Bell Helicopter
A Textron Company

INFORMATION LETTER 206L-14-99
30 September 2014

TO: All owners and operators of Model 206L Series helicopters

SUBJECT: TACTAIR HYDRAULIC SERVO ACTUATOR (HSA) FIELD REPLACEMENT INSTRUCTIONS FOR THE CYLINDER EXTENSION BEARING P/N C42642-68.

The purpose of this Information Letter is to achieve complete distribution of the attached Tactair Service Bulletin to the current affected model distribution list on record by Bell Helicopter Textron. This bulletin provides field replacement instructions for the hydraulic cylinder extension bearings if found worn prior to its regular overhaul period.

Tactair manual users/customers shall periodically contact Tactair to ensure that the latest instruction revision is being utilized. Tactair advised owners/operators to procure only the Current Design Authority (CDA) part for accomplishment of the Service Bulletin.

As required, BHT Customer Property Return (CPR) has the capability to process the subject servos for overhaul or repair requirement.

For any questions regarding this letter, please contact:

TACTAIR FLUID CONTROLS INC.
Attn: Customer Support Spares
4806 West Taft Road
Liverpool, NY 13088, USA
Phone: (315) 451-3928
Fax: (315) 457-5595.
Email: customer_support@tactair.com
Internet: www.tactair.com

ATA CHAPTER 67

ROTORS FLIGHT CONTROL - TACTAIR HYDRAULIC SERVO ACTUATOR (HSA) FIELD REPLACEMENT INSTRUCTIONS FOR THE CYLINDER EXTENSION BEARINGS P/N C42642-68

1. PLANNING INFORMATION

A. EFFECTIVITY

This Service Bulletin applies to the following Tactair (Kaiser/Ronson) Hydraulic Servo Actuator (HSA):

TACTAIR P/N	BELL® HELICOPTER TEXTRON INC. (BHTI) P/N	SERIAL NUMBER
42C42642-1	206-076-062-003	ALL
42C42642-101	206-076-062-101	ALL

B. CONCURRENT REQUIREMENTS

Not applicable.

C. REASON

Reports from the field have indicated that a few HSA Cylinder Extension Bearings have worn ahead of TBO time. This condition requires Owner/Operators to remove the HSA from service early. To prevent operational disruptions in these cases, this Service Bulletin is being released to allow replacement of worn HSA Cylinder Extension Bearings in the field if necessary.

D. DESCRIPTION

This Service Bulletin provides instructions to replace a worn Bearing P/N C42642-68 with a new one, when the HSA has been removed from the Aircraft and bench-top maintenance can be performed as instructed in this Service Bulletin.

E. COMPLIANCE

Optional - Bell® 206L Owners/Operators Economic Decision.

F. APPROVAL

The technical content of this Service Bulletin is approved by Bell® Helicopter Textron Inc.

This Service Bulletin does not contain modification information that revises the HSA approved configuration.

G. HUMAN POWER

Labor reimbursement by Tactair does not apply.

H. WEIGHT AND BALANCE

Not applicable.

I. ELECTRICAL LOAD DATA

Not applicable.

J. SOFTWARE ACCOMPLISH SUMMARY

Not applicable.

K. REFERENCES

(1) The data used to prepare and use this Service Bulletin for Aircraft Owners/Operators include the Bell® Helicopter Textron (BHT) Inc., publications shown below:

(a) Bell® Model 206L (BHT-206L-MM-1, Volume 1 - Maintenance Manual), Chapter 29 - Hydraulic System, Chapter/System ATA 29-20-00.

(b) Bell® Model 206L1 (BHT-206L1-MM-1, Volume 1 - Maintenance Manual), Chapter 29 - Hydraulic System, Chapter/System ATA 29-00-00.

(c) Bell® Model 206L3 (BHT-206L3-MM-8, Volume 1 - Maintenance Manual), Chapter 67 - Flight Controls, Chapter/System ATA 67-00-00.

(d) Bell® Model 206L4 (BHT-206L4-MM-8, Volume 1 - Maintenance Manual), Chapter 67 - Flight Controls, Chapter/System ATA 67-00-00.

L. OTHER PUBLICATIONS AFFECTED

Not applicable.

2. MATERIAL INFORMATION

A. MATERIAL – PRICE AND AVAILABILITY

(1) No field kit is available for these field replacement instructions.

(2) The spare parts necessary to accomplish this Service Bulletin are listed in the following table:

OLD PART NUMBER	DESCRIPTION	NEW PART NUMBER	QTY SUP	QTY USED	*CODE
C42642-68	BEARING	C42642-68	2	2	1, 2, 3

***DISPOSITION CODE:**
1 = Effectivity - All Serial Numbers.
2 = Parts are Interchangeable.
3 = Contact Tactair Directly.

B. INDUSTRY SUPPORT INFORMATION

For information about spare parts listed above, contact:

- Tactair Fluid Controls Inc.
  Attn: Customer Support Spares
  4806 West Taft Road
  Liverpool, NY 13088, USA
  Phone (315) 451-3928
  FAX (315) 457-5595
  EMAIL customer_support@tactair.com
  Internet www.tactair.com

C. RE-IDENTIFIED PARTS

Not applicable.

D. TOOLING REQUIRED

(1) Anvil Staking Tool (P/N AT-5-441, Cabco Industries Inc.)

(2) Roll Swage Tool (P/N T101530-3, Bell® Helicopter Textron Inc.)

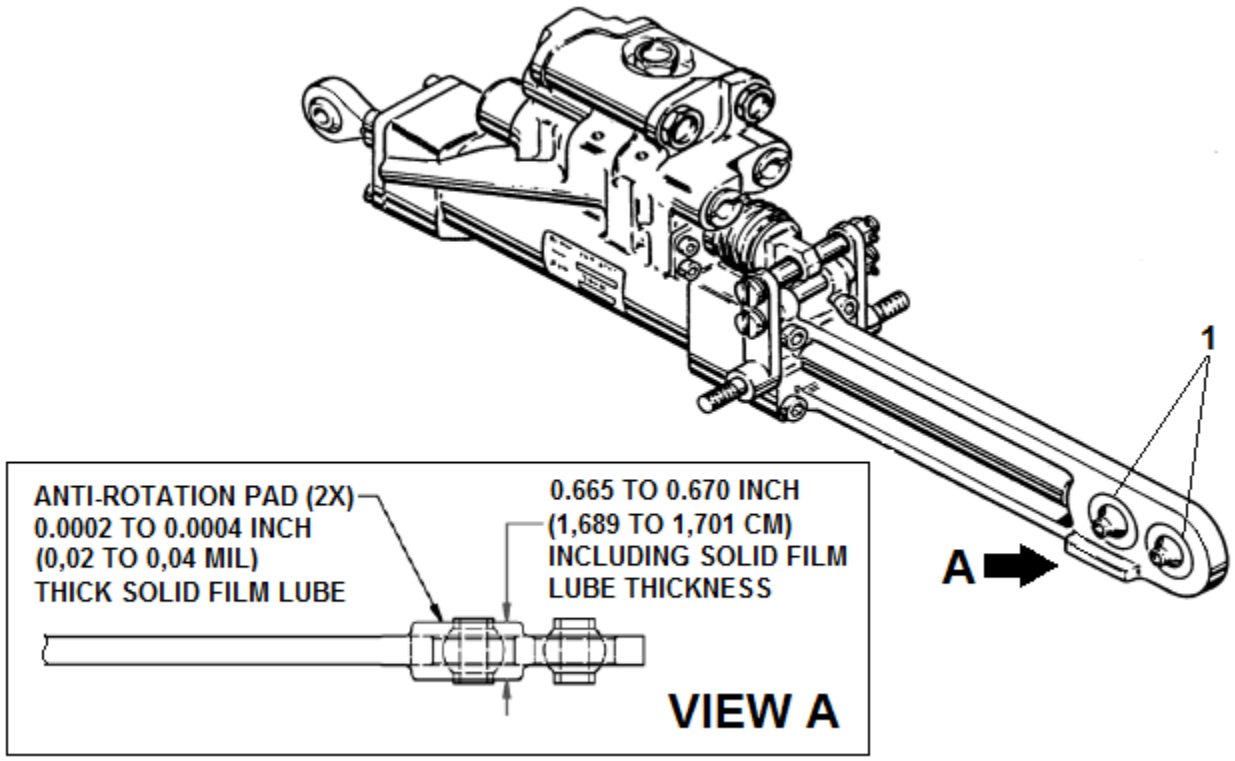
NOTE: Equivalent tooling may be used.

3. ACCOMPLISHMENT INSTRUCTIONS FOR FIELD REPLACEMENT OF BEARINGS (1, FIGURE 1).

WARNING: TACTAIR FLUID CONTROLS INC., ASSUMES NO RESPONSIBILITY OR LIABILITY FOR ANY TACTAIR HSA THAT IS NOT MAINTAINED AND/OR REPAIRED IN ACCORDANCE WITH TACTAIR PUBLISHED INSTRUCTIONS. INCORRECTLY REPAIRED COMPONENTS CAN AFFECT AIRWORTHINESS OR DECREASE THE LIFE OF THE HSA RETURNED TO SERVICE. MAKE SURE THAT THE AIRCRAFT IS SAFE FOR MAINTENANCE.

A. Remove HSA (Cyclic or Collective Servo Actuator) from Aircraft in accordance with the applicable Bell® 206L Series Aircraft Maintenance Manual referenced in paragraph 1.K.

B. Inspect HSA (Cyclic or Collective Servo Actuator) in accordance with the applicable Bell® 206L Series Aircraft Maintenance Manual referenced in paragraph 1.K.



ITEM	NOMENCLATURE	PART NUMBER	QTY
1.	BEARING (PREGROOVED)	C42642-68	2

Field Replacement Instructions for Pregrooved Bearings P/N C42642-68
Figure 1

C. Inspect Bearings (1, Figure 1) in accordance with the following Table 1., Bearing Wear Limits. Radial wear is measured 90° from the bolt mating with inner race of spherical ball of bearings (1). Axial wear is measured parallel to the bolt mating with inner race of spherical ball of bearing (1).

Table 1. Bearing Wear Limits

BEARINGS PART NUMBER	RADIAL		AXIAL	
	(INCH)	(CM)	(INCH)	(CM)
C42642-68	None	None	0.010	(0,0254)

D. Remove and replace worn Bearings (1, Figure 1) on HSA in accordance with the following:

(1) Remove worn bearings (1). Support parent part so that bending cannot occur. It is recommended that both Bearings (1) be replaced as completed sets.

(2) Inspect parent part for damage around and in bores for cracks and remove all burrs and sharp edges. Verify that 0.9060 to 0.9065 inch (2,3012 to 2,3025 cm) diameter is maintained.

(3) Perform Fluorescent Penetrant Inspection in accordance with ASTM E1417, Type I. Acceptance shall be per MIL-STD-1907, Grade A.

(4) Apply wet Zinc Chromate Primer coating (TT-P-1757) to outside diameter of bearings (1).

(5) Anvil Stake or Roll Swage bearings (1) as follows:

NOTE: The following staking or swaging methods are optional and equivalent tools may be used.

(a) Anvil Stake bearings (1) using Anvil Staking Tool (P/N AT-5-441, Cabco Industries) with 9,000 to 13,500 pounds of force, flush to 0.005 inch (0,0127 cm) from cylinder extension chamfer.

(b) Roll Swage bearings (1) using Roll Swage Tool (P/N T101530-3, Bell® Helicopter Textron Inc.) at standard drill press speed of 60 to 250 RPM, flush to 0.005 inch (0,0127 cm) from cylinder extension chamfer.

(6) Apply 100 ± 5 pounds (45,359 ± 2,267 kg) proof load to outer race of bearings (1) while supporting cylinder extension. Outer race shall not move relative to cylinder extension. If any movement occurs, repeat step (5)(a) or step (5)(b).

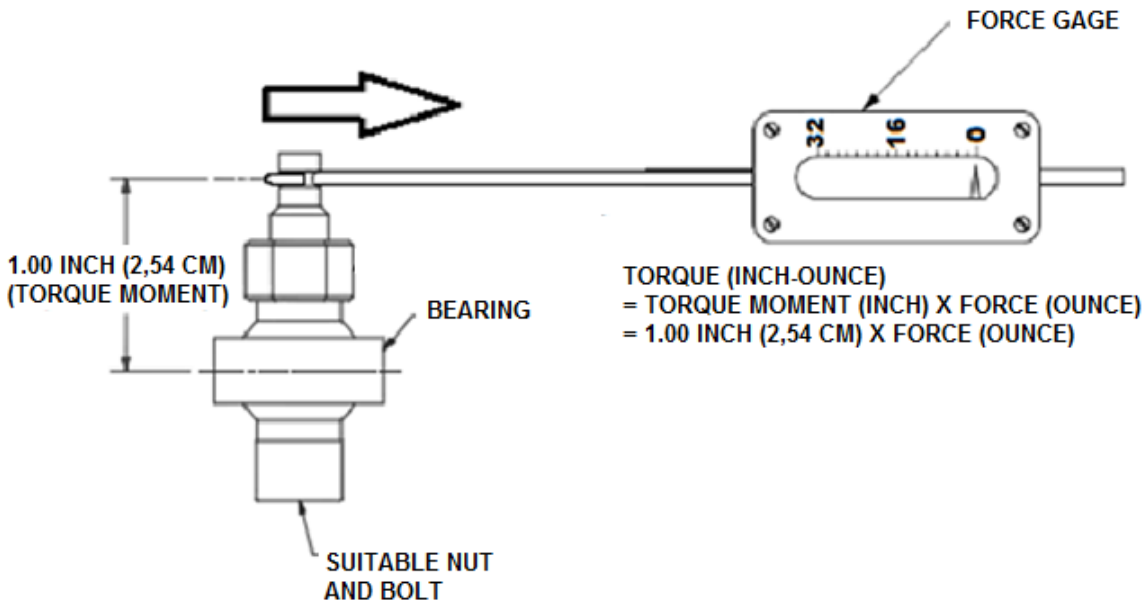
(7) Mark bearings (1) that pass proof load with a green dot using Torque Seal (F-900GRE) after proof load is completed.

(8) Using feeler gage or equivalent, inspect gap between the bearings (1) and cylinder extension chamfer. Maximum allowable gap is 0.005 inch (0,0127 cm). Visually inspect bearings and cylinder extension mating area for cracks with minimum of 10x magnification.

(9) Mark bearings that meet the 0.005 inch (0,0127 cm) maximum gap requirement with a blue dot using Torque Seal (F-1000).

(10) Check bearings misalignment breakaway torque as shown in Figure 2. Misalignment breakaway torque shall be 4 to 24 inch-ounce (0,0282 to 0,1694 N•m) force with no radial play or axial play permitted for newly installed bearings.

(11) Mark bearings that pass misalignment breakaway torque checks with yellow dot using Torque Seal (F-900YEL).



CAUTION: BREAKING THE SPHERICAL BALL FREE FROM THE OUTER RACE OF THE BEARING BEFORE CHECKING TORQUE IS VERY IMPORTANT. DUE TO THE PRELOAD BETWEEN THE BALL AND RACE, THE TEFLON LINER, UNDER COMPRESSION, SLOWLY CONFORMS TO THE MICROSCOPIC SURFACE IRREGULARITIES OF THE BALL. TO INITIATE MOVEMENT AFTER A PERIOD OF TIME, ALL OF THE MICROSCOPIC LINER PROJECTIONS INTO THE BALL SURFACE MUST BE SHEARED OFF. ONCE THIS HAS BEEN ACCOMPLISHED, THE TORQUE REVERTS BACK TO ITS RATED/SERVICEABLE VALUE.

MANUALLY MOVE BALL IN SEVERAL DIRECTIONS IMMEDIATELY BEFORE INSPECTION.

DO NOT ROTATE BALL ABOUT ITS CENTERLINE OR ROTATE AT HIGH SPEED TO BURN-IN MISALIGNMENT BREAKAWAY TORQUE VALUE.

NOTE: Misalignment breakaway torque is defined as the force required to start movement of ball in a mode other than rotation about the bore centerline.

Bearing Misalignment Breakaway Torque Inspection
Figure 2

E. Inspect Cylinder Extension Anti-Rotation Pads for Solid Film Lubricant damage. Cylinder Extension Anti-Rotation Pads shall not be less than 0.665 inch (1,689 cm) minimum as shown in Figure 1. Damage shall not exceed 5% of surface area. If required, spray or brush on new Solid Film Lubricant (MIL-L-23398) 0.0002 to 0.0004 inch (0,02 to 0,04 mil) thick. Cure in accordance with manufacturer's instructions.

F. Re-install HSA (Cyclic or Collective Servo Actuator) in accordance with the applicable Bell® 206L Series Aircraft Maintenance Manual referenced in paragraph 1.K.

G. Functional Check HSA (Cyclic or Collective Servo Actuator) in accordance with the applicable Bell® 206L Series Aircraft Maintenance Manual referenced in paragraph 1.K.

H. Enter the accomplishment of this Service Bulletin in the applicable documents.

I. Closeout Job.