TB 1-1520-238-20-48

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

ONE TIME INSPECTION FOR AUXILIARY POWER UNIT (APU) FUEL SOLENOID VALVE ON AH-64A HELICOPTERS

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

23 November 1993

NOTE

This is an aviation safety action TB issued per AR 95-3, chapter 5 revision VIA message HQ ATCOM, AMSAV-XSOF, 181900Z Sep 90.

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 dash "-".* The *red 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. Same as paragraph 1a.

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

d. Aircraft in Transit.

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

(2) Ferry Status.

(a) Same as paragraph 1a.

(b) Same as paragraph 1a

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

f. Component/Parts in stock including War Reserves at all levels (Depot and others). N/A.

* This TB supersedes USAATCOM Message 031229Z Nov 93, (AH-64-94-01).

2. **Task/Inspection Suspense Date.** One time inspection prior to next days mission flight for fuel leakage and security.

3. **Reporting Compliance Suspense Date.** Report compliance to commander, ATCOM, AMSAT-C-XS no later than 25 November 1993 per para 14a of this message.

4. **Summary of the Problem.**

a. Fire damage to an AH-64 aircraft during ground taxi operations is attributed to fuel leakage from an improperly installed preformed packing and backup o-ring in the APU fuel solenoid valve. It is suspected that the valve was improperly assembled by the manufacturer. An improperly assembled valve will allow fuel to escape and be ignited by either the hot power turbine plenum or a flashback (APU backfire). This inspection is to confirm proper assembly of the APU fuel solenoid valve in fleet AH-64A aircraft.

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

c. The purpose of this TB is to direct a one time inspection of the APU fuel solenoid valve (P/N 692545-6, 692545-1) for fuel leakage and looseness prior to next days mission flight.

5. **End Items to be inspected.** All AH-64A aircraft. Aircraft Serial Numbers 82-23355 and subsequent will be inspected/corrected.

6. **Assembly Components to be Inspected.** N/A

7. **Parts to be Inspected.**

NOMENCLATURE	*PART NUMBER*	*NATIONAL STOCK NUMBER*
Solenoid Valve	692545-6	4810-01-012-6086
Solenoid Valve	692545-1	4810-00-779-7550

8. **Inspection Procedures** – NOTE: Two personnel are required to accomplish this inspection.

a. Safe the aircraft per ref 13a, task 1-7-2.

b. Gain access to APU area and remove APU upper center cover per ref 13a, task 15-2-2, step a.1 thru a.3.

c. Station an observer at the APU fuel solenoid valve.

d. Enter pilot's crewstation and locate APU start/run switch.

e. Select APU start/run switch to "RUN". Hold run position for duration of inspection to pressurize APU fuel system.

f. Observer is to inspect fuel solenoid valve for leakage by any of the following methods:

(1) Feel fuel solenoid valve for fuel dampness.

(2) Note if there is any increased fuel odor when line is pressurized.

(3) Visually check fuel solenoid valve for leakage by using an inspection mirror with an explosion proof flash light.

(4) Feel area below fuel solenoid valve for fuel/dampness.

g. While APU fuel system is pressurized, observer is to place the index finger only on top of valve and attempt to wiggle/move valve. Any indication of fuel leakage during this procedure requires valve replacement IAW para 9.

h. If fuel leakage/odor is detected from fuel solenoid valve, see para 9 of this message for instructions.

i. Return APU stat/run switch to "off" position.

j. Reinstall APU upper center cover per ref 13a, task 15-2-3, step 24 thru 26. Task is complete.

9. **Correction Procedures.**

a. Safe the aircraft IAW ref 13a, task 1-7-2.

b. Remove fuel solenoid valve IAW ref 13a, task 15-2-11, step a.1 thru a.5.

c. Install replacement fuel solenoid valve IAW ref 13a, task 15-2-11, step a.6 thru d.7.

d. Perform leakage/movement check IAW with para 8 of this message.

e. Complete task d.8 thru d.11, Reference 13a.

10. **Supply/Parts and Disposition** - (If replacement required)

NOMENCLATURE	*PART* NUMBER	*NATIONAL STOCK NUMBER*
Nut, self-locking	S9425-3	5310-01-015-5729
Washer, Flat	AN960C10L	5310-00-167-0812
Bolt, Machine	MS9556-24	5306-00-119-4771
Nipple, Tube	AN815-4J	4730-00-875-8264
Valve, Solenoid	692545-6	4810-01-012-6086
Valve, Solenoid	692545-1	4810-00-779-7550

a. Parts Required. Items cited in paragraph 7 may be required to replace unserviceable items.

b. Requisitioning Instructions. Requisition replacement parts through normal supply channels using normal supply procedures.

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 for any fuel solenoid valve that exhibits failure; retain unserviceable solenoid valve for analysis.

e. Disposition of Hazardous Material. In accordance with environmental protective agency directives as implemented by our servicing environmental coordinator (AR 200-1).

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 1.0 man-hours using 2 persons for one time inspection.

(2) Total of 8.0 manhours using 2 persons for replacement.

c. Estimated Replacement Cost Impact of Stock Fund Items to the Field.

NOMENCLATURE	*PART NUMBER/ NATIONAL STOCK NUMBER*	*QUANTITY*	*COST EACH*	*TOTAL $*
Nut, self-locking	5310-01-015-5729	2	$1.34	$2.68
Washer, Flat	5310-00-167-0812	2	$.83	$1.66
Bolt, Machine	5306-00-119-4771	2	$2.61	$5.22
Nipple, Tube	4730-00-875-8264	2	$2.05	$4.10
Valve, Solenoid	4810-01-012-6086	1	$363.30	$363.30
Valve, Solenoid	4810-00-779-7550	1	$(184.97)	$(184.97)
Maximum total cost per aircraft = $376,96				

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 55-1520-238-23, task 15-2-11 will be changed IAW this message. A copy of this messag shall be inserted in the appropriate TM as authority to implement the changes until the printed change is received.

13. **References.**

TM 55-1520-238-23, Aviation unit and intermediate maintenance manual for AH-64 helicopter, basic DTD 7 June 1988 with change 18, DTD 15 JAN 93.

b. TM 55-1520-238-T, voI.3, Aviation unit and intermediate troubleshooting manual for AH-64A helicopter, DTD 15DEC85withC-17, DTD 29 March 91..

14. **Recording and Reporting Requirements.**

Reporting compliance suspense date (aircraft) - Upon entering requirements of this message on DA Form 2408-13-1 on all subject MDHS Aircraft, Forward a priority message, Datafax or E-mail to Commander ATCOM, ATTN: AMSAT-C-XS (SOF compliance officer), per AR 95-3. Datafax number is DSN 693-2064 or commercial 314/263-2064. E-Mail address is “AMSATCXS (at sign) St.-Louis-EMH7. ARMY.MIL”. The report will cite this message number, date of entry in DA Form 2408-13, 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 Jun 92.

(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 Mr. Fred Banks, AMSAT-R-EIA, DSN 693-1679 or commercial (314) 263-1679.

b. Logistical point of contact for this TB is Mr. Jim Mason, SFAE-AV-AAH-LS, DSN 693-1946 or commercial (314)263-1946.

Forms and records point of contact for this TB is Ms. Ann Waldeck, AMSAT-I-MDM, DSN 693-1758 or commercial (314)263-2285/2085.

d. Safety Point of contact for this TB is Mr. Howard Chilton, AMSAT-C-XS, DSN 693-2285/2085 or commerial 314/263-2285/2085.

e. Foreign Military Sales (FMS) recipients requiring clarification of action advised by this TB should contact CW5 Jay Nance/Mr. Ron Van Rees, AMSAV4, DSN 693-3826 or commercial (314)263-3826.

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

By Order of the Secretary of the Army:

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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

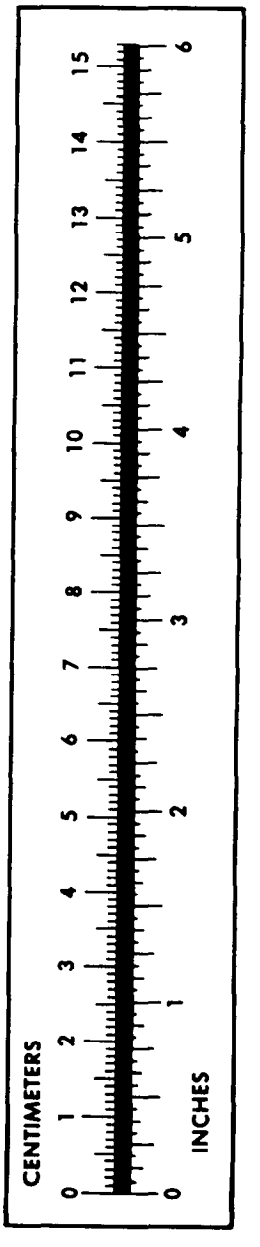
TEMPERATURE

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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