TM 9-2320-279-10-3

OPERATOR'S MANUAL

VOLUME NO. 3

M977 SERIES, 8 x 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

MODEL	NSN
TRUCK, CARGO, WITH WINCH, M977	2320–01–097–0260
TRUCK, CARGO, WITH WINCH, M977A2	2320–01–493–3774
TRUCK, CARGO, WITH WINCH, M977A2R1	2320–01–493–3782
TRUCK, CARGO, WITHOUT WINCH, M977	2320–01–099–6426
TRUCK, CARGO, WITHOUT WINCH, M977A2	2320–01–493–3779
TRUCK, CARGO, WITHOUT WINCH, M977A2R1	2320–01–493–3785
TRUCK, TANK, FUEL, WITH WINCH, M978	2320–01–097–0249
TRUCK, TANK, FUEL, WITH WINCH, M978A2	2320–01–492–8216
TRUCK, TANK, FUEL, WITH WINCH, M978A2R1	2320–01–492–8226
TRUCK, TANK, FUEL, WITHOUT WINCH, M978	2320–01–100–7672
TRUCK, TANK, FUEL, WITHOUT WINCH, M978A2	2320–01–492–8215
TRUCK, TANK, FUEL, WITHOUT WINCH, M978A2R1	2320–01–492–8225
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983	2320–01–097–0247
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983A2	2320–01–492–8223
TRUCK, TRACTOR, WITH WINCH, WITHOUT CRANE, M983A2R1	2320–01–492–8231
TRUCK, TRACTOR, WITH WINCH, WITH CRANE, M983	2320–01–099–6421
TRUCK, WRECKER–RECOVERY, M984	2320–01–097–0248
TRUCK, WRECKER–RECOVERY, M984A1	2320–01–195–7641
TRUCK, WRECKER–RECOVERY, M984A2	2320–01–492–8224
TRUCK, WRECKER–RECOVERY, M984A2R1	2320–01–492–8233
TRUCK, CARGO, WITH WINCH, M985	2320–01–097–0261
TRUCK, CARGO, WITH WINCH, M985A2	2320–01–492–8214
TRUCK, CARGO, WITH WINCH, M985A2R1	2320–01–493–3787
TRUCK, CARGO, WITHOUT WINCH, M985	2320–01–100–7673
TRUCK, CARGO, WITHOUT WINCH, M985A2	2320–01–492–8201
TRUCK, CARGO, WITHOUT WINCH, M985A2R1	2320–01–493–3789
TRUCK, CARGO, WITH WINCH, M985E1	2320–01–194–7032
TRUCK, CARGO, WITH WINCH, M985E1A2	2320–01–493–3790
TRUCK, CARGO, WITH WINCH, M985E1A2R1	2320–01–493–3792
TRUCK, TACTICAL FIRE FIGHTING, M1142	4210–01–486–1035

Approved for public release; distribution is unlimited.

HEADQUARTERS DEPARTMENT OF THE ARMY
MARCH 2004

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN CAUSE DEATH.

Carbon Monoxide does not have color or smell, but can cause death. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Brain damage or death can result from heavy exposure. Carbon monoxide is in exhaust fumes of fuel-burning heaters and internal combustion engines. Carbon monoxide can become dangerously concentrated under conditions of no ventilation. Precautions must be followed to make sure crew safety when the personnel heater or engine of any vehicle is operated for any purpose.

1. DO NOT operate personnel heater or vehicle engine in a closed place unless the place has a lot of ventilation.

2. Do not drive any vehicle with inspection plates, cover plates, or engine compartment covers removed, unless necessary for maintenance purposes.

3. Be alert at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, IMMEDIATELY VENTILATE personnel compartments. If symptoms continue, remove affected crew to fresh air and keep warm. DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give artificial respiration and get immediate medical attention. For artificial respiration, refer to FM 21-11.

4. BE AWARE that the gas particulate filter unit or the field protection mask for nuclear-biological-chemical protection WILL NOT offer safety from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

WARNING

Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 db or greater. Wear approved hearing protection devices when working in high noise level areas. Hearing loss occurs gradually, but becomes permanent over time.

WARNING

Dry-cleaning solvent is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes; and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flash point for Type II Dry-cleaning Solvent is 140°F (60°C) and Type III Dry-cleaning Solvent is 200°F (93°C). Failure to do so may result in injury or death to personnel.

WARNING

If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

WARNING

Engine must be shut off and parking brake set before performing PMCS walk around. Severe injury to personnel may result.

WARNING

Cooling system components can become very hot during operation. Make sure cooling system components are cool prior to performing PMCS.

WARNING

Exhaust system can become hot during operation. Make sure all exhaust system components are cool prior to performing PMCS.

WARNING

Items in compartments may have shifted or come loose during operations. Use caution and be aware that items may fall out while opening doors, causing injury to personnel.

WARNING

When parked on side slope, items in side compartments may fall out. Use caution and be aware that items may fall out while opening doors causing injury to personnel.

WARNING

Side compartment doors that swing up are heavy. Make sure to have a firm grip on door when opening. Failure to comply may result in injury to personnel.

WARNING

Foldout platform support must be properly positioned in groove on crew cab floor or platform could collapse. Failure to comply may result in injury to personnel.

WARNING

Do not leave cab or attempt any pumping operations until all required indicator lights are on. Failure to comply may result in injury to personnel and damage to equipment.

WARNING

Strainer must be positioned or suspended in water to prevent sucking of debris (sand, stones, mud, etc.). Strainer must be deep enough not to cause a whirlpool on surface of water. Failure to comply may result in injury or death to personnel and damage to equipment.

WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

WARNING

If any discharge hose is used, make sure hose is removed from hosebed, nozzle is securely attached, and nozzle is turned off before opening any discharge valves. Failure to comply may result in injury to personnel.

WARNING

Do not use hard suction hose for step (3). Hard suction hose will not hold pressure. Hose may fail and separate causing injury to personnel and/or damage to equipment.

WARNING

Pump and roll procedures must be performed from personnel cab. Do not use pump operator's panel for pump and roll procedures. Failure to comply may result in injury or death to personnel.

WARNING

Caution must be taken when carrying five gal (19 L) pails of foam agent to top of foam agent tank. If foam agent is spilled, walking surface can become extremely slippery. Clean any spilled foam agent before continuing to fill foam agent tank. Failure to comply may result in injury or death to personnel.

WARNING

Before operating foam system, personnel must familiarize themselves with all procedures and instructions regarding water pump, discharge devices, and foam making devices. Failure to understand and follow any instructions could result in personal injury and/or damage to equipment.

WARNING

Make sure system pressure gages and hose pressure gages are at zero prior to disconnecting any suction or discharge hoses or removing caps. System operates at extreme pressure and failure to comply may result in injury or death to personnel.

WARNING

Keep a firm grip on roof turret control handle when roof turret is discharging water. Failure to comply may result in injury to personnel.

WARNING

Do not touch extremely cold metal (below -26°F [-32°C]). Bare skin may freeze to cold metal and cause injury to personnel.

WARNING

Diesel fuel compartment heaters come on automatically when truck engine is running and air temperature is below (+39°F [4°C]). CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU. Carbon monoxide is a colorless, odorless, DEADLY POISONOUS gas and when breathed, deprives body of oxygen and causes SUFFOCATION. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Permanent BRAIN DAMAGE or DEATH can result from severe exposure. Precautions MUST be followed to make sure personnel are safe whenever compartment heaters or engine are operated for any purpose. Injury to personnel may result.

WARNING

DO NOT operate compartment heaters or engine of truck in enclosed area without adequate ventilation. BE ALERT at all times whenever BATTERY switch is ON, truck engine is running, and air temperature is below (+39°F [4°C]) for exhaust symptoms. If either are present, IMMEDIATELY EVACUATE AND VENTILATE the area. Affected personnel treatment shall be: expose to fresh air; keep warm; DO NOT PERMIT PHYSICAL EXERCISE; if necessary, give artificial respiration as described in FM 21-11 and get medical attention. BE AWARE; neither the gas particulate filter unit nor field protection mask for nuclear-biological-chemical protection will protect you from carbon monoxide poisoning. THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

WARNING

Do not extend rear hard lift tube too far. Rear hard lift tube is heavy and may come out of rear hard lift assembly and drop suddenly causing injury to personnel.

WARNING

Make sure lifting device is capable of lifting a minimum of 52,000 lbs (23,587 kg). Failure to comply may result in injury or death to personnel and/or damage to equipment.

WARNING

Stay clear of rack area unless rack is locked in raised position or in fully lowered position with MASTER SWITCH off. Sudden rack movement may cause injury or death to personnel.

WARNING

Properly support right rear access ladder before removing rubber hook. Failure to comply may result in injury to personnel.

WARNING

Rear platform is heavy. When lockhandle is turned to unlock rear platform from vehicle and while rear platform is being lowered, operator must have firm grip of handle. Failure to comply may result in injury to personnel.

WARNING

Operator must have firm grip on grab handle until rear platform is completely lowered. Failure to comply may result in injury to personnel.

WARNING

Stay clear of equipment (ladder) rack area unless equipment (ladder) rack is locked in raised position or in fully lowered position with MASTER SWITCH OFF. Sudden equipment (ladder) rack movement may cause injury or death to personnel.

WARNING

Properly support crew cab access ladder before removing rubber hook.

WARNING

Care must always be taken when climbing ON and OFF vehicle. Always face vehicle, use steps and grab handles, maintain three points of contact with vehicle (two feet/one hand or two hands/one foot). Keep steps, grab handles, and walkways clean, and be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel.

WARNING

Operator must have firm grip on grab handle until platform is locked securely to vehicle. Failure to comply may result in injury to personnel.

WARNING

Use extreme care when walking on hosebed cover and on top of vehicle. Be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel.

WARNING

Firm grip must be kept on hosebed covers until support rods are installed to support hosebed covers. Failure to comply may result in injury to personnel.

WARNING

Use extra care when opening hosebed covers in the wind. Hosebed covers could close shut if wind blows them and support rods are not installed. Failure to comply may result in injury to personnel.

WARNING

Support rods must be installed to support hosebed cover when open. Failure to comply may result in hosebed cover falling shut causing damage to equipment or injury to personnel.

WARNING

When backing up vehicle, one crew member must be in back of vehicle operating rear step buzzer to communicate with driver. Failure to comply may result in damage to equipment or injury or death to personnel.

WARNING

Use extreme care when working around 120 V outlets. Personnel may get electrocuted if 120 V outlet is exposed to water. Failure to comply may result in injury or death to personnel.

WARNING

Discharge caps should not be removed if water system is under pressure. Discharge caps can act as projectiles if released under pressure causing injury or death to personnel.

WARNING

Do not use hard suction hose for step (4). Hard suction hose will not hold pressure. Hose may fail and separate causing injury to personnel and/or damage to equipment.

WARNING

Pump and roll procedures must be performed from truck cab. Do not use pump operators panel for pump and roll procedures. Failure to comply may result in injury or death to personnel.

WARNING

Due to poor driver visibility to curb side of vehicle over doghouse and cab mounted equipment, a crew member must be seated in passenger seat when vehicle is in motion. Failure to comply may result in damage to equipment or injury or death to personnel.

WARNING

Temperature must be above freezing if draining water tank while on a driving surface. Water could freeze on driving surface. Failure to comply may result in damage to equipment and/or injury or death to personnel.

WARNING

Turrets should never be pointed at personnel. Failure to comply may result in injury or death to personnel.

WARNING

Make sure truck is parked in a location where personnel and other equipment will be protected from water spraying out of the discharges and drains.

WARNING

Drivers pre-connect A and B must be disconnected prior to performing blow-out procedure. Hoses may become pressurized, causing injury to personnel and/or damage to equipment.

WARNING

Be careful when using high air pressure. Make sure connections and seals are tight before applying pressure. High air pressure can blow out parts, hoses, or debris with force. Explosive force can cause damage to equipment or injury to personnel.

WARNING

Wear single hearing protection (earplugs or equivalent) while working around compressed air. Failure to comply may result in damage to your hearing. Seek medical aid, should you suspect a hearing problem.

WARNING

Air pressure should not exceed 50 psi (345 kPa) during blow-out procedure. Failure to comply may result in injury to personnel and/or damage to equipment.

WARNING

When moving powered equipment (ladder) rack, stay clear of rack area. Sudden rack movement may cause injury or death to personnel.

WARNING

Pump operator's panel lights become hot after being on for an extended period of time. Use extreme care when operating pump operators panel not to contact pump panel light. Failure to comply may result in burns to personnel.

WARNING

Fuel is flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire, and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE.

WARNING

Radiator cap may be very hot after engine is shut off. Do not touch hot cap or personal injury may result.

WARNING

Do not wear watches, rings, or other jewelry when working in battery box. If jewelry comes in contact with battery terminal, electric shock or severe burn may result.

WARNING

Do not smoke or have open flame near batteries. Batteries can explode. Battery acid is harmful to eyes and skin.

INSERT LATEST UPDATED PAGES/WORK PACKAGES, DESTROY SUPERSEDED PAGES

LIST OF EFFECTIVE PAGES/WORK PACKAGES

Note: The portions of the text and illustrations affected by the updates are indicated by a vertical line in the outer margins of the page.

Dates of issue for original and updated pages/work packages are:

Original . . . 0 . . 15 March 2004

TOTAL NUMBER OF PAGES IN THIS MANUAL IS 368, CONSISTING OF THE FOLLOWING:

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Cover	0		
a - j	0		
A/B	0		
i - vi	0		
1-1 - 1-22	0		
2-1 - 2-237/(2-238 blank)	0		
3-1 - 3-21/(3-22 blank)	0		
A-1 - A-2	0		
B-1 - B-24	0		
C-1 - C-3(C-4 blank)	0		
D-1 - D-2	0		
F-1 - F-6	0		
G-1 - G-15/(G-16 blank)	0		
Index-1 - Index-5(Index-6 blank)	0		

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* Zero in this column indicates an original page.

TECHNICAL MANUAL

HEADQUARTERS
DEPARTMENT OF THE ARMY

No. 9-2320-279-10-3

Washington, DC, 15 March 2004

OPERATOR'S MANUAL
M977 SERIES, 8 x 8 HEAVY EXPANDED MOBILITY TACTICAL TRUCKS (HEMTT)

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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 (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 E-mail your letter or DA Form 2028 direct to: AMSTA-LC-CI / TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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HOW TO USE THIS MANUAL.

This manual is designed to help operate and maintain the Tactical Fire Fighting Truck (TFFT). This manual **only** covers the fire fighting components and assembly and is intended to be used as a supplement to the HEMTT M977 Series Technical Manual (TM 2320-279-10-1). Listed below are some of the special features which have been included to help locate and use the needed information.

- A front cover Table of Contents is provided for quick reference to chapters and sections that will be used often.
- Each chapter begins with a Table of Contents listing all paragraph headings in the chapter.
- Warning, caution, and note headings, subject headings, and certain other essential information are printed in bold type to make them easier to see.

FOLLOW THESE GUIDELINES WHEN USING THIS MANUAL

- The driver must read through this manual and become familiar with the content before attempting to operate the vehicle.
- Read all WARNINGS and CAUTIONS before performing any procedures.

CHAPTER 1

INTRODUCTION

SECTION VI. GENERAL INFORMATION

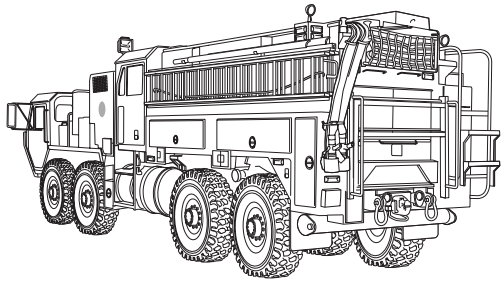
Vehicle Model

1-36. SCOPE.

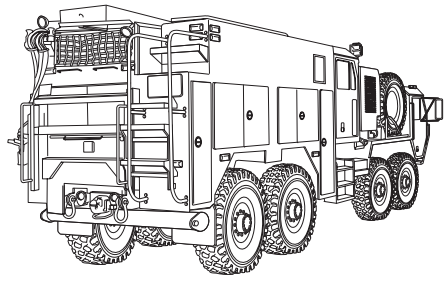
This manual is used for operation and operator-performed maintenance of the M1142 Tactical Fire Fighting Truck (TFFT). The TFFT is built on a Heavy Expanded Mobility Tactical Truck (HEMTT) M977 Chassis. Refer to Volumes 1 and 2 of this manual for a description of all other models of the M977 series vehicle.

1-36. SCOPE (CONT).

Model	Description
M1142	The Tactical Fire Fighting Vehicle has a 66,000 lb (29,964 kg) GVWR. The TFFT is equipped with the equipment necessary to extinguish aircraft, petroleum, brush, wildland, and structural fires at isolated military installations. The TFFT is not designed to tow a trailer. The TFFT is equipped with a water cooled, Deutz water pump engine and Darley pump; bumper turret; roof turret; four ground sweeps; pump house; pump operators panel; and cab instrument panels. The equipment body of the TFFT is equipped with 14 body stowage compartments (para 1-45).



LEFT REAR VIEW



RIGHT REAR VIEW

Figure 1-27. M1142 Tactical Fire Fighting Truck.

1-37. CORROSION PREVENTION AND CONTROL (CPC).

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern, particularly since the TFFT usually operates in a wet environment. It is important that any corrosion problems be reported so they can be corrected and improvements can be made to prevent problems in the future.

While corrosion is typically associated with the 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 should be reported to your supervisor.

1-38. MAINTENANCE FORMS AND RECORDS.

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 (TAMMS).

1-39. EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE DIGEST (EIR MD) AND EQUIPMENT IMPROVEMENT REPORT AND MAINTENANCE SUMMARY (EIR MS).

The quarterly Equipment Improvement Report and Maintenance Digest, TB 43-0001 series contains valuable field information on equipment covered in this manual. Information in the TB 43-0001 series is compiled from some of the Equipment Improvement Reports that have been prepared on vehicles covered in this manual. Many of these articles result from comments, suggestions, and improvement recommendations that were submitted to the EIR program. The TB 43-0001 series contains information on equipment improvements, minor alterations, proposed Modification Work Orders (MWO's), warranties (if applicable), actions taken on some of the DA Form 2028's (Recommended Changes to Publications). Refer to the TB 43-0001 series periodically for the most current and authoritative information on the equipment. The information will help to do a better job and will advise of the latest changes to this manual. Also refer to DA Pam 25-30, Consolidated Index of Army Publications and Blank Forms, and Appendix A, References, of this manual.

1-40. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC).

If your vehicle needs improvement, let us know. Send us a QDR. 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 SF368 (Quality Deficiency Report). Mail it to
Commander, U.S. Army Tank-automotive and Armaments Command,
ATTN: AMSTA-AC-NML, Rock Island, IL 61299-7630.
You can also provide information to TACOM via datafax or e-mail.
TACOM's datafax number is DSN 793-0726 or (309) 782-0726.
E-mail address: amsta-ac-numl@ria-emh1.army.mil

1-41. WARRANTY INFORMATION.

BASE WARRANTY

Pierce Manufacturing Inc. warrants each piece of new fire or rescue apparatus to be free from defects in materials or workmanship under normal use and service for a period of thirteen (13) months from the date of shipment. Our obligation under this warranty is limited to repairing or replacing, as the company may elect, any defective part or parts free of charge to the original purchaser. Pierce Manufacturing reserves the right to request and examine defective parts.

This warranty will not apply to:

(1) Normal maintenance and adjustments.

(2) Any vehicle which; has been repaired or altered outside of our factory in any way to affect the stability; has been subject to misuse, neglect, or accident; or loaded beyond the factory rated load capacity.

(3) Commercial chassis and associated equipment furnished with the chassis, signaling devices, generators, batteries, or other trade accessories in which they are usually warranted separately by their respective manufacturers.

This warranty is in lieu of all other warranties, expressed or implied, all other representations to the original purchaser and all other obligations or liabilities, including liability for incidental or consequential damages on the part of the company. Pierce Manufacturing Inc. neither assumes or authorizes any other person to give or assume any other warranty or liability on the company's behalf unless made or assumed in writing by the company.

Questions concerning the TFFT warranty can be submitted to Pierce Manufacturing Inc. via e-mail at contactcenter@piercemfg.com or by calling 1-800-974-3723.

1-42. METRIC SYSTEM.

The equipment described in this manual contains metric components and requires metric, common, and special tools. Therefore, metric units and English units will be used throughout this publication. An English-to-metric conversion table is included as the last page of this manual inside the back cover.

1-43. REFERENCE INFORMATION.

a. Nomenclature Cross-Reference List.

Common Name	Official Nomenclature
Cable	Wire rope
Engine Coolant	Antifreeze, ethylene glycol mixture
Equipment rack	Equipment (ladder) rack
Foam Concentrate	Foam Agent

b. Abbreviations.

amp - Amperage
C - Celsius
CAGE - Commercial and Government Entity
cm - Centimeters
ECM - Electronic Control Module
F - Fahrenheit
ft. - Feet
FROG - Frequency Readout of Generator
gal - Gallons
GPM - Gallons Per Minute
GVWR - Gross Vehicle Weight Rating
HEMTT - Heavy Expanded Mobility Tactical Truck
HP - Horsepower
in. - Inch
kg - Kilogram
kPa - Kilopascal
kW - Kilowatt
L - Liter
lbs - Pounds

1-43. REFERENCE INFORMATION (CONT).

b. Abbreviations (Cont).

L/min - Liters Per Minute
m - Meters
mm - Millimeter
MOPP - Mission Oriented Protective Posture
NFPA - National Fire Protection Association
PMCS - Preventive Maintenance Checks and Services
psi - Pounds Per Square Inch
PTO - Power Take Off
PTT - Push To Talk
RPM - Revolutions Per Minute
SCBA - Self-Contained Breathing Apparatus
TFFT - Tactical Fire Fighting Truck
VAC - Volt Alternating Current
VDC - Volt Direct Current
V - Volt
W - Watt
SINCGARS - Single Channel Ground and Airborn Radio System

SECTION VII. EQUIPMENT DESCRIPTION

1-44. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

a. Characteristics. The M1142 vehicle is a Tactical Fire Fighting Truck capable of extinguishing aircraft, petroleum, brush, wildland, and structural fires at isolated military installations.

The M1142 is built on a modified M977 chassis. The modifications made to the M977 chassis are:

(1) The location of the HEMTT air compressor & hydraulic pump have been reversed, in order to accept the new transmission.

(2) Fuel tank and chassis batteries have been lowered slightly to allow room for the crew cab.

(3) A mounting bracket has been added on front of cab for bumper turret.

(4) Personnel cab roof has been modified to accept lightbars and turret.

(5) Springs have been updated for 66,000 lbs (29,964 kg) GVWR.

Equipment Description (Cont)

b. Capabilities.

Water Pump. A 1,000 GPM Darley PSE single stage pump, engine driven, centrifugal type. The pump delivers the percentage of rated discharge at pressure indicated below. Water system controls are labeled with black letters on a gray background.

- 100% of rated capacity at 150 psi (1,034 kPa) net pump pressure.
- 70% of rated capacity at 200 psi (1,379 kPa) net pump pressure.
- 50% of rated capacity at 250 psi (1,724 kPa) net pump pressure.

Pump body is fine-grained gray iron, bronze fitted. Impeller is a high strength bronze alloy accurately balanced and splined to pump shaft for precision fit and durability. A double seal ring design helps to minimize end thrust. Deep groove radial type oversize ball bearings are used. Bearings are protected at the openings from road dirt and water with an oil seal and a water slinger.

Foam System (Class A & B). An "around-the-pump" foam proportioner is located on the intake side of the pump.

The foam system is plumbed to two foam tanks with a foam valve and check valve in each foam line.

A multi-metering valve arrangement is provided for discharges controlled inside the personnel cab. Turrets and ground spray nozzles are preset for 3% AFFF for Class B foam and 1% for Class A foam.

An adjustable metering valve located on the pump operators pump panel allows the operator to select the proper setting at any flow within the operating range for the six discharges. Each discharge will be proportioned at the same rate.

Controls for the foam system are located on the pump operators panel and are labeled with red letters on a white background for easy identification. Controls for eductor, foam supply, and flush, are electric over pneumatic to allow for an ergonomically designed control panel and simplified operation.

All piping coming in direct contact with the foam agent is immune to the agent; so deterioration of plumbing is avoided.

This system is designed to operate at no more than 5 psi (34 kPa) on the suction side of the water pump.

System Capacity. The system has the ability to deliver the following minimum foam solution flow rates:

- 500 GPM (1,893 L/min) @ 6%
- 1,000 GPM (3,785 L/min) @ 3%

1-44. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (CONT).

Generator. The TFFT is equipped with a complete electrical power system. The generator is a Harrison Model 15.0 MPC-160 TFFT 15 kW Hydraulic unit. The wiring and generator installation conform to present National Electrical Code Standards of the National Fire Protection Association (NFPA). The installation is designed for continuous operation without overheating and placing undue stress on components.

The output of the generator is controlled by an internal hydraulic system. An electrical instrument panel allows for the operator to monitor and control all electrical operations and output. The generator utilizes the main chassis transmission to power the generator. An engine/transmission Power Take Off (PTO) unit drives the generator, through a hydraulic pump and motor.

An electric/hydraulic valve supplies hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

Generator Instruments and Controls. To properly monitor the generator performance, a digital meter panel is located in passenger side rear compartment. The meter indicates the following items:

- Voltage
- Amperage for both lines
- Frequency
- Generator run hours
- Over current indication
- Over temperature indication
- Service required indication
- "Power On" indication
- Two (2) fuse holders with 2 amp fuses (for indicator light protection)

All instruments are accurate within +/- 2 percent.

c. Features.

Cabs. The standard two person HEMTT personnel cab has been retained. The standard HEMTT passenger side seat has been replaced with officer's seat equipped with a SCBA seat back. An additional four-person crew cab has been added, located separate from front cab. The crew cab is constructed of a tubular steel frame and skins. Each crew cab door has a roll-up type window. Air conditioning has been added to both personnel cab and crew cab.

Equipment Description (Cont)

Cab Pump/Foam System Controls. An additional pump control panel is located inside the personnel cab, which provides the following:

- Pump engine start/engine
- Tank to pump control
- Water and foam level gages
- Foam system controls
- Windshield deluge system controls
- Ground sweeps controls
- Roof and bumper turret controls

Electrical System. Like the chassis electrical system, the fire package utilizes a 24-volt electric system. The fuel level sending unit has been updated to accommodate dual gages at both personnel cab and operators pump panel locations.

Winterization Package. A winterization package is provided to allow operation of the pump, foam system, and body down to -25°F (-32°C). The package includes two (2) diesel-fired 27,300 BTU heaters, one inside the pump house compartment and one used to heat the rear compartment. These heaters turn on at around 39ºF (4ºC), and turn off at 57ºF (14ºC).

Two (2) 2,250 W water heaters are installed in the water tank. The tank heaters turn on at 40ºF (4ºC) and turn off at 60ºF (16ºC). The water pump must be engaged and circulating water to prevent freezing the pump and plumbing. The pump compartment is sealed to reduce heat loss. Some of the plumbing between the water tank to the pump is also heated and insulated.

Pump Drive Engine. An auxiliary diesel pump drive Deutz Engine is provided. The Deutz engine is water-cooled and has 198 HP to drive the water pump sufficiently to meet pump performance.

The Deutz engine draws from the same fuel tank as the chassis.

The Deutz engine has remote start/stop controls.

Inlet/Direct Water Tank Fill. One 4 in. (10.2 cm) direct water tank fill is provided. The inlet is piped directly from water tank to an external location on the side of the vehicle. An electric over air valve controls the inlet.

The direct water tank inlet includes an automatic water fill system. The system is designed to allow an outside water source to maintain the water tank at full level without having the operator monitor the water tank for an overflow situation.

The inlet includes a 4 in. (10.2 cm) cap and chain.

1-44. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES (CONT).

Handheld Radio Set. The vehicle is equipped with a set of four two-way, FM handheld, 5 W, 150-174 MHz, Motorola Model M 1250 radios and one cab mounted two-way, VHF, 40 Watt, Motorola CDM-1550, Model No. AAM25KK59AA, 128 channel net base radio. The Net base is installed and operational in personnel cab, with all electrical supply and antenna provisions. The radio set is water and heat resistant with programmable channel selection. Each handheld radio is provided with a base recharging unit, which maintains battery charge.

Battery Charger/Air Compressor. One on-board combination battery charger/air compressor is mounted on the TFFT to maintain electrical charge for the chassis battery system and chassis air system. The charger/ compressor is wired to one Kussmaul auto eject mounted on driver's side of vehicle and is provided, to operate specified 120 VAC circuits on vehicle without use of the generator.

The specified 120 VAC circuits include the reciprocating saw battery charger receptacle.

A shoreline receptacle is provided with a NEMA 5-20, 120 VAC, 20 amp, straight blade Kussmaul Super auto eject plug with a weatherproof cover. The cover is spring-loaded to close, preventing water from entering when the shoreline is not connected. The unit is completely sealed to prevent road dirt contamination.

A solenoid wired to the vehicle's starter is energized when the engine is started. This instantaneously drives the plug from the receptacle.

An internal switch arrangement is provided to disconnect the load prior to ejections, eliminating arcing of connector contacts.

Cab Access Doors. The personnel cab doors and crew cab doors open to 90° from closed position to allow safe and fast access for crewmen in full MOPP gear.

Cargo Door Locks. The personnel cab, crew cab doors, and access compartments include keyed-alike locking latches flush with the body of the vehicle.

Hose Bed Cover. An aluminum hose bed cover is furnished.

Equipment Description (Cont)

Rear Platform. The platform provides a horizontal surface to support and accommodate an operator in standing position. Bumper steps are provided as an extension to the platform to provide a step-down to the ground.

Two (2) handrails are installed below the hosebed to aid stability while standing on the platform.

120 VAC Lighting. The TFFT is equipped with two (2) telescoping lift up Extenda-Lite Model E-500 quartz tube floodlights. Each light head is 120 VAC, W500, draws 4.5 amps, and has an output of 10,500 lumens. Light head swivels 360° left or right and tilts up and down.

One-Way Utility Tray. A one-way utility tray with a weight capacity rating of 500 lbs (227 kg) maximum, in extended position. The tray dimensions are 46 in. (117 cm) x 36 in. (91 cm) x 3 in. (8 cm). The tray slides out in one direction only; two-thirds (2/3) of its length. The vertical location of tray within the compartment is low and not adjustable. Six ball bearing rollers; each rated for a minimum 500 lbs (227 kg) load, supports the utility tray.

Electric Cord Reel. Furnished with the electrical system is a Hanney, series 1600, cord reel wired for a four conductor cord. The reel is provided with a 24 V electric rewind switch that is guarded to prevent accidental operation and labeled for its intended use. The push-button switch is protected with a fuse.

Reel Guide. A ball stop is provided to prevent cord from being wound into the reel.

Roof Turret Discharge. The personnel cab turret is capable of discharging up to 500 GPM (1,893 L/min) at 210 psi (1,448 kPa). The turret is equipped with a non-aspirated nozzle.

Turret is manually controlled inside the personnel cab.

An electric over air controlled full flow ball valve is used in outlet plumbing with the control located on manual control stick.

Front Bumper Turret Discharge. A turret is piped to the front bumper of the personnel cab. The turret has a horizontal rotation of 180° and operates from 45° above to 20° below horizontal. Horizontal rotation and automatic oscillation are driven by a 24 VDC direct drive motor/actuator.

Plumbing consists of 2 in. (5 cm) piping and flexible hose with a constant flow 250 GPM (946 L/min) nozzle. A switch for straight or fog pattern is located inside the personnel cab.

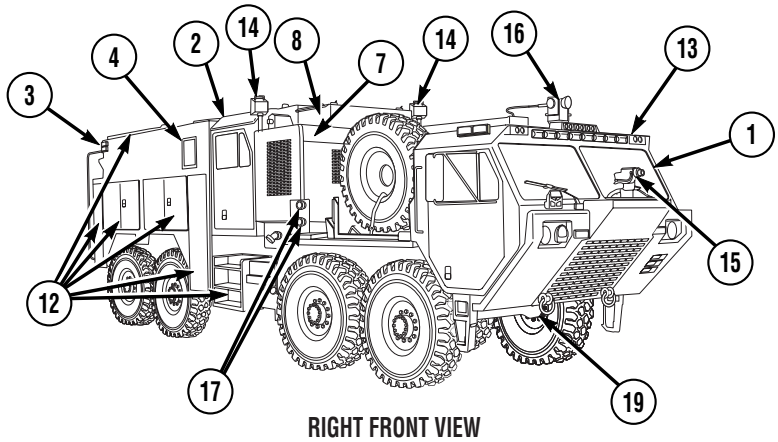
Turret is remote controlled from control box located in the center of the personnel cab. A joy stick control is provided for water on/off, monitor left/ right, monitor up/down, and straight or fog pattern.

Drains are provided at all low points of piping.

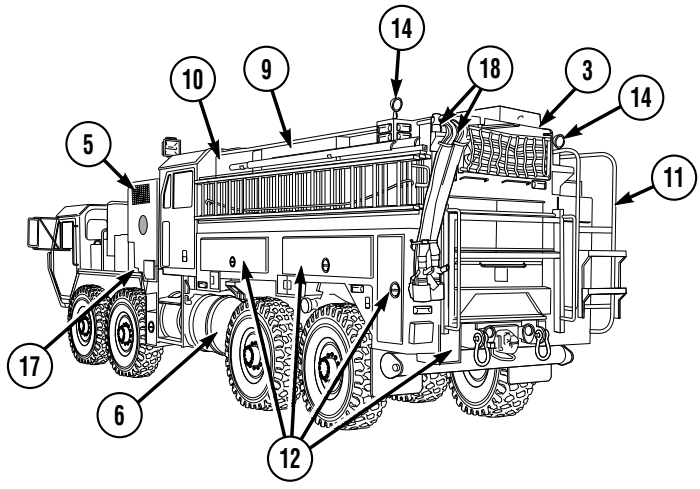
Ground Sweeps. The four (4) ground sweeps located below the vehicle are capable of 1% Class A foam and 3% Class B foam and are controlled inside the personnel cab.

Equipment Description (Cont)

1-45. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.



RIGHT FRONT VIEW



LEFT REAR VIEW

Figure 1-28. Illustrates Major Components of the M1142

Equipment Description (Cont)

Legend for Figure 1-28. Tactical Fire Fighting Truck

1. **Personnel Cab:** Used to transport crew, and houses vehicle control, fire fighting controls, gages, and indicators for fire fighting operations.
2. **Crew Cab:** Used to transport crew, and provides access to pump operators panel through roof hatch.
3. **Equipment Body:** Used to carry all BII, COEI, and repair parts.
4. **Generator:** Used to power the 120/240 VAC system; tank and piping heaters, cord reel, crew cab air conditioner, and work lights.
5. **Air Cleaner:** Filters out smoke, dust, and debris from entering air induction system for the auxiliary water pump engine.
6. **Fuel Tank:** Stores fuel used to operate auxiliary water pump engine. Receives excess fuel not used by auxiliary water pump engine's fuel injection system.
7. **Pump House:** Used to house plumbing, auxiliary water pump engine, gages, and indicators for operation of fire fighting apparatus.
8. **Pump Operators Panel:** Used by crew to control fire fighting apparatus from pump house.
9. **Water Tank:** Stows water used by the system.
10. **Foam Tanks:** Stows foam agent used for Class A and Class B foams based fires.
11. **Rear Access Ladder:** Used by crew to access hoses and generator on top of TFFT equipment body.
12. **Stowage Boxes:** Eleven (11) stowage boxes used to stow COEI and BII.
13. **Warning Lights:** Used to indicate fire situation.
14. **Extendable Flood Lights:** Used during fire fighting operations performed at night.
15. **Bumper Turret:** Used to extinguish fires. Turret is operated using controls in personnel cab.
16. **Roof Turret:** Used to extinguish fires. Turret is operated using controls in personnel cab.
17. **Side Discharge(s):** Used to extinguish fires, four (4) 2½ in. side discharge(s), two (2) on each side.
18. **Pre-Connects:** Used to extinguish fires, two (2) are pre-connected to 1¾ in. (4.45 cm) hose in the hose bed. Each discharge is restricted to control pressure and volume, while truck is pumping through turrets at maximum flow.
19. **Ground Sweeps**: Four (4) ground sweeps located below the vehicle are capable of 1% class A foam and 3% Class B foam. Ground sweeps are operated using controls in personnel cab.

SECTION VIII. EQUIPMENT DIFFERENCES AND TECHNICAL DATA

1-46. EQUIPMENT DIFFERENCES.

Refer to Volumes 1 and 2 for differences between the M1142 and other models of the M977 Series.

1-47. EQUIPMENT DATA.

Refer to Table 1-6 for M1142 equipment data.

Table 1-6. Equipment Data

Model	Item
M1142	**VEHICLE DIMENSIONS** Width (overall): 102.5 in. (260.4 cm) Height (overall): 132.12 in. (335.58 cm) Height (reduced for shipping): 132.12 in. (335.6 cm) Length (overall): 428.5 in. (1088.4 cm) Wheelbase: 191 in. (485 cm) Turning Circle (wall-to-wall): 100 ft. (30.5 m) Ground Clearance: 20 in. (51 cm) except 13 in. (33 cm) under center of axles Center of Gravity (at curb weight): 60.9 in. (154.7 cm) above ground, 138.2 in. (351 cm) forward of NO. 4 axle centerline, .1 in. (.3 cm) left of center
M1142	**GENERATOR DIMENSIONS** Length: 23 in. (58 cm) Width: 29 in. (74 cm) Height: 19 in. (48 cm) Weight: 431 lbs (196 kg)
M1142	**WEIGHT** Curb weight 52,100 lbs (23,635 kg) Gross Vehicle Weight Rating: 66,000 lbs (29,964 kg)
M1142	**VEHICLE PERFORMANCE** Maximum Side Slope: 30 percent Maximum Ford Depth: 48 in. (122 cm) Maximum Grade at GCWR: 60 percent Approach Angle: 43° Departure Angle: 45°

Equipment Differences and Technical Data (Cont)

Table 1-6. Equipment Data (Cont)

Model	Item
M1142	**GENERATOR** Make: Harrison Model: 15.0 MPC-160 TFFT Type: 15 kW Hydraulic Unit Continuous Duty Rating: 15,000 W Nominal V: 120 V Amperage: 125 amps at 120 V; 62.6 amps at 240 V Phase: Single Cycles: 60 hertz Engine Speed at Engagement: Idle RPM Range: 950 to 3,000 RPM (hydraulic pump)
M1142	**CAPACITIES** Deutz Engine Oil w/o Filters: 21 quarts (20 L) Deutz Engine Oil w/Filters: 22 quarts (21 L) Hydraulic Reservoir w/Filters: 31 qt (29.3 L) Water Tank: 1,000 gal (3,785 L) Fuel Tank: 150 gal (568 L) Foam Tank: 60 gal (227 L) each (Class A, Class B)
M1142	**AUXILIARY ENGINE** Make: Deutz Model: BP6M 1013C Type: Water cooled Cylinders: 6 Bore: 108 mm Stroke: 130 mm Displacement: 7.14 L Oil Filter Quantity: 1
M1142	**WATER PUMP** Make: Darley Model: Champion PSE Type: PSE Single Stage, Engine Driven, Centrifugal Pump

Equipment Differences and Technical Data (Cont)

1-47. EQUIPMENT DATA (CONT).

Table 1-6. Equipment Data (Cont)

Model	Item
M1142	**FUEL SYSTEM** Type: Diesel Injection Tank Quantity: 1 Air Cleaner Type: Dry-Pleated Paper Filter Element Quantity: 1
M1142	**DISCHARGE CAPABILITIES** Roof Turret: 500 GPM (1,893 L/min) at 210 psi (1,448 kPa) Bumper Turret: 250 GPM (946 L/min) at 210 psi (1,448 kPa) Side Discharges: 250 GPM (946 L/min) Pre-Connects: 125 GPM (473 L/min)
M1142	**FOAM SYSTEM DISCHARGE CAPABILITES** • 500 GPM (1,893 L/min) at 6 percent • 1,000 GPM (3,785 L/min) at 3 percent
M1142	**WATER PUMP DISCHARGE PRESSURE** 100% of Rated Capacity: 150 psi (1,034 kPa) net pump pressure 70% of Rated Capacity: 200 psi (1,379 kPa) net pump pressure 50% of Rated Capacity: 250 psi (1,724 kPa) net pump pressure
M1142	**ONE-WAY SLIDE OUT UTILITY TRAY** Maximum Capacity (Extended): 500 lbs (227 kg)
M1142	**COOLING SYSTEM (DEUTZ ENGINE)** Radiator Working Pressure: 7 psi (48 kPa)

Equipment Differences and Technical Data (Cont)

Table 1-6. Equipment Data (Cont)

Model	Item
M1142	**ELECTRICAL SYSTEM** Voltage: 24 Alternator (amps): 130 RFI Suppression Ability: yes
*	**AUXILIARY EQUIPMENT** Arctic Kit-Engine Gas Particulate Filter Unit Radio Installation Kit *Vehicle may or may not be equipped with any of these items depending on mission, climate, or other factors.

SECTION IX. PRINCIPLES OF OPERATION

1-48. WATER PUMPING SYSTEM.

Water pressure is supplied to the water pumping system by a Darley PSE, single stage, engine driven, centrifugal pump. Water flows from the pump discharge manifold to roof turret, bumper turret, ground sweeps, window deluge system, two (2) pre-connect discharges; and two (2) driver's side and passenger's side discharge valves.

The water pumping system can be operated from both cab instrument panel or pump operators panel. Controls are interlocked to ensure single operator control. In pump and roll mode, system can only be operated from cab instrument panel. In structural mode, system can be operated from pump operators panel.

In pump and roll mode, water is supplied to the pump from the water tank. Pump must be disengaged when water tank is emptied.

In structural mode, water is supplied to the pump from either the water tank or alternate source(s). Alternate sources may be fire hydrants, remote pumping units, or an open reservoir. If water is drawn from tank for structural fire fighting, water must be continuously supplied through automatic tank fill valve.

1-49. WATER PUMP ENGINE.

The water pump engine is a Deutz, six cylinder, turbocharged, auxiliary diesel pump engine. The water pump engine is water-cooled and has 198 HP to drive the water pump. The water pump engine is installed in the pump house in a “crossmount” configuration. This allows for water pump modulation in accordance with NFPA 414 for all vehicle speed ranges, in all directions of travel, without any loss of pump discharge rates and ranges. The water pump engine draws fuel from the chassis fuel tank.

Water pump pressure can be increased or decreased by changing water pump engine RPM.

1-50. WINDOW DELUGE SYSTEM.

Operated from cab instrument panel. Nozzles are mounted below windshield and receive fluid from a 24 VDC electric pump. The window deluge system draws water from the 1,000 gal (3,785 L) water tank.

1-51. FOAM SYSTEM.

An around-the-pump foam system is used. System includes an eductor in the line from the pump discharge to pump intake. Eductor uses a venturi effect to create a vacuum, which draws foam agent into the water stream. A metering valve is placed in the foam line to control injection percentage. Foam is injected into the foam line that will pump foam agent at a percentage set by a metering valve to all discharges.

Foam agent system is broken into two (2) halves: Class A foam and Class B foam. One is an "automatic" valve (multi-metering valve). The other is a manual metering valve. Multi-metering valve is used for the two (2) turret discharges and four (4) ground sweeps, all of which are controlled in the personnel cab. When each respective discharge is opened, a signal will be sent to the multi-metering valve to open the corresponding port, which will have an orifice sized to inject foam at a preset rate, for a pre-determined flow. It is important to note that the roof turret and bumper turret must be run at the same flow every time (250 GPM [946 L/min]) for the bumper turret, (500 GPM [1,893 L/min]) for the roof turret) in order for foam system to function correctly. A manual metering valve is used for side and pre-connect discharges, and is located on pump operators panel. This valve is operated by pump operator, depending on percentage and flow requirements. If flow changes at any point, metering valve must also be adjusted.

Intake pressures higher than 5 psi (34 kPa) are not allowed. To facilitate operating from either a hydrant or from relay pumping, an automatic tank refill will be used. When water level in tank falls below a certain predetermined level, refill valve will open. When water tank is full, refill valve closes. This system allows vehicle to pump continuously from water tank with accurate water/foam concentration levels.

In order to enable simultaneous use of pre-connects and turrets, pressure reducing valves are used on pre-connect lines. Pump will need to maintain a pressure of 210 psi (1,448 kPa) for optimum turret flow and reach. Pressure reducing valves are provided to reduce drivers side A and B pre-connects operating pressure to a more manageable pressure of 150 psi (1,034 kPa). 2½ in. (6.35 cm) discharges are not equipped with pressure reducing valves.

A two-tank selector is located inside personnel cab and at pump operators panel.

Foam system engagement controls are located inside personnel cab and at pump operators panel.

1-52. CREW CAB.

A four-person crew cab is located separate from personnel cab. The crew cab doors open to 90° from closed position to allow safe and fast access for crew members in full MOPP gear.

Seats of crew cab are SCBA type. Seats have a recessed area in each backrest for mounting a SCBA holder with a "knock-down" bracket and collision resistant holding strap that secures a one-hour SCBA provided for each crew member. Provided with every SCBA seat is a padded backrest insert, which can cover SCBA cavity to improve seating comfort when SCBA bottles are not installed in recessed areas. All seats are furnished with three-point shoulder type seat belts with automatic retractors.

Roof of crew cab is equipped with a split-type roof hatch. The roof hatch is used to access pump operators panel and can also be used for escape. When the split-type roof hatch is opened, it allows operator a 360° field of view. Both split-type roof and pump operators panel cover are secured by a latch when closed, and are released manually to provide additional safety during operations. Floor of crew cab is equipped with drain holes that allow draining of free standing water on cab floor.

1-53. 120/240 VAC HYDRAULIC GENERATOR SYSTEM.

The TFFT is equipped with a complete electrical power system. Output of generator is controlled by an internal hydraulic system. An electrical instrument gage panel (right rear) stowage box is provided for operator to monitor and control all electrical operations and outputs.

Generator utilizes main chassis transmission to power generator. Generator is driven by engine transmission PTO unit, through a hydraulic pump and motor. An electric/hydraulic valve supplies hydraulic fluid to clutch engagement unit provided on chassis PTO drive. Main load center is equipped with circuit breakers rated to load demand. Individual breakers are provided for all on-line equipment to isolate a tripped breaker from affecting any other on-line equipment.

1-54. WINTERIZATION PACKAGE.

A winterization package is provided to allow operation of the pump, foam system, and body up to -25°F (-32ºC). The package includes two diesel-fired 27,300 BTU heaters, one inside the pump compartment and one used to heat the rear compartment. The heaters turn on at 39°F (4°C).

Two 2,250 W water heaters are installed in the water tank. The tank heaters turn on at 40ºF (4ºC) and turn off at 60º F (16ºC). Some of the plumbing from the water tank to the pump is protected from freeze with heat trace tape and insulation.

1-55. PRESSURE GOVERNOR.

The pressure governor is designed to maintain a selected water pump pressure or water pump engine speed setting. When the water pump engine is powered up, the water pump engine will remain at idle until the MODE switch is pressed to select the desired operating mode, RPM mode, or Pressure mode.

When the pressure governor is in RPM mode, the message center will display THROTTLE and the green RPM LED will be illuminated. Water pump engine speed is controlled by the INCrease and DECrease switches, the message center will display INCREASE or DECREASE as appropriate when these switches are depressed. The water pump engine will maintain an RPM appropriate for the throttle signal being sent. If, while operating in RPM mode, the pressure increases more than 50 psi (345 kPa) from the pressure logged at the last switch pressed, the pressure governor will limit the pressure increase to no more than a 50 psi (345 kPa) difference. The pressure governor may reduce water pump engine RPM to insure pressure difference. PSI LIMIT will be displayed in the message center. The pressure governor will not attempt to regulate pressure in this mode, only limit the pressure difference to 50 psi (345 kPa) from the pressure present when the last switch was pressed.

When the pressure governor is operating in the pressure mode, the message center will display PRESSURE and the amber PRESSURE LED will illuminate. Water pump pressure is set by using the INCrease and DECrease switches. The pressure governor will attempt to maintain the last pressure achieved with these switches. The message center will display INCREASE or DECREASE as appropriate. The pressure governor maintains water pump pressure by controlling water pump engine RPM in response to a signal from the pressure transducers. When controlling in this manner, the message center will display CTRL DEC or CTRL INC.

Pressing PRESET switch in either mode will control the water pump engine to attain the preset RPM or water pump pressure programmed in the pressure governor memory. If there is more than 10 psi (69 kPa) pressure on the water pump, the RPM preset is disabled and the message center will display DISABLED.

1-55. PRESSURE GOVERNOR (CONT).

Whenever the transducer signal is below 0.3 VDC or above 4.8 VDC, a sensor fault will be logged and SENSOR will be displayed in the message center. SENSOR will flash if the failure occurs while the pressure governor is operating in psi mode. Once a failure is detected, the pressure governor can no longer maintain a pressure setting. It will hold the current water pump engine RPM and only operate as a throttle. Once SENSOR is displayed in the message center, SENSOR will not clear until power to the pressure governor is reset. It is extremely important that the cause for this message is investigated. The pressure governor cannot discharge pressure properly unless the SENSOR signal is reliable and correct.

If the INC switch is held, the pressure governor will not allow a change greater than 80 psi (552 kPa) without releasing the INC switch and pressing it again. This is only applicable when the discharge pressure is above 90 psi (621 kPa).

If the discharge pressure drops below 30 psi (207 kPa) for any reason, the water pump engine speed will not be increased. The pressure governor output voltage will reduce to the last known value where the pressure setpoint was obtained. The message center will display INTAKE during this low pressure condition. If the pressure increases above 30 psi (207 kPa), OPERATOR will flash in the message center and the pressure governor will not increase output unless the operator presses the INC or PRESET switches. If pressure above 30 psi (207 kPa) is not regained in 5 seconds, the pressure governor will return the water pump engine to idle and display LOSUPPLY. The operator must make certain that the water supply is adequate and then reinstate the pressure governor using the MODE, INC, and/or PRESET switches.

The pressure governor has a trim adjustment that can be set between 5% and 20% of maximum increase in a pressure recovery attempt. The message center will flash OPERATOR when this limit is reached and the RPM will not increase further. The operator must take positive action to restore discharge pressure. If pressure is not restored within 4 seconds, the pressure governor will reduce output to the last known output where pressure was maintained. The operator must input a new setpoint with the INC, DEC, or PRESET switches. If the pressure rises above the original setpoint and the pressure governor controls a decrease in water pump engine speed, the pressure governor will return to normal operations and PSI MODE will be displayed in the message center.

CHAPTER 2

OPERATING INSTRUCTIONS

TABLE OF CONTENTS

CHAPTER 2

OPERATING INSTRUCTIONS (CONT)

TABLE OF CONTENTS (Cont)

SECTION IX. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-89. CONTROLS AND INDICATORS INTRODUCTION.

This section shows the location and describes the use of controls and indicators used to operate the M1142 fire fighting systems. Refer to Volume 1 for all other controls and indicators.

2-90. KNOW YOUR CONTROLS AND INDICATORS.

Know location and proper use of every control and indicator before operating the vehicle. Use this section to learn about each control and indicator to be used. Separate illustrations with keys are provided for the following group of controls and indicators.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS.

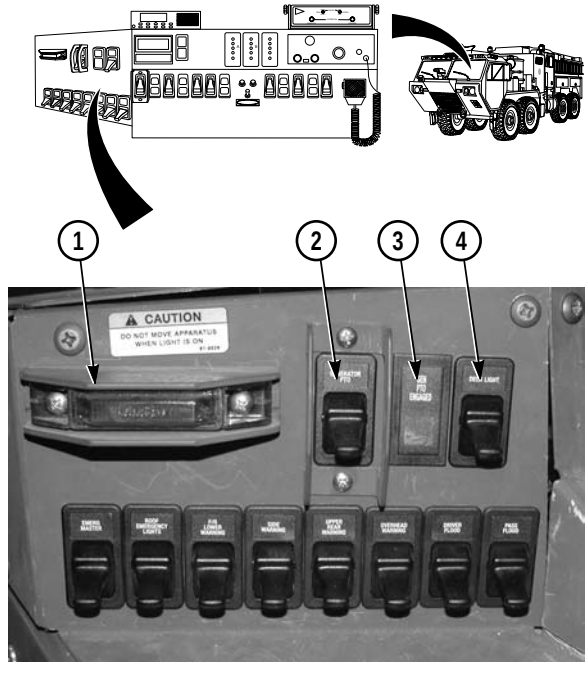


Figure 2-31. Cab Instrument Panel-Upper Left.

Key	CONTROL OR INDICATOR	FUNCTION
1	DO NOT MOVE Truck Indicator Light	Indicator light illuminates whenever a compartment door is open or equipment (ladder) rack is down.
2	GENERATOR PTO Switch	Push up to engage generator PTO. Push down to disengage generator PTO.
3	GENERATOR PTO ENGAGED Indicator Light	Indicator light illuminates when generator PTO is engaged.
4	DECKLIGHT Switch	Push up to engage decklight. Push down to disengage decklight.

Controls and Indicators (Cont)

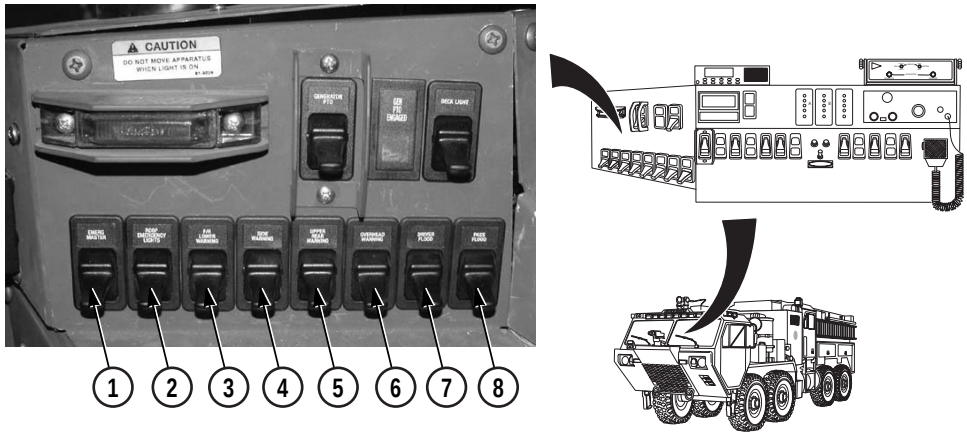


Figure 2-32. Cab Instrument Panel-Lower Left.

Key	CONTROL OR INDICATOR	FUNCTION
1	EMERGENCY MASTER Light Switch	Push up to turn on all Emergency Warning lights. Push down to turn off all Emergency Warning lights.
2	ROOF EMERGENCY LIGHTS Switch	Push up to turn on ROOF EMERGENCY lights. Push down to turn off ROOF EMERGENCY lights.
3	F/R LOWER WARNING Light Switch	Push up to turn on FRONT and REAR Lower Warning lights. Push down to turn off FRONT and REAR Lower Warning lights.
4	SIDE WARNING Light Switch	Push up to turn on Side Warning lights. Push down to turn off Side Warning lights.
5	UPPER REAR WARNING Light Switch	Push up to turn on UPPER REAR WARNING lights. Push down to turn off UPPER REAR WARNING lights.
6	OVERHEAD WARNING Light Switch	Push up to turn on OVERHEAD Warning lights. Push down to turn off OVERHEAD Warning lights.
7	DRIVER FLOOD Light Switch	Push up to turn on DRIVER FLOOD light. Push down to turn off DRIVER FLOOD light. This light only operates with generator running.
8	PASS FLOOD Light Switch	Push up to turn on PASSENGER FLOOD light. Push down to turn off PASSENGER FLOOD light. This light only operates with generator running.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

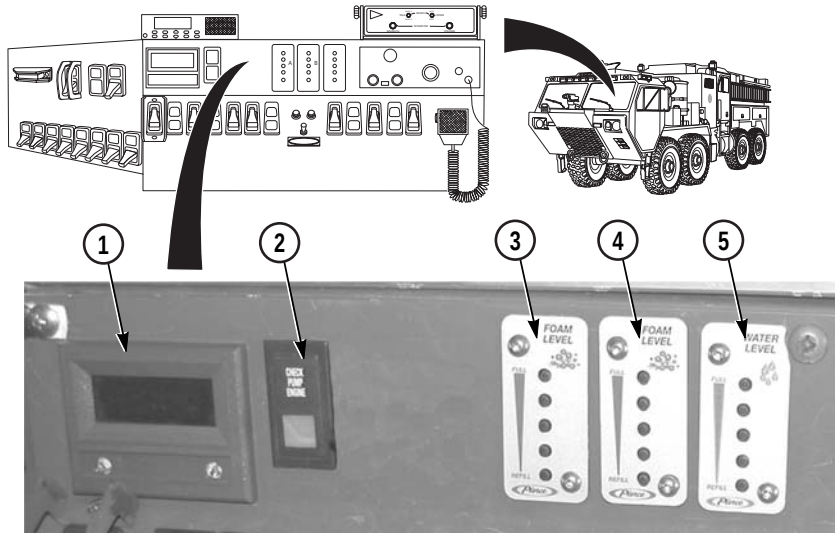


Figure 2-33. Cab Instrument Panel-Upper Center.

Key	CONTROL OR INDICATOR	FUNCTION
1	PUMP DISCHARGE Gage	Monitors pump discharge pressure.
2	CHECK PUMP ENGINE Indicator Light	Illuminates when pump engine oil pressure too low, or water pump engine coolant temperature too high.
3	Class A FOAM LEVEL Gage	Monitors the level of Class A foam agent in foam tank.
4	Class B FOAM LEVEL Gage	Monitors the level of Class B foam agent in foam tank.
5	WATER LEVEL Gage	Monitors level of water in water tank.

Controls and Indicators (Cont)

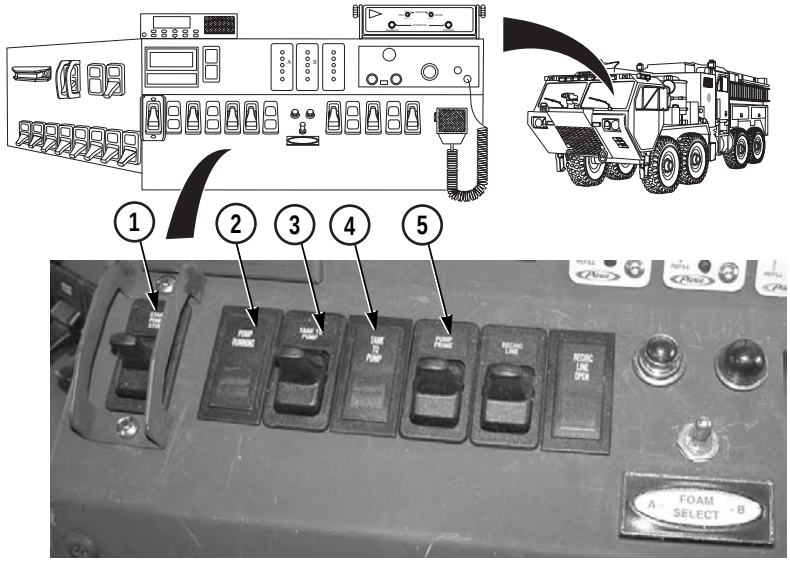


Figure 2-34. Cab Instrument Panel-Lower Center (Sheet 1 of 2).

Key	CONTROL OR INDICATOR	FUNCTION
1	START and STOP Water Pump Engine Switch	Push up to start water pump engine. Push down to stop water pump engine.
2	PUMP RUNNING Indicator Light	PUMP RUNNING indicator light illuminates when water pump is running.
3	TANK TO PUMP Switch	Push up to open tank discharge (TANK TO PUMP) valve. Push down to close tank discharge (TANK TO PUMP) valve.
4	TANK TO PUMP Indicator Light	Illuminates when tank discharge (TANK TO PUMP) valve is open.
5	PUMP PRIMER Switch	Push up to activate priming valve and operate electric primer pump.

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

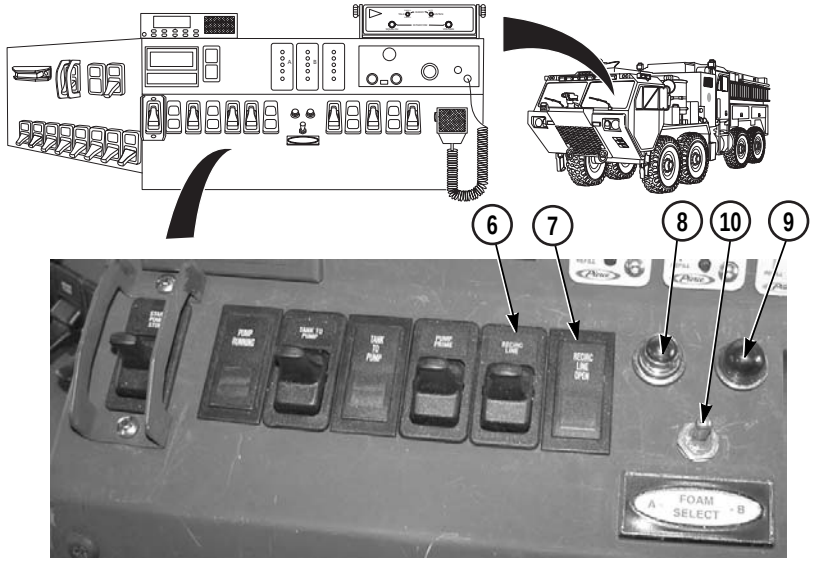


Figure 2-34. Cab Instrument Panel-Lower Center (Sheet 2 of 2).

Key	CONTROL OR INDICATOR	FUNCTION
6	PUMP COOLER Switch	Push up to open valve to dump water to ground. Push down to close valve. This helps keep water pump cool when water is not being discharged.
7	PUMP COOLER Indicator Light	Indicator light illuminates when PUMP COOLER is open.
8	Class A Foam Indicator Light	Indicator light illuminates when Class A foam is selected.
9	Class B Foam Indicator Light	Indicator light illuminates when Class B foam is selected.
10	FOAM Type Selector Switch	Push switch to left for Class A foam; push switch to right for Class B foam. Switch automatically goes to center position when released.

Controls and Indicators (Cont)

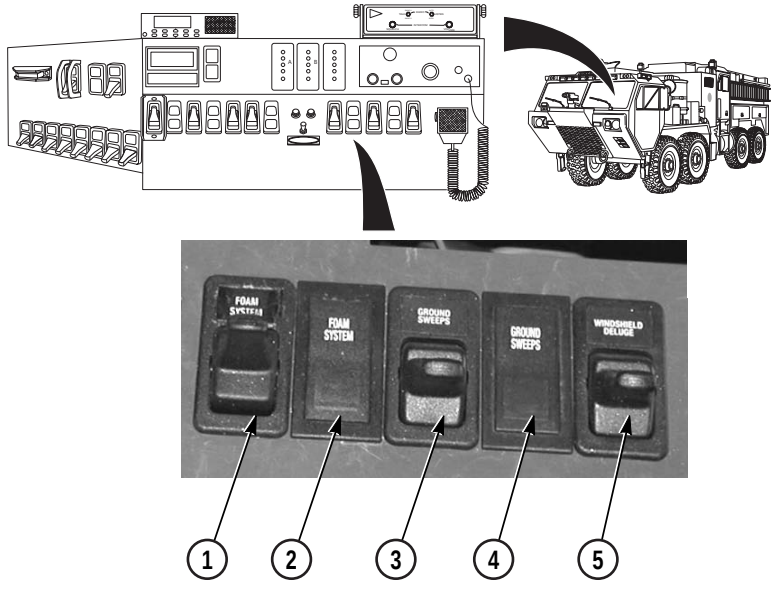


Figure 2-35. Cab Instrument Panel-Lower Right.

Key	CONTROL OR INDICATOR	FUNCTION
1	FOAM SYSTEM Switch	Push up to turn on foam system. Push down to turn off foam system.
2	FOAM SYSTEM Indicator Light	Illuminates when foam system is operational.
3	GROUND SWEEPS Switch	Push up to open valve and discharge water through ground sweeps. Push down to close ground sweeps valves.
4	GROUND SWEEPS Indicator Light	Indicator light illuminates when ground sweeps valve is open.
5	WINDSHIELD DELUGE Switch	Push up to open valve and discharge water to windshield deluge. Push down to close windshield deluge valve.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

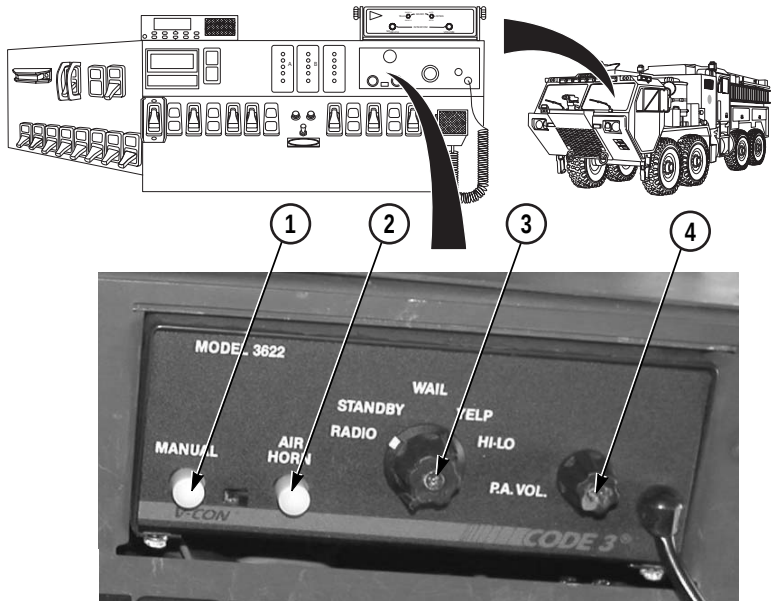


Figure 2-36. Cab Instrument Panel-Upper Right/Electronic Siren Controls.

Key	CONTROL OR INDICATOR	FUNCTION
1	MANUAL Operation Switch	**NOTE** The HIT & GO feature produces audio sounds for approximately 5 seconds. Push button switch has no effect when selector switch is in RADIO. Produces wail sound when selector switch is in STANDBY. Produces yelp sound when selector switch is in WAIL. Has no effect when the selector switch is in YELP. Produces yelp sound when selector switch is in HI-LO.
2	AIR HORN Switch	Produces air horn sound in all selector switch positions except RADIO.
3	MODE Switch	Used to switch between modes of operation. Possible selections are PA, RADIO, STANDBY, WAIL, YELP, HI-LO, and PUSH-TO-TALK (PTT).
4	PA VOLUME Switch	Used to adjust level of PA audio.

Controls and Indicators (Cont)

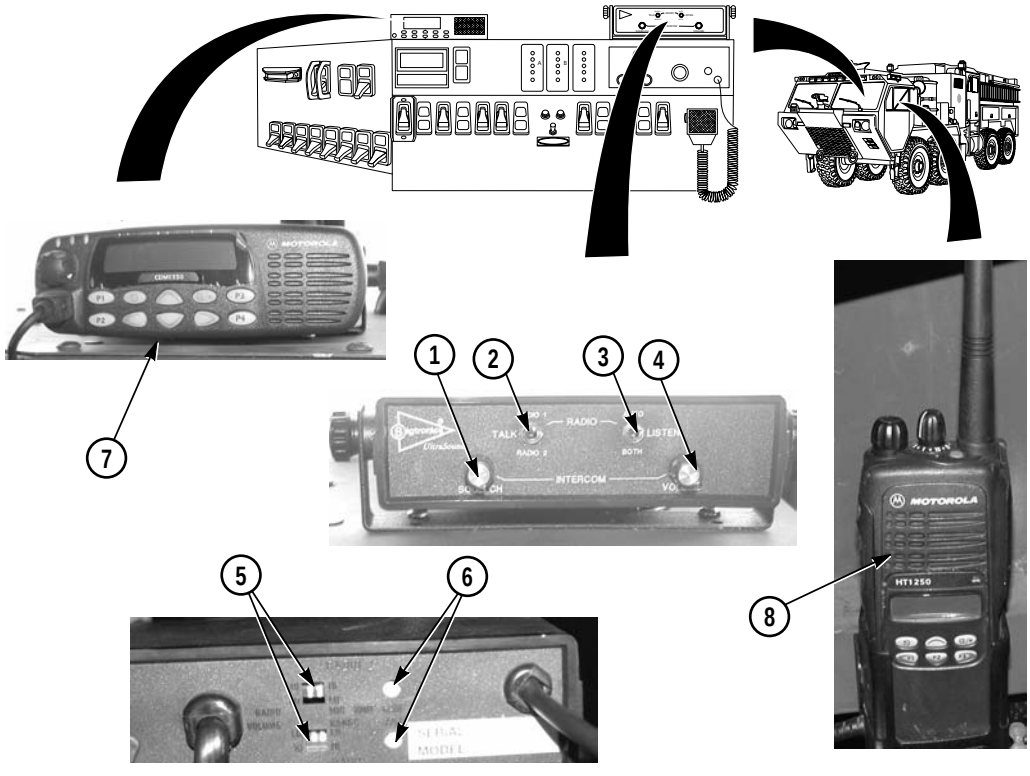


Figure 2-37. Cab Instrument Panel-Upper Right/Radio.

Key	CONTROL OR INDICATOR	FUNCTION
1	Intercom SQUELCH	Adjusts VOX operation of the intercom for variations in background noise levels.
2	Transmit Select	Used to select which radio to talk on RADIO 1 or RADIO 2.
3	Receive Select	Used to select which radio is heard. In BOTH positions, the operator will hear both RADIO 1 and RADIO 2. In AUTO position, only the radio selected by the TRANSMIT SWITCH is heard.
4	Intercom VOLUME	Adjusts INTERCOM VOLUME level.
5	Radio MIC Transmit Gain	Sets the transmit MIC audio level for the radios.
6	Radio Volume	Sets range of receive audio from the radios.
7	Motorola Mobile Radio	Base unit used to communicate with other radios.
8	Motorola Handheld Radio	Portable unit used to communicate with other radios.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

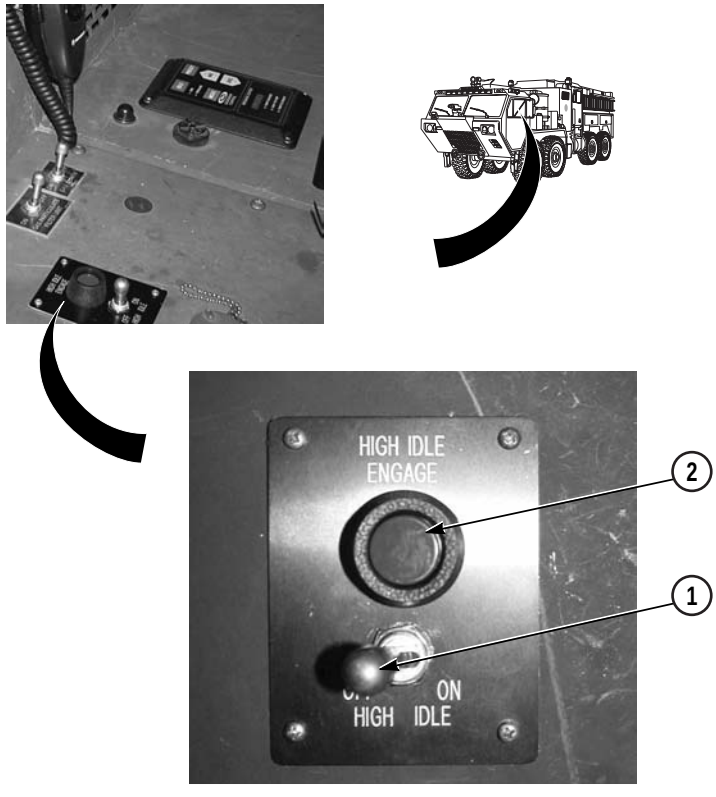


Figure 2-38. Cab Instrument Panel-Center Console (Sheet 1 of 3).

Key	CONTROL OR INDICATOR	FUNCTION
1	HIGH IDLE Switch	Used to bring the truck engine to 1000 RPM's in order for the generator to run at peak performance.
2	HIGH IDLE ENGAGE Indicator Light	Illuminates when high idle switch is running.

Controls and Indicators (Cont)

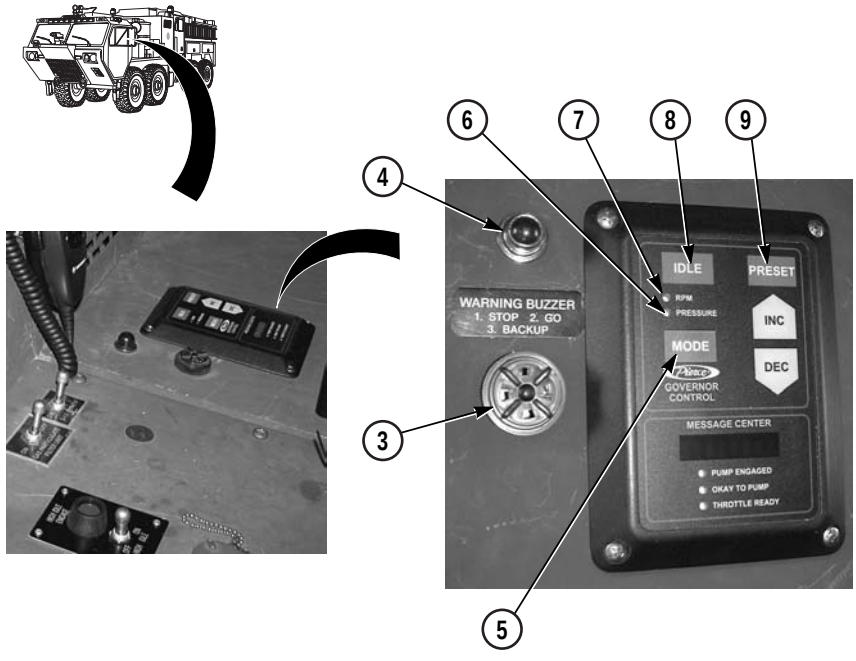


Figure 2-38. Cab Instrument Panel-Center Console (Sheet 2 of 3).

Key	CONTROL OR INDICATOR	FUNCTION
3	WARNING BUZZER	Provides audible warning to the driver from rear step buzzer. Buzzer sounds once to stop, twice to go, and three times to back-up.
4	Warning Indicator Light	Light illuminates once to tell the driver to stop, twice to go, and three times to back-up.
5	MODE Switch	Press to select operating mode.
6	PRESSURE LED	Illuminates when in pressure mode.
7	RPM LED	Illuminates when in RPM mode.
8	IDLE Switch	Press to return water pump engine to idle.
9	PRESET Switch	Press after an operating mode has been chosen, to promptly bring engine or pump RPM to a preset pressure.

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

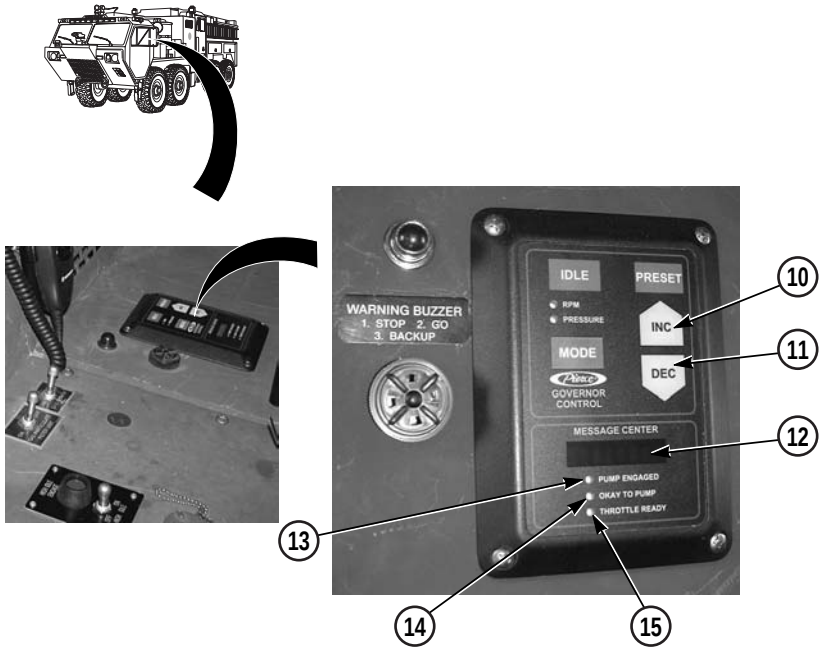


Figure 2-38. Cab Instrument Panel-Center Console (Sheet 3 of 3).

Key	CONTROL OR INDICATOR	FUNCTION
10	Increase (INC) Switch	When INC switch is pressed, INCREASE is displayed in message center. Depressing INC switch increases water pump engine RPM's. When INC switch is released, current pump engine RPM is maintained by pressure governor.
11	Decrease (DEC) Switch	When DEC switch is pressed DECREASE is displayed in message center. Depressing DEC switch decreases water pump engine RPM's. When DEC switch is released, current water pump engine RPM is maintained by pressure governor.
12	MESSAGE CENTER	Displays current information about pressure governor.
13	PUMP ENGAGED LED	Illuminates when water pump is engaged.
14	OKAY TO PUMP LED	Illuminates when it is ok to start pump operations.
15	THROTTLE READY LED	Illuminates when throttle is ready.

Controls and Indicators (Cont)

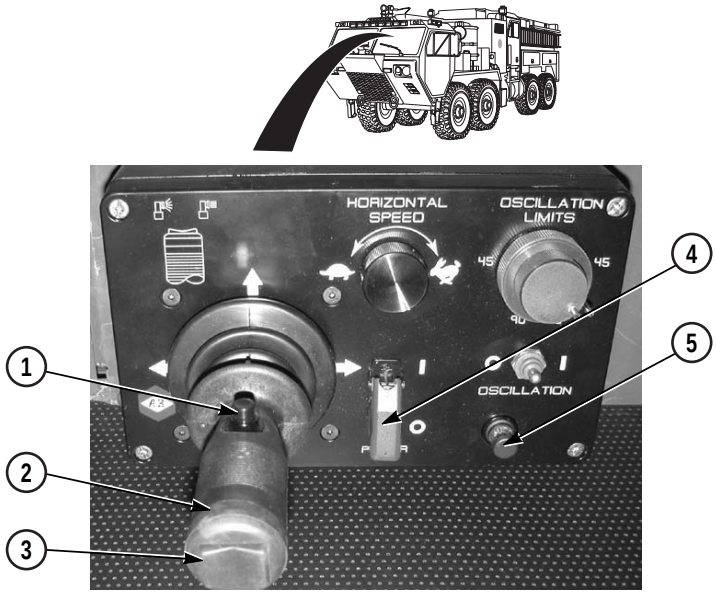


Figure 2-39. Bumper Turret Controls (Sheet 1 of 2).

Key	CONTROL OR INDICATOR	FUNCTION
1	Agent Discharge Button	Press to discharge agent; press a second time to interrupt discharge. This is a push on, push off type button.
2	Joystick Control Handle	Used for joystick control of bumper turret.
3	Pattern Control Button	Used to adjust shape of discharge spray pattern between stream and fully fog. Push button on left side for fog and right side for stream.
4	Power ON/OFF Switch	Push to on (**-**) position to turn on. Push to off (**O**) position to turn off.
5	Panel Light	Light illuminates bumper turret controls.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

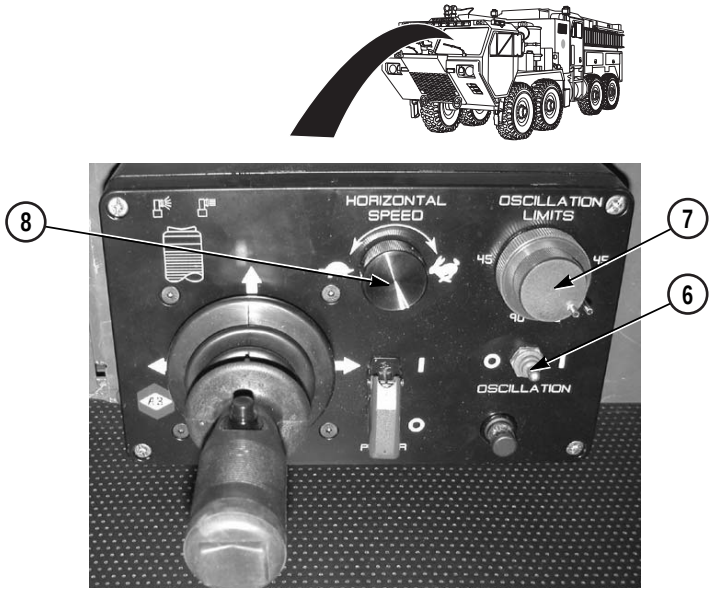


Figure 2-39. Bumper Turret Controls (Sheet 2 of 2).

Key	CONTROL OR INDICATOR	FUNCTION
6	OSCILLATION ON/OFF Switch	Used to activate and deactivate turret auto-oscillation mode. Joystick control handle can be used to elevate or depress bumper turret nozzle during auto-oscillation mode. Joystick control handle will override auto-oscillation mode back to joystick control mode if moved left or right during auto-oscillation mode. To reactivate auto-oscillation mode after joystick override, push oscillation toggle to ON (-) position. The turret will always reactivate to the left.
7	OSCILLATION LIMITS Control Knob	Used to set left/right limits of auto-oscillation mode. Two oscillation limit control knobs are stacked together. Small knob on top controls right oscillation limit. Larger knob on bottom controls left limit angle. Pin on top of each knob is set point for oscillation limit control.
8	HORIZONTAL SPEED Control	Rotary adjustment to regulate rotation and sweep speed of bumper turret when in joystick control mode or auto-oscillation mode. Full slow position will not stop turret.

Controls and Indicators (Cont)

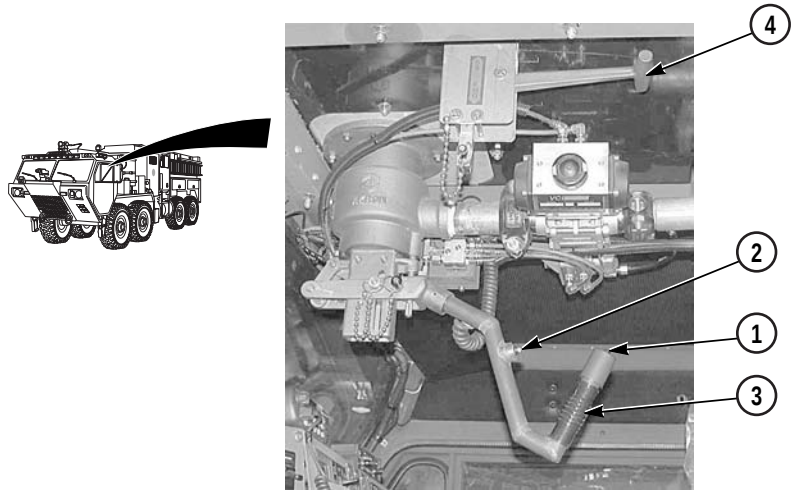


Figure 2-40. Roof Turret Controls.

Key	CONTROL OR INDICATOR	FUNCTION
1	Agent Discharge Button	Push to discharge agent; press a second time to interrupt discharge. This is a push on, push off type button.
2	Agent Discharge Indicator Light	Indicator light illuminates when agent is being discharged.
3	Control Handle	Used for control of roof turret.
4	Pattern Control Handle	Used to adjust shape of discharge spray pattern between straight and fog. Push up for straight pattern, or pull down to select fog pattern.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

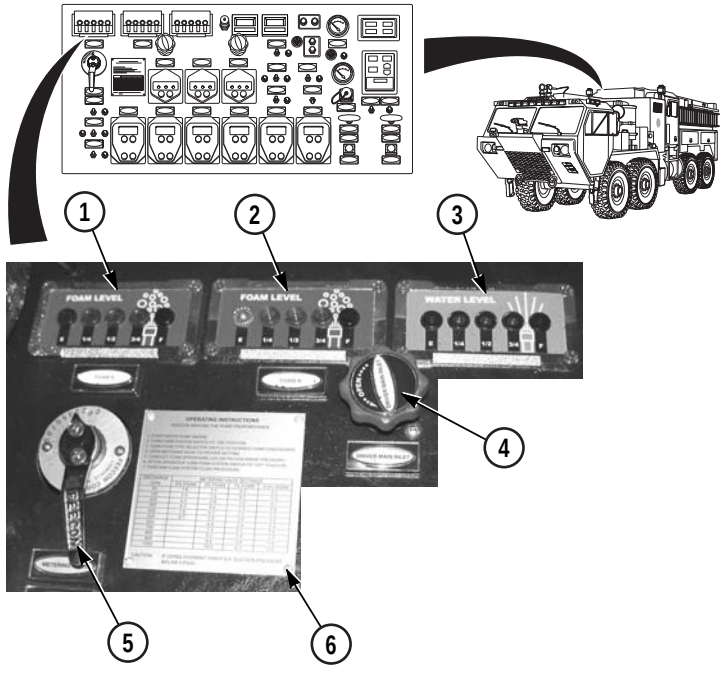


Figure 2-41. Pump Operator's Panel-Upper Left.

Key	CONTROL OR INDICATOR	FUNCTION
1	Class A FOAM LEVEL Gage	Monitors level of the class A foam agent in foam tank.
2	Class B FOAM LEVEL Gage	Monitors level of the Class B foam agent in foam tank.
3	WATER LEVEL Gage	Monitors level of water in on-board water tank.
4	DRIVER MAIN INLET BLEEDER Valve	Turn counterclockwise to open bleeder valve. Turn clockwise to close bleeder valve.
5	FOAM METERING Valve	Move metering valve handle clockwise to lower foam percentage rate; move metering valve handle counterclockwise to raise foam percentage rate.
6	FOAM CHART	Gives percentage to foam metering valve settings.

Controls and Indicators (Cont)

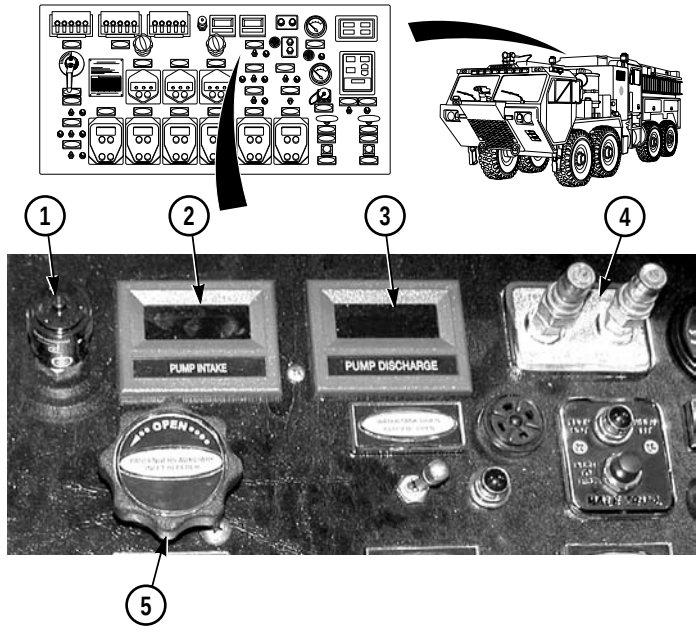


Figure 2-42. Pump Operator's Panel-Upper Center (Sheet 1 of 2).

Key	CONTROL OR INDICATOR	FUNCTION
1	Air Flow Restrictor Indicator	Shows condition of water pump engine air cleaner filter. Indicator window shows red when filter becomes clogged.
2	PUMP INTAKE Gage	Indicates the vacuum and pressure present in the intake side of the pump system in psi.
3	PUMP DISCHARGE Gage	Indicates the pressure present in the discharge side of pump system in psi.
4	Test Gage Panel	Connections used for testing the accuracy of the water pump performance.
5	PASSENGER SIDE AUXILIARY INLET BLEEDER Valve	Turn counterclockwise to open bleeder valve. Turn clockwise to close bleeder valve.

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

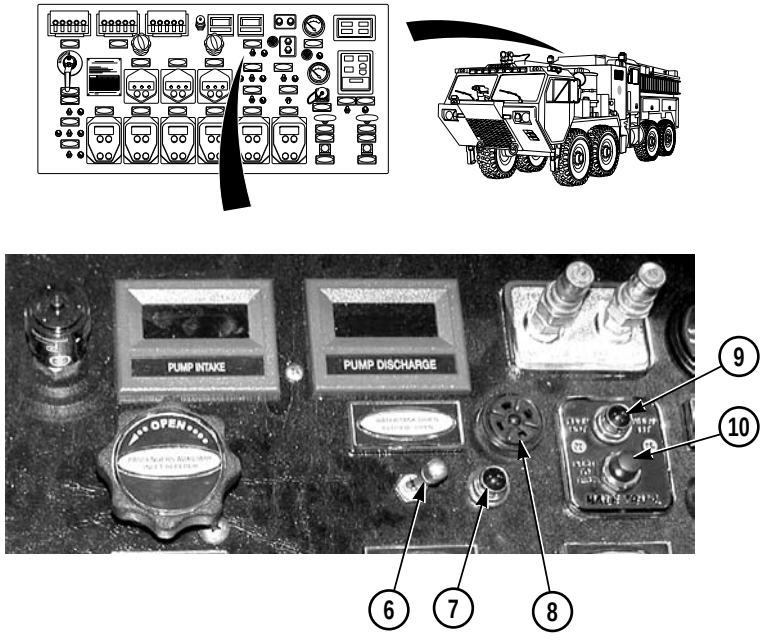


Figure 2-42. Pump Operator's Panel-Upper Center (Sheet 2 of 2).

Key	CONTROL OR INDICATOR	FUNCTION
6	WATER TANK DRAIN Switch	Push switch to right to open tank drain. Push switch to left to close tank drain.
7	TANK DRAIN Indicator Light	Illuminates when tank drain is open.
8	Warning Buzzer	Provides audible warning in the event of a water pump overheat condition.
9	Thermal Relief Indicator Light	Illuminates in the event of a water pump overheat condition.
10	Warning Buzzer and Thermal Relief Indicator Light Test Button	When depressed, checks operation of both warning buzzer and thermal relief indicator light.

Controls and Indicators (Cont)

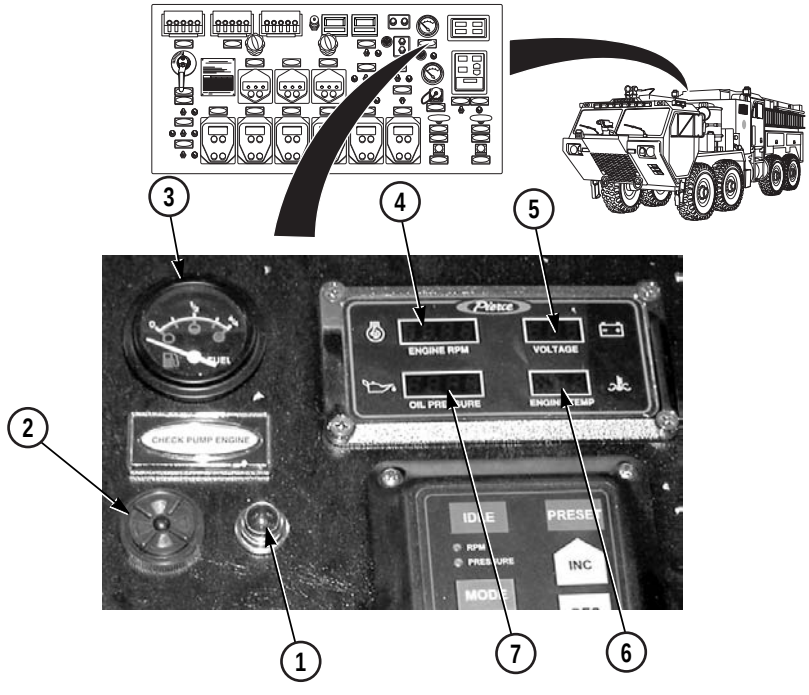


Figure 2-43. Pump Operator's Panel-Upper Right (Sheet 1 of 3).

Key	CONTROL OR INDICATOR	FUNCTION
1	CHECK PUMP ENGINE Indicator Light	Indicates a problem, either water pump engine oil pressure too low, or water pump engine cool and temperature too high.
2	Warning Buzzer	Provides audible warning if water pump engine coolant temperature is too high.
3	FUEL LEVEL Gage	Monitors fuel level in vehicle fuel tank. Only operates when chassis engine is on.
4	ENGINE TACHOMETER	Monitors water pump engine speed in RPM.
5	VOLTAGE BATTERY Gage	Monitors voltage level of vehicle chassis electrical system.
6	ENGINE TEMPERATURE Gage	Monitors engine temperature.
7	OIL PRESSURE Gage	Monitors water pump engine oil pressure in psi (kPa).

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

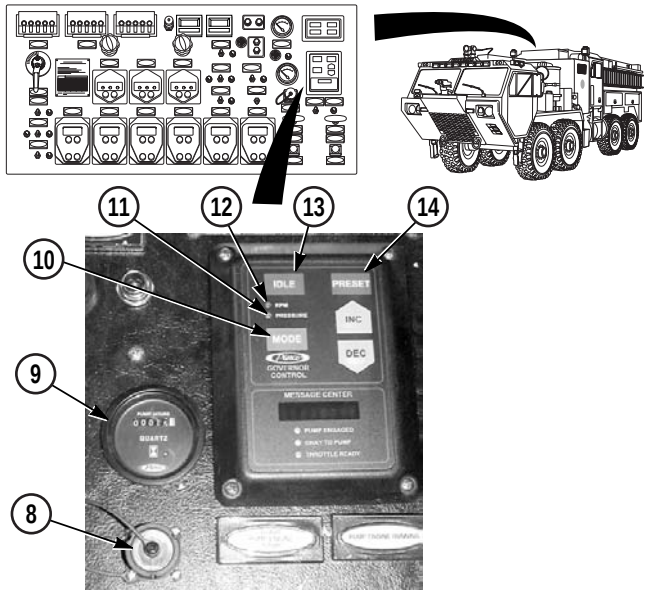


Figure 2-43. Pump Operator's Panel-Upper Right (Sheet 2 of 3).

Key	CONTROL OR INDICATOR	FUNCTION
8	Pump Engine DIAGNOSTICS Plug	Plug for connecting test equipment for diagnosing problems with water pump engine.
9	Hourmeter	Records operating hours of water pump engine.
10	MODE Switch	Press to select operating mode.
11	PRESSURE LED	Illuminates when in pressure mode.
12	RPM LED	Illuminates when in RPM mode.
13	IDLE Switch	Press to return water pump engine to idle.
14	PRESET Switch	Press after an operating mode has been chosen, to promptly bring engine or pump RPM to a preset pressure.

Controls and Indicators (Cont)

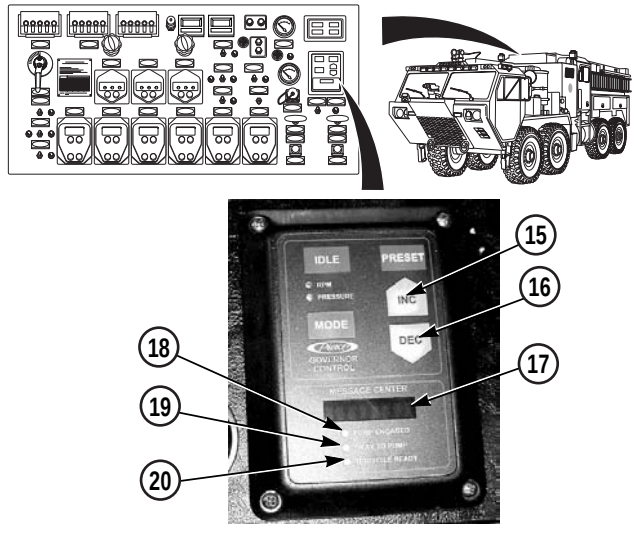


Figure 2-43. Pump Operator's Panel-Upper Right (Sheet 3 of 3).

Key	CONTROL OR INDICATOR	FUNCTION
15	Increase (INC) Switch	When INC switch is pressed, INCREASE is displayed in message center. Depressing INC switch increases water pump engine RPM's. When INC switch is released, current pump engine RPM's are maintained by pressure governor.
16	Decrease (DEC) Switch	When DEC switch is pressed DECREASE is displayed in message center. Depressing DEC switch decreases water pump engine RPM's. When DEC switch is released, current water pump engine RPM's are maintained by pressure governor.
17	MESSAGE CENTER	Displays current information about pressure governor.
18	PUMP ENGAGED LED	Illuminates when water pump is engaged.
19	OKAY TO PUMP LED	Illuminates when it is OK to start pump operations.
20	THROTTLE READY LED	Illuminates when throttle is ready.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

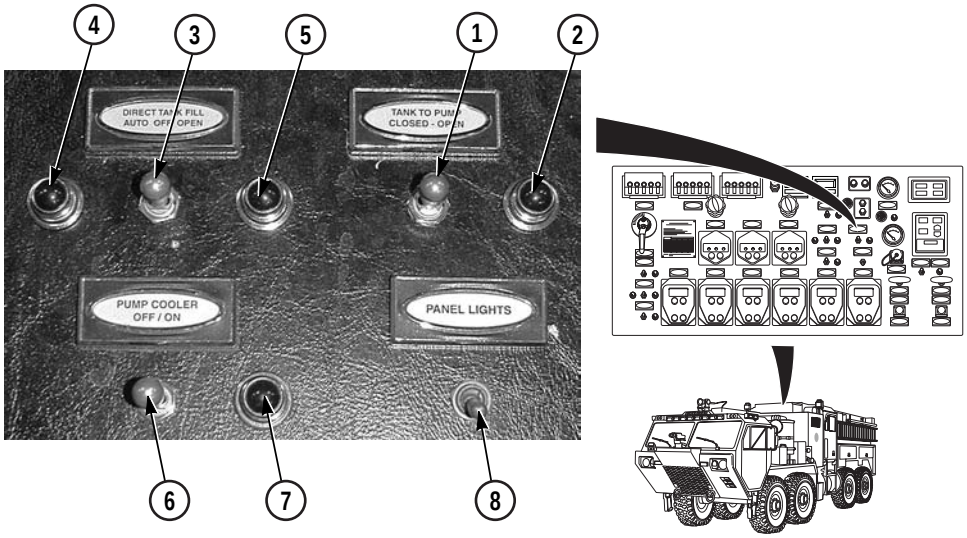


Figure 2-44. Pump Operator's Panel-Center Right.

Key	CONTROL OR INDICATOR	FUNCTION
1	TANK TO PUMP Switch	Push switch to right to open TANK TO PUMP valve; push switch to left to close TANK TO PUMP valve.
2	TANK TO PUMP Indicator Light	Illuminates when tank to pump valve is open.
3	DIRECT TANK FILL Switch	Push switch to left to turn DIRECT TANK FILL to AUTO. Push switch to right to turn DIRECT TANK FILL to OPEN. When switch is in center position DIRECT TANK FILL is OFF.
4	DIRECT TANK FILL AUTO Indicator Light	Illuminates when DIRECT TANK FILL switch is in AUTO position.
5	DIRECT TANK FILL ON Indicator Light	Illuminates when DIRECT TANK FILL switch is in ON position.
6	PUMP COOLER OFF/ON Switch	Push switch to right to open valve to dump water to ground. Push switch left to close valve. This helps keep water pump cool when water is not being discharged.
7	PUMP COOLER Indicator Light	Illuminates when PUMP COOLER valve is open.
8	PANEL LIGHTS Switch	Illuminates pump control panel when switch is in ON position.

Controls and Indicators (Cont)

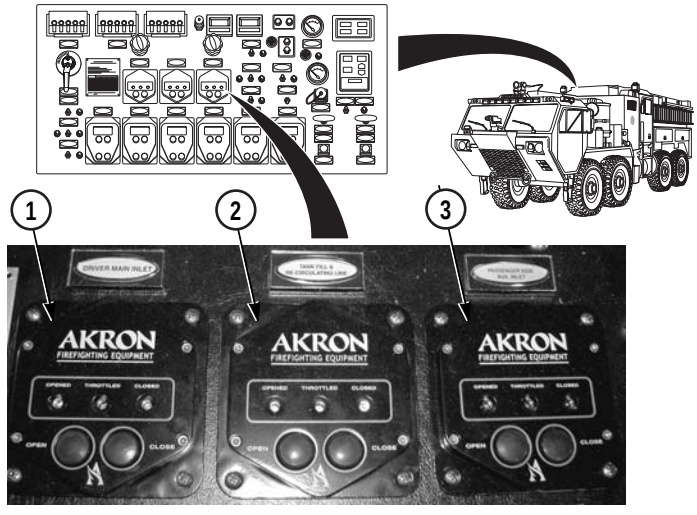


Figure 2-45. Pump Operator's Panel-Center.

Key	CONTROL OR INDICATOR	FUNCTION
1	DRIVER MAIN INLET Electric Valve Control	Used to operate (electrically actuated) driver's side main inlet. To open valve, push and hold OPEN valve button until valve attains desired position. To close valve, push and hold CLOSE valve button until valve attains desired position. A multi-colored display indicates relative position of valve; fully open (green), throttling position (yellow), and fully closed (red).
2	TANK FILL and RE-CIRCULATING LINE Valve Control	Used to operate valve that controls flow of water from inlets to on-board water tank. To open valve, push and hold OPEN valve button until valve attains desired position. To close valve, push and hold CLOSE valve button until valve attains desired position. A multi-colored display indicates relative position of valve; fully open (green), throttling position (yellow), and fully closed (red).
3	PASSENGER SIDE AUXILIARY Inlet Valve Control	Used to operate (electrically actuated) passenger's side auxiliary inlet valve. To open valve, push and hold OPEN valve button until valve attains desired position. To close valve, push and hold CLOSE valve button until valve attains desired position. A multi-colored display indicates relative position of valve; fully open (green), throttling position (yellow), and fully closed (red).

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

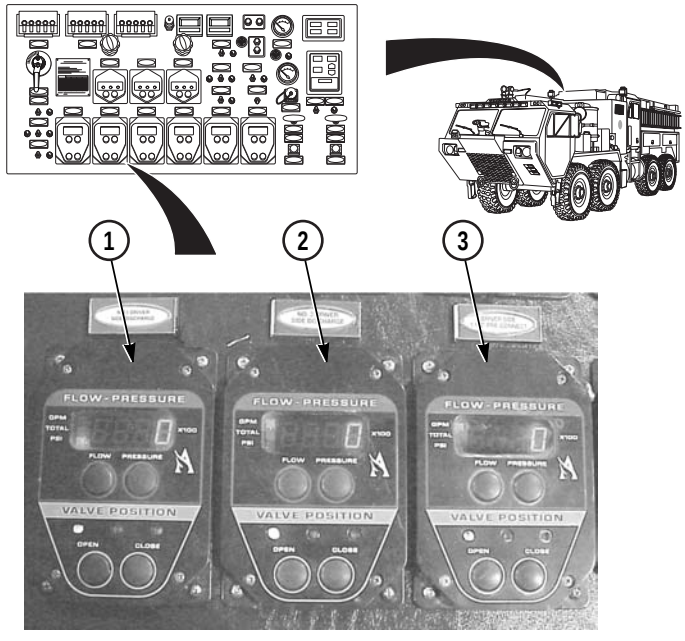


Figure 2-46. Pump Operator's Panel-Middle/Lower Left (Sheet 1 of 2).

Key	CONTROL OR INDICATOR	FUNCTION
1	NO. 1 DISCHARGE (DRIVER SIDE) Electric Valve Control/Meter	Provides control of No.1 driver's side discharge. Two button operation to read pressure, flow, and total flow. LED readout indicates GPM, total gallons flowed, and psi. Two button, open and close valve position capability with red (closed), yellow (gated), and green (open) LED valve position indicator lights.
2	NO. 2 DISCHARGE (DRIVER SIDE) Electric Valve Control/Meter	Provides control of No. 2 driver's side discharge. Two button operation to read pressure, flow, and total flow. LED readout indicates GPM, total gallons flowed, and psi. Two button, open and close valve position capability with red (closed), yellow (gated), and green (open) LED valve position indicator lights.
3	DRIVER PRE-CONNECT A Electric Valve Control/Meter	Provides control of driver's pre-connect A. Two button operation to read pressure, flow, and total flow. LED readout indicates GPM, total gallons flowed, and psi. Two button, open and close valve position capability with red (closed), yellow (gated), and green (open) LED valve position indicator lights.

Controls and Indicators (Cont)

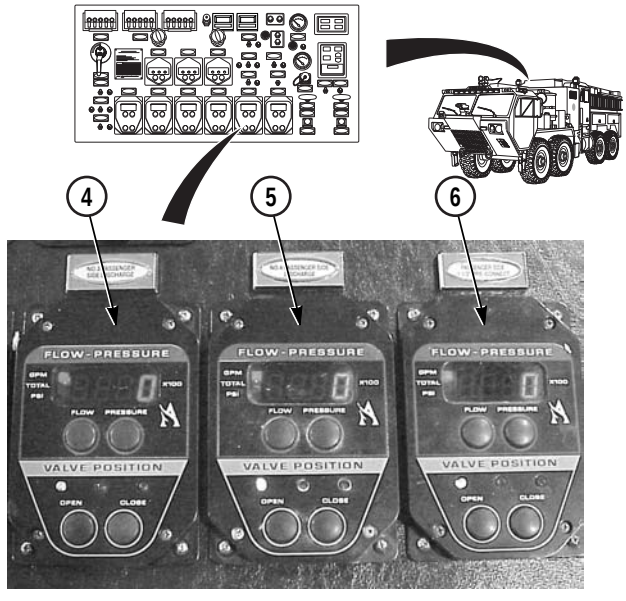


Figure 2-46. Pump Operator's Panel-Middle/Lower Left (Sheet 2 of 2).

Key	CONTROL OR INDICATOR	FUNCTION
4	NO. 3 DISCHARGE (PASSENGER SIDE) Electric Valve Control/Meter	Provides control of No. 3 passenger's side discharge. Two button operation to read pressure, flow, and total flow. LED readout indicates GPM, total gallons flowed, and psi. Two button, open and close valve position capability with red (closed), yellow (gated), and green (open) LED valve position indicator lights.
5	NO. 4 DISCHARGE (PASSENGER SIDE) Electric Valve Control/Meter	Provides control of No. 4 passenger's side discharge. Two button operation to read pressure, flow, and total flow. LED readout indicates GPM, total gallons flowed, and psi. Two button, open and close valve position capability with red (closed), yellow (gated), and green (open) LED valve position indicator lights.
6	DRIVER PRE-CONNECT B Electric Valve Control/Meter	Provides control of driver's side pre-connect B. Two button operation to read pressure, flow, and total flow. LED readout indicates GPM, total gallons flowed, and psi. Two button, open and close valve position capability with red (closed), yellow (gated), and green (open) LED valve position indicator lights.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

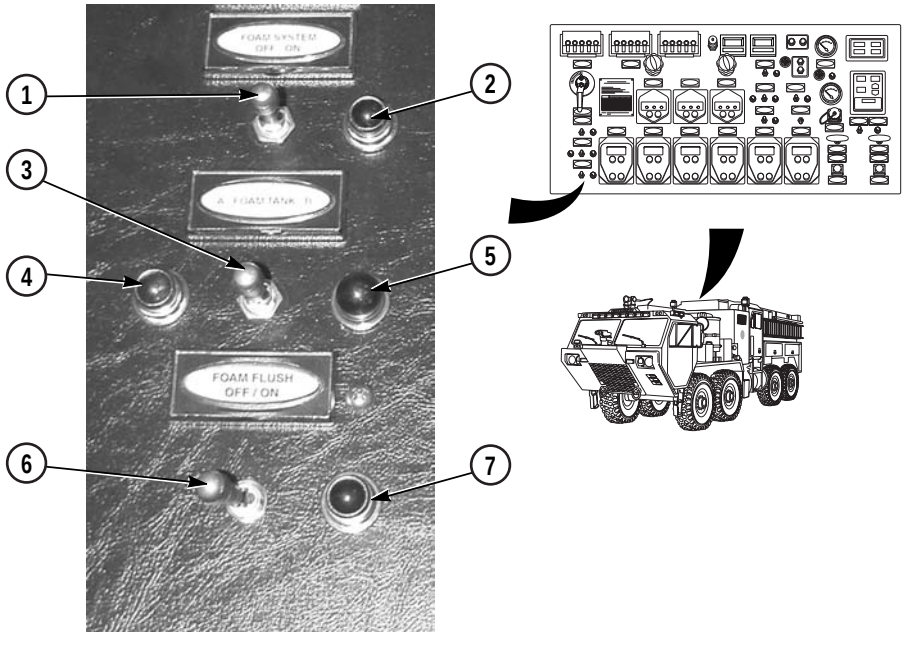


Figure 2-47. Pump Operator's Panel-Lower Left.

Key	CONTROL OR INDICATOR	FUNCTION
1	FOAM SYSTEM Switch	Push switch right to turn on FOAM SYSTEM. Push switch left to turn off FOAM SYSTEM.
2	FOAM SYSTEM Indicator Light	Illuminates when foam system is operational.
3	FOAM TYPE Selector Switch	Push switch left for Class A foam; push switch to right for Class B foam. Switch automatically goes to center position when released.
4	CLASS A FOAM Indicator Light	Illuminates when Class A foam is selected.
5	CLASS B FOAM Indicator Light	Illuminates when Class B foam is selected.
6	FOAM FLUSH ON/OFF Switch	Push switch to right to turn on FOAM FLUSH. Push switch to left to turn off FOAM FLUSH.
7	FOAM FLUSH Indicator Light	Illuminates when foam flush in ON position.

Controls and Indicators (Cont)

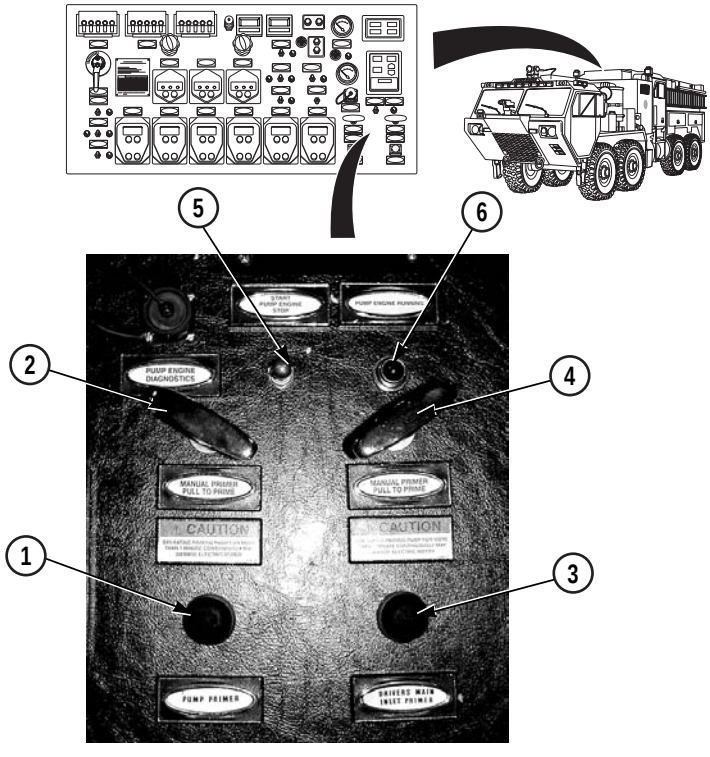


Figure 2-48. Pump Operator's Panel-Lower Right.

Key	CONTROL OR INDICATOR	FUNCTION
1	PUMP PRIMER Switch	Press to open pump primer valve and operate electric primer pump.
2	PUMP MANUAL PRIMER Control	Used to bypass electric control circuit for pump primer valve. Pull handle to activate (open) pump primer valve.
3	DRIVERS MAIN INLET PRIMER Switch	Press to open drivers main inlet primer valve and operate electric primer pump.
4	Drivers main inlet MANUAL PRIMER Control	Used to bypass electric control circuit for drivers main inlet manual valve. Pull handle to activate (open) drivers main inlet primer valve.
5	START and STOP WATER PUMP Engine Switch	Push switch up to start water pump engine; push switch down to stop water pump engine.
6	PUMP ENGINE RUNNING Indicator Light	Illuminates when water pump engine is running.

Controls and Indicators (Cont)

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

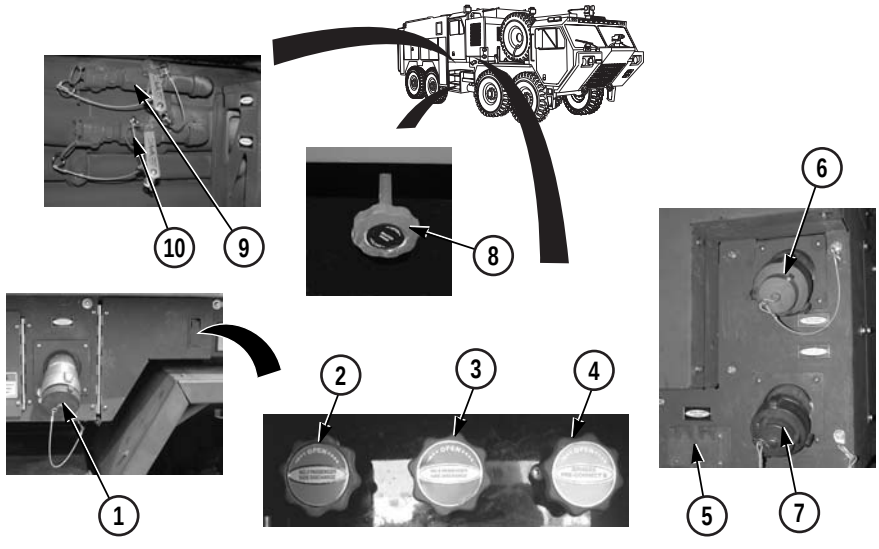


Figure 2-49. Passenger Side of Pump House.

Key	CONTROL OR INDICATOR	FUNCTION
1	Passenger Side Auxiliary Inlet	Used to pump water from hydrant or from a positive water source.
2	NO. 3 PASSENGER SIDE DISCHARGE Drain Valve	Opens and closes discharge drain valve for the No. 3 passenger's side discharge plumbing.
3	NO. 4 PASSENGER SIDE DISCHARGE Drain Valve	Opens and closes discharge drain valve for the No. 4 passenger's side discharge plumbing.
4	DRIVER SIDE PRE-CONNECT B Drain Valve	Opens and closes discharge drain valve for the drivers pre-connect B discharge plumbing.
5	120 VAC, 15 AMP, 60 Hz Receptacle	Provides power for lights and other accessories.
6	NO. 3 Passenger Side 2½ in. Discharge	Discharge connection for use with 2½ in. hoses.
7	NO. 4 Passenger Side 2½ in. Discharge	Discharge connection for use with 2½ in. hoses.
8	MASTER DRAIN Valve	Opens and closes master drain valve.
9	A FOAM TANK DRAIN Valve	Used to drain foam agent from foam tank A.
10	B FOAM TANK DRAIN Valve	Used to drain foam agent from foam tank B.

Controls and Indicators (Cont)

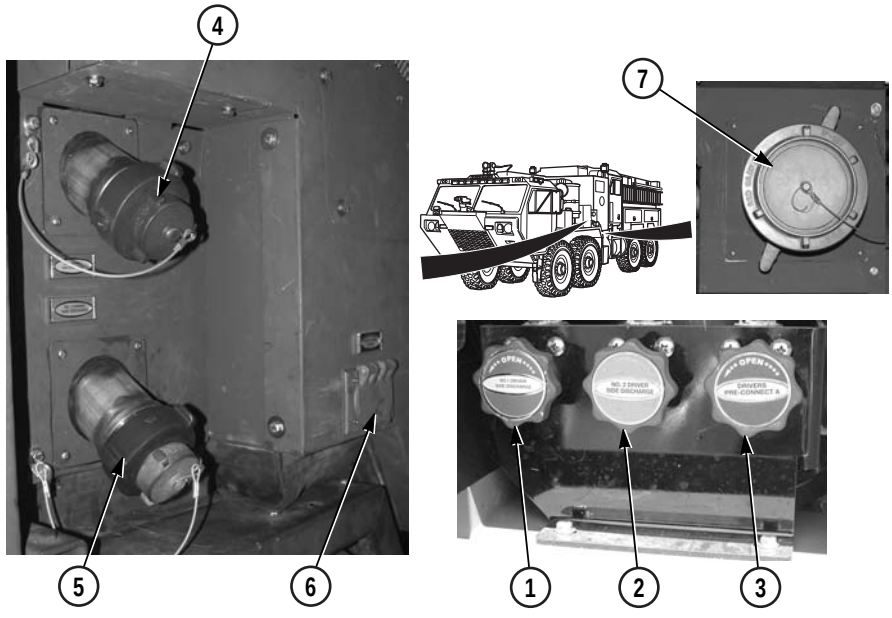


Figure 2-50. Driver Side of Pump House.

Key	CONTROL OR INDICATOR	FUNCTION
1	NO. 1 DRIVER SIDE DISCHARGE Drain Valve	Opens and closes discharge drain valve for the No. 1 driver side discharge plumbing.
2	NO. 2 DRIVER SIDE DISCHARGE Drain Valve	Opens and closes discharge drain valve for the No. 2 driver side discharge plumbing.
3	DRIVERS PRE-CONNECT A Drain Valve	Opens and closes discharge drain valve for the drivers 1½ in. pre-connect A discharge plumbing.
4	NO. 1 Driver Side Discharge	Discharge connection for use with 2½ in. hose.
5	NO. 2 Driver Side 2½ in. Discharge	Discharge connection for use with 2½ in. hose.
6	120 VAC, 15 AMP, 60 Hz Receptacle	Provides power for lights and other accessories.
7	Driver Side Main Inlet	Used to fill water tank or to pump water directly to water pump.

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

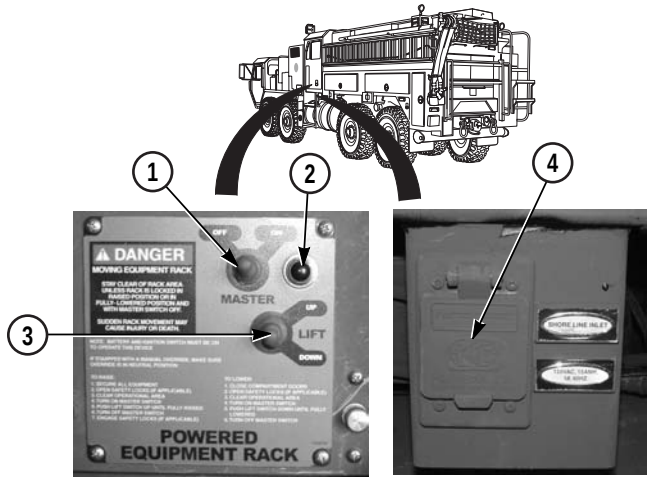


Figure 2-51. Equipment (Ladder) Rack Control.

Key	CONTROL OR INDICATOR	FUNCTION
1	MASTER Switch	Push switch to right to turn on power to equipment rack. Push switch to left to turn off power to equipment rack.
2	Master Switch Indicator Light	Illuminates when master switch is in ON position.
3	LIFT Switch	Push up and hold to raise equipment (ladder) rack. Push down and hold to lower ladder.
4	Auto Eject SHORE LINE INLET	Used to maintain electrical charge for the chassis battery system and runs air compressor to keep chassis air system charged when vehicle is not running. Also supplies power to reciprocating saw battery charger receptacle.

Controls and Indicators (Cont)

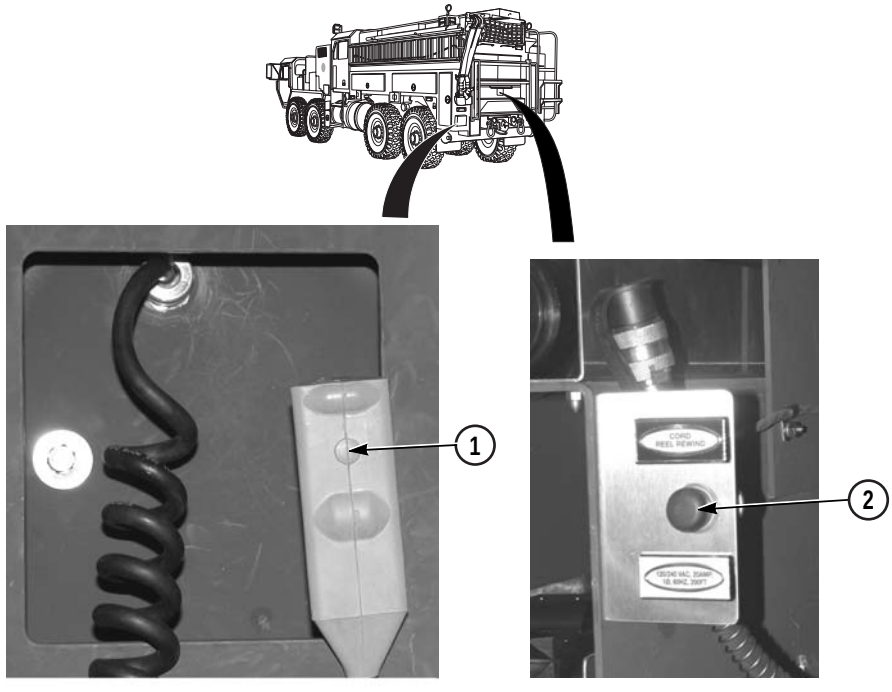


Figure 2-52. Rear Step Buzzer Control and Cord Reel Rewind.

Key	CONTROL OR INDICATOR	FUNCTION
1	Rear Step Buzzer Control	Push once to tell driver to stop, twice to go, and three times to back-up.
2	CORD REEL REWIND Button	Push and hold button to rewind electrical cord.

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

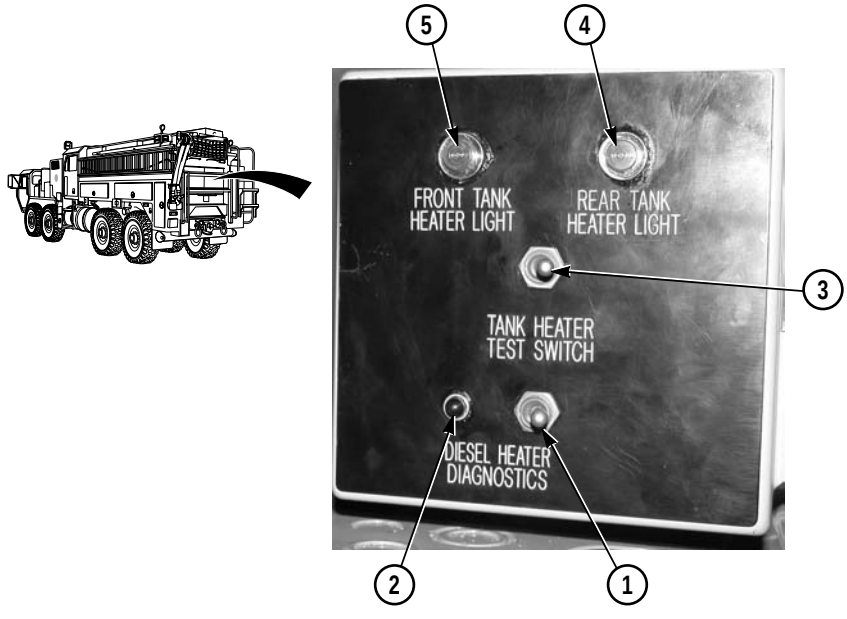


Figure 2-53. Rear Compartment Test Switch Panel.

Key	CONTROL OR INDICATOR	FUNCTION
1	DIESEL HEATER DIAGNOSTICS Switch	Push and hold ½ to 5 seconds to get a diagnostic flash code.
2	DIESEL HEATER DIAGNOSTICS Indicator Light	Illuminates with a diagnostic flash code.
3	TANK HEATER TEST SWITCH	Push and hold to check that tank heaters are properly working.
4	REAR TANK HEATER Indicator Light	Illuminates when rear tank heater is working properly.
5	FRONT TANK HEATER Indicator Light	Illuminates when front tank heater is working properly.

Controls and Indicators (Cont)

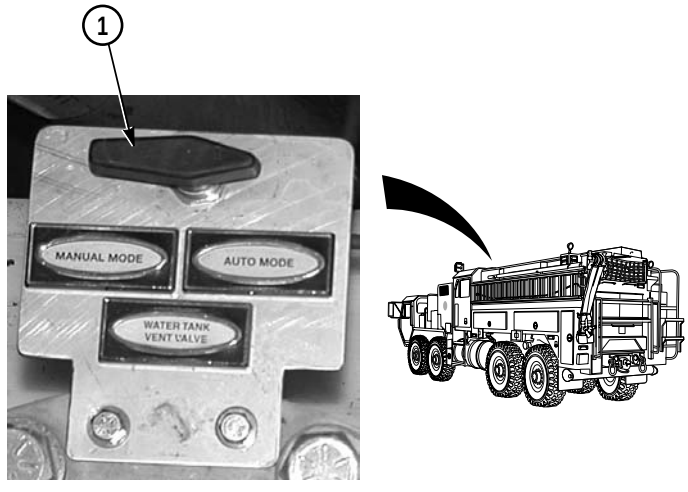


Figure 2-54. Water Tank Vent/Fill Valve.

Key	CONTROL OR INDICATOR	FUNCTION
1	WATER TANK VENT/FILL VALVE Switch	Switches water tank vent/fill valve between auto and manual modes. Right auto mode, left manual mode.

2-91. LOCATION AND USE OF CONTROLS AND INDICATORS (CONT).

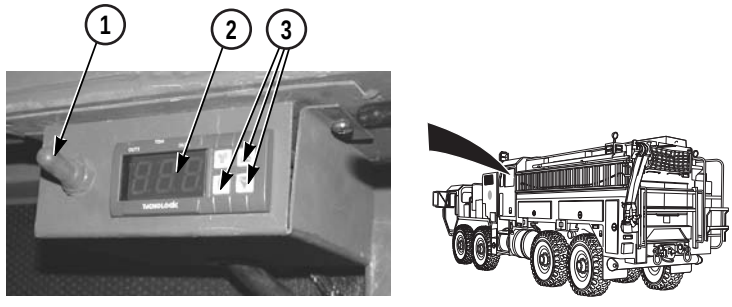


Figure 2-55. Crew Cab Heater/Air Conditioner.

Key	CONTROL OR INDICATOR	FUNCTION
1	Power ON/OFF Switch	Push down to turn on. Push down to turn off.
2	Temperature LED	Displays current information about present temperature.
3	Programing Buttons	Push up and down to set temperature.

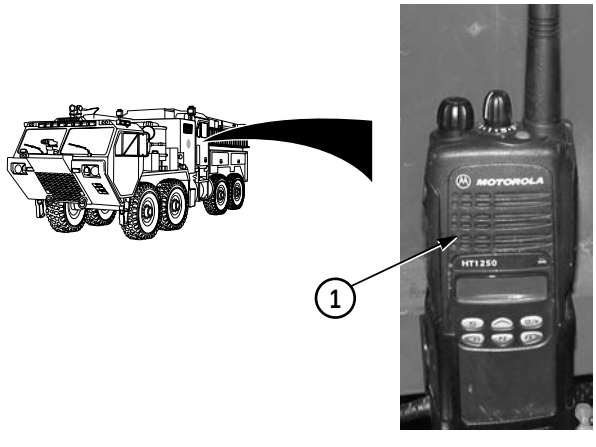


Figure 2-56. Motorola Handheld Radio.

Key	CONTROL OR INDICATOR	FUNCTION
1	Motorola Handheld Radio	Portable unit used to communicate with other radios.

Controls and Indicators (Cont)

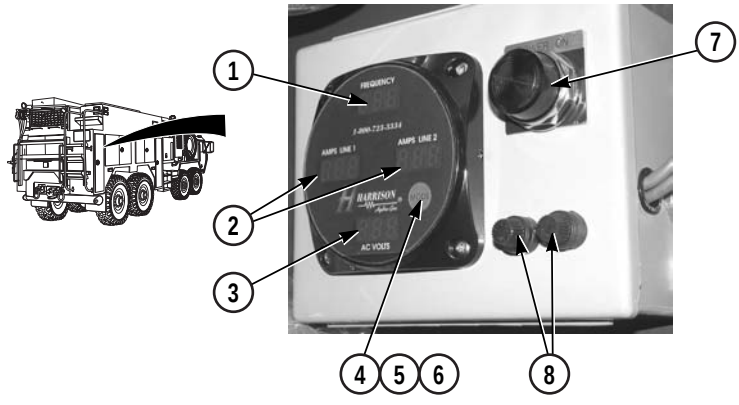


Figure 2-57. Hydraulic Generator FROG Display.

Key	CONTROL OR INDICATOR	FUNCTION
1	FREQUENCY LED Display	Displays generator output frequency in Hz. Range: 0 to 99.9 Hz in one-tenth Hz increments.
2	AMPS LINE 1 and AMPS LINE 2 LED Display	Displays amperage for each of two generator output lines. Range: 0 to 150 in one-Ampere increments.
3	AC VOLTS LED Display	Displays generator output voltage. Range: 0 to 300 VAC in one-volt increments.
4	MODE Button	Allows user to switch sequentially through STANDARD display mode, OPERATIONAL HOURS display mode and ENGINE OIL TEMPERATURE display mode.
5	OPERATIONAL HOURS Display Mode	Displays “HR” in the “FREQUENCY” LED panel and total generator operating hours in the “AMPS LINE 1” and “AMPS LINE 2” LED panels. Range: 0 to 99999.9 hours in one-tenth hour increments.
6	ENGINE OIL TEMPERATURE Display Mode	Displays “OIL” in the “FREQUENCY” LED panel and engine oil temperature in the “AMPS LINE 1” LED panel. The “AMPS LINE 2” LED panel displays “°F.” Range: 0 to 230°F in one-degree increments.
7	POWER ON Pilot Light	Illuminates when generator is engaged.
8	Fuses	Protect against circuit overload by interrupting current flow if draw is above the circuit limit.

SECTION X. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS), AND LUBRICATION INSTRUCTIONS

2-92. PMCS INTRODUCTION.

Operator Preventive Maintenance Checks and Services (PMCS) are required inspections and care of your vehicle is necessary to keep it in proper working order. All instructions are mandatory. This section contains (PMCS) requirements for the Pierce installed enhancements. The PMCS table (Table 2-9) contains checks and services necessary to make sure the enhancements are ready for operation. Using the PMCS table, perform preventive maintenance checks and services at the specified intervals.

WARNING

- Dry-cleaning solvent is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flash point for Type II Dry-cleaning Solvent is 140°F (60°C) and Type III Dry-cleaning Solvent is 200°F (93°C). Failure to do so may result in injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention.

a. Cleanliness. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use dry-cleaning solvent on metal surfaces and soapy water on rubber.

b. Bolts, Nuts, and Screws. Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition and tighten or replace as necessary. If they cannot be checked with a tool, look for chipped paint, bare metal, or rust around bolt heads.

c. Welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If a cracked weld is found, notify the supervisor.

d. Electrical Wires and Connectors. Look for cracked or broken insulation, exposed wires, and loose or broken connectors. Tighten loose connectors and make sure that wires are in good shape.

e. Fluid Hoses, Tubes, and Fittings. Look for wear, damage, or leaks. Make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector may also indicate a leak. If connector or fitting is loose, tighten it. If hoses, tubes, or fittings are broken or worn out, repair or replace per applicable procedure.

f. Air System Components. Look for worn, damaged, or leaking components. Make sure clamps and fittings are tight. If a leak comes from a loose fitting or connector, tighten it. If component is damaged or worn out, repair or replace per applicable procedure.

g. Damage. Damage is defined as any condition that affects safety or would make the truck unserviceable for mission requirements.

2-93. PMCS WARNINGS AND CAUTIONS.

Always observe the warnings and cautions appearing in your PMCS table. Warnings and cautions appear before applicable procedures. You must observe these warnings and cautions to prevent serious injury to yourself or prevent equipment being damaged.

2-94. EXPLANATION OF TABLE ENTRIES.

a. If an item or component being inspected is inoperable or damaged, either troubleshoot by following instructions in troubleshooting section of this manual or repair and/or replace as described in related maintenance task.

b. When doing preventive maintenance, take along tools and supplies needed to make all checks, including a clean cloth or two.

c. The following is a breakdown of the PMCS table:

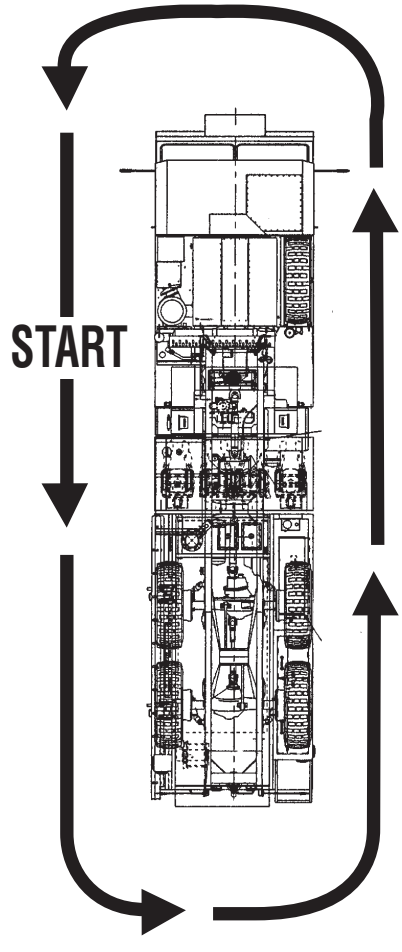
1. **Item No. Column.** Checks and services are numbered in a logical order for moving around the vehicle.
2. **Interval Column.** This column identifies when the PMCS should be performed.
   a. Perform (A-After Operations) checks right after operating vehicle.
   b. Perform (D-During Operations) checks during operation of vehicle.
   c. Perform (W-Weekly) checks weekly.
   d. Perform (M-Monthly) checks monthly.
3. **Item To Be Inspected Procedure Column.** This column identifies item to be inspected and contains all information required to do check/inspection. A digital photo is supplied to aid user in identifying items. Whenever replacement is recommended, reference is made to applicable maintenance instructions.
4. **Not Mission Capable If Column.** This column contains a brief statement of condition that would cause vehicle to be less than fully ready to perform its assigned mission.

2-95. ROUTING DIAGRAM.

WARNING

Engine must be shut off and parking brake set before performing PMCS walk around. Severe injury to personnel may result.

Refer to Preventive Maintenance Checks and Services (PMCS) for TFFT Vehicle. This routing diagram will be of help to complete the PMCS. It shows vehicle PMCS routing track that matches the sequence of PMCS to be performed.



2-96. LEAKAGE CLASSIFICATION AND DEFINITION.

Extreme weather conditions, periods of high use, or combat conditions may dictate that PMCS is performed more often than is required in the PMCS Tables.

As PMCS is performed, look for and be aware of an unusual amount of puddles, or unusually large puddles. Excessive puddles could indicate a leakage problem.

It is necessary to know how fluid leakage affects status of fuel, oil, coolant, and hydraulic system. The following are definitions of the type/classes of leakage necessary to know in order to determine status of the enhancement. Learn, then be familiar with them and REMEMBER - WHEN IN DOUBT, NOTIFY THE SUPERVISOR.

CAUTION

Equipment operation is allowable with minor leakage (Class I or II). Consideration must be given to the capacity in item/system being checked/inspected. When in doubt, notify supervisor. When operating with Class I or II leaks, continue to check fluid levels as required in the PMCS. Class III leaks should be repaired per applicable procedure.

(1) **Class I**. Seepage of fluid, as indicated by wetness or discoloration, not great enough to form drops.

(2) **Class II.** Leakage of fluid great enough to form drops, but not enough to cause drops that fall from item being checked/inspected.

(3) **Class III.** Leakage of fluid great enough to form drops that fall from item being checked/inspected.

Preventive Maintenance Checks and Services (PMCS)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE.

Table 2-9. Operator/Crew Preventive Maintenance Checks and Services (PMCS)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

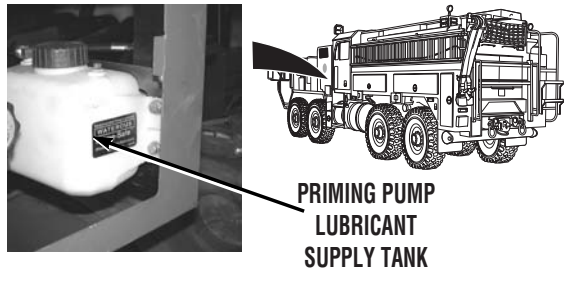
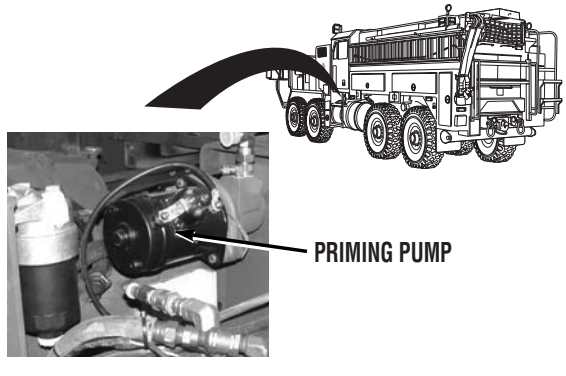
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
					MAKE THE FOLLOWING WALK AROUND CHECKS:	
					NOTE • Perform basic HEMTT PMCS, TM 9-2320-279-10-1, Table 2-1 prior to performing PMCS in this table. • Battery switch must be in the ON position to perform PMCS checks (TM 9-2320-279-10-1, Para 2-2, Figure 2-26). • While performing PMCS, be aware of any unusual puddles under the vehicle; this could indicate a leakage problem. • Perform Weekly (W) if: a. Assigned as the operator but have not operated vehicle since last weekly inspection. b. Operating the vehicle for the first time.	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
1.					**PUMP, PIPING SYSTEM, AND VALVES.**	
	•				Priming Pump a. Refill priming pump lubricant supply tank. Refer to Table 2-10, Lubrication Chart.  b. Examine priming pump for signs of priming pump lubricant or water leaks and obvious damage.  	Priming pump leaks.

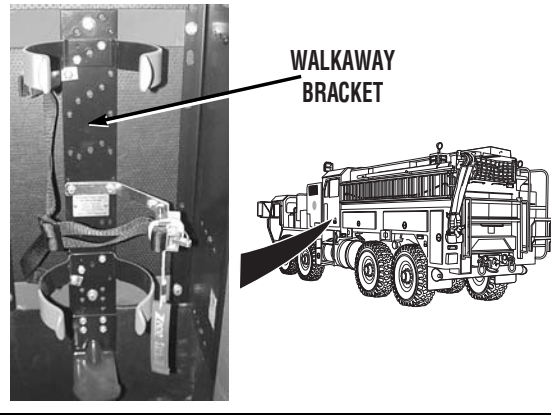
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

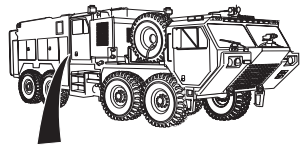
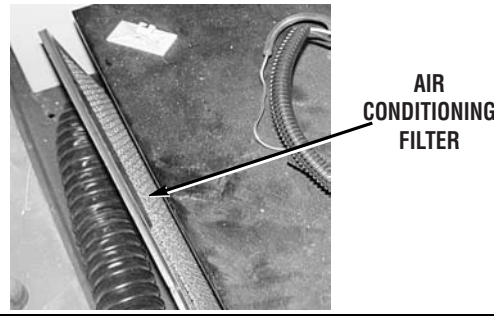
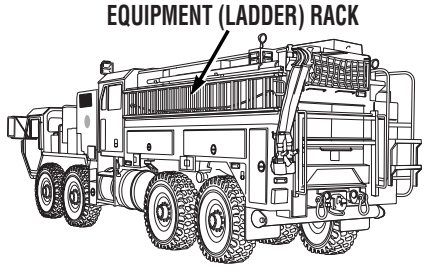
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
2.					**CREW CAB.**	
	•				Inspect cab intercom system between front cab and crew cab for proper operation.	Intercom is inoperable.
	•				Cab Doors a. Check that both cab door latches open and close easily. b. Check that both inner and outer handles operate. c. Make sure door seals are in place. d. Inspect door stop for damage.	Crew cab door will not latch.
	•				Cab Door Glass a. Check that window regulators move windows up and down smoothly. b. Make sure window glass is not cracked or broken. c. Make sure all window seals are in place.	
	•				Walkaway Brackets **NOTE** There are five walkaway brackets, four in the crew cab and one in the personnel cab. Inspect walkaway brackets for proper operation and visible damage or looseness. Tighten as required.  	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
2.					**CREW CAB (CONT).**	
	•				Air Conditioning Filter Inspect air conditioning filter for dirt and debris. With warm water, clean air conditioning filter as required.  	
	•				Inspect operator platform for damage. Inspect rubber hook for damage.	
3.					**DRIVER SIDE EQUIPMENT RACK.**	
	•				Make sure ladders in equipment (ladder) rack are properly stowed. 	

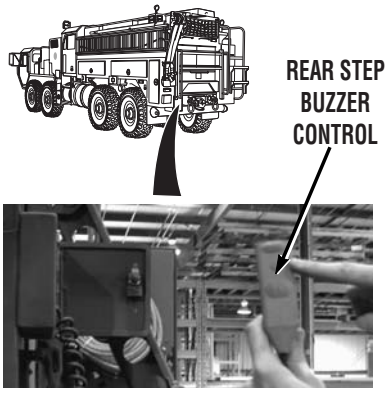
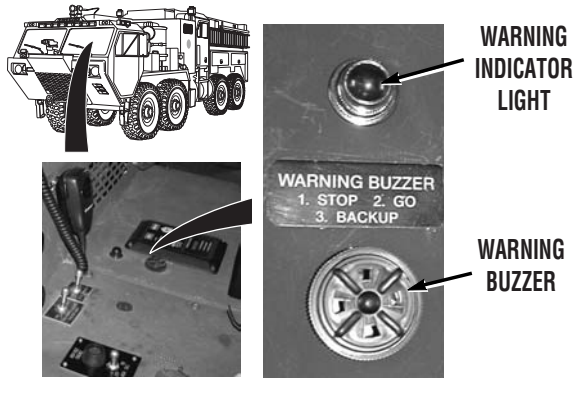
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
4.					**REAR BODY ASSEMBLY.**	
	•				Inspect mounting hardware for damage and/or missing parts.	
	•				Warning Buzzer a. Make sure that main cab buzzer goes off when warning buzzer button is depressed.  b. Make sure that warning indicator light illuminates and warning buzzer sounds when rear step buzzer control is depressed.  	Warning buzzer is inoperable.

Preventive Maintenance Checks and Services (PMCS)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Services (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
5.					**COEI AND BII.**	
					WARNING • Items in compartments may have shifted or come loose during operations. Use caution and be aware that items may fall out while opening doors, causing injury to personnel. • When parked on side slope, items in side compartments may fall out. Use caution and be aware that items may fall out while opening doors causing injury to personnel. • Side compartment doors that swing up are heavy. Make sure to have a firm grip on door when opening. Failure to comply may result in injury to personnel. Inventory and inspect all COEI and BII items that have been used in mission for damage, missing gaskets, and proper operation (refer to Appendix G). a. Inspect compartment doors and COEI/BII mountings for damage. b. Operate all hydraulic equipment. c. Inspect for damage. d. Inspect latches for dirt and debris.	

Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
5.					**COEI AND BII (CONT).**	
	•				Inspect hose restraint netting for excessive wear, tears, cuts, or burns. 	

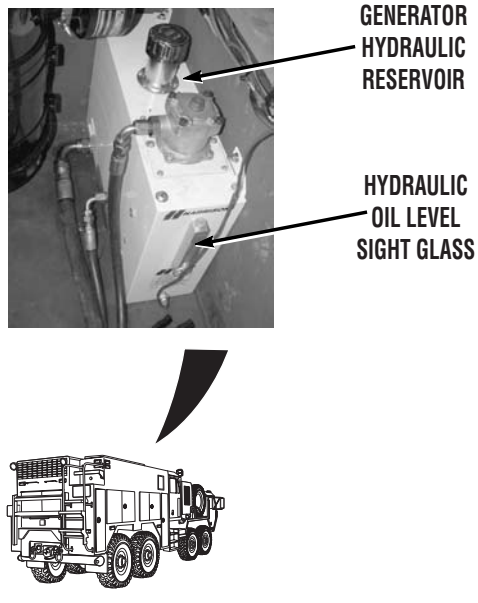
Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
6.					**GENERATOR.**	
	•				Generator Hydraulic Reservoir a. Check hydraulic oil level. Fill as required. Refer to Table 2-10 Lubricating Chart. b. Check reservoir, hoses, and fittings for leaks.	Class III leaks are evident.



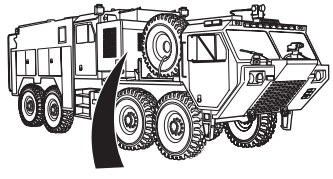
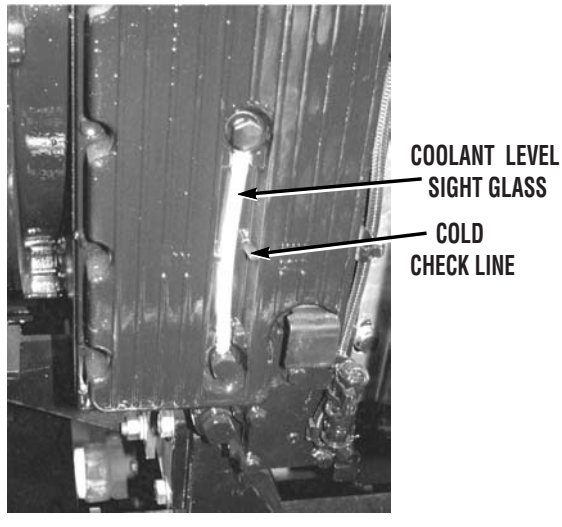
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

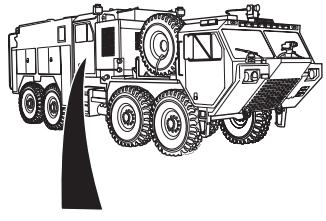
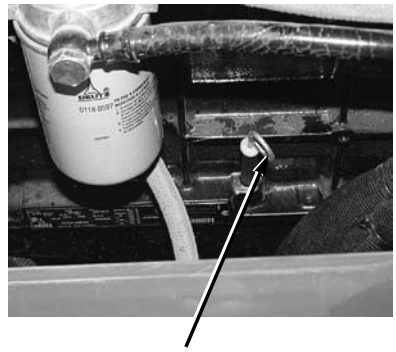
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
7.					**WATER PUMP ENGINE.**	
	•				Radiator **WARNING** Cooling system components can become very hot during operation. Make sure cooling system components are cool prior to performing PMCS. a. Check radiator coolant level sight glass. Fill as required. Refer to Table 2-10 Lubricating Chart. b. Coolant level should be up to the maximum working or fill limit.   	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
7.					**WATER PUMP ENGINE (CONT).**	
	•				Engine Oil Dipstick/Filler Tube a. Check oil level. Fill as required. Refer to Table 2-10 Lubricating Chart. b. Inspect base of dipstick/filler tube for leaks. c. Make sure attaching hardware is tight. Tighten as required.   ENGINE OIL DIPSTICK	
8.					**PERSONNEL CAB ASSEMBLY, LIGHTS AND CONTROLS.**	
	•				Personnel Cab Lights Check that all lamps function: a. Front and Side Lightbars. b. Front and Side Warning Lights.	

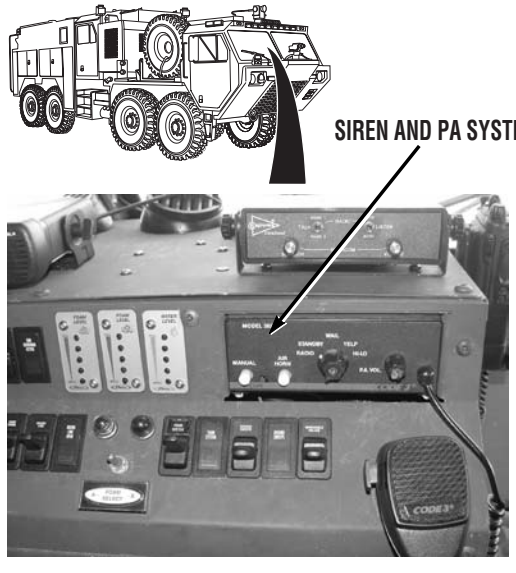
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

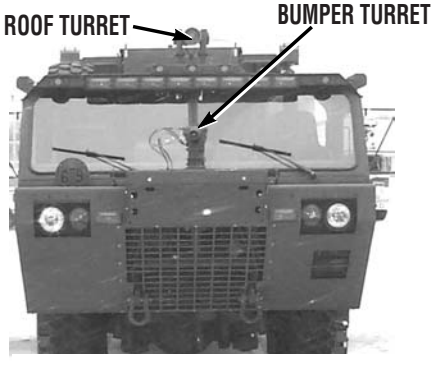
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
8.					**PERSONNEL CAB ASSEMBLY, LIGHTS AND CONTROLS (CONT).**	
	•				Check operation of siren and PA system mounted in cab. 	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
9.					**ROOF AND BUMPER TURRETS.**	
	•				Roof and Bumper Turret, Controls a. Operate roof and bumper turret functions. b. Check for proper operation through full range of motion. c. Check mounting brackets and platforms for cracks and obvious damage. d. Check that mounting hardware is not loose or missing. e. Check for leaks.  	Roof and bumper turrets are inoperable.

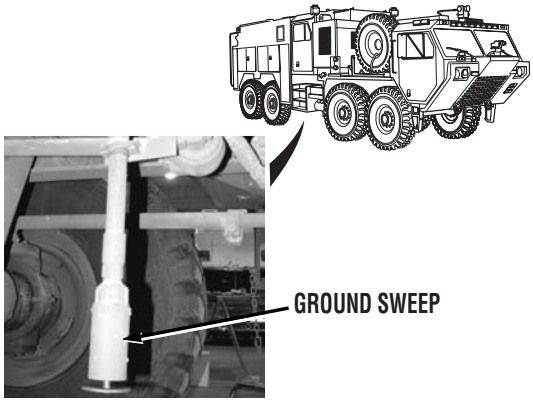
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

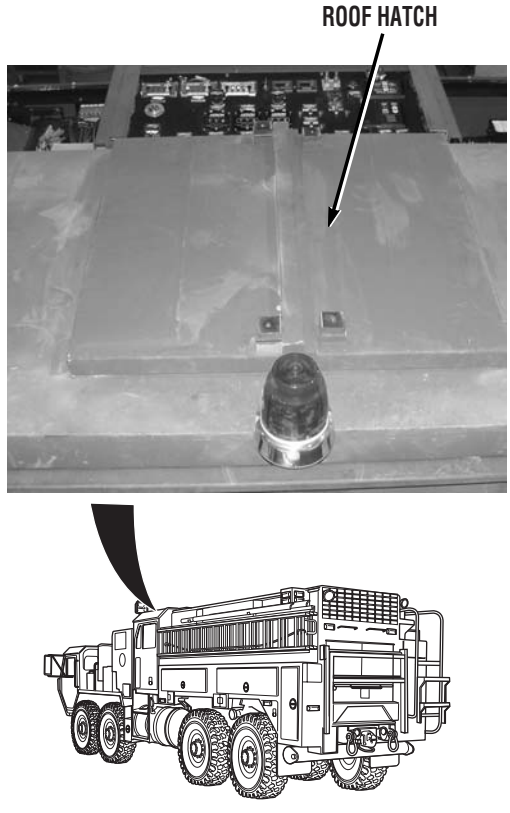
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
10.					**GROUND SWEEPS.**	
	•				Ground Sweeps a. Check for proper operation. b. Check ground sweep nozzles, hoses, and mounting brackets for cracks and obvious damage. c. Check for leaks. 	Ground sweeps are inoperable.

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
11.					**CREW CAB.**	
		•			Roof Hatch a. Make sure roof hatch opens and closes easily. b. Make sure hatch seal is in place. 	Roof hatch will not latch.
		•			Inspect all interior cab lights for proper operation.	

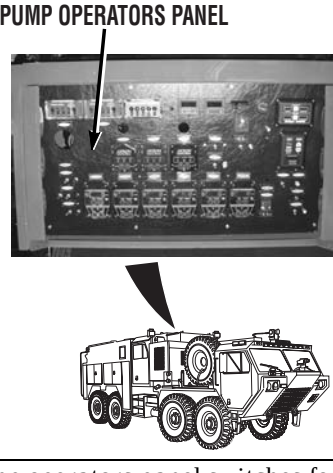
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

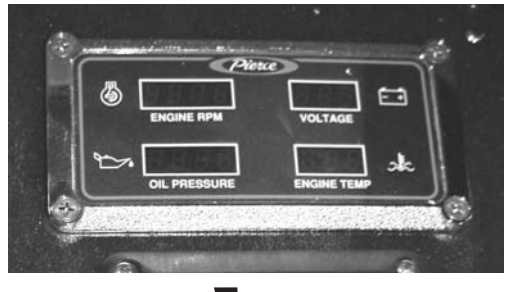
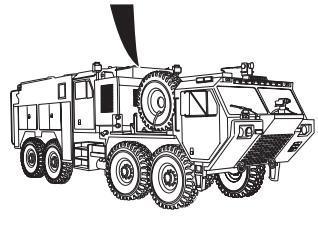
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
12.					**PUMP OPERATORS PANEL.**	
		•			Lights a. Start water pump engine (para 2-113). b. Set pump operators panel light switch to ON position. **WARNING** Pump operators panel lights become hot after being on for an extended period of time. Use extreme care when operating pump operators panel not to contact pump panel light. Failure to comply may result in burns to personnel. c. Check that side lights illuminate. 	
		•			Inspect pump operators panel switches for proper operation and visible damage.	
		•			Inspect pump operators panel pressure governor for proper operation and visible damage.	
		•			Inspect gages for visible damage. Check that all segments of water tank and foam tank level gages illuminate when tanks are full.	Any gage is damaged or inoperable.

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
13.					**WATER PUMP ENGINE.**	
		•			Gages, Indicators, and Warning Lights **NOTE** During operation, all gages should maintain proper readings. a. Start water pump engine (para 2-113). b. Monitor all gages, indicators, and warning lights for proper reading while operating vehicle. c. Check the following gages for proper operation: **OIL PRESSURE** - Minimum oil pressure with engine warm and low idle speed is 12 psi (83 kPa). **ENGINE TEMP** - Operating range is 181-203°F (83-95°C). **VOLTAGE** - 24 volt. **FUEL GAGE** **ENGINE RPM**  	
		•			Water Pump Engine Visually check and/or listen for excessive smoke, unusual noise, rough running, or misfiring.	

Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

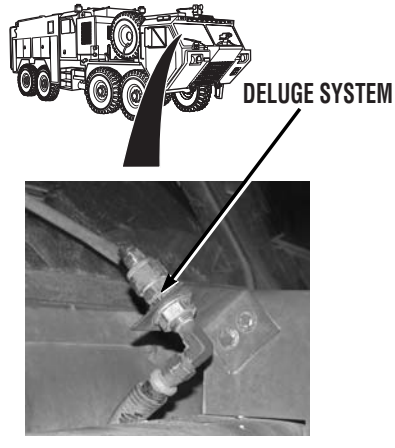
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
14.					**GENERATOR.**	
		•			Lights a. Check that portable worklights (120 VAC) illuminate. b. Check that extendable flood lights illuminate. c. Check that compartment lights illuminate. d. Replace or repair any inoperable light.	
15.					**PERSONNEL CAB ASSEMBLY, LIGHTS AND CONTROLS.**	
		•			Air Conditioner Condenser a. Check operation of air conditioner. b. Inspect hoses for kinks, cracks, chafing, and obvious damage. c. Check condenser for dented cooling fins, leaks, and obvious damage.  	
		•			Cab Center Panel Gages, Switches, and Indicator Lights a. Check gages operation. b. Check for visible damage to gages, switches, or indicator lights. c. Check switches for proper operation. d. Make sure indicator lamps illuminate.	Any gages, switches, or indicator lights are inoperable.

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
15.					**PERSONNEL CAB ASSEMBLY, LIGHTS AND CONTROLS (CONT).**	
		•			Window Deluge System a. Check operation of window deluge system (para 2-119). b. Inspect nozzles, hoses, and fittings for leaks and obvious damage. 	
16.					**PUMP COMPARTMENT.**	
			•		Inspect discharge connections/adapters for visible distortion, thread damage, and cracks.	
			•		Inspect driver side panels, pump operators panel, enclosure covers, and running boards for visible damage. Check all attaching hardware for damage and/or missing parts.	

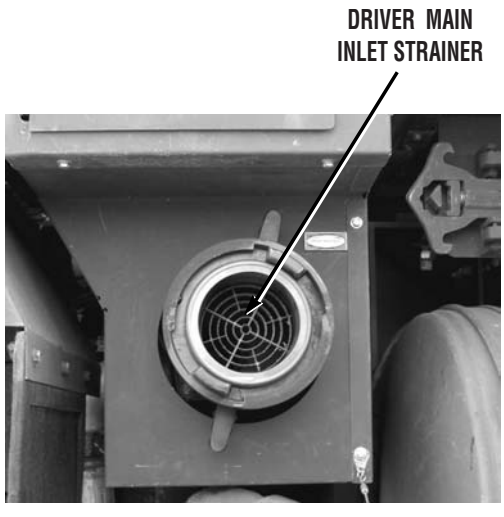
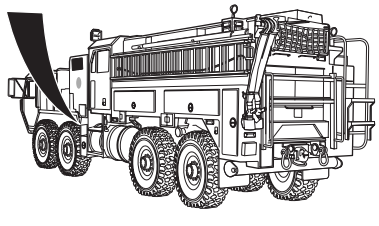
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
16.					**PUMP COMPARTMENT (CONT).**	
			•		Driver Main Inlet Strainer Clean strainer and inspect for damage.  	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
17.					**DRIVER SIDE EQUIPMENT RACK.**	
			•		Powered Equipment (Ladder) Rack Control Panel **WARNING** When moving powered equipment (ladder) rack, stay clear of rack area. Sudden rack movement may cause injury or death to personnel. Make sure that powered equipment (ladder) rack control panel functions properly in conjunction with powered equipment (ladder) rack.  	Equipment (ladder) rack is inoperable.

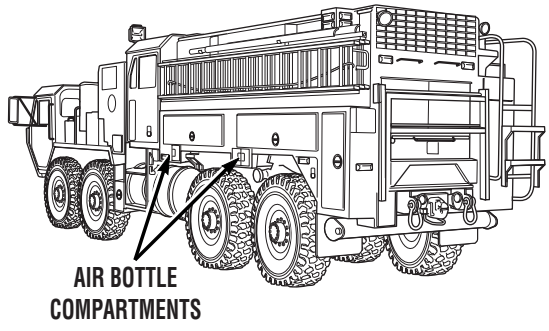
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

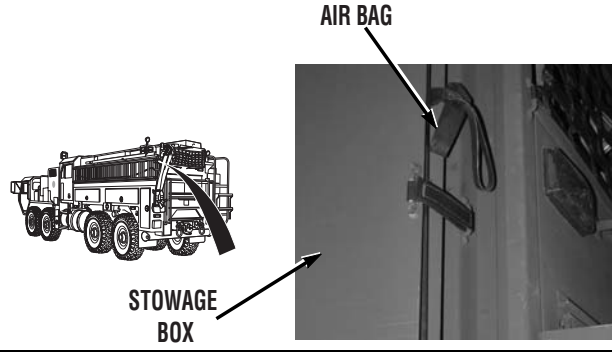
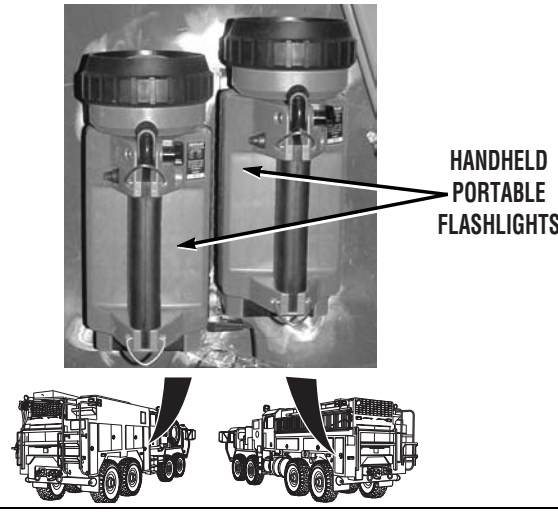
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
18.					**COEI AND BII.**	
			•		Inventory and inspect all COEI and BII items for damage, missing gaskets, and proper operation (refer to Appendix G). a. Inspect compartment doors and COEI/BII mountings for damage, and/or missing parts. b. Operate all hydraulic equipment. c. Inspect for damage.	
			•		Inspect air bottle compartments and doors for visible damage and proper operation.  	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
18.					**COEI AND BII (CONT).**	
			•		Air Bags and Air Bag Stowage Box a. Visually inspect air bag stowage boxes for damage or loose mounting hardware. b. Inspect air bags for tears, cuts, or loose fittings.  	Air bags are damaged or missing.
			•		Handheld Portable Flashlights a. Check operation of all handheld portable flashlights. b. Check that charging bases are operable and are securely fastened to compartment wall. c. Make sure flashlight is securely stowed in each base.  	

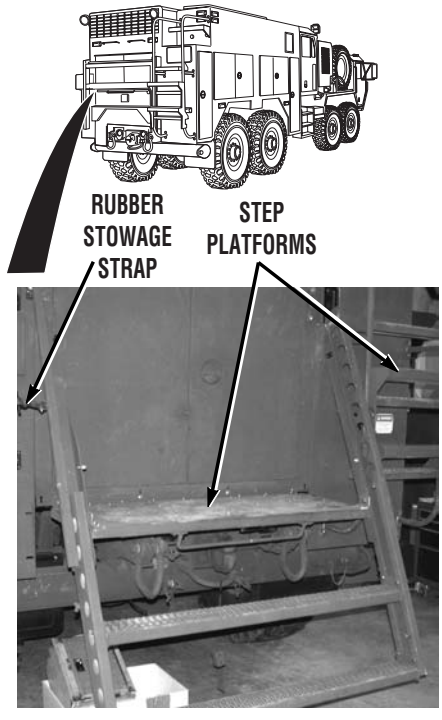
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

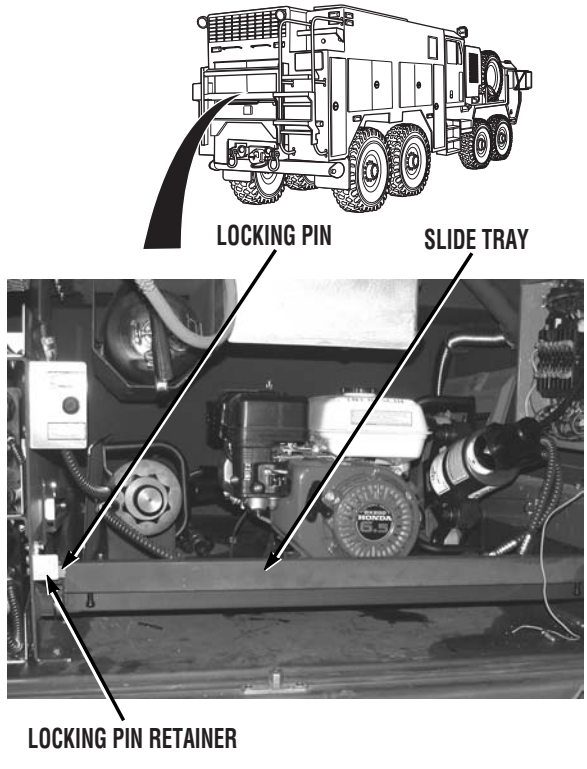
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
18.					**COEI AND BII (CONT).**	
			•		Rear Step Platforms and Tread Plates a. Inspect rear step platforms and tread plates for visible component damage and missing or loose mounting hardware. Repair or replace any damaged components. Tighten or replace any missing or loose mounting hardware. b. Inspect rubber hooks for cracks and obvious damage. c. Inspect handrails for damage and missing or loose mounting hardware. Tighten or replace any missing or loose attaching hardware.  	Mounting hardware missing from step platforms or tread plates.

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
18.					**COEI AND BII (CONT).**	
			•		Slide Tray a. Check that locking pins and locking pin retainers are in place. b. Check that slide tray works smoothly, and slide locks function properly.  	

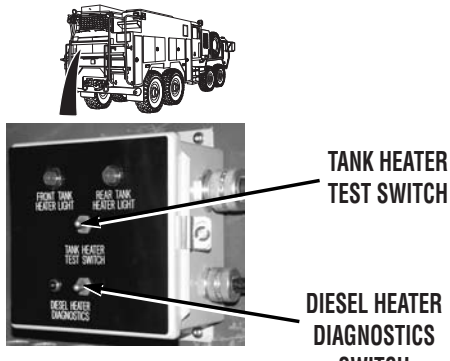
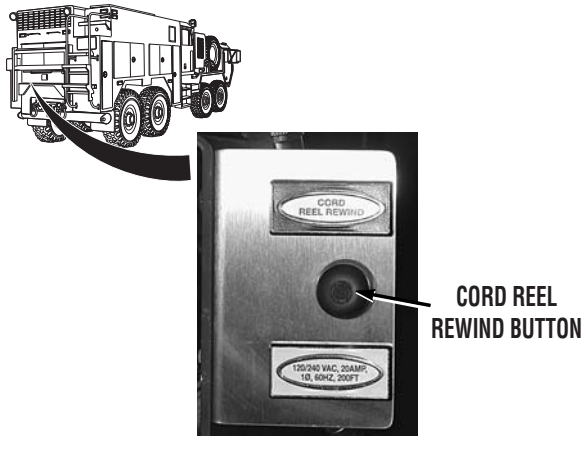
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

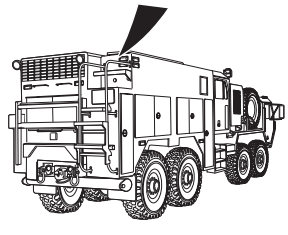
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
19.					**REAR BODY ASSEMBLY.**	
			•		Water Tank and Rear Compartment Heaters Perform functional test to make sure all heaters are functioning properly. 	Any heater is inoperable during cold weather conditions.
			•		Make sure cord reel rewind button works properly. 	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
19.					**REAR BODY ASSEMBLY (CONT).**	
			•		Inspect rear body for dents and scratches. Paint any exposed surfaces as required.	
			•		**WARNING** Use extreme care when walking on hosebed cover and on top of vehicle. Be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel. Inspect hosebed covers and hinges for damage.  	

Preventive Maintenance Checks and Services (PMCS) (Cont)

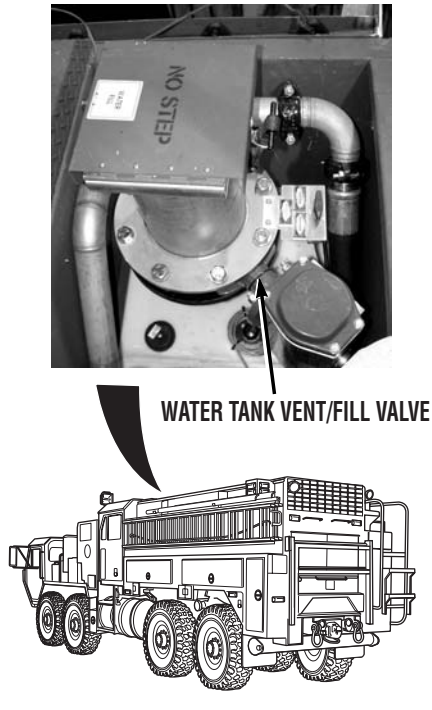
2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
20.					**WATER TANK ASSEMBLY.**	
			•		Water Tank Vent/Fill Valve a. Open cover. b. On pump operator's panel, open and close direct tank fill valve and tank to pump valve. c. Inspect 8 in. (20 cm) pneumatic butterfly valve for proper operation. d. Close cover.	

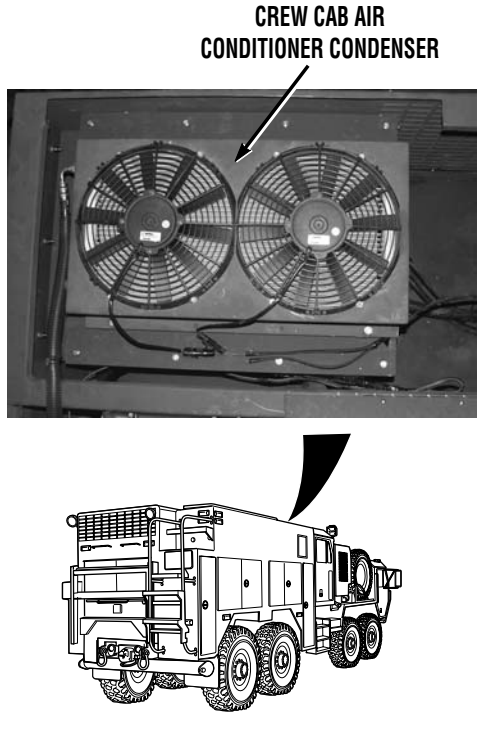


Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
21.					**GENERATOR.**	
			•		Generator Inspection a. Check for hydraulic oil leaks and tightness of hoses. b. Check for tightness of electrical connections. c. Check cables for damaged insulation. d. Check crew cab air conditioner condenser for dented cooling fins, kinked hoses, leaks, and obvious damage.  	Class III leaks are evident.

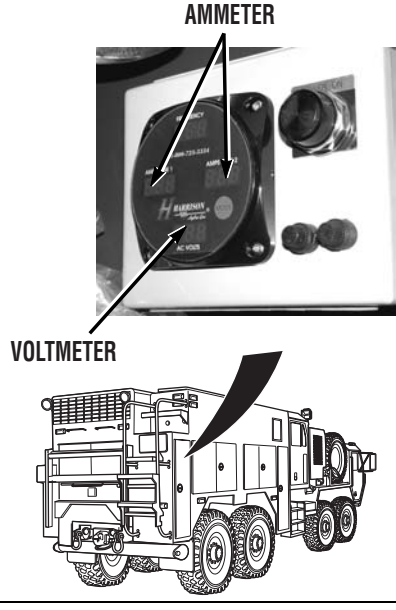
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
21.					**GENERATOR (CONT).**	
			•		Generator Test a. Start hydraulic generator (para 2-112). b. Check that ammeter and voltmeter indicate smooth 120 VAC output. **WARNING** Use extreme care when working around 120 VAC receptacles. Personnel may get electrocuted if 120 VAC receptacles are exposed to water. Failure to comply may result in injury or death to personnel. c. Check operation of 120 VAC accessories (crew cab air conditioner, flood lights, and receptacles). d. Stop hydraulic generator (para 2-112). 	Generator inoperable.

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
22.					**PASSENGER SIDE.**	
			•		Inspect passenger side panels, enclosure covers, and running boards for visible damage. Check all attaching hardware for damage and/or missing parts.	
			•		Inspect frame and subframe for damage. Check all attaching hardware for damage, looseness, and/or missing parts.	
23.					**CREW CAB.**	
			•		Seats and Seat Belts a. Check operation of seat belts and check fabric is not worn or torn. b. Make sure all seat and belt fasteners are tight. c. Make sure padded backrest inserts are present.	
			•		Handheld Portable Radios a. Check operation of all handheld radios. b. Check that charging bases are operable and are securely fastened to cab wall. c. Make sure radio is securely stowed in each base.	

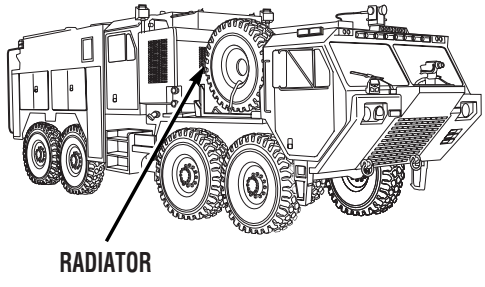
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

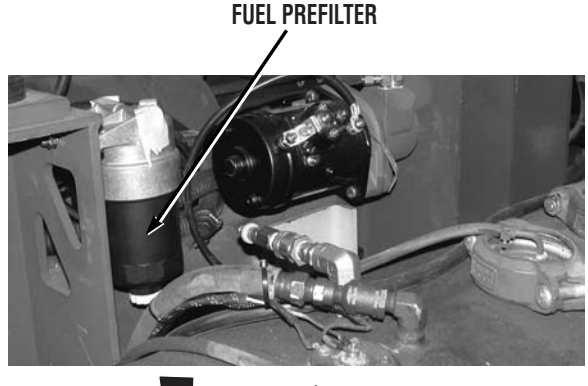
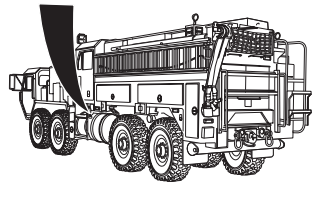
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
24.					**WATER PUMP ENGINE.**	
			•		Check radiator and radiator hoses for leaks, clogs, or damaged fins. Check for loose clamps.  	Radiator or radiator hoses leak or are damaged.
			•		Make sure securing hoses are tight and secure.	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
24.					**WATER PUMP ENGINE (CONT).**	
			•		Fuel Prefilter **WARNING** Fuel is flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE. **NOTE** Use a suitable container to collect water that may drain from prefilter. Loosen drain plug and drain water from prefilter. FUEL PREFILTER  	

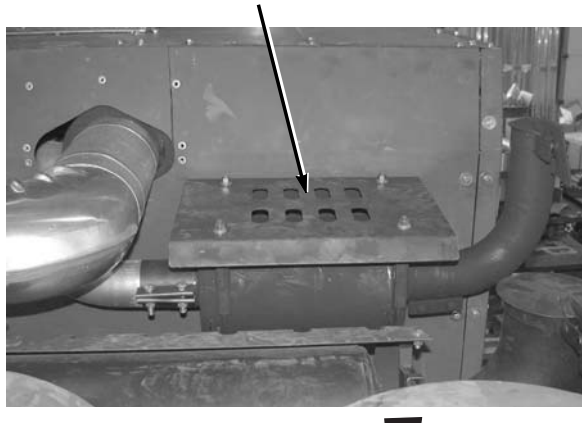
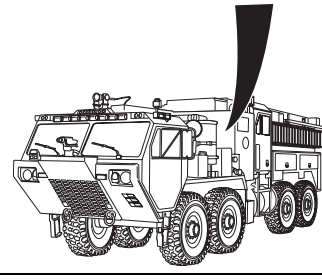
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

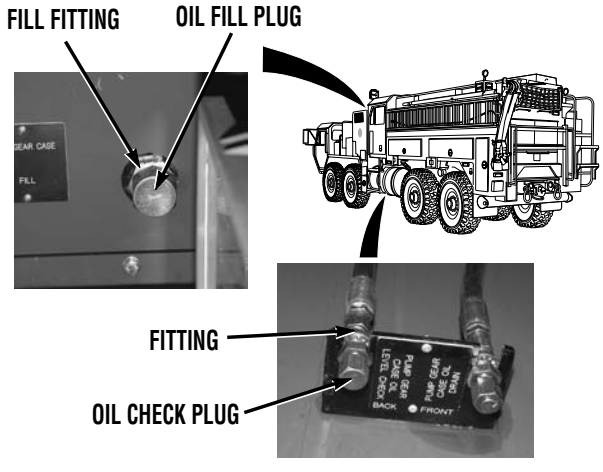
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
24.					**WATER PUMP ENGINE (CONT).**	
			•		Exhaust System **WARNING** Exhaust system can become hot during operation. Make sure all exhaust system components are cool prior to performing PMCS. **NOTE** Operation of vehicle with any exhaust leaks may violate AR 385-55. Check exhaust pipe, muffler, heat shield, tailpipe, rain cap, clamps, and mountings for obvious damage, looseness, exhaust leak, and carbon build up. PUMP ENGINE EXHAUST SYSTEM  	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
25.					**PUMP, PIPING SYSTEM, AND VALVES.**	
				•	Water Pump Gear Case Check water pump gear case oil level.  a. Remove oil fill plug from fitting. b. Pour 16 fl oz (473.2 ml) of oil in fill fitting. **NOTE** • Let oil drain from water pump gear oil level check plug until it stops draining; when oil stops draining, the oil level is correct. • Drain oil into suitable container. c. Remove water pump gear case oil level check plug from fitting. d. Install water pump gear case oil level check plug on fitting. e. Install oil fill plug on fill fitting.	

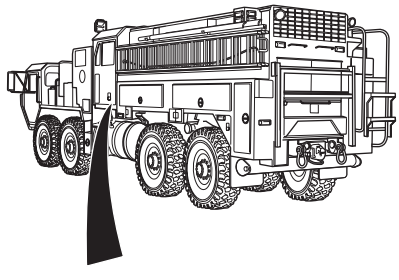
Preventive Maintenance Checks and Services (PMCS) (Cont)

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

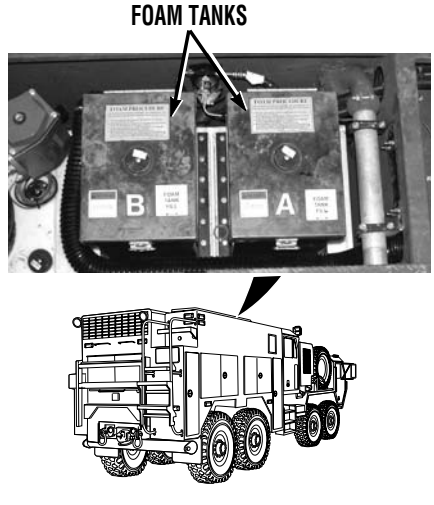
Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
26.					**CREW CAB.**	
				•	Battery Charger/Air Compressor **NOTE** • Vehicle must be plugged into off-truck electrical source to test battery charger. • Drain air system (TM 9-2320-279-10-1, Para 2-8, Table 2-1, Item 42). Test battery charger and air compressor to make sure they are functioning properly.  	
				•	Inspect rifle mounts for damage or missing hardware.	

Preventive Maintenance Checks and Services (PMCS) (Cont)

Table 2-9. Operator/Crew Preventive Maintenance Checks and Service (PMCS) (Cont)

NOTE: These checks are to be made in the order listed, within designated interval.

A-After Operation D-During Operation W-Weekly M-Monthly

Item No.	INTERVAL A	D	W	M	ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed.	NOT MISSION CAPABLE IF:
27.					**FOAM TANKS.**	
				•	Foam Tank Assembly **WARNING** Use extreme care when walking on hosebed cover and on top of vehicle. Be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel. a. Foam tank is empty. Inspect tank interior for corrosion and clogged screens; clean as required. **NOTE** Perform step b. only if foam tank is full. b. Inspect for leaks. Make sure foam tank filler doors latch properly, and door seals are in place. c. Clean foam tank pressure/vent valves with water. 	

2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

a. Lubrication Introduction.

Intervals (on-condition or hardtime) and the related man-hour times are based on normal operation. The man-hour time specified is the time needed to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals shall be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hardtime interval if lubricants are contaminated or if operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The calendar interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hardtime intervals must be applied during the warranty period.

WARNING

Dry-cleaning solvent is TOXIC and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area; avoid contact with skin, eyes, and clothes; and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flash point for Type II Dry-cleaning Solvent is 140°F (60°C) and Type III Dry-cleaning Solvent is 200°F (93°C). Failure to do so may result in injury or death to personnel.

Cleaning fittings before lubrication. Clean parts with dry-cleaning solvent (SD P-D-680) or equivalent. Dry before lubricating.

Lubrication after high-pressure washing. After a thorough washing, lubricate all grease fittings and oil can points outside and underneath vehicle.

Preventive Maintenance Checks and Services (PMCS) (Cont)

WARNING

Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 db or greater. Wear approved hearing protection devices when working in high noise level areas. Hearing loss occurs gradually, but becomes permanent over time.

NOTE

These lubrication instructions are mandatory.

Table 2-10. LUBRICATING CHART

ITEM NO.	INTERVAL	ITEM TO BE LUBRICATED	PROCEDURE	TYPE	QUANTITY
1	25 hours/ 3 months 50 hours/ 6 months	Gear Case	WATER PUMP Check gear case oil level. Replace gear case oil.	80W/90 80W/90	
2	50 hours/ 6 months	Hydraulic Reservoir	GENERATOR Replace hydraulic oil and filter element.	DEXRON II	31 qt/ (29.33 L)
3	250 hours/ 6 months		CAB AND BODY Lubricate doors, side panels, hood hinges, locks, latches, and other pivot points.	Cleaner, Lubricant A (MIL-L-63460)	
4	2000 hours/ 6 months	Radiator check	RADIATOR Replace coolant.		approx. 17.3 qt/ (16.3 L)
5	As required	Priming Pump Lubricant Supply Tank	Priming Pump Lubricant Supply Tank		6 qt

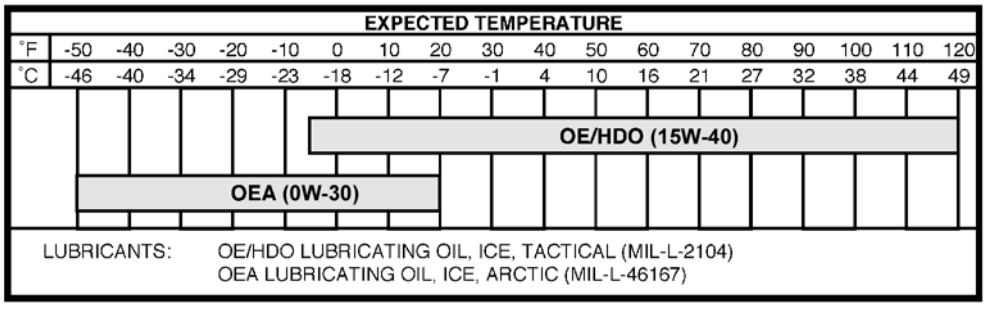
2-97. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) TABLE (CONT).

Table 2-10. LUBRICATING CHART (Cont)

ITEM NO.	INTERVAL	ITEM TO BE LUBRICATED	PROCEDURE	TYPE	QUANTITY
6	500 hours/ 12 months	Engine	WATER PUMP ENGINE Replace water pump engine oil and filter element. Lubricate water pump engine using correct oil for temperature. Refer to chart below.		With filter 22 qt/(21 L) Without filter 21 qt/ (20 L)

NOTE

- OE/HDO 15W 40 must be used in temperatures consistently above 100ºF (38ºC).
- Should the temperature fall temporarily below the limits of the oil grade selected, cold starting may be affected but the engine will not be damaged. In order to keep wear to a minimum, do not exceed application limits for extended periods of time.



SECTION XI. OPERATION UNDER USUAL CONDITIONS

2-98. PREPARE TO OPERATE VEHICLE.

Refer to TM 9-2320-279-10-1 for procedure on preparing to operate vehicle.

2-99. PREPARATION FOR OPERATION-OPERATIONAL MODES.

NOTE

A complete TFFT crew is required to perform fire fighting operations.

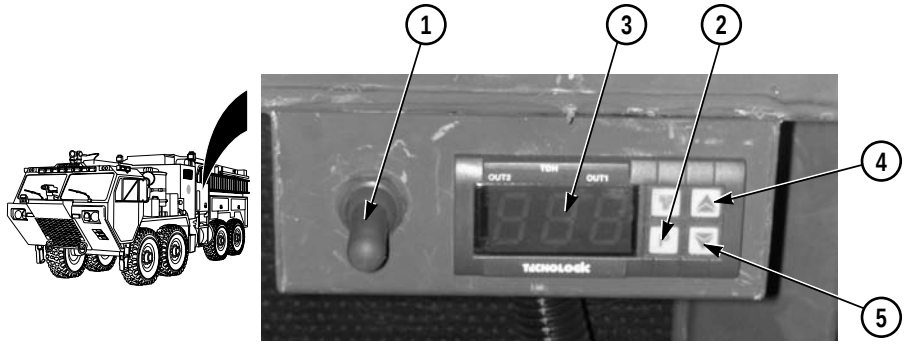
a. Make sure battery switch is in the ON position (TM 9-2320-279-10-1, para 2-2, Fig. 2-26).

b. Make sure instrument control panel is in standby mode (para 2-111 & 2-123).

c. Make sure all tanks are full per mission requirement (para 2-110 & 2-122).

d. Make sure all personnel are familiarized with department procedures for setting wheel chocks (TM 9-2320-279-10-1, para 2-11).

2-100. CREW CAB AIR CONDITIONER/HEATER CONTROL PANEL SET POINT PROGRAMMING.



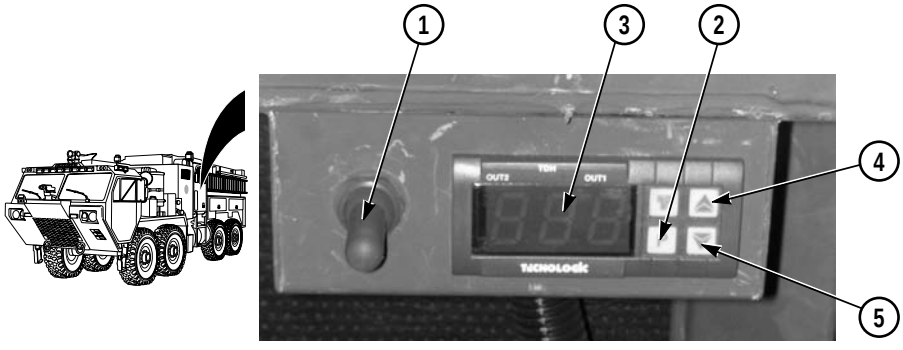
NOTE

- Air conditioner/heater control panel set points must be between lower and upper set point limits programmed during control panel set point parameter programming.
- Set point SET2 (air conditioner ON temperature) must be higher than set point SET1 (heater ON temperature) for system to operate properly.

a. Put air conditioner/heater control panel switch (1) in ON position.

Operation Under Usual Conditions (Cont)

2-100. CREW CAB AIR CONDITIONER/HEATER CONTROL PANEL SET POINT PROGRAMMING (CONT).



b. Press and release P (2) key, to enter set point programming mode and display the value of set point SET1 on display (3).

c. Press UP (4) or DOWN (5) key until the desired temperature for turning on the heater is displayed on display (3).

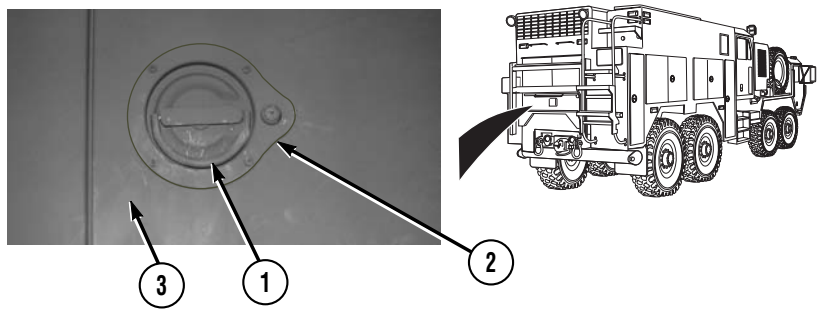
d. Press and release P (2) key, to display the value of set point SET2 on display (3).

e. Press UP (4) or DOWN (5) key until the desired temperature for turning on the air conditioner is displayed on display (3).

f. System will return to normal operating mode five seconds after last key is pressed.

2-101. COMPARTMENT DOOR OPEN/CLOSE.

a. Open Compartment Doors.



WARNING

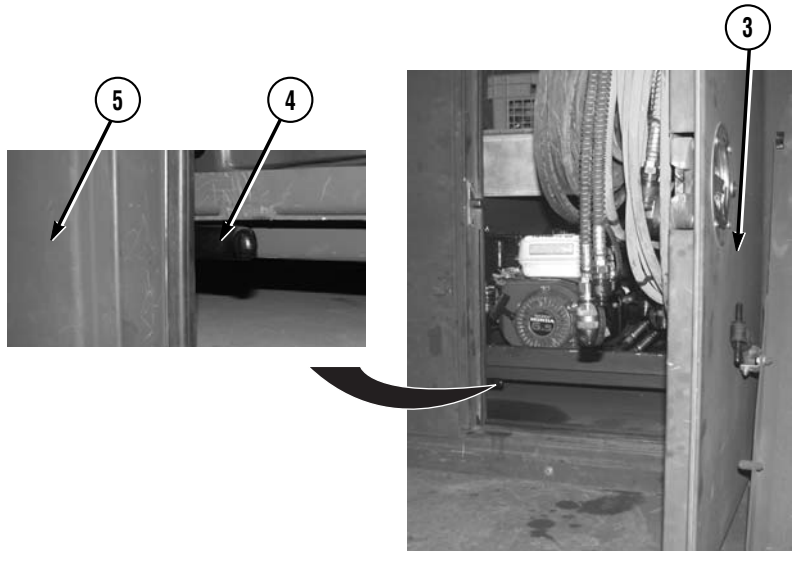
- Items in compartments may have shifted or come loose during operations. Use caution and be aware that items may fall out while opening doors, causing injury to personnel.
- When parked on side slope, items in side compartment may fall out. Use caution and be aware that items may fall out while opening doors, causing injury to personnel.
- Side compartment doors that swing up are heavy. Make sure to have a firm grip on door when opening. Failure to comply may result in injury to personnel.

(1) Unstow rear work platform (para 2-105).

(2) Pull out D-ring (1) on door handle (2) and turn 1/4 turn clockwise.

(3) Slowly open compartment door (3).

2-101. COMPARTMENT DOOR OPEN/CLOSE (CONT).



NOTE

Perform steps *(4)* and *(5)* if opening rear module door or left module door above rear wheels on passenger's side of vehicle with no D-rings.

(4) Push up on latch handle (4).

(5) Slowly open compartment door (5).

b. Close Compartment Doors.

(1) Make sure all items are properly stowed.

NOTE

Left compartment doors must be closed prior to closing right compartment doors.

(2) Close compartment door (5).

(3) Close compartment door (3) until click is heard.

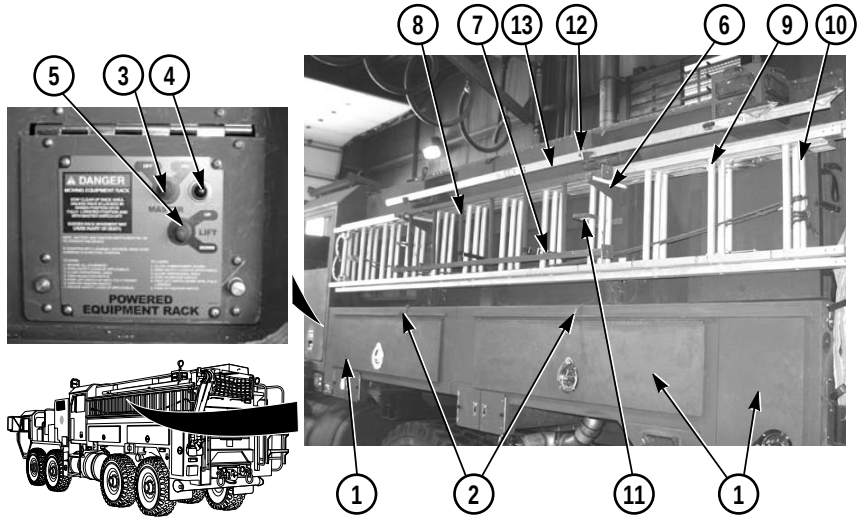
(4) Make sure compartment door (3) is securely latched.

(5) Stow rear platform (para 2-105).

Operation Under Usual Conditions (Cont)

2-102. UNSTOW/STOW EQUIPMENT (LADDER) RACK.

a. Unstow Equipment (Ladder) Rack.



(1) Close three compartment doors (1) (para 2-101).

(2) Pull two straps (2) to release locks.

(3) Put MASTER SWITCH (3) in ON position. Indicator light (4) will come on.

WARNING

Stay clear of equipment (ladder) rack area unless equipment (ladder) rack is locked in raised position or in fully lowered position with MASTER SWITCH OFF. Sudden equipment (ladder) rack movement may cause injury or death to personnel.

(4) Clear equipment (ladder) rack area and push LIFT SWITCH (5) down to lower equipment (ladder) rack (6).

(5) Put MASTER SWITCH (3) in OFF position. Check that indicator light (4) goes out.

(6) Remove two buckle straps (7) and vehicle maintenance ladder (8), 14 ft. (4 m) roof ladder (9), and 24 ft. (7 m) two section extension ladder (10) from equipment (ladder) rack (6).

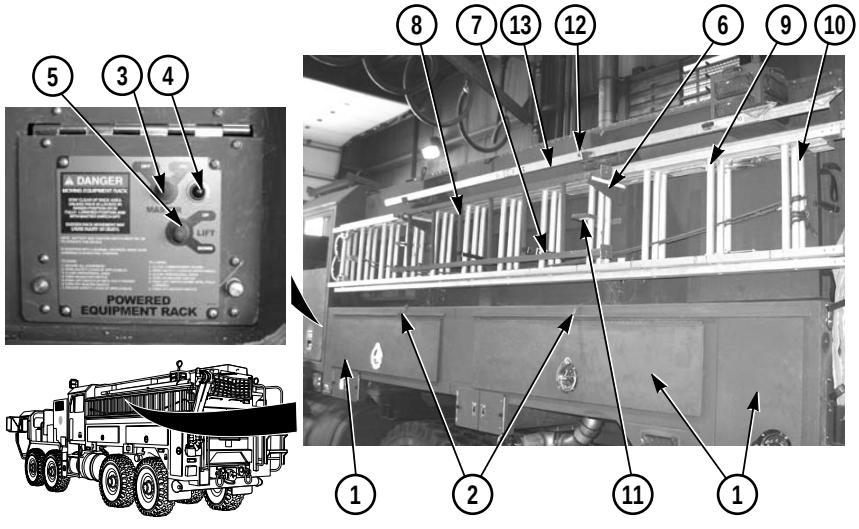
(7) Pull two securing handles (11) straight out, turn ¼ down, and release.

(8) Remove pin (12) and 10 ft. (3 m) folding ladder (13) from equipment (ladder) rack (6).

Operation Under Usual Conditions (Cont)

2-102. UNSTOW/STOW EQUIPMENT (LADDER) RACK (CONT).

b. Stow Equipment (Ladder) Rack.



NOTE

Line up arrows with supporting beam.

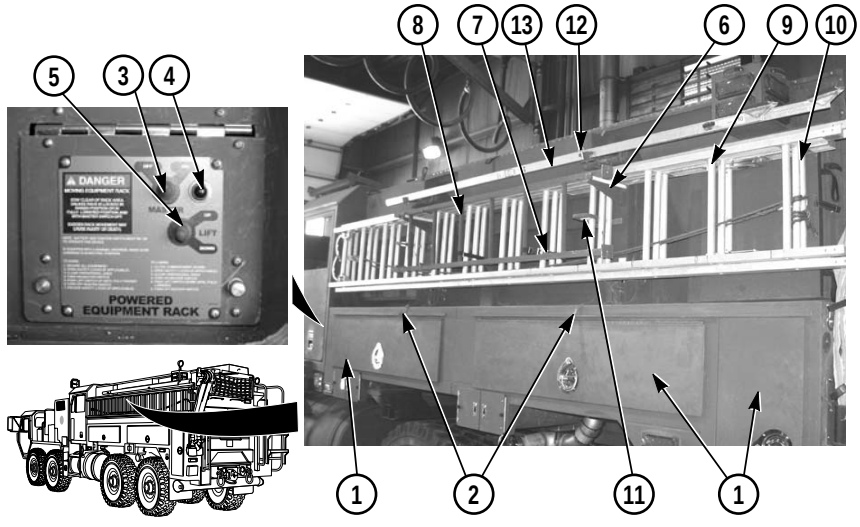
(1) Install 24 ft. (7 m) two section ladder (10), 14 ft. (4 m) roof ladder (9), and vehicle maintenance ladder (8) on equipment (ladder) rack (6) with two buckle straps (7).

(2) Secure ladders (8, 9, and 10) on equipment (ladder) rack (6) with two securing handles (11).

(3) Install 10 ft. (3 m) folding ladder (13) on equipment (ladder) rack (6) with pin (12).

(4) Put MASTER SWITCH (3) in ON position. Indicator light (4) will come on.

Operation Under Usual Conditions (Cont)



WARNING

Stay clear of equipment (ladder) rack area unless equipment (ladder) rack is locked in raised position or in fully lowered position with MASTER SWITCH OFF. Sudden equipment (ladder) rack movement may cause injury or death to personnel.

CAUTION

Make sure ladders are clear of crew cab. Ladder could contact crew cab causing damage to equipment.

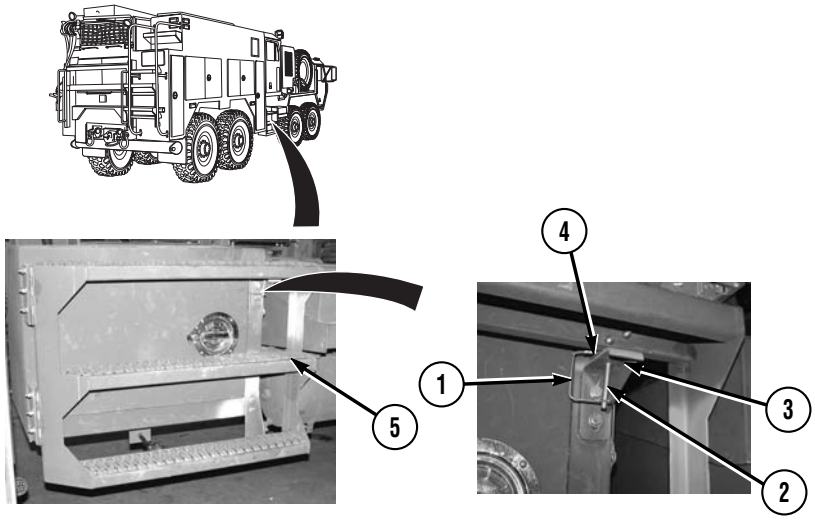
(5) Clear rack area and push LIFT SWITCH (5) up to raise equipment (ladder) rack (6).

(6) Put MASTER SWITCH (3) in OFF position. Check that indicator light (4) goes out.

Operation Under Usual Conditions (Cont)

2-103. UNSTOW/STOW CREW CAB ACCESS STEPS.

a. Unstow Crew Cab Access Steps.



(1) Grab and pull lock pin handle (1).

(2) Remove lock pin (2) from bracket (3) and bracket (4).

(3) Swing crew cab access steps (5) outward until clear of vehicle.

b. Stow Crew Cab Access Steps.

(1) Swing crew cab access steps (5) inward to vehicle and install lock pin (2) in bracket (4) and bracket (3).

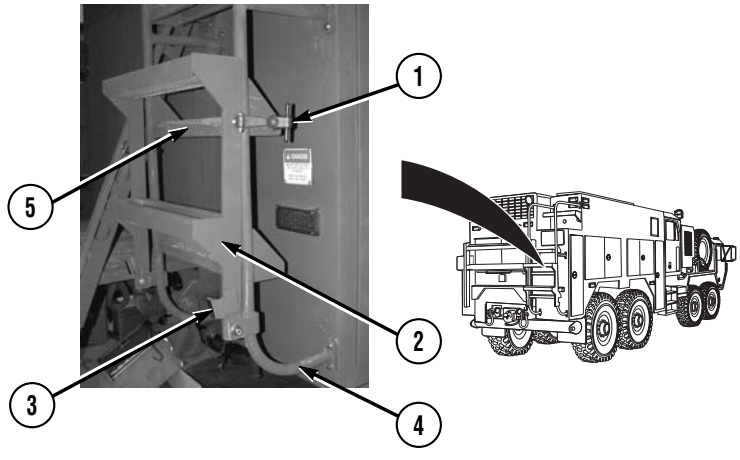
(2) Push lock pin handle (1) over lock pin (2).

(3) Pull out on crew cab access steps (5) and make sure crew cab access steps are secure.

Operation Under Usual Conditions (Cont)

2-104. UNSTOW/STOW RIGHT REAR ACCESS LADDER.

a. Unstow Right Rear Access Ladder.



WARNING

Properly support right rear access ladder before removing rubber hook. Failure to comply may result in injury to personnel.

(1) Release rubber hook (1) on ladder section (2).

WARNING

Care must always be taken when climbing ON and OFF vehicle. Always face vehicle, use steps and grab handles, maintain three points of contact with vehicle (two feet/one hand or two hands/one foot). Keep steps, grab handles, and walkways clean, and be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel.

(2) Slowly lower right rear access ladder section (2) down until bumper (3) contacts handrail tubing (4).

b. Stow Right Rear Access Ladder.

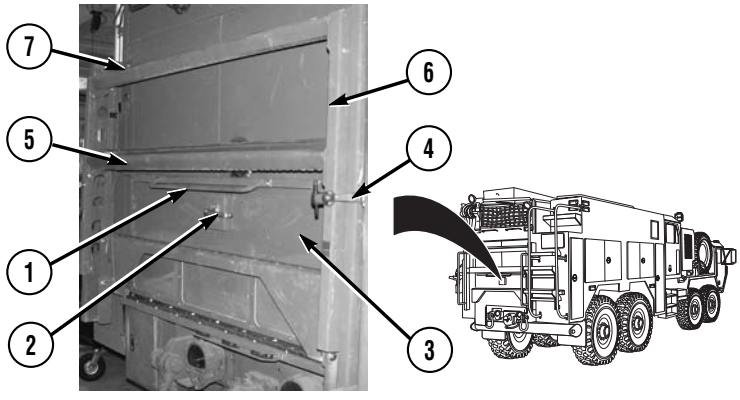
(1) Raise lower right rear access ladder section (2) to upper right rear ladder section (5) and connect rubber hook (1).

(2) Pull on lower right rear access ladder and make sure that lower right rear access ladder is secure.

Operation Under Usual Conditions (Cont)

2-105. UNSTOW/STOW REAR WORK PLATFORM.

a. Unstow Rear Work Platform.



WARNING

Rear platform is heavy. When lockhandle is turned to unlock rear platform from vehicle and while rear platform is being lowered, operator must have firm grip of grab handle. Failure to comply may result in injury to personnel.

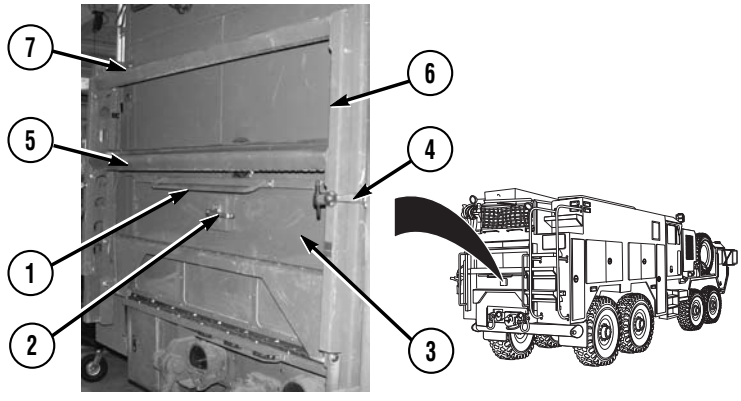
(1) With firm grip on grab handle (1), turn lockhandle (2) clockwise to unlock rear platform (3) from vehicle.

WARNING

Operator must have firm grip on grab handle until rear platform is completely lowered. Failure to comply may result in injury to personnel.

(2) With both hands, grip grab handle (1), slowly pull grab handle (1) and lower rear platform (3).

(3) Release two rubber hooks (4).



WARNING

Care must always be taken when climbing ON and OFF vehicle. Always face vehicle, use steps and grab handles, maintain three points of contact with vehicle (two feet/one hand or two hands/one foot). Keep steps, grab handles, and walkways clean, and be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel.

(4) With firm grip on upper step (5), slowly pull back and swing rear platform ladder (6) into operating position.

b. Stow Rear Work Platform.

(1) With firm grip on lower step (7), raise rear platform ladder (6) and secure with two rubber hooks (4).

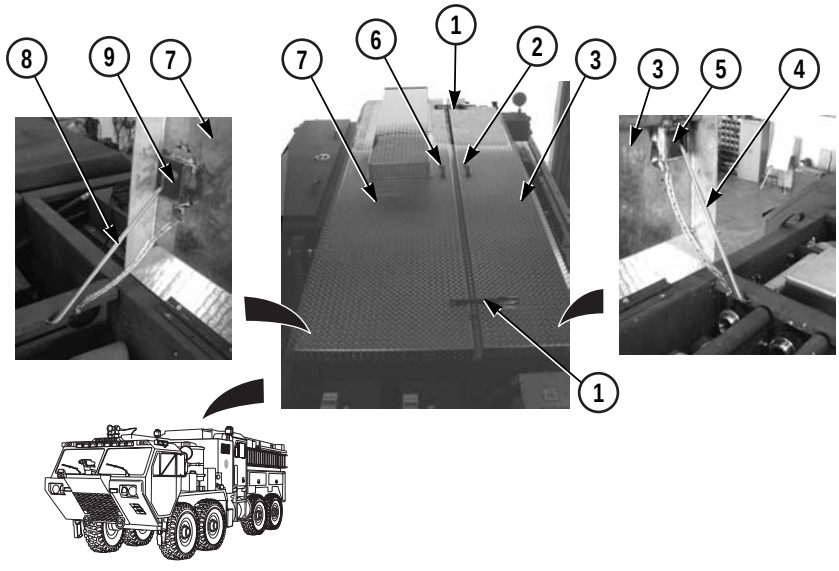
WARNING

Operator must have firm grip on grab handle until platform is locked securely to vehicle. Failure to comply may result in injury to personnel.

(2) Push up rear ladder platform (3) until click is heard to make sure rear ladder platform (3) is locked securely to vehicle.

2-106. HOSEBED COVERS OPEN/CLOSE.

a. Open Hosebed Covers.



WARNING

Use extreme care when walking on hosebed cover and on top of vehicle. Be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel.

(1) Unstow right rear access ladder (para 2-104).

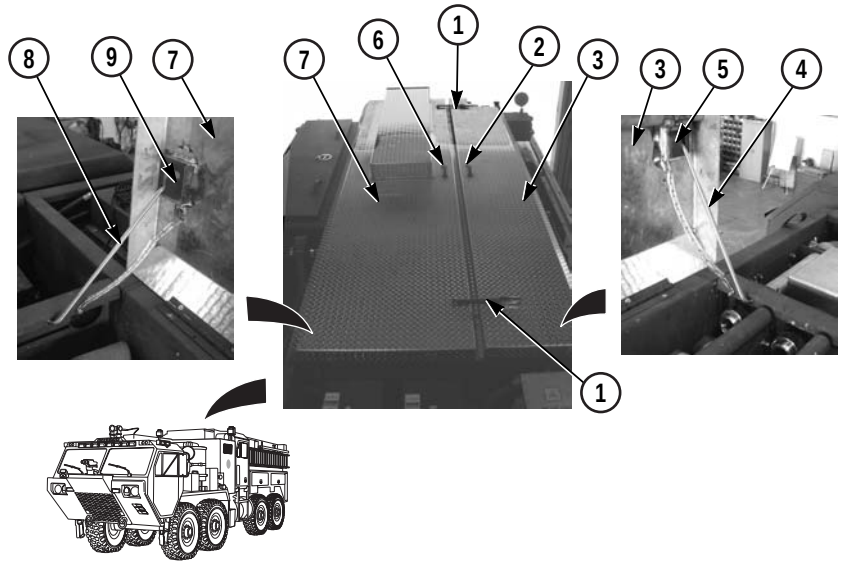
(2) Release two latches (1).

WARNING

- Firm grip must be kept on hosebed covers until support rods are installed to support hosebed covers. Failure to comply may result in injury to personnel.
- Use extra care when opening hosebed covers in the wind. Hosebed covers could close shut if wind blows them and support rods are not installed. Failure to comply may result in injury to personnel.

(3) With a firm grip on grab handle (2), lift up hosebed cover (3).

Operation Under Usual Conditions (Cont)



WARNING

Support rods must be installed to support hosebed cover when open. Failure to comply may result in hosebed cover falling shut, causing damage to equipment or injury to personnel.

(4) Install support rod (4) in rod catch (5) on hosebed cover (3).

(5) With a firm grip on grab handle (6), lift up hosebed cover (7).

(6) Install support rod (8) in rod catch (9) on hosebed cover (7).

b. Close Hosebed Covers.

WARNING

Firm grip must be kept on hosebed covers until support rods are removed and hosebed covers are closed. Failure to comply may result in injury to personnel.

(1) Remove support rod (8) from rod catch (9) on hosebed cover (7).

(2) With a firm grip on grab handle (6), lower hosebed cover (7).

(3) Remove support rod (4) from rod catch (5) on hosebed cover (3).

(4) With a firm grip on grab handle (2), lower hosebed cover (3).

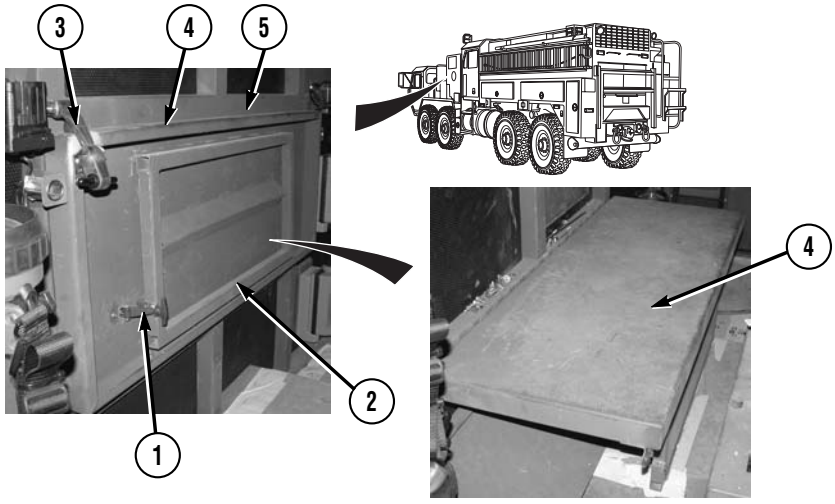
(5) Connect two latches (1).

(6) Stow right rear access ladder (para 2-104).

Operation Under Usual Conditions (Cont)

2-107. UNSTOW/STOW PUMP OPERATOR'S PLATFORM.

a. Unstow Pump Operator's Platform.



WARNING

Fold-out platform support must be properly positioned in groove on crew cab floor or platform could collapse. Failure to comply may result in injury to personnel.

NOTE

When pump operator's platform is lowered, fold-out platform support will swing down and be placed in groove on crew cab floor.

(1) Make sure groove on crew cab floor is free of obstacles.

(2) Release rubber hook (1) from fold-out platform support (2).

(3) Release rubber hook (3) on pump operator's platform (4).

(4) Pull pump operator's platform (4) away from crew cab wall (5) until fold-out platform support (2) is positioned in groove on crew cab floor.

b. Stow Pump Operator's Platform.

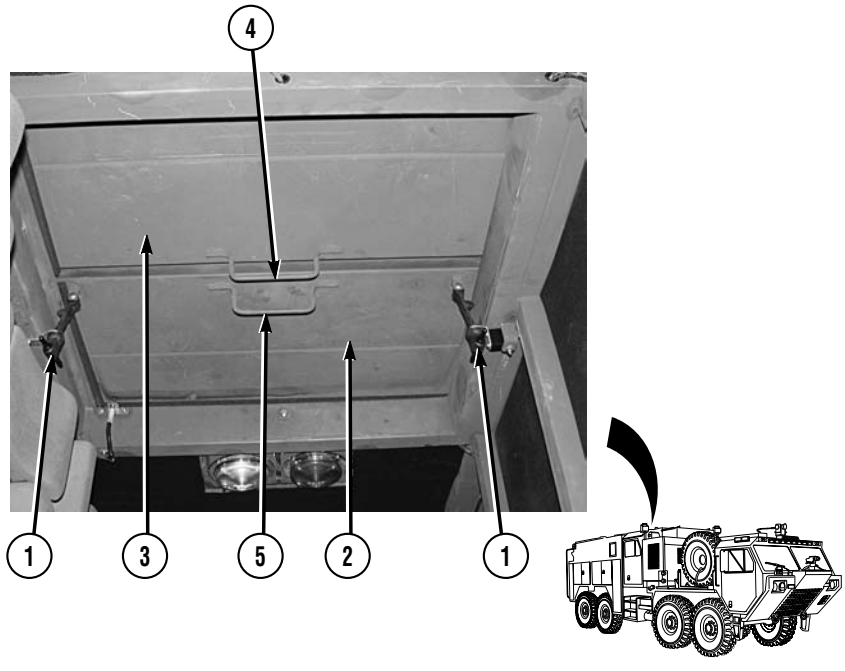
(1) Lift front of pump operator's platform (4) until pump operators platform (4) is flush with crew cab wall (5).

(2) Connect rubber hook (3).

(3) Connect rubber hook (1) to fold-out platform support (2).

2-108. CREW CAB ROOF HATCH OPEN/CLOSE.

a. Open Crew Cab Roof Hatch.



(1) Release two rubber hooks (1) and push open door (2).

(2) Push open door (3).

b. Close Crew Cab Roof Hatch.

(1) Using grab handle (4), lift and pull door (3) shut.

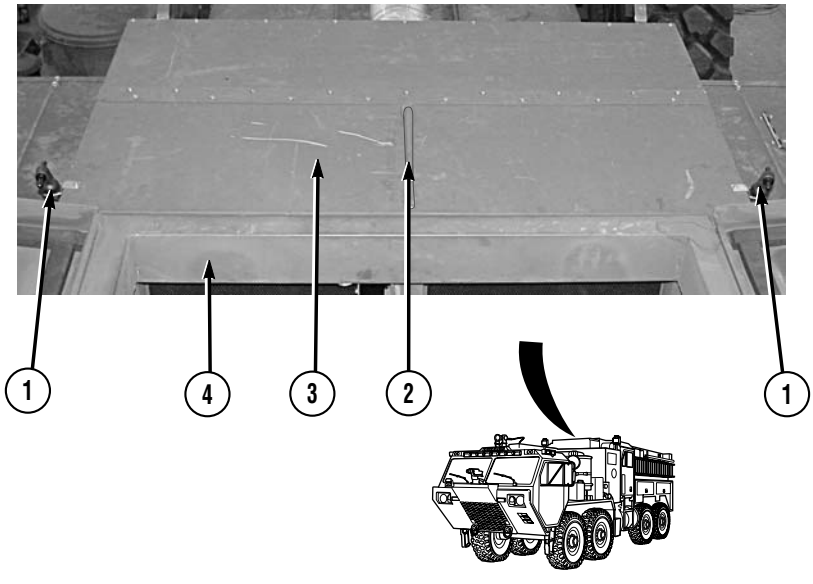
(2) Using grab handle (5), lift and pull door (2) shut.

(3) Connect two rubber hooks (1).

Operation Under Usual Conditions (Cont)

2-109. PUMP PANEL COVER OPEN/CLOSE.

a. Open Pump Panel Cover.

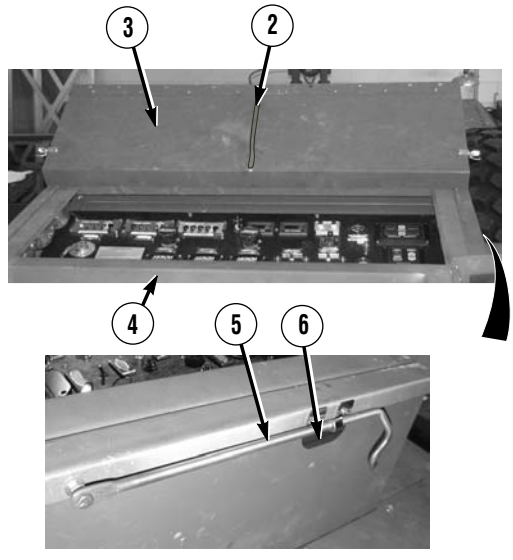


(1) Open crew cab roof hatch (para 2-108).

(2) Unstow pump operator's panel platform (para 2-107).

(3) Release two rubber hooks (1), lift handle (2), and fold pump panel cover (3) away from crew cab (4).

Operation Under Usual Conditions (Cont)



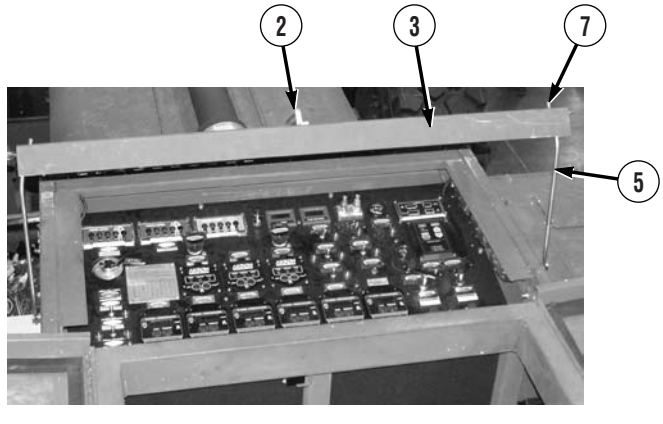
NOTE

Perform steps (4) through (7) if pump panel gages are not able to be read due to sunlight or other weather condition.

(4) Pull handle (2) towards crew cab (4) to make pump panel cover (3) flat.

(5) Lift up on handle (2).

(6) Remove two support rods (5) from support rod catches (6).

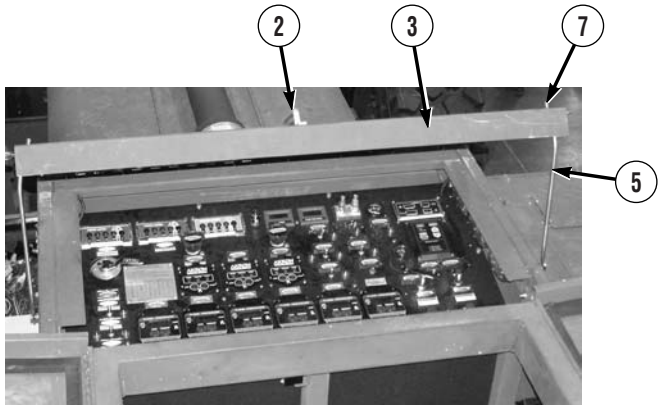


(7) Install two support rods (5) in holes (7) on pump panel cover (3).

Operation Under Usual Conditions (Cont)

2-109. PUMP PANEL COVER OPEN/CLOSE (CONT).

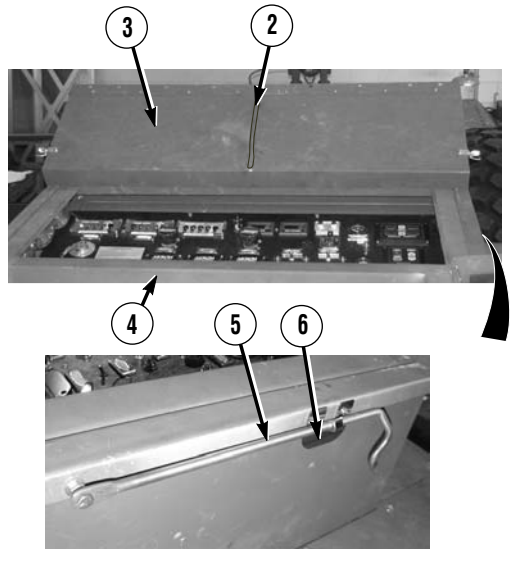
b. Close Pump Panel Cover.



NOTE

Perform steps (1) through (3) to close pump panel cover if pump panel cover was opened due to sunlight or other weather conditions.

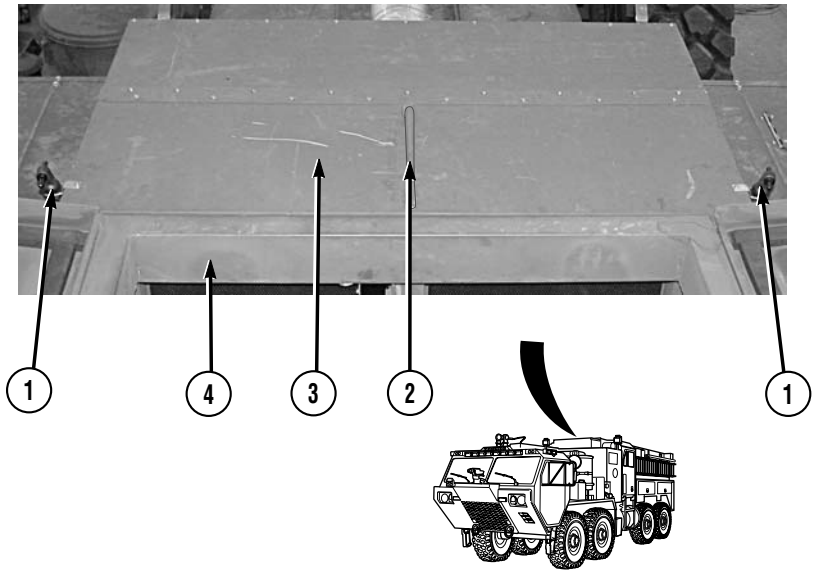
(1) Lift up on handle (2) and remove two support rods (5) from holes (7).



(2) Install two support rods (5) in support rod catches.

(3) Using handle (2), set pump panel cover (3) down and secure with two rubber hooks (1).

Operation Under Usual Conditions (Cont)



(4) Pull handle (2) towards crew cab (4) to close pump panel cover (3).

(5) Connect with two rubber hooks (1).

(6) Stow pump operator's panel platform (para 2-107).

(7) Close crew cab roof hatch (para 2-108).

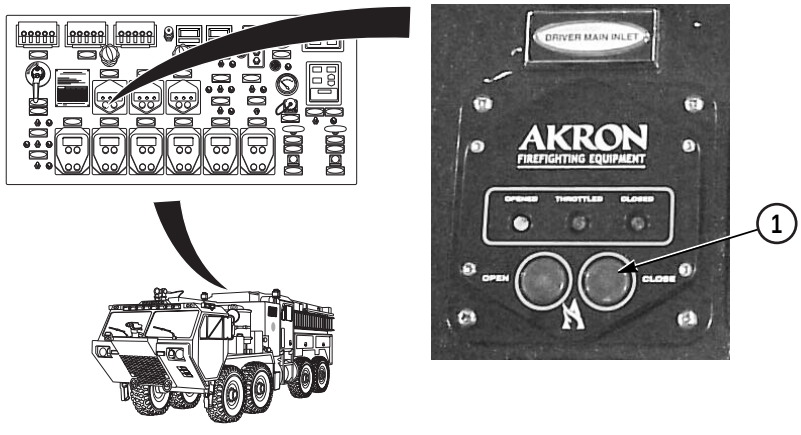
Operation Under Usual Conditions (Cont)

2-110. WATER TANK FILL.

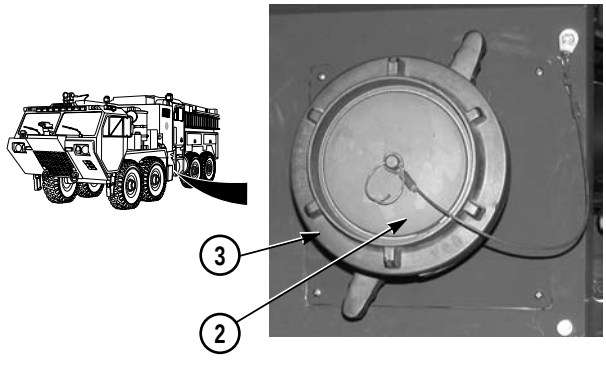
NOTE

The TFFT can be filled four different ways.

a. Main Inlet.



(1) Make sure DRIVER MAIN INLET valve control (1) is closed.



(2) Remove cap (2) from driver main inlet (3).

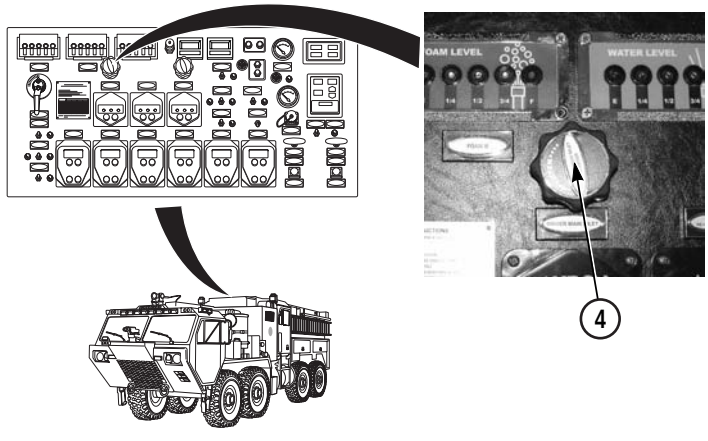
WARNING

Do not use hard suction hose for step (3). Hard suction hose will not hold pressure. Hose may fail and separate causing injury to personnel and/or damage to equipment.

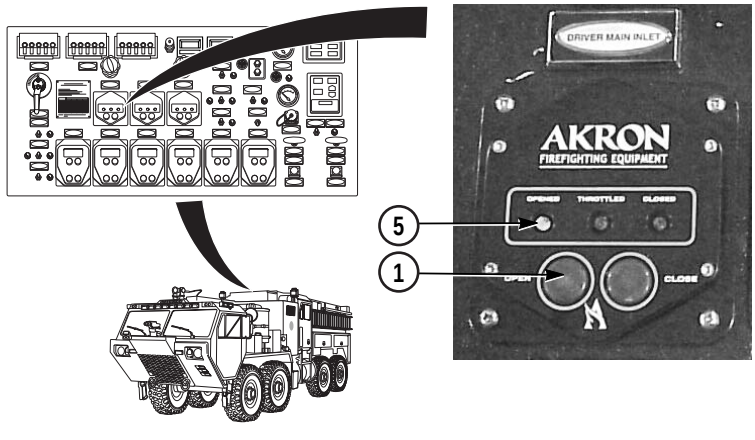
(3) Connect 5 in. (13 cm) soft suction hose to driver main inlet (3) and positive water source.

(4) Open supply valve on positive water source.

Operation Under Usual Conditions (Cont)



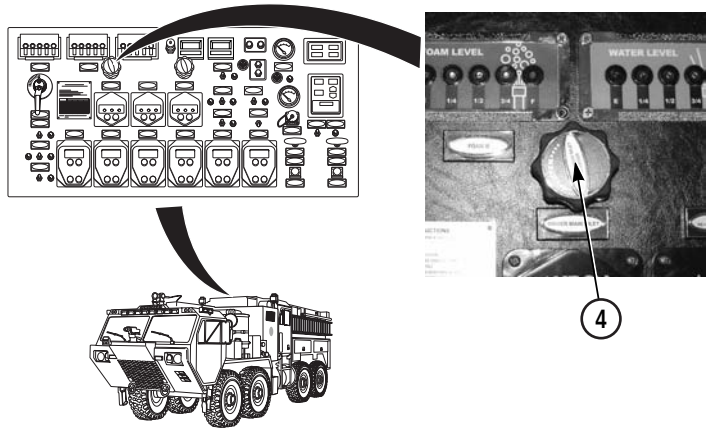
(5) Crack open DRIVER MAIN INLET BLEEDER valve (4).



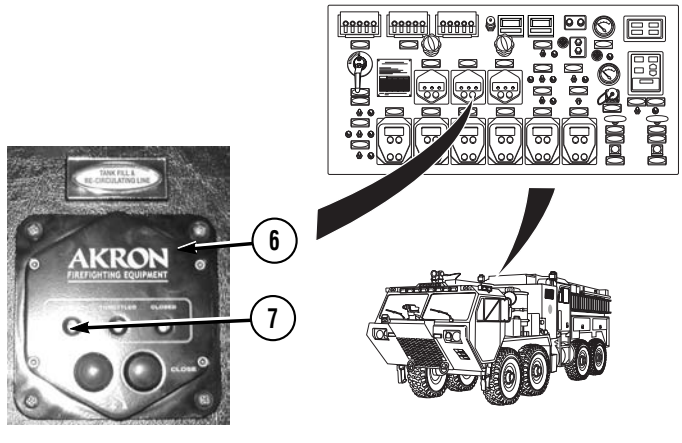
(6) Open DRIVER SIDE MAIN INLET control valve (1). Indicator light (5) will come on.

Operation Under Usual Conditions (Cont)

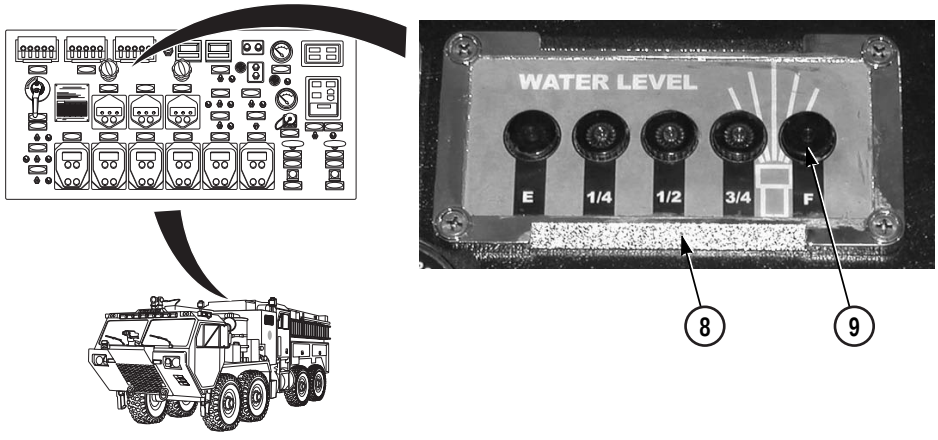
2-110. WATER TANK FILL (CONT).



(7) Once water discharges to ground, close DRIVER MAIN INLET BLEEDER valve (4).



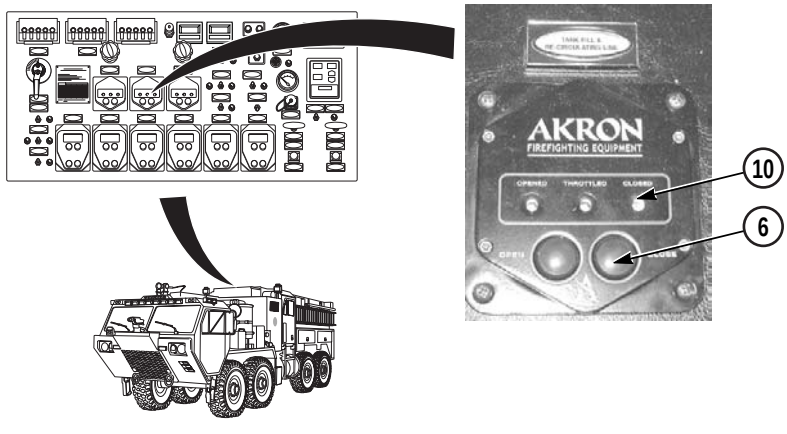
(8) Open TANK FILL and RE-CIRCULATING LINE valve control (6). Indicator light (7) will come on.



CAUTION

Monitor water level gage while water tank is filling. Do not let water tank overflow. Failure to comply may result in damage to equipment.

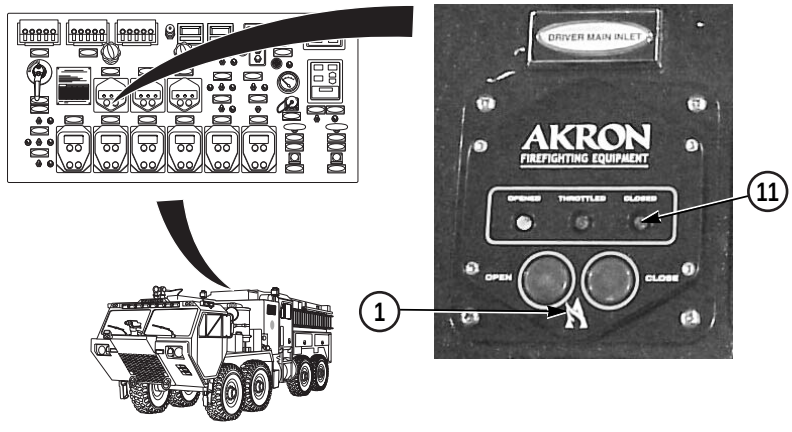
(9) Monitor water level gage (8) until full (F) light (9) illuminates.



(10) Close TANK FILL and RE-CIRCULATING LINE valve control (6). Indicator light (10) will come on.

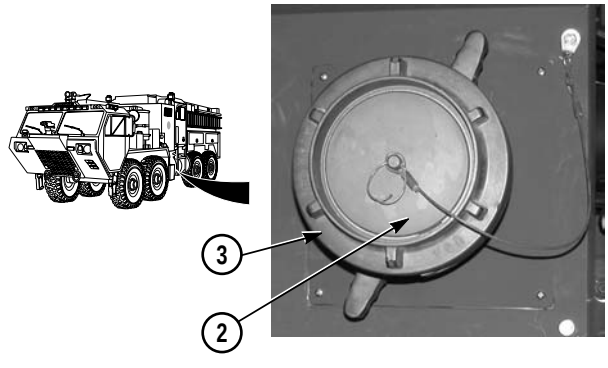
Operation Under Usual Conditions (Cont)

2-110. WATER TANK FILL (CONT).



(11) Close DRIVER SIDE MAIN INLET valve control (1). Indicator light (11) will come on.

(12) Close supply valve on positive water source.

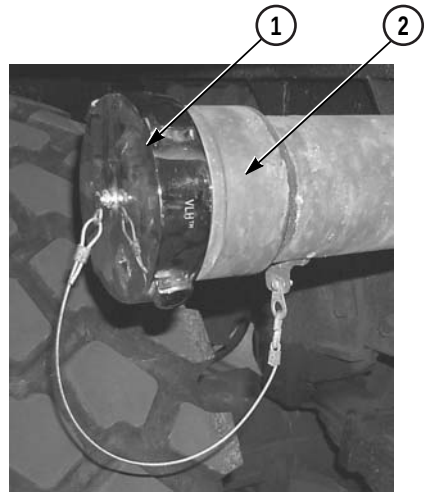


(13) Disconnect 5 in. (13 cm) soft suction hose from main inlet (3).

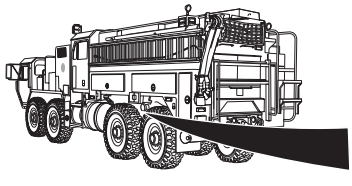
(14) Install cap (2) on main inlet (3).

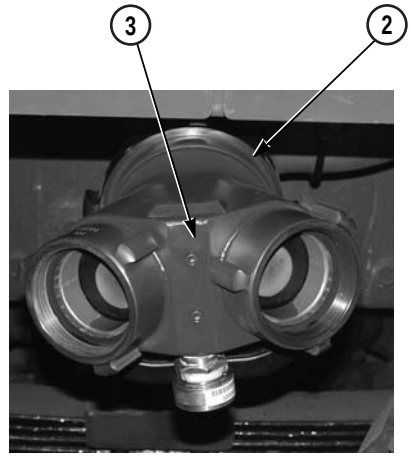
Operation Under Usual Conditions (Cont)

b. Direct Tank Fill.



(1) Remove cap (1) from direct tank fill (2).





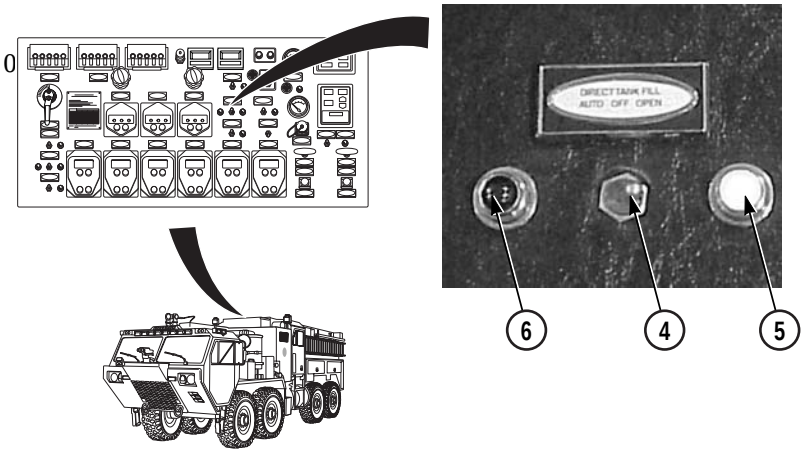
(2) Install siamese fitting (3) on direct tank fill (2).

(3) Connect either one or two 2½ in. or 3 in. (6.4 or 8 cm) soft suction hoses to siamese fitting (3) and positive water source 2½ in. or 3 in. (6.4 or 8 cm).

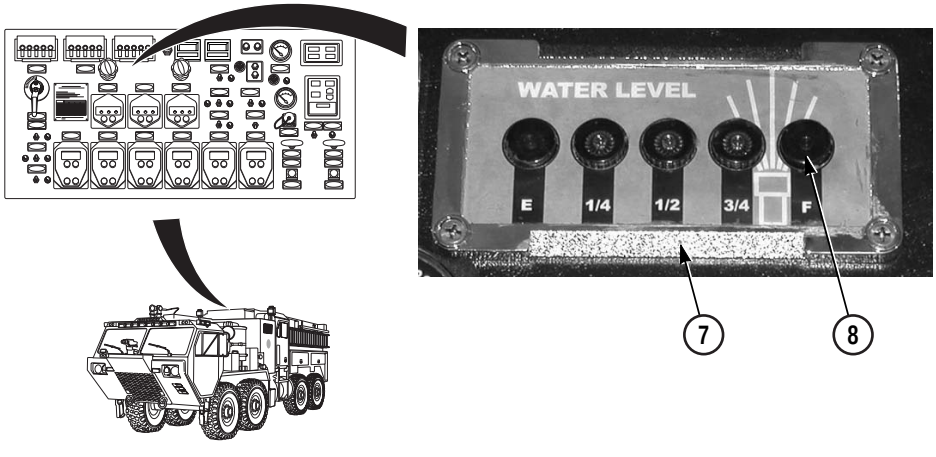
(4) Open supply valve on positive water source.

Operation Under Usual Conditions (Cont)

2-110. WATER TANK FILL (CONT).



(5) Put DIRECT TANK FILL switch (4) in AUTO position. Indicator lights (5 and 6) will come on.



CAUTION

Monitor water level gage when water tank is filling. Do not let water tank overflow. Failure to comply may result in damage to equipment.

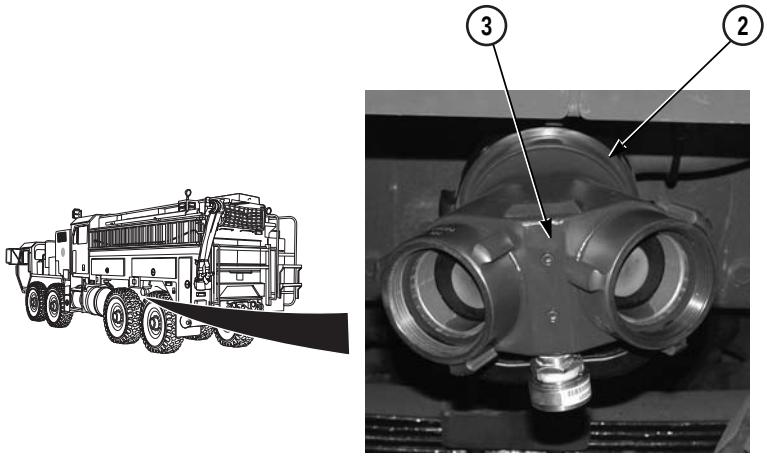
(6) Monitor water level gage (7) until full (F) light (8) illuminates.

(7) Check that indicator light (6) goes out.

(8) Put DIRECT TANK FILL switch (4) in OFF position. Check that indicator light (5) goes out.

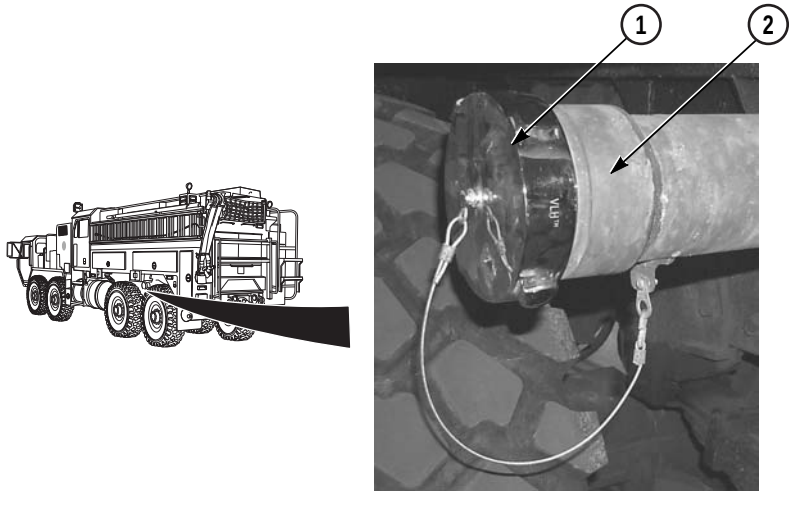
(9) Close supply valve on positive water source.

Operation Under Usual Conditions (Cont)



(10) Disconnect one or two 2½ in. or 3 in. (6.4 or 8 cm) soft suction hoses from siamese fitting (3).

(11) Remove siamese fitting (3) from direct tank fill (2).

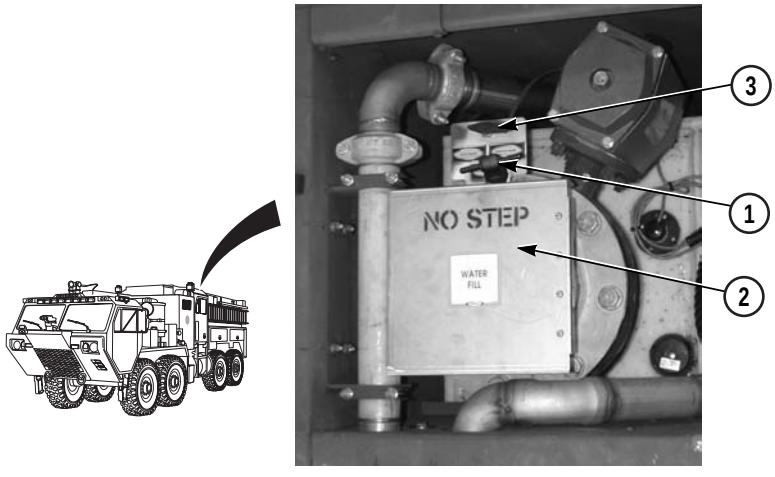


(12) Install cap (1) on direct tank fill (2).

Operation Under Usual Conditions (Cont)

2-110. WATER TANK FILL (CONT).

c. Overhead Fill.



(1) Unstow right rear access ladder (para 2-104).

WARNING

Use extreme care when walking on hosebed cover and on top of vehicle. Be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel.

(2) Release rubber hook (1) and open water full cover (2).

(3) Put WATER TANK VENT VALVE switch (3) in MANUAL MODE.

(4) Open supply valve on water source and fill water tank.

(5) Close supply valve on water source when water tank is full.

(6) Put WATER TANK VENT VALVE switch (3) in AUTO MODE.

(7) Close water fill cover (2).

(8) Connect with rubber hook (1).

(9) Stow right rear access ladder (para 2-104).

Operation Under Usual Conditions (Cont)

d. Filling From Draft.

WARNING

When backing up vehicle, one crew member must be in back of vehicle operating rear step buzzer to communicate with driver. Failure to comply may result in damage to equipment or injury or death to personnel.

NOTE

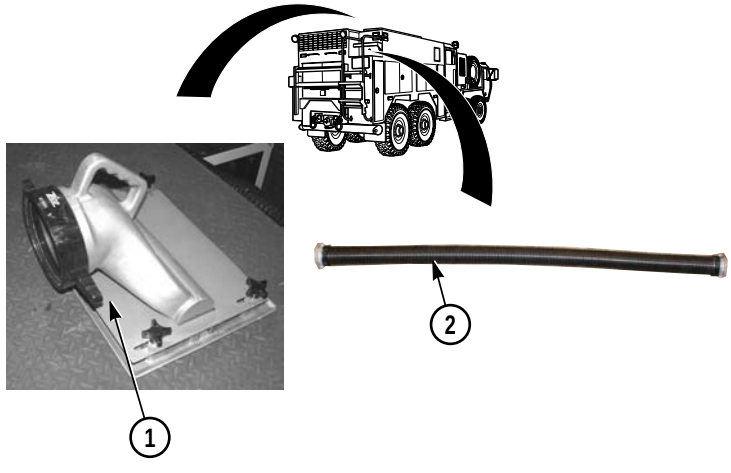
- Pump performance is maximized with less than a 10 ft. (3 meters) vertical lift. As vertical lift increases above 10 ft. (3 meters), maximum pump capacity will be reduced. Altitude also affects pump performance.
- All valves, drain cocks, and caps should be closed.

(1) Position vehicle as close to water source as possible.

(2) Park vehicle (TM 9-2320-279-10-1, para 2-11).

CAUTION

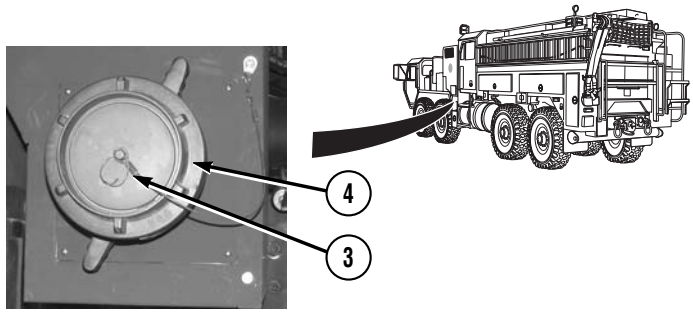
Make sure suction hose strainer is clean and free from debris and obstructions. Failure to comply may result in damage to equipment.



(3) Connect suction hose strainer (1) to suction hose (2).

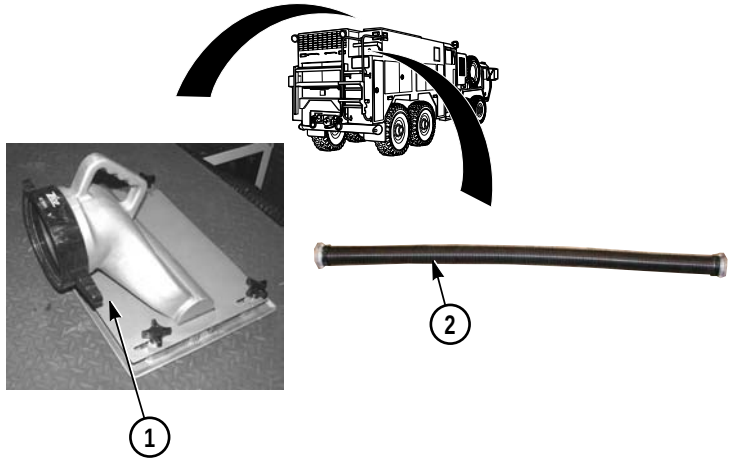
Operation Under Usual Conditions (Cont)

2-110. WATER TANK FILL (CONT).



(4) Remove cap (3) from DRIVER SIDE MAIN INLET (4).

(5) Connect suction hose (2) to DRIVER SIDE MAIN INLET (4).

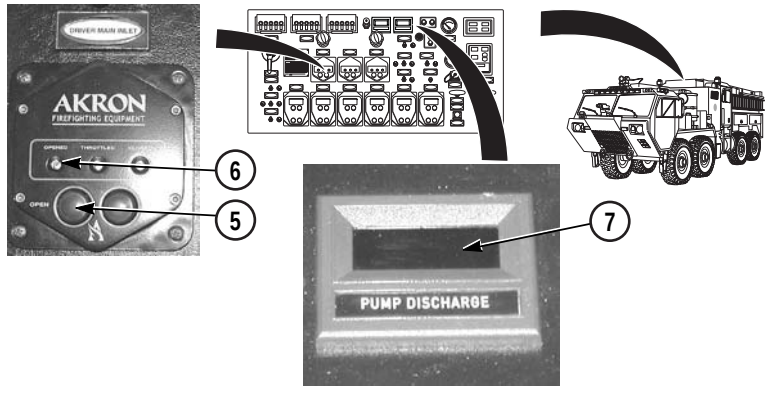


WARNING

Strainer must be positioned or suspended in water to prevent sucking of debris (sand, stones, mud, etc.). Strainer must be deep enough not to cause a whirlpool on surface of water. Failure to comply may result in injury or death to personnel and damage to equipment.

(6) Position suction hose strainer (1) in water source.

Operation Under Usual Conditions (Cont)



WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

(7) Open DRIVER MAIN INLET valve control (5). Indicator light (6) will come on.

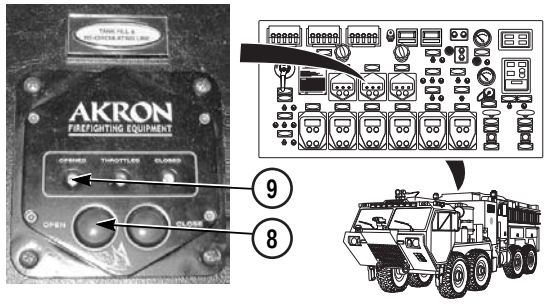
(8) Start water pump engine (para 2-113).

(9) Prime water pump (para 2-114) until pressure is on PUMP DISCHARGE gage (7).

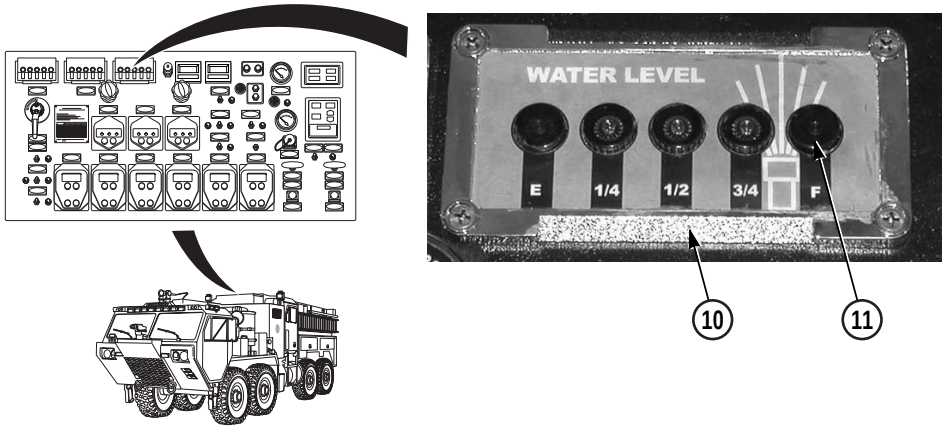
(10) Set pressure governor (para 2-115).

Operation Under Usual Conditions (Cont)

2-110. WATER TANK FILL (CONT).

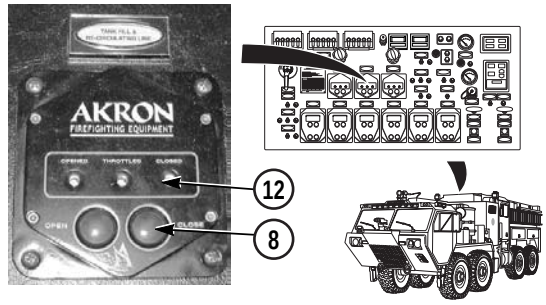


(11) Open TANK FILL and RE-CIRCULATING LINE valve control (8). Indicator light (9) will come on.



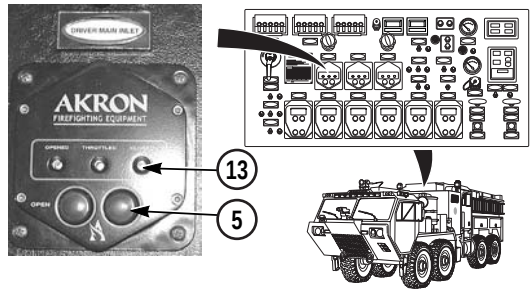
(12) Monitor water level gage (10) until full (F) light (11) illuminates.

Operation Under Usual Conditions (Cont)



(13) Close TANK FILL and RE-CIRCULATING LINE valve control (8). Indicator light (12) will come on.

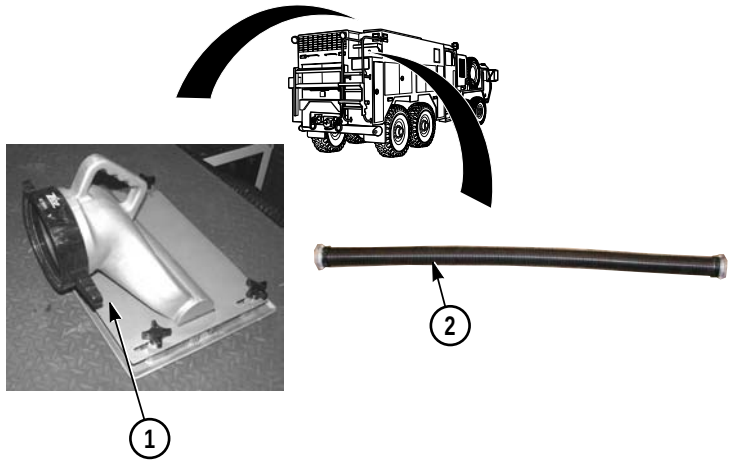
(14) Stop water pump engine (para 2-113).



(15) Close DRIVER MAIN INLET valve control (5). Indicator light (13) will come on.

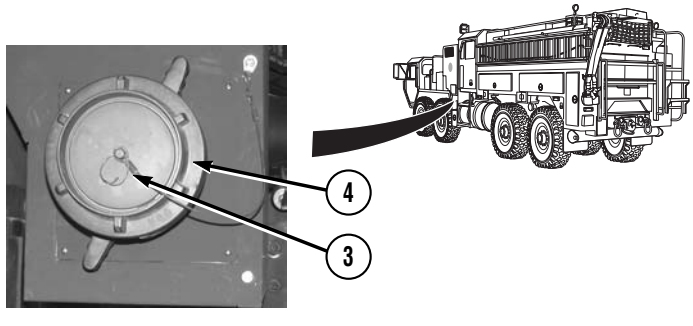
Operation Under Usual Conditions (Cont)

2-110. WATER TANK FILL (CONT).



(16) Remove suction hose strainer (1) from water source.

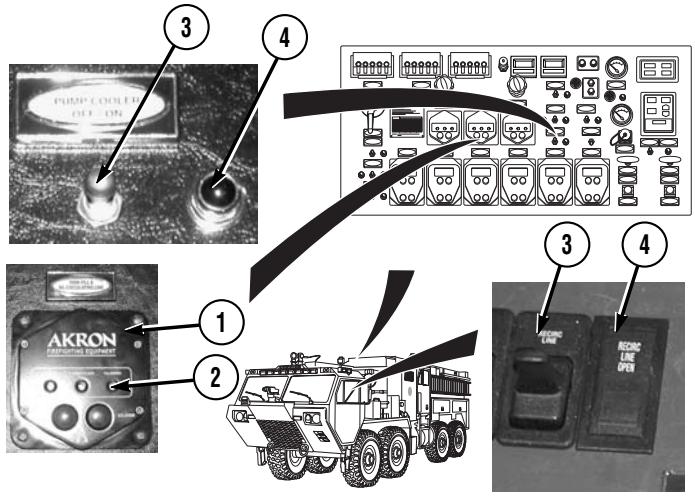
(17) Remove suction hose (2) from DRIVER SIDE MAIN INLET (4).



(18) Install cap (3) on DRIVER SIDE MAIN INLET (4).

(19) Remove suction hose strainer (1) from suction hose (2).

2-111. INSTRUMENT PANEL-STANDBY MODE.



WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

NOTE

For operation of pump, most controls and procedures will be the same whether pumping from tank, draft, or hydrant.

Operator must make sure that:

(1) ALL water discharge valve controls are in CLOSED position.

(2) ALL water inlets are in CLOSED position.

(3) ALL DRAINS are in CLOSED position.

(4) ALL foam controls are in CLOSED/OFF position.

(5) ALL inlet and outlet ports capped.

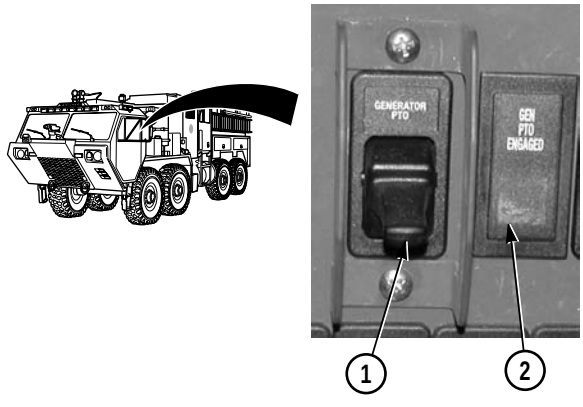
(6) Make sure TANK FILL and RE-CIRCULATING LINE valve control (1) is in CLOSED position. Indicator light (2) will come on.

(7) Put PUMP COOLER switch (3) in OFF position. Check that Indicator light (4) goes out.

Operation Under Usual Conditions (Cont)

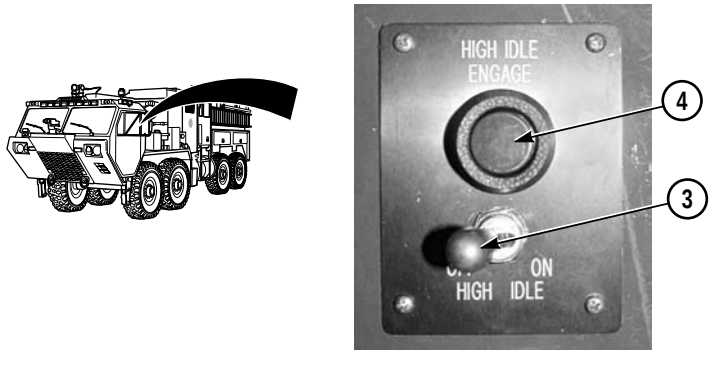
2-112. STARTING/STOPPING HYDRAULIC GENERATOR.

a. Starting Hydraulic Generator.



(1) Start vehicle engine (TM 9-2320-279-10-1, para 2-11).

(2) Put GENERATOR PTO switch (1) in ON position. Indicator light (2) will come on.



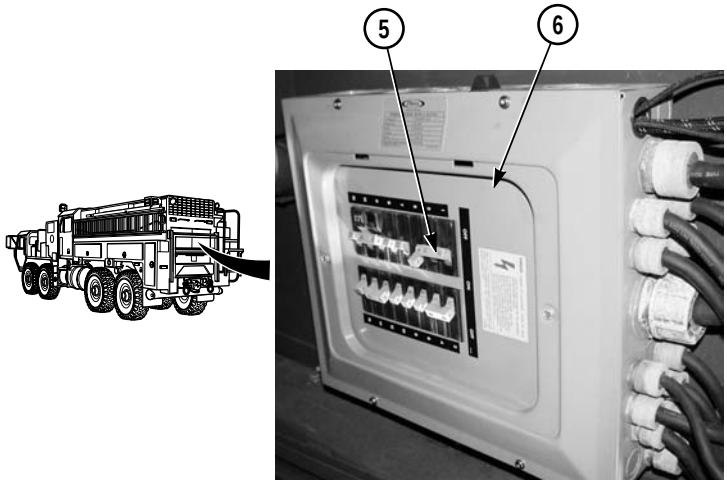
(3) Put HIGH IDLE switch (3) in ON position. Indicator light (4) will come on.

NOTE

Perform steps *(4)* through *(7)* to put load on hydraulic generator.

(4) Unstow rear work platform (para 2-105).

(5) Open rear compartment door (para 2-101).



(6) Turn main breaker (5) on breaker box (6) to ON position.

WARNING

Use extreme care when working around 120 VAC outlets. Personnel may get electrocuted if 120 VAC outlet is exposed to water. Failure to comply may result in injury or death to personnel.

NOTE

Refer to circuit directory on rear module door for desired breaker.

(7) Turn desired breaker to ON position.

b. Stopping Hydraulic Generator.

CAUTION

All breakers must be turned off prior to turning main breaker OFF. Failure to comply may result in damage to equipment.

NOTE

Perform steps *(1)* through *(4)* to remove load from hydraulic generator.

(1) Turn all breakers to OFF position.

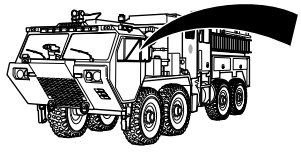
(2) Turn main breaker (5) on breaker box (6) to OFF position.

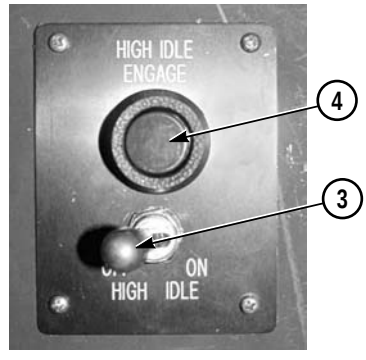
(3) Close rear compartment door (para 2-101).

(4) Stow rear work platform (para 2-105).

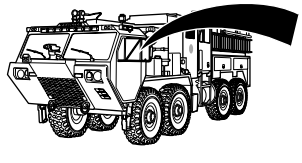
Operation Under Usual Conditions (Cont)

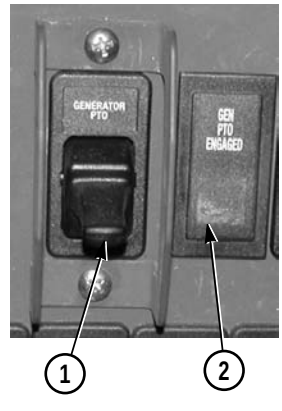
2-112. STARTING/STOPPING HYDRAULIC GENERATOR (CONT).





(5) Put HIGH IDLE switch (3) in OFF position. Check that indicator light (4) goes out.



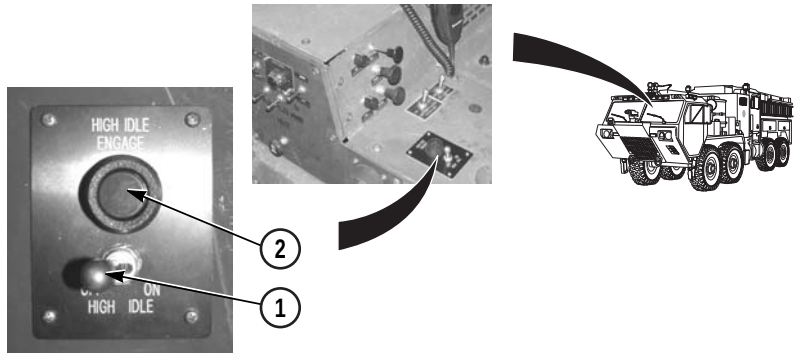


(6) Put GENERATOR PTO switch (1) in OFF position. Check that indicator light (2) goes out.

Operation Under Usual Conditions (Cont)

2-113. STARTING/STOPPING WATER PUMP ENGINE.

a. Starting Water Pump Engine (Engage Pump).



WARNING

Do not leave cab or attempt any pumping operations until all required indicator lights are on. Failure to comply may result in injury to personnel and damage to equipment.

CAUTION

- The water pump is constantly engaged and operates whenever the water pump engine is running. At least one water inlet valve to water pump must be opened whenever the pump engine is running. A pressure reading on the pump discharge gage (engine running) indicates adequate water supply to the pump for cooling. Failure to comply may result in pump overheating and/or damage to equipment.
- During operations above 32°F (0°C), make sure pump house cooling winterization cover is removed from left side pump house panel. Failure to comply may result to damage to equipment.

(1) Make sure water tank is full or water source is connected to vehicle.

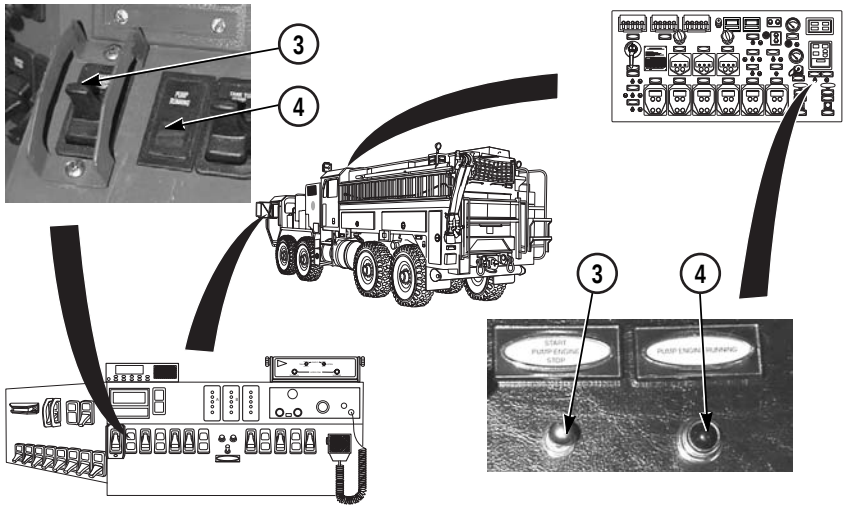
(2) Start vehicle engine (TM 9-2320-279-10-1, para 2-11).

(3) Put HIGH IDLE switch (1) in ON position. Indicator light (2) will come on.

(4) Open at least one water source to water pump (tank to pump, main inlet or auxiliary inlet).

Operation Under Usual Conditions (Cont)

2-113. STARTING/STOPPING WATER PUMP ENGINE (CONT).



CAUTION

If water pump engine fails to start, wait 15 seconds prior to next start attempt to allow starter to cool. Do not turn ignition switch to START position while water pump engine is rotating. Failure to comply may result in damage to equipment.

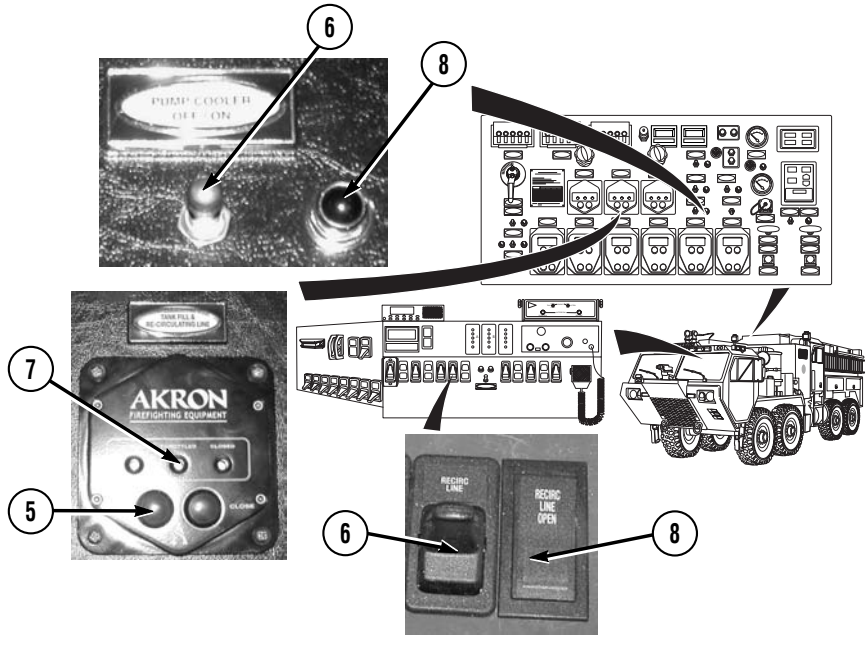
NOTE

If water pump engine fails to start, return engine switch to OFF position before attempting to re-start.

(5) Put engine switch (3) in START position. Indicator light (4) will come on.

(6) Prime water pump (para 2-114).

Operation Under Usual Conditions (Cont)



CAUTION

- When water pump is engaged, water must be discharged or recirculated. Failure to comply may result in damage to water pump.
- When foam operation is engaged or when in pump and roll mode, PUMP COOLER switch must be activated. Failure to comply may result in damage to equipment.

NOTE

- Perform step *(7)* for water only mode.
- Perform step *(8)* for foam operation or pump and roll mode.
- Water or foam solution will discharge to ground when PUMP COOLER switch is activated.

(7) Partially open TANK FILL and RE-CIRCULATING LINE valve control (5) or put PUMP COOLER switch (6) in OPEN position. Indicator light (7) or (8) will come on.

(8) Put PUMP COOLER switch (6) in ON position. Indicator light (8) will come on.

2-113. STARTING/STOPPING WATER PUMP ENGINE (CONT).

b. Stopping Water Pump Engine (Disengage Pump).

WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

(1) Make sure to close all discharge valves.

(2) Reduce pump pressure by gradually reducing engine RPM to idle.

CAUTION

Before shutting down water pump engine, run engine at 800 to 1000 RPM with no-load for three to five minutes to allow turbocharger to slow down and cool off. Turbocharger may be damaged if not allowed to cool off.

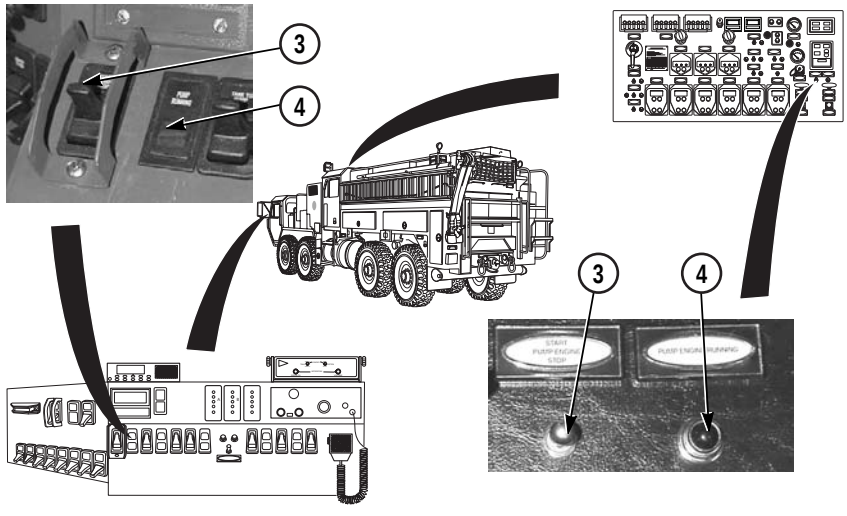
(3) Set pressure governor until tachometer reads 800 to 1,000 RPM (para 2-115).

(4) Run engine at 800 to 1000 RPM for three to five minutes.

(5) Set pressure governor to idle (para 2-115).

(6) Idle water pump engine for 30 seconds.

Operation Under Usual Conditions (Cont)



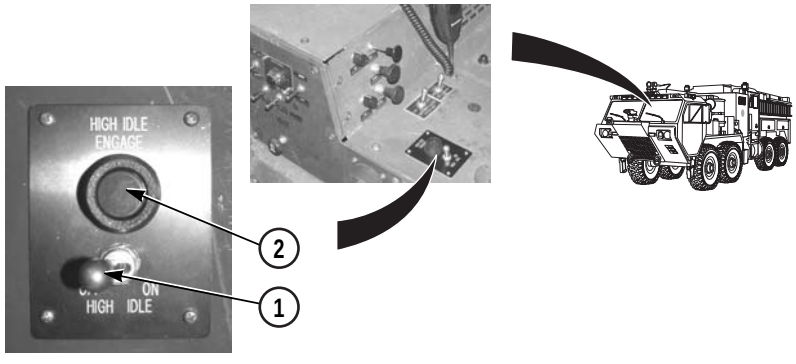
(7) With water pump engine at idle, put PUMP ENGINE switch (3) to STOP position. Check that indicator light (4) goes out.

(8) Close all inlet valves.

(9) Make sure instrument panel is in standby mode (para 2-111).

Operation Under Usual Conditions (Cont)

2-113. STARTING/STOPPING WATER PUMP ENGINE (CONT).

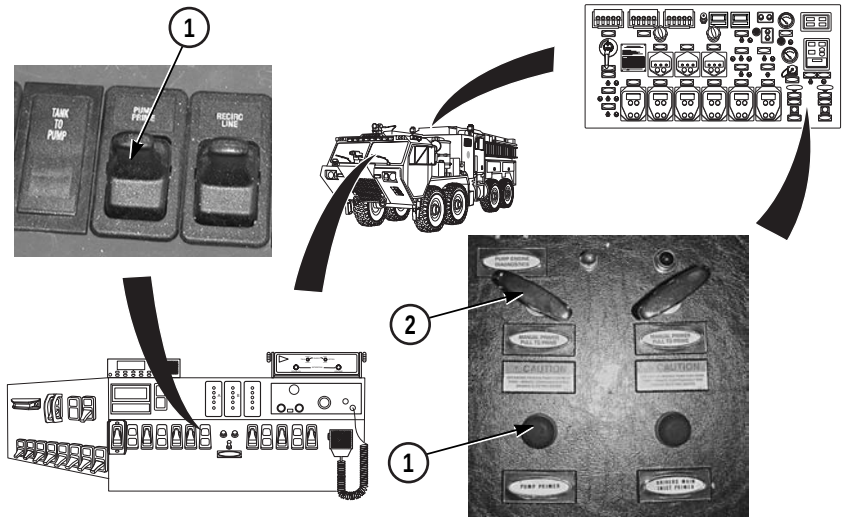


(10) Put HIGH IDLE switch (1) in OFF position. Check that indicator light (2) goes out.

(11) Shut off vehicle engine (TM 9-2320-279-10-1, para 2-11).

(12) If mission is complete, perform post operation procedures (para 2-129).

2-114. PRIMING WATER PUMP.



a. Make sure water pump engine is running (para 2-113).

b. Push PUMP PRIMER switch (1) to prime pump.

NOTE

- Perform step ***c.*** if primer solenoid fails.
- Water pump can only be manually primed from the pump operators panel.

c. Pull MANUAL PRIMER handle (2) and push PUMP PRIMER switch (1).

CAUTION

Operating water pump engine at speeds of more than 1,200 RPM during priming is not recommended and will not improve priming operation. Failure to comply may result in damage to equipment.

d. Using pressure governor, maintain water pump engine speed of 1,000 to 1,200 RPM (para 2-115).

Operation Under Usual Conditions (Cont)

2-114. PRIMING WATER PUMP (CONT).

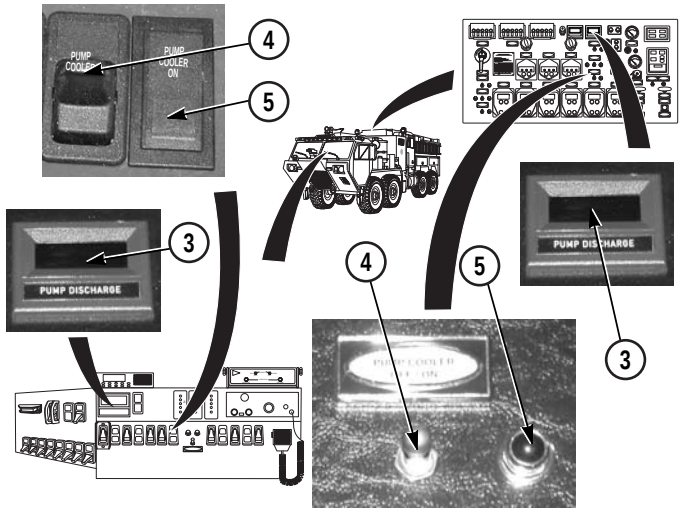
CAUTION

If discharge gage reading does not increase or priming pump does not discharge water on the ground in 60 seconds, do not continue running priming pump. Stop water pump or damage to equipment may result.

NOTE

If water pump fails to prime, check hose connections, valve positions, strainers, and other water intake equipment for leaks that may be allowing air to enter system.

e. Observe readings on PUMP DISCHARGE (3) gage. When water pump is primed, discharge pressure starts to increase. The operator may also hear water discharging on ground, indicating water pump is primed.



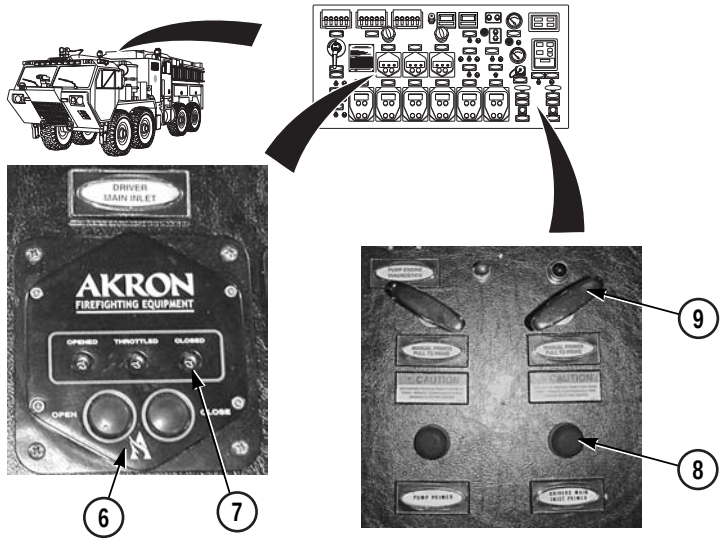
NOTE

System is properly primed when pressure on pump discharge gage remains steady.

f. Put PUMP COOLER switch (4) to ON position, let run 10 seconds. Indicator light (5) will come on.

g. Put PUMP COOLER switch (4) in OFF position. Check that indicator light (5) goes out.

Operation Under Usual Conditions (Cont)



NOTE

- Perform steps ***h.*** through ***k.*** if/when drivers main inlet needs to be primed.
- Priming the drivers main inlet allows pumping operation to continue uninterrupted by pumping water from a draft when original pumping operations started from onboard water tank.

h. Close DRIVERS MAIN INLET valve control (6). Indicator light (7) will come on.

i. Push DRIVERS MAIN INLET PRIMER switch (8) to prime drivers main inlet.

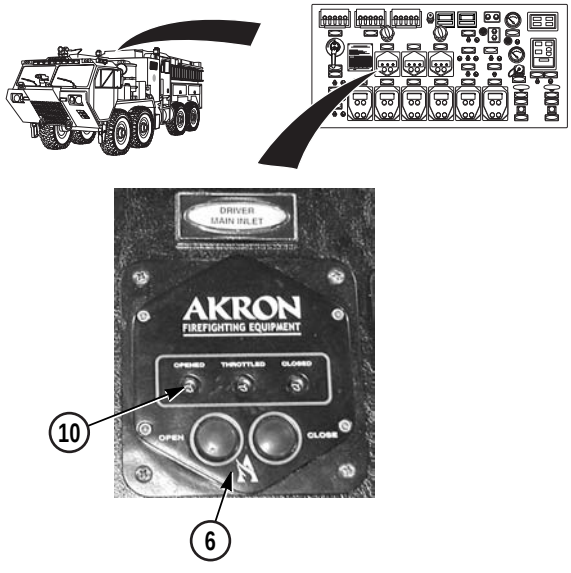
NOTE

Perform step ***j.*** if drivers main inlet primer solenoid fails.

j. Pull MANUAL PRIMER handle (9) and push DRIVERS MAIN INLET PRIMER switch (8).

Operation Under Usual Conditions (Cont)

2-114. PRIMING WATER PUMP (CONT).

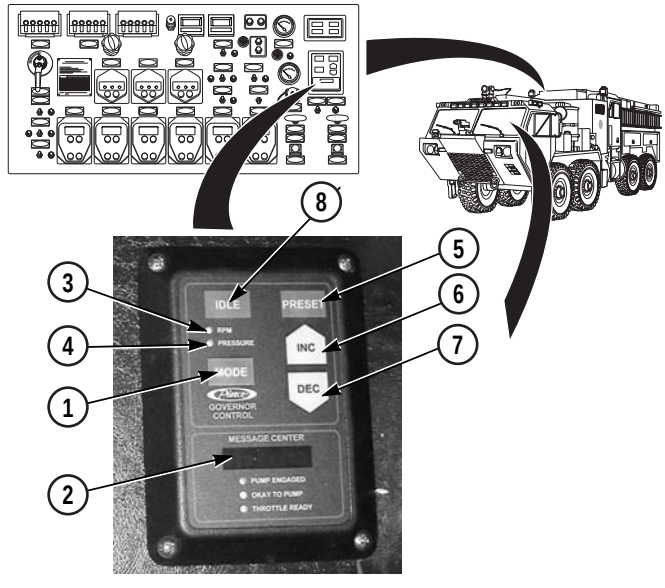


NOTE

- If drivers main inlet fails to prime, check hose connections, valve positions, strainers, and other water intake equipment for leaks that may be allowing air to enter system.
- Perform step ***k.*** when drivers main inlet is primed.

k. Open DRIVERS MAIN INLET valve control (6). Indicator light (10) will come on.

2-115. PRESSURE GOVERNOR OPERATION.



NOTE

PRESSURE GOVERNOR will check for valid pressure transducer signal at power up.

a. Push MODE switch (1) on desired instrument panel.

b. MESSAGE CENTER (2) should display MODE.

NOTE

Pressure (PSI) is the default mode of operation.

c. If desired, push MODE switch (1) to change to RPM mode. Indicator light (3) will come on. Press MODE switch (1) again to return to PRESSURE mode. Indicator light (4) will come on.

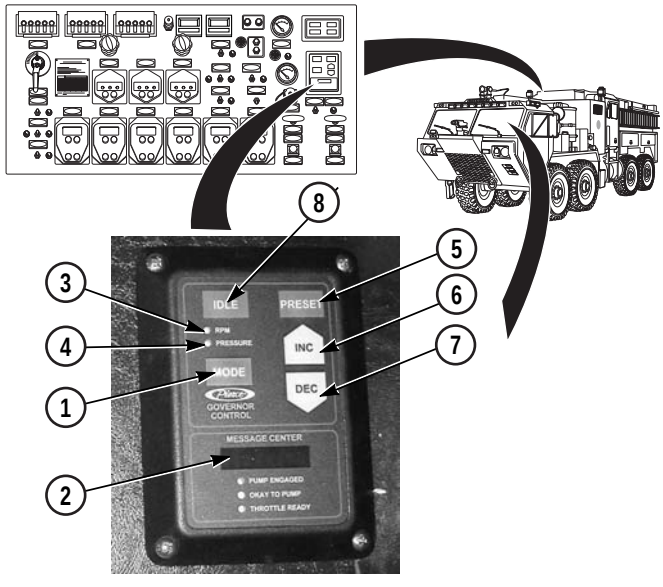
NOTE

PRESET switches are set individually for each control panel and only operate in the PRESSURE mode.

d. Push PRESET switch (5) to set the PRESSURE GOVERNOR to the programmed pressure.

Operation Under Usual Conditions (Cont)

2-115. PRESSURE GOVERNOR OPERATION (CONT).



NOTE

When DEC switch is pressed, Decrease is displayed in the MESSAGE CENTER When INC is pressed, Increase is displayed in the MESSAGE CENTER.

e. Push INC (6) or DEC (7) to adjust engine speed (RPM) or pressure.

NOTE

- If discharge pressure drops below 30 psi (207 kPa) for more than 5 seconds, pressure governor will return water pump engine to idle.
- Pressure governor must be returned to idle to allow operation from opposite pressure governor.

f. Push IDLE switch (8) to return water pump engine to normal idle and reset pressure governor circuit.

2-116. PUMPING FROM DRAFT (MAIN INLET).

WARNING

When backing up vehicle, one crew member must be in back of vehicle operating rear step buzzer to communicate with operator. Failure to comply may result in damage to equipment or injury or death to personnel.

NOTE

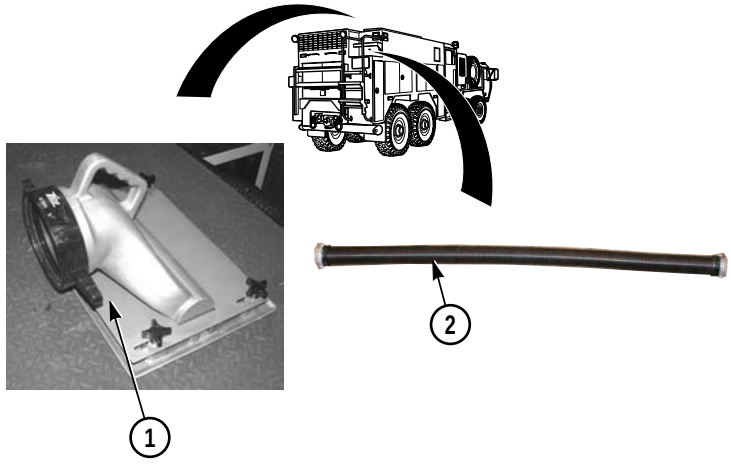
- Performance is maximized with less than a 10 ft. (3 m) vertical lift. As vertical lift increases above 10 ft. (3 m), maximum pump capacity will be reduced. Altitude also affects pump performance.
- All valves, drains, and caps should be closed.

a. Position vehicle as close to water source as possible.

b. Park vehicle (TM 9-2320-279-10-1, para 2-11).

CAUTION

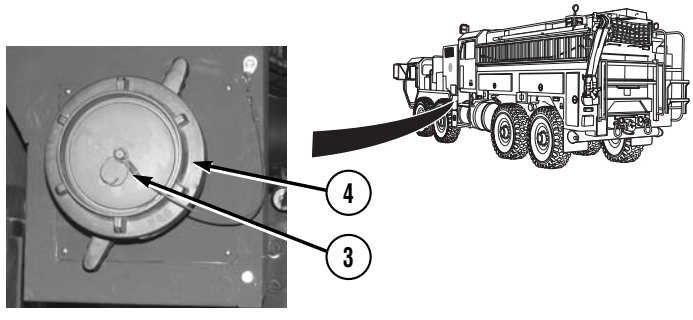
Make sure suction hose strainer is clean and free from debris and obstructions. Failure to comply may result in damage to equipment.



c. Connect suction hose strainer (1) to suction hose (2).

Operation Under Usual Conditions (Cont)

2-116. PUMPING FROM DRAFT (MAIN INLET) (CONT).

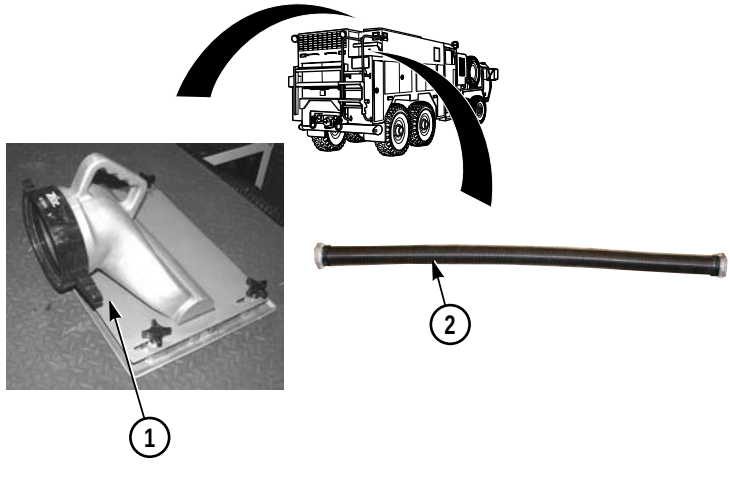


d. Remove cap (3) from DRIVER MAIN INLET (4).

e. Connect suction hose (2) to DRIVER MAIN INLET (4).

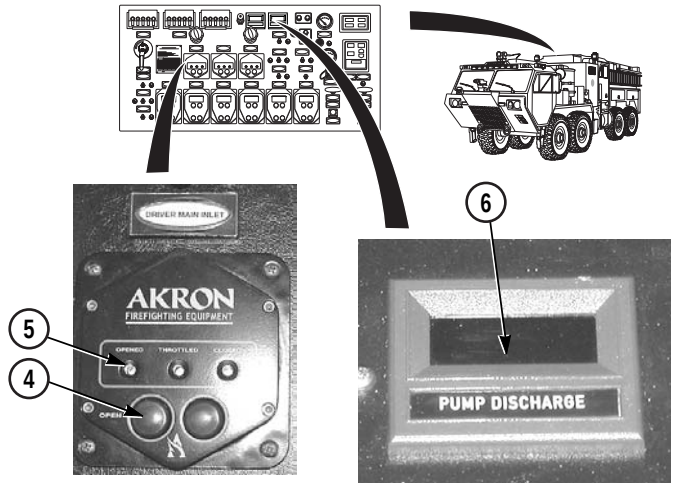
WARNING

Strainer must be positioned or suspended in water to prevent sucking of debris (sand, stones, mud, etc.). Strainer must be deep enough not to cause a whirlpool on surface of water. Failure to comply may result in injury or death to personnel and damage to equipment.



f. Position suction hose strainer (1) in water source.

Operation Under Usual Conditions (Cont)



WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

g. Open DRIVER SIDE MAIN INLET valve control (4). Indicator light (5) will come on.

h. Start water pump engine (para 2-113).

i. Prime water pump (para 2-114) until pressure registers on PUMP DISCHARGE gage (6).

j. Set pressure governor (para 2-115).

2-116. PUMPING FROM DRAFT (MAIN INLET) (CONT).

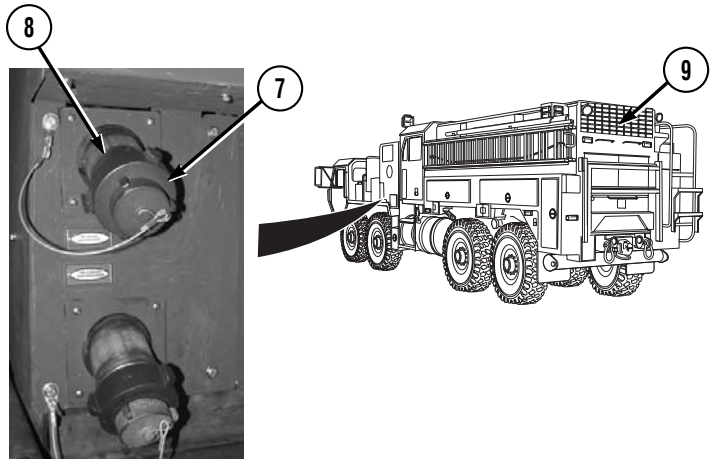
WARNING

- Discharge caps should not be removed if water system is under pressure. Discharge caps can act as projectiles if released under pressure, causing injury or death to personnel.
- If any discharge hose is used, make sure hose is removed from hosebed, nozzle is securely attached, and nozzle is turned off before opening any discharge valves. Failure to comply may result in injury to personnel.
- Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

CAUTION

Cavitation can occur when pumping and air enters water. If engine speed increases without an increase in pressure, pump may be cavitating. Even though pump may be primed, air leaks can cause rough operation and an increase in engine speed without an increase in pressure or flow. If an air leak is suspected, discontinue pumping and isolate problem. Cavitation can also occur with large nozzle tips. Solve this problem by reducing flow. Failure to comply may result in damage to water pump.

Operation Under Usual Conditions (Cont)



NOTE

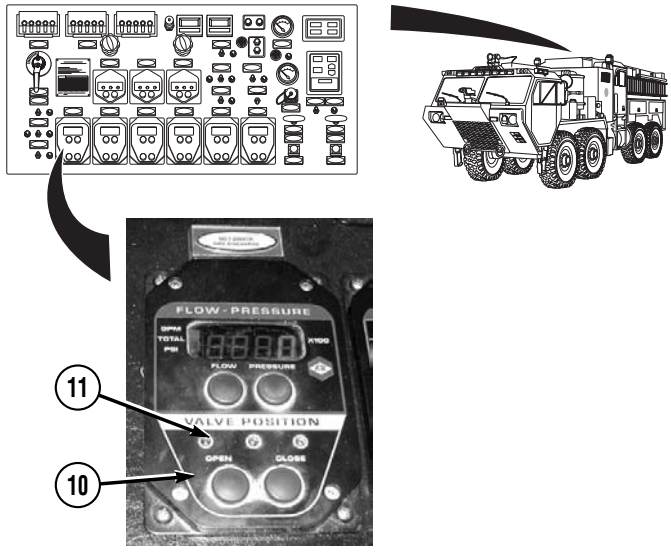
All discharges and pre-connects are operated the same way. NO. 1 DRIVER SIDE DISCHARGE shown.

k. Remove cap (7) from NO. 1 DRIVER SIDE DISCHARGE (8).

l. Connect discharge hose (9) to NO. 1 DRIVER SIDE DISCHARGE (8).

Operation Under Usual Conditions (Cont)

2-116. PUMPING FROM DRAFT (MAIN INLET) (CONT).



m. Slowly open NO. 1 DRIVER SIDE DISCHARGE valve control (10) to charge line. Indicator light (11) will come on.

n. Open other discharge valves to desired setting.

CAUTION

Do not pump (draft) enough water to cause a whirlpool at strainer. This allows air into pump resulting in cavitation, rough operation, pulsation and overheating. Reposition strainer or reduce flow to correct situation.

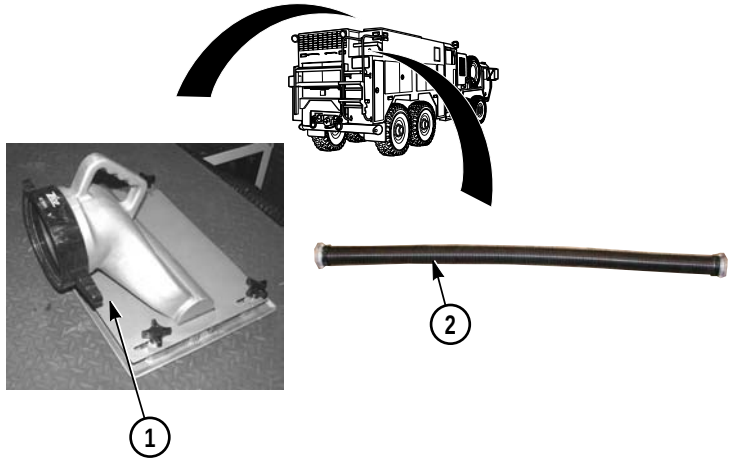
o. Using pressure governor, increase engine RPM until desired pressure or flow is reached (para 2-115).

p. Complete mission.

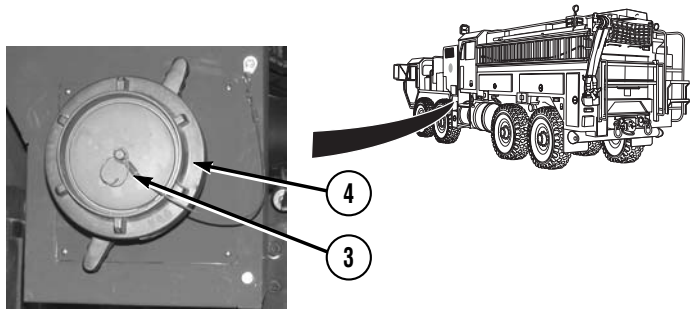
q. Shut off water pump engine (para 2-113).

r. Perform post operation procedures (para 2-129).

Operation Under Usual Conditions (Cont)



s. Remove suction hose strainer (1) from water source.



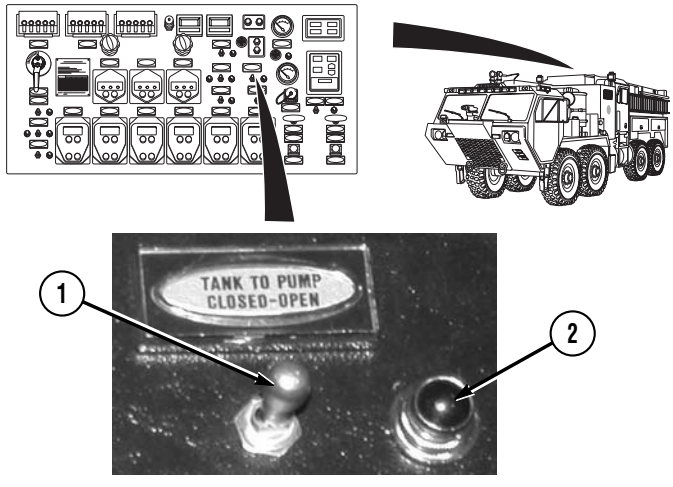
t. Disconnect suction hose (2) from DRIVER MAIN INLET (4).

u. Install cap (3) on DRIVER MAIN INLET (4).

v. Disconnect suction hose strainer (1) from suction hose (2).

Operation Under Usual Conditions (Cont)

2-117. PUMPING FROM ONBOARD WATER TANK.



WARNING

When backing up vehicle, one crew member must be in back of vehicle operating rear step buzzer to communicate with operator. Failure to comply may result in damage to equipment or injury or death to personnel.

NOTE

All valves, drains, and caps should be closed.

a. Position vehicle for convenient discharge hose layout and bring vehicle to complete stop.

b. Park vehicle (TM 9-2320-279-10-1, para 2-11).

c. Start water pump engine (para 2-113).

d. Put TANK TO PUMP switch (1) in OPEN position. Indicator light (2) will come on.

e. Prime water pump (para 2-114).

f. Set pressure governor (para 2-115).

Operation Under Usual Conditions (Cont)

WARNING

- Discharge caps should not be removed if water system is under pressure. Discharge caps can act as projectiles if released under pressure causing injury or death to personnel.
- Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.
- If any discharge hose is used, make sure hose is removed from hosebed, nozzle is securely attached, and nozzle is turned off before opening any discharge valves. Failure to comply may result in injury to personnel.

CAUTION

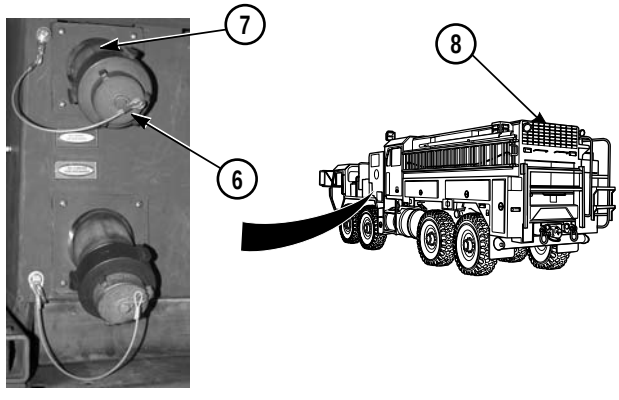
Cavitation can occur when pumping and air enters water. If engine speed increases without an increase in pressure, pump may be cavitating. Even though pump may be primed, air leaks can cause rough operation and an increase in engine speed without an increase in pressure or flow. If an air leak is suspected, discontinue pumping and isolate problem. Cavitation can also occur with large nozzle tips. Solve this problem by reducing flow. Failure to comply may result in damage to water pump.

Operation Under Usual Conditions (Cont)

2-117. PUMPING FROM ONBOARD WATER TANK (CONT).

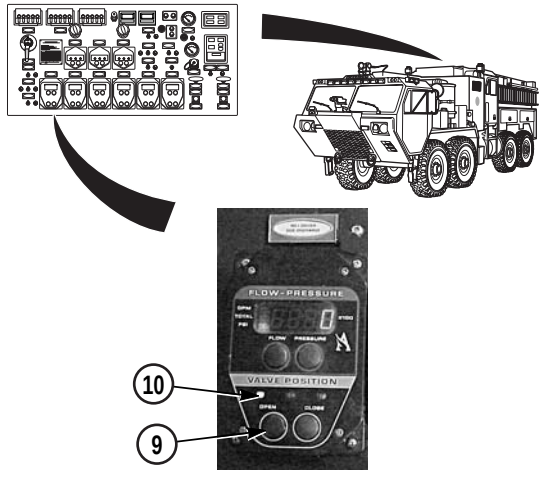
NOTE

All discharges and pre-connects are operated the same way. NO. 1 DRIVER SIDE DISCHARGE shown.



g. Remove cap (6) from NO. 1 DRIVER SIDE DISCHARGE (7).

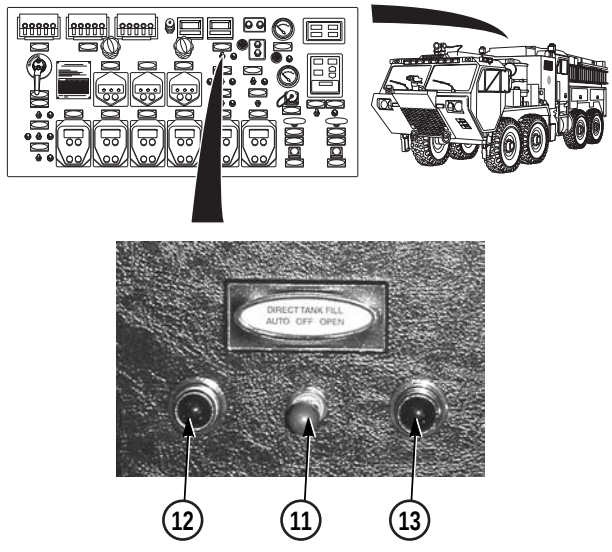
h. Connect discharge hose (8) to NO. 1 DRIVER SIDE DISCHARGE (7).



i. Slowly open NO.1 DRVER SIDE DISCHARGE valve control (9) make sure indicator light (10) comes on, until water emerges at a steady stream.

j. Open other discharge valves to desired setting.

Operation Under Usual Conditions (Cont)



NOTE

Perform steps ***k.*** through ***o.*** if performing direct tank fill.

k. Connect hose from positive water source to direct tank fill inlets as required.

l. Open supply valve on positive water source.

m. Put DIRECT TANK FILL switch (11) to AUTO position. Indicator light (12) will come on.

n. Complete mission.

o. Shut off water pump engine (para 2-113).

NOTE

Perform steps ***p.*** through ***t.*** if direct tank fill was performed.

p. Shut off positive water source valve.

q. Put DIRECT TANK FILL switch (11) to OPEN position. Indicator light (13) will come on.

r. Relieve pressure in hose, if necessary, put DIRECT TANK FILL switch (11) in OFF position. Check that indicator light (13) goes out.

s. Remove hose from positive water source and direct tank fill inlets as required.

t. Perform post operation procedures (para 2-129).

Operation Under Usual Conditions (Cont)

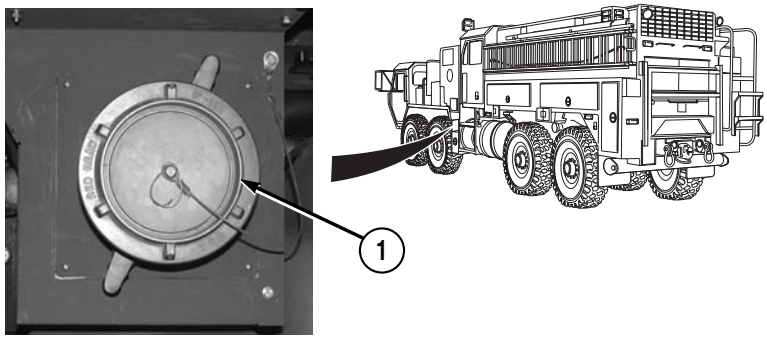
2-118. PUMPING FROM HYDRANT OR IN RELAY (POSITIVE WATER SOURCE).

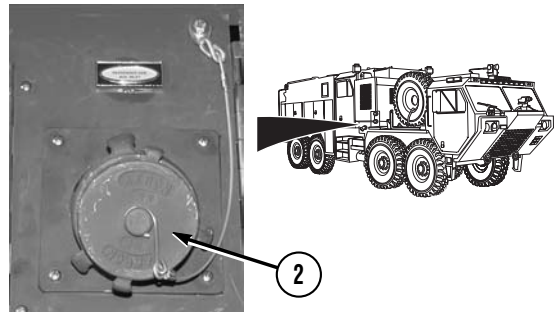
NOTE

- Make sure valves, drains, and caps are closed.
- Foam system will not operate when pump intake pressure is more than 5 psi (34 kPa).

a. Position vehicle for convenient hydrant hookup and discharge hose layout. Bring vehicle to complete stop.

b. Park vehicle (TM 9-2320-279-10-1, para 2-11).





c. Remove cap from either main inlet (1) or auxiliary inlet (2).

WARNING

Do not use hard suction hose for step ***d.*** Hard suction hose will not hold pressure. Hose may fail and separate causing injury to personnel and/or damage to equipment.

NOTE

Pumping may be performed at either the main inlet or the auxiliary inlet.

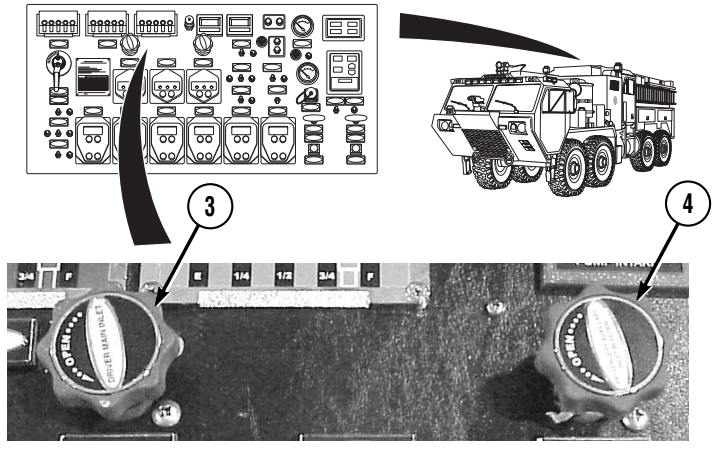
d. Connect either 5 in. (13 cm) soft suction hose to main inlet (1) or 2½ in. (6.4 cm) discharge hose to auxiliary inlet (2).

Operation Under Usual Conditions (Cont)

WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

e. Open supply valve on positive water source.

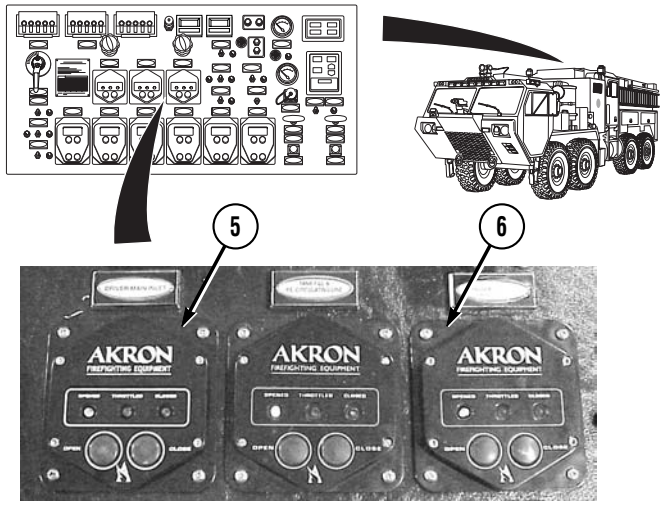


f. Open DRIVER MAIN INLET bleeder valve (3) or PASSENGER SIDE AUXILIARY INLET bleeder valve (4) until water discharges to ground.

g. Close DRIVER MAIN INLET bleeder valve (3) or PASSENGER SIDE AUXILIARY INLET bleeder valve (4).

Operation Under Usual Conditions (Cont)

2-118. PUMPING FROM HYDRANT OR IN RELAY (POSITIVE WATER SOURCE) (CONT).



h. Open DRIVER MAIN INLET valve control (5) or PASSENGER SIDE AUXILIARY INLET valve control (6).

NOTE

If water source pressure exceeds 125 psi (862 kPa), intake relief valves will discharge water to ground.

i. Start water pump engine (para 2-113).

j. Prime main water pump (para 2-114).

k. Set pressure governor (para 2-115).

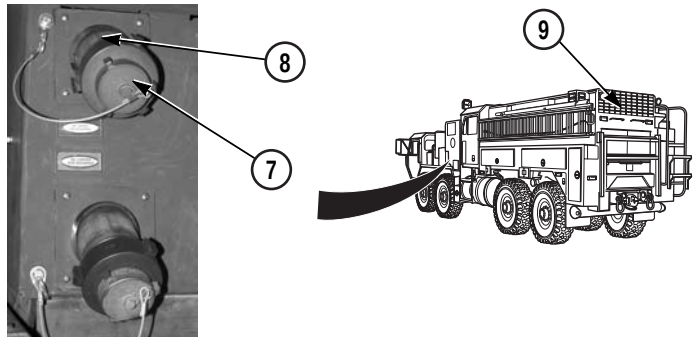
Operation Under Usual Conditions (Cont)

WARNING

- Discharge caps should not be removed if water system is under pressure. Discharge caps can act as projectiles if released under pressure causing injury or death to personnel.
- If any discharge hose is used, make sure hose is removed from hosebed, nozzle is securely attached, and nozzle is turned off before opening any discharge valves. Failure to comply may result in injury to personnel.
- Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

CAUTION

Cavitation can occur when pumping and air enters water. If engine speed increases without an increase in pressure, pump may be cavitating. Even though pump may be primed, air leaks can cause rough operation and an increase in engine speed without an increase in pressure or flow. If an air leak is suspected, discontinue pumping and isolate problem. Cavitation can also occur with large nozzle tips. Solve this problem by reducing flow. Failure to comply may result in damage to water pump.

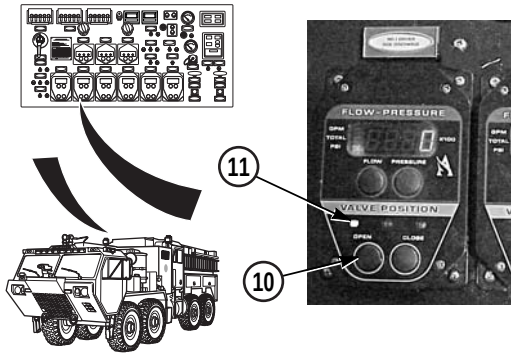


l. Remove cap (7) from NO.1 DRIVER SIDE DISCHARGE (8).

m. Connect discharge hose (9) to NO. 1 DRIVER SIDE DISCHARGE (8).

Operation Under Usual Conditions (Cont)

2-118. PUMPING FROM HYDRANT OR IN RELAY (POSITIVE WATER SOURCE) (CONT).



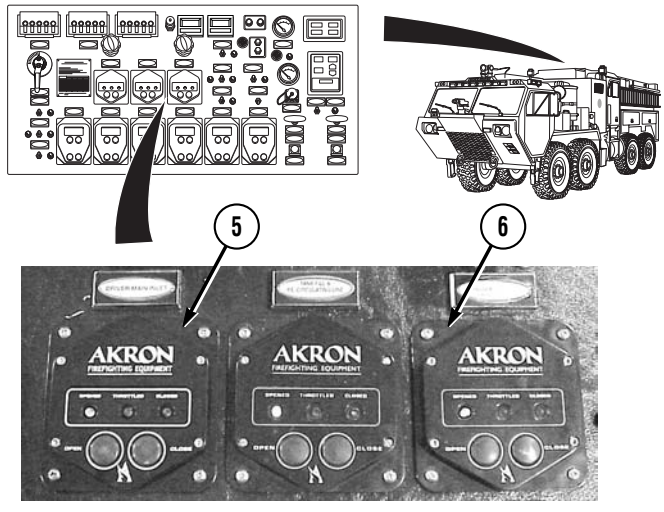
n. Slowly open NO. 1 DRIVER SIDE DISCHARGE valve control (10). Indicator light (11) will come on.

o. Open other discharge valves to desired setting.

p. Complete mission.

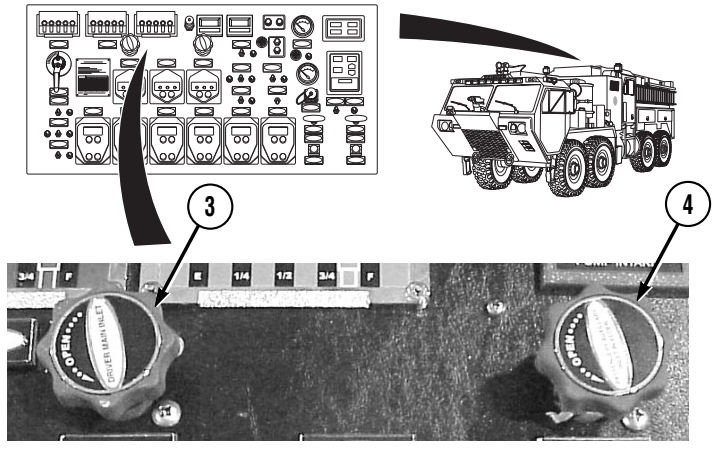
q. Shut off water pump engine (para 2-113).

Operation Under Usual Conditions (Cont)



r. Close DRIVER MAIN INLET valve control (5) or PASSENGER SIDE AUXILIARY INLET valve control (6).

s. Close supply valve on water source.

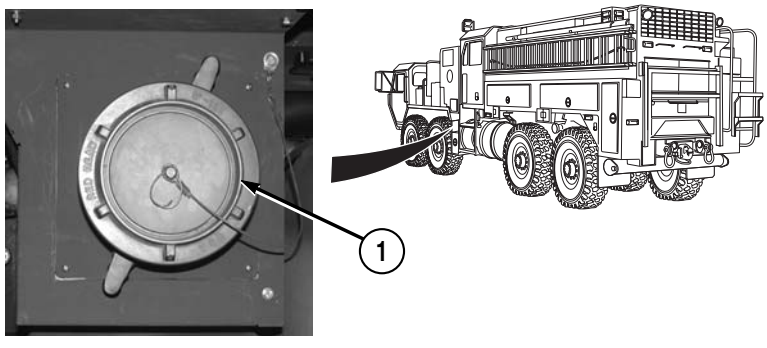


t. Open DRIVER MAIN INLET bleeder valve (3) or PASSENGER SIDE AUXILIARY INLET bleeder valve (4).

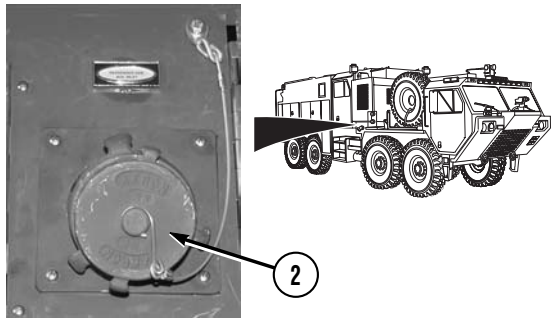
u. Relieve pressure in hose.

Operation Under Usual Conditions (Cont)

2-118. PUMPING FROM HYDRANT OR IN RELAY (POSITIVE WATER SOURCE) (CONT).

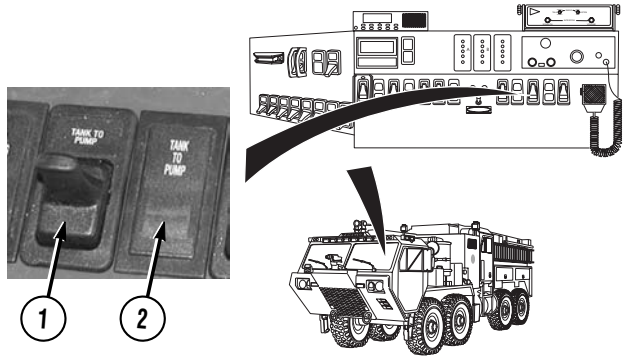


v. Disconnect either 5 in. (13 cm) soft suction hose from DRIVER MAIN INLET valve (1) or 2½ in. (6.4 cm) discharge hose from PASSENGER SIDE AUXILIARY INLET (2).



w. Perform post operation procedures (para 2-129).

2-119. PUMP AND ROLL PROCEDURES.



WARNING

- Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.
- Pump and roll procedures must be performed from truck cab. Do not use pump operators panel for pump and roll procedures. Failure to comply may result in injury or death to personnel.
- Due to poor driver visibility to curb side of vehicle over doghouse and cab mounted equipment, a crew member must be seated in passenger seat when vehicle is in motion. Failure to comply may result in damage to equipment or injury or death to personnel.

NOTE

For maximum bumper turret and roof turret performance, maintain 200-210 psi (1,379-1,448 kPa) on pump discharge gage.

a. Make sure crew cab roof hatch is closed and secured (para 2-108).

b. Put TANK TO PUMP switch (1) in ON position. Indicator light (2) will come on.

c. Start water pump engine (para 2-113).

d. Prime water pump (para 2-114) until pressure registers on pump discharge gage.

Operation Under Usual Conditions (Cont)

2-119. PUMP AND ROLL PROCEDURES (CONT).

e. For foam operations, refer to (para 2-125).

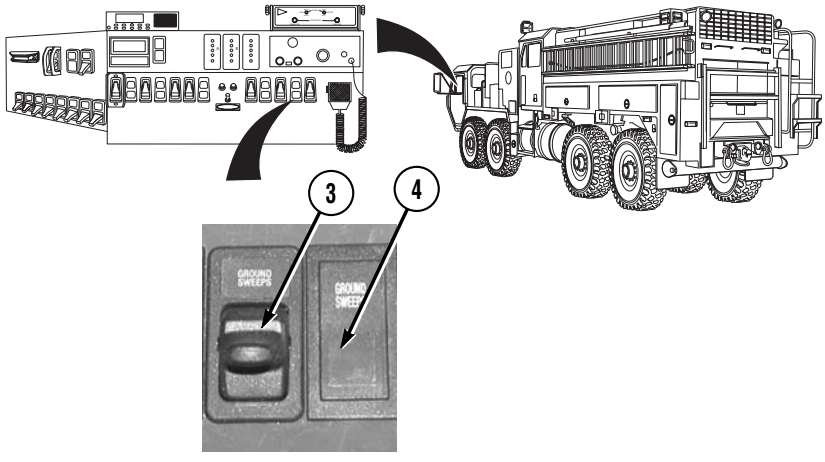
f. Set pressure governor (para 2-115).

g. Select desired discharge:

(1) Bumper turret (para 2-126).

(2) Roof turret (para 2-127).

(3) Ground sweeps.



NOTE

Perform step a. to engage ground sweeps.

a. Put GROUND SWEEPS switch (3) in ON position. Indicator light (4) will come on.

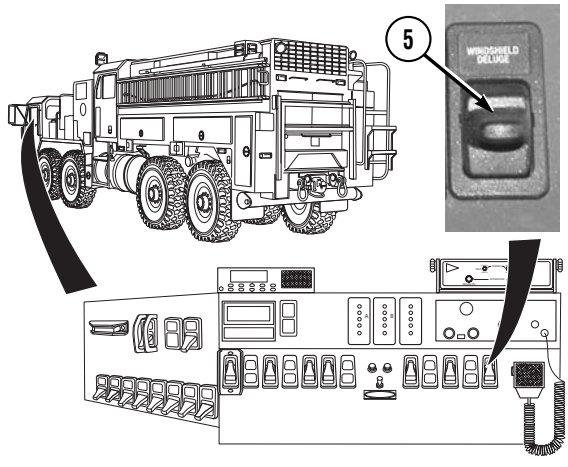
NOTE

Perform step *b.* to disengage ground sweeps.

b. Put GROUND SWEEPS switch (3) in OFF position. Check that indicator light (4) goes out.

Operation Under Usual Conditions (Cont)

(4) Windshield deluge.



NOTE

Perform steps a. and b. to engage windshield deluge.

a. Turn ON vehicle windshield wipers (TM 9-2320-279-10-1).

b. Put WINDSHIELD DELUGE switch (5) in ON position.

NOTE

Perform steps c. and d. to disengage windshield deluge.

c. Put WINDSHIELD DELUGE switch (5) in OFF position.

d. Turn OFF vehicle windshield wipers (TM 9-2320-279-10-1).

CAUTION

Monitor water level gage. Damage to water pump will occur if water tank runs out of water.

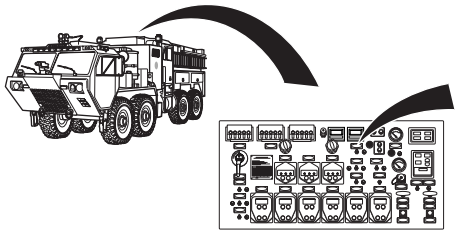
h. Monitor water level gage during mission.

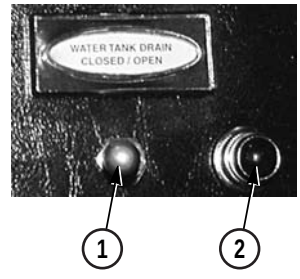
i. Complete mission.

j. Shut off water pump engine (para 2-113).

k. Perform post operation procedures (para 2-129).

2-120. DRAINING WATER TANK.





WARNING

Temperature must be above freezing if draining water tank while on a driving surface. Water could freeze on driving surface. Failure to comply may result in damage to equipment and/or injury or death to personnel.

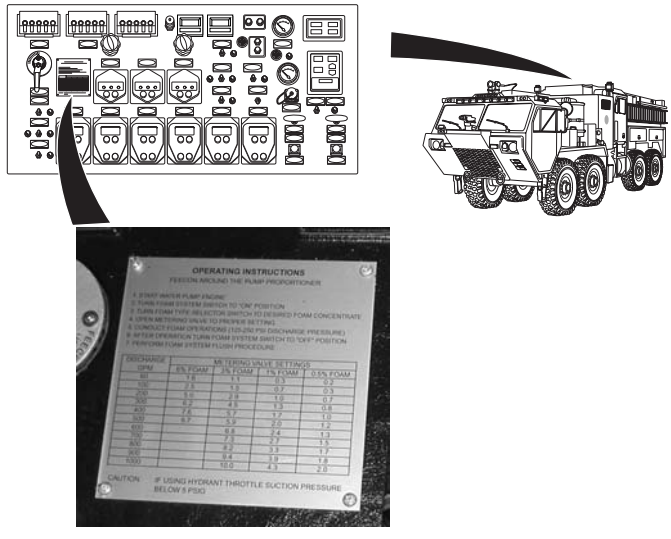
a. Position vehicle in a suitable location to drain water tank.

b. Put WATER TANK DRAIN switch (1) in OPEN position. Indicator light (2) will come on.

c. Allow water tank to drain.

d. Put WATER TANK DRAIN switch (1) in CLOSED position. Check that indicator light (2) goes out.

2-121. FOAM SYSTEM GENERAL INFORMATION.



CAUTION

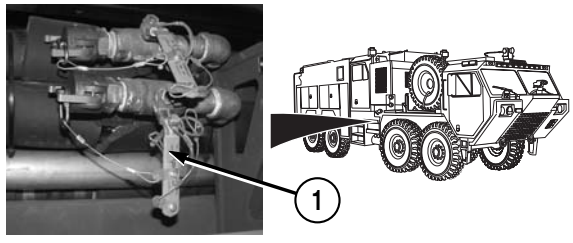
- Do not mix different types or manufacturers brands of foam agent in foam cells or piping. Mixing of different foam agents (either type or manufacturer) may cause deterioration of foam agent, improper proportioning and poor performance in a fire situation. Mixing of Class A and Class B foam agents may result in a chemical reaction which can create globules, which can clog orifices and cause system failure.
- When in foam mode never open TANK FILL and RE-CIRCULATING LINE valve. This will cause foam agent to enter water tank. If recirculation is needed to keep pump cool, open PUMP COOLER valve.

NOTE

- Foam system operation from cab (turret operation) requires system pressure of at least 200-210 psi (1,379-1,448 kPa) for proper proportion.
- Foam system operation from pump operator's panel requires system pressure of at least 125-250 psi (862-1,724 kPa) for proper proportion.

Operation Under Usual Conditions (Cont)

2-122. FILLING FOAM AGENT TANK.



CAUTION

- Do not mix different types or manufacturers brands of foam agent in foam cells or piping. Mixing of different foam agents (either type or manufacturer) may cause deterioration of foam agent, improper proportioning and poor performance in a fire situation. Mixing of Class A and Class B foam agents may result in a chemical reaction which can create globules, which can clog orifices and cause system failure.
- Do not spill foam agent on pressure/vacuum vents. Clean any spilled foam agent before continuing with procedures. If vents become blocked, pressure could build up in tanks and may cause damage to equipment.

a. When filling foam agent tank during a non-fire situation, following procedure is recommended:

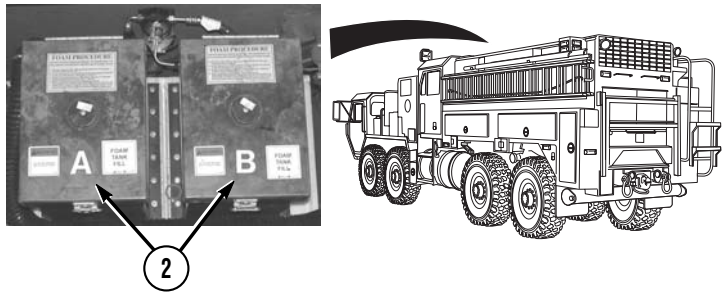
(1) Truck should be parked on a level surface.

(2) Make sure all water and other contaminants have been drained from foam tanks before filling.

(3) Make sure FOAM TANK DRAIN valves (1) are in CLOSED position.

(4) Unstow right rear access ladder (para 2-104).

Operation Under Usual Conditions (Cont)



WARNING

Use extreme care when walking on hosebed cover and on top of vehicle. Be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling causing injury or death to personnel.

(5) Open expansion dome hatches (2).

WARNING

Caution must be taken when carrying 5 gal (19 L) pails of foam agent to top of foam agent tank. If foam agent is spilled, walking surface can become extremely slippery. Clean any spilled foam agent before continuing to fill foam agent tank. Failure to comply may result in injury or death to personnel.

NOTE

Foam cell should be filled halfway up into expansion dome to minimize surface area of foam agent subject to evaporation. Pour foam agent down center of round tube when filling tank. This tube goes to bottom of tank and allows foam agent to enter under surface of foam currently in tank. This is done to reduce aeration of foam agent per NFPA.

(6) Foam agent must be added by pouring through the 4 in. (10 cm) tube; it must be done slowly and carefully to prevent aeration. If aeration occurs inside tank, stop pouring until foam agent bubbles dissolve. Take care not to allow water, dirt, debris, or foreign substance to enter tank.

(7) Close expansion dome hatches (2).

(8) Stow right rear access ladder (para 2-104).

Operation Under Usual Conditions (Cont)

2-123. FOAM SYSTEM-STANDBY MODE.

WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in serious injury or death to personnel and damage to equipment.

CAUTION

Turn on foam system only when needed. Failure to comply may result in damage to equipment.

NOTE

When in foam mode never open TANK FILL and RE-CIRCULATING LINE valve. This will cause foam agent to enter water tank. If recirculation is needed to keep pump cool, open PUMP COOLER valve.

Foam system is in Standby Mode when:

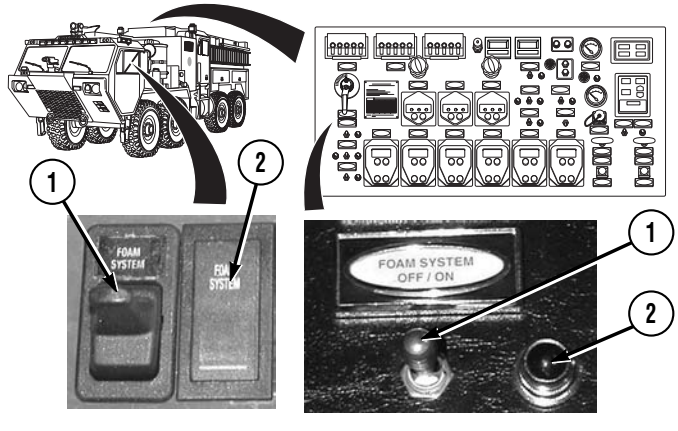
a. Drains are closed.

b. Vents not blocked and clean.

c. No known leaks.

d. Foam tanks are full.

e. Latches are secured.



f. Put FOAM SYSTEM switch (1) in OFF position. Check that indicator light (2) goes out.

2-124. FOAM SYSTEM OPERATING PROCEDURES (PUMP OPERATOR'S PANEL).

a. Foam System Activation.

WARNING

- Before operating foam system, personnel must familiarize themselves with all procedures and instructions regarding water pump, discharge devices, and foam making devices. Failure to understand and follow any instructions could result in personal injury and/or damage to equipment.
- Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

CAUTION

When in foam mode, never open TANK FILL and RE-CIRCULATION LINE valve control. This will cause foam agent to enter water tank. If recirculation is needed to keep pump cool, open PUMP COOLER valve.

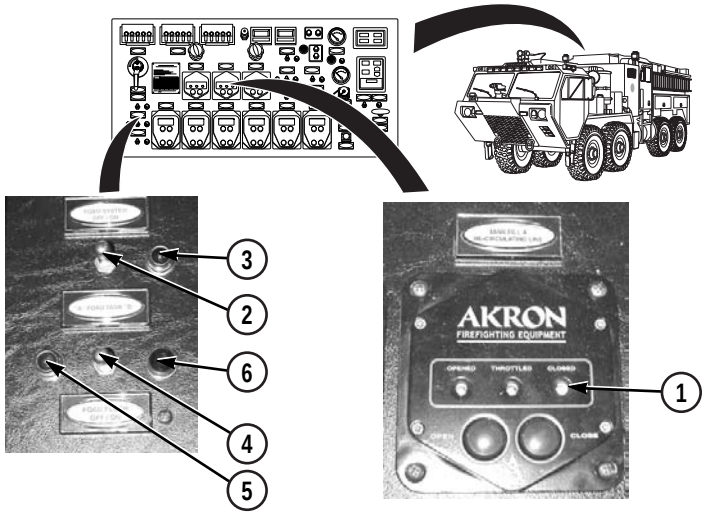
NOTE

Foam system operation from pump operators panel requires system pressure of at least 125-250 psi (862 - 1,724 kPa) for proper proportion.

Operation Under Usual Conditions (Cont)

2-124. FOAM SYSTEM OPERATING PROCEDURES (PUMP OPERATOR'S PANEL) (CONT).

b. Starting Foam Solution Flow.



(1) Start water pump engine (para 2-113).

(2) Make sure TANK FILL and RE-CIRCULATION LINE valve (1) is closed.

(3) Put FOAM SYSTEM switch (2) in ON position. Indicator light (3) will come on.

(4) Put FOAM TANK selector switch (4) to desired foam agent. Indicator light A (5) or light B (6) will come on.

(5) Make sure correct FOAM TANK selector indicator light A (5) or B (6) is illuminated.

Operation Under Usual Conditions (Cont)

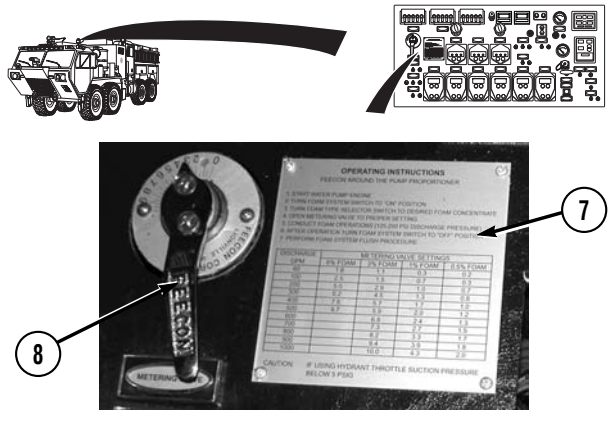
NOTE

If operating from a hydrant source, check pump suction pressure. Intake pressure must be 5 psi (34 kPa) or less or proportioner will not function properly.

(6) Establish water flow to desired discharge outlet(s) (para 2-116, 2-117, or 2-118).

CAUTION

If water is stopped, metering valve must be closed to prevent foam agent from entering piping and water pump. Failure to comply may result in damage to equipment.



NOTE

- Instruction plate mounted on pump operator's panel gives settings versus flow rates for various agents.
- Each time the flow rate is changed, the METERING VALVE must be reset.
- The sum of the discharges need to be added together for total discharge GPM.

(7) Using chart (7), determine flow rate and set METERING VALVE (8) to deliver proper percentage.

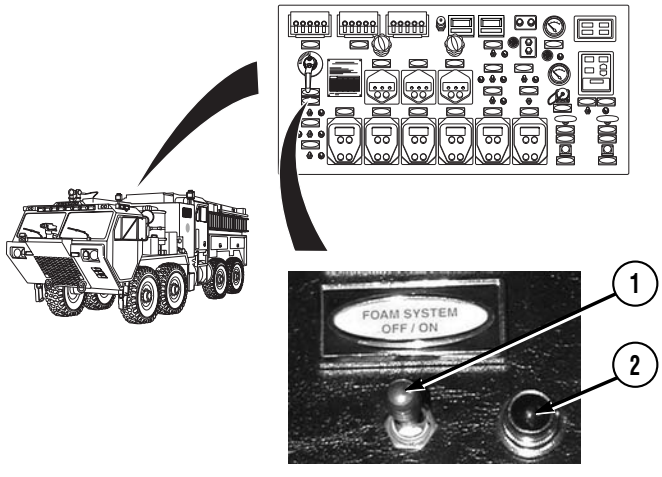
c. Stopping Foam Solution Flow.

(1) Put METERING VALVE (8) in CLOSED position.

Operation Under Usual Conditions (Cont)

2-124. FOAM SYSTEM OPERATING PROCEDURES (PUMP OPERATOR'S PANEL) (CONT).

d. Foam System Deactivation/Clean-Up.



NOTE

When performing step *(1)*, FOAM TANK SUPPLY valve will automatically shut off.

(1) Put FOAM SYSTEM switch (1) in OFF position. Check that indicator light (2) goes out.

(2) Using pressure governor, decrease engine RPM to reduce water pressure (para 2-115).

(3) Perform foam system flushing procedure (para 2-128).

2-125. FOAM SYSTEM OPERATING PROCEDURES (CAB INSTRUMENT PANEL).

a. Foam System Activation.

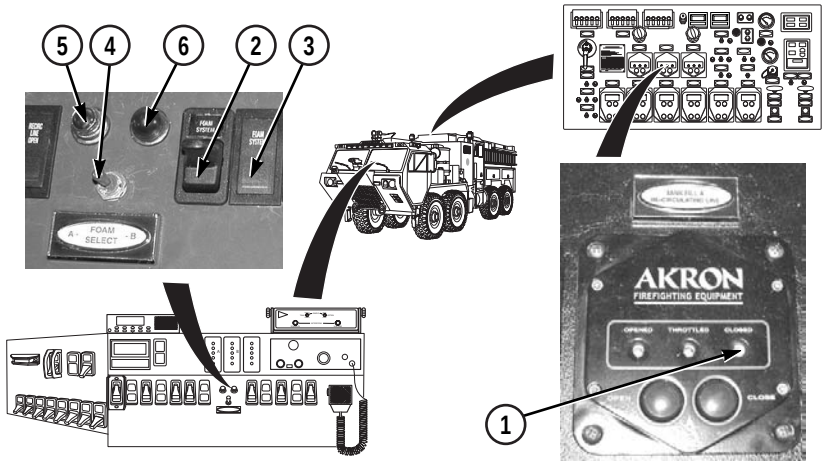
WARNING

- Before operating foam system, personnel must familiarize themselves with all procedures and instructions regarding water pump, discharge devices and foam making devices. Failure to understand and follow any instructions could result in personal injury and/or damage to this equipment.
- Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Ensure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

NOTE

When foam system is operated from personnel cab, foam solution is present at all discharges (roof turret, bumper turret, and ground sweeps) except at windshield deluge.

(1) Start water pump engine (para 2-113).

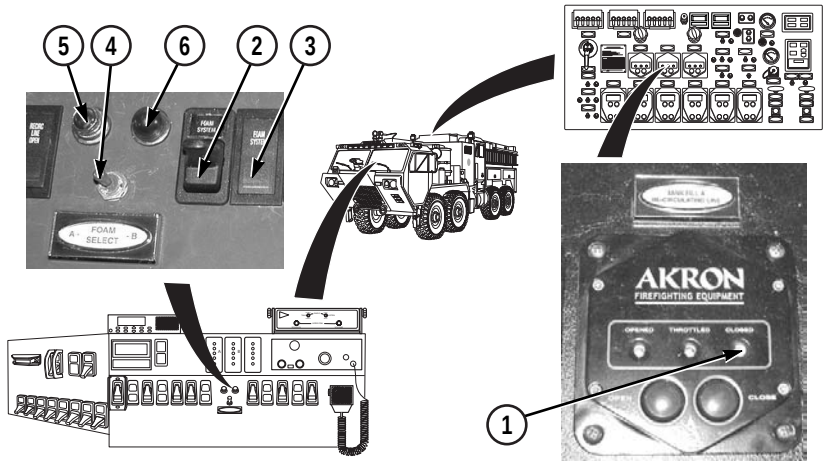


(2) Make sure TANK FILL and RE-CIRCULATING LINE valve control (1) is closed.

(3) Put FOAM SYSTEM switch (2) in ON position. Indicator light (3) will come on.

Operation Under Usual Conditions (Cont)

2-125. FOAM SYSTEM OPERATING PROCEDURES (CAB INSTRUMENT PANEL) (CONT).



(4) Put FOAM SELECT switch (4) to desired foam agent. Indicator light A (5) or light B (6) will come on.

(5) Make sure correct foam indicator light A (5) or light B (6) is illuminated.

(6) Establish water flow to desired discharge outlet(s) (para 2-119).

NOTE

- Foam system agent percentage is preset for turrets and ground sweeps and is not adjustable.
- The foam system will discharge class A foam at .5% at 200-210 psi (1,379-1,448 kPa). At pressures lower than 200 psi (1,379 kPa), the foam concentrate will be higher.

(7) For class A foam, use pressure governor to adjust discharge pressure to desired pressure (para 2-115), depending on type of operation.

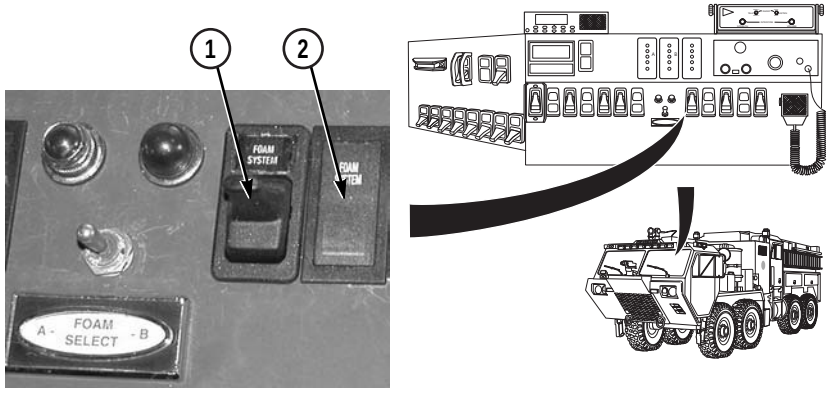
NOTE

- The foam system will discharge class B foam at 3% at 200-210 psi (1,379-1,448 kPa). Class B foam should not be discharged at reduced pressures.
- Activating the PRESET switch on the pressure governor (pressure mode), will automatically increase the discharge pressure to 200-210 psi (1,379-1,448 kPa).

(8) For class B foam, use pressure governor to adjust discharge pressure to 200-210 psi (1,379-1,448 kPa) (para 2-115).

Operation Under Usual Conditions (Cont)

b. Stopping Foam Solution Flow.



NOTE

When performing step *(1)*, FOAM TANK SUPPLY valve will automatically shut off.

(1) Put FOAM SYSTEM switch (1) in OFF position.

(2) Check that indicator light (2) goes out.

c. Foam System Deactivation/Clean-Up.

NOTE

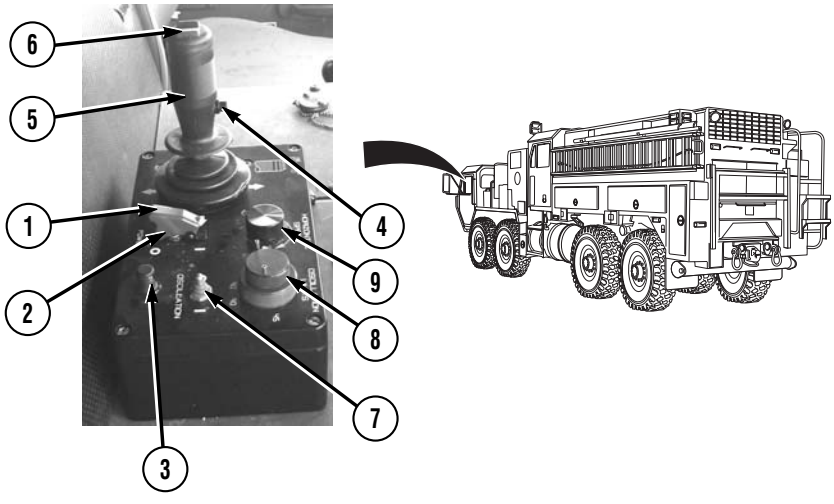
When performing step *(1)*, FOAM TANK SUPPLY valve will automatically shut off.

(1) Put FOAM SYSTEM switch (1) in OFF position. Check that indicator light (2) goes out.

(2) Set pressure governor to idle (para 2-115).

(3) Perform appropriate foam system flushing procedure (para 2-128).

2-126. BUMPER TURRET OPERATION.



WARNING

Turret should never be pointed at personnel. Failure to comply may result in injury or death to personnel.

NOTE

Bumper turret is controlled from inside personnel cab by using joystick control box.

a. Lift power switch guard (1) and put power switch (2) to ON (-) position. Indicator light (3) will come on.

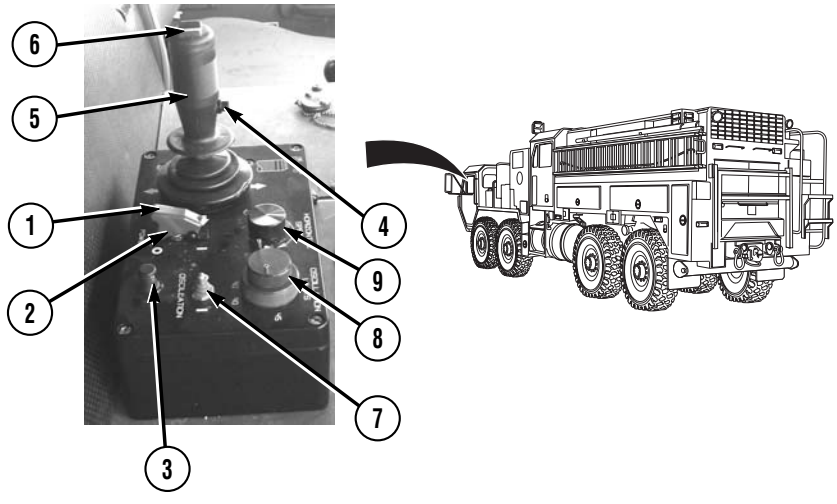
b. Push and release agent discharge button (4) on front of joystick control handle (5) to begin discharge.

NOTE

Pattern control button, located on top of joystick, controls nozzle discharge pattern. Pressing switch to left changes nozzle pattern to fog pattern. Pressing switch to right changes nozzle pattern to straight stream.

c. Press pattern control button (6) to desired pattern.

Operation Under Usual Conditions (Cont)



NOTE

- Perform steps ***d.*** through ***f.*** to activate automatic oscillation.
- The joystick control handle is designed to override the automatic oscillation. Moving the joystick left or right will automatically disengage automatic oscillation. The bumper turret nozzle can be elevated or depressed when in automatic oscillation, and automatic oscillation will not disengage.

d. Put OSCILLATION switch (7) to ON (**-**) position.

e. Set OSCILLATION LIMITS control knob (8) to desired position.

f. Set HORIZONTAL SPEED (9) to desired position.

g. Complete mission.

h. Push and release discharge control button (4) on front of joystick (5) to stop discharge.

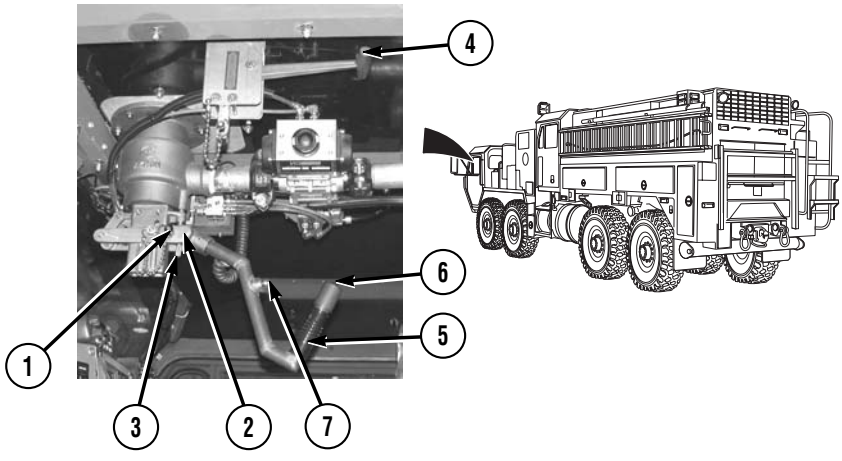
i. Put OSCILLATION switch (7) to OFF (**o**) position.

j. Point bumper turret straight ahead.

k. Lift power switch guard (1) and put POWER switch (2) to OFF (**o**) position. Check that indicator light (3) goes out.

Operation Under Usual Conditions (Cont)

2-127. ROOF TURRET OPERATION.



WARNING

Turret should never be pointed at personnel. Failure to comply may result in injury or death to personnel.

a. Remove pin (1) from handle yoke and drive socket (2).

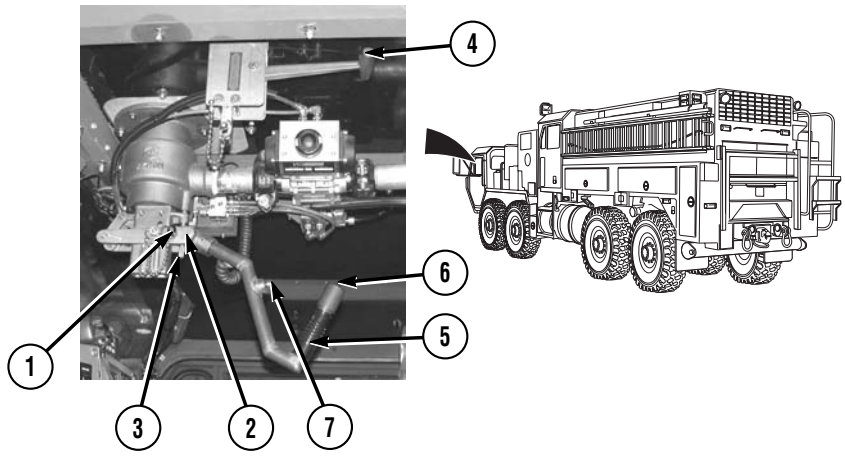
NOTE

Knureld rod is not completely removed from handle yoke and drive socket. Knureld rod is unthreaded, approximately 1 in. (3 cm).

b. Loosen knureld rod (3) from handle yoke and drive socket (2).

c. Move pattern control lever (4) up to select straight stream pattern, or pull down to select fog pattern.

Operation Under Usual Conditions (Cont)



WARNING

Keep a firm grip on roof turret control handle when roof turret is discharging water. Failure to comply may result in injury to personnel.

NOTE

Pulling handle down will raise roof turret nozzle. Pushing handle up will lower roof turret nozzle. Pushing handle to left will move roof turret to right. Pushing handle right will move roof turret to left.

d. With a firm grip on roof turret control handle (5), push and release agent discharge button (6) on roof turret control handle (5) to engage roof turret.

e. Make sure indicator light (7) illuminates on roof turret control handle (5).

f. Complete mission.

g. Push and release agent discharge button (6) on roof turret control handle (5) to disengage roof turret.

h. Make sure indicator light (7) goes out on roof turret control handle (5).

i. Return roof turret to center position.

j. Push up on roof turret control handle (5).

k. Tighten knureld rod (3) on handle yoke and drive socket (2).

l. Install pin (1) on handle yoke and drive socket (2).

2-128. FOAM SYSTEM FLUSHING.

a. General Description.

CAUTION

Foam agent can cause operating components, such as valves, to stick if solution is allowed to dry. Many types of foam agents have penetrating properties, which can remove or accelerate deterioration of greases and/or lubricants. Special attention should be given to lubrication requirements of equipment normally in contact with foam solution such as valves, monitors, nozzles, etc. More frequent lubrication may be necessary. It is recommended that the water pump and delivery system components be flushed before they are returned to a "ready" condition.

The foam system is composed of materials that are compatible with foam agents.

b. Foam Agent Piping Flush Procedure.

WARNING

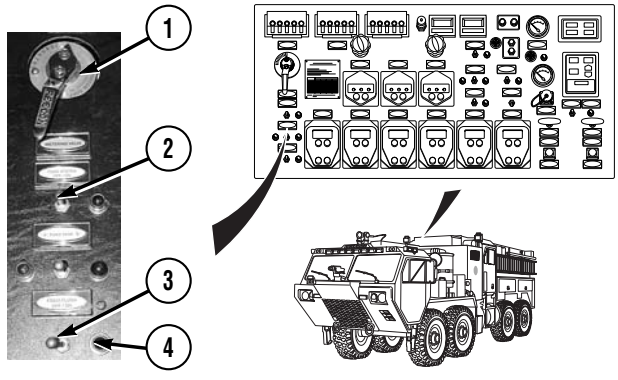
Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

NOTE

- Make sure to close all valves once water runs clear.
- Foam system flushing procedure must be done using on board water tank.

(1) Using pressure governor, decrease engine RPM to reduce water pressure (para 2-115).

Operation Under Usual Conditions (Cont)



(2) Make sure foam METERING VALVE (1) is in CLOSED position.

(3) Make sure FOAM SYSTEM switch (2) is in OFF position.

(4) Using pressure governor, adjust main water pump discharge pressure to 125 psi (862 kPa) (para 2-115).

(5) Turn FOAM FLUSH switch (3) to ON position. Indicator light (4) will come on.

WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

CAUTION

- Do not open any foam agent supply tanks while performing flush procedures.
- Do not allow foam system pressure to exceed 250 psi (1,724 kPa). Failure to comply may result in damage to equipment.

(6) Put foam METERING VALVE (1) in fully opened position.

Operation Under Usual Conditions (Cont)

2-128. FOAM SYSTEM FLUSHING (CONT).

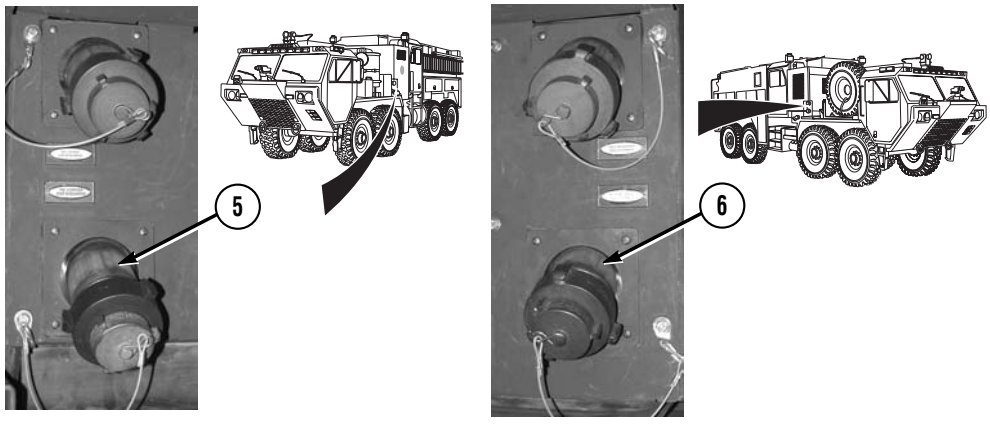
NOTE

- Perform steps *(7)* through *(13)* if discharges were used.
- While flushing, open and close METERING VALVE two times; continue flushing until water runs clear.

(7) Open discharge valves and flush out all discharges that were used, removing foam until water runs clear.

(8) While flushing, open and close foam METERING VALVE (1) twice or until water runs clear from discharge.

(9) Flush portable equipment such as hoses, nozzles, monitors, etc.



WARNING

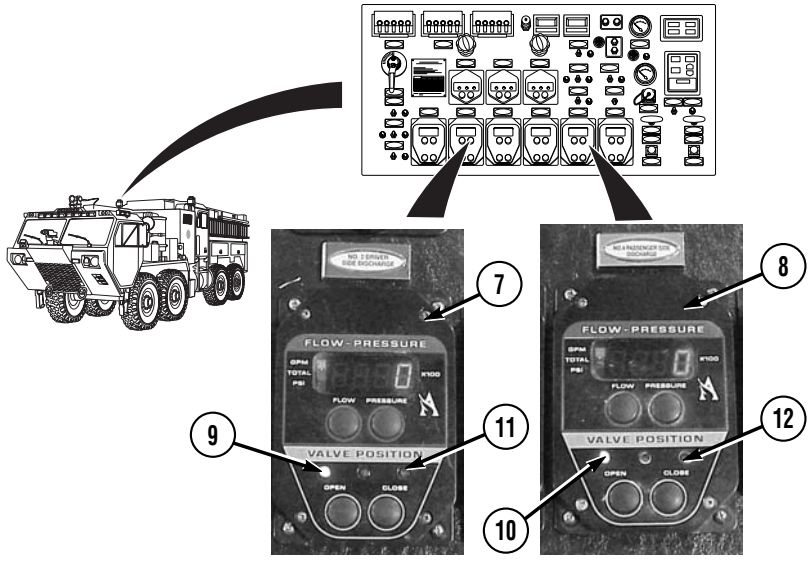
Discharge caps should not be removed if water system is pressurized. Discharge caps can act as projectiles if released under pressure, causing injury or death to personnel.

NOTE

Perform steps *(10)* through *(13)* to flush foam system piping to discharges that were not used.

(10) Remove two caps from NO. 2 DRIVER SIDE DISCHARGE (5) and NO. 4 PASSENGER SIDE DISCHARGE (6).

Operation Under Usual Conditions (Cont)

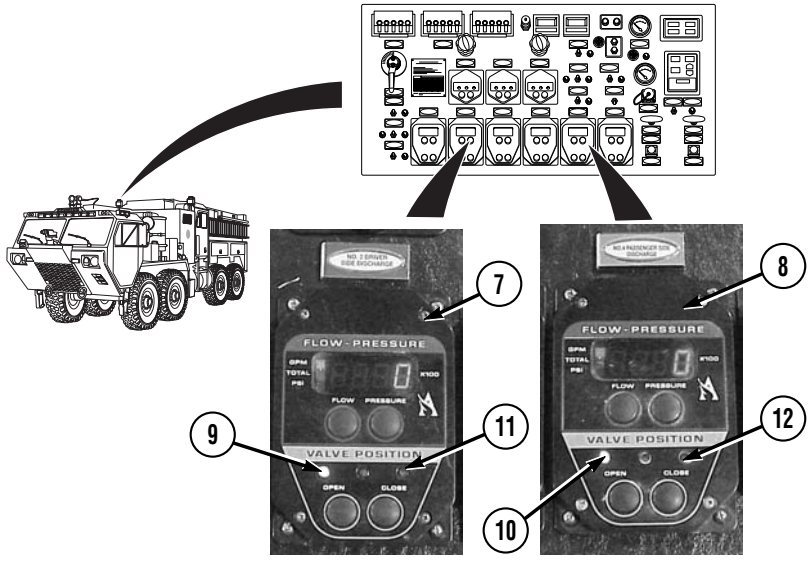


(11) Put NO. 2 DRIVER SIDE DISCHARGE valve control (7) and NO. 4 PASSENGER SIDE DISCHARGE valve control (8) in OPEN position. Indicator lights (9 and 10) will come on.

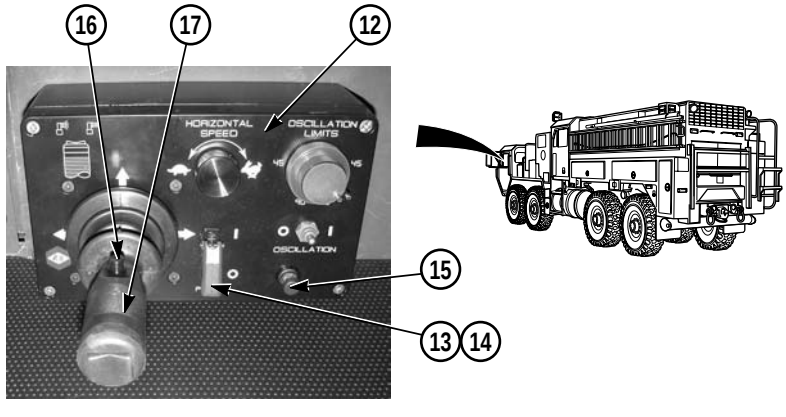
(12) Flush out NO. 2 DRIVER SIDE DISCHARGE (5) and NO. 4 PASSENGER SIDE DISCHARGE (6) until water runs clear.

Operation Under Usual Conditions (Cont)

2-128. FOAM SYSTEM FLUSHING (CONT).

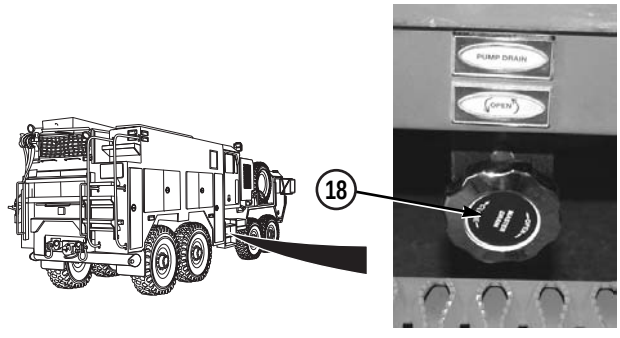


(13) Put NO. 2 DRIVER SIDE DISCHARGE valve control (7) and NO. 4 PASSENGER SIDE DISCHARGE valve control (8) in CLOSED position. Indicator lights (11 and 12) will come on.



(14) Lift switch guard (13) and put power switch (14) in ON (-) position. Indicator light (15) will come on.

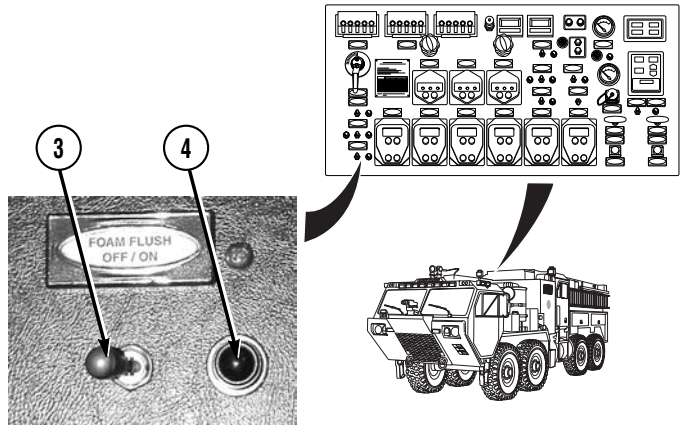
(15) Push agent release discharge control button (16) on front of joystick (17) to begin discharge. Push again to shut off.



NOTE

When opening drain valves, only open valves slightly.

(16) Open MASTER DRAIN valve (18) until water runs clear.



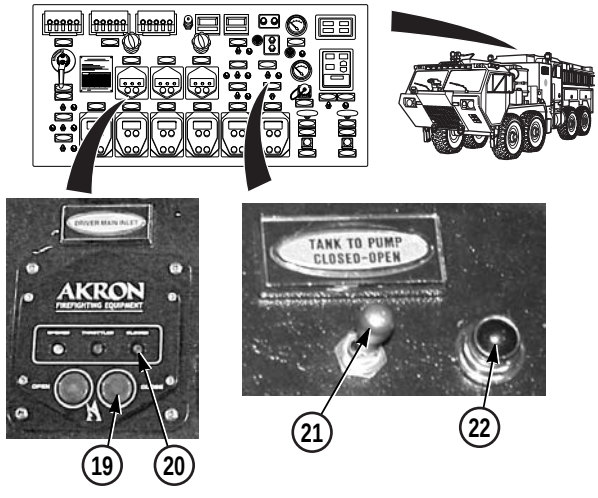
(17) Put FOAM FLUSH switch (3) in OFF position. Check that indicator light (4) goes out.

(18) Using pressure governor, idle water pump engine (para 2-115).

(19) Shut off water pump engine (para 2-113).

Operation Under Usual Conditions (Cont)

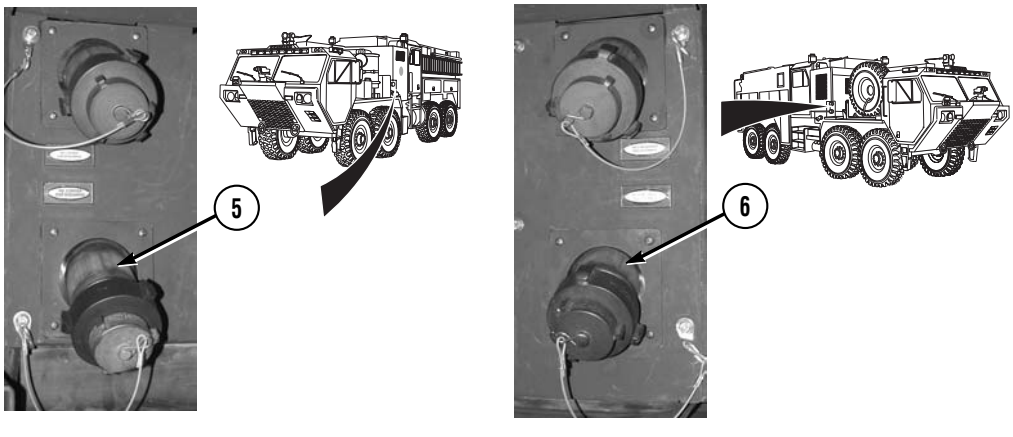
2-128. FOAM SYSTEM FLUSHING (CONT).



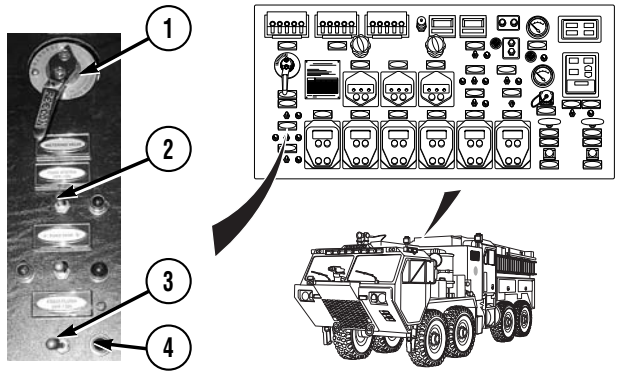
(20) If used, put DRIVER MAIN INLET valve control (19) in CLOSED position. Indicator light (20) will come on.

(21) If used, put TANK TO PUMP switch (21) in CLOSED position. Make sure indicator light (22) goes out.

(22) Close all flush and drain valves that were opened.



(23) Install two caps on NO. 2 DRIVER SIDE DISCHARGE (5) and NO. 4 PASSENGER SIDE DISCHARGE (6).



(24) Turn foam METERING VALVE (1) to closed position.

NOTE

Make sure PUMP COOLER switch is in OFF position.

(25) Refill foam agent storage tank to one-half full level in expansion dome with appropriate foam agent (para 2-122).

(26) Return all valves and switches to their normal standby position (para 2-111 or 2-123).

2-129. POST OPERATION PROCEDURES.

a. If system was pumping seawater, dirty water, alkaline water, or foam, flush the pump with clean water.

WARNING

Make sure system pressure gages and hose pressure gages are at zero prior to disconnecting any suction or discharge hoses or removing caps. System operates at extreme pressure and failure to comply may result in injury or death to personnel.

b. Make sure all valve controls are in CLOSED position.

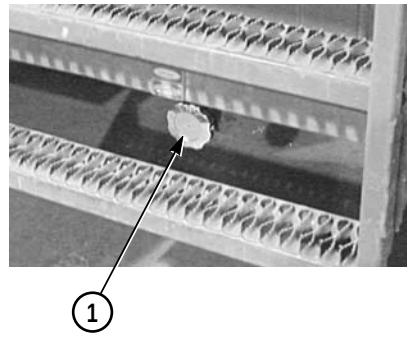
c. Disconnect and stow all suction and discharge hoses.

CAUTION

Make sure pump is completely drained in freezing weather (para 2-134). Water could freeze and expand, which may cause damage to water pump.

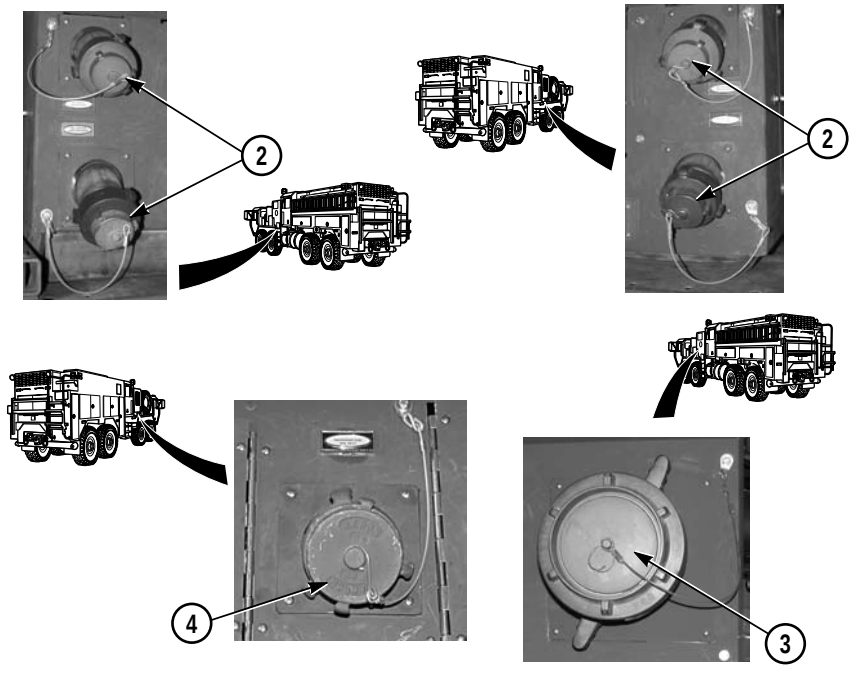
NOTE

Perform steps ***d.*** through ***i.*** if leaving vehicle in a "Dry Pump" condition (standby condition, dry condition, water tank full).



d. Open MASTER DRAIN valve (1) to relieve pressure.

Operation Under Usual Conditions (Cont)



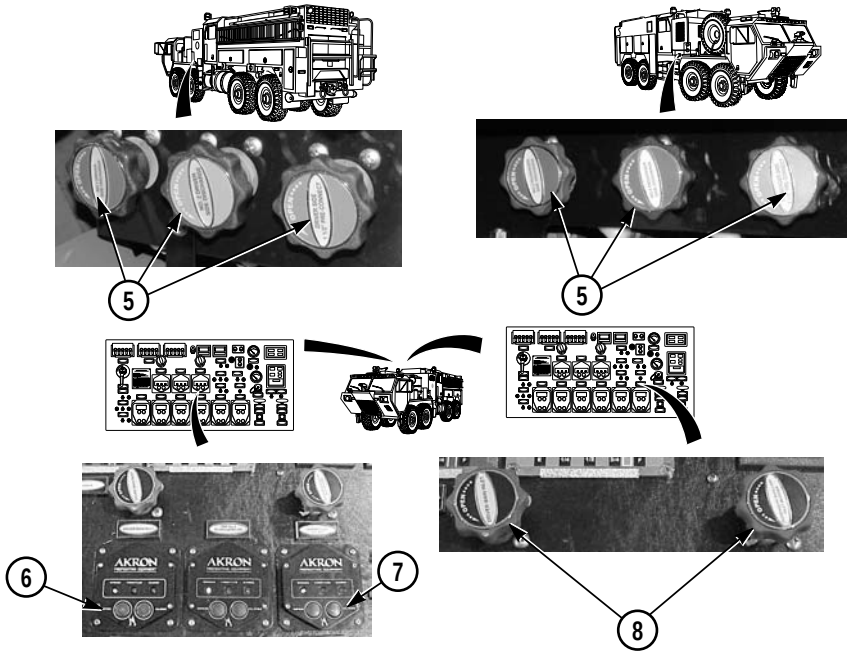
NOTE

Do not open TANK FILL and RE-CIRCULATING LINE valve control, TANK TO PUMP valve, WATER TANK DRAIN valve, FOAM TYPE selector switch valves, or FOAM TANK DRAIN valves.

e. Remove four discharge caps (2), main inlet cap (3), and passenger side auxiliary inlet cap (4).

Operation Under Usual Conditions (Cont)

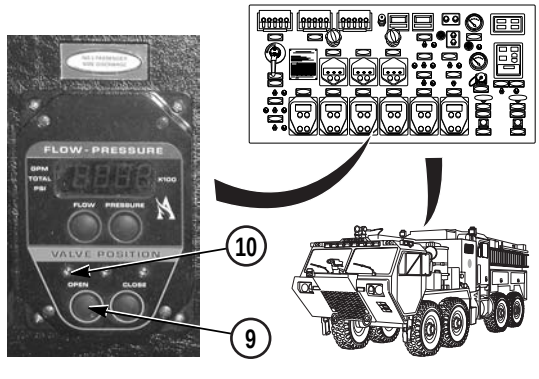
2-129. POST OPERATION PROCEDURES (CONT).



NOTE

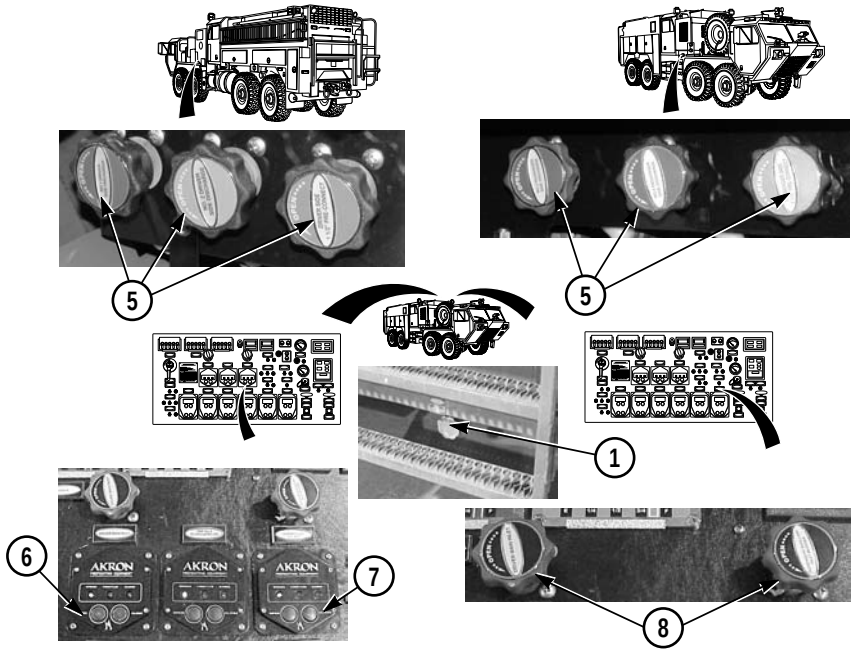
Hand operated drain valves only open ¼ of a turn.

f. Open six DISCHARGE drain valves (5), DRIVER MAIN INLET valve control (6), AUXILIARY INLET valve control (7), and two BLEEDER drain valves (8).



g. Open six discharge valves (9). Six indicator lights (10) will come on.

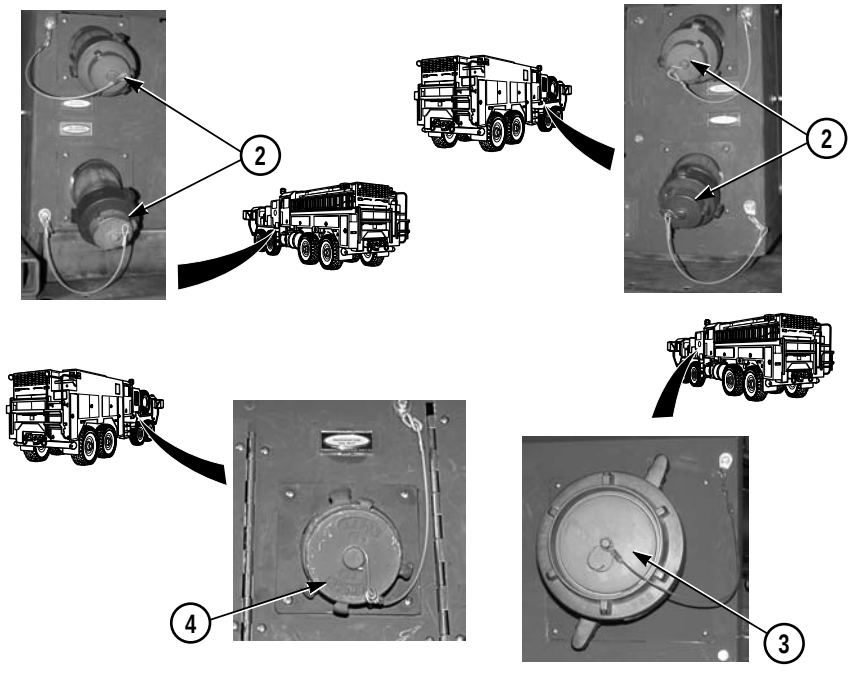
Operation Under Usual Conditions (Cont)



h. After pump is completely drained, close six DISCHARGE drain valves (5), DRIVER SIDE MAIN INLET valve control (6), PASSENGER SIDE AUXILIARY INLET valve control (7), MASTER DRAIN valve (1), and two BLEEDER drain valves (8).

Operation Under Usual Conditions (Cont)

2-129. POST OPERATION PROCEDURES (CONT).



i. After pump is completely drained, replace four discharge caps (2), main inlet cap (3), and passenger side auxiliary inlet cap (4).

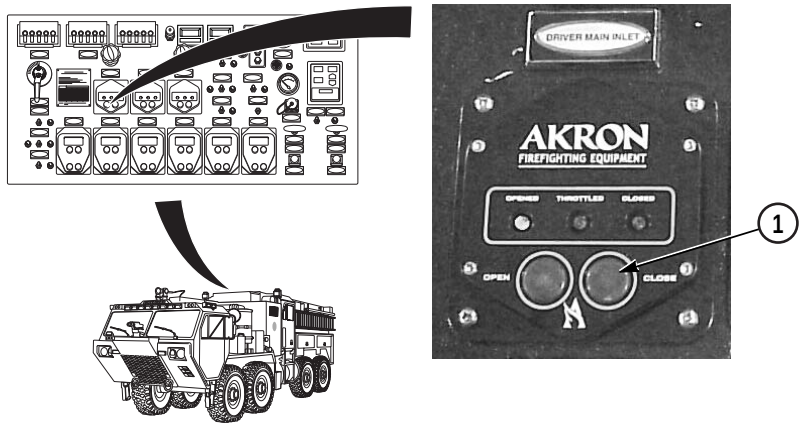
j. If required, follow SOP and fill out pump run log, indicating total pumping time and out-of-station time.

k. Report all pump, truck equipment malfunctions, and irregularities to your supervisor.

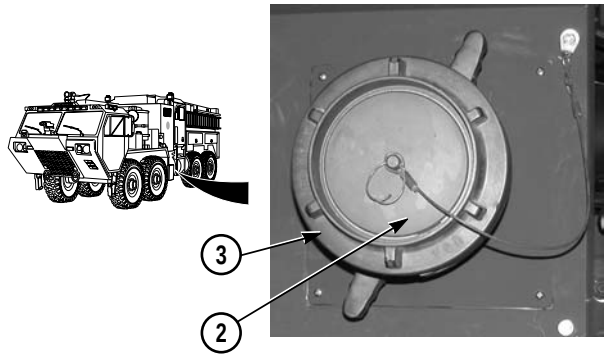
Operation Under Usual Conditions (Cont)

2-130. WATER PUMP AND WATER TANK FLUSH.

a. Water Pump Flush.



(1) Make sure DRIVER MAIN INLET valve control (1) is closed.



(2) Remove cap (2) from driver main inlet (3).

WARNING

Do not use hard suction hose for step *(3)*. Hard suction hose will not hold pressure. Hose may fail and separate causing injury and damage to equipment.

(3) Connect 5 in. (13 cm) soft suction hose to driver main inlet (3) and positive water source.

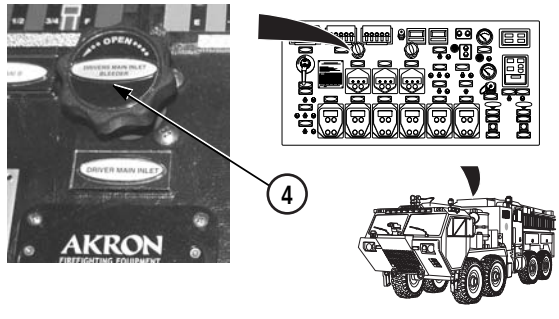
Operation Under Usual Conditions (Cont)

2-130. WATER PUMP AND WATER TANK FLUSH (CONT).

WARNING

Open and close all valves slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.

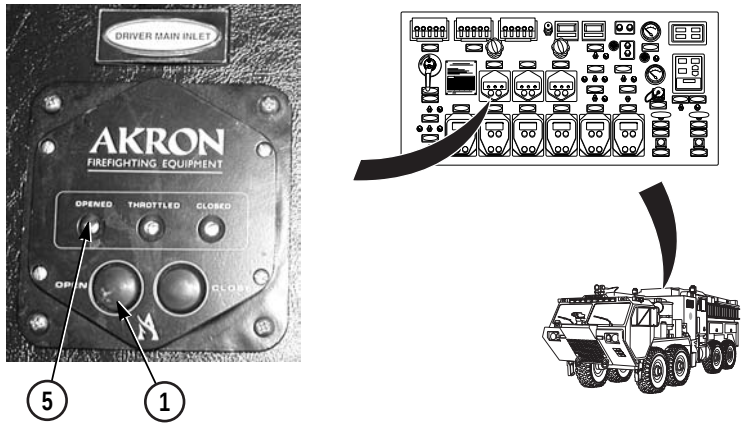
(4) Open supply valve on positive water source.



(5) Open DRIVER MAIN INLET bleeder valve (4) until water discharges to ground.

(6) Close DRIVER MAIN INLET bleeder valve (4).

Operation Under Usual Conditions (Cont)



(7) Open DRIVER MAIN INLET valve control (1). Indicator light (5) will come on.

WARNING

Do not let pressure exceed 125 psi (862 kPa). Failure to comply may result in damage to equipment or injury or death to personnel.

NOTE

If pressure exceeds 125 psi (862 kPa) notify supervisor.

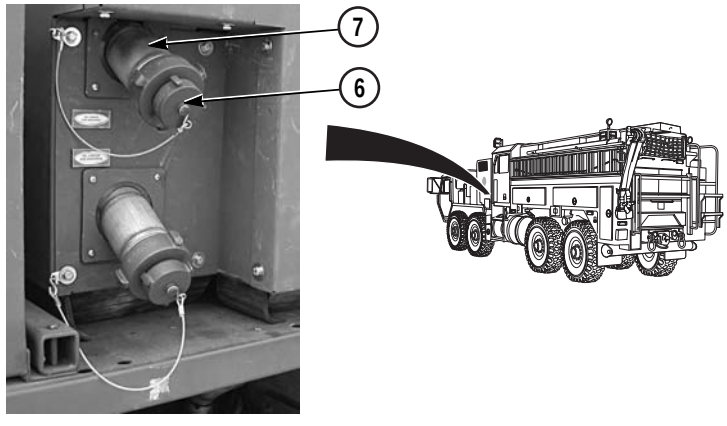
(8) Start water pump engine (para 2-113).

(9) Prime water pump (para 2-114).

(10) Set pressure governor (para 2-115).

Operation Under Usual Conditions (Cont)

2-130. WATER PUMP AND WATER TANK FLUSH (CONT).

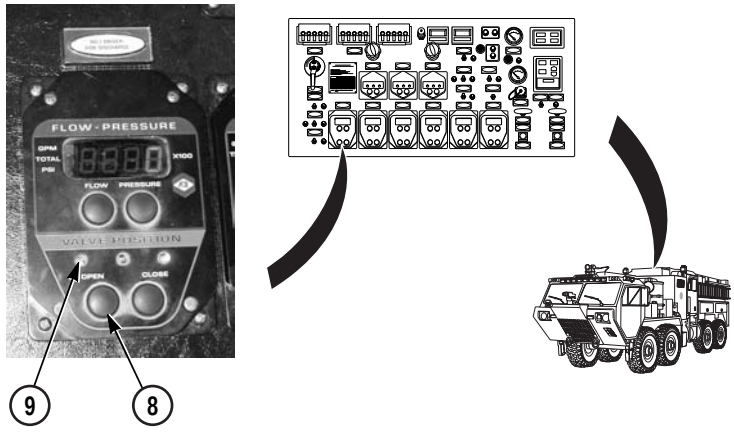


CAUTION

Cavitation can occur when pumping and air enters water. If engine speed increases without an increase in pressure, pump may be cavitating. Even though pump may be primed, air leaks can cause rough operation and an increase in engine speed without an increase in pressure or flow. If an air leak is suspected, discontinue pumping and isolate problem. Cavitation can also occur with large nozzle tips. Solve this problem by reducing flow. Failure to comply may result in damage to water pump.

(11) Remove cap (6) from NO. 1 DRIVER SIDE DISCHARGE (7).

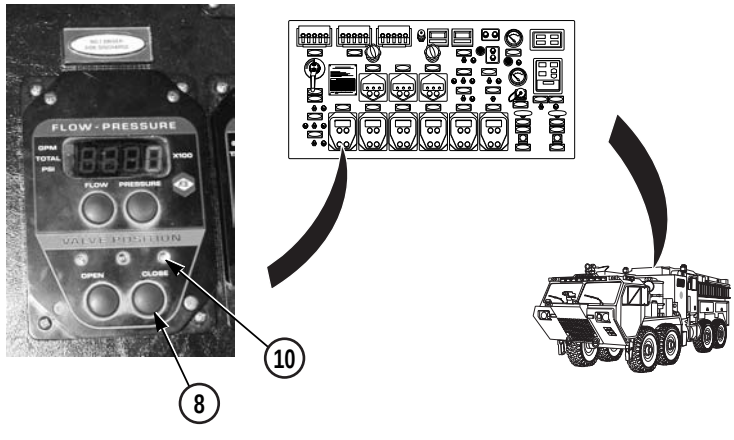
Operation Under Usual Conditions (Cont)



(12) Slowly open NO. 1 DRIVER SIDE DISCHARGE valve control (8). Indicator light (9) will come on.

(13) Flush water pump clean.

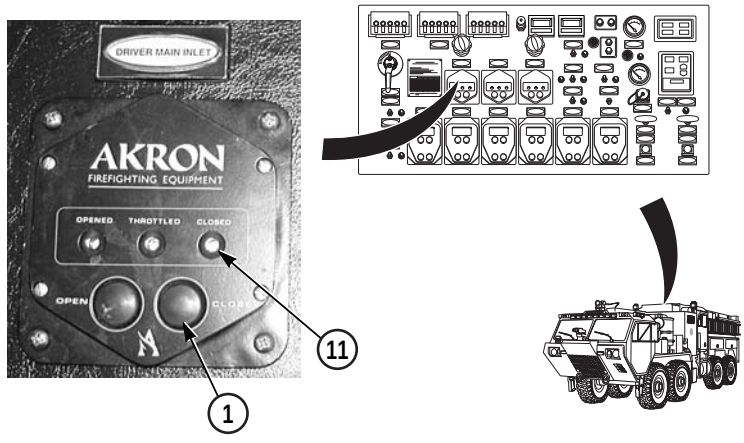
(14) Shut off water pump engine (para 2-113).



(15) Close NO. 1 DRIVER SIDE DISCHARGE valve control (8). Indicator light (10) will come on.

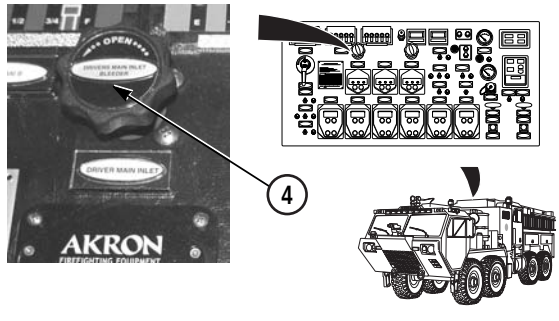
Operation Under Usual Conditions (Cont)

2-130. WATER PUMP AND WATER TANK FLUSH (CONT).



(16) Close DRIVER MAIN INLET valve control (1). Indicator light (11) will come on.

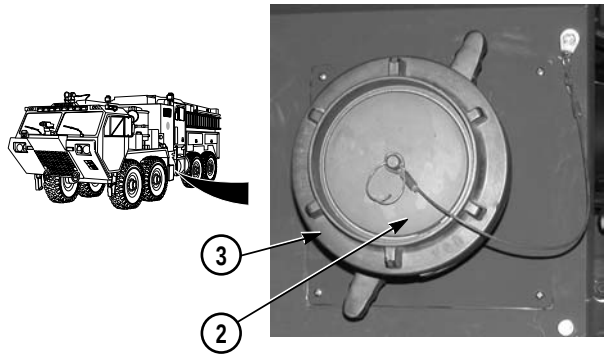
(17) Close supply valve on positive water source.



(18) Open DRIVER MAIN INLET bleeder valve (4).

(19) Relieve pressure in soft suction hose.

(20) Close DRIVER MAIN INLET bleeder valve (4).



(21) Disconnect 5 in. (13 cm) soft suction hose from driver main inlet (3) and positive water source.

(22) Install cap (2) on driver main inlet (3).

b. Water Tank Flush.

NOTE

When performing water tank flush, water tank must be filled using a positive water source (hydrant).

(1) Fill water tank (para 2-110b).

(2) Drain water tank (para 2-120).

Operation Under Usual Conditions (Cont)

2-131. PREPARATION FOR STORAGE OR SHIPMENT.

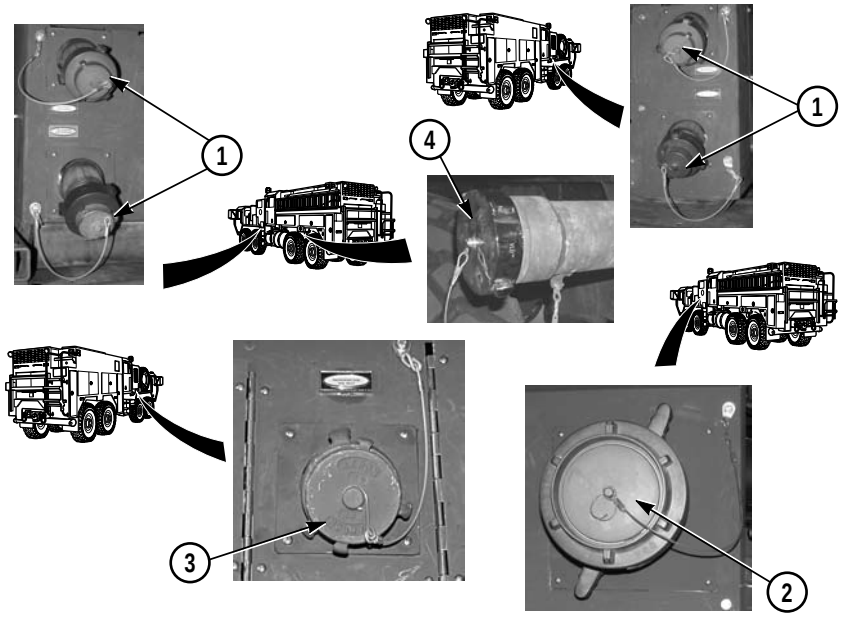
a. Preparation for Storage (Long Term: 6 months or Longer).

(1) Position vehicle in a suitable location to drain and pump out remaining water.

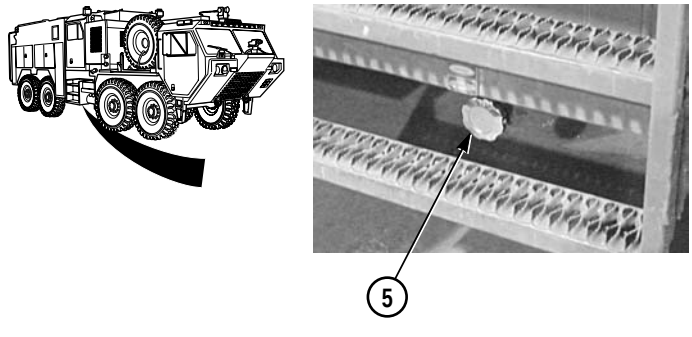
(2) Drain and flush foam tanks (para 2-132).

(3) Flush pump and tank (para 2-130).

(4) Perform Preventive Maintenance Checks and Services and Lubrication procedures (para 2-97).

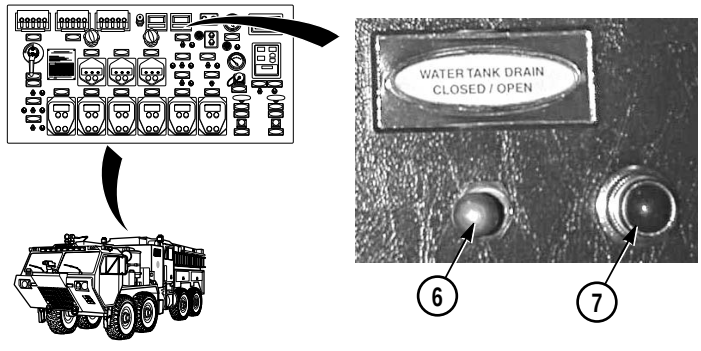


(5) Remove four discharge caps (1), main inlet cap (2), passenger side auxiliary inlet cap (3), and direct tank fill cap (4).

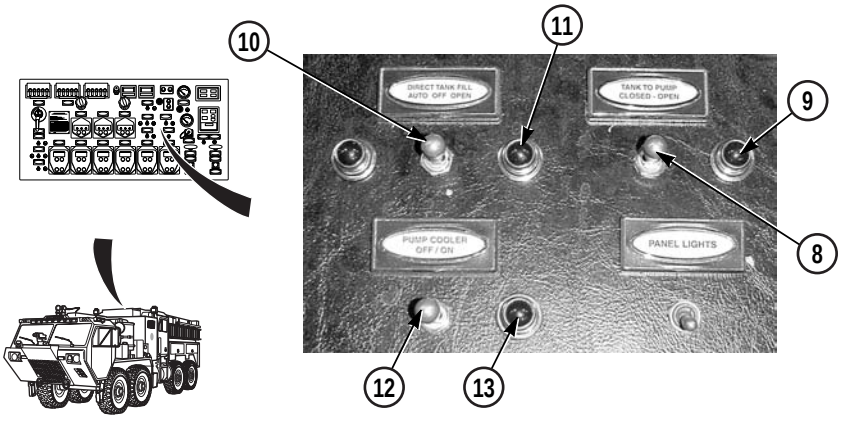


(6) Put MASTER DRAIN valve (5) in OPEN position.

Operation Under Usual Conditions (Cont)



(7) Put WATER TANK DRAIN switch (6) in OPEN position. Indicator light (7) will come on.



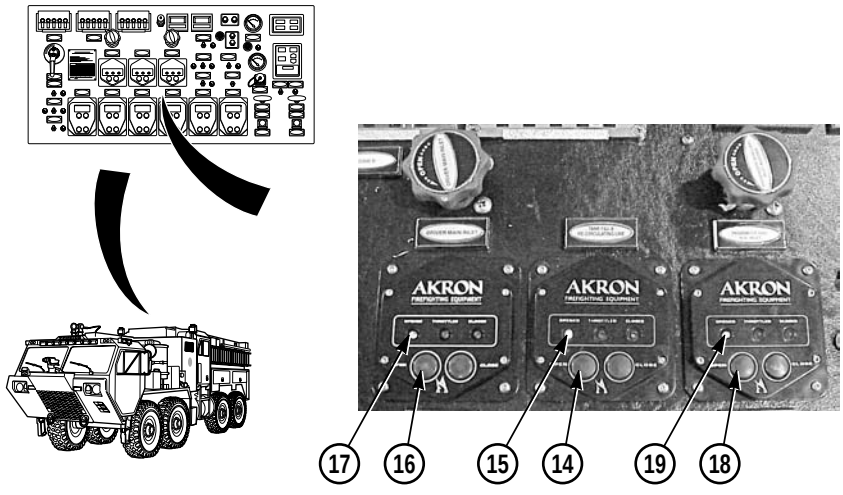
(8) Put TANK TO PUMP switch (8) in OPEN position. Indicator light (9) will come on.

(9) Put DIRECT TANK FILL switch (10) in OPEN position. Indicator light (11) will come on.

(10) Put PUMP COOLER switch (12) in ON position. Indicator light (13) will come on.

Operation Under Usual Conditions (Cont)

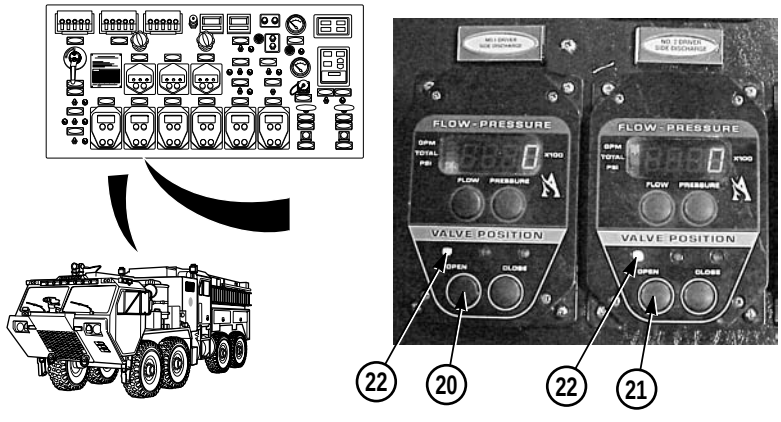
2-131. PREPARATION FOR STORAGE OR SHIPMENT (CONT).



(11) Put TANK FILL and RE-CIRCULATING LINE valve control (14) in OPEN position. Indicator light (15) will come on.

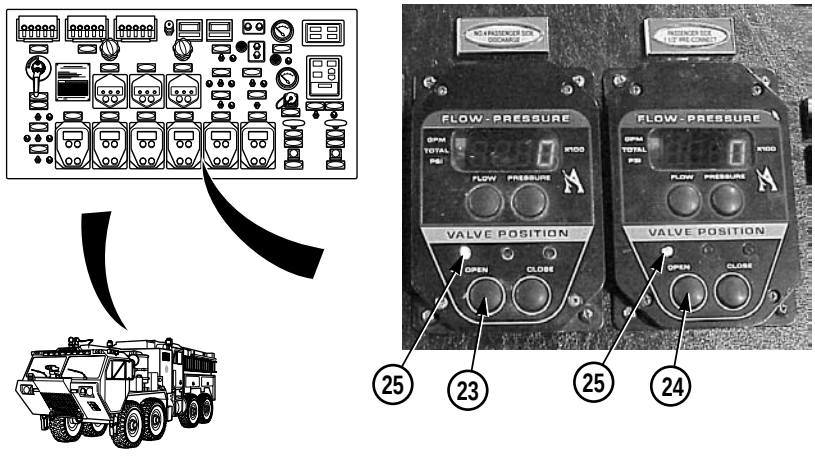
(12) Put DRIVER MAIN INLET valve control (16) in OPEN position. Indicator light (17) will come on.

(13) Put PASSENGER SIDE AUXILIARY INLET valve control (18) in OPEN position. Indicator light (19) will come on.

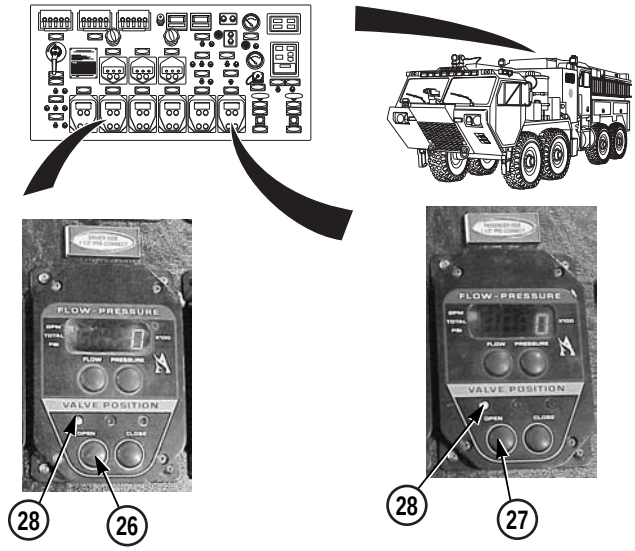


(14) Put NO. 1 (20) and NO. 2 (21) DRIVER SIDE DISCHARGE valve controls in OPEN position. Two indicator lights (22) will come on.

Operation Under Usual Conditions (Cont)



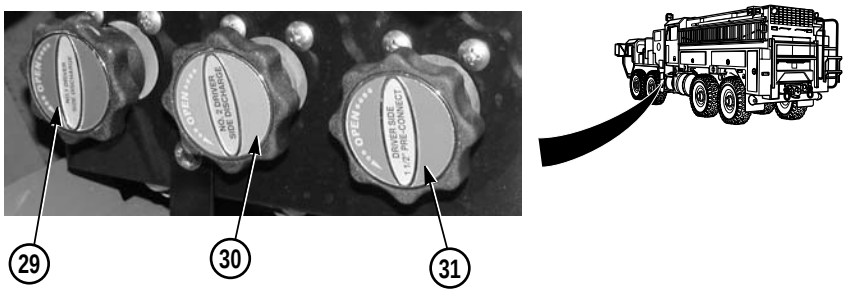
(15) Put NO. 3 (23) and NO. 4 (24) PASSENGER SIDE DISCHARGE valve controls in OPEN position. Two indicator lights (25) will come on.



(16) Put DRIVERS PRE-CONNECT A (26) and DRIVERS PRE-CONNECT B (27) valve controls in OPEN position. Two indicator lights (28) will come on.

Operation Under Usual Conditions (Cont)

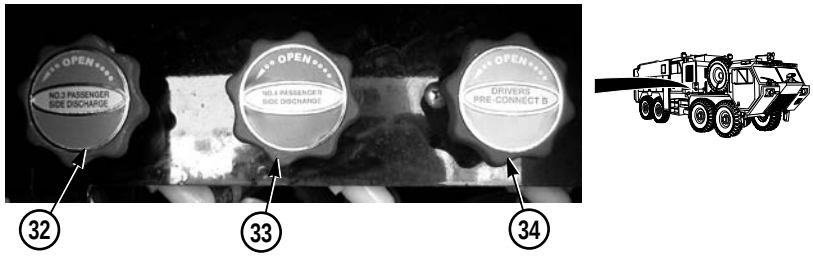
2-131. PREPARATION FOR STORAGE OR SHIPMENT (CONT).



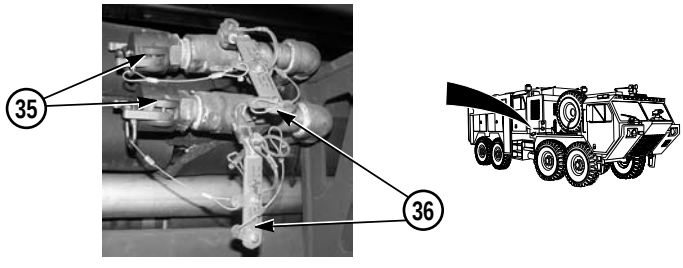
NOTE

Discharge drain valves only open ¼ turn.

(17) Put NO. 1 (29) and NO. 2 (30) DRIVER SIDE DISCHARGE drain valves and DRIVERS PRE-CONNECT A drain valve (31) in OPEN position.



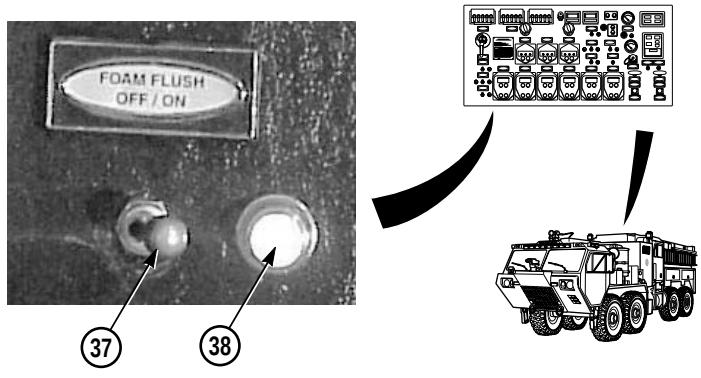
(18) Put NO. 3 (32) and NO. 4 (33) PASSENGER SIDE DISCHARGE drain valves and DRIVERS PRE-CONNECT B drain valve (34) in OPEN position.



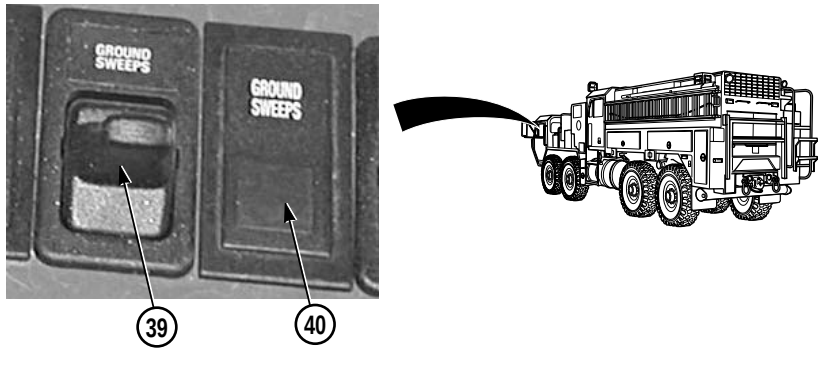
(19) Remove two foam drain valve caps (35) from FOAM TANK drain valves (36).

(20) Put two FOAM TANK drain valves (36) in open position.

Operation Under Usual Conditions (Cont)



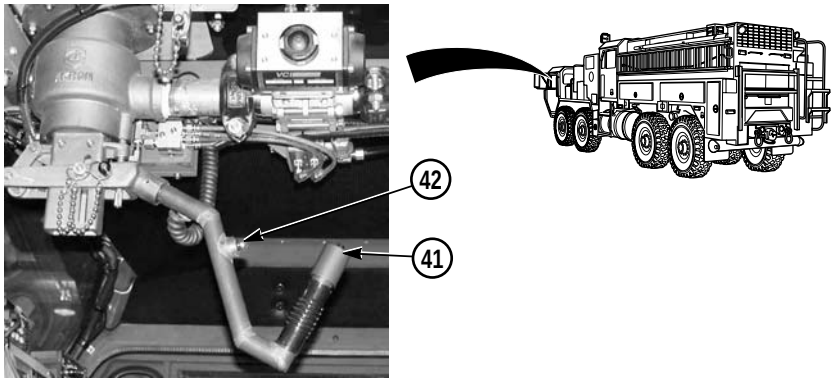
(21) Put FOAM FLUSH switch (37) in ON position. Indicator light (38) will come on.



(22) Put GROUND SWEEPS switch (39) in OPEN position. Indicator light (40) will come on.

Operation Under Usual Conditions (Cont)

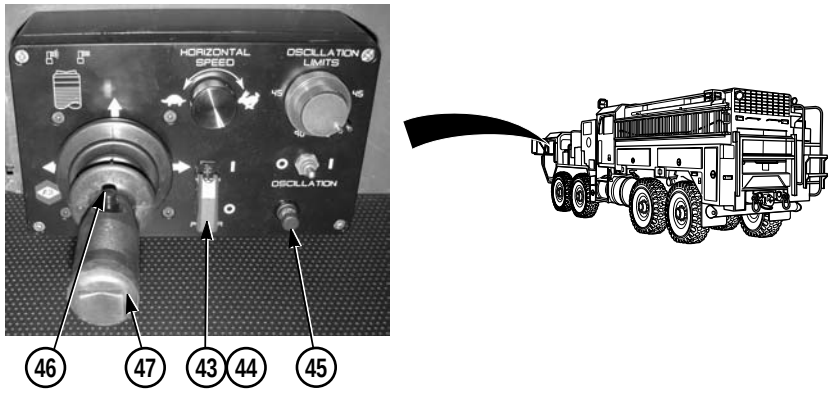
2-131. PREPARATION FOR STORAGE OR SHIPMENT (CONT).



WARNING

Turrets never should be pointed at personnel. Failure to comply may result in injury or death to personnel.

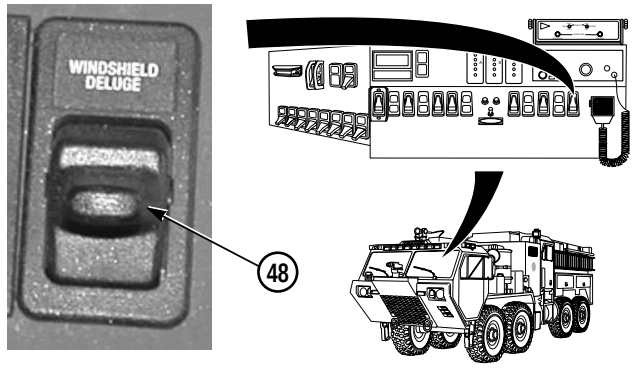
(23) Push agent discharge button (41) to on position. Indicator light (42) will come on.



(24) Lift power switch guard (43) and put POWER switch (44) to ON (-) position. Indicator light (45) will come on.

(25) Push and release agent discharge button (46) on front of joystick control handle (47) to begin discharge.

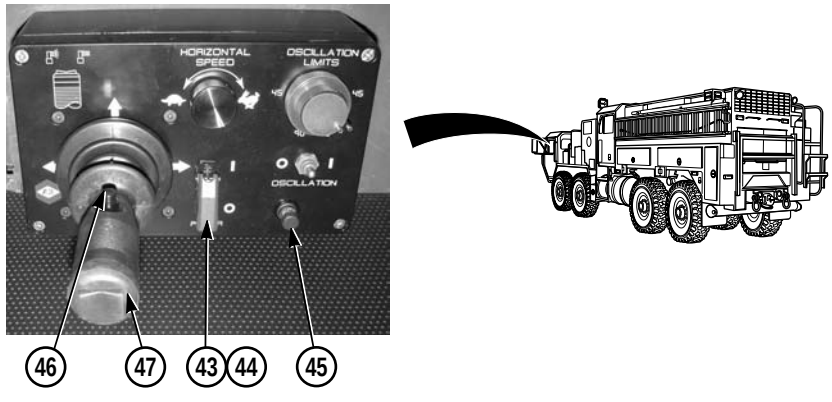
Operation Under Usual Conditions (Cont)



(26) Put WINDSHIELD DELUGE switch (48) in on position, and discharge water for 15 to 30 seconds.

NOTE

All valves should be left open for up to 24 hours, to allow for evaporation of water from system.

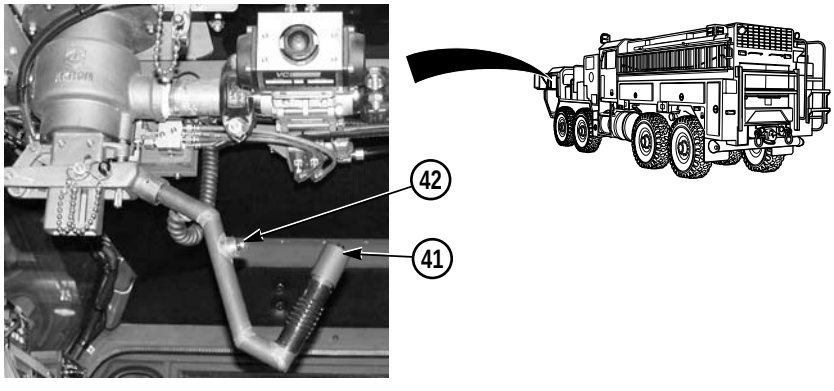


(27) Push and release agent discharge button (46) on front of joystick control handle (47) to stop discharge.

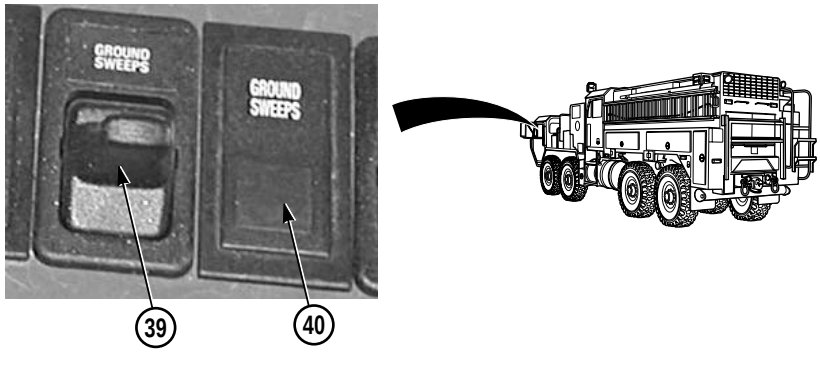
(28) Put POWER switch (44) to off (**O**) position. Check that indicator light (45) goes out.

Operation Under Usual Conditions (Cont)

2-131. PREPARATION FOR STORAGE OR SHIPMENT (CONT).

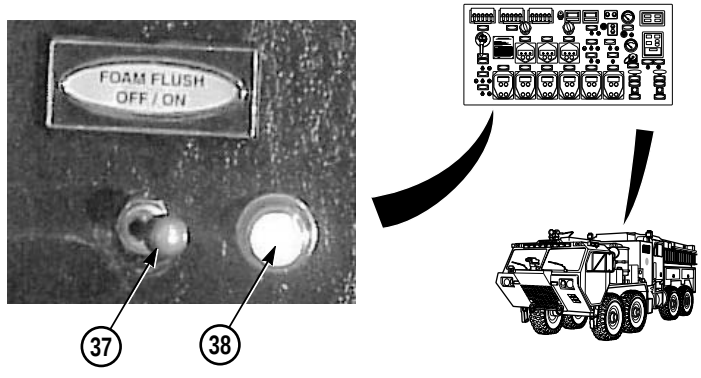


(29) Push agent discharge button (41) to off position. Check that indicator light (42) goes out.

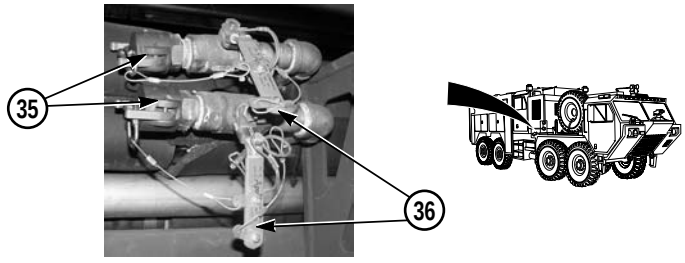


(30) Put GROUND SWEEPS switch (39) in CLOSED position. Check that indicator light (40) goes out.

Operation Under Usual Conditions (Cont)



(31) Put FOAM FLUSH switch (37) in OFF position. Check that indicator light (38) goes out.

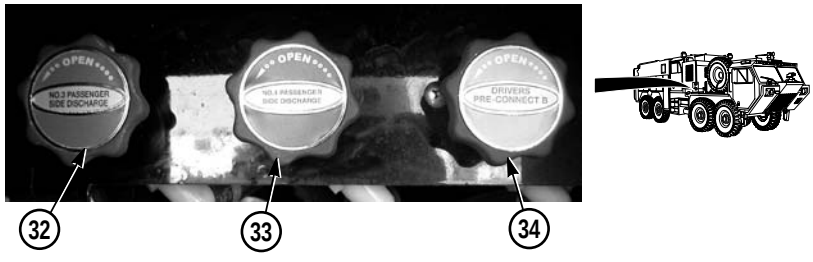


(32) Put two FOAM TANK drain valves (36) in closed position.

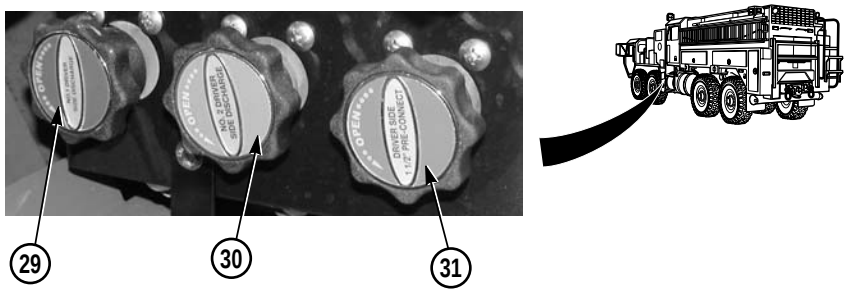
(33) Put two FOAM DRAIN valve caps (35) on FOAM TANK drain valves (36).

Operation Under Usual Conditions (Cont)

2-131. PREPARATION FOR STORAGE OR SHIPMENT (CONT).

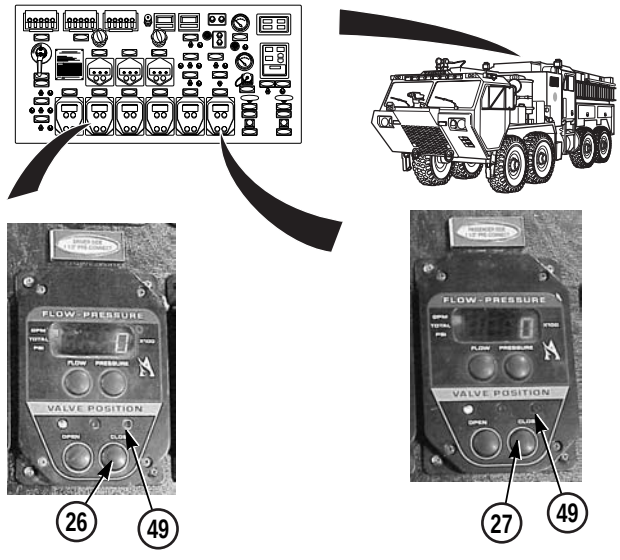


(34) Put NO. 3 (32) and NO. 4 (33) PASSENGER SIDE DISCHARGE drain valves and DRIVERS PRE-CONNECT B (34) in CLOSED position.

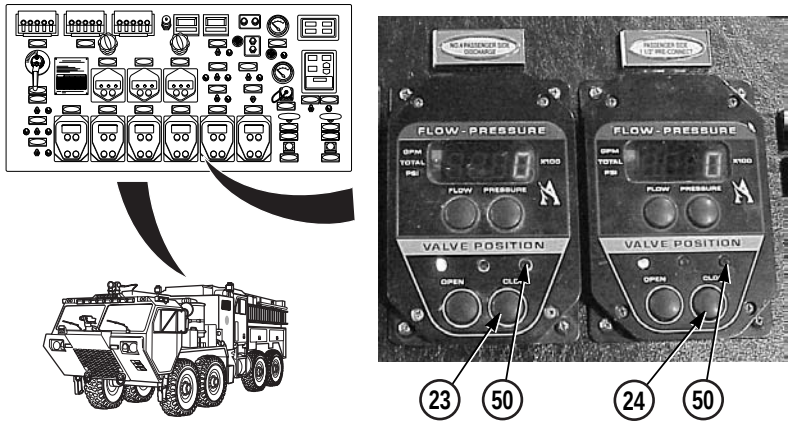


(35) Put NO. 1 (29) and NO. 2 (30) DRIVER SIDE DISCHARGE drain valves and DRIVERS PRE-CONNECT A (31) in CLOSED position.

Operation Under Usual Conditions (Cont)



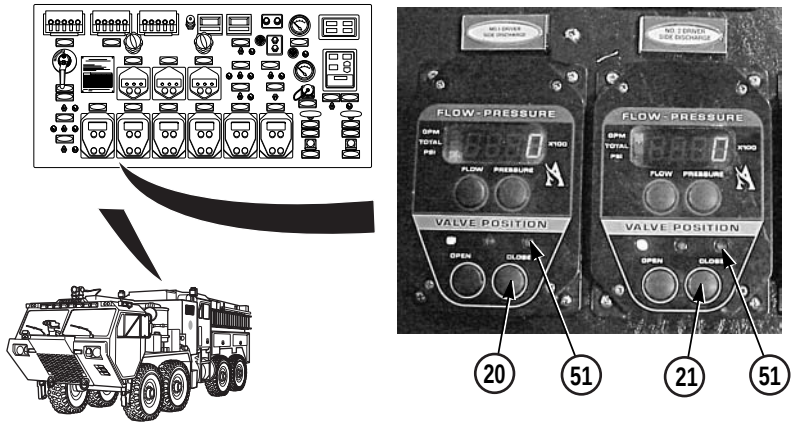
(36) Put DRIVERS PRE-CONNECT A valve control (26) and DRIVERS PRE-CONNECT B valve control (27) in CLOSED position. Two indicator lights (49) will come on.



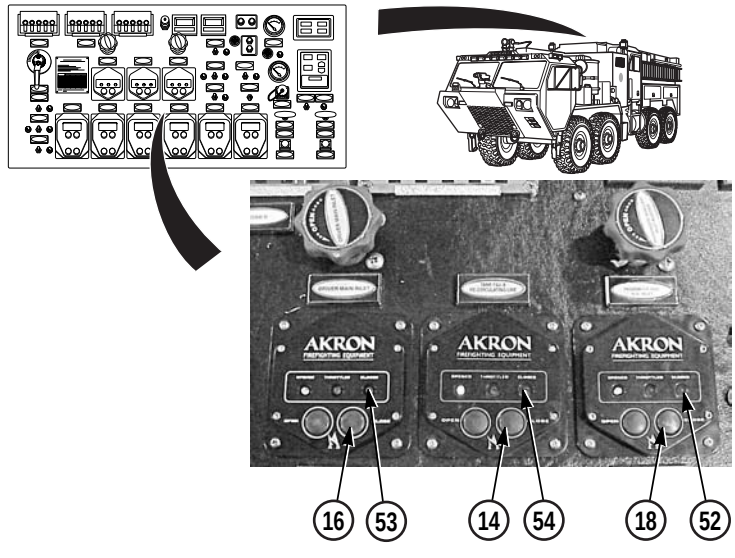
(37) Put NO. 3 (23) and NO. 4 (24) PASSENGER SIDE DISCHARGE valve controls in CLOSED position. Two indicator lights (50) will come on.

Operation Under Usual Conditions (Cont)

2-131. PREPARATION FOR STORAGE OR SHIPMENT (CONT).



(38) Put NO. 1 (20) and NO. 2 (21) DRIVER SIDE DISCHARGE valve controls in CLOSED position. Two indicator lights (51) should come on.

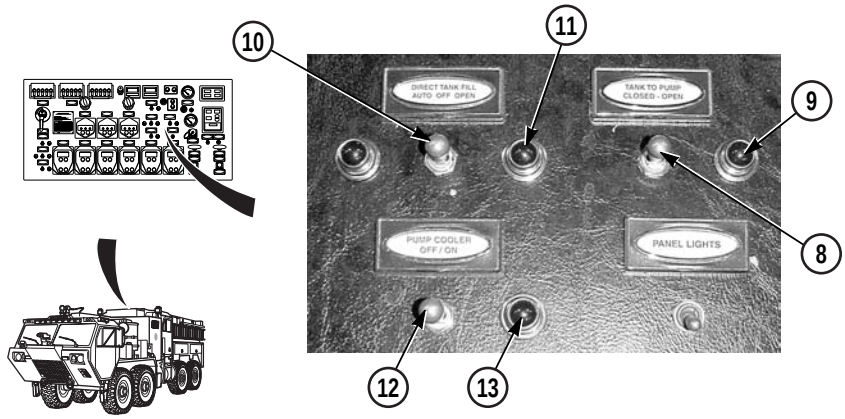


(39) Put PASSENGER SIDE AUXILIARY INLET valve control (18) in CLOSED position. Indicator light (52) will come on.

(40) Put DRIVER MAIN INLET valve control (16) in CLOSED position. Indicator light (53) will come on.

(41) Put TANK FILL and RE-CIRCULATING LINE valve control (14) in CLOSED position. Indicator light (54) will come on.

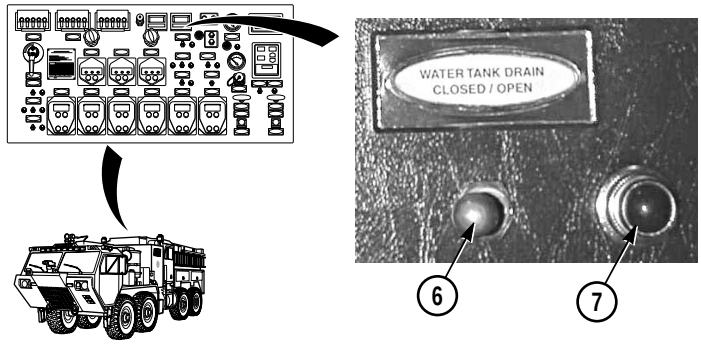
Operation Under Usual Conditions (Cont)



(42) Put PUMP COOLER switch (12) in OFF position. Check that indicator light (13) goes out.

(43) Put DIRECT TANK FILL switch (10) in OFF position. Check that indicator light (11) goes out.

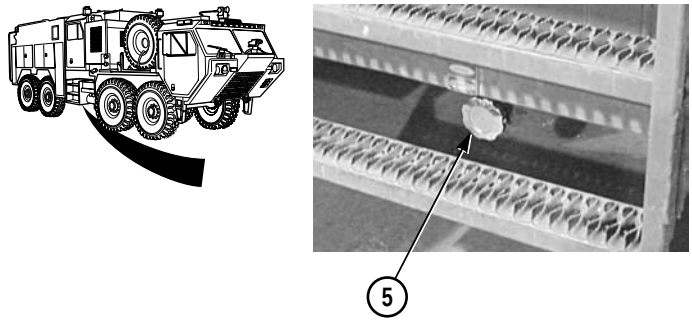
(44) Put TANK TO PUMP switch (8) in CLOSED position. Check that indicator light (9) goes out.



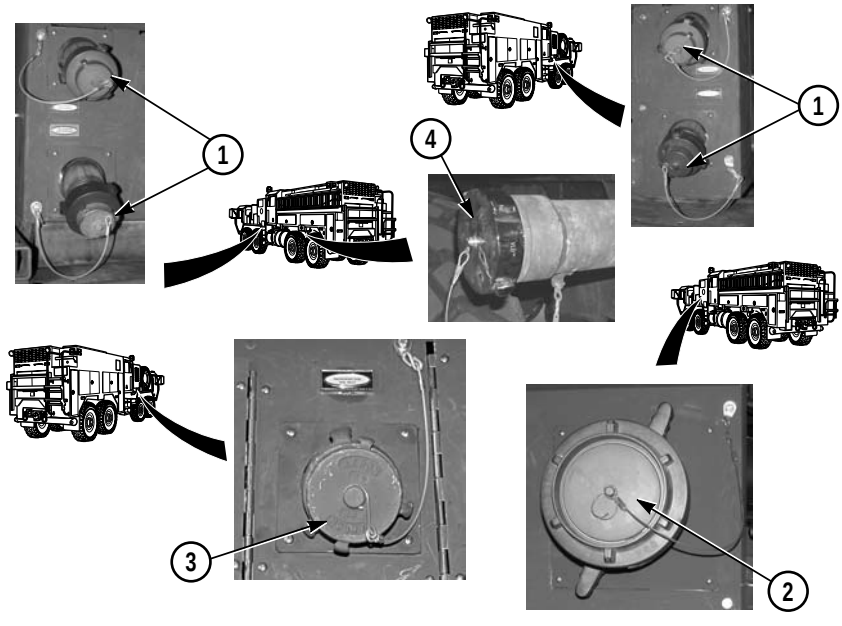
(45) Put WATER TANK DRAIN switch (6) in CLOSED position. Check that indicator light (7) goes out.

Operation Under Usual Conditions (Cont)

2-131. PREPARATION FOR STORAGE OR SHIPMENT (CONT).



(46) Put MASTER DRAIN valve (5) in CLOSED position.



(47) Install four discharge caps (1), main inlet cap (2), passenger side auxiliary inlet cap (3), and direct tank fill cap (4).

(48) Report all deficiencies to supervisor.

(49) Apply preservations.

(50) Drain all air tanks (TM 9-2320-279-10-1).

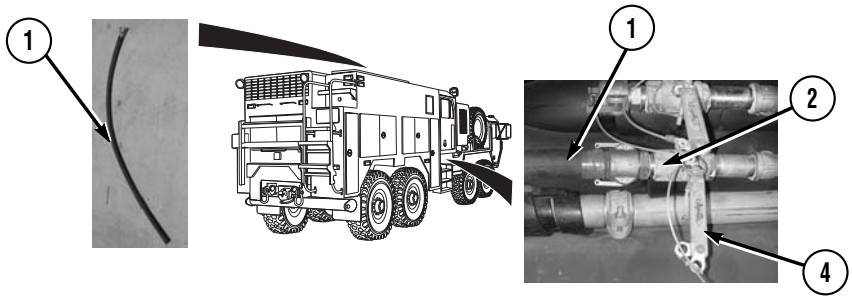
b. Preparation for Shipment.

(1) Perform storage instructions.

(2) Prepare all shipping documents to accompany TFFT and TFFT components.

Operation Under Usual Conditions (Cont)

2-132. DRAINING AND FLUSHING FOAM TANKS.

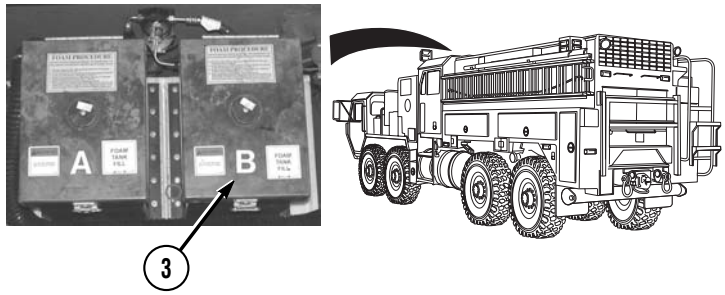


NOTE

- Foam drained from foam tanks will need to be drained into properly marked and sealed containers.
- Foam tank B shown.

a. Gather suitable containers.

b. Attach drain hose (1) to FOAM TANK DRAIN valve (2).



c. Open expansion dome hatch (3).

d. Put FOAM TANK DRAIN valve handle (4) in open position and completely drain foam into containers.

e. Put FOAM TANK DRAIN valve handle (4) in closed position.

f. Properly label the sealed containers when foam is completely drained from foam tank.

g. Remove fill tower screen from foam tank.

NOTE

- Defoaming agent can be used in assisting to clean foam tanks.
- Defoaming agent and water must be added into foam tank that is being flushed.

h. Add defoaming agent into foam tank.

i. Fill foam tank with warm water.

Operation Under Usual Conditions (Cont)

2-132. DRAINING AND FLUSHING FOAM TANKS (CONT).

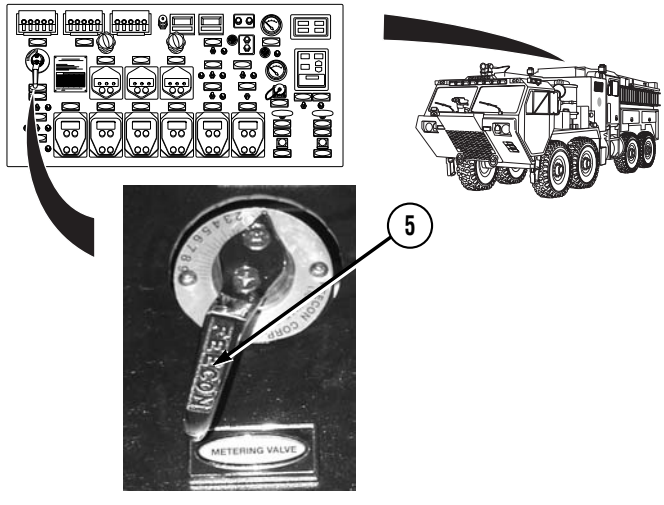
NOTE

Local draining laws must be followed when draining and flushing foam and water from foam tanks.

a. Put FOAM TANK DRAIN valve handle (4) in open position and drain water from foam tank.

b. Repeat steps ***h.*** through ***j.*** until foam is clean.

c. Put FOAM TANK DRAIN valve handle (4) in closed position.



d. Put foam METERING VALVE (5) in OPEN position.

NOTE

- Water must be added into foam tank that is being flushed.
- FOAM TYPE SELECTOR switch must be switched to the foam tank that is being flushed.

e. Run foam system with water instead of foam (para 2-124).

f. Discharge water until foam tank is empty.

g. All debris must be removed from foam tanks after flushing is complete.

h. Close expansion dome hatch (3).

i. Repeat steps ***a.*** through ***q.*** to drain and flush foam tank A.

j. Flush foam system (para 2-128).

2-133. PUMP AND PLUMBING BLOW-OUT PROCEDURE.

NOTE

This procedure is to be used when preparing the TFFT for storage and shipment or post operation in cold Environment.

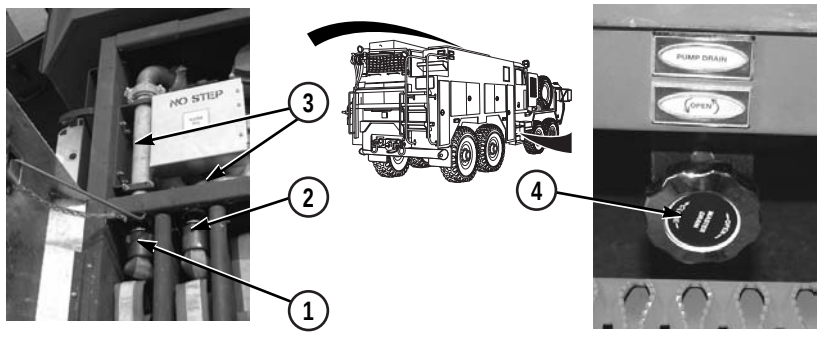
a. Complete mission.

WARNING

Make sure truck is parked in a location where personnel and other equipment will be protected from water spraying out of the discharges and drains.

b. Position truck in a suitable location to drain and spray out remaining water.

c. Apply parking brake (TM 9-2320-279-10-1, para 11).



WARNING

Drivers pre-connect A and B must be disconnected prior to performing blow-out procedure. Hoses may become pressurized, causing injury to personnel and/or damage to equipment.

d. Disconnect drivers pre-connect A hose (1) and drivers pre-connect B hose (2) from two pre-connects (3).

e. Drain water tank (para 2-120).

f. Open MASTER DRAIN valve (4).

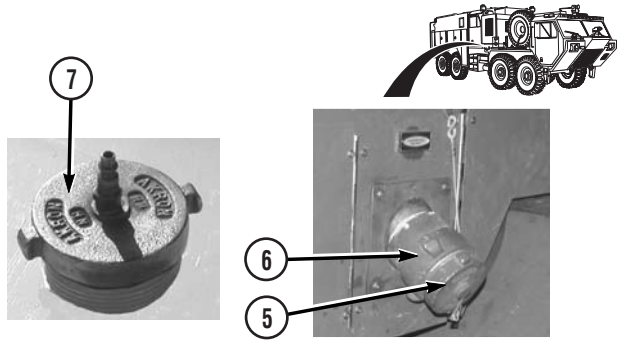
NOTE

Perform step ***g.*** only if foam system and foam agent tanks are going to be left in a “dry condition.”

g. Drain and flush foam agent from foam tank (para 2-132).

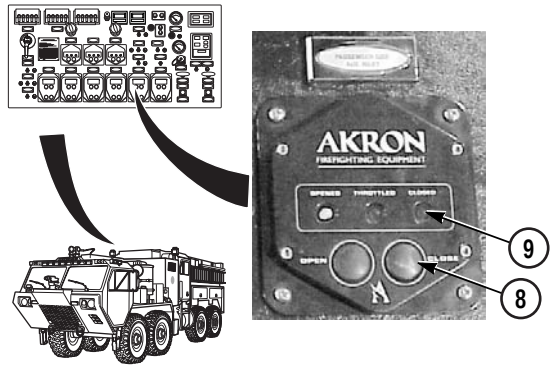
Operation Under Usual Conditions (Cont)

2-133. PUMP AND PLUMBING BLOW-OUT PROCEDURE (CONT).



h. Remove cap (5) from PASSENGER SIDE AUXILIARY INLET (6).

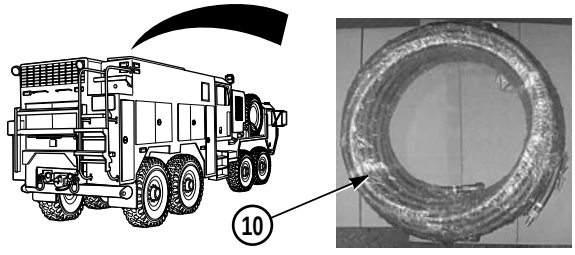
i. Remove blow-out adapter (7) from stowage and install on PASSENGER SIDE AUXILIARY INLET (6).



j. Make sure PASSENGER SIDE AUXILIARY INLET valve control (8) is in CLOSED position. Indicator light (9) will come on.

k. Make sure all valves are closed.

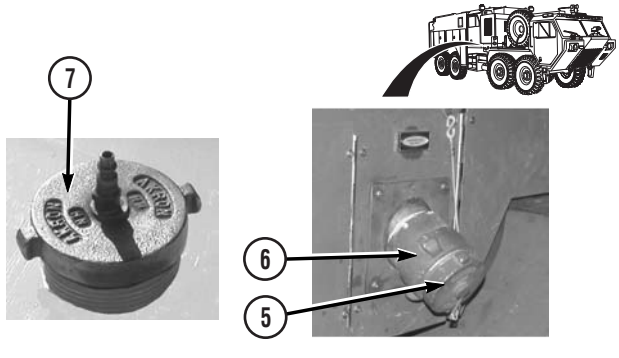
Operation Under Usual Conditions (Cont)



l. Remove air hose (10) from stowage.

WARNING

- Be careful when using high air pressure. Make sure connections and seals are tight before applying pressure. High air pressure can blow out parts, hoses, or debris with force. Explosive force can cause damage to equipment or injury to personnel.
- Wear single hearing protection (earplugs or equivalent) while working around compressed air. Failure to comply may result in damage to your hearing. Seek medical aid should you suspect a hearing problem.
- Air pressure should not exceed 50 psi (345 kPa) during blow-out procedure. Failure to comply may result in damage to equipment. Failure to comply may result in injury to personnel.

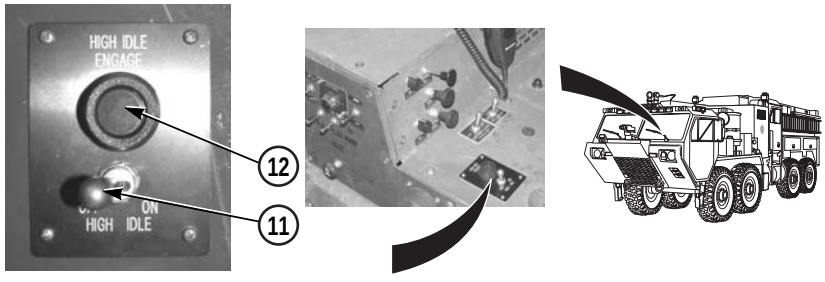


m. Connect air hose (10) to blow-out adapter (7) on PASSENGER SIDE AUXILIARY INLET (6) and regulated air supply.

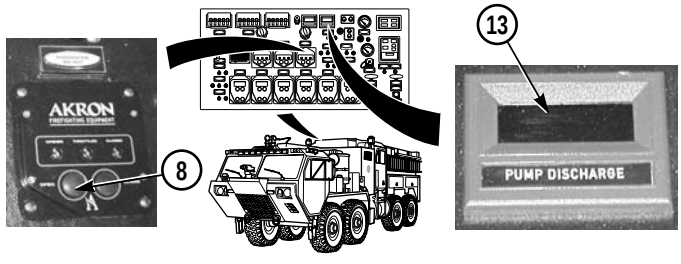
n. If using vehicle for air supply, start vehicle (TM 9-2320-279-10-1, para 2-11).

Operation Under Usual Conditions (Cont)

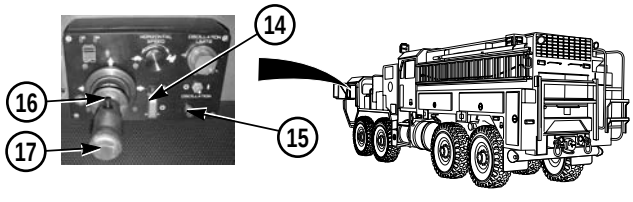
2-133. PUMP AND PLUMBING BLOW-OUT PROCEDURE (CONT).



o. Put HIGH IDLE switch (11) in ON position. Indicator light (12) will come on.



p. Slowly open PASSENGER SIDE AUXILIARY INLET valve control (8) until pressure is present on PUMP DISCHARGE gage (13).

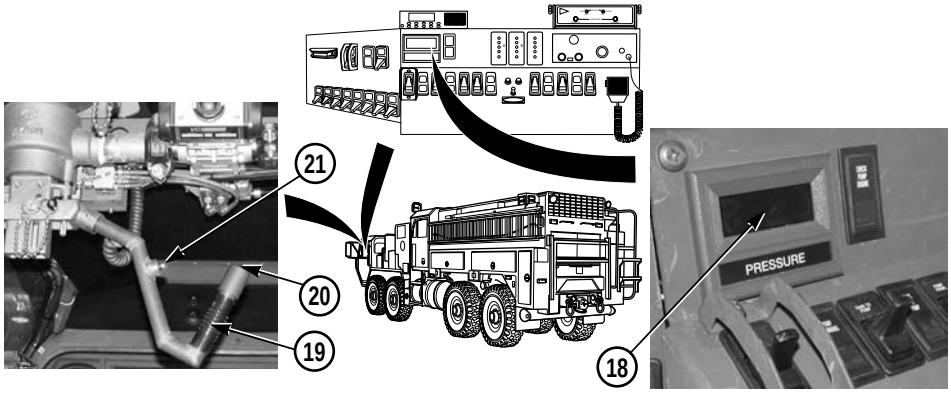


q. Put bumper turret power switch (14) in ON position (**-**). Indicator light (15) will come on.

r. Press and release bumper turret agent discharge button (16) on joystick control handle (17) to turn on and blow-out bumper turret and plumbing. Let pressure drop to zero. Press and release bumper turret agent discharge button (16) on joystick control handle (17) to turn off bumper turret.

s. Let pressure build up to 50 psi (345 kPa) and repeat step *(r)*. Put bumper turret power switch (14) to OFF position (**o**). Check that indicator light (15) goes out.

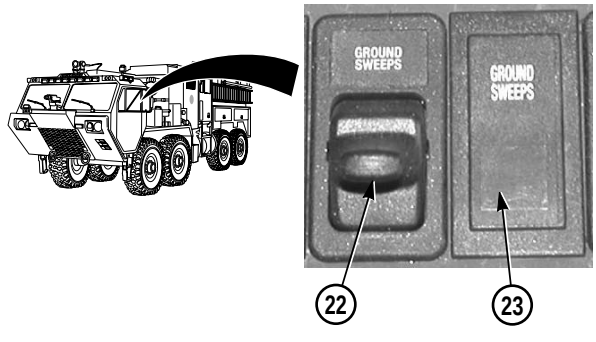
Operation Under Usual Conditions (Cont)



t. Let pressure build up to 50 psi (345 kPa) on pump PRESSURE gage (18). With a firm grip on control handle (19), push and release button (20) to engage roof turret. Indictor light (21) will come on.

u. Let pressure drop to zero. Press and release agent discharge button (20) to turn roof turret to off. Check that indicator light (21) goes out.

v. Repeat steps ***t.*** and ***u***.



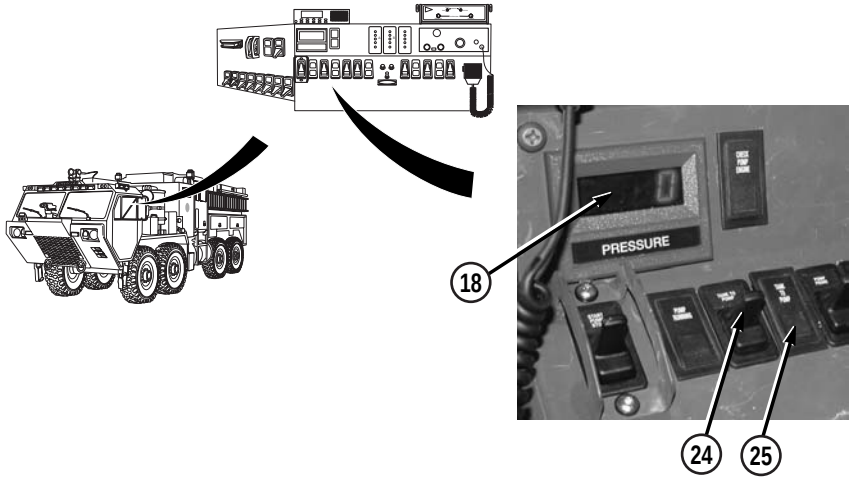
w. Let pressure build up to 50 psi (345 kPa) on pump PRESSURE gage (18). Put GROUND SWEEPS switch (22) in ON position. Indicator light (23) will come on.

x. Let pressure drop to zero. Put GROUND SWEEPS switch (22) in OFF position. Check that indicator light (23) goes out.

y. Repeat steps ***w.*** and ***x***.

Operation Under Usual Conditions (Cont)

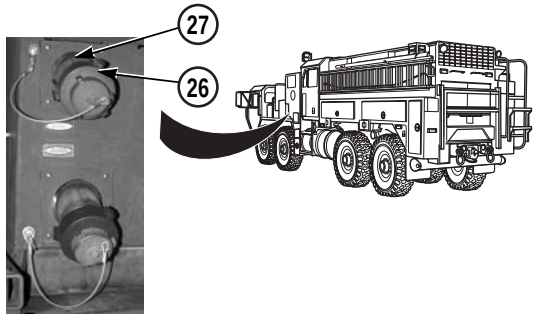
2-133. PUMP AND PLUMBING BLOW-OUT PROCEDURE (CONT).



z. Let pressure build up to 50 psi (345 kPa) on pump PRESSURE gage (18). Put TANK TO PUMP switch (24) in open position. Indicator light (25) will come on.

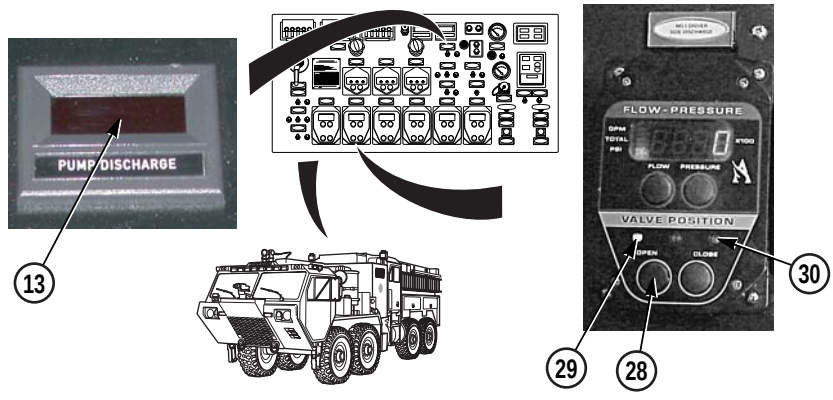
aa. Let pressure drop to zero. Put TANK TO PUMP SWITCH (24) in closed position. Check that indicator light (25) goes out.

ab. Repeat steps ***z.*** and ***aa***.



ac. Remove cap (26) from NO. 1 DRIVER SIDE DISCHARGE (27).

Operation Under Usual Conditions (Cont)



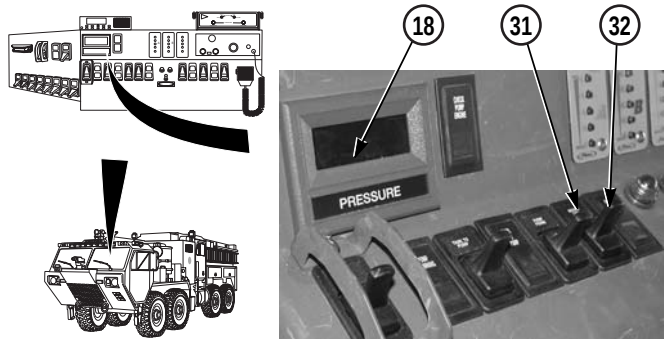
ad. Let pressure build up to 50 psi (345 kPa) on PUMP DISCHARGE gage (13). Put NO. 1 DRIVER SIDE DISCHARGE valve control (28) to ON position. Indicator light (29) will come on.

ae. Let pressure drop to zero. Put NO. 1 DRIVER SIDE DISCHARGE valve control (28) in OFF position. Indicator light (30) will come on.

af. Repeat steps ***ad.*** and ***ae***.

ag. Install cap (26) on NO. 1 DRIVER SIDE DISCHARGE (27).

ah. Repeat steps ***ac.*** through ***ag.*** for NO. 2, NO. 3, and NO. 4 SIDE DISCHARGES.

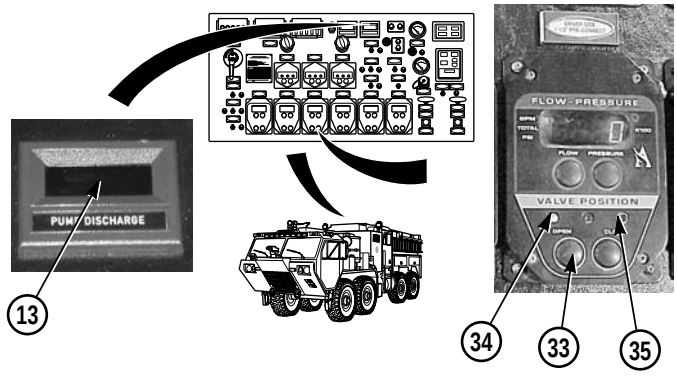


ai. Let pressure build up to 50 psi (345 kPa) on pump PRESSURE gage (18). Put PUMP COOLER switch (31) in open position. Indicator light (32) will come on.

aj. Let pressure drop to zero. Put PUMP COOLER switch (31) in closed position. Check that indicator light (32) goes out.

Operation Under Usual Conditions (Cont)

2-133. PUMP AND PLUMBING BLOW-OUT PROCEDURE (CONT).



WARNING

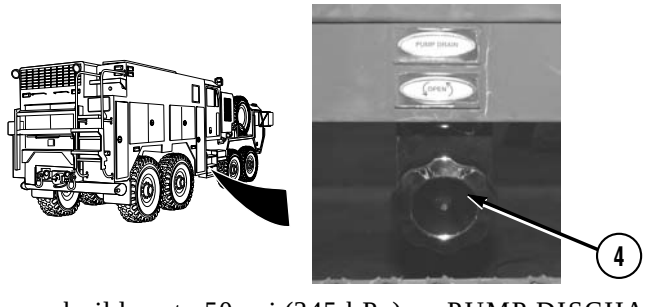
Drivers pre-connects A and B hoses must be disconnected prior to performing blow-out procedure. Hoses may become pressurized causing injury to personnel and/or damage to equipment.

ak. Let pressure build up to 50 psi (345 kPa) on PUMP DISCHARGE gage (13). Put DRIVERS PRE-CONNECT A (33) valve control in OPEN position. Indicator light (34) will come on.

al. Let pressure drop to zero. Put DRIVERS PRE-CONNECT A (33) in CLOSED position. Indicator light (35) will come on.

am. Repeat steps ***ak.*** and ***al***.

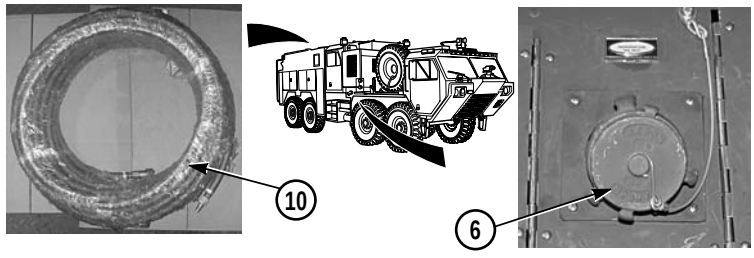
an. Repeat steps ***ak.*** through ***am.*** for DRIVERS PRE-CONNECT B.



ao. Let pressure build up to 50 psi (345 kPa) on PUMP DISCHARGE gage (13). Open MASTER DRAIN valve (4).

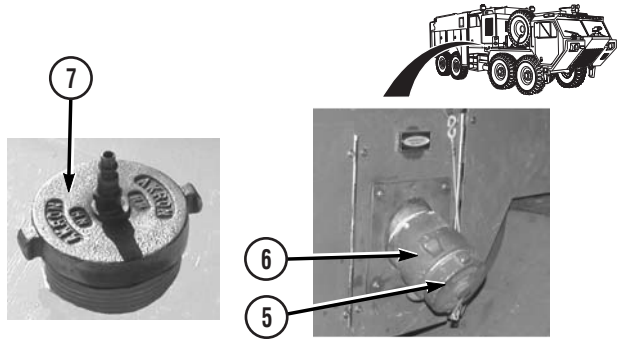
ap. When water stops draining from MASTER DRAIN valve (4), close MASTER DRAIN valve (4).

Operation Under Usual Conditions (Cont)



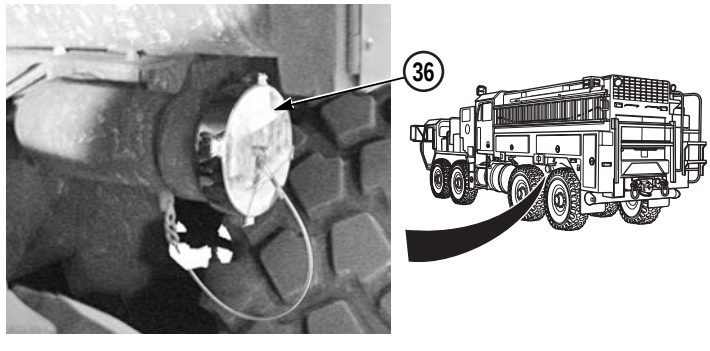
aq. Disconnect air hose (10) from regulated air supply and blow-out adapter (7) on PASSENGER SIDE AUXILIARY INLET (6).

ar. Stow air hose (10).



as. Remove and stow blow-out adapter (7) from PASSENGER SIDE AUXILIARY INLET (6).

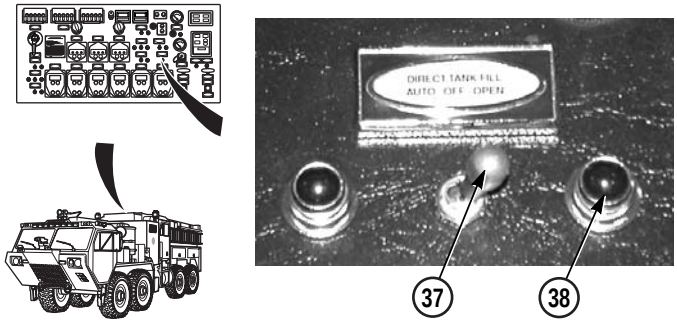
at. Install cap (5) on PASSENGER SIDE AUXILIARY INLET (6).



au. Remove cap (36) from DIRECT TANK FILL.

Operation Under Usual Conditions (Cont)

2-133. PUMP AND PLUMBING BLOW-OUT PROCEDURE (CONT).

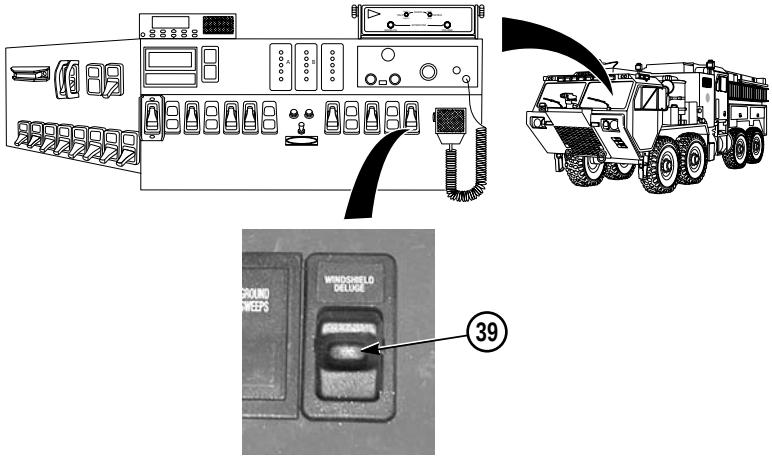


av. Put DIRECT TANK FILL switch (37) in OPEN position. Indicator light (38) will come on.

aw. Allow tank to drain completely.

ax. Put DRAIN TANK FILL switch (37) in CLOSED position. Check that indicator light (38) goes out.

ay. Install cap (36) on DIRECT TANK FILL.



az. Turn ON vehicle windshield wipers (TM 9-2320-279-10-1).

ba. Put WINDSHIELD DELUGE switch (39) in open position.

bb. When water stops being discharged from two windshield deluge nozzles, put WINDSHIELD DELUGE switch (39) in closed position.

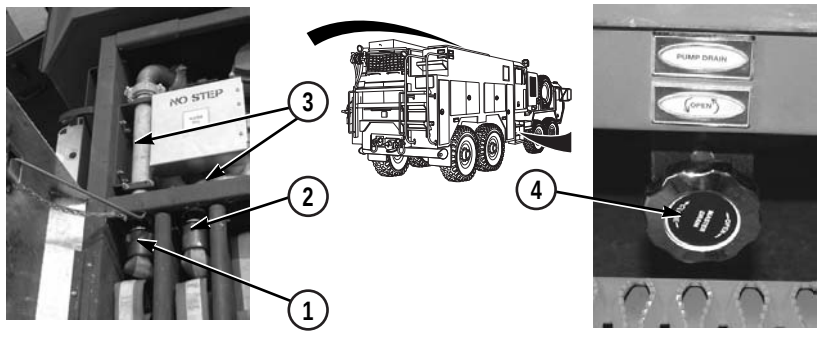
bc. Turn OFF vehicle windshield wipers (TM 9-2320-279-10-1).

Operation Under Usual Conditions (Cont)

NOTE

Do not open any FOAM AGENT SUPPLY valves. This will contaminate main water tank.

bd. Make sure all caps have been installed.



be. Connect drivers pre-connect A hose (1) and drivers pre-connect B hose (2) to two pre-connects (3).

SECTION XII. OPERATION UNDER UNUSUAL CONDITIONS

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C).

WARNING

- Do not touch extremely cold metal (below -26°F [-32°C]). Bare skin may freeze to cold metal and cause injury to personnel.
- All valves should be opened and closed slowly during any procedure. Sudden changes in pressure may cause equipment to react faster than personnel can be alerted. Make sure surrounding personnel are aware of changes being made to settings on equipment. Failure to comply may result in injury or death to personnel and damage to equipment.
- Diesel fuel compartment heaters come on automatically when truck engine is running and air temperature is below (+39°F [4°C]). CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU. Carbon monoxide is a colorless, odorless, DEADLY POISONOUS gas and when breathed deprives body of oxygen and causes SUFFOCATION. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Permanent BRAIN DAMAGE or DEATH can result from severe exposure. Precautions MUST be followed to make sure personnel are safe whenever compartment heaters or engine are operated for any purpose. Injury to personnel may result.
- DO NOT operate compartment heaters or engine of truck in enclosed area without adequate ventilation. BE ALERT at all times whenever BATTERY switch is ON, truck engine is running, and air temperature is below (+39°F [4°C]) for exhaust symptoms. If either are present, IMMEDIATELY EVACUATE AND VENTILATE the area. Affected personnel treatment shall be: expose to fresh air; keep warm; DO NOT PERMIT PHYSICAL EXERCISE; if necessary, give artificial respiration as described in FM 21-11 and get medical attention. BE AWARE; neither the gas particulate filter unit nor field protection mask for nuclear-biological-chemical protection will protect you from carbon monoxide poisoning. THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

Operation Under Unusual Conditions (Cont)

CAUTION

- Watch cab instrument panel and pump operators panel closely. If there are any unusual readings, check as soon as possible!
- All snow and ice should be removed from vehicle as soon as possible. Snow and ice may slow or stop movement of critical parts if allowed to pile up.
- Special care must be used during operations in extreme cold environment. In extreme cold, water can freeze almost instantly if not circulating. Hoses, plumbing, fittings, pipes, pumps, tanks, turrets, nozzles, drains, etc., can freeze and crack. Foam concentrate may get thick and stiff. Rubber may crack or break easily.
- TFFT has been designed to withstand temperatures down to (-25°F [-32°C]) for a period no longer than two hours. If either of these limits are exceeded, damage to equipment may result.
- During cold weather operations below (+20°F [-7°C]), Class A foam agent or Class B foam agent rated for at least (-20°F [-29°C]) must be used. Failure to comply may result in damage to equipment.
- TFFT must be kept in a protective environment (above +55°F [13°C]) when water is present in water tank and lines. Only store TFFT in an unprotected environment with temperatures below (+32°F [0°C]) if water system has been completely drained and blown out, and foam system has been completely drained. Failure to comply may result in damage to equipment.
- In cold weather, valves and drain may become frozen. Do not force valves and drains open or closed. It may be necessary to thaw valves and drains before attempting to open or close. Failure to comply may result in damage to equipment.

Operation Under Unusual Conditions (Cont)

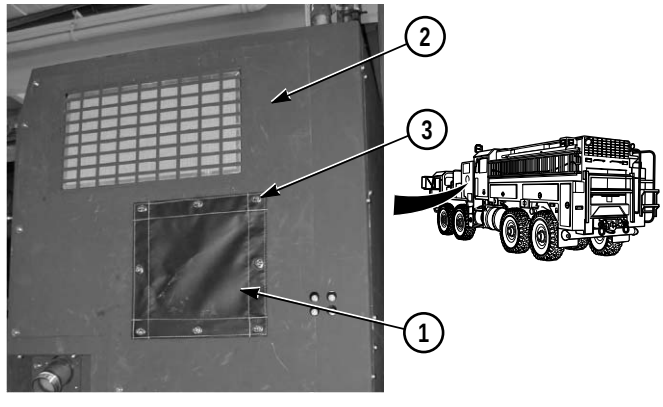
2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).

NOTE

- A complete TFFT crew is required to perform fire fighting operations.
- Refer to the following manuals for additional cold weather operation information:
  - *(1)* Basic Cold Weather Operation Manual; FM 31-70.
  - *(2)* Northern Operations; FM 31-71.
  - *(3)* Operation and Maintenance of Ordnance Material in Cold Weather (0°F to -65°F [-18°C to -54°C]); FM 9-207.
  - *(4)* 8X8 Heavy Expanded Mobility Tactical Trucks (HEMTT) Operators Manual; TM 9-2320-279-10-1.

a. Preparation for Cold Weather Operation.

(1) Make sure truck has been parked in a warm shelter (+55°F [13°C]) prior to operations.

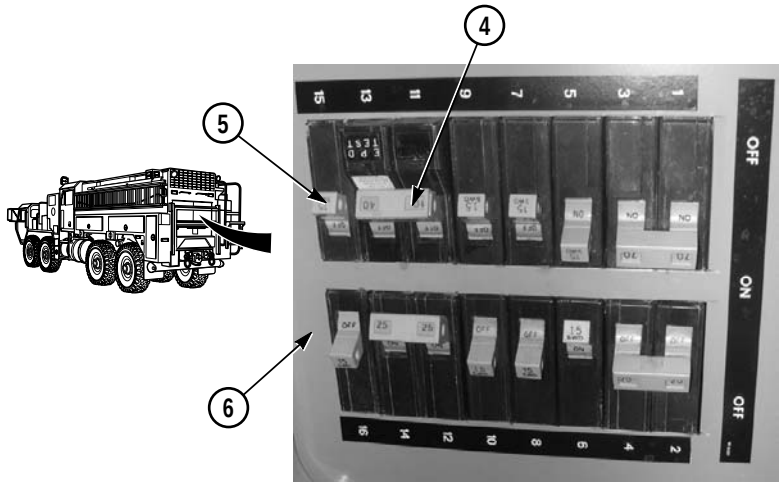


(2) Install pump house cooling winterization cover (1) on left side pump house panel (2) with eight twist locks (3).

(3) Make sure onboard water tank is full.

(4) Make sure foam agent tanks are filled (para 2-122). Use Class A foam agent or a Class B foam agent rated for a minimum of (-20°F [-29°C]).

Operation Under Unusual Conditions (Cont)



(5) Start hydraulic generator (para 2-112).

(6) Put water tank heater circuit breakers (CB11, CB13) (4) and pipe heaters circuit breaker (CB15) (5) on breaker box (6) to ON position.

(7) Make sure water pump is drained and in a “dry condition” (para 2-132).

(8) Make sure water pump and plumbing have been blown out (para 2-133).

(9) Make sure all valves are closed and caps are installed.

Operation Under Unusual Conditions (Cont)

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).

b. Operating In Cold Weather.

CAUTION

If main water pump is in a "Wet" (flooded) condition during cold weather operations, pump must be engaged and re-circulating water to prevent freezing of pump and plumbing. Failure to comply may result in damage to equipment.

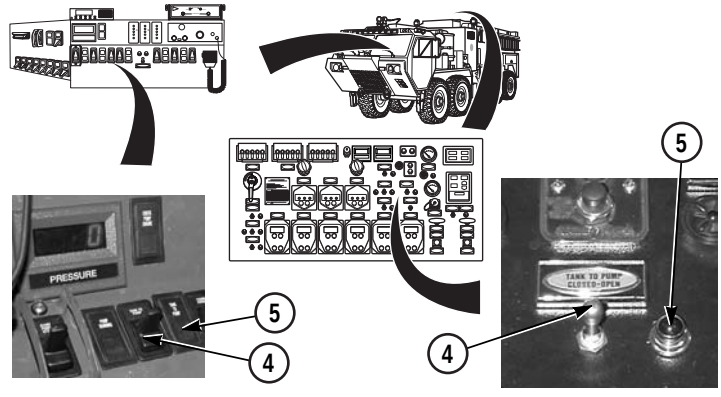
NOTE

- Winterization package allows operation of water pump, foam system and body to -25°F (-32°C) for a period no longer than two hours. This package includes two diesel fired 27,300 BTU heaters, one inside pump compartment and one in rear compartment. Heaters automatically turn on at +39°F (+/- 2°F), (4°C [+/-1°C]), and turn off at 57°F (+/- 3°F), (14°C [+/-1°C)].
- Two 2,250W heaters are installed in onboard water tank. Tank heaters automatically turn on at +40°F (4°C) and turn off at +60°F (16°C) when main circuit breakers (CB1 and CB3) and tank and pipe heater circuit breakers (CB11, CB13, and CB15) are turned ON and not tripped. Pump compartment is sealed to reduce heat loss. Critical piping is also heated and insulated.

(1) Start vehicle engine (TM 9-2320-279-10-1, para 2-11).

(2) Proceed to scene.

Operation Under Unusual Conditions (Cont)



NOTE

When arriving at scene, proceed with step *(3)*.

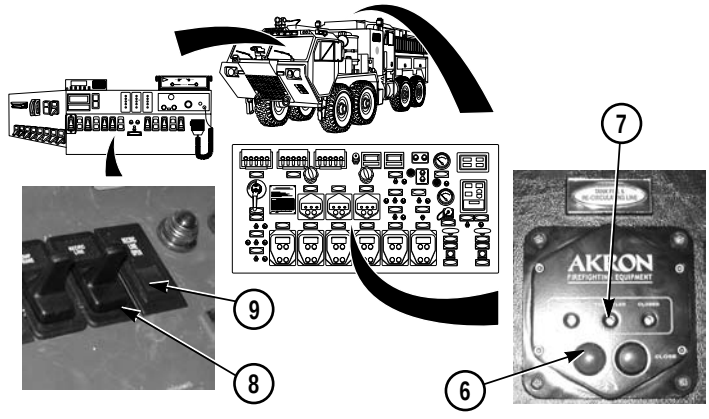
(3) Start water pump engine (para 2-113).

(4) Put TANK TO PUMP switch (4) to open position. Indicator light (5) will come on.

(5) Prime water pump (para 2-114).

Operation Under Unusual Conditions (Cont)

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).



NOTE

Perform step *(6)* only if steps *(3)* through *(5)* have been completed and pumping operations will be delayed, and, if mission exceeds a period of 10 minutes. Opening of TANK FILL and RE-CIRCULATING LINE valve control at pump operators panel will re-circulate water to help prevent from freezing.

(6) Partially open TANK FILL and RE-CIRCULATING LINE valve control (6). Indicator light (7) will come on for pump operators panel. Put PUMP COOLER switch (8) to ON position. Indicator light (9) will come on for cab instrument panel.

Operation Under Unusual Conditions (Cont)

NOTE

If performing Foam System Operation, make sure TANK FILL and RE-CIRCULATING LINE valve control is closed and PUMP COOLER valve is in OPEN position.

(7) Perform desired discharge operation:

- For “Pumping from Onboard Water Tank” Procedures (para 2-117).
- For “Pump and Roll” Procedures (para 2-119).
- For “Foam System Operations” (para 2-124 and 2-125).

(8) Complete mission.

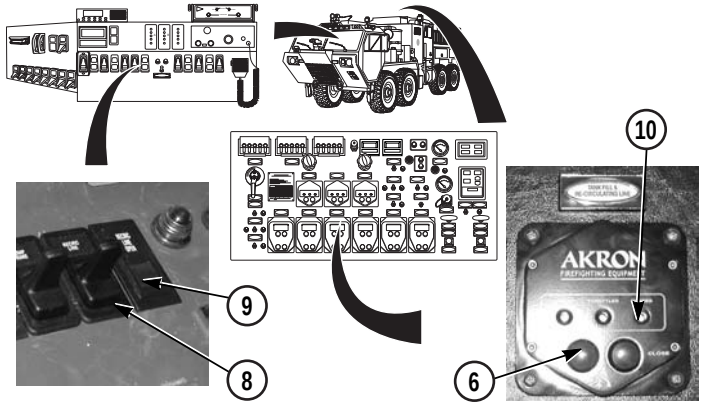
CAUTION

- Once mission is complete, make sure onboard water tank is empty. Stopping and starting pumping operations may allow water to freeze, causing damage to equipment. If water tank is not emptied, exposed components may freeze, causing damage to equipment.
- Heaters in onboard water tank will automatically shut OFF when water level decreases to approximately 1/4 tank (below tank heater probes). Completely pump out all water from tank to prevent water from freezing.

(9) Pump out or discharge water until water tank is empty.

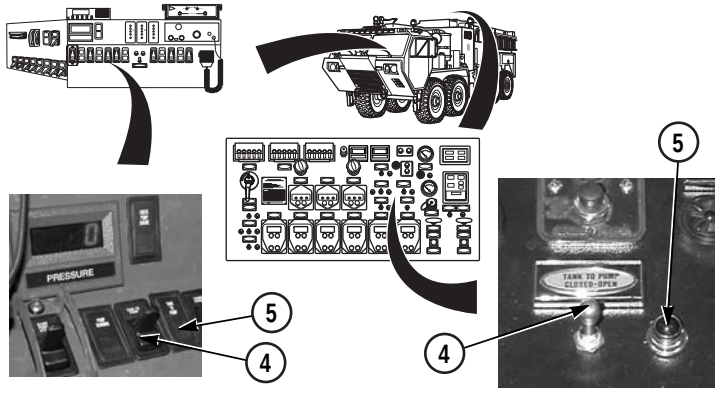
Operation Under Unusual Conditions (Cont)

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).



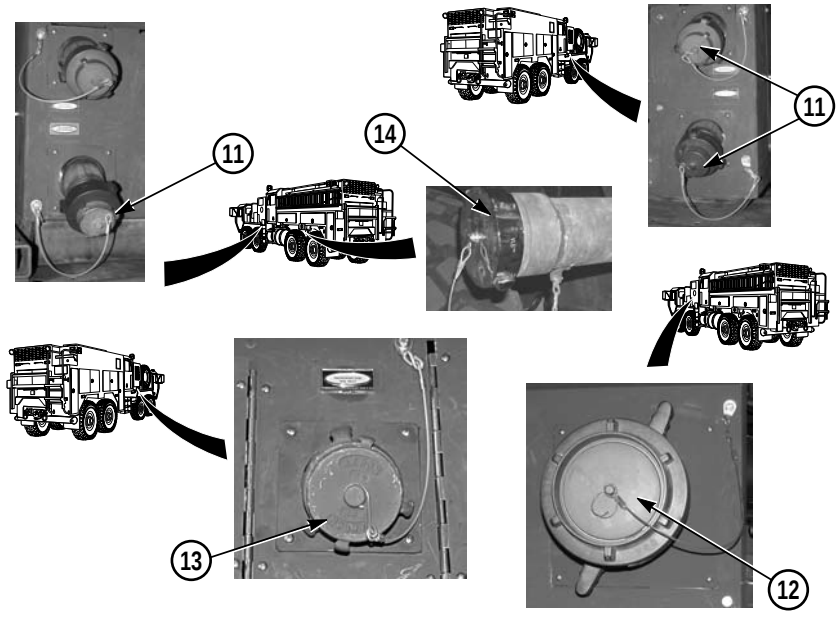
(10) Put PUMP COOLER switch (8) to OFF position. Check that indicator light (9) goes out on cab instrument panel. Close TANK FILL & RE-CIRCULATING LINE valve control (6). Indicator light (10) will come on for pump operators panel.

(11) Shut off water pump engine (para 2-113).



(12) Put TANK TO PUMP switch (4) to closed position. Check that indicator light (5) goes out.

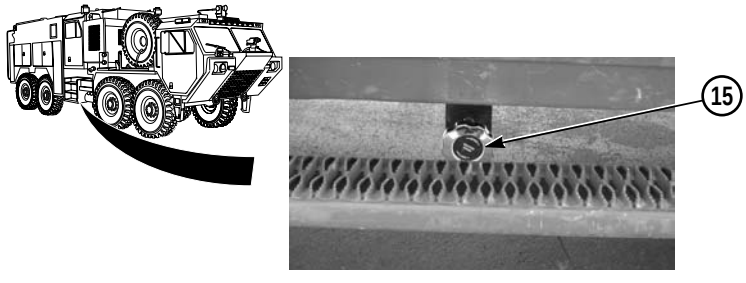
Operation Under Unusual Conditions (Cont)



NOTE

Do not open any foam agent supply valves. This will contaminate water tank.

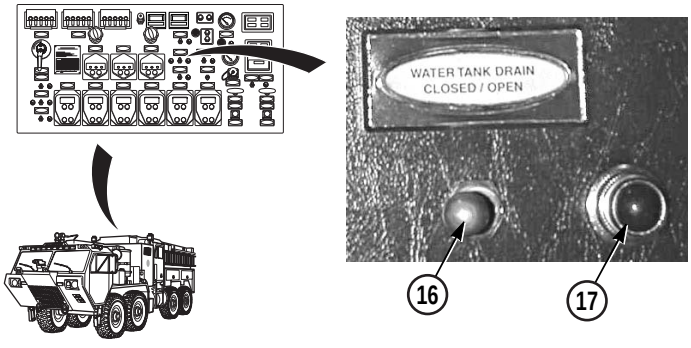
(13) Remove four discharge caps (11), main inlet cap (12), PASSENGER SIDE auxiliary inlet cap (13), and direct tank fill cap (14).



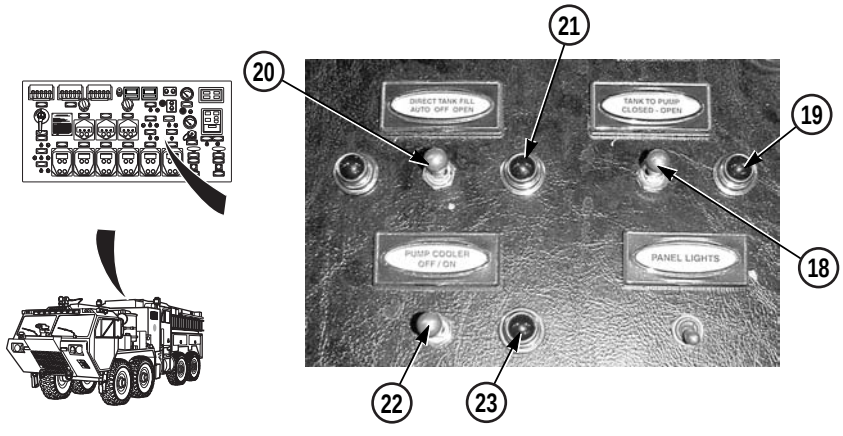
(14) Put MASTER DRAIN valve (15) in OPEN position.

Operation Under Unusual Conditions (Cont)

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).



(15) Put WATER TANK DRAIN switch (16) in OPEN position. Indicator light (17) will come on.

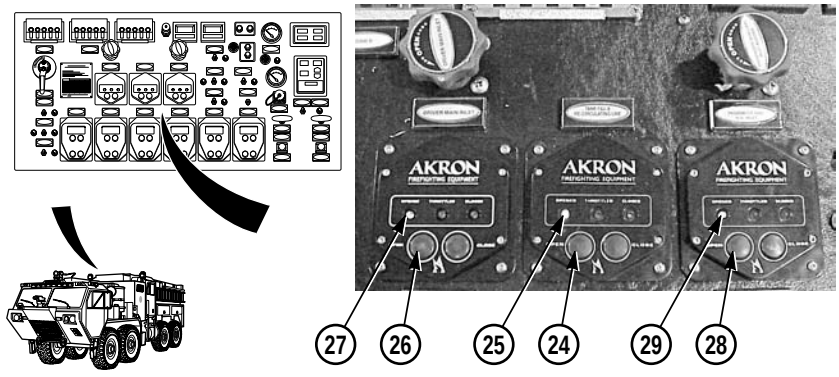


(16) Put TANK TO PUMP switch (18) in OPEN position. Indicator light (19) will come on.

(17) Put DIRECT TANK FILL switch (20) in OPEN position. Indicator light (21) will come on.

(18) Put PUMP COOLER switch (22) in ON position. Indicator light (23) will come on.

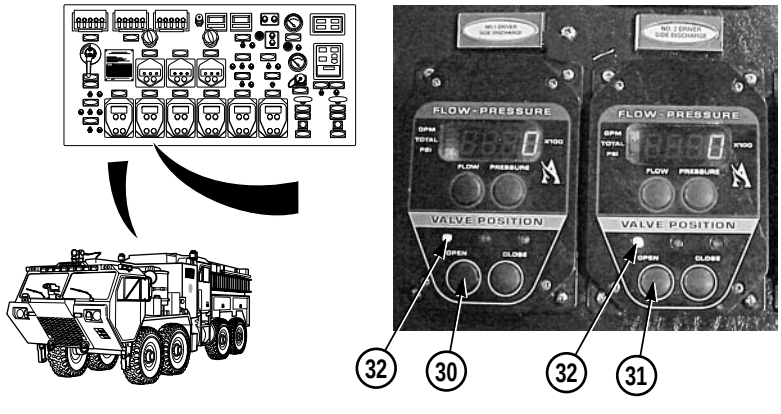
Operation Under Unusual Conditions (Cont)



(19) Put TANK FILL and RE-CIRCULATING LINE valve control (24) in OPEN position. Indicator light (25) will come on.

(20) Put DRIVER MAIN INLET valve control (26) in OPEN position. Indicator light (27) will come on.

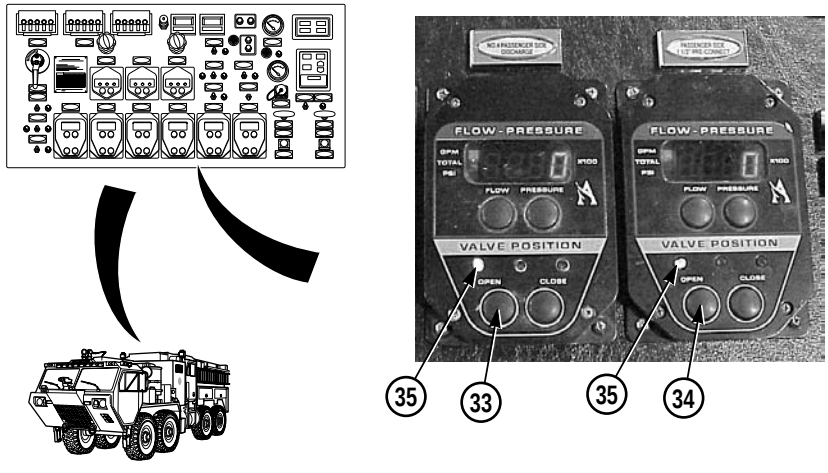
(21) Put PASSENGER SIDE AUXILIARY INLET valve control (28) in OPEN position. Indicator light (29) will come on.



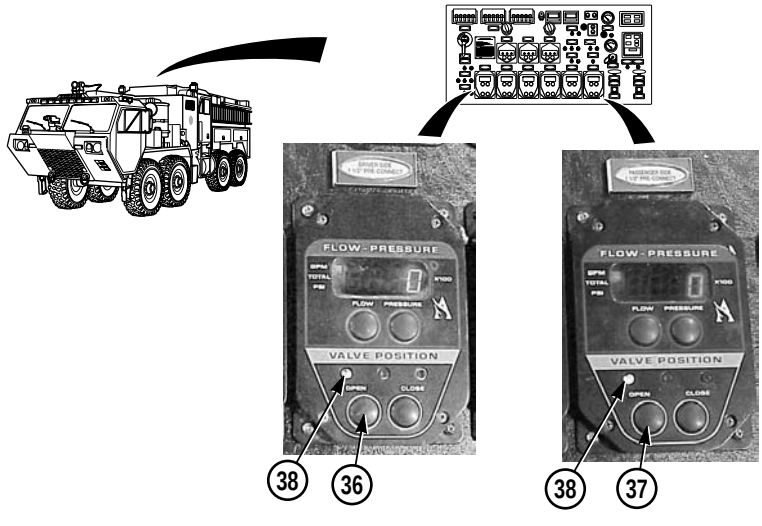
(22) Put NO. 1 (30) and NO. 2 (31) DRIVER SIDE DISCHARGE valve controls in OPEN position. Two indicator lights (32) will come on.

Operation Under Unusual Conditions (Cont)

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).

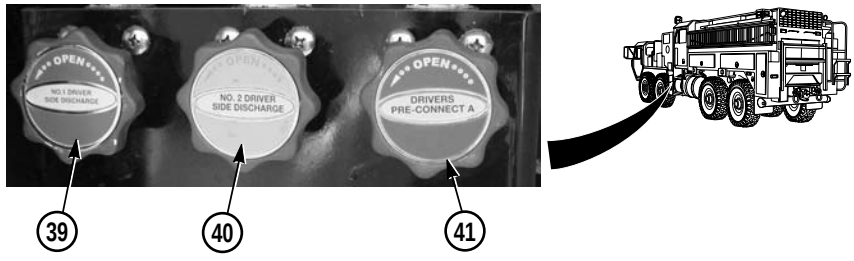


(23) Put NO. 3 (33) and NO. 4 (34) PASSENGER SIDE MAIN DISCHARGE valve controls in OPEN position. Two indicator lights (35) will come on.



(24) Put DRIVERS PRE-CONNECT A valve control (36) and DRIVERS PRE-CONNECT B (37) valve control in OPEN position. Two indicator lights (38) will come on.

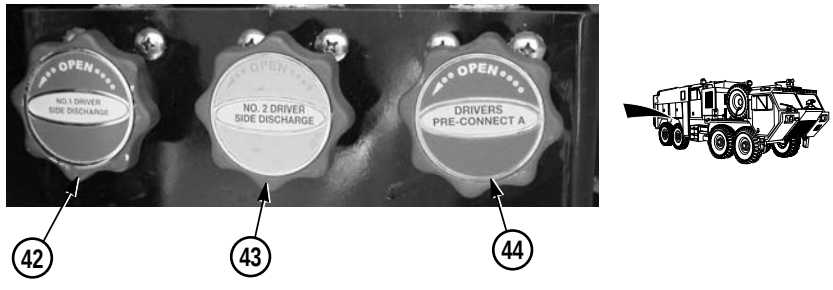
Operation Under Unusual Conditions (Cont)



NOTE

Hand operated drain valves only open ¼ turn.

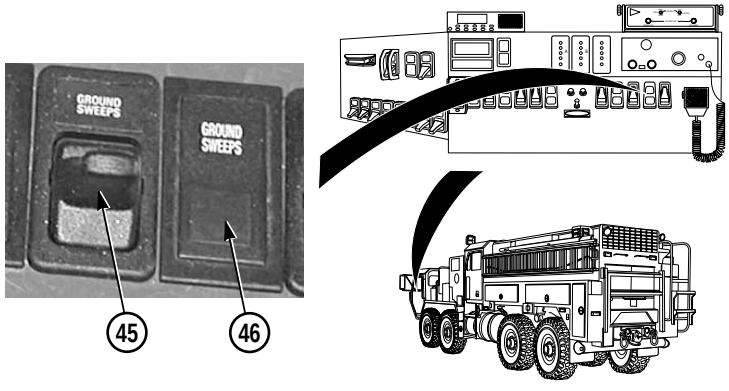
(25) Put NO. 1 (39) and NO. 2 (40) DRIVER SIDE DISCHARGE drain valves and DRIVERS PRE-CONNECT A drain valve (41) in OPEN position.



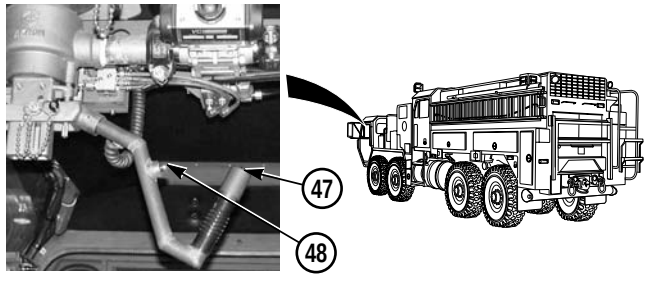
(26) Put NO. 3 (42) and NO. 4 (43) PASSENGER SIDE DISCHARGE drain valves and DRIVERS PRE-CONNECT B drain valve (44) in OPEN position.

Operation Under Unusual Conditions (Cont)

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).

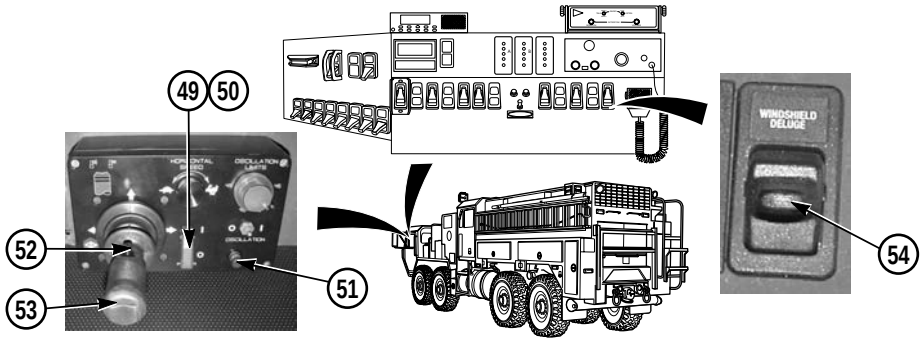


(27) Put GROUND SWEEPS switch (45) in OPEN position. Indicator light (46) will come on.



(28) Push agent discharge button (47) to on position. Indicator light (48) will come on.

Operation Under Unusual Conditions (Cont)



(29) Lift power switch guard (49) and put power switch (50) in ON (**-**) position. Indicator light (51) will come on.

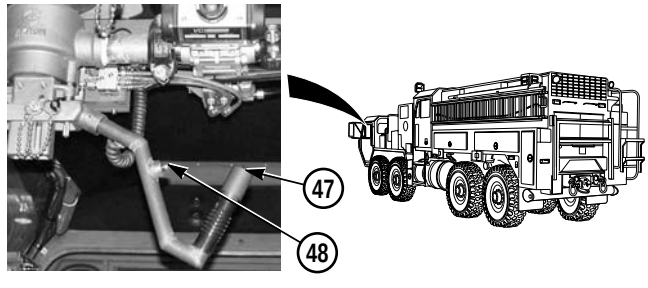
(30) Push and release agent discharge button (52) on front of joystick control handle (53) to begin discharge.

(31) Put WINDSHIELD DELUGE switch (54) in ON position and run for 15 to 30 seconds.

(32) Allow water tank to drain.

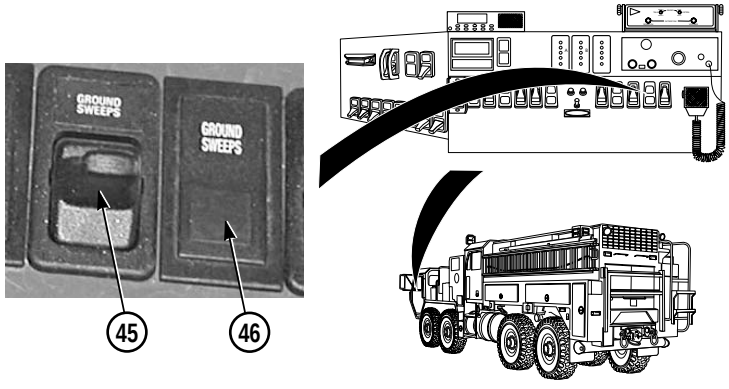
(33) Push and release agent discharge button (52) on front of joystick control handle (53) to stop discharge.

(34) Put power switch (50) to OFF (**o**) position. Check that indicator light (51) goes out.

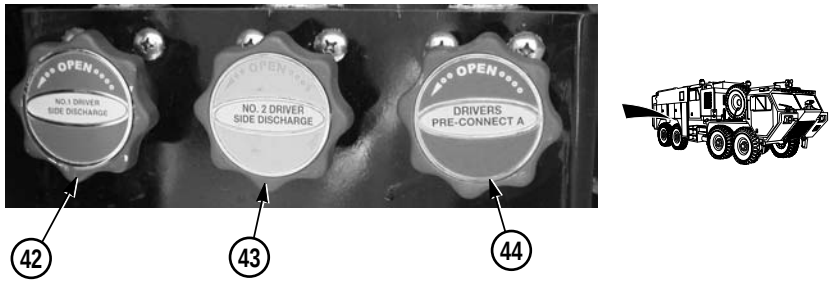


(35) Push agent discharge button (47) to off position. Check that indicator light (48) goes out.

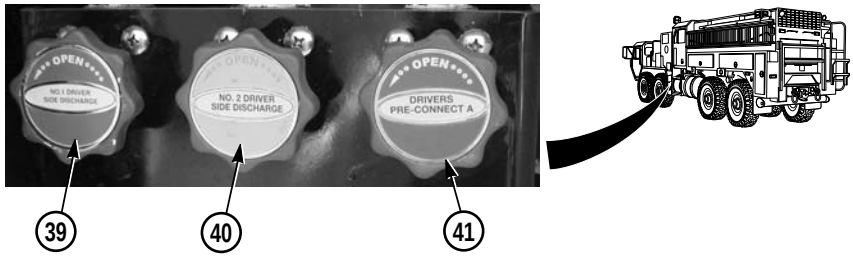
2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).



(36) Put GROUND SWEEPS switch (45) in CLOSED position. Check that indicator light (46) goes out.

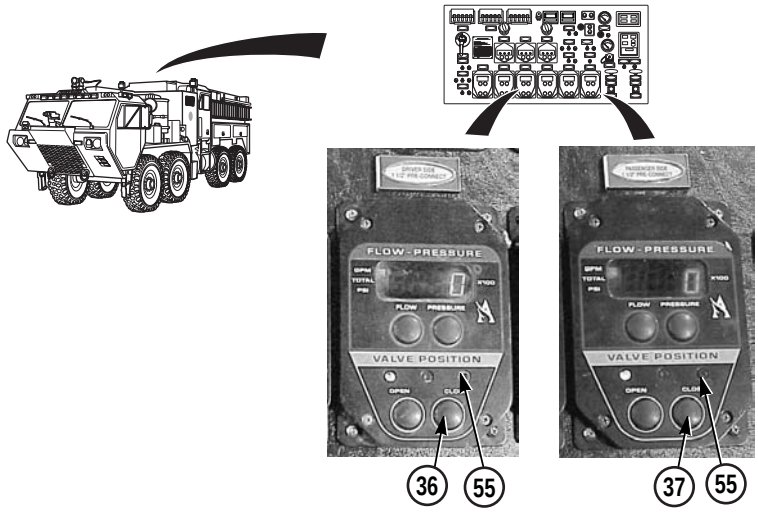


(37) Put NO. 3 (42) and NO. 4 (43) PASSENGER SIDE DISCHARGE drain valves, and DRIVERS PRE-CONNECT B drain valve (44) in CLOSED position.

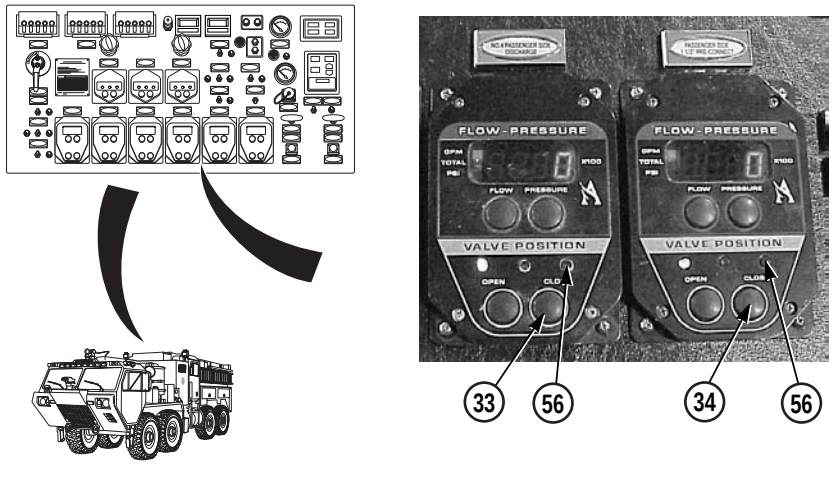


(38) Put NO. 1 (39) and NO. 2 (40) DRIVER SIDE DISCHARGE drain valves, and DRIVERS PRE-CONNECT A drain valve (41) in CLOSED position.

Operation Under Unusual Conditions (Cont)



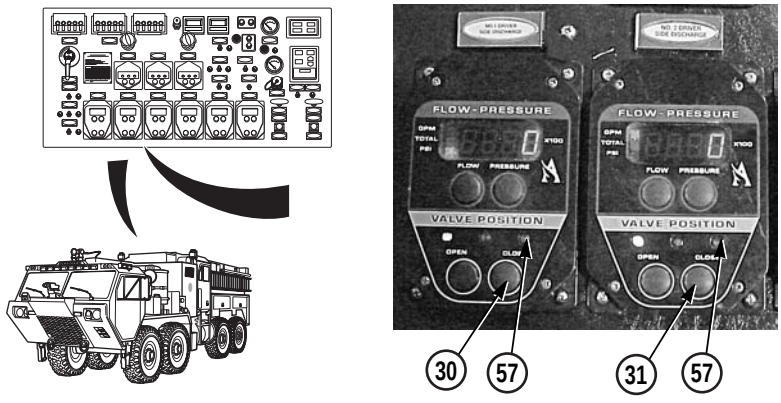
(39) Put DRIVERS PRE-CONNECT A valve control (36) and DRIVERS PRE-CONNECT B valve control (37) in CLOSED position. Two indicator lights (55) will come on.



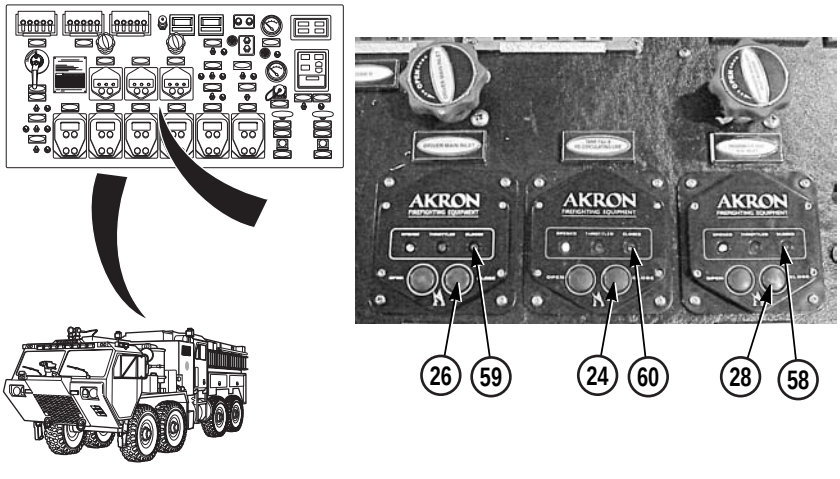
(40) Put NO. 3 (33) and NO. 4 (34) PASSENGER SIDE DISCHARGE valve control in CLOSED position. Two indicator lights (56) will come on.

Operation Under Unusual Conditions (Cont)

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).



(41) Put NO. 1 (30) and NO. 2 (31) DRIVER SIDE DISCHARGE valve control in CLOSED position. Two indicator lights (57) will come on.

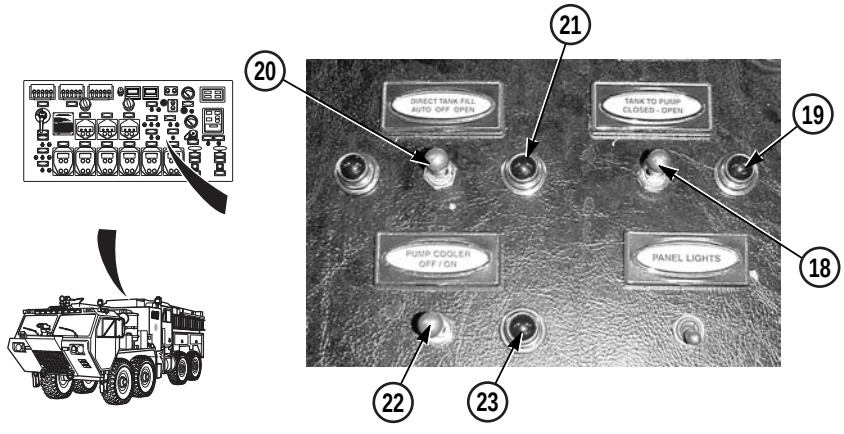


(42) Put PASSENGER SIDE AUXILIARY INLET valve control (28) in CLOSED position. Indicator light (58) will come on.

(43) Put DRIVER MAIN INLET valve control (26) in CLOSED position. Indicator light (59) will come on.

(44) Put TANK FILL and RE-CIRCULATING LINE valve control (24) in CLOSED position. Indicator light (60) will come on.

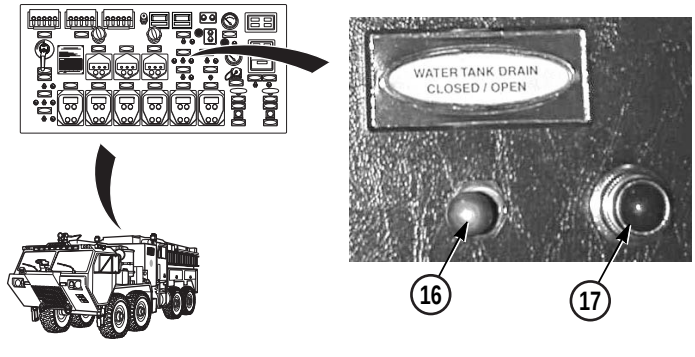
Operation Under Unusual Conditions (Cont)



(45) Put PUMP COOLER switch (22) in OFF position. Check that indicator light (23) goes out.

(46) Put DIRECT TANK FILL switch (20) in OFF position. Check that indicator light (21) goes out.

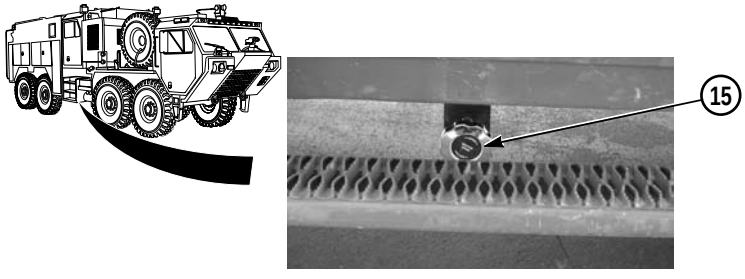
(47) Put TANK TO PUMP switch (18) in CLOSED position. Check that indicator light (19) goes out.



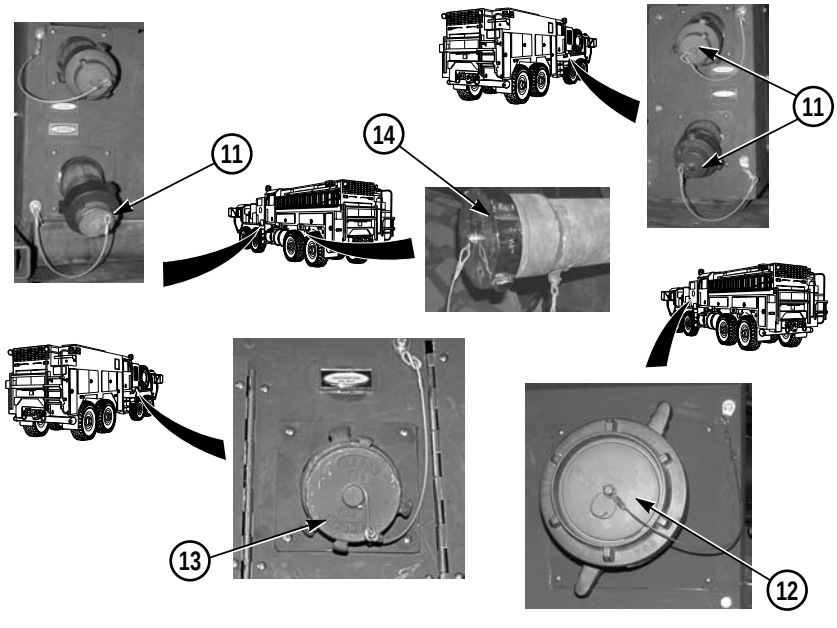
(48) Put WATER TANK DRAIN switch (16) in CLOSED position. Check that indicator light (17) goes out.

Operation Under Unusual Conditions (Cont)

2-134. OPERATION IN COLD ENVIRONMENT, -25°F TO 32°F (-32°C TO 0°C) (CONT).



(49) Put MASTER DRAIN valve (15) in CLOSED position.



(50) Install four discharge caps (11), main inlet cap (12), PASSENGER SIDE AUXILIARY inlet cap (13), and direct tank fill cap (14).

Operation Under Unusual Conditions (Cont)

c. Post Cold Weather Operation.

CAUTION

Once pumping operations have been completed, park vehicle in a warm shelter +55°F (13°C) as soon as possible to prevent water from freezing and causing damage to equipment.

(1) Park vehicle in warm shelter as soon as possible (TM 9-2320-279-10-1, para 2-110).

(2) Shut off vehicle engine (TM 9-2320-279-10-1, para 2-11).

CAUTION

If compartment heaters are operating, DO NOT turn off the 24 V battery disconnect switch, as this will disable the heaters. The heaters will shut off automatically after they complete a cool-down cycle (5-10 minutes). At that time the 24V battery disconnect switch can be turned off. Failure to comply may result in damage to heaters.

NOTE

Perform step *(3)* if foam system flush was used and not flushed at scene.

(3) Perform Foam System Flush (para 2-128).

(4) Perform Post Operation procedures (para 2-129).

CAUTION

It is recommended during cold weather conditions to leave main water pump in a “dry condition” and foam system charged with Class A foam agent or Class B foam agent rated for a minimum of -20°F (-29°C) to prevent water and foam from freezing and causing damage to equipment.

(5) Make sure foam tanks are filled with Class A foam agent or Class B foam agent rated for a minimum of -20°F (-29°C) (para 2-122).

(6) Make sure water pump and plumbing have been blown out (para 2-133).

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Contents

SECTION V. M1142 TROUBLESHOOTING PROCEDURES

Troubleshooting Index

3-14. TROUBLESHOOTING INTRODUCTION.

To quickly find the required troubleshooting procedure, use the fault Symptom Index, Table 3-5. Common malfunctions are listed alphabetically under those components or system headings.

3-15. TROUBLESHOOTING SYMPTOMS.

Table 3-5 lists the most common malfunctions found during operation or maintenance of the M1142 fire fighting vehicle system. Tests or inspections and corrective actions should be performed in the order listed. Troubleshooting for all other vehicle systems is found in Volume 1 of this manual.

This manual cannot list all malfunctions that may occur, nor all tests or inspections, and corrective actions. If a malfunction is not listed, or is not corrected by listed corrective actions, notify the supervisor.

Troubleshooting Index (Cont)

3-16. TROUBLESHOOTING MALFUNCTIONS.

Table 3-5. Symptom Index

Troubleshooting Index (Cont)

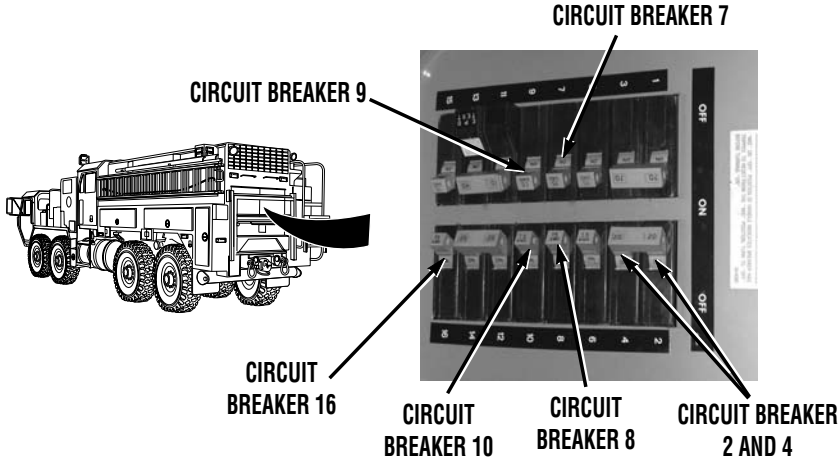
Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action

1. 120 VAC RECEPTACLES DO NOT OPERATE.

Step 1. Check if any other 120 VAC circuits operate.

If all 120 VAC circuits do not operate, troubleshoot hydraulic generator, no output voltage (malfunction 12).



NOTE

Circuit breaker may be in ON position when tripped. To make sure circuit breaker is not tripped, reset circuit breaker by switching it to the OFF position then back to ON position.

Step 2. If cord reel receptacles do not operate: Check if circuit breaker 2 or 4 is tripped.

If circuit breaker 2 or 4 is tripped, reset tripped circuit breakers. If circuit breaker trips again, notify Supervisor.

Step 3. If driver side pump house receptacles do not operate: Check if circuit breaker 7 is tripped.

If circuit breaker 7 is tripped, reset circuit breaker. If circuit breaker trips again, notify Supervisor.

Step 4. If passenger side pump house receptacles do not operate: Check if circuit breaker 8 is tripped.

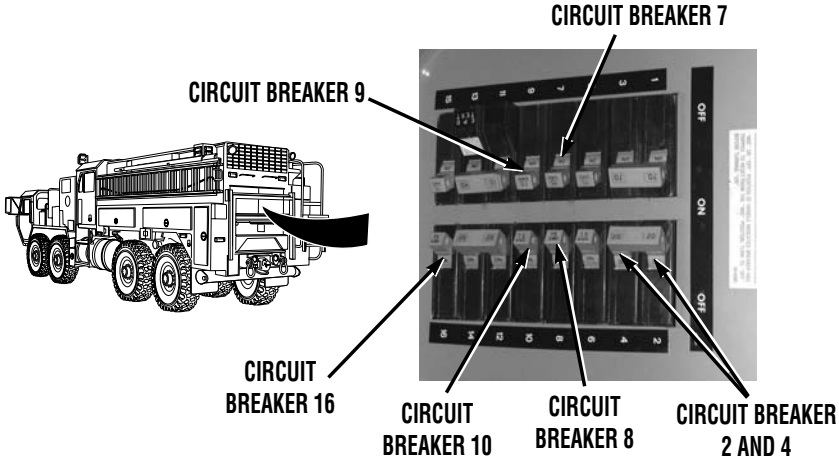
If circuit breaker 8 is tripped, reset circuit breaker. If circuit breaker trips again, notify Supervisor.

Troubleshooting Index (Cont)

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
1. 120 VAC RECEPTACLES DO NOT OPERATE (CONT).



Step 5. If driver side rear receptacles do not operate: Check if circuit breaker 9 is tripped.

If circuit breaker 9 is tripped, reset circuit breaker. If circuit breaker trips again, notify Supervisor.

Step 6. If passenger rear receptacles do not operate: Check if circuit breaker 10 is tripped.

If circuit breaker 10 is tripped, reset circuit breaker. If circuit breaker trips again, notify Supervisor.

Step 7. If reciprocating saw charger receptacles do not operate: Check if circuit breaker 16 is tripped.

If circuit breaker 16 is tripped, reset circuit breaker. If circuit breaker trips again, notify Supervisor.

Step 8. If problem still exists, notify Supervisor.

2. SHORELINE RECEPTACLE DOES NOT EJECT POWER CORD WHEN VEHICLE ENGINE IS STARTED.

Step 1. Check if correct power cord is being used.

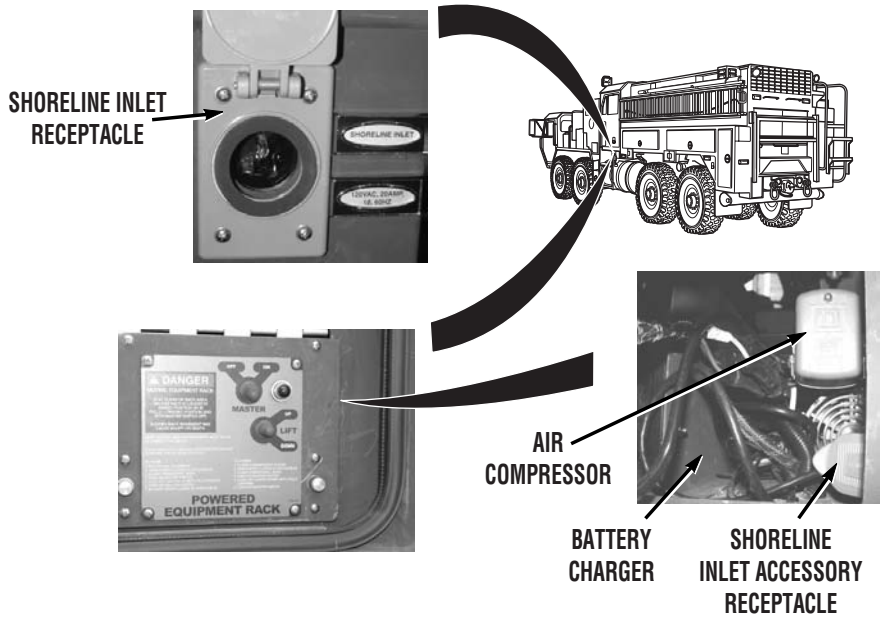
If correct power cord is not being used, replace cord.

Step 2. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
3. AUXILIARY AIR COMPRESSOR AND/OR BATTERY CHARGER ARE NOT OPERATING.



Step 1. Check if power cord is connected to shoreline receptacle and power source.

If power cord is not connected, connect power cord.

Step 2. Check if power is available at power source receptacle.

If power is not available, notify Supervisor.

Step 3. Check if air compressor and battery charger power cords are plugged into shoreline accessory receptacle.

If air compressor and battery charger power cords are not plugged into shoreline accessory receptacle, plug power cords into receptacle.

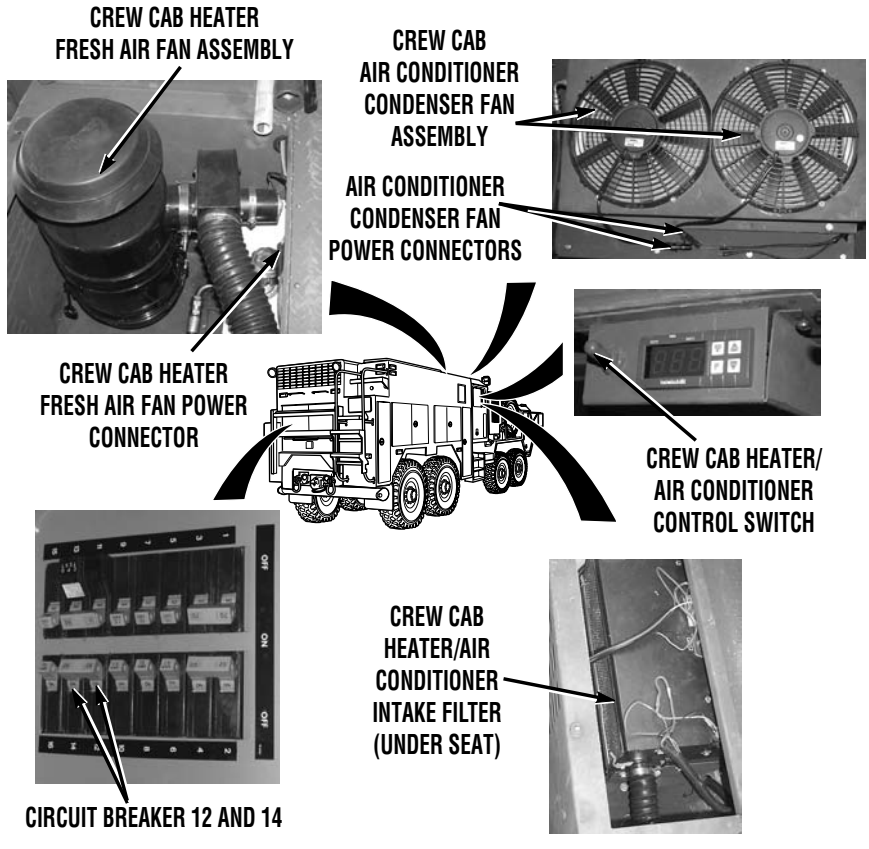
Step 4. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
4. CREW CAB AIR CONDITIONING DOES NOT OPERATE PROPERLY.
Step 1. Check if any other 120 VAC circuits operate. If all 120 VAC circuits do not operate, troubleshoot 120 VAC generator output voltage.



Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

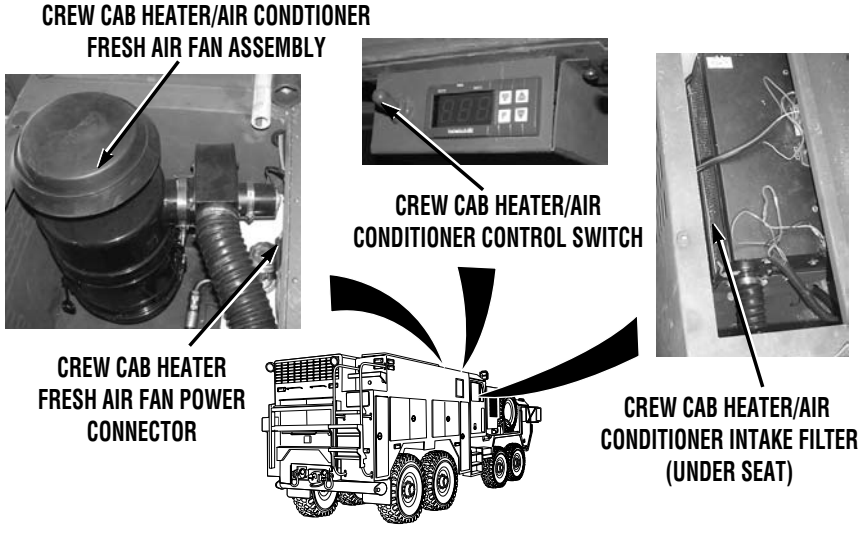
Malfunction Test or Inspection Corrective Action
4. CREW CAB AIR CONDITIONER DOES NOT OPERATE PROPERLY (CONT).
NOTE Circuit breaker may be in ON position when tripped. To make sure circuit breaker is not tripped, reset circuit breaker by switching it to the OFF position then back to ON position.
Step 2. Check if circuit breakers 12 and 14 are tripped. If circuit breakers 12 and 14 are tripped, reset circuit breakers. If circuit breakers trip again, notify Supervisor.
Step 3. Check if crew cab heater/air conditioner control switch is in the ON position. If crew cab heater/air conditioner control switch is not in the ON position, place switch in the ON position.
Step 4. Check if crew cab heater/air conditioner intake filter is free from blockage. If crew cab heater/air conditioner intake filter is blocked, clear blockage.
Step 5. Check if crew cab air conditioner condenser fan assembly is free from blockage. If crew cab air conditioner condenser fan assembly is blocked, clear blockage.
Step 6. Check if crew cab air conditioner condenser fan power connectors are connected. If crew cab air conditioner condenser fan power connectors are not connected, connect them.
Step 7. Check if crew cab heater fresh air fan assembly is free from blockage. If crew cab heater fresh air fan assembly is blocked, clear blockage.
Step 8. Check if crew cab heater fresh air fan power connector is connected. If crew cab heater fresh air fan power connector is not connected, connect it.
Step 9. If problem still exists, notify Supervisor.

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

Table 3-5. Troubleshooting

Malfunction Test or Inspection	Corrective Action

5. CREW CAB HEATER DOES NOT OPERATE PROPERLY.



Step 1. Check if crew cab heater/air conditioner control switch is in the ON position.

If crew cab heater/air conditioner control switch is not in the ON position, place switch in ON position.

Step 2. Check if crew cab heater/air conditioner intake filter is free from blockage.

If crew cab heater/air conditioner intake filter is blocked, clear blockage.

Step 3. Check if crew cab heater/air conditioner fresh air fan assembly is free from blockage.

If crew cab heater/air conditioner fresh air fan assembly is blocked, clear blockage.

Step 4. Check if crew cab heater fresh air fan power connector is connected.

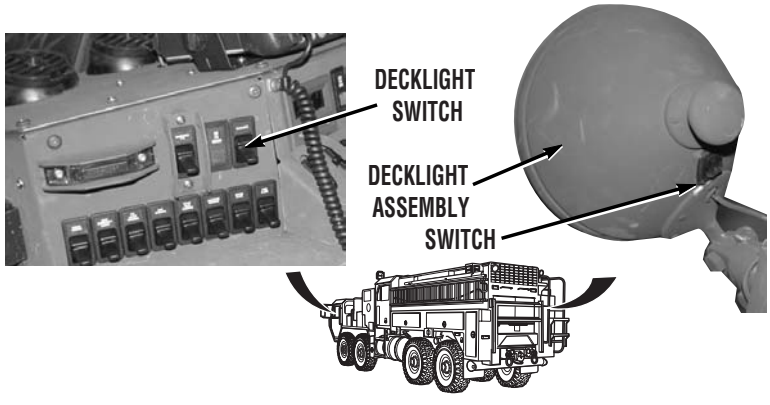
If crew cab heater fresh air fan power connector is not connected, connect it.

Step 5. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
6. DECKLIGHTS DO NOT OPERATE.



Step 1. Check if vehicle service lights are on (not in blackout mode).

If vehicle service lights are not on, turn lights on.

Step 2. Check if DECKLIGHT switch in cab is in the ON position.

If DECKLIGHT switch is not in the ON position, place switch to the ON position.

Step 3. Check if switch on non-operating decklight assembly is in the ON position.

If decklight assembly switch is not in the ON position, place switch to the ON position.

Step 4. If problem still exists, notify Supervisor.

7. DO NOT MOVE TRUCK INDICATOR (FLASHES).

Step 1. Check if all rear compartment doors, rear compartment hatch, crew cab doors, and crew cab hatch are closed.

If any doors and hatches are not closed, close them.

Step 2. Check if equipment (ladder) rack is in the fully raised position.

If equipment (ladder) rack is not in its fully raised position, operate equipment (ladder) rack to its stowed position.

Step 3. If problem still exists, notify Supervisor.

8. EQUIPMENT (LADDER) RACK DOES NOT OPERATE.

Step 1. Check if driver side rear compartment doors are closed.

If doors are not closed, close them.

Step 2. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

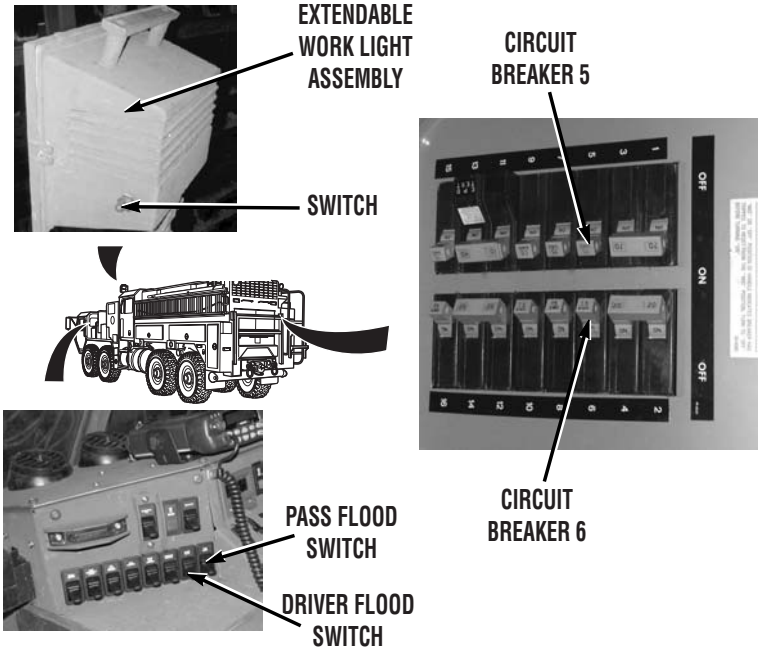
Table 3-5. Troubleshooting

Malfunction Test or Inspection	Corrective Action

9. EXTENDABLE FLOOD LIGHTS DO NOT OPERATE.

Step 1. Check if any other 120 VAC circuits operate.

If all 120 VAC circuits do not operate, troubleshoot 120 VAC generator output voltage (malfunction 12).



NOTE

Circuit breaker may be in ON position when tripped. To make sure circuit breaker is not tripped, reset circuit breaker by switching it to the OFF position then back to ON position.

Step 2. Check if circuit breaker 5 or 6 is tripped.

If circuit breaker 5 or 6 is tripped, reset tripped circuit breaker. If circuit breaker trips again, notify Supervisor.

Step 3. If driver side extendable flood light does not operate: Check if DRIVER FLOOD switch in cab is in the ON position.

If DRIVER FLOOD switch is not in the ON position, place switch to the ON position.

Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

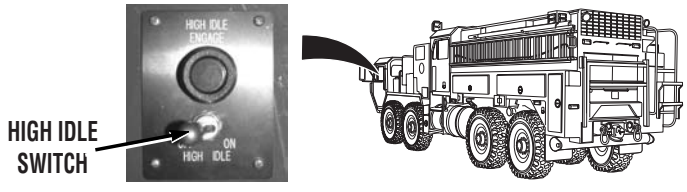
Malfunction Test or Inspection Corrective Action
9. EXTENDABLE FLOOD LIGHTS DO NOT OPERATE (CONT).
Step 4. If passenger side extendable flood light does not operate: Check if PASS FLOOD switch in cab is in the ON position. If PASS FLOOD switch is not in the ON position, place switch to the ON position.
Step 5. Check if switch on non-operating extendable flood light assembly is in the ON position. If extendable flood light assembly switch is not in the ON position, place switch to the ON position.
Step 6. If problem still exists, notify Supervisor.
10. FOAM SYSTEM DOES NOT OPERATE.
Step 1. Check foam concentrate level in selected foam tank. If foam concentrate level is low, fill tank.
Step 2. If pumping from hydrant using the main or auxiliary inlet: Check if inlet pressure is less than 5 psi (34 kPa). If inlet pressure is greater than 5 psi (34 kPa), throttle pressure to 5 psi (34 kPa), or use the direct tank fill inlet.
Step 3. If operating foam system from the cab: Check if pump output pressure is above 175 psi (1,207 kPa). If pump output pressure is not above 175 psi (1,207 kPa), notify Supervisor.
Step 4. If operating foam system from the pump operators panel: Check if pump output pressure is above 125 psi (862 kPa). If pump output pressure is not above 125 psi (862 kPa), notify Supervisor.
Step 5. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
11. HYDRAULIC GENERATOR OUTPUT FREQUENCY IS NOT CORRECT.



NOTE

Hydraulic Generator display should display a frequency reading of 58 to 62 HR during normal operations.

Step 1. Check if HIGH IDLE switch in cab is in the ON position.

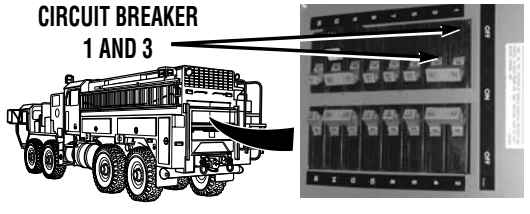
If HIGH IDLE switch is in the OFF position, place HIGH IDLE switch to ON position.

Step 2. If problem still exists, notify Supervisor.

12. HYDRAULIC GENERATOR, NO OUTPUT VOLTAGE.

Step 1. Check if generator is operating.

If generator is not operating, start generator.



NOTE

Circuit breaker may be in ON position when tripped. To make sure circuit breaker is not tripped, reset circuit breaker by switching it to the OFF position then back to ON position.

Step 2. Check if circuit breakers 1 and 3 are tripped.

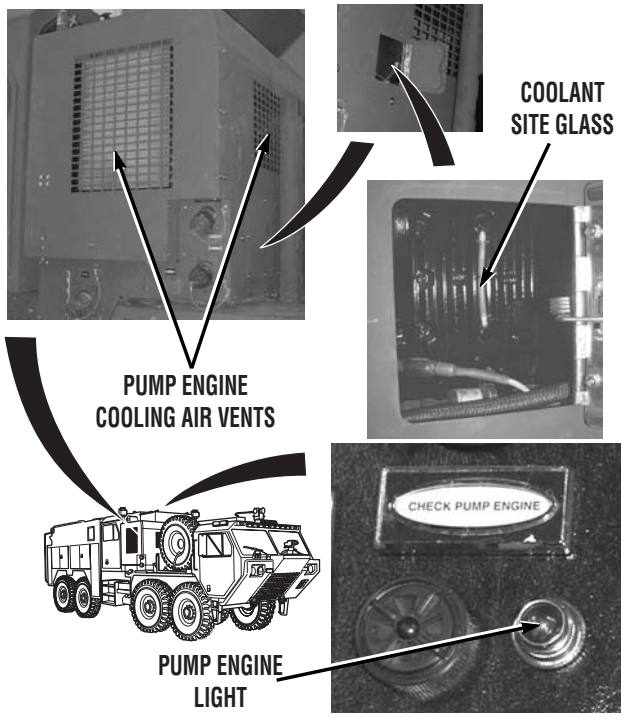
If circuit breakers 1 and 3 are tripped, reset circuit breakers. If circuit breakers trip again, notify Supervisor.

Step 3. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
13. CHECK PUMP ENGINE INDICATOR LIGHT COMES ON.



Step 1. Check pump engine cooling air vents for blockage.

If pump engine vents are blocked, clear blockage.

WARNING

Radiator cap may be very hot after engine is shut off.
Do not touch hot cap or personal injury may result.

Step 2. With pump engine off, check pump engine coolant sight glass for proper level.

If pump engine coolant level is low. Fill to correct level.

Step 3. Check pump engine oil for proper level.

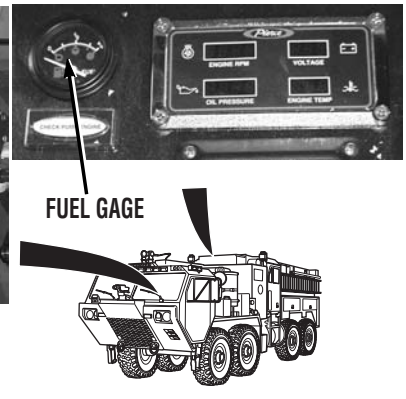
If pump engine oil is low. Fill to correct level.

Step 4. If problem still exists, notify Supervisor.

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
14. PUMP ENGINE CRANKS BUT FAILS TO START.



Step 1. If off, turn cab ENGINE START switch to ON position. Check cab or pump operators panel fuel level gage for presence of fuel.

If fuel level gage indicates low fuel level, fill tank.

Step 2. Check fuel tank for presence of fuel.

If no fuel is present, fill tank.

Step 3. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action

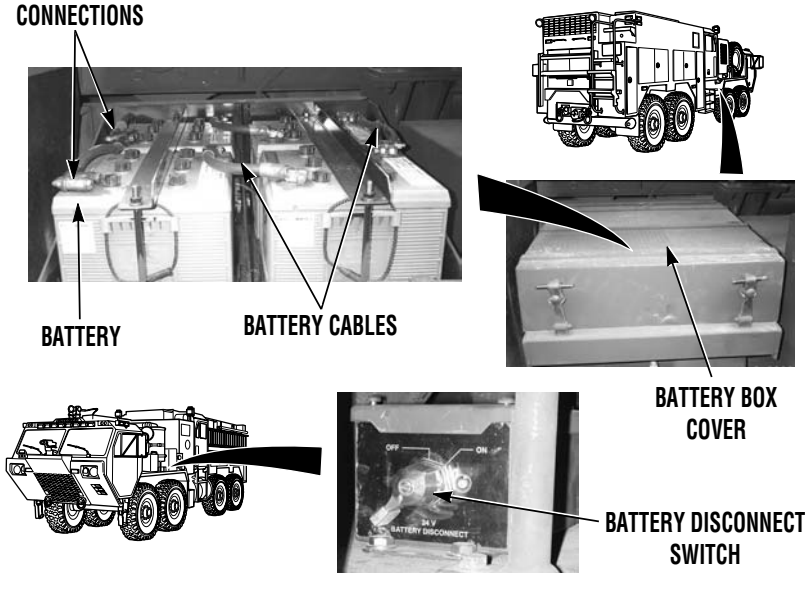
15. PUMP ENGINE FAILS TO CRANK WHEN PUMP ENGINE SWITCH IS PLACED IN THE START POSITION.

Step 1. Check if battery disconnect switch is in the ON position.

If battery disconnect switch is not in the ON position, position switch to the ON position.

WARNING

- Do not wear watches, rings, or other jewelry when working in battery box. If jewelry comes in contact with battery terminal, electric shock or severe burn may result.
- Do not smoke or have open flame near batteries. Batteries can explode. Battery acid is harmful to eyes and skin.



Step 2. Remove battery box cover. Check battery terminals for dirt, corrosion, loose or damaged connections.

If connectors are dirty, corroded, loose, or damaged, notify supervisor.

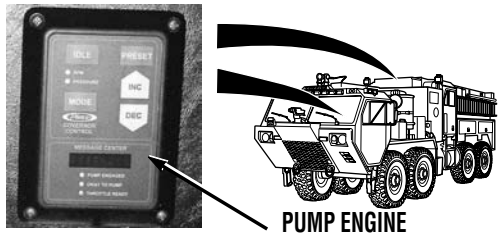
Step 3. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
16. PUMP ENGINE GOVERNOR CONTROL DOES NOT OPERATE.



Step 1. If operating governor control from the cab: Check if pump operators panel governor control is active.

If pump operators panel governor control is active, select MODE switch to deactivate governor control. Then select cab governor control MODE switch to activate cab governor control.

Step 2. If operating governor control from pump operators panel: Check if cab governor control is active.

If cab governor control is active, select MODE switch to deactivate governor control. Then select pump operators panel governor control MODE switch to activate pump operators panel governor control.

Step 3. Check if INTAKE or OPERATOR is displayed on active governor control.

If INTAKE or OPERATOR is displayed on active governor control, pump output pressure dropped and the governor control was not able to maintain pressure within 4 seconds. Correct problem and select DEC, INC, or PRESET switch to activate governor control and set pressure.

Step 4. Check if LO SUPPLY is displayed on active governor control.

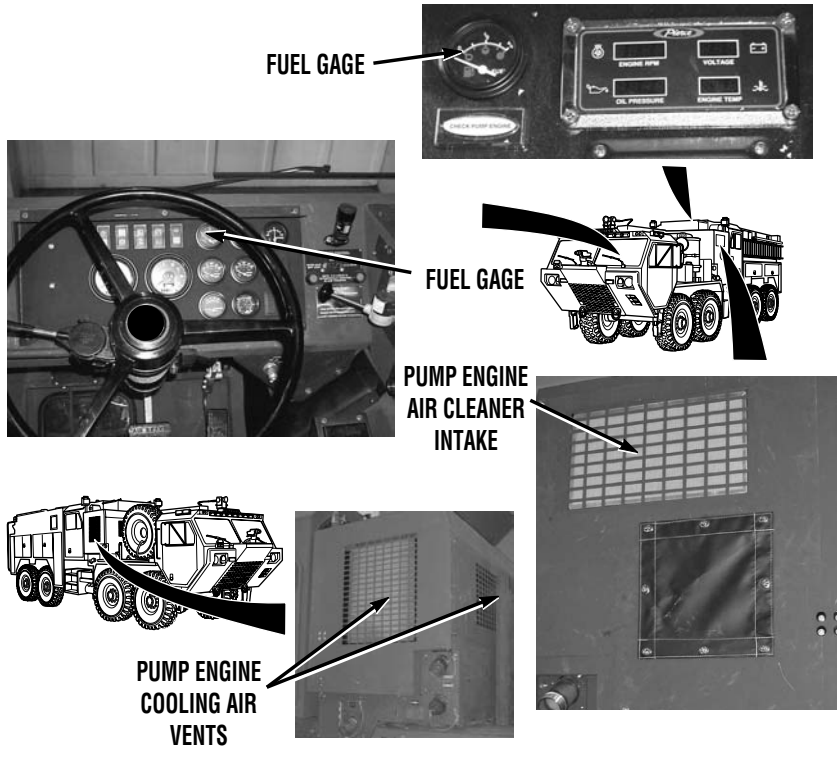
If LO SUPPLY is displayed on active governor control, pump output pressure dropped below 30 psi (207 kPa) for more than 5 seconds: Correct problem and select MODE switch to activate governor control.

Step 5. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
17. PUMP ENGINE RUNS ROUGH OR SHUTS DOWN WHILE RUNNING.



Step 1. If off, turn cab ENGINE START switch to ON position. Check cab or pump operators panel fuel level gage for presence of fuel.

If cab or pump operators panel fuel level gage indicates low fuel level, fill tank.

Step 2. Check pump engine air cleaner intake vent for blockage.

If pump engine air cleaner intake vent is blocked, clear blockage.

Step 3. Check pump engine cooling air vents for blockage.

If pump engine cooling vents are blocked, clear blockage.

Step 4. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
18. PUMP DOES NOT PRIME.
Step 1. Check if all discharge valves are closed. If discharge valve is open, close it.
Step 2. Check if manual priming valve is closed. If manual discharge valve is open, close it.
Step 3. If pumping from water tank: Check water level in tank. If water level is low, fill tank.
Step 4. If pumping from draft: Check placement of suction hose. If suction hose is not placed correctly, reposition suction hose.
Step 5. If pumping from draft, make sure vertical height from end of suction valve to pump is not more than 10 ft. (3 m). If vertical height is more than 10 ft. (3 m), reposition vehicle to reduce vertical height.
Step 6. If pumping from a hydrant: Check if inlet water pressure is present. If water pressure is not present, correct problem.
Step 7. If problem still exists, use manual pump priming system to prime pump, and notify Supervisor.
19. PUMP LOSES PRIME.
Step 1. If pumping from water tank: Check water level in tank. If water level is low, fill tank.
Step 2. If pumping from draft: Check placement of suction hose. If suction hose is not placed correctly, reposition suction hose.
Step 3. If pumping from draft: Check strainer for blockage. If strainer is blocked, clear blockage and reposition suction hose.
Step 4. If pumping from draft, make sure vertical height from end of suction hose to pump is not more than 10 ft. (3 m). If vertical height is more than 10 ft. (3 m), reposition vehicle to reduce vertical height. If unable to reposition vehicle, reduce the number of open discharge valves.
Step 5. If pumping from a hydrant: Check if inlet water pressure is present. If water pressure is not present, correct problem.
Step 6. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
20. RADIO BATTERY CHARGER(S) DO/ES NOT CHARGE BATTERY.

Step 1. Check if battery charger cord is properly installed in receptacle.

If battery charger cord is not properly installed, reinstall cord.

Step 2. Check if radio is fully seated in battery charger assembly.

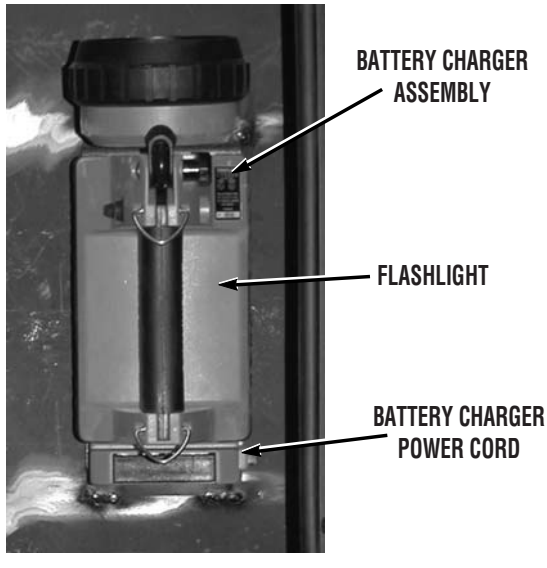
If radio is not fully seated in battery charger, reseat radio.

Step 3. If problem still exists, notify Supervisor.

3-16. TROUBLESHOOTING MALFUNCTIONS (CONT).

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
21. FLASHLIGHT BATTERY CHARGER(S) DO(ES) NOT CHARGE BATTERY.



Step 1. Check if battery charger power cord is connected to battery charger.

If battery charger power cord is not connected, reconnect cord.

Step 2. Check if handheld flashlight is fully seated in battery charger assembly.

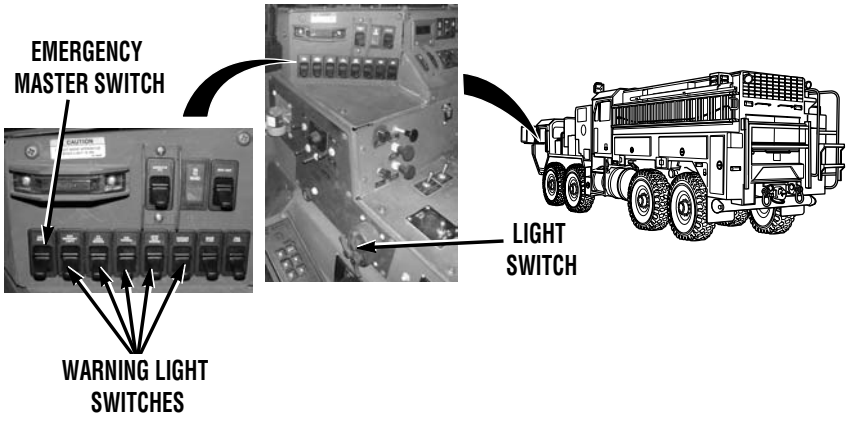
If handheld flashlight is not fully seated in battery charger assembly, reseat light.

Step 3. If problem still exists, notify Supervisor.

Troubleshooting Index (Cont)

Table 3-5. Troubleshooting

Malfunction Test or Inspection Corrective Action
22. WARNING LIGHTS DO NOT OPERATE.



Step 1. Check if vehicle service lights are on (not in the blackout mode).

If vehicle service lights are not on, turn lights on.

Step 2. Check if EMERGENCY MASTER switch is in the ON position.

If EMERGENCY MASTER switch is not in the ON position, place switch to the ON position.

Step 3. Check if selected warning light switch is in the ON position.

If switch is not in the ON position, place switch to the ON position.

Step 4. If problem still exists, notify Supervisor.

APPENDIX A
REFERENCES

A-1. SCOPE.

This appendix lists all forms, field manuals, technical manuals, and other publications referenced in this manual **only**. Also, those publications that should be consulted for additional information about vehicle operations are listed.

A-2. PUBLICATION INDEX.

The following index should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

Consolidated Index of Army Publications and Blank Forms....DA PAM 25-30

A-3. FORMS.

Recommended Change to DA Publications and Blank Forms (DA Form 2028).

Refer to DA PAM 738-750, The Army Maintenance Management System (TAMMS), for instructions in the use of maintenance forms pertaining to this material.

References (Cont)

A-4. OTHER PUBLICATIONS.

The following publications contain information pertinent to the M1142 vehicle. For publication pertaining to the M977 chassis, refer to TM 9-2320-279-10-1.

a. Vehicle Operation.

Operators Manual . . . . . TM 9-2320-279-10-1
Single Channel Ground and Airborn Radio System (SINCGARS) . . . . . TM 11-5820-498-12

b. Cold Weather Operation and Maintenance.

Basic Cold Weather Manual . . . . . FM 31-70
Northern Operations . . . . . FM 31-71
Operation and Maintenance of Ordinance Material in Extreme Cold Weather (0° to -65°F) . . . . . FM 9-207

c. General.

Procedures of Destruction of Tank-Automotive Equipment to Prevent Enemy Use . . . . . TM 750-244-6

APPENDIX B
COMPONENTS OF END ITEM (COEI)
AND
BASIC ISSUE ITEMS (BII) LISTS

SECTION I. INTRODUCTION

B-1. SCOPE.

This appendix lists Components of End Item and Basic Issue Items for the M1142 vehicle to help inventory items required for safe and efficient operation.

B-2. GENERAL.

The Components of End Items and Basic Issue Items lists are divided into the following sections:

a. Section II, Components of End Item. This listing is for informational purposes only and is not authority to requisition replacements. These items are part of the end item, but they are to be removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to help you find and identify the items.

b. ***Section III, Basic Issue Items.*** These are the minimum essential items required to place the M1142 vehicle in operation, to operate them, and to perform emergency repairs. Although shipped separately packaged, BII must be with the vehicle during operation and whenever it is transferred between property accounts. The illustrations will assist with hard-to-identify items. This manual is the authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

B-3. EXPLANATION OF COLUMNS.

The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

b. Column (2) - National Stock Number. Indicates the National Stock Number (NSN) assigned to the item and will be used for requisitioning purposes.

INTRODUCTION (CONT)

B-4. EXPLANATION OF COLUMNS (CONT).

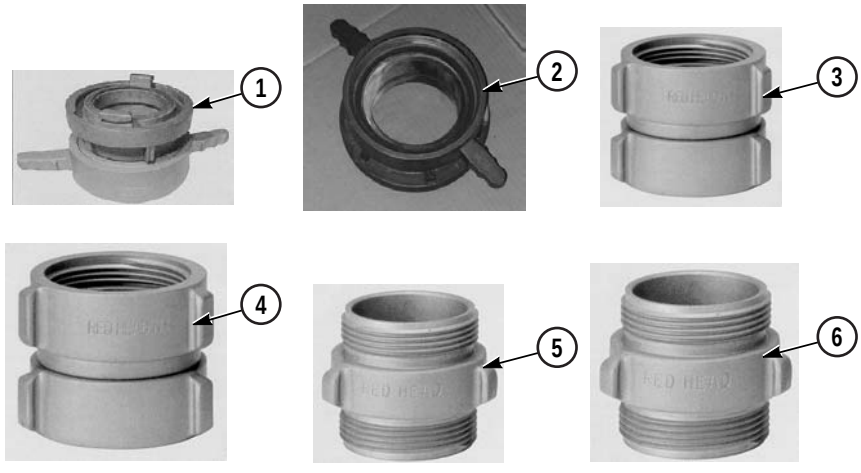
c. Column (3) - Description and Usable On Code. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the Commercial and Government Entity (CAGE) (in parentheses) followed by the part number. If item needed differs for different models of this equipment, the model is shown under the "Usable On Code" heading in this column. If no code is entered in this column, item is used on all models. These codes are identified as:

Code	Used On
FFT	M1142

d. Column (4) - Unit of Issue (U/I). Indicates the quantity issued when ordering the component. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).

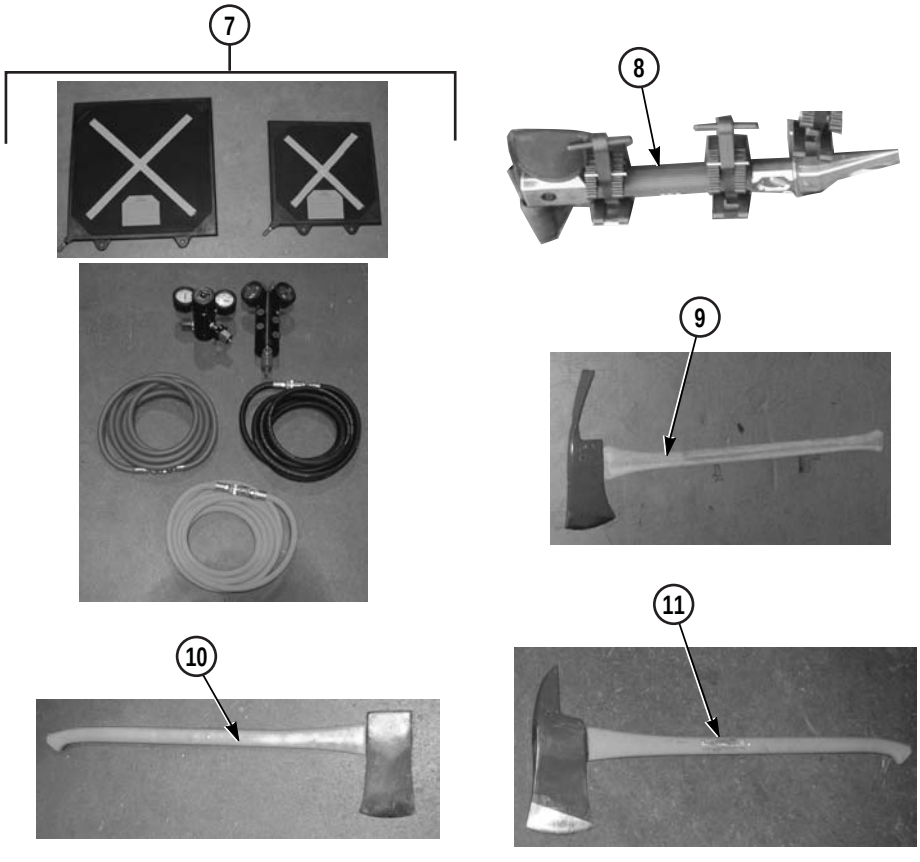
e. Column (5) - Quantity Required (Qty Rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM



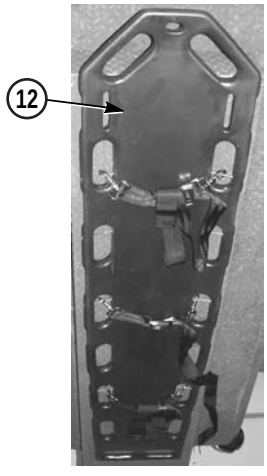
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
1		Adapter, 5.0 in. Storz x 2.5 in. FNST, (04664); 1226461	EA	1
2		Adapter, 5.0 in. Storz x 5.0 in. FNST, (04664); 1268359	EA	1
3		Adapter, Female, Double, Swivel, 1.5 in. NST, (04664); 1226963	EA	2
4		Adapter, Female, Double, Swivel, 2.5 in. NST, (04664); 1226964	EA	2
5		Adapter, Male, Double, 1.5 in. NST, (04664); 1226967	EA	2
6		Adapter, Male, Double, 2.5 in. NST, (04664); 1226968	EA	2

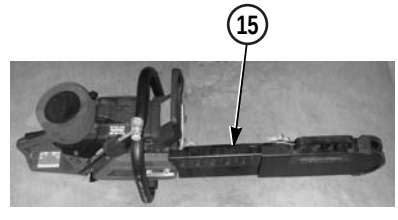
Section II. COMPONENTS OF END ITEM (CONT)



(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
7	5120-01-317-3147	Air Lifting Bags Kit, (30978); 890351	EA	1
8		Ax, Pry, w/Leather Belt, (04664); 1234073	EA	1
9		Ax, Pulaski, WPL, 35 in. Handle, (41559); WPL-4	EA	2
10		Ax, Single Bit, (41559); FHY-8	EA	1
11		Ax, Pick Head, (41559); PHY-8	EA	1

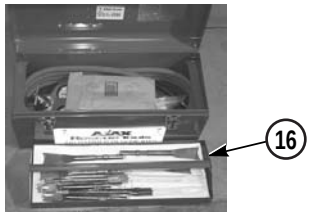
Section II. COMPONENTS OF END ITEM (CONT)

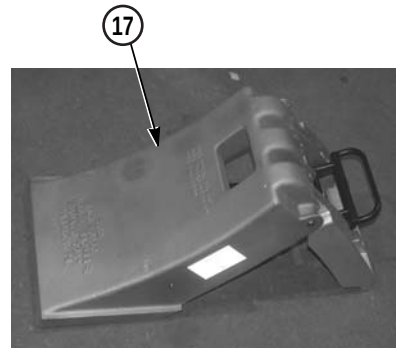


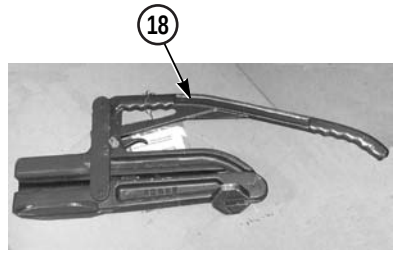


(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
12		Backboard, (04664); 1364839		EA	1
13	6510-01-242-2271	Blanket, Burn, Water Gel, 6 ft. x 5 ft., (1BJ97); P7260-4		EA	1
14		Chain Kit, Rescue, (04664); 1182874		EA	1
15		Chain Saw, 20 in. Bar, w/Guard, (41599); CE217IRS/D8		EA	1

Section II. COMPONENTS OF END ITEM (CONT)

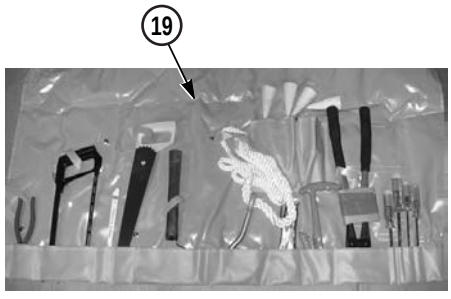


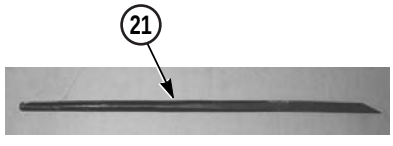


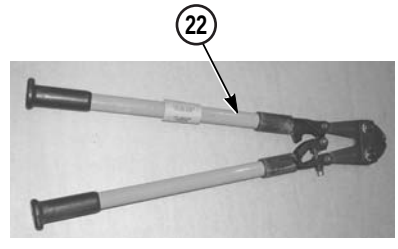


(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
16		Chisel Kit, Air (Air Hammer), (41599); 911 RK	EA	1
17		Chock, Wheel, Zico, Folding, (51010); SAC-44-ME	EA	2
18	4210-01-114-6005	Clamp, Fire Hose, Shut Off, (00912); 0588-0P-0-1-19-0	EA	1

Section II. COMPONENTS OF END ITEM (CONT)

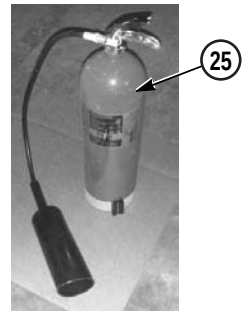


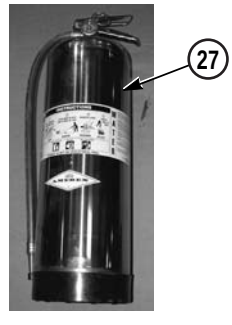


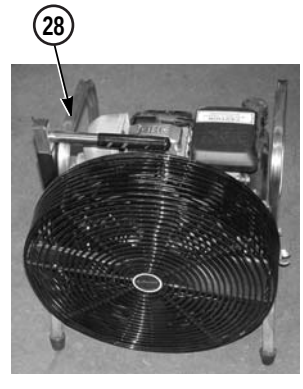


(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
19	4210-00-900-8557	Crash and Rescue Tool Kit, (61125); C1F-CRK5		EA	1
20		Cribbing, Kit, Plastic, Black, (5B337); AM187 USAR KIT		EA	1
21	5120-00-224-1344	Crowbar, (39428); 5995A24		EA	1
22		Cutters, Bolt, Zico, (51010); UCC-30		EA	1
23	5110-01-191-9598	Cutters, Cable, Hand-Operated, (75347); 63041		EA	1

Section II. COMPONENTS OF END ITEM (CONT)

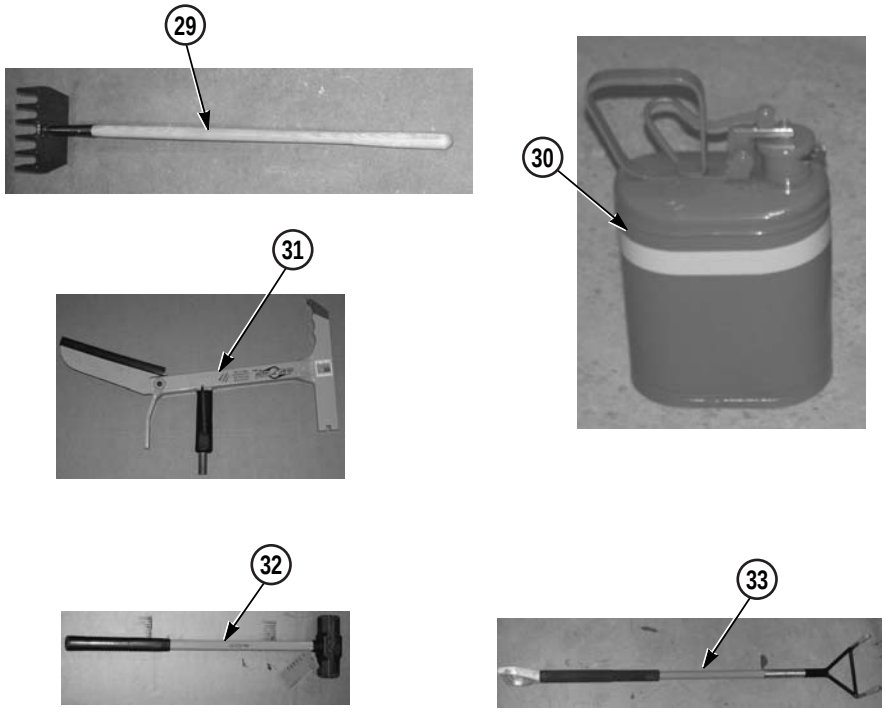






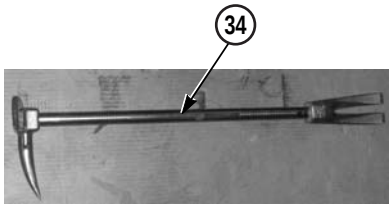
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
24		Detector, Portable, Millennium, (41559); 973-621-916	EA	1
25	4210-00-202-7858	Extinguisher, CO_2 Fire, 15 lbs, (0KDP7); 15KS-3	EA	1
26	4210-00-257-5343	Extinguisher, Fire, Dry Chemical, 20 lbs, (03670); 1182627	EA	1
27	4210-00-160-5632	Extinguisher, Fire, Water 2.5 gal, (03670); 1182873	EA	1
28		Fan, Positive Pressure, (0SHJ6); GF164SE	EA	1

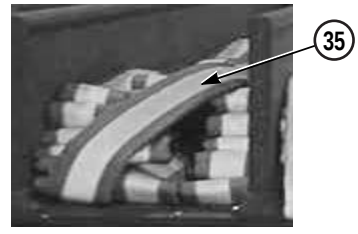
Section II. COMPONENTS OF END ITEM (CONT)

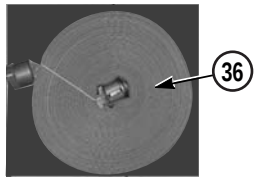


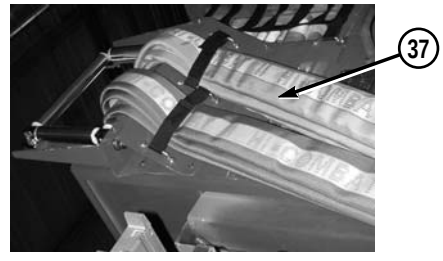
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
29		Forestry Fire Tool “McLeod,” (OCZL2); AJ463		EA	2
30		Gas Can, Steel, (04664); 1371261		EA	2
31		Glass Cutting and Removal Tool, (15852); AB885		EA	1
32	5120-01-395-7228	Hammer, Sledge, (76732); BD-12		EA	2
33		Hook Trash, 6 ft., w/D-Handle, (0HXV5); RH-6-D-90		EA	1

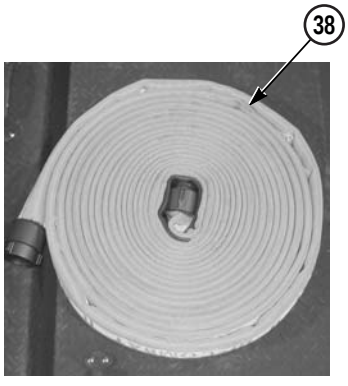
Section II. COMPONENTS OF END ITEM (CONT)





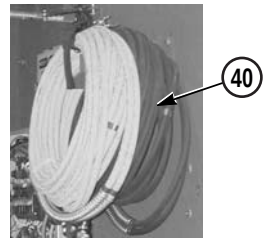


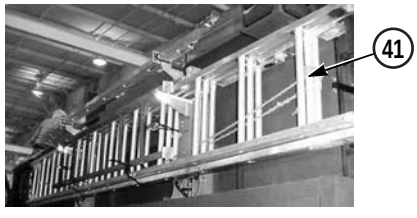


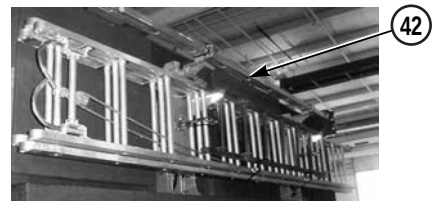


(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
34	5120-01-503-4770	Hooligan Tool, (30978); 22-000600	EA	1
35		Hose Assembly, Hi Combat, Green, (04664); 1212149	EA	4
36		Hose Assembly, Hi Combat, Green, (04664); 1212180	EA	2
37		Hose Assembly, Hi Combat, Yellow, (04664); 1365215	EA	4
38		Hose Assembly, Hi Combat, Yellow, (04664); 1365215	EA	2
39		Hose Assembly, Hi Combat, White, (04664); 1212097	EA	24

Section II. COMPONENTS OF END ITEM (CONT)

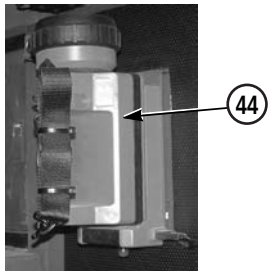


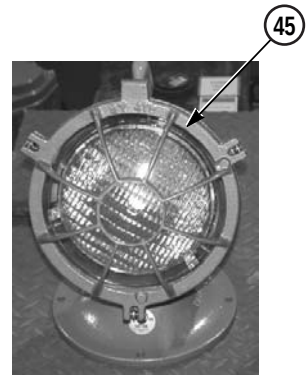


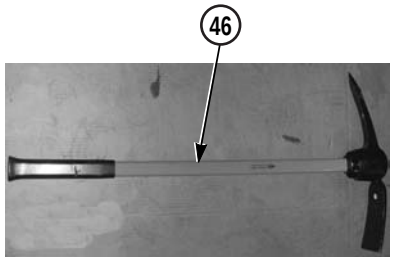


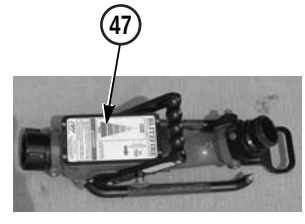
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
40		Hose Set, 30 ft., (04664); 1181202	EA	1
41	4210-01-127-7835	Ladder, 2 Section, Duo-Safety, 24 ft., (18847); 900-A-24	EA	1
42	4210-00-160-5622	Ladder, Folding, Duo-Safety, 10 ft., (04664); 30-0012-010	EA	1
43	4210-01-127-7836	Ladder, Roof, Duo-Safety, 14 ft., (18847); 775A-14	EA	1

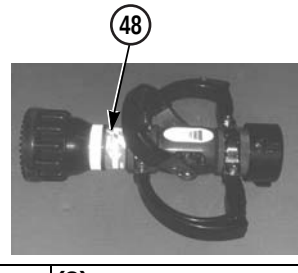
Section II. COMPONENTS OF END ITEM (CONT)





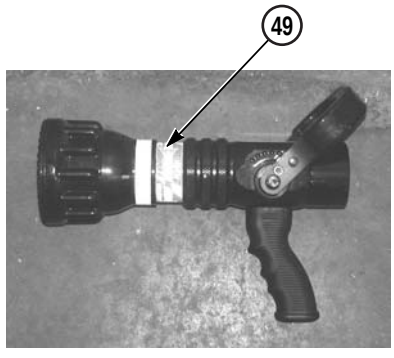


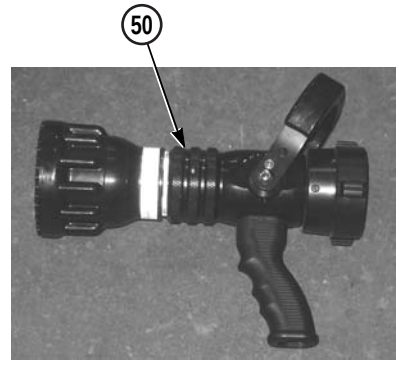


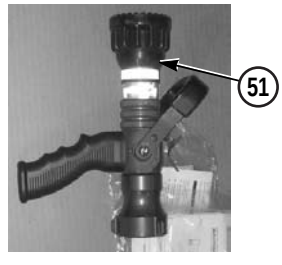


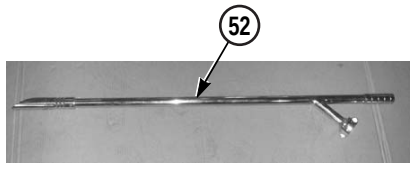
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
44		Light, Hand, Streamlight Litebox, (04664); 61-1300	EA	4
45		Light, Portable, (15852); L763	EA	2
46	5120-00-243-2395	Mattock, Pick, (19207); 11677022	EA	2
47		Monitor Package, Nozzle, Tips, (04664); 1212828	EA	1
48		Nozzle, Auto, Handline, Playpipe, (5M752); H-2BLITZ	EA	1

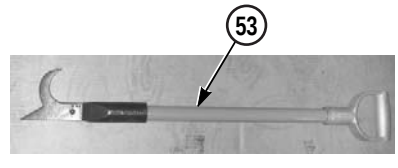
Section II. COMPONENTS OF END ITEM (CONT)





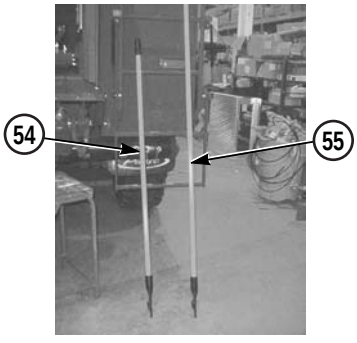


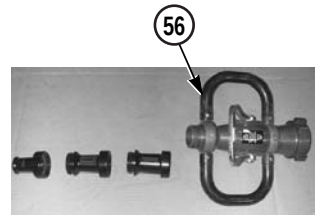


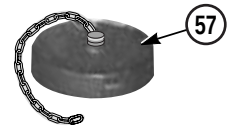


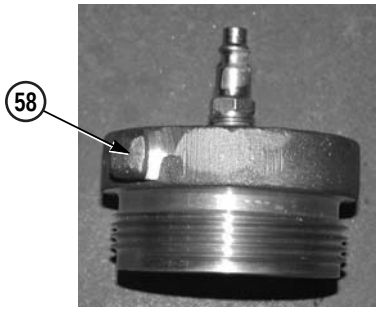
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
49	4210-01-322-6341	Nozzle, Auto, Handline, (5M752); H-VPGI		EA	2
50		Nozzle, Auto Handline, w/Grip, (5M752); H-2VPG1		EA	1
51	4210-01-333-8648	Nozzle, Automatic, Ultimatic, w/Grip, (5M752); BGH125		EA	1
52		Nozzle, Piercing, Task Force, (5M337); S-PN		EA	1
53	5120-01-160-8062	Pike Pole, Fiberglass, 32 in., (51010); CH-32PC		EA	1

Section II. COMPONENTS OF END ITEM (CONT)



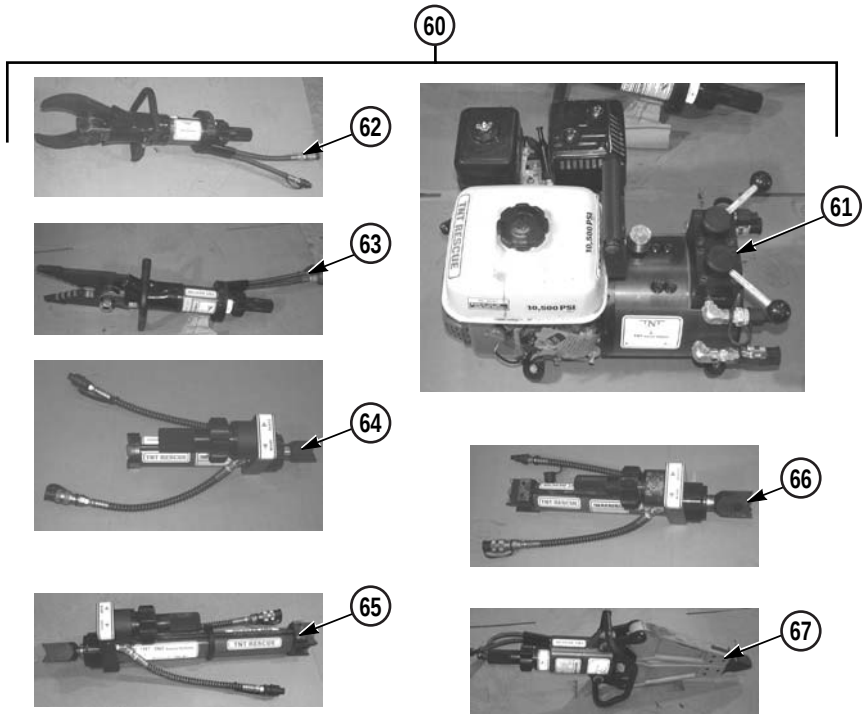






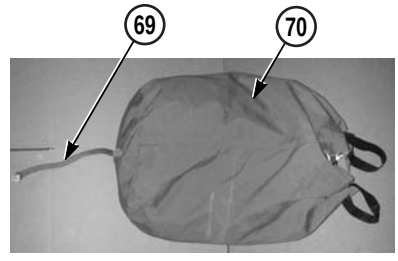
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
54		Pike Pole, Fiberglass, 6 ft., Zico, (51010); 4035-145-000		EA	1
55	5120-01-160-5631	Pike Pole, Fiberglass, 10 ft., Zico, (18847); 10FP		EA	1
56		Play Pipe, Nozzle, Fire Hose, (20266); B-278-L		EA	1
57		Plug, 2.5 in., w/Chain, (04664); 1213493		EA	1
58	4210-00-160-9855	Plug, 2.5 in. NST, Cast, w/Air Fitting, (45152); 110999A		EA	1
59		Radio, Two-Way, FM W, (0B1A3); HT1250		EA	4

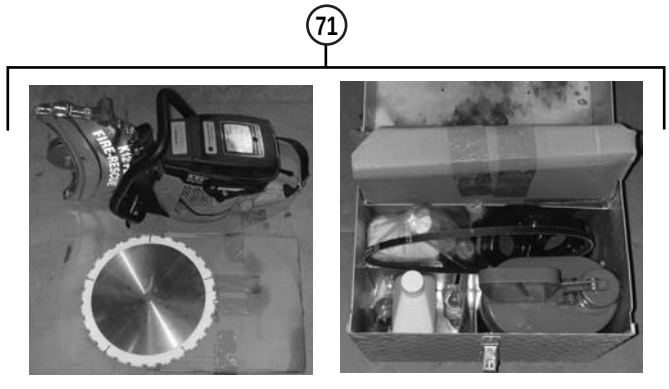
Section II. COMPONENTS OF END ITEM (CONT)



(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
60	4210-01-248-8551	Rescue and Salvaging Kit, Hydraulic		EA	1
61	4320-01-249-6292	• BT-6.5 Hydraulic Power Unit, (82488); 50100		EA	1
62	4240-01-237-2241	• C-20 Cutter, TNT, (04664); 1181193		EA	1
63	4240-01-248-8540	• CC-20 Combination Tool, TNT, (04664); 1181196		EA	1
64		• R-20 Ram TNT, (04664); 1181200		EA	1
65	4320-01-253-7444	• R-30 Ram TNT, (82488); 30RAM		EA	1
66	4320-01-253-1443	• R-40 Ram TNT, (82488); 40RAM		EA	1
67		• S-100-32 Spreader, TNT, (04664); 1181195		EA	1

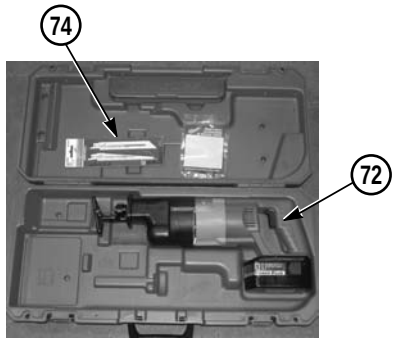
Section II. COMPONENTS OF END ITEM (CONT)

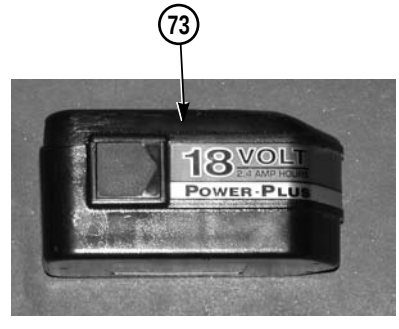




(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
68		Retriever RT, (04664); 1365643	EA	1
69		Rope, .50 in. Diameter, (41559); RR125RD001E	EA	2
70		Rope, Bag, .50 in. Diameter, (5B337); Z110	EA	2
71	5130-00-134-1207	Saw, Circular, Blade, w/Toolbox, (30978); K-12FD9514MK55K	EA	1

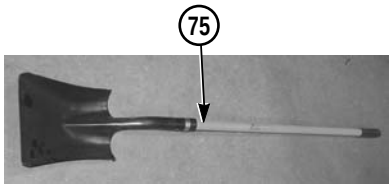
Section II. COMPONENTS OF END ITEM (CONT)

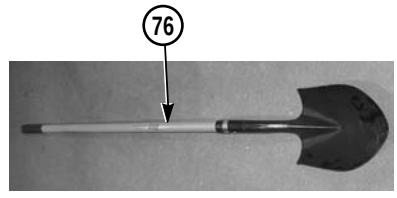


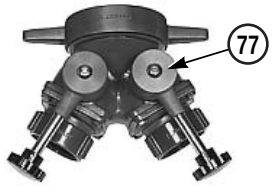


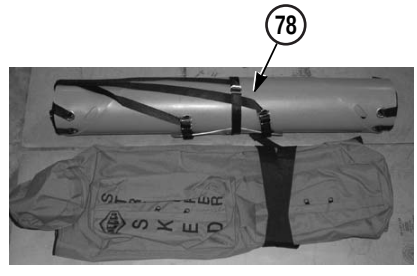
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
72	5130-01-444-7017	Reciprocating Saw, 18 V Cordless, (40817); 6515-21	EA	1
73		Reciprocating Saw, Replacement, Battery (41559); 4PD99	EA	1
74		Reciprocating Saw, Replacement Blade, (04664); 1231194	EA	1

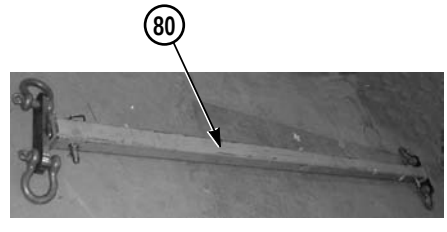
Section II. COMPONENTS OF END ITEM (CONT)





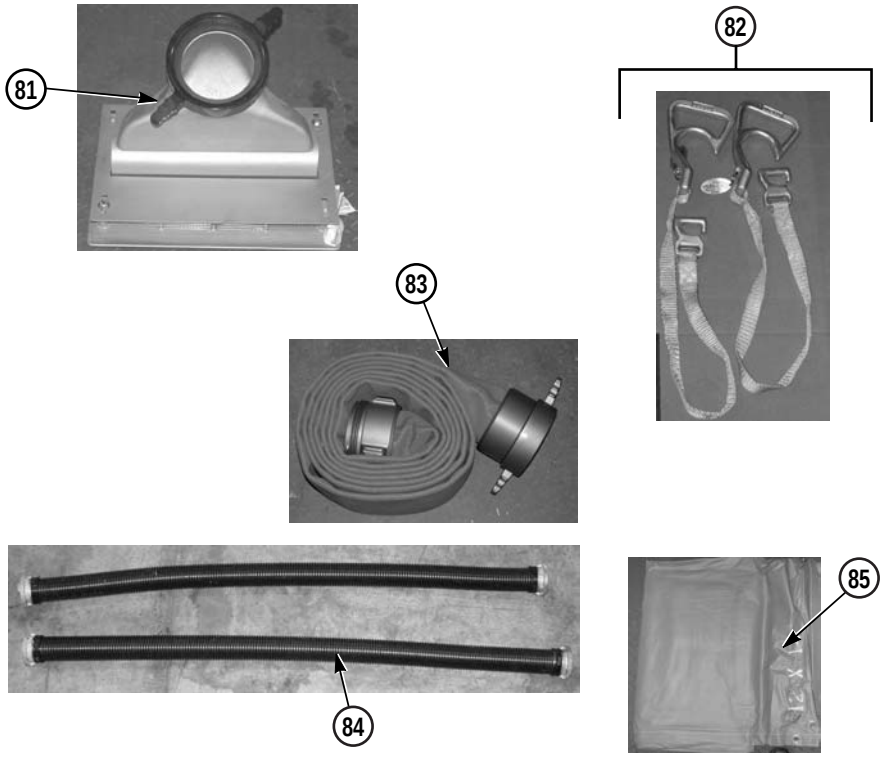






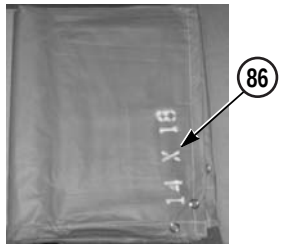
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
75		Shovel, Hand, Long Handle, (51010); RPS-LH	EA	2
76		Shovel, Hand, Long Handle, (51010); SPS-LH	EA	2
77		Siamese 2-2.5 in. FNST x 4 in. FNST, (00912); 1267	EA	1
78	6530-01-265-3583	Sked, Extraction Device, (72446); SK-300	EA	1
79		Splint Kit, Air, (1F3F6); 91150037	EA	1
80		Spreader Bar, Lifting Kit, 1407229	EA	1

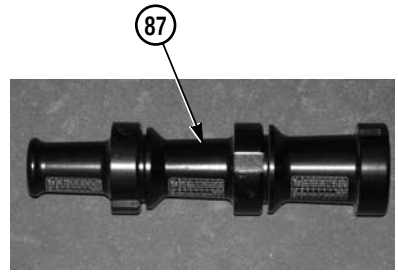
Section II. COMPONENTS OF END ITEM (CONT)

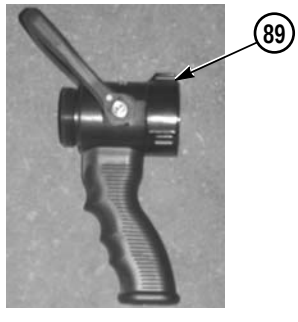


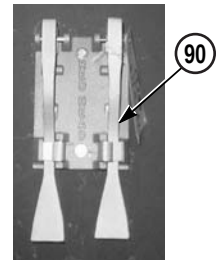
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
81		Strainer, Suction, Low Level, (51010); QD-500-NST		EA	2
82		Strap, Hose and Ladder, (00912); 78		EA	4
83		Suction Hose, Soft, 5 in. x 15 ft., (04664); 1365350		EA	1
84		Suction Hose, Hard, CRRGTD 5 in. x 10 ft., (04664); 33-1035		EA	2
85		Tarpaulin, Vinyl-Nylon, 12 ft. x 14 ft., (04664); 1182623		EA	1

Section II. COMPONENTS OF END ITEM (CONT)



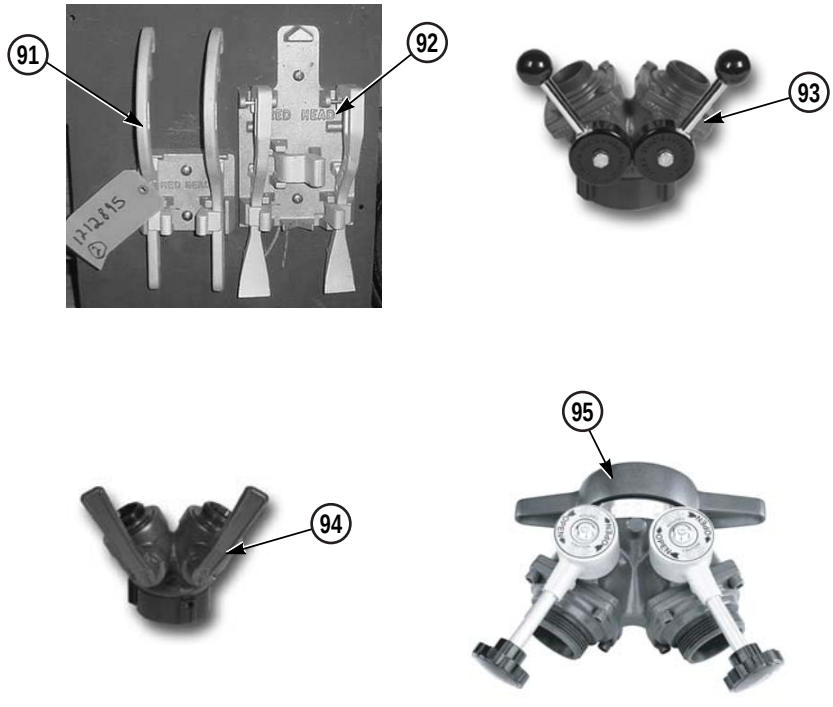






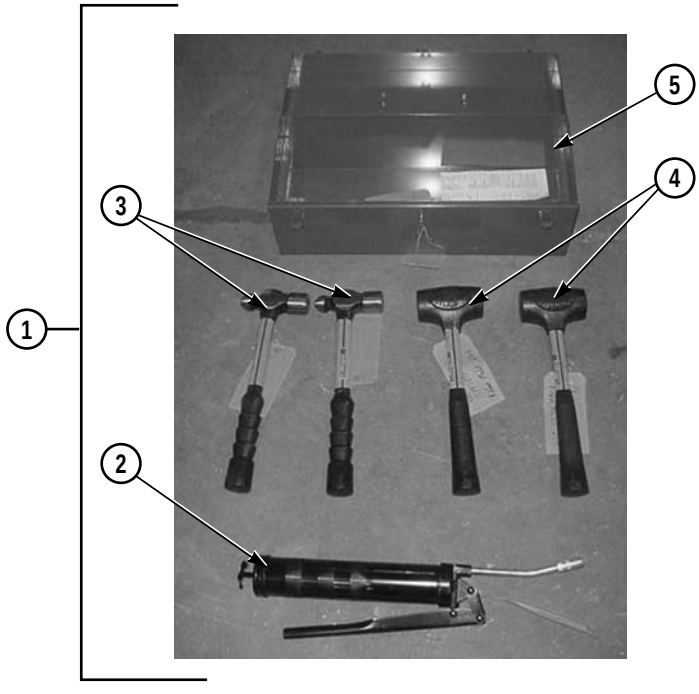
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
86		Tarpaulin, Vinyl-Nylon, 14 ft. x 18 ft., (04664); 1182624		EA	1
87		Tips, Triple Stacked, TFT, (5M752); FS-3STACK		EA	1
88		Trauma Kit O^2 Pro-To-Go, Plus, (04664); 1231132		EA	1
89		Valve, 1.5 in., w/Grip, (00912); 1267		EA	1
90		Wrench Set Spanner, Redhead, (8T694); 146-2		EA	1

Section II. COMPONENTS OF END ITEM (CONT)



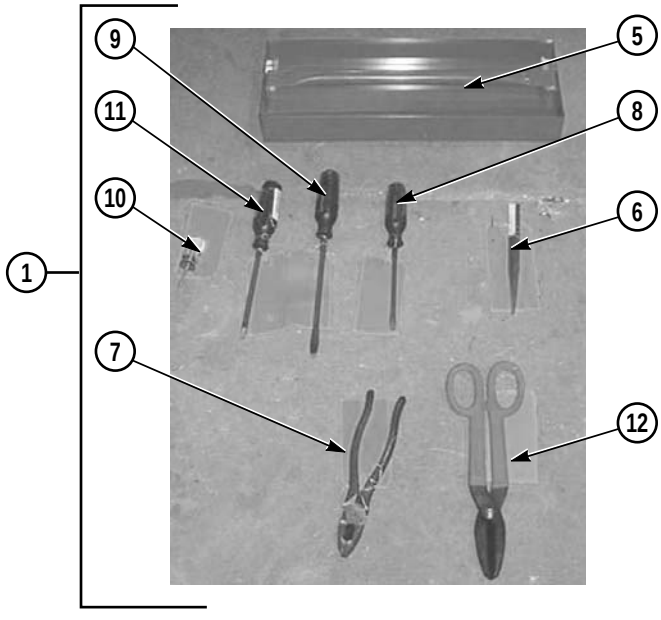
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
91		Wrench Set, Spanner, Redhead, (8T694); 148-3		EA	2
92		Wrench Set, Spanner, Redhead, (8T694); S-146-2		EA	2
93		Wye, Gated, 2.5 in. x (2) 1.5 in., (00912); 03020		EA	1
94		Wye, Gated, 1.5 in. x (2) 1.5 in., (00912); 2580		EA	1
95	4810-01-261-7936	Wye, Gated, 2.5 in. x (2) 2.5 in., (20266); B-97A-2-2½-4½ F		EA	1

Section III. BASIC ISSUE ITEMS



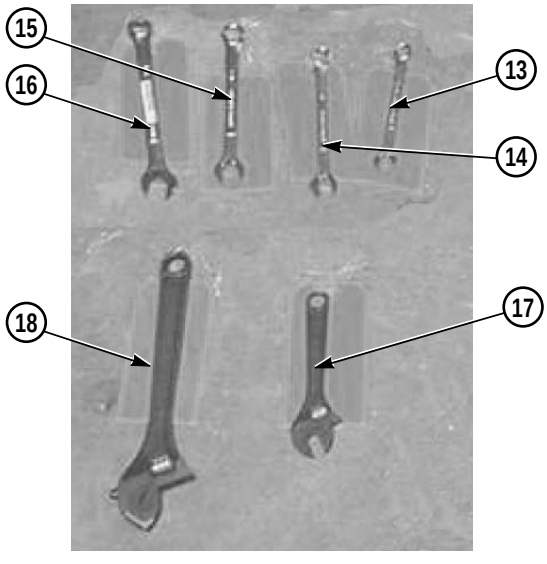
(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No.	Usable On Code	(4) U/I	(5) Qty Rqr
1		Toolbox Kit, Metal, 1366124		EA	1
2	4930-00-253-2478	•Grease Gun, Hand-Operated, (11083); 8F9866		EA	1
3	5120-00-335-1477	•Hammer, Hand, Ball-Peen 1 lb., (55719); BP16B		EA	2
4	5120-00-293-3399	•Rubber Mallet, (80204); 293-3399		EA	2
5		Toolbox, Metal, 1179287		EA	1

Section III. BASIC ISSUE ITEMS (CONT)



(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
6	5110-00-398-9369	• Chisel, Cold, Hand, (53800); 9-42975	EA	1
7		• Pliers, Lineman's, (OTA44); 9-KLD2139NEI	EA	1
8	5120-00-398-9403	• Screwdriver, Flat Tip, (OTA44); 9-47445	EA	1
9	5120-00-398-9404	• Screwdriver, Flat Tip, (OTA44); 9-47447	EA	1
10	5120-00-224-7370	• Screwdriver, Phillips Tip, (64067); 5120-00-224-7370	EA	1
11	5120-00-398-9245	• Screwdriver, Phillips Tip, (OTA44); 9-47437	EA	1
12	5110-00-429-7326	• Shears, Metal Cutting, Hand, (55719); CD14A	EA	1

Section III. BASIC ISSUE ITEMS (CONT)



(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
13	5120-00-935-7370	•Wrench Set, Box and Open End, 7/16 in., (53800); 9-44384	EA	1
14	5120-00-935-7371	•Wrench Set, Box and Open End, 1/2 in., (53800); 9-44385	EA	1
15	5120-00-935-7372	•Wrench Set, Box and Open End, 9/16 in., (53800); 9-44386	EA	1
16	5120-00-935-7373	•Wrench Set, Box and Open End, 5/8 in., (53800); 9-44387	EA	1
17	5120-00-264-3795	•Wrench, Adjustable, Size 6, (99993); 41W10TYPEJ	EA	1
18	5120-00-449-8083	•Wrench, Adjustable, Size 10 (96508); D710	EA	1

APPENDIX C
ADDITIONAL AUTHORIZATION LISTS

SECTION I. INTRODUCTION

C-1. SCOPE.

This appendix lists additional items that are authorized for the support of the M1142 vehicle.

C-2. GENERAL.

The list identifies items that do not have to accompany the M1142 vehicle and that do not have to be turned in with it. These items are all authorized for use by CTA, MTOE, TDA, or JETA.

C-3. EXPLANATION OF LISTING.

National stock numbers, descriptions and quantities are provided to help to identify and request the additional items required to support this equipment. The items are listed in alphabetical sequence by item name under the type document (CTA, MTOE, TDA, or JETA) which authorizes the item(s) to you. If there are different models of the vehicle, and if item(s) required differs for different models of this equipment, the model is shown under the "Usable On Code" heading in this column. If no code is entered in this column, item is used on all models. These code(s) are identified as:

Code	Used On
FFT	M1142

SECTION II. ADDITIONAL AUTHORIZATION LIST

(1) Illus No.	(2) National Stock No.	(3) Description CAGE& Part No. Usable On Code	(4) U/I	(5) Qty Rqr
1	5855-01-485-3429	THERMAL IMAGER (09729)	EA	1
2	6650-01-394-0183	BINOCULARS (13711); 17-5010	EA	1
3		HOTEL PACK/HIGH-RISE PACK (OPXV9) HOSE VICE-200 # HOV-200	EA	1
4		HEAT SENSOR (OPXV9); ST-6	EA	1
5		AX BELTS (OPXV9); 534	EA	1
6		LITTLE GIANT LADDER (OPXV9); 10103	EA	1
7		HEAD BLOCKS FOR BACKBOARD (2T511); FERRO HEAD HUGGER # 455	EA	1
8		RESCUE PULLEYS (OPXV9); 315200	EA	4
9		RESCUE PULLEYS (OPXV9); 315500	EA	4
10		RESCUE PULLEYS (OPXV9); 340004	EA	4
11		ANCHOR STRAPS (OPXV9); 201020	EA	2
12		AIR BAG CHECK VALVE (OPXVP); 890470	EA	4
13		SPOTLIGHT HANDHELD 12 V (OPXV9); MAGNUM, SINGLE STAGE 8.5”, 12 V	EA	1
14		75 FT. EXT CHORD, 20 AMP W/STD MALE CONNECTOR, 5-20P FEMALE CONNECTOR, (OPXV9); SPECIAL ORDER	EA	1

Additional Authorization List (Cont)

(1) Illus No.	(2) National Stock No.	(3) Description CAGE & Part No. Usable On Code	(4) U/I	(5) Qty Rqr
15		RADIO SOFTWARE (78205); HNV9025L	EA	1
16		RADIO PROGRAM CABLE (78205); AARKN4081B	EA	1
17		RADIO PROGRAM CABLE (7825); AARKN4075A	EA	1
18	4210-01-166-8122	WILDLAND HOSE	EA	8
19	4210-01-165-6597	WILDLAND HOSE	EA	8
20	4210-00-640-1892	FIRE HOSE NOZZLES	EA	2
21	4210-01-321-4206	WILDLAND REDUCERS	EA	2
22	7240-00-559-7364	FUNNEL, METAL GOOSENECK; OIL, GAS	BX	1
23	7240-00-404-9795	FUNNEL, PLASTIC; OIL, GAS	BX	1
24		NOZZLE, CELLAR, TASK FORCE TIPS (04664); 1179770	EA	1
25		COUPLING, HOSE STYLE F, 2.5 IN. MALE BST, 2.5 IN. FEMALE NST (04664); 1179772	EA	2
26		COUPLING, HOSE STYLE F, 2.5 IN. MALE BST, 2.5 IN. FEMALE NST (04664); 1179773	EA	2
27		JACKET, FIRE HOSE, STYLE 772 (04664); 1179789	EA	1
28		HOIST, HOSE: AKROLITE (04664); 1179789	EA	1
29		NOZZLE, AUTO, HANDLINE, W/ GRIP (04664); 1364945	EA	2

APPENDIX D
EXPENDABLE SUPPLIES AND MATERIALS LIST

SECTION I. INTRODUCTION

D-1. SCOPE.

This appendix lists expendable supplies and materials that are needed to operate and maintain the M1142 vehicle. These items are authorized by CTA 50-970. This appendix includes expendable items (except Medical, Class V, Repair Parts, and Heraldic Items) and consumable materials.

D-2. EXPLANATION OF COLUMNS.

a. Column (1) - Item Number. This is the number assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, Item 5, Appendix D.")

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew
O - Organizational Maintenance
F - Direct Support Maintenance
H - General Support Maintenance

c. Column (3) - National Stock Number. Indicates the National Stock Number (NSN) assigned to the item and will be used for requisitioning purposes.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. Where applicable, the last line for each item indicates the Commercial and Government Entity (CAGE) in parentheses followed by the part number.

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the *lowest* unit of issue that will satisfy the requirement.

Expendable Supplies and Materials List (Cont)

SECTION II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) Item NO.	(2) Level	(3) National Stock No.	(4) Description	(5) U/M
1	C		Foam, Liquid, Fire Extinguishing: Class B, AFF (AFC-5A) Military Spec. 5-gal container (04664); 1182630	gal
2	C		Foam, Liquid, Fire Extinguishing SILV-EX Class A Foam 5-gal container (04664); 1182631	gal
3	C	9150-01-079-6124	Cleaner, Lubricant A (81349) MIL-L-63460, 4 oz bottle w/ extender tube	oz
4	C		Liquid Defoamer (04664); 95-0989	qt
5	C	9150-00-698-2382	Oil, ATF, Dexron III, Wide Range (04664); 95-1069	qt

APPENDIX F
STOWAGE AND SIGN GUIDE

F-1. SCOPE.

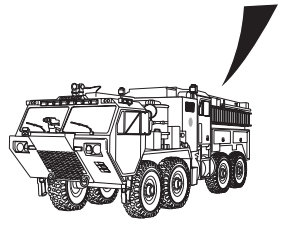
This appendix shows locations for data plates, decals, and stencils that are to be in place on the M1142 series vehicle.

F-2. GENERAL.

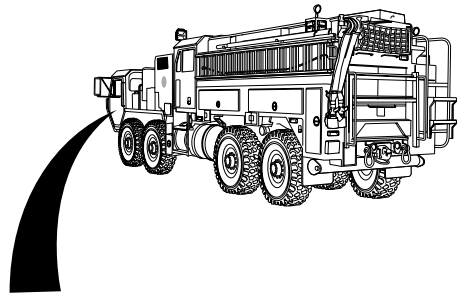
The figures on the next pages show the location of metal signs, decals, and stencils used on the vehicle. Most of these signs and stencils contain cautions or information needed to operate the vehicle safely. For stowage locations of Components of End Items (COEI) and Basic Issue Items (BII), refer to Appendix G.

STOWAGE AND SIGN GUIDE (CONT)

F-2. GENERAL (CONT).

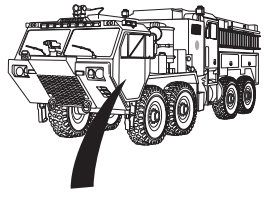


STOWAGE AND SIGN GUIDE (CONT)

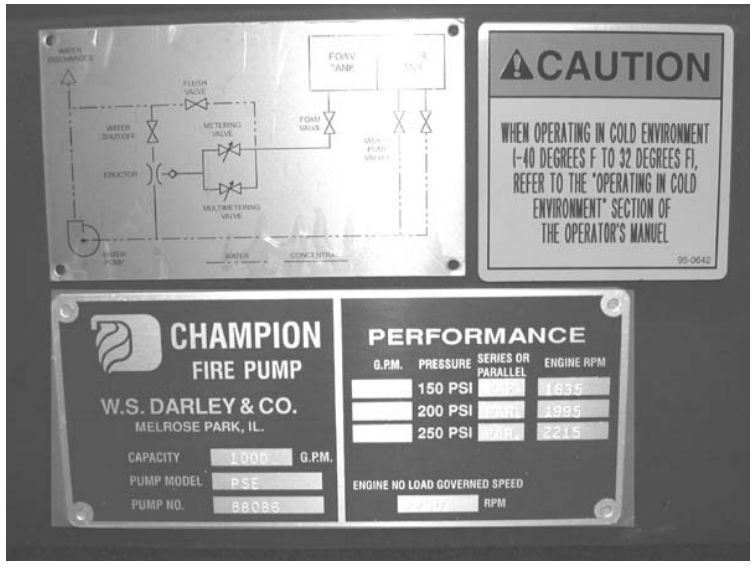


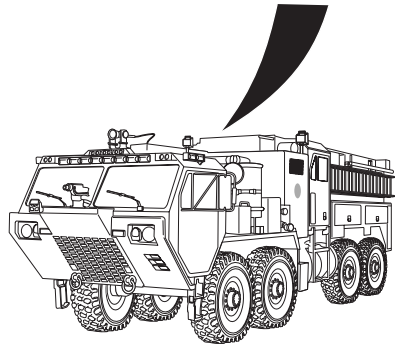
STOWAGE AND SIGN GUIDE (CONT)

F-2. GENERAL (CONT).



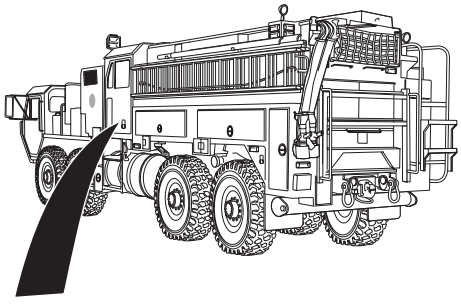
STOWAGE AND SIGN GUIDE (CONT)





STOWAGE AND SIGN GUIDE (CONT)

F-2. GENERAL (CONT).



APPENDIX G
ON-TRUCK EQUIPMENT LOADING PLAN

SECTION I. INTRODUCTION

G-1. SCOPE.

This appendix shows stowage locations for COEI and BII equipment necessary to support the vehicle.

G-2. GENERAL.

Stowage Locations are shown for equipment that must accompany the vehicle at all times. The BII and COEI items are covered in this appendix.

Figure G-1 shows the location of all stowage compartments on the vehicle.

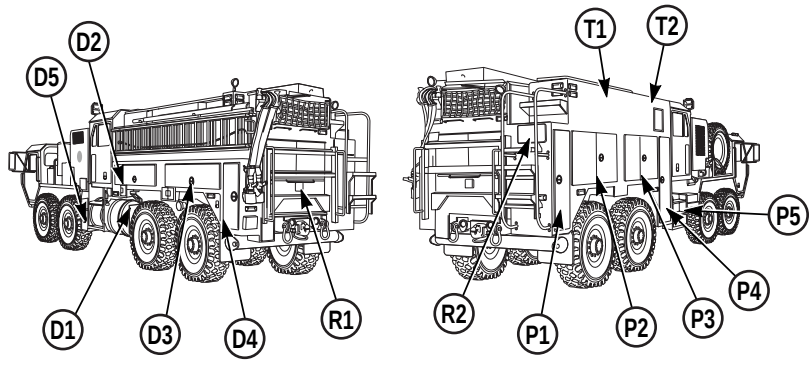


Figure G-1. Location of Stowage Compartments

Section II. ON-TRUCK LOAD PLAN

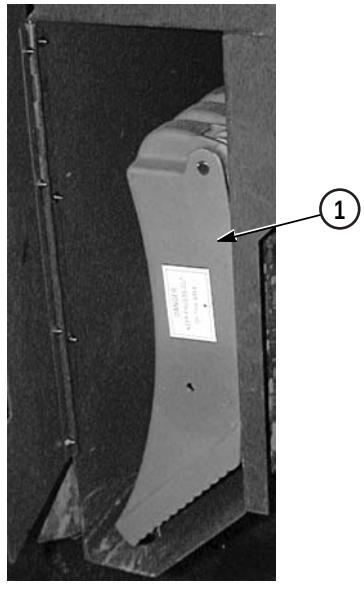


Table G-1. LOAD PLAN (STOWAGE COMPARTMENT D1)

NO.	ITEM
1	Chocks, Wheel, Zico, Folding

Section II. ON-TRUCK LOAD PLAN (CONT)

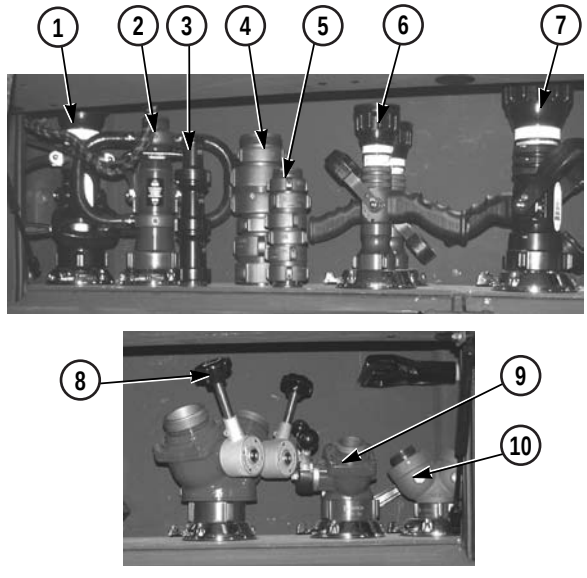


Table G-2. LOAD PLAN (STOWAGE COMPARTMENT D2)

NO.	ITEM
1	Nozzle, Auto Handling, Play Pipe
2	Play Pipe, Nozzle, Fire Hose
3	Tips, Triple-Stacked, TFT
4	Adapter, Double 2.5 in. NST
5	Adapter, Double 1.5 in. NST
6	Nozzle, Automatic, Ultimatic w/Grip
7	Nozzle Automatic, w/Grip
8	Wye, Gated, 2.5 in. x (2) 2.5 in.
9	Wye, Gated, 2.5 in. x (2) 1.5 in.
10	Wye, Gated, 1.5 in. x (2) 1.5 in.

Section II. ON-TRUCK LOAD PLAN (CONT)

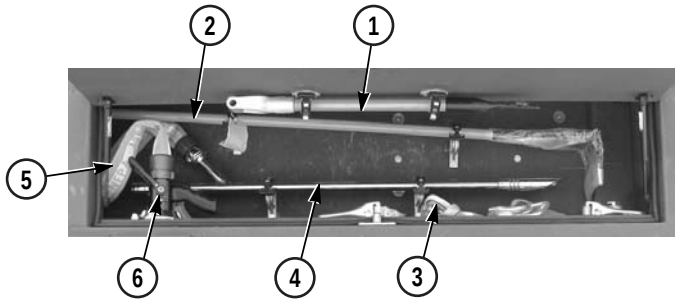


Table G-3. LOAD PLAN (STOWAGE COMPARTMENT D3)

NO.	ITEM
1	Pike Pole, Fiberglass
2	Hook, Trash, Arson
3	Strap, Hose, and Ladder
4	Nozzle, Piercing, Task Force
5	Hose Assy., HI Combat, yellow
6	Valve 1.5 in. w/Grip

Section II. ON-TRUCK LOAD PLAN (CONT)

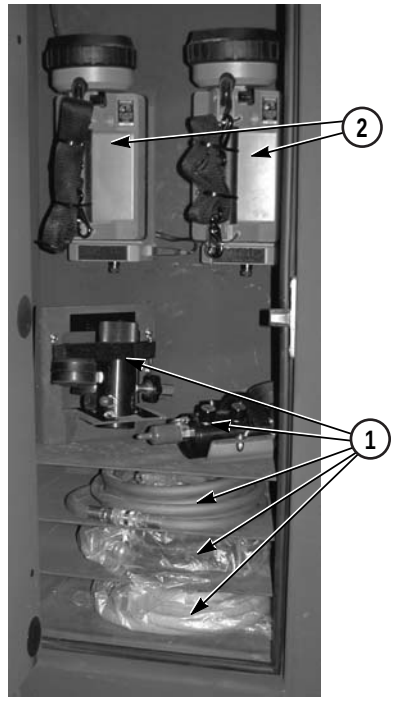


Table G-4. LOAD PLAN (STOWAGE COMPARTMENT D4)

NO.	ITEM
1	Air Lifting Bags Kit
2	Light, Hand, Streamlight Litebox

Section II. ON-TRUCK LOAD PLAN (CONT)

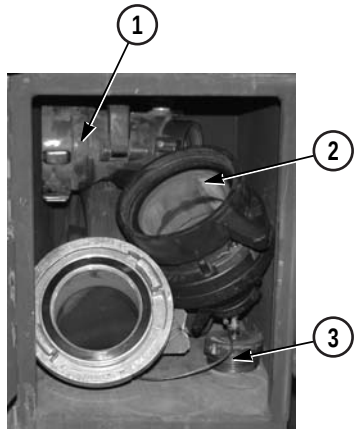


Table G-5. LOAD PLAN (STOWAGE COMPARTMENT D5)

NO.	ITEM
1	Siamese 2-2.5 in. FNST X 4 in. FNST
2	Suction Hose, Soft, 5 in. x 15 ft.
3	Plug, 2.5 in. NST, Cast, w/Air Fitting

Section II. ON-TRUCK LOAD PLAN (CONT)

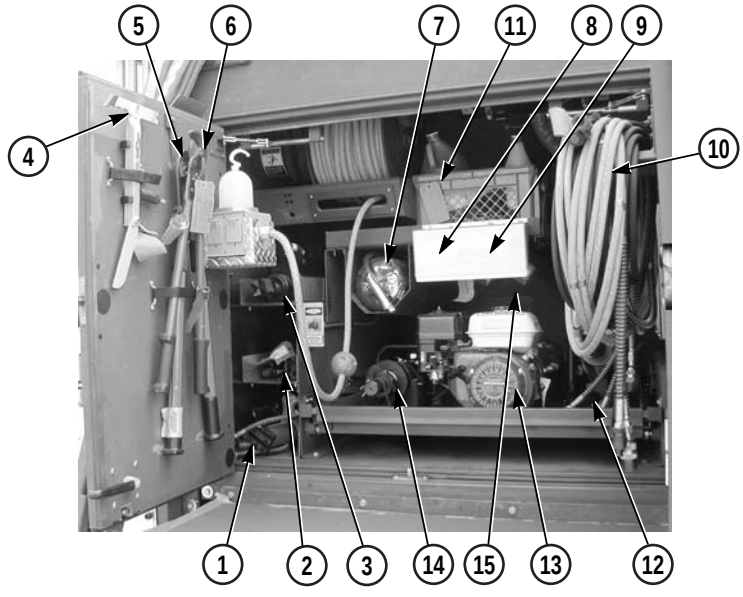


Table G-6. LOAD PLAN (STOWAGE COMPARTMENT R1)

NO.	ITEM
1	R-20 Ram, TNT
2	R-30 Ram, TNT
3	R-40 Ram, TNT
4	Glass Cutting and Removal Tool
5	Cutters, Bolt
6	Cutters, Cable, Hand-Operated
7	Extinguisher, Fire, Water 2.5 gal
8	Crowbar
9	Hammer, Sledge
10	Hose Set, 30 ft.
11	Chain Kit, Rescue
12	S-100-32 Spreader, TNT
13	BT-6.5 Hydraulic Power Unit
14	CC-20 Combination Tool, TNT
15	C-20 Cutter, TNT

Section II. ON-TRUCK LOAD PLAN (CONT)

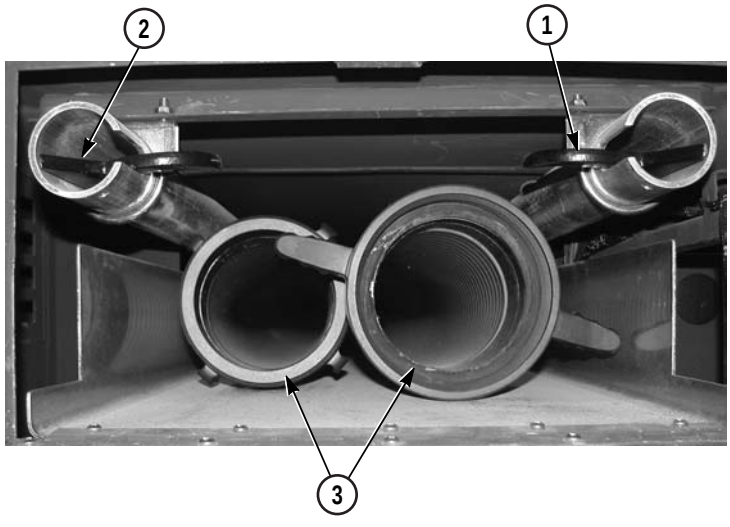


Table G-7. LOAD PLAN (STOWAGE COMPARTMENT R2)

NO.	ITEM
1	Pike Pole, Fiberglass
2	Pike Pole, Fiberglass
3	Suction Hose

Section II. ON-TRUCK LOAD PLAN (CONT)

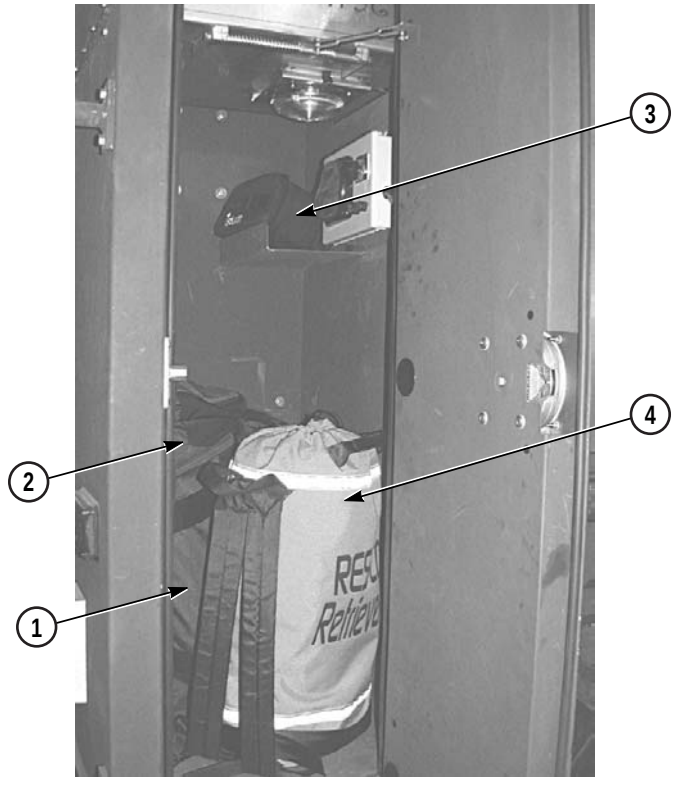


Table G-8. LOAD PLAN (STOWAGE COMPARTMENT P1)

NO.	ITEM
1	Trauma Kit 0² Pro-To-Go Plus
2	Blanket, Burn, Water Gel, 6 ft. x 5 ft.
3	Detector, Millennium, 4 Gas
4	Retriever, RT
5	Sked, Extraction Device (Not Shown)

Section II. ON-TRUCK LOAD PLAN (CONT)

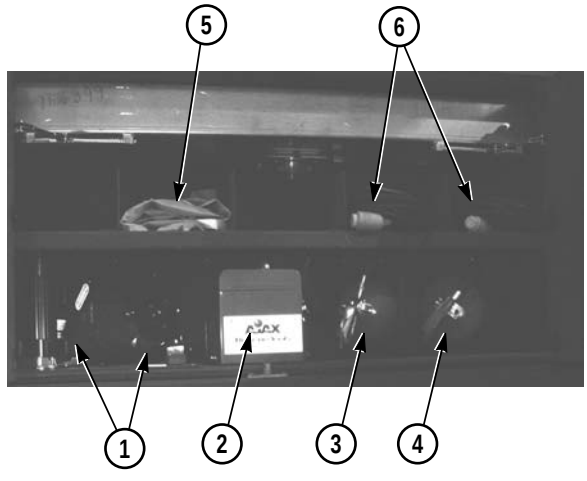


Table G-9. LOAD PLAN (STOWAGE COMPARTMENT P2)

NO.	ITEM
1	Monitor Package, Nozzle Tips
2	Chisel Kit, Air (Air Hammer)
3	Extinguisher, CO_2 Fire
4	Extinguisher, Fire, Dry Chemical 20 lbs.
5	Crash and Rescue Tool Kit
6	Portable Light, Cable

Section II. ON-TRUCK LOAD PLAN (CONT)

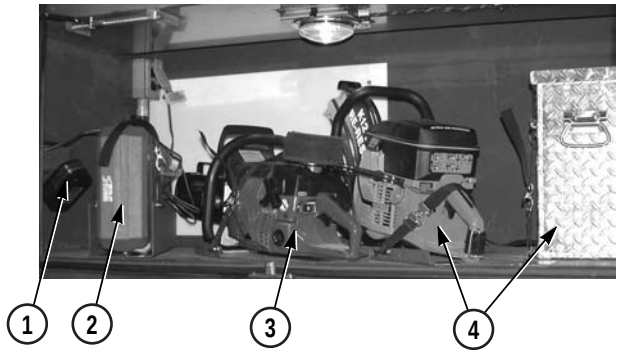


Table G-10. LOAD PLAN (STOWAGE COMPARTMENT P3)

LOAD PLAN (STOWAGE COMPARMENT P3)	
NO.	**ITEM**
1	Reciprocating Saw, Replacement Battery
2	Reciprocating Saw, 18V Cordless
3	Chain Saw, 20 in. Bar, w/Guard
4	Saw, Circular, Blade w/Toolbox

Section II. ON-TRUCK LOAD PLAN (CONT)

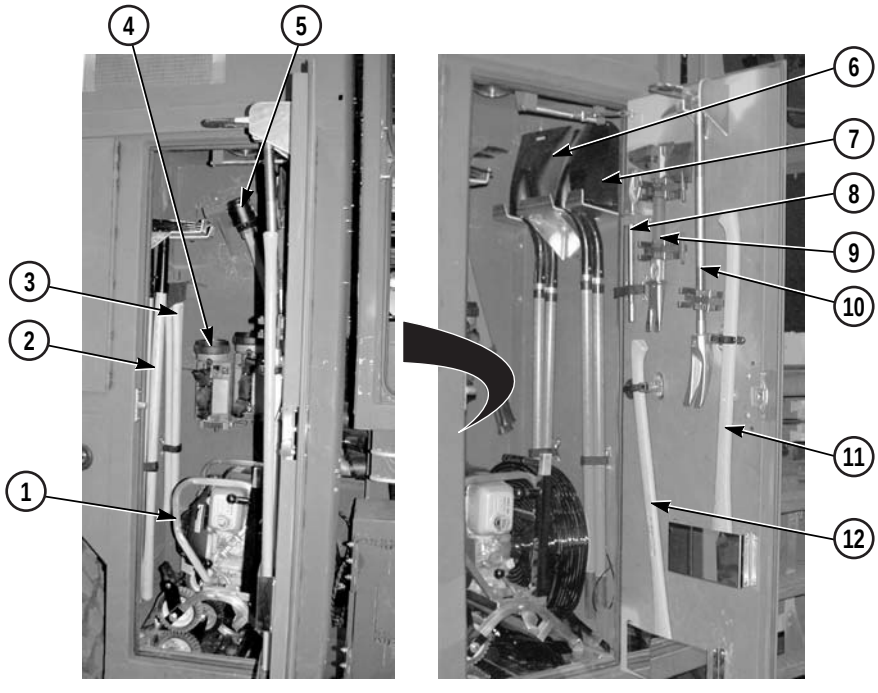


Table G-11. LOAD PLAN (STOWAGE COMPARTMENT P4)

NO.	ITEM
1	Fan, Positive Pressure
2	Forestry Fire Tool “McLeod”
3	Ax, Pulaski, WPL, 35 in. Handle
4	Light, Hand, Streamlight Litebox
5	Matlock, Pick, 5 lbs
6	Shovel, Hand, Long Handle
7	Shovel, Hand, Long Handle
8	Attachment, Pry Axe
9	Ax, Pry, w/Metal Cutting Claw
10	Hooligan Tool
11	Ax, Single Bit
12	Ax, Pick Head

Section II. ON-TRUCK LOAD PLAN (CONT)

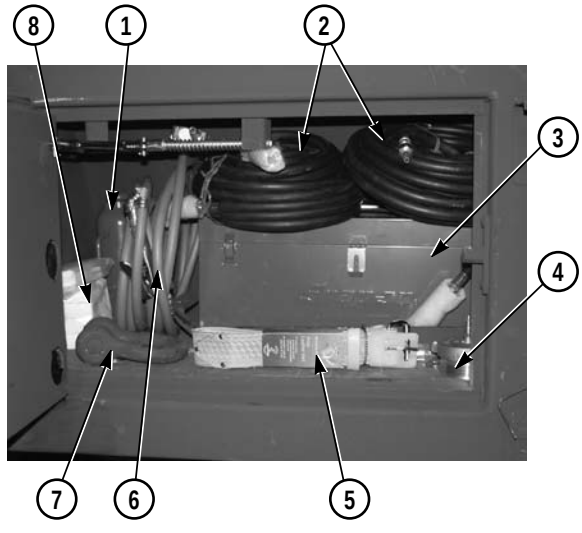


Table G-12. LOAD PLAN (STOWAGE COMPARTMENT P5)

NO.	ITEM
1	Jack, Hydraulic, w/Handle
2	Hose Assembly, Air 300 psi
3	Toolbox (BII)
4	Plug, 2.5 in. NST, Cast, w/Air Fitting
5	Leather Belt
6	Tire Air Hose
7	Shackle, Towing
8	Padlock, without chain

Section II. ON-TRUCK LOAD PLAN (CONT)

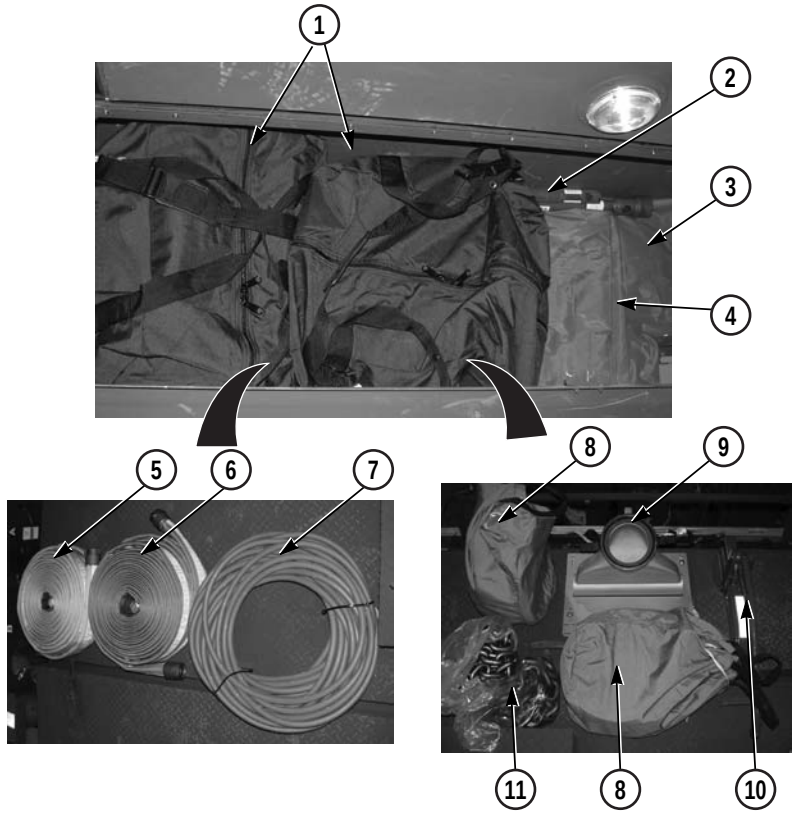


Table G-13. LOAD PLAN (STOWAGE COMPARTMENT T1)

NO.	ITEM
1	Cribbing, Kit, Plastic, Black
2	Tire Lug Removal Kit
3	Tarpaulin, Vinyl-Nylon, 12 ft. x 18 ft.
4	Tarpaulin, Vinyl-Nylon, 14 ft. x 18 ft.
5	Hose Assembly, HI Combat, Yellow
6	Hose Assembly, HI Combat, Green
7	Hose, Assembly, Air LO-P, 150 ft.
8	Rope, 50 in. Diameter w/Bag
9	Strainer, Suction, Low Level
10	Clamp, Fire Hose, Shutoff
11	Chain Kit
12	Drain Hose, Foam Tank (Not Shown)

Section II. ON-TRUCK LOAD PLAN (CONT)

Table G-14. LOAD PLAN (STOWAGE COMPARTMENT T2)

NO.	ITEM
1	Light, Portable

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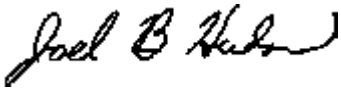
By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0330311

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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)*	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON

** Reference to line numbers within the paragraph or subparagraph.*

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PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

USAPA V3.01

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter=10 Millimeters=0.01 Meters=0.3937 Inches
1 Meter=100 Centimeters=1000 Millimeters=39.37 Inches
1 Kilometer=1000 Meters=0.621 Miles

WEIGHTS
1 Gram=0.001 Kilograms=1000 Milligrams=0.035 Ounces
1 Kilogram=1000 Grams=2.2 Lb
1 Metric Ton=1000 Kilograms=1 Megagram=1.1 Short Tons

LIQUID MEASURE
1 Milliliter=0.001 Liters=0.0338 Fluid Ounces
1 Liter=1000 Milliliters=33.82 Fluid Ounces

SQUARE MEASURE
1 Sq Centimeter=100 Sq Millimeters=0.155 Sq Inches
1 Sq Meter=10,000 Sq Centimeters=10.76 Sq Feet
1 Sq Kilometer=1,000,000 Sq Meters=0.386 Sq Miles

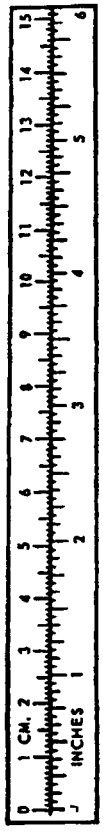
CUBIC MEASURE
1 Cu Centimeter=1000 Cu Millimeters=0.06 Cu Inches
1 Cu Meter=1,000,000 Cu Centimeters=35.31 Cu Feet

TEMPERATURE
5/9 (°F − 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 C° + 32 = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds/Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621



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