



# ICAO ENGINE EXHAUST EMISSIONS DATA BANK

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: BR700-710A2-20 BYPASS RATIO: 4.19  
UNIQUE ID NUMBER: 4BR009 PRESSURE RATIO ( $\pi_{00}$ ): 24.16  
ENGINE TYPE: MTF RATED OUTPUT ( $F_{00}$ ) (kN): 65.61

### REGULATORY DATA

| CHARACTERISTIC VALUE:      | HC     | CO     | NOx    | SMOKE NUMBER |
|----------------------------|--------|--------|--------|--------------|
| $D_p/F_{00}$ (g/kN) or SN  | 3.8    | 79.6   | 49.3   | 18.0         |
| AS % OF ORIGINAL LIMIT     | 19.2 % | 67.4 % | 55.8 % | 67.6 %       |
| AS % OF CAEP/2 LIMIT (NOx) |        |        | 69.7 % |              |
| AS % OF CAEP/4 LIMIT (NOx) |        |        | 78.7 % |              |
| AS % OF CAEP/6 LIMIT (NOx) |        |        | 84.6 % |              |
| AS % OF CAEP/8 LIMIT (NOx) |        |        | 96.0 % |              |

### 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  
- OUT OF SERVICE

### MEASURED DATA

| MODE  | POWER SETTING (% $F_{00}$ ) | TIME minutes | FUEL FLOW kg/s | EMISSIONS INDICES (g/kg) |             |             | SMOKE NUMBER |
|---|-----------------------------|--------------|----------------|--------------------------|-------------|-------------|--------------|
|   |                             |              |                | HC                       | CO          | NOx         |              |
| TAKE-OFF  | 100                         | 0.7          | 0.714          | 0.02                     | 1.04        | 18.73       | 13.96        |
| CLIMB OUT                                       | 85                          | 2.2          | 0.595          | 0.02                     | 0.93        | 15.03       | 11.87        |
| APPROACH  | 30                          | 4.0          | 0.214          | 0.05                     | 4.81        | 7.67        | 0.27         |
| IDLE  | 7                           | 26.0         | 0.089          | 1.12                     | 28          | 4.67        | 0.57         |
| LTO TOTAL FUEL (kg) or EMISSIONS (g)            |                             |              | 299            | 160                      | 4239        | 2784        | -            |
| 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) |                             |              |                | 2.44                     | 64.82       | 42.49       | 13.96        |
| SIGMA ( $D_p/F_{00}$ in g/kN, or SN)            |                             |              |                | -                        | -           | -           | -            |
| RANGE ( $D_p/F_{00}$ in g/kN, or SN)            |                             |              |                | 2.19-2.70                | 64.31-65.59 | 41.81-42.91 | 12.60-15.15  |

### ACCESSORY LOADS

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

### ATMOSPHERIC CONDITIONS

|                      |             |
|----------------------|-------------|
| BAROMETER (kPa)      | 100.9-101.2 |
| TEMPERATURE (K)      | 282.9-286.7 |
| ABS HUMIDITY (kg/kg) | .0064-.0087 |

### FUEL

|          |           |
|----------|-----------|
| SPEC     | AVTUR     |
| H/C      | 1.89-1.92 |
| AROM (%) | 16.4-18.0 |

MANUFACTURER: BMW Rolls-Royce GmbH  
TEST ORGANIZATION: BMW Rolls-Royce GmbH  
TEST LOCATION: BMW Rolls-Royce GmbH, Dahlewitz, Germany  
TEST DATES: FROM 19 Oct 96 TO 20 Oct 96

### REMARKS

1. Data from Certification report E-TR853/96-(FR) ISS01.
2. For Canadair Global Express application
3. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
4. 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:

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