Bell Helicopter
A Textron Company

ALERT SERVICE BULLETIN 222-10-109

18 August 2010
Revision A, 30 August 2011

MODEL AFFECTED: **222/222B**

SUBJECT: **HYDRAULIC SERVOACTUATOR P/N 222-382-001-107 MANUFACTURED BY WOODWARD HRT, INSPECTION OF**

HELICOPTERS AFFECTED: **Model 222 helicopter serial numbers 47006 through 47089 and all spares.**

Model 222B helicopter serial numbers 47131 through 47156 and all spares.

COMPLIANCE: Upon reaching one calendar year or 1200 hours following actuator inspection per original bulletin

DESCRIPTION:

Bell Helicopter Textron has received one report that a main rotor hydraulic servo malfunctioned during ground run, prior to flight. The helicopter was shutdown and no additional damage to the aircraft occurred. Subsequent investigation revealed that the collective actuator piston rod had fractured at the threaded end. The fracture was due to corrosion.

This bulletin introduces a one time inspection of all servo actuators to verify the condition of the piston rod. The inspection may be accomplished by the operator in accordance with the procedure listed in the attached vendor Alert Service Bulletin 141600-67-2.

Due to uncontrollable circumstances, Revision A of this bulletin requires operators, whose actuators fall within the one year or 1200 hours category, to perform another inspection of affected actuators to verify the condition of the piston rod. The inspection may be accomplished by the operator in accordance with the procedure listed in Woodward HRT Alert Service Bulletin 141600-67-2.

Applicability of this bulletin to any spare part shall be determined prior to its installation on an aircraft.

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:

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MANPOWER:

Approximately 4 man-hours per servo actuator are required to complete 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 Helicopter Textron Supply Center.

Part Number	Nomenclature	Qty
222-382-001-107	Actuator	A/R

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 Helicopter Textron Supply Center.

Part Number	Nomenclature	Qty	Reference *
250, 1.00 wide	Tape, high adhesion	A/R	Note 3
Acetone Gallon	Acetone (Note 1)	A/R	C-316
AMS-S-8802 6OZ	Sealant	A/R	C-308

NOTES:

1. As alternate, Toluene (C-306), MEK (C-309) or Solvent (C-304) may be used. However, use of Alcohol is prohibited.

2. Materials listed above are either equivalent or alternate to those listed in Woodward HRT bulletin.
3. Available from any 3M supply store under No. 250, Flatback, high adhesion.

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

SPECIAL TOOLS:

Work-Aids have to be manufactured locally or purchased directly from the vendor. Refer to Woodward Alert Service Bulletin 141600-67-2 for details.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-222/222B-MM-1 Maintenance Manual
Woodward ASB 141600-67-2
Technical Bulletin 222-98-160 Rev A

PUBLICATIONS AFFECTED:

None affected.

ACCOMPLISHMENT INSTRUCTIONS:

-NOTE-

This inspection does not apply to servo actuators manufactured by MOOG (formerly E-Systems).

-NOTE-

The inspection per Revision A of this bulletin does not apply to servo actuators which fall within the two years or 2400 hours category

1. Remove applicable cowlings to gain access to the lateral, longitudinal and collective servo actuators. Refer to BHT-222/222B-MM-1.

2. Locate the identification plate on each actuator to determine the part number and manufacturer of the component.

3. Review aircraft records to determine the time since the inspection of the actuator(s) per original bulletin requirement.

4. Remove all affected servo actuators from the aircraft. Refer to BHT-222/222B-MM-1.

CAUTION

Actuator disassembly and reassembly should be accomplished in a clean room to prevent FOD and contamination.

5. Following instruction listed in Woodward Alert Service Bulletin 141600-67-2, perform disassembly of actuator per accomplishment Instruction, Section A, Part 1.

6. Following instruction listed in Woodward Alert Service Bulletin 141600-67-2, clean and inspect Piston Rod Assembly and Nut of each actuator except as follows:

-NOTE-

Servo actuators affected by Revision A of this bulletin, are those which were not reworked by application of Brush Cadmium plating per Woodward Alert Service Bulletin 141600-67-2 Accomplishment Instructions, Section B, Part II, step 4.5. and were protected only by a coat of primer during assembly per Section C Part III, Step 1.2.

a) Clean entire piston rod per WHRT ASB, Accomplishment Instructions, Section B, Part II, step 1.
b) Perform inspection of nut per WHRT ASB, Accomplishment Instructions, Section B, Part II, step 3.
c) Without removing the primer and using a 10X or greater magnifying glass, inspect the piston rod assembly in the total area identified in Figure 7 of WHRT ASB for corrosion. Any corrosion or damage in this area is cause for rejection of the piston rod and the complete actuator must be returned for overhaul.
d) Provided no corrosion or damage exists, remove all the primer from the entire area of the piston rod using scotch brite (3M Scotch Brite, Clean and Finish Roll – White). Clean part using Acetone and nylon bristle brush to remove any residue.
e) Using a 10X or greater magnifying glass, inspect the piston rod assembly for the total area identified in Figure 7 of WHRT ASB for pitting in the base material. Any pitting is cause for rejection of the piston rod and the complete actuator must be returned for overhaul.

f) If the piston rod assembly meets the inspection criteria per sub-steps a through e above, proceed with assembly of dual servo actuator assembly In accordance with Woodward Alert Service Bulletin 141600-67-2 Accomplishment Instructions, Section C, Part III, steps 1 through 3 inclusively.

g) Upon completion of the above, identify the servo actuator with the letter “A” after the letter “B” following the serial number on the name plate using a scribe or vibrating stylus.

-NOTE-

Following compliance with Revision A of this bulletin, all affected servo actuators will require a complete overhaul at the next 1 year/ 1200 hours

7. Annotate the historical card of each affected actuator indicating the date of accomplishment of the inspection per Revision A of this bulletin and indicate when the actuator must be removed for overhaul.

8. Reinstall actuator(s) on the aircraft. Refer to BHT-222/222B-MM-1.

9. Perform Hydraulic System operational check. Refer to BHT-222/222B-MM-1, Chapter 29.

10. Make an entry in helicopter historical service records indicating compliance with Revision A of this Alert Service Bulletin..