UK CIVIL AVIATION AUTHORITY
ENGINE TYPE CERTIFICATION DATA SHEET No. 1053

Type: BR700-715

Variants:	**BR700-715A1-30**
	BR700-715B1-30
	BR700-715C1-30

ISSUE	REASON FOR ISSUE	DATE
1	Initial issue for BR700-715	25.09.1998
2	Inclusion of JAA Certification Recommendation Date. Ratings revised for -715A1 and -715B1 All engine marks; TGT max. overtemperature increased, N2 max. overspeed increased, min oil temperature for starting reduced, bleed extraction chart revised. Revision of Type Certificate Holder name and address. Various minor changes.	23.05.2000
3	Change of registered office address and company name.	01/03/01

BR700-715A1-30

I. General:

1.	CAA ETCDS No:	1053 Issue 2	Date: 23 May 2000
2.	Type / Variant:		BR700-715A1-30
3. 3.	Type Certificate Holder:		Rolls-Royce Deutschland Ltd & Co KG Eschenweg 11 D-15827 Dahlewitz Germany
4.	UK CAA Type Certificate:		098/1
5.	Manufacturer:		Rolls-Royce Deutschland Ltd & Co KG

6. The CAA Type Certification has been granted on the basis of a recommendation from the Joint Aviation Authorities (JAA) following an investigation carried out in accordance with the JAA Joint Certification Procedures. Accordingly the JAA Data Sheet No. JAA/E/98-018 Issue 01 dated July 16 1998 has been used as the basis of this CAA Engine Type Certificate Data Sheet.

II. Certification Basis:

1.	JAA Certification Application Date:	18 December 1995
2.	JAA Certification Reference Date:	18 December 1995
3.	JAA Certification Recommendation Date:	28 August 1998
4.	Reference Application Date for CAA Certification:	18 December 1995
5.	CAA Certification Date:	1 October 1998
6.	CAA Certification Basis:	Same as the JAA Certification Basis specified in paragraphs 7 to 12 below.
7.	JAA Airworthiness Requirements:	JAR-E Change 9 dated 21 October 1994.

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8.	JAA Special Conditions:	SC1 Ingestion of Rain SC2 Ingestion of Hail SC3 Bird Strike SC4 Bird Strike of 1.85 kg Bird.
9.	JAA Exemptions:	JAR-E 890(a) Engine Calibration in Reverse Thrust.
10.	JAA Equivalent Safety Finding:	JAR-E 840(a)(2) Rotor Integrity.
11.	Additional National Requirements:	ANR-1-Enviromental ICAO Annex 16, Volume II, Second Edition, July 1993 - Emissions and Fuel Venting.

III. <u>Technical Characteristics:</u>

1.	Type Design Definition:	Drawing Introduction Sheet (DIS) No. DIS 10010 ISS 02 or later approved issues.
2.	Description:	Two spool axial flow engine with a high bypass ratio featuring: Single Stage Wide Chord Fan Two Stage Booster Ten Stage HP Compressor Annular Combustor Two Stage HP Turbine Three Stage LP Turbine Full Authority Digital Engine Control (FADEC).
3.	Equipment:	See Type Design Definition. The equipment which is approved for use on the engine is identified in Type Certificate Holder Report E-TR494/97(FR) ISS 04, Engine Equipment Classification, or later approved issues.
4.	Dimensions:	Overall Length (nominal): 3738 mm Length - Front Face of Fan Casing to Rear Face of Mounting Ring (nominal): 2588mm Outer diameter at rear mount ring (nominal): 1638mm Radius from engine centerline to maximum protrusion (accessory gearbox): 1064mm

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5. Dry Weight: Nominal Weight: 2085 kg

Note: Dry weight includes dressings, but excludes all fluids and all buyer furnished equipment.

6. Ratings (ISA, SLS): Takeoff : 83.23 kN
Maximum Continuous: 78.74 kN

7. Control System: Full Authority Digital Engine Control (FADEC). EEC P/N 111E9430G609 or later approved standard.

Software verified to level A according to RTCA / EUROCAE Document DO-178B/ED-12B.

Note:Software standard included in the Engine Electronic Control (EEC) Part Number.

8. Fluids (Fuel, Oil, Additives): See OI-715-3BR Operating Instructions for approved fluids.

9. Accessory Drives:

Loads, Weights, and Power Extraction:

	Direction of Rotation (Looking Normal to Pad Along Shaft)	Transmission Ratio to N2	Shear Neck Torque daNcm	Nominal Weight kg	Nominal Static Overhang Moment daNcm	Maximum Power Extraction kW
Hydraulic Pump	CCW	0.234	1690 - 2260	9.00	82.90	18.60
Integrated Drive Generator (IDG)*	CW	0.501	3559 - 4125	32.61	565.00	71.90

CW = Clockwise
CCW = Counterclockwise

*Weights and Moments include oil and ‘v’ clamp.

IV. Operational Limitations:

At sea level the engine may be used in ambient temperatures up to ISA + 40°C. Refer to the Installation Manual for the operating envelope.

1. Temperature Limits:

A. TGT (Trimmed):

(i)	Maximum prior to Ground Start:	150°C
(ii)	Starting on Ground:	700°C
(iii)	Starting in Flight:	850°C
(iv)	Takeoff*:	900°C
(v)	Maximum Continuous:	850°C
(vi)	Maximum Overtemperature (20 sec):	915°C

B. Fuel Temperature:

(i)	LP pump inlet (measured at aircraft fuel tank)	
	Maximum:	+54°C
(ii)	HP Pump Outlet (measured at HP filter)	
	Maximum for continuous operation:	+160°C
	Maximum transient (not to exceed 15 minutes):	+185°C
(iii)	LP pump Inlet minimum temperature	
	Takeoff, climb, and go-around:	-42°C
	Flight above 15,000 feet:	-48°C

C. Oil Temperature (Combined Scavenge Oil Temperature):

(i)	Minimum for starting:	-40°C
(ii)	Minimum for acceleration for Takeoff:	+20°C
(iii)	Maximum:	+160°C

2. Rotational Speeds:

A.	Takeoff*:	6096 min^{-1} (N1)
		16661 min^{-1} (N2)
B.	Maximum Continuous:	6096 min^{-1} (N1)
		16661 min^{-1} (N2)
C.	Overspeed (20 sec. Maximum):	6204 min^{-1} (N1)
		16744 min^{-1} (N2)
D.	Reverse Thrust (30 Sec. Maximum) see Note 7:	3810 min^{-1} (N1)
E.	Emergency Reverse Thrust:	5576 min^{-1} (N1)

*Limited in use to a continuous period of not more than 5 minutes, and limited in use to a continuous period of not more than 10 minutes in the event of a power unit having failed or being shut down.

3. Pressure Limits:

A. Fuel

Minimum pressure at LP fuel pump inlet:	13.79 kPa + true vapour pressure

B. Oil (Differential Pressure)

(i) Minimum acceptance for flight

Idle to 11514 min^{-1} (N2):	241.2 kPa
11514 min^{-1} (N2) to 14293 min^{-1} (N2):	straight line interpolation from 241.2 kPa to 310.3 kPa
Above 14293 min^{-1} (N2):	310.3 kPa

(ii) Minimum to complete flight

Flight Idle to 11514 min^{-1} (N2):	172.4 kPa
11514 min^{-1} (N2) to 14293 min^{-1} (N2):	straight line interpolation from 172.4 kPa to 241.3 kPa
Above 14293 min^{-1} (N2)	241.2 kPa

4. Oil System Limit:

Maximum oil consumption:	0.34 l/hr
Useable oil tank contents:	6.22 l

5. Engine Acceptance Limitations: See Type Certificate Holder Report E-TR 586/98 (FR) ISS00 or later approved issues BR700-715 Engine Pass-Off Acceptance Limits of Engine Data Sheet.

6. Bleed Extraction:

Power Level	Maximum Flow		
	Stage 5	Stage 8	Fan
Idle to 1.15 EPR	9	15	1.4
1.15 to 1.25 EPR	10	10	1.5
1.25 to 1.30 EPR	10	10	1.5
Above 1.3 EPR	10	10	1.5

Notes: 1. $$EPR = \frac{\text{Core Engine Exhaust Total Pressure}}{\text{Engine Inlet Total Pressure}} = \frac{P50}{P20}$$

2. Stage 5 and Stage 8 high pressure compressor bleed is expressed as a percentage of HPC entry mass flow, W26.

3. Fan bleed flow is quoted as a percentage of fan entry mass flow, W12.

4. Maximum flow includes maximum cabin air bleed for single or twin engine operation and the maximum anti-ice bleed.

7. Dispatch Limitations: See BRR Report Reference E-TR 436/98 (FR) ISS 01 or later approved issues Full Authority Digital Engine Control System Dispatchability Summary.

V. <u>Operating and Service Instructions:</u>

1. Installation Requirements: E-TR216/98 (FR) ISS 01 or later approved issues.

2. Operating Instructions: OI-715-3BR

3. Maintenance Manual: M-715-3BR

4. Engine Manual (Overhaul Manual): E-715-3BR

5. Life Limits Manual: T-715-3BR

6. Service Bulletins and Service Letters.

VI. Notes:

1. The engine is approved for operation with the Boeing thrust reversers (not part of the engine):

   Assembly number 715-0021-505 for Left Hand and Right Hand Installations.

2. The engine is equipped with a starter. The starter part number is included in the DIS and the list of equipment.

3. Lightning protection and magnetic interference information are included in the Installation Requirements.

4. The engine side of the engine to aircraft mounts interface is defined as the Intercase mount lugs including the fixed bushings and the Rear Mount Ring mount lugs including the fixed bushings. Engine to airframe mounts are therefore not part of the engine and must be provided by the airframe manufacturer.

5. For life limitations see Time Limits Manual.

6. Until the Engine Manual is published, only the manufacturer is permitted to overhaul engines.

7. The engine is approved to use reverse thrust for moving the aircraft backwards.

8. The certification assumptions are contained are contained in reports E-TR503/97 (FR) ISS 02, Assumptions, and ETR 435/98(FR) ISS 01, FADEC Assumptions Summary Report.

BR700-715B1-30

I. General:

1.	CAA ETCDS No:	1053 Issue 2	Date: 23 May 2000
2.	Type / Variant:		BR700-715B1-30
3.	Type Certificate Holder:		Rolls-Royce Deutschland Ltd & Co KG Eschenweg 11 D-15827 Dahlewitz Germany
4.	UK CAA Type Certificate:		098/1
5.	Manufacturer:		Rolls-Royce Deutschland Ltd & Co KG

6. The CAA Type Certification has been granted on the basis of a recommendation from the Joint Aviation Authorities (JAA) following an investigation carried out in accordance with the JAA Joint Certification Procedures. Accordingly the JAA Data Sheet No. JAA/E/98-018 Issue 01 dated July 16 1998 has been used as the basis of this CAA Engine Type Certificate Data Sheet.

II. Certification Basis:

1.	JAA Certification Application Date:	18 December 1995
2.	JAA Certification Reference Date:	18 December 1995
3.	JAA Certification Recommendation Date:	28 August 1998
4.	Reference Application Date for CAA Certification:	18 December 1995
5.	CAA Certification Date:	1 October 1998
6.	CAA Certification Basis:	Same as the JAA Certification Basis specified in paragraphs 7 to 12 below.
7.	JAA Airworthiness Requirements:	JAR-E Change 9 dated 21 October 1994.

8.	JAA Special Conditions:	SC1 Ingestion of Rain SC2 Ingestion of Hail SC3 Bird Strike SC4 Bird Strike of 1.85 kg Bird.
9.	JAA Exemptions:	JAR-E 890(a) Engine Calibration in Reverse Thrust.
10.	JAA Equivalent Safety Finding:	JAR-E 840(a)(2) Rotor Integrity.
11.	Additional National Requirements:	ANR-1-Enviromental ICAO Annex 16, Volume II, Second Edition, July 1993 - Emissions and Fuel Venting.

III. <u>Technical Characteristics:</u>

1.	Type Design Definition:	Drawing Introduction Sheet (DIS) No. DIS 10011 ISS 02 or later approved issues.
2.	Description:	Two spool axial flow engine with a high bypass ratio featuring: Single Stage Wide Chord Fan Two Stage Booster Ten Stage HP Compressor Annular Combustor Two Stage HP Turbine Three Stage LP Turbine Full Authority Digital Engine Control (FADEC).
3.	Equipment:	See Type Design Definition. The equipment which is approved for use on the engine is identified in Type Certificate Holder Report E-TR494/97(FR) ISS 04, Engine Equipment Classification, or later approved issues.
4.	Dimensions:	Overall Length (nominal): 3738 mm Length - Front Face of Fan Casing to Rear Face of Mounting Ring (nominal): 2588mm Outer diameter at rear mount ring (nominal): 1638mm Radius from engine centerline to maximum protrusion (accessory gearbox): 1064mm

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5. Dry Weight: Nominal Weight: 2085 kg

Note: Dry weight includes dressings, but excludes all fluids and all buyer furnished equipment.

6. Ratings (ISA, SLS): Takeoff : 89.68 kN
Maximum Continuous: 89.68 kN

7. Control System: Full Authority Digital Engine Control (FADEC). EEC P/N 111E9430G609 or later approved standard.

Software verified to level A according to RTCA / EUROCAE Document DO-178B/ED-12B.

Note:Software standard included in the Engine Electronic Control (EEC) Part Number.

8. Fluids (Fuel, Oil, Additives): See OI-715-3BR Operating Instructions for approved fluids.

9. Accessory Drives:

Loads, Weights, and Power Extraction:

	Direction of Rotation (Looking Normal to Pad Along Shaft)	Transmission Ratio to N2	Shear Neck Torque daNcm	Nominal Weight kg	Nominal Static Overhang Moment daNcm	Maximum Power Extraction kW
Hydraulic Pump	CCW	0.234	1690 - 2260	9.00	82.90	18.60
Integrated Drive Generator (IDG)*	CW	0.501	3559 - 4125	32.61	565.00	71.90

CW = Clockwise
CCW = Counterclockwise

*Weights and Moments include oil and ‘v’ clamp.

IV. Operational Limitations:

At sea level the engine may be used in ambient temperatures up to ISA + 40°C. Refer to the Installation Manual for the operating envelope.

1. Temperature Limits:

A. TGT (Trimmed):

(i)	Maximum prior to Ground Start:	150°C
(ii)	Starting on Ground:	700°C
(iii)	Starting in Flight:	850°C
(iv)	Takeoff*:	900°C
(v)	Maximum Continuous:	850°C
(vi)	Maximum Overtemperature (20 sec):	915°C

B. Fuel Temperature:

(i)	LP pump inlet (measured at aircraft fuel tank)	
	Maximum:	+54°C
(ii)	HP Pump Outlet (measured at HP filter)	
	Maximum for continuous operation:	+160°C
	Maximum transient (not to exceed 15 minutes):	+185°C
(iii)	LP pump Inlet minimum temperature	
	Takeoff, climb, and go-around:	-42°C
	Flight above 15,000 feet:	-48°C

C. Oil Temperature (Combined Scavenge Oil Temperature):

(i)	Minimum for starting:	-40°C
(ii)	Minimum for acceleration for Takeoff:	+20°C
(iii)	Maximum:	+160°C

2. Rotational Speeds

A.	Takeoff *:	6096 min^{-1} (N1)
		16661 min^{-1} (N2)
B.	Maximum Continuous:	6096 min^{-1} (N1)
		16661 min^{-1} (N2)
C.	Overspeed (20 sec. Maximum):	6204 min^{-1} (N1)
		16744 min^{-1} (N2)
D.	Reverse Thrust	
	(30 Sec. Maximum) see Note 7:	3810 min^{-1} (N1)
E.	Emergency Reverse Thrust:	5576 min^{-1} (N1)

*Limited in use to a continuous period of not more than 5 minutes, and limited in use to a continuous period of not more than 10 minutes in the event of a power unit having failed or being shut down.

3. Pressure Limits

A. Fuel

Minimum pressure at LP fuel pump inlet:	13.79 kPa + true vapour pressure

B Oil (Differential Pressure)

(i) Minimum acceptance for flight

Idle to 11514 min^{-1} (N2):	241.2 kPa
11514 min^{-1} (N2) to 14293 min^{-1} (N2):	straight line interpolation from 241.2 kPa to 310.3 kPa
Above 14293 min^{-1} (N2):	310.3 kPa

(ii) Minimum to complete flight

Flight Idle to 11514 min^{-1} (N2):	172.4 kPa
11514 min^{-1} (N2) to 14293 min^{-1} (N2):	straight line interpolation from 172.4 kPa to 241.3 kPa
Above 14293 min^{-1} (N2):	241.2 kPa

4. Oil System Limits:

Maximum oil consumption:	0.34 l/hr
Useable oil tank contents:	6.22 l

5. Engine Acceptance Limitations: See Type Certificate Holder Report E-TR 586/98 (FR) ISS00 or later approved issues BR700-715 Engine Pass-Off Acceptance Limits of Engine Data Sheet.

6. Bleed Extraction:

Power Level	Maximum Flow		
	Stage 5	Stage 8	Fan
Idle to 1.15 EPR	9	15	1.4
1.15 to 1.25EPR	10	10	1.5
1.25 to 1.30 EPR	10	10	1.5
Above 1.3 EPR	10	10	1.5

Notes: 1. $$EPR = \frac{\text{Core Engine Exhaust Total Pressure}}{\text{Engine Inlet Total Pressure}} = \frac{P50}{P20}$$

2. Stage 5 and Stage 8 high pressure compressor bleed is expressed as a percentage of HPC entry mass flow, W26.

3. Fan bleed flow is quoted as a percentage of fan entry mass flow, W12.

4. Maximum flow includes maximum cabin air bleed to be used for single or twin engine operation and maximum anti-ice bleed.

7. Dispatch Limitations: See BRR Report Reference E-TR 436/98 (FR) ISS 01 or later approved issues Full Authority Digital Engine Control System Dispatchability Summary.

V. <u>Operating and Service Instructions:</u>

1. Installation Requirements: E-TR216/98 (FR) ISS 01 or later approved issues.

2. Operating Instructions: OI-715-3BR

3. Maintenance Manual: M-715-3BR

4. Engine Manual (Overhaul Manual): E-715-3BR

5. Life Limits Manual: T-715-3BR

6. Service Bulletins and Service Letters.

VI. Notes:

1. The engine is approved for operation with the Boeing thrust reversers (not part of the engine):

   Assembly number 715-0021-505 for Left Hand and Right Hand Installations.

2. The engine is equipped with a starter. The starter part number is included in the DIS and the list of equipment.

3. Lightning protection and magnetic interference information are included in the Installation Requirements.

4. The engine side of engine to aircraft mounts interface is defined as the intercase mount lugs including the fixed bushings and the Rear Mount Ring mount lugs incuding the fixed bushings. Engine to airframe mounts are therefore not part of the engine and must be provided by the airframe manufacturer.

5. For life limitations see Time Limits Manual.

6. Until the Engine Manual is published, only the manufacturer is permitted to overhaul engines.

7. The engine is approved to use reverse thrust for moving the aircraft backwards.

8. The certification assumptions are contained in reports E-TR503/97(FR) ISS02, Assumptions, and E-TR435/98(FR) ISS01, FADEC Assumptions Summary Report.

BR700-715C1-30

I. General:

1.	CAA ETCDS No:	1053 Issue 2	Date: 23 May 2000
2.	Type / Variant:		BR700-715C1-30
3.	Type Certificate Holder:		Rolls-Royce Deutschland Ltd & Co KG Eschenweg 11 D-15827 Dahlewitz Germany
4.	UK CAA Type Certificate:		098/1
5.	Manufacturer:		Rolls-Royce Deutschland Ltd & Co KG

6 The CAA Type Certification has been granted on the basis of a recommendation from the Joint Aviation Authorities (JAA) following an investigation carried out in accordance with the JAA Joint Certification Procedures. Accordingly the JAA Data Sheet No. JAA/E/98-018 Issue 01 dated July 16 1998 has been used as the basis of this CAA Engine Type Certificate Data Sheet.

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4.	Reference Application Date for CAA Certification:	18 December 1995
5.	CAA Certification Date:	1 October 1998
6.	CAA Certification Basis:	Same as the JAA Certification Basis specified in paragraphs 7 to 12 below.
7.	JAA Airworthiness Requirements:	JAR-E Change 9 dated 21 October 1994.
8.	JAA Special Conditions:	SC1 Ingestion of Rain SC2 Ingestion of Hail SC3 Bird Strike SC4 Bird Strike of 1.85 kg Bird.

9.	JAA Exemptions:	JAR-E 890(a) Engine Calibration in Reverse Thrust.
10.	JAA Equivalent Safety Finding:	JAR-E 840(a)(2) Rotor Integrity.
11.	Additional National Requirements:	ANR-1-Enviromental ICAO Annex 16, Volume II, Second Edition, July 1993 - Emissions and Fuel Venting.

III. <u>Technical Characteristics:</u>

1.	Type Design Definition:	Drawing Introduction Sheet (DIS) No. DIS 10007 ISS 02 or later approved issues.
2.	Description:	Two spool axial flow engine with a high bypass ratio featuring: Single Stage Wide Chord Fan Two Stage Booster Ten Stage HP Compressor Annular Combustor Two Stage HP Turbine Three Stage LP Turbine Full Authority Digital Engine Control (FADEC).
3.	Equipment:	See Type Design Definition. The equipment which is approved for use on the engine is identified in Type Certificate Holder Report E-TR494/97(FR) ISS 04, Engine Equipment Classification, or later approved issues.
4.	Dimensions:	Overall Length (nominal): 3738 mm Length - Front Face of Fan Casing to Rear Face of Mounting Ring (nominal): 2588mm Outer diameter at rear mount ring (nominal): 1638mm Radius from engine centerline to maximum protrusion (accessory gearbox): 1064mm

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5. Dry Weight: Nominal Weight: 2085 kg

Note: Dry weight includes dressings, but excludes all fluids and all buyer furnished equipment.

6. Ratings (ISA, SLS): Takeoff : 95.33 kN
Maximum Continuous: 90.84 kN

7. Control System: Full Authority Digital Engine Control (FADEC). EEC P/N 111E9430G609 or later approved standard.

Software verified to level A according to RTCA / EUROCAE Document DO-178B/ED-12B.

Note:Software standard included in the Engine Electronic Control (EEC) Part Number.

8. Fluids (Fuel, Oil, Additives): See OI-715-3BR Operating Instructions for approved fluids.

9. Accessory Drives:

Loads, Weights, and Power Extraction:

	Direction of Rotation (Looking Normal to Pad Along Shaft)	Transmission Ratio to N2	Shear Neck Torque daNcm	Nominal Weight kg	Nominal Static Overhang Moment daNcm	Maximum Power Extraction kW
Hydraulic Pump	CCW	0.234	1690 - 2260	9.00	82.90	18.60
Integrated Drive Generator (IDG)*	CW	0.501	3559 - 4125	32.61	565.00	71.90

CW = Clockwise
CCW = Counterclockwise

*Weights and Moments include oil and ‘v’ clamp.

IV. Operational Limitations:

At sea level the engine may be used in ambient temperatures up to ISA + 40°C. Refer to the Installation Manual for the operating envelope.

1. Temperature Limits:

A. TGT (Trimmed)

(i)	Maximum prior to Ground Start:	150°C
(ii)	Starting on Ground:	700°C
(iii)	Starting in Flight:	850°C
(iv)	Takeoff*:	900°C
(v)	Maximum Continuous:	850°C
(vi)	Maximum Overtemperature (20 sec):	915°C

B. Fuel Temperature:

(i)	LP pump inlet (measured at aircraft fuel tank)	
	Maximum:	+54°C
(ii)	HP Pump Outlet (measured at HP filter)	
	Maximum for continuous operation:	+160°C
	Maximum transient (not to exceed 15 minutes):	+185°C
(iii)	LP pump Inlet minimum temperature	
	Takeoff, climb, and go-around:	-42°C
	Flight above 15,000 feet:	-48°C

C. Oil Temperature (Combined Scavenge Oil Temperature):

(i)	Minimum for starting:	-40°C
(ii)	Minimum for acceleration for Takeoff:	+20°C
(iii)	Maximum:	+160°C

2. Rotational Speeds:

A.	Takeoff*:	6096 min^{-1} (N1)
		16661 min^{-1} (N2)
B.	Maximum Continuous:	6096 min^{-1} (N1)
		16661 min^{-1} (N2)
C.	Overspeed (20 sec. Maximum):	6204 min^{-1} (N1)
		16744 min^{-1} (N2)
D.	Reverse Thrust (30 Sec. Maximum) see note 7:	3810 min^{-1} (N1)
E.	Emergency Reverse Thrust:	5576 min^{-1} (N1)

*Limited in use to a continuous period of not more than 5 minutes, and limited in use to a continuous period of not more than 10 minutes in the event of a power unit having failed or being shut down.

3. Pressure Limits:

A. Fuel

Minimum pressure at LP fuel pump inlet	13.79 kPa + true vapour pressure

B. Oil (Differential Pressure)

(i) Minimum acceptance for flight

Idle to 11514 min^{-1} (N2):	241.2 kPa
11514 min^{-1} (N2) to 14293 min^{-1} (N2):	straight line interpolation from 241.2 kPa to 310.3 kPa
Above 14293 min^{-1} (N2):	310.3 kPa

(ii) Minimum to complete flight

Flight Idle to 11514 min^{-1} (N2):	172.4 kPa
11514 min^{-1} (N2) to 14293 min^{-1} (N2):	straight line interpolation from 172.4 kPa to 241.3 kPa
Above 14293 min^{-1} (N2):	241.2 kPa

4. Oil System Limits:

Maximum oil consumption:	0.34 l/hr
Useable oil tank contents:	6.22 l

5. Engine Acceptance Limitations: See Type Certificate Holder Report E-TR 586/98 (FR) ISS00 or later approved issues BR700-715 Engine Pass-Off Acceptance Limits of Engine Data Sheet.

6. Bleed Extraction:

Power Lever	Maximum Flow		
	Stage 5	Stage 8	Fan
Idle to 1.15 EPR	9	15	1.4
1.15 to 1.25 EPR	10	10	1.5
1.25 to 1.30 EPR	10	10	1.5
Above 1.3 EPR	10	10	1.5

Notes: 1. $$EPR = \frac{\text{Core Engine Exhaust Total Pressure}}{\text{Engine Inlet Total Pressure}} = \frac{P50}{P20}$$

2. Stage 5 and Stage 8 high pressure compressor bleed is expressed as a percentage of HPC entry mass flow, W26.

3. Fan bleed flow is quoted as a percentage of fan entry mass flow, W12.

4. Maximum flow includes maximum cabin air bleed for single or twin engine operation and the maximum anti-ice bleed.

7. Dispatch Limitations: See BRR Report Reference E-TR 436/98 (FR) ISS 01 or later approved issues Full Authority Digital Engine Control System Dispatchability Summary.

V. <u>Operating and Service Instructions:</u>

1. Installation Requirements: E-TR216/98 (FR) ISS 01 or later approved issues.

2. Operating Instructions: OI-715-3BR

3. Maintenance Manual: M-715-3BR

4. Engine Manual (Overhaul Manual): E-715-3BR

5. Life Limits Manual: T-715-3BR

6. Service Bulletins and Service Letters.

VI. Notes:

1. The engine is approved for operation with the Boeing thrust reversers (not part of the engine):

   Assembly number 715-0021-505 for Left Hand and Right Hand Installations.

2. The engine is equipped with a starter. The starter part number is included in the DIS and the list of equipment.

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