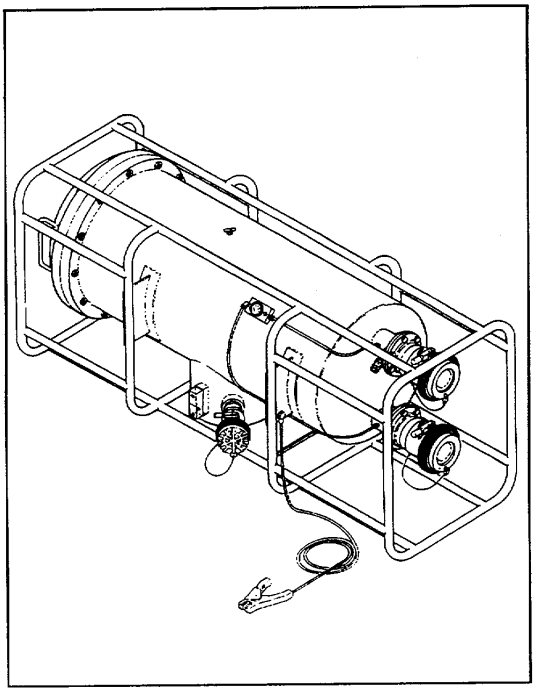
TECHNICAL MANUAL

OPERATOR'S, UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST



FILTER-SEPARATOR, WATER, LIQUID FUEL FOR ADVANCED AVIATION FORWARD AREA REFUELING SYSTEM (AAFARS) MODEL 872FS-Z001 NSN 4330-01-434-1824

HEADQUARTERS, DEPARTMENT OF THE ARMY

1 MARCH 1999

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DEPARTMENT OF THE ARMY
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OPERATOR'S, UNIT, AND DIRECT SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST FILTER-SEPARATOR, WATER, LIQUID FUEL FOR ADVANCED AVIATION FORWARD AREA REFUELING SYSTEM (AAFARS) MODEL 872FS-Z001 NSN 4330-01-434-1824

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028-2 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail fax or email your letter, DA Form 2028, or DA Form 2028-2 direct to: Commander, U.S. Army Tank - automotive and Armaments Command, ATTN: AMSTA-AC-NML, Rock Island, IL 61299-7630. The email address is amsta-ac-nml@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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HOW TO USE THIS MANUAL

Be sure you 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 composed of the following components:

Cover Index Page

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.

Table of Contents

The Table of Contents lists all the major subjects contained in this manual. Subjects that are highlighted 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.

If the cover page index is lost or badly worn, page numbers and index tabs can be located by referring to the Table of Contents.

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1.1 SCOPE.

Type of Manual:	Operator's, Unit Level, and Direct Support Maintenance
Model Number and Name:	Advanced Aviation Forward Area Refueling System (AAFARS) Filter-Separator, Water, Liquid Fuel, P/N 13230E5875.
Purpose of Equipment:	To provide filtered fuel at a maximum flow rate of 240 gpm.

1.2 MAINTENANCE FORMS AND PROCEDURES.

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750 as contained in Maintenance Management Update.

1.3 CORROSION PREVENTION AND CONTROL.

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

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 these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using Standard Form 368, Product Quality Deficiency Report. Use of keywords such as "corrosion", "rust", "deterioration", or "cracking" will ensure 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 SAFETY, CARE AND HANDLING.

The AAFARS liquid fuel filter-separator may be used to filter various fuels. It must be assumed that residual fuel and fuel vapors are present in the liquid fuel filter-separator at all times, even after draining or purging. Therefore the equipment must always be handled with the same degree of caution as actual fuel. One or more fully charged fire extinguishers must be present at all times, not only during operation. In addition, fuels may contain toxic additives. Rubber gloves should always be worn when handling components which are in regular contact with fuel.

A static electric charge is always present in all fuels. The charge increases when the fuel is being pumped, stirred, shook, or splashed. Any physical movement of the fuel will increase the static charge. If the charge is allowed to build sufficiently it will discharge, causing a spark which will ignite fuel vapors. The build up of static electric charge is controlled by bonding and grounding of all fuel handling equipment. A grounding cable assembly is provided with the liquid fuel filter-separator and must be inspected, maintained and used consistently and conscientiously to prevent fuel ignition due to electrostatic discharge.

Fuels are dangerous under all conditions. Always observe fuel handling safety precautions.

1.5 DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE.

Refer to TM 750-244-3 for information and instructions covering destruction of Army Materiel.

1.6 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your AAFARS 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 (Product Quality Deficiency Report). Mail it to us at:

Commander
U.S. Army Tank-Automotive and Armaments
Command, ATTN: AMSTA-TR-E/MPA Warren, Mi. 48397-50000.

We will send you a reply.

1.7 REFERENCE INFORMATION.

1.7.1 Nomenclature Cross-Reference.

Shortened nomenclature is used in this manual to make procedures easier for you to read. A cross-reference between the shortened nomenclature and the official nomenclature is shown in the following table.

Nomenclature Cross-Reference

Manual Nomenclature	Official Nomenclature
Liquid Fuel Filter-Separator	Filter-Separator, Water, Liquid Fuel

1.7.2 List of Abbreviations.

AAFARS	Advanced Aviation Forward Area Refueling System
C	Centigrade
CAGEC	Commercial and Government Entity Code
cm	centimeter
F	Fahrenheit
ft	foot
gpm	gallons per minute
in	inch
lb	pound
lpm	liters per minute
Max	Maximum
m	meter
mm	millimeter
PMCS	Preventive Maintenance Checks and Services
P/N	Part Number
psi	pounds per square inch
QTY	Quantity
SMR code	Source, Maintenance and Recoverability Code

1.7.3 Glossary.

Bonding	Electrically connecting units before operations begin in order to equalize any static potential that might exist and to provide a continuous path for any static potential that might be generated after operations begin. Static potential is eliminated or prevented by grounding one or more of the bonded units.
Coalesce	To grow together. To unit into a whole. To cause small droplets of water to unite into larger drops.
Coalescer Element	A filter element designed to remove solid contaminants, and to break the emulsion of water in the pumpage into large droplets. The pumpage flows from the inside to the outside of the element.
Defective	Condition of a part that prevents the part from performing its intended function, caused by normal aging, accident or manufacturing imperfection.
Deterioration	Condition of a part caused by weathering, excessive heat, excessive cold, chemical action, etc.
Differential pressure	Difference between inlet and outlet pressure at a filter or pump. An increase of differential pressure indicates a restriction or blockage in the unit (e.g., a build up of sediment in a filter).
Dry break	Separation of couplings without loss of fuel.
Emulsion	A dispersion of fine water droplets in the pumpage.
Grounding	Connecting single or bonded units to a ground rod so that any static potential will be discharged into the earth. If two or more units are bonded and one is grounded, the entire system is effectively grounded.
Malfunction	Failure to operate in a normal manner.
Monitor	To observe a condition or operation such as that indicated by an indicator light or meter.
Pumpage	The fluid being pumped by the fuel transfer pump.
Separator Element	A filter element that repels coalesced water droplets. The pumpage flows from the outside to the inside of the element.

Section II. EQUIPMENT DESCRIPTION

1.8 CHARACTERISTICS, CAPABILITIES AND FEATURES. (Refer to figure 1-1.)

a. Characteristics.

(1) Four person portable.

(2) Dry break unisex couplings (1).

b. Capabilities.

(1) Provides filtered fuel by removing impurities and water from fuel.

(2) Maximum flow rate of 240 GPM.

c. Features.

(1) Sight gauge (2).

(2) Differential pressure gauge (3).

(3) Sump (4).

(4) Sampling port (5).

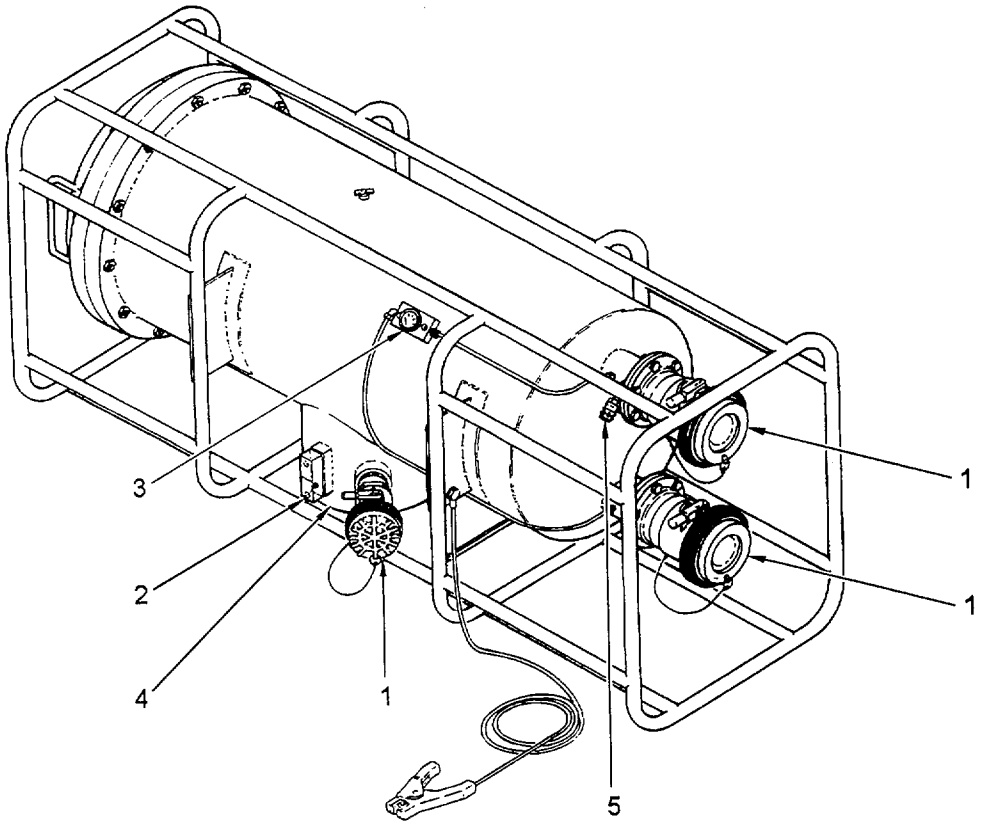

Figure 1-1. Advanced Aviation Forward Area Refueling System (AAFARS) Liquid Fuel Filter-Separator