



A Textron Company

ALERT SERVICE BULLETIN

UH-1H-22-23
20 July 2022

MODEL AFFECTED: UH-1H

SUBJECT: TAILBOOM ATTACHMENT HARDWARE,
INSPECTION AND REPLACEMENT OF

HELICOPTERS AFFECTED: ALL UH-1H

COMPLIANCE:

Part I: Within the next 300 flight hours or 90 days after the release date of this bulletin.

Part II: Within 1 to 5 flight hours after accomplishment of Part 1.

Part III: Within the next 600 flight hours or 12 months, whichever comes first after accomplishment of **Part II** and every 600 flight hours or 12 months thereafter.

Part IV: Within the next 5,000 hours or 5 years, whichever comes first after accomplishment of **Part I** and every 5,000 flight hours or 5 years thereafter.

DESCRIPTION:

Bell receives occasional reports of tailboom attachment barrel nuts found cracked. The root cause for cracking can vary from corrosion damage, high time in service or hydrogen embrittlement. In a recent case, the upper left-hand barrel nut was found cracked with less than 1000 hours in service. The investigation revealed that cracking was due to hydrogen embrittlement.

Bell investigated two recent reports of in-flight upper left hand tailboom attachment bolt fracture. The root cause of the fracture has been attributed to fatigue and low torque is suspected as being a contributing factor. In both cases, a loud bang was heard followed by a yaw.

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Part I of this bulletin mandates the removal of the tailboom to inspect the fuselage and tailboom bulkheads for mechanical and corrosion damage, replacement of the upper left tailboom attachment bolt and a detailed visual inspection of the other three bolts for mechanical or corrosion damage. This bulletin also mandates the replacement of the current steel alloy barrel nut NAS577BxA with a nickel alloy barrel nut NAS577CxA that offers better corrosion resistance and is not susceptible to hydrogen embrittlement. This will mitigate the risk of barrel nut cracking that can lead to loss of attachment bolt torque and subsequent fracture.

Due to the criticality of the tailboom attachment points and, since the upper left attachment is the most critical, **Part I** of this bulletin also mandates the replacement of the upper left tailboom attachment bolt as well as a detailed visual inspection of the three other bolts. Any bolt that requires replacement must be replaced with a new bolt.

NOTE

Bell Helicopter does not write or revise the AMCOM Technical Manuals. These AMCOM manuals will not be updated to reflect this Alert Service Bulletin (ASB). Bell Textron recommends at 5000 Hours or every 5 years the replacement of the upper L/H bolt, while the remaining 3 bolts will require a detailed visual inspection.

Part II of this bulletin changes the existing 100 Hours After Installation of Tailboom Special Inspection requirement. The torque check is now to be accomplished between 1 and 5 flight hours after tailboom installation or bolt replacement and repeated until torque has stabilized (three times maximum). **Part II** will require accomplishment anytime the tailboom is installed or a tailboom attachment bolt is replaced

Part III of this bulletin introduces a new recurring torque check of all four attachment bolts. This new torque check requirement will also be performed every 600 flight hours /12 months. Any bolt found below the minimum specified torque will require replacement and an inspection of the associated barrel nut for condition will be required.

Part IV of this bulletin introduces a new recurring inspection every 5,000 flight hours or 5 years, whichever comes first. This inspection requires removal of the tailboom to allow for a detailed visual inspection of the aft fuselage and tailboom structure. As part of the recurring 5000 Hour / 5 Year inspection, the upper left-hand bolt shall be replaced with a new bolt and a detailed visual inspection of the three other bolts shall be carried out.

Installation torques of the tailboom attachment hardware were normalized across the fleet accounting for both flight/landing loads and hardware material properties. Accordingly, the revised tailboom installation instructions in this bulletin reflect a higher torque of the tailboom attachment bolts as shown in the accomplishment instructions of this bulletin. The higher torques will help to mitigate loosening of the bolts.

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 Bell Engineering approved.

CONTACT INFO:

For any questions regarding this bulletin, please contact:

Bell Military Technical Support
Tel: 1-817-280-3548 / mts-medium@bellflight.com

MANPOWER:

Approximately 10.0 man-hours are required to complete this bulletin. 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:

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

<u>Part Number</u>	<u>Nomenclature</u>	<u>Qty (Note)</u>
NAS577C8A	Barrel nut	2
NAS577C6A	Barrel nut	2
NAS578C8A	Retainer	2
NAS578C6A	Retainer	2
NAS628-22	Bolt	2 (1)
NAS626-18	Bolt	2 (1)

NOTE 1: Only the upper left-hand bolt will require replacement. Replacement of the three other bolts is based on condition.

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>
2400-00259-00	Aeriol Thixo NO 2 Aviation Grease	14.4 oz	C-561(1)
2010-00088-00	Sealant	2 oz	C-308
2230-10536-00	Torque Seal Lacquer	1 oz (2,3,4)	C-049

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

NOTES:

1. High Pressure grease (C-172) can be used as an alternate.
2. 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.
3. 2230-10536-00 torque seal lacquer (C-049) is color yellow, however other colors are available, at customer's option, as shown in BHT-ALL-SPM Standard Practice Manual, in Chapter 13 under C-049.
4. Polyurethane paint (C-245) or 2230-10547-00 (Vibra-TITE Viz-Torque® 202) are acceptable alternates to C-049.

SPECIAL TOOLS:

None required.

WEIGHT AND BALANCE:

Not affected.

ELECTRICAL LOAD DATA:

Not affected.

REFERENCES:

TM 55-1520-210-23P Illustrated Parts Breakdown, Figure 5
TM 55-1520-210-23 Technical Manual, Chapter 2
BHT SPM Standard Practices Manual

PUBLICATIONS AFFECTED:

TM 55-1520-210-23P Illustrated Parts Breakdown, Figure 5

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ACCOMPLISHMENT INSTRUCTIONS:

Part 1. Tailboom attachment hardware inspection and replacement

1. Prepare the helicopter for maintenance.
2. Remove the tailboom assembly (TM 55-1520-210-23 Technical Manual, Chapter 2).
3. Discard the upper left-hand bolt and the four barrel nuts with retainers. Retain the upper right-hand and the two lower bolts with countersunk washer and plain washers.
4. Inspect the tailboom bulkhead at BS 17.31, for corrosion and cracks. Fuselage attachment bolt holes for damage and corrosion.
5. Install barrel nuts NA577C8A with retainers NAS578C8A at the two upper tailboom attachment locations. If the upper right-hand barrel nut is found cracked, its associated bolt shall be replaced with a new one
6. Install barrel nuts NAS577C6A with retainers NAS578C6A at the two lower tailboom attachment locations. If a barrel nut is found cracked, its associated bolt shall be replaced with a new one.
7. Inspect fuselage bulkhead at FS 243.89, for damage, corrosion, and cracks. Tailboom attachment fittings for damage, cracks, and loose fasteners. Inspect the tailboom attachment bolt holes for damage and corrosion.
8. Inspect the upper right-hand and the two lower bolts for condition. Any evidence of corrosion is cause for rejection.
9. Visually inspect bolts for mechanical or corrosion damage. Any corrosion including surface corrosion is cause for rejection. Damaged threads and detectable wear or mechanical damage on the bolt shank or bolt head radii are cause for rejection.

-NOTE-

The tailboom attachment hardware torque has been increased as follows: Torque of the two upper bolts, is now 1000 to 1200 in-lbs. (113 to 136 Nm). Torque of the two lower bolts is now 400 to 430 in-lbs. (45.2 to 48.6 Nm).

CAUTION

Grease (C-561) or (C-172) shall be applied on bolt shank only. Grease shall not be applied to bolt threads.

10. Install tailboom after completion of inspection with a new upper left-hand bolt (NAS628-22), a serviceable upper right-hand bolt (NAS628-22) and two lower bolts (NAS626-18) (TM 55-1520-210-23 Chapter 2) with the torque values noted above. Apply a coating of grease (C-561) or (C-172) to bolt shank only.
11. Apply sealant (C-308) to plug buttons and install.
12. Make an entry in the helicopter logbook and historical service records indicating compliance with **Part 1** of this Alert Service Bulletin.

Part II. Between 1 and 5 flight hours after tailboom installation or attachment bolt replacement.

1. Carry out a torque check of the tailboom attachment bolts using the torque values specified in **Part I**. Torque check must be repeated every 1 to 5 flight hours until torque has stabilized (Three times maximum). If after three attempts the torque has not stabilized; inspect bolt and replace barrel nut.
2. Once the torque is stabilized, apply torque seal (C-049) witness mark to all four bolt heads.
3. Make an entry in the helicopter logbook and historical service records indicating compliance with **Part II** of this Alert Service Bulletin.

Part III. Recurring torque check of the tailboom attachment hardware.

-NOTE-

The tailboom attachment hardware torque has been increased as follows: Torque of the two upper bolts, is now 1000 to 1200 in-lbs (113 to 136 Nm). Torque of the two lower bolts is now 400 to 430 in-lbs (45.2 to 48.6 Nm).

1. Carry out a torque check of the tailboom attachment bolts every 600 flight hours or 12 months, whichever comes first after accomplishment of **Part II**, and every 600

flight hours or 12 months thereafter. Use the tailboom attachment torque values from the above Note. Re-apply torque seal (C-049) required.

2. Any bolt found below the minimum torque specified in **Part I** must be replaced. Inspect the associated barrel nut for condition and for loss of tare torque; replace as necessary. Any bolt that requires replacement must be torqued checked in accordance with **Part II**.
3. Make an entry in the helicopter logbook and historical service records indicating compliance with **Part III** of this Alert Service Bulletin.

Part IV. Recurring inspection of the tailboom attachment hardware every 5,000 flight hours or 5 years, whichever comes first.

1. Carry out steps 1 through 11 in **Part I** of the Accomplishment Instructions of this bulletin every 5,000 flight hours or 5 years, whichever occurs first and every 5,000 flight or 5 years thereafter.
2. Make an entry in the helicopter logbook and historical service records indicating compliance with **Part IV** of this Alert Service Bulletin.