


EASA	AIRWORTHINESS DIRECTIVE
	<p>AD No.: 2008-0007R2</p> <p>Date: 17 December 2008</p> <p>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.</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>	
Type Approval Holder's Name :	Type/Model Designation :
EUROCOPTER	EC 225 helicopter
TCDS Number : EASA.R.002	
Foreign AD : Not applicable	
Revision : This AD revises and replaces EASA AD 2008-0007R1 dated 04 July 2008.	
ATA 04, 63	Limitations - 14Hz Vibrations at Low Density Altitude
Manufacturer(s):	EUROCOPTER
Applicability:	EC 225 LP helicopter, all serial numbers, except those on which all three modifications MOD 0726582, MOD 0726477 and MOD 0726583 have been accomplished.
Reason:	<p>Due to the main rotor control linkage design, there is a coupling between the Main Gearbox (MGB) motion and the main servo-control inputs. In certain flight conditions with increased air density, this generates spurious 14Hz control inputs in the main rotor which, in return, transfers dynamic loads to the structure, with feedback on the MGB motion, inducing a continuous vibration phenomenon. Flight tests have shown that there is a density altitude limit below which the occurrence of the vibration phenomenon is significantly increased or even diverges, which could lead to the loss of control of the helicopter. Pending availability of the Rotorcraft Flight Manuals' (RFM) revisions, EASA issued Emergency AD 2006-0056-E to require limiting the flight envelope, mitigating the risk of recurrence of the vibration phenomenon.</p> <p>Subsequently, EUROCOPTER developed modification (MOD) 0726532 relating to VMS software, MOD 0726477 relating to servo-controls and MOD 0726536 relating to FADEC software. Embodiment of these three modifications aimed to relieve the affected helicopters of the required flight envelope limitations. AD 2006-0056 Revision 1 was therefore issued to update the "Applicability" paragraph with information that when MOD 0726532, MOD 0726477 and MOD 0726536 are all installed together, this is considered as an optional terminating action, allowing the flight envelope limitations to be removed. In addition, AD 2006-0056 R1 took into account the availability of RFM revisions containing the required altitude limitations in</p>

	<p>order to relieve the need of maintaining a copy of this AD in the RFM.</p> <p>Unfortunately, later on flight test campaign and analysis showed that even with the 3 referenced MODs installed, the spurious 14Hz vibration phenomenon may not be totally precluded from the re-established flight envelope for certain flight conditions. Therefore, VMS and FADEC software versions have been upgraded, redefining the optional terminating action so that respectively, MOD 0726532 has been replaced with MOD 0726582 and MOD 0726536 has been replaced with MOD 0726583 and the RFM revisions mentioned before have been amended accordingly.</p> <p>For the reasons described above, AD 2008-0007 was issued to retain the requirements of AD 2006-0056 R1, which was superseded, imposing limitations on the flight envelope as originally specified, redefining the optional terminating action, that allows operators to become relieved from those limitations by referring to MOD 0726582, MOD 0726477 and MOD 0726583, and requiring the implementation of updated versions of the RFM Conditional Revisions RCe relevant to these 3 modifications.</p> <p>Revision 1 of this AD was issued to take into account the certification of several expansions of the flight envelope that occurred in the meantime and which has resulted in a new definition of the limitation imposed by paragraph (1) of this AD. In addition, it aims to correct incomplete references to RFM Conditional Revisions RCe in paragraph (3) of this AD and to add paragraph (4) to clarify the optional terminating action for the requirements of this AD.</p> <p>Revision 2 of this AD has been issued to correct the text of the limitation (density altitude instead of pressure altitude) in paragraph (1) so that it remains consistent with the title of the AD and the RFM revisions contents.</p>
Effective Date:	25 January 2008
Required Action(s) and Compliance Time(s):	<p>Required as indicated, unless accomplished previously:</p> <ol style="list-style-type: none"> (1) On each flight as from March 01, 2006 [the effective date of Emergency AD 2006-0056-E], comply with the flight envelope limitation specified below: <ul style="list-style-type: none"> Operation below 2 000 ft (-610 m) density altitude is PROHIBITED. (2) Within 30 days after 13 February 2007 [the effective date of AD 2006-0056 R1], ensure that the Rotorcraft Flight Manual is updated with the following revisions, as applicable: <ul style="list-style-type: none"> - For standard EC 225 LP helicopters (equipped with air intakes fitted with screens): Normal Revision RN4 (06-04) or RN5 (06-15), or any subsequent Normal Revision in combination with Conditional Revision RCe (06-43); or - For EC 225 LP helicopters equipped with MPAL (multi purpose air intakes): Normal Revision RN8 (06-05) or RN9 (06-15), or any subsequent Normal Revision in combination with Conditional Revision RCe (06-44). (3) Within 30 days after the effective date of this AD, replace RFM Conditional Revisions RCe (06-43) and RCe (06-44) with RCe (07-45) and RCe (07-46) respectively. (4) After accomplishment of all three modifications MOD 0726582, MOD 0726477 and MOD 0726583 on any helicopter, the limitation and RFM (Conditional) revisions imposed by this AD are no longer required for that helicopter.
Ref. Publications:	EUROCOPTER EC 225 Alert Service Bulletin No. 04A001 revision 2.

	The use of later approved revisions of this document is acceptable for compliance with the requirements of this AD.
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 original issue of this AD was posted on 13 December 2007 as PAD 07-223 for consultation until 27 December 2007. No comments were received during the consultation period. 3. Enquiries regarding this AD should be referred to the Airworthiness Directives, Safety Management & Research Section, Certification 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 (0) 4 42 85 97 97; Fax: 33 (0) 4 42 85 99 66. E-mail: Directive.technical-support@eurocopter.com

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