

HARTZELL PROPELLER INC.
SERVICE BULLETIN

Transmittal Page

HC-SB-61-346

**Propeller - Pitch Change Knob Inspection, Rework, and
Introduction of an Improved Pitch Change Knob Bracket**

January 05, 2023

This page transmits Revision 3 to Service Bulletin HC-SB-61-346.

- Original Issue, dated Sep 03/13
- Revision 1, dated Apr 01/14
- Revision 2, dated Oct 21/16
- Revision 3, dated Jan 05/23

Propeller assemblies that have previously complied with the inspections required in a previous version of this Service Bulletin are not affected.

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

Revision 3 is issued to change the following in this Service Bulletin:

- Revised the section, "Material Information" to remove the B-464-()/100028-() Pitch Change Knob Bracket Units and the applicable subcomponents.

NOTE: Hartzell Propeller Inc. Service Bulletin HC-SB-61-389 requires replacement of the B-464-()/100028-() Pitch Change Knob Bracket Units.

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**Propeller - Pitch Change Knob Inspection, Rework, and
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1. Planning Information

A. Effectivity

- (1) Hartzell Propeller Inc. lightweight turbine propeller models HC-(D,E)4()-() are affected by this Service Bulletin.

WARNING: DO NOT USE OBSOLETE OR OUTDATED INFORMATION. PERFORM ALL INSPECTIONS OR WORK IN ACCORDANCE WITH THE MOST RECENT REVISION OF THIS SERVICE BULLETIN. INFORMATION CONTAINED IN THIS SERVICE BULLETIN MAY BE SIGNIFICANTLY CHANGED FROM EARLIER REVISIONS. FAILURE TO COMPLY WITH THIS SERVICE BULLETIN 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 BULLETIN INDEX FOR THE MOST RECENT REVISION LEVEL OF THIS SERVICE BULLETIN.

B. Concurrent Requirements

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

C. Reason

- (1) Pitch change knob brackets require swaging of the pitch change bracket for retention of the washer. Swaging of the pitch change knob bracket may cause small cracks on the top of the pitch change knob bracket.
- (2) Hartzell Propeller Inc. Engineering has developed a design improvement and modification procedure of the pitch change knob bracket unit for better retention of the cam follower. A dimpled washer and screw will retain the cam follower on the pitch change bracket.
- (3) The inspection criteria specified in the Check chapter of the propeller overhaul manuals or specified in other Service Bulletins for pitch change knob brackets that use a screw to retain the cam follower may be incomplete.
- (4) Regulatory action is not expected.

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D. Description

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

CAUTION: THE INSPECTION CRITERIA SPECIFIED IN TABLE 1 AND TABLE 2 OF THIS SERVICE BULLETIN SUPERSEDES THE INSPECTION CRITERIA SPECIFIED IN THE PROPELLER OVERHAUL MANUALS OR OTHER SERVICE DOCUMENTS UNTIL THIS SERVICE BULLETIN IS INCORPORATED INTO THE MANUALS OR SERVICE DOCUMENTS.

(2) This Service Bulletin provides complete inspection requirements for a pitch change knob bracket that uses a swaged washer to retain the cam follower.

(3) This Service Bulletin provides complete inspection requirements for a pitch change knob bracket that uses a screw to retain the cam follower.

(4) This Service Bulletin provides modification instructions for a pitch change knob bracket to permit use of a screw to retain the cam follower.

(5) Modification of a pitch change knob bracket after inspection in accordance with the Accomplishment Instructions in this Service Bulletin is optional.

(6) This Service Bulletin introduces part numbers for a new design pitch change knob bracket that uses a screw to retain the cam follower on the pitch change knob bracket.

(a) The pitch change knob bracket that uses a screw to retain the cam follower is an alternate for the pitch change knob bracket that uses a swaged washer to retain the cam follower.

(b) When inventory of the pitch change knob bracket that uses a swaged washer to retain the cam follower is depleted, all orders for a pitch change knob, pitch change knob bracket unit, and a propeller assembly will include the new design pitch change knob bracket unit.

(c) All orders for the overhaul kits for the affected propeller models include the design improvement components B-3860-10L dimpled washer and B-3867-272 screw.

(7) This Service Bulletin will be incorporated in the applicable propeller overhaul manuals at a future revision.

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E. Compliance

- (1) At propeller overhaul, inspect a pitch change knob bracket that use a screw to retain the cam follower and a pitch change knob bracket that uses a swaged washer to retain the cam follower in accordance with the Inspection Requirements specified in the Accomplishment Instructions in this Service Bulletin.

NOTE: Overhaul intervals are specified in Hartzell Propeller Inc. Service Letter HC-SL-61-61Y.

- (2) Modification of a pitch change knob bracket after inspection in accordance with the Accomplishment Instructions in this Service Bulletin is optional. When pitch change knob bracket replacement is required, modify or replace the pitch change knob bracket in accordance with the Accomplishment Instructions in this Service Bulletin.
- (3) A pitch change knob bracket that uses a swaged washer to retain the cam follower and a pitch change knob bracket that uses a screw to retain the cam follower may be used in the same propeller assembly.

F. Approval

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

G. Manpower

- (1) Modification
 - (a) Approximately 1.5 man-hours are required for each pitch change knob bracket unit when performed in conjunction with propeller overhaul.
- (2) Replacement
 - (a) No additional man-hours are required if performed in conjunction with propeller overhaul.

H. Weight and Balance

- (1) Not changed

I. Electrical Load Data

- (1) Not changed

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

J. References

- (1) Hartzell Propeller Inc. Four Blade Lightweight Turbine Propeller Overhaul Manual 141 (61-10-16)
- (2) Hartzell Propeller Inc. Three and Four Blade Lightweight Turbine Propeller Overhaul Manual 142 (61-10-42)
- (3) Hartzell Propeller Inc. Four Blade Lightweight Turbine Propeller Overhaul Manual 143A (61-10-43)
- (4) Hartzell Propeller Inc. Four Blade Lightweight Turbine Propeller Overhaul Manual 156A (61-10-56)
- (5) Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02)
(Volume 7, Consumable Materials and Packaging and Storage is available on the Hartzell Propeller Inc. website at www.hartzellprop.com)
- (6) Hartzell Propeller Inc. Service Letter HC-SL-61-61Y
- Available on the Hartzell Propeller Inc. website at www.hartzellprop.com

K. Other Publications Affected

- (1) Hartzell Propeller Inc. Four Blade Lightweight Turbine Propeller Overhaul Manual 141 (61-10-16)
- (2) Hartzell Propeller Inc. Three and Four Blade Lightweight Turbine Propeller Overhaul Manual 142 (61-10-42)
- (3) Hartzell Propeller Inc. Four Blade Lightweight Turbine Propeller Overhaul Manual 143A (61-10-43)
- (4) Hartzell Propeller Inc. Four Blade Lightweight Turbine Propeller Overhaul Manual 156A (61-10-56)

2. Material Information

A. Material Necessary

- (1) When inventory of a pitch change knob bracket unit with the retaining washer is depleted, all orders for a pitch change knob, pitch change knob bracket unit, or a propeller assembly will include the new design pitch change knob bracket unit.

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- (2) The following materials are necessary to comply with the Modification Instructions in this Service Bulletin:

<u>Previous Part Number</u>	<u>New Part Number</u>	<u>Description</u>
B-6257-()	100032-()	Bracket, Knob, Pitch Change - Unit
C-6253-()	100031-()	Bracket, Knob, Pitch Change
B-475	103395	Washer, Retaining, Knob Unit
N/A	B-3867-272	Screw, 10-32, 100° Head, Cres
N/A	B-3860-10L	Washer, Dimpled, 100° Cres
B-6260	B-6260	Dowel Pin, 3/8"
B-6545	B-6545	Cam Follower

B. Consumables

- (1) The following consumables are necessary for assembly of the pitch change knob bracket unit.

CM Number	Description	Name
CM106	Solvent	Methyl-Ethyl-Ketone (MEK),
CM219	Solvent	Methyl Propyl Ketone (MPK)
CM21	Threadlocker, low strength	Loctite 222

NOTE: All CM numbers in this Service Bulletin refer to the Consumable Materials chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).

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3. Accomplishment Instructions

A. Inspection Requirements

- (1) Inspect a pitch change knob bracket that uses a swaged washer to retain the cam follower in accordance with Table 1, Figure 1, Figure 2, Figure 3, and Figure 4.
- (2) Inspect a pitch change knob bracket that uses a screw to retain the cam follower in accordance with Table 2, Figure 5.

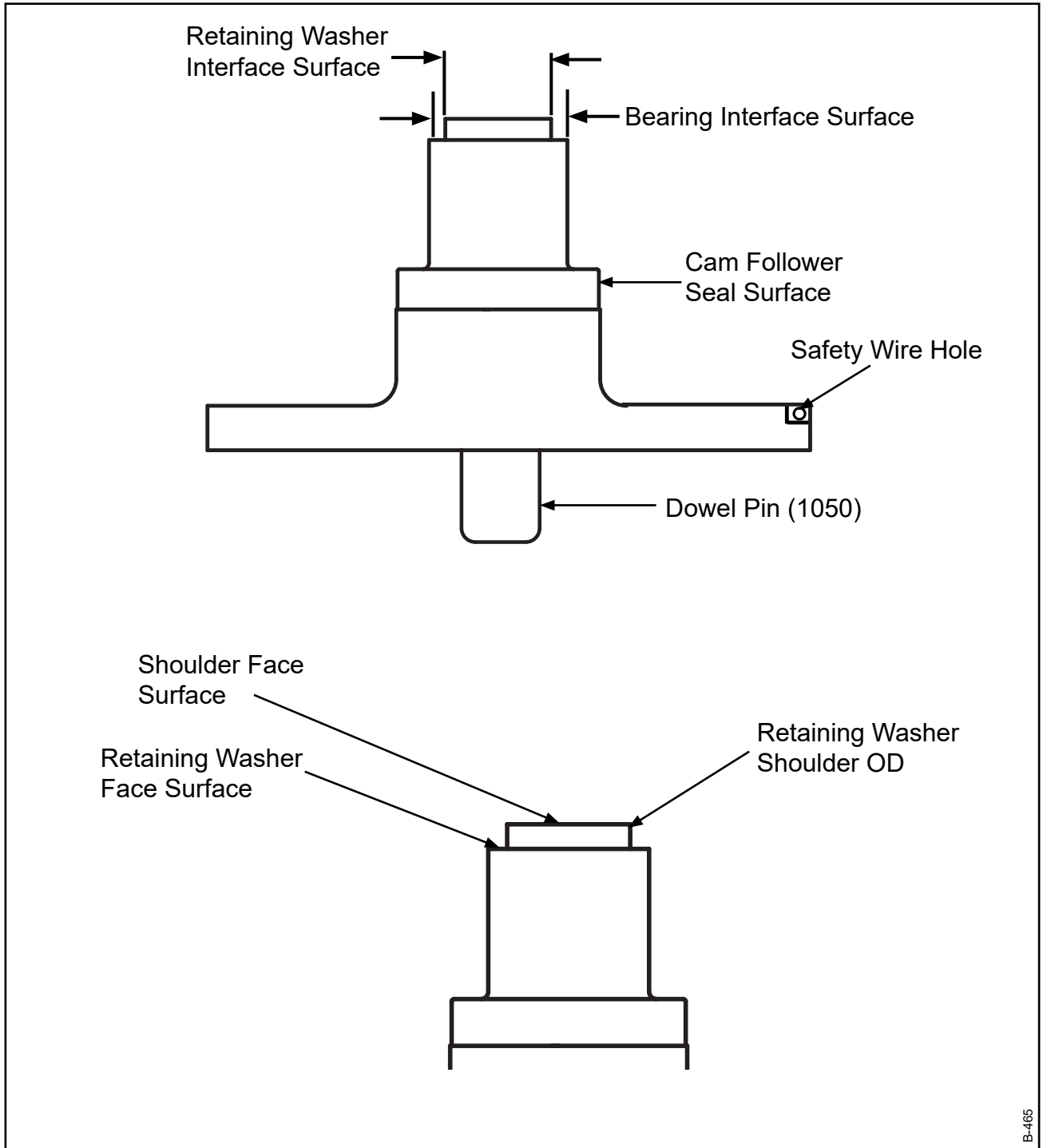
B. For all affected propeller assemblies, when replacement of the pitch change knob bracket is required:

- (1) Use the applicable propeller overhaul manual and the Material Information section of this Service Bulletin to verify the part numbers of the components in the pitch change knob bracket unit.
- (2) Install a serviceable pitch change knob bracket that uses a swaged washer to retain the cam follower.
or
- (3) Install a new design pitch change knob bracket unit that uses screw for retention of the cam follower.
or
- (4) Modify a pitch change knob bracket that uses a swaged washer to retain the cam follower in accordance with the modification instructions specified in this Service Bulletin.

NOTE: Modification of a pitch change knob bracket that does not meet the serviceable limits in accordance with the inspection requirements specified in this Service Bulletin may permit the pitch change knob bracket to be returned to service.

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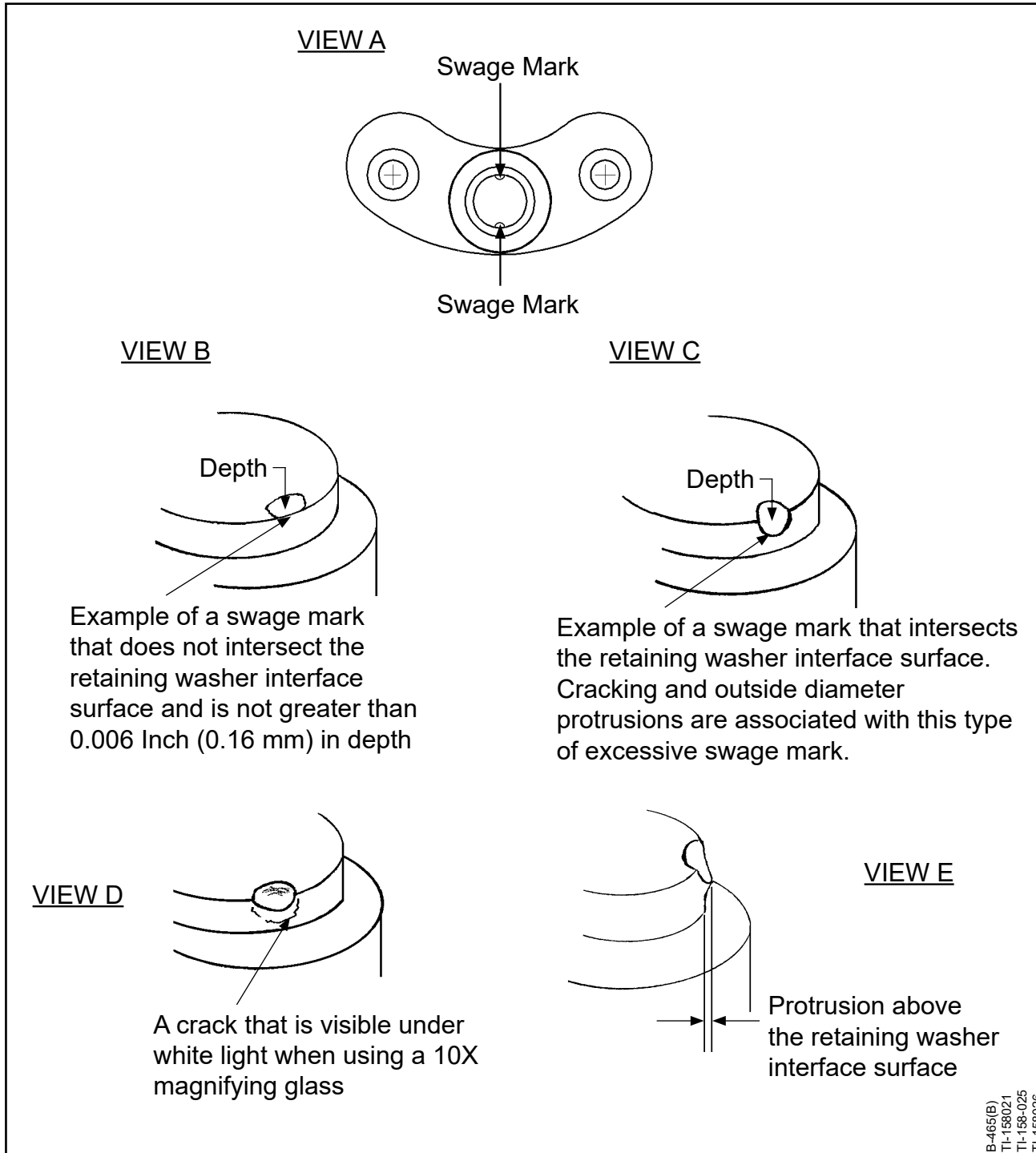


Pitch Change Knob Bracket That Uses a Swaged Washer to Retain the Cam Follower
Figure 1

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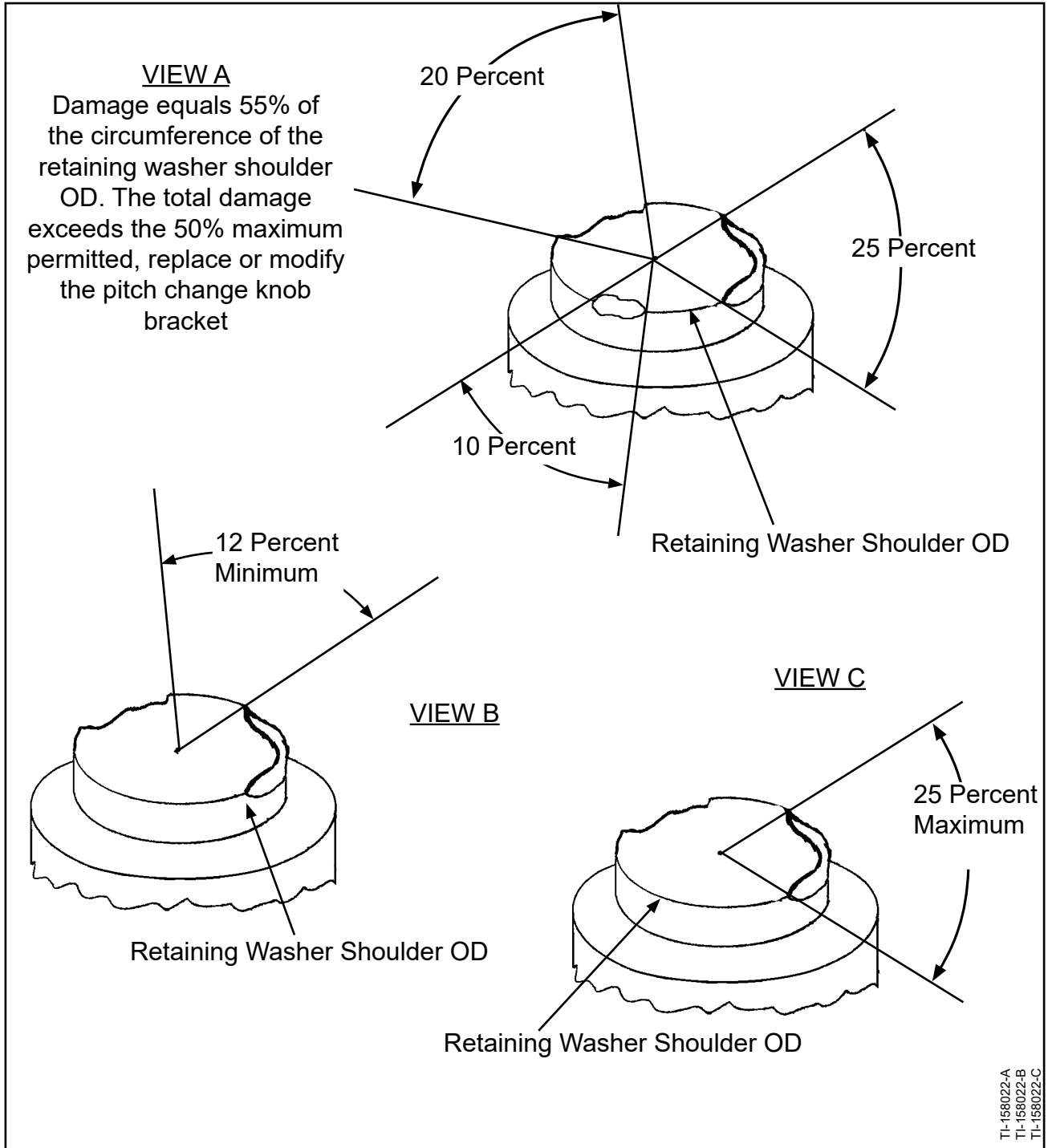


**Pitch Change Knob Bracket That Uses a Swaged Washer to Retain the Cam Follower
Figure 2**

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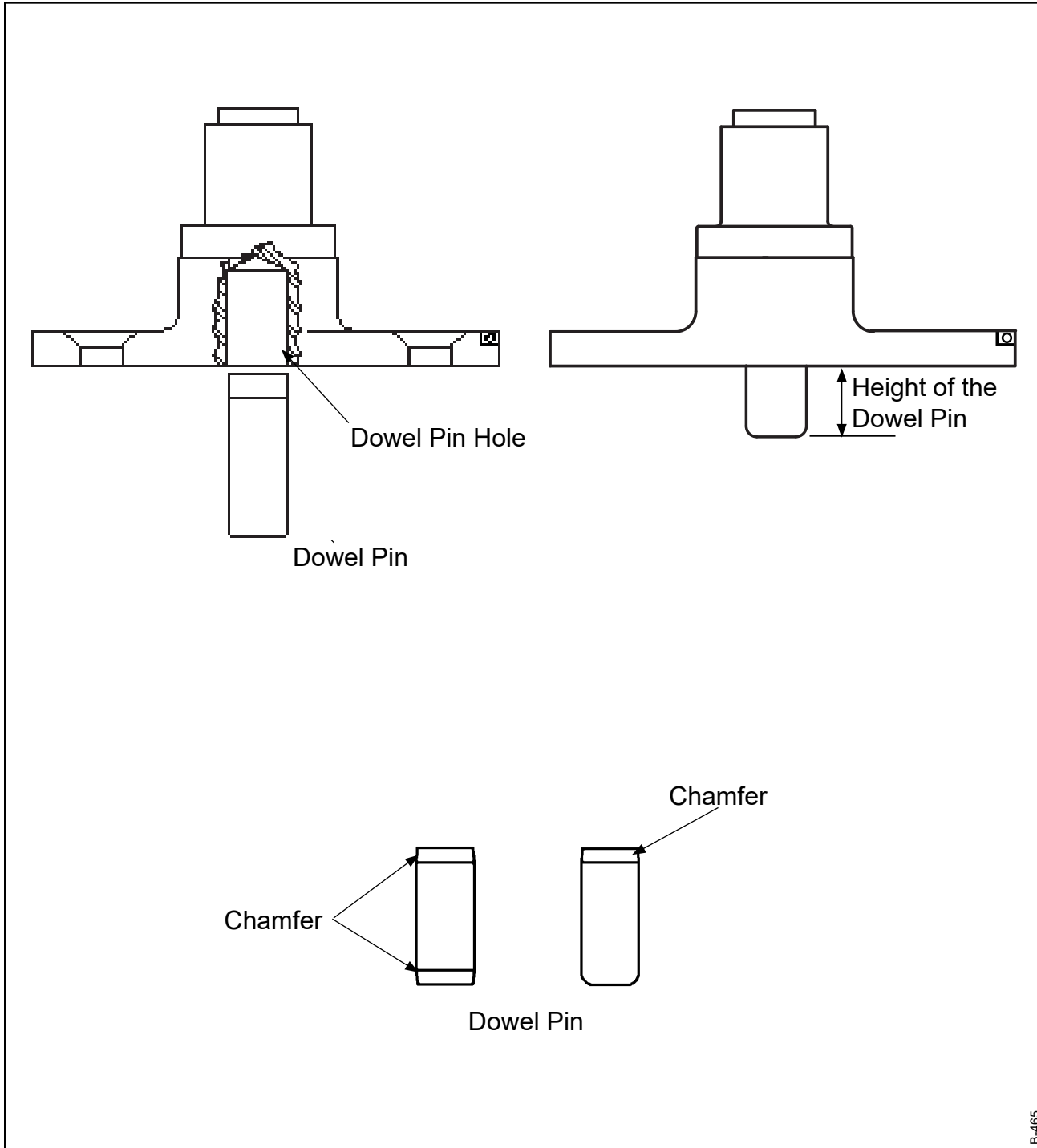


Pitch Change Knob Bracket That Uses a Swaged Washer to Retain the Cam Follower
Figure 3

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**Pitch Change Knob Bracket That Uses a Swaged Washer to Retain the Cam Follower
Figure 4**

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Inspect	Serviceable Limits	Corrective Action
A. <u>PITCH CHANGE KNOB BRACKET THAT USES A SWAGED WASHER TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 1 through Figure 4)		
(1) Before inspection, remove cadmium plating in accordance with the Cadmium Replating chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).		
(2) If dowel pin removal is not required, apply masking material to protect the dowel pin from stripping materials. Dowel pin extension from the pitch change knob bracket base must meet the permitted Serviceable Limits for the dowel pin are specified in this table.		
(3) An example of correct swaging is shown in Figure 2, View B. An example of incorrect swaging is shown in Figure 2, View C.		
(4) A pitch change knob bracket that does not meet the Serviceable Limits specified in step A.(5), A.(6), A.(7), A(8), or A(9) may be modified in accordance with the section "Pitch Change Knob Bracket Modification" in the 3.C. of this Service Bulletin.		
(5) Using white light and a 10X magnifying glass, visually examine each swage mark on the retaining washer shoulder OD of the pitch change knob bracket for cracks.	A crack is not permitted. Refer to Figure 2, View D.	A crack may be removed by spot polishing using an emery cloth or abrasive pad CM47. Crack removal must not interfere with the retaining washer face surface or be greater than 25% of the retaining washer shoulder OD in one location. Refer to Figure 1 and Figure 3, View C. Total accumulated damage or repair must not be greater than 50% of the circumference of the retaining washer shoulder OD. Refer to Figure 3 View A. If the damage or repair is greater than the limits given, replace the pitch change knob bracket or modify the pitch change knob bracket to use a screw to retain the cam follower in accordance with the section "Pitch Change Knob Bracket Modification" in this Service Bulletin.

Component Inspection Criteria
Table 1

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	Inspect	Serviceable Limits	Corrective Action
A.	<u>PITCH CHANGE KNOB BRACKET THAT USES A SWAGED WASHER TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 1 through Figure 4)		
(6)	Visually examine each swage mark on the retaining washer shoulder OD and the retaining washer interface surface for material protrusion. Refer to Figure 2 View E.	Material protrusion is not permitted above the retaining washer interface surface.	If there is material protrusion, using an emery cloth remove the material protrusion to flush or below the surface of the retaining washer interface surface or modify the pitch change knob bracket to use a screw to retain the cam follower in accordance with the section "Pitch Change Knob Bracket Modification" in this Service Bulletin.
(7)	Visually examine the retaining washer shoulder OD for two undamaged swaging sites to secure the retention washer. Refer to Figure 3, View B.	Two unswaged areas that are a minimum width of 12 percent or 0.188 inch (4.78 mm) of the circumference positioned 120 to 180 degrees apart from each other are required.	If the available swaging sites are not within the permitted serviceable limits, replace the pitch change knob bracket or modify the pitch change knob bracket to use a screw to retain the cam follower in accordance with the section "Pitch Change Knob Bracket Modification" in this Service Bulletin.
(8)	Measure the OD of the unplated retaining washer interface surface. Refer to Figure 1.	The minimum permitted OD of the unplated the retaining washer interface surface is 0.5005 inch (12.713 mm).	If the OD of the unplated retaining washer interface surface is less than the serviceable limits, replace the pitch change knob bracket or modify the pitch change knob bracket to use a screw to retain the cam follower in accordance with the section "Pitch Change Knob Bracket Modification" in this Service Bulletin.

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Table 1

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Inspect	Serviceable Limits	Corrective Action
A. <u>PITCH CHANGE KNOB BRACKET THAT USES A SWAGED WASHER TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 1 through Figure 4)		
(9) Visually examine the retaining washer interface surface for damage, corrosion, or pitting. Refer to Figure 1.	Minor scratches less than 0.001 inch (0.025 mm) deep are permitted. A sharp edge, material protrusion, or raised material from scratches or swaging are not permitted. Corrosion or pitting is not permitted.	Using an emery cloth or abrasive pad CM47, lightly polish to remove a sharp edge, material protrusion, or raised material and blend into machined surfaces. If the damage, corrosion, or pitting is greater than the permitted serviceable limits, replace the pitch change knob bracket or modify the pitch change knob bracket to use a screw to retain the cam follower in accordance with the section "Pitch Change Knob Bracket Modification" in this Service Bulletin.
(10) Visually examine the bearing interface surface for damage, corrosion, or pitting. Refer to Figure 1.	Bearing roller impressions of any depth are not permitted. Minor scratches less than 0.001 inch (0.025 mm) deep are permitted. Sharp edges or pushed up edges from scratches are not permitted. Corrosion or pitting is not permitted.	If the damage, corrosion, or pitting is greater than the permitted serviceable limits, replace the pitch change knob bracket.
(11) Measure the OD of the unplated bearing interface surface. Refer to Figure 1.	The minimum permitted OD of the unplated bearing interface surface is 0.653 inch (16.59 mm).	If the OD of the unplated bearing interface surface is less than the serviceable limits, replace the pitch change knob bracket.

**Component Inspection Criteria
Table 1**

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Inspect	Serviceable Limits	Corrective Action
A. <u>PITCH CHANGE KNOB BRACKET THAT USES A SWAGED WASHER TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 1 through Figure 4)		
(12) Visually examine the cam follower seal surface for scratches, corrosion, or pitting. Refer to Figure 1.	Minor scratches less than 0.001 inch (0.025 mm) deep are permitted. Sharp or pushed up edges from scratches are not permitted. Corrosion or pitting is not permitted.	If the scratches, corrosion, or pitting is greater than the permitted serviceable limits, replace the pitch change knob bracket.
(13) Measure the OD of the cam follower seal surface. Refer to Figure 1.	The minimum permitted unplated OD of the cam follower seal surface is 0.948 inch (24.08 mm).	If the OD of the cam follower seal surface is less than the permitted serviceable limits, replace the pitch change knob bracket.

Component Inspection Criteria
Table 1

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Inspect	Serviceable Limits	Corrective Action
A. <u>PITCH CHANGE KNOB BRACKET THAT USES A SWAGED WASHER TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 1 through Figure 4)		
(14) Visually examine the pitch change knob bracket for corrosion and pitting. <u>NOTE:</u> This inspection and repair does not include the bearing interface surface, the cam follower seal surface, or the retaining washer interface surface.	Corrosion is not permitted. If the pitch change knob bracket has pitting, dimensionally inspect. The maximum permitted depth of pitting is 0.003 inch (0.07 mm). The maximum permitted total area of pitting is 0.500 square inch (322 square mm) area. The maximum permitted diameter of an individual pit is 0.032 inch (0.81 mm). A maximum of 10 non-linear pits within 1 square inch (645 square mm) area are permitted. Linear pitting is not permitted.	Do not glass bead clean the bearing interface surface, the cam follower seal surface, or the retaining washer interface surface. For all surfaces of the pitch change knob bracket other than those listed above, remove corrosion using glass bead cleaning or local polishing using emery cloth. Refer to the Cleaning chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02). The maximum permitted depth for repair is 0.005 inch (0.12 mm). The maximum permitted total area of repair is 1 square inch (645 square mm). For each hole used to attach the pitch change bracket to the blade, the maximum permitted repair is 25% of the surface area of the hole. Using an emery cloth or abrasive pad CM47, lightly polish to remove raised material or pushed up edge and blend into machined surfaces. If pitting or repair is greater than the permitted serviceable limits or Corrective Action repair limits, replace the pitch change knob bracket.

Component Inspection Criteria
Table 1

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Inspect	Serviceable Limits	Corrective Action
<p>A. <u>PITCH CHANGE KNOB BRACKET THAT USES A SWAGED WASHER TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 1 through Figure 4)</p>		
<p>(15) Visually examine the pitch change knob bracket for nicks, scratches, or other damage. <u>NOTE:</u> This inspection and repair does not include the bearing interface surface, the retaining washer interface surface, or the cam follower seal surface.</p>	<p>If the pitch change knob bracket is damaged, dimensionally inspect. The maximum permitted depth of nicks, scratches, or other damage is 0.003 inch (0.07 mm). The maximum permitted total area of nicks, scratches, or other damage is 0.500 square inch (322 square mm) area. Raised material or edges of pushed up material on the surfaces that interface with other components are not permitted.</p>	<p>The maximum permitted depth of repair is 0.005 inch (0.12 mm). The maximum permitted total area of repair is 1 square inch (645 square mm). For each hole used to attach the pitch change bracket to the blade, the maximum permitted repair is 25% of the surface area of the hole. Using an emery cloth or abrasive pad CM47, lightly polish to remove raised material or pushed up edge and blend into machined surfaces. If the nicks, scratches, other damage, or repair is greater than the permitted serviceable or Corrective Action repair limits, replace the pitch change knob bracket.</p>
<p>(16) Examine the dowel pin for movement in the pitch change knob bracket.</p>	<p>Using firm hand pressure, try to move the dowel pin. Movement is not permitted.</p>	<p>If there is movement of the dowel pin, replace the dowel pin.</p>

**Component Inspection Criteria
Table 1**

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Inspect	Serviceable Limits	Corrective Action
A. <u>PITCH CHANGE KNOB BRACKET THAT USES A SWAGED WASHER TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 1 through Figure 4)		
(17) Measure the height of the dowel pin from the pitch change knob bracket base. Refer to Figure 4.	The maximum permitted height is 0.440 inch (11.17 mm). The minimum permitted height is 0.390 inch (9.91 mm).	If the height of the dowel pin is greater than the permitted height, press the pin into the bracket to the correct height. If height of the dowel pin is less than the permitted serviceable limits, replace the pin. The replacement pin must fit tightly.
(18) Visually examine the OD of the exposed portion of the dowel pin for damage or corrosion.	Damage or corrosion is not permitted.	If there is damage or corrosion, replace the dowel pin.
(19) If the dowel pin is removed, visually examine the dowel pin hole. Refer to Figure 4.	Corrosion or pitting is not permitted.	If there is corrosion or pitting, replace the pitch change knob bracket.
(20) Visually examine the two safety wire holes, if applicable, for damage.	The safety wire hole must be able to secure the safety wire.	If the damage is greater than the permitted serviceable limits, replace the pitch change knob bracket.

Component Inspection Criteria
Table 1

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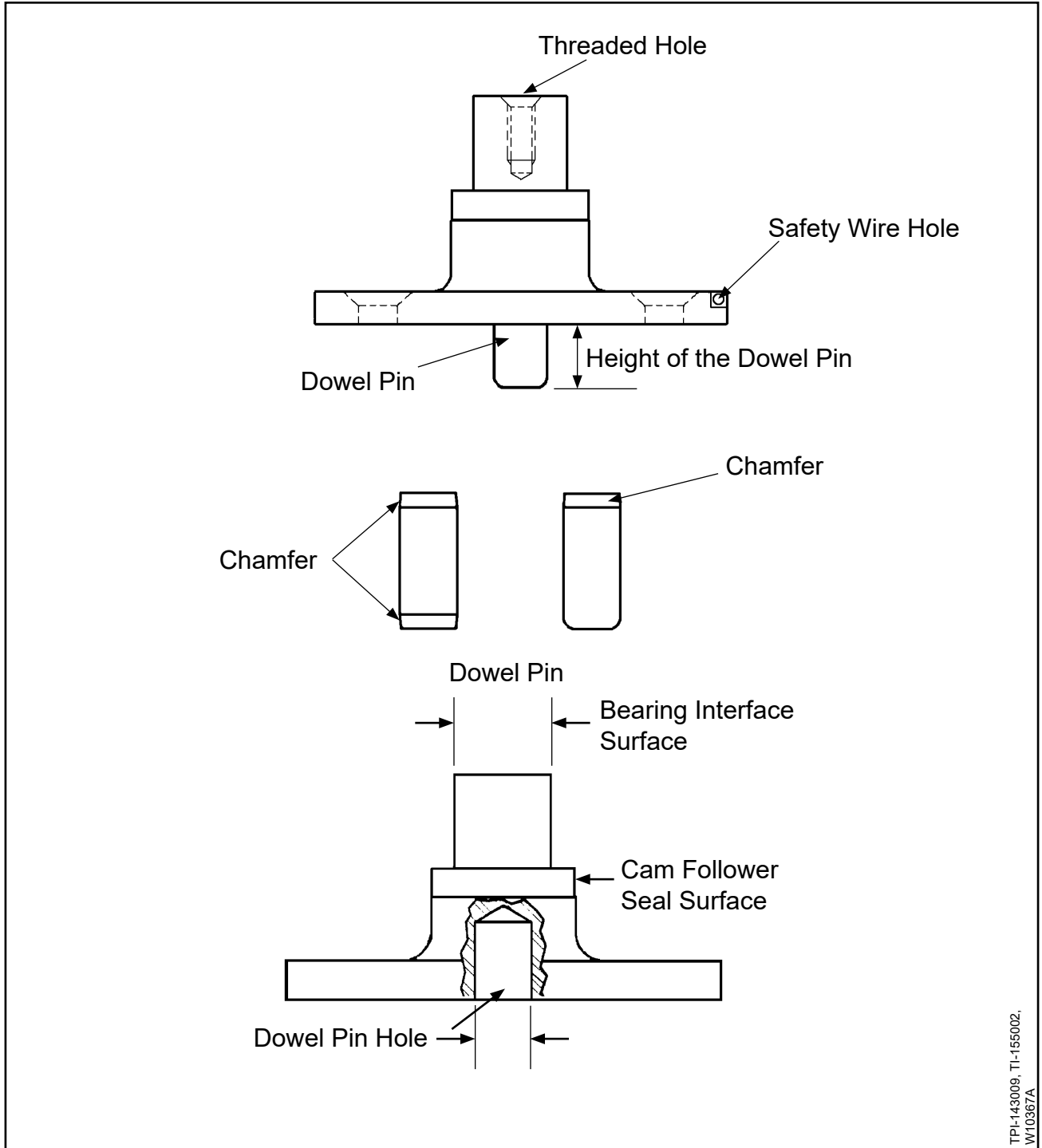
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Inspect	Serviceable Limits	Corrective Action
A. <u>PITCH CHANGE KNOB BRACKET THAT USES A SWAGED WASHER TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 1 through Figure 4)		
(21) Perform magnetic particle inspection of the pitch change knob bracket in accordance with the Magnetic Particle Inspection chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02). <u>NOTE:</u> It is not necessary to remove the dowel pin.	A relevant indication is not permitted.	If there is a relevant indication, replace the pitch change knob bracket.
(22) If removal of the dowel pin is not required, apply masking material to protect the dowel pin from cadmium plating materials.		
(23) If the pitch change knob has successfully passed all inspections, apply masking material to the Bearing Interface Surface, reapply cadmium plating, and bake in accordance with the Cadmium Replating chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).		

Component Inspection Criteria
Table 1

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**Pitch Change Knob Bracket that Uses a Screw to Retain the Cam Follower
Figure 5**

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Inspect	Serviceable Limits	Corrective Action
B. <u>PITCH CHANGE KNOB BRACKET THAT USES A SCREW TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 5)		
(1)	Before inspection, remove cadmium plating in accordance with the Cadmium Replating chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).	
(2)	If dowel pin removal is not required, apply masking material to protect the dowel pin from stripping materials. Dowel pin extension from the pitch change knob bracket base must meet the permitted Serviceable Limits for the dowel pin specified in this section.	
(3)	Visually examine the bearing interface surface for damage, corrosion, or pitting. Refer to Figure 5. Bearing roller impressions of any depth are not permitted. Minor scratches less than 0.001 inch (0.025 mm) deep are permitted. Sharp edges or pushed up edges from scratches are not permitted. Corrosion or pitting is not permitted.	If the damage, corrosion, or pitting is greater than the permitted serviceable limits, replace the pitch change knob bracket.
(4)	Measure the OD of the unplated bearing interface surface. Refer to Figure 5. The minimum permitted OD of the unplated bearing interface surface is 0.653 inch (16.59 mm).	If the OD of the unplated bearing interface surface is less than the serviceable limits, replace the pitch change knob bracket
(5)	Visually examine the cam follower seal surface for scratches, corrosion, or pitting. Refer to Figure 5. Minor scratches less than 0.001 inch (0.025 mm) deep are permitted. Sharp or pushed up edges from scratches are not permitted. Corrosion or pitting is not permitted.	If the scratches, corrosion, or pitting is greater than the permitted serviceable limits, replace the pitch change knob bracket.

Component Inspection Criteria
Table 2

SERVICE BULLETIN

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Inspect	Serviceable Limits	Corrective Action
<p>B. <u>PITCH CHANGE KNOB BRACKET THAT USES A SCREW TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 5)</p>		
<p>(6) Measure the OD of the cam follower seal surface. Refer to Figure 5.</p>	<p>The minimum permitted unplated OD of the cam follower seal surface is 0.948 inch (24.08 mm).</p>	<p>If the OD of the cam follower seal surface is less than the permitted serviceable limits, replace the pitch change knob bracket.</p>
<p>(7) Visually examine the pitch change knob bracket for corrosion and pitting. <u>NOTE:</u> This inspection and repair does not include the bearing interface surface, the cam follower seal surface, or the threaded hole.</p>	<p>Corrosion is not permitted.</p> <p>If the pitch change knob bracket has pitting, dimensionally inspect.</p> <p>The maximum permitted depth of pitting is 0.003 inch (0.07 mm).</p> <p>The maximum permitted total area of pitting is 0.500 square inch (322 square mm) area.</p> <p>The maximum permitted diameter of an individual pit is 0.032 inch (0.81 mm).</p> <p>A maximum of 10 non-linear pits within 1 square inch (645 square mm) area are permitted.</p> <p>Linear pitting is not permitted.</p>	<p>Do not glass bead clean the bearing interface surface, the cam follower seal surface, or the threaded hole.</p> <p>For all surfaces of the pitch change knob bracket other than those listed above, remove corrosion using glass bead cleaning or local polishing using emery cloth. Refer to the Cleaning chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).</p> <p>The maximum permitted depth for repair is 0.005 inch (0.12 mm). The maximum permitted total area of repair is 1 square inch (645 square mm).</p> <p>For each hole used to attach the pitch change bracket to the blade, the maximum permitted repair is 25% of the surface area of the hole.</p> <p>Using an emery cloth or abrasive pad CM47, lightly polish to remove raised material or pushed up edge and blend into machined surfaces.</p> <p>If pitting or repair is greater than the permitted serviceable limits or Corrective Action repair limits, replace the pitch change knob bracket.</p>

**Component Inspection Criteria
Table 2**

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Propeller - Pitch Change Knob Inspection, Rework, and Introduction of an Improved Pitch Change Knob Bracket

Inspect	Serviceable Limits	Corrective Action
<p>B. <u>PITCH CHANGE KNOB BRACKET THAT USES A SCREW TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 5)</p>		
<p>(8) Visually examine the pitch change knob bracket for nicks, scratches, or other damage. <u>NOTE:</u> This inspection and repair does not include the bearing interface surface, the threaded hole, or the cam follower seal surface.</p>	<p>If the pitch change knob bracket is damaged, dimensionally inspect. The maximum permitted depth of nicks, scratches, or other damage is 0.003 inch (0.07 mm). The maximum permitted total area of nicks, scratches, or other damage is 0.500 square inch (322 square mm) area. Raised material or edges of pushed up material on the surfaces that interface with other components are not permitted.</p>	<p>The maximum permitted depth of repair is 0.005 inch (0.12 mm). The maximum permitted total area of repair is 1 square inch (645 square mm). For each hole used to attach the pitch change bracket to the blade, the maximum permitted repair is 25% of the surface area of the hole. Using an emery cloth or abrasive pad CM47, lightly polish to remove raised material or pushed up edge and blend into machined surfaces. If the nicks, scratches, other damage, or repair is greater than the permitted serviceable or Corrective Action repair limits, replace the pitch change knob bracket.</p>
<p>(9) Examine the dowel pin for movement in the pitch change knob bracket.</p>	<p>Using firm hand pressure, try to move the dowel pin. Movement is not permitted.</p>	<p>If there is movement of the dowel pin, replace the dowel pin.</p>

**Component Inspection Criteria
Table 2**

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Inspect	Serviceable Limits	Corrective Action
B. <u>PITCH CHANGE KNOB BRACKET THAT USES A SCREW TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 5)		
(10) Measure the height of the dowel pin from the pitch change knob bracket base. Refer to Figure 5.	The maximum permitted height is 0.440 inch (11.17 mm). The minimum permitted height is 0.390 inch (9.91 mm).	If the height of the dowel pin is greater than the permitted height, press the pin into the bracket to the correct height. If height of the dowel pin is less than the permitted serviceable limits, replace the pin. The replacement pin must fit tightly.
(11) Visually examine the OD of the exposed portion of the dowel pin for damage or corrosion.	Damage or corrosion is not permitted.	If there is damage or corrosion, replace the dowel pin.
(12) If the dowel pin is removed, visually examine the dowel pin hole.	Corrosion or pitting is not permitted.	If there is corrosion or pitting, replace the pitch change knob bracket.
(13) Visually examine the pitch change knob bracket threaded hole for corrosion or damage.	Corrosion is not permitted. A maximum of 3/4 of one thread total accumulated damage is permitted.	If damage is greater than the permitted serviceable limits, replace the pitch change knob bracket.
(14) Visually examine the two safety wire holes, if applicable, for damage.	The safety wire hole must be able to secure the safety wire.	If the damage is greater than the permitted serviceable limits, replace the pitch change knob bracket.

Component Inspection Criteria
Table 2

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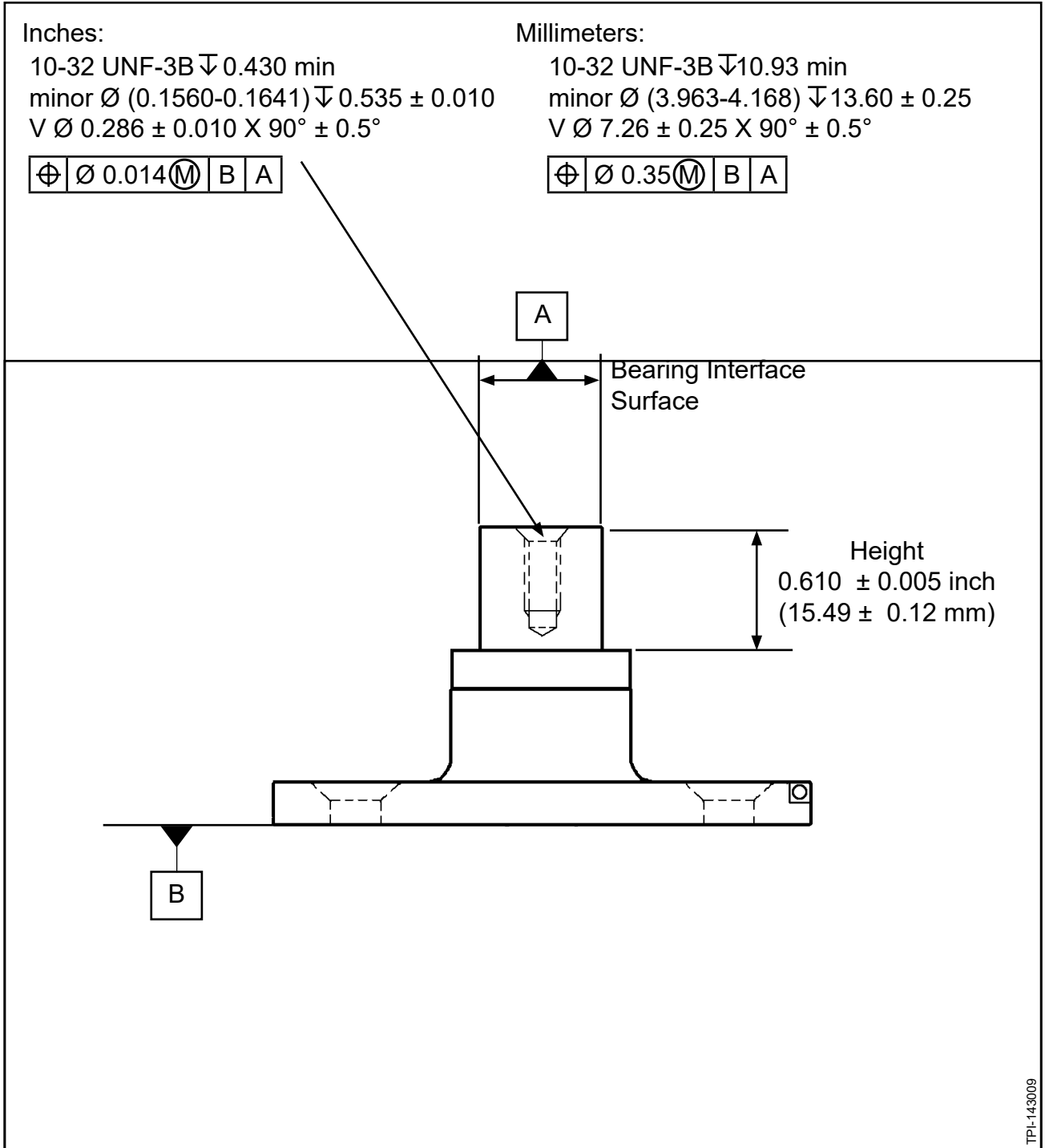
Inspect	Serviceable Limits	Corrective Action
B. <u>PITCH CHANGE KNOB BRACKET THAT USES A SCREW TO RETAIN THE CAM FOLLOWER</u> (Refer to Figure 5)		
(15) Perform magnetic particle inspection of the pitch change knob bracket in accordance with the Magnetic Particle Inspection chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02). <u>NOTE:</u> It is not necessary to remove the dowel pin.	A relevant indication is not permitted.	If there is a relevant indication, replace the pitch change knob bracket.
(16) If removal of the dowel pin is not required, apply masking material to protect the dowel pin from cadmium plating materials.		
(17) If the pitch change knob has successfully passed all inspections, apply masking material to the Bearing Interface Surface, reapply cadmium plating, and bake in accordance with the Cadmium Replating chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).		

Component Inspection Criteria
Table 2

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Propeller - Pitch Change Knob Inspection, Rework, and Introduction of an Improved Pitch Change Knob Bracket



TPI-143009

Pitch Change Knob Bracket Modification
Figure 6

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**Propeller - Pitch Change Knob Inspection, Rework, and
Introduction of an Improved Pitch Change Knob Bracket**

C. Pitch Change Knob Bracket Modification - Refer to Figure 6

CAUTION: INSTRUCTIONS AND PROCEDURES IN THIS SECTION MAY INVOLVE PROPELLER CRITICAL PARTS. REFER TO THE INTRODUCTION CHAPTER OF THIS MANUAL FOR INFORMATION ABOUT PROPELLER CRITICAL PARTS. REFER TO THE ILLUSTRATED PARTS LIST IN THIS MANUAL FOR IDENTIFICATION OF PROPELLER CRITICAL PARTS.

(1) General

(a) Inspect the pitch change knob bracket in accordance with Table 1, Component Inspection Requirements in this Service Bulletin.

1 Only inspection criteria that is associated with the retaining washer shoulder is permitted to not pass inspection.

(2) Modification Procedure

(a) Mill off the retaining washer shoulder of the pitch change knob bracket to the height given in Figure 6.

(b) Drill, thread, and countersink/chamfer to the dimensional and true position requirements as specified in Figure 6.

WARNING: ADHESIVES AND SOLVENTS ARE FLAMMABLE AND TOXIC TO THE SKIN, EYES, AND RESPIRATORY TRACT. SKIN AND EYE PROTECTION ARE REQUIRED. AVOID PROLONGED CONTACT AND BREATHING OF VAPORS. USE SOLVENT RESISTANT GLOVES TO MINIMIZE SKIN CONTACT AND WEAR SAFETY GLASSES FOR EYE PROTECTION. USE IN A WELL VENTILATED AREA AWAY FROM SPARKS AND FLAME. READ AND OBSERVE ALL WARNING LABELS.

(c) Using solvent CM106 MEK or CM219 MPK, clean the threaded hole and permit the threads to dry.

(d) Apply masking material to the pitch change knob bearing interface surface.

(e) Reapply cadmium plating and bake in accordance with the Cadmium Replating chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).

(f) Inspect all machined dimensions and true position requirements in Figure 6 to make sure that all specified modification requirements have been met.

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Propeller - Pitch Change Knob Inspection, Rework, and Introduction of an Improved Pitch Change Knob Bracket

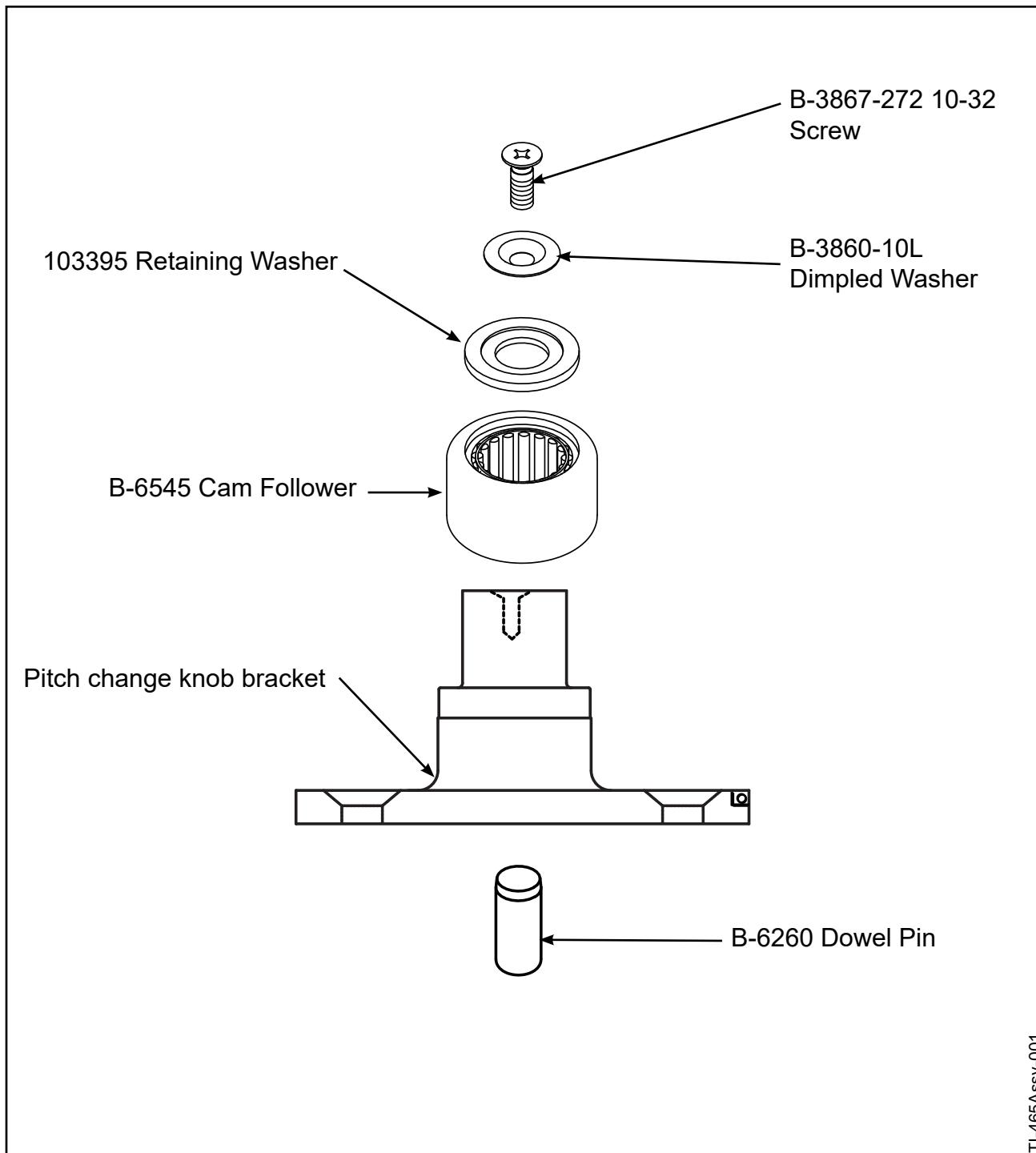
- (g) Using a go-no-go thread gauge, inspect the 10-32UNF-3B threaded hole to make sure that it meets the pitch diameter requirements for the specified thread.
- (h) Use metal impression stamping or vibra engraving to mark the modified pitch change knob bracket with the letter "A" at the end of the part number in accordance with the Parts Identification and Marking chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).

NOTE: A part number with an **A** suffix will identify that it is a modified pitch change knob bracket unit.

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Propeller - Pitch Change Knob Inspection, Rework, and Introduction of an Improved Pitch Change Knob Bracket



Pitch Change Knob Bracket Unit Assembly
Figure 3

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**Propeller - Pitch Change Knob Inspection, Rework, and
Introduction of an Improved Pitch Change Knob Bracket**

D. Assembly Instructions

- (1) Assemble the pitch change knob bracket unit with the screw, dimpled washer, and washer for retention of the cam follower. Refer to Figure 3.
 - (a) Using solvent CM106 MEK or CM219 MPK, clean the threads of the B-3867-272 10-32 screw and the threads in the top of the pitch change knob bracket.
 - (b) Permit the threads to dry.
 - (c) Apply CM21, Loctite 222, to the clean, dry threads in the top of the pitch change knob bracket.
 - (d) Put the B-6545 cam follower over the pitch change knob bracket.
 - (e) With the counterbored side up, put the 103395 retaining washer over the pitch change knob bracket to hold the B-6545 cam follower in place.
 - (f) With the raised side down, put the B-3860-10L dimpled washer over the 103395 retaining washer.
 - (g) Apply CM21 Loctite 222 to the clean, dry threads of the B-3867-272 10-32 screw.
 - (h) Insert the B-3867-272 10-32 screw through the 103395 washer and the B-3860-10L washer and into the threaded hole in the top of the pitch change knob bracket.
 - (i) Torque the B-3867-272 10-32 screw to 8-10 in.lb. (0.90 - 1.13 N•m).

E. Propeller Assembly

- (1) Assemble the blade(s) and propeller in accordance with the applicable Hartzell Propeller Inc. overhaul manual.
- (2) Make an entry in the propeller logbook indicating any replacement and compliance in accordance with this Service Bulletin.

F. Instructions for Continued Airworthiness

- (1) At each propeller overhaul, inspect the pitch change knob bracket in accordance with Table 2 and Figure 5, Component Inspection Criteria in this Service Bulletin.

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G. Recommended Service Facilities

- (1) Hartzell Propeller Inc. has a worldwide network of Recommended Service Facilities for overhaul and repair of our products.
- (2) Each service facility must meet standard FAA requirements and additional Hartzell Propeller Inc. requirements before being recommended by Hartzell Propeller Inc. Each service facility is audited by Hartzell Propeller Inc. to verify the continuation of the standards.
- (3) Hartzell Propeller Inc. recommends that you use one of these service facilities when having your propeller overhauled or repaired.
- (4) For a current list of Hartzell Propeller Inc. Recommended Service Facilities, contact Hartzell Propeller Inc. Product Support or refer to the Hartzell Propeller Inc. website at www.hartzellprop.com.

H. Contact Information

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