



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: Trent 970B-84  
UNIQUE ID NUMBER: 18RR082  
ENGINE TYPE: (TF)

BYPASS RATIO: 8.4  
PRESSURE RATIO ( $\pi_{oo}$ ): 39.4  
RATED OUTPUT ( $F_{oo}$ ) (kN): 352.9

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NOx	SMOKE NUMBER
$D_p/F_{oo}$ (g/kN) or SN	0.2	16.8	55.8	8.3
AS % OF ORIGINAL LIMIT	0.9 %	14.2 %	47.0 %	49.7 %
AS % OF CAEP/2 LIMIT (NOx)			58.8 %	
AS % OF CAEP/4 LIMIT (NOx)			65.1 %	
AS % OF CAEP/6 LIMIT (NOx)			71.9 %	
AS % OF CAEP/8 LIMIT (NOx)			81.1 %	

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

### 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	2.738	0	0.33	41.34	6.1
CLIMB OUT	85	2.2	2.262	0.09	0.31	31.3	6.3
APPROACH	30	4.0	0.749	0.07	1.05	12.37	3.3
IDLE	7	26.0	0.261	0.04	12.65	5.57	0.6
LTO TOTAL FUEL (kg) or EMISSIONS (g)			1001	56	5471	18591	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				6	6	6	6
AVERAGE $D_p/F_{oo}$ (g/kN) or AVERAGE SN (MAX)				0.16	15.5	52.68	7.1
SIGMA ( $D_p/F_{oo}$ in g/kN, or SN)				0.05	1.63	1.94	2.7
RANGE ( $D_p/F_{oo}$ in g/kN, or SN)				0.13 - 0.2	14.13 - 17.3	50.92 - 54.77	5.2 - 9

### ACCESSORY LOADS

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

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	99.7 - 101.9
TEMPERATURE (K)	276.6 - 286.7
ABS HUMIDITY (kg/kg)	0.00243 - 0.01133

### FUEL

SPEC	-
H/C	1.88
AROM (%)	18.2

MANUFACTURER: Rolls-Royce  
TEST ORGANIZATION: Rolls-Royce  
TEST LOCATION: Derby  
TEST DATES: FROM 17 Oct 03 TO 26 Apr 16

### REMARKS

1. Data from Certification Report EDNS01000588914 Iss 1
2. Certification in accordance with Part III, Chapter 2, of Amendment 8 of ICAO Annex 16 Vol. II.
3. NOx levels in accordance with Part III, Chapter 2, 2.3.2 e) (CAEP/8)

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

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