SERVICE LETTER

SUBJECT: **HARTZELL SERVICE BULLETIN HC-61-221, PROPELLER - INTRODUCTION OF A CYLINDER CLAMP**

All Operators: Date: July 09/97

This service letter draws the attention of operators to vendor information that provides information on the above topics as follows:

APPENDIX A Hartzell Service Bulletin HC-61-221, Propeller -- Introduction of a Cylinder Clamp.

Firstly, contact the vendor (at the address provided in the appendix information) for any specific inquiries concerning the subject matter.

If you have difficulty, make inquiries at the following address:

PILATUS AIRCRAFT LTD.
CUSTOMER LIAISON MANAGER,
CH-6371 STANS,
SWITZERLAND.

Tel: + 41 41 619 6509
Fax: + 41 41 610 3351

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Appendix A to Pilatus Service Letter No. 024

(Hartzell Service Bulletin HC-61-221, Propeller - Introduction of a Cylinder Clamp - dated 04-04-97)

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HARTZELL PROPELLER INC.

SERVICE BULLETIN

Propellers

Propeller - Introduction of a Cylinder Clamp

1. Planning Information

   A. Effectivity

      (1) HC-E4A-3(A,I) propellers with serial number HJ797 and lower installed on Raytheon Beechcraft 1900D Airliners.

      (2) HC-E4A-3D propellers with serial number HJ797 and lower installed on Pilatus PC-XII Aircraft.

   B. Concurrent Requirements

      None.

   C. Reason

      (1) There have been two incidents on 1900D aircraft of severe oil leakage from the threaded area between the propeller cylinder and the hub.

      (2) The expansion of the cylinder due to hydraulic pressure during reverse and the loads imposed on the reverse pitch stop during reverse, cause the cylinder to expand and diminish thread engagement with the hub. This can allow the cylinder to be misaligned with the hub and result in loss of engine oil.

      (3) This Service Bulletin provides a one-time, permanent repair for the current hub and cylinder design.

      (4) Compliance with this bulletin will improve propeller reliability by preventing misalignment of the cylinder and hub during reverse operation.

      (5) No regulatory action is anticipated.

   D. Description

      This Service Bulletin provides instructions for installing the B-6472 Cylinder Clamp at the base of the cylinder to prevent expansion and ensure optimum thread engagement between the hub and cylinder.

   E. Compliance

      (1) Raytheon Beechcraft 1900D Airliner

         Compliance is required within 90 days or 500 hours of operation, whichever occurs first, from the date of receipt of this Service Bulletin.

      (2) Pilatus PC-XII Aircraft

         Compliance is required at next propeller overhaul. (Compliance prior to overhaul is optional, but may be desirable in order to take advantage of warranty parts program, see Service Bulletin Appendix for details.)

F. Approval

FAA approval has been obtained on technical data in this publication that affects type design.

G. Manpower

Spinner dome removal, cylinder clamp installation and spinner dome installation requires approximately one man-hour per propeller.

H. Weight and Balance

Installation of cylinder clamp and bolts increases propeller weight by 0.46 pound and has no effect upon static balance of the propeller.

I. Electrical Load Data

Not changed.

J. References

Hartzell Manual 143A (ATA 61-10-43), Four Blade Lightweight Turbine Propeller Overhaul Manual
Hartzell Manual 165A (ATA 61-00-65), Tool and Equipment Manual

K. Other Publications Affected

Hartzell Manual 143A (ATA-61-10-43) will be revised to incorporate data from this Service Bulletin.

For Hartzell service literature and revisions, contact:

Hartzell Propeller Inc.
Product Support Department
One Propeller Place
Piqua, Ohio 45356 U.S.A.

Telephone: 937.778.4200
Fax: 937.778.4321

2. Material Information

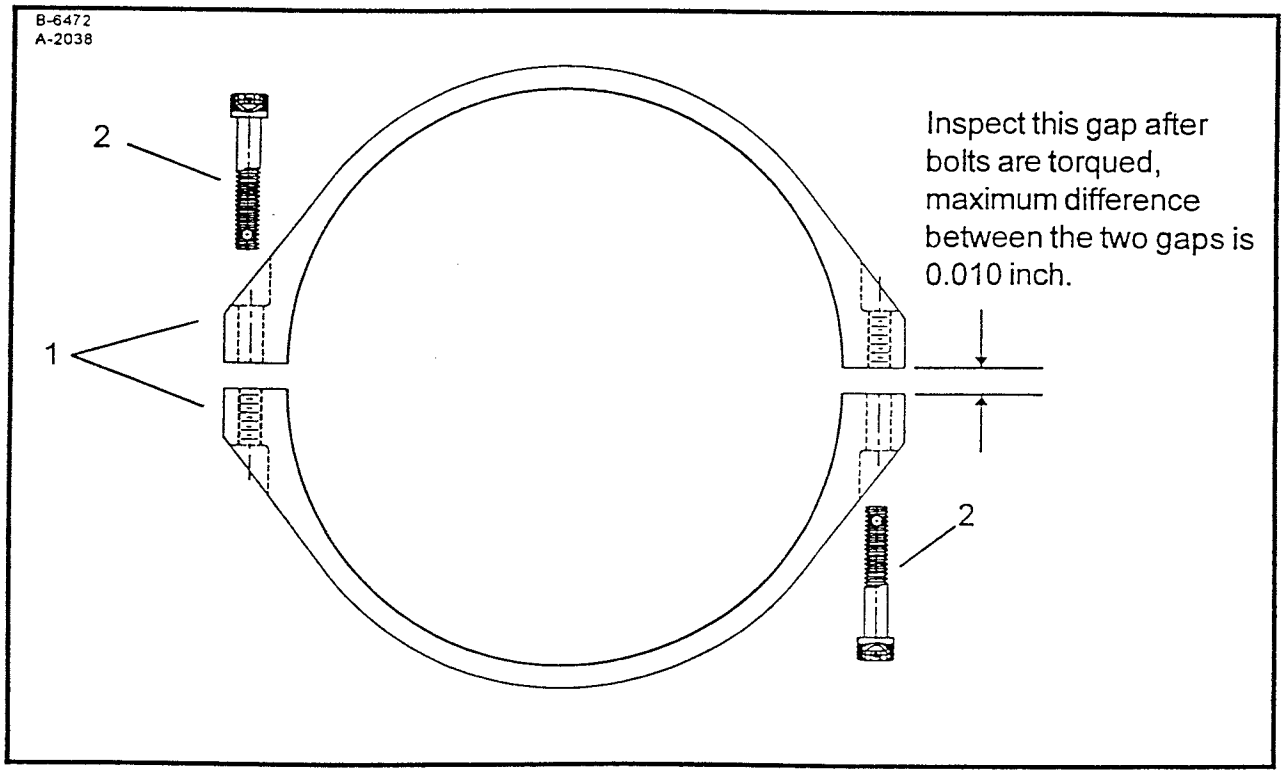
A. Material Necessary for Each Propeller (Supplied by Hartzell Propeller)

Part Number	Description	Fig. 1/Item No.	Qty
A-6525	Cylinder Clamp Kit	Reference	1
B-6472	• Cylinder Clamp	1	1
A-2038-12	• Bolt	2	2

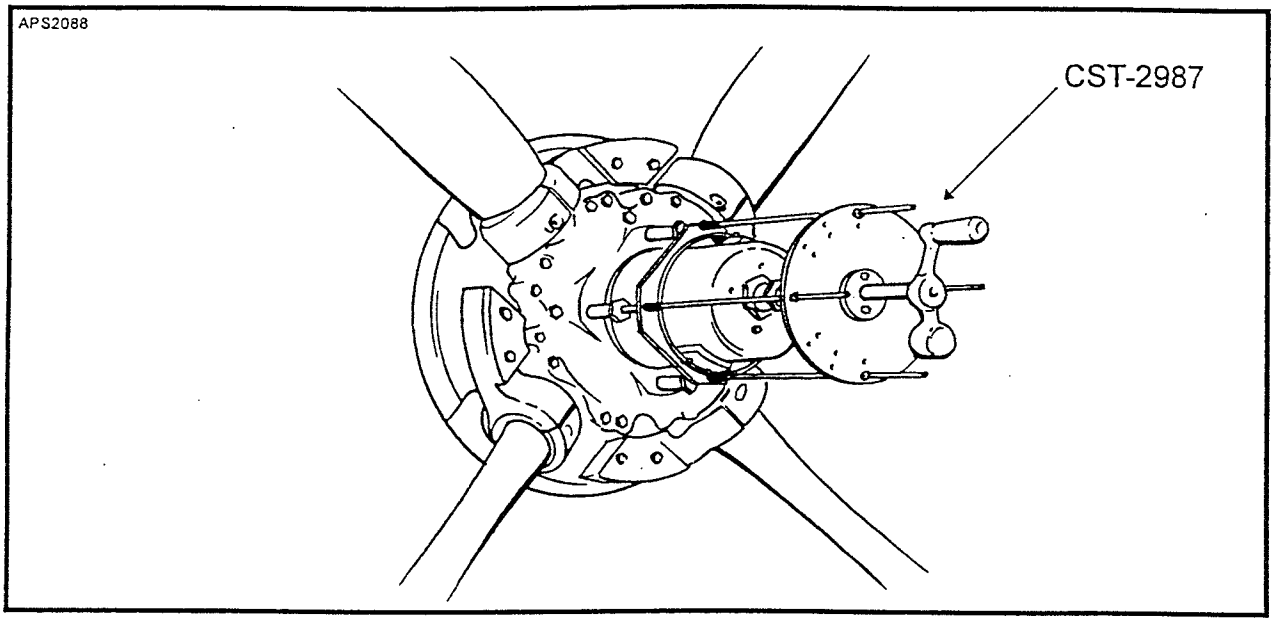
NOTE: Figure and item numbers refer to this Service Bulletin.

B. Special Tooling

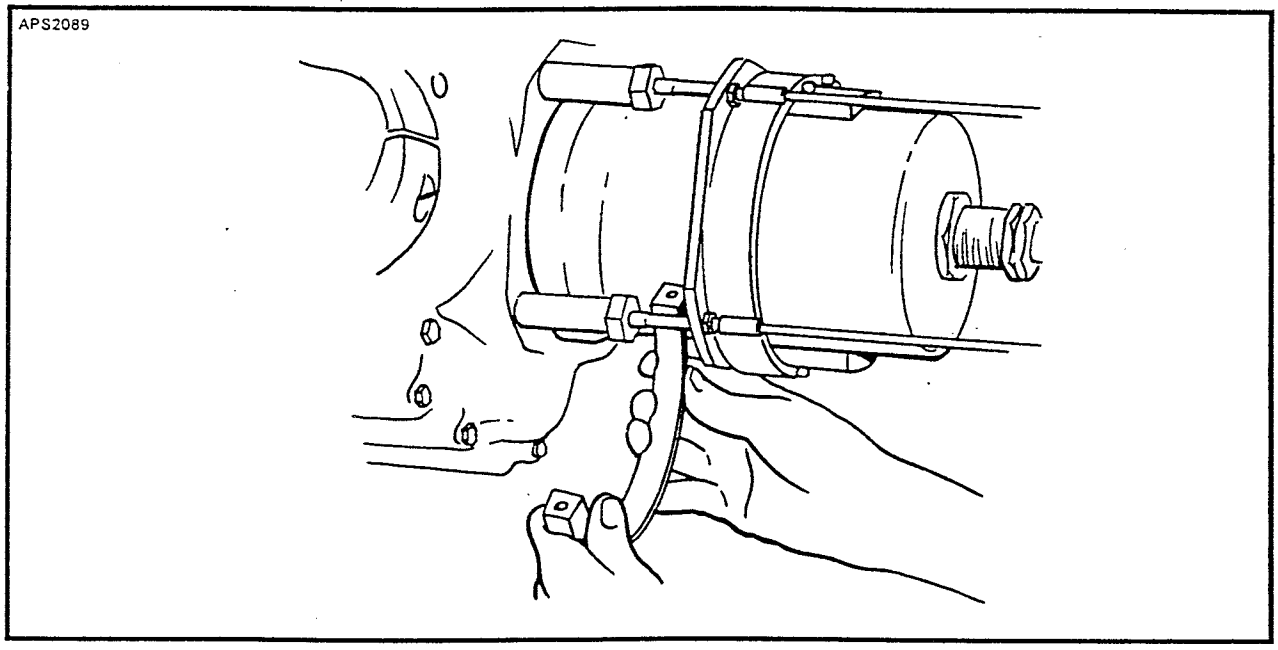
Part Number	Description	Qty
CST-2987	Beta System Puller	1



Cylinder Clamp Kit Components
Figure 1



Beta System Puller Installed
Figure 2



Cylinder Clamp Installation, Step 1
Figure 3

3. Accomplishment Instructions

A. Procurement of Parts

Operators may order parts from Hartzell. A special order form is available in an Appendix to this Service Bulletin.

B. Procedure

This Service Bulletin may be complied with while the propeller is installed on the aircraft. The following procedure must be performed by a certificated aircraft mechanic or propeller repair station.

(1) Remove the spinner dome and forward bulkhead in accordance with the airframe manufacturer's maintenance manual.

(2) Install the CST-2987 Beta System Puller and pull the beta ring towards the hub flange. See Figure 2.

NOTE: The beta system puller is used to pull the beta yoke toward the end of the cylinder in order to provide clearance for installation of the cylinder clamp.

(3) Insert one end of the cylinder clamp half between the beta rod and the cylinder of the propeller as shown in Figure 3.

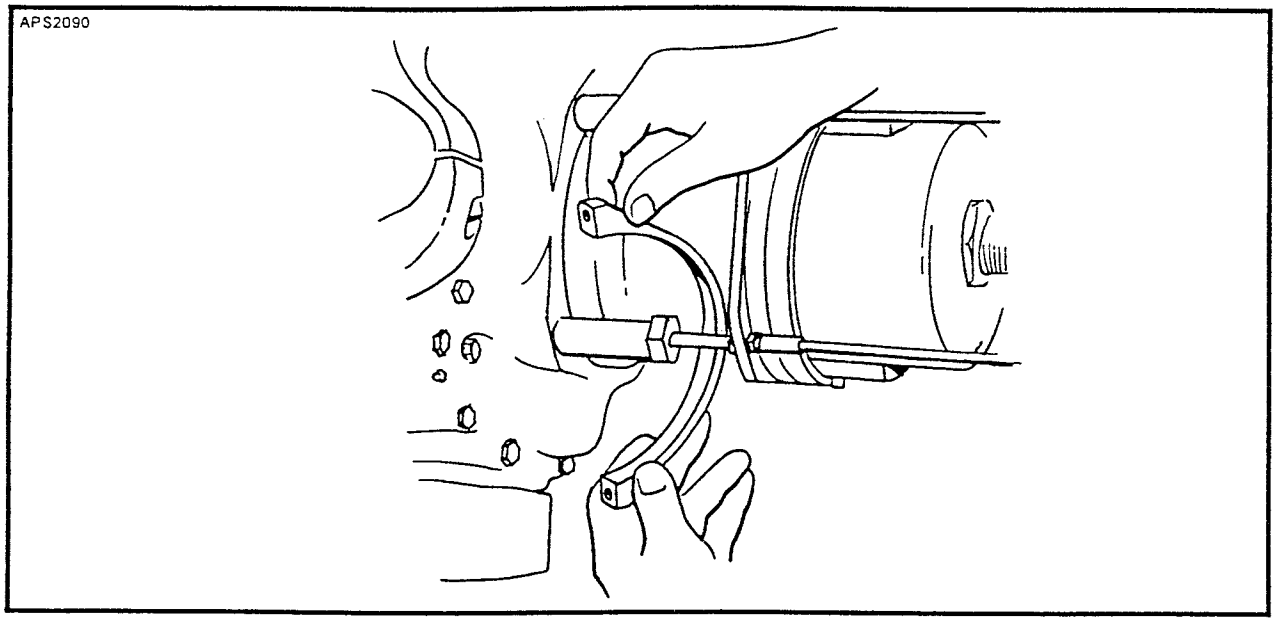
(4) Once the cylinder clamp half is installed between the beta rod and the cylinder (see Figure 4), rotate the cylinder clamp half until the open end is towards the cylinder as shown in Figure 5.

CAUTION: CAREFULLY FOLLOW THE DIAGRAMS (FIGURES 3 THROUGH 8) FOR INSERTING THE CLAMP HALVES ONTO THE CYLINDER. EXCESSIVE FORCE IS NOT REQUIRED DURING INSTALLATION OF THE CYLINDER CLAMP.

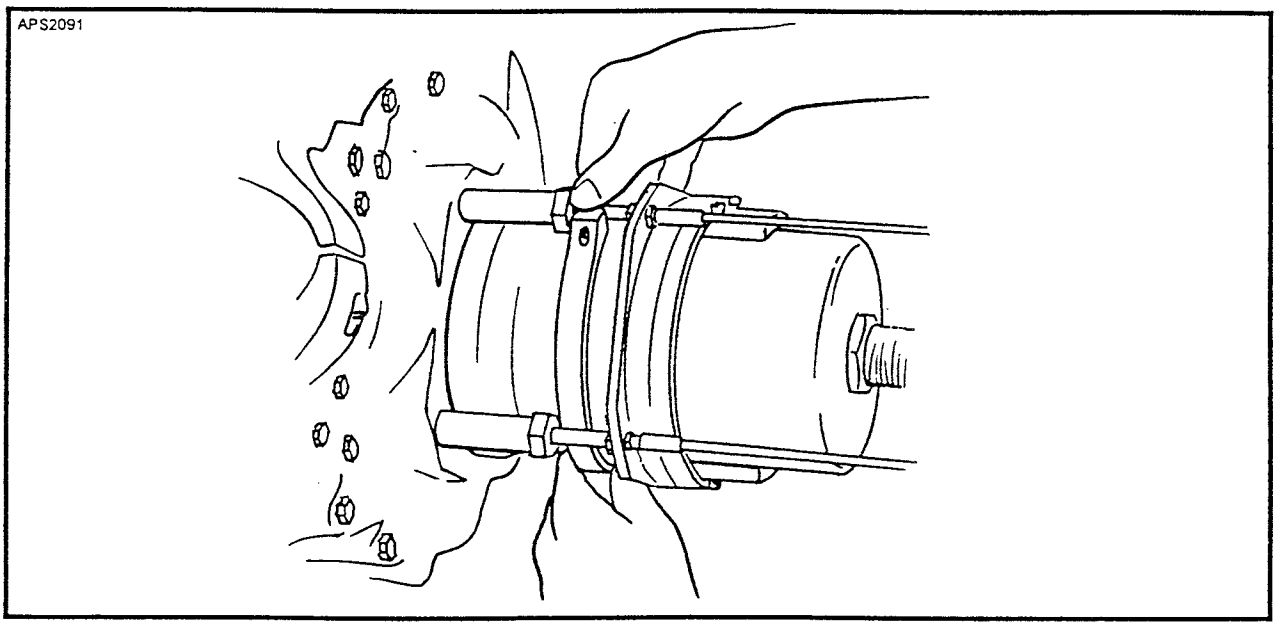
(5) Position the cylinder clamp half so that the mating flange is centered between the beta rods as shown in Figure 6.

(6) Move the cylinder clamp half to the base of the cylinder as shown in Figure 7.

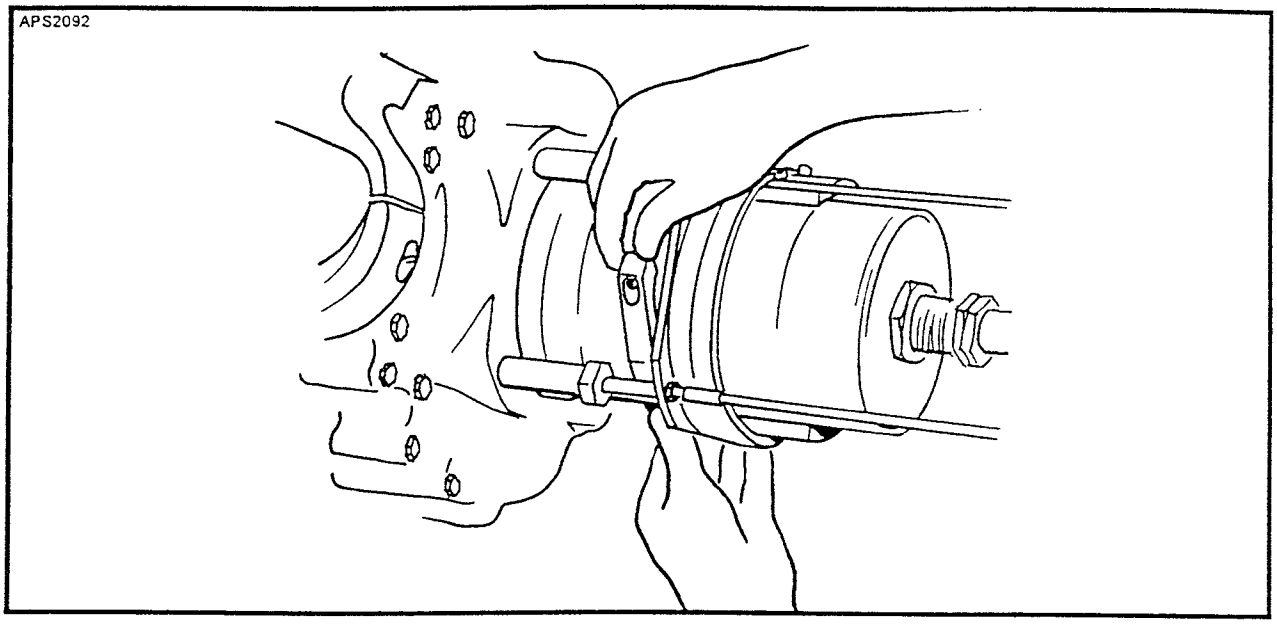
(7) Install the remaining cylinder clamp half onto the cylinder following procedures 3.B.(3) through 3.B.(6). The threaded end of one cylinder clamp half will align with the unthreaded half of the other cylinder clamp half.



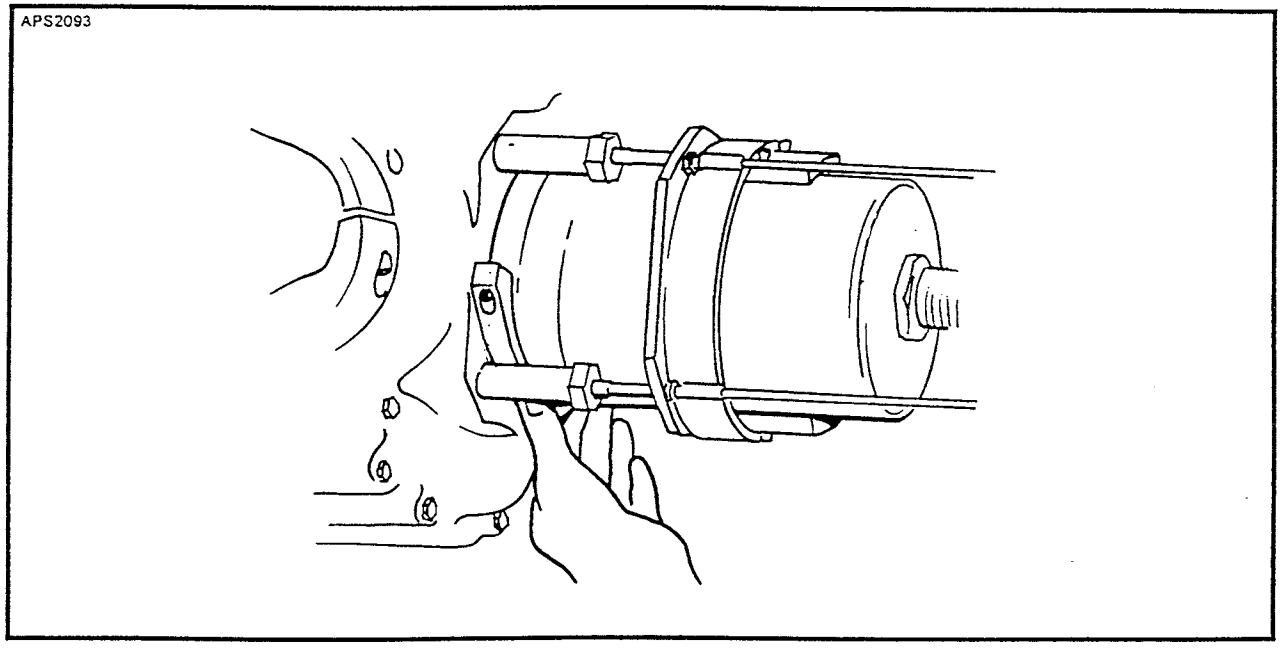
Cylinder Clamp Installation, Step 2
Figure 4



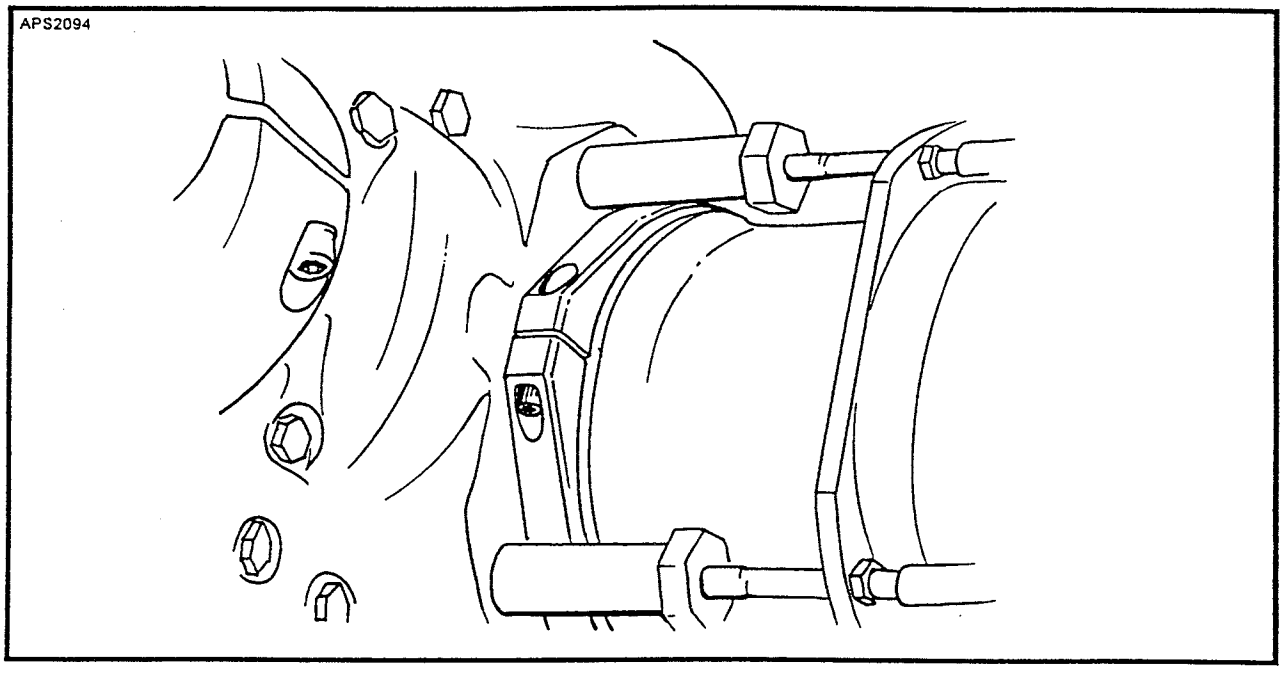
Cylinder Clamp Installation, Step 3
Figure 5



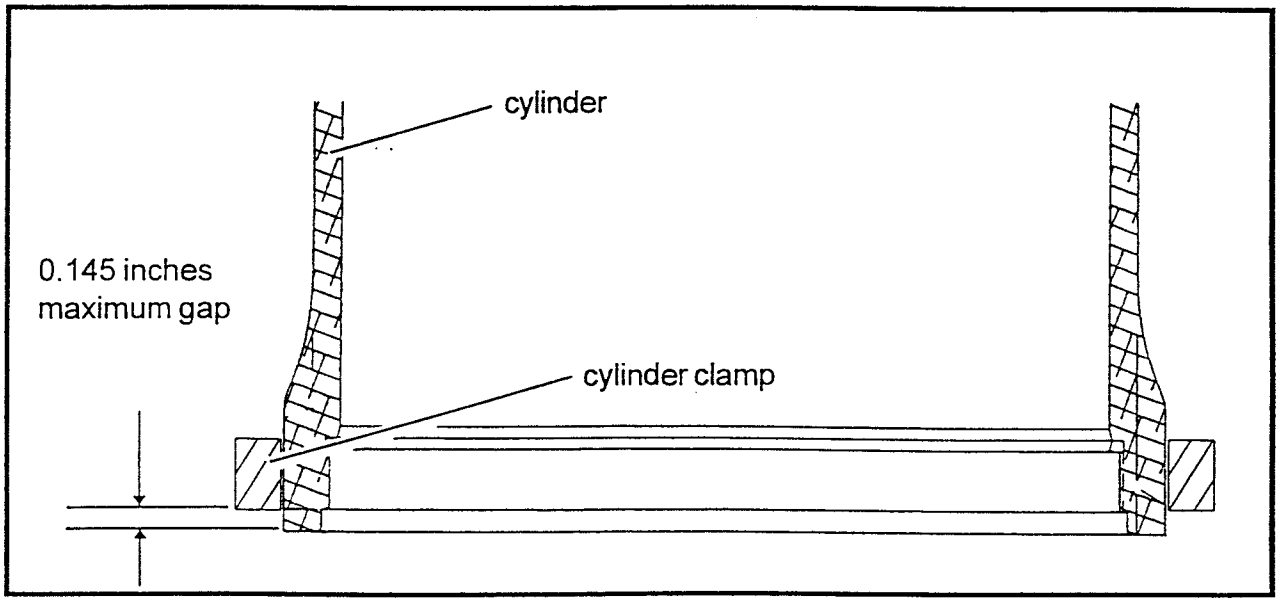
Cylinder Clamp Installation, Step 4
Figure 6



Cylinder Clamp Installation, Step 5
Figure 7



Cylinder Clamp Installation, Step 6
Figure 8



Cylinder Clamp Installation: Gap Check
Figure 9

(8) Install the cylinder clamp bolts in both clamp flanges and tighten until the clamp becomes snug on the cylinder. When installed on the cylinder, the cylinder clamp flanges should be centered between the beta rods and in contact with the hub as shown in Figure 8.

NOTE: A bead of silicone sealant is applied to the cylinder shoulder of the hub during assembly of the propeller. When the cylinder is threaded onto the hub, sealant usually squeezes out between the cylinder and the hub. There is no need to remove the excess cured sealant from the base of the cylinder as long as no sealant will be between the cylinder and the clamp.

(9) Check the gap between the clamp and the hub. The gap between the cylinder clamp and the hub can be no greater than 0.145 inch as shown in Figure 9. Insure that there is an equal amount of gap around the entire circumference of the cylinder clamp.

(10) Torque the cylinder clamp bolts to 47 - 52 in-lb (dry). Inspect the gap between the clamp halves while torquing the bolts. The difference between the two gaps must not exceed 0.010 inch. See Figure 1 for gap location.

NOTE: The A-2038-12 cylinder clamp bolts must not be reused. The bolts are manufactured with locking compound already on the threads. The locking compound can only be activated once during installation of the bolt; therefore, the bolts must be discarded if they are removed from the cylinder clamp.

(11) Release the pressure on the beta system and remove the CST-2987 Beta System Puller from the propeller.

(12) Install the forward spinner bulkhead and spinner dome on the propeller in accordance with the airframe manufacturer's maintenance manual.

(13) Make a logbook entry to indicate compliance with this Service Bulletin.