URGENT

***TB 1-1520-237-20-257**

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

MAINTENANCE MANDATORY

RCS CSGLD-1860 (R1), UH-60 SERIES AIRCRAFT TAIL ROTOR QUADRANT HARDWARE INSTALLATION

Headquarters, Department of the Army, Washington, D. C.
10 July 2002

1. Priority Classification. URGENT

NOTE

IAW AR 95-1, para 6-6a, MACOM Commanders may authorize temporary exception from message requirements. Exception may only occur when combat operations or matter of life or death in civil disasters or other emergencies are so urgent that they override the consequences of continued aircraft operation.

a. Aircraft In Use - Upon receipt of this TB, make the following entry on the DA Form 2408-13-1. Enter a red horizontal dash / / – / / status symbol with the following statement: "Inspect Tail Rotor Quadrant Installation Hardware TB 1-1520-237-20-257 within the next 10 flight hours, but NLT 27 June 02." Clear the red horizontal dash / / - / / entry when the procedures IAW paragraphs 8 and 9 are completed. The affected aircraft shall be inspected as soon as practical but NLT 27 June 02. Commanders who are unable to comply with the requirements of this TB within the time frame specified will upgrade the affected aircraft status symbol to a red / / X / /.

b. Aircraft In Maintenance.

(1)Aircraft in AVUM, AVIM or depot level maintenance – Commanders and facility managers will not issue aircraft until they are in compliance with this TB.

(2)Aircraft at contractor facility – N/A.

c. Aircraft in Transit.

(1)Surface/air shipment – Within 10 hours/14 days of arrival.

(2)Ferry status – Inspect at final destination.

d. Maintenance Trainers (Category A and B). Same as paragraph 1.a..

* This TB supersedes USAAMCOM Aviation Safety Action Message, (ASAM) 131345Z JUN 02 (UH-60-02-ASAM-09).

e. Component/Parts in Stock at All Levels (Depot Level and Others), including War Reserves. N/A.

f. Components/Parts in Work (Depot Level and Others). N/A.

2. **Task/Inspection Suspense Date.** Complete the inspection IAW paragraph 8. within the next 10 flight hours but NLT 28 June 02 and report IAW paragraph 14.a.(2) NLT 1 July 02.

3. **TAMMS Reporting Compliance Suspense Date**. Report compliance IAW paragraph 14.a.(1) NLT 21 June 02.

4. **Summary of Problem -**

a. A recent field report indicates that improper hardware may be installed on tail rotor quadrant assemblies that could preclude the required minimum spacing of 0.005” between the safety bolt washer and nut. The minimum spacing requirement is considered necessary to avoid pre-loading the large retention nut, which would subject the assembly to high sustained loads and possible failure of the retention hardware.

b. Manpower/downtime and funding impacts – See paragraph 12.

c. The purpose of this TB is to -

(1)Conduct a one-time inspection of the tail rotor quadrant hardware installation.

(2)Provide interim and final correction procedures for aircraft that fail the initial inspection criteria.

5. **End Items to be inspected**. All UH-60 series aircraft.

6. **Assembly Components to be Inspected.**

NOMENCLATURE	PART NO.	NSN
Quadrant Assy, T/R	70400-06690-041	N/A
Quadrant Assy, T/R	70400-06690-044	1615-01-175-8943

7. **Parts to be Inspected.**

NOMENCLATURE	PART NO.	NSN
Bolt, Shear	NAS6704H6	5306-01-207-1693
Bolt, Shear	AN174H-6A	5306-00-206-4910
Bolt, Shear	NAS6704H7	5306-01-208-0814
Nut, Plain Extended	70400-06699-101	5306-01-095-4625
Washer, Flat	SS4409-058	5306-01-129-8961

8. **Inspection Procedures.**

a. Turn off all electrical and hydraulic power.

b. Remove tail gearbox fairing to gain access to t/r quadrant assembly.

c. Locate safety bolt and large nut (left-hand thread) located on upper surface of the tail rotor quadrant. Refer to TM 1-1520-237-23-6, Figure 11-4-118-1, Sheet 2 of 2, Detail E, or TM 1-1520-250-23-5, Figure 11-144, Sheet 2 of 2, Detail D.

d. Measure gap between safety bolt washer and nut (plain extended).

(1)If gap is 0.005” or greater, inspection is complete. Proceed to paragraph 9.a..

(2)If gap is less than 0.005”, proceed to paragraph 9.b..

9. Correction Procedures.

a. If clearance between the safety bolt and nut (plain extended) is equal to or greater than 0.005" :

(1)Reinstall tail rotor gearbox fairing.

(2)Clear red dash / / - / / required by paragraph 1.a..

(3)Proceed to paragraph 9.e..

b. If clearance between the safety bolt and nut (plain extended) is less than 0.005", clear the red dash / / - / / entry from paragraph 1.a. and make the following entry on the DA Form 2408-13-1. Enter a red diagonal \ \ / \ \ status symbol with the following statement: "Improper Tail Rotor Quadrant Hardware Installation Per TB 1-1520-237-20-257, Correct During Next 100 Hour Insp Or PMS-2".

c. If a scheduled 100 hour inspection is due before the next PMS-2, interim correction procedures are authorized to minimize downtime until final correction procedures are completed during the next PMS-2. This interim procedure will ensure proper clearance between the safety bolt and retaining nut. The interim correction procedures require installation of a new bushing (P/N NAS77-4-040 or NAS77-4-040P) and a new safety bolt (right hand threaded, P/N NAS6704H7). Proceed as follows :

WARNING

To prevent injury to personnel, lockout blocks, 70700-20463-041 and tiedown straps (TM 1-1520-237-23-9, Appendix D, item 333 or TM 1-1520-250-23-6 Appendix D item 246) must be installed on the tail rotor quadrant or spring cylinders must be disconnected before disconnecting tail rotor flight control cables.

To prevent injury to personnel, ensure there is proper communication between person in cockpit and person working at the quadrant.

NOTE

The following procedure is applicable for all H-60 series aircraft. This interim procedure will ensure proper clearance between the safety bolt and retaining nut.

(1)If lockout blocks are available, install lockout blocks on tail rotor quadrant. Secure lockout blocks with tiedown straps. Disconnect spring cylinder from support.

(2)If lockout blocks are not available, use the following procedure to release spring cylinder tension:

(a) Turn on external hydraulic power, (TM 1-1520-237-23-1, paragraphs 1-6-12/13 OR TM 1-1520-250-23-1, paragraphs 1.43.17/18).

(b) Place collective at mid-position.

(c) For right spring cylinder, apply full left pedal to reduce spring tension. Remove cotter pin, nut and washer. Pull down on cylinder while removing bolt. Disconnect spring cylinder from support.

(d) For left spring cylinder, apply full right pedal to reduce spring tension. Remove cotter pin, nut and washer. Pull down on cylinder while removing bolt. Disconnect spring cylinder from support.

(3)Secure spring cylinders with tiedown straps.

(4)Turn off hydraulic power.

WARNING

Uncontrolled spring release may cause personal injury or damage to equipment. Ensure that spring tension on tail rotor quadrant and cables has been removed before disconnecting cables.

(5)Tail rotor control cable tension can now be released. Disconnect flight control cable halves at quick disconnects (two places) IAW TM 1-1520-237-23-1, figure 1-6-9-1, sheet 6, detail F, OR TM 1-1520-250-23-1, figure 1-207, sheet 6, detail F.

(6)On quadrant, cut safety wire and remove safety bolt (right hand thread) and washer (P/N AN960C416L) from nut (P/N 70400-06699-101) at the top of quadrant. Remove large nut (left hand thread, P/N 70400-06699-101), existing bushing and washer (P/N AN960KD1416l). Discard bushing and safety bolt.

(7)Inspect retaining nut (P/N 70400-06699-101) for surface damage. If scuffing or removal of surface finish is noted, touch up retaining nut with alodine and apply zinc chromate primer to alodine finish. Replace nut if any base material is removed (gouges, scarring, etc.).

(8)Install washer (P/N AN960KD1416L) and new bushing (P/N NAS77-4-040 or NAS77-4-040P). Install nut (large, left hand threaded, P/N 70400-06699-101) on the stud. Torque nut to 30-50 inch pounds. Install new safety bolt (right hand threaded, P/N NAS6704H7) and washer (P/N AN960C416L) through large nut into the stud. Torque safety bolt to 105-115 inch pounds.

(9)Check for 0.005” minimum gap between washer and top of the nut (TM 1-1520-237-23-6, Fig 11-4-118-1, Sheet 2, Detail E or TM 1-1520-250-23-5, Fig 11-144, Sheet 2 of 2, Detail D). If 0.005” gap, or greater, is not present, verify proper hardware installation and repeat installation procedures, as necessary, until 0.005” gap, or greater, clearance is obtained.

(10)Lockwire safety bolt (P/N NAS6704H7, TM 1-1520-237-23-9, Appendix D item 198, OR TM 1-1520-250-23-6, Appendix D, item 222) to large retaining nut (P/N 70400-06699-101).

(11)Connect flight control cable halves at quick disconnects (two places) IAW TM 1-1520-237-23-1, Figure 1-6-9-1, Sheet 6, Detail F, or TM 1-1520-250-23-1, Figure 1-207, Sheet 6, Detail F. Bottom forward cable retainer jamnut in the aft cable slot. Torque jamnut to 40-60 inch pounds.

(12)Lockwire (TM 1-1520-237-23-9, Appendix D, item 197, or TM 1-1520-250-23-6, Appendix D, item 222) jamnut to retainer on quick disconnect.

CAUTION

Ensure cable halves are connected at quick disconnects before removing lockout blocks.

(13)Remove lockout blocks from the quadrant.

(14)Reconnect spring cylinders as follows:

WARNING

To prevent injury to personnel, ensure there is proper communication between person in cockpit and person working at the quadrant.

(a) Turn on external electrical and hydraulic power.

(b) Place collective at mid-position.

(c) For right spring cylinder, apply full left pedal. Pull on cylinder and install self-retaining bolt and washer (under bolt head). Install nut, torque to 30-50 inch pounds. Install cotter key. Proof torque bolt head to 15-17 inch pounds then apply torque stripe.

(d) For left spring cylinder, apply full right pedal. Pull on cylinder and install self-retaining bolt and washer (under bolt head). Install nut, torque to 30-50 inch pounds. Install cotter key. Proof torque bolt head to 15-17 inch pounds then apply torque stripe.

(15)Ensure ”Tail Rotor Quadrant” capsule light is off.

(16)Check area for cleanliness and any foreign material.

(17)Perform tail rotor quadrant functional check IAW procedures of TM 1-1520-237-23-6, paragraph 11-4-118.1.3 or TM 1-1520-250-23-5, paragraph 11.30.1.3..

(18)Turn off external electrical and hydraulic power.

(19)Clear the red diagonal \ \ / \ \ entry required above (paragraph 9.b.) and make the following entry on the DA Form 2408-13-1. Enter a red diagonal \\/\\ status symbol with the following statement: ”Replace Tail Rotor Quadrant Hardware IAW TB 1-1520-237-20-257 during next PMS-2”.

d. During next PMS-2, perform final correction procedures on all H–60 series aircraft that failed initial inspection of paragraph 8.d. above. The following items will be replaced: Nut (Plain Extended, P/N 70400-06699-101), Shear Bolt (P/N NAS6704H7), and Bushing (P/N NAS77-4-040 or NAS77-4-040P). Additionally, verify that the correct number (2 ea) of Flat Washers (P/N SS4409-058) are installed beneath the quadrant.

e. Make appropriate TM changes IAW paragraph 12.e..

10. **Supply/Parts and Disposition**.

a. Parts required. Items cited in paragraph 12.c. may be required to replace defective items.

b. Requisitioning instructions. Requisition replacement parts using normal supply procedures. All requisitions shall use project code (CC 57-59) ”X1V” (XRAY-ONE-VICTOR).

NOTE

Project code ”X1V” is required to track and establish a data base of stock fund expenditures incurred by the field as a result of message actions.

c. Bulk and Consumable Materials -

NOMENCLATURE	PART NO.	NSN
Pin, Cotter	MS24665-153	5315-00-234-1854
Lockwire	MS20995NC32	9525-00-803-3044
Lockwire	MS20995NC40	9525-00-990-7799
Tiedown Strap	MS3367-3-9	5975-00-451-5001
Sealing Compound (Torque Stripe)	MIL-S-46163	8030-00-111-2762
Primer (Zinc Chromate)	MIL-P-8585A	8010-00-264-8866
Alodine (Pint) (Gal)	MIL-C-5541 MIL-C-5541	8030-00-142-9272 8030-00-823-8039

d. Disposition. Dispose of removed parts/components using normal supply procedures.

e. Disposition Of Hazardous Material. N/A.

11. **Special Tools, and Fixtures Required.**.

a. Lockout blocks, 70700-20463-041, TM 1-1520-237-23-6, Appendix B, item 170.

b. Wrench, Ctrl Cable (local manufacture), TM 1-1520-237-23-11, Appendix H, Fig H–48 and TM 1-1520-250-23-8, Appendix H, Fig H–49.

12. Application.

a. Category of Maintenance - AVUM. Aircraft downtime will be charged to AVUM maintenance. Report aircraft non-mission capable maintenance (NMCM) while undergoing inspection and correction IAW this TB.

b. Estimated Time Required:

(1)Time to complete inspection -

(a) Total of 1 man-hour using 1 person.

(b) Total of 1 hour downtime for one end item.

(2)Time for interim repair/replacement (if required) -

(a) Total of 6 man-hours using 2 persons.

(b) Total of 3 hours downtime for one end item.

(3)Time for final repair/replacement (at PMS-2) -

(a) Total of 24 man-hours using 2 persons.

(b) Total of 12 hours downtime for one end item.

c. Estimated cost impact to the field:

NOMENCLATURE	PART NO./NSN	QTY.	COST EA.	TOTAL
Bushing, Sleeve	NAS77-4-040P	1	$1.22	$1.22
Bolt, Shear	NAS6704H7	1	$17.70	$17.70
Nut, Plain Extended	70400-06699-101	1	$48.66	$48.66
Nut, Plain	MS21244-4	2	$2.10	$4.20
Washers	SS4409-058	2	$3.14	$6.28
Cotter Pin	MS24665-153	2	$0.02	$0.04

TOTAL COST PER AIRCRAFT = $78.10

d. TB/MWOs to be applied prior to or concurrently with this inspection. N/A

e. Publications which require change as a result of this inspection:
The following TM'S shall be changed to reflect this TB. A copy of this TB shall be inserted in the appropriate TM as authority to implement the change until the printed change is received.

(1)The following components will be added/deleted to/from TM 1-1520-237-23P-4, FIG 87:

ITEM	SMR	NSN	P/N	DESCR	QTY
DEL 33	PAOZZ	5306-01-207-1693	NAS6704H6	Bolt, Shear	1
ADD 33	PAOZZ	5306-01-208-0814	NAS6704H7	Bolt, Shear	1

(2)The following components will be added/deleted to/from TM 1-1520-250-23P-2, Fig 453:

ITEM	SMR	NSN	P/N	DESCR	QTY
DEL 33	PAOZZ	3120-01-334-7434	NAS77-4-030P	Bushing	1
ADD 33	PAOZZ	3120-00-517-8736	NAS77-4–040P	Bushing	1

(3)TM 1-1520-237-PMS-1, page 28, seq 5.12, after first sentence, should be changed to read; "Inspect retaining nut for surface cracks or any visible damage."

(4)TM 1-1520-250-PMS-1, page 26, seq 5.12, after first sentence, should be changed to read; "Inspect retaining nut for surface cracks or any visible damage."

(5)TM 1-1520-237-23-6, paragraph 11-4-118.1.2, paragraph e should be changed to read; "Check For 0.005" inch gap between washer and top of nut (Figure 11-4-118-1, Sheet 2, Detail E). If gap

cannot be achieved, ensure hardware stack-up contains the following: one bolt (NAS6704H7), one bushing (NAS77-4-040 or NAS77-4-040P) and two washers (SS4409-058) under quadrant. Repeat steps C and D."

(6)TM 1-1520-250-23-5, paragraph 11.30.1.2, para e should be changed to read.
"Check for 0.005" inch gap between washer and top of nut (Figure 11.144, Sheet 2, Detail D). If gap cannot be achieved, ensure hardware stack-up contains the following: one bolt (NAS6704H7), one bushing (NAS77-4-040 or NAS77-4-040P) and two washers (SS4409-058) under quadrant. Repeat steps C and D."

13. **References**.-

a. DA PAM 738-751

b. TM 1-1520-237-23-1

c. TM 1-1520-237-23-6

d. TM 1-1520-237-23-9

e. TM 1-1520-237-23-11

f. TM 1-1520-237-23P-4

g. TM 1-1520-237-PMS-1

h. TM 1-1520-250-23-1

i. TM 1-1520-250-23-5

j. TM 1-1520-250-23-6

k. TM 1-1520-250-23-8

l. TM 1-1520-250-23P-2

m. TM 1-1520-250-PMS-1

14. **Recording and Reporting Requirements**.

a. Aircraft:

(1)TAMMS Reporting Compliance Suspense.
Upon entering requirements of this TB on DA Form 2408-13-1 for all effected aircraft, Commanders will forward a priority message, FAX or email to CDR, AMCOM, ATTN: AMSAM-SF-A (SOF Compliance Officer), Redstone Arsenal, AL 35898-5000, IAW AR 95-1, NLT date specified in paragraph 3. Fax number is DSN 897-2111 or (256) 313-2111. Email address is "safeadm@redstone.army.mil". The report will cite this TB number, date of entry in DA Form 2408-13-1, the aircraft mission design series and serial numbers of aircraft in numerical order.

(2)Task/Inspection Reporting Suspense.
Upon completion of inspection, Commanders will forward a priority message to the logistical point of contact listed in para 16.b.. The report will cite this TB number, date of inspection, aircraft serial number, aircraft hours, and results of the inspection. Inspection and reports will be completed NLT date specified in paragraph 2..

b. Wholesale Spare Parts/Assemblies. N/A

c. Retail Spare Parts/Assemblies. N/A.

d. The following forms are applicable and are to be completed in accordance with DA PAM 738-751, 15 March1999.

NOTE

ULLS-A users will use applicable "E" forms.

(1)DA Form 2408-13, Aircraft Status Information Record.

(2)DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.

(3)DA Form 2408-15, Historical Record For Aircraft.

15. **Weight and Balance**. N/A.

16. **Points of Contact**.

a. Technical Point Of Contact for this TB is Mr. Ralph Vemmer, AMSAM-RD-AE-I-D-U, DSN 897-2350 EXT 9715, or (256) 705-9715. Alternate phone number, is DSN 897-2350 EXT 9719 or (256) 705-9719. DATAFAX is (256) 705-9896. E-mail is “ralph.vemmer@rdec.redstone.army.mil”

b. Logistical Point Of Contact is Mr. Joe Hoover, SFAE-AV-UH-L, DSN 645-7898 or (256) 955-7898, fax is DSN 897-3778 or (256)313-3778. Email is “joe.hoover@uh.redstone.army.mil”

c. Forms and Records Point Of Contact for this TB is Ms. Ann Waldeck, AMSAM-MMC-MA-NM, DSN 746-5564 or (256) 897-5564, fax is DSN 746-4904 or (256) 876-4904. Email is “ann.waldeck@redstone.army.mil”.

d. Safety points of contact are:

(1)Primary – Mr. Randall Rushing (SAIC), AMSAM-SF-A, DSN 897-2092 or (256) 313-2092, DATAFAX is DSN 897-2111 or (256) 313-2111. Email is ”randall.rushing@redstone.army.mil”.

(2)Alternate – Mr. Ron Price, AMSAM-SF-A, DSN 788-8636 or (256) 842-8636, fax is DSN 897-2111 or (256) 313-2111. Email is “ron.price@redstone.army.mil”.

e. Foreign Military Sales recipients requiring clarification of action advised by this TB should contact:

(1)Primary: Mr. Ronnie W. Sammons, AMSAM-SA-AS-UT, DSN 897-0407 or (256) 313-0407. fax is DSN 897-0411 or (256) 313-0411. Email “ronnie.sammons@redstone.army.mil”.

f. After hours contact AMCOM Command Operations Center (COC) DSN 897-2066/7 or (256) 313-2066/7.

17. **Reporting of Errors and Recommended Improvements.** You can improve this TB. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual, directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM–MMC–MA–NP, Redstone Arsenal, AL 35898–5000. A reply will be furnished to you. You may also provide DA Form 2028 information to AMCOM via e-mail, fax, or the World Wide Web. Our fax number is: DSN 788-6546 or Commercial 256-842-6546. Our e-mail address is: 2028@redstone.army.mil. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028. For the World Wide Web use: https://amcom2028.redstone.army.mil.

By Order of the Secretary of the Army:

Official:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0217702

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The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" <whomever@avma27.army.mil>
To: 2028@redstone.army.mil

Subject: DA Form 2028

1. ***From:*** Joe Smith
2. *Unit:* home
3. ***Address:*** 4300 Park
4. ***City:*** Hometown
5. ***St:*** MO
6. ***Zip:*** 77777
7. ***Date Sent:*** 19-OCT-93
8. ***Pub no:*** 55-2840-229-23
9. ***Pub Title:*** TM
10. ***Publication Date:*** 04-JUL-85
11. *Change Number:* 7
12. *Submitter Rank:* MSG
13. ***Submitter FName:*** Joe
14. *Submitter MName:* T
15. ***Submitter LName:*** Smith
16. ***Submitter Phone:*** 123-123-1234
17. ***Problem:*** **1**
18. *Page:* 2
19. *Paragraph:* 3
20. *Line:* 4
21. *NSN:* 5
22. *Reference:* 6
23. *Figure:* 7
24. *Table:* 8
25. *Item:* 9
26. *Total:* 123
27. ***Text:***

This is the text for the problem below line 27.