


<b>EASA</b>	<b>AIRWORTHINESS DIRECTIVE</b>
	<p><b>AD No.: 2009-0243R3</b>  <b>[Correction2: 15 November 2012]</b></p> <p><b>Date: 13 November 2012</b></p> <p>Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.</p>
<p>This AD is issued in accordance with EU 748/2012, Part 21.A.3B. In accordance with EC 2042/2003 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [EC 2042/2003 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].</p>	
<p><b>Type Approval Holder's Name :</b>  ROLLS-ROYCE plc</p>	<p><b>Type/Model designation(s) :</b>  RB211-524, RB211 Trent 700 and  RB211 Trent 800 Engines</p>
<p>TCDS Numbers: EASA.E.042, United Kingdom 1046, 1048 and 1051.</p>	
<p>Foreign AD : None</p>	
<p>Revision: This AD revises EASA AD 2009-0243R2 dated 18 February 2011, including the Correction dated 22 February 2011.</p>	
<b>ATA 72</b>	<b>Engine – Front Combustion Liner Inner Wall – Inspection</b>
<p>Manufacturer(s): Rolls-Royce plc</p>	
<p>Applicability:</p>	<p>This AD applies to the following engines, if Rolls-Royce Service Bulletin (SB) RB.211-72-D133 or Rolls-Royce SB RB.211-72-E902 is incorporated:</p> <p>RB211-524-524G2-T-19, RB211-524G3-T-19, RB211-524H-T-36 and RB211-524H2-T-19 engines, all serial numbers, except those incorporating Modification (Mod) 72-G706. These engines are known to be installed on, but not limited to, Boeing 747-400 and 767 series aeroplanes.</p> <p>RB211 Trent 768-60, 772-60, 772B-60 and 772C-60 engines, all serial numbers, except those incorporating Mod. 72-G707. These engines are known to be installed on, but not limited to, Airbus A330 series aeroplanes.</p> <p>RB211 Trent 875-17, 877-17, 884-17, 884B-17, 892-17, 892B-17 and 895-17 engines, all serial numbers, except those incorporating Mod. 72-AG705. These engines are known to be installed on, but not limited to, Boeing 777 series aeroplanes.</p>
<p>Reason:</p>	<p>Cracking has been found on the inner wall between intermediate dilution chutes on a total of five front combustion liners of the standard corresponding to Rolls-Royce SB RB.211-72-D133. The lives of two of these liners were confirmed to be below the currently valid borescope inspection interval. Ultimately, crack propagation could result in hot gas breakout with potential of downstream component distress and multiple turbine blade release beyond containment capabilities of the engine casings. Thus, cracking of this nature constitutes a potentially unsafe condition.</p>

	<p>Since Rolls-Royce SB RB.211-72-E902 introduces further developments of Rolls-Royce SB RB.211-72-D133, engines incorporating Rolls-Royce SB RB.211-72-E902 are also considered to be potentially affected and are therefore included in the applicability of this AD.</p> <p>Consequently, EASA issued AD 2009-0243 to require a change to the initial and repeat borescope inspection intervals for the front combustion liner.</p> <p>AD 2009-0243R1 was issued to clarify the required actions for combustion liners that had been inspected before the effective date of the original issue of the AD and in accordance with earlier revisions of Rolls-Royce Non-Modification Service Bulletin (NMSB) RB.211-72-AF458.</p> <p>AD 2009-0243R2 was issued to remove RB211-535 series engines from the Applicability, following a determination by engineering assessment that those engines are not affected by the unsafe condition addressed by this AD.</p> <p>Since AD 2009-0243R2 was issued, Rolls-Royce developed Mod. 72-AG705, 72-G706 and 72-G707, which have been accepted as terminating action for the inspections of NMSB RB.211-72-AF458.</p> <p>For the reason describe above, this AD is revised to exclude modified engines and to specify that in-service modification of an engine constitutes terminating action for the repetitive inspections required by this AD.</p> <p>This AD has been republished to correct Service Bulletin number 72-AG705, where the prefix 'A' (indicating Alert) was inadvertently removed.</p>
Effective Date:	<p>Revision 3: 27 November 2012</p> <p>Revision 2: 04 March 2011</p> <p>Revision 1: 10 December 2009</p> <p>Original issue: 24 November 2009</p>
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p><b>A. <u>Definitions</u></b></p> <p>In the following LIFE will be referred as the lowest of the following lives:</p> <ul style="list-style-type: none"> <li>- life of the combustion liner since new,</li> <li>- life of the combustion liner since inner wall replacement</li> <li>- life of the combustion liner since the combustion liner was last inspected in accordance with section 3 Accomplishment instructions, sub-section A. Borescope Inspection, of Rolls-Royce NMSB RB.211-72-AF458 Revision 2 or later approved revision.</li> </ul> <p><b>B. <u>Actions Required</u></b></p> <p>It is required to carry out the borescope inspections as specified in section 3 Accomplishment instructions, subsection A. Borescope Inspection, of Rolls-Royce NMSB RB.211-72-AF458 Revision 4 or later approved revision before the limits specified in paragraph C of this AD.</p> <p><b>C. <u>Inspection Requirements</u></b></p> <p>(i) <u>Initial Inspection Requirements</u></p> <p>1. If the engine has a combustion liner installed with a LIFE (see paragraph A. of this AD) that is equal to or greater than the initial inspection threshold specified in Table 1 column (b) included in paragraph C.(iii) of this AD at the effective date of the original issue of this AD, or</p> <p>the engine has a combustion liner installed with a LIFE (see A. above) that is not known,</p> <p>carry out the action specified in paragraph B of this AD within 250 cycles after the effective date of the original issue of this AD.</p>

	<p>2. If, on 24 November 2009 [the effective date of the original issue of this AD], the engine has a combustion liner installed with a LIFE (see paragraph A. of this AD) that is less than the initial inspection threshold specified in paragraph C (iii), column (b) of Table 1 of this AD, carry out the action specified in paragraph B. of this AD. before the LIFE (see paragraph A. of this AD) has reached the limit specified in paragraph C.(iii), column (c) of Table 1 of this AD.</p> <p>(ii) <u>Repetitive Inspection Requirements</u></p> <p>Following accomplishment of the Initial Inspection Requirement identified in paragraph C.(i) of this AD, carry out the action specified in paragraph B. of this AD at intervals not exceeding those specified in paragraph C.(iii), column (d) of Table 1 of this AD.</p> <p>(iii) Table 1: Initial Inspection Thresholds and Limits</p> <table border="1" data-bbox="528 633 1425 1151"> <thead> <tr> <th>Column: (a)</th> <th>(b)</th> <th>(c)</th> <th>(d)</th> </tr> <tr> <th>Affected Engines</th> <th>Initial Inspection Threshold</th> <th>Initial Inspection Limit, if LIFE &lt; Initial Inspection Threshold</th> <th>Repeat Inspection Interval</th> </tr> </thead> <tbody> <tr> <td>RB211-524G2-T-19 RB211-524G3-T-19 RB211-524H2-T-19</td> <td>1 150 cycles</td> <td>1 400 cycles</td> <td>1 400 cycles</td> </tr> <tr> <td>RB211-524H-T-36</td> <td>550 cycles</td> <td>800 cycles</td> <td>800 cycles</td> </tr> <tr> <td>RB211 Trent 700 (all Models)</td> <td>1 250 cycles</td> <td>1 500 cycles</td> <td>1 500 cycles</td> </tr> <tr> <td>RB211 Trent 800 (all Models)</td> <td>750 cycles</td> <td>1 000 cycles</td> <td>1 000 cycles</td> </tr> </tbody> </table> <p><b>D. <u>Terminating Action:</u></b></p> <p>Modification of an engine, in accordance with the instructions of Rolls-Royce SB 72-AG705, SB 72-G706, or SB 72-G707, as applicable to engine type, constitutes terminating action for the repetitive inspections required by this AD for that engine.</p>	Column: (a)	(b)	(c)	(d)	Affected Engines	Initial Inspection Threshold	Initial Inspection Limit, if LIFE < Initial Inspection Threshold	Repeat Inspection Interval	RB211-524G2-T-19 RB211-524G3-T-19 RB211-524H2-T-19	1 150 cycles	1 400 cycles	1 400 cycles	RB211-524H-T-36	550 cycles	800 cycles	800 cycles	RB211 Trent 700 (all Models)	1 250 cycles	1 500 cycles	1 500 cycles	RB211 Trent 800 (all Models)	750 cycles	1 000 cycles	1 000 cycles
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Ref. Publications:	<p>Rolls-Royce NMSB RB.211-72-AF458 Revision 4 dated 09 March 2009, or Revision 5 dated 20 April 2011.</p> <p>Rolls-Royce SB 72-AG705 dated 13 July 2012.</p> <p>Rolls-Royce SB 72-G706 dated 21 June 2012.</p> <p>Rolls-Royce SB 72-G707 dated 21 June 2012.</p> <p>The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.</p>																								
Remarks :	<ol style="list-style-type: none"> <li>1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD.</li> <li>2. The original issue of this AD was posted on 28 September 2009 as PAD 09-114 for consultation until 26 October 2009. The Comment Response Document can be found at <a href="http://ad.easa.europa.eu">http://ad.easa.europa.eu</a>.</li> <li>3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive Directorate, EASA. E-mail <a href="mailto:ADs@easa.europa.eu">ADs@easa.europa.eu</a>.</li> <li>4. For any questions concerning the technical content of the requirements in this AD, please contact:</li> </ol>																								

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