

# URGENT

TB 1-1520-240-20-146

## DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

---

### INSPECTION OF THE ROTARY WING HEAD TIE BAR ASSEMBLY ON ALL CH-47D, MH-47D AND MH-47E AIRCRAFT

---

Headquarters, Department of the Army, Washington, D. C.  
29 March 2002

---

**DISTRIBUTION STATEMENT A:** Approved for public release; distribution is unlimited.

#### NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.

#### NOTE

This Technical Bulletin supercedes inspection and correction requirements of paragraphs 8b and 9a (Tie Bar Assembly) of CH-47-02-03 (TB 1-1520-240-20-141) for aircraft that have not already been inspected. Tie Bars/Aircraft that passed inspection in accordance with CH-47-02-03 do not require re-inspection. This Technical Bulletin provides revised inspection and correction procedures for the Tie Bar Assembly and provides additional TM changes in paragraph 12 the procedures relating to the Rotor Tach in CH-47-02-03 (TB 1-1520-240-20-141) remain unchanged.

#### 1. Priority Classification. Urgent

#### NOTE

In accordance with AR 95-1, paragraph 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 Technical Bulletin, make the following entries on the DA Form 2408-13-1. Commanders who are unable to comply with the requirements of this Technical Bulletin within the time frame specified will upgrade the affected aircraft status symbol to a red // X //.

(1) For all H-47 - Enter a red horizontal dash // - // status symbol with the following statement: "Inspect tie bar assemblies in accordance with CH-47-02-05 (TB 1-1520-240-20-146) no later than 27 March 2002."

This TB supersedes USAAMCOM Message 222110Z MAR 02 SOF CH-47-02-05

## **TB 1-1520-240-20-146**

(2) Clear entries required in accordance with CH-47-02-03, paragraph 1a (1) and/or 8a (1) (b) from the DA Form 2408-13-1.

b. Aircraft in Maintenance Facility –

(1) Aircraft in AVUM, AVIM, or Depot – Same as paragraph 1a.

(2) Aircraft at Contractor Facility – Boeing will inspect DD250 aircraft prior to those aircraft departing for ferry to final destination.

c. Aircraft in Transit – Same as paragraph 1a.

d. Maintenance Trainers (Category A and B) – Comply no later than 25 January 2004.

e. Component/Parts in Stock at All Levels (Depot and Others) including War Reserves – Upon receipt of this Technical Bulletin, Depot and Materiel Activity Commanders will ensure the materiel condition tags of all items in all condition codes listed in paragraph 6 are annotated to read: “CH-47-02-05 (TB 1-1520-240-20-146), inspection of the tie bar assembly not complied with.”

(1) Wholesale Stock – N/A.

(2) Retail Stock – Upon receipt of this message, Commanders and Facility Managers maintaining retail stock at installation level and below shall contact the supported aviation unit to perform the procedures required in accordance with paragraphs 8 and 9 on suspect materiel. Dispose of discrepant materiel in accordance with paragraph 10. Report compliance with this Technical Bulletin in accordance with paragraph 14c (2) no later than 3 April 2002.

f. Components/Parts in Work (Depot Level and Others) – Depot and other Maintenance Activity Commanders will ensure items in paragraph 6 are not issued until they are in compliance with this Technical Bulletin.

### **2. Task/Inspection Suspense Date.**

a. Complete the procedures in accordance with paragraph 8a no later than 27 March 2002.

b. Complete the inspection in accordance with paragraph 8b at the next rotor head removal, but no later than the next phase inspection or 25 January 2004, whichever occurs first.

**3. TAMMS Reporting Compliance Suspense Date.** Report compliance in accordance with paragraph 14a (1) no later than 27 March 2002.

### **4. Summary of the Problem.**

a. CH-47-02-03 was issued on 24 January 2002 requiring inspection of the tie bar assembly and rotor tachometer. With regard to the tie bar inspections, the intent of the message was to inspect for cracked plates and deformation of washers only. Scores, scratches, buckling/separation of plates, and other minor installation damage are not grounds for failing this special inspection. The 1200 hour operating time special inspection will still be required. At the time the 1200 hour operating time special inspection is due, all tie bars that fail the inspection criteria of TM 55-1520-240-23, Task 5-23.1.1 (H-47D/F), or TM 1-1520-252-23, Task 5-31, (MH-47E), will require replacement.

b. Manpower/Downtime and Funding Impacts – see paragraph 12.

c. The purpose of this Technical Bulletin is to –

(1) Revise the tie bar inspection procedures required by CH-47-02-03 (TB 1-1520-240-20-141).

(2) Add additional manual changes for tie bar assembly inspection criteria to paragraph 12e.

**5. End Items to be inspected.** All H-47 series aircraft.

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

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
ROTOR HEAD ASSEMBLY	145R2003 – ALL	ALL
ROTOR HEAD ASSEMBLY	145R2004 – ALL	ALL
TIE BAR ASSEMBLY	114R2155-1	1615-00-740-6480

7. **Parts to be Inspected.** –N/A.

8. **Inspection Procedures.**

**NOTE**

Due to the possibility of handling damage, tie bar assemblies that were previously rejected during compliance with SOF CH-47-02-03 due to failing the inspection requirements of TM 55-1520-240-23, Task 5-23.1.1 (H-47D/F), or TM 1-1520-252-23, Task 5-31, (MH-47E), for other than cracks and/or deformed washers, shall be disposed of in accordance with paragraph 10D.

**NOTE**

Read and complete all paragraph 8 inspection procedures for each part prior to proceeding to the correction procedures in paragraph 9.

a. Utilizing the inspection results of CH-47-02-03 (TB 1-1520-240-20-141), paragraph 8a, proceed as follows –

(1) If TSN is less than 4800 hours –

(a) Change the rotor head DA Form 2408-16 to indicate a new retirement life for the tie bar assembly of 4800 hours TSN.

(b) Clear the red horizontal dash //–// entry required in accordance with paragraph 1a(1) of this Technical Bulletin and enter a new red horizontal dash //–// status symbol with the following statement: “Inspect all tie bar assemblies in accordance with paragraph 8b, CH-47-02-05 (TB 1-1520-240-20-146) at the next rotor head removal, but no later than the next phase inspection or 25 January 2004.”

**NOTE**

**Rotor heads which have zero hours time since overhaul (TSO) or zero hours time since new (TSN) do not require inspection of the tie bar assemblies in accordance with paragraph 8b.**

(2) If TSN is equal to or greater than 4800 hours, correct in accordance with paragraph 9.

**NOTE**

Aircraft that were inspected in accordance with CH-47-02-03 (TB 1-1520-240-20-141) do not require re-inspection in accordance with paragraph 8b.

b. At the next rotor head removal, but no later than the next phase inspection or 25 January 2004, whichever occurs first, inspect the tie bar assemblies as follows –

(1) Remove tie bar assemblies in accordance with TM 55-1520-240-23, Task 5-23.1 (H-47D/F) or TM 1-1520-252-23, Task 5-30 (MH-47E).

**NOTE**

The procedure in paragraph 8b(2) is only for the inspection of tie bar assemblies for cracked plates and deformed or cracked washers. The tie bar assembly will be inspected per TM 55-1520-240-23 (H-47D/F), or TM 1-1520-252-23 (MH-47E), at the next horizontal hinge pin rotation. The

## TB 1-1520-240-20-146

special inspection required by this Safety of Flight (SOF) does not zero the 1200 hour operating time special inspection required in TM 55-1520-240-23, Task 1-92 (H-47D/F), Reference No. 21, or TM 1-1520-252-23, Task 1-100 (MH-47E), Reference No. 17.

(2) Inspect tie bar assemblies as follows –

(a) Visually inspect tie bar plates for cracks using 10X magnification. No cracks allowed.

### NOTE

Surface irregularities (i.e. scratches and manufacturing defects) found while using the 10X magnification are not grounds for rejection.

(b) Inspect the four tie bar slots using a borescope with a rigid right angle probe. Insert the borescope probe in each slot and examine the plates for cracks along the full depth and span of the slot. Recommend the probe not exceed 0.110 inch diameter. If a suitable borescope and probe are not available, visually inspect each slot using a light source.

### NOTE

Cracks will appear perpendicular to the plate surfaces and should not be confused with horizontal scratches or tools marks.

(c) Inspect washers for deformation (dishing) and cracks. A dished washer will have a gap between it and the adjacent plate. The maximum separation between the washer and the adjacent plate is 0.015 inch. No cracks allowed.

(3) If a tie bar assembly fails an inspection in accordance with paragraph 8b, correct in accordance with paragraph 9.

(4) If no damage is found –

(a) Reinstall the rotary wing head tie bar assemblies in accordance with TM 55-1520-240-23, Task 5-23.2 (H-47D/F) or TM 1-1520-252-23, Task 5-32 (MH-47E).

(b) Clear the red horizontal dash //–// entry.

**9. Correction Procedures.** If the TSN is equal to or more than 4800 hours, or if a tie bar assembly fails an inspection in accordance with paragraph 8b, proceed as follows –

a. Change the rotor head DA Form 2408-16 to indicate a new retirement life for the tie bar assembly of 4800 hours TSN.

b. Clear the red horizontal dash // – // entry and enter a red // **X** // status symbol with the following statement: “Replace the rotary wing head tie bar assemblies in accordance with CH-47-02-05 (TB 1-1520-240-20-146).”

c. Submit a Category I Deficiency Report on any tie bar assembly that has failed the inspection required in accordance with paragraph 8b due to cracks.

d. If you have tie bars on hand which previously failed the inspection in accordance with CH-47-02-03 for other than cracks and/or deformed washers, refer to paragraph 10d for disposition instructions.

e. If TSN is equal to or more than 4800 hours, contact the technical point of contact in paragraph 16a for disposition instructions.

### NOTE

Ensure that replacement tie bar assemblies are inspected and in compliance with this Safety of Flight (SOF) prior to installation.

f. Replace the rotary wing head tie bar assemblies in accordance with TM 55-1520-240-23, Task 5-23.2 (all H-47D/F) or TM 1-1520-252-23, Task 5-32 (MH-47E).

g. Clear the red // **X** // entry from paragraph 9b.

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

- a. Parts Required. Items cited in paragraph 6 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) "X13" (X-Ray-One-Three).

**NOTE**

Project Code "X13" 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. The following materials will be required –

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
BOLT	114R2162-1	5306-00-926-5684
NUT, SELF-LOCKING	MS21083N4	5306-00-903-8282
BOLT	AN4H30A	5306-00-182-2022
SEAL	114R2142-3	5306-00-913-0933
SEAL	114RS215-1	5306-00-248-5124

- d. Disposition.

(1) If cracks are found in the tie bar assembly, disposition instructions will be provided upon receipt of the Category I Deficiency Report.

(2) If tie bar failed inspection due to deformed washer, dispose of using normal supply procedures.

(3) Tie bars on hand which previously failed the inspection in accordance with CH-47-02-03 for other than cracks and/or deformed washers shall be shipped to –

SR Corpus Christi Army Depot SRA  
 Building 1846  
 Corpus Christi, TX 78419-6030

(4) If tie bar assembly TSN is equal to or more than 4800 hours, contact the technical point of contact in paragraph 16a for disposition instructions.

- e. Disposition of Hazardous Material. N/A.

**11. Special Tools and Fixtures Required.** As required.

**12. Application.**

- a. Category of Maintenance. AVUM. Aircraft downtime will be charged to AVUM.
- b. Estimated Time Required-

(1) Time to complete the records inspection – Total of 0.5 man-hours using 1 person.

(2) Time to complete inspection of the tie bar assembly –

(a) Total of 124 man-hours using 8 persons.

(b) Total of 20.0 hours downtime for one end item. Down time includes time required maintenance test flight.

**TB 1-1520-240-20-146**

c. Estimated Cost Impact to the Field.

NOMENCLATURE	PART NO. / NSN	QUANTITY	COST EACH	TOTAL \$
TIE BAR ASSEMBLY	114R155-1/ 1615-00-740-6480	6	\$5675.15	\$34,050.90
TIE BAR PIN	114R2168-3/ 1615-00-740-6477	6	33.34	200.04
TIE BAR PIN	114R2168-4/ 1615-01-115-3619	6	63.05	378.30

**TOTAL COST PER AIRCRAFT = \$34,692.24**

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 publications shall be changed to reflect this Technical Bulletin. A copy of this Technical Bulletin shall be inserted in the appropriate TM as authority to implement the change until the printed change is received.

(1) TM 55-1520-240-23, Aviation Unit and Aviation Intermediate Maintenance Manual, CH-47D Helicopter, Task 5-23.1.1 –

(a) Change paragraph 2.G. to read as follows – “Inspect washers for deformation (dishing) and cracks. A dished washer will have a gap between it and the adjacent plate. The maximum separation between the washer and the adjacent plate is 0.015 inch. No cracks allowed.”

(b) Change title of Task 5-23.1.1 to read as follows – “1200 Hour Tie Bar and Pin Assemblies Inspection”.

(2) TM 55-1520-240-23, Aviation Unit and Aviation Intermediate Maintenance Manual, CH-47D Helicopter, Task 5-23.2 – Add the following to the “Initial Setup” section to read as follows: “Equipment Condition: tie bar inspected in accordance with Task 5-23.1.2”.

(3) TM 1-1520-252-23, Aviation Unit and Aviation Intermediate Maintenance Manual, MH-47E Helicopter, Task 5-31 –

(a) Change paragraph 2.F. to read as follows – “Inspect washers for deformation (dishing) and cracks. A dished washer will have a gap between it and the adjacent plate. The maximum separation between the washer and the adjacent plate is 0.015 inch. No cracks allowed.”

(b) Change title of Task 5-31 to read as follows – “1200 Hour Tie Bar and Pin Assemblies Inspection”.

(4) TM 1-1520-252-23, Aviation Unit and Aviation Intermediate Maintenance Manual, MH-47E Helicopter, Task 5-32 – Add the following to the “Initial Setup” section under ‘Equipment Condition’ to read as follows: “Tie bar inspected in accordance with Task 5-31.1”

(5) TM 55-1520-240-23, Task 5-23.1.2 (CH-47D) and TM 1-1520-252-23, Task 5-31.1 (MH-47E) – Insert a new task, title should read: “Inspect Tie Bar Assembly”, procedures to read as follow –

- 1 Visually inspect tie bar plates for cracks using 10X magnification. No cracks allowed.
- 2 Inspect the four tie bar slots using a borescope with a rigid right angle probe. Insert the borescope probe in each slot and examine the plates for cracks along the full depth and span of the slot. Recommend the probe not exceed 0.110 inch diameter. If a suitable borescope and probe are not available, visually inspect each slot using a light source.

**NOTE**

Cracks will appear perpendicular to the plate surfaces and should not be confused with horizontal scratches or tool marks.

- 3 Inspect washers for deformation (dishing) and cracks. A dished washer will have a gap between it and the adjacent plate. The maximum separation between the washer and the adjacent plate is 0.015 inch. No cracks allowed.

### 13. References.

- a. DA PAM 738-751, 15 Mar 99.
- b. TM 55-1520-240-23, Aviation Unit and Aviation Intermediate Maintenance Manual, CH-47D Helicopter.
- c. TM 1-1520-252-23, Aviation Unit and Aviation Intermediate Maintenance Manual, MH-47E Helicopter.

### 14. Recording and Reporting Requirements.

- a. Aircraft –

(1) TAMMS Reporting Compliance Suspense Date – Upon entering requirements of this Technical Bulletin on DA Form 2408-13-1 for all effected aircraft, Commanders will forward a priority message, fax or e-mail to Commander, AMCOM, ATTN: AMSAM-SF-A (SOF Compliance Officer), Redstone Arsenal, AL 35898-5000, in accordance with AR 95-1, no later than date specified in paragraph 3. Fax number is DSN 897-2111 or commercial (256) 313-2111. E-Mail address is “safeadm@redstone.army.mil”. The report will cite this message and 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 – N/A.

- b. Wholesale Spare Parts/Assemblies – N/A.

- c. Retail Spare Parts/Assemblies –

(1) Reporting Message Receipt – N/A.

(2) Task/Inspection Reporting Suspense – Commanders and Facility Managers will report inspection results to the Logistical point of contact in paragraph 16b no later than date specified in paragraph 1e (2). Report the quantity inspected by condition code and the resulting condition code. Report by email or fax and provide local point of contact.

- d. The following forms are applicable and are to be completed in accordance with DA PAM 738-751, 15 MAR 99 –

#### NOTE

ULLS-A users will use applicable “E” Forms.

- (1) DA Form 2408-5-1, Equipment Modification Record. (Tie Bar Assembly).
- (2) DA Form 2408-13, Aircraft Status Information Record.
- (3) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.
- (4) DA Form 2408-16, Aircraft Component Historical Record.
- (5) DA Form 2410, Component Removal and Repair/Overhaul Record (only if rotor head or tie bar assemblies are removed/replaced).
- (6) DD Form 1574/DD Form 1574-1, Serviceable Tag/Label – Materiel (color yellow). Annotate remarks block with “Inspected serviceable in accordance with CH-47-02-05 (TB 1-1520-240-20-146).”
- (7) DD Form 1577-2/DD Form 1577-3, Unserviceable (repairable) Tag/Label – Materiel (color green). Annotate remarks block with “Unserviceable in accordance with CH-47-02-05 (TB 1-1520-240-20-146).”

15. Weight and Balance. N/A.

**16. Points of Contact.**

a. Technical point of contact for this Technical Bulletin is Mr. Steve Prorise, AMSAM-RD-AE-I-P-C, DSN 897-2350 EXT 9851 or commercial (256) 705-9851. E-mail is "steve.prorise@rdec.redstone.army.mil".

b. Logistical point of contact is Mr. Bill Olson, SFAE-AV-CH-L, DSN 897-3379 or commercial (256) 313-3379, fax is DSN 897-4348 or commercial (256) 313-4348. E-mail is "william.olson@peoavn.redstone.army.mil".

c. Wholesale Materiel point of contact (SPARES) is Miguel Rodriguez, AMSAM-MMC-AV-CA, DSN 788-6747 OR (256) 842-6747, FAX is DSN 897-1106. Email is "miguel.rodriguez@redstone.army.mil".

d. Forms and Records point of contact is Ms. Ann Waldeck, AMSAM-MMC-MA-NM, DSN 746-5564 or commercial (256) 876-5564, fax is DSN 746-4904. E-mail is "ann.waldeck@redstone.army.mil".

e. Safety points of contact are –

(1) Primary – Mr. Randall Rushing (SAIC), AMSAM-SF-A, DSN 897-2092 or commercial (256) 313-2092, fax is DSN 897-2111 or commercial (256) 313-2111. E-mail is "randall.rushing@redstone.army.mil".

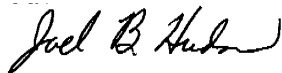
(2) Alternate – Mr. Russ Peusch, AMSAM-SF-A, DSN 788-8632 or commercial (256) 842-8632, fax is DSN 897-2111 or commercial (256) 313-2111. E-mail is "russell.peusch@redstone.army.mil".

f. Foreign Military Sales recipients requiring clarification of action advised by this Technical Bulletin should contact – Mr. Ronnie W. Sammons, AMSAM-SA-CS-NF, DSN 897-6856 or commercial (256) 313-6856, fax is DSN 897-6630 or commercial (256) 313-6630. E-mail is "ronnie.sammons@redstone.army.mil".

g. After hours contact the AMCOM OPERATIONS CENTER (AOC) DSN 897-2066/7 or commercial (256) 313-2066/7.

By Order of the Secretary of the Army:

Official:



**JOEL B. HUDSON**  
*Administrative Assistant to the  
Secretary of the Army*  
0208601

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

**DISTRIBUTION:**

To be distributed in accordance with Initial Distribution Number (IDN) 314042, requirements for TB 1-1520-240-20-146.



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.