HARTZELL PROPELLER INC.

SERVICE LETTER

TRANSMITTAL SHEET

HC-SL-61-241

Propeller - New Blade Seal

February 2, 2015

This page transmits a revision to Service Letter HC-SL-61-241.

- Original Issue, dated Jan 17/05
- Revision 1, dated Jan 12/07
- Revision 2, dated Mar 12/10
- Revision 3, dated Feb 02/15

Propeller assemblies that have previously complied with the requirements in a previous revision of this Service Letter are affected.

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.

Revision 3 is issued to change the following in the Service Letter:

- Revise Effectivity; add all "D" shank blades and remove other applications now incorporated in their applicable overhaul manuals.
- Revise References and Affected Publications as needed.
- Revise Table 1 and Table 2.

HARTZELL PROPELLER INC.

SERVICE LETTER

TRANSMITTAL SHEET

HC-SL-61-241

Propeller - New Blade Seal

(This page is intentionally blank.)

HARTZELL PROPELLER INC.

SERVICE LETTER

HC-SL-61-241

Propeller - New Blade Seal

1. Planning Information

   A. Effectivity

      (1) Hartzell HC-(D,E)( )( )-( ) lightweight turbine propellers with "D or E" shank blades are affected by this Service Letter.

         (a) Hartzell HC-E( )( )-( ) lightweight turbine propellers with E9193( ) blades are not affected by this Service Letter.

      WARNING: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE LETTER. INFORMATION CONTAINED IN THIS SERVICE LETTER MAY BE SIGNIFCANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SERVICE LETTER OR THE USE OF OBSOLETE INFORMATION MAY CREATE AN UNSAFE CONDITION THAT MAY RESULT IN DEATH, SERIOUS BODILY INJURY, AND/OR SUBSTANTIAL PROPERTY DAMAGE. REFER TO THE SERVICE LETTER INDEX FOR THE MOST RECENT REVISION LEVEL OF THIS SERVICE LETTER.

   B. Concurrent Requirements

      (1) Additional service documents may apply to the components/propellers affected by this Service Letter. Compliance with additional service documents may be necessary in conjunction with the completion of the Accomplishment Instructions in this Service Letter. Refer to the Hartzell Propeller Inc. website at www.hartzellprop.com for a cross-reference of service documents.

   C. Reason

      (1) The current propeller designs have a slip fit between the preload plate and the blade butt.

         (a) If not properly serviced, this small gap may permit grease to enter the central hub cavity during the periodic lubrication of the blade retention area.

         (b) Migration of the grease from the blade retention area to the hub central cavity can potentially cause grease leaks or vibration.

      (2) Hartzell Propeller Inc. has designed an internal blade butt seal that restricts migration of grease into the hub cavity. See Figure 1.

SERVICE LETTER

HC-SL-61-241

Propeller - New Blade Seal

D. Description

(1) This Service Letter provides Instructions for Continued Airworthiness (ICA).

(2) The original issue of this Service Letter introduced the new B-7726 blade seal, C-3317-045 O-ring, and B-7071 bearing retaining ring for the HC-E( )( )-( ) propellers with "E" shank blades.

(3) This revision introduces the new B-7726 blade seal, C-3317-045 O-ring, and 102158 bearing retaining ring for the HC-(D,E)( )( )-( ) propellers with "D" shank blades.

CAUTION: THE B-1041 OR THE A-2204 BEARING RETAINING RING CANNOT BE USED WITH THE C-3317-045 O-RING AND THE B-7726 BLADE SEAL.

(4) For HC-E( )( )-( ) propellers with "E" shank blades, the B-7071 bearing retaining ring, C-3317-045 O-ring, and B-7726 blade seal supersede the B-1041 bearing retaining ring on new production propellers of the affected models.

(5) For HC-(D,E)( )( )-( ) propellers with "D" shank blades, the 102158 bearing retaining ring, C-3317-045 O-ring, and B-7726 blade seal supersede the A-2204 bearing retaining ring on new production propellers of the affected models.

(6) The new components are a product improvement for in-service propellers and will be incorporated into production.

(7) This Service Letter provides overhaul requirements for the B-7071 and the 102158 bearing retaining ring and the B-7726 blade seal.

(8) Revision 3 revises the Effectivity.

(a) Information for previously affected blades is now incorporated in the applicable manuals.

E. Compliance

(1) At the convenience of the customer.

F. Approval

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

CAUTION: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF A DOCUMENT.

G. References

(1) Hartzell Propeller Inc. Aluminum Blade Overhaul Manual 133C (61-13-33)

(2) Hartzell Propeller Inc. Composite Propeller Blade Maintenance Manual 135F (61-13-35)

(3) Hartzell Propeller Inc. Five Blade Lightweight Turbine Propeller Overhaul Manual 157 (61-10-57)

(4) Hartzell Propeller Inc. Four Blade Lightweight Turbine Propeller and Composite Blades Inspection Repair Overhaul Manual 156A (61-10-56)

(5) Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02)

H. Other Publications Affected

(1) Hartzell Propeller Inc. Aluminum Blade Overhaul Manual 133C (61-13-33)

(2) Hartzell Propeller Inc. Composite Propeller Blade Maintenance Manual 135F (61-13-35)

(3) Hartzell Propeller Inc. Four Blade Lightweight Turbine Propeller and Composite Blades Inspection Repair Overhaul Manual 156A (61-10-56)

(4) Hartzell Propeller Inc. Five Blade Lightweight Turbine Propeller Overhaul Manual 157 (61-10-57)

2. Material Information

A. Parts Identification

New Part Number	Description	Superseded Part Number	Blade Shank
B-7071	Bearing Retaining Ring	B-1041	E
102158	Bearing Retaining Ring	A-2204	D
B-7726	Blade Seal	N/A	D, E
C-3317-045	O-Ring	N/A	D, E

(1) The B-1041 bearing retaining ring is replaced by the B-7071 bearing retaining ring. Hartzell Propeller Inc. will no longer supply the B-1041 bearing retaining ring.

(2) The A-2204 bearing retaining ring is superseded by the 102158 bearing retaining ring.

(3) Installation of the blade seal assembly is optional.

CAUTION: WHEN THE BLADE SEAL ASSEMBLY IS INCORPORATED FOR ANY BLADE IN A PROPELLER, ALL BLADES IN THE PROPELLER MUST BE INSTALLED WITH THE NEW BEARING RETAINING RING, BLADE SEAL AND O-RING.

(a) Installation of the B-7726 blade seal and the C-3317-045 O-ring is optional.

(b) When the B-7071 bearing retaining ring is used without the blade seal and O-ring, propeller assemblies may contain both the B-7071 and B-1041 bearing retaining rings.

(4) Inventory of the B-1041 bearing retaining ring may be used until depleted.

(5) For identification purposes only, the dimension of Area "A" on the B-7071 is 0.153 inch (3.88 mm). The dimension of Area "A" on the B-1041 is 0.180 inch (4.57 mm). Refer to Figure 4.

(6) For identification purposes only, the dimension of Area "A" on the 102158 is 0.153 inch (3.88 mm). The dimension of Area "A" on the A-2204 is 0.180 inch (4.57 mm). Refer to Figure 4.

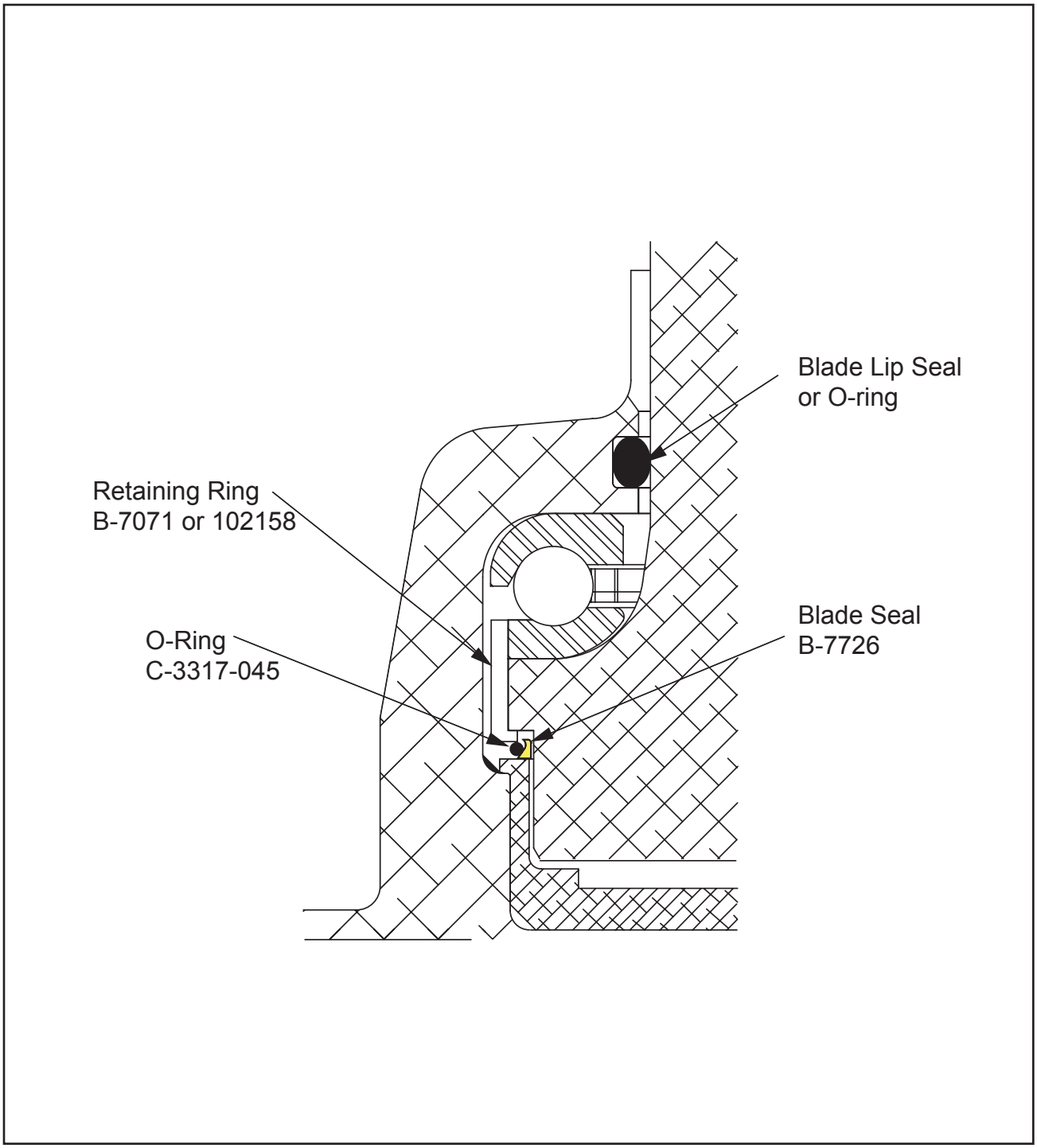
B. Consumables

(1) As specified in the applicable manual.

SERVICE LETTER

HC-SL-61-241

Propeller - New Blade Seal

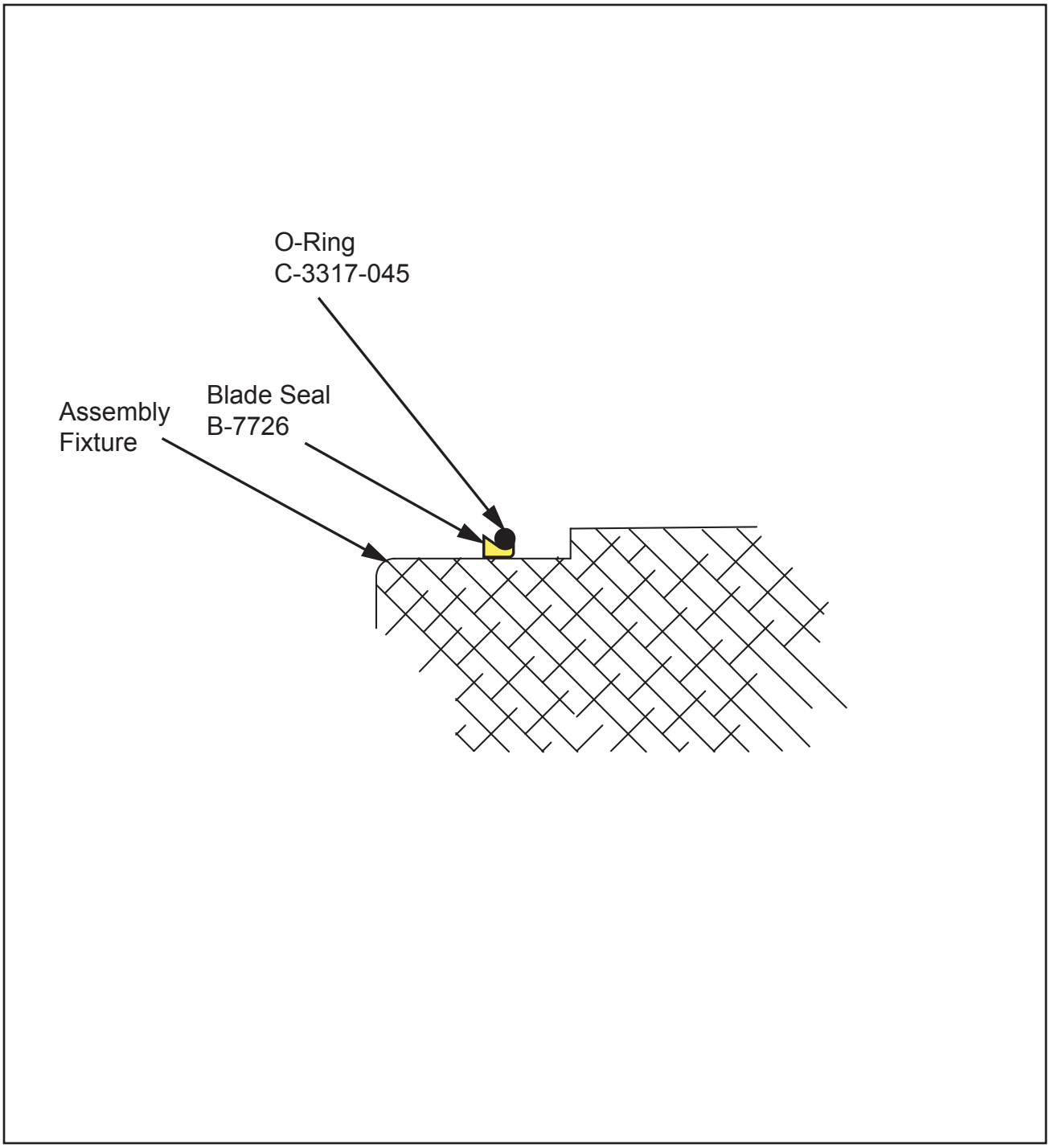


O-ring and Blade Seal Installation
Figure 1

SERVICE LETTER

HC-SL-61-241

Propeller - New Blade Seal

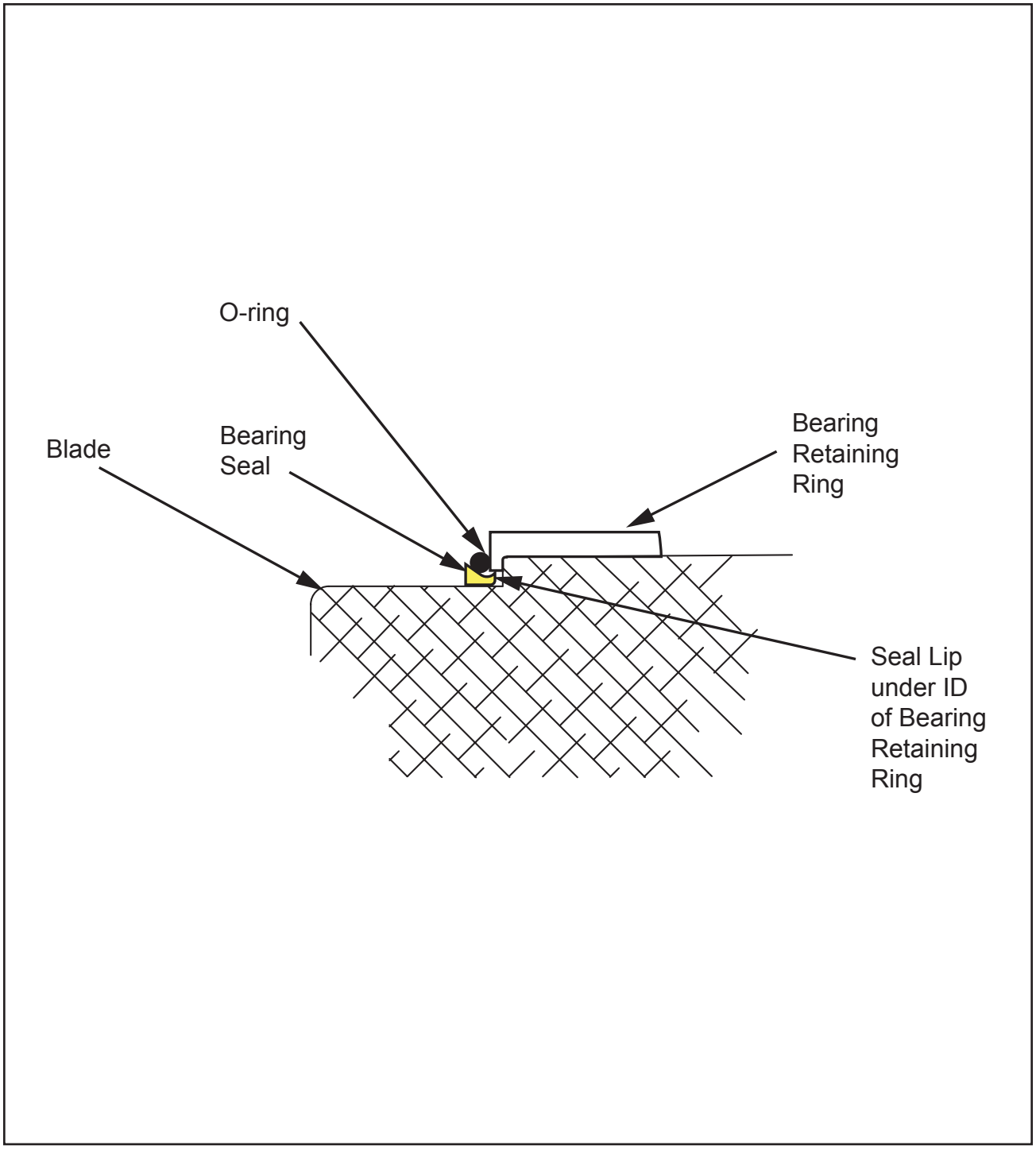


O-ring Installation on Blade Seal
Figure 2

SERVICE LETTER

HC-SL-61-241

Propeller - New Blade Seal



Blade Seal Home Position
Figure 3

C. Special Tooling

(1) For assembly of the blade seal and O-ring, an "E" or "D" shank blade butt, or equivalent is required for use as an assembly fixture.

3. Accomplishment Instructions

A. Blade Assembly

(1) Install the bearing retaining ring, in place of the currently specified bearing retaining ring, onto the blade with the correct bearing race in accordance with the applicable blade overhaul manual.

(2) Assemble the blade seal and O-ring:

(a) Install the B-7726 blade seal on an assembly fixture.

(b) The blade seal, without the outer O-ring in place, must be installed onto the assembly fixture OD without stretching.

(c) If blade seal stretches, replace the blade seal.

CAUTION: DO NOT OVERSTRETCH OR TWIST THE O-RING DURING INSTALLATION.

(d) Install the C-3317-045 O-ring into the recessed area of the B-7726 blade seal as shown in Figure 2. If the O-ring does not remain in place, replace the blade seal.

CAUTION: THE CORRECT ORIENTATION OF THE BLADE SEAL ASSEMBLY IS CRITICAL TO THE SEAL FUNCTION AND BLADE ROTATION.

(3) Remove the blade seal assembly as shown in Figure 2 from the assembly fixture and install the assembly on the blade, as shown in Figure 3.

(4) The blade seal with the O-ring installed must be installed into the home position without being forced as shown in Figure 3. If the blade seal appears to be significantly out-of-round then perform the following check:

(a) The home position is encircling the blade butt OD while resting against the bearing retaining ring with the lip of the blade seal sliding between blade OD and ID of the bearing retaining ring as shown in Figure 3.

(b) If the blade seal with O-ring installed fails to retain the home position, replace the blade seal.

(5) Install the preload plate in accordance with the applicable propeller overhaul manual.

(6) Assemble the blade in accordance with the applicable propeller overhaul manual.

NOTE: When installing the blade assembly, some additional pressure may be required to compress the preload plate.

B. Propeller Assembly

(1) Assemble the propeller in accordance with the applicable propeller overhaul manual.

C. Propeller Lubrication

(1) Lubricate and balance the propeller in accordance with Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).

D. Overhaul requirements

(1) The C-3317-045 O-ring must be replaced at overhaul.

(2) Inspect the Bearing Retaining Ring in accordance with Table 1.

(3) Inspect the Blade Seal in accordance with Table 2.

E. Make an entry in the propeller log book indicating compliance with this Service Letter.

Inspect	Serviceable Limits	Corrective Action
(a) Except for Area “A”, visually examine the bearing retaining ring for corrosion and pitting. Refer to Figure 4.	Corrosion is not permitted. The maximum permitted depth of pitting is 0.005 inch (0.12 mm). Pitting must not interfere with the ability of the bearing retaining ring to fit tightly to the blade and the bearing race.	If there is corrosion, remove the corrosion using glass bead cleaning. Refer to the Cleaning chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02). If the corrosion or pitting is greater than the permitted serviceable limits, replace the bearing retaining ring.
(b) Visually examine the bearing retaining ring for corrosion, pitting, or wear in Area “A”. Refer to Figure 4.	Corrosion, pitting, damage, or wear is not permitted.	If there is corrosion, pitting, or wear, replace the bearing retaining ring.
(c) Except for Area “A”, visually examine the bearing retaining ring for wear, damage, or fretting. Refer to Figure 4.	The bearing retaining ring must fit tightly to the blade and the bearing race when installed over the blade and the bearing race.	If the wear, damage, or fretting is more than the permitted serviceable limits, replace the bearing retaining ring.
(d) Visually examine the entire bearing retaining ring for cadmium plating coverage.	A few random scratches and corners with cadmium plating missing are permitted; otherwise, complete cadmium plating coverage is required.	If cadmium plating is not on all surfaces, replate the bearing retaining ring in accordance with the Cadmium Replating chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).

B-7071 and 102158 Inspection Requirements
Table 1

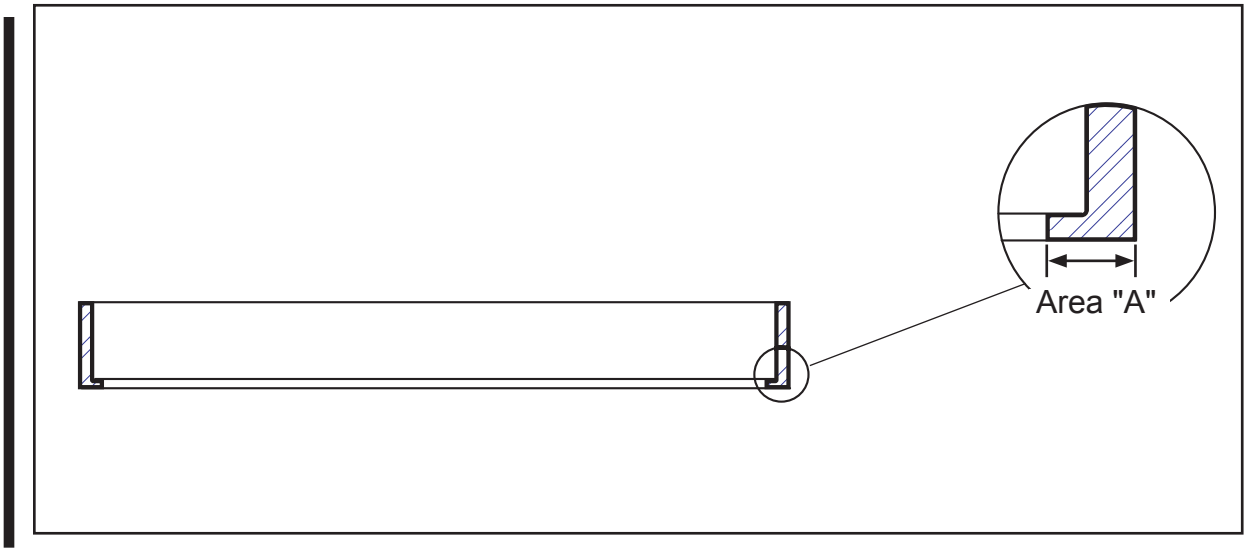
Inspect	Serviceable Limits	Corrective Action
(a) Using 10X magnification and an appropriate light source, visually examine the blade seal for damage, missing material, separation, or form irregularities of the continuous ring.	Damage, missing material, separation, or significant form irregularities are not permitted.	If the damage or other conditions are more than the permitted serviceable limits, replace the blade seal.
(b) Visually examine the width of the blade seal for wear. If there is wear, measure the width of the blade seal. Refer to Figure 5.	The minimum permitted width is 0.090 inches (2.29 mm).	If the width is less than the permitted serviceable limits, replace the blade seal.

B-7726 Inspection Requirements
Table 2

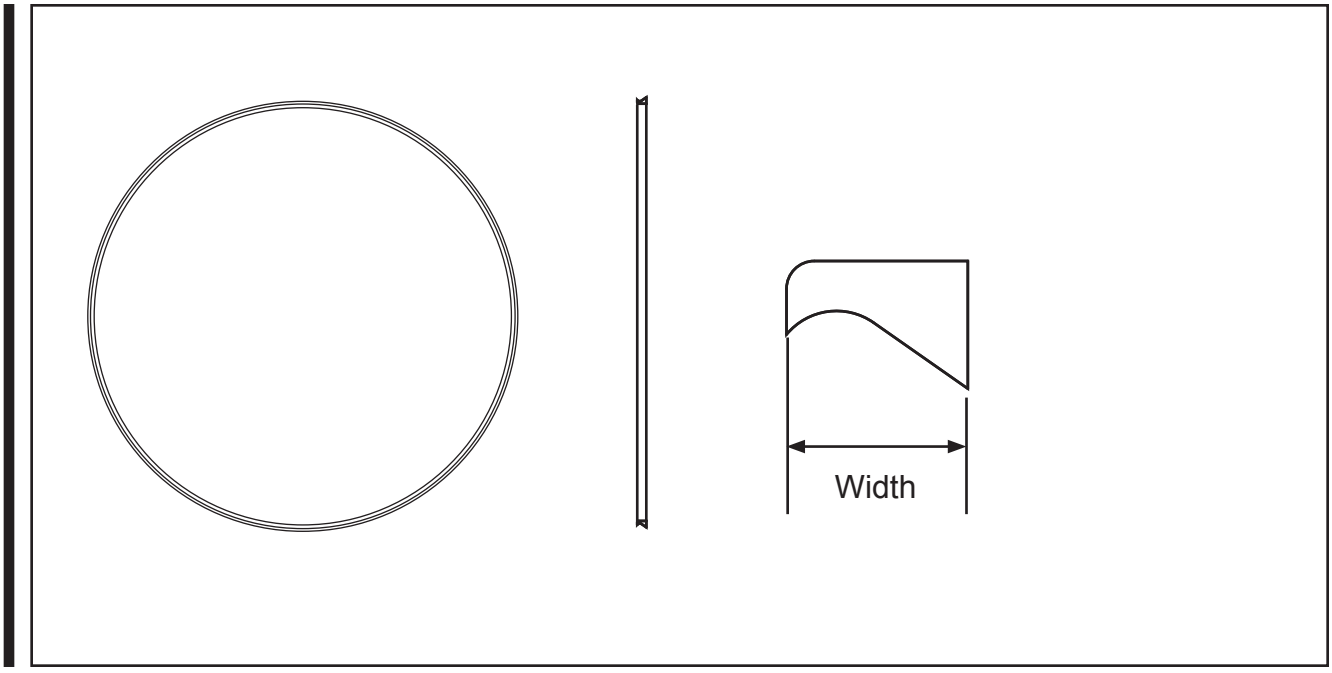
SERVICE LETTER

HC-SL-61-241

Propeller - New Blade Seal



Blade Retaining Ring Inspection
Figure 4



B-7726 Blade Seal Width
Figure 5