

Propellers - Variable Pitch - Hartzell

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**AD/PHZL/60**  
**Amdt 4**

**Three Bladed 'Y' Shank Aluminium Hubs**

**13/94**

Applicability: All HC-( )3Y( )-( ) propellers with the model designations and serial number range with pre 1983 hubs listed below installed on any agricultural aircraft with any engine, or installed on any aircraft fitted with Textron Lycoming TIO-540 or LTIO-540 series engines, or IO-540 series engines that have a turbocharger.

Hub Model	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-1( )	CT1 through CT101
HC-C3YK-1R( ) or HC-C3YR-1R( )	DY1 through DY1897
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( )	FD1 through FS32

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)

PA-36-375

PA-36 Pawnee modified by STC SA3952WE

Transavia Airtruk model PL-12/T-300 Skyfarmer

**Aircraft with Textron Lycoming (L)TIO-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, 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 A-32(R)-301T Turbo Saratoga

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

- Requirement:
1. Carry out a visual inspection of the hub using a 10X glass looking for signs of cracking or grease leakage. Replace any hub found cracked prior to further flight. Perform an eddy current or dye penetrant inspection in accordance with the procedures specified in Hartzell SB 165E on any of the above specified model and S/N propellers installed on any agricultural aircraft or Piper PA-31-325 Navajo C/R, Piper PA-31-350 Navajo “Chieftain”, Piper T-1020 (same as PA-31-350), PA-60-700P or Aerostar 700P aircraft.
  2. For all other aircraft types listed in this Directive carry out a visual inspection of the hub using a 10X glass looking for signs of cracking or grease leakage. Replace any hub found cracked prior to further flight. Perform an eddy current or dye penetrant inspection IAW the procedures specified in Hartzell SB 165E.
  3. For propellers installed on agricultural aircraft or Piper PA-31-325 Navajo C/R, Piper PA-31-350 Navajo “Chieftain”, Piper T-1020 (same as PA-31-350), PA-60-700P or Aerostar 700P aircraft, replace pre 1983 style hubs with post 1983 hubs. If during overhaul, post 1983 style hubs are not available and the hub passes overhaul requirements then, the pre 1983 hub chamfer modification in accordance with Procedure 2 of Hartzell SB 165E may be incorporated. Hubs so modified are exempt from Requirements 1 and 2 of this Directive.

## SCHEDULE OF AIRWORTHINESS DIRECTIVES

4. For all other aircraft types listed in this directive, replace pre 1983 style hubs with post 1983 hubs. If during overhaul post 1983 style hubs are not available, and the hub meets overhaul requirements then, the pre 1983 hub chamfer modification in accordance with Procedure 2 of Hartzell SB 165E may be incorporated in a serviceable pre 1983 hub. Modified hubs are exempt from Requirements 1 and 2 of this Directive.

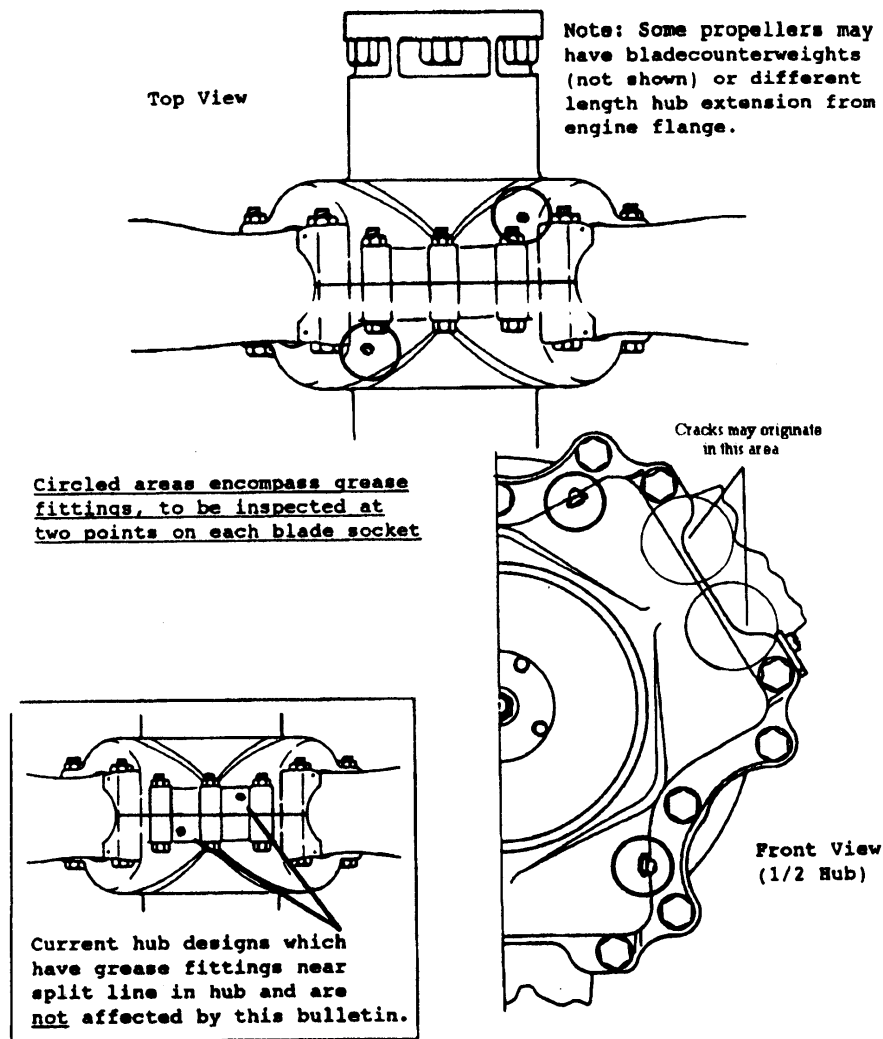
*Note. FAA AD 94-17-13 which supersedes FAA AD 93-16-14 amdt 39-8704, refers.*

## Compliance:

1. Visual inspection - within 10 hours time in service after 8 December 1994, and thereafter, at intervals not exceeding 10 hours time in service until a post 1983 style hub has been fitted. Any removed hub shall be permanently retired from service.

Eddy Current or Dye Penetrant Inspection - within 25 hours time in service after 8 December 1994 and thereafter at intervals not exceeding 25 hours time in service until post 1983 style hub has been fitted. Any removed hub shall be permanently retired from service.

2. Within 50 hours time in service after 8 December 1994 and thereafter at intervals not exceeding 50 hours time in service until post 1983 style hub has been fitted. Any removed hub shall be permanently retired from service.
3. For Piper PA-31-325 Navajo C/R, Piper PA-31-350 Navajo "Chieftain", Piper T-1020, PA-60-700P, Aerostar PA-60-700P and all agricultural aircraft, any time a hub is fully dismantled for repair or overhaul of the propeller after 8 December 1994 or by 30 June 1995, whichever occurs first. Modified hubs may be retained in service for a further 400 hours or 36 calendar months, whichever occurs first. Any removed hub shall be permanently retired from service.
4. For all other aircraft types, at the next propeller overhaul after 8 December 1994. Modified hubs may be retained in service provided an internal inspection of the hub in accordance with Hartzell SB 165 E is carried out at intervals not exceeding 400 hours or 36 calendar months, whichever occurs first. Any removed hub shall be permanently retired from service.



Background: There have been incidents of hub cracks in Hartzell three blade “compact” aluminium hub propellers. Cracks have originated in the threads of a grease fitting hole on the side of the hub and have also originated in the fillet radius area. The cracks are believed to be observable with careful visual examination using a 10X magnifying glass.

As the cracks propagate around the blade arm of the hub their progression accelerates and results in failure of one hub half which can then, potentially, progress to blade separation. Replacement with the later style hubs, post 83, provides terminating action for this Directive. The previous amendment reduces the repetitive inspection interval while this amendment, in line with the manufacturer’s SB, further reduces the inspection intervals, introduces an eddy current or fluorescent penetrant inspection requirement, allows chamfer modifications of the hub and for specific aircraft types mandates replacement of pre 83 hubs within a certain time frame.