

URGENT

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

INSPECTION OF ALL BUCS SERVOCYLINDERS
FOR APPLICATION OF SEALANT
TO LVDT PROBE THREADS,
ALL AH-64 SERIES AIRCRAFT

Headquarters, Department of the Army, Washington, D.C.
21 January 2000

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STATEMENT A: Approved for public release; distribution is unlimited.**NOTE****THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.****1.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 //-/** entry shall state, "Inspection of BUCS servocylinders for application of sealant is required, in accordance with TB 1-1520-238-20-102." 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 specified will cause the status symbol of the affected aircraft 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 issued until compliance with this TB has been completed.
- d. Aircraft in Transit.

(1) Surface/Air Shipment. Perform task/inspection no later than 5 working days after arrival at final destination.

This TB supersedes USAAMCOM Safety of Flight 221543Z Dec 99 (AH-64-00-ASAM-05).

(2) Ferry Status.

(a) Same as paragraph 1.a.

(b) Those aircraft that have a DD 250 and are at the Boeing Mesa facility will be inspected prior to ferry to final destination.

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

f. Component/Parts in Stock Including War Reserves at All Levels (Depot and Others). Upon receipt of this message, the material condition tags of all items in all condition codes listed in paragraph 7 shall be annotated to read "TB 1-1520-238-20-102, AH-64A/D Inspection of BUCS Servocylinders for Application of Sealant Not Complied With."

(1) Wholesale Stock. Same as paragraph 1.f.

(2) Retail Stock. Same as paragraph 1.f.

g. Aircraft at the Boeing Mesa production facility will be inspected by the contractor.

2. Task/Inspection Suspense Date. Five working days from receipt of this message.

3. Reporting Compliance Suspense Date. No later than 15 working days from the date of this message, per paragraph 14 of this TB.

4. Summary of the Problem.

a. Investigation into a BUCS activation in-flight has revealed a suspect condition in the BUCS AH-64A and AH-64D servocylinders. The servocylinder contains a linear variable differential transducer (LVDT) which may move out of an electrical null position. The LVDT transmits the position of the piston to the digital automatic stabilization equipment computer (DASEC) or flight management computer (FMC). If the LVDT probe moves out of the null condition, this will cause a BUCS system activation. Application of sealant to the LVDT threads eliminates this condition.

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

c. The purpose of this TB is to direct that sealant be applied to AH-64A and AH-64D BUCS servocylinders which do not have the sealant.

5. End Items To Be Inspected. All AH-64 series BUCS active aircraft.

6. Assembly Components To Be Inspected. N/A.

7. Parts To Be Inspected.

a. Lateral/Collective Servocylinder.

PARKER HANNIFIN PART NUMBER	MDHS PART NUMBER	NATIONAL STOCK NUMBER
289300-1019	7-311820011-13	1650-01-273-7610
289300-1017	7-311820011-11	1650-01-273-7610
289300-1015	7-311820011-9	1650-01-273-7610
289300-1009	7-311820011-7	1650-01-273-7610
289300-1007	7-311820011-5	1650-01-273-7610

b. Longitudinal Servocylinder.

PARKER HANNIFIN PART NUMBER	MDHS PART NUMBER	NATIONAL STOCK NUMBER
308900-1015	7-311820012-13	1650-01-273-7609
308900-1013	7-311820012-11	1650-01-273-7609
308900-1011	7-311820012-9	1650-01-273-7609
308900-1009	7-311820012-7	1650-01-273-7609
308900-1007	7-311820012-5	1650-01-273-7609

c. Directional Servocylinder.

PARKER HANNIFIN PART NUMBER	MDHS PART NUMBER	NATIONAL STOCK NUMBER
289400-1009	7-311820014-7	1650-01-273-7608
289400-1007	7-311820014-5	1650-01-273-7608
289400-1005	7-311820014-3	1650-01-273-7608

8. Inspection Procedures.

a. Perform an on-aircraft part number inspection of all four servos and record part numbers, serial number, NSN, and aircraft tail number.

b. If all four installed servos have part numbers 289300-1025, 289400-1015, or 308900-1021--or, if the servo data plate is marked with "FR_BDR", "OLR_BDR", or "AC_BDR", then the inspection is complete.

The servos have already been repaired.

c. If a servo listed in paragraph 7.a., 7.b., or 7.c. is installed and the data plate is not marked with "FR_BDR", "OLR_BDR", or "AC_BDR", then the servo is suspect and is to be removed and repaired within 120 days from the date time group of this message. At that time, the servo is to be removed in accordance with paragraph 9 of this message.

d. All units with BUCS active aircraft are directed to contact the Apache War Room, paragraph 16.b., for disposition instructions.

NOTE

Foreign Military Sales (FMS) customers see paragraph 16.g.

e. The recurring 125 hour LVDT null inspection procedure required by SOF AH-64-99-02 will be changed to a 250 phase inspection following successful compliance with this TB. Until all four servos are repaired by project OLR, the aircraft remains under the 125 hour recurring inspection of SOF AH-64-99-02. This change will be reflected in the next change to TM 1-1520-238-PM.

9. Correction Procedures.

a Remove and replace servocylinders per REF 13.a. or 13.b. and applicable paragraph below (dependent upon servo).

(1) Directional servocylinder removal. AH-64A, TM 1-1520-238-23 paragraph 7.23, AH-64D, TM 1-1520-Longbow/Apache IETM Task: Servocylinder, Hydraulic, Directional Servocylinder, Remove and Install.

(2) Collective servocylinder removal. AH-64A, TM 1-1520-238-23, paragraph 7.41, AH-64D, TM 1-1520-Longbow/Apache IETM Task: Servocylinder, Hydraulic, Collective Servocylinder, Remove and Install.

(3) Lateral servocylinder removal. AH-64A, TM 1-1520-238-23, paragraph 7.44, AH-64D, TM 1-1520-Longbow/Apache IETM Task: Servocylinder, Hydraulic, Lateral Servocylinder, Remove and Install.

(4) Longitudinal Servocylinder. AH-64A, TM 1-1520-238-23, paragraph 7.47, AH-64D, TM 1-1520-Longbow/Apache IETM Task: Servocylinder, Hydraulic, Longitudinal Servocylinder, Remove and Install.

(5) Repair Team information/Process.

(a) Upon coordination with the supporting repair site, units are to remove the servos, prepare DA Form 2410 and tag the items with a DD Form 1574 (Yellow) serviceable tag.

(b) Serviceable servos should be delivered to the directed repair site packed properly and clean.

(c) Directed repair site will perform the null check and apply sealant. If, during the process of the inspection, a fault is found that renders the servo unserviceable, the inspection procedure will be stopped and the servo will be returned to the unit with the fault found annotated on a DD Form 1577-2 Green Tag (Unserviceable/Repairable). Proper entries on the DA Form 2410, Copy 2, will also be made.

(d) If the inspection is completed satisfactorily, the DD Form 1576/1576-1 Test/Modification Tag/Label will be replaced with a DD Form 1574/574-1 Serviceable Tag/Label (Color Yellow) with the remarks block annotated that TB 1-1520-238-20-102 was complied with. The DA Form 2410 Copy 2 will be completed and sent to AMCOM, and servo will be returned to the sending unit with the DA Form 2410, Copy 3.

10. Supply/Parts and Disposition.

a. Parts Required.

PARKER HANNIFIN PART NUMBER	MDHS PART NUMBER	NATIONAL STOCK NUMBER
289300-1025	7-311820011-17	1650-01-273-7610
308900-1021	7-311820012-17	1650-01-273-7609
289400-1015	7-311820014-11	1650-01-273-7608

b. Requisitioning instructions for all servos that are returned as unserviceable--units shall submit requisitions for replacement parts using normal supply procedures. All requisitions shall use project code (CC 57-59) "XFL", "X-Ray-Foxtrot-Lima".

NOTE

Project code "XFL", "X-Ray-Foxtrot-Lima" is required, to track and establish a data base of stock fund expenditure incurred by the field as a result of SOF actions.

c. Bulk and Consumable Materials. N/A.

d. Disposition. Contact Apache War Room POC, paragraph 16.b., for disposition instructions on unserviceable servos.

e. Disposition of Hazardous Material. N/A.

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

12. Application.

a. Category of Maintenance. AVUM. Aircraft downtime will be charged to AVUM.

b. Estimated Time Required.

(1) Records Check.

- (a) Total of one man-hour using one person.
- (b) Total of one hour downtime for one end item.

(2) Removal.

- (a) Total of 8 man-hours using one person.
- (b) Total of 8 hours downtime per one end item.

(3) For Repair (Depot Level).

- (a) Total of 8 man-hours using one person.
- (b) Total of 24 hours downtime for one end item (does not include shipping time).

c. Estimated Cost Impact of Stock Fund Items To the Field. Cost of items listed in paragraph 7 range from \$44,201 to \$71,300 per servo (to replace unserviceable servo).

d. TB/MWOs To Be Applied Prior To Or Concurrently With This Inspection. N/A.

e. Publications Which Require a Change As a Result of This Inspection. TM 1-1520-238-PM. A copy of this message shall be inserted in the appropriate TM as authority to implement the change until the printed change is received.

13. References.

a. TM 1-1520-238-23, Aviation Unit and Intermediate Maintenance Manual for AH-64A Apache Attack Helicopter, dated 16 May 1994, with changes.

b. Interactive Electronic Technical Manual (IETM) : TM 1-1520-LONGBOW/APACHE IETM, CD No. 1, Version 3.1.2, Data 19 November 1998, CD dated 6 December 1998 (or subsequent).

c. TB 1-1520-238-20-94, dated 14 May 1999 (SOF AH-64-99-02).

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 Boeing Aircraft, forward a priority message, Datafax, or e-mail to CDR, 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 (256) 313-2111. E-mail address is "SAFEADM@REDSTONE.ARMY.MIL". This 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). Upon completion of inspection, units will forward a priority message to: CDR, AMCOM, ATTN: Apache War Room. DSN 746-4343 or Commercial (256) 876-4791. E-mail address is "WR-A_C-Status@redstone.army.mil". The report will cite this TB number, date of inspection, aircraft serial number, aircraft and component hours, and results of the inspection. Units will complete the inspections and submit reports no later than 15 January 2000.

c. Reporting Compliance Suspense Date (Spares).

(1) Materiel in Wholesale Depot Storage. Report receipt of this TB by e-mail or Datafax to the point of contact (spares) listed in paragraph 16.c. within 3 working days from the date of this TB. Provide local point of contact.

(2) Materiel in Retail Storage. Report receipt of this TB by e-mail or Datafax to the Apache War Room, listed in paragraph 16.b., within 7 days from the date of this TB. Use DD Form 1225. Provide the cost of compliance with this message, including an estimate of the cost reimbursable funding required to annotate materiel condition tags in accordance with paragraph 1.f. To return the materiel to storage, report by e-mail or datafax and provide local point of contact.

d. Task/Inspection Reporting Suspense Date (Spares).

(1) Materiel in Wholesale Depot Storage. Report compliance with this TB to the logistical point of contact (spares) in paragraph 16.d. within 7 days of the date of this message. Report the cost of compliance with this message, including an estimate of the cost reimbursable funding required to annotate materiel condition tags in accordance with paragraph 1.f. To return the materiel to storage, report by e-mail or datafax and provide local point of contact.

(2) Materiel in retail storage.

e. The following forms are applicable and are to be completed in accordance with DA PAM 738-751, 15 March 1999.

NOTE

ULLS-A Users will use applicable "E" forms.

- (1) DA Form 2408-5-1, Equipment Modification Record (Servocylinder).
- (2) DA Form 2408-13, Aircraft Status information Record.
- (3) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.
- (4) DA Form 2408-14-1, Uncorrected Fault Record.
- (5) DA Form 2408-15, Historical Record for Aircraft.
- (6) DA Form 2408-16, Aircraft Component Historical Record (only if the servocylinder is removed or replaced).
- (7) DA Form 2408-18, Equipment Inspection List.

NOTE

ULLS-A Users will use an 800 inspection with a 250 hour recurring BUCS servo null inspection.

(8) DA Form 2410, Component Removal and Repair/Overhaul Record (only if the servocylinder is removed or replaced).

(9) DD Form 1574 (yellow tag) for in stock items that are determined to be serviceable (mark inspected serviceable in accordance with this ASAM).

(10) DD Form 1575-2/DD Form 1577-3 (green tag label) for items that are determined to be unserviceable (repairable). (Mark inspected unserviceable in accordance with this ASAM.) (11) DD Form 1576, 1576-1, Test/Modification Tag/Label (color blue).

15. Weight and Balance. N/A.

16. Points of Contact.

a. Technical point of contact for this TB is Daniel Rice, AMSAM-AR-AE-I-P-A, DSN 897-4804 or commercial (256) 313-4804. Datafax is DSN 897-4923 or commercial (256) 313-4923; e-mail is "daniel.rice@redstone.army.mil".

b. Logistical point of contact for this TB are as follows.

(1) The Apache War Room, DSN 746-4343 or Commercial (256) 876-4791. E-mail address is "WR-A_C-STATUS@redstone.army.mil".

(2) John Patton, SFAE-AV-AAH-LF, DSN 897-4244/4189 or commercial (256) 313-4244/4189, Datafax is DSN 897-4343 or commercial (256) 313-4343, e-mail is "pattonj@peoavn.redstone.army.mil".

c. Wholesale materiel point of contact (Spares) for this TB is Deborah Madaris, AMSAM-MMC-VS-AB, DSN 897-1345 or commercial (256) 313-1345. Datafax is DSN 897-1556 or commercial (256) 313-1556; e-mail is "madaris-dl@redstone.army.mil".

d. Forms and records point of contact for this TB is Ann Waldeck, AMSAM-MMC-VS-AB, DSN 746-5564 or commercial (256) 876-5564. Datafax is DSN 746-4904 or commercial (256) 876-4904; e-mail is "waldeck-ab@redstone.army.mil".

e. Safety point of contact for this TB is Howard Chilton, AMSAM-SF-A, DSN 897-2068 or commercial (256) 313-2068. Datafax is DSN 897-2111 or commercial (256) 313-2111; e-mail is "howard.chilton@redstone.army.mil".

f. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this TB should not contact the Apache War Room. Instead, contact one of the following (Huntsville, AL, time is GMT minus 6 hours) :

(1) CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAM-SA, DSN 897-0410 or commercial (256) 313-0410, e-mail 'wittstromjl@redstone.army.mil".

(2) Ronnie W. Sammons, AMSAM-SA-CS-NF, DSN 897-0408 or commercial (256) 313-0408, e-mail "sammonsrw@redstone.army.mil". Datafax is DSN 897-0411 or commercial (256) 313-0411.

g. 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 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-SP, Redstone Arsenal, AL 35898-5230. You may also submit your recommended changes by e-mail directly to "ls-sp@redstone.army.mil". A reply will be furnished directly to you. Instructions for sending an electronic 2028 may be found at the back of this manual.

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
Secretary of the Army
0001016

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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: "Whoever" <whoever@avma27.army.mil>

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.

