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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2000-NE-29-AD; Amendment 39-13486; AD 2004-04-05]

RIN 2120-AA64

Airworthiness Directives; Rolls-Royce Corporation (Formerly Allison Engine Company) AE 3007 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for Rolls-Royce Corporation (RR) (formerly Allison Engine Company) AE 3007A, AE 3007A1/1, AE 3007A1/2, AE 3007A1, AE 3007A1/3, AE 3007A1P, and AE 3007A3 turbofan engines. That AD currently requires initial and repetitive inspections for bearing material contamination of the engine oil system. This AD requires the same inspections but with an extended repetitive inspection interval, and adds terminating actions to the repetitive inspections required by this AD. This AD is prompted by design changes introduced by the manufacturer that reduce the axial load on the No. 1 bearing. We are issuing this AD to prevent the rapid failure of the No. 1 bearing, which could result in smoke in the cabin and an uncommanded in-flight engine shutdown.

DATES: Effective March 9, 2004. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of March 9, 2004.

We must receive any comments on this AD by April 23, 2004.

ADDRESSES: Use one of the following addresses to submit comments on this AD:

- By mail: The Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2000-NE-29-AD, 12 New England Executive Park, Burlington, MA 01803-5299.
- By fax: (781) 238-7055.
- By e-mail: 9-ane-adcomment@faa.gov.

You can get the service information referenced in this AD from Rolls-Royce Corporation, P.O. Box 420, Indianapolis, IN 46206-0420; telephone (317) 230-3030.

You may examine the AD docket, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Kyri Zaroyiannis, Aerospace Engineer, Chicago Aircraft Certification Office, FAA, Small Airplane Directorate, 2300 East Devon Avenue, Des Plaines, IL 60018; telephone: (847) 294-7836; fax: (847) 294-7834.

SUPPLEMENTARY INFORMATION: On April 16, 2001, we issued AD 2001-08-15, Amendment 39-12192 (66 FR 21067, April 27, 2001). That AD requires initial and repetitive inspections for bearing material contamination of the engine oil system. That AD was prompted by reports of rapid failures of the No. 1 bearing. That AD also allows as terminating action to the repetitive inspections, incorporation of Embraer Service Bulletin (SB) 145-79-0001, dated April 24, 1998. That SB installs an electrical jumper in an airplane electrical connector, which adds a second function to the Oil Impending Bypass advisory message, on the Engine Indication and Crew Alerting System (EICAS). After incorporation of the SB, this message can either represent that there is an oil impending bypass, or that the magnetic chip detector plug has collected enough ferrous metal to indicate possible initiation of bearing failure. That condition, if not corrected, could result in smoke in the cabin and an uncommanded in-flight engine shutdown.

Actions Since AD 2001-08-15 Was Issued

Since that AD was issued, the manufacturer has introduced several turbine design changes, each of which sufficiently reduces the axial load on the No. 1 bearing, to virtually eliminate the potentially unsafe condition of rapid, undetected bearing failure. The design changes include:

- Modifying the current high pressure (HP)-to-low pressure (LP) seal assembly, part number (P/N) 23068183, with a large geometric rear seal diameter, and remarking it to new P/N 23073953. This modified seal assembly adjusts interstage turbine cavity pressure and effectively reduces the axial load on the No. 1 bearing.
- Introducing new HP-to-LP seal assemblies, P/Ns 23074463, 23074729, 23076526, and 23077397, with a smaller geometric rear seal diameter. These new seal assemblies also reduce the axial load on the No. 1 bearing.

Relevant Service Information

We have reviewed and approved the technical contents of the following RR service bulletins (SBs) and Embraer SB:

- RR SB AE 3007A-79-034, dated May 14, 2002, which provides procedures for inspecting for bearing material contamination of the engine oil system by reviewing the maintenance page on the cockpit Multi Function Display.
- RR SB AE 3007A-72-199, Revision 3, dated May 13, 2002, which provides procedures to modify the HP-to-LP seal assembly, P/N 23068183, and remark seal assembly to P/N 23073953.
- RR SB AE 3007A-72-213, Revision 1, dated May 13, 2002, which provides procedures to install new design HP-to-LP seal assembly, P/N 23074729.
- RR SB AE 3007A-72-213, Revision 2, dated November 20, 2003, which provides procedures to install new design HP-to-LP seal assembly, P/N 23077397.
- RR SB AE 3007A-72-248, dated July 29, 2003, which provides procedures to install new design HP-to-LP seal assembly, P/N 23074463.
- RR SB AE 3007A-72-263, Revision 1, dated March 4, 2003, which provides procedures to modify the HP-to-LP seal assembly, P/N 23074729, and remark seal assembly to P/N 23076526.
- RR SB AE 3007A-72-284, dated October 16, 2003, which provides procedures to modify the HP-to-LP seal assembly, P/N 23074729 or P/N 23076526, and remark seal assembly to P/N 23077397.

- Embraer SB 145-79-0001, dated April 24, 1998, which provides procedures to modify the airplane wiring so that the oil impending bypass message will be displayed in the cockpit when the primary engine magnetic chip detector captures debris.

FAA's Determination and Requirements of This AD

The unsafe condition described previously is likely to exist or develop on other RR AE 3007A, AE 3007A1/1, AE 3007A1/2, AE 3007A1, AE 3007A1/3, AE 3007A1P, and AE 3007A3 turbofan engines of the same type design. We are issuing this AD to prevent the rapid failure of the No. 1 bearing, which could result in smoke in the cabin and an uncommanded in-flight engine shutdown. This AD requires initial and repetitive inspections for bearing material contamination of the engine oil system, and adds terminating actions to the repetitive inspections required by this AD. Six of the seven terminating actions listed, eliminate the unsafe condition by installing new or reworked parts, and one terminating action eliminates the unsafe condition by installing an electrical jumper in an airplane electrical connector, which adds a second function to the Oil Impending Bypass advisory message, on the EICAS. You must do these actions in accordance with the service information described previously.

FAA's Determination of the Effective Date

Since an unsafe condition exists that requires the immediate adoption of this AD, we have found that notice and opportunity for public comment before issuing this AD are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Changes to 14 CFR Part 39—Effect on the AD

On July 10, 2002, we issued a new version of 14 CFR part 39 (67 FR 47997, July 22, 2002), which governs our AD system. This regulation now includes material that relates to special flight permits, alternative methods of compliance, and altered products. This material previously was included in each individual AD. Since this material is included in 14 CFR part 39, we will not include it in future AD actions.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to submit any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "AD Docket No. 2000-NE-29-AD" in the subject line of your comments. If you want us to acknowledge receipt of your mailed comments, send us a self-addressed, stamped postcard with the docket number written on it; we will date-stamp your postcard and mail it back to you. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it. If a person contacts us through a nonwritten communication, and that contact relates to a substantive part of this AD, we will summarize the contact and place the summary in the docket. We will consider all comments received by the closing date and may amend the AD in light of those comments.

We are reviewing the writing style we currently use in regulatory documents. We are interested in your comments on whether the style of this document is clear, and your suggestions to improve the clarity of our communications with you. You may get more information about plain language at <http://www.faa.gov/language> and <http://www.plainlanguage.gov>.

Examining the AD Docket

You may examine the AD Docket (including any comments and service information), by appointment, between 8 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. See ADDRESSES for location.

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 the 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); 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 by sending a request to us at the address listed under ADDRESSES. Include "AD Docket No. 2000-NE-29-AD" in your request.

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 part 39 of the Federal Aviation Regulations (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:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at "www.faa.gov"

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

2004-04-05 Rolls-Royce Corporation: Amendment 39-13486. Docket No. 2000-NE-29-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective March 9, 2004.

Affected ADs

- (b) This AD supersedes AD 2001-08-15, Amendment 39-12192.

Applicability

(c) This AD is applicable to Rolls-Royce Corporation (RR) (formerly Allison Engine Company) AE 3007A, AE 3007A1/1, AE 3007A1/2, AE 3007A1, AE 3007A1/3, AE 3007A1P, and AE 3007A3 turbofan engines. These engines are installed on, but not limited to, Embraer Model EMB-145, EMB-145ER, EMB-145MR, EMB-145LR, EMB-135ER, and EMB-135LR airplanes.

Unsafe Condition

(d) This AD is prompted by design changes introduced by the manufacturer that reduce the No. 1 bearing load. The actions specified in this AD are intended to prevent the rapid failure of the No. 1 bearing, which could result in smoke in the cabin and an uncommanded in-flight engine shutdown.

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.

Inspection for Bearing Material Contamination of the Oil System

(f) Inspect for bearing material contamination of the oil system using paragraph 2.A. of the Accomplishment Instructions of RR service bulletin (SB) No. AE 3007A-79-034, dated May 14, 2002, as follows:

- (1) Initially inspect within 50 flight hours or five flight days after the effective date of this AD.
- (2) Thereafter, inspect every 50 flight hours or every five flight days.

Terminating Actions

(g) As terminating actions to the repetitive inspections specified in paragraph (f)(2) of this AD, do any one of the following paragraphs (g)(1) through (g)(7), by December 31, 2007:

(1) Modify high pressure (HP)-to-low pressure (LP) seal assembly, part number (P/N) 23068183, and remark to P/N 23073953, at engine overhaul, using RR SB AE 3007A-72-199, Revision 3, dated May 13, 2002.

(2) Install new design HP-to-LP seal assembly, P/N 23074729, at engine overhaul, using RR SB AE 3007A-72-213, Revision 1, dated May 13, 2002.

(3) Install new design HP-to-LP seal assembly, P/N 23077397, at engine overhaul, using RR SB AE 3007A-72-213, Revision 2, dated November 20, 2003.

(4) Install new design HP-to-LP seal assembly, P/N 23074463, at engine overhaul, using RR SB AE 3007A-72-248, dated July 29, 2003.

(5) Modify HP-to-LP seal assembly, P/N 23074729, and remark to P/N 23076526, at engine overhaul, using RR SB AE 3007A-72-263, Revision 1, dated March 4, 2003.

(6) Modify HP-to-LP seal assembly, P/N 23074729 or P/N 23076526, and remark to P/N 23077397, at engine overhaul, using RR SB AE 3007A-72-284, dated October 16, 2003.

(7) Using Embraer SB 145-79-0001, dated April 24, 1998, modify the airplane wiring so that the oil impending bypass message will be displayed in the cockpit when the primary engine magnetic chip detector captures debris.

Alternative Methods of Compliance

(h) The Manager, Chicago Aircraft 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.

Material Incorporated by Reference

(i) The Director of the Federal Register approved the incorporation by reference of the Rolls-Royce (RR) documents and Embraer document listed in Table 1 of this AD in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You may get RR copies from Rolls-Royce Corporation, P.O. Box 420, Indianapolis, IN 46206-0420; telephone (317) 230-3030, and Embraer copies from Emprasa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343-CEP 12.225, Sao Jose dos Campos-SP, Brazil. You may review copies at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC. Table 1 follows:

TABLE 1.—INCORPORATION BY REFERENCE

Service bulletin	Page number(s) shown on the page	Revision level shown on the page	Date shown on the page
RR SB AE 3007A-79-034	All	Original	May 14, 2002.
RR SB AE 3007A-72-199	All	3	May 13, 2002.
RR SB AE 3007A-72-213	All	1	May 13, 2002.
RR SB AE 3007A-72-213	All	2	November 20, 2003.
RR SB AE 3007A-72-248	All	Original	July 29, 2003.
RR SB AE 3007A-72-263	All	1	March 4, 2003.
RR SB AE 3007A-72-284	All	Original	October 16, 2003.
Embraer SB-145-79-0001	All	Original	April 24, 1998.

Related Information

(j) None.

Issued in Burlington, Massachusetts, on February 13, 2004.

Peter A. White,

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

[FR Doc. 04-3681 Filed 2-20-04; 8:45 am]

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