**[4910-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2021-0793; Project Identifier MCAI-2021-00372-E]**

**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:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** The FAA proposes to supersede Airworthiness Directive (AD) 2005-12-08, which applies to Safran Helicopter Engines, S.A. (Safran Helicopter Engines) Arrius 2B1, 2B1A, 2B1A-1, and 2B2 model turboshaft engines. AD 2005-12-08 requires replacing the software in the engine electronic control unit (EECU). Since the FAA issued AD 2005-12-08, the manufacturer determined that certain previously affected EECUs are not subject to the unsafe condition identified in AD 2005-12-08. This proposed AD would retain the requirements of AD 2005-12-08 for engines with a certain EECU part number (P/N) installed. This proposed AD would also prohibit installation of an affected EECU onto any engine. The FAA is proposing this AD to address the unsafe condition on these products.

**DATES:** The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to https://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: (202) 493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Safran Helicopter Engines, S.A., Avenue du 1er Mai, 40220 Tarnos, France; phone: +33 (0) 5 59 74 45 00. 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.

**Examining the AD Docket**

You may examine the AD docket at https://www.regulations.gov by searching for and locating Docket No. FAA-2021-0793; 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 NPRM, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The street address for Docket Operations is listed above.

**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:**

**Comments Invited**

The FAA invites you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2021-0793; Project Identifier MCAI-2021-00372-E" at the beginning of your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend the proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to https://www.regulations.gov, including any

personal information you provide. The agency will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

**Confidential Business Information**

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Wego Wang, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

**Background**

The FAA issued AD 2005-12-08, Amendment 39-14124 (70 FR 34334, June 14, 2005), (AD 2005-12-08), for all Turbomeca S.A. (Turbomeca) Arrius 2B1, 2B1A, 2B1A-1, and 2B2 model turboshaft engines. AD 2005-12-08 was prompted by a report of simultaneous loss of automatic control of both engines of an Airbus Helicopters Deutschland (formerly Eurocopter Deutschland) EC135 helicopter during flight. AD 2005-12-08 requires replacing the software in the EECU. The agency issued AD 2005-12-08 to prevent simultaneous loss of automatic control of both engines and subsequent loss of control of the helicopter.

**Actions Since AD 2005-12-08 Was Issued**

Since the FAA issued AD 2005-12-08, the European Union Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued EASA AD 2021-0088, dated March 24, 2021. EASA AD 2021-0088 was revised by EASA AD 2021-0088R1, dated July 26, 2021 (EASA AD

2021-0088R1) (referred to after this as “the MCAI”), to address the unsafe condition on these products. The MCAI states:

> An occurrence was reported of simultaneous loss of automatic control in flight of both ARRIUS 2B1 engines on an EC135 T1 helicopter. Loss of automatic control would result, for each engine, from a difference between the position datum of the fuel metering valve and its measured position.
>
> This condition, if not corrected, could lead to increased work for flight crew during certain flight phases, possibly resulting in reduced control of the helicopter.
>
> To address this potential unsafe condition, Turboméca developed mod TU80C, TU81C, TU82C and TU90C to improve the DECU software for ARRIUS 2B1 engines without overspeed option, ARRIUS 2B1 engines with overspeed option, ARRIUS 2B1A and ARRIUS 2B2 engines, and DGAC France issued AD F-2004-017 (later revised) to require engine modification.
>
> Since that [DGAC France] AD was issued, it was determined that a DECU having a P/N which corresponds to Turboméca mod TU80C, TU81C, TU82C, TU90C or later software is not affected by the software modification requirement. DGAC France AD F-2004-017R1 did not specifically identify any affected DECU P/N(s).
>
> For the reason described above, this [EASA] AD retains the requirements of DGAC France AD F-2004-017R1 (EASA approval 2004-1618), which is superseded, and limits the required actions to engines with an affected DECU P/N installed. This [EASA] AD also prohibits (re)installation of affected DECU on any engine.
>
> This [EASA] AD is revised to provide clarification on affected and serviceable DECU.

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-2021-0793.

In addition, Turbomeca issued Mandatory Service Bulletin (MSB) No. 319 73 2082, Version D, dated June 6, 2011. The manufacturer discovered an error in Version C of the MSB and determined that the requirement to replace the EECU or upgrade the EECU software should be applicable to only engines with a certain EECU P/N installed.

**FAA's Determination**

This product has been approved by EASA and is approved for operation in the United States. Pursuant to our bilateral agreement with the European Community, EASA has notified the FAA of the unsafe condition described in the MCAI and service information. The FAA is issuing this NPRM 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.

**Related Service Information under 1 CFR Part 51**

The FAA reviewed Turbomeca Mandatory Service Bulletin (MSB) No. 319 73 2080, Update No. 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2081, Update No. 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2082, Update No. 1, dated February 13, 2004, Version C, dated July 31, 2008, and Version D, dated June 6, 2011; and Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004. This service information specifies procedures for upgrading the EECU by either replacing the EECU or by uploading the software to the EECU. These documents are distinct since they apply to different engine models in different configurations. The Director of the Federal Register previously approved Turbomeca MSB No. 319 73 2080, Update No. 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2081, Update No. 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2082, Update No. 1, dated February 13, 2004; and Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004 for incorporation by reference on June 29, 2005 (70 FR 34334, June 14, 2005). 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.

**Proposed AD Requirements in this NPRM**

This proposed AD would retain all the requirements of AD 2005-12-08. This proposed AD would require replacement of the EECU or upgrade of the EECU software for engines with a certain EECU P/N installed. This proposed AD would also prohibit installation of an affected EECU onto any engine.

**Differences Between the Proposed AD and MCAI or Service Information**

EASA AD 2021-0088R1, dated July 26, 2021, uses the term digital engine control unit (DECU), whereas the Turbomeca MSBs and this proposed AD use EECU. These terms refer to the same part.

Turbomeca MSB No. 319 73 2080, Update No. 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2081, Update No. 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2082, Update No. 1, dated February 13, 2004, Version C, dated July 31, 2008, and Version D, dated June 6, 2011; and Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004, instruct operators to notify Turbomeca that the EECUs have been replaced by returning the completed compliance certificate. This proposed AD would not mandate returning the completed compliance certificate to Turbomeca.

EASA AD 2021-0088R1 and the Turbomeca service information reference Arrius 2B1A_1 or Arrius 2B1A-1 model turboshaft engines, whereas this AD references Arrius 2B1A model turboshaft engines. Arrius 2B1A_1 model turboshaft engines are Arrius 2B1A model turboshaft engines with modification (mod) TU45C.

**Costs of Compliance**

The FAA estimates that this AD, if adopted as proposed, would affect 221 engines installed on helicopters of U.S. registry.

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

**Estimated costs**

| Action | Labor Cost | Parts Cost | Cost per product | Cost on U.S. operators |
|---|---|---|---|---|
| Replace the EECU | 1 work-hour x $85 per hour = $85 | $35,000 | $35,085 | $7,753,785 |

| | | | | |
|---|---|---|---|---|
| Upgrade the EECU software | 2 work-hours x $85 per hour = $170 | $0 | $170 | $37,570 |

**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 proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 the proposed regulation:

(1) Is not a "significant regulatory action" under Executive Order 12866,

(2) Would not affect intrastate aviation in Alaska, and

(3) Would 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 Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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 2005-12-08, Amendment 39-14124 (70 FR 34334, June 14, 2005); and

b. Adding the following new airworthiness directive:

**Safran Helicopter Engines, S.A. (Type Certificate previously held by Turbomeca S.A.):** Docket No. FAA-2021-0793; Project Identifier MCAI-2021-00372-E.

**(a) Comments Due Date**

The FAA must receive comments on this airworthiness directive (AD) by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

This AD replaces AD 2005-12-08, Amendment 39-14124 (70 FR 34334, June 14, 2005) (AD 2005-12-08).

**(c) Applicability**

This AD applies to Safran Helicopter Engines, S.A. (Type Certificate previously held by Turbomeca S.A.) Arrius 2B1, Arrius 2B1A, (including those that embody modification (mod) TU45C, identified as Arrius 2B1A_1) and Arrius 2B2 model turboshaft engines with an installed engine electronic control unit (EECU) having part number (P/N) 70EMF01080 or 70EMF01090—for Arrius 2B1 model turboshaft engines without overspeed protection option (TU 19C); P/N 70EMF01100 or P/N 70EMF01120—for Arrius 2B1 model turboshaft engines with overspeed protection option (TU 67C or TU 23C); P/N 70EMH01000 or 70EMH01010—for Arrius 2B1A model turboshaft engines; or P/N 70EMM01000—for Arrius 2B2 model turboshaft engines.

Note 1 to paragraph (c): Turbomeca Mandatory Service Bulletin (MSB) No. 319 73 2082, Version D, dated June 6, 2011, references Arrius 2B1A_1 model turboshaft

engines. Arrius 2B1A model turboshaft engines with mod TU 45C applied are identified as Arrius 2B1A_1 on the engine identification plate.

**(d) Subject**

Joint Aircraft System Component (JASC) Code 7600, Engine Controls.

**(e) Unsafe Condition**

This AD was prompted by a report of simultaneous loss of automatic control of both engines of an Airbus Helicopters Deutschland (formerly Eurocopter Deutschland) EC135 helicopter during flight. The FAA is issuing this AD to prevent simultaneous loss of automatic control of both engines. The unsafe condition, if not addressed, could result in failure of the engines and loss of control of the helicopter.

**(f) Compliance**

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

**(g) Required Actions**

(1) For engines with an EECU having P/N 70EMF01090, 70EMF01100, 70EMF01120, 70EMH01010, or 70EMM01000, within 90 days after June 29, 2005 (the effective date of AD 2005-12-08), or before further flight, whichever occurs later, upload the EECU software on both engines of the helicopter simultaneously using paragraph 2, Instructions to be incorporated, of the applicable Turbomeca MSB listed in Table 1 to paragraph (g) of this AD, or replace the EECU with a part eligible for installation.

(2) For engines with an EECU having P/N 70EMF01080 or 70EMH01000, within 90 days after June 29, 2005 (the effective date of AD 2005-12-08), or before further flight, whichever occurs later, replace the affected EECU with a part eligible for installation.

**Table 1 to paragraph (g) – Applicable MSBs**

| For— | Use— |
|---|---|
| Arrius 2B1 engines with EECUs that have incorporated Modification TU 19C | Turbomeca MSB No. 319 73 2080, Update No. 1, dated February 13, 2004 |
| Arrius 2B1 engines with EECUs that have incorporated Modification TU 67C or TU 23C | Turbomeca MSB No. 319 73 2081, Update No. 1, dated February 13, 2004 |

| For— | Use— |
|---|---|
| Arrius 2B1A and 2B1A1_1 engines | Turbomeca MSB No. 319 73 2082, Update No. 1, dated February 13, 2004, Version C, dated July 31, 2008, or Version D, dated June 6, 2011 |
| Arrius 2B2 engines | Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004 |

**(h) Installation Prohibition**

After the effective date of this AD, do not install onto any engine any EECU having a P/N identified in paragraph (c) of this AD.

**(i) Definition**

For the purpose of this AD, a "part eligible for installation" is an EECU having a P/N that is not identified in paragraph (c) of this AD.

**(j) No Reporting Requirements**

The reporting requirements specified in Turbomeca MSB No. 319 73 2080, Update No. 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2081, Update No. 1, dated February 13, 2004; Turbomeca MSB No. 319 73 2082, Update No. 1, dated February 13, 2004, Version C, dated July 31, 2008, and Version D, dated June 6, 2011; and Turbomeca MSB No. 319 73 2090, Original Issue, dated February 13, 2004, are not required by this AD.

**(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 certification office, send it to the attention of the person identified in paragraph (l)(1) of this AD. 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**

(1) 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: (781) 238-7199; email: wego.wang@faa.gov.

(2) Refer to European Union Aviation Safety Agency (EASA) AD 2021-0088R1, dated July 26, 2021, for more information. You may examine the EASA AD in the AD docket at https://www.regulations.gov by searching for and locating it in Docket No. FAA-2021-0793.

(3) For 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 00. You may view this referenced 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.

Issued on September 14, 2021.

Lance T. Gant, Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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