



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-5B2/3
UNIQUE ID NUMBER: 8CM053
ENGINE TYPE: TF
BYPASS RATIO: 5.5
PRESSURE RATIO (π_{00}): 31.3
RATED OUTPUT (F_{00}) (kN): 137.9

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{00} (g/kN) or SN	1.9	38.2	48.2	17.1
AS % OF ORIGINAL LIMIT	9.5 %	32.4 %	47.0 %	78.9 %
AS % OF CAEP/2 LIMIT (NOx)			58.7 %	
AS % OF CAEP/4 LIMIT (NOx)			69.8 %	
AS % OF CAEP/6 LIMIT (NOx)			78.3 %	
AS % OF CAEP/8 LIMIT (NOx)			91.4 %	

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)
- 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	1.385	0.04	0.45	28.26	15.5
CLIMB OUT	85	2.2	1.107	0.02	0.23	20.76	13.1
APPROACH	30	4.0	0.358	0.05	2.33	9.42	2.1
IDLE	7	26.0	0.111	1.22	26.72	4.53	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			463	221	4870	6268	-
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)				1.6	35.32	45.46	15.5
SIGMA (D_p/F_{00} in g/kN, or SN)				0.27	2.1	0.8	5.7
RANGE (D_p/F_{00} in g/kN, or SN)				1.31 to 1.8	32.9 to 36.9	44.8 to 46.3	8.9 to 19.2

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 - 1.93
AROM (%)	16.2 - 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 Rev1
2. Engine S/N 874-026/01, 778-024/01B, and 892-769/01
3. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
4. 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)