

HARTZELL PROPELLER INC. SERVICE LETTER

Propellers Lubrication Practices

1. Planning Information

A. Effectivity

All Hartzell "HC" Series propellers.

B. Concurrent Requirements

None

C. Reason

(1) Improper lubrication practices can create grease leaks and out-of-balance conditions.

(2) Propellers that are improperly lubricated, or leak grease, leave greaseless areas in the bearing. These greaseless areas can accumulate moisture and lead to corrosion.

D. Description

This Service Letter provides the proper lubrication techniques for all Hartzell "HC" Series propellers.

NOTE: Lubrication procedures detailed within this Service Letter, although current at the time of publication, are for reference purposes only. Refer to the latest revision of Hartzell Manual 202 (ATA 61-01-02) for the most current information.

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E. Compliance

- (1) Compliance with this Service Letter shall take place at the next scheduled lubrication interval.
- (2) The propeller is to be re-lubricated at 12 months, or at the hourly limits stated in Paragraph 1.E.(3) , whichever occurs first.

NOTE 1: If annual operation is significantly less than the hourly limit stated below, calendar lubrication intervals should be reduced to six months.

NOTE 2: If the aircraft is operated or stored under adverse atmospheric conditions, (eg. high humidity, salt air) calendar lubrication intervals should be reduced to six months.

- (3) The propeller is to be re-lubricated at 100 hour intervals or at the calendar limit stated in Paragraph 1.E.(2), whichever occurs first. Exceptions to this hourly interval are indicated in Paragraphs (a) through (c), below.

(a) The lubrication interval for HC-A6()-3() propellers is 300 hours.

(b) The lubrication interval for lightweight turbine propellers (listed below) is 400 hours:

HC-D3()-7()	HC-D4()-5()	HC-E4()-5()	HC-E6()-5()
HC-D4()-2()	HC-E4()-2()	HC-E5()-3()	HC-D4()-3()
HC-E4()-3()	HC-E5B-5()		

NOTE: The lubrication interval for the HC-E5()-3() propeller installed on the Piaggio P-180 is 100 hours. All other propellers of this type on any other installation should be lubricated at 400 hours.

- (c) Operators of commuter aircraft or aircraft with very high utilization can evaluate previous propeller overhauls with regard to bearing wear and internal corrosion and gradually increase their re-lubrication interval based on service history. Interval extension must be implemented as part of an approved maintenance program, or with the approval of the local airworthiness authority.

F. Approval

FAA approval has been obtained on all technical data that affects type design.

G. References

Hartzell Manual 202A - Standard Practices

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H. Other Publications Affected

Hartzell Service Advisory SA 17 (obsoleted by this Service Letter)
Hartzell Service Bulletin 159 (obsoleted by this Service Letter)
Hartzell Manual 106R - Propeller Owners's Manual and Log Book
Hartzell Manual 115N - Propeller Owners's Manual and Log Book
Hartzell Manual 139 - Propeller Owners's Manual and Log Book
Hartzell Manual 149 - Propeller Owners's Manual and Log Book
Hartzell Manual 154 - Propeller Owners's Manual and Log Book
Hartzell Manual 202A - Standard Practices

2. Material Information

A. Hartzell Approved Greases:

Aeroshell 6
Aeroshell 5 (with certain limitations)
Aeroshell 7
Aeroshell 22
Exxon 5114EP
Royco 22C

NOTE 1: Other, previously issued, Hartzell documents indicate additional greases by brand name and/or MIL-specification. Not all of these greases meet our current performance standards. Hartzell has chosen to specify only those greases which have sufficient testing or field experience to establish that they are acceptable.

NOTE 2: Aeroshell 6 (or Aeroshell 22, in some applications) has been used in all new production Hartzell propellers since mid-June of 1989. A decal (Hartzell P/N A-3594) indicating the type of grease used is affixed to the propeller cylinder.

B. Grease Recommendations and Restrictions

(1) Aeroshell 6

(a) Recommended "all purpose" grease. Used in all new production propellers since 1989, except for propellers used on the Piaggio P180 and the Grob Egret. Higher leakage/oil separation than Aeroshell 5 at higher temperatures.

(2) Aeroshell 5

(a) Good high temperature qualities, very little oil separation or leakage. Cannot be used in temperatures colder than -40°F (-40°C). Aircraft serviced with this grease must be placarded to indicate that flight is prohibited if the outside air temperature is less than -40°F (-40°C).

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(3) Aeroshell 7

- (a) Good low temperature grease, but high leakage/oil separation at higher temperatures. This grease has been associated with sporadic problems involving seal swelling.

(4) Aeroshell 22

- (a) Qualities similar to Aeroshell 7. Aeroshell 22 is the only approved grease for propellers used on the Piaggio P180 and the Grob Egret.

(5) Exxon 5114EP:

- (a) Exxon 5114 has qualities which are similar to those of Aeroshell 7. Not widely used.

(6) Royco 22C

- (a) Royco 22C performance is similar to that of Aeroshell 22. Not widely used.

(7) Mobil 28 was previously approved but there have been reports of corrosion associated with its use and it is no longer recommended.

3. Accomplishment Instructions

CAUTION 1: THESE LUBRICATION PROCEDURES MUST BE FOLLOWED TO CORRECTLY MAINTAIN ACCURATE STATIC BALANCE OF THE PROPELLER BLADE AND HUB ASSEMBLIES. FAILURE TO FOLLOW THE PROCEDURES MAY LEAD TO EXCESSIVE VIBRATION.

CAUTION 2: USE A HARTZELL PROPELLER APPROVED GREASE ONLY. DO NOT MIX DIFFERENT SPECIFICATIONS AND/OR BRANDS OF GREASE.

NOTE: A decal (Hartzell P/N A-3594) is normally applied on the propeller to indicate the type of grease previously used. This grease type should be used during re-lubrication unless the propeller has been disassembled and the old grease removed. Purging of old grease through grease fittings is only about 30% effective.

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A. Lubrication Procedure

(1) Steel Hub Propellers

- (a) Remove the grease fitting caps from both grease fittings on each blade clamp. Remove one grease fitting from each clamp.

NOTE: Certain old steel blade clamps may have only one fitting which must be carefully re-lubricated without excessive pressure, add a small amount (1-2 fluid ounces) of grease equally to each blade.

- (b) Use a piece of safety wire to loosen any blockage or hardened grease at the threaded holes where the grease fittings were removed to permit the old grease to flow freely when new grease is introduced.

- (c) Using a hand operated grease gun, begin pumping grease into the fitting. Apply an approved grease to each fitting until clean grease emerges from the removed fitting hole in a steady flow with no air pockets. Grease must be applied to ALL blades of a propeller assembly at time of lubrication.

NOTE: Over lubricating a steel hub propeller may cause the grease to bypass the clamp to hub seal or the clamp parting line gaskets, leading to excessive leakage or vibration.

- (d) Install grease fittings and torque to 50 in-lb (5.6 N.m).

- (e) Install grease fitting caps over all grease fittings, and safety-wire.

NOTE: New propellers or newly overhauled propellers should be re-lubricated after the first hour or two of operation. Initial lubrication normally does not fill all voids completely. Centrifugal force tends to relocate the grease which can then allow re-lubrication to completely fill the bearing area with grease.

(2) Aluminum Hub Propellers

- (a) Remove the grease fitting caps from both sides of the hub assembly. Remove the grease fittings from either the cylinder side, or engine side, of the hub assembly.

NOTE: It is preferable to apply grease to the fitting located nearest to the leading edge of the blade on a tractor installation, or nearest the trailing edge on a pusher installation. Greasing at this location reduces the possibility of grease bypassing the bearing area and entering the hub cavity.

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(b) To prevent pressurization of the bearing cavity, use a piece of safety wire to loosen any blockage or hardened grease at the threaded holes where the grease fittings were removed.

CAUTION: MAKE SURE THERE ARE NO AIR POCKETS IN APPROVED GREASE THAT HAS BEEN ADDED TO PROPELLER HUB.

(c) Lubricate the propeller in accordance with the appropriate instructions, below.

1 **Initial lubrication after assembly or overhaul:** Using a hand operated grease gun, apply an approved grease to each grease fitting until grease emerges from the removed lube fitting hole in a steady flow with no air pockets. Grease must be applied to ALL blades of a propeller assembly at time of lubrication.

2 **In-service lubrication:** Using a hand operated grease gun, apply an approved grease to each grease fitting until grease emerges from the removed lube fitting hole in a steady flow or until a maximum of 1 fl. oz (30 ml) of grease has been applied, **whichever comes first.** Grease must be applied to ALL blades of a propeller assembly at time of lubrication.

NOTE: Over lubricating an aluminum hub propeller may cause the grease to enter the hub cavity, leading to excessive vibration and/or sluggish operation. The propeller must then be disassembled to remove this grease.

(d) Install grease fittings and torque to 50 in-lb (5.6 N.m).

(e) Install grease fitting caps over all grease fittings, and safety-wire.

NOTE: New propellers or newly overhauled propellers should be re-lubricated after the first hour or two of operation. Initial lubrication normally does not fill all voids completely. Centrifugal force tends to relocate the grease which can then allow re-lubrication to completely fill the bearing area with grease.