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ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent 1000-A
UNIQUE ID NUMBER: 11RR049
ENGINE TYPE: TF

BYPASS RATIO: 9.47
PRESSURE RATIO (π_{oo}): 41
RATED OUTPUT (F_{oo}) (kN): 310.8

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{oo} (g/kN) or SN	0.1	12.2	59.1	5.8
AS % OF ORIGINAL LIMIT	0.4 %	10.3 %	48.4 %	33.1 %
AS % OF CAEP/2 LIMIT (NOx)			60.5 %	
AS % OF CAEP/4 LIMIT (NOx)			66.4 %	
AS % OF CAEP/6 LIMIT (NOx)			72.9 %	
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_{oo})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg) HC	CO	NOx	SMOKE NUMBER
TAKE-OFF	100	0.7	2.282	0	0.53	46.67	3.3
CLIMB OUT	85	2.2	1.877	0	0.45	35.87	4.1
APPROACH	30	4.0	0.625	0	0.77	13.29	2.9
IDLE	7	26.0	0.237	0.06	8.73	5.4	0.6
LTO TOTAL FUEL (kg) or EMISSIONS (g)			74	21	3499	17350	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				5	5	5	5
AVERAGE D_p/F_{oo} (g/kN) or AVERAGE SN (MAX)				0.07	11.26	55.81	5.23
SIGMA (D_p/F_{oo} in g/kN, or SN)				0.054	3.2	0.9	1.99
RANGE (D_p/F_{oo} in g/kN, or SN)				0 - 0.1	6.9 - 14.1	54.9 - 56.9	3 - 8.2

ACCESSORY LOADS

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

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.9 - 102.1
TEMPERATURE (K)	284.1 - 290.3
ABS HUMIDITY (kg/kg)	0.00432 - 0.00721

FUEL

SPEC	-
H/C	1.89
AROM (%)	16.7

MANUFACTURER: Rolls-Royce
TEST ORGANIZATION: Rolls-Royce
TEST LOCATION: Derby
TEST DATES: FROM 24 Sep 09 TO 09 Jun 11

REMARKS

1. Representative of Package B engines

If REVISED, this data supersedes databank UID
Compliance with fuel venting requirements: - ('x' if complies, PR if pre-regulation)