pressure gradients are mild and boundary-layer transition was controlled.

Tables and graphs of the pressure distribution on the wing and body are given for the conditions given below:

Case number	Mach number	Angle of incidence
1	0.4	0
2	0.8	0
3	0.9	0
4	0.4	2°
5	0.8	2°
6	0.9	1°

2. DATA SET

1. General description

1.1	Model designation or name	RAE Wing A mounted symmetrically on the cylindrical body B ₂ (W _A B ₂ (0)0)
1.2	Model type (<i>eg</i> full span wing-body, semi-span wing)	Full-span wing-body model
1.3	Design requirements/conditions	Wing body model of simple geometric form
1.4	Additional remarks	

2. Model geometry

2.1	Wing data	See Fig 4.1
2.1.1	Wing planform	Swept wing with straight leading and trailing edges
2.1.2	Aspect ratio	Gross aspect ratio 6 (gross planform defined by the straight line extension of the leading and trailing edges to the body centre-line)
2.1.3	Leading-edge sweep	36.65°
2.1.4	Trailing-edge sweep	22.34°
2.1.5	Taper ratio	1/3
2.1.6	Twist	Zero
2.1.7	Mean aerodynamic chord	152.4 mm (0.5 ft)
2.1.8	Span or semispan	914.4 mm (3.00 ft) span
2.1.9	Number of airfoil sections used to define wing	One
2.1.10	Spanwise location of reference section and section coordinates (Note if ordinates are design or actual measured values)	Root and tip RAE 101 section thickness/chord ratio 9% See Table 4.1
2.1.11	Lofting procedure between reference sections	Straight lines between root and tip stations at constant x/c
2.1.12	Form of wing-body fillet, strakes	No fillets or strakes fitted
2.1.13	Form of wing tip	Cross-section formed by a radius of half local wing thickness (see Fig 4.1)

2.2 Body data (detail description of body geometry)

Axisymmetric body with a nose profile given by

$$\frac{R \left(\frac{x'}{\ell'} \right)}{R_0 (1)} = \frac{\ell'}{R_0} \left\{ \frac{1}{2} \frac{x'}{\ell'} - \frac{3}{8} \left(\frac{x'}{\ell'} \right)^2 + \frac{1}{16} \left(\frac{x'}{\ell'} \right)^4 \right\},$$

$$\frac{\ell'}{R_0} = 5.33, \quad 0 < \frac{x'}{\ell'} < 1$$

See Fig 4.1

2.3 Wing-body combination

2.3.1 Relative body diameter
(average body diameter at wing location divided by wing span)

1/6

2.3.2 Relative vertical location of wing (height above or below body axis divided by average body radius at wing location)

Aligned with the axis of symmetry of the body

2.3.3 Wing setting angle

Zero

2.3.4 Dihedral

Zero

2.4 Cross sectional area development

No 'area-rule' development - simple wing with a cylindrical body

2.5 Fabrication tolerances/waviness

In general the wing is within the specified manufacturing tolerance of ± 0.05 mm for the wing ordinates and the limit on waviness of 0.05 mm/25 mm. An inspection report is available on request

2.6 Additional remarks

3. Wind tunnel

3.1 Designation

RAE 8ft x 6ft transonic wind tunnel

3.2 Type of tunnel

3.2.1 Continuous or blowdown

Continuous, closed circuit

3.2.2 Stagnation pressure

10 to 355 kN/m² pumping and pressure shell limitation; for operational limits due to power of main drive see section 3.6.1

3.2.3 Stagnation temperature

290 K to 323 K

3.3 Test section

3.3.1 Shape of test section

Rectangular with corner fillets
(160.5 mm x 160.5 mm x 45°)

3.3.2 Size of test section
(width, height, length)

2.43 m wide, 1.83 m high, 2.8 m long

3.3.3 Type of test section walls
closed, open, slotted, perforated
Open area ratio (give range if variable)
Slot/hole geometry (*eg* 30-degree slanted holes)
treatment of side wall
boundary layer

Slots in all four walls for three dimensional complete model tests.

11%

Sharp edged slots: six slots in both roof and floor and five slots in each side wall. All are vented to a common plenum chamber of large volume

Full span models
Half-model testing

None

-

3.4 Flow field (empty test section)

3.4.1 Reference static pressure

Plenum chamber

3.4.2 Flow angularity

M	0.4	0.8	0.9
flow	$\pm 0.13^\circ$	$\pm 0.13^\circ$	$\pm 0.07^\circ$
angularity			

3.4.3	Mach number distribution	}	ΔM	± 0.002	± 0.002	± 0.003	
3.4.4	Pressure gradient						
3.4.5	Turbulence/noise level		See Fig 3 of Ref 1 reproduced as Fig 6.3 in Data Set A6.				
3.4.6	Side wall boundary layer		-				
3.5	Freestream Mach number (or velocity)						
3.5.1	Range	Mach number 0.40-1.24					
3.5.2	Pressures used to determine Mach number (<i>eg</i> settling chamber total pressure and plenum chamber pressure)	A total head measured in the maximum section of the tunnel circuit and a static pressure measured in the plenum chamber					
3.5.3	Accuracy of Mach number determination (ΔM)	± 0.001					
3.5.4	Maximum Mach number variation in x, y, z-direction (empty tunnel; specify at what Mach number)	}	See section 3.4				
	Maximum variation of flow direction						
	Maximum Mach number variation during a run						± 0.001
3.6	Reynolds number range						
3.6.1	Unit Reynolds number range. (Give range at representative Mach numbers; l/m)	M	0.4	0.6	0.8	1.0	1.2
		$\frac{R_e}{m} \times 10^{-6}$	25-0.85	17-1.1	10-1.3	10-1.3	10-1.3
3.6.2	Means of varying Reynolds number (<i>eg</i> by pressurisation)	Pressurisation					
3.7	Temperature range and dewpoint. Can temperature be controlled?	290 K to 323 K. Absolute humidity <0.003 . Temperature can be controlled manually					
3.8	Model attitudes						
3.8.1	Angle of attack, yaw, roll	Calibrated differential screw-jacks giving a range of incidence from -4° to $+22^\circ$. The sting mounting may be rolled through $\pm 180^\circ$					
3.8.2	Accuracy in determining angles	Angle of attack $\pm 0.01^\circ$. Roll angle $\pm 0.10^\circ$					
3.9	Organization operating the tunnel and location of tunnel	The Royal Aircraft Establishment, Farnborough, Hants, England					
3.10	Who is to be contacted for additional information	Mr D. Pierce, Aerodynamics Department					
3.11	Literature concerning this facility	-					
3.12	Additional remarks	-					
<u>Tests</u>							
4.1	Type of tests	Surface pressure measurements					
4.2	Wing span of semispan to tunnel width	Span/tunnel width = 0.375					
4.3	Test conditions						
4.3.1	Angle of attack	0, 1° and 2°					
4.3.2	Mach number	0.40, 0.80, 0.90					
4.3.3	Dynamic pressure	Dependent on Mach number and temperature to give a constant Reynolds number					
4.3.4	Reynolds number	1.0×10^6 based on the geometric mean chord of the gross wing					
4.3.5	Stagnation temperature	≈ 320 K					

4.4 Transition

4.4.1	Free or fixed	Fixed
4.4.2	Position of free transition	-
4.4.3	Position of fixed transition, width of strips, size and type of roughness elements	12.5%C and on the body nose Ballotini 120 grade 0.13 mm to 0.16 mm (0.005 in to 0.0064 in) diameter in a band 2.5 mm (0.1 in) wide
4.4.4	Were checks made to determine if transition occurred at trip locations?	Yes. Acenaphthene sublimation

4.5 Bending or torsion under load

4.5.1	Describe any aeroelastic measurements made during tests	None made
4.5.2	Describe results of any bench calibrations	Bench tests were made and a stiffness matrix determined - see additional remarks under section 6.2.6

4.6 Were different sized models used in wind-tunnel investigation? If so, indicate sizes

No

4.7 Areas and lengths used to form coefficients

Local chord. (The root chord in the case of the body junction.) Local pitching moments are quoted about the local leading edge

4.8 References on tests

-

4.9 Related reports

-

5. Instrumentation

5.1 Surface pressure measurements

5.1.1	Pressure orifices in wing. Location and number on upper and lower surfaces	206 (see Fig 4.1 and Table 4.2a)												
5.1.2	Pressure orifices on fuselage. Location and number	213 (see Fig 4.1 and Table 4.2b)												
5.1.3	Pressure orifices on components, give component and orifice location	-												
5.1.4	Geometry of orifices	<table border="0"> <thead> <tr> <th>Hole diameter</th> <th>Depth/ diameter</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>0.34 mm (0.0135 in)</td> <td>1.5</td> <td>to x/c of 0.1</td> </tr> <tr> <td>0.34 mm (0.0135 in)</td> <td>3.0</td> <td>from x/c 0.15 to 0.90</td> </tr> <tr> <td>0.25 mm (0.0100 in)</td> <td>1.0</td> <td>for x/c 0.95 and 0.975</td> </tr> </tbody> </table>	Hole diameter	Depth/ diameter	Location	0.34 mm (0.0135 in)	1.5	to x/c of 0.1	0.34 mm (0.0135 in)	3.0	from x/c 0.15 to 0.90	0.25 mm (0.0100 in)	1.0	for x/c 0.95 and 0.975
Hole diameter	Depth/ diameter	Location												
0.34 mm (0.0135 in)	1.5	to x/c of 0.1												
0.34 mm (0.0135 in)	3.0	from x/c 0.15 to 0.90												
0.25 mm (0.0100 in)	1.0	for x/c 0.95 and 0.975												
5.1.5	Type of pressure transducer and scanning devices used. Indicate range and accuracy	Midwood self-balancing capsule manometer 0-1.0 atmosphere. Accuracy $\pm 0.03\%$ of full scale												

5.2 Force measurements

5.2.1	Type and location of balance	} No balance measurements made
5.2.2	Forces and moments that can be measured. Maximum loads and accuracy	
5.2.3	Forces and moments on components	
	Type and location of balance	
	Maximum load and accuracy	

5.3 Boundary layer and flow-field measurements

5.3.1	Boundary-layer probe, type, position, and drive mechanism	} No boundary-layer or flow-field measurements made
5.3.2	Probe dimension relative to boundary-layer thickness	
5.3.3	Laser-Doppler velocimeter. Give description of apparatus and accuracy	
5.3.4	Method and/or instrument used to determine boundary-layer transition	
5.3.5	Describe any downstream rakes or probes used. Reason for use.	
5.4	Surface flow visualization	
5.4.1	Indicate method used to determine	
	- Streamline pattern	Oil flow
	- Boundary-layer transition	Acenaphthene sublimation tests made in a few cases
5.4.2	Accuracy of method	
5.5	Skin friction measurements	
5.5.1	Type of instrument	} No measurements made
5.5.2	Geometry and accuracy of instrument	
5.5.3	Locations where probe used	
5.6	Simulation of exhaust jet	-
5.6.1	Describe ducting of air	-
5.7	Additional remarks	
6.	<u>Data</u>	
6.1	Accuracy	
6.1.1	Pressure coefficients	±0.01 in general (see section 6.1.5)
6.1.2	Aerodynamic coefficients	
6.1.3	Boundary layer and wake quantities	} (a) Because of the high sensitivity of the pressure to position near the leading edge and to the non-uniformity of the tunnel airstream, there are apparent errors for the nominal $x/c = 0$ tappings that are in excess of the tolerance quoted in section 6.1.1 (b) Spurious values of the pressure coefficients given at some points on the body should be ignored. These are the result of some malfunctioning of the digitising equipment during the tests
6.1.4	Repeatability	
6.1.5	Additional remarks	
6.2	Wall interference corrections	
6.2.1	Solid and wake blockage. Give procedures and equations	None applied
6.2.2	Give blockage factors as functions of Mach number	None applied
6.2.3	Downwash, streamline curvature and lift interference. Give procedure and equations	Corrections for flow angularity in the tunnel have been made by appeal to model symmetry. Details of constraint and aeroelastic correction are given in section 6.2.6
6.2.4	Give lift interference parameters as function of Mach number	See section 6.2.6

6.2.5	Reference on wall-interference corrections	See Ref 2
6.2.6	Additional remarks	The corrections required for aeroelastic distortion of the model and for the effects of tunnel wall constraint are of a similar order of magnitude. A matrix of influence coefficients defining the structural stiffness has been derived from the measurement of deflection under known static loads. The aeroelastic distortion has then been calculated using the stiffness matrix, together with the aerodynamic loading obtained by integrating the measured pressure distribution. Correction for tunnel wall constraint has been derived by interpolation with respect to open area ratio $1/(1 + F)$, between solutions of the linearised formulation for the velocity induced in the given test section according to the assumption of (a) fully open, and (b) fully closed, wall boundary conditions ² . Computation of the incremental loading arising from distortion and constraint confirmed that only spanwise variation was significant and therefore a local correction to the nominal incidence of an 'equivalent flat wing' was obtained as indicated in Table 4.3a and 4.3b. The adjustments to the measured data have been made by curve-fitting the variation of static pressure coefficient at each orifice with incidence, and interpolating to a corrected nominal incidence
6.3	Data presentation	
6.3.1	Aerodynamic coefficients	Tables 4.7 to 4.9 give local normal force C_N and pitching moment coefficient C_M
6.3.2	Surface pressure coefficients	Tables 4.4 to 4.9 Figs 4.2 to 4.7 give pressure coefficients for the wing and body
6.3.3	Flow conditions for	
	- Aerodynamic coefficient data	Mach numbers 0.4, 0.6 and 0.8 for $R_e 1.0 \times 10^6$
	- Pressure data	
6.3.4	Boundary layer and/or wake data	No measurements made
6.3.5	Flow conditions for boundary layer and/or wake data	-
6.3.6	Wall interference corrections included?	See Table 4.3a
6.3.7	Aeroelastic corrections included?	See section 6.2.6 and Table 4.3b
6.3.8	Other corrections?	-
6.3.9	Additional remarks	-
6.4	Were tests carried out in different facilities on the current model? If so, what facilities. Are data included in present data base?	No
6.5	Were tests carried out in different facilities on the current model? If so, what facilities. Are data included in present data base?	No

7. References

- 1 D.G. Mabey Boundary-layer transition measurements on the AEDC 10° cone in three RAE wind tunnels and their implications.
RAE Technical Report 76077 (1976)
- 2 H.C. Garner Subsonic wind tunnel wall corrections.
E.W.E. Rogers AGARDograph 109 (1966)
W.E.A. Acum
E.C. Maskell

8. List of Symbols

c	local chord
$\bar{c}$	geometric mean chord of the gross wing
C_M	local pitching moment coefficient about the leading edge = $\frac{\text{local pitching moment}}{\frac{1}{2}\rho V^2 c^2}$
C_N	local normal force coefficient = $\frac{\text{local normal force}}{\frac{1}{2}\rho V^2 c}$
C_p	pressure coefficient = $\frac{p - p_\infty}{\frac{1}{2}\rho V^2}$
F	non-dimensional slotted wall parameter = $\frac{d}{\sqrt{\pi}bh} \log_e \operatorname{cosec} \frac{\pi a}{2d}$, (see Ref 2)
L	length of the body
M	Mach number
R	local body cross-section radius
R_e	Reynolds number based on $\bar{c}$
R_0	radius of the cylindrical section of the body
S	semi-span of the gross wing (excluding tip fairing)
V	free stream velocity
X	distance measured along the chord from the leading-edge of the wing section
X'	distance measured from the extended nose of the body
Y	distance measured spanwise
Z	distance from the plane of the wing
a	width of the slots in the tunnel walls
b	breadth of the tunnel working section
d	periodic spacing of the slots in the tunnel wall
h	height of the tunnel working section
ℓ'	length of the profiled portion of the body
p	local static pressure
p_∞	free stream static pressure
α	angle of incidence
$\Delta_c \alpha$	correction applied to the local angle of incidence for wind tunnel wall constraint
$\Delta_e \alpha$	correction applied to the local angle of incidence for aeroelastic distortion of the model and deflection of the sting support
η	Y/S non-dimensional spanwise location
ρ	density of the free stream
ϕ	median angle measured from the plane of the wing

Table 4.1

CO-ORDINATES OF RAE 101 T/C = 0.09 SECTION

X	100Y	X	100Y
0.0	0.0	0.35	4.4582
0.001	0.3515	0.36	4.4376
0.002	0.4966	0.38	4.3855
0.003	0.6078	0.4	4.3205
0.004	0.7013	0.42	4.2438
0.005	0.7835	0.44	4.1565
0.006	0.8576	0.45	4.1091
0.007	0.9256	0.46	4.0595
0.0075	0.9578	0.48	3.9539
0.008	0.9888	0.5	3.8403
0.009	1.0480	0.52	3.7196
0.01	1.1039	0.54	3.5924
0.012	1.2074	0.55	3.5265
0.0125	1.2318	0.56	3.4592
0.014	1.3022	0.58	3.3209
0.016	1.3901	0.6	3.1779
0.018	1.4721	0.62	3.0308
0.02	1.5494	0.64	2.8803
0.025	1.7257	0.65	2.8039
0.03	1.8832	0.66	2.7267
0.035	2.0262	0.68	2.5707
0.04	2.1577	0.7	2.4126
0.05	2.3903	0.72	2.2531
0.06	2.6008	0.74	2.0926
0.07	2.7863	0.75	2.0121
0.075	2.8722	0.76	1.9317
0.08	2.9540	0.78	1.7707
0.09	3.1067	0.8	1.6097
0.1	3.2466	0.82	1.4487
0.12	3.4938	0.84	1.2878
0.14	3.7046	0.85	1.2073
0.15	3.7982	0.86	1.1268
0.16	3.8847	0.88	0.9658
0.18	4.0380	0.9	0.8049
0.2	4.1674	0.92	0.6439
0.22	4.2746	0.925	0.6036
0.24	4.3610	0.94	0.4829
0.25	4.3966	0.95	0.4024
0.26	4.4271	0.96	0.3219
0.28	4.4730	0.975	0.2012
0.3	4.4972	0.98	0.1610
0.32	4.4960	0.9875	0.1006
0.34	4.4752	1.0	0.0

Table 4.2

(a) Location of the pressure tappings in the wing

Nominal X/C	$\eta = Y/S$					
	0.25	0.40	0.60	0.75	0.85	0.925
0.005	0.005	0.005	-	-	-	-
0.010	0.010	0.010	0.010	0.010	0.011	0.011
0.025	0.025	0.025	0.026	0.025	0.026	0.026
0.050	0.051	0.050	0.051	0.050	0.052	0.051
0.075	0.075	0.075	0.076	0.075	0.076	0.076
0.100	0.100	0.100	0.100	0.100	0.101	0.101
0.150	0.151	0.150	0.150	0.150	0.150	0.150
0.200	0.201	0.200	0.200	0.200	0.201	0.200
0.300	0.301	0.300	0.300	0.301	0.301	0.301
0.400	0.401	0.400	0.400	0.401	0.401	0.400
0.500	0.501	0.500	0.500	0.501	0.501	0.500
0.600	0.601	0.600	0.601	0.601	0.600	0.601
0.700	0.701	0.700	0.701	0.701	0.701	0.700
0.800	0.801	0.800	0.801	0.801	0.800	0.800
0.900	0.900	0.899	0.899	0.899	0.899	0.899
0.950	0.950	0.949	0.949	0.950	0.949	0.949
0.975	0.976	0.974	-	-	-	-

(b) Location of the pressure tappings in the wing-body junction

X/C*	-0.013	0.010	0.025	0.050	0.075	0.100	0.150
X'/L	0.4817	0.4856	0.4881	0.4924	0.4968	0.5011	0.5097
Z/L	0	0.00277	0.00392	0.00509	0.00585	0.00664	0.00756
X/C*	0.200	0.250	0.300	0.400	0.500	0.600	0.700
X'/L	0.5184	0.5271	0.5358	0.5532	0.5707	0.5882	0.6056
Z/L	0.00822	0.00860	0.00876	0.00840	0.00759	0.00639	0.00517
X/C*	0.800	0.900					
X'/L	0.6231	0.6405					
Z/L	0.00356	0.00226					

* X and C appropriate to the normal projection onto the gross wing defined by the straight extension of the leading- and trailing-edges to the centre-line of the body.

Table 4.3

(a) Corrections applied to the local angle of incidence for tunnel wall constraint

$$\Delta_c \alpha = \Delta_c \alpha(0) + \Delta_c \alpha(\eta)/\text{per degree}$$

M	$\Delta_c \alpha(0)$	$\Delta_c \alpha(\eta)$						
		$\eta \leq 0.167$	$\eta = 0.25$	$\eta = 0.40$	$\eta = 0.60$	$\eta = 0.75$	$\eta = 0.85$	$\eta = 0.925$
0.40	-0.0223	0.00000	-0.00040	-0.00063	-0.00088	-0.00097	-0.00111	-0.00114
0.80	-0.0220	0.00000	-0.00101	-0.00130	-0.00189	-0.00230	-0.00249	-0.00263
0.90	-0.0218	0.00000	-0.00158	-0.00219	-0.00313	-0.00390	-0.00431	-0.00461

(b) Corrections applied to the local angle of incidence for the aero-elastic deformation of the wing and the deflection of the sting support

$$\Delta_e \alpha = \Delta_e \alpha(0) + \Delta_e \alpha(\eta)/\text{per degree at } Re \ 1.0 \times 10^6$$

M	$\Delta_e \alpha(0)$	$\Delta_e \alpha(\eta)$						
		$\eta \leq 0.167$	$\eta = 0.25$	$\eta = 0.40$	$\eta = 0.60$	$\eta = 0.75$	$\eta = 0.85$	$\eta = 0.925$
0.40	0.0262	0.00000	-0.0034	-0.0050	-0.0060	-0.0080	-0.0095	-0.0104
0.80	0.0643	0.00000	-0.0091	-0.0128	-0.0154	-0.0198	-0.0230	-0.0252
0.90	0.0768	0.00000	-0.0114	-0.0156	-0.0183	-0.0237	-0.0277	-0.0301

Table 4.4

TABULATED DATA

Case No.1 : Mach number 0.40 Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	-	-	-	-	-	-	-
CM=	-	-	-	-	-	-	-
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.651	0.636	0.639	0.643	0.622	0.634
0.005		0.205	0.174				
0.010	0.222	0.057	0.016	0.031	0.050	0.030	0.031
0.025	0.140	-0.102	-0.118	-0.137	-0.120	-0.137	-0.144
0.050	0.043	-0.147	-0.206	-0.206	-0.209	-0.210	-0.219
0.075	-0.019	-0.197	-0.238	-0.246	-0.225	-0.244	-0.235
0.100	-0.053	-0.197	-0.244	-0.253	-0.244	-0.254	-0.240
0.150	-0.112	*****	*****	*****	*****	*****	*****
0.200	-0.132	-0.223	-0.269	-0.271	-0.289	-0.259	-0.270
0.300	-0.184	-0.250	-0.277	-0.269	-0.278	-0.273	-0.262
0.400	-0.187	-0.211	-0.229	-0.228	-0.239	-0.222	-0.220
0.500	-0.166	-0.173	-0.179	-0.176	-0.174	-0.168	-0.165
0.600	-0.136	-0.129	-0.129	-0.124	-0.126	-0.114	*****
0.700	-0.103	-0.085	-0.078	-0.074	-0.073	-0.065	-0.060
0.800	-0.068	-0.042	-0.028	-0.027	-0.029	-0.021	-0.014
0.900	-0.033	0.004	0.019	*****	0.022	0.025	0.035
0.950		0.043	0.057	0.056	0.055	0.061	0.062
0.975		0.068	0.076				

* Nominal value for body/wing junction
 NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	± 15	± 30	± 45	± 60	± 75	± 90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.124	-0.128	-0.126	-0.126	-0.125	-0.128	-0.125
0.307	-0.087	-0.090	-0.088	-0.088	-0.087	-0.088	-0.089
0.366	-0.039	-0.040	-0.044	-0.044	-0.048	-0.050	-0.046
0.385	-0.033	-0.031	-0.036	-0.036	-0.037	-0.042	-0.036
0.405	-0.021	-0.020	-0.023	-0.026	-0.033	-0.033	-0.034
0.424	-0.007	-0.010	-0.013	-0.021	-0.030	-0.030	-0.032
0.444	0.011	-0.003	-0.007	-0.019	-0.021	-0.034	-0.032
0.463	0.063	0.038	0.005	-0.015	-0.024	-0.031	-0.026
0.482	0.290	0.063	0.002	-0.019	-0.027	-0.031	-0.034
0.492	0.043	0.024	-0.011	-0.027	-0.032	-0.033	-0.034
0.501	-0.054	-0.032	-0.029	-0.031	-0.033	-0.038	-0.037
0.510	-0.112	-0.076	-0.046	-0.039	-0.032	-0.043	-0.035
0.518	-0.133	-0.109	-0.071	-0.050	-0.042	-0.041	-0.039
0.527	-0.170	-0.132	-0.082	-0.058	-0.046	-0.051	-0.043
0.571	-0.166	-0.138	-0.102	-0.073	-0.059	-0.051	-0.050
0.588	-0.137	-0.122	-0.094	-0.064	-0.052	-0.046	-0.049
0.606	-0.104	-0.096	-0.069	-0.062	-0.054	-0.042	-0.044
0.623	-0.069	-0.067	-0.059	-0.051	-0.046	-0.037	-0.036
0.641	-0.033	-0.034	-0.043	-0.039	-0.040	-0.037	-0.037
0.660	0.073	-0.001	-0.026	-0.030	-0.032	-0.032	-0.029
0.671	0.038	0.012	-0.016	-0.025	-0.030	-0.031	-0.033
0.691	0.018	0.004	-0.010	-0.023	-0.025	-0.024	-0.028
0.730	-0.004	-0.011	-0.010	-0.022	-0.021	-0.030	-0.027
0.750	-0.018	0.003	-0.017	-0.033	-0.024	-0.027	-0.025
0.769	-0.013	-0.025	-0.023	-0.027	-0.026	-0.025	-0.026
0.789	-0.014	-0.017	-0.018	-0.019	-0.030	-0.029	-0.027
0.808	-0.022	-0.024	-0.021	-0.033	-0.026	-0.027	-0.031
0.828	-0.028	-0.039	-0.030	-0.026	-0.028	-0.035	-0.024

Table 4.5

TABULATED DATA

Case No.2 : Mach number 0.80 Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	-	-	-	-	-	-	-
CM=	-	-	-	-	-	-	-
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.729	0.688	0.691	0.691	0.666	0.682
0.005		0.309	0.252				
0.010	0.305	0.154	0.083	0.095	0.110	0.088	0.074
0.025	0.236	-0.033	-0.084	-0.112	-0.099	-0.117	-0.134
0.050	0.132	-0.126	-0.204	-0.217	-0.228	-0.224	-0.254
0.075	0.050	-0.172	-0.255	-0.271	-0.258	-0.273	-0.283
0.100	-0.001	-0.190	-0.269	-0.294	-0.292	-0.303	-0.308
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.128	-0.251	-0.330	-0.338	-0.378	-0.343	-0.388
0.300	-0.218	-0.304	-0.352	-0.360	-0.368	-0.359	-0.362
0.400	-0.238	-0.269	-0.297	-0.286	-0.302	-0.283	-0.284
0.500	-0.220	-0.218	-0.223	-0.210	-0.211	-0.198	-0.189
0.600	-0.182	-0.159	-0.151	-0.133	-0.138	-0.120	-0.101
0.700	-0.142	-0.100	-0.081	-0.066	-0.066	-0.053	-0.039
0.800	-0.086	-0.041	-0.013	-0.004	-0.008	0.007	0.016
0.900	-0.030	0.023	0.048	0.075	0.059	0.067	0.074
0.950		0.052	0.087	0.097	0.094	0.102	0.103
0.975		0.092	0.110				

* Nominal value for body/wing junction
 NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	± 15	± 30	± 45	± 60	± 75	± 90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.147	-0.148	-0.148	-0.145	-0.145	-0.147	-0.147
0.307	-0.095	-0.098	-0.097	-0.098	-0.098	-0.097	-0.098
0.366	-0.025	-0.027	-0.025	-0.039	-0.031	-0.028	-0.028
0.385	-0.015	-0.013	-0.017	-0.017	-0.021	-0.021	-0.020
0.405	-0.001	-0.004	-0.003	-0.006	-0.010	-0.011	-0.011
0.424	0.085	0.014	0.010	0.006	-0.003	-0.003	-0.006
0.444	0.039	0.033	0.024	0.013	0.008	-0.003	0.001
0.463	0.106	0.082	0.046	0.024	0.007	0.001	-0.002
0.462	0.342	0.134	0.055	0.020	0.006	-0.004	-0.007
0.492	0.132	0.084	0.036	0.010	-0.002	-0.009	-0.011
0.501	-0.001	0.009	0.005	-0.004	-0.011	-0.024	-0.017
0.510	-0.089	-0.055	-0.028	-0.022	-0.021	-0.031	-0.021
0.518	-0.126	-0.101	-0.062	-0.040	-0.032	-0.038	-0.031
0.527	-0.179	-0.141	-0.090	-0.058	-0.045	-0.047	-0.038
0.536	-0.218	-0.167	-0.113	-0.074	-0.056	-0.060	-0.044
0.553	-0.238	-0.195	-0.139	-0.094	-0.073	-0.069	-0.058
0.571	-0.220	-0.186	-0.143	-0.104	-0.082	-0.068	-0.064
0.588	-0.182	-0.161	-0.128	-0.093	-0.079	-0.060	-0.063
0.606	-0.142	-0.069	-0.106	-0.084	-0.071	-0.050	-0.059
0.623	-0.086	-0.082	-0.077	-0.064	-0.058	-0.039	-0.048
0.641	-0.030	-0.033	-0.042	-0.041	-0.041	-0.028	-0.039
0.660	0.097	0.021	-0.008	-0.018	-0.024	-0.017	-0.022
0.671	0.070	0.033	0.004	-0.009	-0.015	-0.015	-0.020
0.691	0.046	0.028	0.014	-0.001	-0.008	-0.002	-0.013
0.730	0.018	0.012	0.008	0.002	-0.004	-0.007	-0.007
0.750	0.009	0.007	-0.031	-0.002	-0.002	-0.004	-0.004
0.769	0.005	0.003	-0.002	-0.003	-0.003	-0.006	-0.004
0.789	0.004	-0.000	-0.001	-0.002	-0.003	-0.008	-0.007
0.808	-0.003	-0.004	-0.004	-0.004	-0.007	-0.009	-0.011
0.828	-0.002	-0.031	-0.008	-0.009	-0.009	-0.011	-0.009

Table 4.6

TABULATED DATA

Case No.3 : Mach number 0.90 Angle of incidence 0

Upper/lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	-	-	-	-	-	-	-
CM=	-	-	-	-	-	-	-
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.766	0.714	0.699	0.706	0.674	0.702
0.005		0.360	0.295				
0.010	0.357	0.207	0.133	0.118	0.120	0.110	-0.149
0.025	0.299	0.017	-0.042	-0.097	-0.097	-0.105	-0.106
0.050	0.201	-0.081	-0.174	-0.219	-0.241	-0.231	-0.244
0.075	0.119	-0.134	-0.235	-0.289	-0.278	-0.292	-0.283
0.100	0.066	-0.156	-0.255	-0.323	-0.309	-0.334	-0.316
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.078	-0.246	-0.355	-0.431	-0.480	-0.442	-0.480
0.300	-0.194	-0.341	-0.457	-0.535	-0.535	-0.493	-0.509
0.400	-0.258	-0.338	-0.455	-0.409	-0.358	-0.333	-0.409
0.500	-0.278	-0.329	-0.310	-0.212	-0.218	-0.217	-0.152
0.600	-0.260	-0.244	-0.164	-0.130	-0.132	-0.117	-0.048
0.700	-0.197	-0.135	-0.075	-0.052	-0.051	-0.033	0.008
0.800	-0.107	-0.052	0.004	0.017	0.015	0.036	0.062
0.900	-0.032	0.029	0.072	*****	0.087	0.099	0.117
0.950		0.081	0.114	0.123	0.122	0.138	0.156
0.975		0.113	0.138				

* Nominal value for body/wing junction
 NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	± 15	± 30	± 45	± 60	± 75	± 90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.162	-0.165	-0.164	-0.167	-0.153	-0.162	-0.164
0.307	-0.096	-0.096	-0.097	-0.093	-0.097	-0.113	-0.093
0.366	-0.014	-0.014	-0.013	-0.015	-0.016	-0.019	-0.018
0.385	-0.001	0.002	-0.002	-0.003	-0.003	-0.004	-0.001
0.405	0.016	0.014	0.014	0.012	0.009	0.007	0.008
0.424	0.176	0.035	0.030	0.028	0.019	0.020	0.017
0.444	0.060	0.055	0.048	0.035	0.037	0.022	0.025
0.463	0.139	0.117	0.081	0.057	0.040	0.030	0.029
0.482	0.374	0.180	0.099	0.058	0.039	0.026	0.026
0.492	0.202	0.135	0.084	0.048	0.032	0.021	0.018
0.501	0.066	0.057	0.051	0.033	0.021	-0.000	0.009
0.510	-0.032	-0.012	0.014	0.010	0.006	-0.013	0.002
0.518	-0.078	-0.068	-0.022	-0.014	-0.010	-0.026	-0.012
0.527	-0.142	-0.116	-0.063	-0.043	-0.030	-0.044	-0.026
0.536	-0.194	-0.154	-0.100	-0.067	-0.049	-0.074	-0.041
0.553	-0.256	-0.219	-0.153	-0.110	-0.086	-0.101	-0.070
0.571	-0.278	-0.247	-0.191	-0.147	-0.116	-0.111	-0.095
0.588	-0.260	-0.237	-0.195	-0.151	-0.124	-0.099	-0.107
0.606	-0.197	-0.185	-0.160	-0.134	-0.111	-0.076	-0.096
0.623	-0.107	-0.111	-0.104	-0.091	-0.084	-0.051	-0.073
0.641	-0.032	-0.037	-0.051	-0.050	-0.051	-0.023	-0.051
0.660	0.111	0.033	0.001	-0.011	-0.020	-0.013	-0.022
0.671	0.092	0.052	0.020	0.004	-0.007	-0.002	-0.013
0.691	0.071	0.049	0.035	0.017	0.008	0.004	0.001
0.730	0.042	-0.000	0.027	0.021	0.017	0.015	0.011
0.750	0.030	0.029	0.024	0.016	0.020	0.014	0.014
0.769	0.025	0.022	0.017	0.017	0.014	0.014	0.017
0.789	0.025	0.019	0.018	0.017	0.013	0.007	0.009
0.808	0.014	0.013	0.016	0.011	0.012	0.006	0.007
0.828	0.012	-0.012	0.006	0.008	0.008	0.005	0.008

Table 4.7

TABULATED DATA

Case No.4 : Mach number 0.40 Angle of incidence 2.0°

Upper surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.138	0.162	0.172	0.186	0.191	0.183	0.165
CM=	-0.043	-0.042	-0.042	-0.046	-0.047	-0.041	-0.034
X/L	CP	CP	CP	CP	CP	CP	CP
0.000		0.515	0.453	0.457	0.444	0.406	0.415
0.005		-0.311	-0.449				
0.010	0.046	-0.415	-0.525	-0.554	-0.553	-0.578	-0.574
0.025	-0.045	-0.463	-0.525	-0.577	-0.576	-0.596	-0.598
0.050	-0.143	-0.436	-0.511	-0.536	-0.550	-0.554	-0.558
0.075	-0.189	-0.417	-0.486	-0.509	-0.502	-0.522	-0.507
0.100	-0.209	-0.389	-0.456	-0.481	-0.478	-0.496	-0.476
0.150	-0.245	*****	*****	*****	*****	*****	*****
0.200	-0.253	-0.347	-0.405	-0.415	-0.443	-0.404	-0.402
0.300	-0.277	-0.344	-0.374	-0.378	-0.392	-0.378	-0.354
0.400	-0.251	-0.284	-0.306	-0.310	-0.321	-0.304	-0.285
0.500	-0.225	-0.229	-0.236	-0.235	-0.236	-0.226	-0.207
0.600	-0.182	-0.171	-0.172	-0.167	-0.171	-0.153	*****
0.700	-0.139	-0.117	-0.107	-0.106	-0.104	-0.094	-0.076
0.800	-0.094	-0.065	-0.046	-0.048	-0.050	-0.037	-0.024
0.900	-0.046	-0.007	0.010	*****	0.013	0.017	0.031
0.950		0.035	0.051	0.046	0.050	0.069	0.060
0.975		0.062	0.076				

* Nominal value for body/wing junction
 NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	15	30	45	60	75	90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.125	-0.134	-0.136	-0.134	-0.137	-0.136	-0.136
0.307	-0.093	-0.095	-0.097	-0.096	-0.097	-0.098	-0.095
0.366	-0.051	-0.052	-0.057	-0.052	-0.058	-0.060	-0.055
0.385	-0.041	-0.039	-0.046	-0.049	-0.050	-0.052	-0.050
0.405	-0.029	-0.032	-0.036	-0.042	-0.046	-0.047	-0.047
0.424	-0.014	-0.021	-0.031	-0.037	-0.041	-0.043	-0.044
0.444	0.004	-0.016	-0.029	-0.036	-0.045	-0.049	-0.046
0.463	0.054	0.007	-0.030	-0.044	-0.048	-0.049	-0.049
0.482	0.262	-0.009	-0.049	-0.056	-0.056	-0.056	-0.056
0.492	-0.144	-0.082	-0.075	-0.070	-0.064	-0.059	-0.059
0.501	-0.210	-0.145	-0.096	-0.076	-0.058	-0.068	-0.063
0.510	-0.248	-0.186	-0.116	-0.090	-0.070	-0.072	-0.063
0.518	-0.253	-0.207	-0.140	-0.100	-0.079	-0.072	-0.068
0.527	-0.274	-0.223	-0.150	-0.108	-0.084	-0.082	-0.072
0.571	-0.225	-0.197	-0.151	-0.113	-0.093	-0.078	-0.077
0.588	-0.193	-0.170	-0.135	-0.100	-0.083	-0.072	-0.077
0.606	-0.140	-0.132	-0.106	-0.092	-0.080	-0.064	-0.068
0.623	-0.094	-0.095	-0.087	-0.077	-0.071	-0.057	-0.057
0.641	-0.047	-0.054	-0.063	-0.060	-0.061	-0.054	-0.054
0.660	0.072	-0.011	-0.039	-0.047	-0.051	-0.048	-0.044
0.671	0.040	-0.002	-0.029	-0.041	-0.045	-0.044	-0.047
0.691	0.019	-0.001	-0.021	-0.034	-0.039	-0.032	-0.041
0.730	-0.007	-0.015	-0.016	-0.029	-0.031	-0.039	-0.036
0.750	-0.016	0.002	-0.020	-0.030	-0.034	-0.034	-0.033
0.769	-0.016	-0.021	-0.028	-0.031	-0.031	-0.031	-0.036
0.789	-0.018	-0.019	-0.024	-0.028	-0.037	-0.033	-0.034
0.808	-0.023	-0.024	-0.032	-0.032	-0.034	-0.028	-0.036
0.828	-0.032	-0.068	-0.032	-0.033	-0.031	-0.035	-0.031

Table 4.7 (continued)

TABULATED DATA

Case No.4 : Mach number 0.40 Angle of incidence 2.0°

Lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.138	0.162	0.172	0.186	0.191	0.183	0.165
CM=	-0.043	-0.042	-0.042	-0.046	-0.047	-0.041	-0.034
X/L	CP	CP	CP	CP	CP	CP	CP
0.000		0.500	0.474	0.460	0.466	0.450	0.520
0.005		0.517	0.525				
0.010	0.332	0.382	0.377	0.415	0.433	0.419	0.414
0.025	0.287	0.181	0.189	0.202	0.221	0.209	0.197
0.050	0.201	0.054	0.043	0.062	0.072	0.068	0.053
0.075	0.129	-0.003	-0.028	-0.011	0.011	-0.007	-0.005
0.100	0.086	-0.030	-0.059	-0.047	-0.036	-0.041	-0.047
0.150	0.012	*****	*****	*****	*****	*****	*****
0.200	-0.024	-0.109	-0.141	-0.132	-0.142	-0.121	-0.142
0.300	-0.096	-0.157	-0.179	-0.169	-0.169	-0.168	-0.167
0.400	-0.119	-0.139	-0.154	-0.146	-0.155	-0.144	-0.154
0.500	-0.108	-0.117	-0.119	-0.113	-0.111	-0.111	-0.121
0.600	-0.091	-0.085	-0.086	-0.076	-0.079	-0.072	*****
0.700	-0.067	-0.050	-0.046	-0.040	-0.038	*****	-0.041
0.800	-0.040	-0.018	-0.009	-0.003	-0.008	-0.003	-0.002
0.900	-0.016	0.018	0.031	*****	0.033	0.035	0.039
0.950		0.045	0.062	0.065	0.060	0.059	0.060
0.975		0.070	0.080				

* Nominal value for body/wing junction
 NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	-15	-30	-45	-60	-75	-90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.129	-0.126	-0.125	-0.119	-0.116	-0.115	-0.115
0.307	-0.093	-0.089	-0.088	-0.076	-0.084	-0.079	-0.079
0.366	-0.043	-0.043	-0.037	-0.040	-0.033	-0.032	-0.036
0.385	-0.035	-0.030	-0.029	-0.029	-0.026	-0.024	-0.023
0.405	-0.026	-0.019	-0.017	-0.017	-0.020	-0.018	-0.018
0.424	-0.008	-0.004	-0.002	-0.005	-0.009	-0.010	-0.011
0.444	0.004	0.007	0.006	-0.002	-0.007	-0.012	-0.013
0.463	0.058	0.056	0.025	0.009	-0.000	-0.010	-0.005
0.482	0.271	0.124	0.043	0.015	0.001	-0.003	-0.006
0.492	0.201	0.117	0.040	0.014	-0.001	-0.003	-0.007
0.501	0.086	0.069	0.029	0.009	0.001	-0.006	-0.007
0.510	0.011	0.022	0.014	0.004	-0.002	-0.009	-0.006
0.518	-0.025	-0.017	-0.005	-0.004	-0.004	-0.009	-0.008
0.527	-0.072	-0.049	-0.021	-0.011	-0.009	-0.020	-0.011
0.571	-0.108	-0.081	-0.057	-0.031	-0.025	-0.021	-0.018
0.588	-0.092	-0.074	-0.050	-0.025	-0.020	-0.020	-0.021
0.606	-0.068	-0.055	-0.040	-0.030	-0.024	-0.016	-0.018
0.623	-0.041	-0.037	-0.032	-0.022	-0.021	-0.013	-0.011
0.641	-0.017	-0.013	-0.019	-0.019	-0.017	-0.015	-0.013
0.660	0.071	0.010	-0.007	-0.010	-0.014	-0.014	-0.005
0.671	0.040	0.012	-0.003	-0.008	-0.012	-0.015	-0.012
0.691	0.019	0.006	0.005	-0.008	-0.010	-0.011	-0.010
0.730	-0.005	-0.007	-0.003	-0.011	-0.009	-0.011	-0.013
0.750	-0.015	-0.011	-0.014	-0.024	-0.016	-0.018	-0.016
0.769	-0.014	-0.015	-0.020	-0.014	-0.017	-0.018	-0.020
0.789	-0.019	-0.016	-0.021	-0.017	-0.019	-0.022	-0.028
0.808	-0.022	-0.026	-0.026	-0.026	-0.023	-0.018	-0.022
0.828	-0.026	-0.008	-0.024	-0.020	-0.015	-0.035	-0.019

Table 4.8

TABULATED DATA

Case No.5 : Mach number 0.80 Angle of incidence 2.0°

Upper surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.177	0.184	0.206	0.224	0.229	0.230	0.201
CM=	-0.062	-0.051	-0.052	-0.052	-0.051	-0.047	-0.032
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.662	0.578	0.573	0.565	0.513	0.520
0.005		-0.093	-0.256				
0.010	0.171	-0.244	-0.400	-0.472	-0.476	-0.519	-0.541
0.025	0.076	-0.386	-0.499	-0.624	-0.619	-0.663	-0.707
0.050	-0.044	-0.406	-0.555	-0.645	-0.681	-0.705	-0.753
0.075	-0.125	-0.416	-0.557	-0.644	-0.638	-0.690	-0.705
0.100	-0.170	-0.407	-0.536	-0.624	-0.616	-0.670	-0.675
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.271	-0.426	-0.518	-0.592	-0.603	-0.624	-0.652
0.300	-0.350	-0.444	-0.514	-0.519	-0.524	-0.520	-0.466
0.400	-0.355	-0.379	-0.407	-0.399	-0.406	-0.371	-0.323
0.500	-0.313	-0.302	-0.299	-0.282	-0.275	-0.254	-0.212
0.600	-0.254	-0.220	-0.204	-0.182	-0.177	-0.148	-0.113
0.700	-0.193	-0.144	-0.116	-0.098	-0.090	-0.071	-0.045
0.800	-0.119	-0.068	-0.034	-0.022	-0.020	0.002	0.014
0.900	-0.048	0.010	0.038	0.083	0.056	0.064	0.073
0.950		0.058	0.085	0.083	0.094	0.105	0.103
0.975		0.092	0.109				

* Nominal value for body/wing junction
 NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	15	30	45	60	75	90
X'/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.146	-0.154	-0.153	-0.151	-0.151	-0.154	-0.157
0.307	-0.098	-0.101	-0.102	-0.096	-0.100	-0.099	-0.100
0.366	-0.031	-0.032	-0.031	-0.029	-0.036	-0.031	-0.035
0.385	-0.018	-0.018	-0.024	-0.025	-0.025	-0.025	-0.024
0.405	-0.006	-0.008	-0.011	-0.013	-0.017	-0.017	-0.018
0.424	0.051	0.007	-0.001	-0.007	-0.013	-0.014	-0.015
0.444	0.034	0.023	0.010	-0.007	-0.012	-0.019	-0.017
0.463	0.102	0.063	0.019	-0.002	-0.017	-0.023	-0.021
0.482	0.321	0.070	-0.001	-0.024	-0.032	-0.034	-0.040
0.492	-0.044	-0.024	-0.038	-0.044	-0.045	-0.046	-0.046
0.501	-0.170	-0.116	-0.083	-0.065	-0.057	-0.067	-0.056
0.510	-0.248	-0.181	-0.121	-0.089	-0.075	-0.079	-0.063
0.518	-0.271	-0.210	-0.162	-0.113	-0.088	-0.089	-0.076
0.527	-0.318	-0.262	-0.192	-0.130	-0.104	-0.101	-0.087
0.536	-0.350	-0.282	-0.213	-0.150	-0.116	-0.114	-0.095
0.553	-0.356	-0.300	-0.232	-0.165	-0.133	-0.121	-0.109
0.571	-0.313	-0.273	-0.226	-0.169	-0.140	-0.115	-0.113
0.588	-0.254	-0.232	-0.190	-0.148	-0.131	-0.100	-0.112
0.606	-0.193	-0.175	-0.156	-0.131	-0.113	-0.085	-0.097
0.623	-0.120	-0.120	-0.112	-0.100	-0.092	-0.064	-0.080
0.641	-0.048	-0.055	-0.070	-0.070	-0.068	-0.052	-0.066
0.660	0.094	0.010	-0.025	-0.039	-0.046	-0.039	-0.045
0.671	0.071	0.026	-0.008	-0.027	-0.034	-0.029	-0.039
0.691	0.049	0.020	0.004	-0.014	-0.021	-0.010	-0.027
0.730	0.022	0.012	0.004	-0.004	-0.015	-0.012	-0.016
0.750	0.010	0.007	0.034	-0.010	-0.006	-0.011	-0.011
0.769	0.006	0.002	-0.005	-0.006	-0.008	-0.009	-0.013
0.789	0.008	-0.002	-0.003	-0.007	-0.003	-0.014	-0.012
0.808	-0.001	0.003	-0.009	-0.008	-0.010	-0.015	-0.015
0.828	-0.004	-0.076	-0.013	-0.011	-0.010	-0.011	-0.012

Table 4.8 (continued)

TABULATED DATA

Case No.5 : Mach number 0.80 Angle of incidence 2.0°

Lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.177	0.184	0.206	0.224	0.229	0.230	0.201
CM=	-0.062	-0.051	-0.052	-0.052	-0.051	-0.047	-0.032
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.647	0.582	0.572	0.568	0.541	0.596
0.005		0.548	0.549				
0.010	0.389	0.414	0.400	0.426	0.466	0.452	0.450
0.025	0.358	0.209	0.208	0.208	0.250	0.241	0.234
0.050	0.280	0.071	0.052	0.061	0.086	0.089	0.072
0.075	0.204	0.009	-0.028	-0.023	0.017	-0.003	0.001
0.100	0.150	-0.025	-0.066	-0.070	-0.042	-0.044	-0.050
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	0.005	-0.125	-0.173	-0.174	-0.178	-0.147	-0.190
0.300	-0.098	-0.198	-0.225	-0.230	-0.217	-0.212	-0.235
0.400	-0.132	-0.184	-0.198	-0.190	-0.194	-0.185	-0.213
0.500	-0.133	-0.153	-0.150	-0.145	-0.137	-0.137	-0.152
0.600	-0.112	-0.110	-0.103	-0.088	-0.091	-0.082	-0.084
0.700	-0.086	-0.066	-0.047	-0.037	-0.037	-0.033	-0.034
0.800	-0.044	-0.020	0.006	0.013	0.008	0.015	0.014
0.900	-0.005	0.031	0.056	0.078	0.062	0.065	0.067
0.950		0.067	0.090	0.102	0.092	0.103	0.097
0.975		0.092	0.111				

* Nominal value for body/wing junction

NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	-15	-30	-45	-60	-75	-90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.145	-0.149	-0.144	-0.142	-0.126	-0.138	-0.136
0.307	-0.097	-0.098	-0.095	-0.088	-0.092	-0.090	-0.089
0.366	-0.029	-0.026	-0.025	-0.043	-0.026	-0.022	-0.023
0.385	-0.016	-0.013	-0.015	-0.012	-0.013	-0.011	-0.010
0.405	-0.004	-0.002	-0.000	-0.001	-0.001	-0.002	-0.001
0.424	0.070	0.017	0.015	0.016	0.011	0.012	0.009
0.444	0.035	0.036	0.031	0.024	0.021	0.013	0.015
0.463	0.107	0.097	0.067	0.046	0.029	0.024	0.021
0.482	0.332	0.189	0.098	0.056	0.039	0.026	0.023
0.492	0.280	0.177	0.097	0.057	0.034	0.025	0.021
0.501	0.150	0.117	0.079	0.051	0.031	0.017	0.018
0.510	0.056	0.056	0.054	0.037	0.025	0.012	0.019
0.518	0.006	0.003	0.027	0.024	0.016	0.007	0.010
0.527	-0.055	-0.037	-0.002	0.007	0.006	-0.001	0.005
0.536	-0.098	-0.064	-0.026	-0.007	-0.002	-0.011	-0.000
0.553	-0.132	-0.102	-0.056	-0.030	-0.018	-0.021	-0.011
0.571	-0.133	-0.106	-0.071	-0.044	-0.029	-0.023	-0.018
0.588	-0.111	-0.094	-0.070	-0.041	-0.031	-0.020	-0.022
0.606	-0.086	-0.071	-0.057	-0.038	-0.030	-0.016	-0.020
0.623	-0.044	-0.041	-0.040	-0.027	-0.024	-0.010	-0.017
0.641	-0.005	-0.006	-0.017	-0.011	-0.014	-0.005	-0.012
0.660	0.099	0.033	0.008	0.004	-0.003	-0.001	-0.001
0.671	0.074	0.038	0.017	0.009	0.002	0.002	-0.000
0.691	0.050	0.033	0.023	0.013	0.006	0.011	0.003
0.730	0.019	0.017	0.018	0.012	0.007	-0.000	0.005
0.750	0.010	0.012	-0.009	0.005	0.007	0.004	0.005
0.769	0.009	0.006	0.004	0.005	0.003	0.006	0.003
0.789	0.009	0.007	0.006	0.009	-0.000	0.001	0.007
0.808	0.001	0.018	0.001	0.002	0.002	-0.004	-0.000
0.828	-0.009	0.010	-0.004	-0.005	-0.003	-0.011	-0.003

Table 4.9

TABULATED DATA

Case No.6 : Mach number 0.90 Angle of incidence 1.0°

Upper surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.127	0.139	0.149	0.174	0.185	0.178	0.150
CM=	-0.055	-0.050	-0.047	-0.047	-0.045	-0.037	-0.024
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.751	0.688	0.680	0.674	0.634	0.653
0.005		0.184	0.089				
0.010	0.289	0.027	-0.063	-0.104	-0.127	-0.153	-0.143
0.025	0.219	-0.146	-0.216	-0.304	-0.327	-0.355	-0.374
0.050	0.116	-0.215	-0.327	-0.397	-0.458	-0.460	-0.497
0.075	0.036	-0.253	-0.370	-0.443	-0.471	-0.494	-0.507
0.100	-0.018	-0.261	-0.373	-0.456	-0.464	-0.514	-0.509
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.152	-0.331	-0.452	-0.614	-0.700	-0.684	-0.700
0.300	-0.264	-0.419	-0.555	-0.655	-0.728	-0.769	-0.788
0.400	-0.328	-0.421	-0.575	-0.753	-0.836	-0.717	-0.607
0.500	-0.358	-0.404	-0.540	-0.310	-0.244	-0.191	-0.167
0.600	-0.353	-0.381	-0.219	-0.126	-0.114	-0.079	-0.027
0.700	-0.307	-0.197	-0.090	-0.045	-0.036	-0.003	0.032
0.800	-0.158	-0.075	-0.001	0.021	0.027	0.054	0.076
0.900	-0.052	0.020	0.071	*****	0.094	0.107	0.122
0.950		0.081	0.113	0.118	0.128	0.137	0.158
0.975		0.113	0.134				

* Nominal value for body/wing junction
 NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	15	30	45	60	75	90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.167	-0.171	-0.166	-0.175	-0.133	-0.166	-0.166
0.307	-0.096	-0.099	-0.097	-0.096	-0.096	-0.159	-0.095
0.366	0.043	*****	*****	-0.015	*****	*****	*****
0.385	-0.003	0.053	-0.005	*****	-0.008	-0.008	-0.005
0.405	0.012	0.010	0.012	0.008	0.004	0.002	0.003
0.424	0.213	0.031	0.026	0.025	0.014	0.015	0.012
0.444	*****	*****	0.042	*****	0.030	*****	*****
0.463	0.138	0.107	0.070	0.045	0.027	0.019	0.017
0.482	0.355	0.148	0.075	0.036	0.020	0.011	-0.002
0.492	0.116	0.079	0.048	0.018	0.008	0.001	-0.002
0.501	-0.018	0.051	0.008	-0.003	-0.007	-0.027	-0.015
0.510	-0.113	-0.080	-0.035	-0.029	-0.025	-0.044	-0.022
0.518	-0.152	-0.136	-0.091	-0.059	-0.045	-0.060	-0.042
0.527	-0.212	-0.180	-0.119	-0.092	-0.067	-0.024	-0.060
0.536	-0.264	-0.217	-0.155	-0.116	-0.090	-0.118	-0.076
0.553	-0.326	-0.289	-0.213	-0.165	-0.135	-0.156	-0.113
0.571	-0.357	-0.319	-0.259	-0.213	-0.176	-0.176	-0.148
0.588	-0.353	-0.340	-0.284	-0.226	-0.196	-0.165	-0.167
0.606	-0.307	-0.292	-0.261	-0.216	-0.130	-0.125	-0.159
0.623	-0.158	-0.163	-0.163	-0.145	-0.136	-0.081	-0.117
0.641	-0.051	-0.062	-0.079	-0.081	-0.083	-0.046	-0.084
0.660	0.105	0.023	-0.013	-0.030	-0.040	-0.029	-0.040
0.671	0.148	*****	0.009	-0.010	-0.023	-0.014	-0.030
0.691	0.070	-0.028	0.027	0.006	-0.005	0.020	-0.011
0.730	*****	0.032	-0.026	0.016	-6.225	-0.027	*****
0.750	*****	*****	-0.028	-0.029	*****	*****	2.253
0.769	0.020	*****	*****	*****	0.050	0.009	*****
0.789	0.025	0.014	0.013	0.014	0.009	0.004	0.004
0.808	0.014	0.014	0.011	0.003	0.010	-0.002	0.003
0.828	0.011	-0.042	0.004	0.005	0.008	0.005	0.006

Table 4.9 (continued)

TABULATED DATA

Case No.6 : Mach number 0.90 Angle of incidence 1.0°

Lower surface

Pressures on the wing and at the wing/body junction

η	0.167*	0.250	0.400	0.600	0.750	0.850	0.925
CN=	0.127	0.139	0.149	0.174	0.185	0.178	0.150
CM=	-0.055	-0.050	-0.047	-0.047	-0.045	-0.037	-0.024
X/C	CP	CP	CP	CP	CP	CP	CP
0.000		0.742	0.693	0.678	0.686	0.654	0.686
0.005		0.499	0.450				
0.010	0.394	0.355	0.291	0.296	0.306	0.313	0.291
0.025	0.357	0.157	0.105	0.077	0.088	0.096	0.092
0.050	0.279	0.037	-0.042	-0.060	-0.066	-0.045	-0.058
0.075	0.198	-0.026	-0.115	-0.140	-0.123	-0.119	-0.117
0.100	0.146	-0.061	-0.148	-0.183	-0.182	-0.165	-0.163
0.150	*****	*****	*****	*****	*****	*****	*****
0.200	-0.009	-0.161	-0.263	-0.289	-0.327	-0.273	-0.321
0.300	-0.127	-0.262	-0.351	-0.358	-0.355	-0.342	-0.371
0.400	-0.188	-0.266	-0.321	-0.273	-0.285	-0.267	-0.361
0.500	-0.205	-0.215	-0.223	-0.191	-0.193	-0.194	-0.180
0.600	-0.183	-0.170	-0.136	-0.110	-0.116	-0.113	-0.063
0.700	-0.140	-0.102	-0.061	-0.039	-0.040	-0.034	-0.003
0.800	-0.075	-0.035	0.010	0.024	0.019	0.033	0.053
0.900	-0.020	0.035	0.073	*****	0.087	0.094	0.110
0.950		0.081	0.115	0.127	0.122	0.144	0.136
0.975		0.110	0.137				

* Nominal value for body/wing junction
 NB Pressure measured on body, see Table 4.2

Pressures on the body

ϕ DEG	0*	-15	-30	-45	-60	-75	-90
X/L	CP	CP	CP	CP	CP	CP	CP
0.268	-0.163	-0.165	-0.163	-0.162	-0.141	-0.161	-0.161
0.307	-0.096	-0.098	-0.097	-0.093	-0.096	-0.121	-0.094
0.366	-0.012	-0.015	-0.011	-0.014	-0.013	-0.017	-0.016
0.385	-0.003	0.002	-0.001	-0.001	-0.001	-0.000	0.001
0.405	0.016	0.014	0.015	0.014	0.012	0.011	0.011
0.424	0.167	0.036	0.034	0.032	0.026	0.026	0.023
0.444	0.061	0.056	0.054	0.042	0.044	0.031	0.033
0.463	0.140	0.124	0.091	0.068	0.051	0.042	0.039
0.482	0.366	0.205	0.122	0.076	0.056	0.044	0.038
0.492	0.279	0.180	0.117	0.072	0.053	0.040	0.037
0.501	0.146	0.112	0.090	0.061	0.046	0.025	0.031
0.510	0.043	0.045	0.059	0.042	0.034	0.014	0.027
0.518	-0.009	-0.014	0.026	0.021	0.021	0.003	0.014
0.527	-0.074	-0.058	-0.014	-0.009	0.004	-0.010	0.004
0.536	-0.126	-0.096	-0.046	-0.026	-0.011	-0.035	-0.008
0.553	-0.187	-0.158	-0.097	-0.065	-0.043	-0.056	-0.032
0.571	-0.204	-0.181	-0.125	-0.094	-0.067	-0.063	-0.050
0.588	-0.182	-0.164	-0.128	-0.096	-0.074	-0.057	-0.063
0.606	-0.140	-0.128	-0.105	-0.086	-0.068	-0.045	-0.054
0.623	-0.075	-0.076	-0.071	-0.060	-0.052	-0.026	-0.042
0.641	-0.020	-0.021	-0.031	-0.030	-0.029	-0.008	-0.027
0.660	0.107	0.039	0.011	0.002	-0.005	-0.000	-0.006
0.671	0.093	0.053	0.027	0.013	0.007	0.010	-0.000
0.691	0.072	0.052	0.042	0.024	0.017	0.023	0.011
0.730	0.041	0.037	0.031	0.028	0.022	-0.006	0.018
0.750	0.029	0.030	0.027	0.021	0.023	0.016	0.018
0.769	0.025	0.023	0.021	0.020	0.019	0.016	0.017
0.789	0.024	0.020	0.019	0.019	0.016	0.011	0.014
0.808	0.016	0.014	0.016	0.011	0.015	0.014	0.012
0.828	0.014	0.014	0.011	0.010	0.012	0.005	0.012

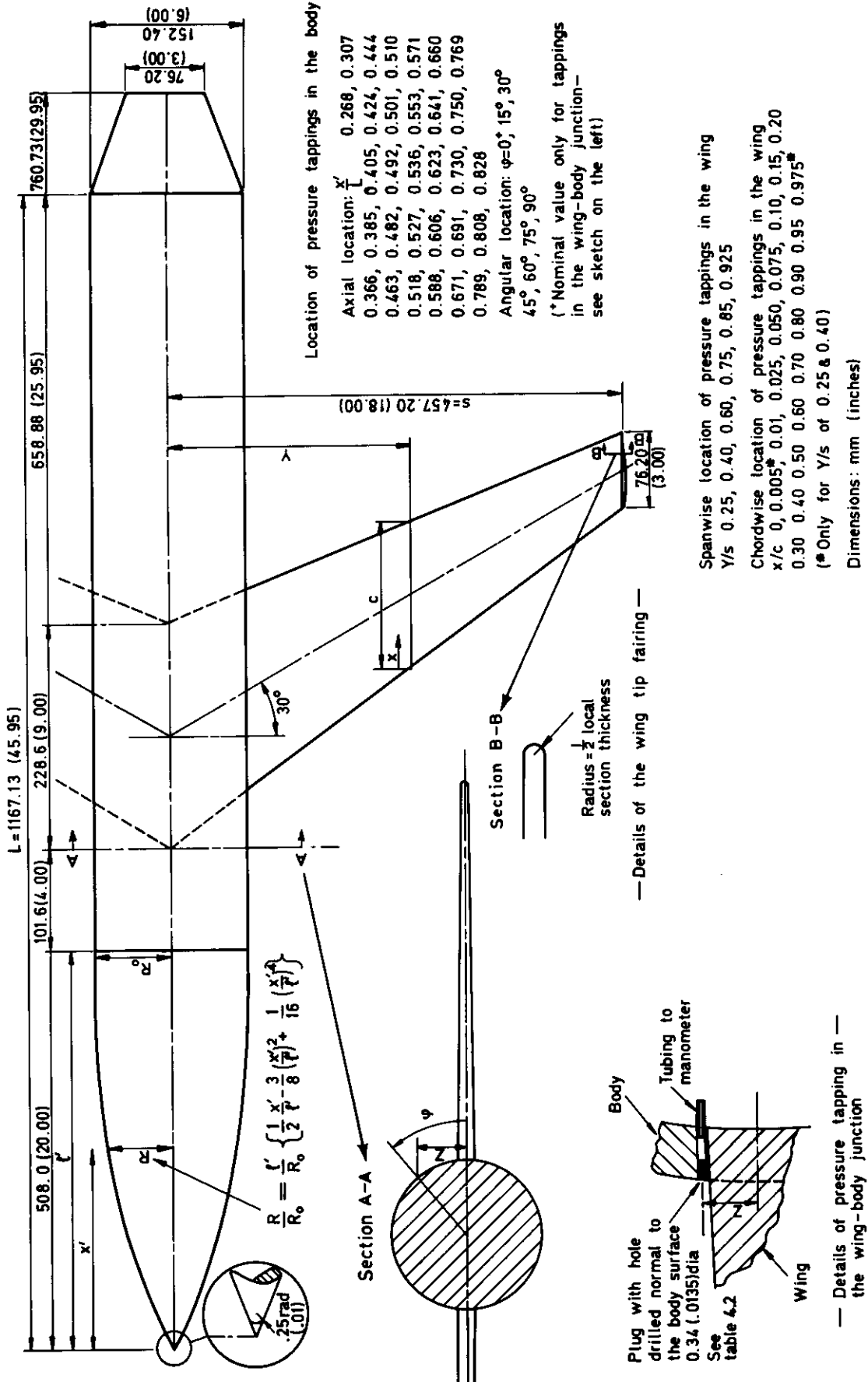
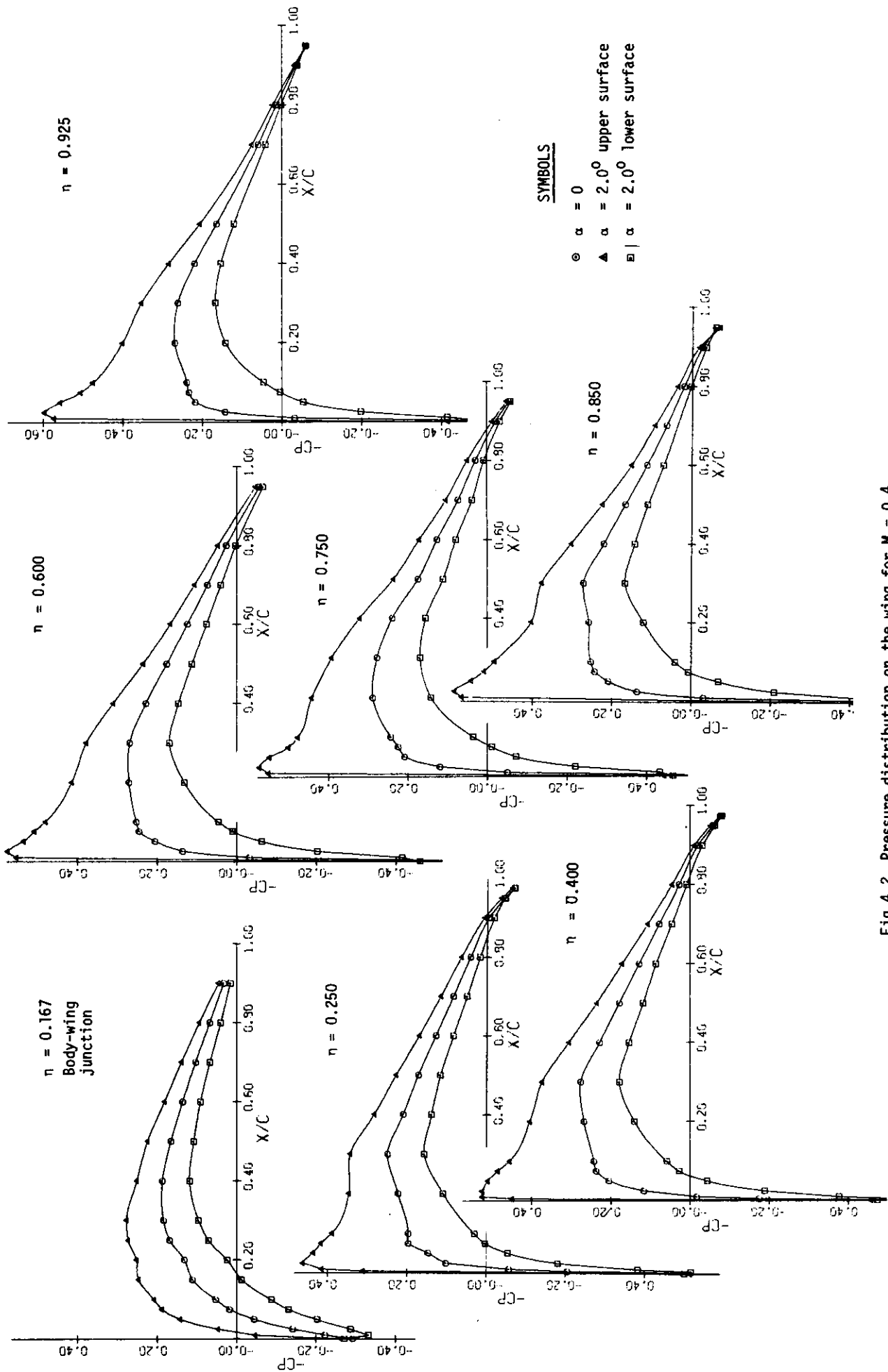


Fig 4.1 Sketch of wing A mounted on body B2: Configuration WA B2 (O)O

Fig 4.2 Pressure distribution on the wing for $M = 0.4$

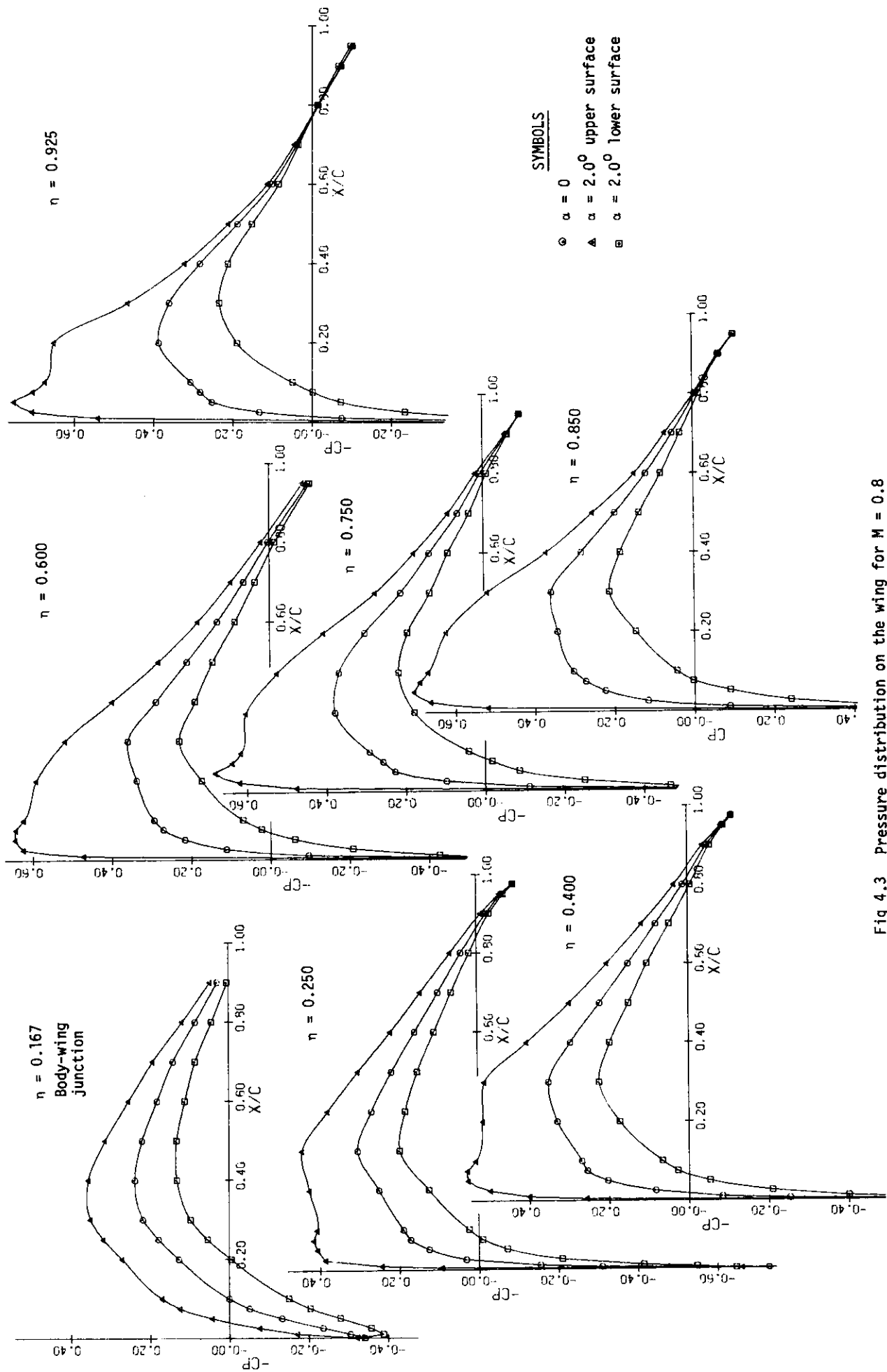
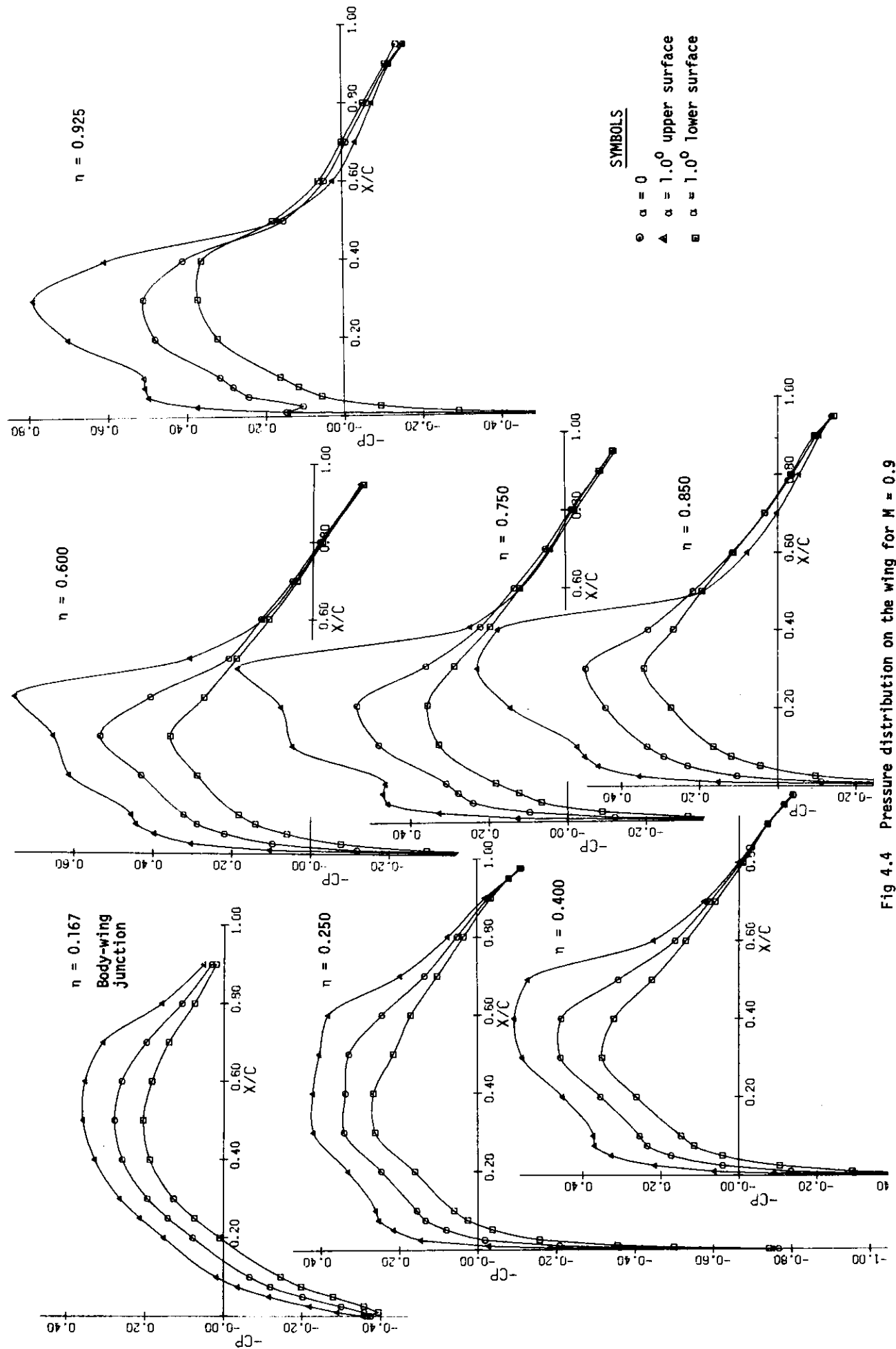


Fig 4.3 Pressure distribution on the wing for $M = 0.8$



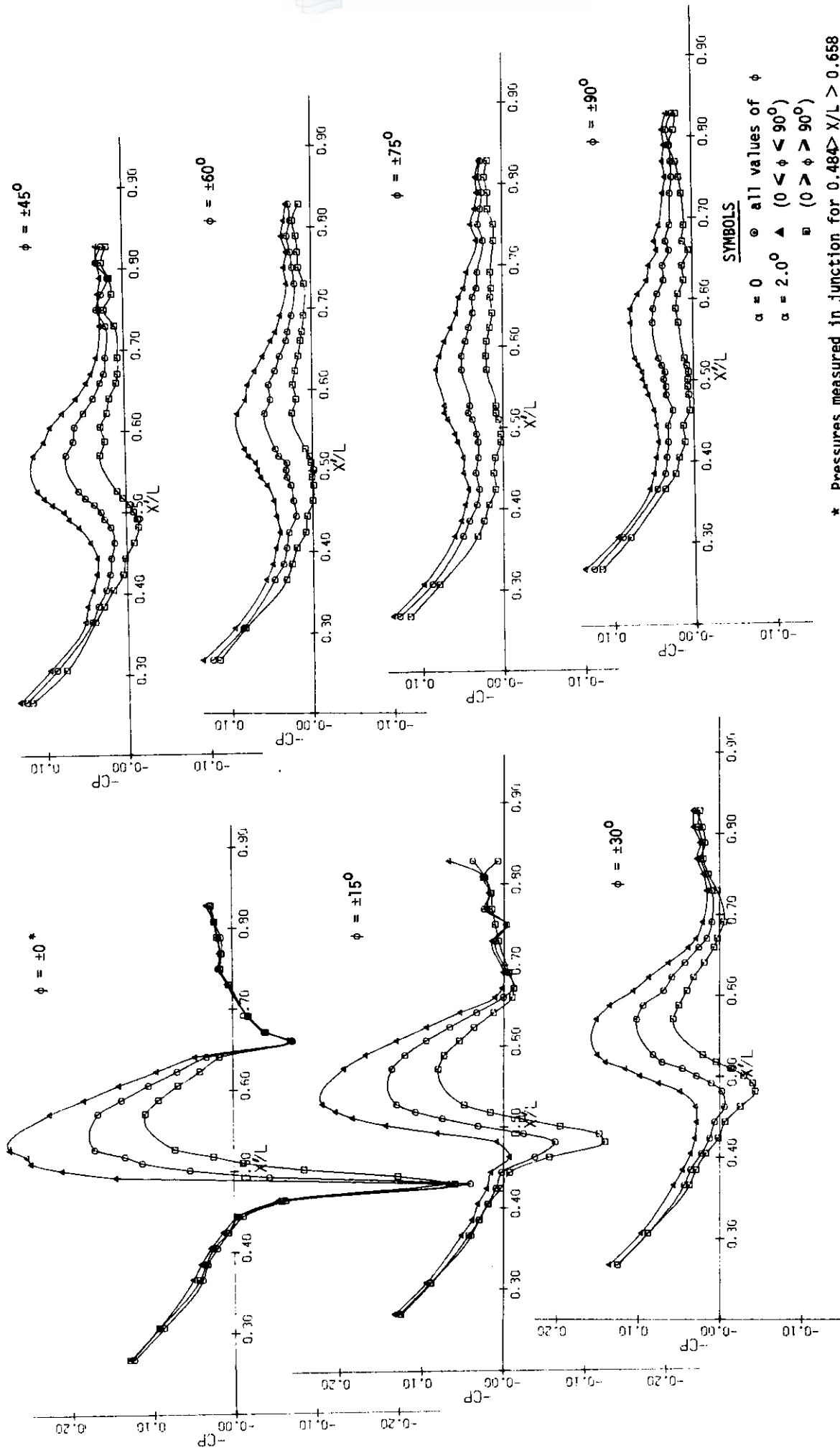


Fig 4.5 Pressure distribution along the body for $M = 0.4$

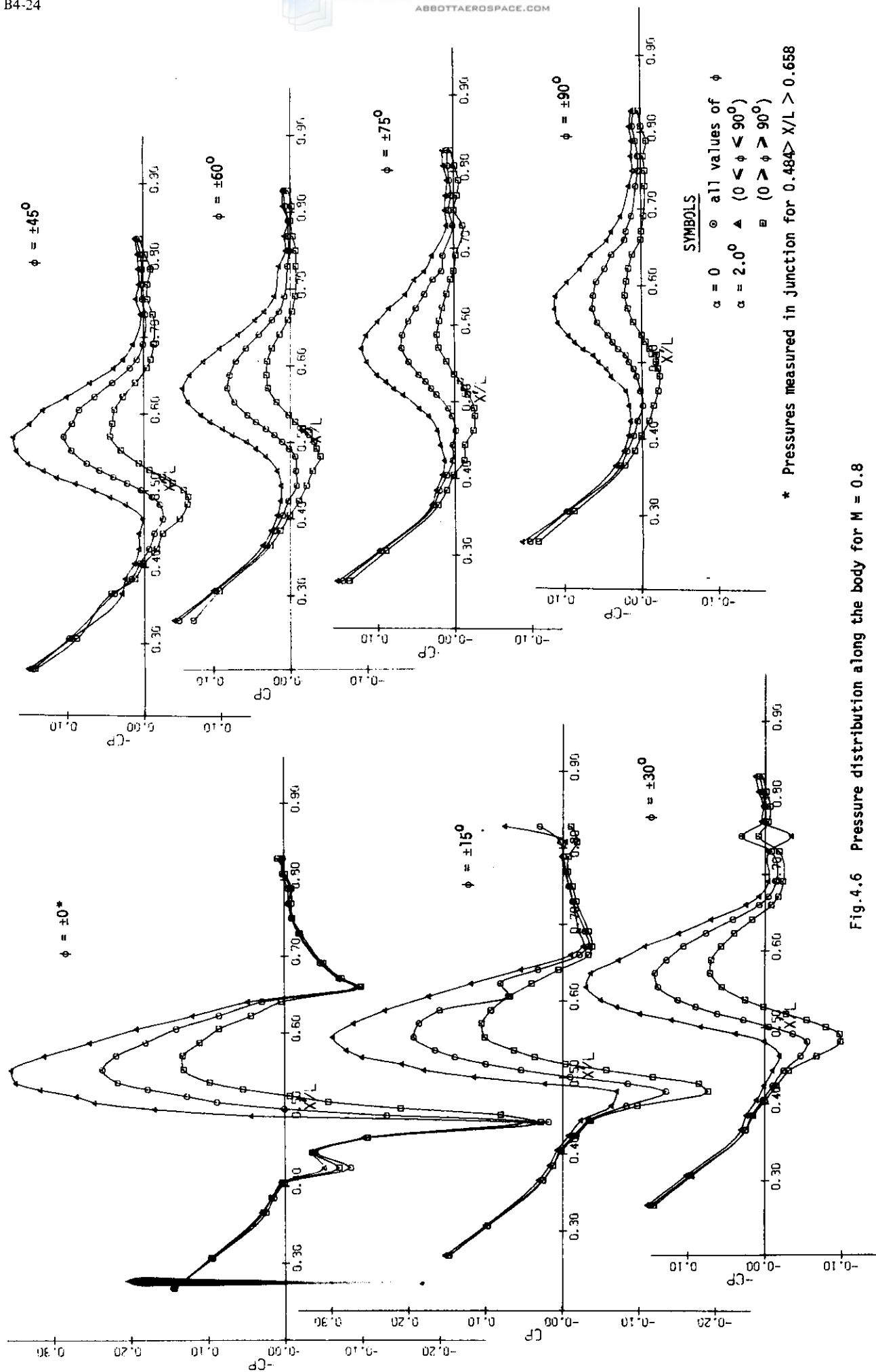


Fig.4.6 Pressure distribution along the body for $M = 0.8$

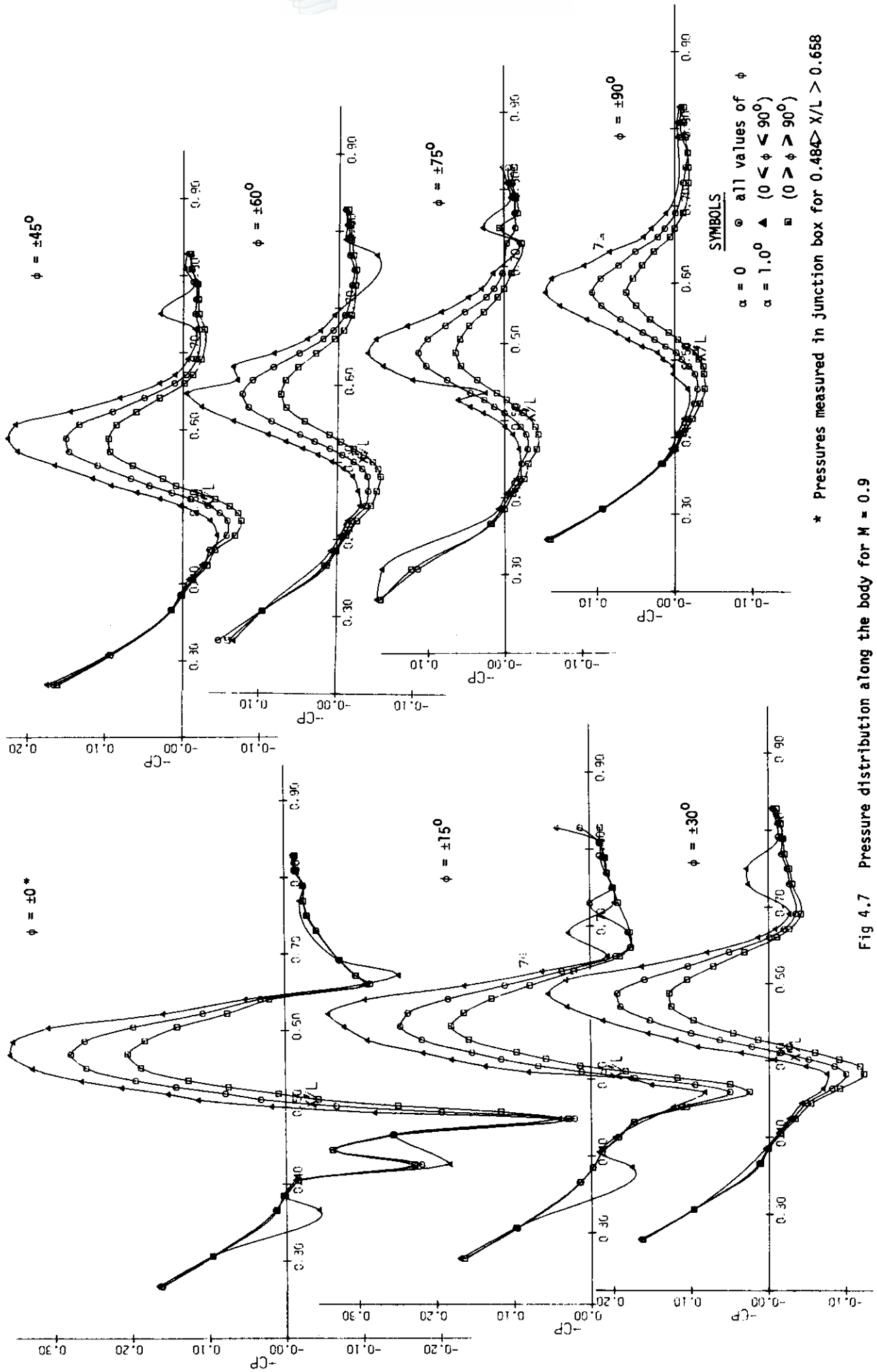


Fig 4.7 Pressure distribution along the body for $M = 0.9$

5. PRESSURE DISTRIBUTIONS MEASURED ON AN NASA SUPERCRITICAL-WING RESEARCH AIRPLANE MODEL

by

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5.1 INTRODUCTION

The data presented in this contribution were obtained in the NASA Langley 8-Foot Transonic Pressure Tunnel on a supercritical-wing research airplane to provide a smooth area distribution and consequently a high drag-rise Mach number. Measurements were made with and without area-rule additions; only data for the former are included in this compilation. Tabulated data is given for 5 Mach numbers ranging from 0.50 to 0.99 and for four or five angles of attack at each Mach number.

5.2 DATA SET

1. General Description

1.1	Model Designation or Name	TF-8A Supercritical Wing Research Airplane Model
1.2	Model Type (e.g., Full Span Wing-Body, Semi-Span Wing)	Full span wing-body-tail
1.3	Design Requirements/ Conditions	Basic model: $M = 1.00$ $C_L = 0.4$ $\left. \frac{\partial C_D}{\partial M} \right _{M \sim 1} = 0.1$
1.4	Additional Remarks	Investigation includes measurements with and without area rule additions to sides of fuselage. Only data with area rule additions are included in the present compilation.

2. Model Geometry

2.1 Wing Data

2.1.1	Wing Planform	See figure 5.1.
2.1.2	Aspect Ratio	6.8 for basic wing (dashed line) - excludes L.E. glove, T. E. extension, and tip rounding.
2.1.3	Leading-Edge Sweep	44.34°
2.1.4	Trailing-Edge Sweep	35.10°
		} quarter chord 42.24°
2.1.5	Taper Ratio	0.36
2.1.6	Twist	~5° root to tip, unloaded. (Included in ordinates of Table I.)
2.1.7	Mean Aerodynamic Chord	0.1809 m (for basic wing planform)
2.1.8	Span or Semispan	0.5715 m semispan
2.1.9	Number of Airfoil Sections Used to Define Wing	17
2.1.10	Spanwise Location of Reference Section and Section Coordinates (Note if Ordinates are Design or Actual Measured Values)	See Table I. Values given are actual measured values.
2.1.11	Lofting Procedure Between Reference Sections	Unknown.
2.1.12	Form of Wing-Body Fillet, Strakes	See figure 5.2.
2.1.13	Form of Wing Tip	See figure 5.2.

2.2	Body Data (Detail Description of Body Geometry)	See figures 5.1 and 5.3.
2.3	Wing-Body Combination	
2.3.1	Relative Body Diameter (Average Body Diameter at Wing Location Divided by Wing Span)	~0.12 (irregular body).
2.3.2	Relative Vertical Location of Wing (Height Above or Below Body Axis Divided by Average Body Radius at Wing Location)	~1, high wing.
2.3.3	Wing Setting Angle	1.5° (included in ordinates of Table I).
2.3.4	Dihedral	0°
2.4	Cross Sectional Area Development	See figure 5.4
2.5	Fabrication Tolerances/Waviness	Waviness not determined. Values given in Table I are actual measured values.
2.6	Additional Remarks	Additional details of aileron fairings and vortex generators shown in figure 5.1 are given in figure 5.5.
3.	<u>Wind Tunnel</u>	
3.1	Designation	8-Foot Transonic Pressure Tunnel
3.2	Type of Tunnel	
3.2.1	Continuous or Blowdown. Indicate Minimum Run Time if Applicable	Continuous
3.2.2	Stagnation Pressure	Varies from approximately 15 to 68 k N/m ² depending on Mach number and Reynolds number
3.2.3	Stagnation Temperature	Generally kept at 322 K.
3.3	Test Section	
3.3.1	Shape of Test Section	Square
3.3.2	Size of Test Section (Width, Height, Length)	2.2 m x 2.2 m x 4.3 m
3.3.3	Type of Test Section Closed, Open, Slotted, Perforated Open Area Ratio (Give Range if Variable) Slot/Hole Geometry (e.g., 30-Degree Slanted Holes) Treatment of Sidewall Boundary Layer	Slotted top and bottom, solid sides. Slotted walls approximately 6% open. Four identical slots of longitudinally varying width in top and bottom walls. See figure 5.6 and 5.7.
	Full span models Half-model testing	Tunnel has capability for full and half span model testing

- 3.4 Flow Field (Empty Test Section)
- 3.4.1 Reference Static Pressure Plenum chamber.
 - 3.4.2 Flow Angularity Generally less than 0.1° but may go as high as 0.25° near slots.
 - 3.4.3 Mach Number Distribution $\Delta M \quad \pm 0.002$
 - 3.4.4 Pressure Gradient
 - 3.4.5 Turbulence/Noise Level Lateral fluctuating velocity components $\tilde{v}/U_\infty$ and $\tilde{w}/U_\infty$ have not been measured. $\tilde{u}/U_\infty$ varies from 0.002 at $M = 0.2$ to about 0.02 at high Mach numbers.
 - 3.4.6 Sidewall Boundary Layer —
- 3.5 Freestream Mach Number (or Velocity)
- 3.5.1 Range 0.2 to 1.3.
 - 3.5.2 Pressures Used to Determine Mach Number (e.g., Settling Chamber Total Pressure and Plenum Chamber Pressure) Settling chamber total pressure and plenum chamber pressure.
 - 3.5.3 Accuracy of Mach Number Determination (ΔM) $\Delta M = \pm 0.003$.
 - 3.5.4 Maximum Mach Number Variation in x, y, z - Direction (Empty Tunnel; Specify at What Mach Number) Streamwise variations of approximately ± 0.002 over the Mach number range.
 - Maximum Variation of Flow Direction
 - Maximum Mach Number Variation During a Run ± 0.002 .
- 3.6 Reynolds Number Range
- 3.6.1 Unit Reynolds Number Range. (Give Range at Representative Mach Numbers; l/m) Generally about 2 million/m to 18 million/m at most Mach numbers.
 - 3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization) Pressurization
- 3.7 Temperature Range and Dewpoint. Can Temperature be Controlled? Most runs made at 322 K stagnation temperature. Temperature and dewpoint both controlled.
- 3.8 Model Attitudes
- 3.8.1 Angle of Attack, Yaw, Roll $\alpha = -15^\circ$ to 25° , yaw $\pm 7^\circ$, roll 360°
 - 3.8.2 Accuracy in Determining Angles $\alpha \pm 0.1^\circ$ at max lift
 $\pm 0.05^\circ$ near cruise
- 3.9 Organization Operating the Tunnel and Location of Tunnel Transonic Aerodynamics Branch of the Subsonic-Transonic Aerodynamics Division, NASA Langley Research Center

- 3.10 Who is to be Contacted for Additional Information Head, Transonic Aerodynamics Branch, NASA Langley Research Center
- 3.11 Literature Concerning this Facility "A Description of the NASA-Langley 8-Foot Transonic Pressure Tunnel" can be obtained from the above organization.
- 3.12 Additional Remarks

4. Tests

- 4.1 Type of Tests Surface pressures and force and moment measurements
- 4.2 Wing Span or Semispan to Tunnel Width $\frac{\text{wing span}}{\text{Tunnel width}} = .52$
- 4.3 Test Conditions
- 4.3.1 Angle of Attack Varies approximately -5° to $+12^{\circ}$.
- 4.3.2 Mach Number 0.25 to 1.0
- 4.3.3 Dynamic Pressure } See Table II for conditions at which current tests were run.
- 4.3.4 Reynolds Number }
- 4.3.5 Stagnation Temperature 322 K (120 F)
- 4.4 Transition
- 4.4.1 Free or Fixed Fixed.
- 4.4.2 Position of Free Transition
- 4.4.3 Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements See figure 5.8 for positions on wing. Strips located at 5% local chord on horizontal and vertical tail, 2.54 cm aft of nose on fuselage. Width of all strips was 0.127 cm. Size and type of roughness elements are given on figure 5.6. Note that No. 100 and 120 carborundum grains average 0.005 in. (0.127 mm) and 0.004 in. (0.102 mm) respectively.
- 4.4.4 Were Checks Made to Determine if Transition Occurred at Trip Locations? No.
- 4.5 Bending or Torsion Under Load
- 4.5.1 Describe Any Aero-Elastic Measurements Made During Tests None.
- 4.5.2 Describe Results of Any Bench Calibrations See figure 5.9 for deflections at pressure stations for cruise conditions.
- 4.6 Were Different Sized Models Used in Wind-Tunnel Investigations? If so, Indicate Sizes. No. But full-scale vehicle was flight tested. See reference list.
- 4.7 Areas and Lengths Used to Form Coefficients All coefficients based on basic wing panel geometry which does not include L. E. glove nor T. E. extension. Moments referenced to 1/4 chord of mean geometric chord (max) of basic wing panel. See figure 5.1.
- Area: $S = 0.193 \text{ m}^2$
- MAC: $\bar{c} = 0.1809 \text{ m}$
- 4.8 References on Tests See references 1, 2, and 3.
- 4.9 Related Reports See references 4 and 5.

5. Instrumentation

5.1 Surface Pressure Measurements

5.1.1	Pressure Orifices in Wing. Location and Number on Upper and Lower Surfaces	See Table III.
5.1.2	Pressure Orifices on Fuselage. Location and Number.	See Table IV. Total of 67 orifices.
5.1.3	Pressure Orifices on Components, Give Component and Orifice Location	No.
5.1.4	Geometry of Orifices	Round holes ~0.076 cm I.D.
5.1.5	Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy	Electronically actuated differential modular scanivalve in model nose. Upper surface: 103.4 kN/m ² max; +1% max. Lower surface: 82.7 kN/m ² max; +1% max. Fuselage: 17.2 kN/m ² max; +1% max.

5.2 Force Measurements

5.2.1	Type and Location of Balance	Internal strain-gage balance.
5.2.2	Forces and Moments that Can be Measured. Maximum Loads and Accuracy	6 component force and moment. Normal force: 11 kN; +55.6N Axial force: 890 N; +4.4N Pitching moment: 390 m-N; +2 m-N
5.2.3	Forces and Moments on Components Type and Location of Balance Maximum Loads and Accuracy.	None.

5.3 Boundary Layer and Flow-Field Measurements

5.3.1	Boundary-Layer Probe Type, Position, and Drive Mechanism	No
5.3.2	Probe Dimension Relative to Boundary-Layer Thickness	
5.3.3	Laser-Doppler Velocimeter. Give Description of Apparatus and Accuracy	No.
5.3.4	Method and/or Instrument Used to Determine Boundary-Layer Transition	
5.3.5	Describe any Downstream Rakes or Probes Used. Reason for Use.	

- 5.4 Surface Flow Visualization
- 5.4.1 Indicate Method Used to Determine
- Streamline pattern Not in present experiments. Photographs of fluorescent oil film given for present configuration in references 4 and 5.
 - Boundary-layer transition Carborundum transition strips.
- 5.4.2 Accuracy of Method
- 5.5 Skin Friction Measurements
- 5.5.1 Type of Instrument
- 5.5.2 Geometry and Accuracy of Instrument
- 5.5.3 Locations Where Probe Used
- 5.6 Simulation of Exhaust Jet No.
- 5.6.1 Describe Ducting of Air There was internal flow through the model which simulated the mass flow ratio of the full-scale airplane.
- 5.7 Additional Remarks
6. Data
- 6.1 Accuracy
- 6.1.1 Pressure Coefficients Variable but < or > 2% of maximum and minimum values, respectively.
- 6.1.2 Aerodynamic Coefficients Variable but < or > 2% of maximum and minimum values, respectively.
- 6.1.3 Boundary Layer and Wake Quantities
- 6.1.4 Repeatability Unknown.
- 6.1.5 Additional Remarks
- 6.2 Wall Interference Corrections
- 6.2.1 Solid and Wake Blockage. Give Procedures and Equations None made. Test section sidewall inserts were added and indented in region of model to account for 40% of model cross-sectional area. (See figure 5.7).
- 6.2.2 Give Blockage Factors as Functions of Mach Number An assessment of blockage factors (for fineness ratio 8.2) can perhaps be made from the data contained in:
1. Couch, L. M.; and Brooks, C. W., Jr.: Effect of Blockage Ratio on Drag and Pressure Distributions for Bodies of Revolution at Transonic Speeds. NASA TN D-7331, Nov. 1973.
 2. Usry, J. W.; and Wallace, J. W.: Drag of a Supercritical Body of Revolution in Free Flight at Transonic Speeds and Comparison With Wind-Tunnel Data. NASA TN D-6580, 1971.
- 6.2.3 Downwash, Streamline Curvature and Lift Interference. Give Procedure and Equations. Measured α corrected for induced upwash using procedure outlined in NASA TR R-241 by R. H. Wright and R. L. Barger.

- 6.2.4 Give Lift Interference Parameters as Function of Mach Number
- 6.2.5 Reference on Wall-Interference Corrections
- 6.2.6 Additional Remarks
- 6.3 Data Presentation
 - 6.3.1 Aerodynamic Coefficients
 - C_L , C_D and C_m for wing body, figure 5.10 for conditions given in Table V.
Local C_N and C_M , Table VI.
 - 6.3.2 Surface Pressure
 - Wing and body C_p distributions, Tables VI, VII and VIII and figure 5.11.
 - 6.3.3 Flow conditions for
 - Aerodynamic coefficient data
 - C_L , C_D , and C_m plots given for Mach numbers listed in Table V.
 - Pressure data
 - Tabulated in Table V.
 - 6.3.4 Boundary Layer and/or Wake Data
 - None.
 - 6.3.5 Flow Conditions for Boundary Layer and/or Wake Data
 - 6.3.6 Wall Interference Corrections Included?
 - No.
 - 6.3.7 Aeroelastic Corrections Included?
 - No. See 4.5.2.
 - 6.3.8 Other Corrections?
 - 6.3.9 Additional Remarks
- 6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base?
 - Yes. Langley 16-Foot Transonic Tunnel.
See reference 4.

7. References

1. Harris, C. D.; and Bartlett, D. W.: Tabulated Pressure Measurements on an NASA Supercritical-Wing Research Airplane Model With and Without Fuselage Area-Rule Additions at Mach 0.25 to 1.00. NASA TM X-2634, Dec. 1972.
2. Bartlett, D. W.; and Harris, C. D.: Aerodynamic Characteristics of an NASA Supercritical-Wing Research Airplane Model With and Without Fuselage Area-Rule Additions at Mach 0.25 to 1.00. NASA TM X-2633, Dec. 1972.
3. Harris, C. D.: Wind-Tunnel Measurements of Aerodynamic Load Distribution on an NASA Supercritical-Research Airplane Configuration. NASA TM X-2469, Feb. 1972.
4. Bartlett, Dennis W. and Re, Richard, J.: Wind-Tunnel Investigation of Basic Aerodynamic Characteristics of a Supercritical-Wing Research Airplane Configuration. NASA TM X-2470, Feb. 1972.
5. Kelly, T. C.; and Whitcomb, R. T.: Evolution of the F-8 Supercritical Wing Configuration. Supercritical Wing Technology, A Progress Report on Flight Evaluations. NASA SP-301, pp. 35-47, 1972.
6. Montoya, L. C.; and Banner, R. D.: F-8 Supercritical Wing Flight Pressure, Boundary Layer and Wake Measurements and Comparison With Wind Tunnel Data. NASA TM X-3544, June 1977.
7. Pyle, J. S.; and Steers, L. L.: Flight Determined Lift and Drag Characteristics of an F-8 Airplane Modified With a Supercritical Wing With Comparisons to Wind Tunnel Results. NASA TM X-3250, June 1975.

8. List of Symbols

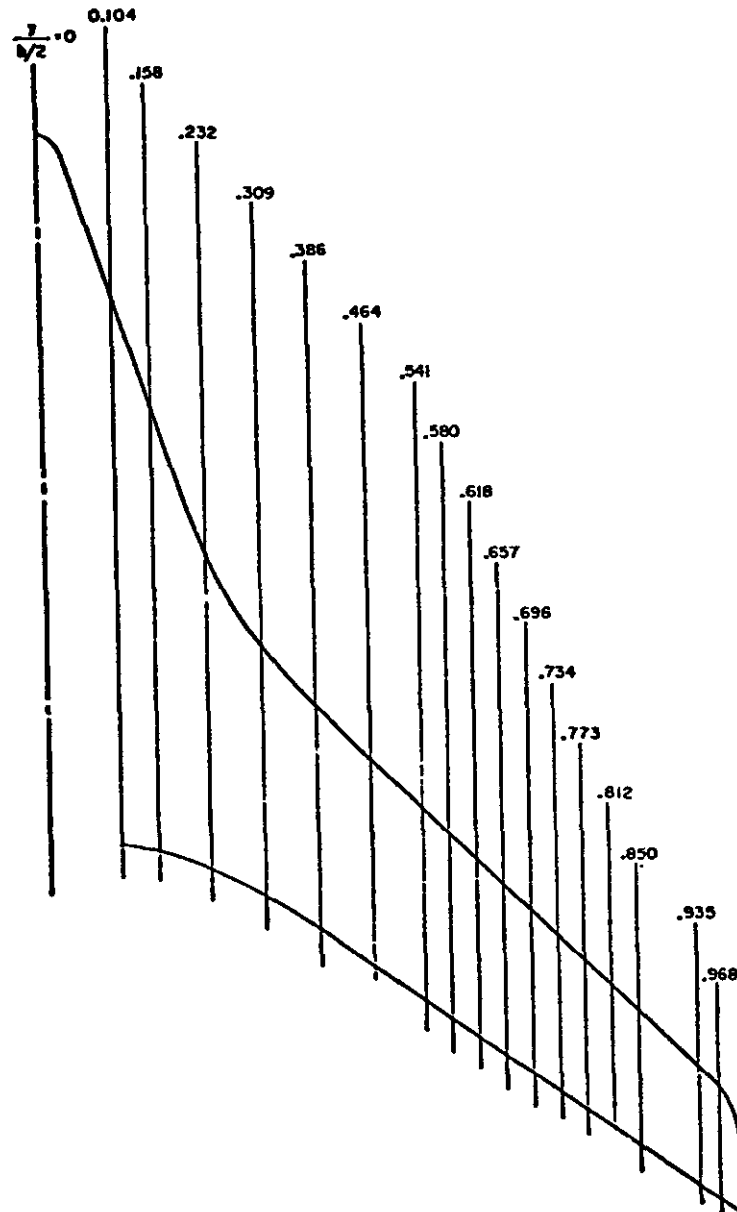
A	aspect ratio
b	wing span
b'/2	unsupported semispan (distance from outer face of wing mounting)
c	airfoil section chord of basic wing panel, measured parallel to plane of symmetry.
c'	local streamwise chord of total wing planform which includes leading-edge glove and trailing-edge extension
$\bar{c}$	wing mean aerodynamic chord
C_m	wing section pitching-moment coefficient about 0.25c, $\int_0^1 (C_{p,L} - C_{p,U}) \left(0.25 - \frac{x}{c}\right) d\left(\frac{x}{c}\right)$
C_n	wing section normal-force coefficient, $\int_0^1 (C_{p,L} - C_{p,U}) d\left(\frac{x}{c}\right)$
C_p	pressure coefficient
$C_{p,sonic}$	pressure coefficient corresponding to local Mach number of 1.0
C_L	lift coefficient, $\frac{Lift}{qS}$
C_D	drag coefficient, $\frac{Drag}{qS}$
C_m	pitching-moment coefficient, $\frac{Pitching\ moment\ about\ \bar{c}/4}{qS\bar{c}}$
C_N	normal-force coefficient, $\frac{Normal\ force}{qs}$
C_A	axial-force coefficient, $\frac{Axial\ force}{qS}$
D	diameter
l	body length
M	Mach number
q	free-stream dynamic pressure
R	Reynolds number based on $\bar{c}$
S	total wing area
$\tilde{u}, \tilde{v}, \tilde{w}$	fluctuating velocity components
U_∞	free stream velocity
x	distance measured from leading edge of wing or from nose of body, positive rearward
x'	streamwise distance measured from leading edge of total wing planform
y	spanwise distance measured from body centerline
y'	spanwise distance measured from outer face of wing mounting block
z'	vertical distance measured from model reference water line 26.205 cm (10.317in.)

$\frac{\partial \Delta \alpha}{\partial n}$	wing-twist influence coefficient due to normal load at c/4 point
$\frac{\partial \Delta \alpha}{\partial m}$	wing-twist influence coefficient due to moment about c/4 point
α	angle of attack of wing-body centerline
$\Delta \alpha$	angle of attack of wing station minus angle of attack of wing-body centerline
δ	vertical wing deflection under load
δ_h	horizontal-tail deflection angle referred to a model water line, positive when trailing edge down, deg
θ	circumferential location of pressure orifices on rear of fuselage, deg
ϕ	built-in twist angle
Subscripts:	
L	lower surface
U	upper surface

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS

(a) Wing planform coordinate layout

(b) $\frac{Y}{b/2} = 0.104$; $c' = 45.839$ cm (18.047 in.)



(c) $\frac{y}{b/2} = 0.158$; $c' = 36.873$ cm (14.517 in.)

(b) $\frac{y}{b/2} = 0.104$; $c' = 45.839$ cm (18.047 in.) -- Concluded

x'/c'	z'/c'		x'/c'	z'/c'		x'/c'	z'/c'	
	Upper surface	Lower surface		Upper surface	Lower surface		Upper surface	Lower surface
0.2156	0.0896	-0.0189	0.3833	0.0876	-0.0238	0.1373	0.0834	-0.0104
0.2187	0.0897	-0.0191	0.3875	0.0873	-0.0238	0.1403	0.0837	-0.0107
0.2219	0.0899	-0.0193	0.3917	0.0871	-0.0238	0.1433	0.0839	-0.0110
0.2251	0.0900	-0.0195	0.3959	0.0868	-0.0237	0.1463	0.0842	-0.0113
0.2283	0.0902	-0.0197	0.4001	0.0865	-0.0237	0.1493	0.0844	-0.0116
0.2315	0.0903	-0.0200	0.4044	0.0861	-0.0236	0.1523	0.0846	-0.0118
0.2348	0.0905	-0.0201	0.4087	0.0858	-0.0235	0.1552	0.0848	-0.0121
0.2380	0.0906	-0.0203	0.4130	0.0855	-0.0234	0.1582	0.0851	-0.0124
0.2413	0.0907	-0.0205	0.4173	0.0851	-0.0234	0.1612	0.0853	-0.0127
0.2446	0.0908	-0.0206	0.4217	0.0848	-0.0232	0.1642	0.0855	-0.0129
0.2480	0.0909	-0.0208	0.4261	0.0844	-0.0230	0.1672	0.0857	-0.0132
0.2513	0.0910	-0.0210	0.4305	0.0841	-0.0230	0.1702	0.0859	-0.0135
0.2547	0.0911	-0.0212	0.4349	0.0837	-0.0229	0.1732	0.0860	-0.0137
0.2581	0.0911	-0.0213	0.4393	0.0834	-0.0229	0.1761	0.0862	-0.0139
0.2616	0.0912	-0.0215	0.4437	0.0831	-0.0228	0.1791	0.0864	-0.0142
0.2650	0.0912	-0.0216	0.4481	0.0828	-0.0227	0.1821	0.0865	-0.0144
0.2685	0.0913	-0.0218	0.4525	0.0825	-0.0226	0.1851	0.0867	-0.0146
0.2720	0.0913	-0.0219	0.4569	0.0822	-0.0225	0.1881	0.0868	-0.0148
0.2755	0.0913	-0.0220	0.4613	0.0819	-0.0224	0.1911	0.0869	-0.0151
0.2791	0.0913	-0.0222	0.4657	0.0816	-0.0223	0.1941	0.0871	-0.0153
0.2826	0.0913	-0.0223	0.4701	0.0813	-0.0222	0.1970	0.0872	-0.0155
0.2862	0.0913	-0.0224	0.4745	0.0810	-0.0221	0.2000	0.0873	-0.0157
0.2898	0.0913	-0.0225	0.4789	0.0807	-0.0220	0.2030	0.0874	-0.0159
0.2935	0.0912	-0.0226	0.4833	0.0804	-0.0219	0.2060	0.0874	-0.0161
0.2971	0.0912	-0.0227	0.4877	0.0801	-0.0218	0.2090	0.0875	-0.0162
0.3008	0.0912	-0.0228	0.4921	0.0798	-0.0217	0.2120	0.0876	-0.0164
0.3045	0.0911	-0.0229	0.4965	0.0795	-0.0216	0.2149	0.0877	-0.0166
0.3082	0.0910	-0.0230	0.5009	0.0792	-0.0215	0.2179	0.0877	-0.0167
0.3120	0.0909	-0.0231	0.5053	0.0789	-0.0214	0.2209	0.0878	-0.0169
0.3157	0.0908	-0.0232	0.5097	0.0786	-0.0213	0.2239	0.0878	-0.0170
0.3195	0.0907	-0.0232	0.5141	0.0783	-0.0212	0.2269	0.0879	-0.0172
0.3233	0.0906	-0.0232	0.5185	0.0780	-0.0211	0.2299	0.0879	-0.0174
0.3272	0.0904	-0.0232	0.5229	0.0777	-0.0210	0.2329	0.0880	-0.0175
0.3310	0.0903	-0.0232	0.5273	0.0774	-0.0209	0.2358	0.0881	-0.0178
0.3348	0.0901	-0.0232	0.5317	0.0771	-0.0208	0.2388	0.0881	-0.0179
0.3388	0.0900	-0.0232	0.5361	0.0768	-0.0207	0.2418	0.0882	-0.0180
0.3428	0.0898	-0.0232	0.5405	0.0765	-0.0206	0.2448	0.0882	-0.0182
0.3467	0.0897	-0.0232	0.5449	0.0762	-0.0205	0.2478	0.0882	-0.0183

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS - Continued.

(d) $\frac{y}{b/2} = 0.232$;
 $c' = 26.355 \text{ cm (10.376 in.)}$

(e) $\frac{y}{b/2} = 0.309$;
 $c' = 20.808 \text{ cm (8.192 in.)}$

(f) $\frac{y}{b/2} = 0.386$;
 $c' = 18.654 \text{ cm (7.344 in.)}$

(g) $\frac{y}{b/2} = 0.464$;
 $c' = 12.537 \text{ cm (4.936 in.)}$

(h) $\frac{y}{b/2} = 0.541$;
 $c' = 16.231 \text{ cm (6.390 in.)}$

(i) $\frac{y}{b/2} = 0.580$;
 $c' = 15.624 \text{ cm (6.151 in.)}$

x'/c'	z'/c'	
	Upper surface	Lower surface
0	0.0378	0.0378
.0006	.0420	.0336
.0028	.0471	.0284
.0055	.0507	.0246
.0096	.0545	.0206
.0150	.0581	.0167
.0204	.0607	.0136
.0335	.0654	.0080
.0648	.0723	0
.0942	.0764	-.0045
.1218	.0792	-.0073
.1727	.0826	-.0109
.2184	.0843	-.0130
.2987	.0860	-.0140
.3683	.0859	-.0128
.4293	.0847	-.0105
.4835	.0827	-.0077
.5322	.0805	-.0044
.5764	.0780	-.0007
.6174	.0751	.0033
.6575	.0725	.0081
.6962	.0699	.0129
.7335	.0669	.0178
.7694	.0641	.0228
.8043	.0611	.0273
.8382	.0579	.0310
.8713	.0544	.0334
.9038	.0506	.0347
.9361	.0461	.0346
.9522	.0438	.0339
.9683	.0414	.0329
.9893	.0381	.0308
.9937	.0374	.0302
1.0000		.0293

x'/c'	z'/c'	
	Upper surface	Lower surface
0	0.0318	0.0318
.0004	.0349	.0288
.0018	.0385	.0251
.0035	.0411	.0224
.0062	.0439	.0196
.0097	.0465	.0169
.0131	.0486	.0147
.0217	.0529	.0107
.0426	.0597	.0046
.0626	.0642	.0007
.0819	.0677	-.0020
.1186	.0725	-.0063
.1530	.0758	-.0091
.2174	.0804	-.0117
.2770	.0828	-.0122
.3329	.0837	-.0117
.3857	.0838	-.0102
.4362	.0833	-.0081
.4846	.0822	-.0054
.5318	.0807	-.0020
.5781	.0794	.0023
.6236	.0780	.0076
.6682	.0763	.0139
.7120	.0745	.0209
.7549	.0722	.0283
.7972	.0696	.0353
.8388	.0665	.0408
.8799	.0628	.0441
.9204	.0582	.0449
.9404	.0554	.0441
.9604	.0523	.0424
.9866	.0475	.0385
.9921	.0464	.0374
1.0000		.0358

x'/c'	z'/c'	
	Upper surface	Lower surface
0	0.0255	0.0255
.0002	.0282	.0229
.0013	.0314	.0196
.0025	.0337	.0173
.0044	.0361	.0148
.0069	.0384	.0124
.0094	.0402	.0106
.0156	.0435	.0074
.0310	.0492	.0024
.0462	.0532	-.0010
.0613	.0563	-.0037
.0911	.0610	-.0076
.1204	.0646	-.0103
.1777	.0697	-.0139
.2334	.0728	-.0141
.2876	.0750	-.0139
.3405	.0765	-.0129
.3922	.0773	-.0111
.4430	.0775	-.0088
.4927	.0775	-.0057
.5417	.0773	-.0017
.5898	.0768	.0034
.6373	.0760	.0099
.6842	.0749	.0179
.7306	.0733	.0266
.7765	.0712	.0355
.8220	.0688	.0427
.8671	.0655	.0471
.9118	.0610	.0481
.9341	.0582	.0471
.9562	.0549	.0448
.9852	.0495	.0397
.9913	.0482	.0383
1.0000		.0364

x'/c'	z'/c'	
	Upper surface	Lower surface
0	0.0193	0.0193
.0002	.0218	.0168
.0012	.0248	.0137
.0023	.0270	.0115
.0041	.0294	.0091
.0064	.0316	.0068
.0088	.0332	.0051
.0146	.0367	.0020
.0291	.0420	-.0029
.0435	.0459	-.0062
.0578	.0488	-.0087
.0862	.0530	-.0122
.1143	.0561	-.0145
.1697	.0610	-.0170
.2241	.0645	-.0177
.2776	.0673	-.0173
.3304	.0694	-.0161
.3824	.0707	-.0144
.4338	.0720	-.0119
.4846	.0729	-.0085
.5347	.0734	-.0045
.5841	.0735	.0008
.6329	.0732	.0055
.6810	.0725	.0156
.7284	.0714	.0250
.7752	.0700	.0341
.8213	.0677	.0416
.8669	.0646	.0464
.9118	.0603	.0476
.9341	.0576	.0464
.9562	.0542	.0438
.9852	.0487	.0388
.9913	.0474	.0374
1.0000		.0352

x'/c'	z'/c'	
	Upper surface	Lower surface
0	0.0122	0.0122
.0002	.0146	.0097
.0011	.0175	.0068
.0023	.0197	.0046
.0040	.0219	.0023
.0063	.0240	.0001
.0086	.0257	-.0015
.0143	.0289	-.0046
.0286	.0343	-.0093
.0429	.0380	-.0123
.0570	.0410	-.0145
.0852	.0454	-.0177
.1132	.0488	-.0193
.1686	.0540	-.0215
.2232	.0578	-.0218
.2770	.0608	-.0211
.3300	.0633	-.0195
.3823	.0654	-.0173
.4338	.0672	-.0147
.4846	.0686	-.0112
.5347	.0694	-.0069
.5841	.0700	-.0013
.6329	.0704	.0055
.6810	.0702	.0141
.7284	.0696	.0235
.7752	.0683	.0326
.8213	.0663	.0402
.8669	.0635	.0452
.9118	.0592	.0463
.9341	.0565	.0452
.9562	.0531	.0427
.9852	.0475	.0376
.9913	.0462	.0362
1.0000		.0339

x'/c'	z'/c'	
	Upper surface	Lower surface
0	0.0082	0.0082
.0002	.0106	.0058
.0011	.0135	.0029
.0023	.0156	.0008
.0040	.0178	-.0015
.0063	.0199	-.0037
.0086	.0216	-.0053
.0143	.0248	-.0082
.0286	.0301	-.0127
.0429	.0340	-.0157
.0570	.0369	-.0178
.0852	.0414	-.0207
.1132	.0450	-.0226
.1686	.0504	-.0241
.2232	.0545	-.0241
.2770	.0577	-.0230
.3300	.0603	-.0214
.3823	.0626	-.0191
.4338	.0646	-.0163
.4846	.0662	-.0125
.5347	.0673	-.0082
.5841	.0681	-.0025
.6329	.0687	.0045
.6810	.0688	.0129
.7284	.0686	.0225
.7752	.0676	.0318
.8213	.0656	.0395
.8669	.0628	.0444
.9118	.0586	.0455
.9341	.0559	.0445
.9562	.0525	.0421
.9852	.0484	.0385
.9913	.0454	.0354
1.0000		.0331

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS - Continued

(j) $\frac{y}{b/2} = 0.618$; $c' = 15.019$ cm (5.913 in.) (k) $\frac{y}{b/2} = 0.657$; $c' = 14.412$ cm (5.674 in.) (l) $\frac{y}{b/2} = 0.696$; $c' = 13.807$ cm (5.436 in.) (m) $\frac{y}{b/2} = 0.734$; $c' = 13.200$ cm (5.197 in.) (n) $\frac{y}{b/2} = 0.773$; $c' = 12.596$ cm (4.959 in.) (o) $\frac{y}{b/2} = 0.812$; $c' = 11.989$ cm (4.720 in.)

x'/c'	z'/c'		x'/c'	z'/c'		x'/c'	z'/c'		x'/c'	z'/c'		x'/c'	z'/c'		x'/c'	z'/c'	
	Upper surface	Lower surface		Upper surface	Lower surface		Upper surface	Lower surface		Upper surface	Lower surface		Upper surface	Lower surface		Upper surface	Lower surface
0	0.0043	0.0043	0	0.0002	0.0002	0	-0.0041	-0.0041	0	-0.0085	-0.0085	0	-0.0128	-0.0128	0	-0.0173	-0.0173
.0002	.0066	.0019	.0002	.0025	.0022	.0002	.0018	.0064	.0002	.0063	.0108	.0002	.0106	.0151	.0002	.0151	.0196
.0012	.0095	.0010	.0011	.0054	.0050	.0011	.0010	.0092	.0011	.0035	.0136	.0011	.0078	.0178	.0011	.0124	.0223
.0023	.0116	.0031	.0023	.0074	.0071	.0023	.0031	.0112	.0023	.0015	.0156	.0023	.0059	.0198	.0023	.0105	.0242
.0040	.0138	.0053	.0040	.0096	.0093	.0040	.0052	.0134	.0040	.0006	.0177	.0040	.0038	.0219	.0040	.0085	.0263
.0063	.0158	.0075	.0063	.0116	.0114	.0063	.0072	.0155	.0063	.0025	.0209	.0063	.0019	.0239	.0063	.0066	.0282
.0086	.0174	.0091	.0086	.0131	.0129	.0086	.0087	.0170	.0086	.0041	.0212	.0086	.0002	.0253	.0086	.0049	.0296
.0143	.0205	.0119	.0143	.0162	.0160	.0143	.0119	.0201	.0143	.0074	.0239	.0143	.0029	.0282	.0143	.0018	.0325
.0286	.0259	.0164	.0286	.0218	.0201	.0286	.0175	.0241	.0286	.0130	.0282	.0286	.0083	.0322	.0286	.0035	.0363
.0429	.0298	.0194	.0429	.0256	.0230	.0429	.0214	.0266	.0429	.0170	.0305	.0429	.0121	.0344	.0429	.0072	.0384
.0570	.0328	.0213	.0570	.0287	.0250	.0570	.0244	.0285	.0570	.0199	.0321	.0570	.0151	.0361	.0570	.0104	.0416
.0852	.0374	.0239	.0852	.0333	.0273	.0852	.0291	.0306	.0852	.0246	.0340	.0852	.0199	.0377	.0852	.0153	.0460
.1132	.0411	.0255	.1132	.0370	.0286	.1132	.0328	.0313	.1132	.0285	.0352	.1132	.0241	.0387	.1132	.0194	.0425
.1686	.0467	.0268	.1686	.0428	.0294	.1686	.0388	.0325	.1686	.0347	.0357	.1686	.0305	.0389	.1686	.0258	.0425
.2232	.0509	.0265	.2232	.0472	.0289	.2232	.0434	.0317	.2232	.0394	.0347	.2232	.0353	.0377	.2232	.0309	.0411
.2770	.0543	.0251	.2770	.0507	.0274	.2770	.0469	.0299	.2770	.0432	.0327	.2770	.0393	.0356	.2770	.0352	.0388
.3300	.0571	.0233	.3300	.0538	.0253	.3300	.0503	.0277	.3300	.0467	.0304	.3300	.0430	.0332	.3300	.0389	.0362
.3823	.0597	.0209	.3823	.0564	.0229	.3823	.0530	.0251	.3823	.0497	.0274	.3823	.0461	.0300	.3823	.0422	.0329
.4338	.0618	.0180	.4338	.0588	.0199	.4338	.0557	.0219	.4338	.0525	.0240	.4338	.0491	.0263	.4338	.0454	.0288
.4846	.0637	.0142	.4846	.0608	.0159	.4846	.0579	.0178	.4846	.0550	.0198	.4846	.0518	.0220	.4846	.0482	.0244
.5347	.0650	.0097	.5347	.0626	.0112	.5347	.0600	.0129	.5347	.0572	.0148	.5347	.0541	.0169	.5347	.0506	.0191
.5841	.0661	.0039	.5841	.0639	.0053	.5841	.0616	.0069	.5841	.0590	.0127	.5841	.0561	.0105	.5841	.0528	.0127
.6329	.0669	.0033	.6329	.0650	.0018	.6329	.0627	.0004	.6329	.0603	.0012	.6329	.0578	.0031	.6329	.0548	.0052
.6810	.0673	.0117	.6810	.0656	.0106	.6810	.0636	.0093	.6810	.0614	.0077	.6810	.0590	.0058	.6810	.0561	.0037
.7284	.0672	.0216	.7284	.0657	.0205	.7284	.0640	.0191	.7284	.0620	.0174	.7284	.0596	.0154	.7284	.0570	.0133
.7752	.0664	.0308	.7752	.0650	.0297	.7752	.0636	.0284	.7752	.0619	.0268	.7752	.0598	.0249	.7752	.0574	.0227
.8213	.0647	.0385	.8213	.0636	.0374	.8213	.0623	.0350	.8213	.0608	.0345	.8213	.0590	.0328	.8213	.0568	.0306
.8669	.0620	.0437	.8669	.0610	.0425	.8669	.0599	.0411	.8669	.0587	.0396	.8669	.0569	.0378	.8669	.0548	.0357
.9118	.0579	.0416	.9118	.0570	.0436	.9118	.0559	.0424	.9118	.0546	.0409	.9118	.0531	.0384	.9118	.0514	.0374
.9341	.0551	.0436	.9341	.0543	.0404	.9341	.0532	.0414	.9341	.0520	.0400	.9341	.0505	.0384	.9341	.0489	.0366
.9562	.0518	.0414	.9562	.0509	.0404	.9562	.0493	.0393	.9562	.0485	.0379	.9562	.0471	.0364	.9562	.0455	.0347
.9782	.0476	.0376	.9782	.0467	.0367	.9782	.0457	.0357	.9782	.0445	.0344	.9782	.0431	.0330	.9782	.0414	.0314
.9913	.0445	.0346	.9913	.0436	.0336	.9913	.0426	.0326	.9913	.0414	.0314	.9913	.0398	.0301	.9913	.0382	.0286
1.0000		.0322	1.0000		.0312	1.0000		.0302	1.0000		.0290	1.0000		.0276	1.0000		.0261

TABLE I.- WING COORDINATES ALONG STREAMWISE CHORDS - Concluded.

(p) $\frac{y}{b/2} = 0.850$; $c' = 11.382$ cm (4.481 in.)
(q) $\frac{y}{b/2} = 0.935$; $c' = 10.051$ cm (3.957 in.)
(r) $\frac{y}{b/2} = 0.968$; $c' = 9.467$ cm (3.727 in.)

x'/c'	z'/c'	
	Upper surface	Lower surface
0	-0.0221	-0.0221
.0002	-.0199	-.0243
.0011	-.0172	-.0270
.0023	-.0153	-.0289
.0040	-.0133	-.0309
.0063	-.0115	-.0328
.0086	-.0099	-.0342
.0143	-.0068	-.0368
.0286	-.0014	-.0405
.0429	.0025	-.0425
.0570	.0057	-.0440
.0852	.0105	-.0458
.1132	.0144	-.0467
.1686	.0208	-.0465
.2232	.0261	-.0448
.2770	.0304	-.0424
.3300	.0344	-.0394
.3823	.0379	-.0361
.4338	.0411	-.0318
.4846	.0440	-.0271
.5347	.0466	-.0217
.5841	.0493	-.0153
.6329	.0513	-.0077
.6810	.0529	.0014
.7284	.0541	.0109
.7752	.0547	.0202
.8213	.0542	.0282
.8669	.0526	.0334
.9118	.0494	.0353
.9341	.0469	.0347
.9562	.0438	.0329
.9782	.0397	.0296
.9913	.0367	.0269
1.0000		.0246

x'/c'	z'/c'	
	Upper surface	Lower surface
0	-0.0330	-0.0330
.0002	-.0309	-.0352
.0011	-.0283	-.0378
.0023	-.0264	-.0397
.0040	-.0245	-.0416
.0063	-.0227	-.0434
.0086	-.0213	-.0448
.0143	-.0185	-.0473
.0286	-.0133	-.0509
.0429	-.0094	-.0532
.0570	-.0064	-.0549
.0852	-.0014	-.0568
.1132	.0026	-.0574
.1686	.0090	-.0568
.2232	.0143	-.0546
.2770	.0189	-.0519
.3300	.0231	-.0481
.3823	.0271	-.0441
.4338	.0307	-.0395
.4846	.0340	-.0343
.5347	.0371	-.0287
.5841	.0401	-.0221
.6329	.0426	-.0141
.6810	.0447	-.0050
.7284	.0465	.0043
.7752	.0477	.0135
.8213	.0477	.0215
.8669	.0468	.0274
.9118	.0441	.0299
.9341	.0419	.0295
.9562	.0393	.0277
.9852	.0342	.0233
.9913	.0330	.0221
1.0000		.0202

x'/c'	z'/c'	
	Upper surface	Lower surface
0	-0.0382	-0.0382
.0002	-.0362	-.0405
.0011	-.0339	-.0432
.0023	-.0321	-.0450
.0040	-.0301	-.0467
.0063	-.0282	-.0484
.0086	-.0266	-.0497
.0143	-.0235	-.0522
.0286	-.0180	-.0558
.0429	-.0410	-.0580
.0570	-.0108	-.0598
.0852	-.0057	-.0618
.1132	-.0014	-.0622
.1686	.0052	-.0611
.2232	.0102	-.0590
.2770	.0147	-.0560
.3330	.0188	-.0521
.3823	.0230	-.0478
.4338	.0268	-.0428
.4846	.0303	-.0373
.5347	.0338	-.0314
.5841	.0368	-.0247
.6329	.0395	-.0166
.6810	.0417	-.0075
.7284	.0434	.0015
.7752	.0446	.0101
.8213	.0453	.0185
.8669	.0448	.0248
.9118	.0425	.0278
.9341	.0403	.0274
.9562	.0374	.0258
.9852	.0322	.0215
.9913	.0310	.0203
1.0000		.0184

TABLE II.- TUNNEL TEST CONDITIONS

Mach number	Temperature		Reynolds number		Dynamic pressure	
	K	°F	per m	per ft	N/m ²	lb/ft ²
1.00	322	120	14.8 x 10 ⁶	4.5 x 10 ⁶	40 698	850
.99	322	120	14.8	4.5	40 698	850
.98	322	120	14.8	4.5	40 698	850
.97	322	120	14.8	4.5	40 698	850
.95	322	120	15.1	4.6	40 698	850
.90	322	120	15.7	4.8	40 698	850
.80	322	120	17.1	5.2	40 698	850
.50	322	120	13.1	4.0	21 546	450
.25	322	120	10.2	3.1	8 571	179

TABLE III.- LOCATION OF PRESSURE ORIFICES ON MODEL

Orifices on wing

[c in cm (in.)]

Wing orifice location, $\frac{x}{c}$, at semispan station, $\frac{y}{b/2}$, of -					
0.133 (c = 22.614) (8.903)	0.307 (c = 19.883) (7.828)	0.480 (c = 17.160) (6.756)	0.653 (c = 14.442) (5.686)	0.804 (c = 12.070) (4.752)	0.933 (c = 10.043) (3.954)
Right-wing upper surface					
-0.660	-0.021	0.023	0.025	0.022	0.018
-.567	.035	.068	.079	.075	.077
-.452	.105	.134	.133	.129	.129
-.311	.178	.209	.214	.201	.209
-.023	.286	.294	.295	.294	.293
.133	.396	.404	.407	.397	.494
.272	.514	.497	.502	.495	.590
.416	.618	.599	.601	.594	.693
.565	.733	.700	.698	.693	.777
.713	.835	.864	.863	.784	.861
.854	.919	.926	.923	.856	.918
.980	.987	.975	.977	.926	.972
1.074				.977	
1.122					
Left-wing lower surface					
-0.660	-0.022	0.024	0.025	0.019	0.020
-.616	.038	.075	.074	.066	.076
-.572	.101	.297	.130	.136	.136
-.462	.185	.400	.298	.214	.221
-.329	.398	.304	.397	.292	.295
-.172	.737	.785	.501	.403	.396
-.030		.967	.603	.489	.497
.128		1.000	.703	.594	.597
.418			.784	.700	.702
.564			.868	.786	.786
.710			.923	.858	.864
.976			.972	.919	.912
1.072				.967	.985
1.110					

Orifices on wing

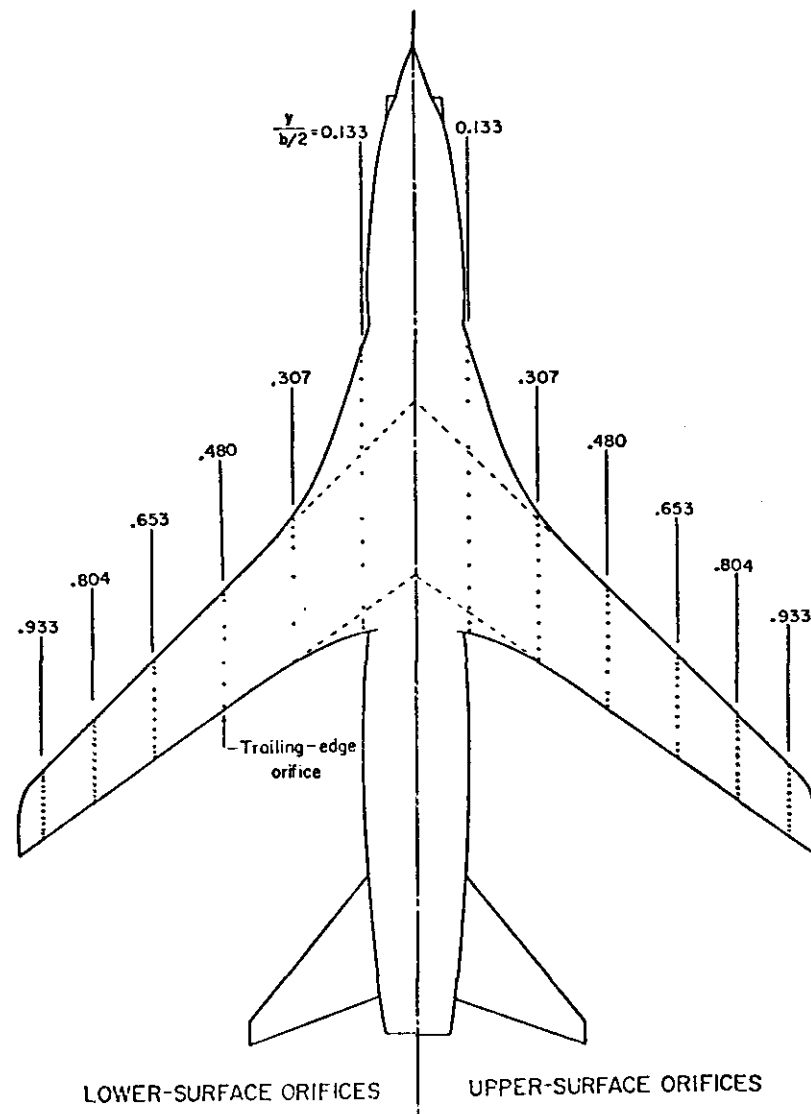
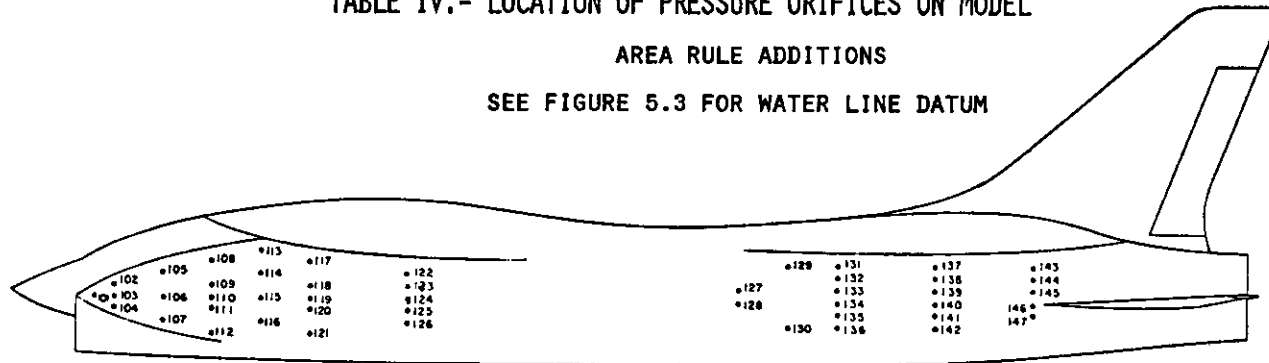


TABLE IV.- LOCATION OF PRESSURE ORIFICES ON MODEL

AREA RULE ADDITIONS

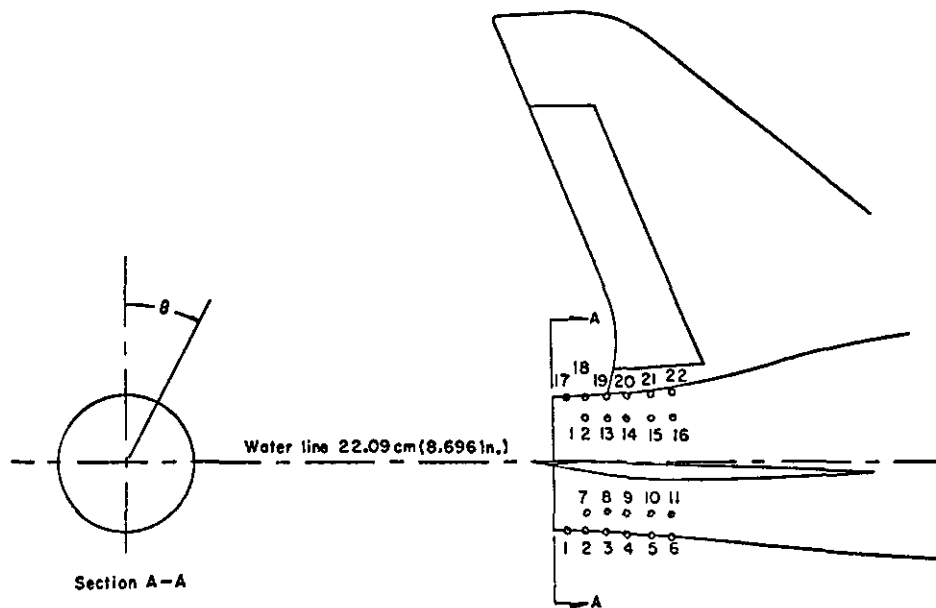
SEE FIGURE 5.3 FOR WATER LINE DATUM



Fore fuselage area-rule addition					Aft fuselage area-rule addition				
Orifice	Model fuselage station		Model water line		Orifice	Model fuselage station		Model water line	
	cm	in.	cm	in.		cm	in.	cm	in.
101	30.92	12.17	20.75	8.17	127	103.81	40.87	22.10	8.70
102	33.12	13.04	22.10	8.70	128	103.81	40.87	20.75	8.17
103	33.12	13.04	20.75	8.17	129	109.32	43.04	24.74	9.74
104	33.12	13.04	19.43	7.65	130	109.32	43.04	18.11	7.13
105	38.66	15.22	23.42	9.22	131	114.88	45.22	24.74	9.74
106	38.66	15.22	20.75	8.17	132	114.86	45.22	23.42	9.22
107	38.66	15.22	18.11	7.13	133	114.86	45.22	22.10	8.70
108	44.17	17.39	24.74	9.74	134	114.86	45.22	20.75	8.17
109	44.17	17.39	22.10	8.70	135	114.86	45.22	19.43	7.65
110	44.17	17.39	20.75	8.17	136	114.86	45.22	18.11	7.13
111	44.17	17.39	19.43	7.65	137	125.91	49.57	24.74	9.74
112	44.17	17.39	16.79	6.61	138	125.91	49.57	23.42	9.22
113	49.71	19.57	26.06	10.26	139	125.91	49.57	22.10	8.70
114	49.71	19.57	23.42	9.22	140	125.91	49.57	20.75	8.17
115	49.71	19.57	20.75	8.17	141	125.91	49.57	19.43	7.65
116	49.71	19.57	18.11	7.13	142	125.91	49.57	18.11	7.13
117	55.22	21.74	24.74	9.74	143	136.93	53.91	24.74	9.74
118	55.22	21.74	22.10	8.70	144	136.93	53.91	23.42	9.22
119	55.22	21.74	20.75	8.17	145	136.93	53.91	22.10	8.70
120	55.22	21.74	19.43	7.65	146	136.93	53.91	20.75	8.17
121	55.22	21.74	16.79	6.61	147	136.93	53.91	19.43	7.65
122	66.27	26.09	23.42	9.22					
123	66.27	26.09	22.10	8.70					
124	66.27	26.09	20.75	8.17					
125	66.27	26.09	19.43	7.65					
126	66.27	26.09	18.11	7.13					

TABLE IV.- LOCATION OF PRESSURE ORIFICES ON MODEL - Concluded.

Orifices on rear of fuselage



Orifices on rear of fuselage

Orifice	θ , deg	Model fuselage station	
		cm	in.
1	179.7	160.45	63.17
2	179.7	159.08	62.63
3	179.7	157.56	62.03
4	181.0	156.13	61.47
5	180.6	154.25	60.73
6	179.8	152.88	60.19
7	137.1	159.16	62.66
8	137.3	157.84	62.14
9	136.6	156.21	61.50
10	135.5	154.61	60.87
11	135.2	152.96	60.22
12	45.1	159.16	62.66
13	45.7	157.63	62.06
14	45.5	156.06	61.44
15	45.2	154.36	60.77
16	45.1	152.38	60.19
17	8.1	160.78	63.30
18	8.2	159.03	62.61
19	8.6	157.56	62.03
20	9.2	156.01	61.42
21	8.6	154.28	60.74
22	9.6	153.01	60.24

TABLE V.- TEST CONDITIONS FOR TABULATED DATA *

M	α , deg	C_L
0.50	-4.08	-0.339
	0	0.039
	4.0	0.396
	8.0	0.73
	11.07	0.952
0.80	-3.98	-0.372
	0.03	-0.034
	4.02	0.427
	8.14	0.792
	11.22	0.990
0.90	-3.82	-0.389
	0.02	0.024
	3.97	0.461
	8.17	0.863
0.95	-3.97	-0.440
	-0.09	0.012
	3.96	0.495
	8.15	0.902
0.99	-3.96	-0.459
	-0.05	-0.004
	3.43	0.440
	7.99	0.893

*Angles of attack slightly different for side-fuselage pressure data in Table VIII.

 TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$
 $M = 0.50$

$\alpha = -4.08^\circ$; $C_L = -0.339$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	.035	-.021	.299	.023	.360	.025	.373	.022	.459	.018	.499
-.567	-.007	.035	.124	.066	.184	.079	.217	.075	.253	.077	.197
-.452	-.076	.105	.660	.134	.099	.133	.147	.129	.185	.129	.182
-.311	-.119	.170	.013	.209	.046	.214	.092	.201	.120	.209	.117
-.023	-.099	.266	-.023	.294	.018	.295	.049	.294	.081	.293	.059
.133	-.041	.396	-.043	.404	-.010	.407	.014	.397	.040	.494	-.016
.272	-.021	.514	-.032	.497	-.044	.502	-.029	.495	-.003	.590	-.055
.416	.006	.616	-.060	.599	-.065	.601	-.056	.594	-.046	.693	-.096
.565	.006	.733	-.065	.700	-.105	.658	-.100	.693	-.088	.777	-.133
.713	.012	.835	-.091	.864	-.144	.863	-.167	.784	-.133	.861	-.133
.854	-.012	.919	-.080	.926	-.125	.923	-.147	.856	-.158	.918	-.140
.980	-.026	.967	-.048	.975	-.057	.977	-.057	.926	-.153	.972	-.061
1.074	-.041							.977	-.042		
1.122	-.023										
LOWER SURFACE											
-.663	-.068	-.022	-.627	.024	-1.292	.025	-1.911	.019	-2.183	.020	-1.642
-.616	-.164	.038	-.677	.075	-.896	.130	-.692	.066	-1.082	.076	-1.157
-.572	-.210	.101	-.585	.257	-.386	.258	-.384	.136	-.695	.136	-.936
-.462	-.217	.185	-.469	.400	-.310	.357	-.306	.214	-.485	.221	-.472
-.367	-.207	.393	-.255	.604	-.191	.501	-.236	.292	-.389	.295	-.394
-.172	-.175	.737	.025	.785	.065	.603	-.096	.403	-.308	.396	-.267
-.030	-.249			.567	.170	.703	.013	.489	-.262	.497	-.174
.128	-.292			1.000	.043	.784	.059	.594	-.171	.597	-.090
.418	-.202					.868	.142	.700	-.030	.702	.006
.564	-.136					.923	.158	.786	.048	.786	.049
.710	-.015					.972	.122	.858	.089	.864	.075
.976	.175							.919	.145	.912	.089
1.072	.172							.967	.114		
1.110	.135										
CN=	-.1590	-.2158		-.2867		-.3294		-.3574		-.3363	
CM=	-.0684	-.0497		-.0649		-.0819		-.0702		-.0720	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.
 $M = 0.50$

$\alpha = 0^\circ; C_L = 0.030$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.006	-.021	-.082	.023	-.142	.025	-.092	.022	-.043	.018	.153
-.567	-.108	.035	-.249	.068	-.188	.079	-.143	.075	-.095	.077	-.152
-.452	-.193	.105	-.230	.134	-.184	.133	-.138	.129	-.096	.129	-.065
-.311	-.235	.178	-.239	.209	-.195	.214	-.145	.201	-.116	.209	-.072
-.023	-.198	.286	-.220	.294	-.183	.295	-.140	.294	-.108	.293	-.097
.133	-.146	.396	-.196	.404	-.170	.407	-.149	.397	-.113	.494	-.112
.272	-.114	.514	-.154	.497	-.169	.502	-.154	.495	-.137	.590	-.134
.416	-.080	.618	-.163	.599	-.179	.601	-.171	.594	-.159	.693	-.163
.565	-.057	.733	-.142	.700	-.191	.698	-.198	.693	-.183	.777	-.182
.713	-.050	.835	-.139	.864	-.201	.863	-.225	.784	-.211	.861	-.172
.854	-.060	.919	-.119	.926	-.154	.923	-.169	.856	-.216	.918	-.182
.980	-.060	.987	-.049	.975	-.068	.977	-.050	.926	-.184	.972	-.058
1.074	-.061							.977	-.057		
1.122	-.032										
LCNEF SURFACE											
-.660	.055	-.022	-.025	.024	-.226	.025	-.287	.019	-.561	.020	-.523
-.616	-.036	.038	-.209	.075	-.316	.130	-.276	.066	-.458	.076	-.459
-.572	-.061	.101	-.217	.257	-.212	.298	-.187	.136	-.343	.136	-.371
-.462	-.095	.185	-.202	.400	-.155	.397	-.176	.214	-.227	.221	-.225
-.329	-.095	.398	-.151	.604	-.113	.501	-.140	.292	-.186	.295	-.184
-.172	-.091	.737	.076	.785	.135	.603	-.052	.403	-.163	.396	-.150
-.030	-.157			.967	.163	.703	.041	.489	-.149	.497	-.114
.128	-.190			1.000	.019	.784	.127	.594	-.114	.597	-.058
.418	-.167					.868	.181	.700	.034	.702	.065
.564	-.054					.923	.208	.786	.138	.786	.151
.710	.052					.972	.155	.858	.207	.864	.209
.976	.260							.919	.216	.912	.213
1.072	.175							.967	.143		
1.110	.132										
CN=	.1399		.0990		.0844		.0808		.0278		.0203
CM=	-.0292		-.0479		-.0653		-.0726		-.0776		-.0786

$\alpha = 4.00^\circ; C_L = 0.396$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.096	-.021	-.799	.023	-1.072	.025	-.855	.022	-.804	.018	-.708
-.567	-.256	.035	-.653	.068	-.702	.079	-.630	.075	-.586	.077	-.630
-.452	-.332	.105	-.556	.134	-.526	.133	-.514	.129	-.450	.129	-.378
-.311	-.347	.178	-.486	.209	-.449	.214	-.396	.201	-.359	.209	-.283
-.023	-.297	.286	-.393	.294	-.382	.295	-.338	.294	-.311	.293	-.249
.133	-.237	.396	-.331	.404	-.317	.407	-.304	.397	-.272	.494	-.204
.272	-.194	.514	-.258	.497	-.292	.502	-.289	.495	-.263	.590	-.214
.416	-.162	.618	-.236	.599	-.265	.601	-.270	.594	-.263	.693	-.223
.565	-.118	.733	-.194	.700	-.265	.698	-.286	.693	-.264	.777	-.238
.713	-.104	.835	-.163	.864	-.220	.863	-.256	.784	-.272	.861	-.209
.854	-.115	.919	-.119	.926	-.162	.923	-.188	.856	-.263	.918	-.182
.980	-.166	.987	-.041	.975	-.065	.977	-.064	.926	-.191	.972	-.073
1.074	-.085							.977	-.053		
1.122	-.048										
LOWER SURFACE											
-.660	.093	-.022	.339	.024	.320	.025	.283	.019	.306	.020	.279
-.616	.072	.038	.145	.075	.107	.130	.030	.066	.055	.076	.009
-.572	.054	.101	.042	.297	-.043	.298	-.019	.136	-.004	.136	-.037
-.462	.019	.185	.000	.400	-.033	.397	-.032	.214	-.007	.221	-.066
-.329	.006	.398	-.025	.604	-.047	.501	-.037	.292	-.025	.295	-.061
-.172	-.001	.737	.112	.785	.164	.603	.025	.403	-.032	.396	-.044
-.030	-.056			.967	.161	.703	.075	.489	-.045	.497	-.048
.128	-.084			1.000	-.004	.784	.153	.594	-.045	.597	-.020
.418	-.018					.868	.231	.700	.081	.702	.079
.564	.026					.923	.270	.786	.171	.786	.154
.710	.111					.972	.166	.858	.247	.864	.217
.976	.238							.919	.256	.912	.222
1.072	.196							.967	.140		
1.110	.144										
CN=	.4399		.4148		.4151		.4208		.3788		.3201
CM=	.0271		-.0391		-.0577		-.0792		-.0744		-.0663

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.
 $M = 0.50$

$\alpha = 8.00^\circ$; $C_L = 0.730$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.263	-.021	-2.287	.023	-2.607	.025	-2.205	.022	-1.602	.018	-1.445
-.567	-.426	.035	-1.244	.068	-1.362	.079	-1.221	.075	-1.398	.077	-.990
-.452	-.477	.105	-.890	.134	-1.094	.133	-.866	.129	-1.145	.129	-.841
-.311	-.465	.178	-.746	.209	-.693	.214	-.650	.201	-.727	.209	-.672
-.023	-.394	.286	-.587	.294	-.556	.295	-.529	.294	-.647	.293	-.477
.133	-.319	.396	-.466	.404	-.448	.407	-.434	.397	-.427	.494	-.309
.272	-.276	.514	-.364	.497	-.393	.502	-.377	.495	-.364	.590	-.262
.416	-.218	.618	-.296	.599	-.336	.601	-.338	.594	-.314	.693	-.239
.565	-.186	.733	-.232	.700	-.291	.698	-.312	.693	-.281	.777	-.214
.713	-.161	.835	-.165	.864	-.194	.863	-.210	.784	-.262	.861	-.175
.854	-.170	.919	-.107	.926	-.124	.923	-.150	.856	-.230	.918	-.158
.980	-.144	.587	-.056	.975	-.065	.977	-.067	.926	-.153	.972	-.088
1.074	-.115							.977	-.067		
1.122	-.068										
LOWER SURFACE											
-.660	.065	-.022	.345	.024	.531	.025	.534	.019	.520	.020	.503
-.616	.152	.038	.337	.075	.367	.130	.269	.066	.329	.076	.279
-.572	.156	.101	.259	.297	.126	.298	.125	.136	.225	.136	.168
-.462	.130	.185	.180	.400	.082	.397	.085	.214	.161	.221	.088
-.329	.110	.398	.090	.604	.015	.501	.058	.292	.112	.295	.059
-.172	.093	.737	.155	.785	.191	.603	.094	.403	.079	.396	.029
-.030	.043			.967	.153	.703	.116	.489	.038	.497	.006
.128	.010			1.000	-.046	.784	.173	.594	.023	.597	.012
.418	.073					.868	.258	.700	.104	.702	.079
.564	.104					.923	.287	.786	.188	.786	.142
.710	.165					.972	.166	.858	.250	.864	.197
.856	.283							.919	.260	.912	.197
1.072	.233							.967	.121		
1.110	.163										
CN=	.7492		.7432		.7350		.7190		.6925		.5634
CM=	.0859		-.0242		-.0376		-.0584		-.0572		-.0478

$\alpha = 11.07^\circ$; $C_L = 0.952$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.453	-.021	-2.537	.023	-1.025	.025	-2.363	.022	-.992	.018	-.509
-.567	-.573	.035	-1.425	.068	-1.494	.079	-2.075	.075	-1.038	.077	-.503
-.452	-.620	.105	-1.606	.134	-.945	.133	-1.015	.129	-.970	.129	-.471
-.311	-.587	.178	-.751	.209	-.932	.214	-.428	.201	-1.020	.209	-.456
-.023	-.474	.286	-.639	.294	-.650	.295	-.384	.294	-.999	.293	-.425
.133	-.392	.396	-.518	.404	-.812	.407	-.328	.397	-1.004	.494	-.365
.272	-.344	.514	-.357	.497	-.704	.502	-.288	.495	-.970	.590	-.338
.416	-.247	.618	-.304	.599	-.694	.601	-.311	.594	-.842	.693	-.327
.565	-.250	.733	-.225	.700	-.637	.698	-.253	.693	-.746	.777	-.306
.713	-.232	.835	-.156	.864	-.460	.863	-.258	.784	-.598	.861	-.284
.854	-.217	.919	-.106	.926	-.191	.923	-.201	.856	-.375	.918	-.284
.980	-.192	.587	-.078	.975	-.146	.977	-.233	.926	-.330	.972	-.279
1.074	-.137							.977	-.177		
1.122	-.060										
LOWER SURFACE											
-.660	.044	-.022	.193	.024	.566	.025	.528	.019	.498	.020	.512
-.616	.104	.038	.446	.075	.455	.130	.306	.066	.389	.076	.352
-.572	.214	.101	.382	.257	.166	.298	.158	.136	.284	.136	.234
-.462	.209	.185	.300	.400	.139	.397	.104	.214	.203	.221	.139
-.329	.175	.398	.168	.604	.035	.501	.060	.292	.156	.295	.091
-.172	.100	.737	.134	.785	.185	.603	.073	.403	.108	.396	.055
-.030	.015			.967	.000	.703	.065	.489	.056	.497	.011
.128	.000			1.000	-.407	.784	.116	.594	.040	.597	.010
.418	.140					.868	.215	.700	.100	.702	.071
.564	.106					.923	.247	.786	.173	.786	.125
.710	.241					.972	.058	.858	.236	.864	.178
.856	.323							.919	.231	.912	.180
1.072	.253							.967	.062		
1.110	.153										
CN=	1.0112		.9874		.9111		.7276		.9722		.5131
CM=	.1263		-.0018		-.1120		-.0379		-.1574		-.0915

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.

M = 0.80

$\alpha = -3.98^\circ$; $C_L = -0.372$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	.028	-.021	.310	.023	.339	.025	.326	.022	.420	.018	.460
-.567	-.002	.035	.135	.068	.182	.079	.190	.075	.209	.077	.129
-.452	-.091	.105	.067	.134	.089	.133	.122	.129	.142	.129	.132
-.311	-.134	.178	-.012	.209	.039	.214	.076	.201	.091	.209	.068
-.023	-.113	.286	-.031	.294	.010	.295	.029	.294	.052	.293	.012
.133	-.049	.396	-.043	.404	-.019	.407	-.012	.397	.011	.494	-.080
.272	-.015	.514	-.041	.497	-.045	.502	-.042	.495	-.038	.590	-.126
.416	.004	.618	-.062	.599	-.074	.601	-.086	.594	-.078	.693	-.185
.565	.031	.733	-.079	.700	-.116	.698	-.142	.693	-.142	.777	-.243
.713	.024	.835	-.097	.864	-.169	.863	-.214	.784	-.188	.861	-.243
.854	-.008	.919	-.091	.926	-.133	.923	-.187	.856	-.213	.918	-.257
.980	-.028	.987	-.024	.975	-.047	.977	-.051	.926	-.177	.972	-.151
1.074	-.049							.977	-.045		
1.122	-.023										
LOWER SURFACE											
-.660	-.049	-.022	-.689	.024	-1.448	.025	-1.540	.019	-.801	.020	-.614
-.616	-.150	.038	-.798	.075	-1.286	.130	-1.340	.066	-.804	.076	-.440
-.572	-.208	.101	-.664	.297	-.404	.298	-.333	.136	-.768	.136	-.461
-.462	-.202	.185	-.582	.400	-.341	.397	-.286	.214	-.747	.221	-.341
-.329	-.189	.398	-.332	.604	-.207	.501	-.197	.292	-.715	.295	-.323
-.172	-.156	.737	.021	.785	.087	.603	-.041	.403	-.589	.396	-.291
-.030	-.253			.967	.169	.703	.044	.489	-.562	.497	-.251
.128	-.341			1.000	.047	.764	.057	.594	-.461	.597	-.227
.418	-.289					.868	.101	.700	-.298	.702	-.178
.564	-.191					.923	.125	.786	-.171	.786	-.149
.710	-.034					.972	.116	.858	-.056	.864	-.139
.976	.200							.919	.032	.912	-.162
1.072	.200							.967	.052		
1.110	.165										
CN=	-.1815	-.3125		-.3432		-.3461		-.4513		-.2205	
CM=	-.0763	-.0506		-.0782		-.0959		-.0082		-.0236	

$\alpha = 0.03^\circ$; $C_L = -0.034$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	.004	-.021	-.010	.023	-.214	.025	-.097	.022	-.080	.018	-.210
-.567	-.096	.035	-.228	.068	-.232	.079	-.154	.075	-.104	.077	-.202
-.452	-.210	.105	-.240	.134	-.219	.133	-.183	.129	-.111	.129	-.090
-.311	-.268	.178	-.264	.209	-.215	.214	-.168	.201	-.130	.209	-.099
-.023	-.224	.286	-.256	.294	-.200	.295	-.175	.294	-.122	.293	-.111
.133	-.155	.396	-.214	.404	-.195	.407	-.165	.397	-.140	.494	-.141
.272	-.128	.514	-.176	.497	-.197	.502	-.182	.495	-.172	.590	-.163
.416	-.092	.618	-.175	.599	-.199	.601	-.207	.594	-.194	.693	-.190
.565	-.059	.733	-.163	.700	-.223	.698	-.242	.693	-.230	.777	-.211
.713	-.055	.835	-.161	.864	-.228	.863	-.249	.784	-.252	.861	-.183
.854	-.078	.919	-.121	.926	-.163	.923	-.180	.856	-.263	.918	-.163
.980	-.084	.987	-.033	.975	-.066	.977	-.032	.926	-.190	.972	-.028
1.074	-.074							.977	-.028		
1.122	-.031										
LOWER SURFACE											
-.660	.033	-.022	-.018	.024	-.284	.025	-.404	.019	-.643	.020	-.576
-.616	-.040	.038	-.219	.075	-.355	.130	-.349	.066	-.563	.076	-.600
-.572	-.068	.101	-.260	.297	-.259	.298	-.232	.136	-.414	.136	-.526
-.462	-.098	.185	-.246	.400	-.208	.397	-.222	.214	-.285	.221	-.270
-.329	-.099	.398	-.188	.604	-.131	.501	-.179	.292	-.241	.295	-.218
-.172	-.090	.737	.085	.785	.138	.603	-.051	.403	-.200	.396	-.183
-.030	-.169			.967	.187	.703	.059	.489	-.192	.497	-.129
.128	-.223			1.000	.019	.764	.129	.594	-.150	.597	-.052
.418	-.147					.868	.178	.700	.031	.702	.085
.564	-.081					.923	.201	.786	.140	.786	.159
.710	.044					.972	.153	.858	.202	.864	.204
.976	.219							.919	.228	.912	.203
1.072	.209							.967	.159		
1.110	.157										
CN=	.1452	.0916		.0873		.0738		.0146		.0057	
CM=	-.0333	-.0534		-.0707		-.0800		-.0858		-.0851	

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.
 $M = 0.80$

$\alpha = 4.02^\circ$; $C_L = 0.427$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.061	-.021	-.774	.023	-1.257	.025	-1.167	.022	-.879	.018	-.707
-.567	-.215	.035	-.812	.068	-1.283	.079	-.828	.075	-.773	.077	-.795
-.452	-.338	.105	-.631	.134	-.601	.133	-.567	.129	-.520	.129	-.458
-.311	-.389	.178	-.553	.209	-.478	.214	-.444	.201	-.429	.209	-.331
-.023	-.335	.286	-.463	.294	-.413	.295	-.378	.294	-.352	.293	-.290
.133	-.245	.396	-.391	.404	-.353	.407	-.333	.397	-.312	.494	-.235
.272	-.232	.514	-.302	.497	-.326	.502	-.323	.495	-.312	.590	-.231
.416	-.198	.618	-.272	.599	-.292	.601	-.322	.594	-.312	.693	-.243
.565	-.155	.733	-.222	.700	-.291	.698	-.330	.693	-.315	.777	-.257
.713	-.131	.835	-.180	.864	-.235	.863	-.277	.784	-.310	.861	-.224
.854	-.137	.919	-.111	.926	-.152	.923	-.173	.856	-.283	.918	-.182
.980	-.135	.987	-.031	.975	-.065	.977	-.047	.926	-.176	.972	-.046
1.074	-.112							.977	-.039		
1.122	-.054										
LOWER SURFACE											
-.660	.096	.022	.342	.024	-.306	.025	-.275	.019	.250	.020	.242
-.616	.065	.038	.145	.075	.074	.130	.002	.066	.039	.076	-.028
-.572	.045	.101	.042	.297	-.037	.298	-.048	.136	-.038	.136	-.090
-.462	.001	.165	-.012	.400	-.054	.397	-.063	.214	-.047	.221	-.109
-.329	-.012	.398	-.046	.604	-.057	.501	-.065	.292	-.046	.295	-.103
-.172	-.009	.737	.125	.785	-.169	.603	.008	.403	-.052	.396	-.074
-.030	-.066			.567	.185	.703	.070	.489	-.078	.497	-.076
.128	-.121			1.000	-.017	.784	.157	.594	-.071	.597	-.074
.418	-.034					.868	.239	.700	.074	.702	.090
.564	.021					.923	.290	.786	.182	.786	.172
.710	.125					.972	.188	.858	.254	.864	.231
.976	.271							.919	.273	.912	.227
1.072	.228							.967	.150		
1.110	.174										
CN=	.4732	.4591		.4752		.4635		.4114		.3394	
CP=	.0060	-.0435		-.0562		-.0758		-.0787		-.0690	

$\alpha = 8.14^\circ$; $C_L = 0.792$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.211	-.021	-1.696	.023	-1.008	.025	-1.474	.022	-.963	.018	-.627
-.567	-.370	.035	-1.744	.068	-1.050	.079	-1.474	.075	-.953	.077	-.609
-.452	-.472	.105	-1.288	.134	-.990	.133	-1.151	.129	-.927	.129	-.571
-.311	-.510	.178	-1.350	.209	-.792	.214	-.988	.201	-.890	.209	-.520
-.023	-.448	.266	-.858	.294	-.871	.295	-.467	.294	-.853	.293	-.506
.133	-.382	.396	-.444	.404	-.870	.407	-.396	.397	-.786	.494	-.395
.272	-.341	.514	-.330	.497	-.753	.502	-.353	.495	-.693	.590	-.356
.416	-.305	.618	-.305	.599	-.689	.601	-.320	.594	-.586	.693	-.306
.565	-.250	.733	-.225	.700	-.592	.698	-.293	.693	-.485	.777	-.276
.713	-.236	.835	-.160	.864	-.408	.863	-.259	.784	-.396	.861	-.231
.854	-.232	.919	-.088	.926	-.390	.923	-.268	.856	-.340	.918	-.203
.980	-.191	.987	-.035	.975	-.274	.977	-.242	.926	-.243	.972	-.198
1.074	-.160							.977	-.201		
1.122	-.092										
LOWER SURFACE											
-.660	.116	.022	.426	.024	.515	.025	.482	.019	.454	.020	.451
-.616	.152	.038	.351	.075	.317	.130	.180	.066	.257	.076	.183
-.572	.161	.101	.256	.297	.100	.298	.069	.136	.139	.136	.083
-.462	.115	.185	.189	.400	.056	.397	.017	.214	.089	.221	.020
-.329	.102	.398	.098	.604	-.013	.501	-.014	.292	.054	.295	-.018
-.172	.107	.737	.173	.785	.182	.603	.025	.403	.022	.396	-.040
-.030	.045			.967	.064	.703	.044	.489	-.012	.497	-.075
.128	.002			1.000	-.266	.784	.116	.594	-.030	.597	-.052
.418	.073					.868	.220	.700	.086	.702	.042
.564	.110					.923	.268	.786	.178	.786	.107
.710	.200					.972	.107	.858	.244	.864	.161
.976	.324							.919	.251	.912	.163
1.072	.271							.967	.100		
1.110	.192										
CN=	.8409	.8665		.8443		.6505		.7580		.4628	
CM=	.0528	-.0175		-.1276		-.0604		-.1160		-.0735	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.

$M = 0.80$

$\alpha = 11.22^\circ$; $C_L = 0.990$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.368	-.021	-1.215	.023	-1.381	.025	-1.529	.022	-.979	.018	-.473
-.567	-.503	.035	-1.167	.068	-1.046	.079	-1.527	.075	-.957	.077	-.460
-.452	-.599	.105	-1.183	.134	-1.346	.133	-1.558	.129	-.922	.129	-.466
-.311	-.620	.178	-1.142	.209	-1.273	.214	-.732	.201	-.949	.209	-.434
-.023	-.538	.286	-1.140	.294	-.995	.295	-.373	.294	-.940	.293	-.414
.133	-.460	.396	-.999	.404	-1.039	.407	-.369	.397	-.928	.494	-.383
.272	-.402	.514	-.926	.497	-.867	.502	-.354	.495	-.950	.590	-.366
.416	-.360	.618	-.791	.599	-.689	.601	-.326	.594	-.848	.693	-.346
.565	-.330	.733	-.690	.700	-.577	.698	-.329	.693	-.784	.777	-.353
.713	-.323	.835	-.546	.864	-.335	.863	-.314	.784	-.679	.861	-.349
.854	-.352	.919	-.425	.926	-.424	.923	-.307	.856	-.586	.918	-.334
.980	-.322	.987	-.299	.575	-.338	.977	-.309	.926	-.491	.972	-.329
1.074	-.241							.977	-.270		
1.122	-.147										
LOWER SURFACE											
-.660	.101	-.022	.423	.024	.563	.025	.541	.019	.515	.020	.494
-.616	.211	.038	.462	.075	.412	.130	.266	.066	.353	.076	.271
-.572	.238	.101	.374	.297	.152	.298	.113	.136	.228	.136	.144
-.462	.218	.185	.278	.400	.102	.357	.058	.214	.153	.221	.059
-.329	.195	.398	.159	.604	-.030	.501	.005	.292	.112	.295	.015
-.172	.174	.737	.170	.785	.121	.603	.046	.403	.071	.396	-.041
-.030	.141			.967	-.009	.703	.046	.489	.009	.497	-.083
.128	.091			1.000	-.393	.784	.116	.594	-.022	.597	-.088
.418	.150					.868	.231	.700	.064	.702	-.002
.564	.177					.923	.275	.786	.138	.786	.044
.710	.249					.972	.090	.858	.200	.864	.115
.976	.345							.919	.191	.912	.118
1.072	.274							.967	-.025		
1.110	.183										
CN=	1.1329	1.1712		.9681		.7313		.9392		.4493	
CM=	.0659	-.1531		-.1080		-.6647		-.1688		-.0849	

$M = 0.90$

$\alpha = -3.82^\circ$; $C_L = -0.388$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	.022	-.021	.295	.023	.267	.025	.308	.022	.402	.018	.433
-.567	-.010	.035	.116	.068	.149	.079	.162	.075	.189	.077	.093
-.452	-.112	.105	.043	.134	.056	.133	.101	.129	.138	.129	.113
-.311	-.178	.178	-.014	.209	.025	.214	.059	.201	.084	.209	.060
-.023	-.132	.286	-.043	.294	-.004	.295	.021	.294	.042	.293	-.015
.133	-.058	.396	-.058	.404	-.038	.407	-.019	.397	-.001	.494	-.121
.272	-.021	.514	-.041	.497	-.064	.502	-.056	.495	-.054	.590	-.190
.416	.006	.618	-.074	.599	-.093	.601	-.100	.594	-.110	.693	-.272
.565	.045	.733	-.083	.700	-.138	.698	-.166	.693	-.180	.777	-.361
.713	.032	.835	-.111	.864	-.158	.863	-.249	.784	-.236	.861	-.309
.854	-.013	.919	-.099	.926	-.156	.923	-.209	.856	-.244	.918	-.332
.980	-.044	.987	-.011	.975	-.059	.977	-.069	.926	-.210	.972	-.217
1.074	-.058							.977	-.136		
1.122	-.026										
LOWER SURFACE											
-.660	-.056	-.022	-.623	.024	-1.062	.025	-1.190	.019	-.898	.020	-.483
-.616	-.141	.038	-.698	.075	-1.092	.130	-1.200	.066	-.868	.076	-.462
-.572	-.177	.101	-.635	.297	-.970	.298	-.668	.136	-.785	.136	-.403
-.462	-.206	.185	-.604	.400	-.184	.357	-.261	.214	-.757	.221	-.356
-.329	-.154	.398	-.565	.604	-.198	.501	-.181	.292	-.741	.295	-.318
-.172	-.121	.737	.005	.785	.111	.603	-.070	.403	-.693	.396	-.296
-.030	-.234			.967	.176	.703	.044	.489	-.599	.497	-.249
.128	-.350			1.000	.028	.784	.044	.594	-.544	.597	-.227
.418	-.343					.868	.093	.700	-.428	.702	-.229
.564	-.310					.923	.102	.786	-.328	.786	-.208
.710	-.083					.972	.078	.858	-.152	.864	-.214
.976	.198							.919	.107	.912	-.201
1.072	.222							.967	.136		
1.110	.179										
CN=	-.1937	-.3660		-.3399		-.3294		-.4824		-.1795	
CM=	-.0538	-.0365		-.0772		-.0878		-.0054		-.0314	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.
 $M = 0.90$

$\alpha = 0.02^\circ$; $C_L = 0.024$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	.015	-.021	-.032	.023	-.169	.025	-.079	.022	-.081	.018	-.190
-.567	-.081	.035	-.227	.068	-.238	.079	-.150	.075	-.122	.077	-.204
-.452	-.219	.105	-.240	.134	-.232	.133	-.171	.129	-.115	.129	-.089
-.311	-.291	.178	-.248	.209	-.213	.214	-.167	.201	-.138	.209	-.127
-.023	-.244	.286	-.253	.254	-.216	.295	-.163	.294	-.140	.293	-.149
.133	-.158	.396	-.233	.404	-.194	.467	-.171	.397	-.146	.494	-.169
.272	-.123	.514	-.186	.497	-.199	.502	-.200	.495	-.185	.590	-.182
.416	-.097	.618	-.168	.599	-.213	.601	-.217	.594	-.209	.693	-.207
.565	-.056	.733	-.170	.700	-.239	.698	-.272	.693	-.258	.777	-.213
.713	-.055	.835	-.167	.864	-.236	.863	-.276	.784	-.285	.861	-.172
.854	-.086	.919	-.119	.926	-.146	.923	-.168	.856	-.282	.918	-.127
.980	-.096	.987	-.015	.975	-.050	.977	-.024	.926	-.173	.972	.012
1.074	-.090							.977	-.010		
1.122	-.030										
LOWER SURFACE											
-.660	.039	-.022	.032	.024	-.264	.025	-.520	.019	-.659	.020	-.633
-.616	-.039	.038	-.223	.075	-.425	.130	-.343	.066	-.698	.076	-.699
-.572	-.074	.101	-.274	.297	-.285	.298	-.297	.136	-.515	.136	-.665
-.462	-.112	.185	-.288	.400	-.229	.397	-.256	.214	-.315	.221	-.398
-.329	-.117	.398	-.203	.604	-.130	.501	-.195	.292	-.285	.295	-.255
-.172	-.078	.737	.086	.785	.143	.603	-.047	.403	-.223	.396	-.165
-.030	-.173			.567	.199	.703	.065	.489	-.223	.497	-.128
.128	-.257			1.000	.007	.784	.116	.594	-.168	.597	-.044
.418	-.178					.868	.174	.700	.024	.702	.089
.564	-.110					.923	.185	.786	.132	.786	.160
.710	.037					.972	.139	.858	.192	.864	.199
.976	.234							.919	.214	.912	.197
1.072	.223							.967	.162		
1.110	.170										
CN=	.1383	.0651		.0772		.0561		.0057		.0125	
CM=	-.0364	-.0541		-.0741		-.0831		-.0879		-.0872	

$\alpha = 3.97^\circ$; $C_L = 0.481$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.051	-.021	-.806	.023	-.951	.025	-.944	.022	-.823	.018	-.733
-.567	-.188	.035	-.799	.068	-1.076	.079	-1.031	.075	-.952	.077	-.916
-.452	-.334	.105	-.620	.134	-1.002	.133	-1.013	.129	-.893	.129	-.795
-.311	-.411	.178	-.608	.209	-.983	.214	-.963	.201	-.865	.209	-.397
-.023	-.344	.286	-.566	.294	-.675	.295	-.545	.294	-.352	.293	-.344
.133	-.273	.396	-.494	.404	-.405	.407	-.283	.397	-.300	.494	-.228
.272	-.224	.514	-.402	.497	-.284	.502	-.267	.495	-.332	.590	-.237
.416	-.213	.618	-.362	.595	-.245	.601	-.296	.594	-.345	.693	-.255
.565	-.188	.733	-.231	.700	-.279	.698	-.340	.693	-.347	.777	-.261
.713	-.183	.835	-.153	.864	-.220	.863	-.291	.784	-.332	.861	-.209
.854	-.219	.919	-.083	.926	-.132	.923	-.180	.856	-.273	.918	-.150
.980	-.181	.987	-.019	.975	-.053	.977	-.057	.926	-.149	.972	-.017
1.074	-.135							.977	-.034		
1.122	-.064										
LOWER SURFACE											
-.660	.100	-.022	.347	.024	-.277	.025	.218	.019	.213	.020	.224
-.616	.072	.038	.143	.075	.046	.130	-.031	.066	.001	.076	-.047
-.572	.043	.101	.041	.297	-.065	.298	-.065	.136	-.052	.136	-.111
-.462	-.007	.185	-.012	.400	-.079	.397	-.086	.214	-.063	.221	-.128
-.329	-.020	.398	-.058	.604	-.070	.501	-.077	.292	-.064	.295	-.132
-.172	-.006	.737	.133	.785	-.181	.603	.016	.403	-.047	.396	-.107
-.030	-.080			.567	.200	.703	.073	.489	-.092	.497	-.099
.128	-.128			1.000	-.016	.784	.157	.594	-.090	.597	-.034
.418	-.037					.868	.244	.700	.068	.702	.092
.564	.007					.923	.295	.786	.180	.786	.177
.710	.127					.972	.196	.858	.254	.864	.226
.976	.286							.919	.271	.912	.231
1.072	.249							.967	.148		
1.110	.184										
CN=	.5090	.5028		.5232		.5291		.4396		.3635	
CM=	-.0154	-.0501		-.0546		-.0732		-.0762		-.0621	

TABLE VI. - PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.
 $M = 0.90$

$\alpha = 8.17^\circ$; $C_{L_0} = 0.863$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.150	-.021	-1.321	.023	-1.324	.025	-1.294	.022	-1.251	.018	-.665
-.567	-.323	.035	-1.440	.068	-1.436	.079	-1.345	.075	-1.327	.077	-.623
-.452	-.438	.109	-1.118	.134	-1.365	.133	-1.323	.129	-1.305	.129	-.578
-.311	-.520	.178	-1.076	.209	-1.324	.214	-1.184	.201	-1.253	.209	-.556
-.023	-.458	.286	-1.048	.294	-1.017	.295	-.910	.294	-.821	.293	-.525
.133	-.344	.396	-.920	.404	-.812	.407	-.746	.397	-.727	.494	-.450
.272	-.319	.514	-.732	.497	-.800	.502	-.515	.495	-.672	.590	-.403
.416	-.312	.618	-.575	.599	-.751	.601	-.340	.594	-.613	.693	-.363
.565	-.285	.733	-.489	.700	-.682	.698	-.283	.693	-.554	.777	-.337
.713	-.293	.835	-.199	.864	-.461	.863	-.255	.784	-.455	.861	-.308
.854	-.369	.919	-.082	.926	-.415	.923	-.261	.856	-.396	.918	-.291
.980	-.431	.987	-.037	.975	-.319	.977	-.262	.926	-.312	.972	-.279
1.074	-.288							.977	-.259		
1.122	-.140										
LOWER SURFACE											
-.660	.141	-.022	.462	.024	.507	.025	.450	.019	.437	.020	.443
-.616	.170	.038	.354	.075	.293	.130	.158	.066	.209	.076	.166
-.572	.164	.101	.265	.297	.096	.298	.041	.136	.112	.136	.064
-.462	.121	.185	.191	.400	.045	.397	-.013	.214	.063	.221	-.004
-.329	.101	.358	.092	.604	-.029	.501	-.047	.292	.029	.295	-.041
-.172	.109	.737	.180	.785	.163	.603	.006	.403	-.003	.396	-.076
-.030	.033			.967	.076	.703	.015	.489	-.049	.497	-.101
.128	-.002			1.000	-.382	.784	.096	.594	-.066	.597	-.081
.418	.081					.868	.212	.700	.077	.702	.012
.564	.118					.923	.266	.786	.179	.786	.091
.710	.215					.972	.096	.858	.251	.864	.140
.976	.337							.919	.254	.912	.138
1.072	.273							.967	.095		
1.110	.152										
CN=	-.9065	.9782		.9787		.7661		.8394		.4854	
CM=	-.0047	-.0174		-.1287		-.0683		-.1153		-.0848	

$M = 0.95$

$\alpha = -3.07^\circ$; $C_{L_0} = -0.440$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	.046	-.021	.325	.023	.295	.025	.289	.022	.394	.018	.450
-.567	.002	.035	.125	.068	.132	.079	.151	.075	.203	.077	.199
-.452	-.109	.105	.648	.134	.059	.133	.100	.129	.139	.129	.129
-.311	-.199	.178	.000	.209	.023	.214	.044	.201	.082	.209	.056
-.023	-.113	.286	-.019	.294	-.007	.295	.032	.294	.050	.293	.001
.133	-.041	.396	-.040	.404	-.029	.407	-.009	.397	.014	.494	-.126
.272	-.000	.514	-.034	.497	-.060	.502	-.056	.495	-.043	.590	-.204
.416	.032	.618	-.065	.599	-.085	.601	-.097	.594	-.095	.693	-.302
.565	.055	.733	-.083	.700	-.136	.698	-.175	.693	-.171	.777	-.413
.713	.051	.835	-.121	.864	-.198	.863	-.252	.784	-.261	.861	-.515
.854	.007	.919	-.098	.926	-.152	.923	-.204	.856	-.344	.918	-.646
.980	-.338	.987	.008	.975	-.027	.977	-.033	.926	-.515	.972	-.267
1.074	-.072							.977	-.538		
1.122	-.033										
LOWER SURFACE											
-.660	-.043	-.022	-.528	.024	-.889	.025	-1.025	.019	-.824	.020	-.405
-.616	-.132	.038	-.746	.075	-.931	0.000	0.000	.066	-.701	.076	-.391
0.000	0.000	.101	-.626	.297	-.937	.130	-1.096	.136	-.720	.136	-.367
-.329	-.234	.185	-.521	.400	-.894	.298	-.879	.214	-.714	.221	-.368
-.172	-.101	.398	-.592	.604	-.188	.397	-.528	.292	-.660	.295	-.345
-.030	-.216	.737	-.097	.785	.040	.501	-.380	.403	-.582	.396	-.311
.128	-.345			.967	.067	.603	-.214	.489	-.522	.497	-.281
.418	-.289			1.000	.034	.703	.044	.594	-.528	.597	-.257
.564	-.310					.784	.055	.700	-.422	.702	-.237
.710	-.189					.868	.058	.786	-.363	.786	-.232
.976	.162					.923	.006	.858	-.305	.864	-.217
1.072	.200							.919	-.284	.912	-.209
1.110	.163							.967	-.288		
0.000	0.000										
CN=	-.1909	-.4113		-.4398		-.4042		-.4507		-.1497	
CM=	-.0081	-.0114		-.0382		-.0587		.0019		-.0531	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.
 $M = 0.95$

$\alpha = -0.09^\circ$; $C_L = 0.012$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.64C	.330	-.021	.018	.023	.141	.025	-.104	.022	.094	.018	.190
-.567	-.005	.035	-.185	.068	-.272	.079	-.214	.075	-.106	.077	-.068
-.452	-.195	.105	-.229	.134	-.261	.133	-.213	.129	-.125	.129	-.093
-.311	-.267	.178	-.273	.209	-.232	.214	-.177	.201	-.131	.209	-.139
-.023	-.378	.286	-.235	.294	-.207	.295	-.158	.294	-.138	.293	-.156
.133	-.119	.396	-.243	.404	-.184	.407	-.171	.397	-.143	.494	-.222
.272	-.095	.514	-.197	.497	-.234	.502	-.199	.495	-.196	.590	-.289
.416	-.081	.618	-.200	.599	-.227	.601	-.221	.594	-.254	.693	-.354
.565	-.039	.733	-.202	.700	-.266	.698	-.296	.693	-.317	.777	-.111
.713	-.040	.835	-.183	.864	-.268	.863	-.338	.784	-.317	.861	-.137
.854	-.100	.919	-.125	.926	-.155	.923	-.159	.856	-.329	.918	-.106
.980	-.123	.987	-.005	.975	-.052	.977	-.016	.926	-.205	.972	.027
1.074	-.104							.977	-.022		
1.122	-.029										
LOWER SURFACE											
-.660	.042	-.022	.040	.024	.289	.025	-.491	.019	-.568	.020	-.573
-.616	-.024	.038	-.208	.075	-.451	0.000	0.000	.066	-.743	.076	-.791
C.000	0.000	.101	-.290	.297	-.241	.130	-.549	.136	-.682	.136	-.731
-.329	-.121	.185	-.312	.400	-.259	.298	-.237	.214	-.340	.221	-.621
-.172	-.071	.398	-.225	.604	-.207	.397	-.235	.292	-.278	.295	-.583
-.030	-.192	.737	.088	.785	.142	.501	-.287	.403	-.251	.396	-.282
.128	-.314			.967	.209	.603	-.029	.489	-.184	.497	-.083
.418	-.190			1.000	.016	.703	.067	.594	-.201	.597	-.002
.564	-.148					.784	.113	.700	.014	.702	.102
.710	.033					.868	.177	.786	.116	.786	.164
.976	.247					.923	.185	.858	.174	.864	.204
1.072	.233							.919	.212	.912	.212
1.110	.184							.967	.150		
0.000	0.000										
CN=	.1469	.0777		.0759		.0428		-.0069		-.0343	
CN=	-.0213	-.0580		-.0750		-.0838		-.0955		-.0964	

$\alpha = 3.98^\circ$; $C_L = 0.495$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.019	-.021	-.838	.023	.789	.025	-.767	.022	-.656	.018	-.620
-.567	-.142	.035	-.935	.068	-.903	.079	-.847	.075	-.822	.077	-.805
-.452	-.276	.105	-.853	.134	-.871	.133	-.856	.129	-.813	.129	-.822
-.311	-.374	.178	-.366	.209	-.795	.214	-.832	.201	-.818	.209	-.790
-.023	-.461	.286	-.446	.294	-.587	.295	-.775	.294	-.757	.293	-.751
.133	-.360	.396	-.439	.404	-.503	.407	-.744	.397	-.735	.494	-.607
.272	-.221	.514	-.382	.497	-.434	.502	-.455	.495	-.695	.590	.016
.416	-.105	.618	-.380	.599	-.444	.601	-.423	.594	-.510	.693	-.005
.565	-.098	.733	-.381	.700	-.503	.698	-.503	.693	-.231	.777	-.145
.713	-.123	.835	-.383	.864	-.193	.863	-.175	.784	-.188	.861	-.185
.854	-.207	.919	-.184	.926	-.102	.923	-.076	.856	-.180	.918	-.163
.980	-.260	.987	-.063	.975	-.078	.977	-.022	.926	-.115	.972	-.019
1.074	-.309							.977	.022		
1.122	-.172										
LOWER SURFACE											
-.660	.118	-.022	.372	.024	.249	.025	.170	.019	.148	.020	.216
-.616	.088	.038	.146	.075	.026	0.000	0.000	.066	-.076	.076	-.079
C.000	0.000	.101	.047	.297	-.104	.130	-.071	.136	-.100	.136	-.138
-.329	-.021	.185	-.003	.400	-.101	.298	-.103	.214	-.106	.221	-.148
-.172	-.003	.398	-.055	.604	-.084	.397	-.132	.292	-.088	.295	-.152
-.030	-.095	.737	.131	.785	.174	.501	-.104	.403	-.055	.396	-.129
.128	-.173			.967	.191	.603	.015	.489	-.103	.497	-.117
.418	-.052			1.000	-.055	.703	.068	.594	-.088	.597	-.022
.564	.007					.784	.159	.700	.087	.702	.118
.710	.124					.868	.244	.786	.200	.786	.197
.976	.293					.923	.297	.858	.271	.864	.237
1.072	.242							.919	.296	.912	.245
1.110	.163							.967	.193		
0.000	0.000										
CN=	.4939	.5261		.5249		.5578		.5405		.4376	
CN=	-.0320	-.0743		-.0801		-.0848		-.0891		-.0584	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.
 $M = 0.95$

$\alpha = 8.15^\circ$; $C_L = 0.902$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.115	-.021	-1.163	.023	-1.141	.025	-1.101	.022	-1.034	.018	-.979
-.567	-.302	.035	-1.281	.068	-1.227	.079	-1.155	.075	-1.131	.077	-1.074
-.452	-.380	.105	-1.228	.134	-1.187	.133	-1.145	.129	-1.114	.129	-.976
-.311	-.465	.178	-1.155	.209	-1.150	.214	-1.125	.201	-1.101	.209	-.889
-.023	-.529	.286	-.325	.294	-1.110	.295	-1.093	.294	-1.057	.293	-.774
.133	-.411	.396	-.753	.404	-1.046	.407	-1.079	.397	-1.028	.494	-.555
.272	-.345	.514	-.644	.497	-.855	.502	-1.053	.495	-.972	.590	-.485
.416	-.263	.618	-.520	.599	-.717	.601	-.941	.594	-.691	.693	-.412
.565	-.188	.733	-.455	.700	-.588	.698	-.657	.693	-.500	.777	-.388
.713	-.203	.835	-.462	.864	-.348	.863	-.554	.784	-.401	.861	-.338
.854	-.292	.919	-.325	.926	-.311	.923	-.506	.856	-.373	.918	-.319
.980	-.361	.987	-.161	.975	-.258	.977	-.404	.926	-.353	.972	-.305
1.074	-.440							.977	-.344		
1.122	-.359										
LOWER SURFACE											
-.660	.163	-.022	.474	.024	.501	.025	.431	.019	.387	.020	.382
-.616	.183	.038	.369	.075	.279	0.000	0.000	.066	.168	.076	.101
0.000	0.000	.101	.261	.297	.082	.130	.125	.136	.072	.136	.002
-.329	.108	.185	.193	.400	.033	.298	.018	.214	.029	.221	-.058
-.172	.108	.398	.096	.604	-.039	.397	-.037	.292	-.008	.295	-.111
-.030	.035	.737	.174	.785	.154	.501	-.071	.403	-.016	.396	-.153
.128	-.005			.967	.100	.603	.006	.489	-.082	.497	-.186
.418	.081			1.000	-.295	.703	.025	.594	-.136	.597	-.160
.564	.120					.784	.112	.700	.017	.702	-.039
.710	.217					.868	.234	.786	.117	.786	.050
.976	.344					.923	.289	.858	.196	.864	.101
1.072	.269							.919	.208	.912	.098
1.110	.168							.967	.024		
0.000	0.000										
CN=	.8513		.9747		.9257		.9816		.8335		.5909
CM=	-.0259		-.1008		-.1197		-.1700		-.1217		-.0758

$M = 0.99$

$\alpha = -3.96^\circ$; $C_L = -0.459$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.044	-.021	.330	.023	.291	.025	.273	.022	.365	.018	.430
-.567	-.048	.035	.158	.068	.151	.079	.129	.075	.178	.077	.189
-.452	-.111	.105	.078	.134	.077	.133	.099	.129	.117	.129	.121
-.311	-.172	.178	.028	.209	.040	.214	.044	.201	.062	.209	.063
-.023	-.200	.286	-.004	.294	.009	.295	.035	.294	.032	.293	.006
.133	.002	.396	-.023	.404	-.022	.407	-.010	.397	.000	.494	-.113
.272	.032	.514	-.013	.497	-.060	.502	-.055	.495	-.069	.590	-.189
.416	.057	.618	-.043	.599	-.091	.601	-.093	.594	-.134	.693	-.290
.565	.088	.733	-.084	.700	-.146	.698	-.176	.693	-.183	.777	-.389
.713	.073	.835	-.145	.864	-.194	.863	-.402	.784	-.213	.861	-.486
.854	.025	.919	-.096	.926	-.150	.923	-.152	.856	-.342	.918	-.637
.980	-.025	.987	.016	.975	-.030	.977	-.034	.926	-.442	.972	-.433
1.074	-.088							.977	-.457		
1.122	-.040										
LOWER SURFACE											
-.660	-.100	-.022	-.438	.024	-.789	.025	-.867	.019	-.929	.020	-.688
-.616	-.137	.038	-.594	.075	-.833	0.000	0.000	.066	-1.054	.076	-.644
0.000	0.000	.101	-.587	.297	-.826	.130	-.992	.136	-.997	.136	-.615
-.329	-.223	.185	-.514	.400	-.851	.298	-.959	.214	-.981	.221	-.541
-.172	-.063	.398	-.516	.604	-.197	.397	-.921	.292	-.934	.295	-.531
-.030	-.205	.737	-.097	.785	.017	.501	-.627	.403	-.709	.396	-.442
.128	-.334			.967	.084	.603	-.170	.489	-.653	.497	-.409
.418	-.238			1.000	.021	.703	.083	.594	-.638	.597	-.377
.564	-.293					.784	.197	.700	-.529	.702	-.381
.710	-.176					.868	.189	.786	-.286	.786	-.376
.976	.174					.923	.084	.858	-.107	.864	-.340
1.072	.218							.919	-.085	.912	-.331
1.110	.180							.967	-.041		
0.000	0.000										
CN=	-.1620		-.3911		-.4051		-.4054		-.5415		-.3100
CM=	.0019		-.0125		-.0359		-.0673		-.0139		-.0271

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_n = -2.5^\circ$ - Continued.
 $M = 0.99$

$\alpha = -0.05^\circ$; $C_L = -0.004$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.005	-.021	-.061	.023	-.205	.025	-.081	.022	-.097	.018	-.225
-.567	-.079	.035	-.293	.068	-.248	.079	-.175	.075	-.097	.077	-.037
-.452	-.157	.105	-.258	.134	-.240	.133	-.186	.129	-.106	.129	-.056
-.311	-.245	.178	-.307	.209	-.264	.214	-.191	.201	-.130	.209	-.096
-.023	-.332	.286	-.216	.294	-.237	.295	-.170	.294	-.098	.293	-.128
.133	-.247	.396	-.201	.404	-.188	.407	-.175	.397	-.074	.494	-.221
.272	-.183	.514	-.183	.497	-.204	.502	-.224	.495	-.125	.590	-.286
.416	-.113	.618	-.199	.599	-.249	.601	-.263	.594	-.196	.693	-.373
.565	-.028	.733	-.197	.700	-.288	.698	-.156	.693	-.282	.777	-.471
.713	-.018	.835	-.240	.864	-.163	.863	-.322	.784	-.367	.861	-.333
.854	-.071	.919	-.111	.926	-.086	.923	-.166	.856	-.494	.918	-.076
.980	-.118	.987	.032	.975	-.012	.977	.001	.926	-.186	.972	-.011
1.074	-.142							.977	-.050		
1.122	-.042										
LOWER SURFACE											
-.660	.040	-.022	.040	.024	-.261	.025	-.430	.019	-.526	.020	-.539
-.616	-.029	.038	-.233	.075	-.427	.130	-.674	.066	-.731	.076	-.691
0.000	0.000	.101	-.292	.297	-.473	.298	-.164	.136	-.662	.136	-.706
-.329	-.097	.185	-.306	.400	-.447	.397	-.223	.214	-.563	.221	-.742
-.172	-.036	.398	-.383	.604	-.123	.501	-.244	.292	-.301	.295	-.478
-.030	-.161	.737	.079	.785	.176	.603	.008	.403	-.247	.396	-.339
.128	-.283			.967	.232	.784	.147	.489	-.176	.497	-.242
.418	-.238			1.000	.022	.703	.096	.594	-.192	.597	-.059
.564	-.211					.784	.147	.700	.019	.702	.056
.710	-.020					.868	.201	.786	.109	.786	.126
.976	.220					.923	.217	.858	.168	.864	.173
1.072	.230							.919	.201	.912	.175
1.110	.183							.967	.119		
0.000	0.000										
CN=	.1439	.0379		.0291		.0414		-.0362		-.0512	
CM=	-.0082	-.0463		-.0692		-.0860		-.0973		-.1068	

$\alpha = 3.43^\circ$; $C_L = 0.440$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	.000	-.021	-.051	.023	-.655	.025	-.613	.022	-.493	.018	-.413
-.567	-.135	.035	-.748	.068	-.792	.079	-.722	.075	-.678	.077	-.632
-.452	-.201	.105	-.695	.134	-.768	.133	-.735	.129	-.678	.129	-.650
-.311	-.244	.178	-.530	.209	-.731	.214	-.722	.201	-.697	.209	-.632
-.023	-.384	.286	-.466	.294	-.671	.295	-.676	.294	-.639	.293	-.598
.133	-.319	.396	-.455	.404	-.588	.407	-.654	.397	-.644	.494	-.581
.272	-.283	.514	-.346	.497	-.427	.502	-.633	.495	-.591	.590	-.576
.416	-.269	.618	-.321	.599	-.314	.601	-.352	.594	-.596	.693	-.597
.565	-.163	.733	-.307	.700	-.437	.698	-.393	.693	-.457	.777	-.229
.713	-.103	.835	-.314	.864	-.280	.863	-.232	.784	-.459	.861	-.109
.854	-.150	.919	-.159	.926	-.111	.923	-.111	.856	-.317	.918	-.061
.980	-.201	.987	-.043	.975	-.077	.977	-.076	.926	-.148	.972	-.049
1.074	-.256							.977	-.094		
1.122	-.149										
LOWER SURFACE											
-.660	.124	-.022	.305	.024	.212	.025	.137	.019	.056	.020	.120
-.616	.084	.038	.080	.075	-.020	.130	-.092	.066	-.146	.076	-.157
0.000	0.000	.101	-.006	.297	-.108	.298	-.179	.136	-.126	.136	-.218
-.329	-.002	.185	-.057	.400	-.110	.397	-.237	.214	-.160	.221	-.237
-.172	.023	.398	-.066	.604	-.045	.501	-.172	.292	-.162	.295	-.272
-.030	-.085	.737	.134	.785	.166	.603	.036	.403	-.217	.396	-.209
.128	-.208			.967	.198	.703	.056	.489	-.085	.497	-.242
.418	-.077			1.000	-.053	.784	.123	.594	-.197	.597	-.129
.564	-.002					.868	.218	.700	.040	.702	.038
.710	.124					.923	.269	.786	.159	.786	.113
.976	.299							.858	.230	.864	.155
1.072	.265							.919	.251	.912	.175
1.110	.163							.967	.128		
0.000	0.000										
CN=	.4592	.4772		.5025		.4759		.4827		.3885	
CM=	-.0473	-.0683		-.0870		-.0835		-.1110		-.0834	

TABLE VI.- PRESSURE DISTRIBUTIONS OVER WING WITH FUSELAGE
 ADDITIONS; $\delta_h = -2.5^\circ$ - Concluded.
 $M = 0.99$

$\alpha = 7.99^\circ$; $C_L = 0.893$

STA X/C	.133 CP	STA X/C	.307 CP	STA X/C	.480 CP	STA X/C	.653 CP	STA X/C	.804 CP	STA X/C	.933 CP
UPPER SURFACE											
-.660	-.092	-.021	-1.042	.023	-1.022	.025	-.974	.022	-.899	.018	-.820
-.567	-.259	.035	-1.169	.068	-1.100	.079	-1.027	.075	-1.006	.077	-.959
-.452	-.319	.105	-1.149	.134	-1.084	.133	-1.026	.129	-.988	.129	-.976
-.311	-.393	.178	-1.107	.209	-1.061	.214	-1.014	.201	-.985	.209	-.947
-.023	-.487	.286	-.934	.294	-1.027	.295	-.978	.294	-.949	.293	-.922
.133	-.402	.396	-.782	.404	-1.010	.407	-.976	.397	-.932	.494	-.899
.272	-.347	.514	-.577	.497	-.968	.502	-.962	.495	-.920	.590	-.889
.416	-.305	.618	-.449	.595	-.800	.601	-.921	.594	-.902	.693	-.872
.565	-.226	.733	-.401	.700	-.621	.699	-.625	.693	-.714	.777	-.766
.713	-.185	.835	-.373	.864	-.384	.863	-.511	.784	-.548	.861	-.493
.854	-.244	.919	-.239	.926	-.313	.923	-.495	.856	-.463	.918	-.447
.980	-.302	.587	-.112	.975	-.284	.977	-.474	.926	-.408	.972	-.459
1.074	-.375							.977	-.413		
1.122	-.310										
LOWER SURFACE											
-.660	.197	-.022	.490	.024	.512	.025	.447	.019	.369	.020	.364
-.616	.217	.038	.357	.075	.302	0.000	0.000	.066	.141	.076	.073
0.000	0.000	.101	.266	.297	.095	.130	.141	.136	.054	.136	-.027
-.329	.130	.185	.202	.400	.043	.298	.035	.214	.001	.221	-.101
-.172	.128	.398	.110	.604	-.012	.397	-.034	.292	-.043	.295	-.165
-.030	.043	.737	.199	.785	.183	.501	-.114	.403	-.008	.396	-.154
.128	-.005			.967	.121	.603	.029	.489	-.076	.497	-.241
.418	.102			1.000	-.293	.703	.019	.594	-.207	.597	-.225
.564	.137					.784	.057	.700	-.018	.702	-.085
.710	.238					.868	.210	.786	.100	.786	-.000
.976	.368					.923	.270	.858	.182	.864	.049
1.072	.295							.919	.193	.912	.045
1.110	.201							.967	.009		
0.000	0.000										
CN=	.8307	.9363		.9365		.9087		.8211		.7527	
CM=	-.0383	-.0922		-.1397		-.1611		-.1480		-.1456	

TABLE VII.- PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE
 AREA-RULE ADDITIONS (SEE TABLE VI FOR ORIFICE LOCATIONS):
 $\delta_h = -2.5^\circ$

$M = 0.50$

Fuselage station		C_p for							
cm	in.	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$
		$\alpha = -4.08^\circ$; $C_L = -0.339$				$\alpha = 0^\circ$; $C_L = 0.039$			
153.0	60.22	0.073	0.062	-0.014	0.028	0.051	0.042	0.000	0.034
154.4	60.80		.084	.010	.046		.066	.025	.053
156.1	61.46	.127	.100	.041	.059	.108	.087	.049	.060
157.6	62.04	.145	.105	.062	.081	.134	.102	.066	.075
159.2	62.67		.084	.070	.055		.080	.073	.054
160.8	63.30	.058			.015	.057			.026
		$\alpha = 4.00^\circ$; $C_L = 0.396$				$\alpha = 8.00^\circ$; $C_L = 0.730$			
153.0	60.22	0.041	0.025	0.020	0.053	0.020	0.003	0.047	0.073
154.4	60.80		.054	.042	.067		.032	.057	.091
156.1	61.46	.101	.080	.062	.076	.085	.065	.075	.091
157.6	62.04	.124	.093	.080	.092	.110	.079	.084	.103
159.2	62.67		.074	.079	.061		.060	.087	.067
160.8	63.30	.061			.031	.046			.018
		$\alpha = 11.07^\circ$; $C_L = 0.952$							
153.0	60.22	0.004	-0.012	0.052	0.091				
154.4	60.80		.012	.059	.098				
156.1	61.46	.078	.054	.084	.104				
157.6	62.04	.110	.075	.088	.117				
159.2	62.67		.063	.090	.070				
160.8	63.30	.048			.017				

TABLE VII.- PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE
 AREA-RULE ADDITIONS; $\delta_h = -2.5^\circ$ - Continued.

M = 0.80

Fuselage station		C_p for							
cm	in.	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$
		$\alpha = 3.98^\circ; C_L = -0.372$				$\alpha = 0.03^\circ; C_L = -0.034$			
153.0	60.22	0.072	0.061	-0.015	0.021	0.047	0.043	-0.002	0.033
154.4	60.80		.090	.014	.048		.076	.031	.057
156.1	61.46	.150	.117	.055	.079	.123	.109	.062	.072
157.6	62.04	.175	.134	.074	.099	.153	.128	.078	.090
159.2	62.67		.109	.089	.078		.103	.090	.069
160.8	63.30	.071			.025	.075			.046
		$\alpha = 4.02^\circ; C_L = 0.427$				$\alpha = 8.14^\circ; C_L = 0.792$			
153.0	60.22	0.037	0.026	0.015	0.052	0.016	-0.012	0.035	0.082
154.4	60.80		.062	.043	.070		.037	.061	.091
156.1	61.46	.113	.097	.069	.085	.103	.078	.083	.097
157.6	62.04	.142	.122	.088	.100	.122	.110	.100	.122
159.2	62.67		.100	.097	.072		.086	.106	.073
160.8	63.30	.075			.038	.068			.030
		$\alpha = 11.22^\circ; C_L = 0.990$							
153.0	60.22	-0.014	-0.036	0.051	0.090				
154.4	60.80		.018	.071	.112				
156.1	61.46	.087	.057	.086	.114				
157.6	62.04	.125	.090	.104	.130				
159.2	62.67		.082	.102	.082				
160.8	63.30	.052			.017				

M = 0.90

Fuselage station		C_p for							
cm	in.	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$
		$\alpha = -3.82^\circ; C_L = -0.389$				$\alpha = 0.02^\circ; C_L = 0.024$			
153.0	60.22	0.064	0.054	-0.021	0.018	0.052	0.036	-0.005	0.030
154.4	60.80		.092	.021	.054		.078	.033	.056
156.1	61.46	.155	.130	.062	.079	.138	.119	.066	.081
157.6	62.04	.190	.144	.089	.109	.166	.136	.094	.099
159.2	62.67		.117	.103	.088		.118	.105	.087
160.8	63.30	.082			.039	.097			.062
		$\alpha = 3.97^\circ; C_L = 0.461$				$\alpha = 8.17^\circ; C_L = 0.863$			
153.0	60.22	0.033	0.014	0.012	0.051	0.002	-0.017	0.034	0.069
154.4	60.80		.066	.050	.073		.043	.065	.093
156.1	61.46	.126	.107	.080	.087	.102	.090	.092	.106
157.6	62.04	.155	.133	.104	.110	.135	.125	.108	.128
159.2	62.67		.115	.110	.087		.108	.115	.090
160.8	63.30	.095			.049	.085			.041

TABLE VII.- PRESSURE DISTRIBUTIONS OVER REAR FUSELAGE WITH FUSELAGE
 AREA-RULE ADDITIONS; $\delta_h = -2.5^\circ$ - Concluded.

M = 0.95

Fuselage station		C_p for							
cm	in.	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$
		$\alpha = -3.97^\circ; C_L = -0.440$				$\alpha = -0.09^\circ; C_L = 0.012$			
153.0	60.22	0.066	0.050	-0.024	0.012	0.050	0.035	-0.010	0.033
154.4	60.80		.100	.025	.054		.088	.040	.065
156.1	61.46	.169	.141	.075	.087	.151	.132	.082	.090
157.6	62.04	.214	.158	.105	.122	.186	.156	.108	.116
159.2	62.67		.135	.120	.101		.137	.123	.100
160.8	63.30	.097			.060	.112			.079
		$\alpha = 3.96^\circ; C_L = 0.495$				$\alpha = 8.15^\circ; C_L = 0.902$			
153.0	60.22	0.030	0.012	0.015	0.053	-0.010	-0.029	0.040	0.079
154.4	60.80		.071	.053	.079		.053	.070	.105
156.1	61.46	.133	.126	.093	.102	.120	.109	.094	.117
157.6	62.04	.167	.154	.118	.128	.154	.138	.122	.138
159.2	62.67		.135	.129	.102		.130	.125	.106
160.8	63.30	.113			.070	.103			.051

M = 0.99

Fuselage station		C_p for							
cm	in.	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$	$\theta = 8^\circ$	$\theta = 46^\circ$	$\theta = 136^\circ$	$\theta = 180^\circ$
		$\alpha = -3.96^\circ; C_L = -0.459$				$\alpha = -0.05^\circ; C_L = -0.004$			
153.0	60.22	0.091	0.057	-0.083	-0.052	0.041	0.019	0.012	0.027
154.4	60.80		.106	.002	.026		.090	.048	.069
156.1	61.46	.203	.151	.066	.078	.174	.148	.095	.103
157.6	62.04	.252	.176	.109	.123	.216	.176	.129	.129
159.2	62.67		.155	.130	.117		.161	.145	.126
160.8	63.30	.116			.087	.132			.110
		$\alpha = 3.43^\circ; C_L = 0.440$				$\alpha = 7.99^\circ; C_L = 0.893$			
153.0	60.22	-0.001	-0.036	0.005	0.046	-0.016	-0.075	0.056	0.095
154.4	60.80		.069	.057	.088		.056	.086	.121
156.1	61.46	.145	.138	.101	.109	.130	.127	.117	.135
157.1	62.04	.191	.171	.131	.136	.168	.166	.141	.160
159.2	62.67		.160	.147	.127		.155	.151	.135
160.8	63.30	.133			.100	.134			.087

TABLE XIII.- PRESSURE DISTRIBUTIONS OVER SIDE OF FUSELAGE WITH AREA RULE ADDITIONS

	M = 0.5					M = 0.8					M = 0.9				
	C _p at α, deg. of-					C _p at α, deg. of-					C _p at α, deg. of-				
	-3.23	0.09	4.50	7.79	12.14	-3.63	0.25	4.14	7.93	10.34	-3.76	0.25	4.25	8.01	
121	.1040	.0524	.0109	-.0267	-.1700	.1201	.0705	.0278	-.0422	-.1299	.1040	.0877	.0423	-.0500	
122	.0845	.0228	-.0301	-.0718	-.1232	.0729	.0217	-.0245	-.0724	-.0749	.0894	.0633	-.0135	-.0505	
123	.1207	.1037	-.1037	-.0989	-.0594	.0544	.1471	-.1098	-.0914	.0749	.1810	.1400	-.1080	-.0587	
124	.0751	-.0672	.0214	.0203	.0422	.1314	.0724	-.0320	.0414	.1152	.1327	.0724	.0116	.1215	
125	.0744	-.0393	.1135	.1346	.1494	.0959	.1132	.1290	.1509	.1472	.1135	.1269	.01407	.1555	
126	.1137	.1135	.0949	.1071	.1478	.1531	.1317	.1123	.1146	.1246	.1675	.1365	-.0242	.1135	
127	.1184	.0644	.0171	-.0077	.0179	.1347	.0699	.0234	-.0754	.0049	.1675	.0785	.0242	.0041	
128	.1100	.1263	.1533	.1700	.2041	.1301	.1522	.1740	.1668	.2040	.2156	.1697	.1547	.2161	
129	.1719	.1570	.1473	.1640	.2057	.1940	.1806	.1702	.1827	.2043	.2130	.1951	.1939	.2042	
130	.1747	.1561	.1438	.1583	.2039	.1998	.1766	.1572	.1755	.2058	.2130	.1967	.1812	.1893	
131	.1727	.1255	.1095	.1201	.1559	.1759	.1435	.1251	.1311	.1642	.1878	.1492	.1379	.1424	
132	.1402	.1203	.0728	.0611	.0882	.1547	.1187	.0854	.0737	.0705	.1678	.1176	.0916	.0730	
133	.0934	.0780	.0436	.0373	.0655	.1233	.0861	.0639	.0772	.1419	.1651	.0825	.0574	.0310	
134	.1271	.1173	.1128	.1258	.1549	.1634	.1396	.1247	.1280	.1368	.1656	.1367	.1229	.1176	
135	.1737	.1485	.1328	.1460	.2010	.1878	.1636	.1504	.1700	.1844	.1913	.1656	.1531	.1467	
136	.1442	.1142	.1039	.1020	.1213	.1366	.1172	.1020	.1214	.1403	.1801	.1367	.1210	.1305	
137	.1432	.0975	.0232	.0115	.0422	.1539	.1107	.0424	.0214	.0342	.1988	.1285	.0398	.0390	
138	.1639	.1183	.0772	.0673	.0873	.1349	.1201	.0899	.0766	.0720	.2073	.1480	.0996	.0683	
139	.1403	.1158	.0999	.1046	.1342	.1348	.1245	.1193	.1127	.1152	.2127	.1606	.1273	.1128	
140	.1307	.1050	.0874	.1115	.1532	.1570	.1278	.1122	.1213	.1335	.1952	.1442	.1231	.1176	
141	.1134	.0964	.0842	.1009	.1253	.1274	.1068	.1072	.1245	.1369	.1417	.1280	.1210	.1305	
142	.0920	.0764	.0642	.0811	.1145	.1224	.0949	.0839	.1077	.1417	.1114	.1042	.0324	.1073	
143	.0920	.0636	.0402	.0811	.1145	.0924	.0812	.0362	.0927	.1242	.0905	.0241	.0457	.1034	
144	.0717	.0320	.0248	.0869	.1144	.0762	.0612	.0254	.0778	.1183	.0741	.0179	.0355	.0693	
145	.0442	.0083	.0270	.0439	.0948	.0473	.0022	.0231	.0544	.0580	.0469	.0045	.0324	.0401	
146	.0341	.0043	.0155	.0279	.0191	.0353	.0072	.0191	.0444	.0475	.0300	.0041	.0264	.0528	
147	.0545	.1384	.1355	.1580	.1297	.1349	.1348	.1581	.1775	.1639	.0876	.1439	.1642	.1933	
148	.0845	.0874	.1173	.1395	.1481	.0827	.1110	.1441	.1635	.1547	.0894	.1212	.1563	.1738	
149	.0345	.0334	.0450	.0631	.0594	.0437	.0453	.0550	.0520	.0753	.0507	.0543	.0655	.0728	
150	.0251	.0263	.0240	.0381	.0521	.0631	.0235	.0141	.0415	.0359	.0323	.0184	.0216	.0348	
151	.0372	.0301	.0195	.0268	.0158	.0317	.0333	.0232	.0256	.0433	.0384	.0308	.0178	.0187	
152	.0445	.0351	.0273	.0229	.0150	.0477	.0411	.0309	.0348	.0425	.0367	.0450	.0285	.0282	
153	.0404	.0424	.0219	.0140	.0345	.0571	.0425	.0292	.0347	.0453	.0464	.0485	.0263	.0412	
154	.0704	.0493	.0301	.0125	.0485	.0735	.0548	.0331	.0374	.0715	.0406	.0370	.0274	.0343	
155	.0704	.0556	.0283	.0099	.0245	.0842	.0624	.0356	.0249	.0384	.0384	.0322	.0319	.0251	
156	.0816	.0375	.0293	.0071	.0220	.0957	.0636	.0344	.0168	.0314	.0365	.0274	.0296	.0154	
157	.0757	.0779	.0712	.0633	.0740	.0993	.0907	.0815	.0922	.0804	.1122	.1015	.0881	.0932	
158	.1027	.0934	.0873	.0328	.0681	.1252	.1133	.0823	.1036	.1201	.1604	.1223	.1091	.1193	
159	.0983	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
160	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
161	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
162	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
163	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
164	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
165	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
166	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
167	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
168	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
169	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
170	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
171	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
172	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
173	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
174	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
175	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
176	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
177	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
178	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
179	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
180	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
181	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
182	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
183	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
184	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
185	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
186	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
187	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
188	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
189	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
190	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
191	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
192	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
193	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
194	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
195	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
196	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
197	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
198	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
199	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	
200	.0989	.0773	.0633	.0759	.0991	.1213	.0935	.0796	.0949	.1014	.1390	.1196	.1020	.1091	

TABLE XIII.- PRESSURE DISTRIBUTIONS OVER SIDE OF FUSELAGE WITH AREA RULE ADDITIONS (CONCLUDED)

M = 0.95				M = 0.99			
C _p at α, deg. of-		C _p at α, deg. of-		C _p at α, deg. of-		C _p at α, deg. of-	
-3.66	0.25	4.08	7.85	-3.62	0.19	4.11	7.83
.1415	.0394	.0665	-.0267	.1623	.1151	.0955	-.0097
.0917	.0498	.0170	-.0229	.1193	.0811	.0500	.0105
-.1520	-.1312	-.0907	-.0393	-.1560	-.1087	-.0496	-.0128
-.1438	-.0628	.0010	.1193	-.1108	-.0366	.0318	.1430
-.1174	-.1255	.1341	-.1411	-.1441	.1075	-.1103	-.1112
-.1629	-.1457	.1185	-.1067	-.1059	.1132	-.0510	-.0795
-.1379	-.0791	.0229	.0133	-.0709	-.0533	.0045	.0398
-.1404	.1770	.2175	-.2997	-.1651	.2155	-.2563	.2714
.2315	.2218	.2529	-.2696	-.2401	.2412	-.2272	-.2475
.2256	.1954	.2136	-.2205	-.2216	.2059	-.1528	-.1371
-.1544	-.1598	.1630	-.1537	-.1947	.1686	-.1474	-.1415
-.1575	-.1249	.1043	-.0766	-.1588	-.1190	-.0860	.0535
-.0359	-.0614	-.0308	.0014	-.0628	-.0535	-.0552	-.0493
-.1638	-.1281	.1103	-.1028	-.1577	-.1502	.1528	-.2592
-.1503	-.1622	.1448	-.1494	-.2015	-.2205	-.2323	-.3341
-.1559	-.1775	.1772	-.1906	-.2156	-.2749	-.2906	-.3077
-.2383	.1659	.0611	.0294	-.2186	-.1470	-.0582	.0335
-.2612	-.1985	.1123	-.0587	-.2423	.1778	.1215	-.0159
-.2802	-.2065	.1417	-.1933	-.2616	-.1868	-.1503	.0545
-.2300	-.1857	.1370	-.1191	-.2186	-.1650	.1503	-.0835
-.1895	-.1651	.1361	-.1246	-.1603	-.1449	-.1552	-.1450
-.0930	-.0369	.0313	.1175	-.0949	-.0242	.0501	.1323
-.0686	-.0163	.0428	.1151	-.0605	.0035	.0797	.1556
-.0544	-.0090	.0438	.1017	-.0415	.0142	.0790	.1331
-.0301	.0038	.0418	.0935	-.0142	.0305	.0782	.1286
-.0153	.0101	.0371	.0729	-.0051	.0368	.0732	.1107
.0579	.1497	.1631	.1801	.1112	.1502	.1915	.2055
.0762	.1338	.1485	.1714	.0851	.1430	.1707	.2024
.0573	.0619	.0399	.0105	.0656	.0920	.0569	.0436
-.0602	-.0103	.0031	.0241	-.0613	.0188	.0220	.0510
-.0347	-.0318	-.0308	-.0590	-.0394	-.0054	-.0357	-.0554
-.0546	-.0454	.0400	-.0531	-.0628	-.0144	-.0399	-.0572
-.0659	-.0458	.0376	-.0524	-.0769	-.0196	-.0391	-.0522
-.0878	-.0526	.0418	-.0512	-.0944	-.0302	.0445	-.0499
-.1001	-.0657	.0437	-.0498	-.1033	-.0322	.0438	-.0143
-.1219	-.1088	.0839	-.0791	-.1227	-.0384	.0433	-.0334
-.1503	-.1367	.1065	-.1077	-.1253	-.0915	-.1129	-.1352
-.1512	-.1261	.0572	-.0923	-.1513	-.1162	.1398	-.1555
-.1530	-.1215	.0838	-.0488	-.1602	-.1158	.1264	-.1532
-.1537	-.1263	.0895	-.0932	-.1595	-.1105	.1182	-.1405
-.1452	-.1214	.0856	-.0353	-.1712	-.1170	.1197	-.1326
-.0844	-.0917	.0519	-.0946	-.1649	-.1111	.1153	-.1238
-.0711	.0916	.0825	-.0339	-.2860	-.2564	.2643	-.2735
-.0521	-.0708	-.0634	-.0835	-.2858	-.2433	.2423	-.2537
-.0483	-.0589	-.0493	-.0451	-.2521	-.2178	.2133	-.2239
-.0633	-.0711	-.0573	-.0449	-.2099	-.1803	.1757	-.1937
				-.1578	-.1718	-.1726	-.1879

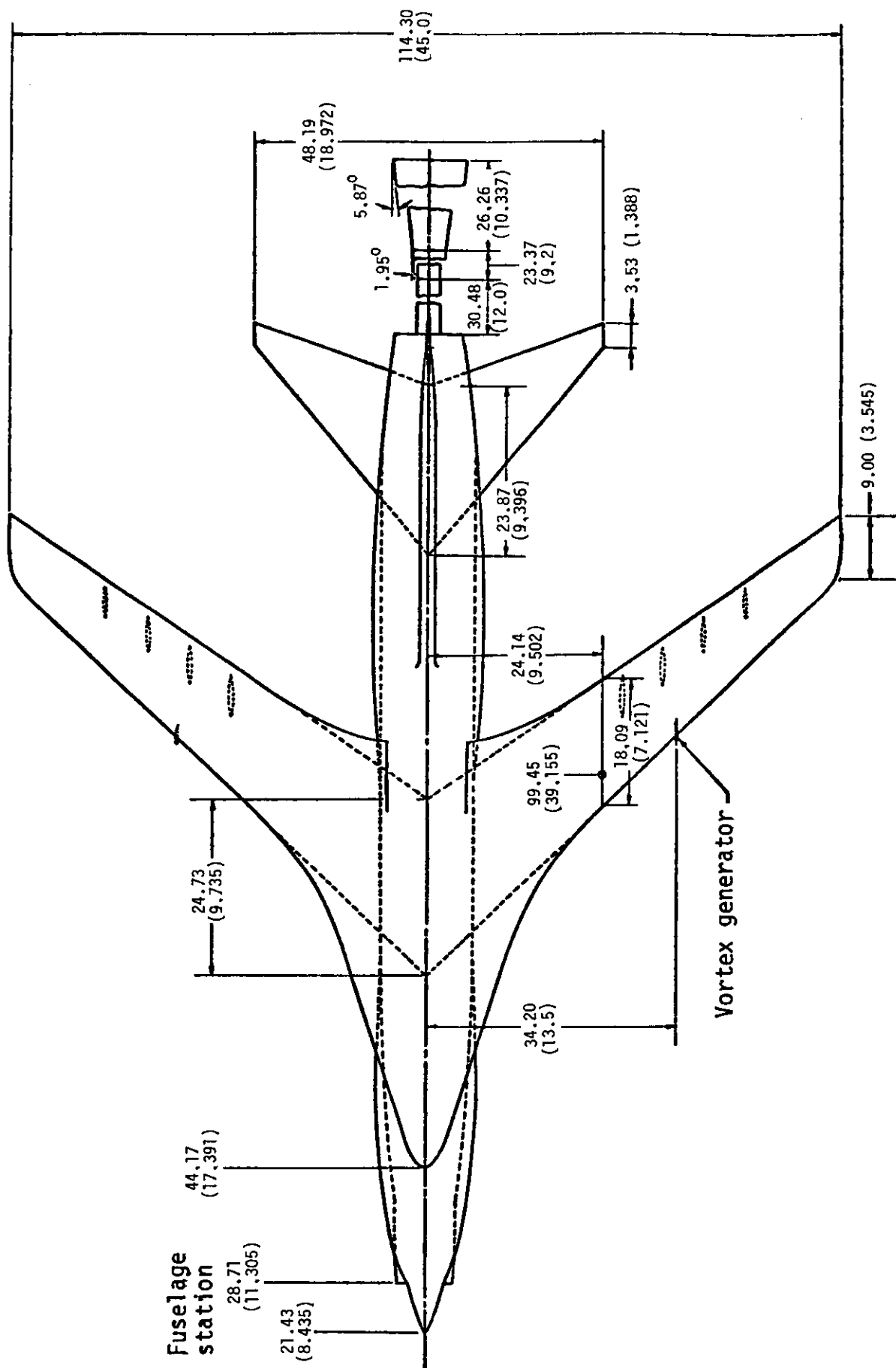


Figure 5.1.- Planform view of TF-8A supercritical wing research model.

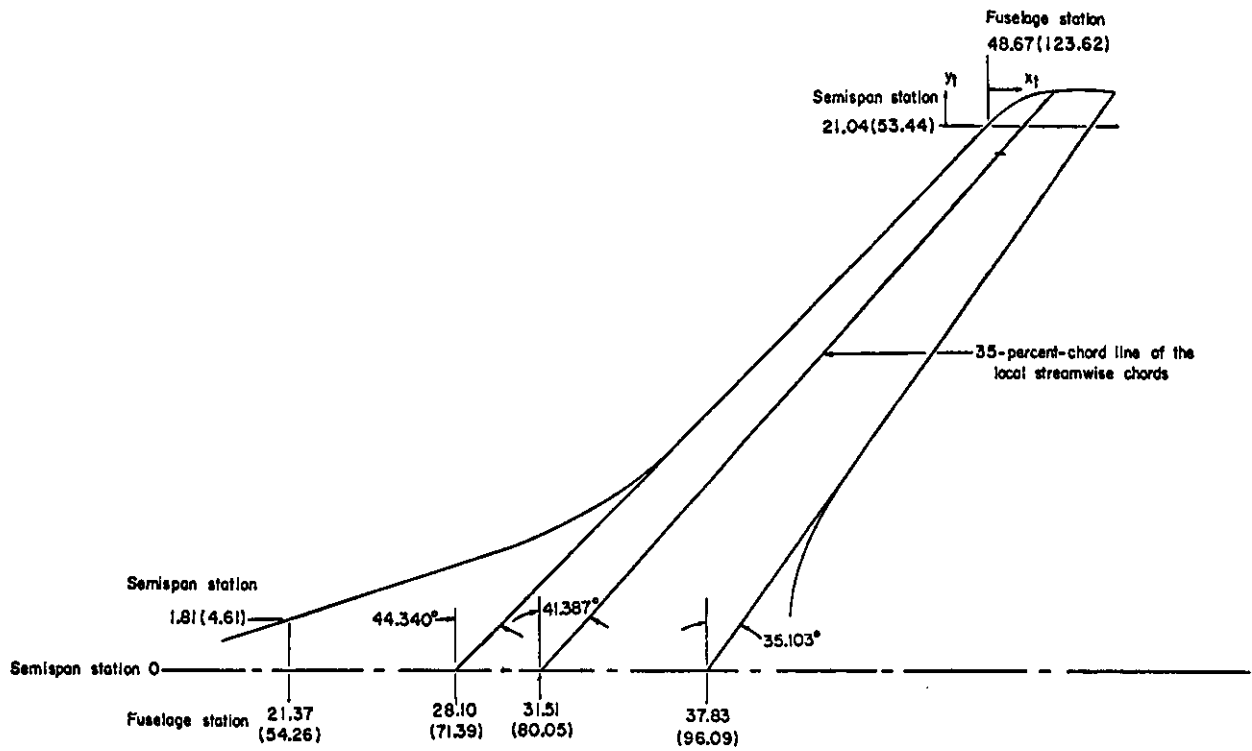


Figure 5.2.- Wing semispan planform layout with model dimensions.

Trailing-Edge Extension Contour

Fuselage station		Semispan station	
Inches	Centimeters	Inches	Centimeters
41.09	104.35	2.26	5.74
41.21	104.70	3.13	7.91
41.43	105.22	4.00	10.17
41.74	106.00	4.87	12.35
42.13	107.04	5.74	14.61
42.60	108.17	6.61	16.78
43.14	109.57	7.48	18.90
43.71	111.04	8.35	21.22

Tip Contour

x_t , In.	x_t , cm	y_t , In.	y_t , cm
0	0	0	0
.13	.35	.13	.35
.38	.96	.39	.96
.63	1.57	.64	1.65
.88	2.26	.85	2.17
1.13	2.87	1.01	2.61
1.38	3.48	1.14	2.87
1.63	4.17	1.24	3.13
1.88	4.78	1.31	3.30
2.13	5.39	1.36	3.48
2.38	6.00	1.40	3.57
2.63	6.70	1.43	3.65
2.88	7.30	1.44	3.65
3.13	7.91	1.45	3.65
3.38	8.61	1.45	3.65
3.63	9.22	1.45	3.65
3.88	9.83	1.45	3.65
4.13	10.52	1.45	3.65
4.38	11.13	1.44	3.65
4.60	11.65	1.44	3.65
4.85	12.34	1.43	3.65
4.96	12.61	1.43	3.65

Glove Leading-Edge Contour

Fuselage station		Semispan station	
Inches	Centimeters	Inches	Centimeters
21.37	54.26	1.81	4.61
21.74	55.22	1.92	4.87
22.60	57.39	2.21	5.57
23.48	59.65	2.49	6.35
24.35	61.83	2.77	7.04
25.22	64.09	3.05	7.74
26.09	66.26	3.33	8.43
26.96	68.43	3.62	9.22
27.83	70.70	3.90	9.91
28.70	72.87	4.18	10.60
29.57	75.13	4.47	11.39
30.17	76.61	4.68	11.91
30.78	78.17	4.91	12.43
31.30	79.48	5.13	13.04
32.17	81.74	5.52	14.00
33.04	83.91	5.97	15.13
33.91	86.17	6.49	16.52
34.78	88.35	7.08	18.00
35.65	90.52	7.78	19.74
36.52	92.78	8.62	21.91

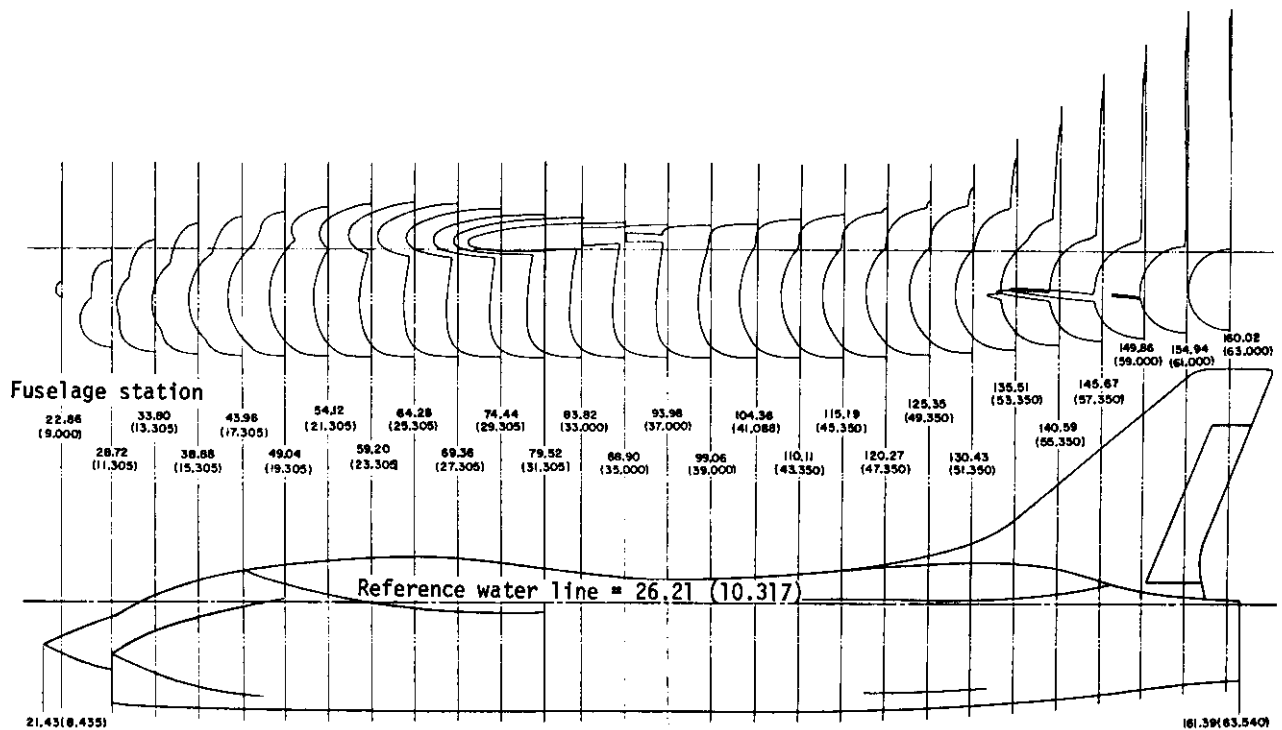


Figure 5.3.- Cross-section layout of 0.087-scale model with fuselage area-rule additions.

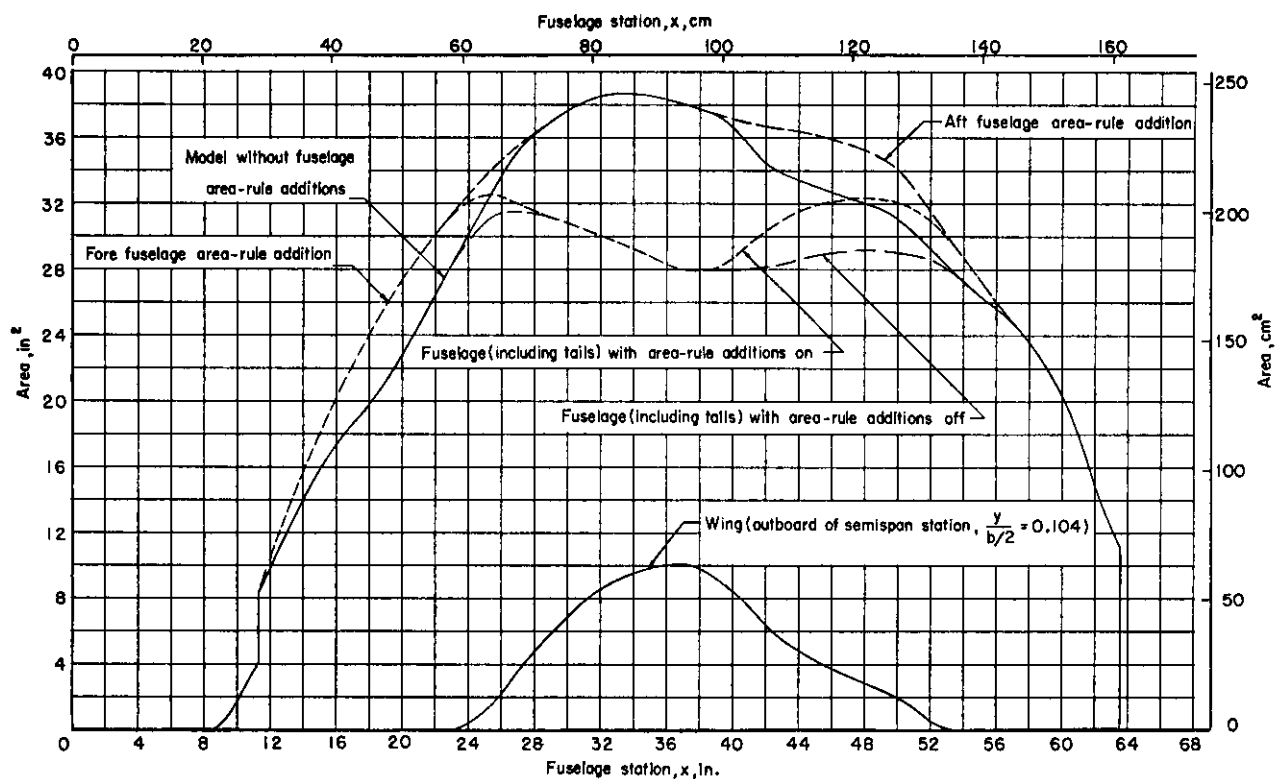
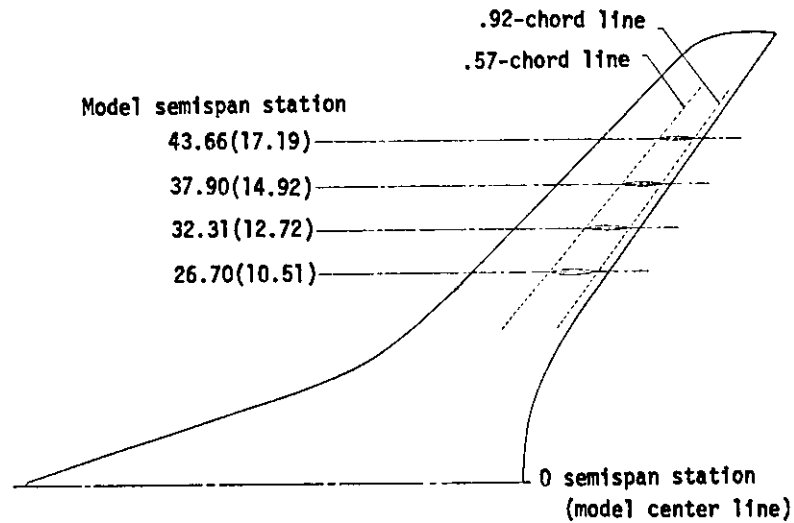
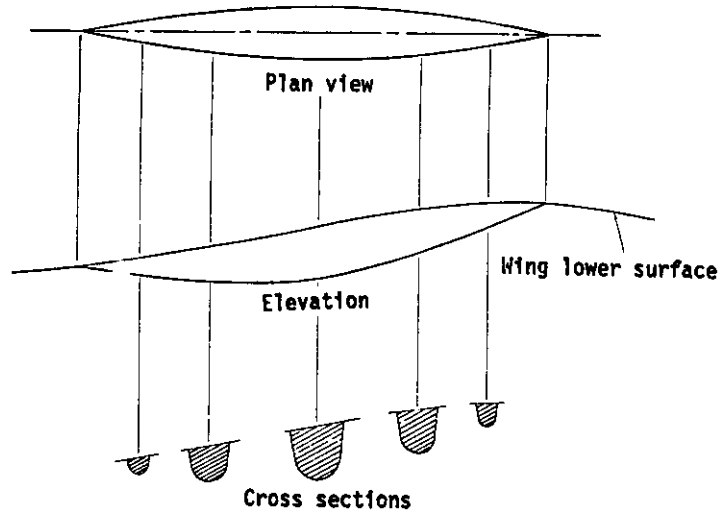


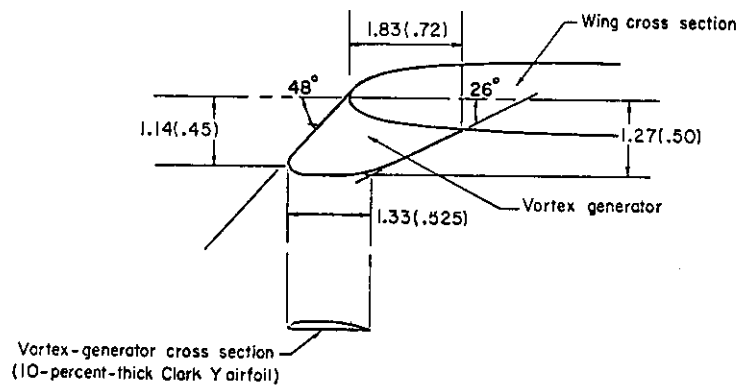
Figure 5.4.- Longitudinal progress of cross-section area taken normal to fuselage centerline. Model and fuselage areas include 28.39 cm² (4.40 in²) of inlet area.



(a) Location of aileron hinge fairings.



(b) Sketch of typical aileron hinge fairing.



(c) Sketch of underwing leading-edge vortex generator.

Figure 5.5 - Sketches giving details of aileron hinge fairings and vortex generator. See Figure 5.1.

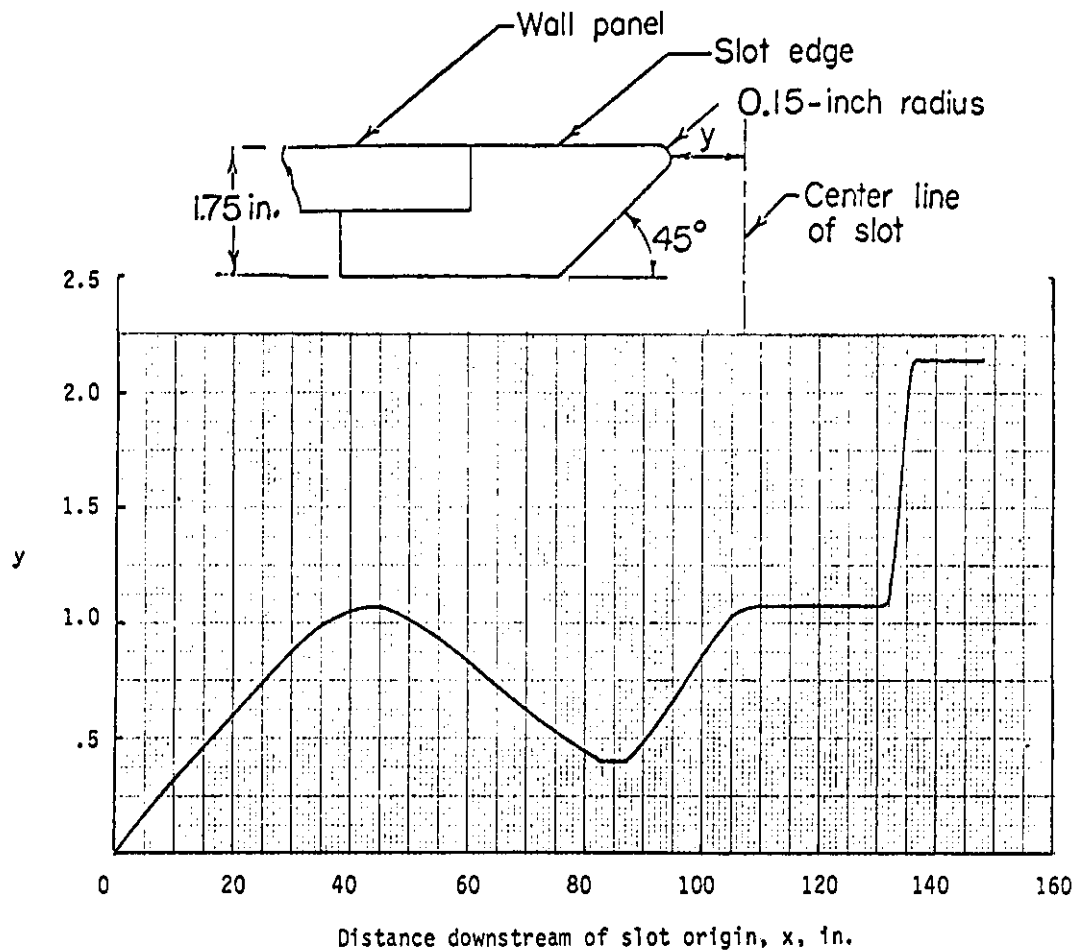


Figure 5.6.- Slot geometry for the Langley 8-Foot Transonic Pressure Tunnel.

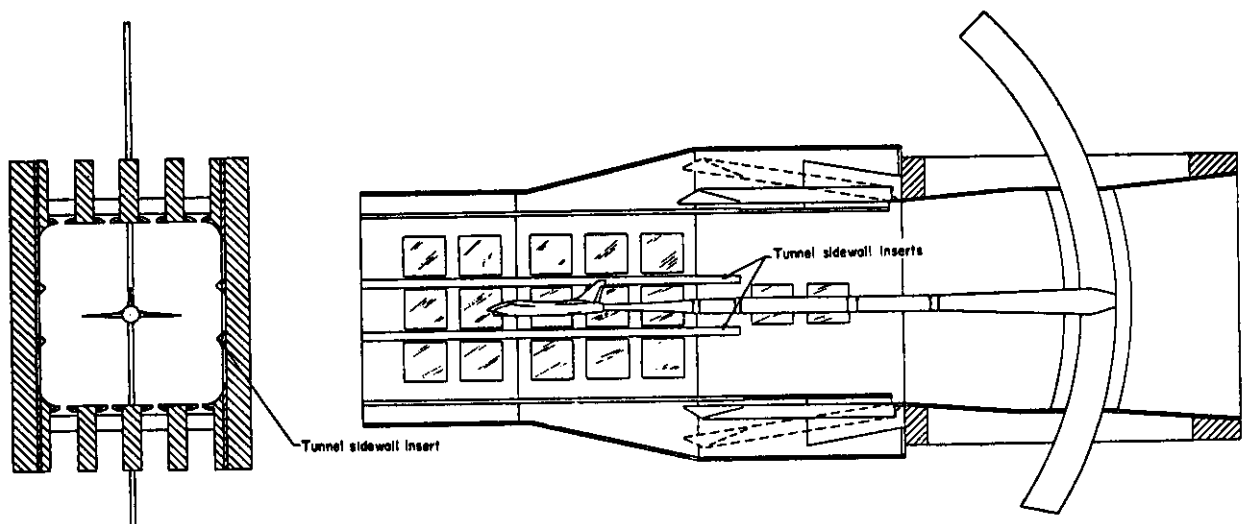


Figure 5.7.- Tunnel test section with sidewall inserts,

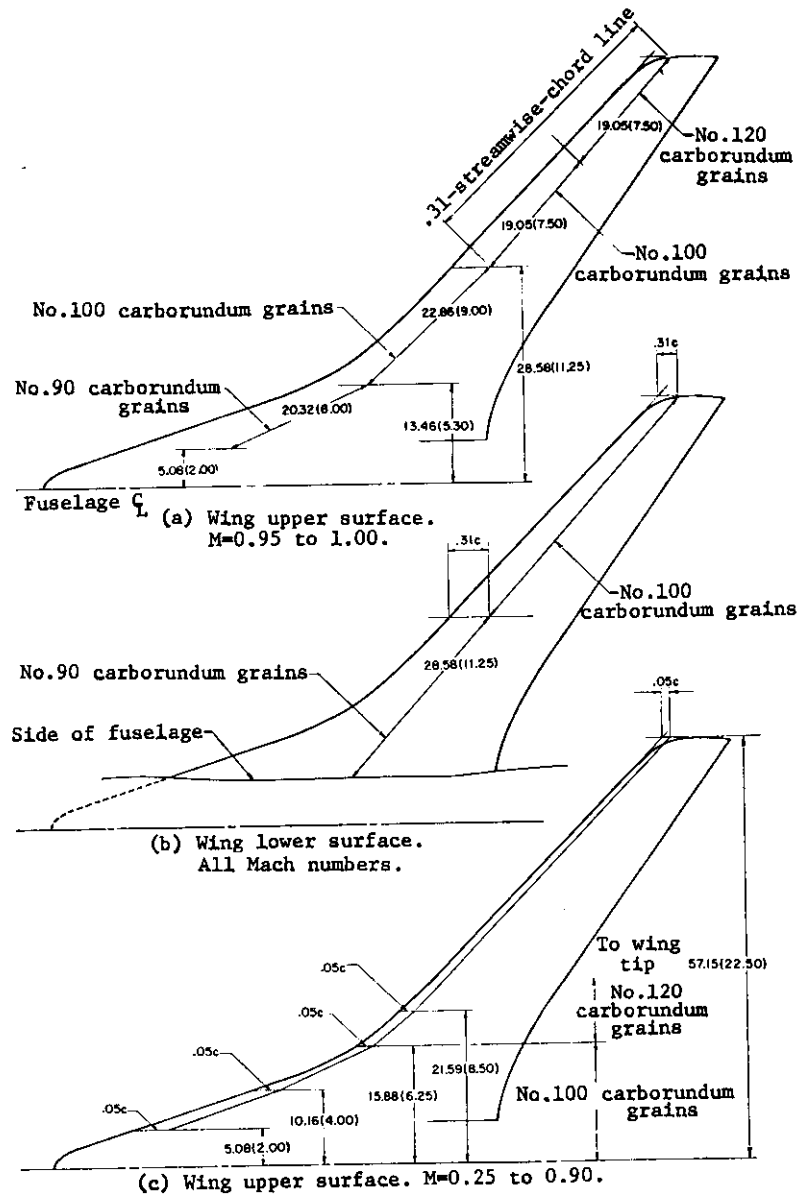


Figure 5.8.- Boundary-layer trip arrangements, Dimensions are in centimeters (inches).

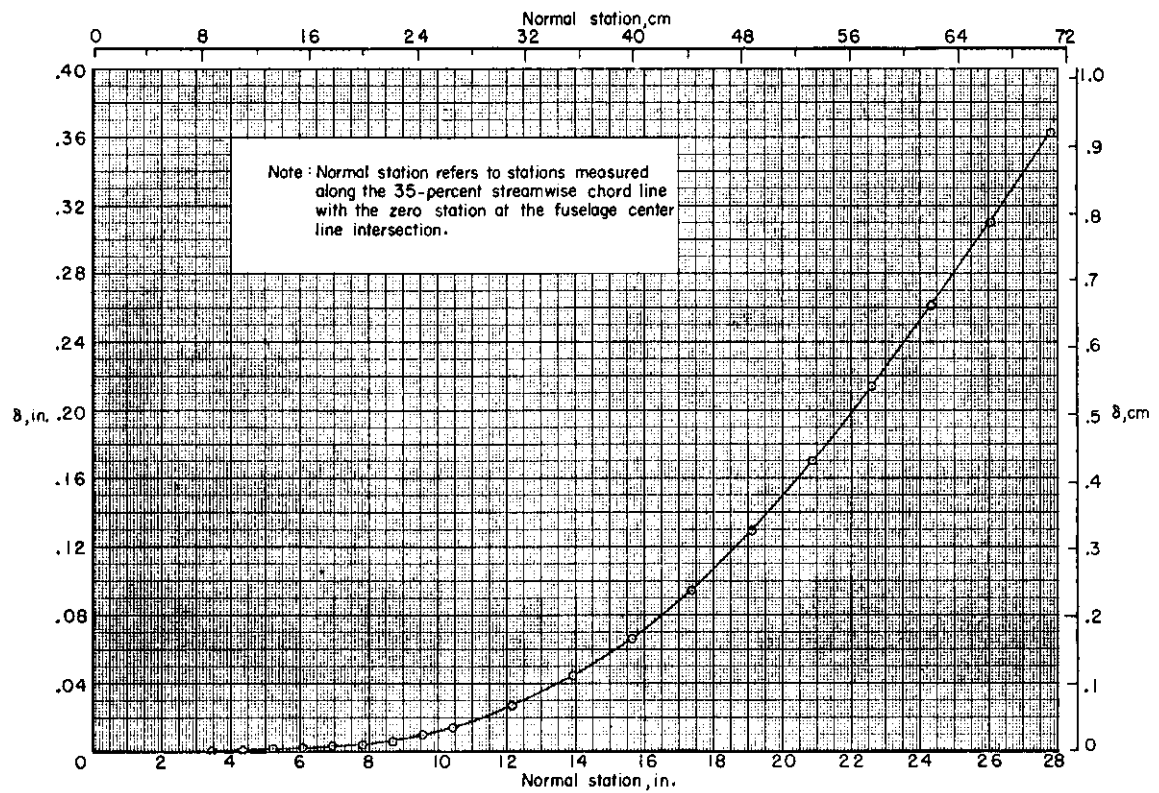


Figure 5.9.- Vertical deflection of model wing due to aerodynamic loading. $M = 0.99$; $C_L = 0.429$;
 $q = 44\,193 \text{ N/m}^2$ (923 lb/sq ft); $R = 16.1 \times 10^6$ per meter (4.9×10^6 per foot).
 Note: Tip at normal station 30.

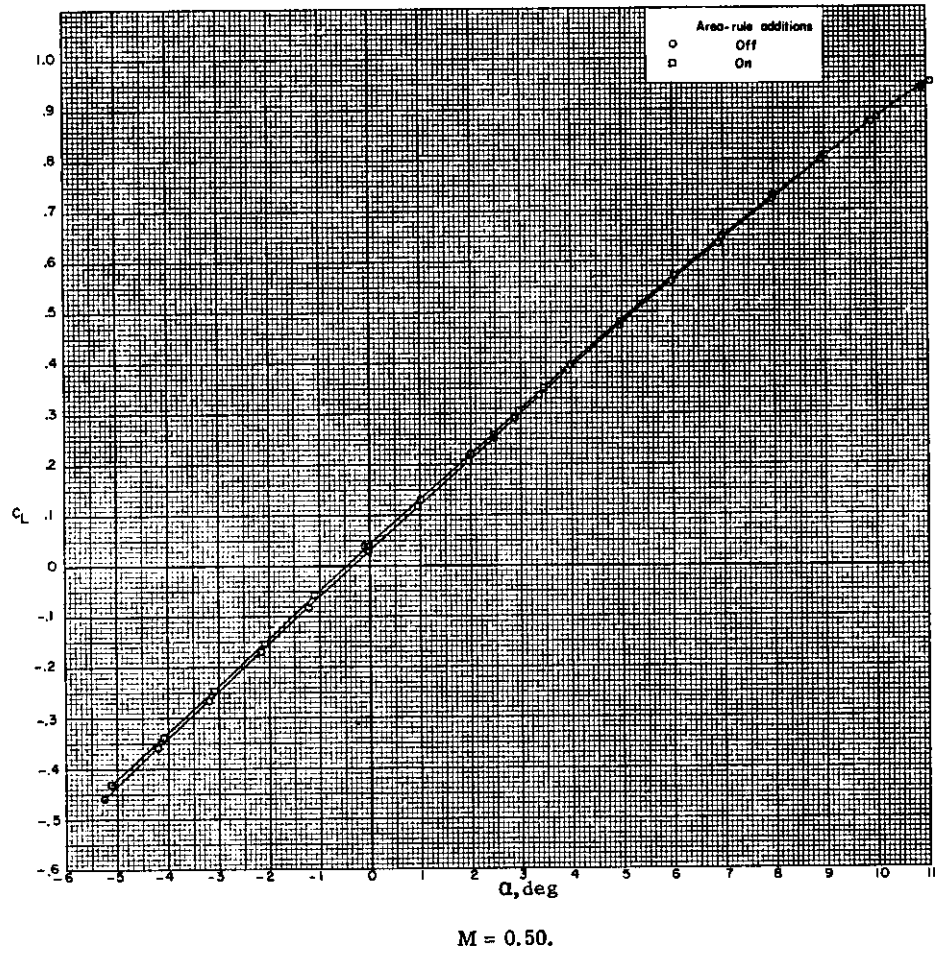
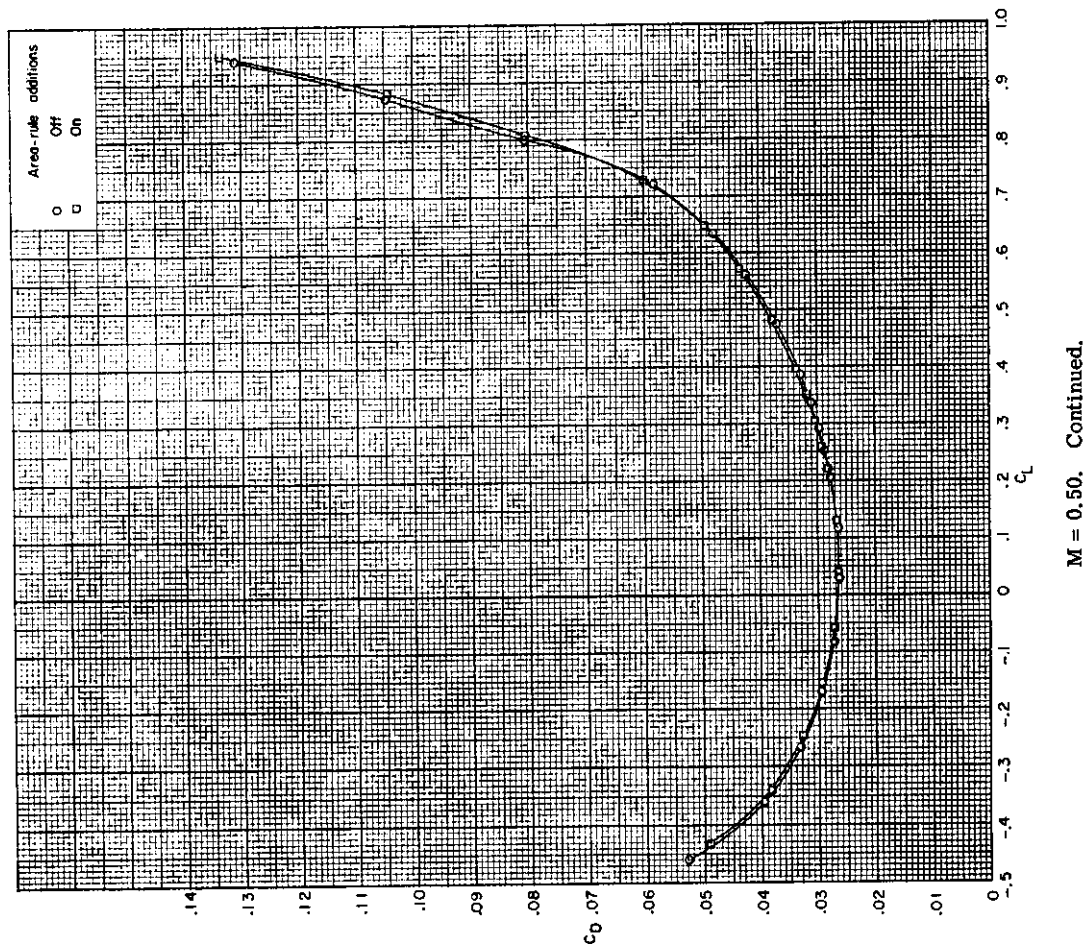
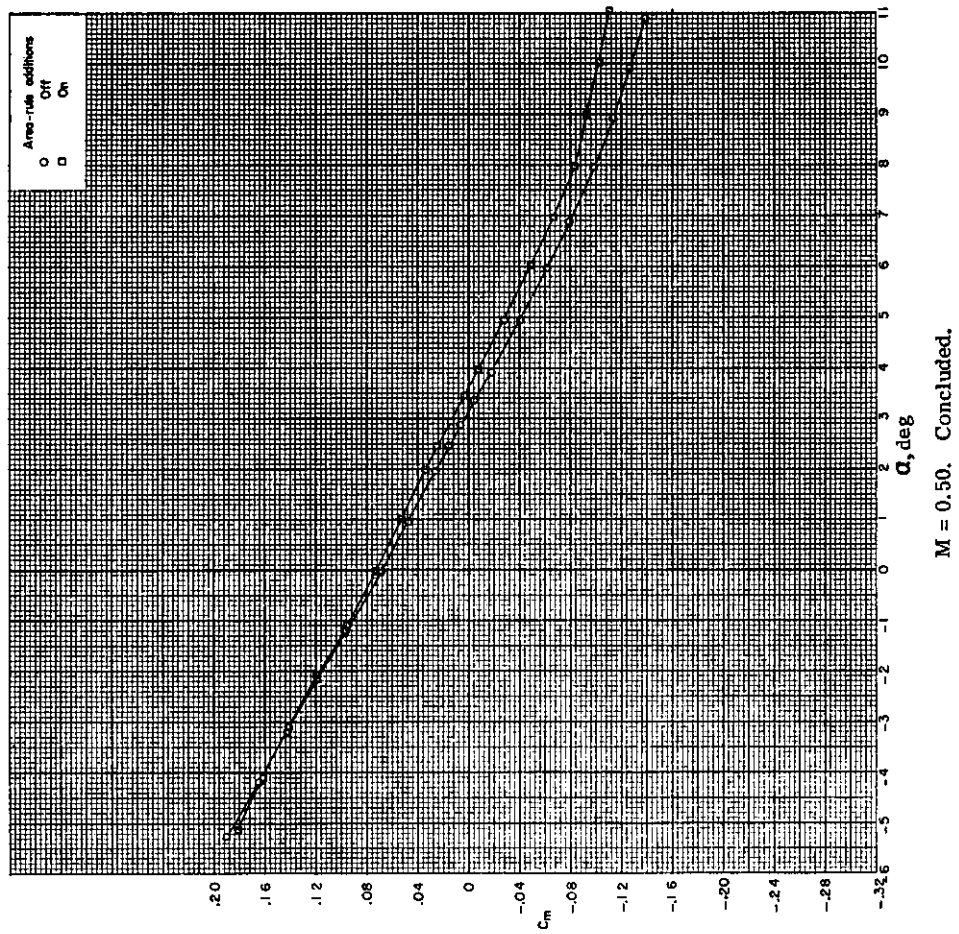


Figure 5.10.- Longitudinal force and moment characteristics for supercritical wing research airplane model.



$M = 0.50$. Continued.



$M = 0.50$. Concluded.

Figure 5.10.- Continued

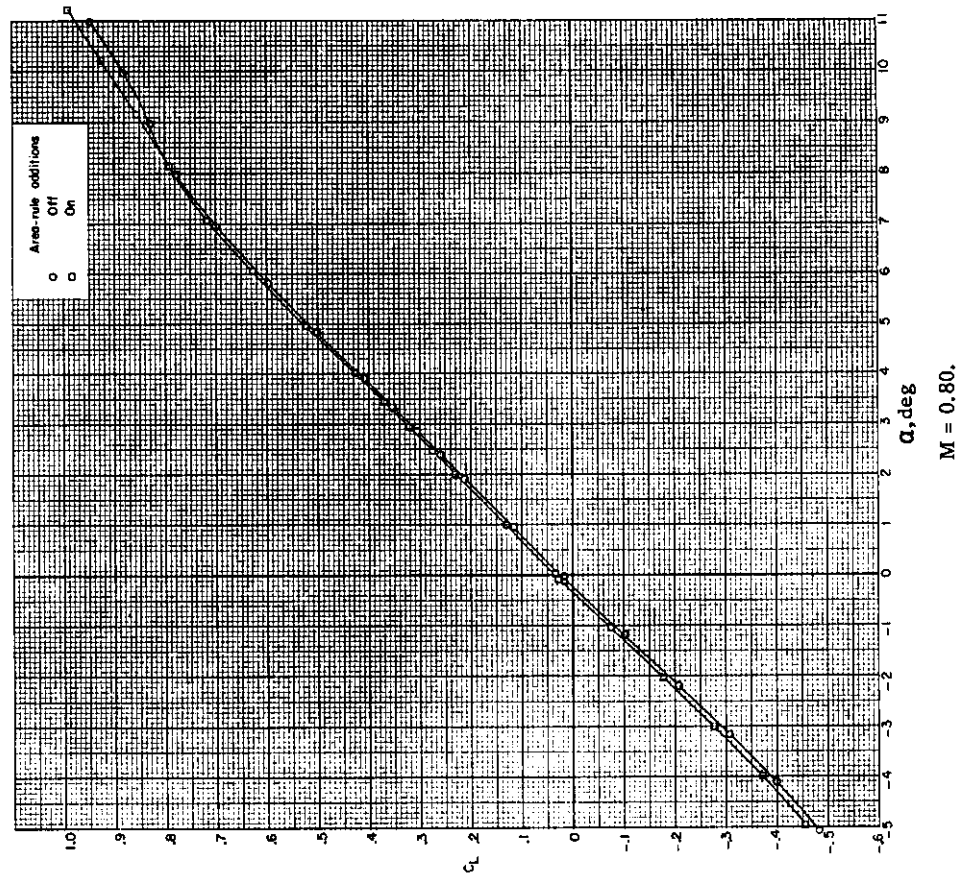
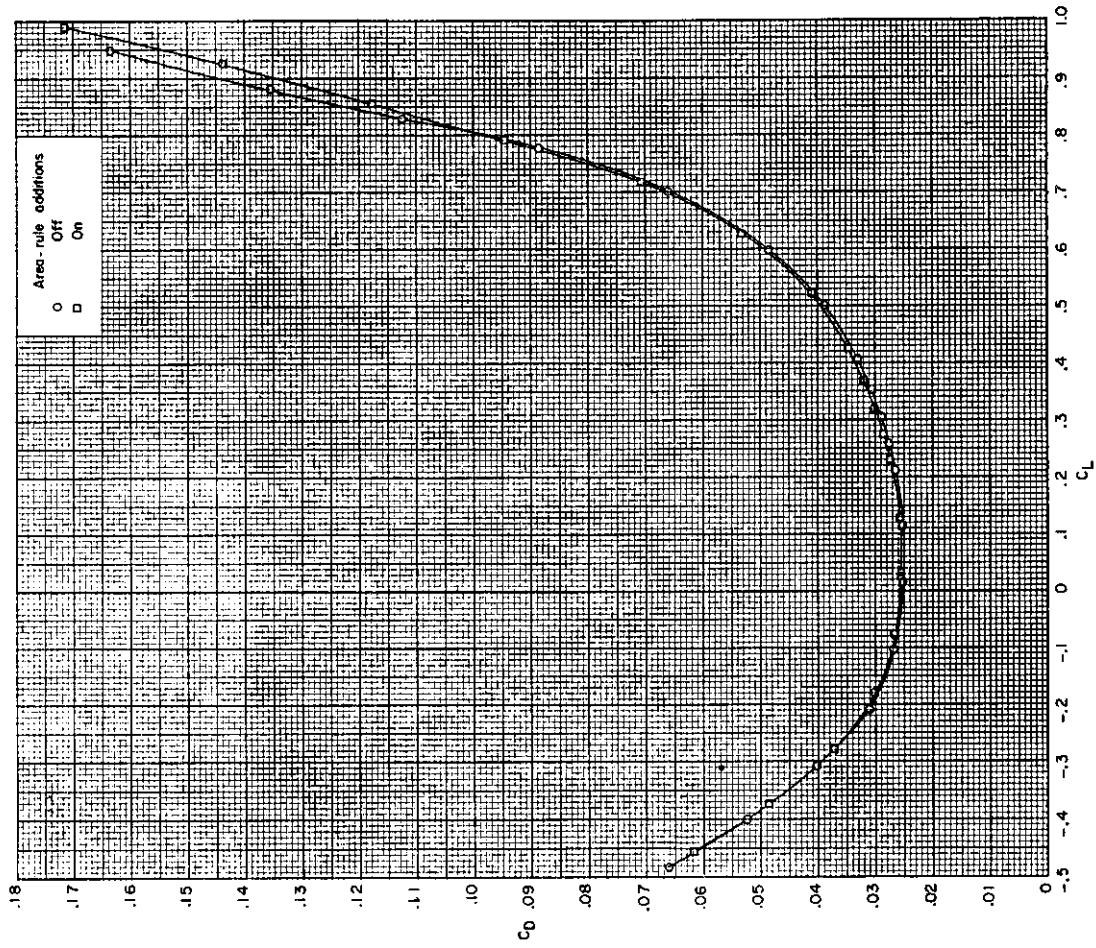


Figure 5.10.- Continued

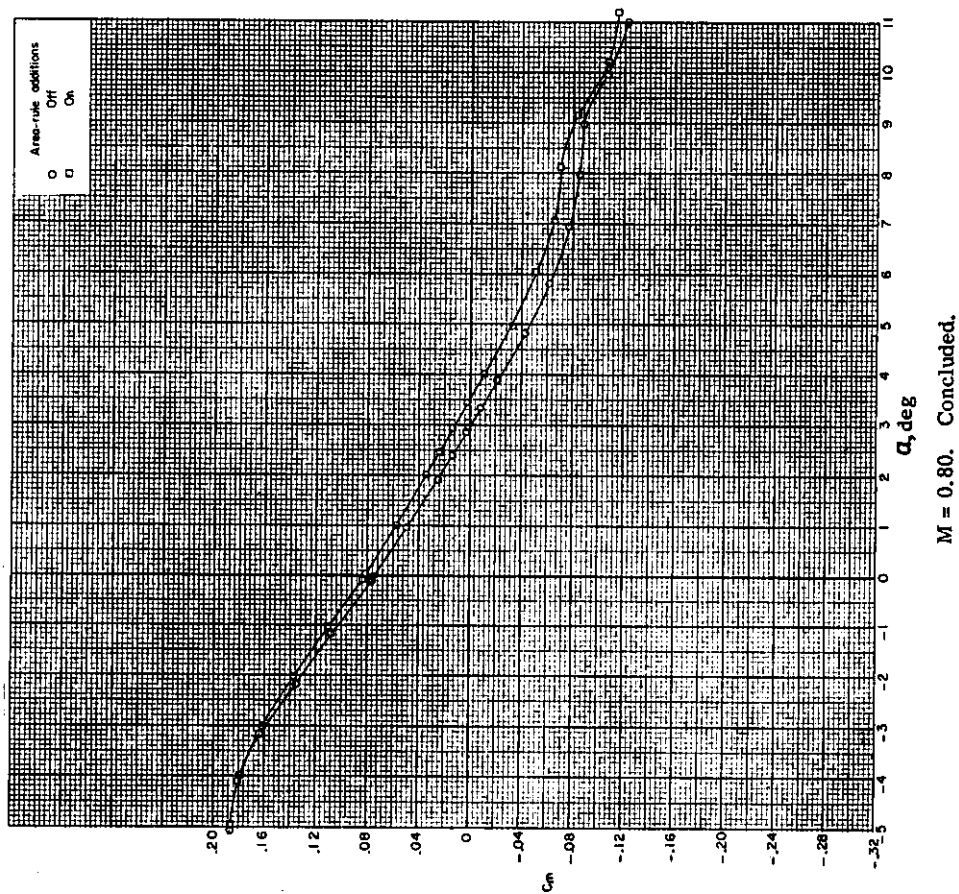
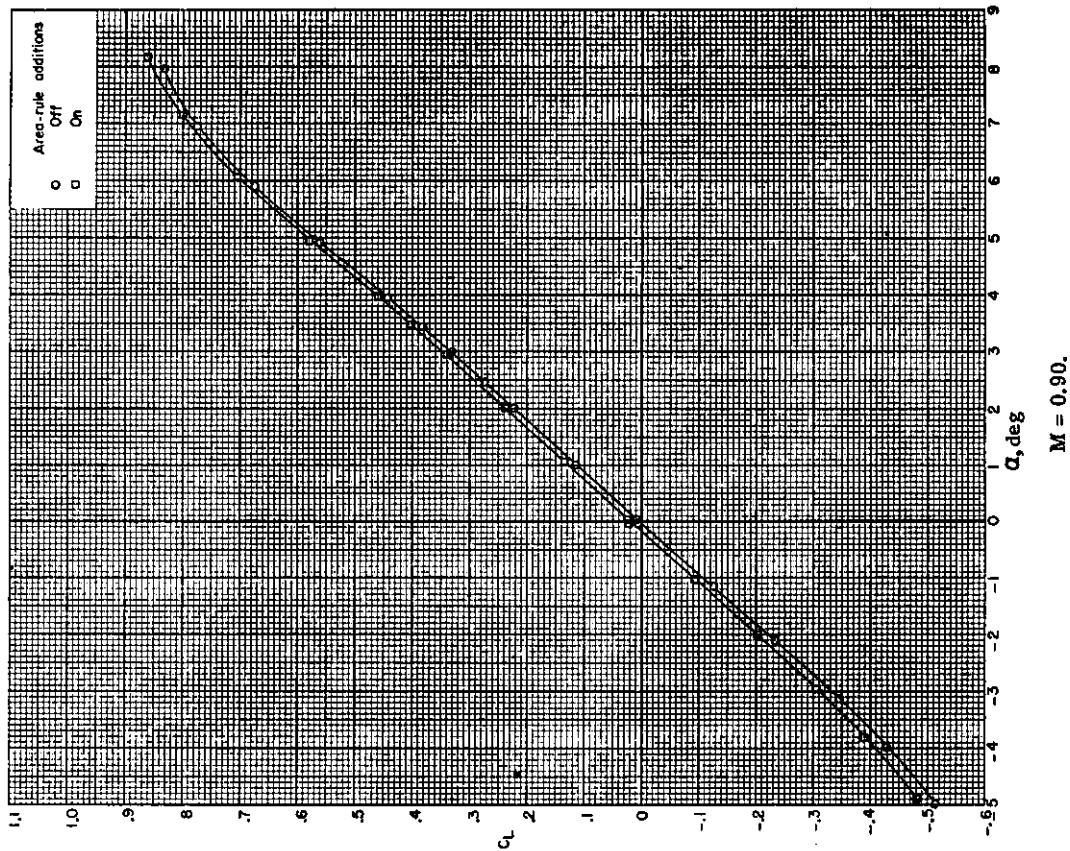


Figure 5.10.- Continued

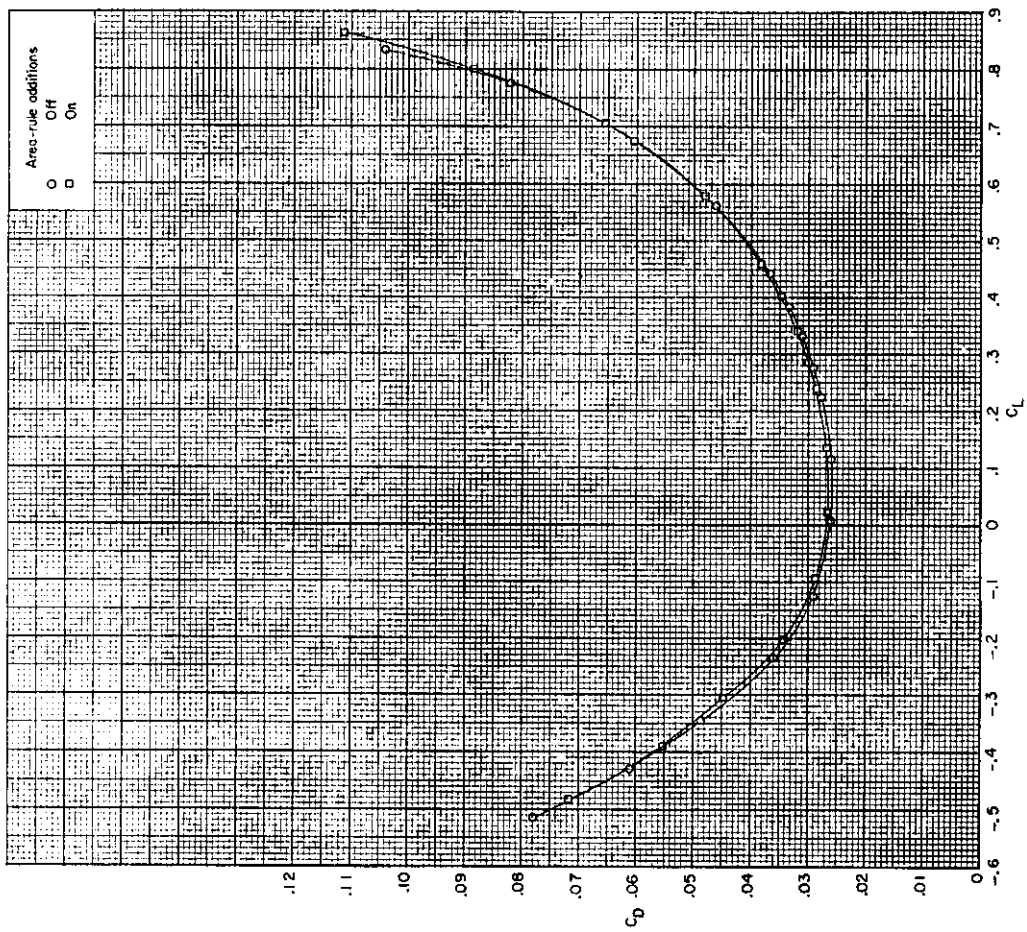
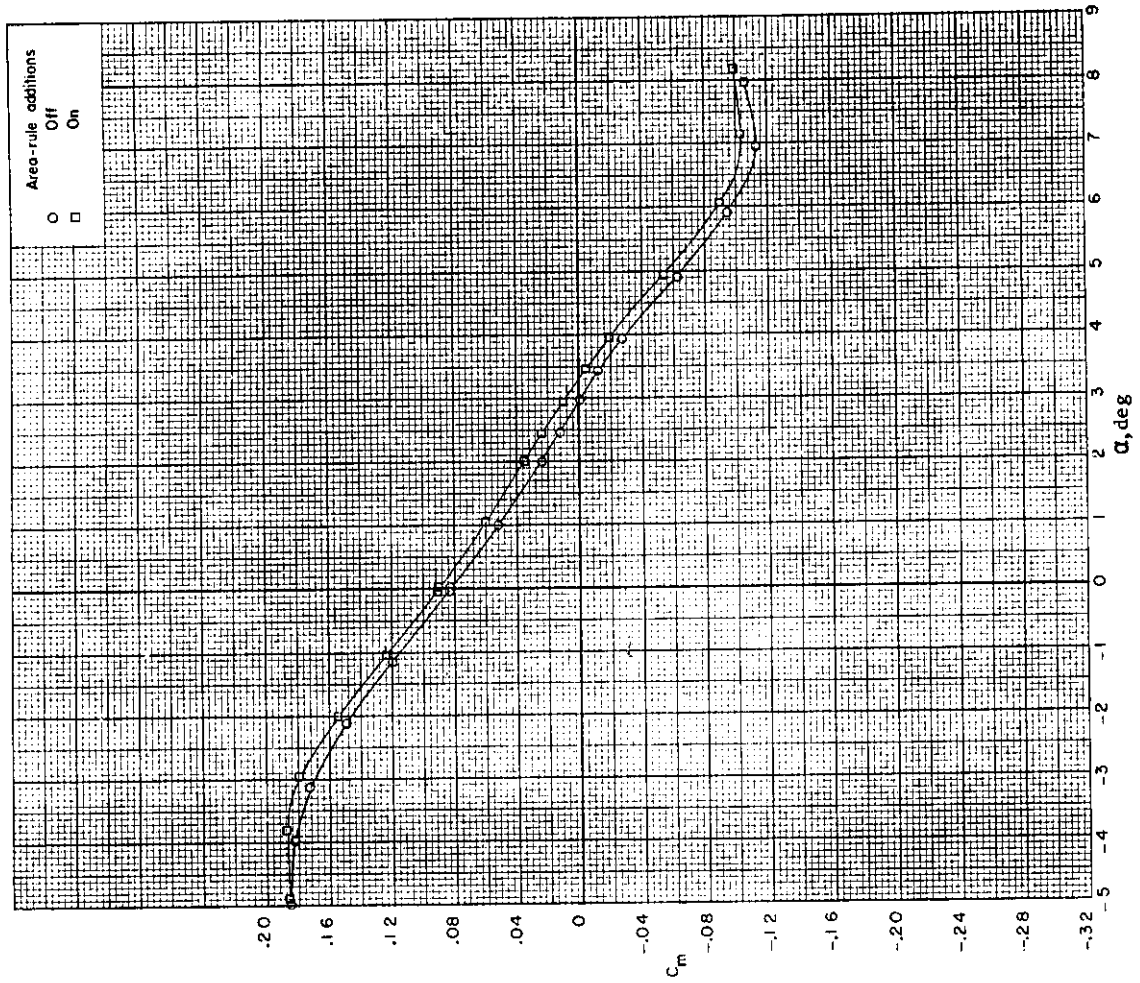


Figure 5.10.- Continued

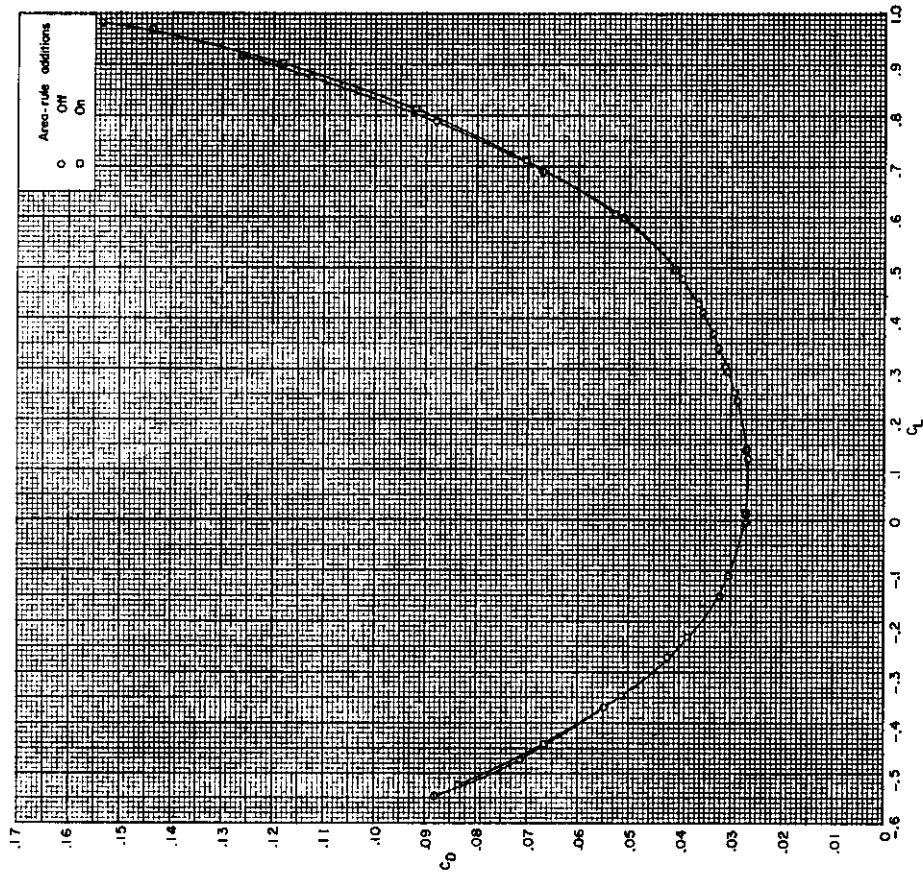
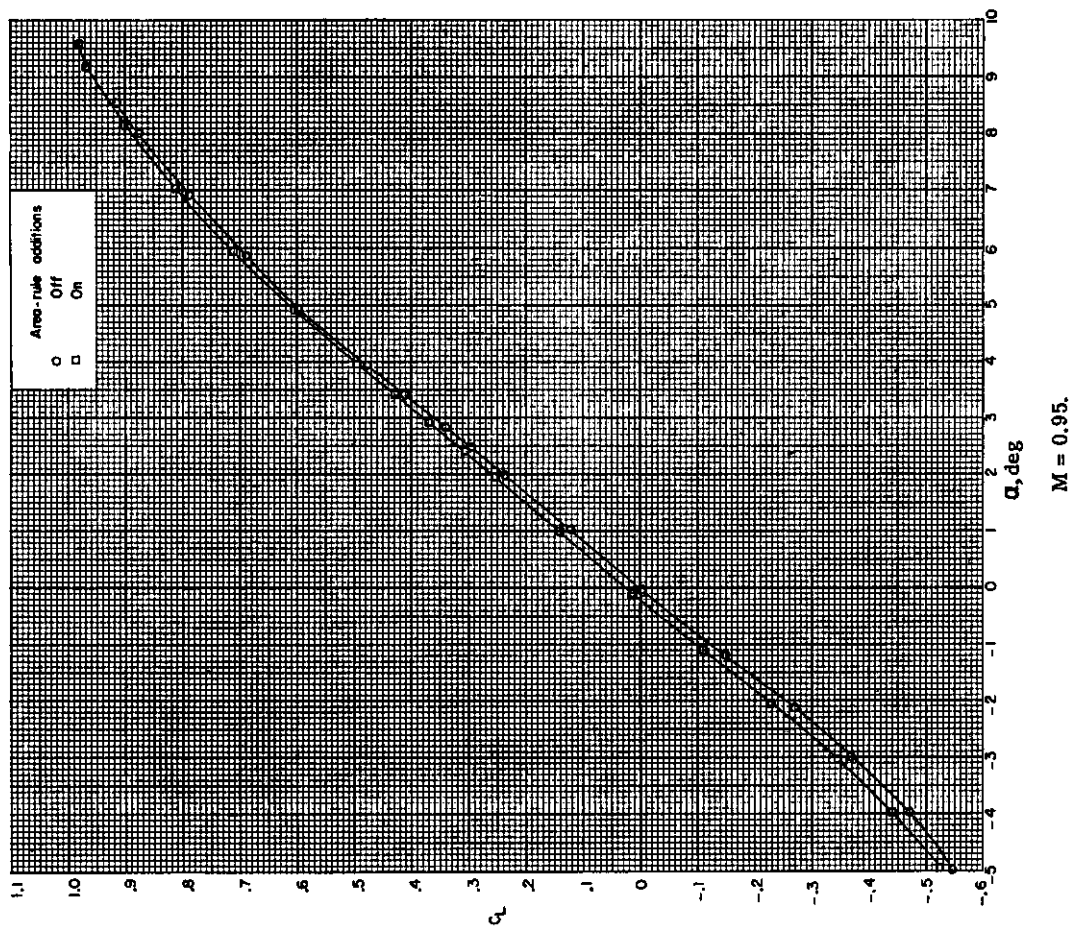


Figure 5.10.- Continued

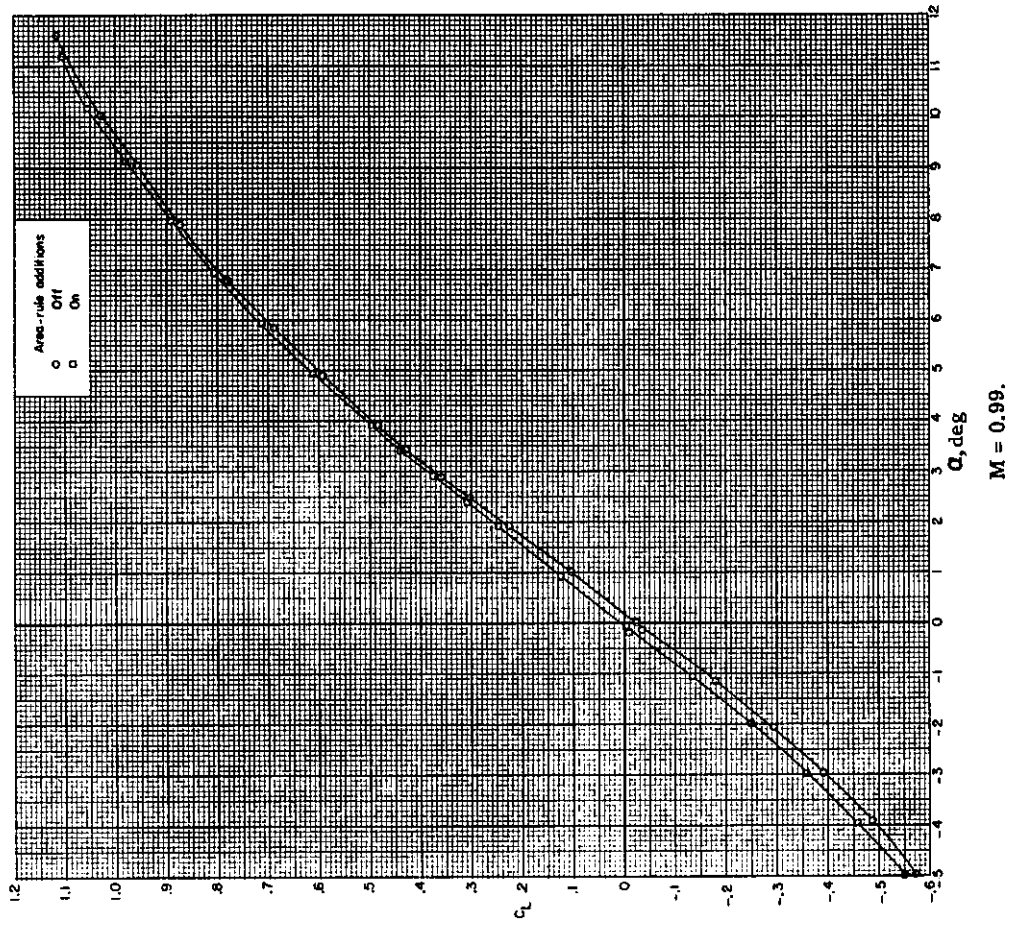
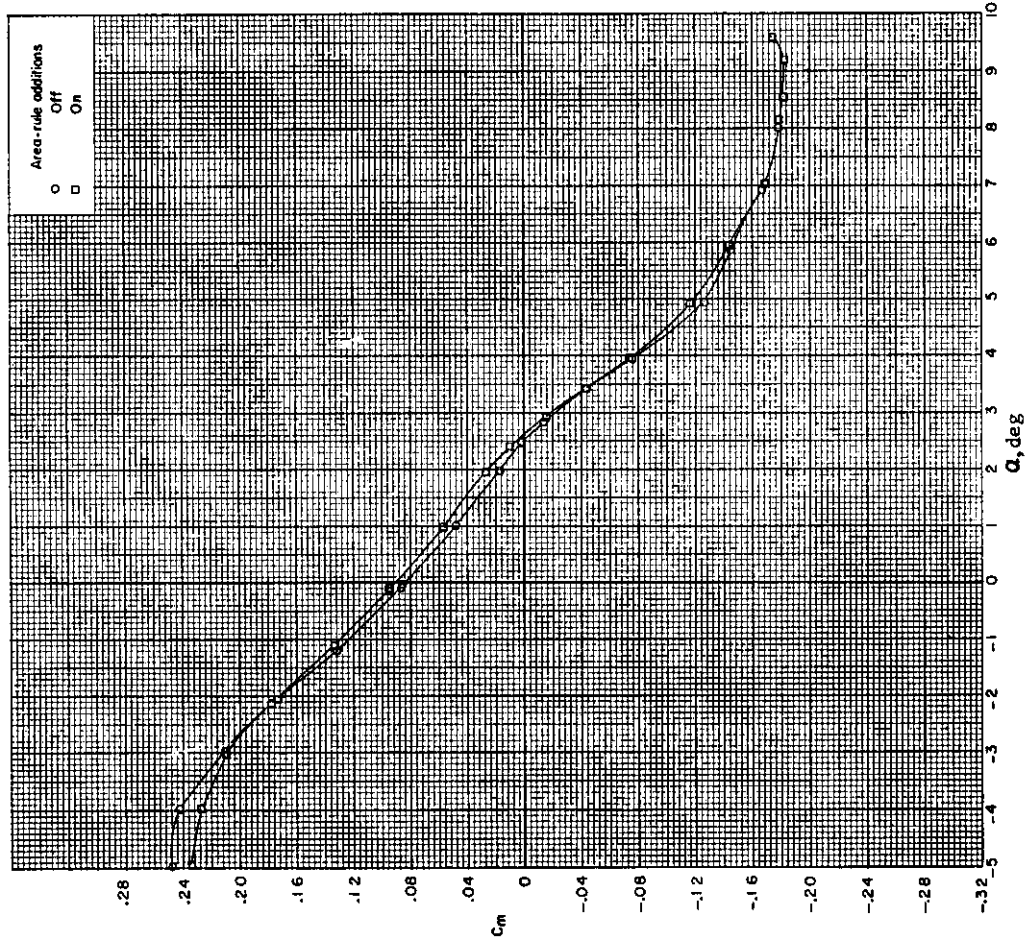
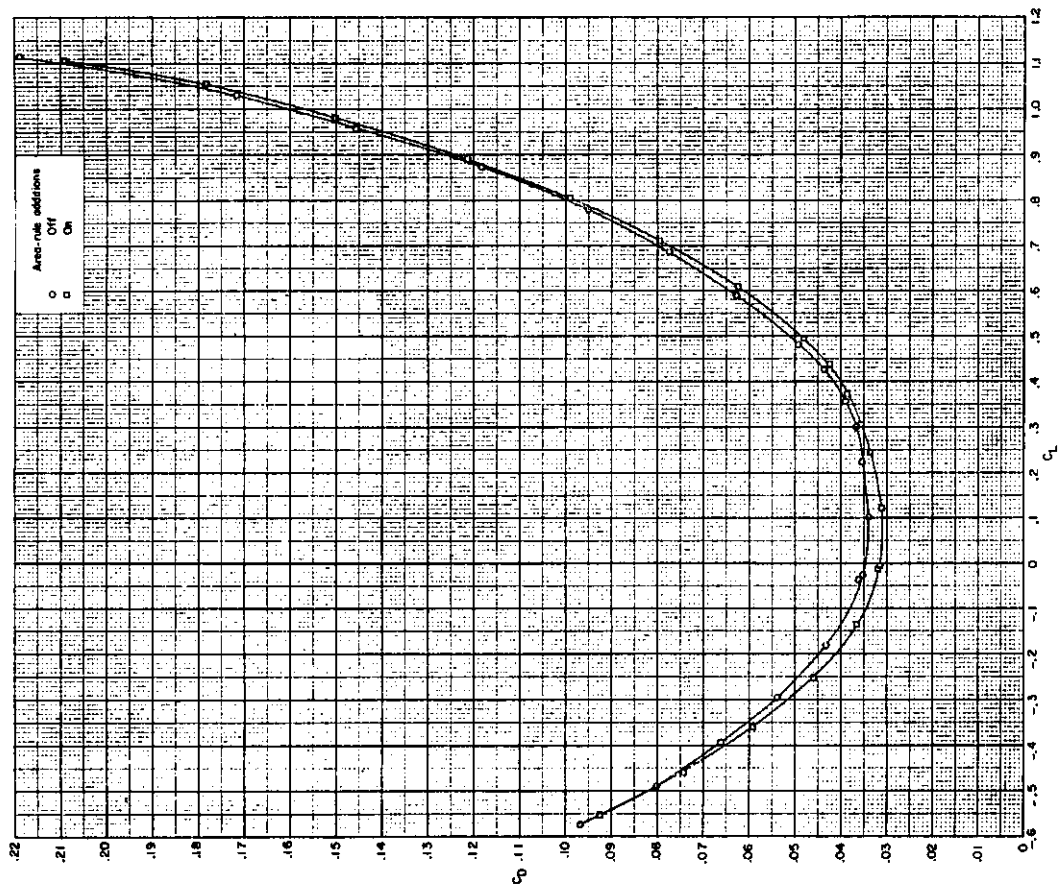
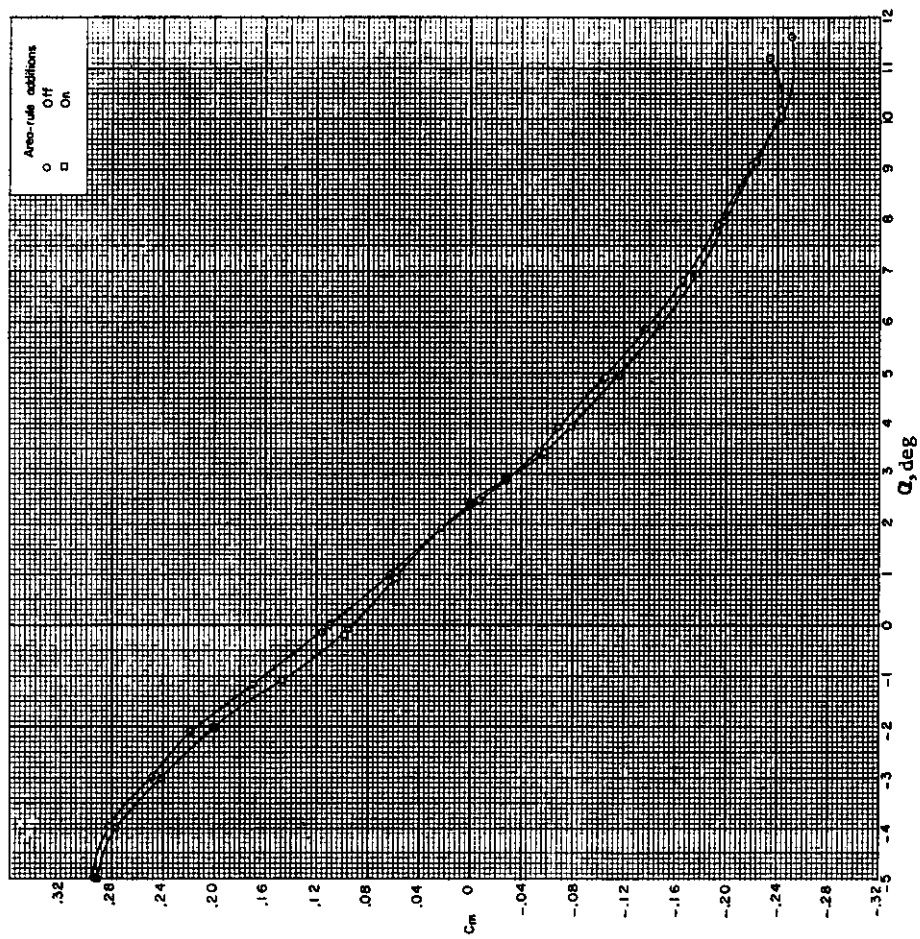


Figure 5.10.- Continued



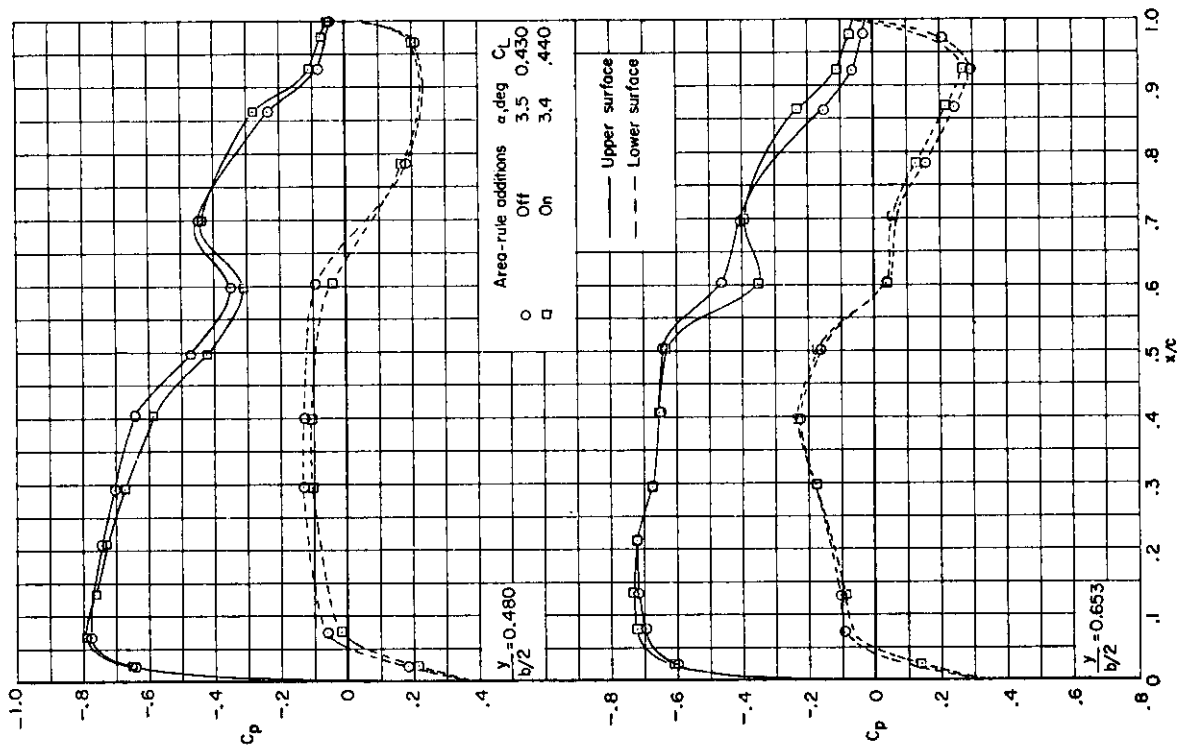
$M = 0.99.$ Continued.

Figure 5.10.- Continued



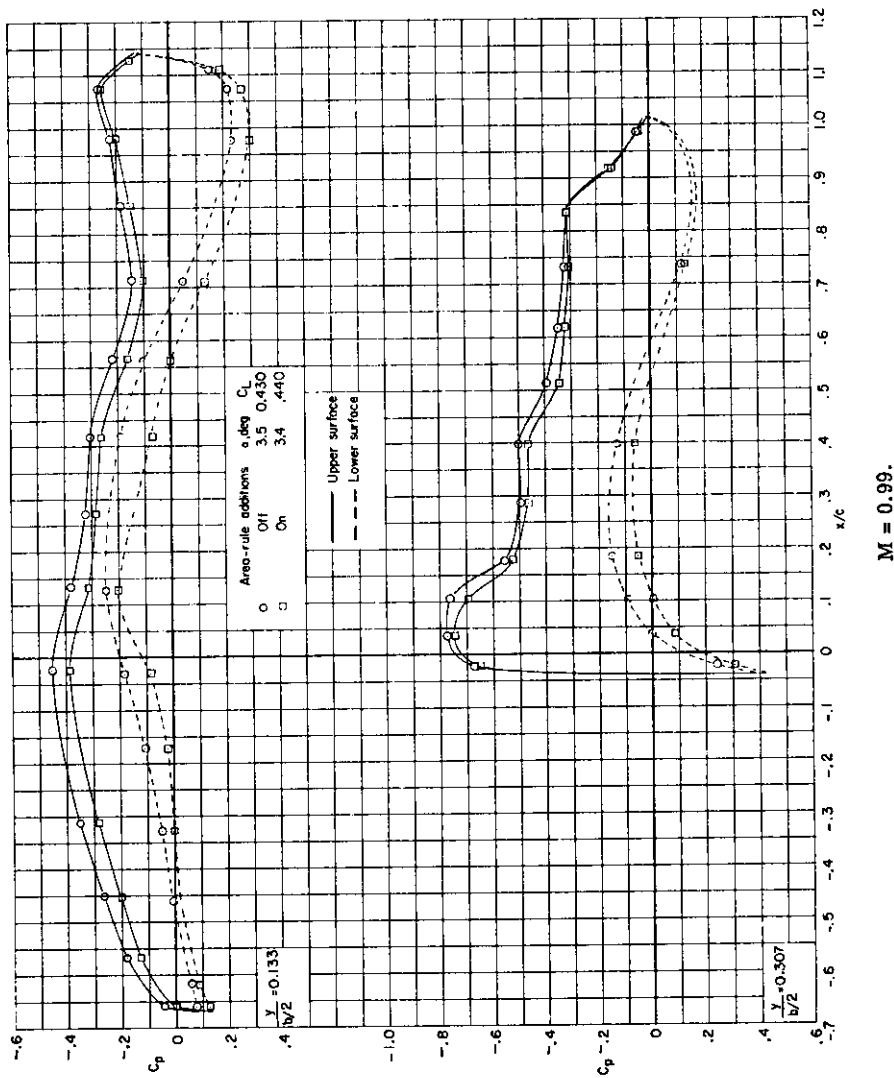
$M = 0.99.$ Concluded.

Figure 5.10.- Concluded



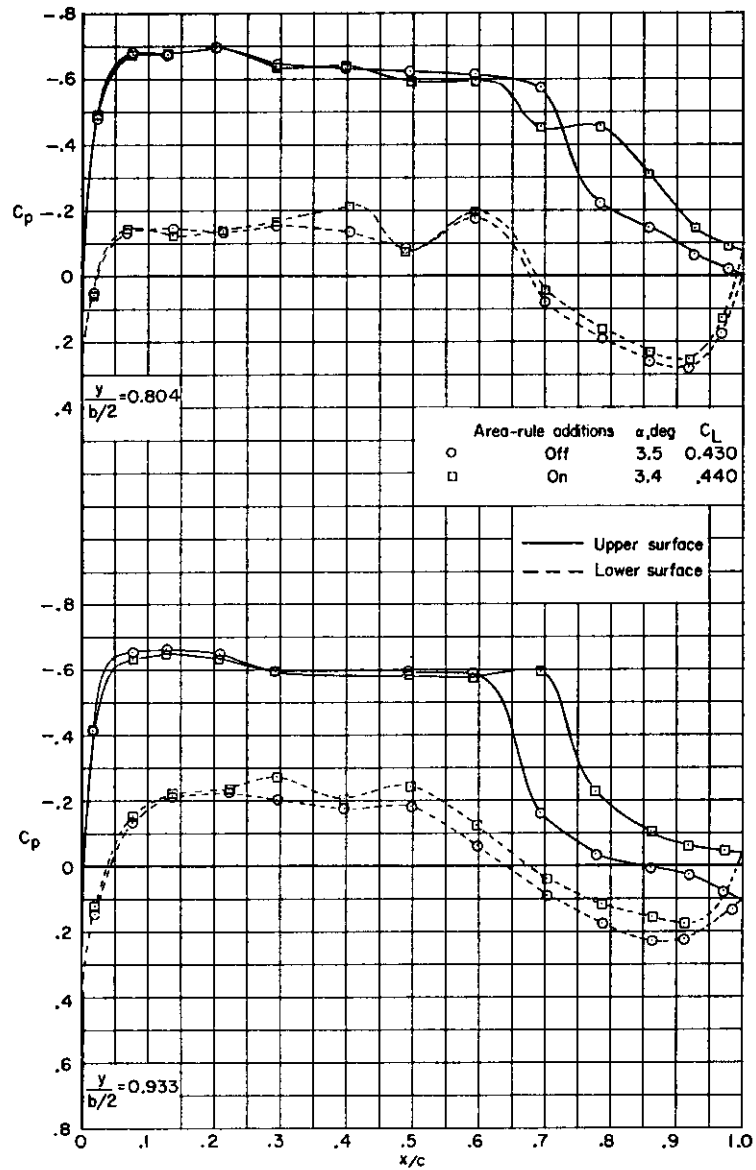
$M = 0.99$. Continued.

Figure 5.11.- Continued



$M = 0.99$.

Figure 5.11.- Streamwise pressure distributions near cruise lift coefficient for supercritical wing research airplane model



$M = 0.99$. Concluded.

Figure 5.11.- Concluded

APPENDIX C

BODY-ALONE CONFIGURATIONS

Guide to the Data

The body-alone data are included in the data base to provide data on rather simple three-dimensional (3D) configurations to aid in theory development and program checkout. The configurations include a 1.5-diameter ogive-cylinder (C-1), a cubic-cylinder-cubic body (C-2), a 10-degree cone cylinder (C-3), and an equivalent body of the ONERA calibration model (C-4). Pressures along 13 rays and force data were taken on the ogive-cylinder at angles of attack from 0 to 30 degrees and Mach numbers from 0.5 to 1.2. Body and some tunnel wall pressures and force data are given for the cubic-cylinder-cubic model at angles of attack from -3 to 5 degrees and Mach numbers of 0.5, 0.8, 1.0, and 1.2. The cone-cylinder pressure data were taken at zero angle of attack at Mach numbers from 0.9 to 1.4. Pressures along two rays and forebody drag are presented for the ONERA model at zero incidence and Mach numbers from 0.6 to 1.0.

The model and tunnel information format is the same as used for the 3D configurations and includes, in addition to the data, information on the model geometry, the wind tunnel, test parameters, instrumentation, and data accuracy. This information is provided to assist the user in determining the usefulness of each data set for his application.

As mentioned in Chapter 2 the model-to-tunnel blockage ratios are small enough so that the wall interference effects in the subsonic range are less than 10^{-2} on the pressure coefficient. However, all of the data obtained at supersonic speeds contain some evidence of reflected waves. These disturbances are rather easily discerned at zero incidence and do not significantly affect the data upstream of the disturbance. At angle of attack, however, it may be difficult to ascertain if irregular pressure variations are caused by shed vortices and therefore are "legitimate" or are caused by reflected waves and therefore are "illegitimate." It is left to the user to discriminate between the two phenomena.

1. 1.5 D Ogive - Circular Cylinder Body, $L/D = 21.5$

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 Aerodynamische Versuchsanstalt E. V.

1.1 Introduction

This paper has been prepared for the Working Group 04 of the Fluid Dynamics Panel of AGARD as a contribution to the "Experimental Data Base for Computer Program Assessment" that is being established. This contribution contains selected data from force- and surface pressure distribution measurements as well as results from flow visualization experiments, e.g. smoke and oil flow pictures. The experimental investigations were performed in the DFVLR 1 x 1 Meter Transonic Wind Tunnel and in the High-Speed Wind Tunnel of the DFVLR/AVA. Figure 1.1 shows the tested model consisting of a 1.5 D long circular arc tangent ogive and a 20 D long afterbody of circular cross section ($D = 4.5$ cm body diameter). This body geometry is typical for most missiles. The model was manufactured of steel with a very smooth surface; transition was always free.

Two different model supports had to be used since the angle of attack range is limited to $\pm 15^\circ$. The model supports are shown in Figure 1.2.

The data presented here are not corrected for wall constraints.

At small supersonic Mach numbers the disturbances starting at the model nose are not completely cancelled at the test section walls. The effect of the reflected waves on the pressure distribution is, however, clearly visible in the respective figures, e.g. Figure 1.8. The reflection pattern of the waves is shown schematically in Fig. 1.3.

1.2 Data set

1. General Description

1.1 Model Designation or Name	B3-20 D, 1.5 D ogive + 20 D circular cylinder D = body diameter; Ref. [1], [2]
1.2 Model Type (e.g., Full Span Wing-Body, Semi-Span Wing)	body of revolution, general body for missiles

2. Model Geometry

2.2 Body Data (Detail Description of Body Geometry)	See Figure 1.1
2.5 Fabrication Tolerances/Waviness	Manufactured of steel, smooth surface

3. Wind Tunnel

3.1 Designation	1 x 1 Meter Transonic Wind Tunnel
3.2 Type of Tunnel	
3.2.1 Continuous or Blowdown. Indicate Minimum Run Time if Applicable	Continuous, closed circuit
3.2.2 Stagnation Pressure	0.4 bar up to 1.6 bar
3.2.3 Stagnation Temperature	Ambient
3.3 Test Section	
3.3.1 Shape of Test Section	Square
3.3.2 Size of Test Section (Width, Height, Length)	1 meter, 1meter, 3 meter

3.3.3 Type of Test Section Walls Closed, Open, Slotted, Perforated Open Area Ratio (Give Range if Variable) Slot/Hole Geometry (e.g., 30-Degree Slanted Holes) Treatment of Side Wall Boundary Layer Full span models Half model testing	Perforated 6 % 30 degree slanted holes, four walls are perforated and boundary layer is influenced by plenum suction to adjust free stream conditions. In case of 2 D and half-model-testing solid end plates (ϕ 0.57 m) are used.
3.4 Flow Field (Empty Test Section)	
3.4.1 Reference Static Pressure	Plenum pressure, calibrated against side wall sta- tic pressure and lancet-probe [7]
3.4.2 Flow Angularity	$\Delta \alpha = \Delta \beta < \pm 0.05^\circ$ wedge probe calibration
3.4.3 Mach Number Distribution }	See Chapter A 5 Fig. 5.4 and Ref. [5], [6], [7]
3.4.4 Pressure Gradient }	(also see 3.5.4)
3.4.5 Turbulence/Noise Level	Low turbulence level (measurements are in progress) [14] Low noise level ($\sqrt{n F(n)} < 0.001$) [8]
3.4.6 Side Wall Boundary Layer	$M_\infty = 0.5 \quad 0.8 \quad 1.0 \quad 1.2$ $\delta(\text{Pitot pressure} = 0.999 p_o) = 8.0 \quad 7.4 \quad 6.7 \quad 6.5 \text{ cm}$
3.5 Freestream Mach Number (or Velocity)	
3.5.1 Range	Transonic $M_\infty = 0.5$ to 1.2, supersonic $M_\infty = 1.3$ to 2.0
3.5.2 Pressures Used to Determine Mach Number (e.g., Settling Chamber Total Pressure and Plenum Chamber Pressure)	Transonic range: settling chamber total pressure and plenum chamber pressure. Dependence between plenum pressure and free stream static pressure has been calibrated by lancet-probe and side-wall static pressure [7]
3.5.3 Accuracy of Mach Number Determination (ΔM)	$\Delta M_\infty = \pm 0.003$
3.5.4 Maximum Mach Number Variation in x,y,z-Direction (Empty Tunnel; Specify at What Mach Number) Maximum Variation of Flow Direction Maximum Mach Number Variation During a Run	$M_\infty = 0.5 \quad 0.8 \quad 1.0 \quad 1.2$ ΔM_∞ (x-direct.) 0.005 0.003 0.006 0.015 (z-direct.) 0.003 $\pm 0.05^\circ$ $\Delta M_\infty = \pm 0.001$
3.6 Reynolds Number Range	
3.6.1 Unit Reynolds Number Range. (Give Range at Representative Mach Numbers; 1/m)	$M_\infty \quad 0.5 \quad 1.0 \quad 2.0$ $Re_{\max} \quad 1.7 \cdot 10^7 \quad 1.8 \cdot 10^7 \quad 1.2 \cdot 10^7$ $Re_{\min} \quad 0.27 \cdot 10^7 \quad 0.42 \cdot 10^7 \quad 0.5 \cdot 10^7$
3.6.2 Means of Varying Reynolds Number (e.g., by Pressur- ization)	Pressurization
3.7 Temperature Range and Dewpoint. Can Temperature be Controlled?	$T_o \approx 305 \text{ K (ambient), no}$ $t_{\text{Dewpoint}} \approx -30^\circ \text{ C}$
3.8 Model Attitudes	
3.8.1 Angle of Attack, Yaw, Roll	2-D and sheared wings: total $\alpha = 25^\circ (\pm 0.02^\circ)$ half-models: total $\alpha = 25^\circ (\pm 0.02^\circ)$ complete models: total $\alpha = 30^\circ (\pm 0.02^\circ)$ ★ ★ range can be extended by cranked stings

	complete models: total yaw $15^{\circ} (\pm 0.1^{\circ})$ total roll $360^{\circ} (\pm 0.1^{\circ})$
3.9 Organization Operating the Tunnel and Location of Tunnel	Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E.V. Bunsenstrasse 10 D-3400 Göttingen, Germany (FRG)
3.10 Who is to be Contacted for Additional Information	Dr. -Ing. W. Lorenz-Meyer Address see 3.9
3.11 Literature Concerning this Facility	Ref. [5] to [11]
4. Tests	
4.1 Type of Tests	Force- and moment measurements, surface pressure distribution and base pressure measurements, oil flow pictures
4.3 Test Conditions	
4.3.1 Angle of Attack	- 4° to 18° (force - measurements) 0° to 30° (pressure distribution measurements)
4.3.2 Mach Number	0.5 to 1.2
4.3.3 Dynamic Pressure	0.16 to 0.43 bar
4.3.4 Reynolds Number	$Re_D = 4 \cdot 10^5$ to $6.5 \cdot 10^5$, based on body diameter
4.3.5 Stagnation Temperature	$T_o = 320$ K
4.4 Transition	
4.4.1 Free or Fixed	Free
4.4.2 Position of Free Transition	Unknown
4.4.4 Were Checks Made to Determine if Transition Occurred at Trip Location?	No
4.5 Bending or Torsion Under Load	Unknown
4.6 Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes	No
4.7 Areas and Lengths Used to Form Coefficients	Area: Body crossection $S = \frac{\pi D^2}{4} = 15.9 \text{ cm}^2$ Length: Body diameter $D = 45 \text{ mm}$
4.8 References on Tests	Ref. [1], [2]
4.9 Related Reports	Ref. [3], [4]
5. Instrumentation	
5.1 Surface Pressure Measurements	
5.1.3 Pressure Orifices on Components, Give Component and Orifice Location	Body, see Fig. 1.1
5.1.4 Geometry of Orifices	Holes, 0.7 mm in diameter, 4.5 mm deep
5.1.5 Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy	CEC differential pressure transducers plus scanivalves. Range: $\pm 5 \text{ psi}$ and $\pm 10 \text{ psi}$ Accuracy: $\pm 0.3 \% \text{ FS}$ Scanning rate: 4.5 sec/orifice
5.2 Force Measurements	
5.2.1 Type and Location of Balance	Sting mounted internal three component strain gauge balance made in DFVLR/AVA, Germany (FRG), located in the middle of the body

5.2.2 Forces and Moments that Can be Measured. Maximum Loads and Accuracy	Normal force Pitching moment Axial force	maximum load 300 N 4000 N cm 100 N	accuracy 0.5 % 1 % 2 %	FS
5.3 Boundary Layer and Flow-Field Measurements	No			
5.4 Surface Flow Visualization	Yes			
5.4.1 Indicate Method Used to Determine				
- Streamline pattern	Oil-flow pictures (paint pictures), see Fig. 1.16			
- Boundary-layer transition				
5.5 Skin Friction Measurements	No			
6. <u>Data</u>				
6.1 Accuracy				
6.1.1 Pressure Coefficients	$\Delta c_p \approx 1\%$ assuming worst possible combination of errors including an error of $\Delta M_\infty = \pm 0.002$ evaluated at max. c_p and $M_\infty = 0.76$			
6.1.2 Aerodynamic Coefficients	0.5 %			
6.1.4 Repeatability	Within 1 %			
6.3 Data Presentation				
6.3.1 Aerodynamic Coefficients	$C_N(\alpha)$, $C_m(\alpha)$ and $C_A(\alpha)$; Table 1.45, Figures 1.4 to 1.6			
6.3.2 Surface Pressure Coefficients	$c_p (\frac{x}{D})$; Tables 1.1 to 1.44 and Figures 1.8 to 1.15			
6.3.3 Flow Conditions for				
- Aerodynamic coefficients data	Angle of attack-, Mach number - and Reynolds number range, see Chapter 4.3			
- Pressure data				
6.3.4 Boundary Layer and/or Wake Data	Base pressure $c_{pB}(\alpha)$; Table 1.45 and Figure 1.7			
6.3.5 Flow Conditions for Boundary Layer and/or Wake Data	See Section 4.3			
6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base?	No			

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8. List of Symbols

C_N	normal - force coefficient, $F_n/q_\infty \cdot S$
C_m	pitching - moment coefficient, $M/q_\infty \cdot S \cdot D$
C_A	axial - force coefficient, $F_a/q_\infty \cdot S$ (includes base drag)
c_p	pressure coefficient, $p - p_\infty/q_\infty$
c_{pB}	base pressure coefficient, $p_B - p_\infty/q_\infty$; base pressure measured with a probe mounted on sting within the model 3.5 D from the base
D	body diameter, see Fig. 1.1
F_a	axial - force, positiv against flow direction
F_n	normal - force
L	total body length, $L = L_N + L_A$, Fig. 1.1
L_N	length of nose (ogive), see Fig. 1.1
L_A	afterbody length, see Fig. 1.1
M	pitching moment, positive if increasing α , reference point at $\frac{x}{D} = 11.5$
M_∞	free - stream Mach number
M_{loc}	local Mach number
p	local static pressure on the body surface
p_o	stagnation pressure
p_∞	free - stream static pressure
p_B	base pressure
q_∞	free - stream dynamic pressure, $\frac{1}{2} \rho_\infty V_\infty^2$
Re_D	free - stream Reynolds number based on body diameter, $\rho_\infty \cdot V_\infty \cdot D/\mu_\infty$
S	reference area, $\pi D^2/4$
V_∞	free - stream velocity
x	axial distance from body nose, see Fig. 1.1
α	angle of attack
δ	boundary layer thickness
Φ	polar angle, see Fig. 1.1
μ_∞	free - stream dynamic viscosity of air
ρ_∞	free - stream density of air

Table 1.1 Experimental pressure coefficients, $\alpha = 0^\circ$

Coordinates x/D	Polar angle, ϕ , deg.															
	0				15				90				180			
	$M_\infty = 0.70$ $Re_D = 5.2 \cdot 10^5$				$M_\infty = 0.80$ $Re_D = 5.6 \cdot 10^5$				$M_\infty = 0.90$ $Re_D = 5.9 \cdot 10^5$				$M_\infty = 0.95$ $Re_D = 6.0 \cdot 10^5$			
0.251	0.366	0.363	0.360	0.366	0.394	0.393	0.401	0.398	0.445	0.438	0.454	0.442	0.484	0.489	0.494	0.487
0.482	0.103	0.107	0.106	0.104	0.122	0.128	0.127	0.125	0.169	0.170	0.175	0.170	0.214	0.223	0.219	0.211
0.731	-0.000	-0.080	-0.080	-0.081	-0.078	-0.074	-0.079	-0.079	-0.038	-0.042	-0.038	-0.047	0.013	0.017	0.009	0.002
0.980	-0.245	-0.245	-0.251	-0.246	-0.279	-0.283	-0.281	-0.281	-0.280	-0.289	-0.282	-0.286	-0.227	-0.227	-0.229	-0.237
1.238	-0.282	-0.282	-0.283	-0.284	-0.337	-0.332	-0.335	-0.334	-0.472	-0.474	-0.471	-0.474	-0.420	-0.416	-0.422	-0.427
1.500	-0.265	-0.261	-0.262	-0.263	-0.315	-0.310	-0.307	-0.307	-0.523	-0.521	-0.522	-0.521	-0.485	-0.486	-0.489	-0.494
1.944	-0.059	-0.059	-0.059	-0.059	-0.060	-0.065	-0.061	-0.065	-0.030	-0.032	-0.030	-0.033	-0.338	-0.339	-0.336	-0.338
2.444	-0.022	-0.027	-0.027	-0.027	-0.025	-0.025	-0.025	-0.030	-0.010	-0.022	-0.018	-0.022	0.040	0.028	0.036	0.039
2.944	-0.011	-0.011	-0.011	-0.011	-0.016	-0.011	-0.012	-0.012	-0.010	-0.010	-0.007	-0.011	0.035	0.040	0.035	0.028
3.444	-0.006	-0.006	-0.006	-0.006	-0.011	-0.007	-0.007	-0.012	-0.006	-0.007	-0.007	-0.011	0.017	0.020	0.020	0.009
4.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.007	-0.003	-0.003	0.009	0.013	0.013	0.005
4.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
5.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
5.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
6.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
6.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
7.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
7.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
8.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
8.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
9.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
9.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
10.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
10.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
11.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
11.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
12.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
12.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
13.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
13.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
14.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
14.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
15.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
15.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
16.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
16.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
17.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
17.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
18.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
18.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
19.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
19.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
20.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
20.944	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005
21.444	-0.000	-0.000	-0.000	-0.001	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	0.001	-0.003	0.006	0.006	0.009	0.005

Table 1.2 Experimental pressure coefficients, $\alpha = 0^\circ$

Coordinates x/D	Polar angle, ϕ , deg.															
	0				15				90				180			
	$M_\infty = 1.00$ $Re_D = 6.1 \cdot 10^5$				$M_\infty = 1.05$ $Re_D = 6.2 \cdot 10^5$				$M_\infty = 1.10$ $Re_D = 6.2 \cdot 10^5$				$M_\infty = 1.20$ $Re_D = 6.3 \cdot 10^5$			
0.251	0.532	0.539	0.540	0.533	0.581	0.585	0.587	0.582	0.609	0.613	0.615	0.615	0.514	0.645	0.652	0.644
0.432	0.267	0.279	0.274	0.265	0.324	0.333	0.328	0.321	0.356	0.363	0.353	0.356	0.315	0.396	0.355	0.394
0.731	0.070	0.076	0.070	0.062	0.131	0.136	0.129	0.125	0.167	0.172	0.166	0.163	0.167	0.208	0.206	0.204
0.980	-0.157	-0.157	-0.155	-0.165	-0.084	-0.088	-0.088	-0.095	-0.041	-0.038	-0.045	-0.048	0.023	0.020	0.020	0.016
1.238	-0.344	-0.341	-0.344	-0.354	-0.268	-0.269	-0.274	-0.277	-0.223	-0.220	-0.224	-0.228	-0.116	-0.157	-0.142	-0.161
1.500	-0.415	-0.415	-0.415	-0.425	-0.337	-0.337	-0.343	-0.345	-0.292	-0.292	-0.294	-0.298	-0.176	-0.226	-0.230	-0.240
1.944	-0.295	-0.295	-0.294	-0.304	-0.231	-0.231	-0.232	-0.232	-0.200	-0.203	-0.204	-0.205	-0.125	-0.169	-0.167	-0.161
2.444	-0.175	-0.175	-0.173	-0.179	-0.118	-0.122	-0.119	-0.119	-0.110	-0.107	-0.111	-0.108	-0.075	-0.054	-0.104	-0.095
2.944	-0.115	-0.111	-0.112	-0.112	-0.057	-0.064	-0.054	-0.061	-0.058	-0.058	-0.061	-0.055	-0.018	-0.059	-0.037	-0.053
3.444	-0.083	-0.083	-0.084	-0.080	-0.026	-0.030	-0.030	-0.044	-0.034	-0.034	-0.038	-0.028	-0.015	-0.037	-0.028	-0.028
3.944	-0.062	-0.065	-0.062	-0.062	-0.026	-0.032	-0.030	-0.047	-0.018	-0.025	-0.015	-0.015	-0.015	-0.028	-0.015	-0.022
4.444	0.028	-0.040	0.002	0.046	-0.040	-0.030	-0.047	-0.057	-0.021	-0.021	-0.012	-0.015	-0.003	-0.012	-0.018	-0.003
4.944	0.051	0.059	0.056	0.041	-0.064	-0.060	-0.067	-0.075	-0.008	-0.015	-0.009	-0.002	-0.003	-0.015	-0.018	-0.003
5.444	0.043	0.052	0.049	0.032	-0.070	-0.067	-0.074	-0.078	-0.008	-0.015	-0.009	-0.002	-0.003	-0.015	-0.018	-0.003
5.944	0.031	0.040	0.036	0.023	-0.081	-0.077	-0.081	-0.085	-0.002	-0.015	-0.009	-0.002	-0.003	-0.015	-0.018	-0.003
6.444	0.023	0.030	0.027	0.016	-0.081	-0.081	-0.084	-0.091	-0.002	-0.018	-0.018	-0.012	-0.006	-0.018	-0.012	-0.003
7.444	0.013	0.018	0.016	0.009	-0.064	-0.084	-0.054	-0.059	-0.038	-0.038	-0.042	-0.048	0.007	-0.006	0.001	-0.004
7.944	0.009	0.006	0.005	0.003	-0.012	-0.043	-0.030	-0.044	-0.038	-0.044	-0.042	-0.048	0.007	-0.006	0.001	-0.004
8.444	0.005	0.002	0.005	0.005	0.083	0.022	0.103	0.109	-0.041	-0.044	-0.058	-0.062	0.013	-0.012	0.004	-0.004
8.944	0.005	0.006	0.002	-0.002	0.102	0.112	0.052	0.084	-0.054	-0.054	-0.051	-0.055	0.001	0.007	-0.006	-0.003
9.444	0.002	0.006	0.005	0.002	0.081	0.390	0.076	0.068	-0.024	-0.028	-0.018	-0.012	0.010	-0.002	0.004	-0.006
10.444	0.005	0.006	0.005	0.005	0.064	0.072	0.061	0.040	-0.008	-0.001	-0.012	-0.015	0.004	-0.006	0.001	-0.006
10.944	0.005	0.005	0.005	0.005	0.045	0.053	0.042	0.018	-0.031	-0.025	-0.023	-0.019	0.007	-0.006	0.001	-0.004
11.444	0.005	0.005	0.001	0.002	0.022	0.033	0.016	-0.025	-0.032	-0.025	-0.015	-0.015	0.004	-0.017	0.004	-0.006
11.944	0.002	0.005	0.001	0.003	-0.002	0.001	0.015	-0.025	-0.032	0.355	0.090	0.096	0.044	0.074	0.006	-0.003
12.444	0.002	0.005	0.001	0.003	-0.019	-0.002	-0.017	-0.015	0.073	0.064	0.069	0.067	0.033	0.327	0.043	0.030
12.944	0.002	0.005	0.003	0.003	-0.016	-0.016	-0.017	-0.022	0.061	0.057	0.057	0.051	0.013	0.201	0.000	0.003
13.444	0.005	0.005	0.003	0.003	-0.016	-0.009	-0.017	-0.036	0.049	0.057	0.044	0.041	0.004	-0.012	-0.008	-0.023
13.944	0.002	0.002	0.003	0.003	0.025	0.025	-0.032	-0.037	0.026	0.025	0.033	0.029	0.010	0.054	0.002	-0.004
14.444	0.005	0.005	0.003	0.003	-0.040	-0.041	-0.059	-0.017	0.025	0.010	0.051	0.018	0.004	0.034	0.002	0.015
14.944	0.002	0.027	0.003	0.003	0.025	0.025	-0.032	-0.037	0.026	0.025	0.033	0.029	0.010	0.054	0.002	0.015
15.444	0.002	0.002	0.001	0.002	-0.040	-0.041	-0.059	-0.017	0.025	0.010	0.051	0.018	0.004	0.034	0.002	0.015
15.944	0.002	-0.002	-0.002	0.007	-0.073	-0.057	-0.064	0.009	0.004	-0.013	-0.005	-0.027	-0.046	0.023	0.020	0.016
16.444	-0.002	-0.002	-0.005	0.007	-0.006	-0.064	0.009	0.020	-0.041	-0.034	-0.025	-0.027	0.023	0.020	0.018	0.009
16.944	0.002	-0.002	0.001	0.002	0.018	-0.026	0.013	0.022	-0.041	-0.038	-0.029	-0.020	-0.012	-0.025	-0.003	-0.013
17.444	0.002	0.002	0.001	0.002	0.025	0.008	0.023	0.020	-0.031	-0.041	-0.020	0.001	0.010	0.013	0.002	0.004
17.944	0.002	0.006	0.001	0.002	0.025	0.025	0.022	0.013	-0.011	-0.025	-0.002	0.048	0.010	0.004	0.004	0.012
18.444	0.002	0.002	-0.000	-0.000	0.008	0.027	0.004	0.008	0.051	0.012	0.043	0.051	0.004	0.001	-0.001	0.000
18.944	0.002	0.002	0.001	-0.000	-0.002	0.011	-0.006	0.013	0.072	0.056	0.051	0.019	0.004	0.001	-0.001	0.010
19.444	0.002	-0.002	-0.000	0.002	0.015	-0.002	0.023	0.028	0.032	0.026	0.025	0.031	0.007	0.001	0.001	0.010
19.944	0.002	-0.002	-0.002	0.002	0.002	0.025	0.028	0.018	0.039	0.022	-0.002	-0.015	0.013	0.010	0.009	0.018
20.444	-0.032	-0.002	-0.002	-0.002	-0.031	-0.015	-0.018	-0.016	-0.031	-0.008	-0.017	-0.025	0.017	0.023	0.008	0.014
20.944	-0.016	-0.012	-0.015	-0.015	-0.018	0.022	0.018	-0.006	-0.031	-0.021	-0.034	-0.039	0.020	0.013	0.015	0.008
21.444	-0.111	-0.111	-0.100	-0.105	-0.104	-0.094	-0.116	-0.119	-0.120	-0.117	-0.121	-0.118	-0.040	-0.059	-0.062	-0.066

Table 1.3 Experimental pressure coefficients c_p for $\alpha = 5.07^\circ$, $M_\infty = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
K/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.491	0.490	0.477	0.458	0.409	0.370	0.341	0.311	0.278	0.248	0.244	0.231	0.232	
0.562	0.232	0.230	0.212	0.192	0.158	0.118	0.088	0.058	0.032	0.009	-0.006	-0.011	-0.016	
0.731	0.032	0.028	0.010	-0.011	-0.043	-0.073	-0.101	-0.133	-0.149	-0.170	-0.180	-0.180	-0.165	
0.980	-0.159	-0.159	-0.180	-0.197	-0.218	-0.243	-0.267	-0.287	-0.303	-0.318	-0.324	-0.323	-0.328	
1.238	-0.224	-0.228	-0.249	-0.258	-0.266	-0.267	-0.269	-0.271	-0.272	-0.272	-0.271	-0.270	-0.273	
1.500	-0.232	-0.239	-0.249	-0.255	-0.264	-0.277	-0.278	-0.277	-0.282	-0.281	-0.276	-0.270	-0.273	
1.766	-0.248	-0.248	-0.258	-0.264	-0.269	-0.280	-0.280	-0.283	-0.283	-0.283	-0.284	-0.280	-0.283	
2.044	-0.216	-0.216	-0.221	-0.227	-0.237	-0.243	-0.248	-0.248	-0.248	-0.248	-0.247	-0.247	-0.247	
2.344	-0.000	-0.000	-0.011	-0.016	-0.027	-0.032	-0.032	-0.032	-0.032	-0.032	-0.032	-0.032	-0.032	
2.644	-0.000	-0.000	-0.009	-0.011	-0.022	-0.027	-0.027	-0.027	-0.027	-0.027	-0.027	-0.027	-0.027	
2.944	0.009	0.009	-0.009	-0.008	-0.016	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	
3.244	0.010	0.009	-0.000	-0.004	-0.016	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	
3.544	0.010	0.009	-0.000	-0.004	-0.016	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	-0.022	
3.844	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
4.144	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
4.444	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
4.744	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
5.044	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
5.344	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
5.644	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
5.944	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
6.244	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
6.544	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
6.844	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
7.144	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
7.444	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
7.744	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
8.044	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
8.344	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
8.644	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
8.944	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
9.244	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
9.544	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
9.844	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
10.144	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
10.444	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
10.744	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
11.044	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
11.344	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
11.644	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
11.944	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
12.244	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
12.544	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
12.844	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
13.144	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
13.444	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
13.744	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
14.044	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
14.344	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
14.644	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
14.944	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
15.244	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
15.544	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
15.844	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
16.144	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
16.444	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
16.744	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
17.044	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
17.344	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
17.644	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
17.944	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
18.244	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
18.544	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
18.844	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
19.144	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
19.444	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
19.744	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
20.044	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
20.344	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
20.644	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
20.944	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	
21.244	0.010	0.010	0.005	-0.000	-0.011	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	-0.016	

Table 1.4 Experimental pressure coefficients c_p for $\alpha = 5.08^\circ$, $M_\infty = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.														
λ/θ	0	15	30	45	60	75	90	105	120	135	150	165	180		
0.251	0.528	0.520	0.511	0.484	0.437	0.412	0.376	0.344	0.315	0.294	0.277	0.263	0.267		
0.482	0.260	0.251	0.235	0.212	0.178	0.145	0.127	0.071	0.046	0.024	0.015	0.007	0.002		
0.731	0.049	0.033	0.020	-0.007	-0.039	-0.069	-0.096	-0.127	-0.150	-0.171	-0.180	-0.180	-0.165		
0.980	-0.177	-0.185	-0.202	-0.220	-0.243	-0.270	-0.293	-0.323	-0.342	-0.358	-0.372	-0.372	-0.372		
1.238	-0.271	-0.274	-0.293	-0.300	-0.317	-0.337	-0.351	-0.367	-0.373	-0.375	-0.376	-0.372	-0.372		
1.530	-0.288	-0.292	-0.300	-0.305	-0.312	-0.323	-0.324	-0.331	-0.324	-0.318	-0.314	-0.305	-0.301		
1.944	-0.352	-0.356	-0.360	-0.369	-0.379	-0.383	-0.387	-0.387	-0.378	-0.373	-0.369	-0.360	-0.356		
2.444	-0.016	-0.020	-0.024	-0.034	-0.043	-0.047	-0.051	-0.051	-0.043	-0.038	-0.029	-0.025	-0.020		
2.944	-0.002	-0.007	-0.011	-0.020	-0.029	-0.034	-0.038	-0.038	-0.029	-0.020	-0.016	-0.011	-0.007		
3.444	0.002	-0.002	-0.007	-0.016	-0.025	-0.029	-0.029	-0.029	-0.025	-0.016	-0.011	-0.007	-0.002		
3.944	0.007	0.002	-0.002	-0.011	-0.016	-0.023	-0.025	-0.025	-0.020	-0.011	-0.007	-0.002	0.002		
4.444	0.007	0.002	-0.002	-0.007	-0.016	-0.020	-0.025	-0.020	-0.016	-0.011	-0.007	-0.002	0.002		
4.944	0.007	0.007	0.002	-0.007	-0.016	-0.020	-0.025	-0.020	-0.016	-0.011	-0.007	-0.002	0.002		
5.444	0.011	0.007	0.002	-0.007	-0.016	-0.020	-0.020	-0.020	-0.011	-0.007	-0.007	-0.002	0.002		
5.944	0.011	0.007	0.002	-0.002	-0.011	-0.016	-0.020	-0.016	-0.011	-0.007	-0.002	-0.002	0.002		
6.444	0.011	0.007	0.002	-0.002	-0.011	-0.020	-0.020	-0.016	-0.011	-0.007	-0.007	-0.002	0.002		
6.944	0.015	0.011	0.007	-0.002	-0.007	-0.016	-0.016	-0.011	-0.007	-0.007	-0.002	-0.002	0.002		
7.444	0.015	0.011	0.007	-0.002	-0.011	-0.016	-0.016	-0.016	-0.007	-0.007	-0.002	-0.002	0.002		
7.944	0.015	0.011	0.007	-0.002	-0.011	-0.016	-0.016	-0.011	-0.007	-0.007	-0.002	-0.002	0.002		
8.444	0.015	0.011	0.007	-0.002	-0.011	-0.016	-0.016	-0.011	-0.007	-0.007	-0.002	-0.002	0.002		
8.944	0.015	0.011	0.007	-0.002	-0.011	-0.016	-0.016	-0.011	-0.007	-0.007	-0.002	-0.002	0.002		
9.444	0.011	0.011	0.002	-0.002	-0.011	-0.016	-0.016	-0.011	-0.007	-0.007	-0.011	-0.011	-0.002		
10.444	0.015	0.015	0.007	-0.002	-0.008	-0.012	-0.014	-0.014	-0.007	-0.007	-0.007	-0.002	0.002		
10.944	0.015	0.015	0.007	0.002	-0.005	-0.010	-0.014	-0.009	-0.005	-0.005	-0.005	-0.005	0.004		
11.444	0.015	0.015	0.007	-0.000	-0.008	-0.012	-0.014	-0.009	-0.007	-0.005	-0.005	-0.003	0.002		
11.944	0.015	0.011	0.007	-0.003	-0.010	-0.012	-0.014	-0.009	-0.005	-0.005	-0.005	-0.003	0.002		
12.444	0.015	0.011	0.007	-0.003	-0.010	-0.012	-0.014	-0.009	-0.005	-0.005	-0.005	-0.003	0.002		
12.944	0.020	0.015	0.007	-0.000	-0.008	-0.010	-0.012	-0.007	-0.005	-0.005	-0.003	-0.002	0.004		
13.444	0.015	0.011	0.007	-0.003	-0.008	-0.012	-0.014	-0.009	-0.005	-0.005	-0.005	-0.003	0.004		
13.944	0.015	0.015	0.007	-0.000	-0.008	-0.012	-0.012	-0.007	-0.005	-0.005	-0.005	-0.003	0.004		
14.444	0.034	0.033	0.039	-0.001	-0.008	-0.012	-0.012	-0.007	-0.005	-0.005	-0.004	-0.002	0.004		
14.944	0.015	0.015	0.007	-0.001	-0.007	-0.012	-0.012	-0.007	-0.005	-0.005	-0.005	-0.003	0.004		
15.444	0.015	0.013	0.007	-0.001	-0.007	-0.010	-0.012	-0.007	-0.005	-0.003	-0.003	-0.000	0.006		
15.944	0.015	0.011	0.006	-0.001	-0.007	-0.012	-0.010	-0.007	-0.005	-0.003	-0.003	-0.000	0.004		
16.444	0.015	0.011	0.006	0.011	0.006	0.004	0.004	0.006	0.008	0.006	0.006	0.011	0.013		
16.944	0.015	0.015	0.006	0.009	0.004	0.002	0.001	0.004	0.004	0.004	0.006	0.009	0.013		
17.444	0.015	0.011	0.006	-0.001	-0.007	-0.012	-0.012	-0.007	-0.005	-0.003	-0.003	-0.000	0.004		
17.944	0.015	0.011	0.006	-0.001	-0.007	-0.010	-0.012	-0.005	-0.005	-0.003	-0.003	-0.000	0.004		
18.444	0.015	0.011	0.006	-0.003	-0.010	-0.012	-0.012	-0.007	-0.005	-0.005	-0.005	-0.003	0.002		
18.944	0.011	0.011	0.006	-0.003	-0.010	-0.012	-0.014	-0.007	-0.007	-0.005	-0.005	-0.005	-0.001		
19.444	0.011	0.006	0.006	-0.003	-0.010	-0.012	-0.014	-0.007	-0.007	-0.005	-0.005	-0.005	-0.001		
19.944	0.021	0.007	0.002	-0.009	-0.012	-0.016	-0.016	-0.012	-0.010	-0.009	-0.007	-0.007	-0.001		
20.444	0.006	0.002	-0.002	-0.012	-0.019	-0.021	-0.021	-0.019	-0.016	-0.016	-0.014	-0.014	-0.010		
20.944	-0.011	-0.011	-0.016	-0.023	-0.034	-0.037	-0.039	-0.034	-0.034	-0.032	-0.032	-0.032	-0.028		
21.444	-0.083	-0.083	-0.087	-0.095	-0.104	-0.109	-0.111	-0.107	-0.104	-0.102	-0.101	-0.100	-0.091		

Table 1.5 Experimental pressure coefficients c_p for $\alpha = 5.09^\circ$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.												
	θ	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.577	0.567	0.563	0.531	0.490	0.464	0.425	0.401	0.370	0.349	0.333	0.322	0.321
0.482	0.304	0.298	0.284	0.255	0.222	0.193	0.152	0.125	0.096	0.074	0.063	0.054	0.047
0.731	0.079	0.066	0.055	0.029	-0.002	-0.030	-0.065	-0.095	-0.112	-0.132	-0.139	-0.139	-0.147
0.980	-0.167	-0.179	-0.193	-0.217	-0.245	-0.269	-0.299	-0.319	-0.342	-0.359	-0.372	-0.377	-0.362
1.238	-0.381	-0.385	-0.399	-0.419	-0.444	-0.468	-0.494	-0.514	-0.531	-0.542	-0.551	-0.553	-0.557
1.500	-0.441	-0.448	-0.458	-0.474	-0.487	-0.519	-0.537	-0.561	-0.570	-0.581	-0.586	-0.583	-0.591
1.944	-0.530	-0.538	-0.534	-0.557	-0.565	-0.557	-0.541	-0.569	-0.650	-0.634	-0.622	-0.618	-0.622
2.444	-0.610	-0.614	-0.618	-0.630	-0.638	-0.642	-0.645	-0.638	-0.638	-0.626	-0.618	-0.610	-0.606
2.944	-0.603	-0.606	-0.606	-0.618	-0.626	-0.630	-0.634	-0.634	-0.626	-0.618	-0.610	-0.606	-0.606
3.444	-0.591	-0.603	-0.606	-0.618	-0.622	-0.630	-0.630	-0.626	-0.626	-0.614	-0.606	-0.602	-0.602
3.944	-0.585	-0.601	-0.602	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
4.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.602	-0.601
4.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.602
5.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
5.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
6.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
6.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
7.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
7.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
8.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
8.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
9.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
9.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
10.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
10.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
11.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
11.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
12.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
12.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
13.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
13.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
14.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
14.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
15.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
15.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
16.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
16.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
17.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
17.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
18.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
18.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
19.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
19.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
20.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
20.944	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601
21.444	-0.589	-0.605	-0.601	-0.610	-0.618	-0.622	-0.626	-0.622	-0.622	-0.610	-0.606	-0.601	-0.601

Table 1.6 Experimental pressure coefficients c_p for $\alpha = 5.18^\circ$, $M_\infty = 0.95$ and $Re_D = 6 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.												
	θ	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.613	0.612	0.600	0.579	0.543	0.504	0.461	0.440	0.411	0.391	0.377	0.363	0.365
0.482	0.346	0.344	0.327	0.305	0.273	0.237	0.195	0.176	0.142	0.119	0.111	0.098	0.095
0.731	0.123	0.118	0.103	0.079	0.048	0.017	-0.020	-0.045	-0.061	-0.080	-0.083	-0.091	-0.095
0.980	-0.117	-0.124	-0.143	-0.157	-0.184	-0.213	-0.249	-0.281	-0.299	-0.302	-0.313	-0.320	-0.317
1.238	-0.328	-0.328	-0.346	-0.361	-0.389	-0.413	-0.445	-0.464	-0.474	-0.488	-0.495	-0.502	-0.498
1.500	-0.409	-0.413	-0.424	-0.442	-0.467	-0.487	-0.512	-0.520	-0.517	-0.543	-0.547	-0.549	-0.546
1.944	-0.529	-0.532	-0.539	-0.524	-0.544	-0.558	-0.560	-0.572	-0.570	-0.558	-0.547	-0.534	-0.525
2.444	-0.626	-0.622	-0.617	-0.602	-0.620	-0.617	-0.617	-0.613	-0.624	-0.624	-0.628	-0.633	-0.630
2.944	-0.644	-0.647	-0.638	-0.633	-0.620	-0.613	-0.602	-0.590	-0.620	-0.628	-0.638	-0.642	-0.645
3.444	-0.628	-0.628	-0.620	-0.617	-0.602	-0.606	-0.617	-0.602	-0.602	-0.613	-0.620	-0.624	-0.628
3.944	-0.620	-0.620	-0.613	-0.609	-0.606	-0.609	-0.617	-0.606	-0.606	-0.602	-0.609	-0.613	-0.617
4.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.613	-0.620	-0.613	-0.606	-0.602	-0.605	-0.609	-0.609
4.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
5.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
5.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
6.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
6.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
7.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
7.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
8.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
8.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
9.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
9.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
10.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
10.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
11.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
11.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
12.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
12.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
13.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
13.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
14.444	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605
14.944	-0.613	-0.613	-0.609	-0.602	-0.609	-0.617	-0.620	-0.613	-0.606	-0.602	-0.602	-0.606	-0.605</

Table 1.7 Experimental pressure coefficients c_p for $\alpha = 5.11^\circ$; $M_\infty = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.653	0.659	0.644	0.683	0.590	0.552	0.521	0.490	0.461	0.440	0.427	0.411	0.417	
0.482	0.391	0.396	0.377	0.429	0.325	0.291	0.261	0.224	0.198	0.175	0.167	0.157	0.154	
0.731	0.178	0.178	0.163	0.204	0.107	0.076	0.049	0.027	-0.002	-0.019	-0.023	-0.026	-0.030	
0.980	-0.058	-0.055	-0.073	-0.026	-0.119	-0.143	-0.168	-0.193	-0.215	-0.232	-0.263	-0.242	-0.243	
1.238	-0.260	-0.253	-0.271	-0.235	-0.314	-0.338	-0.359	-0.381	-0.396	-0.412	-0.417	-0.423	-0.430	
1.500	-0.345	-0.342	-0.353	-0.324	-0.395	-0.412	-0.430	-0.449	-0.463	-0.469	-0.470	-0.477	-0.473	
1.744	-0.257	-0.250	-0.264	-0.257	-0.300	-0.313	-0.324	-0.332	-0.328	-0.324	-0.314	-0.301	-0.287	
2.444	-0.182	-0.179	-0.190	-0.228	-0.211	-0.217	-0.214	-0.204	-0.190	-0.175	-0.161	-0.154	-0.151	
2.944	-0.129	-0.126	-0.133	-0.196	-0.144	-0.143	-0.143	-0.137	-0.122	-0.115	-0.104	-0.097	-0.094	
3.444	-0.080	-0.083	-0.090	-0.136	-0.101	-0.108	-0.108	-0.101	-0.094	-0.090	-0.083	-0.079	-0.073	
3.944	-0.051	-0.067	-0.065	-0.101	-0.076	-0.083	-0.083	-0.080	-0.069	-0.062	-0.065	-0.060	-0.055	
4.444	0.053	-0.048	-0.030	-0.079	0.028	0.020	0.016	0.016	0.027	0.027	-0.009	0.027	0.016	
4.944	0.063	0.060	0.057	0.030	0.040	0.034	0.034	0.036	0.040	0.044	0.048	0.051	0.056	
5.444	0.058	0.069	0.058	0.039	0.037	0.033	0.032	0.035	0.037	0.041	0.043	0.045	0.047	
5.944	0.048	0.062	0.052	0.034	0.028	0.027	0.027	0.027	0.028	0.032	0.033	0.034	0.035	
6.444	0.035	0.052	0.040	0.023	0.020	0.013	0.013	0.016	0.020	0.023	0.023	0.023	0.023	
6.944	0.030	0.042	0.030	0.014	0.009	0.006	0.006	0.009	0.013	0.013	0.013	0.013	0.013	
7.444	0.023	0.028	0.020	0.002	-0.002	-0.005	-0.005	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	
7.944	0.020	0.023	0.016	-0.003	-0.002	-0.009	-0.009	-0.005	-0.005	-0.002	-0.002	-0.002	-0.002	
8.444	0.016	0.016	0.009	-0.016	-0.005	-0.012	-0.012	-0.009	-0.005	-0.002	-0.002	-0.002	-0.002	
8.944	0.016	0.009	0.009	-0.019	-0.009	-0.012	-0.012	-0.009	-0.005	-0.002	-0.002	-0.002	-0.002	
9.444	0.016	0.013	0.005	-0.023	-0.012	-0.019	-0.019	-0.019	-0.009	-0.005	-0.005	-0.005	-0.005	
9.944	0.013	0.009	0.006	-0.019	-0.009	-0.016	-0.016	-0.012	-0.009	-0.005	-0.005	-0.005	-0.005	
10.444	0.016	0.020	0.013	-0.011	-0.005	-0.009	-0.011	-0.007	-0.004	-0.004	-0.004	-0.004	-0.004	
10.944	0.020	0.020	0.013	-0.009	-0.004	-0.009	-0.009	-0.007	-0.004	-0.004	-0.004	-0.004	-0.004	
11.444	0.016	0.016	0.009	-0.016	-0.007	-0.013	-0.013	-0.011	-0.007	-0.005	-0.005	-0.005	-0.005	
11.944	0.016	0.013	0.009	-0.016	-0.009	-0.013	-0.013	-0.011	-0.007	-0.005	-0.005	-0.005	-0.005	
12.444	0.016	0.013	0.006	-0.016	-0.009	-0.013	-0.013	-0.011	-0.007	-0.005	-0.005	-0.005	-0.005	
12.944	0.020	0.016	0.009	-0.013	-0.005	-0.009	-0.011	-0.007	-0.004	-0.004	-0.002	-0.002	-0.002	
13.444	0.013	0.016	0.009	-0.014	-0.007	-0.013	-0.013	-0.007	-0.013	-0.004	-0.002	-0.002	-0.002	
13.944	0.015	0.020	0.009	-0.014	-0.007	-0.011	-0.011	-0.007	-0.004	-0.004	-0.002	-0.002	-0.002	
14.444	0.027	0.028	0.027	-0.014	-0.007	-0.012	-0.012	-0.008	-0.005	-0.005	-0.003	-0.003	-0.003	
14.944	0.016	0.016	0.009	-0.013	-0.007	-0.013	-0.013	-0.009	-0.006	-0.005	-0.004	-0.004	-0.004	
15.444	0.014	0.013	0.007	-0.016	-0.009	-0.014	-0.014	-0.009	-0.007	-0.005	-0.004	-0.004	-0.004	
15.944	0.013	0.009	0.006	-0.018	-0.011	-0.014	-0.014	-0.011	-0.007	-0.005	-0.004	-0.004	-0.004	
16.444	0.009	0.006	0.002	-0.004	-0.002	-0.002	-0.002	-0.002	0.003	0.003	0.003	0.003	0.003	
16.944	0.013	0.009	0.002	-0.009	-0.000	-0.004	-0.004	-0.000	0.003	0.003	0.003	0.003	0.003	
17.444	0.009	0.009	0.009	-0.020	-0.009	-0.013	-0.013	-0.009	-0.006	-0.005	-0.004	-0.002	-0.002	
17.944	0.013	0.016	0.006	-0.013	-0.009	-0.013	-0.013	-0.009	-0.006	-0.005	-0.004	-0.002	-0.002	
18.444	0.009	0.009	0.006	-0.016	-0.011	-0.016	-0.014	-0.009	-0.006	-0.005	-0.002	-0.002	-0.002	
18.944	0.013	0.016	0.006	-0.009	-0.011	-0.016	-0.014	-0.009	-0.007	-0.007	-0.004	-0.004	-0.000	
19.444	0.013	0.013	0.006	-0.014	-0.009	-0.013	-0.013	-0.009	-0.006	-0.005	-0.004	-0.004	-0.000	
19.944	0.013	0.009	0.006	-0.018	-0.009	-0.013	-0.013	-0.007	-0.006	-0.006	-0.005	-0.004	-0.002	
20.444	0.013	0.009	0.006	-0.016	-0.011	-0.014	-0.016	-0.013	-0.011	-0.011	-0.011	-0.007	-0.005	
20.944	0.002	0.006	-0.002	-0.020	-0.020	-0.023	-0.027	-0.025	-0.025	-0.027	-0.027	-0.025	-0.023	
21.444	-0.063	-0.062	-0.069	-0.074	-0.095	-0.109	-0.124	-0.137	-0.142	-0.144	-0.144	-0.135	-0.127	

Table 1.8 Experimental pressure coefficients c_p for $\alpha = 5.12^\circ$; $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.733	0.728	0.716	0.697	0.667	0.619	0.599	0.569	0.539	0.523	0.511	0.497	0.500	
0.482	0.481	0.475	0.461	0.442	0.411	0.376	0.350	0.315	0.292	0.271	0.259	0.247	0.244	
0.731	0.277	0.269	0.257	0.235	0.204	0.173	0.148	0.121	0.095	0.078	0.070	0.066	0.059	
0.980	0.053	0.049	0.034	0.022	-0.005	-0.031	-0.054	-0.077	-0.097	-0.111	-0.117	-0.121	-0.124	
1.238	-0.133	-0.140	-0.150	-0.166	-0.190	-0.213	-0.232	-0.252	-0.269	-0.282	-0.285	-0.291	-0.292	
1.500	-0.219	-0.223	-0.233	-0.249	-0.269	-0.289	-0.305	-0.322	-0.335	-0.342	-0.325	-0.341	-0.348	
1.944	-0.157	-0.157	-0.167	-0.183	-0.200	-0.217	-0.226	-0.226	-0.233	-0.236	-0.219	-0.227	-0.220	
2.444	-0.104	-0.107	-0.114	-0.127	-0.137	-0.144	-0.143	-0.140	-0.130	-0.117	-0.111	-0.097	-0.087	
2.944	-0.067	-0.068	-0.071	-0.080	-0.091	-0.091	-0.090	-0.087	-0.074	-0.061	-0.051	-0.041	-0.034	
3.444	-0.038	-0.038	-0.048	-0.051	-0.058	-0.061	-0.064	-0.058	-0.048	-0.041	-0.035	-0.028	-0.018	
3.944	-0.018	-0.018	-0.021	-0.034	-0.035	-0.038	-0.041	-0.038	-0.034	-0.034	-0.028	-0.022	-0.021	
4.444	-0.005	-0.008	-0.015	-0.021	-0.035	-0.041	-0.041	-0.034	-0.028	-0.025	-0.028	-0.011	-0.015	
4.944	-0.011	-0.011	-0.018	-0.028	-0.031	-0.035	-0.031	-0.031	-0.025	-0.011	-0.011	-0.005	-0.001	
5.444	-0.008	-0.008	-0.011	-0.015	-0.021	-0.021	-0.028	-0.021	-0.018	-0.015	-0.008	-0.005	-0.001	
5.944	0.002	0.002	-0.001	-0.015	-0.015	-0.025	-0.018	-0.018	-0.018	-0.011	-0.011	-0.002	-0.001	
6.444	0.009	0.008	-0.001	-0.005	-0.021	-0.021	-0.028	-0.021	-0.015	-0.015	-0.011	-0.002	-0.001	
6.944	0.009	0.008	0.002	-0.005	0.002	0.011	-0.005	-0.008	-0.011	-0.008	-0.008	-0.001	0.005	
7.444	0.054	0.052	0.037	0.025	-0.005	-0.028	-0.015	-0.025	-0.025	-0.015	-0.011	-0.015	-0.008	
7.944	0.009	0.009	-0.005	-0.008	-0.045	-0.064	-0.051	-0.054	-0.051	-0.034	-0.024	-0.031	-0.021	
8.444	-0.031	-0.031	-0.044	-0.051	-0.074	-0.081	-0.077	-0.071	-0.061	-0.054	-0.048	-0.051	-0.041	
8.944	-0.048	-0.051	-0.058	-0.067	-0.068	-0.071	-0.071	-0.068	-0.058	-0.051	-0.041	-0.051	-0.041	
9.444	-0.057	-0.058	-0.064	-0.074	-0.064	-0.068	-0.061	-0.054	-0.048	-0.041	-0.031	-0.041	-0.031	
9.944	-0.024	-0.025	-0.028	-0.034	-0.028	-0.035	-0.031	-0.031	-0.025	-0.025	-0.023	-0.017	-0.012	
10.444	0.009	0.012	0.015	-0.012	-0.007	-0.020	-0.023	-0.023	-0.025	-0.025	-0.023	-0.017	-0.012	
10.944	0.012	0.012	0.002	-0.007	-0.033	-0.045	-0.035	-0.032	-0.025	-0.025	-0.023	-0.017	-0.012	
11.444	-0.024	-0.024	-0.035	-0.037	-0.037	-0.030	-0.018	-0.012	-0.022	-0.023	-0.018	-0.012	-0.015	
11.944	-0.034	-0.031	-0.028	-0.032	0.038	0.095	0.023	0.046	0.055	0.020	0.013	0.022	0.025	
12.444	0.164	0.163	0.150	0.132	0.089	0.069	0.071	0.064	0.063	0.054	0.041	0.056	0.058	
12.944	0.096	0.093	0.083	0.080	0.060	0.059	0.056	0.058	0.060	0.060	0.074	0.066	0.071	
13.444	0.068	0.067	0.061	0.053	0.047	0.042	0.041	0.046	0.050	0.048	0.020	0.052	0.060	
13.944	0.067	0.065	0.060	0.053	0.039	0.032	0.038	0.037	0.037	0.040	0.039	0.041	0.045	
14.444	0.025	0.025	0.025	0.035	0.025	0.019	0.023	0.024	0.025	0.029	0.023	0.034	0.038	
14.944	0.037	0.038	0.028	0.026	0.012	0.005	0.008	0.012	0.013	0.018	0.018	0.023	0.031	
15.444	0.031	0.029	0.020	0.012	0.003	-0.013	0.000	-0.005	-0.007	0.003	0.008	0.007	0.015	
15.944	0.025	0.022	0.012	0.010	-0.035	-0.049	-0.035	-0.037	-0.037	-0.033	-0.018	-0.010	-0.008	
16.444	-0.024	-0.024	-0.035	-0.017	-0.035	-0.037	-0.035	-0.030	-0.023	-0.022	-0.013	-0.017	-0.012	
16.944	-0.040	-0.040	-0.054	-0.033	-0.034	-0.034	-0.038	-0.030	-0.027	-0.028	-0.022	-0.022	-0.018	
17.444	-0.031	-0.031	-0.035	-0.045	-0.040	-0.040	-0.047	-0.040	-0.033	-0.040	-0.038	-0.033	-0.035	
17.944	-0.015	-0.011	-0.018	-0.027	-0.005	-0.003	-0.020	-0.010	-0.003	-0.025	-0.033	-0.011	-0.022	
18.444	0.025	0.025	0.018	0.007	0.023	0.029	0.010	0.023	0.034	0.003	-0.015	0.007	-0.002	
18.944	0.055	0.046	0.053	0.023	0.033	0.031	0.037	0.044	0.042	0.034	0.010	0.043	0.035	
19.444	0.047	0.045	0.041	0.040	0.013	-0.000	-0.022	0.020	0.017	0.043	0.047	0.047	0.058	
19.944	0.025	0.025	0.018	0.018	-0.008	-0.022	-0.000	-0.007	-0.010	0.015	0.038	0.022	0.034	
20.444	0.009	0.009	0.002	-0.002	-0.029	-0.034	-0.025	-0.027	-0.027	-0.010	0.010	-0.003	0.002	
20.944	-0.008	-0.008	-0.015	-0.025	-0.039	-0.049	-0.038	-0.039	-0.040	-0.030	-0.020	-0.023	-0.023	
21.444	-0.038	-0.038	-0.044	-0.048	-0.075	-0.089	-0.102	-0.127	-0.149	-0.150	-0.128	-0.105	-0.090	

Table 1.9 Experimental pressure coefficients c_p for $\alpha = 5.13^\circ$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.768	0.763	0.746	0.735	0.703	0.656	0.637	0.606	0.577	0.559	0.545	0.532	0.533	
0.482	0.515	0.512	0.498	0.481	0.449	0.414	0.389	0.363	0.332	0.312	0.299	0.288	0.284	
0.731	0.320	0.312	0.300	0.277	0.246	0.213	0.187	0.160	0.133	0.118	0.109	0.102	0.098	
0.980	0.108	0.104	0.088	0.074	0.047	0.024	0.001	-0.021	-0.040	-0.056	-0.059	-0.065	-0.066	
1.238	-0.072	-0.075	-0.084	-0.097	-0.122	-0.144	-0.163	-0.182	-0.201	-0.207	-0.220	-0.220	-0.217	
1.500	-0.157	-0.160	-0.169	-0.182	-0.200	-0.219	-0.232	-0.242	-0.244	-0.240	-0.240	-0.244	-0.241	
1.944	-0.119	-0.122	-0.134	-0.141	-0.163	-0.179	-0.192	-0.198	-0.201	-0.198	-0.188	-0.175	-0.166	
2.444	-0.085	-0.087	-0.094	-0.094	-0.116	-0.125	-0.122	-0.116	-0.103	-0.100	-0.100	-0.091	-0.091	
2.944	-0.062	-0.062	-0.062	-0.069	-0.078	-0.075	-0.081	-0.084	-0.072	-0.068	-0.053	-0.059	-0.053	
3.444	-0.025	-0.028	-0.034	-0.043	-0.043	-0.050	-0.053	-0.053	-0.050	-0.043	-0.037	-0.031	-0.031	
3.944	-0.036	-0.036	-0.036	-0.024	-0.028	-0.043	-0.043	-0.037	-0.040	-0.021	-0.018	-0.015	-0.015	
4.444	-0.028	-0.024	-0.034	-0.028	-0.040	-0.037	-0.043	-0.043	-0.040	-0.037	-0.024	-0.021	-0.018	
4.944	-0.006	-0.009	-0.018	-0.031	-0.040	-0.053	-0.053	-0.046	-0.025	-0.027	-0.021	-0.021	-0.018	
5.444	0.001	-0.009	-0.012	-0.006	-0.024	-0.031	-0.034	-0.031	-0.037	-0.021	-0.028	-0.012	-0.012	
5.944	-0.009	-0.009	-0.009	-0.034	-0.037	-0.047	-0.047	-0.040	-0.034	-0.031	-0.015	-0.021	-0.015	
6.444	-0.009	-0.012	-0.012	-0.021	-0.034	-0.043	-0.043	-0.037	-0.025	-0.021	-0.024	-0.018	-0.015	
6.944	0.010	0.004	-0.009	-0.015	-0.024	-0.034	-0.034	-0.038	-0.028	-0.018	-0.021	-0.012	-0.009	
7.444	-0.019	-0.019	-0.021	-0.028	-0.037	-0.037	-0.031	-0.018	-0.009	-0.009	-0.009	-0.006	-0.012	
7.944	-0.008	-0.009	0.001	-0.006	-0.015	-0.018	-0.021	-0.021	-0.021	-0.012	-0.012	-0.006	0.001	
8.444	0.007	0.010	0.001	-0.004	-0.009	-0.006	-0.009	-0.009	-0.006	-0.015	-0.012	-0.015	-0.012	
8.944	0.010	0.010	0.004	-0.009	-0.018	-0.031	-0.031	-0.031	-0.018	-0.009	-0.015	-0.009	-0.006	
9.444	0.017	0.004	-0.002	-0.015	-0.018	-0.021	-0.025	-0.028	-0.025	-0.021	-0.018	-0.025	-0.012	
9.944	0.001	0.001	0.004	-0.006	-0.015	-0.018	-0.021	-0.015	-0.009	-0.009	-0.015	-0.006	-0.009	
10.444	0.017	0.013	0.007	0.005	-0.017	-0.023	-0.020	-0.014	-0.004	-0.006	-0.004	-0.006	0.002	
10.944	0.007	0.001	-0.002	-0.014	-0.004	0.010	0.023	0.032	0.040	0.028	0.016	0.033	0.034	
11.444	0.044	0.060	0.066	0.069	0.046	0.033	0.028	0.028	0.029	0.035	0.040	0.042	0.054	
11.944	0.115	0.107	0.086	0.066	0.067	0.043	0.039	0.033	0.024	0.026	0.029	0.023	0.032	
12.444	0.044	0.038	0.023	0.039	0.005	-0.011	-0.007	-0.001	-0.009	-0.009	-0.004	0.003	0.013	
12.944	0.004	0.001	-0.009	0.002	-0.023	-0.034	-0.030	-0.020	-0.017	-0.009	-0.004	0.002	0.008	
13.444	-0.015	-0.012	-0.015	-0.036	-0.038	-0.039	-0.043	-0.036	-0.025	-0.026	-0.025	-0.025	-0.015	
13.944	-0.015	-0.015	-0.024	-0.028	-0.039	-0.039	-0.031	-0.020	-0.019	-0.017	-0.023	-0.020	-0.022	
14.444	0.023	0.023	0.023	-0.015	-0.025	-0.025	-0.022	-0.013	-0.013	-0.008	-0.015	-0.010	-0.011	
14.944	0.013	0.007	-0.002	-0.001	-0.011	-0.012	-0.012	-0.006	-0.008	0.001	-0.006	0.001	0.000	
15.444	0.018	0.018	0.015	0.007	-0.009	-0.007	-0.006	0.001	0.010	-0.001	-0.004	-0.004	-0.001	
15.944	0.023	0.030	0.033	-0.003	0.026	0.020	0.010	0.005	0.004	0.007	0.008	0.007	0.015	
16.444	0.020	0.023	0.023	0.020	0.018	0.016	0.010	0.010	0.002	0.010	0.016	0.010	0.016	
16.944	0.050	0.059	0.030	0.025	0.010	-0.001	-0.007	-0.004	-0.009	-0.003	-0.004	-0.006	0.002	
17.444	0.007	-0.002	-0.021	-0.017	-0.031	-0.015	-0.023	-0.020	-0.003	-0.007	-0.012	0.015	-0.004	
17.944	0.023	0.017	-0.002	0.012	-0.012	-0.014	-0.015	-0.012	-0.008	-0.011	-0.017	-0.014	-0.017	
18.444	0.004	0.004	0.007	-0.023	-0.014	-0.015	-0.017	-0.009	-0.009	-0.001	-0.001	-0.001	0.000	
18.944	0.007	0.004	-0.002	-0.003	-0.019	-0.022	-0.020	-0.012	-0.004	-0.006	-0.007	0.002	0.002	
19.444	0.013	0.027	0.004	-0.006	-0.011	-0.014	-0.011	-0.006	-0.011	-0.006	-0.007	-0.005	0.002	
19.944	0.004	0.010	0.007	-0.001	-0.009	-0.011	-0.011	-0.004	-0.008	-0.003	-0.004	-0.001	-0.003	
20.444	0.030	0.035	0.027	0.033	0.015	0.007	0.007	0.005	0.008	0.001	-0.001	-0.003	-0.002	
20.944	0.010	0.010	0.001	-0.007	-0.012	-0.008	-0.007	0.002	0.005	0.008	0.008	0.012	0.018	
21.444	0.010	0.007	0.007	-0.007	-0.011	-0.030	-0.043	-0.065	-0.097	-0.098	-0.082	-0.049	-0.033	

Table 1.10 Experimental pressure coefficients c_p for $\alpha = 10.17^\circ$, $M_\infty = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.625	0.615	0.580	0.507	0.418	0.341	0.264	0.201	0.151	0.122	0.108	0.098	0.096	
0.482	0.370	0.359	0.318	0.257	0.182	0.099	0.032	-0.032	-0.083	-0.112	-0.127	-0.139	-0.133	
0.731	0.153	0.139	0.101	0.043	-0.022	-0.096	-0.160	-0.213	-0.250	-0.261	-0.270	-0.277	-0.271	
0.980	-0.043	-0.064	-0.096	-0.144	-0.213	-0.271	-0.325	-0.361	-0.378	-0.393	-0.387	-0.379	-0.363	
1.238	-0.144	-0.165	-0.186	-0.234	-0.282	-0.323	-0.362	-0.372	-0.378	-0.367	-0.355	-0.336	-0.304	
1.500	-0.181	-0.197	-0.218	-0.259	-0.293	-0.320	-0.340	-0.340	-0.325	-0.303	-0.276	-0.256	-0.225	
1.944	-0.016	-0.022	-0.048	-0.080	-0.112	-0.138	-0.149	-0.144	-0.117	-0.091	-0.069	-0.048	-0.043	
2.444	0.016	0.005	-0.021	-0.048	-0.080	-0.107	-0.117	-0.106	-0.080	-0.054	-0.032	-0.016	-0.006	
2.944	0.026	0.021	-0.006	-0.037	-0.064	-0.091	-0.101	-0.091	-0.064	-0.038	-0.021	-0.006	0.005	
3.444	0.026	0.021	-0.000	-0.032	-0.064	-0.085	-0.091	-0.080	-0.054	-0.032	-0.021	-0.009	0.005	
3.944	0.032	0.026	0.005	-0.027	-0.053	-0.080	-0.085	-0.075	-0.048	-0.027	-0.027	-0.006	0.010	
4.444	0.037	0.026	0.005	-0.027	-0.053	-0.080	-0.085	-0.069	-0.038	-0.027	-0.027	-0.011	0.010	
4.944	0.037	0.026	0.005	-0.027	-0.053	-0.075	-0.085	-0.064	-0.038	-0.027	-0.027	-0.016	0.010	
5.444	0.037	0.032	0.010	-0.021	-0.048	-0.069	-0.075	-0.053	-0.027	-0.022	-0.027	-0.016	0.010	
5.944	0.037	0.032	0.010	-0.021	-0.048	-0.069	-0.075	-0.053	-0.027	-0.022	-0.027	-0.016	0.010	
6.444	0.037	0.032	0.010	-0.021	-0.048	-0.069	-0.075	-0.053	-0.027	-0.022	-0.027	-0.016	0.010	
6.944	0.039	0.037	0.010	-0.016	-0.048	-0.064	-0.070	-0.048	-0.022	-0.016	-0.021	-0.027	-0.006	
7.444	0.038	0.032	0.010	-0.022	-0.048	-0.064	-0.064	-0.043	-0.022	-0.016	-0.021	-0.027	-0.006	
7.944	0.040	0.037	0.010	-0.016	-0.043	-0.064	-0.064	-0.043	-0.022	-0.016	-0.021	-0.027	-0.006	
8.444	0.040	0.032	0.010	-0.016	-0.043	-0.064	-0.064	-0.043	-0.022	-0.016	-0.021	-0.027	-0.006	
8.944	0.038	0.032	0.010	-0.016	-0.048	-0.064	-0.064	-0.037	-0.016	-0.016	-0.016	-0.022	-0.006	
9.444	0.039	0.032	0.010	-0.022	-0.053	-0.069	-0.075	-0.043	-0.022	-0.022	-0.021	-0.028	-0.016	
9.944	0.037	0.032	0.010	-0.016	-0.043	-0.059	-0.059	-0.032	-0.016	-0.016	-0.016	-0.022	-0.005	
10.444	0.039	0.037	0.016	-0.017	-0.041	-0.057	-0.060	-0.043	-0.017	-0.014	-0.017	-0.020	-0.003	
10.944	0.040	0.037	0.016	-0.014	-0.038	-0.055	-0.054	-0.030	-0.017	-0.014	-0.014	-0.014	0.002	
11.444	0.041	0.037	0.016	-0.017	-0.041	-0.057	-0.054	-0.030	-0.020	-0.020	-0.017	-0.020	-0.006	
11.944	0.037	0.032	0.010	-0.019	-0.044	-0.057	-0.055	-0.030	-0.017	-0.014	-0.017	-0.020	-0.005	
12.444	0.037	0.032	0.010	-0.017	-0.041	-0.057	-0.052	-0.028	-0.017	-0.011	-0.014	-0.014	-0.001	
12.944	0.041	0.037	0.016	-0.017	-0.041	-0.055	-0.049	-0.025	-0.014	-0.011	-0.011	-0.012	0.002	
13.444	0.037	0.032	0.010	-0.017	-0.041	-0.054	-0.049	-0.025	-0.017	-0.012	-0.014	-0.014	-0.001	
13.944	0.037	0.037	0.010	-0.017	-0.041	-0.054	-0.049	-0.022	-0.014	-0.012	-0.014	-0.014	-0.001	
14.444	0.037	0.037	0.037	-0.015	-0.040	-0.054	-0.049	-0.022	-0.014	-0.012	-0.014	-0.013	-0.001	
14.944	0.037	0.037	0.010	-0.014	-0.038	-0.054	-0.049	-0.022	-0.014	-0.012	-0.014	-0.012	-0.001	
15.444	0.037	0.034	0.010	-0.014	-0.038	-0.052	-0.046	-0.019	-0.014	-0.011	-0.011	-0.009	-0.001	
15.944	0.037	0.032	0.010	-0.014	-0.038	-0.052	-0.046	-0.019	-0.014	-0.011	-0.011	-0.012	-0.003	
16.444	0.037	0.032	0.010	-0.002	-0.017	-0.025	-0.022	-0.003	0.002	0.002	0.002	0.005	0.010	
16.944	0.037	0.032	0.016	-0.003	-0.019	-0.030	-0.025	-0.006	-0.003	-0.001	-0.001	-0.001	0.005	
17.444	0.037	0.032	0.010	-0.017	-0.038	-0.052	-0.047	-0.019	-0.014	-0.011	-0.014	-0.014	-0.009	
17.944	0.037	0.032	0.010	-0.017	-0.038	-0.049	-0.047	-0.022	-0.014	-0.014	-0.014	-0.014	-0.009	
18.444	0.032	0.032	0.010	-0.019	-0.041	-0.052	-0.047	-0.022	-0.017	-0.017	-0.017	-0.017	-0.014	
18.944	0.032	0.026	0.005	-0.019	-0.041	-0.052	-0.047	-0.022	-0.017	-0.017	-0.017	-0.017	-0.014	
19.444	0.032	0.026	0.005	-0.019	-0.041	-0.052	-0.047	-0.022	-0.017	-0.017	-0.017	-0.017	-0.014	
19.944	0.032	0.026	0.005	-0.019	-0.041	-0.052	-0.047	-0.022	-0.017	-0.017	-0.017	-0.017	-0.014	
20.444	0.021	0.016	-0.006	-0.030	-0.052	-0.062	-0.060	-0.036	-0.030	-0.028	-0.027	-0.028	-0.027	
20.944	-0.002	-0.000	-0.021	-0.049	-0.068	-0.078	-0.079	-0.054	-0.046	-0.044	-0.043	-0.044	-0.046	
21.444	-0.036	-0.036	-0.106	-0.127	-0.143	-0.148	-0.154	-0.139	-0.130	-0.122	-0.119	-0.114	-0.108	

Table 1.11 Experimental pressure coefficients c_p for $\alpha = 10.20^\circ$, $M_\infty = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.662	0.647	0.610	0.543	0.451	0.379	0.303	0.239	0.168	0.158	0.142	0.12	0.130	
0.482	0.577	0.582	0.542	0.483	0.405	0.323	0.253	0.186	0.160	0.095	0.114	0.12	0.123	
0.731	0.159	0.152	0.112	0.059	-0.011	-0.087	-0.154	-0.212	-0.248	-0.269	-0.273	-0.28	-0.283	
0.950	-0.056	-0.074	-0.109	-0.154	-0.229	-0.301	-0.351	-0.403	-0.431	-0.448	-0.452	-0.44	-0.444	
1.238	-0.185	-0.199	-0.225	-0.275	-0.322	-0.377	-0.418	-0.434	-0.431	-0.421	-0.403	-0.387	-0.381	
1.500	-0.238	-0.248	-0.275	-0.306	-0.345	-0.377	-0.387	-0.385	-0.364	-0.332	-0.305	-0.28	-0.274	
1.744	-0.025	-0.034	-0.056	-0.087	-0.118	-0.149	-0.154	-0.145	-0.123	-0.096	-0.069	-0.05	-0.043	
2.444	0.007	-0.002	-0.025	-0.052	-0.087	-0.109	-0.119	-0.109	-0.087	-0.056	-0.034	-0.019	-0.007	
2.944	0.024	0.015	-0.007	-0.038	-0.069	-0.096	-0.101	-0.096	-0.069	-0.043	-0.025	-0.007	-0.007	
3.444	0.023	0.015	-0.002	-0.034	-0.065	-0.087	-0.096	-0.083	-0.056	-0.034	-0.025	-0.011	0.002	
4.444	0.033	0.024	0.002	-0.029	-0.060	-0.083	-0.087	-0.074	-0.047	-0.029	-0.025	-0.011	0.002	
4.944	0.033	0.024	0.002	-0.025	-0.060	-0.083	-0.087	-0.069	-0.043	-0.029	-0.029	-0.011	0.002	
5.444	0.035	0.029	0.007	-0.025	-0.056	-0.078	-0.078	-0.060	-0.034	-0.025	-0.034	-0.029	0.007	
5.944	0.036	0.029	0.007	-0.020	-0.051	-0.074	-0.078	-0.056	-0.029	-0.025	-0.034	-0.029	0.007	
6.444	0.035	0.029	0.007	-0.025	-0.051	-0.074	-0.074	-0.056	-0.029	-0.025	-0.034	-0.029	0.007	
6.944	0.040	0.033	0.011	-0.020	-0.047	-0.069	-0.070	-0.047	-0.025	-0.020	-0.034	-0.029	0.002	
7.444	0.038	0.033	0.011	-0.020	-0.051	-0.069	-0.070	-0.047	-0.025	-0.020	-0.034	-0.029	0.002	
7.944	0.040	0.033	0.011	-0.016	-0.047	-0.065	-0.065	-0.047	-0.025	-0.020	-0.034	-0.029	0.002	
8.444	0.039	0.033	0.011	-0.020	-0.047	-0.065	-0.065	-0.043	-0.020	-0.016	-0.020	-0.029	0.002	
8.944	0.038	0.033	0.011	-0.020	-0.047	-0.065	-0.065	-0.043	-0.020	-0.016	-0.020	-0.029	0.002	
9.444	0.040	0.029	0.007	-0.025	-0.056	-0.074	-0.074	-0.047	-0.025	-0.020	-0.034	-0.029	0.002	
9.944	0.036	0.029	0.007	-0.020	-0.047	-0.065	-0.065	-0.047	-0.025	-0.020	-0.034	-0.029	0.002	
10.444	0.039	0.033	0.011	-0.016	-0.043	-0.065	-0.061	-0.038	-0.020	-0.020	-0.020	-0.025	0.011	
10.944	0.040	0.033	0.011	-0.014	-0.043	-0.059	-0.057	-0.034	-0.019	-0.016	-0.019	-0.021	0.007	
11.444	0.040	0.033	0.011	-0.019	-0.043	-0.057	-0.055	-0.030	-0.019	-0.016	-0.016	-0.019	0.003	
11.944	0.038	0.033	0.011	-0.019	-0.043	-0.059	-0.055	-0.032	-0.021	-0.019	-0.019	-0.021	0.003	
12.444	0.038	0.029	0.011	-0.019	-0.045	-0.061	-0.055	-0.030	-0.019	-0.016	-0.019	-0.021	0.003	
12.944	0.041	0.033	0.011	-0.019	-0.043	-0.059	-0.053	-0.028	-0.019	-0.016	-0.016	-0.019	0.003	
13.444	0.037	0.033	0.011	-0.019	-0.043	-0.057	-0.050	-0.028	-0.019	-0.016	-0.016	-0.019	0.003	
13.944	0.039	0.033	0.011	-0.016	-0.041	-0.055	-0.050	-0.025	-0.019	-0.014	-0.016	-0.016	0.003	
14.444	0.033	0.033	0.033	-0.015	-0.040	-0.055	-0.049	-0.024	-0.016	-0.014	-0.014	-0.015	0.003	
14.944	0.040	0.033	0.011	-0.014	-0.039	-0.055	-0.048	-0.023	-0.016	-0.014	-0.015	-0.015	0.003	
15.444	0.039	0.031	0.011	-0.014	-0.039	-0.052	-0.046	-0.021	-0.014	-0.014	-0.016	-0.016	0.003	
15.944	0.039	0.029	0.011	-0.014	-0.039	-0.050	-0.044	-0.021	-0.014	-0.012	-0.012	-0.012	0.003	
16.444	0.037	0.033	0.011	-0.002	-0.016	-0.025	-0.021	-0.003	-0.001	0.002	0.002	0.002	0.006	
16.944	0.040	0.033	0.016	-0.003	-0.021	-0.030	-0.023	-0.003	-0.003	0.003	0.002	0.002	0.006	
17.444	0.037	0.029	0.011	-0.014	-0.039	-0.050	-0.041	-0.019	-0.014	-0.012	-0.012	-0.014	0.006	
17.944	0.038	0.033	0.011	-0.014	-0.037	-0.048	-0.041	-0.019	-0.014	-0.012	-0.012	-0.014	0.010	
18.444	0.036	0.029	0.011	-0.016	-0.039	-0.050	-0.041	-0.021	-0.016	-0.014	-0.014	-0.016	0.010	
18.944	0.033	0.029	0.011	-0.016	-0.039	-0.050	-0.041	-0.021	-0.016	-0.014	-0.014	-0.016	0.012	
19.444	0.033	0.029	0.011	-0.016	-0.039	-0.050	-0.041	-0.021	-0.016	-0.014	-0.014	-0.016	0.014	
19.944	0.033	0.029	0.007	-0.019	-0.041	-0.052	-0.044	-0.023	-0.019	-0.019	-0.016	-0.017	0.014	
20.444	0.029	0.020	0.002	-0.025	-0.048	-0.057	-0.055	-0.030	-0.025	-0.023	-0.021	-0.023	0.014	
20.944	0.011	0.002	-0.016	-0.041	-0.064	-0.075	-0.068	-0.048	-0.043	-0.041	-0.039	-0.043	0.039	
21.444	-0.087	-0.091	-0.105	-0.125	-0.143	-0.149	-0.147	-0.134	-0.129	-0.122	-0.118	-0.113	-0.104	

Table 1.12 Experimental pressure coefficients c_p for $\alpha = 10.24^\circ$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.710	0.691	0.662	0.592	0.510	0.438	0.362	0.300	0.251	0.219	0.206	0.195	0.193	
0.462	0.440	0.424	0.392	0.326	0.252	0.177	0.105	0.043	-0.003	-0.042	-0.061	-0.073	-0.059	
0.731	0.205	0.190	0.153	0.094	0.025	-0.038	-0.112	-0.167	-0.207	-0.230	-0.237	-0.249	-0.245	
0.980	-0.042	-0.061	-0.096	-0.144	-0.213	-0.280	-0.334	-0.386	-0.423	-0.449	-0.456	-0.461	-0.459	
1.238	-0.264	-0.276	-0.311	-0.359	-0.420	-0.480	-0.537	-0.577	-0.607	-0.621	-0.624	-0.621	-0.619	
1.500	-0.354	-0.366	-0.393	-0.434	-0.486	-0.530	-0.569	-0.607	-0.627	-0.637	-0.633	-0.632	-0.634	
1.744	-0.026	-0.034	-0.053	-0.081	-0.108	-0.116	-0.120	-0.100	-0.081	-0.054	-0.026	-0.006	0.001	
2.444	0.013	0.001	-0.022	-0.050	-0.084	-0.104	-0.112	-0.100	-0.073	-0.042	-0.018	0.001	0.009	
2.944	0.025	0.013	-0.006	-0.038	-0.073	-0.092	-0.100	-0.089	-0.061	-0.038	-0.018	-0.003	0.009	
3.444	0.029	0.017	-0.003	-0.034	-0.065	-0.089	-0.096	-0.081	-0.054	-0.030	-0.022	-0.006	0.009	
3.944	0.031	0.021	0.005	-0.026	-0.061	-0.081	-0.088	-0.073	-0.046	-0.030	-0.022	-0.010	0.009	
4.444	0.032	0.025	0.005	-0.026	-0.061	-0.081	-0.088	-0.073	-0.046	-0.030	-0.022	-0.010	0.009	
4.944	0.031	0.025	0.005	-0.026	-0.057	-0.077	-0.081	-0.065	-0.038	-0.026	-0.030	-0.018	0.001	
5.444	0.036	0.029	0.005	-0.026	-0.057	-0.077	-0.081	-0.061	-0.034	-0.026	-0.030	-0.022	0.001	
5.944	0.036	0.029	0.009	-0.022	-0.053	-0.073	-0.077	-0.057	-0.030	-0.026	-0.030	-0.022	0.005	
6.444	0.036	0.029	0.005	-0.022	-0.053	-0.073	-0.077	-0.057	-0.030	-0.026	-0.030	-0.022	0.005	
6.944	0.039	0.030	0.013	-0.018	-0.049	-0.069	-0.069	-0.045	-0.026	-0.022	-0.026	-0.026	0.001	
7.444	0.038	0.029	0.009	-0.017	-0.049	-0.069	-0.069	-0.045	-0.026	-0.022	-0.026	-0.026	0.001	
7.944	0.040	0.031	0.013	-0.051	-0.049	-0.065	-0.065	-0.041	-0.022	-0.019	-0.022	-0.026	0.001	
8.444	0.039	0.030	0.009	-0.048	-0.049	-0.065	-0.065	-0.041	-0.022	-0.019	-0.022	-0.026	0.001	
8.944	0.038	0.029	0.009	-0.049	-0.049	-0.065	-0.065	-0.041	-0.022	-0.019	-0.022	-0.026	0.001	
9.444	0.039	0.029	0.009	-0.045	-0.057	-0.073	-0.077	-0.045	-0.026	-0.022	-0.026	-0.026	0.001	
9.944	0.035	0.029	0.009	-0.050	-0.049	-0.065	-0.065	-0.045	-0.026	-0.022	-0.026	-0.026	0.001	
10.444	0.039	0.029	0.013	-0.017	-0.044	-0.060	-0.060	-0.038	-0.022	-0.018	-0.022	-0.026	0.001	
10.944	0.041	0.031	0.013	-0.019	-0.042	-0.058	-0.058	-0.033	-0.021	-0.019	-0.019	-0.021	0.007	
11.444	0.040	0.030	0.013	-0.019	-0.044	-0.058	-0.058	-0.031	-0.021	-0.017	-0.017	-0.017	0.001	
11.944	0.038	0.029	0.009	-0.019	-0.044	-0.058	-0.058	-0.033	-0.023	-0.021	-0.021	-0.023	0.009	
12.444	0.037	0.029	0.009	-0.019	-0.044	-0.058	-0.058	-0.031	-0.021	-0.019	-0.019	-0.023	0.009	
12.944	0.041	0.030	0.013	-0.017	-0.044	-0.058	-0.058	-0.029	-0.021	-0.017	-0.017	-0.019	0.003	
13.444	0.037	0.029	0.009	-0.019	-0.044	-0.058	-0.058	-0.027	-0.021	-0.017	-0.017	-0.019	0.001	
13.944	0.038	0.029	0.009	-0.019	-0.044	-0.058	-0.058	-0.027	-0.019	-0.017	-0.017	-0.019	0.001	
14.444	0.029	0.029	0.009	-0.019	-0.042	-0.056	-0.056	-0.027	-0.019	-0.017	-0.017	-0.017	0.005	
14.944	0.038	0.029	0.009	-0.018	-0.041	-0.055	-0.055	-0.026	-0.018	-0.017	-0.017	-0.017	0.005	
15.444	0.038	0.029	0.009	-0.017	-0.043	-0.054	-0.050	-0.025	-0.019	-0.017	-0.017	-0.016	0.005	
15.944	0.037	0.029	0.009	-0.017	-0.040	-0.054	-0.050	-0.025	-0.019	-0.017	-0.017	-0.015	0.005	
16.444	0.037	0.029	0.009	-0.015	-0.040	-0.052	-0.046	-0.021	-0.019	-0.015	-0.015	-0.013	0.007	
16.944	0.035	0.029	0.009	-0.001	-0.021	-0.029	-0.027	-0.005	-0.005	-0.001	-0.001	0.001	0.003	
17.444	0.036	0.029	0.013	-0.005	-0.023	-0.033	-0.029	-0.009	-0.007	-0.005	-0.005	-0.003	0.001	
17.944	0.034	0.029	0.009	-0.017	-0.040	-0.050	-0.046	-0.021	-0.019	-0.015	-0.015	-0.015	0.013	
18.444	0.036	0.029	0.009	-0.017	-0.040	-0.050	-0.044	-0.021	-0.019	-0.017	-0.017	-0.015	0.015	
18.944	0.033	0.025	0.009	-0.019	-0.042	-0.052	-0.046	-0.021	-0.019	-0.017	-0.017	-0.017	0.019	
19.444	0.031	0.025	0.009	-0.017	-0.040	-0.051	-0.044	-0.021	-0.019	-0.017	-0.019	-0.019	0.021	
19.944	0.032	0.025	0.009	-0.019	-0.044	-0.055	-0.050	-0.025	-0.023	-0.021	-0.021	-0.017	0.021	
20.444	0.029	0.021	0.001	-0.025	-0.050	-0.060	-0.056	-0.032	-0.030	-0.029	-0.027	-0.025	0.031	
20.944	0.013	0.005	-0.014	-0.041	-0.064	-0.078	-0.074	-0.052	-0.046	-0.046	-0.046	-0.046	0.050	
21.444	-0.089	-0.093	-0.108	-0.130	-0.149	-0.163	-0.163	-0.147	-0.143	-0.137	-0.133	-0.123	-0.123	

Table 1.13 Experimental pressure coefficients c_p for $\alpha = 10.26^\circ$, $M_\infty = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.744	0.262	0.697	0.639	0.562	0.478	0.402	0.346	0.295	0.268	0.254	0.240	0.238	
0.482	0.481	0.473	0.434	0.378	0.305	0.222	0.150	0.073	0.041	0.009	-0.009	-0.024	-0.023	
0.731	0.248	0.239	0.198	0.146	0.091	0.009	-0.065	-0.117	-0.153	-0.176	-0.183	-0.198	-0.198	
0.980	0.025	-0.009	-0.046	-0.091	-0.154	-0.228	-0.283	-0.327	-0.364	-0.383	-0.387	-0.394	-0.393	
1.238	-0.220	-0.228	-0.261	-0.306	-0.365	-0.428	-0.483	-0.516	-0.542	-0.557	-0.561	-0.561	-0.559	
1.500	-0.313	-0.324	-0.353	-0.395	-0.446	-0.502	-0.549	-0.593	-0.605	-0.605	-0.602	-0.594	-0.593	
1.944	-0.224	-0.231	-0.261	-0.306	-0.361	-0.417	-0.454	-0.471	-0.446	-0.383	-0.317	-0.253	-0.242	
2.444	-0.109	-0.183	-0.179	-0.246	-0.307	-0.366	-0.403	-0.433	-0.413	-0.309	0.009	0.031	0.042	
2.944	0.067	0.067	0.040	0.017	-0.020	-0.066	-0.106	-0.135	-0.154	-0.164	-0.164	-0.164	-0.164	
3.444	0.052	0.051	0.028	-0.002	-0.035	-0.061	-0.072	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	
3.944	0.045	0.041	0.020	-0.009	-0.043	-0.068	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	
4.444	0.041	0.036	0.013	-0.017	-0.046	-0.072	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	
4.944	0.039	0.033	0.009	-0.020	-0.050	-0.072	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	
5.444	0.041	0.032	0.013	-0.017	-0.046	-0.068	-0.072	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	
5.944	0.040	0.033	0.013	-0.017	-0.046	-0.068	-0.072	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	
6.444	0.039	0.031	0.009	-0.020	-0.050	-0.068	-0.072	-0.076	-0.076	-0.076	-0.076	-0.076	-0.076	
6.944	0.043	0.035	0.013	-0.017	-0.043	-0.065	-0.065	-0.065	-0.065	-0.065	-0.065	-0.065	-0.065	
7.444	0.041	0.033	0.013	-0.017	-0.046	-0.065	-0.065	-0.065	-0.065	-0.065	-0.065	-0.065	-0.065	
7.944	0.043	0.035	0.017	-0.017	-0.043	-0.065	-0.061	-0.039	-0.020	-0.017	-0.020	-0.024	-0.013	
8.444	0.041	0.033	0.013	-0.017	-0.046	-0.065	-0.061	-0.039	-0.020	-0.017	-0.020	-0.024	-0.013	
8.944	0.039	0.031	0.013	-0.017	-0.046	-0.065	-0.061	-0.039	-0.020	-0.017	-0.020	-0.024	-0.013	
9.444	0.041	0.031	0.009	-0.024	-0.050	-0.072	-0.072	-0.072	-0.072	-0.072	-0.072	-0.072	-0.072	
9.944	0.037	0.028	0.009	-0.020	-0.046	-0.065	-0.061	-0.035	-0.020	-0.020	-0.020	-0.024	-0.013	
10.444	0.042	0.033	0.013	-0.015	-0.042	-0.058	-0.058	-0.058	-0.058	-0.058	-0.058	-0.058	-0.058	
10.944	0.043	0.035	0.017	-0.012	-0.040	-0.057	-0.054	-0.030	-0.021	-0.019	-0.017	-0.021	-0.010	
11.444	0.043	0.034	0.013	-0.015	-0.042	-0.058	-0.055	-0.030	-0.021	-0.017	-0.015	-0.021	-0.013	
11.944	0.039	0.030	0.009	-0.017	-0.043	-0.060	-0.058	-0.030	-0.019	-0.015	-0.015	-0.021	-0.010	
12.444	0.039	0.030	0.013	-0.017	-0.042	-0.058	-0.058	-0.058	-0.058	-0.058	-0.058	-0.058	-0.058	
12.944	0.043	0.035	0.013	-0.014	-0.040	-0.055	-0.051	-0.027	-0.019	-0.015	-0.013	-0.012	-0.012	
13.444	0.038	0.029	0.013	-0.017	-0.042	-0.057	-0.051	-0.027	-0.019	-0.015	-0.013	-0.012	-0.012	
13.944	0.040	0.030	0.013	-0.015	-0.042	-0.057	-0.049	-0.025	-0.019	-0.015	-0.013	-0.012	-0.012	
14.444	0.028	0.028	0.028	-0.015	-0.040	-0.055	-0.048	-0.025	-0.019	-0.015	-0.013	-0.012	-0.012	
14.944	0.043	0.030	0.013	-0.015	-0.038	-0.053	-0.047	-0.023	-0.017	-0.015	-0.013	-0.012	-0.012	
15.444	0.039	0.029	0.013	-0.015	-0.038	-0.053	-0.045	-0.023	-0.017	-0.015	-0.013	-0.012	-0.012	
15.944	0.039	0.029	0.013	-0.015	-0.038	-0.053	-0.045	-0.023	-0.017	-0.015	-0.013	-0.012	-0.012	
16.444	0.035	0.028	0.009	-0.000	-0.019	-0.030	-0.025	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	
16.944	0.039	0.031	0.013	-0.004	-0.021	-0.034	-0.027	-0.010	-0.008	-0.006	-0.006	-0.006	-0.006	
17.444	0.034	0.028	0.009	-0.017	-0.038	-0.053	-0.045	-0.021	-0.017	-0.015	-0.013	-0.012	-0.012	
17.944	0.036	0.028	0.009	-0.015	-0.038	-0.053	-0.044	-0.021	-0.017	-0.015	-0.013	-0.012	-0.012	
18.444	0.033	0.028	0.009	-0.017	-0.040	-0.053	-0.045	-0.023	-0.019	-0.017	-0.015	-0.014	-0.014	
18.944	0.032	0.028	0.009	-0.017	-0.038	-0.053	-0.044	-0.023	-0.019	-0.017	-0.015	-0.014	-0.014	
19.444	0.033	0.028	0.009	-0.015	-0.036	-0.051	-0.044	-0.021	-0.019	-0.017	-0.015	-0.014	-0.014	
19.944	0.034	0.028	0.009	-0.017	-0.040	-0.055	-0.047	-0.025	-0.021	-0.021	-0.021	-0.021	-0.021	
20.444	0.028	0.024	0.002	-0.023	-0.044	-0.060	-0.053	-0.032	-0.028	-0.028	-0.027	-0.027	-0.028	
20.944	0.017	0.013	0.000	-0.034	-0.059	-0.073	-0.072	-0.051	-0.047	-0.047	-0.047	-0.047	-0.049	
21.444	-0.063	-0.069	0.000	-0.113	-0.137	-0.158	-0.164	-0.154	-0.148	-0.144	-0.142	-0.135	-0.131	

Table 1.14 Experimental pressure coefficients c_p for $\alpha = 10.28^\circ$, $M_\infty = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.782	0.510	0.740	0.683	0.608	0.527	0.459	0.394	0.348	0.322	0.308	0.293	0.291	
0.482	0.526	0.519	0.483	0.429	0.356	0.277	0.213	0.147	0.100	0.068	0.048	0.033	0.035	
0.731	0.303	0.293	0.255	0.204	0.140	0.067	0.006	-0.058	-0.090	-0.108	-0.122	-0.140	-0.136	
0.980	0.059	0.049	0.016	-0.026	-0.087	-0.157	-0.207	-0.260	-0.291	-0.306	-0.312	-0.318	-0.320	
1.238	-0.157	-0.161	-0.190	-0.235	-0.288	-0.353	-0.397	-0.441	-0.461	-0.472	-0.478	-0.455	-0.453	
1.500	-0.253	-0.257	-0.286	-0.324	-0.377	-0.431	-0.472	-0.512	-0.525	-0.525	-0.520	-0.520	-0.518	
1.944	-0.182	-0.186	-0.215	-0.257	-0.309	-0.367	-0.401	-0.423	-0.408	-0.369	-0.330	-0.303	-0.275	
2.444	-0.147	-0.154	-0.183	-0.228	-0.278	-0.321	-0.330	-0.299	-0.266	-0.192	-0.157	-0.136	-0.125	
2.944	-0.129	-0.133	-0.161	-0.196	-0.224	-0.232	-0.228	-0.200	-0.161	-0.132	-0.111	-0.090	-0.079	
3.444	-0.080	-0.087	-0.108	-0.136	-0.161	-0.183	-0.182	-0.157	-0.129	-0.111	-0.100	-0.079	-0.062	
3.944	-0.037	-0.048	-0.069	-0.101	-0.129	-0.151	-0.150	-0.111	-0.090	-0.093	-0.093	-0.069	-0.033	
4.444	0.049	-0.030	-0.044	-0.079	-0.101	-0.101	-0.083	-0.012	-0.009	-0.026	-0.040	-0.012	0.049	
4.944	0.088	0.077	0.060	0.030	0.006	-0.016	-0.019	-0.002	0.020	0.020	-0.001	0.043	0.063	
5.444	0.088	0.086	0.064	0.039	0.009	-0.016	-0.016	0.002	0.023	0.027	-0.002	0.038	0.056	
5.944	0.081	0.087	0.059	0.034	0.002	-0.019	-0.023	-0.009	0.016	0.023	-0.005	0.027	0.043	
6.444	0.070	0.070	0.047	0.023	-0.012	-0.034	-0.037	-0.019	0.009	0.013	-0.009	0.009	0.027	
6.944	0.063	0.063	0.039	0.016	-0.019	-0.041	-0.044	-0.026	-0.002	0.006	-0.005	0.005	0.016	
7.444	0.053	0.050	0.027	0.002	-0.033	-0.053	-0.055	-0.033	-0.012	-0.005	-0.009	-0.009	0.002	
7.944	0.048	0.043	0.023	-0.005	-0.037	-0.058	-0.058	-0.037	-0.016	-0.009	-0.012	-0.016	-0.005	
8.444	0.043	0.034	0.016	-0.016	-0.044	-0.065	-0.062	-0.037	-0.019	-0.016	-0.019	-0.023	-0.016	
8.944	0.040	0.031	0.013	-0.019	-0.044	-0.062	-0.062	-0.037	-0.019	-0.016	-0.019	-0.023	-0.012	
9.444	0.040	0.036	0.009	-0.023	-0.051	-0.073	-0.069	-0.044	-0.023	-0.023	-0.026	-0.037	-0.026	
9.944	0.036	0.028	0.009	-0.019	-0.048	-0.065	-0.062	-0.033	-0.019	-0.016	-0.019	-0.023	-0.016	
10.444	0.043	0.037	0.016	-0.011	-0.040	-0.055	-0.054	-0.031	-0.020	-0.014	-0.014	-0.016	-0.011	
10.944	0.045	0.038	0.020	-0.009	-0.036	-0.054	-0.052	-0.029	-0.020	-0.014	-0.014	-0.016	-0.011	
11.444	0.045	0.034	0.016	-0.016	-0.041	-0.059	-0.054	-0.031	-0.022	-0.020	-0.020	-0.018	-0.013	
11.944	0.040	0.032	0.013	-0.016	-0.041	-0.059	-0.055	-0.031	-0.022	-0.020	-0.020	-0.018	-0.013	
12.444	0.040	0.031	0.013	-0.016	-0.041	-0.059	-0.054	-0.031	-0.022	-0.020	-0.020	-0.018	-0.013	
12.944	0.045	0.039	0.016	-0.013	-0.038	-0.054	-0.050	-0.027	-0.020	-0.014	-0.014	-0.009	-0.002	
13.444	0.039	0.031	0.013	-0.014	-0.039	-0.056	-0.050	-0.027	-0.018	-0.014	-0.014	-0.014	-0.004	
13.944	0.061	0.034	0.016	-0.014	-0.039	-0.056	-0.050	-0.025	-0.018	-0.013	-0.014	-0.014	-0.011	
14.444	0.027	0.027	0.027	-0.014	-0.039	-0.056	-0.050	-0.026	-0.018	-0.013	-0.016	-0.016	-0.011	
14.944	0.043	0.035	0.016	-0.013	-0.038	-0.056	-0.050	-0.027	-0.018	-0.014	-0.018	-0.007	-0.004	
15.444	0.038	0.031	0.013	-0.016	-0.041	-0.058	-0.050	-0.025	-0.020	-0.016	-0.018	-0.011	-0.005	
15.944	0.037	0.028	0.009	-0.018	-0.043	-0.058	-0.052	-0.027	-0.022	-0.018	-0.020	-0.018	-0.009	
16.444	0.033	0.027	0.009	-0.004	-0.023	-0.034	-0.030	-0.009	-0.007	-0.005	-0.005	-0.004	0.002	
16.944	0.035	0.027	0.009	-0.009	-0.027	-0.040	-0.034	-0.013	-0.009	-0.009	-0.009	-0.004	-0.000	
17.444	0.035	0.027	0.013	-0.020	-0.038	-0.049	-0.043	-0.023	-0.016	-0.013	-0.014	-0.016	-0.009	
17.944	0.033	0.032	0.013	-0.013	-0.038	-0.052	-0.045	-0.023	-0.018	-0.013	-0.014	-0.016	-0.009	
18.444	0.033	0.029	0.009	-0.016	-0.041	-0.056	-0.047	-0.023	-0.018	-0.014	-0.016	-0.016	-0.013	
18.944	0.036	0.030	0.013	-0.009	-0.036	-0.052	-0.045	-0.022	-0.018	-0.014	-0.016	-0.014	-0.013	
19.444	0.034	0.028	0.013	-0.014	-0.036	-0.050	-0.043	-0.022	-0.018	-0.016	-0.018	-0.018	-0.014	
19.944	0.038	0.029	0.013	-0.018	-0.039	-0.054	-0.046	-0.023	-0.020	-0.016	-0.018	-0.016	-0.009	
20.444	0.037	0.030	0.013	-0.016	-0.038	-0.052	-0.046	-0.025	-0.022	-0.020	-0.020	-0.022	-0.014	
20.944	0.029	0.027	0.006	-0.020	-0.045	-0.059	-0.055	-0.038	-0.032	-0.032	-0.034	-0.038	-0.024	
21.444	-0.023	-0.026	-0.048	-0.074	-0.104	-0.133	-0.148	-0.160	-0.165	-0.163	-0.156	-0.134	-0.125	

Table 1.15 Experimental pressure coefficients c_p for $\alpha = 10.31^\circ$, $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.856	0.849	0.740	0.754	0.683	0.597	0.539	0.478	0.433	0.407	0.393	0.378	0.379	
0.482	0.607	0.596	0.483	0.510	0.439	0.367	0.302	0.244	0.196	0.162	0.144	0.131	0.133	
0.731	0.393	0.382	0.255	0.294	0.234	0.167	0.103	0.047	0.012	-0.015	-0.024	-0.038	-0.038	
0.980	0.163	0.154	0.016	0.077	0.018	-0.044	-0.094	-0.140	-0.173	-0.189	-0.196	-0.196	-0.196	
1.238	-0.038	-0.048	-0.190	-0.117	-0.170	-0.226	-0.272	-0.319	-0.332	-0.345	-0.347	-0.347	-0.348	
1.500	-0.133	-0.143	-0.286	-0.206	-0.256	-0.305	-0.344	-0.375	-0.395	-0.397	-0.393	-0.387	-0.387	
1.744	-0.087	-0.094	-0.215	-0.163	-0.213	-0.259	-0.295	-0.312	-0.309	-0.279	-0.248	-0.222	-0.212	
2.044	-0.064	-0.071	-0.183	-0.144	-0.190	-0.229	-0.249	-0.229	-0.190	-0.137	-0.103	-0.077	-0.064	
2.344	-0.048	-0.057	-0.161	-0.127	-0.164	-0.186	-0.179	-0.150	-0.114	-0.081	-0.057	-0.041	-0.021	
2.644	-0.031	-0.038	-0.108	-0.094	-0.124	-0.143	-0.140	-0.117	-0.074	-0.041	-0.027	-0.016	-0.010	
2.944	-0.001	-0.011	-0.069	-0.061	-0.081	-0.104	-0.110	-0.091	-0.058	-0.034	-0.024	-0.011	0.009	
3.244	0.015	0.009	-0.044	-0.051	-0.081	-0.100	-0.100	-0.074	-0.051	-0.041	-0.034	-0.024	0.009	
3.544	0.015	0.005	-0.060	-0.051	-0.074	-0.090	-0.084	-0.061	-0.041	-0.034	-0.024	-0.011	0.009	
3.844	0.025	0.022	0.064	-0.028	-0.064	-0.084	-0.087	-0.061	-0.038	-0.034	-0.024	-0.011	0.002	
4.144	0.026	0.018	0.059	-0.031	-0.054	-0.074	-0.074	-0.054	-0.045	-0.038	-0.024	-0.011	0.002	
4.444	0.034	0.033	0.047	-0.021	-0.064	-0.087	-0.087	-0.064	-0.041	-0.038	-0.024	-0.011	0.002	
4.744	0.035	0.025	0.039	-0.028	-0.044	-0.067	-0.071	-0.051	-0.045	-0.034	-0.024	-0.011	0.002	
5.044	0.041	0.029	0.027	-0.031	-0.061	-0.087	-0.090	-0.068	-0.054	-0.041	-0.034	-0.024	0.002	
5.344	0.054	0.055	0.023	0.002	-0.074	-0.097	-0.100	-0.074	-0.054	-0.041	-0.034	-0.024	0.002	
5.644	0.012	0.005	0.016	-0.054	-0.111	-0.130	-0.123	-0.087	-0.058	-0.048	-0.044	-0.034	0.002	
5.944	-0.018	-0.025	0.013	-0.084	-0.107	-0.123	-0.123	-0.087	-0.058	-0.048	-0.044	-0.034	0.002	
6.244	-0.028	-0.038	0.009	-0.104	-0.107	-0.117	-0.117	-0.071	-0.048	-0.041	-0.034	-0.024	0.002	
6.544	-0.001	-0.008	0.009	-0.054	-0.064	-0.084	-0.080	-0.071	-0.054	-0.041	-0.034	-0.024	0.002	
6.844	0.022	0.012	0.016	-0.034	-0.054	-0.075	-0.077	-0.054	-0.040	-0.038	-0.033	-0.023	0.002	
7.144	0.039	0.032	0.020	-0.022	-0.055	-0.075	-0.073	-0.067	-0.039	-0.039	-0.022	-0.038	0.000	
7.444	0.025	0.018	0.016	-0.040	-0.032	-0.043	-0.037	-0.012	-0.020	-0.008	-0.010	-0.015	0.008	
7.744	0.009	0.005	0.013	-0.018	-0.055	-0.063	-0.050	-0.022	-0.002	-0.013	-0.010	-0.010	-0.003	
8.044	0.025	0.012	0.013	-0.030	-0.039	-0.057	-0.034	-0.026	0.048	0.012	-0.005	0.007	0.025	
8.344	0.167	0.166	0.018	0.044	0.044	0.025	0.028	0.047	0.051	0.048	0.035	0.051	0.061	
8.644	0.117	0.111	0.013	0.062	0.022	0.002	0.008	0.032	0.037	0.040	0.041	0.037	0.054	
8.944	0.091	0.082	0.018	0.031	0.012	-0.005	0.000	0.025	0.028	0.032	0.030	0.029	0.043	
9.244	0.025	0.029	0.027	0.025	-0.003	-0.021	-0.015	0.010	0.011	0.020	0.025	0.019	0.035	
9.544	0.074	0.066	0.016	0.018	-0.018	-0.037	-0.030	-0.065	-0.007	0.008	0.020	0.010	0.028	
9.844	0.064	0.056	0.013	-0.000	-0.030	-0.050	-0.045	-0.122	-0.025	-0.038	-0.002	-0.010	0.003	
10.144	0.055	0.047	0.009	-0.008	-0.055	-0.075	-0.068	-0.040	-0.040	-0.028	-0.025	-0.032	-0.022	
10.444	0.025	0.022	0.009	-0.013	-0.049	-0.062	-0.053	-0.030	-0.024	-0.018	-0.017	-0.015	-0.010	
10.744	-0.001	-0.005	0.009	-0.028	-0.055	-0.063	-0.055	-0.033	-0.032	-0.025	-0.020	-0.022	-0.017	
11.044	-0.018	-0.025	0.013	-0.064	-0.075	-0.092	-0.085	-0.050	-0.047	-0.032	-0.025	-0.022	-0.017	
11.344	0.009	-0.001	0.013	-0.055	-0.025	-0.042	-0.047	-0.032	-0.010	-0.037	-0.050	-0.042	-0.043	
11.644	0.047	0.045	0.009	-0.002	-0.025	-0.052	-0.045	-0.017	0.012	-0.010	-0.028	-0.012	-0.010	
11.944	0.047	0.041	0.013	-0.008	-0.023	-0.035	-0.022	0.003	0.007	0.008	-0.007	0.012	0.015	
12.244	0.044	0.039	0.013	-0.002	-0.027	-0.037	-0.020	0.003	0.010	0.012	0.015	0.015	0.026	
12.544	0.031	0.025	0.013	-0.015	-0.039	-0.050	-0.035	-0.012	-0.017	-0.003	0.008	0.003	0.010	
12.844	0.029	0.025	0.013	-0.020	-0.032	-0.047	-0.035	-0.017	-0.030	-0.017	-0.010	-0.018	-0.015	
13.144	0.027	0.018	0.006	-0.030	-0.057	-0.067	-0.057	-0.033	-0.045	-0.030	-0.023	-0.037	-0.030	
13.444	0.012	0.017	-0.048	-0.027	-0.082	-0.103	-0.115	-0.134	-0.156	-0.140	-0.105	-0.082	-0.067	

Table 1.16 Experimental pressure coefficients c_p for $\alpha = 10.33^\circ$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
R/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.897	0.886	0.850	0.796	0.729	0.637	0.580	0.518	0.473	0.446	0.430	0.419	0.415	
0.482	0.646	0.636	0.603	0.555	0.484	0.410	0.349	0.306	0.245	0.213	0.193	0.185	0.182	
0.731	0.439	0.428	0.392	0.344	0.284	0.219	0.159	0.104	0.060	0.043	0.025	0.023	0.016	
0.980	0.219	0.211	0.175	0.137	0.079	0.017	-0.028	-0.072	-0.103	-0.113	-0.116	-0.119	-0.113	
1.238	0.025	0.017	-0.009	-0.043	-0.100	-0.157	-0.194	-0.249	-0.254	-0.261	-0.261	-0.267	-0.261	
1.500	-0.069	-0.081	-0.103	-0.135	-0.189	-0.235	-0.269	-0.302	-0.321	-0.321	-0.317	-0.314	-0.306	
1.744	-0.034	-0.046	-0.078	-0.107	-0.170	-0.213	-0.244	-0.261	-0.251	-0.233	-0.210	-0.182	-0.170	
2.044	-0.034	-0.043	-0.075	-0.110	-0.151	-0.197	-0.219	-0.214	-0.185	-0.141	-0.110	-0.084	-0.078	
2.344	-0.028	-0.031	-0.062	-0.094	-0.154	-0.179	-0.188	-0.163	-0.125	-0.091	-0.065	-0.040	-0.024	
2.644	-0.028	-0.037	-0.050	-0.097	-0.122	-0.147	-0.144	-0.119	-0.084	-0.062	-0.053	-0.037	-0.024	
2.944	0.001	-0.006	-0.028	-0.059	-0.085	-0.106	-0.100	-0.088	-0.065	-0.059	-0.053	-0.024	-0.002	
3.244	0.013	0.007	-0.021	-0.034	-0.088	-0.116	-0.122	-0.094	-0.062	-0.050	-0.056	-0.024	-0.002	
3.544	0.031	0.002	-0.015	-0.062	-0.091	-0.109	-0.112	-0.088	-0.053	-0.053	-0.069	-0.031	-0.002	
3.844	0.033	0.023	-0.025	-0.037	-0.075	-0.097	-0.097	-0.072	-0.059	-0.053	-0.078	-0.040	-0.015	
4.144	0.033	0.023	-0.012	-0.040	-0.078	-0.109	-0.103	-0.081	-0.053	-0.050	-0.065	-0.043	-0.009	
4.444	0.028	0.026	-0.002	-0.040	-0.075	-0.091	-0.084	-0.053	-0.037	-0.037	-0.062	-0.034	-0.012	
4.744	0.020	0.010	-0.006	-0.053	-0.066	-0.087	-0.087	-0.062	-0.040	-0.037	-0.050	-0.040	-0.018	
5.044	0.029	0.023	-0.015	-0.018	-0.081	-0.084	-0.062	-0.031	-0.031	-0.021	-0.031	-0.024	-0.006	
5.344	0.013	0.007	0.007	-0.037	-0.050	-0.072	-0.072	-0.043	-0.034	-0.028	-0.037	-0.034	-0.018	
5.644	0.024	0.023	0.004	-0.037	-0.053	-0.062	-0.065	-0.043	-0.028	-0.034	-0.034	-0.028	-0.011	
5.944	0.034	0.033	0.007	-0.006	-0.053	-0.078	-0.068	-0.043	-0.037	-0.025	-0.037	-0.028	-0.011	
6.244	0.040	0.036	0.001	-0.018	-0.056	-0.069	-0.075	-0.056	-0.036	-0.034	-0.037	-0.028	-0.011	
6.544	0.035	0.032	0.001	-0.028	-0.062	-0.075	-0.062	-0.034	-0.034	-0.025	-0.037	-0.028	-0.011	
6.844	0.024	0.023	0.016	-0.019	-0.046	-0.063	-0.057	-0.031	-0.031	-0.017	-0.017	-0.019	-0.012	
7.144	0.043	0.032	0.001	-0.012	-0.049	-0.064	-0.042	-0.031	-0.017	-0.017	-0.017	-0.019	-0.012	
7.444	0.027	0.028	0.048	-0.030	0.046	-0.001	-0.003	0.010	0.015	0.018	0.020	0.037	0.031	
7.744	0.126	0.111	0.099	0.039	0.016	-0.014	-0.022	0.004	0.003	0.004	0.004	0.001	0.012	
8.044	0.090	0.079	0.048	0.029	-0.023	-0.057	-0.050	-0.025	-0.019	-0.011	-0.007	-0.009	-0.031	
8.344	0.076	0.070	0.030	0.021	-0.043	-0.068	-0.055	-0.025	-0.019	-0.009	-0.011	-0.001	0.035	
8.644	0.024	0.016	-0.015	-0.031	-0.067	-0.087	-0.079	-0.047	-0.033	-0.028	-0.027	-0.022	-0.015	
8.944	-0.002	-0.009	-0.021	-0.060	-0.081	-0.090	-0.085	-0.051	-0.038	-0.030	-0.036	-0.023	-0.023	
9.244	0.030	0.036	0.023	0.002	-0.043	-0.063	-0.065	-0.034	-0.027	-0.022	-0.026	-0.017	-0.013	
9.544	0.042	0.045	0.027	-0.014	-0.028	-0.052	-0.041	-0.019	-0.015	-0.022	-0.022	-0.011	-0.003	
9.844	0.048	0.044	0.031	-0.016	-0.027	-0.027	-0.025	-0.003	-0.001	-0.003	0.005	0.018	0.032	
10.144	0.034	0.028	0.004	-0.004	-0.004	-0.027	-0.023	-0.006	-0.003	-0.003	-0.006	-0.007	-0.006	
10.444	0.087	0.092	0.073	0.008	0.007	-0.020	-0.017	-0.006	-0.009	-0.006	-0.009	-0.014	-0.012	
10.744	0.070	0.060	0.023	0.021	-0.059	-0.085	-0.074	-0.035	-0.015	-0.006	0.003	0.012	0.016	
11.044	0.023	0.013	-0.021	-0.031	-0.060	-0.058	-0.058	-0.036	-0.031	-0.030	-0.031	-0.038	-0.031	
11.344	0.001	-0.002	0.007	-0.060	-0.044	-0.060	-0.055	-0.027	-0.017	-0.016	-0.023	-0.006	-0.007	
11.644	0.023	0.013	-0.009	-0.039	-0.047	-0.060	-0.052	-0.027	-0.017	-0.022	-0.023	-0.022	-0.017	
11.944	0.030	0.027	0.001	-0.015	-0.051	-0.041	-0.034	-0.017	-0.017	-0.016	-0.017	-0.020	-0.012	
12.244	0.034	0.036	0.048	0.024	-0.023	-0.052	-0.046	-0.019	-0.020	-0.015	-0.019	-0.011	-0.022	
12.544	0.048	0.034	0.007	-0.015	-0.049	-0.039	-0.039	-0.017	-0.012	-0.017	-0.017	-0.019	-0.025	
12.844	0.024	0.029	0.023	0.024	-0.044	-0.055	-0.059	-0.022	-0.006	-0.011	-0.006	-0.011	-0.005	
13.144	0.041	0.031	0.007	-0.014	-0.043	-0.052	-0.058	-0.041	-0.107	-0.094	-0.068	-0.027	-0.019	

Table 1.17 Experimental pressure coefficients c_p for $\alpha = 15.31^\circ$, $M_\infty = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.749	0.726	0.657	0.541	0.392	0.263	0.144	0.050	-0.006	-0.032	-0.037	-0.032	-0.037	
0.482	0.504	0.462	0.413	0.304	0.176	0.041	-0.070	-0.185	-0.218	-0.240	-0.255	-0.255	-0.244	
0.731	0.283	0.257	0.192	0.087	-0.027	-0.149	-0.256	-0.329	-0.365	-0.378	-0.367	-0.350	-0.345	
0.980	0.073	0.045	-0.011	-0.107	-0.218	-0.329	-0.405	-0.457	-0.478	-0.468	-0.446	-0.425	-0.419	
1.238	-0.048	-0.075	-0.133	-0.219	-0.308	-0.398	-0.448	-0.467	-0.462	-0.431	-0.372	-0.340	-0.329	
1.500	-0.112	-0.139	-0.186	-0.261	-0.340	-0.403	-0.432	-0.430	-0.393	-0.336	-0.277	-0.234	-0.223	
1.744	0.032	0.016	-0.037	-0.107	-0.176	-0.234	-0.256	-0.239	-0.186	-0.123	-0.069	-0.031	-0.021	
2.000	0.053	0.037	-0.011	-0.086	-0.154	-0.207	-0.224	-0.202	-0.149	-0.080	-0.038	-0.011	-0.010	
2.244	0.065	0.049	0.005	-0.064	-0.138	-0.191	-0.208	-0.181	-0.117	-0.064	-0.038	-0.016	-0.016	
2.482	0.069	0.050	0.005	-0.064	-0.133	-0.186	-0.182	-0.165	-0.076	-0.064	-0.059	-0.032	-0.021	
2.731	0.073	0.055	0.016	-0.054	-0.123	-0.175	-0.181	-0.149	-0.075	-0.059	-0.080	-0.043	-0.026	
3.000	0.075	0.056	0.016	-0.054	-0.128	-0.170	-0.181	-0.133	-0.064	-0.054	-0.076	-0.053	-0.019	
3.244	0.075	0.057	0.016	-0.054	-0.122	-0.170	-0.171	-0.117	-0.059	-0.048	-0.091	-0.067	-0.000	
3.482	0.079	0.059	0.016	-0.053	-0.117	-0.165	-0.165	-0.106	-0.059	-0.043	-0.059	-0.070	-0.011	
3.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
4.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
4.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
4.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
4.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
5.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
5.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
5.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
5.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
6.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
6.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
6.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
6.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
7.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
7.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
7.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
7.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
8.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
8.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
8.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
8.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
9.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
9.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
9.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
9.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
10.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
10.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
10.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
10.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
11.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
11.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
11.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
11.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
12.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
12.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
12.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
12.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
13.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
13.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
13.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
13.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
14.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
14.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
14.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
14.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
15.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
15.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
15.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
15.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
16.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
16.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
16.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
16.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
17.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
17.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
17.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
17.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
18.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
18.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
18.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
18.731	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
19.000	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
19.244	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054	-0.075	-0.021	
19.482	0.079	0.061	0.021	-0.048	-0.117	-0.159	-0.160	-0.096	-0.053	-0.043	-0.054			

Table 1.19 Experimental pressure coefficients c_p for $\alpha = 15.45^\circ$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.												
	θ	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.833	0.806	0.743	0.632	0.489	0.373	0.254	0.159	0.101	0.071	0.061	0.067	0.058
0.482	0.579	0.552	0.489	0.387	0.258	0.133	0.021	-0.081	-0.143	-0.164	-0.186	-0.197	-0.190
0.731	0.342	0.313	0.249	0.151	0.029	-0.059	-0.198	-0.285	-0.333	-0.353	-0.369	-0.363	-0.342
0.980	0.091	0.061	0.009	-0.093	-0.203	-0.320	-0.409	-0.466	-0.523	-0.536	-0.538	-0.526	-0.524
1.238	-0.112	-0.143	-0.198	-0.288	-0.396	-0.503	-0.579	-0.670	-0.698	-0.700	-0.696	-0.675	-0.668
1.500	-0.280	-0.303	-0.354	-0.430	-0.529	-0.609	-0.685	-0.774	-0.736	-0.708	-0.509	-0.394	-0.400
1.944	-0.022	-0.030	-0.100	-0.151	-0.199	-0.218	-0.218	-0.182	-0.132	-0.068	-0.026	0.013	0.039
2.444	0.047	0.029	-0.018	-0.089	-0.164	-0.214	-0.226	-0.190	-0.124	-0.069	-0.024	0.009	0.037
2.944	0.064	0.045	0.001	-0.069	-0.148	-0.198	-0.214	-0.170	-0.104	-0.059	-0.053	-0.010	0.025
3.444	0.069	0.051	0.003	-0.065	-0.136	-0.186	-0.199	-0.155	-0.085	-0.069	-0.077	-0.030	0.013
3.944	0.074	0.059	0.019	-0.058	-0.128	-0.178	-0.187	-0.136	-0.077	-0.063	-0.068	-0.045	0.005
4.444	0.077	0.057	0.013	-0.058	-0.128	-0.174	-0.179	-0.124	-0.069	-0.061	-0.068	-0.061	-0.006
4.944	0.078	0.057	0.017	-0.054	-0.128	-0.170	-0.175	-0.112	-0.065	-0.057	-0.061	-0.061	-0.014
5.444	0.082	0.062	0.021	-0.050	-0.120	-0.167	-0.167	-0.100	-0.061	-0.053	-0.069	-0.084	-0.013
5.944	0.082	0.062	0.021	-0.050	-0.120	-0.163	-0.160	-0.092	-0.061	-0.053	-0.061	-0.084	-0.022
6.444	0.080	0.061	0.017	-0.050	-0.120	-0.162	-0.155	-0.088	-0.057	-0.049	-0.057	-0.080	-0.030
6.944	0.085	0.065	0.025	-0.046	-0.112	-0.154	-0.147	-0.084	-0.057	-0.049	-0.049	-0.069	-0.030
7.444	0.083	0.062	0.021	-0.046	-0.112	-0.154	-0.144	-0.080	-0.057	-0.049	-0.045	-0.065	-0.034
7.944	0.085	0.064	0.025	-0.042	-0.108	-0.147	-0.140	-0.076	-0.053	-0.045	-0.041	-0.057	-0.026
8.444	0.083	0.062	0.021	-0.046	-0.112	-0.151	-0.136	-0.069	-0.053	-0.045	-0.041	-0.057	-0.030
8.944	0.082	0.060	0.021	-0.046	-0.112	-0.147	-0.132	-0.069	-0.053	-0.045	-0.038	-0.049	-0.022
9.444	0.082	0.058	0.017	-0.053	-0.120	-0.155	-0.144	-0.073	-0.057	-0.053	-0.042	-0.069	-0.037
9.944	0.077	0.050	0.017	-0.046	-0.112	-0.147	-0.124	-0.061	-0.053	-0.045	-0.034	-0.049	-0.022
10.444	0.083	0.063	0.025	-0.040	-0.106	-0.137	-0.119	-0.070	-0.050	-0.042	-0.032	-0.044	-0.021
10.944	0.085	0.064	0.025	-0.038	-0.104	-0.133	-0.114	-0.068	-0.050	-0.040	-0.029	-0.036	-0.015
11.444	0.084	0.062	0.025	-0.042	-0.108	-0.135	-0.113	-0.066	-0.050	-0.044	-0.030	-0.044	-0.026
11.944	0.081	0.058	0.021	-0.044	-0.108	-0.138	-0.114	-0.066	-0.048	-0.042	-0.032	-0.042	-0.030
12.444	0.080	0.060	0.021	-0.043	-0.106	-0.134	-0.112	-0.066	-0.048	-0.042	-0.031	-0.038	-0.028
12.944	0.084	0.062	0.025	-0.039	-0.104	-0.133	-0.106	-0.062	-0.048	-0.040	-0.027	-0.035	-0.026
13.444	0.079	0.058	0.021	-0.042	-0.106	-0.134	-0.104	-0.062	-0.048	-0.040	-0.029	-0.038	-0.032
13.944	0.081	0.059	0.021	-0.043	-0.104	-0.132	-0.102	-0.056	-0.046	-0.040	-0.029	-0.038	-0.034
14.444	0.081	0.059	0.023	-0.042	-0.103	-0.129	-0.101	-0.054	-0.045	-0.040	-0.032	-0.037	-0.036
14.944	0.083	0.058	0.025	-0.041	-0.102	-0.127	-0.100	-0.052	-0.044	-0.040	-0.034	-0.036	-0.038
15.444	0.080	0.058	0.023	-0.041	-0.100	-0.127	-0.100	-0.050	-0.044	-0.038	-0.032	-0.036	-0.038
15.944	0.079	0.057	0.021	-0.041	-0.100	-0.125	-0.096	-0.050	-0.042	-0.040	-0.034	-0.036	-0.040
16.444	0.079	0.056	0.017	-0.021	-0.066	-0.088	-0.065	-0.027	-0.023	-0.021	-0.019	-0.019	-0.022
16.944	0.080	0.058	0.021	-0.023	-0.066	-0.090	-0.070	-0.031	-0.027	-0.027	-0.026	-0.023	-0.024
17.444	0.076	0.059	0.021	-0.043	-0.098	-0.123	-0.100	-0.048	-0.040	-0.042	-0.044	-0.040	-0.042
17.944	0.077	0.057	0.021	-0.043	-0.096	-0.121	-0.100	-0.038	-0.038	-0.042	-0.048	-0.042	-0.042
18.444	0.074	0.055	0.017	-0.045	-0.098	-0.123	-0.104	-0.050	-0.040	-0.044	-0.052	-0.046	-0.044
18.944	0.071	0.053	0.017	-0.044	-0.098	-0.123	-0.106	-0.050	-0.038	-0.046	-0.056	-0.046	-0.046
19.444	0.071	0.054	0.017	-0.042	-0.094	-0.119	-0.105	-0.050	-0.038	-0.048	-0.060	-0.050	-0.046
19.944	0.072	0.055	0.019	-0.048	-0.098	-0.127	-0.114	-0.052	-0.040	-0.050	-0.064	-0.048	-0.046
20.444	0.065	0.049	0.009	-0.052	-0.104	-0.131	-0.122	-0.060	-0.046	-0.058	-0.072	-0.056	-0.052
20.944	0.047	0.033	-0.006	-0.066	-0.119	-0.147	-0.142	-0.078	-0.056	-0.076	-0.092	-0.076	-0.072
21.444	-0.069	-0.081	-0.116	-0.161	-0.201	-0.218	-0.209	-0.170	-0.161	-0.158	-0.165	-0.151	-0.143

Table 1.20 Experimental pressure coefficients c_p for $\alpha = 15.49^\circ$, $M_\infty = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.												
R/O	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.868	0.849	0.783	0.678	0.552	0.417	0.296	0.212	0.151	0.120	0.116	0.116	0.112
0.482	0.616	0.598	0.532	0.434	0.312	0.181	0.064	-0.020	-0.083	-0.117	-0.127	-0.143	-0.135
0.731	0.362	0.360	0.297	0.198	0.084	-0.035	-0.147	-0.224	-0.220	-0.306	-0.297	-0.295	-0.294
0.980	0.134	0.110	0.053	-0.039	-0.147	-0.261	-0.339	-0.424	-0.469	-0.484	-0.471	-0.462	-0.457
1.238	-0.084	-0.106	-0.161	-0.250	-0.350	-0.458	-0.554	-0.609	-0.639	-0.643	-0.622	-0.614	-0.605
1.500	-0.224	-0.235	-0.290	-0.365	-0.454	-0.543	-0.625	-0.661	-0.684	-0.676	-0.648	-0.626	-0.617
1.944	-0.128	-0.139	-0.198	-0.287	-0.399	-0.506	-0.588	-0.624	-0.580	-0.565	-0.516	-0.517	-0.502
2.444	-0.106	-0.128	-0.190	-0.287	-0.399	-0.480	-0.513	-0.425	-0.095	-0.065	-0.009	0.041	0.089
2.944	0.096	0.080	0.040	-0.020	-0.087	-0.146	-0.165	-0.083	-0.054	-0.039	0.009	0.063	0.106
3.444	0.099	0.088	0.035	-0.032	-0.102	-0.158	-0.169	-0.094	-0.054	-0.058	-0.057	0.030	0.059
3.944	0.093	0.080	0.029	-0.039	-0.109	-0.158	-0.169	-0.102	-0.061	-0.054	-0.116	0.005	0.029
4.444	0.089	0.074	0.024	-0.043	-0.113	-0.163	-0.169	-0.098	-0.057	-0.050	-0.116	-0.024	0.002
4.944	0.086	0.071	0.024	-0.046	-0.117	-0.163	-0.163	-0.091	-0.054	-0.050	-0.087	-0.050	-0.024
5.444	0.088	0.070	0.024	-0.046	-0.113	-0.158	-0.158	-0.083	-0.054	-0.050	-0.072	-0.065	-0.035
5.944	0.086	0.071	0.024	-0.046	-0.113	-0.158	-0.154	-0.050	-0.054	-0.050	-0.051	-0.065	-0.039
6.444	0.084	0.068	0.020	-0.046	-0.113	-0.158	-0.154	-0.076	-0.054	-0.050	-0.061	-0.065	-0.043
6.944	0.086	0.072	0.028	-0.043	-0.109	-0.150	-0.146	-0.069	-0.050	-0.046	-0.054	-0.058	-0.035
7.444	0.086	0.068	0.024	-0.043	-0.109	-0.147	-0.143	-0.069	-0.050	-0.046	-0.050	-0.054	-0.035
7.944	0.087	0.071	0.028	-0.039	-0.106	-0.143	-0.135	-0.061	-0.046	-0.043	-0.050	-0.046	-0.028
8.444	0.086	0.068	0.024	-0.046	-0.109	-0.143	-0.135	-0.058	-0.047	-0.043	-0.050	-0.050	-0.032
8.944	0.084	0.066	0.024	-0.043	-0.106	-0.143	-0.132	-0.054	-0.043	-0.043	-0.050	-0.046	-0.028
9.444	0.083	0.067	0.020	-0.050	-0.113	-0.150	-0.143	-0.058	-0.047	-0.050	-0.057	-0.046	-0.039
9.944	0.081	0.064	0.020	-0.043	-0.106	-0.139	-0.128	-0.050	-0.043	-0.039	-0.050	-0.046	-0.024
10.444	0.086	0.068	0.028	-0.038	-0.100	-0.130	-0.119	-0.047	-0.042	-0.036	-0.045	-0.044	-0.021
10.944	0.087	0.070	0.028	-0.036	-0.096	-0.124	-0.115	-0.043	-0.040	-0.036	-0.043	-0.040	-0.015
11.444	0.087	0.070	0.028	-0.040	-0.100	-0.128	-0.117	-0.043	-0.042	-0.038	-0.047	-0.049	-0.028
11.944	0.083	0.066	0.024	-0.042	-0.100	-0.128	-0.122	-0.043	-0.040	-0.038	-0.047	-0.051	-0.030
12.444	0.083	0.066	0.024	-0.040	-0.100	-0.126	-0.111	-0.042	-0.040	-0.036	-0.045	-0.047	-0.025
12.944	0.087	0.070	0.028	-0.036	-0.096	-0.124	-0.107	-0.040	-0.029	-0.034	-0.041	-0.044	-0.023
13.444	0.082	0.065	0.024	-0.040	-0.096	-0.124	-0.107	-0.042	-0.040	-0.038	-0.043	-0.049	-0.030
13.944	0.083	0.067	0.024	-0.040	-0.098	-0.122	-0.107	-0.042	-0.040	-0.038	-0.043	-0.049	-0.032
14.444	0.029	0.028	0.028	-0.039	-0.097	-0.122	-0.106	-0.043	-0.040	-0.038	-0.043	-0.048	-0.033
14.944	0.083	0.067	0.028	-0.038	-0.096	-0.122	-0.105	-0.043	-0.040	-0.040	-0.043	-0.047	-0.034
15.444	0.082	0.067	0.026	-0.040	-0.096	-0.120	-0.102	-0.045	-0.040	-0.040	-0.039	-0.045	-0.034
15.944	0.081	0.066	0.024	-0.038	-0.096	-0.118	-0.102	-0.047	-0.042	-0.042	-0.039	-0.047	-0.035
16.444	0.077	0.062	0.020	-0.019	-0.064	-0.083	-0.070	-0.028	-0.021	-0.023	-0.021	-0.025	-0.019
16.944	0.081	0.065	0.024	-0.023	-0.066	-0.087	-0.073	-0.034	-0.027	-0.028	-0.025	-0.030	-0.023
17.444	0.076	0.061	0.020	-0.040	-0.096	-0.120	-0.102	-0.057	-0.043	-0.047	-0.039	-0.047	-0.042
17.944	0.078	0.062	0.020	-0.040	-0.094	-0.119	-0.102	-0.057	-0.043	-0.049	-0.040	-0.047	-0.042
18.444	0.076	0.059	0.017	-0.044	-0.098	-0.124	-0.103	-0.062	-0.047	-0.053	-0.041	-0.049	-0.045
18.944	0.073	0.058	0.017	-0.042	-0.096	-0.122	-0.102	-0.064	-0.047	-0.053	-0.041	-0.049	-0.043
19.444	0.073	0.058	0.017	-0.040	-0.094	-0.120	-0.102	-0.066	-0.049	-0.055	-0.043	-0.051	-0.045
19.944	0.076	0.059	0.017	-0.045	-0.102	-0.128	-0.107	-0.074	-0.051	-0.058	-0.045	-0.049	-0.045
20.444	0.070	0.054	0.009	-0.049	-0.105	-0.134	-0.119	-0.081	-0.059	-0.066	-0.053	-0.057	-0.053
20.944	0.056	0.041	-0.002	-0.060	-0.117	-0.147	-0.132	-0.098	-0.076	-0.083	-0.071	-0.077	-0.073
21.444	-0.032	-0.043	-0.083	-0.139	-0.192	-0.223	-0.210	-0.193	-0.175	-0.175	-0.165	-0.162	-0.152

Table 1.21 Experimental pressure coefficients c_p for $\alpha = 15.53^\circ$, $M_\infty = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
λ/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.904	0.889	0.266	0.721	0.599	0.081	0.358	0.267	0.206	0.180	0.173	0.173	0.168	
0.482	0.659	0.644	0.578	0.484	0.366	0.237	0.131	0.036	-0.023	-0.048	-0.065	-0.080	-0.072	
0.731	0.431	0.413	0.348	0.254	0.143	0.027	-0.072	-0.161	-0.214	-0.235	-0.231	-0.232	-0.232	
0.980	0.190	0.169	0.111	0.023	-0.076	-0.190	-0.277	-0.356	-0.399	-0.405	-0.378	-0.388	-0.374	
1.238	-0.026	-0.048	-0.104	-0.183	-0.282	-0.385	-0.468	-0.529	-0.562	-0.557	-0.543	-0.533	-0.530	
1.500	-0.151	-0.161	-0.218	-0.290	-0.378	-0.466	-0.539	-0.595	-0.615	-0.600	-0.574	-0.554	-0.544	
1.764	-0.283	-0.294	-0.350	-0.420	-0.502	-0.582	-0.641	-0.688	-0.714	-0.714	-0.688	-0.668	-0.654	
2.044	-0.416	-0.427	-0.483	-0.553	-0.635	-0.718	-0.777	-0.814	-0.829	-0.829	-0.803	-0.783	-0.769	
2.344	-0.549	-0.560	-0.616	-0.686	-0.768	-0.851	-0.910	-0.947	-0.962	-0.962	-0.936	-0.916	-0.902	
2.644	-0.682	-0.693	-0.749	-0.819	-0.901	-0.984	-1.043	-1.080	-1.095	-1.095	-1.069	-1.049	-1.035	
2.944	-0.815	-0.826	-0.882	-0.952	-1.034	-1.117	-1.176	-1.213	-1.228	-1.228	-1.202	-1.182	-1.168	
3.244	-0.948	-0.959	-1.015	-1.085	-1.167	-1.250	-1.309	-1.346	-1.361	-1.361	-1.335	-1.315	-1.301	
3.544	-1.081	-1.092	-1.148	-1.218	-1.300	-1.383	-1.442	-1.479	-1.494	-1.494	-1.468	-1.448	-1.434	
3.844	-1.214	-1.225	-1.281	-1.351	-1.433	-1.516	-1.575	-1.612	-1.627	-1.627	-1.601	-1.581	-1.567	
4.144	-1.347	-1.358	-1.414	-1.484	-1.566	-1.649	-1.708	-1.745	-1.760	-1.760	-1.734	-1.714	-1.700	
4.444	-1.480	-1.491	-1.547	-1.617	-1.699	-1.782	-1.841	-1.878	-1.893	-1.893	-1.867	-1.847	-1.833	
4.744	-1.613	-1.624	-1.680	-1.750	-1.832	-1.915	-1.974	-2.011	-2.026	-2.026	-2.000	-1.980	-1.966	
5.044	-1.746	-1.757	-1.813	-1.883	-1.965	-2.048	-2.107	-2.144	-2.159	-2.159	-2.133	-2.113	-2.100	
5.344	-1.879	-1.890	-1.946	-2.016	-2.098	-2.181	-2.240	-2.277	-2.292	-2.292	-2.266	-2.246	-2.232	
5.644	-2.012	-2.023	-2.079	-2.149	-2.231	-2.314	-2.373	-2.410	-2.425	-2.425	-2.399	-2.379	-2.365	
5.944	-2.145	-2.156	-2.212	-2.282	-2.364	-2.447	-2.506	-2.543	-2.558	-2.558	-2.532	-2.512	-2.500	
6.244	-2.278	-2.289	-2.345	-2.415	-2.497	-2.580	-2.639	-2.676	-2.691	-2.691	-2.665	-2.645	-2.631	
6.544	-2.411	-2.422	-2.478	-2.548	-2.630	-2.713	-2.772	-2.809	-2.824	-2.824	-2.798	-2.778	-2.764	
6.844	-2.544	-2.555	-2.611	-2.681	-2.763	-2.846	-2.905	-2.942	-2.957	-2.957	-2.931	-2.911	-2.897	
7.144	-2.677	-2.688	-2.744	-2.814	-2.896	-2.979	-3.038	-3.075	-3.090	-3.090	-3.064	-3.044	-3.030	
7.444	-2.810	-2.821	-2.877	-2.947	-3.029	-3.112	-3.171	-3.208	-3.223	-3.223	-3.197	-3.177	-3.163	
7.744	-2.943	-2.954	-3.010	-3.080	-3.162	-3.245	-3.304	-3.341	-3.356	-3.356	-3.330	-3.310	-3.296	
8.044	-3.076	-3.087	-3.143	-3.213	-3.295	-3.378	-3.437	-3.474	-3.489	-3.489	-3.463	-3.443	-3.429	
8.344	-3.209	-3.220	-3.276	-3.346	-3.428	-3.511	-3.570	-3.607	-3.622	-3.622	-3.596	-3.576	-3.562	
8.644	-3.342	-3.353	-3.409	-3.479	-3.561	-3.644	-3.703	-3.740	-3.755	-3.755	-3.729	-3.709	-3.695	
8.944	-3.475	-3.486	-3.542	-3.612	-3.694	-3.777	-3.836	-3.873	-3.888	-3.888	-3.862	-3.842	-3.828	
9.244	-3.608	-3.619	-3.675	-3.745	-3.827	-3.910	-3.969	-4.006	-4.021	-4.021	-3.995	-3.975	-3.961	
9.544	-3.741	-3.752	-3.808	-3.878	-3.960	-4.043	-4.102	-4.139	-4.154	-4.154	-4.128	-4.108	-4.094	
9.844	-3.874	-3.885	-3.941	-4.011	-4.093	-4.176	-4.235	-4.272	-4.287	-4.287	-4.261	-4.241	-4.227	
10.144	-4.007	-4.018	-4.074	-4.144	-4.226	-4.309	-4.368	-4.405	-4.420	-4.420	-4.394	-4.374	-4.360	
10.444	-4.140	-4.151	-4.207	-4.277	-4.359	-4.442	-4.501	-4.538	-4.553	-4.553	-4.527	-4.507	-4.493	
10.744	-4.273	-4.284	-4.340	-4.410	-4.492	-4.575	-4.634	-4.671	-4.686	-4.686	-4.660	-4.640	-4.626	
11.044	-4.406	-4.417	-4.473	-4.543	-4.625	-4.708	-4.767	-4.804	-4.819	-4.819	-4.793	-4.773	-4.759	
11.344	-4.539	-4.550	-4.606	-4.676	-4.758	-4.841	-4.900	-4.937	-4.952	-4.952	-4.926	-4.906	-4.892	
11.644	-4.672	-4.683	-4.739	-4.809	-4.891	-4.974	-5.033	-5.070	-5.085	-5.085	-5.059	-5.039	-5.025	
11.944	-4.805	-4.816	-4.872	-4.942	-5.024	-5.107	-5.166	-5.203	-5.218	-5.218	-5.192	-5.172	-5.158	
12.244	-4.938	-4.949	-5.005	-5.075	-5.157	-5.240	-5.309	-5.346	-5.361	-5.361	-5.335	-5.315	-5.301	
12.544	-5.071	-5.082	-5.138	-5.208	-5.290	-5.373	-5.432	-5.469	-5.484	-5.484	-5.458	-5.438	-5.424	
12.844	-5.204	-5.215	-5.271	-5.341	-5.423	-5.506	-5.565	-5.602	-5.617	-5.617	-5.591	-5.571	-5.557	
13.144	-5.337	-5.348	-5.404	-5.474	-5.556	-5.639	-5.698	-5.735	-5.750	-5.750	-5.724	-5.704	-5.690	
13.444	-5.470	-5.481	-5.537	-5.607	-5.689	-5.772	-5.831	-5.868	-5.883	-5.883	-5.857	-5.837	-5.823	
13.744	-5.603	-5.614	-5.670	-5.740	-5.822	-5.905	-5.964	-6.001	-6.016	-6.016	-5.990	-5.970	-5.956	
14.044	-5.736	-5.747	-5.803	-5.873	-5.955	-6.038	-6.097	-6.134	-6.149	-6.149	-6.123	-6.103	-6.089	
14.344	-5.869	-5.880	-5.936	-6.006	-6.088	-6.171	-6.230	-6.267	-6.282	-6.282	-6.256	-6.236	-6.222	
14.644	-6.002	-6.013	-6.069	-6.139	-6.221	-6.304	-6.363	-6.400	-6.415	-6.415	-6.389	-6.369	-6.355	
14.944	-6.135	-6.146	-6.202	-6.272	-6.354	-6.437	-6.496	-6.533	-6.548	-6.548	-6.522	-6.502	-6.488	
15.244	-6.268	-6.279	-6.335	-6.405	-6.487	-6.570	-6.629	-6.666	-6.681	-6.681	-6.655	-6.635	-6.621	
15.544	-6.401	-6.412	-6.468	-6.538	-6.620	-6.703	-6.762	-6.799	-6.814	-6.814	-6.788	-6.768	-6.754	
15.844	-6.534	-6.545	-6.601	-6.671	-6.753	-6.836	-6.895	-6.932	-6.947	-6.947	-6.921	-6.901	-6.887	
16.144	-6.667	-6.678	-6.734	-6.804	-6.886	-6.969	-7.028	-7.065	-7.080	-7.080	-7.054	-7.034	-7.020	
16.444	-6.800	-6.811	-6.867	-6.937	-7.019	-7.102	-7.161	-7.198	-7.213	-7.213	-7.187	-7.167	-7.153	
16.744	-6.933	-6.944	-6.999	-7.069	-7.151	-7.234	-7.293	-7.330	-7.345	-7.345	-7.319	-7.299	-7.285	
17.044	-7.066	-7.077	-7.133	-7.203	-7.285	-7.368	-7.427	-7.464	-7.479	-7.479	-7.453	-7.433	-7.419	
17.344	-7.199	-7.210	-7.266	-7.336	-7.418	-7.501	-7.560	-7.597	-7.612	-7.612	-7.586	-7.566	-7.552	
17.644	-7.332	-7.343	-7.399	-7.469	-7.551	-7.634	-7.693	-7.730	-7.745	-7.745	-7.719	-7.699	-7.685	
17.944	-7.465	-7.476	-7.532	-7.602	-7.684	-7.767	-7.826	-7.863	-7.878	-7.878	-7.852	-7.832	-7.818	
18.244	-7.598	-7.609	-7.665	-7.735	-7.817	-7.900	-7.959	-8.006	-8.021	-8.021	-7.995	-7.975	-7.961	
18.544	-7.731	-7.742	-7.798	-7.868	-7.950	-8.033	-8.092	-8.129	-8.144	-8.144	-8.118	-8.098	-8.084	
18.844	-7.864	-7.875	-7.931	-8.001	-8.083	-8.166	-8.225	-8.262	-8.277	-8.277	-8.251	-8.231	-8.217	
19.144	-7.997	-8.008	-8.064	-8.134	-8.216	-8.299	-8.358	-8.395	-8.410	-8.410	-8.384	-8.364	-8.350	
19.444	-8.130	-8.141	-8.197	-8.267	-8.349	-8.432	-8.491	-8.528	-8.543	-8.543	-8.517	-8.497	-8.483	
19.744	-8.263	-8.274	-8.330	-8.400	-8.482	-8.565	-8.624	-8.661	-8.676	-8.676	-8.650	-8.630	-8.616	
20.044	-8.396	-8.407	-8.463	-8.533	-8.615	-8.698	-8.757	-8.794	-8.809	-8.809	-8.783	-8.763	-8.749	
20.344	-8.529	-8.540	-8.596	-8.666	-8.748	-8.831	-8.890	-8.927	-8.942	-8.942	-8.916	-8.896	-8.882	
20.644	-8.662	-8.673	-8.729	-8.799	-8.881	-8.964	-9.023	-9.060	-9.075	-9.075	-9.049	-9.029	-9.015	
20.944	-8.795	-8.806	-8.862	-8.932	-9.014	-9.097	-9.156	-9.193	-9.208	-9.208	-9.182	-9.162	-9.148	
21.244	-8.928	-8.939	-8.995	-9.065	-9.147	-9.230	-9.289	-9.326	-9.341	-9.341	-9.315	-9.295	-9.281	
21.544	-9.061	-9.072	-9.128	-9.198	-9.280	-9.363	-9.422	-9.459	-9.474	-9.474	-9.448	-9.428	-9.414	
21.844	-9.194	-9.205	-9.261	-9.331	-9.413	-9.496	-9.555	-9.592	-9.607	-9.607	-9.581	-9.561	-9.547	
22.144	-9.327	-9.338	-9.394	-9.464	-9.546	-9.629	-9.688	-9.725	-9.740	-9.740	-9.714	-9.694	-9.680	
22.444	-9.460	-9.471	-9.527	-9.597	-9.679	-9.762	-9.821	-9.858	-9.873	-9.873	-9.847	-9.827	-9.813	
22.744	-9.593	-9.604	-9.660	-9.730	-9.812	-9.895	-9.954	-9.991	-10.006	-10.006	-9.980	-9.960	-9.946	
23.044	-9.726	-9.737	-9.793	-9.863	-9.945	-10.028	-10.087	-10.124	-10.139	-10.139				

Table 1.23 Experimental pressure coefficients c_p for $\alpha = 15.65^\circ$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.												
	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	1.022	0.978	0.936	0.845	0.730	0.595	0.503	0.415	0.355	0.331	0.323	0.321	0.323
0.482	0.780	0.762	0.703	0.621	0.506	0.391	0.295	0.204	0.142	0.116	0.101	0.091	0.098
0.731	0.568	0.546	0.489	0.407	0.301	0.194	0.098	0.020	-0.037	-0.062	-0.065	-0.062	-0.062
0.960	0.343	0.322	0.271	0.196	0.099	0.001	-0.084	-0.154	-0.198	-0.210	-0.207	-0.198	-0.191
1.238	0.138	0.118	0.074	0.007	-0.084	-0.176	-0.248	-0.311	-0.343	-0.346	-0.330	-0.318	-0.314
1.500	0.033	0.020	-0.024	-0.091	-0.172	-0.258	-0.327	-0.383	-0.406	-0.396	-0.368	-0.346	-0.336
1.944	0.057	0.033	-0.012	-0.078	-0.179	-0.271	-0.346	-0.393	-0.387	-0.221	-0.251	-0.192	-0.172
2.444	0.051	0.023	-0.021	-0.100	-0.195	-0.290	-0.365	-0.399	-0.292	-0.182	-0.107	-0.084	-0.050
2.944	0.028	0.013	-0.034	-0.122	-0.220	-0.321	-0.400	-0.395	-0.176	-0.144	-0.116	-0.066	-0.006
3.444	0.023	0.004	-0.046	-0.135	-0.236	-0.343	-0.305	-0.172	-0.135	-0.128	-0.131	-0.034	0.017
3.944	0.042	0.016	-0.037	-0.132	-0.232	-0.236	-0.214	-0.138	-0.103	-0.125	-0.182	-0.006	0.023
4.444	0.046	0.024	-0.043	-0.122	-0.150	-0.208	-0.185	-0.106	-0.097	-0.113	-0.226	-0.006	0.001
4.944	0.016	0.013	-0.034	-0.097	-0.169	-0.214	-0.201	-0.119	-0.106	-0.113	-0.232	-0.050	-0.018
5.444	0.078	0.056	-0.002	-0.062	-0.147	-0.185	-0.185	-0.116	-0.097	-0.087	-0.150	-0.081	-0.053
5.944	0.058	0.065	0.013	-0.078	-0.135	-0.195	-0.179	-0.091	-0.065	-0.062	-0.087	-0.062	-0.028
6.444	0.062	0.045	-0.006	-0.072	-0.157	-0.173	-0.144	-0.081	-0.075	-0.078	-0.084	-0.103	-0.078
6.944	0.081	0.048	0.007	-0.065	-0.122	-0.170	-0.157	-0.079	-0.073	-0.078	-0.084	-0.103	-0.078
7.444	0.089	0.076	0.010	-0.053	-0.135	-0.154	-0.110	-0.059	-0.062	-0.065	-0.072	-0.078	-0.056
7.944	0.054	0.032	0.013	-0.053	-0.100	-0.157	-0.161	-0.065	-0.056	-0.059	-0.053	-0.056	-0.037
8.444	0.089	0.062	0.010	-0.059	-0.119	-0.148	-0.135	-0.065	-0.056	-0.059	-0.065	-0.068	-0.068
8.944	0.074	0.075	0.023	-0.028	-0.110	-0.151	-0.132	-0.062	-0.053	-0.046	-0.062	-0.043	-0.037
9.444	0.078	0.066	0.023	-0.059	-0.116	-0.151	-0.128	-0.062	-0.053	-0.046	-0.062	-0.043	-0.037
9.944	0.080	0.062	0.023	-0.053	-0.116	-0.154	-0.116	-0.062	-0.053	-0.046	-0.062	-0.043	-0.037
10.444	0.079	0.061	0.027	-0.043	-0.084	-0.126	-0.118	-0.062	-0.053	-0.046	-0.062	-0.043	-0.037
10.944	0.135	0.081	0.023	-0.027	-0.107	-0.141	-0.108	-0.050	-0.046	-0.043	-0.044	-0.039	-0.030
11.444	0.071	0.054	0.500	-0.054	-0.098	-0.049	0.000	0.018	0.004	0.005	0.015	0.020	0.013
11.944	0.092	0.095	0.111	0.037	-0.030	-0.079	-0.065	-0.009	-0.020	-0.015	-0.006	-0.033	-0.014
12.444	0.167	0.140	0.075	0.023	-0.065	-0.111	-0.100	-0.035	-0.030	-0.028	-0.023	-0.022	-0.014
12.944	0.131	0.104	0.051	-0.007	-0.093	-0.135	-0.111	-0.042	-0.041	-0.033	-0.038	-0.036	-0.027
13.444	0.087	0.089	0.049	-0.039	-0.095	-0.124	-0.106	-0.052	-0.046	-0.044	-0.050	-0.054	-0.039
13.944	0.081	0.052	-0.002	-0.058	-0.129	-0.157	-0.129	-0.062	-0.054	-0.039	-0.039	-0.030	-0.017
14.444	0.023	0.023	0.023	-0.058	-0.103	-0.131	-0.106	-0.052	-0.052	-0.044	-0.044	-0.041	-0.029
14.944	0.076	0.057	0.034	-0.037	-0.078	-0.105	-0.084	-0.062	-0.049	-0.049	-0.049	-0.052	-0.041
15.444	0.077	0.066	0.020	-0.031	-0.093	-0.114	-0.074	-0.037	-0.047	-0.054	-0.057	-0.057	-0.046
15.944	0.079	0.076	0.035	-0.039	-0.060	-0.103	-0.084	-0.066	-0.038	-0.050	-0.052	-0.057	-0.036
16.444	0.076	0.069	0.024	-0.011	-0.049	-0.075	-0.052	-0.015	-0.019	-0.019	-0.019	-0.025	-0.023
16.944	0.097	0.100	0.099	-0.007	-0.027	-0.063	-0.049	-0.012	-0.019	-0.012	-0.011	-0.019	-0.025
17.444	0.112	0.090	0.043	-0.009	-0.086	-0.132	-0.124	-0.058	-0.042	-0.038	-0.028	-0.020	-0.015
17.944	0.092	0.071	0.016	-0.035	-0.133	-0.159	-0.122	-0.055	-0.042	-0.038	-0.028	-0.020	-0.015
18.444	0.041	0.016	-0.028	-0.090	-0.121	-0.126	-0.108	-0.065	-0.052	-0.047	-0.036	-0.024	-0.017
18.944	0.051	0.042	0.007	-0.054	-0.116	-0.149	-0.124	-0.066	-0.065	-0.060	-0.052	-0.060	-0.058
19.444	0.088	0.076	0.016	-0.039	-0.108	-0.108	-0.095	-0.046	-0.039	-0.042	-0.038	-0.033	-0.023
19.944	0.085	0.084	0.075	0.013	-0.068	-0.078	-0.052	-0.023	-0.028	-0.036	-0.039	-0.049	-0.049
20.444	0.068	0.052	0.023	-0.050	-0.095	-0.137	-0.121	-0.062	-0.047	-0.052	-0.047	-0.055	-0.046
20.944	0.090	0.080	0.024	-0.038	-0.119	-0.145	-0.105	-0.050	-0.044	-0.044	-0.039	-0.036	-0.036
21.444	0.084	0.066	0.028	-0.041	-0.070	-0.116	-0.120	-0.116	-0.117	-0.111	-0.089	-0.066	-0.060

Table 1.24 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.251	0.878	0.337	0.238	0.130	0.360	0.161	-0.146	-0.120	-0.182	-0.198	-0.166	-0.119	-0.073
0.402	0.635	0.596	0.492	0.333	0.138	-0.052	-0.225	-0.229	-0.385	-0.396	-0.380	-0.352	-0.349
0.731	0.413	0.376	0.275	0.123	-0.062	-0.245	-0.387	-0.475	-0.510	-0.495	-0.458	-0.410	-0.401
0.980	0.192	0.158	0.063	-0.079	-0.245	-0.412	-0.538	-0.600	-0.599	-0.552	-0.505	-0.457	-0.433
1.238	0.045	0.016	-0.078	-0.210	-0.350	-0.490	-0.580	-0.595	-0.541	-0.511	-0.458	-0.332	-0.313
1.500	-0.036	-0.063	-0.146	-0.273	-0.397	-0.505	-0.564	-0.537	-0.494	-0.365	-0.255	-0.202	-0.193
1.944	0.086	0.058	-0.026	-0.142	-0.266	-0.333	-0.407	-0.370	-0.276	-0.161	-0.098	-0.010	0.011
2.444	0.113	0.078	0.005	-0.120	-0.245	-0.338	-0.386	-0.339	-0.224	-0.130	-0.083	-0.015	0.027
2.944	0.120	0.086	0.006	-0.115	-0.229	-0.323	-0.350	-0.303	-0.171	-0.125	-0.161	-0.119	-0.073
3.444	0.114	0.090	0.017	-0.105	-0.224	-0.318	-0.339	-0.271	-0.130	-0.114	-0.171	-0.083	0.021
3.944	0.130	0.096	0.016	-0.100	-0.214	-0.302	-0.339	-0.229	-0.109	-0.099	-0.177	-0.083	0.021
4.444	0.133	0.098	0.016	-0.100	-0.209	-0.291	-0.297	-0.198	-0.098	-0.088	-0.151	-0.124	-0.005
4.944	0.133	0.107	0.021	-0.094	-0.203	-0.281	-0.281	-0.172	-0.093	-0.083	-0.098	-0.140	-0.041
5.444	0.132	0.107	0.026	-0.079	-0.193	-0.276	-0.265	-0.156	-0.093	-0.083	-0.083	-0.124	-0.057
5.944	0.133	0.105	0.026	-0.089	-0.193	-0.271	-0.260	-0.151	-0.088	-0.078	-0.083	-0.109	-0.057
6.444	0.135	0.110	0.026	-0.084	-0.188	-0.265	-0.255	-0.141	-0.083	-0.078	-0.083	-0.109	-0.057
6.944	0.135	0.112	0.032	-0.073	-0.183	-0.260	-0.250	-0.130	-0.078	-0.078	-0.078	-0.093	-0.052
7.444	0.135	0.112	0.032	-0.073	-0.183	-0.260	-0.239	-0.130	-0.078	-0.073	-0.067	-0.067	-0.046
7.944	0.138	0.114	0.037	-0.068	-0.172	-0.250	-0.229	-0.109	-0.073	-0.067	-0.067	-0.062	-0.046
8.444	0.134	0.112	0.032	-0.068	-0.178	-0.249	-0.229	-0.109	-0.067	-0.067	-0.067	-0.062	-0.041
8.944	0.133	0.110	0.037	-0.068	-0.172	-0.244	-0.224	-0.104	-0.062	-0.067	-0.067	-0.062	-0.041
9.444	0.131	0.108	0.032	-0.073	-0.172	-0.244	-0.224	-0.099	-0.062	-0.067	-0.067	-0.062	-0.041
9.944	0.135	0.111	0.037	-0.063	-0.172	-0.234	-0.214	-0.088	-0.062	-0.067	-0.067	-0.062	-0.041
10.444	0.137	0.112	0.037	-0.060	-0.165	-0.232	-0.208	-0.084	-0.054	-0.060	-0.065	-0.049	-0.054
10.944	0.137	0.114	0.050	-0.055	-0.162	-0.224	-0.206	-0.078	-0.054	-0.060	-0.065	-0.049	-0.054
11.444	0.134	0.110	0.039	-0.061	-0.165	-0.229	-0.206	-0.076	-0.054	-0.060	-0.065	-0.049	-0.054
11.944	0.136	0.112	0.045	-0.055	-0.160	-0.218	-0.195	-0.071	-0.052	-0.060	-0.065	-0.049	-0.054
12.444	0.134	0.112	0.046	-0.055	-0.160	-0.219	-0.189	-0.068	-0.052	-0.057	-0.068	-0.049	-0.054
12.944	0.140	0.118	0.048	-0.052	-0.154	-0.210	-0.178	-0.065	-0.052	-0.057	-0.068	-0.049	-0.054
13.444	0.136	0.112	0.042	-0.058	-0.154	-0.208	-0.170	-0.063	-0.052	-0.060	-0.065	-0.052	-0.054
13.944	0.130	0.107	0.037	-0.063	-0.157	-0.210	-0.165	-0.063	-0.054	-0.060	-0.068	-0.060	-0.054
14.444	0.132	0.108	0.037	-0.060	-0.154	-0.205	-0.150	-0.060	-0.056	-0.060	-0.068	-0.068	-0.070
14.944	0.133	0.110	0.037	-0.058	-0.151	-0.199	-0.146	-0.057	-0.057	-0.060	-0.068	-0.062	-0.062
15.444	0.132	0.109	0.032	-0.060	-0.149	-0.197	-0.135	-0.055	-0.060	-0.060	-0.068	-0.065	-0.060
15.944	0.135	0.109	0.034	-0.058	-0.146	-0.189	-0.127	-0.052	-0.060	-0.060	-0.068	-0.070	-0.060
16.444	0.129	0.102	0.026	-0.069	-0.151	-0.192	-0.122	-0.055	-0.062	-0.063	-0.068	-0.078	-0.062
16.944	0.134	0.107	0.026	-0.063	-0.146	-0.189	-0.116	-0.052	-0.062	-0.060	-0.065	-0.084	-0.062
17.444	0.134	0.107	0.026	-0.063	-0.143	-0.183	-0.111	-0.049	-0.062	-0.057	-0.062	-0.084	-0.065
17.944	0.135	0.106	0.026	-0.063	-0.138	-0.178	-0.103	-0.049	-0.062	-0.057	-0.060	-0.086	-0.068
18.444	0.133	0.104	0.021	-0.069	-0.141	-0.175	-0.103	-0.046	-0.060	-0.052	-0.054	-0.089	-0.071
18.944	0.137	0.107	0.029	-0.063	-0.135	-0.170	-0.100	-0.046	-0.054	-0.046	-0.049	-0.086	-0.070
19.444	0.138	0.109	0.031	-0.058	-0.127	-0.162	-0.100	-0.044	-0.049	-0.041	-0.041	-0.084	-0.070
19.944	0.147	0.117	0.037	-0.055	-0.125	-0.156	-0.100	-0.038	-0.041	-0.030	-0.028	-0.068	-0.057
20.444	0.152	0.124	0.045	-0.044	-0.114	-0.145	-0.100	-0.033	-0.028	-0.017	-0.014	-0.054	-0.044
20.944	0.154	0.128	0.053	-0.036	-0.103	-0.132	-0.098	-0.025	-0.014	-0.003	-0.001	-0.038	-0.022
21.444	0.160	0.140	0.062	-0.020	-0.089	-0.103	-0.076	-0.003	0.013	0.023	0.029	-0.003	0.297

Table 1.25 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.910	0.366	0.246	0.164	0.408	0.218	-0.112	-0.072	-0.142	-0.159	-0.164	-0.107	-0.068	
0.482	0.663	0.420	0.526	0.371	0.174	-0.006	-0.186	-0.305	-0.374	-0.391	-0.383	-0.361	-0.353	
0.731	0.431	0.392	0.299	0.147	-0.041	-0.221	-0.376	-0.473	-0.532	-0.523	-0.493	-0.453	-0.440	
0.980	0.195	0.160	0.067	-0.073	-0.247	-0.419	-0.569	-0.651	-0.681	-0.650	-0.598	-0.554	-0.528	
1.238	0.029	-0.006	-0.099	-0.240	-0.388	-0.542	-0.657	-0.660	-0.633	-0.557	-0.475	-0.366	-0.339	
1.500	-0.078	-0.103	-0.186	-0.324	-0.445	-0.568	-0.630	-0.585	-0.536	-0.382	-0.278	-0.212	-0.195	
1.944	0.074	0.046	-0.037	-0.158	-0.278	-0.349	-0.415	-0.379	-0.278	-0.155	-0.090	-0.011	0.011	
2.444	0.112	0.080	-0.005	-0.130	-0.256	-0.340	-0.393	-0.344	-0.216	-0.124	-0.094	-0.015	0.034	
2.944	0.118	0.086	0.002	-0.112	-0.234	-0.335	-0.370	-0.300	-0.158	-0.133	-0.164	-0.107	-0.067	
3.444	0.112	0.095	0.017	-0.100	-0.230	-0.322	-0.335	-0.261	-0.133	-0.116	-0.203	-0.076	0.024	
3.944	0.129	0.099	0.024	-0.099	-0.212	-0.304	-0.335	-0.217	-0.111	-0.103	-0.212	-0.076	0.024	
4.444	0.132	0.101	0.020	-0.086	-0.208	-0.291	-0.292	-0.192	-0.103	-0.089	-0.164	-0.120	-0.015	
4.944	0.133	0.102	0.024	-0.090	-0.203	-0.282	-0.274	-0.156	-0.102	-0.089	-0.107	-0.142	-0.050	
5.444	0.132	0.105	0.024	-0.077	-0.195	-0.269	-0.265	-0.147	-0.098	-0.089	-0.094	-0.129	-0.063	
5.944	0.134	0.106	0.024	-0.081	-0.195	-0.269	-0.257	-0.138	-0.094	-0.085	-0.094	-0.116	-0.072	
6.444	0.135	0.107	0.029	-0.077	-0.190	-0.261	-0.248	-0.134	-0.089	-0.085	-0.094	-0.107	-0.067	
6.944	0.134	0.109	0.029	-0.073	-0.186	-0.256	-0.243	-0.125	-0.089	-0.081	-0.085	-0.094	-0.063	
7.444	0.134	0.109	0.029	-0.073	-0.186	-0.256	-0.235	-0.125	-0.085	-0.076	-0.081	-0.076	-0.050	
7.944	0.130	0.111	0.036	-0.064	-0.173	-0.243	-0.226	-0.112	-0.081	-0.072	-0.076	-0.076	-0.041	
8.444	0.133	0.108	0.035	-0.068	-0.181	-0.243	-0.226	-0.112	-0.076	-0.072	-0.076	-0.076	-0.041	
8.944	0.133	0.107	0.035	-0.068	-0.177	-0.239	-0.217	-0.103	-0.076	-0.067	-0.072	-0.072	-0.041	
9.444	0.131	0.104	0.033	-0.068	-0.177	-0.239	-0.217	-0.099	-0.076	-0.067	-0.076	-0.081	-0.050	
9.944	0.134	0.107	0.038	-0.059	-0.172	-0.230	-0.204	-0.094	-0.067	-0.059	-0.072	-0.068	-0.046	
10.444	0.135	0.110	0.039	-0.060	-0.166	-0.224	-0.202	-0.093	-0.068	-0.059	-0.068	-0.064	-0.046	
10.944	0.136	0.111	0.044	-0.055	-0.166	-0.220	-0.198	-0.089	-0.068	-0.059	-0.068	-0.068	-0.055	
11.444	0.133	0.108	0.040	-0.060	-0.168	-0.222	-0.200	-0.086	-0.068	-0.061	-0.073	-0.073	-0.064	
11.944	0.135	0.111	0.042	-0.055	-0.163	-0.215	-0.191	-0.082	-0.064	-0.059	-0.068	-0.064	-0.062	
12.444	0.134	0.109	0.041	-0.053	-0.163	-0.216	-0.186	-0.082	-0.064	-0.061	-0.068	-0.064	-0.064	
12.944	0.139	0.116	0.046	-0.051	-0.157	-0.206	-0.177	-0.075	-0.062	-0.061	-0.066	-0.057	-0.059	
13.444	0.135	0.110	0.040	-0.055	-0.159	-0.206	-0.171	-0.073	-0.062	-0.064	-0.068	-0.059	-0.064	
13.944	0.128	0.106	0.036	-0.062	-0.161	-0.206	-0.168	-0.071	-0.064	-0.066	-0.073	-0.064	-0.066	
14.444	0.131	0.108	0.037	-0.060	-0.160	-0.203	-0.160	-0.067	-0.063	-0.067	-0.073	-0.060	-0.065	
14.944	0.134	0.109	0.039	-0.058	-0.159	-0.199	-0.152	-0.064	-0.062	-0.068	-0.073	-0.062	-0.059	
15.444	0.132	0.104	0.037	-0.058	-0.154	-0.195	-0.145	-0.062	-0.062	-0.071	-0.073	-0.062	-0.057	
15.944	0.136	0.110	0.039	-0.058	-0.152	-0.190	-0.136	-0.057	-0.059	-0.071	-0.073	-0.062	-0.057	
16.444	0.130	0.104	0.033	-0.067	-0.156	-0.193	-0.134	-0.057	-0.061	-0.075	-0.075	-0.068	-0.062	
16.944	0.130	0.103	0.033	-0.067	-0.154	-0.188	-0.125	-0.053	-0.059	-0.075	-0.073	-0.068	-0.062	
17.444	0.135	0.109	0.035	-0.062	-0.150	-0.184	-0.121	-0.050	-0.055	-0.073	-0.068	-0.066	-0.059	
17.944	0.136	0.108	0.037	-0.062	-0.143	-0.179	-0.112	-0.048	-0.052	-0.068	-0.066	-0.071	-0.061	
18.444	0.134	0.106	0.035	-0.067	-0.145	-0.179	-0.109	-0.048	-0.050	-0.066	-0.062	-0.073	-0.064	
18.944	0.138	0.111	0.040	-0.062	-0.138	-0.170	-0.103	-0.041	-0.043	-0.059	-0.055	-0.068	-0.059	
19.444	0.141	0.113	0.044	-0.058	-0.129	-0.161	-0.100	-0.037	-0.039	-0.052	-0.046	-0.062	-0.059	
19.944	0.150	0.121	0.051	-0.053	-0.125	-0.159	-0.094	-0.032	-0.028	-0.039	-0.034	-0.048	-0.046	
20.444	0.156	0.128	0.064	-0.037	-0.111	-0.143	-0.087	-0.023	-0.016	-0.023	-0.019	-0.037	-0.034	
20.944	0.161	0.134	0.071	-0.030	-0.098	-0.130	-0.078	-0.012	-0.001	-0.005	-0.003	-0.021	-0.012	
21.444	0.168	0.145	0.083	-0.014	-0.082	-0.094	-0.051	0.019	0.027	0.026	0.029	0.015	0.322	

Table 1.26 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.955	0.329	0.270	0.209	0.475	0.294	-0.075	0.013	-0.059	-0.078	-0.147	-0.079	-0.060	
0.482	0.705	0.672	0.579	0.429	0.238	0.061	-0.102	-0.222	-0.301	-0.327	-0.324	-0.312	-0.306	
0.731	0.470	0.440	0.348	0.202	0.013	-0.156	-0.301	-0.414	-0.477	-0.492	-0.466	-0.447	-0.425	
0.980	0.218	0.197	0.104	-0.033	-0.202	-0.363	-0.511	-0.613	-0.665	-0.660	-0.627	-0.592	-0.575	
1.238	0.013	-0.013	-0.098	-0.235	-0.387	-0.548	-0.689	-0.778	-0.816	-0.794	-0.757	-0.715	-0.679	
1.500	-0.159	-0.193	-0.272	-0.401	-0.533	-0.682	-0.775	-0.886	-0.947	-0.940	-0.904	-0.861	-0.821	
1.944	0.017	-0.021	-0.114	-0.250	-0.410	-0.533	-0.612	-0.702	-0.747	-0.740	-0.715	-0.674	-0.638	
2.444	0.105	0.355	-0.030	-0.140	-0.268	-0.375	-0.355	-0.279	-0.179	-0.159	-0.094	0.025	0.056	
2.944	0.118	0.087	0.009	-0.114	-0.241	-0.333	-0.320	-0.236	-0.151	-0.151	-0.147	-0.079	-0.056	
3.444	0.106	0.105	0.020	-0.100	-0.229	-0.318	-0.306	-0.236	-0.140	-0.132	-0.178	-0.094	-0.025	
3.944	0.131	0.104	0.029	-0.095	-0.217	-0.302	-0.306	-0.179	-0.132	-0.132	-0.170	-0.094	-0.025	
4.444	0.134	0.105	0.021	-0.099	-0.222	-0.302	-0.268	-0.160	-0.129	-0.128	-0.151	-0.167	-0.064	
4.944	0.133	0.106	0.029	-0.095	-0.218	-0.294	-0.253	-0.148	-0.125	-0.128	-0.128	-0.179	-0.071	
5.444	0.134	0.110	0.029	-0.091	-0.214	-0.290	-0.237	-0.137	-0.125	-0.125	-0.109	-0.175	-0.071	
5.944	0.135	0.110	0.029	-0.091	-0.214	-0.294	-0.225	-0.133	-0.125	-0.125	-0.098	-0.163	-0.067	
6.444	0.135	0.108	0.029	-0.095	-0.214	-0.290	-0.213	-0.129	-0.129	-0.125	-0.094	-0.156	-0.067	
6.944	0.135	0.110	0.030	-0.095	-0.218	-0.290	-0.206	-0.125	-0.132	-0.128	-0.086	-0.152	-0.063	
7.444	0.135	0.110	0.030	-0.095	-0.218	-0.290	-0.198	-0.125	-0.132	-0.129	-0.078	-0.148	-0.059	
7.944	0.139	0.113	0.031	-0.095	-0.214	-0.287	-0.187	-0.113	-0.132	-0.132	-0.078	-0.155	-0.060	
8.444	0.134	0.110	0.029	-0.107	-0.226	-0.294	-0.179	-0.113	-0.133	-0.133	-0.082	-0.161	-0.071	
8.944	0.133	0.106	0.025	-0.107	-0.226	-0.294	-0.171	-0.109	-0.132	-0.133	-0.086	-0.175	-0.079	
9.444	0.132	0.104	0.021	-0.115	-0.233	-0.299	-0.171	-0.105	-0.133	-0.133	-0.086	-0.175	-0.079	
9.944	0.134	0.107	0.025	-0.107	-0.229	-0.291	-0.160	-0.102	-0.125	-0.125	-0.078	-0.159	-0.070	
10.444	0.134	0.108	0.027	-0.115	-0.223	-0.280	-0.147	-0.096	-0.117	-0.111	-0.113	-0.143	-0.084	
10.944	0.135	0.110	0.030	-0.105	-0.219	-0.271	-0.147	-0.090	-0.111	-0.105	-0.109	-0.139	-0.092	
11.444	0.132	0.106	0.027	-0.105	-0.219	-0.268	-0.155	-0.088	-0.102	-0.099	-0.108	-0.133	-0.104	
11.944	0.134	0.108	0.029	-0.099	-0.209	-0.253	-0.149	-0.080	-0.092	-0.088	-0.096	-0.119	-0.100	
12.444	0.133	0.108	0.029	-0.095	-0.201	-0.243	-0.155	-0.074	-0.082	-0.078	-0.092	-0.109	-0.093	
12.944	0.139	0.115	0.033	-0.083	-0.187	-0.225	-0.155	-0.068	-0.072	-0.068	-0.082	-0.096	-0.092	
13.444	0.134	0.109	0.030	-0.083	-0.181	-0.215	-0.161	-0.064	-0.064	-0.064	-0.076	-0.090	-0.096	
13.944	0.127	0.107	0.027	-0.079	-0.176	-0.207	-0.171	-0.062	-0.060	-0.060	-0.074	-0.088	-0.096	
14.444	0.130	0.109	0.032	-0.070	-0.166	-0.199	-0.175	-0.059	-0.056	-0.056	-0.072	-0.075	-0.090	
14.944	0.133	0.111	0.037	-0.061	-0.155	-0.191	-0.177	-0.056	-0.052	-0.056	-0.070	-0.074	-0.088	
15.444	0.131	0.111	0.038	-0.055	-0.148	-0.181	-0.179	-0.054	-0.050	-0.058	-0.070	-0.074	-0.084	
15.944	0.135	0.114	0.042	-0.049	-0.142	-0.177	-0.180	-0.054	-0.052	-0.058	-0.068	-0.072	-0.082	
16.444	0.128	0.107	0.038	-0.055	-0.144	-0.179	-0.186	-0.054	-0.056	-0.064	-0.070	-0.075	-0.084	
16.944	0.129	0.109	0.040	-0.053	-0.140	-0.177	-0.182	-0.056	-0.058	-0.066	-0.068	-0.076	-0.082	
17.444	0.135	0.114	0.047	-0.045	-0.138	-0.175	-0.181	-0.056	-0.062	-0.068	-0.066	-0.074	-0.082	
17.944	0.136	0.116	0.050	-0.043	-0.134	-0.177	-0.173	-0.056	-0.068	-0.074	-0.060	-0.074	-0.080	
18.444	0.135	0.115	0.048	-0.047	-0.140	-0.185	-0.171	-0.058	-0.072	-0.080	-0.058	-0.072	-0.078	
18.944	0.140	0.121	0.055	-0.041	-0.136	-0.183	-0.156	-0.056	-0.074	-0.082	-0.048	-0.066	-0.072	
19.444	0.145	0.126	0.060	-0.039	-0.134	-0.181	-0.146	-0.054	-0.072	-0.080	-0.040	-0.060	-0.064	
19.944	0.156	0.135	0.067	-0.037	-0.136	-0.159	-0.131	-0.050	-0.066	-0.074	-0.026	-0.048	-0.046	
20.444	0.165	0.149	0.080	-0.019	-0.128	-0.179	-0.112	-0.036	-0.058	-0.060	-0.013	-0.036	-0.027	
20.944	0.172	0.151	0.086	-0.017	-0.114	-0.168	-0.084	-0.023	-0.043	-0.043	0.009	-0.019	0.001	
21.444	0.182	0.167	0.098	0.001	-0.100	-0.134	-0.041	0.011	-0.007	-0.005	0.045	0.021	0.030	

Table 1.27 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.												
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180
0.231	0.387	0.058	0.264	0.183	0.521	0.348	-0.009	0.071	-0.001	-0.020	-0.085	0.013	0.020
0.432	0.730	0.709	0.618	0.479	0.286	0.118	-0.045	-0.158	-0.236	-0.284	-0.256	-0.252	-0.245
0.731	0.506	0.480	0.391	0.257	0.064	-0.096	-0.242	-0.347	-0.420	-0.431	-0.409	-0.391	-0.372
0.980	0.258	0.235	0.150	0.028	-0.151	-0.301	-0.446	-0.543	-0.606	-0.599	-0.555	-0.533	-0.514
1.238	0.048	0.024	-0.056	-0.207	-0.340	-0.487	-0.625	-0.714	-0.758	-0.734	-0.692	-0.656	-0.642
1.500	-0.139	-0.157	-0.227	-0.339	-0.490	-0.614	-0.730	-0.811	-0.816	-0.766	-0.707	-0.638	-0.620
1.844	-0.016	-0.034	-0.122	-0.258	-0.428	-0.567	-0.726	-0.779	-0.736	-0.479	-0.343	-0.183	-0.158
2.444	0.078	-0.045	-0.130	-0.260	-0.454	-0.626	-0.725	-0.733	-0.692	-0.234	-0.118	0.121	0.147
2.944	0.125	-0.057	-0.155	-0.298	-0.433	-0.670	-0.712	-0.612	-0.432	-0.245	-0.278	-0.065	0.013
3.444	0.150	0.050	-0.030	-0.180	-0.391	-0.527	-0.649	-0.732	-0.766	-0.718	-0.532	-0.317	0.033
3.944	0.155	0.138	0.061	-0.042	-0.191	-0.272	-0.249	-0.143	-0.121	-0.100	-0.191	0.017	0.030
4.444	0.148	0.127	0.047	-0.060	-0.195	-0.268	-0.253	-0.136	-0.107	-0.103	-0.154	-0.082	-0.034
4.944	0.142	0.123	0.044	-0.064	-0.199	-0.275	-0.253	-0.125	-0.103	-0.111	-0.122	-0.122	-0.081
5.444	0.139	0.119	0.043	-0.064	-0.195	-0.272	-0.238	-0.118	-0.103	-0.103	-0.103	-0.129	-0.032
5.944	0.140	0.118	0.040	-0.068	-0.191	-0.264	-0.227	-0.118	-0.103	-0.100	-0.096	-0.118	-0.092
6.444	0.139	0.115	0.038	-0.068	-0.188	-0.257	-0.234	-0.114	-0.103	-0.092	-0.039	-0.103	-0.021
6.944	0.138	0.117	0.041	-0.071	-0.184	-0.253	-0.223	-0.111	-0.103	-0.092	-0.081	-0.096	-0.070
7.444	0.138	0.117	0.041	-0.071	-0.184	-0.253	-0.213	-0.111	-0.100	-0.089	-0.078	-0.085	-0.050
7.944	0.140	0.117	0.044	-0.060	-0.177	-0.246	-0.205	-0.096	-0.076	-0.085	-0.074	-0.065	-0.032
8.444	0.136	0.113	0.040	-0.068	-0.180	-0.249	-0.209	-0.096	-0.096	-0.089	-0.078	-0.092	-0.056
8.944	0.135	0.111	0.038	-0.068	-0.180	-0.242	-0.202	-0.092	-0.096	-0.085	-0.078	-0.096	-0.056
9.444	0.133	0.106	0.035	-0.075	-0.184	-0.245	-0.202	-0.093	-0.096	-0.089	-0.081	-0.103	-0.067
9.944	0.134	0.109	0.039	-0.064	-0.180	-0.235	-0.191	-0.089	-0.092	-0.085	-0.078	-0.100	-0.060
10.444	0.135	0.110	0.042	-0.065	-0.171	-0.226	-0.183	-0.085	-0.089	-0.079	-0.073	-0.096	-0.057
10.944	0.137	0.114	0.044	-0.059	-0.169	-0.224	-0.181	-0.083	-0.087	-0.079	-0.075	-0.098	-0.062
11.444	0.133	0.107	0.038	-0.065	-0.175	-0.228	-0.184	-0.083	-0.087	-0.081	-0.091	-0.103	-0.070
11.944	0.135	0.110	0.041	-0.063	-0.168	-0.217	-0.173	-0.079	-0.079	-0.075	-0.077	-0.094	-0.066
12.444	0.134	0.108	0.039	-0.061	-0.168	-0.219	-0.171	-0.077	-0.075	-0.072	-0.075	-0.090	-0.066
12.944	0.140	0.116	0.045	-0.057	-0.158	-0.205	-0.164	-0.072	-0.068	-0.068	-0.073	-0.079	-0.060
13.444	0.132	0.109	0.038	-0.065	-0.158	-0.204	-0.160	-0.072	-0.064	-0.064	-0.073	-0.079	-0.066
13.944	0.128	0.104	0.032	-0.070	-0.158	-0.205	-0.160	-0.070	-0.060	-0.068	-0.077	-0.079	-0.070
14.444	0.131	0.107	0.034	-0.067	-0.155	-0.202	-0.155	-0.067	-0.056	-0.064	-0.075	-0.070	-0.068
14.944	0.134	0.110	0.035	-0.063	-0.151	-0.198	-0.151	-0.064	-0.051	-0.062	-0.073	-0.068	-0.068
15.444	0.131	0.109	0.034	-0.063	-0.145	-0.192	-0.143	-0.062	-0.049	-0.060	-0.072	-0.066	-0.068
15.944	0.135	0.111	0.037	-0.059	-0.142	-0.189	-0.139	-0.058	-0.045	-0.057	-0.070	-0.062	-0.066
16.444	0.128	0.104	0.030	-0.065	-0.145	-0.190	-0.139	-0.059	-0.047	-0.059	-0.072	-0.062	-0.068
16.944	0.129	0.106	0.030	-0.065	-0.142	-0.185	-0.134	-0.057	-0.045	-0.055	-0.068	-0.059	-0.064
17.444	0.135	0.112	0.036	-0.057	-0.136	-0.181	-0.128	-0.053	-0.045	-0.053	-0.062	-0.053	-0.060
17.944	0.136	0.112	0.038	-0.050	-0.128	-0.175	-0.119	-0.051	-0.043	-0.049	-0.059	-0.051	-0.057
18.444	0.134	0.113	0.036	-0.054	-0.132	-0.175	-0.117	-0.047	-0.043	-0.047	-0.055	-0.047	-0.053
18.944	0.142	0.119	0.045	-0.040	-0.121	-0.162	-0.105	-0.040	-0.042	-0.040	-0.045	-0.040	-0.043
19.444	0.147	0.125	0.053	-0.031	-0.113	-0.153	-0.094	-0.030	-0.038	-0.034	-0.034	-0.032	-0.034
19.944	0.161	0.137	0.063	-0.023	-0.110	-0.151	-0.085	-0.021	-0.028	-0.021	-0.019	-0.015	-0.017
20.444	0.171	0.155	0.082	0.001	-0.095	-0.134	-0.066	-0.004	-0.015	-0.006	-0.001	-0.003	0.003
20.944	0.180	0.160	0.092	0.013	-0.076	-0.111	-0.042	0.016	0.003	0.016	0.024	0.022	0.033
21.444	0.195	0.172	0.105	0.032	-0.057	-0.068	0.001	0.050	0.038	0.055	0.066	0.064	0.066

Table 1.28 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 1.00$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	1.022	0.327	0.238	0.154	0.564	0.401	-0.091	0.129	0.061	0.041	-0.151	-0.029	-0.001	
0.482	0.781	0.752	0.663	0.528	0.335	0.178	0.020	-0.032	-0.164	-0.196	-0.196	-0.182	-0.175	
0.731	0.554	0.529	0.443	0.313	0.120	-0.029	-0.171	-0.277	-0.341	-0.359	-0.342	-0.325	-0.307	
0.980	0.312	0.290	0.219	0.091	-0.088	-0.228	-0.370	-0.469	-0.522	-0.523	-0.492	-0.457	-0.440	
1.238	0.103	0.082	0.006	-0.113	-0.277	-0.413	-0.544	-0.633	-0.675	-0.655	-0.617	-0.575	-0.552	
1.500	-0.070	-0.084	-0.151	-0.261	-0.413	-0.528	-0.641	-0.717	-0.734	-0.689	-0.631	-0.572	-0.552	
1.844	0.027	0.009	-0.071	-0.198	-0.375	-0.514	-0.655	-0.717	-0.713	-0.571	-0.398	-0.276	-0.252	
2.444	-0.008	0.005	-0.085	-0.220	-0.410	-0.563	-0.715	-0.733	-0.491	-0.370	-0.300	-0.116	-0.060	
2.944	-0.001	-0.014	-0.109	-0.230	-0.437	-0.608	-0.705	-0.438	-0.418	-0.356	-0.151	-0.029	-0.001	
3.444	-0.008	-0.030	-0.135	-0.285	-0.465	-0.639	-0.787	-0.823	-0.355	-0.453	-0.384	-0.071	-0.022	
3.944	-0.011	-0.043	-0.144	-0.292	-0.464	-0.643	-0.787	-0.823	-0.355	-0.453	-0.384	-0.071	-0.022	
4.444	-0.015	-0.050	-0.123	-0.163	-0.116	-0.298	-0.193	-0.102	-0.091	-0.119	-0.178	0.063	0.072	
4.944	0.103	0.063	-0.029	-0.135	-0.120	-0.189	-0.133	-0.075	-0.053	-0.043	-0.144	-0.15	0.016	
5.444	0.182	0.148	-0.015	-0.124	-0.127	-0.193	-0.133	-0.034	-0.039	-0.043	-0.084	-0.074	-0.043	
5.944	0.192	0.171	0.105	0.004	-0.148	-0.193	-0.154	-0.064	-0.050	-0.046	-0.050	-0.088	-0.071	
6.444	0.189	0.169	0.100	-0.001	-0.148	-0.196	-0.172	-0.078	-0.060	-0.057	-0.053	-0.074	-0.060	
6.944	0.179	0.164	0.098	-0.005	-0.158	-0.207	-0.186	-0.038	-0.067	-0.067	-0.064	-0.067	-0.067	
7.444	0.179	0.164	0.098	-0.005	-0.158	-0.207	-0.200	-0.068	-0.074	-0.071	-0.067	-0.064	-0.060	
7.944	0.161	0.143	0.078	-0.019	-0.158	-0.224	-0.200	-0.075	-0.074	-0.074	-0.070	-0.064	-0.037	
8.444	0.147	0.128	0.062	-0.043	-0.169	-0.235	-0.207	-0.095	-0.077	-0.078	-0.074	-0.071	-0.064	
8.944	0.139	0.117	0.049	-0.054	-0.169	-0.235	-0.200	-0.002	-0.074	-0.074	-0.074	-0.071	-0.064	
9.444	0.134	0.109	0.035	-0.071	-0.172	-0.235	-0.196	-0.088	-0.077	-0.072	-0.077	-0.074	-0.067	
9.944	0.132	0.107	0.033	-0.068	-0.169	-0.224	-0.186	-0.085	-0.074	-0.074	-0.074	-0.074	-0.067	
10.444	0.137	0.109	0.034	-0.071	-0.156	-0.218	-0.174	-0.083	-0.070	-0.068	-0.068	-0.070	-0.061	
10.944	0.141	0.114	0.038	-0.065	-0.158	-0.216	-0.172	-0.083	-0.072	-0.072	-0.070	-0.072	-0.065	
11.444	0.137	0.112	0.036	-0.067	-0.165	-0.221	-0.183	-0.083	-0.075	-0.075	-0.074	-0.081	-0.075	
11.944	0.135	0.115	0.043	-0.058	-0.160	-0.216	-0.178	-0.083	-0.075	-0.072	-0.072	-0.075	-0.070	
12.444	0.132	0.113	0.045	-0.056	-0.160	-0.221	-0.179	-0.083	-0.073	-0.070	-0.070	-0.075	-0.070	
12.944	0.139	0.118	0.053	-0.047	-0.155	-0.210	-0.172	-0.078	-0.070	-0.065	-0.066	-0.068	-0.063	
13.444	0.130	0.109	0.047	-0.053	-0.158	-0.210	-0.167	-0.076	-0.070	-0.068	-0.068	-0.070	-0.067	
13.944	0.128	0.103	0.039	-0.062	-0.162	-0.209	-0.163	-0.074	-0.070	-0.070	-0.072	-0.075	-0.070	
14.444	0.134	0.104	0.039	-0.062	-0.161	-0.210	-0.160	-0.074	-0.070	-0.070	-0.073	-0.072	-0.066	
14.944	0.139	0.106	0.038	-0.062	-0.160	-0.210	-0.158	-0.074	-0.070	-0.070	-0.074	-0.074	-0.070	
15.444	0.136	0.111	0.034	-0.064	-0.164	-0.210	-0.158	-0.072	-0.070	-0.072	-0.075	-0.075	-0.072	
15.944	0.133	0.115	0.034	-0.067	-0.169	-0.216	-0.160	-0.074	-0.070	-0.074	-0.075	-0.074	-0.074	
16.444	0.123	0.104	0.027	-0.071	-0.173	-0.218	-0.160	-0.074	-0.073	-0.075	-0.079	-0.075	-0.075	
16.944	0.120	0.103	0.029	-0.073	-0.166	-0.216	-0.153	-0.074	-0.072	-0.075	-0.077	-0.074	-0.074	
17.444	0.125	0.103	0.033	-0.067	-0.166	-0.210	-0.149	-0.070	-0.068	-0.068	-0.072	-0.068	-0.068	
17.944	0.124	0.098	0.030	-0.069	-0.162	-0.205	-0.131	-0.061	-0.059	-0.068	-0.070	-0.063	-0.063	
18.444	0.123	0.094	0.025	-0.073	-0.160	-0.185	-0.128	-0.067	-0.063	-0.065	-0.068	-0.061	-0.061	
18.944	0.136	0.104	0.033	-0.058	-0.135	-0.191	-0.117	-0.051	-0.047	-0.052	-0.052	-0.047	-0.047	
19.444	0.138	0.112	0.044	-0.040	-0.124	-0.164	-0.094	-0.036	-0.036	-0.041	-0.039	-0.032	-0.032	
19.944	0.155	0.134	0.046	-0.049	-0.126	-0.166	-0.076	-0.020	-0.014	-0.020	-0.018	-0.011	-0.009	
20.444	0.172	0.150	0.083	-0.002	-0.092	-0.130	-0.049	0.005	0.011	0.003	0.003	0.012	0.016	
20.944	0.187	0.167	0.101	0.020	-0.065	-0.090	-0.013	0.034	0.041	0.034	0.034	0.040	0.050	
21.444	0.206	0.184	0.117	0.045	-0.034	-0.034	0.036	0.079	0.087	0.080	0.084	0.092	0.105	

Table 1.29 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	1.081	0.423	0.333	0.266	0.079	0.494	0.002	0.236	0.171	0.150	0.157	0.053	0.081	
0.482	0.845	0.819	0.734	0.609	0.447	0.278	0.129	0.025	-0.043	-0.072	-0.066	-0.064	-0.056	
0.731	0.627	0.603	0.522	0.398	0.250	0.080	-0.050	-0.147	-0.211	-0.231	-0.215	-0.202	-0.186	
0.980	0.395	0.373	0.298	0.185	0.043	-0.105	-0.238	-0.330	-0.380	-0.383	-0.351	-0.326	-0.306	
1.238	0.191	0.169	0.095	-0.011	-0.145	-0.281	-0.400	-0.486	-0.523	-0.506	-0.467	-0.436	-0.422	
1.500	0.049	0.032	-0.034	-0.132	-0.250	-0.375	-0.484	-0.557	-0.581	-0.542	-0.487	-0.435	-0.419	
1.944	0.109	0.100	0.015	-0.096	-0.240	-0.385	-0.511	-0.587	-0.584	-0.477	-0.315	-0.189	-0.173	
2.444	0.076	0.090	0.020	-0.110	-0.265	-0.428	-0.566	-0.649	-0.642	-0.432	-0.286	-0.224	-0.053	
2.944	0.086	0.066	-0.014	-0.145	-0.292	-0.467	-0.650	-0.714	-0.651	-0.451	-0.280	-0.254	0.053	
3.444	0.076	0.425	0.055	-0.025	-0.160	-0.320	-0.378	-0.268	-0.315	-0.383	-0.315	-0.004	0.044	
3.944	0.070	0.047	-0.047	-0.181	-0.344	-0.496	-0.378	-0.173	-0.225	-0.455	-0.254	-0.004	0.044	
4.444	0.059	0.035	-0.063	-0.201	-0.361	-0.236	-0.173	-0.138	-0.170	-0.231	-0.228	-0.004	0.012	
4.944	0.053	0.025	0.002	-0.077	-0.187	-0.262	-0.199	-0.157	-0.140	-0.121	-0.228	-0.095	-0.050	
5.444	0.140	0.107	0.032	-0.070	-0.181	-0.278	-0.235	-0.160	-0.121	-0.109	-0.150	-0.144	-0.111	
5.944	0.131	0.114	0.027	-0.067	-0.187	-0.284	-0.258	-0.144	-0.131	-0.121	-0.127	-0.163	-0.140	
6.444	0.127	0.107	0.022	-0.083	-0.194	-0.284	-0.254	-0.147	-0.131	-0.127	-0.124	-0.144	-0.137	
6.944	0.124	0.108	0.030	-0.080	-0.194	-0.297	-0.271	-0.131	-0.121	-0.114	-0.131	-0.105	-0.118	
7.444	0.124	0.108	0.030	-0.080	-0.194	-0.297	-0.238	-0.131	-0.114	-0.118	-0.098	-0.114	-0.098	
7.944	0.127	0.095	0.025	-0.090	-0.210	-0.268	-0.212	-0.118	-0.111	-0.121	-0.102	-0.111	-0.102	
8.444	0.128	0.102	0.019	-0.093	-0.204	-0.281	-0.228	-0.118	-0.127	-0.134	-0.121	-0.140	-0.118	
8.944	0.113	0.102	0.028	-0.086	-0.197	-0.284	-0.235	-0.131	-0.121	-0.115	-0.131	-0.118	-0.121	
9.444	0.109	0.080	0.009	-0.096	-0.200	-0.291	-0.225	-0.121	-0.111	-0.108	-0.101	-0.108	-0.085	
9.944	0.095	0.077	0.012	-0.093	-0.201	-0.281	-0.173	-0.092	-0.092	-0.076	-0.085	-0.065	-0.079	
10.444	0.099	0.082	0.017	-0.084	-0.174	-0.215	-0.157	-0.077	-0.077	-0.072	-0.070	-0.070	-0.055	
10.944	0.130	0.109	0.035	-0.061	-0.170	-0.223	-0.171	-0.079	-0.070	-0.070	-0.065	-0.070	-0.067	
11.444	0.106	0.097	0.029	-0.068	-0.169	-0.213	-0.152	-0.067	-0.073	-0.073	-0.078	-0.084	-0.082	
11.944	0.106	0.079	0.013	-0.090	-0.187	-0.183	-0.131	-0.071	-0.068	-0.063	-0.072	-0.078	-0.077	
12.444	0.109	0.085	0.012	-0.085	-0.174	-0.196	-0.132	-0.060	-0.055	-0.053	-0.057	-0.070	-0.060	
12.944	0.151	0.129	0.050	-0.024	-0.164	-0.198	-0.151	-0.059	-0.040	-0.068	-0.060	-0.022	-0.045	
13.444	0.128	0.114	0.058	-0.046	-0.115	-0.126	-0.089	-0.023	0.018	0.010	-0.005	-0.003	-0.000	
13.944	0.188	0.107	0.026	-0.078	-0.169	-0.116	-0.069	-0.014	-0.013	-0.017	-0.010	-0.030	-0.020	
14.444	0.189	0.147	0.074	-0.029	-0.121	-0.148	-0.095	-0.029	-0.028	-0.028	-0.035	-0.047	-0.037	
14.944	0.190	0.187	0.121	0.020	-0.073	-0.180	-0.131	-0.045	-0.042	-0.042	-0.035	-0.047	-0.054	
15.444	0.167	0.156	0.088	-0.015	-0.105	-0.196	-0.146	-0.067	-0.065	-0.067	-0.052	-0.076	-0.074	
15.944	0.158	0.138	0.066	-0.041	-0.135	-0.217	-0.152	-0.087	-0.082	-0.082	-0.072	-0.076	-0.074	
16.444	0.151	0.128	0.059	-0.044	-0.132	-0.247	-0.187	-0.097	-0.090	-0.089	-0.092	-0.082	-0.082	
16.944	0.129	0.120	0.046	-0.054	-0.150	-0.254	-0.186	-0.091	-0.084	-0.082	-0.094	-0.075	-0.080	
17.444	0.113	0.095	0.027	-0.078	-0.175	-0.223	-0.154	-0.064	-0.064	-0.077	-0.082	-0.084	-0.065	
17.944	0.134	0.104	0.017	-0.068	-0.185	-0.212	-0.126	-0.079	-0.082	-0.097	-0.080	-0.084	-0.070	
18.444	0.111	0.095	0.022	-0.081	-0.182	-0.227	-0.142	-0.096	-0.095	-0.107	-0.102	-0.094	-0.099	
18.944	0.103	0.091	0.013	-0.085	-0.190	-0.227	-0.136	-0.097	-0.095	-0.100	-0.099	-0.084	-0.082	
19.444	0.109	0.087	0.010	-0.083	-0.174	-0.233	-0.144	-0.084	-0.085	-0.104	-0.100	-0.087	-0.079	
19.944	0.096	0.094	0.028	-0.061	-0.155	-0.198	-0.119	-0.031	-0.084	-0.095	-0.092	-0.088	-0.084	
20.444	0.102	0.084	0.008	-0.083	-0.167	-0.195	-0.131	-0.081	-0.077	-0.075	-0.095	-0.082	-0.084	
20.944	0.115	0.076	0.003	-0.081	-0.172	-0.185	-0.122	-0.084	-0.082	-0.095	-0.090	-0.089	-0.082	
21.444	0.111	0.079	0.012	-0.084	-0.180	-0.212	-0.119	-0.062	-0.038	-0.037	-0.043	-0.005	0.027	

Table 1.30 Experimental pressure coefficients c_p for $\alpha = 20^\circ$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	1.125	0.470	0.376	0.314	0.163	0.555	0.095	0.298	0.228	0.203	0.210	0.060	0.100	
0.482	0.889	0.863	0.779	0.653	0.505	0.340	0.192	0.088	0.017	-0.011	-0.038	-0.001	0.001	
0.731	0.675	0.651	0.571	0.450	0.311	0.145	0.020	-0.077	-0.147	-0.166	-0.157	-0.138	-0.132	
0.980	0.447	0.426	0.352	0.244	0.112	-0.033	-0.160	-0.250	-0.301	-0.308	-0.278	-0.253	-0.228	
1.238	0.238	0.218	0.148	0.045	-0.074	-0.204	-0.315	-0.396	-0.434	-0.426	-0.383	-0.361	-0.342	
1.500	0.121	0.101	0.039	-0.055	-0.164	-0.284	-0.395	-0.468	-0.499	-0.475	-0.414	-0.377	-0.355	
1.944	0.148	0.132	0.053	-0.052	-0.177	-0.318	-0.435	-0.511	-0.529	-0.456	-0.293	-0.197	-0.163	
2.444	0.105	0.115	0.050	-0.070	0.161	-0.355	-0.479	-0.570	-0.508	-0.296	-0.216	-0.076	-0.017	
2.944	0.115	0.095	0.023	-0.102	-0.236	-0.396	-0.495	-0.514	-0.354	-0.317	-0.222	-0.060	0.100	
3.444	0.105	0.075	0.005	-0.135	-0.265	-0.414	-0.510	-0.297	-0.323	-0.425	-0.315	-0.024	0.017	
3.944	0.097	0.072	-0.008	-0.133	-0.276	-0.442	-0.510	-0.222	-0.252	-0.472	-0.327	-0.024	0.017	
4.444	0.126	0.080	-0.005	-0.130	-0.289	-0.417	-0.172	-0.160	-0.199	-0.317	-0.281	-0.021	-0.008	
4.944	0.087	0.068	-0.015	-0.145	-0.289	-0.265	-0.172	-0.145	-0.162	-0.141	-0.266	-0.092	-0.052	
5.444	0.082	0.048	-0.046	-0.149	-0.177	-0.262	-0.191	-0.151	-0.125	-0.095	-0.145	-0.120	-0.095	
5.944	0.077	0.079	0.017	-0.086	-0.202	-0.281	-0.207	-0.129	-0.110	-0.101	-0.114	-0.135	-0.120	
6.444	0.129	0.118	0.031	-0.080	-0.198	-0.268	-0.210	-0.126	-0.116	-0.119	-0.120	-0.129	-0.126	
6.944	0.139	0.110	0.013	-0.096	-0.205	-0.253	-0.222	-0.117	-0.098	-0.110	-0.110	-0.113	-0.117	
7.444	0.139	0.110	0.013	-0.096	-0.205	-0.253	-0.173	-0.117	-0.095	-0.107	-0.095	-0.099	-0.099	
7.944	0.119	0.106	0.033	-0.068	-0.183	-0.241	-0.197	-0.095	-0.092	-0.091	-0.095	-0.095	-0.089	
8.444	0.138	0.106	0.023	-0.086	-0.186	-0.241	-0.163	-0.085	-0.085	-0.085	-0.085	-0.086	-0.089	
8.944	0.112	0.090	0.023	-0.071	-0.161	-0.241	-0.176	-0.083	-0.089	-0.091	-0.086	-0.081	-0.089	
9.444	0.131	0.107	0.034	-0.068	-0.167	-0.228	-0.148	-0.089	-0.089	-0.085	-0.092	-0.092	-0.089	
9.944	0.138	0.116	0.038	-0.068	-0.167	-0.238	-0.176	-0.080	-0.082	-0.082	-0.076	-0.080	-0.082	
10.444	0.143	0.125	0.033	-0.067	-0.167	-0.206	-0.143	-0.080	-0.082	-0.074	-0.075	-0.071	-0.070	
10.944	0.149	0.108	0.046	-0.056	-0.135	-0.226	-0.170	-0.086	-0.080	-0.078	-0.081	-0.070	-0.062	
11.444	0.119	0.101	0.026	-0.070	-0.172	-0.228	-0.162	-0.064	-0.036	-0.011	-0.060	-0.003	-0.068	
11.944	0.140	0.126	0.063	-0.027	-0.122	-0.155	-0.063	-0.011	-0.023	-0.038	-0.011	-0.047	-0.012	
12.444	0.150	0.123	0.048	-0.056	-0.146	-0.179	-0.121	-0.052	-0.060	-0.063	-0.057	-0.057	-0.054	
12.944	0.183	0.164	0.096	0.004	-0.096	-0.207	-0.148	-0.068	-0.068	-0.068	-0.071	-0.070	-0.076	
13.444	0.150	0.148	0.084	-0.014	-0.115	-0.230	-0.175	-0.088	-0.084	-0.074	-0.086	-0.082	-0.086	
13.944	0.143	0.133	0.063	-0.046	-0.134	-0.249	-0.180	-0.081	-0.077	-0.071	-0.068	-0.066	-0.068	
14.444	0.126	0.113	0.046	-0.063	-0.151	-0.257	-0.165	-0.079	-0.081	-0.080	-0.080	-0.081	-0.067	
14.944	0.112	0.093	0.030	-0.080	-0.168	-0.266	-0.140	-0.076	-0.085	-0.089	-0.084	-0.092	-0.084	
15.444	0.108	0.089	0.002	-0.109	-0.196	-0.178	-0.122	-0.080	-0.093	-0.100	-0.092	-0.092	-0.089	
15.944	0.117	0.093	0.027	-0.073	-0.149	-0.202	-0.108	-0.072	-0.079	-0.090	-0.097	-0.095	-0.092	
16.444	0.128	0.100	0.027	-0.080	-0.181	-0.182	-0.131	-0.073	-0.066	-0.074	-0.092	-0.089	-0.084	
16.944	0.144	0.106	0.038	-0.049	-0.120	-0.162	-0.084	-0.040	-0.050	-0.055	-0.039	-0.054	-0.046	
17.444	0.161	0.146	0.084	-0.022	-0.123	-0.202	-0.132	-0.078	-0.077	-0.081	-0.070	-0.065	-0.063	
17.944	0.141	0.122	0.058	-0.054	-0.135	-0.212	-0.153	-0.092	-0.097	-0.098	-0.089	-0.084	-0.086	
18.444	0.121	0.107	0.038	-0.059	-0.151	-0.265	-0.175	-0.102	-0.081	-0.085	-0.076	-0.073	-0.068	
18.944	0.100	0.084	0.023	-0.080	-0.175	-0.234	-0.103	-0.061	-0.095	-0.101	-0.094	-0.092	-0.089	
19.444	0.082	0.061	-0.008	-0.111	-0.186	-0.199	-0.124	-0.083	-0.073	-0.092	-0.095	-0.086	-0.089	
19.944	0.110	0.111	0.036	-0.064	-0.165	-0.167	-0.108	-0.064	-0.057	-0.063	-0.062	-0.090	-0.044	
20.444	0.121	0.095	0.023	-0.072	-0.173	-0.212	-0.148	-0.075	-0.063	-0.073	-0.076	-0.081	-0.081	
20.944	0.126	0.117	0.053	-0.027	-0.135	-0.206	-0.143	-0.091	-0.081	-0.079	-0.083	-0.067	-0.067	
21.444	0.140	0.109	0.036	-0.062	-0.173	-0.214	-0.142	-0.065	-0.054	-0.061	-0.047	-0.025	0.020	

Table 1.31 Experimental pressure coefficients c_p for $\alpha = 25^\circ$, $M_\infty = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
x/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.446	0.395	0.263	0.096	0.275	0.016	-0.329	-0.355	-0.412	-0.392	-0.302	-0.223	-0.119	
0.482	0.760	0.707	0.559	0.343	0.082	-0.167	-0.392	-0.527	-0.579	-0.554	-0.506	-0.444	-0.427	
0.731	0.548	0.495	0.352	0.141	-0.114	-0.355	-0.549	-0.653	-0.667	-0.612	-0.553	-0.450	-0.438	
0.980	0.330	0.280	0.143	-0.058	-0.292	-0.517	-0.690	-0.762	-0.725	-0.654	-0.517	-0.457	-0.428	
1.238	0.171	0.121	-0.010	-0.199	-0.407	-0.606	-0.737	-0.737	-0.672	-0.627	-0.370	-0.301	-0.201	
1.500	0.072	0.032	-0.095	-0.278	-0.470	-0.638	-0.732	-0.678	-0.589	-0.381	-0.261	-0.171	-0.156	
1.944	0.164	0.119	-0.005	-0.189	-0.381	-0.476	-0.606	-0.549	-0.381	-0.219	-0.130	-0.020	0.032	
2.444	0.180	0.140	0.020	-0.180	-0.370	-0.528	-0.580	-0.491	-0.276	-0.177	-0.172	-0.067	0.067	
2.944	0.187	0.141	0.021	-0.173	-0.360	-0.502	-0.535	-0.424	-0.198	-0.188	-0.298	-0.221	-0.119	
3.444	0.195	0.150	0.025	-0.180	-0.349	-0.485	-0.502	-0.358	-0.167	-0.157	-0.266	-0.200	0.011	
3.944	0.202	0.152	0.026	-0.152	-0.334	-0.465	-0.502	-0.282	-0.151	-0.120	-0.188	-0.202	0.011	
4.444	0.204	0.152	0.026	-0.147	-0.328	-0.455	-0.424	-0.256	-0.146	-0.115	-0.120	-0.223	-0.057	
4.944	0.204	0.154	0.032	-0.147	-0.323	-0.444	-0.403	-0.251	-0.146	-0.120	-0.109	-0.171	-0.088	
5.444	0.206	0.155	0.032	-0.141	-0.318	-0.439	-0.388	-0.256	-0.141	-0.110	-0.109	-0.135	-0.093	
5.944	0.205	0.156	0.037	-0.136	-0.313	-0.434	-0.378	-0.240	-0.135	-0.110	-0.104	-0.124	-0.093	
6.444	0.205	0.158	0.037	-0.131	-0.312	-0.423	-0.372	-0.219	-0.125	-0.105	-0.099	-0.114	-0.078	
6.944	0.206	0.161	0.037	-0.126	-0.302	-0.418	-0.367	-0.204	-0.120	-0.099	-0.099	-0.119	-0.057	
7.444	0.206	0.161	0.037	-0.126	-0.302	-0.418	-0.356	-0.204	-0.109	-0.094	-0.104	-0.119	-0.057	
7.944	0.208	0.166	0.037	-0.121	-0.292	-0.402	-0.351	-0.177	-0.104	-0.094	-0.120	-0.111	-0.052	
8.444	0.205	0.164	0.037	-0.126	-0.297	-0.397	-0.351	-0.177	-0.099	-0.094	-0.099	-0.114	-0.062	
8.944	0.202	0.162	0.037	-0.121	-0.297	-0.392	-0.344	-0.162	-0.094	-0.094	-0.104	-0.104	-0.067	
9.444	0.201	0.159	0.032	-0.126	-0.297	-0.386	-0.344	-0.156	-0.099	-0.105	-0.109	-0.104	-0.078	
9.944	0.204	0.162	0.037	-0.121	-0.291	-0.375	-0.323	-0.141	-0.094	-0.099	-0.104	-0.088	-0.073	
10.444	0.206	0.164	0.040	-0.120	-0.280	-0.369	-0.319	-0.122	-0.092	-0.098	-0.106	-0.088	-0.073	
10.944	0.206	0.166	0.037	-0.115	-0.280	-0.362	-0.305	-0.103	-0.092	-0.098	-0.106	-0.100	-0.091	
11.444	0.203	0.161	0.034	-0.117	-0.280	-0.354	-0.297	-0.100	-0.100	-0.103	-0.114	-0.112	-0.092	
11.944	0.205	0.162	0.037	-0.112	-0.267	-0.343	-0.270	-0.087	-0.098	-0.101	-0.116	-0.110	-0.085	
12.444	0.204	0.161	0.041	-0.112	-0.264	-0.338	-0.251	-0.090	-0.097	-0.098	-0.116	-0.113	-0.092	
12.944	0.207	0.165	0.045	-0.104	-0.251	-0.324	-0.227	-0.084	-0.098	-0.106	-0.116	-0.108	-0.087	
13.444	0.204	0.159	0.040	-0.109	-0.245	-0.316	-0.206	-0.082	-0.100	-0.117	-0.108	-0.113	-0.092	
13.944	0.199	0.154	0.037	-0.109	-0.240	-0.316	-0.192	-0.087	-0.103	-0.111	-0.105	-0.110	-0.097	
14.444	0.200	0.155	0.040	-0.102	-0.232	-0.313	-0.185	-0.092	-0.104	-0.105	-0.103	-0.115	-0.095	
14.944	0.200	0.156	0.044	-0.096	-0.224	-0.310	-0.173	-0.098	-0.106	-0.098	-0.100	-0.119	-0.095	
15.444	0.199	0.156	0.043	-0.093	-0.219	-0.300	-0.173	-0.106	-0.105	-0.093	-0.087	-0.116	-0.095	
15.944	0.203	0.157	0.049	-0.085	-0.216	-0.300	-0.176	-0.114	-0.106	-0.090	-0.079	-0.116	-0.095	
16.444	0.196	0.152	0.043	-0.093	-0.221	-0.308	-0.195	-0.128	-0.103	-0.087	-0.079	-0.118	-0.097	
16.944	0.196	0.153	0.044	-0.090	-0.221	-0.310	-0.214	-0.146	-0.098	-0.085	-0.071	-0.115	-0.095	
17.444	0.201	0.159	0.050	-0.085	-0.221	-0.311	-0.234	-0.154	-0.095	-0.082	-0.071	-0.111	-0.092	
17.944	0.200	0.161	0.054	-0.082	-0.221	-0.313	-0.252	-0.165	-0.089	-0.082	-0.076	-0.105	-0.086	
18.444	0.198	0.159	0.050	-0.087	-0.229	-0.319	-0.276	-0.165	-0.087	-0.082	-0.076	-0.102	-0.087	
18.944	0.200	0.164	0.055	-0.088	-0.229	-0.317	-0.293	-0.165	-0.081	-0.079	-0.063	-0.095	-0.081	
19.444	0.202	0.166	0.057	-0.085	-0.229	-0.313	-0.309	-0.152	-0.079	-0.082	-0.063	-0.089	-0.079	
19.944	0.210	0.173	0.063	-0.085	-0.235	-0.310	-0.311	-0.138	-0.071	-0.077	-0.068	-0.078	-0.068	
20.444	0.220	0.180	0.075	-0.077	-0.226	-0.297	-0.308	-0.119	-0.060	-0.071	-0.065	-0.063	-0.057	
20.944	0.218	0.184	0.078	-0.071	-0.213	-0.278	-0.291	-0.095	-0.049	-0.060	-0.057	-0.057	-0.041	
21.444	0.214	0.192	0.088	-0.055	-0.197	-0.237	-0.248	-0.063	-0.030	-0.036	-0.041	-0.030	0.258	

Table 1.32 Experimental pressure coefficients c_p for $\alpha = 25^\circ$, $M_\infty = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.470	0.408	0.272	0.390	0.340	0.080	-0.267	-0.296	-0.364	-0.352	-0.046	-0.221	-0.125	
0.482	0.788	0.736	0.597	0.182	0.135	-0.116	-0.344	-0.494	-0.570	-0.561	-0.523	-0.457	-0.457	
0.731	0.567	0.519	0.381	-0.037	-0.076	-0.322	-0.528	-0.641	-0.714	-0.670	-0.615	-0.519	-0.501	
0.980	0.337	0.291	0.159	-0.209	-0.269	-0.506	-0.717	-0.827	-0.845	-0.771	-0.689	-0.568	-0.536	
1.238	0.158	0.113	-0.015	-0.315	-0.422	-0.648	-0.840	-0.823	-0.806	-0.631	-0.413	-0.318	-0.299	
1.500	0.039	-0.002	-0.129	-0.205	-0.315	-0.518	-0.814	-0.753	-0.601	-0.382	-0.264	-0.177	-0.159	
1.944	0.148	0.104	-0.019	-0.190	-0.400	-0.516	-0.634	-0.538	-0.374	-0.212	-0.137	-0.011	0.035	
2.444	0.175	0.135	0.010	-0.174	-0.378	-0.542	-0.599	-0.481	-0.260	-0.190	-0.194	-0.063	0.043	
2.944	0.181	0.137	0.016	-0.121	-0.357	-0.507	-0.545	-0.392	-0.199	-0.212	-0.308	-0.221	-0.124	
3.444	0.195	0.145	0.025	-0.143	-0.343	-0.481	-0.493	-0.305	-0.177	-0.190	-0.347	-0.204	-0.002	
3.944	0.199	0.151	0.029	-0.143	-0.322	-0.455	-0.493	-0.235	-0.159	-0.190	-0.264	-0.204	-0.002	
4.444	0.201	0.153	0.033	-0.139	-0.317	-0.438	-0.469	-0.208	-0.164	-0.142	-0.155	-0.243	-0.094	
4.944	0.203	0.154	0.040	-0.139	-0.308	-0.433	-0.397	-0.213	-0.164	-0.137	-0.124	-0.199	-0.111	
5.444	0.204	0.156	0.034	-0.139	-0.300	-0.424	-0.379	-0.208	-0.150	-0.124	-0.124	-0.160	-0.111	
5.944	0.205	0.157	0.036	-0.130	-0.300	-0.424	-0.366	-0.199	-0.146	-0.124	-0.124	-0.166	-0.107	
6.444	0.204	0.162	0.036	-0.125	-0.295	-0.411	-0.357	-0.177	-0.142	-0.124	-0.120	-0.133	-0.094	
6.944	0.205	0.166	0.039	-0.125	-0.291	-0.402	-0.352	-0.169	-0.137	-0.120	-0.120	-0.133	-0.085	
7.444	0.205	0.166	0.039	-0.125	-0.291	-0.402	-0.339	-0.169	-0.129	-0.115	-0.124	-0.133	-0.072	
7.944	0.207	0.168	0.044	-0.125	-0.283	-0.380	-0.335	-0.151	-0.124	-0.115	-0.123	-0.138	-0.072	
8.444	0.203	0.166	0.041	-0.121	-0.291	-0.376	-0.335	-0.141	-0.120	-0.115	-0.120	-0.133	-0.080	
8.944	0.201	0.162	0.042	-0.126	-0.287	-0.367	-0.331	-0.142	-0.115	-0.111	-0.124	-0.133	-0.089	
9.444	0.199	0.160	0.038	-0.121	-0.287	-0.371	-0.326	-0.142	-0.115	-0.120	-0.133	-0.142	-0.102	
9.944	0.201	0.162	0.043	-0.116	-0.282	-0.358	-0.313	-0.129	-0.107	-0.115	-0.124	-0.120	-0.093	
10.444	0.206	0.163	0.053	-0.110	-0.269	-0.349	-0.299	-0.118	-0.100	-0.111	-0.124	-0.109	-0.093	
10.944	0.205	0.165	0.048	-0.112	-0.265	-0.338	-0.284	-0.107	-0.097	-0.109	-0.120	-0.109	-0.102	
11.444	0.202	0.160	0.047	-0.105	-0.262	-0.335	-0.276	-0.103	-0.100	-0.111	-0.122	-0.116	-0.111	
11.944	0.204	0.162	0.051	-0.103	-0.251	-0.322	-0.251	-0.091	-0.093	-0.104	-0.120	-0.111	-0.129	
12.444	0.202	0.160	0.050	-0.094	-0.247	-0.320	-0.234	-0.087	-0.093	-0.102	-0.118	-0.109	-0.109	
12.944	0.207	0.164	0.053	-0.096	-0.233	-0.308	-0.209	-0.078	-0.091	-0.104	-0.113	-0.105	-0.104	
13.444	0.204	0.157	0.047	-0.094	-0.231	-0.304	-0.191	-0.078	-0.091	-0.106	-0.109	-0.107	-0.109	
13.944	0.197	0.153	0.044	-0.085	-0.231	-0.306	-0.181	-0.080	-0.093	-0.104	-0.106	-0.111	-0.113	
14.444	0.199	0.154	0.046	-0.065	-0.227	-0.304	-0.175	-0.083	-0.094	-0.101	-0.104	-0.110	-0.114	
14.944	0.200	0.155	0.048	-0.078	-0.224	-0.302	-0.168	-0.087	-0.095	-0.097	-0.102	-0.107	-0.115	
15.444	0.199	0.154	0.047	-0.076	-0.222	-0.300	-0.168	-0.076	-0.097	-0.097	-0.095	-0.109	-0.118	
15.944	0.203	0.156	0.051	-0.085	-0.222	-0.298	-0.175	-0.135	-0.097	-0.095	-0.091	-0.109	-0.118	
16.444	0.196	0.151	0.045	-0.087	-0.233	-0.307	-0.188	-0.121	-0.102	-0.095	-0.091	-0.114	-0.123	
16.944	0.195	0.152	0.047	-0.083	-0.235	-0.307	-0.206	-0.134	-0.104	-0.095	-0.084	-0.114	-0.118	
17.444	0.201	0.158	0.053	-0.083	-0.238	-0.309	-0.224	-0.148	-0.102	-0.093	-0.082	-0.111	-0.113	
17.944	0.200	0.160	0.057	-0.092	-0.235	-0.307	-0.238	-0.157	-0.102	-0.091	-0.084	-0.109	-0.111	
18.444	0.198	0.159	0.056	-0.092	-0.244	-0.315	-0.263	-0.168	-0.100	-0.091	-0.084	-0.109	-0.106	
18.944	0.201	0.163	0.060	-0.092	-0.242	-0.311	-0.278	-0.175	-0.095	-0.088	-0.075	-0.102	-0.102	
19.444	0.203	0.166	0.067	-0.094	-0.240	-0.304	-0.294	-0.164	-0.088	-0.086	-0.070	-0.095	-0.102	
19.944	0.212	0.174	0.074	-0.080	-0.242	-0.309	-0.299	-0.154	-0.079	-0.077	-0.066	-0.082	-0.093	
20.444	0.224	0.181	0.087	-0.076	-0.229	-0.293	-0.294	-0.132	-0.066	-0.066	-0.061	-0.068	-0.084	
20.944	0.222	0.186	0.091	-0.060	-0.203	-0.277	-0.274	-0.135	-0.052	-0.055	-0.050	-0.055	-0.066	
21.444	0.216	0.192	0.102	0.033	-0.193	-0.265	-0.233	-0.062	-0.025	-0.028	-0.023	-0.019	0.247	

Table 1.33 Experimental pressure coefficients c_p for $\alpha = 25^\circ$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.470	0.360	0.285	0.144	0.423	0.181	-0.210	-0.194	-0.267	-0.259	-0.290	-0.178	-0.152	
0.482	0.634	0.785	0.654	0.463	0.215	-0.014	-0.241	-0.391	-0.479	-0.481	-0.450	-0.412	-0.398	
0.731	0.611	0.565	0.438	0.256	0.002	-0.229	-0.429	-0.575	-0.655	-0.642	-0.630	-0.527	-0.501	
0.980	0.371	0.324	0.208	0.029	-0.202	-0.421	-0.625	-0.767	-0.837	-0.792	-0.742	-0.654	-0.630	
1.238	0.170	0.127	0.013	-0.164	-0.375	-0.591	-0.791	-0.915	-0.968	-0.911	-0.831	-0.746	-0.713	
1.500	0.010	-0.033	-0.149	-0.319	-0.521	-0.726	-0.863	-0.792	-0.950	-0.813	-0.640	-0.313	-0.329	
1.944	0.108	0.366	-0.256	-0.242	-0.471	-0.653	-0.850	-0.461	-0.420	-0.455	-0.113	0.052	0.068	
2.444	0.155	0.115	-0.005	-0.190	-0.467	-0.625	-0.328	-0.318	-0.298	-0.263	-0.198	0.017	0.053	
2.944	0.175	0.132	0.021	-0.157	-0.352	-0.532	-0.340	-0.233	-0.217	-0.260	-0.286	-0.176	-0.148	
3.444	0.195	0.254	0.025	-0.145	-0.326	-0.467	-0.363	-0.282	-0.213	-0.206	-0.279	-0.194	-0.117	
3.944	0.203	0.154	0.034	-0.134	-0.310	-0.436	-0.363	-0.187	-0.194	-0.202	-0.240	-0.194	-0.117	
4.444	0.205	0.158	0.035	-0.134	-0.314	-0.428	-0.313	-0.168	-0.190	-0.198	-0.233	-0.226	-0.149	
4.944	0.207	0.158	0.040	-0.126	-0.306	-0.416	-0.290	-0.164	-0.190	-0.194	-0.217	-0.220	-0.136	
5.444	0.210	0.159	0.041	-0.122	-0.303	-0.412	-0.263	-0.148	-0.186	-0.182	-0.206	-0.205	-0.113	
5.944	0.209	0.161	0.041	-0.126	-0.299	-0.407	-0.240	-0.140	-0.186	-0.175	-0.198	-0.197	-0.106	
6.444	0.209	0.164	0.041	-0.122	-0.295	-0.393	-0.217	-0.137	-0.182	-0.175	-0.198	-0.193	-0.106	
6.944	0.210	0.170	0.044	-0.118	-0.295	-0.389	-0.206	-0.125	-0.179	-0.171	-0.198	-0.209	-0.113	
7.444	0.210	0.170	0.044	-0.118	-0.295	-0.389	-0.186	-0.125	-0.171	-0.167	-0.202	-0.205	-0.114	
7.944	0.210	0.172	0.048	-0.107	-0.280	-0.359	-0.186	-0.114	-0.163	-0.163	-0.194	-0.197	-0.117	
8.444	0.205	0.168	0.042	-0.107	-0.287	-0.366	-0.194	-0.114	-0.155	-0.155	-0.171	-0.189	-0.125	
8.944	0.204	0.165	0.044	-0.107	-0.283	-0.355	-0.206	-0.110	-0.144	-0.144	-0.160	-0.174	-0.125	
9.444	0.202	0.161	0.039	-0.114	-0.279	-0.356	-0.225	-0.110	-0.133	-0.140	-0.148	-0.170	-0.137	
9.944	0.205	0.163	0.045	-0.099	-0.272	-0.344	-0.245	-0.110	-0.113	-0.125	-0.133	-0.147	-0.129	
10.444	0.207	0.166	0.054	-0.099	-0.256	-0.332	-0.271	-0.108	-0.102	-0.109	-0.118	-0.129	-0.120	
10.944	0.207	0.170	0.053	-0.093	-0.248	-0.317	-0.301	-0.108	-0.096	-0.106	-0.108	-0.129	-0.126	
11.444	0.203	0.164	0.050	-0.097	-0.244	-0.320	-0.340	-0.114	-0.092	-0.106	-0.111	-0.129	-0.136	
11.944	0.205	0.164	0.055	-0.091	-0.231	-0.312	-0.358	-0.110	-0.084	-0.100	-0.114	-0.123	-0.134	
12.444	0.203	0.164	0.053	-0.091	-0.227	-0.312	-0.376	-0.112	-0.088	-0.100	-0.120	-0.123	-0.134	
12.944	0.209	0.169	0.056	-0.085	-0.215	-0.307	-0.363	-0.114	-0.090	-0.104	-0.126	-0.122	-0.128	
13.444	0.204	0.164	0.053	-0.093	-0.215	-0.304	-0.367	-0.114	-0.102	-0.112	-0.132	-0.127	-0.134	
13.944	0.198	0.158	0.048	-0.095	-0.221	-0.312	-0.379	-0.116	-0.116	-0.122	-0.146	-0.133	-0.144	
14.444	0.199	0.160	0.051	-0.091	-0.223	-0.316	0.005	-0.118	-0.131	-0.132	-0.155	-0.138	-0.140	
14.944	0.200	0.162	0.054	-0.087	-0.225	-0.320	-0.329	-0.120	-0.145	-0.141	-0.165	-0.137	-0.135	
15.444	0.197	0.162	0.053	-0.087	-0.227	-0.319	-0.297	-0.120	-0.159	-0.155	-0.179	-0.137	-0.135	
15.944	0.202	0.164	0.056	-0.087	-0.235	-0.321	-0.274	-0.118	-0.169	-0.165	-0.185	-0.139	-0.131	
16.444	0.196	0.158	0.049	-0.095	-0.251	-0.327	-0.256	-0.118	-0.179	-0.175	-0.191	-0.145	-0.131	
16.944	0.197	0.159	0.049	-0.097	-0.251	-0.323	-0.237	-0.110	-0.183	-0.175	-0.187	-0.145	-0.125	
17.444	0.204	0.166	0.053	-0.093	-0.257	-0.321	-0.227	-0.104	-0.175	-0.171	-0.175	-0.145	-0.121	
17.944	0.202	0.167	0.058	-0.091	-0.253	-0.311	-0.217	-0.098	-0.165	-0.163	-0.163	-0.143	-0.120	
18.444	0.201	0.166	0.056	-0.097	-0.261	-0.311	-0.225	-0.090	-0.149	-0.151	-0.146	-0.143	-0.119	
18.944	0.206	0.170	0.062	-0.089	-0.251	-0.297	-0.224	-0.094	-0.131	-0.137	-0.118	-0.135	-0.114	
19.444	0.208	0.171	0.068	-0.081	-0.245	-0.281	-0.234	-0.094	-0.112	-0.120	-0.096	-0.123	-0.108	
19.944	0.220	0.184	0.074	-0.067	-0.243	-0.284	-0.246	-0.095	-0.090	-0.098	-0.082	-0.101	-0.092	
20.444	0.234	0.198	0.091	-0.047	-0.221	-0.256	-0.248	-0.051	-0.062	-0.072	-0.067	-0.080	-0.076	
20.944	0.233	0.202	0.096	-0.043	-0.191	-0.235	-0.235	-0.033	-0.037	-0.044	-0.047	-0.058	-0.051	
21.444	0.232	0.201	0.109	-0.013	-0.168	-0.187	-0.205	-0.033	-0.031	-0.035	-0.039	-0.011	0.263	

Table 1.34 Experimental pressure coefficients c_p for $\alpha = 25^\circ$, $M_\infty = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.466	0.345	0.270	0.128	0.469	0.238	-0.158	-0.125	-0.201	-0.198	-0.147	0.002	-0.016	
0.482	0.667	0.821	0.695	0.510	0.265	0.040	-0.172	-0.319	-0.405	-0.408	-0.377	-0.343	-0.333	
0.731	0.646	0.602	0.480	0.307	0.054	-0.165	-0.354	-0.497	-0.580	-0.572	-0.534	-0.471	-0.446	
0.980	0.410	0.366	0.252	0.080	-0.144	-0.355	-0.551	-0.684	-0.754	-0.724	-0.672	-0.594	-0.567	
1.238	0.204	0.164	0.052	-0.111	-0.326	-0.522	-0.711	-0.840	-0.896	-0.847	-0.781	-0.689	-0.669	
1.500	0.028	-0.009	-0.122	-0.280	-0.479	-0.665	-0.835	-0.950	-0.935	-0.902	-0.781	-0.638	-0.614	
1.944	0.110	0.071	-0.042	-0.218	-0.442	-0.628	-0.853	-1.001	-0.991	-0.930	-0.746	-0.590	-0.566	
2.444	0.175	0.055	-0.055	-0.240	-0.482	-0.712	-0.905	-0.969	-0.602	-0.593	-0.268	0.089	0.138	
2.944	0.210	0.041	-0.082	-0.280	-0.497	-0.723	-0.935	-0.962	-0.296	-0.637	-0.144	0.202	-0.612	
3.444	0.225	0.085	-0.005	-0.120	-0.253	-0.367	-0.231	-0.199	-0.183	-0.285	-0.220	-0.001	0.037	
3.944	0.228	0.182	0.078	-0.060	-0.271	-0.380	-0.231	-0.213	-0.147	-0.143	-0.278	-0.001	0.037	
4.444	0.221	0.175	0.062	-0.097	-0.289	-0.413	-0.336	-0.159	-0.154	-0.132	-0.147	-0.176	-0.128	
4.944	0.215	0.172	0.065	-0.112	-0.282	-0.395	-0.322	-0.155	-0.132	-0.154	-0.136	-0.161	-0.165	
5.444	0.217	0.170	0.061	-0.104	-0.271	-0.369	-0.300	-0.144	-0.121	-0.147	-0.147	-0.147	-0.158	
5.944	0.215	0.170	0.052	-0.112	-0.271	-0.387	-0.293	-0.144	-0.118	-0.136	-0.140	-0.143	-0.147	
6.444	0.213	0.174	0.050	-0.104	-0.260	-0.387	-0.282	-0.140	-0.114	-0.129	-0.129	-0.132	-0.128	
6.944	0.214	0.176	0.052	-0.101	-0.260	-0.362	-0.271	-0.133	-0.114	-0.121	-0.122	-0.121	-0.121	
7.444	0.214	0.176	0.052	-0.101	-0.260	-0.362	-0.256	-0.133	-0.103	-0.114	-0.118	-0.110	-0.110	
7.944	0.215	0.178	0.057	-0.090	-0.249	-0.347	-0.249	-0.126	-0.107	-0.110	-0.122	-0.107	-0.103	
8.444	0.209	0.174	0.052	-0.097	-0.253	-0.355	-0.245	-0.126	-0.103	-0.110	-0.118	-0.110	-0.107	
8.944	0.207	0.171	0.056	-0.097	-0.253	-0.351	-0.242	-0.118	-0.103	-0.110	-0.114	-0.110	-0.107	
9.444	0.205	0.165	0.052	-0.100	-0.257	-0.355	-0.246	-0.122	-0.107	-0.114	-0.111	-0.114	-0.114	
9.944	0.206	0.166	0.056	-0.093	-0.253	-0.355	-0.235	-0.122	-0.107	-0.114	-0.111	-0.110	-0.107	
10.444	0.209	0.168	0.059	-0.093	-0.241	-0.342	-0.225	-0.115	-0.105	-0.109	-0.107	-0.104	-0.104	
10.944	0.209	0.170	0.059	-0.091	-0.241	-0.353	-0.214	-0.113	-0.107	-0.111	-0.109	-0.107	-0.108	
11.444	0.203	0.163	0.054	-0.097	-0.244	-0.340	-0.214	-0.115	-0.115	-0.115	-0.113	-0.111	-0.113	
11.944	0.206	0.165	0.057	-0.091	-0.235	-0.338	-0.205	-0.111	-0.115	-0.115	-0.109	-0.111	-0.104	
12.444	0.204	0.163	0.055	-0.093	-0.243	-0.348	-0.203	-0.111	-0.115	-0.114	-0.111	-0.113	-0.110	
12.944	0.210	0.170	0.059	-0.087	-0.233	-0.342	-0.197	-0.111	-0.115	-0.114	-0.109	-0.107	-0.104	
13.444	0.206	0.164	0.053	-0.093	-0.235	-0.344	-0.196	-0.111	-0.113	-0.115	-0.109	-0.111	-0.108	
13.944	0.200	0.159	0.047	-0.099	-0.243	-0.346	-0.203	-0.111	-0.109	-0.114	-0.109	-0.116	-0.109	
14.444	0.202	0.161	0.050	-0.093	-0.243	-0.334	-0.200	-0.111	-0.112	-0.113	-0.108	-0.115	-0.105	
14.944	0.205	0.162	0.052	-0.087	-0.244	-0.323	-0.205	-0.111	-0.115	-0.111	-0.107	-0.115	-0.105	
15.444	0.200	0.163	0.051	-0.089	-0.243	-0.327	-0.205	-0.111	-0.115	-0.109	-0.106	-0.115	-0.103	
15.944	0.206	0.168	0.055	-0.086	-0.239	-0.329	-0.205	-0.110	-0.111	-0.105	-0.102	-0.115	-0.101	
16.444	0.198	0.167	0.048	-0.093	-0.244	-0.340	-0.212	-0.108	-0.107	-0.105	-0.102	-0.116	-0.103	
16.944	0.198	0.159	0.050	-0.091	-0.241	-0.331	-0.216	-0.106	-0.103	-0.101	-0.100	-0.112	-0.098	
17.444	0.205	0.166	0.057	-0.086	-0.235	-0.308	-0.214	-0.102	-0.098	-0.096	-0.094	-0.105	-0.094	
17.944	0.203	0.168	0.060	-0.080	-0.228	-0.304	-0.211	-0.096	-0.092	-0.090	-0.092	-0.105	-0.098	
18.444	0.203	0.167	0.058	-0.082	-0.228	-0.284	-0.203	-0.091	-0.087	-0.085	-0.089	-0.099	-0.085	
18.944	0.208	0.173	0.068	-0.069	-0.213	-0.278	-0.194	-0.081	-0.077	-0.075	-0.079	-0.088	-0.075	
19.444	0.212	0.177	0.074	-0.059	-0.198	-0.244	-0.177	-0.068	-0.068	-0.068	-0.066	-0.077	-0.066	
19.944	0.225	0.188	0.083	-0.061	-0.203	-0.254	-0.167	-0.055	-0.055	-0.053	-0.051	-0.058	-0.049	
20.444	0.241	0.202	0.102	-0.035	-0.179	-0.235	-0.151	-0.036	-0.036	-0.036	-0.036	-0.040	-0.030	
20.944	0.243	0.208	0.111	-0.023	-0.151	-0.205	-0.115	-0.012	-0.015	-0.012	-0.017	-0.017	-0.002	
21.444	0.246	0.211	0.122	-0.002	-0.128	-0.156	-0.064	0.026	0.022	0.026	0.026	0.028	0.246	

Table 1.35 Experimental pressure coefficients c_p for $\alpha = 25^\circ$, $M_\infty = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.498	0.375	0.317	0.175	0.516	0.297	-0.231	-0.060	-0.133	-0.130	-0.268	-0.112	-0.095	
0.482	0.904	0.861	0.740	0.560	0.316	0.105	-0.106	-0.252	-0.331	-0.331	-0.307	-0.277	-0.262	
0.731	0.691	0.648	0.531	0.361	0.110	-0.092	-0.284	-0.422	-0.501	-0.494	-0.456	-0.397	-0.376	
0.980	0.458	0.419	0.308	0.142	-0.085	-0.280	-0.472	-0.600	-0.671	-0.640	-0.596	-0.519	-0.491	
1.236	0.255	0.219	0.114	-0.047	-0.259	-0.444	-0.626	-0.754	-0.813	-0.761	-0.704	-0.612	-0.592	
1.500	0.074	0.039	-0.060	-0.212	-0.413	-0.581	-0.748	-0.858	-0.907	-0.818	-0.722	-0.574	-0.550	
1.944	0.155	0.110	0.016	-0.159	-0.385	-0.573	-0.769	-0.910	-0.962	-0.865	-0.778	-0.628	-0.603	
2.444	0.140	0.102	-0.015	-0.185	-0.427	-0.636	-0.842	-0.924	-0.991	-0.731	-0.645	-0.478	-0.453	
2.944	0.112	0.070	-0.040	-0.226	-0.462	-0.678	-0.875	-0.935	-0.985	-0.684	-0.601	-0.435	-0.410	
3.444	0.100	0.055	-0.070	-0.255	-0.489	-0.709	-0.879	-0.947	-0.994	-0.684	-0.601	-0.435	-0.410	
3.944	0.097	0.047	-0.076	-0.267	-0.514	-0.692	-0.879	-0.947	-0.994	-0.684	-0.601	-0.435	-0.410	
4.444	0.089	0.037	-0.092	-0.289	-0.166	-0.357	-0.221	-0.217	-0.161	-0.161	-0.270	-0.130	-0.091	
4.944	0.083	0.030	-0.092	-0.294	-0.207	-0.296	-0.114	-0.092	-0.089	-0.089	-0.162	-0.154	-0.119	
5.444	0.180	0.123	0.002	-0.159	-0.207	-0.312	-0.158	-0.092	-0.077	-0.095	-0.099	-0.151	-0.119	
5.944	0.251	0.206	0.041	-0.173	-0.235	-0.224	-0.222	-0.092	-0.102	-0.081	-0.078	-0.105	-0.102	
6.444	0.253	0.216	0.108	-0.026	-0.235	-0.315	-0.224	-0.095	-0.105	-0.085	-0.078	-0.081	-0.095	
6.944	0.253	0.223	0.114	-0.026	-0.238	-0.322	-0.270	-0.102	-0.102	-0.105	-0.092	-0.084	-0.084	
7.444	0.240	0.212	0.103	-0.043	-0.220	-0.336	-0.221	-0.095	-0.105	-0.105	-0.109	-0.102	-0.081	
7.944	0.224	0.195	0.089	-0.061	-0.252	-0.329	-0.231	-0.095	-0.105	-0.109	-0.116	-0.109	-0.088	
8.444	0.218	0.184	0.079	-0.071	-0.242	-0.336	-0.214	-0.106	-0.105	-0.112	-0.116	-0.102	-0.102	
8.944	0.211	0.173	0.067	-0.092	-0.245	-0.336	-0.218	-0.105	-0.105	-0.112	-0.116	-0.102	-0.102	
9.444	0.210	0.170	0.064	-0.089	-0.238	-0.325	-0.204	-0.109	-0.105	-0.112	-0.116	-0.102	-0.102	
10.444	0.212	0.170	0.062	-0.089	-0.239	-0.316	-0.201	-0.108	-0.104	-0.107	-0.107	-0.095	-0.095	
10.944	0.213	0.173	0.059	-0.092	-0.234	-0.320	-0.198	-0.108	-0.107	-0.111	-0.111	-0.104	-0.099	
11.444	0.208	0.167	0.054	-0.098	-0.241	-0.316	-0.209	-0.113	-0.113	-0.116	-0.116	-0.111	-0.109	
11.944	0.210	0.170	0.057	-0.092	-0.234	-0.318	-0.207	-0.113	-0.114	-0.116	-0.116	-0.111	-0.109	
12.444	0.206	0.168	0.057	-0.094	-0.248	-0.326	-0.203	-0.113	-0.113	-0.116	-0.116	-0.111	-0.109	
12.944	0.210	0.173	0.067	-0.085	-0.232	-0.320	-0.194	-0.110	-0.109	-0.113	-0.113	-0.109	-0.108	
13.444	0.203	0.164	0.062	-0.085	-0.243	-0.322	-0.191	-0.110	-0.109	-0.113	-0.113	-0.108	-0.108	
13.944	0.198	0.159	0.056	-0.091	-0.241	-0.322	-0.189	-0.110	-0.106	-0.113	-0.113	-0.108	-0.108	
14.444	0.201	0.162	0.057	-0.089	-0.242	-0.319	-0.190	-0.110	-0.108	-0.112	-0.112	-0.111	-0.108	
14.944	0.204	0.165	0.059	-0.087	-0.243	-0.316	-0.191	-0.110	-0.108	-0.112	-0.112	-0.111	-0.110	
15.444	0.200	0.163	0.057	-0.087	-0.243	-0.322	-0.194	-0.111	-0.109	-0.113	-0.113	-0.111	-0.110	
15.944	0.208	0.166	0.057	-0.087	-0.241	-0.324	-0.196	-0.113	-0.109	-0.113	-0.113	-0.113	-0.108	
16.444	0.202	0.162	0.048	-0.094	-0.252	-0.331	-0.203	-0.119	-0.113	-0.115	-0.115	-0.115	-0.113	
16.944	0.197	0.161	0.045	-0.098	-0.256	-0.334	-0.209	-0.117	-0.113	-0.115	-0.115	-0.115	-0.113	
17.444	0.199	0.163	0.055	-0.092	-0.237	-0.318	-0.209	-0.113	-0.107	-0.108	-0.108	-0.111	-0.104	
17.944	0.194	0.159	0.055	-0.091	-0.232	-0.313	-0.202	-0.108	-0.100	-0.100	-0.099	-0.104	-0.099	
18.444	0.197	0.159	0.047	-0.100	-0.230	-0.304	-0.194	-0.095	-0.093	-0.091	-0.092	-0.100	-0.090	
18.944	0.205	0.166	0.064	-0.078	-0.207	-0.297	-0.194	-0.079	-0.089	-0.086	-0.083	-0.091	-0.081	
19.444	0.225	0.186	0.079	-0.069	-0.207	-0.297	-0.194	-0.079	-0.072	-0.074	-0.068	-0.075	-0.068	
20.444	0.242	0.206	0.106	-0.036	-0.185	-0.226	-0.126	-0.027	-0.027	-0.029	-0.027	-0.031	-0.020	
20.944	0.247	0.215	0.118	-0.015	-0.140	-0.196	-0.097	0.003	0.003	0.002	-0.002	-0.002	0.014	
21.444	0.251	0.221	0.129	0.011	-0.113	-0.122	-0.040	0.046	0.046	0.047	0.044	0.049	0.204	

Table 1.36 Experimental pressure coefficients c_p for $\alpha = 25^\circ$, $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.560	0.469	0.414	0.280	0.009	0.400	-0.128	-0.061	-0.037	-0.007	0.025	-0.014	-0.019	
0.482	0.964	0.926	0.810	0.640	0.433	0.214	0.019	-0.118	-0.192	-0.199	-0.172	-0.140	-0.135	
0.731	0.758	0.721	0.607	0.449	0.245	0.025	-0.147	-0.281	-0.354	-0.352	-0.315	-0.263	-0.248	
0.980	0.534	0.500	0.393	0.239	0.051	-0.147	-0.323	-0.446	-0.513	-0.488	-0.445	-0.374	-0.352	
1.238	0.338	0.307	0.202	0.055	-0.122	-0.306	-0.469	-0.586	-0.646	-0.602	-0.548	-0.461	-0.447	
1.500	0.157	0.129	0.031	-0.119	-0.259	-0.430	-0.576	-0.681	-0.730	-0.654	-0.591	-0.435	-0.415	
1.944	0.237	0.205	0.105	-0.044	-0.233	-0.430	-0.602	-0.730	-0.785	-0.553	-0.373	-0.182	-0.122	
2.444	0.225	0.195	0.095	-0.065	-0.260	-0.485	-0.664	-0.779	-0.818	-0.574	-0.383	-0.188	-0.122	
2.944	0.198	0.161	0.056	-0.109	-0.299	-0.521	-0.500	-0.450	-0.458	-0.326	-0.241	-0.017	0.015	
3.444	0.185	0.150	0.037	-0.125	-0.325	-0.550	-0.404	-0.326	-0.357	-0.298	-0.213	-0.062	-0.014	
3.944	0.180	0.141	0.018	-0.152	-0.357	-0.573	-0.404	-0.242	-0.242	-0.257	-0.199	-0.062	-0.014	
4.444	0.171	0.128	0.002	-0.171	-0.377	-0.573	-0.242	-0.229	-0.250	-0.215	-0.273	-0.263	-0.177	
4.944	0.164	0.120	0.002	-0.181	-0.384	-0.529	-0.274	-0.245	-0.199	-0.202	-0.205	-0.241	-0.222	
5.444	0.155	0.120	-0.014	-0.184	-0.325	-0.420	-0.313	-0.226	-0.182	-0.189	-0.192	-0.211	-0.219	
5.944	0.201	0.168	0.047	-0.103	-0.292	-0.479	-0.316	-0.216	-0.186	-0.178	-0.173	-0.192	-0.206	
6.444	0.197	0.155	0.037	-0.119	-0.299	-0.501	-0.319	-0.200	-0.186	-0.160	-0.163	-0.160	-0.154	
6.944	0.194	0.154	0.033	-0.122	-0.295	-0.485	-0.307	-0.164	-0.176	-0.160	-0.160	-0.137	-0.144	
7.444	0.194	0.154	0.033	-0.122	-0.295	-0.485	-0.245	-0.164	-0.150	-0.160	-0.147	-0.137	-0.131	
7.944	0.190	0.147	0.037	-0.119	-0.305	-0.384	-0.186	-0.121	-0.130	-0.164	-0.166	-0.153	-0.141	
8.444	0.204	0.154	0.030	-0.126	-0.302	-0.365	-0.199	-0.121	-0.147	-0.163	-0.166	-0.166	-0.157	
8.944	0.197	0.158	0.049	-0.106	-0.272	-0.394	-0.225	-0.160	-0.160	-0.157	-0.166	-0.163	-0.167	
9.444	0.184	0.150	0.043	-0.103	-0.249	-0.394	-0.225	-0.157	-0.140	-0.131	-0.137	-0.111	-0.144	
9.944	0.197	0.162	0.053	-0.099	-0.259	-0.394	-0.183	-0.125	-0.124	-0.124	-0.108	-0.111	-0.092	
10.444	0.203	0.176	0.066	-0.081	-0.238	-0.338	-0.189	-0.117	-0.109	-0.114	-0.105	-0.087	-0.091	
10.944	0.191	0.164	0.055	-0.096	-0.248	-0.333	-0.173	-0.114	-0.110	-0.114	-0.105	-0.087	-0.091	
11.444	0.178	0.145	0.038	-0.111	-0.266	-0.340	-0.194	-0.111	-0.115	-0.121	-0.132	-0.114	-0.126	
11.944	0.183	0.149	0.041	-0.113	-0.250	-0.325	-0.161	-0.107	-0.115	-0.119	-0.125	-0.122	-0.113	
12.444	0.167	0.131	0.023	-0.132	-0.297	-0.285	-0.156	-0.101	-0.104	-0.109	-0.117	-0.107	-0.116	
12.944	0.200	0.148	0.028	-0.123	-0.249	-0.300	-0.156	-0.101	-0.110	-0.112	-0.105	-0.104	-0.099	
13.444	0.205	0.173	0.063	-0.098	-0.256	-0.315	-0.174	-0.109	-0.070	-0.082	-0.104	-0.077	-0.096	
13.944	0.190	0.150	0.066	-0.079	-0.184	-0.285	-0.122	-0.027	-0.027	-0.040	-0.043	-0.075	-0.048	
14.444	0.221	0.185	0.085	-0.066	-0.196	-0.257	-0.115	-0.051	-0.051	-0.060	-0.061	-0.075	-0.048	
14.944	0.251	0.211	0.103	-0.052	-0.209	-0.229	-0.117	-0.076	-0.075	-0.079	-0.078	-0.087	-0.074	
15.444	0.274	0.231	0.114	-0.031	-0.164	-0.288	-0.183	-0.101	-0.098	-0.089	-0.087	-0.097	-0.089	
15.944	0.263	0.231	0.134	-0.002	-0.143	-0.328	-0.203	-0.123	-0.117	-0.109	-0.097	-0.102	-0.096	
16.444	0.231	0.196	0.097	-0.044	-0.194	-0.353	-0.233	-0.138	-0.125	-0.126	-0.115	-0.112	-0.104	
16.944	0.212	0.177	0.074	-0.066	-0.219	-0.378	-0.246	-0.136	-0.119	-0.124	-0.122	-0.114	-0.106	
17.444	0.202	0.169	0.068	-0.078	-0.233	-0.365	-0.204	-0.109	-0.100	-0.107	-0.105	-0.107	-0.094	
17.944	0.215	0.186	0.076	-0.069	-0.234	-0.306	-0.164	-0.112	-0.107	-0.114	-0.112	-0.120	-0.099	
18.444	0.236	0.169	0.066	-0.083	-0.238	-0.335	-0.198	-0.126	-0.119	-0.121	-0.127	-0.135	-0.116	
18.944	0.200	0.175	0.056	-0.090	-0.256	-0.355	-0.216	-0.136	-0.137	-0.136	-0.137	-0.147	-0.131	
19.444	0.171	0.156	0.057	-0.091	-0.256	-0.342	-0.221	-0.149	-0.145	-0.152	-0.152	-0.159	-0.144	
19.944	0.164	0.134	0.031	-0.110	-0.270	-0.360	-0.231	-0.136	-0.117	-0.134	-0.147	-0.142	-0.136	
20.444	0.157	0.137	0.027	-0.110	-0.246	-0.303	-0.214	-0.136	-0.112	-0.119	-0.137	-0.135	-0.131	
20.944	0.175	0.138	0.035	-0.108	-0.263	-0.308	-0.221	-0.121	-0.109	-0.114	-0.124	-0.122	-0.111	
21.444	0.177	0.144	0.042	-0.102	-0.254	-0.352	-0.188	-0.076	-0.043	-0.037	-0.042	-0.023	0.166	

Table 1.37 Experimental pressure coefficients c_p for $\alpha = 25^\circ$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	1.215	0.549	0.453	0.324	0.141	0.464	-0.061	0.126	0.052	0.045	0.081	0.001	0.029	
0.452	1.006	0.972	0.857	0.690	0.491	0.279	0.083	-0.048	-0.125	-0.135	-0.107	-0.079	-0.070	
0.731	0.800	0.768	0.657	0.501	0.308	0.095	-0.073	-0.200	-0.280	-0.280	-0.247	-0.200	-0.188	
0.960	0.577	0.549	0.446	0.297	0.123	-0.070	-0.241	-0.338	-0.428	-0.403	-0.367	-0.302	-0.291	
1.238	0.380	0.355	0.253	0.112	-0.052	-0.325	-0.381	-0.472	-0.551	-0.518	-0.469	-0.389	-0.371	
1.500	0.213	0.192	0.102	-0.021	-0.167	-0.328	-0.467	-0.572	-0.625	-0.570	-0.507	-0.376	-0.358	
1.944	0.265	0.246	0.141	0.004	-0.167	-0.347	-0.505	-0.619	-0.684	-0.570	-0.355	-0.194	-0.138	
2.444	0.213	0.239	0.130	-0.039	0.138	-0.399	-0.557	-0.671	-0.554	-0.373	-0.395	-0.147	-0.017	
2.944	0.220	0.199	0.102	-0.055	-0.230	-0.430	-0.505	-0.461	-0.440	-0.620	-0.521	-0.126	-0.061	
3.444	0.213	0.175	0.075	-0.080	-0.255	-0.455	-0.471	-0.337	-0.351	-0.620	-0.521	-0.126	-0.061	
3.944	0.203	0.168	0.062	-0.090	-0.270	-0.474	-0.471	-0.292	-0.292	-0.373	-0.516	-0.126	-0.061	
4.444	0.216	0.178	0.063	-0.096	-0.292	-0.486	-0.263	-0.213	-0.267	-0.227	-0.262	-0.274	-0.200	
4.944	0.190	0.169	0.064	-0.102	-0.292	-0.508	-0.269	-0.231	-0.236	-0.203	-0.197	-0.225	-0.189	
5.444	0.186	0.147	0.028	-0.113	-0.317	-0.514	-0.232	-0.197	-0.202	-0.193	-0.178	-0.197	-0.213	
5.944	0.179	0.145	0.026	-0.133	-0.323	-0.514	-0.191	-0.169	-0.190	-0.212	-0.188	-0.191	-0.191	
6.444	0.177	0.152	0.033	-0.130	-0.304	-0.449	-0.213	-0.179	-0.175	-0.197	-0.181	-0.175	-0.176	
6.944	0.186	0.153	0.036	-0.124	-0.301	-0.455	-0.197	-0.157	-0.125	-0.144	-0.160	-0.144	-0.145	
7.444	0.186	0.153	0.036	-0.124	-0.301	-0.455	-0.182	-0.157	-0.119	-0.126	-0.129	-0.132	-0.120	
7.944	0.204	0.184	0.059	-0.071	-0.242	-0.387	-0.201	-0.123	-0.132	-0.122	-0.119	-0.138	-0.120	
8.444	0.197	0.173	0.057	-0.093	-0.255	-0.377	-0.180	-0.123	-0.141	-0.129	-0.129	-0.123	-0.126	
8.944	0.215	0.159	0.057	-0.063	-0.245	-0.365	-0.207	-0.129	-0.129	-0.132	-0.123	-0.120	-0.117	
9.444	0.194	0.171	0.060	-0.077	-0.245	-0.384	-0.173	-0.126	-0.129	-0.122	-0.132	-0.126	-0.126	
9.944	0.206	0.180	0.069	-0.071	-0.226	-0.371	-0.188	-0.126	-0.116	-0.123	-0.126	-0.113	-0.119	
10.444	0.202	0.184	0.061	-0.086	-0.252	-0.342	-0.167	-0.121	-0.119	-0.122	-0.121	-0.116	-0.116	
10.944	0.220	0.170	0.068	-0.077	-0.239	-0.337	-0.188	-0.132	-0.119	-0.120	-0.124	-0.102	-0.108	
11.444	0.195	0.164	0.050	-0.096	-0.247	-0.362	-0.177	-0.126	-0.117	-0.111	-0.122	-0.108	-0.124	
11.944	0.211	0.180	0.077	-0.069	-0.221	-0.353	-0.148	-0.099	-0.069	-0.066	-0.066	-0.065	-0.067	
12.444	0.215	0.185	0.074	-0.074	-0.234	-0.275	-0.095	-0.078	-0.079	-0.092	-0.084	-0.094	-0.081	
12.944	0.235	0.191	0.082	-0.059	-0.199	-0.259	-0.139	-0.092	-0.096	-0.111	-0.106	-0.121	-0.111	
13.444	0.227	0.195	0.087	-0.061	-0.213	-0.315	-0.159	-0.113	-0.111	-0.119	-0.122	-0.130	-0.124	
13.944	0.224	0.203	0.106	-0.038	-0.187	-0.343	-0.196	-0.125	-0.135	-0.133	-0.121	-0.130	-0.126	
14.444	0.225	0.210	0.100	-0.049	-0.200	-0.359	-0.200	-0.131	-0.127	-0.129	-0.113	-0.115	-0.115	
14.944	0.227	0.217	0.094	-0.059	-0.212	-0.375	-0.185	-0.127	-0.119	-0.124	-0.105	-0.106	-0.102	
15.444	0.187	0.164	0.068	-0.080	-0.220	-0.366	-0.164	-0.123	-0.133	-0.146	-0.122	-0.130	-0.111	
15.944	0.190	0.155	0.042	-0.104	-0.244	-0.311	-0.151	-0.126	-0.141	-0.149	-0.143	-0.153	-0.147	
16.444	0.193	0.142	0.039	-0.108	-0.263	-0.226	-0.166	-0.119	-0.109	-0.098	-0.101	-0.098	-0.094	
16.944	0.229	0.155	0.053	-0.098	-0.258	-0.291	-0.099	-0.087	-0.098	-0.101	-0.098	-0.103	-0.094	
17.444	0.221	0.195	0.097	-0.048	-0.199	-0.287	-0.195	-0.121	-0.119	-0.119	-0.114	-0.127	-0.119	
17.944	0.214	0.191	0.090	-0.054	-0.180	-0.353	-0.185	-0.126	-0.128	-0.130	-0.127	-0.125	-0.121	
18.444	0.190	0.155	0.054	-0.085	-0.242	-0.361	-0.199	-0.140	-0.141	-0.140	-0.132	-0.135	-0.123	
18.944	0.179	0.156	0.057	-0.090	-0.255	-0.338	-0.211	-0.140	-0.135	-0.136	-0.135	-0.122	-0.118	
19.444	0.175	0.126	0.025	-0.119	-0.269	-0.353	-0.159	-0.110	-0.112	-0.122	-0.141	-0.123	-0.137	
19.944	0.191	0.152	0.048	-0.091	-0.250	-0.305	-0.161	-0.097	-0.093	-0.090	-0.105	-0.073	-0.059	
20.444	0.190	0.168	0.055	-0.082	-0.237	-0.298	-0.167	-0.095	-0.097	-0.108	-0.125	-0.124	-0.127	
20.944	0.189	0.151	0.047	-0.090	-0.242	-0.249	-0.182	-0.118	-0.114	-0.113	-0.125	-0.124	-0.122	
21.444	0.225	0.188	0.084	-0.056	-0.229	-0.324	-0.217	-0.107	-0.089	-0.082	-0.084	-0.068	-0.012	

Table 1.38 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 0.7$ and $Re_D = 5.2 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.518	0.460	0.275	0.049	0.167	-0.172	-0.537	-0.626	-0.668	-0.598	-0.375	-0.359	-0.198	
0.482	0.872	0.807	0.617	0.344	0.016	-0.313	-0.600	-0.757	-0.787	-0.724	-0.631	-0.525	-0.501	
0.731	0.676	0.611	0.426	0.155	-0.177	-0.496	-0.746	-0.866	-0.845	-0.771	-0.573	-0.499	-0.458	
0.980	0.470	0.408	0.227	-0.031	-0.339	-0.642	-0.881	-0.955	-0.866	-0.807	-0.526	-0.442	-0.407	
1.238	0.305	0.243	0.067	-0.184	-0.465	-0.742	-0.927	-0.898	-0.830	-0.578	-0.364	-0.275	-0.250	
1.500	0.196	0.136	-0.036	-0.278	-0.542	-0.789	-0.928	-0.829	-0.793	-0.590	-0.260	-0.161	-0.135	
1.944	0.256	0.197	0.021	-0.226	-0.496	-0.637	-0.866	-0.757	-0.644	-0.250	-0.161	-0.052	0.041	
2.444	0.265	0.210	0.035	-0.220	-0.506	-0.737	-0.818	-0.637	-0.292	-0.213	-0.245	-0.166	0.044	
2.944	0.270	0.209	0.037	-0.226	-0.496	-0.716	-0.750	-0.538	-0.214	-0.198	-0.375	-0.199	-0.057	
3.444	0.280	0.212	0.040	-0.210	-0.480	-0.690	-0.715	-0.455	-0.240	-0.181	-0.260	-0.379	-0.057	
3.944	0.283	0.216	0.039	-0.200	-0.464	-0.664	-0.715	-0.386	-0.193	-0.156	-0.182	-0.379	-0.057	
4.444	0.284	0.216	0.038	-0.199	-0.465	-0.653	-0.692	-0.371	-0.156	-0.166	-0.140	-0.260	-0.094	
4.944	0.286	0.216	0.040	-0.199	-0.460	-0.648	-0.631	-0.355	-0.172	-0.151	-0.140	-0.213	-0.125	
5.444	0.288	0.218	0.042	-0.194	-0.455	-0.638	-0.610	-0.345	-0.162	-0.145	-0.146	-0.192	-0.120	
5.944	0.288	0.217	0.042	-0.189	-0.455	-0.633	-0.590	-0.314	-0.135	-0.140	-0.140	-0.198	-0.104	
6.444	0.287	0.219	0.041	-0.184	-0.449	-0.627	-0.579	-0.313	-0.130	-0.130	-0.146	-0.229	-0.094	
6.944	0.287	0.218	0.042	-0.178	-0.439	-0.622	-0.553	-0.287	-0.125	-0.135	-0.161	-0.260	-0.109	
7.444	0.287	0.218	0.042	-0.178	-0.439	-0.622	-0.521	-0.287	-0.125	-0.125	-0.177	-0.213	-0.120	
7.944	0.289	0.218	0.053	-0.162	-0.418	-0.590	-0.495	-0.256	-0.120	-0.125	-0.120	-0.187	-0.130	
8.444	0.289	0.216	0.043	-0.160	-0.413	-0.585	-0.479	-0.256	-0.120	-0.125	-0.140	-0.177	-0.146	
8.944	0.285	0.216	0.043	-0.160	-0.397	-0.559	-0.437	-0.214	-0.115	-0.125	-0.140	-0.151	-0.156	
9.444	0.284	0.214	0.044	-0.162	-0.377	-0.549	-0.417	-0.199	-0.109	-0.125	-0.135	-0.135	-0.172	
9.944	0.280	0.213	0.043	-0.162	-0.387	-0.522	-0.381	-0.172	-0.099	-0.114	-0.120	-0.119	-0.167	
10.444	0.282	0.214	0.049	-0.152	-0.371	-0.507	-0.356	-0.135	-0.095	-0.113	-0.114	-0.121	-0.162	
10.944	0.265	0.216	0.053	-0.144	-0.351	-0.507	-0.331	-0.119	-0.097	-0.113	-0.116	-0.137	-0.165	
11.444	0.283	0.218	0.054	-0.136	-0.337	-0.493	-0.342	-0.127	-0.106	-0.122	-0.124	-0.140	-0.173	
11.944	0.280	0.219	0.060	-0.136	-0.332	-0.491	-0.342	-0.127	-0.106	-0.122	-0.124	-0.140	-0.173	
12.444	0.281	0.223	0.063	-0.131	-0.318	-0.483	-0.331	-0.116	-0.111	-0.116	-0.122	-0.129	-0.170	
12.944	0.280	0.224	0.063	-0.128	-0.316	-0.504	-0.379	-0.160	-0.138	-0.129	-0.135	-0.132	-0.176	
13.444	0.283	0.228	0.065	-0.126	-0.313	-0.510	-0.374	-0.167	-0.130	-0.128	-0.124	-0.135	-0.181	
13.944	0.279	0.223	0.056	-0.131	-0.318	-0.531	-0.377	-0.186	-0.143	-0.173	-0.122	-0.148	-0.192	
14.444	0.273	0.219	0.048	-0.134	-0.332	-0.545	-0.428	-0.205	-0.154	-0.167	-0.135	-0.161	-0.205	
14.944	0.274	0.219	0.046	-0.134	-0.344	-0.553	-0.460	-0.223	-0.173	-0.166	-0.131	-0.160	-0.205	
15.444	0.274	0.219	0.044	-0.134	-0.356	-0.561	-0.471	-0.241	-0.192	-0.165	-0.127	-0.159	-0.202	
15.944	0.273	0.218	0.040	-0.139	-0.366	-0.550	-0.479	-0.249	-0.192	-0.162	-0.127	-0.159	-0.194	
16.444	0.275	0.220	0.044	-0.139	-0.375	-0.532	-0.468	-0.246	-0.146	-0.159	-0.132	-0.158	-0.184	
16.944	0.269	0.214	0.040	-0.150	-0.389	-0.518	-0.460	-0.230	-0.138	-0.157	-0.119	-0.156	-0.184	
17.444	0.268	0.214	0.044	-0.152	-0.386	-0.491	-0.439	-0.208	-0.130	-0.148	-0.122	-0.151	-0.184	
17.944	0.273	0.218	0.054	-0.147	-0.381	-0.464	-0.420	-0.184	-0.122	-0.146	-0.135	-0.143	-0.184	
18.444	0.273	0.219	0.062	-0.144	-0.364	-0.440	-0.396	-0.165	-0.114	-0.138	-0.113	-0.130	-0.165	
18.944	0.270	0.218	0.063	-0.147	-0.362	-0.435	-0.377	-0.149	-0.111	-0.135	-0.100	-0.127	-0.187	
19.444	0.273	0.222	0.072	-0.139	-0.345	-0.424	-0.363	-0.144	-0.111	-0.127	-0.100	-0.124	-0.179	
19.944	0.275	0.226	0.077	-0.131	-0.332	-0.423	-0.358	-0.141	-0.111	-0.124	-0.114	-0.124	-0.168	
20.444	0.283	0.234	0.082	-0.128	-0.327	-0.442	-0.363	-0.144	-0.111	-0.119	-0.095	-0.116	-0.154	
20.944	0.291	0.240	0.090	-0.114	-0.308	-0.437	-0.347	-0.149	-0.108	-0.114	-0.095	-0.111	-0.143	
20.944	0.291	0.245	0.093	-0.104	-0.292	-0.440	-0.345	-0.149	-0.100	-0.108	-0.119	-0.105	-0.127	
21.444	0.279	0.250	0.097	-0.085	-0.284	-0.407	-0.323	-0.141	-0.084	-0.087	-0.095	-0.079	0.168	

Table 1.39 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 0.8$ and $Re_D = 5.6 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.533	0.135	0.288	0.080	0.247	-0.076	-0.488	-0.577	-0.629	-0.566	-0.413	-0.345	-0.220	
0.482	0.925	0.840	0.664	0.404	0.078	-0.239	-0.536	-0.731	-0.805	-0.747	-0.690	-0.582	-0.566	
0.731	0.704	0.638	0.467	0.208	-0.116	-0.432	-0.702	-0.893	-0.933	-0.851	-0.738	-0.600	-0.558	
0.980	0.487	0.426	0.255	0.011	-0.296	-0.603	-0.881	-1.060	-1.043	-0.982	-0.864	-0.556	-0.436	
1.238	0.307	0.246	0.077	-0.161	-0.445	-0.743	-1.012	-1.007	-1.007	-0.880	-0.405	-0.292	-0.269	
1.500	0.180	0.122	-0.041	-0.280	-0.555	-0.848	-1.035	-0.932	-0.810	-0.661	-0.247	-0.156	-0.142	
1.944	0.244	0.186	0.011	-0.232	-0.529	-0.704	-0.926	-0.643	-0.406	-0.278	-0.155	-0.042	0.043	
2.444	0.260	0.203	0.030	-0.220	-0.520	-0.777	-0.834	-0.502	-0.279	-0.260	-0.291	-0.143	0.033	
2.944	0.266	0.208	0.033	-0.223	-0.497	-0.737	-0.730	-0.419	-0.230	-0.238	-0.414	-0.344	-0.221	
3.444	0.275	0.212	0.040	-0.210	-0.484	-0.698	-0.669	-0.353	-0.265	-0.230	-0.340	-0.366	-0.124	
3.944	0.284	0.218	0.044	-0.192	-0.458	-0.667	-0.669	-0.236	-0.221	-0.208	-0.261	-0.366	-0.124	
4.444	0.287	0.221	0.044	-0.192	-0.458	-0.658	-0.555	-0.278	-0.190	-0.177	-0.199	-0.318	-0.137	
4.944	0.288	0.223	0.046	-0.188	-0.454	-0.649	-0.516	-0.265	-0.212	-0.177	-0.192	-0.265	-0.124	
5.444	0.290	0.223	0.048	-0.183	-0.450	-0.645	-0.480	-0.252	-0.195	-0.173	-0.191	-0.252	-0.129	
5.944	0.291	0.223	0.048	-0.183	-0.445	-0.636	-0.458	-0.235	-0.182	-0.168	-0.195	-0.252	-0.116	
6.444	0.289	0.223	0.049	-0.174	-0.441	-0.627	-0.436	-0.221	-0.168	-0.154	-0.199	-0.274	-0.116	
6.944	0.290	0.223	0.050	-0.170	-0.432	-0.623	-0.423	-0.226	-0.164	-0.164	-0.213	-0.313	-0.133	
7.444	0.290	0.223	0.050	-0.170	-0.432	-0.623	-0.397	-0.226	-0.169	-0.155	-0.226	-0.265	-0.146	
7.944	0.270	0.227	0.062	-0.157	-0.411	-0.582	-0.383	-0.175	-0.155	-0.155	-0.173	-0.230	-0.164	
8.444	0.236	0.225	0.051	-0.157	-0.406	-0.582	-0.375	-0.135	-0.146	-0.151	-0.168	-0.239	-0.190	
8.944	0.286	0.224	0.051	-0.148	-0.393	-0.556	-0.356	-0.186	-0.133	-0.151	-0.155	-0.221	-0.199	
9.444	0.282	0.221	0.052	-0.143	-0.384	-0.547	-0.352	-0.182	-0.129	-0.142	-0.147	-0.182	-0.208	
9.944	0.284	0.222	0.060	-0.130	-0.367	-0.521	-0.325	-0.177	-0.116	-0.129	-0.129	-0.147	-0.199	
10.444	0.286	0.223	0.068	-0.128	-0.349	-0.498	-0.312	-0.159	-0.102	-0.115	-0.116	-0.141	-0.190	
10.944	0.285	0.224	0.071	-0.121	-0.340	-0.484	-0.301	-0.132	-0.105	-0.118	-0.122	-0.153	-0.152	
11.444	0.281	0.224	0.073	-0.124	-0.335	-0.482	-0.298	-0.136	-0.116	-0.127	-0.138	-0.162	-0.194	
11.944	0.282	0.226	0.074	-0.119	-0.322	-0.475	-0.285	-0.141	-0.121	-0.125	-0.145	-0.157	-0.188	
12.444	0.280	0.224	0.074	-0.121	-0.322	-0.489	-0.278	-0.145	-0.143	-0.140	-0.161	-0.164	-0.194	
12.944	0.284	0.229	0.077	-0.121	-0.317	-0.495	-0.260	-0.145	-0.155	-0.179	-0.172	-0.166	-0.199	
13.444	0.280	0.222	0.068	-0.135	-0.329	-0.505	-0.276	-0.157	-0.168	-0.168	-0.184	-0.177	-0.213	
13.944	0.274	0.218	0.060	-0.142	-0.338	-0.526	-0.285	-0.170	-0.191	-0.197	-0.197	-0.191	-0.224	
14.444	0.275	0.219	0.060	-0.144	-0.347	-0.533	-0.305	-0.192	-0.209	-0.202	-0.198	-0.195	-0.215	
14.944	0.276	0.220	0.060	-0.146	-0.355	-0.539	-0.322	-0.193	-0.227	-0.208	-0.200	-0.200	-0.212	
15.444	0.273	0.219	0.055	-0.149	-0.362	-0.535	-0.335	-0.200	-0.206	-0.208	-0.188	-0.213	-0.203	
15.944	0.277	0.221	0.058	-0.149	-0.369	-0.519	-0.340	-0.207	-0.197	-0.204	-0.191	-0.222	-0.194	
16.444	0.270	0.216	0.054	-0.150	-0.381	-0.519	-0.365	-0.209	-0.190	-0.199	-0.168	-0.233	-0.197	
16.944	0.269	0.216	0.057	-0.158	-0.381	-0.501	-0.369	-0.204	-0.172	-0.186	-0.163	-0.233	-0.197	
17.444	0.275	0.222	0.067	-0.149	-0.376	-0.483	-0.362	-0.193	-0.161	-0.172	-0.172	-0.222	-0.199	
17.944	0.273	0.223	0.074	-0.140	-0.363	-0.458	-0.355	-0.182	-0.145	-0.161	-0.139	-0.206	-0.199	
18.444	0.271	0.221	0.073	-0.142	-0.361	-0.453	-0.351	-0.168	-0.143	-0.150	-0.123	-0.188	-0.187	
18.944	0.274	0.224	0.082	-0.131	-0.345	-0.437	-0.340	-0.159	-0.139	-0.140	-0.125	-0.170	-0.188	
19.444	0.276	0.228	0.089	-0.119	-0.327	-0.428	-0.326	-0.145	-0.136	-0.136	-0.142	-0.157	-0.179	
19.944	0.286	0.235	0.095	-0.119	-0.327	-0.441	-0.317	-0.136	-0.136	-0.129	-0.138	-0.141	-0.161	
20.444	0.276	0.247	0.108	-0.099	-0.306	-0.423	-0.294	-0.127	-0.136	-0.125	-0.127	-0.132	-0.150	
20.944	0.294	0.246	0.111	-0.094	-0.288	-0.419	-0.282	-0.118	-0.134	-0.120	-0.148	-0.123	-0.131	
21.444	0.280	0.249	0.116	-0.078	-0.277	-0.378	-0.244	-0.102	-0.116	-0.102	-0.123	-0.096	0.161	

Table 1.40 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 0.9$ and $Re_D = 5.9 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.544	0.432	0.312	0.133	0.351	0.044	-0.375	-0.448	-0.509	-0.459	-0.458	-0.290	-0.260	
0.482	0.950	0.692	0.730	0.488	0.179	-0.117	-0.406	-0.598	-0.676	-0.644	-0.585	-0.502	-0.491	
0.731	0.746	0.690	0.530	0.293	-0.017	-0.309	-0.572	-0.761	-0.848	-0.798	-0.739	-0.621	-0.583	
0.980	0.522	0.471	0.317	0.091	-0.198	-0.478	-0.744	-0.934	-1.013	-0.943	-0.893	-0.703	-0.684	
1.238	0.332	0.277	0.127	-0.091	-0.360	-0.628	-0.882	-1.068	-1.090	-1.085	-0.909	-0.766	-0.751	
1.500	0.182	0.129	-0.014	-0.230	-0.499	-0.752	-0.997	-0.997	-1.060	-1.022	-0.740	-0.416	-0.364	
1.944	0.236	0.181	0.029	-0.199	-0.491	-0.702	-0.943	-0.648	-0.703	-0.893	-0.394	0.063	0.134	
2.444	0.250	0.200	0.045	-0.220	-0.526	-0.690	-0.432	-0.367	-0.427	-0.828	-0.448	0.027	0.021	
2.944	0.253	0.188	0.050	-0.230	-0.503	-0.685	-0.525	-0.325	-0.335	-0.290	-0.459	-0.286	-0.259	
3.444	0.270	0.204	0.055	-0.205	-0.434	-0.675	-0.557	-0.260	-0.274	-0.244	-0.309	-0.286	-0.225	
3.944	0.281	0.217	0.057	-0.172	-0.441	-0.609	-0.557	-0.210	-0.255	-0.217	-0.209	-0.286	-0.225	
4.444	0.287	0.220	0.056	-0.164	-0.426	-0.629	-0.414	-0.179	-0.209	-0.202	-0.205	-0.198	-0.221	
4.944	0.289	0.224	0.064	-0.157	-0.422	-0.602	-0.403	-0.183	-0.197	-0.183	-0.194	-0.186	-0.210	
5.444	0.294	0.227	0.064	-0.153	-0.414	-0.602	-0.361	-0.167	-0.167	-0.171	-0.179	-0.159	-0.156	
5.944	0.294	0.228	0.068	-0.149	-0.407	-0.579	-0.337	-0.171	-0.159	-0.164	-0.171	-0.148	-0.171	
6.444	0.293	0.230	0.071	-0.138	-0.403	-0.583	-0.330	-0.159	-0.151	-0.156	-0.167	-0.140	-0.167	
6.944	0.295	0.233	0.074	-0.134	-0.391	-0.552	-0.322	-0.163	-0.146	-0.152	-0.167	-0.140	-0.164	
7.444	0.295	0.233	0.074	-0.134	-0.391	-0.552	-0.314	-0.163	-0.144	-0.144	-0.175	-0.152	-0.160	
7.944	0.294	0.235	0.086	-0.122	-0.364	-0.534	-0.318	-0.163	-0.132	-0.140	-0.144	-0.136	-0.160	
8.444	0.288	0.234	0.074	-0.134	-0.368	-0.537	-0.321	-0.163	-0.136	-0.140	-0.140	-0.144	-0.167	
8.944	0.287	0.237	0.078	-0.130	-0.360	-0.529	-0.321	-0.209	-0.133	-0.144	-0.144	-0.159	-0.167	
9.444	0.285	0.228	0.075	-0.137	-0.360	-0.529	-0.329	-0.228	-0.140	-0.151	-0.152	-0.163	-0.175	
9.944	0.284	0.230	0.081	-0.130	-0.352	-0.525	-0.326	-0.232	-0.140	-0.144	-0.144	-0.148	-0.163	
10.444	0.287	0.233	0.081	-0.140	-0.338	-0.514	-0.330	-0.217	-0.139	-0.141	-0.145	-0.141	-0.162	
10.944	0.287	0.235	0.082	-0.133	-0.340	-0.518	-0.320	-0.197	-0.151	-0.145	-0.141	-0.151	-0.166	
11.444	0.283	0.230	0.077	-0.136	-0.342	-0.532	-0.316	-0.197	-0.165	-0.157	-0.159	-0.165	-0.172	
11.944	0.284	0.232	0.079	-0.132	-0.332	-0.526	-0.300	-0.184	-0.167	-0.155	-0.161	-0.169	-0.168	
12.444	0.284	0.231	0.077	-0.131	-0.340	-0.539	-0.292	-0.179	-0.177	-0.175	-0.171	-0.173	-0.168	
12.944	0.288	0.234	0.079	-0.129	-0.334	-0.520	-0.276	-0.171	-0.173	-0.195	-0.179	-0.173	-0.166	
13.444	0.284	0.229	0.073	-0.131	-0.336	-0.516	-0.266	-0.167	-0.175	-0.195	-0.177	-0.177	-0.169	
13.944	0.278	0.223	0.068	-0.133	-0.344	-0.502	-0.266	-0.167	-0.176	-0.193	-0.189	-0.181	-0.170	
14.444	0.279	0.224	0.071	-0.128	-0.345	-0.486	-0.003	-0.172	-0.182	-0.190	-0.181	-0.175	-0.165	
14.944	0.281	0.225	0.074	-0.123	-0.345	-0.470	-0.261	-0.178	-0.187	-0.187	-0.179	-0.177	-0.163	
15.444	0.279	0.226	0.074	-0.121	-0.347	-0.466	-0.261	-0.156	-0.179	-0.181	-0.167	-0.177	-0.163	
15.944	0.284	0.229	0.079	-0.117	-0.344	-0.458	-0.269	-0.197	-0.171	-0.175	-0.169	-0.171	-0.164	
16.444	0.275	0.222	0.074	-0.125	-0.351	-0.453	-0.283	-0.207	-0.165	-0.169	-0.153	-0.171	-0.165	
16.944	0.276	0.222	0.076	-0.125	-0.345	-0.453	-0.289	-0.215	-0.159	-0.161	-0.147	-0.163	-0.163	
17.444	0.282	0.230	0.084	-0.121	-0.336	-0.433	-0.292	-0.215	-0.151	-0.152	-0.157	-0.155	-0.159	
17.944	0.281	0.231	0.089	-0.115	-0.321	-0.431	-0.301	-0.210	-0.145	-0.143	-0.143	-0.149	-0.157	
18.444	0.280	0.229	0.086	-0.123	-0.323	-0.429	-0.301	-0.201	-0.143	-0.139	-0.124	-0.145	-0.152	
18.944	0.283	0.234	0.092	-0.109	-0.309	-0.428	-0.293	-0.185	-0.139	-0.134	-0.126	-0.136	-0.144	
19.444	0.287	0.239	0.098	-0.105	-0.293	-0.430	-0.231	-0.161	-0.135	-0.130	-0.143	-0.130	-0.140	
19.944	0.297	0.244	0.103	-0.105	-0.302	-0.435	-0.273	-0.142	-0.128	-0.121	-0.143	-0.118	-0.126	
20.444	0.313	0.254	0.121	-0.081	-0.281	-0.423	-0.254	-0.116	-0.116	-0.111	-0.122	-0.108	-0.110	
20.944	0.309	0.262	0.122	-0.073	-0.259	-0.393	-0.221	-0.058	-0.098	-0.098	-0.124	-0.092	-0.088	
21.444	0.300	0.256	0.128	-0.049	-0.241	-0.328	-0.186	-0.064	-0.062	-0.068	-0.074	-0.054	-0.189	

Table 1.41 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 0.95$ and $Re_D = 6.0 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.551	0.427	0.321	0.146	0.400	0.110	-0.332	-0.365	-0.438	-0.386	-0.404	-0.201	-0.143	
0.482	0.979	0.926	0.769	0.535	0.232	-0.049	-0.329	-0.514	-0.601	-0.564	-0.510	-0.433	-0.420	
0.731	0.779	0.727	0.573	0.344	0.039	-0.238	-0.485	-0.667	-0.761	-0.716	-0.662	-0.557	-0.518	
0.980	0.558	0.509	0.360	0.142	-0.140	-0.402	-0.656	-0.831	-0.925	-0.861	-0.807	-0.641	-0.616	
1.238	0.363	0.313	0.167	-0.038	-0.304	-0.551	-0.791	-0.965	-1.052	-1.003	-0.962	-0.710	-0.693	
1.500	0.204	0.156	0.017	-0.185	-0.443	-0.679	-0.903	-1.066	-1.137	-1.097	-0.877	-0.649	-0.602	
1.944	0.250	0.201	0.052	-0.163	-0.443	-0.668	-0.939	-1.110	-1.042	-0.926	-0.835	-0.274	-0.092	
2.444	0.280	0.195	0.035	-0.180	-0.486	-0.759	-0.936	-0.627	-0.660	-1.045	-0.732	-0.096	0.066	
2.944	0.295	0.163	0.009	-0.233	-0.516	-0.785	-0.932	-0.449	-0.536	-0.599	-0.405	-0.198	-0.143	
3.444	0.300	0.157	0.045	-0.240	-0.519	-0.716	-0.929	-0.289	-0.307	-0.269	-0.456	-0.307	-0.176	
3.944	0.300	0.180	0.020	-0.222	-0.264	-0.362	-0.325	-0.234	-0.234	-0.244	-0.248	-0.307	-0.176	
4.444	0.301	0.244	0.095	-0.170	-0.406	-0.625	-0.343	-0.205	-0.213	-0.186	-0.183	-0.212	-0.238	
4.944	0.297	0.236	0.079	-0.141	-0.417	-0.635	-0.321	-0.194	-0.187	-0.172	-0.158	-0.154	-0.176	
5.444	0.301	0.239	0.071	-0.134	-0.366	-0.519	-0.347	-0.169	-0.158	-0.190	-0.165	-0.143	-0.147	
5.944	0.299	0.239	0.080	-0.130	-0.395	-0.614	-0.292	-0.154	-0.147	-0.157	-0.161	-0.147	-0.158	
6.444	0.297	0.237	0.077	-0.141	-0.377	-0.581	-0.311	-0.153	-0.141	-0.153	-0.154	-0.147	-0.155	
6.944	0.301	0.245	0.077	-0.123	-0.373	-0.534	-0.281	-0.143	-0.143	-0.150	-0.154	-0.147	-0.165	
7.444	0.301	0.245	0.077	-0.123	-0.373	-0.534	-0.285	-0.143	-0.147	-0.143	-0.158	-0.135	-0.154	
7.944	0.300	0.246	0.091	-0.119	-0.351	-0.519	-0.263	-0.147	-0.136	-0.146	-0.143	-0.125	-0.147	
8.444	0.293	0.243	0.081	-0.115	-0.366	-0.545	-0.270	-0.147	-0.140	-0.139	-0.136	-0.140	-0.154	
8.944	0.291	0.239	0.087	-0.126	-0.351	-0.530	-0.260	-0.161	-0.136	-0.150	-0.135	-0.154	-0.154	
9.444	0.287	0.235	0.080	-0.130	-0.362	-0.527	-0.267	-0.176	-0.143	-0.157	-0.150	-0.165	-0.165	
9.944	0.288	0.235	0.089	-0.123	-0.362	-0.541	-0.256	-0.163	-0.140	-0.146	-0.150	-0.154	-0.159	
10.444	0.289	0.236	0.091	-0.129	-0.351	-0.510	-0.257	-0.177	-0.135	-0.144	-0.139	-0.148	-0.152	
10.944	0.288	0.236	0.088	-0.123	-0.353	-0.533	-0.251	-0.171	-0.141	-0.146	-0.141	-0.154	-0.156	
11.444	0.284	0.235	0.088	-0.133	-0.353	-0.509	-0.261	-0.173	-0.152	-0.154	-0.156	-0.165	-0.162	
11.944	0.286	0.235	0.086	-0.125	-0.352	-0.529	-0.250	-0.165	-0.147	-0.146	-0.154	-0.165	-0.158	
12.444	0.286	0.233	0.085	-0.127	-0.344	-0.529	-0.257	-0.163	-0.159	-0.161	-0.156	-0.169	-0.158	
12.944	0.290	0.239	0.088	-0.118	-0.339	-0.511	-0.250	-0.156	-0.150	-0.174	-0.156	-0.165	-0.152	
13.444	0.287	0.232	0.091	-0.121	-0.337	-0.511	-0.257	-0.158	-0.150	-0.174	-0.150	-0.169	-0.154	
13.944	0.280	0.228	0.074	-0.125	-0.331	-0.494	-0.259	-0.158	-0.167	-0.172	-0.152	-0.173	-0.156	
14.444	0.282	0.230	0.076	-0.121	-0.335	-0.486	-0.260	-0.158	-0.177	-0.170	-0.150	-0.170	-0.150	
14.944	0.284	0.231	0.078	-0.116	-0.339	-0.477	-0.266	-0.158	-0.186	-0.168	-0.148	-0.167	-0.152	
15.444	0.280	0.230	0.076	-0.112	-0.329	-0.468	-0.265	-0.160	-0.182	-0.166	-0.137	-0.165	-0.150	
15.944	0.285	0.233	0.080	-0.112	-0.327	-0.453	-0.268	-0.159	-0.177	-0.165	-0.139	-0.162	-0.148	
16.444	0.278	0.227	0.074	-0.122	-0.337	-0.447	-0.268	-0.161	-0.171	-0.163	-0.141	-0.162	-0.148	
16.944	0.278	0.227	0.075	-0.122	-0.331	-0.430	-0.261	-0.163	-0.162	-0.159	-0.139	-0.156	-0.145	
17.444	0.283	0.233	0.085	-0.118	-0.333	-0.432	-0.257	-0.160	-0.152	-0.151	-0.143	-0.150	-0.141	
17.944	0.281	0.234	0.088	-0.110	-0.327	-0.419	-0.244	-0.159	-0.143	-0.144	-0.139	-0.145	-0.135	
18.444	0.281	0.231	0.086	-0.118	-0.323	-0.408	-0.238	-0.152	-0.134	-0.137	-0.115	-0.137	-0.132	
18.944	0.286	0.237	0.095	-0.106	-0.316	-0.410	-0.222	-0.141	-0.120	-0.126	-0.103	-0.129	-0.122	
19.444	0.288	0.241	0.102	-0.099	-0.308	-0.410	-0.205	-0.130	-0.109	-0.116	-0.105	-0.117	-0.113	
19.944	0.302	0.251	0.108	-0.101	-0.318	-0.415	-0.197	-0.113	-0.094	-0.099	-0.103	-0.102	-0.094	
20.444	0.316	0.267	0.127	-0.074	-0.292	-0.404	-0.173	-0.094	-0.075	-0.083	-0.081	-0.085	-0.077	
20.944	0.315	0.269	0.133	-0.061	-0.256	-0.376	-0.148	-0.066	-0.057	-0.060	-0.068	-0.064	-0.049	
21.444	0.308	0.264	0.139	-0.033	-0.211	-0.307	-0.113	-0.025	-0.021	-0.025	-0.030	-0.021	0.203	

Table 1.42 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 1.0$ and $Re_D = 6.1 \cdot 10^5$

Coordinates	Polar angle, Φ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.584	0.460	0.368	0.202	0.091	0.172	-0.392	-0.294	-0.369	-0.318	-0.442	-0.256	-0.212	
0.482	1.014	0.962	0.809	0.585	0.289	0.020	-0.259	-0.437	-0.526	-0.491	-0.432	-0.360	-0.345	
0.731	0.819	0.766	0.617	0.399	0.100	-0.165	-0.406	-0.587	-0.682	-0.637	-0.588	-0.486	-0.446	
0.980	0.602	0.553	0.410	0.203	-0.074	-0.325	-0.570	-0.741	-0.838	-0.778	-0.723	-0.570	-0.544	
1.238	0.409	0.360	0.221	0.027	-0.235	-0.472	-0.702	-0.866	-0.963	-0.914	-0.799	-0.634	-0.620	
1.500	0.248	0.201	0.068	-0.120	-0.375	-0.597	-0.810	-0.968	-1.046	-1.005	-0.786	-0.594	-0.550	
1.944	0.290	0.242	0.104	-0.099	-0.378	-0.600	-0.845	-1.013	-1.011	-0.907	-0.636	-0.346	-0.178	
2.444	0.260	0.225	0.080	-0.135	-0.423	-0.674	-0.901	-0.706	-0.751	-0.917	-0.505	-0.327	-0.140	
2.944	0.242	0.191	0.047	-0.180	-0.458	-0.708	-0.395	-0.675	-0.577	-0.693	-0.448	-0.259	-0.213	
3.444	0.235	0.170	0.025	-0.200	-0.483	-0.733	-0.727	-0.691	-0.518	-0.539	-0.667	-0.479	-0.342	
3.944	0.225	0.164	0.013	-0.212	-0.504	-0.758	-0.727	-0.472	-0.414	-0.372	-0.362	-0.475	-0.342	
4.444	0.214	0.153	-0.005	-0.236	-0.521	-0.681	-0.339	-0.340	-0.310	-0.310	-0.302	-0.331	-0.279	
4.944	0.208	0.145	-0.008	-0.243	-0.524	-0.517	-0.207	-0.196	-0.220	-0.237	-0.264	-0.262	-0.220	
5.444	0.213	0.161	-0.022	-0.254	-0.231	-0.435	-0.113	-0.088	-0.140	-0.178	-0.184	-0.214	-0.178	
5.944	0.306	0.204	0.013	-0.250	-0.298	-0.388	-0.172	-0.099	-0.119	-0.143	-0.132	-0.147	-0.109	
6.444	0.331	0.280	0.132	-0.057	-0.308	-0.406	-0.259	-0.161	-0.143	-0.112	-0.094	-0.108	-0.074	
6.944	0.326	0.282	0.139	-0.036	-0.332	-0.477	-0.308	-0.137	-0.150	-0.122	-0.094	-0.081	-0.067	
7.444	0.326	0.282	0.139	-0.036	-0.332	-0.479	-0.266	-0.137	-0.129	-0.143	-0.126	-0.095	-0.074	
7.944	0.313	0.268	0.127	-0.064	-0.325	-0.454	-0.210	-0.116	-0.116	-0.133	-0.128	-0.110	-0.098	
8.444	0.305	0.261	0.106	-0.085	-0.346	-0.479	-0.238	-0.116	-0.133	-0.122	-0.132	-0.137	-0.126	
8.944	0.307	0.259	0.106	-0.096	-0.298	-0.548	-0.228	-0.137	-0.126	-0.129	-0.118	-0.123	-0.123	
9.444	0.306	0.254	0.107	-0.092	-0.322	-0.500	-0.186	-0.130	-0.123	-0.147	-0.132	-0.147	-0.133	
9.944	0.293	0.242	0.101	-0.078	-0.346	-0.441	-0.196	-0.134	-0.116	-0.140	-0.146	-0.137	-0.133	
10.444	0.295	0.241	0.099	-0.110	0.335	-0.479	-0.203	-0.146	-0.125	-0.134	-0.131	-0.133	-0.134	
10.944	0.297	0.246	0.099	-0.112	-0.331	-0.495	-0.196	-0.133	-0.131	-0.145	-0.129	-0.144	-0.142	
11.444	0.288	0.237	0.097	-0.107	-0.340	-0.483	-0.198	-0.137	-0.136	-0.156	-0.154	-0.160	-0.154	
11.944	0.286	0.234	0.097	-0.101	-0.320	-0.472	-0.196	-0.133	-0.136	-0.142	-0.157	-0.156	-0.152	
12.444	0.283	0.231	0.091	-0.110	-0.327	-0.487	-0.214	-0.158	-0.147	-0.149	-0.152	-0.158	-0.154	
12.944	0.288	0.241	0.096	-0.110	-0.327	-0.487	-0.219	-0.148	-0.134	-0.163	-0.145	-0.156	-0.147	
13.444	0.286	0.239	0.090	-0.118	-0.335	-0.447	-0.207	-0.144	-0.138	-0.165	-0.147	-0.167	-0.151	
13.944	0.283	0.239	0.085	-0.116	-0.322	-0.429	-0.228	-0.151	-0.150	-0.157	-0.152	-0.165	-0.152	
14.444	0.287	0.236	0.087	-0.112	-0.320	-0.435	-0.230	-0.153	-0.163	-0.158	-0.151	-0.165	-0.152	
14.944	0.291	0.239	0.090	-0.109	-0.318	-0.440	-0.250	-0.155	-0.168	-0.159	-0.150	-0.165	-0.152	
15.444	0.283	0.235	0.089	-0.103	-0.315	-0.448	-0.266	-0.160	-0.170	-0.161	-0.147	-0.167	-0.152	
15.944	0.284	0.233	0.092	-0.094	-0.326	-0.447	-0.282	-0.164	-0.172	-0.157	-0.152	-0.164	-0.152	
16.444	0.276	0.224	0.083	-0.107	-0.333	-0.444	-0.295	-0.164	-0.170	-0.161	-0.148	-0.165	-0.156	
16.944	0.278	0.226	0.081	-0.110	-0.327	-0.448	-0.300	-0.162	-0.168	-0.163	-0.145	-0.161	-0.154	
17.444	0.282	0.233	0.090	-0.110	-0.322	-0.444	-0.293	-0.158	-0.161	-0.157	-0.150	-0.156	-0.147	
17.944	0.275	0.232	0.092	-0.107	-0.318	-0.431	-0.279	-0.151	-0.154	-0.154	-0.146	-0.153	-0.142	
18.444	0.271	0.223	0.088	-0.114	-0.324	-0.421	-0.257	-0.139	-0.145	-0.147	-0.119	-0.144	-0.135	
18.944	0.278	0.226	0.091	-0.114	-0.313	-0.405	-0.221	-0.124	-0.127	-0.131	-0.103	-0.129	-0.122	
19.444	0.285	0.233	0.091	-0.101	-0.291	-0.390	-0.196	-0.108	-0.113	-0.120	-0.103	-0.119	-0.111	
19.944	0.300	0.248	0.103	-0.107	-0.307	-0.383	-0.207	-0.095	-0.095	-0.104	-0.101	-0.099	-0.090	
20.444	0.320	0.268	0.133	-0.080	-0.268	-0.372	-0.164	-0.074	-0.063	-0.072	-0.069	-0.074	-0.065	
20.944	0.319	0.276	0.147	-0.035	-0.243	-0.291	-0.124	-0.038	-0.041	-0.046	-0.051	-0.048	-0.032	
21.444	0.311	0.264	0.145	-0.028	-0.216	-0.284	-0.081	0.005	0.007	-0.002	-0.009	0.002	0.222	

Table 1.43 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 1.1$ and $Re_D = 6.2 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.274	0.544	0.470	0.304	0.002	0.290	-0.121	-0.147	-0.218	-0.173	-0.124	-0.160	-0.102	
0.482	1.074	1.027	0.882	0.670	0.411	0.139	-0.111	-0.287	-0.367	-0.335	-0.283	-0.215	-0.202	
0.731	0.884	0.836	0.696	0.490	0.241	-0.033	-0.251	-0.423	-0.510	-0.474	-0.426	-0.331	-0.299	
0.980	0.674	0.629	0.495	0.300	0.065	-0.186	-0.407	-0.569	-0.656	-0.604	-0.553	-0.413	-0.350	
1.239	0.426	0.443	0.313	0.128	-0.093	-0.323	-0.531	-0.686	-0.770	-0.724	-0.650	-0.464	-0.468	
1.500	0.326	0.293	0.160	-0.014	-0.223	-0.443	-0.631	-0.774	-0.851	-0.805	-0.605	-0.448	-0.416	
1.744	0.370	0.326	0.201	0.012	-0.217	-0.456	-0.660	-0.816	-0.828	-0.702	-0.520	-0.250	-0.089	
2.444	0.355	0.300	0.190	-0.015	-0.250	-0.511	-0.712	-0.876	-0.911	-0.737	-0.490	-0.241	-0.072	
2.944	0.323	0.276	0.147	-0.060	-0.286	-0.544	-0.645	-0.750	-0.808	-0.608	-0.441	-0.160	-0.101	
3.444	0.315	0.260	0.128	-0.080	-0.310	-0.566	-0.612	-0.645	-0.676	-0.520	-0.352	-0.109	-0.080	
3.944	0.304	0.250	0.109	-0.093	-0.338	-0.589	-0.612	-0.640	-0.606	-0.406	-0.370	-0.352	-0.409	
4.444	0.294	0.236	0.095	-0.112	-0.354	-0.609	-0.600	-0.407	-0.371	-0.332	-0.322	-0.364	-0.348	
4.944	0.287	0.229	0.092	-0.122	-0.367	-0.622	-0.639	-0.345	-0.364	-0.341	-0.322	-0.338	-0.325	
5.444	0.273	0.224	0.076	-0.132	-0.377	-0.615	-0.293	-0.293	-0.325	-0.338	-0.313	-0.315	-0.290	
5.944	0.274	0.215	0.070	-0.138	-0.384	-0.586	-0.251	-0.264	-0.283	-0.299	-0.300	-0.296	-0.270	
6.444	0.270	0.214	0.066	-0.142	-0.387	-0.576	-0.231	-0.219	-0.244	-0.254	-0.264	-0.254	-0.235	
6.944	0.268	0.211	0.062	-0.145	-0.335	-0.565	-0.264	-0.186	-0.202	-0.208	-0.212	-0.215	-0.183	
7.444	0.268	0.211	0.062	-0.145	-0.335	-0.564	-0.274	-0.166	-0.163	-0.170	-0.186	-0.189	-0.160	
7.944	0.303	0.234	0.100	-0.096	-0.331	-0.563	-0.254	-0.202	-0.182	-0.176	-0.166	-0.169	-0.160	
8.444	0.297	0.241	0.093	-0.106	-0.351	-0.586	-0.238	-0.202	-0.231	-0.199	-0.179	-0.179	-0.183	
8.944	0.280	0.238	0.105	-0.099	-0.348	-0.589	-0.218	-0.215	-0.208	-0.215	-0.202	-0.155	-0.199	
9.444	0.271	0.220	0.088	-0.116	-0.344	-0.569	-0.215	-0.199	-0.173	-0.199	-0.202	-0.215	-0.186	
9.944	0.289	0.227	0.085	-0.102	-0.282	-0.553	-0.209	-0.160	-0.153	-0.173	-0.176	-0.179	-0.147	
10.444	0.285	0.238	0.103	-0.084	-0.298	-0.548	-0.089	-0.169	-0.142	-0.154	-0.157	-0.167	-0.142	
10.944	0.285	0.240	0.112	-0.088	-0.317	-0.529	-0.184	-0.151	-0.147	-0.165	-0.156	-0.177	-0.151	
11.444	0.269	0.227	0.094	-0.108	-0.335	-0.529	-0.188	-0.161	-0.157	-0.170	-0.179	-0.190	-0.171	
11.944	0.259	0.213	0.083	-0.123	-0.352	-0.519	-0.184	-0.146	-0.147	-0.154	-0.177	-0.179	-0.169	
12.444	0.244	0.194	0.060	-0.145	-0.362	-0.469	-0.166	-0.136	-0.135	-0.150	-0.169	-0.169	-0.162	
12.944	0.252	0.196	0.058	-0.145	-0.359	-0.380	-0.141	-0.126	-0.127	-0.154	-0.157	-0.164	-0.154	
13.444	0.261	0.204	0.062	-0.138	-0.337	-0.315	-0.162	-0.139	-0.134	-0.152	-0.156	-0.167	-0.161	
13.944	0.259	0.209	0.072	-0.121	-0.295	-0.420	-0.189	-0.149	-0.122	-0.100	-0.134	-0.132	-0.132	
14.444	0.294	0.236	0.089	-0.095	-0.280	-0.389	-0.195	-0.126	-0.115	-0.102	-0.120	-0.110	-0.102	
14.944	0.328	0.267	0.106	-0.069	-0.265	-0.350	-0.134	-0.102	-0.107	-0.104	-0.105	-0.107	-0.099	
15.444	0.324	0.284	0.142	-0.047	-0.255	-0.358	-0.157	-0.109	-0.105	-0.109	-0.114	-0.122	-0.110	
15.944	0.327	0.280	0.142	-0.054	-0.255	-0.370	-0.177	-0.121	-0.125	-0.124	-0.126	-0.135	-0.127	
16.444	0.326	0.277	0.130	-0.063	-0.244	-0.384	-0.236	-0.149	-0.147	-0.147	-0.141	-0.147	-0.142	
16.944	0.311	0.276	0.137	-0.046	-0.260	-0.412	-0.291	-0.179	-0.165	-0.154	-0.142	-0.149	-0.144	
17.444	0.304	0.269	0.132	-0.054	-0.261	-0.479	-0.288	-0.177	-0.172	-0.166	-0.141	-0.144	-0.137	
17.944	0.317	0.271	0.134	-0.056	-0.268	-0.507	-0.248	-0.177	-0.184	-0.179	-0.159	-0.154	-0.146	
18.444	0.306	0.262	0.125	-0.066	-0.290	-0.516	-0.246	-0.174	-0.185	-0.189	-0.157	-0.169	-0.159	
18.944	0.303	0.263	0.131	-0.069	-0.303	-0.496	-0.237	-0.166	-0.179	-0.189	-0.156	-0.176	-0.169	
19.444	0.285	0.257	0.126	-0.069	-0.302	-0.492	-0.229	-0.168	-0.177	-0.192	-0.172	-0.189	-0.182	
19.944	0.274	0.241	0.109	-0.093	-0.312	-0.497	-0.239	-0.174	-0.177	-0.189	-0.196	-0.190	-0.189	
20.444	0.252	0.235	0.097	-0.096	-0.310	-0.494	-0.243	-0.174	-0.169	-0.174	-0.191	-0.174	-0.174	
20.944	0.238	0.194	0.067	-0.125	-0.339	-0.475	-0.191	-0.142	-0.140	-0.139	-0.152	-0.130	-0.122	
21.444	0.229	0.178	0.043	-0.153	-0.366	-0.447	-0.127	-0.084	-0.067	-0.058	-0.074	-0.035	0.195	

Table 1.44 Experimental pressure coefficients c_p for $\alpha = 30^\circ$, $M_\infty = 1.2$ and $Re_D = 6.3 \cdot 10^5$

Coordinates	Polar angle, ϕ , deg.													
X/D	0	15	30	45	60	75	90	105	120	135	150	165	180	
0.251	0.065	0.600	0.528	0.358	0.066	0.365	-0.194	-0.067	-0.147	-0.110	-0.058	-0.135	-0.079	
0.482	1.117	1.072	0.930	0.726	0.473	0.211	-0.039	-0.207	-0.295	-0.268	-0.212	-0.147	-0.132	
0.731	0.926	0.880	0.743	0.546	0.305	0.043	-0.170	-0.334	-0.431	-0.401	-0.354	-0.268	-0.241	
0.980	0.715	0.672	0.542	0.358	0.131	-0.104	-0.312	-0.467	-0.564	-0.524	-0.472	-0.348	-0.327	
1.238	0.525	0.485	0.358	0.185	-0.024	-0.241	-0.434	-0.576	-0.669	-0.639	-0.561	-0.423	-0.408	
1.500	0.352	0.312	0.197	0.034	-0.155	-0.352	-0.524	-0.650	-0.743	-0.710	-0.617	-0.407	-0.380	
1.944	0.401	0.356	0.237	0.063	-0.149	-0.368	-0.548	-0.667	-0.718	-0.663	-0.614	-0.268	-0.129	
2.444	0.375	0.335	0.220	0.045	-0.155	-0.414	-0.595	-0.616	-0.555	-0.642	-0.778	-0.268	-0.095	
2.944	0.347	0.309	0.188	0.004	-0.211	-0.445	-0.555	-0.411	-0.437	-0.698	-0.611	-0.135	-0.079	
3.444	0.335	0.290	0.165	-0.025	-0.240	-0.461	-0.545	-0.393	-0.397	-0.644	-0.487	-0.407	-0.264	
3.944	0.333	0.284	0.145	-0.036	-0.258	-0.483	-0.545	-0.475	-0.382	-0.634	-0.317	-0.407	-0.264	
4.444	0.336	0.286	0.144	-0.043	-0.267	-0.495	-0.584	-0.374	-0.357	-0.614	-0.293	-0.305	-0.312	
4.944	0.317	0.280	0.146	-0.049	-0.273	-0.510	-0.616	-0.318	-0.329	-0.611	-0.293	-0.277	-0.253	
5.444	0.318	0.261	0.118	-0.071	-0.292	-0.511	-0.681	-0.265	-0.289	-0.602	-0.299	-0.284	-0.247	
5.944	0.316	0.262	0.116	-0.068	-0.292	-0.517	-0.660	-0.262	-0.261	-0.602	-0.296	-0.290	-0.269	
6.444	0.302	0.259	0.116	-0.071	-0.298	-0.514	-0.635	-0.219	-0.243	-0.602	-0.299	-0.254	-0.231	
6.944	0.300	0.254	0.109	-0.074	-0.299	-0.510	-0.613	-0.213	-0.212	-0.612	-0.240	-0.237	-0.213	
7.444	0.300	0.254	0.109	-0.074	-0.299	-0.510	-0.613	-0.213	-0.212	-0.612	-0.240	-0.237	-0.213	
7.944	0.291	0.254	0.106	-0.083	-0.314	-0.476	-0.613	-0.213	-0.212	-0.612	-0.240	-0.237	-0.213	
8.444	0.287	0.247	0.106	-0.083	-0.280	-0.467	-0.623	-0.213	-0.212	-0.612	-0.240	-0.237	-0.213	
8.944	0.303	0.254	0.099	-0.092	-0.283	-0.473	-0.623	-0.213	-0.212	-0.612	-0.240	-0.237	-0.213	
9.444	0.302	0.257	0.119	-0.052	-0.270	-0.483	-0.623	-0.219	-0.169	-0.619	-0.175	-0.185	-0.169	
9.944	0.303	0.267	0.130	-0.049	-0.267	-0.498	-0.623	-0.219	-0.166	-0.618	-0.181	-0.163	-0.157	
10.444	0.310	0.270	0.131	-0.051	-0.276	-0.492	-0.623	-0.223	-0.166	-0.618	-0.184	-0.163	-0.169	
10.944	0.312	0.261	0.125	-0.057	-0.276	-0.482	-0.617	-0.173	-0.198	-0.624	-0.214	-0.199	-0.166	
11.444	0.286	0.243	0.107	-0.080	-0.298	-0.450	-0.650	-0.172	-0.185	-0.621	-0.243	-0.224	-0.194	
11.944	0.305	0.260	0.121	-0.070	-0.293	-0.417	-0.642	-0.124	-0.132	-0.614	-0.202	-0.189	-0.153	
12.444	0.304	0.255	0.115	-0.074	-0.281	-0.375	-0.634	-0.118	-0.119	-0.618	-0.162	-0.173	-0.127	
12.944	0.319	0.269	0.132	-0.056	-0.255	-0.382	-0.653	-0.124	-0.111	-0.648	-0.151	-0.159	-0.146	
13.444	0.297	0.266	0.128	-0.056	-0.265	-0.377	-0.639	-0.124	-0.120	-0.640	-0.140	-0.146	-0.143	
13.944	0.309	0.258	0.129	-0.049	-0.265	-0.394	-0.660	-0.150	-0.144	-0.649	-0.146	-0.159	-0.138	
14.444	0.318	0.272	0.140	-0.038	-0.256	-0.430	-0.670	-0.178	-0.172	-0.669	-0.158	-0.160	-0.170	
14.944	0.326	0.287	0.152	-0.027	-0.247	-0.466	-0.682	-0.206	-0.200	-0.689	-0.170	-0.167	-0.169	
15.444	0.318	0.285	0.144	-0.046	-0.257	-0.485	-0.666	-0.234	-0.235	-0.694	-0.162	-0.169	-0.150	
15.944	0.281	0.251	0.116	-0.064	-0.261	-0.439	-0.647	-0.226	-0.248	-0.690	-0.202	-0.204	-0.183	
16.444	0.292	0.230	0.101	-0.072	-0.271	-0.351	-0.698	-0.191	-0.208	-0.716	-0.226	-0.208	-0.186	
16.944	0.295	0.241	0.108	-0.077	-0.286	-0.318	-0.664	-0.129	-0.157	-0.665	-0.192	-0.197	-0.174	
17.444	0.279	0.245	0.109	-0.075	-0.287	-0.295	-0.651	-0.140	-0.173	-0.662	-0.197	-0.204	-0.201	
17.944	0.292	0.261	0.128	-0.056	-0.268	-0.357	-0.612	-0.159	-0.173	-0.664	-0.189	-0.186	-0.194	
18.444	0.273	0.219	0.085	-0.096	-0.305	-0.437	-0.639	-0.174	-0.176	-0.662	-0.165	-0.173	-0.174	
18.944	0.283	0.243	0.109	-0.069	-0.263	-0.458	-0.670	-0.193	-0.213	-0.686	-0.146	-0.165	-0.159	
19.444	0.308	0.283	0.155	-0.019	-0.230	-0.476	-0.675	-0.204	-0.213	-0.696	-0.159	-0.180	-0.166	
19.944	0.282	0.238	0.104	-0.075	-0.281	-0.474	-0.638	-0.214	-0.209	-0.704	-0.196	-0.205	-0.174	
20.444	0.265	0.237	0.091	-0.083	-0.291	-0.453	-0.606	-0.190	-0.194	-0.713	-0.213	-0.243	-0.151	
20.944	0.274	0.243	0.120	-0.059	-0.278	-0.444	-0.619	-0.150	-0.143	-0.713	-0.210	-0.175	-0.158	
21.444	0.295	0.251	0.117	-0.074	-0.287	-0.413	-0.656	-0.135	-0.120	-0.712	-0.132	-0.167	-0.092	

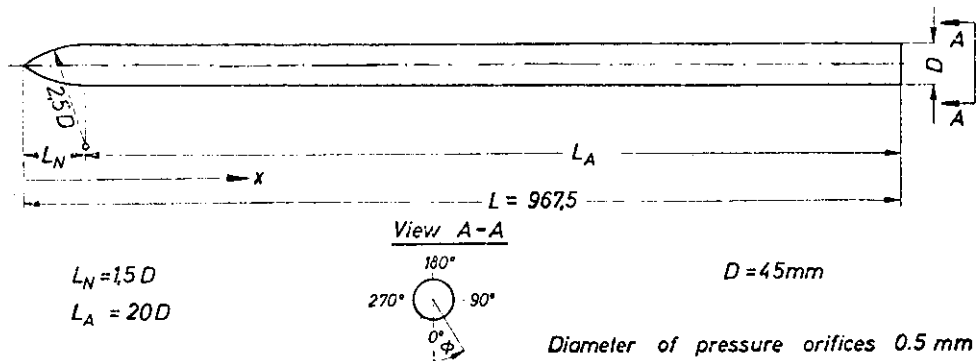
Table 1.45 Normal-force-, pitching-moment-, axial-force- and base pressure coefficients. Continued.

M_∞	$Re_D \cdot 10^{-5}$	$\alpha [^\circ]$	C_N	C_m	C_A	C_{PB}
0.5	4.1	-4.09	0.206188	-1.169099	-0.376733	-0.109928
		-2.04	0.081813	-0.532010	-0.353991	-0.092644
		-1.01	0.027462	-0.204207	-0.349738	-0.087633
		-0.50	0.003432	-0.050764	-0.346631	-0.089789
		0.01	-0.020423	0.102677	-0.349372	-0.089633
		0.52	-0.046643	0.236303	-0.350519	-0.091930
		1.03	-0.070241	0.399688	-0.352741	-0.089789
		2.06	-0.122431	0.717606	-0.354329	-0.092087
		4.11	-0.258115	1.405656	-0.384979	-0.109928
		6.17	-0.425294	2.015942	-0.407352	-0.125318
		8.24	-0.616665	2.741194	-0.426986	-0.141174
		12.41	-1.131036	4.038480	-0.425871	-0.176576
		16.56	-1.429215	6.126560	-0.361032	-0.213362
		0.01	-0.017570	0.092468	-0.347957	-0.087777
0.7	5.2	-4.16	0.223801	-1.204304	-0.372477	-0.110844
		-2.07	0.097425	-0.544705	-0.346925	-0.091552
		-1.03	0.042029	-0.208631	-0.343157	-0.089967
		-0.51	0.017187	-0.061814	-0.343207	-0.090033
		-0.01	0.017123	-0.061766	-0.331495	-0.089024
		0.53	-0.034055	0.250114	-0.343485	-0.088859
		1.05	-0.060155	0.391075	-0.345551	-0.090677
		2.09	-0.117390	0.715252	-0.352219	-0.093370
		4.19	-0.250630	1.345700	-0.380462	-0.109843
		6.29	-0.425437	2.070992	-0.403916	-0.127334
		8.42	-0.626951	2.849541	-0.419063	-0.142293
		12.72	-1.192703	4.433415	-0.417336	-0.180135
		17.06	-1.870858	6.089632	-0.406442	-0.193275
		0.01	-0.007638	0.091079	-0.342660	-0.088694
0.8	5.6	-4.20	0.233361	-1.214491	-0.376944	-0.123177
		-2.09	0.102183	-0.545536	-0.352035	-0.105156
		-1.04	0.046924	-0.226844	-0.346403	-0.100972
		-0.51	0.020245	-0.077726	-0.346179	-0.100815
		0.01	-0.003602	0.071232	-0.345777	-0.100121
		0.53	-0.031551	0.225607	-0.347088	-0.100815
		1.06	-0.058271	0.400141	-0.348230	-0.100615
		2.11	-0.115051	0.704062	-0.354582	-0.105347
		4.22	-0.253365	1.386158	-0.383788	-0.123458
		6.35	-0.427547	2.038426	-0.406367	-0.140587
		8.50	-0.643246	2.869537	-0.423153	-0.155760
		12.88	-1.233683	4.528792	-0.424943	-0.192289
		17.35	-2.007506	6.445725	-0.428134	-0.210127
		0.01	-0.003609	0.071384	-0.345610	-0.101298
0.9	5.9	-4.23	0.241710	-1.211722	-0.392799	-0.130045
		-2.10	0.107552	-0.564361	-0.364270	-0.107617
		-1.05	0.050211	-0.248651	-0.359887	-0.105190
		-0.52	0.016963	-0.072510	-0.357234	-0.100747
		0.01	-0.003213	0.066956	-0.356423	-0.103730
		0.53	-0.029087	0.215725	-0.358774	-0.106150
		1.07	-0.059948	0.386981	-0.360139	-0.106442
		2.12	-0.117329	0.660966	-0.365564	-0.108395
		4.25	-0.257576	1.355987	-0.396568	-0.130379
		6.41	-0.437418	2.074790	-0.420346	-0.147293
		8.58	-0.661175	2.840806	-0.436212	-0.164470
		13.04	-1.250336	4.619712	-0.448297	-0.202575
		17.61	-2.132769	6.594131	-0.444206	-0.219845
		0.01	-0.004470	0.071425	-0.359111	-0.105628
0.95	6.0	-4.25	0.258473	-1.190104	-0.451433	-0.139959
		-2.11	0.116734	-0.519823	-0.424384	-0.118509
		-1.05	0.057460	-0.198662	-0.418195	-0.114470
		-0.52	0.026753	-0.031789	-0.416792	-0.113429
		0.01	0.001037	0.105246	-0.415529	-0.112851
		0.54	-0.029952	0.259263	-0.416416	-0.113731
		1.07	-0.055139	0.413373	-0.417842	-0.113822
		2.13	-0.118092	0.739046	-0.426800	-0.120359
		4.27	-0.262948	1.410029	-0.458203	-0.142293
		6.44	-0.453682	2.154644	-0.482850	-0.162184
		8.64	-0.688014	2.957833	-0.508505	-0.177322
		13.15	-1.335462	4.884258	-0.525875	-0.217724
		17.83	-2.253474	7.356373	-0.514791	-0.235532
		0.01	0.001092	0.101447	-0.415030	-0.112959
1.0	6.1	-4.27	0.274307	-1.208779	-0.565377	-0.189901
		-2.12	0.127796	-0.497394	-0.531112	-0.160711
		-1.05	0.064841	-0.198683	-0.521497	-0.153796
		-0.52	0.032394	-0.055068	-0.519960	-0.152670
		0.01	0.002379	0.076445	-0.508735	-0.146330
		0.54	-0.029058	0.232566	-0.508228	-0.145930
		1.07	-0.060885	0.366167	-0.526504	-0.154516
		2.13	-0.124715	0.664769	-0.523587	-0.157937
		4.28	-0.262829	1.359870	-0.564080	-0.187387
		6.48	-0.474220	2.181377	-0.606847	-0.219354
		8.70	-0.710558	3.118226	-0.635495	-0.241682
		13.24	-1.374322	5.125033	-0.640081	-0.274269
		18.03	-2.345746	7.984025	-0.638734	-0.290929
		0.01	-0.001056	0.086711	-0.517161	-0.151333

Table 1.45 Concluded

M_∞	$Re_D \cdot 10^{-5}$	$\alpha [^\circ]$	C_N	C_m	C_A	C_{PB}
1.05	6.2	-4.29	0.275399	-1.308653	-0.677240	-0.239056
		-2.12	0.133000	-0.507411	-0.625928	-0.197801
		-1.06	0.065646	-0.195466	-0.616079	-0.186531
		-0.52	0.031261	-0.056943	-0.621176	-0.193139
		0.01	-0.005832	0.069905	-0.623980	-0.195358
		6.54	-0.035145	0.208711	-0.626282	-0.195141
		1.07	-0.067227	0.343418	-0.628413	-0.200269
		2.15	-0.134996	0.667542	-0.641888	-0.210738
		4.31	-0.281203	1.476795	-0.671814	-0.233206
		6.51	-0.476774	2.338041	-0.711540	-0.262215
		8.77	-0.729312	3.421954	-0.717600	-0.250206
		13.39	-1.437805	5.690879	-0.729402	-0.288965
		18.27	-2.458763	8.807719	-0.724306	-0.304422
		0.01	0.005177	0.073829	-0.621610	-0.194092
1.1	6.3	-4.30	0.278711	-1.342815	-0.740618	-0.274547
		-2.13	0.131364	-0.525921	-0.705039	-0.247895
		-1.06	0.066274	-0.176465	-0.695542	-0.240585
		-0.52	0.035046	-0.025543	-0.694079	-0.238979
		0.01	0.002656	0.119996	-0.694148	-0.239985
		0.55	-0.027806	0.280402	-0.693270	-0.238955
		1.08	-0.059261	0.444635	-0.696337	-0.241077
		2.16	-0.125178	0.784775	-0.707187	-0.249419
		4.34	-0.276322	1.603551	-0.743226	-0.275426
		6.55	-0.474476	2.514315	-0.772690	-0.294041
		8.80	-0.729264	3.482094	-0.790365	-0.309056
		13.45	-1.441585	5.804121	-0.789726	-0.325034
		18.43	-2.555611	9.183960	-0.787591	-0.346987
		0.01	0.004749	0.116167	-0.685473	-0.234085
1.2	6.3	-4.34	0.275249	-1.479806	-0.752892	-0.247845
		-2.15	0.125348	-0.646294	-0.719312	-0.213961
		-1.07	0.061057	-0.201679	-0.711848	-0.206358
		-0.53	0.029620	-0.110165	-0.711333	-0.205511
		0.01	-0.003599	0.050296	-0.710305	-0.205948
		0.55	-0.031998	0.232467	-0.711836	-0.206168
		1.09	-0.063302	0.414459	-0.713624	-0.207409
		2.17	-0.128760	0.804456	-0.725229	-0.216511
		4.37	-0.279316	1.699646	-0.761628	-0.243891
		6.60	-0.484611	2.626107	-0.787777	-0.262329
		8.87	-0.751931	3.669907	-0.806235	-0.276803
		13.60	-1.521209	6.125628	-0.823618	-0.303923
		18.87	-2.806717	10.633547	-0.813040	-0.322559
		0.00	-0.001317	0.028794	-0.709105	-0.206674

Figure 1.1 Body geometry and coordinates of pressure orifices

Coordinates of pressure orifices (constant Φ)

Nr.	$x[\text{mm}]$	$\frac{x}{D}$	Nr.	$x[\text{mm}]$	$\frac{x}{D}$	Nr.	$x[\text{mm}]$	$\frac{x}{D}$	Nr.	$x[\text{mm}]$	$\frac{x}{D}$
1	11.25	0.251	13	222.5	4.944	25	492.5	10.944	37	762.5	16.944
2	21.74	0.482	14	245.0	5.444	26	515.0	11.444	38	785.0	17.444
3	32.94	0.731	15	267.5	5.944	27	537.5	11.944	39	807.5	17.944
4	44.11	0.980	16	290.0	6.444	28	560.0	12.444	40	830.0	18.444
5	55.74	1.238	17	312.5	6.944	29	582.5	12.944	41	852.5	18.944
6	67.50	1.500	18	335.0	7.444	30	605.0	13.444	42	875.0	19.444
7	87.50	1.944	19	357.5	7.944	31	627.5	13.944	43	897.5	19.944
8	110.0	2.444	20	380.0	8.444	32	650.0	14.444	44	920.0	20.444
9	132.5	2.944	21	402.5	8.944	33	672.5	14.944	45	942.5	20.944
10	155.0	3.444	22	425.0	9.444	34	695.0	15.444	46	965.0	21.444
11	177.5	3.944	23	447.5	9.944	35	717.5	15.944			
12	200.0	4.444	24	470.0	10.444	36	740.0	16.444			

Figure 1.2 Model supports I and II

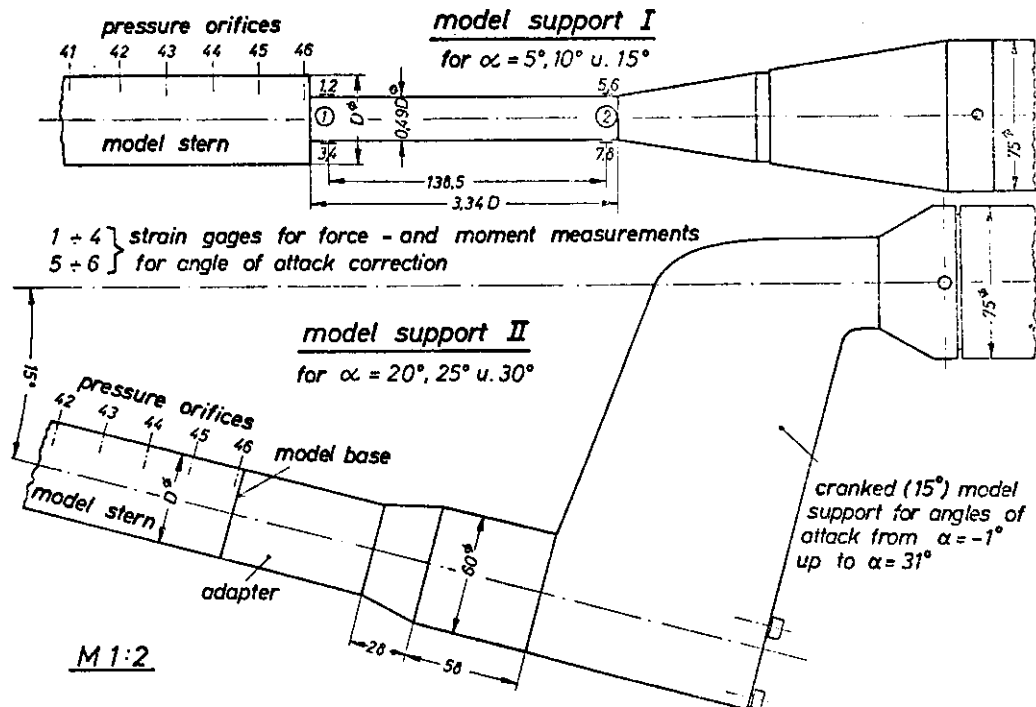


Figure 1.3 Reflection pattern of model head waves

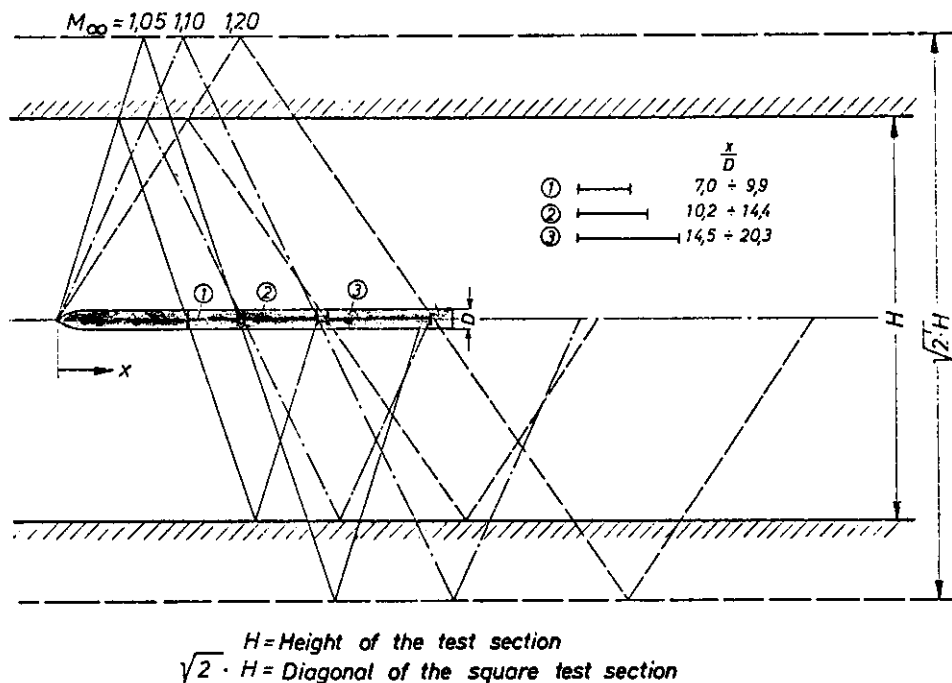


Figure 1.4 Normal-force coefficients

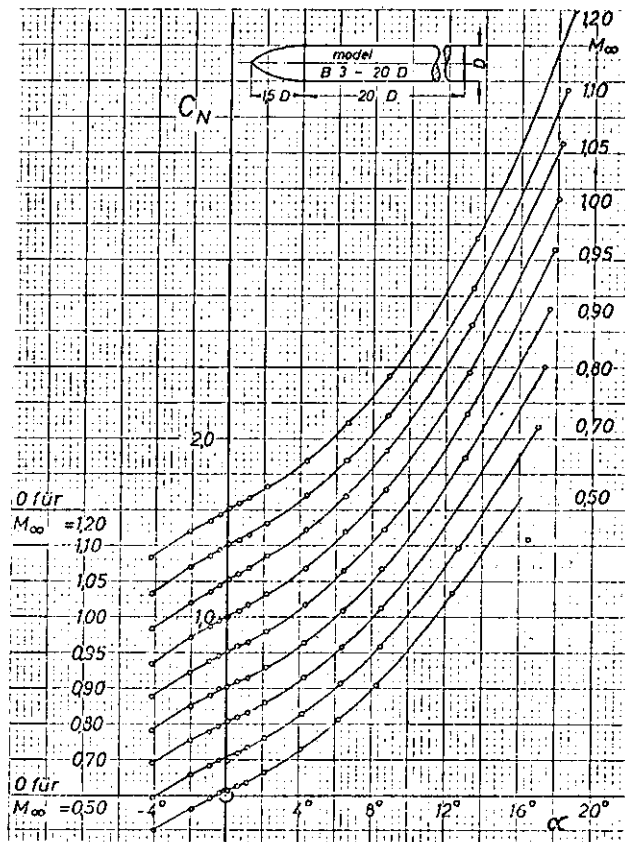


Figure 1.5 Pitching-moment coefficients

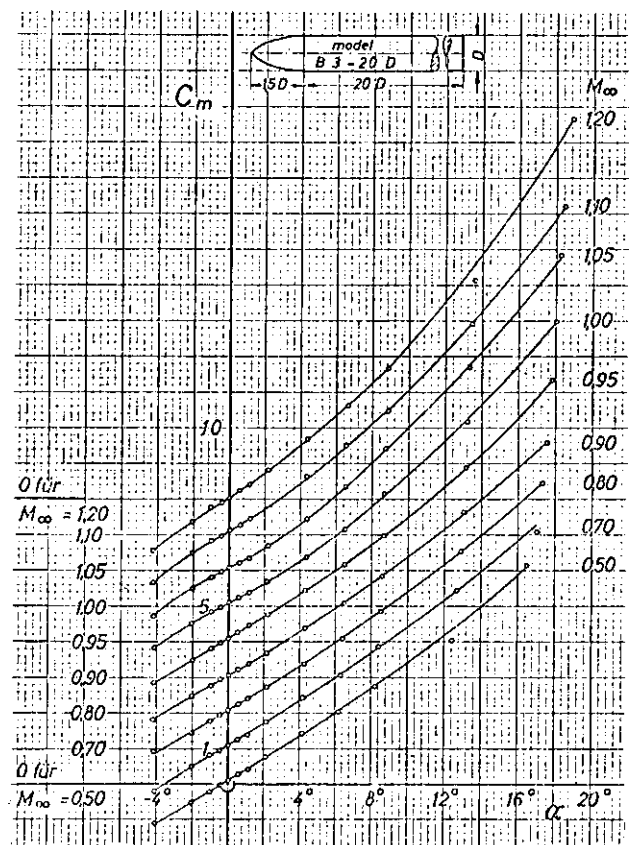


Figure 1.6 Axial-force coefficients

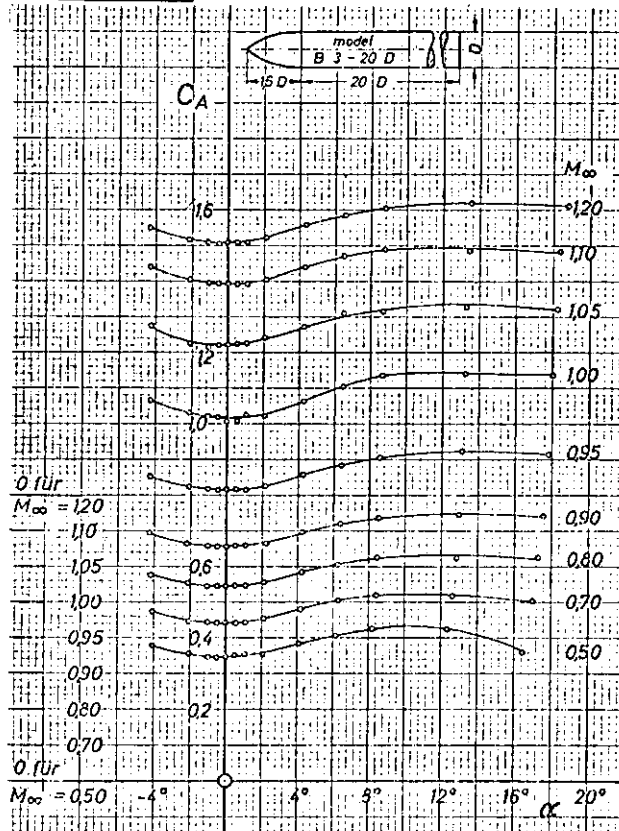


Figure 1.7 Base pressure coefficients

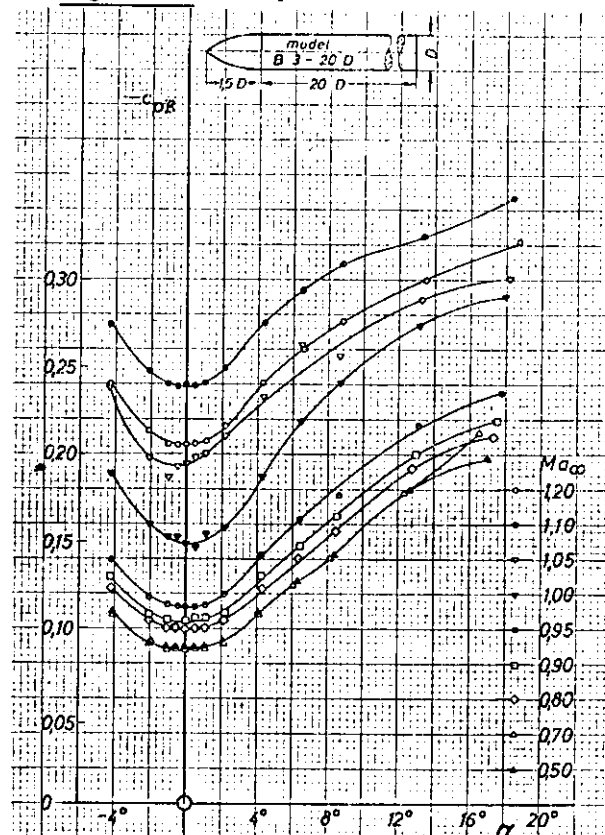


Figure 1.8 Longitudinal distributions of pressure coefficient

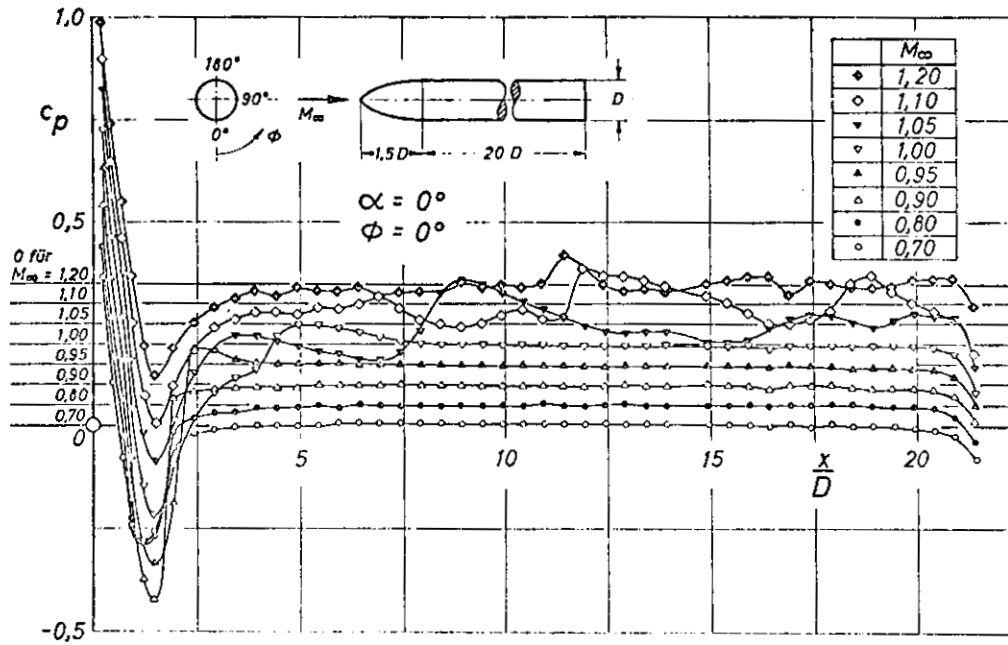


Figure 1.9 Longitudinal distributions of pressure coefficient

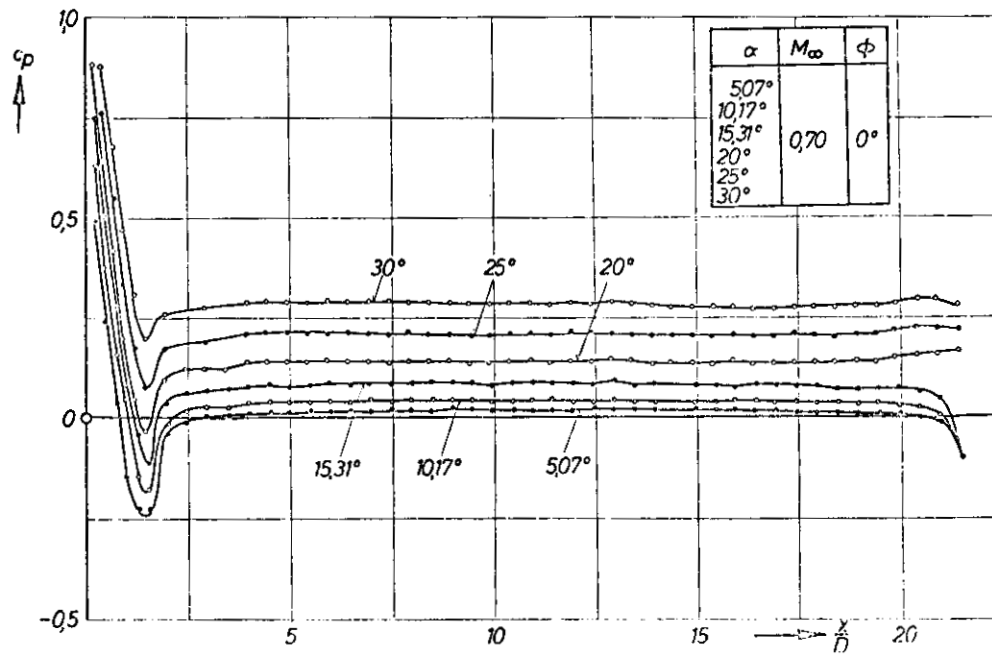


Figure 1.10 Longitudinal distributions of pressure coefficients

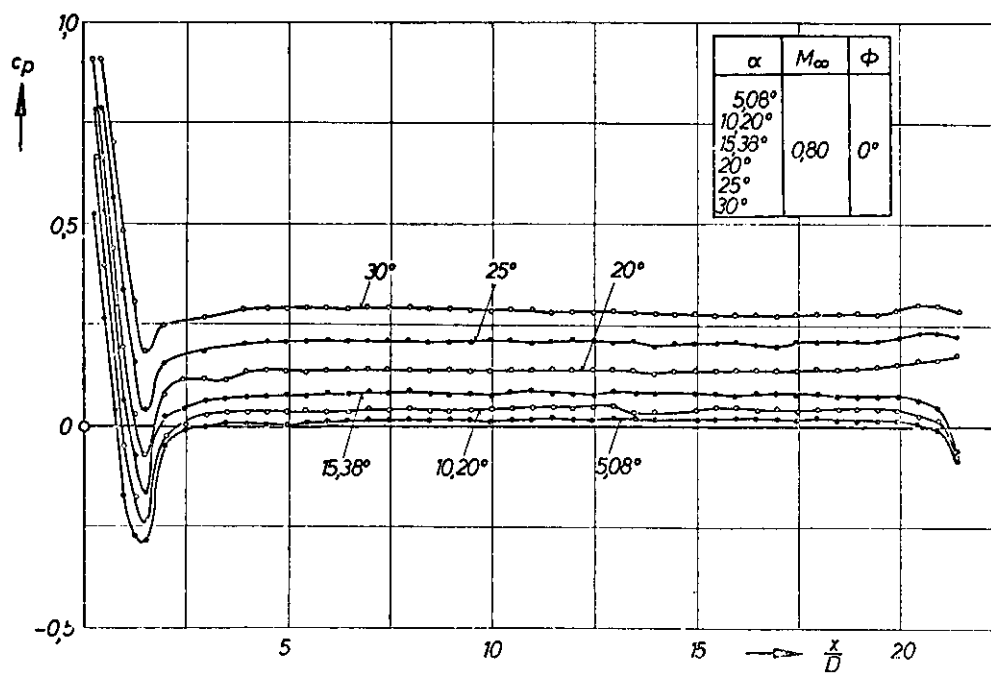


Figure 1.11 Longitudinal distributions of pressure coefficient

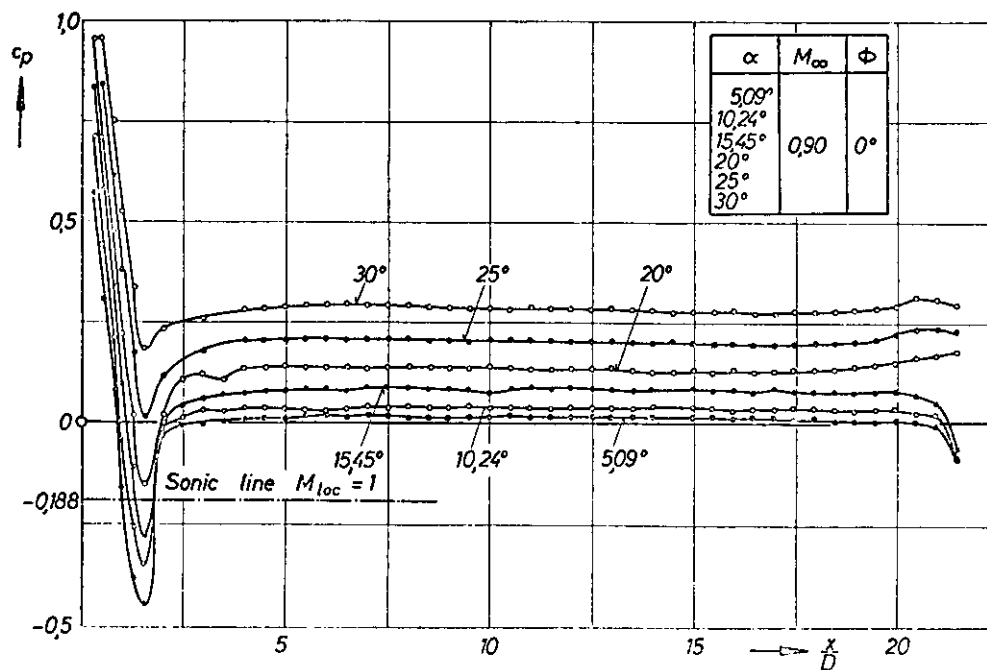


Figure 1.12 Longitudinal distributions of pressure coefficient

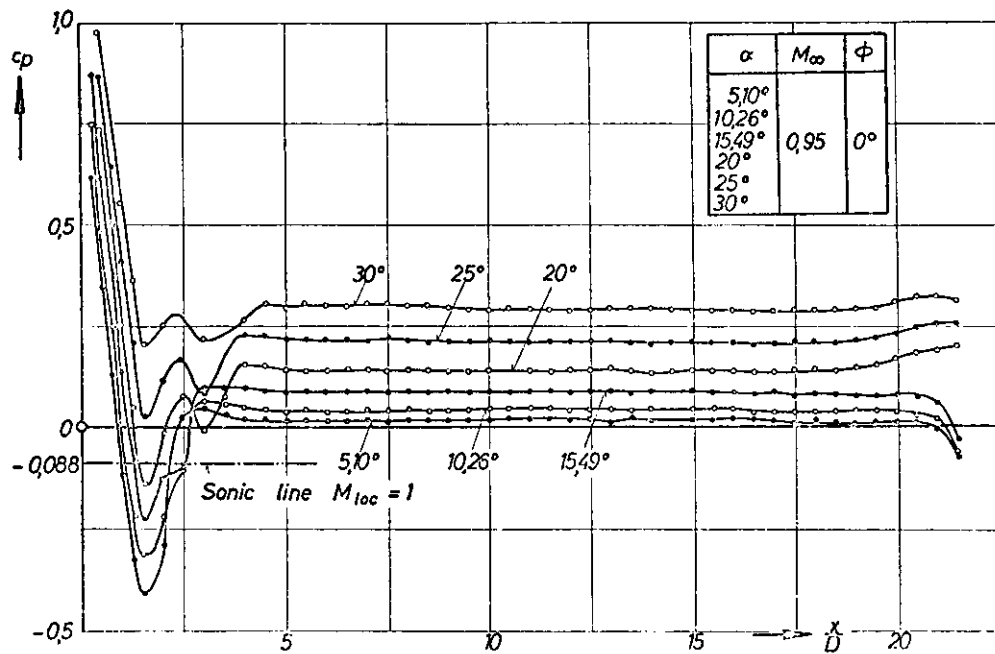


Figure 1.13 Longitudinal distributions of pressure coefficient

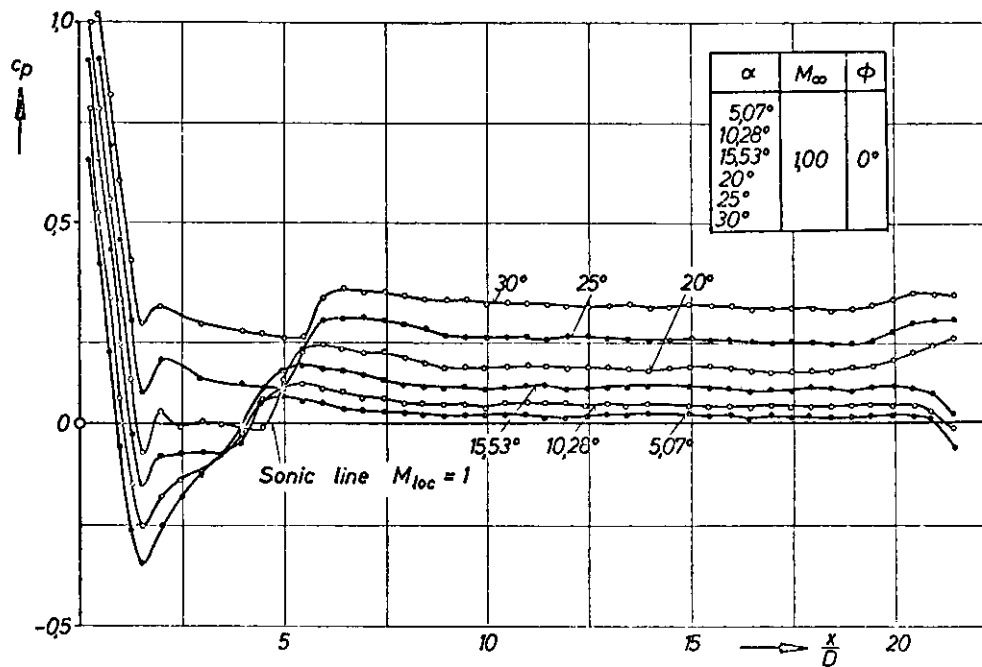


Figure 1.14 Longitudinal distributions of pressure coefficient

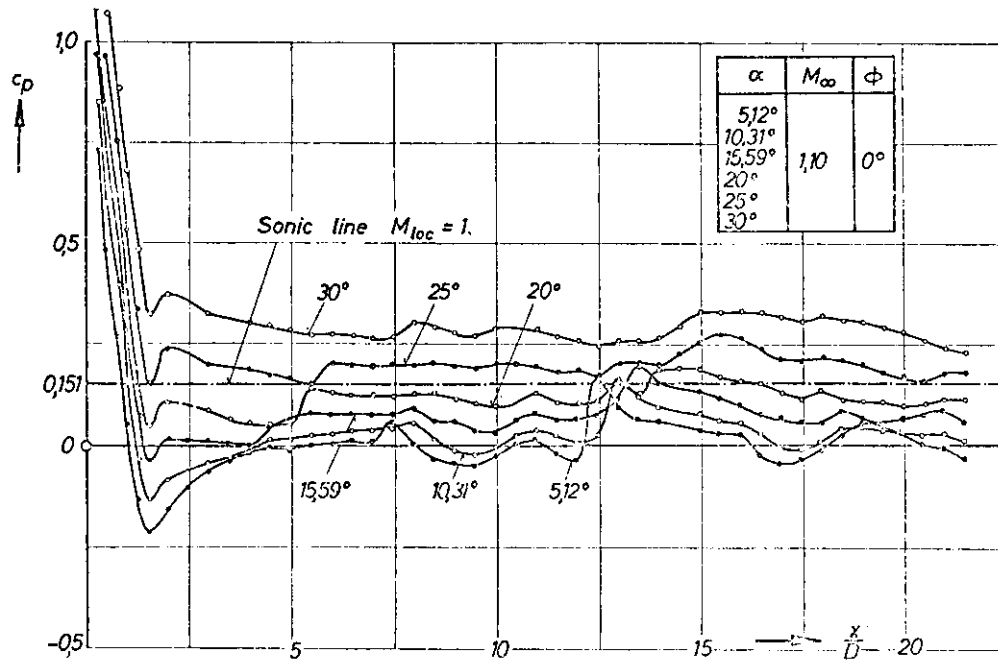


Figure 1.15 Longitudinal distributions of pressure coefficient

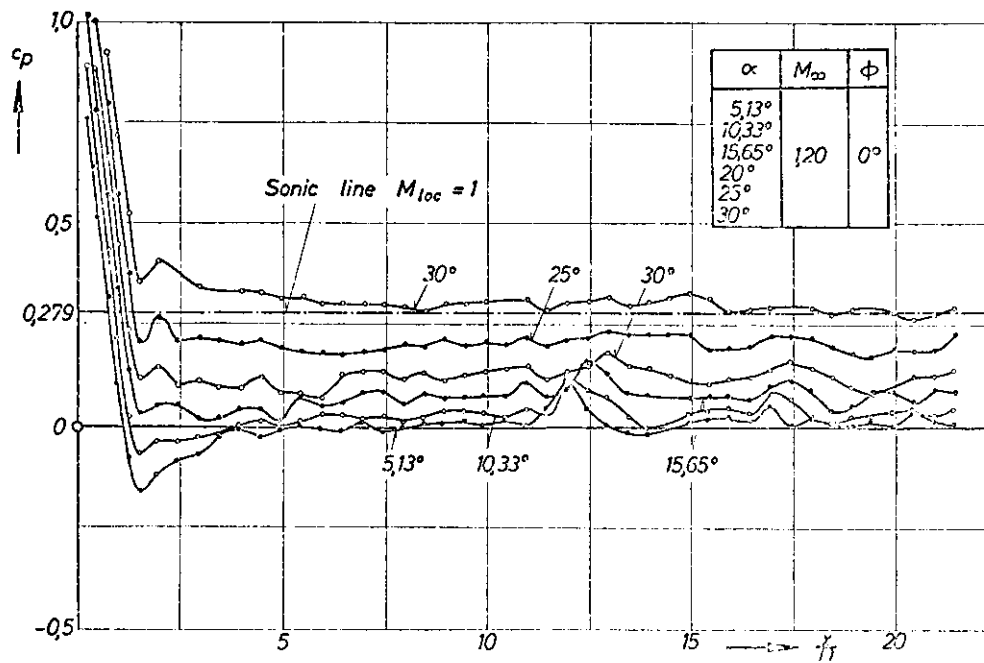
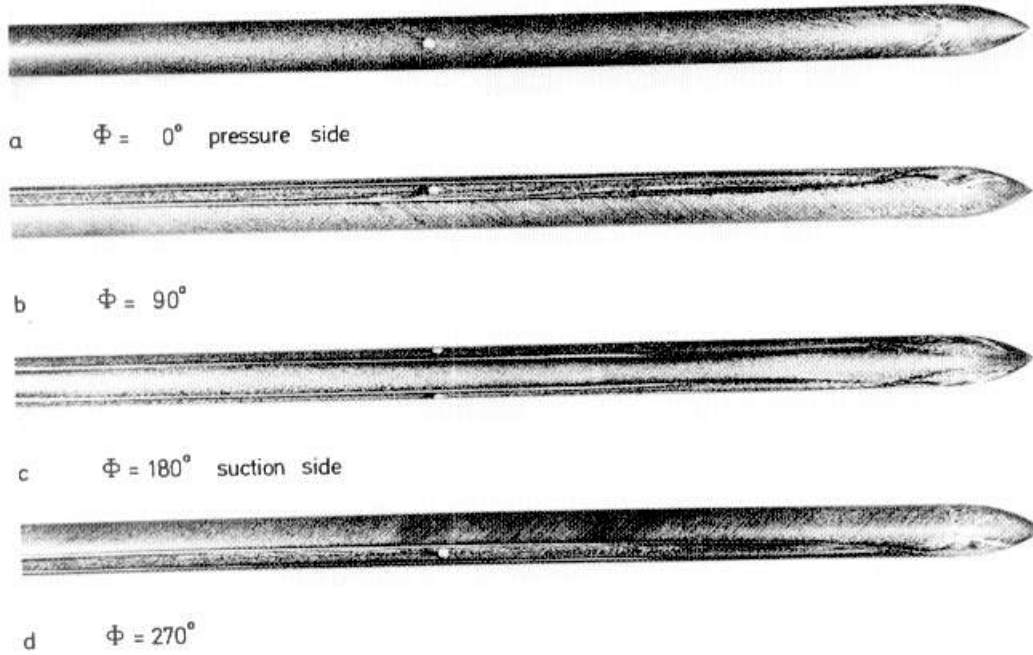


Figure 1.16 Oil flow picture for $M_{\infty} = 0.7$, $Re_D = 5.7 \cdot 10^5$, $\alpha = 25^\circ$



2. MBB - Body of Revolution No. 3

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and

F. Aulehla

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Introduction

The present data set contains selected results from surface pressure and force measurements on Body No. 3 of 5 parabolic bodies of revolution, which differ only by the shape of their afterbody. Details of the model geometry are given in Fig. 2-1. The presented data were taken during three test phases with the following aims:

Phase 1: Surface pressure measurements on 5 parabolic bodies of revolution. Variation of Mach number, Reynolds number, and incidence; transition free (Results: Table 2-4, 2-5)

Phase 2: Surface pressure measurements on 3 bodies of revolution (No. 1, 3, and 5) with check of repeatability, and chord force measurements. Further, variations of Mach number, Reynolds number, and incidence were made; transition was fixed by carborundum (Results: Table 2-6, 2-7, and 2-8).

Phase 3: Forebody drag force measurements with different aftbody contours. Pressure measurements on test section wall with and without model. Variation of Mach number and Reynolds number; transition fixed by carborundum (Results: Table 2-9, 2-10).

The flow conditions included here are listed in Table 2-1. In Phase 1 the tests were performed without fixed transition. In Phase 2 and 3, however, the transition were fixed at about 5 % L in order to have a turbulent boundary layer on the whole surface; moreover, forebody drag measurements without fixed transition did not allow significant interpretation.

The included data are neither corrected for blockage nor axial pressure gradients. But it should be emphasized that pressure measurements on the upper and lower test section wall have indicated some possible errors

- a) for the static pressure p_{∞} dependent on Mach and Reynolds number
- b) for the drag due to an axial pressure gradient in the tunnel depending on model, Mach, and Reynolds number (Reference [14]).

However, pressure measurements on the center-line and on the side walls did not indicate any gradients, except at $Ma_{\infty} = 0.5$. These errors which probably occur in all transonic windtunnels and which usually lie within the limitations of the measuring equipment are not essential for standard force and pressure measurements.

1. General Description

- 1.1 Model Designation or Name MBB - Body - of Revolution No. 3
- 1.2 Model Type (e.g., Full Span) body of revolution
- 1.4 Additional Remarks

2. Model Geometry

- 2.2 Body Data (Detail Description of Body Geometry)
 - forebody: $x = 0$ to $x = 0,5 L$ cubic shape;
 - cylindrical part: $x = 0,5 L$ to $0,6875 L$;
 - aftbody: $x = 0,6875 L$ to $0,967 L$ cubic shape
 - sting diameter: 3,0 cm
 - theoretical body length: $L = 80$ cm
 - body diameter: $D = 12$ cm
 - actual length: 77,4 cm
 - analytical form: see Fig. 2-1 [12], [13]

2.4 Cross Sectional Area Development

2.5 Fabrication Tolerances/Waviness

2.6 Additional Remarks

see Fig. 2-1

3. Wind Tunnel

3.1 Designation

1 x 1 Meter Transonic Wind Tunnel.

3.2 Type of Tunnel

3.2.1 Continuous or Blowdown.
Indicate Minimum Run Time
if Applicable

continuous, closed circuit

3.2.2 Stagnation Pressure

0.4 bar up to 1.6 bar

3.2.3 Stagnation Temperature

ambient

3.3 Test Section

3.3.1 Shape of Test Section

square

3.3.2 Size of Test Section
(Width, Height, Length)

1 meter, 1 meter, 3 meter

3.3.3 Type of Test Section Walls
Closed, Open, Slotted,
Perforated

perforated,

Open Area Ratio (Give
Range if Variable)
Slot/Hole Geometry (e.g.,
30-Degree Slanted Holes)
Treatment of Side Wall
Boundary Layer

6 % ,

30 degree slanted holes,
four walls are perforated and plenum suction is
applied to adjust free stream conditions.

Full span models
Half-model testing

In case of 2-D and half-model-testing solid end
plates ($\emptyset$ 0.57 m) are used.

3.4 Flow Field (Empty Test Section)

3.4.1 Reference Static
Pressure

plenum pressure, calibrated against side wall
static pressure and lancet-probe [3] in the empty
tunnel,

3.4.2 Flow Angularity

 $\Delta \alpha = \Delta \beta < \pm 0.05$ wedge probe calibration

3.4.3 Mach Number Distribution }

see Chapter A5 Fig. 5.5 and Ref. [1],[2],[3]
also see 3.5.4

3.4.4 Pressure Gradient

3.4.5 Turbulence/Noise Level

low turbulence level (measurements are in pro-
gress) [10]

low noise level ($\sqrt{n F(n)} < 0.001$) [8]

3.4.6 Side Wall Boundary Layer

Ma	0.5	0.8	1.0	1.2
δ	8.0	7.4	6.7	6.5 cm

3.5 Freestream Mach Number (or
Velocity)

3.5.1 Range

transonic Ma = 0.5 - 1.2; supersonic Ma = 1.3 - 2.0

3.5.2 Pressures Used to
Determine Mach Number
(e.g., Settling Chamber
Total Pressure and Plenum
Chamber Pressure)

transonic range: settling chamber total pressure/
and plenum chamber pressure. Dependence
between plenum pressure and free stream static
pressure has been calibrated by lancet-probe
and side-wall static pressure [3]

3.5.3 Accuracy of Mach Number
Determination (Δ Ma) Δ Ma = $\pm$ 0.0033.5.4 Maximum Mach Number
Variation in x,y,z-Direction
(Empty Tunnel; Specify at What
Mach Number)

Ma	0.5	0.8	1.0	1.2
Δ Ma(x-direct.)	0.005	0.003	0.006	0.015
(z-direct.)		0.003		
∂ Ma/ ∂ (x/L)	0.0037			

Maximum Variation of Flow
Direction

 $\pm 0.05^\circ$

Maximum Mach Number
Variation During a Run

 Δ Ma = $\pm$ 0.001

3.6 Reynolds Number Range	Ma	0.5	1.0	2.0
3.6.1 Unit Reynolds Number Range. (Give Range at Representative Mach Numbers; 1/m)	Re _{MAX}	$1.7 \cdot 10^7$	$1.8 \cdot 10^7$	$1.2 \cdot 10^7$
3.6.2 Means of Varying Reynolds Number (e.g., by Pressurization)	Re _{MIN}	$0.27 \cdot 10^7$	$0.42 \cdot 10^7$	$0.5 \cdot 10^7$
3.7 Temperature Range and Dewpoint. Can Temperature be Controlled?	pressurization $T_o \approx 310$ K (ambient) , no $t_{\text{Dewpoint}} \approx 250$ K			
3.8 Model Attitudes	2-D and sheared wings: total $25^\circ (\pm 0.02^\circ)$ half-models: total incidence $25^\circ (\pm 0.02^\circ)$ complete models: total incidence: $30^\circ (\pm 0.02^\circ)$ *			
3.8.1 Angle of Attack, Yaw, Roll	total yaw : $15^\circ (\pm 0.1^\circ)$ total roll : $360^\circ (\pm 0.1^\circ)$			
3.8.2 Accuracy in Determining Angles	* range can be extended by cranked stings			
3.9 Organization Operating the Tunnel and Location of Tunnel	Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt E.V. Bunsenstrasse 10 34 Göttingen (FRG)			
3.10 Who is to be Contacted for Additional Information	Dr.-Ing. W. Lorenz-Meyer Address: see 3.9			
3.11 Literature Concerning this Facility	Ref. [1] - [7]			
3.12 Additional Remarks	-			
4. <u>Tests</u>				
4.1 Type of Tests	surface pressure distribution oil flow pictures, force measurements complete model and forebody alone, top wall static pressure			
4.2 Blockage	1.13 %			
4.3 Test Conditions				
4.3.1 Angle of Attack	- 3° ; 0° ; 3° ; 5°			
4.3.2 Mach Number	0.5 to 1.2			
4.3.3 Dynamic Pressure	0.06 bar to 0.53 bar			
4.3.4 Reynolds Number	$5 \cdot 10^6$ to $16 \cdot 10^6$ (related to theoretical body length)			
4.3.5 Stagnation Temperature	ambient (~ 310)			
4.4 Transition				
4.4.1 Free or Fixed	free (Run No. 1-24, 163 - 165) fixed (Run No. 89 - 100, 130 - 147)			
4.4.2 Position of Free Transition	unknown			
4.4.3 Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements	Run 130 - 147 : Carborundum. 180 K ($\sim 95 \mu\text{m}$) $x = 6.2 \% L$ $l = 6 \text{ mm}$ density $\sim 50 \%$ Run 89 - 100 : Carborundum 150 K ($\sim 110 \mu\text{m}$) $x = 5 \% L$ $l = 5 \text{ mm}$ density $\sim 50 \%$			
4.4.4 Were Checks Made to Determine if Transition Occured at Trip Locations?	No			
4.6 Were Different Sized Models Used in Wind-Tunnel Investigation? If so, Indicate Sizes	5 aftbody configurations were tested, which differ in length of cylindrical part (see <u>Fig. 2-1</u> and <u>Table 2-3</u>)			

4.7 Areas and Lengths Used to Form Coefficients

area: cross section $S = \pi D^2/4 = 113.09 \text{ cm}^2$
 for Run No. 130 - 147, 163 - 165
 cross section $S = 112.81 \text{ cm}^2$
 for Run No. 89 - 100
 base area: $S_B = 7.54 \text{ cm}^2$

length: reference length $L = 80 \text{ cm}$

4.8 References on Tests

[11] - [15]

4.9 Related Reports

[11] - [15]

5. Instrumentation

5.1 Surface Pressure Measurements

5.1.2 Pressure Orifices on Fuselage, Location and Number

see Fig. 2-2 and Table 2-2, 2-3

5.1.4 Geometry of Orifices

0.2 mm in diameter

5.1.5 Type of Pressure Transducer and Scanning Devices Used. Indicate Range and Accuracy

CEC differential pressure transducers
 ± 5 and ± 10 psid; Scanivalve Type MJ 48
 accuracy $\pm 0.3\%$ FS

5.2 Force Measurements

5.2.1 Type and Location of Balance

TASK 1.25 MK IV internal balance
 position see Fig. 2-3 (Run No. 130 - 147)

5.2.2 Forces and Moments that Can be Measured. Maximum Loads and Accuracy

axial force; 340 N; 1% FS

5.2.3 Forces and Moments on Components.

Forebody axial force (Run No. 89 - 100)

Type and Location of Balance

normal-force spring element, internally mounted
 (see: Fig. 2-4)

Maximum Loads and Accuracy.

50 N; $\pm 0.02 \text{ N}$

5.4 Surface Flow Visualization

5.4.1 Indicate Method Used to Determine

a Titanium dioxide - oil suspension is sprayed over the black painted model. Then the model is exposed for $\approx 10\text{s}$ to the flow of a Free-Jet-Blow-Down-Facility of 0.75 m x 0.75 m test-section size. This facility is different from that described in 3.

- Streamline pattern
- Boundary-layer transition

6. Data

6.1 Accuracy

6.1.1 Pressure Coefficients

$\pm 1\%$ assuming worst possible combination of errors including an error of $\Delta Ma = \pm 0.002$, evaluated at $Ma_\infty = 0.8$ and max. c_p
 $\pm 0.5\%$

6.1.2 Aerodynamic Coefficients

6.1.4 Repeatability

within 1%, compare Run No. 10 and 163;
 see Ref. [11]

6.2 Wall Interference Corrections

standard wall corrections were not applied to these tests;

6.2.5 Reference on Wall-Interference Corrections

[5], [6], [14], [15]

6.3 Data Presentation

	Run No. 130 - 147: axial force, base drag corrected drag of complete body
	Run No. 89 - 100: forebody axial force, internal pressure force, "forebody" drag
6.3.1 Aerodynamic Coefficients	<u>Table 2-8, 2-10</u>
6.3.2 Surface Pressure Coefficients	<u>Fig. 2-5, 2-6, 2-7, 2-8, 2-9 and Table 2-4, 2-5, 2-6, 2-7, 2-9, 2-10</u>
6.3.3 Flow Conditions for	
- Aerodynamic Coefficient data and Pressure data	<u>Table 2-1</u>
6.3.6 Wall Interference Corrections Included?	No, but see <u>Fig. 2-14, 2-15, 2-16, 2-17, 2-18</u>
6.3.7 Aeroelastic Corrections Included ?	No
6.3.8 Other Corrections?	see Ref. [14], [15]
6.3.9 Additional Remarks	No
6.4 Were Tests Carried Out in Different Facilities on the Current Model? If so, What Facilities. Are Data Included in Present Data Base?	It is planned, to rebuild the current model for tests in AEDC 4 T and/or 16T. Contact: E.R. Thompson, Arnold Air Force Base, Tullahoma, Tenn. 37389

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- [14] Aulehla, F. Grenzen der Widerstandsbestimmung schlanker Körper in trans-sonischen Windkanälen. MBB-Report UFE 1315 (Ö) 1976.
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8. List of Symbols

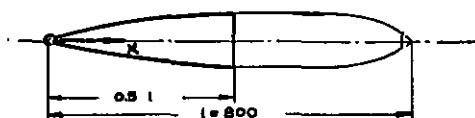
$c_p = (p - p_\infty)/q_\infty$	surface pressure coefficient on body shape
$c_{pi} = (p_i - p_\infty)/q_\infty$	internal pressure coefficient in the model
$c_{pw} = (p_w - p_\infty)/q_\infty$	surface pressure coefficient on top test section wall
$C_X = X/q_\infty \cdot S$	measured axial force coefficient
$C_B = (p_i - p_\infty)S_B/q_\infty \cdot S$	base drag coefficient
$C_{X_{corr}}$	corrected axial force coefficient either by base drag or by internal pressure drag
D	body diameter (= 12 cm)
DP	measured value of surface pressure (Volt)
L	theoretical body length (= 80 cm)
l	width of carborundum strips (mm)
Ma	free stream Mach number
p	pressure
q	dynamic pressure
Re_L	Reynolds number based on theoretical body length
$S \approx \pi D^2/4$	body face area (= 113,09 or 112,81 cm ² Phase 2 or 3 resp.)
$S_B =$	base area (= 7,54 cm ²)
T	temperature (K)
X	axial force
x	axial coordinate from apex (cm)
α	angle of attack
δ	side wall boundary layer thickness (pitot pressure = 0,999 p_0)

Indices

0	stagnation condition	w	on the wall
∞	free stream	B	model base
i	in the model		

Table: 2-1 Flow Conditions Included in DATA BASE (MBB-Body-of-Revolution No. 3)

α [°]		p_0 [mm Hg]	Ma	0.5	0.6	0.8	0.85	0.90	0.95	0.98	1.05	1.10	1.20	Transition
Phase 1	-3	735				164								free
	0	735		13	11	10(163)	7	6	5	4	3	2	1	"
	3	735				165	8							"
	5	735		14	12		9							"
	0	300		15	16	17	18	19						free
	0	1200		24	23	22	21	20						"
Phase 2	-3	735		144	139	134	138							fixed (180K)
	0	735		143	140	133	137							"
	3	735		142	141	135	136							"
	-3	300				131								fixed (180K)
	0	300				130								"
	3	300				132								"
	-3	1160				146								fixed (180K)
	0	1160				145								"
	3	1160				147								"
	Ma Model $Re \cdot 10^{-6}$			5.0	8.0	10.0	14.0							
	0.8	empty		89	90	91	92							fixed (150K)
	0.8	Shape 3		97	98	99	100							"
Phase 3														

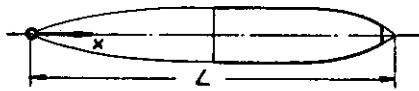


test point	x/l	nominal value	actual value
Apex	0	(mm) 0.0	(mm) 0.0
1	0.025	20.0	20.78
2	0.075	60.0	60.58
3	0.125	100.0	100.40
4	0.175	140.0	140.40
5	0.2125	170.0	170.28
6	0.25	200.0	200.06
7	0.2875	230.0	230.18
8	0.325	260.0	260.28
9	0.3625	290.0	290.28
10	0.4	320.0	320.27
11	0.4375	350.0	350.30
12	0.475	380.0	380.27
junction	0.5	400.0	400.30

Control orifices on lower surface

x/l = 0.025 0.2875 0.81875
 0.175 0.75625

Table 2-2: Position of Pressure Orifices, Forebody



test point	x/l	x-nominal value	actual value (mm)				
			Shape 1	Shape 2	Shape 3	Shape 4	Shape 5
junction		400.0	400.30	400.30	400.30	400.30	400.30
13	0.525	420.0	420.20	420.30	420.18	420.28	420.70
14	0.575	460.0	460.30	460.30	460.34	461.26	460.50
15	0.6125	490.0	490.30	490.30	490.34	490.30	490.50
16	0.64375	515.0	515.18	515.18	515.36	515.31	515.70
17	0.675	540.0	540.24	540.30	540.32	540.30	540.50
18	0.7	560.0	560.32	560.34	560.60	560.20	560.30
19	0.71875	575.0	575.50	575.34	575.36	575.30	575.40
20	0.7375	590.0	590.30	590.36	590.42	590.28	590.30
21	0.75625	605.0	605.18	605.30	605.51	605.26	605.50
22	0.775	620.0	620.22	620.90	620.56	620.26	620.60
23	0.79375	635.0	635.20	635.30	635.36	635.26	635.60
24	0.80625	645.0	645.37	645.14	645.42	645.24	645.30
25	0.81875	655.0	655.14	655.22	655.38	655.00	655.40
26	0.83125	665.0	665.32	665.20	665.29	664.98	665.80
27	0.84375	675.0	675.06	675.10	675.12	674.88	675.40
28	0.85625	685.0	685.16	685.02	685.10	684.96	685.70
29	0.86875	695.0	694.86	694.96	695.18	694.90	695.40
30	0.88125	705.0	704.84	704.92	705.06	704.82	705.30
31	0.89375	715.0	714.92	714.88	715.07	714.84	715.20
32	0.90625	725.0	724.82	724.92	724.96	724.78	725.10
33	0.91875	735.0	734.66	734.82	734.88	734.84	734.90
34	0.93125	745.0		744.76	744.76	744.60	744.55
35	0.94375	755.0			754.60	754.58	754.30
36	0.95625	765.0				764.42	764.10
37	0.96875	775.0					774.1
position of shape end			758.51	768.96	774.20	779.36	785.03

Table 2-3: Position of Pressure Orifices, Aftbody (1 to 5)

Measurements on MBB-Body-of-Revolution

Body No. 3

Position of body static pressure orifices rel. to model apex [cm]

2.08	6.06	10.04	14.04	17.03	20.01	23.02	26.03	29.03	32.03
35.03	38.03	42.02	46.03	49.03	51.54	54.03	56.06	57.54	59.04
60.55	62.06	63.54	64.54	65.54	66.53	67.51	68.51	69.52	70.51
71.51	72.50	73.49	74.48	75.46	0.00	0.00	2.08	14.04	23.02
60.55	65.54								

Constants & calibration:

Reference area $S = 113.094 \text{ cm}^2$

Chord length $L = 80 \text{ cm}$

Cal. of pressure pickup $EP = 24.71 \text{ mm Hg/Volt}$

Cal. of chord force elem. $EX = 0.183 \text{ kp/Volt}$

Table 2-4: Calibration and Geometrical Data, Test Phase 1

Run No. 1				Run No. 2				Run No. 3				Run No. 4			
$\alpha = 0^\circ$				$\alpha = 0^\circ$				$\alpha = 0^\circ$				$\alpha = 0^\circ$			
$Ma = 1.20$				$Ma = 1.10$				$Ma = 1.05$				$Ma = 0.98$			
$Re_L = 11.2 \cdot 10^6$				$Re_L = 11 \cdot 10^6$				$Re_L = 10.8 \cdot 10^6$				$Re_L = 10.7 \cdot 10^6$			
X/L	DP	CP		X/L	DP	CP		X/L	DP	CP		X/L	DP	CP	
0.026	6.857	0.57689		0.026	6.724	0.59460		0.026	6.324	0.57789		0.026	5.303	0.51740	
0.076	3.949	0.34197		0.076	3.749	0.34255		0.076	3.360	0.31876		0.076	2.446	0.25330	
0.125	2.127	0.19466		0.125	1.898	0.18576		0.125	1.452	0.15199		0.125	0.666	0.08877	
0.175	0.700	0.07934		0.175	0.497	0.06710		0.175	-0.017	0.02360		0.175	-0.664	-0.03416	
0.213	-0.004	0.02246		0.213	-0.307	-0.03007		0.213	-0.910	-0.05444		0.213	-1.458	-0.10753	
0.250	-0.594	-0.02521		0.250	-0.653	-0.03027		0.250	-1.588	-0.11371		0.250	-2.131	-0.15134	
0.288	-0.965	-0.05517		0.288	-0.982	-0.05812		0.288	-2.131	-0.16119		0.288	-2.275	-0.18300	
0.325	-1.246	-0.07787		0.325	-1.386	-0.09231		0.325	-2.509	-0.19421		0.325	-2.438	-0.19806	
0.363	-1.565	-0.10362		0.363	-1.716	-0.12026		0.363	-2.306	-0.17646		0.363	-2.438	-0.19806	
0.400	-1.798	-0.12239		0.400	-2.072	-0.15040		0.400	-2.382	-0.18313		0.400	-2.273	-0.18282	
0.438	-1.646	-0.11012		0.438	-2.227	-0.16355		0.438	-2.395	-0.18427		0.438	-0.679	-0.03556	
0.475	-1.220	-0.07572		0.475	-2.210	-0.18282		0.475	-2.100	-0.15849		0.475	-0.279	0.00142	
0.525	-1.018	-0.05941		0.525	-2.097	-0.15259		0.525	-1.551	-0.11049		0.525	-0.302	-0.00070	
0.575	-0.774	-0.03971		0.575	-2.135	-0.15381		0.575	-0.789	-0.04388		0.575	-0.337	-0.00393	
0.613	-0.650	-0.02969		0.613	-2.104	-0.15321		0.613	-0.480	-0.01687		0.613	-0.372	-0.00717	
0.644	-0.532	-0.02016		0.644	-0.967	-0.05689		0.644	0.006	0.02561		0.644	-0.377	-0.00763	
0.675	-0.646	-0.02935		0.675	-0.404	-0.00921		0.675	0.136	0.03697		0.675	-0.475	-0.01668	
0.701	-0.947	-0.05345		0.701	-0.253	0.00358		0.701	0.033	0.02797		0.701	-0.626	-0.03082	
0.719	-0.991	-0.05718		0.719	-0.286	0.00079		0.719	-0.263	0.00210		0.719	-1.021	-0.06716	
0.738	-1.601	-0.10638		0.738	-0.829	-0.04521		0.738	-0.871	-0.05105		0.738	-1.814	-0.14045	
0.757	-1.941	-0.13379		0.757	-1.388	-0.09256		0.757	-0.958	-0.05866		0.757	-2.376	-0.19239	
0.776	-2.381	-0.16926		0.776	-1.857	-0.13225		0.776	-1.640	-0.11827		0.776	-2.960	-0.24633	
0.794	-2.955	-0.21551		0.794	-2.443	-0.18188		0.794	-2.236	-0.17919		0.794	-3.613	-0.30668	
0.807	-3.170	-0.23286		0.807	-2.971	-0.22662		0.807	-2.808	-0.22047		0.807	-4.067	-0.34868	
0.819	-2.190	-0.23286		0.819	-2.245	-0.29206		0.819	-2.048	-0.2048		0.819	-2.880	-0.34868	
0.832	-3.504	-0.25972		0.832	-3.745	-0.32875		0.832	-3.593	-0.28911		0.832	-4.796	-0.41612	
0.844	-4.015	-0.30092		0.844	-4.179	-0.32875		0.844	-4.082	-0.33179		0.844	-4.911	-0.42669	
0.856	-3.955	-0.29608		0.856	-4.654	-0.36897		0.856	-4.601	-0.37721		0.856	-1.843	-0.14313	
0.869	-4.358	-0.32869		0.869	-4.907	-0.39037		0.869	-4.778	-0.39274		0.869	-2.477	-0.01866	
0.881	-4.696	-0.35598		0.881	-3.405	-0.26322		0.881	-2.151	-0.16301		0.881	-0.093	0.01862	
0.894	-1.748	-0.11822		0.894	-1.089	-0.06715		0.894	-0.607	-0.02800		0.894	0.0371	0.03371	
0.906	-0.874	-0.05901		0.906	-0.684	-0.03286		0.906	-0.211	0.00663		0.906	0.178	0.04366	
0.919	-0.834	-0.04772		0.919	-0.548	-0.02135		0.919	-0.111	0.01538		0.919	0.185	0.04430	
0.931	-0.834	-0.04450		0.931	-0.506	-0.01780		0.931	-0.115	0.01502		0.931	0.218	0.04735	
0.943	-0.790	-0.04096		0.943	-0.507	-0.01789		0.943	-0.113	0.01520		0.943	0.220	0.04754	
0.000	-0.479	-0.01587		0.000	-0.153	0.01207		0.000	0.123	0.03585		0.000	0.564	0.07933	
0.000	-0.473	-0.01539		0.000	-0.159	0.01156		0.000	0.126	0.03611		0.000	0.560	0.07897	
0.026	6.388	0.53836		0.026	6.311	0.55926		0.026	5.916	0.54292		0.026	4.913	0.48137	
0.175	0.637	0.07420		0.175	0.228	0.04432		0.175	-0.305	-0.00161		0.175	-0.905	-0.05048	
0.288	-1.331	-0.08467		0.288	-1.099	-0.06803		0.288	-2.277	-0.17423		0.288	-2.347	-0.18986	
0.757	-2.154	-0.15112		0.757	-1.216	-0.07795		0.757	-1.523	-0.10823		0.757	-2.372	-0.19226	
0.819	-2.844	-0.20885		0.819	-3.451	-0.26723		0.819	-3.112	-0.24738		0.819	-4.542	-0.39310	

Table 2-5: Pressure Data (Run 1 to 24) , Test Phase 1

Run No. 5	Ma = 0.95	Run No. 6	Ma = 0.90	Run No. 7	Ma = 0.85	Run No. 8	Ma = 0.85	
$\alpha = 0^\circ$	$Re_L = 10.6 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 10.3 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 10 \cdot 10^6$	$\alpha = 3^\circ$	$Re_L = 10 \cdot 10^6$	
X/L	DP	CP	X/L	DP	CP	X/L	DP	CP
0.026	4.953	0.49835	0.026	4.378	0.47097	0.026	3.276	0.38526
0.076	2.176	0.23444	0.076	1.766	0.20954	0.076	0.946	0.13671
0.125	0.462	0.07160	0.125	0.203	0.05286	0.125	-0.396	-0.00619
0.175	-0.871	-0.03603	0.175	-0.905	-0.05813	0.175	-1.247	-0.09689
0.213	-1.528	-0.11743	0.213	-1.457	-0.11345	0.213	-1.601	-0.13464
0.250	-1.937	-0.15623	0.250	-1.758	-0.14358	0.250	-1.766	-0.15228
0.288	-2.241	-0.18510	0.288	-1.874	-0.15523	0.288	-1.778	-0.15362
0.325	-2.511	-0.18231	0.325	-1.729	-0.14068	0.325	-1.624	-0.13717
0.363	-1.722	-0.13584	0.363	-1.614	-0.12922	0.363	-1.479	-0.12171
0.400	-1.413	-0.10649	0.400	-1.408	-0.10850	0.400	-1.287	-0.10112
0.438	-1.126	-0.07924	0.438	-1.145	-0.08217	0.438	-1.057	-0.07663
0.475	-0.823	-0.03146	0.475	-0.766	-0.04420	0.475	-0.753	-0.04425
0.525	-0.490	-0.01862	0.525	-0.659	-0.02348	0.525	-0.654	-0.03368
0.575	-0.475	-0.01739	0.575	-0.640	-0.03158	0.575	-0.648	-0.03305
0.613	-0.516	-0.02128	0.613	-0.691	-0.03668	0.613	-0.702	-0.03880
0.644	-0.537	-0.02327	0.644	-0.736	-0.04120	0.644	-0.749	-0.04381
0.675	-0.676	-0.03651	0.675	-0.906	-0.05822	0.675	-0.914	-0.06138
0.701	-0.877	-0.05560	0.701	-1.149	-0.08259	0.701	-1.132	-0.08453
0.719	-1.314	-0.09715	0.719	-1.583	-0.12604	0.719	-1.474	-0.12104
0.738	-2.102	-0.17204	0.738	-2.207	-0.18869	0.738	-1.886	-0.16495
0.757	-2.637	-0.22295	0.757	-2.625	-0.23040	0.757	-2.149	-0.19287
0.776	-3.188	-0.27533	0.776	-3.115	-0.27940	0.776	-2.366	-0.21579
0.794	-3.802	-0.33379	0.794	-3.592	-0.32126	0.794	-2.483	-0.22829
0.807	-4.229	-0.37451	0.807	-3.738	-0.34193	0.807	-2.458	-0.22543
0.819	-2.890	-0.44054	0.819	-2.102	-0.26973	0.819	-1.278	-0.18333
0.832	-4.924	-0.41607	0.832	-3.018	-0.22524	0.832	-2.063	-0.14993
0.844	-4.668	-0.41379	0.844	-2.575	-0.17278	0.844	-1.748	-0.10464
0.856	-1.699	-0.01240	0.856	-2.068	-0.10406	0.856	-1.322	-0.04337
0.869	-0.422	0.04027	0.869	-1.363	-0.03099	0.869	-0.746	0.02025
0.881	0.132	0.04027	0.881	-0.634	0.04027	0.881	-0.148	0.08084
0.894	0.493	0.07458	0.894	0.082	0.10323	0.894	0.421	0.13044
0.906	0.700	0.09424	0.906	0.706	0.14542	0.906	0.887	0.16028
0.919	0.806	0.10430	0.919	1.128	0.16731	0.919	1.168	0.17233
0.931	0.871	0.11048	0.931	1.346	0.17642	0.931	1.280	0.17795
0.943	0.894	0.11266	0.943	1.436	0.18487	0.943	1.333	0.18973
0.956	1.119	0.13400	0.956	1.520	0.18487	0.956	1.444	0.18973
0.969	1.122	0.13430	0.969	1.518	0.18465	0.969	1.444	0.18973
0.981	4.581	0.46283	0.981	3.993	0.43269	0.981	4.153	0.47809
0.994	-1.025	-0.06982	0.994	-1.151	-0.08282	0.994	-0.670	-0.03534
1.000	-2.234	-0.18444	1.000	-1.970	-0.16486	1.000	-1.558	-0.13000
1.015	-2.616	-0.22079	1.015	-2.600	-0.22804	1.015	-2.296	-0.20841
1.030	-4.696	-0.41844	1.030	-3.148	-0.28308	1.030	-3.159	-0.30037

Table 2-5: (Continued)

Run No. 9	Ma = 0.85	Run No. 10	Ma = 0.80	Run No. 11	Ma = 0.6	Run No. 12	Ma = 0.6	
$\alpha = 5^\circ$	$Re_L = 10 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 9.8 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 8.3 \cdot 10^6$	$\alpha = 5^\circ$	$Re_L = 8.3 \cdot 10^6$	
x/L	DP	CP	x/L	DP	CP	x/L	DP	CP
0.026	2.861	0.34075	0.026	3.487	0.43755	0.026	1.395	0.28066
0.076	0.579	0.09766	0.076	1.276	0.18480	0.076	0.111	0.06220
0.125	-0.703	-0.03895	0.125	0.038	0.04314	0.125	-0.549	-0.05015
0.175	-1.481	-0.12203	0.175	-0.779	-0.05028	0.175	-0.907	-0.11103
0.213	-1.781	-0.15407	0.213	-1.156	-0.09336	0.213	-1.031	-0.13216
0.250	-1.888	-0.16552	0.250	-1.358	-0.11643	0.250	-1.073	-0.13931
0.288	-1.856	-0.16210	0.288	-1.428	-0.12438	0.288	-1.055	-0.13634
0.325	-1.851	-0.14014	0.325	-1.356	-0.11621	0.325	-0.968	-0.12153
0.363	-1.468	-0.12277	0.363	-1.286	-0.10824	0.363	-0.879	-0.10631
0.400	-1.269	-0.09937	0.400	-1.159	-0.09368	0.400	-0.755	-0.08520
0.438	-1.024	-0.07322	0.438	-0.971	-0.07216	0.438	-0.635	-0.06473
0.475	-0.729	-0.04176	0.475	-0.724	-0.04395	0.475	-0.485	-0.03925
0.513	-0.429	-0.03108	0.513	-0.666	-0.03502	0.513	-0.443	-0.03210
0.550	-0.224	-0.03054	0.550	-0.629	-0.03308	0.550	-0.434	-0.03057
0.588	-0.082	-0.03673	0.588	-0.678	-0.03865	0.588	-0.458	-0.03468
0.625	-0.736	-0.04245	0.625	-0.716	-0.04301	0.625	-0.478	-0.03805
0.663	-0.900	-0.05997	0.663	-0.860	-0.05946	0.663	-0.559	-0.05184
0.701	-1.117	-0.08304	0.701	-1.051	-0.08130	0.701	-0.655	-0.06823
0.719	-1.440	-0.11750	0.719	-1.351	-0.11554	0.719	-0.802	-0.09324
0.738	-1.813	-0.15713	0.738	-1.739	-0.15993	0.738	-0.966	-0.12116
0.757	-2.043	-0.18173	0.757	-1.989	-0.18449	0.757	-1.057	-0.13663
0.776	-2.215	-0.19996	0.776	-2.222	-0.21525	0.776	-1.129	-0.14892
0.794	-2.439	-0.20457	0.794	-2.400	-0.23540	0.794	-1.163	-0.15470
0.807	-2.201	-0.19833	0.807	-2.461	-0.24256	0.807	-1.154	-0.15317
0.819	-1.101	-0.15170	0.819	-1.352	-0.22589	0.819	-0.532	-0.12917
0.832	-1.763	-0.11808	0.832	-2.316	-0.20686	0.832	-0.832	-0.10986
0.844	-1.448	-0.07640	0.844	-2.150	-0.17713	0.844	-0.900	-0.08420
0.856	-1.056	-0.02201	0.856	-1.899	-0.12506	0.856	-0.749	-0.04351
0.869	-0.545	-0.03076	0.869	-1.433	-0.06447	0.869	-0.510	0.00043
0.881	-0.049	0.07933	0.881	-0.903	-0.00442	0.881	-0.252	0.00043
0.894	0.407	0.11810	0.894	-0.318	0.07424	0.894	0.024	0.04739
0.906	0.771	0.14253	0.906	0.310	0.13514	0.906	0.298	0.09402
0.919	1.001	0.15156	0.919	0.843	0.17321	0.919	0.538	0.13481
0.931	1.087	0.15504	0.931	1.176	0.19001	0.931	0.699	0.16225
0.943	1.118	0.15504	0.943	1.323	0.19001	0.943	0.931	0.17438
0.955	1.285	0.17288	0.955	1.388	0.19751	0.955	0.874	0.19201
0.967	1.282	0.17249	0.967	1.390	0.19780	0.967	0.874	0.19184
0.979	4.574	0.52284	0.979	3.126	0.39626	0.979	0.000	0.46401
0.991	-0.366	-0.00296	0.991	-1.008	-0.07651	0.991	0.026	0.00076
1.003	-1.396	-0.11273	1.003	-1.506	-0.13351	1.003	0.175	-0.08564
1.015	-2.292	-0.20821	1.015	-1.930	-0.18186	1.015	-0.250	-0.15892
1.027	-3.394	-0.32558	1.027	-2.318	-0.22618	1.027	-1.471	-0.16892
1.039			1.039			1.039	-1.732	-0.25130

Table 2-5: (Continued)

Run No. 13 $Ma = 0.5$
 $\alpha = 0^\circ$ $Re_L = 7.2 \cdot 10^6$

Run No. 14 $Ma = 0.5$
 $\alpha = 5^\circ$ $Re_L = 7.3 \cdot 10^6$

Run No. 15 $Ma = 0.5$
 $\alpha = 0^\circ$ $Re_L = 3.0 \cdot 10^6$

Run No. 16 $Ma = 0.6$
 $\alpha = 0^\circ$ $Re_L = 3.5 \cdot 10^6$

X/L	DP	CP	X/L	DP	CP	X/L	DP	CP	X/L	DP	CP
0.026	1.455	0.37701	0.026	0.971	0.26663	0.026	0.607	0.38518	0.026	0.851	0.39929
0.076	0.465	0.15139	0.076	0.053	0.05746	0.076	0.207	0.16133	0.076	0.299	0.16837
0.125	-0.084	0.02622	0.125	-0.419	-0.05018	0.125	-0.016	0.03641	0.125	-0.015	0.03704
0.175	-0.420	-0.05042	0.175	-0.676	-0.10879	0.175	-0.154	-0.04092	0.175	-0.204	-0.04207
0.213	-0.562	-0.08282	0.213	-0.760	-0.12787	0.213	-0.211	-0.07290	0.213	-0.285	-0.07597
0.250	-0.642	-0.10109	0.250	-0.791	-0.13496	0.250	-0.243	-0.09088	0.250	-0.334	-0.09648
0.288	-0.675	-0.10873	0.288	-0.776	-0.13159	0.288	-0.256	-0.09822	0.288	-0.350	-0.10329
0.325	-0.651	-0.10325	0.325	-0.718	-0.11838	0.325	-0.247	-0.09317	0.325	-0.335	-0.09695
0.363	-0.627	-0.09769	0.363	-0.664	-0.10609	0.363	-0.234	-0.08588	0.363	-0.319	-0.09025
0.400	-0.548	-0.07964	0.400	-0.546	-0.07919	0.400	-0.209	-0.07186	0.400	-0.283	-0.07513
0.438	-0.458	-0.05916	0.438	-0.457	-0.05896	0.438	-0.187	-0.05952	0.438	-0.256	-0.06380
0.475	-0.369	-0.03878	0.475	-0.360	-0.03682	0.475	-0.147	-0.03708	0.475	-0.202	-0.04124
0.525	-0.353	-0.03513	0.525	-0.337	-0.03154	0.525	-0.126	-0.02528	0.525	-0.150	-0.01943
0.575	-0.347	-0.03376	0.575	-0.328	-0.02949	0.575	-0.111	-0.01687	0.575	-0.153	-0.02066
0.613	-0.370	-0.03899	0.613	-0.349	-0.03430	0.613	-0.124	-0.02418	0.613	-0.167	-0.02649
0.644	-0.386	-0.04264	0.644	-0.363	-0.03749	0.644	-0.133	-0.02923	0.644	-0.181	-0.03237
0.675	-0.450	-0.05728	0.675	-0.416	-0.04959	0.675	-0.157	-0.04269	0.675	-0.216	-0.04694
0.701	-0.526	-0.07453	0.701	-0.483	-0.06489	0.701	-0.189	-0.06067	0.701	-0.260	-0.06530
0.719	-0.649	-0.10257	0.719	-0.586	-0.08848	0.719	-0.237	-0.08761	0.719	-0.328	-0.09370
0.738	-0.789	-0.13459	0.738	-0.702	-0.11498	0.738	-0.295	-0.12021	0.738	-0.413	-0.12908
0.757	-0.883	-0.15600	0.757	-0.768	-0.12993	0.757	-0.332	-0.14097	0.757	-0.466	-0.15114
0.776	-0.962	-0.17389	0.776	-0.814	-0.14043	0.776	-0.367	-0.16069	0.776	-0.514	-0.17126
0.794	-1.031	-0.18958	0.794	-0.840	-0.14637	0.794	-0.391	-0.17424	0.794	-0.552	-0.18705
0.807	-1.056	-0.19545	0.807	-0.839	-0.14614	0.807	-0.399	-0.17873	0.807	-0.563	-0.19172
0.819	-0.535		0.819	-0.379		0.819	-0.163		0.819	-0.245	
0.832	-1.022	-0.18750	0.832	-0.747	-0.12521	0.832	-0.384	-0.17036	0.832	-0.540	-0.18219
0.844	-0.577	-0.17724	0.844	-0.671	-0.10777	0.844	-0.362	-0.15793	0.844	-0.508	-0.16883
0.856	-0.901	-0.15990	0.856	-0.563	-0.08310	0.856	-0.328	-0.13878	0.856	-0.455	-0.14669
0.869	-0.742	-0.12367	0.869	-0.400	-0.04590	0.869	-0.268	-0.10500	0.869	-0.367	-0.11000
0.881	-0.554	-0.08091	0.881	-0.218	-0.00437	0.881	-0.191	-0.06186	0.881	-0.256	-0.06363
0.894	-0.323	-0.02820	0.894	-0.020	0.04082	0.894	-0.098	-0.00963	0.894	-0.120	-0.00681
0.906	-0.047	0.03467	0.906	0.185	0.08758	0.906	0.012	0.05211	0.906	0.034	0.05752
0.919	0.247	0.10168	0.919	0.373	0.13046	0.919	0.130	0.11832	0.919	0.194	0.12439
0.931	0.503	0.15995	0.931	0.505	0.16054	0.931	0.234	0.17658	0.931	0.326	0.17955
0.943	0.658	0.19525	0.943	0.577	0.17686	0.943	0.301	0.21426	0.943	0.400	0.21047
0.000	0.705	0.20593	0.000	0.660	0.19575	0.000	0.330	0.23047	0.000	0.425	0.22092
0.000	0.704	0.20579	0.000	0.660	0.19583	0.000	0.330	0.23047	0.000	0.426	0.22140
0.026	1.301	0.34181	0.026	1.776	0.45017	0.026	0.541	0.34881	0.026	0.758	0.36018
0.175	-0.491	-0.06641	0.175	-0.190	0.00208	0.175	-0.181	-0.05614	0.175	-0.249	-0.06077
0.288	-0.706	-0.11543	0.288	-0.556	-0.08131	0.288	-0.271	-0.10662	0.288	-0.374	-0.11302
0.757	-0.852	-0.14858	0.757	-0.912	-0.16250	0.757	-0.324	-0.13635	0.757	-0.452	-0.14569
0.819	-1.026	-0.18819	0.819	-1.257	-0.24093	0.819	-0.383	-0.16944	0.819	-0.540	-0.18249

Table 2-5: (Continued)

Run No. 17	Ma = 0.8	Run No. 18	Ma = 0.85	Run No. 19	Ma = 0.90	Run No. 20	Ma = 0.90	
$\alpha = 0^\circ$	$Re_L = 4.2 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 4.3 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 4.4 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 16 \cdot 10^6$	
X/L	DP	CP	X/L	DP	CP	X/L	DP	CP
0.026	1.435	0.44141	0.026	1.619	0.45808	0.026	1.806	0.47569
0.076	0.548	0.19251	0.076	0.640	0.20283	0.076	0.748	0.21610
0.125	0.016	0.04329	0.125	0.045	0.04772	0.125	0.089	0.05440
0.175	-0.316	-0.04980	0.175	-0.335	-0.05142	0.175	-0.349	-0.05314
0.213	-0.463	-0.09097	0.213	-0.510	-0.09705	0.213	-0.565	-0.10615
0.250	-0.549	-0.11522	0.250	-0.608	-0.12262	0.250	-0.688	-0.13636
0.288	-0.577	-0.12316	0.288	-0.643	-0.13177	0.288	-0.734	-0.14761
0.325	-0.554	-0.11681	0.325	-0.615	-0.12451	0.325	-0.696	-0.13826
0.363	-0.517	-0.10639	0.363	-0.569	-0.11251	0.363	-0.633	-0.12274
0.400	-0.452	-0.08818	0.400	-0.491	-0.09213	0.400	-0.538	-0.09943
0.438	-0.408	-0.07584	0.438	-0.442	-0.07935	0.438	-0.474	-0.08370
0.475	-0.254	-0.03260	0.475	-0.263	-0.03264	0.475	-0.267	-0.03292
0.525	-0.218	-0.02249	0.525	-0.213	-0.01958	0.525	-0.202	-0.01697
0.575	-0.224	-0.02417	0.575	-0.224	-0.02243	0.575	-0.219	-0.02116
0.613	-0.246	-0.03036	0.613	-0.251	-0.02945	0.613	-0.247	-0.02807
0.644	-0.262	-0.03486	0.644	-0.272	-0.03489	0.644	-0.268	-0.03325
0.675	-0.322	-0.05177	0.675	-0.336	-0.05153	0.675	-0.337	-0.05022
0.701	-0.398	-0.07314	0.701	-0.426	-0.07491	0.701	-0.432	-0.07365
0.719	-0.524	-0.10858	0.719	-0.576	-0.11393	0.719	-0.611	-0.11768
0.738	-0.682	-0.15308	0.738	-0.776	-0.16612	0.738	-0.873	-0.18223
0.757	-0.885	-0.18198	0.757	-0.901	-0.19860	0.757	-1.034	-0.22187
0.776	-0.803	-0.20954	0.776	-1.028	-0.23170	0.776	-1.247	-0.27434
0.794	-0.949	-0.22811	0.794	-1.114	-0.25414	0.794	-1.397	-0.31114
0.807	-0.972	-0.23437	0.807	-1.140	-0.26077	0.807	-1.445	-0.32262
0.819	-0.471	-0.21720	0.819	-0.565	-0.23679	0.819	-0.733	-0.26196
0.832	-0.911	-0.19668	0.832	-1.047	-0.20946	0.832	-1.189	-0.21805
0.844	-0.838	-0.16329	0.844	-0.943	-0.16724	0.844	-1.021	-0.16126
0.856	-0.719	-0.11157	0.856	-0.780	-0.10683	0.856	-0.789	-0.09098
0.869	-0.535	-0.05085	0.869	-0.548	-0.03908	0.869	-0.503	-0.01731
0.881	-0.319	0.01884	0.881	-0.288	0.03443	0.881	-0.203	0.05489
0.894	-0.071	0.08967	0.894	-0.005	0.10418	0.894	0.091	0.11827
0.906	0.181	0.15009	0.906	0.262	0.15658	0.906	0.349	0.16003
0.919	0.396	0.18523	0.919	0.463	0.18498	0.919	0.519	0.16003
0.931	0.521	0.20031	0.931	0.572	0.19510	0.931	0.600	0.17984
0.943	0.575	0.20424	0.943	0.611	0.19998	0.943	0.625	0.18598
0.959	0.589	0.20453	0.959	0.629	0.19907	0.959	0.647	0.19141
0.975	0.590	0.20267	0.975	0.626	0.19936	0.975	0.647	0.19128
0.988	0.590	0.20267	0.988	0.626	0.19936	0.988	0.647	0.19128
0.994	0.590	0.20267	0.994	0.626	0.19936	0.994	0.647	0.19128
1.000	0.590	0.20267	1.000	0.626	0.19936	1.000	0.647	0.19128
1.006	0.590	0.20267	1.006	0.626	0.19936	1.006	0.647	0.19128
1.012	0.590	0.20267	1.012	0.626	0.19936	1.012	0.647	0.19128
1.018	0.590	0.20267	1.018	0.626	0.19936	1.018	0.647	0.19128
1.024	0.590	0.20267	1.024	0.626	0.19936	1.024	0.647	0.19128
1.030	0.590	0.20267	1.030	0.626	0.19936	1.030	0.647	0.19128
1.036	0.590	0.20267	1.036	0.626	0.19936	1.036	0.647	0.19128
1.042	0.590	0.20267	1.042	0.626	0.19936	1.042	0.647	0.19128
1.048	0.590	0.20267	1.048	0.626	0.19936	1.048	0.647	0.19128
1.054	0.590	0.20267	1.054	0.626	0.19936	1.054	0.647	0.19128
1.060	0.590	0.20267	1.060	0.626	0.19936	1.060	0.647	0.19128
1.066	0.590	0.20267	1.066	0.626	0.19936	1.066	0.647	0.19128
1.072	0.590	0.20267	1.072	0.626	0.19936	1.072	0.647	0.19128
1.078	0.590	0.20267	1.078	0.626	0.19936	1.078	0.647	0.19128
1.084	0.590	0.20267	1.084	0.626	0.19936	1.084	0.647	0.19128
1.090	0.590	0.20267	1.090	0.626	0.19936	1.090	0.647	0.19128
1.096	0.590	0.20267	1.096	0.626	0.19936	1.096	0.647	0.19128
1.102	0.590	0.20267	1.102	0.626	0.19936	1.102	0.647	0.19128
1.108	0.590	0.20267	1.108	0.626	0.19936	1.108	0.647	0.19128
1.114	0.590	0.20267	1.114	0.626	0.19936	1.114	0.647	0.19128
1.120	0.590	0.20267	1.120	0.626	0.19936	1.120	0.647	0.19128
1.126	0.590	0.20267	1.126	0.626	0.19936	1.126	0.647	0.19128
1.132	0.590	0.20267	1.132	0.626	0.19936	1.132	0.647	0.19128
1.138	0.590	0.20267	1.138	0.626	0.19936	1.138	0.647	0.19128
1.144	0.590	0.20267	1.144	0.626	0.19936	1.144	0.647	0.19128
1.150	0.590	0.20267	1.150	0.626	0.19936	1.150	0.647	0.19128
1.156	0.590	0.20267	1.156	0.626	0.19936	1.156	0.647	0.19128
1.162	0.590	0.20267	1.162	0.626	0.19936	1.162	0.647	0.19128
1.168	0.590	0.20267	1.168	0.626	0.19936	1.168	0.647	0.19128
1.174	0.590	0.20267	1.174	0.626	0.19936	1.174	0.647	0.19128
1.180	0.590	0.20267	1.180	0.626	0.19936	1.180	0.647	0.19128
1.186	0.590	0.20267	1.186	0.626	0.19936	1.186	0.647	0.19128
1.192	0.590	0.20267	1.192	0.626	0.19936	1.192	0.647	0.19128
1.198	0.590	0.20267	1.198	0.626	0.19936	1.198	0.647	0.19128
1.204	0.590	0.20267	1.204	0.626	0.19936	1.204	0.647	0.19128
1.210	0.590	0.20267	1.210	0.626	0.19936	1.210	0.647	0.19128
1.216	0.590	0.20267	1.216	0.626	0.19936	1.216	0.647	0.19128
1.222	0.590	0.20267	1.222	0.626	0.19936	1.222	0.647	0.19128
1.228	0.590	0.20267	1.228	0.626	0.19936	1.228	0.647	0.19128
1.234	0.590	0.20267	1.234	0.626	0.19936	1.234	0.647	0.19128
1.240	0.590	0.20267	1.240	0.626	0.19936	1.240	0.647	0.19128
1.246	0.590	0.20267	1.246	0.626	0.19936	1.246	0.647	0.19128
1.252	0.590	0.20267	1.252	0.626	0.19936	1.252	0.647	0.19128
1.258	0.590	0.20267	1.258	0.626	0.19936	1.258	0.647	0.19128
1.264	0.590	0.20267	1.264	0.626	0.19936	1.264	0.647	0.19128
1.270	0.590	0.20267	1.270	0.626	0.19936	1.270	0.647	0.19128
1.276	0.590	0.20267	1.276	0.626	0.19936	1.276	0.647	0.19128
1.282	0.590	0.20267	1.282	0.626	0.19936	1.282	0.647	0.19128
1.288	0.590	0.20267	1.288	0.626	0.19936	1.288	0.647	0.19128
1.294	0.590	0.20267	1.294	0.626	0.19936	1.294	0.647	0.19128
1.300	0.590	0.20267	1.300	0.626	0.19936	1.300	0.647	0.19128
1.306	0.590	0.20267	1.306	0.626	0.19936	1.306	0.647	0.19128
1.312	0.590	0.20267	1.312	0.626	0.19936	1.312	0.647	0.19128
1.318	0.590	0.20267	1.318	0.626	0.19936	1.318	0.647	0.19128
1.324	0.590	0.20267	1.324	0.626	0.19936	1.324	0.647	0.19128
1.330	0.590	0.20267	1.330	0.626	0.19936	1.330	0.647	0.19128
1.336	0.590	0.20267	1.336	0.626	0.19936	1.336	0.647	0.19128
1.342	0.590	0.20267	1.342	0.626	0.19936	1.342	0.647	0.19128
1.348	0.590	0.20267	1.348	0.626	0.19936	1.348	0.647	0.19128
1.354	0.590	0.20267	1.354	0.626	0.19936	1.354	0.647	0.19128
1.360	0.590	0.20267	1.360	0.626	0.19936	1.360	0.647	0.19128
1.366	0.590	0.20267	1.366	0.626	0.19936	1.366	0.647	0.19128
1.372	0.590	0.20267	1.372	0.626	0.19936	1.372	0.647	0.19128
1.378	0.590	0.20267	1.378	0.626	0.19936	1.378	0.647	0.19128
1.384	0.590	0.20267	1.384	0.626	0.19936	1.384	0.647	0.19128
1.390	0.590	0.20267	1.390	0.626	0.19936	1.390	0.647	0.19128
1.396	0.590	0.20267	1.396	0.626	0.19936	1.396	0.647	0.19128
1.402	0.590	0.20267	1.402	0.626	0.19936	1.402	0.647	0.19128
1.408	0.590	0.20267	1.408	0.626	0.19936	1.408	0.647	0.19128
1.414	0.590	0.20267	1.414	0.626	0.19936	1.414	0.647	0.19128
1.420	0.590	0.20267	1.420	0.626	0.19936	1.420	0.647	0.19128
1.426	0.590	0.20267	1.426	0.626	0.19936	1.426	0.647	0.19128
1.432	0.590	0.20267	1.432	0.626	0.19936	1.432	0.647	0.19128
1.438	0.590	0.20267	1.438	0.626	0.19936	1.438	0.647	0.19128
1.444	0.590	0.20267	1.444	0.626	0.19936	1.444	0.647	0.19128
1.450	0.590	0.20267	1.450	0.626	0.19936	1.450	0.647	0.19128
1.456	0.590	0.20267	1.456	0.626	0.19936	1.456	0.647	0.19128
1.462	0.590	0.20267	1.462	0.626	0.19936	1.462	0.647	0.19128
1.468	0.590	0.20267	1.468	0.626	0.19936	1.468	0.647	0.

Run No. 21	Ma = 0.85	Run No. 22	Ma = 0.80	Run No. 23	Ma = 0.60	Run No. 24	Ma = 0.5	
$\alpha = 0^\circ$	$Re_L = 16.3 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 15.6 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 13 \cdot 10^6$	$\alpha = 0^\circ$	$Re_L = 11.4 \cdot 10^6$	
X/L	DP	CP	X/L	DP	CP	X/L	DP	CP
0.026	6.557	0.46360	0.026	5.708	0.43816	0.026	2.389	0.37827
0.076	2.480	0.19798	0.076	2.115	0.18671	0.076	0.786	0.15696
0.125	0.147	0.04561	0.125	0.058	0.04280	0.125	-0.100	0.03143
0.175	-1.410	-0.05590	0.175	-1.315	-0.05314	0.175	-0.663	-0.04707
0.213	-2.150	-0.10404	0.213	-2.193	-0.09625	0.213	-0.885	-0.08153
0.250	-2.553	-0.13028	0.250	-2.272	-0.12012	0.250	-0.910	-0.10040
0.288	-2.682	-0.13870	0.288	-2.388	-0.12825	0.288	-1.045	-0.10709
0.325	-2.558	-0.13065	0.325	-2.255	-0.11900	0.325	-1.093	-0.10709
0.363	-2.381	-0.11906	0.363	-2.139	-0.11094	0.363	-1.060	-0.10259
0.400	-2.148	-0.10393	0.400	-1.950	-0.09769	0.400	-1.014	-0.09599
0.438	-1.765	-0.07902	0.438	-1.609	-0.07381	0.438	-0.953	-0.08747
0.475	-1.285	-0.04771	0.475	-1.225	-0.04698	0.475	-0.825	-0.06968
0.525	-1.132	-0.03776	0.525	-1.101	-0.03830	0.525	-0.671	-0.04819
0.575	-1.140	-0.03827	0.575	-1.103	-0.03848	0.575	-0.631	-0.04261
0.613	-1.215	-0.04321	0.613	-1.168	-0.04308	0.613	-0.630	-0.04246
0.644	-1.273	-0.04698	0.644	-1.217	-0.04647	0.644	-0.666	-0.04747
0.675	-1.539	-0.06426	0.675	-1.459	-0.06345	0.675	-0.688	-0.05061
0.701	-1.893	-0.08734	0.701	-1.771	-0.08534	0.701	-0.791	-0.06493
0.719	-2.494	-0.12660	0.719	-2.277	-0.12073	0.719	-0.920	-0.08293
0.738	-3.281	-0.17799	0.738	-2.911	-0.16522	0.738	-1.113	-0.10984
0.757	-3.799	-0.21198	0.757	-3.329	-0.19448	0.757	-1.347	-0.14249
0.776	-4.306	-0.24505	0.776	-3.722	-0.22217	0.776	-1.499	-0.16371
0.794	-4.682	-0.26973	0.794	-4.018	-0.24311	0.794	-1.630	-0.18200
0.807	-4.846	-0.28041	0.807	-4.131	-0.25096	0.807	-1.739	-0.19722
0.819	-4.684	-0.25915	0.819	-2.286	-0.23703	0.819	-1.787	-0.20392
0.832	-4.522	-0.23183	0.832	-3.935	-0.21839	0.832	-0.949	-0.19730
0.844	-4.106	-0.19674	0.844	-3.669	-0.21839	0.844	-1.740	-0.18666
0.856	-3.566	-0.16674	0.856	-3.289	-0.19178	0.856	-1.664	-0.17268
0.869	-2.629	-0.13561	0.869	-2.532	-0.13858	0.869	-1.564	-0.16370
0.881	-1.576	-0.06685	0.881	-1.637	-0.07587	0.881	-1.306	-0.13670
0.894	-0.439	0.00731	0.894	-0.660	-0.00746	0.894	-0.981	-0.09148
0.906	0.695	0.08129	0.906	0.393	0.06634	0.906	-0.609	-0.03949
0.919	1.641	0.14285	0.919	1.349	0.13331	0.919	-0.155	0.02376
0.931	2.216	0.18041	0.931	1.999	0.17875	0.931	0.327	0.09096
0.943	2.475	0.19738	0.943	2.311	0.20062	0.943	0.756	0.15086
0.956	2.613	0.20638	0.956	2.448	0.21010	0.956	1.042	0.19069
0.969	2.609	0.20625	0.969	2.454	0.21052	0.969	1.158	0.20499
0.981	2.600	0.20625	0.981	2.454	0.21052	0.981	1.156	0.20672
0.994	2.600	0.20625	0.994	2.454	0.21052	0.994	1.156	0.20672
1.000	2.600	0.20625	1.000	2.454	0.21052	1.000	1.156	0.20672
0.026	0.026	0.46360	0.026	0.026	0.43816	0.026	0.026	0.37827
0.076	0.076	0.19798	0.076	0.076	0.18671	0.076	0.076	0.15696
0.125	0.125	0.04561	0.125	0.125	0.04280	0.125	0.125	0.03143
0.175	0.175	-0.05590	0.175	0.175	-0.05314	0.175	0.175	-0.04707
0.213	0.213	-0.10404	0.213	0.213	-0.09625	0.213	0.213	-0.08153
0.250	0.250	-0.13028	0.250	0.250	-0.12012	0.250	0.250	-0.10040
0.288	0.288	-0.13870	0.288	0.288	-0.12825	0.288	0.288	-0.10709
0.325	0.325	-0.13065	0.325	0.325	-0.11900	0.325	0.325	-0.10709
0.363	0.363	-0.11906	0.363	0.363	-0.11094	0.363	0.363	-0.10259
0.400	0.400	-0.10393	0.400	0.400	-0.09769	0.400	0.400	-0.09599
0.438	0.438	-0.07902	0.438	0.438	-0.07381	0.438	0.438	-0.08747
0.475	0.475	-0.04771	0.475	0.475	-0.04698	0.475	0.475	-0.06968
0.525	0.525	-0.03776	0.525	0.525	-0.03830	0.525	0.525	-0.04819
0.575	0.575	-0.03827	0.575	0.575	-0.03848	0.575	0.575	-0.04261
0.613	0.613	-0.04321	0.613	0.613	-0.04308	0.613	0.613	-0.04246
0.644	0.644	-0.04698	0.644	0.644	-0.04647	0.644	0.644	-0.04747
0.675	0.675	-0.06426	0.675	0.675	-0.06345	0.675	0.675	-0.05061
0.701	0.701	-0.08734	0.701	0.701	-0.08534	0.701	0.701	-0.06493
0.719	0.719	-0.12660	0.719	0.719	-0.12073	0.719	0.719	-0.08293
0.738	0.738	-0.17799	0.738	0.738	-0.16522	0.738	0.738	-0.10984
0.757	0.757	-0.21198	0.757	0.757	-0.19448	0.757	0.757	-0.14249
0.776	0.776	-0.24505	0.776	0.776	-0.22217	0.776	0.776	-0.16371
0.794	0.794	-0.26973	0.794	0.794	-0.24311	0.794	0.794	-0.18200
0.807	0.807	-0.28041	0.807	0.807	-0.25096	0.807	0.807	-0.19722
0.819	0.819	-0.25915	0.819	0.819	-0.23703	0.819	0.819	-0.20392
0.832	0.832	-0.23183	0.832	0.832	-0.21839	0.832	0.832	-0.19730
0.844	0.844	-0.19674	0.844	0.844	-0.19178	0.844	0.844	-0.18666
0.856	0.856	-0.16674	0.856	0.856	-0.13858	0.856	0.856	-0.17268
0.869	0.869	-0.13561	0.869	0.869	-0.07587	0.869	0.869	-0.16370
0.881	0.881	-0.06685	0.881	0.881	-0.00746	0.881	0.881	-0.13670
0.894	0.894	0.00731	0.894	0.894	0.06634	0.894	0.894	-0.09148
0.906	0.906	0.08129	0.906	0.906	0.13331	0.906	0.906	-0.03949
0.919	0.919	0.14285	0.919	0.919	0.17875	0.919	0.919	0.02376
0.931	0.931	0.18041	0.931	0.931	0.20062	0.931	0.931	0.09096
0.943	0.943	0.19738	0.943	0.943	0.21010	0.943	0.943	0.15086
0.956	0.956	0.20638	0.956	0.956	0.21052	0.956	0.956	0.19069
0.969	0.969	0.20625	0.969	0.969	0.21052	0.969	0.969	0.20499
0.981	0.981	0.20625	0.981	0.981	0.21052	0.981	0.981	0.20672
0.994	0.994	0.20625	0.994	0.994	0.21052	0.994	0.994	0.20672
1.000	1.000	0.20625	1.000	1.000	0.21052	1.000	1.000	0.20672
0.026	0.026	0.46360	0.026	0.026	0.43816	0.026	0.026	0.37827
0.076	0.076	0.19798	0.076	0.076	0.18671	0.076	0.076	0.15696
0.125	0.125	0.04561	0.125	0.125	0.04280	0.125	0.125	0.03143
0.175	0.175	-0.05590	0.175	0.175	-0.05314	0.175	0.175	-0.04707
0.213	0.213	-0.10404	0.213	0.213	-0.09625	0.213	0.213	-0.08153
0.250	0.250	-0.13028	0.250	0.250	-0.12012	0.250	0.250	-0.10040
0.288	0.288	-0.13870	0.288	0.288	-0.12825	0.288	0.288	-0.10709
0.325	0.325	-0.13065	0.325	0.325	-0.11900	0.325	0.325	-0.10709
0.363	0.363	-0.11906	0.363	0.363	-0.11094	0.363	0.363	-0.10259
0.400	0.400	-0.10393	0.400	0.400	-0.09769	0.400	0.400	-0.09599
0.438	0.438	-0.07902	0.438	0.438	-0.07381	0.438	0.438	-0.08747
0.475	0.475	-0.04771	0.475	0.475	-0.04698	0.475	0.475	-0.06968
0.525	0.525	-0.03776	0.525	0.525	-0.03830	0.525	0.525	-0.04819
0.575	0.575	-0.03827	0.575	0.575	-0.03848	0.575	0.575	-0.04261
0.613	0.613	-0.04321	0.613	0.613	-0.04308	0.613	0.613	-0.04246
0.644	0.644	-0.04698	0.644	0.644	-0.04647	0.644	0.644	-0.04747
0.675	0.675	-0.06426	0.675	0.675	-0.06345	0.675	0.675	-0.05061
0.701	0.701	-0.08734	0.701	0.701	-0.08534	0.701	0.701	-0.06493
0.719	0.719	-0.12660	0.719	0.719	-0.12073	0.719	0.719	-0.08293
0.738	0.738	-0.17799	0.738	0.738	-0.16522	0.738	0.738	-0.10984
0.757	0.757	-0.21198	0.757	0.757	-0.19448	0.757	0.757	-0.14249
0.776	0.776	-0.24505	0.776	0.776	-0.22217	0.776	0.776	-0.16371
0.794	0.794	-0.26973	0.794	0.794	-0.24311	0.794	0.794	-0.18200
0.807	0.807	-0.28041	0.807	0.807	-0.25096	0.807	0.807	-0.19722
0.819	0.819	-0.25915	0.819	0.819	-0.23703	0.819	0.819	-0.20392
0.832	0.832	-0.23183	0.832	0.832	-0.21839	0.832	0.832	-0.19730
0.844	0.844	-0.19674	0.844	0.844	-0.19178	0.844	0.844	-0.18666
0.856	0.856	-0.16674	0.856	0.856	-0.13858	0.856	0.856	-0.17268
0.869	0.869	-0.13561	0.869	0.869	-0.07587	0.869	0.869	-0.16370
0.881	0.881	-0.06685	0.881	0.881	-0.00746	0.881	0.881	-0.13670
0.894	0.894	0.00731	0.894	0.894	0.06634	0.894	0.894	-0.09148
0.906	0.906	0.08129	0.906	0.906	0.13331	0.906	0.906	-0.03949
0.919	0.919	0.14285	0.919	0.919	0.17875	0.919	0.919	0.02376
0.931	0.931	0.18041	0.931	0.931	0.20062	0.931	0.931	0.09096
0.943	0.943	0.19738	0.943	0.943	0.21010	0.943	0.943	0.15086
0.956	0.956	0.20638	0.956	0.956	0.21052	0.956	0.956	0.19069
0.969	0.969	0.20625	0.969	0.969	0.21052	0.969	0.969	0.20499
0.981	0.981	0.20625	0.981	0.981	0.21052	0.981	0.981	0.20672
0.994</								

Measurements on MBB-Body-of-Revolution

Body No. 3

Position of body static pressure orifices rel. to model apex [cm]

2.08	6.06	10.04	14.04	17.03	20.01	23.02	26.03	29.03	32.03
35.03	38.03	42.02	46.03	49.03	51.54	54.03	56.06	57.54	59.04
60.55	62.06	63.54	64.54	65.54	66.53	67.51	68.51	69.52	70.51
71.51	72.50	73.49	74.48	75.46	0.0	0.0	2.08	14.04	23.02
60.55	65.54	4.00	8.00	12.00	0.0				

Constants & calibration:

Reference area $S = 113.094 \text{ cm}^2$

Base area $S_B = 7.54 \text{ cm}^2$

Chord length $L = 80 \text{ cm}$

Cal of pressure pickup $EP = 22.02 \text{ mm Hg/Volt}$

Cal of chord force elem. $EX = 0.184 \text{ kp/Volt}$

Table 2-6: Calibration and Geometrical Data, Test Phase 2

	X/L	DP	CP		X/L	DP	CP
1	0.026	1.511	0.41578	1	0.026	1.791	0.44148
2	0.076	0.562	0.17907	2	0.076	0.815	0.24021
3	0.125	-0.018	0.03425	3	0.125	0.195	0.08694
4	0.175	-0.371	-0.05395	4	0.175	-0.200	-0.01075
5	0.213	-0.529	-0.09343	5	0.213	-0.392	-0.05828
6	0.250	-0.610	-0.11377	6	0.250	-0.508	-0.08699
7	0.288	-0.643	-0.12191	7	0.288	-0.568	-0.10181
8	0.325	-0.604	-0.11227	8	0.325	-0.548	-0.09699
9	0.363	-0.566	-0.10282	9	0.363	-0.532	-0.09301
10	0.400	-0.512	-0.08930	10	0.400	-0.499	-0.08486
11	0.438	-0.420	-0.06627	11	0.438	-0.408	-0.06731
12	0.475	-0.299	-0.03604	12	0.475	-0.297	-0.03361
13	0.525	-0.263	-0.02704	13	0.525	-0.259	-0.02545
14	0.575	-0.262	-0.02679	14	0.575	-0.253	-0.02395
15	0.613	-0.277	-0.03053	15	0.613	-0.265	-0.02694
16	0.644	-0.310	-0.03884	16	0.644	-0.302	-0.03613
17	0.675	-0.366	-0.05285	17	0.675	-0.357	-0.04978
18	0.701	-0.450	-0.07383	18	0.701	-0.444	-0.07135
19	0.719	-0.581	-0.10666	19	0.719	-0.583	-0.10588
20	0.738	-0.742	-0.14706	20	0.738	-0.764	-0.15081
21	0.757	-0.848	-0.17347	21	0.757	-0.889	-0.18185
22	0.776	-0.944	-0.19754	22	0.776	-1.016	-0.21336
23	0.794	-1.002	-0.21224	23	0.794	-1.111	-0.23773
24	0.807	-1.012	-0.21469	24	0.807	-1.145	-0.24546
25	0.819	-0.991	-0.20943	25	0.819	-1.156	-0.24834
26	0.832	-0.938	-0.19621	26	0.832	-1.136	-0.24332
27	0.844	-0.829	-0.16890	27	0.844	-1.058	-0.22394
28	0.856	-0.692	-0.13467	28	0.856	-0.956	-0.19866
29	0.869	-0.493	-0.08477	29	0.869	-0.771	-0.15283
30	0.881	-0.263	-0.02715	30	0.881	-0.552	-0.09842
31	0.894	-0.008	0.03671	31	0.894	-0.283	-0.03161
32	0.906	0.231	0.09655	32	0.906	-0.001	0.03847
33	0.919	0.423	0.14459	33	0.919	0.261	0.10358
34	0.931	0.531	0.17158	34	0.931	0.447	0.14985
35	0.943	0.574	0.18229	35	0.943	0.541	0.17326
36	0.0	0.614	0.19224	36	0.0	0.595	0.18669
37	0.0	0.613	0.19194	37	0.0	0.594	0.18654
38	0.026	1.527	0.42019	38	0.026	1.274	0.35574
39	0.175	-0.374	-0.05470	39	0.175	-0.531	-0.09344
40	0.288	-0.642	-0.12166	40	0.288	-0.709	-0.13772
41	0.757	-0.846	-0.17250	41	0.757	-0.790	-0.15790
42	0.819	-1.016	-0.21491	42	0.819	-0.835	-0.16918
43	0.050	0.992	0.28633	43	0.050	1.246	0.34900
44	0.100	0.251	0.10133	44	0.100	0.479	0.15800
45	0.150	-0.214	-0.01465	45	0.150	-0.024	0.03274
46	0.0	0.612	0.19128	46	0.0	0.593	0.18649

Run No. 130 $Ma = 0.8$

$\alpha = 0^\circ$ $Re_L = 4.4 \cdot 10^6$

Run No. 131 $Ma = 0.8$

$\alpha = -3^\circ$ $Re_L = 4.4 \cdot 10^6$

Table 2-7: Pressure Data (Run 130 to 147 , and 163 to 165),
 Test Phase 2

Run No. 135 $Ma = 0.8$
 $\alpha = 3^\circ$ $Re_L = 10 \cdot 10^6$

Table 2-7: (Continued)

Run No. 136 $Ma = 0.85$ $Re_L = 10 \cdot 10^6$ $\alpha = 3^\circ$				Run No. 137 $Ma = 0.85$ $Re_L = 10 \cdot 10^6$ $\alpha = 0^\circ$				Run No. 138 $Ma = 0.85$ $Re_L = 10 \cdot 10^6$ $\alpha = -3^\circ$				Run No. 139 $Ma = 0.6$ $Re_L = 8.3 \cdot 10^6$ $\alpha = -3^\circ$			
x/L	DP	CP		x/L	DP	CP		x/L	DP	CP		x/L	DP	CP	
1	0.026	0.36080	1	0.026	4.116	0.42711	1	0.026	4.835	0.49497	1	0.026	2.572	0.43287	1
2	0.076	0.12346	2	0.076	1.540	0.18255	2	0.076	2.222	0.24679	2	0.076	1.077	0.20649	2
3	0.125	-0.10277	3	0.125	-0.073	-0.02908	3	0.125	-0.579	-0.01896	3	0.125	-0.169	-0.08991	3
4	0.175	-0.10735	4	0.175	-1.079	-0.06663	4	0.175	-0.579	-0.01896	4	0.175	-0.398	-0.01704	4
5	0.213	-0.14429	5	0.213	-1.569	-0.11328	5	0.213	-1.158	-0.07393	5	0.213	-0.680	-0.05973	5
6	0.250	-0.15876	6	0.250	-1.789	-0.13419	6	0.250	-1.474	-0.10392	6	0.250	-0.826	-0.08184	6
7	0.288	-0.15890	7	0.288	-1.881	-0.14297	7	0.288	-1.643	-0.11987	7	0.288	-0.905	-0.09379	7
8	0.325	-0.14043	8	0.325	-1.751	-0.13057	8	0.325	-1.590	-0.11478	8	0.325	-0.894	-0.09219	8
9	0.363	-0.12440	9	0.363	-1.656	-0.12150	9	0.363	-1.538	-0.10979	9	0.363	-0.881	-0.09020	9
10	0.400	-0.10689	10	0.400	-1.510	-0.10766	10	0.400	-1.482	-0.10453	10	0.400	-0.862	-0.08726	10
11	0.438	-0.07509	11	0.438	-1.200	-0.07816	11	0.438	-1.166	-0.07459	11	0.438	-0.703	-0.06321	11
12	0.475	-0.04447	12	0.475	-0.860	-0.04581	12	0.475	-0.822	-0.04200	12	0.475	-0.561	-0.04170	12
13	0.525	-0.03479	13	0.525	-0.767	-0.03694	13	0.525	-0.741	-0.03432	13	0.525	-0.528	-0.03664	13
14	0.575	-0.03488	14	0.575	-0.769	-0.03714	14	0.575	-0.737	-0.03393	14	0.575	-0.538	-0.03815	14
15	0.613	-0.03904	15	0.613	-0.801	-0.04017	15	0.613	-0.757	-0.03581	15	0.613	-0.548	-0.03966	15
16	0.644	-0.04608	16	0.644	-0.876	-0.04730	16	0.644	-0.832	-0.04291	16	0.644	-0.595	-0.04680	16
17	0.675	-0.04328	17	0.675	-1.044	-0.06327	17	0.675	-0.991	-0.05801	17	0.675	-0.712	-0.06452	17
18	0.701	-0.08561	18	0.701	-1.286	-0.08630	18	0.701	-1.219	-0.07962	18	0.701	-0.807	-0.07837	18
19	0.719	-0.12188	19	0.719	-1.690	-0.12470	19	0.719	-1.643	-0.11983	19	0.719	-1.007	-0.10931	19
20	0.738	-0.16249	20	0.738	-2.169	-0.17218	20	0.738	-2.200	-0.17255	20	0.738	-1.242	-0.14479	20
21	0.757	-0.18791	21	0.757	-2.523	-0.20387	21	0.757	-2.582	-0.20868	21	0.757	-1.407	-0.16956	21
22	0.776	-0.20817	22	0.776	-2.826	-0.23282	22	0.776	-2.977	-0.24607	22	0.776	-1.599	-0.19280	22
23	0.794	-0.21590	23	0.794	-3.038	-0.25294	23	0.794	-3.304	-0.27705	23	0.794	-1.700	-0.21369	23
24	0.807	-0.21171	24	0.807	-3.072	-0.25622	24	0.807	-3.438	-0.28980	24	0.807	-1.750	-0.22135	24
25	0.819	-0.19656	25	0.819	-3.016	-0.25098	25	0.819	-3.476	-0.29340	25	0.819	-1.777	-0.22565	25
26	0.832	-0.17225	26	0.832	-2.826	-0.23286	26	0.832	-3.392	-0.28549	26	0.832	-1.763	-0.22353	26
27	0.844	-0.13432	27	0.844	-2.491	-0.20083	27	0.844	-3.153	-0.26284	27	0.844	-1.702	-0.21445	27
28	0.856	-0.09173	28	0.856	-2.077	-0.16157	28	0.856	-2.809	-0.23025	28	0.856	-1.617	-0.20147	28
29	0.869	-0.03472	29	0.869	-1.446	-0.10150	29	0.869	-2.210	-0.17354	29	0.869	-1.395	-0.16645	29
30	0.881	-0.0136	30	0.881	-0.750	-0.03531	30	0.881	-1.537	-0.10969	30	0.881	-1.114	-0.12543	30
31	0.894	0.07850	31	0.894	-0.011	0.03497	31	0.894	-0.756	-0.03569	31	0.894	-0.762	-0.02706	31
32	0.906	0.12254	32	0.906	0.663	0.09908	32	0.906	0.045	0.04028	32	0.906	-0.337	-0.00775	32
33	0.919	0.15090	33	0.919	1.178	0.14808	33	0.919	0.747	0.10678	33	0.919	0.132	0.06328	33
34	0.931	0.16355	34	0.931	1.445	0.17341	34	0.931	1.231	0.15262	34	0.931	0.567	0.12909	34
35	0.943	0.16949	35	0.943	1.538	0.18219	35	0.943	1.447	0.17316	35	0.943	0.866	0.17435	35
36	0.0	0.18857	36	0.0	1.674	0.19516	36	0.0	1.622	0.18975	36	0.0	1.043	0.20112	36
37	0.0	0.18931	37	0.0	1.667	0.19450	37	0.0	1.632	0.19044	37	0.0	1.040	0.20067	37
38	0.026	0.18931	38	0.026	4.151	0.43073	38	0.026	3.484	0.36596	38	0.026	1.737	0.30614	38
39	0.175	-0.01885	39	0.175	-1.070	-0.06571	39	0.175	-1.500	-0.10619	39	0.175	-0.899	-0.09275	39
40	0.288	-0.12046	40	0.288	-1.885	-0.14317	40	0.288	-2.069	-0.16000	40	0.288	-1.146	-0.13020	40
41	0.419	-0.20750	41	0.419	-2.496	-0.20132	41	0.419	-2.352	-0.18684	41	0.419	-1.234	-0.14352	41
42	0.575	-0.30451	42	0.575	-3.130	-0.26151	42	0.575	-2.546	-0.20522	42	0.575	-1.373	-0.16466	42
43	0.719	-0.40451	43	0.719	-2.736	0.29592	43	0.719	3.434	0.36129	43	0.719	1.586	0.30954	43
44	0.850	0.23189	44	0.850	0.675	0.10020	44	0.850	1.307	0.15974	44	0.850	0.586	0.13204	44
45	0.100	0.04424	45	0.100	-0.669	-0.02758	45	0.100	-0.130	0.02366	45	0.100	-0.169	0.01767	45
46	0.0	0.18836	46	0.0	1.665	0.19434	46	0.0	1.623	0.18989	46	0.0	1.033	0.19992	46

Table 2-7: (Continued)

Run No. 140 $Ma = 0.6$ $Re_L = 8.3 \cdot 10^6$ $\alpha = 0^\circ$				Run No. 141 $Ma = 0.6$ $Re_L = 8.3 \cdot 10^6$ $\alpha = 3^\circ$				Run No. 142 $Ma = 0.5$ $Re_L = 7.3 \cdot 10^6$ $\alpha = 3^\circ$				Run No. 143 $Ma = 0.5$ $Re_L = 7.4 \cdot 10^6$ $\alpha = 0^\circ$			
x/L	DP	CP		x/L	DP	CP		x/L	DP	CP		x/L	DP	CP	
1	0.026	0.36660	1	0.026	1.692	0.30024	1	0.026	1.196	0.28852	1	0.026	1.513	0.35225	1
2	0.076	0.14596	2	0.076	0.306	0.08978	2	0.076	0.191	0.08424	2	0.076	0.463	0.13934	2
3	0.125	0.01726	3	0.125	-0.481	-0.02980	3	0.125	-0.373	-0.03052	3	0.125	-0.144	0.01614	3
4	0.175	-0.05754	4	0.175	-0.906	-0.09435	4	0.175	-0.670	-0.09101	4	0.175	-0.495	-0.05507	4
5	0.213	-0.09314	5	0.213	-1.089	-0.12218	5	0.213	-0.799	-0.11719	5	0.213	-0.661	-0.08885	5
6	0.250	-0.10698	6	0.250	-1.142	-0.13030	6	0.250	-0.839	-0.12536	6	0.250	-0.736	-0.10397	6
7	0.288	-0.11482	7	0.288	-1.142	-0.13016	7	0.288	-0.836	-0.12475	7	0.288	-0.762	-0.10935	7
8	0.325	-0.10732	8	0.325	-1.059	-0.11748	8	0.325	-0.777	-0.11266	8	0.325	-0.734	-0.10367	8
9	0.363	-0.10043	9	0.363	-0.984	-0.10609	9	0.363	-0.726	-0.10236	9	0.363	-0.701	-0.09698	9
10	0.400	-0.09392	10	0.400	-0.909	-0.09468	10	0.400	-0.671	-0.09110	10	0.400	-0.669	-0.09047	10
11	0.438	-0.08889	11	0.438	-0.739	-0.08089	11	0.438	-0.591	-0.06682	11	0.438	-0.551	-0.06643	11
12	0.475	-0.04576	12	0.475	-0.587	-0.04582	12	0.475	-0.444	-0.04499	12	0.475	-0.444	-0.04575	12
13	0.525	-0.03985	13	0.525	-0.540	-0.03876	13	0.525	-0.409	-0.03796	13	0.525	-0.418	-0.03952	13
14	0.575	-0.04061	14	0.575	-0.539	-0.03861	14	0.575	-0.408	-0.03772	14	0.575	-0.422	-0.04033	14
15	0.613	-0.04251	15	0.613	-0.549	-0.04010	15	0.613	-0.417	-0.03955	15	0.613	-0.430	-0.04198	15
16	0.644	-0.04815	16	0.644	-0.589	-0.04617	16	0.644	-0.444	-0.04505	16	0.644	-0.460	-0.04805	16
17	0.675	-0.06203	17	0.675	-0.672	-0.05880	17	0.675	-0.505	-0.05748	17	0.675	-0.523	-0.06084	17
18	0.701	-0.07862	18	0.701	-0.779	-0.07510	18	0.701	-0.580	-0.07276	18	0.701	-0.603	-0.07714	18
19	0.738	-0.10664	19	0.738	-0.943	-0.09997	19	0.738	-0.691	-0.09547	19	0.738	-0.736	-0.10401	19
20	0.775	-0.13899	20	0.775	-1.124	-0.12739	20	0.775	-0.818	-0.12117	20	0.775	-0.883	-0.13396	20
21	0.819	-0.15985	21	0.819	-1.230	-0.14360	21	0.819	-0.895	-0.13688	21	0.819	-0.976	-0.15272	21
22	0.869	-0.17782	22	0.869	-1.313	-0.15619	22	0.869	-0.954	-0.14877	22	0.869	-1.058	-0.16939	22
23	0.914	-0.19145	23	0.914	-1.361	-0.16356	23	0.914	-0.986	-0.15544	23	0.914	-1.129	-0.18395	23
24	0.957	-0.19575	24	0.957	-1.355	-0.16280	24	0.957	-0.974	-0.15287	24	0.957	-1.139	-0.18615	24
25	0.999	-0.19362	25	0.999	-1.220	-0.15409	25	0.999	-0.944	-0.14888	25	0.999	-1.132	-0.18459	25
26	1.044	-0.18477	26	1.044	-1.088	-0.14200	26	1.044	-0.888	-0.13545	26	1.044	-1.100	-0.17795	26
27	1.085	-0.16853	27	1.085	-0.914	-0.12209	27	1.085	-0.792	-0.11590	27	1.085	-1.024	-0.16252	27
28	1.126	-0.14791	28	1.126	-0.654	-0.09576	28	1.126	-0.677	-0.09247	28	1.126	-0.922	-0.14193	28
29	1.164	-0.10889	29	1.164	-0.489	-0.06607	29	1.164	-0.489	-0.06419	29	1.164	-0.747	-0.10628	29
30	1.204	-0.06284	30	1.204	-0.357	-0.04096	30	1.204	-0.285	-0.01265	30	1.204	-0.537	-0.06374	30
31	1.244	-0.00671	31	1.244	-0.019	0.04043	31	1.244	-0.050	0.03521	31	1.244	-0.278	0.01108	31
32	1.284	0.05662	32	1.284	0.313	0.09087	32	1.284	0.179	0.08182	32	1.284	0.010	0.04734	32
33	1.324	0.11708	33	1.324	0.605	0.13521	33	1.324	0.413	0.12953	33	1.324	0.306	0.10752	33
34	1.364	0.16374	34	1.364	0.789	0.16327	34	1.364	0.567	0.16081	34	1.364	0.549	0.15688	34
35	1.404	0.18747	35	1.404	0.873	0.17598	35	1.404	0.648	0.17719	35	1.404	0.683	0.18411	35
36	1.444	0.20359	36	1.444	1.023	0.19878	36	1.444	0.756	0.19915	36	1.444	0.776	0.20291	36
37	1.484	0.20253	37	1.484	1.021	0.19847	37	1.484	0.753	0.19864	37	1.484	0.771	0.20189	37
38	1.524	0.20253	38	1.524	2.594	0.43771	38	1.524	1.862	0.42435	38	1.524	1.541	0.35941	38
39	1.564	-0.05651	39	1.564	-0.387	-0.01555	39	1.564	-0.291	-0.01384	39	1.564	-0.491	-0.05459	39
40	1.604	-0.11406	40	1.604	-0.902	-0.09378	40	1.604	-0.661	-0.08913	40	1.604	-0.772	-0.11138	40
41	1.644	-0.15823	41	1.644	-1.390	-0.16803	41	1.644	-1.016	-0.16137	41	1.644	-0.973	-0.15240	41
42	1.684	-0.20478	42	1.684	-1.871	-0.24132	42	1.684	-1.350	-0.22893	42	1.684	-1.186	-0.19570	42
43	1.724	0.24377	43	1.724	0.907	0.18135	43	1.724	0.623	0.17205	43	1.724	0.928	0.23390	43
44	1.764	0.27572	44	1.764	0.050	0.02354	44	1.764	0.050	0.02035	44	1.764	0.126	0.07095	44
45	1.804	-0.02763	45	1.804	-0.130	-0.07013	45	1.804	-0.123	-0.06895	45	1.804	-0.356	-0.02699	45
46	1.844	0.20301	46	1.844	1.021	0.19859	46	1.844	0.755	0.19887	46	1.844	0.771	0.20200	46

Table 2-7: (Continued)

Run No. 147 $Ma = 0.8$
 $\alpha = 3^\circ$ $Re_L = 15 \cdot 10^6$

Table 2-7: (Continued)

Run No. 163 Ma = 0.804
 $\alpha = 0^\circ$ $Re_L = 10 \cdot 10^6$

Run No. 164 Ma = 0.801
 $\alpha = -3^\circ$ $Re_L = 10 \cdot 10^6$

Run No. 165 Ma = 0.800
 $\alpha = 3^\circ$ $Re_L = 10 \cdot 10^6$

	X/L	DP	CP		X/L	DP	CP		X/L	DP	CP
1	0.026	3.675	0.41188	1	0.026	4.350	0.48142	1	0.026	3.039	0.34863
2	0.076	1.264	0.16699	2	0.076	1.884	0.23046	2	0.076	0.681	0.10822
3	0.125	-0.165	0.02185	3	0.125	0.378	0.07720	3	0.125	-0.641	-0.02657
4	0.175	-1.054	-0.06845	4	0.175	-0.622	-0.02457	4	0.175	-1.379	-0.10181
5	0.213	-1.432	-0.10685	5	0.213	-1.084	-0.07158	5	0.213	-1.717	-0.13627
6	0.250	-1.596	-0.12351	6	0.250	-1.370	-0.10069	6	0.250	-1.830	-0.14779
7	0.288	-1.663	-0.13031	7	0.288	-1.504	-0.11433	7	0.288	-1.820	-0.14677
8	0.325	-1.585	-0.12239	8	0.325	-1.471	-0.11097	8	0.325	-1.680	-0.13250
9	0.363	-1.484	-0.11213	9	0.363	-1.379	-0.10160	9	0.363	-1.534	-0.11761
10	0.400	-1.352	-0.09872	10	0.400	-1.305	-0.09407	10	0.400	-1.354	-0.09926
11	0.438	-1.152	-0.07841	11	0.438	-1.113	-0.07453	11	0.438	-1.137	-0.07714
12	0.475	-0.822	-0.04489	12	0.475	-0.778	-0.04044	12	0.475	-0.813	-0.04410
13	0.525	-0.729	-0.03544	13	0.525	-0.700	-0.03250	13	0.525	-0.717	-0.03432
14	0.575	-0.751	-0.03768	14	0.575	-0.722	-0.03474	14	0.575	-0.732	-0.03585
15	0.613	-0.772	-0.03981	15	0.613	-0.738	-0.03637	15	0.613	-0.755	-0.03819
16	0.644	-0.847	-0.04743	16	0.644	-0.807	-0.04339	16	0.644	-0.832	-0.04604
17	0.675	-0.994	-0.06236	17	0.675	-0.947	-0.05764	17	0.675	-0.977	-0.06083
18	0.701	-1.192	-0.08247	18	0.701	-1.149	-0.07820	18	0.701	-1.181	-0.08162
19	0.719	-1.532	-0.11700	19	0.719	-1.506	-0.11453	19	0.719	-1.484	-0.11252
20	0.738	-1.962	-0.18068	20	0.738	-1.986	-0.18338	20	0.738	-1.866	-0.15146
21	0.757	-2.238	-0.18871	21	0.757	-2.300	-0.19533	21	0.757	-2.079	-0.17318
22	0.776	-2.479	-0.21319	22	0.776	-2.615	-0.22739	22	0.776	-2.252	-0.19082
23	0.794	-2.653	-0.23087	23	0.794	-2.883	-0.25466	23	0.794	-2.329	-0.19867
24	0.807	-2.705	-0.23615	24	0.807	-2.991	-0.26565	24	0.807	-2.298	-0.19551
25	0.819	-2.666	-0.23219	25	0.819	-3.035	-0.27013	25	0.819	-2.208	-0.18633
26	0.832	-2.532	-0.21858	26	0.832	-2.987	-0.26525	26	0.832	-2.018	-0.16696
27	0.844	-2.288	-0.19379	27	0.844	-2.821	-0.24835	27	0.844	-1.718	-0.13637
28	0.856	-1.981	-0.16261	28	0.856	-2.598	-0.22566	28	0.856	-1.355	-0.09936
29	0.869	-1.439	-0.10756	29	0.869	-2.108	-0.17579	29	0.869	-0.834	-0.04625
30	0.881	-0.834	-0.04611	30	0.881	-1.546	-0.11860	30	0.881	-0.288	0.00942
31	0.894	-0.162	0.02215	31	0.894	-0.875	-0.05031	31	0.894	0.274	0.06672
32	0.906	0.502	0.08959	32	0.906	-0.122	0.02632	32	0.906	0.763	0.11658
33	0.919	1.049	0.14515	33	0.919	0.597	0.09949	33	0.919	1.106	0.15155
34	0.931	1.350	0.17573	34	0.931	1.141	0.15485	34	0.931	1.279	0.16919
35	0.943	1.472	0.18812	35	0.943	1.365	0.17764	35	0.943	1.345	0.17592
36	0.0	1.600	0.20112	36	0.0	1.562	0.19769	36	0.0	1.551	0.19692
37	0.0	1.596	0.20071	37	0.0	1.563	0.19779	37	0.0	1.549	0.19672
38	0.026	3.781	0.42265	38	0.026	3.113	0.35553	38	0.026	4.413	0.48872
39	0.175	-0.985	-0.06144	39	0.175	-1.388	-0.10252	39	0.175	-0.553	-0.01760
40	0.288	-1.690	-0.13305	40	0.288	-1.845	-0.14903	40	0.288	-1.479	-0.11201
41	0.757	-2.208	-0.18567	41	0.757	-2.052	-0.17009	41	0.757	-2.292	-0.19490
42	0.819	-2.746	-0.24031	42	0.819	-2.272	-0.19248	42	0.819	-3.154	-0.28278
43	0.050	2.354	0.27770	43	0.050	3.004	0.34444	43	0.050	1.728	0.21497
44	0.100	0.527	0.09213	44	0.100	1.116	0.15230	44	0.100	-0.009	0.03787
45	0.150	-0.651	-0.02752	45	0.150	-0.148	0.02367	45	0.150	-1.066	-0.06990
46	0.0	1.597	0.20081	46	0.0	1.561	0.19759	46	0.0	1.545	0.19631

Table 2-7 : (Concluded)

Table: 2-8 Drag Data for Complete Model (Shape 3) at
Zero Incidence (Test Phase 2)

Run	α	Ma	p_0	C_X	C_B	C_{Xcorr}
130	0	0,8	300	0,0623	-0,0128	0,0751
133	0	0,80	735	0,0531	-0,0133	0,0664
137	0	0,85	735	0,0541	-0,0129	0,067
140	0	0,60	735	0,0536	-0,0135	0,0671
143	0	0,50	735	0,0555	-0,0135	0,0690
145	0	0,80	1152	0,0493	-0,0140	0,0633
163	0	0,804	734	0,0503	-0,0134	0,0637

MEASUREMENTS ON MB8-BODY-OF-REVOLUTION
 POSITION OF WALL STATIC PRESSURE REL. TO MODEL APEX

XB_M (CM)

-20.70	-18.34	-15.93	-6.32	-3.83	-1.37
5.45	10.58	13.16	22.53	25.07	27.57
36.88	39.37	41.86	51.31	53.70	56.27
65.59	68.11	70.54	79.94	82.48	84.94

CONSTANTS & CALIBRATION

REFERENCE AREA S = 112.81 CM**2
 CHORD LENGTH L = 80.00 CM

CAL.OF PRESS.TRD. AP = 93.25 MMWS/VOLT
 CAL.OF CHORD FORCE AX = 0.5868 VOLT/KP

Table 2-9: Calibration and Geometrical Data, Test Phase 3

MEASUREMENTS ON MRR-BODY-OF-REVOLUTION

RESULTS RUN NO 89

A) FORCE MEASUREMENTS. CX	CXCORR	CPI	MA	REL
0.0			0.80050	0.552E 07
0.0			0.80050	0.552E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0049
-0.2292	0.0018
-0.1991	0.0021
-0.0790	0.0054
-0.0479	0.0029
-0.0171	0.0060
0.0731	0.0028
0.1322	0.0047
0.1645	0.0003
0.2816	0.0039
0.3134	-0.0008
0.3446	0.0171
0.4610	0.0115
0.4921	0.0066
0.5232	-0.0020
0.6414	0.0059
0.6712	0.0061
0.7034	0.0163
0.8199	0.0165
0.8514	0.0121
0.8817	0.0144
0.9992	0.0160
1.0310	0.0156
1.0617	0.0113

AVERAGE CPA = 0.00788

AVERAGE SCATTER AS = 0.00606

Table 2-10: Force and Pressure Data, Test Phase 3 (Run 89 to 100)

MEASUREMENTS ON MRR-BODY-OF-REVOLUTION

RESULTS RUN NO 90

A) FORCE MEASUREMENTS. CX	CXCORR	CPI	MA	REL
0.0			0.80019	0.812E 07
0.0			0.79988	0.811E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0006
-0.2292	-0.0003
-0.1991	-0.0006
-0.0790	0.0031
-0.0479	-0.0018
-0.0171	0.0046
0.0731	-0.0018
0.1322	0.0024
0.1645	-0.0037
0.2816	-0.0025
0.3134	-0.0116
0.3446	0.0123
0.4610	0.0100
0.4921	0.0026
0.5232	0.0037
0.6414	0.0070
0.6712	0.0041
0.7034	0.0189
0.8199	0.0100
0.8514	0.0016
0.8817	0.0082
0.9992	0.0134
1.0310	0.0124
1.0617	0.0087

AVERAGE CPA = 0.00441

AVERAGE SCATTER AS = 0.00674

Table 2-10: (Continued)

MEASUREMENTS ON MRB-BODY-OF-REVOLUTION

RESULTS RUN NO 91

A) FORCE MEASUREMENTS. CX	CXCORR	CPI	MA	REL
0.0			0.80050	0.995E 07
0.0			0.80050	0.994E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0001
-0.2292	-0.0026
-0.1991	0.0005
-0.0790	0.0028
-0.0479	-0.0029
-0.0171	0.0076
0.0731	-0.0034
0.1322	-0.0007
0.1645	-0.0082
0.2816	-0.0073
0.3134	-0.0129
0.3446	0.0075
0.4610	0.0148
0.4921	0.0042
0.5232	0.0005
0.6414	0.0029
0.6712	0.0025
0.7034	0.0191
0.8199	0.0085
0.8514	0.0015
0.8817	0.0116
0.9992	0.0106
1.0310	0.0130
1.0617	0.0086

AVERAGE CPA = 0.00341 AVERAGE SCATTER AS = 0.00769

Table 2-10: (Continued)

MEASUREMENTS ON MRB-BODY-OF-REVOLUTION

RESULTS RUN NO 92

A) FORCE MEASUREMENTS. CX	CXCORR	CPI	MA	REL
0.0			0.80003	0.135E 08
0.0			0.80065	0.135E 08

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	-0.0063
-0.2292	-0.0059
-0.1991	-0.0038
-0.0790	0.0009
-0.0479	-0.0076
-0.0171	0.0039
0.0731	-0.0061
0.1322	-0.0056
0.1645	-0.0140
0.2816	-0.0090
0.3134	-0.0154
0.3446	0.0104
0.4610	0.0132
0.4921	0.0011
0.5232	0.0020
0.6414	-0.0034
0.6712	0.0005
0.7034	0.0179
0.8199	0.0050
0.8514	0.0028
0.8817	0.0092
0.9992	0.0137
1.0310	0.0084
1.0617	0.0054

AVERAGE CPA = 0.00075 AVERAGE SCATTER AS = 0.00874

Table 2-10: (Continued)

MEASUREMENTS ON MFB-BODY-OF-REVOLUTION

RESULTS RUN NO 97

A) FORCE MEASUREMENTS. CX	CXCORR	CPI	MA	REL
-0.07205	-0.04295	-0.02911	0.80142	0.540E 07
-0.07209	-0.04290	-0.02919	0.80126	0.540E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0080
-0.2292	0.0050
-0.1991	0.0047
-0.0790	0.0100
-0.0479	0.0068
-0.0171	0.0108
0.0731	0.0041
0.1322	0.0091
0.1645	0.0023
0.2816	0.0053
0.3134	-0.0071
0.3446	0.0269
0.4610	0.0126
0.4921	0.0073
0.5232	0.0005
0.6414	0.0050
0.6712	0.0042
0.7034	0.0071
0.8199	0.0069
0.8514	0.0008
0.8817	0.0083
0.9992	0.0099
1.0310	0.0094
1.0617	0.0066

AVERAGE CPA = 0.00714

AVERAGE SCATTER AS = 0.00592

Table 2-10: (Continued)

MEASUREMENTS ON MFB-BODY-OF-REVOLUTION

RESULTS RUN NO 98

A) FORCE MEASUREMENTS. CX	CXCORR	CPI	MA	REL
-0.06688	-0.03619	-0.03070	0.89111	0.825E 07
-0.06699	-0.03639	-0.03060	0.80080	0.825E 07

B) STATIC WALL PRESSURE

X/L	CPWALL
-0.2587	0.0030
-0.2292	0.0008
-0.1991	0.0064
-0.0790	0.0080
-0.0479	0.0035
-0.0171	0.0129
0.0731	0.0024
0.1322	0.0037
0.1645	0.0027
0.2816	0.0042
0.3134	-0.0135
0.3446	0.0317
0.4610	0.0102
0.4921	0.0053
0.5232	0.0002
0.6414	0.0006
0.6712	0.0020
0.7034	0.0068
0.8199	0.0043
0.8514	-0.0021
0.8817	0.0042
0.9992	0.0078
1.0310	0.0069
1.0617	0.0035

AVERAGE CPA = 0.00503

AVERAGE SCATTER AS = 0.00756

Table 2-10: (Continued)

MEASUREMENTS ON M88-BODY-OF-REVOLUTION

RESULTS RUN NO 99

A) FORCE MEASUREMENTS, CX	CX CORR	CPI	MA	REL
-0.06290	-0.03322	-0.02968	0.80034	0.100E 08
-0.06300	-0.03293	-0.03007	0.80050	0.100E 08

B) STATIC WALL PRESSURE

X/L	CP WALL
-0.2587	-0.0004
-0.2292	-0.0018
-0.1991	0.0041
-0.0790	0.0033
-0.0479	0.0006
-0.0171	0.0104
0.0731	0.0011
0.1322	0.0013
0.1645	0.0006
0.2816	-0.0039
0.3134	-0.0159
0.3446	0.0229
0.4610	0.0128
0.4921	0.0079
0.5232	-0.0065
0.6414	-0.0004
0.6712	0.0001
0.7034	0.0154
0.8199	0.0029
0.8514	-0.0028
0.8817	0.0060
0.9992	0.0060
1.0310	0.0075
1.0617	0.0018

AVERAGE CPA = 0.00316 AVERAGE SCATTER AS = 0.00771

Table 2-10: (Continued)

MEASUREMENTS ON M88-BODY-OF-REVOLUTION

RESULTS RUN NO 100

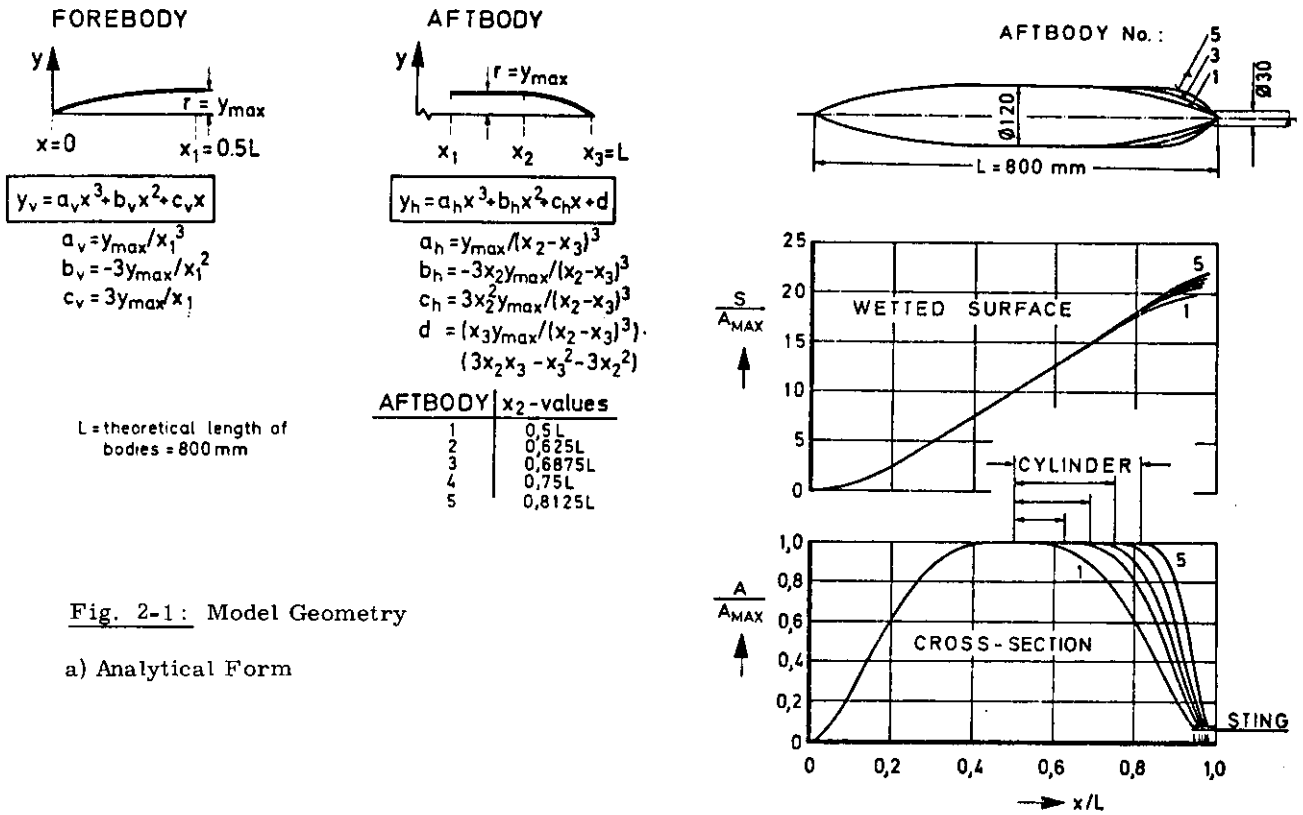
A) FORCE MEASUREMENTS, CX	CX CORR	CPI	MA	REL
-0.05718	-0.02794	-0.02924	0.80050	0.140E 08
-0.05683	-0.02806	-0.02877	0.80065	0.140E 08

B) STATIC WALL PRESSURE

X/L	CP WALL
-0.2587	-0.0045
-0.2292	-0.0098
-0.1991	0.0036
-0.0790	0.0027
-0.0479	-0.0040
-0.0171	0.0102
0.0731	-0.0033
0.1322	-0.0102
0.1645	-0.0047
0.2816	-0.0027
0.3134	-0.0235
0.3446	0.0259
0.4610	0.0157
0.4921	0.0041
0.5232	0.0035
0.6414	-0.0052
0.6712	-0.0053
0.7034	0.0138
0.8199	0.0006
0.8514	-0.0054
0.8817	0.0033
0.9992	0.0055
1.0310	0.0047
1.0617	0.0001

AVERAGE CPA = 0.00066 AVERAGE SCATTER AS = 0.00985

Table 2-10: (Concluded)



b) Shape of Aftbody 1, 3, and 5

c) Wetted Surface and Cross Section Distribution

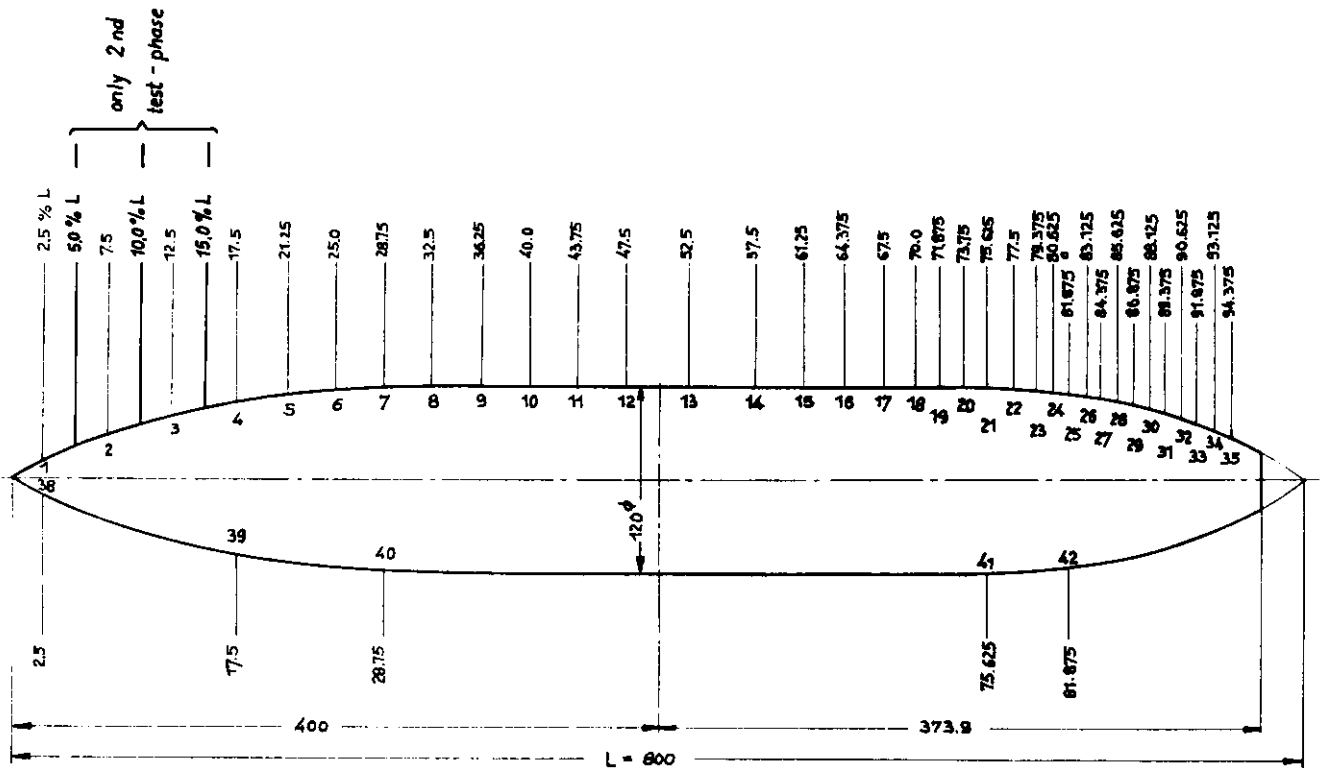


Fig. 2-2: Position of Pressure Orifices (5 %, 10 %, 15 % L only during Test Phase 2)

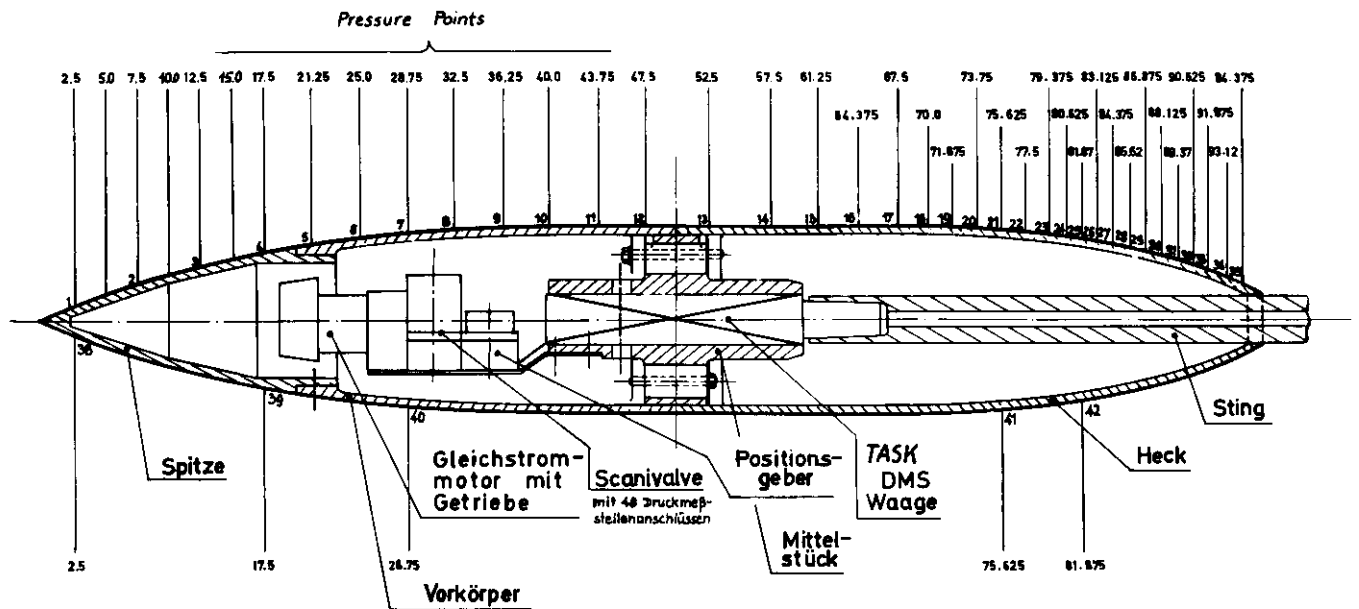


Fig. 2-3: Test Setup for Complete Model with Scanivalve, TASK-Balance, and Sting

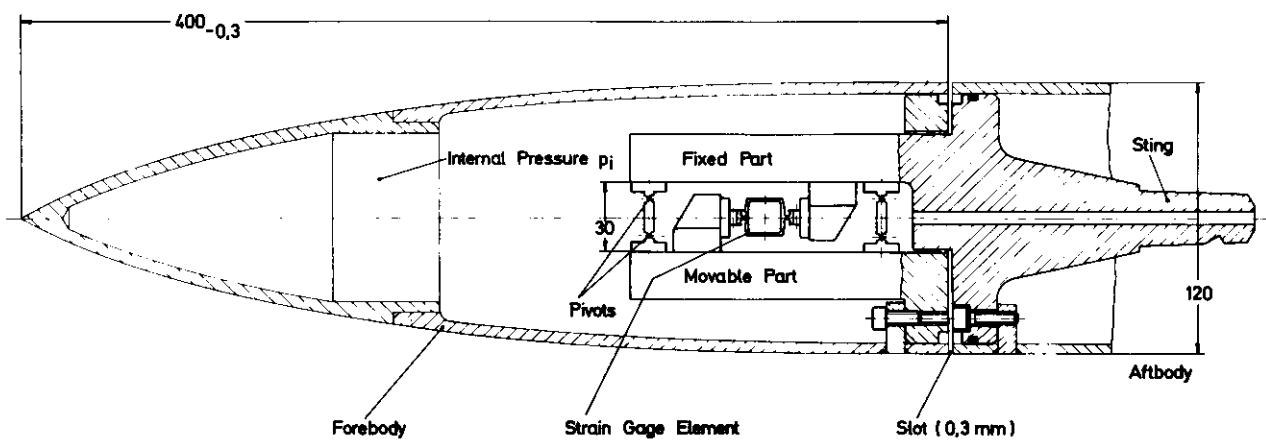


Fig. 2-4: Forebody Drag Measurement Setup (chord force balance)

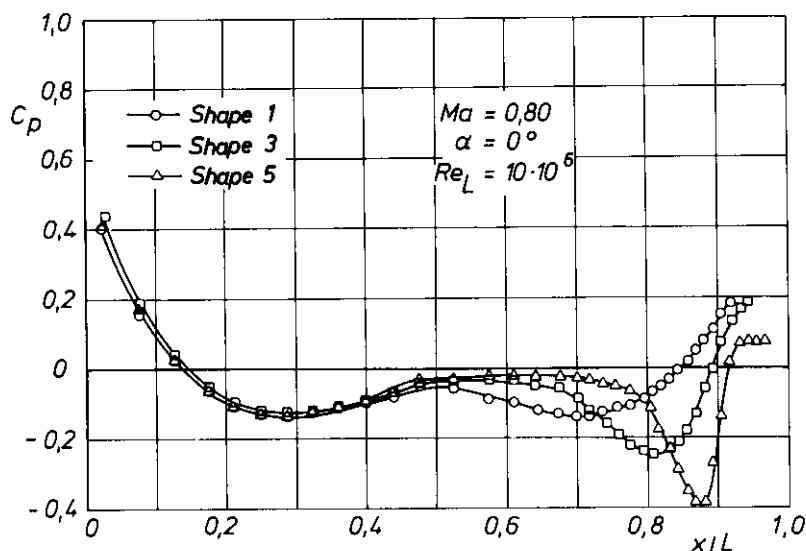


Fig. 2-5: Comparison of Pressure Distribution of Shape 1, 3, and 5 at $Ma = 0.8$, Zero Angle of Attack, and $10 \cdot 10^6$ Chord Reynolds Number.

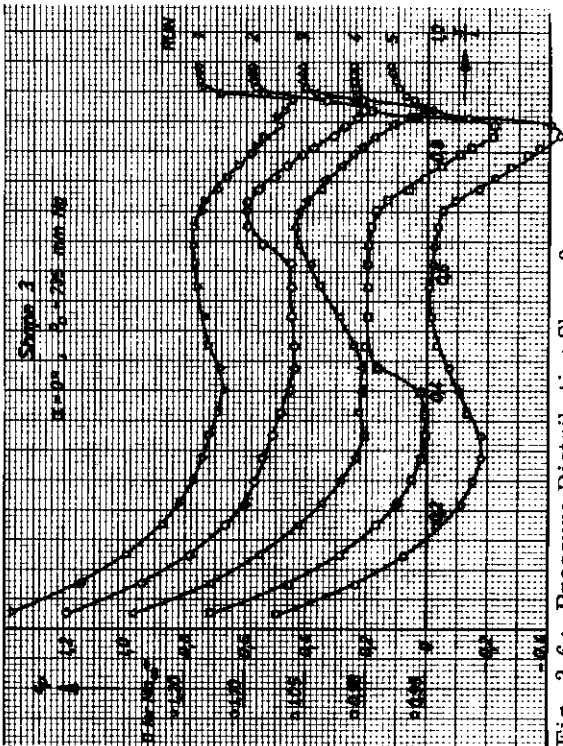


Fig. 2-6: Pressure Distribution Shape 3
 c_p (x/L; Ma); $\alpha = 0$

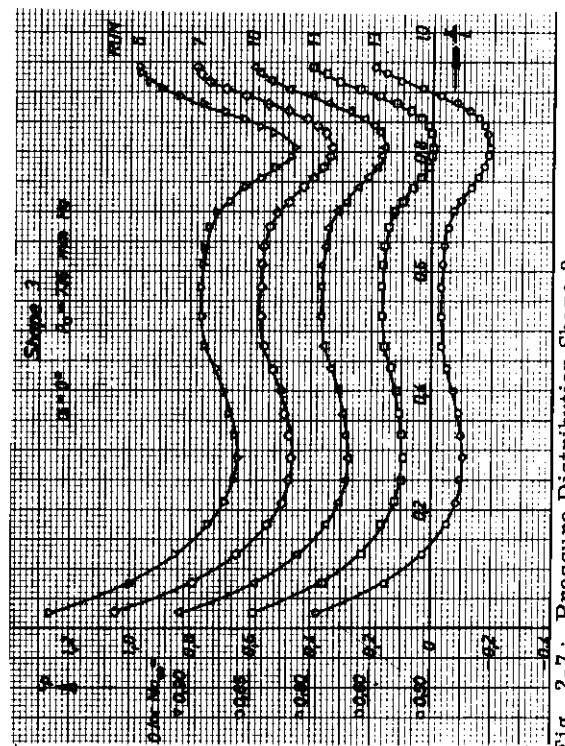


Fig. 2-7: Pressure Distribution Shape 3
 c_p (x/L; Ma); $\alpha = 0$

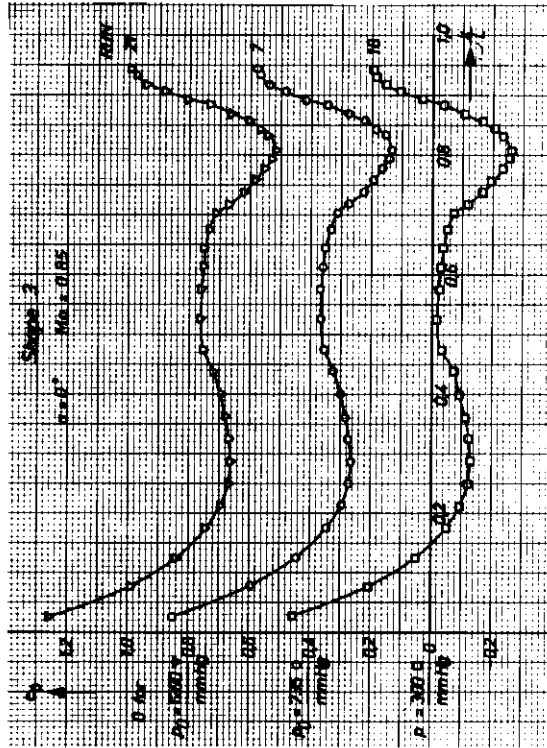


Fig. 2-8: Pressure Distribution Shape 3
 c_p (x/L; p_0) $\alpha = 0$; $Ma = 0.85$

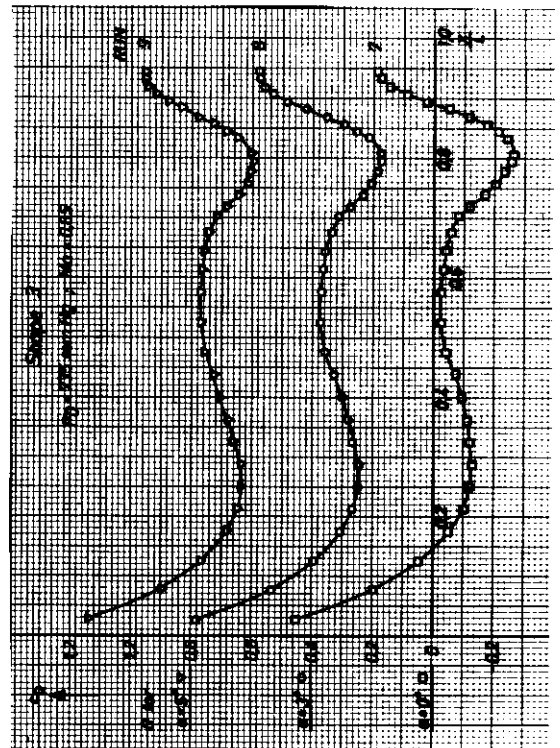


Fig. 2-9: Pressure Distribution Shape 3
 c_p (x/L; α); $p_0 = 735 \text{ mm Hg}$; $Ma = 0.85$

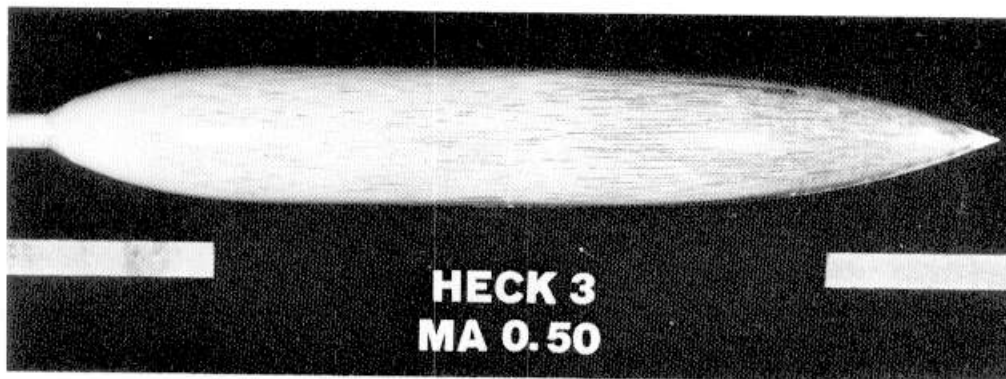


Fig. 2-10: Oilflow Picture Shape 3; $Ma = 0.5$; $\alpha = 0$

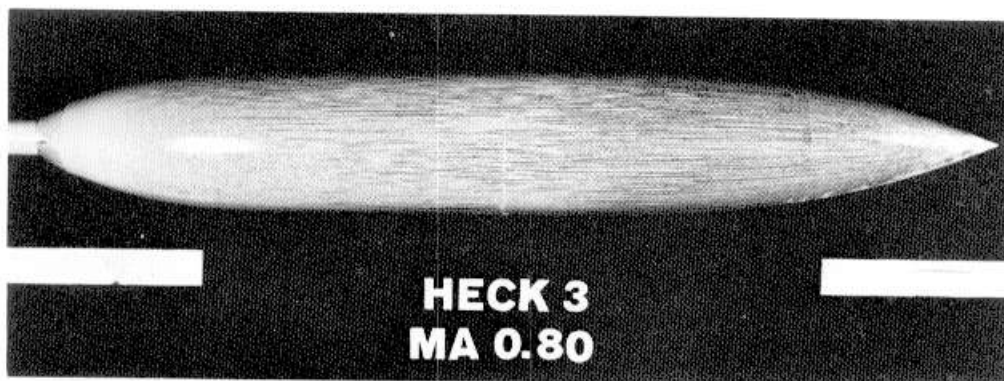


Fig. 2-11: Oilflow Picture Shape 3; $Ma = 0.8$; $\alpha = 0$

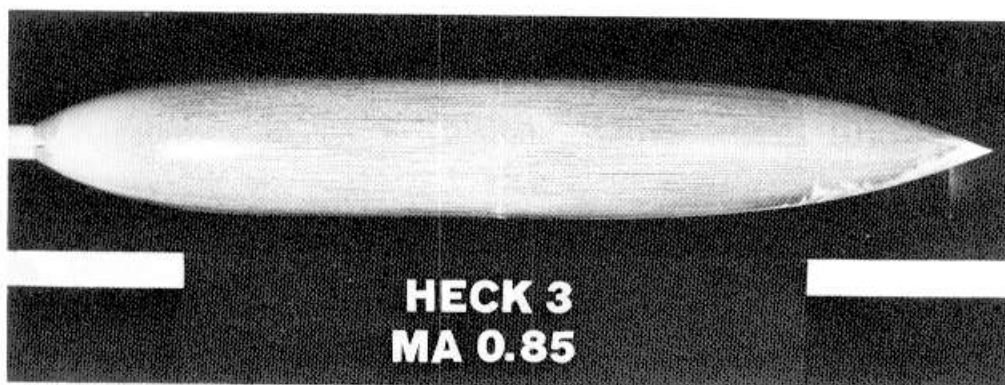


Fig. 2-12: Oilflow Picture Shape 3; $Ma = 0.85$; $\alpha = 0$

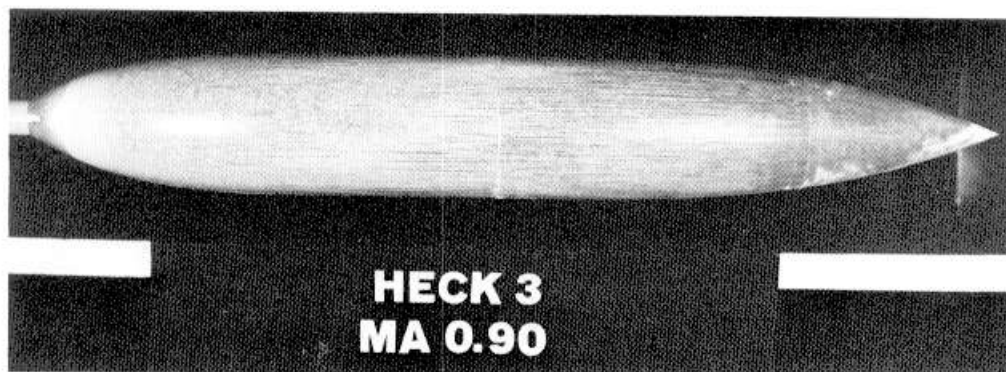


Fig. 2-13: Oilflow Picture Shape 3; $Ma = 0.90$; $\alpha = 0$

MA = 0.800 KANAL LEER

SYM	MR	REX10 ⁻⁶
○	89	5.520
▲	90	8.110
+	91	9.940
x	92	13.500

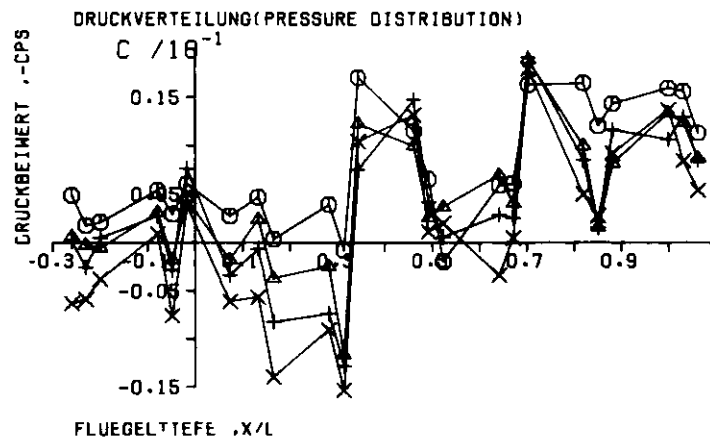


Fig. 2-14: Sidewall Pressure Distribution at Ma = 0.8, Tunnel Empty; $c_{pwall}(x/L; Re_L)$

MA = 0.801

SYM	MR	REX10 ⁻⁶	HECK
○	97	5.400	3.0
▲	98	8.250	3.0
+	99	10.000	3.0
x	100	14.000	3.0

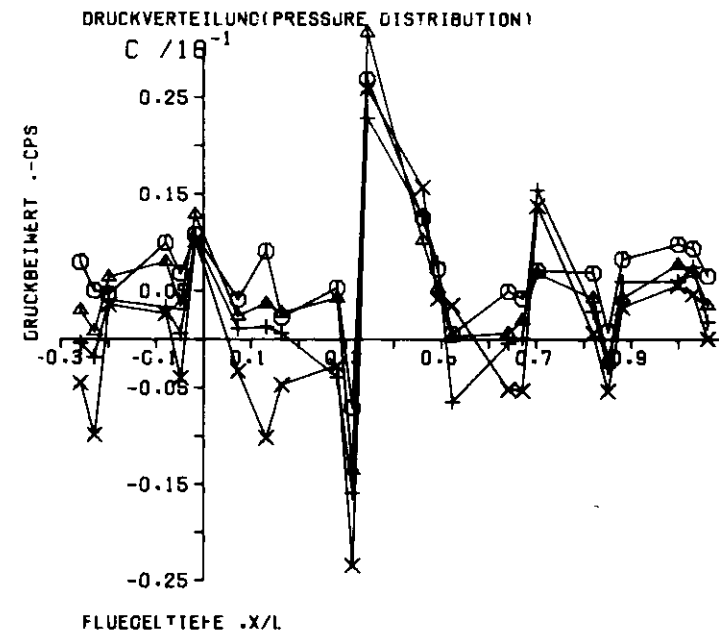


Fig. 2-15: Sidewall Pressure Distribution at Ma = 0.8 and Model 3; $c_{pwall}(x/L; Re_L)$

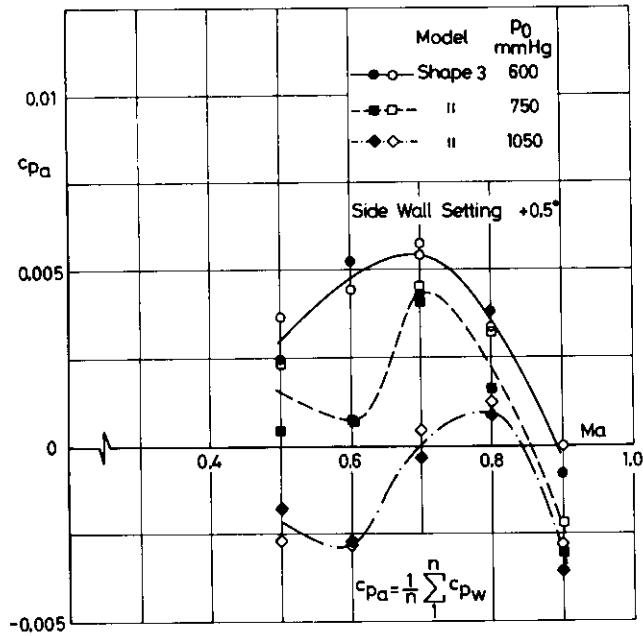


Fig. 2-16: Test-Section Wall Pressure,
 Averaged over all Available
 Pressure Points
 $c_{pa}(Ma; p_0)$; Shape 3

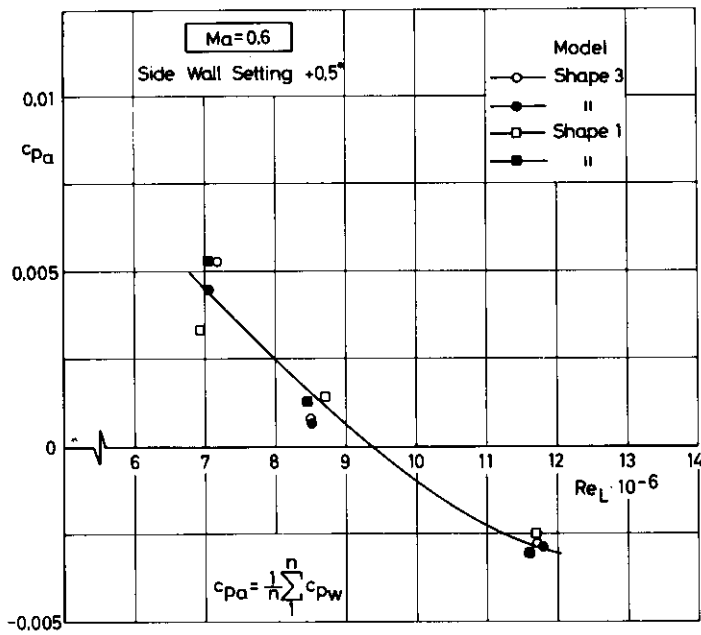


Fig. 2-17: Test-Section Wall Pressure,
 Averaged over all Available
 Pressure Points
 $c_{pa}(Re_L; Model)$; $Ma = 0.6$

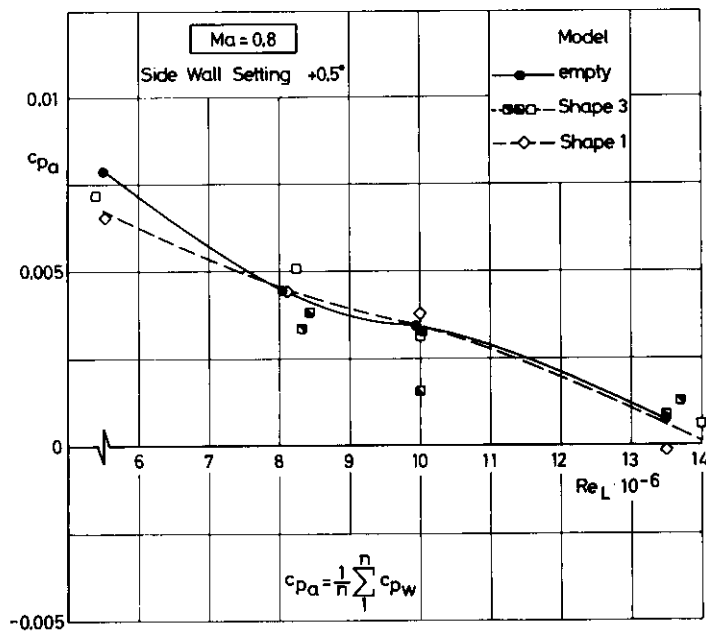


Fig. 2-18: Test-Section Wall Pressure,
 Averaged over all Available
 Pressure Points
 $c_{pa}(Re_L; Model)$; $Ma = 0.8$

3. PRESSURE DISTRIBUTION DATA FOR A 10° CONE-CYLINDER AT ZERO INCIDENCE IN THE MACH NUMBER RANGE 0.91 TO 1.22

submitted by
 THE HIGH SPEED AERODYNAMICS LABORATORY NAE/NRC

The 10° cone-cylinder is a model configuration, that has become more or less a standard, when determining transonic wind tunnel wall interference characteristics at Mach numbers above, but close to, one. It is also believed that pressure distribution data obtained on a model of such simple geometry will be useful in assessing transonic calculation methods for bodies of revolution. The submitted data were obtained as part of a calibration program for the NAE 5ft x 5ft wind tunnel. The data show that for Mach numbers above one the bow shock is effectively eliminated at the wall, but that the expansion wave from the cone-cylinder junction is reflected as a disturbance on the model. The pressure distribution data up to this reflected disturbance should be representative of interference-free, free air data.

1. General Description

1.1 Model designation or name	NAE calibration model T3
1.2 Model type	Cone-cylinder
1.3 Design requirements/conditions	
1.4 Additional remarks	

2. Model Geometry

2.1 Wing data	
2.2 Body data (detail description of body geometry)	Figure 3.1 10° half-angle cone with cylindrical afterbody, overall L/D = 12

3. Wind tunnel

3.1 Designation	NAE 5-ftx 5-ft trisonic W/T
3.2 Type of tunnel	Blowdown
3.2.1 stagnation pressure	1.25 - 4.5 bars, for transonic operations
3.2.2 stagnation temperature	293°K, max drop < 5° during a run
3.2.3 humidity/dew point	0.0002 kg H ₂ O/Kg air
3.3 Test section	Square
3.3.1 dimensions	1.52m x 1.52m x 4.8m
3.3.2 type of walls	perforated 20.5% porosity φ 12.7mm normal holes at 26.4mm spacing
3.4 Flow field (empty test section)	
3.4.1 reference static pressure	plenum pressure, for transonic operations
3.4.2 flow angularity	~ 0.3° rms for M ≥ 0.5
3.4.3 Mach number distribution	Fig. 3.2
3.4.4 pressure gradient	Fig. 3.2
3.4.5 turbulence/noise level	free stream $\left(\frac{\Delta p}{q}\right)_{rms} = 0.015$ at M _∞ = 0.8
3.5 Additional remarks	
3.6 References on wind tunnel	1

4. Tests

4.1 Type of tests	Pressure measurements
4.2 Wing span or Semispan to Tunnel Width	
4.3 Flow condition	
4.3.1 Angle of attack	0°
4.3.2 Mach No.	0.91 - 1.22
4.3.3 Dynamic pressure	
4.3.4 Reynolds Number	Re _D = 4x10 ⁶
4.3.5 Stagnation temperature	T ₀ = 290 K
4.4 Transition	
4.4.1 Free or fixed	Free
4.5 Bending or torsion under load	None
4.6 Were different sized models used in wind tunnel investigation? If so, indicate sizes	No

4.7 Areas and lengths used to form coefficients	-
4.8 References on tests	Ref.2
4.9 Related reports	Ref.3, 4, 5.

5. Instrumentation

5.1 Surface Pressure Measurements	
5.1.1 Pressure orifices in wing. Location & No. on upper & lower surfaces	
5.1.2 Pressure orifices on fuselage. Location and number	Figure 3.1
5.1.4 Geometry of orifices	1mm ID
5.1.5 Type of pressure transducer and scanning devices used. Indicate range and accuracy	Wafer valves with 25 psid Statham PM 131 TC transducers
5.2 Force measurements	None
5.3 Boundary layer and flow-field measurements	None
5.4 Surface flow visualization	None
5.5 Skin friction measurements	None
5.6 Other	None
5.7 Additional remarks	None
5.8 References on instrumentation	None

6. Data

6.1 Accuracy	
6.1.1 Angle of attack setting	$\pm 0.02^\circ$
6.1.2 Free stream Mach number:	
-setting	± 0.003
-variation during one pressure scan	± 0.003
6.1.3 pressure coefficients	$\Delta C_p = 0.003 + 0.02 C_p $ maximum error
6.1.4 aerodynamic "	-
6.1.5 boundary layer quantities	-
6.1.6 repeatability	$\Delta C_p \leq \pm 0.007$
6.1.7 additional remarks	None
6.2 Wall interference corrections	No corrections applied
6.3 Presentation of data	
6.3.1 aerodynamic coefficients	-
6.3.2 surface pressure coefficients	Table 3.1 to 3.6, Fig. 3.3
6.3.3 boundary layer quantities	
6.3.4 wall interference corrections included	No
6.3.5 corrections for model deflection	No
6.3.6 empty test section calibration taken into account	Yes
6.3.7 other corrections included	No
6.3.8 additional remarks	Comparison of various cone data at $M = 1$ in Fig. 3.4
6.4 Were tests carried out in different facilities on the current model. If so, what facilities? Are data included in present data base?	
6.5 To be contacted for further information on tests	L.H. Ohman, High Speed Aerodynamics Laboratory NAE/NRC

8. References

1. Brown, D. Information for the users of the National Research Council's 5ft x 5ft blowdown wind tunnel at the National Aeronautical Establishment, Second Edition.
NRC/NAE LTR-HA-6 September, 1970
2. Ohman, L.H. Calibration of the transonic test section of the NAE 5ft x 5ft wind tunnel.
Phase II - model measurements.
NRC/NAE Data Report 5x5/-018, 1966
3. Spreiter, J.R. Aerodynamics of wings and bodies at transonic speeds
J.A.S., August, 1959
4. Page, W.A. Experimental study of the equivalence of transonic flow about slender cone-cylinders of circular and elliptic cross section.
NACA TN 4233, 1958
5. Eastbrook, B.B. Wall interference effects on axisymmetric bodies in transonic wind tunnels with perforated wall test sections.
AEDC-TR-59-12, 1959.

9. List of Symbols

p	local pressure on model
p_{∞}	plenum chamber pressure = free stream static pressure
p_o	free stream stagnation pressure
q	free stream dynamic pressure
$C_p = \frac{p - p_{\infty}}{q}$	pressure coefficient
D	maximum diameter of model
L	length of model
L_N	length of conical nose
M	free stream Mach number
x	axial distance from apex of model also upstream distance from rear seal face (exit) of transonic test section.
h	height = width of transonic test section
Re_D	Reynolds number based on model diameter D

TABLE 3.1

RUN= 3698, MODEL I3, ROTATED 0 DEGREES, AVERAGE MINF=0.909					
ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.654	0.203	0.910	18.05
2	0.800	0.644	0.174	0.909	18.08
2	0.800	0.644	0.172	0.909	18.08
2	0.800	0.644	0.174	0.909	18.08
2	0.800	0.643	0.169	0.909	18.08
3	1.200	0.636	0.150	0.909	18.08
4	1.600	0.631	0.132	0.908	18.13
5	2.000	0.619	0.101	0.911	18.08
6	2.400	0.605	0.059	0.909	18.10
7	2.800	0.541	-0.124	0.912	18.05
8	2.856	0.329	-0.758	0.909	18.08
9	3.000	0.357	-0.671	0.910	18.05
10	3.200	0.419	-0.491	0.909	18.08
11	3.600	0.593	0.023	0.909	18.08
12	4.000	0.587	0.004	0.909	18.08
13	4.400	0.587	0.003	0.909	18.08
14	4.800	0.586	0.002	0.909	18.08
15	5.200	0.587	0.002	0.908	18.13
16	5.600	0.585	0.002	0.911	18.08
17	6.000	0.586	0.002	0.909	18.10
18	6.400	0.584	0.002	0.912	18.05
19	6.800	0.586	0.002	0.909	18.08
20	7.200	0.587	0.006	0.910	18.05
21	7.600	0.588	0.007	0.909	18.08
22	8.000	0.587	0.004	0.909	18.08
23	8.400	0.587	0.004	0.909	18.08
24	8.800	0.587	0.004	0.909	18.08
25	9.200	0.587	0.004	0.909	18.08
26	9.600	0.585	-0.005	0.908	18.13
27	10.000	0.585	0.002	0.911	18.08
28	10.400	0.586	0.003	0.909	18.10
29	10.800	0.586	0.007	0.912	18.05
30	11.200	0.593	0.022	0.909	18.08

TABLE 3.2

RUN= 3699, MODEL I3, ROTATED 0 DEGREES, AVERAGE MINF=0.954					
ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.634	0.213	0.954	17.25
2	0.800	0.624	0.187	0.953	17.27
2	0.800	0.623	0.185	0.953	17.27
2	0.800	0.623	0.187	0.954	17.25
2	0.800	0.622	0.183	0.954	17.25
3	1.200	0.616	0.166	0.954	17.25
4	1.600	0.609	0.148	0.954	17.25
5	2.000	0.600	0.123	0.956	17.27
6	2.400	0.588	0.087	0.954	17.27
7	2.800	0.532	-0.066	0.956	17.25
8	2.856	0.324	-0.660	0.953	17.27
9	3.000	0.350	-0.584	0.954	17.25
10	3.200	0.390	-0.473	0.953	17.27
11	3.600	0.465	-0.261	0.953	17.27
12	4.000	0.571	0.040	0.954	17.25
13	4.400	0.570	0.038	0.954	17.25
14	4.800	0.562	0.016	0.954	17.25
15	5.200	0.560	0.010	0.954	17.25
16	5.600	0.559	0.008	0.956	17.27
17	6.000	0.559	0.006	0.954	17.27
18	6.400	0.557	0.004	0.956	17.25
19	6.800	0.559	0.004	0.953	17.27
20	7.200	0.559	0.006	0.954	17.25
21	7.600	0.560	0.006	0.953	17.27
22	8.000	0.559	0.004	0.953	17.27
23	8.400	0.558	0.003	0.954	17.25
24	8.800	0.558	0.004	0.954	17.25
25	9.200	0.558	0.003	0.954	17.25
26	9.600	0.558	0.003	0.954	17.25
27	10.000	0.556	-0.001	0.956	17.27
28	10.400	0.557	0.001	0.954	17.27
29	10.800	0.557	0.004	0.956	17.25
30	11.200	0.565	0.021	0.953	17.27

TABLE 3.3

RUN= 3691, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=0.999

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.615	0.238	1.002	16.30
2	0.800	0.606	0.212	1.000	16.30
2	0.800	0.606	0.209	0.999	16.33
2	0.800	0.606	0.210	1.000	16.30
2	0.800	0.605	0.208	1.000	16.30
3	1.200	0.602	0.196	0.998	16.33
4	1.600	0.594	0.178	1.000	16.30
5	2.000	0.588	0.160	0.999	16.33
6	2.400	0.577	0.132	1.000	16.36
7	2.800	0.533	0.005	0.996	16.36
8	2.856	0.322	-0.560	0.999	16.33
9	3.000	0.345	-0.492	1.002	16.30
10	3.200	0.380	-0.400	1.000	16.30
11	3.600	0.433	-0.259	0.999	16.33
12	4.000	0.464	-0.173	1.000	16.30
13	4.400	0.494	-0.093	1.000	16.30
14	4.800	0.555	0.068	0.998	16.33
15	5.200	0.555	0.072	1.000	16.30
16	5.600	0.551	0.060	0.999	16.33
17	6.000	0.542	0.037	1.000	16.36
18	6.400	0.538	0.019	0.996	16.36
19	6.800	0.533	0.012	0.999	16.33
20	7.200	0.531	0.009	1.002	16.30
21	7.600	0.531	0.009	1.000	16.30
22	8.000	0.532	0.008	0.999	16.33
23	8.400	0.531	0.008	1.000	16.30
24	8.800	0.531	0.008	1.000	16.30
25	9.200	0.533	0.008	0.998	16.33
26	9.600	0.531	0.008	1.000	16.30
27	10.000	0.532	0.008	0.999	16.33
28	10.400	0.528	-0.001	1.000	16.36
29	10.800	0.533	0.006	0.996	16.36
30	11.200	0.538	0.024	0.999	16.33

TABLE 3.4

RUN= 3679, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=1.056

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.589	0.245	1.056	15.33
2	0.800	0.585	0.236	1.056	15.33
2	0.800	0.584	0.234	1.056	15.33
2	0.800	0.586	0.237	1.056	15.33
2	0.800	0.584	0.232	1.056	15.33
3	1.200	0.581	0.224	1.056	15.33
4	1.600	0.576	0.211	1.056	15.33
5	2.000	0.567	0.190	1.057	15.36
6	2.400	0.558	0.166	1.056	15.36
7	2.800	0.521	0.069	1.056	15.36
8	2.856	0.317	-0.462	1.055	15.36
9	3.000	0.337	-0.407	1.056	15.33
10	3.200	0.370	-0.322	1.056	15.33
11	3.600	0.410	-0.217	1.056	15.33
12	4.000	0.432	-0.160	1.056	15.33
13	4.400	0.459	-0.091	1.056	15.33
14	4.800	0.472	-0.057	1.056	15.33
15	5.200	0.472	-0.058	1.056	15.33
16	5.600	0.473	-0.052	1.057	15.36
17	6.000	0.495	0.003	1.056	15.36
18	6.400	0.546	0.134	1.056	15.36
19	6.800	0.541	0.120	1.055	15.36
20	7.200	0.529	0.090	1.056	15.33
21	7.600	0.515	0.054	1.056	15.33
22	8.000	0.501	0.018	1.056	15.33
23	8.400	0.489	-0.012	1.056	15.33
24	8.800	0.478	-0.042	1.056	15.33
25	9.200	0.472	-0.058	1.056	15.33
26	9.600	0.478	-0.041	1.056	15.33
27	10.000	0.490	-0.008	1.057	15.36
28	10.400	0.497	0.006	1.056	15.36
29	10.800	0.497	0.007	1.056	15.36
30	11.200	0.502	0.018	1.055	15.36

TABLE 3.5

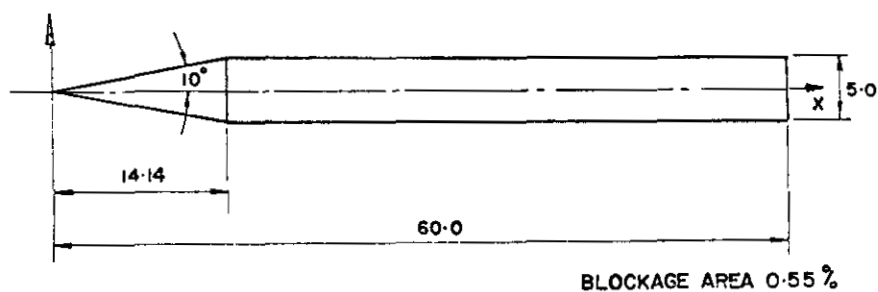
RUN= 3680, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=1.121

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.537	0.203	1.122	14.16
2	0.800	0.536	0.200	1.122	14.16
2	0.800	0.534	0.194	1.121	14.16
2	0.800	0.537	0.200	1.121	14.16
2	0.800	0.535	0.197	1.121	14.16
3	1.200	0.532	0.189	1.121	14.16
4	1.600	0.532	0.191	1.122	14.13
5	2.000	0.533	0.191	1.121	14.16
6	2.400	0.532	0.190	1.122	14.19
7	2.800	0.511	0.136	1.121	14.16
8	2.856	0.312	-0.359	1.121	14.16
9	3.000	0.333	-0.305	1.122	14.16
10	3.200	0.362	-0.233	1.122	14.16
11	3.600	0.400	-0.141	1.121	14.16
12	4.000	0.420	-0.090	1.121	14.16
13	4.400	0.437	-0.048	1.121	14.16
14	4.800	0.443	-0.033	1.121	14.16
15	5.200	0.447	-0.021	1.122	14.13
16	5.600	0.445	-0.029	1.121	14.16
17	6.000	0.446	-0.025	1.122	14.19
18	6.400	0.446	-0.025	1.121	14.16
19	6.800	0.454	-0.005	1.121	14.16
20	7.200	0.439	-0.040	1.122	14.16
21	7.600	0.456	0.0	1.122	14.16
22	8.000	0.462	0.014	1.121	14.16
23	8.400	0.477	0.050	1.121	14.16
24	8.800	0.502	0.115	1.121	14.16
25	9.200	0.492	0.090	1.121	14.16
26	9.600	0.477	0.053	1.122	14.13
27	10.000	0.466	0.023	1.121	14.16
28	10.400	0.462	0.015	1.122	14.19
29	10.800	0.459	0.006	1.121	14.16
30	11.200	0.449	-0.018	1.121	14.16

TABLE 3.6

RUN= 3684, MODEL T3, ROTATED 0 DEGREES, AVERAGE MINF=1.222

ST	X/D	P/PO	CP	MINF	PINF
1	0.400	0.471	0.168	1.223	12.44
2	0.800	0.470	0.167	1.224	12.44
2	0.800	0.470	0.167	1.223	12.44
2	0.800	0.472	0.170	1.221	12.44
2	0.800	0.469	0.162	1.221	12.44
3	1.200	0.468	0.160	1.221	12.44
4	1.600	0.465	0.155	1.223	12.41
5	2.000	0.466	0.155	1.221	12.44
6	2.400	0.468	0.160	1.222	12.47
7	2.800	0.461	0.142	1.221	12.44
8	2.856	0.286	-0.273	1.223	12.44
9	3.000	0.302	-0.235	1.223	12.44
10	3.200	0.320	-0.191	1.224	12.44
11	3.600	0.351	-0.118	1.223	12.44
12	4.000	0.366	-0.084	1.221	12.44
13	4.400	0.382	-0.045	1.221	12.44
14	4.800	0.383	-0.043	1.221	12.44
15	5.200	0.388	-0.028	1.223	12.41
16	5.600	0.394	-0.018	1.221	12.44
17	6.000	0.395	-0.013	1.222	12.47
18	6.400	0.395	-0.013	1.221	12.44
19	6.800	0.397	-0.008	1.223	12.44
20	7.200	0.399	-0.002	1.223	12.44
21	7.600	0.398	-0.003	1.224	12.44
22	8.000	0.395	-0.013	1.223	12.44
23	8.400	0.394	-0.017	1.221	12.44
24	8.800	0.393	-0.018	1.221	12.44
25	9.200	0.393	-0.018	1.221	12.44
26	9.600	0.393	-0.016	1.223	12.41
27	10.000	0.399	-0.004	1.221	12.44
28	10.400	0.404	0.007	1.222	12.47
29	10.800	0.398	-0.008	1.221	12.44
30	11.200	0.430	0.071	1.223	12.44



PRESSURE HOLE LOCATIONS

STA	1	2*	3	4	5	6	7	8	9	10	11	12	--	--	--	31
X"	2	4	6	8	10	12	14	14.28	15	16	18	20	--	--	--	53

* 4 HOLES AT 90° SPACING

All dimensions in inches

FIG 3.1 CONE-CYLINDER MODEL T3

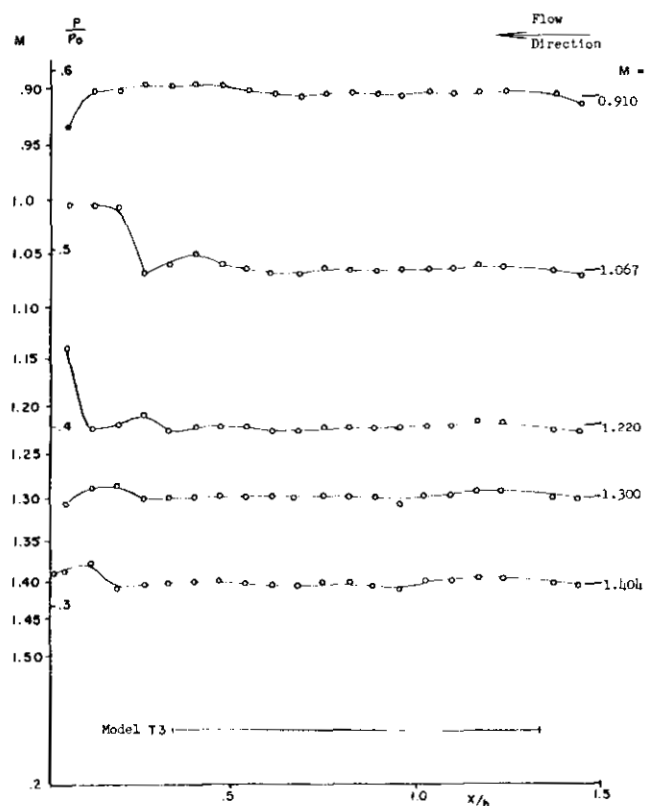


FIG 3.2 TYPICAL SIDEWALL PRESSURE DISTRIBUTIONS IN "EMPTY" TEST SECTION AND MODEL LOCATIONS

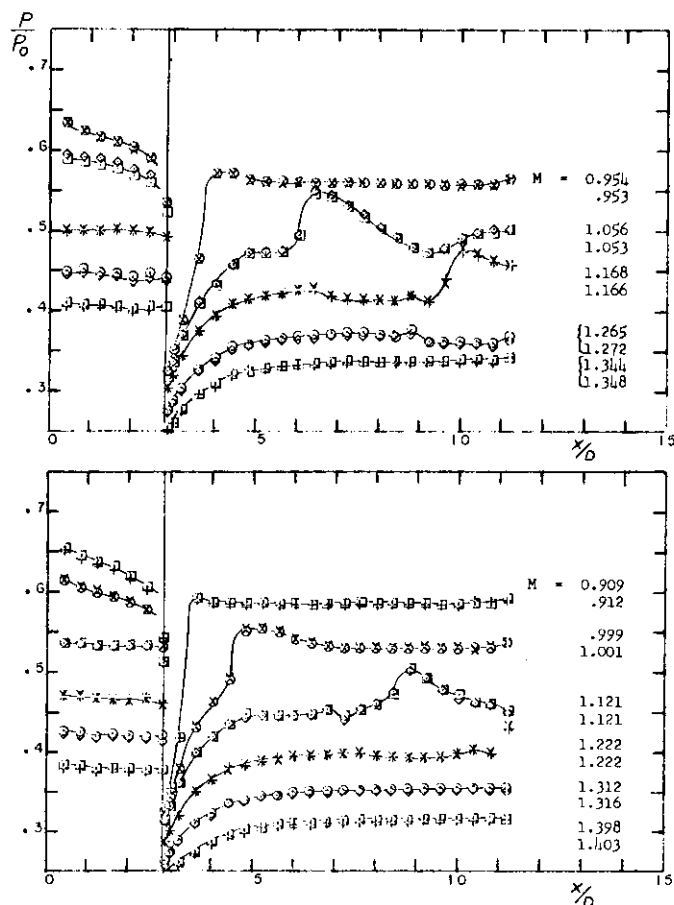


FIG 3.3 PRESSURE DISTRIBUTION FOR MODEL T3

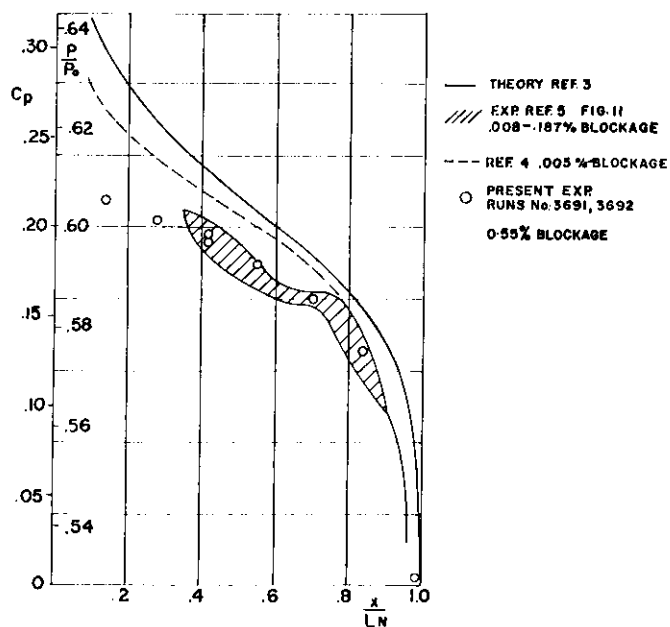


FIG 3.4 PRESSURE DISTRIBUTION ON THE NOSE SECTION OF A 10° SEMI-APEX CONE-CYLINDER AT M=1.0

4. ONERA CALIBRATION MODEL C5

by

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4.1 - Introduction

A program was initiated in 1969 by ONERA to test a series of similar calibration models representative of a transport aircraft, in various American and European transonic wind-tunnels. The objective of this program was to study wall interference. In relation to this program, blockage effects near Mach number one were separately investigated with bodies of revolution having the same distributions of cross sectional area as the airplane models.

The largest body of revolution tested is the calibration body C5 for which data obtained in the 11 ft NASA-Ames wind tunnel are presented here. The data obtained for the calibration body C5 in the largest tunnels used, i.e. 16 ft AEDC, 11 ft NASA-Ames and 6 ft S2 MODANE ONERA, practically agree within the data scatter at all Mach numbers up to one.

4.2 - Data set

1. General Description

1.1. Model Designation	ONERA calibration body C5
1.2. Model Type	axisymmetrical body
1.3. Design Requirements/Conditions	Comparison of transonic wind-tunnels near Mach 1
1.4. Additional Remarks	4 other geometrically similar bodies exist and have been used to study the blockage effect

2. Model Geometry

2.1. Body length	1.0578 m
2.2. Base diameter	0.08516 m
2.3. Maximum diameter	0.15268 m
2.4. Diameter of cylindrical parts	0.1242 m
2.5. Fore part	ellipsoid
2.6. Model coordinates	see table 1
2.7. Fabrication tolerances	0.03 mm

3. Wind Tunnel

3.1. Designation	Ames Research Center 11 by 11 ft transonic wind tunnel
3.2. Type of Tunnel	continuous-transonic flow
3.3. Test Section	
3.3.1. Shape of Test Section	square
3.3.2. Size of Test Section (Width, Height)	11 x 11 ft
3.3.3. Type of Test Section Walls	baffled slots-open area ratio 5.8 %-constant slot width with 45° "zee" baffles with axis of bend normal to the wall
Treatment of Side Wall Boundary Layer	Sidewalls diverged 0.19°
3.4. Flow Field (Empty Test Section)	
3.4.1. Reference Static Pressure	Plenum chamber pressure
3.4.2. Flow Angularity	± 0.15° at M = 0.6
3.4.3. Mach Number Distribution	see 3.5.4
3.4.4. Pressure Gradient	
3.4.5. Turbulence/Noise Level	ΔC_p = 2.2 % at M = 0.6 R.M.S. 2.8 % at M = 0.7 1.5 % at M = 1.2
3.4.6. Side Wall Boundary Layer	
3.5. Freestream Mach Number	
3.5.1. Range	0.3 to 1.4
3.5.2. Pressures Used to Determine Mach Number	Settling chamber total pressure and plenum chamber pressure

- 3.5.3. Accuracy of Mach Number Determination (ΔM)
 The standard deviation variation at any given centerline station $\leq .001$ in Mach number over pressure range from 1/2 to 2 atmospheres. Maximum pressure error estimated to be within 1.4 psf for plenum static pressure and p_i .
- 3.5.4. Maximum Mach Number Variation in x, y, z-Direction (Empty Tunnel)
 Z-direction : .002 difference between ceiling statics and center line at $.6 \leq M \leq .9$
 X-direction : $\pm .004$ at $M = 1.4$
 $\pm .002$ at $M = 0.9$
 optimum model location, optimum tunnel control settings
 $\pm 0.15^\circ$ at $M = 0.6$
- Maximum Variation of Flow Direction
 Maximum Mach Number Variation During a Run
 .003, usually within ± 0.001
- 3.6. Reynolds Number Range
 3.6.1. Unit Reynolds Number
 6.7 to 32×10^6 per meter
 3.6.2. Means of Varying Reynolds Number
 pressurization
- 3.7. Temperature Range and Dewpoint
 60 to 120° F depending on M, p_i and ambient temperature
- 3.8. Model Attitudes
 3.8.1. Angle of Attack, Yaw, Roll
 $\pm 15^\circ$ plus bent sting capability and 360° Roll mechanism
 3.8.2. Accuracy in Determining Angles
 Model support system calibration and elastic deflections good to $\pm .03^\circ$ or better
- 3.9. Organization Operating the Tunnel and Location of Tunnel
 Experimental Investigations Branch, Aerodynamics Division, NASA Ames Research Center ; Bldg.227, Moffett Field, California 94035
- 3.10. Who is to be Contacted for Additional Information
 FRANK STEINLE Jr., Assistant Chief, Exp. Inv. Br. N 227-5 Ames
- 3.11. Literature Concerning this Facility
 Ames Research Facilities Summary, 1974 - and NASA CR-1874 "An Inventory of Aeronautical Ground Research Facilities", Vol. 1 - Wind Tunnels - Pirrello & al.
- 3.12. Additional Remarks
 Majority of noise in test section associated with "organ" tones produced by slot-baffles - Research underway to modify baffles to eliminate organ mode.

4. Tests

- 4.1. Type of Tests
 steady tests : pressure, drag
- 4.2. Blockage
 0.17 per cent
- 4.3. Test conditions
 4.3.1. Angle of Attack
 $\alpha = 0$
 4.3.2. Mach Number
 0.6 to 1.0
 4.3.3. Stagnation Pressure
 1.2 to 0.9 bar
 4.3.4. Reynolds Number
 $R_L = 13.8 \times 10^6$
 4.3.5. Stagnation Temperature
 305 to 307 K
- 4.4. Transition
 4.4.1. Free or Fixed
 fixed
 4.4.2. Position of Free Transition
 on the nose at $x = 72.7$ mm.ballotini (glass beads)
 0.12 mm in diameter.
 4.4.3. Position of Fixed Transition, Width of Strips, Size and Type of Roughness Elements
 4.4.4. Were Checks Made to Determine if Transition Occurred at Trip Locations ?
 yes, sublimation technique
- 4.5. Bending or Torsion Under Load
- 4.6. Were Different Sized Models Used in Wind Tunnel Investigation ?
 five geometrically similar bodies :

body	C1	C2	C3	C4	C5
length (m.)	0.31	0.40	0.51	0.66	1.06

4.7. Areas and Lengths Used to Form Coefficients

for the drag coefficient :
 $S = 0.005696 \text{ m}^2$ (base area)

4.8. References on Tests

4.9. Related Reports

5. Instrumentation

5.1. Surface Pressure Measurements

5.1.1. Pressure Orifices

44 pressure orifices on vertical generator
 40 pressure orifices on horizontal generator
 1 base pressure orifice (table 1)

5.1.2. Geometry of Orifices

0.6 mm in diameter, perpendicular to body surface

5.1.3. Type of Pressure Transducer and Scanning Devices Used

48 ports scanivalve plus transducer 25 psi

5.2. Force Measurements

5.2.1. Type and Location of Balance

internal balance

5.2.2. Forces and Moments that Can be Measured. Maximum Loads and Accuracy

6 components balance

6. Data

6.1. Accuracy

6.1.1. Pressure coefficients

$$\Delta C_p = \pm 0.014$$

6.1.2. Aerodynamic Coefficients

$$\Delta C_A = \pm 0.002$$

6.2. Wall Interference Corrections

none, because of very small blockage (0.17 per cent)

6.3. Data Presentation

6.3.1. Aerodynamic Coefficients

table 2 : drag coefficient

6.3.2. Surface Pressure Coefficients

table 2 : local p/p_i
 figures 1,2 : local Mach number distribution

6.4. Were Tests Carried Out in Different Facilities on the Current Model ? If so, What Facilities. Are Data Included In Present Data Base ?

tests were carried out in 3 transonic wind-tunnels (réf. 1, 2, 3) not included in present data base. The data from these wind-tunnels (16T AEDC, 11T NASA, 6T S2 Modane) agree, except in rare instances, within the data accuracy at all Mach numbers up to 1.0.

7. References

1. X. VAUCHERET
 M. BAZIN
 C. ARMAND

Comparaison d'essais transsoniques bi et tridimensionnels effectués dans diverses grandes souffleries. AGARD C.P. n° 187 (1975)

2. T.W. BINION

Tests on the ONERA calibration models in three transonic wind tunnels
 AEDC TR 76-133 (1976)

3. S.E. GUDMUNDSON

Comparative tests with ONERA airplane calibration models in FFA transonic wind tunnels
 EUROMECH 40 Colloquium (1973)

8. List of Symbols

C_A	drag coefficient corrected to zero base drag
C_p	pressure coefficient
L	body length
M	Mach number (test section)
M_{local}	local Mach number (on the body)
p	local static pressure (on the body)
p_i	stagnation pressure
r	body radius at x (mm) (table 1)
R_L	Reynolds number (based on L)
S	base area
x	abscissa along body axis (mm) (table 1)
α	angle of attack

TABLE 1 Coordinates of C5 body
and position of pressure holes

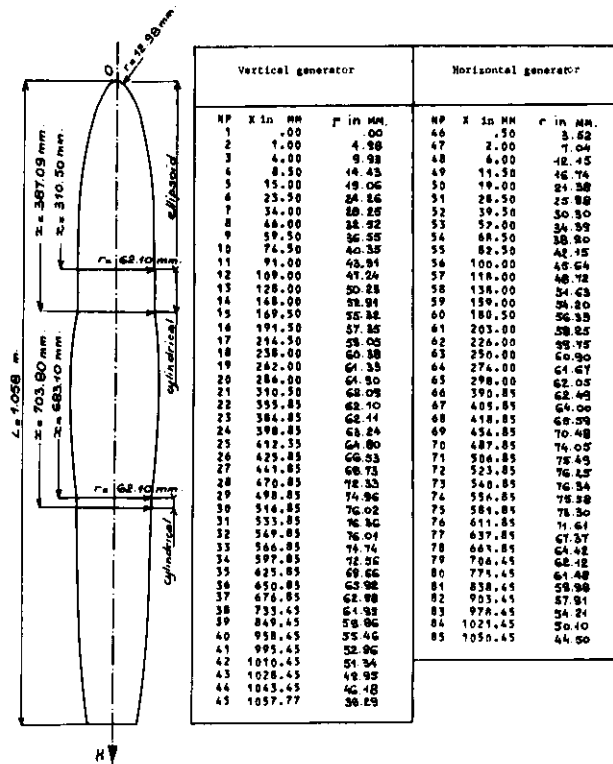
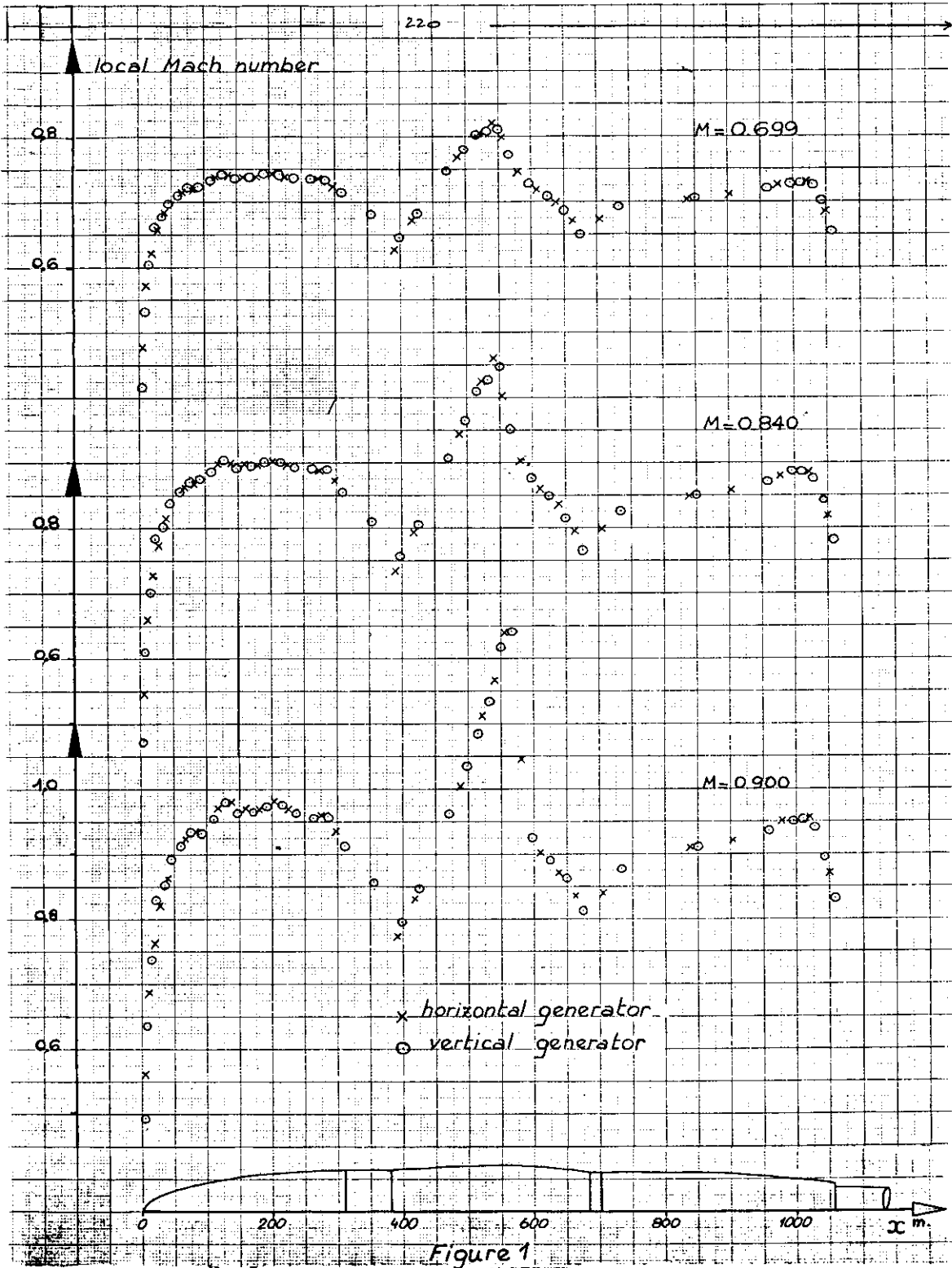


TABLE 2 Surface pressure distribution
a) vertical generator

NP	X in MM	P/P1	P/P1	P/P1	P/P1	P/P1	P/P1
1	1.00	.9644	.9591	.9311	.8596	.8525	.8924
2	1.00	.9663	.9584	.9555	.9555	.9537	.9536
3	4.00	.8869	.8575	.8468	.8406	.8390	.8384
4	8.50	.8252	.7776	.7421	.7323	.7466	.7682
5	15.00	.7806	.7202	.6976	.6834	.6765	.6763
6	23.50	.7446	.6660	.6370	.6185	.6112	.6090
7	34.00	.7357	.6542	.6217	.6014	.5960	.5918
8	46.00	.7223	.6319	.5966	.5734	.5685	.5647
9	59.50	.7134	.6207	.5855	.5640	.5479	.5228
10	74.50	.7037	.6100	.5691	.5394	.5292	.5223
11	91.00	.7058	.6079	.5713	.5400	.5269	.5192
12	109.00	.7005	.6003	.5572	.5271	.5195	.5153
13	128.00	.6935	.5885	.5409	.4960	.4893	.4811
14	148.00	.6822	.5768	.5316	.4907	.4842	.4787
15	169.50	.6941	.5937	.5498	.5130	.4849	.4770
16	191.50	.6936	.5908	.5454	.5074	.4893	.4744
17	214.50	.6941	.5902	.5433	.4867	.4749	.4587
18	238.00	.6975	.5956	.5516	.4958	.4799	.4588
19	262.00	.6988	.5970	.5557	.4944	.4773	.4567
20	286.00	.6985	.5972	.5561	.4920	.4758	.4548
21	310.50	.7109	.6198	.5830	.5374	.5340	.4465
22	335.85	.7318	.6499	.6184	.6007	.5960	.5378
23	361.85						
24	398.85	.7561	.6833	.6580	.6442	.6401	.6344
25	412.35						
26	425.85	.7326	.6529	.6253	.6096	.6042	.6036
27	441.85						
28	470.85	.6903	.5872	.5517	.5320	.5268	.5269
29	498.85	.6885	.5506	.5061	.4852	.4811	.4804
30	516.85	.6546	.5227	.4766	.4543	.4490	.4494
31	533.85	.6506	.5118	.4692	.4423	.4375	.4366
32	549.85	.6488	.5003	.4626	.4386	.4329	.4325
33	566.85	.6733	.5388	.5005	.4545	.4493	.4475
34	597.85	.7034	.6065	.5752	.5303	.5268	.5262
35	625.85	.7159	.6253	.5972	.5537	.5508	.5508
36	650.85	.7292	.6454	.6159	.5754	.5724	.5724
37	676.85	.7535	.6772	.6476	.6131	.6104	.6104
38	733.45	.7256	.6385	.6060	.5685	.5634	.5634
39	849.45	.7166	.6238	.5855	.5580	.5534	.5534
40	958.45	.7084	.6097	.5679	.5327	.5284	.5284
41	995.45	.7025	.5996	.5593	.5190	.5138	.5138
42	1010.45	.7025	.6001	.5597	.5198	.5145	.5145
43	1028.45	.7037	.6067	.5653	.5321	.5277	.5277
44	1043.45	.7197	.6291	.5940	.5600	.5574	.5568
45	1057.77	.7485	.6676	.6357	.6116	.6034	.5952

TABLE 2 Surface pressure distribution
b) horizontal generator

NP	X in MM	P/P1	P/P1	P/P1	P/P1	P/P1	P/P1
1	1.00	.9851	.9811	.9830	.9799	.9797	.9801
2	1.00	.9851	.9811	.9830	.9799	.9797	.9801
3	4.00	.8555	.8160	.8074	.7961	.7940	.7947
4	8.50	.8015	.7456	.7303	.7174	.7125	.7065
5	15.00	.7710	.7055	.6800	.6635	.6587	.6552
6	23.50	.7485	.6752	.6423	.6223	.6190	.6125
7	34.00	.7308	.6451	.6145	.5914	.5870	.5811
8	46.00	.7084	.6398	.6167	.5911	.5876	.5818
9	59.50	.7107	.6154	.5771	.5510	.5449	.5335
10	74.50	.7096	.6115	.5692	.5364	.5288	.5200
11	91.00	.7477	.6684	.6364	.6114	.6037	.5957
12	109.00	.6984	.5928	.5474	.5116	.5053	.4999
13	128.00	.6954	.5924	.5464	.5106	.5046	.4991
14	148.00	.6970	.5931	.5481	.5123	.5063	.4998
15	169.50	.6961	.5944	.5481	.5123	.5063	.4998
16	191.50	.6931	.5891	.5431	.5073	.5013	.4948
17	214.50	.6903	.5842	.5374	.5016	.4956	.4891
18	238.00	.6903	.5842	.5374	.5016	.4956	.4891
19	262.00	.6785	.5714	.5248	.4890	.4830	.4765
20	286.00	.6985	.5985	.5537	.5179	.5119	.5054
21	310.50	.7005	.6092	.5690	.5340	.5277	.5212
22	335.85	.7664	.6797	.6344	.5965	.5827	.5748
23	361.85						
24	398.85	.7390	.6661	.6368	.6189	.6171	.6136
25	412.35						
26	425.85	.6764	.5634	.5259	.5055	.5026	.4989
27	441.85						
28	470.85	.6520	.5128	.4608	.4367	.4335	.4344
29	498.85	.6434	.4916	.4305	.4065	.4036	.4094
30	516.85	.6370	.4849	.4249	.3915	.3894	.3954
31	533.85	.6921	.5899	.5300	.3964	.3864	.3827
32	549.85	.7070	.6165	.5591	.4135	.3911	.3871
33	566.85	.7212	.6333	.6094	.4537	.4153	.4064
34	597.85	.7194	.6308	.6029	.4596	.4172	.4072
35	625.85	.7045	.6387	.6068	.4616	.4240	.4155
36	650.85	.7469	.6665	.6347	.4894	.4530	.4474
37	676.85	.7176	.6245	.5851	.4581	.4240	.4174
38	733.45	.7136	.6190	.5784	.4543	.4240	.4174
39	849.45	.7037	.6039	.5591	.4522	.4240	.4174
40	958.45	.7009	.6010	.5564	.4522	.4240	.4174
41	995.45	.7293	.6438	.6103	.4849	.4571	.4575
42	1010.45						
43	1028.45						
44	1043.45						
45	1057.77						



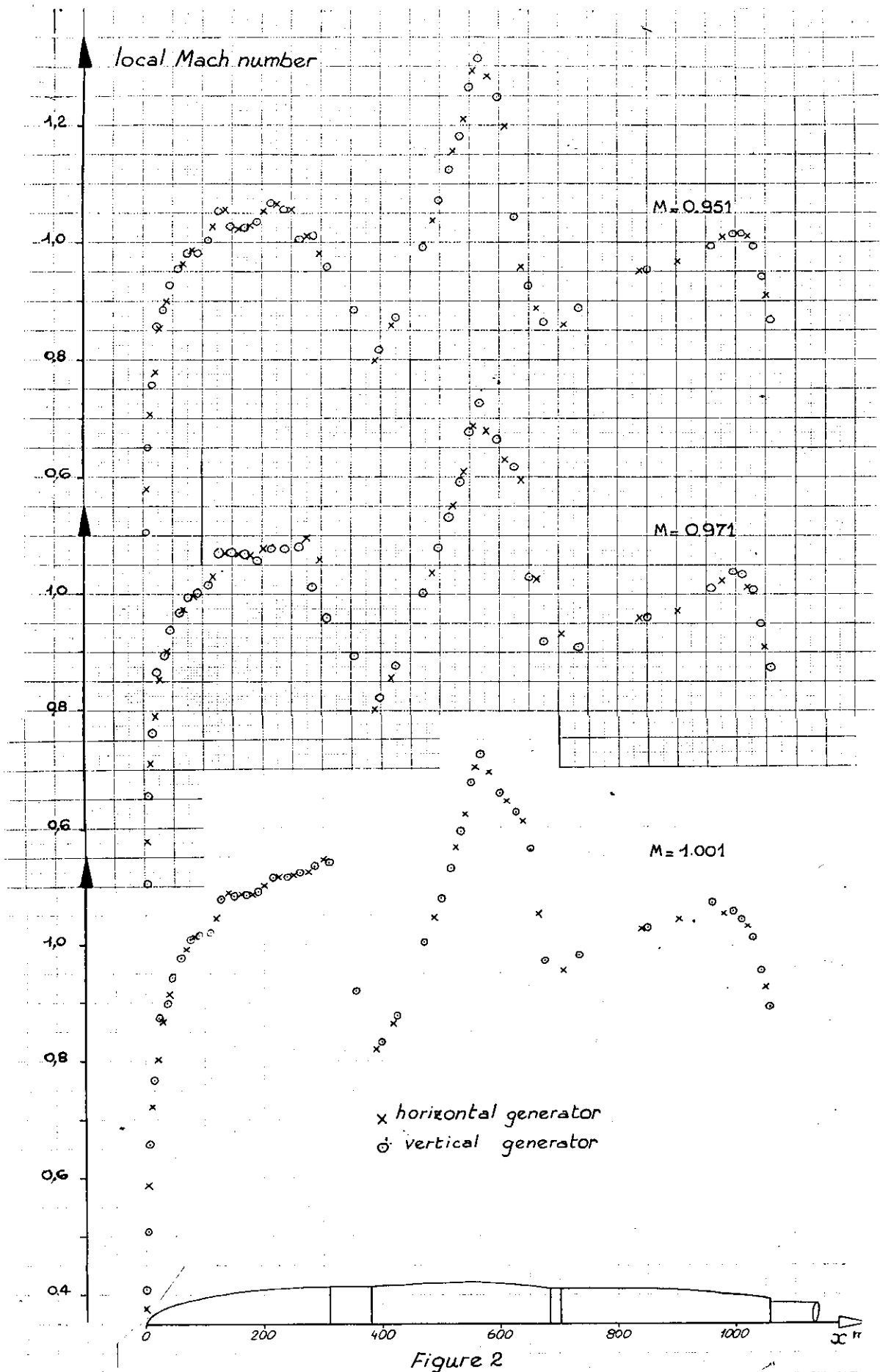


Figure 2