



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent XWB-97
UNIQUE ID NUMBER: 21RR100
ENGINE TYPE: TF

BYPASS RATIO: 8.1
PRESSURE RATIO (π_{00}): 48.4
RATED OUTPUT (F_{00}) (kN): 436.7

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{00} (g/kN) or SN	0.0	9.9	81.4	10.2
AS % OF ORIGINAL LIMIT	0.1 %	8.4 %	59.5 %	64.8 %
AS % OF CAEP/2 LIMIT (NOx)			74.3 %	
AS % OF CAEP/4 LIMIT (NOx)			78.3 %	
AS % OF CAEP/6 LIMIT (NOx)			84.9 %	
AS % OF CAEP/8 LIMIT (NOx)			93.6 %	

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_{00})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOx	
TAKE-OFF	100	0.7	3.498	0	0.36	66.05	9.3
CLIMB OUT	85	2.2	2.798	0	0.4	48.51	6.9
APPROACH	30	4.0	0.918	0	0.82	14.86	6.5
IDLE	7	26.0	0.301	0.01	7.75	5.64	1.3
LTO TOTAL FUEL (kg) or EMISSIONS (g)			1206	1206	4016	33540	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				5	5	5	5
AVERAGE D_p/F_{00} (g/kN) or AVERAGE SN (MAX)				0.01	9.19	76.8	9.3
SIGMA (D_p/F_{00} in g/kN, or SN)				0.01	1.53	0.89	0.2
RANGE (D_p/F_{00} in g/kN, or SN)				0 - 0.03	7.44 - 10.28	75.77 - 77.36	9.1 - 9.5

ACCESSORY LOADS

POWER EXTRACTION 0 (kW) AT - POWER SETTINGS
STAGE BLEED 0 % CORE FLOW AT - POWER SETTINGS

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.5 - 102
TEMPERATURE (K)	282.3 - 294.1
ABS HUMIDITY (kg/kg)	0.00304 - 0.00757

FUEL

SPEC	-
H/C	1.95
AROM (%)	15.2

MANUFACTURER: Rolls-Royce plc
TEST ORGANIZATION: Rolls-Royce
TEST LOCATION: Derby
TEST DATES: FROM 10 Apr 20 TO 29 Apr 20

REMARKS

- Improved Smoke Combustor
- Data from Certification Report EDNS01000886402
- Certification in accordance with Part III, Chapter 2, of Amendment 9 of ICAO Annex 16 Vol. II.
- 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)