



ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-524B series
UNIQUE ID NUMBER: 1RR005
COMBUSTOR: Phase 2
ENGINE TYPE: TF
BYPASS RATIO: 4.5
PRESSURE RATIO (π_{00}): 28.4
RATED THRUST (F_{00}) (kN): 218.5

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO _x	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 (NO _x)			115.7	
AS % OF CAEP/4 LIMIT (NO _x)			139.0	
AS % OF CAEP/6 LIMIT (NO _x)			158.0	
AS % OF CAEP/8 LIMIT (NO _x)			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 (DATE: -)

MEASURED DATA

MODE	POWER SETTING (%F ₀₀)	TIME (minutes)	FUEL FLOW (kg/s)	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NO _x	
TAKE-OFF	100	0.7	2.210	0.39	0.70	52.30	12.3
CLIMB OUT	85	2.2	1.790	0.26	0.33	38.20	9.3
APPROACH	30	4.0	0.630	0.70	1.56	9.80	1.9
IDLE	7	26.0	0.240	1.95	12.39	4.20	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)				4.3	22.9	77.3	12.3
SIGMA (D _p /F ₀₀ in g/kN, or SN)				0.1	0.7	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)
STAGE BLEED 0 (% CORE FLOW)

AT - POWER SETTINGS
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 plc
TEST ORGANIZATION: Rolls-Royce Ltd
TEST LOCATION: SINFIN-Derby
TEST DATES: 01/09/1986-01/09/1986

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

Compliance with Fuel Venting requirements:

- ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)