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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2017-1036; Product Identifier 2018-SW-015-AD; Amendment 39-21593; AD 2021-12-06]

RIN 2120-AA64

Airworthiness Directives; Airbus Helicopters

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for Airbus Helicopters Model AS-365N2, AS 365 N3, SA-365N, and SA-365N1 helicopters. This AD requires replacing the main gearbox (MGB), or as an alternative, replacing the epicyclic reduction gear module for certain serial numbered planet gear assemblies installed on the MGB. This AD also requires inspecting the MGB magnetic plugs and oil filter for particles. Depending on the outcome of the inspections, this AD requires further inspections and replacing certain parts. This AD was prompted by failure of an MGB second stage planet gear. The FAA is issuing this AD to correct an unsafe condition on these products.

DATES: This AD is effective July 20, 2021.

The Director of the Federal Register approved the incorporation by reference of certain documents listed in this AD as of July 20, 2021.

ADDRESSES: For service information identified in this final rule, contact Airbus Helicopters, 2701 N Forum Drive, Grand Prairie, TX 75052; telephone 972-641-0000 or 800-232-0323; fax 972-641-3775; or at https://www.airbus.com/helicopters/services/technical-support.html. You may view the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177. Service information that is incorporated by reference is also available at https://www.regulations.gov by searching for and locating Docket No. FAA-2017-1036.

Examining the AD Docket

You may examine the AD docket at https://www.regulations.gov by searching for and locating Docket No. FAA-2017-1036; 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 European Aviation Safety Agency (now European Union Aviation Safety Agency) (EASA) AD, any comments received, and other information. The street 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: Rao Edupuganti, Aviation Safety Engineer, Dynamic Systems Section, Technical Innovation Policy Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone 817-222-5110; email rao.edupuganti@faa.gov.

SUPPLEMENTARY INFORMATION: The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to Airbus Helicopters Model AS-365N2, AS 365 N3, SA-365N, and SA-365N1 helicopters, with at least one Type X or Y planet gear assembly with a serial number (S/N) listed in Appendices 4.A. through 4.B of Airbus Helicopters Alert Service Bulletin ASB No. AS365-05.00.78, Revision 3, dated March 2, 2018 (ASB AS365-05.00.78), installed on the MGB. The NPRM published in the Federal Register on August 7, 2020 (85 FR 47925). In the NPRM, the FAA proposed to require replacing the MGB before further flight for helicopters with a Type X planet gear assembly with a certain S/N installed. The NPRM also proposed to require, for helicopters with no Type X planet gear assembly installed but at least one Type Y planet gear assembly with a certain S/N installed, replacing the MGB within 300 hours time-in-service (TIS) or before any planet gear assembly accumulates 1,300 hours TIS since new, whichever occurs first. As an alternative to replacing the MGB, the NPRM proposed to allow replacing the epicyclic reduction gear module in the affected MGB.

The NPRM also proposed to prohibit installing an MGB with Type Y or Type X planet gear assembly installed on any helicopter. Finally, the NPRM proposed to require, within 10 hours TIS and thereafter before the first flight of the day or at intervals not to exceed 10 hours TIS, whichever occurs first, inspecting the lower MGB magnetic plugs for particles. If there are particles, the NPRM proposed to require replacing the MGB depending on the type and the size of particles. The NPRM was prompted by EASA AD 2017-0116, Revision 2, dated March 2, 2018, (EASA AD 2017-01162R2), issued by EASA, which is the Technical Agent for the Member States of the European Union, to correct an unsafe condition for Airbus Helicopters Model AS 365 N2, AS 365 N3, SA 365 N, and SA 365 N1 helicopters. EASA advises that after an accident on a Model EC225 helicopter, an investigation revealed the failure of a second stage planet gear of the MGB. EASA states that one of the two types of planet gear assemblies used in the MGB epicyclic module is subject to higher outer race contact pressures and therefore is more susceptible to spalling and cracking. Airbus Helicopters reviewed its range of helicopters with regard to this issue and provided instructions to improve the reliability of the installed MGB.

Accordingly, EASA AD 2017-01162R2 requires repetitive inspections of the MGB magnetic plugs and corrective action if any particles are detected. EASA AD 2017-01162R2 also requires, if certain MGB planet gear assemblies are installed, replacing the planet gear assemblies. Finally, EASA AD 2017-01162R2 prohibits installing an MGB with a Type X or Type Y planet gear assembly on any helicopter.

After the NPRM was issued, the FAA discovered that the proposed applicability was limited to helicopters with at least one affected assembly installed on the MGB, whereas all Airbus Helicopters Model AS-365N2, AS 365 N3, SA-365N, and SA-365N1 helicopters, regardless of the assembly, are subject to the unsafe condition and require repetitive inspections of the MGB magnetic plugs for particles. The FAA also determined that any special flight permits would be limited to flights with no passengers on board.

Therefore, the FAA issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply to all Airbus Helicopters Model AS-365N2, AS 365 N3, SA-365N, and SA-365N1 helicopters. The SNPRM published in the Federal Register on March

22, 2021 (86 FR 15143). The SNPRM maintained the proposed corrective actions from the NPRM as follows, but no longer limited the applicability to only certain helicopters:

- Before further flight, for helicopters with a Type X planet gear assembly with a certain S/N installed, replacing the MGB.
- For helicopters with no Type X planet gear assembly installed but at least one Type Y planet gear assembly with a certain S/N installed, replacing the MGB within 300 hours TIS or before any planet gear assembly accumulates 1,300 hours TIS since new, whichever occurs first.
- As an alternative to replacing the MGB, the SNPRM proposed to allow replacing the epicyclic reduction gear module in the affected MGB.

The SNPRM also proposed to:

- Prohibit installing an MGB with Type Y or Type X planet gear assembly installed on any helicopter.
- Require, within 10 hours TIS and thereafter before the first flight of the day or at intervals not to exceed 10 hours TIS, whichever occurs first, inspecting the lower MGB magnetic plugs for particles and, if there are particles, replacing the MGB, depending on the type and the size of those particles.

Discussion of Final Airworthiness Directive

Comments

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

Conclusion

The helicopters been approved by EASA and are approved for operation in the United States. Pursuant to the FAA's bilateral agreement with the European Union, EASA has notified the FAA about the unsafe condition described in its AD. The FAA reviewed the relevant data and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on these helicopters.

Related Service Information Under 1 CFR Part 51

Airbus Helicopters has issued ASB AS365-05.00.78 for Model SA-365N, SA-365N1, AS-365N2, and AS 365 N3 helicopters. This service information specifies performing periodic inspections of the MGB magnetic plugs for particles. This service information also specifies identifying the type of gear assembly installed in the MGB and replacing any Type X assembly within 50 hours TIS. For Type Y gear assemblies, the service information requires replacing the assembly within 50 hours TIS or within 300 hours TIS, depending on the time since new. The service information specifies Type Z gear assemblies should be left as is.

Airbus Helicopters has also issued Service Bulletin SB No. AS365-63.00.21, Revision 3, dated July 26, 2018, for Model AS365 helicopters. This service information contains procedures for replacing the MGB epicyclic reduction gear as an option to replacing the MGB.

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 the ADDRESSES section.

Differences Between This AD and the EASA AD

The EASA AD requires a 50-hour or 300-hour TIS compliance time or by June 30, 2019, whichever occurs first, to determine the type of planet gear installed in the MGB, and depending on the outcome, to replace the MGB; the compliance time for this AD is based only on hours TIS or

before further flight. The EASA AD allows a pilot to inspect the MGB magnetic plugs for particles; this AD does not.

Costs of Compliance

The FAA estimates that this AD affects 34 helicopters of U.S. Registry and that operators may incur the following costs in order to comply with this AD. Labor costs are estimated at $85 per work-hour.

Inspecting the magnetic plugs and oil filter for particle deposits will take about 1 work-hour for an estimated cost of $85 per helicopter per inspection cycle.

Replacing an MGB will take about 42 work-hours for cost of $3,570 and parts will cost about $295,000 (overhauled) for a total cost of $298,570 per helicopter.

Replacing the epicyclic reduction gear will take about 56 work-hours for an estimated cost of $4,760 and parts will cost about $11,404 for a total cost of $16,164 per helicopter.

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 helicopters identified in this rulemaking action.

Regulatory Findings

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) 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 adding the following new airworthiness directive:

2021-12-06 Airbus Helicopters: Amendment 39-21593; Docket No. FAA-2017-1036; Product Identifier 2018-SW-015-AD.

(a) Applicability

This airworthiness directive (AD) applies to Airbus Helicopters Model AS-365N2, AS 365 N3, SA-365N, and SA-365N1 helicopters, certificated in any category.

(b) Unsafe Condition

This AD defines the unsafe condition as failure of a main gearbox (MGB) planet gear assembly. This condition could result in failure of the MGB and subsequent loss of helicopter control.

(c) Affected ADs

None.

(d) Effective Date

This AD is effective July 20, 2021.

(e) Compliance

You are responsible for performing each action required by this AD within the specified compliance time unless it has already been accomplished prior to that time.

(f) Required Actions

(1) For helicopters with at least one Type X planet gear assembly with a serial number (S/N) listed in Appendix 4.A. of Airbus Helicopters Alert Service Bulletin ASB No. AS365-05.00.78, Revision 3, dated March 2, 2018 (ASB AS365-05.00.78) installed on the main gearbox (MGB), before further flight, replace the MGB or as an alternative to replacing an affected MGB, replace the epicyclic reduction gear module Post Modification (MOD) 0763C52 in the affected MGB in accordance with paragraph 3.B.2 of the Accomplishment Instructions of Airbus Helicopters Service Bulletin SB No. AS365-63.00.21, Revision 3, dated July 26, 2018 (SB AS365-63.00.21), except you are not required to contact Airbus Helicopters.

(2) For helicopters without any Type X planet gear assembly installed but with at least one Type Y planet gear assembly with an S/N listed in Appendix 4.B. of ASB AS365-05.00.78 installed on the MGB, within 300 hours time-in-service (TIS), or before any gear accumulates 1,300 hours TIS since new, whichever occurs first, replace the MGB or as an alternative to replacing the MGB, replace the epicyclic reduction gear module MOD 0763C52 in the affected MGB in accordance with paragraphs 3.B.2. of the Accomplishment Instructions of SB AS365-63.00.21, except you are not required to contact Airbus Helicopters.

(3) As of the effective date of this AD, do not install an MGB with a Type X or Type Y gear assembly with an S/N listed in Appendix 4.A. or 4.B. of ASB AS365-05.00.78 installed on the MGB, on any helicopter.

(4) For all helicopters, within 10 hours TIS and thereafter before the first flight of the day or at intervals not to exceed 10 hours TIS, whichever occurs first, inspect the lower MGB magnetic plugs for particles.

(i) If there are particles that consist of any scale, flake, or splinter, or particles other than cotter pin fragments, pieces of lock wire, swarf, abrasion, or miscellaneous non-metallic waste and the planet gear assembly has logged less than 50 hours TIS since new, inspect the MGB plugs for particles before further flight and inspect the oil filter for particles within 5 hours TIS. Thereafter, for 25 hours TIS, continue to inspect the MGB plugs for particles before each flight, inspect the oil filter for particles at intervals not to exceed 5 hours TIS, and perform the actions required by paragraphs (f)(4)(ii)(A) through (B) of this AD.

(ii) If there are particles that consist of any scale, flake, or splinter, or particles other than cotter pin fragments, pieces of lock wire, swarf, abrasion, or miscellaneous non-metallic waste and the planet gear assembly has logged more than 50 hours TIS since new, inspect the cumulative surface area of the particles collected from both the magnetic plug and the oil filter, since last MGB overhaul or since new if no overhaul has been performed.

(A) If the total surface area of the particles is less than 3 mm\2\, examine the particles with largest surface area (S), longest particle length (L) and thickest particles (e).

(1) If largest surface area (S) of a particle is less than 1 mm\2\, the L is less than 1.5 mm, and the e is less than 0.2 mm, inspect the MGB plugs for particles before further flight and inspect the oil filter for particles within 5 hours TIS. Thereafter, for 25 hours TIS, continue to inspect the MGB plugs for particles before each flight, inspect the oil filter for particles at intervals not to exceed 5 hours TIS, and perform the actions required by paragraphs (f)(4)(ii)(A) through (B) of this AD.

(2) If largest particle size (S) is greater than 1 mm\2\, the L is greater than 1.5 mm, or the e is greater than 0.2 mm, perform a metallurgical analysis for any 16NCD13 particles using a method in accordance with FAA-approved procedures.

(3) If there are any 16NCD13 particles, replace the MGB with an airworthy MGB.

(4) If there are no 16NCD13 particles, inspect the MGB plugs for particles before further flight and inspect the oil filter for particles within 5 hours TIS. Thereafter, for 25 hours TIS, continue to inspect the MGB plugs for particles before each flight, inspect the oil filter for particles at intervals not to exceed 5 hours TIS, and perform the actions required by paragraphs (f)(4)(ii)(A) through (B) of this AD.

(B) If the total surface area of collected particles is greater than or equal to 3 mm\2\, before further flight, perform a metallurgical analysis for any 6NCD13 particles using a method in accordance with FAA-approved procedures.

(1) If there are any 16NCD13 particles, before further flight, replace the MGB with an airworthy MGB.

(2) If there are no 16NCD13 particles, inspect the MGB plugs for particles before further flight and inspect the oil filter for particles within 5 hours TIS. Thereafter, for 25 hours TIS, continue to inspect the MGB plugs for particles before each flight, inspect the oil filter for particles at intervals not to exceed 5 hours TIS, and perform the actions required by paragraphs (f)(4)(ii)(A) through (B) of this AD.

(g) Special Flight Permits

Special flight permits may be permitted provided that there are no passengers on board.

(h) Alternative Methods of Compliance (AMOCs)

(1) The Manager, International Validation 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 International Validation Branch, send it to the attention of the person identified in paragraph (i)(1) of this AD. Information may be emailed to: 9-AVS-AIR-730-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.

(i) Additional Information

(1) For more information about this AD, contact Rao Edupuganti, Aviation Safety Engineer, Dynamic Systems Section, Technical Innovation Policy Branch, FAA, 10101 Hillwood Pkwy., Fort Worth, TX 76177; telephone 817-222-5110; email rao.edupuganti@faa.gov.

(2) The subject of this AD is addressed in European Aviation Safety Agency (now European Union Aviation Safety Agency) (EASA) AD 2017-0116R2, dated March 2, 2018.You may view the EASA AD at https://www.regulations.gov in Docket No. FAA-2017-1036.

(j) Subject

Joint Aircraft Service Component (JASC) Code: 6300, Main Rotor Drive System.

(k) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference 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) Airbus Helicopters Alert Service Bulletin ASB No. AS365-05.00.78, Revision 3, dated March 2, 2018.

(ii) Airbus Helicopters Service Bulletin SB No. AS365-63.00.21, Revision 3, dated July 26, 2018.

(3) For Airbus Helicopters service information identified in this AD, contact Airbus Helicopters, 2701 N Forum Drive, Grand Prairie, TX 75052; telephone 972-641-0000 or 800-232-0323; fax 972-641-3775; or at https://www.airbus.com/helicopters/services/technical-support.html.

(4) You may view this service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy., Room 6N-321, Fort Worth, TX 76177. For information on the availability of this material at the FAA, call (817) 222-5110.

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

Issued on May 27, 2021.

Ross Landes,

Deputy Director for Regulatory Operations, Compliance & Airworthiness Division, Aircraft Certification Service.

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