



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent 1000-AE3

UNIQUE ID NUMBER: 19RR085

ENGINE TYPE: TF

BYPASS RATIO: 9.2

PRESSURE RATIO ( $\pi_{oo}$ ): 43.0

RATED OUTPUT ( $F_{oo}$ ) (kN): 310.9

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D <sub>p</sub> /F <sub>oo</sub> (g/kN) or SN	0.0	9.7	58.9	16.4
AS % OF ORIGINAL LIMIT	0.0 %	8.3 %	46.7 %	94.5 %
AS % OF CAEP/2 LIMIT (NOx)			58.4 %	
AS % OF CAEP/4 LIMIT (NOx)			63.3 %	
AS % OF CAEP/6 LIMIT (NOx)			69.3 %	
AS % OF CAEP/8 LIMIT (NOx)			77.4 %	

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 <sub>oo</sub> )	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOx	
TAKE-OFF	100	0.7	2.279	0	0.43	46.1	9.8
CLIMB OUT	85	2.2	1.874	0	0.44	35.9	13
APPROACH	30	4.0	0.623	0	0.76	13.5	7.8
IDLE	7	26.0	0.239	0	6.93	5.9	2
LTO TOTAL FUEL (kg) or EMISSIONS (g)			866	0	2849	17511	-
NUMBER OF ENGINES				5	5	5	6
NUMBER OF TESTS				11	11	11	8
AVERAGE D <sub>p</sub> /F <sub>oo</sub> (g/kN) or AVERAGE SN (MAX)				0	9.16	56.33	15.3
SIGMA (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)				0	2.17	0.82	1.7
RANGE (D <sub>p</sub> /F <sub>oo</sub> in g/kN, or SN)				0 - 0	5.99 - 11.52	55.42 - 57.1	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)