URGENT

TB 1-1520-238-20-65

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

INSPECTION FOR VERIFICATION OF SOLID PINS IN SHEAR PIN ACTIVATED DECOUPLER (SPADS) AND SERVOCYLINDER INSTALLATION

Headquarters, Department of the Army, Washington, D. C.
14 October 1995

NOTE

THIS PUBLICATION IS EFFECTIVE UNTIL SUBJECT AH-64A AIRCRAFT HAVE BEEN INSPECTED, UNLESS SOONER RESCINDED OR SUPERSEDED.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 //- // may be cleared when the inspection of paragraph 8 below 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 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. Same as paragraph 1 a. !

d. Aircraft in Transit. (1) Surface/Air Shipment. Same as paragraph 1 a. (2) Ferry Status. Same as paragraph 1 a

e. Maintenance Trainers (Category A, B. and C). N/A.

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

This TB supersedes USATTCOM Aviation Safely Action Message 181900Z September 95 AH-64-95-ASAM-06.

2. **Task/Inspection Suspense Date**. Within 10 flight hours/14 days.
3. **Reporting Compliance Suspense Date**. No later then 4 October 1995 per paragraph 14 a. of this TB.
4. **Summary of the Problem**.

a. Due to incorrect serial number effectivity listings in TM 1-1520-238-23P, it is possible that incorrect pin and servocylinders may have been installed on certain AH-64A Helicopters. A recent mishap investigation revealed that a shear pin, P/N 7-211514082 was incorrectly installed in a non-bucs active AH-64A aircraft that should have had a sold pin, P/N 7-232310078-3 installed. If a shear pin has been installed in lieu of a solid pin on anon-bucs active aircraft, a sheered pin could disable the axis. In addition, if a bucs active servocylinder containing shear pins is installed on a non-bucs aircraft, a sheared pin could disable the axis.

b. TM 1-1520-238 23P manual has incorrect serial number affectivity for pins and servocylinders and is currently being changed. Only solid pins, P/N 7-232310078-3, are authorized on aircraft S/N 82-23355 (PV01) through 88-0199 (PV529). Bucs shear pins, P/N 7-211514082, are authorized only on aircraft S/N 88-0200 (PV530) and subsequent. Bucs active servocylinders are usable only on aircraft SIN 88-0200 (PV530) and subsequent.

c. The purpose of this TB is to require a one time inspection of affected aircraft to ensure that correct configuration of pin and servocylinders are installed.

5. **End Items to be inspected**. All AH64 Aircraft.
6. **Assembly Components to be Inspected**.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Support Assembly, Pilot Collective Stick (Spads)	7-311512085-9	1560-01 -252-0380
Support Assembly, Copilot Gunner Collective Stick (Spads)	7-311513001 -5/-9	1560-01 -254-7786
Pilot Cyclic Stick Housing (Spads)	7-311514075-9	1680-01 -254-7792
Copilot/Gunner Cyclic Sack Housing (Spads)	7-311515074-9	1560-01-248-9903
Pilot Directional Control Spad Assembly (Spads)	7-311517067-7	1560-01-254-7784
Copilot/Gunner Directional Control Spad Assembly (Spads)	7-311516077-5	1560-01 -248-9904
Pilot Longitudinal Control (Spade)	7-311517069-5	1560-01-254-7785
Servocylinder Collective/Lateral	289300-1001XY 289300-1003XY 289300-1003XYW 289300-1021	1650-01 -159-0444 1650-01 -243-1727 1650-01 -279-4703 1650-01 -279-4703
Servocylinder Longitudinal	308900-1001XY 308900-1003XY 308900-1003XYW 308900-1001 XYW 308900-1017	1650-01 -159-4479 1650-01 -242-1497 1650-01 -279-4701 1650-01 -279-4701 1650-01 -279-4701
Servocylinder Directional	289400-1001XY 289400-1001XYW 289400-1011	1650-01 -159-4480 1650-01 -279-4702 1650-01 -279-4702

7. **Parts to be Inspected**.

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Pin, Grooved, Headed (Shear Pin)	7-211514082	5315-01-170-6969
Pin, Solid, Steel (Solid Pin)	7-232310078-3	5315-01-254-7803

8. Inspection Procedures

a. Determine serial number of aircraft.

b. If aircraft serial number is 88-0200 (PV530) or subsequent, there is no further action required and the inspection is complete

c. If aircraft serial number is 82-23355 (PV01) through 88-0199 (PV529) (Non-Bucs Aircraft), perform the following inspections.

NOTE

These Aircraft shoed not have Bucs active Servos (red warning decal affixed to the cylinder barrel) installed.

d. Servocylinder Inspection

(1) Check the Servocylinder part number on the data plate of the Lateral/Collective Servocylinder (TM 1-1520-238-23P, Figure 323, item 1). If part numbers 289300-1007, 289300-1009, 289300-1015,289300-1017 or 289300-1019 is installed, remove and replace with Non-Bucs Lateral/Collective Servocylinder listed in paragraph 6. Proceed to paragraph 9a for corrective procedures.

(2) Check the Servocylinder part number on the data plate of the Longitudinal Servocylinder (TM 1-1520-238-23P, figure 323, item 2). H part numbed 308900-1007, 308900-1009, 308900-1011, 308900-1013, or 308900-1015 installed, remove end replace with Non-Bucs Longitudinal Servocylinder listed in paragraph 6. Proceed to paragraph 9a for correction procedures.

(3) Check the Servocylinder part number of the data plate of the Directional (tail rotor) Servocylinder (TM 1-1520-238-23P, Figure 355, item 20). If part numbers 289400-1005, 289400-1007, or 289400-1009 is installed, remove and replace with Non-Bucs Directional (tail rotor) Servocylinder listed in paragraph 6. Proceed to paragraph 9a for correction procedures.

e. Pin Inspection

(1) With hydraulic pressure applied (APU or AGPU), ensure:

(a) Collective full down.

(b) Directional pedal full left.

(c) Cyclic stick centered (use indicator on cyclic stick cover as guide.)

(2) Remove hydraulic pressure from system.

(3) Pilots station: Use a force gage, fish scale or equivalent (minimum value 0-150 pounds for directional pedals, minimum value 0-100 pounds for all others) to perform the following procedures:

(a) To prevent damage wrap tape around the cyclic stick grip at the center of the handgrip location. Manila rope may be used in lieu of tape.

(b) Apply a force of 45 plus or minus 2 pounds, at the center of the handgrip, in the lateral direction, hold for five (5) seconds.

(c) Apply a force of 65 plus or minus 2 pounds, at the center of the handgrip in the aft direction, hold for five (5) seconds.

(d) Remove tape.

(e) To prevent damage wrap tape on center of collective stick handgrip. Pull 70 plus or minus 2 pounds, hold for five (5) seconds.

(f) Remove tape from handgrip.

(g) To prevent damage wrap tape around upper vertical support of left directional pedal.

(h) Pull 115 plus or minus 5 pounds and hold for five (5) seconds.

(i) Remove tape.

(4) Copilot station: Use a force gage, fish scale or equivalent (minimum value 0-150 pounds for directional pedals, minimum valve 0-100 pounds for all others) to perform the following procedures:

(a) Ensure cycle stick is in unstowed position.

(b) To prevent damage wrap tape around the cyclic stick grip at the center of the handgrip location.

(c) Apply a force of 50 plus or minus 2 pounds, at the center of the handgrip, in the aft direction, hold for five (5) seconds.

(d) Apply a force of 75 pus or minus 2 pounds, at the center of the handgrip, in the lateral direction, hold for five (5) seconds.

(e) Remove tape.

(f) To prevent damage wrap tape in the center of collective stick handgrip. Pull 80 plus or minus 2 pounds, hold for five (5) seconds.

(g) Remove tape from handgrip..

(h) To prevent damage wrap tape around upper vertical support of the left directional pedal.

(i) Pull 135 plus or minus 5 pounds and hold for five seconds.

(j) Remove tape.

(5) At completion of the above test, move controls with hydraulic power off. Restriction of control movements indicates intact solid pins. Control motion to full throw of any axis indicates a failed shear pin. Any failed shear pin shall be replaced by a solid pin. Proceed to paragraph 9b for correction procedures.

(6) Apply hydraulic power (APU or AGPU) and conduct full control sweep.

(7) Repeat paragraph 8e (5) above.

9. Correction Procedures.

a. Install a Non-Bucs Servocylinder listed in paragraph 6, IAW TM 1-1520-238-23, Chapter 7.

b. Install a solid pin PIN 7-232310078-3, IAW TM 1-1520-238-23, Chapter 11.

10. Supply/Parts and Disposition.

a. Parts Required. Items cited in paragraphs 6 and 7 may be required to replace defective items.

b. Requisitioning Instructions. Requisition replacement parts through normal supply channels using normal supply procedures. All requisitions shall use project code "XBG" per this TB.

NOTE

Project code "XBG" is required to track and establish a data base of stock fund expenditures incurred by the field as a result of ASAM/SOF messages.

c. Bulk and Consumable Materials. N/A.

d. Disposition. Dispose of removed parts/components in accordance with normal supply procedures. A Category 1 QDR is required.

e. Disposition of Hazardous Material. N/A.

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

NOMENCLATURE	PART NUMBER	NATIONAL STOCK NUMBER
Fish Scale (0-200 LBS)	AAA-S-133	6670-00-246-0347

12. Application.

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

b. Time Required.

(1) Total of 3.0 man-hours using 2 persons.

(2) Total of 1.5 hours downtime for one end item.

c. Estimated Cost Impact of Stock Fund Items to the field (if required).

NOMENCLATURE	PART NUMBER/ NATIONAL STOCK NUMBER	QUANTITY	COST EACH	TOTAL $
Pin, Solid, Steel	7-232310078-3 5315-01-254-7803	N/A	$ 41.00	$ N/A
Servocylinder Collective/ Lateral	289300-1021 1650-01-279-4703	N/A	$ 54,912.00	$ N/A
Servocylinder Longitudinal	308900-1017 1650-01-279-4701	N/A	$ 67,573.00	$ N/A
Servocylinder Directional	289400-1011 1650-01-279-4702	N/A	$ 63,424.00	$ 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 message shall be inserted in TM 1 -1520-238-23P as authority to implement the change until the printed change is received.

13. References.

a. TM 1-1520-238-23P, Aviation Unit and Intermediate Maintenance Repair Parts and Special Tools List for Arrny AH-64A Helicopter dated 28 April 95.

b. TM 1 -1520-238-23, Aviation Unit and Intermediate Maintenance Manual for Army AH-64A Helicopter with change, dated 16 May 94.

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, ATCOM, ATTN: AMSAT-R-X (SOF Compliance Officer), per AR 95-3. Datafax number is DON 693-2064 or commercial (314) 263-2064. E-Mail address is "AMSATRXS@ST-LOUIS-EMH4.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). N/A

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 June 1992:

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

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

(3) DA Form 2408-13-2, Related Maintenance Actions Record.

(4) 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 Mr. Dan Rice, AMSAT-R-EIA, DSN 693-9870 or commercial (314)263-9870.
b. Logistical point of contact for this TB is Mr. Jim Mason, SFAE-AV-AAH-LF, DSN 693-1947 or commercial (314)263-1947.
c. Forms and records point of contact for this TB is Ms. Ann Waldeck, AMSATI-MDM, DSN 693-1821/1758 or commercial (314)263-1821/1758.
d. Point of contact for this TB is Mr. Brad Meyer. AMSAT-R-X, DSN 693-2085 or commercial (314)263-2085.
e. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this TB should contact Mr. Ron Van Rees or CW5 Jay Nance, AMSAT-I-IAF, DSN 693-3659/3826 or commercial (314@263-3659/3826.
f. After hours contact ATCOM Command Operations Center (COG) 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 arm 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 <daf2028@st-louis-emh7.army.mil>. A reply will be furnished directly to you.

By Order of the Secretary of the Army:

Official:
Yvonne M. Harrison
YVONNE M. HARRISON
Administrative Assistant to the Secretary of the Army
00961

DENNIS J. REIMER
General, United States Army
Chief of Staff

DISTRIBUTION:
To be distributed in accordance with DA Form 12-31-E, block no. 3539, requirements for TB 1-1520-238-20-65

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

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

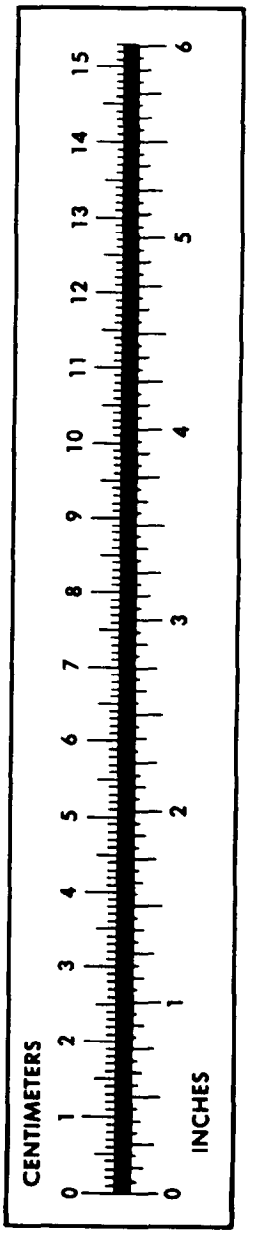
TEMPERATURE

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



PIN: 074253-000