[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0462; Directorate Identifier 2014-NE-06-AD]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Corporation Turboprop and Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain Rolls-Royce Corporation (RRC) AE 2100 series turboprop engines and AE 3007A and 3007C series turbofan engines. This proposed AD was prompted by reports of pitting in the wheel bores and subsequent RRC analysis that concluded that lower life limits are needed for the affected turbine wheels. This proposed AD would reduce the approved life limits of the affected turbine wheels. This proposed AD would also require an eddy current inspection (ECI) of certain RRC engines with affected turbine wheels. We are proposing this AD to prevent uncontained failure of the turbine wheels, damage to the engine, and damage to the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: 202-493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Rolls-Royce Corporation, 450 South Meridian Street, Mail Code NB-01-06, Indianapolis, IN 46225, phone: 317-230-1667; email: CMSEindyOSD@rolls-royce.com; Internet: www.rolls-royce.com. You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2014-0462; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Kyri Zaroyiannis, Aerospace Engineer, Chicago Aircraft Certification Office, Small Airplane Directorate, FAA, 2300 E. Devon Ave., Des Plaines, IL 60018; phone: 847-294-7836; fax: 847-294-7834; email: kyri.zaroyiannis@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2014-0462; Directorate Identifier 2014-NE-06-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to http://www.regulations.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

Inspections during the manufacturing process revealed higher than normal pitting in the bore of certain turbine wheels due to a permanganate cleaning process. Analysis and subsequent testing by RRC of these affected turbine wheels indicated that these wheels, because of the potential for pitting in the wheel bores, could not be operated safely up to their published life limits. For RRC AE 2100 series turboprop engines, the affected turbine wheels are identified as 1st stage gas generator turbine wheels and as 4th stage turbine wheels. For the RRC AE 3007A and 3007C series turbofan engines, the affected turbine wheels are identified as high-pressure turbine (HPT) stage 1 and stage 2 wheels. Operation of the affected wheels above the new lower limits represents an unsafe condition.

We are also proposing an ECI for certain RRC AE 3007A engines with affected turbine wheels because our risk analysis shows that these engines are operated in a more

stringent environment and therefore require periodic inspections to ensure these engines are operated safely.

This condition, if not corrected, could result in uncontained failure of the turbine wheels, damage to the engine, and damage to the airplane.

Relevant Service Information

We reviewed RRC Alert Service Bulletin (ASB) No. AE 2100D2-A-72-085, dated July 25, 2013; RRC ASB No. AE 2100D3-A-72-277, dated July 25, 2013; RRC ASB No. AE 2100P-A-72-019, dated July 25, 2013; RRC ASB No. AE 3007A-A-72-407, Revision 1, dated August 29, 2014; RRC ASB No. AE 3007A-A-72-408, Revision 1, dated August 29, 2014; and RRC ASB No. AE 3007C-A-72-316, dated December 6, 2013. RRC ASB No. AE 3007A-A-72-408 provides instructions on performing an ECI of affected HPT stage 2 wheels. The other RRC ASBs list the lower approved life limits of the affected turbine wheels.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Proposed AD Requirements

This proposed AD would require an ECI of certain RRC engines with affected turbine wheels, and reduce the life limits of the affected turbine wheels.

Costs of Compliance

We estimate that this proposed AD would affect 664 engines installed on airplanes of U.S. registry. We also estimate that it would take about 1 hour to perform an ECI in the bore of the turbine wheel for affected engines. The average labor rate is $85 per work-hour. We estimate the pro-rated replacement cost would be $30,688 for a 1st stage gas generator turbine wheel; $63,693 for an HPT stage 1 wheel; $13,941 for an

HPT stage 2 wheel; and $13,186 for a 4th stage turbine wheel. We also estimate that these parts would be replaced during an engine shop visit at no additional labor cost. Based on these figures, we estimate the total cost of the AD to U.S. operators to be $11,317,969.

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 proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 proposed regulation:

(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),

(3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, and

(4) 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.

List of Subjects in 14 CFR Part 39

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

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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. Amend § 39.13 by adding the following new airworthiness directive (AD):

Roll-Royce Corporation (Formerly Allison Engine Company): Docket No. FAA-2014-0462; Directorate Identifier 2014-NE-06-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Rolls-Royce Corporation (RRC) AE 2100D2, 2100D2A, 2100D3, and 2100P turboprop engines and AE 3007A1, A1/1, A1/3, A1E, A1P, A2, A3, C, C1, and C2 turbofan engines:

(1) With an installed 1st stage gas generator turbine wheel, part number (P/N) 23079946, 23088906, or 23089692, all serial numbers (S/Ns) listed in Table 2 and Table 3 of RRC Alert Service Bulletin (ASB) No. AE 2100D2-A-72-085, dated July 25, 2013; and in Table 2 and Table 3 of RRC ASB No. AE 2100D3-A-72-277, dated July 25, 2013.

(2) With an installed high-pressure turbine (HPT) stage 1 or HPT stage 2 wheel, P/N 23079946, 23088906, 23088784, 23084520, 23084781, 23088817, or 23088818, all S/Ns listed in Table 1 through Table 7 of RRC ASB No. AE 3007A-A-72-407, Revision 1, dated August 29, 2014, except those S/Ns excluded by Table 1, Table 2, Table 4, and Table 5 of RRC ASB No. AE 3007A-A-72-407, Revision 1, dated August 29, 2014.

(3) With an installed HPT stage 2 wheel, P/N 23084520 or 23088818, all S/Ns listed in Table 1 and Table 2 of RRC ASB No. AE 3007C-A-72-316, dated December 6, 2013, except those S/Ns excluded by Table 1 of RRC ASB No. AE 3007C-A-72-316, dated December 6, 2013.

(4) With an installed 4th stage turbine wheel, P/N 23083536, all S/Ns listed in Table 2 of RRC ASB No. AE 2100P-A-72-019, dated July 25, 2013.

(d) Unsafe Condition

This AD was prompted by reports of pitting in the wheel bores and subsequent RRC analysis that concluded that lower life limits are needed for the affected turbine wheels. We are issuing this AD to prevent uncontained failure of the turbine wheels, damage to the engine, and damage to the airplane.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done.

(1) For all RRC AE 3007A1, A1/1, A1/3, A1E, A1P, and A3 series engines with an HPT stage 2 wheel P/N and S/N identified in RRC ASB No. AE 3007A-A-72-408, Revision 1, dated August 29, 2014, at each shop visit after the effective date of this AD, eddy current inspect the bore of the affected HPT stage 2 wheels. Use RRC ASB AE

3007A-A-72-408, Revision 1, August 29, 2014, to do the inspection. Do not return to service any wheel that fails the inspection required by this AD.

(2) Thirty days after the effective date of this AD, do not return to service any engine that has a turbine wheel with a P/N and an S/N listed in any of the following RR ASBs whose wheel life exceeds the new life limits identified in the RR ASBs:

RRC ASB No. AE 2100D2-A-72-085, dated July 25, 2013;

RRC ASB No. AE 2100D3-A-72-277, dated July 25, 2013;

RRC ASB No. AE 2100P-A-72-019, dated July 25, 2013;

RRC ASB No. AE 3007A-A-72-407, Revision 1, dated August 29, 2014; or

RRC ASB No. AE 3007C-A-72-316, dated December 6, 2013.

(f) Installation Prohibition

Thirty days after the effective date of this AD, do not install an affected wheel, as identified in paragraph (c) of this AD, into any RRC AE 3007C2 engine.

(g) Definition

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 pairs of major mating engine flanges, except that the separation of engine flanges solely for the purposes of transportation without subsequent engine maintenance is not an engine shop visit.

(h) Alternative Methods of Compliance (AMOCs)

The Manager, Chicago Aircraft Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(i) Related Information

(1) For more information about this AD, contact Kyri Zaroyiannis, Aerospace Engineer, Chicago Aircraft Certification Office, Small Airplane Directorate, FAA, 2300 E. Devon Ave., Des Plaines, IL 60018; phone: 847-294-7836; fax: 847-294-7834; email: kyri.zaroyiannis@faa.gov.

(2) RRC ASB No. AE 2100D2-A-72-085, dated July 25, 2013; RRC ASB No. AE 2100D3-A-72-277, dated July 25, 2013; RRC ASB No. AE 2100P-A-72-019, dated July 25, 2013; RRC ASB No. AE 3007A-A-72-407, Revision 1, dated August 29, 2014; RRC ASB No. AE 3007A-A-72-408, Revision 1, dated August 29, 2014; and RRC ASB No. AE 3007C-A-72-316, dated December 6, 2013, which are not incorporated by reference in this AD, can be obtained from RRC using the contact information in paragraph (i)(3) of this AD.

(3) For service information identified in this AD, contact Rolls-Royce Corporation, 450 South Meridian Street, Mail Code NB-01-06, Indianapolis, IN 46225, phone: 317-230-1667; email: CMSEindyOSD@rolls-royce.com; Internet: www.rolls-royce.com.

(4) You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on September 25, 2014.

Colleen M. D'Alessandro,
Assistant Directorate Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

[FR Doc. 2014-23561 Filed 10/01/2014 at 8:45 am; Publication Date: 10/02/2014]