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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-24777; Directorate Identifier 2006-NE-19-AD; Amendment 39-14913; AD 2007-03-02]

RIN 2120-AA64

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

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

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 611-8, Tay 620-15, Tay 650-15, and Tay 651-54 series turbofan engines, with certain low pressure (LP) compressor modules installed. This AD requires an ultrasonic inspection (UI) of LP compressor fan blades for cracks, within 30 days after the effective date of the AD on certain serial number (SN) Tay 650-15 engines. This AD also requires initial and repetitive UIs of LP compressor fan blades on all engines. This AD also requires, for Tay 650-15 and Tay 651-54 engines, UIs of LP compressor fan blades whenever the blade set is removed from one engine and installed on a different engine. This AD results from a report that a set of LP compressor fan blades failed before reaching the LP compressor fan blade full published life limit. We are issuing this AD to prevent LP compressor fan blades from failing due to blade root cracks, leading to uncontained engine failure and damage to the airplane.

DATES: This AD becomes effective March 5, 2007. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of March 5, 2007.

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.

You may examine the AD docket on the Internet at <http://dms.dot.gov> or in Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC.

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

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to RRD Tay 611-8, Tay 620-15, Tay 650-15, and Tay 651-54 series turbofan engines, with certain low pressure (LP) compressor modules installed. We published the proposed AD in the Federal Register on June 27, 2006 (71 FR 36493). That action proposed to require a UI of LP compressor fan blades for cracks, within 30 days after the effective date of the AD on certain serial number (SN) Tay 650-15 engines. That action also proposed to require repetitive UIs of LP compressor fan blades on all engines. That action also proposed to require, for Tay 650-15 and Tay 651-54 engines, UIs of LP compressor fan blades whenever the blade set is removed from one engine and installed on a different engine.

Examining the AD Docket

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Offices between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

Comments

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

RRD Request To Change Compliance Paragraphs (h)(1) and (h)(2)

RRD requests that we change the compliance schedule for Tay 650-15 and Tay 651-54 engines in proposed AD paragraph (h)(1), from "at every shop visit for any reason or before reaching every 4,000 flight hours-since-last fan blade UI, whichever occurs first" to "at every engine shop visit for any reason or before reaching every 10,000 flight hours-since-last fan blade UI, whichever occurs first."

RRD also requests that we change the compliance schedule for Tay 620-15 engines in proposed AD paragraph (h)(2) from "before reaching every 8,000 flight hours but no later than every 10 years since-last-fan-blade UI, whichever occurs first" to "before reaching every 10,000 flight hours for airline operation, and before reaching 8,000 flight hours but no later than every 10 years since-last-fan-blade UI, whichever occurs first, for non-airline operation." RRD bases these changes on their Engine Management Program.

We agree with the intent of the requested changes to proposed AD paragraph (h)(1). We changed that paragraph, and added subparagraphs to clarify the initial inspection requirements in the AD. Regarding paragraph (h)(2), we do not agree with having different inspection schedules for airline and non-airline operations. However, we changed paragraph (h)(2) to paragraph (h)(2)(iii), to read "before reaching every 10,000 flight hours but no later than every 10 years since-last-fan-blade UI, whichever occurs first". We feel that this drawdown schedule will take care of both low- and high-utilization of Tay 620-15 engines.

Air Transport Association Request To Change Compliance Paragraph (h)(1)

Air Transport Association (ATA) requests that we change the compliance schedule in paragraph (h)(1) from "at every engine shop visit for any reason or before reaching every 4,000 flight hours-since-last fan blade UI, whichever occurs first" to "at every engine shop visit for any reason or before reaching every 12 years or 15,000 flight hours-since-last fan blade UI, whichever occurs first". ATA

states that this schedule is described in the Engine Management Program for Tay 651-54 engines installed in the Boeing 727 airplanes. We do not agree. The intent of proposed AD paragraph (h)(1) is to UI Tay 650-15 and Tay 651-54 engines at all scheduled and unscheduled shop visits, using RRD SB No. TAY-72-1442, Revision 3, dated November 26, 2003. Also, the intent of the paragraph is to parallel the SB requirement of an initial UI within 3 months after the SB issue date. We did change paragraph (h) and added subparagraphs as described under the first comment above.

Request To Change Compliance Paragraph (h)(3)

One commenter requests that we change the Tay 611-8 compliance schedule in proposed AD paragraph (h)(3). The commenter requests that we call out an initial UI inspection to be done at the next engine mid-life or overhaul inspection after the effective date of this AD. The commenter also requests that we call out repetitive UI inspections to be done before reaching every 8,000 flight hours but no later than every 10 years since-last-fan blade UI, whichever occurs first. These changes would prevent many airplanes from being immediately grounded, upon issuance of the AD. We agree with the commenter's intent. We changed and added paragraphs (h) through (h)(2)(iii) to clarify the initial inspection requirements in the AD, and to incorporate the compliance schedule changes.

Request To Add LP Compressor Fan Blade Part Numbers

ATA requests that we include LP compressor fan blade part numbers in the AD. We agree and added the part numbers to the AD.

Incorrect Supplemental Type Certificate (STC) Number

In paragraph (c) of the proposed AD, STC number SA842SW is incorrect. That STC applies to a Cessna Model 414 airplane. We corrected the STC No. in paragraph (c) of this AD to SA8472SW, which applies to a Boeing 727 airplane.

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 1,000 RRD Tay 611-8, Tay 620-15, Tay 650-15, and Tay 651-54 series turboprop engines installed on airplanes of U.S. registry. We also estimate that it will take about 4 work-hours per engine to perform an inspection, and that the average labor rate is \$80 per work-hour. Required parts will cost about \$95,000 per LP compressor fan disk and \$140,000 per set of LP compressor fan blades. We estimate that 5 percent or 50 engines will require replacing the LP compressor fan disc and LP compressor fan blade set. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$11,750,000.

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 adding the following new airworthiness directive:



2007-03-02 Rolls-Royce Deutschland Ltd & Co KG (formerly Rolls-Royce plc): Amendment 39-14913. Docket No. FAA-2006-24777; Directorate Identifier 2006-NE-19-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective March 5, 2007.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Rolls-Royce Deutschland Ltd & Co KG (RRD) Tay 611-8 and Tay 620-15 turbofan engines with low pressure (LP) compressor module part number (P/N) MO1100AA or P/N MO1100AB installed, and Tay 650-15 and Tay 651-54 turbofan engines with LP compressor module P/N MO1300AA or P/N MO1300AB installed. These engines are installed on, but not limited to, Fokker F.28 Mark 0070 and 0100 airplanes, Boeing 727 airplanes modified in accordance with Supplemental Type Certificate No. SA8472SW, and Gulfstream G-IV airplanes. The following P/N LP compressor fan blades are installed in these modules:

Tay 611-8 LP Compressor Fan Blade P/Ns	Tay 620-15 LP Compressor Fan Blade P/Ns	Tay 650-15 LP Compressor Fan Blade P/Ns	Tay 651-54 LP Compressor Fan Blade P/Ns
JR30649	JR30649	JR31911	JR31911
JR31702	JR31702	JR31912	JR31912
JR31983	JR31983	JR35120	JR35120
	JR33863	JR35121	JR35121
	JR33864	JR33865	
		JR33866	

Unsafe Condition

(d) This AD results from a report that a set of LP compressor fan blades failed before reaching the LP compressor fan blade full published life limit. We are issuing this AD to prevent LP compressor fan blades from failing due to blade root cracks, leading to uncontained engine failure and damage to the airplane.

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.

Ultrasonic Inspection (UI) of LP Compressor Fan Blades for Certain Tay 650-15 Engines That Have Not Yet Had UI of the LP Compressor Fan Blades

(f) For Tay 650-15 engines, serial numbers 17201, 17202, 17226, 17253, 17341, 17356, 17428, 17450, 17457, 17458, 17497, 17530, 17622, 17643, 17655, 17678, 17709, 17751, 17755, 17805, and 17806 that have not yet had UI of the LP compressor fan blades:

(1) Within 30 days after the effective date of this AD, perform UI of the LP compressor fan blades for cracks.

(2) Use Part 1 of RRD Service Bulletin (SB) No. TAY-72-1591, dated May 8, 2003, to do the inspection.

UI of LP Compressor Fan Blades Being Installed in a Different Engine; Tay 650-15 and Tay 651-54 Engines

(g) For Tay 650-15 and Tay 651-54 engines, whenever LP compressor fan blades are removed and are being installed in a different engine:

(1) Perform UI of the LP compressor fan blades for cracks.

(2) Use Part 1 of RRD SB No. TAY-72-1442, Revision 3, dated November 26, 2003, to do the inspection.

UI of LP Compressor Fan Blades for All Tay Engines

(h) Perform UI of the LP compressor fan blades for cracks, using Part 2 of RRD SB No. TAY-72-1442, Revision 3, dated November 26, 2003, at the following:

(1) For Tay 650-15 and Tay 651-54 engines:

(i) Initial UI at next shop visit for any reason but no later than 6 months after the effective date of this AD, whichever occurs first.

(ii) Repetitive UIs at every engine shop visit for any reason but before reaching every 10,000 flight hours-since-last fan blade UI, whichever occurs first.

(2) For Tay 611-8 and Tay 620-15 engines:

(i) Initial UI at next shop visit for engine mid-life inspection or overhaul, but no later than 12 months after the effective date of this AD, whichever occurs first.

(ii) For Tay 611-8 engines, repetitive UIs before reaching every 8,000 flight hours but no later than every 10 years since-last-fan-blade UI, whichever occurs first.

(iii) For Tay 620-15 engines, repetitive UIs before reaching every 10,000 flight hours but no later than every 10 years since-last-fan-blade UI, whichever occurs first.

LP Compressor Fan Blades That Are Cracked

(i) If any LP compressor fan blade is cracked, then remove the complete LP compressor fan blade set and the LP compressor fan disc from service.

Alternative Methods of Compliance

(j) 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

(k) Luftfahrt-Bundesamt airworthiness directive D-1998-055R3, dated December 15, 2003, which was approved by EASA under approval No. 1869 on December 15, 2003, also addresses the subject of this AD.

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

Material Incorporated by Reference

(m) You must use the Rolls-Royce Deutschland Ltd & Co KG service information specified in Table 1 to perform the actions required by this AD. The Director of the Federal Register approved the incorporation by reference of the documents listed in Table 1 of this AD 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 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 1.—Incorporation by Reference

Service Bulletin No.	Page	Revision	Date
TAY-72-1591, Total Pages: 8	All	Original	May 8, 2003
TAY-72-1442, Total Pages: 11	All	3	November 26, 2003
Appendix 1 of TAY-72-1442, Total Pages: 4	All	3	November 26, 2003

Issued in Burlington, Massachusetts, on January 22, 2007.

Peter A. White,

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

[FR Doc. E7-1218 Filed 1-26-07; 8:45 am]