

TECHNICAL BULLETIN
Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

No. 222-99-161

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DATE
REV

MODEL AFFECTED: Model 222/222B

SUBJECT: TAIL ROTOR GEARBOX P/N 222-042-001-007,
-101 AND -103 CONFIGURATION CHANGE
AND UPGRADE

HELICOPTERS AFFECTED: All Model 222/222B Helicopters.

COMPLIANCE: **PART I** Modification of P/N 222-042-410-009
tail rotor gearbox case assembly to
accept the new filler cap with
improved water exclusion
characteristics.

PART II Procedures to upgrade P/N 222-042-
001-007 and -101 tail rotor gearbox
assembly to -103 configuration

DESCRIPTION:

Part I of this bulletin provides information for the modification of 222-042-410-009 tail rotor gearbox case assembly to accept the new oil filler cap assembly P/N 412-040-318-101. This new oil filler cap will improve water exclusion characteristics of all earlier delivered tail rotor gearbox assemblies.

Part II of this bulletin provides information for the modification of earlier configuration tail rotor gearboxes into P/N 222-042-001-103 configuration that is usable across the intermediate fleet (222/222B/222U/230/430).

The tail rotor gearbox 222-042-001-103 is the current spare replacement.

APPROVAL:

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

MANPOWER:

Part 1:

Approximately 2 man-hours are required to accomplish PART I of this bulletin.

Part II:

No man-hour requirements are stated, as the length of time for upgrade will vary with the upgrade required. Upgrades at time of overhaul should result in no addition to man-hour requirements normally incurred.

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>
204-040-506-105	Adapter	1
412-040-318-101	Cap Assembly	1

PART II

Reference ACCOMPLISHMENT INSTRUCTIONS. Material will be available through your Bell Helicopter Supply Center.

Consumable Material:

The following material is required to accomplish 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 may be obtained through your Bell Helicopter Textron Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>"C" Number Ref</u>
EEAY051-20Z	Epoxy Primer	C-204
MILC85285, TYI, 16440	Polyurethane coating	C-245
MS20995C32	Lockwire	C-405

- NOTE -

The "**C**" **Number Ref** is a cross-reference to the consumable list found in the Standard Practices Manual.

SPECIAL TOOLS:

None required

WEIGHT AND BALANCE:

Not affected

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-222/222B-MM-1, Chapter 12 and 71
BHT-222-IPB, Chapter 65
BHT-222B-IPB, Chapter 65
BHT-222 Series CR&O-3, Chapter 65
INFORMATION LETTER GEN-96-55, Revision A
BHT-ALL-SPM

PUBLICATIONS AFFECTED:

BHT-222-IPB, Chapter 65
BHT-222B-IPB, Chapter 65
BHT-222 Series-CR&O-3

ACCOMPLISHMENT INSTRUCTIONS:

PART I

1. Remove the tail rotor gearbox fairings. Refer to BHT-222/222B-MM-1.
2. Drain oil from tail rotor gearbox. Refer to BHT-222/222B-MM-1.

3. Remove pin P/N AN416-2 from hole in gearbox case web and remove P/N 204-040-502-009 oil filler cap with chain. Discard cap and chain. Retain pin.

CAUTION

Do not exceed a temperature of 200°F (93°C).

4. Using heat source, heat the case adjacent to P/N 204-040-506-003 adapter to aid in removal.

CAUTION

During removal of the existing adapter, exercise caution to prevent damage to the gearbox case adapter boss and ingestion of foreign objects and debris into the gearbox.

5. Remove P/N 204-040-506-003 adapter from P/N 222-042-410-009 gearbox case assembly. To remove the adapter, grip the exposed portion of the adapter and pull it from the housing. The adapter may be partially collapsed, if required, to aid in removal.

CAUTION

Do not exceed a temperature of 200°F (93°C).

6. Using heat source, heat 222-042-410 case boss for the oil filler adapter.

- NOTE -

Use liquid nitrogen or a mixture of dry ice and alcohol to cool the oil filler adapter

7. Cool P/N 204-040-506-105 oil filler cap adapter.
8. Coat the internal diameter of case boss with epoxy primer (C-204).

CAUTION

Installation of the adapter in the case must be accomplished by applying force evenly across the oil filler adapter end face. To prevent damage or distortion, use a flat plate and plastic mallet to push the adapter into the case.

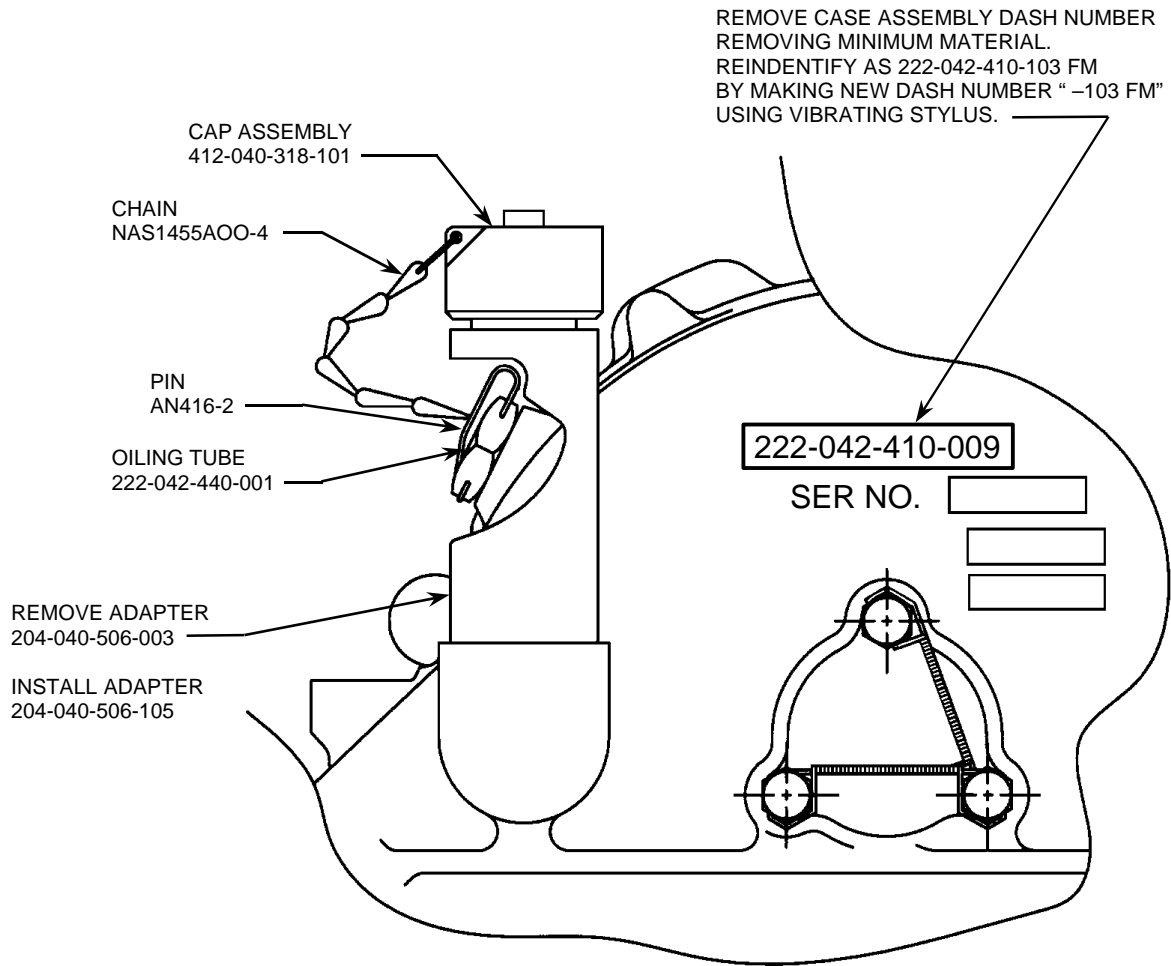
9. Insert new oil filler adapter into case boss.

10. Ensure adapter is fully seated in tail rotor gearbox case. Wipe excess primer from adapter and gearbox case.
11. Using P/N AN416-2 pin, secure chain on oil filler cap assembly P/N 412-040-318-101 to one of the holes in the hex head of P/N 222-042-440-001 oiling tube. Refer to Figure 1.
12. Reidentify tail rotor case assembly 222-042-410-009 as follows:

- NOTE -

The suffix "FM" is added after the dash number to indicate "Field Modified".

- a. Remove case assembly -009 dash number by removing minimum material. Reidentify as 222-042-410-103 FM by making new dash number "-103 FM" using vibrating stylus. The serial number of a field modified part will not be altered or changed. Refer to Figure 1.
 - b. Chemical film treat reworked area as per BHT-ALL-SPM, Table C-1, Item B-2. Touch-up using primer (C-204 or C-246) and topcoat using paint (C-245).
 - c. Reidentify case assembly as 222-042-410-103 FM in the historical records.
13. Service tail rotor gearbox. Refer to BHT-222/222B-MM-1.
 14. Install the tail rotor gearbox fairings. Refer to BHT-222/222B-MM-1.
 15. Make entry in the helicopter historical records indicating compliance with PART I of this Technical Bulletin.



TAIL ROTOR GEARBOX

FIGURE 1

PART II

Upgrading of tail rotor gearbox assembly will require incorporation of PART 1 of this technical bulletin

Table 1 lists the major components of dash numbered configurations, but does not contain parts and hardware common to all configurations. These items are contained in the Illustrated Parts Catalog.

Overhaul Tail rotor gearbox assembly in accordance with Chapter 65, Volume 3 of Model 222 Component Repair and Overhaul Manual.

The upgraded Tail rotor gearbox assembly must have its data plate and Historical Record reidentified to new part number that the Tail rotor gearbox assembly was upgraded to. The suffix "FM" will be added after the part dash number to indicate "field modified". The serial number of field modified part will not be altered or changed.

Example: Upgrade Tail rotor gearbox assembly P/N 222-042-001-007 to the -103 configuration. Reidentify Tail rotor gearbox assembly data plate and Historical Service Record to reflect the field modification: 222-042-001-~~007~~-103 FM. Retain existing serial number.

**Table I
Tail Rotor Gearbox Assembly**

PART NUMBER	NOMENCLATURE				
222-042-001	Gearbox Assembly	007	101	103	NOTES
222-042-001-009	Input Quill assembly	x	x	x	
222-042-001-011	Output Quill assembly	x	x	x	
222-340-059-101	Chip Detector	x			16
430-340-005-101	Chip Detector		x	x	16
204-040-502-009	Cap Assembly	x	x		1
412-040-318-101	Cap Assembly			x	
222-042-400-003	Pinion	x			2
222-042-400-101	Pinion	x			2
222-042-400-103	Pinion		x	x	
222-042-401-101	Gear	x			3
222-042-401-103	Gear	x			3
222-042-401-105	Gear		x	x	
222-042-410-009	Case Assembly	x	x		4 - 5
222-042-410-103	Case Assembly			x	
222-042-412-001	Sleeve Assembly	x			6
222-042-412-101	Sleeve Assembly		x	x	
222-042-411-007	Sleeve Assembly	x			7
222-042-411-101	Sleeve Assembly		x	x	
222-042-443-101	Wear Sleeve	x			8
222-042-443-103	Wear Sleeve		x	x	
2822-32557	Seal	x			9
222-342-401-103	Seal		x	x	10
M83248/1-907	O-Ring		x	x	19
M83248/1-014	O-Ring	x			20
2890-71890	Seal	x			11
222-342-402-101	Seal		x	x	10
29810-8017	Wear Sleeve	x	x	x	12
RR-204	Retaining Ring	x	x	x	13
RR-218C	Retaining Ring	x	x	x	14
RR-334	Retaining Ring	x	x	x	15
HL 209 – 72	Drain Hose	x			17
910-002	Drain Hose		x	x	18

- NOTES -

1. For spare replacement use 412-040-318-101 Cap assembly and comply with PART 1 of this bulletin.
2. For spare replacement, use 222-042-400-103 Pinion.
3. For spare replacement, use 222-042-401-105 Gear.
4. For spare replacement, use 222-042-410-103 Case assembly.
5. Case assembly may be upgraded to P/N 222-042-410-103 configuration with procedures in PART 1 of this bulletin.
6. For spare replacement, use 222-042-412-101 Sleeve assembly.
7. For spare replacement, use 222-042-411-101 Sleeve assembly.
8. For spare replacement, use 222-042-443-103 Wear Sleeve.
9. For spare replacement, use 222-342-401-103 Seal. See note 10.
10. Fill area between Seal lips with Mobil 28 grease prior to seal installation.
11. For spare replacement, use 222-342-402-101 Seal
12. For spare replacement, use P/N 536836 Wear Sleeve.
13. Retaining ring P/N M27426-3150D may be used as an alternate.
14. Retaining ring P/N M27426-3154B may be used as an alternate.
15. Retaining ring P/N M27426-3179A may be used as an alternate.
16. O-Ring P/N M 83248/1-011 is required for installation/sealing of chip detector into it's receptacle housing.
17. Drain hose P/N HL 209-72 is used with chip detector P/N 222-340-059-101.
18. Drain hose P/N HL 910-002 is used with chip detector P/N 430-340-005-101.
19. O-Ring P/N M83248/1-907 is used to install chip detector P/N 430-340-005-101.
20. O-Ring P/N M83248/1-014 is used to install chip detector P/N 222-340-059-101.