



## ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B24/3  
UNIQUE ID NUMBER: 8CM064  
COMBUSTOR: Tech Insertion  
ENGINE TYPE: TF

BYPASS RATIO: 5.3  
PRESSURE RATIO ( $\pi_{00}$ ): 25.6  
RATED THRUST ( $F_{00}$ ) (kN): 107.6

## REGULATORY DATA

| CHARACTERISTIC VALUE:                        | HC   | CO   | NO <sub>x</sub> | SMOKE NUMBER |
|--|------|------|-----------------|--------------|
| D <sub>p</sub> /F <sub>00</sub> (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 (NO <sub>x</sub> )      |      |      | 53.9            |              |
| AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )      |      |      | 65.5            |              |
| AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )      |      |      | 74.5            |              |
| AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )      |      |      | 89.5            |              |

## 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<br>SETTING<br>(%F <sub>00</sub> ) | TIME<br>(minutes) | FUEL FLOW<br>(kg/s) | EMISSIONS INDICES (g/kg) |           |                 | SMOKE NUMBER |
|--|---|-------------------|---------------------|--------------------------|-----------|-----------------|--------------|
|  |   |                   |                     | HC                       | CO        | NO <sub>x</sub> |              |
| 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      | 15.60           | 8.7          |
| APPROACH   | 30                                      | 4.0               | 0.308               | 0.06                     | 3.68      | 8.60            | 2.1          |
| IDLE   | 7                                       | 26.0              | 0.103               | 2.30                     | 34.71     | 4.09            | 2.1          |
| LTO TOTAL FUEL (kg) or EMISSIONS (g)                               |   |                   | 398                 | 377                      | 5854      | 3995            | -            |
| NUMBER OF ENGINES  |   |                   |                     | 3                        | 3         | 3               | 3            |
| NUMBER OF TESTS  |   |                   |                     | 7                        | 7         | 7               | 7            |
| AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX) |   |                   |                     | 3.5                      | 54.4      | 37.1            | 12.1         |
| SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)             |   |                   |                     | 0.5                      | 2.8       | 1.2             | 3.4          |
| RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)             |   |                   |                     | 3.01-3.88                | 51.2-56.4 | 36.1-38.5       | 8.3-14.7     |

## ACCESSORY LOADS

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

AT All POWER SETTINGS  
AT All POWER SETTINGS

## ATMOSPHERIC CONDITIONS

|                      |                |
|----------------------|----------------|
| BAROMETER (kPa)      | 97.6-98.5      |
| TEMPERATURE (K)      | 277-293        |
| ABS HUMIDITY (kg/kg) | 0.0015-0.00628 |

## FUEL

|          |           |
|----------|-----------|
| SPEC     | Jet A     |
| H/C      | 1.92-1.93 |
| AROM (%) | 16.2-17.5 |

MANUFACTURER: CFM International  
TEST ORGANIZATION: General Electric Company  
TEST LOCATION: PTO, Ohio  
TEST DATES: 29/09/2005-23/03/2006

NO<sub>x</sub> REGULATION PARAGRAPH

|   |                   |
|---|-------------------|
|   | 2.3.2 c) (CAEP/4) |
|   | 2.3.2 d) (CAEP/6) |
| x | 2.3.2 e) (CAEP/8) |

## REMARKS

1. Ref. GE REPORT CR-2097/3 Rev1
2. Engine S/N 874-026/01, 778-024/01B, and 892-769/01
3. Data also apply to models CFM56-7B24/3 and -7B24/3B1
4. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
5. NO<sub>x</sub> levels in accordance with Part III, Chapter 2, 2.3.2 e) (CAEP/8)

Compliance with Fuel Venting requirements:

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