



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: PS-90A1 BYPASS RATIO: 4.36  
 UNIQUE ID NUMBER: 13AA007 PRESSURE RATIO ( $\pi_{00}$ ): 33.79  
 ENGINE TYPE: MTF RATED OUTPUT ( $F_{00}$ ) (kN): 169.7

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
$D_p/F_{00}$ (g/kN) or SN	1.6	23.6	61.0	18.8
AS % OF ORIGINAL LIMIT	8.3 %	20.0 %	56.7 %	91.7 %
AS % OF CAEP/2 LIMIT (NOx)			70.9 %	
AS % OF CAEP/4 LIMIT (NOx)			81.8 %	
AS % OF CAEP/6 LIMIT (NOx)			91.7 %	
AS % OF CAEP/8 LIMIT (NOx)			105.7 %	

### DATA STATUS

- PRE-REGULATION  
 x CERTIFICATION  
 - REVISED (SEE REMARKS)

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
 x DEDICATED ENGINES TO PRODUCTION STANDARD  
 - OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
 (ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
 - OUT OF PRODUCTION  
 - OUT OF SERVICE

### MEASURED DATA

MODE	POWER SETTING (% $F_{00}$ )	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
TAKE-OFF	100	0.7	1.654	0.1	0.38	35.69	14.1
CLIMB OUT	85	2.2	1.354	0.1	0.4	26.68	16.005
APPROACH	30	4.0	0.533	0.16	1.07	9.88	13.17
IDLE	7	26.0	0.174	0.72	12.91	4.92	0.56
LTO TOTAL FUEL (kg) or EMISSIONS (g)			648	241	3739	9847	-
NUMBER OF ENGINES				4	4	4	4
NUMBER OF TESTS				4	4	4	4
AVERAGE $D_p/F_{00}$ (g/kN) or AVERAGE SN (MAX)				1.42	22.03	58.04	16.005
SIGMA ( $D_p/F_{00}$ in g/kN, or SN)				-	-	-	-
RANGE ( $D_p/F_{00}$ in g/kN, or SN)				1.40-1.46	21.10-23.17	55.71-60.94	15.31 - 17.12

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS  
 STAGE BLEED 0 % CORE FLOW AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.84-100.75
TEMPERATURE (K)	284.0-297.5
ABS HUMIDITY (kg/kg)	0.00595-0.01015

### FUEL

SPEC	TS-1
H/C	1.95
AROM (%)	14.9

MANUFACTURER: Aviadvigatel  
 TEST ORGANIZATION: OJSC Aviadvigatel  
 TEST LOCATION: Perm City  
 TEST DATES: FROM 05 Jul 07 TO 22 Sep 07

### REMARKS

1. NOx levels in accordance with Part III, Chapter 2, 2.3.2 d) (CAEP/6)

If REVISED, this data supersedes databank UID  
 Compliance with fuel venting requirements:

- ('x' if complies, PR if pre-regulation)