[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-4123; Directorate Identifier 2016-NE-06-AD; Amendment 39-18640; AD 2016-18-10]

RIN 2120-AA64

Airworthiness Directives; International Aero Engines AG Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain International Aero Engines AG (IAE) V2522-A5, V2524-A5, V2525-D5, V2527-A5, V2527E-A5, V2527M-A5, V2528-D5, V2530-A5, and V2533-A5 turbofan engines. This AD was prompted by the fracture of the high-pressure turbine (HPT) stage 2 hub during flight, which resulted in an in-flight shutdown (IFSD), undercowl fire, and smoke in the cabin. This AD requires inspecting the HPT stage 1 hub and HPT stage 2 hub, and, if necessary, their replacement with parts that are eligible for installation. We are issuing this AD to prevent failure of the HPT stage 1 or HPT stage 2 hubs, which could result in uncontained HPT blade release, damage to the engine, and damage to the airplane.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: For service information identified in this final rule, contact International Aero Engines AG, 400 Main Street, East Hartford, CT 06118; phone: 800-565-0140;

email: help24@pw.utc.com; Internet: http://fleetcare.pw.utc.com. You may view this referenced service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125. It is also available on the internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2016-4123.

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-2016-4123; 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 AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: Brian Kierstead, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7772; fax: 781-238-7199; email: brian.kierstead@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain IAE V2522-A5, V2524-A5, V2525-D5, V2527-A5, V2527E-A5, V2527M-A5, V2528-D5, V2530-A5, and V2533-A5 turbofan engines. The NPRM published in the Federal Register on April 5, 2016 (81 FR 19516). The NPRM was prompted by the fracture of the HPT stage 2 hub during flight, which resulted in an IFSD, undercowl fire, and smoke in the cabin. The NPRM proposed to

require inspecting the HPT stage 1 hub and HPT stage 2 hub, and, if necessary, their replacement with parts that are eligible for installation. We are issuing this AD to prevent failure of the HPT stage 1 or HPT stage 2 hubs, which could result in uncontained HPT blade release, damage to the engine, and damage to the airplane.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request to Add Credit for Previous Action

IAE and Cathay Pacific requested that we update this AD to refer to Non-Modification Service Bulletin (NMSB) V2500-ENG-72-0661 Revision 2, dated May 27, 2016, and allow credit for previous actions to include hubs inspected and cleared to IAE's NMSB V2500-ENG-72-0661, Original issue, dated November 10, 2015; and Revision 1, dated February 5, 2016.

We agree. We updated this AD to refer to NMSB V2500-ENG-72-0661, Revision 2, dated May 27, 2016. We are also including a Credit for Previous Actions paragraph that references IAE NMSB V2500-ENG-72-0661, Original issue, dated November 10, 2015; and Revision 1, dated February 5, 2016.

Request to Change Compliance Time

IndiGo and Cathay Pacific stated that the NPRM uses hub cycles since new (CSN) to determine when hub inspections are required. However, the commenters requested that this AD be specific as to the date on which CSN of the hubs are established. The IAE NMSB, Compliance Section, Table 1 refers to a compliance time within "Hub cycles as of February 1, 2016", but the NPRM does not mention any date. One commenter states that compliance to the February 1, 2016 date will not provide adequate planning time to operators for compliance.

We agree. This AD requires actions after the effective date of this AD. Therefore, we changed paragraphs (e)(1)(i), (ii), (iii), and (iv) of this AD to read "for hubs with [xxx] CSN on the effective date of this AD".

Request to Change Compliance Time

Germanwings GmbH requested that the effective date of this AD be aligned with IAE NMSB V2500-ENG-72-0661, Revision 2, dated May 27, 2016, which refers to "Hub cycles as of February 1, 2016." The commenter states that the difference in time between the effective date of this AD and February 1, 2016 listed in the NMSB will cause a mismatch in the compliance time.

We disagree. Basing the compliance times on the effective date of this AD is less restrictive than the IAE NMSB, so complying with this AD based on hub CSN as of the earlier NMSB date, would satisfy this AD. We did not change this AD.

Request to Change Shop Visit Definition

Delta Airlines and one other commenter requested that we change the definition of shop visit from separation of pairs of major mating engine flanges, to either piece-part exposure, HPT flange separation, or disassembly of the HPT rotor and stator assemblies.

Delta Airlines stated that compliance at the next shop visit, as defined in this AD would result in unnecessary cost and extended shop time. The other commenter stated that changing the definition would allow more flexibility in fleet management. Both commenters state that inspection at the next shop visit is not needed, since removal of the suspect hubs within the proposed cycle limits will provide an acceptable level of safety.

We disagree. Allowing all engines to operate until their respective cycle limit would not provide an acceptable level of safety. By inspecting a specific quantity of engines that will be inducted into the shop before the cycle limit occurs, the safety risk assessment is satisfied. Therefore, waiting until the piece-part exposure, HPT flange

separation, or the cycle threshold in lieu of inspection at the next shop visit, does not meet the requirement of this AD. We did not change this AD.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (81 FR 19516, April 5, 2016) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (81 FR 19516, April 5, 2016).

Related Service Information under 1 CFR part 51

We reviewed IAE NMSB V2500-ENG-72-0661, Revision 2, dated May 27, 2016. The NMSB describes procedures for inspecting the HPT stage 1 and stage 2 hubs. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

We estimate that this AD affects 668 engines with 947 hubs installed on airplanes of U.S. registry. Some of the 668 engines have two hubs installed. We estimate that it would take about 8 hours per hub to perform the piece-part inspection. The average labor rate is $85 per hour. We estimate that 568 hubs will require replacement. We estimate the pro-rated cost to replace an HPT stage 1 hub to be $50,271 and the pro-rated cost to replace an HPT stage 2 hub to be $40,063. Based on these figures, we estimate the cost of this AD on U.S. operators to be $26,298,816.

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

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),

(3) Will not affect intrastate aviation in Alaska, 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.

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 airworthiness directive (AD):

2016-18-10 International Aero Engines AG: Amendment 39-18640; Docket No. FAA-2016-4123; Directorate Identifier 2016-NE-06-AD.

(a) **Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to International Aero Engines AG (IAE) V2522-A5, V2524-A5, V2525-D5, V2527-A5, V2527E-A5, V2527M-A5, V2528-D5, V2530-A5, and V2533-A5 engines with either of the following installed:

(1) High-pressure turbine (HPT) stage 1 hub, part number (P/N) 2A5001, with a serial number (S/N) listed in Table 1, Appendix A, of IAE Non-Modification Service Bulletin (NMSB) V2500-ENG-72-0661, Revision 2, dated May 27, 2016; or

(2) HPT stage 2 hub, P/N 2A4802, with an S/N listed in Table 2, Appendix A, of IAE NMSB V2500-ENG-72-0661, Revision 2, dated May 27, 2016.

(d) Unsafe Condition

This AD was prompted by the fracture of the HPT stage 2 hub during flight, which resulted in an in-flight shutdown, undercowl fire, and smoke in the cabin. We are issuing this AD to prevent failure of the HPT stage 1 or HPT stage 2 hubs, which could result in uncontained HPT blade release, damage to the engine, and damage to the airplane.

(e) Compliance

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

(1) Inspect the HPT stage 1 hub, P/N 2A5001, and HPT stage 2 hub, P/N 2A4802, at the next shop visit or as follows, whichever comes first:

(i) For hubs with 0 to 7,000 CSN on the effective date of this AD, before accumulating 13,000 CSN;

(ii) For hubs with 7,001 to 11,000 CSN on the effective date of this AD, within 6,000 cycles from the effective date of this AD or before accumulating 15,000 CSN, whichever occurs first;

(iii) For hubs with 11,001 to 15,500 CSN on the effective date of this AD, within 4,000 cycles from the effective date of this AD or before accumulating 17,000 CSN, whichever occurs first;

(iv) For hubs with 15,501 CSN or more on the effective date of this AD, within 1,500 cycles from the effective date of this AD.

(2) Use Accomplishment Instructions, paragraphs 2.A., 2.C., and 2.D., of IAE NMSB V2500-ENG-72-0661, Revision 2, dated May 27, 2016, to inspect the HPT stage 1 hub, P/N 2A5001.

(3) Use Accomplishment Instructions, paragraphs 2.E., 2.G., and 2H., of IAE NMSB V2500-ENG-72-0661, Revision 2, dated May 27, 2016 to inspect the HPT stage 2 hub, P/N 2A4802.

(4) Remove from service any HPT stage 1 hub, P/N 2A5001, or HPT stage 2 hub, P/N 2A4802, that fails the inspections required by paragraphs (e)(2) and (e)(3) of this AD, and replace with a part that is eligible for installation.

(f) Definition

For the purpose of this AD, a "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 does not constitute an engine shop visit.

(g) Credit for Previous Actions

If you performed inspection and or replacement using IAE NMSB V2500-ENG-72-0661, original issue, dated November 10, 2015 or NMSB V2500-ENG-72-0661, Revision 1, dated February 5, 2016, you met the requirements of paragraphs (e)(2) and (e)(3) of this AD.

(h) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request. You may email your request to: ANE-AD-AMOC@faa.gov.

(i) Related Information

For more information about this AD, contact Brian Kierstead, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7772; fax: 781-238-7199; email: brian.kierstead@faa.gov.

(j) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) International Aero Engines AG Non-Modification Service Bulletin V2500-ENG-72-0661, Revision 2, dated May 27, 2016.

(ii) Reserved.

(3) For International Aero Engines AG service information identified in this AD, contact International Aero Engines AG, 400 Main Street, East Hartford, CT 06118; phone: 800-565-0140; email: help24@pw.utc.com; Internet: http://fleetcare.pw.utc.com.

(4) You may view this service information at FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(5) You may view this service information that is incorporated by reference 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.

Issued in Burlington, Massachusetts, on August 26, 2016.

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