



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: V2531-E5  
UNIQUE ID NUMBER: 14IA018  
COMBUSTOR: Floatwall  
ENGINE TYPE: MTF

BYPASS RATIO: 4.5  
PRESSURE RATIO ( $\pi_{00}$ ): 32.3  
RATED THRUST ( $F_{00}$ ) (kN): 134.8

### REGULATORY DATA

**\*\* DATA SUPERSEDED \*\***

**SEE FOLLOWING UID FOR REVISED DATA:**

**01P14IA026**

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	0.3	21.2	61.4	11.1
AS % OF ORIGINAL LIMIT	1.5	18.0	58.7	50.9
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			73.4	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			85.8	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			96.7	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			112.2	

### 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 (DATE: - )  
- OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
TAKE-OFF	100	0.7	1.329	0.01	0.39	32.17	2.3
CLIMB OUT	85	2.2	1.079	0.02	0.41	24.28	6.0
APPROACH	30	4.0	0.391	0.09	1.57	11.14	6.3
IDLE	7	26.0	0.144	0.07	10.17	5.58	1.3
LTO TOTAL FUEL (kg) or EMISSIONS (g)			517	28	2503	7521	-
NUMBER OF ENGINES				2	2	2	2
NUMBER OF TESTS				4	4	4	4
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				0.2	18.6	55.8	9.4
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW)  
STAGE BLEED 0 (% CORE FLOW)

AT - POWER SETTINGS  
AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	100.4-102.9
TEMPERATURE (K)	268.2-277.7
ABS HUMIDITY (kg/kg)	0.0014-0.00359

### FUEL

SPEC	Jet A
H/C	1.91
AROM (%)	17

MANUFACTURER: International Aero Engines  
TEST ORGANIZATION: Pratt & Whitney  
TEST LOCATION: East Hartford, CT  
TEST DATES: 11/12/2008-19/01/2009

### NO<sub>x</sub> REGULATION PARAGRAPH

	2.3.2 c) (CAEP/4)
x	2.3.2 d) (CAEP/6)
	2.3.2 e) (CAEP/8)

### REMARKS

- Engine performance reflects V2531-E5 Turbofan Engine.
- Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
- NO<sub>x</sub> levels in accordance with Part III, Chapter 2, 2.3.2 d) (CAEP/6)

Compliance with Fuel Venting requirements:

x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)