

HARTZELL PROPELLER INC.

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

1. Planning Information

A. Effectivity

- (1) Hartzell Propeller Inc. Raptor-series reciprocating propeller models 3C1-R430A1() with serial numbers listed in Table 1 are affected by this Alert Service Bulletin.

WARNING: DO NOT USE OBSOLETE OR OUTDATED INFORMATION.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

B. Concurrent Requirements

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

Propeller Model	Serial Numbers			
3C1-R430A1()	B28833	B35173	B37283	SM22
	B28834	B35174	B37284	SM25
	B28835	B35175	B37494	SM26
	B28836	B35176	B37496	SM27
	B34395	B35624	B37497	SM29
	B34815	B35625	B38042	SM33
	B34816	B35764	SM15	SM36
	B34817	B36244	SM18	SM37
	B34818	B36245	SM20	SM41
	B34819	B37281	SM21	-

Affected Propellers/Serial Numbers
Table 1

HARTZELL PROPELLER INC.

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

C. Reason

- (1) The chamfer on the A-2418-2 pitch change rod used on the affected propellers can cause wear on the C-3317-115-1 O-ring resulting in oil leakage around the pitch change rod.
- (2) Hartzell Propeller Inc. is introducing the A-2418-15 pitch change rod as a replacement for the A-2418-2 pitch change rod on the affected propellers to prevent wear on the C-3317-115-1 O-ring.
 - (a) The A-2418-15 pitch change rod is approximately 0.58 inch (14.7 mm) longer than the A-2418-2 pitch change rod.
 - 1 Due to the additional length, the chamfer on the A-2418-15 pitch change rod will not contact the C-3317-115-1 O-ring.

D. Description

- (1) This Alert Service Bulletin provides Instructions for Continued Airworthiness (ICA).
- (2) This Alert Service Bulletin introduces the A-2418-15 pitch change rod as a replacement for the A-2418-2 pitch change rod on the affected propellers.
- (3) This Alert Service Bulletin provides instructions for replacing the A-2418-2 pitch change rod on affected propellers with an A-2418-15 pitch change rod.
 - (a) Hartzell Propeller Inc. will provide the parts listed in the Material Information section and warrant the labor costs associated with replacement of the pitch change rod.
 - 1 Refer to the Appendix section of this Alert Service Bulletin for additional information about the warranty program.
- (4) After the release date of this Alert Service Bulletin, Hartzell Propeller Inc. will manufacture 3C1-R430A1() propellers with the A-2418-15 pitch change rod.

E. Compliance

- (1) Within 100 flight hours or one calendar year from the release date of this Alert Service Bulletin, whichever occurs first, replace the A-2418-2 pitch change rod with an A-2418-15 pitch change rod in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
 - (a) Installation of the A-2418-15 pitch change rod is terminating action for this Alert Service Bulletin.

HARTZELL PROPELLER INC.

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

F. Approval

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

G. Manpower

Procedure	Man-hours
Remove and Install Propeller	2.0 hours
Pitch Change Rod Replacement	2.0 hours

H. Weight and Balance

- (1) Not changed

I. Electrical Load Data

- (1) Not changed

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. Tool and Equipment Manual 165A (61-00-65)
- Available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (2) Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02)
- Volume 7, Consumable Materials is available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (3) Hartzell Propeller Inc. Raptor Series Reciprocating Propeller Owners Manual 480 (61-10-80) - Available on the Hartzell Propeller Inc. website at www.hartzellprop.com
- (4) Hartzell Propeller Inc. Raptor Series Reciprocating Propeller Overhaul Manual 490 (61-10-90)

K. Other Publications Affected

- (1) Hartzell Propeller Inc. Raptor Series Reciprocating Propeller Overhaul Manual 490 (61-10-90)

HARTZELL PROPELLER INC.
ALERT SERVICE BULLETIN
HC-ASB-61-395
A-2418-15 Pitch Change Rod

2. Material Information

A. Components Provided by HartzellPropeller Inc.

Part Number	Description	Qty.
A-2418-15	Rod, Pitch Change	1
C-3317-018	O-ring (Piston ID)	1
C-3317-115-1	O-ring	1
C-3317-247	O-ring (Cylinder)	1
C-3317-348-1	O-ring (Piston OD)	1
B-3838-3-5	Cotter Pin	1

B. Consumable Materials

CM Number	Description
CM12	Grease
CM118	Anti-Seize Compound

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

C. Special Tooling

TE Number	Description
TE125	Building Buck Components
TE129	Propeller Assembly Table
TE153	Torque Wrench Adapter

NOTE: All TE numbers in this Alert Service Bulletin refer to Hartzell Propeller Inc. Tool and Equipment Manual 165A (61-00-65).

HARTZELL PROPELLER INC.
ALERT SERVICE BULLETIN
HC-ASB-61-395
A-2418-15 Pitch Change Rod

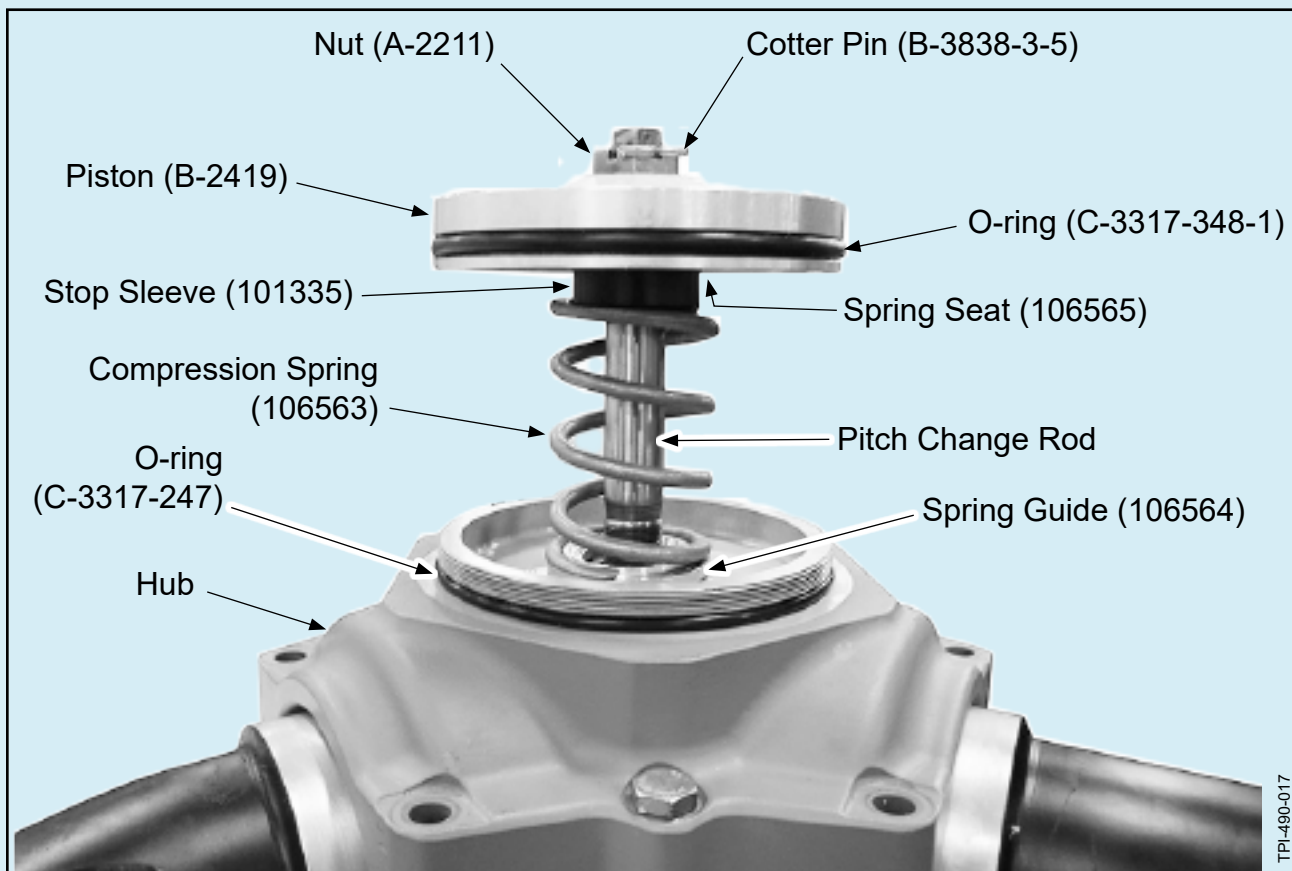
3. Accomplishment Instructions

A. Parts Order/Compliance Form

- (1) Complete and sign the Parts Order/Compliance Form in the Appendix section of this Alert Service Bulletin.
 - (a) Send the completed form to Hartzell Propeller Inc. for processing.

B. A-2418-2 Pitch Change Rod Removal
(Refer to Figure 1)

- (1) Remove the propeller from the aircraft in accordance with Hartzell Propeller Inc. Raptor Series Reciprocating Propeller Owners Manual 480 (61-10-80).
- (2) The following steps in this procedure must be performed by a certified propeller repair station with the appropriate rating.



Pitch Change Rod Replacement
Figure 1

HARTZELL PROPELLER INC.

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

- (3) To simplify the assembly process and minimize the effort to set the necessary blade angles, make a record of the location and orientation (where applicable) of each part in the propeller hub assembly.
- (4) Attach the propeller assembly to the rotatable fixture TE125 or equivalent on the assembly table TE129 or equivalent.

CAUTION: CYCLE THE PROPELLER BEFORE BEGINNING THE CYLINDER REMOVAL PROCESS. FAILURE TO CYCLE THE PROPELLER MAY CAUSE THE PITCH CHANGE ROD TO PREMATURELY DISENGAGE FROM THE FORK.

- (5) Cycle the propeller through the entire range of movement and cycle back to no pressure or low pitch before beginning disassembly.

NOTE: It is not necessary to remove the low pitch stop set screw.

- (6) Using the cylinder wrench TE153 or equivalent, remove the cylinder (B-2428-3).
- (7) Remove and discard the cylinder-to-hub O-ring (C-3317-247).
- (8) Remove and discard the O-ring (C-3317-348-1) from the OD of the piston (B-2419).

WARNING: USE CARE WHEN REMOVING THE PISTON BECAUSE THE PISTON IS UNDER SLIGHT FORCE.

- (9) Loosen the pitch change rod (A-2418-2).
- (10) Remove the piston/sleeve/rod assembly from the propeller.
- (11) Remove the compression spring (106563).
- (12) Remove the spring guide (106564).
- (13) Reinstall the piston/sleeve/rod assembly in the propeller.
- (14) Remove and discard the cotter pin (B-3838-3-5) from the piston nut (A-2211).
- (15) Remove the piston nut (A-2211) from the pitch change rod (A-2418-2).
- (16) Remove the piston (B-2419) from the pitch change rod (A-2418-2).
- (17) Remove and discard the O-ring (C-3317-018) from the ID of the piston (B-2419).
- (18) Remove the spring seat (106565), stop sleeve (101335), and stop sleeve split keeper (A-867).

HARTZELL PROPELLER INC.

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

(19) Remove and discard the O-ring (C-3317-115-1) from the ID of the engine-side hub bushing.

(20) Remove the pitch change rod (A-2418-2).

NOTE: The A-2418-2 pitch change rod can be in used in other applications after performing component inspection in accordance with Hartzell Propeller Inc. Raptor Series Reciprocating Propeller Overhaul Manual 490 (61-10-90).

(21) Clean the piston (B-2419) and the cylinder (B-2428-3) in accordance with the Cleaning chapter of Hartzell Propeller Inc. Standard Practices Manual 202A (61-01-02).

C. A-2418-15 Pitch Change Rod Installation

(Refer to Figure 1)

- (1) This procedure must be performed by a certified propeller repair station with the appropriate rating.
- (2) Install the O-ring (C-3317-115-1) in the groove on the ID of the engine-side hub bushing.
- (3) Apply anti-seize compound CM118 to the threads of the pitch change rod (A-2428-15).
- (4) Insert the pitch change rod (A-2418-15) through the cylinder-side half of the hub and into the fork.
- (5) Torque the pitch change rod (A-2418-15) to 36-44 Ft-Lbs (49-59 N•m) wet.
- (6) Piston and Cylinder Installation:
 - (a) Using lubricant CM12, lightly lubricate the spring guide (106564) and put it on the hub over the pitch change rod bore hole.
 - (b) Install the stop sleeve split keeper (A-867) in the groove on the pitch change rod (A-2418-15).
 - (c) Install the stop sleeve (101335) over the pitch change rod (A-2418-15) and stop sleeve split keeper (A-867).
 - (d) Using lubricant CM12, lubricate the O-ring (C-3317-018).
 - (e) Install the O-ring (C-3317-018) over the pitch change rod (A-2418-15) down onto the stop sleeve (101335).
 - (f) Using lubricant CM12, lubricate the spring seat (106565).

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

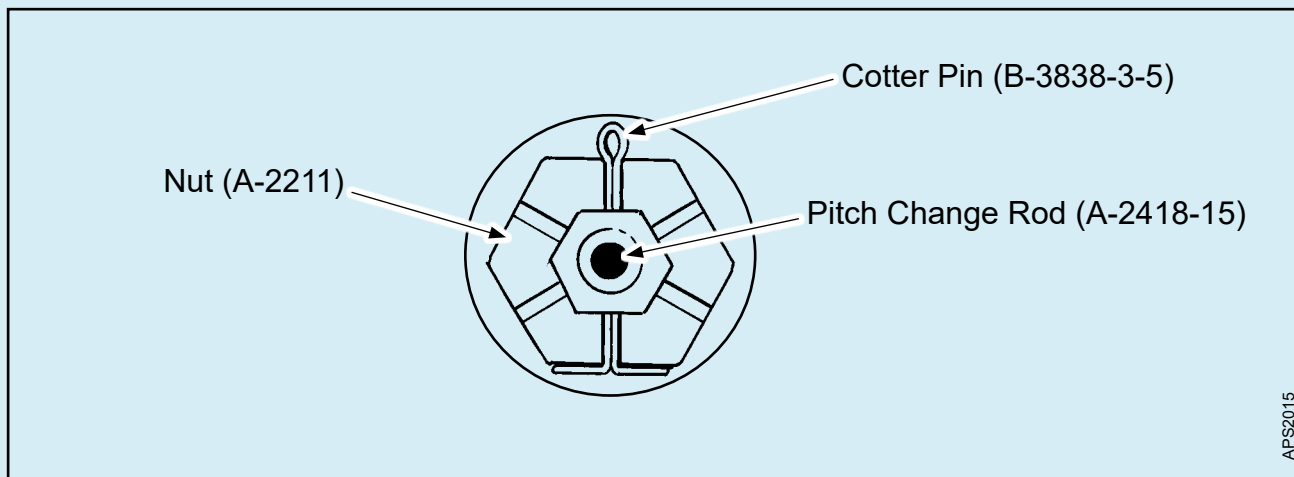
- (g) Put the spring seat (106565) over the pitch change rod (A-2418-15) and seat it on the stop sleeve (101335).
- (h) With the ID O-ring groove of the piston (B-2419) toward the stop sleeve (101335), put the piston onto the pitch change rod (A-2418-15).
- (i) Install the piston nut (A-2211) on the pitch change rod (A-2418-15).

CAUTION: DO NOT TORQUE THE NUT (A-2211) MORE THAN 55 FT-LBS (74 N•m).

- (j) Torque the piston nut (A-2211) to 40 Ft-Lbs (55 N•m).
- (k) If the hole in the pitch change rod (A-2418-15) and the slot in the nut (A-2211) do not align, do the following:
 - 1 Set the torque wrench to 55 Ft-Lbs (74 N•m).
 - 2 Slowly torque the nut (A-2211) until a slot in the nut aligns with the nearest hole in the pitch change rod (A-2418-15).

CAUTION: DO NOT BEND THE TABS OF THE COTTER PIN (B-3838-3-5) OVER THE END OF THE PITCH CHANGE ROD (A-2418-15). COTTER PIN TABS BENT OVER THE END OF THE PITCH CHANGE ROD INTERFERE WITH THE LOW PITCH STOP SCREW (102472).

- (l) Safety the nut (A-2211) with the cotter pin (B-3838-3-5) as shown in Figure 2.



**Cotter Pin Installation
Figure 2**

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

CAUTION: DO NOT REMOVE THE ASSEMBLED PITCH CHANGE ROD/PISTON BY ATTACHING A WRENCH TO THE COTTER-PINNED NUT (A-2211); USE THE END OF THE PITCH CHANGE ROD (A-2418-15).

- (m) Unthread the assembled pitch change rod/piston from the fork (105732) and remove the pitch change rod/piston and the spring seat (106565) from the hub.
- (n) Apply lubricant CM12 to each end of the compression spring (106563), then put the compression spring onto the spring guide (106564) as shown in Figure 1.
- (o) Put the spring seat (106565) over the compression spring (106563).
- (p) Move the blades to low pitch position.

CAUTION: DO NOT INSTALL THE ASSEMBLED PITCH CHANGE ROD/PISTON BY ATTACHING A WRENCH TO THE COTTER-PINNED NUT (A-2211); USE THE END OF THE PITCH CHANGE ROD (A-2418-15).

- (q) Insert the assembled pitch change rod/piston through the compression spring (106563), and the spring guide (106564) into the cylinder-side half of the hub as shown in Figure 1.

NOTE: The compression spring (106563) will be compressed when the pitch change rod/piston is turned into the fork (105732).

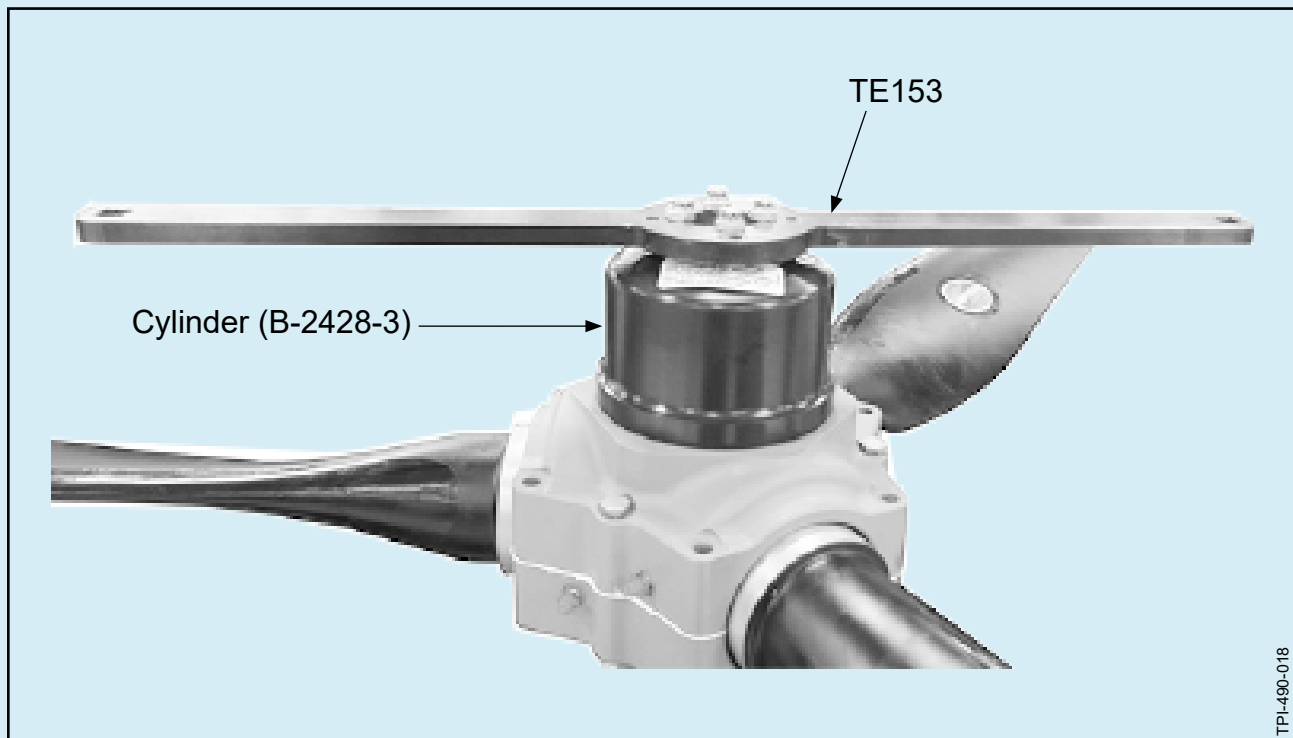
- (r) Torque the pitch change rod (A-2418-15) to 36-44 Ft-Lbs (49-59 N•m) wet.
- (s) Using lubricant CM12, lubricate the piston OD O-ring (C-3317-348-1).
- (t) Install the piston OD O-ring (C-3317-348-1) in the O-ring groove of the piston (B-2419) as shown in Figure 1.
- (u) Using lubricant CM12, lubricate the O-ring (C-3317-247).
- (v) Install the cylinder O-ring (C-3317-247) in the groove at the base of the cylinder attachment threads in the cylinder-side half of the hub as shown in Figure 1.
- (w) Using lubricant CM12, lightly lubricate the attachment threads of the cylinder (B-2428-3).

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

- (x) Install the cylinder (B-2428-3) onto the hub.
 - (y) Using four 1/4-28UNF-3B bolts or screws, attach the cylinder torque wrench adapter TE153 to the cylinder (B-2428-3). Refer to Figure 3.
 - (z) Torque the cylinder (B-2428-3) to 120-150 Ft-Lbs (163-203 N•m) wet.
- (7) Make an entry in the propeller logbook indicating installation of the A-2418-15 pitch change rod as terminating action for this Alert Service Bulletin.
- (8) Install the propeller onto the aircraft in accordance with Hartzell Propeller Inc. Raptor Series Reciprocating Propeller OwnersManual 480 (61-10-80).



Installing the Cylinder
Figure 3

HARTZELL PROPELLER INC.

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

D. 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 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.

E. Contact Information

Hartzell Propeller Inc.
Attn.: Hartzell Propeller Inc. Product Support
One Propeller Place
Piqua, Ohio 45356-2634 USA
Phone: (001) 937.778.4379
Fax: (001) 937.778.4215
E-mail: techsupport@hartzellprop.com

HARTZELL PROPELLER INC.

ALERT SERVICE BULLETIN

HC-ASB-61-395

A-2418-15 Pitch Change Rod

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HARTZELL PROPELLER INC.
ALERT SERVICE BULLETIN APPENDIX
HC-ASB-61-395
A-2418-15 Pitch Change Rod

1. Warranty Program Information

A. Eligibility

- (1) Hartzell Propeller Inc. Raptor-series reciprocating propeller models 3C1-R430A1() with serial numbers listed in Table 1 of this Alert Service Bulletin are eligible for this warranty program.

B. Parts

- (1) Hartzell Propeller Inc. will provide all of the parts listed in the Material Information section of this Alert Service Bulletin free of charge for each affected propeller.
- (2) Complete and sign the Parts Order/Compliance Form in this Appendix section, then send the completed form to Hartzell Propeller Inc. for processing.

C. Labor

- (1) Hartzell Propeller Inc. will authorize payment for the allowable labor charges when pitch change rod replacement is performed in accordance with the Accomplishment Instructions in this Alert Service Bulletin.
 - (a) Refer to the Manpower section of this Alert Service Bulletin for warranted procedures and allowable man-hours.
 - (b) Labor charges will be reimbursed at the service facility's CURRENT POSTED SHOP LABOR RATE, pending Hartzell Propeller Inc. approval.
- (2) Send the invoice for labor charges to Hartzell Propeller Inc. for processing.
 - (a) Reference the same warranty claim number issued by Hartzell for the replacement parts.

D. Contact Information

- (1) Fax, Email, or mail the Parts Order/Compliance Form to:

Hartzell Propeller Inc.
Attn: Alert Service Bulletin 395 Coordinator
One Propeller Place
Piqua, OH 45356 USA
Phone: 937.778.4379
Fax: 937.778.4215 (Intl. 001.937.778.4215)
Email: techsupport@hartzellprop.com

HARTZELL PROPELLER INC.
ALERT SERVICE BULLETIN APPENDIX
HC-ASB-61-395
A-2418-15 Pitch Change Rod

Parts Order/Compliance Form

Warranty Claim Number:		
Propeller Information:		
Propeller Model:	Propeller S/N:	
TSN (Time Since New):	TSO (Time Since Overhaul):	
Aircraft Information		
Aircraft Model:	Aircraft Registration #:	
Owner Information:		
Name:		
City:	State:	
Zip/Postal Code:	Country:	
E-mail:	Phone:	
Repair Facility/Shipping Information:		
Company:	Contact Name:	
Address:		
City:	State:	
Zip/Postal Code:	Country:	
E-mail:	Phone:	Fax:
Replacement Parts:		
Refer to the Material Information section of this Alert Service Bulletin for a list of parts that will be provided.		
Signature:		
Repair Technician's Signature:	Date:	
Send this completed and signed form to Hartzell Propeller Inc. Product Support Department: Fax - (001) 937.778.4215 or E-mail - techsupport@hartzellprop.com		

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Authorized By:

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