

URGENT

TB 1-1520-240-20-121

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

HYDRAULIC FLUID SAMPLING FROM FLIGHT CONTROL AND UTILITY SYSTEMS FOR ALL CH-47D, MH-47D AND MH-47E SERIES AIRCRAFT

Headquarters, Department of the Army, Washington, D. C.
12 June 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THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.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 make the the following entry on the DA Form 2408-13-1. The red horizontal dash //--// entry shall state: "Inspect H-47 series aircraft in accordance with CH-47-00-ASAM-03 within the next 10 flight hours but no later than 15 June 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 15 June 2000. 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 Depot Maintenance. Sample before flight.
- c. Aircraft Undergoing Maintenance. Sample before flight.
- d. Aircraft in Transit.
 - (1) Surface/Air Shipment. Same as paragraph 1a.
 - (2) Ferry Status.

TB 1-1520-240-20-121

(a) Same as paragraph 1a.

(b) Those aircraft that have a DD250 and are at Boeing Helicopters, Philadelphia will be inspected prior to ferry to final destination.

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

f. Components/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 the next 10 flight hours but no later than 15 June 2000.

3. Reporting Compliance Suspense Date. Report compliance in accordance with paragraph 14a no later than 23 June 2000.

4. Summary of the Problem.

a. The H-47 community has reported several incidents in which the aircraft experienced uncommanded maneuvers or flight control lock up while in flight. Contaminated hydraulic fluid is a factor which has been present and may have contributed to the uncommanded maneuvers or flight control lock up. To resolve this hydraulic fluid contamination factor, a periodic sampling interval of 50 flight hours or 100 calendar days for the number one, number two, and utility hydraulic systems will be initiated.

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

c. The purpose of this Technical Bulletin is to require periodic sampling of hydraulic fluid for contamination.

5. End Items to be Inspected. All H-47 Aircraft.

6. Assembly Components to be Inspected. N/A.

7. Parts to be Inspected. N/A.

8. Inspection Procedures.

a. A three ounce hydraulic fluid sample will be taken every 50 flight hours or 100 calendar days from the aircrafts number one, number two, and utility hydraulic systems. The initial sample will be taken within 10 flight hours but no later than 15 June 2000. The three ounce hydraulic fluid samples will be taken in accordance with Task 7-8.1 of TM 55-1520-240-23 or Task 7-11 of TM 1-1520-252-23. The samples will be sent to the units designated Army Oil and Analysis Program (AOAP) laboratory for analysis.

NOTE

Correct hydraulic sampling procedures are paramount to a successful sampling program. The majority of bad samples are the result of improper sampling, inadequate draining and taking of samples.

b. Effective with this Technical Bulletin, all hydraulic fluid filter elements which are removed from the aircraft for normal maintenance replacement will be sent to the units designated AOAP laboratory for analysis.

c. All hydraulic test stands (Depot and Organizational), Auxiliary Ground Power Units (AGPU) and Hydraulic Carts, will have fluid samples analyzed every seven calendar days.

d. Special samples will be taken whenever a major hydraulic component (for example; the pump, check valve etc.) has failed, or whenever the hydraulic system is suspect.

9. Correction Procedures.

a. Currently the AOAP laboratories are able to test for water levels in hydraulic fluids. The AOAP laboratories are also currently able to test for levels of particulate contamination (in parts per million) of specific elements which include iron, aluminum, chromium, copper, silicon, sodium, nickel, and zinc.

(1) For aircraft systems using MIL-H-83282, the maximum limit for water is 350 parts per million. For hydraulic fluid which has been verified by AOAP as exceeding 350 parts per million of water, change the

aircraft status to a red //X//. The aircraft red //X// status may be cleared upon successful hydraulic purification, re-sampling, and verification by the AOAP laboratory.

(2) For aircraft systems using MIL-H-5606, the maximum limit for water is 250 parts per million. For hydraulic fluid which has been verified by AOAP as exceeding 250 parts per million of water, change the aircraft status to a red //X//. The aircraft red //X// status may be cleared upon successful hydraulic purification, re-sampling, and verification by the AOAP laboratory.

(3) All data generated for levels of particulate contamination of specific elements from the AOAP analysis will be kept for statistical purposes in order to determine trends which would lead to component replacement. In the case of abnormal levels of particulate contamination which has been verified by AOAP, the AOAP laboratory will notify the unit immediately. The aircraft status will be changed to a red //X//. The aircraft red //X// status may be cleared upon successful hydraulic purification, re-sampling, and verification by AOAP laboratory. If system is still contaminated, contact technical point of contact listed in paragraph 16a for corrective action.

(4) Whenever the AGPU and purifier are used, record the following on the aircraft DA Form 2408-15-

- (a) Date of purification, serial number/admin number of AGPU.
- (b) Serial number/admin number of purifier.
- (c) Aircraft hours.
- (d) Hour meter start and completion times of the purifier and AGPU.

(5) Organizational owned hydraulic test stands, depot test stands, auxiliary ground power units (AGPU) and hydraulic carts using MIL-H-83282 hydraulic fluid will be maintained to a maximum of 200 parts per million for water. Test stands, AGPU and hydraulic carts using MIL-H-5606 hydraulic fluid will be maintained to a maximum of 175 parts per million for water. A hydraulic fluid sample will be taken every seven days for all test stands and AGPU carts and recorded on the equipment DA Form 2408-20. This sample will be processed per TB 43-0106. The sample will be taken at the gauge calibration port. Use the 3 ounce sample bottle. As noted in TB 43-0106, all the hydraulic fluid, including that in the AGPU reservoir should be warm and recently circulated prior to sampling. A DA Form 2408-20 will be established by the unit to record and track AGPU hydraulic oil samples.

b. At phase inspection, purge three ounces of hydraulic fluid from the number one and number two sides of the roll, pitch, and yaw integrated lower control actuator (ILCA) extensible link bleed port in accordance with Task 7-16 of TM 55-1520-240-23 or Task 7-19 of TM 1-1520-252-23. This procedure is required to remove uncirculated fluid from the extensible links of each ILCA.

c. The number one, number two, and utility hydraulic systems inspection required every 50 flight hours or 100 calendar days will be entered on the DA Form 2408-18. ULLS-A units will use this Technical Bulletin as authority to add the inspection to the inspection master file using inspection number A137.

10. Supply/Parts and Disposition.

- a. Parts Required. Three ounce plastic sampling bottle, NSN 8125-01-082-9697.
- b. Requisitioning Instructions. Requisition three ounce plastic sampling bottle using normal supply procedures.

11. Special Tools and Fixtures Required. N/A.

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.

b. Estimated Time Required.

- (1) Total of 1 man-hour using 2 persons.

TB 1-1520-240-20-121

(2) Total of .5 hour downtime for one end item.

c. Estimated Cost Impact to the Field –

NOMENCLATURE	NSN	UNIT OF ISSUE	QUANTITY	COST
Three Ounce Sampling Bottle	8125-01-082-9697	Box	120 ea.	\$52.67
Sampling Mailer Kit	8125-01-193-3440	Box	24 Bottles, Plastic Shipping Sacks and Mailing Car-tons	\$17.84

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-PM and TM 1-1520-252-PM 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. TM 55-1520-240-23
- b. TM 1-1520-252-23
- c. TM 55-1520-240-PM
- d. TM 1-1520-252-PM

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). 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 2408-13, Aircraft Status Information Record.
- (2) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.
- (3) DA Form 2408-15, Historical Record for Aircraft.
- (4) DA Form 2408-18, Equipment Inspection List. ULLS-A units will use inspection number

A137.

f. DA Form 2408-20 shall be completed in accordance with DA PAM 738-750, 1 Aug 94, for the AGPU/Hydraulic Cart.

15. Weight and Balance. N/A.

16. Points of Contact.

a. Technical point of contact for this Technical Bulletin is Mr. Larry T. Wieschhaus, AMSAM-AR-E-I-C-H, DSN 897-3341 or (256) 313-3341, datafax is 897-4348. E-mail is "larry.wieschhaus@redstone.army.mil".

b. Logistical point of contact for this Technical Bulletin is Mr. Norman Huston, SFAE-AV-CH-L, DSN 897-3617 or (256) 313-3617, datafax is extension 4348. E-mail is "hustonn@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 "waldeck-ab@redstone.army.mil".

d. Safety points of contact for this Technical Bulletin are-

(1) Mr. Frank Rosebery, AMSAM-SF-A, DSN 788-8631 or (256) 842-8631, datafax is (256) 313-2111. 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. AOAP point of contact is Mr. Daniel McElroy, AMXLS-LA, DSN 645-6915 or (256) 955-6915, datafax is DSN 746-9344 or (256) 876-9344. E-mail is "aoap@logsa.army.mil".

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

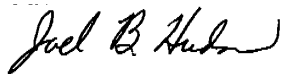
17. Reporting of Errors and Recommending Improvements. You can improve this Technical Bulletin. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and blank Forms) directly to: Commander, US Army Aviation and Missile Command, ATTN: AMSAM-MMC-LS-LP, Redstone Arsenal, AL 35898-5230. 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.

TB 1-1520-240-20-121

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
0015909

DISTRIBUTION:

To be distributed in accordance with Initial Distribution No. (IDN) 313911, requirements for TB 1-1520-240-20-21.

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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.