



A Textron Company

ALERT SERVICE BULLETIN

430-21-60

13 July 2021

MODEL AFFECTED: 430

SUBJECT: MAIN ROTOR PITCH LINK ASSEMBLY CLEVIS AND UNIVERSAL BEARING, INSPECTION OF.

HELICOPTERS AFFECTED: Serial numbers 49001 through 49129.

COMPLIANCE:

PART I: Within 25 flight hours or 30 days whichever comes first after the release date of this bulletin.

PART II: Within 50 flight hours and every 50 flight hours thereafter after accomplishment of PART I.

PART III: Within 150 flight hours and every 150 flight hours thereafter after accomplishment of PART I.

DESCRIPTION:

This ASB mandates a one-time magnetic particle inspection of the main rotor pitch link assembly clevis 430-010-432-101, a one-time inspection of the universal bearing 212-010-412-001, a recurring visual inspection of the clevis and a recurring inspection of the universal bearing.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

CONTACT INFO:

For any questions regarding this bulletin, please contact:

Bell Product Support Engineering
Tel: 1-450-437-2862 / 1-800-363-8023 / productsupport@bellflight.com

MANPOWER:

Approximately 8.0 man-hours are required to complete PART I of this bulletin.
 Approximately 2.0 man-hours are required to complete PART II of this bulletin.
 Approximately 3.0 man-hours are required to complete PART III of this bulletin.
 This estimate is based on hands-on time and may vary with personnel and facilities available.

WARRANTY:

There is no warranty credit applicable for parts or labor associated with this bulletin.

MATERIAL:**Required Material:**

The following material is required for the accomplishment of this bulletin and may be obtained through your Bell Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>
430-010-432-101	Clevis	A/R (1)
212-010-412-001	Universal Bearing	A/R (1)

NOTE 1: A quantity of four (4) may be required, depending on the results of the Inspection and accumulated time in service.

Consumable Material:

The following material is required to accomplish this bulletin, but may not require ordering, depending on the operator's consumable material stock levels. This material may be obtained through your Bell Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>	<u>Reference *</u>
2400-00017-00	Grease, General Purpose	A/R (1)	C-001
2110-07015-00	Solvent, Degreaser	1 GAL (1)	C-304
2100-00044-00	MIL-C-16173 Grade 1	1 PT (1)	C-101
2100-09016-02	MIL-C-16173 Grade 2	1 PT (1)	C-104
1650-03296-00	Wire, Safety. 0.032"	Roll (5LB) (1)	C-405

* C-XXX numbers refer to the consumables list in the BHT-ALL-SPM, Standard Practices Manual

NOTE 1: The quantity indicated is the format the product is delivered in. Actual quantity required to accomplish the instructions in this bulletin may be less.

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

Not applicable.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-430-MM, Maintenance Manual.

BHT-430-CR&O, Component Repair and Overhaul Manual.

BHT-ALL-SPM, Standard Practice Manual.

PUBLICATIONS AFFECTED:

BHT-430-MM Maintenance Manual, Chapter 5 and 62.

ACCOMPLISHMENT INSTRUCTIONS:**PART I: Main rotor pitch link assembly clevis and universal bearing inspection.**

1. Prepare the helicopter for maintenance.
2. Remove the main rotor pitch link assemblies (BHT-430-MM, Chapter 62).

-NOTE-

At disassembly of the pitch link omit removal of the inserts from the tube.

3. Disassemble the main rotor pitch link assembly (BHT-430-CR&O, Chapter 62).
4. Examine the clevis and rod end for wear and damage (BHT-430-CR&O, Chapter 62).

CAUTION

A worn, stiff or damaged universal bearing may cause an increase in vibrations that may lead to accelerated wear or damage to other components. In extreme cases and over time, excessive bending loads may be transferred to the clevis as a result of a stiff or degraded universal bearing due to insufficient lubrication. It is critical that the purge greasing requirements of the universal bearing be adhered to. (BHT-430-MM, Chapter 12). **The following purge greasing intervals shall not be exceeded.**

The 25-hour purge greasing interval specified in BHT-430-MM, Chapter 12 is the maximum interval permitted under normal operation. It is necessary to decrease the interval of servicing when the operating conditions are more severe. A salt-laden environment would be considered as a severe operating condition. Refer to the Corrosion Control Guide CSSD-PSE-87-001 Para 10-2 with regards to the Frequency of Cleaning.

Purge-greasing of the universal bearings shall be carried out after each day of operation in rain, snow or after washing helicopter to remove any trapped moisture.

Purge greasing of the universal bearings shall be carried out every 7 days for helicopters parked outside in a heavy dew environment to remove any trapped moisture.

-NOTE-

The universal bearing should rotate smoothly and be free of binding. Some slight ratcheting may be felt when turning the bearing. This slight ratcheting felt throughout the whole rotation is considered normal; however, an elevated force (or no force) felt in a specific zone during the full rotation of the bearing is cause for rejection. Replace any universal bearing that exceeds the axial and radial play limits or displays signs of binding.

5. Remove the universal bearings and inspect for wear, damage, looseness as well as the radial and axial play (BHT-430-CR&O, Chapter 62).
6. If a universal bearing is being replaced due to signs of binding or stiffness, then the associated clevis that has accumulated more than 5,000 hours time-in-service shall also be replaced. Clevises with less than 5,000 hours may remain in service and only the associated stiff or binding universal bearings need to be replaced. Clevises with more than 5,000 hours may remain in service if the associated universal bearing is deemed serviceable without any signs of stiffness or binding.
7. Purge grease the bearings of each universal bearing ensuring all four grease fittings allow for grease purging.
8. Carry out a magnetic particle inspection of the four clevises as follows:
 - a. Use a gauss meter to verify that the residual magnetization of the part is three gauss or less. Demagnetize as needed.
 - b. Pre-clean the part. Remove all contaminants from the clevises. Utilize a stiff bristle brush to clean the threaded area. Verify thread roots are clean using up to 10X magnifying glass.
 - c. Carry out a magnetic particle inspection of the clevises as shown in Figure 1 and Figure 2. Perform a demagnetization between Shot #1 and Shot #2, and again upon completion of the inspection. Refer to BHT-ALL-SPM, Chapter 6, for additional information about the magnetic particle inspection procedures.
 - d. Use a 10X magnifying glass under UV lighting to inspect neck and thread root areas. When inspecting threads, check only root areas after Shot #2; top of threads may have fluorescence. If excessive fluorescence is observed on the threads that have been in contact with the coil, flip the part 180 degrees and perform Shot #2 again.
 - e. Replace any clevises that have signs of cracking and report to Bell Product Support Engineering.
9. If no anomalies are found during the magnetic particle inspection, carry out selective brush cadmium plating to replace any missing cadmium plating. Following the brush cadmium plating, apply the chromate conversion coating (BHT-ALL-SPM, Chapter 3).
10. Assemble the main rotor pitch link assemblies (BHT-430-CR&O, Chapter 62).
11. Install the main rotor pitch link assemblies (BHT-430-MM, Chapter 62).
12. Carry out main rotor track and balance adjustments (BHT-430-MM, Chapter 18).

13. Make an entry in the helicopter logbook and historical service records indicating findings and compliance with PART I of this Alert Service Bulletin.

PART II: Main rotor pitch link assembly clevis 10X visual recurring inspection.

1. Prepare helicopter for maintenance.
2. Clean the main rotor pitch link clevises prior to inspection with solvent (C-304). Use a stiff bristle brush to loosen deposits if necessary and dry with filtered, low pressure compressed air. Ensure the root of the threads are free from any contaminants.
3. Carry out a detailed visual inspection of the neck and threaded area of the installed pitch link clevises using a 10X magnifying glass (Figure 3). Inspect for corrosion and mechanical damage (BHT-430-CR&O, Chapter 62).

-NOTE-

Any suspected defects found during the 10X inspection must be investigated further by carrying a magnetic particle inspection (MPI) of the clevis in accordance with PART I instructions.

4. Replace any clevises that are beyond published limits and report to Bell Product Support Engineering.
5. Make an entry in the helicopter logbook and historical service records indicating findings and compliance with PART II of this Alert Service Bulletin.

PART III: Main rotor pitch link assembly universal bearing recurring inspection.

1. Prepare helicopter for maintenance.
2. Remove main rotor pitch links assemblies (BHT-430-MM, Chapter 62).

CAUTION

A worn, stiff or damaged universal bearing may cause an increase in vibrations that may lead to accelerated wear or damage to other components. In extreme cases and over time, excessive bending loads may be transferred to the clevis as a result of a stiff or degraded universal bearing due to insufficient lubrication. It is critical that the purge greasing requirements of the universal bearing be adhered to. (BHT-430-MM, Chapter 12). **The following purge greasing intervals shall not be exceeded.**

The 25-hour purge greasing interval specified in BHT-430-MM, Chapter 12 is the maximum interval permitted under normal operation. It is necessary to decrease the interval of servicing when the operating conditions are more severe. A salt-laden environment would be considered as a severe operating condition. Refer to the Corrosion Control Guide CSSD-PSE-87-001 Para 10-2 with regards to the Frequency of Cleaning.

Purge-greasing of the universal bearings shall be carried out after each day of operation in rain, snow or after washing helicopter to remove any trapped moisture.

Purge greasing of the universal bearings shall be carried out every 7 days for helicopters parked outside in a heavy dew environment to remove any trapped moisture.

-NOTE-

The universal bearing should rotate smoothly and be free of binding. Some slight ratcheting may be felt when turning the bearing. This slight ratcheting felt throughout the whole rotation is considered normal; however, an elevated force (or no force) felt in a specific zone during the full rotation of the bearing is cause for rejection. Replace any universal bearing that exceeds the axial and radial play limits or displays signs of binding.

3. Remove the universal bearings and inspect for wear, damage, looseness as well as the radial and axial play (BHT-430-CR&O, Chapter 62).

4. If a universal bearing is being replaced due to signs of binding or stiffness, then the associated clevis that has accumulated more than 5,000 hours time-in-service shall also be replaced. Clevises with less than 5,000 hours may remain in service and only the associated stiff or binding universal bearings need to be replaced. Clevises with more than 5,000 hours may remain in service if the associated universal bearing is deemed serviceable without any signs of stiffness or binding.
5. Purge grease the bearings of each universal bearing ensuring all four grease fittings allow for grease purging.
6. Assemble main rotor pitch link assemblies (BHT-430-CR&O, Chapter 62).
7. Install main rotor pitch links assemblies (BHT-430-MM, Chapter 62).
8. Make an entry in the helicopter logbook and historical service records indicating findings and compliance with PART III of this Alert Service Bulletin.

Clevis part number 430-010-432-101	Material: CRES 15-5PH
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Shot #1	Shot #2
Central bar through clevis holes	Coil shot, bottom of 5-turn coil
600 Amps – Demagnetize before Shot #2	400 Amps

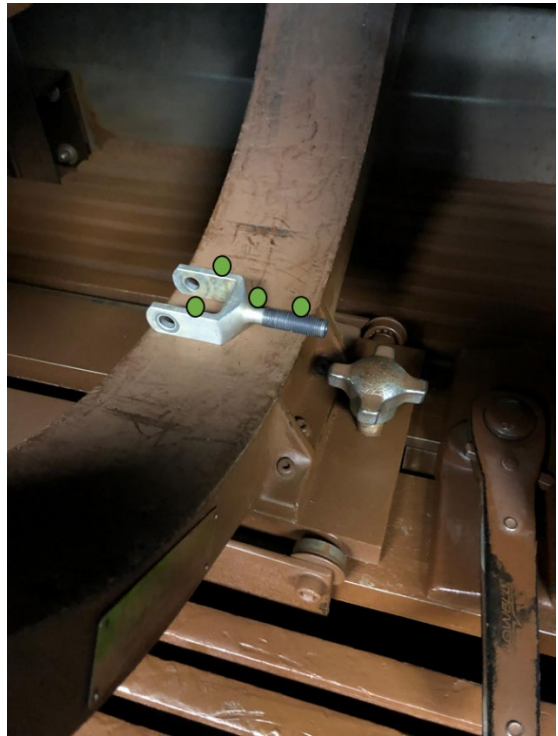


Figure 1 – Magnetic Particle Inspection (MPI)

● Hall effect probe locations, >30 gauss

NOTES:

1. Verify that the magnetization of the part is three gauss or less.
2. Preclean the part (BHT-ALL-SPM). Remove all contaminants from the clevis utilizing a stiff bristle brush to clean threaded areas. Ensure the thread roots are clean using up to 10X magnification.
3. Carry out the magnetic particle inspection as defined above. Demagnetize after Shot #1 inspection, and again after Shot #2 inspection
4. Use up to 10X magnification under ultraviolet (UV) light to inspect neck and thread root areas. While inspecting threads, check only root areas after Shot #2; top of threads may have fluorescence. If excessive fluorescence is observed on the threads that have been in contact with the coil, flip the part 180 degrees and perform Shot #2 again.

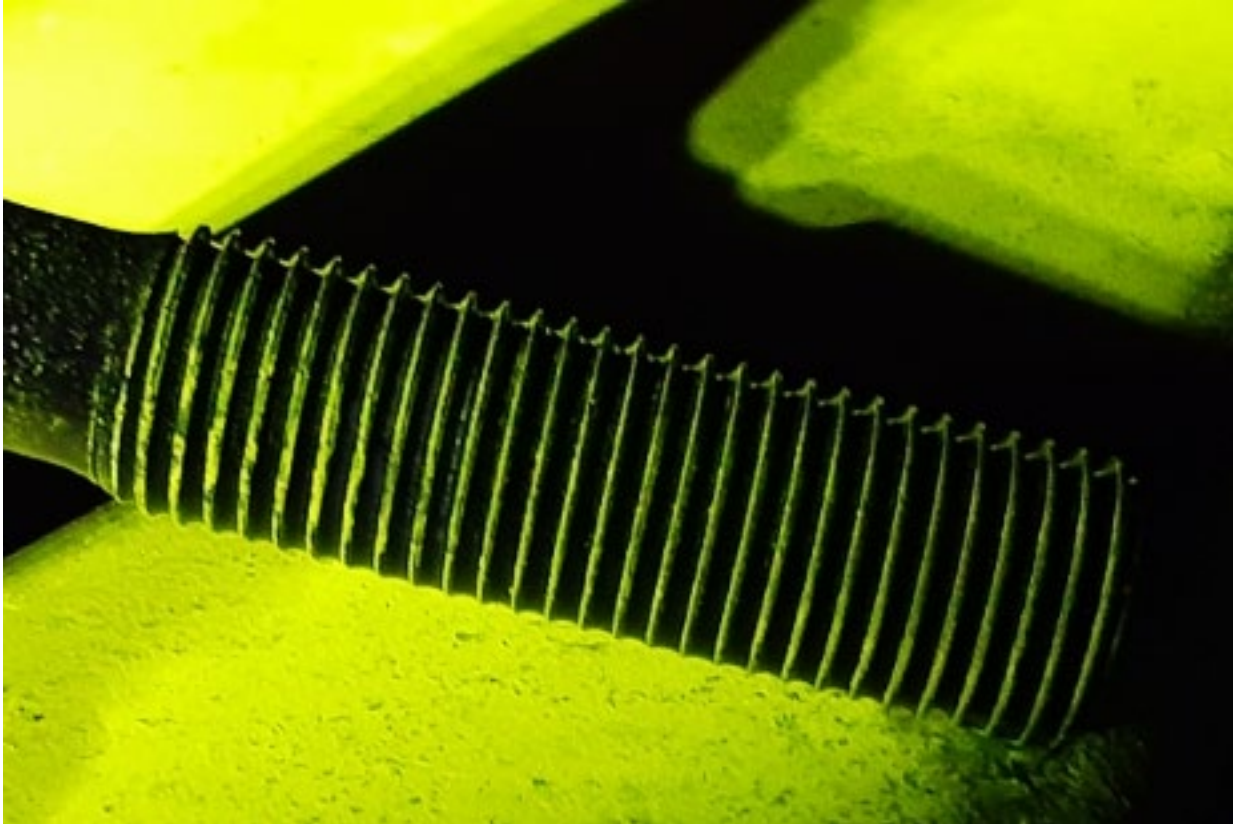
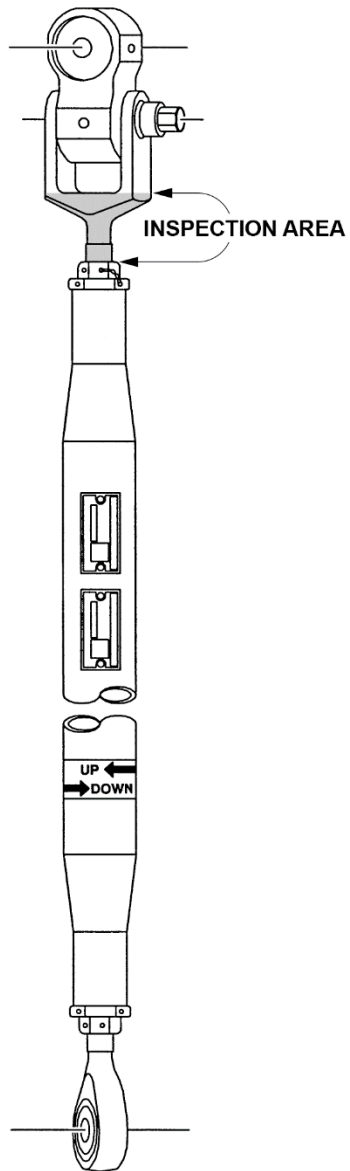


Figure 2 – Photo of Shot #2 of Magnetic Particle Inspection (MPI)

NOTES:

1. Top of threads may show fluorescence. Inspect root areas for indication of cracking.
2. Due to the fine threads on the clevis, it is recommended that the inspection of the root areas be accomplished using a 10X magnifying glass under UV lighting.



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Figure 3 – Main Rotor Pitch Link Assembly Clevis 10X Inspection Area