



TYPE-CERTIFICATE DATA SHEET

EASA.E.061

for
RB211-535 Series Engines

Type Certificate Holder

Rolls-Royce plc
62 Buckingham Gate
Westminster
London
SW1E 6AT
United Kingdom

For Models:

RB211-535C-37
RB211-535E4-37
RB211-535E4-B-37
RB211-535E4-C-37
RB211-535E4-B-75



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TABLE OF CONTENTS

I. General	4
1. Type/Model/Variants	4
2. Type Certificate Holder	4
3. Manufacturer	4
4. Date of Application	4
5. Certification Reference Date	4
6. EASA Type Certification Date	4
II. Certification Basis	5
1. EASA Certification Basis	5
1.1. Airworthiness Standards	5
1.2. Special Conditions (SC)	5
1.3. Equivalent Safety Findings	5
1.4. Deviations	6
III. Technical Characteristics	6
1. Type Design Definition	6
2. Description	6
3. Equipment	6
4. Dimensions (mm):	7
5. Dry Weight (kg):	7
6. Ratings	7
7. Control System	10
8. Fluids (Fuel, Oil, Coolant, Additives)	10
8.1 Fuel	10
8.2 Oil	10
8.3 Approved Hydraulic Fluid, Thrust Reverser	10
9. Aircraft Accessory Drives	11
10. Maximum Permissible Air Bleed Extraction	11
IV. Operating Limitations	13
1. Temperature Limits	13
1.1 Turbine Gas Temperature – Trimmed (Displayed)	13
1.2 Fuel Temperature at inlet to LP fuel pump (°C)	13
1.3 Oil temperature at combined scavenge return (°C)	13
2. Pressure Limits	14
2.1 Fuel pressure (kPa)	14
2.2 Oil pressure (kPa)	14
2.3 Other Limits:	14
3. Maximum Permissible Rotor Speeds (% of reference speeds)	15
4. Installation Assumptions	16
V. Operating and Service Instructions	16
VI. Notes	17
SECTION: ADMINISTRATIVE	18
I. Acronyms and Abbreviations	18
II. Type Certificate Holder Record	18
III. Change Record	18



I. General

1. Type/Model/Variants

RB211-535C-37, RB211-535E4-37, RB211-535E4-B-37, RB211-535E4-C-37 and RB211-535E4-B-75

These models are approved for use on multi-engined civil aircraft classified in the Transport Category (Passenger) at the ratings and within the operating limitations specified below, subject to compliance with the powerplant installation requirements appropriate to approved installations.

2. Type Certificate Holder

Rolls-Royce plc
62 Buckingham Gate
Westminster
London
SW1E 6AT
United Kingdom

Design Organisation Approval No.: EASA.21J.035

3. Manufacturer

Rolls-Royce plc

4. Date of Application

RB211-535C-37:	Not known (before 1982)
RB211-535E4-37:	Not known (before 1982)
RB211-535E4-B-37:	13 November 1987
RB211-535E4-C-37:	26 May 2000
RB211-535E4-B-75:	23 December 1991

5. Certification Reference Date

RB211-535C-37:	Not identified
RB211-535E4-37:	Not identified
RB211-535E4-B-37:	13 November 1987
RB211-535E4-C-37:	26 May 2000
RB211-535E4-B-75:	23 December 1991

6. EASA Type Certification Date

RB211-535C-37:	3 September 1981
RB211-535E4-37:	30 November 1983
RB211-535E4-B-37:	12 January 1989
RB211-535E4-C-37:	2 February 2001
RB211-535E4-B-75:	16 April 1992



II. Certification Basis

1. EASA Certification Basis

For RB211-535C-37, 535E4-37 and 535E4-B-37:

BCAR Section C, Issue 6, dated 15 June 1966 together with Blue Papers 415, 435, 436, 464, 468, 474, 476, 480, 481, 482, 499, 506, 544, 551 (paragraph 3.2.2 only) and 554.

For RB211-535E4-C-37:

1.1. Airworthiness Standards

JAR-E, Change 6 dated 28th August 1981, except for the following items, for which JAR-E Change 10 dated 15 August 1999 apply:

- JAR-E 140 Test Observations
- JAR-E 150 Conditions Applicable to All Tests
- JAR-E 160 Conditions Applicable to Endurance Tests
- JAR-E 170 Endurance Tests – Inspection Checks and Calibration
- JAR-E 600 Conditions Applicable to All Tests
- JAR-E 610 Conditions Applicable to Endurance Tests
- JAR-E 620 Performance Correlations
- JAR-E 630 Tests – General
- JAR-E 690 Engine Bleeds
- JAR-E 720 Continuous Ignition
- JAR-E 730 Engine Calibration Tests
- JAR-E 740 Endurance Test
- JAR-E 745 Engine Acceleration
- JAR-E 750 Starting Tests
- JAR-E 830 Overspeed
- JAR-E 840 Compressor and Turbine Rotor Integrity Tests
- JAR-E 870 Exhaust Gas Overtemperature Test

1.2. Special Conditions (SC)

- Ingestion of Rain & Hail
- Medium & Large Bird Requirements
- Propulsion System Electronic Controls

1.3. Equivalent Safety Findings

- JAR-E 740 150-Hour Endurance Test
- JAR-E 740(f)(1) 150-Hour Endurance Test-Test Conditions
- JAR-E600(b)&(c), E630(a), E830, E870 Overtemperature and Exhaust Gas Overtemperature Tests
- JAR-E 800 Bird Strike/Ingestion



For RB211-535E4-B-75 (see also Note 10):

- JAR-E, Change 6 dated 28th August 1981 (BCAR Section C Issue 13)

1.4. Deviations

- JAR-E Change 6 Chapter C3-4 section 24.1 Engine Calibration in Reverse Thrust
- JAR-E Change 6 Chapter 3-2 Section 2.1.1(c) Scavenge Filters Oil System General

III. Technical Characteristics

1. Type Design Definition

The build standards are defined in the following Drawing Introduction Sheet (DIS) or later approved issues:

DIS 1094 Issue 2 for RB211-535C-37
DIS 2015 Issue 2 for RB211-535E4-37
DIS 2106 Issue 3 for RB211-535E4-B-37
DIS 2224 Issue 1 for RB211-535E4-C-37
DIS 2142 Issue 2 for RB211-535E4-B-75

2. Description

The RB211-535 series engines are 3 spool turbofans with a by-pass ratio of 4.46:1 (RB211-535C-37) or 4.40:1 (RB211-535E4-37, RB211-535E4-B-37, RB211-535E4-C-37 and RB211-535E4-B-75) and a nominal overall pressure ratio at Sea Level ISA conditions of 21.2:1 (RB211-535C-37) or 25.0:1 (RB211-535E4-37, RB211-535E4-B-37, RB211-535E4-C-37 and RB211-535E4-B-75).

They comprise a single stage Low Pressure fan, a 6 stage Intermediate pressure axial flow compressor, a 6 stage High Pressure axial flow compressor, 1 annular combustion chamber, a single stage High Pressure axial flow turbine, a single stage Intermediate Pressure axial flow turbine as well as a 3 stage Low Pressure axial flow turbine.

3. Equipment

For equipment approved for use on the RB211-535 series engines refer to latest approved issues of DIS 1094 for the 535C-37 model, DIS 2015 for the 535E4-37 model, DIS 2106 for the 535E4-B-37 model, DIS 2224 for the 535E4-C-37 model and DIS 2142 for the 535E4-B-75 model.



4. Dimensions (mm):

	RB211-535C-37	RB211-535E4-37, RB211-535E4-B-37, RB211-535E4-C-37 and RB211-535E4-B-75
Length	4573.5*	5035.9**
Width (maximum over fan casing)	2216	2276
Height (from lowest point on gearbox to top face of engine mount pad)	2413	2416
* : from front of nose spinner to rear of jet pipe nozzle ** : from front of nose spinner to rear of common nozzle		

5. Dry Weight (kg):

	Dry Engine Weight
RB211-535C-37	3484*
RB211-535E4-37, RB211-535E4-B-37, and RB211-535E4-C-37	3449*
RB211-535E4-B-75	3705**
* : as defined in Chapter 1 of the applicable DIS (see 1. Type Design Definition) but excluding intake, cowls, thrust reverser assembly, exhaust afterbody/jet pipe and nacelle systems ** : as defined in Chapter 1 of the applicable DIS (see 1. Type Design Definition) but excluding nose cowl, fan cowl doors, pod items, thrust reverser and jet pipe/common nozzle assembly.	

6. Ratings

Ratings of the RB211-535C-37, 535E4-37, 535E4-B-37, 535E4-C-37 engine models (see also Note 3.):

For the RB211-535C-37, 535E4-37, 535E4-B-37 and 535E4-C-37 engine models, static sea-level ratings, which already include the losses due to scrubbing drag over nacelle afterbody and strut, nacelle cooling and ventilation flow including thrust reverser leakage and the IDG oil-cooler airflow, established under the following conditions:

- a) International Standard Atmospheric conditions at sea-level.
- b) All optional air bleeds closed.
- c) Aircraft service equipment drives unloaded.
- d) 100% intake recovery collected from the datum air intake system defined by Rolls-Royce Nacelle Control Document NCD 1009 or approved alternatives.
- e) Turbine gas temperature measured by 34 thermocouples located in the LP NGVs and fitted with ballast resistors as defined in Rolls-Royce report PTR58723.
- f) Fuel having a minimum calorific value of 42.8 MJ/Kg



<i>Maximum Take-off at sea level equivalent to the normal sea-level take-off rating</i>					
	535C-37	535E4-37	535E4-B-37	535E4-C-37	535E4-C-37 with Service Bulletin SB73-D716 embodied
Take-off	163.4	176.3	189.3	189.3	189.3
Bare Engine Equivalent	166.4	178.4	192.0	192.0	192.0

<i>Maximum Take-off at sea level equivalent to the rating at 5000 ft altitude for the 535C-37, 3000 ft for the 535E4-37, sea level for the 535E4-B-37 and 420 ft for the 535E4-C-37</i>					
	535C-37	535E4-37	535E4-B-37	535E4-C-37	535E4-C-37 with Service Bulletin SB73-D716 embodied
Take-off	179.2	185.0	189.3	192.4	192.4
Bare Engine Equivalent	182.3	187.3	192.0	195.1	195.1

<i>Maximum Continuous Thrust</i>					
	535C-37	535E4-37	535E4-B-37	535E4-C-37	535E4-C-37 with Service Bulletin SB73-D716 embodied
Max. Continuous	149.1	156.6	156.6	156.6	156.6
Bare Engine Equivalent	152	158.6	158.6	158.6	158.6

At maximum continuous rating, the engines are flat rated to ISA +10°C at all flight conditions.

At take-off rating, the engines are flat rated as follows:

535C-37:

- a) up to 3400 ft, ISA +13.9°C
- b) between 3400 ft and 5000 ft, varies linearly between ISA +13.9°C and ISA +17.2°C
- c) between 5000 ft and 9000 ft, ISA +17.2°C
- d) between 9000 ft and 10000 ft, varies linearly between ISA +17.2°C and ISA +13.9°C
- e) Between 10000 ft and 15000 ft, ISA +13.9°C

535E4-37:

- a) up to 10000 ft, ISA +13.9°C
- b) between 10000 ft and 12500 ft, varies linearly between ISA +13.9°C and ISA +20°C
- c) between 12500 ft and 15000 ft, ISA +20°C



535E4-B-37:

- a) At sea-level, ISA +10°C
- b) between sea-level and 4000 ft, varies approximately linearly between ISA +10°C and ISA +13.9°C
- c) between 4000 ft and 10000 ft, ISA +13.9°C
- d) between 10000 ft and 12500 ft, varies linearly between ISA +13.9°C and ISA +20°C
- e) Between 12500 ft and 15000 ft, ISA +20°C

535E4-C-37:

- a) At sea-level, ISA +12.5°C
- b) between sea-level and 420 ft, varies linearly between ISA +12.5°C and ISA +16.2°C
- c) between 420 ft and 820 ft, ISA +16.2°C
- d) between 820 ft and 1200 ft, varies linearly between ISA +16.2°C and ISA +12.9°C
- e) Between 1200 ft and 4000 ft, varies linearly between ISA +12.9°C and 13.9°C
- f) between 4000 ft and 10000 ft, ISA +13.9°C
- g) between 10000 ft and 12500 ft, varies linearly between ISA +13.9°C and ISA +20°C
- h) Between 12500 ft and 15000 ft, ISA +20°C

Ratings of the RB211-535E4-B-75 engine model (see also Note 4.):

For the RB211-535E4-B-75 engine model, static sea-level ratings, which already include the losses due to scrubbing drag over nacelle afterbody and strut, nacelle cooling and ventilation flow including thrust reverser leakage and the IDG oil-cooler airflow, established under the following conditions:

- a) International Standard Atmospheric conditions at sea-level.
- b) All optional air bleeds closed.
- c) Aircraft service equipment drives unloaded.
- d) 100% intake recovery collected from the datum air intake system defined by Rolls-Royce Nacelle Control Document NCD 1009 or approved alternatives.
- e) Turbine gas temperature measured by 34 thermocouples located in the LP NGVs and fitted with ballast resistors K or E. Code K resistor is defined by RT Sch. 66030 and Code E resistor is defined by RT Sch. 66025
- f) Fuel having a minimum calorific value of 42.8 MJ/Kg
- g) Test Bed Engine Pressure Ratio defined as PF (fan pressure) divided by PTO (ambient pressure)
- h) 100% HP = 10611 rpm, 100% IP = 7000 rpm, 100% LP = 4500 rpm

<i>Maximum Take-off Sea Level</i>	
	RB211-535E4-B-75
Take-off, minimum	189.3
Bare Engine Equivalent	192

<i>Maximum Continuous</i>	
	RB211-535E4-B-75
Maximum Continuous, minimum	156.6
Bare Engine Equivalent	158.6



7. Control System

The engine fuel system automatically controls fuel to maintain a selected engine condition and provides acceleration and deceleration control. The control system senses thrust lever setting, N3, P1, P4 and LP compressor delivery temperature. Fuel is supplied from the aircraft fuel system by a LP fuel pump, through a LP fuel cooled oil cooler and fuel filter to a HP fuel pump. The HP fuel pump delivers fuel through a fuel flow governor, flow meter and HP fuel filter and an emergency shut-off valve to a fuel manifold and fuel spray nozzles located in the combustion section of the engine. Manual control of the fuel flow for engine starting and stopping is effected through a 3 position fuel switch controlling the electrical supply to a shut-off valve and a fuel enrichment valve solenoid.

For a more detailed description refer to the applicable Operating Instructions.

8. Fluids (Fuel, Oil, Coolant, Additives)

8.1 Fuel

Refer to the applicable Operating Instructions for information on approved fuel and additive specifications.

8.2 Oil

	RB211-535C-37	RB211-535E4-37, 535E4-B-37, 535E4-C-37, 535E4-B-75
Nominal Total Oil System Capacity	35.8 l (63 Imp pt)	36.4 l (64 Imp pt)
Nominal Oil Tank Capacity	19.3 l (34 Imp pt)	19.3 l (34 Imp pt)
Minimum Usable Oil (including effect of altitude)	19.2 l (33.8 Imp pt)	18.2 l (32 Imp pt)

Refer to the applicable Operating Instructions for information on approved oil specifications.

8.3 Approved Hydraulic Fluid, Thrust Reverser

RB211-535C-37, -535E4-37, 535E4-B-37, 535E4-C-37 Models:

Monsanto Skydrol 500B
Monsanto Skydrol 500B4
Chevron Hyjet W
(or alternatives complying with Boeing specification BMS3-11 Revision E)

RB211-535E4-B-75 Model:

Monsanto Skydrol LD-4
Monsanto Skydrol 500B4
Chevron Hyjet IV-A
(or alternatives complying with Boeing specification BMS3-11 Revision G)



9. Aircraft Accessory Drives

For loads, weights and power extractions refer to the Installation Manual. The latter provides references of the documents that contain the subject data.

10. Maximum Permissible Air Bleed Extraction

The Boeing installation for the RB211-535C-37, 535E4-37, 535E4-B-37, 535E4-C-37 models as well as the Tupolev installation for the RB211-535E4-B-75 Model, will incorporate an automatic scheduling system which will select the appropriate bleed supply source in response to a signal sensing HP compressor delivery pressure (P4).

Bleed air is extracted from the HP2 delivery port at engine power settings above that giving a P4 greater than 0.648 N/sq mm (94 lbf/sq in)-gauge for the 535C-37 and 0.738 N/sq mm (107 lbf/sq in)-gauge for the 535E4-37, 535E4-B-37, 535E4-C-37 and 535E4-B-75 Models between sea-level and 31000 ft and 0.517 N/sq mm (75 lbf/sq in)-gauge for the 535C-37 and 0.627 N/sq mm (91 lbf/sq in)-gauge for the 535E4-37, 535E4-B-37, 535E4-C-37 and 535E4-B-75 Models above 31000ft.

At power settings below these pressures bleed is extracted from the HP6 bleed port with the exception of the nose cowl anti-icing air which is always taken from the HP2 port. This nose cowl anti-icing air is approximately 1.5% of HP compressor airflow and is included in the maximum bleed flow values quoted below for HP2 bleed.

In the aircraft system the cabin air bleed is passed through a pre-cooler with the required degree of cooling adjusted by valve controlling the fan delivery off-take cooling air supply. The valves respond to the temperature of the cabin air bleed.

The compressor air bleeds are to be used in accordance with the Rolls-Royce instructions and such that the Operating Limitations are not exceeded.

Bleed may be used at all engine speeds.

Air delivery for aircraft services:

10.1 Maximum HP6 bleed (% gas generator compressor flow)

		RB211-535C-37	RB211-535E4-37, 535E4-B-37, 535E4-C-37, 535E4-B-75
(a) Normal Operation	Low Idle to change over point	4.0	5.5
(b) Abnormal Operation	Low Idle to change over point	10.0	9.4



10.2 Maximum HP2 bleed (% gas generator compressor flow)

		RB211-535C-37	RB211-535E4-37, 535E4-B-37, 535E4-C-37, 535E4-B-75
(a) Normal Operation	(i) Low Idle to change over point	1.5	2.3
	(ii) Change over up to Maximum Continuous	4.0	4.8
	(iii) Maximum Continuous	4.0	3.6
	(iv) Maximum Continuous to Take-off	2.0	2.0
(b) Abnormal Operation	(i) Low Idle to change over point	2.3	2.3
	(ii) Change over up to Maximum Continuous	7.6	7.7
	(iii) Maximum Continuous	7.6	5.4
	(iv) Maximum Continuous to Take-off	2.4	2.5

10.3 Maximum Fan Bleed (% Fan Flow)

		RB211-535C-37	RB211-535E4-37, 535E4-B-37, 535E4-C-37, 535E4-B-75
Normal and Abnormal Operation	Low Idle to Take-off	1.0	1.0



IV. Operating Limitations

The operating limitations are applicable when the accuracy of the installed engine instrumentation is in accordance with Rolls-Royce report APS 1034 for the RB211-535C-37 Model, APS 1039 for the RB211-535E4-37, 535E4-B-37, 535E4-C-37 Models and APS 1057 for the RB211-535E4-B-37 and 535E4-B-75 Models.

1. Temperature Limits

1.1 Turbine Gas Temperature – Trimmed (Displayed)

	RB211-535C-37	RB211-535E4-37	RB211-535E4-B-37, 535E4-C-37 and 535E4-B-75
1.Momentary maximum during starts on the ground	570	570	570
2.Momentary maximum during re-lights in flight *	570	570	570
3.Maximum for take-off (5 min limit) **	850	850	877
4.Maximum Continuous	795	795	795
5.Maximum Overtemperature (20 sec limit)	870	870	897
*: For the RB211-535E4-37, 535E4-B-37 and 535E4-C-37 Models, during the use of the immediate relight procedure (reference Chapter 4 of Operating Instruction Manual F-211(535E4)-B the momentary maximum limitation of each mark during relight is equal to the maximum take-off TGT limit quoted under 3.			
**: These operating limitations may be used for up to 10 minutes in the event of engine failure (ref. BCAR Section C Issue 13 and JAR-E Change 6)			

1.2 Fuel Temperature at inlet to LP fuel pump (°C)

Maximum for all Models: 49
Minimum for all Models: -54

1.3 Oil temperature at combined scavenge return (°C)

	RB211-535C-37	RB211-535E4-37	RB211-535E4-B-37, 535E4-C-37 and 535E4-B-75
Minimum for starting	-40	-40	-40
Minimum for opening-up	-10	0	0
Maximum for unrestricted use	160	170	177



2. Pressure Limits

2.1 Fuel pressure (kPa)

The minimum pressure at engine inlet (measured at inlet to engine LP fuel pump) is 34.474 kPa (5 lbf/sq in) absolute plus true fuel vapour-pressure with zero vapour/liquid ratio between sea-level and 45000 ft altitude.

2.2 Oil pressure (kPa)

The minimum pressures vary linearly between the following listed HP rpm conditions:

		RB211-535C-37	RB211-535E4-37, 535E4-B-37, 535E4-C-37, 535E4-B-75
(a) Minimum acceptance for flight	(i) at 50% HP rpm	172.4 (25 lbf/sq in)	172.4 (25 lbf/sq in)
	(ii) at 70% HP rpm	241.3 (35 lbf/sq in)	241.3(35 lbf/sq in)
	(iii) at 93% HP rpm	275.8 (40 lbf/sq in)	275.8(40 lbf/sq in)
(b) Minimum to complete flight	(i) at 50% HP rpm or less	124.1 (18 lbf/sq in)	124.1(18 lbf/sq in)
	(ii) at 70% HP rpm	172.4 (25 lbf/sq in)	172.4(25 lbf/sq in)
	(iii) at 93% HP rpm	241.3 (35 lbf/sq in)	241.3(35 lbf/sq in)

2.3 Other Limits:

Minimum fuel drainage period from closing fuel cock after a false start is 30 seconds.

Oil consumption:

	RB211-535C-37	RB211-535E4-37, 535E4-B-37, 535E4-C-37	RB211-535E4-B-75
(a) Overall in flight, maximum for unrestricted operation	1.13 l/hr (2.0 Imp pt/hr)	1.13 l/hr (2.0 Imp pt/hr)	1.13 l/hr (2.0 Imp pt/hr)
(b) Overall in flight, maximum for stage lengths of 2 hours and less	1.13 l/hr (2.0 Imp pt/hr)	1.93 l/hr (3.4p Imp pt/hr)	-



3. Maximum Permissible Rotor Speeds (% of reference speeds)

Reference Speeds:

	HP	IP	LP
Reference speeds, 100% rpm	10611	7000	4500

Maximum for take-off (5 min limit):

	RB211-535C-37	RB211-535E4-37, 535E4-B-37, and 535E4-B-75	RB211-535E4-C-37	RB211-535E4-C-37 with Service Bulletin SB73-D716 embodied
HP	94.6	99.0	99.0	99.7
IP	101.9	100.3	100.7	101.7
LP	110.0	108.8	108.8	108.8

Maximum Continuous:

	RB211-535C-37	RB211-535E4-37, 535E4-B-37 and 535E4-B-75	RB211-535E4-C-37	RB211-535E4-C-37 with Service Bulletin SB73-D716 embodied
HP	93.0	95.8	95.8	95.8
IP	99.3	98.0	98.8	98.0
LP	108.5	108.4	108.4	108.4

Maximum Overspeed (20 sec limit):

	RB211-535C-37	RB211-535E4-37, 535E4-B-37 and 535E4-B-75	RB211-535E4-C-37	RB211-535E4-C-37 with Service Bulletin SB73-D716 embodied
HP	95.6	100.2	100.2	101.5
IP	102.9	101.3	102.3	103.3
LP	111.0	110.0	110.0	110.0

Maximum for reverse thrust:

	RB211-535C-37	RB211-535E4-37, 535E4-B-37 and 535E4-C-37	RB211-535E4-B-75
HP (60 sec limit)	100.0	-	-
HP (40 sec limit)	-	-	-
LP (40 sec limit)	108.5	84.3	84.3



Low Idle, Minimum:

The crew drills for ground starting must include a statement that at stabilized Low Idle, LP rotational speed should not be below 22.5% for the 535C-37 Model and 19.8% for the RB211-535E4-37, 535E4-B-37, 535E4-C-37 and 535E4-B-75 Models.

4. Installation Assumptions

Refer to Installation Manual for details.

V. Operating and Service Instructions

i) Operating Instructions

Models	Document Reference
RB211-535C-37	F-211(535)-B
RB211-535E4-37, 535E4-B-37 and 535E4-C-37	F-211(535E4)-B
RB211-535E4-B-75	F-211(535)-TU

ii) Maintenance Manual

Models	Document Reference
RB211-535C-37	Boeing 757 Aircraft Maintenance Manual
RB211-535E4-37, 535E4-B-37 and 535E4-C-37	Boeing 757 Aircraft Maintenance Manual
RB211-535E4-B-75	M-211(535)-TU

iii) Installation Manual

Models	Document Reference
RB211-535C-37	EL2811A
RB211-535E4-37, 535E4-B-37 and 535E4-C-37	EL2811A
RB211-535E4-B-75	MISC 2717

iv) Engine (including Thrust Reverser) Manual

Models	Document Reference
RB211-535C-37	E-211(535)-5RR
RB211-535E4-37, 535E4-B-37 and 535E4-C-37	E-211(535E)-6RR
RB211-535E4-B-75	E-211(535)-4RR



v) Time Limits Manual

Models	Document Reference
RB211-535C-37	T-211(535)-5RR
RB211-535E4-37, 535E4-B-37 and 535E4-C-37	T-211(535)-6RR
RB211-535E4-B-75	T-211(535)-4RR

VI. Notes

1. Models RB211-535C-37, 535E4-37, 535E4-B-37 and 535E4-C-37 were previously covered under CAA-UK Engine Type Certificates No. 068 and 079/2 and CAA-UK Type Certificate Data Sheet No. 1044 prior to being superseded by the EASA Type Certificate and Type Certificate Data Sheet.
2. Model RB211-535E4-B-75 was previously covered under CAA-UK Engine Type Certificate No. 090 and CAA-UK Type Certificate Data Sheet No. 1049 prior to being superseded by the EASA Type Certificate and Type Certificate Data Sheet.
3. The acceptance limitations for Production Pass-off and Repair/Overhaul for the RB211-535C-37, 535E4-37, 535E4-B-37 and 535E4-C-37 engine models are defined in the latest edition of Rolls-Royce report PTR 58723 – (Doc No. DHN 124943, ETCDS Test Bed Acceptance Limits). This report defines the Trimmer values which establish the constant Turbine Gas Temperature operating limits for varying Turbine Entry Temperatures which is a function of engine modification standard.
4. The following acceptance limitations apply to the RB211-535E4-B-75 engine model:
 - a) Maximum Take off Sea level :
 - a1) Maximum HP speed is 97.1%, maximum IP speed is 98.4% and maximum LP speed is 106.2%
 - a2) Maximum Turbine Gas Temperature is 830°C
 - a3) Maximum trimmed Engine Pressure Ratio is 1.799
 - a4) Maximum Specific Fuel Consumption is 41.895 kg/kN / hr (0.411 lb/lbf/hr)
 - b) Maximum Continuous:
 - b1) Maximum HP speed is 93.2%, maximum IP speed is 92.5% and maximum LP speed is 95.4%
 - b2) Maximum Turbine Gas Temperature is 722°C
 - b3) Maximum trimmed Engine Pressure Ratio is 1.652
 - b4) Maximum Specific Fuel Consumption is 38.837 kg/kN / hr (0.381 lb/lbf/hr)
 - b5) Maximum oil consumption is 0,909 l/hr (0.2 Imp Gallon/hr)
 - b6) Minimum oil pressure 0.2758 N/sq mm (40 lbf/sq in)
5. A thrust reverser system, excluding control and hydraulic supply system, is incorporated to reverse the fan stream and is included in this approval.
6. The approval of the RB211-535C-37 Model includes fitment of either a heated or non-heated spinner.
7. An optional feature is a supervisory control system by which electronic trimming of fuel is applied through the prime hydro-mechanical fuel flow regulator via a torque motor in order to control the engine at throttle-selected values of Engine Pressure Ratio. The software of this system meets “critical” standard of RTCA DO-178.



8. The RB211-535E4-37, 535E4-B-37, 535E4-C-37 and 535E4-B-75 engines comply with the aircraft engine emission requirements of BCAR section M issue 1 as amended by Blue Paper M847 and the recommendations of ICAO Annex 16 Volume II. The RB211-535E4-C-37 engine complies with ICAO Annex 16 Volume II, second edition 1993.
9. In respect of Extended Range Operations, the qualifying standard and approved maximum rule time for the RB211-535C-37 and RB211-535E4-37 Models, eligible for use in the Boeing 757 aircraft, are defined in UK CAA approved document ANR 117. Information in respect of the aircraft is included in the aircraft configuration control document.
10. Installation assumptions for the RB211-535E4-B-75 engine Model are defined in Rolls-Royce report No. MDR 59943.

SECTION: ADMINISTRATIVE

I. Acronyms and Abbreviations

EASA	European Aviation Safety Agency
DIS	Drawing Introduction Sheet
HP	High Pressure
ICAO	International Civil Aviation Organisation
IP	Intermediate Pressure
LP	Low Pressure
rpm	Revolutions per Minute
SC	Special Conditions
TCDS	Type Certificate Data Sheet

II. Type Certificate Holder Record

Rolls-Royce plc

III. Change Record

Issue	Date	Changes	TC issue date
Issue 01	30 October 2013	Initial Issue	Initial Issue, 30 October 2013
Issue 02	14 April 2014	Editorial correction of reference speeds	
Issue 03	18 April 2018	Change of TC Holder's address	18 April 2018

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