D E P A R T M E N T O F T H E A R M Y T E C H N I C A L B U L L E T I N

ONE TIME AND RECURRING INSPECTION OF THE MAIN ROTOR AND TAIL ROTOR SERVOCYLINDER FASTENERS ON AH-64 HELICOPTERS

Headquarters, Department of the Army, Washington, D. C.
6 September 1996

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THIS PUBLICATION IS EFFECTIVE UNTIL RESCINDED OR SUPERSEDED.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* "-".** The ***red* "-"** may be cleared when the inspection of paragraph 8 below is completed. Failure to comply with the requirements of this TB prior to next flight will cause the status symbol to be upgraded to a ***red "x".***

b. Aircraft in Depot Maintenance. Same as paragraph 1.a.

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

d. Aircraft in Transit.

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

(2) Ferry Status.

(a) Same as paragraph 1.a.

(b) Those aircraft that have a DD250 and are at McDonnell Douglas Helicopter Systems (MDHS) 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 TB 1-1520-283-20-73, dated 15 February 1996.

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

(1) Retail stock. N/A.
(2) Wholesale Stock. N/A.

2. Task/Inspection Suspense Date. Prior to completion of next 250 flight hour phase inspection.

3. Reporting Compliance Suspense Date. N/A.

4. Summary of the Problem.

a. A recent accident investigation has revealed a missing fastener in the Tail Rotor Servocylinder Linkage Assembly. The loss of the fastener (P/N NAS1452-26) was the result of the swaged collar (P/N NAS1080C12) coming off. The fastener installation is performed at the Servocylinder manufacturer only and is not an AVIM or AVUM task. The fasteners (Huck Bolts) on the Main Rotor Servocylinders and Tail Rotor Cylinder shall be inspected at every 250 flight hour phase inspection.

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

c. The purpose of this TB is to inspect all AH-64 aircraft for loose or damaged fasteners in the flight control linkage of the Main and Tail Rotor Servocylinders at every 250 hour phase inspection. Discrepant Servocylinders (reference paragraph 8) will be removed and replaced. (No repair will be allowed).

5. End Items to be Inspected. All AH-64 Aircraft.

6. Assembly Components to be Inspected.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Servocylinder Collective/Lateral	289300-1017	1650-01 -273-7610
	289300-1003XY	1650-01 -243-1727
	289300-1003XYW	1650-01 -279-4703
	289300-1019	1650-01 -273-7610
	289300-1021	1650-01 -279-4703
Servocylinder Longitudinal	308900-1013	1650-01 -273-7609
	308900-1003XY	1650-01 -242-1497
	308900-1003XYW	1650-01 -279-4701
	308900-1015	1650-01 -273-7609
	308900-1017	1650-01 -279-4701
Servocylinder Directional	289400-1007	1650-01 -273-7608
	289400-1001 XY	1650-01 -159-4480
	289400-1001 XYW	1650-01 -279-4702
	289400-1009	1650-01 -273-7608
	289400-1011	1650-01 -279-4702

7. Parts to be Inspected. Obtain drawings from LAR or Technical point of contact to identity locations of Huck type fasteners.

8. Inspection Procedures.

a. Inspect each linkage at every 250 hour phase inspection as follows:

(1) Gain access to the transmission deck by removing access panel R200 and L200.
(2) Gain access to the Tail Rotor Servocylinder by removing access panel L450 and L546.

NOTE

Obtain drawing from local LAR or technical point of contact to identify locations of hruck type fasteners.

(3) Locate the control linkage on the Servocylinder linkage. There are five huck type fasteners on NON-BUCS active servos and four huck type fasteners on BUCS active servos. The huck type fasteners are located at the pivot points of the linkage (see drawing) and at the mid-point of the follower link.

b. Inspect the fasteners for improper installation (i.e. deformation, offset).

c. Inspect the fasteners with a 10x magnifying glass for cracks and corrosion. None allowed. It is acceptable for the surface of a serviceable collar to have dark smear marks; these are surface blemishes left from the huck tooling used during installation. A cracked collar must be verified by using 0.030 safety wire to make a hook. The hook is then brushed over the suspect collar and if no detectable drag is noted, the collar is serviceable. The use of dye penetrant is recommended only if the collar cannot be inspected visually.

d. Try to rotate the fasteners by hand (no tools or pliers) to check for loose or rotating hardware. Discrepant swage pin assemblies are identified by holding the head of the pin in a fixed position and attempting to rotate the huck pin collar. No differential rotation between the pin and collar is allowed. Rotation of the pin and collar together is acceptable provided there is no axial play of the pin. Any axial play of the pin and collar shall be considered discrepant.

NOTE

Axial play of actuator (splined) input shaft is allowed, with a limit of 0.070-inch max with hydraulic pressure off. Input shaft is located below huck #5 as shown on drawings.

e. If any discrepant fasteners are found, remove and replace the Servocylinder per paragraph 9 and immediately contact the technical point of contact.

f. If no discrepant fasteners are found, the inspection is complete and the red "-“ may be cleared.

9. Correction Procedures. Remove and replace Servocylinder per TM 1-1520-238-23 and applicable paragraph below:

a. Directional Servocylinder removal: Paragraph 7.32
b. Collective Servocylinder removal: Paragraph 7.41
c. Lateral Servocylinder removal: Paragraph 7.44
d. Longitudinal Servocylinder removal: Paragraph 7.47
e. Prior to installing new Servocylinder, inspect per paragraph 8.

10. Supply/Parts and Disposition.

a. Parts Required. Items cited in paragraph 6 may be required to replace defective items.
b. Requisitioning Instructions. Requisition through normal supply channels.
c. Bulk and Consumable Materials. N/A.
d. Disposition. A Category 1 QDR is not required.

e. Disposition of Hazardous Material. N/A.

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

12. Application.

a. Category of Maintenance. Aviation Unit 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 (if required). The cost of the items listed in paragraph 6 range from $39,612 to $63,944.

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 1-1520-238-PM and TM 1 - 1520-238-23 shall be changed to reflect this TB. A copy of this TB 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, 16 May 94.

b. TM 1-1520-238-23P, 28 May 96.

14. Recording and Reporting Requirements.

a. Reporting Compliance Suspense Date (Aircraft). N/A.

b. Task/Inspection Reporting Suspense Date (Aircraft). N/A.

c. Reporting compliance suspense date (Spares). N/A.

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

e. TB Effectivity Date. TB is effective until 30 September 2000.

f. The following forms are applicable and are to be completed in accordance with DA PAM 738-751,15 June 1992:

(1) DA Form 2408-5-1, Equipment Modification Record Component (Servocylinder).

(2) DA Form 2408-13, Aircraft Status Information Record.

(3) DA Form 2408-13-1, Aircraft Inspection and Maintenance Record.

(4) DA Form 2408-15, Historical Record for Aircraft.

(5) DA Form 2408-16, Aircraft Component Historical Record (If replacement of the Servocylinder is required).

(6) DA Form 2408-18, Equipment Inspection List.

(7) DA Form 2410, Component Removal and Repair/Overhaul Record (Normal removal, evacuation, Repair and Installation Cycle). (If replacement of the Servocylinder is required).

15. Weight and Balance. N/A.

16. Points of Contact.

a. Technical point of contact for this TB is Mr. Daniel Rice, AMSAT-R-EIA, DSN 693-9870 or commercial (314)263-9870; datafax DSN 693-1622. E-mail: riced@avrdec.army.mil.

b. Logistical point of contact for this TB is Mr. Jim Mason, SFAE-AV-AAH-LF, DSN 693-1947 or commercial (314)263-1947 or Mr. John Patton, SFAE-AV-AAH-LF DSN 693-0876 or commercial 314/263-0876.

c. Forms and records point of contact for this TB is Ms. Ann Waldeck, AMSAT-I-MDM, DSN 490-2318 or commercial (314)260-2318.

d. Material Management point of contact (Spares) for this message is Mr. Tulles Samples, AMSAT-I-SAAA, DSN 693-5969. Datafax is DSN 693-5936 or Commercial 314/263-5936.

e. Safety point of contact for this TB is Mr. Howard Chilton, AMSAT-R-X, DSN 693-1587 or commercial (314)263-1587.

f. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this TB should contact Mr. Ron Van Rees, AMSAT-I-IAF, DSN 693-3659/3826 or commercial (314)263-3659/3826.

g. After hours contact ATCOM Command Operations Center (COC) DSN 693-2066/7 or commercial (314)263-2066/7.

17. Reporting of Errors and Recommending Improvements. You can help 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 Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished to you You may also submit your recommended changes by E-mail directly to <mpmt%avma28@st-louis-emh7.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.

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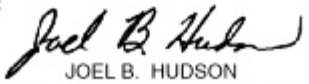

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THE METRIC SYSTEM AND EQUIVALENTS

'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

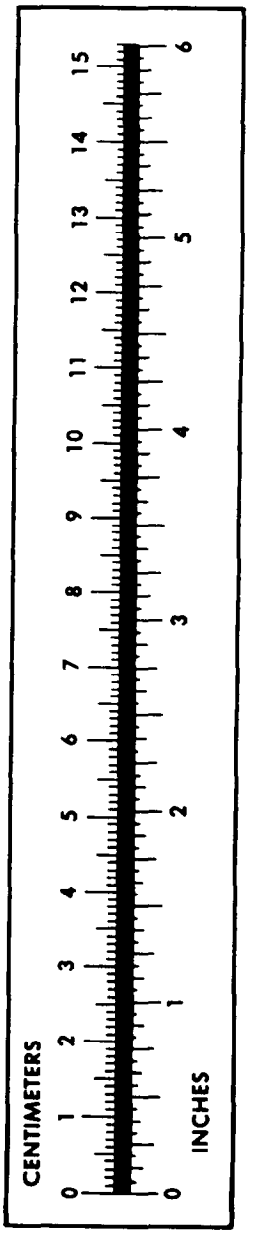
TEMPERATURE

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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