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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2005-22018; Directorate Identifier 2005-CE-41-AD; Amendment 39-14348; AD 2005-22-04]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Pilatus Aircraft Ltd. Models PC-12 and PC-12/45 Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** The FAA adopts a new airworthiness directive (AD) for certain Pilatus Aircraft Ltd. (Pilatus) Models PC-12 and PC-12/45 airplanes. This AD requires you to determine (maintenance records check and/or inspection) whether certain nose landing gear (NLG), main landing gear (MLG), and MLG shock absorber assemblies with a serial number beginning with "AM" are installed, and, if installed, would require you to replace them with ones without the "AM." This AD is the result of mandatory continuing airworthiness information (MCAI) issued by the airworthiness authority for Switzerland. We are issuing this AD to detect and correct the NLG, MLG, and MLG shock absorber assemblies that are affected by hydrogen embrittlement, which could result in failure of the landing gear. This failure could lead to nose or main landing gear collapse during operation with consequent loss of airplane control.

**DATES:** This AD becomes effective on December 12, 2005.

As of December 12, 2005, the Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulation.

**ADDRESSES:** To get the service information identified in this AD, contact Pilatus Aircraft Ltd., Customer Liaison Manager, CH-6371 Stans, Switzerland; telephone: +41 41 619 6208; facsimile: +41 41 619 7311; e-mail: SupportPC12@pilatus-aircraft.com or from Pilatus Business Aircraft Ltd., Product Support Department, 11755 Airport Way, Broomfield, Colorado 80021; telephone: (303) 465-9099; facsimile: (303) 465-6040.

To view the AD docket, go to the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-001 or on the Internet at <http://dms.dot.gov>. The docket number is FAA-2005-22018; Directorate Identifier 2005-CE-41-AD.

**FOR FURTHER INFORMATION CONTACT:** Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4059; facsimile: (816) 329-4090.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

*What events have caused this AD?* The Federal Office for Civil Aviation (FOCA), which is the airworthiness authority for Switzerland, recently notified FAA that an unsafe condition may exist on Pilatus Models PC-12 and PC-12/45 airplanes. The FOCA reports that some components of the main landing gear (MLG), nose landing gear (NLG), and MLG shock absorber assemblies have the potential to fail during operation.

Investigations revealed that an improper cadmium plating process applied to the high strength steel part causes the problem. This can result in hydrogen embrittlement. Affected are only components that are installed on MLG, NLG, and MLG shock absorber assemblies, with serial numbers that start with the letters "AM." Components in this condition can experience a decreased fatigue life.

*What is the potential impact if FAA took no action?* Failure of the nose or main landing gear could lead to nose or main landing gear collapse during operation with consequent loss of airplane control.

*Has FAA taken any action to this point?* We issued a proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an AD that would apply to certain Pilatus Aircraft Ltd. (Pilatus) Models PC-12 and PC-12/45 airplanes. This proposal was published in the Federal Register as a notice of proposed rulemaking (NPRM) on August 22, 2005 (70 FR 48914). The NPRM proposed to require you to determine (maintenance records check and/or inspection) whether certain nose landing gear (NLG), main landing gear (MLG), and MLG shock absorber assemblies with a serial number beginning with "AM" are installed, and, if installed, would require you to replace them with ones without the "AM."

### **Comments**

*Was the public invited to comment?* We provided the public the opportunity to participate in developing this AD. We received no comments on the proposal or on the determination of the cost to the public.

### **Conclusion**

*What is FAA's final determination on this issue?* We have carefully reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed except for minor editorial corrections. We have determined that these minor corrections:

- Are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

### **Changes to 14 CFR Part 39—Effect on the AD**

*How does the revision to 14 CFR part 39 affect this AD?* On July 10, 2002, the FAA published a new version of 14 CFR part 39 (67 FR 47997, July 22, 2002), which governs the FAA's AD system.

This regulation now includes material that relates to altered products, special flight permits, and alternative methods of compliance. This material previously was included in each individual AD. Since this material is included in 14 CFR part 39, we will not include it in future AD actions.

### Costs of Compliance

*How many airplanes does this AD impact?* We estimate that this AD affects 350 airplanes in the U.S. registry.

*What is the cost impact of this AD on owners/operators of the affected airplanes?* We estimate the following costs to do the check of the logbook to identify NLG, MLG, and MLG shock absorber assemblies with serial numbers that start with the letters AM:

Labor cost	Parts cost	Total cost per airplane	Total cost on U.S. operators
1 work hour × \$65 per hour = \$65	Not applicable	\$65	350 × \$65 = \$22,750.

We estimate the following costs to do any necessary inspection and replacement of all possible NLG, MLG, and MLG shock absorber assemblies that would be required based on the results of this check of the logbook. We have no way of determining the number of airplanes that may need this replacement:

Labor cost	Parts cost	Total cost per airplane
41 work hours × \$65 per hour = \$2,665	\$3,800 for the NLG kit, \$850 for the MLG kit, and \$2,600 for the MLG shock absorber assembly kit.	\$2,665 + \$3,800 + \$850 + \$2,600 = \$9,915.

Pilatus will provide warranty credit for replacing the specified assemblies to the extent stated in the service information.

### Authority for This Rulemaking

*What authority does FAA have for issuing this rulemaking action?* 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 AD.

### Regulatory Findings

*Will this AD impact various entities?* We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will 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.

*Will this AD involve a significant rule or regulatory action?* For the reasons discussed above, I certify that this AD:

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); and
3. 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 a summary of the costs to comply with this AD (and other information as included in the Regulatory Evaluation) and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "Docket No. FAA-2005-22018; Directorate Identifier 2005-CE-41-AD" in your request.

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

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

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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. FAA amends § 39.13 by adding a new AD to read as follows:

# AIRWORTHINESS DIRECTIVE



Aircraft Certification Service  
Washington, DC

U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

*We post ADs on the internet at [www.faa.gov/aircraft/safety/alerts/](http://www.faa.gov/aircraft/safety/alerts/)*

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The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

**2005-22-04 Pilatus Aircraft Ltd.:** Amendment 39-14348; Docket No. FAA-2005-22018;  
Directorate Identifier 2005-CE-41-AD.

## **When Does This AD Become Effective?**

- (a) This AD becomes effective on December 12, 2005.

## **What Other ADs Are Affected by This Action?**

- (b) None.

## **What Airplanes Are Affected by This AD?**

- (c) This AD affects Models PC-12 and PC-12/45 airplanes, manufacturer serial numbers (MSN) 101 through MSN 625, that are certificated in any category.

## **What Is the Unsafe Condition Presented in This AD?**

- (d) This AD is the result of mandatory continuing airworthiness information (MCAI) issued by the airworthiness authority for Switzerland. The actions specified in this AD are intended to detect and correct the nose landing gear (NLG), main landing gear (MLG), and MLG shock absorber assemblies that are affected by hydrogen embrittlement, which could result in failure of the landing gear. This failure could lead to nose or main landing gear collapse during operation with consequent loss of airplane control.

## **What Must I Do To Address This Problem?**

- (e) To address this problem, you must do the following:

Actions	Compliance	Procedures
<p>(1) Maintenance Records Check:</p> <p>(i) <i>For MSN 101 through MSN 471 and MSN 473 through MSN 482:</i> Check the maintenance records to determine whether the following replacements have been made:</p> <p>(A) Nose landing gear (NLG) assemblies, part number (P/N) 532.20.12.038 and P/N 532.20.12.039 with serial numbers (S/N) AM 001 through AM 045 and AM 048 through AM 054;</p> <p>(B) Main landing gear (MLG) assemblies, P/N 532.10.12.049 and P/N 532.10.12.050 with S/N AM 001 through AM 027, AM 029 through AM 045, AM 047 through AM 050, AM 052, and AM 053; and</p> <p>(C) MLG shock absorber assemblies, P/N 532.10.12.175, with S/N AM 001 through AM 017, AM 019, AM 021 through AM 063, AM 065 through AM 070, AM 072 through AM 074, AM 080, AM 084, AM 086, AM 089, AM 090, AM 093 through AM 096, AM 099, AM 103 through AM 107.</p> <p>(ii) <i>For MSN 472 and MSN 483 through MSN 625:</i> Verify that the S/N parts identified in paragraphs (e)(1)(i)(A), (e)(1)(i)(B), and (e)(1)(i)(C) of this AD have not been installed.</p> <p>(iii) The owner/operator holding at least a private pilot certificate as authorized by section 43.7 of the Federal Aviation Regulations (14 CFR 43.7) may make this check. You must make an entry into the aircraft records that shows compliance with this portion of the AD in accordance with section 43.9 of the Federal Aviation Regulations (14 CFR 43.9).</p>	<p>Within the next 100 hours time-in-service (TIS) or 12 calendar months after December 12, 2005 (the effective date of this AD), whichever occurs first, unless already done.</p>	<p>No special procedures necessary to check the maintenance records.</p>
<p>(2) If you find as a result of the check required by paragraph (e)(1)(i) of this AD that there is no record of the specified assembly replacement, or as a result of the check required by paragraph (e)(1)(ii) of this AD that parts have been installed in service, then inspect:</p> <p>(i) The NLG assemblies, P/N 532.20.12.038 and P/N 532.20.12.039, for any S/N that starts with AM 001 through AM 045 and AM 048 through AM 054.</p> <p>(ii) The MLG assemblies, P/N 532.10.12.049 and P/N 532.10.12.050, for any S/N that starts with AM 001 through AM 027, AM 029 through AM 045, AM 047 through AM 050, AM 052, and AM 053.</p> <p>(iii) The MLG shock absorber assemblies, P/N 532.10.12.175, for any S/N that starts with AM 001 through AM 017, AM 019, AM 021 through AM 063, AM 065 through AM 070, AM 072 through AM 074, AM 080, AM 084, AM 086, AM 089, AM 090, AM 093 through AM 096, AM 099, and AM 103 through AM 107.</p> <p>(iv) You may choose to do the inspection without doing the maintenance records check.</p>	<p>Within the next 100 hours time-in-service (TIS) or 12 calendar months after December 12, 2005 (the effective date of this AD), whichever occurs first, unless already done.</p>	<p>Follow Pilatus PC12 Service Bulletin No. 32-016, dated March 11, 2004.</p>

Actions	Compliance	Procedures
<p>(3) If during the inspection required by paragraph (e)(2) of this AD, you find:</p> <p>(i) Any NLG assembly, P/N 532.20.12.038 and P/N 532.20.12.039, with any S/N that starts with AM 001 through AM 045 or AM 048 through AM 054, replace the NLG specific components with new components.</p> <p>(ii) Any MLG assembly, P/N 532.10.12.049 and P/N 532.10.12.050, with any S/N that starts with AM 001 through AM 027, AM 029 through AM 045, AM 047 through AM 050, AM 052, or AM 053, replace the MLG specific components with new components.</p> <p>(iii) Any MLG shock absorber assembly, P/N 532.10.12.175, with any S/N that starts with AM 001 through AM 017, AM 019, AM 021 through AM 063, AM 065 through AM 070, AM 072 through AM 074, AM 080, AM 084, AM 086, AM 089, AM 090, AM 093 through AM 096, AM 099, or AM 103 through AM 107, replace the MLG shock absorber specific components with new components.</p>	<p>Before further flight after the inspection required by paragraph (e)(2) of this AD.</p>	<p>Follow Pilatus PC12 Service Bulletin No. 32-016, dated March 11, 2004.</p>
<p>(4) Do not install:</p> <p>(i) Any NLG assembly, P/N 532.20.12.038 and P/N 532.20.12.039, with any S/N that starts with AM 001 through AM 045 or AM 048 effective through AM 054.</p> <p>(ii) Any MLG assembly, P/N 532.10.12.049 and P/N 532.10.12.050, with any S/N that starts with AM 001 through AM 027, AM 029 through AM 045, AM 047 through AM 050, AM 052, or AM 053.</p> <p>(iii) Any MLG shock absorber assembly, P/N 532.10.12.175, with any S/N that starts with AM 001 through AM 017, AM 019, AM 021 through AM 063, AM 065 through AM 070, AM 072 through AM 074, AM 080, AM 084, AM 086, AM 089, AM 090, AM 093 through AM 096, AM 099, or AM 103 through AM 107.</p>	<p>As of December 12, 2005 (the effective date of this AD)</p>	<p>Not Applicable.</p>

**Note 1:** AD 2002-14-22, issued on July 8, 2002 (67 FR 46582), and AD 2004-06-05, issued on March 15, 2004 (69 FR 13712), are still applicable.

**Note 2:** The FAA recommends that you send any removed parts or assemblies to Pilatus.

**May I Request an Alternative Method of Compliance?**

(f) You may request a different method of compliance or a different compliance time for this AD by following the procedures in 14 CFR 39.19. Unless FAA authorizes otherwise, send your request to your principal inspector. The principal inspector may add comments and will send your request to the Manager, Standards Office, Small Airplane Directorate, FAA. For information on any already approved alternative methods of compliance, contact Doug Rudolph, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4059; facsimile: (816) 329-4090.

### **Is There Other Information That Relates to This Subject?**

(g) Swiss AD Number HB-2005-168, dated May 3, 2005, also addresses the subject of this AD.

### **Does This AD Incorporate Any Material by Reference?**

(h) You must do the actions required by this AD following the instructions in Pilatus PC12 Service Bulletin No. 32-016, dated March 11, 2004. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To get a copy of this service information, contact Pilatus Aircraft Ltd., Customer Liaison Manager, CH-6371 Stans, Switzerland; telephone: +41 41 619 6208; facsimile: +41 41 619 7311; e-mail: SupportPC12@pilatus-aircraft.com or from Pilatus Business Aircraft Ltd., Product Support Department, 11755 Airport Way, Broomfield, Colorado 80021; telephone: (303) 465-9099; facsimile: (303) 465-6040. To review copies of this service information, go to the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, go to: [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html) or call (202) 741-6030. To view the AD docket, go to the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-001 or on the Internet at <http://dms.dot.gov>. The docket number is FAA-2005-22018; Directorate Identifier 2005-CE-41-AD.

Issued in Kansas City, Missouri, on October 19, 2005.

David R. Showers,

Acting Manager, Small Airplane Directorate, Aircraft Certification Service.

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