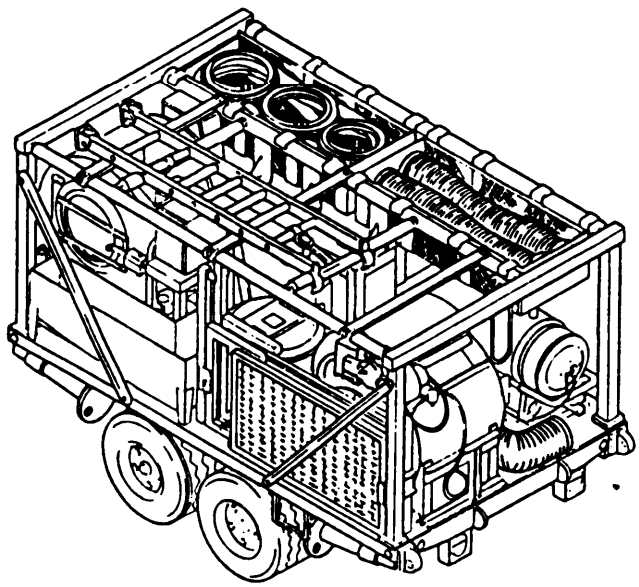
TM 10-3510-220-10

TECHNICAL MANUAL

OPERATOR'S MAINTENANCE MANUAL

LAUNDRY UNIT, TRAILER-MOUNTED MODEL M85-100 NSN 3510-01-291-8169



HEADQUARTERS, DEPARTMENT OF THE ARMY

20 APRIL 1990

CHANGE
NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 30 JULY 1993

Operator's Maintenance Manual

LAUNDRY UNIT, TRAILER-MOUNTED
MODEL M85-100
NSN 3510-01-291-8169

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NO. 1

HEADQUARTERS
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Operator's Maintenance Manual

LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100 NSN 3510-01-291-8169

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WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

Carbon monoxide is without color or smell, but can kill you. Breathing 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 occurs in the 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 ensure operator's safety when the laundry unit is in operation.

1. DO NOT operate laundry unit in an enclosed area without proper ventilation.

2. BE ALERT at all times during operating procedures for carbon monoxide poisoning. If exposure is present, IMMEDIATELY evacuate personnel to fresh air.

3. BE AWARE the field protection mask used for nuclear-biological-chemical attack WILL NOT protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION

WARNING

JEWELRY

Remove rings, bracelets, wristwatches, and neck chains before working around or on the laundry unit. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock.

WARNING

GROUNDING BEFORE OPERATION

Do not operate the unit until the ground terminal stud of the engine-generator set has been connected to a suitable ground. Electrical faults in the engine-generator set, load lines, or load equipment can cause death by electrocution from contact with an ungrounded system.

WARNING

DURING OPERATION

Do not make or change electrical connections while the unit is in operation. The voltage generated by the engine-generator can cause death by electrocution. Keep moisture away from the engine-generator and keep the surrounding area dry when operating the unit. Failure to observe this warning may result in death by electrocution" Do not service the unit with fuel while the unit is in operation. Failure to observe this warning may result in serious injury or death to personnel.

WARNING

HIGH VOLTAGE

Turn off power source before disconnecting. High voltage generated by the power source may cause death or severe injury to personnel.

WARNING

COMPRESSED AIR

Death or serious injury could occur if compressed air is directed against the skin. Do not use compressed air for cleaning or drying unless the pressure is/has been reduced to 30 psi (211 kgcm²) or less. When working with compressed air always use chip guards, eye protection and other personal protective equipment.

WARNING

Do not touch cold metal parts with bare hands. Frostbite can cause permanent injury.

WARNING

CLEANING

Do not direct high-pressure water hose nozzles or steam cleaner nozzles into electrical connections/junction boxes.

WARNING

MOVING PARTS

Be careful not to come in contact with rotating belts or other moving parts. To do so will cause serious injury. If you are injured, obtain medical aid immediately.

WARNING

FLAMMABLE FUELS

Fuels are toxic and flammable. Wear protective goggles and refuel only in a well-ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. If YOU become dizzy, get fresh air immediately and get medical aid. If contact with eyes or skin is made, immediately flush with clean water and get medical aid for eyes immediately.

WARNING

HEARING

Serious hearing loss or deafness could occur if this equipment is operated without professionally-fitted ear protection for operating and maintaining personnel. The noise level for this equipment exceeds the allowable limits for unprotected personnel. Unprotected/unnecessary personnel must be kept out of the immediate area.

WARNING

ELECTRIC SHOCK

Death or serous injury could occur if precautions are not taken when maintaining this equipment. Be sure that any power cables are unplugged/disconnected; that circuit breakers are set to OFF; that generators are OFF; that generator cables are unplugged/disconnected. Be sure that the equipment is properly grounded. Always have another person standing by who is trained in electric shock first aid.

TECHNICAL MANUAL

NO. 10-3510-220-10

HEADQUARTERS
DEPARTMENT' OF THE ARMY
WASHINGTON, D.C., 20 April 1990

OPERATOR'S MAINTENANCE MANUAL
LAUNDRY UNIT,
TRAILER-MOUNTED
MODEL M85-100
NSN 3510-01-291-8169

Current as of 12 April 1990

REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 (Recommended Changes to Equipment Technical Publications) located in the back of this manual direct to: Commander, U.S. Army Aviation and Troop Command, A'ITN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished to you.

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TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

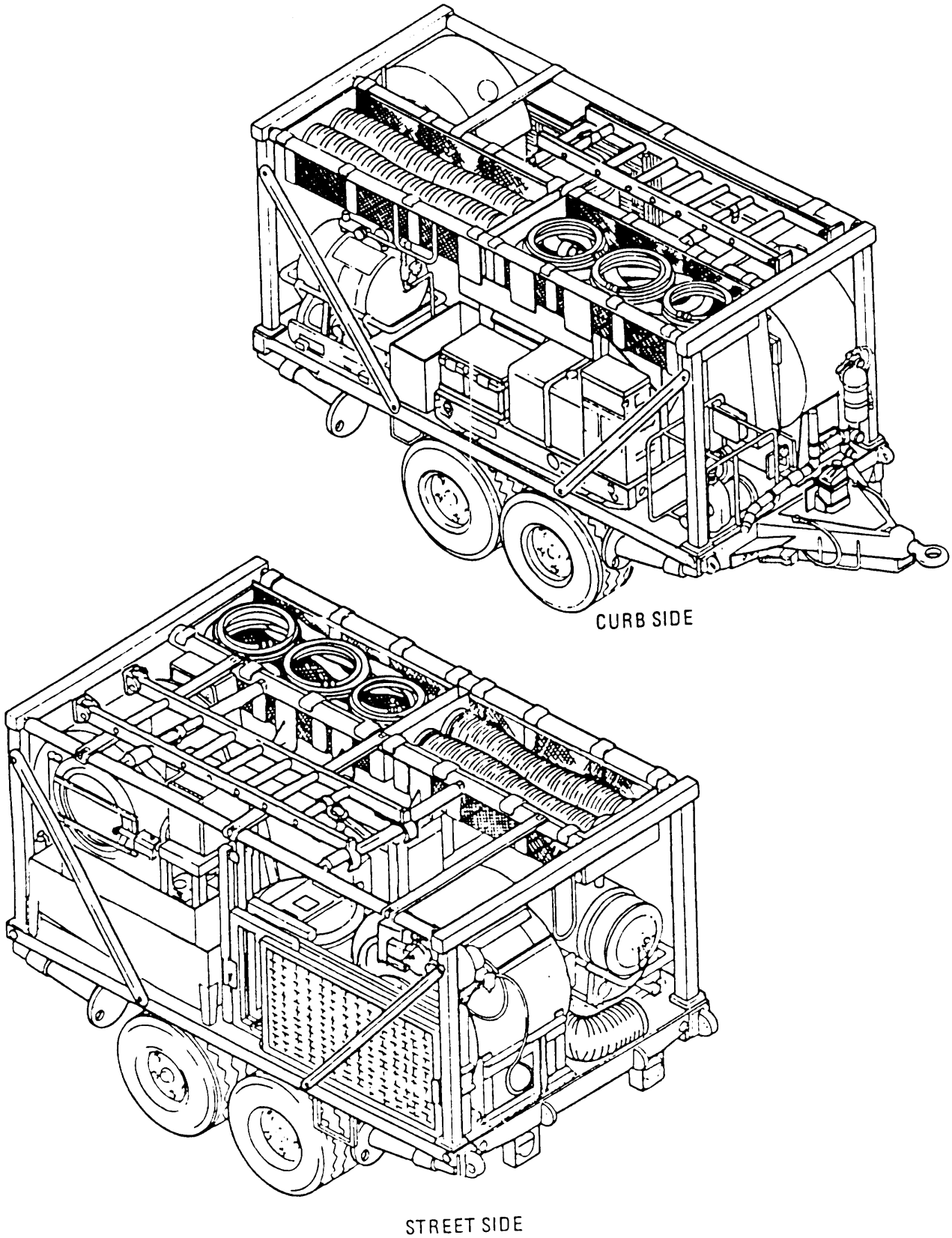


Figure 1-0. Trailer-mounted Laundry Unit M85–100

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE. This operator's manual describes the operating and operator's maintenance procedures for the M85-100 trailer-mounted laundry unit.

1-2. 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).

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR). If your laundry unit needs improvements, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MDO, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. We'll send you a reply.

1-4. WARRANTY INFORMATION. The laundry unit components arc warranted by the manufacturers for 12 months. The warranty starts on the date found in block 23, DA Form 2408-9, in the logbook. Report defects in material or workmanship to your supervisor, who will take appropriate action through your unit maintenance shop. Complete warranty information for the laundry unit will be found in TB 10-3510-220-24.

1-5. METRIC SYSTEM. The equipment described herein contains metric components and requires metric common and special tools; therefore, metric units in addition to English units will be used throughout this publication. See reference information (para 1-6b) for abbreviations. An English-to-metric conversion table is included as the last page of this manual, inside the back cover.

1-6. REFERENCE INFORMATION. This paragraph includes the nomenclature cross-reference list, lists of abbreviations, and an explanation of terms (glossary) used in this manual.

a. Nomenclature Cross-Reference List.

Common Name	Official Nomenclature
Compressor	Compressor, Air
Controller	Control, Programmer
Control Stand	Controller, Stand
Dryer	Drying Tumbler, Laundry
Dryer Bin	Bin Assembly, Dryer
Extractor	Extractor, Laundry
Drain Bin	Bin, Pre-Extraction
Generator Set	Generator Set, Diesel Engine Driven, 10 KW, 60 Hz
Laundry Unit	Laundry Unit, Trailer-Mounted
Platform	Platform, Work

Trailer	Trailer, Cargo, 5-Ton, M10-61E1
Washer	Washing Machine, Laundry, Open-End Type
Water Heater	Heater, Water, Liquid Fuel: M-85

b. Abbreviations

BDU	**Battle Dress Uniform**
BII	**Basic Issue Items List**
CAGE	**Commercial and Government Entity**
CC	**Clockwise**
CCW	**Counterclockwise**
COEI	**Components of End Item**
EIR	**Equipment Improvement Recommendation**
gpm	**Gallons per Minute**
Hz	**Hertz**
hp	**Horsepower**
kg	**Kilogram(s)**
kPa	**Kilopascal(s)**
m	**Meter(s)**
qt	**quart**
rpm	**Revolutions per Minute**
V ac	**Volts Alternating Current**
W	**Watt(s)**
Wt	**Weight .**

c. Glossary

Extract	-	To remove most of the water from a wet wash load by spinning load in a perforated drum.
Hertz	-	Cycles per second of electrical current.
Tumbler	-	Horizontal, rotating drum that tosses wash load about and effects more efficient washing or drying.

Section II. EQUIPMENT DESCRIPTION

1-7. EQUIPMENT CHARACTERISTIC, CAPABILITIES AND FEATURES.

a. Purpose. The unit is to be used in the field to provide regular troop units and hospitals with field laundry service.

b. Capabilities. The laundry unit is a self-contained laundry center with the capability of washing and drying 120 pounds (54 kg) of cotton, woolen, and durable press items in a 1-hour period, with two operators.

c. Features. The laundry unit is mounted on an M10-61E1 tandemwheel trailer. Its mission equipment includes:

NOTE

Some laundry units are equipped with a Water Reuse System.

(1) Open end washer

(2) Extractor

(3) Dryer

(4) M–85 water heater

(5) Water pump

(6) Air compressor

(7) 10-kW diesel generator

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

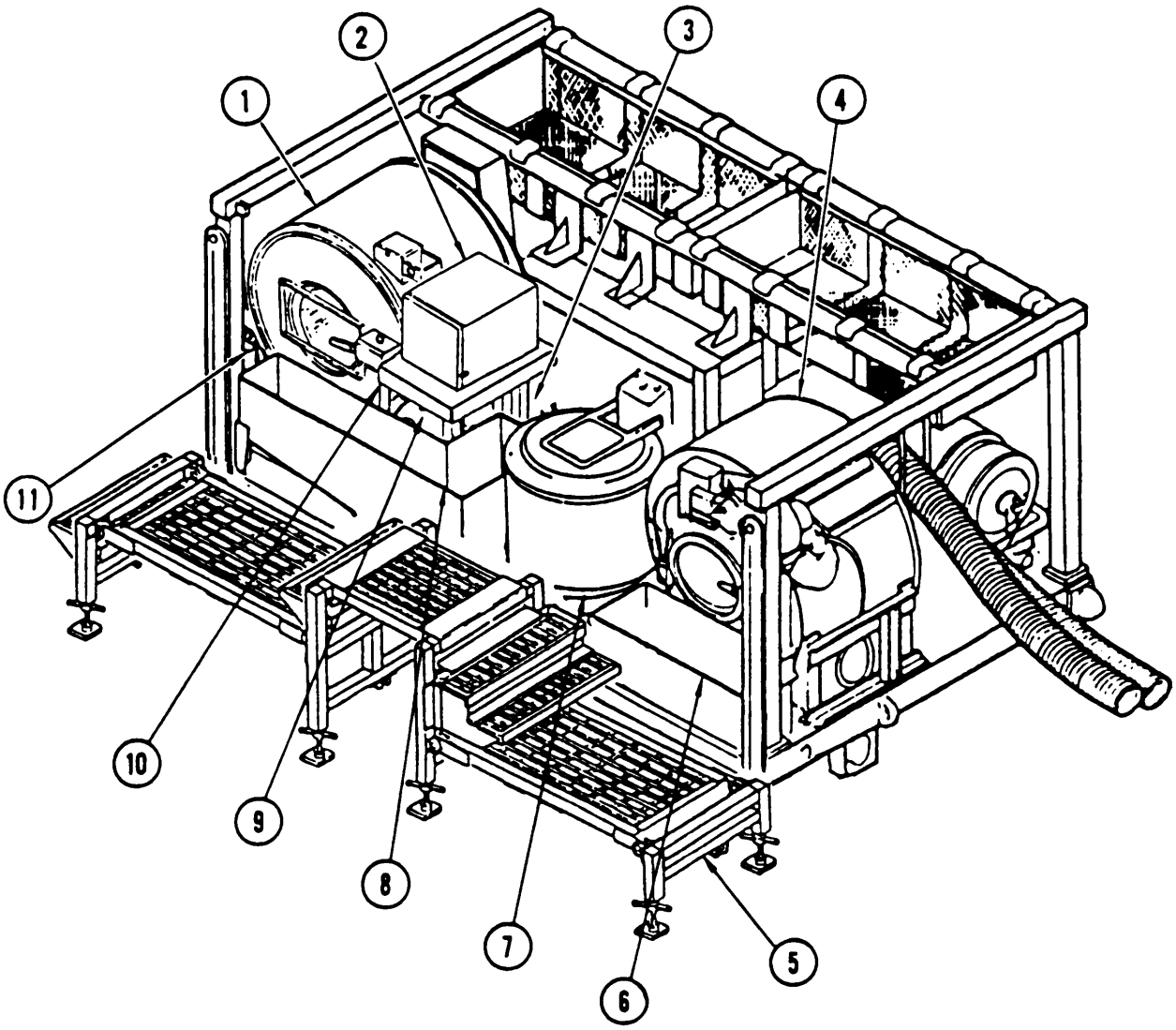
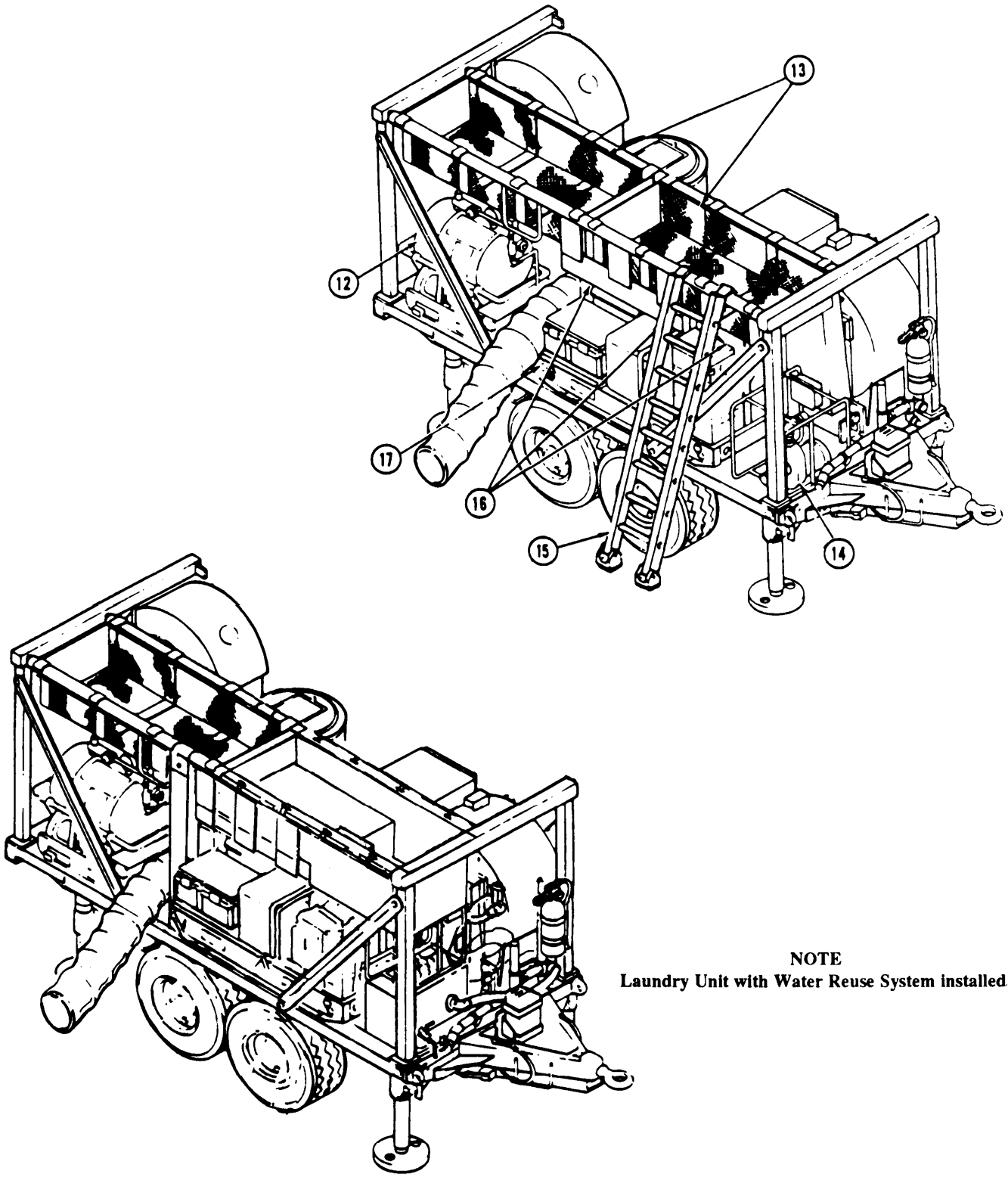


Figure 1-1. M85-100 Trailer-Mounted Laundry Unit Component Location (Sheet 1 of 2)

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT.)



NOTE
Laundry Unit with Water Reuse System installed.

Figure 1-1. M85-100 trailer-Mounted Laundry unit Component Location (Sheet 2 of 2)

1-8. LOCATION AND DESCRIPTION OP MAJOR COMPONENTS (CONT)

NOTE

Some laundry units are equipped with a Water Reuse System which stores rinse water and reuses it in the wash cycle.

1 **WASHER.** Washer (1, Figure 1–1) is an open-end loader, reversible-type cylinder. The washer washes soiled clothes and linen during the wash cycle.

2 **CONTROLLER.** Controller controls the operations of the washer assembly.

3 **CIRCUIT BREAKER BOX.** Circuit breaker box is located behind control stand (10) and provides safety cutouts for electrical circuits.

4 **DRYER.** Dryer assembly is an open-end, nonreversible–type cylinder. The dryer dries the clothes after they are removed horn the extractor.

5 **PLATFORM.** Platform provides the operator with a place to stand and walk while operating the laundry unit.

6 **DRYER BIN.** Dryer bin provides a holding place for the dry clothes after they are removed from the dryer. During transport the dryer bin is stored on the right-hand side of the trailer.

7 **EXTRACTOR.** Extractor is a heavy-duty, top-loading-type cylinder. It removes excess water from the clothes before they are placed in the dryer.

8 **PRE-EXTRACTION BIN.** Pre-extraction bin provides a holding place for the wet clothes before they are placed in the extractor.

9 **AIR COMPRESSOR.** Air compressor provides air pressure for the operation of the water valves.

10 **CONTROL STAND.** Control stand is the housing for the controller and compressor.

11 **FIRE EXTINGUISHER.** Portable fire extinguisher is provided for emergency use in case of fire.

12 **WATER HEATER.** Water heater heats incoming water to desired temperatures as needed for the washer.

13 **HOSE BASKET ASSEMBLY.** Hose basket assemblies provide storage for hoses, heater ducts, and other equipment.

14 **WATER PUMP.** Water pump provides the necessary water needed for the laundry unit.

15 **LADDER.** Ladder assists operator in reaching hose baskets.

16 **SOUND DEADENING PANELS.** Sound deadening panels shield the operator from generator noise.

17 **GENERATOR.** Generator provides electrical power to major components of the laundry unit.

1-9. EQUIPMENT DATA

a. Laundry Unit.

Model number	M85-100
Length	18 ft 2 in. (5.54 m)
Height	7 ft 10 in. (2.39 m)
Width	8 ft (2.44 m)
Weight	12,645 lb (5,748 kg)
Power Requirements	Class L, 60 amps, 208/220 V ac, 3-phase
Fuel Requirements	Diesel fuel (item 10, app C)

b. Open-End Washer.

Model number	3626 OEW/NAT
Maximum speed	33 rpm
Capacity	60 lb (27 kg)
Water pressure Required	10 psi (69 kPa) minimum, 75 psi (517 kPa) maximum
Air Pressure Required	30 psi (207 kPa) minimum, 110 psi (758 kPa) maximum)
Volts	208 V ac
Phase.	3
Frequency	60 Hz
Amps.	5.3- 5/2.5
Power rating	1.5 hp (1 119 W)
Motor speed	1725 rpm

c. Extractor.

Model number	605 MIL
Maximum motor speed	1725 rpm
Capacity	30 lb (14 kg)
Volts	208/220 V ac
Phase.	3
Frequency	60 Hz
Amps.	9.3 amps
Power rating	3 hp (2 237 W)
Motor speed	1750 rpm

d. Dryer

(1) Burner Blower and Fuel Pump Motor

Volts	200/230 V ac
Phase.	3
Frequency	60 Hz
Amps.	1.8- 2.0/1.0
Power rating	1/2 hp (373 W)
Motor speed	3450 rpm

1-9. EQUIPMENT DATA. (CONT)

(2) Tumbler Cylinder Motor

Volts	208 V ac
Capacity	30 lb (14 kg)
Phase	3
Frequency	60 Hz
Amps.	2.1 amps
Power rating	1/2 hp (373 W)
Motor speed	1725 rpm

(3) Tumbler Exhaust Motor

Volts	208 V ac
Phase.	3
Frequency	60 Hz
Amps.	2.2 amps
Power rating	1/2 hp (373 W)
Motor speed	1725 rpm

e. Air Compressor.

Model number	GH510B
Volts	208/230 V ac
Phase.	3
Frequency	60 Hz
Amps.	2.0- 1.9/.95
Power rating	1/2 hp (373 W)
Motor speed	1725 rpm

f. Water Heater

Fuel Pump Pressure . . . . 0 to 150 psi (1 034 kPa)

Burner Blower Fuel Pump Motor

Volts	208/220 V ac
Phase.	3
Frequency	60 Hz
Power rating	1/3 hp (249 W)
Motor speed	3450 rpm

g. Water Pump.

Type	Centrifugal, self-priming after initial prime;
Model Number.	3SCE-22/27458-CA-T
Capacity	18-20 gpm (68-76 liters/minute) at 65-foot (19.8 m) head

1-9. EQUIPMENT DATA. (CONT)

Pump Motor

Volts	208/230 V ac
Phase	3
Frequency	60 Hz
Amps.	5.0- 4.6/2.3 amps
Power rating	1.5 hp (1 119W)
Motor speed	3450 rpm

Section III. TECHNICAL PRINCIPLES OF OPERATION

1-10. INTRODUCTION. The laundry system consists of seven functional systems:

a. Washing system

b. Extracting system

c. Drying system

d. Water heating system

e. Water pumping system

f. Air compressor system

g. Generator/power distribution system

1-11. WASHER. The heavy-duty washer is powered by an externally-mounted motor, drive train, and control unit. The washer is controlled either automatically or manually and has a 60-pound 927 kg capacity. Two 60-pound (27 kg) loads can be washed per hour in the automatic mode. Automatic operation is provided by a control unit programmable to regulate all functions of the laundry cycle. These functions are the number of washes and rinses, water level, and water temperature. Charts used to operate the controller are pre-punched with standard cycles. Manual operation has a variable wash time of up to 60 minutes.

1-12. EXTRACTOR. The extractor uses centrifugal force to extract water from the wash load prior to the drying process. It is powered by a 3-hp (2 237 W) motor. The extractor control has a 10-minute variable timer and has a load capacity of 30 pounds (14 kg).

1-13. DRYER. The heavy-duty dryer is powered by an externally--mounted 1/2 hp (373 W) motor and drive train. It has a capacity of 30 pounds (14 kg) per load, approximately four loads per hour. Controls provide for an adjustable range of 15 minutes for the drying cycle. Air is heated by a fuel-fired air heater mounted on the dryer.

1-14. WATER HEATER. The water heater heats incoming water for the washer assembly.

1-15. WATER PUMP. The portable, centrifugal-type water pump is mounted in a carrying frame. The pump is stored on the right front side of the trailer during transport. During use, it is placed near the water source and connected to the facility

by a water output hose and power cable. After the initial prime, the pump will deliver 18 to 20 gallons (68 to 76 liters) of water per minute.

1-16. AIR COMPRESSOR. The air compressor provides air pressure for the operation of washer water intake and drain valves. The adjustable range of compressed air is 20 to 80 psi (138 to 552 kPa).

1-17. GENERATOR AND POWER DISTRIBUTION BOX. The generator is mounted on the right-hand side of the trailer. Refer to TM 5-6115-585-12 for general description. The laundry unit operates on 60-Hertz, 3-phase, 208 V ac power. An electrical panel provides power distribution from the engine generator to the components of the laundry facility. The panel includes the necessary circuit breakers for powering facility components.

CHAPTER 2

OPERATING INSTRUCTIONS

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. INTRODUCTION. This section shows the location and describes the use of controls and indicators you will use in operating your equipment.

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

a. You should know the location and proper use of every control and indicator before operating the laundry unit. Use this section to learn or refresh your memory about each control and indicator and how it works.

b. Refer to TM 5-6115-585-12, Generator Set, Diesel Engine Driven, 10kW, 60 Hz, for generator controls and indicators.

c. For locations and functions of the controls and indicators on the laundry unit, refer to the following figures.

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

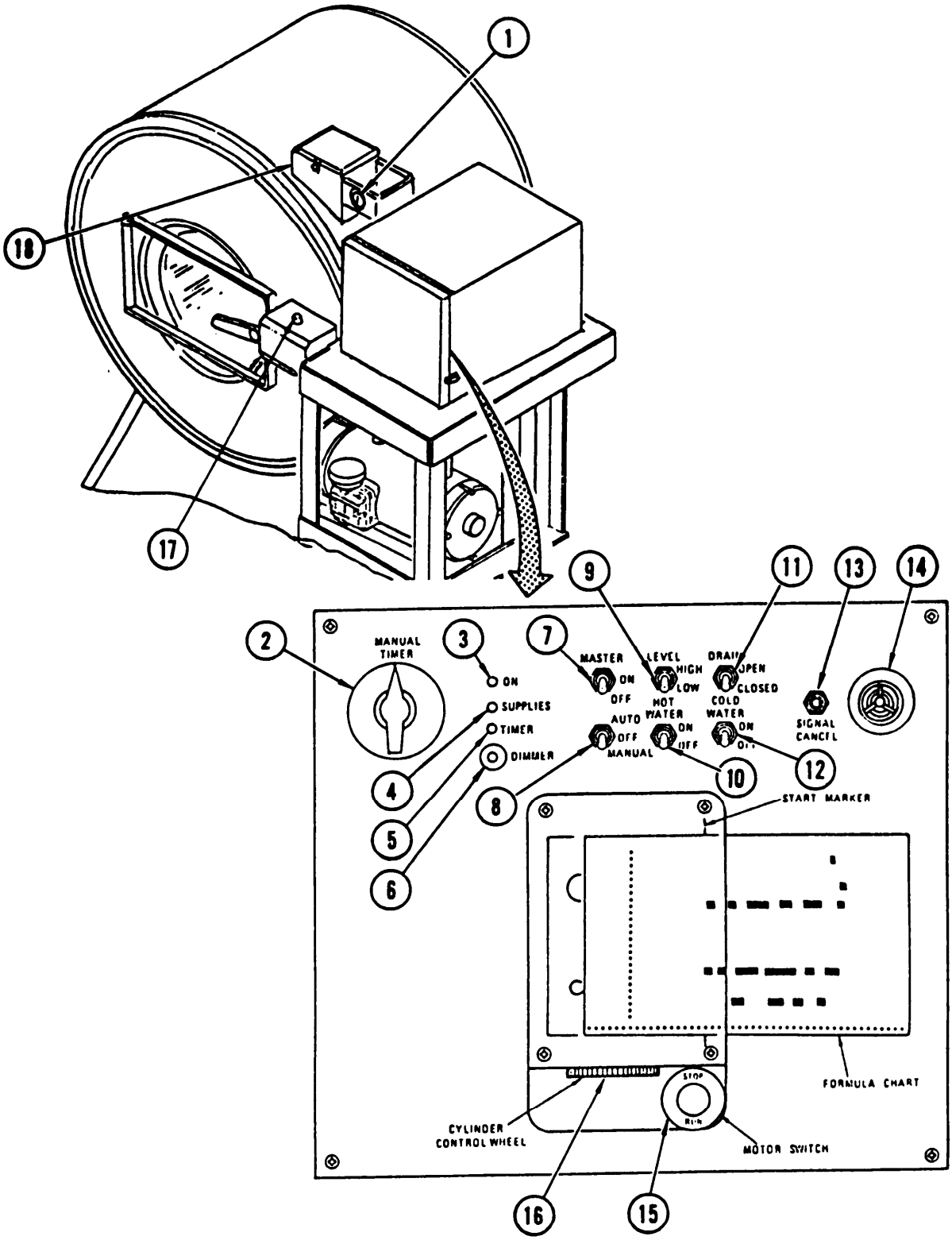


Figure 2-1. Washer System Controls and Indicators

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

Key	Control or Indicator	Function/Use
1	Temperature Gage	Indicates temperature of water coming from water heater.
2	Timer Control	Controls time of operation during manual operation.
3	ON Indicator Light	Indicates machine is on.
4	SUPPLIES Indicator	Indicates to operator that supplies are required in auto mode.
5	TIMER Indicator Light	Indicates time-out or supplies needed in manual mode.
6	DIMMER	Provides control of LED brightness.
7	MASTER Switch	Turns controller on/off.
8	AUTO/MANUAL Switch	Selects auto or manual operation, OFF position enables door lock.
9	WATER LEVEL Switch	Selects high and low water levels.
10	HOT WATER Switch	Turns hot water valve on/off.
11	DRAIN Switch	Opens and closes drain valve.
12	COLD WATER Switch	Turns cold water valve on/off.
13	SIGNAL Cancel Switch	Cancels signal indicator light.
14	SIGNAL	Alerts operator that attention is required at the washer controls.
15	RUN/STOP Knob	Engages/disengages auto mode drive and starts timer.
16	Control Wheel	Manually advances cylinder.
17	Door Unlock Button	Unlocks washer door.
18	Soap Chute	Allows operator to add supplies during the washing cycle.
19	Reset Button (located on Motor Junction Box)	Resets motor circuit breaker.

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

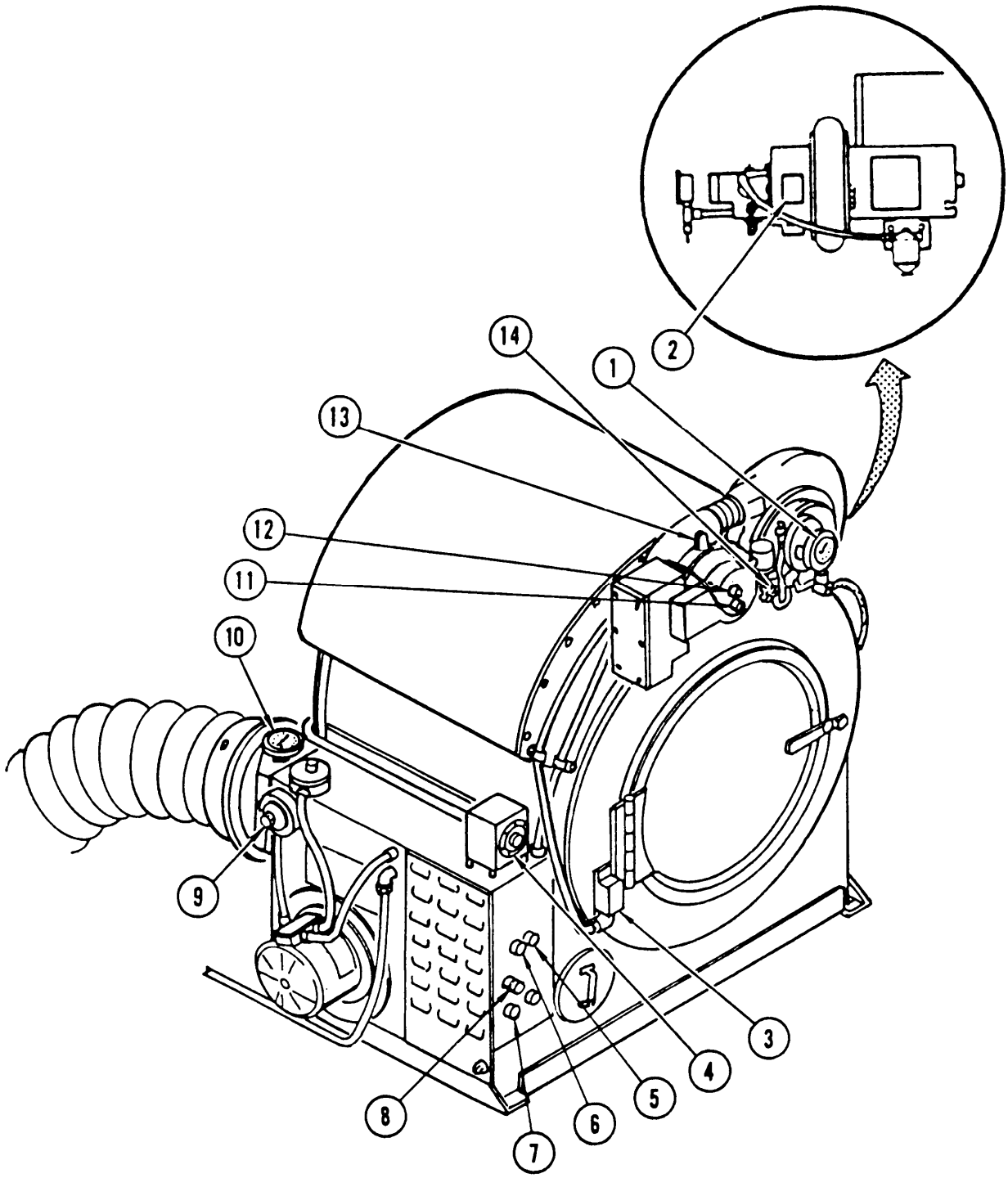


Figure 2-2. Dryer System Controls and Indicators

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

Key	Control or Indicator	Function/Use
1	Fuel Pressure Gage	Indicates pressure of fuel to burner.
2	Burner Air Intake	Controls amount of air to burner. a. Turned downward, increases air to burner. b. Turned upward, decreases air to burner.
3	Door Limit Switch	Stops tumbler rotation when dryer door is opened.
4	Electric Timer	Controls drying time.
5	Stop/Reset Button	Stops blower motor and turns ignition off.
6	Start Button	Starts blower motor and turns ignition on.
7	Buzzers	Alerts operator that a safety shutdown has occurred or that cycle has completed.
8	UV Scanner Indicator Light	Gives visual indication that a safety shutdown has occurred.
9	Temperature Control	Controls temperature inside of tumbler.
10	Exhaust Temperature Gage	Indicates temperature of drying air inside tumbler.
11	UV Scanner	Initiates safety shutdown if flame inside burner goes out.
12	Tumbler Burner Sight Glass	To observe flame inside the burner.
13	Air Shutter	Allows operator to fine-tune air fuel mixture.
14	Burner Fuel Shutoff Valve	Opens and closes fuel supply to burner. a. Turned clockwise, closes valve. b. Turned counterclockwise, opens valve.

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

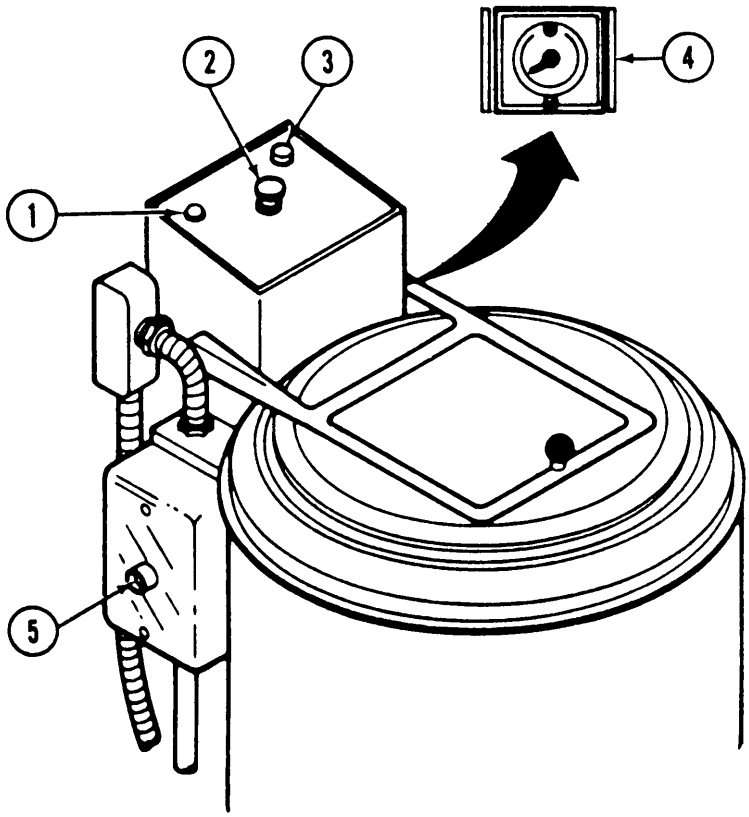


Figure 2-3. Extractor system controls and indicators

Key	Control or Indicator	Function/Use
1	Lid Lock Indicator	Light indicates that lid is locked in closed position.
2	Emergency Stop	Allows the operator to shut down the extractor.
3	Start Button	Starts the extractor motor.
4	Timer Control	Allows the operator to control extractor times.
5	Reset Button	Resets motor circuit breaker.

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

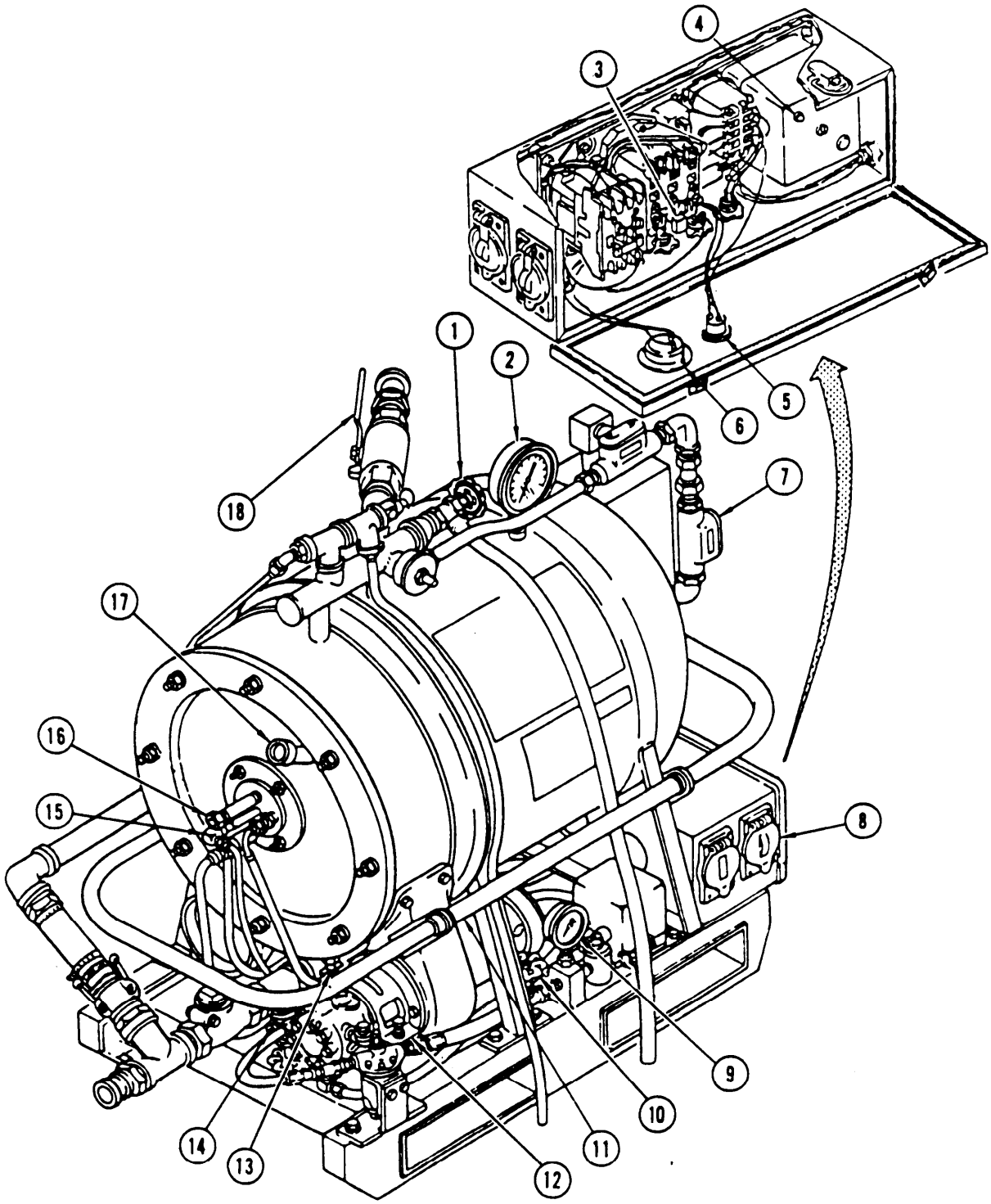


Figure 2-4. Water Heater System Controls and Indicators

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

Key	Control or Indicator	Function/Use
1	Vent Valve	Allows the operator to bleed air from water heater.
2	Water Temperature Gage	Indicates temperature of water being supplied to the washer assembly.
3	Motor Contactor Reset	Over current reset devices that break the circuit to the blower motor, if motor input leads are overloaded.
4	Flame Safeguard Control Reset	Lockout switch for flame safeguard control system. When pressed, resets electrical circuit to allow ignition in water heater combustion chamber.
5	Buzzer	Alerts the operator that his/her attention is needed at the water heater controls.
6	Hour Meter	Indicates length of time that burner has been in operation.
7	Water Temperature Control	A calibrated dial to set the desired outlet water temperature between 0° and 250°F (-18 and +121°C). Operates burner to maintain outlet water temperature between 182° and 210°F (83 and 99°C).
8	Load Limit Switch (Water heater switch)	Single-throw switch used to disconnect power to motor, ignition transformer, and all electrical controls on water heater.
9	Fuel Pressure Gage	Registers pressure of fuel being supplied to burner.
10	Manual Fuel Shutoff Valve	Starts and stops flow of fuel to burner. a. Valve turned clockwise closes valve and stops flow of fuel to burner. b. Valve turned counterclockwise opens valve and starts flow of fuel to burner.
11	Blower Motor Overload Reset	Overload protection for motor. (Located on far side of motor)

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

Key	Control or Indicator	Function/Use
12	Blower Shutter	Increases or decreases amount of air to burner. a. Shutter turned downward increases amount of air to burner. b. Shutter turned upward decreases amount of air to burner.
13	Petcock Valve	Allows operator to drain excess fuel from combustion chamber.
14	Drain Valve	Allows operator to drain water from water heater.
15	UV Scanner	Initiates safety shutdown if flame inside burner goes out.
16	Burner Spark Sight Glass	Allows the operator to observe ignition spark.
17	Sight Glass Assembly	Allows the operator to observe flame inside burner assembly.
18	Hot Water Output Valve	Controls hot water output from the water heater to the washer.

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

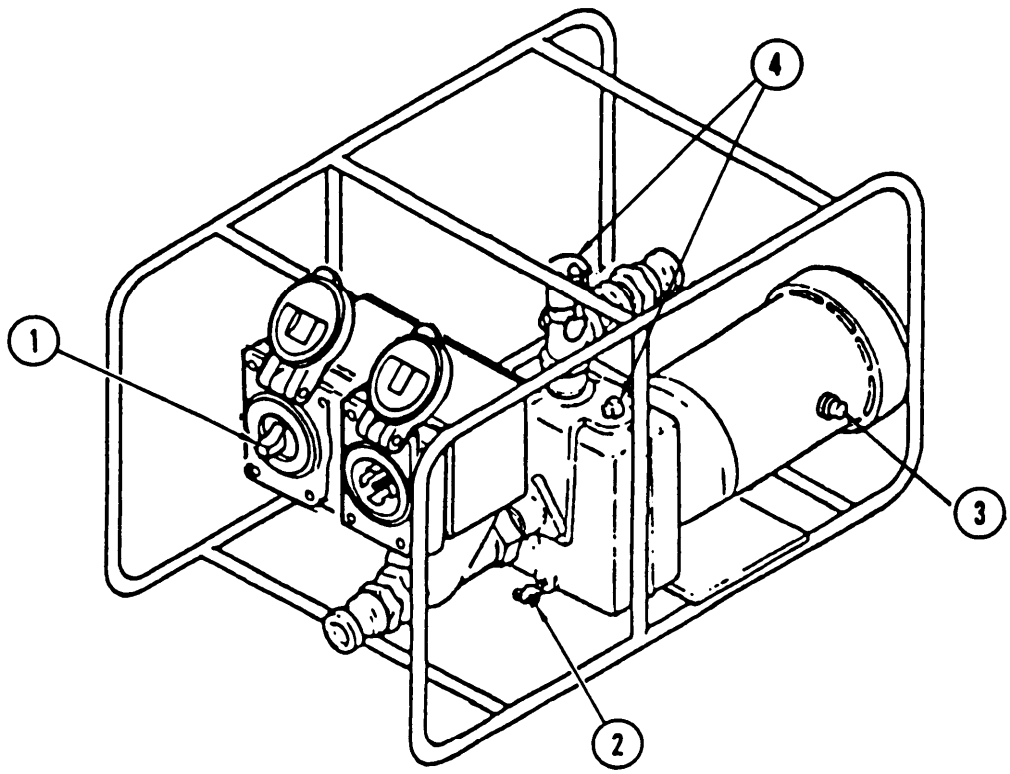


Figure 2-5. Water Pump System Controls and Indicators

Key	Control or Indicator	Function/Use
1	Start Switch	Turns water pump on or off.
2	Petcock Valve	Allows the operator to drain water from water pump.
3	Manual Reset Thermal Protector	Resets motor circuit breaker.
4	Priming Plug	Allows operator to prime pump.

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

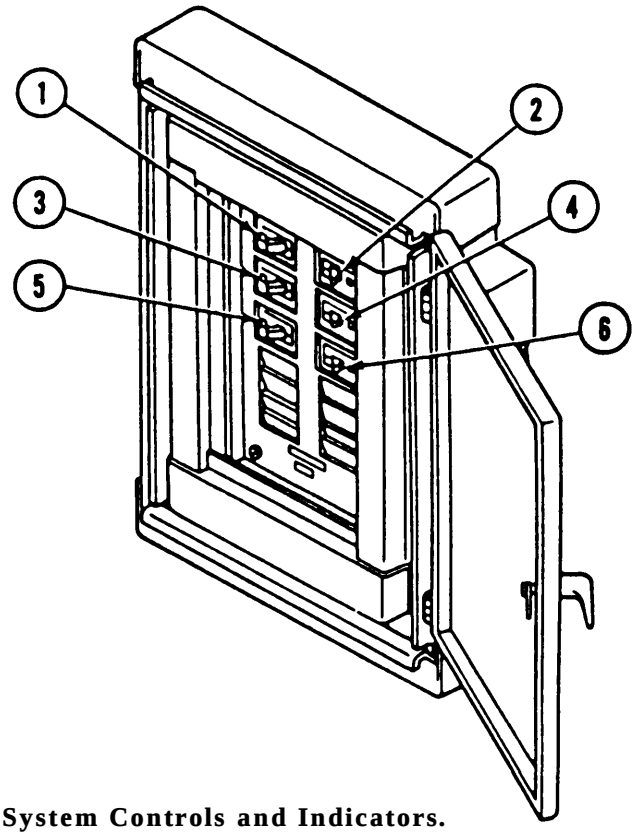


Figure 2-6. Circuit Breaker System Controls and Indicators.

Key	Control or Indicator	Function/Use
1	60-Amp Circuit Breaker	Main circuit breaker for the laundry unit.
2	20-Amp Circuit Breaker	Single-throw switch used to disconnect power to the extractor.
3	20-Amp Circuit Breaker	Single-throw switch used to disconnect power to the compressor.
4	20-Amp Circuit Breaker	Single-throw switch used to disconnect power to the dryer.
5	20-Amp Circuit Breaker	Single-throw switch used to disconnect power to the water heater.
6	20-Amp Circuit Breaker	Single-throw switch used to disconnect power to the washer.

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

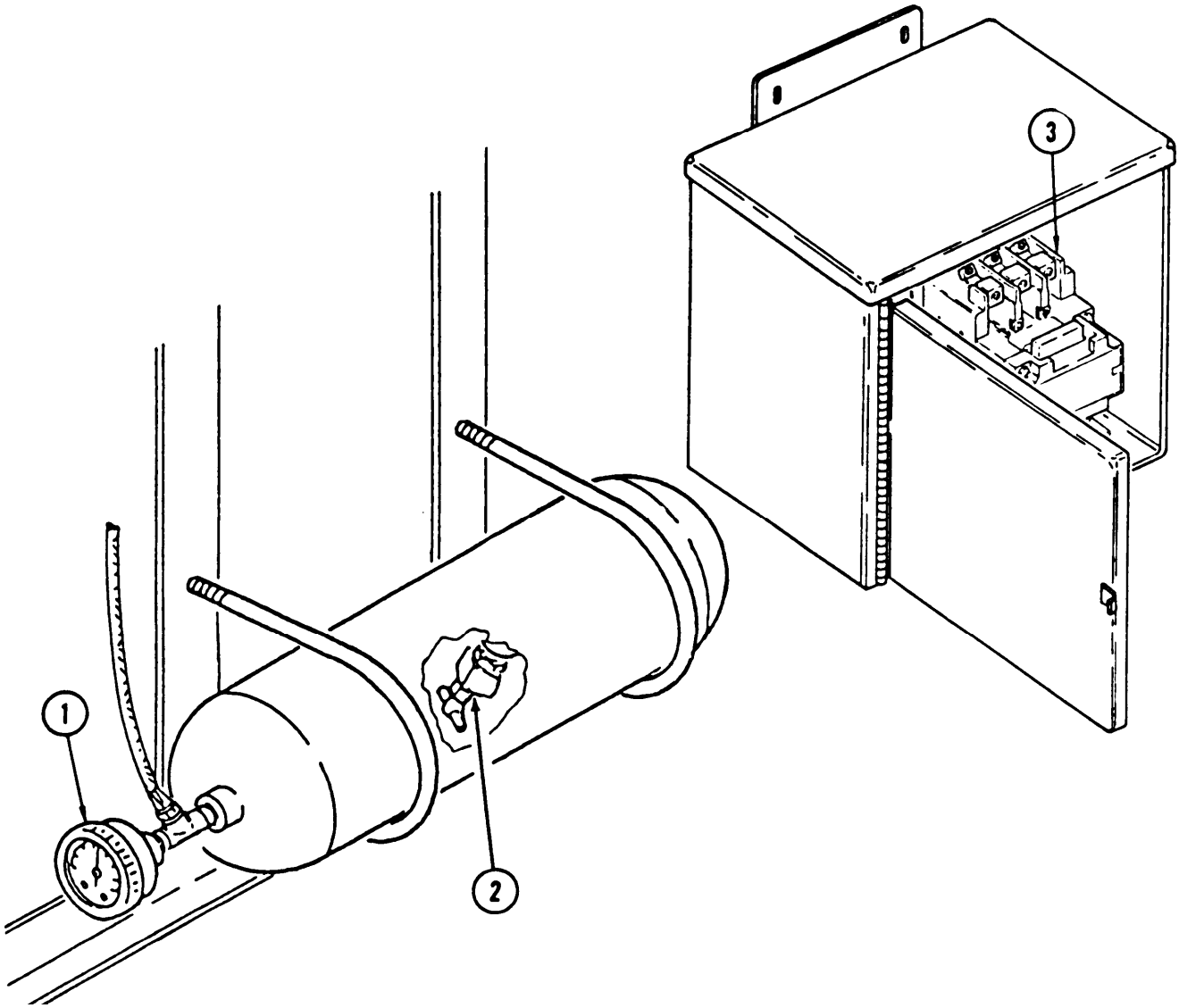


Figure 2-7. Compressed Air System Controls and Indicators

Key	Control or Indicator	Function/Use
1	Pressure Gage	Indicates pressure inside air tank assembly.
2	Drain Valve	Allows operator to bleed air and water from air tank.
3	Motor Starter Reset	Over current reset device that breaks the circuit to the air compressor, if motor input leads are overloaded.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-3. INTRODUCTION.

a. General. Your preventive Maintenance Checks and Services table lists the inspections and care your equipment requires to keep it in good operating condition.

(1) Before you operate - Always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) PMCS.

(2) While you operate - Always keep in mind the CAUTIONS and WARNINGS. Perform your during (D) PMCS.

(3) After you operate - Be sure to perform your after (A) PMCS.

(4) If your equipment fails to operate - If your equipment does not perform as required, refer to chapter 3 under Troubleshooting for possible problems. Report any malfunctions or failures on the proper DA Form 2404, or refer to DA PAM 738-750, the Army Maintenance Management System (TAMMS).

b. PMCS Columnar Entries.

(1) Item number column. This is the order in which you perform checks and services on the laundry unit. The entry in this column will also be used as a source of item numbers for the TM Item Number column on DA Form 2404, equipment inspection and Maintenance worksheet, in recording results of PMCS.

(2) Interval column. The Interval column of your PMCS table tells you when to do a certain check or service.

(3) Item to be inspected column. Identification of item to be inspected.

(4) Procedures column. The Procedures column of your PMCS table tells you how to do the required checks and services. Carefully follow these instructions. If you do not have the tools, or if the procedure tells you to, have the next higher level of maintenance do the work.

2-3. INTRODUCTION. (CONT)

(5) Equipment Is Not Ready/Available If column. Entries in this column will be keyed specifically to checks listed in the Procedures column for the purpose of identifying, for the check, the criteria that will cause the equipment to be classified as not ready/available because of inability to perform its primary Combat mission. An entry in this column will:

(a) Identify conditions that make the equipment not ready/available for readiness reporting.

(b) Deny use of the equipment until corrective maintenance has been performed.

c. Special Instructions.

(1) Perform Weekly (W) as well as Before (B) operations PMCS if:

(a) You are the assigned operator and have not operated the item since the last weekly.

(b) You are operating the item for the first time.

(2) Leakage definitions for operator/crew PMCS shall be classified as follows;

NOTE

Equipment operation is allowable with minor leakage (Class I or II). Of course, you must consider the fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

NOTE

When operating with Class I or II leaks, continue to check fluid levels as required in your PMCS.

NOTE

Class III leaks should be reported to your supervisor.

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

(b) Class II. Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

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

2-4. GENERAL MAINTENANCE PROCEDURES. As you perform your PMCS, keep in mind the following:

a. Cleanness. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem.

b. Bolts, Nuts, and Screws. Check them all for obvious looseness and missing, bent, or broken condition. You cannot try them all with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads. If you find one you think is loose, report it to your supervisor.

c. Welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to your supervisor.

d. Electrical Wires and Connections. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connections and make sure the wires are in good condition. If your find a bad wire or connect or, report it to your supervisor.

e. Water Lines and Fittings. Look for wear, damage, and leaks. Make sure clamp and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, or if something is broken or worn out, report it to your supervisor.

2-5. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES TABLE.

a. See table 2-1 for operator preventive maintenance checks and services (PMCS).

b. Refer to TM 5-6115-585-12, Generator Set, Diesel Engine Driven, 10 kW, 60 Hz, for operator preventive maintenance checks and services (PMCS) for the generator set.

c. Refer to TM 9-2330-376-14&P for operator preventive maintenance checks and services (PMCS) for the laundry unit trailer.

d. The Daily Walk-Around PMCS Routing Diagram will be of help to complete B, D, A, or W PMCS. It shows laundry unit PMCS routing track which matches the sequence of PMCS to be performed.

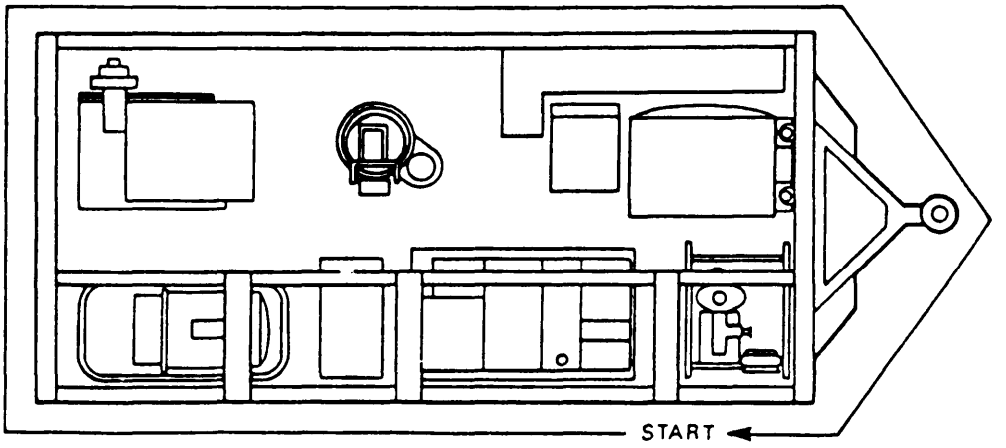


Table 2-1. Operator/Crew preventive Maintenance Checks and Services

NOTE

Within the designated intend, these checks are to be performed in the order listed.

B-Before **D-During** **A-After** **W-Weekly**

Item No.	Interval				Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
	B	D	A	W			
1	•				Water Pump	**NOTE** Perform lubrication prior to or in conjunction with your PMCS. Refer to LO 10-3510-220-12.	
						Electric motor (1): Inspect for obstruction to ventilation and for loose mounting.	Motor is loose.

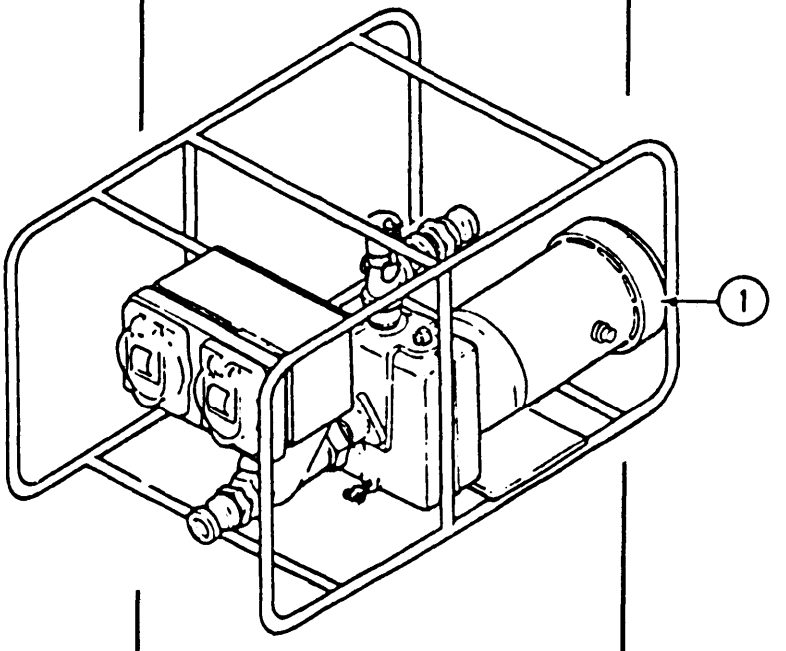


Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

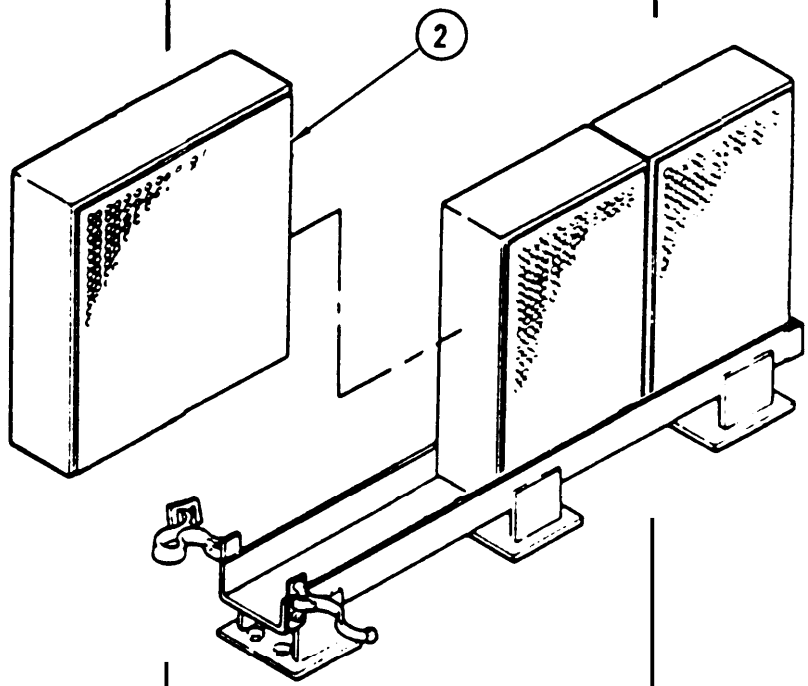
Item No.	Interval				Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
	B	D	A	W			
2	•				Generator	 **a.** Remove large sound deadening panel (2) and perform generator PMCS. Refer to TM 5-6115-585-12. **b.** Remove protective cover on top of batteries and perform PMCS. Refer to TM 5-6115-585-12	

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

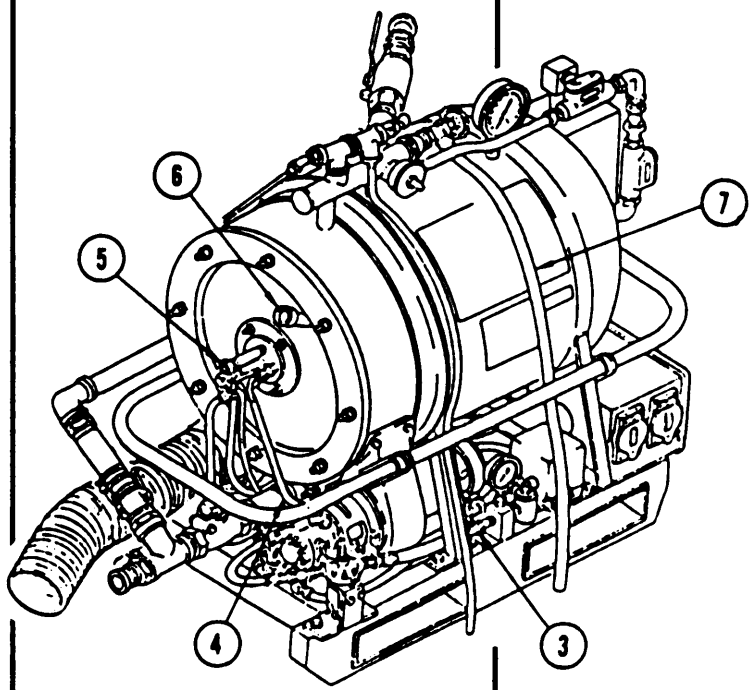
Item No.	Interval				Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
	B	D	A	W			
3	•				Water Heater		
						a. Fuel shutoff valve (3): Place valve in the open position and check for catching or binding. **NOTE** Valve closes CC. Valve opens CCW.	There is catching or binding during rotation.
						b. Ignition cables (4): Inspect for crushed, broken, and loose cables. Secure loose cables.	Cables are crushed or broken.
						c. Sight glass assembly (5) and combustion sight glass assembly (6): Inspect for broken or missing glass. Be sure sight glass assembly is secure and clean.	Glass is broken or missing.
						d. Bleeder valve hose (7): Inspect hose to see if it is loose or missing.	Hose is missing.

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

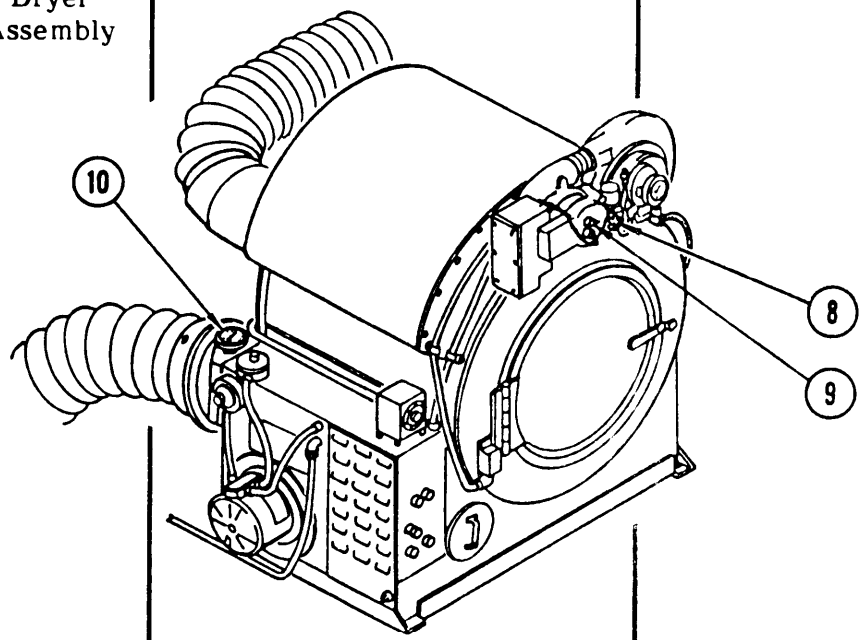
Item No.	Interval				Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
	B	D	A	W			
4	•				Dryer Assembly		
						a. Fuel shutoff valve (8): Place valve in the open position and check for catching or binding. **NOTE** Valve closes CC. Valve opens CCW.	There is catching or binding during rotation.
						b. Sight glass assembly (9): Inspect for broken or missing glass. Be sure sight glass assembly is secure and clean.	Glass is broken or missing.
						c. Inspect for lint collection around thermostat and temperature sensor (10)	Lint has collected around sensor.

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

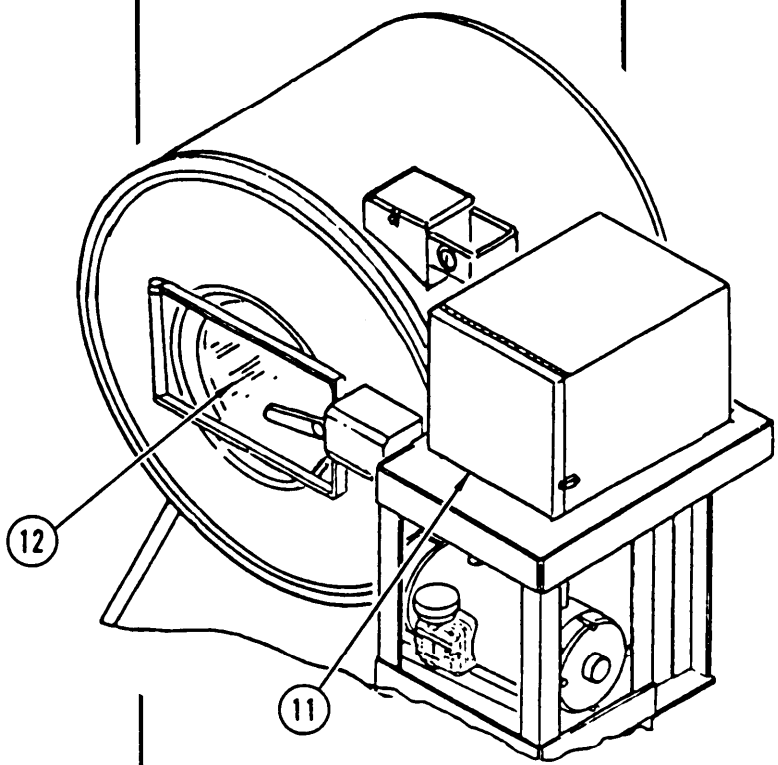
Item No.	Interval B	D	A	W	Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
5	•				Washer Assembly		
						a. Controller assembly (11): Inspect for switch damage, faceplate damage to timer, clean as required.	Faceplate is damaged or broken.
						b. Washer door assembly (12): Inspect glass and seal for cracks, breaks, and missing glass.	Glass is broken or missing.

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

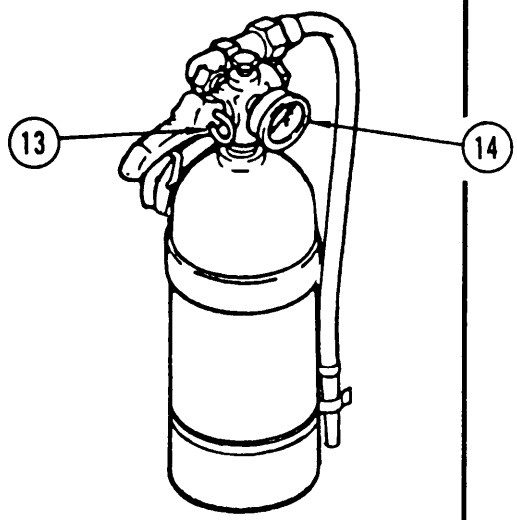
Item No.	Interval				Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
	B	D	A	W			
6	•				Fire Extinguisher	 **a.** Inspect fire extinguisher pin (13) for damaged or missing condition. **b.** Inspect pressure gage (14) for indication of being fully charged.	Fire extinguisher not fully charged.

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

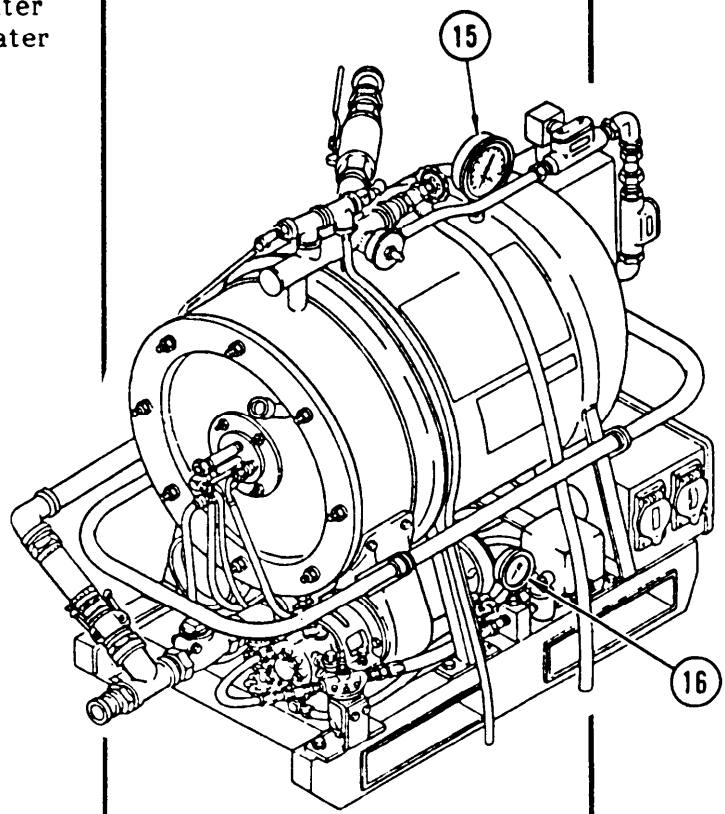
Item No.	Interval B	Interval D	Interval A	Interval W	Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
7		•			Water Heater		
						a. Gages: After starting water heater, check for the following:	
						1. Temperature gage (15): Normal indication 95 to 160°F (35 to 71°C)	Gage is broken or indicating above 160°F (71°C) or below 95°F (35°C).
						2. Fuel pressure gage (16): Normal indication 75 to 80 psi (517 to 552 kPa).	Gage is broken or indicating above 80 psi (552 kpa) or below 75 psi (517 kpa).

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

Item No.	Interval B	Interval D	Interval A	Interval W	Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
7 (cont)		•				**Warning** *Exhaust ducts become very hot during operation. Wear protective gloves when handling hot exhaust ducts. Failure to wear protective gloves could result in severe burns.*	
						b. Exhaust duct (17): Visually inspect exhaust duct for leaks.	Exhaust leaks.
						c. Fuel pump, filter, and lines: Inspect for fuel leaks and for kinked or crushed fuel lines.	Lines are leaking, kinked, or crushed.
						d. Water hoses and lines: Inspect for water leaks and for kinked or crushed hoses or lines.	Hoses or lines are leaking, kinked or crushed.

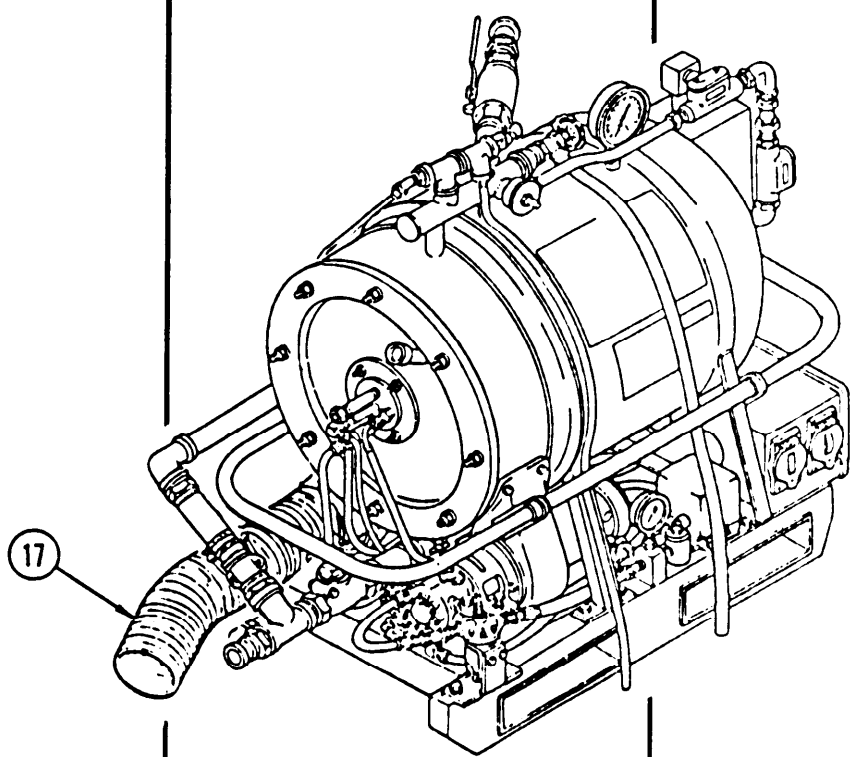


Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

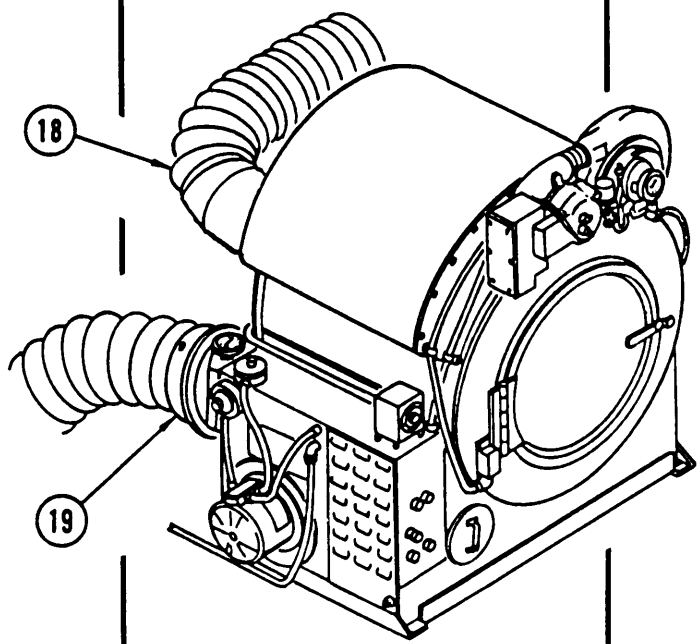
Item No.	Interval				Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
	B	D	A	W			
8		•			Dryer Assembly		
						WARNING *Exhaust ducts become very hot during operation. Wear protective gloves when handling hot exhaust ducts. Failure to wear protective gloves could result in severe burns.*	
						a. Exhaust duct (18): Visually inspect exhaust duct for leaks.	Exhaust leaks.
						b. Fuel pump, filter, and lines: Inspect for fuel leaks and for kinked or crushed fuel lines.	Fuel is leaking or if lines are kinked or crushed.
						c. Inspect for lint collection around thermostat and temperature sensor (19)	Lint has collected around sensor.

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

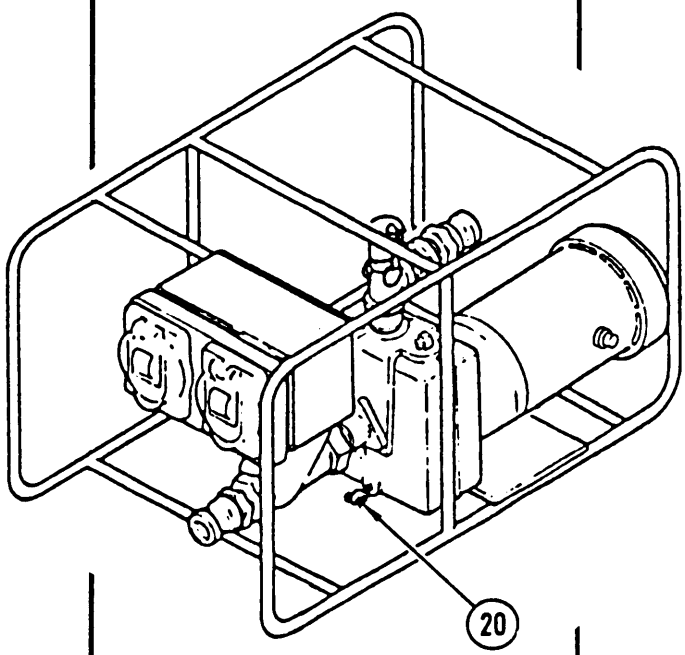
Item No.	Interval				Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
	B	D	A	W			
9			•		Water Pump	 **a.** Petcock valve (20): Place valve in the open position to drain excess water from the water pump. **NOTE** Valve closes CC. Valve opens CCW.	

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

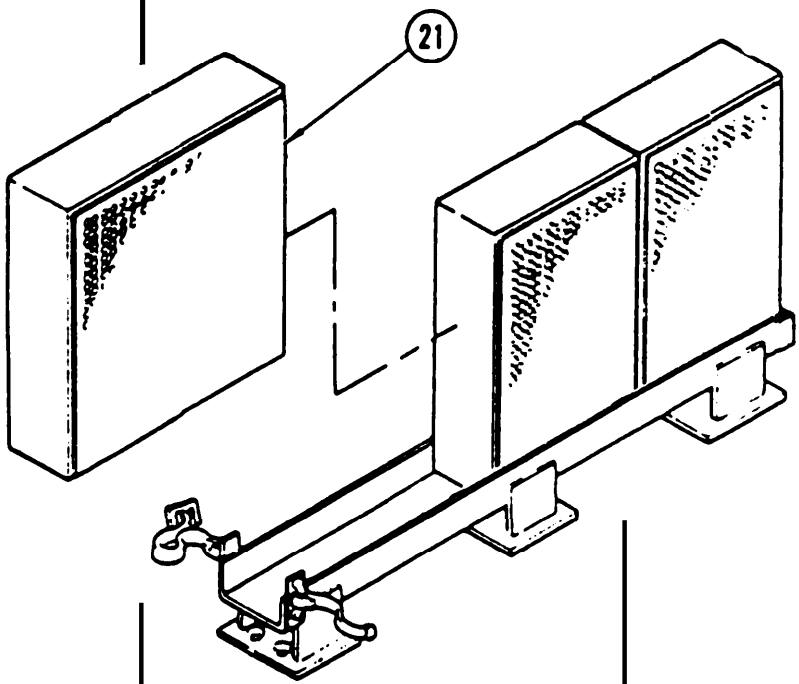
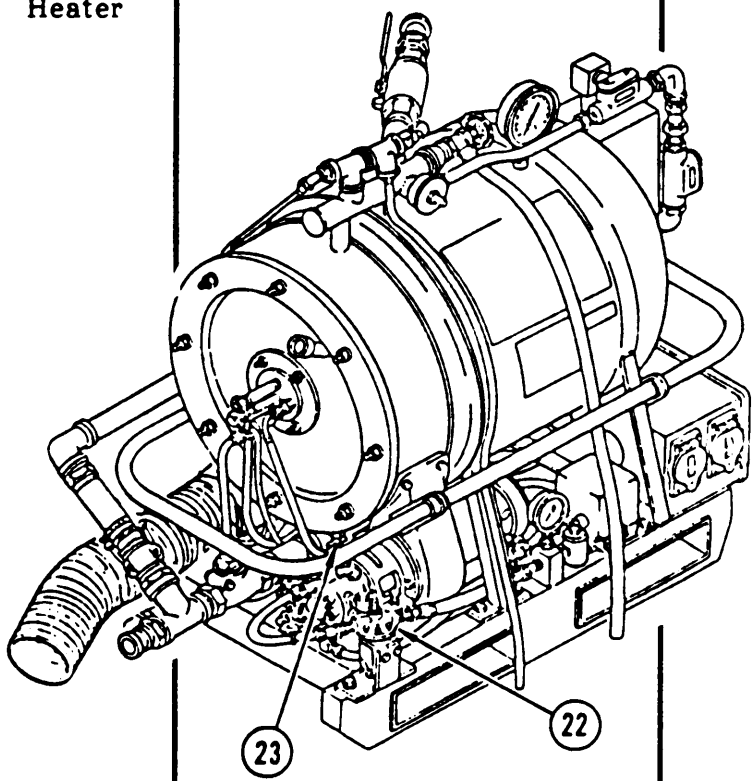
Item No.	Interval B	D	A	W	Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
10			Ž		Generator	 **a.** Remove large sound deadening panel (21) and perform PMCS on the generator. Refer to TM 5-6115-585-12.	

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

Item No.	Interval				Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/ Available If:
	B	D	A	W			
11			•		Water Heater		

a. Petcock valve (23): Place valve in open position to drain excess fuel from combustion chamber.

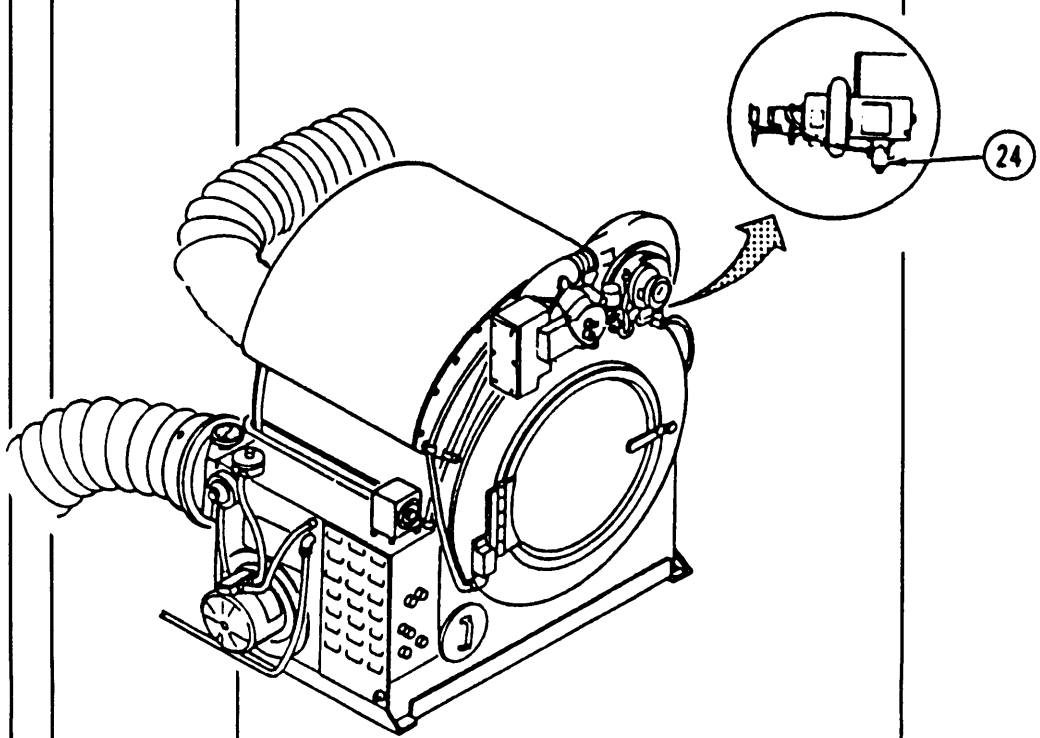
NOTE

Valve closes CC.

Valve opens CCW.

b. Fuel filter (22): Refer to paragraph 3-7 and perform PMCS on water heater fuel filter.

Table 2–1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

Item No.	Interval B	D	A	W	Item to Be Inspected	Procedures: Check for and have repaired, filled, or adjusted as needed.	Equipment is Not Ready/ Available If:
12				•	Dryer Heater	 Fuel filter (24): Refer to paragraph 3–7 and perform PMCS on dryer fuel filter. **NOTE** Some units equipped with a water reuse system.	
13		•			Water Reuse System	Inspect transfer tank strainer basket and screen for clogs and debris.	

* U.S. GOVERNMENT PRINTING OFFICE: 1991 554-123/20132

Section III. OPERATION UNDER USUAL CONDITIONS

2-6. SCOPE. This section contains procedures for operation of the laundry unit under normal conditions.

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. Components are mounted or stored on the trailer for shipment and storage. During use, some components are removed from the trailer. The setup instructions that follow include steps for unpacking and positioning components. Components should be unpacked only when the facility is planned for use or when maintenance is needed. Figure 2-8 shows the laundry unit as it would be for shipping or storage, without the cover. (Cover removed for clarity).

a. Select a site for the laundry unit that has adequate water and drainage for operational needs. Select a relatively level area.

(1) Position the laundry unit so that the water heater is next to the water source.

(2) Set the handbrake lever, lower the trailer supports, and unhitch towing vehicle. If necessary, dig holes or block wheels to ensure the trailer is level. Refer to TM 9-2830-376-14&P.

(3) Remove tarp assembly and inspect it for cuts, frays, weather rot, and damage. If tarp assembly is damaged, notify your supervisor.

(4) Remove bottom bolts from transportation braces (1) on the left side of trailer assembly. Rotate transportation braces downward into the vertical position.

2-27. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

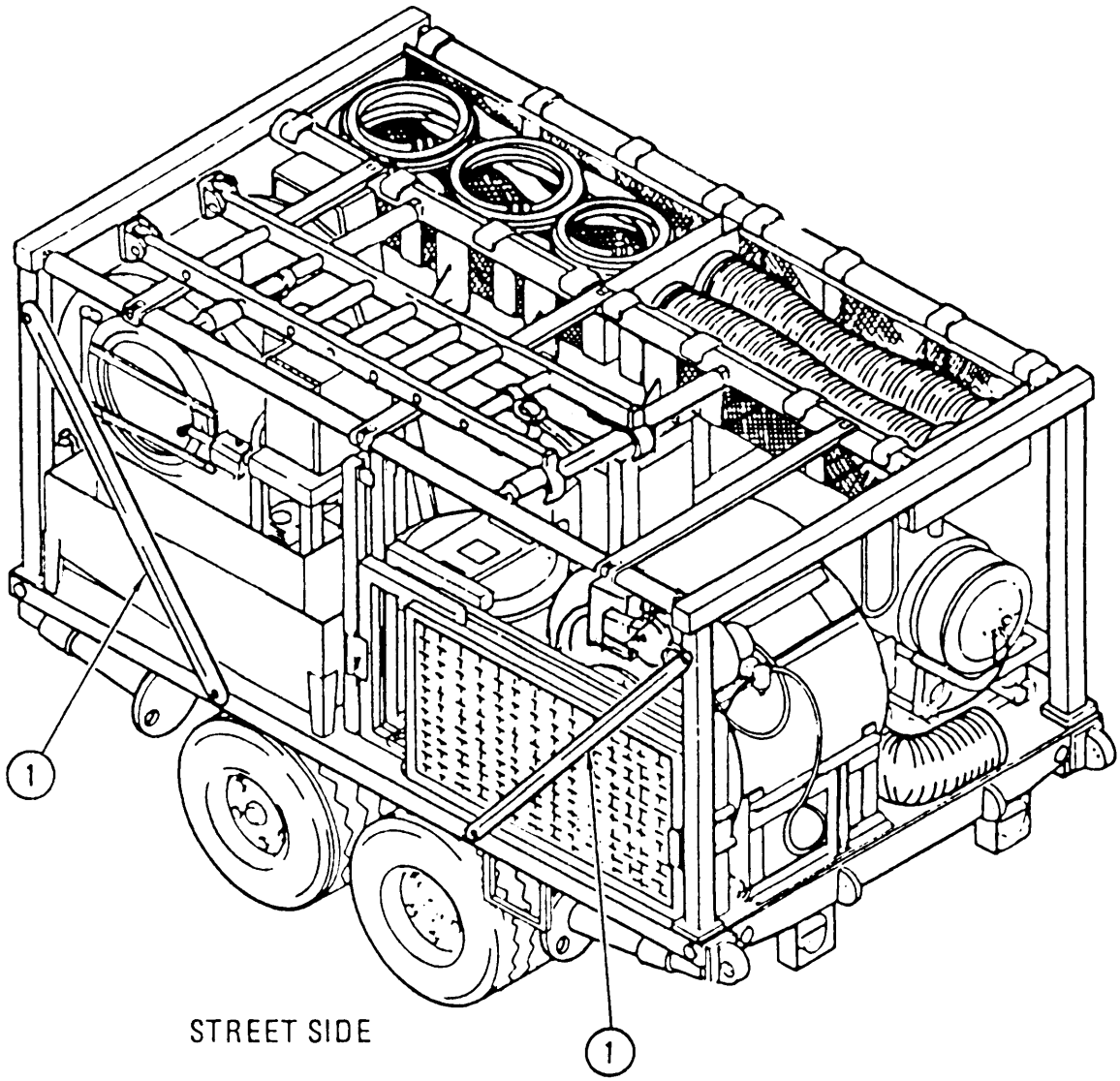


Figure 2-8. Laundry unit transportation mode, without cover. (Sheet 1 of 2)

2-27. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

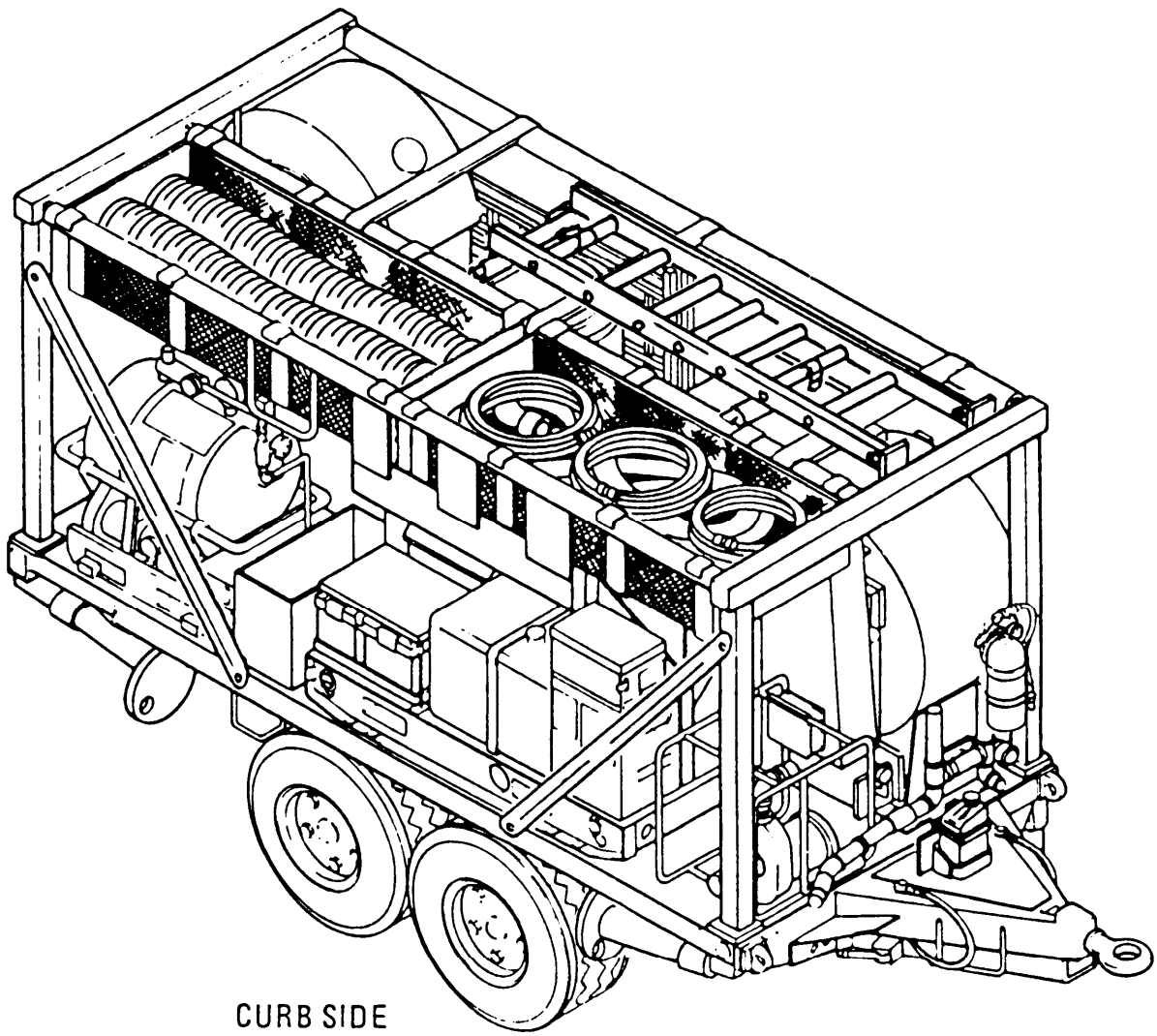
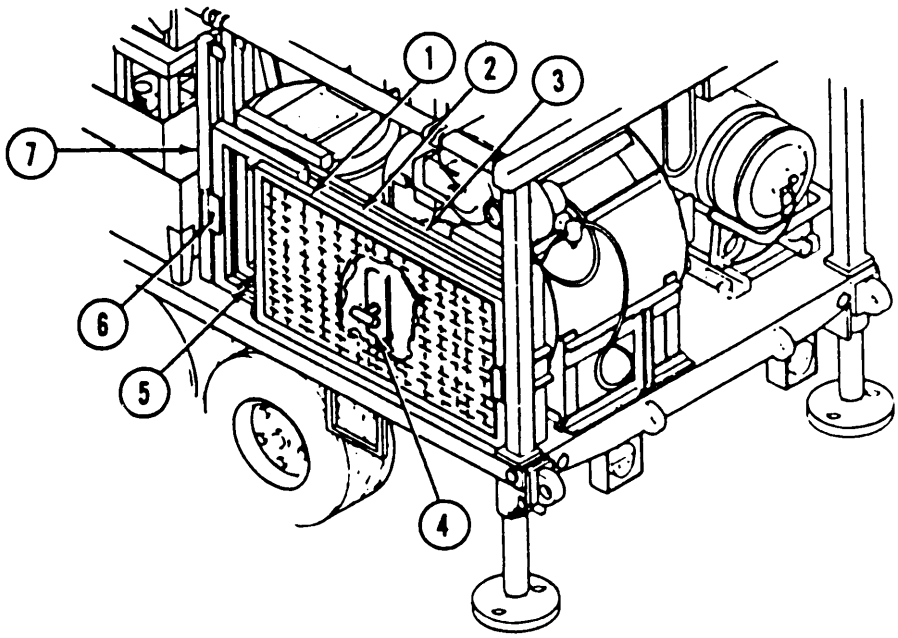


Figure 2-8. Laundry unit transportation mode, without cover. (Sheet 2 of 2)

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)



b. Set up platform as follows:

WARNING

This procedure requires at least two people for lifting various components. Failure to observe standard lifting procedures may result in serious injury to personnel.

(1) Remove ball locking pin (6) from workstand storage support (7) and remove front workstand storage support by lifting up.

(2) Remove bracket (5) and store in toolbox. (Located under dryer 4, figure 1-1).

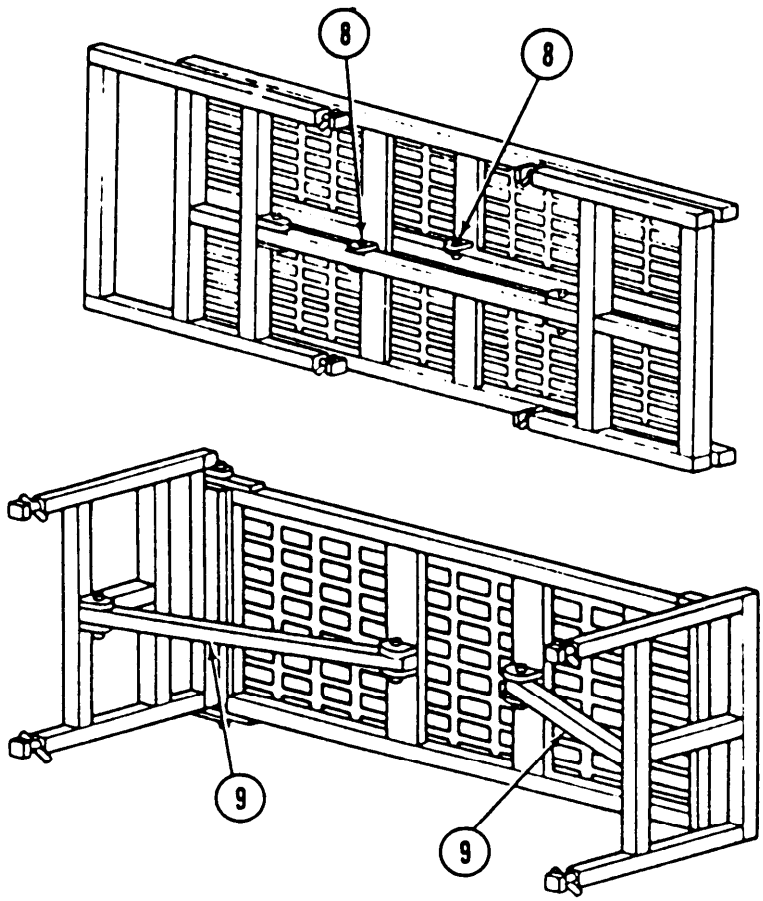
(3) Slide washer platform (1) toward front of trailer and remove washer platform from trailer.

(4) Remove clamp (4) from short platform (2) and dryer platform (3).

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

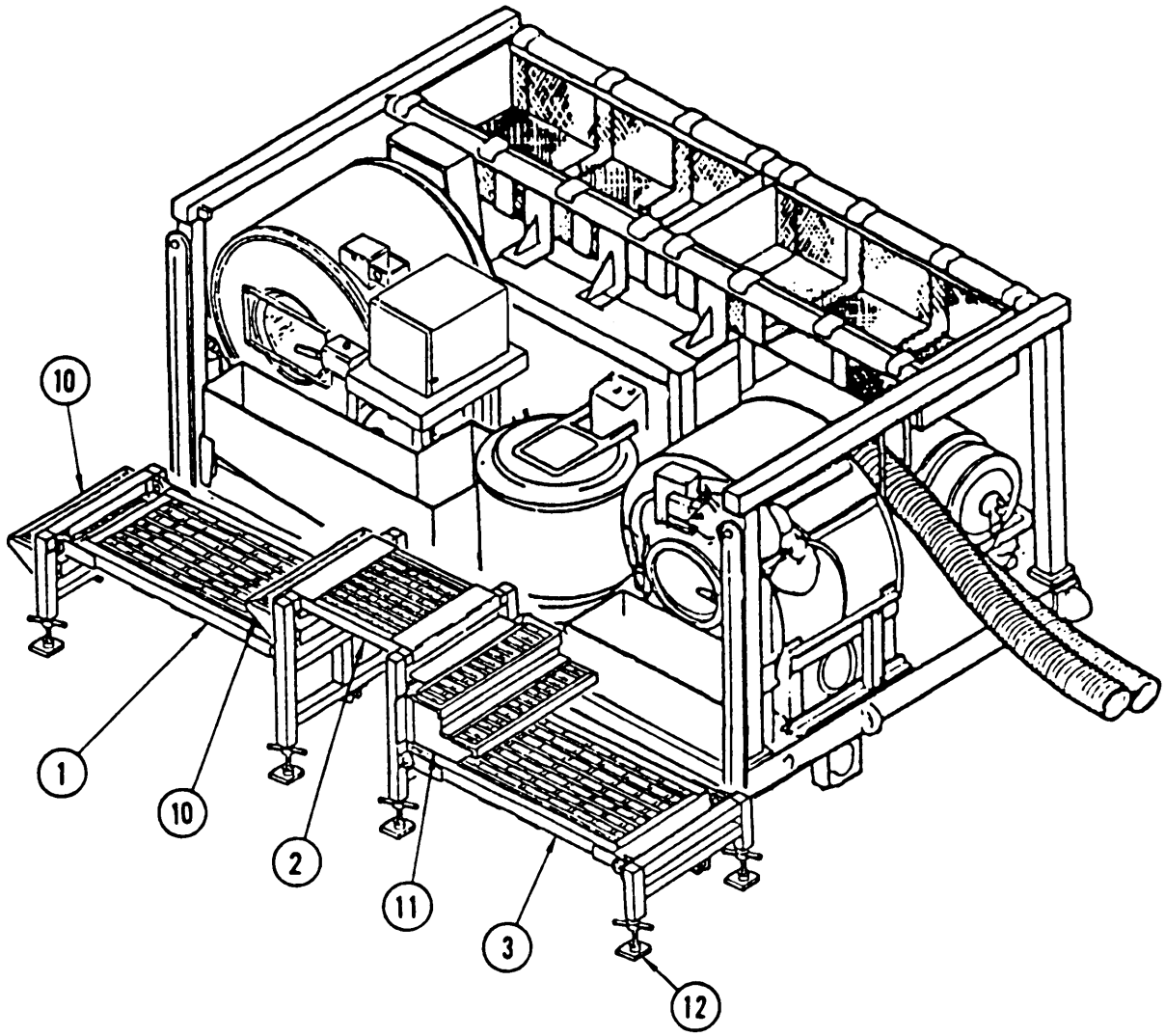
(5) Remove short platform (2) from trailer and store clamp (4) in tool box.

(6) Repeat procedures in steps (1) and (3) and remove dryer platform (3).



(7) Remove ball locking pins (8) from platform assemblies. Adjust stabilizer bars (9) and insert ball locking pins in holes provided.

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

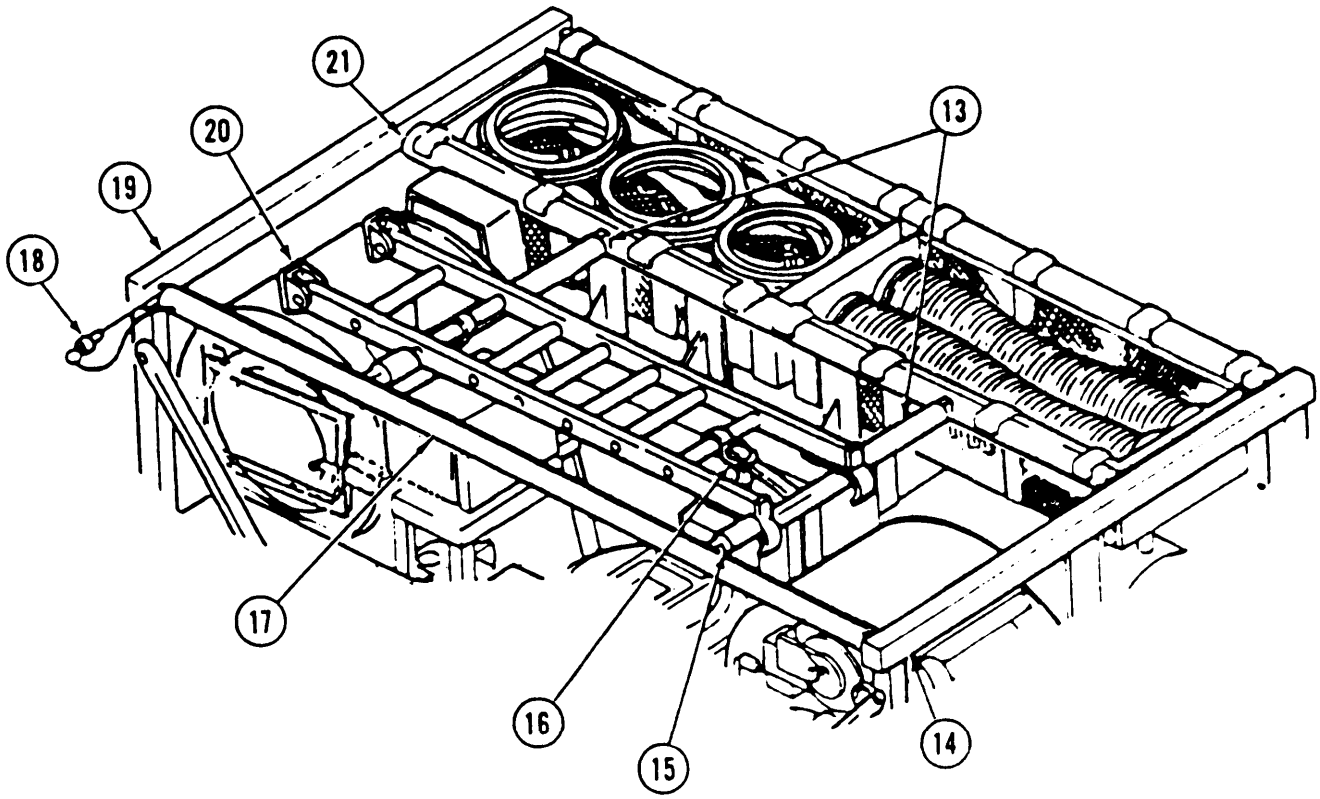


(8) Place washer platform assembly (1) and dryer platform assembly (3) next to the trailer. Install short platform assembly (2). Remove two step (11) from pre-extraction bin and install on platform assembly (3).

(9) Locate and remove steps (10) from midsection of trailer and install stepson washer platform (1).

(10) Adjust leveling plates (12) and brace with footing platforms as needed.

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

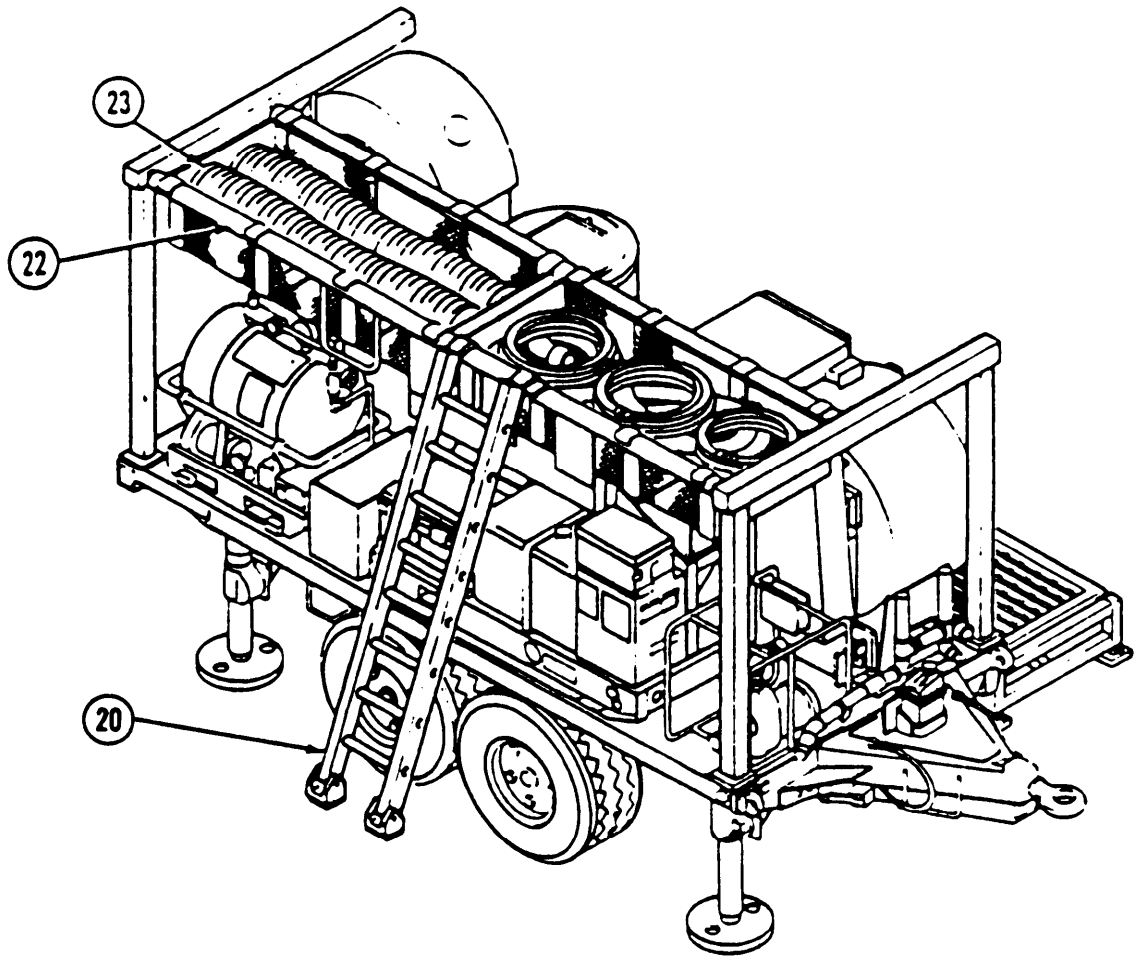


(11) Unhook two straps (16) and remove ladder (20) from two struts (13).

(12) Remove four ball locking pins (15) from left beam (17) and center beam, (21) and remove two struts (13).

(13) Remove two ball locking pins (18) from left beam (17) and remove left beam from frame assemblies (14) and (19). Store left beam underneath trailer.

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

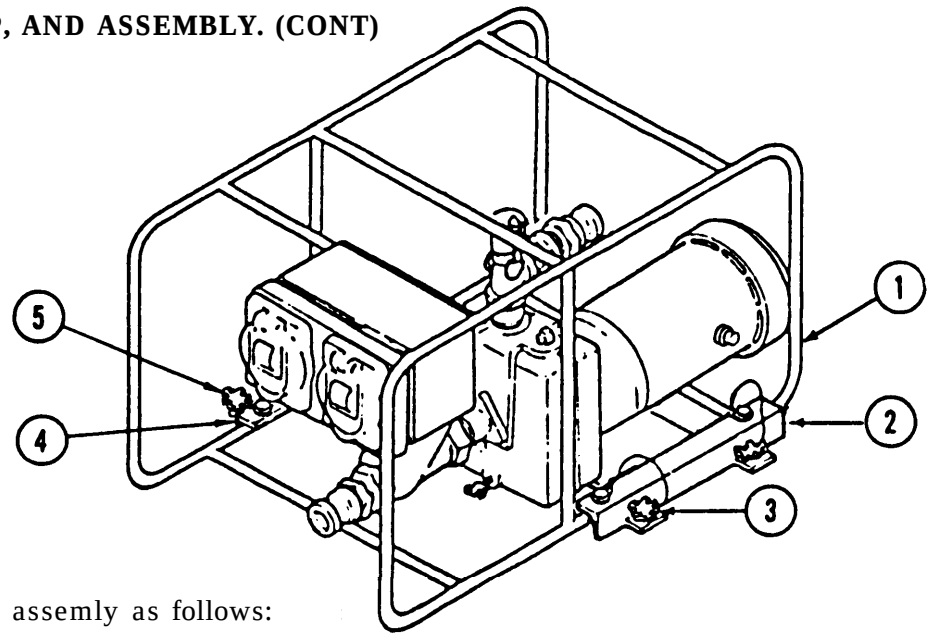


(14) Position ladder (20) on right beam (22) as required.

(15) Remove contents from hose basket assemblies (23).

(16) Store tarp assembly, two struts, and workstand storage supports in hose basket assemblies (23).

2-7. SITE SELECTION, SET UP, AND ASSEMBLY. (CONT)



c. Set up water pump and hose assemly as follows:

(1) Remove two bolts (5) and remove bracket assembly (4).

(2) Remove two bolts (3) and remove bracket assembly (2).

(3) Remove water pump (1) and locate it no more than 10 feet (3m) from the water source.

(4) Install brackets (2) and (4) and tighten bolts (3) and (5) removed in step (2).

(5) Connect suction hose (9, figure 2-9) to suction inlet (10).

WARNING

Ensure that water hoses (7 and 9, figure 2-9) do not touch or cross other water hoses, exhaust ducts, power cables, or fuel *lines. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution,* fire, *or explosion could result.*

(6) Connect suction strainer (8) to the other end of suction hose (9). Position the strainer in the water source above the stream bed. Make a tripod from tree branches or saplings and hang the strainer from the place where the branches are tied together, or position the strainer on a bed of stones or gravel.

(7) Connect water heater intake hose (7) to water pump discharge outlet (12).

(8) Connect the other end of the heater intake hose (7) to water heater inlet (6).

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

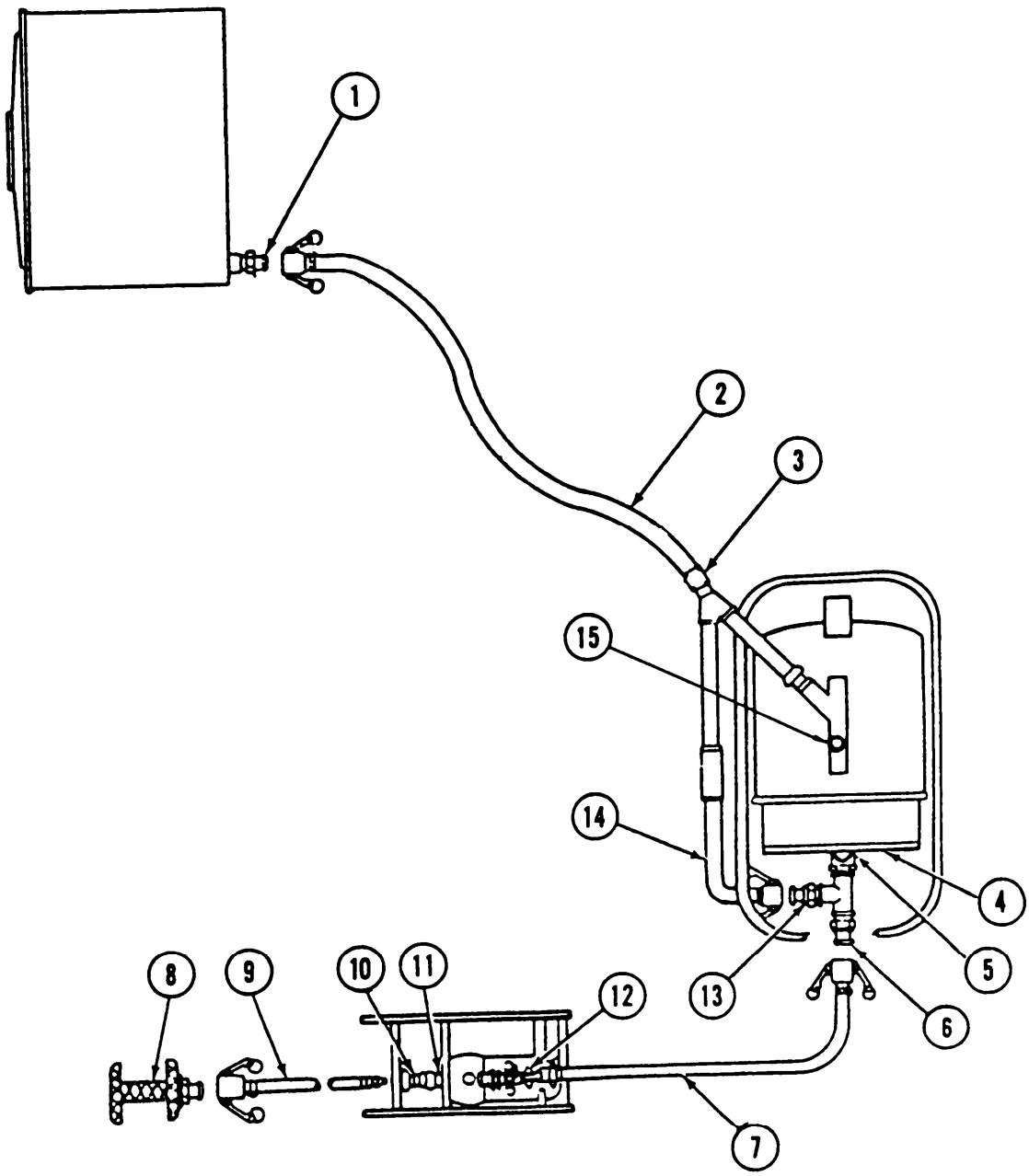


Figure 2-9. Water Hose Connection Diagram

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

(10) Be sure petcock valve (11) on water pump housing is closed. Clockwise rotation closes valve.

(11) Be sure petcock valve (4) drain valve (5) and vent valve (15) on the water heater are closed. Clockwise rotation closes valve.

(12) Be sure washer inlet hose (2) is connected to washer inlet (1) and to water heater outlet (3).

(13) Be sure that hose (14) from water heater inlet (13) is connected.

(14) Be sure that drain hose (4, figure 2-10) is connected to extractor drain connection (5) and washer drain connection (3).

WARNING

Be sure that drain hoses (1 and 7, figure 2-10) do not touch or cross other water hoses, power cables, exhaust ducts, or fuel lines. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

(15) Connect one 25-foot (7.6 m), l-1/2-inch-diameter drain hose (7) to pre-extration bin drain (6) and route the hose to a drain field. Do not touch or cross other water hoses, power cables, exhaust ducts, or fuel lines.

(16) Connect one 25-foot (7.6m), 2-1/2-inch-diameter drain hose (1) to washer drain (2) and route the hose to a drain field. Do not touch or cross other water hoses, power cables, exhaust ducts, or fuel lines.

d. Set up electric power cables as follows:

WARNING

The laundry unit uses 208 V ac. All circuit breakers on the electrical panel must be off prior to connecting electrical power cables. Failure to observe safety precautions may result in death or serious injury.

(1) Open electrical panel door (5, figure 2-11) and turn off all circuit breakers(6).

(2) Remove dust cap (1) on main power connection (2).

(3) Remove dust cap (4) from main power cable (3).

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

(4) Connect main power cable (3) to main power connection (2). Connect other end of power cable to power source. Refer to TM 5-6115-585-12 for electrical connections on generator.

WARNING

Be sure that water pump cable (9, figure 2-11) does not touch or cross water hoses, exhaust ducts, or fuel lines. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

NOTE

Lock power cables in place by rotating connector clockwise.

(5) Be sure water pump ON/OFF switch is in the OFF position.

(6) Be sure water heater switch is in the OFF position.

(7) Connect water pump cable (9) between water heater service outlet (7) and water pump service outlet (8). Do not touch or cross water hoses, exhaust ducts, or fuel lines.

2-7. SITE SELECTION, SETUP, AND ASSEMBLY (CONT)

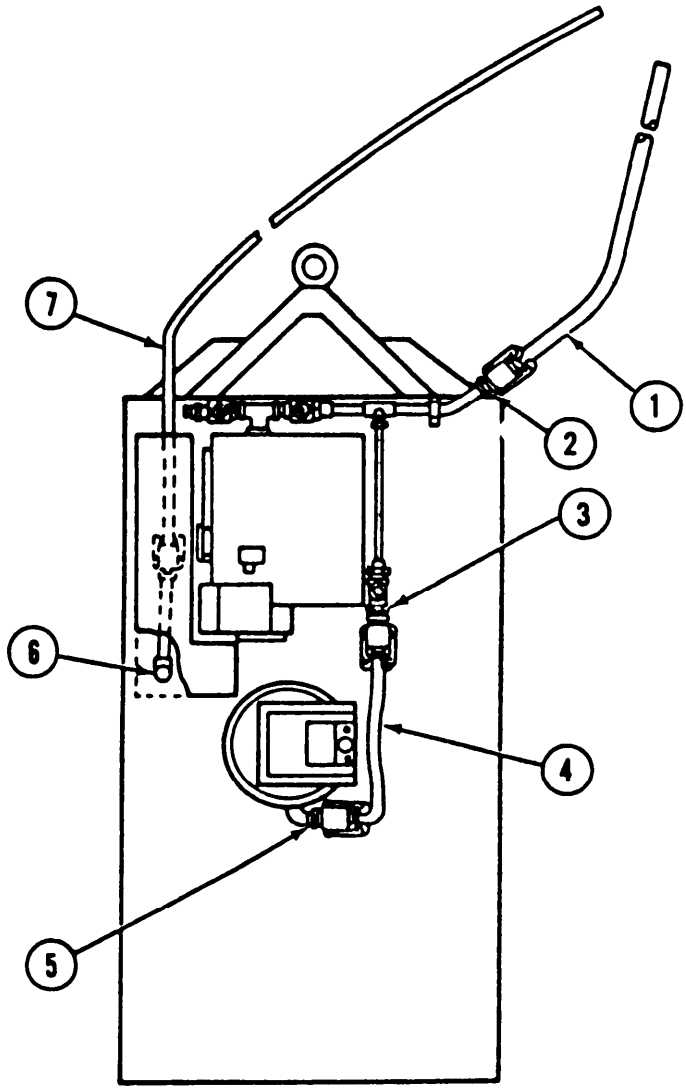


Figure 2-10. Drain Hose Connection Diagram

2-7. SITE SELECTION, SETUP, AND ASSEMBLY (CONT)

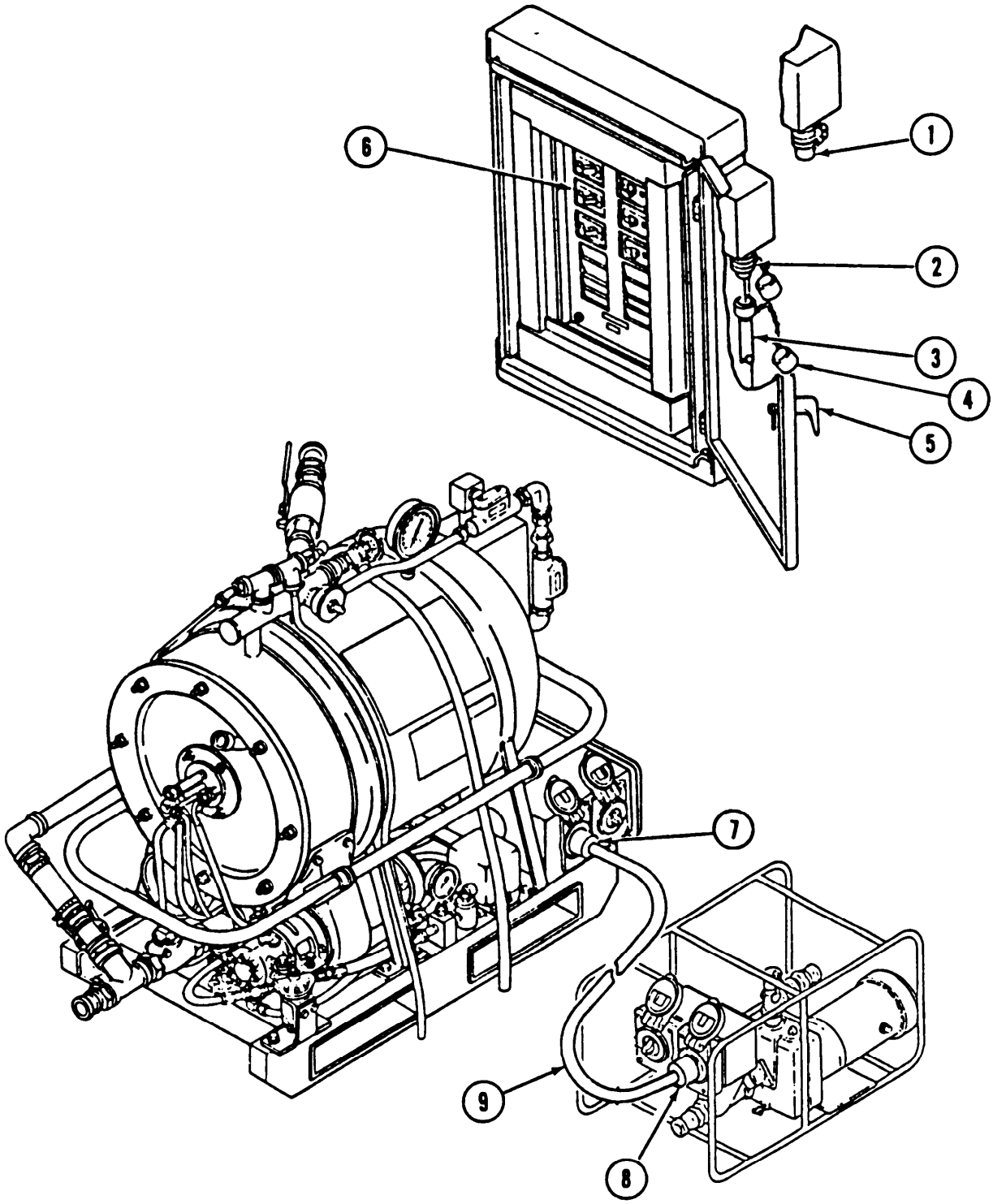


Figure 2-11. Electrical Panel Cable Connection

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

e. Remove and install dryer bin as follows:

(1) Remove four bolts and washers (1, figure 2-12) located inside dryer bin (2).

(2) Remove dryer bin (2) and place it in front of dryer assembly (3).

(3) Install bolts and washers (1) removed instep (1) in the same locations from which they were removed.

f. Make dryer fuel line connections as follows:

WARNING

Use only specified fuel (item 10, app C). Failure to do so may result in death or serious injury to personnel or damage to equipment.

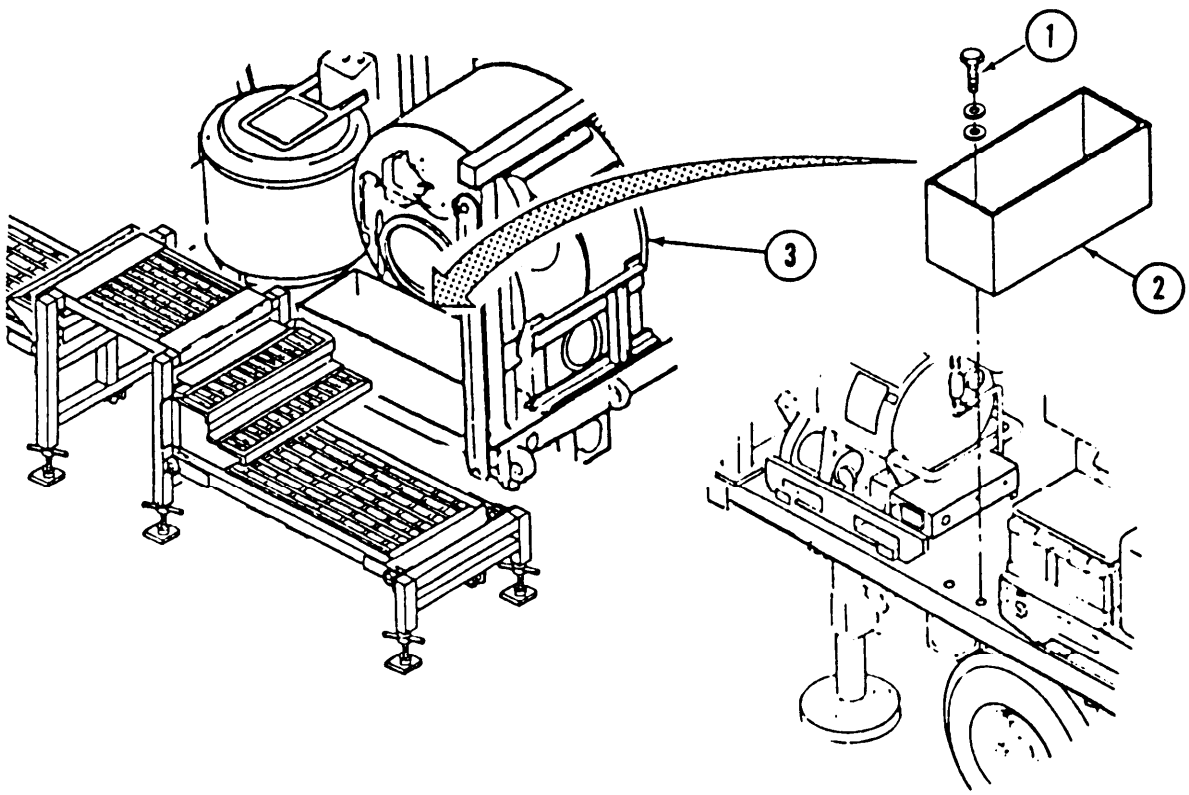


Figure 2-12. DryerBin Removal and Installation

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

(1) Obtain two fuel lines (3, figure 2-13).

WARNING

Be sure that fuel lines (3, figure 2-13) do not touch or cross water hoses, power cables, or exhaust ducts. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution fire, or explosion could result.

(2) Connect one fuel line (3) to fuel filter inlet (2) and one fuel line to fuel pump outlet (1).

(3) Connect the other ends of fuel lines (3) to drum fill adapter (7). The line from the fuel filter connects to fitting labeled SUPPLY on drum fill adapter. The line from the bottom of fuel pump connects to fitting labeled RETURN on the drum fill adapter.

NOTE

The drum fill adapter can be used with 55-gallon (208 liter) drums (6), 5-gallon (19 liter) cans (5), or other fuel sources.

(4) If a 55-gallon (208 liter) drum (6) is being used as the fuel source, remove drum fill adapter extension (4) from the bottom of the return port and install it in the drum fill adapter pipe. When using 5-gallon (19 liter) cans (5), the extension remains attached to the return port.

g. Make water heater fuel line connections as follows:

WARNING

Use only specified fuel (item 10, app C). Failure to do so may result in death or serious injury to personnel or damage to equipment.

(1) Obtain two fuel lines (2, figure 2-14).

WARNING

Ensure that fuel lines (2, figure 2-14) do not touch or cross water hose, power cables, or exhaust ducts. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

(2) Connect one fuel line (2) to fuel filter inlet (3) and one fuel line to fuel pump outlet (1).

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

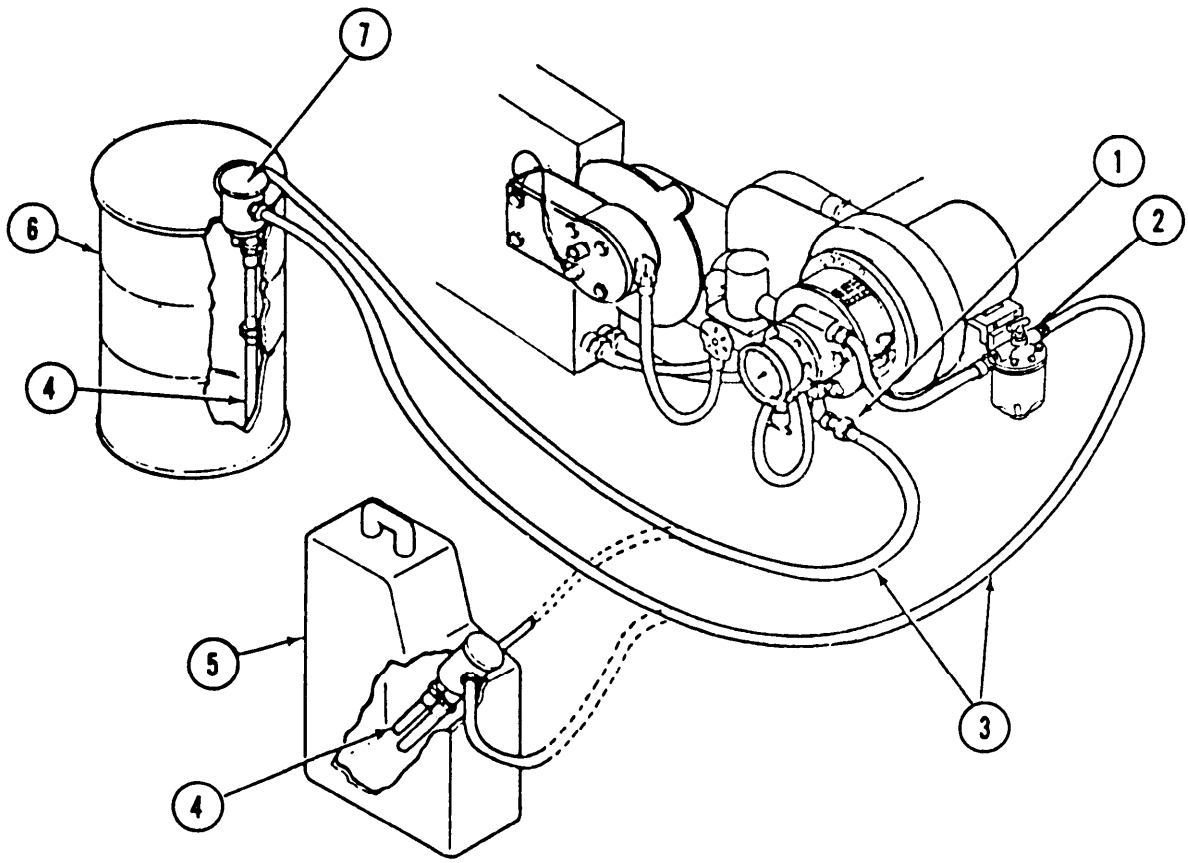


Figure 2-13. Dryer Fuel Line Connection.

2-7. SITE SELECTIONS SETUP, AND ASSEMBLY. (CONT)

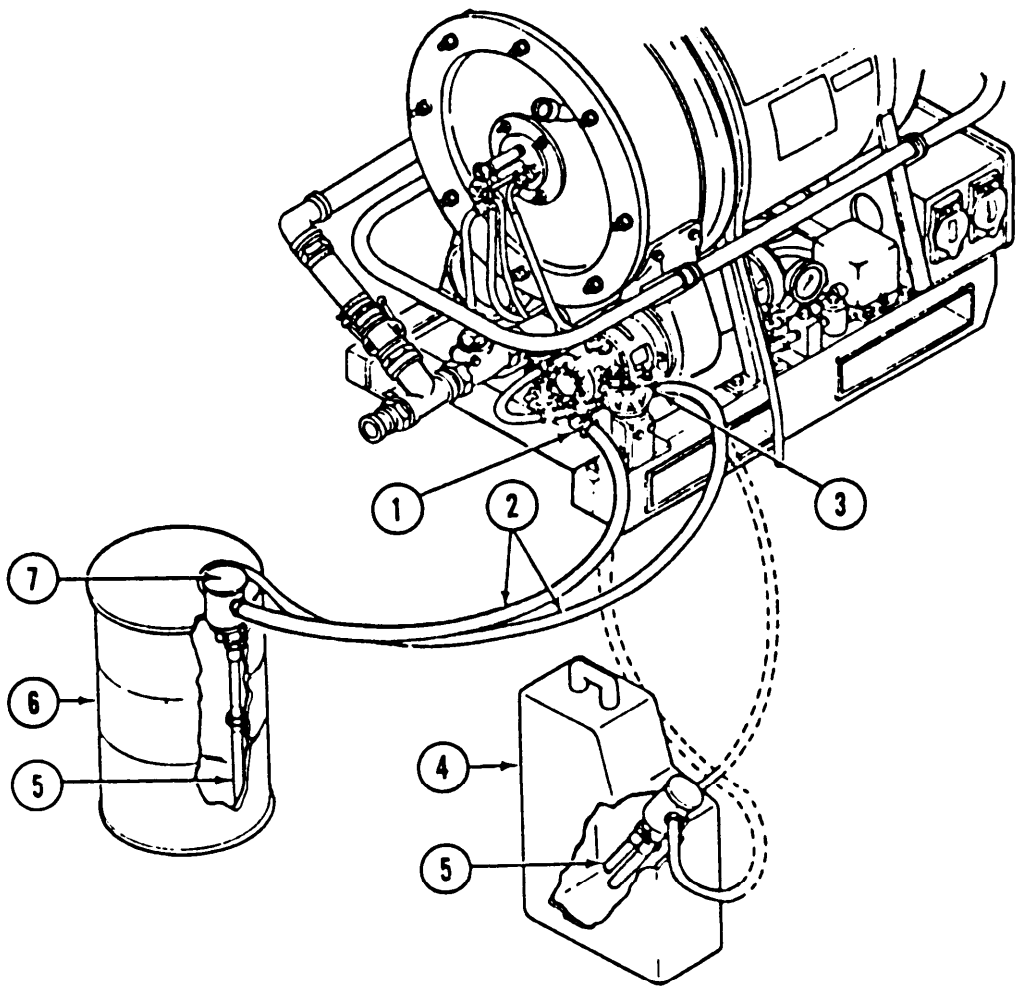


Figure 2-14. Water Heater Fuel Line connection

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

(3) Connect the other ends of fuel lines (2) to drum fill adapter (7). The line from the fuel filter connects to fitting labeled SUPPLY on the drum fill adapter. The line from the bottom of fuel pump connects to fitting labeled RETURN on the drum fill adapter.

NOTE

The drum fill adapter can be used with 55--gallon (208 liter) drums (6), 5-gallon (19 liter) cans (4), or other fuel sources.

(4) If a 55-gallon (208 liter) drum (6) is being used as the fuel source, remove drum fill adapter extension (5) from the bottom of the return port and install it in the drum fill adapter pipe. When using 5-gallon (19 liter) cans (4), the extension remains attached to the return port.

h. Make exhaust hose connections as follows:

WARNING

Carbon monoxide is dangerous. Ensure that exhausts are properly vented to an open-air area. Death or serious injury to personnel can result from heavy exposure to exhaust gas.

(1) Unhook three straps (1, figure 2-15) and remove combustion exhaust ducts (2) from trailer assembly (3).

WARNING

Be sure that exhaust ducts (1, 3, 5, and 7, figure 2-16) do not touch or cross other exhaust ducts, power cables, fuel lines, or water hoses. Melting/damage can occur causing leaking fuel and water or electrical hazards, Death by electrocution, fire, or explosion could result,

(2) Connect 5-inch (127 mm) combustion exhaust duct (1, figure 2-16) to dryer exhaust port (2). Extend duct away from trailer assembly. Do not touch or cross other exhaust ducts, power cables, water hoses, or fuel lines

NOTE

The dryer lint duct is stored inside the dryer assembly during transportation.

(3) Obtain 12-inch (305 mm) lint duct (3) and installon dryer lint duct port (4). Fully extend duct along right side of trailer. Do not touch or cross other exhaust ducts, power cables, water hoses, or fuel lines.

2-7. SITE SELECTION, SETUP, AND ASSEMBLY. (CONT)

(4) Connect two 7-inch (178 mm) combustion exhaust ducts (5) together and connect to water heater exhaust port (6). Extend duct full length away from rear of trailer. Do not touch or cross other exhaust ducts, power cables, water hoses, or fuel lines.

(5) Connect two 2-inch combustion exhaust ducts (7) to generator exhaust Ports (8). Extend ducts away from trailer assembly. Do not touch or cross other exhaust ducts, power cables, water hoses, or fuel lines.

2-8. PREPARATION FOR USE.

a. Generator. Ensure that the ON/OFF switch on the water pump and water heater are in the OFF position and that all circuit breakers in the power distribution box are turned off.

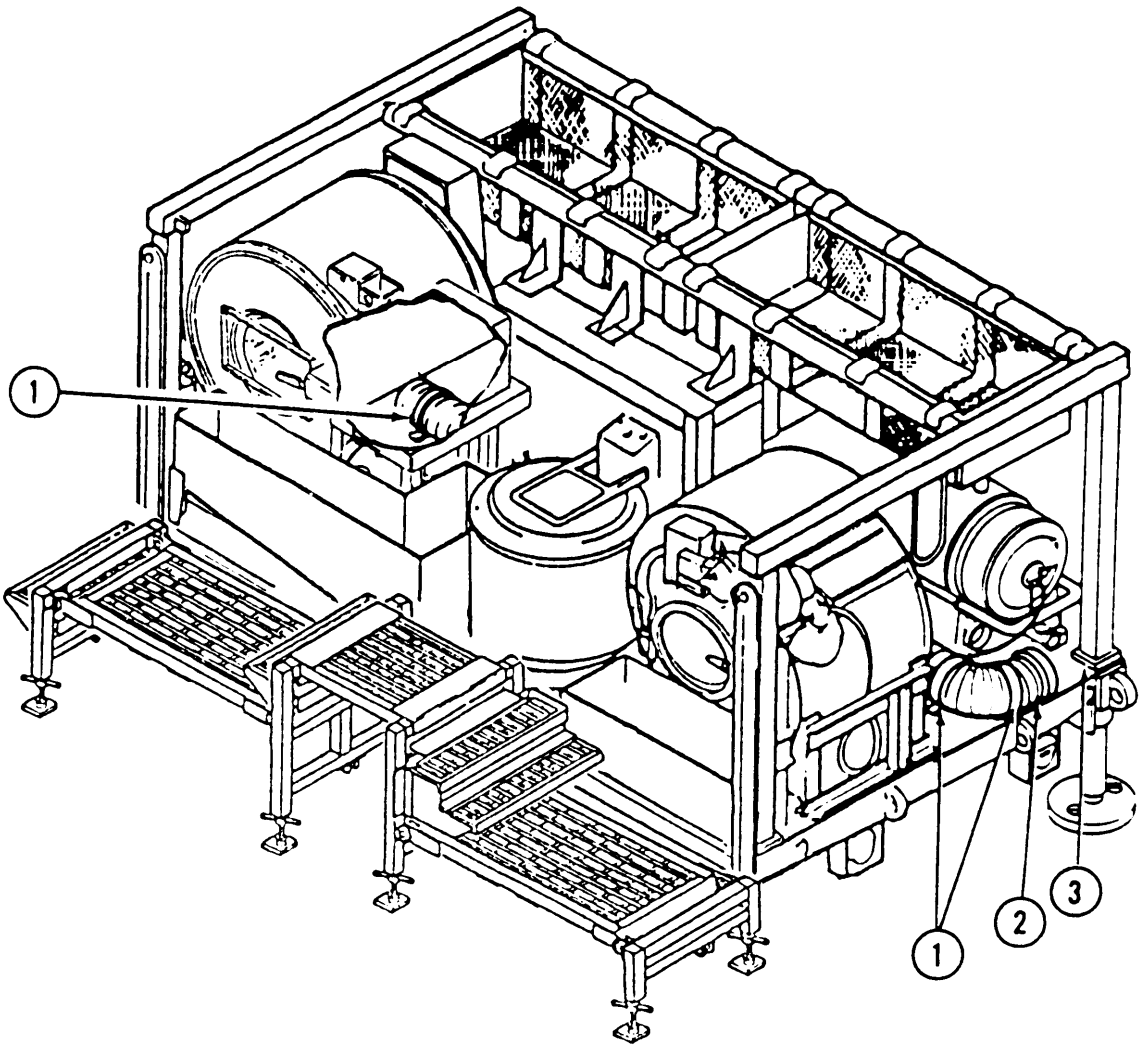


Figure 2-15. Exhaust Duct Removal From Trailer.

2-8. PREPARATION FOR USE. (CONT)

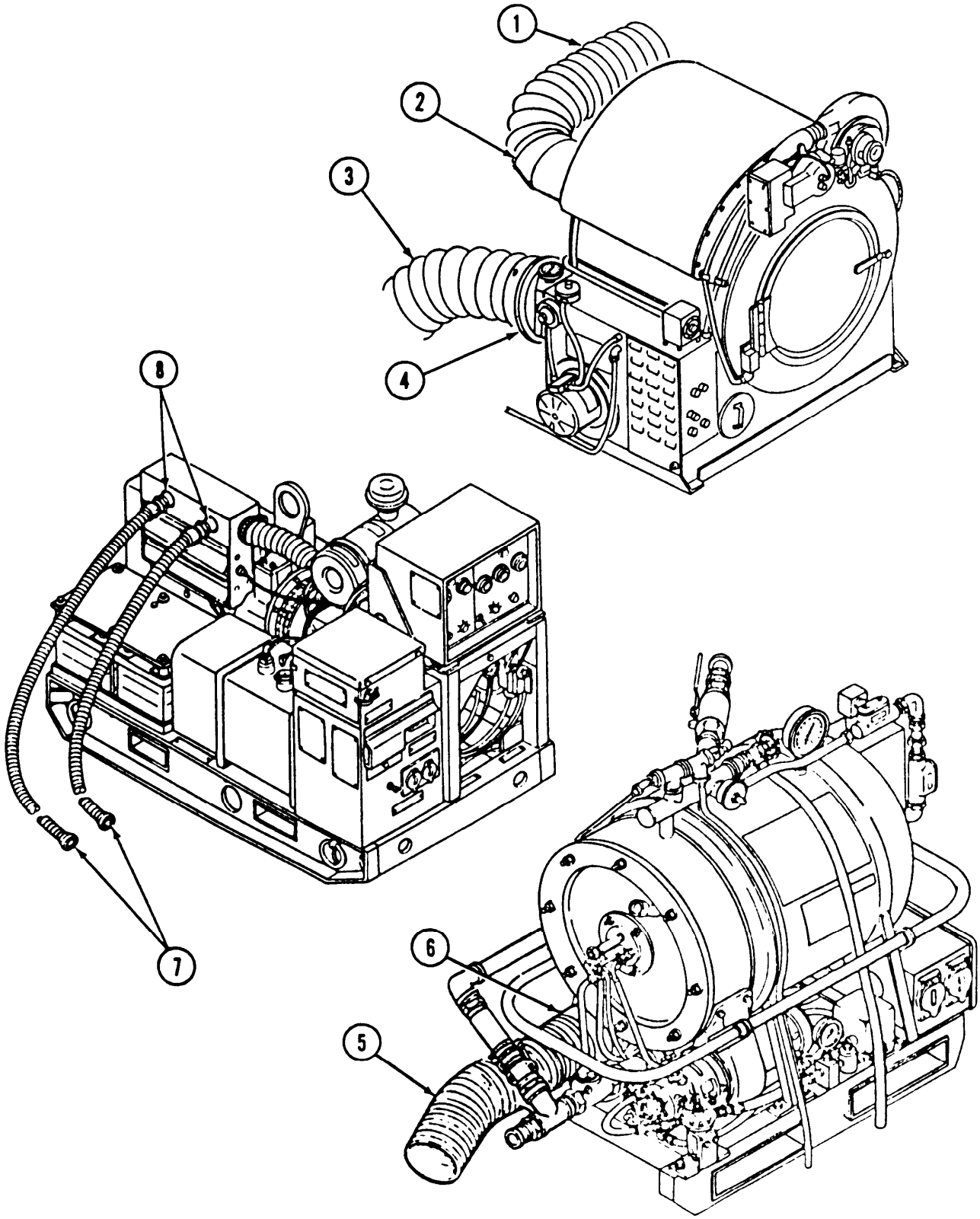


Figure 2-16. Exhaust Hose Connetions.

2-8. PREPARATION FOR USE. (CONT)

b. Generator.

WARNING

Do not operate the unit until the ground terminal stud of the engine-generator set has been connected to a suitable ground. Electrical faults in the engine-generator set, load lines, or load equipment can cause death by electrocution from contact with an ungrounded system.

WARNING

Do not touch exhaust ducts while running or immediately after shutdown, as severe burns may result.

NOTE

The air compressor will operate when power is applied to the laundry facility and the circuit breaker is on.

(1) Refer to TM 5-6115-585-12 for starting procedures for the generator and start the generator.

(2) Turn on all circuit breakers at power distribution panel.

c. Air Compressor.

(1) Wait 2 minutes for pressure to build up inside air tank assembly and check air tank gage (3, Figure 2-17) for an indication of 60 to 80 psi (414 to 552 kPa).

(2) Open drain valve (2) to bleed condensation from air tank (1).

(3) Close drain valve.

(4) Turnoff generator. (Refer to TM 5-6115-585-12.)

(5) Listen for air leaks. If air leaks are found, report the problem to your supervisor. If leaks are not found, restart and reset generator.

2-8. PREPARATION FOR USE. (CONT)

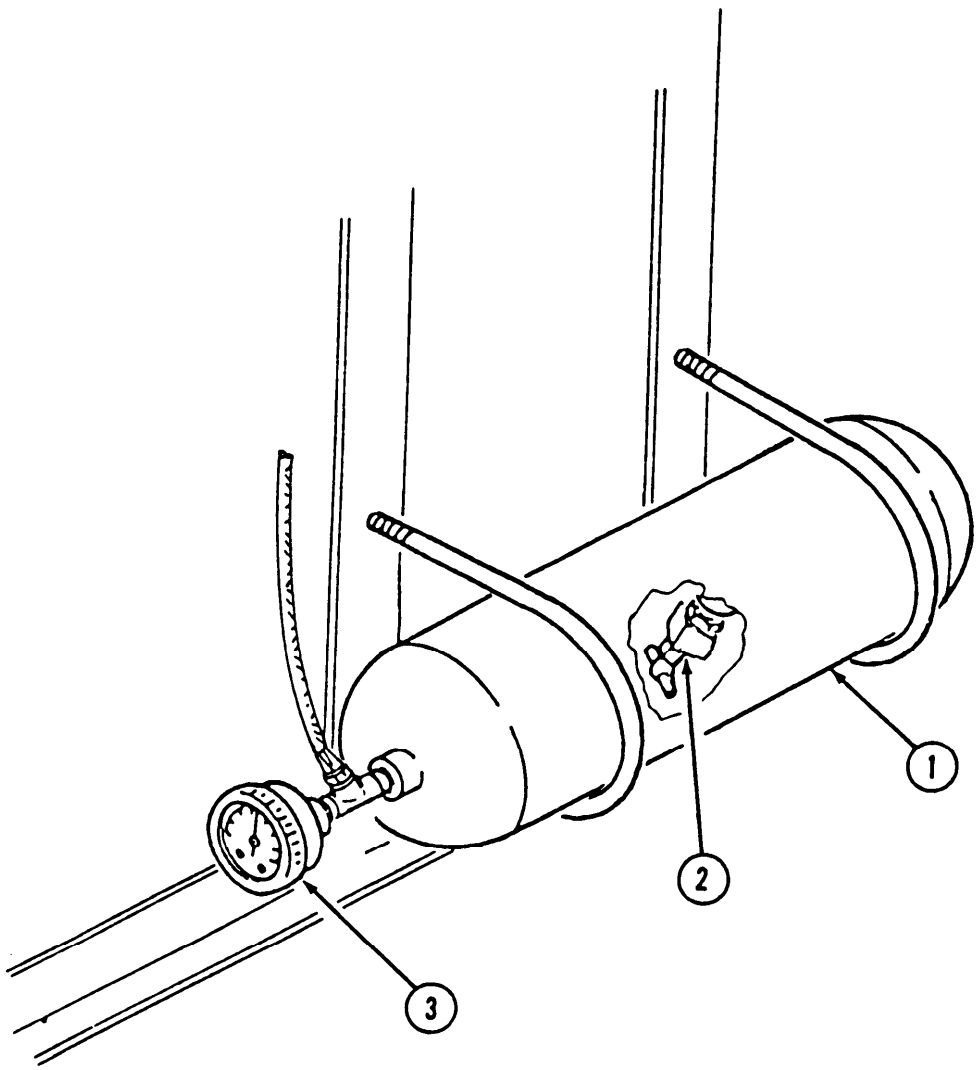
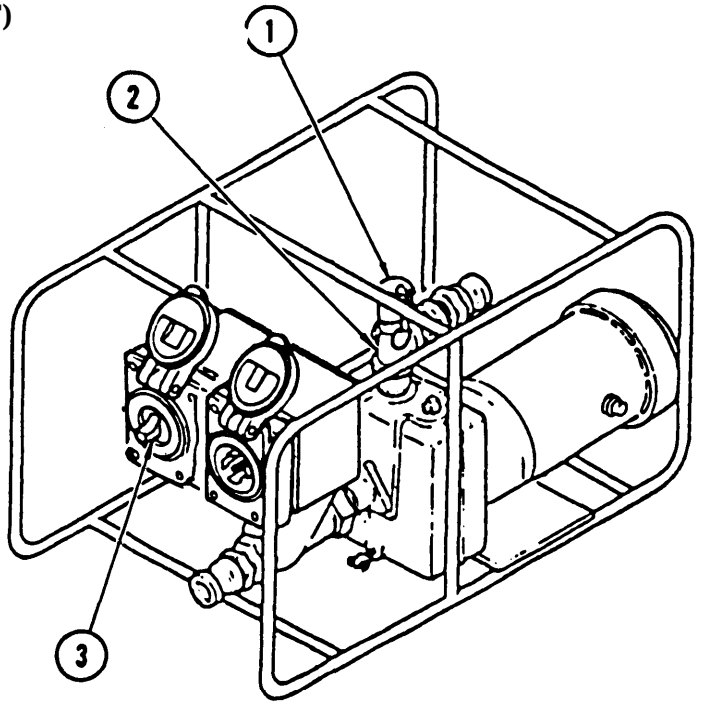


Figure 2-17. Air Tank Controls.

2-8. PREPARATION FOR USE. (CONT)

d. Water Pump.



(1) Remove priming plug (1) located at the top of pump housing (2).

(2) Prime pump with clean water.

(3) Replace priming plug (1).

(4) Set ON/OFF switch (3) on the water pump to ON then OFF. Inspect motor for correct rotation. Refer to table 3-2, malfunction 1, step 2, for rotation check. If motor is rotating in correct direction, place switch in the ON position.

e. Water Heater.

(1) Be sure that fuel shutoff valve (7, Figure 2-18) is closed. Clockwise rotation closes valve.

(2) Set load limit switch (4) on the water heater to the ON position, then to the OFF position, and check for proper motor rotation. If motor does not rotate in direction of arrows, refer to similar water pump troubleshooting table 3-2, malfunction 1, step 2. If motor is rotating in correct direction, place switch in the ON position.

(3) Open water outlet valve (12).

(4) Open bleeder valve (13) until a steady stream of water flows from vent hose (5). Close the valve.

2-8. PREPARATION FOR USE. (CONT)

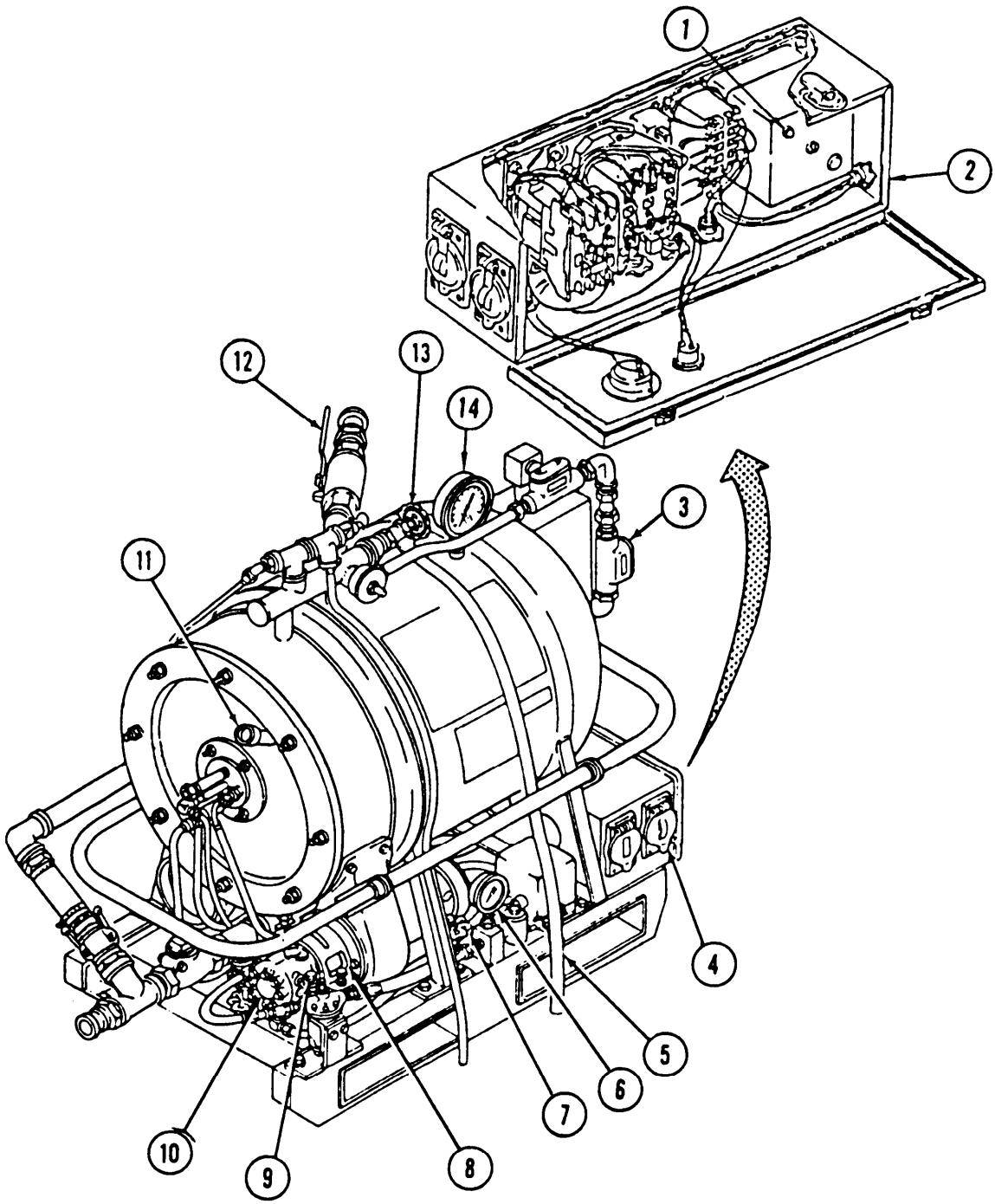


Figure 2-18. Water Heater Controls

2-8. PREPARATION FOR USE. (CONT)

WARNING

Use only specified fuel (item 10, app C). Failure to do so may result in death or serious injury to personnel or damage to equipment.

(5) Remove priming plug (9) and prime fuel pump (10) by pouring fuel into the line. Install priming plug.

(6) Open air shutter (8) halfway.

(7) Open the door to control panel (2) and press FLAME SAFEGUARD reset button (1). Close control panel.

(8) Set water temperature control (3) to the desired setting. (Refer to FM 10-280, Field Laundry Clothing Exchange and Bath Operations, for water temperatures.)

(9) Place load limit switch (4) to the ON position.

WARNING

Do not touch exhaust ducts while running or immediately after shutdown, as severe burns may result.

NOTE

The water heater burner is equipped with an ultraviolet (UV) scanner and a flame safeguard control unit to purge fumes or vapor from the combustion chamber prior to ignition. The control unit will also cause a safety shutdown if the burner does not ignite within a preset time.

(10) Check fuel pressure gage (6) for an indication of 75 to 80 psi (517 to 552 kPa). If the pressure gage does not indicate 75 to 80 psi (517 to 552 kPa) within 15 seconds, place switch (4) to the OFF position and repeat steps (1) thru (9) until a minimum of 75 to 80 psi (517 to 552 kPa) is indicated on pressure gage (10). After three unsuccessful attempts, notify your supervisor.

(11) As soon as 75 to 80 psi (517 to 552 kPa) is reached, open fuel shutoff valve (7) one full turn. The burner should ignite within 20 seconds and be visible in sight glass combustion chamber (11). Open valve fully.

2-8. PREPARATION FOR USE. (CONT)

(12) If the water heater buzzer sounds on the control box, turn off load switch (4) and wait approximately two minutes. Repeat steps (1) through (11) to start water heater.

(13) Adjust air shutter (8) until there is little or no smoke in the heater exhaust.

(14) When the water reaches the specified temperature (refer to FM 10-280), check temperature gage (14) reading with thermostat setting. The heater flame will shutoff automatically and fuel presure gage(6) will register zero.

2-8. PREPARATION FOR USE. (CONT)

f. Drying Tumbler.

(1) Set thermoswitch (15, figure 2-19) as follows:

(a) For cotton: 250°F (121ºC)

(b) For wool: 200°F (93°C)

(c) For battle dress uniform (BDU'S): do not exceed 130°F (54°C)

(2) Set electric timer (16) to approximately 10 minutes.

(3) Adjust burner air intake (1) to approximately 1/2 inch (12.7 mm).

(4) Close fuel shutoff valve (5).

(5) Remove three thumb screws (11) on panel door (12) of dryer control panel (8) and open panel door (12).

(6) Press reset button (14) on safeWard control unit (13). Close and secure panel door with three thumb screws (11).

(7) Push START button (7) on dryer control panel (8).

(8) Check fuel pressure gage (4) for an indication of approximately 100 psi (690 kPa).

(9) Open fuel shutoff valve (5) one full turn.

NOTE

The dryer burner is equipped with an ultraviolet (UV) scanner and a flame safeguard control unit to purge fumes or vapor from the combustion chamber prior to ignition. The control unit will also cause a safety shutdown if the burner does not ignite within a preset time.

(10) If dryer warning light (10) lights and beeper (9) sounds on the front of dryer control panel (8) perform the following:

(a) Push STOP/RESET (6) on dryer control panel (8).

(b) Loosen three thumb screws (11) on panel door (12) of dryer control panel (8) and open panel door (12).

(c) Wait for approximately 2 minutes after shutdown to allow for the safeguard timer to reset and cool the electrical igniter.

(d) Press and release reset button (14) on safeguard control unit (13). Close panel door (12) on dryer control panel (8) and secure with three thumbscrews(n).

(e) Push START button (7) on dryer control panel (8).

2-8. PREPARATION FOR USE. (CONT)

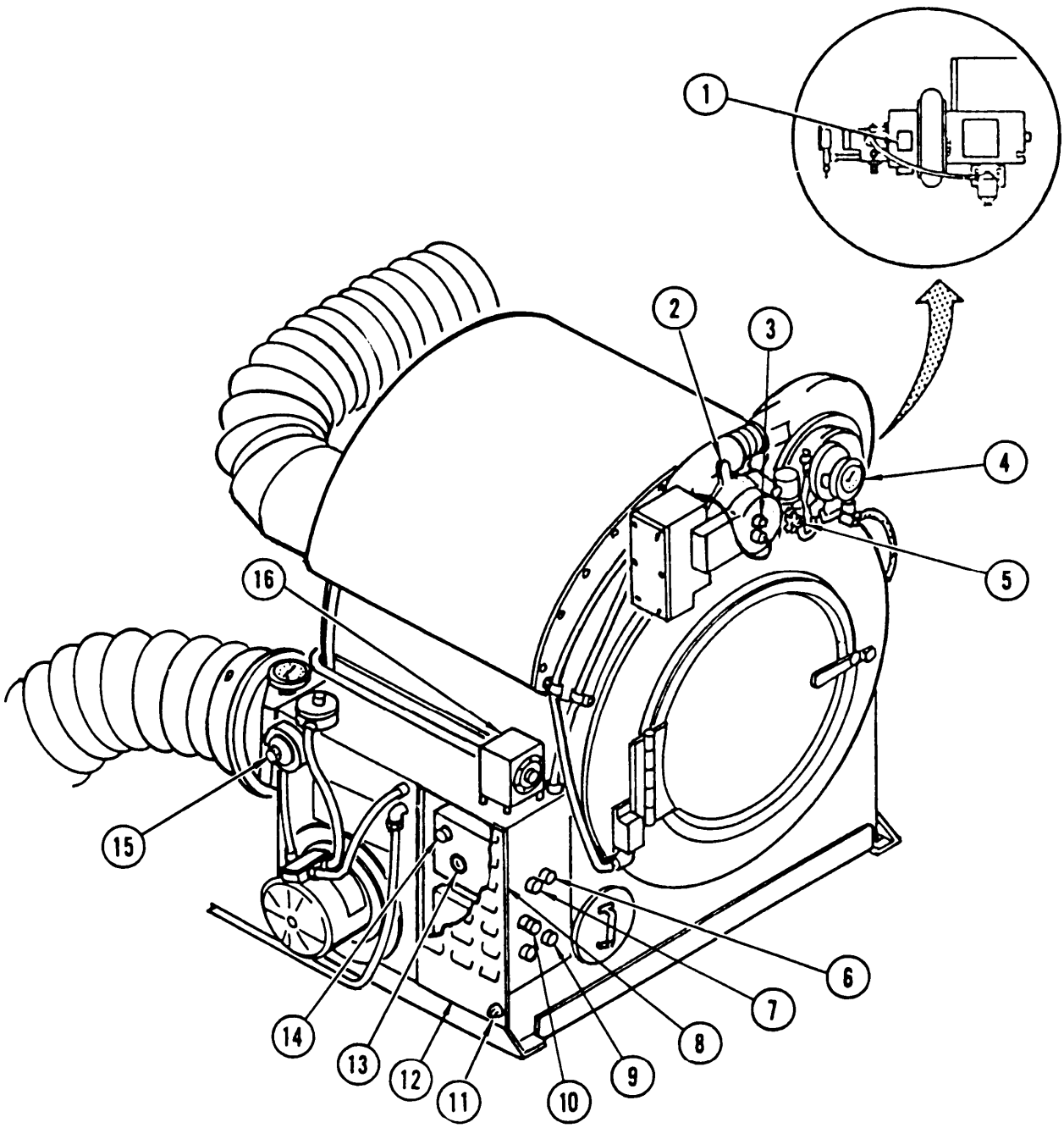


Figure 2-19. Drying Tumbler Controls.

2-8. PREPARATION FOR USE. (CONT)

(11) If the burner ignites but does not remain on, adjust burner air intake (1) and repeat steps (5), (6), and (7) until the burner remains on. After two unsuccessful attempts, notify your supervisor.

(12) After the burner remains on, open fuel shutoff valve (5) fully and adjust air shutter (2) so that the heater burner has a steady roar. A bright, clean flame will be seen in sight glass (3).

(13) Open dryer door until first load is placed in the dryer. This will prevent excess fuel consumption until the dryer is ready to be used.

g. **Washer Controller.** The washer's controller is equipped to use pre-punched formula charts with preset formulas, or may be operated manually.

h. **Formula Chart.**

(1) If it is necessary to change formulas, remove the formula chart as follows:

WARNING

Do not make or change electrical connections while the unit is in operation. The voltage generated by the engine-generator can cause death by electrocution. Keep moisture away from the engine-generator and keep the surrounding area dry when operating the unit. Failure to observe this warning may result in death by electrocution. Do not service the unit with fuel while the unit is in operation. Failure to observe this warning may result in serious injury or death to personnel.

(a) Place Run/Stop knob (3, figure 2-20) in stop position.

(b) Pull formula chart (2) to the side and remove.

(c) Holding chart to be used with track assignments on left end and printed side toward operator, insert into program timer from right side. Toward the left.

(d) Using cylinder control wheel (4) align start position with hairline start marker (1) on timer front and place Run/Stop knob (3) in RUN position. Timer is now ready to start.

Table 2-2. Formula Chart

Track	Title	Function
1.	Supplies	Alerts operator to add supplies or that cycle is ending.
2.	Blank	
3.	Power ON/OFF	Stops machine at end of formula.
4.	Hot Water	Adds proper amount of hot water when required.
5.	Cold Water	Add proper amount of cold water when required.
6.	Reuse Water	Adds proper amount of reuse water when required.
7.	Blank	
8.	Blank	
9.	Water Level Lo/Hi	Selects one of two preset levels of water.
10.	Blank	
11.	Waste Drain	Opens waste drain when required.
12.	Reuse Drain	Opens reuse drain when required.

2-8. PREPARATION FOR USE. (CONT)

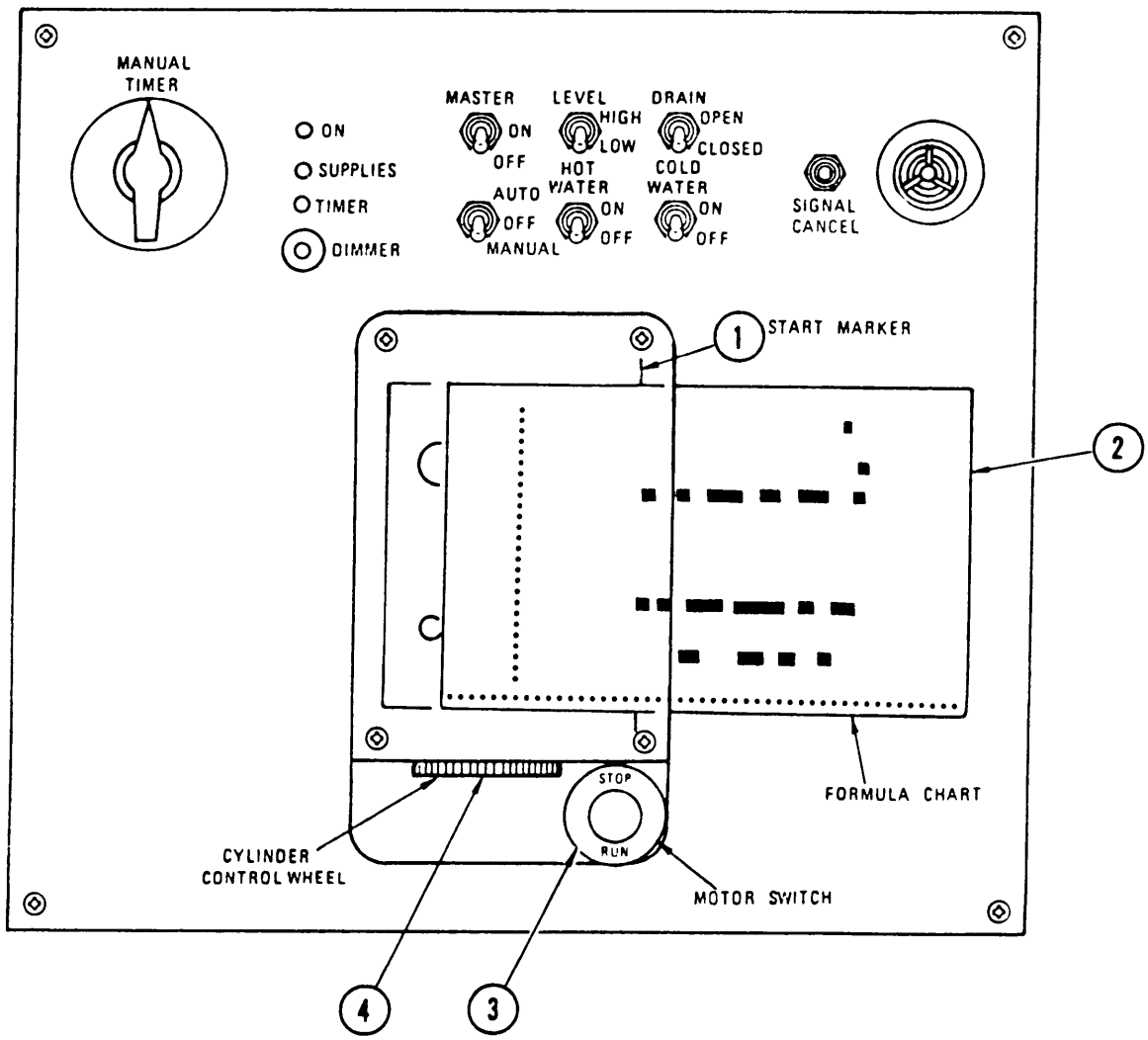


Figure 2-20. Formula Chart Removal.

2-9. OPERATING PROCEDURES.

a. Automatic washing. The following steps are for operating the washer using the program timer to control the wash cycle.

NOTE

Master switch (8, figure 2-21) must be in ON with Auto/Off/Manual switch (11) in OFF to unlock door.

(1) Push unlock switch (2) on door lock cover and unlock the door.

(2) Load the washer with up to 60 lb. (27.2 kg) of wash. Table 2-3 lists the weight of specific clothing items.

(3) Check the air tank pressure gage for a pressure of 60 to 90 psi (414 to 580 kPa).

(4) Refer to FM 10-280 for field laundry washing and decontamination formulas. Select proper formula chart.

(5) With Run/Stop knob (18, figure 2-21) in Stop position and chart with track assignment to left, insert chart into timer from the right side until first increment of chart is below hairline start marker (16) on the face of the program timer. Turn Run/Stop knob (18) to RUN.

NOTE

When washing camouflage clothing, use warm water and mild detergent. Do not use chlorine bleach or starch on camouflage clothing.

(6) Add the proper amount of washing supplies through soap chute (1).

(7) Place Auto/Off/Manual switch (11) in AUTO. Washer will start and run the formula selected.

(8) When supplies light (6) and audible signal (15) activate add supplies called for in formula.

(9) At end of formula a supplies signal is called for to alert the operator that the formula is complete.

(10) At the end of cycle place Auto/Off/Manual switch (11) in OFF.

(11) Push unlock switch (2) on door lock cover and unlock the door.

NOTE

Door lock switch is interlocked with lever switches. If washing machine still contains water door will not unlock until washing machine has drained. This is a safety feature to protect operator from accidental scalding.

(12) Transfer laundry to the pre-extraction bin.

b. Manual washing. The control assembly provides complete manual operation. The level (9), drain (10), and water toggle switches (12 and 13) are used in manual mode to obtain desired operation. The following steps are for manual operation.

2-9. OPERATING PROCEDURES. (CONT)

(1) With master switch (8) ON and Auto/Off/Manual switch (11) in OFF press unlock switch (2) and unlock door and load the washer with up to 60 lb. (27.2 kg) of wash. Table 2-3 lists the weights of specific clothing items.

(2) Check the air tank pressure gage for a pressure of at least 60 to 90 psi (414 to 580 kPa).

(3) Select the proper formula from FM 10-280.

NOTE

The washer drain switch (10) must be in closed position before water inlet valves will operate.

(4) Set drain (10), water (12 and 13), and level (9) switches for desired operation.

(5) Set Auto/Off/Manual switch (11) to manual and set manual timer (3) to time called for in formula.

(6) Add proper supplies through soap chute (1).

NOTE

Washer will continue to run indefinetely, when manual timer times-out audible signal will sound and timer light (5) will come on, but, machine will not stop agitating until Auto/Off/Manual switch (11) is switched to OFF.

(7) When signal goes off switch drain (10) to OPEN to drain water.

(8) Set water (12 and 13) and level (9) switches for next desired operation, then position drain switch (10) to CLOSED. This will enable the washing machine to fill with water of the proper temperature to the proper level.

(9) Set manual timer (3) to time called for in formula.

(10) Continue sequence until formula is completed.

(11) Upon completion of manual operation position Auto/Off/Manual switch (11) in OFF and switch drain (10) to OPEN to drain water.

(12) Push unlock switch (2) on door lock cover and open door.

NOTE

Door lock switch is interlocked with lever switches. If washing machine still contains water door will not unlock until washing machine has drained. This is a safety feature to protect operator from accidental scalding.

(13) Transfer laundry to the pre-extraction bin.

Table 2-3. Lists Weights

Item (One each - medium size)	Dry Weight-pounds (kg)
CAP, field, pile, M-51.	0.45 (0.20)
HOOD, winter, w/fur ruff, M-51.	0.85 (0.39)
MITTEN SET, arctic.	1.45 (0.66)
MITTEN, inserts, 3-finger.	0.20 (0.09)
SOCKS, wool, cushion sole.	0.20 (0.09)
BOOTS, insulated, combat, rubber, white (cold-dry).	5.00 (2.27)
MUFFLER, Wool.	0.40 (0.18)
SUSPENDERS, trouser.	0.25 (0.11)
UNDERSHIRTS, winter, M-1950.	0.87 (0.39)
DRAWERS, winter, M-1950.	0.88 (0.40)
TROUSERS, shell, field, M-51.	2.25 (1.02)
LINER, trousers, shell, field, M-51.	1.70 (0.77)
SHIRT, field, wool, OG108.	1.60 (0.73)
COAT, field, cotton, M-51.	3.25 (1.47)
LINER, coat, field, cotton, M-51.	2.20 (0.99)
TROUSERS, shell, arctic, M-51.	1.12 (0.51)
LINER, trousers, shell, arctic, M-51.	2.20 (0.99)
PARKA, shell, M-51.	2.25 (1.02)
LINER, parka, shell, M51.	3.10 (1.41)
MITTENS, overwhite.	0.20 (0.09)
PARKA, overwhite.	1.50 (0.68)
TROUSERS, overwhite.	0.90 (0.41)
CHEMICAL PROTECTION	
HOOD, field, protective, M-4.	0.60 (0.27)
UNDERSHIRT, cotton, lightweight, ;pecial protective.	0.70 (0.32)
DRAWERS, cotton, lightweight, special protective.	0.85 (0.39)
COAT (PARKA), vesicant protective.	1.80 (0.82)
TROUSERS, vesicant protective.	0.95 (0.43)
GLOVES, cotton, special (CW protective).	0.35 (0.16)
HOT WEATHER STANDARD ENSEMBLE	
CAP, cotton, utility, OD.	0.18 (0.08)
SOCKS, wool, cushion sole.	0.20 (0.09)
UNDERSHIRT, cotton, knit, 1/4 sleeve.	0.30 (0.14)
DRAWERS, cotton, shorts.	0.22 (0.10)
TROUSERS, cotton utility, OG 107.	1.39 (0.63)
SHIRT, cotton, utility, OG 107.	1.35 (0.61)

2-9. OPERATING PROCEDURES. (CONT)

Table 2-3. Lists Weights (Continued)

Item (One each - medium size)	Dry Weight-pounds (kg)
HOSPITAL CLOTHING/LINEN	
SLIPPERS, canvas, pair	1.2860 (0.5833)
CAP, operating, surgical, green	0.0781 (0.0354)
GOWN, operating, surgical, green	1.2600 (0.5715)
TROUSERS, operating, surgical.	0.7333 (0.3326)
SHIRT, man's, operating	0.7167 (0.3251)
ROBE, dress, cord.	2.2500 (1.0206)
GOWN, operating, surgical, white	2.000 (0.9072)
SHEET, bed, cotton, white	2.000 (0.9072)
PILLOWCASE, cotton, white	0.400 (1.8144)
SHEET, bed, cotton, green	2.000 (0.9072)
SHEET, bed, cotton, fitted	0.5833 (0.2646)
BLANKET, bed, cotton, white	3.3750 (1.5309)
BLANKET, bed, wool, OD	4.6667 (2.1168)

2-9. OPERATING PROCEDURES. (CONT)

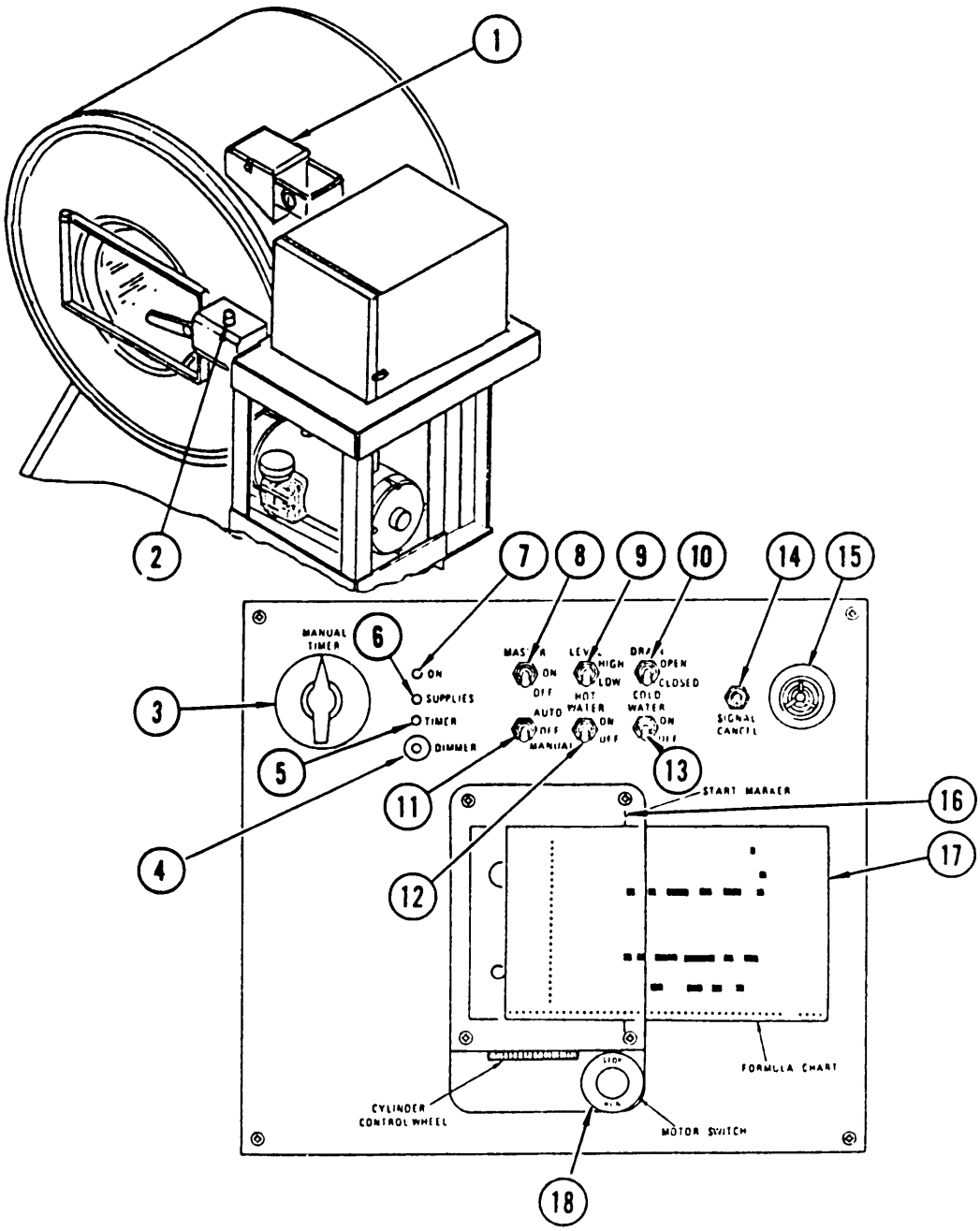


Figure 2-21. Controller.

2-9. OPERATING PROCEDURES. (CONT)

c. Extracting. (Figure 2-3)

WARNING

While extractor basket is spinning, keep hands away. Failure to observe this warning may cause serious injury to personnel.

CAUTION

Do not force extractor lid open. Failure to observe this caution may cause serious damage to equipment.

(1) Place 30 pounds (13.6 kg) of laundry (approximately one-half of a full load from the pre-extraction bin into the extractor.

(2) Distribute load evenly around the basket for balance. Ensure articles are completely inside basket.

(3) Close the extractor lid.

(4) Pull out EMERGENCY STOP button.

(5) Set timer to desired setting (normally 3 minutes) and press START button. The lid will lock, the lid lock signal light will come on, and the machine will spin for the set time.

d. Emergence Stop Procedures.

(1) Emergency stop procedures areas follows:

(a) If the machine vibrates excessively or is extremely noisy, or if something is caught between the basket and the curb, push the EMERGENCY STOP button.

(b) When the signal light goes out, open the lid and rebalance the load. Ensure nothing has dropped between the basket and the curb.

(c) To restart the extractor, pull out the EMERGENCY STOP button, close the lid, and press the START button. When extraction is completed, the basket will stop and the lid lock signal light will go out.

2-9. OPERATING PROCEDURES. (CONT)

WARNING

While extractor basket is spinning, keep hands away. Failure to observe this warning may cause serious injury to personnel.

(6) When the lid light goes off, indicating the end of the cycle, press **EMERGENCY STOP** button.

(7) Open the lid and transfer the load to the dryer.

(8) Repeat steps (1) thru (8) for the remainder of the wash load.

e. Drying.

WARNING

While dryer cylinder is spinning, keep hands away. Failure to observe this warning may cause serious injury to personnel.

(1) Remove the load from the extractor and place no more than 30 pounds (13.6 kg) in the dryer.

(2) Close the tumbler door securely.

(3) Set the temperature control as follows;

(a) For cotton: 250° (121°C)

(b) For wool: 200 °F (93 °C)

(c) For battle dress uniforms (BDU's): 130°F (54 °C).

(4) Set the drying time to approximately 10 minutes.

(5) Press START button on dryer.

(6) When the beeper sounds, turn timer off, open dryer door, and check laundry for dryness.

(7) If laundry is dry, remove. If laundry is not dry, repeat steps (4) and (5) using a 3-minute drying cycle until laundry is dry.

(8) Remove laundry from dryer and place in dryer bin.

2-9. OPERATING PROCEDURES. (CONT)

f. Shutdown Procedures.

NOTE

The laundry unit may begin to be shut down while the last load of wash is being dried.

(1) Make certain that all washer control panel switches are in the OFF position.

(2) Turn off air compressor circuit breaker (3, figure 2-6) at the power distribution panel.

(3) Turn water temperature control (7, figure 2-4) to O°F (-18°C). Allow the water heater to operate for 2 minutes so that the blower may purge vaporized fuel horn the burner. Turn ON/OFF switch(8) to the OFF position and close fuel shutoff valve (10). Open drain valve (14) and drain water from heater. Close valve (14).

(4) Turn off start switch (1, figure 2-5) on the water pump. Open petcock valve (2) and drain water from pump. Close valve (2).

(5) When drying operations are complete, turn dryer temperature control (9, figure 2-2)to0°F(-18°C). Allow the dryer to operate for 2 minutes so that the blower may purge vaporized fueI from the burner. Press the STOP/RESET button (5) and close fuel shutoff valve (13).

(6) Open the dryer door and allow the dryer to cool for 3 to 5 minutes.

(7) If laundry is shutdown for preparation for movement, or if temperature will be below 32 degrees Fahrenheit (0 Celsius), follow sub steps below:

(a) On washer air tank, make sure gauge shows at least 80 psi.

(b) Remove cap from washer recirculating drain.

(c) On backside of washer control panel, locate air line to close recirculating drain valve. Cycle solenoid of closed valve three times to drain water.

(d) Install cap on recirculating drain.

WARNING

Water heater can produce scalding water. To avoid injury, be careful when draining water.

f. Shutdown Procedures— cont.

(e) Connect garden hose to drain valve on bottom of water heater.

(f) Open drain valve on bottom of water heater.

(g) Open bleeder valve, (9, figure 2-4) on top of water heater until a steady stream flows from garden hose.

NOTE

Wait until water has drained before proceeding to next step.

(h) Remove nonmetallic hose (1, 2, 6 figure 2-10) from washer quick coupling half and from water heater quick coupling half. Store in basket.

(i) On backside of washer control panel locate airlines to ball valve of water heater, cycle solenoid of vertical valve, then cycle horizontal valve three times to drain water.

(j) After water has stopped draining from garden hose, close drain valve.

(k) Disconnect garden hose from drain valve and store in basket.

(l) Close bleeder valve on top of water heater.

(m) Open drain cock on washer air tank and drain all water.

(n) Close air tank drain cock.

(8) Set all circuit breakers on the power distribution panel to off (figure 2-6).

(9) Refer to TM 5-6115-585-12 and shutdown the generator set.

2-10. PREPARATION FOR MOVEMENT.

a. Perform shutdown operations. (Refer to paragraph 2-9f).

b. Remove tarp, two struts, and workstand support brackets from the hose basket and set aside.

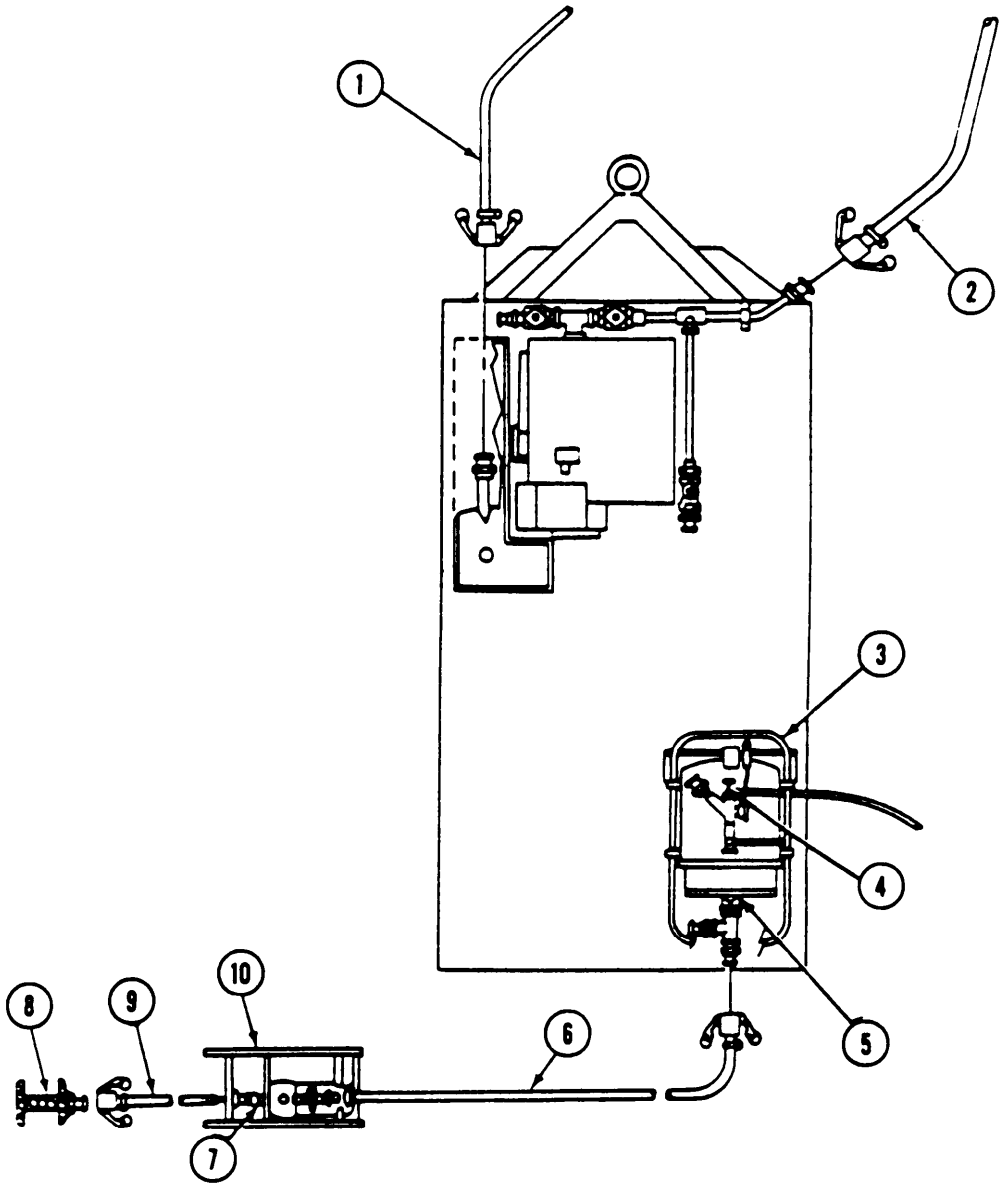
WARNING

Use extreme care to avoid spilling fuel. Fuel is highly flammable and may explode if exposed to heat or spark. Clean up spills as soon as possible. Failure to observe this warning may result in death or serious injury to personnel.

c. Disconnect and drain back into fuel source four fuel lines going to the dryer and water heater. Store fuel lines in hose basket.

d. Remove the drum fill adapters from the fuel source and store in tool box.

2-10. PREPARATION FOR MOVEMENT. (CONT)



e. Disconnect water pump power cable and store in hose baskets.

CAUTION

Water in pipes and equipment can freeze during cold weather causing severe damage to equipment. Ensure that water is drained from pumps, lines, and equipment.

f. Disconnect and drain discharge hose (6) from water pump (10) and store hose in hose baskets.

2-10. PREPARATION FOR MOVEMENT. (CONT)

WARNING

Check that bleeder valve hose is installed on bleeder valve before valve is opened. Serious injury to personnel can occur from hot water.

g. Disconnect and drain suction hose (9) from water pump (10). Connect long garden hose to water release valve (5). Open water release valve (5) and bleeder valve (4) on water heater (3) and drain water from water heater. Disconnect and store long garden hose in hose basket assemblies.

h. Open petcock valve (?) and drain water from water pump (10).

i. Disconnect strainer (8) from suction hose (9). Store hose and strainer in hose baskets.

j. Store and secure water pump (10) in transport position.

k. Disconnect and drain pre-extraction bin drain hose (1)and washer drain hose(2). Install cap and store hoses in hose baskets.

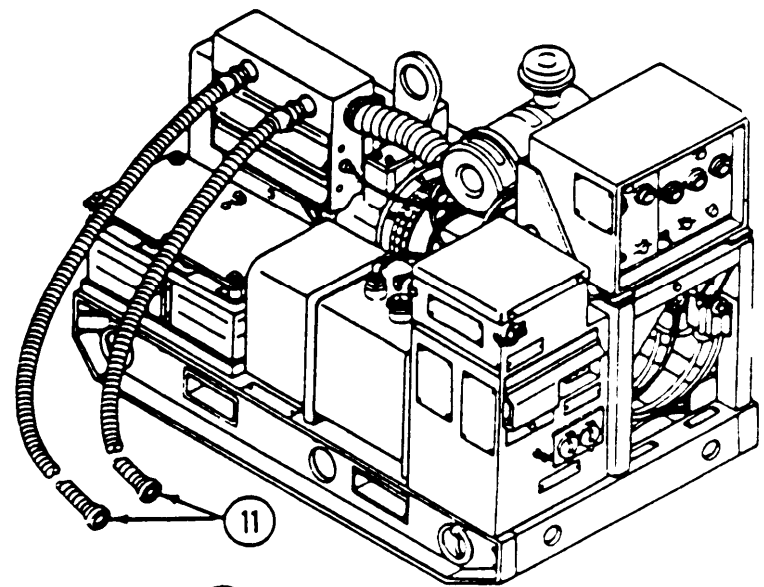
WARNING

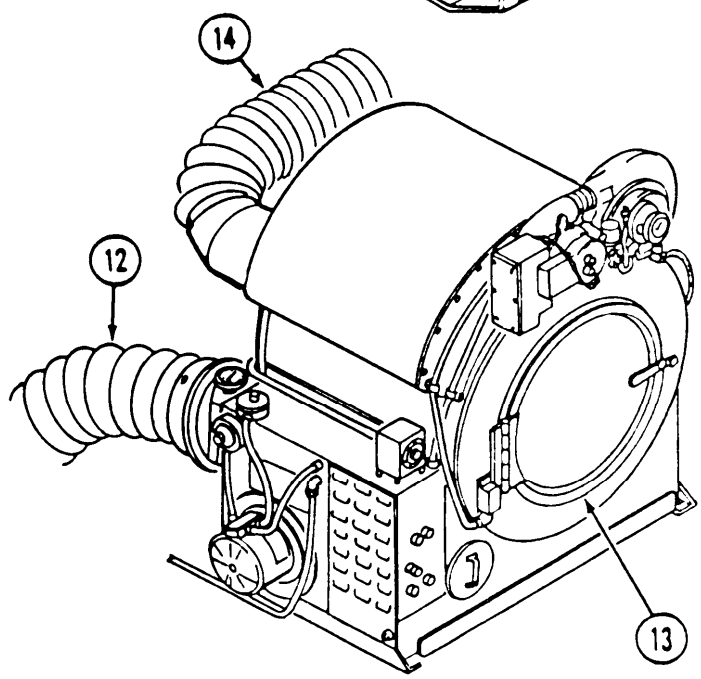
Hot exhaust ducts. Allow ducts to cool before disconnecting. Failure to do so will cause burns.

l. Disconnect and store generator exhaust ducts (11) in hose baskets.

m. Disconnect dryer lint duct (12) and store inside dryer cylinder.

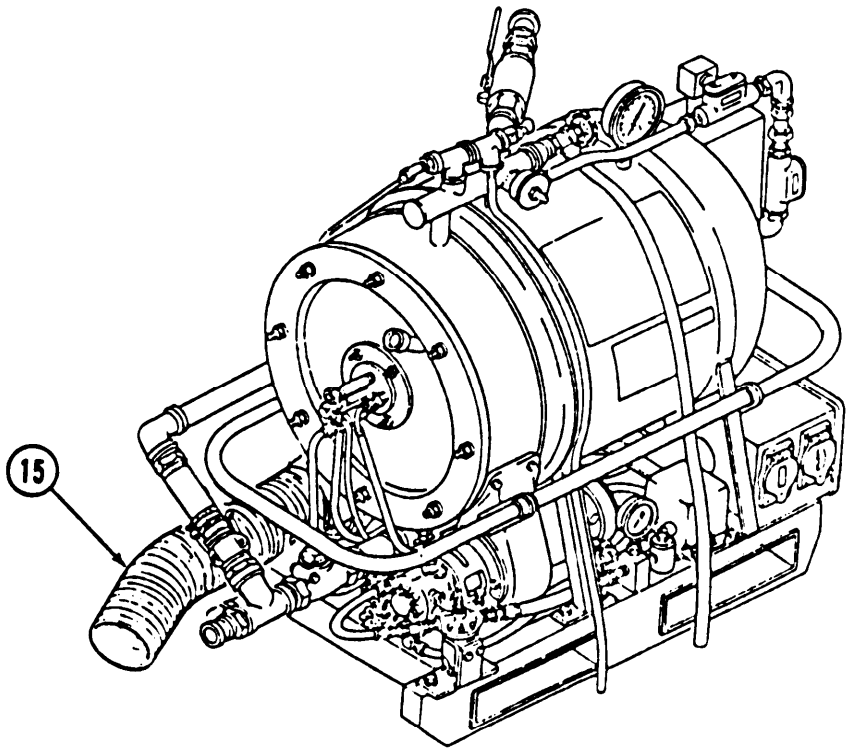
n. Disconnect exhaust duct (14) from dryer. Store and secure duct with three straps on trailer assembly.





2-10. PREPARATION FOR MOVEMENT. (CONT)

o. Disconnect two exhaust ducts (15) from water heater and store in hose baskets.



p. Store and secure dry clothes bin in transport position.

q. Disconnect power cable from external source (if used) and from power distribution box. Install dust caps.

r. Install support packing between extractor basket and curb.

s. Be sure that all equipment panels and doors are closed.

t. Disconnect and store ground rod assembly in hose baskets.

u. Secure all items in hose baskets by fastening straps.

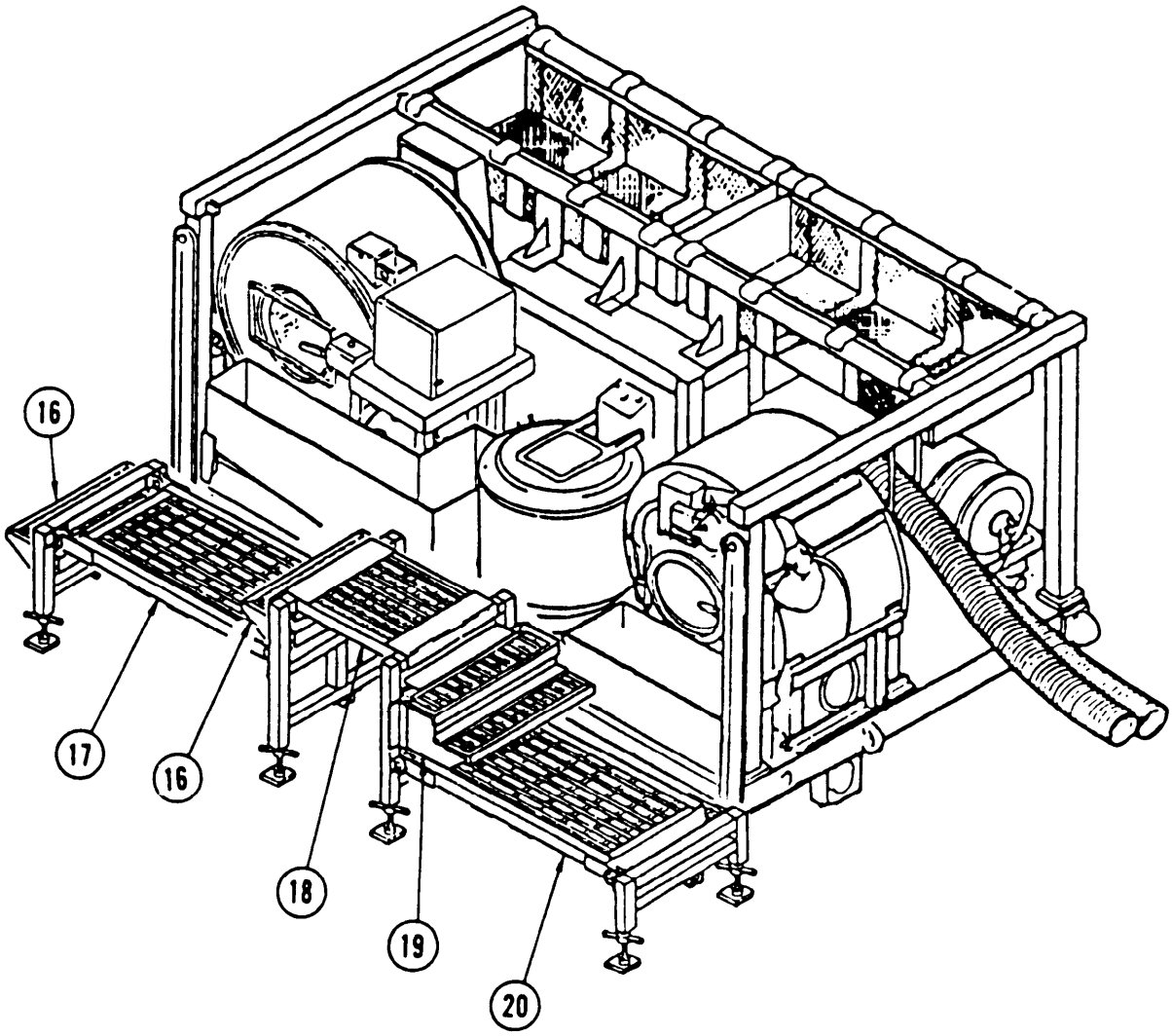
v. Remove left beam assembly from underneath trailer and store on frame assembly.

w. Install and secure two struts on center and left beams.

x. Store and secure ladder on struts.

2-10. PREPARATION FOR MOVEMENT. (CONT)

y. Disassemble platform assembly and store on trailer.

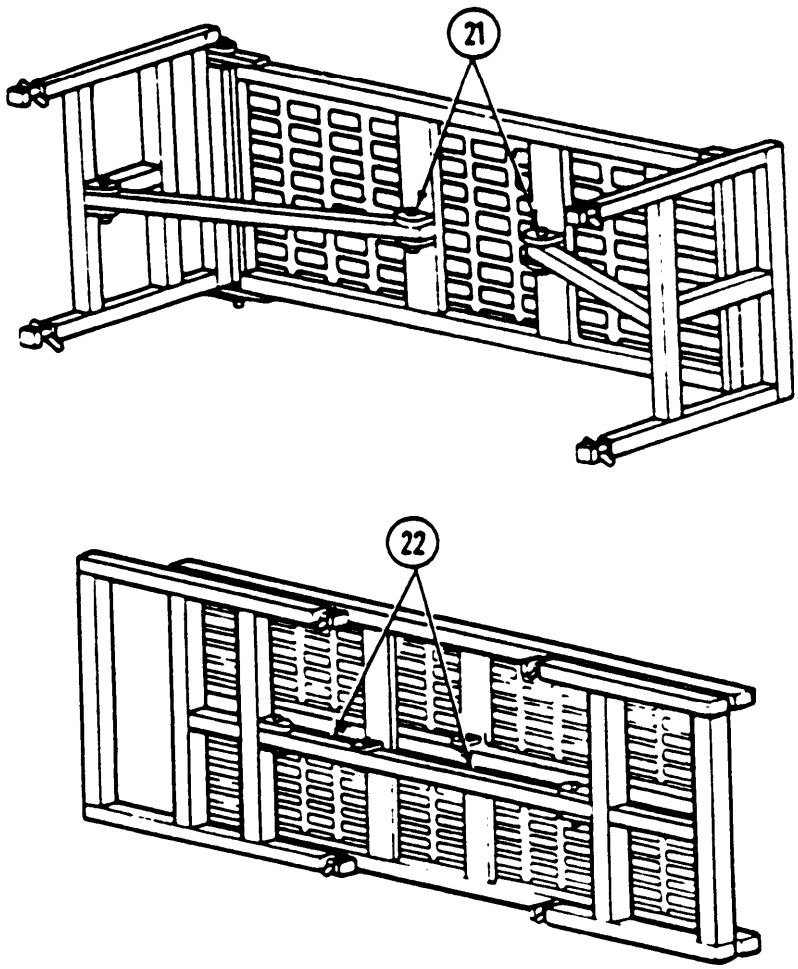


(1) Remove steps (16) from washer platform (17). Place steps behind control stand.

(2) Remove two step (19) and store step in pre-extraction bin.

(3) Remove short platform (18) from washer platform (17) and dryer platform.

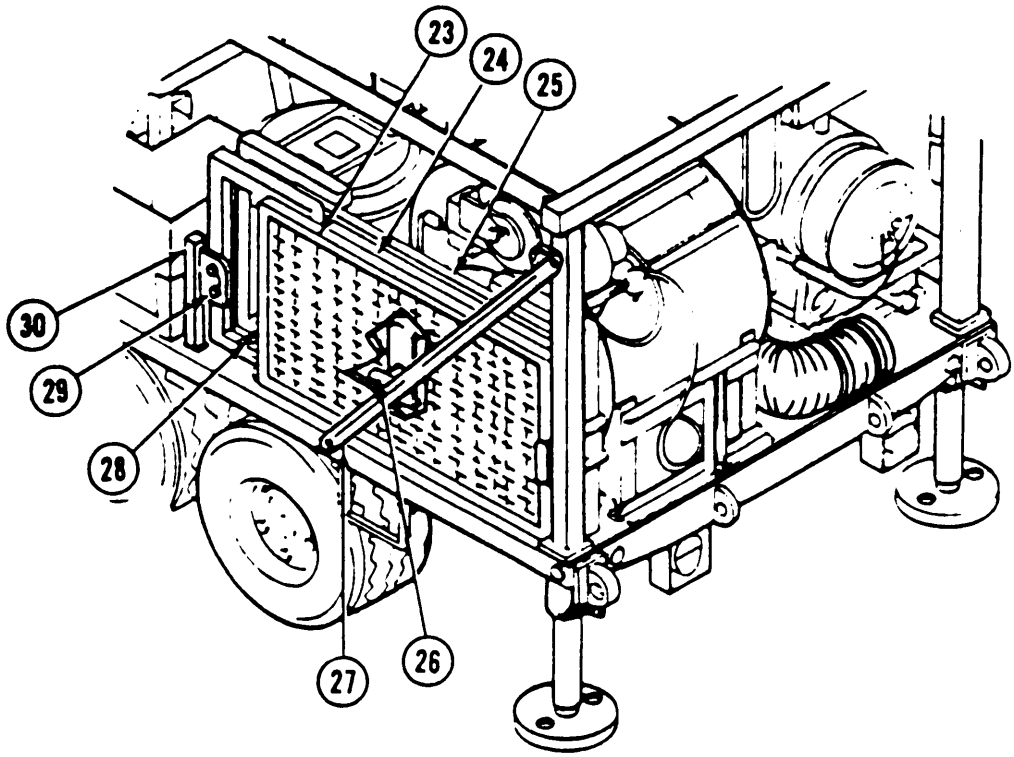
2-10. PREPARATION FOR MOVEMENT. (CONT).



(4) Remove ball locking pins (21) from washer platform. Adjust stabilizer bars (22) and insert ball locking pins in holes provided.

(5) Repeat step (4) for dryer platform assembly.

2-10. PREPARATION FOR MOVEMENT. (CONT).



(6) Place dryer platform assembly (25) on trailer assembly and slide platform toward rear of trailer.

(7) Install workstand storage support brace (30) on trailer assembly.

(8) Install ball locking pin (29) through dryer platform assembly (25) and workstand storage support brace (30).

(9) Install short platform assembly (24) on trailer assembly and secure short platform assembly to dryer platform assembly (25) with clamp (26)

(10) Repeat procedures in steps (6), (7), and (8) for washer platform assembly.

(11) Secure dryer and washer platform assemblies (23) and (25) to trailer assembly with clamp (28).

z. Secure two transportation braces (27) to frame and trailer assembly.

aa. Cover laundry unit with tarp and secure tiedown ropes to trailer.

ab. Hitch laundry unit to towing vehicle, release handbrake, raise trailer supports, and remove wheel chocks. Refer to TM 9-2330-376-14&P.

2-11. OPERATING INSTRUCTION ON DECALS AND INSTRUCTION PLATES. Figure 2-24 shows the location and wording of the M85–100 laundry unit decals and operator caution and warning plates. Refer to the appropriate TM's for trailer and generator data plates.

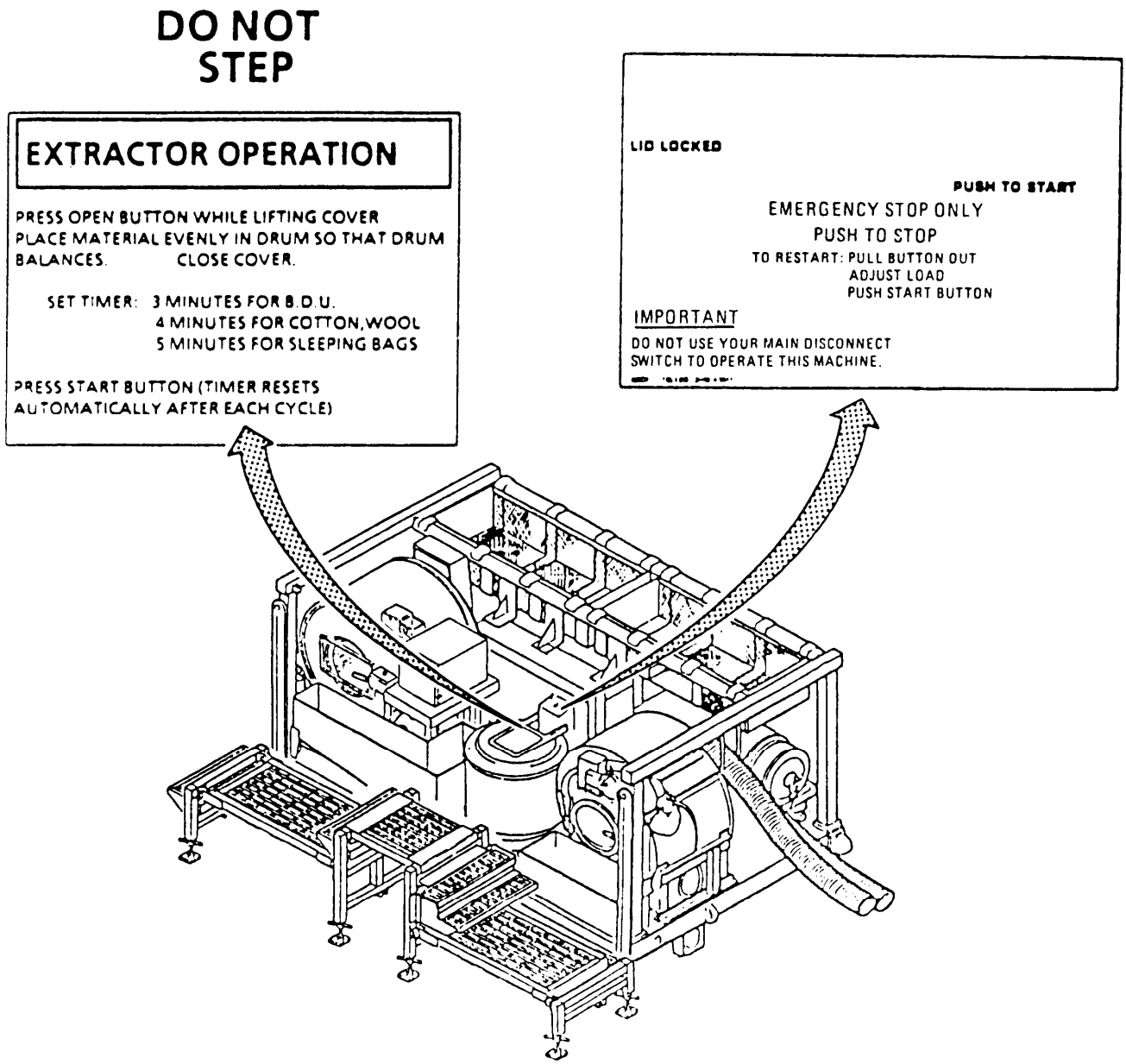


Figure 2-24. Operating Instructions on Decals and Plates. (Sheet 1 of 4)

2-11. OPERATING INSTRUCTION ON DECALS AND INSTRUCTION PLATES. (CONT)

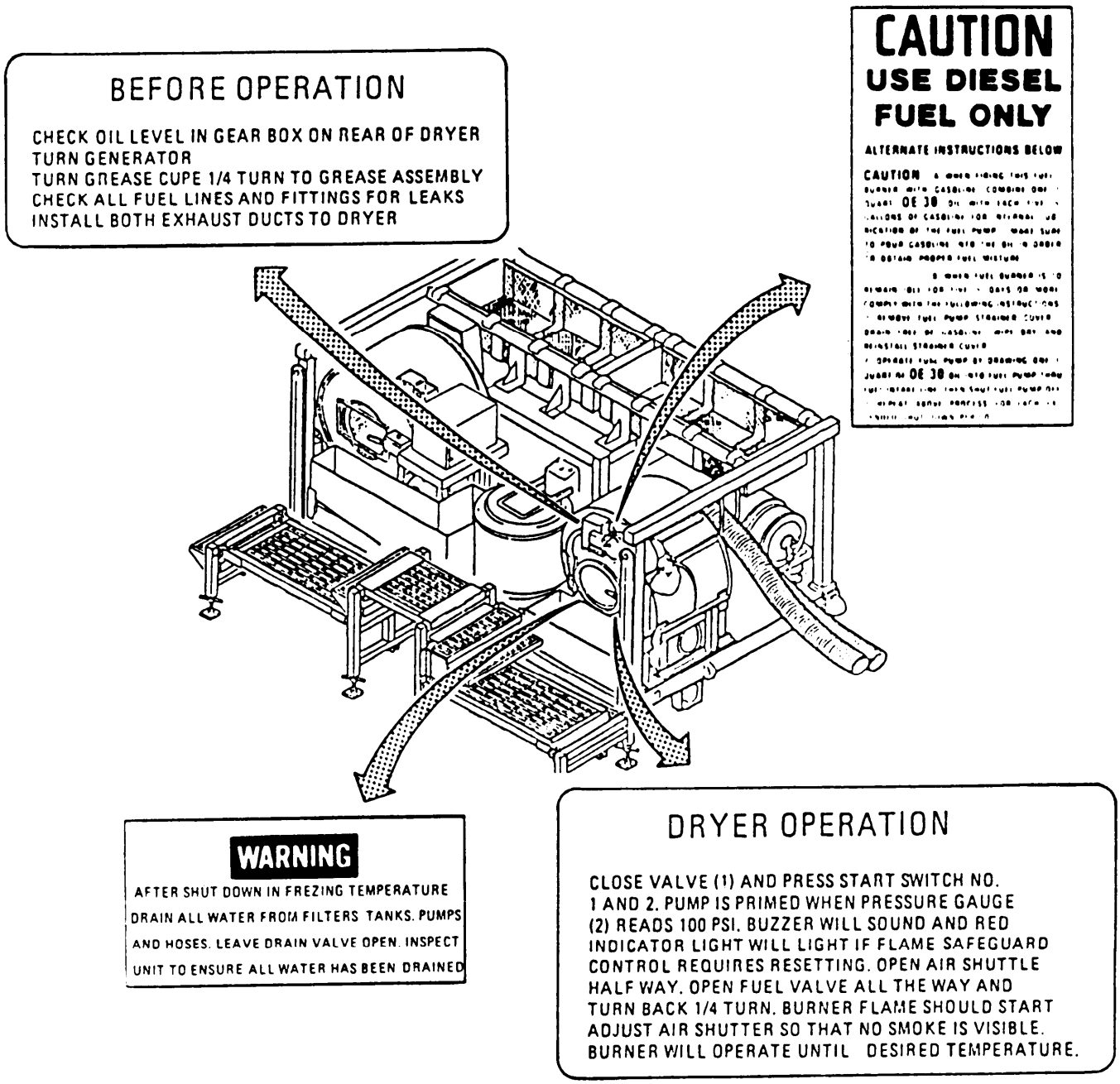


Figure 2-24. Operating Instructions on Decals and Plates. (Sheet 2 of 4)

2-11. OPERATING INSTRUCTION ON DECALS AND INSTRUCTION PLATES. (CONT)

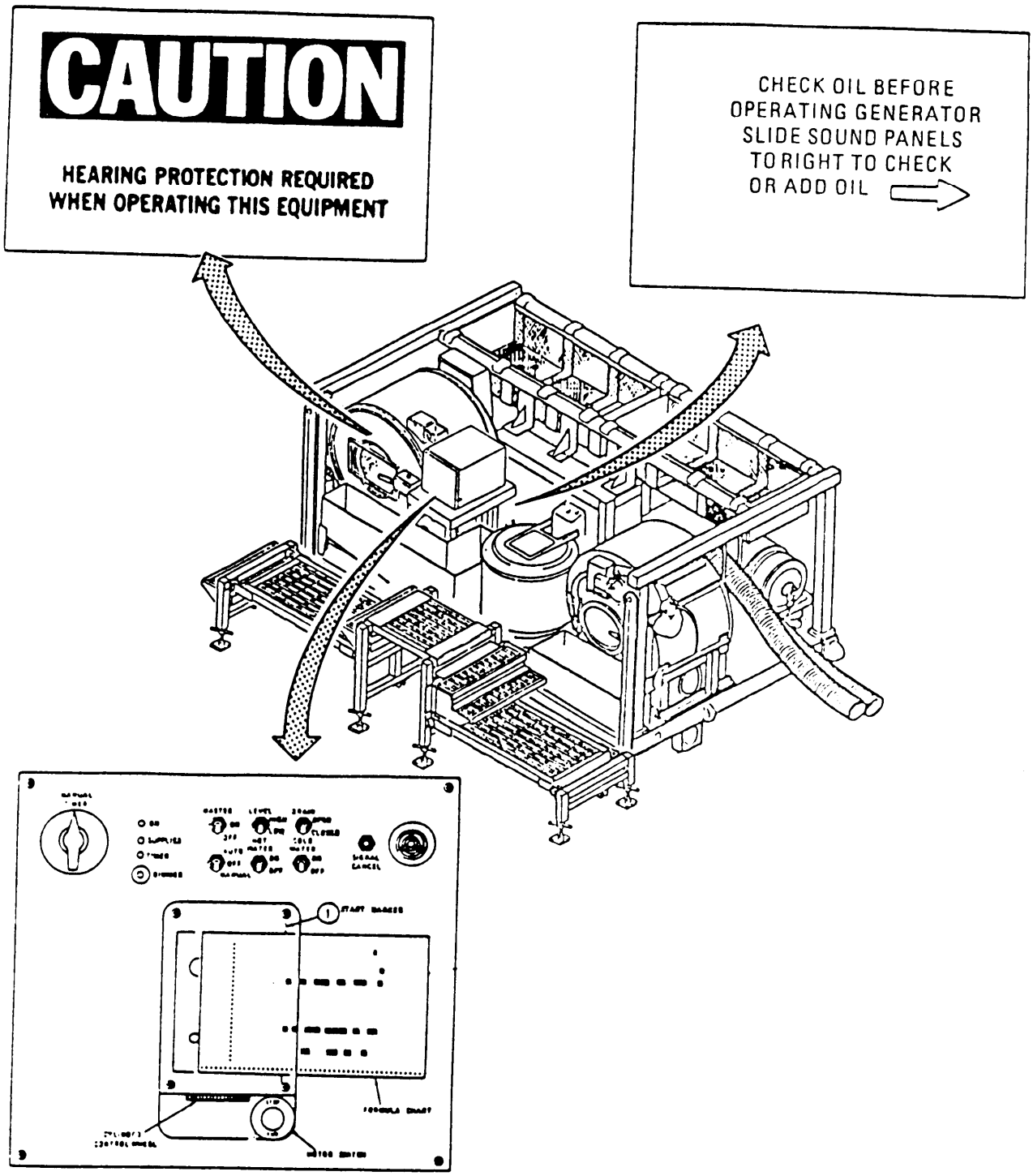


Figure 2-24. Operating Instructions on Decals and Plates. (Sheet 3 of 4)

2-11. OPERATING INSTRUCTION ON DECALS AND INSTRUCTION PLATES. (CONT)

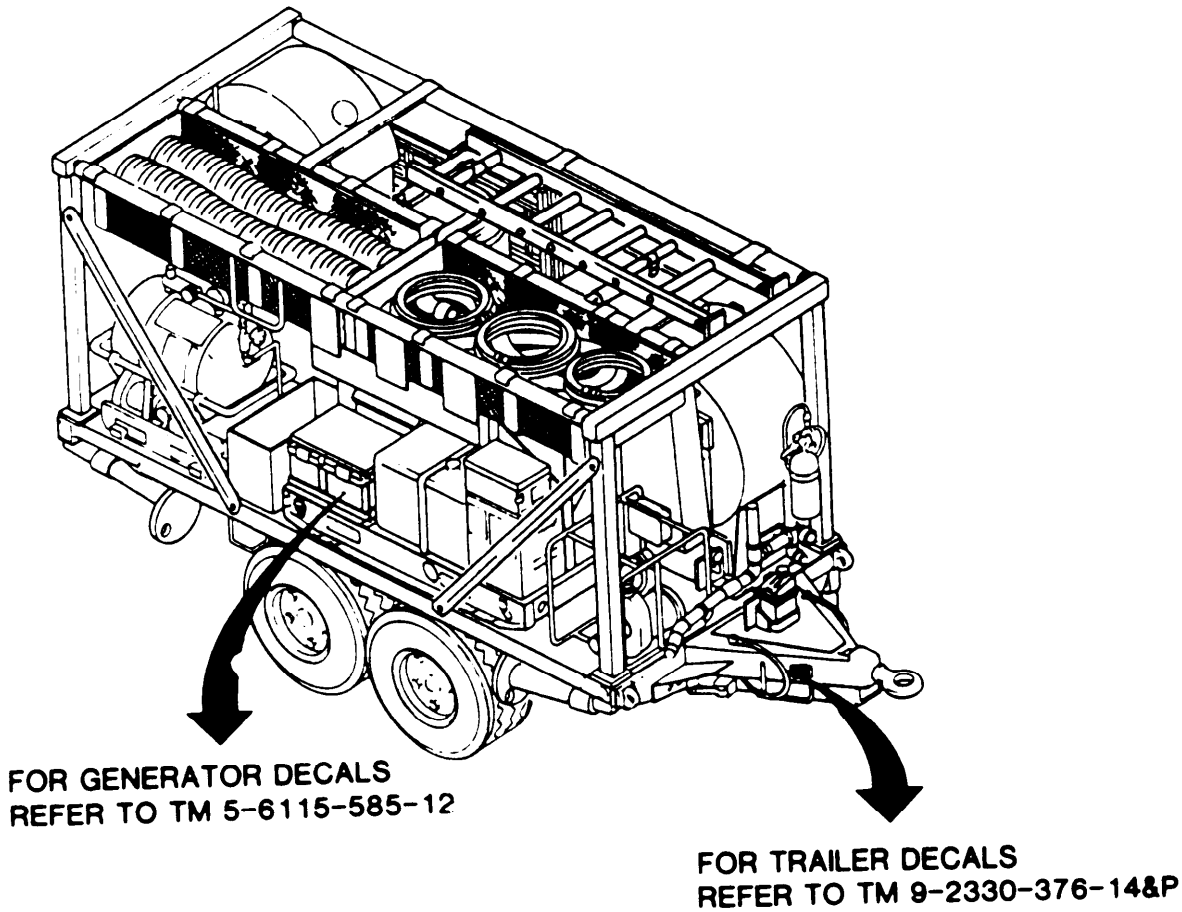


Figure 2-24. Operating Instructions on Decals and Plates. (Sheet 4 of 4)

SECTION IV. OPERATION UNDER UNUSUAL CONDITIONS

2-12. OPERATION IN EXTREME COLD (BELOW 0°F OR -18ºC)

WARNING

Do not touch cold metal parts with bare hands. Cold metal parts can cause frostbite and injury to personnel.

CAUTION

Subzero temperatures cause rubber and metal parts to become brittle and prone to breakage. Use proper lubrication for extreme cold operations.

a. Lubrication of Generator Set. Refer to TM 5-6115-585-12 for proper lubrication in extreme cold (below 0°F to -18°C).

b. Lubrication of Laundry Unit. Ensure the laundry unit has been lubricated in accordance with LO 10-3510-220-12 for the air temperature expected.

c. Operation in Extreme Cold. During operation in extreme cold, steps must be taken to protect the equipment from freezing. Operate the unit inside a tent or other suitable enclosure if necessary. Water must be supplied without exposing the water pump or water hose to below-freezing temperatures. After operation in extreme cold, perform the following:

(1) Shut down and drain water heater and water pump (refer to paragraph 2-9e).

(2) Switch hot and cold water switches OFF and ON to remove water from valves.

(3) Disconnect and drain hoses (refer to paragraph 2-10),

(4) With the washer and compressor operating, switch the hot water and cold water switches on the controller to OFF, with drain switch open and master switch at manual. Allow 2 minutes to drain all water from the washer.

(5) Open the drain valve under the compressor air supply tank and drain condensation.

(6) Load the trailer and store it in a heated shelter if possible.

2-13. OPERATION IN DUST OR SAND.

a. Lubricate the equipment in accordance with the LO 10-3510-220-12.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip-guarding and personal-protective equipment (goggles, shield, gloves, etc.).

b. If possible, shut down the unit during severe dust storms and cover it with a tarpaulin or other suitable protective covering. When the area is reasonably clear of dust, clean the unit thoroughly. Use dry compressed air to clean hard-to-reach places.

2-14. OPERATION IS SNOW AND MUD. Take necessary precautions to ensure a firm footing for the platform by using a field-expedient blocking underneath the platform pads.

2-15. OPERATION IN SALTWATER AREAS.

a. Inspect the laundry unit frequently for rust and corrosion. Rusted or corroded condition must be corrected immediately. If rust or corrosion is present, notify your supervisor.

CAUTION

Do not direct high-pressure water hose nozzles or steam cleaner nozzles into electrical connections/junction boxes.

b. Frequently wash the laundry unit to prevent a buildup of salt deposits.

2-16. EMERGENCY PROCEDURES.

a. The laundry unit is designed to operate on diesel fuel. Under emergency conditions the dryer may be fueled with JP8 (item 11, App. C).

b. There is no alternative fuel source for the generator or water heater.

CHAPTER 3

MAINTENANCE INSTRUCTIONS

Section I. LUBRICATING INSTRUCTIONS

3-1. LAUNDRY UNIT LUBRICATION. Refer to LO 10-3510-220-12 for operator lubrication of the M85–100 Laundry Unit.

3-2. GENERATOR LUBRICATION. Refer to LO 5-6115-585-12 for lubrication instructions on the 10-kW generator.

3-3. TRAILER LUBRICATION. Refer to TM 9-2330-376-14&P for lubrication instructions on the trailer.

Section II. TROUBLESHOOTING PROCEDURES

3-4. INTRODUCTION.

a. Table 3-1 lists the common malfunctions which you may find during operation or maintenance of the laundry unit or its components. You should perform test/inspections and corrective actions in the order listed.

b. This manual cannot list all malfunctions that may occur nor all test or inspections and corrective act ions. If a malfunction is not listed or is not corrected by listed corrective act ions, notify your supervisor.

3-5. TROUBLESHOOTING Use the symptom index in table 3-1 for quick access to troubleshooting procedures in table 3-2.

Table 3-1. Symptom Index

Table 3-2. Troubleshooting

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. WATER PUMP FAILS TO DELIVER WATER.

Step 1. Check that electrical power is available and properly connected to water pump.

a. If no power is available, report problem to unit maintenance.

b. If power is available, proceed to next step.

Step 2. Check water pump motor for reversed rotation.

a. Set ON/OFF Switch to ON. Inspect motor for correct rotation. Motor should rotate in direction of arrow.

b. If rotation is incorrect, check all other motors on laundry unit for proper rotation. If all motors are rotating backwards, shut down power and reverse any two phase leads (L1, L2, L3) at the generator connect ion.

c. If some (but not all) motors are rotating backwards, notify your supervisor.

d. If motor is rotating in proper direction, proceed to next step.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

1. WATER PUMP FAILS TO DELIVER WATER. (Cont)

Step **3.** Check pump to verify that it has been adequately primed.

a. If pump is not primed, refer to paragraph 2-8d and prime the pump.

b. If pump has been adequately primed, proceed to step 4.

Step 4. Check water source to see if it is too shallow.

a. If water source is too shallow, remove suction hose and place it in deeper water. Refer to FM 10-280.

b. If water source is not too shallow, proceed to step 5.

Step 5. Check suction hose and strainer for clogs.

a. If suction hose is clogged, remove and clean suction strainer.

b. If suction hose is not clogged, proceed to step 6.

Step 6. Check hose assemblies for air leaks.

a. If air leaks are present, repair or replace hose assemblies. Repair hose assembly by tightening hose clamps.

b. If air leaks are not present and problem persists, notify your supervisor.

Step 7. Check manual reset thermal protector.

a. Reset manual reset thermal protector on motor.

2. WATER HEATER AND DRYER FAIL TO START

Step 1. Check that electrical power is available to dryer and water heater.

a. If no power is available, report problem to your supervisor.

b. If power is available, proceed to next step.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. WATER HEATER AND DRYER FAIL TO START. (Cont)

Step 2 Check to see if three circuits breakers inside of control panel are tripped.

a. If circuit breakers are tripped, reset circuit breakers.

b. If circuit breakers are not tripped and dryer still fails to start, proceed to next step.

Step 3. Check to see if flame safeguard control lockout switch is tripped.

a. If switch is tripped, refer to paragraph 2-8f(6) for the dryer and paragraph 2-8e(7) for the water heater and reset flame safeguard control lockout switch.

b. If switch is not tripped, proceed to next step.

Step 4. Check that water temperature thermostat on the water heater is set high enough to start the water heater.

a. If thermostat setting is not high enough, increase thermostat setting.

b. If water heater still does not start, proceed to next step.

Step 5. Check water supply in water heater tank.

a. If water supply is low, fill water heater tank with water.

b. If water heater tank is full, proceed to next step.

Step 6. Check to see if load limit switch is tripped.

a. If switch is tripped, move switch to OFF for 10 seconds, then to ON.

b. If switch is not tripped, proceed to next step.

Step 7. Check to see if blower motor reset button is tripped.

a. If button is tripped, reset blower motor reset button.

b. If reset button is not tripped, notify your supervisor.

Table 3-2. Troubleshooting (Continua)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

3. FLAME FAILS IN BURNER (WATER HEATER/DRYER).

WARNING

Fuel is very 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 burner* is *hot. Fuel can be ignited by hot burner. Shut off engine and do not smoke while refueling.*

Step 1. Check fuel supply in fuel drum.

a. If fuel supply is low, fill fuel drum.

b. If fuel supply is adequate, proceed to next step.

Step 2. Inspect fuel hose for air leaks.

a. If leaks are present, tighten fuel hose connections.

b. If no leaks are present, proceed to next step.

Step 3. Check feed and return fuel hose assemblies to see if they are reversed.

a. If feed and return fuel hoses are reversed, disconnect and reconnect fuel hose assemblies in correct positions.

b. If feed and return fuel hoses are in correct positions, proceed to next step.

Step 4. Check fuel pump to verify that it has been primed.

a. If fuel pump has not been primed, refer to paragraph 2-8e and prime pump.

b. If fuel pump has been primed, proceed to next step.

Step 5. Check to see if flame safeguard switch is tripped.

a. If flame safeguard switch is tripped, refer to paragraph 2-8f for the dryer and paragraph 2-8e for the water heater and reset flame safeguards switch.

b. If switch is not tripped, proceed to next step.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

3. FLAME FAILS IN BURNER (WATER HEATER/DRYER). (Cont)

Step 6. Check fire eye for cleanness.

a. If fire eye is dirty, clean fire eye.

b. If fire eye is not dirty, proceed to next step.

Step 7. Check ignition cable assemblies for loose connections at electrode and transformer ends.

a. If connections are loose, tighten connections at electrode and transformer ends.

b. If connections are not loose, notify your supervisor.

4. FUEL PRESSURE TOO HIGH (WATER HEATER/DRYER).

Check fuel pressure gage on the water heater for an indication of 80 psi (552 kPa) and the dryer for over 100 psi (609 kPa).

If gages indicate more than the specified amounts, notify your supervisor.

5. FUEL PRESSURE TOO LOW OR FUEL PRESSURE PULSATES (WATER HEATER/DRYER)

WARNING

Fuel is very 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 burner is hot. Fuel can be ignited by hot burner. Shut off engine and do not smoke while refueling.

Step 1. Check fuel supply in fuel drum.

a. If fuel supply is low, fill fuel drum.

b. If fuel supply is adequate, proceed to next step.

Step 2. Inspect fuel hose for air leaks.

a. If leaks are present, tighten fuel hose connections.

b. If no leaks are present, proceed to next step.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

5. FUEL PRESSURE TOO LOW OR FUEL PRESSURE PULSATES (WATER HEATER/DRYER) (Cont)

Step 3. Check feed and return fuel hose assemblies to see if they are reversed.

a. If feed and return fuel hoses are reversed, disconnect and reconnect fuel hose assemblies in correct positions.

b. If feed and return fuel hoses are in correct positions, proceed to next step.

Step 4. Check fuel pump to verify that it has been primed.

a. If fuel pump has not been primed, refer to paragraph 2-8e and prime pump.

b. If fuel pump has been primed, proceed to next step.

Step 5. Inspect fuel filter cover for loose hardware.

a. If fuel filter cover is loose, tighten connections,

b. If fuel filter cover is not loose, report problem to your supervisor.

Step 6. Check for clogged fuel filter,

a. If fuel filter is clogged, refer to paragraph 3-7 and perform maintenance on fuel filter,

b. If problem persists, notify your supervisor.

6. FUEL PUMP FAILS TO DELIVER FUEL TO BURNER (WATER HEATER/DRYER).

WARNING

Fuel is very 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 burner is hot. Fuel can be ignited by hot burner. Shut off engine and do not smoke while refueling.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. FUEL PUMP FAILS TO DELIVER FUEL TO BURNER (WATER HEATER/DRYER). (Cont)

Step 1. Check for proper rotation of fuel pump.

a. If fuel pump rotates in wrong direction, notify your supervisor.

b. If fuel pump rotates in proper direction, proceed to next step.

Step 2. Check fuel supply in fuel drum.

a. If fuel supply is low, fill fuel drum.

b. If fuel supply is adequate, proceed to next step.

Step 3. Inspect fuel hose for air leaks.

a. If leaks are present, tighten fuel hose connections.

b. If no leaks are present, proceed to next step.

Step 4. Check supply and return hose assemblies to see if they are reversed.

a. If supply and return hoses are reversed, disconnect and reconnect them in proper positions.

b. If supply and return hoses are not reversed, proceed to next step.

Step 5. Check fuel pump to verify that it has been primed.

a. If fuel pump has not been primed, refer to paragraph 2-8e and prime pump.

b. If fuel pump has been primed, proceed to next step.

Step 6. Inspect fuel filter cover for loose hardware.

a. If fuel filter cover is loose, secure hardware.

b. If fuel filter cover is not loose, proceed to next step.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

6. FUEL PUMP FAILS TO DELIVER FUEL TO BURNER (WATER HEATER/DRYER). (Cont)

Step 7. Check for clogged fuel filter.

a. If fuel filter is clogged, refer to paragraph 3-7 and perform maintenance on fuel filter.

b. If problem persists, notify your supervisor.

7. BLACK SMOKE COMES OUT OF BURNER EXHAUST DUCT (WATER HEATER/DRYER).

Check to see if fuel-to-air ratio adjustment is correct.

a. If fuel-to-air ratio adjustment is incorrect, refer to paragraph 3-7 and adjust shutter for proper volume of air intake.

b. If fuel-to-air ratio adjustment is correct, notify your supervisor.

8. EXTRACTOR FAILS TO START.

Step 1. Check emergency STOP button and see if it is pushed in.

a. If emergency STOP button is pushed in, reset by pulling emergency STOP button out.

b. If emergency stop is reset, proceed to next step.

Step 2. Check lid on extractor and make sure it is closed and locked in position.

a. If lid is open, close and lock in correct position.

b. If lid is closed and locked in position, proceed to next step.

Step 3. Check to see if power is available to extractor. Check to see if circuit breaker on power distribution panel is off.

a. If circuit breaker is off, reset circuit breaker.

b. If power is not available, notify your supervisor.

Table 3-2. TROUBLESHOOTING (continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

9. EXTRACTOR BASKET FAILS TO TURN.

Check lid on extractor and make sure it is closed. Inspect indicator light on control box. Indicator should light if lid is closed.

a. If lid is not closed, close lid and press START button.

b. If lid is closed and extractor basket will not turn after pressing START button, report problem to unit maintenance.

10. EXTRACTOR FAILS TO DRAIN.

Remove and inspect drain hose for kinks and/or clogged condition.

a. If hose is clogged, remove hose and remove clog.

b. If drain is not kinked or clogged, notify your supervisor.

11. WASHER FAILS TO FILL WITH WATER.

Step 1. Check water pump for proper operation. Refer to malfunction 1.

a. If water pump is not operational, notify your supervisor.

b. If water pump is operational, proceed to next step.

Step 2. Inspect input line for kinks and/or loose connections.

a. Straighten lines and secure connections.

b. If washer still fails to fill, proceed to next step.

Step 3. Check to see if hot and cold water valves operate. Valves should open and close when switches on the controller are activated.

a. If valves do not operate properly, notify your supervisor.

b. If washer still fails to fill, proceed to next step.

Step 4. Check air pressure gage on air tank for an indication of at least 70 psi (483 kPa).

a. If pressure is 70 psi (483 kPa) or above, proceed to next step.

b. If pressure is below 70 psi (483 kPa) check circuit breaker on power distribution box for the air compressor and motor start reset button.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

11. WASHER FAILS TO FILL WITH WATER. (Cont)

Step 5. Check air trap and level switch tube for kinks or obstruction.

a. Remove kink or obstruction.

b. If water level problems persist, notify unit maintenance.

12. WASHER FILLS WITH WRONG AMOUNT OF WATER.

Step 1. Inspect controller switches to determine whether switches are in the correct positions.

a. Set switches on controller to desired position.

b. If problem persists, proceed to step 2.

Step 2. Check air trap and level switch tube for kinks or obstruction

a. Remove kink or obstruction.

b. If tube contains water, this indicates an air leak, notify your supervisor.

Step 3. Check to see if hot and cold water valves operate. Valves should open and close when switches on controller are activated.

a. If valves do not operate properly, notify your supervisor.

b. If valves operate properly, proceed to next step.

Step 4. Check air pressure gage on air tank for an indication of at least 70 psi (483 kPa).

a. If pressure is below 70 psi (483 kPa), check circuit breaker on power distribution box for the air compressor.

b. If pressure is 70 psi (483 kPa), notify our supervisor.

13. WASHER FILLS WITH WRONG TEMPERATURE OF WATER.

Step 1. Check for proper switch settings on controller.

a. Set switches to proper setting.

b. If temperature problem persists, proceed to next step.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

13. WASHER FILLS WITH WRONG TEMPERATURE OF WATER.

Step 2. Check for proper thermostat setting on water heater.

a. If setting is incorrect, refer to malfunction 2, step 2.

b. If correct temperature cannot be obtained, notify your supervisor.

14. WASHER FAILS TO TUMBLE.

Step 1. Check positions of switches on controller.

a. Position the switches to effect proper tumbling action.

b. If washer still fails to tumble, proceed to next step.

Step 2. Check to ensure washer door is closed.

a. If the door is not closed, close the door and secure.

b. If door is closed and secure, proceed to next step.

WARNING

Remove rings, bracelets, wristwatches, and neck chains before working around or on the laundry unit. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock. Ensure circuit breakers are in the OFF position.

Step 3. Check drive mechanism for missing or damaged belt.

Report missing or damaged belts to your supervisor.

Step 4. Check for blown fuses inside of controller. Replace suspect fuses with a known good fuse.

If problem still persists, notify your supervisor.

Table 3-2. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
15. WASHER FAILS TO DRAIN.
Step 1. Check controller switches for proper position.
a. Position switches as needed.
b. If switches are in proper position, proceed to next step.
Step 2. Check drain hose for kinks and/or clogged condition.
a. If hose is kinked or clogged, disconnect hose and remove foreign material. Connect hose and straighten kinks.
b. If drain hose is not kinked or clogged, proceed to next step.
Step 3. Check drain hose air valves for loose couplings and damage.
If air hose valves are loose or damaged, notify your supervisor.
16. AIR COMPRESSOR FAILS TO START.
Step 1. Check to see if circuit breaker inside of circuit breaker box is tripped.
a. If circuit breaker is tripped, reset circuit breaker.
b. If circuit breaker is not tripped and air compressor still fails to start, proceed to next step.
Step 2. Check motor starter reset in enclosure box located above the circuit breaker box.
a. If button is tripped, reset motor starter reset button.
b. If problem still persists, notify your supervisor.

Section III. OPERATOR'S MAINTENANCE PROCEDURES

3-6. INTRODUCTION. This section provides instructions for inspection, service, and adjustment of assemblies and subassemblies Of the laundry unit. Each maintenance procedure contains step-by-step instructions for the task to be Performed"

3-7. OPERATOR'S MAINTENANCE PROCEDURES.

a. Generator Maintenance. Refer to TM 5-6115-585-12 for performing maintenance on the 10-kW generator.

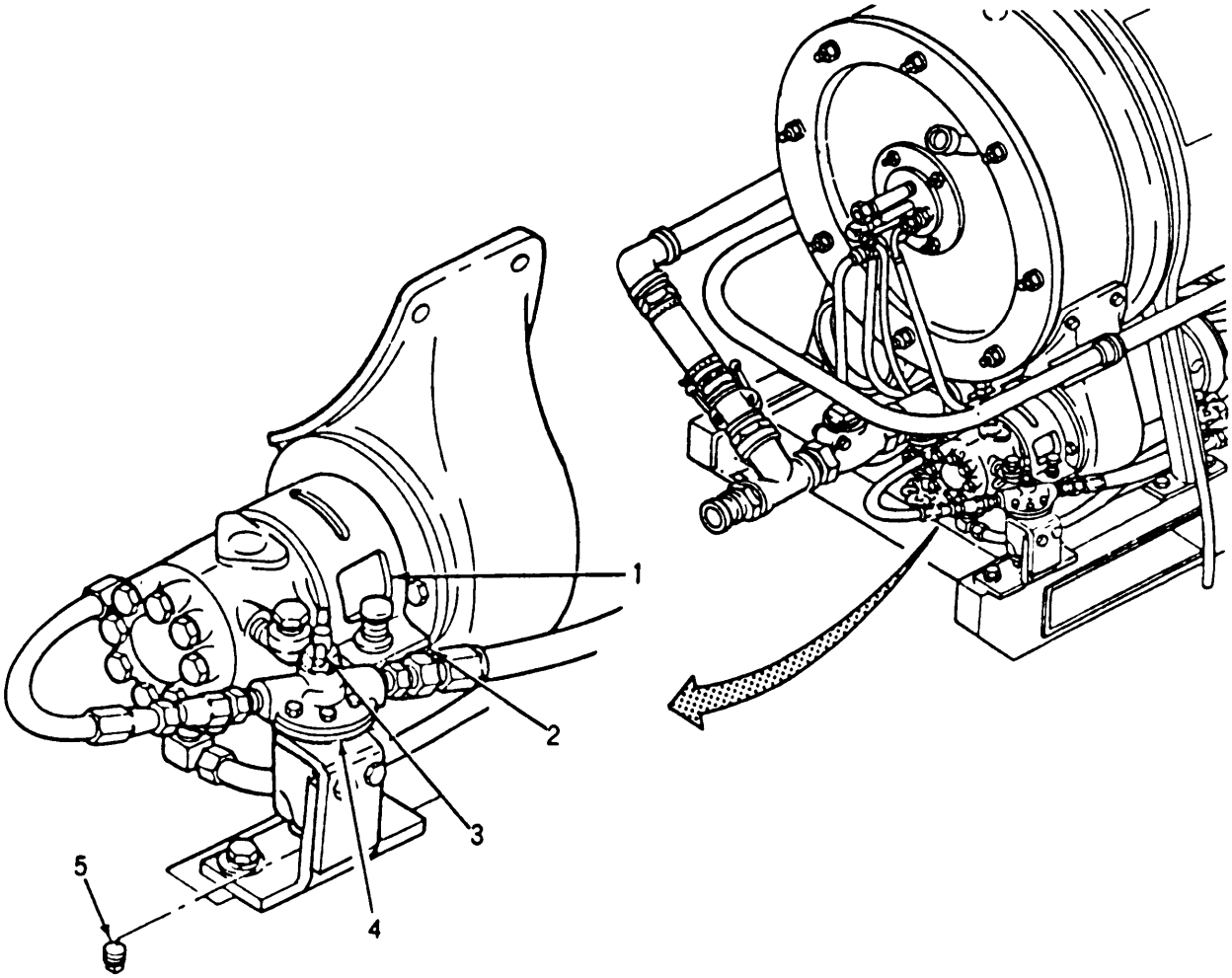
b. Trailer Assembly Maintenance. Refer to TM 9-2330-376-14&P for performing maintenance on the trailer assembly.

c. Water Heater Fuel Filter Maintenance. These instructions tell how to inspect and service the fuel filter assembly on the laundry water heater.

(1) Inspect fuel filter assembly (4) for damage and leaks.

3-7. MAINTENANCE PROCEDURES. (CONT)

(2) Service fuel filter (4) by turning handle (3) a few times to clean the permanent element. Remove drain plug (5) and allow moisture and sediment to drain from bowl. Install drain plug(5).

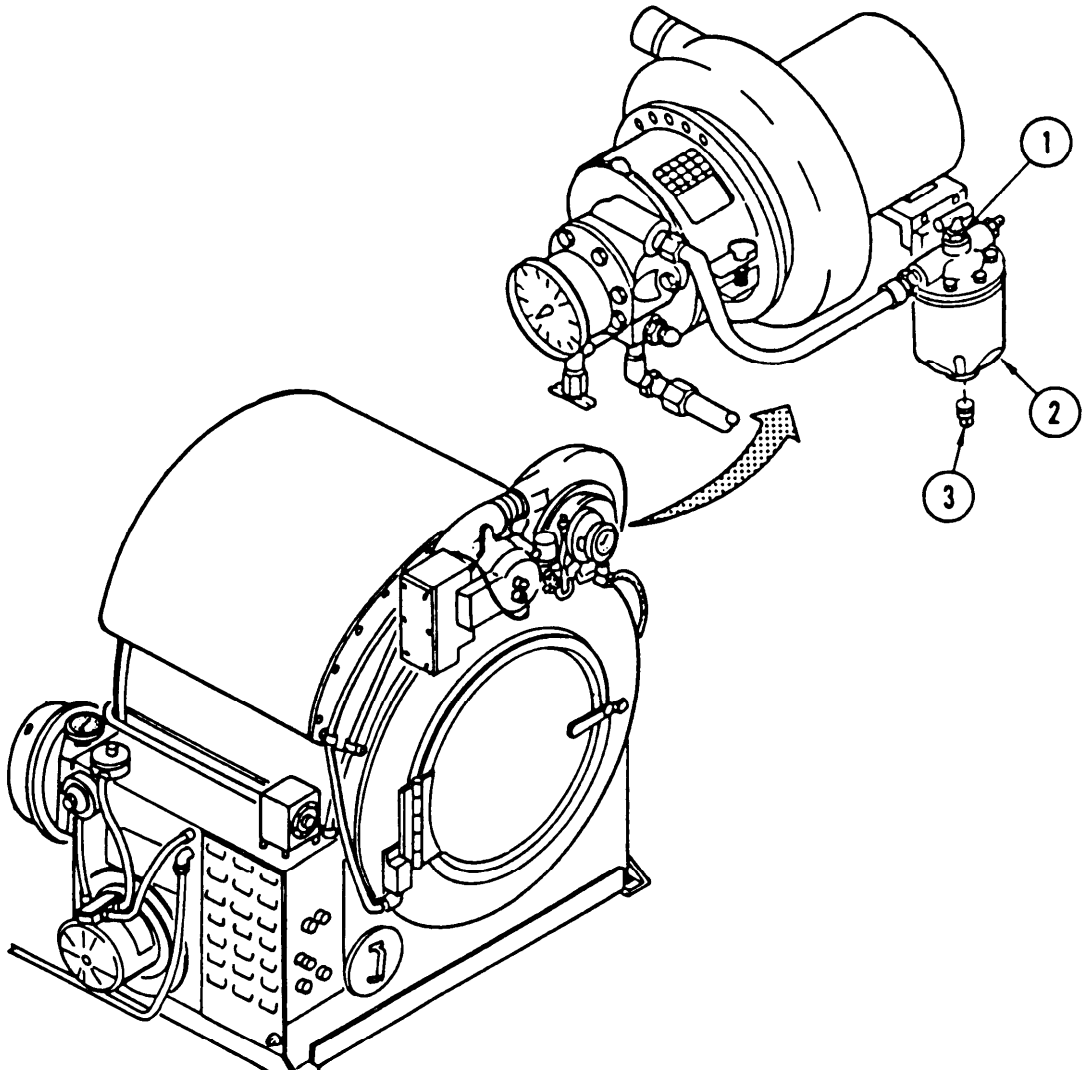


d. Water Heater Air Shutter Assembly Maintenance. These instructions tell how to inspect and adjust the air shutter assembly on the water heater.

(1) Inspect air shutter forbidding of moving parts and for damage.

(2) Adjust air shutter (1) by grasping slider band(2) and rotating band up or down to increase or decrease air opening. Adjust air opening during operation to obtain a light-colored exhaust and rumble-free operation.

3-7. OPERATOR'S MAINTENANCE PROCEDURES. (CONT)

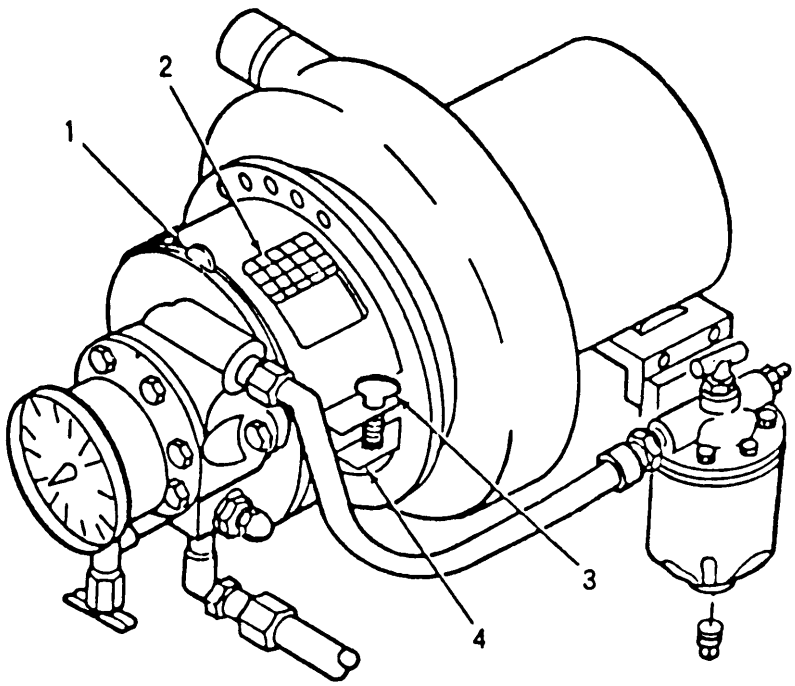


e. Drying Tumbler Fuel Filter Maintenance. These instructions tell how to inspect and service the fuel filter assembly on the laundry drying tumbler.

(1) Inspect fuel filter assembly (2) for damage and leaks.

(2) Service fuel filter (2) by turning handle (1) a few times to clean the permanent element. Remove drain plug (3) and allow moisture and sediment to drain from bowl. Install drain plug (3).

3-7. MAINTENANCE PROCEDURES. (CONT)



f. Drying Tumbler Air Shutter Assembly Maintenance. These instructions tell how to inspect and adjust shutter assembly on the drying tumbler.

(1) Inspect burner air intake (2) for damage and for binding of moving parts.

(2) Adjust burner air intake(2) by loosening wing bolt (3) and sliding band (4) up or down to increase or decrease air opening. Adjust air shutter (1) during operation to obtain a light-colored exhaust and rumble-free operation.

APPENDIX A

REFERENCES

A-1. SCOPE. This appendix lists all forms, field manuals, technical manuals and other publications referenced in this manual. Also listed are those publications that should be consulted for additional information about the laundry unit and its major components.

A-2. ADMINISTRATIVE PUBLICATIONS.

a. Pamphlets.

DA PAM 738-750	The Army Maintenance Management System (TAM MS)

b. Forms.

DA FORM 2028	Recommended Changes to Publications and Blank Forms
DA FORM 2028-2	Recommended Changes to Equipment Technical Publications
DA FORM 2404	Equipment Inspection and Maintenance Worksheet
DA FORM 2407	Maintenance Request
DA FORM 2408-9	Equipment Log Assembly (Records)
SF 368	Quality Deficiency Report

A-3. TECHNICAL PUBLICATIONS.

a. Manuals

FM 9-207	Operation and Maintenance of Ordinance Material in Cold Weather (0 Deg to Minus 65 Deg F)
FM 10-280	Field Laundry Clothing Exchange and Bath Operations
FM 21-11	First Aid for Solders
FM 31-70	Basic Cold Weather Manual
FM 31-71	Northern Operations
TB 10-3510-220-24	Warranty Program for Trailer Mounted Laundry Unit
TM 10-3510-220-24P	Unit, Direct Support, and General Support Maintenance Repair Parts and Special Tools List, Laundry, Trailer-Mounted, Army M85-100.

A-3. TECHNICAL PUBLICATIONS. (CONT)

TM 10-3510-220-24	Unit, Direct Support, and General Support Maintenance Manual; Laundry, Trailer-Mounted, Army Model M85-100.
TM 5-6115-585-12	Operator and Organizational Maintenance Manual for Generator Set, Diesel, Engine Driven, 10 kW, 60 HZ
TM 9-2330-376-14&p	Operator's, Organizational, Direct Support, and General Support Maintenance Manual for Trailer, Flatbed, General Purpose, 5-Ton, 4-Wheel, M1061 E1
TM 750-244-6	Procedures for Destruction of Tank-Automotive Equipment to prevent Enemy Use

b. Lubrication Order

LO 10-3510-220-12	Lubricating Order, Laundry Unit, Trailer-Mounted, M85–100.
LO 5-6115-585-12	Lubricating Order, Generator Set, Diesel Engine Driven, Tactical Skid Mounted, 10 kW
LO 9-2330-376-14&P	Lubricating Order, Trailer, Flatbed, General Purpose, 5-Ton, 4-Wheel, XM1061 E1

APPENDIX B

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

B-1. SCOPE. This appendix lists components of end item and basic issue items for the laundry unit to help you inventory items required for safe and efficient operation.

B-2. GENERAL. The Components of End Item and Basic Item 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 are 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 assist you in identifying the items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the laundry unit in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the laundry unit during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your 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 listing:

a. Column (1) - Illustration Number (Illus Number). This column indicates the number of the illustrations in which the item is shown.

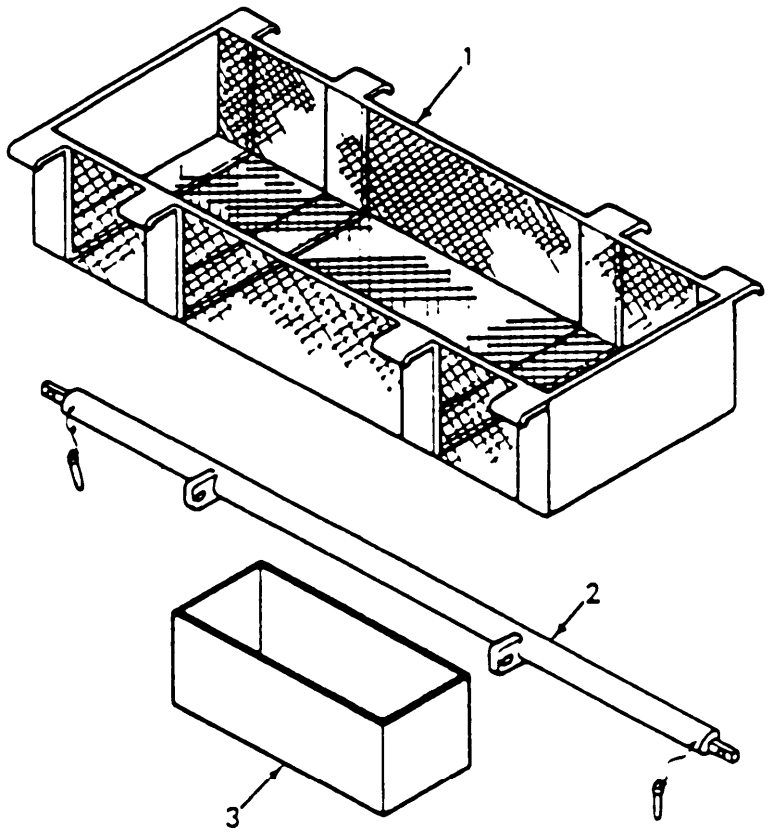
b. Column (2) - National Stock Number. Indicates the National Stock Number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description. 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 CAGE (in parentheses) followed by the part number.

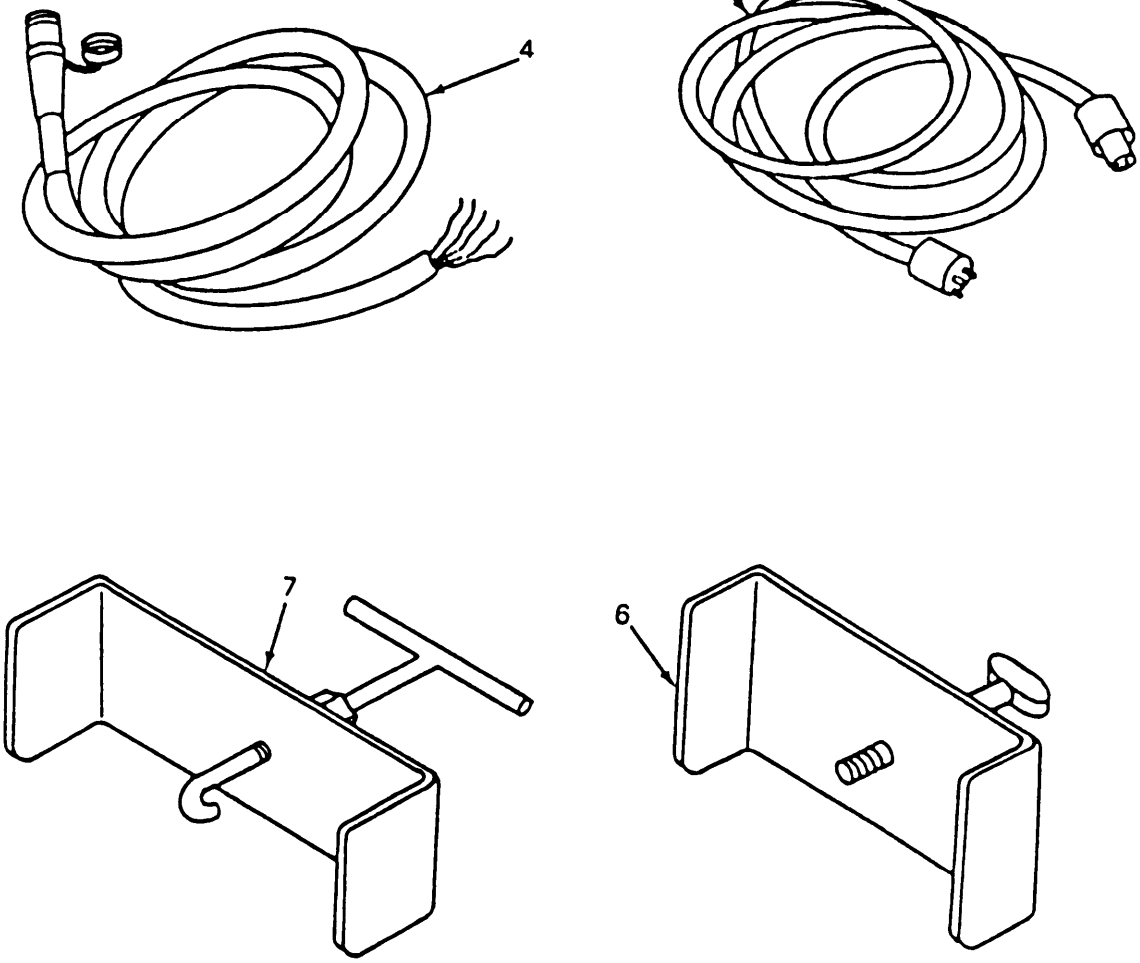
d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e. g., ea, in., pr).

e. Column (5) - Quantity Required (Qty Reqd). Indicates the quantity of the item authorized to be used with/on the equipment.

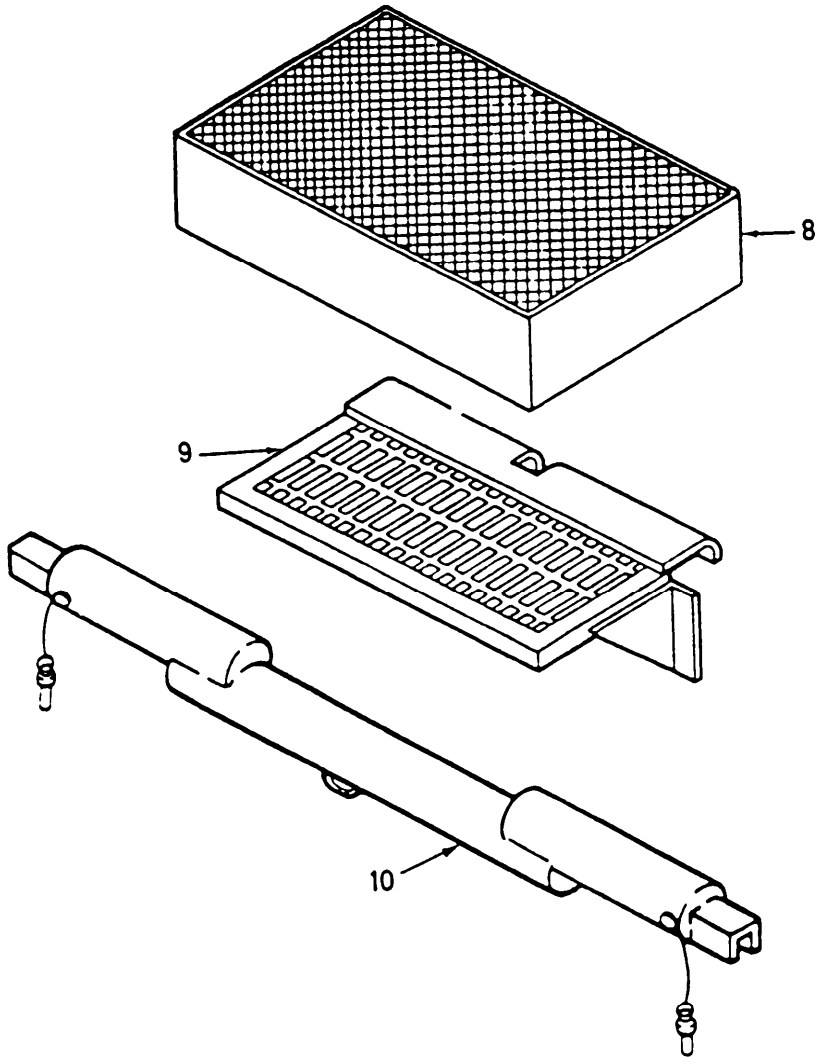
Section II. COMPONENTS OF END ITEM



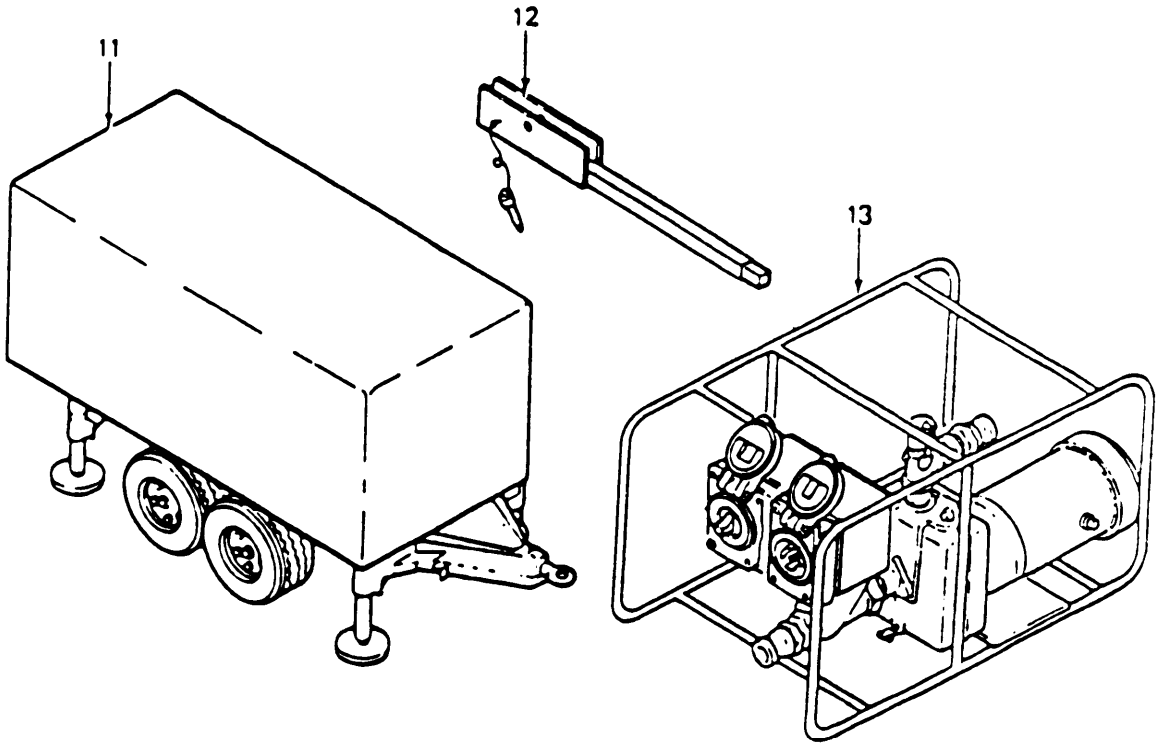
(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
1		BASKET ASSY, HOSE (81337) 6-1-9955	EA	2
2		BEAM ASSY, LEFT (81337) 6-2-2418	EA	1
3	3510-01-248-5296	BIN ASSY, DRYER (81337) 6-1-9906	EA	1



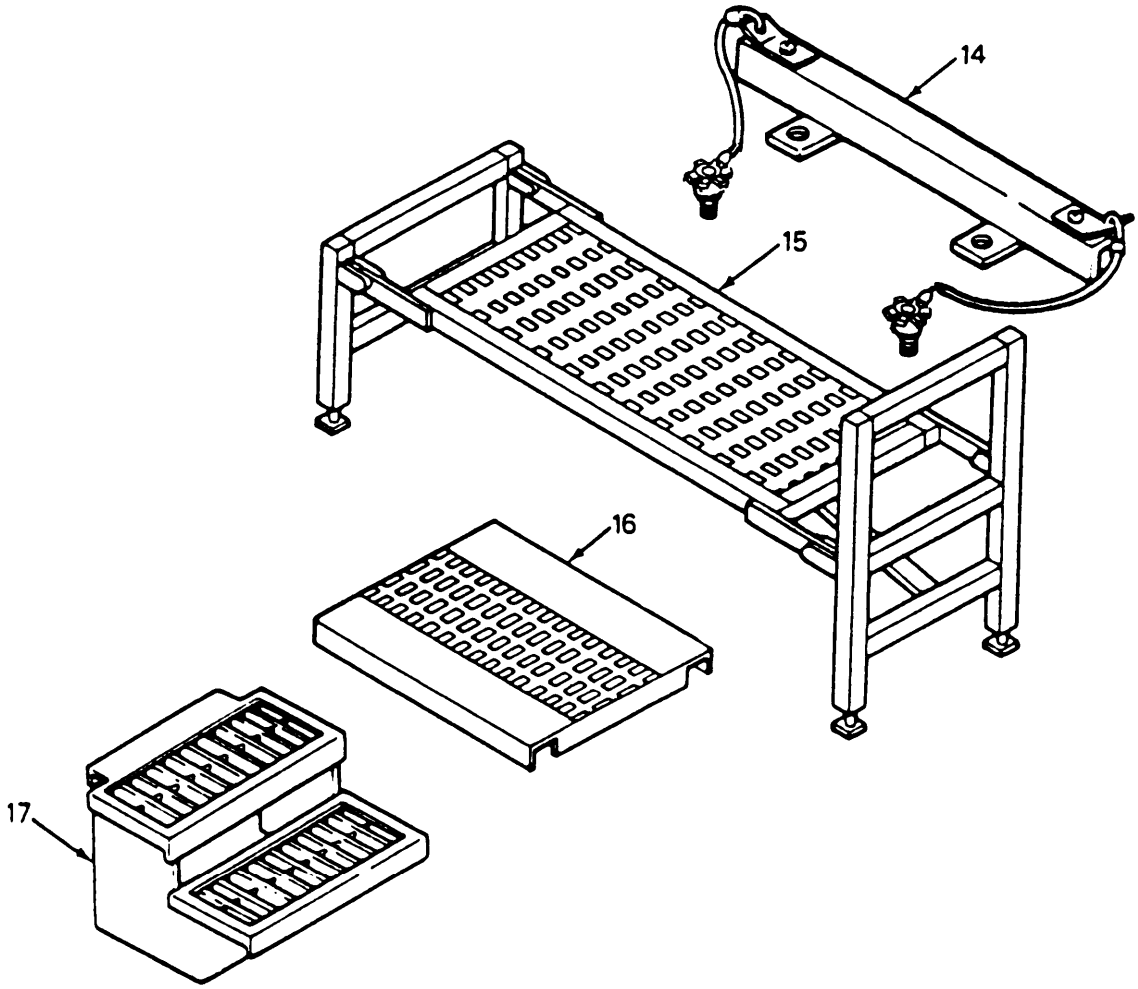
(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
4	6150-01-275-7930	CABLE ASSY, POWER ELEC (81337)6-1-9924	EA	1
5		DISTRIBUTION, POWER ASSY (81337) 6-1-9926	EA	1
6	3510-01-279-3980	CLAMP ASSY, SHORT (81337) 6-1-9433	EA	1
7		CLAMP ASSY, LONG (81337) 6-1-9430	EA	1



(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
8		PANEL, SOUND DEADENING		
		SIDE PANEL, SMALL (81337) 1-6-0114	EA	2
		SIDE PANEL, LARGE (81337) 6-2-2400	EA	1
		TOP PANEL (81337) 1-6-0118	EA	3
9	3510-01-242-7258	STAIR ASSY (81337) 6-1-9949	EA	2
10	3510-01-246-9258	STRUT ASSY,TARP (81337) 6-1-9416	EA	2

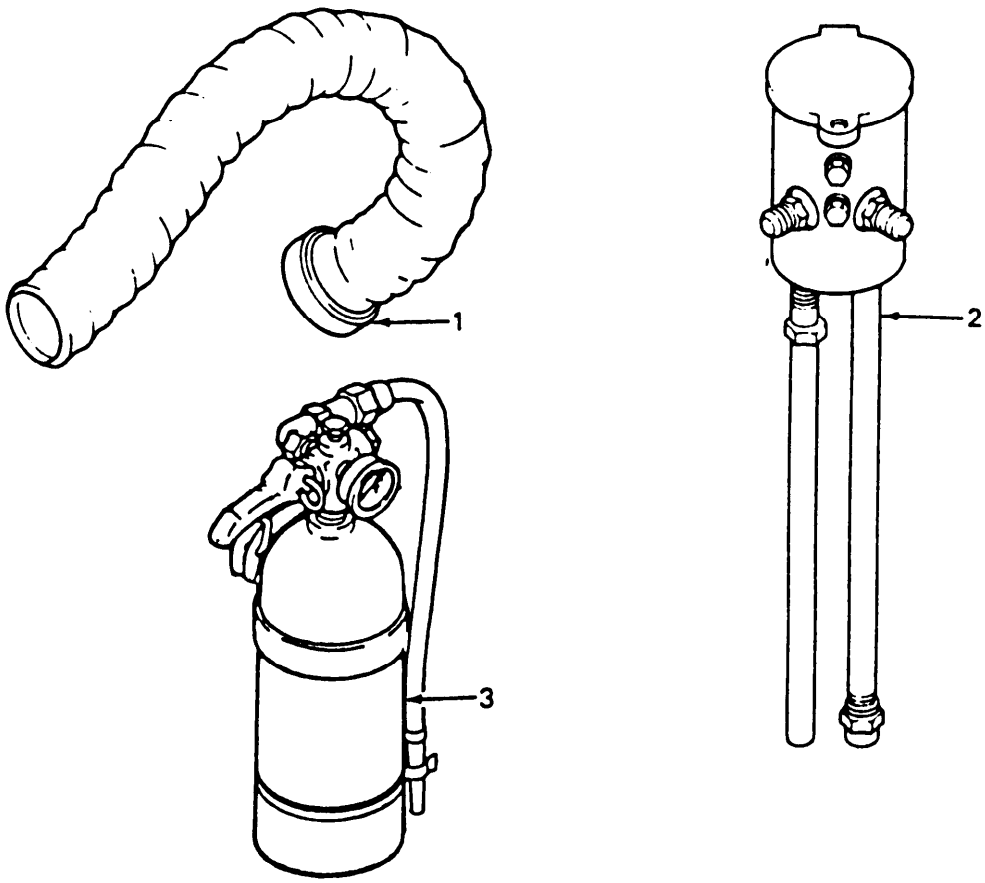


(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
11	3510-01-253-4303	COVER (81337) 6-1-9962	EA	1
12	3510-01-250-3645	WORKSTAND STORAGE SUPPORT (81337) 6-1-9859	EA	2
13	4510-01-245-6936	WATER PUMP ASSY (81337) 6-1-9932	EA	1

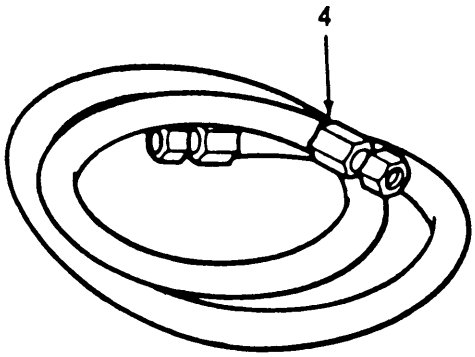


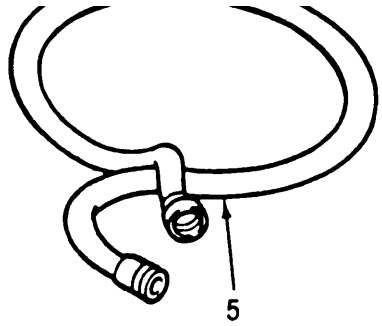
(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
14	2930-01-248-9889	WATER PUMP TIEDOWN ASSY (8 1337) 6-1-9443	EA	2
15		PLATFORM ASSY, LOWER (81337) 6-1-8356	EA	1
		PLATFORM ASSY, DRYER (81337) 6-2-2411	EA	1
16		PLATFORM ASSY (81337) 6-1-9855	EA	1
17		STAIR ASSY, TWO STEP (81337) 6-2-2403	EA	1

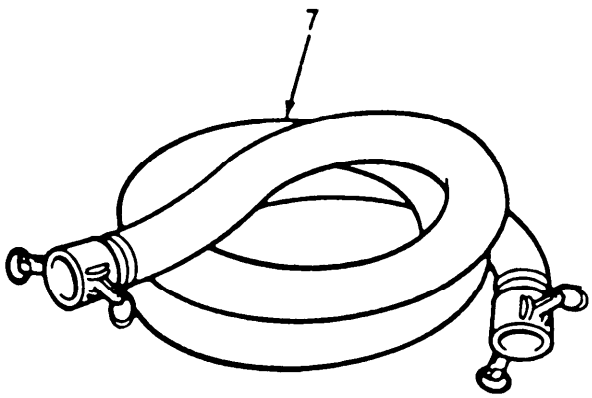
Section III. BASIC ISSUE ITEMS

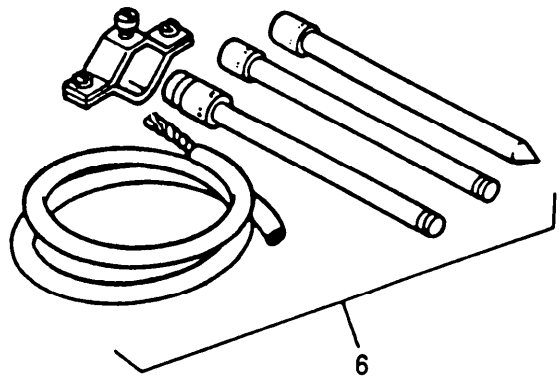


(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
1	4720-00-708-0407	DUCT, DRYER TUMBLER LINT (81349) MIL-H-7365, SIZE A	EA	1
2	4510-01-214-9139	DRUM FILL ADAPTER ASSY, TYPE II (81337) 6-1-8285	EA	2
3	4210-00-165-4703	EXTINGUISHER, FIRE (81348) A-A-393	EA	1

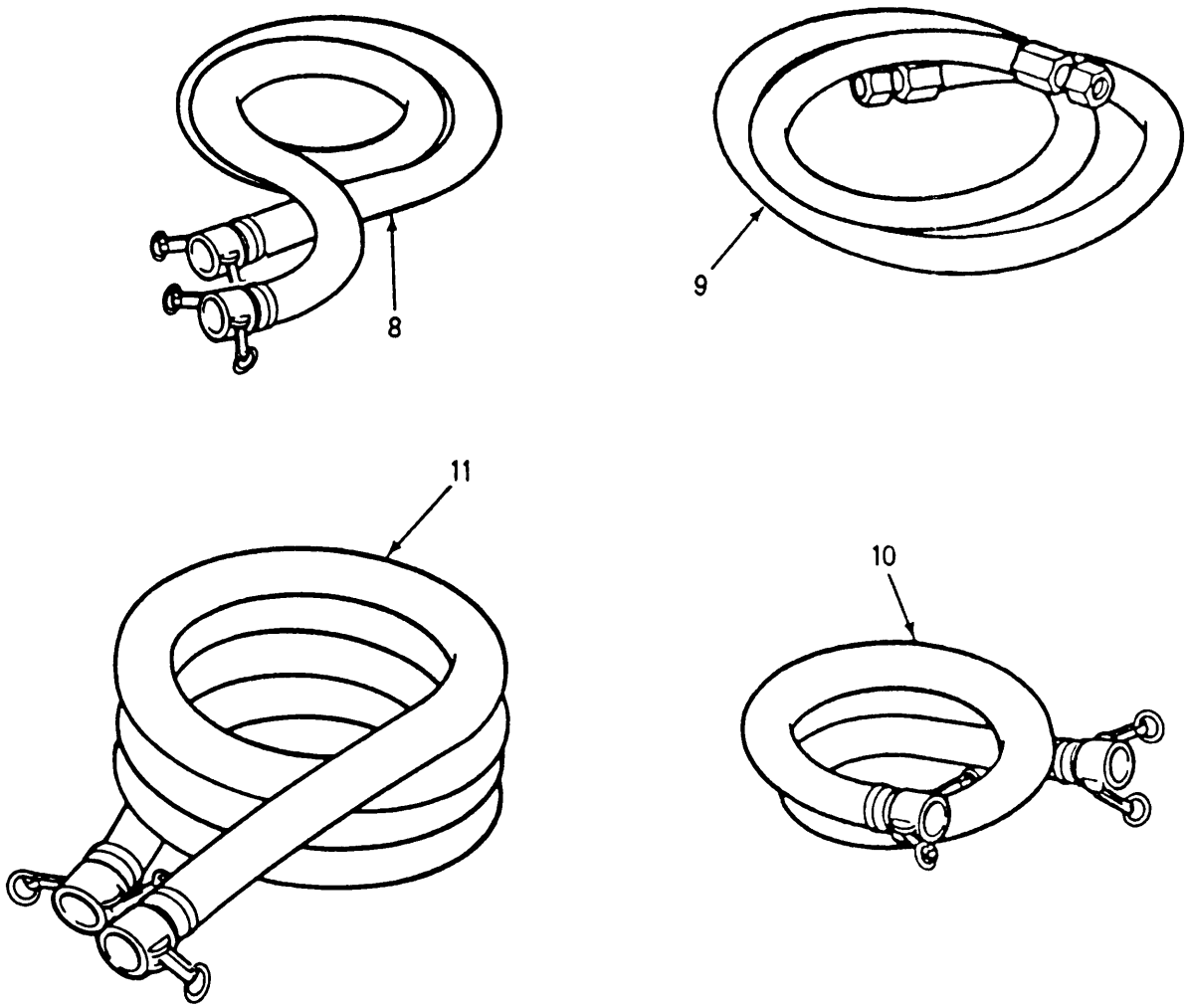




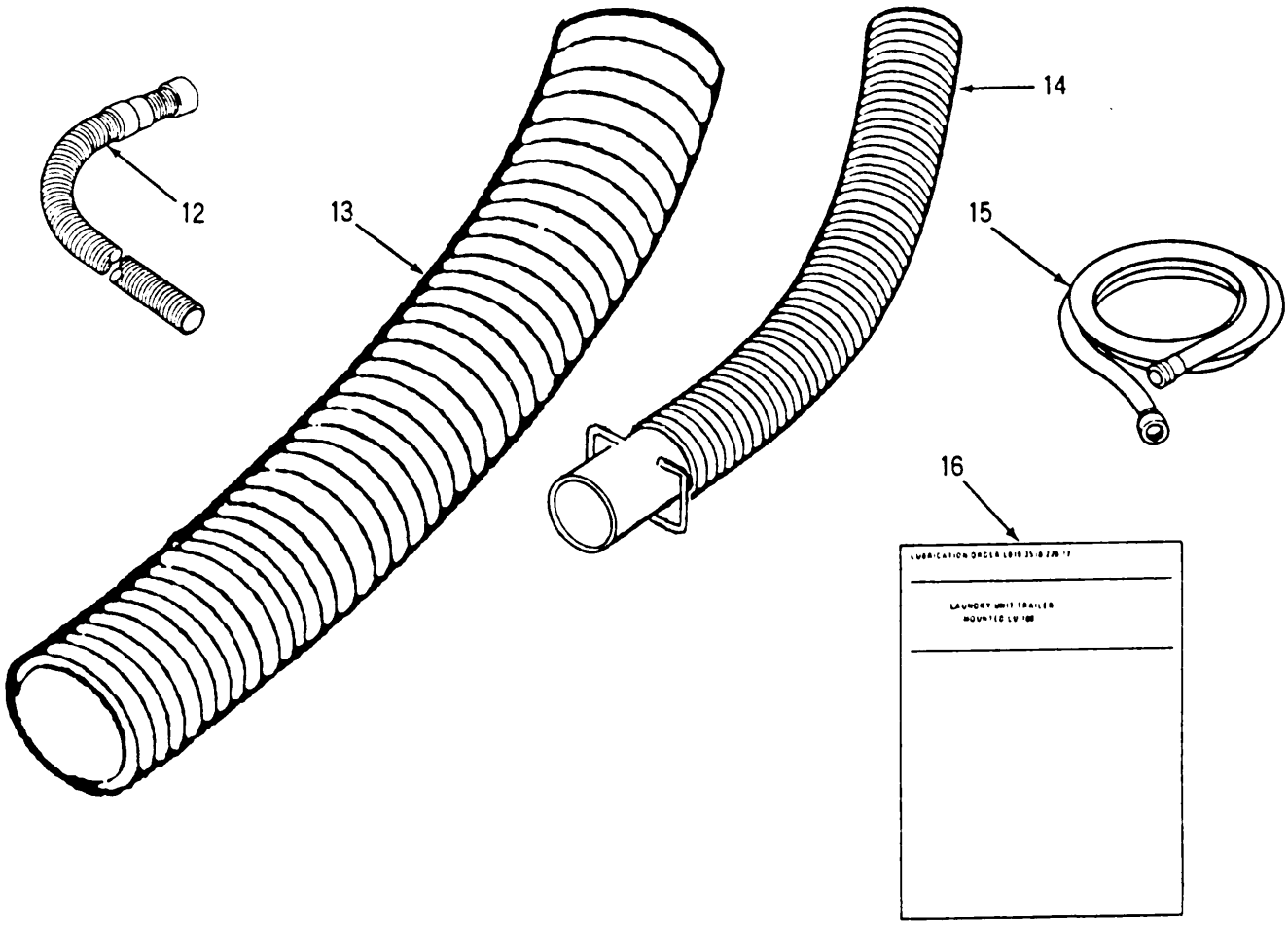




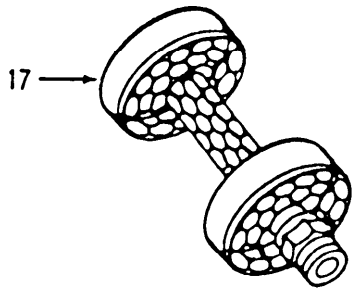
(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
4	4720-00-063-7222	HOSE, FUEL RETURN/WATER HEATER 12-FOOT (96906) MS28741-8-1440	EA	2
5		HOSE, GARDEN, 6-FOOT (81348) L-H-520-6	EA	1
6		GROUND ROD ASSY, SECTIONAL, W/ATTACHMENTS MIL-R-11461 (81349)	EA	1
7	4720-01-297-9083	HOSE ASSY, DRAIN, EXTRACTOR-TO-DRAIN FIELD (25 FT., 1-1/2 IN.) (81337) 6-1-9946-3	EA	1

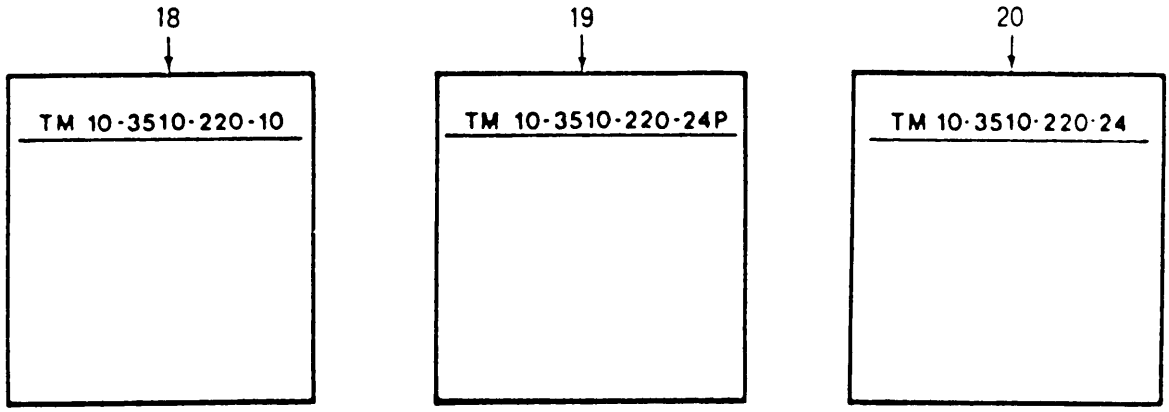


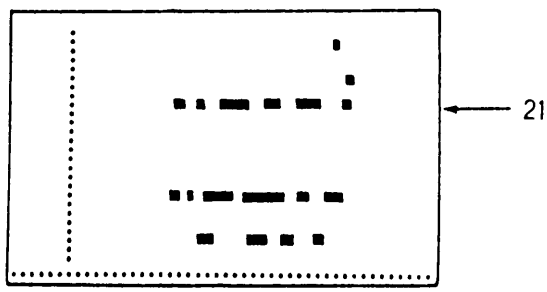
(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
8	4720-01-297-9082	HOSE ASSY, PRE-EXTRACT DRAIN (25 FT., 1-1/2 IN.) (81337) 6-1-9946-2	EA	1
9		HOSE FUEL RETURN/DRYER 13-FOOT (96906) MS28741-8-1560	EA	2
10	4720-01-297-9085	HOSE ASSY, WATER-HEATER-TO-WASHER (10 FT., 1-1/2 IN.) (81337) 6-1-9946-1	EA	1
11		HOSE ASSY, MAIN DRAIN (25 FT., 2-1/2 IN.) (81337) 6-1-9995-4	EA	1



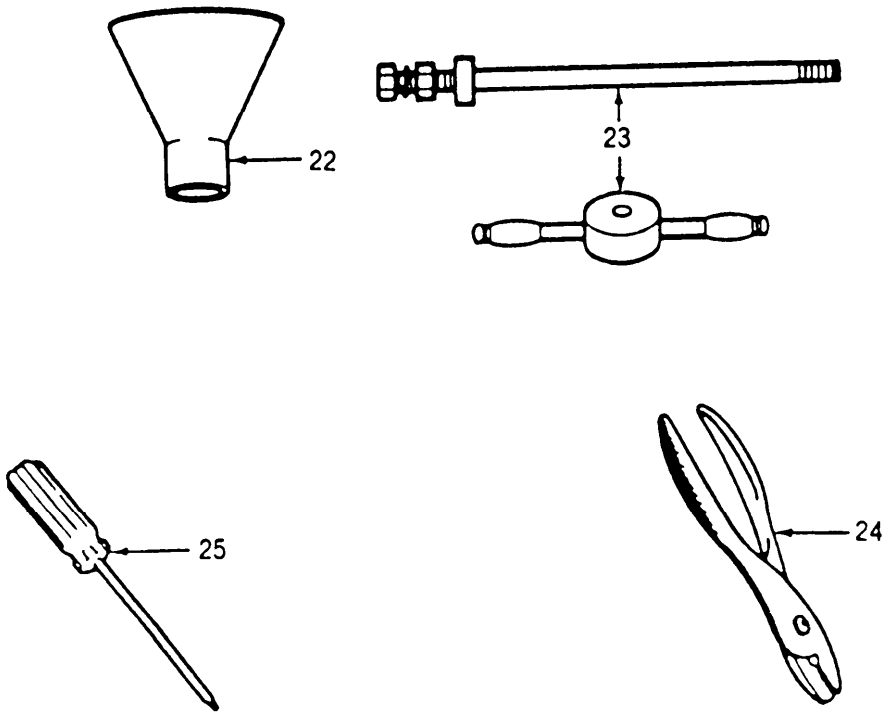
(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
12		GENERATOR EXHAUST HOSE ASSY (81337) 6-2-2419	EA	2
13	4720-01-261-6815	DRYER HEATER EXHAUST HOSE ASSY (81337) 6-2-2303	EA	2
14		DUCT, WATER HEATER EXHAUST (81337) 6-2-2427	EA	2
15	4720-00-199-7806	HOSE, GARDEN, 50-FOOT (81348) L-H-520	EA	1
16		LUBRICATION ORDER LO 10-3510-220-12	EA	1



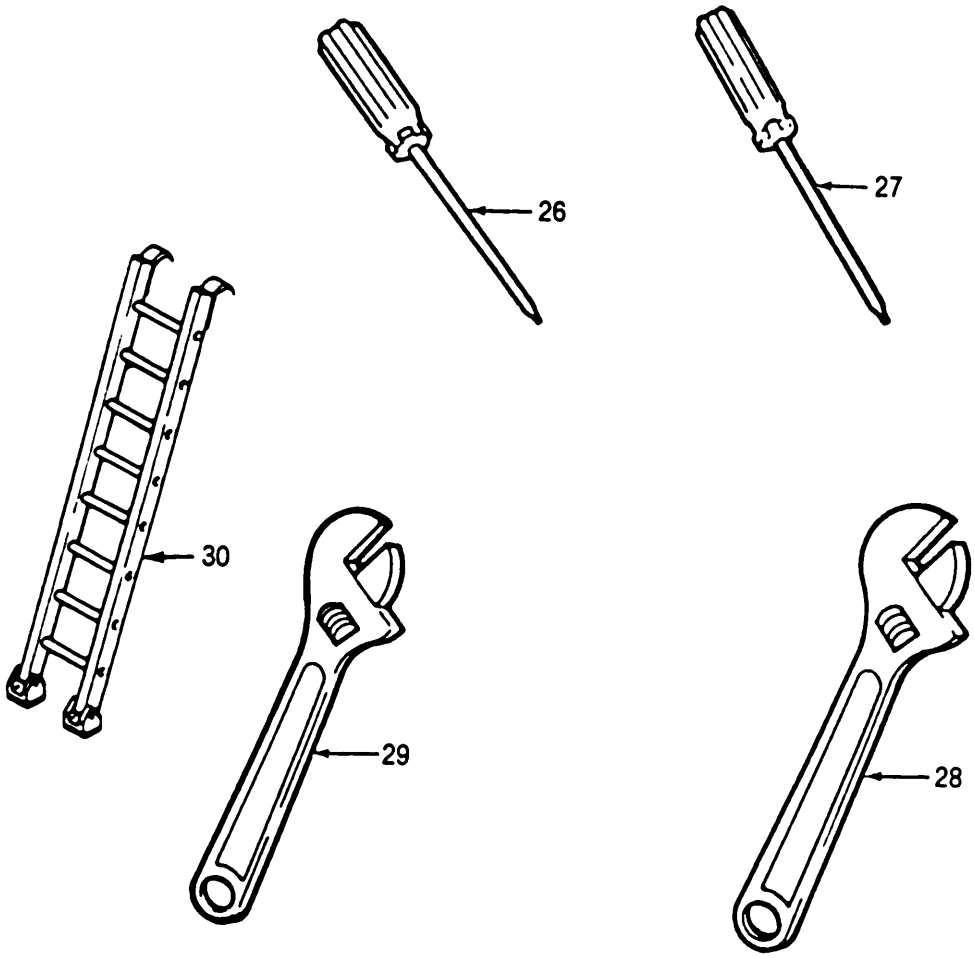




(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
17	4730-01-249-1969	STRAINER ASSY, SUCTION (81337) 6-1-8359	EA	1
18		OPERATOR'S MANUAL TM 10-3510-220-10	EA	1
19		MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST MANUAL TM 10-3510-220-24P	EA	1
20		MAINTENANCE MANUAL TM 10-3510-220-24	EA	1
21		PRE-CUT WASHER CONTROL CHARTS	SE	1



(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
22	6640-00-063-7879	FUNNEL, COMMON LAB, PLASTIC, POLYETHYLENE 802PE (95352)	EA	1
23	5120-01-013-1676	SLIDE HAMMER, GROUND ROD EMPLACEMENT (45225) P74-144	EA	1
24		PLIERS, SLIP JOINT: 10-IN., ADJUSTABLE (80212) P489	EA	1
25	5120-00-234-8912	SCREWDRIVER, CROSS TIP: 6-IN. (C7127) SSDP63	EA	1



(1) Illus Number	(2) National Stock Number	(3) Description CAGE and part number	(4) U/M	(5) Qty Reqd
26	5120-00-237-6985	SCREWDRIVER, FLAT TIP: 8-IN.	EA	1
27	5120-00-227-7334	SCREWDRIVER, FLAT TIP: 10-IN.	EA	1
28	5120-00-240-5328	WRENCH, OPEN END, ADJUSTABLE: 8-IN.	EA	1
29	5120-00-264-3796	WRENCH, OPEN END, ADJUSTABLE: 12-IN.	EA	1
30		LADDER ASSY (81337) 6-2-2426	EA	1

APPENDIX C

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

C-1. SCOPE. This appendix lists expendable supplies and materials you will need to operate and maintain the laundry unit. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

C-2. EXPLANATION OF COLUMNS.

a. Column (1) - Item Number. This number is 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, app D).

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew
O - Unit
F - Intermediate Direct Support
H - Intermediate General Support

c. Column (3) - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Government and Commercial 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 your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	C	7930-00-965-9830	Agent, Antistatic	EA
2	C		Agent, Chelate	EA
3	C	6850-01-015-7939	Agent, Prespotting	EA
4	C	6850-00-297-6653	Bleach, Super Tropical	EA
5	C	8030-00-264-3875	Compound, Water Repellant, Textile Finish, Type I, Aqueous	GL
6	C	6810-00-141-2942	Crystals, Citric Acid	EA
7	C	7930-00-929-1220	Detergent, Type I	EA
8	C	7930-00-929-1221	Detergent, Type II, P-D-245	EA
9	1C	7930-00-985-9611	Detergent, Nonionic Type II, Sour, Laundry	EA
10	C	9140-00-286-5284	Fuel, Diesel F-800 (DF-A, DF-1, DF-2)	GL
11	C	9130-01-207-7039	Fuel, MOGAS MIL-G-3056 (All Grades)	GL
12	1C	9150-00-985-7246	Grease, Soft MIL-G-23827	EA
13	C	9150-00-186-6668	Oil, Lubricating, Engine 0E30 5-gallon pail	GL
14	C	9150-00-265-9428	Oil, Lubricating, Engine 0E10 5-gallon pail (81349) MIL-L-2104	GL
15	C		Permanon 40 EC	EA
16	C		Orthosilicate, Sodium	EA
17	C	7930-00-924-5366	Softener, Fabric, Liquid	GL
18	C	5920-00-284-9220	Fuse, 2 Amp	EA
19	1C	5920-00-238-3116	Fuse, 2 Amp	EA

*U.S. GOVERNMENT PRINTING OFFICE: 1993- 755-028/80339

APPENDIX D

ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

D-1. SCOPE. This appendix lists additional items that are authorized for the support of the laundry unit.

D-2. GENERAL. This list identifies items that do not have to accompany the laundry unit and that do not have to be turned in with it. These items are all authorized for use by CTA, MTOE, TDA, or JTA.

D-3. EXPLANATION OF CODES. National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items required to support this equipment. The items listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) National Stock Number	(2) Description FSCM and Part Number	(5) U/M	(1) Qty Auth
4230-01-133-4124	Decontaminating Apparatus (81349) MIL-D-12468	EA	1
	Fuel Drum: 55-gal (81348) PPP-D-1152B	EA	2

INDEX

Subject **Page**

G

H

I

J

K

L

M

By Order of the Secretary of the Army:

CARL E. VUONO
General United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN, II
Brigadier General United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25 E, Operator's Maintenanc requirements for Laundry Unit) Single Trailer-Mounted, with Canvas Cover, Type M532

*U.S. GOVERNMENT PRINTING OFFICE: 1990 -754-029/20129

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
PFC JOHN DOE
COA, 3d ENGINEER BN
FT. LEONARDWOOD, MO 63108

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 10-3510-220-12	20 Apr 1990	Laundry Unit, Trailer Mounted, Model M85-100

BE EXACT. PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	
6	2-1 a			In line 6 of paragraph 2-1a the manual states the engine has 6 Cylenders. The engine on my set only has 4 Cylenders. Clenge the manual to show 4 Cylenders.
B1		4-3		Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 4-3, item 16 is called a shim - Please correct one or the other.
125	line 20			I ordered a gasket, item 19 on figure B-16 by NSN 2910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is wrong. Please give me a good NSN

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER	SIGN HERE
JOHN DOE, PFC (268) 317-7111	John Doe JOHN DOE

DA FORM 1 JUL 79 2028-2 PREVIOUS EDITIONS ARE OBSOLETE.

DRSTS-M Overprint 1, 1 Nov 80

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS

TEAR ALONG PERFORATED LINE

REVERSE OF DA FORM 2028-2 Reverse of DRSTS-M Overprint 2, 1 Nov 80

TEAR ALONG PERFORATED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

COMMANDER
U S ARMY TROOP SUPPORT COMMAND
ATTN: AMSTR-MCTS
4300 GOODFELLOW BOULEVARD
ST. LOUIS, MO 63120-1798

TEAR ALONG PERFORATED LINE

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FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

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The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 046170-000