



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-5B1/2P  
UNIQUE ID NUMBER: 3CM020  
COMBUSTOR: DAC-II  
ENGINE TYPE: TF

BYPASS RATIO: 5.7  
PRESSURE RATIO ( $\pi_{oo}$ ): 30.5  
RATED THRUST ( $F_{oo}$ ) (kN): 133.5

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>oo</sub> (g/kN) or SN	8.8	80.3	41.7	2.5
AS % OF ORIGINAL LIMIT	44.9	68.1	41.3	11.4
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			51.6	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			61.3	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			69.5	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			81.6	

### DATA STATUS

- PRE-REGULATION  
x CERTIFICATION  
- REVISED (SEE REMARKS)

### TEST ENGINE STATUS

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

### MEASURED DATA

MODE	POWER SETTING (%F <sub>oo</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO <sub>x</sub>	
TAKE-OFF	100	0.7	1.320	0.10	0.80	23.30	0.5
CLIMB OUT	85	2.2	1.070	0.10	1.90	16.40	0.3
APPROACH	30	4.0	0.370	3.70	23.10	7.30	0.5
IDLE	7	26.0	0.120	2.90	36.50	4.10	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			473	891	9197	5024	-
NUMBER OF ENGINES				2	2	2	2
NUMBER OF TESTS				4	4	4	4
AVERAGE D <sub>p</sub> /F <sub>oo</sub> (g/kN) or AVERAGE SN (MAX)				6.8	70.5	37.9	2.1
SIGMA (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)				6.2-7.4	66.2-74.7	37.5-38.3	2-2.3

### ACCESSORY LOADS

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

AT - POWER SETTINGS  
AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.5-99.7
TEMPERATURE (K)	284.6-292.4
ABS HUMIDITY (kg/kg)	0.0081-0.0115

### FUEL

SPEC	Jet A
H/C	1.93
AROM (%)	17.33

MANUFACTURER: CFM International  
TEST ORGANIZATION: GEAE Peebles + Techspace Aero (CFMI)  
TEST LOCATION: Peebles Ohio, USE + Liers, Belgium  
TEST DATES: 01/08/1996-01/09/1996

### REMARKS

1. DAC-II Combustor P/N 1968M99G04

Compliance with Fuel Venting requirements:

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