



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-5A3
UNIQUE ID NUMBER: 1CM009
ENGINE TYPE: TF

BYPASS RATIO: 6
PRESSURE RATIO (π_{oo}): 27.9
RATED OUTPUT (F_{oo}) (kN): 117.88

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{oo} (g/kN) or SN	3.5	30.8	50.3	21.6
AS % OF ORIGINAL LIMIT	18.1 %	26.1 %	52.5 %	95.6 %
AS % OF CAEP/2 LIMIT (NOx)			65.6 %	
AS % OF CAEP/4 LIMIT (NOx)			79.0 %	
AS % OF CAEP/6 LIMIT (NOx)			89.8 %	
AS % OF CAEP/8 LIMIT (NOx)			106.7 %	

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

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	1.131	0.2	0.9	26.4	16.8
CLIMB OUT	85	2.2	0.925	0.2	0.9	21.1	14.6
APPROACH	30	4.0	0.307	0.3	2.4	8.3	4.8
IDLE	7	26.0	0.104	1.3	16.2	4.1	2.7
LTO TOTAL FUEL (kg) or EMISSIONS (g)			406	268	2968	5110	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D_p/F_{oo} (g/kN) or AVERAGE SN (MAX)				2.3	25.1	43.4	16.8
SIGMA (D_p/F_{oo} in g/kN, or SN)				0.5	0.6	0.7	2
RANGE (D_p/F_{oo} in g/kN, or SN)				1.8-2.8	24.2-25.5	42.7-44.2	14.6-18.8

ACCESSORY LOADS

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

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	94.70-95.60
TEMPERATURE (K)	280 - 291
ABS HUMIDITY (kg/kg)	.0026-.0034

FUEL

SPEC	Jet A
H/C	1.95
AROM (%)	18

MANUFACTURER: CFMI
TEST ORGANIZATION: CFM56 Evaluation Engineering
TEST LOCATION: Peebles Site IIIC
TEST DATES: FROM 19 Nov 86 TO 20 Nov 86

REMARKS

1. Ref GE Reports R89AEB316 and R87AEB386.
2. Engine S/N 730002/2.

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

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