

EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2010-0008 Date: 15 January 2010 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.
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].	
Type Approval Holder's Name : ROLLS-ROYCE PLC	Type/Model designation(s) : RB211 Trent 900 series engines
TCDS Number : EASA.E.012	
Foreign AD : Not applicable	
Supersedure : None	
ATA 72	Engine – IP Shaft Coupling Splines – Inspection
Manufacturer(s):	Rolls-Royce plc
Applicability:	RB211 Trent 900 series engines, all marks, all serial numbers. These engines are known to be installed on, but not limited to, Airbus A380 series aircraft.
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>
Effective Date:	29 January 2010

Required Action(s) and Compliance Time(s):	<p>Required as indicated after the effective date of this AD:</p> <p>(a) On-wing - Accomplish the actions specified in Table 1.a and 1.b of this AD in accordance with section 3.A of Rolls-Royce RB211-Trent 900 Alert Non Modification Service Bulletin (NMSB) 72-AG329 Revision 1.</p> <p>and,</p> <p>(b) In-shop - Accomplish the actions specified in section 3.B of Rolls-Royce RB211-Trent 900 NMSB 72-AG329 Revision 1.</p>
Ref. Publications:	<p>Rolls-Royce RB211-Trent 900 Alert Non Modification Service Bulletin (NMSB) 72-AG329 Revision 1, dated 13 January 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"> 1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. This AD was posted on 02 December 2009 as PAD 09-136 for consultation until 30 December 2009. The Comment Response Document can be found at http://ad.easa.europa.eu. 3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management & Research Section, Certification Directorate, EASA. E-mail ADs@easa.europa.eu. 4. For any questions concerning the technical content of the requirements in this AD, please contact: Rolls-Royce plc., P.O. Box 31, Derby, DE24 8BJ, United Kingdom; Telephone: +44 (0) 1332 242424, Fax: +44 (0) 1332 249936; Email: tech.help@rolls-royce.com or download the publication from https://www.aeromanager.com

Table 1.a: On-wing Borescope Inspection – Initial Inspection		
Configuration / Condition	Action	Compliance Time
Engines where the life since new is 250 flight cycles or less ⁽¹⁾	Inspect the IP shaft coupling splines – measurement of spline crest – in accordance with section 3.A of Rolls-Royce NMSB 72-AG329 revision 1	Before the engine has accumulated 400 flight cycles since new
Engines where the life since new is more than 250 flight cycles ⁽¹⁾		Within 150 flight cycles

Note ⁽¹⁾: Coupling life is assumed to be the engine time since new, however, if it is known that the coupling (FW33264) was replaced with new during any shop visit then the life since that shop visit may be used in place of time since new, to establish the inspection threshold.

Table 1.b: On-wing Borescope Inspection – Further Action and Repetitive Inspection Intervals		
Condition	Action	Compliance Time / Repetitive Interval (not to exceed)
Measured spline crest in accordance with section 3.A of Rolls-Royce NMSB 72-AG329 Revision 1 is:		
Less than 0,5 mm with no material remaining	Remove the engine	Before next flight
Less than 0,5 mm with some material remaining	Remove the engine	Within 10 flight cycles
Equal to or more than 0,5 mm but less than 1 mm	Repeat inspection	Within 50 flight cycles
Equal to or more than 1 mm but less than 1,5 mm	Repeat inspection	Within 100 flight cycles
Equal to or more than 1,5 mm but less than 2 mm	Repeat inspection	Within 200 flight cycles
Equal to or more than 2 mm but less than 2,4 mm	Repeat inspection	Within 300 flight cycles
Equal to or more than 2,4 mm ⁽²⁾	Repeat inspection	Within 400 flight cycles

Note ⁽²⁾: The nominal unworn dimension of the spline crest is 2,65 mm.