

[Federal Register: June 1, 2010 (Volume 75, Number 104)]
[Rules and Regulations]
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[DOCID:fr01jn10-3]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-0219; Directorate Identifier 2010-NE-14-AD; Amendment 39-16315; AD 2010-11-10]

RIN 2120-AA64

Airworthiness Directives; Turbomeca Astazou XIV B and XIV H Turboshaft 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:

Investigation of an uncommanded in-flight shutdown (IFSD) revealed that a third stage turbine wheel rupture was not contained by the turbine casings. The released portion consisted of a turbine blade together with the rim piece immediately below the blade. The rim piece was bounded by two adjacent axial slots and a fatigue crack that had developed between the holes in which the slots terminate. The slots and holes, which are closed by riveted plugs, were introduced by modification AB 173 in order to improve the vibration characteristics of the turbine wheel. Modification AB 208 brings an improvement to modification AB 173 by changing only the riveting detail. SN 283 72 0805 provides instructions for re-boring the holes at overhaul or repair in order to improve their surface condition. A manufacturing process modification has been introduced to improve the surface condition of these holes in third stage turbine wheels. Wheels subject to the improved manufacturing process have S/Ns outside the range specified in Table 1. Although there is only one known event, and although it resulted only in an uncommanded IFSD, with no damage to the aircraft, the possibility exists that additional events may occur, potentially involving damage to the aircraft.

We are issuing this AD to prevent uncontained failures of the third stage turbine wheel, which could result in damage to the helicopter.

DATES: This AD becomes effective July 6, 2010. The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of July 6, 2010.

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: Kevin Dickert, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: kevin.dickert@faa.gov; telephone (781) 238-7117, 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 March 30, 2010 (75 FR 15627). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states that:

Investigation of an uncommanded IFSD revealed that a third stage turbine wheel rupture was not contained by the turbine casings. The released portion consisted of a turbine blade together with the rim piece immediately below the blade. The rim piece was bounded by two adjacent axial slots and a fatigue crack that had developed between the holes in which the slots terminate. The slots and holes, which are closed by riveted plugs, were introduced by modification AB 173 in order to improve the vibration characteristics of the turbine wheel. Modification AB 208 brings an improvement to modification AB 173 by changing only the riveting detail. SB 283 72 0805 provides instructions for re-boring the holes at overhaul or repair in order to improve their surface condition. A manufacturing process modification has been introduced to improve the surface condition of these holes in third stage turbine wheels. Wheels subject to the improved manufacturing process have S/Ns outside the range specified in Table 1. Although there is only one known event, and although it resulted only in an uncommanded IFSD, with no damage to the aircraft, the possibility exists that additional events may occur, potentially involving damage to the aircraft.

To address the unsafe condition, EASA issued AD 2009-0136, mandating inspection of certain third stage turbine wheels and removal of any damaged wheel. The wheels to be inspected were those whose cycles since new (CSN) would exceed 2,000 by February 1, 2011. Following additional research by Turbomeca on crack initiation and growth, this AD mandates inspections based on new criteria and removal of any damaged wheel.

Comments

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM or on the determination of the cost to the public.

Conclusion

We reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

Costs of Compliance

Based on the service information, we estimate that this AD will affect about three Astazou engines installed on products of U.S. registry. We also estimate that it will take about 5 work-hours per engine to comply with this AD. The average labor rate is \$85 per work-hour. We anticipate no parts to be required. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$1,275.

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:



2010-11-10 Turbomeca: Amendment 39-16315. Docket No. FAA-2010-0219; Directorate Identifier 2010-NE-14-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective July 6, 2010.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to Turbomeca Astazou XIV B and XIV H turboshaft engines with the following part number (P/N) third stage turbine wheels that incorporate modification AB 173 (Turbomeca Service Bulletin (SB) No. 283 72 0091) or modification AB 208 (Turbomeca SB No. 283 72 0117), but that do not incorporate Turbomeca SB No. 283 72 805:

- (1) Third stage turbine wheels P/N 0265257000, all serial numbers (S/Ns);
- (2) Third stage turbine wheels P/N 0265257020, all S/Ns;
- (3) Third stage turbine wheels P/N 0265257060, all S/Ns;
- (4) Third stage turbine wheels P/N 0265257050, of the S/Ns listed in Appendix 1 of Turbomeca Mandatory Service Bulletin (MSB) No. 283 72 0804, Version C, dated October 23, 2009.
- (5) These engines are installed on, but not limited to, single-engine Aerospatiale AS319B "Alouette III" and AS342J "Gazelle" helicopters.

Reason

- (d) European Aviation Safety Agency (EASA) AD No. 2010-0004, dated January 5, 2010, states:

Investigation of an uncommanded in-flight shutdown (IFSD) revealed that a third stage turbine wheel rupture was not contained by the turbine casings. The released portion consisted of a turbine blade together with the rim piece immediately below the blade. The rim piece was bounded by two adjacent axial slots and a fatigue crack that had developed between the holes in which the slots terminate. The slots and holes, which are closed by riveted plugs, were introduced by modification AB 173 in order to improve the vibration characteristics of the turbine wheel. Modification AB 208 brings an improvement to modification AB 173 by changing only the riveting detail. SN 283 72 0805 provides instructions for re-boring the holes at overhaul or repair in order to improve their surface condition. A manufacturing process modification has been introduced to improve the surface condition of these holes in third stage turbine wheels. Wheels subject to the improved manufacturing process have S/Ns outside the range specified in Table 1. Although there is only one known event, and although it resulted only in an uncommanded IFSD, with no damage to the aircraft, the possibility exists that additional events may occur, potentially involving damage to the aircraft.

To address the unsafe condition, EASA issued AD 2009-0136, mandating inspection of certain third stage turbine wheels and removal of any damaged wheel. The wheels to be inspected were those whose cycles since new (CSN) would exceed 2,000 by February 1, 2011. Following additional research by Turbomeca on crack initiation and growth, this AD mandates inspections based on new criteria and removal of any damaged wheel.

We are issuing this AD to prevent uncontained failures of the third stage turbine wheel, which could result in damage to the helicopter.

Actions and Compliance

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

(1) For any affected third stage turbine wheel that on the effective date of this AD has accumulated fewer than 500 cycles-since-last-overhaul or repair, or since-new if the engine has never been overhauled or repaired:

(i) Within 300 additional cycles, perform a dye penetrant inspection on the rear face of the third stage turbine wheel.

(ii) Use Section 2, Instructions to Be Incorporated, of Turbomeca MSB No. 283 72 0804, Version C, dated October 23, 2009, to do the inspection.

(iii) Perform a second dye penetrant inspection when the engine has accumulated between 450 and 550 cycles from the first inspection.

(2) For any affected third stage turbine wheel that on the effective date of this AD, has accumulated 500 or more but fewer than 700 cycles-since-last-overhaul or repair, or since-new if the engine has never been overhauled or repaired:

(i) Within 200 additional cycles, perform a dye penetrant inspection on the rear face of the third stage turbine wheel.

(ii) Use Section 2, Instructions to Be Incorporated, of Turbomeca MSB No. 283 72 0804, Version C, dated October 23, 2009, to do the inspection.

(3) For any affected third stage turbine wheel that on the effective date of this AD, has accumulated 700 or more but fewer than 1,200 cycles-since-last-overhaul or repair, or since-new if the engine has never been overhauled or repaired:

(i) Within 150 additional cycles, perform a dye penetrant inspection on the rear face of the third stage turbine wheel.

(ii) Use Section 2, Instructions to Be Incorporated, of Turbomeca MSB No. 283 72 0804, Version C, dated October 23, 2009, to do the inspection.

(4) If any crack indication is found, then before further flight, remove the third stage turbine wheel from service.

(5) For any affected third stage turbine wheel that on the effective date of this AD has accumulated 1,200 or more cycles-since-last-overhaul or repair, or since-new if the engine has never been overhauled or repaired, no action is required.

FAA AD Differences

(f) This AD differs from the Mandatory Continuing Airworthiness Information (MCAI) and or service information as follows:

(1) EASA AD 2010-0004, dated January 5, 2010, requires removing the engine from service before further flight if a third stage turbine wheel is found cracked.

(2) This AD requires removing the third stage turbine wheel from service before further flight if a third stage turbine wheel is found cracked.

Alternative Methods of Compliance

(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 MCAI EASA AD 2010-0004, dated January 5, 2010, for related information.

(i) Contact Kevin Dickert, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: kevin.dickert@faa.gov; telephone (781) 238-7117, fax (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(j) You must use Turbomeca Mandatory Service Bulletin No. 283 72 0804, Version C, dated October 23, 2009, to do the actions required by this AD, unless the AD specifies otherwise.

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

(2) For service information identified in this AD, contact Turbomeca, 40220 Tarnos, France; telephone (33) 05 59 74 40 00, fax (33) 05 59 74 45 15.

(3) You may review copies at the FAA, New England Region, 12 New England Executive Park, Burlington, MA; or 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 May 19, 2010.

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