[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-0904; Directorate Identifier 2010-NE-33-AD; Amendment 39-16902; AD 2011-27-01]

RIN 2120-AA64

Airworthiness Directives; Turbomeca Turboshaft Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for Turbomeca Arriel 1B turboshaft engines. This AD results from mandatory continuing airworthiness information (MCAI) originated 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 an increase in hot gas ingestion and an increase of temperature in the gas generator (GG) turbine rotor, potentially resulting in turbine damage and an uncommanded in-flight shutdown. We are issuing this AD to prevent over-temperature damage of the GG turbine, which could result in an uncommanded in-flight engine shutdown, and a subsequent forced autorotation landing or accident.

DATES: This AD becomes effective [Insert date 35 days after date of publication in the FEDERAL REGISTER].

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: Rose Len, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7772; fax: 781-238-7199; e-mail: rose.len@faa.gov.

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 August 31, 2011 (76 FR 54143). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

> During quality inspections in repair centre some 2nd stage Nozzle Guide Vanes (NGVs) to be installed on Pre TU 148 standard Arriel 1B were found not conforming to the definition. The affected parts had been repaired and were found drilled on the rear flange instead of the front flange. This configuration corresponds to 2nd stage Turbine NGVs to be installed on post-TU 148 standard Arriel 1B engines. This non compliance may only be found on post-TU 76 standard 2nd stage Turbine NGVs (i.e. with flexible hub).
>
> This non compliance would increase hot gas ingestion and generate an increase of temperature in the Gas Generator (GG) turbine rotor, potentially resulting in turbine damage and an uncommanded in-flight shutdown.

The corrective action includes daily checks for evidence of turbine damage, and removal of the engine from service before further flight if turbine damage is found. The corrective action also includes inspecting the configuration of the holes in the repaired 2nd

stage turbine NGV. If the holes are non-conforming, then before further flight replacement of the 2nd stage turbine NGV, 1st stage turbine disc, and 2nd stage turbine disc, with discs eligible for installation, is required. You may obtain further information by examining the MCAI in the AD docket.

Comments

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

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 affects about 20 Turbomeca Arriel 1B turboshaft engines installed on helicopters of U.S. registry. We estimate that it will take about 40 work-hours per engine to inspect a repaired 2nd stage turbine NGV for the non-conforming hole configuration. We also estimate that it will take about 60 work-hours to replace the NGV, the 1st stage turbine disc, and the 2nd stage turbine disc, and that one engine will require these replacements. The average labor rate is $85 per work-hour. Required parts cost about $19,889 per engine. Based on these figures, we estimate the cost of the AD on U.S. operators to be $92,989. Our cost estimate is exclusive of possible warranty coverage.

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:

2011-27-01 **Turbomeca:** Amendment 39-16902; Docket No. FAA-2010-0904; Directorate Identifier 2010-NE-33-AD.

(a) **Effective Date**

This airworthiness directive (AD) becomes effective [Insert date 35 days after date of publication in the FEDERAL REGISTER].

(b) **Affected ADs**

None.

(c) **Applicability**

This AD applies to Turbomeca Arriel 1B turboshaft engines with M03 modules modified by TU 76 or TU 202, and not modified by TU 148, and if fitted with a repaired 2nd stage turbine nozzle guide vane (NGV). The M03 module contains the 2nd stage turbine NGV, 1st stage turbine disc, and 2nd stage turbine disc. Guidance on determining if an engine has an unrepaired 2nd stage turbine NGV installed can be found in paragraph 1.C. of Turbomeca Mandatory Service Bulletin (MSB) No. A292 72 0829, Version B, dated December 13, 2010.

(d) **Reason**

This AD was prompted by an increase in hot gas ingestion and an increase of temperature in the gas generator (GG) turbine rotor, potentially resulting in turbine damage and an uncommanded in-flight shutdown. We are issuing this AD to prevent over-temperature damage of the GG turbine, which could result in an uncommanded in-flight engine shutdown, and a subsequent forced autorotation landing or accident.

(e) **Compliance**

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

(f) **Daily Checks**

(1) Starting from the effective date of this AD, perform a daily check (after last flight of the day) for:

(i) Normal rundown time of the GG rotor; and

(ii) The free rotation of the GG rotor; and

(iii) No grinding noise during the rundown check, and during the free rotation check of the GG rotor.

(2) Guidance on performing the daily checks can be found in the Maintenance Manual, task 71-02-09-760-801 and task 05-20-01-200-801.

(3) If the engine fails any of these daily checks, remove the engine from service before further flight.

(g) **Inspection of Repaired 2nd Stage Turbine NGVs**

(1) Inspect the 2nd stage turbine NGV for a non-conforming hole configuration, at the compliance times in Table 1 of this AD. Guidance on 2nd stage turbine NGV non-conforming hole configuration can be found in Turbomeca MSB No. A292 72 0829, Version B, dated December 13, 2010.

Table 1 – Inspection Compliance Times

If Accumulated GG Cycles-in-Service (CIS) on the Effective Date of This AD Are:	Then Inspect:
(i) Fewer than 1,200 CIS on both the 1st and 2nd stage turbines.	Before exceeding 1,500 GG CIS.
(ii) 1,200 or more but fewer than 1,800 CIS on either the 1st or 2nd stage turbines.	Before exceeding 300 GG CIS after the effective date of this AD but not to exceed 2,000 CIS on either the 1st or 2nd stage turbines.
(iii) 1,800 or more but fewer than 2,400 CIS on either the 1st or 2nd stage turbine.	Before exceeding 200 GG CIS after the effective date of this AD but not to exceed 2,500 CIS on either the 1st or 2nd stage turbines.
(iv) Greater than 2,400 CIS on either the 1st or 2nd stage turbine.	Before exceeding 100 GG CIS after the effective date of this AD but not to exceed 3,000 CIS on either the 1st or 2nd stage turbine.

(2) If the configuration of the holes in the repaired 2nd stage turbine NGV are conforming, then no further action is required.

(3) If the configuration of the holes in the repaired 2nd stage turbine NGV are non-conforming, then before further flight:

(i) Replace the 2nd stage turbine NGV with a 2nd stage turbine NGV eligible for installation; and

(ii) Replace the 1st stage turbine disc and 2nd stage turbine disc with discs eligible for installation.

(h) **Terminating Action**

Complying with paragraph (g)(1) and either paragraph (g)(2) or paragraphs (g)(3)(i) through (g)(3)(ii) of this AD, or replacing the M03 module with an M03 module that is eligible for installation, is terminating action for the requirements of this AD.

(i) **Installation Prohibition**

(1) Do not reinstall the 1st stage turbine disc and the 2nd stage turbine disc removed in paragraph (g)(3)(ii) of this AD into any engine.

(2) After the effective date of this AD, do not install an M03 module that has incorporated TU 202 but not incorporated TU 148, unless the module is in compliance with the requirements of this AD.

(3) After the effective date of this AD, do not install an M03 module that has incorporated TU 76 but not incorporated TU 148, unless the module is in compliance with the requirements of this AD.

(j) **FAA AD Differences**

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

(i) This AD does not require sending data to Turbomeca to confirm whether Turbomeca MSB No. A292 72 0829, Version B, dated December 13, 2010, is applicable to the operator's engine; the MCAI does.

(ii) This AD does not incorporate by reference (IBR) Turbomeca MSB No. A292 72 0829, Version B, dated December 13, 2010; the MCAI does.

(iii) This AD requires replacing non-conforming 2nd stage turbine NGVs and 1st stage and 2nd stage turbine discs that were operated with non-conforming 2nd stage turbine NGVs but does not require replacing affected M03 modules. The MCAI requires replacing affected M03 modules with M03 modules eligible for installation.

(k) **Definition**

For the purpose of this AD, a conforming repaired 2nd stage turbine NGV is one with cooling holes in the forward inner flange, and with no cooling holes in the rear flange.

(l) **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.

(m) **Related Information**

(1) Refer to European Aviation Safety Agency AD 2010-0273R1, dated February 16, 2011, and Turbomeca MSB No. A292 72 0829, Version B, dated December 13, 2010,

for related information. Contact Turbomeca, 40220 Tarnos, France; phone: 33 05 59 74 40 00; fax: 33 05 59 74 45 15; for a copy of this service information.

(2) Contact Rose Len, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7772; fax: 781-238-7199; e-mail: rose.len@faa.gov, for more information about this AD.

(n) **Material Incorporated by Reference**

None.

Issued in Burlington, Massachusetts, on December 16, 2011.

Peter A. White,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.

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