[Federal Register Volume 76, Number 102 (Thursday, May 26, 2011)]
[Rules and Regulations]
[Pages 30529-30531]
From the Federal Register Online via the Government Printing Office [www.gpo.gov]
[FR Doc No: 2011-13014]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-0994; Directorate Identifier 2009-NE-39-AD; Amendment 39-16707; AD 2011-11-08]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce plc (RR) RB211-535 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:

> There have been several findings of cracking at the firtrees of LP Turbine discs. Fatigue crack initiation and subsequent crack propagation at the firtree may result in multiple LP Turbine blade release. The latter may potentially be beyond the containment capabilities of the engine casings. Thus, cracking at the firtrees of LP Turbine discs constitutes a potentially unsafe condition.

We are issuing this AD to detect cracks in the low-pressure (LP) turbine stage 1, 2, and 3 discs, which could result in an uncontained release of LP turbine blades and damage to the airplane.

DATES: This AD becomes effective June 30, 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: Frederick Zink, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: frederick.zink@faa.gov; telephone (781) 238-7779; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) 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 October 5, 2010 (75 FR 61361). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

> There have been several findings of cracking at the firtrees of LP Turbine discs. Fatigue crack initiation and subsequent crack propagation at the firtree may result in multiple LP Turbine blade release. The latter may potentially be beyond the containment capabilities of the engine casings. Thus, cracking at the firtrees of LP Turbine discs constitutes a potentially unsafe condition.
>
> Therefore this Airworthiness Directive requires a change to the inspection intervals of LP Turbine Discs.

Comments

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

Request To Change Related Information Paragraph

One commenter, Rolls-Royce plc asked us to use a different statement for Rolls-Royce contact information in paragraph (i) of the proposed AD. Rolls-Royce is concerned that responses to requests for information will be delayed if the statement is not clear on how to request information on service bulletins.

We partially agree. Paragraph (i) is now paragraph (j) of this AD, and we have changed paragraph (j) of the AD to supply the relevant contact information.

Support for the Proposed AD as Written

Two commenters, Continental Airlines and The Boeing Company support the proposed AD as written.

Request To Change the Definition of a Shop Visit

Three commenters, FedEx, American Airlines, and Rolls-Royce plc asked us to change the definition of a shop visit to the definition in the Rolls-Royce Alert Service Bulletin (ASB) RB.211-72-AG272,"at every engine refurbishment and at every 04 and 05 Module Level 3 (Refurbishment) or Level 4 (Overhaul) shop visit." The commenters believed that the proposed AD definition of a shop visit is too conservative and will result in unnecessarily increased costs without a significant improvement in safety.

We partially agree. We agree that the current definition in the proposed AD is too broad because inspecting the LP turbine disks every time an unrelated major flange is separated is not required. We disagree with using the definition in the service bulletin because the service bulletin definition is not sufficient for our needs. We changed paragraph (f) of the proposed AD to "For the purpose of this AD, an "engine shop visit" is the induction of an engine into the shop for maintenance involving the separation of the intermediate-pressure/low-pressure (IP/LP) turbine module from the engine, separation of the IP turbine case from the combustion outer case, or separation of the LP turbine case

from the IP turbine case, except that the separation of engine flanges solely for the purposes of transportation without subsequent engine maintenance does not constitute an engine shop visit."

Request To Clarify the Compliance Time

One commenter, American Airlines, asked us to clarify the compliance time in paragraph (e)(1) of the proposed AD to state that for engines currently in the shop on the effective date of the AD, the initial inspection is to be carried out if the affected parts are exposed and rebuild has not yet started. The commenter believed that the proposed AD is unclear as to whether engines which have begun their shop visits prior to the effective date of the AD are required to undergo the initial inspection before re-introduction into service.

We agree. Engines currently in the shop at piece part exposure or in a condition prior to, must comply with the AD before any approval for return to service. Engines built up beyond this point will not require compliance with the AD until the next piece part exposure. Engines that are in the shop and have been approved for return to service are considered not to be in the shop. We changed paragraph (f) of the proposed AD to clarify a shop visit.

Request To Change the Initial Inspection Requirements

One commenter, American Airlines, asked us to change the initial inspection requirements in paragraph (e)(1) of the proposed AD to specify "paragraphs 3.C through 3.E." in ASB RR.211-72-AG272, instead of "Section 3." The commenter believed that only Section 3.C. through 3.E. address the unsafe condition.

We partially agree. The ASB we reference in paragraph (e)(1) of the proposed AD is not incorporated by reference, so requiring operators to follow specific paragraphs in the ASB is unnecessary. We agree, however, that including the reference may induce confusion. We deleted the reference from the proposed AD.

Request To Change the Costs of Compliance

One commenter, American Airlines, asked us to change the Costs of Compliance Section of the proposed AD. American Airlines stated the number of 90 products installed on U.S. registered airplanes and the number of work-hours for performing the inspections are incorrect. American Airlines stated that they operate more RB211-535 engines than the number listed in the proposed AD. American Airlines also stated that ASB RB.211-72-AG272 lists the total hour for accomplishing the required actions as 70 work-hours. American Airlines requests that the AD reflect the work-hours required as 70 work-hours if limited to refurbishment shop visits. If non-refurbishment shop visits are included, American Airlines estimates the average work-hours at 1,300 hours per shop visit.

We partially agree. As of July 9, 2010, 588 installed engines were on U.S. registered airplanes. We changed the Costs of Compliance Section from "90 products of U.S. registry" to "588 products of U.S. registry." We also changed the "cost of the AD on U.S. operators" from $229,500 to $1,499,400.

We don't agree with the request to change the time to comply if performed during non-refurbishment shop visits. We base the number of hours in the cost estimate on performing the inspection during the next shop visit as defined in this AD. We made no change to the AD.

Conclusion

We 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 determined that these changes will not increase the scope of the AD.

Costs of Compliance

Based on the service information, we estimate that this AD would affect about 588 products installed on airplanes of U.S. registry. We also estimate that it would take about 30 work-hours per product to comply with this AD. The average labor rate is $85 per work-hour. Required parts would cost about $0 per product. Based on these figures, we estimate the cost of the AD on U.S. operators to be $1,499,400.

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:

2011-11-08 Rolls-Royce plc: Amendment 39-16707. Docket No. FAA-2010-0994; Directorate Identifier 2009-NE-39-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective June 30, 2011.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Rolls-Royce plc RB211-535E4-37, -535E4-B-37, -535E4-B-75, and -535E4-C-37 turbofan engines. These engines are installed on, but not limited to, Boeing 757-200 series, -200PF series, -200CB series, and -300 series airplanes and Tupolev Tu204 series airplanes.

Reason

(d) This AD results from several findings of cracking at the firtrees of low-pressure (LP) turbine discs. Fatigue crack initiation and subsequent crack propagation at the firtree may result in multiple LP turbine blade release. We are issuing this AD to detect cracks in the LP turbine stage 1, 2, and 3 discs, which could result in an uncontained release of LP turbine blades and damage to the airplane.

Actions and Compliance

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

Initial Inspection Requirements

(1) At the next engine shop visit after the effective date of this AD, perform a visual and a fluorescent penetrant inspection (FPI) of the LP turbine stage 1, 2, and 3 disc.

Repeat Inspection Requirements

(2) At each engine shop visit after accumulating 1,500 cycles since the last inspection of the LP turbine stage 1, 2 and 3 discs, repeat the inspections specified in paragraph (e)(1) of this AD.

Remove Cracked Discs

(3) If you find cracks, remove the disc from service.

Definitions

(f) For the purpose of this AD, an "engine shop visit" is:

(1) Induction of an engine into the shop for maintenance involving the separation of the intermediate-pressure/low-pressure (IP/LP) turbine module from the engine, or

(2) Separation of the IP turbine case from the combustion outer case, or

(3) Separation of the LP turbine case from the IP turbine case, except that the separation of engine flanges solely for the purposes of transportation without subsequent engine maintenance does not constitute an engine shop visit.

(g) Engines that have been approved for return to service but are still physically in the shop are not considered to be in the shop.

FAA AD Differences

(h) This AD differs from the Mandatory Continuing Airworthiness Information (MCAI) and or service information as follows in that while the MCAI compliance requires action at a current shop visit, this AD requires compliance at the next shop visit after the effective date of this AD.

Other FAA AD Provisions

(i) Alternative Methods of Compliance (AMOCs): 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

(j) Refer to MCAI European Aviation Safety Agency Airworthiness Directive 2009-0244, dated November 9, 2009, and Rolls-Royce plc Alert Service Bulletin No. RB.211-72-AG272 for related information. Contact Rolls-Royce plc., P.O. Box 31, Derby, DE24 8BJ, United Kingdom; phone: 011 44 1332 242424, fax: 011 44 1332 249936; or e-mail from:http://www.rollsroyce.com/contact/civil_team.jsp, for a copy of this service information or download the publication from https://www.aeromanager.com.

(k) Contact Frederick Zink, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: frederick.zink@faa.gov; telephone (781) 238-7779; fax (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(l) None.

Issued in Burlington, Massachusetts, on May 20, 2011.
Peter A. White,
Acting Manager, Engine and Propeller Directorate,
Aircraft Certification Service.