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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2008-1165; Directorate Identifier 2008-NE-38-AD; Amendment 39-16685; AD 2011-10-04]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce plc RB211-Trent 800 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for the products listed above. This AD results from mandatory continuing airworthiness information (MCAI) issued by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

During manufacture of high-pressure (HP) compressor stage 1 discs, a small number of parts have been rejected due to a machining defect that was found during inspection. Analysis of the possibility of less severe examples having been undetected and passed into service has concluded that action is required to reduce the risk of failure. It was therefore necessary to reduce the life limit.

The HP compressor stage 1 disc is part of the HP compressor stage 1-4 shaft, part number (P/N) FK32580. We are issuing this AD to prevent failure of the HP compressor stage 1 disc, uncontained engine failure, and damage to the airplane.

DATES: This AD becomes effective June 7, 2011.

ADDRESSES: 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: Alan Strom, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: alan.strom@faa.gov; telephone (781) 238-7143; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) and a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on February 18, 2009 (74 FR 7563) and that SNPRM was published in the Federal Register on October 4, 2010 (75 FR 61114). That SNPRM proposed to correct an unsafe condition for the specified products. The MCAI states that:

During manufacture of high-pressure (HP) compressor stage 1 discs, a small number of parts have been rejected due to a machining defect that was found during inspection. Analysis of the possibility of less severe examples having been undetected and passed into service has concluded that action is required to reduce the risk of failure. It was therefore necessary to reduce the life limit.

The HP compressor stage 1 disc is part of the HP compressor stage 1-4 shaft, P/N FK32580. Since we issued the original NPRM on February 10, 2009 (74 FR 7563, February 18, 2009), EASA issued AD 2010-0087, dated May 5, 2010 (corrected May 6, 2010), which retains certain requirements of superseded EASA AD 2008-0099, and imposes more restrictive life limits in the Heavy Flight Profile Parts. You may obtain further information by examining the MCAI in the AD docket.

Comments

We gave the public the opportunity to participate in developing this AD. We considered the comments received.

Request To Revise the Compliance Times

Four commenters, American Airlines, Delta Airlines, Rolls-Royce plc, and The Boeing Company, request that we revise the compliance times to be consistent with the service bulletin and the airworthiness limitations section (ALS) of the engine manual. Doing this would account for the later AD release date and for the entire Trent 800 series fleet instead of just certain US operators' expected cyclic usage. The commenters state that the proposed requirements would have a severe adverse economic impact to operators relative to the service bulletin requirements. The simplified compliance requirements in the SNPRM relative to the service bulletin requirements, may not accurately reflect the risk of an uncontained event, and are confusing.

We do not agree. The requirements in the SNPRM were developed to minimize the risk of uncontained disc failure, based on the age of the parts in the field at the time the SNPRM was issued. The service bulletin requirements were developed at a time when the age of the parts in service was lower than when the SNPRM was issued. Because the risk of failure increases as the age of the parts in the field increase, any revision to the requirements of the SNPRM would again have to take the increased age of the parts in service into account. As such, an analysis would result in removal requirements more stringent than the requirements in the SNPRM, and a follow-on NPRM would be required. Therefore, we determined that it is in the public interest to keep the removal requirements the same as published in the SNPRM. We did not change the AD.

Request for Clarity and Interpretation

Delta Airlines states that it would be helpful if we could provide some clarity in the AD as to how an operator should interpret the differing information between the AD, the ALS of the Rolls-Royce Time Limits Manual, and the service bulletin. The commenter is concerned that there will be

three locations where the life limit of the shaft, P/N FK32580, is specified, and all three have different data.

We do not agree. The AD and the ALS take precedence over the service bulletin. Operators must comply with the AD and the ALS. We did not change the AD.

Question on Reworked Part

Delta Airlines asks for clarification as to whether a part reworked from P/N FK32580 to FW61622, is still required to be removed in accordance with paragraphs (e)(1) and (e)(2) of the AD. The commenter is unsure if a reworked part can be returned to service under the life limit of the new part number.

The AD applies only to P/N FK32580. If the part is reworked to a different P/N, the requirements of the new P/N would apply. We did not change the AD.

Request To Use the Service Bulletin Method

American Airlines requests that we revise the AD to use the service bulletin method of determining the number of cycles before removal is required; specifically, based on a date before the effective date of the AD. The commenter states that the simplified compliance in the SNPRM would result in early engine removal and a cumulative loss of about eleven engine-years of useful service to American Airlines.

We do not agree. The compliance thresholds in the AD are a function of usage, which is not directly related to calendar dates. We did not change the AD.

Request To Update Contact Information

Rolls-Royce plc requests that we update their contact information in the AD to: Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, England, DE248BJ, telephone: 011-44-1332-242424; fax: 011-44-1332-245418, or e-mail: http://www.rolls-royce.com/contact/civil_team.jsp.

We agree and changed the AD.

Conclusion

We reviewed the available data and determined that air safety and the public interest require adopting the AD with the change described previously.

Differences Between This AD and the MCAI

We have reviewed the MCAI and, in general, agree with its substance. But we have found it necessary to not incorporate the June 4, 2008 compliance date which is in EASA AD 2010-0087, dated May 5, 2010 (corrected May 6, 2010). We updated the compliance times in the AD based on a more recent assessment of the unsafe condition.

Costs of Compliance

Based on the service information, we estimate that this AD will affect about 78 products of U.S. registry. Required parts will cost about \$15,095 per product. We estimate that no additional labor costs would be incurred to perform the actions, as we anticipate that the removal from service of the HP compressor stage 1-4 shafts will occur while the engine is inducted into the shop for routine maintenance. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$1,177,410.

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 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 this AD:

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the 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 regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

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 (phone (800) 647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

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 FAA 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 AD:



2011-10-04 Rolls-Royce plc: Amendment 39-16685; Docket No. FAA-2008-1165; Directorate Identifier 2008-NE-38-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective June 7, 2011.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to Rolls-Royce plc models RB211-Trent 875-17, -Trent 877-17, -Trent 884-17, -Trent 884B-17, -Trent 892-17, -Trent 892B-17, and -Trent 895-17 turbofan engines, with high-pressure (HP) compressor stage 1-4 shafts, part number (P/N) FK32580, installed.

Reason

(d) This AD results from mandatory continuing airworthiness information (MCAI) issued by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. European Aviation Safety Agency (EASA) AD 2010-0087, dated May 5, 2010 (corrected May 6, 2010) states the unsafe condition is as follows:

During manufacture of high-pressure (HP) compressor stage 1 discs, a small number of parts have been rejected due to a machining defect that was found during inspection. Analysis of the possibility of less severe examples having been undetected and passed into service has concluded that action is required to reduce the risk of failure. It was therefore necessary to reduce the life limit. The HP compressor stage 1 disc is part of the HP compressor stage 1-4 shaft, P/N FK32580. We are issuing this AD to prevent failure of the HP compressor stage 1 disc, uncontained engine failure, and damage to the airplane.

Actions and Compliance

- (e) Unless already done, do the following actions.

Multiple Flight Profile Monitoring Parts

(1) For RB211-Trent 800 series engines being monitored by "Multiple Flight Profile Monitoring," remove the HP compressor stage 1-4 shaft, P/N FK32580, before accumulating 5,580 standard duty cycles (SDC) since-new or within 960 SDC from the effective date of this AD, whichever occurs later.

Heavy Flight Profile Parts

(2) For RB211-Trent 800 series engines being monitored by "Heavy Flight Profile," remove the HP compressor stage 1-4 shaft, P/N FK32580, before accumulating 5,280 flight cycles since new or within 860 flight cycles from the effective data of this AD, whichever occurs later.

FAA Differences

(f) We have found it necessary to not incorporate the June 4, 2008 compliance date which is in EASA AD 2010-0087, dated May 5, 2010 (corrected May 6, 2010). We also updated the compliance times in the AD based on a more recent assessment of the unsafe condition.

Alternative Methods of Compliance (AMOCs)

(g) The Manager, Engine Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

Related Information

(h) Refer to EASA Airworthiness Directive 2010-0087, dated May 5, 2010 (corrected May 6, 2010), and Rolls-Royce plc Alert Service Bulletin No. RB.211-72-AF825, Revision 3, dated August 25, 2009 for related information. Contact Rolls-Royce plc, Corporate Communications, P.O. Box 31, Derby, England, DE248BJ, telephone: 011-44-1332-242424; fax: 011-44-1332-245418; or e-mail via: http://www.rolls-royce.com/contact/civil_team.jsp, for a copy of this service information.

(i) Contact Alan Strom, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: alan.strom@faa.gov; telephone (781) 238-7143; fax (781) 238-7199, for more information about this AD.

Issued in Burlington, Massachusetts, on April 25, 2011.

Peter A. White,
Acting Manager, Engine and Propeller Directorate,
Aircraft Certification Service.