



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B24E/B1  
UNIQUE ID NUMBER: 11CM071  
ENGINE TYPE: TF

BYPASS RATIO: 5.3  
PRESSURE RATIO ( $\pi_{oo}$ ): 25.6  
RATED OUTPUT ( $F_{oo}$ ) (kN): 107.6

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
$D_p/F_{oo}$ (g/kN) or SN	4.1	58.8	39.3	13.3
AS % OF ORIGINAL LIMIT	20.9 %	49.8 %	43.1 %	57.2 %
AS % OF CAEP/2 LIMIT (NOx)			53.9 %	
AS % OF CAEP/4 LIMIT (NOx)			65.5 %	
AS % OF CAEP/6 LIMIT (NOx)			74.5 %	
AS % OF CAEP/8 LIMIT (NOx)			89.5 %	

### 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	1.086	0.02	0.18	18.93	12.1
CLIMB OUT	85	2.2	0.895	0.03	0.15	15.6	8.7
APPROACH	30	4.0	0.308	0.06	3.68	8.6	2.1
IDLE	7	26.0	0.103	2.3	34.71	4.09	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			398	377	5854	3996	-
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)				3.51	54.38	37.11	12.07
SIGMA ( $D_p/F_{oo}$ in g/kN, or SN)				0.45	2.8	1.2	3.4
RANGE ( $D_p/F_{oo}$ in g/kN, or SN)				3.01 to 3.8	51.2 to 56.4	36.1 to 38.5	8.3 to 14.7

### 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 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)