

URGENT

\*TB 1-1520-240-20-101

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

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REMOVAL OF FLIGHT RESTRICTIONS FOR  
ROLL-ON LANDINGS IMPOSED BY  
TB 1-1520-240-2100, EXTENSION FOR  
REPLACEMENT OF AFT LANDING GEAR DRAG  
LINK ASSEMBLIES SUSCEPTIBLE TO STRESS  
CORROSION CRACKING FOR ALL CH-47D,  
MH-47D, AND MH-47E AIRCRAFT

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Headquarters, Department of the Army, Washington, D.C.  
7 October 1998

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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**THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.**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 message the condition status symbol of the cited aircraft will be changed to a circled red II/XI. The circled red //X// entry shall state "AIRCRAFT RESTRICTED TO FLIGHT OPERATIONS AND INSPECTION PROCEDURES IN ACCORDANCE WITH ASAM CH-47-98-ASAM-05." The circled red //X// 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 tasking/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 - Same as paragraph 1a.

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

d. Aircraft in Transit - Same as paragraph 1a.

\*This TB supersedes USAAMCOM Message 171543Z, SEP 98, CH-47-98-ASAM-05.

- e. Maintenance Trainers (Category A and B) - N/A.
- 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 next 10 flight hours/14 days.

3. **Reporting Compliance Suspense Date.** 13 Oct 98.

4. **Summary of Problem.**

a. Failure of the aft landing gear drag link may cause minor aircraft damage, depending upon flight crew detection of the failure and actions taken after the failure is detected. Investigations have revealed that side impact loading forces may cause the aft drag link to fail on "-3" equipped aft landing gear assemblies. These side impact forces are generated during roll-on landings, slope operations, rear wheel taxi operations, and landing the aircraft from a hover with a slight yaw rate.

(1) AMCOM issued TB 1-1520-240-20-80 (CH-47-98-ASAM-01) to inspect and identify aft drag links identified with either a stamped or painted "-3" or "-5". The "-3" drag link is made of a material which is susceptible to stress corrosion cracking. The "-5" is the new configuration and is made of a different material, which is not susceptible to the same stress corrosion cracking failure mode.

(2) AMCOM issued TB 1-1520-240-20-100 (CH-47-98-ASAM-02) to extend the operational life to allow continued use of the "-3" aft landing gear drag link and restrict the aircraft from conducting roll-on landings if the "-3" drag link was installed. Field visits have indicated that some unit trainers and evaluators were not aware of the roll-on landing restriction. A system safety risk assessment was processed and continued use of the "-3" link until the "-5" replacement links are available, was determined to be a medium risk. It has also been determined that the roll-on landing restriction would adversely affect ATM training and pilot qualifications.

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

c. The purpose of this message is to rescind the practice roll-on landing restriction imposed by TB 1-1520-240-20-100 (CH-47-98-ASAM-02). A thorough review of past accidents has been conducted and it has been determined the likelihood of a rotor blade/fuselage strike is improbable if a landing gear drag link failure occurs during a roll-on landing.

5. **End hems to be inspected.** All CH-47D, MH-47D, and MH-47E Helicopters.

6. **Assembly Components to be inspected.** IN ACCORDANCE WITH TB 1-1520-240-20-100 (CH-47-98-ASAM-02).

7. **Parts to be inspected.** IN ACCORDANCE WITH TB 1-1520-240-20-100 (CH-47-98-ASAM-02).

8. **Inspection Procedures.** Check the appropriate aircraft records for practice roll-on landing restriction imposed by TB 1-1520-240-20-100 (CH-47-98-ASAM-02).

- a. If restriction is not entered in the aircraft logbook and the "-5 aft drag links" are installed the inspection is complete.
- b. If a restriction is entered in the aircraft logbook. perform corrective procedures IN ACCORDANCE WITH paragraph 9 and an inspection of the drag link is required as follows:
  - (1) Perform a visual inspection of "-3" drag links at the daily, phase, preflight, and post flight inspections.
  - (2) Pay particular attention to the forward end of the drag link where the vertical bolt goes through the drag link. It is imperative that flight crews visually inspect this area on the "-3" drag link during preflight and post flight inspections; older "-3" drag link may crack under minimal load forces.

**NOTE**

**When the "-3" drag links are replaced with the "-5" drag links, the logbook entry can be cleared.**

(3) A one time, nondestructive inspection other than visual inspection of the "-3" drag link is not recommended, because the drag link may easily be damaged during disassembly and once reassembled stress corrosion cracking can occur at any time. Therefore, only a visual external inspection is to be performed.

**9. Correction Procedures.** If aircraft is restricted from practice roll-on landings, in accordance with TB 1-1520-240-20-100 (CH-47-98-ASAM-02), annotate in the appropriate records the roll-on landing restriction has been rescinded in accordance with this ASAM. The circled red //X// status symbol shall remain in effect until the "-5" drag link is installed. In addition to the removal of the roll-on landing restriction, the following procedures will be adhered to:

- a. Crew mission brief will identify any mission requiring a planned roll-on landing with the "-3" link-equipped aircraft as at a minimum, a medium risk mission.
- b. Flight crews will visually inspect all drag links identified as a "-3" during daily inspections, pre-flight and post-flight inspections.
- c. Ensure the requirements to inspect, identify and mark all "-3" drag links are complied with in accordance with TB 1-1520-240-20-80 (CH-47-96-ASAM-01).
- d. Training.
  - (1) Conduct all slope operations and roll-on landing operations at the end of the training period to allow fuel burned to decrease the aircraft gross weight, which will reduce stresses on the aft landing gear drag link.
  - (2) Minimize the amount of rear-wheel taxi operations performed, the speed and rate of turns while rear wheels are in contact with the ground, as well as minimizing any maneuver that imposes side load forces on the aft landing gear.
  - (3) Be advised that the drag link may fail under normal operating loads on "-3" equipped aircraft.

e. Crew procedures for a broken drag link:

The crew may experience either right or left side settling of the aft gear to a position that is lower than normal. The sensation is similar to that of an automobile tire blowing out while driving. If it is the aft right drag link, the power steering will not respond correctly. The pilot should correct this condition by applying thrust to minimize within ground contact motion while maintaining the aircraft "light" on the ground or repositioning the aircraft to a new area by hover taxi. If repositioned by hover taxi, again land aircraft. If settling is felt apply sufficient thrust to maintain aircraft "light" on the ground. Lower the ramp to level position and have the flight engineer open access door and visually confirm the drag link is broken while the pilot holds aircraft in position on the ground. It should be noted that the aft landing gear is still held in place by the upper drag link. If a landing gear drag link failure has occurred, the gross weight of the aircraft should be minimized and the within ground contact motion of the aircraft should be minimized to greatly reduce the chance of ground resonance occurring. Gross weight of the aircraft should be reduced to 40,000 pounds or below by burning off fuel or off loading cargo. If transporting passengers, have them exit the aircraft to a safe location when aircraft is stable. Perform a hover landing with landing gear swivels locked. Once down, continue to reduce collective smoothly until reaching ground detent position. Perform emergency shutdown procedures. The aircraft will settle aft left or aft right during shutdown. It should be noted that the drag link failure has traditionally not been detected until aircraft has come to a stop after taxiing.

f. Broken landing gear:

(1) There have been several reported instances where the aft landing gear assembly has been broken away from the aircraft. However, in the failure of the aft landing gear drag link, the landing gear assembly does not separate from the aircraft, but remains attached to the aircraft.

**NOTE**

**Flight crews and maintenance/support crews will review these methods periodically.**

(2) If aircraft experiences a fractured or completely broken landing gear drag link, utilize the following procedure for landing and shut down after aircraft is positioned in an adequate shutdown area: Hover taxi to a level location that will not interfere with normal flight operations.

**NOTE**

**The brakes will not respond normally so during landing the aircraft should be positioned and held in position with the flight controls. Setting parking brake may or may not hold. Avoid rolling as much as possible. Reduce gross weight to approximately 40,000 pounds by burning fuel and off loading cargo. Have passengers exit aircraft and move to a safe location when the aircraft is stable. Flight and maintenance personnel shall use caution while aircraft is operating to prevent injury from flying objects and being pinned between the airframe and pallets.**

(3) While the aircraft is holding on the ground with blades turning, with the pilot maintaining aircraft in position, the ramp in the level position, the flight engineer positioned outside the aircraft and in communication with pilots; place/stack wooden pallets and several mattresses (or equivalent) under the airframe and inboard of the broken gear. The height of this stack-up shall be generally up to 0 to 6 inches below the airframe. (Place each pallet with the wooden 2x4 or 4x4 supports at 90 degrees to each other). Actual size of the pallets does not matter as long as they have an approximate 4 foot by 4 foot surface area and they are made with 2x4 or 4x4 supports. Pallets are to be adequately padded with secured mattresses on the top and edges.

Have maintenance crew slide them under the aircraft inboard of the broken landing gear, positioned to prevent damage to antennas. The aircraft will settle slightly during shut down depending on the amount of space that exists between the mattresses and airframe (generally 0 inches to 6 inches).

### CAUTION

**Ensure mattresses and pallets are positioned on and around structural floor beams and that access to the landing gear assembly can be achieved for repairs after shutdown. Ensure pallets are adequately covered and secured with mattresses to prevent damage to floor beams and airframe and aircraft skin. Do not place under fuel pods or ramp.**

(4) Perform a hover landing with flight engineer in communication with pilot. Once landed, continue to reduce collective smoothly until reaching ground detent position. Perform emergency shut down procedures. If it is possible, it is better to have the flight engineer and a ground guide positioned for a clear view during landing/shutdown and flight engineer in communication with pilot during this procedure.

(5) An alternate method to using pallets and mattresses is to stack filled sandbags, approximately 4 foot by 4 foot square, with sandbags alternating direction to prevent rolling, leaning or kick-out of the bags. Bags should be stacked to within six inches of the aircraft's normal sitting height. As with the pallet method, ensure that the sand bags are stacked inboard of the landing gear, and that adequate space is left for repair of the landing gear assembly after shut-down. As with the pallet method, ensure sandbags are not stacked under fuel pods or the ramp, and that the sandbags will be positioned under frame members. When using sand bags instead of pallets, the ramp should be left in the up position.

#### 10. Supply/Parts Disposition - NIA.

#### 11. Special Tools and Fixtures Required - WNA.

#### 12. Application.

- a. Category of maintenance AVUM. Aircraft downtime will be charged to AVUM.
- b. Estimated time required Total of 0.25 man-hours using 1 person for records inspection.
- c. Estimated cost impact of stock fund items to the field N/A.
- d. TB/MWOS to be applied prior to this inspection TB 1-1520-240-20-100.
- e. Publications which require change as a result of this message N/A.

#### 13. References.

- a. TB 1-1520-240-20-80 (CH-47-96-ASAM-01).
- b. TB 1-1520-240-20-100 (CH-47-98-ASAM-02).

**14. Recording and Reporting Requirements.**

a. Reporting Compliance Suspense Date (Aircraft). Upon entering requirements of this message on DA Form 2408-13-1 on all subject MDS aircraft, forward a priority message. datafax or e-mail to CDR, 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 (256) 313-2111. E-mail address is [SAFEADM@REDSTONE.ARMY.MIL](mailto:SAFEADM@REDSTONE.ARMY.MIL). The report will cite this message 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 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 message is Mr. Matt Wesselschmidt, AMSAM-AR-E-IC-H. DSN 897-4286 or (256) 313-4286, datafax is DSN 897-4348 or (256) 313-4348. E-mail is [wesselschmidt-ml@avrdec.redstone.army.mil](mailto:wesselschmidt-ml@avrdec.redstone.army.mil).

b. Logistical point of contact for this message is Mr. Norm Huston, SFAE-AV-CH-L, DSN 897-4289 or (256) 313-4289. E-mail is [hustonn@Deoavn.redstone.army.mil](mailto:hustonn@Deoavn.redstone.army.mil). The alternate POC is CW5 Allen Trivitt, SFAE-AV-CH-L, DSN 897-4690 or (256) 313-4690. Datafax is DSN 8974348 or (256) 313-4348. E-mail is [trivitta@peoavn.redstone.army.mil](mailto:trivitta@peoavn.redstone.army.mil).

c. Wholesale materiel point of contact (Spares) is Mr. Jeffrey Moore, AMSAM-MMC-DLA, DSN 788-6403 OR (256) 842-6403, datafax is DSN 645-0192. E-mail is [jlmoore@immcms3.redstone.army.mil](mailto:jlmoore@immcms3.redstone.army.mil).

d. Forms and records point of contact for this message is Ms. Ann Waldeck. AMSAMMMC-RE-FF, DSN 746-5564 or (256) 876-5564, datafax is DSN 746-4904. E-mail is [waldeckab@exchange1.redstone.army.mil](mailto:waldeckab@exchange1.redstone.army.mil).

e. Safety point of contact for this message is Mr. Teng Ooi, AMSAM-SF-A, DSN 897-2094 or (256) 313-2094, datafax is DSN 897-2111. E-mail is [ooi-tg@redstone.army.mil](mailto:ooi-tg@redstone.army.mil).

f. Foreign military sales (FMS) recipients requiring clarification of action advised by this message should contact CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAMSA, DSN 897-0681 or (256) 313-0869. E-mail is [wittstrom-jl@redstone.army.mil](mailto:wittstrom-jl@redstone.army.mil). Or Ronnie Sammons, AMSAM-SA-CS-NF, DSN 897-0869 OR (256) 313-0869, datafax is DSN 897-0411. Huntsville, Alabama is GMT minus 6 hours.

g. After hours contact AMCOM Command Operations Center (COC) DSN 897-2066/7 or (256) 313-206617.

By Order of the Secretary of the Army:

Official:

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*General, United States Army*  
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04862

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To: <mpmt%avma28\$st-louis-emh7.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.



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