



YUKON PROPELLER BY WIPAIRE AND HARTZELL

YUKON 208 PROPELLER INSTALLATION GUIDE

HARTZELL HC-E4N-KTV ()/GC11114

[illegible]

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For Reference Only

REQUIRED TOOLING

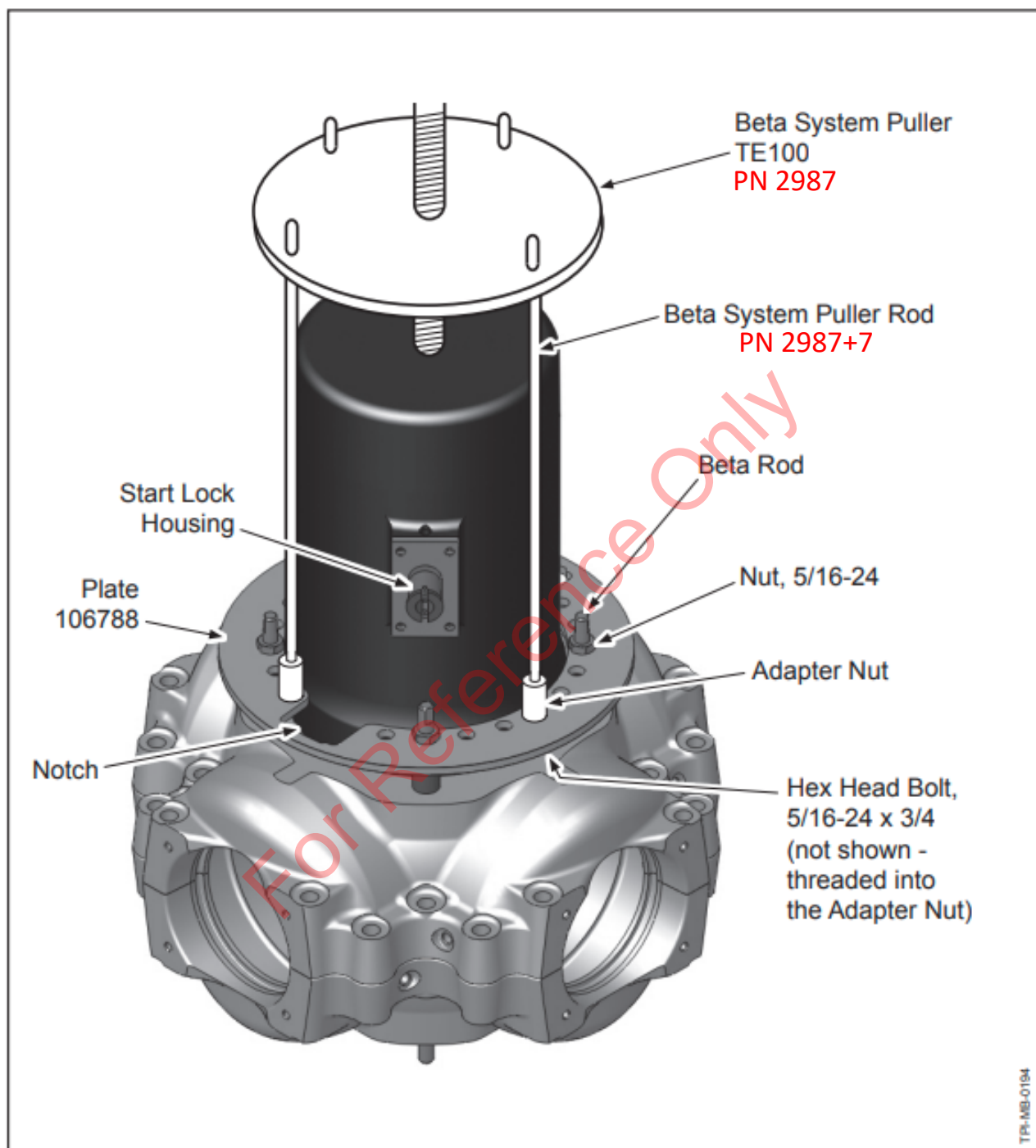
For Reference Only

CST-2987

PULLER, BETA RING



BETA RING PULLER PN CST-2987



Using the Plate Kit 106804
Figure 1

TORQUE WRENCH ADAPTER PN AST-2877-3



AST-2877-3
ADAPTER, TORQUE WRENCH

WPC00419 YUKON PROP TOOL KIT (RENTAL UNIT)



REQUIRED TECHNICAL DATA

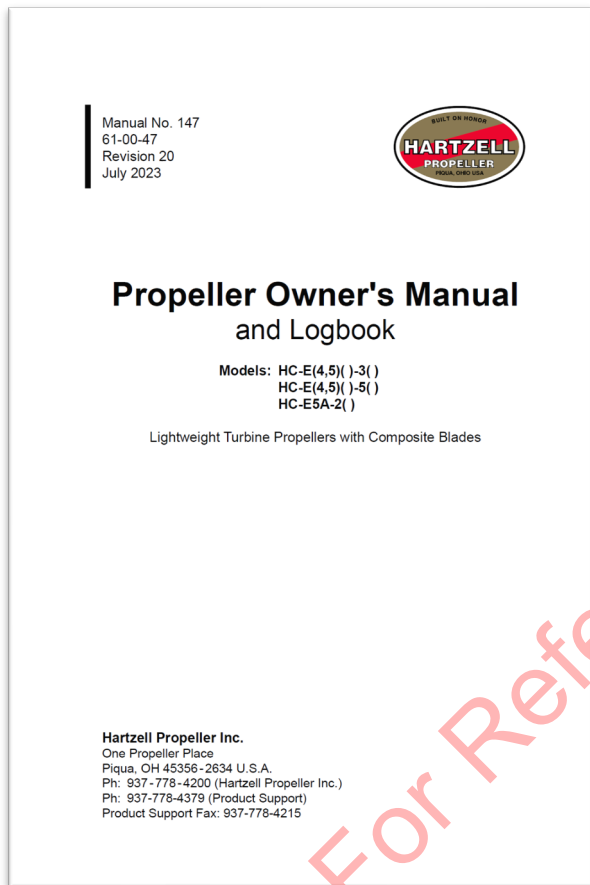
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APPLICABLE TECHNICAL DATA

**AVAILABLE AT WWW.HARTZELLPROP.COM

-PROPELLER OWNERS **MANUAL 147**

-METAL SPINNER MAINTENANCE **MANUAL 127**



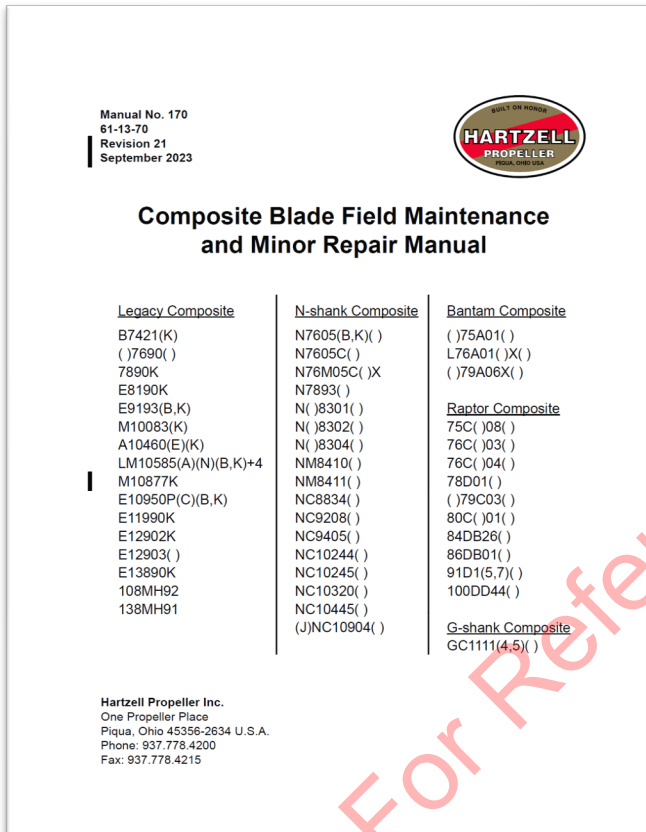
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APPLICABLE TECHNICAL DATA

**AVAILABLE AT WWW.HARTZELLPROP.COM

-COMPOSITE BLADE FIELD MAINTENANCE **MANUAL 170**

-ICE PROTECTION SYSTEM **MANUAL 180**

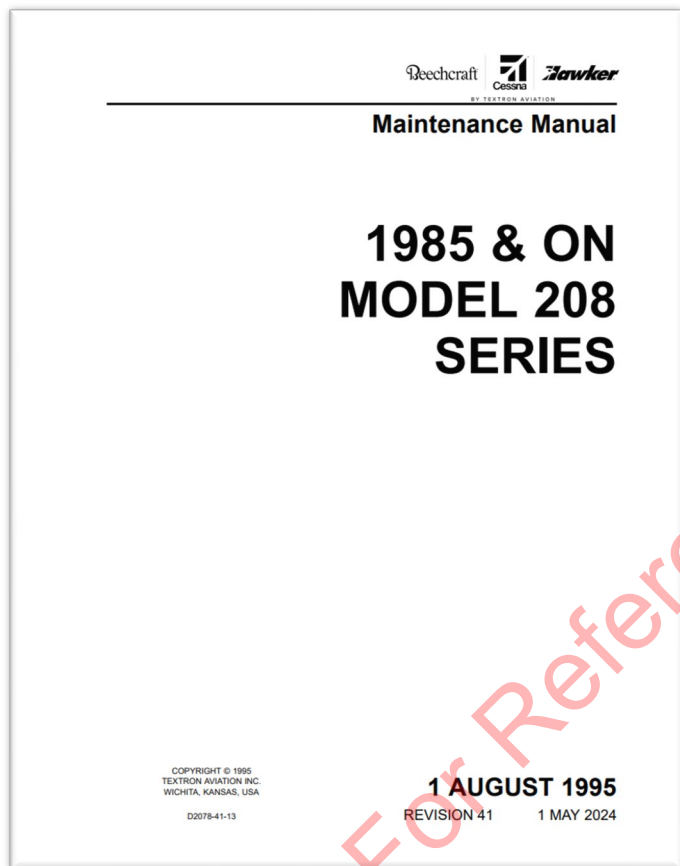


CURRENT REVISIONS AVAILABLE AT

WWW.HARTZELLPROP.COM

APPLICABLE TECHNICAL DATA

- CESSNA 208 MAINTENANCE MANUAL
- CESSNA 208 ILLUSTRATED PARTS CATALOG



AVAILABLE BY SUBSCRIPTION ONLY FROM TXTAV

APPLICABLE TECHNICAL DATA

-PRATT AND WHITNEY PT6A-140 IPC AND SERVICE MANUALS

ILLUSTRATED PARTS CATALOG			
TURBOPROP GAS TURBINE ENGINE			
Model(s)			
PT6A-140			
Manual Part No.3075744			
Original Issue date18 May 2012			
Export Control Classification		DDI if Applicable	
Contains no Technical Data		0	
Not Subject to the EAR pursuant to 15 CFR 734.7(a)(1) or Not Subject to the ITAR pursuant to 22 CFR 120.11(NBR)		0	
Jurisdiction and Classification based on Physical Location of the Item.		Regulations	
		Location	EAR
		Outside US*	NSR
		U.S.	NSR
		Canada	NSR
		EPA (ECL)	DP4 (CS)
		NSR	No

* Additionally, refer to the classification under the local export regime where the item is located, as provided in the grid.

MAINTENANCE MANUAL
TURBOPROP ENGINE
MODEL(S)
PT6A-140 ENGINES
Manual Part No.3075742
Issued 04 June 2012

AVAILABLE BY SUBSCRIPTION ONLY

APPLICABLE TECHNICAL DATA

-PRATT AND WHITNEY PT6A-114A IPC AND SERVICE MANUALS

ILLUSTRATED PARTS CATALOG

TURBOPROP GAS TURBINE ENGINE

Model(s)

PT6A-114/-114A/-135/-135A

Manual Part No.3043514

Original Issue date31 January 1997

Export Control Classification

Contains no Technical Data

Not Subject to the EAR pursuant to 15 CFR 734.7(a)(1) or Not Subject to the ITAR pursuant to 22 CFR 120.11(NSR)

Jurisdiction and Classification based on Physical Location of the Item.

* Additionally, refer to the classification under the local export regime where the item is located, as provided in the grid.

(X) If Applicable

()

()

Regulations

EAR

ITAR

Location

Outside US*

NSR

NSR

U.S.

BE991

NSR

EPA(ECL)

DPA(CO)

Canada

NSR

No

MAINTENANCE MANUAL

TURBOPROP GAS TURBINE ENGINE

Model(s)

PT6A-114/-114A/-135/-135A

Manual Part No.3043512

Original Issue date31 October 1997

The contents of this manual have been examined and found acceptable to the Minister in meeting the requirements of an Engine Maintenance Manual for the Pratt & Whitney Canada PT6A-114/-114A/-135/-135A engine, as required by the Canadian Airworthiness Manual, Chapter 533.4 "Instructions for Continued Airworthiness".
[20240708v7.2]

Export Control Classification

Contains no Technical Data

Not Subject to the EAR pursuant to 15 CFR 734.7(a)(1) or Not Subject to the ITAR pursuant to 22 CFR 120.11(NSR)

Jurisdiction and Classification based on Physical Location of the Item.

* Additionally, refer to the classification under the local export regime where the item is located, as provided in the grid.

(X) If Applicable

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Regulations

EAR

ITAR

Location

Outside US*

NSR

NSR

U.S.

BE991

NSR

EPA(ECL)

DPA(CO)

Canada

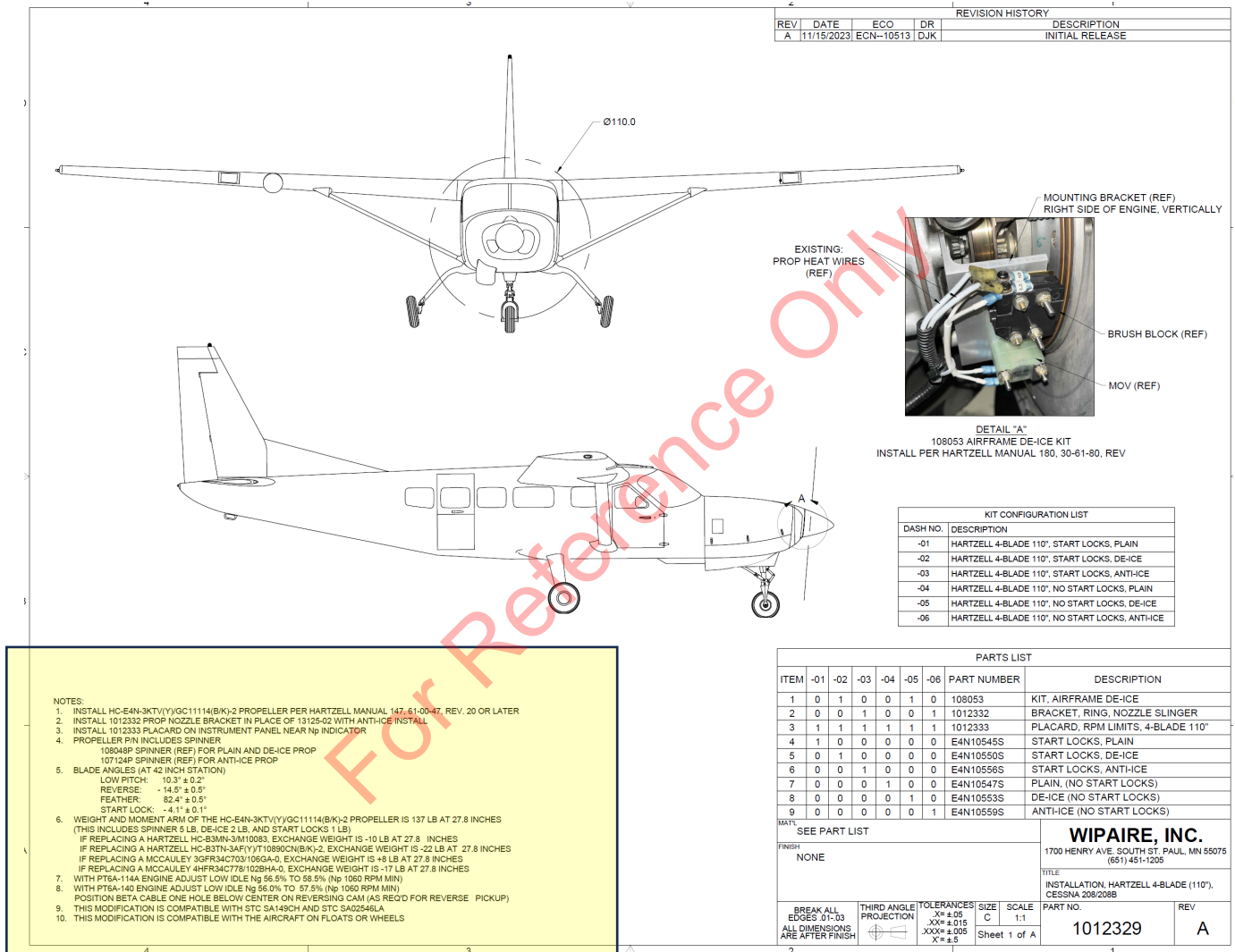
NSR

No

AVAILABLE BY SUBSCRIPTION ONLY

APPLICABLE TECHNICAL DATA

WIPAIRE INSTALLATION DRAWING 1012329



Pay particular attention of notes shown on LH side of drawing

HC-E4N-3KTV(Y)/GC11114(B/K)-2 PROPELLER

KIT PN	KIT CONFIGURATION LIST	
	DASH NO.	DESCRIPTION
1012329	-01	HARTZELL 4-BLADE 110", START LOCKS, PLAIN
1012329	-02	HARTZELL 4-BLADE 110", START LOCKS, DE-ICE
1012329	-03	HARTZELL 4-BLADE 110", START LOCKS, ANTI-ICE
1012329	-04	HARTZELL 4-BLADE 110", NO START LOCKS, PLAIN
1012329	-05	HARTZELL 4-BLADE 110", NO START LOCKS, DE-ICE
1012329	-06	HARTZELL 4-BLADE 110", NO START LOCKS, ANTI-ICE

WIPAIRE KIT BILLS OF MATERIALS

- **1012329-01**
 - 1012333 Placard, Caravan, RPM Limits, Hartzell 4-Blade
 - E4N10545S Prop, Hartzell, Yukon, Four Blade Carbon Composite For Cessna Caravan, No Ice Protection, Includes Pitch Locks
- **1012329-02**
 - 108053 Kit, Airframe De-ice
 - 1012333 Placard, Caravan, RPM Limits, Hartzell 4-Blade
 - E4N10550S Yukon, Four Blade Carbon Composite For Cessna Caravan, Electrically Heated De-Ice Protection, Includes Pitch Locks
- **1012329-03**
 - 1012332 Bracket, TKS, Nozzle
 - 1012333 Placard, Caravan, RPM Limits, Hartzell 4-Blade
 - E4N10556S Prop, Hartzell, Yukon, Four Blade Carbon Composite For Cessna Caravan, TKS Anti-Ice Protection, Includes Pitch Locks
- **1012329-04**
 - 1012333 Placard, Caravan, RPM Limits, Hartzell 4-Blade
 - E4N10547S Prop, Hartzell, Yukon, Four Blade Carbon Composite For Cessna Caravan, No Ice Protection, No Pitch Locks
- **1012329-05**
 - 108053 Kit, Airframe De-ice
 - 1012333 Placard, Caravan, RPM Limits, Hartzell 4-Blade
 - E4N10553S Prop, Hartzell, Yukon, Four Blade Carbon Composite For Cessna Caravan, Electrically Heated De-Ice Protection, No Pitch Locks
- **1012329-06**
 - 1012332 Bracket, TKS, Nozzle
 - 1012333 Placard, Caravan, RPM Limits, Hartzell 4-Blade
 - E4N10559S Prop, Hartzell, Yukon, Four Blade Carbon Composite For Cessna Caravan, TKS Anti-Ice Protection, No Pitch Locks

ORIGINAL PROPELLER REMOVAL

For Reference Only

REFERENCE **208 MAINTENANCE MANUAL 61-11-00** FOR MCCAULEY PROPELLER REMOVAL.

REFERENCE **208 MAINTENANCE MANUAL 61-10-00** FOR HARTZELL PROPELLER REMOVAL

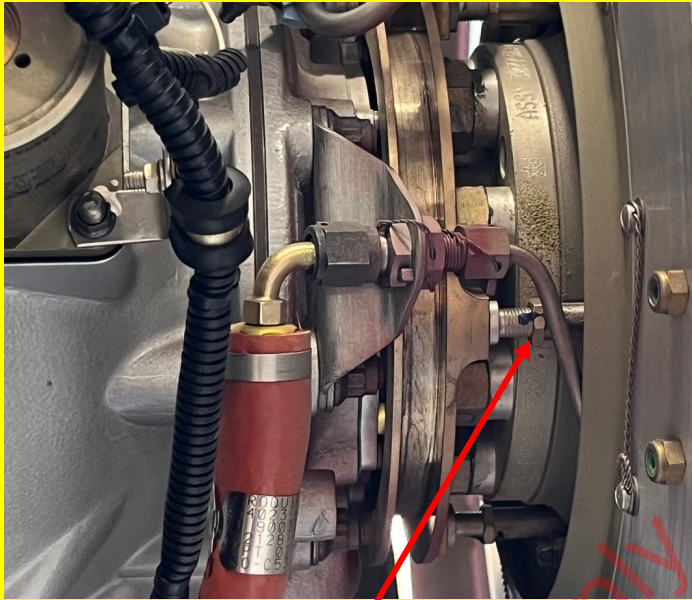
Safely secure the prop to be removed with a forklift or hoist in position as shown.

Remove existing propeller using **208 Maintenance Manual, Chapter 61** as applicable

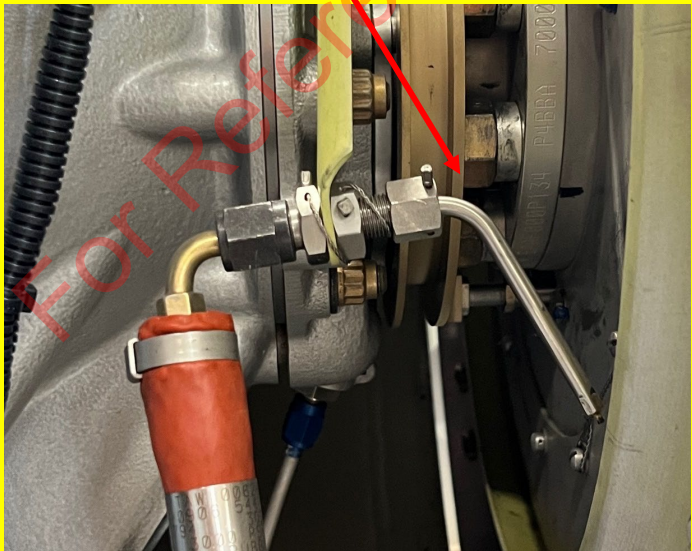
Clean up all spilled oil, search for FOD and overall condition of the area after old prop is removed.

IMPORTANT-Record removed propeller total times (TSN, TSO, etc..) and enter into appropriate logbook. Retain this logbook with removed propeller.





TKS EQUIPPED AIRCRAFT MUST LOOSEN OR REMOVE TKS NOZZLE TO PREVENT DAMAGE DURING PROPELLER REMOVAL



YUKON PROPELLER INSTALLATION

For Reference Only

PROPELLER INSTALLATION SHALL BE PERFORMED USING APPLICABLE HARTZELL, CESSNA, AND APPLICABLE PRATT AND WHITNEY DATA.

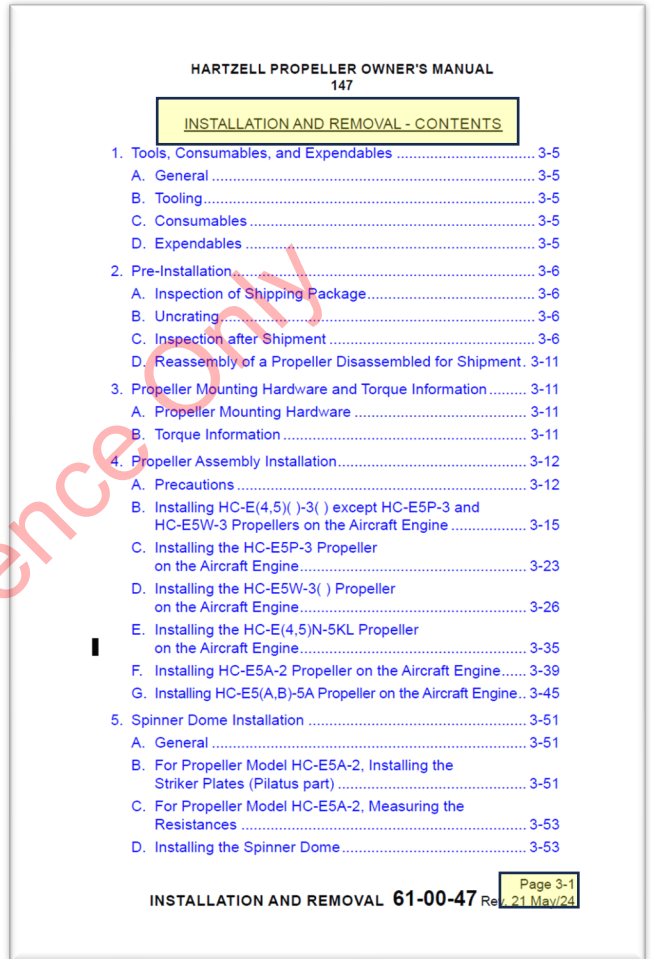
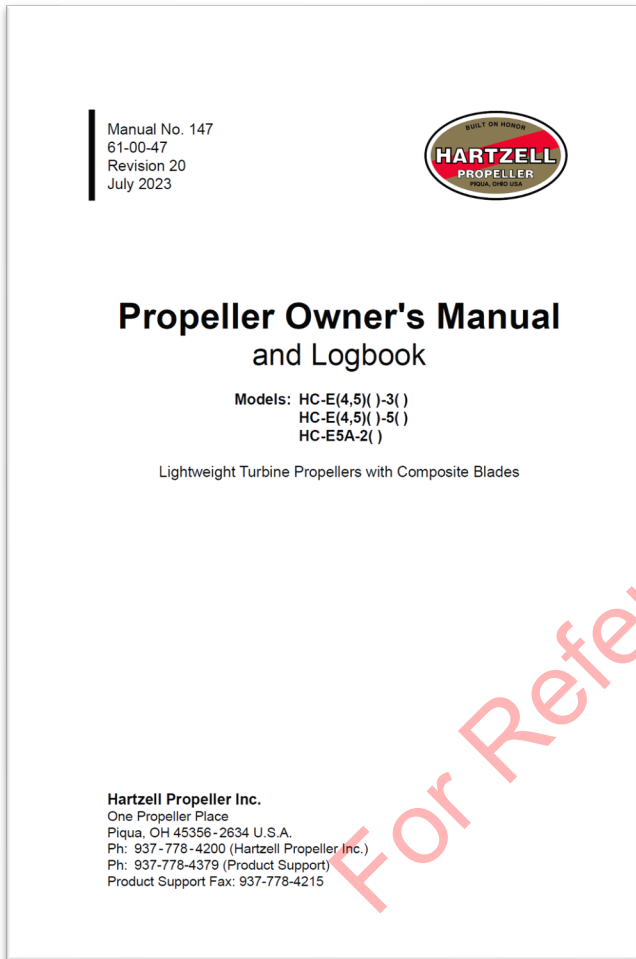
WIPAIRE HAS CHOSEN TO PROVIDE TIPS ON KEY POINTS TO WATCH OUT FOR DURING PROPELLER MOUNTING TO ENGINE, CITING MANUFACTURERS DATA ALONG THE WAY.

APPLICABLE TECHNICAL DATA

**AVAILABLE AT WWW.HARTZELLPROP.COM

-PROPELLER OWNERS **MANUAL 147**

SECTION 3 INSTALLATION AND REMOVAL PROCEDURES

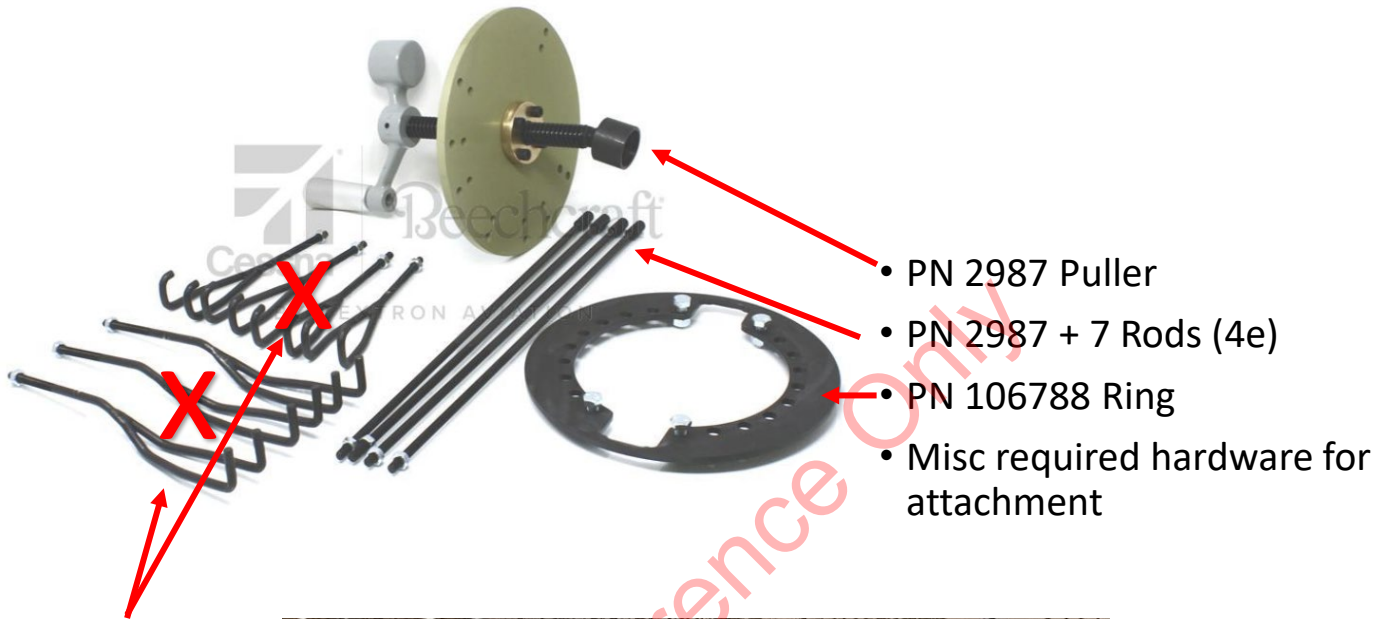


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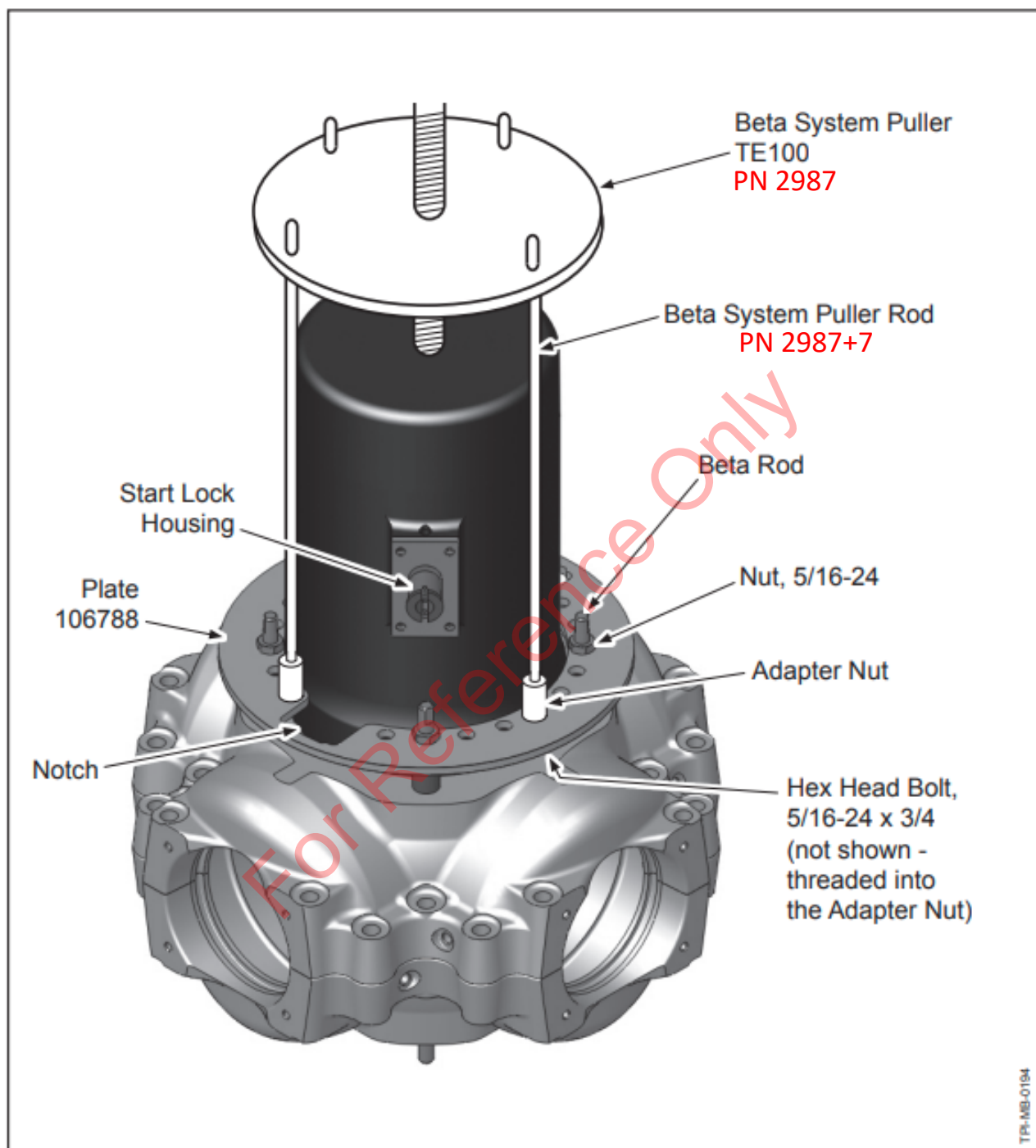
The YUKON propeller will consist of a KIT containing the propeller that was ordered to your configuration (plain, deice, anti ice, start locks, etc..) and a spinner dome and spinner bulkhead, spacers, and attach hardware as a single part number, boxes 1 of 2 and 2 of 2. Optional small items may be associated with your installation such as airframe deice kit, TKS bracket, etc... Verify all paperwork serial numbers match the actual propeller that was shipped.



Using the CST-2987 Beta Ring decompression tool, configure the puller as shown below.

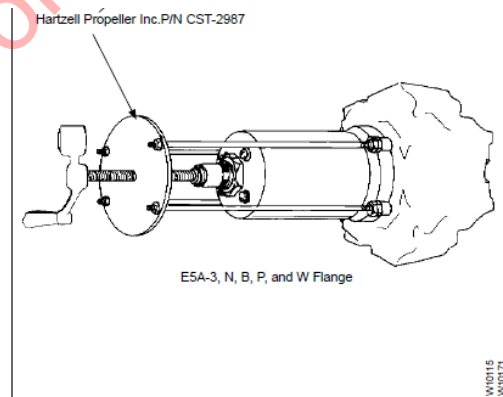


BETA RING PULLER PN CST-2987

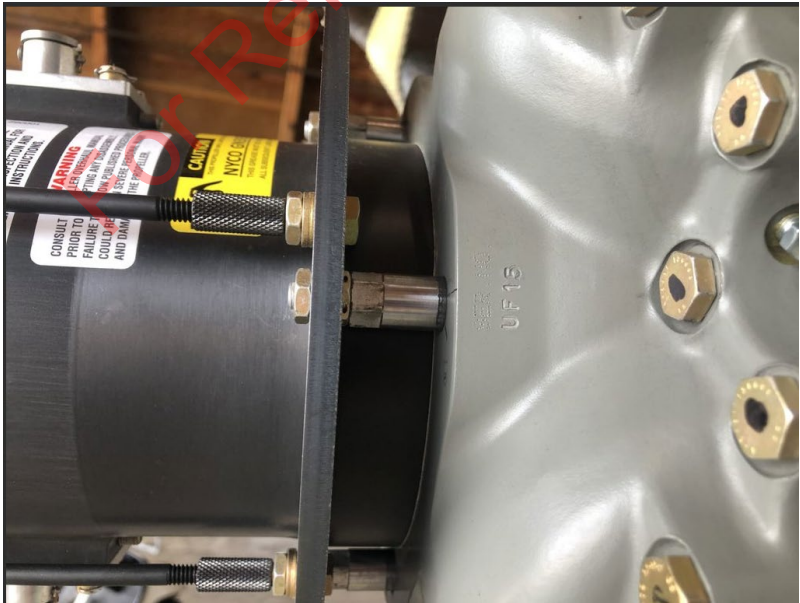


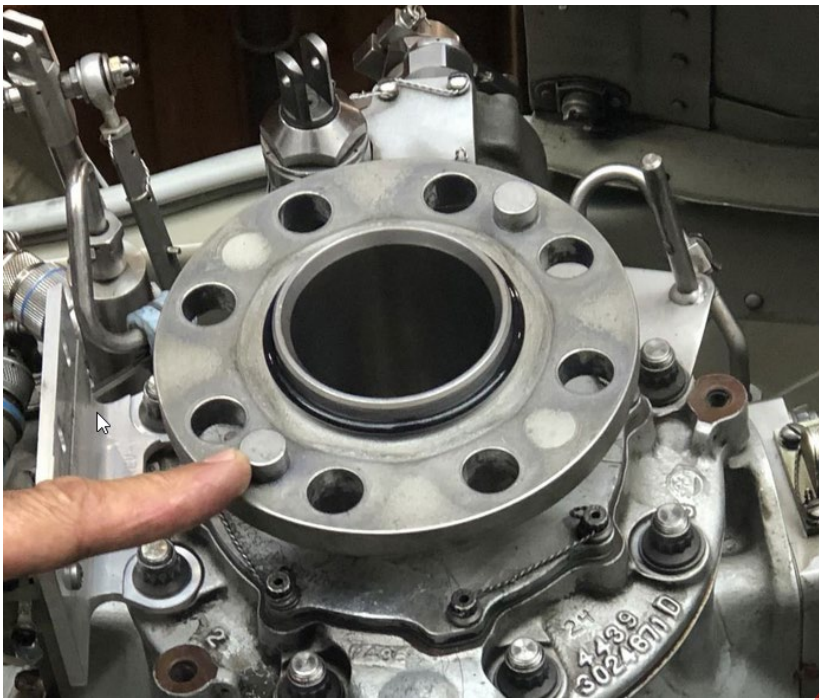
Using the Plate Kit 106804
Figure 1

Install Beta Ring decompressing tool to propeller utilizing plate PN 106788 and related misc hardware as shown.



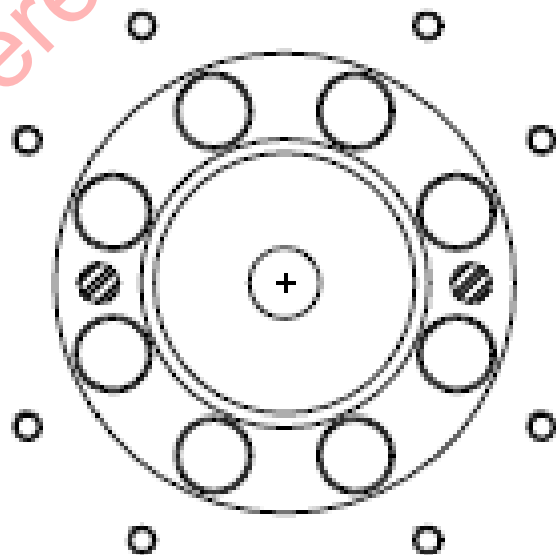
Tool for Decompressing HC-E(4,5)()-3() Series
External Beta System
Figure 3-4



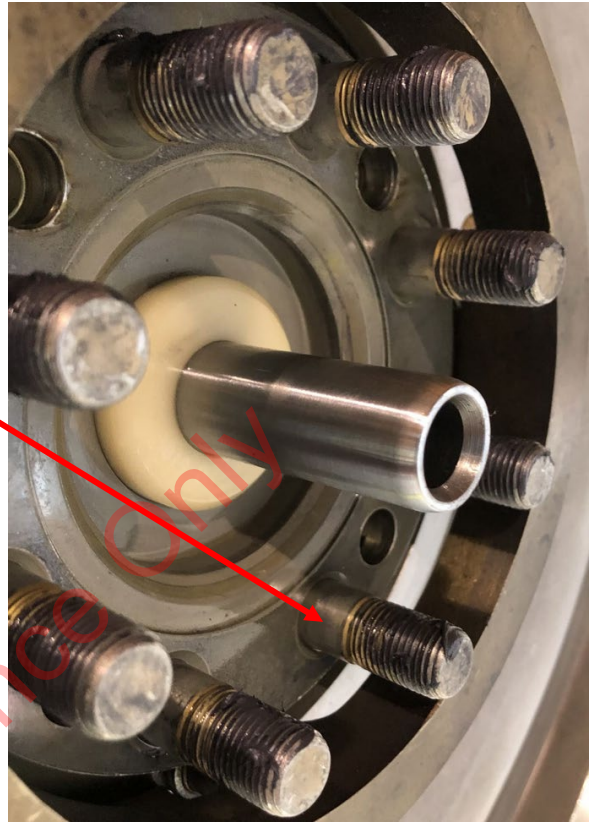


Important! Locate the orientation of the propeller pins on the prop shaft.

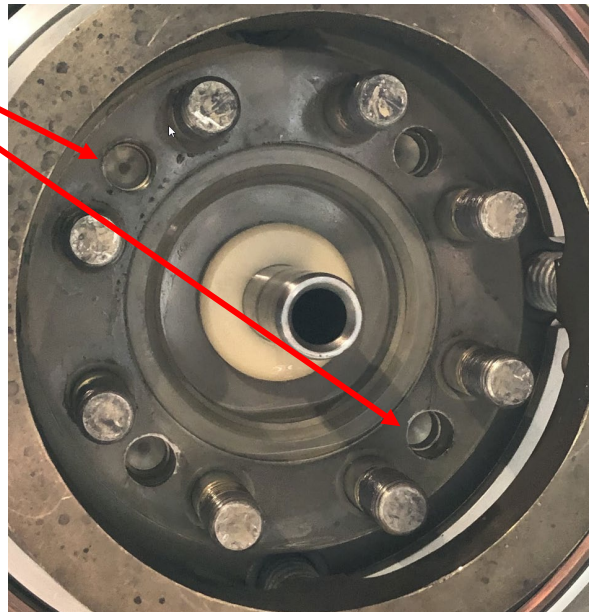
The PT6 on this installation utilizes the **N flange** as referenced in Hartzell Owners Manual 147, Figure 3-5



Apply Hartzell provided anti-seize compound PN A-3338 to threaded studs on prop. This is typically provided with your new propeller.



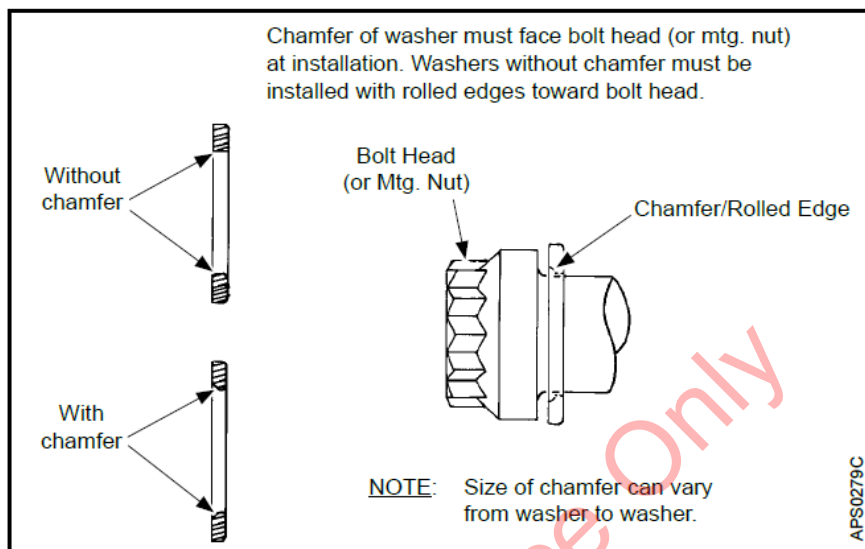
Align the Yukon prop in the correct orientation to the prop shaft dowel pins



Make note of washer, nut, and O ring reference as noted in Hartzell Owners Manual 147, Chapter 3, Figure and Table 3-1 as referenced below. Orientate washers accordingly

HARTZELL PROPELLER OWNER'S MANUAL

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Mounting Bolt/Nut and Washer

Figure 3-1

Flange	O-ring	Bolt/Stud	Washer	Nut	Misc
A - except E5A-2	C-3317-239-2	B-3347	A-2048-2	n/a	n/a
E5A-2	C-3317-239-2	B-7435	A-2048-2	C-6006	n/a
B	C-3317-239-2	B-3347	A-2048-2	n/a	n/a
N - except E(4,5)N-5KL and E4N-3KTV(Y)	C-3317-230	B-3339-1	A-2048-2	n/a	n/a
E(4,5)N-5KL and E4N-3KTV(Y)	C-3317-230	103560	A-2048-2	C-6006	n/a
P - except E5P-3	C-3317-230	B-3347	A-2048-2	n/a	n/a
E5P-3	C-3317-230	103560	A-2048-2	C-6006	n/a
E5W-3 - except E5W-3Y	C-3317-230	104720	B-7624	C-6006	106943 Spacer B-3868-S60 Screw
E5W-3Y	C-3317-230	104720	B-7624	C-7458	106943 Spacer B-3868-S60 Screw

Propeller/Engine Flange O-rings and Mounting Hardware

Table 3-1

Torque per the installation instructions found in Hartzell Owners Manual 147, Section 3, Table 3-2 utilizing torque adapter PN AST-2877-3. Torque per sequence found in Figure 3-3.

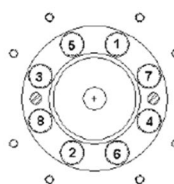
HARTZELL PROPELLER OWNER'S MANUAL
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- CAUTION 1:** FOR A PROPELLER THAT DOES NOT USE A LUBRICATED (WET) TORQUE, THE MOUNTING HARDWARE MUST BE CLEAN AND DRY TO PREVENT EXCESSIVE PRELOAD OF THE MOUNTING FLANGE.
- CAUTION 2:** TORQUE VALUES WITH "WET" NOTED AFTER THEM ARE BASED ON LUBRICATED THREADS WITH APPROVED ANTI-SEIZE COMPOUND MIL-PRF-83483().
- CAUTION 3:** REFER TO FIGURE 3-2 FOR TORQUE READING WHEN USING A TORQUE WRENCH ADAPTER.

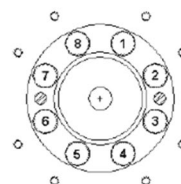
A flange propeller mounting bolts (except E5A-2)	100-105 Ft-Lbs (136-142 N*m) Wet
E5A-2 flange propeller mounting nuts	120-130 Ft-Lbs (163-176 N*m) Wet
B flange propeller mounting bolts	100-105 Ft-Lbs (136-142 N*m) Wet
N flange propeller mounting bolts except HC-E(4,5)N-(3,5)K(L) and HC-E4N-3K(T)(V)(Y)	100-105 Ft-Lbs (136-142 N*m) Wet
N flange propeller mounting nuts HC-E(4,5)N-(3,5)K(L) and HC-E4N-3K(T)(V)(Y)	120-130 Ft-Lbs (163-176 N*m) Wet
P flange propeller mounting bolts except HC-E5P-3	100-105 Ft-Lbs (136-142 N*m) Wet
HC-E5P-3 propeller mounting nuts	120-130 Ft-Lbs (163-176 N*m) Wet
W flange propeller mounting nuts	120-125 Ft-Lbs (163-170 N*m)
Adapter Plate to Hub bolts -B-3384-4H	8-10 Ft-Lbs (10.8-13.5 N*m)
Slip Ring and adapter Plate Unit to Hub screws - A-2070-7	8-10 Ft-Lbs (10.8-13.5 N*m)
Bulkhead to Adapter Plate screws -B-3867-269	8-10 In-Lbs (0.9-1.1 N*m)
Pulley to Adapter Ring - Pilatus fastener	48 In-Lbs (5.4 N*m)
Balance weight screws or bolts- Aircraft quality #10-32 or AN-3()	30-36 In-Lbs (3.4-4.0 N*m)

Torque Table

N, P or W Flange



SEQUENCE A



SEQUENCE B

Use Sequence A for steps one and two.

Use Sequence B for step three.

Step 1 - Torque all bolts/nuts to 40 Ft-Lbs (54 N*m).

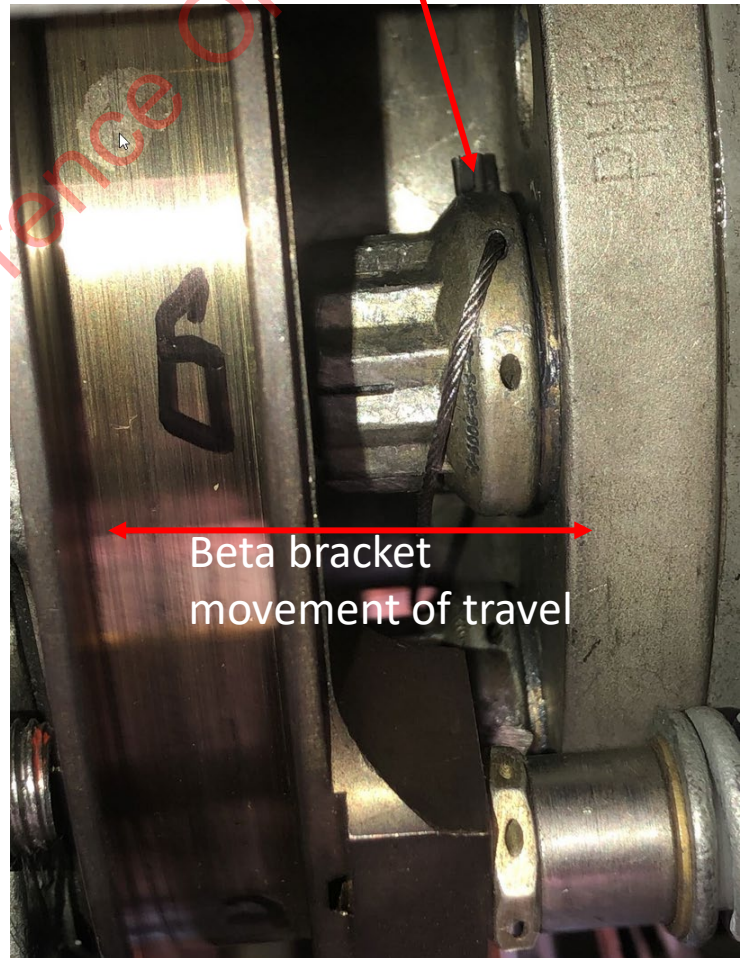
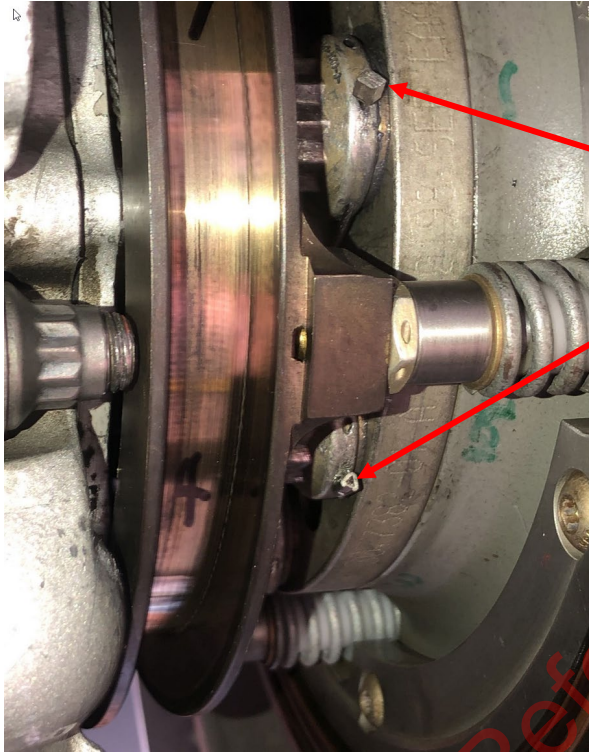
Step 2 - Torque all bolts/nuts to 80 Ft-Lbs (108 N*m).

Step 3 - Torque all bolts/nuts to Table 3-2.

Torquing Sequence for Propeller Mounting Bolts/Nuts
Figure 3-3



Safety wire or Safe-T-Cable to secure prop nuts after torque sequences. Do not allow pig tails or cable crimps to protrude outwards. This may result in undesirable contact with the beta bracket as it moves forward and aft. **Note: Highly recommended to use Safe-T-Cable over safety wire**



CAUTION:

THE BETA FEEDBACK COLLAR MUST NOT CONTACT ANY ENGINE COMPONENT OR MOUNTING BOLT SAFETY WIRE. THE BETA FEEDBACK MECHANISM COULD BE DAMAGED IF IT CONTACTED ANY STATIC ENGINE COMPONENT WHILE ROTATING.

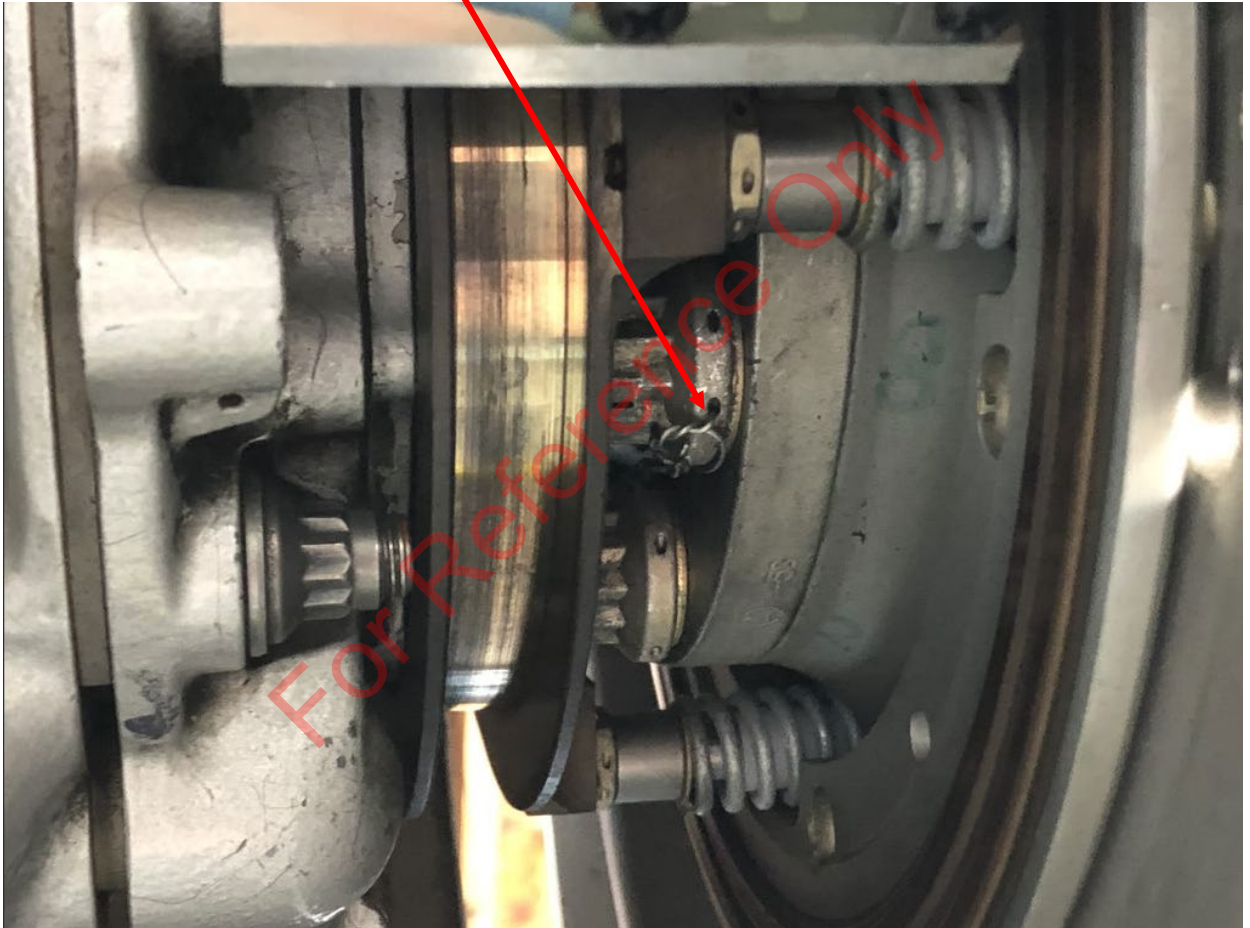
SUGGESTED SAFETY CABLE TOOL WWW.DMCTOOLS.COM



- (8) Safety all propeller mounting nuts with 0.032 inch (0.81 mm) minimum diameter stainless steel wire or equivalent aircraft safety cable, two nuts for each safety.

Important-While you CAN use safety wire, it will be very difficult to access the nuts adequately and wire cleanly, let alone keep the wire away from beta ring.

Extremely
tight area



SPINNER DOME INSTALLATION

For Reference Only

Installation of spinner dome is performed per Hartzell Owners 143, Section 3, Par 5 as shown below

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5. Spinner Dome Installation

CAUTION 1: TO PREVENT DAMAGE TO THE BLADE AND BLADE PAINT, WRAP THE BLADE SHANKS IN SEVERAL LAYERS OF MASKING OR DUCT TAPE BEFORE INSTALLING THE SPINNER DOME. REMOVE THE TAPE AFTER THE SPINNER IS INSTALLED.

CAUTION 2: SPINNER DOME WILL WOBBLE IF NOT ALIGNED PROPERLY. THIS MAY AFFECT DYNAMIC BALANCE OF PROPELLER.

A. General

- (1) The following instructions relate to Hartzell Propeller spinners only.
- (a) In some cases, the airframe manufacturer produced the spinner assembly. Refer to the airframe manufacturer's manual for spinner dome installation instructions.

B. For Propeller Model HC-E5A-2, Installing the Striker Plates (Pilatus part). Refer to Figure 3-15.

- (1) The striker plates must have a curvature to match that of the dome and must have a weight of not more than 0.458 ounces (13 grams).
- (2) Using screws, part number B-3867-272, install the striker plates centered between the blades, using the mounting holes provided.

NOTE: Washers, part number B-3860-10L, are not used at the striker plate attachment points.

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Spinner PN 107196P
is used in all
propeller
configurations



Support bulkhead PN
C-5324 is used in all
propeller
configurations

Installation of the FWD spinner bulkhead PN C-5324 onto hub as shown below may require Hartzell Propeller Tape PN B-6654-100 to be installed as shim material for shimming radially (side to side)

There is an optional use of this same tape between bulkhead and spinner dome as noted in Par D and Figure 3-18 shown below.



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- C. For Propeller Model HC-E5A-2, Measuring the Resistances
- (1) Using an ohm meter capable of accurately measuring the required resistance in accordance with Table 3-3, measure the resistance from the hub clamping bolt to a spinner dome mounting nutplate on the bulkhead. Refer to Figure 3-16.
 - (2) Before installation of the dome unit, measure the resistance of the dome unit in accordance with the section, "Resistance Check of the Dome" in the Finish Procedures chapter of Hartzell Propeller Composite Spinner Maintenance Manual 148 (61-16-48) that is available on the Hartzell Propeller website at www.hartzellprop.com.

NOTE: The dome is not installed on the bulkhead.

D. Installing the Spinner Dome

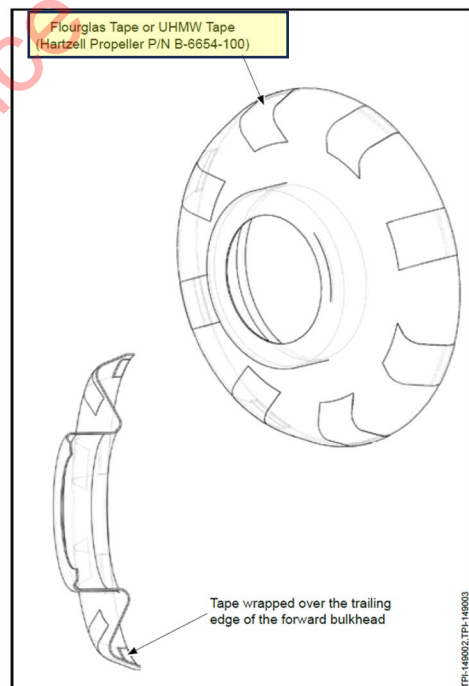
- (1) The spinner dome is supported by a forward bulkhead unit that encircles the propeller cylinder. Refer to Figure 3-14.
- (2) For propellers in this manual other than the HC-E5A-2 and HC-E4P-5, if the forward bulkhead unit does not fit snugly on the cylinder, the cylinder may need to be wrapped with one or more layers of fluoroglas or UHMW tape (Hartzell Propeller P/N B-6654-100).
 - (a) Apply a layer of tape, examine, and repeat until the forward bulkhead unit fits snugly on the cylinder.
 - 1 Using spacers, move the forward bulkhead unit away from the cylinder to cause the spinner dome mounting holes to stop short of full alignment with the bulkhead holes by 25% of the spinner dome mounting hole diameter. Refer to Figure 3-17.

Area to Check	Value
Hub Clamping Bolt to the Spinner Dome Mounting Nutplate	2 ohms Maximum

Resistance Checks
Table 3-3

INSTALLATION AND REMOVAL 61-00-47 Page 3-53
Rev. 21 May/24

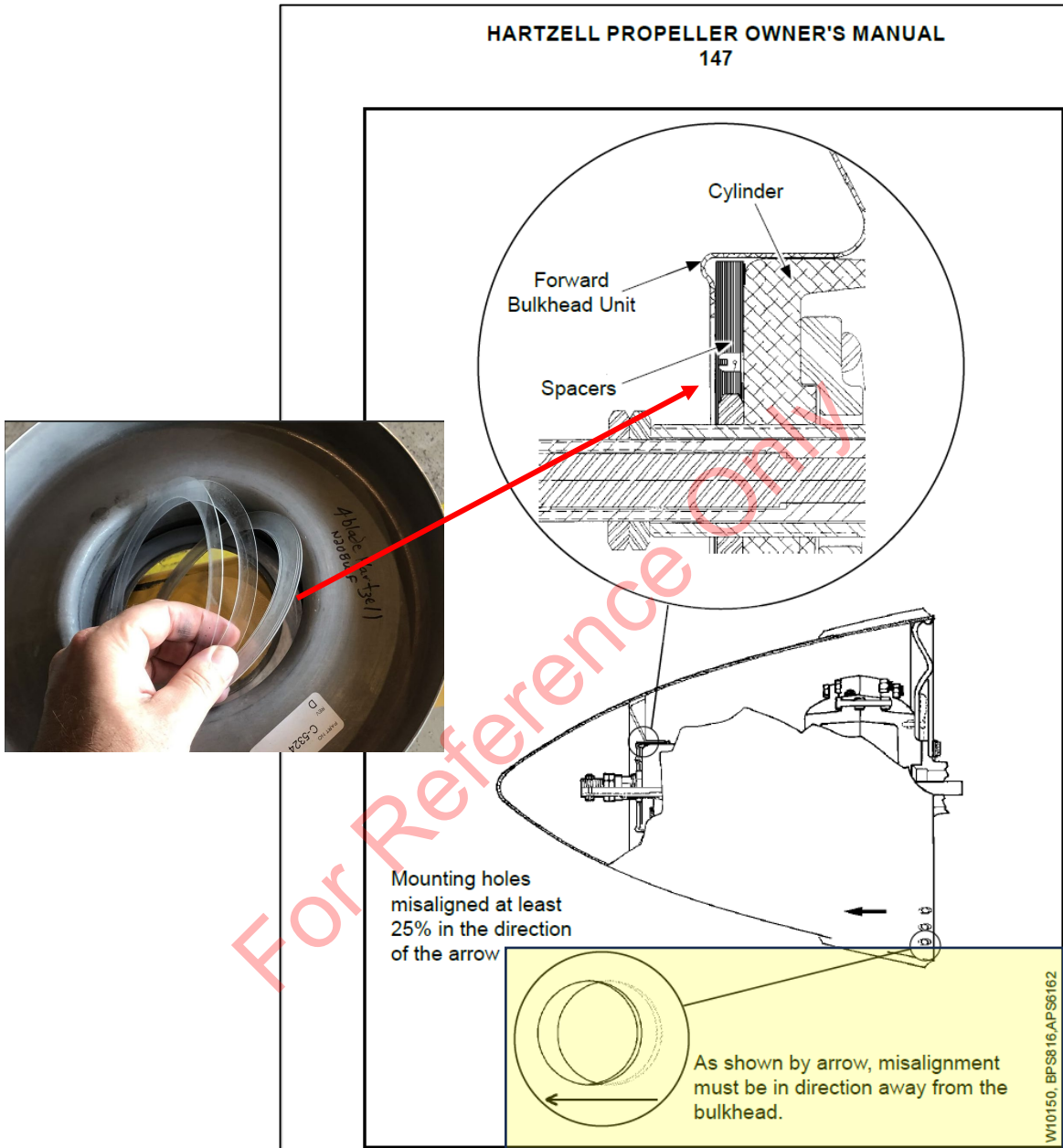
HARTZELL PROPELLER OWNER'S MANUAL 147



Optional Tape on the Forward Bulkhead
Figure 3-18

INSTALLATION AND REMOVAL 61-00-47 Page 3-54
Rev. 21 May/24

You are trying to achieve a fitment using supplied spacers with spinner to backplate hole misalignment as shown in Figure 3-17 Below.



Spinner Reassembly Procedures
Figure 3-17

Gently and evenly install the spinner. Once holes are aligned start with the center holes first in all four spinner quadrants.

Once these center four screws are installed, work outward on the remaining 4 screws.



Fiber Washer PN A-1020
Screw 10-32 PN B-3845-8

SPINNER IPC REFERENCE HERE-
PENDING FROM HARTZELL

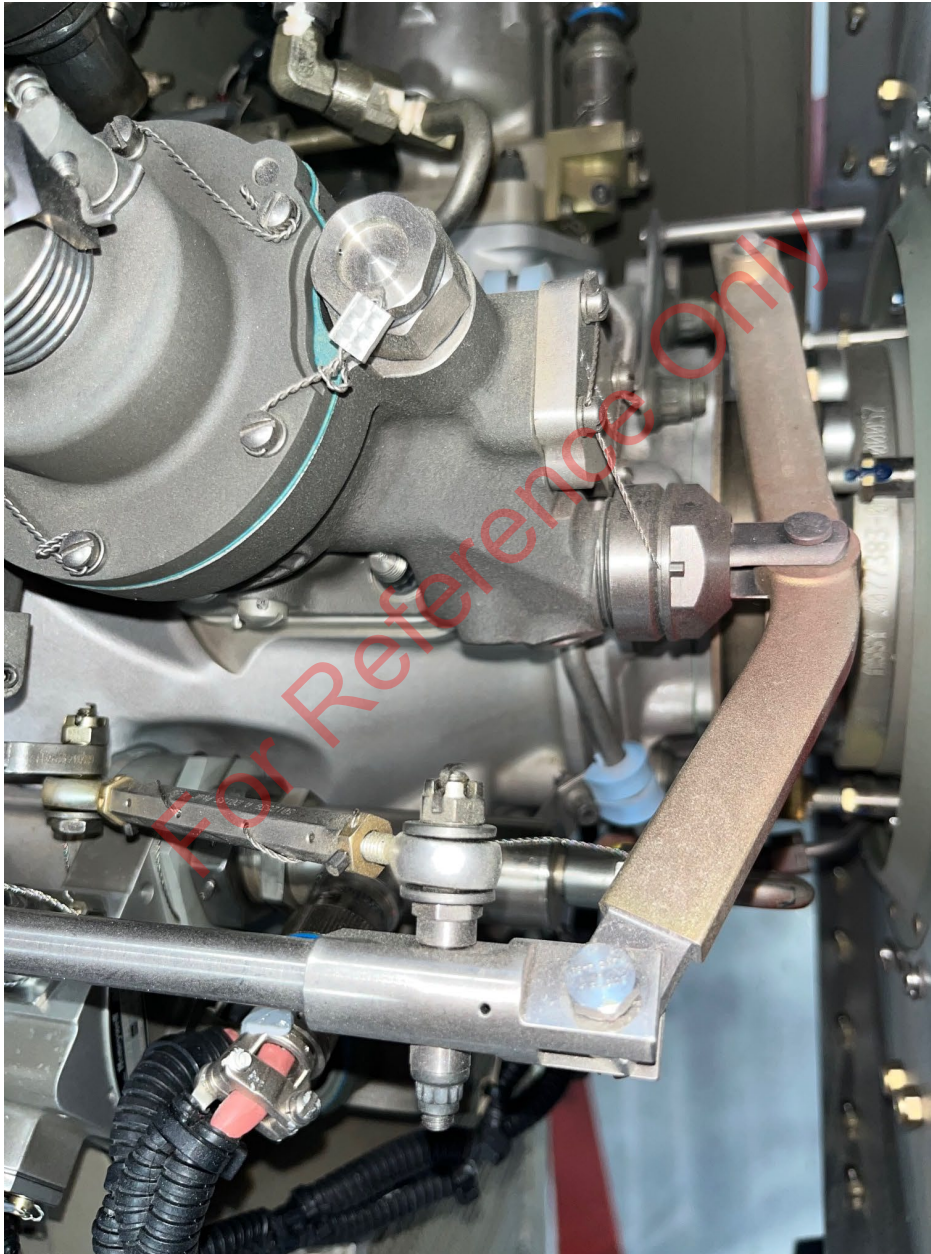
For Reference Only

BETA FEEDBACK ARM

For Reference Only

Installation of the reversing linkage arm is accomplished using **3 different data sources**.

1. Hartzell Owners Manual 147, Section 3 and Figure 3-7 for fitment of the block into the beta ring and ONTO the arm
2. Cessna Maintenance Manual 60-10-00 and 61-20-00
3. Pratt and Whitney Maintenance and Parts manual for applicable engine configuration (-114A or -140) Chapter 76 ENGINE CONTROLS



1. Hartzell Owners Manual 147, Section 3 and Figure 3-7 for fitment of the block into the beta ring and ONTO the arm

HARTZELL PROPELLER OWNER'S MANUAL
147

- (11) Safety all mounting bolts with 0.032 inch (0.81 mm) minimum diameter stainless steel wire or equivalent aircraft safety cable. (Two bolts per safety.)
- (12) Decompress the external beta system and remove the beta ring puller TE100.

CAUTION: THE BETA RING MUST NOT CONTACT ANY ENGINE COMPONENT OR MOUNTING BOLT SAFETY WIRE. THE BETA MECHANISM FEEDBACK COULD BE DAMAGED IF IT CONTACTED ANY STATIC ENGINE COMPONENT WHILE ROTATING.

- (13) Examine the beta ring to make sure that it is not in contact with any engine components or mounting bolt safety wire.

- (a) If there is contact between the beta ring and any engine components or mounting bolt safety wire, consult a certified propeller repair station with the appropriate rating.

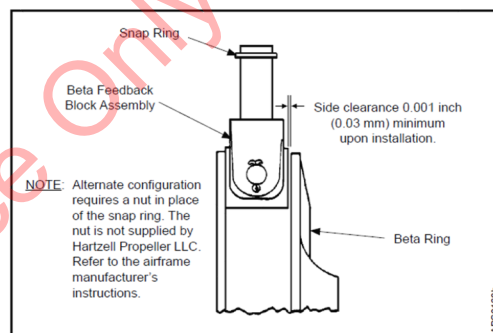
- (14) Install the beta feedback block assembly into the beta linkage lever, in accordance with the airframe manufacturer's instructions, if applicable.

CAUTION: FIT THE BETA FEEDBACK BLOCK ASSEMBLY IN THE BETA RING WITH A MINIMUM SIDE CLEARANCE OF 0.001 INCH (0.03 mm). REFER TO FIGURE 3-6.

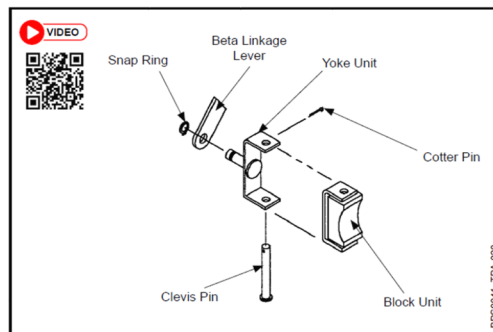
- (15) Install the beta feedback block assembly into the beta ring, if applicable. Refer to Figure 3-7.

INSTALLATION AND REMOVAL 61-00-47 Page 3-21
Rev. 21 May/24

HARTZELL PROPELLER OWNER'S MANUAL
147



Beta Feedback Block Assembly and Beta Ring Clearance
Figure 3-6



Beta Feedback Block Assembly
Figure 3-7

INSTALLATION AND REMOVAL 61-00-47 Page 3-19
Rev. 21 May/24

2. Cessna Maintenance Manual 61-10-00 and 61-20-00

NOTE: The carbon block initially supplied with each propeller has been prefit. If a different carbon block is being installed, it may be necessary to sand it to obtain a total clearance between carbon block and side of groove of 0.001 to 0.002 inch at the tightest point.

(15) Install carbon block (3) onto reversing lever (1).

NOTE: The lower end of the propeller reversing lever is machined with a stepped notch.

CAUTION: Make sure the stepped notch at the end of the propeller reversing lever (1) is under the guide pin (16) in the reversing lever guide pin bracket (15).

(16) Install reversing lever (1) to Beta valve clevis (2) and follow-up ring (4). For the installation procedures for the propeller reversing lever refer to the applicable Pratt & Whitney Engine Maintenance Manual found in the Introduction List of Publications.

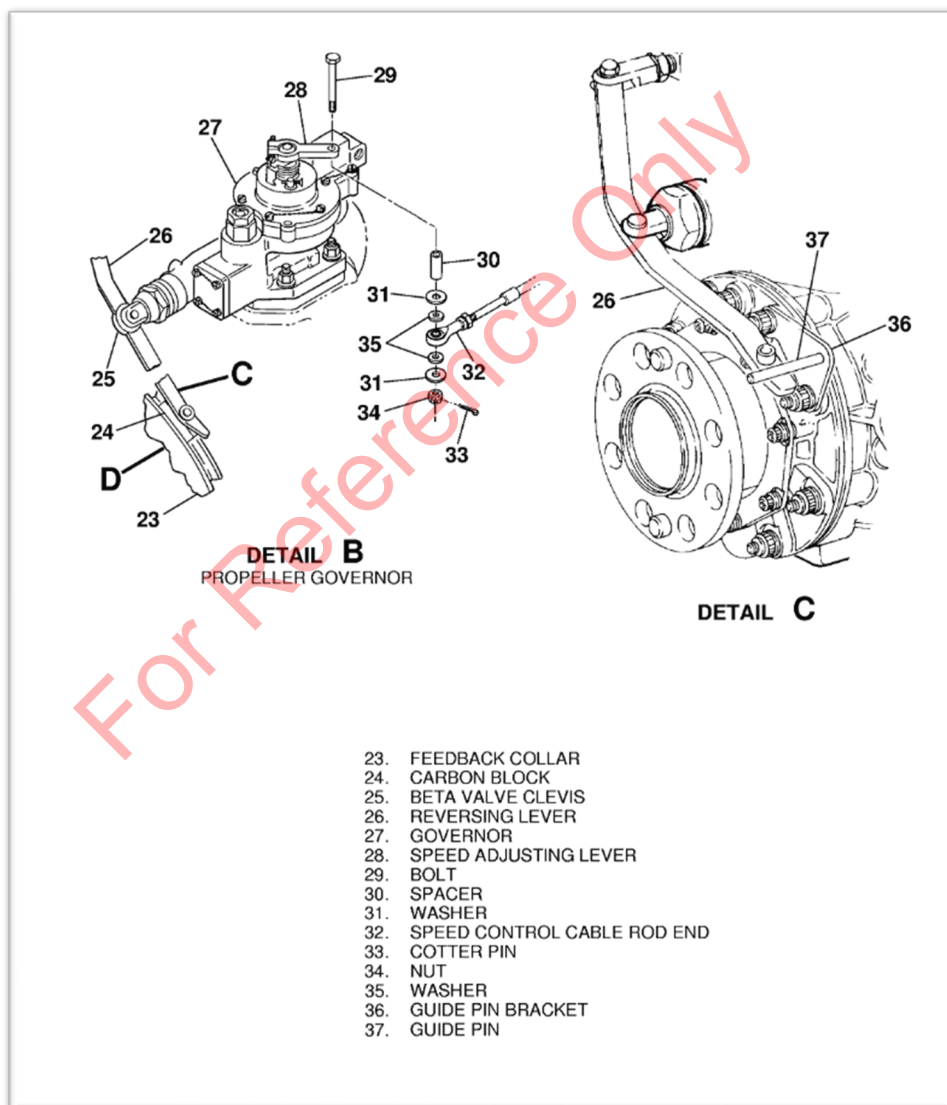
(17) Position spinner (15) to spinner bulkhead (22) as indexed during removal procedure and secure with screws and fiber washers (6).

(18) Install right nose cap.

(19) Check clearance between spinner (15) and nose cap, clearance should be 0.32 inch, +0.10 or -0.10 inch.

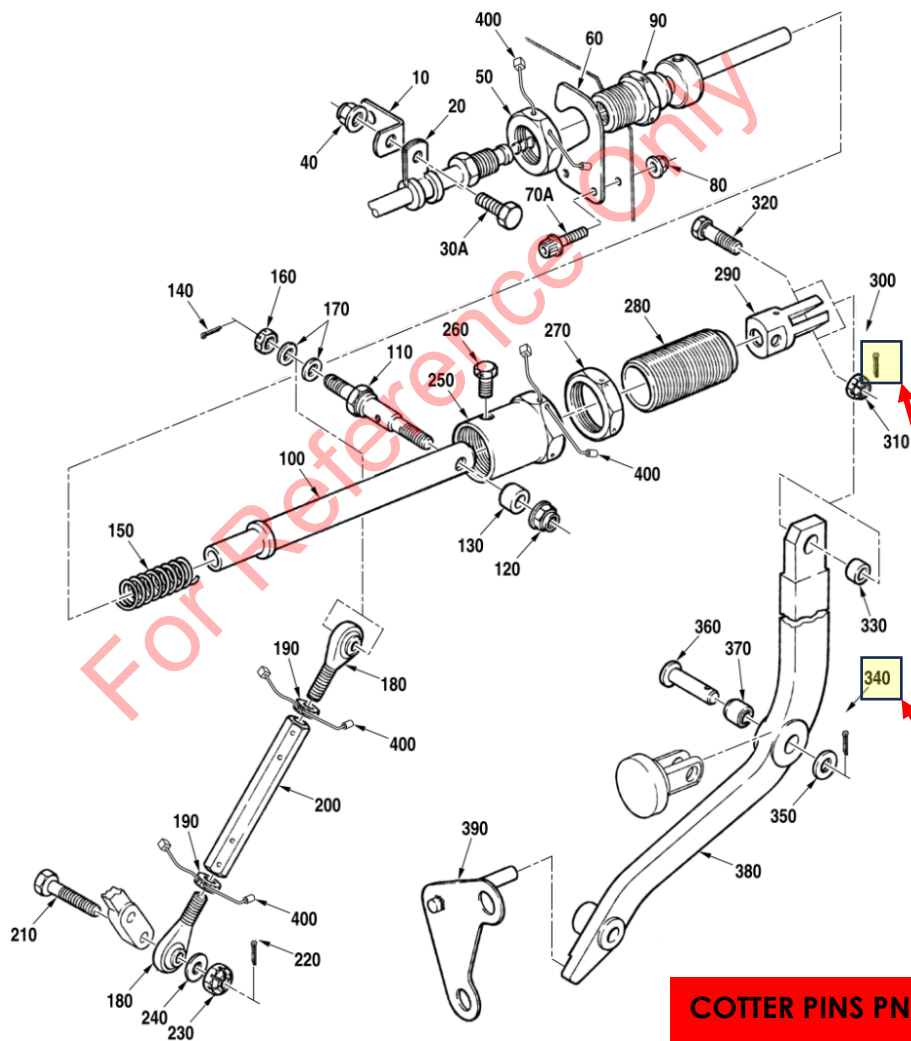
(20) For procedures to install and adjust TKS system propeller components, refer to Chapter 30, TKS Anti-Ice Propeller (McCauley) - Maintenance Practices.

Adjustment/Checks



3. Pratt and Whitney Parts Manual (PT6A-114A) 76-10-00 Figure 2

300	MS9245-23	• PIN, COTTER	A,B,C,D	1
310	3011976	• NUT, CASTELLATED, HEX INTRCHG WITH P/N MS9358-09	C	1
— 310A	MS9358-09	• NUT, CASTELLATED, HEX	A,B,C,D	1
320	3013166	• BOLT, MACHINE, HEX	A,B,C,D	1
330	3009087	• SPACER, SLEEVE	A,B,C,D	1
340	MS9245-23	• PIN, COTTER	A,B,C,D	1



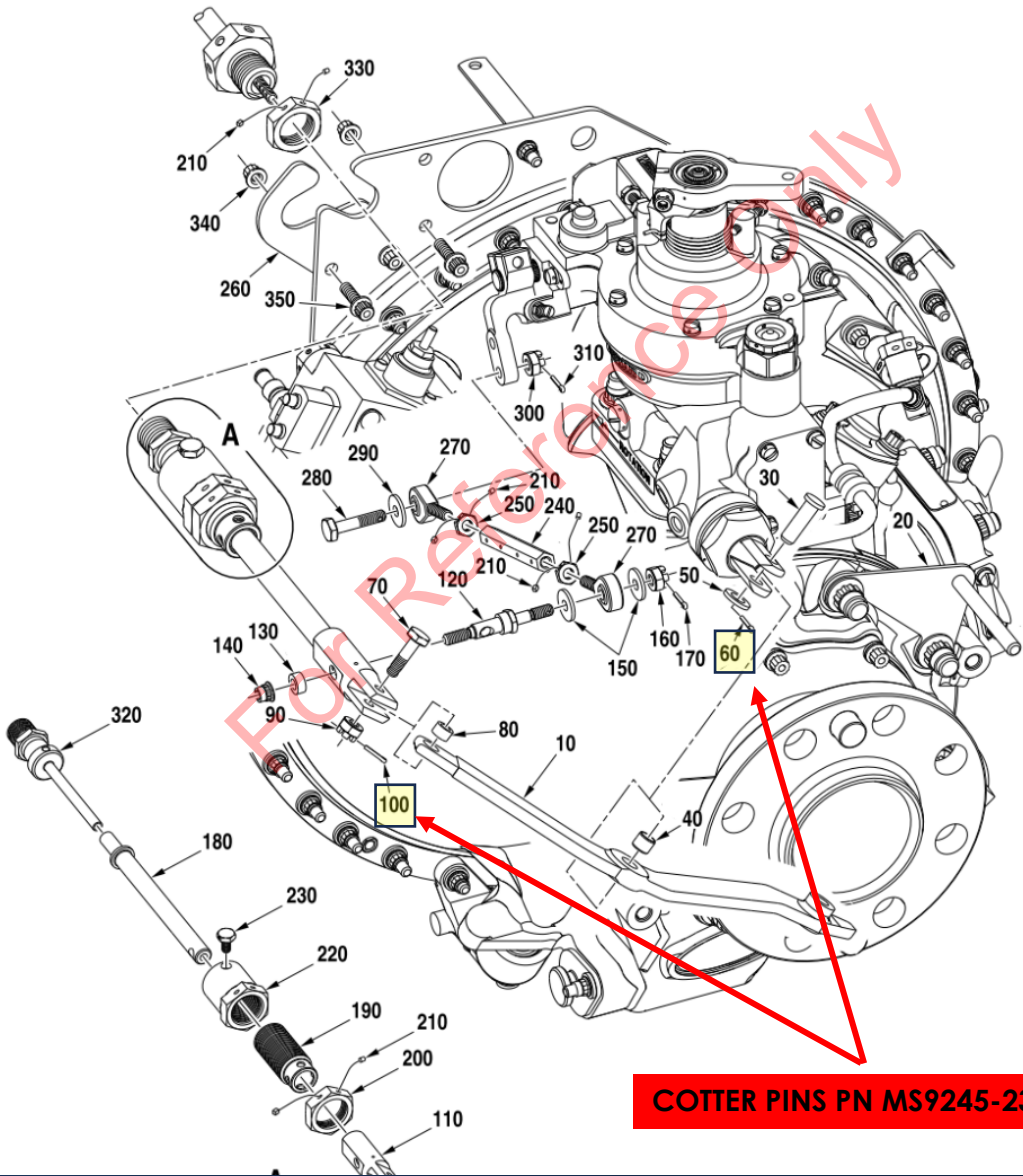
COTTER PINS PN MS9245-23

c2029

3. Pratt and Whitney Parts Manual (PT6A-140) 76-10-00 Figure 3

50	MS9321-10	• WASHER, FLAT	1
60	MS9245-23	• PIN, COTTER	1
70	3013166	• BOLT, MACH, HEX, DRILLED	1
80	3009087	• SPACER, SLEEVE	1
90	MS9358-09	• NUT, CASTLE, HEX	1
100	MS9245-23	• PIN, COTTER	1
110	3013166	• BOLT, MACH, HEX, DRILLED	1

Figure 3 Propeller Reversing Interconnect Linkage Installation, Front



3. Pratt and Whitney Maintenance Manual (PT6A-114A) 76-10-00, Par 5 (B,2,f-h)

MyP&WC POWER ☐ Light Mode



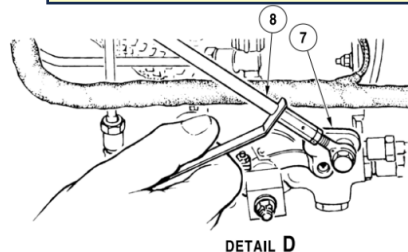
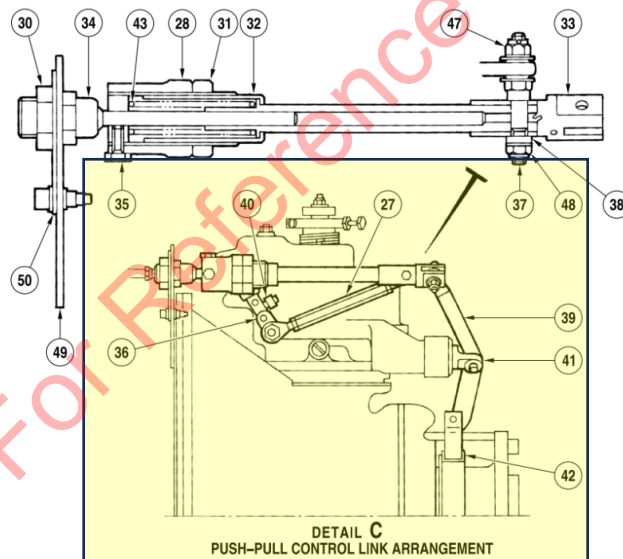
 **76.10.00- PROPELLER REVERSING LINKAGE**

76-10-00
PROPELLER REVERSING LINKAGE - MAINTENANCE PRACTICES

- (f) Install the sleeve spacer in the hole at the upper end of the propeller reversing lever (39) and fit the lever into the rod end clevis (33). Secure with a bolt and castellated nut. Tighten the nut 12 to 18 lb.in., and lock with a cotterpin.

CAUTION: THE LOWER END OF THE PROPELLER REVERSING LEVER (39) IS MACHINED WITH A STEPPED NOTCH. MAKE SURE THE STEPPED NOTCH AT THE END OF THE PROPELLER REVERSING LEVER (39) IS UNDER THE PIN IN THE REVERSING LEVER GUIDE PIN BRACKET ASSEMBLY (53) (REF. FIG. 201, DETAIL E).

- (g) Install the sleeve bushing in the center hole of the propeller reversing lever and locate the lever in the clevis of the Beta control valve (41). Secure the lever with a straight headed pin, washer and cotterpin.
- (h) With the propeller feathered and the carbon block (42) resting against the rear face of the propeller feedback ring, adjust the low pitch adjuster stop (32) so that, with the linkage pulled fully forward, the Beta valve clevis slot end is flush with the valve capnut. Tighten the locknut (31) 150 to 250 lb.in., and secure the locknut to the stop adjuster (28) with lockwire.



3. Pratt and Whitney Maintenance Manual (PT6A-140) 76-10-01, Par 6, (E, 1-11)

MyP&WC POWER Light Mode

Search...

76.10.01- ENGINE REVERSING LINKAGE

76-10-01
PROPELLER REVERSING LINKAGE - MAINTENANCE PRACTICES
Task 76-10-01-000-801

05.00 Time Limits
05.10 Operating Limits
05.20 Scheduled Maintenance Checks

Subtask 76-10-01-400-002

E. Installation of the Front Linkage
(Ref. Fig. 206)

- (1) Install the front linkage assembly on the lifting bracket (16). Attach it with the retaining plate (19), the two bolts (18) and the two nuts (17). Torque the nuts 27 to 30 lbf.in. (3.1-3.3 Nm).
- (2) Install the nut (15) on the front swivel joint (2). Torque the nut 95 to 105 lbf.in. (10.6-12.1 Nm).

CAUTION: THE LOWER END OF THE PROPELLER REVERSING LEVER (13) HAS A MACHINED STEPPED NOTCH. MAKE SURE THAT THE STEPPED NOTCH OF THE LEVER IS BELOW THE GUIDE PIN IN THE REVERSING LEVER GUIDE PIN BRACKET ASSEMBLY (37).

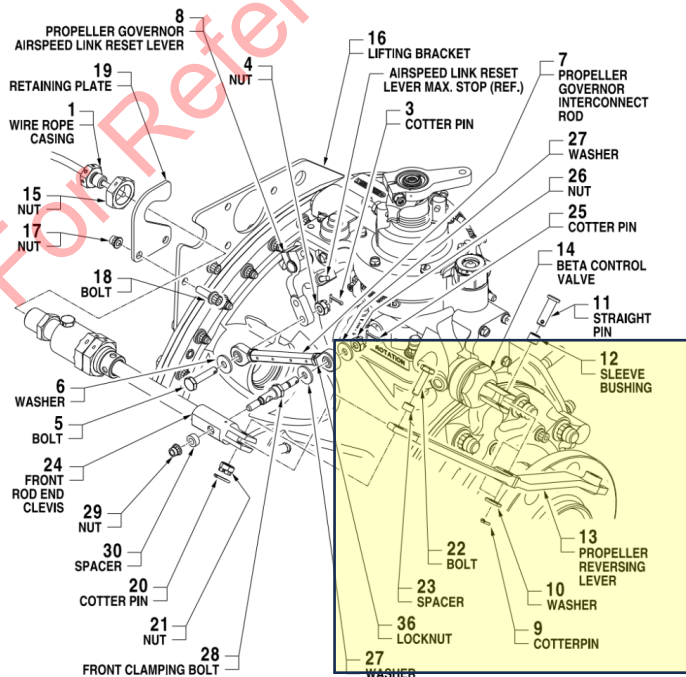
- (3) Install the sleeve bushing (12) into the middle hole of the propeller reversing lever (13). Put the lever in fork of the beta control valve (14).
- (4) Attach the propeller reversing lever (13) in the beta control valve (14) with the pin (11), the washer (10). Lock the straight pin with the cotterpin (9).
- (5) Install the adjustment fixture (PWC50956) on propeller shaft. Install the fixture ball lockpin to hold the propeller control lever (13).
- (6) Adjust the linkage until a slave bolt goes through freely the rear end of rod assembly (7) and propeller governor airbleed link (8).
- (7) Remove the slave bolt, then turn the two rod ends of the rod assembly one half turn counterclockwise to decrease the overhaul length of the rod.
- (8) Remove the adjustment fixture (PWC50956) from propeller shaft.
- (9) Apply light grease (PWC04-001) to the rod end of the interconnect rod (7). Attach the interconnect rod to the air bleed link reset lever (8) with the bolt (5), the washer (6), the nut (4).
- (10) Torque the nut (4) 24 to 36 lbf.in. (2.8-4.1Nm). Lock the nut with cotterpin (3).
- (11) Torque the two locknuts (36) 12 to 18 lbf.in. (1.4-2.0 Nm).

WARNING: PUT ON EYE PROTECTION WHEN YOU INSTALL THE SAFETY CABLE. PIECES CAN BREAK OFF AND CAUSE INJURY

- (12) Install safety cable (PWC05-344) on the two locknuts (36) and the nut (15) with the crimper (PWC90025).

F. Job Close-up Information

- (1) Remove all tools, equipment and items not necessary from the work area.
- (2) Install the wire rope casing (Ref. Task 76-10-01-400-802).



108053 DEICE (BRUSH BLOCK) INSTALLATION
(IF APPLICABLE)

KIT 108053 AIRFRAME DEICE INSTALLATION



Hartzell Propeller Overhaul Kits

Overhaul Kit

108053

Description

AIRFRAME DE-ICE KIT

Rev

<u>Component</u>	<u>Description</u>	<u>Quantity</u>
B-3837-N832	WASHER, CORROSION RESISTANT	6
B-3855-31	WASHER, LOCK, EXTERNAL TOOTH	2
B-6637-51	SCREW, PAN HEAD, CRES.	2
B-6637-52	SCREW, PAN HEAD, CRES.	2
B-6655-08	NUT, HEX, SELF-LOCKING	4
1H1157	SHIM, BRUSH BLOCK	1
105273	MOV MODULE - ASSEMBLY	1
108054	BRACKET, MOUNTING, BRUSH BLOCK	1
3H2090-1	MODULAR BRUSH BLOCK ASSEMBLY	1



XXX.

1

This section includes the parts list(s) and installation instructions for the following airframe de-ice kit(s):
106095 and 108053

AE. Installation Instruction 12AE

(1) Install the airframe de-ice kit components in accordance with the applicable aircraft TC or STC holder's ICA.

R	PART NUMBER	DESCRIPTION	QTY
	106095	AIRFRAME DE-ICE KIT INSTALLATION INSTRUCTION 12AE	
	105070	• BRACKET, MOUNTING	2
	1H1157	• SHIM, BRUSH BLOCK	2
	3H2090-1	• MODULAR BRUSH BLOCK ASSEMBLY	2
	106343	• MOV MODULE - ASSEMBLY	2
	B-3837-N832	• WASHER, CORROSION RESISTANT	12
	B-3855-31	• WASHER, LOCK, EXTERNAL TOOTH	4
	B-6637-51	• SCREW, 8-32, PAN HEAD, CRES	4
	B-6637-52	• SCREW, 8-32, PAN HEAD, CRES	4
	B-6655-08	• NUT, HEX, SELF-LOCKING	8
	108053	AIRFRAME DE-ICE KIT INSTALLATION INSTRUCTION 12AE	
	108054	• BRACKET, MOUNTING, BRUSH BLOCK	1
	1H1157	• SHIM, BRUSH BLOCK	1
	3H2090-1	• MODULAR BRUSH BLOCK ASSEMBLY	1
	105273	• MOV MODULE - ASSEMBLY	1
	B-3837-N832	• WASHER, CORROSION RESISTANT	6
	B-3855-31	• WASHER, LOCK, EXTERNAL TOOTH	2
	B-6637-51	• SCREW, 8-32, PAN HEAD, CRES	2
	B-6637-52	• SCREW, 8-32, PAN HEAD, CRES	2
	B-6655-08	• NUT, HEX, SELF-LOCKING	4

- ITEM NOT ILLUSTRATED

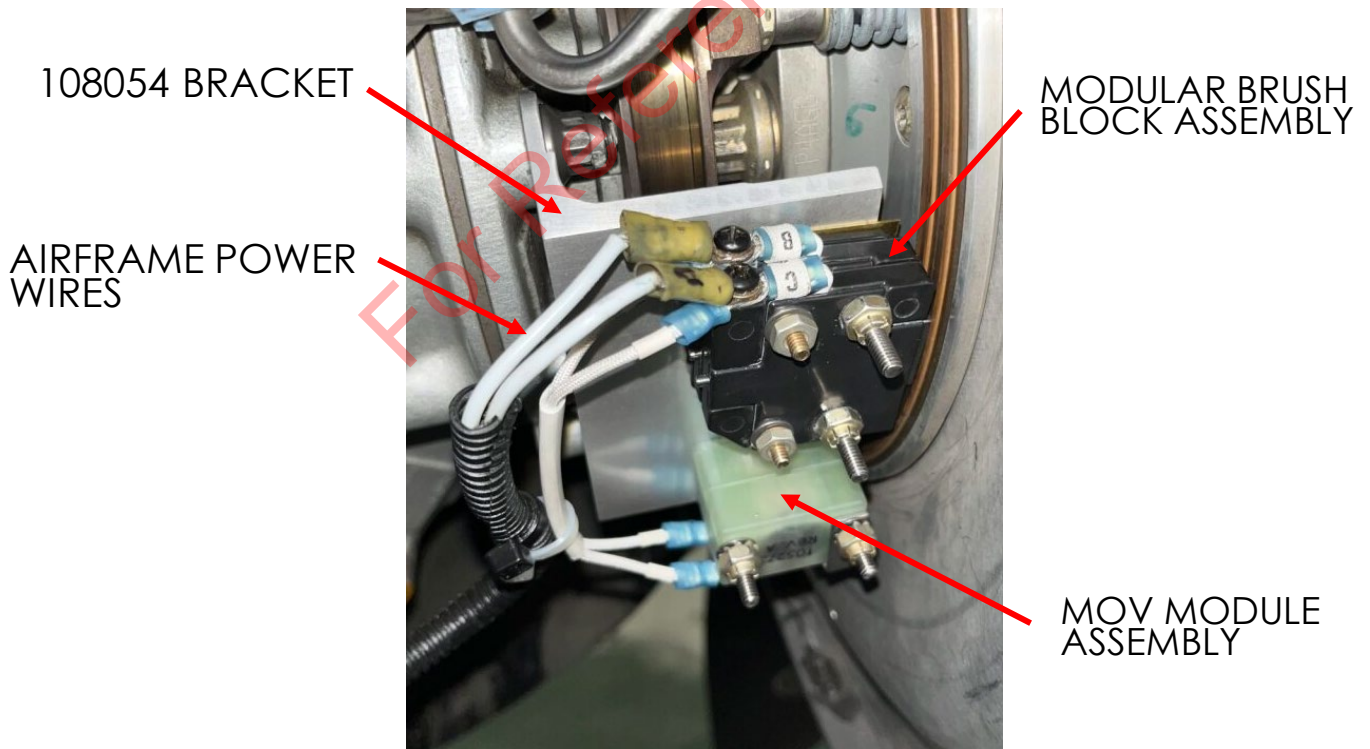
Airframe De-ice Kit(s): 106095

30-61-80

Page 12AE-1
Rev. 39 Dec/22

DEICE BRUSH BLOCK BRACKET INSTALLATION.

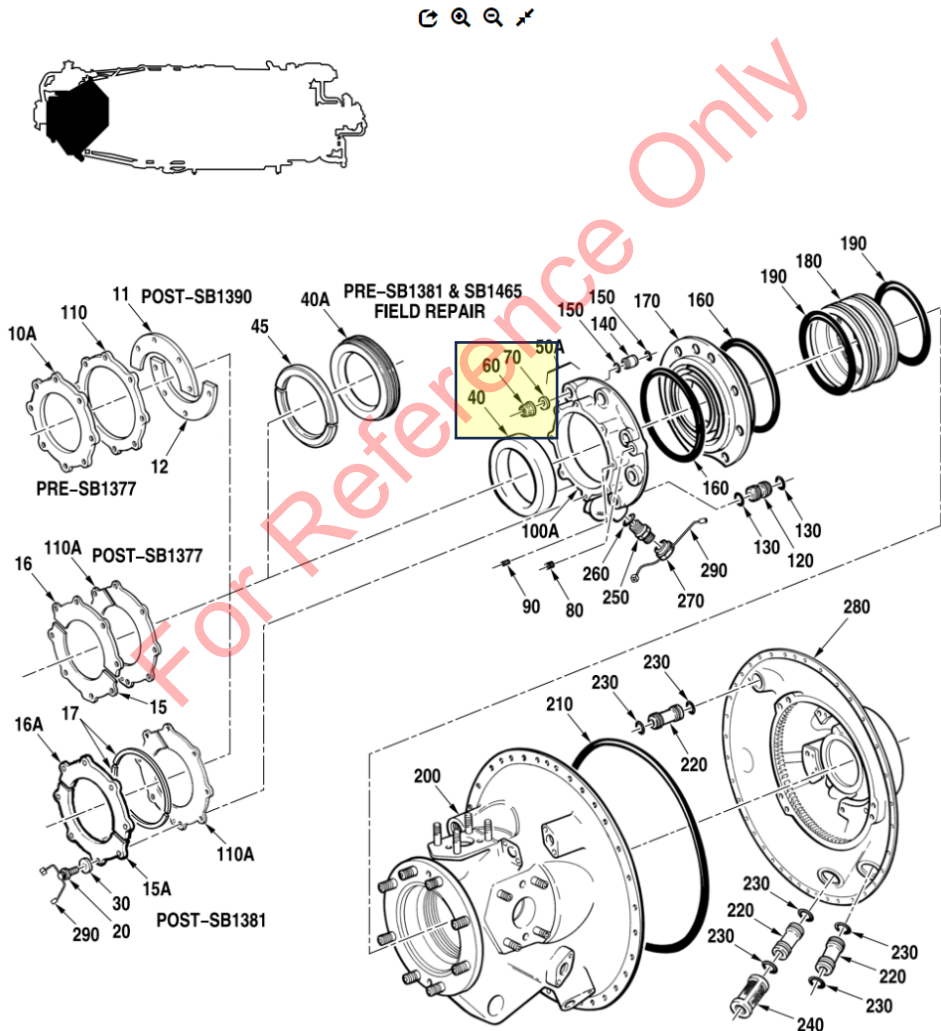
REFERENCE WIPAIRE DRAWING **XXX** FOR INSTALLATION
AND BUILD UP REFERENCE



(PRATT AND WHITNEY **PT6A-114A**) ORIGINAL BRACKET PN 3E2237 WILL BE REMOVED AND NEW HARTZELL PN 108054 WILL BE INSTALLED IN ITS PLACE. REMOVE PN ST3066-12. TORQUE TO **145 TO 165 IN LBS** AT REINSTALLATION. (REF SK208-174D)

ATTACHING PARTS					
60	3012157		-- NUT, SELF-LOCKING, DBL HEX INTRCHG WITH P/N ST3066-12	C,D	8
- 60A	ST3066-12		-- NUT OPTION (IC) SEE TABLE FOR OPTIONAL PART NUMBERS	A,B,C,D	8

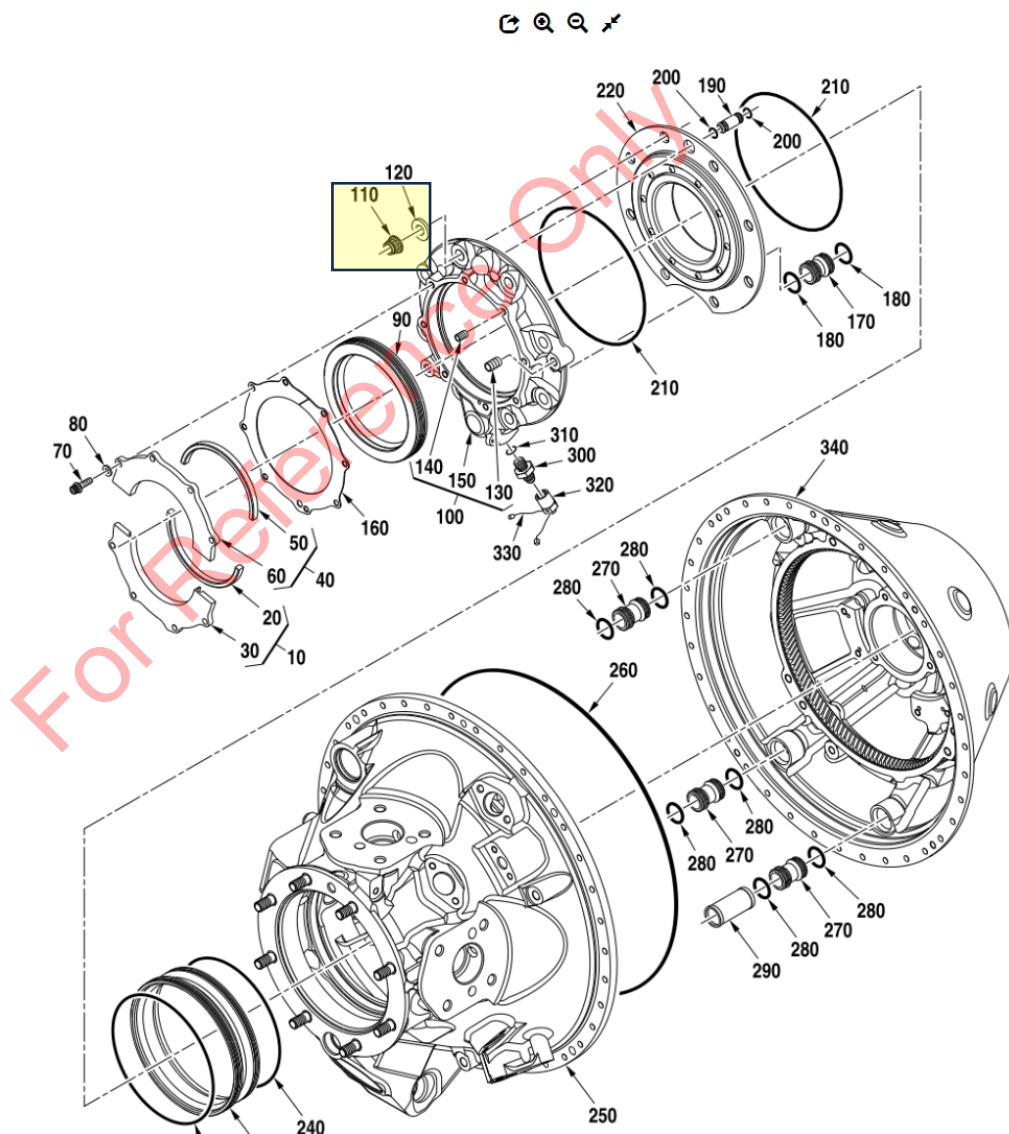
Figure 2 Gearbox Assembly, Propeller - Cover, Bearing And Internal Components



(PRATT AND WHITNEY **PT6A-140**). REMOVE PN ST3032-12 NUTS AS SHOWN BELOW FROM PRATT AND WHITNEY IPC AND NEW HARTZELL PN 108054 WILL BE INSTALLED IN ITS PLACE. REMOVE PN ST3032-12. TORQUE TO **190-215 IN LBS** AT REINSTALLATION. (REF CAL-61-03)

ATTACHING PARTS					
110	ST3032-12	• NUT OPTION (IC) SEE TABLE FOR OPTIONAL PART NUMBERS			8

Figure 2 Gearbox Assembly, Propeller Housing Assemblies and Internal Components

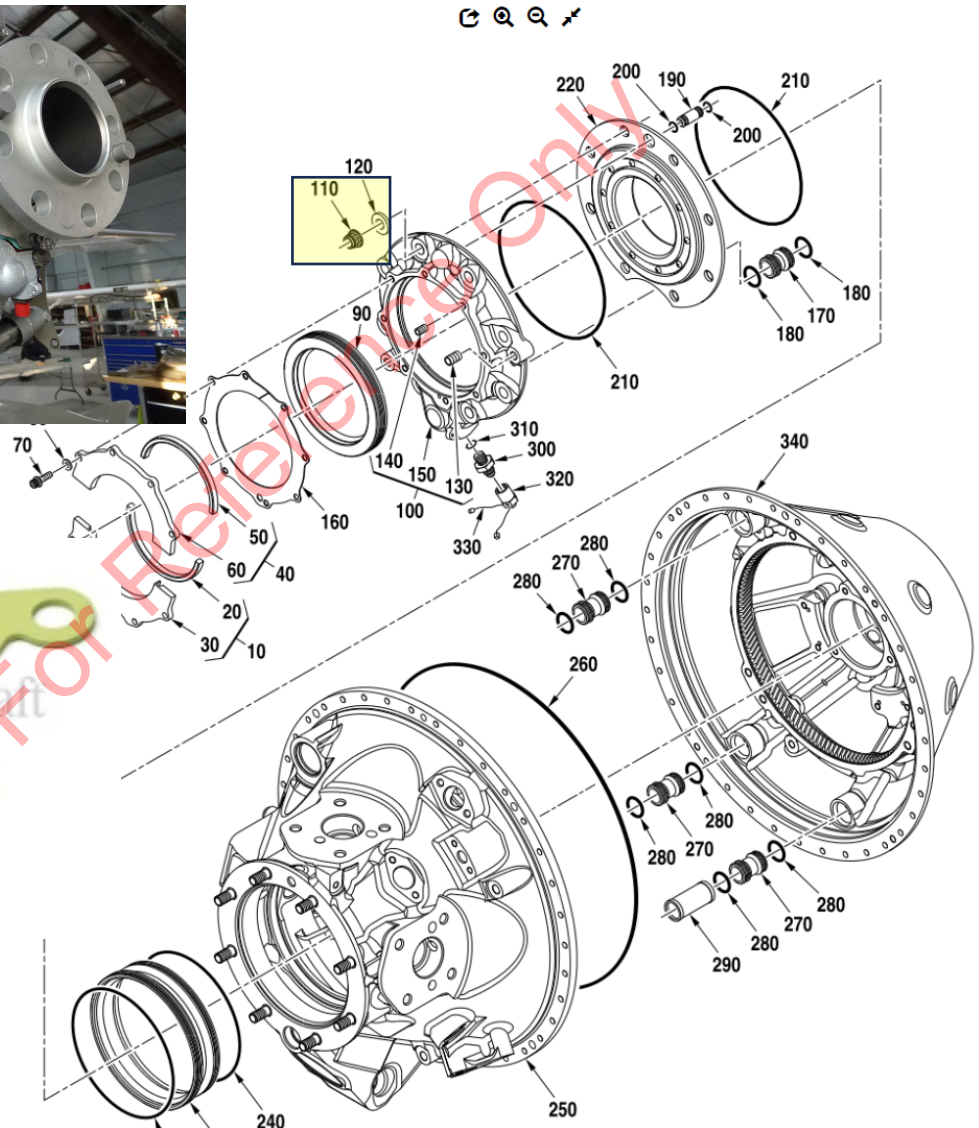


ANTI ICE (TKS) INSTALLATION
(IF APPLICABLE)

ORIGINAL BRACKET CESSNA PN 13125-02 WILL BE REMOVED AND NEW WIPAIRE BRACKET PN 1012332 WILL BE INSTALLED IN ITS PLACE. REMOVE PN ST3032-12 NUTS AS SHOWN (PT6A-140 ENGINE) BELOW FROM PRATT AND WHITNEY IPC. TORQUE TO **190-215 IN LBS** AT REINSTALLATION. (REF CAL-61-03)

ATTACHING PARTS				
110	ST3032-12	• NUT OPTION (IC) SEE TABLE FOR OPTIONAL PART NUMBERS		8

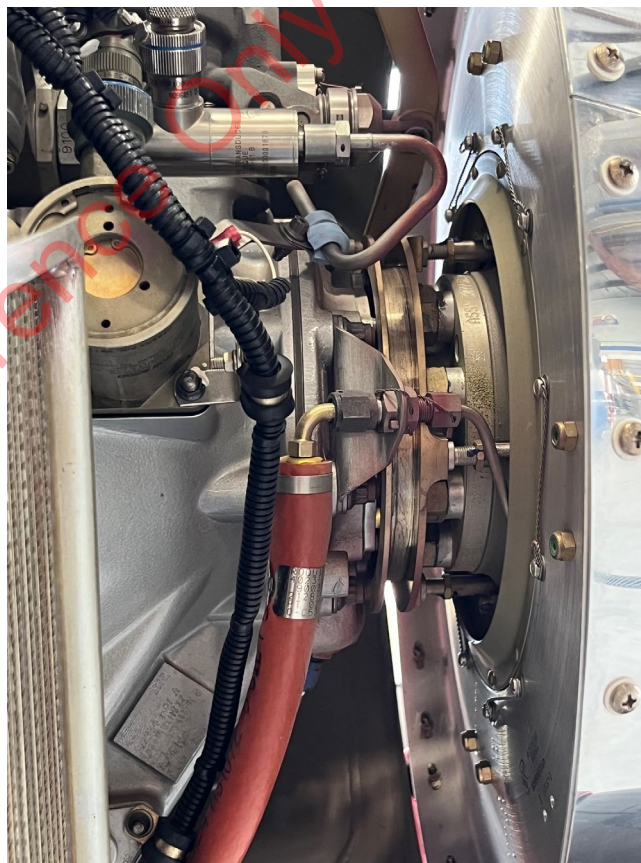
Figure 2 Gearbox Assembly, Propeller Housing Assemblies and Internal Components



Cessna
Beechcraft
BY TEXTRON AVIATION

IT IS POSSIBLE THAT THE AIRFRAME HAS THE MCCAULEY 4HFR34C778 PROPELLER INSTALLED PER STC SA09850AC FROM **ALAMO AEROSPACE/MCCAULEY**. REMOVE PROPELLER PER ALAMO AEROSPACE ICA 55181-6.

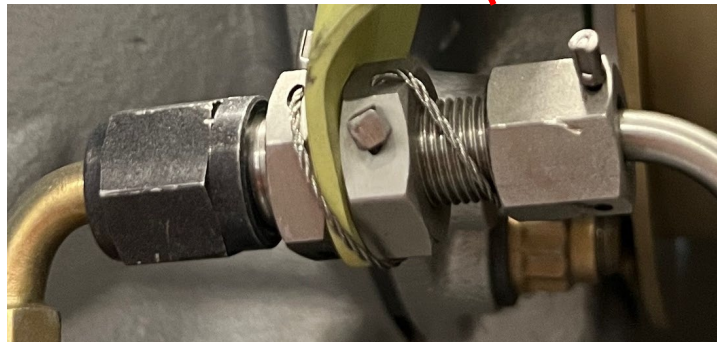
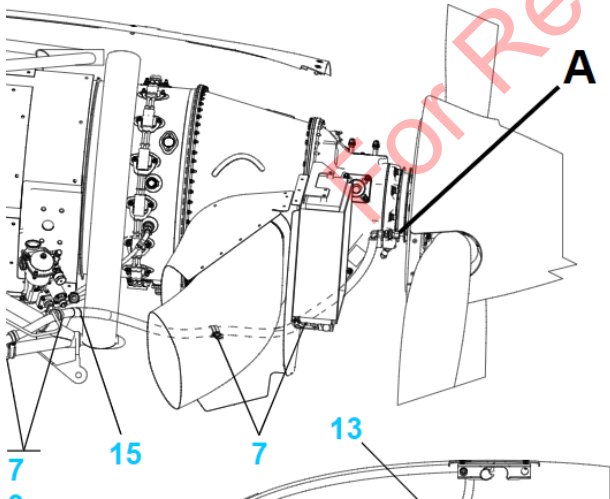
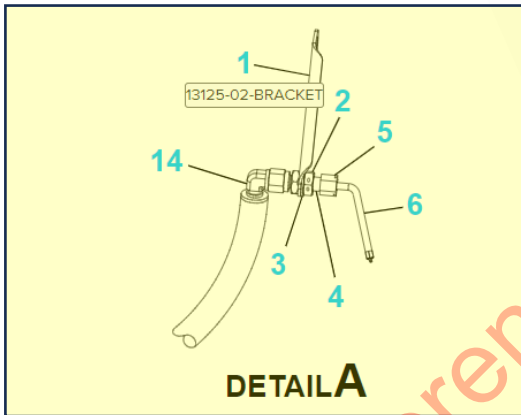
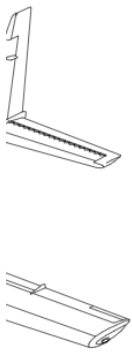
THE BRACKET PN B-40763 WOULD BE REMOVED AND WIPAIRE BRACKET 1012332 BE INSTALLED. TKS NOZZLE TO BE INSTALLED AS ORIGINAL. STC TKS NOZZLE MAY NOT BE COMPATIBLE WITH HARTZELL INSTALLATION.

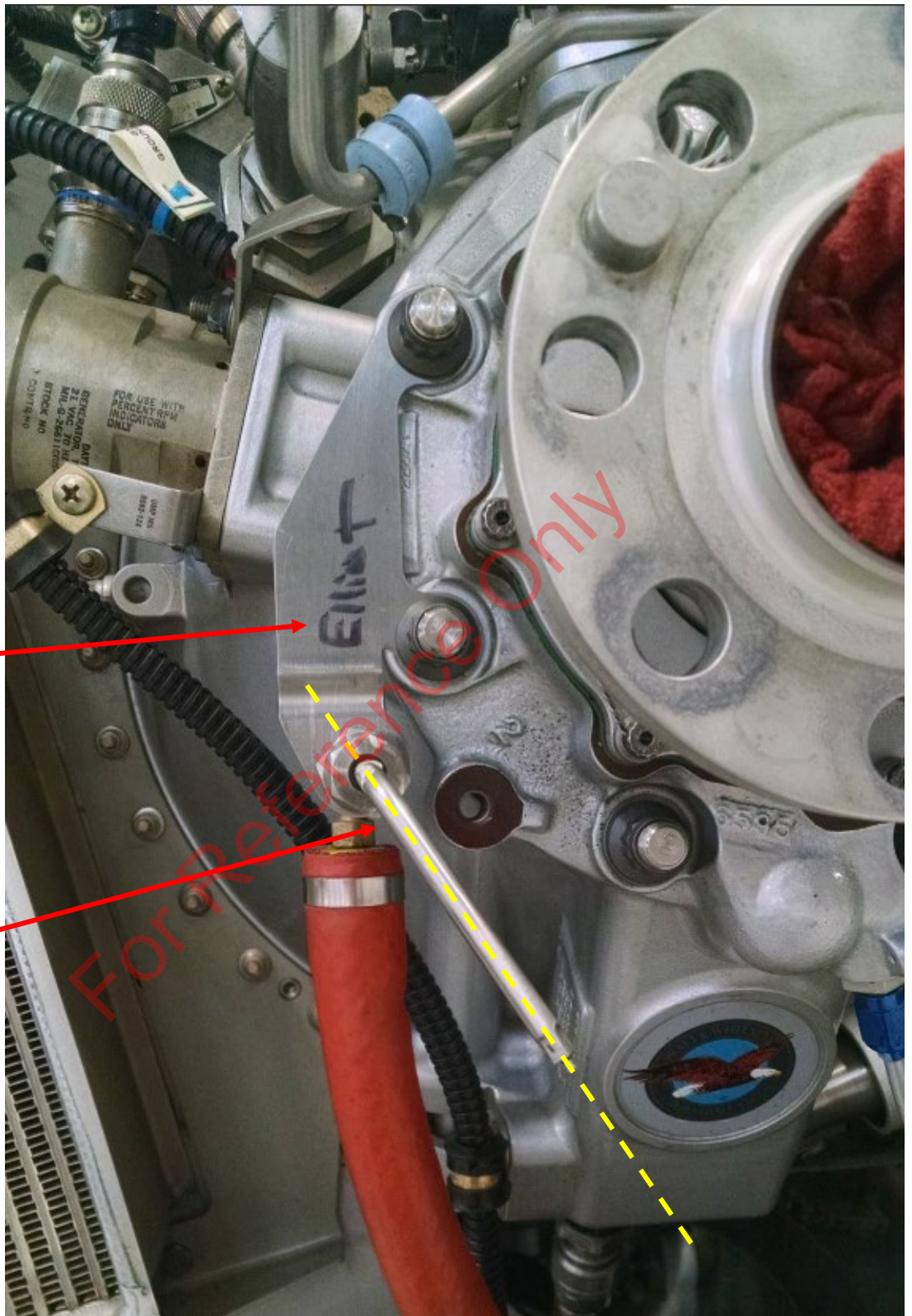


B-40763

BRACKET - TKS NOZZLE

ASSEMBLE TKS NOZZLE ONTO WIPAIRE BRACKET AS ORIGINAL USING CESSNA 208 IPC, 30-10-02 FIGURE 05 AND 05A AS PER APPLICABLE AIRFRAME SN.



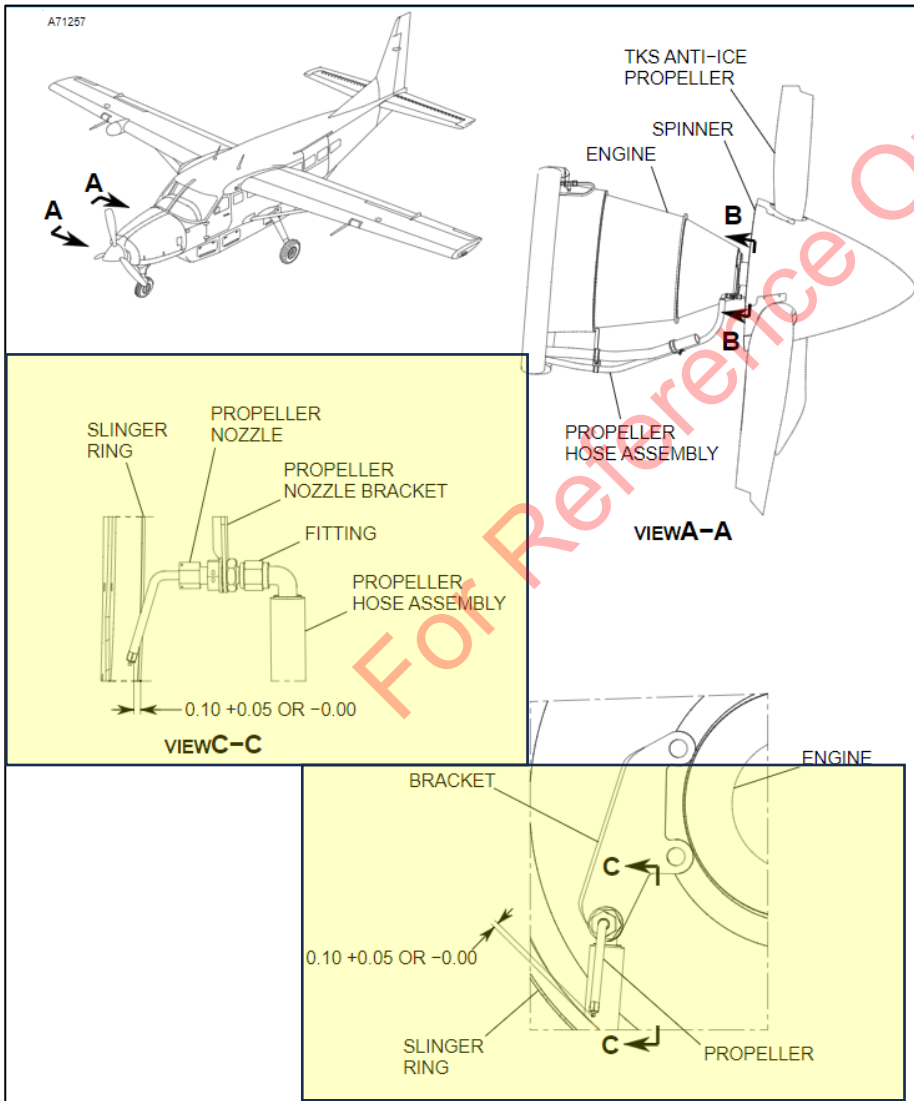


WIPAIRE
1012332
BRACKET

APPROXIMATE
TKS NOZZLE
ORIENTATION

ALIGN NOZZLE PER ORIGINAL AS REFERENCED IN CESSNA 208 MM 30-61-00 PARAGRAPHS 4 AND 5

VISUAL
REPRESENTATION OF
NOZZLE PLACEMENT
WITHIN SLINGER RING

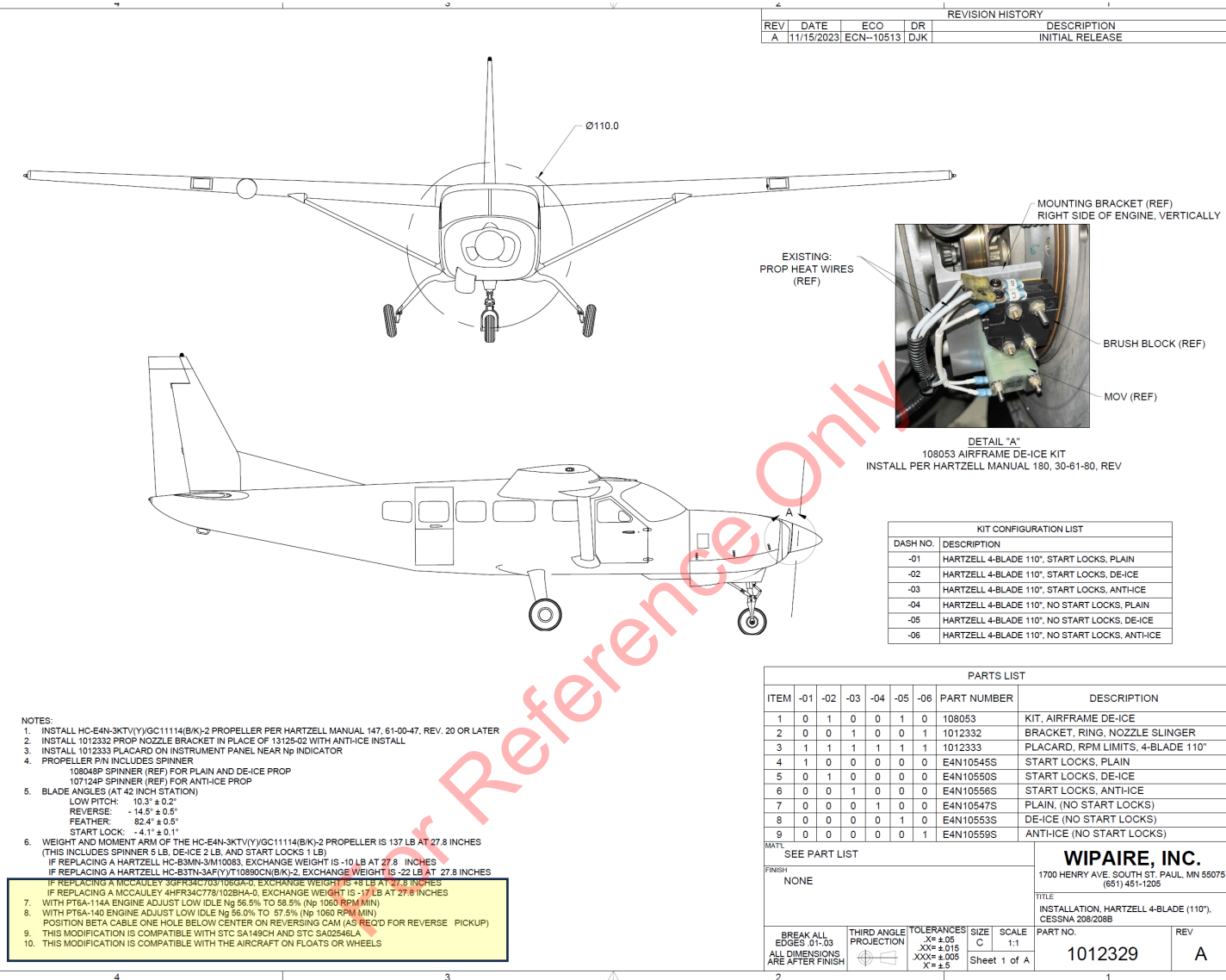


ENGINE RIGGING HIGHLIGHTS

For Reference Only

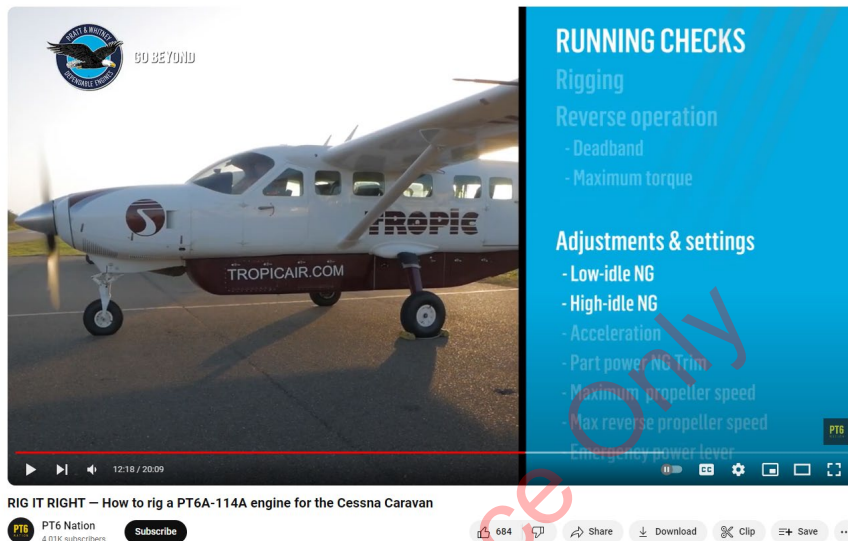
THIS OPERATION WILL REQUIRE AN ADVANCED AMOUNT OF KNOWLEDGE FOR RIGGING THE PT6 TO FACTORY SPECIFICATIONS. THE YUKON PROPELLER INSTALLATION CHANGES A SINGLE RIG POINT, HOWEVER THAT CHANGE MAY AFFECT OTHER RIGGING POINTS. BE PREPARED AND FAMILIARIZE YOURSELF WITH RIGGING A PT6 (-114A AND -140 AS APPLICABLE) PRIOR TO THIS PORTION OF YOUR YUKON PROPELLER INSTALLATION.

WIPAIRE INSTALLATION DRAWING 1012329



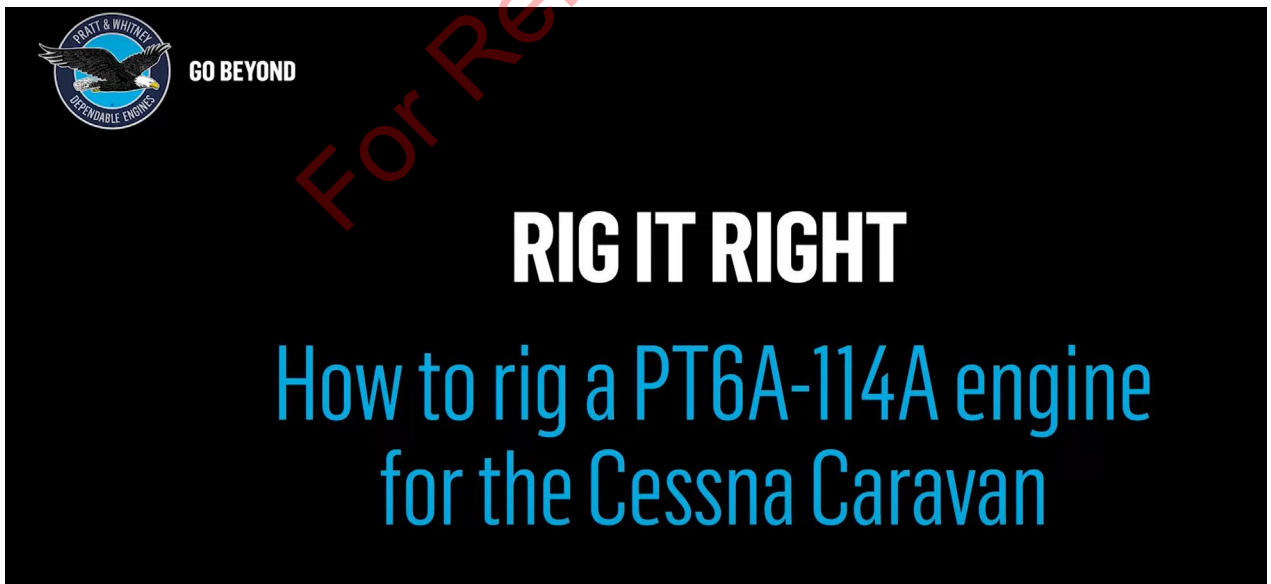
Pay particular attention of notes shown on LH side of drawing for rigging points.

If the assumption is made that the engine is properly rigged prior to previous propeller removal, only one parameter is required to be changed on the PT6A-114A installation. This can be found in the video below, reference the **12:18** point of the video. NOTE: By adjusting the low idle NG per note 7, other parameters of the engine rigging may change. Be wary of completing a single adjustment and expecting all other rigging to hold properly.



7. WITH PT6A-114A ENGINE ADJUST LOW IDLE Ng 56.5% TO 58.5% (Np 1060 RPM MIN)

<https://www.youtube.com/watch?v=H7c2NiFCNHo>



If the assumption is made that the engine is properly rigged prior to previous propeller removal, only one parameter is required to be changed on the PT6A-140 installation. This can be found in the -140 video below, reference the **14:35** point of the video. NOTE: By adjusting the low idle NG per note 8, other parameters of the engine rigging may change. Be wary of completing a single adjustment and expecting all other rigging to hold properly.



RIG IT RIGHT - How To How to Rig a PT6A-140 Engine - Grand Caravan EX

PT6 PT6 Nation
4.02K subscribers

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278

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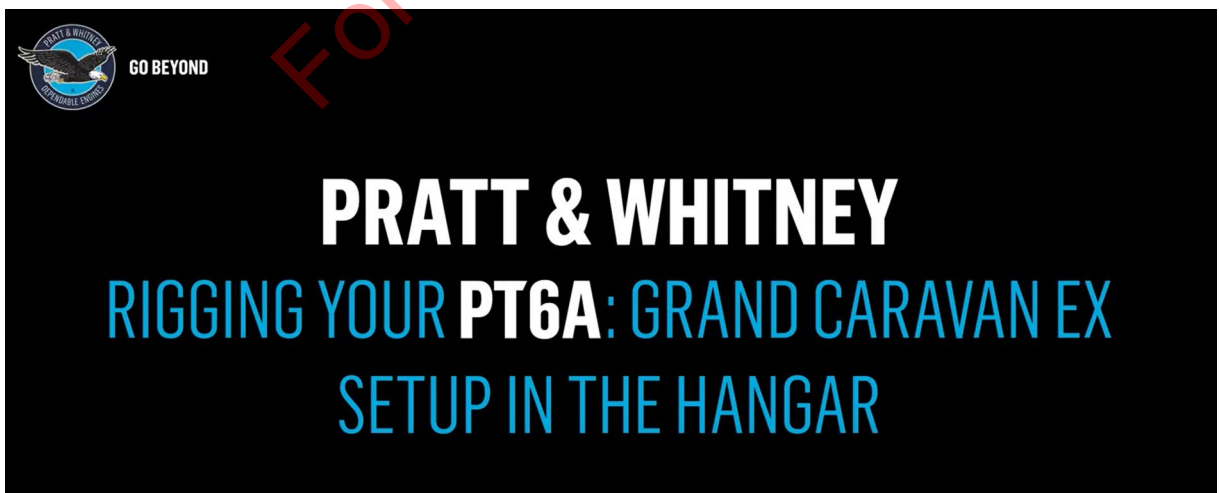
Clip

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8. WITH PT6A-140 ENGINE ADJUST LOW IDLE Ng 56.0% TO 57.5% (Np 1060 RPM MIN)
POSITION BETA CABLE ONE HOLE BELOW CENTER ON REVERSING CAM (AS REQ'D FOR REVERSE PICKUP)

<https://www.youtube.com/watch?v=0pApxlmLiMw>



Reversing cam reference as noted below.

POSITION BETA CABLE ONE HOLE BELOW CENTER ON REVERSING CAM (AS REQ'D FOR REVERSE PICKUP)

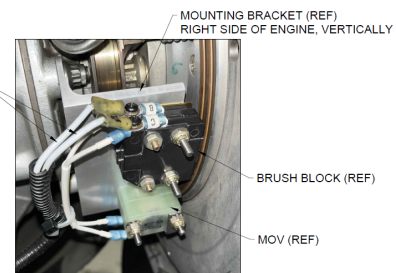
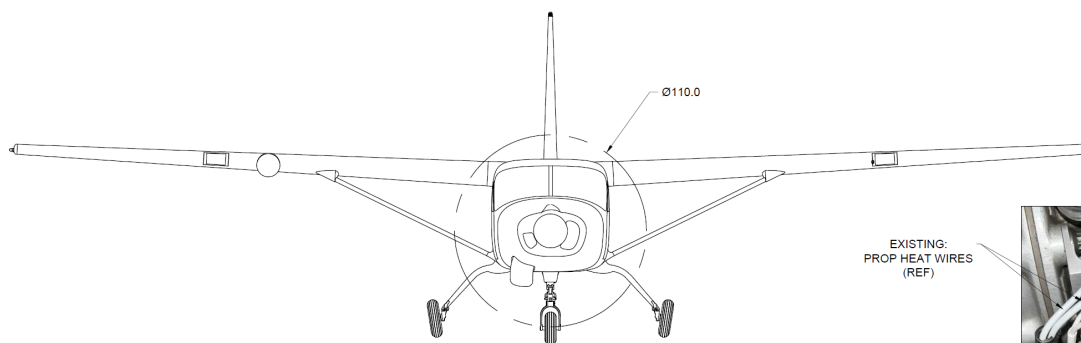


PERFORM FULL ENGINE RUNS WITH RIGGING CHECKS USING VIDEOS SHOWN AS A GUIDE. ENSURE THAT ALL STOCK PARAMETERS ARE BEING HIT INCLUDING THE INCREASED LOW IDLE NG PER WIPAIRE DRAWING 1012329 FOR YOUR INSTALLED ENGINE (-140 OR -114A) AND RIG AND ADJUST ACCORDINGLY.

PERFORM INSPECTION AND ENSURE ALL SAFETY WIRE, COTTER PINS, ETC.. ARE REINSTALLED UPON RIGGING COMPLETION

WEIGHT AND BALANCE NOTATIONS

For Reference Only



DETAIL "A"
108053 AIRFRAME DE-ICE KIT
INSTALL PER HARTZELL MANUAL 180, 30-61-80, REV

KIT CONFIGURATION LIST	
DASH NO.	DESCRIPTION
-01	HARTZELL 4-BLADE 110", START LOCKS, PLAIN
-02	HARTZELL 4-BLADE 110", START LOCKS, DE-ICE
-03	HARTZELL 4-BLADE 110", START LOCKS, ANTH-ICE
-04	HARTZELL 4-BLADE 110", NO START LOCKS, PLAIN
-05	HARTZELL 4-BLADE 110", NO START LOCKS, DE-ICE
-06	HARTZELL 4-BLADE 110", NO START LOCKS, ANTH-ICE

- NOTES:
1. INSTALL HC-E4N-3KT(V)(Y)GC11114(B/K)-2 PROPELLER PER HARTZELL MANUAL 147, 61-00-47, REV. 20 OR LATER
 2. INSTALL 1012332 PROP NOZZLE BRACKET IN PLACE OF 13125-02 WITH ANTH-ICE INSTALL
 3. INSTALL 1012333 PLACARD ON INSTRUMENT PANEL NEAR Np INDICATOR
 4. PROPELLER PIN INCLUDES SPINNER

108048P SPINNER (REF) FOR PLAIN AND DE-ICE PROP
107124P SPINNER (REF) FOR ANTH-ICE PROP

5. BLADE ANGLES (AT 42 INCH STATION)
LOW PITCH: 10.3° ± 0.2°
REVERSE: -14.5° ± 0.5°
FEATHER: 82.4° ± 0.5°

6. START LOCK: -4.1° ± 0.1°
WEIGHT AND MOMENT ARM OF THE HC-E4N-3KT(V)(Y)GC11114(B/K)-2 PROPELLER IS 137 LB AT 27.8 INCHES (THIS INCLUDES SPINNER 5 LB, DE-ICE 2 LB, AND START LOCKS 1 LB)
IF REPLACING A HARTZELL HC-B3MN-3/M10083, EXCHANGE WEIGHT IS -10 LB AT 27.8 INCHES
IF REPLACING A HARTZELL HC-B3TN-3AF(Y)T10890CN(B/K)-2, EXCHANGE WEIGHT IS -22 LB AT 27.8 INCHES
IF REPLACING A MCCAULEY 3GFR34C703/106GA-0, EXCHANGE WEIGHT IS +8 LB AT 27.8 INCHES
IF REPLACING A MCCAULEY 4HFR34C778/102BHA-0, EXCHANGE WEIGHT IS -17 LB AT 27.8 INCHES

7. WITH PT6A-140 ENGINE ADJUST LOW IDLE NG 56.0% TO 57.5% (Np 1060 RPM MIN)

8. WITH PT6A-140 ENGINE ADJUST LOW IDLE NG 56.0% TO 57.5% (Np 1060 RPM MIN)
POSITION BETA CABLE ONE HOLE BELOW CENTER ON REVERSING CAM (AS REQ'D FOR REVERSE PICKUP)
9. THIS MODIFICATION IS COMPATIBLE WITH STC SA149CH AND STC SA02546LA
10. THIS MODIFICATION IS COMPATIBLE WITH THE AIRCRAFT ON FLOATS OR WHEELS

PARTS LIST									
ITEM	-01	-02	-03	-04	-05	-06	PART NUMBER	DESCRIPTION	
1	0	1	0	0	1	0	108053	KIT, AIRFRAME DE-ICE	
2	0	0	1	0	0	1	1012332	BRACKET, RING, NOZZLE SLINGER	
3	1	1	1	1	1	1	1012333	PLACARD, RPM LIMITS, 4-BLADE 110"	
4	1	0	0	0	0	0	E4N10545S	START LOCKS, PLAIN	
5	0	1	0	0	0	0	E4N10550S	START LOCKS, DE-ICE	
6	0	0	1	0	0	0	E4N10556S	START LOCKS, ANTH-ICE	
7	0	0	0	1	0	0	E4N10547S	PLAIN, (NO START LOCKS)	
8	0	0	0	0	1	0	E4N10553S	DE-ICE (NO START LOCKS)	
9	0	0	0	0	0	1	E4N10559S	ANTH-ICE (NO START LOCKS)	

MATL: SEE PART LIST

FINISH: NONE

BREAK ALL EDGES 01-03
ALL DIMENSIONS ARE AFTER FINISH

THIRD ANGLE PROJECTION

TOLERANCES:
X=±.05
XX=±.015
XXX=±.005
X=±.5

SIZE C
SCALE 1:1
Sheet 1 of A

WIPAIRE, INC.
1700 HENRY AVE. SOUTH ST. PAUL, MN 55075
(651) 451-1205
TITLE: INSTALLATION, HARTZELL 4-BLADE (110"), CESSNA 208/208B

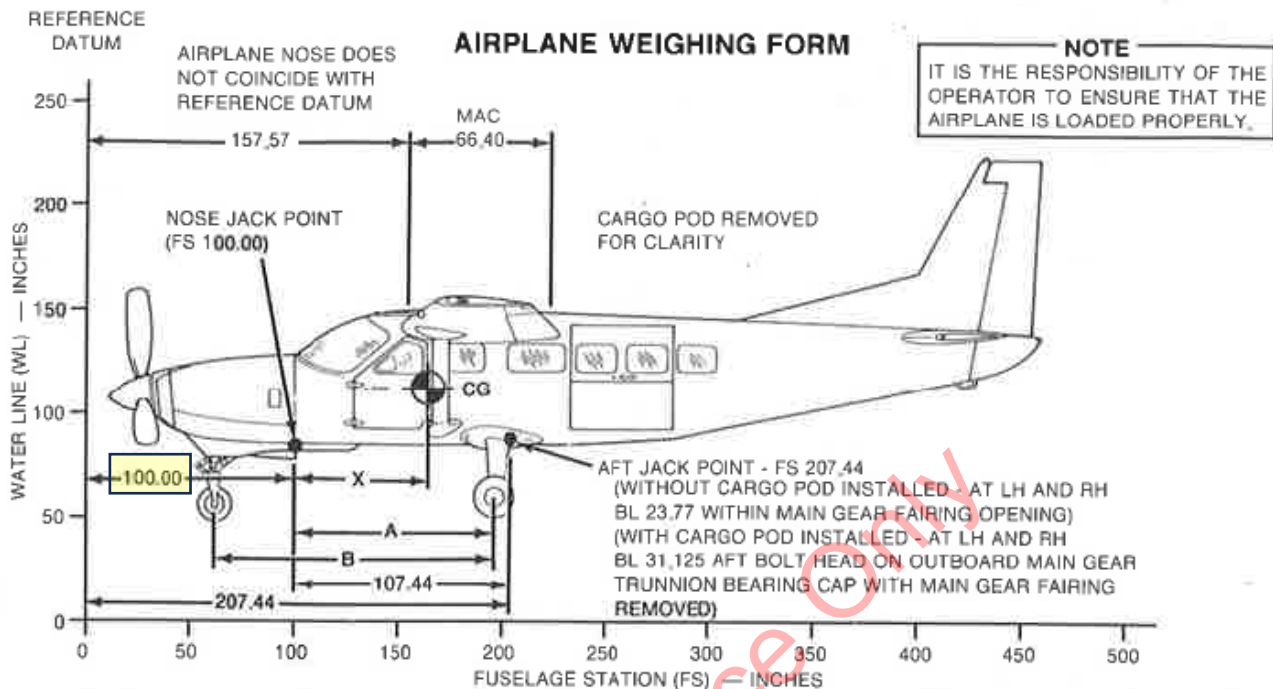
PART NO. 1012329
REV A

6. WEIGHT AND MOMENT ARM OF THE HC-E4N-3KT(V)(Y)GC11114(B/K)-2 PROPELLER IS 137 LB AT 27.8 INCHES (THIS INCLUDES SPINNER 5 LB, DE-ICE 2 LB, AND START LOCKS 1 LB)
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IF REPLACING A MCCAULEY 4HFR34C778/102BHA-0, EXCHANGE WEIGHT IS -17 LB AT 27.8 INCHES

NOTE: WEIGHTS AND ARMS APPLY TO BOTH THE 208B GRAND CARAVAN AND THE SHORTER 208. BOTH OF THE 208 CARAVAN MODELS HAVE A DATUM THAT IS 100" AHEAD OF THE FIREWALL AND RESULTING ARMS ARE NOT AFFECTED BY EITHER MODEL

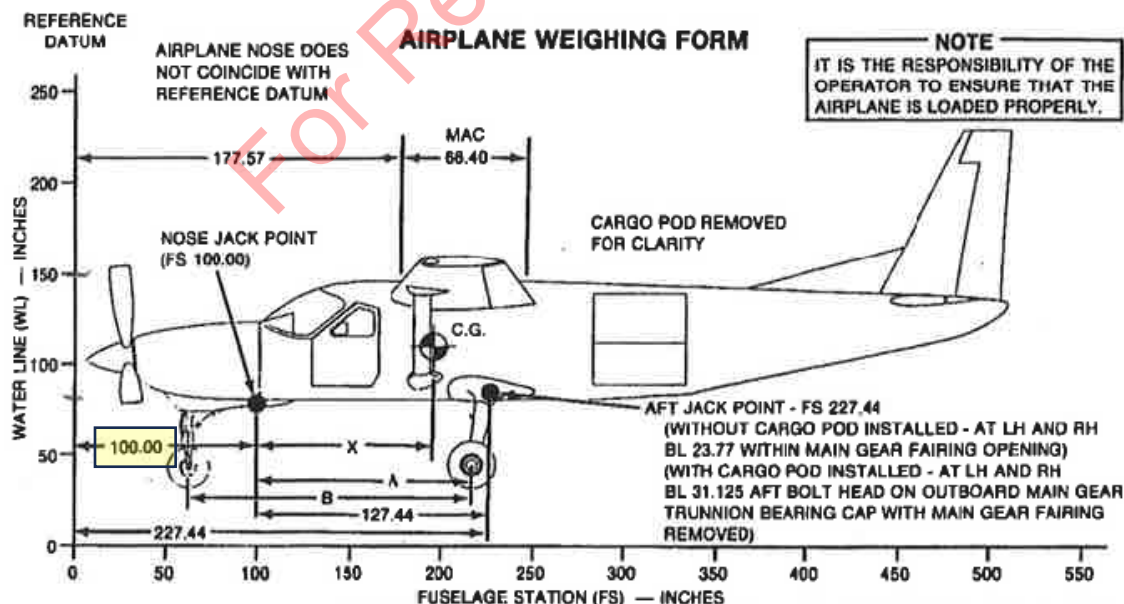
SECTION 6 WEIGHT & BALANCE/EQUIPMENT LIST

**CESSNA
MODEL 208**



SECTION 6 WEIGHT & BALANCE/EQUIPMENT LIST

**CESSNA
MODEL 208B**



END

For Reference Only