



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: PW4156  
UNIQUE ID NUMBER: 1PW046  
ENGINE TYPE: TF

BYPASS RATIO: 4.7  
PRESSURE RATIO ( $\pi_{oo}$ ): 29.3  
RATED OUTPUT ( $F_{oo}$ ) (kN): 252.4

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
$D_p/F_{oo}$ (g/kN) or SN	1.8	17.4	59.9	18.4
AS % OF ORIGINAL LIMIT	9.4 %	14.8 %	60.8 %	100.2 %
AS % OF CAEP/2 LIMIT (NOx)			76.0 %	
AS % OF CAEP/4 LIMIT (NOx)			91.0 %	
AS % OF CAEP/6 LIMIT (NOx)			103.4 %	
AS % OF CAEP/8 LIMIT (NOx)			121.9 %	

### DATA STATUS

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

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
- 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)  
x OUT OF PRODUCTION (DATE: - )  
- OUT OF SERVICE

### MEASURED DATA

MODE	POWER SETTING (% $F_{oo}$ )	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOx	
TAKE-OFF	100	0.7	2.449	0.11	0.08	32.5	14.3
CLIMB OUT	85	2.2	1.981	0.17	0.14	24.6	-
APPROACH	30	4.0	0.647	0.25	0.9	11.6	-
IDLE	7	26.0	0.188	0.66	11.6	5	-
LTO TOTAL FUEL (kg) or EMISSIONS (g)			813	288	3587	13043	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE $D_p/F_{oo}$ (g/kN) or AVERAGE SN (MAX)				1.2	14.2	51.7	14.3
SIGMA ( $D_p/F_{oo}$ in g/kN, or SN)				-	-	-	-
RANGE ( $D_p/F_{oo}$ in g/kN, or SN)				-	-	-	-

### ACCESSORY LOADS

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

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	101.63
TEMPERATURE (K)	290
ABS HUMIDITY (kg/kg)	0.00053

### FUEL

SPEC	Jet A
H/C	1.87
AROM (%)	19.7

MANUFACTURER: Pratt & Whitney  
TEST ORGANIZATION: Pratt & Whitney  
TEST LOCATION: P7 Stand, P&W, Middletown, CT  
TEST DATES: FROM 14 May 86 TO 14 May 86

### REMARKS

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

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