



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-524B series BYPASS RATIO: 4.5
UNIQUE ID NUMBER: 1RR005 PRESSURE RATIO (π_{00}): 28.4
ENGINE TYPE: TF RATED OUTPUT (F_{00}) (kN): 218.5

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{00} (g/kN) or SN	6.5	28.1	89.6	15.8
AS % OF ORIGINAL LIMIT	33.4 %	23.8 %	92.6 %	82.9 %
AS % OF CAEP/2 LIMIT (NOx)			115.7 %	
AS % OF CAEP/4 LIMIT (NOx)			139.0 %	
AS % OF CAEP/6 LIMIT (NOx)			158.0 %	
AS % OF CAEP/8 LIMIT (NOx)			187.2 %	

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)
x OUT OF PRODUCTION (DATE: -)
- OUT OF SERVICE

MEASURED DATA

MODE	POWER SETTING (% F_{00})	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
TAKE-OFF	100	0.7	2.210	0.39	0.7	52.3	12.3
CLIMB OUT	85	2.2	1.790	0.26	0.33	38.2	9.3
APPROACH	30	4.0	0.630	0.7	1.56	9.8	1.9
IDLE	7	26.0	0.240	1.95	12.39	4.2	0.6
LTO TOTAL FUEL (kg) or EMISSIONS (g)			855	934	5018	16935	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D_p/F_{00} (g/kN) or AVERAGE SN (MAX)				4.25	22.9	77.3	12.3
SIGMA (D_p/F_{00} in g/kN, or SN)				0.1	0.68	0.8	0.2
RANGE (D_p/F_{00} in g/kN, or SN)				4.2-4.4	22.3-23.6	76.5-78.1	12.1-12.6

ACCESSORY LOADS

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

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	103
TEMPERATURE (K)	283 - 286
ABS HUMIDITY (kg/kg)	0.005

FUEL

SPEC	AVTUR
H/C	1.91
AROM (%)	20

MANUFACTURER: Rolls Royce Ltd
TEST ORGANIZATION: Rolls Royce Ltd
TEST LOCATION: SINFIN-Derby
TEST DATES: FROM Sep 86 TO Sep 86

REMARKS

1. Data from certification report CRR60515.
2. Phase 2 combustor.
3. Applicable to engines manufactured after Feb 87.
4. SN mode data scaled from 1RR004

If REVISED, this data supersedes databank UID
Compliance with fuel venting requirements:

0 ('x' if complies, PR if pre-regulation)