

# URGENT

TB 1-1520-240-20-144

## DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

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### INSPECTION OF SWASHPLATE LOWER SEAL RETAINER SELF-LOCKING NUT ON ALL CH-47D, MH-47D AND MH-47E AIRCRAFT

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Headquarters, Department of the Army, Washington, D. C.  
31 January 2002

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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THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.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**

#### NOTE

In accordance with AR 95--1, paragraph 6-6A/6-14A, 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 entry on the DA Form 2408--13--1. Enter a red horizontal dash // --// status symbol with the following statement: "Inspect swashplate lower seal retainer self-locking nuts in accordance with SOF CH-47-02-01 prior to next flight, but no later than 8 February 2002." Clear the red horizontal dash//--// entry when the procedures in accordance with paragraph 8 and 9 are completed. The affected aircraft shall be inspected as soon as practical but no later than 8 February 2002. 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 //.

b. Aircraft in Maintenance --

(1) Aircraft in AVUM, AVIM, or Depot Level Maintenance -- Same as paragraph 1a.

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

## TB 1-1520-240-20-144

c. Aircraft in Transit --

(1) Surface/Air Shipment -- Same as paragraph 1a.

(2) Ferry Status -- Same as paragraph 1a.

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

e. Components/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 paragraphs 6 and 7 are annotated to read: "CH-47-02-01 (TB 1-1520-240-20-144), swashplate lower seal retainer self-locking nut inspection 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.

f. Components/Parts in Work (Depot Level and Others) -- Depot and other maintenance Activity Commanders will ensure items listed in paragraphs 6 and 7 are not issued until they are in compliance with this message.

**2. Task/Inspection Suspense Date.** Complete the inspection in accordance with paragraph 8 prior to next flight, but no later than 8 February 2002.

**3. TAMMS Reporting Compliance Suspense Date.** Report compliance in accordance with paragraph 14a (1) no later than 30 January 2002.

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

a. A field unit has discovered the use of self-locking nut P/N NAS 1758-L6 on the swashplate lower seal retainer. The overall height of these nuts does not allow full engagement of the locking features in the nut. Use of the incorrect nuts could cause damage to the stationary ring due to inadequate clearance between the nut and the stationary ring, especially if the nut were to back off the bolt. In addition, if a nut or bolt were to back off and drop below the swashplate assembly, the possibility exists that a linkage could be jammed by the fastener, which could cause a partial or complete loss of rotor control.

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

c. The purpose of this Technical Bulletin is to --

(1) Require inspection for and replacement of incorrect self-locking nuts installed on forward and aft swashplate rotating ring assemblies.

(2) Require inspection of swashplate stationary ring for damage if incorrect self-locking nuts are found.

(3) Require inspection of all swashplate lower seal retainer self-locking nuts on hand/in stock.

(4) Require a change to maintenance manuals to incorporate the correct nut torque value and change installation procedures from a wet installation to dry installation.

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

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

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
SWASHPLATE ASSEMBLY	145R3551-ALL	
ROTATING RING ASSEMBLY	114R3464-ALL	
FWD STATIONARY RING ASSY	145R3351-ALL	
AFT STATIONARY RING ASSY	145R3352-ALL	
FWD STATIONARY RING ASSY	414R3351-1	1615-01-342-2310
FWD STATIONARY RING ASSY	414R3351-3	1615-01-474-4228
AFT STATIONARY RING ASSY	414R3352-3	1615-01-342-7961

**7. Parts to be Inspected.**

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
NUT, SELF-LOCKING	FN22M-624	5310-00-184-0354
FWD STATIONARY RING	114R3351-ALL	
AFT STATIONARY RING	114R3352-ALL	
FWD STATIONARY RING	414R3351-2	1650-01-438-5361
AFT STATIONARY RING	414R3352-4	1650-01-439-4419

**8. Inspection Procedures.****NOTE**

Supplemental information (photos/graphics) for this inspection can be viewed at: (use lower case)

"[www.redstone.army.mil/sof/suppl/c47s0201.pdf](http://www.redstone.army.mil/sof/suppl/c47s0201.pdf)"

For assistance contact the Safety point of contact in paragraph 16e (1).

a. Visually inspect forward and aft swashplate rotating rings, on aircraft, for correct self-locking nut installation on the lower seal retainers. The correct self-locking nuts, P/N FN22M-624, should be installed such that thread protrusion is evident.

**NOTE**

The incorrect nut height measures 0.425" -- 0.455" (NAS1758-L6)

The correct nut height measures 0.350" maximum (FN22M-624)

b. If correct nuts are found and thread protrusion is evident on all 18 bolts on each swashplate assembly, no further action is required and the red dash // - // entry required in paragraph 1a may be cleared.

c. If incorrect nuts are found or no thread protrusion is observed, the nuts shall be replaced, one at a time, and the swashplate stationary ring inspected for damage.

(1) Visually inspect top surface of forward and aft swashplate stationary rings, on aircraft, for grooves or gouges in the area underneath the lower seal retainer nuts.

(2) A groove in the stationary ring indicates an unserviceable swashplate assembly and requires swashplate assembly replacement. Proceed to paragraph 9 for correction procedures.

9. Correction Procedures.

**NOTE**

The forward and aft swashplate rotating ring lower seal retainer nuts may be replaced on aircraft. However, if an unserviceable swashplate stationary ring is found, replace swashplate assembly. If unable to change/replace the nut with swashplate on aircraft due to any reason, then remove swashplate and accomplish off aircraft.

**WARNING**

**If a nut, washer, bolt, or other foreign object is subsequently dropped during replacement, it must be recovered prior to flight. Failure to secure the dropped item will result in a red // X // condition for that aircraft until the item has been recovered.**

a. If incorrect nuts are found, but no damage is found on the forward and aft stationary swashplate (on aircraft) --

(1) Have helper slowly rotate blades and position incorrect nut in an open area of the swashplate, which will allow it to be easily removed.

**CAUTION**

**Have a helper hold the rotor blades in place so that the swashplate rotating ring does not move.**

(2) Replace all incorrect swashplate lower seal retainer nuts with the correct nut. If P/N FN22M-624 self-locking nuts are not available, P/N HS4143-4 is an acceptable substitute. Torque nuts to a dry torque of 350-380 inch-pounds.

b. If damage due to incorrect nut installation is found on either the forward and/or aft swashplate, replace swashplate assembly.

c. Purge all on-hand stock of incorrect swashplate lower seal retainer self locking nuts.

**NOTE**

The incorrect nut height measures 0.425" - 0.455" (NAS 1758-L6) The correct nut height measures 0.350" maximum (FN22M-624)

10. Supply/Parts and Disposition.

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

b. Requisitioning Instructions.

All requisitions shall use project code (CC 57-59) "X-1-L" (X-RAY-ONE-LIMA).

**NOTE**

Project code "X1L" 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 NUMBER	NATIONAL STOCK NUMBER
NUT, SELF-LOCKING	FN22M-624 or HS4143-4	5310-01-184-0354

- d. Disposition. Contact the Logistics point of contact listed at paragraph 16 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. Report aircraft non-mission capable maintenance (NMCM) while undergoing inspection and correction in accordance with this Technical Bulletin. Report aircraft non-mission capable supply (NMCS) while waiting for parts in accordance with this Technical Bulletin.

b. Estimated Time Required-

- (1) Time to complete inspection -
  - (a) Total of 2 man-hours using 2 persons.
  - (b) Total of 1 hour downtime for one end item.
- (2) Time for replacement of nuts (assuming all 36 nuts require replacement) -
  - (a) Total of 6 man-hours using 2 persons.
  - (b) Total of 3 hours downtime for one end item.
- (3) Time for replacement of damaged stationary swashplate -
  - (a) Total of 60 man-hours using 5 persons.
  - (b) Total of 12 hours downtime for one end item.

c. Estimated Cost Impact to the Field.

NOMENCLATURE	PART NUMBER/ NSN	QUANTITY	COST EACH	TOTAL \$
NUT, SELF-LOCK- ING	FN22M-624 5310-01-184-0354	36	\$1.51	\$54.36
SWASHPLATE ASSY. FWD	145R3551-19 1615-01-473-4376	1	\$133,245.00	\$133,245.00
SWASHPLATE ASSY. AFT	145R3551-20 1615-01-475-9838	1	\$133,245.00	\$133,245.00

(If all nuts and swashplate replaced) TOTAL COST: \$266,544.36

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 –

- (a) Task 5-126.1, page 5-450.4.2, remove “Epoxy Primer (E292)” from the Materials List.
- (b) Task 5-126.1, page 5-450.4.4, Remove the WARNING from paragraph 7.
- (c) Task 5-1126.1, page 5-450.4.4, paragraph 8, remove the following: “Wet with epoxy primer (E292)”.
- (d) Task 5-126.1, page 5-450.4.4, in paragraphs 8 and 10, change “285 inch-pounds” to “350-380 inch-pounds”.

## TB 1-1520-240-20-144

- (e) Task 5-126.1, page 5-450.4.4, add the following note between paragraphs 8 and 9:

### NOTE

Do not re-use any nut (5) after it has been installed once.

- (f) Task 5-126.1.1, page 5-450.4.6, remove "Epoxy Primer (E292)" from the Materials List.
- (g) Task 5-126.1.1, page 5\_450.4.8, remove the WARNING from paragraph 7.
- (h) Task 5-126.1.1, page 5-450.4.8, paragraph 8, remove the following: "Wet with epoxy primer (E292)".
- (i) Task 5-126.1.1, page 5-450.4.8, in paragraphs 8 and 10, change "285 inch-pounds" to "350-380 inch-pounds".
- (j) Task 5-126.1.1, page 5-450.4.8, and add the following note between paragraphs 8 and 9:

### NOTE

Do not re-use any nut (5) after it has been installed once.

- (2) TM 1-1520-252-23, Aviation Unit and Aviation Intermediate Maintenance Manual, MH-47E Helicopter.

- (a) Task 5-181, page 1, remove "Epoxy primer (E292)" from the Materials List.
- (b) Task 5-181, page 3, remove the WARNING from paragraph 7.
- (c) Task 5-181, page 3, in paragraphs 8 and 10 change "285 inch-pounds" to "350-380 inch-pounds".
- (d) Task 5-181, page, add the following note between paragraphs 8 and 9:

### NOTE

Do not re-use any nut (5) after it has been installed once.

- (e) Task 5-181, page 3, paragraph 10.1, change "195 inch-pounds" to "350-380 inch-pounds".
- (f) Task 5-181.1, page 1, remove "Epoxy primer (E292)" from the Materials List.
- (g) Task 5-181.1, page 3, remove the WARNING from paragraph 7.
- (h) Task 5-181.1, page 3, in paragraphs 8 and 10 change "285 inch-pounds" to "350-380 inch-pounds".
- (i) Task 5-181.1, page 3, add the following note between paragraphs 8 and 9:

### NOTE

Do not re-use any nut (9) after it has been installed once.

- (j) Task 5-181.1, page 3, paragraph 11, change "195 inch-pounds" to "350-380 inch-pounds".

## 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 -- 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. Datafax 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 – Upon completion of inspection, Commanders will forward a priority message to the Logistical point of contact listed in paragraph 16b. The report will cite this message and TB number, date of inspection, aircraft serial number, aircraft and component hours, results of the inspection. Inspection and reports will be completed no later than date specified in paragraph 2.

b. Wholesale Spare Parts/Assemblies --

(1) Reporting Message Receipt – N/A.

(2) Task/Inspection Reporting Suspense –

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

(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 e-mail or datafax 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 (Swashplate Assembly and Rotating Ring Assembly).

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

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

(4) DA Form 22408-16, Aircraft Component Historical Record (only if swashplate assy. rotating ring assy. and/or FWD/AFT stationary ring is removed and/or replaced).

(5) DA Form 2410, Component Removal and Repair/Overhaul Record. (Only if swashplate assy. rotating ring assy. and/or FWD/AFT stationary ring is removed and/or 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-47-02-01 (TB 1-1520-240-20-144)."

(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-47-02-01 (TB 1-1520-240-20-144)."

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

**16. Points of Contact.**

a. Technical point of contact is Mr. Steve Prosize, AMSAM-RD-AE-I-P-C, DSN 897-3377 or commercial (256) 313-3377, fax is DSN 897-4348 or commercial (256) 313-4348 . E-mail is "steve.prosize@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 Ms. Lucretia Roberts, AMSAM-MMC-AV-CAB DSN 897-1438 or commercial (256) 313--1438, datafax is DSN 897-1106. E-mail is " lucretia.roberts@redstone.army.mil".

**TB 1-1520-240-20-144**

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. Frank Rosebery (SAIC), AMSAM-SF-A, DSN 788-8631 or commercial (256) 842-8631, datafax is DSN 897-2111 or commercial (256) 313-2111.  
E-mail is "frank.rosebery@redstone.army.mil".

(2) Alternate -- Mr. Russell Peusch, AMSAM-SF-A, DSN 788-8632 or commercial (256) 842-8632, datafax is DSN 897-2111 or commercial (256) 313-2111.  
E-mail is "russel.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 COMMAND OPERATIONS CENTER (COC) DSN 897-2066/7 or commercial (256) 313-2066/7.

By Order of the Secretary of the Army:

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

Official:

  
**JOEL B. HUDSON**  
*Administrative Assistant to the*  
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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.