



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: PW4152  
UNIQUE ID NUMBER: 1PW045  
COMBUSTOR: Reduced smoke  
ENGINE TYPE: TF

BYPASS RATIO: 4.9  
PRESSURE RATIO ( $\pi_{oo}$ ): 26.9  
RATED THRUST ( $F_{oo}$ ) (kN): 231.3

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>oo</sub> (g/kN) or SN	4.9	42.7	52.2	9.0
AS % OF ORIGINAL LIMIT	25.1	36.2	55.6	47.9
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			69.5	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			84.1	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			95.5	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			114.1	

### 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 (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>oo</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
TAKE-OFF	100	0.7	2.129	0.03	0.50	25.30	7.0
CLIMB OUT	85	2.2	1.783	0.01	0.62	21.10	
APPROACH	30	4.0	0.613	0.13	2.29	11.10	
IDLE	7	26.0	0.203	2.24	23.67	4.80	
LTO TOTAL FUEL (kg) or EMISSIONS (g)			789	734	8023	10381	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>oo</sub> (g/kN) or AVERAGE SN (MAX)				3.2	34.8	45.0	7.0
SIGMA (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>oo</sub> 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)	100.2
TEMPERATURE (K)	299
AIR HUMIDITY (kg/kg)	0.01

### FUEL

SPEC	Jet A
H/C	1.88
AROM (%)	19.7

MANUFACTURER: Pratt & Whitney  
TEST ORGANIZATION: Pratt & Whitney  
TEST LOCATION:  
TEST DATES: 17/08/1987-23/08/1987

### REMARKS

1. Data from X698-5 with reduced smoke combustor.

Compliance with Fuel Venting requirements: - ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)