

Bell Helicopter **TEXTRON**

A Subsidiary of Textron, Inc.

August 4, 2000

TO: All Owners/Operators of Bell 222U Helicopters

SUBJECT: REVISION "B" TO TECHNICAL BULLETIN 222U-89-48 MAIN ROTOR HUB ASSEMBLY, P/N 222-011-101-105, -107, -109 AND P/N 222-012-101-103 AND -107 CONFIGURATION CHANGE AND UPGRADE

Revision "B" to this bulletin is issued to include an additional configuration.

Hub assembly P/N 222-012-101-107 includes the latest flapping spring 222-310-117-105.

TECHNICAL BULLETIN
Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

No. 222U-89-48

Date 05-19-89

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|---------------|
| DATE 08-04-00 |
| REV B |

MODEL AFFECTED: 222U

SUBJECT: MAIN ROTOR HUB ASSEMBLY, P/N 222-011-101-105, -107, -109 AND P/N 222-012-101-103 AND -107 CONFIGURATION CHANGE AND UPGRADE | B

HELICOPTERS AFFECTED: Model 222U Helicopters S/N 47501 through S/N 47574

COMPLIANCE: At Customer's Option

DESCRIPTION:

This bulletin provides information to operators that have a requirement to upgrade the main rotor hub assembly to the latest configuration. Table 1 lists the components that comprise the major differences for hub dash number configurations.

Certified design configuration of the helicopters at time of delivery were as follows:

| <u>Helicopter Serial No</u> | <u>Main Rotor Hub Assembly Part Number</u> |
|-----------------------------|--|
| 47501 through 47567 | 222-011-101-105 |
| 47568 through 47574 | 222-011-101-107 |

Main rotor hub assembly P/N 222-012-101-107 is the current spare replacement. | B

The use of a later dash numbered hub assembly on an earlier helicopter serial number is approved. The use of an earlier dash number hub assembly on a later helicopter serial number is not authorized. To do so places the helicopter out of the certified design configuration.

A dash number identification change in the hub assembly records is required. Historical records must be annotated with the new part numbers and retirement lives as applicable.

APPROVAL:

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

MANPOWER:

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

MATERIALS:

Reference ACCOMPLISHMENT INSTRUCTIONS, standard replacement parts for overhaul are not included. Material will be available through your Bell Helicopter Supply Center.

SPECIAL TOOLS:

Reference Model 222 Series Component Repair and Overhaul Manual, Volume 2, Chapter 62.

For the assembly of main rotor hub P/N 222-012-101-103 and -107, the following tools are required: | B

| | |
|-------------|--------------------------|
| T102045-109 | Grip spacing lower plate |
| T102045-111 | Grip spacing upper plate |

WEIGHT AND BALANCE:

Installation of M/R hub assembly P/N 222-012-101-103 and -107 has the following effect on weight and balance: | B

| <u>Weight Change</u> | <u>Moment Arm</u> | <u>Moment Change</u> |
|-------------------------|-------------------|----------------------|
| Longitudinal + 18.3 lbs | 247.7 | 4532.91 |

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

BHT-222U-MM-2, Chapter 4 and 5
BHT-222U-MM-6, Chapter 62
BHT-222-CR&O-2, Chapter 62, Component Repair and Overhaul
Alert Service Bulletin 222U-86-14 "A" Flapping Bearing Rework
Alert Service Bulletin 222U-88-20 Main Rotor Yoke Inspection
Alert Service Bulletin 222U-88-25 Main Rotor Yoke Modification
Alert Service Bulletin 222U-92-33 Flapping Bearing Inspection
Alert Service Bulletin 222U-93-38 Flapping Bearing Replacement
Alert Service Bulletin 222U-94-45 Flapping Spring Inspection
Alert Service Bulletin 222U-95-49 Grip bolts inspection and retorque
Alert Service Bulletin 222U-98-52 Grip and Flapping bearing bolts retorque
Alert Service Bulletin 222U-98-54 Flapping bearing attach bolts inspection
Technical Bulletin 222U-87-41 M/R trunnion bolts installation and retorque
Technical Bulletin 222U-89-52 Pendulum damper modification
Technical Bulletin 222U-94-74 Hub and blades chordwise balance increase
Technical Bulletin 222U-95-79 Flapping spring 222-310-117-105 introduction
Operation safety Notice 222U-92-10 Flapping bearing inspection

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PUBLICATIONS AFFECTED:

BHT-222U-MM-2, Chapter 4 and 5
BHT-222U-MM-6, Chapter 62
BHT-222-CR&O-2, Chapter 62, Component Repair and Overhaul

ACCOMPLISHMENT INSTRUCTIONS:

Upgrading of main rotor hub assembly will require incorporation of ASB 222U-88-20, ASB 222U-88-25 and ASB 222U-93-38 if not previously accomplished.

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 main rotor hub assembly in accordance with Model 222 Series Component Repair and Overhaul Manual and Technical Bulletin 222U-95-79.

Procedure to assemble rotor hub assembly P/N 222-012-101-103 and/or -107 is similar to the hub assembly P/N 222-011-101 - all listed in Chapter 62 of BHT-222-CR&O-2, except for the following differences:

- 1) Use tool P/N T102045-111 upper plate and P/N T102045-109 lower plate in lieu of P/N T102045-007/-003 for grip spacing.

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- 2) Total shim thickness (222-012-109-101) at the inboard feathering bearing to be .186 inch maximum.
- 3) Total shim thickness (222-012-110-103) at the outboard feathering bearing to be .240 inch maximum.
- 4) When installing bolts retaining the flapping springs and supports to the trunnion, if the shim thickness is greater than .032 inch, use bolts P/N NAS 626-10 (alt. MS21250-06010). If the shim thickness is less than .032 inch, use bolts P/N NAS 626-8 (alt. MS21250-06008).

-NOTE-

Apply primer (C-204, BHT-ALL-SPM) to mating surfaces of flapping bearings, flapping springs, shims, supports and bolts shank only prior to installation.

- 5) Install and shim flapping springs P/N 222-310-117-105 in accordance with procedure in Technical Bulletin 222U-95-79. B

The upgraded Main rotor hub assembly must have its data plate and Historical Record reidentified to new part number that the Main rotor hub 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 shall never be altered or changed.

Example: Upgrade the Main rotor hub assembly P/N 222-011-101-105 to 222-011-101-109 or 222-012-101-107 configuration. Reidentify Main rotor hub assembly data plate and Historical Service Record to new part number: 222-011-101-~~105~~-109FM or 222-012-101-107FM
Retain existing serial number.

TABLE 1
MAIN ROTOR HUB ASSEMBLY

| PART NUMBER | NOMENCLATURE | CONFIGURATION | | | | | NOTES |
|-----------------|----------------------|---------------|------|------|------|------|----------------|
| | | -105 | -107 | -109 | -103 | -107 | |
| 222-011-101 | Hub Assembly | | | | | | |
| 222-012-101 | Hub Assembly | | | | -103 | -107 | |
| MS14144-L7 | Nut | | | | X | X | |
| MS17825-7 | Nut | X | X | X | | | |
| MS21250-06010 | Bolt | X | X | X | X | X | (16) |
| 20-071-8-126 | Bolt | X | | | | | (10) (18) |
| 42FLW-820 | Nut | X | | | | | (10) |
| 72991-8-126 | Bolt | | X | X | | | (10) (11) (18) |
| 75943S820 | Nut | | X | X | X | X | (10) |
| 140-007-33-28-3 | Washer | | X | X | X | X | (10) |
| 222-010-104-105 | Grip Assembly | X | X | X | | | |
| 222-010-142-103 | Retainer | X | | | | | (2) |
| 222-010-154-111 | Trunnion | X | X | X | X | X | |
| 222-010-165-101 | Retainer | X | X | X | X | X | |
| 222-011-102-101 | Yoke | X | X | | | | (3) (6) |
| 222-011-102-105 | Yoke | | | X | X | X | |
| 222-011-104-101 | Pitch Horn | X | X | X | | | |
| 222-011-108-101 | O/B Spindle Assembly | X | X | X | | | |
| 222-011-108-105 | O/B Spindle Assembly | | | | X | X | (9) |
| 222-011-109-101 | Shim I/B | X | X | X | | | |
| 222-011-110-101 | Shim O/B | X | X | X | | | |
| 222-011-113-101 | Shaft Pendulum | X | X | | | | (15) |
| 222-011-113-103 | Shaft Pendulum | | | X | X | X | |
| 222-011-114-101 | Support | X | X | | | | (15) |
| 222-011-114-103 | Support | | | X | X | X | |
| 222-012-102-101 | Pitch Horn | | | | X | X | (9) |
| 222-012-104-101 | Grip Assembly | | | | X | X | (9) |
| 222-012-109-101 | Shim I/B | | | | X | X | (9) |
| 222-012-110-103 | Shim O/B | | | | X | X | (9) |
| 222-310-114-003 | Flapping Bearing | X | | | | | (1) |
| 222-310-114-105 | Flapping Bearing | X | | | | | (1) |

| PART NUMBER | NOMENCLATURE | CONFIGURATION | | | | | NOTES |
|-----------------|-------------------|---------------|------|------|------|------|---------------|
| | | -105 | -107 | -109 | -103 | -107 | |
| 222-011-101 | Hub Assembly | | | | | | |
| 222-012-101 | Hub Assembly | | | | -103 | -107 | |
| 222-310-114-107 | Flapping Bearing | X | X | | | | (1) |
| 222-310-114-109 | Flapping Bearing | | | X | | | (1) |
| 222-310-114-111 | Flapping Bearing | | | | X | X | |
| 222-310-115-111 | Bearing, O/B | | | X | | | (8) |
| 222-310-115-115 | Bearing, I/B | | | X | | | (5) |
| 222-310-115-117 | Bearing, I/B | X | X | | | | (5) |
| 222-310-115-119 | Bearing, O/B | X | X | | | | (8) |
| 222-310-116-103 | Bolt, spindle I/B | X | X | X | | | (7) (13) |
| 222-310-117-101 | Flapping Spring | X | | | | | (4) (17) (19) |
| 222-310-117-103 | Flapping Spring | X | X | X | X | | (17) (19) |
| 222-310-117-105 | Flapping Spring | | | | X | X | (19) |
| 222-310-118-103 | Bolt, spindle O/B | X | X | X | | | (7) (14) |
| 222-310-125-103 | Bearing, I/B | | | | X | X | (9) |
| 222-310-126-101 | Bearing O/B | | | | X | X | (9) |
| 222-310-127-101 | Bolt | | | | X | X | |
| 222-310-128-103 | Bolt, Spindle I/B | | | | X | X | (12) |
| 222-310-129-103 | Bolt, Spindle O/B | | | | X | X | (12) |

NOTES

- (1) For spare parts replacement, use P/N 222-310-114-111.
- (2) For spare parts replacement, use P/N 222-010-165-101.
- (3) For spare parts replacement, use P/N 222-011-102-105.
- (4) For spare parts replacement, use P/N 222-310-117-103.
- (5) 222-310-115-117 is the Barry inboard bearing; use -115 (Lord inboard bearing) as an alternate.
- (6) Compliance with ASB 222U-88-25 upgrades yoke, P/N 222-011-102-101 to P/N 222-011-102-105.
- (7) 1200 hour airworthiness life limitation. Refer to BHT-222U-MM-2, Chapter 4.
- (8) 222-310-115-119 is the Barry outboard bearing; use -111 (Lord outboard bearing) as an alternate.
- (9) Use in pairs only.
- (10) 20-071-8-126 Bolt and 42FLW820 nut replaced by 72991-8-128 Bolt, 75943S820 nut and 140-007-33-28-3 washer under the nut as a unit. Refer to note (18).
- (11) Replaced by 72991-8-128 Bolt. Refer to note (18).
- (12) 5000 hour airworthiness life limitation. Refer to BHT-222U-MM-2, Chapter 4.
- (13) For spare parts replacement, use 222-310-128-103 bolt. Refer to note (12).
- (14) For spare parts replacement, use 222-310-129-103 bolt. Refer to note (12).
- (15) Compliance with TB 222U-89-52 upgrades shaft P/N 222-011-113-101 into -103 and support P/N 222-011-114-101 into -103.
- (16) When installing bolts retaining the flapping springs and supports to the trunnion, if the shim thickness is greater than .032 inch, use bolts P/N NAS 626-10 (alt. MS21250-06010). If the shim thickness is less than .032 inch, use bolts P/N NAS 626-8 (alt. MS21250-06008).
- (17) For spare parts replacement, use flapping spring P/N 222-310-117-105. Refer to note (19)

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- (18) For spare replacement of bolt P/N 20-071-8-126 or 72991-8-126, use bolt P/N 20-097-08-128.
- (19) Install flapping bearing P/N 222-310-117-105 in accordance with procedures in Technical Bulletin 222U-95-79.

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