



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent 1000 -D3

UNIQUE ID NUMBER: 19RR087

ENGINE TYPE: TF

BYPASS RATIO: 9.0

PRESSURE RATIO (π_{oo}): 45.8

RATED OUTPUT (F_{oo}) (kN): 334.7

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D _p /F _{oo} (g/kN) or SN	0.0	8.5	65.4	16.4
AS % OF ORIGINAL LIMIT	0.0 %	7.2 %	49.7 %	96.4 %
AS % OF CAEP/2 LIMIT (NOx)			62.1 %	
AS % OF CAEP/4 LIMIT (NOx)			66.3 %	
AS % OF CAEP/6 LIMIT (NOx)			72.2 %	
AS % OF CAEP/8 LIMIT (NOx)			80.0 %	

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)

- OUT OF PRODUCTION

- OUT OF SERVICE

MEASURED DATA

MODE	POWER SETTING (%F _{oo})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOx	
TAKE-OFF	100	0.7	2.497	0	0.41	52.07	8.4
CLIMB OUT	85	2.2	2.046	0	0.45	40.11	11.6
APPROACH	30	4.0	0.667	0	0.65	14.08	8.6
IDLE	7	26.0	0.249	0	6.23	6.16	1.9
LTO TOTAL FUEL (kg) or EMISSIONS (g)			924	0	2690	20943	-
NUMBER OF ENGINES				5	5	5	6
NUMBER OF TESTS				11	11	11	8
AVERAGE D _p /F _{oo} (g/kN) or AVERAGE SN (MAX)				0	8.04	62.58	15.3
SIGMA (D _p /F _{oo} in g/kN, or SN)				0	1.91	0.95	1.7
RANGE (D _p /F _{oo} in g/kN, or SN)				0 - 0	5.23 - 10.11	61.46 - 63.57	12.1 - 16.8

ACCESSORY LOADS

POWER EXTRACTION0(kW)AT-POWER SETTINGS

STAGE BLEED0% CORE FLOWAT-POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.9 - 102.1
TEMPERATURE (K)	275.0 - 304.6
ABS HUMIDITY (kg/kg)	0.00308 - 0.01935

FUEL

SPEC	-
H/C	1.91
AROM (%)	17.2

MANUFACTURER:Rolls-Royce

TEST ORGANIZATION:Rolls-Royce

TEST LOCATION:Derby

TEST DATES:FROM24 Sep 09TO30 Nov 17

REMARKS

1. Data from Certification Report EDNS01000615769
2. Certification in accordance with Part III, Chapter 2, of Amendment 8 of ICAO Annex 16 Vol. II.
3. 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)