



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent 1000-Q3

UNIQUE ID NUMBER: 19RR096

ENGINE TYPE: TF

BYPASS RATIO: 8.9

PRESSURE RATIO (π_{o_o}): 47.8

RATED OUTPUT (F_{o_o}) (kN): 350.9

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D _p /F _{o_o} (g/kN) or SN	0.0	7.8	70.3	16.4
AS % OF ORIGINAL LIMIT	0.0 %	6.6 %	51.9 %	97.7 %
AS % OF CAEP/2 LIMIT (NOx)			64.8 %	
AS % OF CAEP/4 LIMIT (NOx)			68.5 %	
AS % OF CAEP/6 LIMIT (NOx)			74.4 %	
AS % OF CAEP/8 LIMIT (NOx)			82.0 %	

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 _{o_o})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOx	
TAKE-OFF	100	0.7	2.649	0	0.35	56.35	7.8
CLIMB OUT	85	2.2	2.168	0	0.44	43.21	10.7
APPROACH	30	4.0	0.699	0	0.58	14.49	9.2
IDLE	7	26.0	0.256	0	5.8	6.34	1.8
LTO TOTAL FUEL (kg) or EMISSIONS (g)			965	0	2585	23599	-
NUMBER OF ENGINES				5	5	5	6
NUMBER OF TESTS				11	11	11	8
AVERAGE D _p /F _{o_o} (g/kN) or AVERAGE SN (MAX)				0	7.37	67.26	15.3
SIGMA (D _p /F _{o_o} in g/kN, or SN)				0	1.75	1.19	1.7
RANGE (D _p /F _{o_o} in g/kN, or SN)				0 - 0	4.81 - 9.3	65.87 - 68.45	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)