

EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2012-0255 Date: 30 November 2012 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].	
Type Approval Holder's Name : ROLLS-ROYCE PLC	Type/Model designation(s) : RB211-524 Engines
TCDS Numbers: United Kingdom No. 1043, 1046 and 1048	
Foreign AD : Not applicable	
Supersedure: This AD supersedes EASA AD 2009-0253 dated 30 November 2009.	
ATA 78	Engine – Thrust Reverser Unit – Repair
Manufacturer(s):	Rolls-Royce plc
Applicability:	RB211-524D4-19, RB211-524D4-B-19, RB211-524D4-39, RB211-524D4-B-39, RB211-524D4X-19, RB211-524D4X-B-19, RB211-524G2-19, RB211-524G3-19, RB211-524G2-T-19, RB211-524G3-T-19, RB211-524H-36, RB211-524H-T-36, RB211-524H2-19 and RB211-524H2-T-19 engines, all serial numbers, if equipped with a thrust reverser unit (TRU) having a Part Number (P/N) as identified in Rolls-Royce RB211 Propulsion Systems Non-Modification Service Bulletin (NMSB) No. 78-AG084 Revision 3. These engines are known to be installed, but not limited to Boeing 747 and Boeing 767 series aircraft.
Reason:	An investigation into the loss of a TRU during landing has revealed that this incident was preceded by the detachment of the TRU's fixed structure front ring rivet lines on the rear flange. It was concluded that the loss of rivet lines was directly associated with a previous translating cowl gearbox stubshaft fracture and the subsequent repair of the fixed structure to Engine Manual repair No. FRS5887. This repair instructs the replacement of the damaged section of the structure but does not require the rivets adjacent to the repair to be replaced although latest analysis has shown that the rivets may have weakened as a result of a translating cowl gearbox stubshaft failure. Loss of a TRU during landing may release a significant amount of debris and this may adversely affect the safety of flight operations, which constitutes a potential unsafe condition. Consequently, EASA AD 2009-0089 was issued to require replacement of

	potentially yielded rivets from TRUs in service in order to prevent a further TRU loss. Subsequently, EASA issued AD 2009-0253, superseding AD 2009-0089, to expand the Applicability to include RB211-524D4X-19 engines and, based on engineering evaluation by RR, to partially extend the compliance time. EASA AD 2009-0253 also included additional compliance criteria with respect to an earlier translating cowl gearbox stubshaft failure in order to enable operators to further limit the population of potentially affected engines. Since that AD was issued, the results of further engineering evaluation by Rolls-Royce demonstrated that compliance times could be partially extended. However, the same evaluation results also revealed the need for certain TRUs to be repaired in accordance with the Engine Manual. For the reason described above, this AD retains the requirements of EASA AD 2009-0253, which is superseded, extends the compliance time for those TRUs that had only Engine Manual repair No. FRS5887 embodied as a result of a translating cowl gearbox stubshaft failure, and requires repair of certain other TRUs.
Effective Date:	14 December 2012
Required Action(s) and Compliance Time(s):	Required as indicated, unless accomplished previously: (1) If, as a result of a translating cowl gearbox stubshaft failure, a TRU has previously (before 14 December 2009, the effective date of EASA AD 2009-0253) been repaired in accordance with Engine Manual repair No. FRS5887, and either Engine Manual repair No. FRS4976 or Engine Manual repair No. FRS6669 was applied concurrently, within 3 calendar months after 14 December 2009 [the effective date of EASA AD 2009-0253], accomplish the repair as specified in Section 3 Accomplishment Instructions of Rolls-Royce NMSB RB.211-78-AG084 Revision 3. Note 1: Unless unambiguous documented evidence exists to demonstrate otherwise, a translating cowl gearbox stubshaft failure should be assumed. (2) If, as a result of a translating cowl gearbox stubshaft failure, a TRU has previously (before 14 December 2009, the effective date of EASA AD 2009-0253) been repaired in accordance with Engine Manual repair No. FRS4976, or repaired in accordance with Engine Manual repair No. FRS6669 and it is not known whether Engine Manual repair No. FRS5887 was accomplished concurrently, within 3 calendar months after 14 December 2009 [the effective date of EASA AD 2009-0253], accomplish the repair as specified in Section 3 Accomplishment Instructions of Rolls-Royce NMSB RB.211-78-AG084 Revision 3. (see Note 1 above) (3) If, as a result of a translating cowl gearbox stubshaft failure, a TRU has previously (before 14 December 2009, the effective date of EASA AD 2009-0253) been repaired in accordance with only Engine Manual repair No. FRS5887, within 19 months after the effective date of this AD, accomplish the repair as specified in Section 3 Accomplishment Instructions of Rolls-Royce NMSB RB.211-78-AG084 Revision 7. (see Note 1 above) (4) If a TRU has previously (before the effective date of this AD) been repaired at the front ring in accordance with Engine Manual repair No. FRS5887 with additional rivets replaced in accordance with Engine Manual repair No. FRS5887 Part 2 at the front ring rivet lines, and it is determined that Engine Manual repair No. FRS6669 and repair No. FRS4976 have not been applied to the rear ring at the #2 or #3 gearbox position, during the next scheduled engine removal after the effective date of this AD, remove the TRU from the engine and, before re-installing that

	TRU on an engine, accomplish a repair in accordance with Engine Manual repair No. FRS6669 Part 2. Note 2: Unless unambiguous documented evidence exists to demonstrate otherwise, for the purpose of this AD, it must be assumed that Engine Manual repair No. FRS5887 has been accomplished at the TRU front ring with replacement of additional rivets in accordance with Engine Manual repair No. FRS5887 Part 2 at the front ring rivet lines. (5) Actions accomplished, prior to 14 December 2009 [the effective date of EASA AD 2009-0253] in accordance with the instructions of Rolls-Royce NMSB RB.211-78-AG084 at original issue, or Revision 1, or Revision 2, are acceptable to comply with the requirements of this AD.
Ref. Publications:	Rolls-Royce NMSB RB.211-78-AG084 Revision 3 dated 24 November 2009, or Revision 4 dated 22 December 2009, or Revision 5 dated 4 February 2011, or Revision 6 dated 16 November 2012, or Revision 7 dated 23 November 2012. The use of later approved revisions of this document is acceptable for compliance with the requirements of this AD.
Remarks :	1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 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. 3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive Directorate, EASA. E-mail ADs@easa.europa.eu. 4. For any question concerning the technical content of the requirements in this AD, please contact: Rolls-Royce plc., P.O. Box 31, Derby, DE24 8BJ, The United Kingdom, Telephone: +44 (0) 1332 242424, Fax: +44 (0) 1332 249936, E-mail: tech.help@rolls-royce.com or download the publication from https://www.aeromanager.com.