

2010-11-10 Turbomeca: Amendment 39-16315. Docket No. FAA-2010-0219; Directorate Identifier 2010-NE-14-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective July 6, 2010.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Turbomeca Astazou XIV B and XIV H turboshaft engines with the following part number (P/N) third stage turbine wheels that incorporate modification AB 173 (Turbomeca Service Bulletin (SB) No. 283 72 0091) or modification AB 208 (Turbomeca SB No. 283 72 0117), but that do not incorporate Turbomeca SB No. 283 72 805:

(1) Third stage turbine wheels P/N 0265257000, all serial numbers (S/Ns);

(2) Third stage turbine wheels P/N 0265257020, all S/Ns;

(3) Third stage turbine wheels P/N 0265257060, all S/Ns;

(4) Third stage turbine wheels P/N 0265257050, of the S/Ns listed in Appendix 1 of Turbomeca Mandatory Service Bulletin (MSB) No. 283 72 0804, Version C, dated October 23, 2009.

(5) These engines are installed on, but not limited to, single-engine Aerospatiale AS319B "Alouette III" and AS342J "Gazelle" helicopters.

Reason

(d) European Aviation Safety Agency (EASA) AD No. 2010-0004, dated January 5, 2010, states:

Investigation of an uncommanded in-flight shutdown (IFSD) revealed that a third stage turbine wheel rupture was not contained by the turbine casings. The released portion consisted of a turbine blade together with the rim piece immediately below the blade. The rim piece was bounded by two adjacent axial slots and a fatigue crack that had developed between the holes in which the slots terminate. The slots and holes, which are closed by riveted plugs, were introduced by modification AB 173 in order to improve the vibration characteristics of the turbine wheel. Modification AB 208 brings an improvement to modification AB 173 by changing only the riveting detail. SN 283 72 0805 provides instructions for re-boring the holes at overhaul or repair in order to improve their surface condition. A manufacturing process modification has been introduced to improve the surface condition of these holes in third stage turbine wheels. Wheels subject to the improved manufacturing process have S/Ns outside the range specified in Table 1. Although there is only one known event, and although it resulted only in an uncommanded IFSD, with no damage to the aircraft, the possibility exists that additional events may occur, potentially involving damage to the aircraft.

To address the unsafe condition, EASA issued AD 2009-0136, mandating inspection of certain third stage turbine wheels and removal of any damaged wheel. The wheels to be inspected were those whose cycles since new (CSN) would exceed 2,000 by February 1, 2011. Following additional research by Turbomeca on crack initiation and growth, this AD mandates inspections based on new criteria and removal of any damaged wheel.

We are issuing this AD to prevent uncontained failures of the third stage turbine wheel, which could result in damage to the helicopter.

Actions and Compliance

(e) Unless already done, do the following actions.

(1) For any affected third stage turbine wheel that on the effective date of this AD has accumulated fewer than 500 cycles- since-last-overhaul or repair, or since-new if the engine has never been overhauled or repaired:

(i) Within 300 additional cycles, perform a dye penetrant inspection on the rear face of the third stage turbine wheel.

(ii) Use Section 2, Instructions to Be Incorporated, of Turbomeca MSB No. 283 72 0804, Version C, dated October 23, 2009, to do the inspection.

(iii) Perform a second dye penetrant inspection when the engine has accumulated between 450 and 550 cycles from the first inspection.

(2) For any affected third stage turbine wheel that on the effective date of this AD, has accumulated 500 or more but fewer than 700 cycles-since-last-overhaul or repair, or since-new if the engine has never been overhauled or repaired:

(i) Within 200 additional cycles, perform a dye penetrant inspection on the rear face of the third stage turbine wheel.

(ii) Use Section 2, Instructions to Be Incorporated, of Turbomeca MSB No. 283 72 0804, Version C, dated October 23, 2009, to do the inspection.

(3) For any affected third stage turbine wheel that on the effective date of this AD, has accumulated 700 or more but fewer than 1,200 cycles-since-last-overhaul or repair, or since-new if the engine has never been overhauled or repaired:

(i) Within 150 additional cycles, perform a dye penetrant inspection on the rear face of the third stage turbine wheel.

(ii) Use Section 2, Instructions to Be Incorporated, of Turbomeca MSB No. 283 72 0804, Version C, dated October 23, 2009, to do the inspection.

(4) If any crack indication is found, then before further flight, remove the third stage turbine wheel from service.

(5) For any affected third stage turbine wheel that on the effective date of this AD has accumulated 1,200 or more cycles- since-last-overhaul or repair, or since-new if the engine has never been overhauled or repaired, no action is required.

FAA AD Differences

(f) This AD differs from the Mandatory Continuing Airworthiness Information (MCAI) and or service information as follows:

(1) EASA AD 2010-0004, dated January 5, 2010, requires removing the engine from service before further flight if a third stage turbine wheel is found cracked.

(2) This AD requires removing the third stage turbine wheel from service before further flight if a third stage turbine wheel is found cracked.

Alternative Methods of Compliance

(g) The Manager, Engine Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

Related Information

(h) Refer to MCAI EASA AD 2010-0004, dated January 5, 2010, for related information.

(i) Contact Kevin Dickert, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: kevin.dickert@faa.gov; telephone (781) 238-7117, fax (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(j) You must use Turbomeca Mandatory Service Bulletin No. 283 72 0804, Version C, dated October 23, 2009, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Turbomeca, 40220 Tarnos, France; telephone (33) 05 59 74 40 00, fax (33) 05 59 74 45 15.

(3) You may review copies at the FAA, New England Region, 12 New England Executive Park, Burlington, MA; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.