



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-524H-T  
UNIQUE ID NUMBER: 4RR037  
COMBUSTOR:  
ENGINE TYPE: MTF

BYPASS RATIO: 4.2  
PRESSURE RATIO ( $\pi_{00}$ ): 34.0  
RATED THRUST ( $F_{00}$ ) (kN): 264.0

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	8.0	51.2	61.5	6.9
AS % OF ORIGINAL LIMIT	40.6	43.3	57.0	37.9
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			71.2	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			82.1	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			91.9	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			105.8	

### 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 <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
TAKE-OFF	100	0.7	2.810	0.00	0.18	31.19	5.2
CLIMB OUT	85	2.2	2.220	0.02	0.14	23.19	5.3
APPROACH	30	4.0	0.770	0.00	1.05	9.91	1.8
IDLE	7	26.0	0.260	3.31	26.17	4.16	0.5
LTO TOTAL FUEL (kg) or EMISSIONS (g)			1001	1348	10871	13995	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				5.2	41.7	53.1	5.3
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)							
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				4.39-5.89	39.21-45.02	51.6-54.1	4.7-6

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW)  
STAGE BLEED 0 (% CORE FLOW)

AT - POWER SETTINGS  
AT - POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	100.2
TEMPERATURE (K)	287
ABS HUMIDITY (kg/kg)	0.0053-0.0089

### FUEL

SPEC	AVTUR
H/C	1.95
AROM (%)	16

MANUFACTURER: Rolls-Royce plc  
TEST ORGANIZATION: Rolls-Royce plc  
TEST LOCATION: SINFIN-Derby  
TEST DATES: 01/09/1994

### REMARKS

1. Data from Certification Report DNS38044

Compliance with Fuel Venting requirements:

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