



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B24/2  
UNIQUE ID NUMBER: 4CM041  
COMBUSTOR:  
ENGINE TYPE: TF  
BYPASS RATIO: 5.2  
PRESSURE RATIO ( $\pi_{00}$ ): 26.0  
RATED THRUST ( $F_{00}$ ) (kN): 107.7

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	17.1	101.7	34.8	0.7
AS % OF ORIGINAL LIMIT	87.2	86.2	37.9	3.1
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			47.3	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			57.5	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			65.4	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			78.4	

### 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)

x OUT OF PRODUCTION (DATE: - )  
- OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
TAKE-OFF	100	0.7	1.089	0.05	1.38	16.63	0.7
CLIMB OUT	85	2.2	0.902	0.07	4.30	13.23	0.7
APPROACH	30	4.0	0.313	6.01	30.32	6.72	0.7
IDLE	7	26.0	0.109	6.55	42.72	4.08	0.7
LTO TOTAL FUEL (kg) or EMISSIONS (g)			410	1576	10117	3534	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				14.7	94.0	32.9	0.7
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				13.4-15.9	88.4-100	32.7-33.2	0.2-1.5

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW)  
STAGE BLEED 0 (% CORE FLOW)

AT - POWER SETTINGS  
AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.9-98
TEMPERATURE (K)	292.8-296.7
ABS HUMIDITY (kg/kg)	0.00814-0.0131

### FUEL

SPEC	Jet A
H/C	1.93-1.94
AROM (%)	18-19.2

MANUFACTURER: CFM International  
TEST ORGANIZATION: CFM56-7B Eval Engineering  
TEST LOCATION: Peebles Test Operation (PTO), Peebles, Ohio  
TEST DATES: 30/08/1997-12/09/1997

### REMARKS

1. FAA Certification Report CR-997/2, 14 Nov 97
2. Engine S/N 874-136/01, 874-141/01, 874-146/01

Compliance with Fuel Venting requirements:

- ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)