


EASA	PROPOSED AIRWORTHINESS DIRECTIVE
	<p>PAD No: 07-223</p> <p>Date: 13 December 2007</p>
No person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of that Airworthiness Directive unless otherwise agreed with the Authority of the State of Registry.	
Type Approval Holder's Name: EUROCOPTER	Type/Model designation(s): EC 225 LP helicopters
TCDS Number: EASA R.002	
Foreign AD: Not applicable	
Supersedure: This Airworthiness Directive (AD) supersedes EASA AD 2006-0056 R1 dated 09 February 2007.	
ATA 04, 63	Limitations - 14Hz-Vibrations at Low Density Altitude
Manufacturer:	EUROCOPTER
Applicability:	EC 225 LP helicopters, 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, thus inducing a continuous vibration phenomenon. Flight tests have shown that there is a density altitude limit below which occurrence of the vibration phenomenon is significantly increased or even diverges, which could lead to the loss of the 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 order to relieve the need of maintaining a copy of this AD in the RFM.</p>

	<p>Unfortunately, recent flight test analysis shows 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.</p> <p>For the reasons described above, this new AD retains the requirements of AD 2006-0056 R1 mandating limitation of the flight envelope, redefines the optional terminating action that allows operators to become relieved from that and requires the implementation of updated versions of the RFM Conditional Revisions RCe relevant to these 3 modifications.</p>
Effective Date:	[TBD: 14 days after Final AD issue date]
Compliance:	<p>Required as indicated, unless accomplished previously:</p> <p>(1) On each flight as from March 01, 2006 [the effective date of Emergency AD 2006-0056-E], comply with the flight envelope limitations specified below, and as long as the helicopter does not embody all three modifications MOD 0726582, MOD 0726477 and MOD 0726583 together:</p> <p>(a) Altitude limitations for standard EC 225 LP helicopters (equipped with air intakes fitted with screens):</p> <ul style="list-style-type: none"> • In flight: <ul style="list-style-type: none"> - For OAT between -15°C and +19°C: -2 000 ft (-610 m) density altitude to +10 000 ft (+3 048 m) pressure altitude. - For OAT between +19°C and ISA +25°C (without exceeding +40°C): -2 000 ft (-610 m) pressure altitude to +10 000 ft (+3 048 m) pressure altitude. • Takeoff and landing: <ul style="list-style-type: none"> - For OAT between -15°C and +19°C: -2 000 ft (-610 m) density altitude to +4 000 ft (+1 219 m) density altitude. - For OAT between +19°C and ISA +25°C (without exceeding +40°C): -2 000 ft (-610 m) pressure altitude to +4 000 ft (+1 219 m) density altitude. <p>(b) Altitude limitations for EC 225 LP helicopters equipped with MPAl (MULTIPURPOSE air intakes):</p> <ul style="list-style-type: none"> • In flight: <ul style="list-style-type: none"> - For OAT between -15°C and +19°C: -2 000 ft (-610 m) density altitude to +20 000 ft (+6 096 m) pressure altitude. - For OAT between +19°C and ISA +25°C (without exceeding +40°C): -2 000 ft (-610 m) pressure altitude to +20 000 ft (+6 096 m) pressure altitude. • Takeoff and landing: <ul style="list-style-type: none"> - For OAT between -15°C and +19°C: -2 000 ft (-610 m) density altitude to +11 000 ft (+3 353 m) density altitude. - For OAT between +19°C and ISA +25°C (without exceeding +40°C): -2 000 ft (-610 m) pressure altitude to +11 000 ft (+3 353 m) density altitude. <p>(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:</p> <ul style="list-style-type: none"> - For standard EC 225 LP helicopters (equipped with air intakes fitted

	<p>with screens): Normal Revision RN4 (06-04) or RN5 (06-15) or subsequent Normal Revision to be associated to the 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 subsequent Normal Revision to be associated to the Conditional Revision RCe (06-44).</p> <p>(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 maintain it in the RFM in association with the Normal Revision defined above in § (1) of this AD, as long as the helicopter does not embody all three modifications MOD 0726582, MOD 0726477 and MOD 0726583 together.</p>
Ref. Publications:	<p>EUROCOPTER EC 225 Alert Service Bulletin No. 04A001 revision 2.</p> <p>The use of later approved revisions of this document 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 accept Alternative Methods of Compliance (AMOC) for this AD. 2. Closing date for comments is 27 December 2007. 3. Enquiries regarding this AD should be addressed to the AD Focal Point, Certification Directorate, EASA; E-mail: ADs@easa.europa.eu 4. For any questions concerning the technical content of the requirements in this AD, please contact: EUROCOPTER (STXI) - 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