

# URGENT

TB 1-1520-240-20-109

## DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

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### FORWARD AND AFT LONGITUDINAL CYCLIC TRIM YOKE BUSHING INSPECTIONS

### FOR ALL CH-47D, MH-47D, AND MH-47E AIRCRAFT

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Headquarters, Department of the Army, Washington, D. C.  
26 March 1999

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

#### NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED

#### 1. Priority Classification urgent

a. Aircraft in Use. Upon receipt of this Technical Bulletin (TB) the condition status symbol of the cited aircraft will be changed to a red horizontal dash //-. 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 the task/inspection suspense date. Failure to comply with the requirements of this message within the time frame will cause the status symbol to be upgraded to a red //X/.

b. Aircraft In Depot Maintenance. Aircraft will not be issued until compliance with this TB has been completed.

c. Aircraft Undergoing Maintenance. Aircraft will not be released until compliance with this TB has been completed.

d. Aircraft in Transit,

(1) Surface/Air Shipment. Prior to first flight.

This TB supersedes USAAMCOM Message 151843Z MAR 99 CH-99-ASAM-04.

**TB 1-1520-240-20-109**

- (2) Ferry Status. Same as paragraph 1A.
  - e. Maintenance Trainers (Category A/B). Same as paragraph 1A.
  - f. Component/Parts in Stock at All Levels (Depot and Others) Including War Reserves - N/A
  - g. Components/Parts in Work (Depot Level and Others) - N/A
- 2. Task/Inspection Suspense Date.** Within next 10 flight hours or 14 days.
- 3. Reporting Compliance Suspense Date.** No later than 6 April 1999 in accordance with paragraph 14A of this TB.
- 4. Summary of the Problem.**

a Two instances have been reported of bushings being left out during installation of longitudinal cyclic trim (LCT) yokes. The first was corrected before any damage occurred. The second instance result in damage to the yoke assembly mounting lug on the forward transmission. Are view of the maintenance manual confirms that two bushings (part numbers NAS75-20-206 and NAS75-20-123) are not sufficiently represented in the text or diagrams.

(1) Foward LCT yoke assembly: In TM 55-1520-240-23, Task 11-217, Step 5.1, Item 9.1 is installed (bushing, TM 55-1520-240-23P, Figure 372, Item 78, part number NAS75-20-206). Prior to Change 22 in TM 55-1520-240-23, this part Was not represented in the associated diagram. As a result, this bushing was omitted because it was confused with the press-fit sleeve bushing on the transmission housing (TM 55-1520-240-23P, Figure 180, Item 22, part number 145D0121-14).

(2) Aft LCT yoke assembly: In TM 55-1520-240-23, Task 11-233, Steps 7 and 8 have omitted on the installation of the sleeve bushing (TM 55-1520-240-23P, Figure 137, Item 135, part number NAS75-20-123). As a result, the sleeve bushing was not installed.

- b. For manpower, downtime and funding impacts, see paragraph 12.
- c. The purpose of this TB is to: Inspect both forward and aft LCT yoke assemblies to Insure proper bushing installations and annotate changes to the maintenance manuals.

- 5. End items to be Inspected.** All CH-47D, MH-47D, and MH-47E aircraft.
- 6. Assembly Components to be Inspected.**

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Yoke Assembly	145C3950-3	1560-01-116-4203
cover Assembly, Upper	145D1302-9	1615-01-112-5875
Yoke Assembly	114C3043-6	1615-00-115-4718
Beam Assembly	114S4119-60	N/A

**7. Parts to be Inspected.**

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Shaft, Shouldered	145C3051-1	3040-01-116-4323
Bushing	NAS75-20-206	3120-01-156-7812
Shaft	114C3044-2	1560-00-868-8468
Bushing, Sleeve	NAS75-20-123	3120-00-159-7016

**8. Inspection Procedures.**

- a. Inspect both the forward and aft LCT yoke assemblies to confirm the installation of the bushing (part number NAS75-20-206) and sleeve bushing (part number NAS75-20-123). Visual Indications that the bush-

ings have not been installed are radial movement of the shouldered shaft and/or no gap between the LCT yoke and the washer on the shaft head.

b. If these inspections do not confirm the installation of the bushings, the following maintenance procedures should be performed: disassemble in accordance with TM 55-1520-240-23, Tasks 11-212 and/or 11-227 or TM 1-1520-252-23, Task 11-230 and/or 11-245.

c. If the inspection confirms installation of the bushing (part number NAS75-20-206), and sleeve bushing (part number NAS75-20-123) no further action is required for this LCT yoke. Reassemble in accordance with TM 55-1520-240-23, Task 11-217 and/or 11-233 or TM 1-1520-252-23, Tasks 11-235 and/or 11-251 shall be performed.

d. If either bushing is not installed, contact the technical point of contact for this TB for further inspection instructions.

## 9. Correction Procedures

a. Annotate the following changes to TM 1-1520-252-23, Task 11-230, Remove Forward LCT Yoke:

(1) Delete Step 11.

(2) Add the following note after Step 10: 'Ensure that slider bushing (21) is not removed and remains in the yoke mount (20).'

b. Annotate the following changes to TM 1-1520-252-23, Task 11-235, Install Forward LCT Yoke:

(1) Add the following note prior to Step 3: "Ensure that the slider bushing (31) remains in the yoke mount (10).'

(2) Add the following warning after Step 5: "Flight Safety Parts. This is an installation critical Right safety part. All aspects of its assembly and installation must be ensured. Ensure that the slider bushing (31) is retained in the mount lug (10).'

c. Annotate the following change to TM 1-1520-252-23, Task 11-245. Remove aft LCT yoke: Add the following note after Step 13: "Ensure that slider bushing (28.1), not shown in the accompanying diagram, is not removed and remains in the support (29).'

d. Annotate the following change to TM 1-1520-252-23, Task 11-251, Install Aft LCT Yoke:

(1) Add the following note prior to step 3: 'Ensure that the slider bushing (18.1) remains in the yoke mount (17).'

(2) Add the following warning after step 5: "Flight Safety Parts. This is an installation critical flight safety part All aspects of its assembly and installation must be ensured. Ensure that the slider bushing (18.1) is retained in the mount lug (17).'

(3) Add the following note after Step 5: "Slider bushing (18.1) is not pictured in the accompanying diagram."

e. Annotate the following change to TM 55-1520-240-23, Task 11-212, Remove Forward LCT Yoke: Add the following note after Step 10: 'Ensure that slider bushing (21), not shown in the accompanying diagram, is not removed and remains in the yoke mount (20).'

f. Annotate the following changes to TM 55-1520-240-23, Task 11-217, Install Forward LCT Yoke:

(1) Add the following note prior to Step 3: 'Ensure that the slider bushing (9.1) remains in the yoke mount (10).'

(2) Add the following warning after Step 5: 'flight Safety Parts. This is an installation critical flight safety part. All aspects of its assembly and installation must be ensured. Ensure that the slider bushing (9.1) is retained in the mount lug (10).'

(3) Add the following note after Step 5: 'For manuals prior to Change 22, the slider bushing (9.1) is not pictured in the accompanying diagram.'

g. Annotate the following change to TM 55-1520-240-23, Task 11-227, Remove Aft LCT Yoke: Add the following note after Step 13: 'Ensure that slider bushing (28.1), not shown in the accompanying diagram, is not removed and remains in the support (29).'

h. Annotate the following changes to TM 55-1520-240-23, Task 11-233, Install Aft LCT Yoke:

(1) Add the following note prior to Step 3: "Ensure that the slider bushing (18.1) remains in the yoke mount (17)."

(2) Add the following warning after Step 5: "flight Safety Parts. This is an installation critical flight safety part All aspects of its assembly and installation must be ensured. Ensure that the slider bushing (18.1) is retained in the mount lug (17)."

(3) Add the following note after Step 5: "Slider bushing (18.1) is not pictured in the accompanying diagram."

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

a Parts Required. Items listed below may be required to replace defective items.

<b>NOMEMCLATURE</b>	<b>PART NO.</b>	<b>NSN</b>	<b>COST</b>
Yoke Assembly	145C3050-3	1560-01-116-4203	\$1629.38
Yoke Assembly	114C3043-6	1615-00-115-4718	\$4443.49
Bushing, Sleeve	145D0121-15	3120-01-116-4456	\$30.99
Bushing, Sleeve	145D0121-14	3120-01-116-4455	\$71.55
Bushing, Sleeve	114S4829-1	3120-01-128-1827	\$42.18
Bushing, Sleeve	NAS75-20-206	3120-01-156-7812	\$12.32
Bushing, Sleeve	NAS75-20-123	3120-00-159-7016	\$8.54
Shaft, Shouldered	145C3051-1	3040-01-116-4323	\$859.13
Shaft	114C3044-2	1560-00-868-8468	\$135.00
Nut	MS17826-12	5310-00-047-2965	\$2.59
Pin, Cotter	MS24665-376	5315-00-236-8362	\$4.05
Nut	MS21025-20	5310-00-838-0265	\$11.57
Pin, Cotter	MS24665-379	5315-00-059-0494	\$6.95

If one aircraft were to have a bushing not installed in both forward and aft yoke assemblies and the yokes have been damaged beyond repair. cost \$21919.74

If the forward yoke support assembly has been damaged, the forward transmission must be replaced.

Part Number 145D1300-9 National Stock Number 1615-01-317-6446 \$343,650.00

b. Requisitioning Instructions. If the slider bushings are not installed in the yoke mount, contact logistical point of contact in paragraph 16B for requisitioning instructions. All requisitions shall use Project node (CC 57-59) "XFK", "X-RAY-FOXTROT-KILO".

**NOTE**

Project code "XFK", "X-RAY-FOXTROT-KILO" is required to track and establish a data base of stock fund expenditures incurred by the field as a result of SOF actions.

c. Bulk and Consumable Materials. N/A

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

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

**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) For visual inspection
    - (a) Total of 1 man-hours using 1 persons.
    - (b) Total of 0 hours downtime for one end item,
  - (2) For disassembly and inspection
    - (a) Total of 40 man-hours using 4 persons.
    - (b) Total of 10 hours downtime for one end item.
- c. Estimated Cost Impact to the Field - \$200.00 for consumables used during the Inspection.
- 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 1-1520-252-23 and TM55-1520-240-23 shall be changed to reflect paragraph 9 of 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.

### 13. References

- a. TM 1-1520-252-23, Aviation Unit and Aviation Intermediate Maintenance Manual, MH-47E Helicopter.
- b. TM 1-1520-252-23P, Aviation Unit and Aviation Intermediate Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Took), Helicopter, Cargo Transport, MH-47E, NSN 1520-01-282-3747.
- c. TM 55-1520-240-23, Aviation Unit and Aviation Intermediate Maintenance Manual, Ch-47D Helicopter.
- d. TM 55-1520-240-23P, Aviation Unit and Aviation Intermediate Maintenance Repair Parts and Special Took List (Including Depot Maintenance Repair Parts and Special Tools), Helicopter, Cargo Transport, CH-47D, NSN 1520-01-088-3669.

### 14. Recording and Reporting Requirements.

- a. Reporting Compliance Suspense Date (Aircraft). Upon entering requirements of this TB 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 35898-5222, in accordance with AR 95-1. Datafax number is DSN 897-2111 or commercial (255) 313-2111. E-Mail 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.
- b. Task/Inspection Reporting Suspense Date (Aircraft) - No special report of the results of this inspection is required.
- c. Reporting message receipt (SPARES) - N/A
- d. Task/Inspection Reporting Suspense Date (SPARES) - N/A
- e. The following forms are applicable and are to be completed in accordance with DA PAM 738-751, 15 Jun 92 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. James M. Wilson, AMSAM-AR-E-I-C-H, DSN897-4625 or commercial (256) 313-4625, Datafax is DSN 897-3230 or (256) 313-3230, E-Mail is "wilsonj@redstone.army.mil".

b. Logistical point of contact for this TB is Mr. Bill Olson, SFAE-AV-CH-L, DSN897-4304 or commercial (256) 313-4304, Datafax is DSN 897-4348 or (256) 313-4348. E-Mail is "olsonw@peoavn.redstone.army.mil".

c. Forms and records point of contact for this TB is Ms. Ann Waldeck, AMSAM-MMC-RE-FF, DSN 746-5564 or commercial (256) 876-5564, Datafax is DSN 746-4904 or (256) 876-4904. E-Mail is "waldeck-ab@redstone.army.mil."

d. Safety point of contact for this TB is Mr. Robert D. Brock, AMSAM-SF-A, DSN 788-8632 or commercial (256) 842-8632, Datafax is DSN 897-2111 or (256) 313-2111. E-Mail is "bob.brock@redstone.army.mil".

e. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this TB should contact CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAM-SA, DSN 897-0681 or (256) 313-0681. E-Mail is "wittstromjl@redstone.army.mil" or Mr. Ronnie W. Sammons, AMSAM-SA-CS-NF, DSN 897-0869 or commercial (256) 313-0869. Datafax is DSN 897-0411 or (256) 313-0411. E-Mail is "sam-mansw@redstone.army.mil". Huntsville, AL is GMT minus 6 hours.

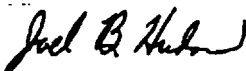
f. After hours contact the AMCOM Command Operations Center (COC) DSN 897-2066/7 or commercial (256) 313-2066/7.

**17. Reporting of Errors and Recommending Improvements.** You can improve this TB. If you find any mistakes or if you know of a way to improve the 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. You may also submit your recommended changes by E-Mail directly to ls-lp@redstone.army.mil. A reply will be furnished directly to you.

By Order of the Secretary of the Army:

**DENNIS J. REIMER**  
**General, United States Army**  
**Chief of Staff**

**Official:**



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

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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



