

### Novel or Unusual Design Features

The Model EMB-550 airplane will incorporate the following novel or unusual design features:

The engine proposed for the Embraer Model EMB-550 airplane is a medium-bypass-ratio turbofan jet engine that will not seize and produce transient torque loads in the same manner that is envisioned by current § 25.361(b)(1) related to "sudden engine stoppage."

### Discussion

The limit engine torque load imposed by sudden engine stoppage due to malfunction or structural failure (such as compressor jamming) has been a specific requirement for transport-category airplanes since 1957. In the past, the design torque loads associated with typical failure scenarios have been estimated by the engine manufacturer and provided to the airframe manufacturer as limit loads. These limit loads were considered simple, purely static torque loads. The size, configuration, and failure modes of jet engines have changed considerably from what was envisioned when the engine-seizure requirement of § 25.361(b) was first adopted. Current engines are much larger and are now designed with large bypass fans capable of producing much larger torque loads if they become jammed.

Relative to the engine configurations that existed when the rule was developed in 1957, the present generation of engines are sufficiently different and novel to justify issuance of special conditions to establish appropriate design standards. The latest generations of jet engines are capable of producing, during failure, transient loads that are significantly higher and more complex than the generation of engines that were present when the existing standard was developed. Therefore, the FAA has determined that special conditions are needed for the Embraer Model EMB-550 airplane.

To maintain the level of safety envisioned in § 25.361(b), more comprehensive criteria are needed for the new generation of high-bypass engines. The special conditions would distinguish between the more common engine-failure events and those rare events resulting from structural failures. For these less common but more severe seizure events, the criteria (as stated in special conditions numbers 3 and 4, below) could allow some deformation in the engine-supporting structure (ultimate load design) to absorb the higher energy associated with the high-bypass engines, while at the same time protecting the adjacent primary

structure in the wing and fuselage by providing a higher safety factor. The criteria for the more-severe events would no longer be a purely static torque-load condition, but would account for the full spectrum of transient dynamic loads developed from the engine-failure condition.

### Applicability

As discussed above, these special conditions are applicable to the Model EMB-550 airplane. Should Embraer apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design feature, the special conditions would apply to that model as well.

### Conclusion

This action affects only certain novel or unusual design features on one model of airplane. It is not a rule of general applicability.

### List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

### The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type-certification basis for the Embraer Model EMB-550 airplane. In lieu of 14 CFR 25.361(b), the following special conditions are proposed:

1. For turbine-engine installations, the engine mounts, pylons, and adjacent supporting airframe structure must be designed to withstand 1g level flight loads acting simultaneously with the maximum limit torque loads imposed by each of the following:

(a) Sudden engine deceleration due to a malfunction that could result in a temporary loss of power or thrust, and

(b) The maximum acceleration of the engine.

2. For auxiliary power unit (APU) installations, the APU mounts and adjacent supporting airframe structure must be designed to withstand 1g level flight loads acting simultaneously with the maximum limit torque loads imposed by each of the following:

(a) Sudden APU deceleration due to malfunction or structural failure; and

(b) The maximum acceleration of the APU.

3. For engine-supporting structure, an ultimate loading condition must be considered that combines 1g flight loads

with the transient dynamic loads resulting from:

(a) The loss of any fan, compressor, or turbine blade; and separately

(b) Where applicable to a specific engine design, any other engine structural failure that results in higher loads.

4. The ultimate loads developed from the conditions specified in paragraphs 3(a) and 3(b) are to be multiplied by a factor of 1.0 when applied to engine mounts and pylons, and multiplied by a factor of 1.25 when applied to adjacent supporting airframe structure.

5. Any permanent deformation that results from the conditions specified in Special Condition 3, above, must not prevent continued safe flight and landing.

Issued in Renton, Washington, on September 6, 2012.

**Ali Bahrami,**

*Manager, Transport Airplane Directorate, Aircraft Certification Service.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

### 14 CFR Part 39

[Docket No. FAA-2012-1014; Directorate Identifier 2010-SW-058-AD]

**RIN 2120-AA64**

### Airworthiness Directives; Eurocopter France (Eurocopter) Helicopters

**AGENCY:** Federal Aviation Administration (FAA) DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for Eurocopter Model SA-365N1, AS-365N2, and AS365N3 helicopters. This proposed AD would revise the Limitations section of the Rotorcraft Flight Manual (RFM) to prohibit flight in instrument meteorological conditions (IMC) or night visual flight rules (VFR) for each helicopter with a vertical gyro unit GV76-1 installed upon a non-reinforced shelf in the rear cargo compartment. Also, this proposed AD would require modifying the GV76-1 vertical gyro unit shelf and testing for correct function of the navigation systems. This proposed AD is prompted by flight crew reports of deviations between the displayed attitude on the attitude display screen and the independent electromechanical standby attitude indicator. The proposed actions

are intended to prevent an undetected flight display error of a slow drift in the roll axis, disorientation of the pilot, and subsequent loss of control of the helicopter.

**DATES:** We must receive comments on this proposed AD by November 26, 2012.

**ADDRESSES:** You may send comments by any of the following methods:

- *Federal eRulemaking Docket:* Go to <http://www.regulations.gov>. Follow the online instructions for sending your comments electronically.

- *Fax:* 202-493-2251.

- *Mail:* Send comments to the U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590-0001.

- *Hand Delivery:* Deliver to the "Mail" address between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

#### Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the Docket Operations Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the economic evaluation, any comments received, and other information. The street address for the Docket Operations Office (telephone 800-647-5527) is in the **ADDRESSES** section. Comments will be available in the AD docket shortly after receipt.

For service information identified in this proposed AD, contact American Eurocopter Corporation, 2701 Forum Drive, Grand Prairie, TX 75053-4005, telephone (800) 232-0323, fax (972) 641-3710, or at <http://www.eurocopter.com>. You may review the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

#### FOR FURTHER INFORMATION CONTACT:

Mark F. Wiley, Aviation Safety Engineer, FAA, Rotorcraft Directorate, Regulations and Policy Group, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-5134, fax (817) 222-5961.

#### SUPPLEMENTARY INFORMATION:

##### Comments Invited

We invite you to participate in this rulemaking by submitting written comments, data, or views. We also invite comments relating to the

economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

We will file in the docket all comments that we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, we will consider all comments we receive on or before the closing date for comments. We will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. We may change this proposal in light of the comments we receive.

#### Discussion

The European Aviation Safety Agency (EASA), which is the Technical Agent for the Member States of the European Community, has issued AD No. 2010-0100R1, dated August 4, 2010, and corrected August 11, 2010, to correct an unsafe condition for the specified Eurocopter model helicopters. EASA advises that a slow drift in the roll axis on the pilot's and co-pilot's attitude display screens occurred simultaneously during flight on several helicopters equipped with the GV76-1 vertical gyro unit installed in the rear cargo compartment. EASA advises "these drifts were caused by a fault in the vertical gyros unit installation in the rear cargo." EASA states that in certain configurations, the GV76-1 vertical gyro unit installation has a natural mode close to the main rotor's harmonic frequency that generates rather significant vibratory levels on the GV76-1 unit by amplifying the intrinsic vibration of the aircraft. The faults are caused by these vibratory levels. EASA also states that the critical mode is essentially due to bending on the horizontal cross-members, which support the GV76-1 shelf.

#### FAA's Determination

These helicopters have been approved by the aviation authority of France and are approved for operation in the United States. Pursuant to our bilateral agreement with France, EASA, its technical representative, has notified us of the unsafe condition described in its AD. We are proposing this AD because

we evaluated all known relevant information and determined that an unsafe condition is likely to exist or develop on other products of the same type design.

#### Related Service Information

Eurocopter has issued an Alert Service Bulletin (ASB) No. 34.00.31 Revision 1, dated July 28, 2010 (ASB 34.00.31), for FAA type-certificated Model SA-365N1, AS-365N2, and AS365N3 helicopters and for military non-FAA type-certificated Model AS-365F, Fi, and K helicopters. ASB 34.00.31 specifies reinforcing the shelves of the vertical gyros GV76-1 (in cargo compartment) on the right hand (RH) or left-hand (LH) side. EASA classified this ASB as mandatory and issued AD No. 2010-0100R1, dated August 4, 2010, and corrected August 11, 2010, to ensure the continued airworthiness of these helicopters.

#### Proposed AD Requirements

This proposed AD would require:

- Before further flight, revising the Limitations section of the Rotorcraft Flight Manual (RFM) to prohibit flight in instrument meteorological conditions (IMC) or night visual flight rules (VFR) for each helicopter with a vertical gyro unit GV76-1 installed on the rear cargo compartment shelf without reinforcement per Modification 365P081895.

- Within 110 hours time-in-service, modifying the GV76-1 vertical gyro unit shelf by complying with the Accomplishment Instructions, paragraphs 2.A. through 2.B.2.e. of the ASB. After reinforcing the shelf, operationally testing the GV76-1 vertical gyro unit and functionally test the navigation systems.

- Modifying the GV76-1 vertical gyro unit shelf is terminating action for the requirements of this AD.

- After modifying the GV76-1 vertical gyro unit shelf, removing this AD or deleting any changes to the Limitations section of the RFM that prohibit flight in IMC or VFR as a result of this AD.

#### Differences Between This Proposed AD and the EASA AD

We do not use the calendar dates, which have already passed. This AD prohibits flight in IMC or night VFR until MOD 365P081895 is accomplished.

#### Costs of Compliance

We estimate that this proposed AD would affect 19 helicopters of U.S. registry. We also estimate that it would take about 16 work hours to install a

shelf reinforcement kit per helicopter at an average labor rate of \$85 per work hour. Required parts would cost about \$2,560 per helicopter. Based on these figures, we estimate the total cost of the proposed AD on U.S. operators to be \$74,480 to reinforce the shelf of the entire fleet.

#### Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. "Subtitle VII: Aviation Programs," describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in "Subtitle VII, Part A, Subpart III, Section 44701: General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

#### Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

*For the reasons discussed, I certify this proposed regulation:*

1. Is not a "significant regulatory action" under Executive Order 12866;
2. Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
3. Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction; and
4. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared an economic evaluation of the estimated costs to comply with this proposed AD and placed it in the AD docket.

#### List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

#### PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

**Authority:** 49 U.S.C. 106(g), 40113, 44701.

##### § 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**Eurocopter France:** Docket No. FAA-2012-1014; Directorate Identifier 2010-SW-058-AD.

##### (a) Applicability

This AD applies to Model SA-365N1, AS-365N2, and AS 365 N3 helicopters, with the GV76-1 vertical gyro unit installed on the left-hand (LH) or right-hand (RH) shelf in the rear cargo compartment, pre-MOD 365P081895, certificated in any category, all serial numbers except 6698, 6701, 6723, 6737, and 6741.

##### (b) Unsafe Condition

This AD defines the unsafe condition as an undetected flight display error of a slow drift in the roll axis. This condition could result in disorientation of the pilot and subsequent loss of control of the helicopter.

##### (c) Compliance

You are responsible for performing each action required by this AD within the specified compliance time unless it has already been accomplished prior to that time.

##### (d) Required Actions

(1) Before further flight, revise the Limitations section of the Rotorcraft Flight Manual (RFM) by inserting a copy of this AD into the RFM or by pen and ink changes to the RFM that prohibits flight in instrument meteorological conditions (IMC) or night visual flight rules (VFR) for each helicopter with a vertical gyro unit GV76-1 installed on the rear cargo compartment shelf without reinforcement per Modification 365P081895.

(2) Within 110 hours time-in-service, modify the GV76-1 vertical gyro unit shelf as depicted in Figures 1 through 3 and by following the Accomplishment Instructions, paragraphs 2.A. through 2.B.2.e., of Eurocopter Alert Service Bulletin No. 34.00.31, Revision 1, dated July 28, 2010. After reinforcing the shelf, operationally test the GV76-1 vertical gyro unit and functionally test the navigation systems.

(3) After modifying the GV76-1 vertical gyro unit shelf, remove this AD from the Limitations section of the RFM or remove any changes to the Limitations section of the RFM that prohibit flight in IMC or VFR as a result of paragraph (d)(1) of this AD.

(4) Modifying the GV76-1 vertical gyro unit shelf is terminating action for the requirements of this AD.

#### (e) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Safety Management Group, FAA, may approve AMOCs for this AD. Send your proposal to: Mark F. Wiley, Aviation Safety Engineer, Rotorcraft Directorate, Regulations and Policy Group, 2601 Meacham Blvd., Fort Worth, Texas 76137, telephone (817) 222-5134; email [mark.f.wiley@faa.gov](mailto:mark.f.wiley@faa.gov).

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, we suggest that you notify your principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office before operating any aircraft complying with this AD through an AMOC.

#### (f) Additional Information

(1) For service information identified in this AD, contact American Eurocopter Corporation, 2701 Forum Drive, Grand Prairie, TX 75053-4005, telephone (800) 232-0323, fax (972) 641-3710, or at <http://www.eurocopter.com>. You may review the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

(2) The subject of this AD is addressed in European Aviation Safety Agency AD No. 2010-0100R1, dated August 4, 2010, and corrected August 11, 2010.

#### (g) Subject

Joint Aircraft System/Component (JASC) Code: 3421: Attitude Gyro and Indicator System.

Issued in Fort Worth, Texas, on September 14, 2012.

**Lance T. Gant,**

*Acting Manager, Rotorcraft Directorate, Aircraft Certification Service.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2012-1015; Directorate Identifier 2007-SW-069-AD]

RIN 2120-AA64

#### Airworthiness Directives; Eurocopter France Helicopters

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for the Eurocopter France (Eurocopter) Model AS332C, AS332L, and AS332L1 helicopters. This proposed AD is prompted by reports of electro-valve