FAA
Aviation Safety

EMERGENCY AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/

DATE: July 8, 2011
AD #: 2011-15-51

Send to all U.S. owners and operators of Bell Helicopter Textron Canada (Bell) Model 407 and 427 helicopters.

This Emergency Airworthiness Directive (AD) is prompted by a report that a quality escape by a supplier has occurred and certain hydraulic servo actuators (servo) may have a loose nut, shaft, and clevis assembly due to improper lock-washer installation. An investigation after an accident revealed the clevis nut on the servo was loose. This condition, if not detected, could lead to a malfunction of a servo in the flight control system and subsequent loss of control of the helicopter.

We have reviewed Bell Alert Service Bulletin (ASB) 407-11-96 and 427-11-35, both dated June 29, 2011, which specify the part numbers and serial numbers of the affected servos and refer to ASB 407-05-70, Revision A, dated November 10, 2005; ASB 427-05-12, Revision A, dated November 14, 2005; with HR Textron Service Bulletin (SB) 41011300-67-01, Revision 2, dated November 9, 2005; HR Textron SB 41011400-67-01, Revision 2, dated November 9, 2005; and HR Textron SB 41011700-67-01, Revision 2, dated November 9, 2005, attached. The ASBs also specify reidentifying the servos with a "67-01" on the modification plate indicating the inspection procedures were followed.

Transport Canada, the airworthiness authority for Canada, notified the FAA that an unsafe condition may exist on these helicopter models. Transport Canada advises that a quality escape by a supplier has occurred, and a number of servos may have a loose nut, shaft, and clevis assembly. Transport Canada states in its AD that the loose connection is due to improper lock washer installation, which is not traceable or identifiable except by inspection. The authority also states a disconnect of the affected parts may lead to loss of control of the helicopter. Transport Canada classified the ASBs as mandatory and issued AD No. CF-2011-17, dated June 30, 2011, to ensure the continued airworthiness of these helicopters.

These helicopters have been approved by the aviation authority of Canada and are approved for operation in the United States. Pursuant to our bilateral agreement, Canada has notified us of the unsafe condition described in the AD. We are issuing this AD because we evaluated all information provided by Canada and determined the unsafe condition exists and is likely to exist or develop on other helicopters of these same type designs. Therefore, this AD requires before further flight for certain affected servos and within 25 hours time-in-service for certain other affected servos, identified by a serial number, retracting the boot and inspecting the servo as follows:

- Applying only hand pressure, determining whether the nut, shaft, or clevis assembly turns independently. If the shaft turns independently of the nut or the clevis assembly, before further flight, replacing the servo with an airworthy servo.

- If the shaft does not turn independently, inspecting to determine whether at least one tab of a lock washer is bent flush against a flat surface of the nut and at least one tab of the lock washer is bent flush against a flat surface of the clevis assembly.

- If at least one lock washer tab is not aligned and bent flush with a flat surface of the nut and at least one lock washer tab is not aligned and bent flush with a flat surface of the clevis assembly, before further flight, replacing the servo with an airworthy servo.

- If any tab of the lock washer is not bent flush against either a flat surface of the nut or clevis assembly, bending the tab flush against a flat surface.

- Reidentifying the servo by metal-impression stamping or by vibro etching "67.01" onto the modification plate.

- Before installing a servo with a P/N and S/N identified in this AD, not identified by "67-01" on the modification plate, inspecting it by following the requirements of this AD.

The actions must be done by following specified portions of the alert service bulletins described previously.

This AD differs from Transport Canada AD in that we do not require that the servo be returned to the manufacturer. Also, we do not limit the applicability to specific serial-numbered helicopters. We have specified the inspection requirements rather than referring to the applicable service bulletins. The AD requires that the servo be replaced before further flight, and the Transport Canada AD refers to the ASB, which requires that the servo be replaced within 300 hours time-in-service.

This rule is issued under 49 U.S.C. Section 44701 pursuant to the authority delegated to me by the Administrator, and is effective immediately upon receipt of this emergency AD.

2011-15-51 BELL HELICOPTER TEXTRON CANADA: Directorate Identifier 2011-SW-038-AD.

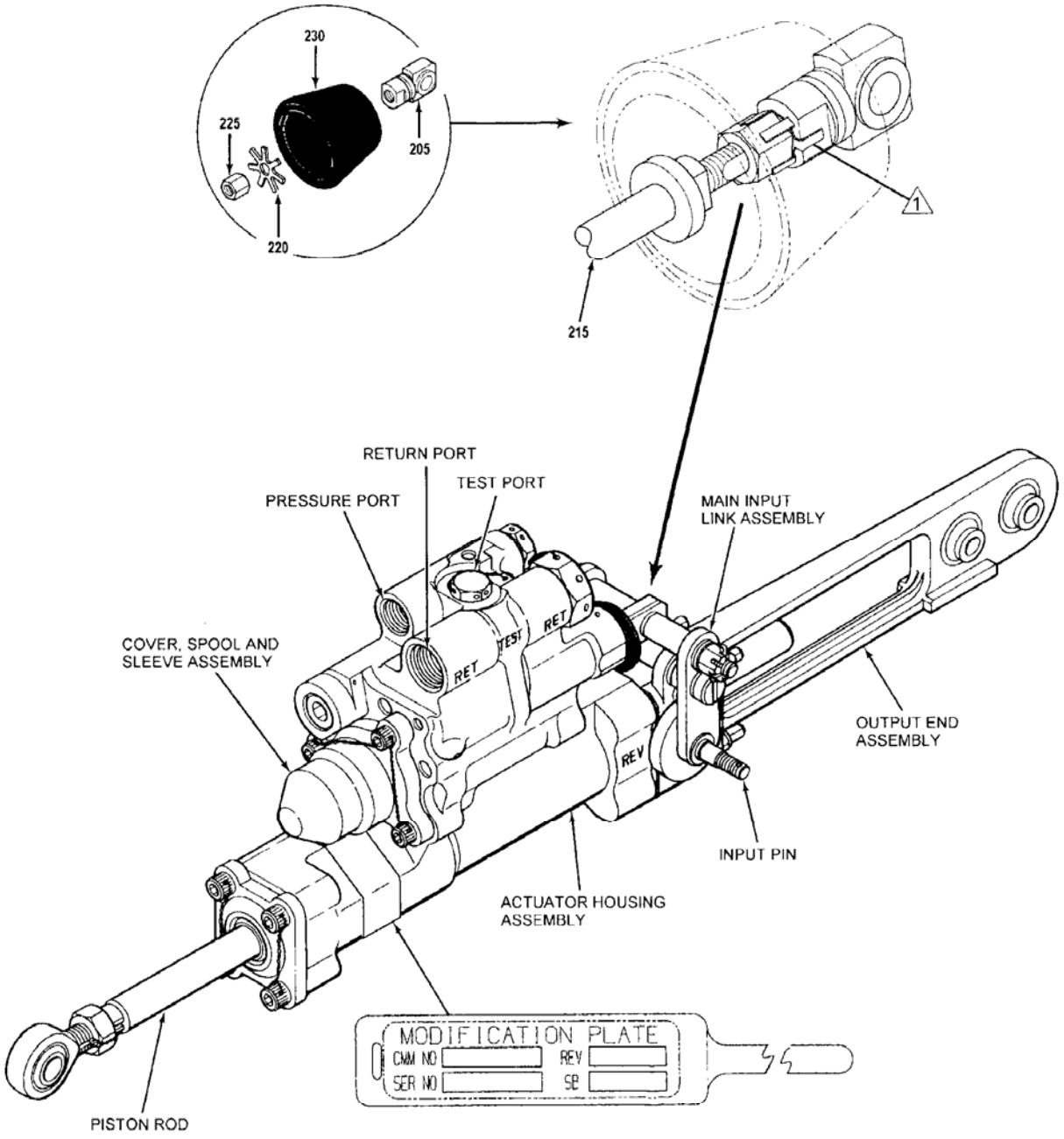
Applicability: Model 407 helicopters with a hydraulic servo actuator assembly (servo), part number (P/N) 206-076-062-105, or -107 and Model 427 helicopters, with servo, P/N 206-076-062-109 or -111, installed, certificated in any category.

Compliance: Required as indicated, unless accomplished previously.

To detect loose or misaligned parts of the servo that could lead to failure of the servo and subsequent loss of control of the helicopter, do the following:

(a) Before further flight, for those helicopters with a servo serial number (S/N) on the modification plate listed in Table 1 of Bell Alert Service Bulletin (ASB) No. 407-11-96, dated June 29, 2011, for the Model 407 helicopters or Table 1 of ASB 427-11-35, dated June 29, 2011, for the Model 427 helicopters, do the following:

(1) Retract the boot depicted as "230" in Figure 1 of this AD:



NOTE:

1 ACCEPTABLE CONDITION
A MINIMUM OF ONE TAB SHALL BE IN LINE AND BENT FLUSH WITH THE NUT FLAT SURFACE AND A MINIMUM OF ONE TAB SHALL BE IN LINE AND BENT FLUSH WITH THE CLEVIS ASSEMBLY FLAT SURFACE

Clevis Assembly
Figure 1

Legend:
205 Clevis Assembly
215 Shaft
225 Nut
220 Lock Washer
230 Boot

Note 1. Bell ASB 427-05-12, Revision A, dated November 14, 2005; HR Textron SBs 41011300-67-01, 41011400-67-01, and 41011700-67-01, all Revision 2, all dated November 9, 2005, which are not incorporated by reference, contain information pertaining to the subject of this AD.

(2) Applying only hand pressure, determine whether the nut, shaft, or clevis assembly, depicted as "225," "215," and "205," respectively, in Figure 1 of this AD, turns independently. If the shaft turns independently of the nut or the clevis assembly, before further flight, replace the servo with an airworthy servo.

(3) If the shaft does not turn independently, inspect to determine whether at least one tab of the lock washer is bent flush against a flat surface of the nut and at least one tab of the lock washer is bent flush against a flat surface of the clevis assembly.

(i) If at least one lock washer tab is not aligned and bent flush with a nut flat surface and at least one lock washer tab is not aligned and bent flush with a flat surface of the clevis assembly, before further flight, replace the servo with an airworthy servo.

(ii) If any tab of the lock washer is not bent flush against either a flat surface of the nut or clevis assembly, bend the tab flush against a flat surface.

(4) After accomplishing paragraph (a)(1) through (a)(3) of this AD, reidentify the servo by metal-impression stamping or by vibro etching "67-01" onto the modification plate.

(b) For those servo P/Ns with a S/N less than the S/Ns listed in the following Table A of this AD but NOT specifically included in the list of S/Ns in Table 1 referenced in paragraph (a) of this AD, within 25 hours time-in-service, inspect the nut, shaft, and clevis assembly and accomplish the requirements of paragraphs (a)(1) through (a)(4) of this AD.

Table A

Helicopter Model	Servo P/N	Servo Prefix "HR," S/N
407	41011300-101 (BHT 206-076-062-105)	Less than 807
	41011400-101 (BHT 206-076-062-107)	Less than 2248
427	41011300-101 (BHT 206-076-062-111)	Less than 807
	41011700-101 (BHT 206-076-062-109)	Less than 230

(c) Before installing a servo with a P/N and S/N identified in paragraphs (a) or (b) of this AD, not identified by "67-01" on the modification plate, inspect the servo by following the requirements of this AD.

(d) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Contact the Manager, Safety Management Group, FAA, ATTN: Matt Wilbanks, Aviation Safety Engineer, 2601 Meacham Blvd, Fort Worth, Texas 76137, telephone (817) 222-5051, fax (817) 222-5961, for information about previously approved alternative methods of compliance.

(e) The Joint Aircraft System/Component (JASC) Code is: 6730: Rotorcraft Servo System.

(f) Copies of the applicable service information may be obtained from Bell Helicopter Textron Canada Limited, 12,800 Rue de l'Avenir, Mirabel, Quebec J7J1R4, telephone (450) 437-2862 or (800) 363-8023, fax (450) 433-0272, or at http://www.bellcustomer.com/files/.

(g) Emergency AD 2011-15-51, issued July 8, 2011, becomes effective upon receipt.

Note 2: The subject of this AD is addressed in Transport Canada AD CF-2011-17, dated June 30, 2011.

FOR FURTHER INFORMATION CONTACT: Matt Wilbanks, Aviation Safety Engineer, 2601 Meacham Blvd, Fort Worth, Texas 76137, telephone (817) 222-5051, fax (817) 222-5961.

Issued in Fort Worth, Texas, on July 8, 2011.

Kim Smith,
Manager, Rotorcraft Directorate,
Aircraft Certification Service.