EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2013-0156 **Date: 18 July 2013** Note: This 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.

This AD is issued in accordance with EU 748/2012, Part 21.A.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].

Design Approval Holder's Name:	**Type/Model designation(s):**
EUROCOPTER	EC 225 LP helicopters

TCDS Number:	EASA.R.002
Foreign AD:	Not applicable
Supersedure:	This AD supersedes EASA AD 2013-0037 dated 22 February 2013 and EASA Emergency AD 2013-0113-E dated 28 May 2013

ATA 63	**Rotor Drive – Main Gear Box / Emergency Lubrication System – Identification / Replacement / Modification**
Manufacturer(s):	Eurocopter (formerly EUROCOPTER France)
Applicability:	EC 225 LP helicopters, all serial numbers.
Reason:	Two separate events occurred in 2012 of EC 225 LP helicopters carrying out an emergency ditching in the North Sea after warning indication of Main Gear Box (MGB) loss of oil pressure and subsequent additional red alarm on the MGB emergency lubrication system (EMLUB) (refer to EASA AD 2013-0138-E for further information). In both cases, false EMLUB failure indications were identified. The EMLUB system was designed to guarantee 30 minutes of continued safe flight in the event of total loss of the dual oil lubrication system of the MGB. The subsequent investigation revealed that design non-conformity on the electrical outputs of some Air and Glycol pressure-switches of the EMLUB system had caused the false EMLUB warnings as the result of connecting inconsistency between the pressure-switches electrical pins and the helicopter wiring. This condition, if not corrected, could lead to a false red EMLUB warning during MGB emergency lubrication system operation, compelling the flight crew to perform an immediate landing or ditching. To address this potential unsafe condition, EASA issued AD 2013-0037 to require a wiring harness modification (MOD 07.53028) depending on the EMLUB pressure-switches configuration of the helicopter. Later investigation of the EMLUB system also revealed an area of the helicopter flight envelope in which the EMLUB Glycol pump's performance was different to that assumed during certification.

	To address this additional unsafe condition, EASA issued Emergency AD 2013-0113-E to require a temporary amendment of the Rotorcraft Flight Manual (RFM) emergency procedures. Since AD 2013-0037 and AD 2013-0113-E were issued, Eurocopter have designed a batch of modifications, which restore safe operation of the EMLUB system for the full EC 225 LP flight envelope, consisting of introduction of new Glycol pump (MOD 07.28019), new Air and Glycol pressure-switches (MOD 07.53025 and MOD 07.53027) and wiring harness modification (MOD 07.53028), if not embodied earlier, and improved EMLUB electronic board (MOD 07.28026). For the reasons described above, this AD supersedes EASA AD 2013-0037 and AD 2013-0113-E, retaining their requirements pending mandatory modification of the EMLUB system with MOD 07.28019, MOD 07.53025, MOD 07.53027, MOD 07.28026 and, if not yet accomplished, MOD 07.53028. Concurrently to modifications accomplishment, the AD also requires a new amendment of the RFM emergency procedures and prohibits installation of some EMLUB parts.
Effective Date:	22 July 2013
Required Action(s) and Compliance Time(s):	Required as indicated, unless accomplished previously: **Re-statement of AD 2013-0037 requirements:** (1) After 25 February 2013 [the effective date of AD 2013-0037], accomplish the following actions: (1.1) Within 25 flight hours (FH) or 2 months, whichever occurs first, identify the Part Numbers (P/N) and manufacturer (Auxitrol or Industria) of the Air and Glycol pressure-switches installed on the MGB of the helicopter in accordance with the instructions of Eurocopter EC225 ASB No.05A032. A review of the helicopter delivery or maintenance records is acceptable to identify the installed Air and Glycol pressure-switches, provided the P/N and manufacturer name (Auxitrol or Industria) can be determined from that review. (1.2) If, during the identification as required by paragraph (1.1) of this AD, it is determined that pressure switches from different manufacturers, Auxitrol and Industria, are installed, within 25 FH or 2 months, whichever occurs first, replace Air or Glycol pressure-switches, as applicable, to ensure that both pressure-switches from only one manufacturer (Auxitrol or Industria) are installed, (not mixed-up between Auxitrol-type and Industria-type), in accordance with the instructions of paragraph 3.B.2.a of Eurocopter EC225 ASB No.05A032. (1.3) After accomplishment of identification and replacement, as applicable, as required by paragraph (1.1) or (1.2) of this AD, for helicopters equipped with Air and Glycol pressure-switches manufactured by Industria, within 25 FH or 2 months, whichever occurs first, accomplish the following actions: (1.3.1) Modify and re-identify the helicopter wiring harness in accordance with the instructions of paragraph 3.B.2.b. of Eurocopter EC225 ASB No.05A032 (accomplishment of MOD 07.53028); and (1.3.2) Accomplish an electrical functional test of the EMLUB system in accordance with the instructions of paragraph 3.B.5 or 3.B.6, as applicable, of Eurocopter EC225 ASB No.05A032.

(1.4) After accomplishment of identification and replacement, as applicable, as required by paragraph (1.1) or (1.2) of this AD for helicopters equipped with Air and Glycol pressure-switches from Auxitrol, within 25 FH or 2 months, whichever occurs first, accomplish an electrical functional test of the EMLUB system in accordance with the instructions of paragraph 3.B.3 or 3.B.4 of Eurocopter EC225 ASB No.05A032.

(1.5) After compliance with paragraphs (1.1), (1.2), (1.3) or (1.4), as applicable to installed Air and Glycol pressure-switches configuration, during accomplishment of EMLUB system maintenance in accordance with Task MMA 63-26-00-721 at scheduled intervals of 800 FH (margin of 25 FH), as required by the Airworthiness Limitations Section of the aircraft maintenance program, MSM section 04-20-00, additionally perform the electrical functional test of the EMLUB system in accordance with the instructions of paragraph 3.B.3 or 3.B.4, or paragraph 3.B.5 or 3.B.6 of Eurocopter EC225 ASB No.05A032, as applicable to helicopter configuration of Air and Glycol pressure-switches.

(1.6) After 25 February 2013 [the effective date of AD 2013-0037], if one or both Air and Glycol pressure-switches of the EMLUB system need to be replaced:

(1.6.1) It is prohibited to install a mix of Auxitrol-type pressure-switches and Industria-type pressure-switches.

(1.6.2) If installed Air and Glycol pressure-switches from Auxitrol are both replaced by Air and Glycol pressure-switches from Industria, before next flight after that replacement, modify and re-identify the helicopter wiring harness in accordance with the instructions of paragraph 3.B.2.b. of Eurocopter EC225 ASB No.05A032 (accomplishment of MOD 07.53028).

(1.6.3) If installed Air and Glycol pressure-switches from Industria are both replaced by Air and Glycol pressure-switches from Auxitrol, before next flight after that replacement, modify and re-identify the helicopter wiring harness in accordance with the instructions of paragraph 3.B.7 of Eurocopter EC225 ASB No.05A032 (removal of MOD 07.53028).

(1.6.4) Before next flight after any pressure-switch replacement, check the EMLUB system in accordance with maintenance Task MMA 63-26-00-721 and accomplish an electrical functional test in accordance with the instructions of paragraph 3.B.3 or 3.B.4, or paragraph 3.B.5 or 3.B.6 of Eurocopter EC225 ASB No.05A032, as applicable to helicopter configuration of Air and Glycol pressure-switches.

(1.7) If during any functional test as required by paragraphs (1.3.2), (1.4), (1.5) or (1.6.4) of this AD, a failure is detected, before next flight, accomplish all applicable corrective actions in accordance with the instructions of Eurocopter EC225 ASB No.05A032.

Re-statement of AD 2013-0113-E requirements:

(2) Before next flight, after 29 May 2013 [the effective date of AD 2013-0113-E], amend the Emergency Procedures of the RFM by inserting a copy of the pages of the APPENDIX of Eurocopter EC225 ASB No.04A010 in Section 3 of the helicopter RFM and operate the helicopter accordingly.

New requirements of this AD:

(3) Within 500 FH or 4 months, whichever occurs first after the effective date of this AD, modify the EMLUB system of the helicopter by accomplishing the following actions concurrently:

(3.1) Replace the EMLUB Glycol pump with a serviceable part in accordance with the instructions of paragraph 3.B.2 of Eurocopter ASB No. EC225-05A033 (accomplishment of MOD 07.28019); and

(3.2) Replace the EMLUB Air and Glycol pressure-switches with serviceable parts in accordance with the instructions of paragraph 3.B.3 of Eurocopter ASB No. EC225-05A033 (accomplishment of MOD 07.53025 and MOD 07.53027); and

(3.3) Unless MOD 07.53028 has been accomplished previously, either in production before delivery of the helicopter or in service as required by paragraph (1.3.1) or (1.6.2) of this AD, as applicable, modify and re-identify the helicopter wiring harness in accordance with the instructions of paragraph 3.B.8 of Eurocopter ASB No. EC225-05A033 (accomplishment of MOD 07.53028); and

(3.4) Replace the EMLUB electronic board with a serviceable part in accordance with the instructions of paragraph 3.B.4 of Eurocopter ASB No. EC225-05A033 (accomplishment of MOD 07.28026); and

(3.5) Accomplish a functional test of the EMLUB system in accordance with the instructions of paragraph 3.B.5 of Eurocopter ASB No. EC225-05A033; and

(3.6) Remove the RFM pages inserted as required by paragraph (2) of this AD from the RFM of the helicopter, and replace them with the RFM Emergency Procedures pages of the Appendix 4.C of Eurocopter ASB No. EC225-05A033 and, thereafter, operate the helicopter accordingly.

The RFM update can also be accomplished by incorporating later applicable RFM revisions.

(4) Modification of a helicopter as required by paragraph (3) of this AD constitutes terminating action for all the requirements of paragraph (1) and (2) of this AD.

(5) After modification of a helicopter in production in accordance with MOD 07.28019, MOD 07.53025, MOD 07.53027, MOD 07.28026 and MOD 07.53028, or as required by paragraph (3) of this AD:

(5.1) Do not install on that helicopter any EMLUB Glycol pump with P/N 332A32-5051-00, any EMLUB Air pressure-switch with P/N MA193-00 or P/N MC7014-0-00, any EMLUB Glycol pressure-switch with P/N MA194-01 or P/N MC7015-0-00, and any EMLUB electronic board with P/N 704A46580106 or P/N 704A46580127.

(5.2) Accomplish EMLUB system maintenance in accordance with scheduled intervals of 800 FH (margin of 25 FH) as required by the Airworthiness Limitations Section of the aircraft maintenance program, MSM section 04-20-00, in accordance with maintenance Task MMA 63-26-00-721 as given in Appendix 4.A of Eurocopter ASB No. EC225-05A033.

This can be also accomplished by performing Eurocopter maintenance Work Card of applicable Task MMA 63-26-00-721 at revisions dated later than 07 July 2011.

Ref. Publications:	Eurocopter EC225 ASB No. 05A033, revision 0 dated 14 July 2013 Eurocopter EC225 ASB No. 05A032, revision 0 dated 22 February 2013 or revision 1 dated 01 March 2013 or revision 2 dated 14 July 2013. Eurocopter EC225 ASB No. 04A010, revision 0 dated 27 May 2013 or revision 1 dated 14 July 2013. The use of later approved revisions of these documents is acceptable for compliance with the requirements of this AD.
Remarks:	1. If requested and appropriately substantiated, EASA can approve Alternative Methods of Compliance for this AD. 2. Based on the required actions and the compliance time, EASA have decided to issue a Final AD with Request for Comments, postponing the public consultation process until after publication. 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 (STDI) – 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