


<b>EASA</b>	<b>AIRWORTHINESS DIRECTIVE</b>
	<b>AD No.: 2012-0273</b>  <b>Date: 21 December 2012</b>  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 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].	
<b>Design Approval Holder's Name :</b> ROLLS-ROYCE plc	<b>Type/Model designation(s) :</b> RB211 Trent 900 engines
TCDS Number :	EASA.E.012
Foreign AD :	Not applicable
Supersedure:	None
<b>ATA 72</b>	<b>Engine – Intermediate Pressure Compressor Rear Stub Shaft Piston Ring – Inspection</b>
Manufacturer(s):	Rolls-Royce plc
Applicability:	RB211 Trent 970-84, 970B-84, 972-84, 972B-84, 977-84, 977B-84 and 980-84 engines, if incorporating Rolls-Royce production Modification (Mod.) 72-G585, or modified in-service through Rolls-Royce Service Bulletin (SB) 72-G585 (at any revision), with a Module 33 installed having a serial number (s/n) prior to HC0320, except s/n HC0277, HC0281, HC0294, HC0301, HC0309, HC0313, HC0315 and HC0318.  These engines are known to be installed on, but not limited to, Airbus A380 aeroplanes.
Reason:	During take-off of an A380 on a customer acceptance flight, a low oil pressure warning message was observed by the flight crew. The take-off was aborted and the aircraft returned to the gate without further incident. Initial post-flight inspection of the engine revealed that the oil pump drive shear neck had failed. Upon further inspection of the engine, pieces of debris were found in the oil pump Internal Gear Box (IGB) rear scavenge screen and smaller pieces of profiled debris were found on the Electrical Magnetic Chip Detector (EMCD). From the material recovered, the origin was found to be the piston ring seal, which fits in the groove of the Intermediate Pressure Compressor Rear Stub Shaft (IPC RSS). This piston ring was introduced as part of Rolls-Royce Mod.72-G585 which incorporated a modified 52-spline IP Turbine Shaft, IPC RSS and coupling assembly. Therefore, only engines incorporating Mod.72-G585 are affected.  This condition, if not detected and corrected, could lead to loss of oil pressure on one or more of the engines, possibly resulting in reduced control of the

	<p>aeroplane.</p> <p>For the reasons described above, this AD requires a one-time inspection of the IPC RSS piston ring, to ensure that the piston ring is correctly located in the IPC RSS groove and is intact and, depending on findings, the accomplishment of applicable corrective action(s).</p> <p>This AD is considered an interim measure and further AD action may follow.</p>																		
Effective Date:	28 December 2012																		
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p>(1) Within the compliance time as indicated in Table 1 of this AD, as applicable, inspect the IPC RSS piston ring in accordance with the instructions of Rolls-Royce Technical Variance (TV) 129978.</p> <p>Table 1 – Inspection of IPC RSS piston ring</p> <table> <tr> <th>Number of affected engines on the same aeroplane:</th><th>Compliance Time, after the effective date of this AD:</th></tr> <tr> <td>4</td><td>Within 50 Engine Flight Cycles (EFC)</td></tr> <tr> <td>2 or 3</td><td>Within 100 EFC</td></tr> <tr> <td>1</td><td>Within 200 EFC</td></tr> </table> <p>Note 1: For an aeroplane with multiple engines affected, if some but not all engines on the same aeroplane are inspected, then the compliance time for the number of engines still to be inspected may be used. For example, if an aeroplane has 3 engines affected but only 2 are inspected, the remaining engine may be inspected within 200 EFC after the effective date of this AD, as for 1 affected engine.</p> <p>(2) For a spare engine, or an engine that is in shop on the effective date of this AD, before release to service of the engine, inspect the IPC RSS piston ring in accordance with the instructions of Rolls-Royce TV129978 or TV129994, as applicable.</p> <p>(3) Inspections accomplished in accordance with the instructions of any publication as listed in Table 2 of this AD, are acceptable to comply with the requirements of paragraph (1) or (2) of this AD, as applicable.</p> <p>Table 2 – Information on related Airbus and Rolls-Royce Publications</p> <table> <tr> <th>Publication (at any revision)</th><th>Contains instructions for:</th></tr> <tr> <td>Airbus QSR RR/L/EN/12-00005</td><td>Inspection of engines delivered to the aeroplane manufacturer</td></tr> <tr> <td>Rolls-Royce TV129978</td><td>On-wing inspection of the piston ring</td></tr> <tr> <td>Rolls-Royce TV129994</td><td>In-shop inspection of the piston ring if the piston ring is already assembled into a module or an engine</td></tr> <tr> <td>Rolls-Royce TV129940</td><td>Revising the Engine Manual Assembly Instructions by introducing Request for Manual Revision (RMR) 11625 to inspect the piston ring once the IPC RSS and IP coupling are assembled</td></tr> </table>	Number of affected engines on the same aeroplane:	Compliance Time, after the effective date of this AD:	4	Within 50 Engine Flight Cycles (EFC)	2 or 3	Within 100 EFC	1	Within 200 EFC	Publication (at any revision)	Contains instructions for:	Airbus QSR RR/L/EN/12-00005	Inspection of engines delivered to the aeroplane manufacturer	Rolls-Royce TV129978	On-wing inspection of the piston ring	Rolls-Royce TV129994	In-shop inspection of the piston ring if the piston ring is already assembled into a module or an engine	Rolls-Royce TV129940	Revising the Engine Manual Assembly Instructions by introducing Request for Manual Revision (RMR) 11625 to inspect the piston ring once the IPC RSS and IP coupling are assembled
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	<p>(4) If, during the inspection as required by paragraph (1) of this AD, any discrepancies are detected, before next flight, remove each affected engine from the aeroplane and replace the engine with a serviceable engine.</p> <p>(5) For each engine on which, as a result of the inspection as required by paragraph (1) or (2) of this AD, or as specified in paragraph (3) of this AD, as applicable, discrepancies have been detected, before release to service of the engine, correct the detected discrepancies in accordance with the instructions of the applicable Engine Manual, as amended by Rolls-Royce TV129940.</p> <p>(6) From the effective date of this AD, do not install an engine on an aeroplane, unless in compliance with the requirements of this AD.</p>
Ref. Publications:	<p>Airbus QSR RR/L/EN/12-00005, dated 14 December 2012.</p> <p>Rolls-Royce TV129978 issue 1, dated 19 December 2012; or issue 2 dated 20 December 2012.</p> <p>Rolls-Royce TV129994 issue 1, approval date 21 December 2012.</p> <p>Rolls-Royce TV129940 issue 1, dated 20 December 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. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication.</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 question concerning the technical content of the requirements in this AD, please contact your designated Rolls-Royce representative, or download the publication from your Aeromanager account at <a href="http://www.aeromanager.com">www.aeromanager.com</a>.</li> </ol> <p>If you do not have a designated representative or Aeromanager account, please contact <b>Corporate Communications at Rolls-Royce plc</b>, P.O. Box 31, Derby, DE24 8BJ, United Kingdom. Telephone: +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>