

URGENT

TB 1-1520-240-20-118

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

INITIAL AND RECURRING INSPECTIONS AND REPLACEMENT OF HORIZONTAL HINGE PIN SHOULDERED BOLTS FOR ALL CH-47D, MH-47D AND MH-47E SERIES AIRCRAFT

Headquarters, Department of the Army, Washington, D. C.
30 May 2000

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

NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.

1. **Priority Classification. Urgent**

NOTE

In accordance with AR 95-1, paragraph 6-6A, MACOM Commanders may authorize temporary exception from ASAM 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 the condition status symbol of the cited aircraft will be changed to a red horizontal dash //-. The red horizontal dash //- entry shall state "Inspect in accordance with CH-47-00-ASAM-02 (TB 1-1520-240-20-118) at the next daily inspection, but no later than 25 May 2000." The red horizontal dash //- may be cleared when the inspection of paragraph 8 is completed. The affected aircraft shall be inspected as soon as practical but no later than 25 May 2000. Failure to comply with the requirements of this message within the specified time frame will cause the status symbol of the affected aircraft to be upgraded to a red //X//.

b. **Aircraft in Depot Maintenance.** Aircraft will not be issued until compliance with paragraph 8 of this message has been completed. This includes aircraft undergoing refurbishment at CCAD.

c. **Aircraft Undergoing Maintenance.** Same as paragraph 1a.

d. **Aircraft in Transit.**

This TB supersedes USAAMCOM Message 101848Z May 00 CH-47-00-ASAM-02

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- (1) Surface/Air Shipment. Inspect prior to first flight.
- (2) Ferry Status. Same as paragraph 1a. Those aircraft that have a DD 250 and are at Boeing Helicopter will be inspected prior to ferry to final destination.
- e. Maintenance Trainers (Category A and B). Same as paragraph 1a.
- f. Component/Parts in Stock at All Levels (Depot and Others) including War Reserves. N/A.
 - (1) Wholesale Stock. N/A.
 - (2) Retail Stock. N/A.
- g. Components/Parts in Work (Depot Level and Others). Items listed in paragraph 6 in work will not be issued until compliance with paragraph 9 of this Technical Bulletin.

2. Task/Inspection Suspense Date. At the next daily inspection but no later than 25 May 2000 and report in accordance with paragraph 14b.

3. Reporting Compliance Suspense Date. Report compliance in accordance with paragraph 14a no later than 2 June 2000.

4. Summary of the Problem.

a. During post flight inspection a horizontal hinge pin shouldered bolt, P/N 114R2201-1, was found to have the bolt head separated. Failure analysis determined a crack had initiated at the groove between the shank and the head of the bolt. The crack propagated until the bolt head broke off. A redesigned bolt, P/N 114R2201-2, which does not have a groove is now being procured.

b. For manpower/downtime and funding impacts see paragraph 12.

c. The purpose of this Technical Bulletin is to direct the initial inspection of each P/N 114R2201-1 bolt, and direct a recurring inspection to be performed during each scheduled daily inspection, preflight inspection, and postflight inspection. Replacement of the P/N 114R2201-1 bolt is required at each 1200 hour horizontal hinge pin rotation or at any unscheduled maintenance requiring horizontal hinge pin removal.

5. End Items to be inspected. All CH-47D, MH-47D, and MH-47E Aircraft.

6. Assembly Components to be Inspected.

NOMENCLATURE	PART NUMBER
Head, Rotary Wing, FWD	145R2003 -- All
Head, Rotary wing, AFT	145R2004 -- All

7. Parts to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Bolt	114R2201 -- 1	5306-00-843-7117

8. Inspection Procedures.

NOTE

If bolt, P/N 114R2201-2, is installed, it does not require this special daily inspection and is covered by existing daily inspection of rotor head.

NOTE

On initial inspection bolt heads may be covered with adhesive (RTV 730). The bolt may appear to be secure when it is being held by the adhesive. If the bolt head is completely covered remove the adhesive using a plastic scraper before performing the inspection in paragraph 8a, below. Following the initial inspection re-apply adhesive with a thin bead

covering only the base of the bolt head and washer to prevent moisture from entering horizontal hinge pin.

NOTE

Commanders will insure that all crew members are made aware of this special interest inspection and the importance of conducting the inspection during pre and post flight inspections.

- a. Perform the following inspections.

(1) Initial Inspection. Inspect each bolt, P/N 114R2201-1, apply hand pressure to the head to assure the adhesive is not holding the bolt head in place. If the bolt head is broken off the rotor head is considered unserviceable until the inspection of paragraph 8b is completed. If it is necessary to remove excessive adhesive RTV, the units have 10 flight hours but no later than 25 May 2000 to comply with proper application of adhesive RTV in accordance with the note above.

(2) Recurring Inspections. During each daily inspection, preflight and postflight, inspect each bolt, P/N 114R2201-1. Apply hand pressure to the head to assure the adhesive is not holding the bolt head in place. If the bolt head is broken off, the rotor head is considered unserviceable.

- b. If a broken bolt head is found, inspect the following parts while the horizontal hinge pin is disassembled: horizontal hinge pin, tie bar, and nut (reference 13a, figure 176, item 113, 87, and 121 respectively) or (reference 13b, figure 5-4, item 98, 87, and 121 respectively). Inspect for scoring, deformation or any evidence that parts have abnormal wear.

9. Correction Procedures.

- a. If a broken bolt head is found, replace bolt with P/N 114R2201-1 or 114R2201-2 in accordance with Task 5-44 and Task 5-46, reference 13d or Task 5-55 and Task 5-57, reference 13e. Use adhesive (E63.1 of reference 13d or E67 of reference 13e) and apply a thin bead covering the base of the bolt head and washer.

- b. Bolt P/N 114R2201-1 shall be replaced with a new bolt (either a -1 or -2) at each 1200 hour horizontal hinge pin inspection (rotation or replacement) or during any unscheduled maintenance requiring horizontal hinge pin removal or during depot overhaul.

10. Supply/Parts and Disposition.

- a. Parts Required. Bolt, P/N 114R2201-1 or 114R2201-2 may be required to replace defective items or those required to be changed in accordance with paragraph 9b above. Bolt, P/N 114R2201 will be issued until stock is depleted or P/N 114R2201-2 bolts are available in the supply system.

- b. Requisitioning Instructions. Requisition replacement parts using normal supply procedures. All requisitions shall use project code (CC 57-59) "XC8" , "X-RAY-CHARLIE-EIGHT".

NOTE

Project code 'XC8" , "X-RAY-CHARLIE-EIGHT" is required to track and establish a data base of stock fund expenditures incurred by the field as a result of Safety of Flight actions.

- c. Bulk and Consumable Materials. 730 RTV, MIL-A-46146, 8040-00-251-2312.

- d. Disposition.

- (1) Heads. Dispose of removed parts/components using normal supply procedures. All turn-in documents must include project code (CC 57-59) "X-RAY-CHARLIE-EIGHT".

- (2) Bolts. Demilitarize/mutilate in accordance with TM 1-1500-328-23 any part/component which does not meet inspection criteria.

- (3) Tie Bars or Horizontal Hinge Pins. Hold any discrepant part/component pending disposition instructions from technical point of contact in paragraph 16.

- e. Disposition of Hazardous Material. In accordance with Environmental Protection Agency directives as implemented by your servicing environmental coordinator (AR 200-1).

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11. Special Tools and Fixtures Required. Plastic scraper.

12. Application.

- a. Category of Maintenance. AVUM. Aircraft downtime will be charged to AVUM maintenance.
- b. Estimated Time Required.
 - (1) For Inspection –
 - (a) Total of 1 man-hours using 1 persons.
 - (b) total of 9 hours downtime for one end item, one hour for the inspection plus eight hours for the adhesive RTV to dry, if required.
 - (2) For Replacement –
 - (a) Total of 200 man-hours using 4 persons.
 - (b) Total of 50 hours downtime for one end item .
- c. Estimated Cost Impact to the Field –

NOMENCLATURE	PART NUMBER/ NATIONAL STOCK NUMBER	QUANTITY	COST EACH	TOTAL \$
Bolt	114R2201-1/5306-00-843-7117	6	\$19.41	\$116.46
Bolt	114R2201-2/5306-01-472-3594	6	\$19.41	\$116.46
Total cost per aircraft = \$116.46				

- 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. TM 55-1520-240-23, TM 1-1520-252-23, TM 55-1520-240-PMD and TM 1-1520-252-PMD 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.

13. References.

- a. DA PAM 738-751
- b. TM 55-1520-240-23P
- c. TM 1-1520-252-23P
- d. TM 55-1520-240-23
- e. TM 1-1520-252-23
- f. TM 55-1520-240-PMD
- g. TM 1-1520-252-PMD

14. Recording and Reporting Requirements.

- a. Reporting Compliance Suspense Date (Aircraft). Upon entering requirements of this Technical Bulletin on DA Form 2408-13-1 on all subject MDS aircraft, forward a priority message, datafax or e-mail to Commander, AMCOM, ATTN: AMSAM-SF-A (SOF Compliance Officer), Redstone Arsenal, AL 35898-5000, in accordance with AR 95-1. Datafax number is DSN 897-2111 or commercial (256) 313-2111. E-mail address is "safeadm@redstone.army.mil". The report will cite this Technical Bulletin number, date of entry in DA Form 2408-13-1, the aircraft mission design series and serial numbers of aircraft in numerical order.
- b. Task/Inspection Reporting Suspense Date (Aircraft). N/A.
- c. Reporting Message Receipt (SPARES). N/A.

- d. Task/Inspection Reporting Suspense Date (SPARES).
 - (1) Materiel in Wholesale Depot Storage. N/A.
 - (2) Materiel in Retail Storage. N/A.
- e. 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 (Rotary Wing Head).
- (2) DA Form 2408-13, Aircraft Status Information Record.
- (3) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.
- (4) DA Form 2408-15, Historical Record for Aircraft.
- (5) DD Form 1577/DD Form 1577-1, Unserviceable (Condemned) Tag/Label - Materiel (color red). Annotate remarks block with "Condemned in accordance with CH-47-00-ASAM-02 (TB 1-1520-240-23-118 and mutilated in accordance with TM 1-1500-328-23."

15. Weight and Balance. N/A.

16. Points of Contact.

- a. Technical point of contact for this Technical Bulletin is Mr. Wesselschmidt, AMSAM-RD-AE-I-P-C, DSN 897-3380 or (256) 313-3380, datafax is 897-4348. E-mail is "matthew.wesselschmidt@redstone.army.mil".
- b. Logistical point of contact for this Technical Bulletin is Mr. Bill Olson, SFAE-AV-CH-L, DSN 897-3379 or (256) 313-3379, datafax is DSN 897-4348. E-mail is "olsonw@peoavn.redstone.army.mil".
- c. Forms and records point of contact for this Technical Bulletin is Ms. Ann Waldeck, AMSAM-MMC-RE-FF, DSN 746-5564 or (256) 876-5564, datafax is DSN 746-4904. E-mail is "ann.waldeck@redstone.army.mil".
- d. Safety points of contact for this Technical Bulletin are-
 - (1) Mr. Frank Rosebery (SAIC) AMSAM-SF-A, DSN 788-8631 or (256) 842-8631, datafax is DSN 897-2111. E-mail is "frank.roseberry@redstone.army.mil".
 - (2) Mr. Howard Chilton, AMSAM-SF-A, DSN 897-2068 or (256) 313-2068, datafax is (256) 313-2111. E-mail is "howard.chilton@redstone.army.mil".
- e. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this Technical Bulletin should contact: CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAM-SA, DSN 897-0410 or (256) 313-0410. E-mail is "wittstromjl@redstone.army.mil" or Mr. Ronnie W. Sammons, AMSAM-SA-CS-NF, DSN 897-0408 or (256) 313-0408, datafax is DSN 897-0411 or (256) 313-0411. E-mail is "sammonsrw@redstone.army.mil". Huntsville, AL is GMT minus 5 hrs.
- f. After hours contact the AMCOM Command Operations Center (COC) DSN 897-2066/7 or commercial (256) 313-2066/7.

17. Reporting of Errors and Recommending Improvements. You can improve this Technical Bulletin. 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) directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM-MMC-LS-LP, Redstone Arsenal, AL 35898-5230.

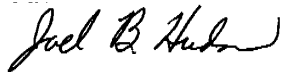
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You may also submit your recommended changes by E-Mail directly to "Is-lp-@redstone.army.mil". A reply will be furnished directly to you.

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
0014606

DISTRIBUTION:

To be distributed in accordance with Initial Distribution No. (IDN) 313909, requirements for TB 1-1520-240-20-118.

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: <ls-lp-@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.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN...JOT DOWN THE
DOPE ABOUT IT ON THIS FORM.
CAREFULLY TEAR IT OUT, FOLD IT
AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

PUBLICATION DATE

PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE
NO.

PARA-
GRAPH

FIGURE
NO.

TABLE
NO.

IN THIS SPACE, TELL WHAT IS WRONG
AND WHAT SHOULD BE DONE ABOUT IT.

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE

THE METRIC SYSTEM AND EQUIVALENTS

WEIGHT MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
 1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
 1 Kilogram = 1000 Grams = 2.2 lb.
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
 1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
 1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
 1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

TEMPERATURE

$5/9(^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $9/5^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
its	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
ometers per Liter	Miles per Gallon	2.354
ometers per Hour	Miles per Hour	0.621



PIN: 078132-000