

HARTZELL PROPELLER INC.
SERVICE LETTER
TRANSMITTAL SHEET
HC-SL-61-61Y

**Propeller - Overhaul Periods and Service Life Limits for Hartzell
Propellers, Governors, and Propeller Damper Assemblies**

November 13, 2009

This page transmits a revision to Service Letter HC-SL-61-61Y.

- Original, dated May 9/69
- Revision A, dated April 15/76
- Revision B, dated September 10/76
- Revision C, dated November 28/77
- Revision D, dated February 23/78
- Revision E, dated March 26/79
- Revision F, dated August 31/79
- Revision G, dated August 20/80
- Revision H, dated October 19/81
- Revision J, dated May 13/83
- Revision K, dated January 28/86
- Revision L, dated August 18/86
- Revision M, dated May 01/87
- Revision N, dated May 13/88
- Revision P, dated August 05/88
- Revision Q, dated March 12/90
- Revision R, dated February 28/92
- Revision S, dated December 10/93
- Revision T, dated April 4/97
- Revision U, dated March 20/98
- Revision V, dated March 9/01
- Revision W, dated July 15/02
- Revision X, dated August 15/02
- Revision Y, dated April 01/04
- Revision 1, dated May 11/06
- Revision 2, dated Nov 05/08
- Revision 3, dated Nov 13/09

FAA approval has been obtained on technical data in this publication that affects type design.

Changes are shown by a change bar in the left margin of the revised pages.

Some of these changes that do not affect technical content may not be highlighted in this transmittal sheet.

This revision is issued to change the following:

- Added additional Airworthiness Limitations references
- Added Section 2.C. Defining Propeller Assembly Time Since New
- Added references to Hartzell Five Blade Lightweight Turbine Propeller Overhaul Manual 157 (61-10-57)
- Added references to Hartzell Owner's Manuals
- Removed references to obsolete Hartzell manuals

This Service Letter is reissued in its entirety.

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1. Planning Information

A. Effectivity

- (1) All Hartzell Propellers, Governors and Propeller Damper Assemblies regardless of installation are affected by this Service Letter.

B. Concurrent Requirements

- (1) None

C. Reason

- (1) Federal Aviation Regulations require publication of overhaul periods and service life limits for propellers and governors.

D. Description

- (1) This Service Letter provides overhaul periods and service life limits for propellers, governors, and propeller damper assemblies.

E. Compliance

WARNING: TO MAINTAIN THE FLIGHT SAFETY OF PROPELLERS AND PROPELLER CONTROL SYSTEMS, IT IS ESSENTIAL THAT THEY BE OVERHAULED AT THE INTERVALS SPECIFIED IN THIS SERVICE LETTER AND THAT THE OVERHAULS BE PROPERLY PERFORMED IN ACCORDANCE WITH THE MANUFACTURER'S SERVICE DOCUMENTS. SERVICE EXPERIENCE HAS SHOWN THAT PROPELLERS THAT ARE NEGLECTED, NOT OVERHAULED OR OVERHAULED IMPROPERLY CAN RESULT IN A COMPONENT FAILURE THAT COULD RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE.

- (1) Hartzell propellers installed on reciprocating engines must be overhauled at the intervals specified in Section 3, Overhaul Periods, Paragraph B.
- (2) Hartzell propellers installed on turbine engines must be overhauled at the intervals specified in Section 3, Overhaul Periods, Paragraph C.
- (3) Hartzell governors must be overhauled at the intervals specified in Section 3, Overhaul Periods, Paragraph D.
- (4) Hartzell damper assemblies must be overhauled at the intervals specified in Section 3, Overhaul Periods, Paragraph E.

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- (5) Life limited components are to be retired from service at the intervals specified in Section 4, Life Limited Installations, or as specified in the Airworthiness Limitations sections of the applicable Hartzell Overhaul manual.

F. Approval

- (1) FAA approval has been obtained on technical data in this publication that affects type design.

G. Manpower

- (1) None

H. Weight and Balance

- (1) Not Changed

I. Electrical Load Data

- (1) Not Changed

J. References

- (1) Hartzell Service Bulletin 152E
- (2) Hartzell Hydro Selective Propeller Overhaul Manual 100D
- (3) Hartzell Hydro Selective Propeller Overhaul Manual 100E (61-10-00)
- (4) Hartzell Steel Hub Propeller Overhaul Manual 105A
- (5) Hartzell Steel Hub Propeller Overhaul Manual 109A
- (6) Hartzell Steel Hub Propeller Overhaul Manual 110
- (7) Hartzell Compact Non-Feathering and Aerobatic Propeller Overhaul Manual 113B (61-10-13)
- (8) Hartzell Steel Hub Propeller Overhaul Manual 114B
- (9) Hartzell Steel Hub Propeller Overhaul Manual 114C (61-10-14)
- (10) Hartzell Owner's Manual 115N (61-00-15)
- (11) Hartzell Compact Constant Speed and Feathering Propeller Overhaul Manual 117D (61-10-17)
- (12) Hartzell Steel Hub Turbine Propeller Overhaul Manual 118F (61-10-18)
- (13) Hartzell Governor Maintenance Manual 130B (61-23-30)

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- (14) Hartzell Five Blade Turbine Propeller Overhaul Manual 132A (61-10-32)
- (15) Hartzell Aluminum Blade Overhaul Manual 133C (61-13-33)
- (16) Hartzell Composite Blade Overhaul Manual 135F (61-13-35)
- (17) Hartzell Owner's Manual 139 (61-00-39)
- (18) Hartzell Four Blade Lightweight Turbine Propeller Overhaul Manual 141
(61-10-16)
- (19) Hartzell Three and Four Blade Lightweight Turbine Propeller Overhaul Manual
142 (61-10-42)
- (20) Hartzell Four Blade Lightweight Turbine Propeller Overhaul Manual 143A
(61-10-43)
- (21) Hartzell Six Blade Lightweight Turbine Propeller Overhaul Manual 144
(61-10-44)
- (22) Hartzell Owner's Manual 145 (61-00-45)
- (23) Hartzell Owner's Manual 147 (61-00-47)
- (24) Hartzell Composite Spinner Maintenance Manual 148 (61-16-48)
- (25) Hartzell Owner's Manual 149 (61-00-49)
- (26) Hartzell Four Blade Lightweight Turbine Propellers with Composite Blades
Overhaul Manual 156A (61-10-56)
- (27) Hartzell Five Blade Lightweight Turbine Propeller Overhaul Manual 157
(61-10-57)
- (28) Hartzell Five Blade Lightweight Turbine Propeller Overhaul Manual 158A
(61-10-58)
- (29) Hartzell -1, -4, -6 Series Steel "A" Hub Propeller Maintenance Manual 171
(61-10-71)
- (30) Hartzell -2 Series Steel "A" Hub Propeller Maintenance Manual 172 (61-10-72)
- (31) Hartzell Steel Hub Reciprocating Propeller Overhaul and Maintenance
Manual 177 (61-10-77)
- (32) Hartzell Standard Practices Manual 202A (61-01-02)
- (33) Hartzell Service Letter HC-SL-61-253
- (34) Hartzell Service Letter HC-SL-61-255

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K. Other Publications Affected

- (1) None

2. Accomplishment Instructions

A. Factors Involved in Establishing Overhaul Periods

- (1) The engine to which the propeller is applied determines the pattern of vibration or stress the propeller must absorb.
- (2) The practices employed maintaining a propeller while in service are also limiting factors if they are not carried out per recommended procedures.
- (3) The calendar time which affects the life of seals directly or indirectly exposed to the elements, and other parts subject to corrosion, are also limiting factors.
- (4) Propellers are constantly subjected to natural corrosion and erosion from use and environmental exposure.

B. Continued Airworthiness

- (1) If propeller flight time or calendar time in service are unknown, the propeller should be overhauled to confirm its airworthiness.

NOTE: Propeller logbook entries are required to indicate Time Since Overhaul (TSO) and Time Since New (TSN). The information is used as the basis for subsequent overhauls as well as the basis for life limited parts and for compliance with Airworthiness Directives. For propellers that have been rebuilt with parts from other propellers, consideration of TSN of the hub and each blade should be made.

- (2) In order to achieve TBO, propellers must be maintained in accordance with Hartzell Propeller Inc. applicable publications.
- (3) Propellers exposed to impact damage, lightning strikes or overspeed **must** be inspected in accordance with the Special Inspections chapter of Hartzell Standard Practices Manual 202A (61-01-02) before return to service.
- (4) Propellers must comply with all applicable FAA or foreign equivalent, airworthiness directives, some of which may affect overhaul periods.
- (5) Some propellers may require overhaul before the specified TBO limits. Propellers subjected to abnormal use or environmental exposure, particularly seaplanes and agricultural aircraft, often require premature overhaul when abnormal damage or corrosion is evident.

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C. Defining Propeller Assembly Time Since New

- (1) Aircraft operators are required to track propeller assembly Time Since New (TSN) and Time Since Overhaul (TSO). Such tracking is simple as long as the propeller assembly contains original components.
- (2) Propellers are often assembled using components with differing individual TSN. Because of this, maintaining separate TSN and TSO histories for a replacement hub, blade or life-limited component (hereafter referred to as primary components) is required in order to establish propeller assembly TSN, and should be tracked in the propeller logbook.

NOTE: For the purposes of tracking TSN, hub, blades, and life-limited parts are collectively considered primary components.

- (3) Propeller components other than the primary components do not require time tracking unless specifically noted in Hartzell service publications. However, tracking the total time of non-primary components, when possible, may prove useful if future service action is based on such data.
- (4) The TSN for the propeller assembly is specified as equal to the highest TSN primary component installed in the propeller assembly.
 - (a) When a propeller is assembled with primary components of different TSN's, the TSN for the propeller assembly is considered equal to the TSN of the highest time primary component installed in the propeller assembly.
 - (b) Only the TSN of primary components must be used to establish propeller assembly TSN, when individual component TSN are different.

Example: A propeller is assembled using a hub with 5,206 hours TSN, one blade with 7,438 hours TSN, and three blades with 3,438 hours TSN. The Time Since New for this propeller assembly is considered 7,438 hours based on the blade (highest time primary component).

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(5) The TSN of a propeller assembly can actually be reduced as components are changed.

(a) It is possible to reduce the overall Time Since New of a propeller assembly if the highest TSN primary component is replaced with a lower TSN primary component.

Example: A propeller assembly contains a hub with 5,206 hrs TSN, one blade with 7,438 hrs TSN, and three blades with 3,438 hrs TSN. The TSN of this propeller assembly is considered 7,438 hrs (TSN of the highest time primary component). If the highest time blade (7,438 hrs TSN) is replaced with a new blade (0 hours TSN), the propeller assembly TSN becomes 5,206 hrs TSN, based on the hub time (5,206 hrs TSN), as it is now the highest time primary component.

(6) A propeller assembly is considered TSN “unknown” if it contains a primary component(s) with unknown TSN.

(a) If a propeller assembly contains a primary component(s) with unknown TSN, the propeller assembly TSN is unknown as long as the primary component(s) with unknown TSN remain installed. The TSN for the known component(s) however should be tracked in the propeller logbook.

Example: A propeller assembly contains a hub with 5,206 hours TSN, one blade with 7,438 hours TSN, and three blades with 3,438 hours TSN. The TSN of this propeller assembly is 7,438 hours (highest time primary component). One of these blades is replaced with a TSN “unknown” blade. The entire propeller assembly is now considered TSN “unknown” as long as that blade remains in the propeller assembly.

(7) When a component undergoes an overhaul, Time Since Overhaul (TSO) is returned to zero.

NOTE: The Time Since New (TSN) of a used component can never be returned to zero.

(8) The TSN of a propeller assembly may be considered “zero” if certain components are changed.

(a) If all primary components in a propeller assembly are replaced with primary components with zero TSN, the TSN for the propeller assembly may specified as “Zero”.

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- (b) However, the release paperwork and logbook entries must also state the propeller is “Repaired” or “Overhauled” (as appropriate), and confirm installation date and serial numbers of the new primary components.
- (c) The TSN for the new primary component(s) should continue to be tracked in the propeller logbook.

D. Calendar Limits

- (1) The effects of exposure to the environment over a period of time create a need for propeller overhaul regardless of flight time. Corrosion can create hidden defects in critical blade retention components; therefore, a 36, 60 or 72 calendar month limit between overhauls is specified
- (2) Start date for calendar limit is when the propeller is first installed and run on an engine. Calendar limit is not interrupted by subsequent removal and/or storage.

NOTE: Start date for calendar limit should not be confused with overhaul date.

- (3) Experience has shown that special care, such as keeping an aircraft hangared, is not sufficient to allow extension of the calendar limit.

E. TBO Extension

- (1) Hartzell frequently receives individual requests for extension of published TBO limits. In all cases, actual **approval must be obtained from the operator's FAA (or foreign equivalent) controlling authority**. Any statement by Hartzell does not, in itself, constitute approval. TBO extensions, if allowed, may be either permanent or temporary in nature:

- (a) *Permanent* - Fleet operators often desire a permanent TBO extension. Such extensions must result from a program of approved sampling and are normally incremental in nature. For example, a 3000 hour TBO may be increased to 3300 after evaluating the results of several 3000 hour overhauls, further extension requires evaluation of several 3300 hour overhauls, etc. The sampling program should be established through coordination with the government agency, the operator, the propeller overhaul facility, and Hartzell Propeller Inc. All TBO extensions must be FAA (or foreign equivalent) approved and documented in the operator's approved maintenance or operational publications.

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(b) *Temporary* - Hartzell considers that "temporary" or "one time only" extensions of 100 hours or three months (beyond published limits) to be acceptable in cases where a more flexible overhaul schedule will avoid grounding of aircraft. Approval must be obtained from the operator's FAA (or foreign equivalent controlling authority) and should be limited to a specific propeller. Such extensions should not be construed to allow a permanent TBO extension or allow an operator to routinely deviate from published TBO limits.

F. Long Term Storage

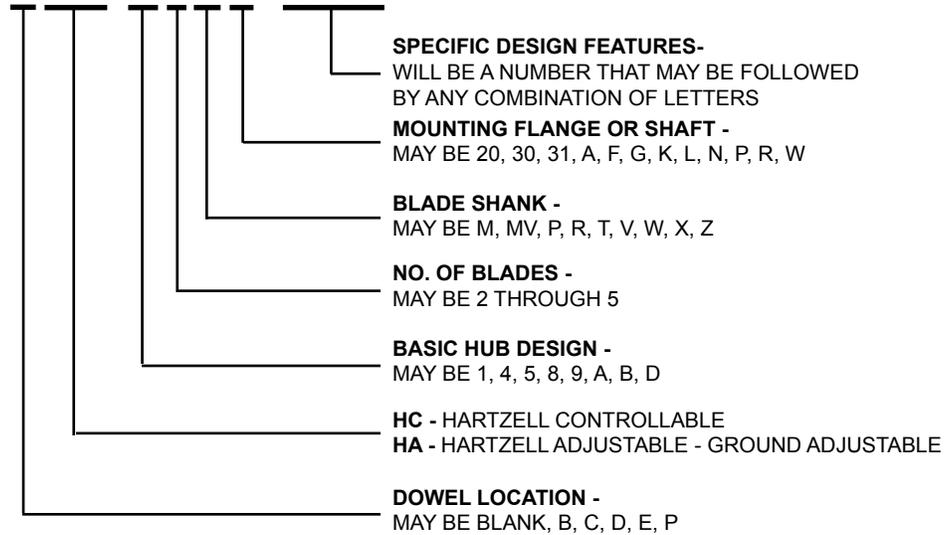
- (1) Propellers (with 0 hours time in service since new or overhaul) that have been in long term storage have additional inspection requirements prior to installation. Details of these requirements are published in Hartzell Standard Practices Manual 202A (61-01-02).
- (2) Propellers with time in service that were placed in long term storage without first being overhauled have additional inspection requirements prior to return to service. Details of these requirements are published in Hartzell Standard Practices Manual 202A (61-01-02).

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STEEL HUB PROPELLERS

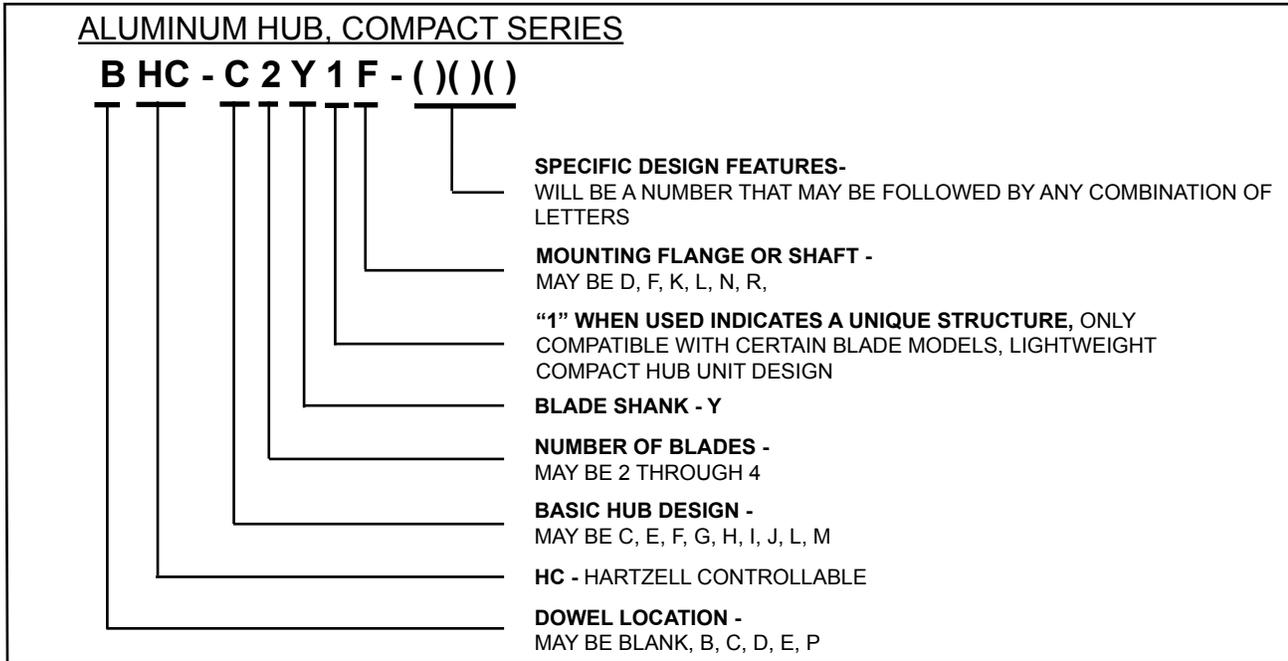
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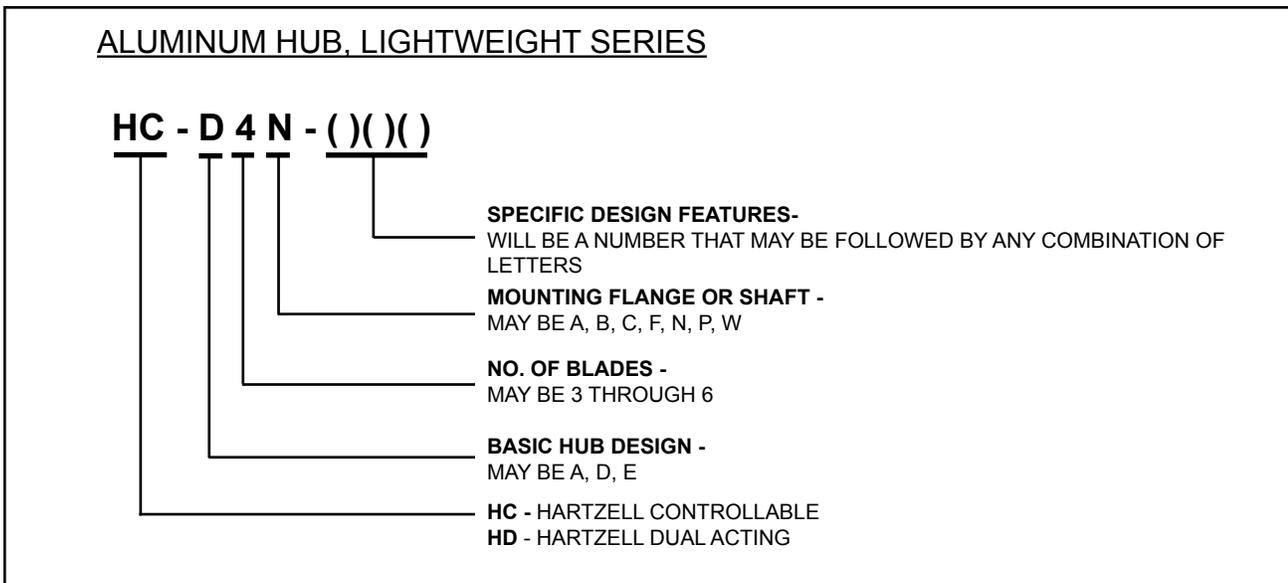
**Steel Hub Propeller Identification
Figure 1**

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Aluminun Hub Propeller Identification - Compact Series
Figure 2



Aluminum Hub Propeller Identification -Lightweight Series
Figure 3

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3. Overhaul Periods

A. To determine the applicable overhaul period, the propeller model number and engine must be known. The propeller model can be found stamped on the side of the propeller hub and in the propeller logbook. Overhaul Periods are specified by engine (reciprocating or turbine) and propeller type (steel or aluminum hub). Refer to Figure 1 through 6 to determine the propeller type.

B. Reciprocating Engine Propellers

- (1) All Hartzell propellers installed on reciprocating (piston) engine aircraft must be overhauled within the flight hour/calendar month periods (whichever occurs first) listed below:

Steel Hub Propellers on Reciprocating Engines
Model Numbers as shown in Figure 1

<u>Propeller Model and Application</u>	<u>Flight Hours/Calendar Months</u>
All Installations	
Hard Alloy Blades as defined in Note 6	1000/36
Agricultural Installations as defined in Note 2	
Steel Hub M, MV, R, P, T, Z, or W Shank	
Option 1	2000/36
Option 2 - Maintained and Inspected in accordance with Hartzell Service Letter HC-SL-61-253	2000/60
Steel Hub X and V Shank	
Option 1	1000/36
Option 2 - Maintained and Inspected in accordance with Hartzell Service Letter HC-SL-61-253	1000/60
Fire Fighting Installations as defined in Note 9	2000/60
Aerobatic Installations as defined in Note 3	1000/60
Jacobs R-755 Engine Installations	
Steel Hub R, Z, W, or P Shank	1000/60
All Other Installations	
Steel Hub M, MV, R, P, T, Z, or W Shank	2000/60
Steel Hub X and V Shank	1000/60

HC-(1,D)2X20-(7,8) and HC-(1,D)2(M)V20-(7,8) Hartzell Hydro-Selective propellers require replacement of rubber diaphragm (P/N B119-2) at intervals not to exceed 24 months or 250 hours of operation whichever occurs first. These propellers utilize a non-rotating piston and cylinder attached to the engine.

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Aluminum Hub Propellers on Reciprocating Engines
Model numbers as shown in Figure 2

<u>Propeller Model and Application</u>	<u>Flight Hours/Calendar Months</u>
Agricultural Installations as defined in Note 2 - Option 1	2000/36
Option 2 - Maintained and Inspected in accordance with Hartzell Service Letter HC-SL-61-255	2000/60
Acrobatic (aerobatic) Installations as defined in Note 3 Manufactured or overhauled before October 1991 - Note 1	1000/60
Manufactured or overhauled during or after October 1991 - Note 1	1000/72
Fire Fighting Installations as defined in Note 9	2000/60
Franklin Engine Installations Manufactured or overhauled before October 1991 - Note 1	1500/60
Manufactured or overhauled during or after October 1991 - Note 1	1500/72
All other 2 Bladed propellers manufactured before April 1997 as defined in Note 4 - See Figure 4 Manufactured or overhauled before October 1991 - Note 1	2000/60
Manufactured or overhauled during or after October 1991 - Note 1	2000/72
All other 2 Bladed propellers manufactured after April 1997 as defined in Note 4 - See Figure 4	2400/72
All other 3 Bladed propellers manufactured before 1983 as defined in Note 5 - See Figure 5 Manufactured or overhauled before October 1991 - Note 1	2000/60
Manufactured or overhauled during or after October 1991 - Note 1	2000/72
All other 3 Bladed propellers manufactured after 1983 as defined in Note 5 - See Figure 5 Manufactured or overhauled before October 1991 - Note 1	2400/60
Manufactured or overhauled during or after October 1991 - Note 1	2400/72
All other 4 Bladed propellers Manufactured or overhauled before October 1991 - Note 1	2400/60
Manufactured or overhauled during or after October 1991 - Note 1	2400/72

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C. Turbine Engine Propellers

- (1) All Hartzell propellers installed on turbine engine aircraft must be overhauled within the flight hour/calendar month periods (whichever occurs first) listed below:

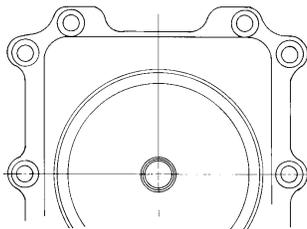
Steel Hub Propellers on Turbine Engines

Model numbers as shown in Figure 1

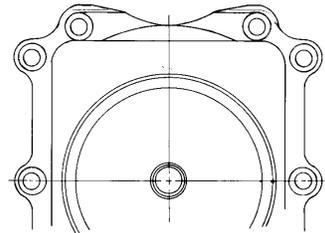
<u>Propeller Model and application</u>	<u>Flight Hours/Calendar Months</u>
Hard Alloy Blades Installations as defined in Note 6	3000/36
Agricultural Installations as defined in Note 2 -	
Option 1	3000/36
Option 2 - Maintained and Inspected in accordance with Hartzell Service Letter HC-SL-61-253	3000/60
Acrobatic (aerobatic) Installations as defined in Note 3	3000/60
Fire Fighting Installations as defined in Note 9	3000/60
All Other Installations	3000/60

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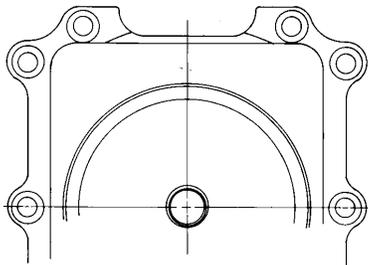
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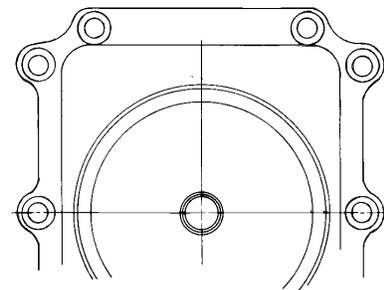
Two blade hubs made
before 1983



Two blade hubs made
1983 thru 1991



Two blade hubs made
December 1991 thru April 1997,
have the suffix "A" in the serial number



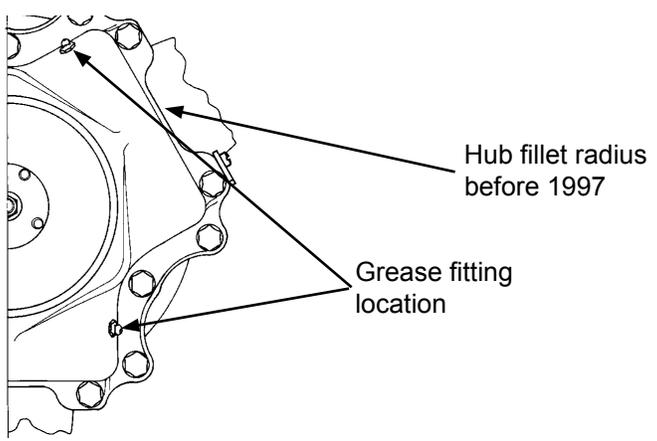
Two blade hubs made since April 1997,
have the suffix "B" in the serial number

Two Blade Aluminum Hub Production Changes

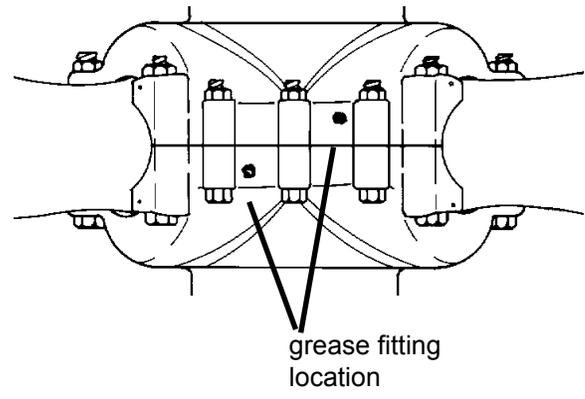
Figure 4

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Three blade hubs made before 1983



Three blade hubs made 1983 and after

Three Blade Aluminum Hub Production Changes
Figure 5

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D. Governors

- (1) Hartzell propeller governors are to be overhauled at the same time as engine overhaul, but not to exceed 2400 hours of operation (there is no calendar limit applicable to governors).

E. Damper Assemblies

- (1) All Hartzell propeller damper assemblies are to be overhauled at 2400 hours of operation or 72 calendar months, whichever occurs first.

NOTE: A propeller damper assembly is installed on the hub behind the bulkhead on various installations using Lycoming 360 series engines.

F. Notes

NOTE 1: Propellers or aluminum hubs manufactured or overhauled since October 1991 are required to have the hub internal surface painted for additional corrosion protection.

NOTE 2: Agricultural aircraft are defined as aircraft used as aerial applicators as defined in 14 CFR 137.3, as specified in FAA order 8700.1, including forest fire-fighting activities (Refer to Note 9). These operations may expose the propeller to a relatively severe chemical/corrosive environment. Once installed on an agricultural aircraft, the 36 month overhaul limit is to be maintained until overhaul is performed, even if the propeller is later installed on a non-agricultural aircraft.

NOTE 3: Acrobatic (aerobatic) aircraft are defined as certificated acrobatic category aircraft or other aircraft routinely exposed to maneuvers beyond those specified for utility category aircraft as defined in 14 CFR 23.3. Once a propeller is used on an aerobatic aircraft, the specified overhaul times for an aerobatic propeller are to be maintained until overhaul is performed, even if the propeller is later installed on a non-aerobatic aircraft.

NOTE 4: Two blade, aluminum hub propellers or two blade aluminum hubs on reciprocating engines manufactured after April 1997 use an improved hub "fillet radius" and will be identified with a suffix letter "B" in the serial number. Refer to Figure 4.

NOTE 5: Three blade, aluminum hub propellers or three blade aluminum hubs manufactured after 1983 use different grease fitting location. Refer to Figure 5.

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NOTE 6: All hard alloy blades must be overhauled every 36 calendar months. Hard alloy blades are identified by the letter "H" immediately following the blade design number, e.g., (L)T10178H(B). Hard alloy blades are also stamped with "76 alloy" on the blade butt.

NOTE 7: Information regarding the overhaul intervals of the HD-E6C-3() propeller and systems is published in Hartzell Manual 161 (61-10-61).

NOTE 8: Overhaul intervals for the HC-A6A-3() propeller are provided in Hartzell Service Bulletin 152E.

NOTE 9: Fire fighting aircraft are defined as aircraft used solely and exclusively for fire fighting operations and related training flights.

4. Life Limits for a Propeller and Engine Installed on a Type Certificated Engine

- A. The following data summarizes all current information concerning Hartzell life limited parts, propeller assemblies, and propeller blades. Refer to Table 1.
- B. A summary of the life limit for a propeller installed on an experimental engine is specified in Section 5., Life Limits for a Propeller Installed on an Experimental Engine, of this Service Letter.
- C. In recent years, life limits have been published in the Airworthiness Limitations section of the applicable Hartzell propeller maintenance manual or the applicable owner's manual. In the following summary, where applicable, the manuals are referenced for details concerning life limit information. Life limit data is provided in the following summary for installations that have not yet been incorporated into manuals.

NOTE 1: Blade life limits have been deleted from this document for all applications using M10876() blades. Refer to the applicable propeller overhaul manual or the applicable owner's manual.

NOTE 2: Life limits for blade models are application specific. They may not be life limited on other installations. However, **time accumulated toward life limit accrues when first operated on a life limited application and continues regardless of subsequent installations (which may or may not be life limited)**. If a subsequent application is also life limited, the most conservative life limit is applicable.

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NOTE 3: Previously, blades to be installed on life limited installations were to have the letter "L" stamped on the butt of the blade. This is no longer a requirement. Operators and propeller repair stations are reminded that propeller logbooks are required to contain the status (total time in service) of life limited parts, ref. 14 CFR Parts.

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Aerostar PA60- 600,601(P),602P with Machen conversion with Lycoming (T)IO-540 series and HC-C4YR-2(L)/F(J)C6660(B,K) see the latest revision of Hartzell Overhaul Manual 117D (61-10-17) or Hartzell Owner's Manual 115N (61-00-15) for life limits.

Air Tractor AT-802(A) with Honeywell TPE331-14GR() and HC-B5MA-5H/M11693NS propeller - see the latest revision of Hartzell Overhaul Manual 132A (61-10-32) or Hartzell Owner's Manual 139 (61-00-39) for pitch change rod life limits.

Antonov AN-38-100 with Allied Signal TPE331-14GR and HC-B5MA-5A/M11276NK-3() propeller - see the latest revision of Hartzell Overhaul Manual 132A (61-10-32) or Hartzell Owner's Manual 139 (61-00-39) for blade and pitch change rod life limits.

Antonov AN-38-100 with Allied Signal TPE331-14(G)(R) and HC-B5MA-5A/M11276N(C)K-3() propeller - see the latest revision of Hartzell Overhaul Manual 132A (61-10-32) or Hartzell Owner's Manual 139 (61-00-39) for blade and pitch change rod life limits.

Aviat S2B with Lycoming AEIO-540-D4A5 and HC-C3YR-1A/7690C propeller - see the latest revision of Hartzell Overhaul Manual 113B (61-10-13) or Hartzell Owner's Manual 145 (61-00-45) for blade life limits.

Aviat S2S and S2B with Lycoming AEIO-540-D4A5 and HC-C2YR-4CF/FC8477A-4 propeller - see the latest revision of Hartzell Overhaul Manual 113B (61-10-13) or Hartzell Owner's Manual 115N (61-00-15) for life limits.

CASA 212 with Allied Signal TPE331-5-251C and HC-B4TN-5CL/LT10282+4 propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.

EADS-PZL Warszawa-Okecie PZL-130TCII with P & W PT6A-25C and HC-D4N-2DA/D9512AF - see the latest revision of Hartzell Overhaul Manual 142 (61-10-42) or Hartzell Owner's Manual 149 (61-00-49) for hub and blade life limits.

Dornier 328 propeller system - see the latest revision of Hartzell Overhaul Manual 161 or Hartzell Line Maintenance Manual 160 (61-00-60-45) for life limits.

Embraer EMB-312 with P & W PT6A-25C and HC-B3TN-3(C,D)/T10178(B,K)-8R propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.

Embraer EMB-314 with P & W PT6A-68C and HC-B5MA-2/M9128NS(K) propeller - see the latest revision of Hartzell Overhaul Manual 132A (61-10-32) or Hartzell Owner's Manual 139 (61-00-39) for hub, clamp, and blade life limits.

Fairchild Swearingen SA226TC Metro IIA with Allied Signal TPE331-10UA-501G or 511G and HC-B3TN-5()/T10282()() propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.

Fairchild Swearingen SA227-AC with Allied Signal TPE331-11U() and HC-E4W-5L/JE10305(B) propeller - see the latest revision of Hartzell Overhaul Manual 141 (61-10-41) or Hartzell Owner's Manual 149 (61-00-49) for hub life limits.

Life Limits for a Propeller or Blade Installed on a Type Certificated Engine
Table 1

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- Hawker Beechcraft T34C, T34C-1 with P & W PT6A-25(R) and HC-B3TN-3()/T10173-11R propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.
- Hawker Beechcraft Model 3000 (IAUP) (US Military T-6A or T-6B) with P&W PT6A-68 and HC-E4A-2(A)/E9612(K) propeller – see the latest revision of Hartzell Overhaul Manual 142 (61-10-42) or Hartzell Owner's Manual 149 (61-00-49) for blade and hub life limits.
- Hubdustan HPT-32 with Lycoming AEIO-540-D4B5 and HC-C(2,3)YR-4(B,C)F/FC8477-4R propeller - see the latest revision of Hartzell Overhaul Manual 113B (61-10-13) or Hartzell Owner's Manual 115N (61-00-15) for cylinder life limits.
- Korea Aerospace Industries KO-1 with P & W PT6A-62 and HC-E4N-2B/E9512DB-1 - see the latest revision of Hartzell Overhaul Manual 142 (61-10-42) or Hartzell Owner's Manual 149 (61-00-49) for blade life limits.
- Korea Aerospace Industries KT-1(C,T) with P & W PT6A-62 and HC-E4N-2(C)/E9512CB-1 - see the latest revision of Hartzell Overhaul Manual 142 (61-10-42) or Hartzell Owner's Manual 149 (61-00-49) for blade life limits.
- Marsh/Grumman S-2 Marsh conversion with Allied Signal TPE331-14A-801Z and HC-E5B-5/E12902K propeller, - see the latest revision of Hartzell Overhaul Manual 158A (61-10-58) or Hartzell Owner's Manual 147 (61-00-47) for blade life limits.
- Marsh/Grumman S2 with Honeywell TPE331-14() and HC-B5MP-5/M11276(N)S(K) propeller - see the latest revision of Hartzell Overhaul Manual 132A (61-10-32) or Hartzell Owner's Manual 139 (61-00-39) for pitch change rod life limits.
- Marsh/Grumman S2F3 with Honeywell TPE331-14() and HC-B5MA-5H/M11692NS(K) propeller - see the latest revision of Hartzell Overhaul Manual 132A (61-10-32) or Hartzell Owner's Manual 139 (61-00-39) for pitch change rod life limits.
- Maule M-9 with SMA SR305 engine and HC-I3YR-1C propeller - see Hartzell Service Bulletin HC-SB-61-266
- Mitsubishi MU-2B-26A, -36A, -40, -60 & other MU-2s with Allied Signal TPE-331-(5,10)-() and HC-B4TN-5/LT10282N(S)(B,K)-5.3R propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.
- Mooney M-20L with Porsche PFM and BHC-J2YF-1C/B7421 propeller - see the latest revision of Hartzell Overhaul Manual 113B (61-10-13) or Hartzell Owner's Manual 145 (61-00-45) for blade life limits.
- NDN-1T Firecracker with P & W PT6A-25A and HC-B3TN-3(B,C)/T10173(B,K)-17 propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.
- North American Rockwell OV-10A with Garrett T76-G-418M or -419M and HC-B4MN-5B(L)/(L)M9990N propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.

Life Limits for a Propeller or Blade Installed on a Type Certificated Engine
Table 1 (Continued)

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<p>North American Rockwell OV-10D with Garrett T76-G-420 or -421 and HC-B4MN-5B(L)/(L)M9990N propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.</p> <p>Piaggio P-180 Avanti with P & W PT6A-66 and HC-E5N-3()/()E8218 propeller, depending on engine nacelle and exhaust stack usage, for some propellers the blades and hub are life limited, for other propellers only the blades are life limited - see the latest revision of Hartzell Overhaul Manual 158A or Hartzell Owner's Manual 149 (61-00-49) for life limits.</p> <p>Pilatus PC-7 with P & W PT6A-25,-25A and HC-B3TN-2()/T10173C()-8 propeller - see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.</p> <p>Pilatus PC-7 modified by Sierra industries with P & W PT6A-25C and HC-B3TN-2()/T10178(N)-8R propeller- see the latest revision of Hartzell Overhaul Manual 118F (61-10-18) or Hartzell Owner's Manual 139 (61-00-39) for blade life limits.</p> <p>Pilatus PC-7 MK II with P & W PT6A-25C and HC-D4N-2(D,E)/D9512A(K) propeller - see the latest revision of Hartzell Overhaul Manual 142 (61-10-42) or Hartzell Owner's Manual 149 (61-00-49) for blade life limits.</p> <p>Pilatus PC-9 with expanded flight envelope with P & W PT6A-62B and HC-D4N-2(AA,G)/D9512AE(B,K) propeller - see the latest revision of Hartzell Overhaul Manual 142 (61-10-42) or Hartzell Owner's Manual 149 (61-00-49) for blade life limits.</p> <p>Pilatus PC-9 with P & W PT6A-62 and HC-D4N-2(A,F)/D9512A(B,K) propeller - see the latest revision of Hartzell Overhaul Manual 142 (61-10-42) or Hartzell Owner's Manual 149 (61-00-49) for blade life limits.</p> <p>Pilatus PC-21 with P & W PT68B and HC-E5A-2/E9193(B,K) propeller - see the latest revision of Hartzell Overhaul Manual 157 (61-10-57) or Hartzell Owner's Manual 147 (61-00-47) for blade, cylinder, piston, and hub life limits.</p> <p>Shorts SD3-60-300 with HC-A6A-3A propellers in compliance with SB 168, D-4905 Pitch Change Rod is life limited to 37,000 hours. (If SB 168 is not performed, other component parts are life limited. Refer to Hartzell Service Bulletin 152E or subsequent for details)</p> <p>Shorts T MK 1 Tucano with Allied Signal TPE331-12B and HC-D4N-5(C,E)/D9327() propeller - the latest revision of Hartzell Overhaul Manual 141 (61-10-16) or Hartzell Owner's Manual 149 (61-00-49) for blade life limits</p> <p>Socata TB-30 with Lycoming AEIO-540-L1BD5 and HC-C2YR-4CF/FC8475-6 propeller - see the latest revision of Hartzell Overhaul Manual 113B (61-10-13) or Hartzell Owner's Manual 115N (61-00-15) for blade and hub life limits.</p> <p>Twin Commander 500(B,S,U) modified by Merlyn Products Inc. with TIO-540-J2B() and HC-C4YR-2/FC6660() propeller - see the latest revision of Hartzell Overhaul Manual 117D (61-10-17) or Hartzell Owner's Manual 115N (61-00-15) for blade life limits.</p>

Life Limits for a Propeller or Blade Installed on a Type Certificated Engine
Table 1 (Continued)

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5. Life Limits for a Propeller Installed on an Experimental Engine or an Engine with Modification

- A. This section specifies the recommended life limits and/or installation limitations for a propeller and/or a blade when installed on an experimental engine or an engine with a modification. Refer to Table 2.
- B. Unless otherwise specified, the overhaul periods for the propeller are specified in section 3., Overhaul Periods, of this Service Letter.
- C. The life limit for a propeller and/or a blade may be application and/or engine-specific. The propeller and/or blade may not be life limited on other installations; however, **time accumulated toward a life limit accrues when first operated on a life limited application and continues regardless of subsequent installations (that may or may not be life limited)**.
 - (1) If a life limited propeller or blade is removed and installed on an application or engine that is also life limited, the lowest propeller or blade life limit applies.
 - (2) If a life limited propeller or blade is removed and installed on an application or engine that is not life limited, the original propeller or blade life limit applies.

NOTE: Operators and propeller repair stations are reminded that propeller logbooks are required to contain the status (total time in service) of life limited parts, refer to 14 CRF Parts.

- D. The maximum and minimum propeller diameters that can be used from a vibration standpoint are shown in Table 2. Diameter reduction below the minimum diameter listed is not permitted, because this maximum or minimum diameter measurement includes the diameter reduction permitted for repair purposes.
- E. The engine models listed are the configurations tested. Modification to the engine that alters the power of the engine models listed in Table 2 during any phase of operation have the potential to increase propeller stresses and are not approved by this list. Such modifications include, but are not limited to, the addition of a turbo charger or turbonormalizer, increased boost pressure, increased compression ratio, increased RPM, altered ignition timing, electronic ignition, full authority digital engine controls (FADEC), or tuned induction or exhaust. Also, any change to the mass or stiffness of the crankshaft/counterweight assembly is not approved by this list.

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Propeller and Experimental Engine Combinations or Modified Engine Approved Vibrationwise for Use on Single Engine Tractor Aircraft			
Propeller Model	Blade Model	Engine	Max. Dia. (inches) Min. Dia. (inches) Life Limit (flight hours)
HC-(C,F,M)2YR-1BFP	F7499	Engine Components, Inc (ECI) (I)OX-360S, 8.5:1 to 10.2:1 Compression Ratio	74 72 10,000
Operating Restriction: "Do not operate above 24" manifold pressure below 2450 RPM."			
HC-(C,F,M)2YR-1BFP	F7499	Engine Components, Inc. (ECI) (I)OX-370S, 8.5:1 Compression Ratio	74 72 10,000
Operating Restriction: "Do not operate above 24" manifold pressure below 2450 RPM."			
HC-C2YR-1BF	F7666A-2	Lycoming O-360-A1A rated at 180hp at 2700 RPM Equipped with Lightspeed Plasma II electronic ignition	74 72 8,700
Operating Restriction: "Avoid continuous operation between 2000 and 2250 RPM. Operation above 2600 RPM is limited to takeoff. As soon as practical after takeoff the RPM should be reduced to 2600 RPM or less."			

Life Limits for a Propeller or Blade Installed on an Experimental Engine
Table 2