



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-5B1/3      BYPASS RATIO: 5.5  
UNIQUE ID NUMBER: 8CM052      PRESSURE RATIO ( $\pi_{00}$ ): 30.2  
ENGINE TYPE: TF      RATED OUTPUT ( $F_{00}$ ) (kN): 133.4

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
$D_p/F_{00}$ (g/kN) or SN	2.1	40.4	45.6	16.4
AS % OF ORIGINAL LIMIT	10.7 %	34.2 %	45.4 %	75.0 %
AS % OF CAEP/2 LIMIT (NOx)			56.8 %	
AS % OF CAEP/4 LIMIT (NOx)			67.7 %	
AS % OF CAEP/6 LIMIT (NOx)			76.8 %	
AS % OF CAEP/8 LIMIT (NOx)			90.3 %	

### 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
TAKE-OFF	100	0.7	1.318	0.03	0.38	26.18	14.9
CLIMB OUT	85	2.2	1.063	0.02	0.2	19.77	12.9
APPROACH	30	4.0	0.347	0.05	2.53	9.28	2.1
IDLE	7	26.0	0.109	1.37	27.92	4.45	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			448	240	4984	5749	-
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)				1.8	37.35	43.08	14.9
SIGMA ( $D_p/F_{00}$ in g/kN, or SN)				0.29	2.2	0.9	5.5
RANGE ( $D_p/F_{00}$ in g/kN, or SN)				1.48 to 2.0	34.9 to 39.0	42.5 to 44.1	8.6 to 18.3

### 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
AHS 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)