URGENT

TB 1-1520-240-20-161

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

MANDATORY MAINTENANCE FOR ALL HYDRAULIC CHECK VALVES AND FLUID PARTS ON ALL CH-47D, CH-47F, MH-47D AND MH-47E AIRCRAFT

Headquarters, Department of the Army, Washington D.C.
26 August 2005

NOTE

This message is effective until rescinded or superseded.

NOTE

This message is issued IAW AR 95-1 and has not been transmitted to units subordinate to addressees. Addressees will immediately retransmit this message to all subordinate units, activities or elements affected or concerned. MACOMS will immediately verify this transmission to the AMCOM SOF Compliance Officer (AMSAM-SF-A, safeadm@redstone.army.mil).

NOTE

MACOM commanders may authorize temporary exception from message requirements IAW AR 95-1, Chapter 6. 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.

NOTE

Commanders unable to comply with the requirements of this message within the time frame specified will change the affected aircraft status symbol to a Red //X//.

1. SUMMARY.

a. Background. Over the service life of H-47 aircraft, category I Quality Discrepancy Reports (QDR) have documented the failure of hydraulic check valves (PN 4C3074) manufactured by Crissair Company. Some of these failures have exposed hydraulic pumps to excess heat from hot hydraulic return fluid or caused reverse rotation of pump rotor blades, either of which can cause premature wear and possible failure of the pumps. The vendor has designed a new check valve (PN 4C5202) to replace the PN 4C3074 valve. Additionally, several discrepancies were found in the CH-47D parts manual (TM 55-1520-240-23P), two of which could lead to degraded hydraulic system performance pr premature failure of the Power Transfer Unit (PTU) pump. It has also been determined that some premature pump failures were caused by cavitation (air in the system).

b. Message Purpose.

(1) Replace the Crissair PN 4C3074 check valve with the Crissair PN 4C5202 check valve.

(2) Correct errors in the technical manuals.

(3) Inspect hydraulic power control module ports for installation of correct parts.

(4) Provide general instructions for follow-up tasks after hydraulic system maintenance tasks have been performed.

2. END ITEMS AFFECTED — ALL H-47 SERIES AIRCRAFT.

3. ASSEMBLIES/COMPONENTS/PARTS AFFECTED.

a. Suspect/discrepant assemblies/components/parts:

NOMENCLATURE	PN	NSN
CHECK VALVE	4C3074 OR 4C2868-2	4820-01-118-3009
CHECK VALVE	4C2866-2	482-01-130-7267
STRAIGHT ADAPTER	RF9910-13	4730-00-475-4815

b. Additional assemblies/components/parts to be inspected:

NOMENCLATURE	PN	NSN
POWER CONTROL MODULE	145H1201-6 or AE-A620-15 (2plcs)	1650-01-480-3875
RETURN MODULE	145H1601-4 or AE-A620-23	1650-01-510-3920
PRESSURE MODULE	AE-A620-34	5895-01-517-9188

NOTE

When complying with the requirements of this message, complete forms and records entries IAW DA PAM 738-751. ULLS-A units will use appropriate "E" forms.

4. INITIAL TAMMS (THE ARMY MAINTENANCE SYSTEM) COMPLIANCE REQUIREMENTS.

a. Upon receipt of this message, make the following entry on the DA Form 2408-13-1. Enter a Red Horizontal Dash //-// status symbol with one of the following statements:

(1) For aircraft maintained under the 200-hour or 300-hour phase maintenance schedules — Comply with CH-47-05-ASAM-05 before [####.#] aircraft hours. Calculate [####.#] as the aircrafts next scheduled Phase Maintenance (PM) inspection.

(2) For aircraft maintained under the 400-hour cycle service maintenance program — Comply with CH-47-05-ASAM-05 before {####.#] aircraft hours. Calculate [####.#] as the aircraft's next 400-hour cycle service maintenance checklist.

NOTE

The TAMMS Compliance Reporting form is available at "www.redstone.army.mil/sof/tamms.xls" (use lower case letters only) or may be obtained from the units servicing LAR. Alternate forms may be approved by the AMCOM SOF Compliance Officer.

NOTE

The TAMMS Compliance Report only confirms the unit has made the initial logbook entry for assigned aircraft. TAMMS Compliance Reports will include aircraft serial numbers (in numerical order), date of entry on DA Form 2408-13-1, unit address, local POC name and phone number.

b. TAMMS Compliance Report — Submit TAMMS Compliance Report via priority e-mail to "safeadm@redstone.army.mil" NLT 15 Aug 05 IAW AR 95-1. If e-mail is not available, the report may be faxed to: SOF Compliance Officer at DSN 897-2111 or (256) 313-2111.

5. TASK/INSPECTION COMPLIANCE REPORTING REQUIREMENTS N/A.

6. SPECIAL PROVISIONS TO MESSAGE REQUIREMENTS (AIRCRAFT).

a. Aircraft in AVIM or Depot Level Maintenance — Commanders, facility managers and contractors will not issue aircraft until they are in compliance with this message.

b. Aircraft at contractor facility — DD 250 aircraft will be in compliance with this message prior to departure.

c. Aircraft in Transit — Units with aircraft in surface/air shipment will annotate the DA Form 2408-13-1 IAW para 4.a. of this ASAM upon arrival at final destination.

7. TECHNICAL PROCEDURES/INSTRUCTIONS.

a. Prepare aircraft for safe ground maintenance.

NOTE

Addendum to CH-47-05-ASAM-05 for use in identifying the correct parts to be inspected and/or replaced and for the Pall purification procedure (PN PE01078-12-H-83) can be viewed at "https://ams14.redstone.army.mil/safety/sof/pic/c47a0505.pdf". Adobe reader or Adobe Acrobat, version 6 or higher is required to view the addendum. Adobe reader may be downloaded free of charge from "www.adobe.com".

NOTE

For all parts identified in paragraphs 7.b. through 7.d., remove IAW Tasks 7-3 and 7-6, TM 55-1520-24-23 (H-47D), and Tasks 7-4 and 7-8, TM 1-1520-240-23 (MH-47E). Install IAW Tasks 7-4 and 7-6, TM 55-1520-240-23 (H-47D), and Tasks 7-5 and 7-8, TM 1-1520-252-23 (MH-47E).

b. For both the number 1 and number 2 flight hydraulic systems —

(1) Identify the 3 port locations marked as “PUMP VASE DRAIN”, “FLT CONT PUMP”, and “EXT PWR SUPPLY” on the power control module.

(a) Remove the check valve PN 4C3074 from each port.

(b) Install check valve PC 4C5202 (NSN 4820-01-518-9274) in each port.

(2) Inspect the power control module at the port labeled “EXT PWR RET”.

(a) If adapter PN RF9910-13 is installed, go tp para. 7.c.

(b) If any part other than adapter RF9910-13, is installed, remove the part and install PN RF9910-13.

(3) Inspect the power control module at the port labeled “PTU PRESS”.

(a) If check valve PN 4C2866-2 is installed, go tp paragraph 7.d.

(b) If any part other than check valve PN 4C2866-2 is installed, remove the part and install check valve PN 4C2866-2.

c. For the utility hydraulic system return module —

(1) Remove check valve PN 4C3074 (from the 2 port locations marked as “APU-CD” and “UTIL PMP CD”).

(2) Install check valve PN 4C5202 (NSN 4820-01-518-9274) in each of the 2 ports identified above.

d. For the utility hydraulic system pressure module — Remove check valve PN 4C3074 at the port marked “EXT PWR SUPPLY” and install check valve PN 4C5202 (NSN 4820-01-518-9274).

e. General instructions regarding hydraulic system servicing.

(1) Whenever a hydraulic system is serviced, particularly when components have been removed and reinstalled or replaced, that hydraulic system, whether it be a flight system, or a utility system, shall be replenished with hydraulic fluid and the system bled with the appropriate maintenance manual task. For this message, the flight hydraulic systems shall be bled IAW Task 7-16, TM 1-1520-240-23 (H-47D) and Task 7-19, TM 1-1520-240-252-23 (MH-47E); and the utility hydraulic system bled IAW Task 7-336, TM 1-1520-240-23 (H-47D), and Task 7-374, TM 1-1520-252-23 (MH-47E). Failure to replenish and bleed a hydraulic system can lead to pump cavitation which causes premature pump failures and poor flight control system performance. During ground maintenance, proper servicing procedures should be used when maintenance checks are completed.

(2) All 3 aircraft hydraulic systems shall be purified using the Pall purifier IAW addendum to CH-47-05-ASAM-05, prior to first flight after phase.

(3) If an unusual noise is heard when hydraulic power is applied to a system, check for air in the system(s). Air entrained or entrapped in a hydraulic system causes a signature noise (i.e. a chattering sound similar to a water hammer) that should alert you to an abnormal hydraulic system condition.

(4) Test the hydraulic circuit after component removal/reinstallation and bleeding by pressurizing the system using the APU or a ground service unit. The pump rotor blades should not turn. If the pump rotor blades begin to turn in the opposite direction of normal rotation, further troubleshooting must be conducted. A possible cause of rotation is sticking or failed check valves in the hydraulic control modules. Incidences of sticking or failed check valves should be significantly reduced after completion of this message.

(5) Clear the initial entry from para 4.a. and note compliance on DA Form 2408-15.

8. PROCEDURES/INSTRUCTIONS FOR ASSEMBLIES/COMPONENTS/PARTS IN WORK OR IN STOCK (AT ALL LEVELS INCLUDING WAR RESERVES). N/A.

9. SPECIAL TOOLS AND FIXTURES REQUIRED. N/A.

10. SUPPLY/PARTS (REQUISITION/DISPOSITION).

a. Parts required:

NOTE

The Crissair check valves, PN 4C5202, will be provided at no cost IAW the requisition instructions in para 10.b.(1).

NOMENCLATURE	PN/NSN	QTY	COST EA.	TOTAL $
VALVE, CHECK	4C2866-2	1	$307.52	$307.52
	4820-01-130-7267			
ADAPTER, STRIGHT	RF9910-11	1	$72.11	$72.11
	4730-00-475-4815			
			TOTAL COST PER AIRCRAFT =	$379.63

b. Bulk and consumable materials:

NOMENCLATURE	PN	NSN
O-RING	MS28775-013	5330-00-684-3420
O-RING	MS28775-014	5330-00-584-1840
O-RING	MS28775-016	5330-00-684-3419

c. Requisitioning instructions.

(1) For requisition of the Crissair check valve, PN 4C5202 (9 each) - contact the primary log POC in paragraph 13.b.(1). and provide a unit POC, activity DODACC, shipping address, aircraft serial numbers, and hours until next 200/300 hour PM or 400 hour CSP. Valves will be provided to that address in time for PM/CSP replacement.

(2) For requisition of parts identified in para 10.a. - requisition replacement parts using normal supply procedures. All requisitions shall use project code (CC 57-59) "X3F" (x-ray three foxtrot).

NOTE

Project Code "X3F" is required to track and establish a data base of stock fund expenditures incurred by the field as a result of message actions.

d. Disposition of discrepant parts/components — Demilitarize/mutilate IAW TM 1-1500-328-23.

e. Disposition of hazardous material — N/A.

11. MAINTENANCE APPLICATION.

a. Category of maintenance — AVUM. Aircraft downtime will be charged to AVUM.

NOTE

The time stated below does not include time for maintenance operational checks or maintenance test flights, if required.

b. Estimated time required for repair/replacement — Total of 18 man-hours using 2 persons with 9 hours NMCM,

12. Publication Requirements

a. References —

(1) AR 95-1.

(2) AR 200-1.

(3) DA PAM 738-751.

(4) TM 1-1500-328-23.

(5) TM 55-1520-240-23.

(6) TM 1-1520-252-23.

(7) TM 55-1520-240-23P.

(8) TM 1-1520-252-23P.

(9) TM 1-1520-240-CL.

(10) TM 1-1520-252-CL.

b. Publication changes — The following publications shall be changed to reflect this message. A copy of this message will be used as authority to implement the change until the official change is received.

(1) TM 55-1520-240-23P, figure 227, item 59, check valve 4C2866-2 - change to item 62, RF9910-13, straight adapter, on the illustration. (ref. port marked "EXT PWR RTN" on Boeing engineering drawing 145HS201.) Note - item 59 is shown twice in the illustration - change only 1 of the 2 item 59's to item 62. Both callouts for item 59 point to the vicinity of the actual location of the part on the back side of the control module housing, so either callout (but not both) will suffice.

(2) TM 55-1520-240-23P, figure 227, item 62, straight adapter, RF9910-13 - change to item 59, 4C2866-2 check valve, on the illustration. (ref. port marked "PTU PRESS" on Boeing engineering drawing 145HS201.)

(3) TM 1-1520-252-23P, figure 232 — part number list items 16 & 27 reference figure 227 as the NHA. Delete these references.

(4) TM 55-1520-240-23P, figure 232, items 62 & 63 require differentiation on the illustration:

(a) Item 63 (145HS752-2) is on the left.

(b) Item 62 (145HS752-3) is on the right (in front or top views).

(5) TM 55-1520-240-23P, figure 234, part number list item 52 - change quantity from 2 to 1.

(6) TM 55-1520-240-23P, figure 227, part number list item 46 (145HS214-1, check valve) - add the following to the description column, "see figure 232 for bkdn".

(7) TM 1-1520-252-23P, figure 7-19, item 60, check valve 4C2866-2, change to item 63, RF9910-13, straight adapter, on the illustration. (Ref. port marked "EXT PWR RTN" on Boeing engineering drawing 145HS201.) Note - item 60 is shown twice in the illustration - change only 1 of the 2 item 60's to item 63. Both callouts for item 60 point to the vicinity of the actual location of the part on the back side of the control module housing, so either callout (but not both) will suffice.

(8) TM 1-1520-252-23P, figure 7-19, item 63, straight adapter, RF9910-13, change to item 60, 4C2866-2 check valve, on the illustration (ref. Port marked "PTU PRESS" on Boeing engineering drawing 145HS201).

(9) TM 1-1520-252-23P, figure 7-24, part number list items 23 & 30 reference figure 7-19 as the NHA. Delete these references.

(10) TM 1-1520-252-23P, figure 7-24 items 60 & 61 require differentiation:

(a) Item 61 (145HS752-2) is on the left.

(b) Item 60 (145HS752-3) is on the right (in front or top views).

13. POINTS OF CONTACT.

a. Technical POCs are:

(1) Primary. Mr. Michael B. Moore, AMSRD-AMR-AE-C, DSN 897-3617 or (256) 313-3617. Fax is 897-4726 or (256) 313-4726. E-mail is "micahel.moore@peoavn.us.army.mil".

(2) Alternate. Mr. Timothy Rickmeyer, AMSRD-AMR-AE-C, DSN 645-6485 or (256) 955-6485. Fax is DSN 897-4726 or (256) 313- 4726. E-mail is "timothy.rickmeyer@peoavn.redstone.army.mil".

b. Logistical POCs are:

(1) Primary. Mr. Dennis Yeargain, SFAE-AV-CH-CS, DSN 897- 0732 or (256) 313-0732. Fax is 897-4726 or (256) 313-4726. E-mail is "dennis.yeargain@peoavn.redstone.army.mil".

(2) Alternate. Mr. Bill Olson, SFAE-AV-CH-CS, DSN 897-0721 or (256) 313-0721. Fax is 897-4348 or (256) 313-4348. E-mail is "william.olson@peoavn.redstone.army.mil".

c. Forms and records POCs are:

(1) Primary. Ms. Ann Waldeck, AMSAM-MMC-MA-NM, DSN 746-5564 or (256) 876-5564. Fax is DSN 746-4904 or (256) 876-4904. E-mail is "ann.waldeck@redstone.army.mil".

(2) Alternate. Ms. Sibyl Johnson, AMSAM-MMC-MA-NM, DSN 788- 6696 or (256) 842-6696. Fax is DSN 746-4904 or (256) 876-4904. E-mail is "sibyl.johnson@redstone.army.mil".

d. Safety POCs are:

NOTE

A listing of published safety messages can be viewed at "https://ams14.redstone.army.mil/safety/sof/index.html". This is a secured website which requires an army knowledge online (ako) ("www.us.army.mil") id and password. <<C47A0505.txt>> <<C47A0505.pdf>>

(1) Primary. Mr. Harry Trumbull (SAIC), AMSAM-SF-A, DSN 897-2095 or (256) 313-2095. Fax is DSN 897-2111 or (256) 313- 2111. E-mail is "harry.trumbull@us.army.mil".

(2) **Alternate.** Mr. Russell Peusch, AMSAM-SF-A, DSN 788-8631 or (256) 842-8632. Fax is DSN 897-2111 or (256) 313-2111. E-mail is "russell.peusch@us.army.mil".

e. **Foreign Military Sales POC**. Mr. Ronnie W. Sammons, AMSAM-SA-AS-UT, DSN 897-0875 or (256) 3130875. Fax is DSN 897-0411 or (256) 313-0411. E-mail is ronnie.sammons@redstone.army.mil".

f. **After hours**. Contact the AMCOM Operations Center (AOC) DSN 897-2066/7 or (256) 313-2066/7.

14. **Reporting Errors and Recommending Improvements**. You can help improve this bulletin. If you find mistakes or know of a way to improve procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, U.S. Army Aviation and Missile Command, ATTN: AMSAM-MMC-MA-NP, Redstone Arsenal, AL 35898-5000. A reply will be furnished to you. You may also provide DA Form 2028 information to AMCOM via e-mail, fax or the World Wide Web. Our fax number is DSN 788-6546 or Commercial (256) 842-6546. Our e-mail address is 2028@redstone.army.mil. Instruction for sending an electronic 2028 may be found at the back of this bulletin. For the World Wide Web use: https://amcom2028.redstone.army.mil.

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

SANDRA R. RILEY
Administrative Assistant to the Secretary of the Army
0523010

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From: "Whomever" <whomever @ wherever. army. mil>
To: 2028@redstone.army.mil

Subject: DA Form 2028

1. ***From:*** Joe Smith
2. *Unit:* home
3. ***Address:*** 4300Park
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.