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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2005-22690; Directorate Identifier 2005-NE-35-AD; Amendment 39-14388; AD 2005-24-08]**

**RIN 2120-AA64**

#### **Airworthiness Directives; McCauley Propeller Systems Five-Blade Propeller Assemblies**

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

**ACTION:** Final rule; request for comments.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain McCauley Propeller Systems propeller assemblies installed on BAE Systems (Operations) Limited Jetstream model 4100 series airplanes. This AD requires removing certain propeller hubs from service at new reduced life limits and eddy current inspections (ECIs) of the propeller hub. This AD results from three reports of cracked propeller hubs. We are issuing this AD to prevent cracked propeller hubs, which could cause failure of the propeller hub, blade separation, and loss of control of the airplane.

**DATES:** This AD becomes effective December 15, 2005. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of December 15, 2005.

We must receive any comments on this AD by January 30, 2006.

**ADDRESSES:** Use one of the following addresses to comment on this AD:

- DOT Docket Web site: Go to <http://dms.dot.gov> and follow the instructions for sending your comments electronically.
- Government-wide rulemaking Web site: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.
- Mail: Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590-0001.
- Fax: (202) 493-2251.
- Hand Delivery: Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Contact McCauley Propeller Systems, P.O. Box 7704, Wichita, KS 97277-7704, for the service information referenced in this AD.

**FOR FURTHER INFORMATION CONTACT:** Jeff Janusz, Aerospace Engineer, Wichita Aircraft Certification Office, FAA, Small Airplane Directorate, 1801 Airport Road, Wichita, KS 67209, telephone: (316) 946-4148; fax: (316) 946-4107.

**SUPPLEMENTARY INFORMATION:** In August 2003, we issued AD 2003-17-10 which requires initial and repetitive fluorescent penetrant inspection or ultrasonic inspection of propeller blade retention areas for cracks, replacement of high time propeller blades, and a onetime inspection of propeller hubs. That AD resulted from four earlier reports of cracks in propeller blade shanks. Since we issued AD 2003-17-10, we received three more reports of cracked hubs. In November 2004, we issued AD 2004-23-16 which requires a onetime ECI of the propeller hub for cracks, and if necessary, replacing the propeller assembly. That AD also captured inspection results for the propeller hubs installed on the Jetstream model 4100 fleet.

We received field reports that during taxi and ground maneuvering, certain airplane operators might be violating the published and placarded propeller ground revolutions-per-minute (rpm) restrictions. Operating in the restricted rpm range during ground operation can excite a natural propeller blade frequency that creates damaging stress loadings on the propeller blades and hub. The stress loadings can cause cracks, leading to propeller structural failure.

Additionally, some operators use a water-methanol assist system to provide more engine power during certain operating conditions. The operating procedures for the water-methanol assist system define an airplane brakes-locked condition. Testing has shown that using the water-methanol assist system with airplane brakes locked creates propeller loadings exceeding structural fatigue limits of the propeller hub. This condition, if not corrected, could result in cracked hubs, which could cause failure of the propeller hub, blade separation, and loss of control of the airplane.

### **Relevant Service Information**

We reviewed and approved the technical contents of McCauley Alert Service Bulletin (ASB) No. ASB250, dated September 12, 2005. This ASB introduces new lower life limits for the propeller hubs identified in this AD, and describes ECI procedures for them.

### **FAA's Determination and Requirements of This AD**

The unsafe condition described previously is likely to exist or develop on other McCauley propeller assemblies, P/Ns B5JFR36C1101/114GCA-0, C5JFR36C1102/L114GCA-0, B5JFR36C1103/114HCA-0, and C5JFR36C1104/L114HCA-0, installed on BAE Systems (Operations) Limited Jetstream model 4100 series airplanes. We are issuing this AD to prevent cracked hubs, which could cause failure of the propeller hub, blade separation, and loss of control of the airplane. This AD requires:

- Removing any propeller hub from service that is currently, or ever was, operated on an engine with a water-methanol assist system, not later than 6,000 hours time-in-service (TIS).
- Removing any other propeller hub from service not later than 18,000 hours TIS.
- Removing any propeller hub from service that exceeds its life limit on the effective date of this AD, within 50 hours TIS after the effective date of this AD.
- That any propeller hub removed from service after exceeding its life limit must not be returned to service on any installation.
- For all installed propeller hubs, performing an ECI within 200 hours TIS or 60 days after the effective date of this AD, whichever occurs first.
- Thereafter, for all installed propeller hubs with 12,000 or more hours TIS, performing repetitive ECIs within 1,800 hours TIS or 12 months, whichever occurs first.

You must use the service information described previously to perform the actions required by this AD. This AD does not require repetitive inspections for propeller hubs that ever operated on, or are currently operating on, engines with a water-methanol assist system, due to the 6,000 hours TIS hub reduced life limit.

### **FAA's Determination of the Effective Date**

Since an unsafe condition exists that requires the immediate adoption of this AD, we found that notice and opportunity for public comment before issuing this AD are impracticable. Good cause exists for making this amendment effective in less than 30 days.

### **Comments Invited**

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment. However, we invite you to send us any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "AD Docket No. FAA-2005-22690; Directorate Identifier 2005-NE-35-AD" in the subject line of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it.

We will post all comments we receive, without change, to <http://dms.dot.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of the DMS Web site, anyone can find and read the comments in any of our dockets. This includes the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.). You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78) or you may visit <http://dms.dot.gov>.

### **Examining the AD Docket**

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Offices between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

### **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 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.

For the reasons discussed above, I certify that the 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); 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 placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

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

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

## **Adoption of the Amendment**

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. The FAA amends § 39.13 by adding the following new airworthiness directive:

# 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/)*

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).

**2005-24-08 McCauley Propeller Systems:** Amendment 39-14388. Docket No. FAA-2005-22690; Directorate Identifier 2005-NE-35-AD.

## Effective Date

- (a) This airworthiness directive (AD) becomes effective December 15, 2005.

## Affected ADs

- (b) None.

## Applicability

(c) This AD applies to McCauley Propeller Systems propeller assemblies, part numbers (P/Ns) B5JFR36C1101/114GCA-0, C5JFR36C1102/L114GCA-0, B5JFR36C1103/114HCA-0, and C5JFR36C1104/L114HCA-0. These propeller assemblies are installed on BAE Systems (Operations) Limited Jetstream Model 4100 series airplanes.

## Unsafe Condition

(d) This AD results from three reports of cracked propeller hubs. We are issuing this AD to prevent cracked propeller hubs, which could cause failure of the propeller hub, blade separation, and loss of control of the airplane.

## Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

## Propeller Hub Reduced Life Limits

(f) Remove any propeller hub from service that is currently, or ever was, operated on an engine with a water-methanol assist system, not later than 6,000 hours time-in-service (TIS).

(g) Remove any other propeller hub from service not later than 18,000 hours TIS.

(h) Remove any propeller hub from service that exceeds its life limit on the effective date of this AD, within 50 hours TIS after the effective date of this AD.

## **Prohibition of Hubs Exceeding Life Limit**

(i) Any propeller hub removed from service after exceeding its life limit must not be returned to service on any installation.

## **Propeller Hub Initial Inspection**

(j) For all installed propeller hubs, perform an eddy current inspection (ECI) within 200 hours TIS or 60 days after the effective date of this AD, whichever occurs first. Use the Accomplishment Instructions of McCauley Alert Service Bulletin (ASB) No. ASB250, dated September 12, 2005, to do the inspection.

## **Propeller Hub Repetitive Inspections**

(k) Thereafter, for all installed propeller hubs with 12,000 or more hours TIS:

(1) Perform repetitive ECIs within 1,800 hours TIS or 12 months, whichever occurs first.

(2) Use the Accomplishment Instructions of McCauley ASB No. ASB250, dated September 12, 2005, to do the inspections.

(l) This AD does not require repetitive inspections for propeller hubs that ever operated on, or are currently operating on, engines with a water-methanol assist system, due to the 6,000 hours TIS hub reduced life limit.

## **Reporting Requirements**

(m) Report within 10 calendar days of the inspection, the results that equal or exceed the reject criteria to:

(1) The FAA, Wichita Aircraft Certification Office, 1801 Airport Road, Room 100, Wichita, KS 67209, Attention: Jeff Janusz, telephone

(316) 946-4148; e-mail: jeff.janusz@faa.gov; and

(2) McCauley Propeller Systems, P.O. Box 7704, Wichita, KS 97277-7704.

(3) Reporting requirements have been approved by the Office of Management and Budget (OMB) and assigned OMB control number 2120-0056.

## **Alternative Methods of Compliance**

(n) The Manager, Wichita Aircraft Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

## **Related Information**

(o) None.

## **Material Incorporated by Reference**

(p) You must use McCauley Alert Service Bulletin No. ASB250, dated September 12, 2005, to perform the inspections required by this AD. 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. Contact McCauley Propeller Systems, P.O. Box 7704, Wichita, KS 97277-7704, for a copy of this service information. You may review copies at the Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401,

Washington, DC 20590-0001, on the Internet at <http://dms.dot.gov>, or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on November 21, 2005.

Peter A. White,

Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.

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