



A Textron Company

## **ALERT SERVICE BULLETIN**

**204B-23-77**  
24 August 2023

**MODEL AFFECTED:** 204B

**SUBJECT:** DRAG BRACE ASSEMBLY 204-011-140-001,  
MAGNETIC PARTICLE INSPECTION OF.

**HELICOPTERS AFFECTED:** Serial numbers 2001 through 2070 and 2196  
through 2199.

**COMPLIANCE:** No later than 1200 flight hours or 24 months after the  
release date of this bulletin and every 1200 flight hours  
/ 24 months thereafter.

### **DESCRIPTION:**

Following the review of the 204-011-140 drag brace assembly service history, Bell released the Alert Service Bulletins (ASB) 205B-90-2 and 212-90-59 mandating the accomplishment of a recurring Magnetic Particle Inspection (MPI) on the 204-011-140-001, -003 and -005 drag brace assemblies. Those ASB's also provided instructions to assemble the drag brace assembly with corrosion preventive compound to improve the corrosion protection. This ASB mandates the accomplishment of a recurring MPI of the 204-011-140-001 drag brace assembly when used on the 204B helicopter. This drag brace assembly MPI and CPC requirement will be added to the existing BHT-204B-M&O 1200 HOURS OR 24 MONTHS Special Inspections.

Applicability of this bulletin to any spare part shall be determined prior to its installation on an affected helicopter.

### **APPROVAL:**

The engineering design aspects of this bulletin are FAA approved for FAA certified helicopters as listed in the applicable Type Certificate Data Sheet. For non FAA certified helicopters, the engineering design aspects of this bulletin are Bell Engineering approved.

**CONTACT INFO:**

For any questions regarding this bulletin, please contact:

Bell Product Support Engineering  
Tel: 1-450-437-2862 / 1-800-363-8023 / productsupport@bellflight.com

**MANPOWER:**

Approximately 1.5 man-hours are required to complete this bulletin if accomplished in conjunction with the tension-torsion strap change. This estimate is based on hands-on time and may vary with personnel and facilities available.

**WARRANTY:**

There is no warranty credit applicable for parts or labor associated with this bulletin.

**MATERIAL:**

**Required Material:**

None required.

**Consumable Material:**

The following material is required to accomplish this bulletin, but may not require ordering, depending on the operator's consumable material stock levels. This material may be obtained through your Bell Supply Center.

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>	<u>Reference *</u>
2100-00044-00	CORROSION PREVENTATIVE COMPOUND (GRADE 1)	1 PT (1)	C-101
2100-00371-00	ALCOHOLIC PHOSPHORIC CLEANER	1 GAL (1)	C-344
5040-60115-00	ALUMINUM OXIDE ABRASIVE PAD	1 ROLL (1)	C-407
COMMERCIAL	STEEL WOOL	AR	C-411

\* C-XXX numbers refer to the consumables list in the BHT-ALL-SPM, Standard Practices Manual.

**NOTE 1:** Quantity indicated is the format that the product is delivered in. Actual quantity required to accomplish the instructions in this bulletin may be less than what has been delivered.

**SPECIAL TOOLS:**

None required.

**WEIGHT AND BALANCE:**

Not affected.

**ELECTRICAL LOAD DATA:**

Not affected.

**REFERENCES:**

BHT-204B-M&O Maintenance and Overhaul Instructions, Section 2.

**PUBLICATIONS AFFECTED:**

BHT-204B-M&O Maintenance and Overhaul Instructions, Sections 1 and 2.

**ACCOMPLISHMENT INSTRUCTIONS:**

**Magnetic Particle Inspection (MPI) of the drag brace assembly parts.**

1. Prepare the helicopter for maintenance.
2. Remove and disassemble the drag brace assembly (BHT-204B-M&O, Section 2).

-NOTE-

In reference to the Figure 1 (Figure 2-8, sheets 1 and 3 shown below extracted from the BHT-204B-M&O), the items that require an MPI are numbers 17, 18, 19 and 20.

3. Magnetic particle inspection of the drag brace fitting (20). The drag brace fitting must be inspected by all the following steps using wet continuous method. The use of fluorescent coated particles with ultraviolet light is mandatory. The length of any indication shall be determined by the residual method of magnetization.

-NOTE-

If AC magnetic equipment particle inspection is used, use 60% of the DC amps specified.

- a. Thoroughly degrease the drag brace fitting.

- b. Place the drag brace fitting longitudinally between the contact heads of the inspection equipment. Pass 2500 amps of DC current through the drag brace fitting.
  - c. Inspect the drag brace fitting completely for indications.
  - d. Place a 3/4 inch (19.05 mm) diameter central conductor (copper or aluminum bar) through the clevis holes of the drag brace fitting. Place the central conductor between the contact heads of the inspection machine. Pass 1000 amps DC current through the central conductor.
  - e. Inspect the drag brace fitting completely for indications.
  - f. Place the drag brace fitting in the coil so that the longitudinal axis of the drag brace fitting is perpendicular to the plane of the coil. Magnetize the drag brace fitting using 15,000 amp-turns.
  - g. Inspect the drag brace fitting completely for indications.
  - h. Acceptance criteria.
    - (1) Magnetic particle indications interpreted as cracks are cause for rejection.
  - i. After completion of inspection, demagnetize the drag brace fitting and check with a pocket field indicator or compass to ensure demagnetization.
  - j. Inspect internally for corrosion. Any internal superficial corrosion that cannot be removed with cleaner (C-344), abrasive pad (C-407), or steel wool (C-411) is cause for rejection.
4. Magnetic particle inspection of the drag brace barrel (19). The drag brace barrel must be inspected by all of the following steps using wet continuous method. The use of fluorescent coated particles with ultraviolet light is mandatory. The length of any indication shall be determined by the residual method of magnetization.

-NOTE-

If AC magnetic equipment particle inspection is used, use 60% of the DC amps specified.

- a. Thoroughly degrease the drag brace barrel.
- b. Place the drag brace barrel longitudinally between the contact heads of the inspection equipment. Pass 1000 amps of DC current through the drag brace barrel.
- c. Inspect the drag brace barrel completely for indications.

- d. Place the drag brace barrel in the coil so that the longitudinal axis of the drag brace barrel is perpendicular the plane of the coil and equal lengths of the drag brace barrel protrude from each end of the coil. Magnetize the drag brace barrel using 11,000 amp-turns.
  - e. Inspect the drag brace barrel completely for indications.
  - f. Acceptance criteria.
    - (1) Magnetic particle indications interpreted as cracks are cause for rejection.
  - g. After completion of inspection, demagnetize the drag brace barrel and check with a pocket field indicator or compass to ensure demagnetization.
5. Magnetic particle inspection of the drag brace clevis (17). The drag brace clevis must be inspected by all of the following steps using wet continuous method. The use of fluorescent coated particles with ultraviolet light is mandatory. The length of any indication shall be determined by residual method of magnetization.

-NOTE-

If AC magnetic equipment particle inspection is used, use 60% of the DC amps specified.

- a. Thoroughly degrease the drag brace clevis.
- b. Place the drag brace clevis longitudinally between the contact heads of the inspection equipment and pass 2000 amps of DC current through the drag brace clevis.
- c. Inspect the drag brace clevis completely for indications.
- d. Place a 0.750 inch (19.05 mm) diameter central conductor (copper or aluminum bar) through clevis holes.
- e. Place central conductor between contact heads of inspection equipment.
- f. Pass 1000 amperes DC through central conductor. Inspect the drag brace clevis completely for indications.
- g. Inspect the drag brace clevis completely for indications.
- h. Place the drag brace clevis in the coil so that the longitudinal axis of the drag brace clevis is perpendicular to the plane of the coil.
- i. Magnetize the drag brace clevis using 15,000 amp-turns.

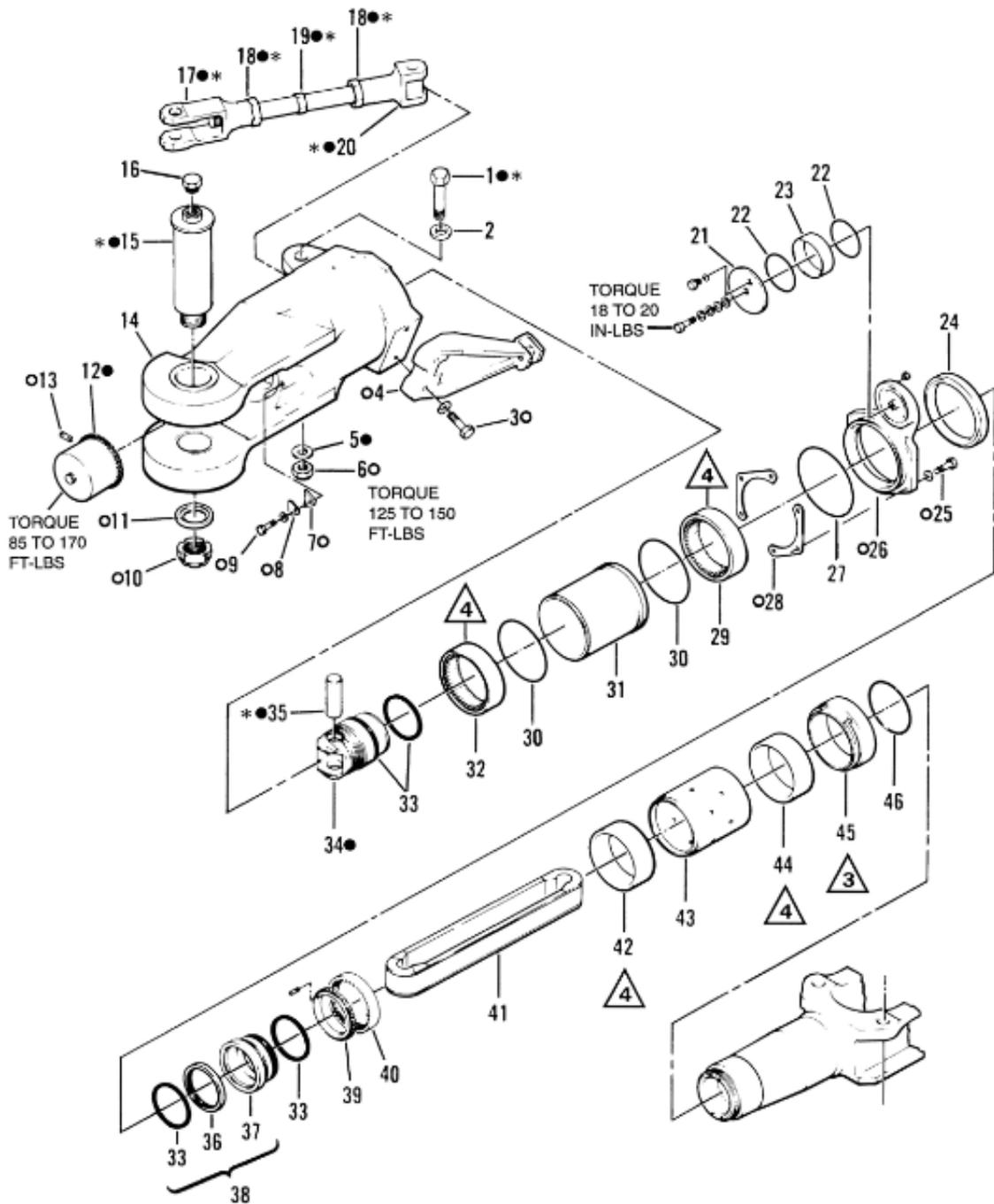
- j. Inspect the drag brace clevis completely for indications.
  - k. Acceptance criteria:
    - (1) Magnetic particle indications interpreted as cracks are cause for rejection.
  - l. After completion of inspection, demagnetize the drag brace clevis and check with a pocket field indicator or compass to ensure demagnetization.
6. Magnetic particle inspection of the drag brace nuts (18). The drag brace nuts must be inspected by all of the following steps using wet continuous method. The use of fluorescent coated particles with ultraviolet light is mandatory. The length of any indication shall be determined by residual method of magnetization.

-NOTE-

If AC magnetic equipment particle inspection is used, use 60% of the DC amps specified.

- a. Thoroughly degrease the drag brace nut.
  - b. Place a 1-1/4inch (31.75 mm) diameter central conductor (copper or aluminum bar) through the drag brace nut. Place the central conductor between the contact heads of the inspection equipment. Pass 1500 amps of DC current through the central conductor.
  - c. Inspect the drag brace nut completely for indications.
  - d. Place the drag brace nut in the coil so that the diameter of the drag brace nut is concentric with the coil diameter.
  - e. Magnetize the drag brace nut using 15,000 amp-turns.
  - f. Inspect the drag brace nut completely for indications.
  - g. Rotate the drag brace nut 180° around its diameter and repeat step d through step f.
  - h. Acceptance criteria:
    - (1) Magnetic particle indications interpreted as cracks are cause for rejection.
  - i. After completion of inspection, demagnetize the drag brace nut and check with a pocket indicator or compass to make sure demagnetization.
7. Assemble and install the drag brace assembly (BHT-204B-M&O, Section 2).

8. Apply corrosion preventive compound (C-101), to inner diameter and threaded parts of drag brace assembly.
9. Make an entry in the helicopter logbook and historical service records indicating compliance with this Alert Service Bulletin.



204B-M-2-B-1

Figure 2-8. Main rotor hub assembly (Sheet 1 of 3)

Figure 1. Drag brace assembly detail parts. (Sheet 1 of 2)



*●1. Bolt	○28. Shim	○55. Nut
○2. Washer	29. Inboard bearing	●56. Inboard fitting
○3. Bolt	30. Packing	57. Yoke
○4. Pitch horn	31. Outer spacer	58. End cap
●5. Washer	32. Outboard bearing	○59. Static stop
○6. Nut	33. Packing	○60. Bolt
○7. Strap retainer lock	●34. Outboard fitting	61. Grip aligning bracket
○8. Clamp	*●35. Pin	○62. Stop
○9. Bolt	36. Seal	●63. Pin
○10. Nut	37. Seal sleeve	●64. Backup ring
○11. Washer	38. Seal sleeve assembly	65. Nut
●12. Nut	39. Lockplate	66. Washer
○13. Key	40. Nut	67. Retainer ring
14. Grip	41. Strap assembly	68. Packing
*●15. Blade retainer bolt	42. Inner race	69. Seal
16. Plug	43. Inner spacer	○70. Pillow block
*●17. Drag brace clevis	44. Inner race	71. Packing
*●18. Nut	45. Shield assembly	○72. Bolt
*●19. Drag brace barrel bolt	46. Packing	73. Thrust washer
*●20. Drag brace fitting	○47. Bolt	74. Bearing lock
21. Cover	○48. Bushing	75. Packing
22. Packing	49. Packing	76. Inner race
23. Sight glass	50. Reservoir	77. Packing
24. Seal	51. Cover	○78. Radius ring
*●25. Bolt	52. Bearing	79. Trunnion
○26. Plate assembly	○53. Shim	○80. Nut
27. Packing	●54. Liner assembly	

NOTES

- 1 Apply grease (C-172 or C-561) on all faying surfaces of items marked with ●.
- 2 Apply primer (C-204) to faying surfaces of items marked with ○ and install while primer is still wet.
- 3 Apply a bead of sealant (C-328) to yoke spindle and radius ring faying surfaces.
- 4 Do not remove any yoke material or teflon coating on bearings to ease installation. It is permissible to heat bearings 150 – 200°F. Bearing bore and yoke spindles may be coated with hub lubricating oil (C-013) during installation.
- 5 Apply corrosion preventive compound (C-127) to thinly coat surface of mast clearance hole in yoke.
- 6 Apply corrosion preventive compound (C-101) to external surfaces of bolts, nuts, and washers, marked with \*. Do not apply to working threads.

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Figure 2-8. Main rotor hub assembly (Sheet 3)

Figure 1. Drag brace assembly detail parts. (Sheet 2 of 2)