

**ALERT SERVICE BULLETIN**

REVISION NOTICE

**Bell Helicopter** **TEXTRON**

A Subsidiary of Textron Inc.

DATE 02-06-03

**TO: All Owners/Operators of Bell 407 Helicopters**

**SUBJECT: REVISION "B" TO ALERT SERVICE BULLETIN 407-03-57: (TAIL ROTOR GEARBOX CASE 406-040-406-109, /-113 OIL FEED HOLE FOR DUPLEX BEARING 406-040-432-103, ADDITION OF**

Revision "B" to this bulletin adds the tail rotor gearbox case P/N 406-040-406-113 to the PART I and PART II of the ACCOMPLISHMENT INSTRUCTIONS section.

Note:

Hard copies of the original version and Rev "A" of this bulletin have never been issued.

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AN APPROPRIATE ENTRY SHOULD BE MADE IN THE AIRCRAFT LOG BOOK UPON ACCOMPLISHMENT  
IF OWNERSHIP OF AIRCRAFT HAS CHANGED PLEASE FORWARD TO NEW OWNER

**ALERT SERVICE BULLETIN**

**Bell Helicopter** **TEXTRON**

A Subsidiary of Textron Inc.

**NO.** 407-03-57

**DATE** January 20, 2003

**PAGE** 1 of 9

**DATE** 02-06-03

**REV** "B"

**MODEL AFFECTED:** 407

**SUBJECT:** TAIL ROTOR GEARBOX CASE 406-040-406-109, /113 OIL FEED HOLE FOR DUPLEX BEARING 406-040-432-103, ADDITION OF. **A**

**HELICOPTERS AFFECTED:** Model 407 helicopters serial number 53000 through 53498, 53500 through 53522, 53524 and 53526.  
  
[Model 407 helicopters serial numbers 53499, 53523, 53525 and 53527 and subsequent will have the intent of this bulletin accomplished prior to delivery.]

**COMPLIANCE:** **PART I:**  
  
For tail rotor gearbox case consigned in spare stock, determine if your case is affected.  
  
For affected helicopter, accomplish PART I of this bulletin within 50 flight-hours or 30 days whichever comes first. **A**

**PART II:**

For the affected tail rotor gearbox case consigned in spare stock, do **PART II** of this bulletin prior to the installation on the helicopter.

For the affected tail rotor gearbox case installed on the helicopter that has less than 1800 flight-hours since new or last overhaul, accomplish **PART II** of this bulletin when you reach 1800 flight-hours since new or since overhaul whichever comes first.

For the affected tail rotor gearbox case installed on the helicopter that has 1800 flight-hours or more

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since new or last overhaul, accomplish **PART II** of this bulletin within 50 flight-hours or 30 days whichever comes first.

**DESCRIPTION:**

It has been determined that the oil feed gallery for duplex bearing 406-040-432-103 can be missing from the tail rotor gearbox case 406-040-406-109 and -113. Even though this duplex bearing is splash lubricated, this situation reduces the oil supply required to lubricate the duplex bearing 406-040-432-103 and can result in a bearing failure if not corrected.

This bulletin is issued to locate, identify and rework the suspected cases.

PART I of this bulletin gives instructions to determine if your case is affected by this bulletin.

PART II of this bulletin gives a procedure to drill the missing oil feed gallery while the tail rotor gearbox is disassembled.

**APPROVAL:**

The engineering design aspects of this bulletin are Transport Canada approved.

**MANPOWER:**

Approximately 3 man-hours are required to accomplish Part I of this bulletin.

Approximately 14 man-hours are required to accomplish Part II of this bulletin if the tail rotor gearbox is installed on the helicopter.

Approximately 1 man-hour is required to accomplish Part II of this bulletin during overhaul.

Man-hours are based on hands-on time and can change because of the personnel and facilities available.

**WARRANTY:**

Owners/operators of 407 helicopters who comply with the instructions outlined in this bulletin will receive a special 100% warranty credit for the replacement part/kit contained in the "Required Material" section of this bulletin.

To receive this credit:

- Purchase the required part from an approved BHTI supply source.
- Comply with the instructions contained in this bulletin no later than January 22, 2008.
- Submit a completed malfunction report to BHTI Warranty no later that 30 days after completion of this bulletin.

**Note:** Customers who fail to comply with the instruction in this bulletin after 5 years from bulletin issue are not eligible for the special warranty credit provisions listed above.

## 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 I

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
M83248/1-038	PACKING	1

### PART II

Order the kit **CA-407-03-57** that includes the parts that follow:

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
406-040-432-103	BEARING	1
M83248/1-125	PACKING	1
M83248/1-234	PACKING	1
M83248/1-123	PACKING	1
406-340-105-101	SEAL	1
M83248/1-254	PACKING	1
206-340-401-101	WEAR SLEEVE	1
406-040-452-101	PELLET	2
M83248/1-011	PACKING	1
M83248/1-907	PACKING	2
M83248/1-903	PACKING	1
M83248/1-916	PACKING	1
M83248/1-209	PACKING	1

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**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.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Reference</u>
	Chemical Film Treatment (DOW #19) (NOTE 1)	C-103
TT-N-95TYII 1GAL	SOLVENT	C-304

NOTE 1. Refer to BHT-ALL-SPM

**SPECIAL TOOLS:**

**A** Drill guide set P/N 407-240-017-101 is necessary for one-time-use and can be rented through your Bell Helicopter Textron Supply Center"

6 inches long Short fluted twist drill bit 5/32 inch or equivalent drill 0.156 inch (3.962 mm) diameter.

"Drill Stop" 5/32 inch (3.962 mm) or equivalent.

**ELECTRICAL LOAD DATA:**

Not affected

**REFERENCES:**

BHT-407-MM, Rev. 12, 08 May 2001.

Chapter 65, Tail Rotor Drive.

BHT-407-CR&O, Rev 1, 15 December 1997.

Chapter 65, Tail Rotor Drive.

**PUBLICATIONS AFFECTED:**

None affected

**ACCOMPLISHMENT INSTRUCTIONS:**

**PART I: Identification of the affected tail rotor gearbox cases 406-040-406-109 and 113.** | B

1. Open the access door on the bottom of the tail rotor gearbox fairing (BHT-407-MM, Chapter 53).
2. Refer to Figure 1 for the part number of the tail rotor gearbox case.
  - a. If the case part number is not 406-040-406-109 or -113, this bulletin is completed. Close the access door and continue with Step 11.
  - b. If the case part number matches the part number 406-040-406-109 or -113, continue with Step 3 below.
3. Gain access to the tail rotor gearbox (BHT-407-MM, Chapter 53).
4. Remove the tail fin (BHT-407-MM, Chapter 53).

**-NOTE-**

You do not need to remove the tail rotor hub and blade assembly to accomplish this inspection

5. Remove the pitch change mechanism (BHT-407-MM, Chapter 67).
6. Remove the duplex bearing outer race output nut (BHT-407-CR&O, Chapter 65).
7. Check if the tail rotor gearbox case has an oil feed gallery as shown in Figure 1 of this bulletin.
  - a. If the case has an oil feed gallery, this bulletin is completed, continue with Step 8 below. Use a vibrating stylus and re-identify the case assembly as follows:

406-040-406-109FM or -113FM

- b. If the oil feed gallery is missing from the case, do PART II of the ACCOMPLISHMENT INSTRUCTIONS within the compliance time.
8. Install the output duplex bearing outer race nut (BHT-407-CR&O, Chapter 65).

9. Install the pitch change mechanism (BHT-407-MM, Chapter 67).
10. Install the tail fin (BHT-407-MM, Chapter 53).
11. Make an entry in the helicopter technical records to show that PART I of this bulletin is completed.

**B | PART II: Affected tail rotor gearbox cases 406-040-406-109 and -113**

1. Remove the tail rotor gearbox assembly (BHT-407-MM, Chapter 65).
2. Disassemble the tail rotor gearbox assembly (BHT-407-CR&O, Chapter 65).

-NOTE-

Discard the output shaft duplex bearing after removal.

3. Clean the gearbox case. Make sure that paint or sealant is fully removed from the gearbox surface that contacts with the drill guide.
4. Install the drill guide tool 407-240-017-101 on the gearbox case assembly and attach with the existing hardware (Figure 2).

NOTE-

With a light and a mirror make sure the drill bit tip is protruding into the scopper.

5. Position and set a drill stop  $4.50 \pm 0.030$  inches ( $114.3 \pm 0.76$  mm) from the point of a short fluted twist drill bit. Lubricate drill with cutting oil and drill the oil feed gallery in the gearbox case.

-NOTE-

Duplex bearing liner can be nicked as the gallery is drilled. This is not detrimental to the liner. Use a Swiss fill and remove sharp edge.

6. Remove the drill guide tool 407-240-017-101.
7. De-burr the sharp edges of the hole.
8. Fully clean the gearbox case. Make sure that no unwanted material stays in the cavities.

9. Apply Corrosion Preventive (DOW #19) (C-103) to reworked area (BHT-ALL-SPM, Chapter 3).

10. Use a vibrating stylus and re-identify the case assembly as follows:

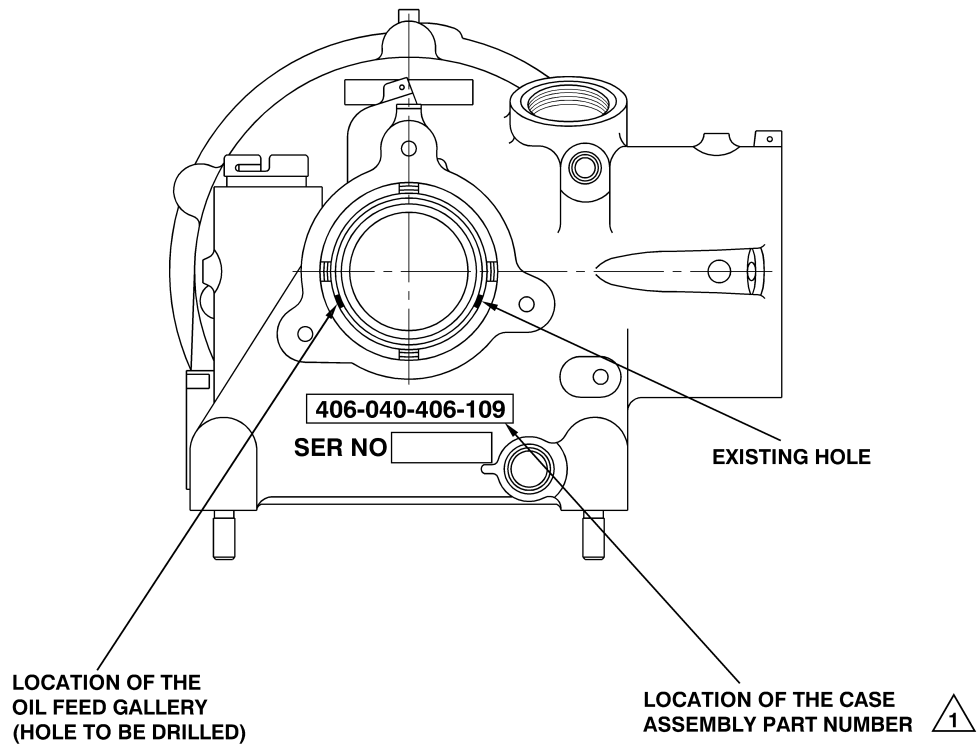
406-040-406-109FM or 113FM

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11. Assemble the tail rotor gearbox (BHT-407-CR&O).

12. Make an entry in the helicopter technical records to show that the PART II of this bulletin is completed.

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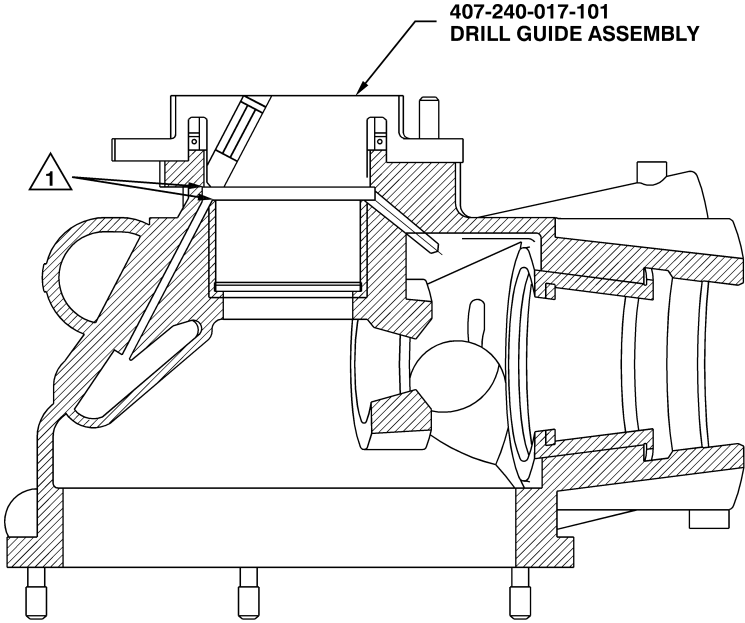
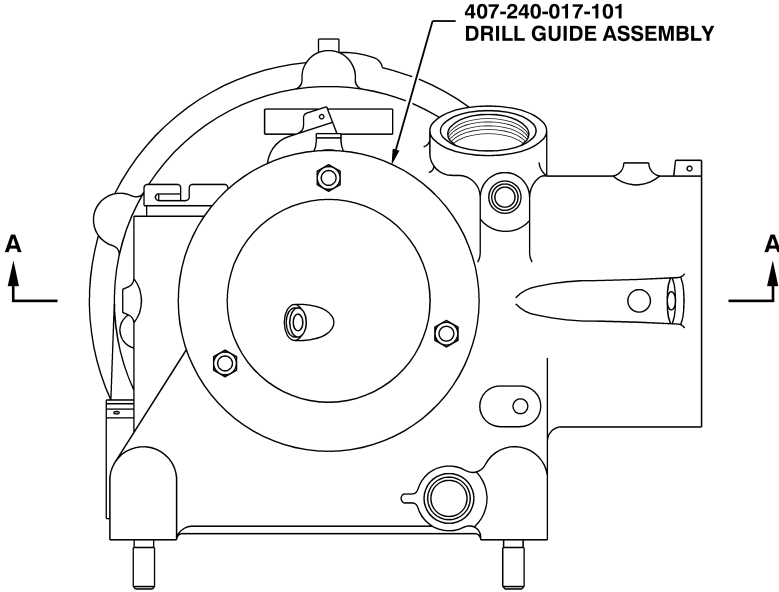


**NOTE**

 Tail rotor gearbox cases 406-040-406-109 and 406-040-406-113 are affected by this bulletin.

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**Figure 1. Location of the oil feed hole**



SECTION A-A

**NOTE**



Duplex bearing liner can be nicked as the gallery is drilled.  
This is not detrimental to the liner. Use a Swiss file and remove sharp edges.

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**Figure 2. Rework of the tail rotor gearbox case**