



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B22E BYPASS RATIO: 5.3
UNIQUE ID NUMBER: 11CM068 PRESSURE RATIO (π_{00}): 24.2
ENGINE TYPE: TF RATED OUTPUT (F_{00}) (kN): 101

REGULATORY DATA

| CHARACTERISTIC VALUE: | HC | CO | NOx | SMOKE NUMBER |
|----------------------------|--------|--------|--------|--------------|
| D_p/F_{00} (g/kN) or SN | 5.2 | 66.2 | 37.1 | 10.8 |
| AS % OF ORIGINAL LIMIT | 26.3 % | 56.1 % | 42.0 % | 45.9 % |
| AS % OF CAEP/2 LIMIT (NOx) | | | 52.5 % | |
| AS % OF CAEP/4 LIMIT (NOx) | | | 64.3 % | |
| AS % OF CAEP/6 LIMIT (NOx) | | | 73.0 % | |
| AS % OF CAEP/8 LIMIT (NOx) | | | 88.4 % | |

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_{00}) | TIME minutes | FUEL FLOW kg/s | EMISSIONS INDICES (g/kg) | | | SMOKE NUMBER |
|---|-----------------------------|--------------|----------------|--------------------------|--------------|--------------|--------------|
| | | | | HC | CO | NOx | |
| TAKE-OFF | 100 | 0.7 | 1.004 | 0.02 | 0.16 | 17.4 | 9.8 |
| CLIMB OUT | 85 | 2.2 | 0.832 | 0.03 | 0.17 | 14.67 | 8 |
| APPROACH | 30 | 4.0 | 0.291 | 0.07 | 4.18 | 8.35 | 2.1 |
| IDLE | 7 | 26.0 | 0.099 | 2.83 | 37.9 | 3.95 | 2.1 |
| LTO TOTAL FUEL (kg) or EMISSIONS (g) | | | 376 | 446 | 6179 | 3538 | - |
| 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) | | | | 4.43 | 61.19 | 35.06 | 9.84 |
| SIGMA (D_p/F_{00} in g/kN, or SN) | | | | 0.51 | 3.3 | 1.2 | 2.3 |
| RANGE (D_p/F_{00} in g/kN, or SN) | | | | 3.85 to 4.8 | 57.8 to 64.1 | 34.0 to 36.3 | 8.0 to 12.4 |

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 |
| ABS 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)