

## **94-17-13**

Amendment 39-9008.

Docket No. 94-ANE-19.

Supersedes AD 93-16-14, Amendment 39-8704.

Applicability: Hartzell Propeller Inc. HC-( )3Y( )-( ) series three-bladed propellers with model designations and serial number ranges listed as follows:

Propeller Basic Hub Model	Propeller Serial Number Range
PHC-C3YF-1R( )	EE1 through EE1461
PHC-J3YF-1R( )	FP1 through FP37
PHC-L3YF-1R( )	FD1 through FD7
HC-C3YF-1R( )	EC1 through EC1020
HC-C3YK-1R( ) or HC-C3YR-1R( )	DY1 through DY1897
HC-C3YK-1( )	CT1 through CT101
HC-C3YK-2( ) or HC-C3YR-2( )	CK1 through CK3510
HC-C3YK-4( ) or HC-C3YR-4( )	EL1 through EL67
HC-E3YK-1( ) or HC-E3YR-1( )	FM1 through FM487
HC-E3YK-2( ) or HC-E3YR-2( )	DF1 through DF79
HC-E3YK-2A( ) or HC-E3YR-2A( )	DJ1 through DJ7787
HC-F3YK-2( ) or HC-F3YR-2( )	DA1 through DA1586
HC-F3YK-1( ) or HC-F3YR-1( )	DB1 through DB137
HC-I3YK-2( ) or HC-I3YR-2( )	FS1 through FS32

This airworthiness directive (AD) applies to the above affected propellers when installed on any agricultural aircraft with any engine, or installed on any aircraft utilizing Textron Lycoming TIO-540 or LTIO-540 series reciprocating engines, or IO-540 series reciprocating engines that have a turbocharger added by the airframe manufacturer or have been modified by a Supplemental Type Certificate (STC) to incorporate a turbocharger, or a turbocharger retrofitted to an IO-540 engine by any other means. The known affected propellers are generally installed on, but not limited to the following aircraft:

### **AGRICULTURAL AIRCRAFT:**

Fletcher FU24-950

Cessna A188 Agwagon modified by STC SA895SO

Piper PA-36-285 and PA-36-300 (three-bladed propellers only)

Piper PA-36-375

Piper PA-36 Pawnee modified by STC SA3952WE

Transavia Airtruk Models and PL-12/T-300 Skyfarmer

### **AIRCRAFT WITH TEXTRON LYCOMING TIO-540, LTIO-540, and TURBOCHARGED IO-540 SERIES ENGINES:**

Cessna 310 and 320 modified by Riley STC SA2082WE

Gulfstream 700 (formerly Rockwell 700, Fuji FA-300-12)

Helio H-700

Piper PA-23-250 and PA-E23-250 (with TIO-540 only)

Piper PA-31 Navajo (with TIO-540 only)

Piper PA-31-325 Navajo C/R

Piper PA-31-350 Navajo "Chieftain"

Piper PA-31P-350 Mohave

Piper T-1020 (same as PA-31-350)

Piper PA-32(R)-301T Turbo Saratoga

Aerostar PA-60-600, PA-60-601, PA-60-601P, PA-60-602P, and PA-60-700P.

Propellers with model designations and serial number ranges listed above and installed on non-agricultural aircraft, which do NOT utilize Textron Lycoming TIO-540, LTIO-540, or turbocharged IO-540 series engines are exempt from this AD.

Propellers with new post-1983 hub configurations, i.e., which have the relocated grease fitting holes near the hub parting line as shown in Figure 1, page 9, of Hartzell Propeller, Inc., Service Bulletin (SB) No. 165E, dated January 21, 1994, even though the propeller model and serial number are listed above, are exempt from this AD.

Compliance: Required as indicated, unless accomplished previously.

To prevent possible propeller hub failure due to cracks that originate in the grease fitting holes on the side of the hub, which could result in propeller blade separation and loss of the aircraft, accomplish the following:

- (a) or propellers installed on Textron Lycoming TIO-540 or LTIO-540 series reciprocating engines or turbocharged IO-540 series reciprocating engines which are installed on Piper PA-31-325 Navajo C/R, PA-31-350 Navajo "Chieftain," T-1020 (same as PA-31-350), PA-60-700P, Aerostar 700P aircraft, or propellers installed on any agricultural aircraft with any engine, accomplish the following:
  - (1) Within 10 hours time in service (TIS) after the effective date of this AD, but not to exceed 25 hours TIS since the last inspection, whichever occurs first, and thereafter at intervals of 10 hours TIS, perform a visual inspection for presence of grease on the propeller and determine the source of this grease leakage prior to further flight. Following the visual inspection, perform an eddy current inspection (ECI) or fluorescent penetrant inspection (FPI) for cracks in accordance with Hartzell Propeller Inc. SB No. 165E, dated January 21, 1994.

NOTE: Use of a black light to inspect the suspect area can aid in determining the source of grease leakage because authorized grease contains fluorescent properties.

- i) If grease is leaking from the hub arm or wall, replace the propeller with a serviceable propeller prior to further flight.
    - ii) If grease is determined to be leaking from other causes, take the appropriate corrective maintenance action and record in appropriate maintenance records.
  - (2) If a crack is found in a propeller hub during the inspections required in paragraph (a)(1) of this AD, replace the propeller hub prior to further flight with a new post-1983 configuration propeller hub, or with a serviceable 1983 or earlier hub that has been inspected in accordance with Hartzell Propeller Inc. SB No. 165E, dated January 21, 1994. Thereafter, perform a visual inspection, and ECI or FPI, for cracks in accordance with Hartzell Propeller Inc. SB No. 165E, dated January 21, 1994, at intervals not to exceed 10 hours TIS since the last inspection, unless a new post-1983 later style propeller hub is installed, per paragraph (d) of this AD.
- (b) For propellers installed on all other aircraft models, except for the four non-agricultural models listed in paragraph (a) of this AD, and that utilize Textron Lycoming TIO-540, LTIO-540, or turbocharged IO-540 series reciprocating engines accomplish the following:
  - (1) Within 50 hours TIS after the effective date of this AD, but not to exceed 50 hours TIS since the last inspection, and thereafter at intervals of 50 hours TIS, perform a visual inspection for presence of grease on the propeller and determine the source of this grease leakage prior to further flight. Following the visual inspection, perform an ECI or FPI for cracks in accordance with Hartzell Propeller Inc. SB No. 165E, dated January 21, 1994.

**NOTE:** Use of a black light to inspect the suspect area can aid in determining the source of grease leakage because authorized grease contains fluorescent properties.

- i) If grease is leaking from the hub arm or wall, replace the propeller with a serviceable propeller prior to further flight.
  - ii) If grease is determined to be leaking from other causes, take the appropriate corrective maintenance action and record in appropriate maintenance records.
- (2) If a crack is found in a propeller hub during the inspections required in paragraph (b)(1) of this AD, replace the hub prior to further flight with a new post-1983 configuration propeller hub, or with a serviceable 1983 or earlier hub that has been inspected in accordance with Hartzell Propeller Inc. SB No. 165E, dated January 21, 1994. Thereafter, perform a visual inspection, and ECI or FPI, at intervals not to exceed 50 hours TIS since the last inspection, in accordance with paragraph (b)(1) of this AD, unless a new post-1983 configuration propeller hub is installed, per paragraph (d) of this AD.
- (c) An alternative method of compliance in Hartzell Propeller Inc. SB No. 165E, dated January 21, 1994, describes a propeller hub modification to chamfer the inside and outside hub arm surfaces of the grease hole fitting. Performing this interim modification allows an operator to extend the initial and repetitive inspection period as required by paragraphs (a)(1) or (b)(1) of this AD, as applicable, to 400 hours TIS.
- (1) For propellers installed on aircraft listed in paragraph (a) of this AD, once 400 hours TIS is reached, or 36 calendar months after the effective date of this AD, whichever occurs first, the propeller hub must be replaced in accordance with paragraph (d) of this AD.
  - (2) For propellers installed on aircraft listed in paragraph (b) of this AD, once 400 hours TIS is reached, or 36 calendar months after the effective date of this AD, whichever occurs first, an internal inspection is required at intervals not to exceed 400 hours TIS since last inspection in accordance with Hartzell Propeller Inc. SB No. 165E, dated January 21, 1994, or replacement of the hubs must be determined in accordance with paragraph (d) of this AD.
- (d) For propellers installed on aircraft listed in paragraph (a) of this AD, install new post-1983 configuration propeller hubs that have fitting holes near the hub parting line prior to June 30, 1995, or in accordance with the time extension provided in paragraph (c) of this AD. For propellers installed in aircraft listed in paragraph (b) of this AD, this replacement is optional. For all affected propellers, this replacement constitutes terminating action to the inspection requirements of this AD.
- (e) Propeller hubs that are configured 1983 or earlier, with the grease fitting holes located on the side of the hub, that have been removed from service cannot ever be approved for return to service.
- (f) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Chicago Aircraft Certification Office. The request should be forwarded through an appropriate FAA Maintenance Inspector, who may add comments and then send it to the Manager, Chicago Aircraft Certification Office.

**NOTE:** Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Chicago Aircraft Certification Office.

- (g) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the aircraft to a location where the inspections may be performed.
- (h) The inspections and modification shall be done in accordance with the following service document:

<b>Document No.</b>	<b>Pages</b>	<b>Date</b>
<b>Hartzell Propeller Inc. SB No. 165E</b>	1-10	January 21, 1994

Total pages: 10.

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Hartzell Propeller Inc., One Propeller Place, Piqua, OH 45356-2834; telephone (513) 778-4200, fax (513) 778-4391. Copies may be inspected at the FAA, New England Region, Office of the Assistant Chief Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

- (i) This amendment becomes effective on September 15, 1994.