

Bell Helicopter **TEXTRON**

A Subsidiary of Textron, Inc.

FEB 01, 2006

TO: All Owners/Operators of Bell 206A/B Series Helicopters

**SUBJECT: REVISION "A" TO TECHNICAL BULLETIN 206-99-168:
(TAIL ROTOR GEARBOX 206-040-402-ALL, UPGRADE AND
CONFIGURATION OF)**

Revision "A" to this Technical Bulletin is introduced to reflect the configuration changes required to upgrade 206A/B series tail rotor gearboxes to a P/N 206-040-402-111.

TECHNICAL BULLETIN

Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

No. 206-99-168

Date 10-01-99

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| DATE FEB 01, 2006 |
| REV "A" |

MODEL AFFECTED: 206A/B Series

SUBJECT: TAIL ROTOR GEARBOX ASSEMBLIES 206-040-400-ALL AND 206-040-402-ALL, UPGRADE AND CONFIGURATION OF.

HELICOPTERS AFFECTED: 206A helicopters: S/N 660, and 672 through 715.
 206B helicopters: S/N 661 through 671, and 715 and subsequent.
 206B helicopters: S/N 5101 and subsequent.

GEARBOXES AFFECTED: The tail rotor gearbox assemblies that follow are affected by this bulletin:

| <u>GEARBOX P/N</u> | <u>NOTE</u> | | <u>PROD. EFFECTIVITY</u> |
|--------------------|-------------|------|----------------------------------------|
| 206-040-400-003 | (1) (5) | 206A | 004 through 413 |
| 206-040-400-005 | (1) (5) | 206A | 414 through 660 and 672 through 715 |
| 206-040-400-005 | (1) (5) | 206B | 661 through 671 and 716 through 913 |
| 206-040-400-011 | (1) (5) | 206B | 914 through 1637 and 1639 through 1657 |
| 206-040-400-009 | (1) (5) | 206B | 1658 through 2211 |
| 206-040-400-013 | (2) (5) | | 2212 through 4004 |
| 206-040-402-003 | (3) | 206B | 4005 through 4427 |
| | | TH67 | 5101 through 5237 |
| 206-040-402-107 | (3) | 206B | 4128 through 4567 |
| | | TH67 | 5238 through 5285 |
| 206-040-402-111 | (4) | 206B | 4568 and subsequent |
| | | TH67 | 5286 and subsequent |

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NOTES:

1. Any tail rotor gearbox assemblies 206-040-400-003, 005, 009, or -011 can be upgraded to a newer configuration of tail rotor gearbox assembly 206-040-400, or

to spare gearbox assembly 206-040-400-103 (useable S/N 0004 through 2211). Refer to Table 1.

2. Tail rotor gearbox assembly 206-040-400-013 can be upgraded to spare gearbox assembly 206-040-400-107 (useable S/N 2212 through 4004).

a. If you have completed Service Instruction – S.I. 206-112 (applicable S/N 0004 through 2211):

- Gearbox assembly 206-961-401-001 can be upgraded to newer configuration 206-961-401-001FM or spare gearbox assembly 206-040-400-107.
- Gearbox assembly 206-961-401-001, 206-961-401-001FM, 206-040-400-013, and 206-040-400-107 are useable on helicopters post S.I. 206-112. Refer to Table 1.

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3. Any tail rotor gearbox assembly 206-040-402 can be upgraded to a newer configuration of gearbox assembly 206-040-402 or to spare gearbox assembly 206-040-402-111. Refer to Table 2.

4. Tail rotor gearbox assembly 206-040-402-111 can be used on all 206B: S/N 4005 through subsequent, and TH67, S/N 5101 through subsequent.

5. It is not economically feasible to upgrade a tail rotor gearbox 206-040-400-ALL to a gearbox 206-040-402-ALL.

COMPLIANCE:

At the option of the operator. However, it is recommended that this bulletin be accomplished whenever the tail rotor gearbox assembly is overhauled. All applicable Alert Service Bulletins and Technical Bulletins must be done. To upgrade to a newer tail rotor gearbox assembly configuration, refer to the REFERENCES section of this bulletin.

-NOTE-

This Technical Bulletin cancels and supersedes TB 206-86-116 dated 5-23-86.

DESCRIPTION:

This bulletin gives the changes necessary to upgrade older model 206A/B series, tail rotor gearbox assemblies to newer tail rotor gearbox assembly configurations.

When the upgrade is completed, the tail rotor gearbox assemblies can be used on model 206A or 206B helicopters listed in the GEARBOXES AFFECTED block.

APPROVAL:

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

MANPOWER:

No more manpower is necessary when you do this bulletin during overhaul.

MATERIAL:

The parts required to upgrade the tail rotor gearbox are listed in Table 1 and 2 of this bulletin. You can get these parts through your Bell Helicopter Textron Supply Center.

Refer to the "ACCOMPLISHMENT INSTRUCTIONS" for the material required to accomplish this bulletin. Standard replacement parts for overhaul are not included.

SPECIAL TOOLS:

As listed in the applicable Overhaul Manual.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-206A/B-M&O Manual, Rev. 41, 21 November 1995.

Section VI (CR&O only).

BHT-206B3-CR&O-1, Rev. 1, 22 August 1994.

Chapter 65.

T.B. 206-86-116, (TAIL ROTOR GEARBOX UPGRADE, MODIFICATION TO).

T.B. 206-94-150, (TAIL ROTOR GEARBOX OIL SEALS, IMPROVED).

T.B. 206-95-154, (TAIL ROTOR GEARBOX CASE ASSEMBLY 206-040-425-111, INTRODUCTION OF).

T.B. 206-96-164A, (TAIL ROTOR GEARBOX CASE ASSEMBLY 206-040-425-ALL, MODIFICATION OF).

PUBLICATIONS AFFECTED:

BHT-206A/B-SERIES-IPB, Rev. 1, 31 January 1997.

Chapter 65

ACCOMPLISHMENT INSTRUCTIONS:

1. Refer to the 206A/B series Component Repair and Overhaul Manual for tail rotor gearbox assembly, disassembly, and assembly instructions.

-NOTE-

Table 1 and 2 contain only the major components of the tail rotor gearbox assembly. Refer to the applicable Illustrated Parts Breakdown Manual for the other parts you need.

2. Use the data of tables 1 and 2 to upgrade the tail rotor gearbox assemblies. The components listed below the assembly dash number are included in that specified configuration.
3. Use a vibrating stylus to identify the data plate the tail rotor gearbox assembly. The depth of the vibrotech must not exceed 0.005 inch (0.13 mm). Identify the tail rotor gearbox assembly with the correct configuration dash number that you defined by Table 1 or 2.

Example: 206-040-402-~~003~~-111 FM.

-NOTE-

To change the part number specified on the data plate of the historical record sheet, you must do all the specified changes in Table 1 or 2, for that part number.

4. Make an entry in the helicopter Historical Record (HR) to show that this Technical Bulletin is completed.
5. Make an entry in the Record of the Technical Bulletins in the Maintenance Manual.

TABLE 1 – Configuration Tail Rotor Gearboxes: 206-040-400 and 206-961-401 (Sheet 1 of 4)

| NOMENCLATURE / PART NUMBER | | NOTES | GEARBOX ASSY 206-040-400 | | | | | 206-961-401 |
|----------------------------|-----------------|-------------|--------------------------|------|------|------|------|--------------|
| | | | -003 | -005 | -009 | -011 | -013 | -001 |
| NOTES | | | (20)(27) | | | | | (19)(20)(27) |
| CASE ASSEMBLY | 206-040-412-013 | | X | | | | | |
| | 206-040-425-001 | (1)(21)(26) | | X | | | | |
| | 206-040-425-011 | (21)(26) | | | X | | X | |
| | 206-040-425-013 | (21)(26) | | | | X | | |
| CAP | 206-040-424-001 | (22) | X | X | | | | |
| | 206-040-427-001 | | | | X | X | | |
| | 206-040-437-001 | | | | | | X | X |
| PINION (INPUT) | 206-040-405-003 | (2) | X | X | X | X | X | X |
| GEAR | 206-040-406-001 | (3) | X | X | X | X | X | X |
| SHAFT | 206-040-407-007 | | X | X | X | X | | |
| | 206-040-439-001 | | | | | | X | X |
| BEARING (INPUT) | 206-040-408-001 | | X | X | X | X | X | X |
| BEARING (OUTPUT) | 206-040-410-001 | | X | X | X | X | X | X |
| BEARING | 206-040-411-001 | | X | X | X | X | | |
| | 206-040-205-005 | | | | | | X | X |
| X | 206-040-409-001 | | X | X | X | X | X | X |

TABLE 1 – Configuration Tail Rotor Gearboxes: 206-040-400 and 206-961-401 (Sheet 2)

| NOMENCLATURE / PART NUMBER | NOTES | GEARBOX ASSY 206-040-400 | | | | | 206-961-401 |
|----------------------------|-----------------|--------------------------|------|------|------|------|--------------|
| | | -003 | -005 | -009 | -011 | -013 | -001 |
| NOTES | | (20)(27) | | | | | (19)(20)(27) |
| NUT | 206-040-414-001 | X | X | X | X | X | X |
| | 206-040-415-001 | X | X | X | X | X | X |
| | 206-040-421-001 | X | X | X | X | X | X |
| SPACER | 206-040-420-001 | (18) | X | X | X | X | X |
| GLASS | 206-040-514-001 | (24) | X | X | X | X | X |
| INDICATOR | 206-040-508-001 | | X | X | X | X | X |
| SLEEVE | J1105 | (17)(23) | | | | X | X |
| FILLER CAP | 204-040-502-009 | (25) | X | X | X | X | X |
| SEAL (input) | 450136H19 | (4)(8) | X | X | | | |
| | 410136H19 | (7)(8) | | | X | X | X |
| SEAL (output) | 450236H19 | (9)(12) | X | X | | | |
| | 410236H19 | (12)(13) | | | X | X | |
| | 410082HAE | (14)(16) | | | | X | X |
| DRAIN PLUG | B758R | | X | X | X | | |
| DETECTOR | B-3225C | | | X | | X | X |

TABLE 1 Tail Rotor Gearboxes 206-040-400 and 206-961-401 (sheet3)

NOTES:

- 1) As an alternative, you can use case 206-040-425-013.
- 2) Can be replaced with pinion 206-040-405-101 in tail rotor gearboxes 206-040-400-011, -013, -105, and -107.
- 3) Can be replaced with gear 206-040-406-101 in tail rotor gearboxes 206-040-400-011, -013, -105, and -107.
- 4) As an alternative, you can use case 410136-H19. (5)(8)
- 5) Replaced by seal 2890-51468. (8)
- 6) Replaced by seal 545166. (5)(8)
- 7) As an alternative, use seal 525894. (6)(8)
- 8) Replaced by seal 206-340-103-101. (Refer to T.B. 206-94-150)
- 9) As an alternative, you can use seal 410236-H19 (10)(12), or seal 525900. (11)(12)
- 10) Replaced by seal 2890-51132. (12)
- 11) Replaced by seal 542872. (10)(12)
- 12) Replaced by seal 206-340-100-001. (Refer to T.B. 206-94-150)
- 13) As an alternative, you can use cap 52900. (11)(12)
- 14) As an alternative, you can use cap 2810-51832. (15)(16)
- 15) Replaced by seal 2810-51832. (16)
- 16) Replaced by seal 406-340-105-001. (Refer to T.B. 206-94-150)
- 17) As an alternative, you can use sleeve 29800-8054. (23)
- 18) Replaced by spacer 206-040-420-101 (black oxide).
- 19) The tail rotor gearbox is modified as per Service Instruction (SI) 206-112.

TABLE 1 Tail Rotor Gearbox 206-040-400 and 206-961-401 (Sheet 4)

- 20) Tail rotor gearbox 206-040-400-005 can be modified to a /-101; the 206-040-400-009 to a /-103; the 206-040-400-011 to a /-105; the 206-040-400-013 to a /-107; and the 206-961-401-001 to a /-001fm. (Refer to T.B. 206-96-164 Rev. "A")
- 21) Case 206-040-425-001 can be converted to a /-115; case 206-040-425-011 can be converted to a /-121; and case 206-040-425-013 can be converted to a /-123. (Refer to T.B. 206-96-164 Rev. "A" for conversion procedures)
- 22) As an alternative, you can use cap 206-040-427-001.
- 23) Replaced by sleeve 536827.
- 24) Replaced by glass 412-340-416-101.
- 25) Replaced by filler cap 412-040-318-101.
- 26) Replaced by case 206-040-425-121.
- 27) Tail rotor gearbox 206-040-400-003, 005, -009, and -011 are replaced with tail rotor gearbox 206-040-400-103. Tail rotor gearbox 206-040-400-013 and 206-961-401-001 are replaced with tail rotor gearbox 206-040-400-107.

TABLE 2 – Configuration Tail Rotor Gearbox 206-040-402 (Sheet 1 of 3)

| NOMENCLATURE / PART NUMBER | | NOTES | GEARBOX ASSY 206-040-402 | | |
|----------------------------|-----------------|--------------|--------------------------|------|------|
| | | | -003 | -107 | -111 |
| NOTES | | | (1) | | |
| CASE ASSEMBLY | 206-040-425-001 | (2)(3)(5)(7) | X | | |
| | 206-040-425-135 | | | X | X |
| CAP | 206-040-437-001 | (8) | X | X | X |
| PINION | 206-040-440-001 | (9) | X | | |
| | 206-040-440-001 | | | X | X |
| GEAR | 206-040-441-001 | (10) | X | | |
| | 206-040-441-103 | | | X | X |
| SHAFT | 206-040-439-001 | | X | X | X |
| BEARING (input) | 206-040-438-001 | (11) | X | | |
| | 206-040-438-101 | | | X | X |
| BEARING (output) | 206-040-410-003 | (12)(13) | X | | |
| | 206-040-410-005 | (13) | | X | |
| | 206-040-410-101 | | | | X |
| BEARING | 206-040-205-003 | (14) | X | | |
| | 206-040-205-105 | | | X | X |
| BEARING | 206-040-409-001 | (15) | X | | |
| | 206-340-400-101 | (16) | | X | X |
| NUT | 206-040-421-001 | | X | X | X |
| NUT | 206-040-415-001 | | X | X | X |
| NUT | 206-040-414-001 | | X | X | X |
| SPACER | 206-040-420-001 | (17) | X | X | |
| | 206-040-420-101 | | | | X |
| GLASS | 204-040-514-001 | (18) | X | X | |
| | 412-340-416-101 | | | | X |
| INDICATOR | 206-040-508-011 | | X | | |
| | 206-040-508-101 | | | X | X |
| SLEEVE | J-1105 | (19)(20)(29) | X | X | |
| | 206-340-401-101 | | | | X |
| FILLER CAP | 204-040-502-009 | (21) | X | X | |
| | 412-040-318-101 | | | | X |
| SEAL (input) | 410136H19 | (22)(24)(25) | X | | |
| | 206-340-103-101 | (30) | | X | |
| | 206-340-206-101 | | | | X |
| SEAL (output) | 410082HAE | (26)(27)(28) | X | | |
| | 406-340-105-101 | | | X | X |
| DETECTOR | B-3225C | | X | X | X |

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TABLE 2 Tail rotor gearbox 206-040-402 (Sheet 2)

- 1) Tail rotor gearbox 206-040-402-003 can be modified to a 206-040-402-105 (refer to T.B. 206-96-164 Rev. "A"). As an alternative, you can use case the tail rotor gearbox 206-040-402-105. The tail rotor gearboxes 206-040-402-003, -105, and -107 are replaced by a 206-040-402-111.
- 2) Can be modified to a case 206-040-425-127. (3)(5)(7) (Refer to T.B. 206-96-164 Rev. "A")
- 3) Replaced by case 206-040-425-101. (4)(5)(7)
- 4) Can be modified to a case 206-040-425-131. (5)(7) (Refer to T.B. 206-96-164 Rev. "A")
- 5) Replaced by case 206-040-425-111. (6)(7) At the initial replacement of case 206-040-425-017, -101, -127, or -131, you must replace the bearing 206-040-409-101 with bearing 206-340-400-101. (Refer to T.B. 206-95-154)
- 6) Can be modified to a case 206-040-425-135, (Refer to T.B. 206-96-164 Rev. "A").
- 7) Replaced by case 206-040-425-135. At the initial replacement of case 206-040-425-017, -101, -127, or -131, you must replace the bearing 206-040-409-101 with bearing 206-340-400-101. (Refer to T.B. 206-95-154)
- 8) As an alternative, you can use cap 206-040-935-001.
- 9) Replaced by pinion 206-040-440-103.
- 10) Replaced by gear 206-040-441-103.
- 11) As an alternative, you can use bearing 206-040-438-101.
- 12) As an alternative, you can use bearing 206-040-410-005. (13)
- 13) Replaced by bearing 206-040-410-101.
- 14) Replaced by bearing 206-040-205-005.
- 15) Used with cases 206-040-425-017, -101, -127, and -131. This must be replaced with bearing 206-340-400-101 when case 206-040-425-111 or -135 is used. (Refer to T.B. 206-95-154)
- 16) Used with case 206-040-425-111 and 135 only. (Refer to T.B. 206-95-154)
- 17) Replaced by spacer 206-040-420-101 (black oxide).

TABLE 2 Tail rotor gearbox 206-040-402 (Sheet 3)

18) Replaced by glass 412-340-416-101.

19) As an alternative, you can use sleeve 29800-8054. (20)

20) Replaced by sleeve 536827. (29)

21) Replaced by filler cap 412-040-318-101.

22) As an alternative, you can use seal 525894. (23)(25)

23) Replaced by seal 545166. (24)(25)

24) Replaced by seal 2890-51468. (25)

25) Replaced by seal 206-340-103-101. (Refer to T.B. 206-94-150)

26) As an alternative, you can use seal 2810-51832. (27)(28)

27) Replaced by seal 2890-51832. (28)

28) Replaced by seal 406-340-105-101. (Refer to T.B. 206-94-150)

29) Replaced by sleeve 206-340-401-101.

A 30) Replaced by seal 206-340-206-101. (Refer to T.B. 206-94-150)