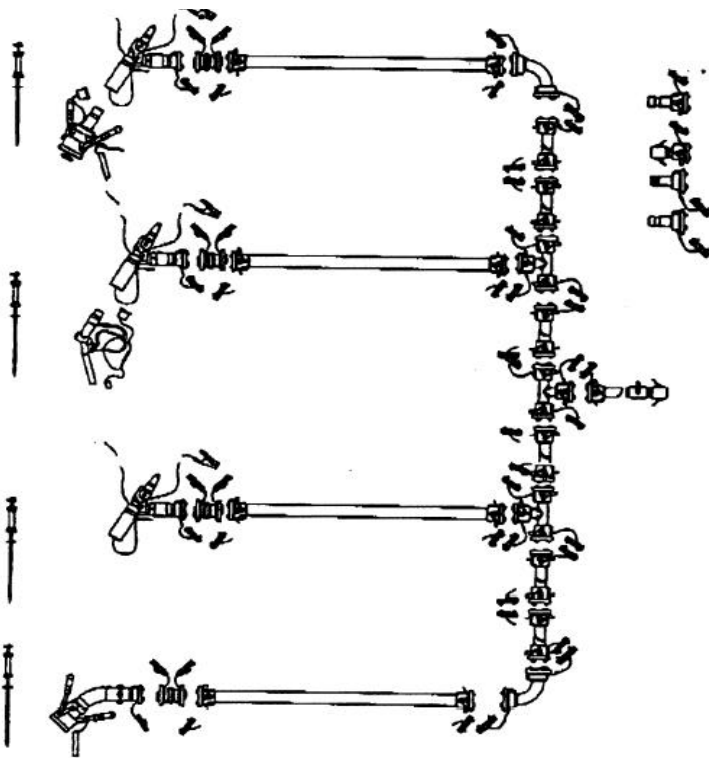


**TECHNICAL MANUAL
OPERATOR'S, UNIT AND DIRECT
SUPPORT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND
SPECIAL TOOLS LIST FOR
HEMTT TANKER AIRCRAFT**

REFUELING SYSTEM

MODEL HTARS100

NSN: 4930-01-365-2771



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Distribution Statement A. Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

28 FEBRUARY 1994

TECHNICAL MANUAL

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HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C. 28 February 1994

**OPERATOR'S, UNIT AND
DIRECT SUPPORT MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST
for
HEMTT TANKER AIRCRAFT REFUELING SYSTEM
MODEL HTARS100
NSN: 4930-01-365-7771
and
MODEL HTARS101
NSN: 4930-01-435-9019**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can improve this manual. If you find any mistakes, 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, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-AC-NML, Rock Island, IL 61299-7630. A reply will be furnished to you. You may also provide DA Form 2028-2 information to TACOM via datafax or e-mail: TACOM's fax number is DSN 786-6323, TACOM's e-mail address is tacom-tech-pubs @ cc.tacom.army.mil

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HOW TO USE THIS MANUAL

Be sure to read all Warnings before using your equipment.

This manual incorporates a quick reference tab feature that allows you to quickly locate the most often referenced subjects and topics appearing in this manual. The reference tab feature is comprised of the following components:

Cover Page Index

Index boxes are located on the right-hand edge of the cover page. Each index box contains a subject title, page number, and black index tab.

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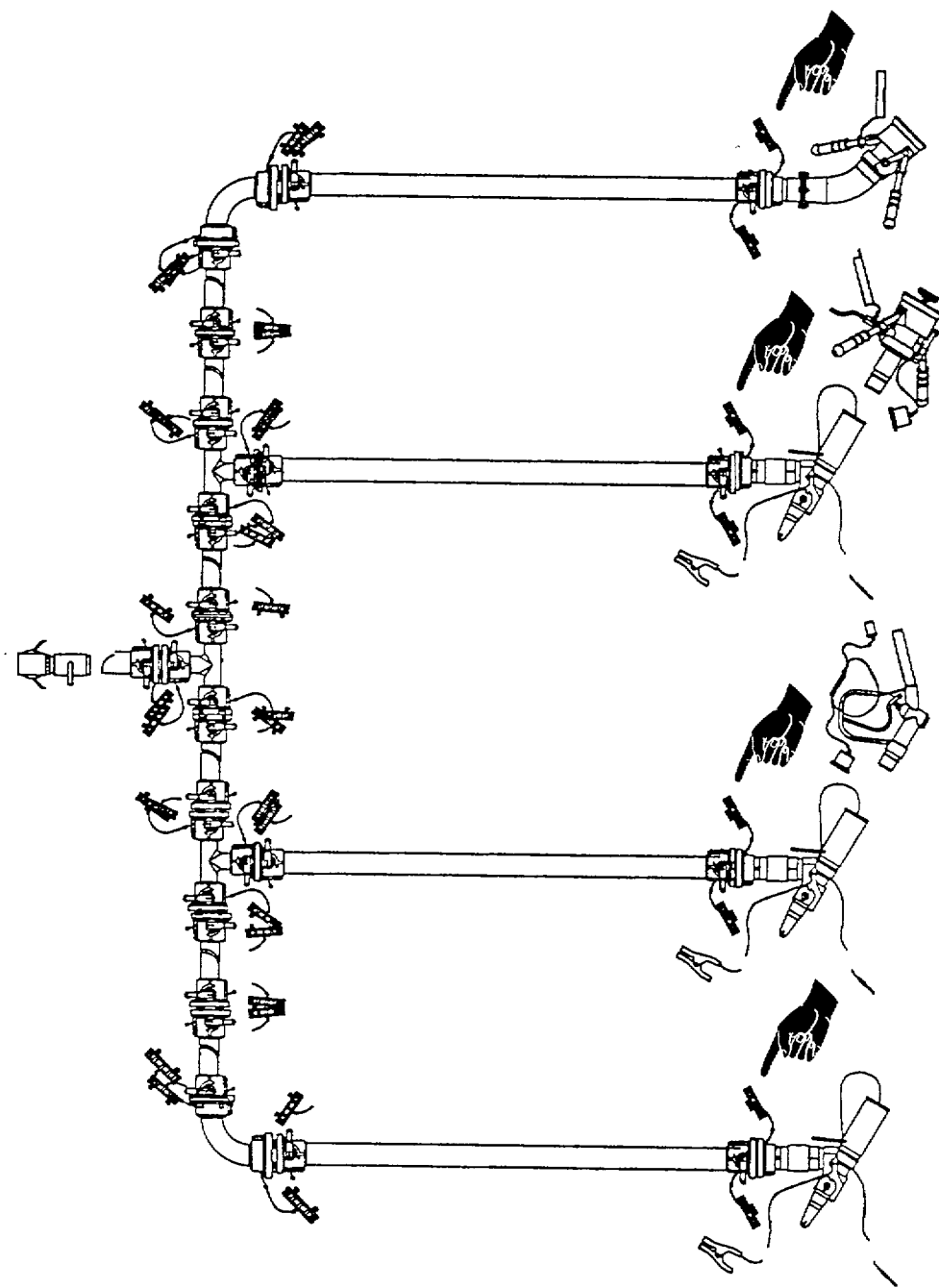
The Table of Contents lists all the major subjects contained in this manual. Subjects that are surrounded by a black box correspond to those that appear on the cover page index.

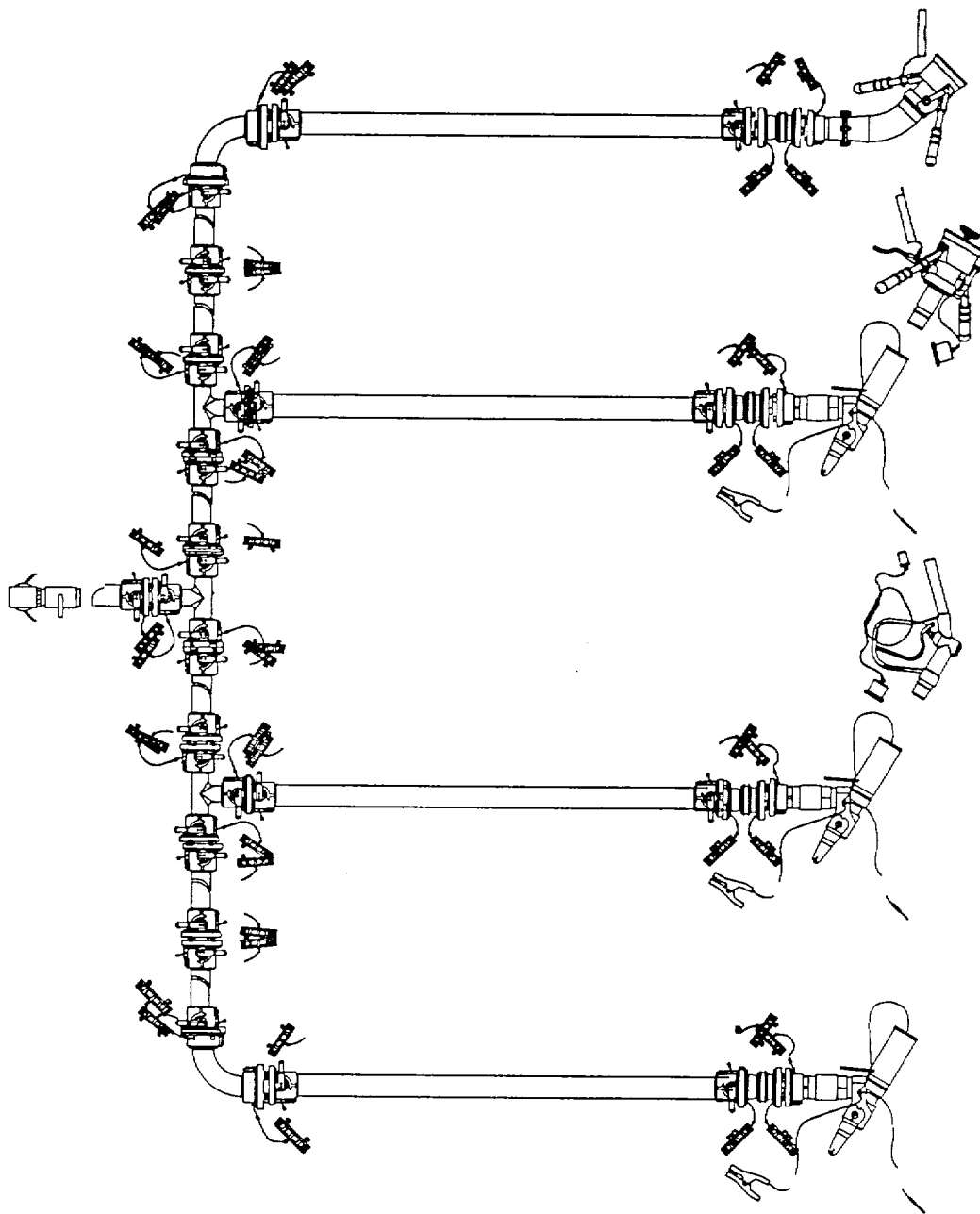
Page Numbers and Index Tabs

Each page of this manual is identified with a page number. Pages that contain the subjects identified on the cover page index also contain a black tab on the right edge of the page that aligns with the cover page index tab

To use the quick reference tab feature, select the title of the subject you are trying to find from the cover page index. You can turn to the indicated page number or bend the pages back and locate the page tab that aligns with the cover index tab.

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INTRODUCTION

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Section I. GENERAL INFORMATION

1-1. SCOPE.

This manual contains Operating instructions, Unit maintenance and Direct Support maintenance procedures required to operate and maintain the HEMTT Tanker Aircraft Refueling System (HTARS) The purpose of the HTARS is to distribute and control fuel flow from the HEMTT tanker to the aircraft being refueled. The HTARS consists of tees, elbows, adapters, lightweight hoses, and nozzles required to set up a four station aircraft refueling system.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750 (The Army Maintenance Management System (IAMMST)).

1-3. CORROSION PREVENTION AND CONTROL.

- a. Corrosion Prevention and Control (CPC) of Army Materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

1-3. CORROSION PREVENTION AND CONTROL - cont.

- b. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling or breaking of the materials may be a corrosion problem.
- c. If a corrosion problem is identified, it can be reported using Standard Form 368, Product Quality Deficiency Report. Using key words such as "rust", "deterioration", or "cracking" will insure that the information is identified as a CPC problem. The form should be submitted to the address specified in DA Pam 738-750.

1-4. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.

Methods and procedures for destruction of Army materiel to prevent enemy use are covered in TM 750-244-3.

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs).

If your HTARS needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-TR-E/MPA Warren, MI 48397-5000. We'll send you a reply.

1-6. NOMENCLATURE CROSS REFERENCE LIST.

Common Name	Official Nomenclature
CCR Nozzle	Closed Circuit Refueling Nozzle
Refueling System	HEMTT Tanker Aircraft Refueling System

1-7. LIST OF ABBREVIATIONS.

Abbreviation	Nomenclature
K	Kilo (Thousand)
°F	Degrees Fahrenheit
TM	Technical Manual
HEMTT	Heavy Expanded Mobility Tactical Truck
HTARS	HEMTT Tanker Aircraft Refueling System

1-8. GLOSSARY.

Term	Description
Interchangeable	Two or more like parts with the same Function and features that can be exchanged one for the other without changing parts or selecting size to obtain correct fit.

1-8A. DIFFERENCES BETWEEN MODELS.

There are two models of the HTARS covered in this manual, Model HTARS100 and Model HTARS101. Major differences between the two models are listed below and are described in subsequent paragraphs. Operating and Maintenance procedures appearing in this manual that are applicable to only one model are identified with the model designation appearing in the paragraph heading or procedural step. Procedures applicable to both models do not contain either designation.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-9. EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES.

a. Characteristics.

- (1) Easily transportable. Hoses are coiled and components are stowed for transport by truck or aircraft.
- (2) Daybreak and quick disconnect couplings allow rapid system assembly and disassembly in daylight and darkness.
- (3) System can be configured to meet varying mission and site requirements.
- (4) Operates over all types of terrain and hard surfaces, including sand, mud and asphalt.
- (5) No external electrical power source required.
- (6) Lightweight hose material.
- (7) Ground rods provided for each refueling station.

b. Capabilities and Features.

- (1) capacity of four aircraft refueling points. Each refueling point may be operated independently.
- (2) ball valves on hoses, and tees, and elbows on Model HTARS101, control fuel flow. 1 Valves must be set to CLOSE position before hoses can be connected or disconnected. Valves permit repair, replacement and adjustment without removal of major assemblies.
- (3) (Model HTARS101). A hose end regulator, built into the single point refueling nozzle (D1), controls fuel pressure to the aircraft during fueling operations.
- (4) Three different nozzles are provided to adapt the system to various aircraft.
- (5) Recirculation nozzle permits fuel to be circulated from the system back to the HEMTT tanker. A sampling port on the nozzle permits sampling during recirculation.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

Refer to figure 1-1.

The HTARS consists of hoses, nozzles, tees and elbows needed to connect the HEMTT tanker to the aircraft being refueled. The following paragraphs describe a typical fueling system. Your mission and operating environment may require connecting the components in a different configuration than the one shown. All components are interchangeable.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - cont.

- (1) (Model HTARS100) Elbows. Two elbows are supplied with the system and are installed to prevent sharp bends in the fuel hose. Each elbow is equipped with drylock couplings.

(Model HTARS101) Elbows. Two elbows are supplied with the system and are installed to prevent sharp bends in the fuel hose. Each elbow is equipped with drylock couplings and manually operated ball valves to control fuel flow through the elbow. Valves must be set to CLOSE position before connecting or disconnecting couplings. Valves are set to OPEN position during operation.
- (2) 2-Inch Hose Assemblies. Ten 2-inch hose assemblies are used to connect components of the HTARS into four pumping stations. Each hose is 50 feet long with drylock couplings at both ends. Each coupling is equipped with a manually operated ball valve to control fuel flow through the hose. Valves must be set to CLOSE position before connecting or disconnecting couplings. Valves are set to OPEN position during operation. The hose assemblies incorporate internal ground wires that are built into the hose material.
- (3) DELETED.
- (4) (Model HTARS100) Single Point Refueling Nozzle (Type D1). Four D1 nozzles are supplied with HTARS for refueling aircraft with pressurized fuel systems. The D1 nozzles are non-regulating, so fuel pressure must be controlled by the HEMTT tanker. The nozzle is internally grounded through the fuel hose. (Model HTARS101) Single Point Refueling Nozzle (Type D1). Four DI nozzles are supplied with HTARS for refueling aircraft with pressurized fuel systems. The D1 nozzle incorporates a pressure regulator designed to limit maximum fuel pressure to 45 psi. A coarse screen inside the drylock coupling prevents large particles of contamination from entering the aircraft fuel system. The D1 nozzle is internally grounded through the fuel hose.
- (5) Ground Rods. Four ground rods are supplied, one for each refueling point. The ground rods incorporate a built-in slide hammer to aid installation and removal.
- (6) Closed Circuit Refueling (CCR) Nozzle. Four CCR nozzles are supplied with the HTARS. The CCR nozzle locks onto the aircraft refueling adapter and regulates fuel pressure to the aircraft. An automatic shutoff stops fuel flow when the nozzle is disconnected. Each nozzle is supplied with a ground clamp and plug for electrical bonding of the nozzle to the aircraft. The CCR nozzle can be used to refuel aircraft with gravity feed fuel tanks by connecting the open port nozzle to the fuel discharge coupling. The CCR nozzle is required to connect the recirculation nozzle to the HEMTT tanker.
- (7) Port Nozzle. Four open port nozzles are supplied with the system for refueling gravity-fill type fuel tanks and containers. The open port nozzle must be connected to the CCR nozzle for operation.
- (8) Recirculation Nozzle. One recirculation nozzle is supplied with HTARS. The recirculation nozzle is installed between the fuel system supply points and the HEMTT tanker to allow fuel to re-enter the tanker. The nozzle is equipped with a hand operated ball valve to allow sampling of fuel entering the tanker. Operation of the recirculation nozzle requires connection of the CCR nozzle.
- (9) Tees. Three tees are supplied with the system. Each tee is equipped with drylock couplings and manually operated ball valves to control fuel flow through the tee. Valves must be set to CLOSE position before connecting or disconnecting couplings. Valves are set to OPEN position during operation.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - cont.

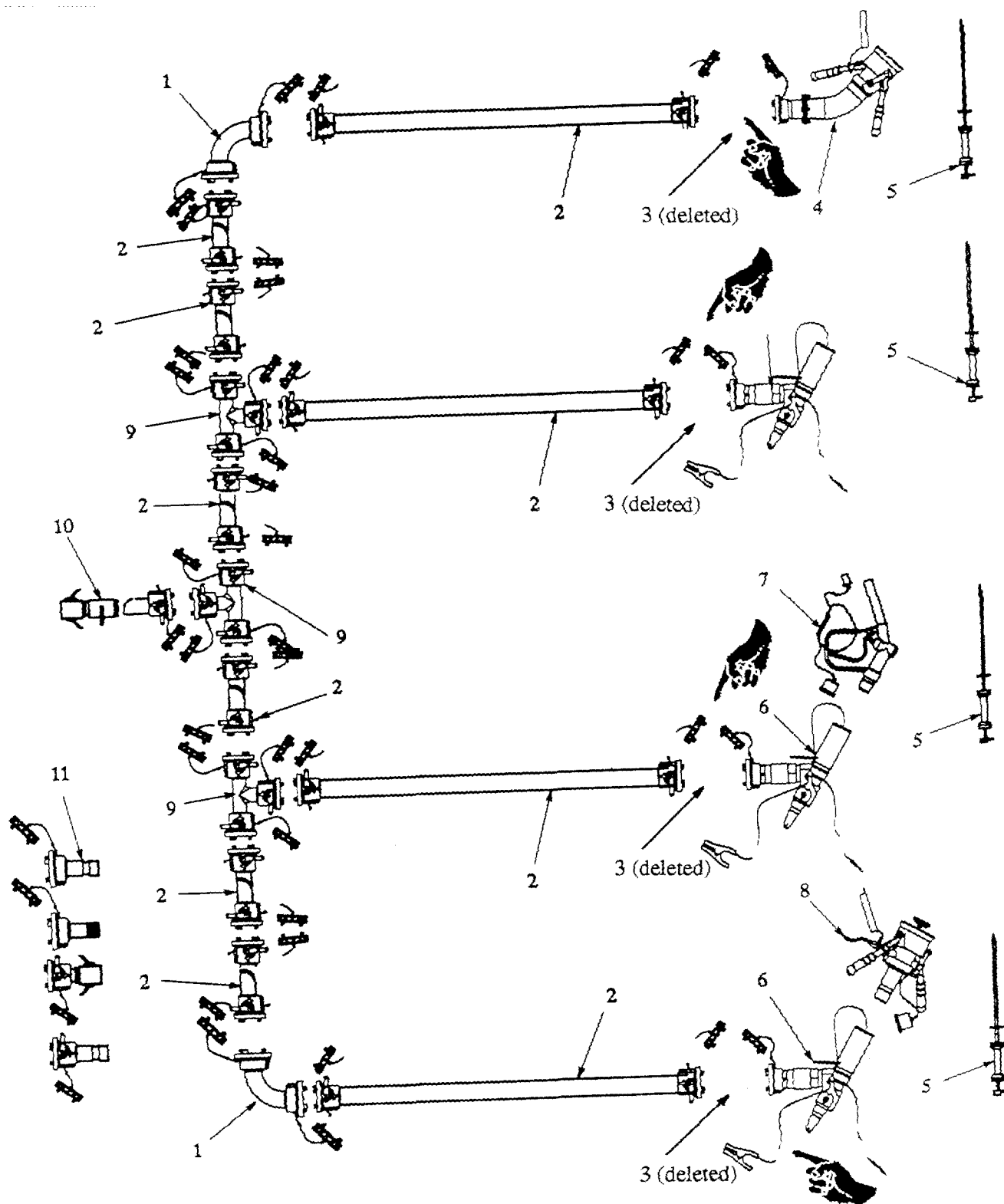


Figure 1-1. HEMTT Tanker Aircraft Refueling System.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - cont.

- (10) 3-Inch Hose Assembly. One 3-inch hose assembly connects the HTARS to the HEMTT tanker. The hose is 50 feet long with a three inch female quick disconnect coupling at one end and a 2-inch drylock coupling on the other. A ball valve is mounted in line at the quick disconnect coupling. The hose assembly has an internal ground wire that is built into the hose material.
- (11) Adapters. Four types of adapters are supplied with the HTARS to allow connection of non-system components. Use of these adapters will depend on your operating requirements and equipment available.