**[4910-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2015-3657; Directorate Identifier 2012-SW-069-AD]**

**RIN 2120-AA64**

# Airworthiness Directives; Airbus Helicopters (Previously Eurocopter France (Eurocopter) Helicopters)

**AGENCY:** Federal Aviation Administration (FAA), DOT.

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

**SUMMARY:** We propose to supersede airworthiness directive (AD) 2007-25-08 for Eurocopter Model SA-365 N1, AS-365N2, AS 365 N3, SA-366G1, EC 155B, and EC155B1 helicopters. AD 2007-25-08 currently requires checking the tail rotor gearbox (TGB) oil level, inspecting the magnetic plug for chips and either replacing the TGB or further inspecting for axial play in the tail rotor hub pitch change control spider (spider), and if axial play is found in the spider, replacing the pitch control rod assembly double bearing (bearing). Since we issued the AD 2007-25-08, we have received reports of new occurrences of loss of yaw control due to failure of the control rod bearing. This proposed AD would retain some of the requirements of AD 2007-25-08, revise the inspections for play in the double bearing to improve the detection of play, require replacing the TGB

control shaft guide bushes, clarify the criteria concerning particle detection, and change the inspection for play in the double bearing after the guide bushes have been replaced. The proposed actions are intended to prevent damage to the bearing resulting in end play, loss of tail rotor pitch control, and subsequent loss of control of the helicopter.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 60 days AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments by any of the following methods:

- Federal eRulemaking Docket: Go to http://www.regulations.gov. Follow the online instructions for sending your comments electronically.
- Fax: 202-493-2251.
- Mail: Send comments to the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590-0001.
- Hand Delivery: Deliver to the "Mail" address between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

**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 proposed AD, the European Aviation Safety Agency (EASA) AD, the economic evaluation, any comments received and other information. The street address for the Docket Operations Office (telephone 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

For service information identified in this proposed AD, contact Airbus Helicopters, Inc., 2701 N. Forum Drive, Grand Prairie, TX 75052; telephone (972) 641-0000 or (800) 232-0323; fax (972) 641-3775; or at http://www.airbushelicopters.com/techpub. You may review service information at the FAA, Office of the Regional Counsel, Southwest Region, 10101 Hillwood Pkwy, Room 6N-321, Fort Worth, Texas 76177.

**FOR FURTHER INFORMATION CONTACT:** Matt Wilbanks, Aviation Safety Engineer, Rotorcraft Certification Office, Rotorcraft Directorate, FAA, 10101 Hillwood Pkwy, Fort Worth, Texas 76177; telephone (817) 222-5110; email matt.wilbanks@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

We invite you to participate in this rulemaking by submitting written comments, data, or views. We also invite comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

We will file in the docket all comments that we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, we will consider all comments we

receive on or before the closing date for comments. We will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

**Discussion**

On November 27, 2007, we issued AD 2007-25-08, Amendment 39-15290 (72 FR 69604, December 10, 2007) for Eurocopter (now Airbus Helicopters) Model SA-365 N1, AS-365 N2, AS 365 N3, SA-366G1, EC 155B, and EC155B1 helicopters. AD 2007-25-08 requires repetitively checking the TGB oil level to ensure it is at the maximum level. AD 2007-25-08 also requires repetitively inspecting the magnetic plug for chips, and depending on the quantity of chips found, either replacing the TGB or further inspecting for axial play in the spider. If axial play is found in the spider, AD 2007-25-08 requires replacing the bearing. AD 2007-25-08 was prompted by EASA Emergency AD No. 2006-0258R1-E, dated August 29, 2006, as well as the finding that metal chips were not detected on the magnetic plug due to insufficient oil flow because the oil in the TGB was being maintained at the minimum level. The actions of AD 2007-25-08 are intended to detect metal chips on the magnetic plug and to prevent damage to the bearing resulting in end play, loss of tail rotor pitch control, and subsequent loss of control of the helicopter.

**Actions Since AD 2007-25-08 Was Issued**

Since we issued AD 2007-25-08 (72 FR 69604, December 10, 2007), we have received reports of new occurrences of loss of yaw control due to failure of the control rod bearing.

EASA, which is the Technical Agent for the Member States of the European Union, has since superseded EASA Emergency AD No. 2006-0258R1-E with several ADs, the most recent being EASA AD No. 2012-0170R2, dated June 20, 2014, to correct an unsafe condition for these Airbus Model helicopters. After receiving reports of several new occurrences of damage to the bearings and subsequent investigations of the incidents, EASA advises of implementing additional, revised inspection and corrective actions; reducing the interval between inspections; a modification replacing both guide bushes and improving the tolerance between the control shaft and the TGB wheel to limit the friction loads on the control bearing; and requiring the play measurement of the TGB to control rod, shaft assembly double bearing to be measured according to the type of fenestron installed. EASA AD 2012-0170R2 also excludes helicopters modified in accordance with modification (MOD) 07 65B63.

**FAA's Determination**

These helicopters have been approved by the aviation authority of France and are approved for operation in the United States. Pursuant to our bilateral agreement with France, EASA, its technical representative, has notified us of the unsafe condition described in its AD. We are proposing this AD because we evaluated all known relevant information and determined that an unsafe condition is likely to exist or develop on other products of the same type design.

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

We reviewed ASB No. AS365-05.00.61, Revision 4, dated April 8, 2014, for FAA-certificated Model SA 365 N1, AS 365 N2, and AS 365 N3 helicopters and for non-FAA-certificated Model AS355F, F1, and F2 helicopters; ASB No. SA366-05.41,

Revision 4, dated April 8, 2014, for FAA-certificated Model SA-366G1 and non-FAA-certificated Model SA-366GA helicopters; and ASB No. EC155-05A022, Revision 4, dated April 8, 2014, for FAA-certificated Model EC 155B and EC155B1 helicopters. All three ASBs describe procedures for monitoring the behavior of the bearing by checking its axial play by dimensional measurement and by maintaining the operating oil at the maximum level. EASA classified this service information as mandatory and issued EASA AD No. 2012-0170R2 to ensure the continued airworthiness of these helicopters. 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 of this NPRM.

**Proposed AD Requirements**

This proposed AD would require:

• Checking the TGB oil level at specified intervals. An owner/operator (pilot) may perform this visual check and must enter compliance into the helicopter maintenance records in accordance with 14 CFR §§ 43.9(a)(1) through (4) and 91.417(a)(2)(v). A pilot may perform this check because it involves only a visual check for the oil level in the TGB and can be performed equally well by a pilot or a mechanic. This check is an exception to our standard maintenance regulations.

● Inspecting the magnetic plug of the TGB for chips at specified intervals.

● Within 300 hours time-in-service (TIS), replacing each affected part-numbered TGB guide bush with an airworthy guide bush, inspecting the bearing of the TGB control shaft and rod assembly for M50 type particles, and performing measurements of play in the TGB control shaft and rod assembly.

● Within 110 hours TIS after replacing the guide bush, and thereafter at intervals not to exceed 55 hours TIS, performing certain measurements for play in the TGB control shaft and rod assembly.

This proposed AD would not apply to helicopters with TGB part number 365A33-6005-09 installed. Airbus Helicopters refers to the installation of this part-numbered TGB as MOD 07 65B63.

**Differences Between the Proposed AD and the EASA AD**

The calendar times in the EASA AD have already passed and are not included in this proposed AD.

**Costs of Compliance**

We estimate that this proposed AD would affect 133 helicopters of U.S. Registry. We estimate that operators may incur the following costs in order to comply with this AD. The estimated labor cost is $85 per work-hour. We estimate .5 work-hour to check the TGB oil level for a cost of $43 per helicopter and $5,719 for the fleet each inspection cycle. We estimate .5 work-hour to inspect the magnetic plug on the TGB for chips for a cost of $43 per helicopter and $5,719 for the fleet each inspection cycle. We estimate 3 work-hours to measure the play in the TGB control shaft and rod assembly for a cost of $255 per helicopter and $33,915 for the fleet each inspection cycle. Replacing the TGB control shaft guide bushes would take 4 work-hours and required parts would cost $565, for an estimated total of $905 per helicopter and $120,365 for the U.S. operator fleet. Inspecting the TGB control shaft and rod assembly for steel particles would take 6 work-hours for a cost per helicopter of $510 and a fleet cost of $67,830. If necessary, it would

cost about $30,000 per helicopter to replace the TGB and $24,000 for overhaul of the TGB to replace the bearing.

**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 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, I certify this proposed regulation:

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);

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.

We prepared an economic evaluation of the estimated costs to comply with this proposed AD and placed it in the AD docket.

**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 removing Airworthiness Directive (AD) 2007-25-08, Amendment 39-15290 (72 FR 69604, December 10, 2007), and adding the following new AD:

**Airbus Helicopters (Previously Eurocopter France Helicopters):** Docket No. FAA-2015-3657; Directorate Identifier 2012-SW-069-AD.

**(a) Applicability**

This AD applies to Model SA-365N1, AS-365N2, AS 365 N3, SA-366G1, EC 155B, and EC155B1 helicopters, with a tail rotor gearbox (TGB) pitch control rod assembly double bearing (bearing) installed, certificated in any category, except helicopters with TGB part number (P/N) 365A33-6005-09 installed.

**(b) Unsafe Condition**

This AD defines the unsafe condition as damage to the bearing, which could result in end play, loss of tail rotor pitch control, and subsequent loss of control of the helicopter.

**(c) Affected ADs**

This AD supersedes AD 2007-25-08, Amendment 39-15290 (72 FR 69604, December 10, 2007).

**(d) Comments Due Date**

We must receive comments by [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

**(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) Check the TGB oil level at the following intervals:

(i) For Model SA-365N1, AS-365N2, AS 365 N3 helicopters, at intervals not to exceed 10 hours time-in-service (TIS).

(ii) For Model SA366G1 helicopters, at each daily flight check.

(iii) For Model EC 155B and EC155B1 helicopters, at intervals not to exceed 15 hours TIS or 7 days, whichever occurs first.

(iv) The actions required by paragraph (f)(1) of this AD may be performed by the owner/operator (pilot) holding at least a private pilot certificate and must be entered into the aircraft records showing compliance with this AD in accordance with 14 CFR §§ 43.9 (a)(1) through (4) and 14 CFR 91.417(a)(2)(v). The record must be maintained as required by 14 CFR §§ 91.417, 121.380, or 135.439.

(2) If the oil level is not at maximum, before further flight, a qualified mechanic must fill it to the maximum level.

(3) Inspect the magnetic plug of the TGB for any chips as follows:

(i) At intervals not to exceed 25 hours TIS for helicopters with a magnetic plug without a chip electrical indication in the cockpit, or

(ii) At intervals not to exceed 100 hours TIS and after any illumination of the TGB "CHIP" warning light for helicopters with a chip electrical indication in the cockpit.

(4) If you find any chips during the inspection in paragraph (f)(3) of this AD, determine whether the quantity of chips is within the removal criteria.

(i) If the quantity of chips on the magnetic plug is at or above the removal criteria, before further flight, replace the TGB with an airworthy TGB.

(ii) If the quantity of chips on the magnetic plug is below the removal criteria, comply with paragraph (f)(6) of this AD before further flight.

(5) Within 300 hours TIS, without removing the TGB:

(i) Replace each TGB control shaft guide bush (guide bush), P/N 365A33-6189-20 and 365A33-6189-21, with guide bush, P/N 365A33-6223-20, and replace each guide bush, P/N 365A33-6188-20, with guide bush, P/N 365A33-6222-20.

Note 1 to paragraph (f)(5)(i) of this AD: Airbus Helicopters refers to the replacement of the guide bushes as Modification 0765B58.

(ii) Inspect the bearing of the TGB control shaft and rod assembly for M50 type particles (particles) as shown in Figures 1 through 3 of Airbus Helicopters Alert Service Bulletin (ASB) No. AS365-05.00.61, Revision 4, dated April 8, 2014, for Model SA 365 N1, AS 365 N2, and AS 365 N3 helicopters (AS365-05.00.61); ASB No. SA366-05.41, Revision 4, dated April 8, 2014, for Model SA 366G1 helicopters (SA366-05.41); or ASB No. EC155-05A022, Revision 4, dated April 8, 2014, for Model EC 155B and EC155B1 helicopters (EC155-05A022). Inspect the bearing by separating the control shaft (item q of Figure 3) from the control rod (item p of Figure 3), rinse the bearing with white spirit or equivalent, collect the product on a blotting paper, and inspect for particles inside the control shaft, around the bearing, and on blotting paper.

(A) If there are no particles, clean the control shaft and control rod with white spirit or equivalent and install the control shaft and control rod.

(B) If there are any particles, replace the bearing with an airworthy bearing.

(iii) Perform measurements of play in the TGB control shaft and rod assembly bearing as follows:

(A) For the TGB side:

(1) Remove the cover and inspect the positioning of the locking of the 3 screws, as shown in the two positioning for measurement photographs in the Accomplishment Instructions under paragraph 3.B.4.a.(1) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022. Correctly lock the screws if the positioning is inconvenient for measurement. Set the pedal unit to the neutral position and rig the tail servo-control using a 6 mm diameter pin. Remove any primer and paint from the support casing face of the servo-control using 600 grit sand paper. Apply DOW 19 or equivalent protection and a coat of primer P05 or equivalent. Do not reapply primer and paint to the support casing face of the servo-control.

(2) Perform a measurement "M1" using a caliper gage, between the end of the control rod (item p in the three photographs in the Accomplishment Instructions under paragraph 3.B.4.a.(1) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) and the seating face of the servo-control on the casing. Mark the position of the caliper gage on the support casing face of the servo-control as "R1" using a permanent felt tip pen. Position the caliper gage on R1 (shown in the first of the three photographs in the Accomplishment Instructions under paragraph 3.B.4.a.(1) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) and on the screw (item ac in the first of the three photographs in the Accomplishment Instructions under paragraph 3.B.4.a.(1) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) of the universal joint of the servo-control. Set the mobile part of the caliper gage against the end of the control rod. Shift the caliper gage against the control lever (item ab in the last photograph in the Accomplishment Instructions under paragraph 3.B.4.a.(1) of ASB AS365-05.00.61,

SA336-05.41, or EC155-05A022) while remaining in contact with the end of the control rod.

(3) Record measurement M1 indicated on the caliper gage on the component history card or equivalent record.

(B) For the TRH side:

(1) Perform a measurement "M2" using a caliper gage between the flat face of the center plate (item c in the photograph in the Accomplishment Instructions under paragraph 3.B.4.a.(2) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) and the face of the inner web (item ad in the photograph in the Accomplishment Instructions under paragraph 3.B.4.a.(2) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) of the rotor hub on which the inner bearings of the TRH blades are installed. Position the caliper gage flat across the opening (item ae in the photograph in the Accomplishment Instructions under paragraph 3.B.4.a.(2) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) of the pitch change spider. Mark the position of the caliper gage on the flat surface of the center plate as "R2" and on the opening as "R3" using a permanent felt tip pen.

(2) Record measurement M2 indicated on the caliper gage.

(3) Calculate a measurement "M0" by adding measurements M1 (required in paragraph (f)(5)(iii)(A) of this AD) and M2.

(4) Perform measurements M1 and M2 again by repeating the requirements in paragraphs (f)(5)(iii)(A) and (f)(5)(iii)(B) of this AD and calculate a second measurement M0.

(5) Calculate the difference between the two M0 measurements. If the difference is not less than 0.25 mm (0.01 inch), calculate the two M0 measurements again.

(6) Calculate the mean value of the two M0 measurements and record it on the component history card or equivalent record. This M0 measurement will be the reference measurement enabling you to evaluate any increase in the play in the bearing of the control shaft and rod assembly during later inspections.

(6) Within 110 hours TIS after replacing the guide bush, and thereafter at intervals not to exceed 55 hours TIS, perform measurements for play in the TGB control shaft and rod assembly as follows.

(i) On the TGB side:

(A) Remove the TGB fairing, set the pedal unit to the neutral position and rig the tail servo-control using a 6 mm diameter pin.

(B) Perform measurement “M1” using a caliper gage between the end of the control rod (item p in the three photographs in the Accomplishment Instructions under paragraph 3.B.4.b (1) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) and the seating face of the servo-control on the casing. Position the caliper gage on mark R1 and the bearing against the screw (item ac as shown in the first of the three photographs in the Accomplishment Instructions under paragraph 3.B.4.b.(1) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) of the universal joint of the servo-control. Set the mobile part of the caliper gage against the end of the control rod. Shift the caliper gage against the control lever (item ab as shown in the last of the three photographs in the Accomplishment Instructions under paragraph 3.B.4.b.(1) of ASB AS365-05.00.61,

SA336-05.41, or EC155-05A022) while remaining in contact with the end of the control rod.

(C) Record measurement M1 indicated on the caliper gage on the component history card or equivalent record.

(ii) On the tail rotor hub (TRH) side:

(A) Remove the fairing and perform a measurement "M2" using a caliper gage between the flat face of the center plate (item c in the photograph in the Accomplishment Instructions under paragraph 3.B.4.b.(2) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) and the face of the inner web (item ad in the photograph in the Accomplishment Instructions under paragraph 3.B.4.b.(2) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022) of the rotor hub on which the inner bearings of the TRH blades are installed. Position the caliper gage flat across the opening of the pitch change spider on R2 and R3 as shown in the right photograph in the Accomplishment Instructions under paragraph 3.B.4.b.(2) of ASB AS365-05.00.61, SA336-05.41, or EC155-05A022.

(B) Record measurement M2 indicated on the caliper gage on the component history card or equivalent record.

(C) Calculate a measurement "M3" by adding measurements M1 and M2.

(D) Calculate the difference between measurement "M0" indicated on the TGB component history card or equivalent record and M3.

(1) If the difference between measurement M0 and M3 is less than 0.5 mm (0.02 inch), perform an additional inspection for play in the bearing of the TGB control shaft and rod assembly by following the Accomplishment Instructions, paragraph 3.B.6., of

ASB AS365-05.00.61, SA366-05.41, or EC155-05A022. If there is no axial play at the TRH pitch change spider, record value M3 on the component history card or equivalent record. If there is axial play at the TRH pitch change spider, replace the bearing with an airworthy bearing and perform a new reference measurement by following the requirements of paragraph (f)(6) of this AD.

(2) If the difference between the measurements is equal to or greater than 0.5 mm (0.02 inch), replace the bearing with an airworthy bearing and perform a new reference measurement by following the requirements of paragraph (f)(6) of this AD.

**(g) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Safety Management Group, FAA, may approve AMOCs for this AD. Send your proposal to: Matt Wilbanks, Aviation Safety Engineer, Rotorcraft Certification Office, Rotorcraft Directorate, FAA, 10101 Hillwood Pkwy, Fort Worth, Texas 76177; telephone (817) 222-5110; email 9-ASW-FTW-AMOC-Requests@faa.gov.

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, we suggest that you notify your principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office before operating any aircraft complying with this AD through an AMOC.

**(h) Additional Information**

The subject of this AD is addressed in European Aviation Safety Agency (EASA) AD No. 2012-0170R2, dated June 20, 2014. You may view the EASA AD on the internet at http://www.regulations.gov in Docket No. FAA-2015-3657.

**(i) Subject**

Joint Aircraft Service Component (JASC) Code: 6520 Tail Rotor Gearbox.

Issued in Fort Worth, Texas, on August 21, 2015.

Lance T. Gant,

Acting Directorate Manager, Rotorcraft Directorate,
Aircraft Certification Service.
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