

TECHNICAL BULLETIN



NO 206-99-168

DATE 10-01-99

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DATE
REV.

MODELS AFFECTED: 206A/B Series.

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

HELICOPTERS AFFECTED: 206A, S/N 004 through 660, and 672 through 715.
206B, S/N 661 through 671, and 715 through subsequent.
TH67, 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) 206B	2212 through 4004
206-040-402-003	(3) 206B	4005 through 4427
		TH67 5101 through 5237
206-040-402-107	(4) 206B	4428 and subsequent
		TH67 5238 and subsequent

NOTES:

1. Any gearbox assembly 206-040-400-003, -005, -009, or -011 can be upgraded to a newer configuration of gearbox assembly 206-040-400, or to spare gearbox assembly 206-040-400-103 (useable S/N 0004 through 2211). Refer to Table 1.

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2. 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 assemblies 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.
3. Any gearbox assembly 206-040-402 can be upgraded to a newer configuration of gearbox assembly 206-040-402 or to spare gearbox assembly 206-040-402-107. Refer to Table 2.
4. Gearbox assembly 206-040-402-107 can be used on all 206B: S/N 4004 through subsequent, and TH67, S/N 5101 through subsequent.
5. It is not economically feasible to upgrade a 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 when the gearbox assembly is overhauled. All applicable Alert Service Bulletins and Technical Bulletins must be done. To upgrade to a newer gearbox assembly configuration, refer to the REFERENCE section of this bulletin.

- NOTE -

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

DESCRIPTION:

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

When the upgrade is completed, you can use the tail rotor gearbox assemblies on model 206A or 206B helicopters listed in the GEARBOX 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 the 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-1 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 -

Tables 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 specific configuration.
3. Use a vibrating stylus to identify the data plate of 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 as defined by Table 1 or 2.

Example: 206-040-402-~~003~~-107 FM

- NOTE -

To change the part number specified on the data plate or 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 Technical Bulletins in the Maintenance Manual.

TABLE 1 – Configuration for 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
			(20) (27)					(19) (20) (27)
CASE	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		X
CAP	206-040-424-001	(22)	X	X				
	206-040-427-001				X	X		
	206-040-437-001						X	X
PINION	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
	206-040-409-001		X	X	X	X	X	X

TABLE 1 – Configuration for 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
			(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	X
GLASS	206-040-514-001	(24)	X	X	X	X	X	X
INDICATOR	204-040-508-001		X	X	X	X	X	X
SLEEVE	J1105	(17) (23)					X	X
FILLER CAP	204-040-502-009	(25)	X	X	X	X	X	X
SEAL (input)	450136H19	(4) (8)	X	X				
	410136H19	(7) (8)			X	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 (Sheet 3)

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 seal 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 seal 525900. **(11) (12)**
- (14) As an alternative, you can use seal 2810-51832. **(15) (16)**
- (15) Replaced by seal 2890-51832. **(16)**
- (16) Replaced by seal 406-340-105-101. (Refer to T.B. 206-94-150.)

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

NOTES:

- (17)** As an alternative, you can use sleeve 29800-8054. **(23)**
- (18)** Replaced by spacer 206-040-420-101 (black oxide).
- (19)** This tail rotor gearbox is modified as per Service Instruction (SI) 206-112.
- (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)** Replace by case 206-040-425-121.
- (27)** Tail rotor gearboxes 206-040-400-003, -005, -009, and -011 are replaced with tail rotor gearbox 206-040-400-103. Tail rotor gearboxes 206-040-400-013 and 206-961-401-001 are replaced with tail rotor gearbox 206-040-400-107.

TABLE 2 – Configuration for Tail Rotor Gearboxes: 206-040-400 and 206-961-401 (Sheet 1 of 4)

NOMENCLATURE	/PART NUMBER	NOTES	GEARBOX ASSEMBLY 206-040-402	
			-003	-107
			(1)	
CASE	206-040-425-017	(2)(3)(5)(7)	X	
	206-040-425-135			X
CAP	206-040-437-001	(8)	X	X
PINION	206-040-440-001	(9)	X	
	206-040-440-103			X
GEAR	206-040-441-001	(10)	X	
	206-040-441-103			X
SHAFT	206-040-439-001		X	X
BEARING (input)	206-040-438-001	(11)	X	
	206-040-438-101			X
BEARING (output)	206-040-410-003	(12) (13)	X	
	206-040-410-005	(13)		X
BEARING	206-040-205-003	(14)	X	
	206-040-205-105			X
BEARING	206-040-409-001	(15)	X	
	206-340-400-101	(16)		X

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

NOMENCLATURE	/PART NUMBER	NOTES	GEARBOX ASSEMBLY 206-040-402	
			-003	-107
			(1)	
NUT	206-040-421-001		X	X
	206-040-415-001		X	X
	206-040-414-001		X	X
SPACER	206-040-420-001	(17)	X	X
GLASS	206-040-514-001	(18)	X	X
INDICATOR	204-040-508-011		X	
	204-040-508-101			X
SLEEVE	J-1105	(19) (20)	X	X
FILLER CAP	204-040-502-009	(21)	X	X
SEAL (input)	410136H19	(22)(24)(25)	X	
	206-340-103-101			X
SEAL (output)	410082HAE	(26)(27)(28)	X	
	406-340-105-101			X
DETECTOR	B-3225C		X	X

TABLE 2 Tail Rotor Gearbox 206-040-402 (Sheet 3)

NOTES:

- (1)** The 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 the tail rotor gearbox 206-040-402-105. The tail rotor gearboxes 206-040-402-003 and -105 are replaced by a 206-040-402-107.
- (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 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 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)** Replace 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.

TABLE 2 Tail Rotor Gearbox 206-040-402 (Sheet 4)

NOTES:

- (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).
- (18)** Replaced by glass 412-340-416-101.
- (19)** As an alternative, you can use sleeve 29800-8054. **(20)**
- (20)** Replaced by sleeve 536827.
- (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.)