



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent7000-72D
UNIQUE ID NUMBER: 02P23RR143
COMBUSTOR: Phase5 Tiled
ENGINE TYPE: TF
BYPASS RATIO: 8.9
PRESSURE RATIO (π_{co}): 45.8
RATED THRUST (F_{oo}) (kN): 327.9

REGULATORY DATA

| CHARACTERISTIC VALUE: | HC | CO | NO _x | SMOKE NUMBER |
|--|-----|------|-----------------|--------------|
| D _p /F _{oo} (g/kN) or SN | 0.0 | 10.1 | 65.6 | 16.4 |
| AS % OF ORIGINAL LIMIT | 0.0 | 8.5 | 49.9 | 95.9 |
| AS % OF CAEP/2 LIMIT (NO _x) | | | 62.4 | |
| AS % OF CAEP/4 LIMIT (NO _x) | | | 66.6 | |
| AS % OF CAEP/6 LIMIT (NO _x) | | | 72.5 | |
| AS % OF CAEP/8 LIMIT (NO _x) | | | 80.4 | |

For non-volatile particulate matter (nvPM) emissions, please refer to the ICAO Engine nvPM Emissions Data Sheet.

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 | TIME | FUEL FLOW | EMISSIONS INDICES (g/kg) | | | SMOKE NUMBER |
|--|--------------------------------|-----------|-----------|--------------------------|------------|-----------------|--------------|
| | SETTING (%F _{oo}) | (minutes) | (kg/s) | HC | CO | NO _x | |
| TAKE-OFF | 100 | 0.7 | 2.502 | 0.00 | 0.42 | 52.74 | 8.7 |
| CLIMB OUT | 85 | 2.2 | 2.040 | 0.00 | 0.41 | 39.73 | 11.9 |
| APPROACH | 30 | 4.0 | 0.671 | 0.00 | 0.63 | 14.18 | 9.0 |
| IDLE | 7 | 26.0 | 0.259 | 0.00 | 7.16 | 5.61 | 2.0 |
| LTO TOTAL FUEL (kg) or EMISSIONS (g) | | | 939 | 0 | 3146 | 20784 | – |
| NUMBER OF ENGINES | | | | 8 | 8 | 8 | 8 |
| NUMBER OF TESTS | | | | 18 | 18 | 18 | 18 |
| AVERAGE D _p /F _{oo} (g/kN) or AVERAGE SN (MAX) | | | | 0.0 | 9.6 | 63.4 | 14.7 |
| SIGMA (D _p /F _{oo} in g/kN, or SN) | | | | 0.0 | 1.8 | 0.8 | 2.0 |
| RANGE (D _p /F _{oo} in g/kN, or SN) | | | | 0.0 | 6.13–11.91 | 62.45–64.48 | 11.4–16.7 |

ACCESSORY LOADS

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

AT - POWER SETTINGS
AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

| | |
|----------------------|-----------------|
| BAROMETER (kPa) | 98.9-102.1 |
| TEMPERATURE (K) | 280.4-303.5 |
| ABS HUMIDITY (kg/kg) | 0.00308-0.01917 |

FUEL

| | |
|----------|-------|
| SPEC | |
| H/C | 1.92 |
| AROM (%) | 16.89 |

MANUFACTURER: Rolls-Royce plc
TEST ORGANIZATION: Rolls-Royce plc
TEST LOCATION: Derby
TEST DATES: 24/09/2009-28/08/2019

NO_x REGULATION PARAGRAPH

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

REMARKS

- Representative of Trent7000 engines
- EDNS01000935986

Compliance with Fuel Venting requirements:

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