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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2013-0024; Directorate Identifier 2000-NE-12-AD; Amendment 39-17469; AD 2013-11-09]

RIN 2120-AA64

Airworthiness Directives; Turbomeca S.A. Turboshift Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are superseding an existing airworthiness directive (AD) for Turbomeca S.A. Arrius 2B, 2B1, and 2F turboshift engines. That AD currently requires replacement of injector manifolds and borescope-inspection of the flame tube and the high-pressure (HP) turbine area for possible damage. This new AD requires, depending on the engine model, repetitive replacements of fuel injection manifolds and the privilege injector, or, repetitive replacements of the privilege injector. This AD was prompted by a report that the corrective actions of the existing AD were insufficient to eliminate the unsafe condition. We are issuing this AD to prevent an uncommanded in-flight shutdown of Arrius 2B1 and 2F turboshift engines and damage to the helicopter.

DATES: This AD is effective July 5, 2013.

ADDRESSES: For service information identified in this AD, contact Turbomeca, 40220 Tarnos, France; phone: 33 (0)5 59 74 40 00; telex: 570 042; fax: 33 (0)5 59 74 45 15. 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>; 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 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: James Lawrence, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7176; fax: 781-238-7199; email: james.lawrence@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2001-08-14R1, Amendment 39 14423 (71 FR 2993, January 19, 2006). That AD applies to Turbomeca S.A. Arrius 2B, 2B1, and 2F turboshaft engines. The Arrius 2B engine model is no longer listed because it is no longer in service and has been removed from the engine Type Certificate Data Sheet No. E34NE, as requested by the manufacturer. The NPRM published in the Federal Register on February 7, 2013 (78 FR 9007). That NPRM proposed to require, depending on the engine model, repetitive replacements of fuel injection manifolds and the privilege injector, or, repetitive replacements of the privilege injector.

Comments

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

Request To Change Paragraphs (f)(1) and (g)(1)

Turbomeca USA requested that we change compliance paragraph (f)(1) by deleting "or since last inspection of the fuel injection manifolds and privilege injector, whichever comes first." The commenter also requested that we change paragraph (g)(1) by deleting "or since last inspection of the privilege injector, whichever comes first." The commenter stated that paragraphs (f)(1) and (g)(1) speak to initial replacement where subsequent replacements are addressed in paragraphs (f)(3) and (g)(3). There is no required inspection for this reason prior to reaching the allocated hours of operation time-since-new (TSN) so there will be no "last inspection" at this point. The fuel injection manifolds and privilege injector (Arrius 2B1 engines) and, the privilege injector (Arrius 2F engines) will not have been in service long enough to have an inspection performed. Also, an inspection (unless leading to a replacement) if done for whatever reason, will not "reset" the allocated hours (200 or 400) of operation TSN counter. Only a replacement will, which is why the commenter thinks the allocated hours (200 or 400) of operation TSN limit is sufficient.

We agree. Because there is no specific inspection requirement, fuel injection manifolds and privilege injectors (Arrius 2B1 engines) and, privilege injectors (Arrius 2F engines) can be removed from one Arrius 2B1 engine and installed in another Arrius 2B1 engine or from one Arrius 2F engine and installed in another Arrius 2F engine as noted in their respective service bulletins (SBs). We anticipated that those used components would undergo an inspection and flow check, prior to reinstallation. However, the fuel injection manifolds and privilege injectors are limited to the allocated hours (200 or 400) of operation TSN regardless of reuse. We changed paragraphs (f)(1) and (g)(1) of the AD as requested above.

Request To Change Compliance Paragraphs (f)(2) and (g)(2)

Turbomeca USA requested that we change compliance paragraph (f)(2) by adding "when replacing the fuel injection manifolds and privilege injector for the first time." The commenter also requested that we change paragraph (g)(2) by adding "when replacing the privilege injector for the first time." The commenter stated that without adding these words, these paragraphs would require a borescope inspection each time the manifolds and privilege injector (Arrius 2B1 engines) and,

privilege injectors (Arrius 2F engines) are replaced. Turbomeca SB No. A319 73 2012 (Arrius 2B1) and SB No. A319 73 4001 (Arrius 2F) specifically state to perform the borescope inspection when the components are replaced for the first time.

The commenter also stated that the purpose of borescope inspection is to identify the internal condition before initial replacement and to verify there is no distress caused by a partially blocked or totally blocked condition. It is intended to verify there was no collateral damage downstream (flame tube, HP turbine). The replacement interval is an interval that would prevent any distress being created, should a blocked condition occur, thus eliminating the need for borescope checks at each replacement. Also, borescope inspection of the combustion chamber and the gas generator turbine is called for at certain intervals by the engine maintenance manual, which will allow sufficient periodic monitoring for collateral damage.

We agree with the commenter's technical explanation and rationale. We changed paragraphs (f)(2) and (g)(2) of the AD as requested above.

Request To Change Compliance Paragraphs (f)(3)

Turbomeca USA requested that we change compliance paragraph (f)(3) which states, "Thereafter, within every 200 operating hours time-in-service (TIS) since last fuel injector manifolds and privilege injector replacement, replace the fuel injector manifolds and the privilege injector with parts eligible for installation" to "Thereafter, within every 200 operating hours TIS since last fuel injector manifolds and privilege injector replacement, or sooner if a power check performed per flight manual EC T135-T1 indicates a negative T45 margin, replace the fuel injector manifolds and the privilege injector with parts eligible for installation." The commenter stated that T45 margin is monitored as part of existing scheduled maintenance and, as it is known as being a possible consequence of manifolds or privilege injector blockage, it is inserted as an additional "trigger" point for replacement prior to the hard hours TSN replacement limit. The engine is not serviceable with a negative T45 margin and engine repair is needed before further flight. The need for borescope inspection only with first replacement is not modified in case of an early replacement triggered by detection of negative T45 margin.

We agree with the commenter's technical explanation and rationale, which applies only to the Arrius 2B1 engines. We changed paragraph (f)(3) of the AD as requested above.

Conclusion

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

We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

Costs of Compliance

We estimate that this AD affects about 38 Arrius 2B1 engines and about 93 Arrius 2F engines installed on helicopters of U.S. registry. We also estimate that it will take about two hours per engine to replace the injector manifolds and about one hour per engine to replace the privilege injector. The average labor rate is \$85 per hour. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$663,615.

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 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 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 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.

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 removing airworthiness directive (AD) 2001-08-14R1, Amendment 39 14423 (71 FR 2993, January 19, 2006), and adding the following new AD:

* * * * *



2013-11-09 Turbomeca S.A.: Amendment 39 17469; Docket No. FAA-2013-0024; Directorate Identifier 2000-NE-12-AD.

(a) Effective Date

This AD is effective July 5, 2013.

(b) Affected ADs

This AD supersedes AD 2001-08-14R1, Amendment 39 14423 (71 FR 2993, January 19, 2006).

(c) Applicability

This AD applies to all Turbomeca S.A. Arrius 2B1 and 2F turboshaft engines.

(d) Unsafe Condition

This AD was prompted by a report that the corrective actions of AD 2001-08-14R1, Amendment 39 14423 (71 FR 2993, January 19, 2006) were insufficient to eliminate the unsafe condition. We are issuing this AD to prevent an uncommanded in-flight shutdown of Arrius 2B1 and 2F turboshaft engines and damage to the helicopter.

(e) Compliance

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

(f) Arrius 2B1 Turboshaft Engines

(1) Replace the fuel injector manifolds and privilege injector with parts eligible for installation before exceeding 200 operating hours, time-since-new (TSN).

(2) Borescope-inspect the flame tube and the high-pressure turbine area for turbine distress, when replacing the fuel injection manifolds and privilege injector for the first time.

(3) Thereafter, within every 200 operating hours, time-in-service (TIS) since last fuel injector manifolds and privilege injector replacement, or sooner if a power check performed per flight manual EC T135-T1 indicates a negative T45 margin, replace the fuel injector manifolds and the privilege injector with parts eligible for installation.

(g) Arrius 2F Turboshaft Engines

(1) Replace the privilege injector with a privilege injector eligible for installation before exceeding 400 operating hours TSN.

(2) Borescope-inspect the flame tube and the high-pressure turbine area for turbine distress, when replacing the privilege injector for the first time.

(3) Thereafter, within every 400 operating hours TIS since last privilege injector replacement, replace the privilege injector with parts eligible for installation.

(h) Definition

For the purposes of this AD, TIS is defined as:

- (1) The number of engine operating hours on the manifolds since the manifolds were new or since the manifolds were last cleaned, whichever is more.
- (2) The number of engine operating hours on the privilege injector since the privilege injector was new or since the privilege injector was last cleaned, whichever is more.

(i) Installation Prohibitions

(1) For Arrius 2B1 turboshaft engines, after the effective date of this AD, do not install fuel injector manifolds or a privilege injector on an engine, or an engine on a helicopter, unless the fuel injection manifold and privilege injector have accumulated fewer than 200 operating hours since new, or since last inspection.

(2) For Arrius 2F turboshaft engines, after the effective date of this AD, do not install a privilege injector on an engine, or an engine on a helicopter, unless the privilege injector has accumulated fewer than 400 operating hours since new, or since last inspection.

(j) Alternative Methods of Compliance (AMOCs)

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

(k) Related Information

(1) For more information about this AD, contact James Lawrence, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7176; fax: 781-238-7199; email: james.lawrence@faa.gov.

(2) See European Aviation Safety Agency AD 2012-0150, dated August 8, 2012, and AD 2012-0249, dated November 21, 2012, Turbomeca S.A. Alert Mandatory Service Bulletin (MSB) No. A319 73 2012, Version I, dated November 12, 2012, and Turbomeca S.A. Alert MSB No. A319 73 4001, Version L, dated January 17, 2013, for related information.

(3) For service information identified in this AD, contact Turbomeca, 40220 Tarnos, France; phone: 33 (0)5 59 74 40 00; telex: 570 042; fax: 33 (0)5 59 74 45 15. 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.

(l) Material Incorporated by Reference

None.

Issued in Burlington, Massachusetts, on May 23, 2013.
Colleen M. D'Alessandro,
Assistant Manager, Engine & Propeller Directorate,
Aircraft Certification Service.