



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

**\*\* DATA SUPERSEDED \*\* SEE SHEET: 1RR010**

ENGINE IDENTIFICATION: RB211-524G BYPASS RATIO: 4.25  
UNIQUE ID NUMBER: 1RR009 PRESSURE RATIO ( $\pi_{oo}$ ): 32.1  
ENGINE TYPE: MTF RATED OUTPUT ( $F_{oo}$ ) (kN): 253

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
$D_p/F_{oo}$ (g/kN) or SN	13.3	28.8	96.9	5.0
AS % OF ORIGINAL LIMIT	67.7 %	24.4 %	93.0 %	27.3 %
AS % OF CAEP/2 LIMIT (NOx)			116.2 %	
AS % OF CAEP/4 LIMIT (NOx)			136.1 %	
AS % OF CAEP/6 LIMIT (NOx)			153.4 %	
AS % OF CAEP/8 LIMIT (NOx)			178.4 %	

### 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 (% $F_{oo}$ )	TIME minutes	FUEL FLOW kg/s	EMISSIONS INDICES (g/kg)			SMOKE NUMBER
				HC	CO	NOx	
TAKE-OFF	100	0.7	2.620	2.28	0.59	58.71	3.03
CLIMB OUT	85	2.2	2.080	1.46	0.43	40.54	3.62
APPROACH	30	4.0	0.700	1.14	1.01	9.56	1.82
IDLE	7	26.0	0.260	3.28	13.74	4.63	0.21
LTO TOTAL FUEL (kg) or EMISSIONS (g)			958	2174	5926	21075	-
NUMBER OF ENGINES				1	1	1	1
NUMBER OF TESTS				3	3	3	3
AVERAGE $D_p/F_{oo}$ (g/kN) or AVERAGE SN (MAX)				8.62	23.49	83.57	3.9
SIGMA ( $D_p/F_{oo}$ in g/kN, or SN)				0.34	0.34	1.39	0.37
RANGE ( $D_p/F_{oo}$ in g/kN, or SN)				8.24-8.92	23.13-23.81	82.34-85.08	3.7-4.3

### ACCESSORY LOADS

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

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	101
TEMPERATURE (K)	283 - 286
ABS HUMIDITY (kg/kg)	0.006

### 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 Apr 87 TO May 87

### REMARKS

Data from certification report CRR60560

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

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