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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2007-27811; Directorate Identifier 2004-NE-11-AD; Amendment 39-15321; AD 2007-26-19]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Deutschland Ltd & Co KG Tay 611-8, Tay 611-8C, Tay 620-15, Tay 650-15, and Tay 651-54 Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 611-8, Tay 620-15, Tay 650-15, and Tay 651-54 turbofan engines. That AD currently requires initial and repetitive visual inspections of all ice-impact panels and fillers in the low pressure (LP) compressor case for certain conditions and replacing, as necessary, any or all panels. This AD requires the same actions, provides terminating action to those repetitive actions, and adds the Tay 611-8C turbofan engine to the applicability. This AD results from RRD introducing new LP compressor case ice-impact panels with additional retention features to these Tay turbofan engines. We are issuing this AD to prevent release of ice-impact panels due to improper bonding that can result in loss of thrust in both engines.

DATES: This AD becomes effective February 11, 2008. The Director of the Federal Register previously approved the incorporation by reference of certain publications listed in the regulations as of January 21, 2005 (70 FR 1172, January 6, 2005). The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of February 11, 2008.

ADDRESSES: You can get the service information identified in this AD from Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, D-15827 Dahlewitz, Germany; telephone 49 (0) 33-7086-1768; fax 49 (0) 33-7086-3356.

The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building, Ground Floor, Room W12-140, Washington, DC 20590-0001.

FOR FURTHER INFORMATION CONTACT: Jason Yang, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: Jason.yang@faa.gov; telephone (781) 238-7747; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 by superseding AD 2004-26-10, Amendment 39-13922 (70 FR 1172, January 6, 2005), with a proposed AD. The proposed AD applies to RRD Tay 611-8, Tay 620-15, Tay 650-15, and Tay 651-54 turbofan engines. We published the proposed AD in the Federal Register on July 6, 2007 (72 FR 36916). That action proposed to require initial and repetitive visual inspections of all ice-impact panels and fillers in the LP compressor case for certain conditions and replacing, as necessary, any or all panels. That action also proposed to provide terminating action to those repetitive actions, and to add the Tay 611-8C turbofan engine to the applicability.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

Request for Compliance Time Extension

Two commenters, Rolls-Royce North America Inc. and Gulfstream, request that we extend the Tay 611-8 and 611-8C engine compliance time four more years, from December 31, 2011, to December 31, 2015, to address new engines having the 6-ice-impact panel configuration. The commenters state that so far, 12 engines have incorporated the ice-impact panel retention features, and those engines displayed strong bonding of the ice-impact panels before the panels were removed. The commenters are concerned with potential shop capacity problems, and extra cost if a special in-service repair is necessary.

We do not agree. We coordinated with Rolls-Royce Deutschland Ltd & Co KG in reviewing the request. Rolls-Royce Deutschland Ltd & Co KG re-states that the rework of the LP compressor case and installation of new LP compressor case ice-impact panels with additional retention features must be done before December 31, 2011 in accordance with Alert Service Bulletin No. TAY-72-A1650, dated November 2, 2005.

Reference Errors in the Proposed AD

Rolls-Royce Deutschland Ltd & Co KG requests that we correct some reference errors appearing in the proposed AD, as follows:

- In paragraphs (f)(2) and (f)(3), change "RRD SB No. TAY-72-1638, Revision 2, dated September 21, 2004", to "RRD SB No. TAY-72-1638, Revision 3, dated February 25, 2005."
- In paragraphs (h)(2) and (i)(2), change "RRD SB No. TAY-72-1638, Revision 2, dated September 21, 2004", to "RRD SB No. TAY-72-1639, Revision 2, dated September 21, 2004."

- In paragraph (h)(3), change "every 1,000 CSLI" to "every 1,000 operating hours."
- In paragraph (i)(1), change "every 3,000 CSLI" to "every 3,000 operating hours."

We agree and made these corrections to the AD.

Corrections Not Carried Forward

Rolls-Royce Deutschland Ltd & Co KG also requests that we review the proposed AD for missing corrections that were made to AD 2004-26-10, but not carried forward.

We agree. The corrections were inadvertently left out of the proposed AD. We have made those corrections to this AD, which throughout the compliance section changed "paragraph 3.E." to "paragraphs 3.C. through 3.E."

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

We estimate that this AD will affect about 1,085 engines installed on airplanes of U.S. registry. We also estimate that it will take about 2.5 work-hours per engine to perform an inspection, and about 12 work-hours to perform a repair. The average labor rate is \$80 per work-hour. Required terminating action parts will cost about \$7,500 per engine. Based on these figures, for the AD, we estimate:

- The cost of one inspection to the U.S. fleet to be \$217,000.
- The cost of a repair to the U.S. fleet to be \$1,041,600.
- The cost of parts to the U.S. fleet for terminating action to be \$8,137,500.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866;

(2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and

(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD docket. You may get a copy of this summary at the address listed under ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by removing Amendment 39-13922 (70 FR 1172, January 6, 2005), and by adding a new airworthiness directive, Amendment 39-15321, to read as follows:



2007-26-19 Rolls-Royce Deutschland Ltd & Co KG (Formerly Rolls-Royce plc): Amendment 39-15321. Docket No. FAA-2007-27811; Directorate Identifier 2004-NE-11-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective February 11, 2008.

Affected ADs

- (b) This AD supersedes AD 2004-26-10, Amendment 39-13922.

Applicability

- (c) This AD applies to:

(1) Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 611-8, Tay 620-15, Tay 650-15, and Tay 651-54 turbofan engines that have one or more ice-impact panels installed in the low pressure (LP) compressor case that conform to the (RRD) Service Bulletin (SB) No. TAY-72-1326 standard.

(2) RRD Tay 611-8C turbofan engines with serial numbers (SN) below SN 85078.

(3) The turbofan engines listed in paragraph (c) of this AD are installed on, but not limited to, Fokker F.28 Mk.0070 and Mk.0100 series airplanes, Gulfstream Aerospace G-IV and G-IV-X series airplanes, and Boeing Company 727-100 series airplanes modified in accordance with Supplemental Type Certificate SA8472SW (727-QF).

Unsafe Condition

(d) This AD results from RRD introducing new LP compressor case ice-impact panels with additional retention features, to these Tay turbofan engines. We are issuing this AD to prevent release of ice-impact panels due to improper bonding that can result in loss of thrust in both engines.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

Inspecting Ice-Impact Panels in Tay 620-15, Tay 650-15, and Tay 651-54 Engines

(f) For airplanes that have any Tay 620-15, Tay 650-15, or Tay 651-54 engines with ice-impact panels incorporated by the RR SB No. TAY-72-1326 standard, and not all panels were repaired using polysulfide bonding material by RR repair scheme TV5451R, HRS3491, HRS3615, HRS3648, or HRS3649, do the following:

(1) Before further flight, rework all six ice-impact panels using repair scheme HRS3648 or HRS3649 on at least one of the affected engines.

(2) Before further flight, inspect the ice-impact panels and the surrounding fillers on the engine not reworked. Use paragraphs 3.C. through 3.E. of the Accomplishment Instructions of RRD SB No. TAY-72-1638, Revision 2, dated September 21, 2004, or SB No. TAY-72-1638, Revision 3, dated February 25, 2005, and the inspection disposition criteria in Table 1 of this AD.

Table 1 - Inspection Disposition Criteria

If:	Then:
(i) Any movement or rocking motion of LP compressor ice-impact panel, or any movement of the front edge of ice-impact panel.	Before further flight, replace all panels using repair scheme HRS3648 or HRS3649.
(ii) Reappearing signs of moisture on the ice-impact panel or the surrounding filler.	Before further flight, replace all panels using repair scheme HRS3648 or HRS3649.
(iii) Any dents or impact damage on the ice-impact panel that is greater than 3.1 square inch in total.	Before further flight, replace the damaged panel using repair scheme HRS3648 or HRS3649.
(iv) Any dents or impact damage on the ice-impact panel that is between 1.55 square inch and 3.1 square inch in total.	Within 5 flight cycles or 5 flight hours, whichever occurs first, replace the damaged panel using repair scheme HRS3648 or HRS3649.
(v) Any dents or impact damage on the ice-impact panel that is less than 1.55 square inch in total.	Within 50 flight cycles or 50 flight hours, whichever occurs first, replace the damaged panel using repair scheme HRS3648 or HRS3649.
(vi) Any crack appears on the ice-impact panel and there is visible distortion of the airwashed surface.	Within 50 flight cycles or 50 flight hours, whichever occurs first, replace the damaged panel using repair scheme HRS3648 or HRS 3649.
(vii) Any crack appears on the ice-impact panel and there is no visible distortion of the airwashed surface.	Within 150 flight cycles or 150 flight hours, whichever occurs first, replace the damaged panel using repair scheme HRS3648 or HRS3649.
(viii) Delamination or peeling of the compound layers of the airwashed surface and the penetrated area is greater than 3.1 square inch in total.	Before further flight, replace the damaged panel using repair scheme HRS3648 or HRS3649.
(iv) Delamination or peeling of the compound layers of the airwashed surface and the penetrated area is between 1.55 square inch and 3.1 square inch in total.	Within 5 flight cycles or 5 flight hours, whichever occurs first, replace the damaged panel using repair scheme HRS3648 or HRS3649.
(x) Delamination or peeling of the compound layers of the airwashed surface and the penetrated area is less than 1.55 square inch in total.	Within 50 flight cycles or 50 flight hours, whichever occurs first, replace the damaged panel using repair scheme HRS3648 or HRS3649.
(xi) Delamination or peeling of the compound layers but the airwashed surface is not penetrated.	Within 150 flight cycles or 150 flight hours, whichever occurs first, repair the damaged panel using repair scheme HRS3630.
(xii) Missing filler surrounding the LP compressor case.	Before further flight, repair the damaged filler using repair scheme HRS3630.
(xiii) Damage to the filler surrounding the LP compressor case such as chipped, cracked, or missing material.	Within 25 flight cycles or 25 flight hours, whichever occurs first, repair damaged filler using repair scheme HRS 3630.

(3) Re-inspect all ice-impact panels within every 500 cycles-since-last-inspection (CSLI) or two months since-last-inspection, whichever occurs first. Use paragraphs 3.C. through 3.E. of the Accomplishment Instructions of RRD SB No. TAY-72-1638, Revision 2, dated September 21, 2004, or SB No. TAY-72-1638, Revision 3, dated February 25, 2005, and the inspection disposition criteria in Table 1 of this AD.

Repetitive Inspections for Tay 620-15, Tay 650-15, and Tay 651-54 Engines With All Ice-Impact Panels Repaired by Polysulfide Bonding Material

(g) For Tay 620-15, Tay 650-15, and Tay 651-54 engines with ice-impact panels incorporated by the RRD SB No. TAY-72-1326 standard, and all panels were repaired using polysulfide bonding material by RR repair scheme TV5451R, HRS3491, HRS3615, HRS3648 or HRS3649, do the following:

(1) Re-inspect within every 1,500 CSLI, for the condition of the ice-impact panels and the surrounding fillers.

(2) Use paragraphs 3.C. through 3.E. of the Accomplishment Instructions of RRD SB No. TAY-72-1638, Revision 2, dated September 21, 2004 or SB No. TAY-72-1638, Revision 3, dated February 25, 2005, and the inspection disposition criteria in Table 1 of this AD.

Inspecting Ice-Impact Panels in Tay 611-8 Engines

(h) For airplanes that have any Tay 611-8 engines with ice-impact panels incorporated by the RR SB No. TAY-72-1326 standard, and RR repair scheme HRS3491 or HRS3615 was done with two pack epoxy (Omat 8/52) on one or more of the six ice-impact panels, do the following:

(1) Before further flight, rework all six ice-impact panels using repair scheme HRS3648 or HRS3649 on at least one of the affected engines.

(2) Before further flight, inspect the ice-impact panels and the surrounding fillers on the engine not reworked. Use paragraphs 3.C. through 3.E. of the Accomplishment Instructions of RRD SB No. TAY-72-1639, Revision 2, dated September 21, 2004 and the inspection disposition criteria in Table 1 of this AD.

(3) Re-inspect the ice-impact panels within every 1,000 operating hours or six months since-last-inspection, whichever occurs first. Use paragraphs 3.C. through 3.E. of the Accomplishment Instructions of RRD SB No. TAY-72-1639, Revision 2, dated September 21, 2004, and the inspection disposition criteria in Table 1 of this AD.

Repetitive Inspections for Tay 611-8 Engines With All Ice-Impact Panels Repaired by Polysulfide Bonding Material or Introduced Since New Production

(i) For Tay 611-8 engines with ice-impact panels incorporated by the RRD SB No. TAY-72-1326 standard and all panels were repaired using polysulfide bonding material by RR repair scheme TV5451R, HRS3491, HRS3615, HRS3648 or HRS3649, or panels were introduced since new production, do the following:

(1) Re-inspect within every 3,000 hours-since-last-inspection, for the condition of the ice-impact panels and the surrounding fillers.

(2) Use paragraphs 3.C. through 3.E. of the Accomplishment Instructions of RRD SB No. TAY-72-1639, Revision 2, dated September 21, 2004, and the inspection disposition criteria in Table 1 of this AD. Installing Tay 620-15, Tay 650-15, or Tay 651-54 Engines That Are Not Inspected

(j) After the effective date of this AD, do not install any Tay 620-15, Tay 650-15, or Tay 651-54 engines with ice-impact panels if:

(1) Those ice-impact panels incorporate the RR SB No. TAY-72-1326 standard; and

(2) Ice-impact panels were repaired using RR repair scheme TV5451R, HRS3491, or HRS3615 and bonding material other than polysulfide; unless

(3) The panels and the surrounding fillers are inspected for condition using 3.B. through 3.D.(3) (in-service) or 3.K.(1) through 3.M.(3) (at overhaul or shop visit) of the Accomplishment Instructions of RRD SB No. TAY-72-1638, Revision 2, dated September 21, 2004, or SB No. TAY-72-1638, Revision 3, dated February 25, 2005.

(k) Perform repetitive inspections as specified in paragraph (g) of this AD.

Installing Tay 611-8 Engines That Are Not Inspected

(l) After the effective date of this AD, do not install any Tay 611-8 engine with ice-impact panels if:

(1) Those ice-impact panels incorporate the RR SB No. TAY-72-1326 standard; and

(2) Ice-impact panels were repaired using RR repair scheme TV5451R, HRS3491, or HRS3615 and bonding material other than polysulfide, unless

(3) The panels and the surrounding fillers are inspected for condition using 3.B. through 3.D.(2) (in-service) or 3.K.(1) through 3.M.(3) (at overhaul or shop visit) of the Accomplishment Instructions of RRD SB No. TAY-72-1639, Revision 2, dated September 21, 2004.

(m) Perform repetitive inspections as specified in paragraph (i) of this AD.

Mandatory Terminating Action

(n) No later than December 31, 2011, as mandatory terminating action to the repetitive visual inspections or rework required by paragraphs (f), (g), (h), (i), (j), (k), (l), and (m) of this AD, do the following:

(1) Rework the LP compressor case and install new LP compressor case ice-impact panels with additional retention features, at the next shop visit requiring the removal of any module, except when the work scope requires only the removal of the high speed gearbox module.

(2) For Tay 620-15, Tay 650-15, and Tay 651-54 turbofan engines, do the rework and installation using the Accomplishment Instructions of RRD Alert SB No. TAY-72-A1643, Revision 1, dated November 2, 2005.

(3) For Tay 611-8 turbofan engines, do the rework and installation using the Accomplishment Instructions of RRD Alert SB No. TAY-72-A1650, dated November 2, 2005.

Tay 611-8C Turbofan Engines

(o) For Tay 611-8C turbofan engines, no later than December 31, 2011, do the following:

(1) Rework the LP compressor case and install new LP compressor case ice-impact panels with additional retention features, at the next shop visit after the effective date of this AD, requiring the removal of any module, except when the work scope requires only the removal of the high speed gearbox module.

(2) Do the rework and installation using the Accomplishment Instructions of RRD Alert SB No. TAY-72-A1650, dated November 2, 2005.

Alternative Methods of Compliance

(p) The Manager, Engine Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Related Information

(q) German AD D2004-313R5, dated November 15, 2005, also addresses the subject of this AD.

(r) Contact Jason Yang, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: Jason.yang@faa.gov; telephone (781) 238-7747; fax (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(s) You must use the service information specified in Table 2 of this AD to perform the inspections and rework required by this AD. Except for Service Bulletin No. TAY-72-1638, Revision 3, Alert Service Bulletin No. TAY-72-A1643, Revision 1, and Alert Service Bulletin No. TAY-72-A1650, the Director of the Federal Register previously approved the incorporation by reference of the Rolls-Royce Deutschland Ltd & Co KG service information listed in Table 2 of this AD as of January 21, 2005 (70 FR 1172, January 6, 2005). The Director of the Federal Register approved the incorporation by reference of Service Bulletin No. TAY-72-1638, Revision 3, dated February 25, 2005, Alert Service Bulletin No. TAY-72-A1643, Revision 1, dated November 2, 2005, and Alert Service Bulletin No. TAY-72-A1650, dated November 2, 2005, in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Rolls-Royce Deutschland Ltd & Co KG, Eschenweg 11, D-15827 Dahlewitz, Germany; telephone 49 (0) 33-7086-1768; fax 49 (0) 33-7086-3356 for a copy of this service information. You may review copies at the FAA, New England Region, 12 New England Executive Park, Burlington, MA; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Table 2 – Incorporation by Reference

Service Information No.	Page	Revision	Date
SB No. TAY-72-1638	ALL	2	September 21, 2004
Total Pages: 35			
SB No. TAY-72-1638	ALL	3	February 25, 2005
Total Pages: 35			
SB No. TAY-72-1639	ALL	2	September 21, 2004
Total Pages: 28			
Alert SB No. TAY-72-A1643	ALL	1	November 2, 2005
Total Pages: 13			
Alert SB No. TAY-72-A1643 Appendix 1	ALL	1	November 2, 2005
Total Pages: 43			
Alert SB No. TAY-72-A1650	ALL	Original	November 2, 2005
Total Pages: 11			

Alert SB No. TAY-72-A1650 Appendix 1 Total Pages: 45	ALL	Original	November 2, 2005
Repair Scheme No. HRS3648 Front Sheet Total Pages: 1	ALL	2	January 28, 2004
Repair Scheme No. HRS3648 History Sheet Total Pages: 3	ALL	2	January 28, 2004
Repair Scheme No. HRS3648 Total Pages: 30	ALL	2	January 27, 2004
Repair Scheme No. HRS3649 Front Sheet Total Pages: 1	ALL	2	September 1, 2004
Repair Scheme No. HRS3649 History Sheet Total Pages: 3	ALL	2	September 7, 2004
Repair Scheme No. HRS3649 Total Pages: 24	ALL	2	June 17, 2004

Issued in Burlington, Massachusetts, on December 21, 2007.

Peter A. White,

Assistant Manager, Engine and Propeller Directorate, Aircraft Certification Service.

[FR Doc. E7-25497 Filed 1-4-08; 8:45 am]