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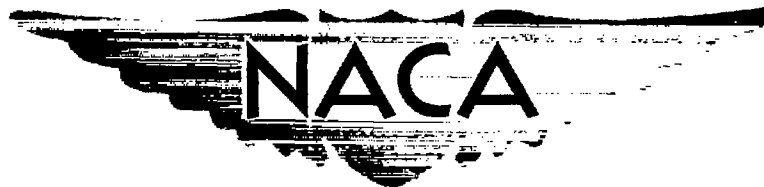
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RESEARCH MEMORANDUM

INVESTIGATION AT TRANSONIC SPEEDS
OF LOADING OVER A 30° SWEPTBACK WING OF ASPECT
RATIO 3, TAPER RATIO 0.2, AND NACA 65A004 AIRFOIL
SECTION MOUNTED ON A BODY

By Donald D. Arabian

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NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS

WASHINGTON
September 26, 1957

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RESEARCH MEMORANDUM

INVESTIGATION AT TRANSONIC SPEEDS
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SUMMARY

The aerodynamic load characteristics of a wing-body combination were determined experimentally from 0.80 to 1.03 Mach number for angles of attack up to 26 degrees. Two wings, both with 30° sweep of the quarter-chord line, taper ratio 0.2, aspect ratio 3, and thickness of 4 percent chord, but of different types of construction, were tested. One wing was of solid steel and the other was of plastic with an inner steel core.

The load distributions for both wings were similar, but loads on the more flexible wing were somewhat reduced. The twist distributions for both wings were calculated. Some typical flow studies of the boundary layer are presented.

INTRODUCTION

Satisfactory stability characteristics have been obtained at subsonic speeds for thin low-aspect-ratio wings with moderate leading-edge sweep (ref. 1). In order to evaluate in detail the load and stability characteristics of this type of wing on a body of revolution throughout the transonic speed range, a wing with an aspect ratio of 3, a taper ratio of 0.2, 30° sweepback of the quarter-chord line, and with NACA 65A004 airfoil sections was selected and the load characteristics are presented. The longitudinal stability characteristics are presented in reference 2. This wing is one of several wings being studied in a general program at the Langley 16-foot transonic tunnel. To date, the load characteristics of other wings in the program have been published in references 3, 4, 5, and 6. Data were obtained at Mach numbers from 0.80

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to 1.03 for angles of attack up to about 26° for two wings of the same geometry but constructed of different materials. One wing was made of steel and plastic in an attempt to devise a cheaper and faster method of wing construction. The other was a solid steel wing used for comparison to check the effect of aeroelasticity and to establish the validity of data obtained with the less-rigid reinforced plastic wing. The twist distribution due to aerodynamic loading was calculated for both wings. Some typical flow studies of the boundary layer are also presented.

SYMBOLS

b	wing span
c	wing chord parallel to the plane of symmetry
$\bar{c}$	average wing chord
c'	mean aerodynamic chord
c_n	wing section normal-force coefficient
c_m	section pitching-moment coefficient about the wing mean aerodynamic chord
C_N	wing-panel normal-force coefficient, $\int_{0.16}^{1.0} c_n \frac{c}{\bar{c}} d\left(\frac{2y}{b}\right)$
C_m	wing-panel pitching-moment coefficient about $0.25c'$, $\int_{0.16}^{1.0} c_m \frac{c^2}{\bar{c}c'} d\left(\frac{2y}{b}\right)$
C_p	pressure coefficient, $\frac{\Delta p}{q}$
M	Mach number
Δp	local static pressure minus the free-stream static pressure
q	dynamic pressure
x	distance parallel to the center line
y	distance normal to the plane of symmetry

- α model angle of attack
- θ angle of twist of the chord line measured in planes parallel to the plane of symmetry

Subscripts:

- L wing lower surface
- U wing upper surface

MODEL DESCRIPTION

The general arrangement of the model is shown in figure 1(a). The wing was mounted to the same steel body of revolution used in references 4 and 5. The fuselage had a fineness ratio of 11, an ogive nose, cylindrical center section and a boattail afterbody. The wing was swept 30° at the quarter-chord line with a taper ratio of 0.2, and aspect ratio of 3, and NACA 65A004 sections parallel to the plane of symmetry. Two wings were constructed of different materials. Figure 1(b) shows typical cross sections of both wings. One was constructed entirely of steel with a leading-edge section and a trailing-edge section which was tongue and grooved to a center section. The spaces left in the grooves were used as ducts for the pressure tubes to the orifices. The other wing was constructed in such manner that a steel core with a thin brass plate at the trailing edge was surrounded with the wing pressure tubes, and then polyester resin was poured about the structure to form the wing contour. This wing hereinafter is called the plastic wing.

The twist characteristics for these wings were determined by the method described in appendix A. The steel wing was found to be less than half as flexible as the plastic wing. The influence coefficients A_{ij} and B_{ij} (see appendix A) used to calculate the twist were as follows:

For the steel wing:

i	$A_{ij} \times 10^{-5}$ at $j = -$				
	1	2	3	4	5
1	0	0	0	-1	-4
2	-2	6	-2	-8	-13
3	-2	5	9	-9	-28
4	1	4	7	11	-27
5	1	4	5	12	-5

i	$B_{ij} \times 10^{-5}$ at $j = -$				
	1	2	3	4	5
1	0	0.1	0.1	0.2	-0.3
2	-.1	1.3	1.1	.9	.3
3	-.1	1.7	3.9	3.2	.3
4	.3	1.7	4.9	11.5	10.5
5	.3	1.8	4.8	14.1	37.9

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For the plastic wing:

1	$A_{1j} \times 10^{-5}$ at $j = -$				
	1	2	3	4	5
1	0	-2	-3	-6	-11
2	-1	7	-7	-22	-34
3	1	9	8	-31	-78
4	2	9	14	-2	-100
5	2	9	14	6	-69

1	$B_{1j} \times 10^{-5}$ at $j = -$				
	1	2	3	4	5
1	0	0.3	1.0	0.8	1.1
2	-0.1	1.9	1.8	0	3.1
3	.1	3.3	7.0	7.3	7.6
4	.2	3.5	10.4	23.1	33.4
5	.2	3.5	11.1	30.2	90.8

where A_{1j} and B_{1j} represent the twist in degrees measured parallel to the angle-of-attack plane at the i th station due to a load or moment at the j th station, respectively. The five spanwise stations chosen were located as follows:

Station	$\frac{y}{b/2}$
1	0.245
2	.412
3	.580
4	.750
5	.915

A better comparison of the twist characteristics, however, of the steel and plastic wing is shown in figures 2(a) and (b). The plots show the effect of a unit loading applied at any spanwise station (abscissa), on the particular spanwise stations 1 through 5, for loadings at the 25- and 65-percent-chord lines. The main difference between the two plots results from a change in the stiffness and a shift of the elastic-axis location of the two wings. If the elastic axis is defined as that point of the local chord which gives zero twist when a load is applied at the point, then figure 2 indicates the position of the elastic axis. The plots show that the elastic axis of the plastic wing passes through the 0.25c at about the 0.75b/2 station, while that of the steel wing passes through the 0.25c at the 0.85b/2 station. Inboard of these spanwise stations the elastic axis lies behind the 0.25c line (positive values of twist), and outboard the axis lies ahead of the 0.25c line (negative values of twist).

The rows of pressure orifices were located at 16, 25, 40, 60, 75, and 95 percent semispan stations for both the steel and plastic wings. In each row on both the upper and lower surfaces, the orifices were

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located at 1, 2, 5, 7, 10 percent c and at intervals of every 5 percent chord thereafter up to the 95-percent-chord station.

TESTS AND TECHNIQUES

The tests were conducted in the Langley 16-foot transonic tunnel, which is described in reference 7. The Mach number range extended from 0.80 to 1.03, which corresponded to a Reynolds number range from about 7×10^6 to 8×10^6 (based on the wing mean aerodynamic chord). The maximum angle-of-attack range extended from -2° to 26° in 2° increments.

The pressure data were obtained simultaneously with the force data presented in reference 2. The wing pressures were recorded by photographing mercury manometer boards. The data were then processed by electronic calculating machines, which plotted and tabulated the results.

At the termination of the pressure program, a study was made of the flow in the boundary layer of the plastic wing for a reduced Mach number and angle-of-attack range. The technique used in reference 5 was employed to render the flow visible. The technique entails painting the wing surface black and then applying a white ground-glass paint similar to china clay. The wing therefore appears white when dry. Wetting with a clear fluid causes the black sublayer to become visible. Thus, by emitting fluid from a point source on the wing in a stream, the fluid path in the boundary layer is traced. As the fluid trace changes with time, the history of the trace disappears as a result of the evaporation of the fluid, so that the existing trace represents an average flow for a short interval of time. For these tests clear varsol was used as the liquid agent. The point sources were particular pressure orifices through which the fluid was forced. The locations of the sources were as follows:

$\frac{x}{c}$ at $-\frac{b}{2}$				
0.25 $\frac{b}{2}$	0.40 $\frac{b}{2}$	0.60 $\frac{b}{2}$	0.75 $\frac{b}{2}$	0.95 $\frac{b}{2}$
0.5	0.5	0.5	0.5	0.5
.10	----	----	----	----
.15	.15	----	----	----
.20	.20	----	----	----
.25	.25	.25	.25	----
----	.35	----	----	----
.45	.45	.45	.45	.45
.65	.65	.65	.65	----
.80	.80	.80	.80	.80
.90	.90	.90	.90	----

The flow studies were recorded photographically.

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ACCURACY OF MEASUREMENTS

Sufficient time was allowed after a particular test condition was reached for the pressure manometer tubes to settle within about 1 percent of the ultimate value of the manometer level.

The indicated angle of attack was corrected for tunnel-flow angularity. Based on readout accuracy and repeatability, the angle of attack and Mach number are believed to be accurate within the following limits:

α , deg	± 0.01
M	± 0.005

RESULTS AND DISCUSSION

Flow studies.— Sample photographs of the flow on the right plastic wing are presented in figure 3. No general discussion of swept-wing flow is attempted here. Only those features of the flow studies which represent significant characteristics to be noted in the following wing pressure discussion are covered. A general discussion of the flow over swept wings may be found in references 8, 9, and 10.

Some of the features of the boundary flow which can be noted in the photographs of figure 3 are the indications of shock waves, the indications of flow separation, and the indications of vortex-type flow.

Shock waves are frequently indicated by the fluid path where there are abrupt changes of the streamlines. Note in figure 3(a) at $M = 0.94$ that shadowgraph traces of the waves are visible at angles of attack of 2° and 4° (indicated by the arrows on the figure), and note how the fluid lines are altered where they intersect the wave. The location of the waves is more obvious at the higher angles of attack by the more abrupt turning of the flow.

Separation first appears as an irregular darkened region generally increasing in area with increasing angle of attack. For this wing there appear to be two different areas where separation may commence, depending on the Mach number. At $M = 0.80$ for example, figure 3(a) at $\alpha = 4^\circ$ shows the separation to start along the leading edge near the wing tip. This results from a combination of a swept leading edge, a small leading-edge radius, and a thin wing. At the higher Mach numbers leading-edge separation as such occurs only at much higher angles of attack. (Compare 0.80 with 0.94 and 1.03 Mach numbers of fig. 3(a) for $\alpha = 6^\circ$.) However, separation does start near the tip at the trailing edge before the leading-edge separation occurs. See figure 3(a) at $\alpha = 6^\circ$ for

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M = 0.94 and figure 3(b) at $\alpha = 10^\circ$ for M = 1.03. This separation appears to stem from the intersection, in the vicinity of the wing tip, of the shocks originating at the leading edge and near the trailing edge of the wing-body juncture. Both types of separation extend inboard with increasing angle of attack.

Once separation occurs, the existence of vorticity in the flow above the wing is indicated in the boundary-layer traces by the circulation of the fluid lines in a counterclockwise direction. For example, observe the photographs for M = 0.80 at the higher angles of attack. A line through the aftermost points along each of the indicated streamlines should coincide with the projection of the vortex core on the wing surface. Note that at $\alpha = 6^\circ$, the vortex cone sheds near the tip and the point of shedding progresses inboard with increasing angle of attack, as does the separation. At $\alpha = 19^\circ$ (fig. 3(c)) the vortex appears to shed at about $0.25b/2$. The vortex strength at this angle of attack is much greater than at the lower angles of attack, as is shown by the accumulation of the fluid near the vortex origin.

The origin of the vorticity at M = 0.94 and M = 1.03 appears to be in the vicinity of the intersection of the shock waves where the separation forms. Vorticity is permitted at the shock intersection since different entropy changes occur inboard and outboard of the intersection. The angle of attack at which this vortex forms increases with Mach number. With increasing angle of attack at the higher Mach numbers, the vortex flow finally reverts to a vortex generated along the leading edge once the leading-edge separation occurs at the higher angles of attack.

Chordwise pressure distributions.- A tabulation of the chordwise pressure coefficients for all test conditions for the steel wing is presented in table I. Figure 4 presents a comparison between the chordwise pressure distributions for the plastic and steel wings. As is noted, there are minor differences in the angles of attack for the two wings. In general these differences are of the order of the accuracy of measurements of these angles ($\pm 0.10^\circ$). The differences in the pressure coefficient with one exception may therefore be considered to be caused principally by aeroelastic effects. A significant difference in the variation of the chordwise pressure distributions exists between the two wings at angles of attack from about 2° to 8° at a Mach number of 0.80. As this Mach number was the first for which data were obtained, the discrepancy suggests a temporary difference in the leading-edge surface conditions for the two wings. The plastic-wing flow studies of figure 3(a), which were taken after the pressure tests, for angles of attack of 4° and 6° at a Mach number of 0.80 indicated separation at the outer spanwise stations, but the pressure distributions of the plastic wings indicated attached flow. The outboard stations of the plastic wing generally show the effect of decreased local angles of attack due to load when compared to the steel wing.

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For either wing at the low angles of attack the increase in load coefficient progressing toward the tip illustrates the effective spanwise increase of angle of attack induced by the trailing vortices of a highly tapered swept wing. Consequently, the separation appears first at the tip and progresses inboard with increasing angle of attack as indicated by the flow studies of figure 3.

The pressure distributions on the upper surface are fairly constant over most of the wing panel at an angle of attack of about 20° , which of course indicates separation. Increasing the angle above 20° produces more negative pressure coefficients and, in addition, the innermost station shows signs of the streamlines being turned downward toward the wing surface; that is, the pressures near the trailing edge begin to recover or increase in a positive sense. As the angle of attack is further increased this effect tends to progress outboard. These pressure changes are believed to be caused by the change in location and the increasing strength of the vortex that is shown in figure 3 at $M = 0.80$. At $M = 0.94$ to 1.03 for the high angles of attack, the distributions near the root are also influenced by the strong shock wave shown by the chordwise distributions.

Spanwise load distributions.- It is apparent from the chordwise pressures that the type of wing construction, with some exceptions, has only minor effects on load distribution; therefore, the spanwise load distributions are presented only for the steel wing in figure 5. The distributions are nearly elliptical at the low angles of attack, but as the angle of attack increases, the load distributions tend to become triangular, with the triangular loading commencing at the tip. The triangular distribution spreads inboard as separation forms with further increase of angle of attack. At the angles of attack where the load distribution is elliptical inboard and triangular outboard, increasing Mach number tended to reduce the extent of the triangular loading. The implication is that increasing Mach number at a high constant angle of attack extends the attached flow region outboard. This implication is verified by the flow studies (fig. 3(c)). Note that at angles of attack of 15° and 17° , the higher the Mach number, the larger the region of attached flow.

Panel loads.- The variation of the integrated wing loads with angle of attack is shown in figure 6 for the test Mach number range. If compressibility effects are considered, the load-carrying capacity per unit angle of attack should increase to a maximum at approximately $M = 1.00$.

The data show that, for C_N values up to about 0.6, the maximum load-carrying capacity per unit angle of attack occurred at $M \approx 0.94$. For C_N values from 0.6 to the highest test value, the maximum load-carrying capacity occurred at $M \approx 0.98$.

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A comparison of the variation of the panel pitching-moment coefficient about the 0.25c' with normal-force coefficient and the wing-body pitching-moment data of reference 2 is shown in figure 7. The changes of the slopes $\frac{dC_m}{dC_N}$ with normal-force coefficient agree in general with those of the data of reference 2. The absolute differences in $\frac{dC_m}{dC_N}$ at a given normal-force coefficient are due to the absence of the fuselage stability contribution in the present data.

Center of loads.- Figure 8 presents the exposed panel load centers and the local section load centers for the angle-of-attack and Mach number range of the tests. The spanwise center of load was located at approximately 50 percent of the semispan for all test conditions. The most rearward position was at about 46 percent of the mean aerodynamic chord for the panel load centers and 46 percent of the local chord for the section load centers.

Increasing angle of attack up to about 20° tended to shift the panel center of load rearward and inboard. The single data point for α above 20° shows a tendency for the center of load to become invariant with the higher angles of attack. In general the effects of changes in angle of attack on the center of load decrease with increasing Mach number; this result is to be expected since the chordwise load distribution becomes more rectangular as the flow becomes supersonic over most of the wing.

Twist distribution.- Combining the influence coefficients and the integrated normal forces and moments in the manner described in appendix A or by the method of reference 5 yields the wing spanwise twist distributions. The dynamic pressures corresponding to the measured loads are presented in figure 9 for the test Mach number range. Calculations were made for both wings at angles of attack of 4° , 8° , and 20° and for $M = 0.80$ and 1.00 . A comparison of the resulting spanwise twist distributions for the steel and plastic wings is presented in figures 10(a) and 10(b). At $\alpha = 20^\circ$ and $M = 1.0$ the calculated twist angle of the tip of the plastic wing was -0.9° as compared to -0.4° for the steel wing.

CONCLUDING REMARKS

The following remarks are drawn from the loads investigation of an all steel wing and a geometrically identical reinforced plastic wing. Both wings have 30° sweepback of the quarter chord, a taper ratio of 0.2, and embody NACA 65A004 airfoil sections.

The chordwise pressure distributions for the steel and plastic wings were similar for the test range with some exceptions at Mach number 0.80.

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However the type of construction had only minor effects on the chordwise and spanwise load distributions. The order of magnitude of the tip twist was calculated at a Mach number of 1.0 and an angle of attack of 20° to be -0.9° for the plastic wing as compared to -0.4° for the steel wing. The spanwise load distributions were nearly elliptical at the low angles of attack, but at the higher angles the distributions tended to become triangular commencing at the tip. The center of load on the wing panels moved rearward and inboard with increasing angle of attack for all Mach numbers. The movement of the load center with angle of attack decreased considerably with increasing Mach number.

Langley Aeronautical Laboratory,
National Advisory Committee for Aeronautics,
Langley Field, Va., June 19, 1957.

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APPENDIX A

METHOD OF COMPUTING WING TWIST DUE TO AERODYNAMIC LOADING

If the spanwise and chordwise distribution of aerodynamic loading of an elastic wing are known, the twist distribution of the wing can be calculated, as follows

$$\{\theta\} = [A] \{l\} + [B] \{m\}$$

where the influence coefficients are defined as the elements of the square matrices $[A]$ and $[B]$.

The elements A_{ij} and B_{ij} represent the twist at the i th spanwise station due to a load or moment at the j th station.

The spanwise load distribution and the spanwise pitching-moment distribution are elements of the column matrices $\{l\}$ and $\{m\}$, respectively, where the elements l_j and m_j are the integrated loads and moments respectively over the j th spanwise segment; that is,

$$l_j = q \bar{c} \frac{b}{2} \int_{(j-1)/n}^{j/n} c_n \frac{c}{\bar{c}} d\left(\frac{2y}{b}\right)$$

and

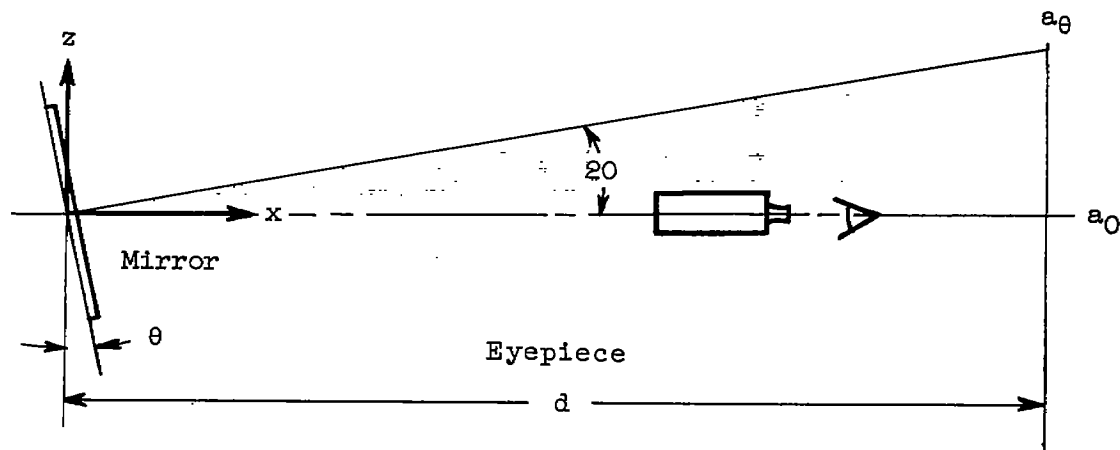
$$m_j = q c' \bar{c} \frac{b}{2} \int_{(j-1)/n}^{j/n} c_m \frac{c^2}{c' \bar{c}} d\left(\frac{2y}{b}\right)$$

where

- n number of spanwise stations
- c' mean aerodynamic chord
- $\bar{c}$ average chord
- c local chord

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The setup for measuring twist with mirrors is shown in figure 11. The technique employed for obtaining the influence coefficients involved principally the use of mirrors, linear scales, and a transit. Loads were applied at the desired points along the wing. A diagram illustrating the twist measurements is shown below:



where

a_0 zero twist reading

a_θ reading due to twist θ

A change in the angle θ of the mirror required a change in the scale reading as sighted through the eyepiece. Small translations of the mirror up or down have little effect on the scale reading. Thus, only twist about the y-axis (perpendicular to the plane of the paper) is observed.

Loading at the jth spanwise station of the 0.25c yields the influence coefficients due to normal force of the ith spanwise station. Thus

$$A_{ij} = \frac{\theta_i}{(\text{Load})_j} \frac{\text{deg}}{\text{lb}}$$

where

$$\theta_i = \frac{1}{2} \tan^{-1} \frac{(a_{\theta j} - a_{0j})}{d}$$

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Loading at the jth spanwise station of the 0.65c yields the influence coefficients due to a moment about the y-axis through the 0.25c of the ith station; thus,

$$B_{ij} = \frac{\frac{\theta_{i0.65c}}{\text{Load } j} - A_{ij}}{(0.65c - 0.25c)_j} \frac{\text{deg}}{\text{in-lb}}$$

where

$$\theta_{i0.65c} = \frac{1}{2} \tan^{-1} \frac{(a_{\theta j} - a_{0j})_{0.65c}}{d}$$

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TABLE I. - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
 RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

		Pressure coefficient, P , at:													
		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2	
	Percent c	$M = 0.80$ $\alpha = 5.92^\circ$							$M = 0.80$ $\alpha = 7.95^\circ$						
Upper surface	0.00	+0.39	+1.07	-0.054	-0.360	-0.197	+0.394		+0.29	-0.132	-0.343	-0.463	-0.449	-0.247	
	1.25	+0.405	-1.373	-1.130	-1.014	-0.811	-0.515		-0.471	-1.419	-1.327	-0.928	-0.700	-0.475	
	2.50	-0.504	-1.276	-1.108	-1.014	-0.805	-0.546		-0.734	-1.574	-1.318	-0.923	-0.697	-0.484	
	5.00	-0.643	-1.097	-1.088	-1.007	-0.797	-0.546		-0.884	-1.427	-1.342	-0.913	-0.689	-0.479	
	7.50	-0.510	-0.811	-1.047	-1.003	-0.785	-0.546		-0.800	-1.281	-1.323	-0.905	-0.682	-0.479	
	10.00	-0.481	-0.502	-1.007	-0.995	-0.777	-0.549		-0.722	-1.082	-1.312	-0.890	-0.677	-0.482	
	15.00	-0.371	-0.393	-0.853	-0.962	-0.760	-0.551		-0.513	-0.522	-1.213	-0.849	-0.668	-0.486	
	20.00	-0.390	-0.399	-0.642	-0.888	-0.742	-0.549		-0.442	-0.475	-1.087	-0.847	-0.657	-0.484	
	25.00	-0.371	-0.360	-0.458	-0.818	-0.716	-0.542		-0.485	-0.429	-0.889	-0.827	-0.642	-0.485	
	30.00	-0.339	-0.353	-0.352	-0.705	-0.688	-0.530		-0.425	-0.407	-0.588	-0.795	-0.624	-0.485	
	35.00	-0.351	-0.345	-0.316	-0.406	-0.415	-0.513		-0.412	-0.386	-0.387	-0.766	-0.604	-0.481	
	40.00	-0.322	-0.315	-0.299	-0.456	-0.420	-0.499		-0.372	-0.352	-0.283	-0.755	-0.585	-0.475	
	45.00	-0.310	-0.296	-0.285	-0.400	-0.392	-0.476		-0.359	-0.337	-0.280	-0.703	-0.568	-0.471	
	50.00	-0.268	-0.280	-0.268	-0.332	-0.342	-0.458		-0.317	-0.318	-0.280	-0.664	-0.545	-0.463	
	55.00	-0.223	-0.262	-0.256	-0.279	-0.302	-0.440		-0.267	-0.305	-0.276	-0.617	-0.529	-0.454	
	60.00	-0.241	-0.240	-0.233	-0.247	-0.242	-0.415		-0.283	-0.285	-0.257	-0.580	-0.511	-0.444	
Lower surface	0.00	-0.205	-0.207	-0.195	-0.204	-0.413	-0.388		-0.242	-0.243	-0.233	-0.518	-0.489	-0.437	
	1.25	-0.182	-0.179	-0.168	-0.166	-0.369	-0.364		-0.226	-0.220	-0.206	-0.460	-0.468	-0.429	
	2.50	-0.159	-0.150	-0.143	-0.139	-0.324	-0.349		-0.197	-0.191	-0.189	-0.417	-0.451	-0.423	
	5.00	-0.127	-0.119	-0.106	-0.089	-0.281	-0.328		-0.160	-0.157	-0.156	-0.374	-0.432	-0.418	
	7.50	-0.107	-0.084	-0.077	-0.067	-0.237	-0.307		-0.139	-0.121	-0.120	-0.325	-0.408	-0.418	
	10.00	-0.059	-0.051	-0.057	-0.034	-0.185	-0.295		-0.090	-0.086	-0.082	-0.283	-0.380	-0.417	
	15.00	-0.011	-0.018	0.006	0.005	-0.156	-0.281		-0.037	-0.045	-0.031	-0.225	-0.369	-0.413	
	20.00	+0.351	+0.547	+0.256	+0.270	+0.592	+0.644		+0.637	+0.538	+0.615	+0.621	+0.629	+0.500	
	2.50	+0.472	+0.450	+0.448	+0.475	+0.494	+0.394		+0.593	+0.529	+0.534	+0.540	+0.550	+0.437	
	5.00	+0.406	+0.343	+0.350	+0.364	+0.384	+0.326		+0.515	+0.436	+0.436	+0.437	+0.449	+0.374	
	7.50	+0.348	+0.282	+0.285	+0.302	+0.321	+0.254		+0.444	+0.367	+0.371	+0.375	+0.387	+0.299	
	10.00	+0.292	+0.247	+0.249	+0.256	+0.263	+0.198		+0.383	+0.331	+0.328	+0.326	+0.327	+0.247	
	15.00	+0.235	+0.193	+0.189	+0.196	+0.205	+0.110		+0.318	+0.267	+0.260	+0.268	+0.263	+0.191	
	20.00	+0.166	+0.174	+0.147	+0.143	+0.155	+0.040		+0.251	+0.237	+0.211	+0.198	+0.207	+0.076	
	25.00	+0.149	+0.129	+0.114	+0.105	+0.109	-0.010		+0.212	+0.189	+0.179	+0.161	+0.157	+0.029	
	30.00	+0.125	+0.092	+0.088	+0.083	+0.079	-0.049		+0.184	+0.149	+0.139	+0.131	+0.123	-0.015	
35.00	+0.070	+0.064	+0.059	+0.048	+0.040	-0.052		+0.112	+0.116	+0.077	+0.090	+0.084	-0.027		
40.00	+0.064	+0.043	+0.044	+0.027	+0.022	-0.086		+0.112	+0.091	+0.077	+0.063	+0.056	-0.074		
45.00	+0.015	+0.021	+0.016	+0.001	-0.002	-0.117		+0.043	+0.045	+0.032	+0.035	+0.026	-0.114		
50.00	+0.006	-0.002	-0.005	-0.026	-0.024	-0.126		+0.043	+0.039	+0.030	+0.009	-0.003	-0.130		
55.00	-0.010	-0.016	-0.011	-0.023	-0.050	-0.124		+0.022	+0.020	+0.015	+0.003	-0.037	-0.133		
60.00	-0.010	-0.025	-0.026	-0.039	-0.059	-0.124		+0.022	+0.004	-0.002	-0.020	-0.056	-0.141		
65.00	-0.020	-0.029	-0.026	-0.049	-0.072	-0.133		+0.003	-0.006	-0.011	-0.038	-0.075	-0.154		
70.00	-0.041	-0.028	-0.024	-0.041	-0.058	-0.121		+0.001	-0.011	-0.013	-0.039	-0.075	-0.153		
75.00	-0.049	-0.031	-0.028	-0.040	-0.065	-0.124		-0.027	-0.021	-0.025	-0.049	-0.086	-0.161		
80.00	-0.036	-0.027	-0.018	-0.031	-0.056	-0.121		-0.028	-0.021	-0.025	-0.049	-0.101	-0.171		
85.00	-0.028	-0.017	0.000	-0.013	-0.059	-0.101		-0.028	-0.015	-0.014	-0.053	-0.121	-0.149		
90.00	-0.015	-0.006	0.007	-0.005	-0.054	-0.134		-0.020	-0.012	-0.012	-0.060	-0.137	-0.206		
95.00	-0.010	-0.005	0.028	0.009	-0.062	-0.145		-0.009	-0.009	-0.009	-0.085	-0.187	-0.226		
Upper surface	0.00	-0.036	-0.351	-0.603	-0.866	-0.599	+0.087		-0.047	-0.575	-0.835	-0.922	-0.763	-0.094	
	1.25	-0.821	-1.733	-1.270	-0.783	-0.626	-0.452		-0.937	-1.640	-1.024	-0.726	-0.600	-0.440	
	2.50	-0.905	-1.714	-1.252	-0.777	-0.623	-0.453		-1.050	-1.611	-1.019	-0.718	-0.595	-0.438	
	5.00	-1.043	-1.598	-1.241	-0.771	-0.617	-0.453		-1.182	-1.531	-1.013	-0.716	-0.586	-0.438	
	7.50	-0.950	-1.481	-1.208	-0.765	-0.612	-0.453		-1.100	-1.449	-0.983	-0.718	-0.579	-0.438	
	10.00	-0.902	-1.341	-1.207	-0.756	-0.612	-0.450		-1.000	-1.366	-0.972	-0.715	-0.579	-0.438	
	15.00	-0.866	-0.992	-1.160	-0.742	-0.608	-0.453		-0.875	-1.226	-0.945	-0.712	-0.574	-0.440	
	20.00	-0.508	-0.414	-1.090	-0.727	-0.604	-0.455		-0.552	-0.939	-0.950	-0.699	-0.571	-0.440	
	25.00	-0.483	-0.392	-1.023	-0.705	-0.599	-0.457		-0.539	-0.662	-0.926	-0.689	-0.566	-0.440	
	30.00	-0.511	-0.409	-0.920	-0.689	-0.593	-0.460		-0.565	-0.516	-0.906	-0.671	-0.560	-0.441	
	35.00	-0.400	-0.409	-0.814	-0.647	-0.584	-0.462		-0.489	-0.475	-0.882	-0.654	-0.560	-0.444	
	40.00	-0.400	-0.378	-0.696	-0.656	-0.574	-0.463		-0.450	-0.435	-0.822	-0.643	-0.555	-0.447	
	45.00	-0.384	-0.367	-0.591	-0.642	-0.567	-0.463		-0.435	-0.420	-0.772	-0.626	-0.553	-0.450	
	50.00	-0.361	-0.357	-0.513	-0.626	-0.555	-0.463		-0.420	-0.406	-0.716	-0.616	-0.549	-0.453	
	55.00	-0.311	-0.349	-0.445	-0.614	-0.544	-0.463		-0.337	-0.394	-0.651	-0.599	-0.543	-0.454	
	60.00	-0.326	-0.334	-0.393	-0.588	-0.536	-0.463		-0.372	-0.380	-0.607	-0.583	-0.527	-0.457	
65.00	-0.289	-0.298	-0.353	-0.570	-0.522	-0.463		-0.341	-0.344	-0.594	-0.574	-0.529	-0.461		
70.00	-0.276	-0.275	-0.318	-0.547	-0.507	-0.465		-0.324	-0.326	-0.515	-0.555	-0.521	-0.466		
75.00	-0.248	-0.248	-0.280	-0.518	-0.495	-0.466		-0.300	-0.304	-0.472	-0.534	-0.517	-0.468		
80.00	-0.207	-0.215	-0.251	-0.493	-0.484	-0.468		-0.262	-0.273	-0.438	-0.520	-0.509	-0.472		
85.00	-0.179	-0.174	-0.212	-0.472	-0.470	-0.473		-0.235	-0.237	-0.386	-0.507	-0.497	-0.478		
90.00	-0.126	-0.131	-0.167	-0.437	-0.449	-0.475		-0.177	-0.194	-0.348	-0.491	-0.483	-0.488		
95.00	-0.068	-0.086	-0.117	-0.419	-0.441	-0.477		-0.104	-0.141	-0.293	-0.479	-0.481	-0.491		
Lower surface	1.25	+0.733	+0.709	+0.667	+0.657	+0.645	+0.531		+0.809	+0.761	+0.708	+0.689	+0.680	+0.556	
	2.50	+0.703	+0.615	+0.607	+0.600	+0.588	+0.477		+0.801	+0.687	+0.638	+0.644	+0.625	+0.509	
	5.00	+0.623	+0.520	+0.513	+0.503	+0.501	+0.418		+0.720	+0.598	+0.579	+0.554	+0.553	+0.460	
	7.50	+0.548	+0.449	+0.462	+0.445	+0.460	+0.367		+0.631	+0.527	+0.517	+0.499	+0.494	+0.399	
	10.00	+0.476	+0.415	+0.397	+0.395	+0.385	+0.291		+0.558	+0.484	+0.471	+0.452	+0.441	+0.349	
	15.00	+0.397	+0.340	+0.332	+0.331	+0.317	+0.203		+0.471	+0.411	+0.400	+0.386	+0.375	+0.295	
	20.00	+0.325	+0.303	+0.272	+0.299	+0.260	+0.130		+0.398	+0.375	+0.343	+0.316	+0.313	+0.179	
	25.00	+0.285	+0.252	+0.232	+0.217	+0.109	+0.075		+0.331	+0.318	+0.285	+0.258	+0.255	+0.121	
	30.00	+0.240	+0.210	+0.197	+0.185	+0.169	+0.022		+0.211	+0.271	+0.250	+0.242	+0.224	+0.073	
	35.00	+0.172	+0.174	+0.162	+0.139	+0.123	-0.002		+0.311	+0.230	+0.214	+0.199	+0.177	+0.047	
	40.00	+0.171	+0.145	+0.130	+0.109	+0.100	-0.049		+0.266	+0.199	+0.187	+0.153	+0.149	-0.006	
	45.00	+0.136	+0.113	+0.103	+0.073	+0.064	-0.090		+0.220	+0.164	+0.161	+0.123	+0.119	-0.053	
	50.00	+0.084	+0.084	+0.074	+0.044	+0.034	-0.145		+0.146	+0.122	+0.119	+0.078	+0.077	-0.087	
	55.00	+0.066	+0.058	+0.049	+0.029	-0.006	-0.123		+0.112	+0.104	+0.091	+0.068	+0.034	-0.094	
	60.00	+0.066	+0.040	+0.026	+0.008	-0.035	-0.135		+0.112	+0.081	+0.068	+0.039	+0.002	-0.114	
	65.00	+0.041	+0.022	+0.013	-0.021	-0.042	-0.156		+0.080	+0.057	+0.049	+0.015	-0.028	-0.	

TABLE I. - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
 RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

		Pressure coefficient, P, at:												
		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2
	Percent c	M = 0.80 α = 23.46°							M = 0.80 α = 25.45°					
Upper surface	0.00	-.134	-.955	-.946	-.986	-.875	-.825		-.191	-1.032	-1.028	-1.029	-.964	-.865
	1.25	-.957	-.951	-.942	-.923	-.865	-.778		-1.049	-1.032	-1.029	-1.017	-.950	-.812
	2.50	-.949	-.951	-.936	-.919	-.865	-.774		-1.032	-1.032	-1.023	-1.001	-.950	-.811
	5.00	-.932	-.952	-.961	-.909	-.865	-.773		-1.021	-1.035	-1.029	-.995	-.947	-.809
	7.50	-.942	-.955	-.935	-.907	-.858	-.774		-1.026	-1.035	-1.022	-.995	-.940	-.808
	10.00	-.945	-.955	-.941	-.908	-.858	-.773		-1.030	-1.039	-1.030	-.994	-.939	-.807
	15.00	-.944	-.958	-.944	-.905	-.856	-.773		-1.030	-1.043	-1.032	-.991	-.936	-.807
	20.00	-.940	-.956	-.944	-.902	-.854	-.772		-1.022	-1.041	-1.031	-.987	-.934	-.804
	25.00	-.928	-.959	-.944	-.900	-.852	-.772		-.986	-1.039	-1.031	-.984	-.930	-.801
	30.00	-.909	-.955	-.944	-.898	-.849	-.773		-.932	-1.032	-1.030	-.983	-.927	-.803
	35.00	-.841	-.948	-.942	-.898	-.848	-.777		-.865	-1.021	-1.030	-.981	-.925	-.805
	40.00	-.801	-.931	-.943	-.899	-.847	-.778		-.850	-.991	-1.028	-.981	-.920	-.806
	45.00	-.775	-.919	-.941	-.895	-.847	-.779		-.800	-.954	-1.025	-.977	-.919	-.807
	50.00	-.753	-.887	-.940	-.895	-.846	-.780		-.752	-.888	-1.019	-.975	-.916	-.807
	55.00	-.724	-.860	-.934	-.892	-.845	-.781		-.687	-.814	-1.007	-.971	-.912	-.806
	60.00	-.717	-.831	-.927	-.881	-.845	-.780		-.637	-.738	-.981	-.938	-.909	-.803
	65.00	-.680	-.780	-.918	-.881	-.843	-.781		-.573	-.645	-.959	-.928	-.905	-.801
	70.00	-.640	-.740	-.903	-.881	-.858	-.778		-.548	-.588	-.935	-.952	-.900	-.796
75.00	-.596	-.692	-.886	-.869	-.837	-.778		-.511	-.518	-.888	-.941	-.898	-.792	
80.00	-.555	-.632	-.862	-.866	-.836	-.774		-.467	-.459	-.835	-.935	-.895	-.786	
85.00	-.525	-.565	-.830	-.862	-.827	-.774		-.462	-.400	-.774	-.918	-.885	-.783	
90.00	-.448	-.506	-.781	-.858	-.820	-.771		-.415	-.384	-.678	-.896	-.871	-.781	
95.00	-.340	-.405	-.712	-.854	-.854	-.766		-.363	-.351	-.566	-.671	-.855	-.775	
Lower surface	1.25	.852	.837	.715	.609	.511	.471		.813	.839	.702	.581	.476	.452
	2.50	.997	.873	.772	.685	.635	.497		.987	.894	.778	.677	.624	.489
	5.00	.970	.869	.768	.704	.666	.519		.983	.879	.795	.726	.679	.526
	7.50	.896	.799	.740	.684	.619	.503		.926	.839	.772	.711	.677	.522
	10.00	.834	.761	.705	.657	.625	.472		.867	.803	.746	.691	.659	.498
	15.00	.737	.690	.644	.602	.570	.409		.779	.737	.693	.643	.607	.441
	20.00	.669	.637	.588	.545	.521	.342		.716	.682	.641	.592	.567	.382
	25.00	.612	.577	.541	.501	.477	.282		.662	.630	.592	.546	.524	.325
	30.00	.569	.527	.491	.461	.432	.215		.611	.583	.546	.505	.477	.263
	35.00	.483	.479	.447	.410	.381	.179		.558	.516	.476	.459	.432	.224
	40.00	.461	.437	.409	.367	.347	.119		.519	.493	.463	.418	.399	.164
	45.00	.434	.395	.365	.326	.305	.055		.482	.448	.419	.379	.357	.101
	50.00	.363	.349	.324	.283	.261	.021		.417	.402	.381	.335	.325	.066
	55.00	.318	.308	.289	.250	.206	-.012		.372	.345	.345	.305	.265	.032
	60.00	.301	.269	.245	.206	.161	-.044		.352	.320	.298	.260	.215	-.001
	65.00	.239	.225	.209	.165	.118	-.076		.300	.283	.262	.214	.170	-.032
	70.00	.186	.194	.174	.132	.094	-.107		.239	.252	.225	.181	.147	-.064
	75.00	.154	.145	.127	.090	.047	-.137		.206	.197	.185	.139	.096	-.100
80.00	.116	.114	.088	.049	.004	-.172		.157	.162	.140	.098	.051	-.134	
85.00	.062	.074	.049	.007	-.047	-.175		.106	.121	.099	.046	-.002	-.141	
90.00	.010	.018	-.011	-.059	-.105	-.254		.043	.066	.037	-.019	-.064	-.225	
95.00	-.049	-.047	-.100	-.173	-.200	-.292		-.031	.000	-.044	-.135	-.164	-.264	

TABLE L - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
 RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

		Pressure coefficient, P_r at:												
		0.16b/2	0.25b/2	0.40b/2	0.50b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.50b/2	0.75b/2	0.95b/2
Percent c	Upper surface	$M = 0.90$						$M = 0.90$						
		$\alpha = 5.88^\circ$												
0.00		.048	.399	.235	.184	.100	.448	.044	.222	.044	-.044	-.197	.308	
1.25		-.203	-1.051	-1.139	-1.198	-1.240	-.879	-.355	-1.262	-1.309	-1.318	-1.059	-.618	
2.50		-.266	-.817	-1.055	-1.110	-1.151	-1.007	-.426	-1.111	-1.239	-1.261	-1.034	-.636	
5.00		-.410	-.616	-.909	-.990	-1.049	-.968	-.580	-.863	-1.152	-1.177	-.976	-.652	
7.50		-.440	-.572	-.724	-.947	-1.022	-.941	-.540	-.600	-1.039	-1.126	-.950	-.648	
10.00		-.364	-.560	-.601	-.897	-.943	-.917	-.512	-.537	-.954	-1.090	-.927	-.645	
15.00		-.272	-.346	-.422	-.718	-.931	-.893	-.399	-.488	-.693	-.984	-.912	-.650	
20.00		-.235	-.359	-.419	-.621	-.878	-.874	-.368	-.468	-.579	-.900	-.872	-.645	
25.00		-.315	-.356	-.399	-.528	-.772	-.844	-.409	-.433	-.504	-.762	-.941	-.657	
30.00		-.402	-.359	-.407	-.467	-.748	-.780	-.484	-.452	-.492	-.616	-.820	-.659	
35.00		-.348	-.278	-.417	-.484	-.697	-.686	-.438	-.466	-.490	-.549	-.785	-.644	
40.00		-.374	-.326	-.436	-.479	-.587	-.665	-.466	-.475	-.500	-.552	-.704	-.634	
45.00		-.389	-.389	-.444	-.492	-.551	-.567	-.466	-.475	-.505	-.540	-.674	-.612	
50.00		-.370	-.389	-.445	-.504	-.497	-.504	-.461	-.471	-.495	-.544	-.629	-.593	
55.00		-.332	-.408	-.463	-.514	-.469	-.475	-.415	-.485	-.483	-.544	-.599	-.581	
60.00		-.412	-.433	-.476	-.514	-.398	-.428	-.491	-.503	-.474	-.541	-.571	-.560	
65.00		-.398	-.416	-.458	-.399	-.283	-.368	-.477	-.470	-.463	-.480	-.528	-.526	
70.00		-.346	-.343	-.335	-.209	-.190	-.336	-.401	-.395	-.420	-.384	-.473	-.513	
75.00		-.245	-.215	-.163	-.095	-.132	-.357	-.313	-.280	-.305	-.344	-.430	-.523	
80.00		-.126	-.107	-.065	-.040	-.093	-.315	-.184	-.180	-.174	-.283	-.391	-.499	
85.00		-.070	-.052	-.020	-.004	-.050	-.260	-.118	-.111	-.093	-.232	-.357	-.463	
90.00		-.017	-.018	.015	.024	-.015	-.260	-.058	-.069	-.045	-.179	-.322	-.472	
95.00		.026	.017	.043	.059	.012	-.239	-.009	-.023	-.007	-.147	-.287	-.439	
1.25		.516	.508	.489	.515	.545	.443	.630	.621	.590	.603	.617	.508	
2.50		.493	.403	.406	.416	.432	.369	.582	.521	.515	.521	.521	.442	
5.00		.394	.352	.322	.329	.345	.301	.510	.436	.426	.423	.435	.377	
7.50		.284	.264	.261	.284	.293	.268	.440	.354	.356	.356	.377	.308	
10.00		.284	.229	.206	.220	.233	.180	.387	.329	.309	.314	.329	.254	
15.00		.227	.188	.170	.167	.174	.081	.317	.272	.256	.255	.258	.157	
20.00		.169	.166	.125	.094	.123	-.001	.248	.243	.209	.183	.202	.073	
25.00		.140	.125	.086	.068	.078	-.077	.216	.192	.163	.148	.154	.002	
30.00		.124	.084	.065	.040	.046	-.123	.192	.154	.131	.119	.120	-.047	
35.00		.064	.054	.036	.012	.009	-.134	.118	.121	.109	.085	.077	-.064	
40.00		.055	.034	.013	-.014	-.023	-.190	.113	.094	.078	.053	.051	-.123	
45.00		.059	.004	-.011	-.045	-.040	-.230	.107	.059	.050	.018	.020	-.171	
50.00		-.009	-.021	-.036	-.068	-.067	-.244	.038	.034	.018	-.006	-.014	-.196	
55.00		-.025	-.040	-.049	-.071	-.098	-.232	.019	.009	.004	-.019	-.051	-.193	
60.00		-.059	-.054	-.063	-.081	-.111	-.212	.005	-.009	-.018	.054	.076	-.148	
65.00		-.039	-.054	-.059	-.090	-.123	-.201	-.004	-.019	-.025	-.057	-.097	-.218	
70.00		-.032	-.045	-.059	-.084	-.106	-.260	-.004	-.019	-.033	-.057	-.085	-.193	
75.00		-.012	-.057	-.056	-.075	-.091	-.145	-.047	-.037	-.043	-.062	-.100	-.193	
80.00		-.049	-.041	-.043	-.050	-.070	-.124	-.042	-.038	-.038	-.058	-.095	-.188	
85.00		-.038	-.021	-.015	-.021	-.049	-.069	-.037	-.025	-.020	-.046	-.102	-.141	
90.00		-.008	-.001	.004	.004	-.017	-.098	-.023	-.015	-.013	-.041	-.094	-.181	
95.00		.028	.018	.037	.024	.005	-.088	.007	-.004	.009	-.051	-.114	-.174	
1.25		.037	.026	-.174	-.324	-.481	.124	.025	-.211	-.442	-.634	-.784	-.111	
2.50		-.492	-1.377	-1.587	-1.093	-.826	-.584	-.651	-1.435	-1.171	-.907	-.790	-.879	
5.00		-.572	-1.251	-1.393	-1.045	-.852	-.592	-.732	-1.374	-1.149	-.892	-.793	-.577	
7.50		-.728	-1.076	-1.275	-1.053	-.809	-.589	-.901	-1.260	-1.043	-.805	-.757	-.573	
10.00		-.690	-.874	-1.181	-1.032	-.798	-.579	-.850	-1.147	-1.115	-.890	-.748	-.448	
15.00		-.653	-.799	-1.126	-1.002	-.811	-.579	-.808	-1.081	-1.101	-.882	-.760	-.545	
20.00		-.525	-.730	-.928	-.963	-.800	-.579	-.675	-1.014	-1.007	-.882	-.760	-.545	
25.00		-.476	-.619	-.805	-.914	-.782	-.579	-.586	-.861	-.948	-.873	-.753	-.565	
30.00		-.489	-.519	-.712	-.848	-.774	-.584	-.558	-.610	-.877	-.857	-.757	-.566	
35.00		-.551	-.492	-.670	-.781	-.765	-.592	-.599	-.528	-.836	-.839	-.751	-.570	
40.00		-.501	-.499	-.620	-.744	-.757	-.596	-.557	-.542	-.801	-.817	-.740	-.574	
45.00		-.522	-.502	-.599	-.713	-.735	-.593	-.579	-.542	-.776	-.790	-.727	-.576	
50.00		-.497	-.498	-.585	-.676	-.718	-.593	-.548	-.542	-.758	-.754	-.720	-.580	
55.00		-.497	-.481	-.573	-.650	-.692	-.591	-.548	-.534	-.735	-.734	-.711	-.582	
60.00		-.437	-.487	-.568	-.640	-.677	-.589	-.500	-.541	-.713	-.714	-.704	-.583	
65.00		-.494	-.509	-.551	-.621	-.659	-.583	-.537	-.554	-.688	-.692	-.699	-.584	
70.00		-.487	-.498	-.523	-.588	-.639	-.573	-.535	-.535	-.664	-.671	-.692	-.583	
75.00		-.465	-.465	-.497	-.545	-.609	-.568	-.520	-.515	-.617	-.649	-.677	-.588	
80.00		-.413	-.405	-.440	-.483	-.534	-.576	-.440	-.490	-.574	-.620	-.667	-.588	
85.00		-.325	-.320	-.372	-.501	-.563	-.566	-.440	-.448	-.530	-.600	-.650	-.590	
90.00		-.229	-.233	-.285	-.456	-.536	-.554	-.375	-.389	-.486	-.580	-.629	-.590	
95.00		-.141	-.163	-.225	-.416	-.508	-.559	-.280	-.304	-.432	-.546	-.607	-.594	
		-.073	-.106	-.163	-.393	-.484	-.550	-.184	-.250	-.374	-.527	-.598	-.587	
1.25		.733	.709	.660	.653	.651	.542	.815	.773	.713	.689	.668	.545	
2.50		.701	.610	.593	.585	.584	.483	.799	.690	.643	.643	.626	.518	
5.00		.624	.525	.508	.493	.495	.428	.719	.600	.576	.557	.551	.471	
7.50		.546	.454	.440	.425	.440	.360	.631	.529	.511	.493	.494	.409	
10.00		.480	.414	.394	.381	.384	.309	.559	.485	.472	.452	.441	.359	
15.00		.403	.346	.334	.320	.317	.214	.474	.414	.396	.388	.374	.264	
20.00		.327	.311	.279	.254	.263	.131	.395	.379	.345	.320	.316	.181	
25.00		.290	.259	.231	.203	.212	.066	.352	.320	.297	.276	.269	.119	
30.00		.259	.218	.194	.177	.174	.010	.314	.275	.260	.237	.228	.063	
35.00		.179	.182	.160	.138	.130	-.019	.237	.238	.221	.196	.188	.032	
40.00		.173	.152	.128	.108	.100	-.077	.225	.204	.188	.159	.150	-.034	
45.00		.165	.114	.100	.071	.067	-.127	.211	.163	.149	.120	.114	-.082	
50.00		.095	.081	.071	.039	.029	-.154	.143	.129	.117	.090	.072	-.115	
55.00		.066	.057	.046	.021	-.014	-.164	.103	.100	.091	.069	.081	-.128	
60.00		.056	.035	.021	-.003	-.041	-.183	.101	.075	.065	.040	-.001	-.151	
65.00		.039	.014	.009	-.031	-.067	-.204	.088	.049	.048	.029	-.029	-.175	
70.00		.020	.010	-.008	-.043	-.087	-.192	.042	.037	.025	-.008	-.037	-.170	
75.00		-.006	-.015	-.026	-.056	-.093	-.198	.022	.011	.005	-.030	-.063	-.181	
80.00		-.022	-.020	-.034	-.059	-.096	-.202	-.001	-.006	-.013	-.040	-.074	-.191	
85.00		-.034	-.024	-.031	-.061	-.099	-.204	-.030	-.018	-.024	-.051	-.090	-.195	
90.00		-.030	-.030	-.042	-.075	-.115	-.209	-.044	-.037	-.049	-.077	-.107	-.207	
95.00		-.024	-.035	-.047	-.117	-.148	-.195	-.078	-.075	-.082	-.117	-.149	-.197	
1.25		.733	.709	.660	.653	.651	.542	.815	.773	.713	.689	.668	.545	
2.50		.701	.610	.593	.585	.584	.483	.799	.690	.643	.643	.626	.518	
5.00		.624	.525	.508	.493	.495	.428	.719	.600	.576	.557	.551	.471	
7.50		.546	.454	.440	.425	.440	.360	.631	.529	.511	.493	.494	.409	
10.00		.480	.414	.394	.381	.384	.309	.559	.48					

CONFIDENTIAL

TABLE I. - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
 RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

		Pressure coefficient, P , at:													
		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2	
Upper surface	Percent c	$M = 0.90 \quad \alpha = 23.68^\circ$							$M = 0.90 \quad \alpha = 25.78^\circ$						
	0.00	-.246	-.998	-.991	-.975	-.947	-.898		-.310	-1.099	-1.092	-1.062	-1.033	-.956	
	1.18	-.985	-.991	-.986	-.970	-.934	-.859		-1.082	-1.093	-1.086	-1.061	-1.021	-.922	
	2.50	-.970	-.990	-.979	-.960	-.931	-.857		-1.070	-1.086	-1.083	-1.058	-1.014	-.916	
	5.00	-.969	-.993	-.985	-.951	-.928	-.853		-1.070	-1.087	-1.089	-1.047	-1.010	-.914	
	7.50	-.971	-.992	-.974	-.952	-.923	-.854		-1.075	-1.088	-1.076	-1.047	-1.007	-.917	
	10.00	-.972	-.996	-.981	-.951	-.920	-.854		-1.079	-1.088	-1.084	-1.049	-.997	-.915	
	15.00	-.979	-1.006	-.985	-.950	-.923	-.855		-1.079	-1.101	-1.091	-1.048	-1.005	-.914	
	20.00	-.975	-1.004	-.985	-.942	-.925	-.850		-1.064	-1.098	-1.091	-1.039	-1.009	-.913	
	25.00	-.931	-.998	-.981	-.946	-.921	-.850		-.952	-1.087	-1.082	-1.044	-1.002	-.908	
	30.00	-.889	-.994	-.983	-.943	-.920	-.849		-.894	-1.085	-1.087	-1.039	-1.002	-.903	
	35.00	-.820	-.990	-.980	-.941	-.919	-.849		-.857	-1.075	-1.087	-1.037	-1.000	-.900	
	40.00	-.793	-.974	-.980	-.941	-.915	-.854		-.835	-1.047	-1.084	-1.037	-.993	-.909	
	45.00	-.773	-.948	-.977	-.938	-.915	-.853		-.787	-.990	-1.081	-1.031	-.985	-.904	
	50.00	-.738	-.918	-.973	-.937	-.913	-.853		-.740	-.923	-1.071	-1.032	-.990	-.903	
	55.00	-.714	-.888	-.970	-.932	-.910	-.856		-.715	-.853	-1.062	-1.024	-.987	-.906	
	60.00	-.732	-.854	-.964	-.918	-.909	-.856		-.695	-.803	-1.051	-1.012	-.985	-.904	
	65.00	-.709	-.854	-.958	-.918	-.905	-.852		-.663	-.724	-1.032	-1.004	-.979	-.896	
	70.00	-.685	-.780	-.951	-.918	-.901	-.852		-.634	-.677	-1.007	-.998	-.969	-.893	
	75.00	-.665	-.753	-.938	-.914	-.898	-.855		-.598	-.628	-.966	-1.000	-.965	-.897	
	80.00	-.656	-.735	-.920	-.914	-.896	-.851		-.574	-.578	-.924	-.992	-.959	-.892	
	85.00	-.652	-.694	-.901	-.914	-.884	-.848		-.545	-.511	-.874	-.982	-.945	-.880	
	90.00	-.611	-.649	-.866	-.908	-.876	-.846		-.468	-.455	-.817	-.968	-.931	-.883	
	95.00	-.465	-.551	-.786	-.900	-.890	-.842		-.357	-.375	-.681	-.945	-.940	-.878	
Lower surface	1.25	.913	.893	.774	.669	.569	.516		.871	.890	.762	.641	.534	.489	
	2.50	1.045	.928	.830	.740	.684	.544		1.034	.942	.831	.731	.671	.551	
	5.00	1.012	.899	.823	.760	.712	.568		1.026	.927	.842	.771	.721	.567	
	7.50	.948	.851	.793	.738	.730	.558		.971	.890	.822	.759	.718	.566	
	10.00	.881	.812	.743	.713	.677	.531		.913	.855	.799	.741	.702	.548	
	15.00	.792	.748	.703	.662	.622	.471		.831	.791	.745	.695	.654	.495	
	20.00	.723	.686	.651	.609	.577	.411		.767	.734	.693	.646	.614	.438	
	25.00	.669	.640	.604	.567	.537	.352		.714	.684	.646	.609	.574	.385	
	30.00	.622	.591	.560	.528	.494	.293		.669	.638	.605	.567	.534	.327	
	35.00	.545	.542	.515	.480	.447	.255		.592	.595	.563	.523	.491	.288	
	40.00	.529	.506	.476	.439	.417	.196		.574	.554	.527	.486	.459	.231	
	45.00	.495	.456	.436	.401	.377	.130		.543	.511	.484	.441	.419	.168	

11/10/00 11/10/00

TABLE L - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

		Pressure coefficient, P , at:															
		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2			
	Percent c	$M = 0.94$								$M = 0.94$							
		$\alpha = -2.02^\circ$								$\alpha = 0^\circ$							
Upper surface	0.00	.041	.701	.645	.699	.549	.456		.056	.730	.678	.685	.648	.685			
	1.25	.323	.238	.257	.271	.236	.260		.217	.058	.021	-.024	-.058	.060			
	2.50	.266	.146	.162	.170	.174	.185		.152	-.011	-.029	-.045	-.091	-.118			
	5.00	.201	.125	.108	.101	.093	.119		.088	-.016	-.027	-.074	-.115	-.120			
	7.50	.167	.089	.076	.059	.046	.088		.060	-.014	-.046	-.091	-.133	-.145			
	10.00	.132	.061	.040	.032	.015	.023		.035	-.023	-.067	-.111	-.142	-.161			
	15.00	.090	.030	.002	.010	-.024	-.060		.013	-.049	-.086	-.109	-.156	-.197			
	20.00	.040	-.003	-.026	-.023	-.051	-.136		-.004	-.077	-.115	-.133	-.166	-.235			
	25.00	.014	-.022	-.046	-.045	-.088	-.239		-.053	-.089	-.128	-.154	-.189	-.298			
	30.00	-.041	-.038	-.060	-.089	-.101	-.268		-.131	-.106	-.136	-.171	-.199	-.298			
	35.00	-.046	-.066	-.084	-.110	-.134	-.285		-.104	-.133	-.144	-.189	-.222	-.294			
	40.00	-.069	-.076	-.108	-.137	-.155	-.353		-.122	-.133	-.172	-.208	-.241	-.340			
	45.00	-.083	-.093	-.134	-.163	-.188	-.346		-.142	-.147	-.187	-.229	-.265	-.354			
	50.00	-.078	-.115	-.162	-.186	-.219	-.346		-.124	-.161	-.217	-.250	-.293	-.359			
	55.00	-.092	-.152	-.190	-.217	-.252	-.348		-.124	-.198	-.240	-.274	-.315	-.368			
	60.00	-.158	-.173	-.193	-.226	-.278	-.348		-.206	-.228	-.259	-.296	-.339	-.355			
Lower surface	0.00	.003	-.195	-.263	-.551	-.742	-.875		.138	.005	-.026	-.056	-.068	-.100			
	1.25	.063	-.248	-.401	-.727	-.874	-.936		.203	.066	.006	-.037	-.038	-.101			
	2.50	.003	-.195	-.263	-.551	-.742	-.875		.138	.005	-.026	-.056	-.068	-.100			
	5.00	-.024	-.131	-.206	-.261	-.421	-.794		.101	.019	-.026	-.057	-.085	-.114			
	7.50	-.045	-.138	-.213	-.268	-.297	-.717		.071	.010	-.048	-.084	-.105	-.136			
	10.00	-.085	-.143	-.204	-.261	-.322	-.600		.051	-.027	-.064	-.098	-.120	-.146			
	15.00	-.096	-.146	-.201	-.265	-.315	-.415		.005	-.040	-.075	-.111	-.139	-.178			
	20.00	-.123	-.145	-.202	-.284	-.332	-.406		-.028	-.060	-.102	-.137	-.163	-.240			
	25.00	-.144	-.149	-.199	-.265	-.314	-.394		-.049	-.049	-.103	-.146	-.174	-.280			
	30.00	-.125	-.167	-.217	-.275	-.317	-.355		.119	-.079	-.118	-.157	-.183	-.293			
	35.00	-.148	-.202	-.239	-.291	-.329	-.311		-.067	-.109	-.137	-.183	-.213	-.265			
	40.00	-.196	-.202	-.239	-.292	-.329	-.346		-.104	-.101	-.158	-.200	-.227	-.308			
	45.00	-.169	-.208	-.255	-.317	-.345	-.373		-.083	-.132	-.187	-.232	-.252	-.337			
	50.00	-.219	-.246	-.286	-.343	-.376	-.394		-.146	-.170	-.214	-.258	-.281	-.359			
	55.00	-.259	-.266	-.298	-.361	-.387	-.311		-.233	-.233	-.269	-.318	-.318	-.374			
	60.00	-.270	-.290	-.321	-.379	-.430	-.412		-.201	-.217	-.251	-.292	-.336	-.374			
Upper surface	0.00	.039	.658	.559	.569	.547	.643		.044	.542	.414	.388	.359	.598			
	1.25	.078	-.222	-.341	-.757	-.867	-.716		-.058	-.945	-.1079	-.1158	-.1176	-.923			
	2.50	.018	-.229	-.291	-.458	-.764	-.916		-.122	-.510	-.954	-.1042	-.1099	-.1163			
	5.00	-.078	-.191	-.210	-.323	-.616	-.846		-.178	-.461	-.901	-.1051	-.1095	-.1182			
	7.50	-.089	-.151	-.218	-.300	-.370	-.768		-.239	-.266	-.315	-.390	-.453	-.1027			
	10.00	-.100	-.151	-.224	-.296	-.361	-.702		-.230	-.269	-.325	-.342	-.366	-.984			
	15.00	-.085	-.155	-.225	-.280	-.353	-.503		-.175	-.248	-.321	-.390	-.485	-.966			
	20.00	-.089	-.187	-.234	-.297	-.347	-.407		-.166	-.269	-.344	-.402	-.487	-.938			
	25.00	-.154	-.177	-.236	-.290	-.358	-.409		-.234	-.262	-.325	-.380	-.485	-.927			
	30.00	-.237	-.202	-.251	-.300	-.344	-.348		-.310	-.281	-.333	-.384	-.417	-.879			
	35.00	-.196	-.232	-.264	-.312	-.361	-.336		-.267	-.303	-.346	-.392	-.426	-.803			
	40.00	-.222	-.235	-.285	-.337	-.376	-.394		-.299	-.310	-.345	-.419	-.445	-.816			
	45.00	-.245	-.246	-.290	-.339	-.394	-.394		-.319	-.322	-.375	-.430	-.460	-.774			
	50.00	-.224	-.252	-.298	-.356	-.410	-.419		-.297	-.322	-.382	-.446	-.485	-.722			
	55.00	-.203	-.280	-.320	-.371	-.427	-.428		-.269	-.346	-.400	-.463	-.508	-.605			
	60.00	-.286	-.308	-.340	-.383	-.438	-.410		-.353	-.374	-.415	-.468	-.527	-.499			
Lower surface	0.00	.039	.658	.559	.569	.547	.643		.044	.542	.414	.388	.359	.598			
	1.25	.078	-.222	-.341	-.757	-.867	-.716		-.058	-.945	-.1079	-.1158	-.1176	-.923			
	2.50	.018	-.229	-.291	-.458	-.764	-.916		-.122	-.510	-.954	-.1042	-.1099	-.1163			
	5.00	-.078	-.191	-.210	-.323	-.616	-.846		-.178	-.461	-.901	-.1051	-.1095	-.1182			
	7.50	-.089	-.151	-.218	-.300	-.370	-.768		-.239	-.266	-.315	-.390	-.453	-.1027			
	10.00	-.100	-.151	-.224	-.296	-.361	-.702		-.230	-.269	-.325	-.342	-.366	-.984			
	15.00	-.085	-.155	-.225	-.280	-.353	-.503		-.175	-.248	-.321	-.390	-.485	-.966			
	20.00	-.089	-.187	-.234	-.297	-.347	-.407		-.166	-.269	-.344	-.402	-.487	-.938			
	25.00	-.154	-.177	-.236	-.290	-.358	-.409		-.234	-.262	-.325	-.380	-.485	-.927			
	30.00	-.237	-.202	-.251	-.300	-.344	-.348		-.310	-.281	-.333	-.384	-.417	-.879			
	35.00	-.196	-.232	-.264	-.312	-.361	-.336		-.267	-.303	-.346	-.392	-.426	-.803			
	40.00	-.222	-.235	-.285	-.337	-.376	-.394		-.299	-.310	-.345	-.419	-.445	-.816			
	45.00	-.245	-.246	-.290	-.339	-.394	-.394		-.319	-.322	-.375	-.430	-.460	-.774			
	50.00	-.224	-.252	-.298	-.356	-.410	-.419		-.297	-.322	-.382	-.446	-.485	-.722			
	55.00	-.203	-.280	-.320	-.371	-.427	-.428		-.269	-.346	-.400	-.463	-.508	-.605			
	60.00	-.286	-.308	-.340	-.383	-.438	-.410		-.353	-.374	-.415	-.468	-.527	-.499			
	65.00	-.292	-.305	-.348	-.398	-.434	-.436		-.360	-.374	-.421	-.478	-.521	-.480			

TABLE I. - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

		Pressure coefficient, P_r at:															
		0.18 ϕ /2	0.25 ϕ /2	0.40 ϕ /2	0.60 ϕ /2	0.75 ϕ /2	0.95 ϕ /2	1.18 ϕ /2	1.43 ϕ /2	1.68 ϕ /2	1.93 ϕ /2	2.18 ϕ /2	2.43 ϕ /2	2.68 ϕ /2	2.93 ϕ /2	3.18 ϕ /2	3.43 ϕ /2
Upper surface	Percent c	$M = 0.94 \quad \alpha = 15.66^\circ$								$M = 0.94 \quad \alpha = 17.76^\circ$							
		0.30	1.25	5.00	8.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00
		0.039	-0.569	-0.790	-1.037	-1.104	-0.640	-0.044	-0.744	-0.962	-0.948	-0.821	-0.733	-0.612	-0.500	-0.398	-0.306
		-0.119	-1.4430	-1.181	-0.998	-0.843	-0.724	-0.916	-1.243	-1.007	-0.875	-0.799	-0.723	-0.602	-0.490	-0.388	-0.296
		-0.925	-1.428	-1.161	-0.971	-0.850	-0.718	-1.015	-1.233	-1.007	-0.857	-0.799	-0.719	-0.602	-0.490	-0.388	-0.296
		-1.049	-1.390	-1.181	-0.973	-0.849	-0.718	-1.162	-1.219	-1.029	-0.841	-0.787	-0.719	-0.602	-0.490	-0.388	-0.296
		-1.009	-1.347	-1.168	-0.959	-0.833	-0.702	-1.139	-1.187	-1.011	-0.839	-0.787	-0.719	-0.602	-0.490	-0.388	-0.296
		-0.961	-1.297	-1.185	-0.972	-0.860	-0.716	-1.051	-1.188	-1.017	-0.839	-0.784	-0.719	-0.602	-0.490	-0.388	-0.296
		-0.816	-1.230	-1.098	-0.972	-0.849	-0.716	-0.846	-1.168	-0.995	-0.839	-0.785	-0.719	-0.602	-0.490	-0.388	-0.296
		-0.685	-1.171	-1.064	-0.975	-0.846	-0.713	-0.746	-1.121	-0.949	-0.836	-0.782	-0.719	-0.602	-0.490	-0.388	-0.296
		-0.482	-1.025	-1.041	-0.959	-0.852	-0.716	-0.692	-1.058	-0.929	-0.837	-0.777	-0.719	-0.602	-0.490	-0.388	-0.296
		-0.421	-0.722	-1.002	-0.950	-0.836	-0.702	-0.638	-0.973	-0.811	-0.692	-0.632	-0.574	-0.516	-0.458	-0.400	-0.342
		-0.429	-0.635	-0.989	-0.923	-0.819	-0.725	-0.612	-0.862	-0.728	-0.624	-0.574	-0.516	-0.458	-0.400	-0.342	-0.284
		-0.636	-0.609	-0.970	-0.886	-0.810	-0.718	-0.615	-0.749	-0.618	-0.521	-0.471	-0.413	-0.355	-0.297	-0.239	-0.181
		-0.607	-0.616	-0.956	-0.892	-0.804	-0.724	-0.600	-0.722	-0.604	-0.512	-0.462	-0.404	-0.346	-0.288	-0.230	-0.172
		-0.519	-0.624	-0.938	-0.858	-0.803	-0.724	-0.588	-0.686	-0.587	-0.504	-0.454	-0.396	-0.338	-0.280	-0.222	-0.164
		-0.432	-0.639	-0.902	-0.826	-0.796	-0.720	-0.578	-0.676	-0.577	-0.494	-0.444	-0.386	-0.328	-0.270	-0.212	-0.154
		-0.471	-0.654	-0.863	-0.803	-0.799	-0.719	-0.657	-0.688	-0.599	-0.516	-0.466	-0.408	-0.350	-0.292	-0.234	-0.176
		-0.654	-0.641	-0.826	-0.808	-0.792	-0.723	-0.633	-0.677	-0.587	-0.504	-0.454	-0.396	-0.338	-0.280	-0.222	-0.164
		-0.627	-0.635	-0.791	-0.807	-0.791	-0.724	-0.598	-0.672	-0.588	-0.504	-0.454	-0.396	-0.338	-0.280	-0.222	-0.164
		-0.534	-0.634	-0.758	-0.838	-0.803	-0.7	-0.478	-0.576	-0.478	-0.400	-0.350	-0.292	-0.234	-0.176	-0.118	-0.060
		-0.599	-0.632	-0.727	-0.768	-0.782	-0.718	-0.629	-0.670	-0.786	-0.664	-0.593	-0.525	-0.457	-0.389	-0.321	-0.253
		-0.589	-0.604	-0.693	-0.757	-0.764	-0.724	-0.620	-0.652	-0.772	-0.664	-0.593	-0.525	-0.457	-0.389	-0.321	-0.253
		-0.545	-0.560	-0.659	-0.742	-0.744	-0.717	-0.605	-0.639	-0.757	-0.660	-0.593	-0.525	-0.457	-0.389	-0.321	-0.253
		-0.591	-0.471	-0.620	-0.748	-0.757	-0.714	-0.513	-0.606	-0.728	-0.660	-0.593	-0.525	-0.457	-0.389	-0.321	-0.253
		0.957	0.880	0.803	0.748	0.699	0.609	0.986	0.907	0.815	0.750	0.683	0.612	0.541	0.470	0.400	0.329
		0.989	0.828	0.783	0.743	0.707	0.588	1.038	0.871	0.815	0.765	0.723	0.603	0.532	0.461	0.391	0.320
		0.895	0.750	0.718	0.685	0.663	0.565	0.993	0.807	0.762	0.724	0.698	0.590	0.519	0.448	0.378	0.307
		0.795	0.682	0.661	0.637	0.618	0.518	0.884	0.745	0.715	0.683	0.660	0.551	0.480	0.410	0.340	0.269
		0.622	0.732	0.607	0.622	0.607	0.507	0.788	0.695	0.671	0.639	0.616	0.507	0.436	0.366	0.296	0.225
		0.454	0.570	0.549	0.533	0.509	0.392	0.691	0.630	0.608	0.580	0.560	0.451	0.380	0.310	0.240	0.170
		0.552	0.527	0.495	0.469	0.452	0.312	0.617	0.580	0.553	0.517	0.499	0.365	0.294	0.224	0.154	0.084
		0.503	0.464	0.447	0.422	0.406	0.245	0.566	0.534	0.500	0.478	0.458	0.297	0.226	0.156	0.086	0.016
		0.422	0.402	0.386	0.407	0.387	0.226	0.524	0.478	0.460	0.438	0.418	0.257	0.186	0.116	0.046	-0.024
		0.368	0.375	0.365	0.341	0.324	0.181	0.434	0.398	0.416	0.392	0.368	0.200	0.129	0.059	-0.011	-0.081
		0.366	0.342	0.330	0.306	0.284	0.134	0.430	0.397	0.385	0.355	0.336	0.195	0.124	0.054	-0.016	-0.086
		0.345	0.307	0.294	0.266	0.251	0.026	0.403	0.364	0.358	0.316	0.297	0.076	0.005	-0.065	-0.135	-0.205
		0.275	0.261	0.258	0.226	0.212	-0.003	0.340	0.321	0.308	0.281	0.260	0.041	-0.030	-0.100	-0.170	-0.240
		0.371	0.371	0.368	0.329	0.317	0.073	0.297	0.290	0.283	0.259	0.238	0.113	0.042	-0.028	-0.098	-0.168
		0.233	0.202	0.196	0.173	0.130	-0.057	0.292	0.258	0.244	0.220	0.178	-0.013	-0.082	-0.152	-0.222	-0.292
		0.186	0.172	0.172	0.140	0.094	-0.080	0.245	0.223	0.220	0.184	0.141	-0.038	-0.107	-0.177	-0.247	-0.317
		0.149	0.154	0.151	0.120	0.086	-0.097	0.195	0.203	0.195	0.166	0.127	-0.057	-0.126	-0.196	-0.266	-0.336
		0.128	0.115	0.120	0.086	0.056	-0.077	0.175	0.165	0.159	0.137	0.094	-0.077	-0.146	-0.216	-0.286	-0.356
		0.102	0.102	0.099	0.076	0.046	-0.127	0.137	0.127	0.127	0.104	0.072	-0.092	-0.161	-0.231	-0.301	-0.371
		0.066	0.076	0.082	0.058	0.012	-0.097	0.110	0.117	0.113	0.091	0.046	-0.071	-0.141	-0.211	-0.281	-0.351
		0.043	0.047	0.052	0.035	-0.008	-0.153	0.075	0.089	0.083	0.058	0.021	-0.128	-0.198	-0.268	-0.338	-0.408
		0.022	-0.001	0.005	-0.028	-0.055	-0.144	0.045	0.029	0.030	-0.007	-0.050	-0.120	-0.190	-0.260	-0.330	-0.400
		0.023	-0.931	-1.104	-0.949	-0.848	-0.806	-0.022	-1.003	-0.964	-0.936	-0.894	-0.860	-0.826	-0.792	-0.758	-0.724
		-1.002	-1.118	-0.978	-0.932	-0.835	-0.778	-0.939	-0.952	-0.945	-0.931	-0.885	-0.852	-0.818	-0.784	-0.750	-0.716
		-1.110	-1.110	-0.966	-0.889	-0.835	-0.776	-0.954	-0.924	-0.937	-0.914	-0.868	-0.835	-0.801	-0.767	-0.733	-0.699
		-1.066	-1.009	-1.006	-0.911	-0.831	-0.771	-0.924	-0.955	-0.943	-0.906	-0.883	-0.829	-0.796	-0.762	-0.728	-0.694
		-1.068	-1.107	-0.997	-0.868	-0.827	-0.774	-0.929	-0.956	-0.931	-0.905	-0.878	-0.829	-0.795	-0.761	-0.727	-0.693
		-1.069	-1.097	-0.997	-0.867	-0.825	-0.774	-0.933	-0.955	-0.939	-0.908	-0.874	-0.829	-0.794	-0.760	-0.726	-0.692
		-0.860	-1.093	-0.982	-0.863	-0.827	-0.774	-0.939	-0.962	-0.942	-0.904	-0.870	-0.825	-0.790	-0.756	-0.722	-0.688
		-0.870	-1.077	-0.972	-0.859	-0.824	-0.773	-0.938	-0.958	-0.942	-0.907	-0.871	-0.826	-0.791	-0.757	-0.723	-0.689
		-0.788	-1.043	-0.961	-0.859	-0.822	-0.773	-0.902	-0.952	-0.937	-0.901	-0.874	-0.828	-0.793	-0.758	-0.723	-0.688
		-0.734	-1.005	-0.957	-0.853	-0.818	-0.771	-0.880	-0.949	-0.937	-0.897	-0.876	-0.825	-0.790	-0.755	-0.720	-0.685
		-0.673	-0.968	-0.952	-0.849	-0.817	-0.770	-0.784	-0.944	-0.937	-0.894	-0.874	-0.824	-0.789	-0.754	-0.719	-0.684
		-0.661	-0.914	-0.945	-0.847	-0.814	-0.772	-0.780	-0.952	-0.937	-0.896	-0.875	-0.825	-0.790	-0.755	-0.720	-0.685
		-0.613	-0.868	-0.940	-0.845	-0.813	-0.773	-0.734	-0.925	-0.933	-0.894	-0.873	-0.823	-0.788	-0.753	-0.718	-0.683
		-0.649	-0.822	-0.920	-0.838	-0.813	-0.773	-0.735	-0.912	-0.929	-0.892	-0.872	-0.822	-0.787	-0.752	-0.717	-0.682
		-0.642	-0.796	-0.903	-0.831	-0.809	-0.774	-0.711	-0.896	-0.928	-0.888	-0.870	-0.820	-0.785	-0.750	-0.715	-0.680
		-0.707	-0.779	-0.886	-0.818	-0.810	-0.775	-0.794	-0.891	-0.920	-0.875	-0.860	-0.810	-0.775	-0.740	-0.705	-0.670
		-0.697	-0.753	-0.873	-0.817	-0.807	-0.773	-0.778	-0.872	-0.917	-0.872	-0.857	-0.807	-0.772	-0.737	-0.702	-0.667
		-0.617	-0.740	-0.815	-0.803	-0.773	-0.733	-0.733	-0.858	-0.912	-0.875	-0.861	-0.811	-0.776	-0.741	-0.706	-0.671
		-0.638	-0.731	-0.851	-0.812	-0.803	-0.774	-0.733	-0.840	-0.904	-0.874	-0.860	-0.810	-0.775	-0.740	-0.705	-0.670
		-0.674	-0.730	-0.842	-0.810	-0.802	-0.774	-0.783	-0.854	-0.899	-0.875	-0.859	-0.809	-0.774	-0.739	-0.704	-0.669
		-0.681	-0.713	-0.834	-0.810	-0.797	-0.770	-0.774	-0.845	-0.890	-0.875	-0.859	-0.809	-0.774	-0.739	-0.704	-0.669
		-0.618	-0.668	-0.789	-0.812	-0.773	-0.733	-0.756	-0.800	-0.877	-0.847	-0.838	-0.788	-0.753	-0.718	-0.683	-0.648
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TABLE I. - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

Pressure coefficient, P, at:

		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2
	Percent c	M = 0.94 α = 23.90°							M = 0.94 α = 25.95°					
Upper surface	0.30	-0.90	-1.009	-0.986	-0.964	-0.946	-0.906		-0.912	-1.140	-1.120	-1.100	-1.081	-1.002
	1.28	-0.986	-0.994	-0.982	-0.961	-0.939	-0.887		-1.104	-1.123	-1.110	-1.089	-1.050	-0.973
	2.80	-0.916	-0.993	-0.973	-0.957	-0.938	-0.883		-1.092	-1.116	-1.102	-1.078	-1.044	-0.971
	5.00	-0.973	-0.996	-0.978	-0.955	-0.936	-0.886		-1.121	-1.096	-1.082	-1.058	-1.043	-0.967
	7.80	-0.978	-0.999	-0.969	-0.952	-0.930	-0.881		-1.101	-1.119	-1.095	-1.070	-1.037	-0.967
	10.00	-0.982	-1.001	-0.979	-0.952	-0.931	-0.883		-1.109	-1.116	-1.103	-1.073	-1.031	-0.964
	18.00	-0.980	-1.006	-0.981	-0.955	-0.932	-0.881		-1.094	-1.126	-1.108	-1.068	-1.037	-0.966
	25.00	-0.962	-0.999	-0.982	-0.958	-0.931	-0.881		-1.037	-1.126	-1.110	-1.056	-1.041	-0.966
	30.00	-0.892	-0.995	-0.980	-0.945	-0.928	-0.879		-0.869	-1.107	-1.091	-1.048	-1.035	-0.955
	40.00	-0.817	-0.990	-0.980	-0.945	-0.928	-0.879		-0.846	-1.091	-1.104	-1.053	-1.031	-0.950
	46.00	-0.817	-0.976	-0.977	-0.943	-0.925	-0.877		-0.824	-1.046	-1.105	-1.054	-1.026	-0.960
	48.00	-0.817	-0.976	-0.977	-0.943	-0.925	-0.877		-0.824	-1.046	-1.105	-1.054	-1.026	-0.960
	58.00	-0.786	-0.965	-0.977	-0.943	-0.925	-0.877		-0.787	-0.992	-1.097	-1.050	-1.027	-0.955
	60.00	-0.779	-0.946	-0.974	-0.940	-0.924	-0.883		-0.768	-0.978	-1.087	-1.048	-1.023	-0.955
	65.00	-0.744	-0.929	-0.971	-0.938	-0.921	-0.885		-0.745	-0.981	-1.084	-1.044	-1.020	-0.957
Lower surface	68.00	-0.819	-0.921	-0.969	-0.920	-0.921	-0.885		-0.741	-0.948	-1.070	-1.027	-1.019	-0.954
	70.00	-0.826	-0.897	-0.964	-0.924	-0.918	-0.882		-0.720	-0.798	-1.056	-1.024	-1.012	-0.945
	75.00	-0.777	-0.872	-0.956	-0.923	-0.918	-0.885		-0.669	-0.724	-1.013	-1.023	-0.999	-0.952
	80.00	-0.822	-0.870	-0.948	-0.923	-0.913	-0.883		-0.644	-0.704	-0.993	-1.018	-0.996	-0.944
	85.00	-0.818	-0.848	-0.938	-0.924	-0.900	-0.879		-0.634	-0.689	-0.943	-1.010	-0.978	-0.935
	90.00	-0.805	-0.886	-0.924	-0.922	-0.892	-0.880		-0.634	-0.673	-0.930	-0.991	-0.962	-0.938
	96.00	-0.695	-0.812	-0.895	-0.918	-0.910	-0.878		-0.524	-0.623	-0.877	-0.985	-0.971	-0.938
	1.28	0.934	0.926	0.806	0.700	0.603	0.554		0.913	0.923	0.794	0.680	0.571	0.528
	2.80	0.070	0.960	0.856	0.774	0.716	0.581		1.071	0.978	0.867	0.766	0.704	0.564
	5.00	1.038	0.930	0.857	0.769	0.716	0.581		0.974	0.876	0.765	0.664	0.602	0.462
	7.80	0.971	0.888	0.825	0.731	0.774	0.559		1.003	0.928	0.858	0.794	0.752	0.606
	10.00	0.914	0.847	0.794	0.750	0.712	0.575		0.950	0.890	0.831	0.777	0.734	0.588
	18.00	0.623	0.784	0.740	0.698	0.659	0.518		0.603	0.828	0.780	0.735	0.690	0.540
	20.00	0.737	0.688	0.648	0.617	0.589	0.449		0.803	0.773	0.750	0.684	0.651	0.486
	25.00	0.706	0.678	0.641	0.604	0.578	0.453		0.758	0.749	0.729	0.646	0.613	0.439
	30.00	0.663	0.630	0.597	0.569	0.538	0.345		0.711	0.682	0.646	0.607	0.574	0.376
	40.00	0.581	0.584	0.538	0.524	0.492	0.308		0.635	0.635	0.605	0.564	0.531	0.342
	46.00	0.566	0.543	0.518	0.480	0.461	0.247		0.610	0.596	0.568	0.527	0.501	0.286
	48.00	0.536	0.502	0.476	0.444	0.424	0.188		0.582	0.568	0.540	0.498	0.472	0.245
	58.00	0.473	0.458	0.439	0.409	0.387	0.153		0.527	0.513	0.491	0.451	0.425	0.187
	60.00	0.432	0.422	0.409	0.377	0.358	0.120		0.484	0.475	0.456	0.421	0.378	0.154
	65.00	0.353	0.383	0.367	0.339	0.297	0.090		0.437	0.437	0.421	0.383	0.339	0.122
	70.00	0.307	0.347	0.337	0.299	0.260	0.046		0.396	0.396	0.386	0.343	0.298	0.094
	75.00	0.307	0.317	0.299	0.276	0.241	0.028		0.356	0.371	0.361	0.317	0.276	0.084
	80.00	0.276	0.273	0.264	0.242	0.202	0.003		0.329	0.324	0.310	0.282	0.236	0.031
	85.00	0.240	0.246	0.236	0.209	0.167	-0.024		0.288	0.299	0.278	0.247	0.202	0.003
	90.00	0.137	0.164	0.132	0.132	0.088	-0.089		0.236	0.254	0.242	0.211	0.161	0.002
	96.00	0.034	0.087	0.086	0.046	0.021	-0.105		0.182	0.187	0.164	0.147	0.114	-0.081
									0.080	0.122	0.119	0.072	0.041	-0.084

TABLE L - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
 RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

		Pressure coefficient, P, at:												
		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2
	Percent c	M = 0.98 α = 24.37°							M = 0.98 α = 26.48°					
Upper surface	0.00	-1.159	-1.095	-1.225	-1.100	-1.072	-1.001		-1.227	-1.164	-1.189	-1.132	-1.107	-1.058
	1.25	-1.131	-1.226	-1.171	-1.090	-1.095	-0.974		-1.169	-1.195	-1.167	-1.123	-1.095	-1.031
	2.50	-1.169	-1.208	-1.153	-1.089	-1.093	-0.973		-1.171	-1.184	-1.152	-1.122	-1.091	-1.030
	5.00	-1.258	-1.204	-1.170	-1.082	-1.050	-0.970		-1.214	-1.185	-1.169	-1.115	-1.089	-1.026
	7.50	-1.233	-1.205	-1.146	-1.082	-1.044	-0.970		-1.206	-1.181	-1.146	-1.115	-1.082	-1.025
	10.00	-1.210	-1.202	-1.157	-1.082	-1.042	-0.968		-1.197	-1.180	-1.137	-1.116	-1.078	-1.025
	15.00	-1.074	-1.207	-1.155	-1.077	-1.044	-0.968		-1.129	-1.189	-1.161	-1.111	-1.084	-1.026
	20.00	-0.889	-1.196	-1.153	-1.067	-1.045	-0.966		-0.951	-1.185	-1.163	-1.099	-1.089	-1.025
	25.00	-0.818	-1.179	-1.141	-1.072	-1.040	-0.963		-0.854	-1.175	-1.150	-1.109	-1.081	-1.020
	30.00	-0.810	-1.157	-1.141	-1.065	-1.037	-0.961		-0.860	-1.161	-1.155	-1.099	-1.081	-1.015
	35.00	-0.779	-1.126	-1.139	-1.065	-1.034	-0.959		-0.865	-1.140	-1.152	-1.099	-1.077	-1.011
	40.00	-0.777	-1.045	-1.140	-1.065	-1.028	-0.960		-0.869	-1.080	-1.154	-1.098	-1.073	-1.017
	45.00	-0.743	-0.974	-1.127	-1.064	-1.025	-0.957		-0.838	-1.015	-1.148	-1.095	-1.078	-1.013
	50.00	-0.750	-0.923	-1.113	-1.061	-1.021	-0.955		-0.829	-0.971	-1.134	-1.092	-1.066	-1.011
	55.00	-0.740	-0.891	-1.104	-1.054	-1.017	-0.955		-0.808	-0.956	-1.150	-1.088	-1.067	-1.011
	60.00	-0.805	-0.885	-1.095	-1.032	-1.014	-0.952		-0.850	-0.935	-1.126	-1.063	-1.065	-1.008
Lower surface	65.00	-0.826	-0.869	-1.085	-1.032	-1.007	-0.945		-0.844	-0.919	-1.117	-1.065	-1.059	-1.000
	70.00	-0.786	-0.857	-1.074	-1.031	-1.001	-0.947		-0.826	-0.899	-1.111	-1.064	-1.052	-1.000
	75.00	-0.783	-0.852	-1.059	-1.025	-0.997	-0.947		-0.828	-0.886	-1.095	-1.064	-1.047	-1.005
	80.00	-0.843	-0.857	-1.049	-1.022	-0.991	-0.944		-0.854	-0.889	-1.086	-1.064	-1.042	-1.000
	85.00	-0.832	-0.854	-1.033	-1.022	-0.973	-0.940		-0.862	-0.886	-1.067	-1.063	-1.021	-0.992
	90.00	-0.824	-0.860	-1.011	-1.014	-0.956	-0.941		-0.868	-0.899	-1.046	-1.052	-1.003	-0.993
	95.00	-0.798	-0.843	-0.993	-1.002	-0.976	-0.938		-0.820	-0.864	-1.023	-1.029	-1.017	-0.994
	1.25	0.968	0.956	0.894	0.738	0.639	0.592		0.932	0.956	0.828	0.715	0.608	0.566
	2.50	1.100	0.991	0.894	0.811	0.751	0.622		1.090	1.007	0.895	0.803	0.739	0.604
	5.00	1.070	0.965	0.890	0.831	0.785	0.649		1.084	0.990	0.907	0.840	0.791	0.643
	7.50	1.007	0.919	0.854	0.812	0.824	0.682		1.031	0.957	0.889	0.831	0.789	0.646
	10.00	0.948	0.895	0.854	0.790	0.752	0.622		0.979	0.924	0.869	0.814	0.772	0.631
	15.00	0.863	0.821	0.783	0.740	0.705	0.569		0.897	0.862	0.818	0.775	0.733	0.585
	20.00	0.796	0.766	0.729	0.692	0.664	0.511		0.834	0.813	0.769	0.729	0.695	0.532
	25.00	0.749	0.718	0.686	0.651	0.625	0.455		0.789	0.765	0.727	0.688	0.656	0.483
	30.00	0.708	0.673	0.643	0.614	0.586	0.398		0.746	0.720	0.686	0.656	0.627	0.428
35.00	0.652	0.633	0.602	0.571	0.542	0.364		0.673	0.678	0.644	0.613	0.577	0.393	
40.00	0.613	0.589	0.568	0.535	0.513	0.307		0.653	0.639	0.609	0.576	0.547	0.335	
45.00	0.587	0.554	0.530	0.495	0.478	0.245		0.629	0.600	0.573	0.536	0.511	0.277	
50.00	0.526	0.513	0.491	0.460	0.439	0.213		0.567	0.555	0.534	0.498	0.476	0.243	
55.00	0.482	0.474	0.460	0.430	0.396	0.179		0.527	0.520	0.503	0.471	0.428	0.210	
60.00	0.460	0.459	0.424	0.393	0.354	0.147		0.503	0.483	0.463	0.435	0.368	0.178	
65.00	0.416	0.402	0.389	0.357	0.320	0.120		0.456	0.443	0.432	0.396	0.353	0.149	
70.00	0.361	0.376	0.363	0.333	0.302	0.088		0.399	0.417	0.400	0.372	0.336	0.114	
75.00	0.336	0.334	0.325	0.296	0.263	0.063		0.366	0.371	0.359	0.339	0.294	0.087	
80.00	0.297	0.304	0.295	0.268	0.232	0.038		0.332	0.339	0.327	0.302	0.257	0.058	
85.00	0.252	0.266	0.264	0.237	0.196	0.041		0.280	0.302	0.294	0.270	0.219	0.059	
90.00	0.206	0.224	0.216	0.196	0.158	-0.017		0.228	0.252	0.243	0.225	0.178	-0.003	
95.00	0.119	0.157	0.154	0.116	0.091	-0.034		0.131	0.160	0.176	0.135	0.107	-0.021	

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TABLE I - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
 RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

		Pressure coefficient, P, at:													
		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2	
	Percent c	M = 1.00							M = 1.00						
		$\alpha = -2.00^\circ$							$\alpha = -0.04^\circ$						
Upper surface	0.00	.074	.758	.708	.675	.616	.539		.067	.768	.722	.722	.687	.724	
	1.25	.374	.297	.322	.328	.306	.343		.260	.088	.079	.015	-.022	.103	
	2.50	.325	.220	.229	.220	.221	.217		.205	.042	.033	-.013	-.058	-.082	
	5.00	.273	.192	.179	.170	.150	.194		.151	.041	.033	-.022	-.068	-.089	
	7.50	.242	.162	.147	.131	.106	.130		.126	.041	.015	-.033	-.084	-.099	
	10.00	.211	.139	.114	.106	.076	.091		.100	.032	-.008	-.091	-.109	-.116	
	15.00	.168	.107	.080	.080	.042	.014		.072	.014	-.029	-.059	-.105	-.140	
	20.00	.105	.074	.048	.041	.014	-.034		.044	-.016	-.055	-.087	-.113	-.145	
	25.00	.092	.057	.029	.011	-.017	-.151		.005	-.030	-.065	-.100	-.130	-.232	
	30.00	.058	.041	.019	-.010	-.030	-.182		-.055	-.045	-.086	-.118	-.138	-.236	
	35.00	.030	.012	-.008	-.030	-.060	-.204		-.102	-.045	-.074	-.102	-.123	-.164	
	40.00	.004	.003	-.030	-.064	-.083	-.263		-.072	-.089	-.113	-.154	-.184	-.285	
	45.00	-.001	-.013	-.051	-.087	-.112	-.262		-.087	-.097	-.126	-.165	-.202	-.272	
	50.00	.009	-.034	-.081	-.110	-.144	-.286		-.063	-.097	-.148	-.189	-.230	-.295	
	55.00	-.029	-.072	-.113	-.140	-.171	-.294		-.088	-.133	-.178	-.211	-.251	-.306	
	60.00	-.083	-.103	-.128	-.156	-.199	-.283		-.144	-.169	-.198	-.228	-.270	-.293	
65.00	-.086	-.103	-.136	-.171	-.205	-.306		-.149	-.169	-.207	-.250	-.275	-.322		
70.00	-.101	-.113	-.136	-.176	-.238	-.311		-.168	-.178	-.207	-.259	-.302	-.329		
75.00	-.106	-.125	-.154	-.176	-.250	-.298		-.169	-.192	-.222	-.255	-.317	-.317		
80.00	-.129	-.148	-.154	-.182	-.261	-.291		-.190	-.211	-.222	-.251	-.317	-.305		
85.00	-.155	-.156	-.154	-.189	-.294	-.272		-.220	-.203	-.223	-.248	-.297	-.287		
90.00	-.125	-.151	-.143	-.188	-.293	-.254		-.188	-.200	-.213	-.248	-.286	-.269		
95.00	-.100	-.181	-.143	-.181	-.243	-.264		-.139	-.189	-.205	-.233	-.268	-.276		
Lower surface	1.25	.146	-.129	-.301	-.567	-.707	-.745		.251	.127	.049	.031	.033	-.033	
	2.50	.091	-.102	-.194	-.432	-.588	-.709		.199	.067	.041	.008	.001	-.035	
	5.00	.066	-.033	-.104	-.162	-.320	-.636		.164	.077	.036	.008	-.026	-.052	
	7.50	.050	-.044	-.119	-.154	-.284	-.659		.137	.074	.024	.004	-.030	-.082	
	10.00	.012	-.052	-.109	-.183	-.224	-.467		.102	.034	.001	-.044	-.054	-.084	
	15.00	-.002	-.052	-.111	-.167	-.220	-.315		.072	.020	-.014	-.054	-.074	-.112	
	20.00	-.031	-.053	-.115	-.187	-.241	-.310		.043	.004	-.040	-.077	-.100	-.164	
	25.00	-.040	-.042	-.122	-.159	-.221	-.310		.030	-.014	-.044	-.080	-.104	-.162	
	30.00	-.036	-.072	-.120	-.177	-.227	-.257		.023	-.023	-.054	-.056	-.120	-.227	
	35.00	-.054	-.110	-.149	-.204	-.246	-.233		-.011	-.057	-.075	-.115	-.149	-.193	
	40.00	-.107	-.121	-.154	-.215	-.253	-.269		-.047	-.058	-.091	-.137	-.160	-.244	
	45.00	-.077	-.118	-.167	-.227	-.272	-.299		.023	-.072	-.118	-.167	-.187	-.276	
	50.00	-.020	-.043	-.112	-.159	-.221	-.310		-.102	-.127	-.153	-.191	-.210	-.282	
	55.00	-.150	-.176	-.212	-.262	-.314	-.341		-.104	-.178	-.172	-.207	-.248	-.313	
	60.00	-.180	-.202	-.233	-.288	-.334	-.344		-.138	-.156	-.189	-.229	-.269	-.318	
	65.00	-.193	-.211	-.244	-.305	-.354	-.344		-.147	-.165	-.199	-.248	-.291	-.322	
70.00	-.200	-.201	-.244	-.292	-.347	-.340		-.153	-.158	-.199	-.235	-.287	-.322		
75.00	-.204	-.204	-.254	-.299	-.357	-.328		-.154	-.164	-.204	-.236	-.290	-.325		
80.00	-.257	-.254	-.264	-.314	-.342	-.338		-.215	-.213	-.217	-.256	-.314	-.320		
85.00	-.271	-.262	-.266	-.305	-.341	-.280		-.228	-.218	-.222	-.248	-.318	-.292		
90.00	-.258	-.266	-.271	-.293	-.327	-.319		-.214	-.221	-.222	-.248	-.303	-.286		
95.00	-.179	-.232	-.253	-.278	-.291	-.288		-.157	-.201	-.206	-.261	-.293	-.256		
	M = 1.00	$\alpha = 1.90^\circ$							$\alpha = 3.93^\circ$						
	0.00	.003	.734	.646	.653	.630	.713		.089	.623		.482	.443	.668	
	1.25	.179	-.097	-.183	-.372	-.678	-.536		.050	-.784		-.899	-.793	-.994	
	2.50	.103	-.109	-.259	-.451	-.723	-.571		.019	-.778		-.771	-.651	-.825	
	5.00	.054	-.072	-.105	-.206	-.287	-.454		.021	-.305	-.639	-.795	-.848	-.919	
	7.50	.036	-.043	-.100	-.196	-.254	-.584		.120	-.176	-.205	-.741	-.797	-.858	
	10.00	.017	-.040	-.107	-.189	-.264	-.581		-.118	-.162	-.215	-.699	-.785	-.821	
	15.00	-.020	-.043	-.122	-.213	-.259	-.352		-.146	-.164	-.214	-.646	-.732	-.766	
	20.00	.015	-.078	-.122	-.183	-.242	-.293		-.045	-.161	-.232	-.290	-.684	-.780	
	25.00	-.047	-.068	-.124	-.174	-.227	-.311		-.128	-.156	-.216	-.270	-.417	-.779	
	30.00	-.016	-.092	-.138	-.188	-.233	-.256		-.177	-.176	-.222	-.277	-.310	-.735	
	35.00	-.089	-.120	-.156	-.199	-.231	-.244		-.158	-.197	-.237	-.284	-.322	-.669	
	40.00	-.119	-.126	-.171	-.227	-.268	-.292		-.191	-.202	-.247	-.293	-.314	-.650	
	45.00	-.136	-.142	-.187	-.238	-.288	-.298		-.208	-.218	-.269	-.322	-.356	-.647	
	50.00	-.115	-.143	-.194	-.250	-.307	-.321		-.191	-.218	-.279	-.339	-.380	-.337	
	55.00	-.126	-.173	-.218	-.264	-.329	-.331		-.198	-.242	-.293	-.355	-.401	-.572	
60.00	-.180	-.204	-.242	-.275	-.337	-.314		-.251	-.271	-.309	-.362	-.418	-.451		
65.00	-.204	-.204	-.247	-.279	-.331	-.344		-.292	-.272	-.312	-.367	-.417	-.477		
70.00	-.203	-.208	-.241	-.292	-.344	-.346		-.268	-.277	-.312	-.375	-.428	-.367		
75.00	-.203	-.222	-.251	-.293	-.347	-.340		-.263	-.289	-.325	-.370	-.431	-.353		
80.00	-.229	-.242	-.254	-.291	-.330	-.323		-.290	-.306	-.325	-.374	-.431	-.353		
85.00	-.227	-.238	-.269	-.289	-.307	-.304		-.296	-.308	-.316	-.361	-.435	-.360		
90.00	-.237	-.237	-.246	-.276	-.281	-.289		-.294	-.306	-.316	-.361	-.431	-.360		
95.00	-.151	-.215	-.237	-.242	-.265	-.294		-.207	-.279	-.310	-.333	-.312	-.373		
	1.25	.377	.340	.318	.330	.371	.293		.492	.302	.482	.499	.531	.438	
	2.50	.294	.260	.234	.278	.324	.278		.449	.249	.439	.469	.495	.425	
	5.00	.289	.216	.201	.204	.194	.189		.408	.337	.331	.321	.329	.313	
	7.50	.253	.179	.161	.161	.160	.135		.359	.286		.265	.275	.246	
	10.00	.213	.153	.131	.124	.122	.100		.314	.293	.241	.230	.226	.201	
	15.00	.176	.127	.102	.091	.073	.038		.265	.218	.205	.189	.170	.118	
	20.00	.141	.099	.074	.067	.045	.034		.218	.182	.168	.154	.136	.106	
	25.00	.120	.086	.061	.026	.006	-.122		.193	.172	.132	.102	.095	-.045	
	30.00	.110	.062	.045	.012	-.012	-.166		.178	.134	.110	.080	.044	-.094	
	35.00	.066	.037	.020	-.020	-.049	-.158		.114	.102	.077	.045	.029	-.123	
	40.00	-.042	.025	-.051	-.058	-.064	-.168		.088	.087	.067	.017	.006	-.176	
	45.00	-.051	.001	-.032	-.078	-.095	-.257		.105	.058	.020	-.017	-.024	-.218	
	50.00	-.012	-.032	-.056	-.103	-.120	-.277		.039	.022	-.010	-.042	-.053	-.248	
	55.00	-.034	-.035	-.082	-.120	-.157	-.290		.013	-.004	-.028	-.057	-.099	-.272	
	60.00	-.064	-.080	-.109	-.140	-.184	-.290		.008	-.023	-.048	-.080	-.124	-.288	
	65.00	-.074	-.089	-.112	-.159	-.216	-.291		-.018	-.037	-.059	-.101	-.153	-.304	
70.00	-.076	-.089	-.118	-.181	-.245	-.291		-.024	-.047	-.072	-.102	-.166	-.304		
75.00	-.137	-.122	-.135	-.169	-.238	-.280		-.085	-.075	-.090	-.124	-.184	-.304		
80.00	-.141	-.141	-.148	-.180	-.255	-.289		-.091	-.086	-.104	-.143	-.203	-.314		
85.00	-.156	-.139	-.146	-.183	-.267	-.235		-.104	-.086	-.102	-.149	-.217	-.281		
90.00	-.134	-.139	-.146	-.187	-.264	-.272		-.086	-.082	-.108	-.151	-.217	-.281		
95.00	-.097	-.123	-.143	-.201	-.244	-.243		-.070	-.083	-.093	-.140	-.211	-.272		

TABLE I - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

Pressure coefficient, P , at:

		0.16 σ /2	0.25 σ /2	0.40 σ /2	0.60 σ /2	0.75 σ /2	0.95 σ /2	1.16 σ /2	0.25 σ /2	0.40 σ /2	0.60 σ /2	0.75 σ /2	0.95 σ /2
Percent C	Upper surface	$M = 1.00$ $\alpha = 5.90^\circ$						$M = 1.00$ $\alpha = 7.90^\circ$					
		0.00	.0088	.504	.308	.253	.577	.062	.139	.191	.086	-.036	-.400
1.25		-.0073	-.976	-.1062	-1.117	-1.137	-.997	-.210	-1.149	-1.197	-1.229	-1.293	-1.065
2.50		-.139	-.686	-.943	-1.022	-1.073	-1.127	-.287	-1.070	-1.070	-1.168	-1.218	-1.256
5.00		-.272	-.988	-.968	-.939	-.938	-1.062	-.436	-.978	-1.019	-1.078	-1.137	-1.204
7.50		-.405	-.982	-.948	-.885	-.876	-.956	-.607	-.956	-.971	-1.028	-1.078	-1.143
10.00		-.540	-.965	-.911	-.853	-.917	-.963	-.737	-.944	-.928	-.995	-1.064	-1.110
15.00		-.761	-.937	-.818	-.785	-.878	-.935	-.925	-.973	-.851	-.925	-1.019	-1.074
20.00		-.976	-.897	-.760	-.839	-.907	-.957	-.955	-.946	-.849	-.897	-.972	-1.045
25.00		-.992	-.891	-.762	-.856	-.899	-.959	-.927	-.931	-.827	-.866	-.935	-1.004
30.00		-.999	-.885	-.763	-.860	-.892	-.959	-.919	-.925	-.819	-.856	-.924	-.997
35.00		-.999	-.866	-.764	-.867	-.889	-.959	-.913	-.948	-.819	-.857	-.927	-.992
40.00		-.999	-.847	-.765	-.869	-.881	-.959	-.907	-.957	-.809	-.848	-.918	-.989
45.00		-.999	-.828	-.766	-.871	-.873	-.959	-.904	-.965	-.803	-.843	-.913	-.985
50.00		-.999	-.809	-.767	-.874	-.876	-.959	-.901	-.976	-.801	-.841	-.911	-.981
55.00		-.999	-.790	-.768	-.876	-.878	-.959	-.898	-.981	-.798	-.838	-.908	-.976
60.00		-.999	-.771	-.769	-.878	-.880	-.959	-.897	-.982	-.797	-.837	-.907	-.975
65.00		-.999	-.752	-.770	-.879	-.881	-.959	-.896	-.983	-.796	-.836	-.906	-.974
70.00		-.999	-.733	-.771	-.880	-.882	-.959	-.895	-.984	-.795	-.835	-.905	-.973
75.00		-.999	-.714	-.772	-.881	-.883	-.959	-.894	-.985	-.794	-.834	-.904	-.972
80.00		-.999	-.695	-.773	-.882	-.884	-.959	-.893	-.986	-.793	-.833	-.903	-.971
85.00		-.999	-.676	-.774	-.883	-.885	-.959	-.892	-.987	-.792	-.832	-.902	-.970
90.00		-.999	-.657	-.775	-.884	-.886	-.959	-.891	-.988	-.791	-.831	-.901	-.969
95.00		-.999	-.638	-.776	-.885	-.887	-.959	-.890	-.989	-.790	-.830	-.900	-.968
99.00		-.999	-.619	-.777	-.886	-.888	-.959	-.889	-.990	-.789	-.829	-.899	-.967
1.25	Lower surface	.611	.617	.589	.603	.625	.820	.713	.713	.677	.673	.679	.577
2.50		.570	.509	.508	.515	.526	.857	.680	.607	.605	.597	.593	.516
5.00		.516	.438	.425	.422	.425	.894	.618	.525	.514	.505	.502	.457
7.50		.460	.379	.362	.362	.368	.928	.551	.464	.453	.446	.442	.389
10.00		.405	.346	.331	.322	.330	.960	.482	.400	.390	.381	.370	.316
15.00		.347	.298	.282	.269	.258	.105	.426	.368	.356	.347	.323	.245
20.00		.294	.276	.255	.212	.208	.106	.366	.342	.306	.283	.273	.160
25.00		.261	.230	.199	.176	.169	.028	.324	.291	.266	.244	.228	.090
30.00		.238	.194	.171	.152	.144	.004	.285	.250	.231	.213	.192	.029
35.00		.161	.161	.138	.113	.097	-.036	.212	.213	.202	.173	.154	.009
40.00		.161	.137	.111	.084	.072	-.109	.215	.189	.172	.145	.127	-.063
45.00		.158	.107	.078	.052	.038	-.169	.207	.139	.140	.111	.093	-.121
50.00		.092	.073	.049	.024	.006	-.197	.137	.121	.107	.078	.061	-.134
55.00		.060	.043	.030	.005	.000	-.227	.104	.088	.065	.037	.017	-.182
60.00		.047	.026	.009	-.017	-.062	-.242	.103	.075	.058	.035	.013	-.202
65.00		.028	.008	-.010	-.040	-.093	-.267	.073	.053	.047	.012	-.045	-.235
70.00		.028	.005	-.019	-.044	-.098	-.277	.059	.046	.033	.001	-.032	-.239
75.00		.004	-.033	-.065	-.095	-.132	-.288	.036	.014	.008	-.031	-.089	-.241
80.00		-.004	-.041	-.057	-.091	-.134	-.298	.008	.000	.000	-.028	-.078	-.243
85.00		-.059	-.044	-.056	-.091	-.146	-.258	-.006	.002	.000	-.035	-.113	-.215
90.00		-.048	-.047	-.061	-.089	-.163	-.288	-.008	-.004	-.004	-.035	-.104	-.263
95.00		-.048	-.053	-.059	-.102	-.154	-.257	-.020	-.020	-.015	-.039	-.102	-.250
1.25	Lower surface	.049	.179	.009	-.153	-.528	.191	-.029	-.191	-.431	-.652	-.823	-.356
2.50		.321	-.1212	-.1253	-.1259	-.1268	-.1153	-.528	-.1219	-.1910	-.1271	-.1208	-.1232
5.00		.407	-.551	-.1132	-.247	-.541	-.182	-.118	-.182	-.191	-.172	-.191	-.182
7.50		.524	-.940	-.1112	-.1115	-.1191	-.241	-.773	-.1136	-.1198	-.1166	-.1203	-.1259
10.00		.524	-.723	-.1046	-.1112	-.1157	-.1204	-.734	-.1080	-.1137	-.1161	-.1177	-.1249
15.00		.489	-.643	-.1024	-.1076	-.1120	-.1175	-.695	-.1028	-.1109	-.1149	-.1160	-.1246
20.00		.391	-.550	-.995	-.1016	-.1085	-.1160	-.574	-.949	-.1099	-.1109	-.1152	-.1233
25.00		.338	-.440	-.604	-.960	-.1006	-.1103	-.584	-.964	-.1062	-.1062	-.1102	-.1193
30.00		.401	-.400	-.549	-.943	-.993	-.1074	-.480	-.603	-.923	-.1038	-.1108	-.1193
35.00		.373	-.397	-.489	-.922	-.985	-.992	-.453	-.402	-.889	-.1002	-.1084	-.1149
40.00		.398	-.398	-.456	-.788	-.978	-.988	-.474	-.450	-.870	-.970	-.1043	-.1115
45.00		.387	-.402	-.456	-.902	-.978	-.981	-.485	-.475	-.852	-.940	-.1040	-.1108
50.00		.392	-.408	-.449	-.976	-.970	-.973	-.504	-.503	-.869	-.914	-.1011	-.1081
55.00		.410	-.428	-.481	-.670	-.969	-.972	-.521	-.523	-.777	-.902	-.998	-.1071
60.00		.450	-.435	-.491	-.649	-.967	-.965	-.547	-.546	-.734	-.882	-.972	-.1044
65.00		.405	-.459	-.450	-.636	-.965	-.967	-.550	-.550	-.707	-.857	-.957	-.1018
70.00		.460	-.463	-.495	-.617	-.962	-.977	-.552	-.562	-.616	-.876	-.871	-.1022
75.00		.439	-.476	-.507	-.596	-.972	-.985	-.543	-.570	-.577	-.863	-.821	-.1007
80.00		.474	-.494	-.510	-.583	-.972	-.985	-.579	-.590	-.563	-.848	-.781	-.990
85.00		.494	-.494	-.512	-.577	-.967	-.986	-.589	-.596	-.568	-.834	-.726	-.996
90.00		.482	-.497	-.510	-.555	-.955	-.984	-.594	-.594	-.564	-.814	-.677	-.994
95.00		.387	-.466	-.503	-.554	-.510	-.1014	-.496	-.549	-.587	-.600	-.652	-.1024
1.25	Lower surface	.799	.786	.756	.724	.719	.617	.644	.690	.624	.785	.747	.657
2.50		.671	.671	.658	.625	.616	.516	.580	.713	.713	.713	.713	.616
5.00		.703	.608	.587	.571	.570	.516	.704	.740	.710	.665	.670	.589
7.50		.630	.540	.523	.504	.512	.453	.707	.671	.653	.631	.624	.535
10.00		.570	.505	.487	.468	.455	.396	.714	.632	.617	.593	.574	.484
15.00		.492	.440	.422	.406	.397	.305	.623	.567	.544	.529	.510	.407
20.00		.426	.405	.367	.380	.345	.245	.524	.467	.445	.427	.414	.304
25.00		.382	.352	.327	.302	.300	.158	.500	.469	.444	.423	.411	.264
30.00		.349	.312	.290	.271	.264	.088	.465	.425	.405	.386	.368	.198
35.00		.263	.273	.254	.233	.221	.071	.374	.385	.368	.345	.324	.164
40.00		.266	.244	.226	.197	.192	-.005	.380	.393	.335	.311	.297	.102
45.00		.212	.212	.166	.166	.166	-.005	.365	.365	.318	.268	.268	.071
50.00		.183	.175	.162	.134	.125	-.098	.290	.281	.270	.241	.227	.001
55.00		.151	.147	.134	.114	.083	-.125	.235	.231	.242	.222	.183	-.025
60.00		.150	.124	.111	.086	.045	-.146	.295	.221	.211	.191	.149	-.052
65.00		.113	.093	.063	.013	-.189	-.184	.214	.174	.174	.159	.091	-.112
70.00		.091	.091	.076	.077	.007	-.175	.175	.182	.174	.166	.110	-.099
75.00		.073	.063	.055	.025	-.022	-.195	.160	.151	.147	.125	.078	-.102
80.00		.057	.056	.049	.015	-.032	-.207	.140	.138	.134	.110	.065	-.115
85.00		.040	.049	.043	.015	-.040	-.160	.108	.123	.126	.100	.047	-.084
90.00		.010	.036	.037	.010	-.047	-.160	.067	.071	.095	.085	.036	-.084
95.00		.014	.009	.015	-.019	-.048	-.176	.067	.062	.069	.036	.007	-.108

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RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

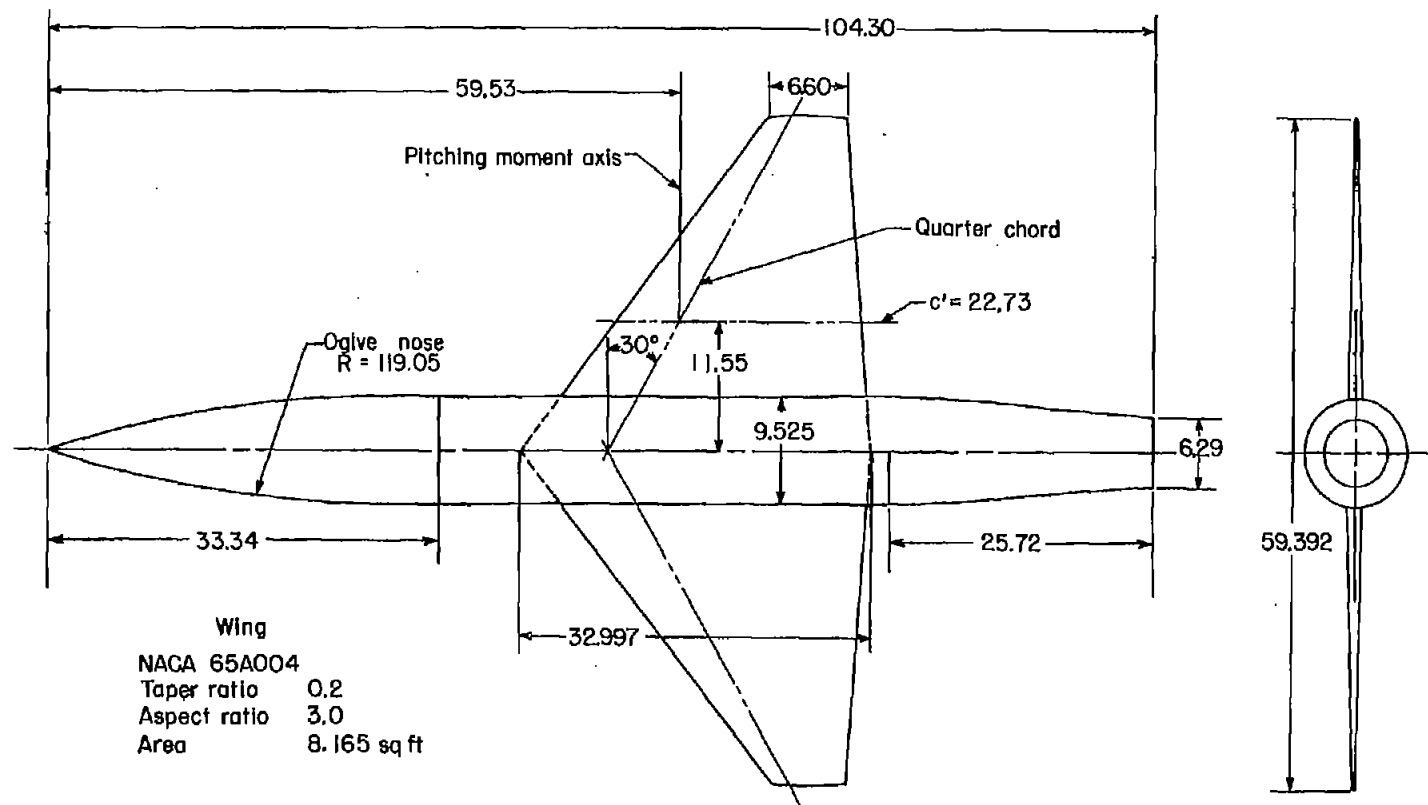
		Pressure coefficient, P , at											
		0.16 σ /2	0.25 σ /2	0.40 σ /2	0.60 σ /2	0.75 σ /2	0.95 σ /2	1.16 σ /2	1.41 σ /2	1.67 σ /2	1.94 σ /2	2.22 σ /2	2.50 σ /2
Percent c	Upper surface	$M = 1.00$ $\alpha = 15.83^\circ$						$M = 1.00$ $\alpha = 18.03^\circ$					
		0.00	1.28	2.50	3.75	5.00	6.25	7.50	8.75	10.00	11.25	12.50	13.75
0.00		-.054	-.423	-.645	-.888	-1.008	-.663	-.072	-.613	-.826	-1.042	-1.124	-.879
1.28		-.657	-1.280	-1.231	-1.171	-1.089	-.983	-.787	-1.299	-1.284	-1.111	-1.012	-.905
2.50		-.778	-1.271	-1.202	-1.172	-1.088	-.979	-.808	-1.287	-1.225	-1.105	-1.013	-.902
3.75		-.851	-1.232	-1.178	-1.128	-1.087	-.979	-1.002	-1.278	-1.216	-1.100	-1.019	-.906
5.00		-.881	-1.186	-1.204	-1.172	-1.078	-.964	-.974	-1.263	-1.225	-1.096	-1.020	-.895
6.25		-.823	-1.145	-1.203	-1.181	-1.080	-.964	-.942	-1.236	-1.246	-1.094	-1.029	-.895
7.50		-.691	-1.079	-1.149	-1.170	-1.078	-.964	-.802	-1.185	-1.224	-1.087	-1.043	-.892
8.75		-.597	-1.039	-1.102	-1.145	-1.072	-.964	-.655	-1.138	-1.195	-1.075	-1.052	-.890
10.00		-.547	-.981	-1.051	-1.139	-1.079	-.964	-.608	-1.087	-1.160	-1.070	-1.070	-.885
11.25		-.566	-.877	-1.028	-1.113	-1.057	-.964	-.608	-.934	-1.146	-1.056	-1.037	-.882
12.50		-.539	-.815	-1.012	-1.094	-1.047	-.963	-.599	-.886	-1.135	-1.042	-1.026	-.877
13.75		-.466	-.657	-.998	-1.077	-1.033	-.962	-.615	-.893	-1.120	-1.027	-1.017	-.882
15.00		-.448	-.608	-.981	-1.063	-1.029	-.962	-.586	-.868	-1.107	-1.026	-1.012	-.876
16.25		-.472	-.562	-.984	-1.049	-1.011	-.951	-.618	-.840	-1.104	-.989	-1.000	-.873
17.50		-.593	-.587	-.956	-1.030	-.997	-.942	-.643	-.842	-1.091	-.974	-.988	-.873
18.75		-.609	-.608	-.904	-1.002	-.977	-.930	-.665	-.864	-1.047	-.953	-.975	-.869
20.00		-.617	-.617	-.802	-.888	-.958	-.922	-.673	-.873	-.932	-.941	-.953	-.861
21.25		-.628	-.628	-.757	-.839	-.910	-.874	-.641	-.881	-.925	-.930	-.937	-.860
22.50		-.593	-.633	-.682	-.739	-.821	-.818	-.637	-.866	-.901	-.915	-.922	-.862
23.75		-.641	-.652	-.672	-.703	-.801	-.818	-.682	-.861	-.902	-.907	-.905	-.859
25.00		-.643	-.649	-.678	-.775	-.868	-.926	-.676	-.843	-.917	-.896	-.881	-.856
26.25		-.626	-.645	-.678	-.820	-.835	-.921	-.635	-.819	-.935	-.881	-.853	-.859
27.50		-.553	-.552	-.571	-.765	-.836	-.924	-.666	-.857	-.935	-.871	-.864	-.859
28.75		1.001	.927	.848	.791	.738	.694	1.027	.949	.859	.791	.731	.658
30.00		1.034	.873	.826	.783	.750	.640	1.082	.923	.858	.806	.771	.654
31.25		.948	.808	.763	.724	.705	.619	.993	.858	.805	.766	.744</	

RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Continued

Pressure coefficient, P , at													
	0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2
Percent	$M = 1.03$							$M = 1.03$					
α	$\alpha = -2.02^\circ$							$\alpha = -0.66^\circ$					
Upper surface													
0.00	-0.019	.737	.695	.667	.616	.560		-0.001	.758	.722	.725	.694	.739
1.25	.312	.245	.281	.303	.296	.357		.222	.068	.088	.064	.039	.147
5.00	.262	.173	.190	.204	.220	.234		.164	.025	.029	.013	-.001	-.043
7.50	.212	.148	.145	.147	.146	.195		.108	.025	.034	.005	.026	.051
10.00	.181	.120	.109	.102	.103	.153		.073	.025	.035	.010	.019	.045
15.00	.158	.095	.078	.077	.072	.112		.067	.015	-.005	.038	.053	.078
20.00	.121	.066	.046	.045	.039	.044		.050	.000	.030	.044	.076	.100
25.00	.056	.037	.015	.013	.011	-.023		.007	-.027	-.059	.068	.095	.111
30.00	.005	.027	.005	-.003	-.009	-.122		-.008	-.042	-.057	.083	.111	.199
35.00	.023	.011	-.025	-.025	-.033	-.153		.003	.051	.073	.100	.121	.201
40.00	.001	-.022	.032	.036	.051	-.176		-.053	.076	.094	.116	.143	.201
45.00	.039	-.033	.049	.063	.067	-.239		-.086	.098	.117	.146	.163	.251
50.00	.016	.033	.058	.080	.095	-.239		-.086	.109	.132	.158	.185	.269
55.00	.027	.042	.081	.098	.127	-.269		-.065	.097	.137	.177	.210	.265
60.00	.042	.082	.109	.127	.150	-.279		.089	.124	.162	.189	.221	.276
65.00	.088	.108	.125	.144	.174	-.263		.132	.159	.180	.202	.244	.264
70.00	.090	.103	.128	.158	.178	-.285		.138	.155	.187	.216	.237	.286
75.00	.092	.109	.129	.159	.212	-.288		.144	.161	.188	.222	.255	.296
80.00	.098	.116	.140	.198	.223	-.273		.152	.168	.194	.227	.267	.285
85.00	.119	.129	.163	.236	.268	-.263		.180	.193	.224	.269	.289	.269
90.00	.138	.116	.134	.162	.230	-.263		.201	.182	.195	.219	.263	.247
95.00	.105	.109	.116	.161	.209	-.227		.165	.179	.185	.210	.242	.230
98.00	.077	.107	.112	.152	.220	-.236		.130	.174	.180	.201	.249	.239
Lower surface													
0.00	.086	.180	.428	.587	.742	-.787		.192	.067	.017	-.008	.027	-.080
1.25	.019	.154	.189	.492	.618	-.722		.131	.012	.002	-.031	.060	-.073
5.00	.007	.093	.147	.183	.454	-.644		.098	.033	.008	-.014	.042	.082
7.50	.022	.101	.158	.205	.263	-.593		.074	.007	-.017	.038	.052	.097
10.00	.085	.111	.230	.284	.340	-.540		.053	.003	-.044	.068	.077	.107
15.00	.066	.107	.250	.259	.419	-.5							

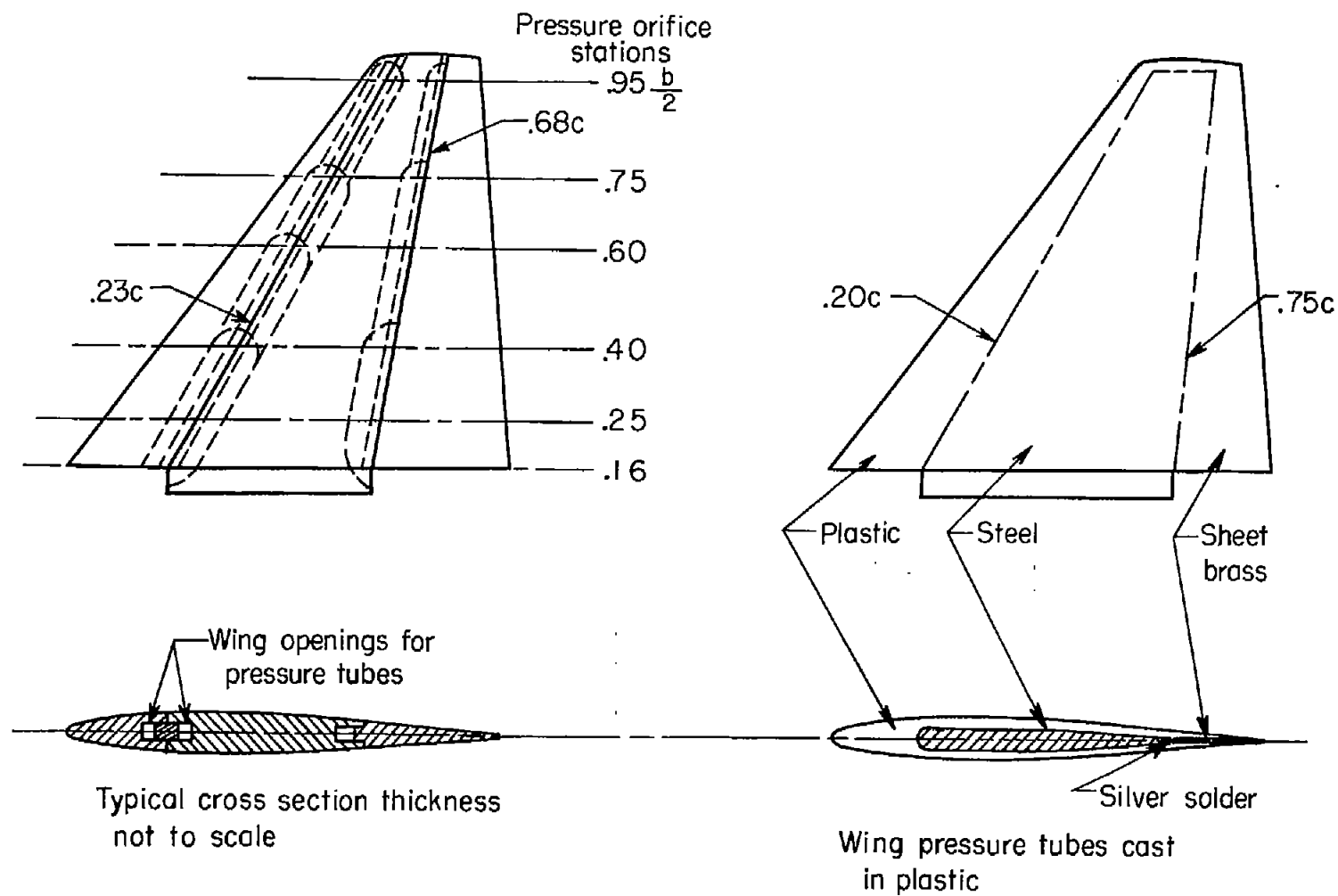
TABLE I. - STEEL WING PRESSURE COEFFICIENT DATA FOR THE TEST
 RANGE OF ANGLE OF ATTACK AND MACH NUMBER - Concluded

		Pressure coefficient, P , at:													
		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2		0.16b/2	0.25b/2	0.40b/2	0.60b/2	0.75b/2	0.95b/2	
	Percent c	$M = 1.03$							$M = 1.03$						
		$\alpha = 15.85^\circ$							$\alpha = 17.97^\circ$						
Upper surface	0.00	-.152	-.378	-.588	-.818	-.932	-.599		-.172	-.559	-.765	-.965	-1.062	-.830	
	1.25	-.604	-1.188	-1.129	-1.072	-1.003	-.918		-.709	-1.245	-1.199	-1.047	-.973	-.870	
	2.50	-.697	-1.179	-1.108	-1.076	-1.005	-.909		-.833	-1.233	-1.166	-1.042	-.973	-.866	
	5.00	-.827	-1.144	-1.132	-1.068	-1.002	-.901		-.936	-1.213	-1.196	-1.037	-.979	-.861	
	7.00	-.794	-1.107	-1.107	-1.072	-.990	-.894		-.952	-1.203	-1.162	-1.036	-.977	-.861	
	10.00	-.761	-1.064	-1.103	-1.080	-.989	-.894		-.868	-1.176	-1.190	-1.093	-.988	-.860	
	15.00	-.602	-1.016	-1.064	-1.073	-.992	-.854		-.733	-1.115	-1.158	-1.026	-1.002	-.859	
	20.00	-.517	-.977	-1.023	-1.049	-.990	-.894		-.618	-1.073	-1.123	-1.018	-1.007	-.856	
	25.00	-.493	-.743	-.984	-1.049	-.981	-.891		-.561	-1.021	-1.098	-1.015	-1.004	-.853	
	30.00	-.506	-.619	-.956	-1.022	-.976	-.889		-.565	-.973	-1.074	-1.003	-.994	-.851	
	35.00	-.476	-.454	-.939	-1.005	-.970	-.884		-.545	-.929	-1.041	-.995	-.984	-.850	
	40.00	-.466	-.478	-.929	-.992	-.960	-.888		-.552	-.844	-1.048	-.983	-.977	-.849	
	45.00	-.497	-.493	-.920	-.977	-.953	-.879		-.553	-.840	-1.039	-.965	-.971	-.844	
	50.00	-.513	-.505	-.909	-.966	-.940	-.872		-.574	-.871	-1.035	-.950	-.959	-.841	
	55.00	-.528	-.527	-.883	-.953	-.926	-.866		-.587	-.892	-1.025	-.935	-.948	-.837	
	60.00	-.551	-.532	-.830	-.927	-.914	-.858		-.607	-.825	-.999	-.915	-.934	-.835	
	65.00	-.555	-.561	-.721	-.910	-.896	-.847		-.613	-.820	-.911	-.899	-.914	-.828	
70.00	-.593	-.566	-.580	-.894	-.872	-.843		-.601	-.824	-.703	-.886	-.896	-.828		
75.00	-.542	-.573	-.517	-.873	-.855	-.843		-.594	-.832	-.509	-.866	-.880	-.828		
80.00	-.587	-.583	-.513	-.844	-.839	-.843		-.625	-.843	-.466	-.855	-.866	-.825		
85.00	-.593	-.589	-.526	-.812	-.804	-.843		-.641	-.821	-.517	-.843	-.839	-.824		
90.00	-.579	-.587	-.522	-.754	-.772	-.852		-.618	-.875	-.549	-.827	-.811	-.826		
95.00	-.507	-.509	-.518	-.696	-.773	-.851		-.431	-.484	-.580	-.613	-.620	-.626		
Lower surface	2.85	1.013	.950	.876	.822	.769	.688		1.047	.974	.882	.818	.755	.682	
	5.00	1.048	.908	.855	.815	.781	.674		1.103	.943	.852	.836	.792	.678	
	7.50	.967	.830	.795	.761	.741	.650		1.019	.885	.832	.798	.768	.670	
	10.00	.877	.767	.742	.713	.698	.609		.928	.823	.785	.754	.735	.635	
	15.00	.804	.727	.706	.677	.655	.566		.861	.778	.746	.718	.699	.596	
	20.00	.720	.660	.638	.613	.599	.487		.772	.710	.685	.657	.634	.525	
	25.00	.645	.619	.581	.556	.543	.418		.697	.660	.626	.599	.584	.456	
	30.00	.597	.514	.497	.480	.463	.292		.647	.617	.577	.559	.541	.396	
	35.00	.462	.475	.457	.437	.417	.259		.604	.567	.543	.525	.501	.329	
	40.00	.465	.444	.425	.402	.388	.193		.515	.526	.503	.483	.459	.299	
	45.00	.448	.404	.390	.365	.352	.156		.515	.489	.469	.443	.429	.256	
	50.00	.380	.366	.354	.330	.318	.102		.431	.412	.398	.374	.358	.142	
	55.00	.342	.334	.331	.308	.278	.074		.388	.382	.370	.352	.314	.114	
	60.00	.339	.309	.297	.279	.242	.047		.382	.352	.337	.320	.277	.089	
	65.00	.295	.280	.278	.247	.205	.022		.339	.319	.313	.286	.245	.062	
	70.00	.280	.264	.259	.232	.200	.003		.289	.306	.291	.271	.236	.037	
	75.00	.237	.233	.229	.210	.170	-.009		.271	.269	.264	.242	.204	.025	
80.00	.209	.214	.210	.191	.135	-.022		.246	.248	.241	.222	.179	.006		
85.00	.175	.197	.197	.174	.135	.004		.207	.229	.225	.203	.156	.023		
90.00	.191	.173	.170	.156	.115	-.041		.178	.199	.192	.178	.134	-.021		
95.00	.110	.126	.135	.109	.081	-.032		.128	.150	.130	.118	.092	-.019		



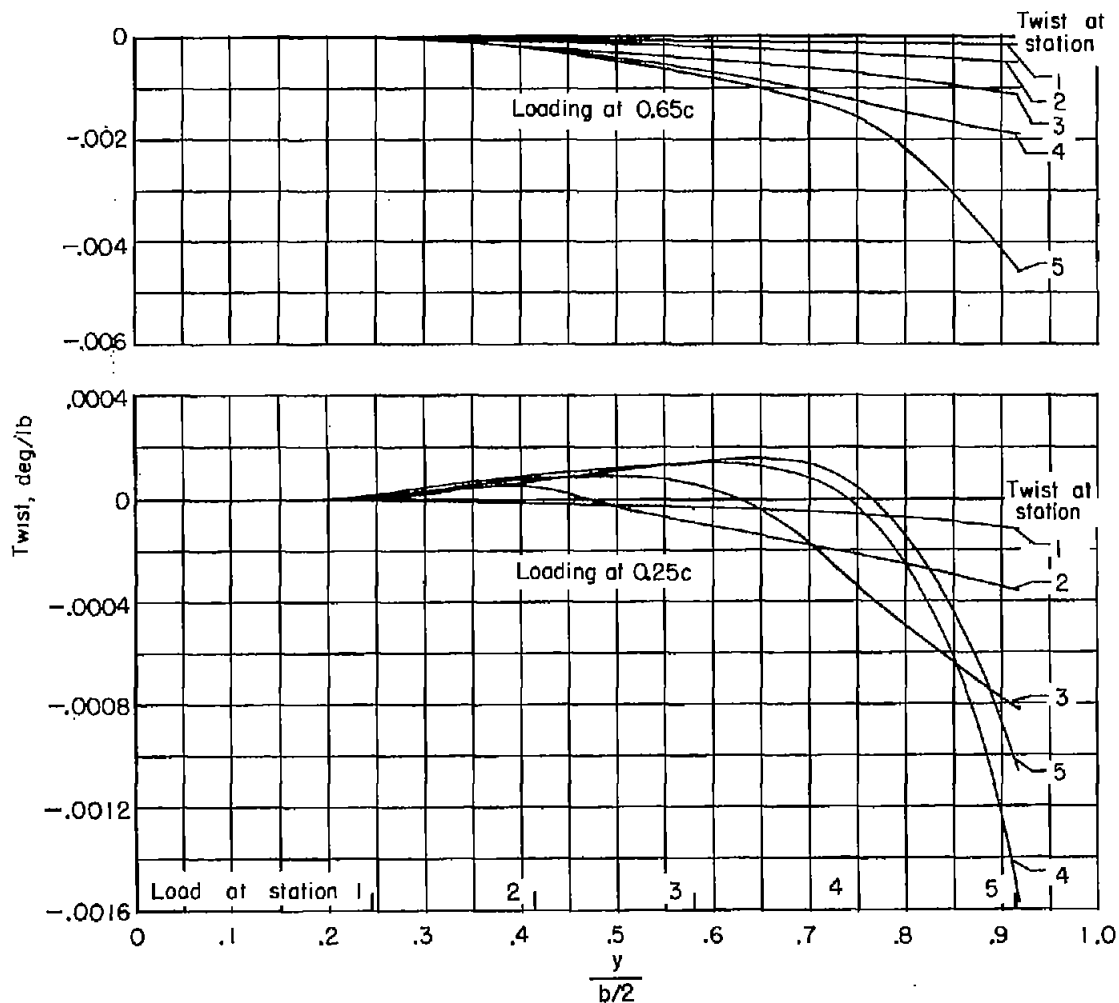
(a) Complete model.

Figure 1.- General model arrangement. All dimensions in inches.



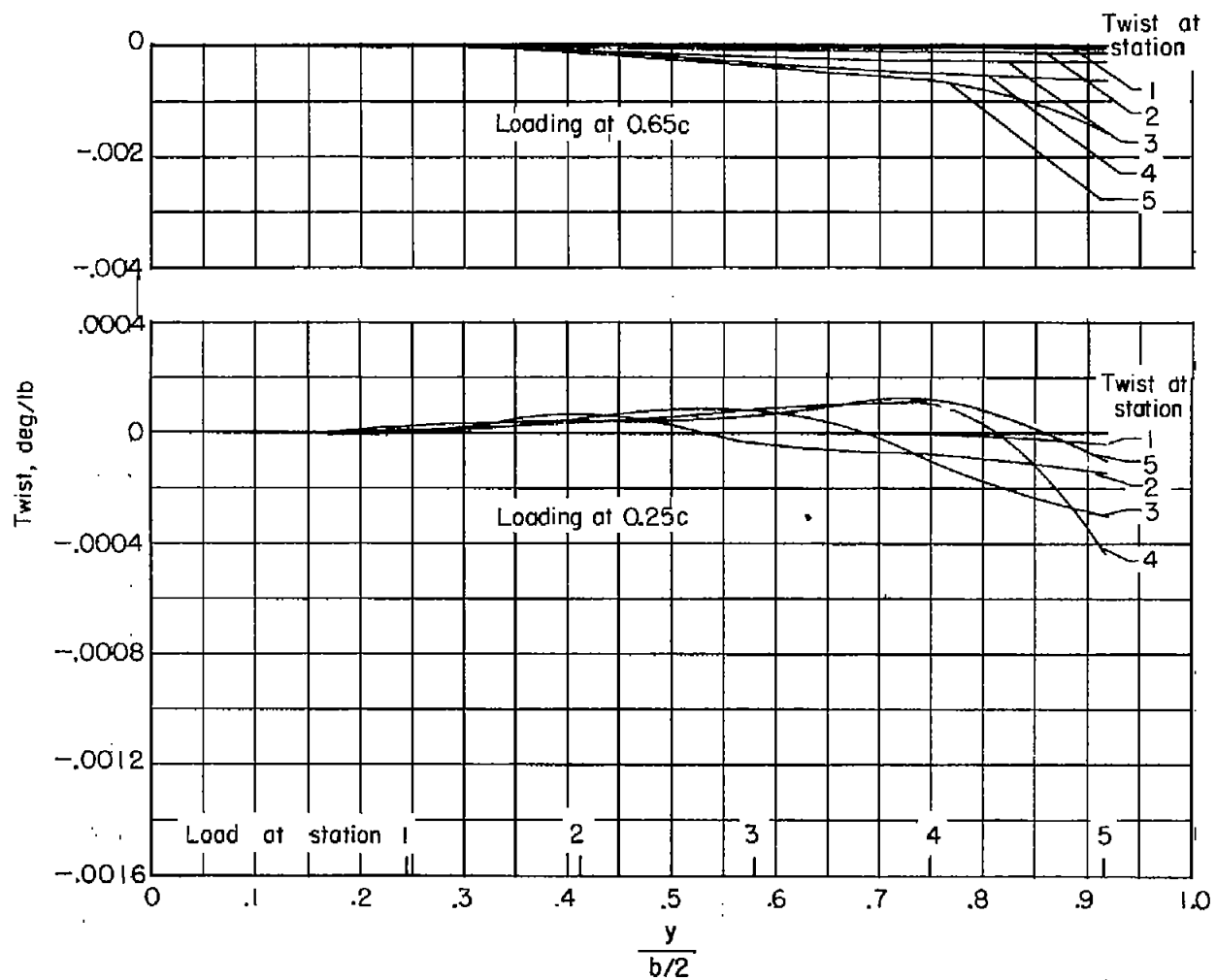
(b) Wings.

Figure 1.- Concluded.



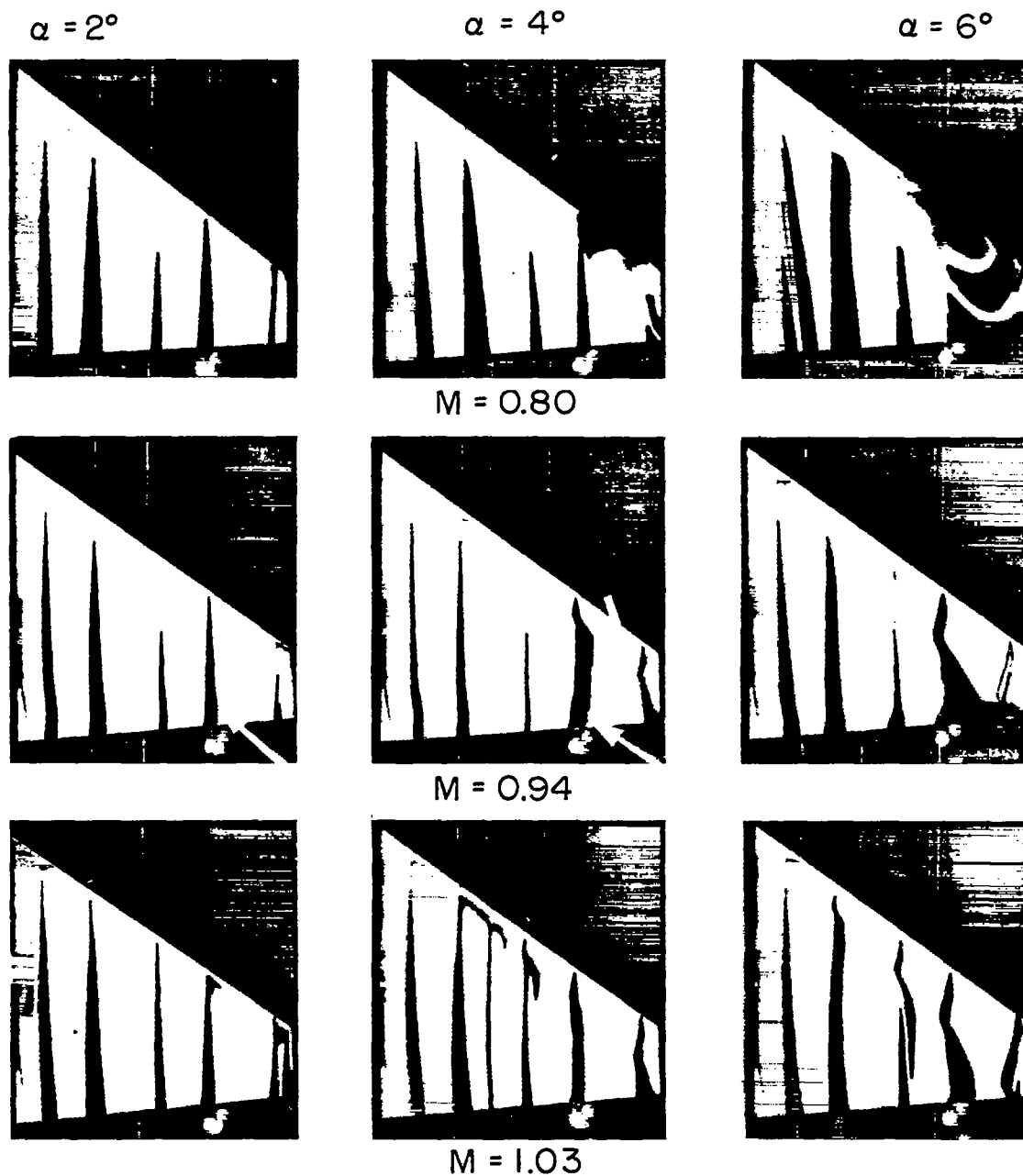
(a) Plastic wing.

Figure 2.- Wing elastic characteristics obtained experimentally, from which the influence coefficients were determined for twist in the angle-of-attack plane about 0.25c.



(b) Steel wing.

Figure 2.- Concluded.

(a) $\alpha = 2^\circ$ to 6° .

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Figure 3.- Typical flow study photographs for a range of Mach number and angle of attack, plastic wing.

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$\alpha = 8^\circ$



$\alpha = 10^\circ$



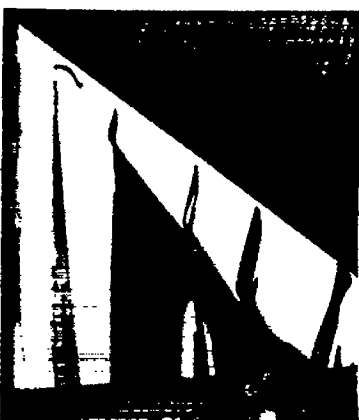
$\alpha = 13^\circ$



$M = 0.80$



$M = 0.94$



$M = 1.03$

(b) $\alpha = 8^\circ$ to 13° .

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Figure 3.- Continued.

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$\alpha = 15^\circ$



$\alpha = 17^\circ$



$\alpha = 19^\circ$



M = 0.80

$\alpha = 15^\circ$



$\alpha = 17^\circ$



M = 0.94

$\alpha = 15^\circ$

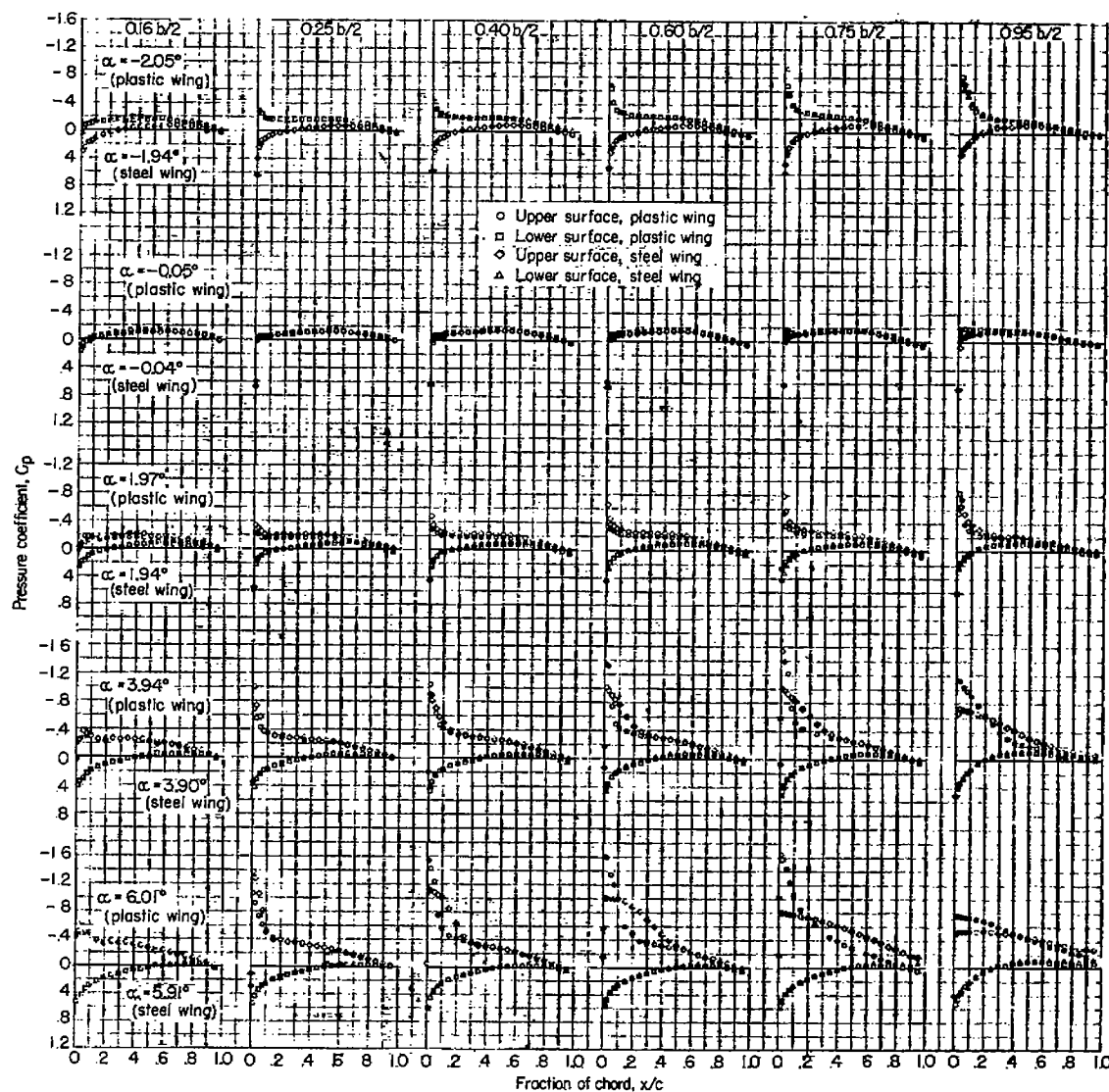


M = 1.03

(c) $\alpha = 15^\circ$ to 19° .

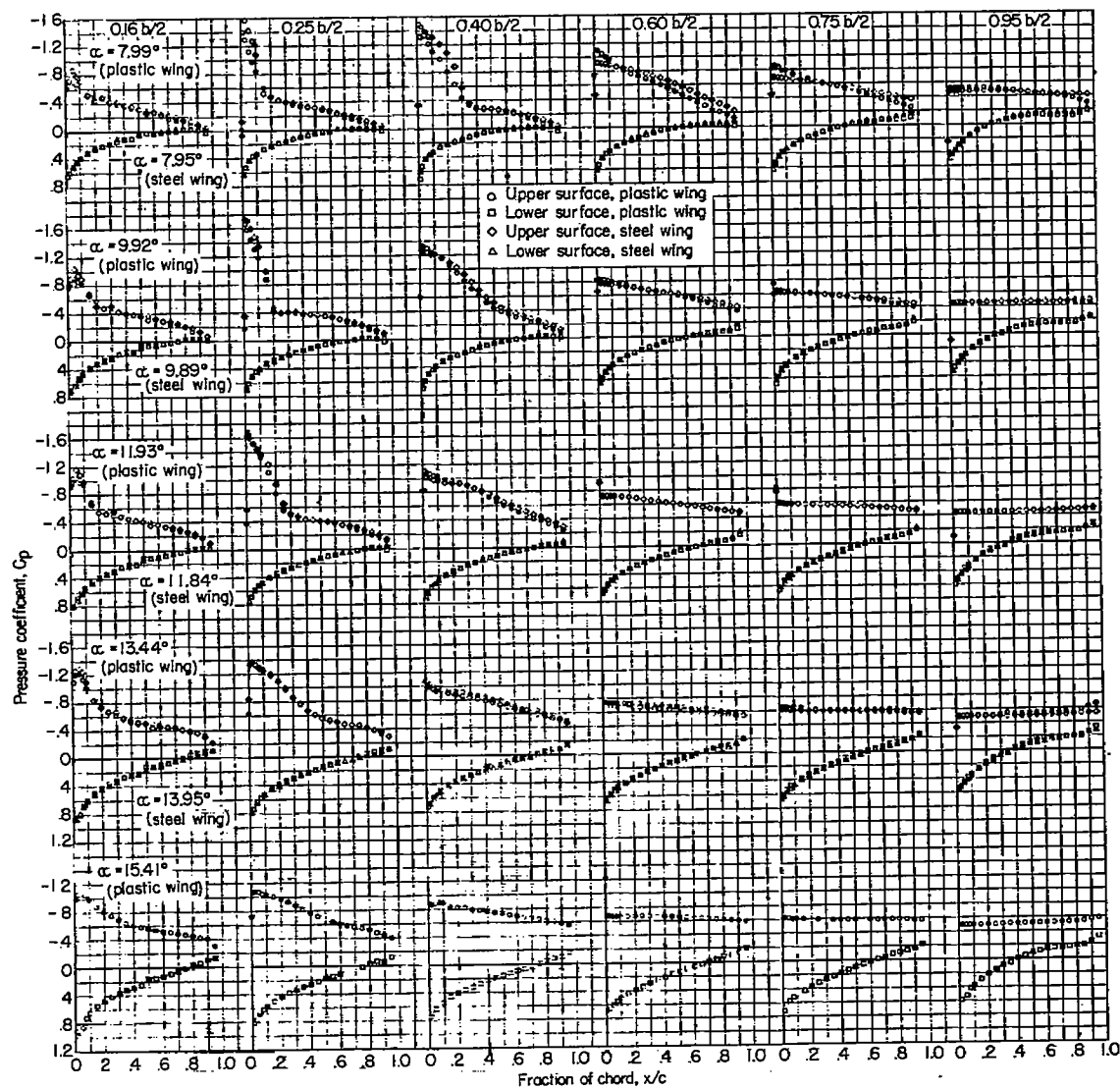
L-57-1641

Figure 3.- Concluded.



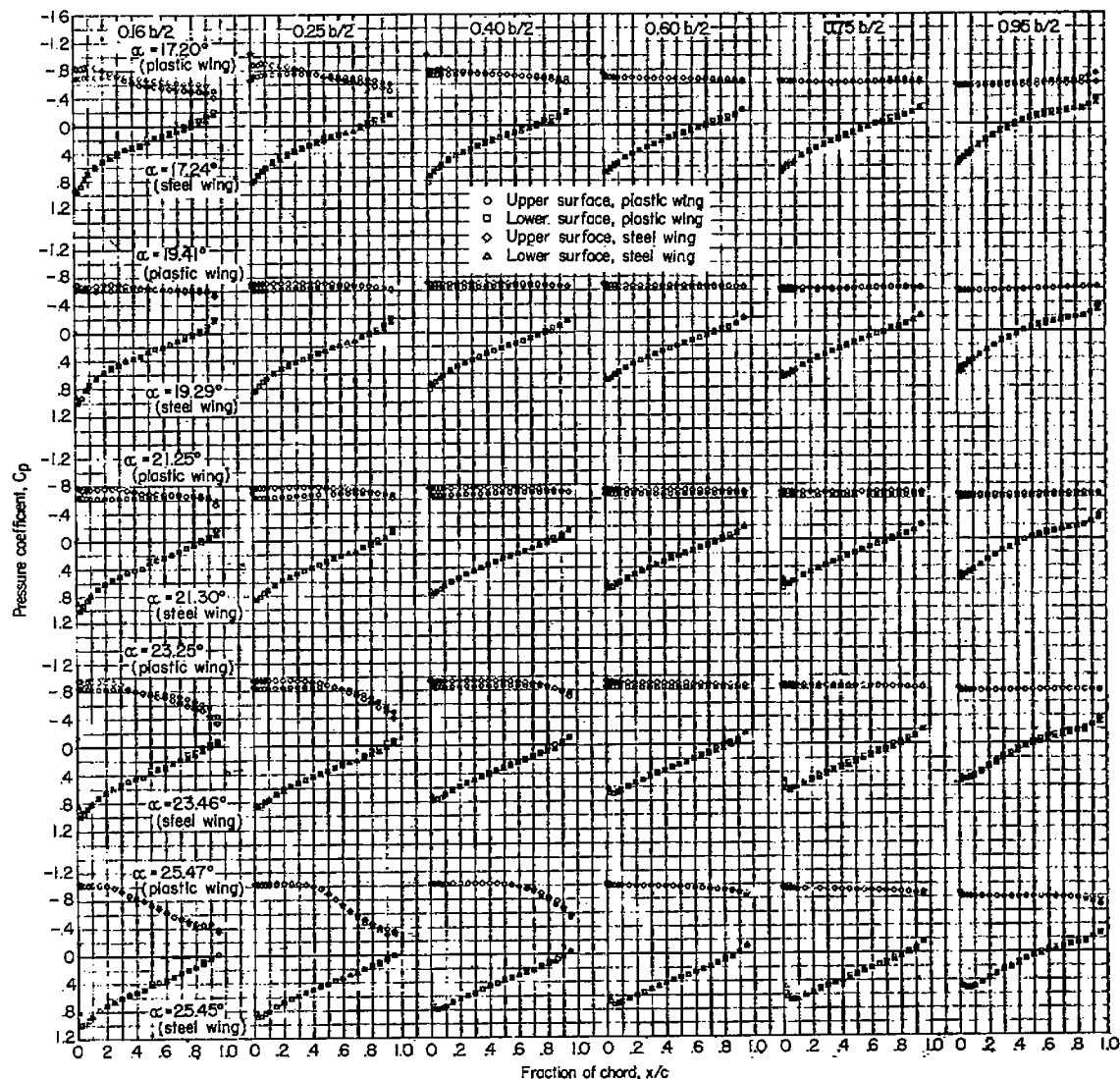
(a) $M = 0.80$.

Figure 4.- Comparison of chordwise pressure distributions for steel and plastic wings.



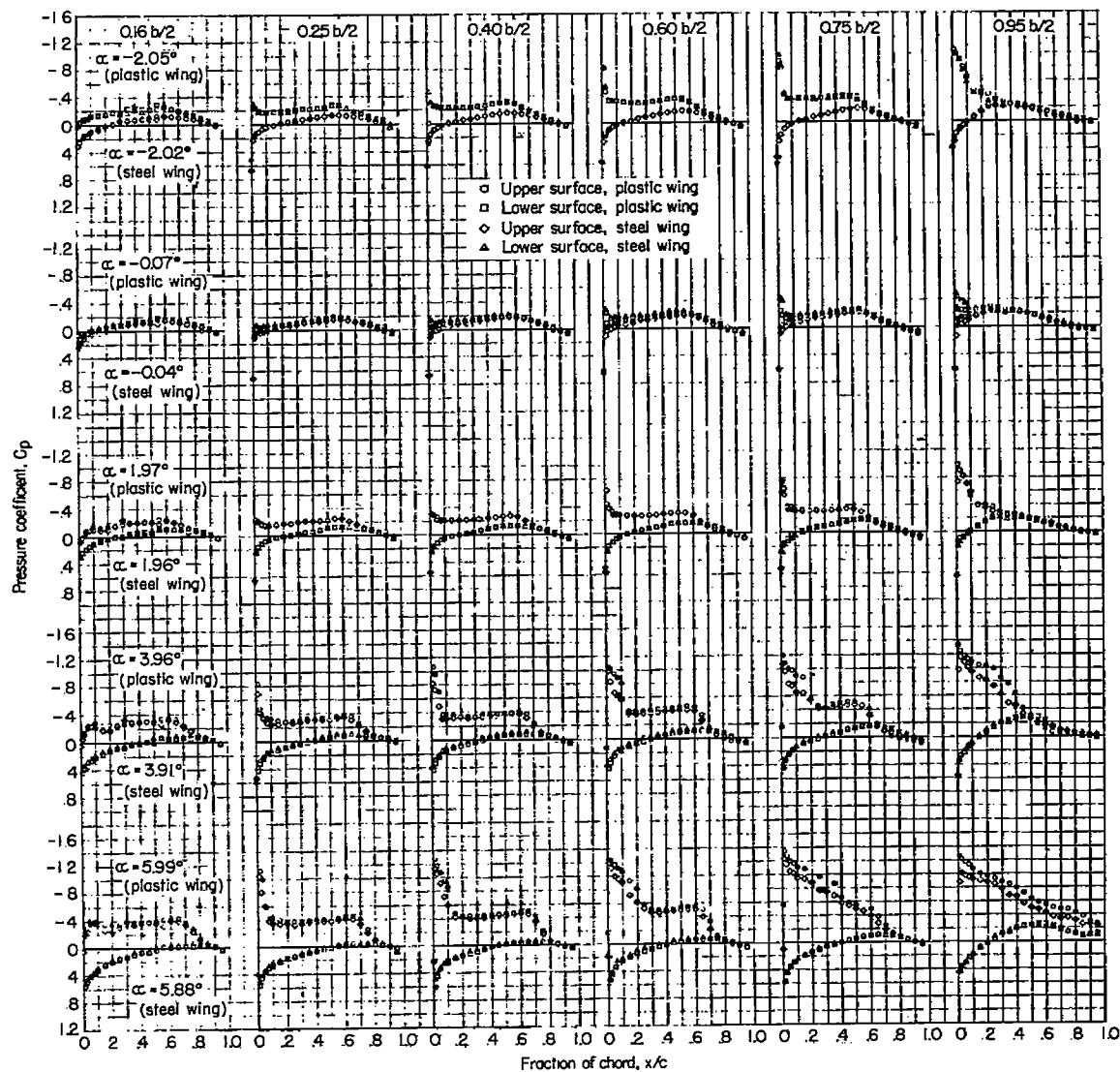
(a) $M = 0.80$, continued.

Figure 4.- Continued.



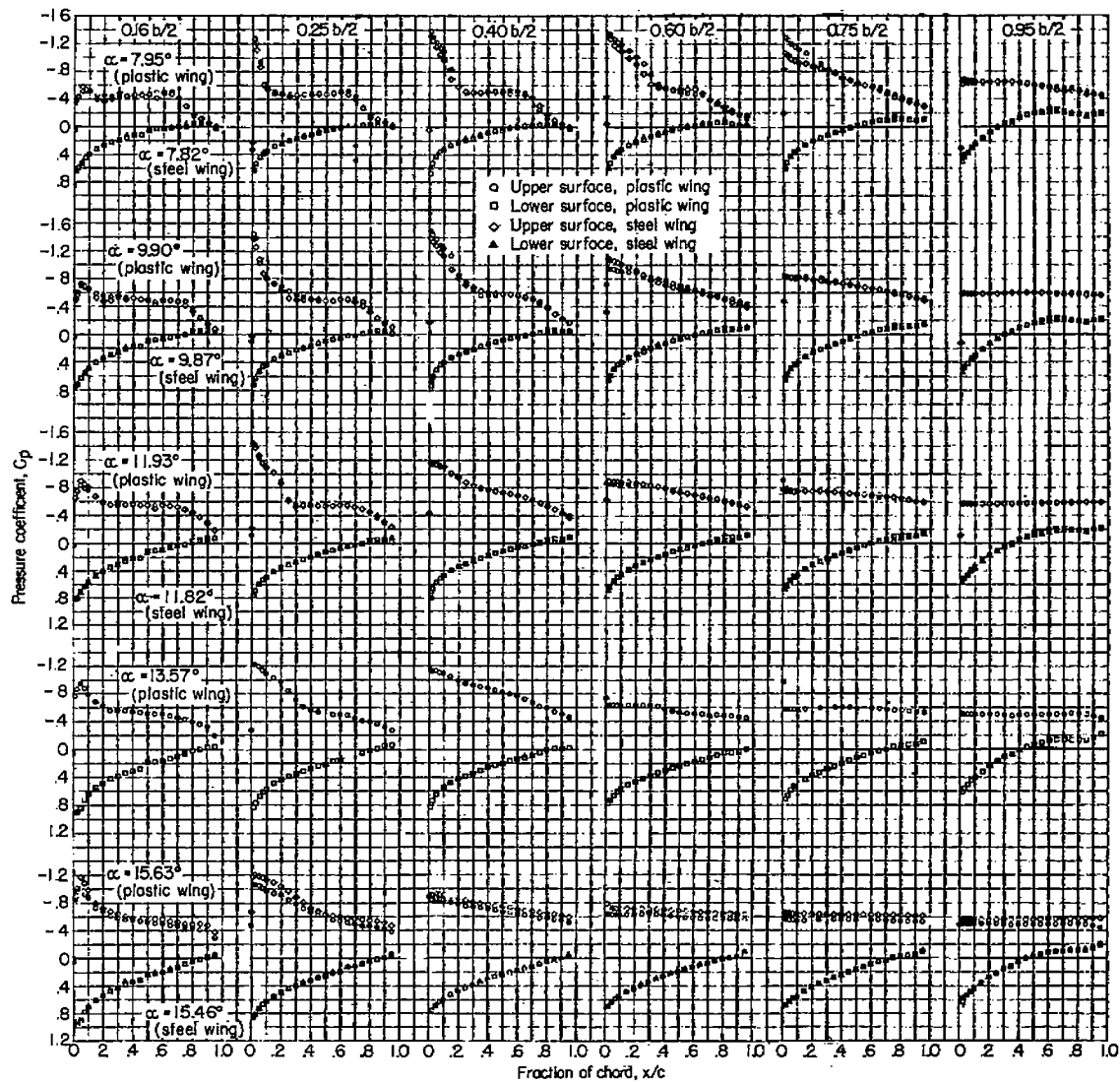
(a) $M = 0.80$, concluded.

Figure 4.- Continued.



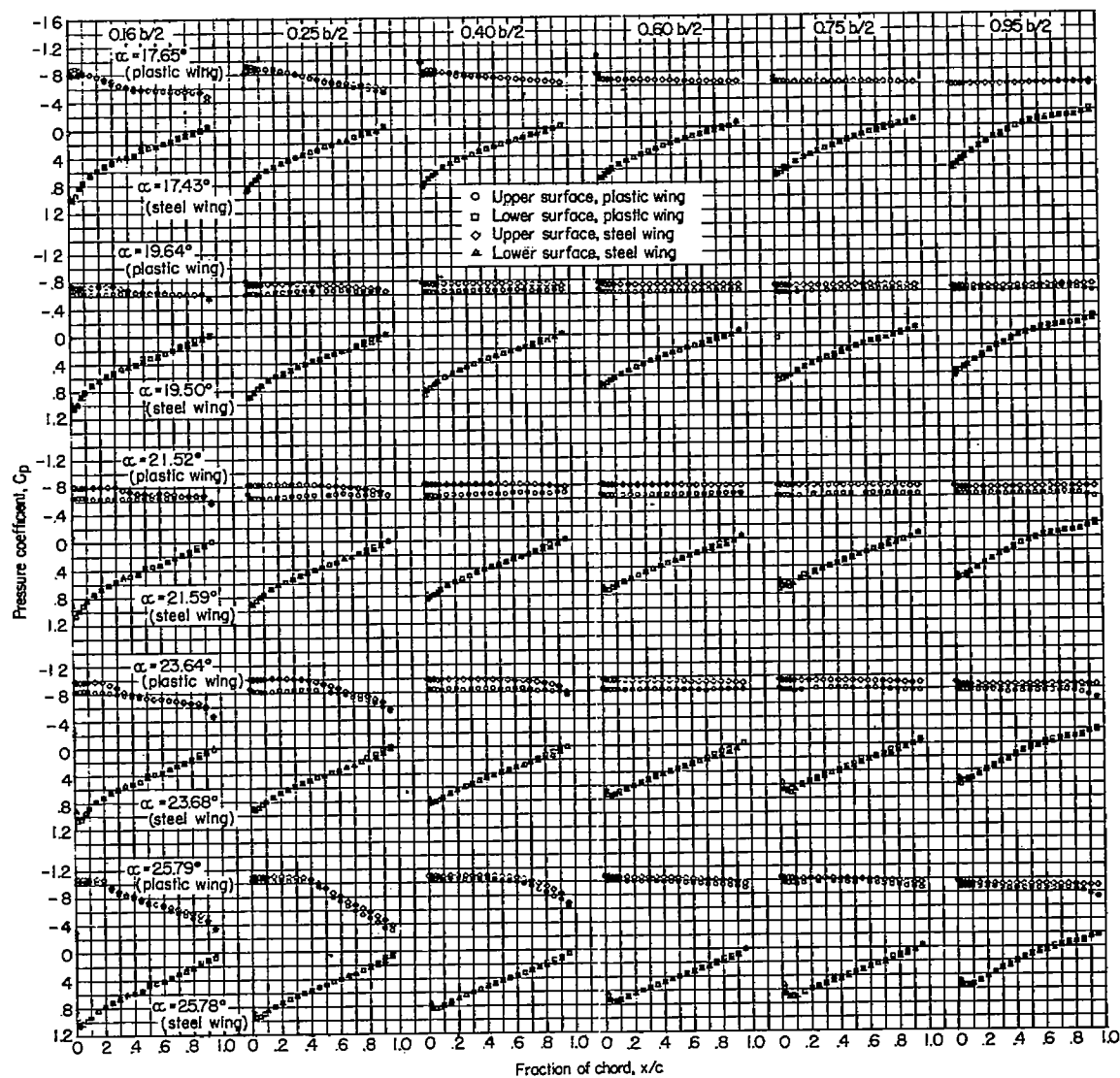
(b) $M = 0.90$.

Figure 4.- Continued.



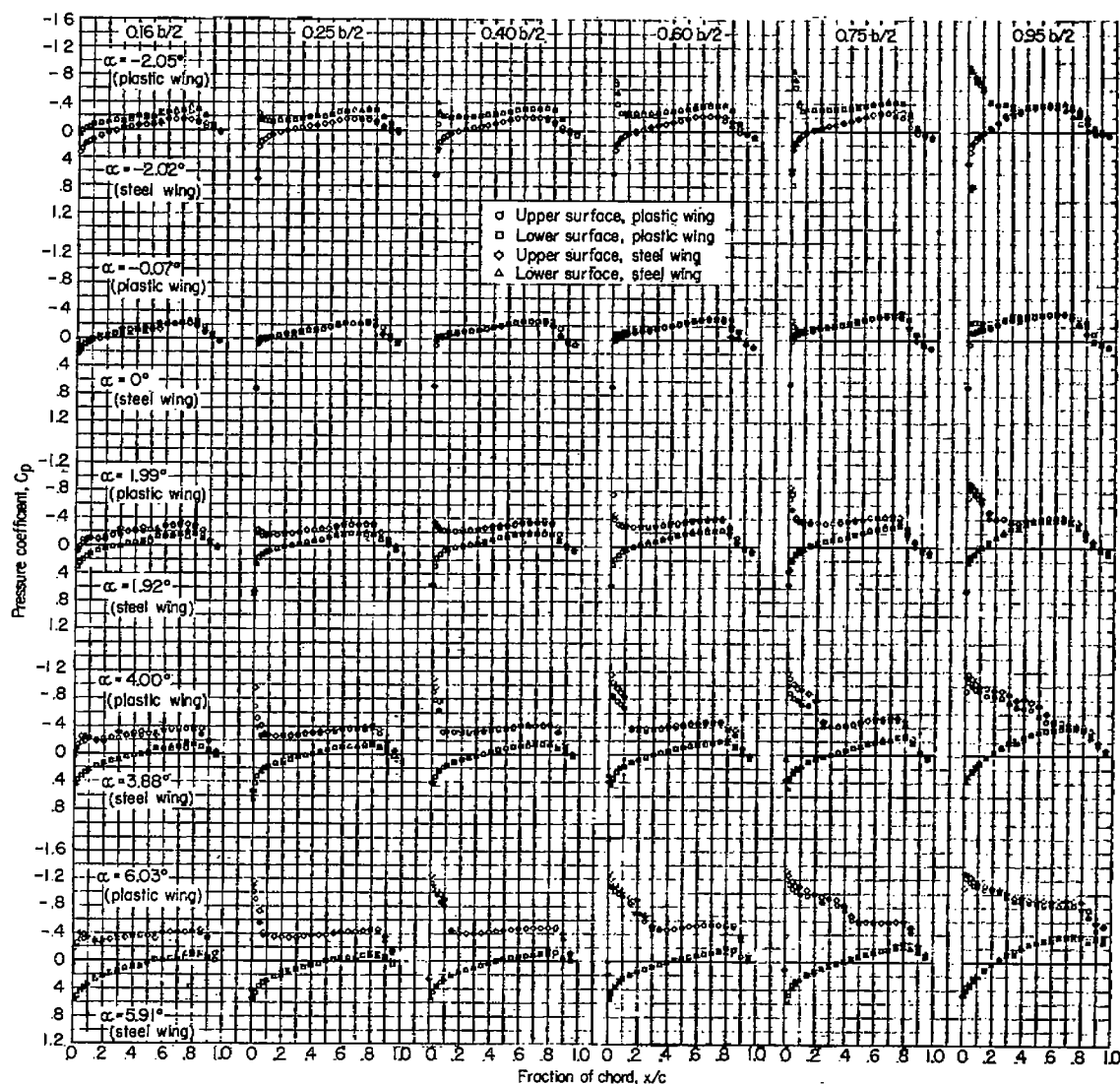
(b) $M = 0.90$, continued.

Figure 4.- Continued.



(b) $M = 0.90$, concluded.

Figure 4.- Continued.



(c) $M = 0.94$.

Figure 4.- Continued.

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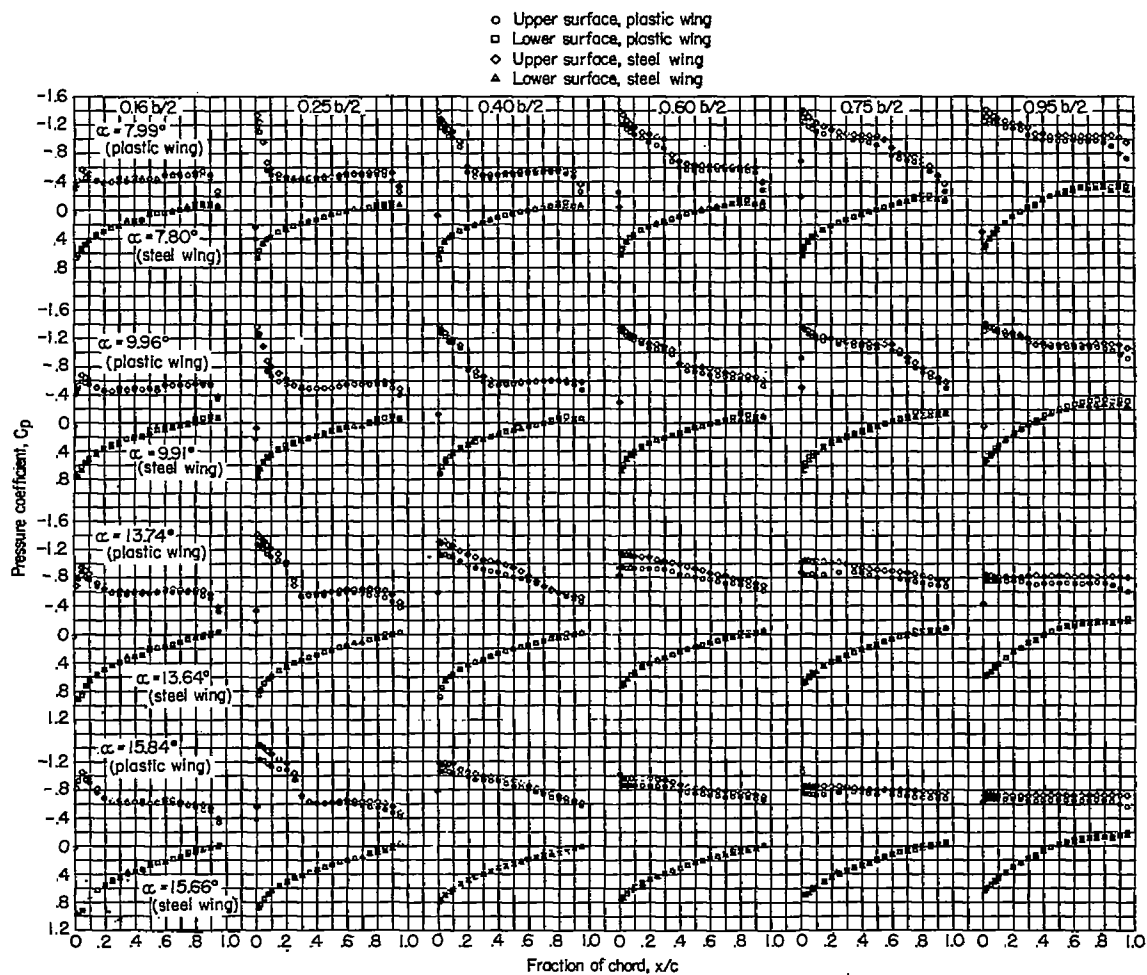
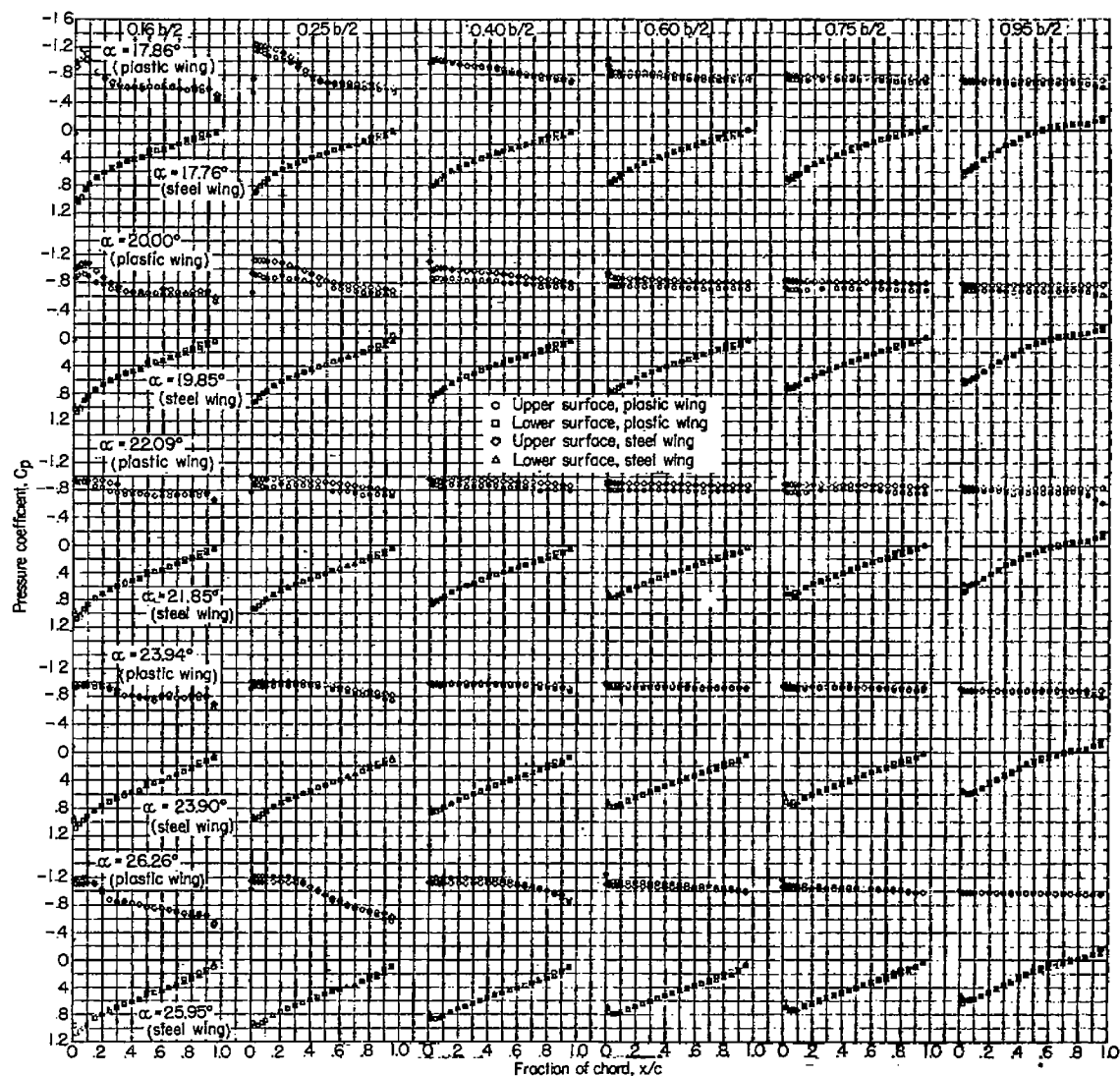
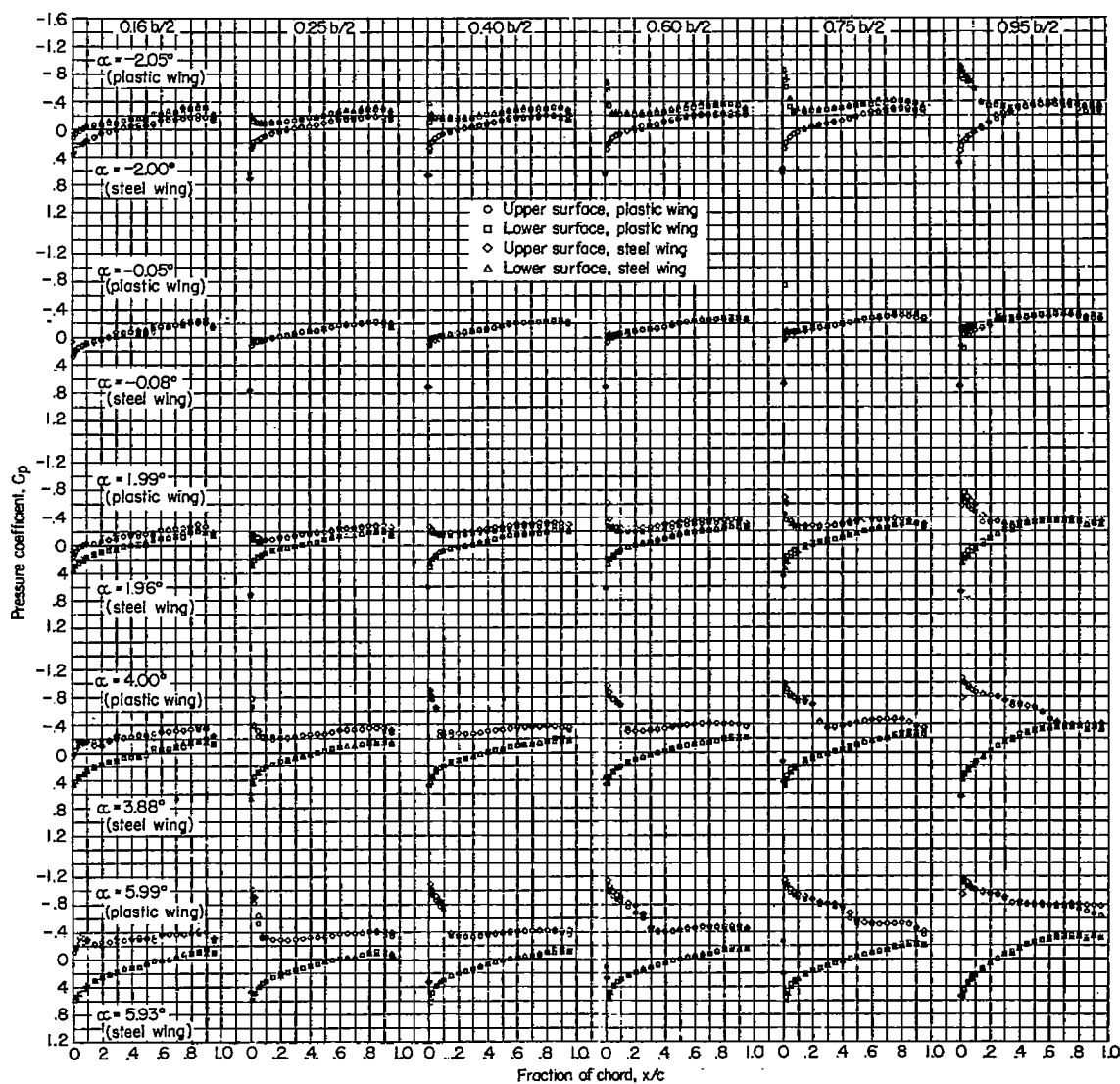
(c) $M = 0.94$, continued.

Figure 4.- Continued.



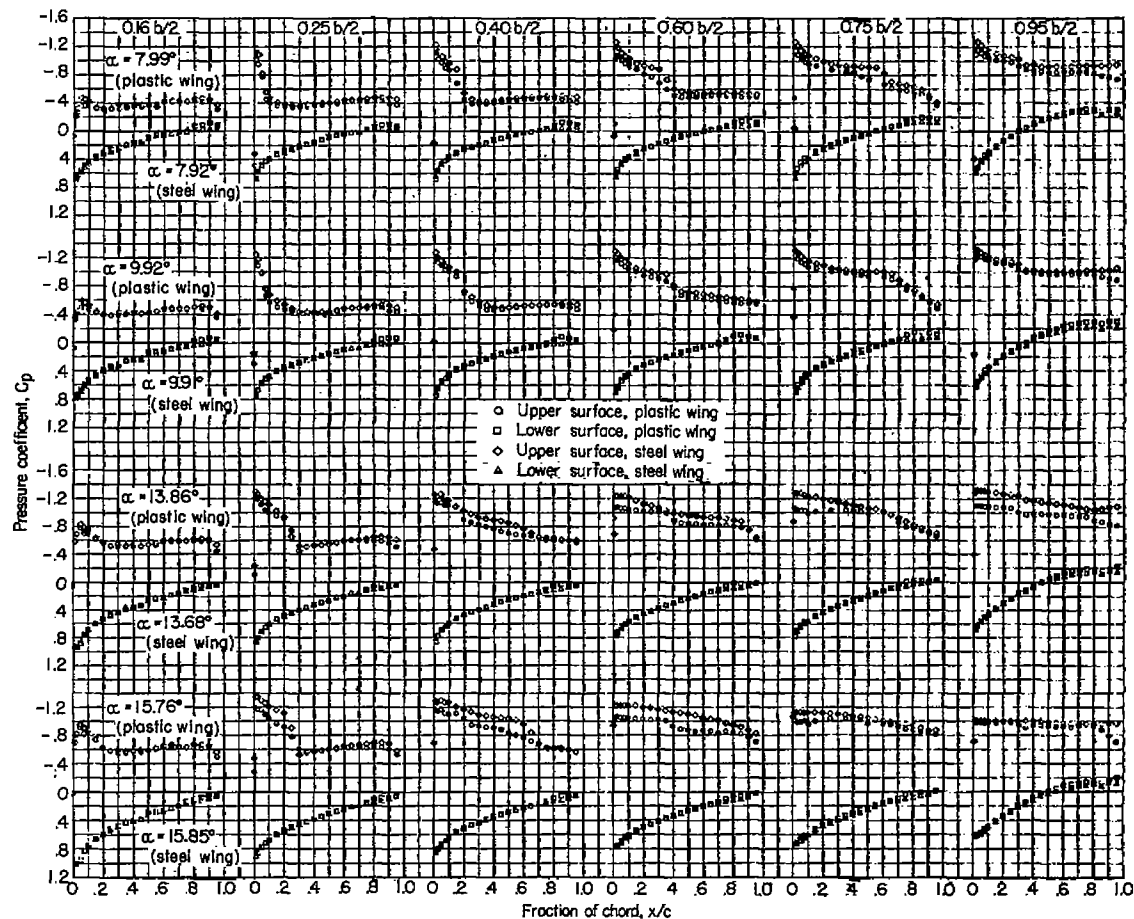
(c) $M = 0.94$, concluded.

Figure 4.- Continued.



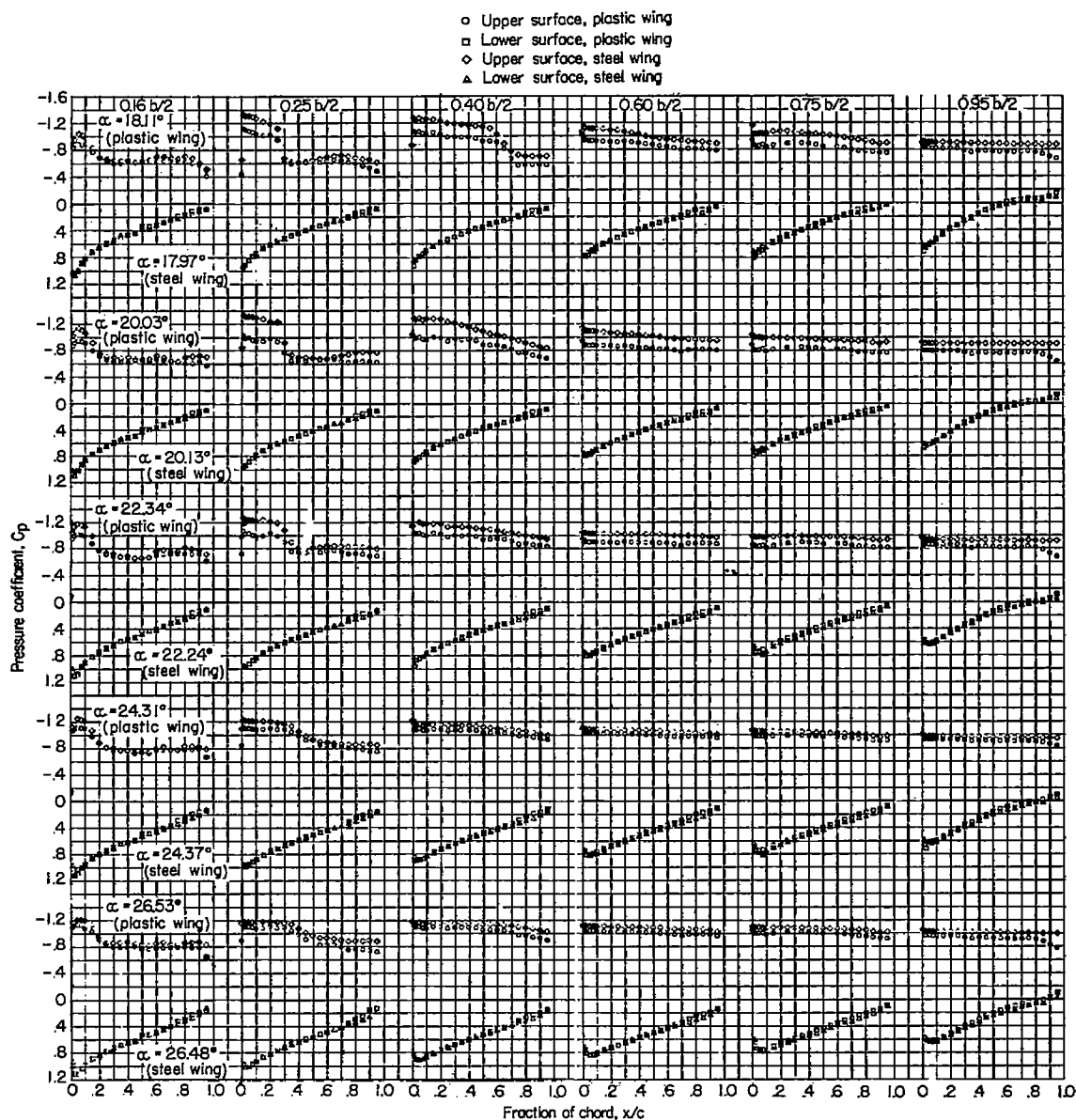
(d) $M = 0.98$.

Figure 4.- Continued.



(d) $M = 0.98$, continued.

Figure 4.- Continued.

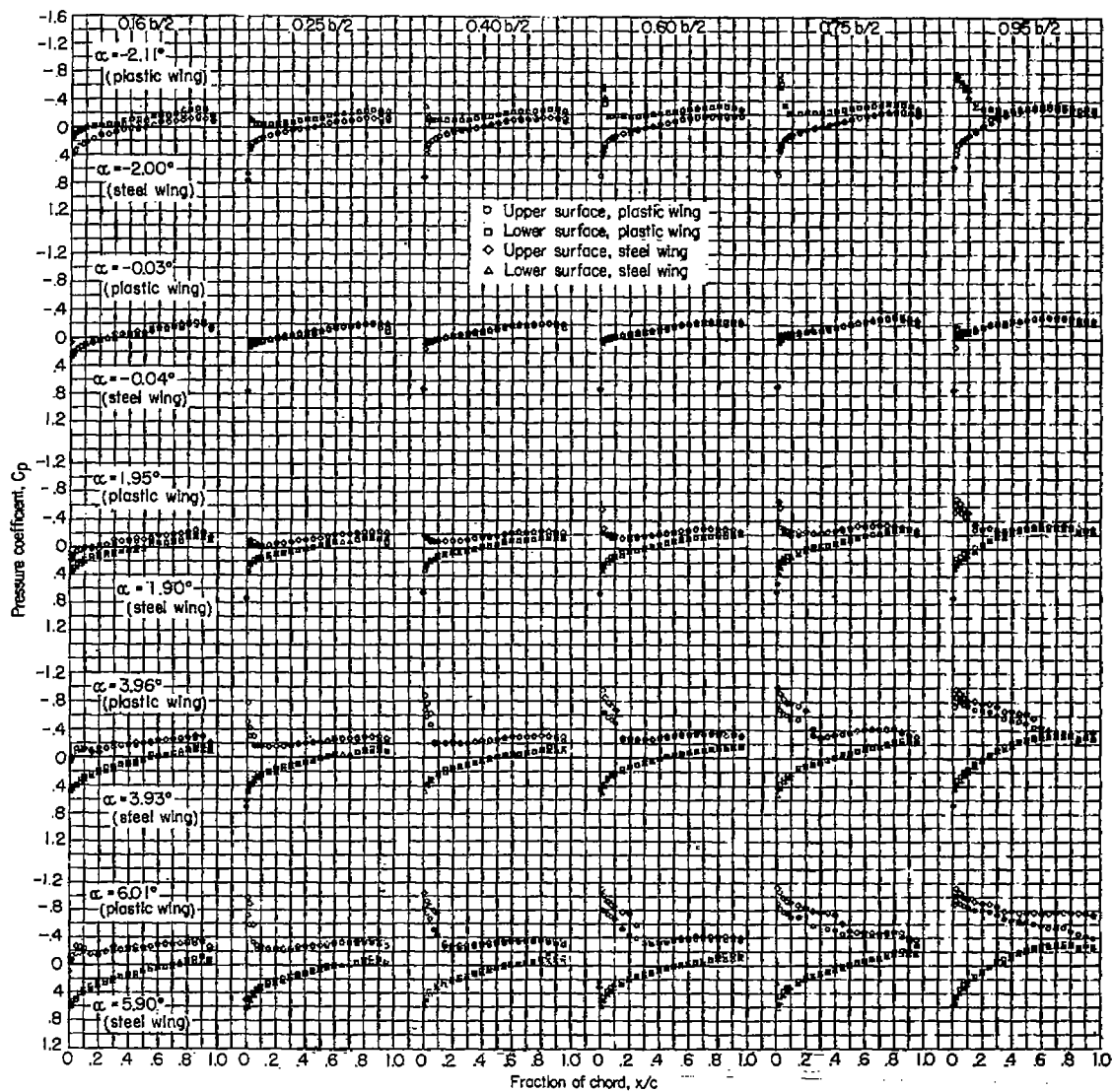


(d) $M = 0.98$, concluded.

Figure 4.- Continued.

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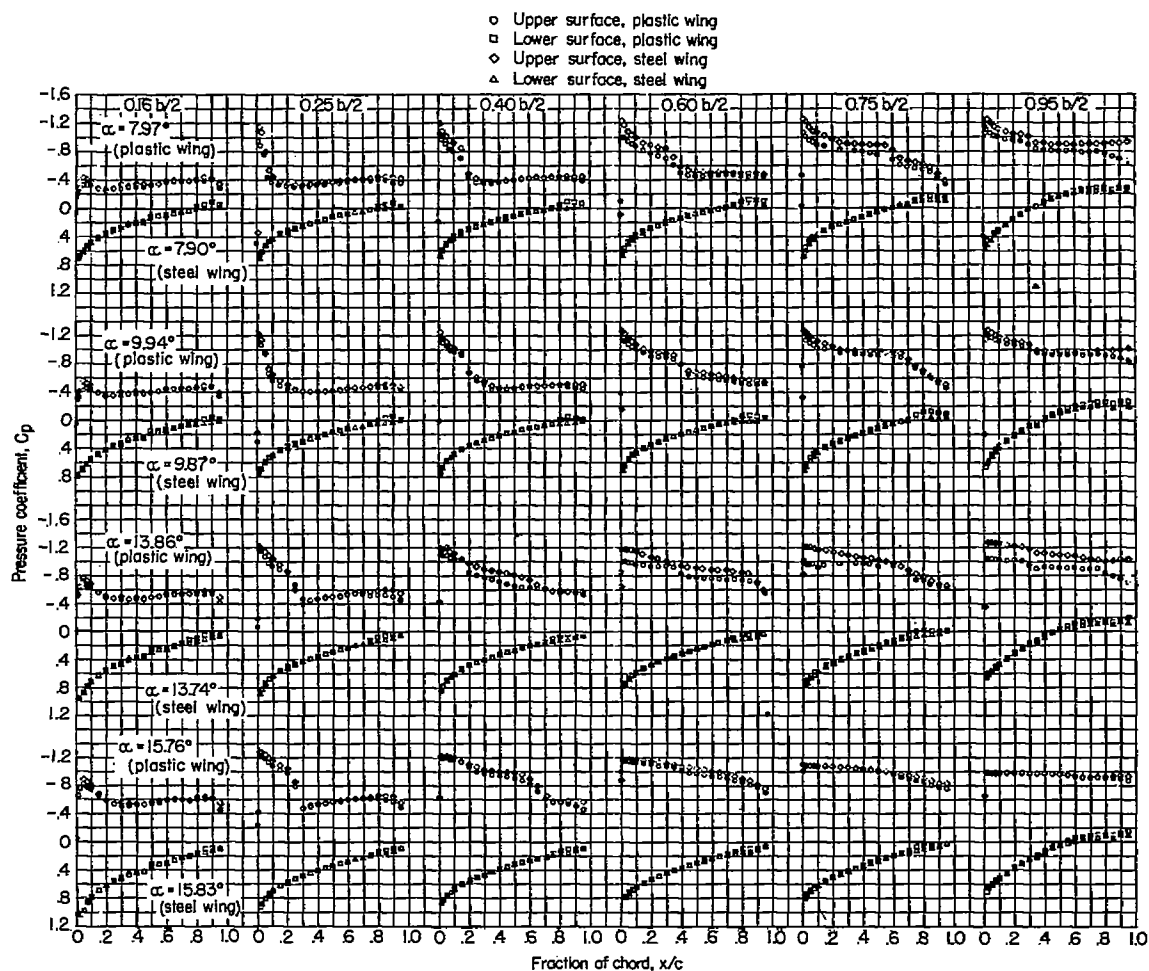
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(e) $M = 1.00$.

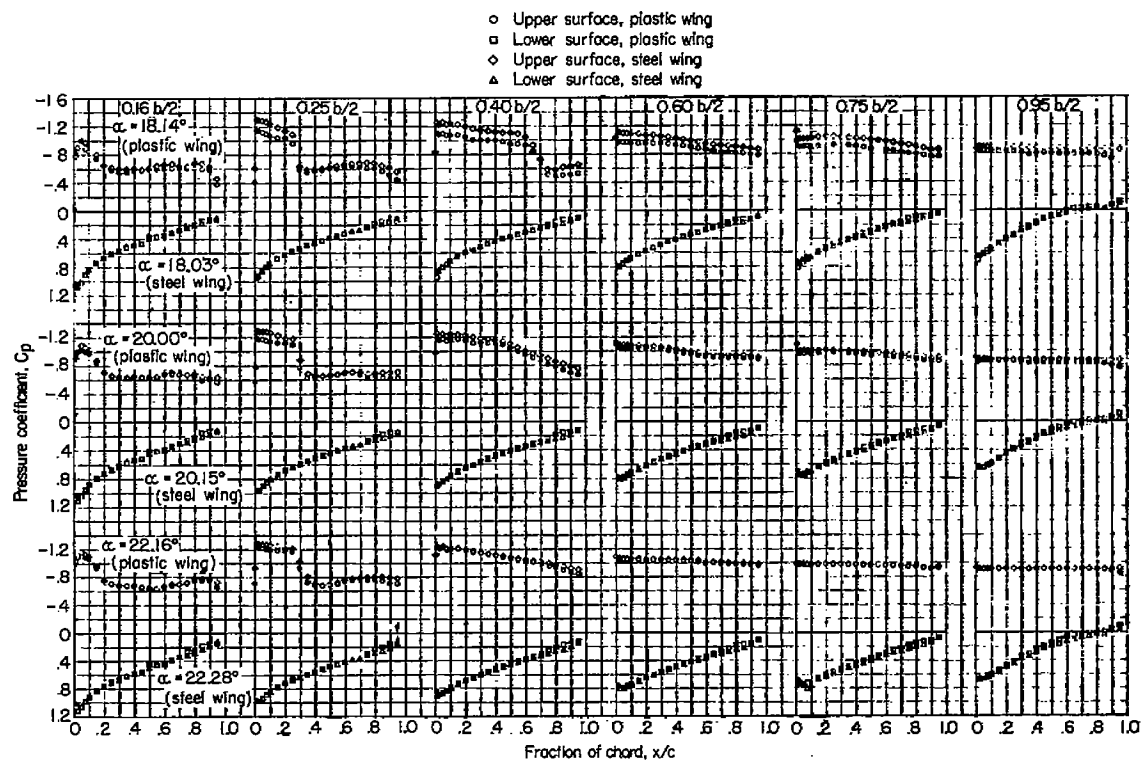
Figure 4.- Continued.

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(e) $M = 1.00$, continued.

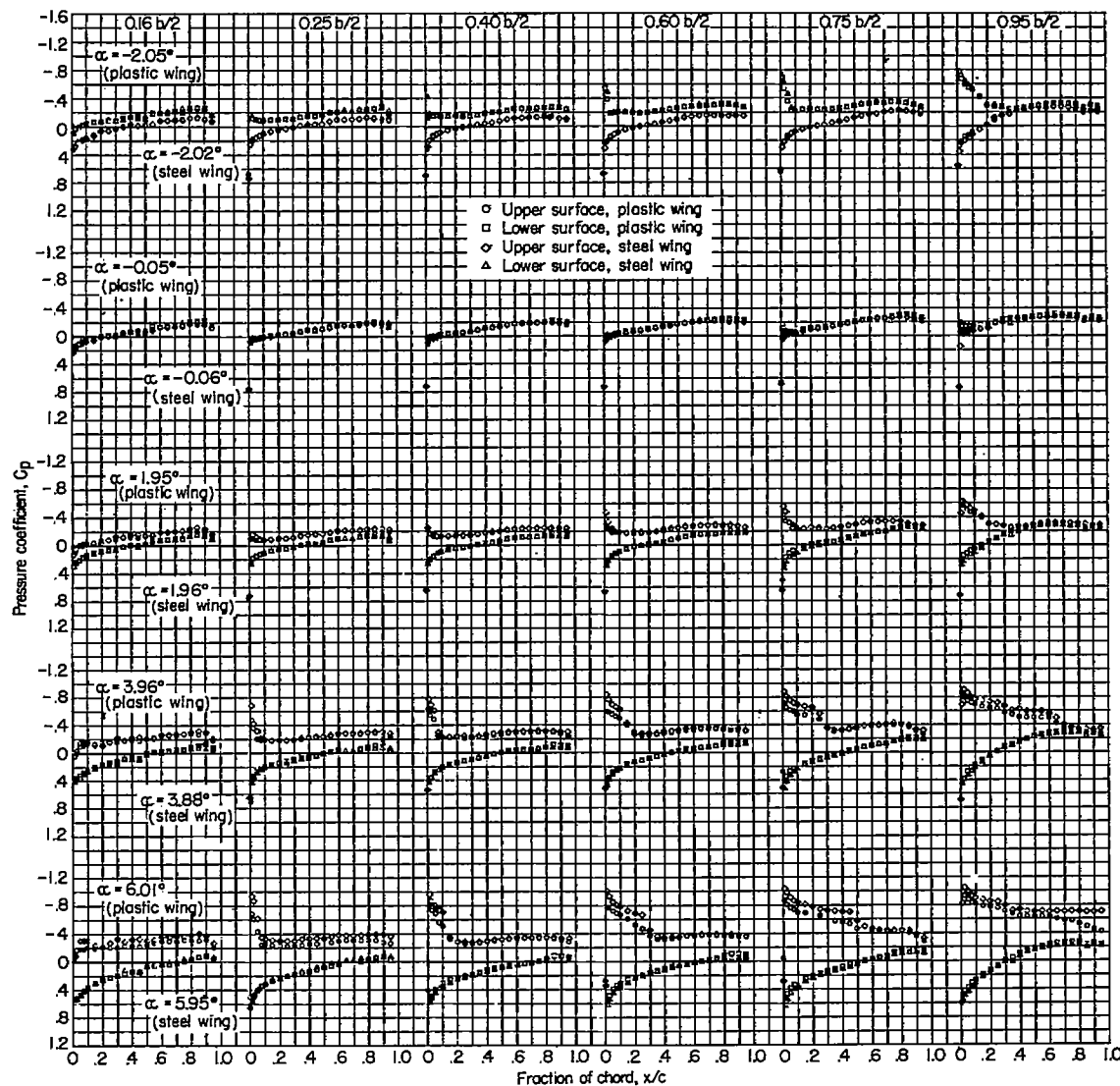
Figure 4.- Continued.



(e) $M = 1.00$, concluded.

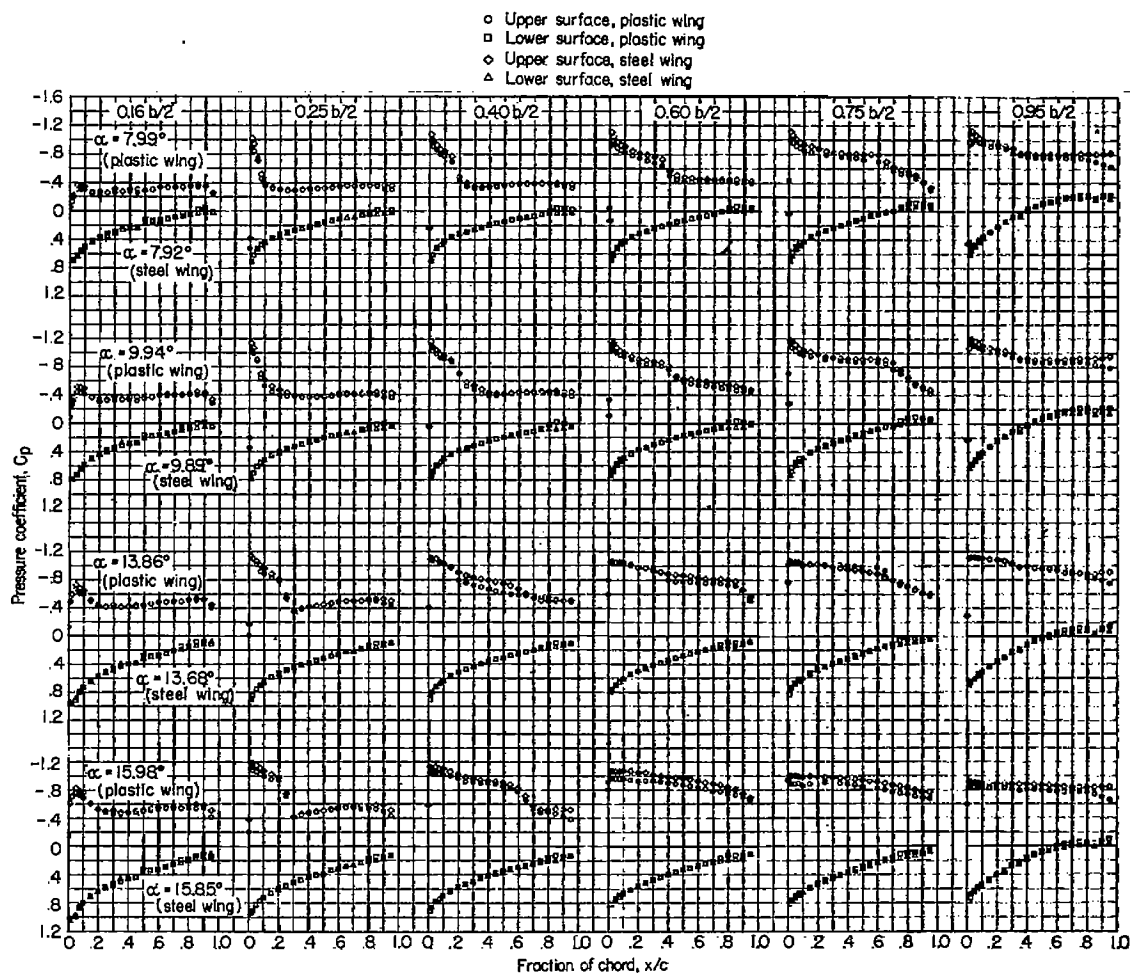
Figure 4.- Continued.

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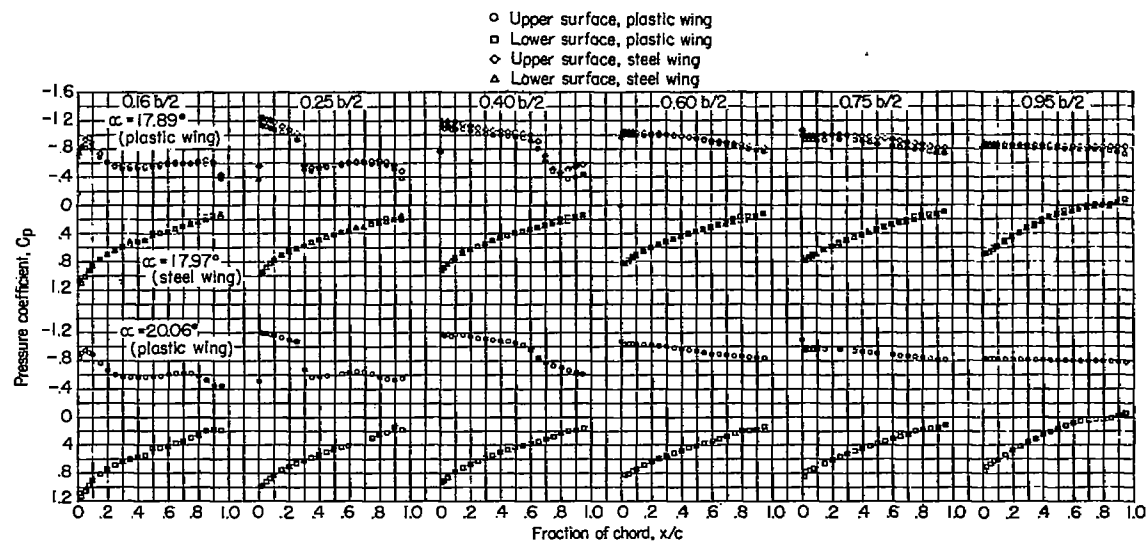
(f) $M = 1.03$.

Figure 4.- Continued.



(f) $M = 1.03$, continued.

Figure 4.- Continued. —



(f) $M = 1.03$, concluded.

Figure 4.- Concluded.

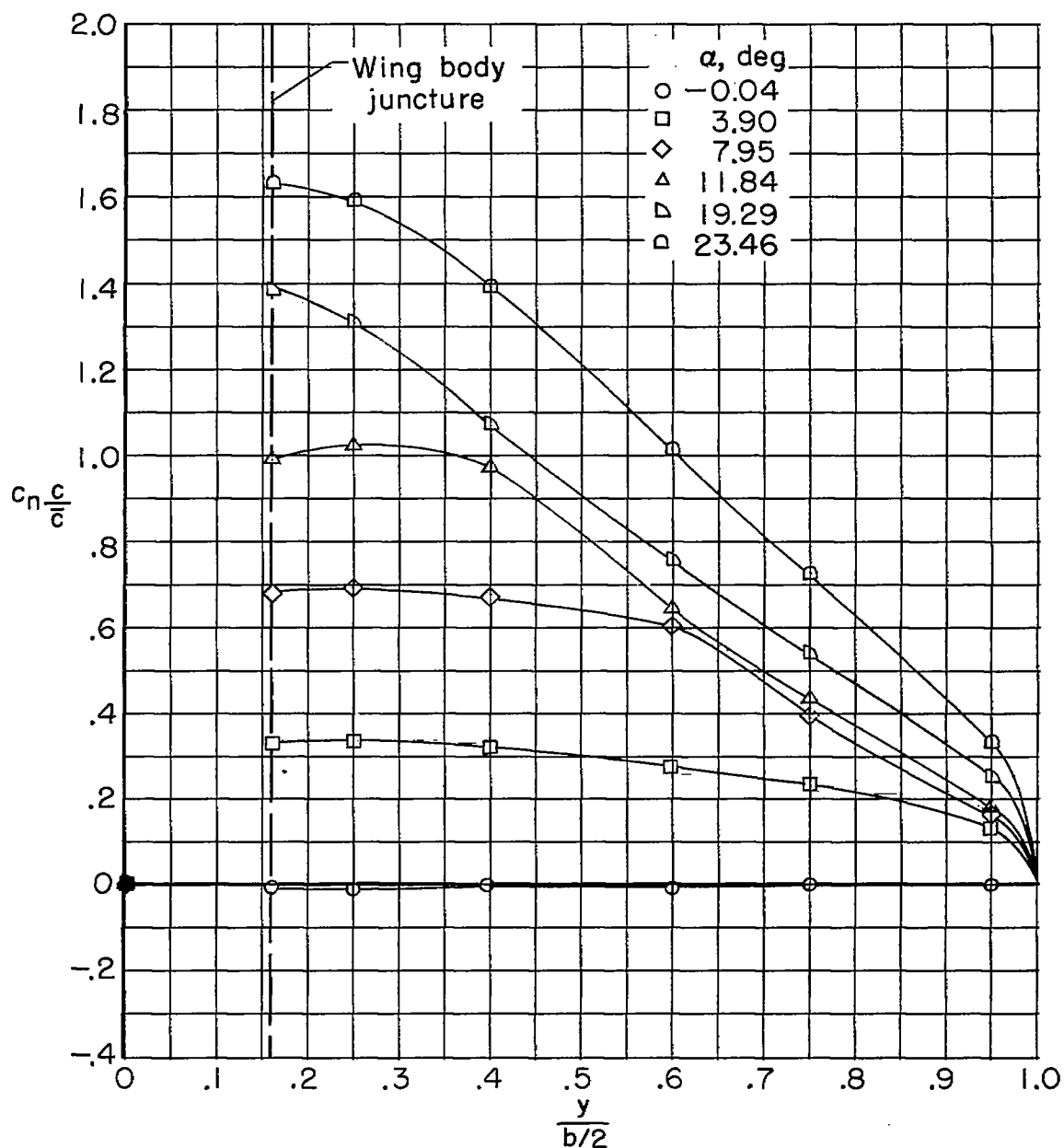
(a) $M = 0.80$.

Figure 5.- Spanwise variation of normal-load parameter for steel wing at various angles of attack and Mach numbers.

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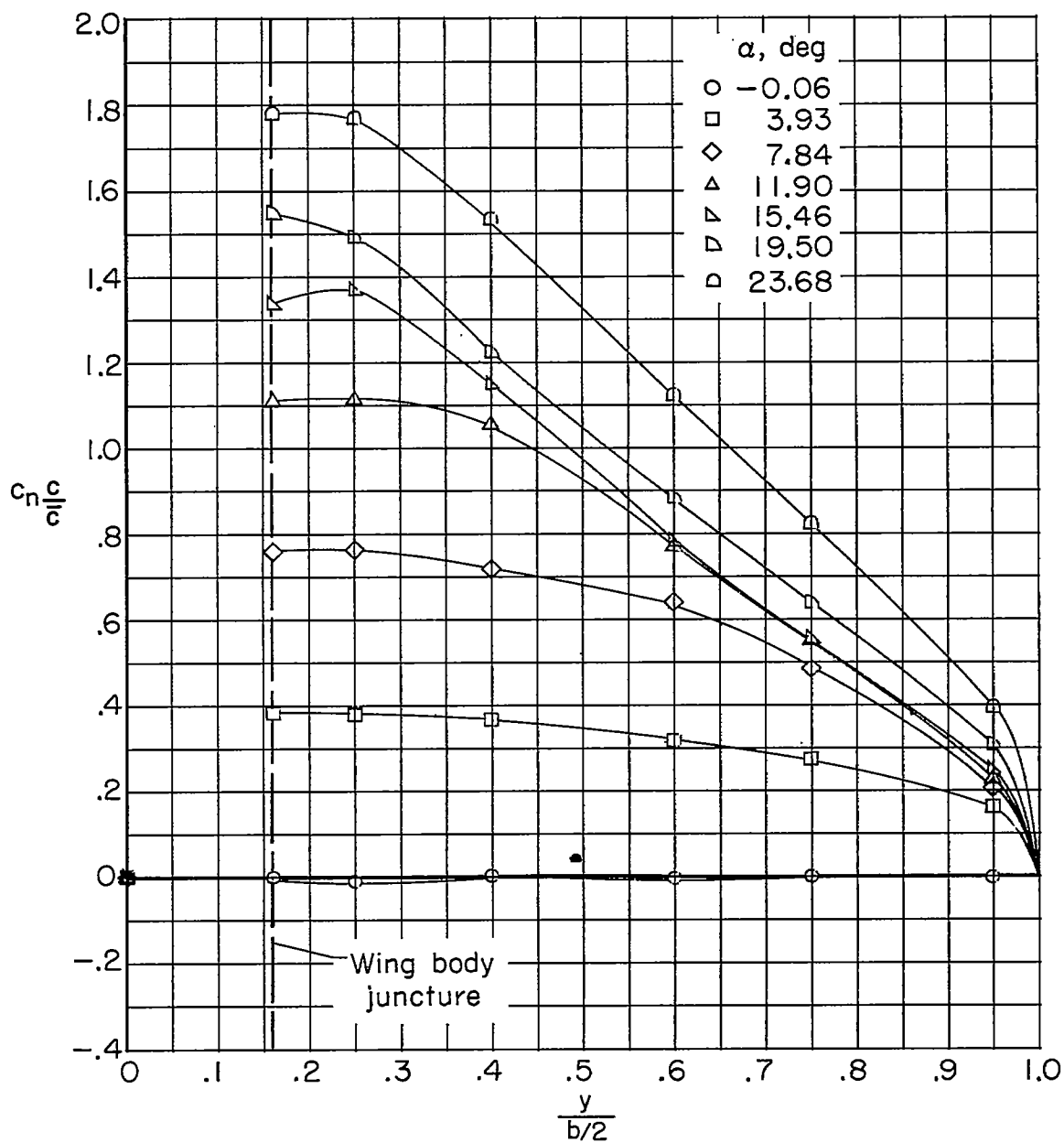
(b) $M = 0.90$.

Figure 5.- Continued.

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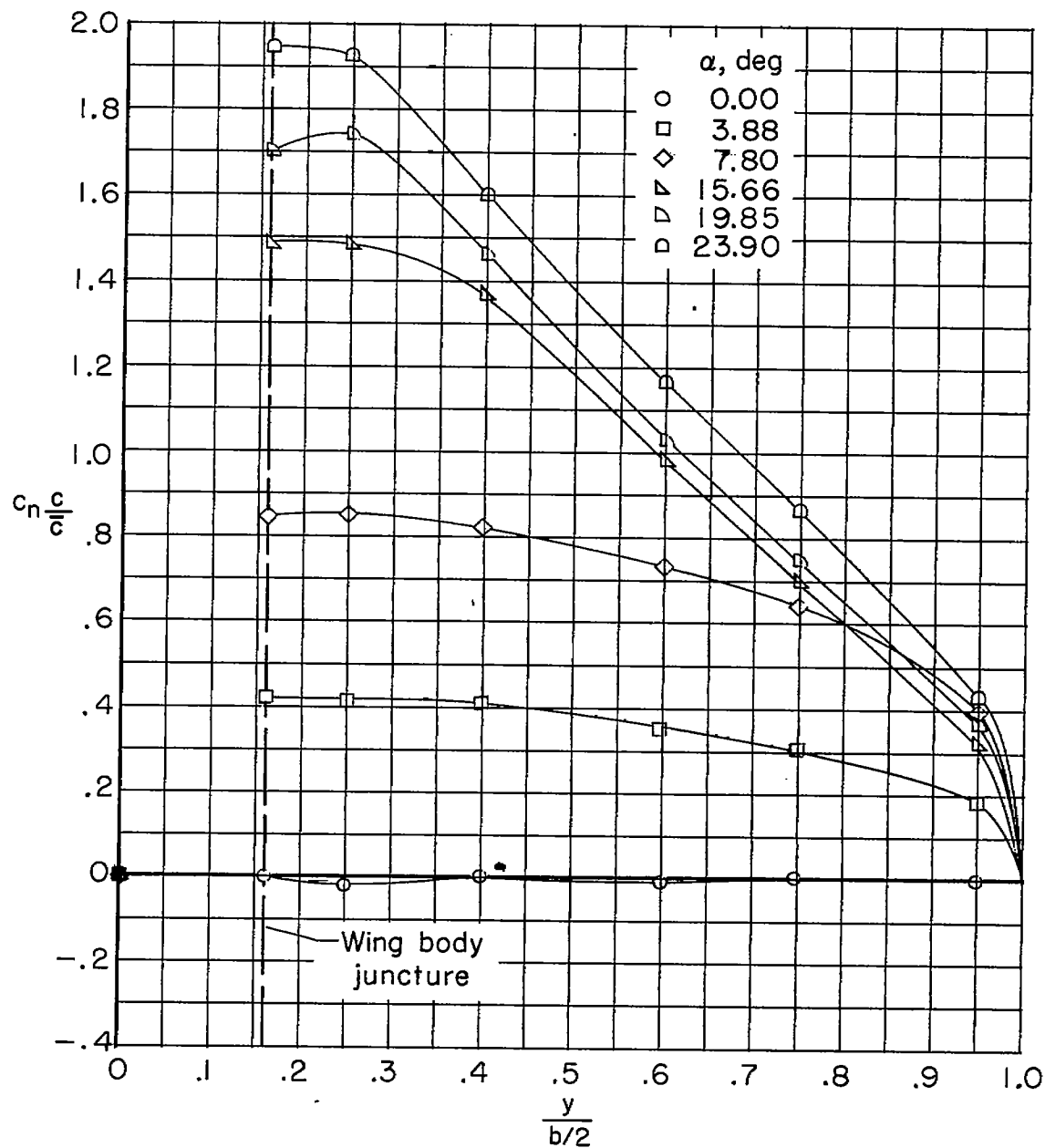
(c) $M = 0.94$.

Figure 5.- Continued.

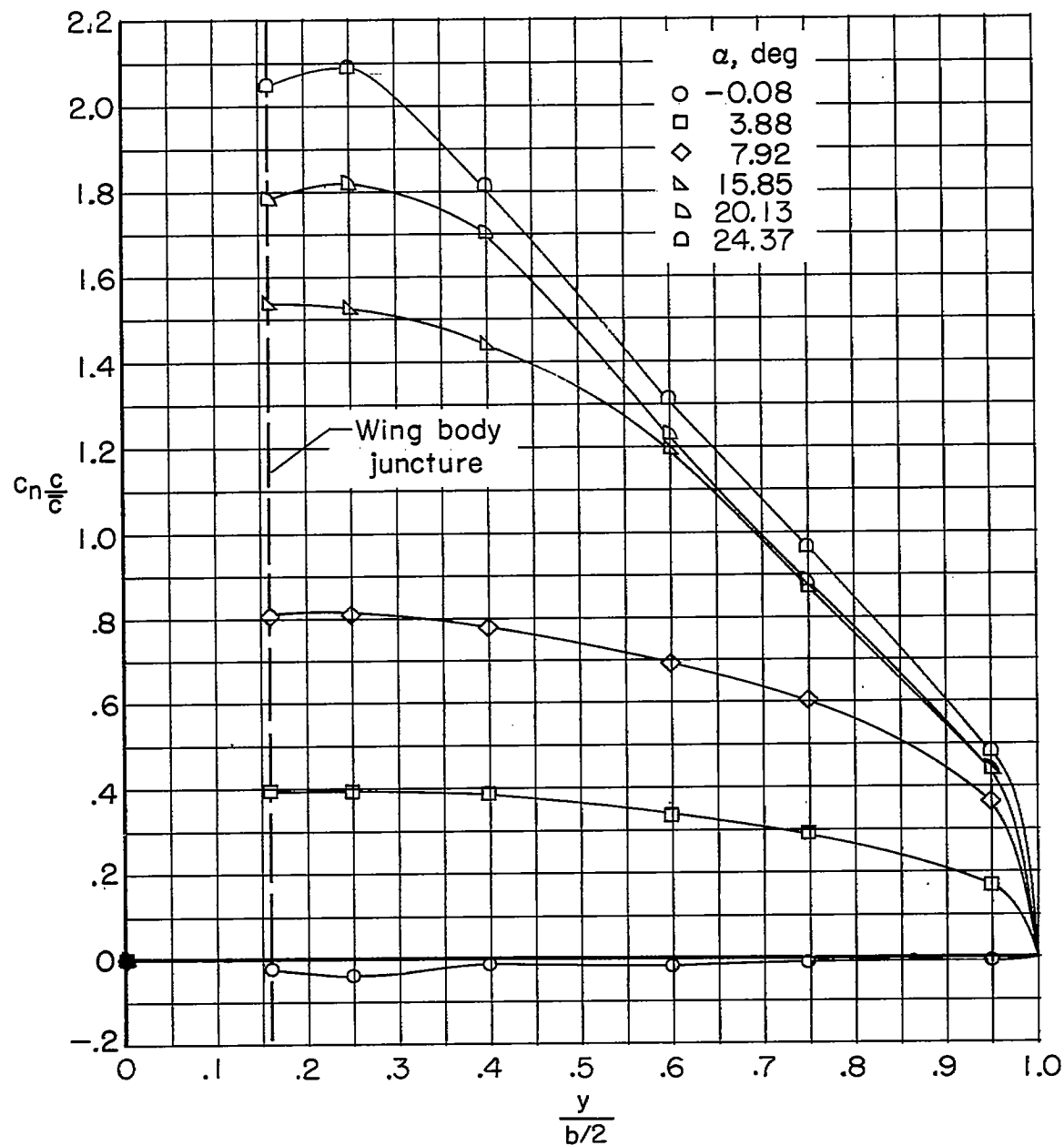
(d) $M = 0.98$.

Figure 5.- Continued.

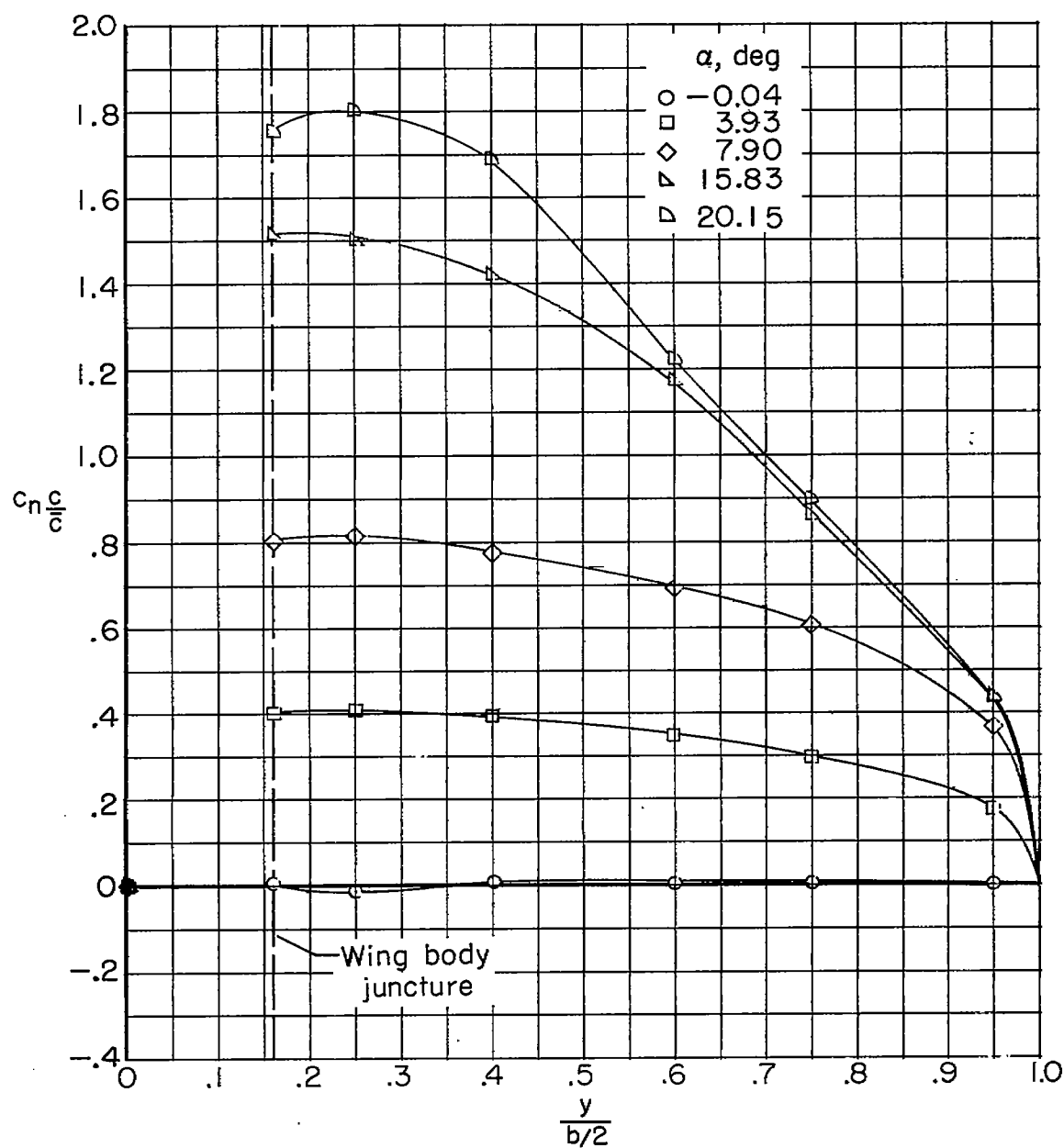
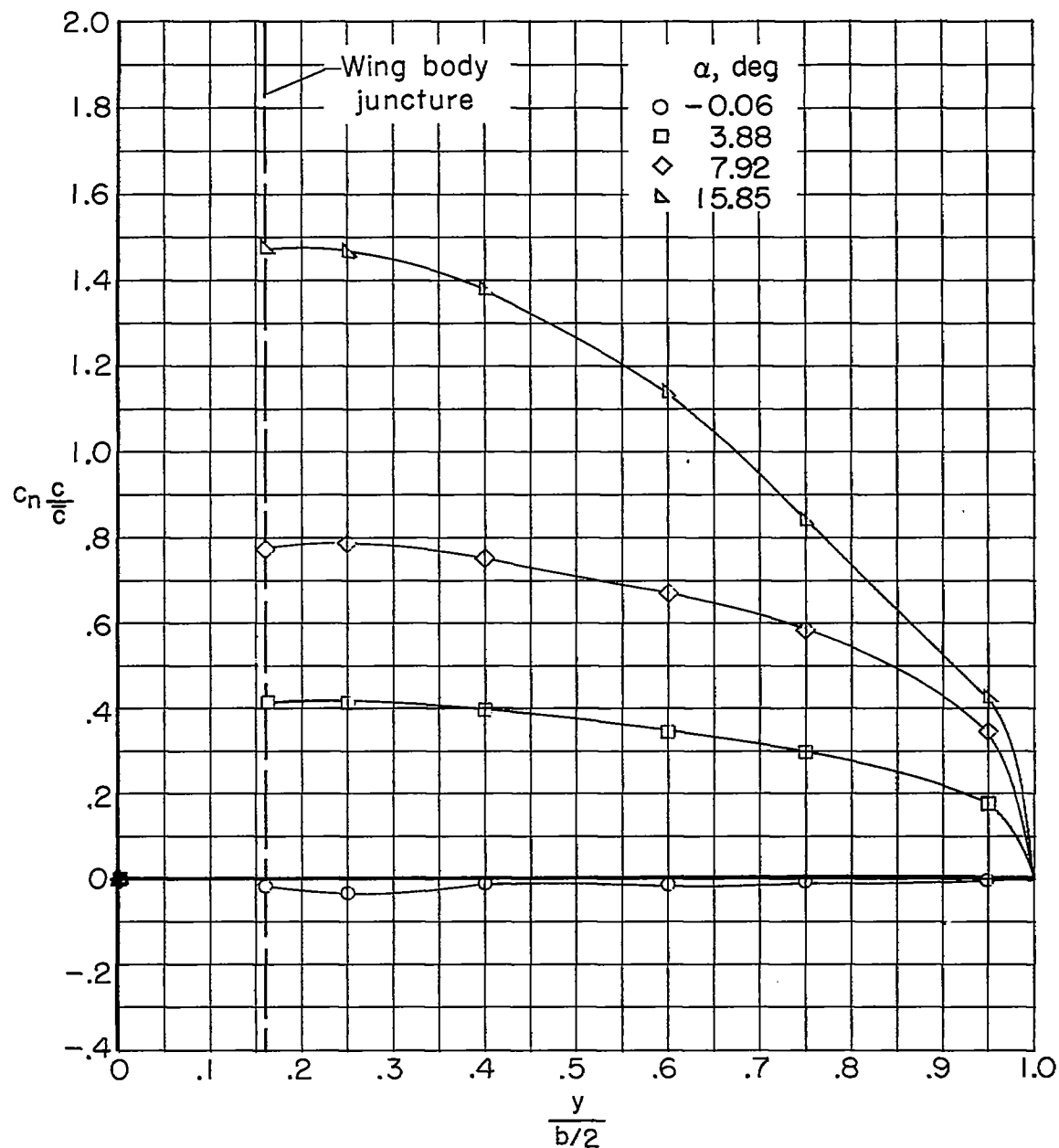
(e) $M = 1.00$.

Figure 5.- Continued.



(f) $M = 1.03$.

Figure 5.- Concluded.

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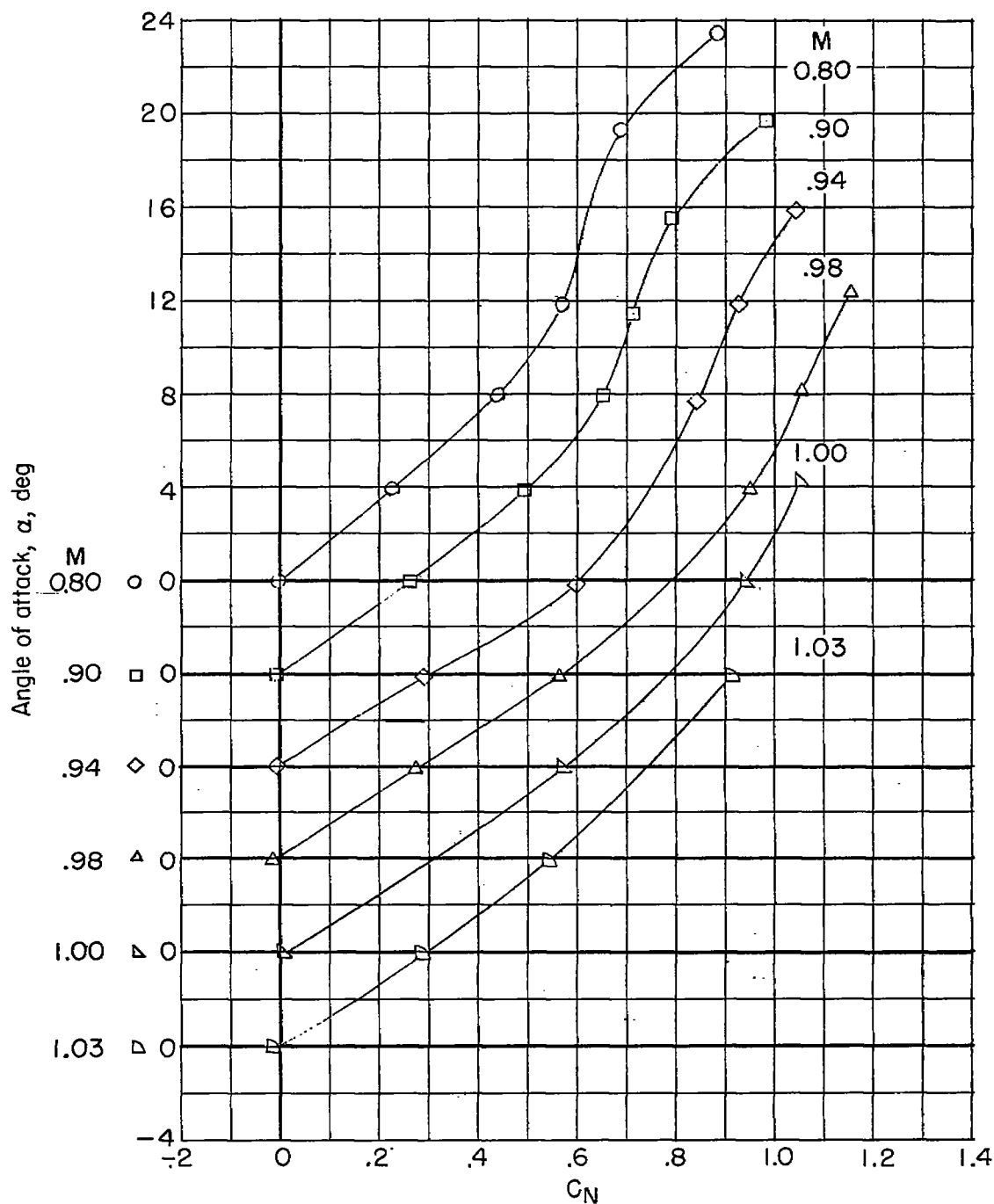


Figure 6.- Variation of angle of attack with wing normal-force coefficient for several Mach numbers. Steel wing.

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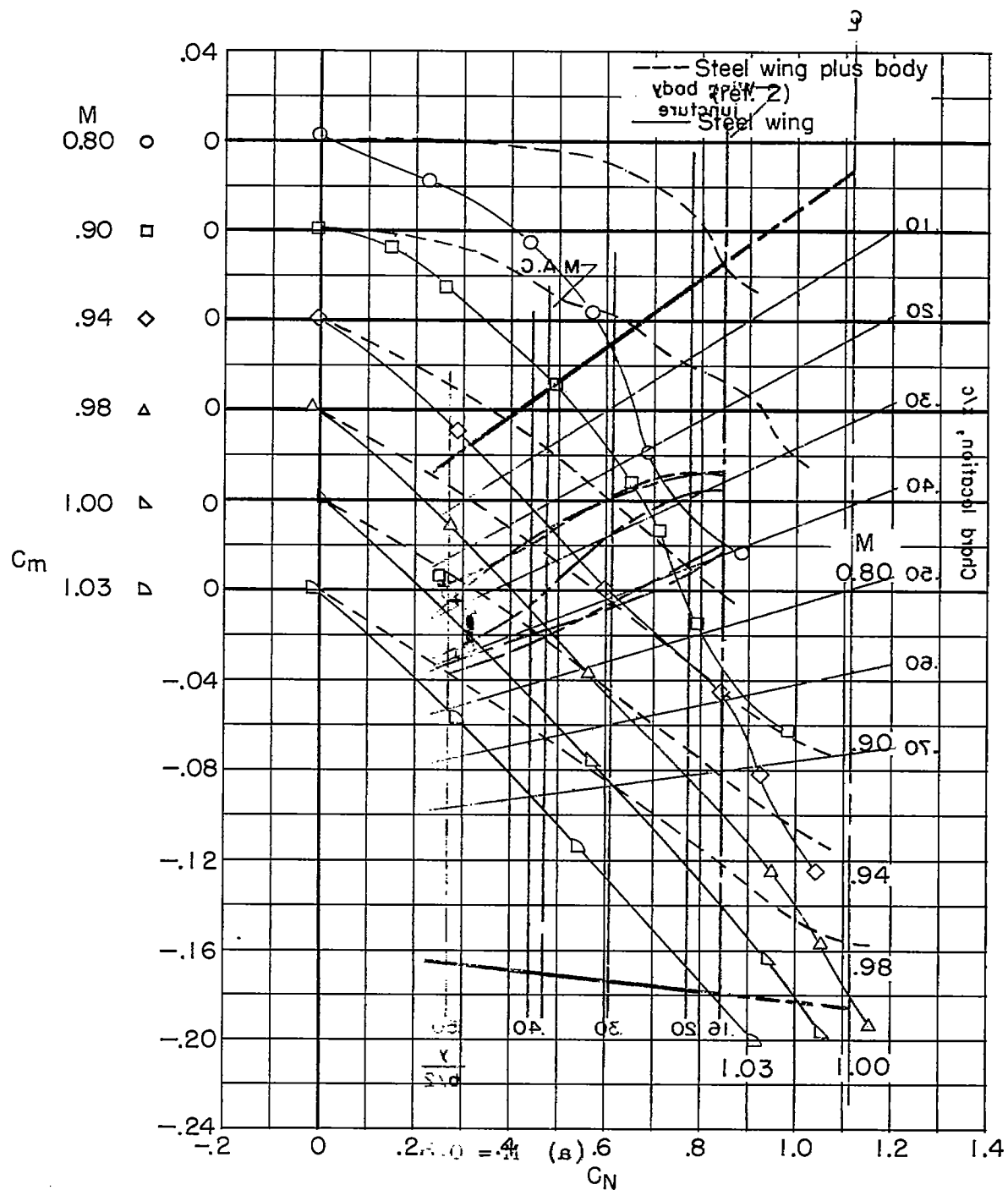
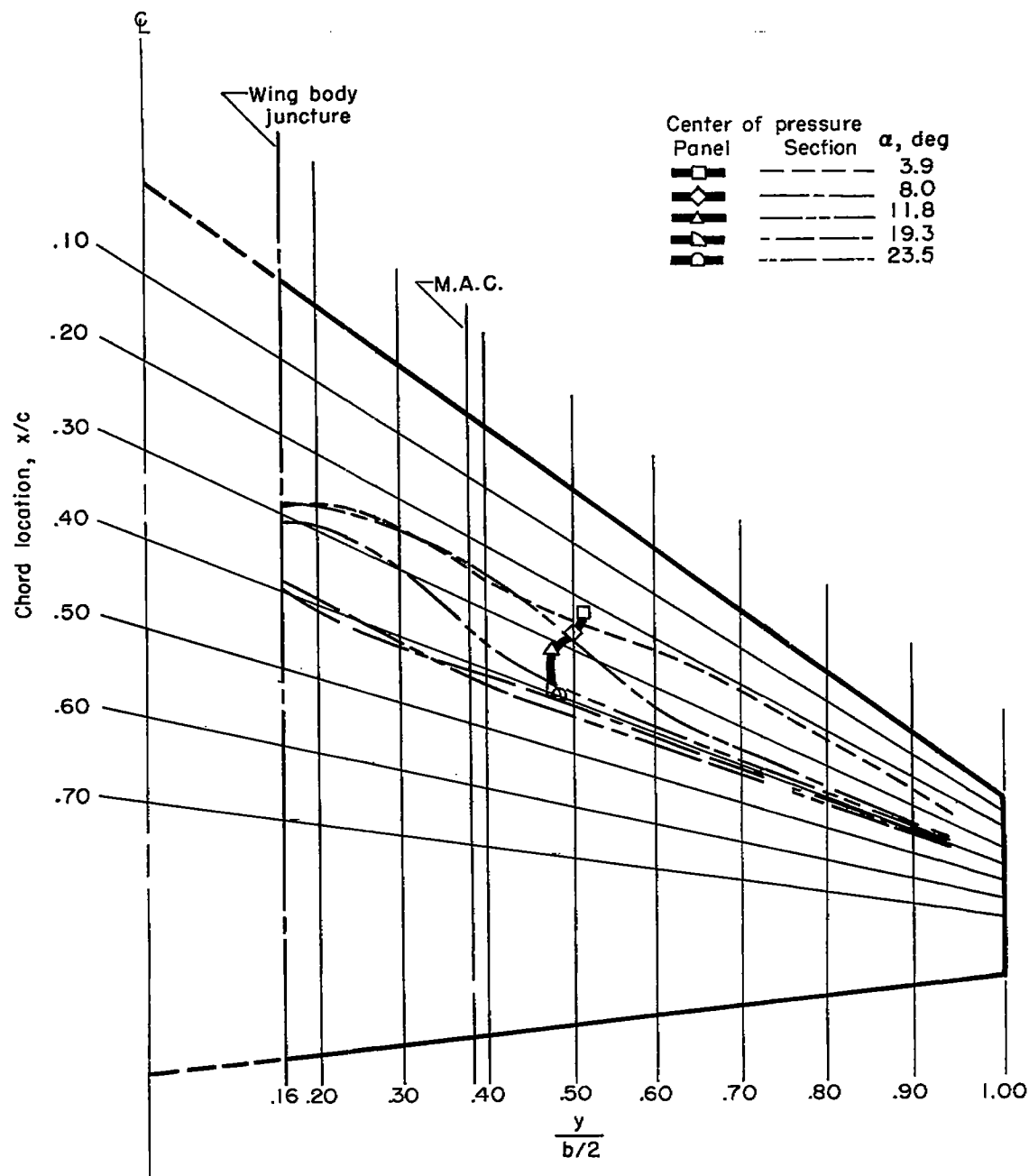
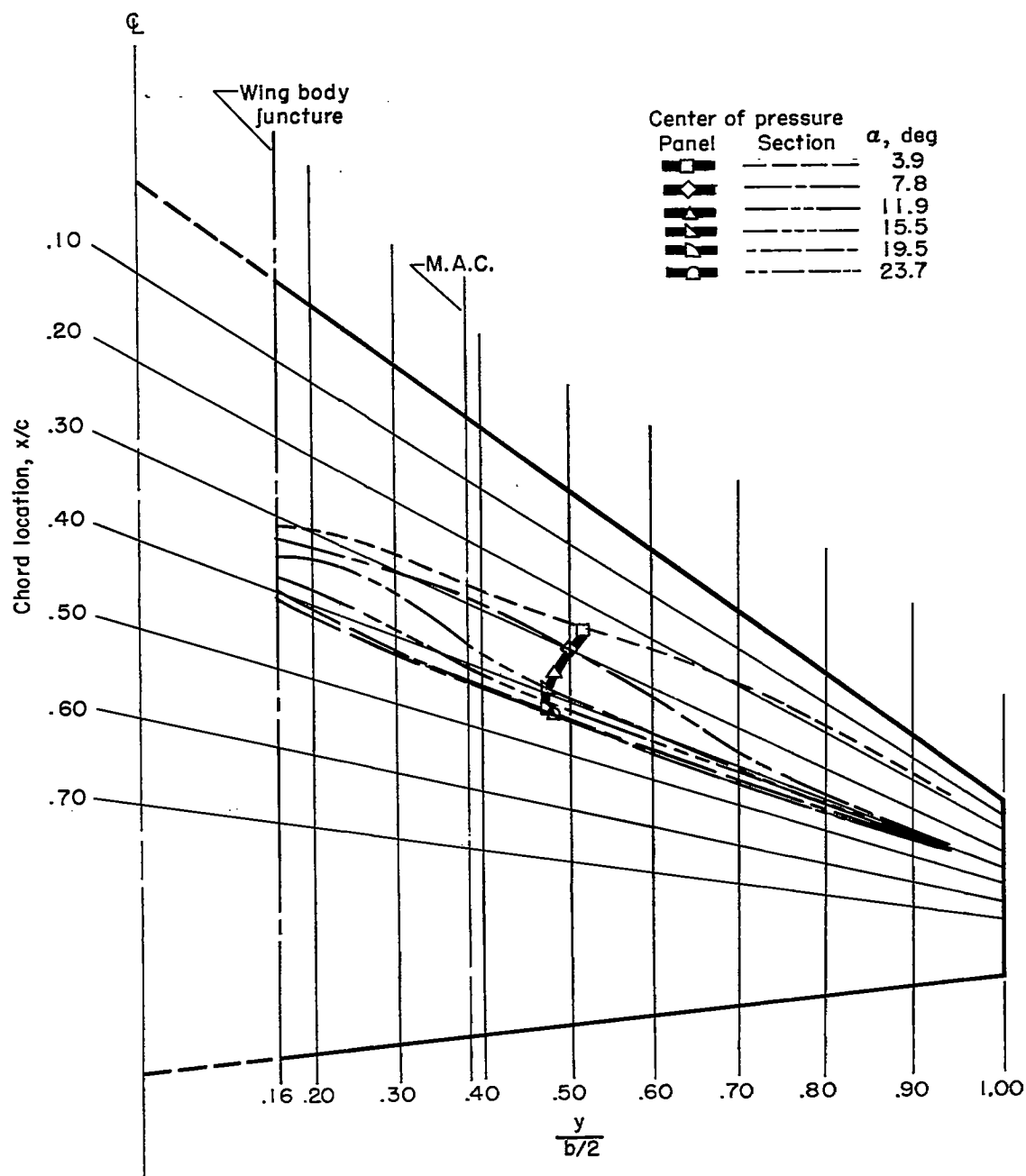


Figure 7.- Variation of wing pitching-moment coefficient with wing normal-force coefficient for several Mach numbers. Steel wings.



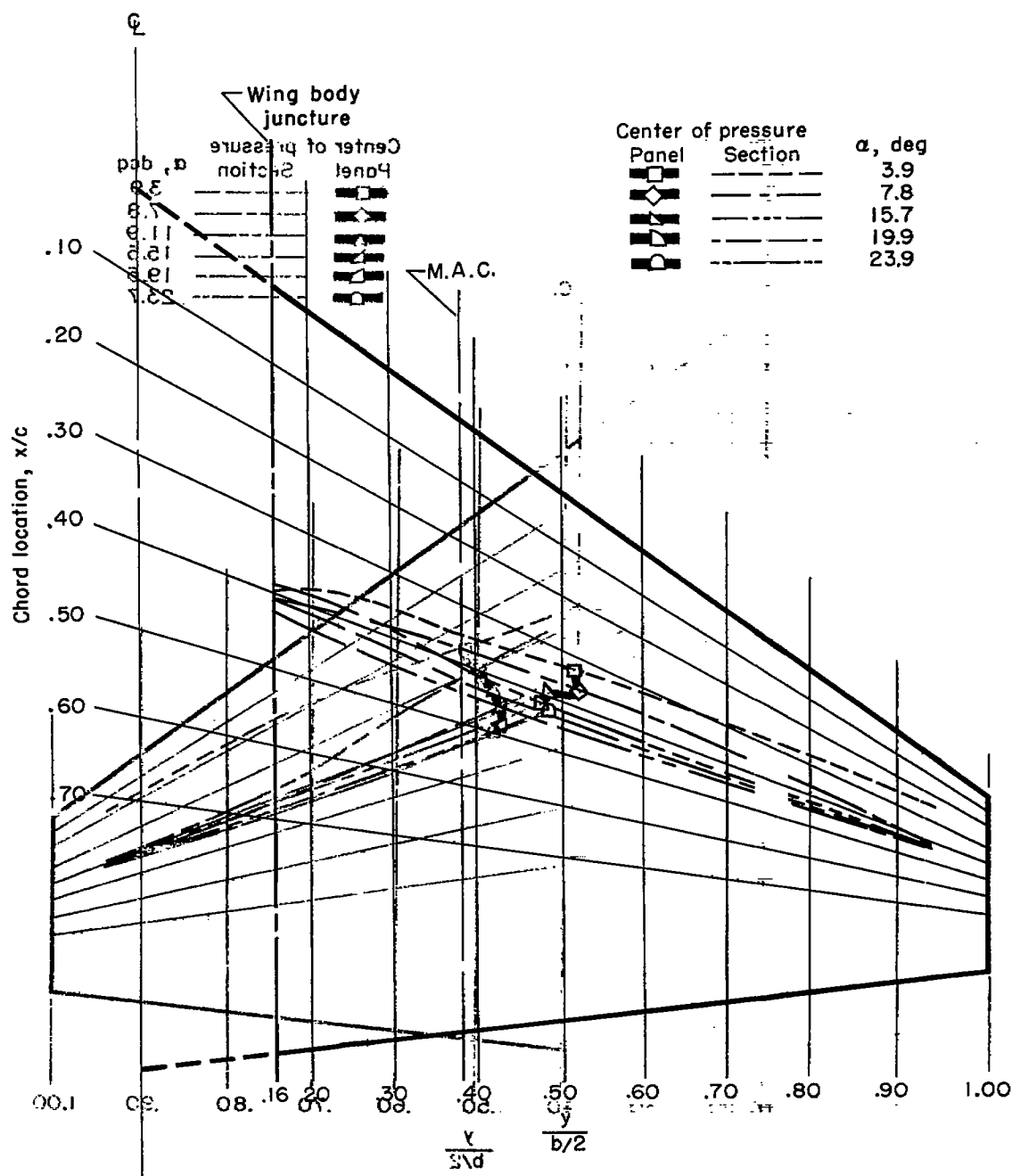
(a) $M = 0.80$.

Figure 8.- Variation of center-of-pressure location for wing panel and for local sections with angle of attack for several Mach numbers. Steel wing.



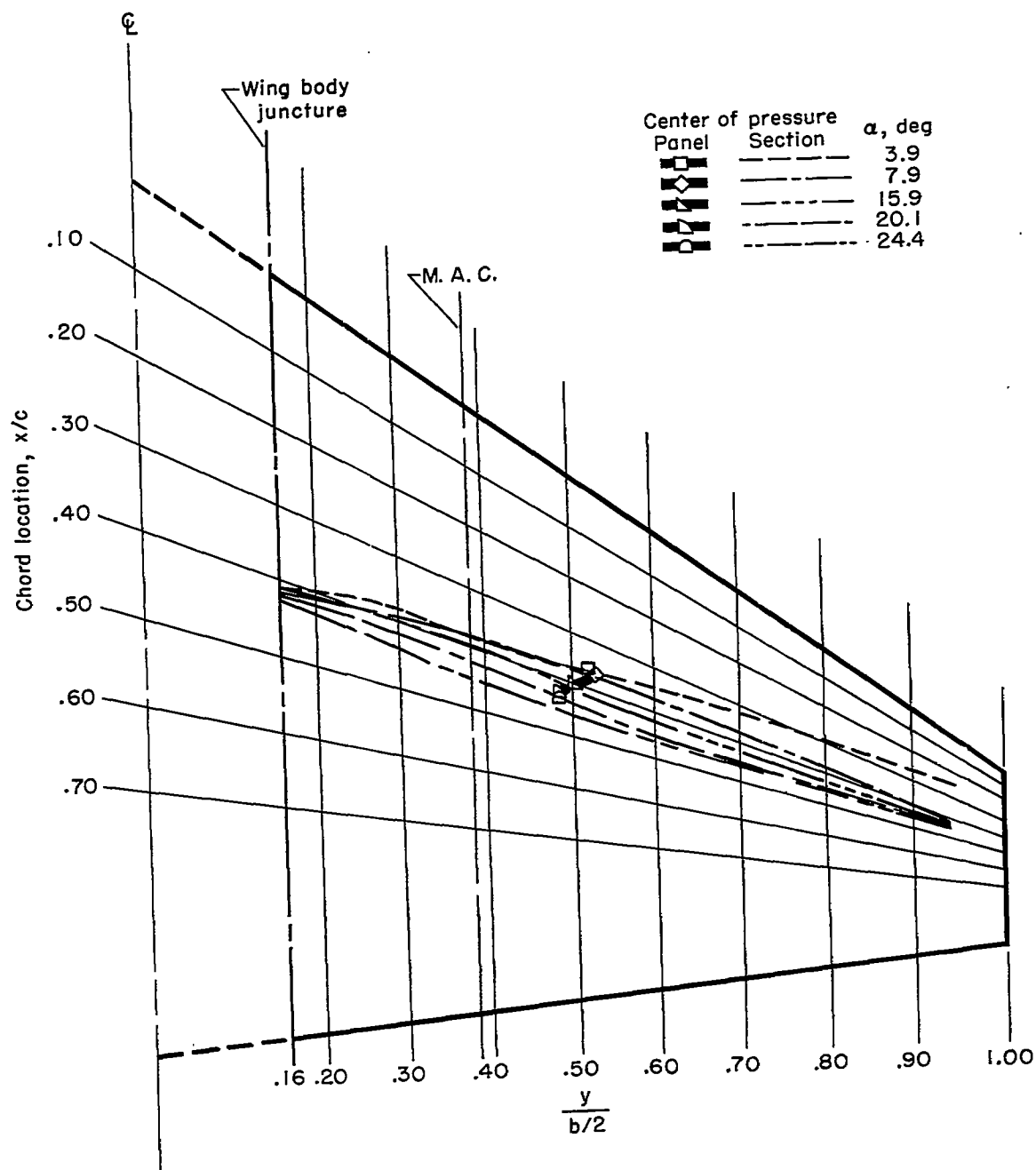
(b) $M = 0.90$.

Figure 8.- Continued.



(e) $M = 0.94$.

Figure 8.- Continued.



(d) $M = 0.98$.

Figure 8.- Continued.

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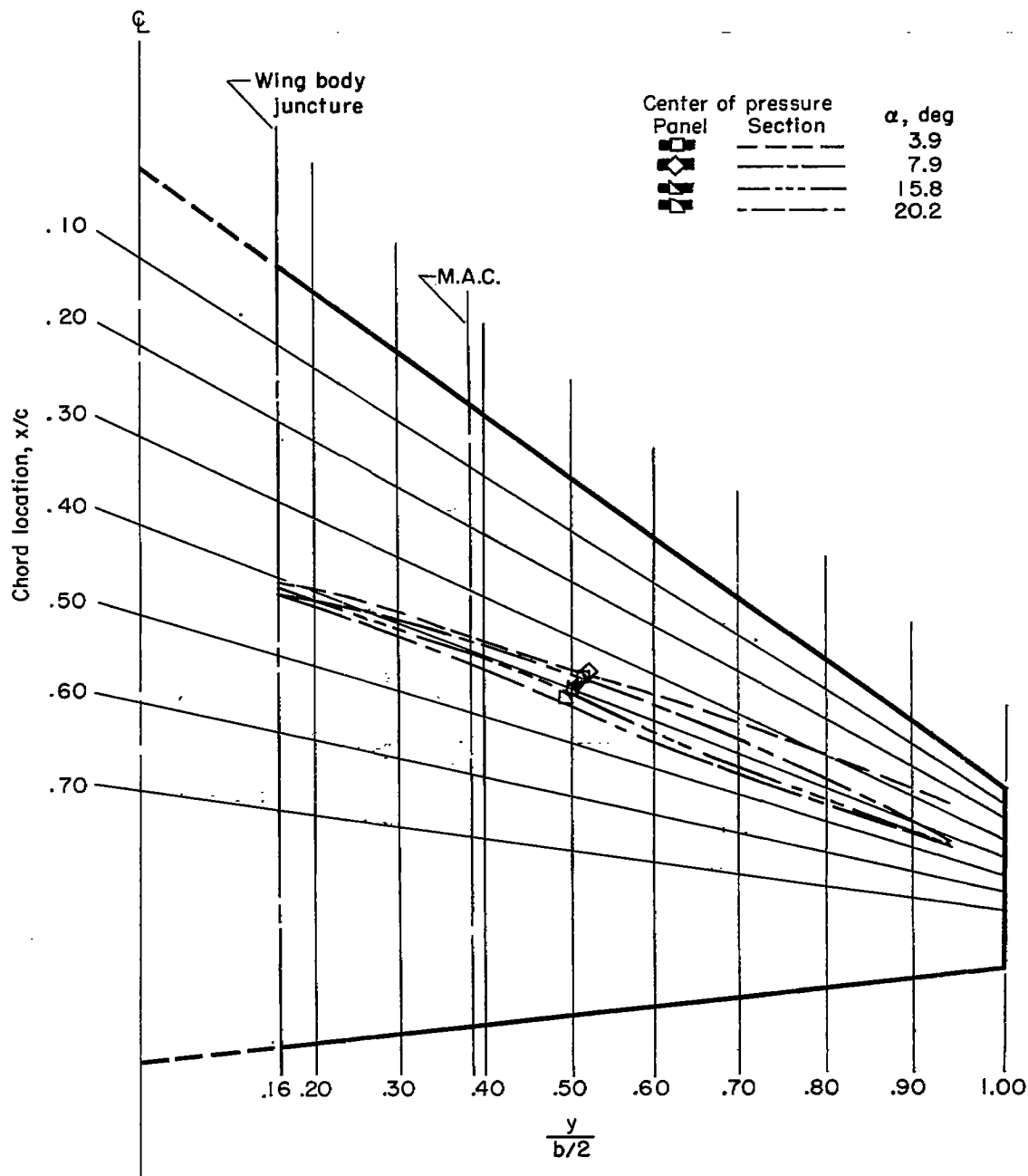
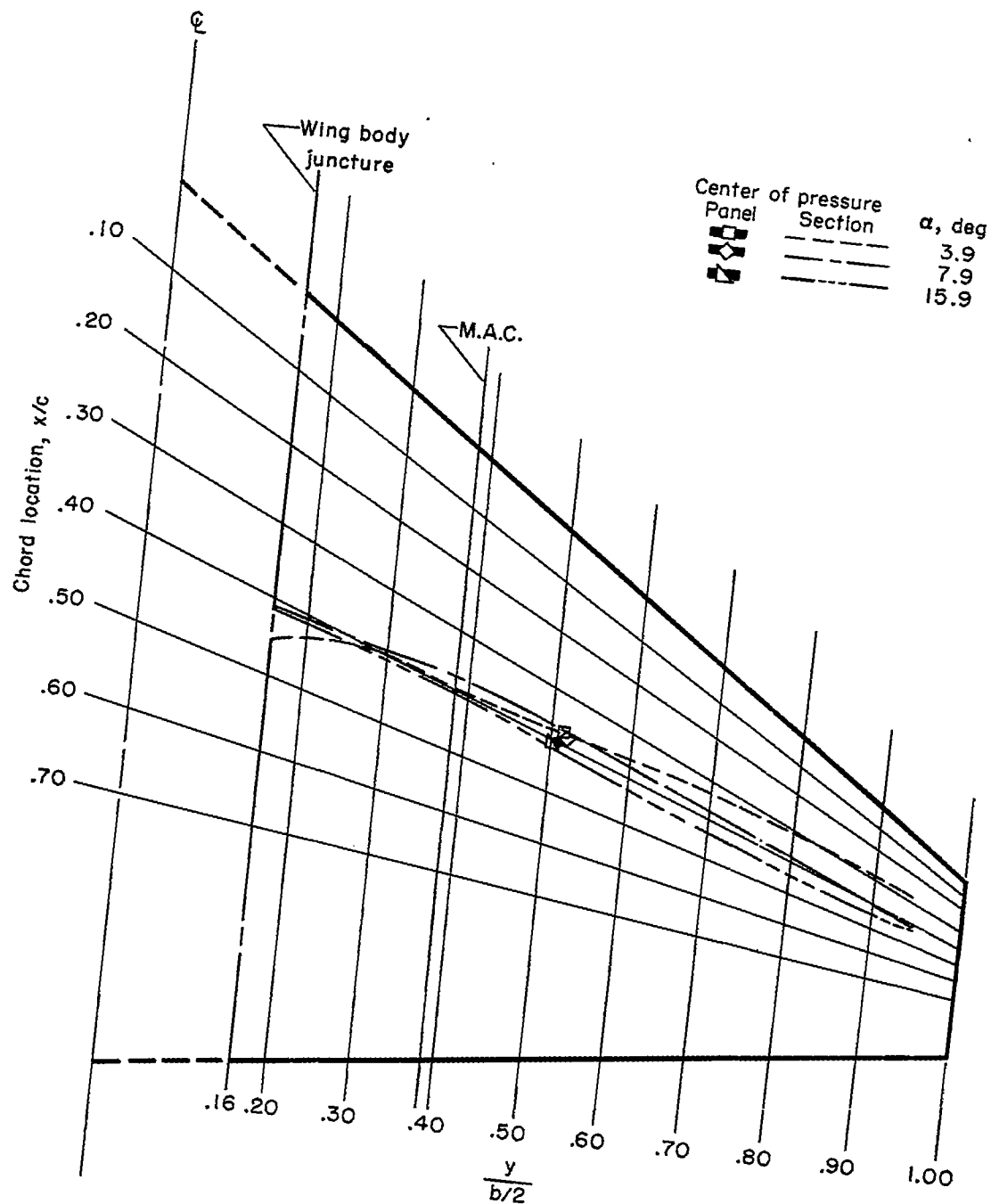
(e) $M = 1.00$.

Figure 8.- Continued.

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(f) $M = 1.03$.

Figure 8.- Concluded.

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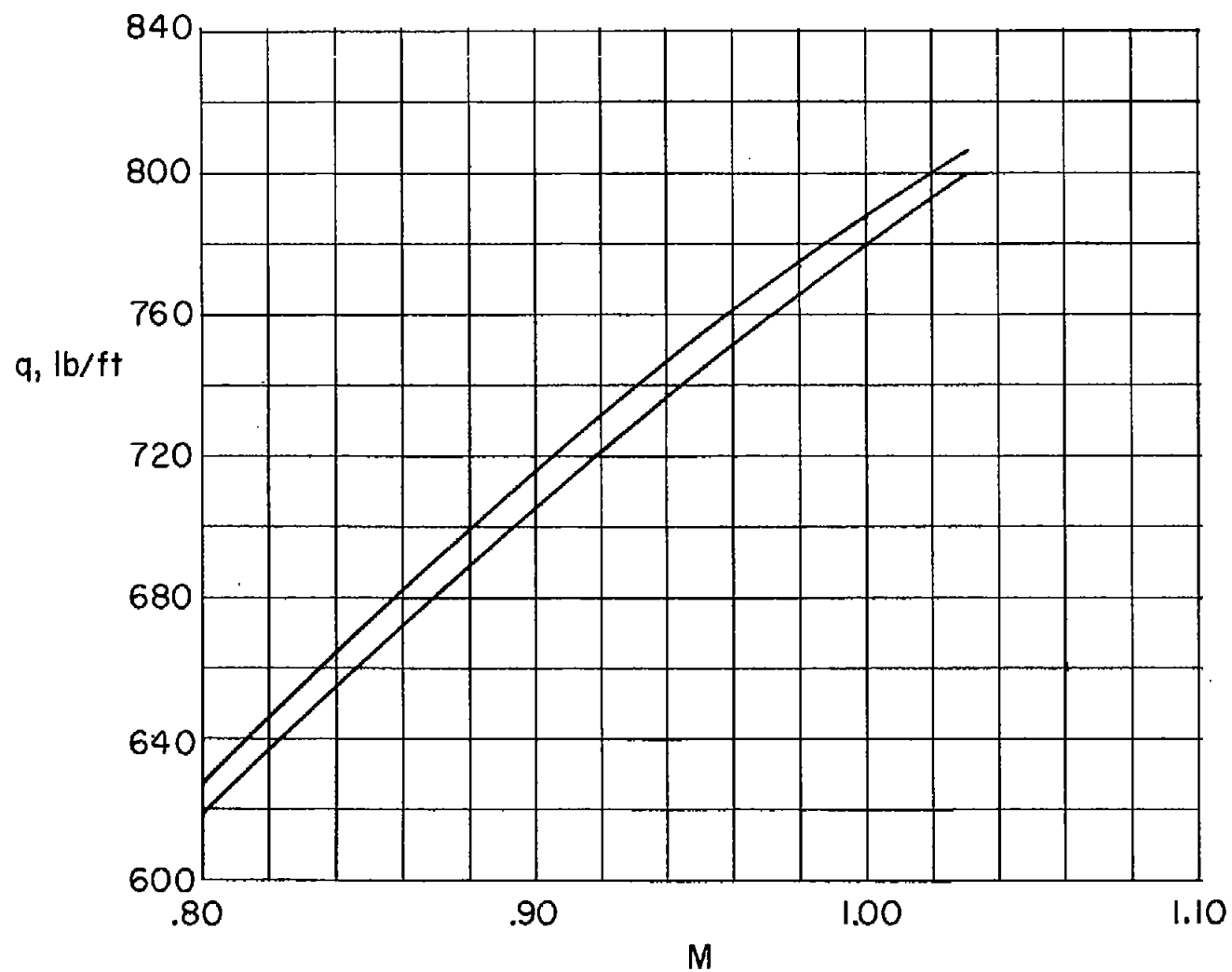
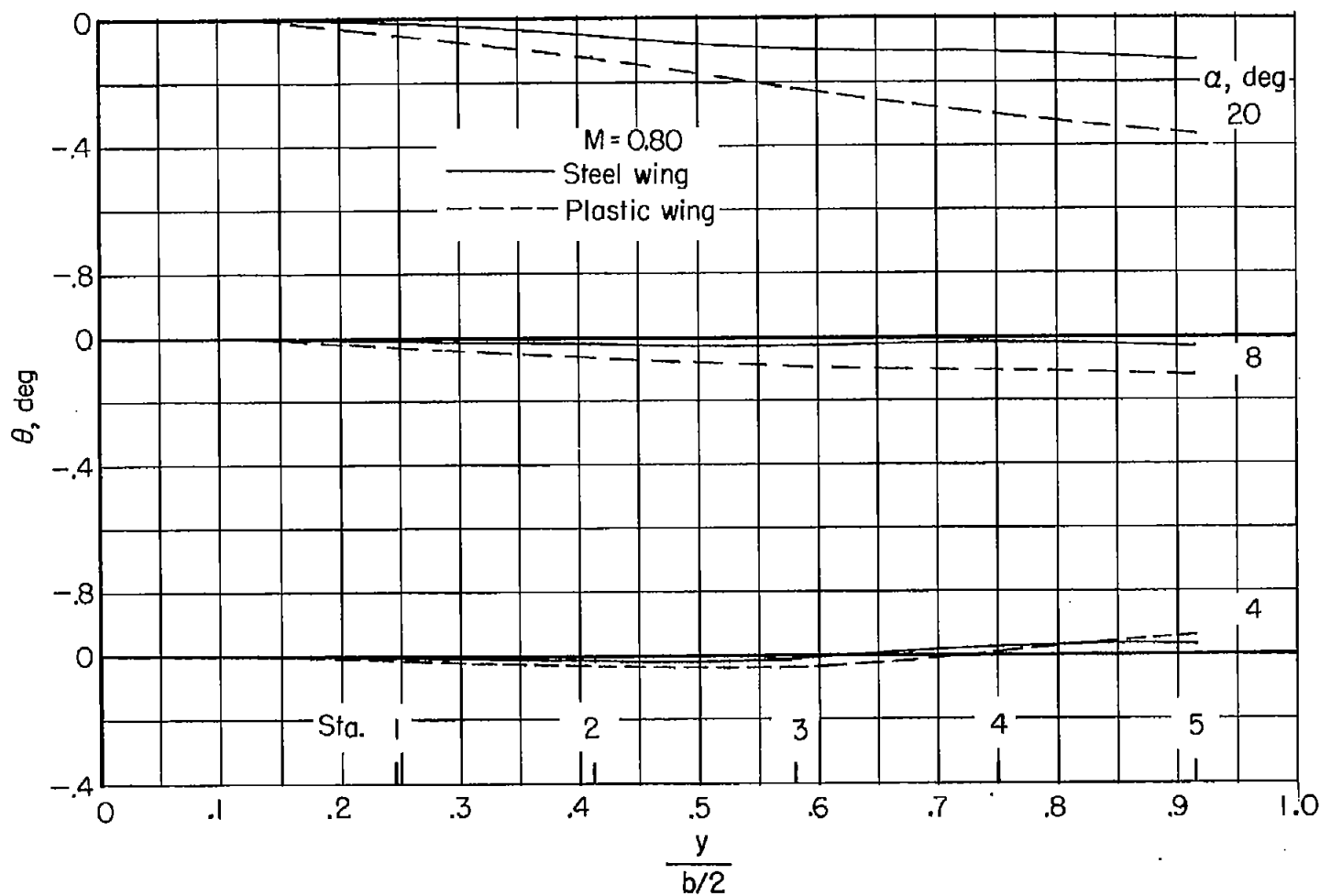


Figure 9.- Range of dynamic pressures for both steel and plastic wings for these tests.

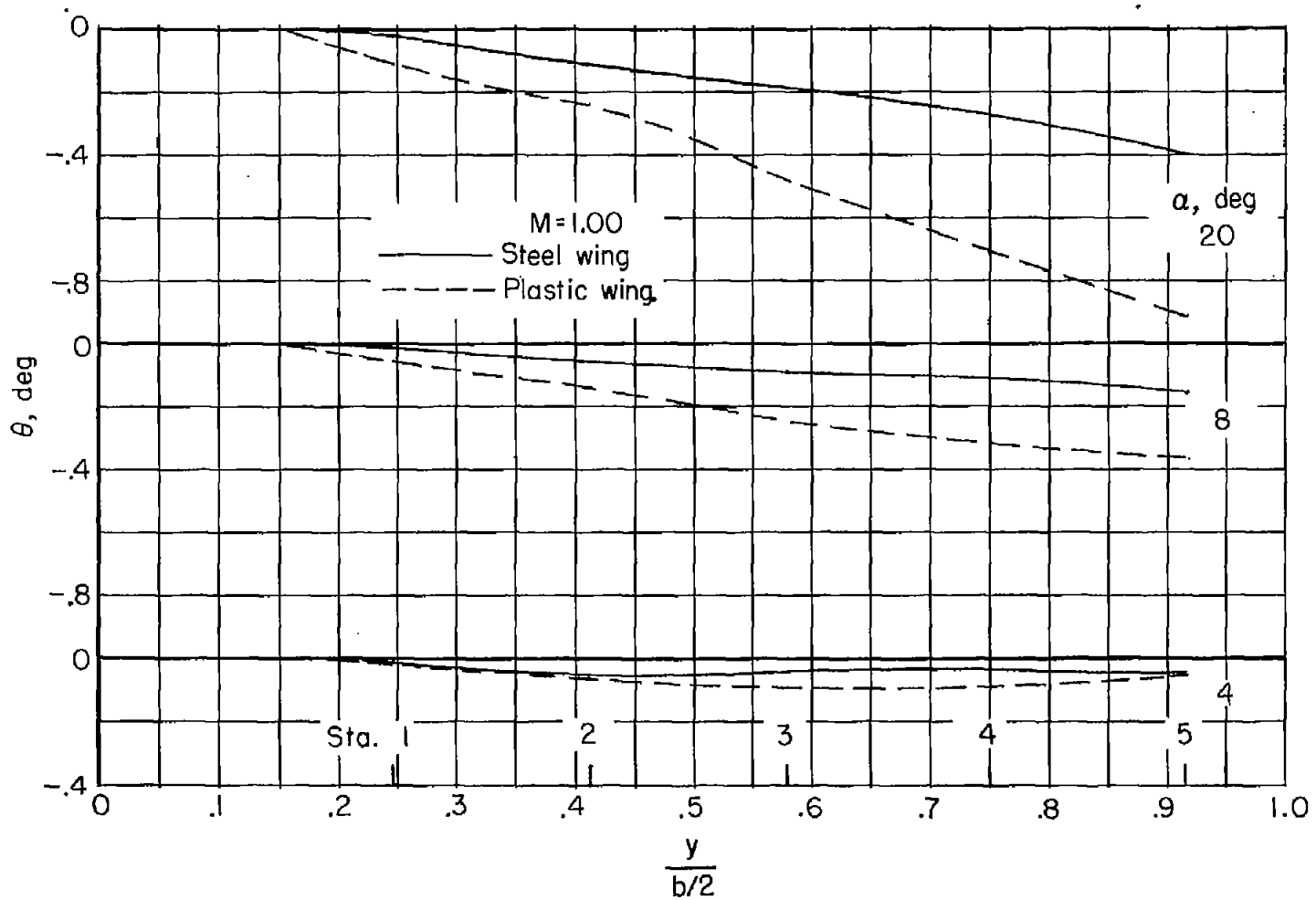
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(a) $M = 0.80$.

Figure 10.- Comparison of the calculated twist distribution due to experimental aerodynamic forces and moments, measured parallel to the angle-of-attack plane.



(b) $M = 1.00$.

Figure 10.- Concluded.

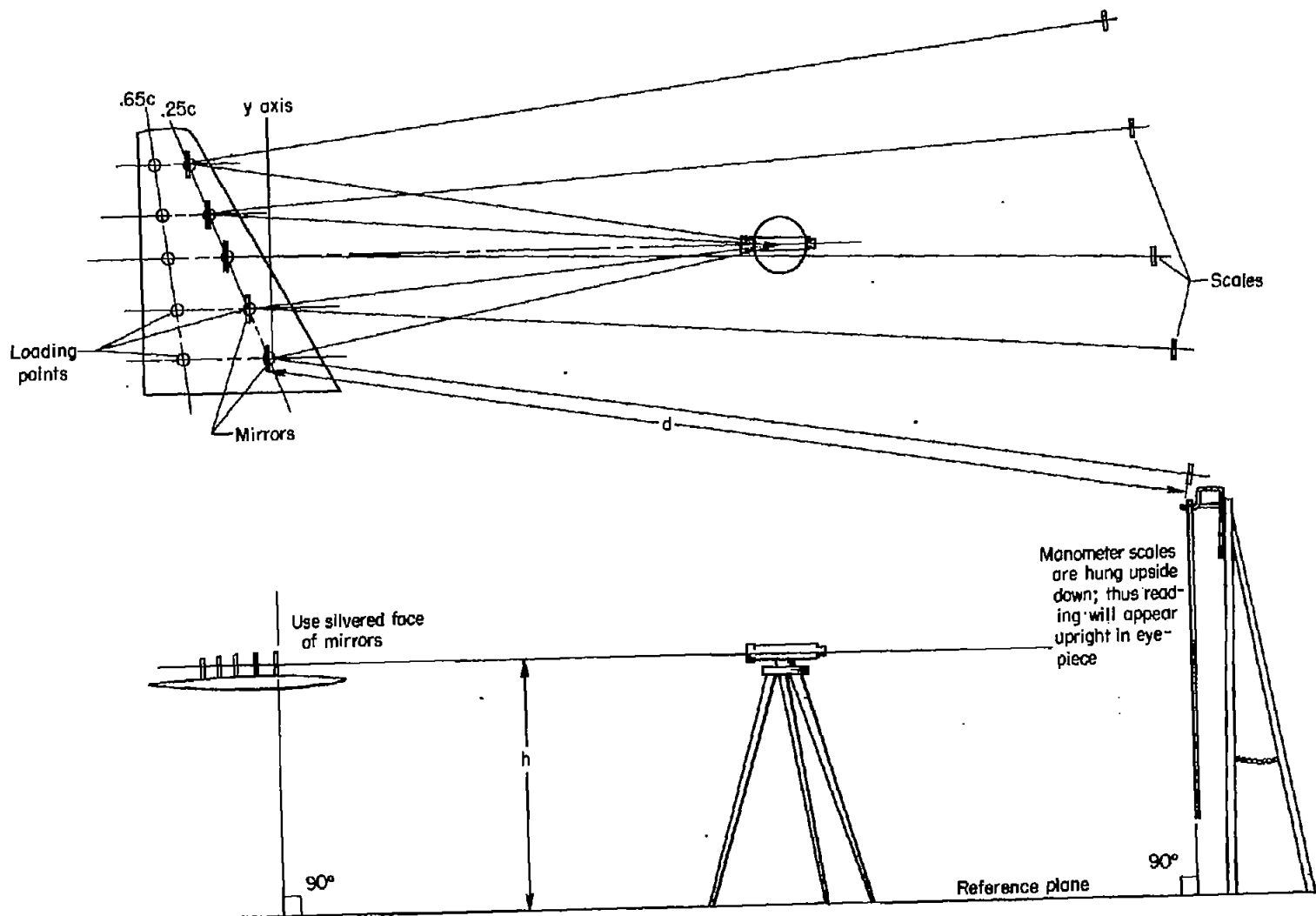


Figure 11.- Typical setup for measuring twist with mirrors.