


<b>EASA</b>	<b>AIRWORTHINESS DIRECTIVE</b>
	<p><b>AD No.: 2010-0008R1</b></p> <p><b>Date: 04 August 2010</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 EC 1702/2003, Part 21A.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></p> <p>ROLLS-ROYCE PLC</p>	<p><b>Type/Model designation(s) :</b></p> <p>RB211 Trent 900 series engines</p>
<p>TCDS Number : EASA.E.012</p>	
<p>Foreign AD : Not applicable</p>	
<p>Revision : This AD revises EASA AD 2010-0008 dated 15 January 2010</p>	
<b>ATA 72</b>	<b>Engine – Intermediate Pressure Shaft Coupling Splines – Inspection</b>
Manufacturer(s):	Rolls-Royce plc
Applicability:	<p>RB211 Trent 900 series engines, all marks, all serial numbers.</p> <p>These engines are known to be installed on, but not limited to, Airbus A380 series aircraft.</p>
Reason:	<p>Wear, beyond Engine Manual limits, has been identified on the abutment faces of the splines on the Trent 900 Intermediate Pressure (IP) shaft rigid coupling on several engines during strip. The shaft to coupling spline interface provides the means of controlling the turbine axial setting and wear through of the splines would permit the IP turbine to move rearwards.</p> <p>Rearward movement of the IP turbine would enable contact with static turbine components and would result in loss of engine performance with potential for in-flight shut down, oil migration and oil fire below the LP turbine discs prior to sufficient indication resulting in loss of LP turbine disc integrity. Some of these conditions present a potential unsafe condition to the aeroplane.</p> <p>This AD requires inspection of the IP shaft coupling splines and, depending on the results, requires further repetitive inspections or corrective actions.</p> <p>Since issuance of AD 2010-0008 Rolls-Royce has inspected several additional engines subject to IP shaft coupling spline wear. Inspections were carried out on-wing as well as in-shop. Analysis of the results</p>

	<p>provides a better modelling of the wear rate and allow to redefine re-inspection periods based on:</p> <ul style="list-style-type: none"> <li>- average wear measured on each individual engine rather than maximum wear.</li> <li>- individual engine wear rates rather than an assumed worst case rate.</li> </ul> <p>These inspection periods are extended compared to original issue of AD 2010-0008, and are deemed sufficient to prevent unacceptable wear.</p>
Effective Date:	<p>Revision 1: 18 August 2010</p> <p>Original issue: 29 January 2010</p>
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless already accomplished:</p> <p>(1) On-wing - Accomplish the actions specified in sections 1.C(1)(a) and 3.A of Rolls-Royce RB211-Trent 900 Alert Non Modification Service Bulletin (NMSB) 72-AG329 Revision 2:</p> <p>(1.1) Initial inspection: Accomplish the actions specified in Table 1 of this AD and section 1.C(1)(a) and 3.A of NMSB 72-AG329 Revision 2.</p> <p>(1.2) Repetitive inspections: Accomplish the actions specified in section 1.C(1)(a) and 3.A and Figure 9 of NMSB 72-AG329 Revision 2.</p> <p>Note: Table 1.b was removed from this AD for clarity. Refer to Figure 9 of NMSB 72-AG329 Revision 2.</p> <p>(2) In-shop - Accomplish the actions specified in section 1.C(1)(b) and 3.B of Rolls-Royce RB211-Trent 900 NMSB 72-AG329 Revision 2.</p> <p>(3) For an engine which has passed an In-shop inspection in accordance with the requirement of paragraph (2) of this AD, within 400 Flight Cycles after this last In-shop inspection, accomplish on-wing inspections as required by paragraphs (1.1) and (1.2) of this AD.</p> <p>(4) Inspections and corrective actions accomplished prior to the effective date of this AD, in accordance with NMSB 72-AG329 Revision 1 are acceptable to comply with the requirements of paragraph (1.1) of this AD. After the effective date of this AD, repetitive inspections and corrective actions must be accomplished in accordance with NMSB 72-AG329 Revision 2.</p> <p>(5) Replacement of the engine with a serviceable engine does not constitute terminating action for compliance with the repetitive inspections requirements of this AD.</p>
Ref. Publications:	<p>Rolls-Royce RB211-Trent 900 Alert Non Modification Service Bulletin (NMSB) 72-AG329 Revision 2, dated 07 July 2010.</p> <p>The use of later approved updates of this document is acceptable for compliance with the requirement 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 required actions and the risk allowance have granted the issuance of a Final AD with Request for Comments, postponing the public consultation process after publication.</li> <li>3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management &amp; Research Section, Certification 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</li> </ol>

	<p>requirements in this AD, please contact:</p> <p>Your designated Rolls-Royce representative or download the publication from your Aeromanager account at <a href="http://www.aeromanager.com">www.aeromanager.com</a>. If you do not have a designated representative or Aeromanager account, please contact <b>Corporate Communications</b> at <b>Rolls-Royce plc</b>, PO Box 31, Derby, DE24 8BJ, United Kingdom. Phone: +44 (0) 1332 242424, or e-mail from <a href="http://www.rolls-royce.com/contact/civil_team.jsp">http://www.rolls-royce.com/contact/civil_team.jsp</a> identifying the correspondence as being related to <b>Airworthiness Directives</b>.</p>
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Table 1: On-wing Borescope Inspection – Initial Inspection		
Configuration / Condition	Action	Compliance Time
Engines where the life since new is 250 flight cycles or less <sup>(1)</sup>	Inspect the IP shaft coupling splines – measurement of spline crest – in accordance with section 3.A of Rolls-Royce NMSB 72-AG329 revision 2	Before the engine has accumulated 400 flight cycles since new
Engines where the life since new is more than 250 flight cycles <sup>(1)</sup>		Within 150 flight cycles

Note <sup>(1)</sup>: Coupling life is the time since new, or last inspection of the coupling in accordance with the Cleaning, Inspection and Repair Manual. If the coupling life cannot be determined the life since last shop visit should be used to establish the inspection threshold.