



A Textron Company

## **ALERT SERVICE BULLETIN**

**407-21-125**

**PSL # 661**

28 September 2021

**MODEL AFFECTED:** 407

**SUBJECT:** COLLECTIVE PITCH TRANSDUCER 412-074-101-107, INTRODUCTION OF.

**HELICOPTERS AFFECTED:** Serial numbers 54304, 54567, 54805 through 54969.

[Serial number 54970 and subsequent will have the intent of this bulletin accomplished prior to delivery.]

**COMPLIANCE:** Within 300 flight hours or 6 months, whichever occurs first following the release date of this bulletin.

### **DESCRIPTION:**

Bell has been made aware, and has been investigating, a condition where engine parameter oscillations and FADEC faults can occur during flight operations of the 407GX<sub>i</sub> variant of the model 407. To correct the possibility of these occurrences, Bell has redesigned the collective pitch transducer assembly. This Alert Service Bulletin (ASB) provides instructions to replace the 412-074-101-103 transducer by the new 412-074-101-107 transducer on all affected helicopters.

### **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](mailto:productsupport@bellflight.com)

## MANPOWER:

Approximately 2.0 man-hours are required to complete this bulletin. This estimate is based on hands-on time and may vary with personnel and facilities available.

## WARRANTY:

Owners / Operators of Bell Helicopters who comply with the instructions in this bulletin will be eligible to receive non prorated replacement part as applicable, listed in the MATERIAL section bulletin. Bell has recently introduced enhancements to the "My Bell Portal" which allocates specific warranty entitlement for an aircraft by serial number. The Product Service Letter (PSL) number which will be listed below the bulletin number on the introduction page. This is going to be a required field when submitting a claim on the Bulletins Tab for replacement parts, labor, and/or freight. If you receive an ASB or TB that does not have a PSL number, then there is no warranty entitlement for that bulletin.

**Labor entitlement:** Yes, two (2) labor hours for replacement and install at \$ 95 USD per hour

To receive parts, labor, under warranty:

- Comply with the instructions contained in this Bulletin no later than the applicable date in the "compliance section".
- If there is a PSL number identified in the bulletin you will be required to enter this PSL number which will validate warranty entitlement for the selected aircraft. Please ensure that you use the Bulletin tab when you file your claim.

**NOTE:** Customers who fail to comply with the instructions in this Bulletin before **28 February 2022** will not be eligible for the special warranty listed above.

## 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</u>
412-074-101-107	Transducer	1

### 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>
2100-00349-00	Corrosion Preventative Compound	2.5 OZ (1)	C-101
2100-00350-00	Corrosion Preventative Compound	2.5 OZ (1)	C-104

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

**NOTE 1:** Quantity indicated is the format that the product is delivered in. Actual quantity required to accomplish the instructions in this bulletin may be less than what has been delivered.

**SPECIAL TOOLS:**

None required.

**WEIGHT AND BALANCE:**

Not affected.

**ELECTRICAL LOAD DATA:**

Not affected.

**REFERENCES:**

407-MM Maintenance Manual, Chapter 25 and 76.  
BHT-407-MD-3, Manufacturer's Data, Section 1.

**PUBLICATIONS AFFECTED:**

BHT-407-IPB, Illustrated Parts Breakdown, Chapter 76.  
407-MM, Maintenance Manual, Chapter 76.

**ACCOMPLISHMENT INSTRUCTIONS:**

1. Prepare the helicopter for maintenance.
2. Verify helicopter records to determine what collective pitch transducer (CPT) part number is currently installed on affected helicopters. If the CPT installed is 412-074-101-103 go to step 3. If the part number of the CPT installed is the 412-074-101-107, go to step 13.
  - a. If determination of the CPT part number installed on the affected helicopter cannot be accomplished by verification of the helicopter records, go to step 3.
3. Remove the copilot seat and seat back ([DMC-407-A-25-10-00-00A-520A-A](#)).
4. Remove copilot crew seat panel.

5. Verify part number of installed CPT.

- a. If the CPT part number installed is 412-074-101-103 go to step 6.
- b. If the CPT part number installed is 412-074-101-107, install the copilot crew seat panel and copilot seat and seat back ([DMC-407-A-25-10-00-00A-720A-A](#)) and go to step 13.

-NOTE-

All 407GX<sub>i</sub> variants of the model 407 (i.e. the helicopters affected) have been built and delivered with the provisions of the Automatic Flight Control System (AFCS) Kit (407-706-061 or 407-706-067).

6. Remove 412-074-101-103 transducer ([DMC-407-A-76-05-06-00A-520A-A](#)).

7. Install 412-074-101-107 transducer as follows (Figure 1):

- a. Loosen the nut (14).
- b. Adjust the collective pitch transducer (4R1) (6), as applicable, to obtain a 6.12 inch (155.4 mm) dimension between the centers of the grounded bearing and adjustable rod end bearing with the collective pitch transducer movable rod at the mid stroke position (Figure 1, Detail B).
- c. Tighten the nut (14).
- d. Make sure the clamp assembly (12) has not moved and is not loose on the collective jackshaft (13). If the clamp assembly is loose or has moved, position the clamp assembly ([DMC-407-A-76-05-06-00A-276A-A](#)).
- e. Position the collective stick in the full down position.
- f. Position the collective pitch transducer (4R1) (6), as applicable, between the support (7) and the clamp assembly (12).

-NOTE-

The head of the bolt (2) must point outboard when installed.

- g. Apply corrosion preventative compound (C-104) to shank of bolt (2) (Figure 1, Note 1). Install the spacer (3) and the bolt (2) through the support (7) and the collective pitch transducer (4R1) (6), as applicable.
- h. Install the washer (5) and the nut (4) on the bolt (2). Tighten the nut.

- i. Before you install the collective pitch transducer (4R1) (6), as applicable, to the clamp assembly (12), make sure the collective pitch transducer rod end will fit the clamp assembly mounting hole position with the collective full up and the collective full down without causing restriction to collective travel or damage to the collective pitch transducer.

-NOTE-

The head of the bolt (10) must point outboard when installed.

- j. Apply corrosion preventative compound (C-104) to shank of bolt (10) (Figure 1, Note 1). Install the spacer (11) and the bolt (10) through the collective pitch transducer (4R1) (6), as applicable, and the clamp assembly (12).
- k. Install the washer (9) and the nut (8). Tighten the nut.
- l. Apply corrosion preventative compound (C-101) to all bolt heads (2 and 10), washers (3, 5, 9, and 11), nuts (4 and 8), exposed threads of bolts (2 and 10), and nut (14) (Figure 1, Note 2).
- m. Remove protective caps and/or plugs from the collective pitch transducer electrical connector (4R1J1) (1).
- n. Connect the collective pitch transducer electrical connector (4R1J1) (1). Fold and secure the excess connector harness wiring with lacing cord or plastic cable ties.

-NOTE-

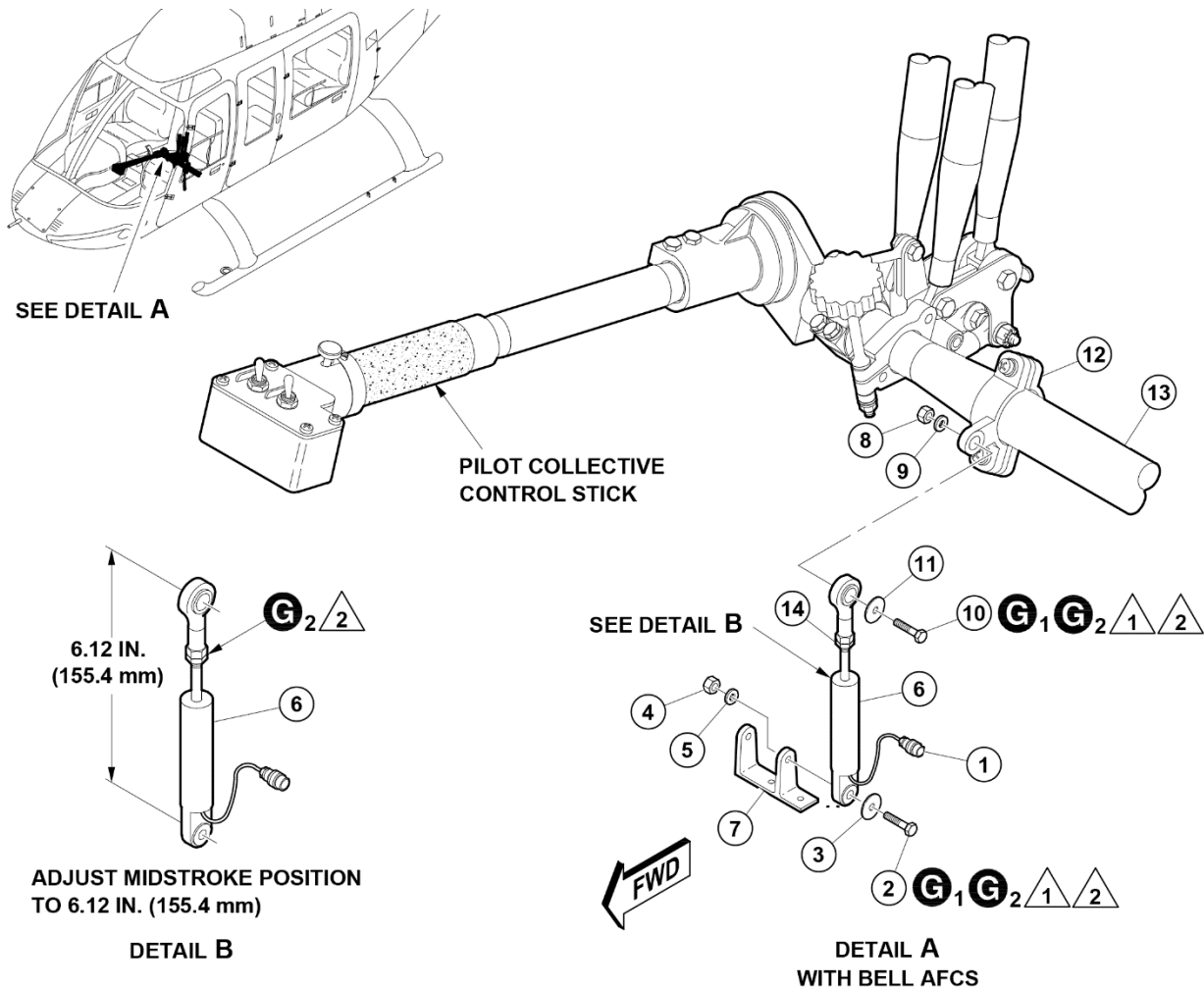
If the Maintenance Terminal required to perform the functional test of the CPT is not available, the CPT values of Channel A and Channel B that are displayed on the Bell Maintenance Pages (OEM Diagnostics) under ENG/ECU ACTIVE DATA (Figure 2) can be used. Information on how to access the Data Status of the Bell Maintenance Pages are found in the 407-MM Maintenance Manual ([DMC-407-A-95-64-08-00A-042A-A](#)) or the BHT-407-MD-3 Manufacturer's Data (Section 1-15 and 1-15-B).

8. Perform functional test of transducer ([DMC-407-A-76-05-06-00A-340B-A](#)).
9. Install copilot crew seat panel.
10. Install the copilot seat and seat back ([DMC-407-A-25-10-00-00A-720A-A](#)).
11. Apply electrical power to the helicopter. Make sure no active current faults exist. This can be accomplished by waiting for completion of the FADEC system self-test and positioning the throttle to idle. If no FADEC Crew Alerting System (CAS) messages

are illuminated with the throttle positioned to idle, no current faults exist. If a fault is displayed, refer to [DMC-407-A-76-01-00-00A-422A-A](#).

12. Perform the check run procedure [DMC-407-A-76-01-00-00A-320A-A](#).

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



1. Electrical connector (4R1J1)
2. Bolt
3. Spacer
4. Nut
5. Washer
6. Collective pitch transducer (4R1)
7. Support
8. Nut
9. Washer
10. Bolt
11. Spacer
12. Clamp assembly
13. Collective jackshaft
14. Nut

**G<sub>1</sub>** CORROSION PREVENTIVE COMPOUND (C-104)

**G<sub>2</sub>** CORROSION PREVENTIVE COMPOUND (C-101)

#### NOTES

**1** Apply a coating of corrosion preventive compound (C-104) to all bolt shanks prior to installation. Do not apply corrosion preventive compound to bolt threads.

**2** Apply a coating of corrosion preventive compound (C-101) to all bolt heads, washers, nuts and exposed threads after installation.

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**Figure 1 – Collective Pitch Transducer (CPT) Installation**



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Figure 2 – Bell Maintenance Page – ENG/ECU ACTIVE DATA