

---

## AIRWORTHINESS DIRECTIVE

---

For the reasons set out in the background section, the CASA delegate whose signature appears below issues the following Airworthiness Directive (AD) under subregulation 39.001(1) of CASR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

---

### Propellers - Variable Pitch - McCauley

**AD/PMC/53**

**Cracked Propeller Blades**

**12/2009  
DM**

**Applicability:** McCauley Propeller Systems propeller models B5JFR36C1101/114GCA-0, C5JFR36C1102/L114GCA-0, B5JFR36C1103/ 114HCA-0 and C5JFR36C1104/L114HCA-0.

*Note 1: These propellers are known to be installed on, but not limited to, BAE Systems (Operations) Limited Jetstream Model 4100 and 4101 series aeroplanes (Jetstream 41).*

- Requirement:**
1. For propeller blades with more than 10,000 operating hours time-since-new (TSN) on the effective date of this Directive, unless previously accomplished in accordance with AD/PMC/52, remove the propeller blades from service.
  2. For propeller blades with more than 3,000 operating hours TSN on the effective date of this Directive, remove the propeller blades from service.
  3. For propeller blades with 3,000 or fewer operating hours TSN on the effective date of this Directive, remove the propeller blades from service.

Propeller blades removed in accordance with Requirements 1 through 3 are prohibited from installation in any configuration on any airframe.

4. Remove the propeller blades and the hubs listed in Table 1 of this Directive from service. The propeller blades and hubs listed in Table 1 are prohibited from installation in any configuration on any airframe.

**Table 1 - Serial Numbers of Propeller Blade and Hub  
Required to be Removed from Service**

Hub Serial Number	Blade Serial Number
023062	XH31043, XH31131, XE31002, XH31025, XI31014
040296	YA31058, YA31055, YB31084, YB31088, YB31090
041016	XB31009, XA31073, XA31071, XA31063, WK31013
051193	XH31018, XH31077, XH31081, XL31008, XL31043
040282	XG31015, XG31016, XH31113, XH31117, XI31017
051204	XI31049, XH31140, XH31129, XH31084, XH31074
051194	WF31010, WD31032, WF31002, WF31029, WF31078

## Propellers - Variable Pitch - McCauley

AD/PMC/53 (continued)

5. Remove from service any propeller blades and hubs found or documented to have been installed in any propeller assembly that has had one or more cracked propeller blades at any time. Propeller blades and the propeller hub of a propeller assembly that has had one or more cracked propeller blades are prohibited from installation in any configuration on any airframe.
6. Perform a fluorescent penetrant inspection and eddy current inspection of the propeller blades, together with a visual inspection for a "step condition" of the blade shank. Use the Equipment Required and Accomplishment Instructions of McCauley Propellers Alert Service Bulletin (ASB) ASB255A dated 6 October 2008.

*Note 2: If there is any question as to the acceptability of a blade shank "step condition", the ability to accurately measure 0.005-inch wear or the acceptability of any other wear present, the Civil Aviation Safety Authority recommends that you contact McCauley Product Support at McCauley Propeller Systems, 5800 E. Pawnee, Wichita, KS 67218, telephone 0011 1 316 831 4021 for guidance.*

7. If, as a result of the Requirement 6 fluorescent penetrant inspection, one or more propeller blades are found cracked on a propeller assembly remove from service all of the propeller blades and the propeller hub. Propeller blades and the propeller hub of a propeller assembly that has had one or more cracked propeller blades are prohibited from installation in any configuration on any airframe.
8. If, as a result of the Requirement 6 visual inspection for a "step condition" of the blade shank, remove from service all propeller blades that exhibit a blade shank "step condition" of 0.005-inch or greater. Blades removed from service are prohibited from installation in any configuration on any airframe.
9. Remove from service all C-5963 split retainers at the time of blade inspection specified in Requirement 6. C-5963 split retainers removed from service are prohibited from installation in any configuration on any airframe.
10. Propeller assemblies with C-5963 split retainers may not be installed on any airframe.

**Propellers - Variable Pitch - McCauley**

AD/PMC/53 (continued)

11. Report all inspection findings, using the Reporting Form in McCauley ASB255A, including any photograph and any other information related to the means of detection of the crack, together with the history of the propeller and blades, to:

Manager, Continuing Airworthiness  
 Airworthiness Engineering Branch  
 Civil Aviation Safety Authority  
 GPO Box 2005  
 CANBERRA ACT 2600

Facsimile (02) 6217 1914

*Note 3: FAA AD 2009-19-04 Amdt 39-16021 refers.*

Compliance: For Requirement 1 - Before further flight after the effective date of this Directive.

For Requirement 2 - Within the next 500 operating hours, not to exceed 10,000 operating hours TSN.

For Requirement 3 - At or before reaching 3,500 operating hours TSN.

For Requirements 4 and 5 - Before further flight after the effective date of this Directive.

For Requirement 6 - In accordance with Table 2 of this Directive.

**Table 2 - Compliance Schedule**

<b>If on the Effective Date of this Directive, the Propeller Blade:</b>	<b>Then Inspect the Propeller Blade:</b>
Has more than 2,400 operating hours TSN, time-since-last inspection (TSLI) or time-since-overhaul (TSO) and has been inspected using AD/PMC/52 (FAA AD 2008-08-01) or McCauley Propellers ASB255, dated 8 January 2007, within the past 2,400 operating hours.	Upon reaching 2,500 operating hours TSLI. (For the purpose of this Directive, TSLI refers only to inspections performed using AD/PMC/52 or ASB255.)
Has more than 2,400 operating hours TSN, TSLI or TSO and has not been inspected using AD/PMC/52 or ASB255 within the past 2,400 operating hours.	Within the next 100 operating hours time-in-service.

**Propellers - Variable Pitch - McCauley**

AD/PMC/53 (continued)

Has 2,400 or fewer operating hours TSN, TSLI or TSO.	Upon reaching 2,500 operating hours TSN, TSLI or TSO.
--	---

For Requirements 7, 8 and 9 - Before further flight after the Requirement 6 inspection(s).

For Requirement 10 - As of the effective date of this Directive.

For Requirement 11 - Within ten calendar days of completing the inspection(s).

This Airworthiness Directive becomes effective on 27 October 2009.

**Background:** This Directive supersedes AD/PMC/52 which will be cancelled. That Directive required initial and repetitive fluorescent penetrant inspections together with eddy current inspections of propeller blades for cracks. That Directive required the removal from service of propeller blades if any crack indications were found, the Directive also mandated a life limit for the blades.

This Directive requires the same inspections, adds a visual inspection and mandates a new propeller blade life limit. This Directive also requires removing propeller blades with more than 10,000 operating hours TSN. This Directive also requires removal from service of all the propeller blades and the propeller hub if one or more propeller blades have been found cracked on a propeller assembly. Additionally, this Directive requires removing from service all C-5963 split retainers.

This Directive results from the United States Federal Aviation Administration receiving eight reports of propeller blades found cracked since May 2006. The Directive is issued to detect cracks in the propeller blade that could cause failure and separation of the propeller blade and loss of control of the aeroplane.



David Villiers  
Delegate of the Civil Aviation Safety Authority

25 September 2009