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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0137; Project Identifier MCAI-2020-00269-E; Amendment 39-21688; AD 2021-17-05]

RIN 2120-AA64

Airworthiness Directives; Safran Helicopter Engines, S.A. (Type Certificate Previously Held by Turbomeca S.A.) Turboshaft Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2014-04-06 for all Safran Helicopter Engines, S.A. (Safran Helicopter Engines) Arrius 2B1, 2B1A, 2B2, and 2K1 model turboshaft engines. AD 2014-04-06 required initial and repetitive inspections of the hydro-mechanical metering unit (HMU) high-pressure pump drive gear shaft splines, cleaning and inspections of the sleeve assembly splines, and replacement of the sleeve assembly on the affected high-pressure pump drive gear shaft or replacement of the HMU if the HMU fails inspection. This AD was prompted by in-flight shutdowns caused by interrupted fuel supply at the HMU. This AD requires revised inspections and continues to require cleaning of the sleeve assembly splines, and replacement of the sleeve assembly on the affected high-pressure pump drive gear shaft or replacement of the HMU if the HMU fails an inspection. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective October 12, 2021.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of October 12, 2021.

ADDRESSES: For service information identified in this final rule, contact Safran Helicopter Engines, S.A., Avenue du 1er Mai, 40220 Tarnos, France; phone: +33 (0) 5 59 74 45 11. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759. It is also available at https://www.regulations.gov by searching for and locating Docket No. FAA-2021-0137.

Examining the AD Docket

You may examine the AD docket at https://www.regulations.gov by searching for and locating Docket No. FAA-2021-0137; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The address for Docket Operations is 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: Wego Wang, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7134; fax: (781) 238-7199; email: wego.wang@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2014-04-06, Amendment 39-17764 (79 FR 9990, February 24, 2014), (AD 2014-04-06). AD 2014-04-06 applied to all Turbomeca S.A. Arrius 2B1, 2B1A, 2B2, and 2K1 model turboshaft engines. The NPRM published in the Federal Register on March 12, 2021 (86 FR 14017). The NPRM was prompted by in-flight shutdowns caused by interrupted fuel supply at the HMU. Since the FAA issued AD 2014-04-06, the manufacturer has published new service information that revises the inspections for certain HMUs, reduces compliance times for initial inspections, and allows application of non-cumulative tolerance of 10% of operating hours to be applied to the timing of the repetitive inspection of HMUs installed on certain engines. In the NPRM, the FAA proposed to continue to require cleaning of the sleeve assembly splines and replacing the HMU or the sleeve assembly on the affected high-pressure pump drive gear shaft if the HMU fails inspection. In the NPRM, the FAA also proposed to require initial and repetitive inspections of the HMU high-pressure pump drive gear shaft splines. The FAA is issuing this AD to address the unsafe condition on these products.

The European Union Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2020-0033, dated February 25, 2020 (referred to after this as "the MCAI"), to address the unsafe condition on these products. The MCAI states:

> A number of in-flight shut-down (IFSD) occurrences have been reported for ARRIUS 2 engines. The results of the technical investigations concluded that these events were caused by deterioration of the splines on the high pressure (HP)/low pressure (LP) pump assembly drive shaft of the HMU, which eventually interrupted the fuel supply to the engine.
>
> This condition, if not detected and corrected, could lead to further cases of engine IFSD, possibly resulting in forced landing with consequent damage to the helicopter and injury to occupants.
>
> To address these occurrences, Turboméca published MSB 319 73 2825 (up to version G) to provide instructions for inspection of the HMU and sleeve assembly. Consequently, EASA issued AD 2013-0082 to require repetitive inspections of the drive gear shaft splines of the HP pump, and, depending on findings, accomplishment of applicable corrective action(s).

> Since that [EASA] AD was issued, SAFRAN published the MSB to provide specific inspection instructions for HMU installed on a helicopter after 31 January 2013, to reduce the compliance time for the initial inspection of Group 1 engines that were not previously inspected in accordance with version G or later of the MSB, and to provide some operational margin before the first inspection in all possible scenarios.
>
> For the reason described above, this [EASA] AD retains the requirements of AD 2013-0082, which is superseded, and requires accomplishment of the actions in accordance with the instructions of the MSB, as defined in this [EASA] AD.

You may obtain further information by examining the MCAI in the AD docket at https://www.regulations.gov by searching for and locating Docket No. FAA-2021-0137.

FAA's Determination

This product has been approved by EASA and is approved for operation in the United States. Pursuant to the FAA's bilateral agreement with the European Community, EASA has notified the agency of the unsafe condition described in the MCAI and service information. The FAA is issuing this final rule because the agency evaluated all the relevant information provided by EASA and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

Discussion of Final Airworthiness Directive

Comments

The FAA received no comments on the NPRM or on the determination of the costs.

Conclusion

The FAA reviewed the relevant data and determined that air safety requires adoption of the AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these products. This AD is adopted as proposed in the NPRM.

Related Service Information Under 1 CFR Part 51

The FAA reviewed Safran Helicopter Engines Mandatory Service Bulletin (MSB) No. 319 73 2825, Version J, dated March 15, 2019. This MSB specifies procedures for inspecting the HMU high-pressure pump drive gear shaft splines and cleaning and inspecting the sleeve assembly splines. 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 ADDRESSES.

Per Safran Helicopter Engines standing practice at the time MSB 319 73 2825, Version J, was issued, MSB 319 73 2825, Version J, is undated. The issue date for MSB 319 73 2825, Version J, appears on the Safran Helicopter Engines Arrius 2 B1 Service Bulletin Index, No. X 319 L5 980 2, dated December 11, 2020.

Costs of Compliance

The FAA estimates that this AD affects 194 engines installed on helicopters of U.S. registry.

The FAA estimates the following costs to comply with this AD:

Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Visual inspection of drive gear shaft splines; cleaning and inspection of sleeve assembly splines	2 work-hours × $85 per hour = $170	$900	$1,070	$207,580

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the inspection. The agency has no way of determining the number of aircraft that might need these replacements:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Replace sleeve assembly on high-pressure pump drive gear shaft	1 work-hour × $85 per hour = $85	$898	$983
Replace HMU	1 work-hour × $85 per hour = $85	$45,000	$45,085

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.

The FAA is 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

The FAA has 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) Will not affect intrastate aviation in Alaska, 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.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

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:
a. Removing Airworthiness Directive 2014-04-06, Amendment 39-17764 (79 FR 9990, February 24, 2014); and
b. Adding the following new airworthiness directive:

2021-17-05 Safran Helicopter Engines, S.A. (Type Certificate previously held by Turbomeca S.A.): Amendment 39-21688; Docket No. FAA-2021-0137; Project Identifier MCAI-2020-00269-E.

(a) Effective Date

This airworthiness directive (AD) is effective October 12, 2021.

(b) Affected ADs

This AD replaces AD 2014-04-06, Amendment 39-17764 (79 FR 9990, February 24, 2014).

(c) Applicability

This AD applies to Safran Helicopter Engines, S.A. (Type Certificate previously held by Turbomeca S.A.) Arrius 2B1, 2B1A, 2B2, and 2K1 model turboshaft engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7320–Fuel Controlling System.

(e) Unsafe Condition

This AD was prompted by in-flight shutdowns caused by interrupted fuel supply at the hydro-mechanical metering unit (HMU). The FAA is issuing this AD to prevent interrupted fuel supply at the HMU. The unsafe condition, if not addressed, could result in engine in-flight shutdown, forced landing of the helicopter, damage to the helicopter and injury to occupants.

(f) Compliance

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

(g) Required Actions

(1) Within the compliance time specified in Table 1 to paragraph (g)(1) of this AD, as applicable, and before re-installation of the HMU after each removal from the engine, visually inspect the drive gear shaft splines of the high-pressure pump, and clean and inspect the sleeve assembly splines in accordance with paragraphs 2.4.2 and 2.4.3, or 4.4.2 and 4.4.3, as applicable, of Safran Helicopter Engines Mandatory Service Bulletin (MSB) 319 73 2825, Version J, dated March 15, 2019.

Table 1 to Paragraph (g)(1)

HMU Group / Condition	Compliance Time
Group 1 / 150 HMU operating hours or more accumulated since new or since last overhaul.	Within 50 HMU operating hours after the effective date of this AD.
Group 1 / Less than 150 HMU operating hours accumulated since new or since last overhaul.	Before exceeding 200 HMU operating hours after the effective date of this AD.
Group 2	Within 500 HMU operating hours since the last inspection or since first installation of the HMU.

(2) Repeat the inspection required by paragraph (g)(1) of this AD at intervals not to exceed 500 HMU operating hours since the previous inspection.

Note 1 to paragraph (g)(2): A non-cumulative tolerance of 10% of HMU operating hours (hrs) may be applied to the timing of each repetitive inspection, with a maximum allowable tolerance of +50 HMU operating hrs. For example, counting from the initial inspection, the repeat inspections would occur at the following times, with the tolerance noted in parentheses; 500 HMU operating hrs (+50 hrs), 1000 HMU operating hrs (+50 hrs), 1500 HMU operating hrs (+50 hrs).

(3) If a rejectable indication is found during any inspection required by paragraphs (g)(1) or (2) of this AD, replace the sleeve assembly on the affected high-pressure pump drive gear shaft or replace the affected HMU in accordance with paragraph 2.4.2 or 4.4.2 of the MSB.

(h) Definitions

(1) A Group 1 HMU is an HMU that was first installed on or before January 31, 2013, and that has not previously been inspected in accordance with Safran Helicopter Engines MSB 319 73 2825 Version G or later.

(2) A Group 2 HMU is an HMU that was first installed after January 31, 2013, or a HMU that has previously been inspected in accordance with Safran Helicopter Engines MSB 319 73 2825 Version G or later.

(i) No Reporting Requirement

The reporting requirements specified in the Accomplishment Instructions, paragraph 2.4.2, of the MSB are not required by this AD.

(j) Credit for Previous Actions

You may take credit for any initial inspection or replacement of an HMU or the sleeve assembly on the affected high-pressure pump drive gear shaft required by paragraph (g) of this AD if you performed the inspection or replacement in accordance with Safran Helicopter Engines MSB 319 73 2825, Version G, dated January 24, 2013; Version H, dated September 1, 2014; or Version I, dated April 26, 2016.

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ECO Branch, send it to the attention of the person identified in Related Information. Information may be emailed to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(l) Related Information

For more information about this AD, contact Wego Wang, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7134; fax: fax: (781) 238-7199; email: wego.wang@faa.gov.

(m) 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) Safran Helicopter Engines Mandatory Service Bulletin (MSB) No. 319 73 2825, Version J, dated March 15, 2019.

Note 2 to paragraph (m)(2)(i): Per Safran Helicopter Engines standing practice at the time MSB 319 73 2825, Version J, was issued, MSB 319 73 2825, Version J, is undated. The issue date for MSB 319 73 2825, Version J, appears on the Safran Helicopter Engines Arrius 2 B1 Service Bulletin Index, No. X 319 L5 980 2, dated December 11, 2020.

(ii) [Reserved]

(3) For Safran Helicopter Engines service information identified in this AD, contact Safran Helicopter Engines, S.A., Avenue du 1er Mai, 40220 Tarnos, France; phone: +33 (0) 5 59 74 45 11.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

(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, email: fr.inspection@nara.gov, or go to: https://www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on August 7, 2021.

Gaetano A. Sciortino,

Deputy Director for Strategic Initiatives, Compliance & Airworthiness Division, Aircraft Certification Service.

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