

TECHNICAL MANUAL

**AVIATION UNIT AND INTERMEDIATE
MAINTENANCE MANUAL**

**ARMY MODEL
OH-58A AND OH-58C
HELICOPTERS**

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This manual supersedes TM 55-1520-248-23-2 dated 4 August 1978, including changes 1 through 16.

HEADQUARTERS, DEPARTMENT OF THE ARMY

28 February 1989

TECHNICAL MANUAL
No. TM 55-1520-228-23-2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 28 February 1989

Aviation Unit and Intermediate Maintenance Manual

ARMY MODELS OH-58A AND OH-58C HELICOPTERS

NOTE:

This manual is printed in two volumes, as follows:

TM 55-1520-228-23-1, consisting of Table of Contents, Preface, Chapters 1 through 9.

TM 55-1520-228-23-2, consisting of Table of Contents, Chapters 10 through 17, Appendices A through F, and Index

The Preface, Appendices, and Index are applicable to the -1 and -2

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of any 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, U.S. Army Aviation and Missile Command. ATTN: AMSAM-MMC-LS-LP, Redstone Arsenal. AL 35898-5230. A reply will be furnished to you. You may also send in your comments electronically to our e-mail address: ls-lp@redstone.army.mil or by fax 205-842-6546/DSN 788-6546. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

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CHAPTER 10

FUEL SYSTEM

10-1. FUEL SYSTEM.

WARNING

Jet fuel is flammable; do not use near open flames, welding areas, or on hot surfaces. Do not handle or store near strong oxidants. e.g., liquid oxygen or hypochlorite. Do not smoke when using jet fuel and do not use it where others are smoking. Contact of eyes with liquid can cause severe irritation and blurred vision. Inhalation of vapor may cause irritation, headache, nausea, and dizziness if liquid contacts eyes, flush eyes thoroughly with water for a minimum of 15 minutes. Immediately remove fuel-saturated clothing. If vapors cause dizziness, go to fresh air. If liquid is swallowed, do not try to vomit. In all cases get immediate medical attention. When handling large quantities of liquid (more than one gallon) at an unexhausted workbench, wear approved respirator and goggles or faceshield. Dispose of liquid-soaked rags in approved metal container. Contaminated clothing shall be laundered prior to reuse. Metal containers of fuel must be closed and grounded to maintain electrical continuity.

10-2. General - Fuel System. The fuel system consists of a fuel cell containing related system components. The fuel system and related system components are crashworthy. An auxiliary fuel cell may be installed in the helicopter for added endurance, if required by mission planning.

SECTION I. FUEL CELLS

10-3. FUEL CELL - CRASHWORTHY FUEL SYSTEM.

10-4. Description - Fuel Cell (Crashworthy Fuel System). The fuel cell is constructed of self-sealing material and is a bladder type single unit installed in the fuselage cavity under passenger seats.

10-5 Inspection - Fuel Cell (Crashworthy Fuel System).

a. Inspect the exterior bottom of the fuselage beneath the fuel cell for indications of fuel leakage.

b. Inspect fuel drain valve for leaks.

c. Inspect fuel lines, fittings, and fuel cell covers for leakage, damage, and security. Remove fuel cap and check fuel hose clamp for security and damage. If any leaks are found, inspect the foam supports beneath the fuel cell for contamination.

d. Inspect tank unit and electrical wiring for damage and security.

e. Inspect fuel shutoff valve for leaks, damage, and security.

10-5.1. Inspection and Cleaning - Fuel Cell (Crashworthy Fuel System).

a. Disconnect battery.

- b. Defuel helicopter. Refer to paragraph 1-7.
- c. Remove fuel sump retainer (23, figure 10-1). Remove lower fuel transmitter (20). Remove low level switch (11).
- d. Remove 24 bolts (41) attaching sump assembly (61) to fuel cell. Lower sump assembly through opening and disconnect upper and lower fitting (106). Disconnect electrical interconnect wiring between lower transmitter (20) and upper transmitter (60). Remove sump assembly (61) and packing (39).
- e. Remove refueling receiver (55). Refer to paragraph 10-30.

CAUTION

Do not use high pressure flushing, strong detergents, or solvents as damage to the fuel cell or airframe may result.

- f. Clean fuel cell interior by removing sediments and other contaminants with low lint cleaning cloth, (C45.1) and warm water not exceeding 125 degrees fahrenheit.
- g. Dry fuel cell using low lint cleaning cloth (C45.1).
- h. Wipe clean with wiping rag (C119.1) moistened with denatured alcohol (C59).
- i. Inspect interior of fuel cell for damage, deterioration or activation.
- j. Install refueling receiver (55). Refer to paragraph 10-33.

NOTE

When connecting electrical wiring to components in the following steps, refer to figure F-18 **A F-37 **C** (Wiring Diagram for Crashworthy Fuel System Cell), as necessary.**

- k. Position fuel sump assembly (61) in lower fuel cell opening. Connect upper and low fittings (106), hand tighten only. Connect electrical interconnect wiring between transmitter (20) and upper transmitter (60). Install sump assembly (61) and packing (39) with 24 bolts (41) and 24 washers (40). Torque bolts (41) 65 to 75 inch-pounds. Connect electrical wiring. Torque upper and lower fittings (106) 190 to 210

inch-pounds. Ensure that hose (107) does not twist or contact fuel cell.

- l. Install fuel cell sump retainer (23) with two screws (25) and two washers (24). Install lower fuel transmitter (20) and low level switch (11).

- m. Perform fuel system functional and leak checks. Refer to paragraph 10-7, steps u. through ab.

10-6 Removal - Fuel Cell (Crashworthy Fuel System).

WARNING

When working on fuel cell in and around aircraft, make sure work area is clean and ventilated.

WARNING

All defueling operations will be performed in an area where fire hazards are reduced to a minimum with adequate ventilation.

CAUTION

Handle the fuel cell with extreme care during removal to avoid damage to cell. Cover all openings to prevent entry of foreign material.

- a. Disconnect battery.
- b. Defuel helicopter. Refer to paragraph 1-6.
- c. Remove passenger seats. Refer to paragraph 2-93.
- d. Remove soundproofing blankets (4, figure 2-27).
- e. Remove access panel (12, figure 2-1 **A** or 2-2 **C**) above filler cap.
- f. Remove fuel sump retainer (23, figure 10-1). Remove lower fuel transmitter (20). Remove low level switch (11).
- g. Remove 24 bolts (41) attaching sump assembly (61) to fuel cell. Lower sump assembly through opening and disconnect fitting from (106) from fitting (50). Disconnect electrical interconnect wiring between lower transmitter (20) and upper transmitter (60). Remove sump assembly (61) and packing (29).

- h. Remove closed circuit refueling receiver (55). Refer to paragraph 10-32.
- i. Disconnect hoses (57 and 58) at fittings to fuel cell in access area above fuel filler cap.
- j. Remove upper transmitter (60). (Refer to paragraph 8-245).
- k. Remove fitting (8), packing (7), bolt (10), and washer (9).
 - k.1. Remove screw (72) and washer (73).
- l. Remove two screws (1) and two washers (2) attaching seat back panel to fuel cell. Remove screws securing seat back panel and remove panel.
- m. Remove 16 bolts (6) and 16 washers (5) attaching cover assembly (3) and packing (4) to permit access to inside of fuel cell.
- n. Disconnect fitting (106) from breakaway valve (79). Remove tube assembly (59), hose (107), and hardware from interior of fuel cell.
- o. Collapse fuel cell and remove from cavity through seat opening.

10-7. Installation — Fuel Cell (Crashworthy Fuel System).

CAUTION

Inspect fuel cell cavity for foreign objects before installation of fuel cell. Exercise extreme caution to preclude dropping of tools, hardware, etc., in the fuel cell cavity or the fuel cell. Ensure that all sharp edges, corners, and rivet heads are protected with tape and/or chafing strips. Do not fold a cold fuel cell. Folding may crack or damage a cold cell.

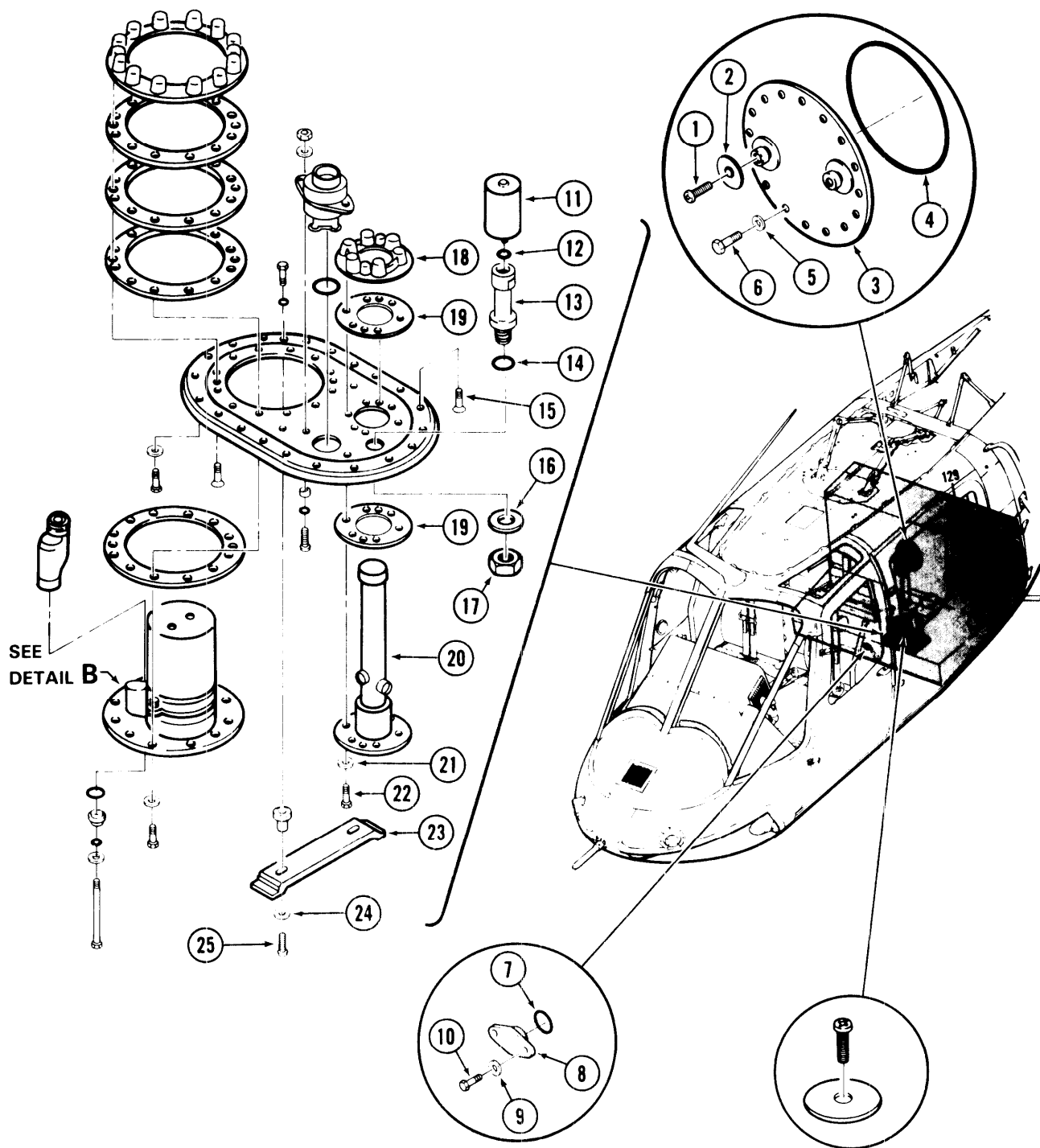
NOTE

Ensure all fuel cell fittings are removed and openings covered and that seat back panel and auxiliary fuel fitting cover plate on passenger seat forward bulkhead are removed. A work aid, consisting of a rope (8 to 10 feet long, 0.500 to 0.750 inch diameter) tied to a cut off broomstick (6 to 8 inches long with rounded ends), may be used to aid in installation of fuel cell.

CAUTION

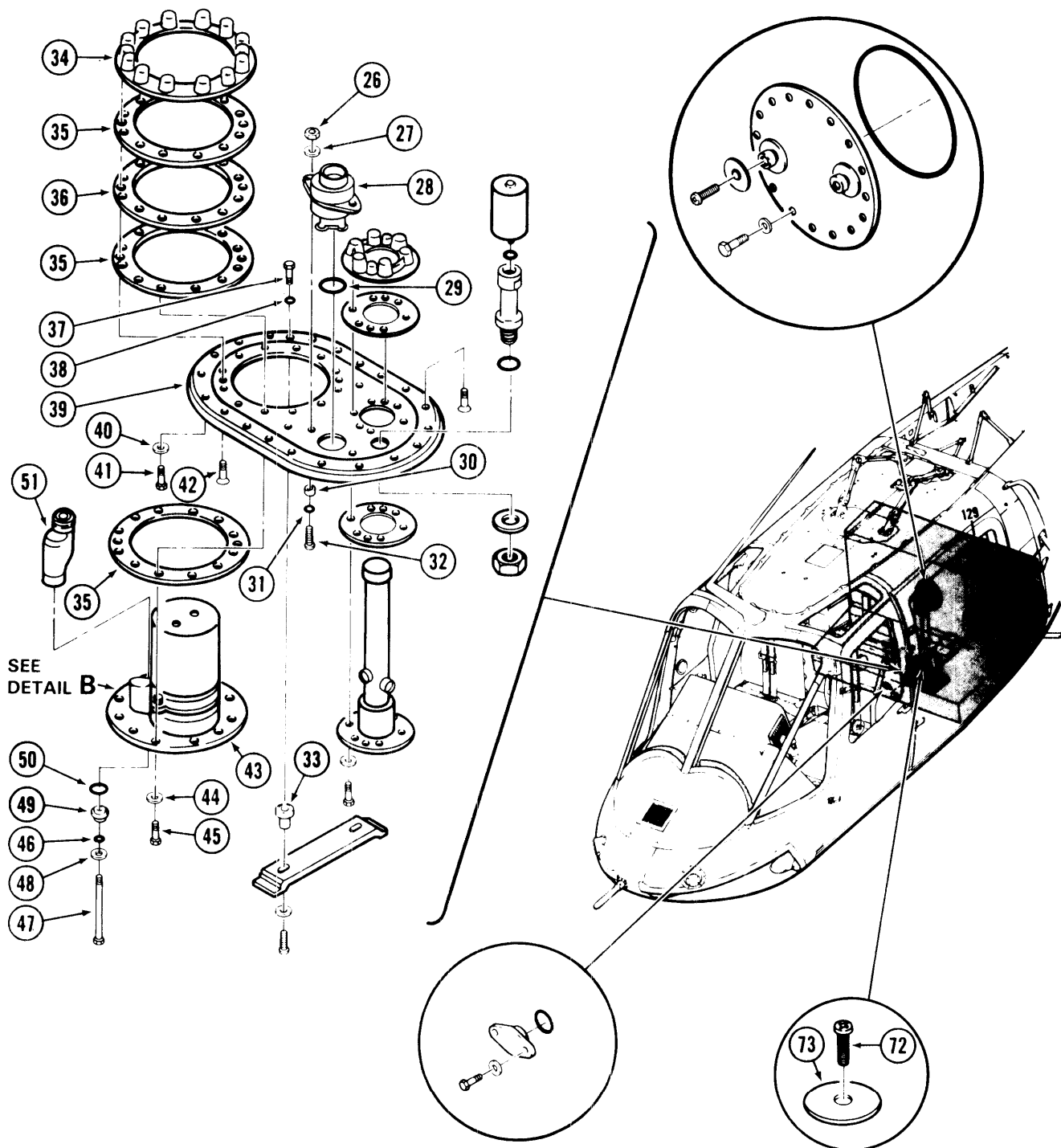
For handling of the fuel cell prior to installation, refer to TM 1-1500-204-23.

- a. Warm fuel cell to room temperature **72°F to 85°F** and not to exceed **125°F**.
- b. Dust fuel cell cavity and exterior of fuel cell with talcum powder (C135).
- c. Remove protective covering from fuel cell openings.
- d. Insert work aid into fuel cell and pull rope through opening in forward end of cell until broomstick stops against wall of cell.
- e. Place a strap or rope on a clean ground cover and stretch fuel cell flat on ground cover (bottom and back of fuel cell down). Fold sides of fuel cell inboard and retain in position with strap.
- f. Insert work aid rope through passenger seat back opening, through cavity, and out opening in passenger seat forward bulkhead.
- g. Proceed to work fuel cell through seat back opening, while pulling on work aid rope to position forward section of fuel cell under passenger seat (considerable effort is required). Remove retaining



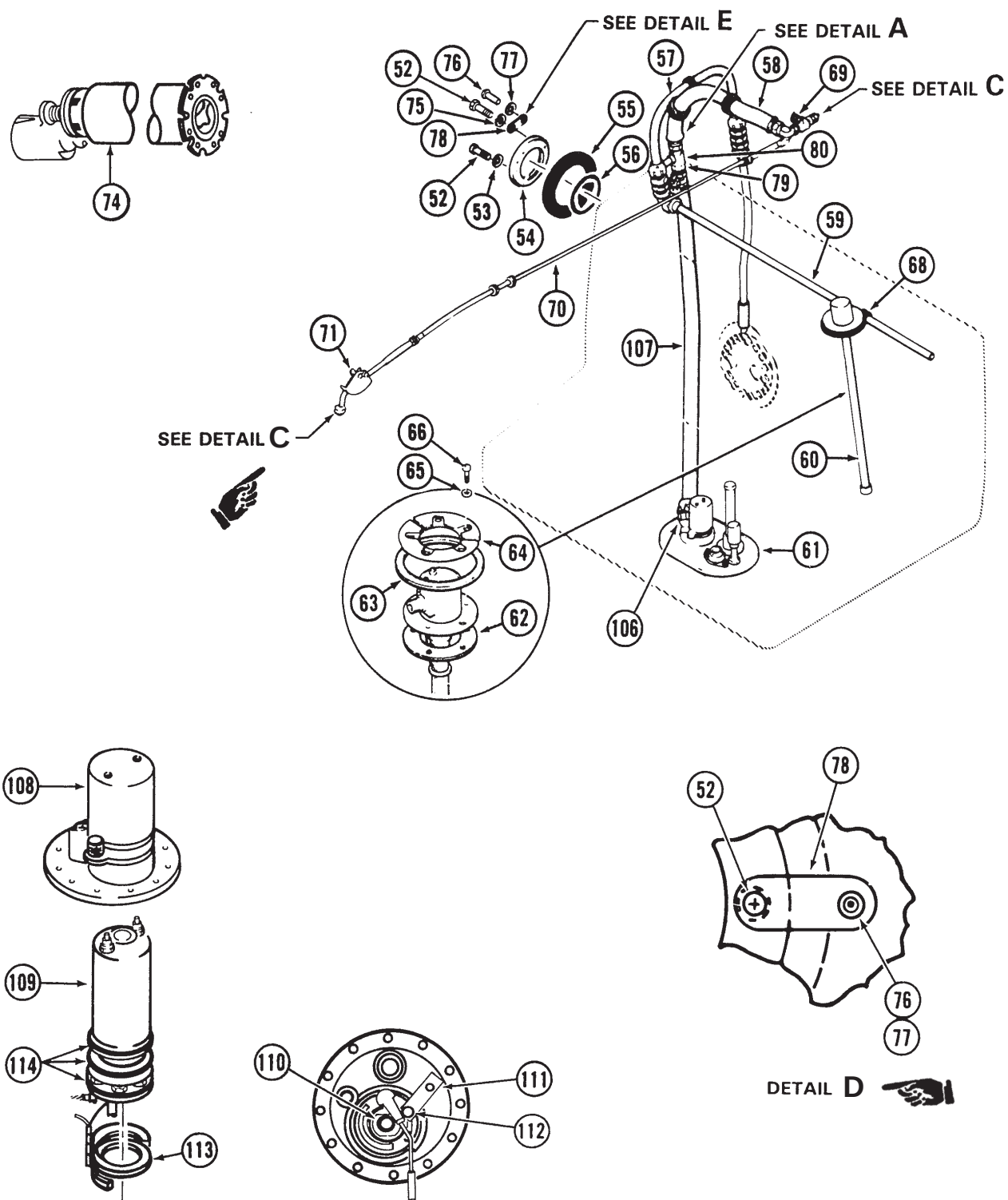
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Figure 10-1. Fuel System - Crashworthy (Sheet 1 of 6)



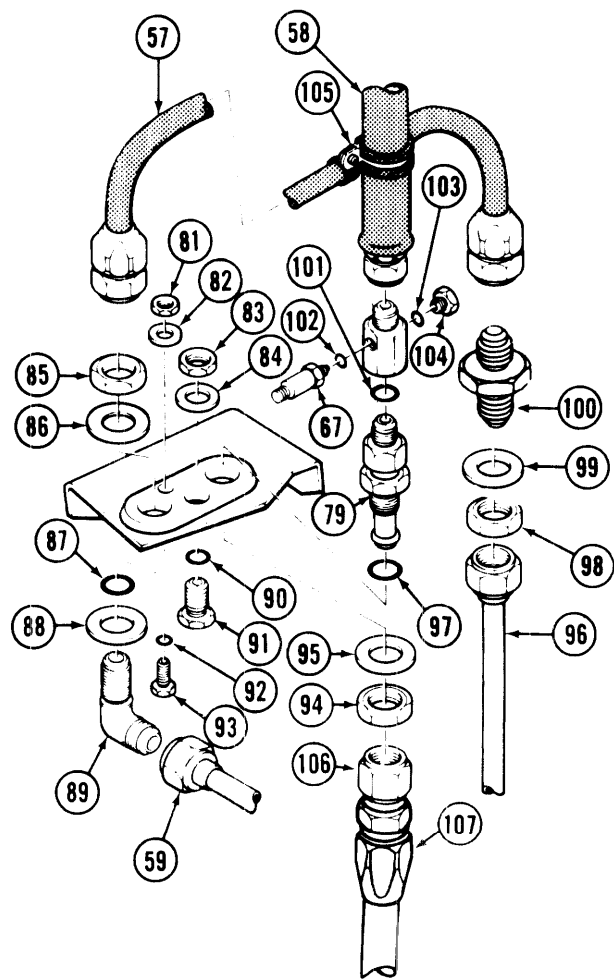
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Figure 10-1. Fuel System – Crashworthy (Sheet 2)



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Figure 10-1. Fuel System — Crashworthy (Sheet 3 of 6)



DETAIL A

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Figure 10-1. Fuel System – Crashworthy (Sheet 4)