

**TECHNICAL MANUAL
AVIATION UNIT AND INTERMEDIATE
MAINTENANCE MANUAL**

VOLUME 6 OF 9

**HELICOPTER, ATTACK,
AH-64A APACHE
(NSN 1520-01-106-9519)
(EIC: RHA)**

**CHAPTER 10
FUEL SYSTEM**

FUEL SYSTEM MAINTENANCE

**AUXILIARY FUEL SYSTEM
MAINTENANCE**

**DISTRIBUTION STATEMENT A: Approved for public release;
distribution is unlimited.**

**DESTRUCTION NOTICE For unclassified, limited documents,
destroy by any method that will prevent disclosure of contents or
reconstruction of the document**

* This manual together with TM 1-1520-238-23-1, 16 May 1994, TM 1-1520-238-23-2, 16 May 1994, TM 1-1520-238-23-3, 16 May 1994, TM 1-1520-238-23-4, 16 May 1994, TM 1-1520-238-23-5, 16 May 1994, TM 1-1520-238-23-7-1, 16 May 1994, TM 1-1520-238-23-7-2, 16 May 1994, TM 1-1520-238-23-8, 16 May 1994, TM 1-1520-238-23-9, 16 May 1994, supersedes TM 55-1520-238-23-1, 7 June 1988, TM 55-1520-238-23-2, 7 June 1988, TM 55-1520-238-23-3, 7 June 1988, TM 55-1520-238-23-4, 7 June 1988, TM 55-1520-238-23-5, 7 June 1988, TM 55-1520-238-23-6, 7 June 1988, TM 55-1520-238-23-7, 7 June 1988, TM 55-1520-238-23-8, 7 June 1988, TM 55-1520-238-23-9, 7 June 1988, TM 55-1520-238-23-10, 7 June 1988, including all changes.

**HEADQUARTERS, DEPARTMENT OF THE ARMY
16 MAY 1994**

CHAPTER 10 FUEL SYSTEM

CHAPTER OVERVIEW

Chapter 10 contains the maintenance instructions for the fuel system. Fuel system description, operation, and troubleshooting information is contained in TM 1-1520-238-T.

CHAPTER INDEX

<u>Para Title</u>	<u>Para No.</u>
SECTION I. FUEL SYSTEM MAINTENANCE	
Fuel System Inspection	10.1
Fuel System Safety Precautions	10.2
Forward and Aft Poppet Draincock and Control Removal/Installation	10.3
Forward Fuel Cell Lightning Arrestor Removal/Installation	10.4
Forward Fuel Cell Forward Fuel Quantity Transmitter Removal/Installation	10.5
Forward Fuel Cell Aft Fuel Quantity Transmitter Removal/Installation	10.6
Forward Fuel Cell Forward Access Cover Removal/Installation	10.7
Forward Fuel Cell Aft Access Panel and Aft Cover Removal/Installation	10.8
Forward Fuel Cell Flapper Valve Replacement	10.9
Forward Fuel Cell Upper Vent Tube and Vent Adapter Removal/Installation	10.10
Forward Fuel Cell Check/Thermal Relief Valve Removal/Installation	10.11
Forward Fuel Cell Pilot Valve Hose Replacement	10.12
Forward Fuel Cell Fuel Level Control Pilot Valve Removal/Installation	10.13
Forward Fuel Cell Fuel Shutoff Valve Removal/Installation	10.14
Forward Fuel Cell Air Vent/Pressure Relief Valve Removal/Installation	10.15

CHAPTER INDEX – continued

<u>Para Title</u>	<u>Para No.</u>
Forward Fuel Cell Engine Fuel Supply Breakaway Valve Removal/Installation	10.16
Forward Fuel Cell Refueling Breakaway Valve Removal/Installation	10.17
Refueling Line Connector Replacement	10.18
Forward Fuel Cell Fuel/Defuel Check Valve Removal/Installation	10.19
Forward and Aft Fuel/Defuel Check Valve Disassembly/Assembly (AVIM)	10.20
Forward Fuel Cell Engine Fuel Supply Hose Replacement	10.21
Forward Fuel Cell Refueling Hose Replacement	10.22
Forward Fuel Cell Vent Tube Replacement	10.23
Forward Fuel Cell Lower Vent Tube Removal/Installation	10.24
Forward Fuel Cell Fuel Valve Isolation Switch Removal/Installation	10.25
Forward Fuel Cell Filler Neck Removal	10.26
Forward Fuel Cell Filler Neck Installation	10.27
Forward Fuel Cell Removal	10.28
Forward Fuel Cell Installation	10.29
Aft Fuel Cell Upper Vent Tube Replacement	10.30
Aft Fuel Cell Upper Vent Adapter Removal/Installation	10.31
Aft Fuel Cell Access Panel and Access Cover Removal/Installation	10.32
Aft Fuel Cell Forward Access Panel Removal/Installation	10.33
Aft Fuel Cell Filler Neck Removal/Installation	10.34
Aft Fuel Cell Fuel/Defuel Check Valve Removal/Installation	10.35
Aft Fuel Cell Four-Way Check Valve Removal/Installation	10.36
Aft Fuel Cell Fuel Level Control Pilot Valve Removal/Installation	10.37
Aft Fuel Cell Pilot Valve Hose Replacement	10.38
Aft Fuel Cell Fuel Quantity Transmitter Removal/Installation	10.39

CHAPTER INDEX – continued

<u>Para Title</u>	<u>Para No.</u>
Aft Fuel Cell Fuel Shutoff Valve Removal/Installation	10.40
Aft Air Vent/Pressure Relief Valve Removal/Installation	10.41
Aft Fuel Cell Refueling Breakaway Valve Removal/Installation	10.42
Aft Fuel Cell Fuel Outlet Breakaway Valve Removal/Installation	10.43
Aft Fuel Cell Refueling Hose Replacement	10.44
Aft Fuel Cell Lower Vent Tube and Lightning Arrestor Removal/Installation	10.45
Aft Fuel Cell Upper Fuel Supply Hose Removal/Installation	10.46
Aft Fuel Cell Engine Fuel Supply Hose Replacement	10.47
Aft Fuel Cell Fuel Valve Isolation Switch Removal/Installation	10.48
Aft Fuel Cell Removal	10.49
Aft Fuel Cell Installation	10.50
Forward or Aft Fuel Cell Backing Board Removal/Installation	10.51
Forward Fuel Cell Restraint Pan Removal/Installation	10.52
Forward Fuel Cell Retainer Panel Removal/Installation (AVIM)	10.52A
Forward or Aft Fuel Cell Ballistic Foam Repair/Replacement	10.53
Pilot Fuel Panel Removal/Installation	10.54
Pilot Fuel Panel Light Indicating Panel Removal/Installation	10.55
Pilot Fuel Panel Crossfeed Switch Replacement (AVIM)	10.56
Pilot Fuel Panel Fuel Boost Pump Switch Replacement (AVIM)	10.57
Pilot Fuel Panel Switch Replacement (AVIM)	10.58
Pilot Fuel Panel Electronic Component Assembly and Access Cover Replacement (AVIM) ..	10.59
Pilot Fuel Panel Bracket Assembly Replacement (AVIM)	10.60
Pilot Fuel Panel Support Panel Replacement (AVIM)	10.61
CPG Fuel Panel Removal/Installation	10.62
CPG Fuel Panel Light Indicating Panel Replacement	10.63

CHAPTER INDEX – continued

<u>Para Title</u>	<u>Para No.</u>
CPG Fuel Panel Transfer Switch Replacement (AVIM)	10.64
CPG Fuel Panel Pilot Override Switch Replacement (AVIM)	10.65
CPG Fuel Panel Tank Select Switch Replacement (AVIM)	10.66
CPG Fuel Panel Boost Pump Switch Replacement (AVIM)	10.67
CPG Fuel Panel Support Panel Replacement (AVIM)	10.68
Refueling Panel Removal/Installation	10.69
Refueling Indicator Removal/Installation	10.70
Refueling Panel Switch Replacement	10.71
Refueling Panel Indicator Light Replacement	10.72
Refueling Panel Indicator Panel Replacement	10.73
Fuel Transfer Shutoff Valve Removal/Installation	10.74
Fuel Transfer Pump Removal	10.75
Fuel Transfer Pump Installation	10.76
Forward Refueling Hose Replacement	10.77
Fuel Transfer Valve Air Exhaust Vent Tube Coupler Hose Replacement	10.78
Fuel Transfer Valve Air Exhaust Vent Tube Replacement	10.79
Fuel Transfer Pump/Air Control Valve Outboard Tube Replacement	10.80
Fuel Transfer Pump/Air Control Valve Inboard Tube Replacement	10.81
Fuel Transfer Pump Drain Tube Replacement	10.82
Fuel Transfer Air Control Valve Removal/Installation	10.83
Aft Refueling Hose Replacement	10.84
Left Auxiliary Fuel Tank Check Valve Removal/Installation	10.85
Left Auxiliary Fuel Transfer Tube Replacement	10.86
F.S. 186 to 199 Left Auxiliary Fuel Transfer Tube Replacement	10.87

CHAPTER INDEX – continued

<u>Para Title</u>	<u>Para No.</u>
F.S. 199 to 214 Left Auxiliary Fuel Transfer Tube Replacement	10.88
F.S. 214 to 225 Left Auxiliary Fuel Transfer Tube Replacement	10.89
Right Auxiliary Fuel Tank Check Valve Removal/Installation	10.90
Left and Right Auxiliary Fuel Tank Quick-Disconnect Coupling Removal/Installation	10.91
Right Auxiliary Fuel Inlet Hose Replacement	10.92
Right Auxiliary Fuel Quick-Disconnect to F.S. 214 Tube Replacement	10.93
Pressure Fuel Manifold Removal/Installation	10.94
Fuel Manifold Nipple Removal/Installation	10.95
Fuel Adapter Removal/Installation	10.96
No. 1 Engine Fuel Inlet Hose Replacement	10.97
No. 2 Engine Fuel Inlet Hose Replacement	10.98
No. 1 Engine Crossfeed/Shutoff Valve Removal/Installation	10.99
No. 2 Engine Crossfeed/Shutoff Valve Removal/Installation	10.100
Crossfeed Fuel Hose Replacement	10.101
No. 1 Engine Lower Fuel Supply Hose Replacement	10.102
No. 2 Engine Fuel Supply Hose Replacement	10.103
No. 1 Engine Firewall Breakaway Valve Removal/Installation	10.104
No. 2 Engine Firewall Breakaway Valve Removal/Installation	10.105
No. 1 Engine Upper Fuel Supply Hose Replacement	10.106
APU Fuel Inlet Hose Replacement	10.107
APU Fuel Pump Removal/Installation	10.108
APU Fuel Pump Inlet Tube Replacement	10.109
APU Fuel Pump Outlet Tube Replacement	10.110
APU Fuel Shutoff Valve Removal/Installation	10.111

CHAPTER INDEX – continued

<u>Para Title</u>	<u>Para No.</u>
Fuel Boost Pump Pressure Switch Removal/Installation	10.112
APU Fuel Pump Fuel Supply Elbow Removal/Replacement	10.113
Fuel Boost Pump, Motor, and Drain Tube Removal/Installation	10.114
Fuel Boost Pump Inlet Hose Replacement	10.115
Fuel Boost Pump Canister Removal/Installation	10.116
Fuel Boost Pump Outlet Hose Replacement	10.117
Fuel Boost Pump Air Inlet Hose Replacement	10.118
Aft Fuel Cell Nitrogen Inert Breakaway Valve Removal/Installation	10.119
Aft Fuel Cell Nitrogen Inert Outlet Orifice Removal/Installation	10.120
Forward Fuel Cell Nitrogen Inert Breakaway Valve Removal/Installation	10.121
Nitrogen Inert Vent Valve Removal/Installation	10.122
Nitrogen Inerting Monitor Panel Removal/Installation	10.123
Nitrogen Inerting Unit (NIU) Removal/Installation	10.124
Nitrogen Inerting Unit (NIU) Filter Removal/Installation	10.125
Nitrogen Inerting Unit (NIU) Conditioned Air Outlet Hose Removal/Installation	10.126
Nitrogen Inerting Unit (NIU) Pressurized Air Supply Hose Removal/Installation	10.127
Nitrogen Inerting Unit (NIU) Pressurized Air Supply Inlet Hose Removal/Installation	10.128
Nitrogen Inerting Unit (NIU) Cooling Air Inlet Hose Removal/Installation	10.129
Nitrogen Inerting Unit (NIU) Cooling Air Exhaust Hose Removal/Installation	10.130
Aft Fuel Cell Nitrogen Inert Breakaway Valve Hose Removal/Installation	10.131
Aft Fuel Cell Nitrogen Inert Orifice Hose Removal/Installation	10.132
Aft Fuel Cell Nitrogen Inert Check Valve Removal/Installation	10.133
Forward Fuel Cell Nitrogen Inert Breakaway Valve Hose Removal/Installation	10.134
Fuel Quantity Indicator Test Set (TF 579) Installation/Removal	10.135

CHAPTER INDEX – continued

<u>Para Title</u>	<u>Para No.</u>
Fuel Signal Conditioner Adjustment	10.136
 SECTION II. AUXILIARY FUEL SYSTEM MAINTENANCE	
Auxiliary Fuel Tank Kit (Two Tank) Installation	10.137
Auxiliary Fuel Tank Kit (Two Tank) Removal	10.138
Auxiliary Fuel Tank Installation	10.139
Auxiliary Fuel Tank Removal	10.140
Auxiliary Fuel Tank Kit (Four Tank) Installation	10.141
Auxiliary Fuel Tank Kit (Four Tank) Removal	10.142

SECTION I. FUEL SYSTEM MAINTENANCE

10.1. FUEL SYSTEM INSPECTION

10.1.1. Description

This task covers: Inspection.

10.1.2. Initial Setup**Materials/Parts:**

Cloth (item 52, App F)

References:

FM 10-68
 TM 1-1500-204-23
 TM 1-1520-238-T
 ■ TM 1-2835-213-23
 TM 55-1500-344-23
 TM 55-1500-345-23
 TM 55-2840-248-23

Equipment Conditions:

<u>Ref</u>	<u>Condition</u>
1.57	Helicopter safed
10.2	Fuel system safety precautions observed

10.1.3. Inspection

- a. **Check fuel cells for tears, cuts, chafing, cracks, damaged mounting pads, or evidence of leakage** (TM 1-1500-204-23).
- b. **Check valves, unions, and components for looseness, rounded wrench flats, nicks, gouges, scratches, distortion, and corrosion.** Check for loose components.
 - (1) Negligible.
 - (a) Minor scratches (without burrs or raised materials) that do not penetrate through protective finish are acceptable.
 - (2) Repairable.
 - (a) Nicks, gouges, corrosion pits (TM 55-1500-344-23), or minor surface damage not exceeding **0.040 INCH** or 10 percent of material thickness (whichever is less after rework) is permissible.
 - (3) Not repairable.
 - (a) Damage exceeding repairable limits, or damage to a seal or fillet surface necessitates replacement.
 - (4) Touch up removed protective finish as required (TM 55-1500-345-23).
- c. **Check valves, unions, and other components for cracks and damaged threads.** None allowed.

GO TO NEXT PAGE

10.1. FUEL SYSTEM INSPECTION – continued

- d. **Check electrical connections and switches for loose, cut, worn, chafed, and frayed wires.** None allowed. Check security of all connections.
- e. **Check electrical connectors for cracks and damaged threads.** No cracks allowed. Thread damage not to exceed 50 percent of one thread.
- f. **Check all electrical connectors for distorted, burned, corroded or bent contacts.** None allowed.
- g. **Check all tubes for deformation, worn chafing strips, dents, cracks, breaks, and leaks.** Check security of all connections.
 - (1) Cracked or deformed tubing, nuts, and unions require tube replacement.
 - (2) Dents of more than 20 percent of tube diameter require tube replacement.
 - (3) Nicks or chafing of more than 10 percent of tube wall thickness requires tube replacement.
 - (4) Wear exceeding **0.020 INCH** requires chafing strip replacement.
- h. **Check all tube and hose fittings for cracks.** None allowed.
- i. **Check all hoses for fraying, tears, cuts, and evidence of seepage.** Check for loose mounting hardware. Replace damaged or worn hoses.
- j. **Check for loose, broken, cracked, and distorted clamps.** Replace damaged clamps.
- k. **Check all helicoil inserts for breaks, cracks, chafing, corrosion and security.**
 - (1) No breaks or cracks allowed. Chafing in hook area shall not exceed **0.010 INCH** in depth.
 - (2) Coils that have any corrosion pits shall be replaced.
 - (3) Coils shall not be sprung; coils must be tight against each other.
- l. **Check all ratchet sleeve adapters and fittings for broken or missing teeth.** None allowed.
- m. **Check for damage in areas surrounding the fuel system and its parts.**
- n. **Check daily for five days following maintenance which could result in any fuel spill in or above the fuel cell cavity.**
 - (1) Visually examine helicopter exterior surfaces for signs of fuel. This area is to include ground directly under forward and aft fuel cells and forward/aft access doors B170 and B250.
 - (2) Remove ammunition bay access panel B200 (para 2.2).
 - (3) Check for presence of fuel in forward/aft fuel cell and ammunition bay areas. Strong odor of fuel vapor indicates fuel and requires corrective action.
 - (4) Troubleshoot if system leak is found (TM 1-1520-238-T).

GO TO NEXT PAGE

10.1. FUEL SYSTEM INSPECTION – continued

(5) If inspection is satisfactory, reinstall ammunition bay access panel B200 (para 2.2).

o. Check after first engine ground operation or opening of any fuel cell for inspection, maintenance, or replacement of fuel cell components.

(1) After first and second engine run or flight:

- (a) Remove engine No. 1 and No. 2 fuel filter bowls (TM 55-2840-248-23).
- (b) Remove APU fuel filter cover (TM 1-2835-213-23).
- (c) Check filter bowls and filter cover for contaminants. Drain on lint-free cloth if contaminants are found. Monitor number of particles removed. Use clean cloth (item 52, App F).
- (d) Install engine No. 1 and No. 2 fuel filter bowl (TM 55-2840-248-23).
- (e) Install APU fuel filter cover (TM 1-2835-213-23).

(2) After third engine run or flight:

- (a) Remove engine No. 1 and No. 2 fuel filter bowls (TM 55-2840-248-23).
- (b) Remove APU fuel filter cover (TM 1-2835-213-23).
- (c) Check filter bowls and APU fuel filter cover for contaminants.
 - 1 If contaminants are present go to step o.(3). Inspect at 100 flight hour intervals until contaminants are removed.
 - 2 If not contaminated, install engine No. 1 and No. 2 filter bowls (TM 55-2840-248-23) and APU fuel filter cover (TM 1-2835-213-23). Extend to 100 flight hours and inspect for contaminants.

(3) After contaminants are found:

- (a) Defuel aircraft (para 1.20).
- (b) Flush aircraft fuel system (FM 10-68).
- (c) Repeat step o.(2).

p. Upon opening either forward or aft fuel cell.

- (1) Check fuel quantity transmitter wire harness for cuts, nicks, and fuel seepage. None allowed.
 - (a) In the event of servicing a fuel cell in which the harness must be temporarily removed, it shall be stored in a location or container that will prevent damage until reinstalled.

q. Check exterior of fuel cell for fuel.

- (1) If fuel has contacted exterior of fuel cell, cell must be removed, cleaned with warm soapy water, and air dried (para 10.49).
- (2) Check for damage, delamination, and swelling of fuel cell.
 - (a) If any is found, replace cell (para 10.50).
 - (b) If no damage is present, reinstall cell (para 10.50).
- (3) Fuel cell cavity must be clean and dry prior to installation.

END OF TASK

10.2. FUEL SYSTEM SAFETY PRECAUTIONS

10.2.1. Description

This task covers: Safety Precautions.

10.2.2. Initial Setup

Tools:

Light duty laboratory apron (item 27, App H)
 Electrical power cable assembly (item 47, App H)
 Chemical agent detector kit (item 106, App H)
 Carbon dioxide fire extinguisher (item 126, App H)
 Centrifugal fan (item 130, App H)
 Chemical protective gloves (item 154, App H)
 Industrial goggles (item 156, App H)
 Air duct hose assembly (item 166, App H)
 Inline compressed air hose (item 169, App H)
 2-blade pocket knife (item 198, App H)
 Air line mask (item 214, App H)
 Breathable pump unit (item 248, App H)

References:

TM 1-1500-204-23

Equipment Conditions:

<u>Ref</u>	<u>Condition</u>
1.57	Helicopter safed

10.2.3. Safety Precautions



- **Jet engine fuel is highly flammable, explosive, and toxic. Work in a well ventilated area away from open flames. Breathing of vapors could cause dizziness. Wear protective clothing. If jet engine fuel comes in contact with eyes or skin, flush with water and seek medical aid.**
- **When working on the helicopter, clean up any spilled fuel with cotton rags. Spilled fuel could ignite and cause injury to personnel or damage to equipment.**

GO TO NEXT PAGE

10.2. FUEL SYSTEM SAFETY PRECAUTIONS – continued

WARNING

- For protection from fuel spills keep shirt sleeves rolled down and buttoned. Keep shirt-tail tucked in. Do not carry loose items in pockets. Loose items could fall out of pockets and cause sparks. Do not wear jewelry. Jewelry could strike against metal surfaces and cause sparks.
- To prevent injury to personnel or damage to equipment, observe normal fire precautions while working on helicopter fuel system.
- When using fire extinguisher in a confined space, wear a respirator. If fire extinguisher is discharged in a confined space, ventilate space as soon as possible. Serious injury to personnel could occur if vapors are inhaled. If injury occurs, seek medical aid.

CAUTION

Jet fuel will cause external surface of fuel cell to swell, delaminate, and leak if allowed to contact the fuel cell more than **72 HOURS**. Keep jet fuel away from the outside of fuel cells.

NOTE

Observe fuel system safety precautions in TM 1-1500-204-23 before performing any fuel system maintenance.

- a. **Have one person with a fire extinguisher standby as a safety watch.**
- b. **Wear protective clothing.**
 - (1) Wear goggles to protect eyes from fuel spills.
 - (2) Wear protective gloves to protect hands while working on fuel system. If gloves become saturated with fuel, replace them. Gloves do not offer protection against chemical burns.
 - (3) Wear apron for protection from fuel spills.
 - (4) Wear standard rubber-soled, leather combat boots for protection from fuel spills. However, combat boots are not impervious to fuel spills. If boots become saturated with fuel, replace them.
- c. **Before performing any maintenance inside fuel cells, observe the following:**
 - (1) Observe all cautions and warnings.
 - (2) If working in the forward fuel cell, remove forward fuel cell aft access panel (para 10.8).
 - (3) If working in the aft fuel cell, remove aft fuel cell forward access panel (para 10.33).

GO TO NEXT PAGE

10.2. FUEL SYSTEM SAFETY PRECAUTIONS – continued

NOTE

A sharp knife is required to cut the fuel cell open in case an emergency rescue is necessary.

- (4) Have one person with fire extinguisher and sharp pocket knife standby as a safety watch.
- (5) Wear protective clothing.

WARNING

Ensure that detector reading is below 20 percent LEL before entering the fuel cell.

- (6) Wear a respirator and use a detector.
 - (a) Wear a respirator for protection against fuel vapors.
 - (b) Use a detector to test for a fuel vapor level before entering fuel cell.

END OF TASK

**10.3. FORWARD AND AFT POPPET DRAINCOCK AND CONTROL
REMOVAL/INSTALLATION**

10.3.1. Description

This task covers: Removal. Cleaning. Inspection. Installation.

10.3.2. Initial Setup

Tools:

- Aircraft mechanic's tool kit (item 376, App H)
- 3/8 x 1/2-inch drive socket wrench adapter (item 6, App H)
- Light duty laboratory apron (item 27, App H)
- Chemical protective gloves (item 154, App H)
- 14-quart utility pail (item 222, App H)
- Adjustable air filtering respirator (item 262, App H)
- 1 1/8 x 1/2-inch drive deep socket wrench socket (item 294, App H)
- 0 - 600 inch-pound 3/8-inch drive dial indicator torque wrench (item 447, App H)

Materials/Parts:

- Packing
- Petrolatum (item 138, App F)
- Wire (item 226, App F)

Personnel Required:

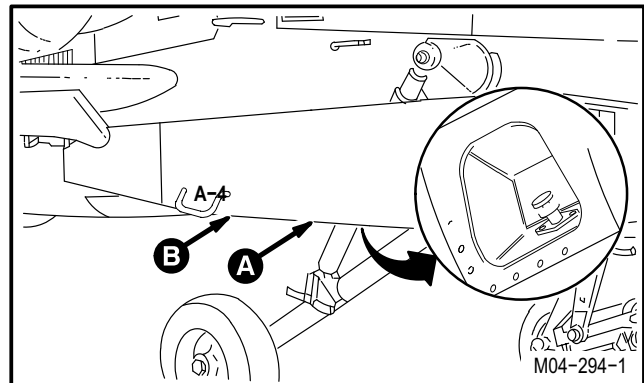
- 67R Attack Helicopter Repairer
- 67R3F Attack Helicopter Repairer/Technical Inspector

Equipment Conditions:

<u>Ref</u>	<u>Condition</u>
1.57	Helicopter safed
10.2	Fuel system safety precautions observed
1.19	Helicopter defueled, SPA method
2.2	Access doors B170 or B250 opened

NOTE

This task is typical for forward or aft pop-pet draincock and control. Forward pop-pet draincock and control are shown.



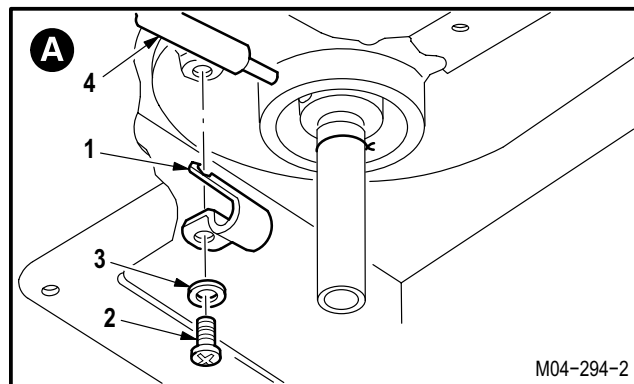
GO TO NEXT PAGE

**10.3. FORWARD AND AFT POPPET DRAINCOCK AND CONTROL
REMOVAL/INSTALLATION – continued**

10.3.3. Removal

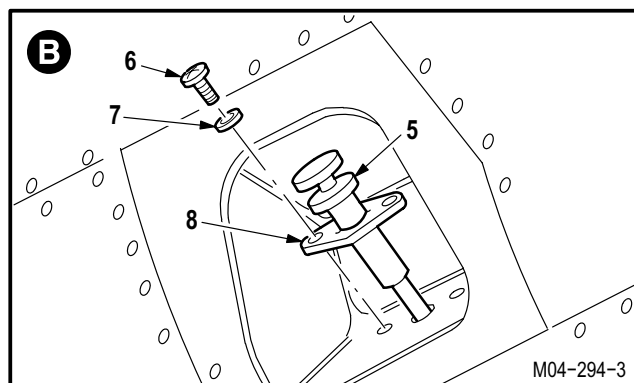
a. Remove control mounting clamp (1).

- (1) Remove screw (2) and washer (3) from clamp (1).
- (2) Remove clamp (1) from control cable (4).



b. Remove control (5).

- (1) Remove two screws (6) and washers (7) from bracket (8).
- (2) Remove control (5) by pulling straight out from side of helicopter.

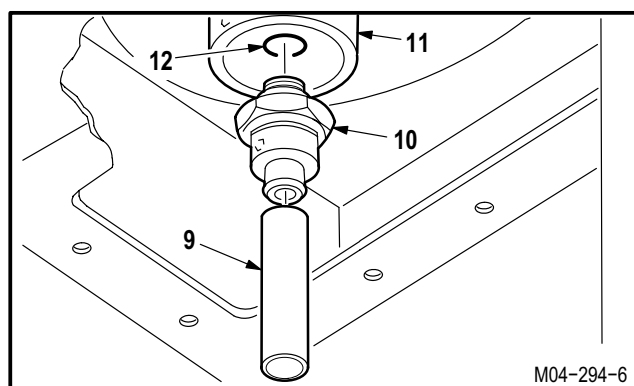


c. Remove fuel drain hose (9).

- (1) Remove lockwire.
- (2) Pull hose (9) off poppet draincock (10).

d. Remove draincock (10) from sump (11).

- (1) Remove and discard packing (12) from draincock (10). Use adapter and socket.



10.3.4. Cleaning

a. Wipe removed and attaching parts with a clean rag.

GO TO NEXT PAGE

**10.3. FORWARD AND AFT POPPET DRAINCOCK AND CONTROL
REMOVAL/INSTALLATION – continued**

10.3.5. Inspection

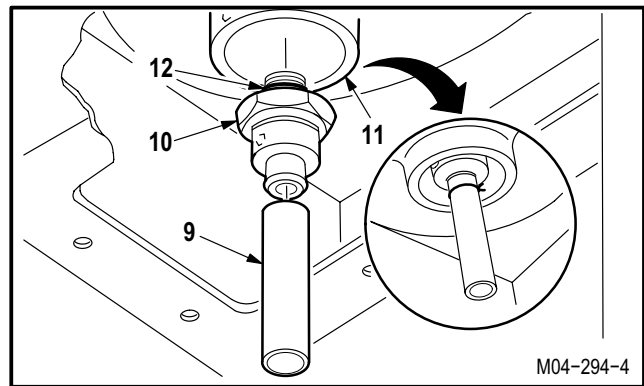
- a. **Check surrounding area for corrosion** (para 1.49).
- b. **Check draincock for damaged threads** (para 10.1).

10.3.6. Installation



a. **Install draincock (10).** Torque draincock (10) to **140 INCH-POUNDS**.

- (1) Lubricate new packing (12). Use petrolatum (item 138, App F).
- (2) Install packing (12) on draincock (10).
- (3) Lubricate threads of draincock (10). Use petrolatum (item 138, App F).
- (4) Install draincock (10) in sump (11). Torque draincock (10) to **140 INCH-POUNDS**. Use torque wrench, adapter, and socket.

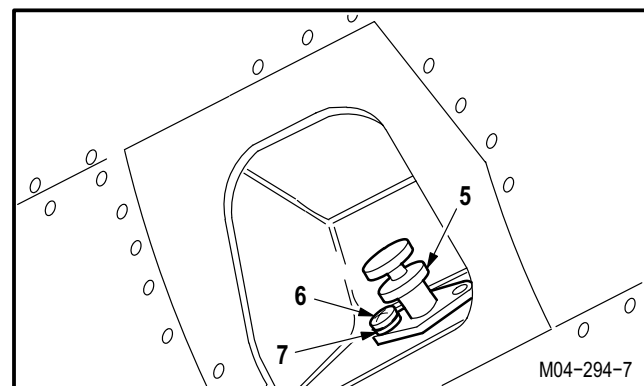


b. **Install fuel drain hose (9) on draincock (10).**

- (1) Lockwire hose (9) to draincock (10). Use wire (item 226, App F).

c. **Install control (5).**

- (1) Insert control (5) through opening in right side of helicopter.
- (2) Install two screws (6) and washers (7).



GO TO NEXT PAGE

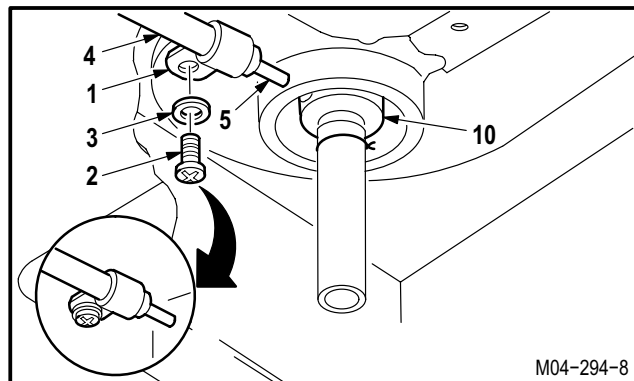
10.3. FORWARD AND AFT POPPET DRAINCOCK AND CONTROL REMOVAL/INSTALLATION – continued

d. Turn lower section of draincock (10) to align with control (5).

e. Install clamp (1).

- (1) Install clamp (1) on cable (4).
- (2) Insert cable (4) into hole in draincock (10).
- (3) Install screw (2) and washer (3).

f. **Refuel fuel cell** (para 1.13). Add approximately 50 gallons of fuel when refueling fuel cell for functional check.



NOTE

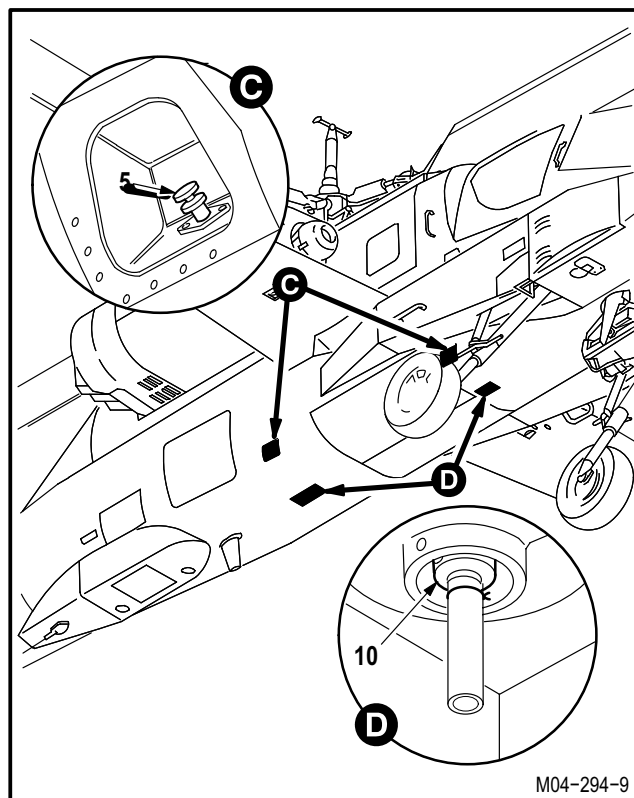
If more fuel is added to fuel cell, and if functional check fails, draining fuel will take longer.

g. Perform draincock (10) functional leak check.

- (1) Place container under draincock (10). Use pail.
- (2) Push control (5) to open draincock (10). Check for fuel drainage.
- (3) Release control (5) to close draincock (10). Check that fuel stops draining.
- (4) Check draincock (10) for leaks.

h. Inspect (QA).

i. **Secure access doors B170 and B250** (para 2.2).



END OF TASK

10.4. FORWARD FUEL CELL LIGHTNING ARRESTOR REMOVAL/INSTALLATION

10.4.1. Description

This task covers: Removal. Cleaning. Inspection. Installation.

10.4.2. Initial Setup

Tools:

Aircraft mechanic's tool kit (item 376, App H)
 Light duty laboratory apron (item 27, App H)
 Chemical protective gloves (item 154, App H)
 Adjustable air filtering respirator (item 262, App H)

References:

TM 1-1520-238-T
 TM 9-1090-208-23

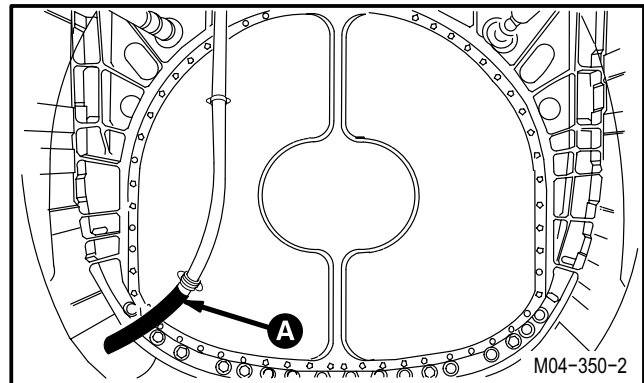
Equipment Conditions:

<u>Ref</u>	<u>Condition</u>
10.2	Fuel system safety precautions observed
TM 9-1090-208-23	Ammunition storage magazine removed

Personnel Required:

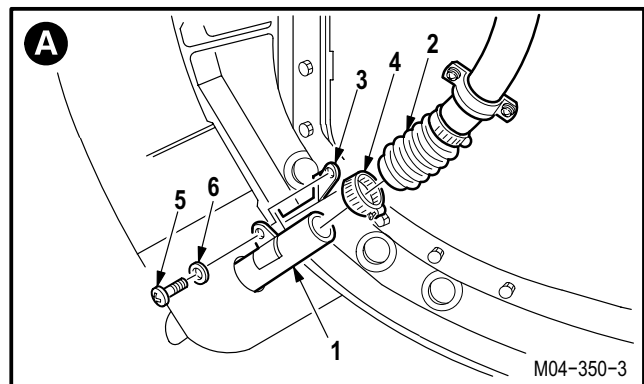
67R Attack Helicopter Repairer
 67R3F Attack Helicopter Repairer/Technical Inspector

10.4.3. Removal



a. Remove forward fuel cell lightning arrestor (1) from lightning arrestor sleeve (2) and mounting bracket (3).

- (1) Loosen hose clamp (4).
- (2) Pull sleeve (2) clear of arrestor (1). Remove hose clamp (4) from sleeve (2).
- (3) Remove screw (5) and washer (6).
- (4) Lift and remove arrestor (1) through ammunition bay.



GO TO NEXT PAGE