

Bell Helicopter **TEXTRON**

A Subsidiary of Textron, Inc.

Feb 13, 2007

TO: All Owners/Operators of Bell 222/222B Helicopters

**SUBJECT: REVISION "A" TO TECHNICAL BULLETIN 222-06-174,
TAIL ROTOR BLADES 222-016-001-139 AND TAIL ROTOR
YOKE ASSEMBLY 222-012-702-113 and -117, INTRODUCTION
OF**

Revision "A" to this bulletin is released to introduce the latest tail rotor yoke configuration P/N 222-012-702-117.

Technical Bulletin 222-06-174 is revised in full, therefore, replace original bulletin in it's entirety with this new revision "A".

TECHNICAL BULLETIN
Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

No. 222-06-174
Date May 23, 2006
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DATE Feb 13, 2007
REV A

MODEL AFFECTED: 222/222B

SUBJECT: TAIL ROTOR BLADES 222-016-001-139 AND -141 AND TAIL ROTOR YOKE ASSEMBLY 222-012-702-005, -113 and -117, INTRODUCTION OF

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HELICOPTERS AFFECTED: Model 222 helicopters serial number 47006 through 47089.
Model 222B helicopters serial number 47131 through 47156.

COMPLIANCE: At Customer's Option.

-NOTE-

The existing configuration tail rotor blades, hub assembly and yoke will not be available after the existing spares inventory is exhausted. At that time, upgrade/modification of existing tail rotor blades, hub and yoke assembly will be required.

DESCRIPTION:

This technical bulletin introduces new tail rotor blades P/N 222-016-001-139 and 222-016-001-141 which include an improved tail rotor blade feathering bearing 222-312-761-101 to replace existing bearing 222-312-753-103.

In addition, this bulletin introduces tail rotor yoke assembly P/N 222-012-702-113 which includes new bushings 222-012-739-105. Those bushings will accommodate the new feathering bearings 222-312-761-101 with a reduced cross section.

Following the release of Alert Service Bulletin 222-07-104, revision A of this bulletin introduces a new tail rotor yoke P/N 222-012-702-117 which incorporates a larger cut-out area that will provide additional clearance for the tail rotor counterweight support outboard nut. Tail rotor yoke P/N 222-012-702-117 incorporates bushings 222-012-739-105 that will accommodate the new feathering bearings 222-312-761-101 with a reduced cross section.

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Tail rotor blade 222-016-001-139 is the spare replacement for tail rotor blade 222-016-001-123 and/or -131 useable on Model 222B.

Tail rotor blade 222-016-001-141 is the spare replacement for tail rotor blade 222-016-001-127 and/or -135 useable on Model 222.

Tail rotor hub assembly P/N 222-012-701-145 is the spare replacement for tail rotor hub assembly P/N 222-012-701-119 and -139.

Tail rotor yoke assembly P/N 222-012-702-117 is the spare replacement for tail rotor yoke assembly P/N 222-012-702-005, -109 and -113.

Part I of this bulletin provides instructions to install bearing 222-312-761-101 into existing tail rotor blade 222-016-001-123/-127/-131 and -135.

Feathering bearing 222-310-761-101 with a reduced cross section will only assemble with tail rotor yoke assembly 222-012-702-113 and -117 with thicker flange bushings 222-012-739-105.

Part II of this bulletin provides instructions to install bushings 222-312-739-105 into existing tail rotor yoke assembly 222-012-702-109.

Tail rotor yoke assembly P/N 222-012-702-113 and -117 with thicker flange bushings 222-012-739-105 will only assemble with feathering bearings 222-312-761-101 with a reduced cross section.

Part III of this bulletin provides configuration and installation instructions for a new or modified tail rotor blade assembly and new or modified tail rotor yoke assembly.

APPROVAL:

The engineering design aspects of this bulletin are Transport Canada Civil Aviation (TCCA) approved.

MANPOWER:

Man-hours are based on hands-on time, and may vary with personnel and facilities available

Approximately 4.0 man-hours are required to replace the tail rotor bearings in each blade and 8.0 man-hours to replace the bushings in the tail rotor yoke.

Additional time will be required to accomplish the following: removal, partial disassembly and reassembly, static and dynamic balance, installation, rigging and operational checks of the tail rotor hub and blades assembly.

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WARRANTY:

Warranty does not apply to this bulletin

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.

Part I

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
222-312-761-101	Bearing	2 per blade

Part II

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
222-012-739-105	Bushing	8 per yoke

Part III

<u>Part Number</u>	<u>Nomenclature</u>	<u>Quantity</u>
222-016-001-139	T/R blade	2 per A/C
222-016-001-141	T/R blade	Note 4, 5, 7, 2 per A/C
222-012-702-113 and -117	T/R yoke	Note 4, 8 1 per A/C
140-007-29R30C5	Washer	Note 3, 4, 6 8 per A/C
20-057-7-58D	Bolt	Note 1
20-057-7-60D	Bolt	Note 1
20-057-7-62D	Bolt	4 Note 1
PCR67	Nut	4 per A/C Note 2

Note 1. Bolt 20-057-7-62D, quantity of 4 may be required to accomplish static/dynamic balance of the tail rotor hub and blades assembly. Existing bolts 20-057-7-058D or -60D may be reused if they meet inspection criteria per BHT-222-CR&O-3.

Note 2. Nut PCR67, quantity of 4, may be required unless already installed per Alert Service Bulletin 222-99-85.

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Note 3. Tail rotor Hub assembly P/N 222-012-701-139 and -145 may be used as an alternate.

Note 4. As an alternate, for Model 222 only, Tail rotor hub and Blades assembly P/N 222-012-701-141 or -143 may be used. For Model 222B only, Tail rotor hub and Blades assembly P/N 222-012-701-137 or -149 may be used. However, Technical Bulletin 222-94-142 Rev A will need to be accomplished.

Note 5. Modified tail rotor blade per Part I of this bulletin may be used as an alternate.

Note 6. Modified yoke assembly per Part II of this bulletin may be used as an alternate.

Note 7. Tail rotor blade 222-016-001-139 is useable on Model 222B.

Note 8. Tail rotor blade 222-016-001-141 is useable on Model 222 only.

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 operator's 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>
MIL-PRF-81733 2.5 OZ	Sealant	1	C-392

SPECIAL TOOLS:

RST 4307 Roll staking tool will be required to install bearings P/N 222-312-761-101 in tail rotor blade per Part I of this Bulletin.

WEIGHT AND BALANCE:

Not affected

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

2BHT-222-MM-1, Chapter 65
BHT-222-CR&O-3, Chapter 64

REFERENCES: Cont'd

Alert Service Bulletin 222-04-100, Tail rotor blade, inspection of
OSN 222-03-22, Tail rotor blade, periodic inspection of
Alert Service Bulletin 222-96-79, Tail rotor blade 222-016-001-101/-107/-111/-115 and
-119, removal from service.
Alert Service Bulletin 222-99-85, Tail rotor pitch change bearing inspection of and
blade attaching hardware replacement of
Technical Bulletin 222-92-135, Trunnion shimming procedure Tail Rotor Hub, alternate
method.
Technical Bulletin 222-94-142 Rev A, Tail Rotor Controls, Improvements.
Alert Service Bulletin 222-07-104, Tail rotor pitch change mechanism, revised rigging
procedures

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PUBLICATIONS AFFECTED:

BHT-222/222B-MM-1, Chapter 65
BHT-222-CR&O-3, Chapter 64
BHT-222-IPB, Chapter 64
BHT-222B-IPB, Chapter 64

ACCOMPLISHMENT INSTRUCTIONS:

Part I: Retrofit of feathering bearing 222-312-761-101 to existing tail rotor
blades 222-016-001-123, -127, -131 and -135.

NOTE-

Yoke 222-012-702-109, which has been modified per Part II
of this bulletin with bushings 222-012-739-105, or yoke 222-
012-702-113 and -117 may be used only with tail rotor
blades modified per Part I of this bulletin with bearings 222-
312-761-101 or blade 222-016-001-139/-141.

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-NOTE-

Blade assembly P/N 222-016-001-139 and/or -141 already
include bearings 222-312-761-101.

1. Remove tail rotor hub and blades assembly from the helicopter. Refer to BHT-
222/222B-MM-1, Chapter 65.
2. Remove tail rotor blades from tail rotor hub assembly and remove the pitch horn
from the tail rotor blade. Refer to BHT-222-CR&O-3, Chapter 64.

-NOTE-

Bearings of one blade must be replaced in pairs of the same part number 222-312-761-101.

3. Remove two (2) feathering bearings 222-312-753-103 from the tail rotor blade. Inspect the blade and the bearing sleeves. If applied, make sure that the bead of sealant at the junction of the flange of the bearing sleeve and the blade on both side of the blade is in good condition. Reapply sealant (C-392) as required. Refer to BHT-222-CR&O-3, Chapter 64.
4. Install two (2) new feathering bearings 222-312-761-101. Refer to BHT-222-CR&O-3, Chapter 64 for instructions.
5. Following installation of bearings 222-312-761-101, using a vibrating stylus, reidentify tail rotor blade for Model 222 only from 222-016-001-~~127~~ to 127M or ~~-135~~ to 222-016-001-141M. For Model 222B from 222-016-001-~~123~~ to -123M or ~~-131~~ to 222-016-001-139M.
6. Annotate blade history card to reflect compliance with Part I of this bulletin. Recorded part number should also be changed to read:

For Model 222 only 222-016-001-~~127~~ to -127M or ~~-135~~ to 222-016-001-141M

For Model 222B only 222-016-001-~~123~~ to -123M or ~~-131~~ -139M.=
7. Install the pitch horn on the tail rotor blade and install blades into a new or modified tail rotor yoke or tail rotor hub assembly. Refer to Part III of this bulletin and BHT-222-CR&O-3, Chapter 64.

-NOTE-

Installation of bearings P/N 222-312-761-101 in tail rotor blades 222-016-001-123, -127, -131 and -135. per Part I of this bulletin does not eliminate the recurrent blade inspection introduced by ASB 222-04-100. However, new blade P/N 222-016-001-139 and/or -141 with no letter after the part number no longer requires the inspection.

Part II: Retrofit of 222-012-739-105 bushings to existing tail rotor yoke 222-012-702-005 or -109.

-NOTE-

Tail rotor yokes P/N 222-012-702-005 which cannot be re-identified to -109 configuration per TB 222-92-135 are not eligible for upgrade per this bulletin.

-NOTE-

Yoke 222-012-702-109, which has been modified per Part II of this bulletin with bushings 222-012-739-105, or yoke 222-012-702-113 and -117 may be used only with tail rotor blades modified per Part I of this bulletin with bearings 222-312-761-101 or blade 222-016-001-139/-141.

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-NOTE-

Yoke assembly P/N 222-012-702-113 and -117 already include bushings 222-012-739-105.

1. Remove existing bushings from the yoke. Inspect yoke bushing bore for condition. Refer to BHT-222-CR&O-3, Chapter 64.
2. Install new bushings 222-012-739-105 in yoke. Refer to BHT-222-CR&O-3, Chapter 64.
3. Following installation of bushings 222-012-739-105, using a vibrating stylus, reidentify tail rotor yoke assembly from 222-012-702-~~409~~ to 222-012-702-113FM and tail rotor hub assembly from 222-012-701-~~407~~ or ~~419~~ to 222-012-701-139FM.
4. Annotate yoke and hub assemblies history card to reflect compliance with Part II of this bulletin. Recorded part number should also be changed to read: 222-012-702-~~409~~ -113FM and 222-012-701-~~419~~ to -139FM respectively.
6. Install new or modified tail rotor blades into a new or modified tail rotor yoke or tail rotor hub assembly. Refer to Part III of this bulletin and BHT-222-CR&O-3, Chapter 64.

Part III: Configuration and installation instructions for tail rotor hub assembly 222-012-701-139 including yoke assembly 222-012-702-113 or tail rotor hub assembly 222-012-701-145 including yoke assembly 222-012-702-117 and tail rotor blades 222-016-001-123M, -139M or -139 and/or -127M, -141M or -141.

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Certified design configuration of Model 222 helicopter at time of delivery were as follows:

Helicopter Serial No **47006-47089**

Tail rotor hub and blades assembly
222-012-701-105 (Note 1)

Tail rotor Hub assembly (Note 4, 6)
222-012-701-107

Tail rotor yoke assembly (Note 5)
222-012-702-005

Tail rotor blades
222-016-001-127 or -135

- Note 1. Replaced by Tail rotor hub and blades assembly 222-012-701-121/-127 which includes Tail rotor Hub assembly 222-012-701-119, tail rotor yoke assembly 222-012-702-109 and tail rotor blades 222-016-001-127/-135. See Notes 2, 3 and 7
- Note 2. Replaced by Tail rotor hub and blades assembly 222-012-701-141 which includes Tail rotor Hub assembly 222-012-701-139, tail rotor yoke assembly 222-012 702-113 and tail rotor blades 222-016-001-141. See Note 3 and 7.
- Note 3. Installation of Tail rotor hub and blades assembly 222-012-701-121 or -141 or -143 will require accomplishment of Technical Bulletin 222-94-142 Rev. A.
- Note 4. Replaced by Tail rotor Hub assembly 222-012-701-119 or -139 or -145. See Note 6
- Note 5. Replaced by Tail rotor yoke assembly 222-012-702-109, -113 or -117.
- Note 6. Tail rotor Hub assembly 222-012-701-119, -139 and/or -145 incorporate the new shimming procedure introduced by Technical Bulletin 222-92-135.
- Note 7. Replaced by Tail rotor hub and blades assembly 222-012-701-143 which includes Tail rotor Hub assembly 222-012-701-145, tail rotor yoke assembly 222-012 702-117 and tail rotor blades 222-016-001-141

Certified design configuration of Model 222B helicopter at time of delivery were as follows:

Helicopter Serial No. **47131-47146**

Tail rotor hub and blades assembly
222-012-701-109 (Note 1)

Tail rotor Hub assembly (Note 4, 6)
222-012-701-107

Tail rotor yoke assembly (Note 5)
222-012-702-005

Tail rotor blades
222-016-001-123 or -131

Helicopter Serial No. **47147-47155**

Tail rotor hub and blades assembly
222-012-701-111 (Note 1)

Tail rotor Hub assembly (Note 4, 6)
222-012-701-107

Tail rotor yoke assembly (Note 5)
222-012-702-005

Tail rotor blades
222-016-001-123 or -131

Helicopter Serial No. **47156**

Tail rotor hub and blades assembly
222-012-701-115 (Note 1)

Tail rotor Hub assembly
222-012-701-107 (Note 4, 6)

Tail rotor yoke assembly
222-012-702-005 (Note 5)

Tail rotor blades
222-016-001-123 or -131

- Note 1. Replaced by Tail rotor hub and blades assembly 222-012-701-129 which includes Tail rotor Hub assembly 222-012-701-119, tail rotor yoke assembly 222-012-702-109 and tail rotor blades 222-016-001-123/-131. See Notes 2, 3, 6 and 7
- Note 2. Replaced by Tail rotor hub and blades assembly 222-012-701-137 which includes Tail rotor Hub assembly 222-012-701-139, tail rotor yoke assembly 222-012 702-113 and tail rotor blades 222-016-001-139. See Notes 3, 6 and 7.
- Note 3. Installation of Tail rotor hub and blades assembly 222-012-701-129 or -137 or -149 will require accomplishment of Technical Bulletin 222-94-142 Rev. A.
- Note 4. Replaced by Tail rotor Hub assembly 222-012-701-119 or -139 or -145. See Note 6
- Note 5. Replaced by Tail rotor yoke assembly 222-012-702-109 or -113 or -117.
- Note 6. Tail rotor Hub assembly 222-012-701-119, -139 and/or -145 incorporate the new shimming procedure introduced by Technical Bulletin 222-92-135.
- Note 7. Replaced by Tail rotor hub and blades assembly 222-012-701-149 which includes Tail rotor Hub assembly 222-012-701-145, tail rotor yoke assembly 222-012 702-117 and tail rotor blades 222-016-001-139.

NOTE-

Yoke 222-012-702-005 or -109, which has been modified per Part II of this bulletin with bushings 222-012-739-105, or yoke 222-012-702-113 and -117 may be used only with tail rotor blades modified per Part I of this bulletin with bearings 222-312-761-101 or blade 222-016-001-139 or -141.

-NOTE-

For Model 222B, tail rotor blades 222-016-001-123 or -131 modified per Part I of this bulletin with bearings 222-312-761-101 or blade 222-016-001-139 may be intermixed when used with yoke 222-012-702-113 and -117.

-NOTE-

For Model 222 only, tail rotor blades 222-016-001-127 or -135 modified per Part I of this bulletin with bearings 222-312-761-101 or blade 222-016-001-141 may be intermixed when used with yoke 222-012-702-113 or -117.

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-NOTE-

Chamfered washers 140-007-29R30C5 must be installed next to the yoke with the heaviest balance washers against the chamfered washers. Balance washers configuration and quantities are not changed.

-NOTE-

Bolt 20-057-7-62D, quantity of 4 may be required to accomplish static/dynamic balance of the tail rotor hub and blades assembly. However, existing bolts 20-057-7-058D, or -60D may be reused if they meet inspection criteria per BHT-222-CR&O-3.

-NOTE-

Installation of bearings P/N 222-312-761-101 in tail rotor blades 222-016-001-123, -127, -131 and -135 per Part I of this bulletin does not eliminate the recurrent blade inspection introduced by ASB 222-04-100. However, new blade P/N 222-016-001-139 and/or -141 with no letter after the part number no longer requires the inspection.

1. Install modified tail rotor blades or new blades 222-016-001-139 or -141 in modified or new tail rotor hub assembly 222-012-701-139 or -145 in accordance with BHT-222 CR&O-3, Chapter 64 except you have to use Qty 8 chamfered washers 140-007-29R30C5 in replacement of washers 140-007-29S30A3 and Qty 4 nuts PCR67. You may also have to use Qty 4 blade retaining bolts 20-057-7-62D to accomplish static/dynamic balance of the tail rotor hub and blades assembly.
2. For Model 222 only, following installation of modified or new blades with a new or modified hub/yoke assembly, using a vibrating stylus, reidentifies tail rotor hub and blades assembly from ~~222-012-701-105 or 121 or 127~~ to 222-012-701-141, 141FM or -143.
3. For Model 222B, following installation of modified or new blades with a new or modified hub/yoke assembly, using a vibrating stylus, reidentify tail rotor hub and blades assembly from ~~222-012-701-109 or 111 or 115 or 129~~ to 222-012-701-137, 137FM or -149.

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4. Annotate tail rotor hub and blades assembly history card to reflect compliance with Part III of this bulletin. Recorded part number should also be changed to read:

For Model 222 only, 222-012-701-~~105 or 121 or 127~~ to 222-012-701-141, 141FM or -143

For Model 222B, 222-012-701-~~109 or 111 or 115 or 129~~ to 222-012-701-137, 137FM or -149.

5. Insert BHT-222-CR&O-3, Chapter 64, Revision 4, dated 28 April 2006 in BHT-222-CR&O Manual.