

TECHNICAL BULLETIN
Bell Helicopter **TEXTRON**
A Subsidiary of Textron Inc.

NO 407-00-21

DATE 02-03-00

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DATE
REV.

MODELS AFFECTED: 407

SUBJECT: **TAIL ROTOR GEARBOX CASE ASSEMBLY,
P/N 406-040-406-101, MODIFICATION OF.**

HELICOPTERS AFFECTED: 407, S/N 53000 through 53391.

[Helicopters 53392 and subsequent will have the intent of this bulletin completed before delivery.]

COMPLIANCE: At the option of the customer. Bell Helicopter recommends that the intent of this bulletin be accomplished at the next scheduled overhaul.

DESCRIPTION:

It has been determined that oil can collect in the case gallery behind the 406-040-432-103 output shaft duplex bearing of the tail rotor (T/R) gearbox during aircraft operation. Oil that collects in this gallery can go into the inner diameter of the T/R output gear shaft, then leak from the area of the T/R control crosshead. Oil can also get trapped in the bottom of the case breather threaded boss, blocking the inlet to the breather. This causes venting to be done through the output shaft, again causing oil leakage at the crosshead.

This bulletin gives a procedure to drill new oil drain holes at these locations, to prevent leakage at the gearbox crosshead.

Tool P/N 407-240-014-103 is a drill guide assembly to drill a 0.156 inch (3.962 mm) diameter hole through the gearbox case at the bearing gallery and tool P/N 407-240-014-105 is a drill guide assembly to drill a 0.187 inch (4.749 mm) diameter hole to drain oil from the vent bore. These tools are available through your Bell Helicopter Supply Center.

APPROVAL:

The engineering design aspects of this Technical Bulletin are Transport Canada approved.

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MANPOWER:

Approximately 1.0 man-hour are required when you do this bulletin during overhaul. Man-hours are based on hands-on time and can vary with personnel and facilities available.

- NOTE -

It is recommended to discard the output shaft duplex bearing after removal. The stress that occurs in the duplex bearing during removal of the shaft can cause damage to the duplex bearing.

MATERIAL:

Required Material:

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

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>QUANTITY</u>
100-071-5	MOD PLATE	1

Consumable Material:

The material that follows is required to do the bulletin. However this material is considered consumable (bench stock) material and may not require ordering depending on the operators consumable material stock levels. This material can be obtained through your Bell Helicopter Textron Supply Center.

<u>PART NUMBER</u>	<u>NOMENCLATURE</u>	<u>REFERENCE NO.</u>	<u>QUANTITY</u>
MAGNABOND 6398 50 GM	Adhesive	C-317	A/R
	Chemical Film Treatment (DOW #19)	C-103	A/R (NOTE 1)
TT-N-95TYII 1GAL	SOLVENT	C-304	A/R

NOTE 1. Refer to Corrosion Control Guide Table C-1, Item B-2.

- NOTE -

The "C" RER. NO. above is a cross-reference found in the Standard Practices Manual.

SPECIAL TOOLS:

Drill guide set P/N 407-240-014-101 includes drill guide tool P/N 407-240-014-103 (Figure 1) and 407-240-014-105 (Figure 2).

Drill guide set P/N 407-240-014-101 is necessary for one-time-use and can be rented through your Bell Helicopter Textron Supply Center.

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

Short fluted twist drill 3/16 inch or equivalent drill 0.187 inch (4.749 mm) diameter. Drill bit must be 6 inches (15.24 mm) or longer.

"Drill Stop" 3/16 inch (0.187 inch), (4.749 mm) or equivalent.

For the tools required to overhaul the tail rotor gearbox, refer to the CR&O Manual.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-407-MM-7, Rev. 8, 01 September 1998 :

Chapter 65, Tail Rotor Drive.

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

Chapter 65, Tail Rotor Drive.

PUBLICATIONS AFFECTED:

BHT-407-MM-7, Rev. 8, 01 September 1998 :

Chapter 65, Tail Rotor Drive.

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

Chapter 65, Tail Rotor Drive.

BHT-407-IPB, Rev. 4, 01 May 1998 :

Chapter 65, Tail Rotor Drive.

ACCOMPLISHMENT INSTRUCTIONS:

- NOTE -

Gearbox 406-040-400-115 must be modified to a 406-040-400-117 FM as per T.B.407-99-18 (DISK PACK COUPLING 407-340-340-101, INTRODUCTION OF.) before you can do the intent of this Technical Bulletin.

1. Drain hole for bearing gallery :
 - a. Remove the tail rotor gearbox (Refer to Maintenance Manual BHT-407-MM-7, Chapter 65).
 - b. Disassemble the tail rotor gearbox assembly (Refer to BHT-407-CR&O, Chapter 65, for instruction).
 - c. Clean the gearbox case. Make sure that paint or sealant is fully removed from the gearbox surface that connects with the drill guide.
 - d. Install the drill guide tool 407-240-014-103 on the gearbox case assembly and attach with the existing hardware (Figure 1).
 - e. Use a short fluted twist drill bit 5/32 inch or equivalent drill 0.156 inch (3.962 mm) diameter. Lubricate the drill with cutting oil to drill the hole through the case.
 - f. Remove the drill guide tool 407-240-014-103.
 - g. Use a Swiss file or equivalent to de-burr the sharp edges of the holes.

2. Drain hole for vent hole bore:
 - a. Make sure that the paint or sealant is fully removed from the gearbox surface that connects with the drill guide.
 - b. Install the drill guide tool 407-240-014-105 on the gearbox case assembly and attach with the existing hardware (Figure 2).

CAUTION

THE DISTANCE BETWEEN DRILL PLATE GUIDE ASSEMBLY 407-240-014-105 AND THE BOTTOM OF THE VENT CAVITY IS 4.50 ± 0.030 INCH (114.300 ± 0.762 MM). ENSURE HOLE DOES NOT EXCEED THIS DEPTH.

- c. Install a drill stop or equivalent at 4.50 ± 0.030 inch (114.300 ± 0.762 mm) from the point of a short fluted twist drill bit $3/16$ inch or equivalent drill 0.187 inch (4.749 mm) diameter. Lubricate drill with cutting oil and drill a hole to the bottom of the vent cavity. (Figure 2).
 - d. Remove the drill guide tool 407-240-014-105.
 - e. Use a Swiss file or equivalent to de-burr the sharp edges of the hole.
3. Fully clean the gearbox case. Make sure that no unwanted material stays in the cavities
4. Apply Corrosion Preventive "DOW #19" (C-103) to reworked area. (Refer to Corrosion Control Guide Manual.)
5. Use a Vibrating stylus, mark the Mod plate 100-071-5 as follows: 407-540-001-101.
6. Apply adhesive (C-317) to the Mod plate 100-071-5.
7. Install the Mod plate on the gearbox (Figure 3).
8. Assemble the tail rotor gearbox (Refer to CR&O Manual).
9. Make an entry in the Helicopter Historical records to show that the tail rotor gearbox case 406-040-406-101 has been modified to 407-540-001-101.

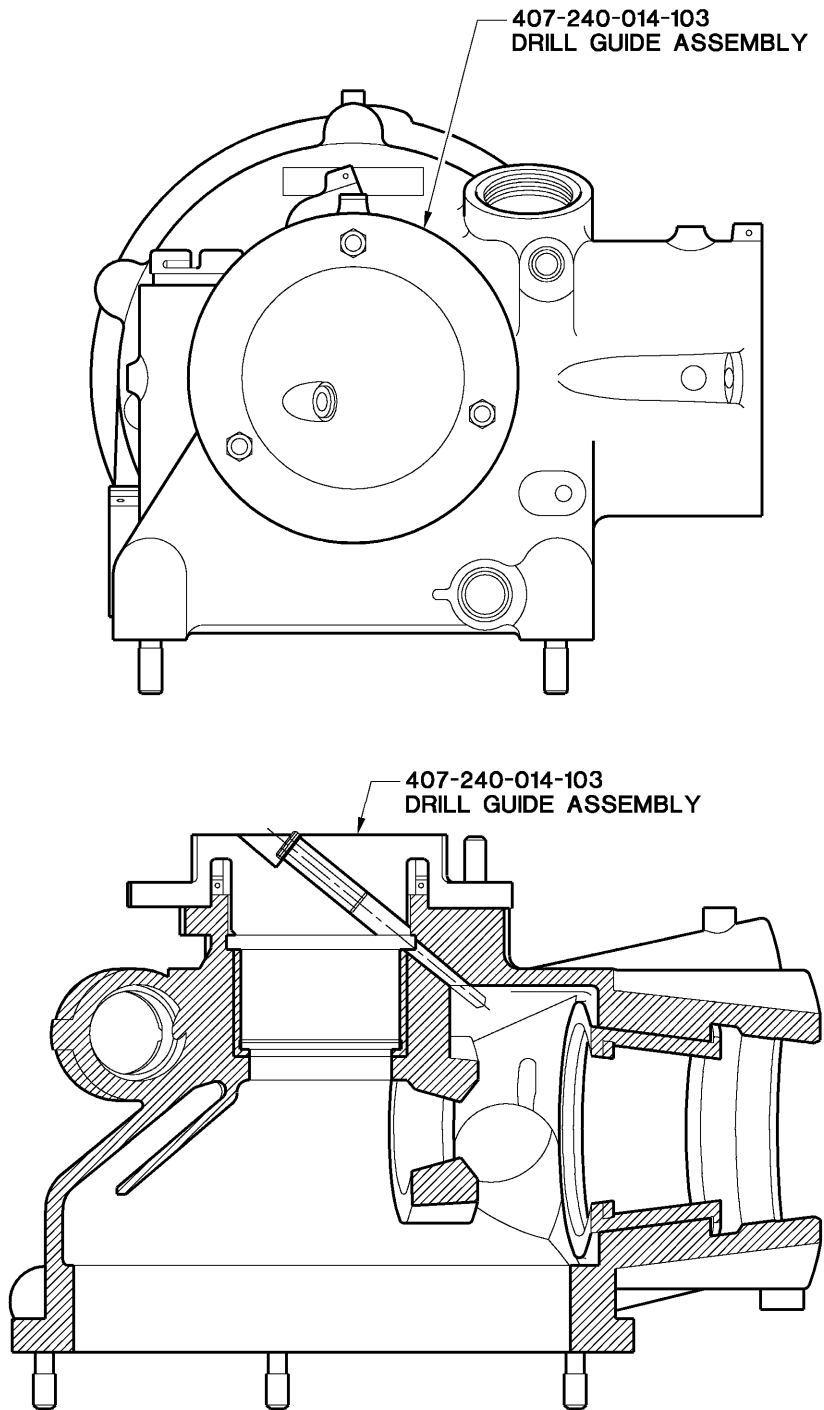
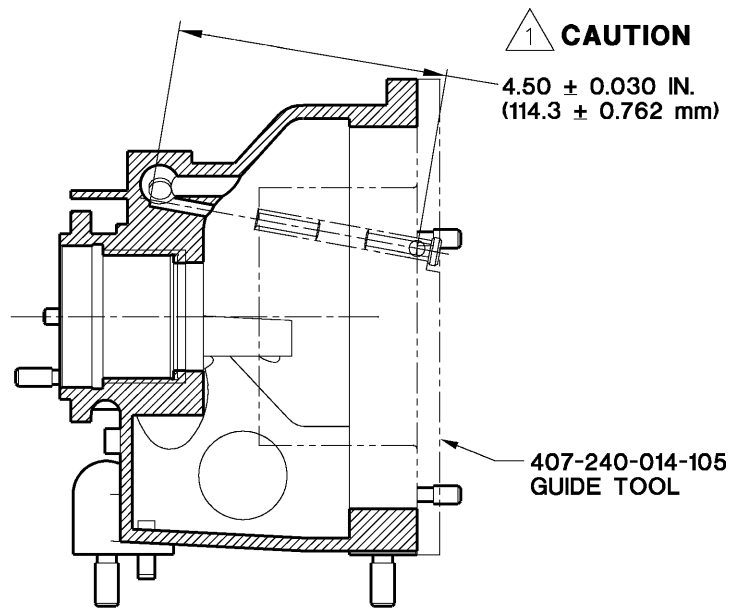
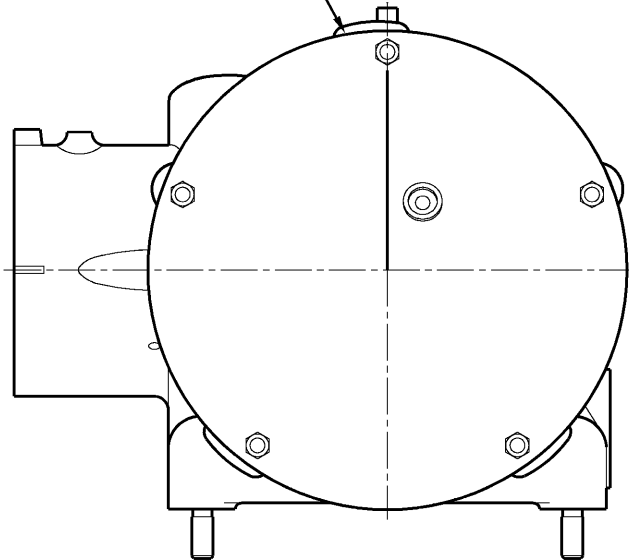


Figure 1. Drill Guide Tool 407-240-014-103

407-240-014-105
DRILL GUIDE ASSEMBLY



NOTE


 The distance between drill plate guide assembly 407-240-014-105 and bottom of vent cavity is 4.50 ± 0.030 inches (114.30 ± 0.762 mm). Ensure hole does not exceed this depth.

Figure 2. Drill Guide Tool 407-240-014-105

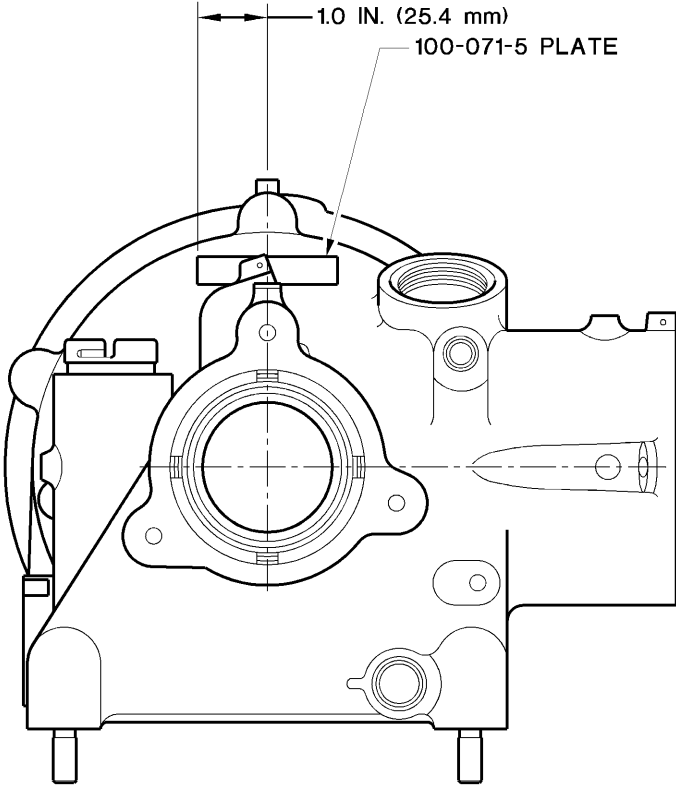


Figure 3. Mod Plate installation