TM 55-1520-234-23-2
VOLUME II

TECHNICAL MANUAL

AVUM AND AVIM MAINTENANCE MANUAL

AH-1S (MOD)

This copy is a reprint which includes current pages from Changes 1 through 24.

HEADQUARTERS, DEPARTMENT OF THE ARMY
30 SEPTEMBER 1976

TECHNICAL MANUAL

No. 55-1520-234-23

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D C, *30 September 1976*

AVIATION UNIT AND INTERMEDIATE MAINTENANCE MANUAI.

HELICOPTER, ATTACK AH-IS (MOD)

NOTE:

This manual is printed in two volumes, as follows:
TM 55-1520-234-23-1, consisting of Table of Contents, preface, chapters 1 through 9.
TM 55-1520-234-23-2, consisting of Table of Contents, chapters 10 through 17, appendices A through F, and Index.
The Preface, Appendices and Index are applicable to Volumes I and II.

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Troop Support and Aviation Materiel Readiness Command, ATTN: DRSTS-MTPS, 4300 Goodfellow Blvd., St. Louis, MO 63120. A reply will be furnished directly to you.

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TECHNICAL MANUAL
No. 55-1520-234-23-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 30 September 1976

Aviation Unit and Aviation Intermediate Maintenance Manual

ARMY MODEL AH-1S (MOD) HELICOPTER

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CHAPTER 10
FUEL SYSTEM

Section I. FUEL SYSTEMS

10-1. Fuel System.

a. The fuel supply is in two interconnected cells in the fuselage, located forward and aft of the pylon. (Refer to figure 10-1.) The system is filled at right side of the forward cell. A crossover hose allows free flow to the aft cell, and has a check valve that restricts flow from aft to forward cell to avoid sudden shifting of balance in nosedown flight attitude. Each cell has a transmitter probe for the fuel quantity gage system, and a float switch for the 10% FUEL caution panels. Sump drain valves are provided on both cells; the large valve on the aft cell is also used for system defueling. Vent lines from cells are connected together and to a single overboard line. The aft cell has a connection, with a check valve, for return of fuel bled from the engine fuel control overspeed governor.

b. Electrically operated boost pumps deliver fuel from each cell to a manifold containing two directional flow check valves, with thermal relief bypass provisions. From the manifold outlet, fuel passes through an electrically operated shut-off valve to the filter, which has an outlet coupling for the engine fuel control inlet hose. Two pressure switches on the manifold have electrical circuits to FWD FUEL BOOST and AFT FUEL BOOST caution panels, and the fuel pressure gage system transmitter is connected to the outlet side of the filter.

10-2. General Maintenance - Fuel Supply System.

Observe the following general instructions and precautions in maintenance of the fuel supply system. Operational checks will be in accordance with TM 55-1520-234-10. Servicing instructions are contained in Chapter 1; electrical circuit diagrams and information are in Chapter 9 of this manual. Fuel lines and components on the engine constitute the fuel control system and will be found in TM 55-2840-229-24.

CAUTION

After aircraft has been defueled a small amount of fuel may be present in the cells. Care should be taken to catch remaining fuel in a suitable container when removing fuel cell components.

a. Conduct any defueling or drainage of fuel in accordance with applicable directives, and with extreme care to avoid fire hazards. (Refer to chapter 1.)

b. Before removing any line or hose, be sure it is properly identified and its route understood for replacement in the same manner.

c. Cap or cover any open lines, fittings or exposed openings to protect fuel system from contamination. Be sure vent lines are not obstructed.

10-2A. Perform troubleshooting of the fuel system in accordance with Table 10-1.

10-3. Fuel Filter.

The filter (26, figure 10-1) is mounted on a bracket located on left side of the engine compartment deck. The filter contains a replaceable paper-type element (6) and has an internal bypass, with electrical connection to the FUEL FILTER caution panels to warn when the filter is about to be bypassed due to clogging. Piping connections on the filter include the inlet line, drain line, pressure transmitter line, and a quick disconnect outlet coupling.

a. Removal.

(1) Open left side of engine compartment cowling.

(2) Disconnect fuel hose from outlet coupling on top of filter.

(3) Drain fuel from filter by opening drain line valve. Use a suitable tool to slightly depress self-closing valve of filter outlet coupling to admit some air and assist drainage.

(4) Open coupling clamp (7) and remove bowl (4) and filter element (6) from filter head. Separate element (6) and packings (5) from bowl.

NOTE

Filter head will usually be left in place, but can be removed as in the following step.

(5) Disconnect electrical cable plug, and fuel inlet, pressure, and drain lines from filter head. Detach head assembly from bracket by removing four bolts, nuts and washers.

Table 10-1. Troubleshooting Fuel System

CONDITION
TEST OR INSPECTION
CORRECTIVE ACTION

1. FUEL FILTER lamp illuminated.

STEP 1. Remove filter element and check for clogged filter.

Replace filter element if dirty or clogged. Refer to paragraph 10-3.

2. AFT or FWD FUEL BOOST caution lamps illuminated.

STEP 1. Check for sound of pump running.

If pump is running, but there is no indication of fuel flow to engine, pump has failed or lines are loose or clogged or leaking. Check manifold and shutoff valves for malfunction if lights are off without flow to engine. Replace pump. Refer to paragraph 10-8.

STEP 2. If pump is not running, check for electrical continuity.

If electrical continuity is not present, repair wiring. If continuity is normal, replace pump.

3. FUEL LOW lamp illuminated.

STEP 1. Defuel helicopter and refuel. FUEL LOW lamp should go out after approximately 26 gallons of fuel is in fuel cells.

If lamp remains on, check low level warning switch. Replace if defective.

STEP 2. Check electrical circuit for continuity.

If continuity is not normal, repair as needed.

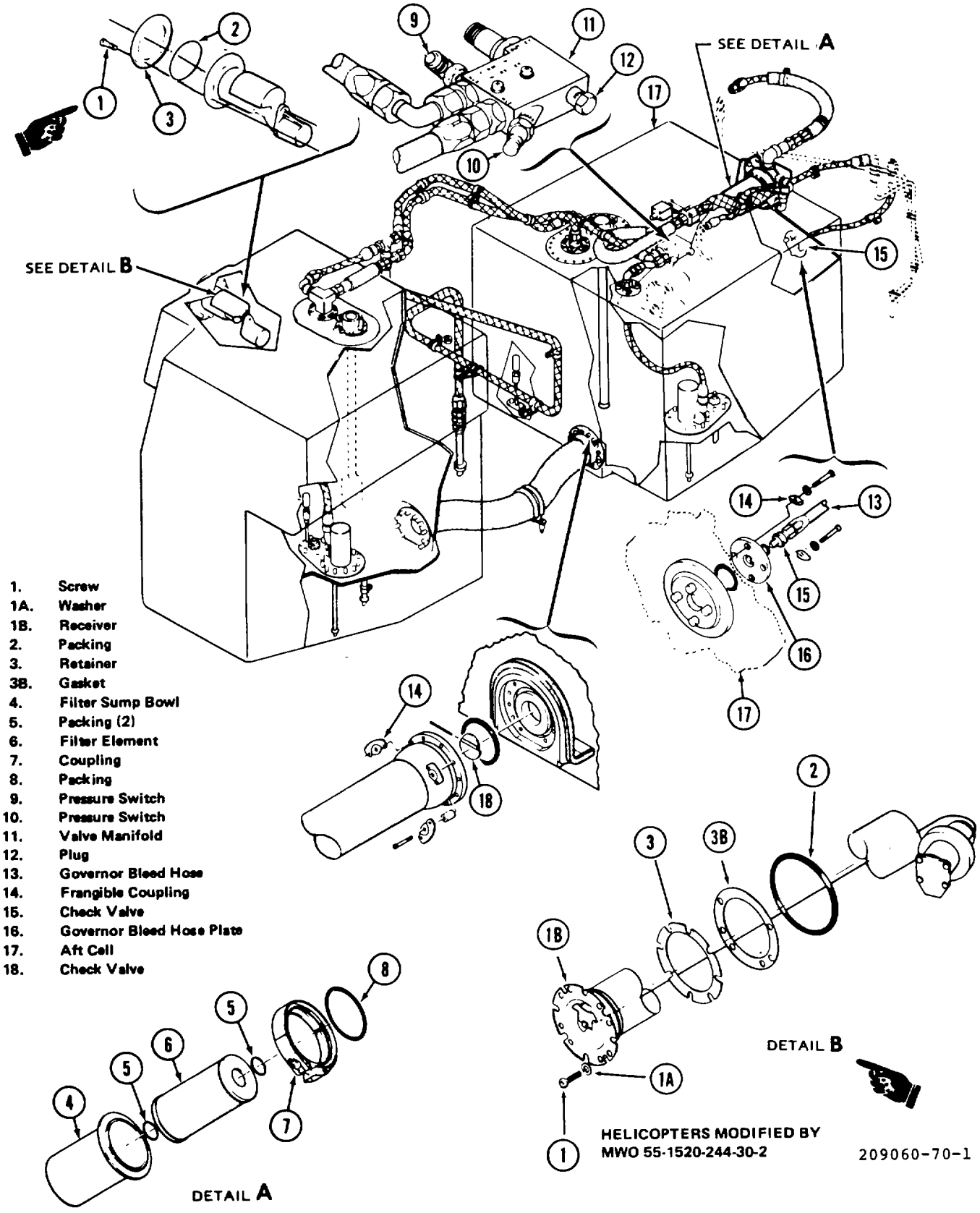
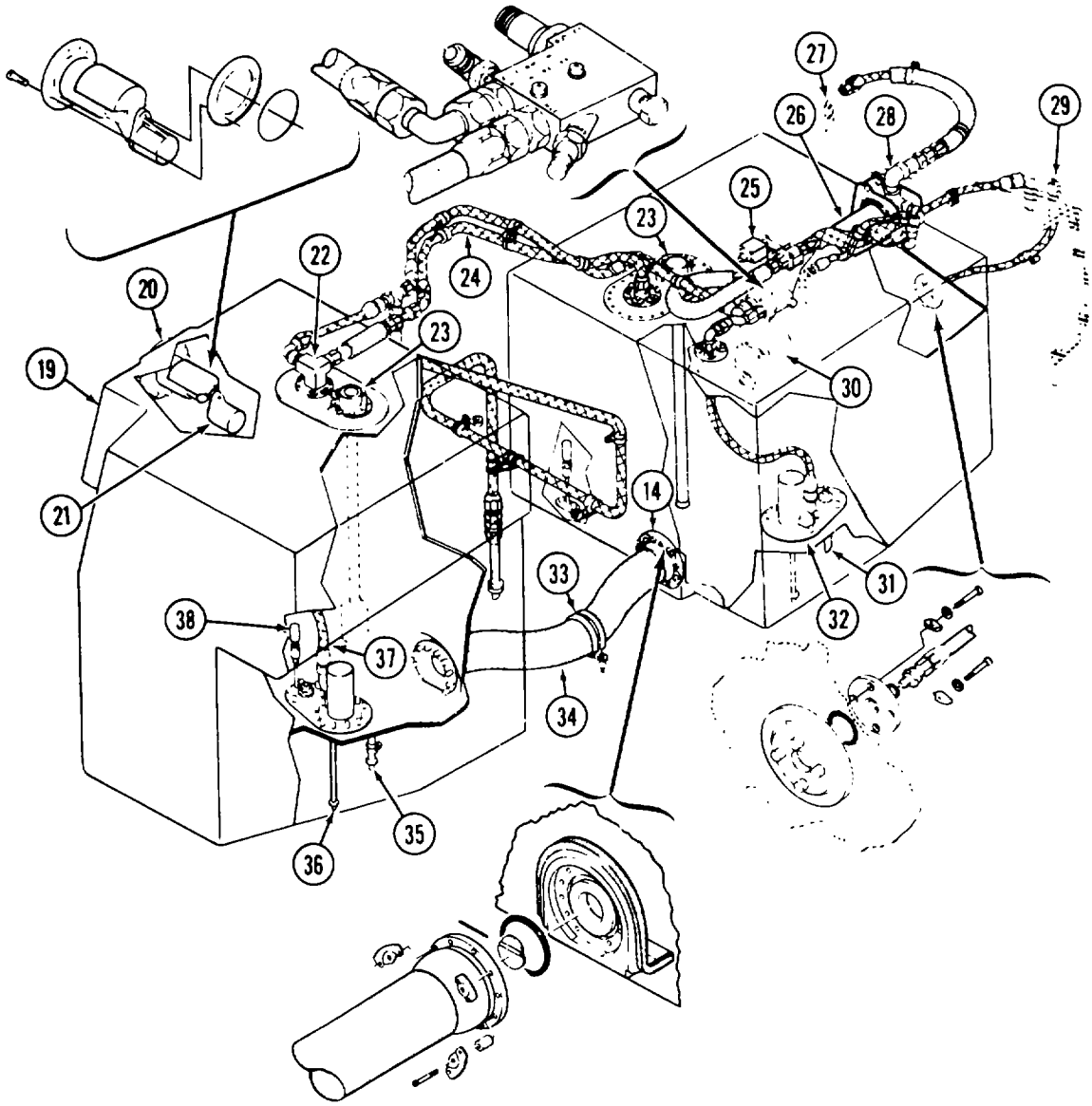


Figure 10-1. Fuel system (Sheet 1 of 2)



19. Forward Cell
20. Filler Cap
21. Closed Circuit Receiver
22. Fuel and Vent Fitting
23. Fuel Quantity Probe (2)
24. Vent Lines
25. Shut-Off Valve
26. Filter
27. Engine Drain Coupling
28. Engine Fuel Coupling
29. Governor Bleed Coupling
30. Pressure Transmitter
31. Drain and Defueling Valve
32. Boost Pump (2)
33. Fuel Crossover Clamp
34. Crossover Hose
35. Drain Valve
36. Seal Drain (2)
37. Fuel Hose
38. Low Level Float Switch

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Figure 10-1. Fuel system (Sheet 2 of 2)