



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-7B27E/B3
UNIQUE ID NUMBER: 11CM079
ENGINE TYPE: TF

BYPASS RATIO: 5.1
PRESSURE RATIO (π_{00}): 29
RATED OUTPUT (F_{00}) (kN): 121.4

REGULATORY DATA

| CHARACTERISTIC VALUE: | HC | CO | NOx | SMOKE NUMBER |
|----------------------------|--------|--------|--------|--------------|
| D_p/F_{00} (g/kN) or SN | 2.6 | 47.4 | 45.6 | 14.7 |
| AS % OF ORIGINAL LIMIT | 13.4 % | 40.2 % | 46.5 % | 65.6 % |
| AS % OF CAEP/2 LIMIT (NOx) | | | 58.2 % | |
| AS % OF CAEP/4 LIMIT (NOx) | | | 69.7 % | |
| AS % OF CAEP/6 LIMIT (NOx) | | | 79.2 % | |
| AS % OF CAEP/8 LIMIT (NOx) | | | 93.6 % | |

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 | 1.293 | 0.03 | 0.31 | 23.94 | 13.4 |
| CLIMB OUT | 85 | 2.2 | 1.031 | 0.02 | 0.17 | 17.89 | 11.2 |
| APPROACH | 30 | 4.0 | 0.343 | 0.05 | 2.82 | 9.09 | 2.1 |
| IDLE | 7 | 26.0 | 0.110 | 1.54 | 29.39 | 4.36 | 2.1 |
| LTO TOTAL FUEL (kg) or EMISSIONS (g) | | | 444 | 273 | 5320 | 5231 | - |
| 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) | | | | 2.25 | 43.8 | 43.09 | 13.38 |
| SIGMA (D_p/F_{00} in g/kN, or SN) | | | | 0.35 | 2.5 | 1.1 | 4.5 |
| RANGE (D_p/F_{00} in g/kN, or SN) | | | | 1.88 to 2.5 | 41.0 to 45.6 | 42.4 to 44.4 | 8.4 to 16.9 |

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 Rev. 1
2. 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)