



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B22E/B1
UNIQUE ID NUMBER: 11CM069
ENGINE TYPE: TF

BYPASS RATIO: 5.3
PRESSURE RATIO (π_{oo}): 24.2
RATED OUTPUT (F_{oo}) (kN): 101

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{oo} (g/kN) or SN	5.2	66.2	37.1	10.8
AS % OF ORIGINAL LIMIT	26.3 %	56.1 %	42.0 %	45.9 %
AS % OF CAEP/2 LIMIT (NOx)			52.5 %	
AS % OF CAEP/4 LIMIT (NOx)			64.3 %	
AS % OF CAEP/6 LIMIT (NOx)			73.0 %	
AS % OF CAEP/8 LIMIT (NOx)			88.4 %	

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_{oo})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOx	
TAKE-OFF	100	0.7	1.004	0.02	0.16	17.4	9.8
CLIMB OUT	85	2.2	0.832	0.03	0.17	14.67	8
APPROACH	30	4.0	0.291	0.07	4.18	8.35	2.1
IDLE	7	26.0	0.099	2.83	37.9	3.95	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			376	446	6179	3538	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				7	7	7	7
AVERAGE D_p/F_{oo} (g/kN) or AVERAGE SN (MAX)				4.43	61.19	35.06	9.84
SIGMA (D_p/F_{oo} in g/kN, or SN)				0.51	3.3	1.2	2.3
RANGE (D_p/F_{oo} in g/kN, or SN)				3.85 to 4.8	57.8 to 64.1	34.0 to 36.3	8.0 to 12.4

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
2. Rev. 1 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)