

**ETOPS (ROLLS-ROYCE ENGINES) COMPLIANCE TO CMP REV AB,  
DATED 11 JUNE 2015**

For Boeing B777-212 ER Aircraft, 9V-SQL (MSN 33370)  
Fitted with Trent 884 Engines ESN 51080 and 51088

Item #	Requirement for Operation based on 180 Minutes ETOPS Type Design Approval	FAA Requirement.	EASA Requirement.	Complied with Y/N/NA
1	<p><b>Engine- Intermediate Pressure (IP) Compressor Location Bearing Support Flange:</b> Install oil pump filter screen in accordance with Rolls-Royce Service Bulletins RB.211-79-B956 and RB.211-79-B957 prior to the accumulation of 900 flight cycles since new, or entry into ETOPS service, whichever occurs later.</p> <p>Inspect the oil pump filter screen in accordance with Rolls-Royce Non-Mod Service Bulletin (NMSB) RB.211-79-B685, Revision 1, at intervals not to exceed 40 flight hours until accomplishment of the final action.</p> <p>Final Action: Incorporate a new IP Location Bearing Support Flange bolt configuration, in accordance with Rolls-Royce Service Bulletin RB.211-72-B863, prior to December 31, 1998.</p>	✓	✓	<p>NA.</p> <p>RB.211-79-B956 and RB.211-79-B957 affects ESN prior to Serial No. 51031.</p> <p>RB,211-79-B685 (Cancelled)</p> <p>RB.211-72-B863 affects ESN prior to Serial No. 51017.</p>
2	<p><b>Engine- Internal Gearbox Static Air Seal:</b> Inspect the internal gearbox static air seal in accordance with the requirement of Rolls-Royce NMSB RB.211-72-B986, at intervals not to exceed 1000 flight cycles.</p> <p>Final Action: Install new internal gearbox static air seal, in accordance with Rolls-Royce Service Bulletin RB.211-72-B515, prior to December 31, 1998.</p>	✓	✓	<p>NA.</p> <p>RB.211-72-B515 affects ESN prior to Serial No. 51012.</p>
3	<p><b>Engine-Integrated Drive Generator (IDG) Oil Tube:</b> Inspect the IDG oil tube P-Clamp, in accordance with Boeing Service Letter 777-SL-24-009, dated September 3, 1996, or Boeing Service Bulletin 777-24-0018, Original, at intervals not to exceed 300 flight hours.</p> <p>Final Action: Incorporate a new IDG oil tube assembly, in accordance with Service Bulletin 777-24-0018, Revision 1, prior to September 31, 1997.</p>	✓	-	NA.
4	<p><b>Engine – Igniters:</b> Replace both engine igniters, Rolls-Royce Part Number L907029 (Champion P/N CH34698), in accordance with Rolls-Royce Non-Mod Service Bulletin RB.211-74-B988, at intervals not to exceed 400 flight cycles.</p> <p>Final Action: Install redesigned ignitors, in accordance with Rolls-Royce Service Bulletin RB.211-74-C099, prior to December 31, 1997.</p>	✓	✓	<p>NA.</p> <p>RB.211-74-C099 affects engines prior to Serial No. 51074.</p>



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5	<b>Engine – Igniter Leads:</b> Install new igniter leads in accordance with Rolls-Royce Service Bulletin RB.211-74-B731, Revision 2, prior to initiation of ETOPS.	✓	-	NA  RB.211-74-B731 affects ESN prior to Serial No. 51015.
6	<b>Engine – High Pressure Compressor (HPC):</b> Borescope inspect the HPC, in accordance with the requirements of Rolls-Royce NMSB RB.211-72-B984, at intervals not to exceed 1,000 cycles.	✓	✓	NA.  RB.211-72-B984 (Cancelled)
7	<b>Engine – Oil Pressure Transmitters:</b> Install oil pressure transmitters, Rolls-Royce Part Number 44337-1, Revision D Standard, prior to initiation of ETOPS.	✓	-	Y.  PN APTE-4RB-1625 fitted on ESN 51080  PN 44337-1 Rev D and PN 44337-1 Rev J fitted on ESN 51088  Note: PN APTE-4RB-1625 is equivalent to PN 44337-1 post-SB 79-D634
8	<b>Engine – Radial Drive Shroud Tube &amp; Splitter Fairing:</b> Install new radial drive shroud seals, in accordance with Rolls-Royce Service Bulletin RB.211-72-C039 prior to initiation of ETOPS.	✓	-	NA  RB.211-72-C039 affects ESN prior to Serial No. 51029, excluding 51027.



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9	<b>Engine – Electronic Engine Control (EEC):</b>  The time limited Dispatch interval for C1 faults is reduced to 7 days/ 105 hours until accomplishment of final action.  Final Action: Install EEC Software Version B4.1.1, in accordance with Rolls-Royce Service Bulletin RB.211-73-C074 prior to March 31, 1997.	✓	-	NA.  RB.211-73-C074 affects ESN prior to Serial No. 51037.
10	<b>Engine – HP/IP Oil Tubes:</b> Install HP/IP oil tube assemblies in accordance with Rolls-Royce Service Bulletin RB.211-79-C064 prior to initiation of ETOPS.	✓	-	NA.  RB.211-79-C064 affects ESN prior to Serial No. 51046.
11	<b>Engine – Igniter Boxes:</b> Install new ignitor boxes in accordance with Rolls-Royce Service Bulletin RB.211-74-C096, prior to initiation of ETOPS.	✓	-	NA.  RB.211-74-C096 affects ESN prior to Serial No. 51039, excluding 51034 to 51036.
12	<b>Integrated Drive Generator (IDG):</b> Main AC electrical power generation system shall employ Boeing Part Number S281W101-12 IDG's, or later FAA approved units.	✓	✓	Y.  PN 767146A (Boeing PN S281W101-20) fitted on 9V-SQL.





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Item #	Requirement for Operation based on 180 Minutes ETOPS Type Design Approval	FAA Requirement.	EASA Requirement.	Complied with Y/N/NA
13	<b>Backup Generator:</b> Backup AC electrical power generation system shall employ Boeing Part Number S281W401-11 backup generator, or later FAA approved units. Check oil level as required every 100 hours.	✓	✓	Y.  PN 1701768 (Boeing PN S281W401-23) fitted on 9V-SQL.  Oil level is checked at every transit.
14	<b>Cabin Pressure Control:</b> Operation of 207 minute ETOPS based on 180 minute ETOPS type design approval, in accordance with Appendix P of Part 121 requires installation of Out Flow Valve Motor, Allied Signal P/N 2704470, Service Bulletin 2214420-21-2697 (Boeing Service Bulletin 777-21A0027). Applicable to 777-200 cargo fire suppression system item number 2.3 and 2.4.	✓	✓	NA.  Not listed in SB 777-21A0027 effectivity (Line No. 1 - 150)
15	<b>Cabin Pressure Controller:</b> Operation of 207 minute ETOPS based on 180 minute ETOPS type design approval, in accordance with Appendix P of Part 121 requires installation of Cabin Pressure Controller software Boeing P/N 3672-GRS-010-00 (Boeing Service Bulletin 777-36A0008). Applicable to 777-200 cargo fire suppression system item number 2.3 and 2.4.	✓	✓	NA.  Not listed in SB 777-36A0008 effectivity.
16	<b>FUEL – Distribution – Fuel Crossfeed Valve Control Electrical Wiring Separation:</b> For airplanes delivered prior to Line No. 850, operation based on ETOPS greater than 180 minute type design approval requires modification in accordance with Boeing Service Bulletin 777-28-0068.	✓	-	Y.  SB 777-28-0068 (MAF 18796) embodied.
17	<b>Fuel – Distribution – Fuel Spar Valve Control Electrical Wiring Separation:</b> For airplanes delivered prior to Line No. 787, operation based on ETOPS greater than 180 minute type design approval requires modification in accordance with Boeing Service Bulletin 777-28-0061.	✓	-	Y.  SB 777-28-0061 (MAF 18472) embodied.





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Item #	Requirement for Operation based on 180 Minutes ETOPS Type Design Approval	FAA Requirement.	EASA Requirement.	Complied with Y/N/NA
18	<p><b>Fuel Scavenge System Failure Annunciation:</b> Operation based on ETOPS greater than 180 minute type design approval requires:</p> <p>Airplanes equipped with AIMS 1 hardware to install AIMS software version 14 in accordance with Boeing Service Bulletin 777-31A0179, or in original production. Later FAA-approved AIMS software versions are also acceptable.</p> <p>OR</p> <p>Airplanes equipped with AIMS 2 hardware to install AIMS software version 14 in accordance with Boeing Service Bulletin 777-31A0150, or in original production. Later FAA-approved AIMS software versions are also acceptable.</p>	✓	-	<p>Y.</p> <p>AIMS 1 hardware with AIMS software version 14 installed. (Refer to Aircraft SoftWare Configuration Listing)</p>





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Item #	Requirement for Operation based on 180 Minutes ETOPS Type Design Approval	FAA Requirement.	EASA Requirement.	Complied with Y/N/NA
19	<b>Oil Tank Filler Cap:</b> Operation based on ETOPS greater than 180 minutes type design approval requires incorporation of Roll-Royce Service Bulletin RB211-79-F226.	✓	-	N.  ESN 51080 - SB RB211-79-F226 is Open  ESN 51088 - SB RB211-79-F226 is Open
20	<b>Low Fuel Alerting:</b> Operation based on ETOPS greater than 180 minute type design approval requires:  AIMS-1 Blockpoint Version 16 (or later); SB 777-31-0191  OR  AIMS-2 Blockpoint Version 17.1 (or later); SB777-31-0227  OR  <b>Prior to 1/11/15 - Time Limited Approval for Operation Without Low Fuel Alert Required by 14 CFR Part 25 Appendix K section K25.1.4(a)(3) (Exception Nos. 10193/10193A):</b> Operation based on ETOPS greater than 180 minute type design approval requires the flight crew to follow the Fuel Monitoring procedures identified in the Airplane Flight Manual (AFM) in accordance with the provisions of Exception Nos. 10193/10193A.	✓	-	N.  SB 777-31-0191 is Open  SB 777-31-0227 is Not Applicable for 9V-SQL (WB192)





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Item #	Requirement for Operation based on 180 Minutes ETOPS Type Design Approval	FAA Requirement.	EASA Requirement.	Complied with Y/N/NA
21	<b>Fuel Spray Nozzle:</b> Inspect FSN for cracking in accordance with Rolls-Royce NMSB 73-C090.  Final Action: Install improved Fuel Spray Nozzles in accordance with Rolls-Royce Service Bulletin 73-C119 prior to 30 September 1997.	-	✓	NA.  SB 73-C119 NA. Only affects RR Trent 884-17 engines prior to Serial No. 51046 (Part 1 of SB 73-C119), and ESN prior to Serial No. 51042 (Part 2 of SB 73-C119).
22	<b>Angled Drive Shroud Tube:</b> Inspect shroud tube for wear in accordance with Rolls-Royce NMB 72-C089.  Final Action: Install revised fairing/transfer tube in accordance with Rolls-Royce Service Bulletin 72-C114 prior to 30 September 1997.	-	✓	NA.  Only affects RB211 Trent 884-17 ESN prior to Serial No. 51046.
23	<b>Step Aside Gearbox:</b> Inspect step aside gearbox for evidence of cracking in accordance with Rolls-Royce NMSB 72-C129.  Final Action: Install strengthened step aside gearbox in accordance with Rolls-Royce Service Bulletin 72-C211 prior to 30 September 1997.	-	✓	NA.  Only affects RB211 Trent 884-17 ESN prior to Serial No. 51052.
24	<b>Lower Bevel Box:</b> Inspect LBB for evidence of cracking in accordance with Rolls-Royce NMSB 72-C129.  Final Action: Install radial drive shaft in accordance with Rolls-Royce Service Bulletin 72-C220 prior to 30 September 1997.	-	✓	NA.  Only affects RB211 Trent 884-17 ESN prior to Serial No. 51057.





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Item #	Demonstrated Capabilities Statements	FAA Requirement.	EASA Requirement.	Complied with Y/N/NA
1.1	777-200 RB211-Trent 875-17 / 877-17 / 884-17* most time limiting ETOPS Significant System (other than cargo fire suppression).	✓	✓	Y.
1.2	777-200 RB211-Trent 884-17* most time limiting ETOPS Significant System (other than cargo fire suppression).	✓	✓	Y.
2.1	777-200, Lower lobe Cargo Compartment Fire Extinguishing Filter/Regulator part numbers 473494-1, 473494-2, or 473494-3.	✓	✓	NA due Not installed on 9V-SQL
2.2	777-200, FIRE PROTECTION – Lower Cargo Fire Extinguishing - Filter/Regulator Change, part numbers 473494-4 or 473494-5, installed by Service Bulletin 777-26-0044 Rev 1 or installation during production.	✓	✓	Y.  PN 473494-4 fitted on 9V-SQL
2.3	777-200, Lower lobe Cargo Compartment Fire Extinguishing Filter/Regulator part numbers 473995-1, 473995-2, or 473995-3.	✓	✓	NA due Not installed on 9V-SQL
2.4	777-200, Lower lobe Cargo Compartment Fire Extinguishing Filter/Regulator part numbers 473995-4 or 473995-5 installed by Service Bulletin 777-26-0045 or installation during Production.	✓	✓	NA due Not installed on 9V-SQL
2.5	777-200, Lower lobe Cargo Compartment Fire Extinguishing Filter/Regulator part numbers 473995-4 or 473995-5 with three-metered 80lb Halon bottles (P/N 473876-3) installed by Service Bulletin 777-26-0063 (or equivalent) or installed during Production.	✓	-	NA due Not installed on 9V-SQL

\* - "A Market" (non-IGW) 777-200/RB211-Trent 884-17 airplanes are not Type Design approved for greater than 180-minute ETOPS operations: Line Number (Serial Number): 1(27116), 14(27265), 18(27266), 25(27726), 28(27263), 30(27247), 31(27264), 32(27727), 33(27248), 42(27249), 44(27728), and 51(27729).



**POH TAI CONG**  
Technical Service  
Engineer (Quality)