URGENT

TB 1–1520–238–20–108

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

ONE TIME INSPECTION FOR INSTALLATION OF LOCKWIRE ON LVDT PROBE CONNECTORS OF SERVOCYLINDERS ON ALL AH–64 AIRCRAFT

Headquarters, Department of the Army, Washington, D. C.

30 May 2000

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THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.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 “Inspect LVDT Probe connectors on servocylinders the IAW TB 1–1520–238–20–108 within the next 10 flight hours but no later than (NLT) 31 May 2000”. The red horizontal dash //–// may be cleared when the inspection of paragraph 8 and the corrective procedures of para 9 are completed. The affected aircraft shall be inspected as soon as practical but NLT 31 May 2000. 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. 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. For aircraft away from home station, this message authorizes a one-time flight, with intermediate stops, to return to the nearest secured maintenance facility/home station.

(1) Surface/Air Shipment. Same as para 1a.

(2) Ferry Status.

(a) Same as para 1a.

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

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

This TB supersedes USAAMCOM Message 151306Z May 00 (AH–64–00–ASAM–10).

f. Component/Parts in Stock Including War Reserves at All Levels (Depot and Others). N/A

2. **Task/Inspection Suspense Date.** Within 10 Flight hours but NLT 31 May 2000.

3. **Reporting Compliance Suspense Date**. NLT 6 June 2000 per paragraph 14.a of this TB.

4. **Summary of the Problem**.

a. The Linear Voltage Differential Transducer (LVDT) connectors on the servocylinders have a minimum torque for disengagement (removal) of 2 in-lb. The removal torque on some connectors is suspect and has been found to be below the required 2 in-lb. The connectors have been installed on both Back-Up Control System (BUCS) and non-BUCS servocylinders. The repair procedure will require lockwire to be applied to the LVDT connectors at the aircraft interface. The lockwire will prevent the LVDT connector from separating from the airframe connector.

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

c. The purpose of this TB is for the installation of safety wire to the LVDT connector to ensure the connector cannot unseat.

5. **End Items to be inspected**. All AH–64 aircraft.

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

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Servocylinder	7–311820011 – (all dash #'s)	1650–01–159–0444
		1650–01–273–7610
		1650–01–279–4703
		1650–01–243–1727
Servocylinder	7–311820012 – (all dash #'s)	1650–01–159–4479
		1650–01–273–7609
		1650–01–279–4701
		1650–01–242–1497
Servocylinder	7–311820014 – (all dash #'s)	1650–01–273–7608
		1650–01–279–4702

7. **Parts to be Inspected**.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Connector, Plug, Electrical	MS27467T9B35P	5935–01–045–2968
Connector, Plug, Electrical	MS27467T9B35PA	5935–01–045–0166

8. **Inspection Procedures**.

a. Inspect all servocylinder LVDT connectors for installed safety wire. If safety wire is installed, inspection is complete and no further action is required, the red dash //–// may be signed off.

b. If no safety wire is installed on the servocylinder LVDT connector, proceed with the correction procedures in para 9.

9. Correction Procedures.

NOTE

Contact LAR for E–mail photos of installation of lockwire.

a. Safe aircraft.

b. Remove panels R200,L200 and L540.

c. Identify the following connectors:

(1) For AH–64A:

Lateral Servocylinder	P225 and P415
Collective Servocylinder	P227 and P417
Longitudinal Servocylinder	P219 and P408
Directional Servocylinder	P223 and P215

(2) For AH–64D:

Lateral Servocylinder	P1046 and P1045
Collective Servocylinder	P1042 and P1041
Longitudinal Servocylinder	P1039 and P1038
Directional Servocylinder	P1319 and P1318

d. Turn each connector 1/4 turn counter–clockwise (do not remove connector). Then turn connector 1/4 turn clockwise or until connector is completely seated.

e. For the collective servocylinder and the lateral servocylinder connectors install safety wire from the barrel of the connector body of the ”P” side connector around the connector bracket and attach the safety wire to the barrel of the connector body of the ”P” side connector. Place protective sleeving on safety wire to prevent chafing of connector bracket.

f. For the longitudinal servocylinder connectors, install safety wire from the barrel of the connector body of the ”P” side of one connector to the ”P” side barrel of the connector body of the second connector, around the connector bracket and attach the safety wire to the initial ”P” side connector barrel. Place protective tubing on the safety wire to prevent chafing of the connector bracket.

g. For the directional servocylinder connectors, install safety wire from the barrel of the connector of the ”P” side of one connector to the ”P” side barrel of the connector body of the second connector, around the connector bracket, between the “J” side connectors and the skin of the vertical stabilizer and attach the safety wire to the ”P” side connector barrel. Place protective tubing on the safety wire to prevent chafing of the connector bracket.

CAUTION

Ensure the safety wire does not pre–load the ”P” side of the connector in either direction. Ensure the protective sleeving is placed such that no chafing condition between the safety wire and the connector bracket exists.

NOTE

Hydraulic System and Flight Controls MOC is not required. The BUCS self test on the AH–64A and EBUCS (Enhanced Back–Up Control System) IBIT (Initial Built-In Test) on the AH–64D will verify the systems during preflight checks.

10. **Supply/Parts and Disposition**.

a. Parts Required. N/A.

b. Requisitioning Instructions. N/A.

c. Bulk and Consumable Materials. N/A.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Lockwire	MS20995C20	9505–00–221–2650
Tubing, Non–Metallic	R 3603	4720–00–886–5265

d. Disposition. N/A.

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. Time Required.

(1) Total of 2 man-hours using 1 person.

(2) Total of 2 hours downtime for one end item.

c. Estimated Cost Impact of Stock Fund Items to the Field. N/A.

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. A copy of this TB shall be inserted in the appropriate TM as authority to implement the change until the printed change is received.

(1) TM 1–1520–238–23

(2) TM 1–1520–238–PMS

(3) Interactive Electronic Technical Manual (IETM): TM 1–1520–Longbow/Apache IETM, September 1999 or subsequent.

13. **References**.

a. Interactive Electronic Technical Manual (IETM): TM 1–1520–Longbow/Apache IETM, September 1999

b. TM 1–1520–238–23, Aviation Unit and Intermediate Maintenance Manual for AH–64A Apache Attack Helicopter, 16 May 94.

c. DA PAM 738–751

14. **Recording and Reporting Requirements**.

a. Upon entering requirements of this TB 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 IAW AR 95-1. Datafax number is DSN 897-2111 or commercial (256) 313-2111. E-Mail address is “SAFEADMS@REDSTONE.ARMY.MIL”. The 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: Commander, AMCOM ATTN.; SFAE–AV–AAH–LF. DSN 897–4242 or commercial (256) 313–4242, Datafax number is DSN 897–4343 or commercial (256) 313–4343. E–Mail address is Jim.Mason@peoavn.redstone.army.mil. The report will cite this TB number, aircraft and component hours,

and results of the inspection. Inspection and reports will be completed no later than 7 days after the task/inspection suspense date.

c. Reporting compliance suspense date (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.

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

16. **Points of Contact**.

a. Technical point of contact for this TB is Daniel Rice, AMSAM-RD–AE–I–P–A, DSN 897-4804 or commercial (256) 313-4804. Datafax is DSN 897–4923 or (256) 313–4923 E–mail is Daniel.Rice@redstone.army.mil.

b. Logistical point of contact for this TB is Mr.Jim Mason, SFAE-AV-AAH-LF, DSN 897-4242 or commercial (256) 313-4343. E–mail is Jim.Mason@peoavn.redstone.army.mil.

c. Wholesale material point of contact (spares) is Ms. 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@exchange1.redstone.army .mil.

d. Forms and records point of contact for this TB is Ms. Ann Waldeck, AMSAM-MMC-RE–FF, 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

(1) Primary– Mr. James Hanson, AMSAM-F-A, DSN 897–2113 or commerical (256) 313–2113, Datafax is 897–2111 E-mail is Jim.Hanson@redstone.army.mil

(2) Alternate–Mr. 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 contact CW5 Joseph L. Wittstrom, Security Assistance Management, AMSAM-SA, DSN 897-0410 or commercial (256) 313-0410, E–mail is wittstrom–jl@redstone.army.mil. or Mr. Ronnie W. Sammons, AMSAM–SA–CS–NF, DSN 897–0869 or commercial (256) 313–0869, Datafax is DSN 897–0411 or commercial (256) 313–0411, E–mail is sammons–rw@redstone.army.mil. Huntsville, Al is GMT minus 5 hours.

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

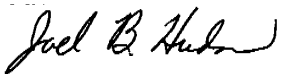
17. **Reporting of Errors and Recommending Improvements.** You can improve this TB. If you find any mistakes or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to: Commander, US Army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

submit your recommended changes by E-mail directly to ls-lp@Redstone.Army.Mil. Instructions forsending an electronic 2028 may be found at the back of this manual. A reply will be furnished directly to you.

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
0014403

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To be distributed in accordance with Initial Distribution No. (IDN) 313907, requirements for TB 1-1520-238-20-108.

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: <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.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

TEAR ALONG PERFORATED LINE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

THE METRIC SYSTEM AND EQUIVALENTS

'NEAR MEASURE

. Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

'VEIGHTS

Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

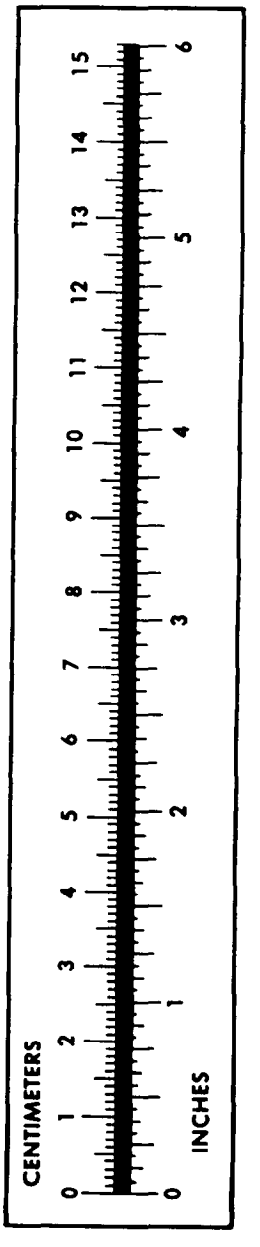
TEMPERATURE

5/9(°F - 32) = °C
212° Fahrenheit is evuivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5C° + 32 =°F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
ıts	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
lometers per Liter	Miles per Gallon	2.354
meters per Hour	Miles per Hour	0.621



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