

TECHNICAL BULLETIN
Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

No. 407-05-64

Date Feb 22, 2005

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MODEL AFFECTED: 407

SUBJECT: BEARING 406-310-405-103 AND MAIN ROTOR PITCH LINK ASSEMBLY 406-010-413-137, INTRODUCTION OF.

HELICOPTERS AFFECTED: Model 407 helicopters serial number 53000 through 53631.

[Model 407 helicopters serial number 53632 and subsequent will have the intent of this bulletin accomplished prior to delivery.]

COMPLIANCE: At Customer's Option.

DESCRIPTION:

This Technical Bulletin introduces an improved 406-310-405-103 pitch link bearing. This improved bearing has additional rollers, and has performed well during tests and field evaluation. It is anticipated that this bearing will improve reliability over the current bearing.

The 406-310-405-103 bearing is a direct replacement for the existing 406-310-405-101 bearing. All four 406-310-405-101 bearings do not need to be replaced at one time. **It is permissible to mix the bearings assemblies on the same helicopter up to serial number 53631. Helicopter serial 53632 and subsequent shall use the 406-310-405-103 bearing assembly.**

This Technical Bulletin also introduces a main rotor 406-010-413-137 pitch link assembly. The pitch link tube assembly is coated with Polyurethane paint for better corrosion protection. It also incorporates the improved 406-310-405-103 bearing.

The 406-010-413-137 pitch link assembly is a direct replacement for the 406-010-413-117 and the 406-010-413-131 pitch link assembly. All four-pitch link assemblies do not need to be replaced at one time. **It is permissible to mix the Pitch link assemblies on the same helicopter up to serial number 53631. Helicopter serial 53632 and subsequent shall use the 406-310-413-137 pitch link assembly.**

The 406-010-413-131 pitch link assembly can be upgraded to the latest configuration using instructions provided in the Table 1 and Table 2 of this bulletin.

APPROVAL:

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

MANPOWER:

No additional manpower is required when normal maintenance is accomplished.

Approximately 2.0 man-hours are required to complete this bulletin. Man-hours are based on hands-on time, and may vary with personnel and facilities available.

MATERIALS:

Required Material:

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

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
406-310-405-103	Bearing	4 (1)

Note:

1. As required

Consumable Material:

The following material is required to accomplish this 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>Quantity</u>	<u>Reference</u>
MOBIL 28	GREASE MOBIL 28 MIL-G -81322	1	C-001
MIL-PRF-81352 TY1	ACRYLIC LACQUER	1	C-203 (1)
MILC85285,TYI,16440	POLYURETHANE COATING LIGHT GULL GRAY	1	C-245

Note:

1. C-203 is superseded by C-245.

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

None required.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-407-MM-2 Maintenance Manual.
Chapter 12-00-00, handling and servicing.

BHT-407-MM-8 Maintenance Manual.
Chapter 67-00-00, Flight Controls.

BHT-ALL-SPM
Chapter 4-00-00, Painting.

BHT-ALL-SPM
Chapter 8-00-00, Miscellaneous practices.

BHT-ALL-SPM
Chapter 13-00-00, Consumable Materials.

PUBLICATIONS AFFECTED:

BHT-407-MM-1 Maintenance Manual.
Chapter 4-00-00, Airworthiness Limitations Schedule.

BHT-407-MM-8 Maintenance Manual.
Chapter 67-00-00, Flight Controls.

BHT-407-IPC Illustrated Parts Breakdown.
Chapter 67-00-00, Flight Controls.

ACCOMPLISHMENT INSTRUCTIONS:

1. Replace bearing 406-310-405-101 with bearing 406-310-405-103. Refer to the BHT-407-MM, Chapter 67.
2. Inspect the bearings 406-310-405-101/-103 in accordance with the damage limits provided in figure 1.
3. Service 406-310-405-103 bearing with Mobil 28 grease in accordance with the BHT- 407-MM chapter, 12-00-00.
4. For tube assembly and pitch link assembly upgrade and configuration. Refer to Table 1 and Table 2.
5. Make an entry in the Helicopter Historical Record to show that this Technical Bulletin is completed.

TABLE 1 – Tube assemblies configurations and upgrades.

Tube assembly	406-010-413-119 (2)(3)	406-010-413-133 (2)(4)	406-010-413-139 (2)(5)
Tube 406-010-413-121 (1)	X		
Tube 406-010-413-135 (1)		X	X

Notes:

1. Tube length. Refer to figure 2.
2. The inserts are “**NOT**” field replaceable.

-NOTE-

For paint stripping and paint application, refer to the BHT-ALL-SPM, chapter 4-00-00 and the paint Manufacturer’s instructions.

The depth of the vibroetch must not exceed 0.005 inch (0.127 mm).

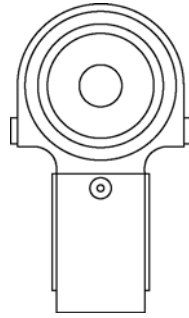
3. The 406-010-413-119 tube assembly was originally painted with Acrylic Lacquer MIL-PRF-81352 TY1. The 406-010-413-119 tube assembly can be repainted with Polyurethane coating Light Gull Gray part number; MILC85285,TYI,16440. Identify the modified tube assembly with a Vibrating stylus and mark the data plate as follow; 406-010-413-119 FM.
4. The 406-010-413-133 tube assembly was originally painted with Acrylic Lacquer MIL-PRF-81352 TY1. The 406-010-413-133 tube assembly can be repainted with Polyurethane Coating Light Gull Gray part number; MILC85285,TYI,16440. Identify the modified tube assembly with a Vibrating stylus and mark the data plate as follow; 406-010-413-~~133~~ 139 FM.
5. Polyurethane Coating Light Gull Gray part number; MILC85285,TYI,16440.

TABLE 2 – Pitch link assemblies configurations and upgrades.

PITCH LINK ASSY	406-010-413-117 (1)(2)(3) (5)	406-010-413-131 (4)(5)	406-010-413-137 (6)(10)
Tube assembly 406-010-413-119 (8)(9)(11) (12)	X		
Tube assembly 406-010-413-133 (9)(11)(12)		X	
Tube assembly 406-010-413-139 (11)(12)			X
Bearing 406-310-405-101 (7)	X	X	
Bearing 406-310-405-103			X
Clevis 406-010-416-101	X	X	X
Rod End Assy 406-310-404-101	X	X	X

Notes:

1. Can not be upgraded to a later configuration.
2. Pitch link Assembly effectivity 53000 through 53419.
3. Replaced by 406-010-413-131 pitch link assembly. (5)
4. Pitch link Assembly effectivity 53420 through 53631.
5. Replaced by 406-010-413-137 Pitch link Assembly.
6. Pitch link Assembly effectivity 53632 through subsequent.
7. Replaced by 406-310-405-103 bearing assembly.
8. Replace by tube assembly 406-010-413-133. (10)
9. Replace by tube assembly 406-010-413-139.
10. The pitch link assembly 406-010- 413-131 can be upgraded to the latest 406-010-413-137 pitch link assembly configuration. Identify the modified pitch link assembly with a Vibrating stylus and mark the data plate as follow; 406-010-413-~~131~~ 137FM. The depth of the vibroetch must not exceed 0.005 inch (0.127 mm).
11. Transfer the pitch link assembly data plate to the new tube assembly as follows;
 - a. Heat the pitch link assembly data plate to a maximum of 212°F (99°C). Removed the existing pitch link assembly data plate from the tube assembly using a plastic scrapper.
 - b. Use a vibrating stylus to reidentify the pitch link assembly data plate with the correct part number if required. The depth of the vibroetch must not exceed 0.005 inch (0.127 mm). Refer to this table for configuration.
 - c. Bond the re-identified data plate to the pitch link assembly. Refer to the BHT-ALL-SPM, Chapter 8-00-00.
12. Replace lost Data plate as follows;
 - a. Locally fabricated a data plate using the tube assembly data plate dimensions. Use aluminum 2024T3 Alclad .032 inches (0.0812 mm), break all edges.
13. Make an entry in the pitch link assembly Historical Record to show the changes and the Helicopter Historical Record to show that this Technical Bulletin is completed.



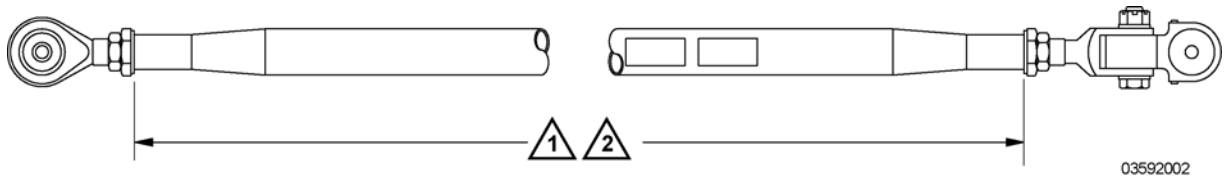
P/N: 406-310-405-101 and 406-310-405-103

TYPE OF DAMAGE	MAXIMUM DAMAGE AND REPAIR DEPTH
Mechanical and corrosion	0.005 Inch (0.127 mm)
Maximum area per full depth repair	0.100 sq. Inch (6.452 sq. mm)
Number of repair	one
Mechanical and corrosion edge chamfer damage after repair	0.020 Inch (0.508 mm)
Number of edge chamfer damage	one per edge
Bearing axial play	0.015 Inch (0.390 mm)
Bearing radial play	none permitted

NOTES:

1. No cracks permitted.
2. Bearing radial, axial play and bearing roughness check must be accomplished prior to lubrication.
3. Rotate bearing inner races and check for roughness. Bearings must rotate freely without using excessive force. A ratchety feel is acceptable but not required.

Figure 1. Bearing Assembly Damage Limits



1. 406-010-413-121 Tube lengths between insert inboards are 13.424 inches (340.9696 mm) to 13.444 inches (341.4776 mm).
2. 406-010-413-135 Tube lengths between insert inboards are 13.209 inches (335.5086 mm) to 13.229 inches (336.0166 mm).

Figure 2. Tube length