

EASA	EMERGENCY AIRWORTHINESS DIRECTIVE	
	<p>AD No.: 2012-0115-E</p> <p>Date: 28 June 2012</p> <p>Note: This Emergency Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.</p>	
<p>This AD is issued in accordance with EC 1702/2003, Part 21A.3B. In accordance with EC 2042/2003 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [EC 2042/2003 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].</p>		
<p>Design Approval Holder's Name :</p> <p>EUROCOPTER</p>	<p>Type/Model designation(s) :</p> <p>AS 332 and EC 225 helicopters</p>	
<p>TCDS Number:</p>	<p>EASA.R.002</p>	
<p>Foreign AD:</p>	<p>Not applicable</p>	
<p>Supersedure:</p>	<p>This AD supersedes EASA AD 2012-0107 dated 14 June 2012.</p>	
<p>ATA 63</p>	<p>Main Rotor Drive – Main Gear Box Bevel Gear Vertical Shaft – Inspection / Limitation</p>	
<p>Manufacturer(s):</p>	<p>Eurocopter (formerly EUROCOPTER France)</p>	
<p>Applicability:</p>	<p>AS 332 C, AS 332 C1, AS 332 L, AS 332 L1, AS 332 L2 and EC 225 LP helicopters, all serial numbers, if equipped with Main Gear Box (MGB) bevel gear vertical shaft Part Number (P/N) 332A32.5101.00, 332A32.5101.05, 332A32.5101.10 or 332A32.5101.15 with serial number from (S/N) M330 (inclusive) through M340 (inclusive) and from S/N M370 (inclusive) through M5000 (exclusive).</p>	
<p>Reason:</p>	<p>A report has been received following the ditching of an EC 225 LP helicopter in May 2012 in the North Sea. The flight crew carried out an emergency ditching after warning indication of MGB loss of oil pressure and subsequent additional red alarm on the MGB emergency lubrication system.</p> <p>The preliminary findings of the investigation showed a full circumferential crack of the lower vertical shaft of the MGB bevel gear in the vicinity of the weld that joins the two sections. As a result, the vertical shaft had ceased to drive the main and backup oil pumps. The vertical shaft failed after a low number of accumulated flight hours (FH) and thus, at this early stage of the investigation, a manufacturing defect of the part has been considered.</p> <p>The initial investigation also determined that prior to the flight during which the helicopter ditched, the Vibration Health Monitoring (VHM) system installed on</p>	

	<p>the helicopter had identified a rising trend in certain monitoring parameters associated with the MGB oil pump drive system.</p> <p>To address the potential unsafe condition, EASA issued Emergency AD 2012-0087-E to require, for helicopters operating over water which are equipped with Eurocopter VHM system, to monitor some VHM data and when not equipped with this system, to limit the operation to day visual flight rules (Day VFR).</p> <p>Since that AD was issued, it was realised that the affected helicopters equipped with a VHM system could still be operated over water in day Visual Meteorological Conditions (VMC) without the need for repetitive VHM data reviews, or flown equally with the VHM system inoperative. Additionally, further analysis showed that the interval for downloading and reviewing VHM data could be slightly increased for the helicopters subject to that requirement. Lastly, it was noted a minor typo on the S/N of the vertical shaft defined in the Applicability paragraph of the AD and found furthermore that definition of the shaft P/N was incomplete.</p> <p>Consequently, EASA issued AD 2012-0107 which superseded AD 2012-0104, which superseded Emergency AD 2012-0087-E, retained their requirements, extended applicability and required the monitoring of VHM data at less stringent compliance time, only for helicopters with a serviceable VHM system when flying over water in either Instrument Meteorological Conditions (IMC) or under night visual flight rules (Night VFR).</p> <p>Since AD 2012-0107 was issued, results from the investigation of the failed shaft and correlated analysis showed that the crack initiation could occur at lower MGB torque levels than initially appreciated, with the potential to affect the AS332 models in addition to the EC225 helicopters. In addition, it has been determined that failure can no longer be precluded at any value of accumulated flight hours. In the meantime, a thorough review of the shaft manufacturing process and of the production files has resulted in an expansion of the S/Ns identified for the potentially affected shafts.</p> <p>For the reasons described above, this new AD retains the requirements of AD 2012-0107, which is superseded, extends its Applicability, requires different intervals for downloading and reviewing VHM data depending on helicopters models and clarifies the night operating conditions under which the provisions of this AD are applicable.</p>
Effective Date:	29 June 2012
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <p>(1) For helicopters equipped with a serviceable Eurocopter VHM system, and operated over water either in IMC or at night, before next flight over water, after the effective date of this AD, and thereafter at intervals as specified in Appendix 1 of this AD, download VHM data to review indicators as applicable for helicopter models listed in that Appendix, in accordance with instructions of Eurocopter AS332 ASB No. 01.00.82 or EC225 ASB No. 04A009, as applicable to helicopter model, and report to Eurocopter any increasing trend indication or unusual behaviour of downloaded parameters and accomplish Eurocopter instructions accordingly.</p> <p>Note 1: For further advice regarding interpretation of the VHM data, contact Eurocopter Technical Support.</p> <p>(2) For helicopters which combine operations over water in IMC or at night with any other operation, the requirements of paragraph (1) of this AD apply.</p> <p>Note 2: No action is required by paragraph (1) of this AD for helicopters equipped with a serviceable Eurocopter VHM system, when only operated over water in Day VMC.</p> <p>(3) For helicopters not equipped with a Eurocopter VHM system, and helicopters equipped with an unserviceable Eurocopter VHM system,</p>

	<p>before next flight over water after the effective date of this AD, accomplish the following actions:</p> <p>(3.1) Install a placard "DAY VFR ONLY FOR FLIGHT OVER WATER" in the full view of the pilots;</p> <p>(3.2) Insert a copy of this AD in the Rotorcraft Flight Manual (RFM) of the helicopter.</p> <p>(4) Following rectification of the VHM system for a helicopter equipped with an unserviceable Eurocopter VHM system as specified in paragraph (3) of this AD, depending on the type of operations, paragraphs (1) and (2) of this AD apply to that helicopter. Concurrently, the placard and copy of the AD as previously required by paragraph (3) of this AD can be removed from the helicopter and RFM.</p>
Ref. Publications:	<p>Eurocopter AS332 ASB No. 01.00.82 Revision 0 dated 27 June 2012. Eurocopter EC225 ASB No. 04A009 Revision 0 dated 27 June 2012.</p> <p>The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.</p>
Remarks :	<ol style="list-style-type: none"> 1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. The results of the safety assessment have indicated the need for immediate publication and notification, without the full public consultation process. 3. Enquiries regarding this AD should be referred to the Safety Information Section, Executive Directorate, EASA. E-mail: ADs@easa.europa.eu. 4. For any question concerning the technical content of the requirements in this AD, please contact: EUROCOPTER (STD1) – Aéroport de Marseille Provence 13725 Marignane Cedex, France; telephone +33 (4) 42 85 97 97; facsimile +33 (4) 42 85 99 66; E-mail: Directive.technical-support@eurocopter.com.

Appendix 1 – Download and Review interval of VHM indicators

Helicopter model(s)	VHM download Interval	VHM Indicators to review
AS 332 C, AS 332 C1, AS 332 L, AS 332 L1	Not exceeding 7 flight hours (FH)	EuroHums: analyse the indicators of the S9 component relating to the monitoring of the shaft and bevel gear area, in particular indicator SDB1
AS 332 L2	Not exceeding 5 FH	EuroArms: analyse the indicators relating to the monitoring of the shaft and bevel gear area
		EuroHums: analyse the indicators of the S9 component relating to the monitoring of the shaft and bevel gear area, in particular indicator SDB1
EC 225 LP	Not exceeding 4 FH	Marms: analyze indicators MOD-45 and MOD-70.

SUPERSEDED