



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B27E BYPASS RATIO: 5.1  
UNIQUE ID NUMBER: 11CM077 PRESSURE RATIO ( $\pi_{00}$ ): 29  
ENGINE TYPE: TF RATED OUTPUT ( $F_{00}$ ) (kN): 121.4

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
$D_p/F_{00}$ (g/kN) or SN	2.6	47.4	45.6	14.7
AS % OF ORIGINAL LIMIT	13.4 %	40.2 %	46.5 %	65.6 %
AS % OF CAEP/2 LIMIT (NOx)			58.2 %	
AS % OF CAEP/4 LIMIT (NOx)			69.7 %	
AS % OF CAEP/6 LIMIT (NOx)			79.2 %	
AS % OF CAEP/8 LIMIT (NOx)			93.6 %	

### 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
				HC	CO	NOx	
TAKE-OFF	100	0.7	1.293	0.03	0.31	23.94	13.4
CLIMB OUT	85	2.2	1.031	0.02	0.17	17.89	11.2
APPROACH	30	4.0	0.343	0.05	2.82	9.09	2.1
IDLE	7	26.0	0.110	1.54	29.39	4.36	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			444	273	5320	5231	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				7	7	7	7
AVERAGE $D_p/F_{00}$ (g/kN) or AVERAGE SN (MAX)				2.25	43.8	43.09	13.38
SIGMA ( $D_p/F_{00}$ in g/kN, or SN)				0.35	2.5	1.1	4.5
RANGE ( $D_p/F_{00}$ in g/kN, or SN)				1.88 to 2.5	41.0 to 45.6	42.4 to 44.4	8.4 to 16.9

### ACCESSORY LOADS

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

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.6 to 98.5
TEMPERATURE (K)	277 to 293
ABS HUMIDITY (kg/kg)	0.00150 to 0.00628

### FUEL

SPEC	JET A
H/C	1.92 to 1.93
AROM (%)	16.2 to 17.5

MANUFACTURER: CFM International  
TEST ORGANIZATION: GE Aviation  
TEST LOCATION: PTO, Ohio, USA  
TEST DATES: FROM 29 Sep 05 TO 23 Mar 06

### REMARKS

1. Ref. GE REPORT CR-2097/3 Rev. 1
2. Engine S/N 874-026/01, 778-024/01B, and 892-769/01
3. Ref. GE REPORT CR-900E Rev. 2, July 19, 2010
4. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
5. NOx levels in accordance with Part III, Chapter 2, 2.3.2 e) (CAEP/8)

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

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