EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2014-0243R1 **[Correction: 23 March 2015]** **Date: 10 December 2014** 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 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].

Design Change Approval Holder's Name:	**Type/Model designation(s):**
ROLLS-ROYCE plc	RB211 Trent 700 engines

TCDS Number:	EASA.E.042
Foreign AD:	Not applicable
Revision:	This AD revises EASA AD 2014-0243 dated 06 November 2014, which superseded EASA AD 2014-0089 dated 15 April 2014.

ATA 73	**Engine Fuel and Control – Low Pressure Fuel Tubes and Clips, Fuel Oil Heat Exchanger Mounts – Inspection / Replacement**
Manufacturer(s):	Rolls-Royce plc (RR)
Applicability:	RB211 Trent 768-60, 772-60, 772B-60 and 772C-60 engines, all serial numbers, if fitted with fuel tube Part Number (P/N) FW53576, which was incorporated through RR modification 73-F343 in production, or by in-service modification in accordance with RR Service Bulletin (SB) RB.211-73-F343. These engines are known to be installed on, but not limited to, Airbus A330 aeroplanes.
Reason:	Fuel leaks from the engine have occurred in-service due to damage to sections of the fan case Low Pressure (LP) fuel tube which runs between the Fuel Oil Heat Exchanger (FOHE) and the High Pressure Fuel Pump. Frettage damage between the securing clips and the tube outer surface has been caused by excessive movement within the system. Previous experience on a similar engine type indicated that this movement was increased by deterioration of the FOHE mounting hardware. The thinning of the tube wall causes the tube to fracture and fuel loss to occur. Fuel leak detection and the associated flight crew procedures can be complex, leading to some flight crews failing to detect and/or address such situations. This condition, if not detected and corrected, could lead to a critical fuel imbalance or in-flight fuel starvation, possibly resulting in engine in-flight shut-down and, consequently, reduced control of the aeroplane. To address this potential unsafe condition, RR issued Non-Modification Service Bulletin (NMSB) RB.211-73-AH522 to provide instructions to detect and replace deteriorated hardware.

Superseded

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Consequently, EASA issued AD 2014-0089 to require repetitive on-wing and in-shop inspections and, depending on findings, replacement of fan case LP fuel tubes, clips and FOHE mounting hardware.

Since that AD was issued, reports were received of a limited number of P-clip tang fractures at clip point 4881 that resulted in frettage and leaks from the LP Fuel tube between the FOHE to LP/HP fuel pump, which occurred prior to the next required inspection in accordance with NMSB RB.211-73-AH522. In all cases, it has been reported that the tangs were found broken at the clip point. Prompted by these occurrences, RR published NMSB RB.211-73-AH837 to provide instructions for additional specific visual inspections of the upper P-clip attaching feature and the bracket holding this P-clip to the oil tank, at shorter intervals than those specified in NMSB RB.211-73-AH522.

For the reasons described above, EASA issued AD 2014-0243, retaining the requirements of EASA AD 2014-0089, which was superseded, and adding repetitive on-wing inspections of the uppermost clip-stack (P/N CP4881) on the FOHE to fuel pump LP fuel tube (P/N FW53576) and the relevant associated bracket (P/N FW26692) and, depending on findings, accomplishment of the applicable corrective action(s).

EASA AD 2014-0243 was revised to correct an omission in paragraph (8) and to add credit in paragraph (7) for certain in-shop inspections.

This AD is re-published to correct an error in paragraph (5), which inadvertently stated to replace any damaged FOHE, instead of any damaged FOHE mounts.

Effective Date:

Revision 1: 10 December 2014

Original issue: 20 November 2014

Required Action(s) and Compliance Time(s):

Required as indicated, unless accomplished previously:

Note: Where in this AD, reference is made to an RR SB or NMSB with an 'A' (Alert) in the number, it should be recognised that an earlier or later revision may not have that 'A'. This kind of change does not effectively alter the publication references for the purpose of this AD.

(1) Within the compliance time specified in Table 1 of this AD and, thereafter, at intervals not to exceed 4 000 flight hours (FH), accomplish an on-wing inspection of fan case LP fuel tubes P/N FW53576 and the relevant associated clips, and FOHE mounts and associated hardware in accordance with the instructions of RR NMSB RB.211-73-AH522.

(2) Inspections on an engine, accomplished before 29 April 2014 [the effective date of EASA AD 2014-0089] in accordance with instructions of RR NMSB RB.211-73-G848 (at any Revision), are acceptable in lieu of the initial inspections as required by paragraph (1) of this AD for that engine.

Table 1

FH accumulated by the Engine since new, on 29 April 2014 [the effective date of EASA AD 2014-0089]	**Compliance time**
3 200 FH or more	Within 800 FH after 29 April 2014 [the effective date of EASA AD 2014-0089]
Less than 3 200 FH	Before exceeding 4 000 FH since new

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	(3) Within 800 FH after the effective date of this AD and, thereafter, at intervals not to exceed 800 FH, visually inspect the uppermost clip-stack (P/N CP4881) on the FOHE to fuel pump LP fuel tubes (P/N FW53576) upper section and the relevant associated bracket (P/N FW26692) in accordance with the instructions of RR NMSB RB.211-73-AH837. (4) From 29 April 2014 [the effective date of EASA AD 2014-0089], during each engine shop visit, inspect the fan case LP fuel tubes P/N FW26589, P/N FW36335, P/N FW26587, P/N FW53576 and P/N FW53577 and the relevant associated clips, and the FOHE mounts and associated hardware, in accordance with the instructions of RR NMSB RB.211-73-AH522. (5) If, during any inspection as required by paragraph (1) or (4) of this AD, any discrepancies (as defined in RR NMSB RB.211-73-AH522) are detected, within the compliance time(s) specified in RR NMSB RB.211-73-AH522 (for on-wing inspection), or before release to service of the engine (for in-shop inspection), as applicable, replace any damaged fan case LP fuel tube(s) and relevant associated clips, and/or any damaged FOHE mounts and associated hardware, in accordance with the instructions of RR NMSB RB.211-73-AH522. (6) If, during any inspection as required by paragraph (3) of this AD, any discrepancies (as defined in RR NMSB RB.211-73-AH837) are detected, accomplish the applicable corrective action(s), depending on findings, as specified in paragraph (6.1) or (6.2) of this AD, as applicable. (6.1) For the clip-stack (P/N CP4881), before next flight, remove the clip, inspect the fuel tube in accordance with the instructions of RR NMSB RB.211-73-AH837, and, depending on condition, replace the affected fan case LP fuel tube and relevant associated clips in accordance with the instructions of RR NMSB RB.211-73-AH837. (6.2) For the associated bracket (P/N FW26692), within 100 FH after detection of the discrepancy, replace the bracket and inspect the fuel tube in accordance with the instructions of RR NMSB RB.211-73-AH837, and, depending on condition, replace the affected fan case LP fuel tubes and relevant associated clips in accordance with the instructions of RR NMSB RB.211-73-AH837. (7) An in-shop inspection accomplished in accordance with the instructions of RR NMSB RB.211-73-AH522 is acceptable in lieu of an on-wing inspection as required by paragraph (1) of this AD. An in-shop inspection accomplished in accordance with the instructions of RR NMSB RB.211-73-AH522 is acceptable in lieu of a visual inspection as required by paragraph (3) of this AD. (8) Replacement of fan case LP fuel tubes and the relevant associated clips or FOHE mounts and associated hardware with serviceable parts, as required by paragraph (5) or (6) of this AD, as applicable, does not constitute terminating action for the repetitive inspections required by paragraphs (1), (3) and (4) of this AD.
Ref. Publications:	Rolls-Royce NMSB RB.211-73-AH522 dated 20 September 2013, or Revision 1 dated 18 March 2014. Rolls-Royce SB RB.211-73-F343 dated 08 November 2006, or Revision 1 dated 14 May 2009, or Revision 2 dated 1 July 2009, or Revision 3 dated 15 July 2009, or Revision 4 dated 26 May 2011. Rolls-Royce NMSB RB.211-73-AH837 dated 09 September 2014. The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.

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Remarks:	1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. The original issue of this AD was posted on 10 September 2014 as PAD 14-140 for consultation until 08 October 2014. The Comment Response Document can be found at http://ad.easa.europa.eu/. 3. Enquiries regarding this AD should be referred to the Safety Information Section, Certification Directorate, EASA. E-mail: ADs@easa.europa.eu. 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 www.aeromanager.com. If you do not have a designated representative or Aeromanager account, please contact Corporate Communications at Rolls-Royce plc., P.O. Box 31, Derby, DE24 8BJ, United Kingdom, telephone: +44 (0) 1332 242424, or send an e-mail through http://www.rolls-royce.com/contact/civil_team.jsp identifying the correspondence as being related to **airworthiness directives**.

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