



ICAO ENGINE EXHAUST EMISSIONS DATA BANK

SUBSONIC ENGINES

ENGINE IDENTIFICATION: RB211-535E4B BYPASS RATIO: 4.1
 UNIQUE ID NUMBER: 3RR034 PRESSURE RATIO (π_{oo}): 27.65
 ENGINE TYPE: MTF RATED OUTPUT (F_{oo}) (kN): 191.73

REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
D_p/F_{oo} (g/kN) or SN	0.7	24.1	89.2	2.4
AS % OF ORIGINAL LIMIT	3.6 %	20.5 %	93.6 %	12.1 %
AS % OF CAEP/2 LIMIT (NOx)			117.0 %	
AS % OF CAEP/4 LIMIT (NOx)			141.0 %	
AS % OF CAEP/6 LIMIT (NOx)			160.3 %	
AS % OF CAEP/8 LIMIT (NOx)			190.6 %	

DATA STATUS

- PRE-REGULATION
 - CERTIFICATION
 x 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	2.080	0.01	0.94	54.46	1.73
CLIMB OUT	85	2.2	1.650	0	0.6	36.82	1.84
APPROACH	30	4.0	0.550	0.03	1.05	7.35	0.96
IDLE	7	26.0	0.190	0.28	11.76	3.52	0.5
LTO TOTAL FUEL (kg) or EMISSIONS (g)			734	88	3837	14791	-
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)				0.45	19.67	76.97	1.84
SIGMA (D _p /F _{oo} in g/kN, or SN)				-	-	-	-
RANGE (D _p /F _{oo} in g/kN, or SN)				0.41-0.49	19.35-19.92	75.9-77.9	1.5-2.2

ACCESSORY LOADS

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

ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	98.8
TEMPERATURE (K)	282
ABS HUMIDITY (kg/kg)	0.0037

FUEL

SPEC	AVTUR
H/C	1.9
AROM (%)	18.2

MANUFACTURER: Rolls Royce plc
 TEST ORGANIZATION: Rolls Royce plc
 TEST LOCATION: SINFIN, Derby
 TEST DATES: FROM Apr 91 TO -

REMARKS

1. Data from Certification Report DNS21233

If REVISED, this data supersedes databank UID
 Compliance with fuel venting requirements: 0 ('x' if complies, PR if pre-regulation)