

TECHNICAL BULLETIN
Bell Helicopter **TEXTRON**

A Subsidiary of Textron Inc.

No. 214-02-93

Date 08-30-02

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DATE
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MODEL AFFECTED: 214B/214B-1

SUBJECT: **MAIN ROTOR HUB ASSEMBLY SPINDLE ASSEMBLY, P/N 214-010-103, REVISION OF INSPECTION AND OVERHAUL REQUIREMENTS.**

HELICOPTERS AFFECTED: All Model 214B/214B-1 helicopters

COMPLIANCE: Effective upon receipt of this Technical Bulletin.

DESCRIPTION:

As the result of the investigation of a fractured spindle assembly, BHTI has determined that additional inspection and overhaul tasks are necessary.

A special 25 hour inspection (PART I of this bulletin) is established to perform a specific visual inspection of the spindle for cracks and bushing wear at the four spindle to yoke attachment holes.

In addition, the spindle to yoke attachment hole bushings must be removed at overhaul (2500 hours), the spindle hole bores inspected for condition/wear, and new bushings reinstalled (PART II of this bulletin). Because this is a critical task involving specialized tooling and processes, bushing removal/installation and hole bore inspection will be accomplished only by Bell Helicopter.

PART III of this bulletin provides specific details about how to return spindles to Bell Helicopter for the 2500 hour overhaul bushing replacement.

APPROVAL:

Not required.

MANPOWER:

Approximately 1.0 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:

Not required.

SPECIAL TOOLS:

None required

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected

REFERENCES:

BHT-214-IPB Illustrated Parts Breakdown, Chapter 62
BHT-214-MM Maintenance Manual, Chapters 5 and 65
BHT-214-CR&O-1 Component Repair and Overhaul, Chapter 65

PUBLICATIONS AFFECTED:

BHT-214-MM Maintenance Manual, Chapter 5
BHT-214-CR&O-1 Component Repair and Overhaul, Chapter 65

ACCOMPLISHMENT INSTRUCTIONS:

PART I - REVISION TO MAINTENANCE MANUAL, CHAPTER 5, SPECIAL INSPECTION

Add following requirement to Paragraph 5-9. **EACH 25 HOURS OF FLIGHT OPERATION.** All other existing inspection requirements under this paragraph remain

unchanged:

MAIN ROTOR HUB

Inspect the visible areas of the main rotor spindles for general condition (Refer to BHT-214-CR&O-1 for damage limits) and:

1. Cracks at the four spindle to yoke attachment holes. Cracked spindles are non-airworthy and must be replaced.
2. Evidence of looseness/movement of the spindle to yoke attachment hole bushings. If bushing looseness/movement is verified or suspected, remove spindle for overhaul inspection/repair.

PART II - REVISION TO COMPONENT REPAIR AND OVERHAUL MANUAL, CHAPTER 65.

1. Paragraph 65-12.

Revise sub-paragraphs 1 through 4, including notes, as shown below. Existing sub-paragraphs 4.a through 14 remain unchanged:

1. Inspect all threaded parts for damage.
2. Inspect hub parts for mechanical and corrosion damage (figure 65-8).
- 2A. Inspect spindle (7, figure 65-5):
 - a. For cracks (paying particular attention to the inboard bearing journal radius and the area around the yoke to spindle attachment bushings), bearing journal wear, and thread damage. No cracks allowed.
 - b. Yoke to spindle attachment bushings for fretting/looseness. Bushings exhibiting evidence of fretting, looseness, or movement must be replaced.
 - c. At each 2500 hour overhaul remove yoke to spindle attachment bushings, inspect spindle bores for damage, and install new bushings. Bushing removal/installation and bore inspection may only be accomplished by Bell Helicopter.
3. Inspect bolts (6, figure 65-5) for corrosion. Bolts that show evidence of corrosion shall be replaced.

4. Inspect and repair bores in yoke as follows:

NOTE: Bushing replacement as noted in the following paragraph may only be accomplished by an approved 214 component overhaul facility.

2. Figure 65-7 (sheet 4)

Revise as noted on page 5 of this bulletin.

3. Figure 65-8 (sheet 2)

Revise as noted on page 6 of this bulletin.

4. Figure 65-9 (sheet 1)

Revise as noted on page 7 of this bulletin.

5. Paragraph 65-13 Repair.

Add the following sub-paragraph:

3A. Spindle Repair

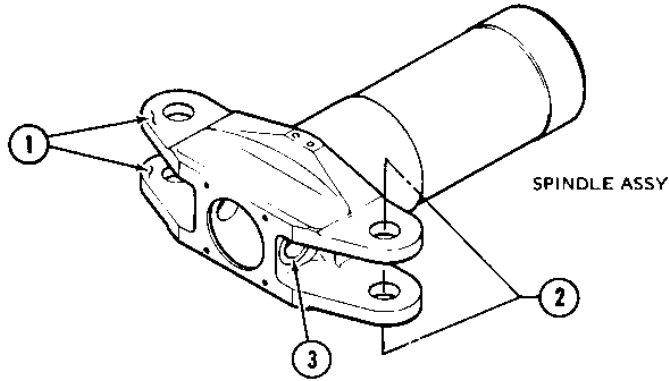
a. Refer to preceding paragraph 3 for general repair.

b. Worn or loose spindle to yoke attachment bushings must be replaced and the spindle bores inspected for damage. Removal/installation of bushings and spindle bore inspection may only be accomplished by Bell Helicopter.

PART III – PARTS RETURN TO BELL HELICOPTER TEXTRON

1. Spindles being returned to Bell Helicopter for the 2500 hour overhaul bushing replacement/inspection are to be returned with an RMA (Return Material Authorization). Contact your Customer Support Specialist for an RMA form (telephone 817-280-2919, facsimile 817-280-4745/3224).

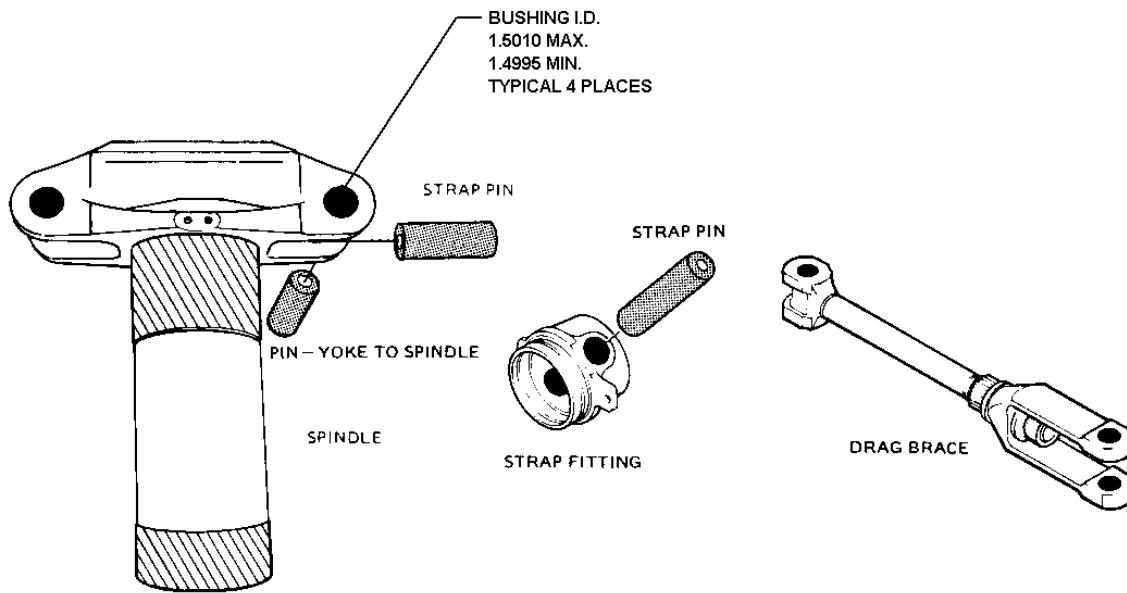
2. Parts are to be returned to Bell Helicopter Textron Inc., 3000 S. Norwood Drive, Hurst Texas, 76053. Attn: Customer Property Return Monitor.
 - a. This process will be accomplished expeditiously, and with your assistance, the spindle will be ready for return shipment within 5-7 workdays. However, it should be noted that spindles will be inspected on a first-come, first-serve basis.
 - b. Please insure that returned spindles are accompanied by their HISTORICAL RECORD CARDS (hard card) and the RMA. Please write on the outside of the box the words, "214 Spindle Assembly Inspection/Overhaul".
 - c. The estimated cost is \$ 4,775.00 (2002).



NO.	ITEM	REUSE SPINDLE	SCRAP SPINDLE-STRAPS-PINS	SCRAP HUB ASSY
	NOMENCLATURE			
1	Spindle lug faces, eight places	No visible deformation on lug face when checked with a straight edge	Any visible deformation on both sides of a lug when checked with a straight edge	
2	Spindle to yoke attachment bushings	Unworn 214-040-129 pin shall fit through the spindle tangs without interference. Hole round within 0.0005 inch.	Any significant bind or looseness. Out-of-round exceeds 0.0005 inch.	
3	Strap Pin Hole	Hole round within 0.0005 inch.	Out-of-round exceeds 0.0005 inch.	Out-of-round exceeds 0.0015 inch with larger dimension in a spanwise direction.

Figure 65-7. Main rotor hub conditional inspection (Sheet 4 of 6)

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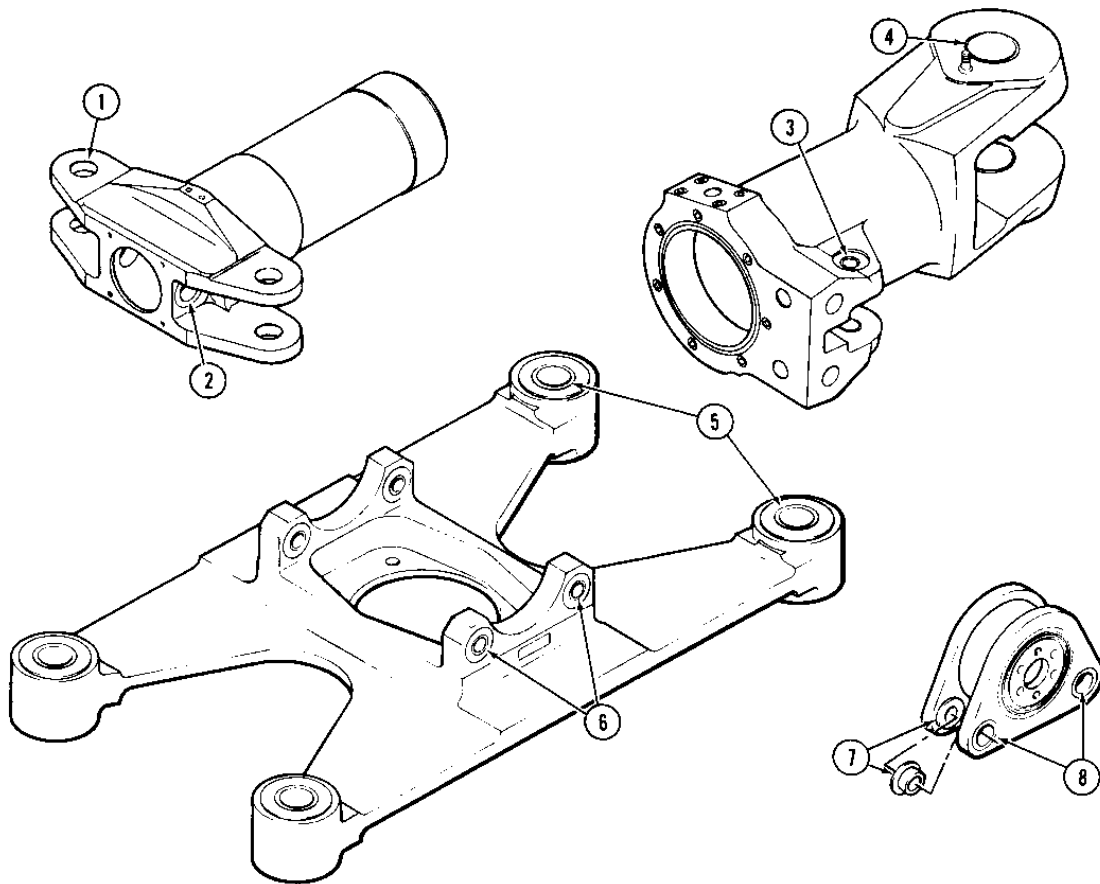
DAMAGE AREA REPAIR SYMBOLS



TYPE OF DAMAGE	MAXIMUM DEPTHS AND REPAIR AREAS		
	0.001 Inch (0.0254 mm)	0.010 Inch (0.254 mm)	0.004 (0.1016 mm)
MECHANICAL DAMAGE	0.001 Inch (0.0254 mm)	0.010 Inch (0.254 mm)	0.004 (0.1016 mm)
CORROSION DAMAGE	0.001 Inch (0.0254 mm)	0.010 Inch (0.254 mm)	0.004 (0.1016 mm)
MAXIMUM AREA PER FULL DEPTH REPAIR	0.50 Inch Square (322.58 mm sq.)	Not Critical	0.50 Inch Square (322.58 mm sq.)
NUMBER OF REPAIRS	Two	Not Critical	Two Per Segment
EDGE CHAMFER	0.010 Inch (0.254 mm)	0.040 Inch (1.016 mm)	0.010 Inch (0.254 mm)
MOUNT BOLT BORE ● DAMAGE:	0.001 in. (0.0254 mm) for 1/4 circumference, size limits apply.		
CRACKS:	No cracks allowed.		

Figure 65-8. Main rotor hub mechanical and corrosion damage limits (Sheet 2 of 5)

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HOLE NO.	NOMENCLATURE	HOLE DIAMETER	
		MIN.	MAX.
1	Bushings, Spindle to Yoke	1.4995	1.5010
2	Hole, Strap Pin	1.625	1.6265
3	Bushings, Drag Brace Installation	1.000	1.002
4	Bushings, Main Blade Bolt	2.875	2.877
5	Bushings, Spindle Installation	1.4995	1.5005
6	Bushing, Bearing Installation	0.7495	0.7505
7	Bushing, Bearing to Yoke	0.7495	0.7510
8	Bushing, Slip Bushing Installation	1.0000	1.0015

214010-120

Figure 65-9. Main rotor hub hole wear limits (Sheet 1 of 2)