TECHNICAL MANUAL

UNIT,

DIRECT SUPPORT,

A N D

GENERAL SUPPORT

MAINTENANCE MANUAL



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

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HEADQUARTERS, DEPARTMENT OF THE ARMY 27 AUGUST 1990

HEADQUARTERS DEPARTMENT OF THE ARMY WASHINGTON, D.C., 31 October 1994

Unit, Direct Support, and General Support Maintenance Manual

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

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	2-78.1 through 2-78.12
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<u>WARNING</u>

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU

Carbon monoxide is without color or smell, but can kill you. Breathing carbon monoxide produces symptons of headached, dizziness, lose 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 safety of personnel when the laundry unit is in operation.

DO NOT operate laudry unit in an enclosed area with proper ventilation.

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

FOR ARTIFICIAL RESPIRATION, REFER TO FM 21-11

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION

WARNING

JEWELRY

Removing 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

GROUND 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 undergrounded system.

WARNING

HIGH VOLTAGE

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 enginegenerator 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 is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

PRESSURIZED SYSTEM

Relieve all pressure from laundry unit air system before disconnecting air system lines and fittings. Wear safety glasses and stand clear of loosened air line fitting. High pressure air can propel debris at high speed, causing eye injury or blindness. If you are injured, obtain medical aid immediately.

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 SOLVENT

Drycleaning solvent P- D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well-ventilated area. Avoid contact with skin, eyes, and cloths and don't breathe vapors. Do not use near open flame or execssivc heat. The flash point is 100-138°F (38 -59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, immediately flush with clean water and get medical aid immediately.

WARNING

COMPRESSED AIR

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

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

LIFTING AND HOISTING

Do not allow anyone under equipment suspended from a lifting device.

Do not allow the unit to swing while suspended from a lifting device.

Components of this laundry are heavy and maybe awkward to handle.

Serious injury could occur if heavy equipment is moved/lifted without sufficient personnel to do the job. Use proper physical lifting procedures or use a suitable lifting device or dolly. Wear safety shoes, gloves, and other suitable protective clothing.

WARNING

SOLDER/WELDING

Chemical Agent Resistance Coating (CARC) produces toxic fumes when flame is applied. It is necessary to remove Chemical Agent Resistance Coating in area where flame is to be applied. Death can result.

HEADQUARTERS DEPARTMENT OF THE ARMY WASHINGTON D.C., 27 August 1990

TECHNICAL MANUAL

NO. 10-3510-220-24

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL

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

REPORTING 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 located in the back of this manual direct to: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE. This manual is for use by personnel responsible for the maintenance of the M85-100, Trailer-Mounted Laundry.

- a. Type of manual: unit, direct support, and general support maintenance
- b. Equipment model number and name: M85-100, Trailer-Mounted Laundry
- c. <u>Purpose of Equipment</u>: to provide regular troop units and hospitals with field laundry service.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE. For destruction of army materiel to prevent enemy use, refer to TM 750-244-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use. To prevent enemy use of laundry, add sand or soil to fuel pumps, bearings, drive motors, and water pump. Cut drive belts, wiring harnesses, and hoses. Scatter and conceal vital components. Break washer door glass and control panel buttons. Use explosives or set fire to unit using flammable liquids.

1-4. PREPARATION FOR STORAGE OR SHIPMENT.

Refer to paragraph 3-29 for storage and shipment instructions.

1-5. ADMINISTRATIVE STORAGE

Refer to paragraph 2-62 for administrative storage instructions.

1-6. NOMENCLATURE CROSS-REFERENCE.

Common Name	<u>Official Nomenclature</u>
Compressor	Compressor, air
Controller	Program control, washer
Control stand	Stand, controller
Dryer	Drying tumbler
Dryer Bin	Bin assembly, dryer
Extractor	Extractor, laundry, centrifugal
Extractor Bin	Pre-extraction bin
Generator	Generator set, diesel engine driven, 10 kW, 60 Hz
Hose Bin	Basket assembly
Laundry	Model M85-100 laundry unit, trailer-mounted
Platform	Work platform
Trailer	Trailer, cargo, 5-ton, Model M10-61E1
Washer	Washing machine, laundry, open end
Water Heater	Heater, water, liquid fuel fired, Model M-85

TM 10-3510-220-24

1-7. **REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).** If your laundry unit needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368, Quality Deficiency Report. Mail it to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MDO, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished to you.

1-8. WARRANTY INFORMATION. The laundry unit components are warranted by the manufacturer for 12 months. The warranty starts on the date found in block 23, DA Form 2408-9, Equipment Control Record, in the log book. Report defects in material or workmanship to your supervisor, who will take appropriate action through your unit maintenance shop. See TB 10-3510-220-24, Warranty Program for laundry unit, for complete information.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-9. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES. Refer to TM 10-3510-220-10, operator's manual, for equipment characteristics, capabilities, and features.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS. Refer to TM 10-3510-220-10, operator's manual, for location and description of major components.

NOTE

Some laundry units are equipped with a water reuse system.

1-11. EQUIPMENT DATA.

a. Open-End Washer.

Manufacturer	. Cook Machinery Corporation 3626 OFW/NAT
Maximum rpm	33
Capacity	60 lb (27 kg) 10 psi (69kPa)mimimum,
	psi maximum
Air pressure required	30 psi (414kPa) minimum 110 psi (552 kPa) maximum
Volts	208 Vac
Phase	3
Frequency	60 hz
Amps	5.3-5/2.5
Power rating	1.5 hp (1 119W)
Motor speed	1725 rpm
Washer Drive Unit	

Part No	
Model No	
Ratio	
Speed	

(1)

Specification	35F486W373 1.5 hp (1 119W)
Volts	208/220
Phase	3
Frequency	60 hz
Amps	4.61
Speed	1725 rpm
Manufacturer	Balder Electric Co.
Part No	39G080FBL

b. <u>Extractor.</u>

Manufacturer	Bock Laundry Machines, Inc.
Model No	605 MIL
Volts	208/220Vac
Phase	
Frequency	60 hz
Amps	9.3
Maximum motor speed	1725 rpm

Extractor Motor

Part No.	2363REM-50-MIL
Manufacturer	LincolnElectric
Power	3 hp (2 237W)
Speed	1750 rpm
Volts	208/220
Phase	3
Frequency	60 Hz
Amps	9.3-8.4

c. <u>Dryer.</u>

Manufacturer	EngineeredAirSystems,	Inc.
Model No.	LDU200	

(1) Burner Blower and Fuel Pump Motor

Manufacturer	Reliance Electric (50380)
Part No	P56H1423
Power	1/2 hp
Speed	3600 rpm
Volts	208/220
Phase	3
Frequency	60 Hz
Amps	1.8- 2.0/1.0

(2) Dryer Drive Motor

Howell Electric Company 1/2 hp (373W) 208/220 3 60 Hz 2.01750 rpm (3) Dryer Exhaust Motor 1/2hp(373W)1725rpm 208/220 3 60 Hz 2.2 83673-003 (4) Dryer Fuel Pump Suntec Ind. 2-stage-gear H3BA-100 0 to 150 psi (1 034kPa) Air Compressor. ITT Pneumotive GH510B Air Compressor Motor Century Electric M98744 1/2 hp (373W) 208/230 3 60 Hz 2.0 - 1.9/.95 1725 rpm Water Heater. Engineered Air Systems, Inc. M-85

d.

e.

(1)	Low Water Probe								
	Manufacturer	Charles F. Warrick Company Type 3E1A							
(2)	Ignition Transformer								
	Manufacturer	Jefferson Electric Company 296							
	Primary	208/220 10,000 60 Hz							
(3)	Fuel Pump								
	Manufacturer	Sundstrand 1-stage-gear or 2-stage-gear							
	Model	J3CA or H3BA 0 to 150 psi (1 034kPa)							
(4)	Burner Blower Fuel Pump Motor								
	Manufacturer	General Electric Corporation 5K33FN191U 3450 rpm 208/220 3 60 Hz 1/3 hp (249W)							
f. <u> </u>	Water Pump.								
	Manufacturer	Peabody Barnes 3SCE-22/27458-CA-T Centrifugal, self-priming after initial prime							
	Pump Motor								
	Manufacturer	Baldor Corporation F389 3450 rpm 1-1/2 hp 208/230 3 60 Hz							
	Ашря	5.0 - 4.0/2.5							

g. Drum Fill Adapter.

Manufacturer.OEMCorporationModel.417

1-12. SAFETY, CARE AND HANDLING. When performing maintenance procedures, observe all warnings and cautions and take appropriate safety measures. A summary of the warnings contained in this manual is located on the warning and first aid data page immediately following the cover page.

Section III. PRINCIPLES OF OPERATION

Refer to TM 10-3510-220-10, Operator's Manual, for Principles of Operation

CHAPTER 2

UNIT MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

2-1. LUBRICATION INSTRUCTIONS. Refer to LO 10-3510-220-12 for lubrication instructions on the laundry unit. Refer to LO 5-6115-585-12 for lubrication instructions on the generator set, skid mounted. Refer to TM 9-2330-376-14&P for lubrication instructions on the trailer.

Section II. REPAIR PARTS: SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

2-2. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

2-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. Refer to Appendix B, Maintenance Allocation Chart, for a list of special tools, TMDE, and Support Equipment and TM 10-3510-220-24P, Repair Parts and Special Tools List.

2-4. REPAIR PARTS. Repair parts are listed and illustrated in TM 10-3510-220-24P, Repair Parts and Special Tools List (RPSTL) covering unit maintenance for this equipment.

Section III. SERVICE UPON RECEIPT

2-5. SERVICE UPON RECEIPT OF MATERIAL.

- a. Inspect laundry unit for damage to surfaces incurred during shipment. If damage is found, report the damage on an SF 364, Report of Item Discrepancy.
- b. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions in DA PAM 738-750.
- c. Check to see whether the equipment has been modified.
- d. Refer to TM 9-2330-376-14&P, Unit, Direct Support, and General Support Maintenance and Repair Parts List, for service upon receipt of trailer.
- e. Refer to TM 5-6115-585-12, Operator and Organizational Maintenance for Generator, for service upon receipt of generator set.

TM 10-3510-220-24

2-5. SERVICE UPON RECEIPT OF MATERIAL. (CONT)

- f. Perform needed depreservation. Prepare laundry unit for inspection and operation as outlined on DA Form 2258. Make a thorough visual inspection of the laundry unit for loose or missing mounting hardware, parts and components.
- g. Perform the Daily and Before preventive maintenance checks and services. (Refer to TM 10-3510-220-10.)
- h. Lubricate the unit in accordance with LO 10-3510-220-12, Laundry Unit, Trailer Mounted.
- i. For site and shelter requirements, refer to TM 10-3510-220-10.

2-6. CABLE DIAGRAMS, WIRE RUN LIST, AND CONTROL CIRCUITS.

Refer to Appendix E for wiring diagrams showing the electrical components and connecting wires of each major appliance of the laundry unit.

Section IV. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-7. Introduction.

General.

(1) Systematic, periodic, Preventive Maintenance Checks and Services (PMCS) are essential to ensure that the Laundry Unit is ready for operation at all times. The purpose of a preventive maintenance program is to discover and correct defects and deficiencies before they can cause serious damage or complete failure of the equipment. Any effective preventive maintenance program must begin with the indoctrination of operators to report all unusual conditions noted during daily checks or actual operation to unit maintenance. All defects and deficiencies discovered during maintenance inspections must be recorded, together with corrective action taken, on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

(2) Table 2-1 lists the unit preventive maintenance checks and services that should be performed at monthly (or otherwise established) intervals. The PMCS items in the table have been arranged and numbered in a logical sequence to provide for greater personnel efficiency and least amount of required maintenance downtime.

2-8. PREVENTIVE MAINTENANCE CHECKS AND SERVICES, COLUMAR ENTRIES.

(a.) <u>Item number column.</u> 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 Worksheet, in recording results of PMCS.

(b.) <u>Interval columns.</u> The interval column of your PMCS table tells you when to do a certain check or service.

(c.) Item to be inspected. Identification of item to be inspected.

(d.) <u>Procedures column.</u> The procedures column of your PMCS table tells you how to do the required checks and services. Carefully follow these instructions.

(e.) 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:

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

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

2-9. SPECIAL INSTRUCTIONS. Leakage definitions for operator/crew PMCS shall be classified as follows:

CAUTION

Equipment operation is allowable with minor leakages (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.

CAUTION

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

CAUTION

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

NOTE: Within designated interval, these checks are to be performed in the order listed.

			M –	Mon	thly S – Semiannually A – Annu	ally		
-	Item No.	Interval M S A		Interval M S		1 A	Item to be Inspected Procedures	Equipment is Not Ready/ Available if
	1		•	•	WASHER a. Check that water temperature gage is operational. b. Check water level for proper adjustment (High/Low).	Temperature gage does not operate		
			•		c. Check hoses and conduit for damage.	Hose(s) are damaged or leaking		
					WASHER SHAFT SEAL			
		•			Check for leaks, noise, and unusual vibration during operation.			



		M –	Mor	thly S – Semiannually A – .	Annually
Item No.	I M	nterva S	l A	Item to be Inspected Procedures	Equipment is Not Ready/ Available if:
3		•		WASHER CONTROLLER a. Check indicator lights and switches on control unifor proper operation. DRYER TUMBLER ASSEMBLY	t
	•			a. Inspect burner assembly (1) for cracks, breaks, and loose mounting.	d Burner assembly is cracked or broken
	•			b. Inspect fuel filter for sediment in bowl (2). Bleed needed.	if
	•			c. Inspect controls and instruments for damage, loose wiring, and inoperative condition.	e Controls and instruments are inoperative

		М -	Mor	nthly	S - Semiannually A - Ann	ually
Item No.	In M	terv S	a 1 A		Item to be Inspected Procedures	Equipment is Not Ready/ Available if:
4 (cont)	•			d.	 With unit operating, check for proper operation. Normal readings for instruments are as follows: (1) Fuel Pressure Gage: 90 to 110 psi (621 to 758 kPa) (2) Exhaust Temperature Gage: Adjustable from 130 to 250°F (54 to 118°C) 	Fuel Pressure gage does not operate Exhaust temperature gage does not operate Over temperature limit switch does not operate.
	9			e.	Check gear reducer and couplings for loose mounting, oil leaks, and improper operation.	
	•			f.	Check electric motors for signs of overheating, obstructions to ventilation, and loose mounting.	Motor overheats
			•	g.	Inspect filter element, refer to paragraph 2-47.	

		М –	Mor	thly S – Semiannually	A – Annually
Item No.	II M	nterva S	l A	Item to be Inspected Procedures	Equipment is Not Ready/ Available if:
5			4_	WATER HEATER BURNER HEAD AND N ASSEMBLY	OZZLE
	•			a. Inspect burner head (1) for cracks, breaks, damage.	and Burner head is cracked or broken
	•			b. Inspect nozzle assembly (2) for carbon dep damage, and loose mounting.	osits, Nozzle is broken
	•			c. Check electrodes (3) for carbon deposits ar connections.	nd loose
	•			d. Look through sight glass (4) during operation check for proper spark.	on and
	•			e. With unit operating, check for proper oper	ation.
	•			 f. Check for proper temperature indication. R to table 2–2. 	efer Proper operating temperature cannot be maintained
				g. Check gasket on control box for proper scal	ing.

		M -	Moi	nthly S - Semiannually A - Annu	ially
Item No.	М	S	Α	Item to be Inspected Procedures	Equipment is Not Ready/ Available if
6					
	•			a. During operation observe for any unusual noise or vibration. Check for slipping belts.b. Check drive belt (1) for fraying, wear, and improper	
	•			tension. c. Check pulleys (2) for breaks, cracks, and loose mounting.	Pulley(s) are broken
	•			d. Check electric motor (3) for signs of overheating, obstructions to ventilation, and loose mounting.	Motor overheats
	•			e. Check brake during operation (should slow load to a stop in 30 seconds or less).	Brake fails to stop load

Table 2–1. Unit Preventiv	e Maintenance	Checks and	Services	(Continued)
---------------------------	---------------	------------	----------	-------------

			М -	Mon	thly S - Semiannually A - Annu	ally
I	Item No.	Ir M	nterva S	al A	Item to be Inspected Procedures	Equipment is Not Ready/ Available if
	6 (cont)		•		f. Inspect brakeshoe lining.	Brake shoe is damaged or rivets are exposed
	7				AIR COMPRESSOR	
			•		a. Check electric motor for signs of overheating, obstructions to ventilation, and for loose mounting.	Motor overheats
			•		b. Check air cleaner elements for dirt or clogged element.	
	8				LAUNDRY, GENERAL	
			•		a. Remove inspection caps on the two check valves, one in the drain for the extractor and one on the water heater. Clean out any obstructions and replace caps.	
				•	b. Retorque all mounting bolts on equipment, bins, and frame assemblies (App D).	

Section V. UNIT TROUBLESHOOTING

2-10. GENERAL.

a. Refer to paragraph 2-11 for troubleshooting procedures of components of the laundry unit. For troubleshooting the generator and its components, refer to TM 5-6115-585-12, Operator, Organizational, Manual for Generator Set. For troubleshooting the trailer assembly, refer to TM 9-2330-376-14&P.

b. This section contains testing and troubleshooting information for locating and correcting most of the operating troubles which may develop in your laundry unit. Each malfunction for an individual component, unit, or system is followed by a list of test or inspections which will help you determine corrective action to take. You should perform the test/inspection and corrective actions in the order listed.

2-11. TROUBLESHOOTING PROCEDURES.

a. The symptom index lists the common malfunctions which you may find during the operation or maintenance of the laundry unit or its components. Use the symptom index for quick access to the troubleshooting procedures in table 2-2.

b. This manual cannot list all possible malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed (except where malfunction and cause are obvious) or is not corrected by listed corrective actions, notify your supervisor.

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MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

NOTE

Before you use this table, be sure you have performed all applicable preventive maintenance checks and services.

WATER HEATER

1. WATER HEATER FAILS TO START.

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.

WARNING

Use extreme caution when performing the following test with power ON to avoid injury from electrical shock.

- Step 1. Use ac voltmeter and check for 208 V ac incoming voltage to water heater control box. Measure voltage between any two legs on the red (R), black (BK), or blue (BL) wires behind load limit switch. Refer to water heater wiring diagram (Appendix E, Figure 5).
 - a. If voltage is low or not present, check generator set for proper function. Refer to TM 5-6115-585-12.
 - b. If voltage is 208 ± 5 V ac, proceed to next step.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

1. WATER HEATER FAILS TO START. (Cont)

- Step 2. Check low water probe for loose or corroded connection, broken insulator, or shorted circuit. Check for water leaks around base of water probe.
 - a. Clean or replace probe as needed.
 - b. If probe is not defective, proceed to next step.
- Step 3. Check for defective low water relay. With power off, measure a low resistance between terminals 1 and 2. Make a similar measurement between terminals 9 and 10 on low water relay.
 - a. If either measurement is open, notify your supervisor.
 - b. If continuity is indicated on both measurements and problem persists, notify your supervisor.

2. WATER HEATER FLAME FAILS DURING FIRING CYCLE.

- Step 1. Check for low fuel supply in fuel container.
 - a. If container is low on fuel, fill container with fuel.
 - b. If container fuel level is correct, proceed to next step.
- Step 2. Check for leaks in fuel hoses.
 - a. If fuel hoses are leaking, tighten couplings or replace fuel hoses.
 - b. If fuel hoses are not leaking and couplings are tight, proceed to next step.
- Step 3. Check for clogged fuel hose.
 - a. If fuel hoses are clogged, disconnect fuel hose and clear foreign matter and clogs from line.
 - b. If fuel hoses are clear, proceed to next step.
- Step 4. Check for dirt and clogs in fuel nozzle.
 - a. If fuel lines are clogged or dirty, clean or replace nozzle. Refer to paragraph 2-36.
 - b. If nozzle is clean, proceed to next step.
2. WATER HEATER FLAME FAILS DURING FIRING CYCLE. (Cont)

Step 5. Check fuel filter strainer for obstructions.

- a. Rotate fuel strainer handle to clear obstructions.
- Step 6. Check feed and return fuel hose assemblies to see if they are reversed.
 - a. Disconnect and reconnect fuel hose assemblies in correct position.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- Step 7. Check ignition cable assemblies for loose connections at electrode and transformer end.
 - a. Make sure power is off and tighten connections at electrode and transformer end.
- Step 8. Check for defective flame safeguard control. With power off, loosen thumb screw and remove fire eye cover. Check flame safeguard circuit board for damage, corrosion, and burnt, loose, or missing purge timing card.

If any of these conditions are found, notify your supervisor. If these conditions are not found, proceed to next step.

- Step 9. Check for clogged fuel pump strainer.
 - a. If strainer is clogged, clean strainer. Refer to paragraph 2-39.
 - b. If strainer is clean, proceed to next step.

2. WATER HEATER FLAME FAILS DURING FIRING CYCLE. (Cont)

Step 10. Check for loose fuel pump drive coupling.

- a. If a drive coupling is loose, tighten fuel pump drive coupling. Refer to paragraph 2-39.
- b. If drive coupling is tight, proceed to next step.
- Step 11. Check for defective fuel pump. Fuel pump pressure should be 75 to 80 psi (517 to 552 kPa).
 - a. If fuel pressure is not between 75 to 80 psi (517 to 552 kPa), replace or adjust fuel pump. Refer to paragraph 2-39.
 - b. If fuel pressure is correct and problem presents, notify your supervisor.
- Step 12. Check for soot buildup in UV scanner tube or on UV scanner eye. Check for any blockage in UV scanner tube.

3. WATER HEATER FUEL PRESSURE GAGE INDICATES PRESSURE IS TOO LOW.

- Step 1. Check for improper fuel pump pressure.
 - a. If pressure is out of range, adjust fuel pump pressure to 75 to 80 psi (517 to 552 kPa). Refer to paragraph 2-39.
 - b. If fuel pressure is correct proceed to next step.
- Step 2. Check for defective fuel shutoff valve. Close valve and check for leaks. Open valve and check for leaks.
 - a. If valve leaks, replace fuel shutoff valve.
 - b. If valve does not leak, proceed to next step.
- Step 3. Check for clogged fuel filter.
 - a. If fuel filter is clogged, clean fuel filter. Refer to paragraph 2-41.
 - b. If fuel filter is not clogged, proceed to next step.
- Step 4. Check for breaks in fuel hoses and for loose couplings.
 - a. If couplings are loose or hoses defective, tighten couplings or replace defective hoses.
 - b. If couplings and hoses are serviceable and problem persists, notify your supervisor.

4. WATER HEATER FUEL PRESSURE GAGE INDICATES PRESSURE IS TOO HIGH.

- Step 1. Check for defective fuel pressure gage by substituting suspect gage with a known good gage.
 - a. If gage is defective, replace fuel pressure gage. Refer to paragraph 2-37.
 - b. If gage is serviceable, proceed to next step.
- Step 2. Check for improper adjustment of fuel pump pressure. Gage should read 100 to 125 psi (690 to 862 kPa).
 - a. If pressure is incorrect, adjust fuel pump pressure. Refer to paragraph 2-39.
 - b. If pressure is correct, proceed to next step.
- Step 3. Check fuel nozzle for dirt or defects.
 - a. If nozzle is dirty, clean fuel nozzle. Refer to paragraph 2-36.
 - b. If nozzle is defective, replace fuel nozzle. Refer to paragraph 2-36.

5. WATER HEATER FUEL PUMP IS NOISY.

- Step 1. Check if fuel pump needs priming. If fuel pump indicates no pressure and fuel is available, then fuel pump has probably lost its prime.
 - a. If pump has pressure, proceed to next step.
 - b. If pump has lost its prime, prime fuel pump. Refer to TM 10-3510-220-10.
- Step 2. Check for air leaks in suction hose and for loose connections.
 - a. If hoses are loose, tighten suction hose connections.
 - b. If suction hoses are cracked, replace suction hoses. Refer to paragraph 2-35.
 - c. If hoses and connections are serviceable, proceed to next step.

5. WATER HEATER FUEL PUMP IS NOISY. (Cont)

- Step 3. Check for clogged fuel pump strainer.
 - a. If fuel pump strainer is clogged, clean fuel pump strainer. Refer to paragraph 2-39.
 - b. If strainer is clean, proceed to next step.
- Step 4. Check for clogged fuel filter.
 - a. If filter is clogged, remove and replace fuel filter. Refer to paragraph 2-41.
 - b. If filter is clean, proceed to next step.
- Step 5. Check for overheating of fuel pump.
 - a. If fuel pump is too hot to touch, replace fuel pump. Refer to paragraph 2-39.
 - b. If fuel pump is not overheated and problem persists, notify your supervisor.

6. WATER HEATER PRESSURE GAGE INDICATES PULSATING PRESSURE.

- Step 1. Check for air leaks in suction hose and for loose connections.
 - a. If suction hoses are cracked, replace hoses. Refer to paragraph 2-35.
 - b. If hose connections are loose, tighten suction hose connections. Refer to TM 10-3510-220-10.
 - c. If hoses and connections are serviceable, proceed to next step.
- Step 2. Check for clogged fuel pump strainer.
 - a. If fuel pump strainer is clogged, clean or replace strainer. Refer to paragraph 2-39.
 - b. If strainer is clean, proceed to next step.
- Step 3. Check for clogged fuel filter.
 - a. If fuel filter is clogged, remove and replace filter. Refer to paragraph 2-41.
 - b. If filter is clean, proceed to next step.

6. WATER HEATER PRESSURE GAGE INDICATES PULSATING PRESSURE. (Cont)

- Step 4. Check for plugged burner nozzle.
 - a. If nozzle is plugged, replace burner nozzle. Refer to paragraph 2-36.
 - b. If nozzle is not plugged, proceed to next step.
- Step 5. Check for defective fuel pressure gage by substituting suspect gage with a known good gage.

If gage is defective, replace fuel pressure gage. Refer to paragraph 2-37.

7. WATER HEATER FUEL PUMP LEAKS.

- Step. 1 Check for loose strainer cover.
 - a. If strainer cover is loose, tighten cover screws.
 - b. If strainer cover is tight, proceed to next step.

Step 2. Check for loose plugs.

- a. If plugs are loose, tighten plugs.
- b. If plugs are tight, proceed to next step.
- Step 3. Check for leaks in shaft seals.
 - a. If shaft seals leak, repair or replace fuel pump. Refer to paragraph 2-39.
 - b. If seals are not leaking, proceed to next step.
- Step 4. Check for cracks in fuel pump.
 - a. If fuel pump has cracks, replace fuel pump. Refer to paragraph 2-39.
 - b. If no cracks in fuel pump and problem persists, notify your supervisor.

8. WATER HEATER FUEL PUMP FAILS TO DELIVER FUEL TO BURNER.

- Step 1. Check for low fuel supply in fuel container.
 - **a.** If container is low on fuel, fill container with fuel. Refer to TM 10-3510-220-10.
 - **b.** If container fuel level is correct, proceed to next step.
- Step 2. Check for leaks in suction hose and for loose connections.
 - **a.** If hose or connections leak, tighten suction hose connections or replace leaking hose.
 - **b.** If hoses or connections do not leak, proceed to next step.
- Step 3. Check for a reversed pump rotation. Pump should rotate counterclockwise when viewed from the front.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- **a.** If pump rotation is reversed, interchange any two of the three 208-volt, 3-phase electrical supply lines at the fuel pump motor.
- **b.** If pump rotation is not reversed, proceed to next step.
- Step 4. Check for a reversal of supply and return fuel hoses.
 - a. If lines are reversed, disconnect fuel lines and connect in proper places.
 - **b.** If lines are not reversed, proceed to next step.
- Step 5. Check for dirt or clogs in fuel pump strainer.
 - a. If dirt or clogs are found, clean or replace strainer. Refer to paragraph 2-39.
 - **b.** If strainer is clean, proceed to next step.

8. WATER HEATER FUEL PUMP FAILS TO DELIVER FUEL TO BURNER. (Cont)

- Step 6. Check for clogged fuel nozzle.
 - a. If fuel nozzle is clogged, remove and clean nozzle. Refer to paragraph 2-36.
 - b. If fuel nozzle is not clogged, proceed to next step.
- Step 7. Check for looseness of fuel pump drive coupling.
 - a. If drive coupling is loose, tighten fuel pump drive coupling. Refer to paragraph 2-39.
 - b. If drive coupling is not loose, proceed to next step.
- Step 8. Check for no activation of fuel solenoid or activation at wrong times.
 - a. If solenoid does not activate or activates at wrong time, notify your supervisor.
 - b. If solenoid activates correctly, proceed to next step.
- Step 9. Check for restrictions in fuel hoses.
 - a. If fuel hoses is restricted, disconnect fuel hose and remove restriction.
 - b. If fuel hose is not restricted, proceed to next step.
- Step 10. Check for shaft seal leaks on fuel pump.
 - a. If pump leaks, repair pump. Refer to paragraph 2-39.
 - b. If shaft seals are serviceable and problem persists, notify your supervisor.

9. WATER HEATER BURNER FAILS TO IGNITE OR IGNITION IS DELAYED.

- Step 1. Check for low fuel supply in fuel container.
 - a. If container is low on fuel, fill container with fuel.
 - b. If container fuel level is correct, proceed to next step,

9. WATER HEATER BURNER FAILS TO IGNITE OR IGNITION IS DELAYED. (Cont)

- Step 2. Check for restriction in fuel hoses.
 - a. If fuel hose is restricted, disconnect hose and remove restriction.
 - b. If fuel hose is not restricted, proceed to next step.
- Step 3. Check for proper fuel pressure.
 - a. If pressure is out of range, adjust fuel pump pressure to 100 to 125 psi (690 to 862 kPa). Refer to paragraph 2-39.
 - b. If pressure is correct go to next step.
- Step 4. Check for clogged fuel nozzle.
 - a. If fuel nozzle is clogged, clean or replace fuel nozzle. Refer to paragraph 2-36.
 - b. If nozzle is not clogged, proceed to next step.
- Step 5. Check for water in fuel by draining a small amount of fuel from filter into a clear container. Look for fuel/water separation.
 - a. If water is present, drain fuel supply and refill with proper fuel. Refer to paragraph 2-41.
 - b. If water is not present, proceed to next step.
- Step 6. Check for carbon deposits on electrodes.
 - a. If electrodes have carbon, clean electrodes. Refer to paragraph 2-36.
 - b. If electrode porcelain has breaks or cracks, replace electrode. Refer to paragraph 2-36.
 - c. If electrodes are clean and unbroken, proceed to next step.
- Step 7. Check for proper adjustment of electrodes.
 - a. If electrodes are out of adjustment, adjust electrodes. Refer to paragraph 2-36.
 - b. If electrodes are not out of adjustment, proceed to next step.

9. WATER HEATER BURNER FAILS TO IGNITE OR IGNITION IS DELAYED. (Cont)

Step 8. Check for no connection of cable assembly from transformer to burner.

- a. If cable is not connected, connect cable assembly.
- b. If cable is connected properly, proceed to next step.
- Step 9. Check for proper operation of ignition transformer.
 - a. Observe for blue spark in sight glass; if no spark is present, replace ignition transformer as follows:

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- (1) Tag and disconnect two transformer wires from contactor in control box. Refer to Appendix E, Figure 5.
- (2) Disconnect two electrode leads (1) from transformer (7).



9. WATER HEATER BURNER FAILS TO IGNITE OR IGNITION IS DELAYED. (Cont)

- (3) Remove conduit connector (2) and adapter (3) from transformer (7). Remove wires from conduit.
- (4) Remove two nuts (5), lockwashers (6), and transformers (7).
- (5) Install new transformer (7), two lockwashers (6), and nuts (5).
- (6) Install adapter (3) on transformer (7). Install wires (4) in conduit and install conduit connector (2) on adapter.
- (7) Connect two electrode leads (1) to transformer (7).
- (8) Connect two transformer wires to contactor in control box. Refer to Appendix E, figure 5. Remove tags.
- b. If blue spark is present in sight glass, proceed to next step.

Step 10. Check for breaks or cracks in electrode porcelain.

- a. If electrode porcelain has breaks or cracks, replace electrode. Refer to paragraph 2-36.
- b. If porcelain does not have damage and problem persists, notify your supervisor.
- Step 11. Check for soot buildup in UV scanner tube or on UV scanner eye. Check for any blockage in UV scanner tube.

10. WATER HEATER BLOWER MOTOR CIRCUIT BREAKER SWITCH CONTINUED TO TRIP.

- Step 1. Check fuel pump and motor for obstructions.
 - a. If obstruction is found, clean or remove obstruction.
 - b. If no obstruction is found, proceed to next step.
- Step 2. Loosen setscrew at fuel pump shaft and check for seized fuel pump or motor. Refer to paragraph 2-39.
 - a. If motor or fuel pump is binding, replace fuel pump and/or motor.
 - b. If motor and fuel pump are serviceable and problem persists, notify your supervisor.

11. WATER HEATER EXHAUST GASES ARE SMOKEY.

- Step 1. Check for intermittent burner electrode spark.
 - a. If spark is intermittent, adjustor replace electrodes. Refer to paragraph 2-36.
 - b. If spark is steady, proceed to next step.
- Step 2. Check for contaminated fuel by draining a small sample into a clear container. Look for sediment or a fuel/water separation line.
 - a. If sediment or water is present, drain fuel supply and fill with proper fuel. Refer to TM 10-3510-220-10.
 - b. If no sediment or water is present, proceed to next step.
- Step 3. Check for clogged nozzle.
 - a. If nozzle is clogged, clean or replace nozzle. Refer to paragraph 2-36.
 - b. If nozzle is not clogged, proceed to next step.
- Step 4. Check for obstruction in blower.
 - a. If blower is obstructed, remove obstruction. Refer to paragraph 2-38.
 - b. If blower is not obstructed, proceed to next step.
- Step 5. Check for low output voltage from power sources. Refer to TM 5-6115-585-12.
 - a. If power source is low, adjust output power of power source for proper voltage. Refer to TM 5-6115-585-12.
 - b. If output voltage is correct and problem persists, notify your supervisor.

12. WATER HEATER SMOKE ESCAPES FROM AROUND BOILER BOX COVER.

- Step 1. Check for excessive wear and deterioration of boiler box gasket.
 - a. If gasket is defective, replace gasket.
 - b. If gasket is serviceable, proceed to next step.
- Step 2. Check for loose nuts securing smoke box cover and burner head assembly.
 - a. If nuts are loose, tighten nuts.
 - b. If nuts are secure and problem persists, notify your supervisor.

13. WATER HEATER TEMPERATURE GAGE SHOWS WATER EXCEEDS SET TEMPERATURE.

- Step 1. Check for improper setting of temperature control.
 - a. If control is improperly set, adjust temperature control to a lower setting.
 - b. If control is properly set, proceed to next step.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

Step 2. Check for loose temperature control knob.

a. If knob is loose, adjust knob and tighten setscrew.

b. If knob is tight, proceed to next step.

- Step 3. Check for defective temperature control. With power off, measure continuity between two control wires. As temperature setting is increased the open circuit should abruptly change to a shorted circuit.
 - a. If control is defective, replace temperature control.
 - b. If control is not serviceable, proceed to next step.

13. WATER HEATER TEMPERATURE GAGE SHOWS WATER EXCEEDS SET TEMPERATURE. (Cont)

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

Step 4. Check for defective low water probe. With power off, measure continuity between probe wire and ground. As water is drained from full to low levels, meter will read as a short at first, then change abruptly to an open reading.

Notify Direct Support Maintenance for replacement of low water probe.

14. WATER HEATER IS DISCHARGING THROUGH DRAIN TUBE WHILE IN USE.

Check for defective water pressure relief valve.

- a. Replace water pressure relief valve.
- b. If problem persists, notify your supervisor.

15. WATER HEATER BLOWER IS NOISY.

- Step 1. Check for obstruction of blower.
 - a. If blower is obstructed, clean blower or remove obstruction.
 - b. If blower is not obstructed, proceed to next step.
- Step 2. Loosen setscrew at fuel pump shaft and check for ease of blower rotation.
 - a. If blower is not easy to rotate, replace blower assembly.
 - b. If blower is serviceable and problem persist, notify your supervisor.

WATER PUMP

16. WATER PUMP SHAFT FAILS TO ROTATE.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- Step 1. Check for loose electrical connections.
 - a. If connections are loose, tighten electrical connections.
 - b. If connections are tight, proceed to next step.
- Step 2. Use a multimeter and check for low or no voltage to water pump motor.
 - a. If voltage is low or zero, check for tripped power panel circuit breaker and power source circuit breaker. Reset breakers.
 - b. If voltage is correct and problem persists, notify your supervisor.

EXTRACTOR

17. EXTRACTOR FAILS TO START.

Step 1. Check for tripped drive motor breaker (1). Remove box cover (2) on side of extractor. Circuit breaker should be on and not tripped.



17. EXTRACTOR FAILS TO START. (Cont)

- a. If breaker is tripped, set to OFF, then back to ON position.
- b. If breaker will not reset, notify your supervisor.
- c. If breaker is not tripped, proceed to next step.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

Step 2. Check timer.

Check that timer is set for proper operating time.

Step 3. Check that lid is closed.

Open and close lid.

Step 4. Check emergency stop button pushed in.

Pull out emergency stop button.

WARNING

Use extreme caution when performing the following test with power ON. Death or serious injury may result.

- Step 5. Check that power is available to motor. With power on, measure 120 V ac between ground (green wire) and each leg terminal (L1, L2, L3) on the motor starter relay.
 - a. If voltage is present, and motor is not operating, replace motor. Refer to paragraph 2-29.
 - b. If no voltage is present, notify your supervisor.

18. EXTRACTOR STARTS BUT BASKET FAILS TO TURN.

Step 1. Check for slipping, broken, or missing drivebelt.

- a. If drivebelt is slipping, adjust drivebelt. If drivebelt is broken or missing replace belt. Refer to paragraph 2-29.
- b. If drivebelt is adjusted correctly and not missing or damaged, proceed to next step.

18. EXTRACTOR STARTS BUT BASKET FAILS TO TURN. (Cont)

- Step 2. Check brake linkage, solenoid, and spring for improper adjustment and improper function. Refer to paragraph 2-29. Brake should release during spin cycle.
 - a. If brake assembly is improperly adjusted, adjust brake. Refer to paragraph 2-29.
 - b. If brake assembly is correct, notify your supervisor.

WARNING

Components of this laundry are heavy and maybe awkward to handle. Use correct lifting procedures, indicated lifting devices, and/or assistance from other personnel to avoid injury. Always follow safety instructions when using lifting devices.

- Step 3. Check for foreign material or clothing wrapped around shaft, above and below the basket.
 - a. If obstruction is found, remove clothing or foreign material.
 - b. If basket and shaft are free and problem persists, notify your supervisor.
- Step 4. Check oil quantity in center unit.

If oil is low, lubricate center unit. Refer to L.O. 10-3510-220-12

19. EXTRACTOR RUNS ON TOO LONG.

Check for improper function of timer. Observe movement of red pointer during spin cycle.

- a. If pointer fails to move, notify your supervisor.
- b. If pointer moves normally and problem persist, notify your supervisor.

20. EXTRACTOR ROTATES IN CLOCKWISE DIRECTION. (Extractor should turn in a counterclockwise direction when looking downward)

Remove belt cover and observe pulley rotation.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

If rotating clockwise, reverse any two leads of the three incoming power leads to the extractor.

21. EXTRACTOR IS NOISY OR ACCELERATES TOO QUICKLY.

- Step 1. Check for top or bottom bearing failure. With curb and basket removed, push and pull on centermost. A loud clicking noise with excessive play indicates a worn bearing.
 - a. If bearings are worn, notify your supervisor.
 - b. If bearings are not worn, proceed to next step.
- Step 2. Check for improper quantity of oil in center unit.
 - a. If oil is low, lubricate center unit. Refer to LO 10-3510-220-12.
 - b. If oil level is correct and problem persists, notify your supervisor.

22. EXTRACTOR HAS WATER ON OR AROUND BASE.

Step 1. Check for restricted or clogged drain line.

- a. If drain line is clogged, unclog the drain.
- b. If drain line is serviceable, proceed to next step.
- Step 2. Check three curb to base gaskets for damage or improper installation.
 - a. If gaskets are damaged, replace gaskets.
 - b. If gaskets are serviceable and problem persists, notify supervisor.

DRYER ASSEMBLY

23. DRYER TUMBLER DOES NOT ROTATE.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- Step 1. Check for defective drive motor. With power off, remove motor connection box cover. Start dryer cycle and measure 120 V ac between each of three legs and ground.
 - a. If voltage is present, notify your supervisor.
 - b. If voltage is not present, go to next step.
- Step 2. Check for improperly adjusted or defective door interlock safety switch. Refer to paragraph 2-44.
 - a. If switch needs adjustment, adjust door interlock switch. Refer to paragraph 2-44.
 - b. If switch is defective, replace door interlock switch. Refer to paragraph 2-44.
 - c. If switch is serviceable and problem persists, notify your supervisor.

24. DRYER AIR IS NOT HEATED TO THE CORRECT TEMPERATURE.

- Step 1. Check for defective thermo switch control. Temporarily substitute a good switch for the suspect one. Test operate dryer. Refer to paragraph 2-45.
 - a. If switch is defective, replace thermo switch control.
 - b. If switch is serviceable, proceed to next step.
- Step 2. Check for dirty UV scanner lens.
 - a. If lens is dirty, clean UV scanner lens. Refer to paragraph 2-48.
 - b. If lens is clean, proceed to next step.

24. DRYER AIR IS NOT HEATED TO THE CORRECT TEMPERATURE. (Cont)

- Step 3. Check for defective UV scanner. Temporarily substitute a known good scanner for the suspect scanner.
 - a. If scanner is defective, replace UV scanner. Refer to paragraph 2-48.
 - b. If scanner is serviceable, proceed to next step.
- Step 4. Check for defective flame safeguard control. Temporarily substitute a known good flame safeguard control for the suspect control.

If control is defective, replace flame safeguard control. Refer to paragraph 2-48.

25. DRYER BURNER FLAME FAILS.

- Step 1. Check for clogged/dirty fuel lines.
 - a. If lines are clogged/dirty, clean fuel lines. Refer to paragraph 2-47.
 - b. If lines are not clogged/dirty, proceed to next step.
- Step 2. Check for clogged fuel filter.
 - a. If fuel filter is dirty, service fuel filter. Refer to TM 10-3510-220-10 and/or unit PMCS, table 2-1.
 - b. If problem persists, service fuel pump screen. Refer to paragraph 2-46.
- Step 3. Check for low fuel pump pressure. Pressure should be approximately 100 psi (690 kPa).
 - a. If pressure is incorrect, adjust fuel pump pressure. Refer to paragraph 2-46.
 - b. If problem persists, proceed to next step.
- Step 4. Check for defective or noisy fuel pump.
 - a. If fuel pump is defective or noisy, repair or replace fuel pump. Refer to paragraph 2-46.
 - b. If fuel pump is serviceable, proceed to next step.

25. DRYER BURNER FLAME FAILS. (Cont)

- Step 5. Check for loose fuel pump coupling.
 - a. Tighten fuel pump coupling. Refer to paragraph 2-46.
 - b. If fuel pump coupling is serviceable, proceed to next step.
- Step 6. Check for defective fuel solenoid. Replace suspect solenoid temporarily with a known good one.
 - a. If fuel solenoid is defective, replace fuel solenoid. Refer to paragraph 2-44.
 - b. If solenoid is serviceable, proceed to next step.
- Step 7. Check for clogged or damaged burner nozzle.
 - a. Clean clogged burner nozzle or replace damaged nozzle. Refer to paragraph 2-51.
 - b. If burner nozzle is serviceable, proceed to next step.
- Step 8. Check for defective combustion blower impeller. Check for loose coupling and for damaged or missing parts.
 - a. If combustion blower impeller is defective and/or parts are damaged or missing, replace combustion blower impeller. Tighten loose couplings. Refer to paragraph 2-52.
 - b. If combustion blower impeller is serviceable, proceed to next step.
- Step 9. Check for defective combustion blower motor. Check for noisy or hot operation of motor.
 - a. If combustion blower motor is defective or if operation is noisy or hot, replace combustion blower motor. Refer to paragraph 2-52.
 - b. If combustion blower motor is serviceable and problem persists, notify your supervisor.

26. DRYER-TUMBLER BURNER DOES NOT OPERATE.

- Step 1. Check for cracked, worn, or broken motor parts, damaged shaft threads, and bent shaft.
 - a. If motor is damaged, replace motor. Refer to paragraph 2-52.
 - b. If motor is serviceable, proceed to next step.
- Step 2. Check for no ignition spark.
 - a. If there is no ignition spark, replace electrode cable from electrode to ignition transformer.
 - b. If ignition spark is present, proceed to next step.
- Step 3. Check for reversed motor direction.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. If motor direction is reversed, disconnect and reverse any two phase lines.
- b. If motor direction is correct, proceed to next step.
- Step 4. Check for missing bypass plug in fuel pump.
 - a. If bypass plug is missing, install bypass plug. Refer to paragraph 2-46.
 - b. If bypass plug is present and problem persists, notify your supervisor.

27. DRYER FUEL PRESSURE (AS INDICATED ON GAGE) PULSATES.

- Step 1. Check for defective fuel pressure gage. Temporarily replace suspect gage with a known good gage.
 - a. If gage is defective, replace fuel pressure gage. Refer to paragraph 2-46.
 - b. If gage is serviceable, proceed to next step.
- Step 2. Check for incorrect fuel pump pressure. Pressure should be approximately 100 psi (690 kPa).

If pressure is incorrect, adjust fuel pump pressure. Refer to paragraph 2-46.

28. DRYER FLAME PULSATES.

- Step 1. Check for improper air shutter adjustment. Exhaust gases should be clear or light grey.
 - a. If exhaust gas is dark, adjust air shutter. Refer to TM 10-3510-220-10.
 - b. If exhaust gas is proper color, proceed to next step.
- Step 2. Check for low fuel supply in fuel container.
 - a. If container is low on fuel, fill container with fuel. Refer to TM 10-35120-220-10.
 - b. If container fuel level is correct, proceed to next step.
- Step 3. Check for water in fuel by draining a small amount of fuel into a clear container. Look for fuel/water separation.
 - a. If fuel/water is present, drain fuel supply and refill with proper fuel. Refer to TM 10-3510-220-10.
 - b. If water is not present, proceed to next step.
- Step 4. Check for dirty burner assembly.
 - a. If burner is dirty, clean burner assembly. Refer to paragraph 2-51.
 - b. If burner is serviceable and problem persists, notify your supervisor.

29. EXCESSIVE SMOKE FROM DRYER EXHAUST.

- Step 1. Check for improper adjustment of air shutter. Exhaust gases should be light grey or clear.
 - a. If exhaust is too dark, adjust air shutter. Refer to TM 10-3510-220-10.
 - b. If exhaust is proper color, proceed to next step.
- Step 2. Check for improper fuel pressure. Pressure should be approximately 100 psi (690 kPa).
 - a. If pressure is incorrect, adjust fuel pressure. Refer to paragraph 2-46.
 - b. If fuel pressure is correct, proceed to next step.

29. EXCESSIVE SMOKE FROM DRYER EXHAUST. (Cont)

- Step 3. Check for dirty burner.
 - a. If burner is dirty, clean burner. Refer to paragraph 2-51.
 - b. If burner is clean, proceed to next step.
- Step 4. Check for blocked air intake screen.
 - a. If blockage is found, remove blockage from air intake screen.
 - b. If air intake screen is serviceable, proceed to next step.
- Step 5. Check for worn or broken fuel pump parts.
 - a. If pump is damaged, repair or replace fuel pump. Refer to paragraph 2-46.
 - b. If fuel pump is serviceable and problem persists, notify your supervisor.

30. AIR LEAKS FROM DRYER DOOR.

- Step 1. Check for loose door latch.
 - a. If door latch is loose, adjustor replace door latch. Refer to paragraph 2-44.
 - b. If door latch is serviceable, proceed to next step.
- Step 2. Check for bent door or hinge.

Straighten or replace door assembly. Refer to paragraph 2-44.

AIR COMPRESSOR

31. AIR COMPRESSOR DOES NOT OPERATE

Step 1. Check for tripped main power supply and compressor circuit breaker.

- a. If breaker is tripped, turn main power supply and compressor circuit breaker to ON. Refer to TM 10-3510-220-10.
- b. If circuit breakers are not tripped, proceed to next step.

31. AIR COMPRESSOR DOES NOT OPERATE. (Cont)

- Step 2. Check for internal failure of air compressor. Listen for unusual noise or overheating.
 - a. If compressor operates but does not produce sufficient air volume or pressure, replace air compressor. Refer to paragraph 2-26.
 - b. If air compressor is serviceable and problem persists, notify your supervisor.

32. AIR PRESSURE IS TOO LOW (BELOW 60 PSI [414 kPal) OR TOO HIGH (ABOVE 60 PSI [552 kPa]).

- Step 1. Check for air leaks at fittings, lines, and tank.
 - a. If leaks are found, repair air leaks. Refer to paragraph 2-27.
 - b. If leaks are not found, proceed to next step.
- Step 2. Check for clogged air compressor filters.
 - a. If filters are dirty, clean or replace air filters. Refer to paragraph 2-26.
 - b. If filters are serviceable, proceed to next step.
- Step 3. Check for improperly adjusted pressure switch. Test run compressor: on at 60 psi (414 kPa); off at 80 psi (552 kPa).
 - a. If pressure is incorrect, adjust pressure switch. Refer to paragraph 2-26.
 - b. If pressure is correct, proceed to next step.
- Step 4. Check for broken pressure switch. Temporarily substitute a known good switch for the suspect switch.
 - a. If switch is defective, replace pressure switch. Refer to paragraph 2-26.
 - b. If switch is serviceable and problem persists, notify your supervisor.

WASHER ASSEMBLY

33. WASHER WILL NOT FILL AND CYLINDER WILL NOT ROTATE.

Check for failure of door safety switch (3). Perform continuity check with power off.

NOTE

Door lock cover must be removed to check switch.

- a. If door safety switch (3) is defective, replace switch.
 - (1) Remove two screws (4) securing switch (3) to door lock bracket (1).
 - (2) Tag and disconnect wires from switch (3).
 - (3) Connect wires to new switch (3) and remove tags.
 - (4) Attach switch (3) to door lock bracket (1) through insulator sheet (2) using screws (4) remove in step 1.
 - (5) Reinstall door lock cover removed to perform check.
- b. If switch is serviceable and problem persists, notify your supervisor.



34. WASHER FILL LEVEL IS TOO LOW.

Step 1. Check for obstruction in air trap (located between drain valves), clean as required.

If level is incorrect, remove cover of control console and adjust center screw on low water switch.

<u>WARNING</u>

High voltage is present inside control console. Do not perform maintenance with power on. Death or serious injury may result.

Step 2. Check for inoperative water level switch with power off and clear tube to air trap disconnected from air trap, perform continuity check from common to normally closed. Then blow into end of tube and while holding pressure in tube check continuity for common to normally open.

NOTE

All three level switches are removed and replaced the same way. This procedure covers replacement of one switch.

- a. If switch is defective, replace level switch.
 - (1) Tag and remove wires from level switch.
 - (2) Remove screw holding level switch to mounting bracket.
 - (3) Remove tube attached to bottom of switch.
 - (4) Connect tube to bottom of switch.
 - (5) Position switch and attach to mounting bracket.
 - (6) Connect wiring and remove tags.
 - (7) Install control console cover.
- b. If switch is serviceable, proceed to next step.
- Step 3. Check for clogged drain valve during filling and check for low air pressure (60 to 80 psi [414 to 552 kpa]).
 - a. If drain valve is clogged, remove clog.
 - b. If air supply is correct (malfunction 32 above) replace or repair drain valve.
 - c. If problem still persists, notify your supervisor.

35. WASHER FILL LEVEL IS TOO HIGH. (Above 11 inches [280 mm])

- Step 1. Check for obstruction in air trap (located between drain valves), clean as required.
- Step 2. Check for water in air trap tube (this indicates a leak in air tube). Repair or replace tubing.
- Step 3. Refer to malfunction 34 and perform steps 2 and 3.
- Step 4. Check for malfunctioning water inlet valve. Operate manual override on control solenoids and observe valve operation. Insure inlet valve air supply is adequate (60 to 80 psi [4 H to 552 kPa]).
 - a. If air supply is adequate (malfunction 32 above), replace the defective valve. Refer to paragraph 2-22.
 - b. If problem persists, notify your supervisor.

36. WATER WILL NOT DRAIN FROM WASHER.

- Step 1. Check for clogged drain valve/line.
 - a. Remove clog.
- Step 2. Check for inoperative drain valve
 - a. Operate manual override on drain solenoid and observe valve operation.
 - b. Check that air supply pressure is correct (60 to 80 psi [414 to 552 kPa]).
 - c. Replace or repair drain valve.

37. WASHER DOES NOT FILL WITH COLD/HOT WATER (AUTOMATIC OR MANUAL MODE).

- Step 1. Check for blown fuse in controller assembly.
 - a. If fuse is blown, replace fuse.
 - b. If fuse is serviceable, proceed to next step.
- Step 2. Check for too low or too high air pressure. Normal is 60 to 80 psi (414 to 552 kPa).
 - a. If air pressure is incorrect, adjust air system for proper pressure. Refer to paragraph 2-26.
 - b. If air pressure is correct, proceed to next step.

37. WASHER DOES NOT FILL WITH COLD/HOT WATER (AUTOMATIC OR MANUAL MODE). (Cont)

- Step 3. Check for stuck cold/hot water inlet valve. Activate with washer operating manual program switches and observe valve operation.
 - a. If inlet valve is defective, replace inlet valve. Refer to paragraph 2-22.
 - b. If valve is serviceable and problem persists, notify your supervisor.

38. WASHER CYLINDER WILL NOT ROTATE (AUTOMATIC OR MANUAL MODE)

- Step 1. Check for blown fuse inside controller assembly.
 - a. If fuse is blown, replace fuse.
 - b. If fuse is serviceable, proceed to next step.
- Step 2. Check for loose or slipping drivebelt.
 - a. If drivebelt is loose or slipping, adjust drivebelt for proper tension. Refer to paragraph 2-23.
 - b. If drivebelt is properly adjusted and problem persist, notify your supervisor.

39. WATER LEAKS AROUND WASHER DOOR.

- Step 1. Check for damaged door gasket.
 - a. If door gasket is damaged and needs replacement, notify our supervisor.
 - b. If door gasket is serviceable, proceed to next step.
- Step 2. Check for warped or damaged door.
 - a. If door is damaged and needs replacement, notify our supervisor.
 - b. If door is serviceable, proceed to next step.
- Step 3. Check for damaged glass or glass gasket.

If glass or glass gasket is defective and needs replacement, notify your supervisor.

40. Water fails to draw from washer (water reuse system).

- Step 1. Check for obstructed strainer basket and screen.
 - a. If basket/screen is obstructed, remove obstruction.
 - b. If basket is serviceable, notify your supervisor.
- Step 2. Check for clogged drain valve/line.
 - a. Remove clog.

Step 3. Check for inoperative drain valve.

- a. Operate manual override on drain solenoid and observe valve operation.
- b. Check that air supply pressure is correct (60 to 80 psi [414 to 552 kPa]).
- c. Replace or repair drain valve.

41. Water overflows from holding tank.

Step 1. Check hoses for obstructions.

- a. If hoses are obstructed, remove obstruction.
- b. If hoses are serviceable, precede to next step.

Step 2. Check if float switch is malfunctioning.

- a. If float switch is broken, and needs replacement, refer to para. 2-24.3.
- b. If float switch is serviceable, notify your supervisor.

42. Water is not pumped from transfer tank.

Step 1. Check for obstructions at output of transfer tank.

- a. If transfer tank is obstructed, remove obstruction.
- b. If transfer tank output is not obstructed, precede to next step.
- Step 2. Check for sump pump malfunction.
 - a. If sump pump is broken, refer to para. 2-24.2
 - b. If sump pump is working, notify your supervisor.

Section VI. UNIT MAINTENANCE PROCEDURES

2-12. GENERAL. The procedures in this section have been arranged in the order in which the items appear in the Unit (O) Maintenance level column on the Maintenance Allocation Chart (MAC) which is provided in Appendix B. Step by step procedures have been provided for all actions authorized to be performed by Unit Maintenance in the order in which they appear on the MAC. Actions authorized to be performed by Direct Support and General Support Maintenance have been noted; step by step procedures for these actions maybe found in Chapter 5 and 6 respectively.

WARNING

Disconnect input power to the laundry unit before performing any internal maintenance. Voltages used can KILL. Shutting the unit off at the control panel does not disconnect unit power.

a. <u>Wiring</u>.

- 1. General. Preferred repair methods consist of replacing wires, terminals, connectors, etc., rather than splicing wires, bending ends to form terminals, and other makeshift procedures. Although the latter may be appropriate for emergency field repairs. Determine the proper size and length of wire, or the terminal, or connector to be used for replacement by referring to appendix E. Cable Diagrams, Wire Run List, and Control Circuits.
- 2. Soldering Connections. Wire connections must be made mechanically sound before they are soldered. Solder alone does not provide sufficient strength to prevent breakage. Joining surfaces of connections to be soldered must be clean and bright. If a separate flux is used, it should conform to Specification MIL-F-14256 rosin base flux, item xx, Appendix C and should be brushed onto the joint before soldering. If a flux-core solder is used it should be a rosin core electrical solder. If uncored solder is used it should be a lead-tin solder, item x, Appendix C, conforming to specification QQ-S-571. Wires should always be heated to the point at which the solder will melt completely and flow into all parts of the joint. Excessive build up of solder "gobs" on the joint should be avoided or removed.
- **3.** *Insulating Joints.* The preferred method of insulating electrical joints is by the use of heat-shrink tubing. To apply, cut a piece of heat-shrink tubing of suitable diameter to a one inch length for covering joints at terminals or connectors, or to a length about 1/2 inch (1.3 cm) longer than the joint to be insulated, and slide the tubing over the wire before making the joint. After the joint is made, slide the tubing so that it covers the joint, and shrink in place with moderate heat.

2-12. GENERAL (CONT)

- **4.** Splicing Wires. To repair broken or cut wires that are otherwise sound, the mating ends can be stripped and spliced. A commercial butt spice can be crimped onto the ends to join them, or a "Western Union" wire splice can be made. The latter is made by stripping 1/4 1/2 inch (6.5 12.7 mm) of insulation from the wire ends, holding the ends parallel and facing opposite directions, then twisting each end around the other wire at least three turns. Solder and apply insulation as described above.
- **5.** Crimping Terminals. To install a terminal on the end of a wire, strip 1/4 1/2 inch (6.5 12.7 mm) of insulation from the end of the wire, apply a one inch piece of heat-shrinking tubing (if the terminals are of the uninsulated type) and insert wire end into the shank of the terminal. Crimp the shank, and install heat-shrink tubing, if necessary.

b. <u>Cleaning and Inspection of Antifriction Bearings.</u> Refer to TM 9-214, Inspection, Care, and Maintenance of Antifriction Bearings.

c. <u>Cleaning and Inspection of Mechanical Parts.</u>

<u>WARNING</u>

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in well-ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flash point is $100 - 138^{\circ}F$ ($38 - 59^{\circ}C$). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

WARNING

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

- (1) Clean metal parts in drycleaning solvent (Item 10, App C). Thoroughly dry the parts with compressed air, observing all safety precautions.
- (2) Fibrous or rubber parts can generally be cleaned with warm, soapy water and dried with compressed air.
- (3) Inspect metal parts for cracks, breaks, bends, worn edges, and rough bearing surfaces. Damage that alters the part or its function is cause for replacement of that part.

d. <u>General Repair</u>.

- (1) Repair the laundry unit to normal operating condition by replacing or repairing a defective component and/or by needed adjustments.
- (2) Cleaning and lubrication is sometimes all that is needed to return an item to operating condition.
- (3) Remove and replace only those items necessary to make repairs. After replacing the defective components, ensure that the laundry operates correctly by making a visual inspection and by performing an operational check. Refer to TM 10-3510-220-10.

2-12. GENERAL (CONT)

e. <u>Certification</u>. Before welding any assembly of the laundry unit, the welder must be certified as a welder of ferrous metals. The certification is based on ASME Boiler and Pressure Vessel Code, Section IX, and meets or exceeds the intent of the following military specifications and standards.

- (1) MIL-W-52574 (ME), Welding, Steel
- (2) MIL-STD-1261, Welding Procedures for Constructions Steels

f. <u>Components Made of Steel.</u> The following procedures provide instructions for repairing the air tank, frame assembly, and other components of the laundry that are made from steel.

- (1) Before welding, thoroughly clean surface to be welded. Do not use solvent for cleaning.
- (2) Remove burrs and sharp edges.
- (3) Weld damaged area in accordance with MIL-W-52574 (ME), Type I.
 - a. Welding rods shall conform to Federal Specification E-15599, Class SA 233, 3/32-inch diameter.
 - b. Power source can be ac or dc reverse polarity, 30 to 80 amperes.
 - c. Penetration shall be full, at 14 inches (355.6 mm)/minute welding rate.
 - d. Preheat material to be welded to $50^{\circ}F$ ($10^{\circ}C$).
 - e. Avoid starts and stops when welding. Chip slag and restart the weld.
- (4) Inspect weld joints for conformance with specification details and for surface uniformity.
- (5) Grind welded seams smooth.
- (6) Clean exposed metal surfaces.
- (7) Apply one coat of primer (item 6, app C).
- (8) Apply finish (item 7, app C) in accordance with FED STD 595.

2-13. COVER (TARP)

This task covers:

Replace

INITIAL SETUP

General Safety Instructions

WARNING

Trailer bed can be cluttered and is slippery if wet. Use care when climbing on or around the mounted equipment.

REPLACE

If cover is damaged beyond repair, replace with a new cover.

2-14. TARP FRAME ASSEMBLY

This task covers:

a. Inspection b. Removal c. Repair d. Replace

e. Installation

INITIAL SETUP

<u>Tools</u> General mechanic's tool kit,

Personnel Required

Four

Materials/Parts

Epoxy primer paint (Item 6, App C) Green 383 CARC paint (Item 7, App C)

Equipment Condition

TM 10-3510-220-10, Tarp removed.
TM 10-3510-220-10, Left beam assembly removed.
TM 10-3510-220-10, Strut assembly removed.
TM 10-3510-220-10, Ladder removed.
TM 10-3510-220-10, Platform assemblies removed.
Paragraph 2-17, Sound deadening panels removed.
Paragraph 2-16, Basket assembly removed.
Paragraph 2-15, Beam assemblies (center and right) removed.

General Safety Instructions

WARNING

Components of frame assembly are heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

INSPECTION

Inspect frame assembly for cracks, breaks, bends, rust, missing hardware, and other damage that would weaken frame.

REMOVAL

WARNING

Components are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

WARNING

Trailer bed can be cluttered and is slippery if wet. Use care when climbing onto or walking around the mounted equipment.

1. Remove bolt (24), nut (22), lockwasher (23), bolt (17), nut (12), lockwasher (13), spacer (14), and brace (25) from both sides of front frame (11) and trailer (26).

2. Remove fire extinguisher and bracket from front frame. Refer to paragraph 2-59.

2-14. TARP FRAME ASSEMBLY (CONT)

REMOVAL (Cont)



3. Support front frame (11) and remove 12 bolts (18), nuts (21) and lockwashers (19) and flatwashers (20). Remove front frame (11) from trailer (26).

4. Remove bolt (10), nut (16), lockwasher (15), bolt (5), nut (2), lockwasher (3), spacer (4), and brace (6) from both sides of rear frame (1) and trailer (26).

5. Remove bolts (9) and lockwashers (8) to remove platform anchor assembly (7) from rear frame (1).

6. Support rear frame (1) and remove 12 bolts (28), 8 nuts (30) and 12 lockwashers (27) and flatwashers (29). Remove rear frame (1) from trailer (26).

NOTE

If you find shims under front frame (11) note their position for installation.
2-14. TARP FRAME ASSEMBLY (CONT)

REPAIR

WARNING

Welding procedures specified may cause injury if safety precautions are not followed. Wear protective clothing and eye wear while performing welding operations. Serious injury could result.

Repair by welding, bending, and cutting metal parts. File sharp edges until smooth. Repair by replacing damaged hardware and component parts.

REPLACE

If frame assembly is damaged beyond repair, replace with new frame components.

INSTALLATION

WARNING

Components are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

1. Use lifting device or correct lifting procedure and place rear frame (1) into position on trailer (26).

2. Install 12 bolts (28), flatwashers (29) and lockwashers (27) and 8 nuts (30).

3. Secure platform anchor assembly (7) onto rear frame (1) using bolts (9) and lockwashers (8).

4. Position brace (6) on trailer (26) and rear frame (1) and install bolts (5), spacer (4), lockwashers (3), nuts (2), bolts (10), lockwashers (15) and nuts (16). Repeat procedure for brace on opposite side of frame.

NOTE

If shims were found under front frame (11) during disassembly, replace them as you found them.

5. Use lifting device and place front frame (11) into position on trailer (26).

6. Install 12 bolts (18), flatwashers (20), lockwashers (19) and nuts (21).

7. Install fire extinguisher and bracket on front frame. Refer to paragraph 2-59.

8. Position brace (25) on trailer (26) and front frame (11) and install bolt (17), spacer (14), lockwasher (13), nut (12), bolt (24), lockwasher (23), and nut (22). Repeat this procedure for brace on opposite side of frame.

2-14. TARP FRAME ASSEMBLY (CONT)



9. Perform follow-on installation.
Install beam assemblies (center and right) and perform follow-on maintenance (para 2-15). Install basket assembly (para 2-16).
Install sound deadening panels (para 2-17).
Install platform assemblies (TM 10-3510-220-10).
Install ladder (TM 10-3510-220-10).
Install strut assembly (TM 10-3510-220-10).
Install tarp assembly (TM 10-3510-220-10).

2-15. BEAM ASSEMBLY (CENTER AND RIGHT)

This	task covers:								
a	Inspection	b.	Removal	с.	Repair	d	. Replace	e. Installation	
INIT	IAL SETUP								
	Tools				Equipmen	t Co	ndition		
	General mechanic's tool kit, Heli-arc welding equipment (as needed) Painting equipment (as needed) Personnel Required				TM 10-3510-220-10, Tarp, ladder, struts and left beam assembly removed. Paragraph 2-16, Basket assemblies removed. Paragraph 2-17, Upper and lower sound deadening panels removed.				
	Two				General S	Safety	/ Instructions		

WARNING

Trailer bed can be cluttered and is slippery if wet. Use care when climbing onto or walking around the mounted equipment.

INSPECTION

Inspect beam assembly for cracks, breaks, bends, corrosion, missing hardware, and other damage that weakens the metal.

REMOVAL

- 1. Remove two lanyard pins (1), one pin on each end from right beam (2) and beam holders (3).
- 2. Lift right beam (2) from beam holders (3) and remove beam from trailer.
- 3. Remove air hoses from center beam by removing tie down straps as necessary.
- 4. Repeat steps 1 and 2 for center beam.



2-15. BEAM ASSEMBLY (CENTER AND RIGHT) (CONT)

REPAIR

WARNING

Welding procedures specified may cause injury if safety precautions are not followed. Wear protective clothing and eye wear while preforming welding operations. Serious injury could result.

Repair by welding, bending, and cutting metal parts. File sharp edges until smooth. Repair by replacing damaged hardware and component parts.

REPLACE

If beam assembly is damaged beyond repair, replace with a new beam assembly.

INSTALLATION

- 1. Install right beam (2) in holders (3) and install two lanyard pins (1).
- 2. Repeat step 1 for center beam.
- 3. Position air hoses along center beam and secure with tiedown straps.
- 4. Perform follow-on installation.

Install upper and lower sound deadening panels (para 2-17). Install basket assemblies (para 2-16).

Install left beam, struts, ladder and tarp assembly (TM 10-3510-220-10).



2-15.1. RIGHT CENTER SUPPORT (FOR WATER REUSE SYSTEM)

This task covers:

a. Inspection b. Removal c. Repair d. Replace e. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit,

Heli-arc welding equipment (as needed)

Painting equipment (as needed)

Personnel Required

Two

General Safety Instructions

Equipment Condition

TM 10-3510-220-10, Tarp, ladder, struts and

left beam assembly removed.

Paragraph 2-16, Basket assembly removed.

Paragraph 2-17, Upper and lower sound deadening panels removed.

WARNING

Trailer bed can be cluttered and is slippery when if wet. Use care when climbing onto or walking around the mounted equipment.

INSPECTION

Inspect beam assembly for cracks, breaks, bends, corrosion, missing hardware, and other damage that weakens the metal.

REMOVAL

- 1. Remove 2 lock nuts (1), bolts (2) and washers (3) attaching 2 brace cups to center support (5).
- 2. Remove brace cup (4).
- 3. Loosen right and center beam by removing 2 lanyard pins (6).
- 4. Remove 2 lock nuts (7), bolts (8) and washers (9) attaching center support to trailer.



2-15.1. RIGHT CENTER SUPPORT (FOR WATER REUSE SYSTEM)

REMOVAL (cont.)

5. Remove center support (5).

REPAIR

WARNING

Welding procedures specified may cause injury if safety precautions are not followed. Wear protective clothing and eye wear while performing welding operations. Serious injury could result.

Repair by welding, bending, and cutting metal parts. File sharp edges until smooth. Repair by replacing damaged hardware and component parts.

REPLACE

If center support is damaged beyond repair, replace with a new center support.

INSTALLATION

- 1. Position center support (5) on trailer.
- Install 4 washers (9), 2 bolts (8) and lock nuts (7) attaching center support (5) to trailer.
- 3. Secure right and center beams by installing 2 lanyard pins (6).
- 4. Position brace cup (4) over right and center beams.
- 5. Install 2 washers (3), bolts (2) and lock nuts (1).
- 6. Perform follow-on installation.

Install upper and lower sound deadening panels (para. 2-17).

Install basket assembly (para. 2-16).

Install left beam, struts, ladder and tarp assembly (TM10-3510-220-10).



2-16. BASKET ASSEMBLY

This task covers:

a.	Inspection	b.	Removal	с.	Repair	d.	Replace	e.	Installation
----	------------	----	---------	----	--------	----	---------	----	--------------

INITIAL SETUP:

<u>Tools</u>

General mechanic's tool kit, Rivet installation tool Welding equipment (as needed)

Personnel Repaired

Two

Materials/Parts

Rivets, blind, MS20600-B6W6 Basket assembly, 6-1-9955 (81337)

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed.TM 10-3510-220-10, Storage items removed from baskets.TM 10-3510-220-10, Strut assembly removed.TM 10-3510-220-10, Left beam assembly removed.

General Safety Instructions

WARNING

Wear protective clothing and eye wear while performing welding operations. Serious injury could result.

INSPECTION

Inspect baskets for cracks, breaks, corrosion, missing straps, and broken supports.

REMOVAL

- 1. Unhook eight straps (1) from right beam (6) and center beam (3).
- 2. Lift basket assembly (7) from right beam (6) and center beam (3) and remove from trailer.
- 3. Repeat steps 1 and 2 and remove remaining basket assembly.



2-16. BASKET ASSEMBLY (CONT)

REPAIR

Replace damaged or missing straps (1 and 2), rivets (5) and footman loops (4).

REPLACE

If basket assembly is damaged beyond repair, replace with a new basket assembly.

INSTALLATION

- 1. Install basket assembly (7) on right beam (6) and center beam (3) and secure basket assembly with straps (1).
- 2. Repeat step 1 and install remaining basket assembly.
- 3. Perform follow-on installation.

Install left beam assembly (TM 10-3510-220-10). Install strut assembly (TM 10-3510-220-10). Replace storage items in basket. (TM 10-3510-220-10). Install tarp assembly (TM 10-3510-220-10).



2-17. SOUND DEADENING PANELS

This task covers:

a	Inspection	b. Removal	c. Replace	d. Installation
INIT	IAL SETUP:			
	<u>Tools</u>		Equipment Condition	
	General mechanic Welding equipme	's tool kit, nt (as needed)	TM 10-3510-220-10, Ta <u>WA</u>	rp assembly removed. ARNING
	<u>Materials/Parts</u>		Welding procedures sp safety precautions are 1	pecified may cause injury if not followed. Wear protective
	Insulation, miner ASTM-C-764	al fiber,	clothing and eye wear operations. Serious inju	r while performing welding ury could result.

INSPECTION

Inspect panel for cracks, breaks, dents, corrosion, missing parts, and damaged sound insulation.

REMOVAL

- 1. Unhook strap (4) from upper track assembly (6) and remove three panels (1).
- 2. Unhook strap (5) from lower track assembly (2) and remove three panels (3).

2-17. SOUND DEADENING PANELS (CONT)

REMOVAL (Cont)

NOTE

- 1. BIN ASSEMBLY IS SHOWN EMPTY FOR CLARITY.
- 2. REMOVE LARGE SOUND PANEL FIRST.



2-17. SOUND DEADENING PANELS (CONT)

REPLACE

If sound deadening panels are damaged beyond useful service, replace with new ones.

INSTALLATION

NOTE

Install open side of sound panels to generator.

- 1. Install three panels (3) in lower track assembly (2) and secure with strap (5).
- 2. Install three panels (1) in top bracket (6) and secure with strap (4).

2-17. SOUND DEADENING PANELS (CONT)

INSTALLATION (Cont)

NOTE

- 1. BIN ASSEMBLY IS SHOWN EMPTY FOR CLARITY.
- 2. INSTALL LARGE SOUND PANEL LAST.
- 3. INSTALL OPEN SIDE OF SOUND PANELS TO GENERATOR.



4. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

2-18. LOWER SOUND DEADENING TRACKS

This task covers:

a. Inspection b. Removal c. Replace d. Installation

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit, Welding equipment (as needed)

Materials/Parts

Track Assembly 1-6-0106 (81337)

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed. Paragraph 2-17, Lower sound deadening panels removed. TM 10-3510-220-10, Dry clothes bin removed. Paragraph 2-58, Generator removed if necessary.

WARNING

Trailer bed can be cluttered and is slippery is wet. Use care when climbing onto or walking around the mounted equipment.

INSPECTION

Inspect for cracks, breaks, bends, missing hardware, corrosion, and other damage that prevents sound panel installation.

2-18. LOWER SOUND DEADENING TRACKS (CONT)

REMOVAL



- 1. Remove six bolts (1), flatwashers (2), lockwashers (3) and nuts (5) from track (4).
- 2. Remove track (4) from laundry unit.

REPLACE

If lower sound deadening panel track is damaged beyond repair, replace with a new track.

INSTALLATION

- 1. Place track (4) on laundry trailer.
- 2. Install six bolts (1), lockwashers (3), flatwashers (2) and nuts (5).
- 2. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10). Install lower sound deadening panels (para 2-17). Install dry clothes bin (TM 10-3510-220-10). Install generator if removed (para 2-58).

2-19. PLATFORM ASSEMBLY

This task covers:

a.	Inspection	b.	Removal	с.	Repair	d.	Replace	e.	Installation
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INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit, Welding equipment (as needed) Equipment Condition

TM 10-3510-220-10, Tarp assembly removed.

WARNING

Personnel Repaired

Two

Materials/Parts

Platform assembly, 6-1-9855, 6-1-8356, 6-2-2411 Stair assembly 6-1-9949, 6-2-2403

Components of the platform assembly are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

INSPECTION

Inspect for cracks, breaks, and missing hardware.

REMOVAL

Refer to TM 10-3510-220-10 for removal and disassembly of platform assembly.

2-19. PLATFORM ASSEMBLY (CONT)

REPAIR



Replace broken or damaged levelers (1), platform footings (3) and missing hardware. Straighten bent grates (2) if damaged.

REPLACE

If platform section is damaged beyond repair, replace with a new section.

INSTALLATION

- 1. Refer to TM 10-3510-220-10 for assembly and installation of platform assembly.
- 2. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

2-20. LADDER

This task covers:

a. Removal b. Installation

INITIAL SETUP:

<u>Tools</u>

General mechanic's tool set,

REMOVAL

Remove bolt (1) and locknut (2) and remove foot assembly (3) from ladder (4),

INSTALLATION

Install foot assembly (3) to ladder (4) using bolt (1) and nut (2).



2-21. WASHER ASSEMBLY

This task covers:

a.	Service	b.	Inspection	с.	Repair	d.	Adjustment

INITIAL SETUP:

Tools

Equipment Condition

TM 10-3510-220-10, Washer drained.

General Safety Instructions

WARNING

Materials/Parts

Lubricating oil (Item 17, App C)

General mechanic's tool kit

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

SERVICE

The only service required on the washer assembly is lubrication of the gear reduction unit. (Refer to LO 10-3510-220-12.)

INSPECTION

Inspect for dry lubrication points.



2-21. WASHER ASSEMBLY (CONT)

REPAIR

NOTE

Repair consists of replacing the washer thermometer.

- 1. Remove water pump (TM 10-3510-220-10) and washer drivebelt cover (para 2-23) for easy access to washer thermometer.
- 2. Remove three screws (2), and washers (3) securing temperature gage (4) to bracket (1).
- 3. Remove tiewraps as required.

4. Pull temperature probe out of thermo-well on bottom of washer. Feed temperature probe and cable through gauge mounting bracket to remove.

5. Install new temperature gauge (4) by feeding probe and cable through gauge mounting bracket (1) and out the bottom.

- 6. Install three screws (2) and washers (3) to secure gauge (4) to bracket (1).
- 7. Push probe (5) firmly into thermo-well (6).
- 8. Install tiewraps as required.
- 9. Install drivebelt cover (para 2-23) and water pump (TM 10-3510-220-10).



2-21. WASHER ASSEMBLY (CONT)

ADJUSTMENT

1. Adjust low water fill level.

WARNING

High voltage is present inside control console. Do not perform maintenance with power on. Death or serious injury may result.

- a. Select low water level and allow washer to fill.
- b. Check low water level for a depth of approximately 7 inches (45.1 mm).
- c. If level is incorrect, remove cover of control console and adjust center screw "A" on LOW WATER LEVEL switch.
- d. Drain washer.
- e. Repeat steps (a) thru (d) until a low level of approximately 7 inches (47.7 mm) is reached.



2-21. WASHER ASSEMBLY (CONT)

ADJUSTMENT (Cont)

3. Adjust high water fill level.

WARNING

High voltage is present inside control console. Do not perform maintenance with power on. Death or serious injury may result.

- a. Select high water level and allow washer to fill.
- b. Check high water level for a depth of approximately 11 inches (45.6 mm).
- c. If level is incorrect, remove cover of control console and adjust center screw "A' on HIGH WATER LEVEL switch.
- d. Drain washer.
- e. Repeat steps (a) thru (d) until a high level of approximately 11 inches (71 mm) is reached.



This task covers:

a. Inspection

b. Removal

c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit

Equipment Condition

TM 10-3510-220-10, Washer drained. TM 10-3510-220-10, Air tank drained. TM 10-3510-220-10, Quick disconnect hoses removed.

<u>Personnel Required</u> Two

Materials/Parts

Compount thread sealing (Item 5, App C)

INSPECTION

Inspect for cracks, freeze breaks, corrosion, loose fittings, and loose mounting.

REMOVAL

NOTE

Disassemble drainpipe assembly only when evidence of damage is present.

Remove washer intake plumbing.

a. Remove intake coupling (1) from elbow (2).

b. Remove elbow (2) from nipple (3).

c. Remove nipple (3) from washer (4).



REMOVAL (Cont)

- d. Remove union (5) from nipple (6)
- e. Remove nipple (6) from reducer (7).
- f. Remove reducer (7) from tee (51).
- g. Loosen clamps (8) and remove hose (9) from hose barb (10) and (14).
- h. Remove hose barb (10) from elbow (11).
- i. Remove elbow (11) from nipple (12).
- j. Remove nipple (12) from reducer (13).
- k. Remove hose barb (14) from elbow (15).
- l. Remove elbow (15) from nipple (16).
- m. Remove elbow (17) from nipple (16).
- n. Remove union (18) from nipple (20).
- o. Remove clamp (19) from tee (42).
- p. Remove nipple (20), from elbow (21).
- q. Remove elbow (21) from nipple (22).
- r. Remove street-L (23) from nipple (22).
- s. Remove nipple (24) from union (18).
- t. Remove nipple (25) from tee (42).
- u. Remove nipple (25) from elbow (26).
- v. Remove elbow (26) from nipple (27).
- w. Remove nipple (27) from valve body (31).
- x. Remove hose (28) from nipple (29).
- y. Remove nipple (29) from valve (30).
- z. Remove valve (30) from valve body (31).
- aa. Remove valve body (31) from nipple (32).
- ab. Remove nipple (32) from elbow (33).



REMOVAL (Cont)

- ac. Remove elbow (33) from coupling (34).
- ad. Remove cap (35) from coupling (34).
- ae. Remove hose (36) from hose barb (37).
- af. Remove hose barb (37) from reducer (38).
- ag. Remove reducer (38) from nipple (39).
- ah. Remove nipple (39) from elbow (40).
- ai. Remove elbow (40) from reducer (41).
- aj. Remove reducer (41) from tee (44).
- ak. Remove nipple (43) from tees (42) and (44).
- al. Remove tee (44) from nipple (45).
- am. Remove nipple (45) from valve body (49).
- an. Remove hose (46) from elbow (47).
- ao. Remove valve (48) from valve body (49).
- ap. Remove valve body (49) from nipple (30).
- aq. Remove nipple (50) from tee (51).
- ar. Remove elbow (52) from tee (51).

INSTALLATION

NOTE

Coat all fittings with thread sealing compound before installation.

- 1. Install washer drain assembly.
 - a Install cap (35) to coupling (34).
 - b. Install coupling (34) on elbow (33).
 - c. Install elbow (33) on nipple (32).
 - d. Install nipple (32) on valve body (31).
 - e. Install nipple (27) valve body (31).
 - f. Install elbow (26) on nipple (27).
 - g. Install nipple (25) on elbow (26).
 - h. Install tee (42) on nipple (25).
 - i. Install nipple (43) on tee (42).
 - i. Install tee (44) on nipple (43).
 - k. Install reducer (41) on tee (44).
 - 1. Install elbow (40) on reducer (41).
 - m. Install nipple (39) on elbow (40).
 - n. Install reducer (38) on nipple (39).
 - o. Install hose bard (37) on reducer (38).
 - p. Install nipple (45) on tee (44).



INSTALLATION

- q. Install valve body (49) on nipple (45).
- r. Install nipple (50) on valve body (49).
- s. Install tee (51) on nipple (50).
- t. Install street-L (52) on tee (51).
- u. Install reducer (13) on street-L (52).
- v. Install nipple (12) on reducer (13).
- w. Install elbow (11) on nipple (12).
- x. Install hose bard (10) on elbow (11).
- y. Install elbow (17) on washer.
- z. Install nipple (16) on elbow (17).
- aa. Install elbow (15) on nipple (16).
- ab. Install hose barb (14) on elbow (15).
- ac. Install elbow (23) on washer.
- ad. Install nipple (22) on elbow (23).
- ae. Install elbow (21) on nipple (22).
- af. Install nipple (20) on elbow (21).
- ag. Install nipple (24) on tee (42).
- ah. Install union (18) on nipples (20) and (24).
- ai. Install clamp (19) on tee (42).
- aj. Install reducer (7) on tee (51).
- ak. Install nipple (6) on reducer (7).
- al. Install union (5) on nipple (6) and drain pipe.



INSTALLATION (Cont)

- am. Install hose (36) to hose barb (37).
- an. Install valve (48) on valve body (49).
- ao. Install elbow (47) on valve (48).
- ap. Install hose (46) to elbow (47)
- aq. Install valve (30) on valve body (31).
- ar. Install nipple (29) on valve (30).
- as. Install hose (28) to nipple (29).
- at. Install hose (9) to hose barbs (10) and (14). **14**.
- au. Tighten clamps (8).
- 2. Perform follow-on installation.

Connect quick-disconnect hoses (TM 10-3510-220-10).



2-23. WASHER DRIVEBELT

This task covers:

a. Inspection	b. Service	c. Replace	d. Adjustment				
INITIAL SETUP:							
<u>Tools</u>		Equipment Condition					
General mechani	c's tool kit	TM 10-3510-220-10, Washer drained. TM 10-6115-585-12, Generator off.					
Materials/Parts		General Safety Instruction	ons.				

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or

serious injury may result.

INSPECTION

WARNING

Lubricating oil (Item 17, App C)

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- 1. Remove electrical power from the washer.
- 2. Remove drive belt cover (1) by turning the four quarter-turn wing head studs (2) counter-clockwise and pulling out studs, then slide drive belt cover to rear to remove.
- 3. Inspect drivebelt (3) for wear, fraying, signs of slipping, and incorrect tension. Refer to ADJUSTMENT, step 6.
- 4. Turn drive pulley (4) by hand. Feel for rough movement or binding of gears or motor bearings.
- Remove oil level hole plug (5). Check oil level (even with bottom of hole). Refer to LO 10-3510-220-12. Replace plug.



2-23. WASHER DRIVEBELT (CONT)

INSPECTION (Cont)

6. Install drivebelt cover (1) on mounting brackets using quarter-turn wing head studs (2), turn studs clockwise until latched.

SERVICE

Lubricate gear reduction unit in accordance with LO 10-3510-220-12.

REPLACE

1. Remove electrical power from the washer.

2. Remove drivebelt cover (1) by disengaging wing head studs (2) from mounting brackets (turn studs one quarter turn counter-clockwise) and remove studs.

3. Lift upon the drivebelt cover (1), slide cover away from top mounting bracket (2) and remove cover.

4. Loosen the four locking nuts (6) on motor mounting plate (8).

- 5. Lower motor and remove old drivebelt. Replace with new drivebelt.
- 6. Perform ADJUSTMENT procedures as follows.

ADJUSTMENT

WARNING

High voltage is present on this equipment Do not perform maintenance with power on. Death or serious injury may result.

- 1. Remove electrical power from washer.
- 2. Remove drivebelt cover (1) by disengaging wing head studs (2) from mounting brackets (turn studs one quarter turn counterclockwise) and pulling studs out.
- 3. Back-off nuts (6) to finger tight.

CAUTION

After adjusting belt tension motor must be level to prevent excessive belt wear caused by improper sheave alignment.

- 4. Increase belt tension by evenly turning the four adjusting nuts (9) under the motor mounting plate counter-clockwise.
- 5. Decrease belt tension by evenly turning the four adjusting nuts (9) under the motor mounting plate clockwise.



2-23. WASHER DRIVEBELT (CONT)

ADJUSTMENT (Cont)

NOTE

Drivebelt deflection is done by hand and is measured midway between the motor puller and the gear drive pulley.

- 6. Adjust tension until the drivebelt can be deflected 1 inch (2.54 cm) from center, or until the drivebelt ceases to slip when the motor starts running.
- 7. Tighten four nuts (6).

8. Install drivebelt cover (1) on mounting brackets using quarter-turn studs (2). Turn studs one quarter turn clockwise.







2-24. WASHER CONTROLLER ASSEMBLY

This task covers:

a	Repair	b.	Removal	c. Installation
INIT	IAL SETUP:			
	<u>Tools</u> General mechanic's tool kit		Equipme	ent Condition
	General meename's tool kit		TM 5-61	15-585-12, Generator off.
	Personnel Required		General	Safety Instructions
	Two			WARNING
			High vol perform serious i	tage is present on this equipment. Do not maintenance with power on. Death or njury may result.

REPAIR

NOTE

Repair is limited to replacing the window, and stop/run knob.

REMOVAL

- 1. Open access cover.
- 2. Removal of window.

Remove four screws (1), washers (2) and window (3).



2-24. WASHER CONTROLLER ASSEMBLY (CONT)

3. Removal of stop/run knob.

Loosen two set screws (4) and remove knob (5).

INSTALLATION

1. Installation of window.

Position new window (3) in place and secure with four screws (1) and washers (2).

- 2. Installation of stop/run knob.
 - a. Remove control console access lid.
 - b. Place stop/run knob (5) on shaft extension and tighten two hex head set screws (4).
- c. Install control console access lid.
- 3. Close access cover.



2-24.1. WASHER INTAKE PLUMBING AND DRAIN ASSEMBLY (FOR WATER REUSE SYSTEM)

This task covers: a. Inspection	b. Removal	c. Installation
INITIAL SETUP:		
Tools	Equipment Condit	ion
General mechanic's tool kit	TM 10-3510-220-	10, Water drained.
Personnel Repair	TM 10-3510-220-1	0, Air tank drained.
Two	TM 10-3510-220-1	10, Quick disconnect hoses
Compound, thread sealing (Item 5, App. C)	removed.	

INSPECTION

Inspect for cracks, freeze breaks, corrosion, loose fittings, and loose mounting.

REMOVAL

NOTE

Disassemble drain pipe assembly only when evidence of damage is present.

Remove intake coupling (1) from elbow (2).

b. Remove elbow (2) from nipple (3).

c. Remove nipple (3) from washer (4).



2-24.1. WASHER INTAKE PLUMBING AND DRAIN ASSEMBLY (FOR WATER REUSE SYSTEM)

REMOVAL (cont.)

- d. Remove union (5) from nipple (6).
- e. Remove nipple (6) from Reducer (7).
- f. Remove reducer (7) from tee (8).
- g. Remove elbow (9) from tee (8).
- h. Remove pipe plug (10) from elbow (9).
- i. Remove nipple (11) from tee (8).
- j. Remove hose (12) from elbow (13).
- k. Remove elbow (13) from valve (14).
- 1. Remove valve (14) from valve body (15).
- m. Remove valve body (15) from nipple (16).
- n. Remove nipple (16) from tee (17).
- o. Remove hose (18) from hose barb (19).
- p. Remove hose barb (19) from reducer (20).
- q. Remove reducer (20) from nipple (21).
- r. Remove nipple (21) from elbow (22).
- s. Remove elbow (22) from reducer (23).
- t. Remove reducer (23) from tee (17).
- u. Remove cap (24) from coupling (25).
- v. Remove coupling (25) from elbow (26).
- w. Remove elbow (26) from nipple (27).
- x. Remove nipple (27) from valve body (28).
- y. Remove hose (29) from nipple (30).
- z. Remove nipple (30) from valve (31).
- aa. Remove valve (31) from valve body (28).
- ab. Remove valve body (28) from nipple (32).



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2-24.1. WASHER INTAKE PLUMBING AND DRAIN ASSEMBLY (FOR WATER REUSE SYSTEM)

0.1

REMOVAL (cont.)

ac.	Remove nipple (32) from elbow (33). 47	46
ad.	Remove elbow (33) from nipple (34).	
ae.	Remove nipples (34 and 35) from tee (36).	
af.	Remove clamp (37) from tee (36).	
ag.	Remove tee (36) from nipple (38).	50
ah.	Remove nipple (38) from union (39).	
ai.	Remove union (39) from nipple (40).	
aj.	Remove nipple (40) from elbow (41).	49 51-0
ak	Remove elbow (41) from nipple (42).	
al.	Remove nipple (42) from elbow (43).	44
am.	Remove elbow (43) from from washer.	
an.	Remove coupling (44) from reducer (45).	
ao.	Remove reducer (45) from water valve (46).	
ap.	Disconnect air line (47) from water valve (46).	
aq.	Remove 2 lock nuts (48) and bolts (49) from brace (50).	
ar.	Remove upper portion of water valve (46) and set aside.	1
as.	Remove 4 nuts (51) and washers (52) and brace (50).	
at.	Remove water valve (46) from nipple (53).	
au.	Remove nipple (53) from washer.	
av.	Remove bushing (54) from ball valve (55).	55 56
aw.	Remove ball valve (55) from bushing (56).	54
ax.	Remove bushing (56) from reducer (57).	Cole And
ay.	Remove reducer (57) from tee (58).	Lope
		/ 57
		••

58

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2-24.1. WASHER INTAKE PLUMBING AND DRAIN ASSEMBLY (FOR WATER REUSE SYSTEM)

61.

REMOVAL (cont.)

- az. Remove tee (58) from holding tank.
- ba. Remove coupling (59) from tee (58).
- bb. Remove coupling (60) from holding tank.
- bc. Remove coupling (61) from transfer tank.
- bd. Remove coupling (62) from elbow (63).
- be. Remove elbow (63) from transfer tank.
- bf. Remove copper tubing (64) from ball valve (65).
- bg. Remove ball valve (65) from bushing (66).
- bh. Remove bushing (66) from transfer tank.



- a. Install elbow (63) on transfer tank.
- b. Install coupling (62) in elbow (63).
- c. Install coupling (61) in transfer tank.
- d. Install coupling (60) in holding tank.
- e. Install bushing (66) to transfer tank.
- f. Install ball valve (65) to bushing (66).
- g. Install copper tubing (64) to ball valve (65).
- h. Install tee (58) in holding tank.
- i. Install coupling (59) in tee (58).
- j. Install reducer (57) in tee (58).
- k. Install bushing (56) in reducer (57).
- 1. Install ball valve (55) in bushing (56).
- m. Install bushing (54) in ball valve (55).


2-24.1. WASHER INTAKE PLUMBING AND DRAIN ASSEMBLY (FOR WATER REUSE SYSTEM)

INSTALL (cont.)

- n. Install nipple (53) in washer.
- o. Install lower portion of water valve (46) in nipple (53).
- p. Install 4 nuts (51) and washers (52) and brace (50) assembling water valve (46).
- q. Install 2 lock nuts (48) and bolts (49) attaching brace (50) to washer.
- r. Install air line (47) to water valve (46).
- s. Install reducer (45) to water valve (46).
- t. Install coupling (44) to reducer (45).
- u. Install elbow (43) on washer.
- v. Install nipple (42) on elbow (43).
- w. Install elbow (41) on nipple (42).
- x. Install nipple (40) on elbow (41).
- y. Install tee (36) on nipple (38).
- z. Install union (39) on nipples (40 and 38).
- aa. Install clamp (37) on tee (36).
- ab. Install nipple (34) on tee (36).
- ac. Install elbow (33) on nipple (34).
- ad. Install nipple (32) on elbow (33).
- ae. Install valve body (28) on nipple (32).
- af. Install valve (31) on valve body (28).
- ag. Install nipple (30) on valve (31).
- ah. Install hose (29) to nipple (30).
- ai. Install nipple (27) on valve body (28).



2-24.1. WASHER INTAKE PLUMBING AND DRAIN ASSEMBLY (FOR WATER REUSE SYSTEM)

INSTALL (cont.)

Install elbow (26) on nipple (27). aj. ak. Install coupling (25) on elbow (26). al. Install cap (24) to coupling (25). am. Install nipple (35) on tee (36). an. Install tee (17) on nipple (35). ao. Install reducer (23) on tee (17). ap. Install elbow (22) on reducer (23). aq. Install nipple (21) on elbow (22). Install reducer (20) on nipple (21). ar. Install hose barb (19) on reducer (20). as. Install hose (18) on hose barb (19). at. Install nipple (16) on tee (17). au. Install valve body (15) on nipple (16). av. Install valve (14) on valve body (15). aw. ax. Install elbow (13) on valve (14). Install hose (12) to elbow (13). ay. Install nipple (11) on valve body (15). az. Install tee (8) on nipple (11). ba. Install street-L (9) on tee (8). bb. Install pipe plug (10) on street-L (9). bc. bd. Install reducer (7) on tee (8). Install nipple (6) on reducer (7). be. bf. Install union (5) on nipple (6). Install nipple (3) to washer (4). bg.



INSTALL (cont.)

- bh. Install elbow (2) to nipple (3).
- bi. Install intake coupling (1) to elbow (2).



2-24.2. TRANSFER TANK (WATER REUSE SYSTEM)

This task covers:

a. Removal b. Disassembly c. Rep	pair d. Assembly e. Installation
INITIAL SETUP:	
Tools	<u>Equipment Condition</u>
General mechanic's tool kit	TM 10-3510-220-10, Water drained.
Personnel Required	TM 10-3510-220-10, Quick disconnect hoses
Two	removed.
	TM 10-3510-220-10, Water pump and tiedown
Materials/Parts	assemblies removed.
Compound, thread sealing (Item 5, App. C)	

REMOVAL

- 1. Remove 4 bolts (1), lock washers (2), flat washers (3), and 2 nuts (4).
- 2. Disconnect terminal (5) from washer console.
- 3. Remove transfer tank (6) from trailer.

DISASSEMBLE

- 1. Loosen strain relief nut (7).
- 2. Loosen 8 turnscrews (8) and remove sump pump cover (9).
- 3. Remove 4 screws (10) and washers (11) from sump pump plate (12).
- 4. Remove plate (12) and disconnect wires (13).
- 5. Disconnect union (14) from nipple (15).
- 6. Disconnect nipple (15) from sump pump (16).
- 7. Loosen 10 turnscrews (17) and remove filter cover (18).
- 8. Lift and remove strainer basket (19) and screen (20).



2-24.2. TRANSFER TANK (WATER REUSE SYSTEM)

REPAIR

NOTE

Remove and replace only those items necessary to make repair.

Repair of transfer tank assembly is limited to the replacement of component parts.

ASSEMBLE

- 1. Install screen (20) and strainer basket (19).
- 2. Position filter cover (18) and tighten 10 turnscrews (17).
- 3. Connect nipple (15) to sump pump (16).
- 4. Install union (14) to nipple (15).
- 5. Connect wires (13) to sump pump (16).
- 6. Position sump pump plate and install 4 screws (10) and washers (11).
- 7. Position sump pump cover (9) and tighten 8 turnscrews (8).
- 8. Tighten strain relief nut (7).

INSTALLATION

- 1. Position transfer tank (6) on trailer.
- 2. Connect terminal (5) from washer console.
- 3. Install 4 bolts (1), lock washers (2), flatwashers (3) and 2 uts (4)
- Perfonn follow-on instructions.
 Install water pump and tiedown assemblies (TM 10-3510-220-10).
 Install quick disconnect hoses (TM 10-3510-220-10).



2-24.3. HOLDING TANK (WATER REUSE SYSTEM)

This task covers:

a. Removal b. Disassembly c. Repair d. Assembly e. Installation

INITIAL SETUP:

Tools	Equipment Condition				
General mechanic's tool kit	ТМ	10-3510-220-10,	Water	drained.	
Personnel Required	ТМ	10-3510-220-10,	Quick	disconnect	hoses
Three	remo	oved.			

Materials/Parts

Compound, thread sealing (Item 5, App. C)

REMOVAL

- 1. Remove 2 screws (1) in junction box face plate (2).
- 2. Tag and disconnect wires (3).
- 3. Disconnect conduit (4) from junction box (5).
- 4. Unhook 8 straps (6).
- 5. Remove holding tank (7) from trailer.

DISASSEMBLE

- 1. Lift and remove shroud (8) from holding tank (7).
- 2. Remove float switch open (9) and conduit (18) from holding tank (7).
- 3. Remove bushing (10) from float switch open (9).
- 4. Remove float switch closed (11) from holding tank (7) and junction box tee connection (5).



TM 10-3510-220-10, Water pump and tiedown

assemblies removed.

2-24.3. HOLDING TANK (WATER REUSE SYSTEM cont.)

DISASSEMBLE (cont.)

- 5. Remove bushing (12), nipple (13) and coupling (14) from float switch closed (11).
- 6. Remove elbow (15), nipple (16) and elbow (17) from holding tank (7).
- 7. Remove elbow 90 degree compression fitting (18) from conduit (19).
- 8. Remove conduit (19) from junction box tree (5).

REPAIR

NOTE

Remove and replace only those items necessary to make repair.

Repair of holding tank assembly is limited to the replacement of component parts.

ASSEMBLE

- 1. Install conduit (19) to junction box tee (5).
- 2. Install elbow 90 degree compression fitting (18) to conduit (19).
- 3. Install elbow (17), nipple (16) and elbow (15) to holding tank (7).
- 4. Install coupling (14), nipple (13) and bushing (12) to float switch closed (11).
- 5. Position float switch closed (11) in holding tank (7).
- 6. Position wire and install junction box tee (5).
- 7. Install bushing (10) to float switch open (9).
- 8. Position float switch open (9) in holding tank (7).
- 9. Position wire and install conduit (18).
- 10. Install shroud (8) to holding tank (7).

2-24.3. HOLDING TANK (WATER REUSE SYSTEM cont.)

INSTALLATION (cont.)

- 1. Install holding tank (7) on trailer.
- 2. Secure 8 straps (6).
- 3. Install conduit (4) to junction box tee (5).
- 4. Connect wires (13) in junction box tee (5).
- 5. Install 2 screws (1) in junction box face plate (2).



2-25. POWER DISTRIBUTION PANEL

This task covers:

a. Test

b. Repair

INITIAL SETUP:

<u>Tools</u>

General mechanic's tool kit

Multimeter

Personnel Required

Materials/Parts

Identification tags (Item, 12, App C) Circuit breaker switches

One

Equipment Condition

TM 5-6115-585-12, Generator turned on for testing.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

TEST

WARNING

High voltage is present on this equipment. Use extreme caution when performing the following test with power on. Death or serious injury may result.

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.

1. With power supplied to panel (1), switch main breaker (2) to OFF and all other breakers ON.



2-25. POWER DISTRIBUTION PANEL (CONT)

TEST (Cont).

- 2. Check to see if electrical power to each area of the laundry is off by momentarily switching ON the washer, dryer, extractor, etc.
- 3. Switch main breaker (2) to ON.
- 4. Check to see if electrical power is supplied to each area of the laundry by momentarily switching on the washer, dryer, extractor, etc.
- Switch each piece of equipment on and off by its appropriate breaker switch (3), (4), (5), (6), or (7).

REPAIR



WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Turn power off at source.

NOTE

Repair panel box by replacing unserviceable breakers with new breakers of the same value. All circuit breakers are removed and replaced in similar manner. Only one circuit breaker is covered in these procedures.

- 2. Open breaker panel box (8).
- 3. Remove four screws (9) and remove two border panels (12) and two border panels (13).
- 4. Remove four screws (11) and face place (10).

2-25. POWER DISTRIBUTION PANEL (CONT)

REPAIR (Cont).

- 5. Tag and disconnect three wires (17) from breaker (16).
- 6. Remove three screws (14) and lockwashers (15) and remove breaker (16).
- 7. Install new breaker (16) and secure with three screws (14) and lockwashers (15).
- 8. Connect three wires (17) to breaker (16). Remove tags. Refer to Appendix E for proper connection.
- 9. Install face plate (10) and secure with four screws (11).
- 10. Install two border panels (13) and two border panels (12) and secure with four screws (9).



2-26. AIR COMPRESSOR

This task covers:

a. Service b. Adjustment c. Removal d. Repair e. Installation

INITIAL SETUP:

<u>Tools</u>

General mechanic's tool kit

Personnel Required

Two

Materials/Parts

Pressure switch C85037 (51034) Identification tags (Item, 12 App C) Thread sealing compound (Item 5, App C) Equipment Condition Paragraph 2-28, Pre-extraction bin removed.

NOTE

SERVICE and ADJUSTMENT can be per-formed without removing pre-extraction bin.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

NOTE

SERVICE and ADJUSTMENT can be performed with-out removing pre-extraction bin.

- 1. Remove two air filters (4) from air compressor (1).
- 2. Remove cap (2) of each air filter (4).
- 3. Remove and discard felt filter element (3) from each air filter (4).
- 4. Install new felt filter element (3) in each air filter (4).
- 5. Install cap (2) on each air filter (4).



SERVICE (Cont)

6. Install two air filters (4) on air compressor (1).

ADJUSTMENT

1. Turn on electrical power to air compressor.

WARNING

This adjustment is performed with power on. Follow steps carefully. Death or serious injury could result.

- 2. Loosen captive acorn nut (8) and remove pressure switch cover (9).
- Open bleeder valve (7) on bottom of air tank (5). Release air until compressor turns on. Note pressure on pressure gage (6). Close bleeder valve.
- 4. Watch pressure gage (6) on air tank (5) and note the pressure that the compressor cuts off.

CAUTION

To avoid damage to equipment do not exceed maximum allowable system pressure.

NOTE

The pressure switch has a differential of 20 psi (138 kPa) between compressor cuton and cutoff. Adjustment of nut (10) changes the cutoff pressure. Tightening the nut (clockwise) increases cutoff pressure. Loosening the nut (counterclockwise) reduces cutoff pressure.

- 5. Make a one-quarter turn of nut (10) to increase or decrease cutoff pressure.
- Repeat steps 3 thru 5 until the compressor cut-on/cutoff range is reached: ON - 60 psi (414 kPa); OFF 80 psi (552 kPa).
- 7. Install pressure switch cover (9), tighten captive acorn nut (8), and turn off power to compressor.



REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- 1. Turn off electrical power to air compressor (1).
- 2. Open bleeder valve (7) on air tank (5) and bleed air from system. Close bleeder valve.
- Disconnect compressor-to-control unit manifold air line (11) from air compressor (1).
- 4. Loosen captive acorn nut (8) and remove pressure switch cover (9).
- 5. Tag and disconnect five input wires (12) coming from conduit (14).
- 6. Remove conduit nut (13) and conduit (14) from pressure switch (15).
- 7. Remove four nuts (16), lockwashers (17), washers (19), and bolts (18).
- 8. Remove air compressor (1) from platform (20).



REPAIR

1. Repair air compressor by replacing the pressure switch.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Remove air compressor (1) (REMOVAL, steps 1 thru 8).
- b. Tag and disconnect air compressor wires (21) from terminal block (22)
- c. Remove conduit nut (23) securing pressure switch (15) to air compressor (1). Remove pressure switch from air compressor.
- d. Remove air fitting (24) from the bottom of pressure switch (15).
- e. Install air fitting (24) to bottom of new pressure switch (15).
- f. Position pressure switch (15) on air compressor (1) and secure with conduit nut (23).
- g. Connect air compressor wires (21) to terminal block (22). Remove tags.
- h. Install air compressor (1) (See INSTALLATION, steps 1 thru 10).



REPAIR (Cont)

2. Repair air compressor (1) by replacing check valve assembly (31).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Remove air compressor (1). REMOVAL, steps 1 thru 8).
- b. Disconnect air line (25) from bushing (26). Disconnect air line (27) from elbow (28). Remove tee (29) from check valve (31).
- c. Remove check valve assembly (31) from elbow (30).
- d. Replace unserviceable check valve assembly (31) with a new one.
- e. Install check valve assembly (31) on elbow (30) and install on air compressor (1). Use thread sealing compound (item 5, app C).
- f. Install tee (29) on check valve assembly (31) and connect air line (27) to elbow (28). Connect air line (25) to bushing (26).
- g. Install air compressor (1) (See INSTALLATION, steps 1 thru 10).



REPAIR (Cont)

3. Repair air compressor (1) by replacing safety valve (32).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Remove safety valve (32) from compressor (1).
- b. Replace unserviceable safety relief valve (32) with a new one.
- c. Install safety relief valve (32) using thread sealing compound (item 5, App C).



INSTALLATION

- 1. Position air compressor (1) on platform (20).
- 2. Install four bolts (18), washers (19), lockwashers (17), and nuts (16).
- 3. Install conduit (14) and conduit nut (13) on pressure switch (15).
- 4. Connect five input wires (12) coming from conduit (14), Remove tags. Refer to FIGURE 7, Appendix E.
- 5. Connect compressor-to-control unit manifold air line (11) to air compressor (1).
- 6. Turn on power to compressor.
- 7. Looking at rear of compressor check for clockwise rotation.
- 8. Perform ADJUSTMENT procedures.
- 9. Install pressure switch cover (9) and tighten captive acorn nut (8).
- 10. Perform follow-on installation.

If removed install pre-extraction bin (para 2-28).



2-27. AIR TANK ASSEMBLY

This task covers:

Removal b. a.

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Installation

Equipment Condition TM 5-6115-585-12, Generator off.

General Safety Instructions

WARNING

Compressed air used in this equipment can cause death or serious injury if proper safety precautions are not followed.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

1. Open petcock (4) and drain air tank.



Ensure all air pressure is released from tank before disconnecting air lines. Compressed air used in this equipment can cause death or serious injury, if proper safety precautions are not followed.

2. Disconnect air lines (2) and (6) from air tank (1).

2-27. AIR TANK ASSEMBLY (CONT)

REMOVAL (Cont)

- 3. Remove four nuts (9), lockwashers (8), u-bolts (7) and remove air tank (1).
- 4. Remove fitting (3) and tee (5) with gage attached.

INSTALLATION

- 1. Install fitting (3) and tee (5).
- 2. Install air tank (1) with u-bolts (7) and secure with four nuts (9) and lockwashers (8).
- 3. Connect air lines (2) and (6) to air tank (1).
- 4. Close petcock (4).



2-28. PRE-EXTRACTION BIN

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Tools

Two

General mechanic's tool kit

Personnel Required

Equipment Condition

TM 10-3510-220-10, Drain hose disconnected from bin assembly.

REMOVAL

- 1. Remove five bolts (8), flat washers (9), lockwashers (10) and four nuts (11).
- 2. Remove bin (3) from trailer (7).

INSTALLATION

- 1. Position bin (3) on trailer (7) and secure with five bolts (8), flat washers (9), lockwashers (10) and four nuts (11).
- 2. Perform follow-on installation.

Connect drain hose to bottom fitting of bin assembly (TM 10-3510-220-10).



2-29. EXTRACTOR ASSEMBLY

This task covers:

a. Service

b. Adjustment

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Personnel Required

Two

Materials/Parts

Lubricating oil (Item 17, App C) Lubricating oil, multipurpose (Item 18, App C) Ball bearing grease (Item 19, App C) Equipment Condition

TM 10-3510-220-10, Work platform removed from transport position.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

SERVICE

NOTE

Servicing of extractor consists of lubrication only. Refer to LO 10-3510-220-12 for lubrication.

- 1. Disassemble for lubrication as follows
 - a. Turnoff power to extractor.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

2-29. EXTRACTOR ASSEMBLY (CONT)

SERVICE

b. Open lid (1).

WARNING

Extractor basket is heavy and awkward to handle. Use a sufficient number of personnel to lift extractor to avoid injury.

- c. Manually lift extractor basket (2) from extractor assembly and set aside.
- d. Remove two capscrews (3), flatwashers (4), gaskets (5), capscrew (6), lockwasher (7), and drain clamp (8).
- e. Remove curb (9) from base (10).
- f. Remove two screws (11), washers (12) and remove access plate (13).
- 2. Lubricate in accordance with LO 10-3510-220-12.
- 3. Assemble after lubrication as follows:
 - a. Install curb (9) on base (10) and secure with drain clamp (8), lockwasher (7), capscrew (6), two gaskets (5), flat washers (4), and capscrews (3).
 - b. Install extractor basket (2) and rotate until basket drops.
 - c. Close lid (1).
 - d. Install access plate (13) on base (10) and secure with two screws (11) and washers (12).



ADJUSTMENT

1. Adjust brake shoe.

N o t e

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Remove access plate (See SERVICE, step 1).
- b. Loosen brake adjusting locknut (17).
- c. Adjust brake by turning adjusting screw (18) in or out.
- d. Manually press in solenoid plunger (14) and turn brake hub (15).
- e. If brake hub (15) turns freely, turn adjusting screw (18) out, (counterclockwise) until brakeshoe (14) touches brake hub.
- f. Turn adjusting screw (18) in (clockwise) until brake hub (15) just turns freely (about threefourths of a turn).



N o t e

If brake is adjusted correctly, the solenoid plunger will travel only 3/8 to 1/2 inch (9.5 to 12.7 mm) to release the brake.

N o t e

Brake will need more frequent adjustment during the first 30 days of operation, or when a new brake shoe is installed.

- g. Tighten brake adjusting locknut (17) until adjusting screw (18) is held in place.
- h. Install access plate (See SERVICE, step 3).
- 2. Perform follow-on installation.

Install work platform in transport position (TM 10-3501-220-10).

2-30. EXTRACTOR DRIVE UNIT

This task covers:

a. Service

b. Removal

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Personnel Required

Three

c. Installation

Equipment Condition

TM 10-3510-220-10, Extractor empty.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

SERVICE

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

N o t e

Servicing of drive unit consists of checking oil level or addin oil to the turbine clutch.



- 1. Remove two screws (1) and flat washers (2) and remove access plate (3).
- 2. Rotate extractor basket (4) until oil level/fill plug (5) is visible. Remove plug. Oil level should be even with bottom of hole when extractor is on a level surface.
- 3. Refer to LO 10-3510-220-12 for turbine oil instructions.
- 4. Replace oil level/fill plug (5). Install access plate (3) and secure with two flat washers (2) and screws (1).

2-30. EXTRACTOR DRIVE UNIT (CONT)

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Twist two cam locks (6) and remove electrical box cover (5).

N o t e

Wire connections must be tagged to ensure proper connection for reassembly.

- 2. Tag and disconnect four electrical wires (4) from motor switch (2).
- 3. Remove plastic nut (8), conduit nut (7), and conduit (3) from box (1).

WARNING

Electric motor is heavy and awkward to handle. Use correct lifting procedures, indicated lifting devices, and/ or assistance from other personnel to avoid injury.

4. Lift motor (11) with mount (17) upward and out of hinge pin holes in rear leg (18).





2-30. EXTRACTOR DRIVE UNIT (CONT)

REMOVAL (Cont)

- 5. Remove two capscrews (10), lockwashers (9), and mount (17) from motor (11).
- 6. Remove two acorn nuts (14) and remove cover (15) from connection box (16).
- 7. Tag and disconnect four electrical wires (4).
- 8. Remove conduit nut (13) and remove conduit (3).
- 9. Remove elbow (12) from conduit (3).
- 10. Reinstall elbow (12) conduit (3) conduit nut (13) and connect wires (4) to new motor (11).
- 11. Reinstall cover (15) and secure with two acorn nuts (14).

INSTALLATION

- 1. Install mount (17) on motor (11) and secure with two capscrews (10) and lockwashers (9).
- 2. Lift motor (11) with mount (17) and install in hinge pin holes of rear leg (18).
- Install conduit (3) with electrical wires (4) in box (1). Install conduit nut (7) and plastic nut (8).
- 4. Connect four electrical wires (4) to motor switch (2). Remove tags.
- 5. Install electrical box cover (5) on box (1) and twist two cam locks (6).
- 6. Perform follow-on installation. Install drivebelt (para. 2-29).





2-31. EXTRACTOR DRIVE BELT

This task covers:

a. Adjustment b. Repair

INITIAL SETUP

Tools

General mechanic's tool kit

Equipment Condition

TM 10-3510-220-10, Work platform removed from transport position.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

ADJUSTMENT

Adjust drivebelt.

- a. Remove screw (7), lockwasher(6), and slide belt guard (5) away from machine.
- b. Pull motor hanger (1) aw from machine and relieve tension on spring (3).
 Swing tension bolt (2) to spring away from motor.

CAUTION

Do not overtighten belt. It should be as loose as possible without slipping during startup.

c. If drivebelt (4) is slipping, add two or three flat washers (1/2-inch [12.7 mm] inside diameter) behind spring (21).



2-31. EXTRACTOR DRIVE BELT (CONT)

- d. If drivebelt (4) is too right, remove two or three flat washers from behind spring (3).
- e. Position motor hanger (1) and swing tension bolt (2) with spring (3) into slot of hanger. Ensure drivebelt (4) stays in correct position.

NOTE

- A new drivebelt will usually eliminate slipping without an adjustment for tension.
- f. Slide belt guard (5), back into position and secure with screw (7) and lockwasher (6).

REPAIR

NOTE

Repair at this level consists only of drivebelt replacement and adjustment.

- 1. Remove drive belt (4) as follows:
 - a. Remove screw (7) and lockwasher (6) and slide belt guard (5) away from machine.
 - b. Pull motor hanger (1) away from machine and relieve tension on spring (3). Swing tension bolt (2) and spring (3) away from motor hanger.
 - c. Remove drivebelt (4).
- 2. Install new drive belt (4) as follows:
 - a. Install drive belt (4) incorrect position.
 - b. Position motor handler (1) and spring tension bolt (2) with spring (3) into slot of hanger.
 - c. Check for proper belt tracking and tension.
 - d. Slide belt guard (5) back into position and secure with lockwasher (6) and screw (7).
- 3. Perform follow-on installation.

Install work platform in transport position (TM 10-3510-220-10).

2-32. EXTRACTOR CONTROL BOX

This task covers:

Service

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Personnel Required

One

Materials/Parts

Lubricating grease (Item 17, App C) Pipe thread compound (Item 5, App C)

SERVICE

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

CAUTION

Before removing last screw from cover make sure you have a grip on cover. Failure to comply could result in serious injury.

- 1. Remove 12 screws (1), lockwashers (2), and cover (5) from control box (4).
- 2. Lubricate two fittings (3). Refer to LO 10-3510-220-12.
- 3. Install cover (5), 12 screws (1), and lockwashers (2) on control box (4).
- 4. Perform follow-on installation.

Install side sound deadening panel (para. 2-17).

Equipment Condition

Paragraph 2-17, First side sound deadening panel removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

2-33. EXTRACTOR DRAIN PIPE ASSEMBLY

This task covers:

a. Inspection b. Removal c. Disassembly d. Assembly e. Installation

INITIAL SETUP

Tools

Equipment Condition

General mechanic's tool kit

TM 10-3510-220-10, Water pump removed. TM 10-3510-220-10, Extractor drain hose disconnected. TM 10-3510-220-10, Water drained from washer.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

<u>WARNING</u>

CARC produces toxic fumes when flame is applied. It is necessary to remove CARC in area where flame is to be applied. Death can result.

INSPECTION

1. Inspect extractor drain pipe assembly for cracks, freeze breaks, corrosion, loose fittings and loose mountings.

2. Remove inspection cap (2) on check valve (7). Remove any debris and obstructions from inside valve. Insure interior gate swings freely.

REMOVAL

- 1. Disconnect union joint (8) from extractor drain pipe assembly.
- 2. Remove tie down straps from extractor drain pipe (4) as necessary.
- 3. Remove extractor drain pipe by removing nut (3) that attaches bracket (6) to washer base.

DISASSEMBLY

- 1. Remove coupling (1) and check valve (7) from extractor drain pipe (4).
- 2. Remove screw (5), and bracket (6) from extractor drain pipe (4).

WARNING

CARC produces toxic fumes when flame is applied. It is necessary to remove CARC in area where flame is to be applied. Death can result.

- 1. Solder or tighten fittings to stop leaks.
- 2. Remove corrosion or foreign material from threaded joints.
- 3. Replace broken or defective parts.

2-33. EXTRACTOR DRAIN PIPE ASSEMBLY (CONT)

ASSEMBLY

- 1. Install bracket (6) and secure with screw (5) on extractor drain pipe (4).
- 2. Install check valve (7). Arrow on valve must point towards extractor drain pipe (4).
- 3. Install coupling (1) onto end of check valve (7).

NOTE

Install inspection cap (2) finger tight.

INSTALLATION

- 1. Secure extractor drain pipe assembly to washer base with bracket (6) and nut (3).
- 2. Connect union joint (8) from extractor drain pipe to washer drain assembly.
- 3. Use tie downs to reattach and support air lines.
- 4. Perform follow-on installation.

Extractor drain hose connected (TM 10-3510-220-10). Water pump installed (TM 10-3510-220-10).



2-33.1 EXTRACTOR PIPING.

This task covers:

a. Removal b. Repair

c. Installation

General Safety Instructions

or serious injury may result.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death

INITIAL SETUP

<u>Tools</u>

General Mechanics Tool Kit (App B, Item 1)

Materials/Parts

Antiseize Compound (App C, Item 25)

Equipment Condition

Laundry Unit shut down (TM 10-3510-220-10)

a. REMOVAL

- (1) Remove coupling half (1) from adapter (2).
- (2) Remove four bolts (3).
- (3) Remove flange (4) with attached piping (6) and gasket (5) from extractor (7).
- (4) Remove flange (4) from piping (6).
- (5) Remove adapter (2) from piping (6).

b. REPAIR

Repair consists of replacing damaged or missing components of the extractor piping.

c. INSTALLATION

- (1) Clean threads and apply antiseize compound to all male threads.
- (2) Install flange (4) on piping (6).
- (3) Install adapter (2) on piping (6).
- (4) Install gasket (5) and flange (4) on extractor (7) with four bolts (3).
- (5) Install coupling half (1).

2-33.1 EXTRACTOR PIPING - continued.



2-34. WATER HEATER ASSEMBLY

This task covers:

a. Service b. Test	c. Adjustment	d. Repair
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INITIAL SETUP

Tools

General mechanic's tool kit

Materials/Parts

Lubricating grease (Refer to LO 10-3510-220-12)

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed.

General Safety Instructions

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

WARNING

Exhaust duct is hot and can cause injury to personnel if hand protection is not worn when handling. Wear protective gloves for maximum protection.

SERVICE

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

NOTE

Servicing of water heater consists of cleaning the fuel filter and draining water and sediment from fuel filter bowl.

- 1. Rotate handle (1) 360 degrees about 10 times to clean the permanent element.
- 2. Remove drain plug (2) and drain water, sediment, and contaminated fuel. Discard contaminated fuel.
- 3. Install drain plug (2).



2-34. WATER HEATER ASSEMBLY (CONT)

TEST

- 1. Test operate water heater.
 - a. Operate water heater. (Refer to TM 10-3510-220-10.)
 - b. Observe temperature gage (3). Water heater burner should shutdown automatically when temperature gage reads temperature set on operating temperature control (4) $\pm 10^{\circ}$ F.
 - c. Observe fuel pressure gage (5) for normal indication of 100 to 125 psi (690 to 862 kPa).
- 2. Shut down water heater after test.



ADJUSTMENT

WARNING

Exhaust duct is hot and can cause injury to personnel if hand protection is not worn when handling. Wear protective gloves for maximum protection. Wear protective gloves when handling ducts.


2-34. WATER HEATER ASSEMBLY (CONT)

ADJUSTMENT (Cont)

- 1. For adjustment of fuel pump, refer to para. 2-39.
- 2. For adjustment of burner electrodes, refer to para. 2-36.
- Adjust operating temperature control (4). Turn knob from 0 to 250 degrees and check pointer calibration. Adjust position by loosening setscrew and moving knob to correct position. Tighten setscrew.



REPAIR

Remove and replace only those items necessary to make repair.

- 1. Repair of water heater assembly consists of replacing defective components and making needed adjustments. Refer to individual water heater component paragraphs.
- 2. After replacing the defective components, ensure that the water heater is operating correctly by making a visual inspection and performing an operating check. (Refer to TM 10-3510-220-10.)
- 3. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

2-35. DRUM FILL AND HOSE ASSEMBLY

This task covers:

a. Repair

b. Replace

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed.

General Safety Instructions

WARNING

Materials/Parts

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

Pipe thread compound (Item 5, App C)

REPAIR

N o t e

Drum fill adapters and hoses are repaired by replacing the defective component(s) or by tightening loose fittings.

- 1. Disassembly.
 - a. Remove extension adapter (4) from pipe connector (3).
 - b. Remove pipe connector (3).



2-35. DRUM FILL AND HOSE ASSEMBLY (CONT)

REPAIR (Cont)

- c. Remove two male connectors (10) and remove caps (9) from connectors.
- d. Remove two screws (8), two lockwashers (7), and two flat washers (6). Remove block (12) with adapter pipe (11) from nipple (13).
- e. Remove adapter pipe (11) from block (12).
- f. Remove cover (5) from nipple (13).
- 2. Repair drum fill adapters by replacing defective components.
- 3.
- a. Install cover (5) on nipple (13).

NOTE

Use pipe thread compound (Item 5, App C) on pipe threads before installation.

- b. Install adapter pipe (11) in block (12).
- c. Install block (12) and adapter pipe (11) in nipple (13) and secure with two screws (8), two lockwashers (7), and two flat washers (6).
- d. Install two male connectors (10) in nipple (13) and snap two caps (9) on connectors.
- e. Install pipe connector (3) on adapter pipe (11) and install extension adapter (4) on pipe connector.



2-35. DRUM FILL AND HOSE ASSEMBLY (CONT)

REPLACE

- 1. Disconnect hoses (2) and remove old drum fill adapter (1) from fuel container (14).
- 2. Install new drum fill adapter (1) onto fuel container (14) and connect hoses (2).
- 3. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).



This task covers:

a. Removal b. Disassembly c. Inspection d. Repair e. Adjustment f. Installation

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spills to avoid injury and fire.

WARNING

Water heater is hot after being used and may cause injury to personnel if safety precautions are not followed. Allow heater to cool before maintenance is performed.

Materials/Parts

Drycleaning solvent P-D-680 (Item 10, App C)

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Water heater is hot after being used and may cause injury to personnel if safety precautions are not followed. Allow heater to cool before maintenance is preformed.

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

CAUTION

The scanner is a sensitive device. Rough handling can damage the scanner and result in possible failure of flame safeguard control.

- 1. Disconnect two ignition cables (1), fuel line (2), and scanner (3).
- 2. Remove three nuts (4), lockwashers (5), and nozzle and electrode assembly (6) from burner tube (9).

NOTE

Do not remove the burner tube unless it is necessary.

3. Remove four nuts (7), lockwashers (8), burner tube (9), and gasket (10) from water heater (11).



DISASSEMBLY

- 1. Remove two spark plugs (12) with gaskets (13) from nozzle and electrode holder (27).
- Remove nozzle (14) and adapter
 (15) from nipple (17). Remove screen
 (29) from nozzle (14).
- Matchmark position of nipple (17) and electrode holder (27). Loosen setscrew (16) an remove nipple.
- 4. Remove elbow (18) from nipple (17).
- 5. Remove ignition sight tube (19) from electrode holder (27).
- 6. Remove peep sight cap (20) from ignition sight tube (19).
- 7. Remove peep sight glass (21) and two gaskets (22).
- 8. Remove close nipple (23) from coupling (24).
- 9. Remove coupling (24) from bushing (28).
- 10. Loosen two setscrews (25) and remove scanner tube (26) from electrode holder (27).
- 11. Remove bushing (28) from scanner t u b e (26).

INSPECTION

- 1. Inspect electrode holder (27) for breaks, cracks, and distortion and for damaged threads. Inspect spark plugs (12) for burned spots. Inspect insulation for cracks, breaks, and carbon lines. Check gaskets (13) for breaks, or distortion.
- 2. Inspect nozzle (14) and screen (29) for clogs, cracks, and excessive wear. Inspect for carbon deposits and damaged threads.
- 3. Inspect for broken or cracked sight glass (21), stripped or damaged threads on cap (20), and damaged gaskets (22). Inspect sight tube (19) for damaged threads.



INSPECTION (Cont)

- 4. Inspect scanner tube (26), bushing (28), coupling (24), and close nipple (23) for damaged threads. Inspect scanner tube for clogs or obstruction.
- 5. Inspect scanner tube (26) for dirt or foreign matter. Clean with a soft cloth if necessary. If scanner tube is broken or damaged, notify direct support maintenance.

REPAIR

- 1. Repair burner head and nozzle by replacing the defective components and making needed adjustments. Remove and replace only those items necessary to make repair. Clean other components as needed.
- 2. Wash electrode of spark plugs (12) with soapy water, rinse in clean water, and dry thoroughly.

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well-ventilated area. Avoid contact with skirt, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flash point is $100 - 138^{\circ}F$ (37 - 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

- 3. Wash nozzle (14), screen (29), and adapter (15) in drycleaning solvent (Item 1, App C). Scrub nozzle with small brush. Dry parts thoroughly.
- 4. Wash peep sight glass (21) in soapy water, rinse in clean water, and dry thoroughly.
- 5. Wash scanner tube (26) in dry cleaning solvent (Item 10, App C) to remove deposits in tube and dry thoroughly.
- 6. Clean scanner (3) with soft cloth.

ASSEMBLY

- 1. Install close nipple (23) and bushing (28) into coupling (24).
- 2. Install scanner tube (26) into bushing (28). Install scanner tube in electrode holder (27) and tighten two setscrews (25).
- 3. Assemble two gaskets (22) and peep sight glass (21) and install on ignition sight tube (19).
- 4. Install peep sight cap (20) on ignition sight tube (19).
- 5. Install ignition sight tube (19) in electrode holder (27).
- 6. Install elbow (18) on nipple (17). Install nipple in electrode holder (27). Align matchmarks and tighten setscrew (16).
- 7. Install screen (29) on nozzle (14) and adapter (15) on end of nipple (17) and install nozzle (14) on adapter.

NOTE

Spark plugs (12) are designed lefthanded and right-handed. Be sure to install spark plug in correct position.



- 8. Place gasket (13) over electrode of spark plug (12) and install spark plug. Repeat procedure for other spark plug.
- 9. Adjust electrodes. Refer to ADJUSTMENT.

ADJUSTMENT

Adjust electrodes according to figure. Bend electrode of spark plug (12) until spark gap is 5/32 inch (4 mm) and electrode is located 1/8 inch (3.2 mm) outward and 1/2 inch (12.7 mm) upward from hold in burner nozzle. Repeat procedure for other spark plug.



INSTALLATION

- 1. Install burner tube (9) and gasket (10) on water heater (11) and secure with four lockwashers (8) and nuts (7). Tighten nuts evenly.
- 2. Install nozzle and electrode assembly (6) in burner tube (9) and secure with three lockwashers (5) and nuts (4).

CAUTION

The water heater burner head and nozzle assembly is a sensitive device. Rough handling can damage the scanner and result in possible failure of flame safeguard control.

- 3. Connect scanner (3) to nipple (23) and tighten firmly.
- 4. Connect two ignition cables (1) to two spark plugs (12).
- 5. Connect fuel line (2) to elbow (17).
- 6. Perform follow-on installation.

Check water heater for proper operation (TM 10-3510-220-10).

Install tarp assembly (TM 10-3510-220-10).



This task covers:

a. Test	b. Service	c. Repair
INITIAL SETUP		Equipment Condition:
Tools		TM 10-3510-220-10, Tarp assembly removed.
General mechanic's tool kit		General Safety Instruction
		WARNING
Material/Parts		High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.
Wiping cloth (Item 3, App C) Thread sealing compound (Item 5, App C)		
Drycleaning solvent (Item 5, App C)		

TEST

NOTE

Water heater will shut down and alarm will sound if power fails, water temperature is too high, water level is too low, fuel runs out or is cut off, or ignition fails.

- 1. Prepare water heater for operation. (Refer to TM 10-3510-220-10.)
- 2. Turn on fuel and power.
- 3. Wait about 20 seconds. If audible alarm sounds, press reset button and repeat procedure or refer to troubleshooting.
- 4. Observe unit for proper temperature rise and regulation as water is heated.
- 5. Observe that temperature gage indicates proper temperature when shut down occurs after maximum temperature is reached.

SERVICE

1. Open control box cover and wipe flat surfaces with a dry cloth.

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.).

2. Use compressed air and remove dust and contaminants from inside box.

REPAIR

- 1. Repair by replacing ignition transformer.
 - a. Remove ignition transformer as follows:
 - (1) Turn off load limit switch (1) then turn off water heater breaker switch at main power panel.



- (2) Disconnect and tag two transformer wires (3) in control box assembly (2).
- (3) Disconnect conduit connector (4) at ignition transformer (5).
- (4) Disconnect two ignition cables (6).



- (5) Remove two nuts (9) and two lockwashers (8) and lift ignition transformer up to clear studs (7) and pull wires (3) out of conduit.
- b. Install new ignition transformer (5) as follows:
 - (1) Feed two wires (3) through conduit (4).
 - (2) Set ignition transformer (5) in place on studs (7) and secure with two lockwashers (8) and two nuts (9).



- (3) Connect ignition cables (6) to ignition transformer (5) by turning connectors clockwise.
- (4) Connect two wires (3) as tagged in control box (2).



- 2. Repair by replacing components of the fuel supply control assembly.
 - a. Disassemble fuel supply control assembly as follows:
 - (1) At master control box, tag and disconnect wires (2) to fuel solenoid valve (1).



- (2) To remove fuel supply control assembly (1), disconnect fuel line couplings (4 and 7), disconnect coupling (3), remove two screws (6) and two washers (5) from water heater skid (15). Remove fuel supply control assembly by pulling fuel solenoid wires out of conduit (3).
- (3) To disconnect fuel line (4), disconnect coupling at adapter (10) and remove fuel line. Unscrew adapter (10) from burner head (11).
- (4) To disconnect fuel line (7), disconnect coupling at elbow (8). Unscrew elbow (8) from fuel pump (9).



REPAIR (Cont)

- (5) To remove fuel control valve (19), unscrew elbow (20) and unscrew valve from nipple (17).
- (6) To remove fuel line tee (18), repeat steps 5, 6, and 7 if necessary, unscrew two nipples (17).
- (7) To remove gage (12), unscrew gage from snubber (13).
- (8) To remove solenoid valve (16) unscrew elbow (14), and unscrew solenoid valve.

b. Assemble fuel supply control assembly as follows:

(1) Inspect components for damaged threads and broken gage. Replace defective components.

WARNING

Drycleaning solvent, (Item 10, App C) is potentially dangerous. Avoid repeated or prolonged breathing of vapors and skin contact with liquid. Do not use near open flame, arcing equipment, or other ignition sources. Use in well ventilated places.

(2) Clean all used components and fittings with solvent (Item 10, App C).

NOTE

Use thread sealing compound (Item 5, App C) when joining pipes and fittings.

- (3) Install two nipples (17) and snubber (13) in fuel line tee (18) by turning clockwise.
- (4) Install gage (12) in snubber (13) by turning clockwise.
- (5) Install control valve (19) to nipple (17) by turning clockwise.
- (6) Install elbow (20) to control valve (19) by turning clockwise.
- (7) Install solenoid valve (16) to nipple (17). Install elbow (14) to solenoid valve (16).





- (8) Insert fuel solenoid valve wires in conduit and install fuel supply control assembly (1) to water heater skid (15) using two screws (6) and two washers (5). Tighten screws.
- (9) Connect conduit coupling (3) to solenoid valve (16).
- (10) Connect fuel line (7) to elbow (8) and other end to elbow (20) on fuel supply control assembly (1).
- (11) Connect adapter (10) to burner head (11).
- (12) Connect fuel line (4) to adapter (10) and to elbow (14) on fuel supply control assembly. Tighten all couplings.

REPAIR (Cont)

- (13) Reconnect fuel solenoid wires (2) as tagged.
- (14) Close door on electrical control box.
- (15) Perform start-up procedures (TM 10-3510-220-10) to ensure proper operation of water heater.
- (16) Check for leaks.
- 3. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

2-38. WATER HEATER BLOWER MOTOR ASSEMBLY

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Tools

General mechanic's tool set kit

Personnel Required

Two

Materials/Parts

Identification tags (Item 12, App C)

Equipment Condition

TM 10-3510-220-10, tarp assembly removed. Paragraph 2-41, Fuel filter removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Turn load limit switch (1) to OFF and disconnect power cable (2).



2-38. WATER HEATER BLOWER MOTOR ASSEMBLY (CONT)

REMOVAL (Cont)

WARNING

Exposed fuel and fuel vapor can ignite or explode resulting in possible serious injury and even death. Observe proper safety precautions when servicing fuel system. Ensure water heater is cold before servicing fuel system.

- 2. Disconnect fuel supply hose (5) from elbow (6). Elevate hose to allow fuel to drain back into container (7) and rest hose on container.
- 3. Disconnect fuel return hose (8) from elbow (9). Elevate hose to allow fuel to drain back into container (7) and rest hose on container.
- 4. Disconnect fuel line (4) from elbow (3).
- 5. Tag and disconnect motor wiring (12) from control box (11).
- 6. Remove nut (10) and conduit (13) from control box (11).
- 7. Remove two capscrews (20), lockwashers (21), and handle assembly (22) from blower housing (16).
- 8. Remove six screws (18), lockwashers (19), and blower housing (16) from water vessel (14).
- 9. Remove blower housing (16) and motor (30) with conduit (13) from water vessel (14).
- 10. Remove gasket (15) from blower housing (16).
- 11. Remove two screws (25) and cover plate (24) from back side of blower assembly.
- 12. Tag and disconnect wires (27). Remove nut (29) and push conduit connector (28) from junction box (26).



2-38. WATER HEATER BLOWER MOTOR ASSEMBLY (CONT)

REMOVAL (cont)



INSTALLATION

- 1. Install conduit connector (28) in junction box (26) and secure with nut (29).
- Connect wires (27) injunction box (26). Remove tags. See Figure 5, Appendix E.
- 3. Install cover plate (24) on back side of blower assembly and secure with two screws (25).
- 4. Install gasket (15) on blower housing (16).
- 5. Install motor (30) and blower housing (16) on water vessel (14) and secure with six lockwashers (19) and screws (18).
- 6. Install conduit (13) in control box (11) and secure with nut (10).
- Connect motor wiring (12) to control box (11) and remove tags. See Figure 5, Appendix E.
- 8. Install handle assembly (22) on blower housing (16) and secure with two lockwashers (21) and capscrews (20).

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ROTATED

26

27

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2-38. WATER HEATER BLOWER MOTOR ASSEMBLY (CONT)

INSTALLATION (Cont)

- 9. Connect fuel line (4) to elbow (3).
- Connect fuel return hose (8) to elbow (9) and connect fuel supply line (5) to elbow (6).
- 11. Connect power plug (2).
- 12. Turn load limit switch (1) to ON and check for proper rotation. Refer to TM 10-3510-220-10.
- 13. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10). Install fuel filter (para 2-41).



This task covers:				
a. Removal	b. Repair	c. Installation	d. Adjustment	
INITIAL SETUP:				
Tools		Equipment Condition	Equipment Condition	
General mechanic's tool kit		TM 10-3510-220-10, Tarp a	TM 10-3510-220-10, Tarp assembly removed.	
Wrench, pin, l-inch		General Safety Instructions		
<u>Materials/Parts</u> Drycleaning solvent (Item 10, App C)		WARN	ING	
		Drycleaning solvent P- flammable. Wear protective use only in a well-ventilat with skin, eyes, and clothes Do not use near open flam flash point is 100 - 138°F (3 dizzy while using cleaning immediately and get medic eyes is made, wash your e medical aid immediately.	-D-680 is toxic and goggles and gloves and ted area. Avoid contact and don't breathe vapors. e or excessive heat. The $18 - 59^{\circ}C$). If you become g solvent, get fresh air cal aid. If contact with pyes with water and get	

REMOVAL

- 1. Disconnect hose (12) from elbow (1).
- 2. Disconnect fuel line (11) from elbow (15).
- 3. Disconnect hose (10) from elbow (13).
- Remove two screws (3), lockwashers (4), and fuel pump (2) from shutter assembly (9).
- 5. Loosen setscrew (7) and remove coupling (6) and bushing (8) from shaft of fuel pump (2).
- 7. Remove elbows (1), (13), and (15) from fuel pump (2).

REPAIR

NOTE

A fuel pump failure may be caused by a clogged strainer or worn or broken parts. Repair of the fuel pump consists of complete disassembly, cleaning of parts, inspection, and replacement of kit items as well as other parts that may be defective.

- 1. Remove eight screws (38), cover (39), and gasket (37) from fuel pump body (48).
- 2. Remove strainer (36), anti-hum wafer (35), and gasket (34) from fuel pump body (48).
- 3. Remove five screws (40), end plate assembly (41), spacer plate assembly (42), port housing (43), and gasket (44) from fuel pump body (48).
- 4. Remove seal cap (28), seal cup (27), seal spring (26), seal washer (25), and seal (24) from fuel pump body (48).
- 5. Remove shaft assembly (23) from fuel pump body (48).



REPAIR



- 6. Remove end plug (33), gasket (32), sleeve retainer (31), O rings (30) and sleeve (29) from fuel pump body (48).
- 7. Remove acorn nut (16), gasket (17), end plug assembly (19), gasket (20), spring seat (21) and spring (22) from fuel pump body (48).
- 8. Remove pressure adjusting screw (18) from end plug assembly (19).
- 9. Remove bleed valve (45), bypass plug (46) and plug (47) from fuel pump body (48).

REPAIR (Cont)

WARNING

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use 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. The flash point is $100 - 138^{\circ}F$ (38 - 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

- 10. Clean all parts in drycleaning solvent.
- 11. Inspect for burred, nicked, broken, scratched, or excessively worn parts. Replace defective parts.
- 12. Install bleed valve (45) bypass plug (46) and plug (47) in fuel pump body (48).
- 13. Install sleeve (29), O rings (30), sleeve retainer (31), gasket (32), and end plug (33) on fuel pump body (48).
- 14. Install pressure adjusting screw (18) in end plug assembly (19).
- 15. Install spring (22), spring seat (21), gasket (20), end plug assembly (19), gasket (17), and acorn nut (16) on fuel pump body (48).
- 16. Install gasket (44) and port housing (43) in fuel pump body (48).
- 17. Install shaft assembly (23) in fuel pump body (48).
- 18. Install seal (24), seal washer (25), seal spring (26), seal cup (27), and seal cap (28) in fuel pump body (48).
- 19. Install spacer plate assembly (42) and end plate assembly (41) in fuel pump body (48) and secure with five screws (40).



20. Install gasket (34), strainer (36) along with anti-hum wafer (25) in fuel pump body (48).21. Install gasket (37) and cover (39) on fuel pump body (48) and secure with eight screw (38).

INSTALLATION

NOTE

Replacement fuel pump may have pipe plugs installed to protect pump while in transit or storage. Remove pipe plugs from replacement pump and install them on defective pump to protect it from dirt and foreign matter.

- 1. Install elbows (1), (13), and (15) on fuel pump (2).
- 2. Install plug (5) in elbow (14) and install elbow in fuel pump (2).
- 3. Install coupling (6) and bushing (8) on shaft of fuel pump (2) and secure with setscrew (7).
- 4. Install fuel pump (2) on shutter assembly (9) and secure with two lockwashers (4) and screws (3).
- 5. Connect hose (10) to elbow (13).
- 6. Connect fuel line (11) to elbow (15).
- 7. Connect hose (12) to elbow (1).

ADJUSTMENT

- 1. Turn on load limit switch (refer to TM 10-3510-220-10) and inspect water heater for normal operation. Check for fuel leaks and tighten any connection where leaks occur.
- 2. Remove acorn nut (16) and gasket (17) from side of fuel pump.
- 3. Turn fuel pressure adjust screw (18) clockwise to increase and counterclockwise to decrease fuel pump pressure. Adjust until pressure gage (49) indicates 75 to 80 psi (517 to 552 kPa).
- 4. Install gasket (17) and acorn nut (16) on fuel pump.
- 5. Turn off power limit switch.
- 6. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).



2-40. WATER MANIFOLD ASSEMBLY

General mechanic's tool kit

Antiseizing tape (teflon)

Thread sealing compound (Item 5, App C)

(Item 23, App C)

Materials/Parts

This task covers:

a. Removal b. Disassembly c. Repair d. Assembly e. Installation f. Adjustment

INITIAL SETUP

<u>Tools</u>

Equipment Condition
TM 10-3510-220-10, Water heater off and cooled.
General Safety Instructions
WARNING
High voltage is present in this equipment. Do not perform maintenance with power on. Death or serious injury may result.
WARNING

Water heater is hot after being used and may cause injury to personnel if safety precautions are not followed. Allow heater to cool before maintenance is performed.

REMOVAL

- 1. Tag air lines and disconnect from two elbows (5) located on the two air actuated ball valve assemblies (16 and 34).
- 2. Disconnect washer water intake hose.
- 3. Disconnect short water hose manifold assembly and water heater tee and remove.
- 4. Remove eight nuts (7), six lockwashers (8) and clamps (9).
- 5. Disconnect coupling (4) on top of manifold assembly. Remove manifold assembly from water heater.



2-40. WATER MANIFOLD ASSEMBLY (CONT)

DISASSEMBLY

1. Loosen clamps (21) and remove coupling (23), hose (21), hose barb (20), elbow (19), bushing (17), nipple (18) and clamp (21).

- 2. Disconnect hose (11) and remove gaskets (10), hose fitting (12) and reducer (13) from tee (14).
- 3. Remove tee (14) from nipple (6).

4. Loosen four nuts (7) and remove lockwashers (8) and two clamp assemblies (9).

5. Remove air actuated ball valve assembly (16), elbows (5) and nipple (6) as an entire assembly by unscrewing from nipple (32).

6. Remove nipple (32), coupling (29), street elbow (28), bushing (27) and nipple (30) from tee (31).

7. Remove tee (31) and remove close nipple (33) from air actuated ball valve assembly (34).

8. Remove coupling (4), bushing (3), nipple (2) and elbow (1) from nipple (36).

9. To remove nipple (6 or 36) from the air actuated ball valve assembly (16 or 34), perform the following steps.



2-40. WATER MANIFOLD ASSEMBLY (CONT)

DISASSEMBLY (Cont)

a. Remove locknut (25), and bolt (26) from crank (24).

b. Remove cotter key (38), shims (40), spacer (37) and pin (39). Slide air actuated ball valve assembly (16 or 34) off of bolt (41).

c. Remove nuts (42 and 43), washers (44 and 45), bolts (46 and 47) and remove anchor bracket (15) from nipple (6 or 36).

d. Remove nipple (6 or 36) from air actuated ball valve assembly (16 or 34).

REPAIR

Replace any broken or defective fittings or parts.

ASSEMBLY

NOTE

Use thread sealing compound on all connections to prevent leaks.

1. To assemble nipple (6 or 36) onto the air actuated ball valve assembly (16 or 34), perform the following:

a. Install nipple (6 or 36) into air actuated ball valve assembly (16 or 34).

b. Install anchor bracket (15) on nipple (6 or 36). Do not tighten bolts (46 and 47) or nuts (42 and 43) until adjustment procedures are complete.

c. Place air actuated ball valve assembly (16 or 34) with shims (40) and spacer (37) onto pin (39) and install cotter key (38).

d. Tighten locknut (25) and bolt (26) to secure crank (24).

e. Perform adjustment procedures then tighten bolts (46 and 47) and nuts (42 and 43).


2-40. WATER MANIFOLD ASSEMBLY (CONT)

ASSEMBLY (Cont)

- 2. Install elbow (1), nipple (2), bushing (3) and coupling (4) onto nipple (36).
- 3. Install nipple (33) and tee (31) onto air actuated ball valve assembly (34).
- 4. Install nipple (30), bushing (27), street elbow (28) and coupling (29) onto tee (31).

5. Install nipple (32) onto tee (31) and place one clamp assembly (9) on nipple (32). Nuts (7) tightened during installation.

6. Install air actuated ball valve assembly (16) onto nipple (32). Place another clamp assembly (9) on nipple (6).

- 7. Install tee (14) to nipple (6).
- 8. Install reducer (13), hose fitting (12), gaskets (10) and connect hose (11).

9. Install nipple (18), bushing (17), elbow (19), hose barb (20), hose (22), coupling (23) and secure with clamps (21).

INSTALLATION

NOTE

If manifold assembly has been disassembled or repaired the assembly may required adjustment to mate with water heater attachment points. Make adjustments by turning fittings or pipes as required.

1. Connect coupling (4) to fitting on top of water heater. Make alignment adjustments if necessary.

2. Install two upper clamps (9). Install two lower clamps (9), six lock washers (8) and eight nuts (7) onto clamp assemblies. When manifold is in desired position, tighten eight nuts (9).

3. Connect short water hose to water heater tee then connect opposite end to manifold assembly.

4. Connect washer water intake hose to manifold.

5. Connect the two air lines to elbows (5) as marked during removal.

2-40. WATER MANIFOLD ASSEMBLY (CONT)

ADJUSTMENT

NOTE

Ball valve crank (49) and anchor bracket (15) must be exactly in line. The air actuator must not be slanted or cocked with relation to the plane of crank move-merit. Binding between the crank and anchor bracket will occur if they are misaligned.

1. Check clearance after piping the machine. Maintain $1/16" \pm 1/32"$ clearance between the open and closed crank stop (48) positions to prevent valve stem damage when closed and ball overtravel when opened.

NOTE

Overtravel will cause the value to throttle the flow of incoming water. This has a detrimental effect on value life and also increases filling time.

2. To adjust both the alignment and clearance, loosen the anchor bracket (15) and perform the following as needed:

a. Rotate the anchor bracket (15) around the pipe (6) to adjust alignment.

b. Slide the anchor bracket (15) up or down the pipe (6) to adjust clearance.

3. Adjust the needle valve (50) (if equipped) to slow the opening and closing of the air actuated ball valve assembly. One quarter to one half turn is normal.

4. Ensure that all air actuated ball valve assemblies close at the same speed.



2-41. WATER HEATER FUEL FILTER ASSEMBLY

This task covers:

a. Inspection	b. Removal	c. Repair d. Installation				
INITIAL SETUP:						
<u>Tools</u>		Equipment Condition				
General mechanic's	tool kit	TM 10-3510-220-10, Tarp assembly removed.				
		General Safety Instructions				
<u>Materials/Parts</u>	<u>/Parts</u> r strainer bly (81337) 6-1-8359 ing solvent	WARNING				
Fuel filter strainer assembly (81337) Dry cleaning solven (tam 10 App C)		High voltage is present in this equipment. Do not perform maintenance with power on. Death or serious injury may result.				
(Item 10, App C)		WARNING				
		Failure to cap disconnect fuel lines could result in fuel being siphoned onto the ground and equipment.				
		WARNING				
		Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spills to avoid injury and fire.				

INSPECTION

- 1. Inspect fuel filter for leaks, damage, and missing hardware.
- 2. Turn handle on self cleaning filter, inspect for rough movement or excessive play.

2-41. WATER HEATER FUEL FILTER ASSEMBLY (CONT)

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spills to avoid injury and fire.

WARNING

Failure to cap disconnected fuel lines could result in flammable fuel being siphoned onto the ground and equipment.

- 1. Disconnect hose (1) from small nipple (2).
- 2. Disconnect hose (5) from large nipple (4).
- 3. Remove two nuts (9), lockwashers (8), screws (7), flat washers (6), and brace (10) from mounting bracket (11).
- 4. Remove nipples (2) and (4) from fuel filter (3).

REPAIR

- 1. Remove two nuts (16), lockwashers (17), screws (21), and brace (10) from fuel filter (3).
- 2. Remove four screws (15) securing plate (18), filter bowl (19), and gasket (20), from fuel filter (3).
- 3. Remove handle (12), nipple (13), and two preformed packings (14) from fuel filter (3).



REPAIR (Cont)

WARNING

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use 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. The flash point is $100 - 138^{\circ}F$ ($38 - 59^{\circ}C$). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

- 4. Clean all parts in drycleaning solvent.
- 5. Install two preformed packings (14), nipple (13), and handle (12) on fuel filter (3).
- 6. Install gasket (20), filter bowl (19), and securing plate (18) and secure to fuel filter (3) with four screws (15).
- Install brace (10) on fuel filter (3) and secure with two screws (21), lockwashers (17), and nuts (16).

INSTALLATION

- Install large nipple (4) in filter (3) inlet side and small nipple (2) in fuel filter (3) outlet side.
- Position fuel filter (3) on water heater brace (8) and secure with two screws (7), flat washers (6), lockwashers (8), and nuts (9).
- 3. Connect hose (5) to large nipple (4).
- 4. Connect hose (1) to small nipple (2).

NOTE

If bowl and gasket were replaced, ensure there are no fuel leaks.

5. Perform follow-on installation. Install tarp assembly (TM 10-3510-220-10).



2-42. WATER HEATER AIR SHUTTER ASSEMBLY

This task covers:

a. Removal b. Repair

c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit

Materials/Parts

Air shutter assembly] 6-1-8228 (81337) Equipment Condition

TM 10-3510-220-10, Tarp assembly removed. Paragraph 2-39, Fuel pump removed. Paragraph 2-41, Fuel filter removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- 1. Remove three capscrews (1) and lockwashers (2). Remove air shutter assembly (3) from blower housing (4).
- 2. Remove cotter pin (5), two washers (6), spring (7), pin (8), and air band (9).

2-42. WATER HEATER AIR SHUTTER ASSEMBLY (CONT)

REPAIR

NOTE

Remove and replace only those items necessary to make repair.

Repair of air shutter assembly is limited to the replacement of component parts.

INSTALLATION

- 1. Place air band (9) over shutter assembly (3) and secure with pin (8), spring (7), two washers (6), and cotter pin (5).
- 2. Position air shutter assembly (3) on blower housing (4) and secure with three capscrews (1) and lockwashers (2).
- 3. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10). Install fuel filter (para 2-41). Install fuel pump (para 2-39).



2-43. WATER HEATER PRESSURE RELIEF VALVE

This task covers:

a. Inspection

b. Removal

c. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit

Materials/Parts

Pressure relief valve 6-1-81118 (81337) Pipe joint compound (Item 5, App C) High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

General Safety Instructions

WARNING

Equipment Condition:

TM 10-3510-220-10, Tarp assembly removed. Water heater cool down. The water vessel becomes hot during operation and injury may result from contact with the water heater before it cools. Allow water heater to cool before servicing the high-limit temperature control.

INSPECTION

WARNING

The water vessel becomes hot during operation and injury may result from contact with the water heater before it cools. Allow water heater to cool before servicing the high-limit temperature control.

- 1. Inspect water pressure relief valve for damage and unusual leaks.
- 2. Pull ring on pressure relief valve (4) and check for operation.

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

The water vessel becomes hot during operation and injury may result from contact with the water heater before it cools. Allow water heater to cool before servicing the high-limit temperature control.

1. Turn off power limit switch (1) and disconnect power cable.

2-43. WATER HEATER PRESSURE RELIEF VALVE (CONT)

REMOVAL

- 2. Ensure water has cooled to a safe temperature.
- 3. Disconnect overflow tube (2) and elbow (3) from relief valve (4).
- 4. Remove relief valve (4) and bushing (5) from tee (6).

INSTALLATION

- Coat threads of bushing (5) relief valve (4), and elbow (3) with pipe joint compound (Item 5, App C).
- 2. Install bushing (5) and new relief valve (4) in tee (6).
- 3. Install elbow (3) in relief valve (4) and connect overflow tube (2) to elbow (3).
- 4. Reconnect power cable. Turn on power switch (1).
- 5. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).



2-44. DRYER TUMBLER ASSEMBLY

This task covers:

a. Service

b. Test

c. Adjustment

d. Repair

INITIAL SETUP:

Tools

General mechanic's tool kit

Materials/Parts

Dryer assembly 6-1-9236 (81337) Identification tags (Item 12, App C)

Equipment Condition:

TM 10-3510-220-10, Tarp assembly removed. Dryer cooled down after use.

General Safety Instructions

WARNING

High temperature exhaust is dangerous during dryer operation. Allow dryer to cool after use before performing maintenance.

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

SERVICE

<u>WARNING</u>

High temperature exhaust is dangerous during dryer operation. Allow dryer to cool after use before performing maintenance.

Clean lint from dryer.

- a. Remove lint door (1).
- b. Remove accumulation of lint from inside unit.
- c. Install lint door (1).
- d. Wipe the outside surface of unit with a damp cloth.

TEST

- 1. Test operate tumbler dryer. (Refer to TM 10-3510-220-10 for operation.)
- 2. Operate dryer; and after 5 minutes of operation, check temperature gage (2) for an indication of between 130 and 250°F (54 and 121°C).
- 3. Check fuel pressure gage (3) for an indication of approximately 100 psi (690 kPa).



SERVICE (Cont)

4. Shutdown dryer after use.

ADJUSTMENT

1. Adjust door interlock safety switch.

NOTE

The door interlock safetys witch is adjusted so that when the door is closed and secured, the cam on the door hinge presses the button on the switch. When the door is opened, the button should be released.

- a. Close and secure dryer door (4).
- b. Loosen setscrew (5) on safety switch cam (6)..

CAUTION

Do not force the cam into position with the safety switch.

- c. Turn switch cam (6) until it is directly centered on or directly in front of button (7) on safety switch (8).
- d. If switch cam (6) cannot be centered on button (7), perform step f; then repeat step c.
- e. Tighten setscrew (5).
- f. Loosen three screws (9) on door switch mounting plate (10).
- g. Position the switch (8) so that switch cam(6) presses button (7). If the switch cannot be positioned so that the cam presses the button, perform steps h and i.

CAUTION

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Extending the cam unnecessarily can damage the safety switch.

- h. Adjust cam bolt (11) until safety switch button (7) is pressed.
- i. Tighten three screws (9) on door switch mounting plate (10).

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ADJUSTMENT (Cont)

2. Adjust drive chain tension.

WARNING

Disconnect electrical power from the dryer ' before adjusting the drive chain tension. Personal injury could result from exposed mechanical parts if dryer is accidentally turned on.

- a. Disconnect electrical power from the dryer.
- b. Remove three screws (14) and drive chain guard (15).
- c. Loosen two securing nuts (13) on adjusting platform (16).

<u>NOTE</u>

The adjusting platform should be fully lowered so that the slack is removed from the drive chain.

 d. Loosen two tension nuts (18) and release tension on drive chain (20). Adjust two locknuts (17) toward the center of threaded rod (19) until adjusting platform (16) is fully lowered.

CAUTION

Use care not to overtighten chain. A small amount of slack is necessary to prevent excessive wear.

- e. Tighten two tension nuts (18) so that slack is removed from drive chain (20).
- f. Tighten two locknuts (17) in place to secure tension nuts (18).
- g. Tighten two securing nuts (13).
- h. Install drive chain guard (15) and secure with three screws (14).



ADJUSTMENT (Cont)

3. Adjust fuel pump pressure.

NOTE

Power must be applied to the dryer, and the dryer and fuel pump must be operating, before the fuel pump pressure can be adjusted.

- a. Remove end cap (21) from adjusting screw (22).
- b. Turn adjusting screw (22) to adjust pressure gauge (23).

Adjust fuel pressure for elevations as follows:

Up to 3000 ft	120 psi
3000 ft. to 5000 ft	110 psi
5000 ft and up	100 psi

- c. Install end can (21) on adjusting screw (22).
- d. Shut down dryer (Refer to TM 10-3510-220-10).
- 4. Adjust burner electrodes and nozzle.



WARNING

Allow burner area to cool before any maintenance actions are performed on the burner assembly. Personal injury could result if burner is hot.

WARNING

Fuel is toxic and flammable. Close fuel shutoff valve before performing any maintenance actions on the burner assembly.

a. Close dryer fuel shutoff valve by turning handle in a clockwise direction.

ADJUSTMENT (Cont)

b. Remove fuel line (29) from elbow (28).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- c. Disconnect electrical power from the dryer.
- d. Disconnect cable (35) from UV scanner (30).
- e. Remove six screws (36), and lockwashers (37) from burner cover (34).
- f. Remove sight glass (33) from burner cover (34) and remove burner cover (34) from burner base (25).
- g. Remove two wire protectors (38).
- h. Tag two electrical wires (31) and pull from transformer end. Remove nuts (32) from the base of electrodes (27) and remove electrical wires.

CAUTION

Use care when removing burner base (25) from plenum (24) so that the porcelain base and metal tips of the electrodes are not damaged.

- i. Remove three screws (39), lockwashers (40), and burner base (25) from plenum (24).
- j. Check the electrode gap setting of the two electrodes and fuel nozzle as shown in figure.
- k. Adjust the electrodes and fuel nozzle setting, if required.
 - (1) Loosen two setscrews (26) at the base of each electrode (27).

CAUTION

The electrodes are fragile. Avoid damage to the porcelain base of metal tips.

(2) Adjust the position of electrodes (27) as shown in figure.

ADJUSTMENT (Cont)

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NOTE:
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(3) Tighten two setscrews (26) at the base of each electrode (27).

- 1. Install burner base (25) in plenum (24) and secure with three screws (39) and lockwashers (40). Install wire protectors (36).
- m. Connect two electrical wires (31) with nuts (32). Push transformer end of wires into position. Remove tags.
- n. Install burner cover (34) on burner base (25) and secure with six screws (36) and lockwashers (37).
- o. Install sight glass (33) on burner cover (34) and install cable (35) on UV scanner (30). Install fuel line (29) on elbow (28).
- p. Open the fuel shutoff valve.

REPAIR

NOTE

Refer to paragraphs 2-45 thru 2-52 for repair of individual dryer components.

1. Repair door interlock safety switch.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Remove electrical power from the dryer.
- b. Remove four screws (41) and remove cover (42) from safety switch (45).
- c. Tag and disconnect electrical wires (47) from safety switch (45).
- d. Remove nut (48) and conduit connector (46) from safety switch (45).



- e. Remove three locknuts (43) and safety switch (45) from mounting plate (44).
- f. Remove four screws (41) and remove cover (42) from new safety switch (45).
- g. Install wires (47) and conduit connector (46) into housing of safety switch (45).
- h. Secure conduit (49) to conduit connector (46) using nut (48).
- i. Secure safety switch (45) to mounting plate (44) with three locknuts (43).
- j. Connect electrical wires (47) to safety switch (45) and remove tags.

REPAIR (Cont)

- j. Install cover (42) on safety switch (45) and secure with four screws (41).
- k. Adjust safety switch (45). Refer to ADJUSTMENT paragraph for adjustment.
- 2. Replace thermometer.

WARNING

Serious burns can be caused by handling hot items. The thermometer probe extends into the lint exhaust duct and may be hot.

NOTE

Repair of the thermometer consists of removal and replacement.

a. Remove thermometer (50) from exhaust duct (51).

CAUTION

The probe on the gage can be damaged during installation. Use care not to overtighten locknut.

- b. Install thermometer (50) onto exhaust duct (51).
- 3. Repair fuel solenoid.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

NOTE

Repair of fuel solenoid consists of removing the old solenoid and replacing it with a new one.

a. Disconnect electrical power from the dryer.



REPAIR (Cont)

WARNING

Fuel is toxic and flammable. Pressurized fuel is released when valve is opened. Personal injury can result if adequate precautions are not taken. Wear protective eyewear and keep open flame and sparks away.

- b. Close fuel shutoff valve (64).
- c. Open fuel drain valve (52) on fuel pump (53) and relieve pressure. Close the valve.
- d. Disconnect two fuel lines (60) from fitting (61) and elbow (67) and street-L (71).
- e. Remove six screws (57) and remove cover (56) and gasket (58) from junction box (55).

NOTE

Record wire removal so that installation of wires on the replacement solenoid is exactly duplicated.

NOTE

The solenoid is solid state. The wires are already installed.

- f. Tag and disconnect two wires (54) coming from junction box (55).
- g. Remove two mounting screws (63) and lockwashers (65).
- h. Remove solenoid (69), with attached parts, and conduit (59) from bracket (62).
- i. Remove elbow (67), street-L (71), fitting (66) and nipple (68) from solenoid (69).
- j. Remove conduit (59) from solenoid (69) and wires (54).
- k. Install nipple (68), elbow (67), fitting (66) and street-L (71) on solenoid (69).



REPAIR (Cont)

- 1. Pull wires (54) through conduit (59) and install conduit in solenoid (69).
- m. Install solenoid (69) on bracket (62) and secure with two mounting screws (63) and lockwashers (65).
- n. Connect wires (54) to terminals in junction box (55).
- o. Install cover (56) on junction box (55) and tighten with six screws (57).
- p. Connect two fuel lines (60) to nipples (61).
- q. Open fuel shutoff valve (64).
- 4. Repair dryer door assembly.

NOTE

Repair door assembly by replacing the unserviceable door with a new one.

- a. Open dryer door (73).
- b. Remove pin (74) from center of door hinge (75).

CAUTION

Support the door while removing the hinge rod.

- c. Drive hinge rod (72) down through door hinge (75).
- d. If hinge rod (72) is being replaced, loosen setscrew (76) and remove door switch cam (77) from the bottom of the hinge rod and install it on the new hinge rod.
- e. Position new dryer door (73) on the dryer, align door hinge (75), and drive hinge rod (72) into the hinge from the bottom.
- f. Install pin (74) into center of door hinge (75).



REPAIR (Cont)

5. Repair thermostatic high temperature switch.

WARNING

High voltage is present on this equipment. Do not perform maintenance on thermostatic high temperature switch with power on. Death or serious injury may result.

NOTE

Repair thermostatic high temperature switch by replacing the unserviceable switch with a new one.

a. Disconnect electrical power from the dryer.

b. Inspect thermostatic high temperature switch (4) for damage and loose connections.

c. Remove sleeve (2), nut (1) and cover (3) from the thermostatic high temperature switch (4).

d. Tag and remove two wires (7) from the thermostatic high temperature switch (4).

e. Remove the lock nut (5) and the conduit (6) from the thermostatic high temperature switch (4).

f. Remove the thermostatic high temperature switch (4) from the dryer by turning it counterclockwise.

g. Install the new thermostatic high temperature switch (4) by turning the switch clockwise into the dryer.

h. Install the conduit (6) and the lock nut (5) onto the thermostatic high temperature switch (4).

i. Connect two wires (7) to the thermostatic high temperature switch (4).

j. Replace the cover (3), nut (1) and the sleeve (2) to the thermostatic high temperature switch (4).

6. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).



2-45. DRYER ELECTRICAL CONTROL ASSEMBLY

This task covers:

a. Test	b. Service	c. Adjust
INITIAL SETUP:		
<u>Tools</u>	<u>Equipment</u> Co	ndition:
General mechanic's tool kit Materials/Parts	TM 10-3510-22	0-10, Tarp assembly removed.
	~	

Control Assembly 6-1-8047 (81337)

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

TEST

1. Test operate dryer for a minimum of 30 minutes. (Refer to TM 10-3510-220-10).

- 2. Observe proper operation of timer, start-stop switch, motors, fuel solenoid, and flame safeguard assembly.
- 3. Listen for unusual noises and smell for unusual odors.
- 4. Report any operational problems to your supervisor.

SERVICE

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Remove three thumbscrews (2) and open control box(l).

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.).

- 2. Clean electrical components with compressed air.
- 3. Close control box door (1) and secure with thumbscrews (2).
- 4. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

ADJUST

Adjust operating temperature control (3). Turn knob from O to 250 degrees and check pointer calibration. Adjust position by loosening setscrew and moving knob to correct position. Tighten setscrew.



2-46. DRYER FUEL PUMP ASSEMBLY

This task covers:

a. Removal b. Disassembly c. Repair d. Service e. Assembly f. Installation g. Adjust

INITIAL SETUP:

Tools

Equipment Condition:

General mechanic's tool kit

Materials/Parts

Drycleaning solvent

(Item 10, App C)

General Safety Instructions

WARNING

TM 10-3510-220-10, Tarp assembly removed.

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Remove electrical power from the dryer.

2. Obtain two fuel line caps from the storage bin.

REMOVAL (Cont)

3. Open fuel drain valve (1) and relieve fuel pressure. Close the valve.

WARNING

Failure to cap disconnected fuel lines could result in fuel being siphoned onto the ground and equipment.

- 4. Remove input fuel line (2) from the fuel filter.
- 5. Remove output fuel line (3) and fuel return line (4). Install line cap in return line.
- 6. Remove tee (5) with pressure gage (6) and drain valve (1) attached.

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7. Remove two bolts (7), lockwashers (9) and fuel pump (8) from air intake housing (10).

DISSEMBLY

- 1. Remove eight capscrews (11), cover (12), and gasket (13).
- 2. Remove strainer (14) and anti-hum wafer (15).
- 3. Remove five screws (16), end plate assembly (17), spacer plate assembly (18), port housing (19) and gasket (20).



DISASSEMBLY (Cont)

- Remove seal cap (34), seal cup (33), seal spring (32), seal washer (31), and seal (30). Remove shaft assembly (29).
- 5. Remove end plug (39), gasket (38), sleeve retainer (37), O-ring (36) and sleeve (35) from fuel pump body (21).
- 6. Remove acorn nut (22), gasket (23), end plug (25), gasket (26), spring seat (27) and spring (28) from fuel pump body (21).
- 7. Remove pressure adjusting screw (24) from end plug assembly (25).
- 8. Remove bleed valve (40) from fuel pump body (21).

REPAIR

- 1. Inspect all parts for wear and damage.
- 2. Use replacement kit to replace parts that are damaged, defective, or excessively worn. If replacement of parts is not practical, replace pump.

SERVICE

WARNING

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use 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. Do not use near open flame or excessive heat. The flash point is $100 - 138^{\circ}F(38 - 59^{\circ}C)$. If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

Clean strainer (14) with drycleaning solvent (Item 10, App C) and dry thoroughly.



ASSEMBLY

- 1. Install bleed valve (40) in fuel pump body (21).
- 2. Install pressure adjusting screw (24) in end plug assembly (25).
- 3. Install spring (28), spring seat (27), gasket (26), end plug (25), gasket (23), and acorn nut (22) on fuel pump body (21).
- 4. Install sleeve (35), O-ring (36), sleeve retainer (37), gasket (38) and end plug (39) on fuel pump body (21).
- 5. Install gasket (20) and port housing (19).
- 6. Install shaft assembly (29) and then install seal (30), seal washer (31), seal spring (32), seal cup (33), and seal cap (34).
- Install spacer plate assembly (18) and end plate assembly (17) and secure with five screws (16).
- 8. Install strainer (14) and anti-hum wafer (15).
- 9. Install gasket (13) and cover (12) and secure with eight capscrews (11).





INSTALLATION

1. Install fuel pump (8) on air intake housing (10) and secure with two bolts (7) and lockwashers (9).

NOTE

The fuel pump shaft must be aligned with the fuel pump impeller coupling before assembling the air intake and blower housings.

- 2. Install tee (5), with pressure gage (6) and drain valve (1) attached, on fuel pump (8).
- 3. Uncap and install input fuel line (2), output fuel line (3), and fuel return line (4).
- 4. Return the fuel line caps to the storage bins.
- 5. Close fuel drain valve (1).
- 6. Adjust fuel pump pressure.

ADJUSTMENT

NOTE

Power must be applied to the dryer, and the dryer and fuel pump must be operating before fuel pump pressure can be adjusted.

- 1. Remove acorn nut (22) from pressure adjusting screw (23).
- 2. Turn pressure adjusting screw (23) to adjust pressure gauge (6). (Refer to paragraph 2-44, Adjustment 3b).
- 3. Install acorn nut (22) on pressure adjusting screw (23).
- 4. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).



2-47. DRYER FUEL FILTER ASSEMBLY

This task covers:

a.	Inspection	b.	Removal	c.	Repair	d.	Installation
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INITIAL SETUP:

Equipment Condition: Tools TM 10-3510-220-10, Tarp assembly removed. General mechanic's tool kit General Safety Instructions WARNING Materials/Parts High voltage is present on this equipment. Do not perform maintenance with power on. Death or Fuel filter strainer serious injury may result. assembly 6-1-8359 (81337) Dry cleaning solvent WARNING (Item 10, App C) Failure to cap disconnect fuel lines could result in fuel being siphoned onto the ground and equipment.

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

INSPECTION

- 1. Inspect fuel filter for leaks, damage, and missing hardware.
- 2. Turn handle on self cleaning filter, inspect for rough movement or excessive play.

2-47. DRYER FUEL FILTER ASSEMBLY (CONT)

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Failure to cap disconnect fuel lines could result in fuel being siphoned onto the ground and equipment.

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spills to avoid injury and fire.

- 1. Disconnect hose (1) from small nipple (2).
- 2. Disconnect hose (5) from large nipple (4).
- Remove two nuts (9), lockwashers (8), screws (7), flat washers (6), and brace (10) from mounting brackets (11).
- 4. Remove nipples (2) and (4) from fuel filter (3).

REPAIR

- 1. Remove two nuts (16), lockwashers (17), screws (21), and brace (10) from fuel filter (3).
- 2. Remove four screws (15) securing plate (18), filter bowl (19), and gasket (20), from fuel filter (3).
- 3. Remove handle (12), nipple (13), and two preformed packings (14) from fuel filter (3).



2-47. DRYER FUEL FILTER ASSEMBLY (CONT)

REPAIR (Cont)

WARNING

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use 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. The flash point is 100 - 138°F (38 - 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

- 4. Clean all parts in drycleaning solvent.
- 5. Install two preformed packings (14), nipple (13), and handle (12) on fuel filter (3).
- 6. Install gasket (20), filter bowl (19), and securing plate (18) and secure to fuel filter (3) with four screws (15).
- Install brace (10) on fuel filter (3) and secure with two screws (21), lockwashers (17), and nuts (16).

INSTALLATION

- **1.** Install large nipple (4) in filter (3) inlet side and small nipple (2) in fuel filter (3) outlet side.
- Position fuel filter (3) on water heater brace (8) and secure with two screws (7), flat washers (6), lockwashers (8), and nuts (9).
- **3.** Connect hose (5) to large nipple (4).
- 4. Connect hose (1) to small nipple (2).

NOTE

If bowl and gasket were replaced, ensure there are no fuel leaks.

5. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).



2-48. DRYER UV SCANNER AND FLAME SAFEGUARD ASSEMBLY

This task covers:

a. Test b. Removal c. Service d. Repair e. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit

Materials/Parts

Identification tags

(Item 12, App C)

Wiping cloths (Item 3, App C)

TM 10-3510-220-10, Tarp assembly removed. TM 10-3510-220-10, Dryer bin removed.

Equipment Condition:

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Heated parts may cause injury to personnel if safety precautions are not followed. Allow burner area to cool before any maintenance actions are performed on the burner assembly.

TEST

NOTE

The ultra violet scanner and flame safeguard assembly is a fail-safe item that protects against excessive fuel build-up when a flame-out or ignition failure problem exists. The fuel solenoid and pump is automatically shut down if the scanner doesn't see a flame after a maximum of 20 seconds during a regular start cycle. The blower will continue to run for 60 seconds if the post purge relay is set halfway.

- 1. Operate dryer for a warm-up period of 5 minutes.
- 2. Close fuel valve. Pump and solenoid should shut down approximately 20 seconds after the fuel valve is closed.

2-48. DRYER UV SCANNER AND FLAME SAFEGUARD ASSEMBLY (CONT)

REMOVAL

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant.

1. Close fuel shutoff valve (1).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

2. Disconnect electrical power from the dryer.





- 3. Open door (2) from the dryer electrical panel.
- 4. Loosen screw (3) and remove cover (4) from flame safeguard control chassis (6).
- Loosen two screws (5) and remove flame safeguard control chassis (6) from base (9). Remove screws (7).
- 6. Tag and disconnect electrical wires (8) from terminal in base (9).

2-48. DRYER UV SCANNER AND FLAME SAFEGUARD ASSEMBLY (CONT)

REMOVAL (Cont)

WARNING

Heated parts may cause injury to personnel if safety precautions are not followed. Allow burner area to cool before any maintenance actions are performed on the burner assembly.

- 7. Remove UV scanner (10) from burner cover (11).
- 8. Remove UV scanner and attached wires from base (9).
- 9. Remove four mounting screws (12) and base (9) from the electrical panel.

SERVICE

- 1. Clean lens of UV scanner with a soft cloth (Item 3, App C) moistened with water. Dry lens with a dry, soft cloth.
- 2. Use a small brush to clean carbon deposits from the inside of scanner tube.

REPAIR

Repair of the UV scanner and flame safeguard assembly consists of replacing the defective components. Remove and replace only those items necessary to make repair. If replacement of individual parts is not practical, then replace the next higher assembly.

INSTALLATION

1. Install base (9) and secure with four mounting screws (12).



2-48. DRYER UV SCANNER AND FLAME SAFEGUARD ASSEMBLY (CONT)

INSTALLATION (Cont)

- 2. Route the wires of UV scanner (10) through the electrical panel.
- 3. Install UV scanner (10) on burner cover (11).
- 4. Connect electrical wires (8) to the terminals on the electrical panel and install screws (7). Remove tags.
- 5. Install purge timing card (13) on flame safeguard control chassis (6) if the card is packed separately.
- Install flame safeguarding control chassis (6) in base (9) and tighten two screws (5).
- Install cover (4) on flame safeguarding control chassis (6) and secure with screw (3) in center of cover (4).
- 8. Close door (2) on the dryer electrical panel and secure with thumbscrews.
- 9. Open fuel shutoff valve (1).
- 10. Perform follow-on installation.

Install dryer bin (TM 10-3510-220-10). Install tarp assembly (TM 10-3510-220-10).



2-49. DRYER AIR SHUTTER ASSEMBLY

This task covers:

a.	Removal	b. Repair	c.	Installation

INITIAL SETUP:

Tools

General mechanic's tool kit

Materials/Parts

Air shutter assembly 6-2-2376 (81337)

Equipment Condition:

TM 10-3510-220-10, Tarp assembly removed. Paragraph 2-46 dryer fuel pump assembly removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

- 1. Remove thumbscrew (1), nut (2) and shutter (3) with filter screen (7) from air intake housing (6).
- 2. Remove four capscrews (4), lockwashers (5), and air intake housing (6) from blower housing (17).
- 3. Loosen clamp (20) and remove eight fan capscrews (10), lockwashers (11), and blower housing (17) from flange (12).
- 4. Loosen setscrew (18) and remove coupling (19) from shaft of motor (8).
- 5. Loosen setscrew (16) and remove blower impeller (15) from shaft of motor (8).
- 6. Remove key (9) from shaft of motor (8).
- 7. Remove four capscrews (14), lockwashers (13), flange (12) and gasket (21) from motor (8).

2-49. DRYER AIR SHUTTER ASSEMBLY (CONT)

REPAIR

NOTE 3 A cracked housing or flange can be repaired by proper welding procedures. 20 19 18 1. Replace shutter (3) and/or blower impeller (15) if damaged. 15 16 2. Use a wire brush and 12 remove accumulated matter 11 from filter screen (7). 10 3. Replace missing or damaged hardware.

INSTALLATION

- 1. Install gasket (21) and flange (12) on motor (8) and secure with four lockwashers (13) and capscrews (14).
- 2. Install key (9) on shaft of motor (8).
- 3. Install blower impeller (15) on shaft of motor (8) and tighten setscrews (16).
- 4. Install coupling (19) on shaft of motor (8) and tighten setscrews (18).
- 5. Position blower housing (17) on flange (12) and secure with eight lockwashers (11) and fan capscrews (10). Tighten clamp (20).
- 6. Install filter screen (7) and air intake housing (6) onto blower housing (17) and secure with four lockwashers (5) and capscrews (4).
- 7. Install shutter (3) on air intake housing (6) and secure with thumbscrew (1) and nut (2).
- 8. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).
2-50. DRYER TUMBLER DRIVE MOTOR AND GEARBOX ASSEMBLY

This task covers:

a. Service b. Adjustment

INITIAL SETUP:

Tools

General mechanic's tool kit

Materials/Parts

Lubricating oil (Item 17, App C) Lubricating oil, multipurpose (Item 18, App C) TM 10-3510-220-10, Tarp assembly removed.

General Safety Instructions

Equipment Condition:

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

SERVICE

NOTE

See LO 10-3510-220-12 for lubrication instructions.

1. Lubricate dryer gear.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Disconnect electrical power from dryer.
- b. Remove three screws (1) and drive chain guard (2).
- c. Position a container under drain plug (3) on the bottom side of gear reduction unit (4).
- d. Remove drain plug (3) from gear reduction unit (4).
- e. Remove filler plug (5) from top front of gear reduction unit (4).
- f. Remove level plug (6) from gear reduction unit (4).
- g. Clean drain plug (3).
- h. After all oil is drained from gear reduction unit (4), install drain plug (3) in bottom of unit.

2-50. DRYER TUMBLER DRIVE MOTOR AND GEARBOX ASSEMBLY (CONT)

SERVICE (Cont)

- i. Refer to LO 10-3510-220-12 and fill gear reduction unit (4) through hole for filler plug (5) with oil until oil begins to run out of the hole for level plug (6).
- j. Install level plug (6) and filler plug (5).
- k. Apply grease to grease fitting (7) on center front of gear reduction unit (4).
- Lubricate dryer drive chain and sprocket with oil. Refer to LO 10-3510-220-12.
- a. Lift cap on drive chain oil cup (8) and fill with oil.
- b. Apply grease to the two upper drive chain sprocket bearings by turning the cap on grease cups
 (9) down (clockwise) 1/4 turn.
- c. If the cap cannot be turned down 1/4 turn, perform the following:
 - (1) Remove the cap from grease cups (9)
 - (2) Fill the grease cups (9) with grease.
 - (3) Place the cap on grease cups (9).
 - (4) Repeat step b. above.

d. Install drive chain guard (2) and secure with three screws (1).

ADJUSTMENT

WARNING

Disconnect electrical power from the dryer before adjusting the drive chain tension.

- 1. Remove electrical power from the dryer.
- 2. Refer to paragraph 2-44 and adjust the drive tension.
- 3. Perform follow-on installation.



2-51. DRYER BURNER ASSEMBLY

This task covers:

a. Removal b. Inspection c. Service d. Repair e. Installation f. Adjustment

INITIAL SETUP:

Tools

Equipment Condition: Dryer cooled down after operation. TM 10-3510-220-10, Tarp assembly removed.

General mechanic's tool kit

Personnel Required

One

Materials/Parts

Burner assembly 6-1-8379 (81337) Identification tags (Item 12, App C)

General Safety Instructions

WARNING

High temperature exhaust is dangerous during dryer operation. Allow dryer to cool after use before performing maintenance.

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

WARNING

Fuel is toxic and flammable. Spilled fuel is a fire hazard and eye irritant. Wipe up spilled fuel to avoid injury and fire.

1. Close fuel shutoff valve.

WARNING

Remove electrical power from the dryer before any maintenance actions are performed on the burner assembly.

2. Disconnect electrical power to the dryer.

REMOVAL (Cont)

3. Remove fuel line (25) from elbow (24).

WARNING

Allow burner area to cool before any maintenance actions are performed on the burner assembly.

- 4. Remove UV scanner cable (14) from UV scanner tube (11). Remove sight glass (15).
- 5. Remove six screws (19) and washers (20) from burner cover (16).
- 6. Remove burner cover (16) from burner base(5) and remove sight glass tube (18).
- 7. Remove two nuts (13) and electrical wires (12) from base of electrodes (10).

CAUTION

Remove the burner base from the plenum carefully so that the porcelain base and metal tips of the electrodes are not damaged.

- 8. Remove conduit nuts (17).
- 9. Remove three screws (21), washers (22), and burner base (5) from plenum (4).
- 10. Loosen two setscrews (9) at the base of each electrode (10).
- 11. Remove locknuts (6) and remove two electrodes (10) from burner base (5).
- 12. Remove fuel nozzle (7) from adapter (8).



REMOVAL (Cont)

- 13. Remove four bolts (23), lockwashers (3), and nuts (2) from plenum (4).
- 14. Remove plenum (4) from housing (1).

INSPECTION

- 1. Inspect burner electrodes, base, nozzle, shutter housing, and plenum for deposits of carbon and soot.
- 2. Inspect for broken, cracked, bent, and missing components.

SERVICE

1. Use wire brush and carefully remove carbon and soot from burner base, nozzle, electrodes, shutter housing, and plenum.

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.).

2. Use compressed air and clean remainder of soot and carbon from components.

REPAIR

1. Repair burner assembly by cleaning, adjusting, or replacing the defective component. Remove and replace only those items necessary to make repair.

2. Repair Transformer

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Allow burner area to cool before any maintenance actions are performed on the burner assembly. Failure to do so can result in serious burns.

NOTE

Repair transformer by replacing the unserviceable transformer with a new one.



REPAIR (Cont)

- a. Disconnect electrical power from the dryer.
- b. Remove the scanner (3) from the burner cover (4).

NOTE

The scanner is a sensitive device and should be handled with care.

- c. Remove the six bolts (5) and lockwashers (6) from burner cover (4). Remove cover (4).
- d. Remove two high voltage leads (7) by pulling out of transformer (1).
- e. Remove six screws (10) and gasket (2) from the connector box cover (12) and remove cover.
- f. Remove two conduit nuts (9).
- g. Tag wires (13) and disconnect the leads to the transformer (1).
- h. Remove two bolts (14) attaching transformer (1) to transformer brackets (15). Remove transformer (1).
- i. Install the new transformer (1) using two bolts (14) to the transformer brackets (15).
- i. Connect wires (13) to their connections in the connector box (11) and remove tags.
- k. Install conduit nuts (9) inside connector box (11).
- 1. Install gasket (2), cover (12) and six screws (10) to connector box (11).
- m. Replace the two high voltage leads (7) to transformer (1).
- n. Install burner cover (4) using six bolts (5) and lockwashers (6).

INSTALLATION

- 1. Install plenum (4) into housing (1).
- 2. Install four bolts (23), lockwashers (3), and nuts (2).
- 3. Install new fuel nozzle (7) onto adapter (8).
- 4. Install two new electrodes (10) into base (5) and install nuts (6).
- 5. Tighten two setscrews (9) at the base of each electrode (10).

INSTALLATION (Cont)

- 6. Adjust the burner electrode and fuel nozzle setting. Refer to ADJUSTMENT.
- 7. Install burner base (5) in plenum (4) and secure with three screws (21) and washers (22).
- 8. Install two conduit nuts (17) and sightglass tube (18).
- 9. Connect electrical wires (12) to base of electrode (10) and secure with two nuts (13).
- 10. Install sightglass (15) on burner cover (16) and install burner cover (16), burner base (5) and secure with six screws (19) and washers (20).
- 11. Install UV scanner cable (14) on UV scanner tube (11). Open the fuel shutoff valve.
- 12. Install fuel line (25) on elbow (24).

ADJUSTMENT

Refer to ADJUSTMENT, para 2-44.

Perform follow-on installation.



2-52. DRYER COMBUSTION BLOWER AND MOTOR ASSEMBLY

This task covers:

a. Removal	b.	Repair
------------	----	--------

c. Installation

Equipment Condition:

General Safety Instructions

serious injury may result.

INITIAL SETUP:

Tools

General mechanic's tool kit

Materials/Parts

Blower assembly 6-2-2371 (81337) Identification tags (Item 12, App C) **WARNING** High voltage is present on this equipment. Do not perform maintenance with power on. Death or

TM 10-3510-220-10, Tarp assembly removed.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

- 1. Disconnect electrical power from the dryer.
- 2. Loosen two screws (1) and remove electrical cover (2) from the back of the motor (3).
- 3. Tag and disconnect electrical wires from terminals and connectors.
- 4. Remove conduit (4) with wires and conduit connector from motor (3).

2-52. DRYER COMBUSTION BLOWER AND MOTOR ASSEMBLY (CONT)

REMOVAL (Cont)

- 5. Remove eight bolts (5), lockwashers (6) and motor plate (7) from blower housing (8).
- 6. Remove four bolts (9), lockwashers (10) and motor (3) from the dryer.

NOTE

Support the blower housing and fuel pump while the motor is removed.

- 7. Remove motor (3), motor plate (7), and impeller (13) and gasket (21) from blower housing (8).
- 8. Loosen setscrew (14) and remove coupling (15) from impeller shaft.
- 9. Loosen setscrew (16) and remove impeller (13) from shaft of motor (3).
- 10. Remove key (17) from keyway (18) on shaft motor (3).
- 11. Remove four bolts (19), lockwashers (20) and motor plate (7) from motor (3).

REPAIR

Repair the combustion blower and motor assembly by replacing damaged or defective components.

INSTALLATION

- 1. Position motor plate (7) and gasket (21) on new motor (3) and secure with four lockwashers (20) and bolts (19).
- 2. Position key (17) in keyway (18) on the shaft of motor (3).
- 3. Align motor key (17) and impeller keyway and slide impeller (13) onto the shaft of motor (3).



2-52. DRYER COMBUSTION BLOWER AND MOTOR ASSEMBLY (CONT)

INSTALLATION (Cont)

- 4. Tighten setscrew (16) and secure impeller (13).
- 5. Align and install coupling (15) on the impeller shaft. Tighten setscrew (14).

NOTE

It maybe necessary to turn the motor shaft by hand to align the coupling and the fuel pump shaft.

- 6. Align fuel pump coupling (15) with the fuel pump shaft in blower housing (8). Insert motor plate (7) and motor (3) into housing.
- 7. Secure motor plate (7) with lockwashers (6) and bolts (5).
- 8. Loosen two setscrew (1) and remove electrical cover (2) from the back of motor (3).
- 9. Position motor (3) in place and install four lockwashers (10) and bolts (9).
- 10. Route the electrical wires into the motor and install conduit (4) on motor (3).
- 11. Connect the electrical wires to the terminals and connectors on the motor. Remove tags.
- 12. Install electrical cover (2) on the back of motor :(3) and secure with two screws (1).
- 13. Check for proper direction of rotation.
- 14. Perform follow-on installation.



This task covers:

a. Service

b. Repair

c. Replace

INITIAL SETUP:

Tools	Equipment Condition:
General mechanic's tool kit	TM 10-3510-220-10, Water pump removed from trailer assembly.
Materials/Parts	General Safety Instructions
Identification tags (Item 12, App C)	<u>WARNING</u> High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

SERVICE

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

Remove inlet water strainer for inspection and cleaning. Remove other defective components and replace. For item service and replacement, proceed as follows:

1. Remove cap (2) and O-ring (3).

SERVICE (Cont)

- 2. Remove strainer (4) from strainer housing (5).
- 3. Remove half coupling (6) from strainer housing (5).
- 4. Remove strainer housing (5) and nipple (7) from pump (1).

NOTE

Use thread sealer compound (Item 5, App C) when joining pipes and fittings.

- 5. Wash strainer thoroughly with clear water. Replace strainer if damaged or missing.
- 6. Install nipple (7) and strainer housing (5) on pump (1).
- Install half coupling (6) on strainer housing (5).
- 8. Install strainer (4) in strainer housing (5).
- 9. Install O-ring (3) and cap (2).



REPAIR

Repair water outlet assembly by replacing the defective component. Use these procedures in preparation for replacing the water pump. Disassemble only as necessary.

REPAIR (Cont)

- a. Remove half coupling (11) and nipple (12) from tee (13).
- b. Remove plug (8), gasket (9), half coupling (10), tee (13), and nipple (14) from pump (1).

NOTE

Use thread sealer compound (Item 5, App C) when joining pipes and fittings.

- c. Install plug (8), gasket (9), half coupling (10), tee (13) and nipple (14) in pump (1).
- d. Install nipple (12) and half coupling (11) in tee (13).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

2. Repair electrical plug, limit switch receptacles, and limit switch by removing and replacing them. Remove the receptacle and limit switch as follows:

CAUTION

Be careful not to damage gasket (15).

Remove six screws (17), switch box cover (16), and gasket (15) from switch box (18).
 Gasket will remain with cover or box until wires have been disconnected.



REPAIR (Cont)

- b. Remove four screws (19) and switch cover (20) from switch box cover (16).
- c. Remove two screws (25), switch (22), and gasket (21) from switch cover (20).



- d. Tag six wires (24), remove six screws (23), and disconnect wires from switch (22).
- e. Remove four screws (31), receptacle cover (30), gasket (29), and receptacle (28) from switch box cover (16).
- f. Tag and remove five wires (27) from receptacle (28). Replace unserviceable parts with new parts.
- g. Position five wires (27) through gasket (15) and switch box cover (16) and connect to receptacle (28). Remove tags.
- h. Position receptacle (28), gasket (29), and receptacle cover (30) on switch box cover (16) and secure with four screws (31).
- i. Position six wires (24) through gasket (15) and switch box cover (16). Connect wires to switch (22) and secure with six screws (23). Remove tags.
- j. Position gasket (21) and switch (22) on switch box cover (20) and secure with two screws (25).
- k. Position switch cover (20) on switch box cover (16) and secure with four screws (19).
- Install gasket (15) and switch cover (20) on switch box cover (16) on switch cover (18) and secure with six screws (26).

REPAIR (Cont)

NOTE

Replace only components that are defective.

- 3. Replace electrical fittings, conduit, or wiring if defective. Repair or replace conduit if it is not sealed against moisture.
- a. Remove three screws (33) and loosen the fourth screw. Turn cover plate (35) and expose wires.
- b. Disconnect wires on limit switch and/or receptacle (refer to REPAIR paragraph 2, steps a thru g.).



- c. Disconnect wire nut on same color wire at motor power junction box (36).
- d. Tag and disconnect all wires in motor power junction box (36).
- e. Remove locknut (32) on each end of conduit (34). Bend conduit and lift out. Remove four wires from conduit.
- f. Thread four wires through conduit (34) and insert conduit ends into switch box (18) and motor power junction box (36).
- g. Install locknuts (32) on each end of conduit (34).
- h. Connect wires in switch box (18) (refer to REPAIR paragraph 2, steps h thru l.).
- i. Connect wires in motor power junction box (36). Remove tags.
- j. Position cover plate (35) on motor power junction box (36) and install three screws (33). Tighten the fourth screw.
- k. Check for proper direction of rotation.

REPAIR (Cont)

NOTE

The water pump and motor is an integral part of the water pump assembly, making it necessary to replace both assemblies if a defect occurs to either assembly.

- 4. Repair water pump and motor.
- a. Disconnect wires in motor power junction box (refer to REPAIR paragraph 3).
- b. Disconnect conduit at motor power junction box (refer to REPAIR paragraph 3).
- c. Remove inlet water strainer (refer to SERVICE).
- d. Remove water outlet assembly (refer to REPAIR).
- e. Remove four nuts (42), lockwashers (41), flat washers (40), and screws (39). Remove water pump assembly (38) from frame (37).



- f. Position water pump assembly (38) on frame (37) and secure with four screws (39), flat washers (40), lockwashers (41), and nuts (42).
- g. Install water outlet assembly (refer to REPAIR paragraph 1).
- h. Install inlet water strainer (refer to SERVICE).
- i. Connect conduit to motor power junction box (refer to REPAIR paragraph 3).
- j. Connect wires in motor power junction box (refer to REPAIR paragraph 3).

REPAIR (Cont)

- 5. Replace water pump frame if bent or broken.
- a. Remove receptacle and limit switch (refer to REPAIR paragraph 3).
- b. Remove conduit from switch box (refer to REPAIR paragraph 3).
- c. Remove water pump and motor (refer to REPAIR paragraph 4).
- d. Remove two nuts (45), two lockwashers (44), two screws (43), and switch box (18) from frame (37).
- e. Position switch box (18) on frame (37) and secure with two screws (43), two lockwashers (44), and two nuts (45).
- f. Install water pump and motor (refer to REPAIR paragraph 4).
- g. Install conduit in switch box (refer to REPAIR paragraph 3).
- h. Install receptacle and limit switch (refer to REPAIR paragraph 2).

REPLACE

1. Replace water pump and motor, if damaged beyond repair.

2. Perform follow-on installation.

Install water pump (TM 10-3510-220-10).



2-54. WATER PUMP TIEDOWN ASSEMBLY

This task covers:

a. Removal b. Installation

INITIAL SETUP:

Tools

General mechanic's tool kit

Equipment Condition:

TM 10-3510-220-10, Tarp assembly removed, and water pump assembly removed.

Materials/Parts

Water pump tiedown assembly 6-1-9444 (81337)

General Safety Instructions

WARNING

Components of the water pump are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

NOTE

There are two bracket assemblies only one is covered.

REMOVAL

Remove two bolts (1) and bracket assembly (2) from water pump assembly (3).

INSTALLATION

1. Install bracket assembly (2) and two bolts (1) on water pump assembly (3).

2. Perform follow-on installation.

Install tarp assembly and water pump **)** assembly (TM 10-3510-220-10).



2-55. WATER HOSE ASSEMBLY

This task covers:

a. Repair

b. Replace

INITIAL SETUP:

Tools

General mechanic's tool kit

<u>Materials/Parts</u> Rubber hose and clamps as required Petrolatum (Item 8, App C)

Equipment Condition:

TM 10-3510-220-10, Tarp assembly removed, and water pump assembly removed.

General Safety Instructions

WARNING

Flying debris can damage eyes and cause blindness. Wear protective eye wear when cutting or grinding metal parts.

REPAIR

WARNING

Flying debris can damage eyes and cause blindness. Wear protective eye wear when cutting or grinding metal parts.

NOTE

These procedures tell how to repair all water hoses. If the hose is broken near the coupling, repair can be done by cutting off the damaged hose end and replacing the coupling.

1. Loosen hose clamps (1) and remove coupling (2) from hose (3).

2. Cutoff damaged section of water hose (3).

3. Slide hose clamps (1) over end of water hose (3).

4. Insert couplings (2) and tighten hose clamps (1).

5. Ensure gasket (4) is inside coupling (2).

REPLACE

- 1. If hose damage is near the center of the hose, replace with new hose of the same length.
- 2. Perform follow-on installation.

Install hose in laundry unit (TM 10-3510-220-10).



2-56. SUCTION STRAINER

This task covers:

Replace

INITIAL SETUP:

Tools

Equipment Condition:

General mechanic's tool kit

TM 10-3510-220-10, Hose removed from water source.

Materials/Parts

Thread sealer compound (Item 5, App C)

REPLACE

- 1. Remove strainer (1) from water pump suction hose assembly (3).
- 2. Remove coupling (2) from strainer (1).
- 3. Coat threads of coupling (2) with thread sealer compound (Item 5, App C) and install coupling (2) ins strainer (1).
- 4. Install strainer (1) with coupling (2) on water pump suction hose (3).
- 5. Perform follow-on installation.

Install hose to water source (TM 10-3510-220-10).



2-57. EXHAUST DUCTS

This task covers:

Repair

INITIAL SETUP:

Tools

General mechanic's tool kit

Materials/Parts

Thread sealer compound (Item 5, App C)

Equipment Condition:

TM 10-3510-220-10, Exhaust ducts removed from laundry unit.

General Safety Instructions

WARNING

Flying debris can damage eyes and cause blindness. Wear protective eye wear when cutting or grinding metal parts.

REPAIR

 The repair of metal exhaust ducts

 is limited to grinding and filing burrs and rough edges and straightening dents. If duct is damaged beyond repair, replace with a new one. The repair of canvas duct (2) is limited to patching or replacing.



2-57. EXHAUST DUCTS

REPAIR (Cont)

- 2. If exhaust ducts are damaged beyond repair, replace exhaust ducts with new ones. When replacing generator exhaust ducts use thread sealer (Item 5, App C).
- 3. Perform follow-on installation.

Install exhaust ducts on laundry unit (TM 10-3510-220-10).





2-58. GENERATOR TIEDOWN

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools	Equipment Condition:
General mechanic's tool kit	TM 10-3510-220-10, Tarp assembly removed.
	General Safety Instructions
Materials/Parts	WARNING
Generator tiedown assembly 6-1-8355 (81337)	High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- 1. Remove eight bolts (3), flat washers (4), holddown blocks (5), lockwashers (6) and seven nuts (7) from generator (2).
- 2. Disconnect laundry power cable (1) from generator (2). Refer to TM 5-6115-585-12.

WARNING

The generator is heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

3. Remove generator (2) from trailer.

2-58. GENERATOR TIEDOWN (CONT)

INSTALLATION

WARNING

The generator is heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- 1. Lift generator skid (2) and position on trailer bed so that holes in generator lineup with mounting holes on trainer.
- **2.** Install eight bolts (3), flat washers (4), holddown blocks (5), lockwashers (6) and seven nuts (7) in generator (5).
- 3. Perform follow-on installation.

Connect main power cable to generator (TM 5-6115-585-12). Connect laundry unit generator for proper direction of rotation (TM 10-3510-220-10). Install tarp assembly (TM 10-3510-220-10).



2-59. FIRE EXTINGUISHER

This task covers:

a. Inspection b. Removal

c. Installation

INITIAL SETUP.

Tools

Materials/Parts

General mechanic's tool kit

Fire extinguisher A-A393 (58536)

Equipment Condition:

TM 10-3510-220-10, Tarp assembly removed.

INSPECTION

Inspect fire extinguisher (7) for damage, missing rubber pads (8) missing pin (1), and not being full y charged.

REMOVAL

- 1. Unhook spring-loaded clamp (5) and remove fire extinguisher (7) from mounting bracket (6).
- 2. Remove ty rap and nozzle holder (9).
- **3.** Remove four capscrews (2), lockwashers (3), and mounting bracket (6) from frame assembly (4).

INSTALLATION

- **1.** Position mounting bracket (6) and secure with four lockwashers (3), and capscrews (2).
- **2.** Using ty rap install nozzle holder (9).
- **3.** Install fire extinguisher (7) on mounting bracket (6) and secure with spring-loaded clamp (5).
- 4. Perform follow-on installation.



2-60. TOOLBOX

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Tools

Equipment Condition:

General mechanic's tool kit

TM 10-3510-220-10, Tarp assembly removed.

Materials/Parts

Toolbox 6-2-2518 (81337)

REMOVAL

- Open lid of box (1) and remove two bolts (2), lockwashers (5), and flat washers (4) and nuts (6).
- 2. Remove two bolts (9), lockwashers (8) and washers (7).
- **3.** Remove box (1) and four spacers (3).

INSTALLATION

- **1.** Position four spacers (3) and box (1) beneath dryer and open lid of box.
- **2.** Install two bolts (2), flat washers (4), lockwashers (5), and nuts (6).
- **3.** Install two bolts (9), lockwashers (8) and washers (7).
- 4. Perform follow-on installation.



2-61. M13 DECONTAMINATION APPARATUS BRACKET

This task covers:

a. Removal

b. Installation

INITIAL SETUP:

Tools

Equipment Condition:

General mechanic's tool kit

TM 10-3510-220-10, Tarp assembly removed.

Materials/Parts

M13 bracket assembly 6-1-8793 (81337)

REMOVAL

- 1. Remove seven nuts (7), lockwashers (6), washers (5), washers (3) and bolts (2) from bracket and tray assembly (1).
- 2. Remove bracket and tray assembly (1) from trailer (4).

INSTALLATION

- 1. Place bracket and tray assembly (1) on trailer (4).
- 2. Install seven bolts (2), washers (3), washers (5), lockwashers (6) and nuts (7).
- 3. Perform follow-on installation.



Section VII. ADMINISTRATIVE STORAGE

2-62. ADMINISTRATIVE STORAGE

a. Placement of equipment in administrative storage should be for short periods of time when a shortage of maintenance effort exists. Items should be in mission readiness within 24 hours or within the time factors as determined by the directing authority. During the storage period appropriate maintenance records will be kept.

b. Before placing equipment in administrative storage, current preventive maintenance checks and services (PMCS) should be completed, shortcomings and deficiencies should be corrected, and all modification work orders (MWO's) should be applied.

c. Storage site selection. Inside storage is preferred for items selected for administrative storage. If inside storage is not available, trucks, vans, convex containers and other containers may be used.

CHAPTER 3

DIRECT SUPPORT MAINTENANCE PROCEDURES

Section I. GENERAL

3-1. INTRODUCTION. This chapter contains some important information that you need to know about the direct support maintenance requirements of the unit. This information includes but is not limited to:

Maintenance of the various systems and subsystems which the unit comprises.

Troubleshooting of the various systems and subsystems.

Refer to TM 5-6115-585-12 for troubleshooting and maintenance of the generator.

3-2. SCOPE. This chapter contains maintenance instructions for removing, installing, and repairing the laundry unit at the direct support maintenance level. Maintenance personnel should become familiar with the information in this section.

3-3. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

3-4. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. Refer to appendix B (Maintenance Allocation Chart) for a list of special tools, TMDE, and support equipment and TM 10-3510-220-24P, Repair Parts and Special Tools list.

3-5. REPAIR PARTS. Repair parts are listed and illustrated in the repair parts and special tools list, TM 10-3510-220-24P, covering direct support maintenance repair parts for this equipment.

Section II. DIRECT SUPPORT TROUBLESHOOTING PROCEDURES

3-6. SCOPE.

a. The symptom index lists the common malfunctions which you may find during the operation of maintenance of the laundry unit or its components. Use the symptom index for quick access to the troubleshooting procedures in table 3-1.

b. This manual cannot list all possible malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed (except where malfunction and cause are obvious) or is not corrected by listed corrective actions, notify your supervisor.

c. For troubleshooting the generator and its components, refer to TM 5-6115-585-12.

Table 3-1. Symptom Index

	Symptom			Tr	oubles Pr	shooting ocedure Page
	WASHER ASSEMBLY					
1. 2. 3. 4. 5. 6.	Washer will not operate		• • • •	• • • • • •	• • • • •	3-3 3-3 3-4 3-4 3-5 3-5
7. 8. 9. 10. 11.	EXTRACTOR ASSEMBLYExtractorfailstostart <th>• • •</th> <th>• • •</th> <th>• • •</th> <th>• • •</th> <th>3-6 3-6 3-6 3-7 3-8</th>	• • •	• • •	• • •	• • •	3-6 3-6 3-6 3-7 3-8
12. 13. 14. 15. 16.	DRYER ASSEMBLYDryer cylinder does not operateDryer exhaust fan does not operateDrying takes too longDryer's heated air is not drawn through tumblerDryer fails to operate for selected time	• • •	• • •	• • •		3-8 3-9 3-10 3-10 3-10

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

WASHER ASSEMBLY

1. WASHER WILL NOT OPERATE.

Step 1. Check for broken wiring. Use a multimeter and test wiring for continuity.

- a. If wire is broken, replace defective wire. (Refer to paragraph 3-7).
- b. If wire is not damaged, proceed to next step.
- Step 2. Check for cracked, worn, or broken motor parts, damaged shaft, threads, and bent shaft.
 - a. If motor is damaged, repair or replace drive motor. (Refer to paragraph 3-13.)
 - b. If motor is not damaged, proceed to next step.
- Step 3. Check for motor overload.

If motor overloads, repair or replace bearing as required. (Refer to paragraph 3-13.)

2. WASHER WILL NOT FILL WITH COLD/HOT WATER (AUTOMATIC MODE).

Step 1. Check air trap and level sensing tubing for clogs.

- a. Replace or clean components.
- b. If air trap system and level sensing tubing is all right proceed to next step.
- Step 2. Check for defective level switch.

a. Replace level switch.

b. If level switch is functioning properly proceed to next step.

Step 3. Replace 1CR4 with known good relay.

If relay is good proceed to next step.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

3. WASHER CYLINDER WILL NOT ROTATE (AUTOMATIC MODE).

Step 1. Replace 1CR4 with known good relay.

If relay is good proceed to next step.

- Step 2. If ON light is not lit check switch #3 on program timer.
 - a. Adjust or replace switch.
 - b. If switch is functioning properly proceed to next step.
- Step 3. Check for broken drive belt.
 - a. Replace drive belt.
 - b. If problem persists, proceed to next step.
- Step 4. Check for defective drive motor. Check for rough, noisy, overheating, or overload condition.
 - a. Replace drive motor.
 - b. If problem persists, proceed to next step.
- Step 5. Check for defective gear reduction unit. Check for rough or high-friction turning of shafts.
 - a. Repair or replace gear reduction unit. Refer problem to direct support maintenance.
 - b. If problem persists, notify your supervisor.

4. WASHER CYLINDER ROTATES ONLY IN ONE DIRECTION. IF CYLINDER ROTATES AND STOPS, ROTATES AND STOPS, ETC.

Step 1. Check reversing contractors in control console.

- a. Repair or replace reversing contactor.
- b. If contactor is serviceable proceed to next step.
- Step 2. Check switches on reversing timer.
 - a. Repair or replace switches.
 - b. If problem persists, notify your supervisor.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

5. WASHER CYLINDER ROTATES, BUT AUTOMATIC FUNCTIONS DO NOT OPERATE.

Step 1. Check for power on #3 switch in program timer.

- a. Adjust or replace switch.
- b. If switch is functional, but not getting power, proceed to next step.

Step 2. Check functioning of auto/manual switch.

- a. Replace switch.
- b. If switch is serviceable proceed to next step.

Step 3. Replace ICR4 relay with known good relay.

If problem persists, notify your supervisor.

6. WASHER ROTATES IN ONE DIRECTION ONLY WITHOUT STOPPING.

Step 1. Check that the reversing timer motor is turning.

- a. Replace timer motor.
- b. If motor is turning proceed to next step.

Step 2. Check operation of reversing timer switches.

- a. Adjust or replace switches.
- b. If switches are serviceable, proceed to next step.
- Step 3. Check functioning of reversing contactor.
 - a. Repair or replace reversing contactor.
 - b. If problem persists, notify your supervisor.

Table 3-1. Direct Support Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

EXTRACTOR ASSEMBLY

7. EXTRACTOR FAILS TO START

- Step 1. Check for improper function and/or improper adjustment of lid-closed microswitch. With power off, measure continuity of lid-closed microswitch as lid is opened and closed.
 - a. If switch does not work, replace or adjust lid-safety switch. (Refer to paragraph 3-17).
 - b. If switch works properly, proceed to next step.
- Step 2. Check for improper function and sticking of lid lock solenoid and/or cam.

If solenoid or cam is defective, replace lid lock solenoid and tighten or replace cam. (Refer to paragraph 3-17.)

- b. If solenoid and cam are serviceable, proceed to next step.
- Step 3. Check for improper operation of timer. Observe red needle movement from set time toward zero on the scale.
 - a. If red needle fails to move, replace timer. (Refer to paragraph 3-17.)
 - b. If problem persists, notify your supervisor.

8. EXTRACTOR STARTS BUT BASKET FAILS TO TURN.

Check to see if basket is not fully engaged and is slipping on the hex drive ball. Rotate basket by hand and replace hex drive ball if play is excessive. (Refer to paragraph 3-15.) Basket should not rotate more than one-eighth turn on hex drive ball.

- a. If basket rotates too far on hex drive ball, replace hex drive ball and cap. (Refer to paragraph 3-15.)
- b. If basket still rotates too far, replace basket. (Refer to paragraph 3-15.)

9. EXTRACTOR WILL NOT OPERATE PROPERLY.

Step 1. Check for cracked, worn, or broken motor parts and bent shaft.

- a. If motor is damaged, replace extractor motor as required. (Refer to paragraph 2-31.)
- b. If motor is not damaged, proceed to next step.
MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

9. EXTRACTOR WILL NOT OPERATE PROPERLY. (Cont)

Step 2. Check drive unit for damage and oil leak(s).

- a. If drive unit is damaged or leaking, replace drive unit. (Refer to paragraph 3-16.)
- b. If drive unit is not damaged, proceed to next step.

Step 3. Check for broken wiring. Use a multimeter and test wiring for continuity.

- a. If wiring is broken, repair or replace defective wiring. (Refer to paragraph 3-7.)
- b. If wiring is not damaged, proceed to next step.

Step 4. Check for low generator output voltage or disconnected phase line.

- a. If voltage is low, adjust generator output or reconnect phase line. (Refer to TM 5-6115-585 -12.)
- b. If problem persists, notify your supervisor.

10. EXTRACTOR RUNS TOO LONG.

- Step 1. Check for improper function of timer. Observe movement of red pointer during spin cycle.
 - a. If pointer fails to move, replace timer. (Refer to paragraph 3-17.)
 - b. If pointer moves normally, proceed to next step.
- Step 2. Check for improper brake adjustment and worn lining. The basket should come to a complete stop within 30 seconds after the motor shuts off. Replace brake lining if it is worn to within 1/8 inch (3.2 mm) of the shoe.

If lining is worn or extractor takes too long to stop, adjust brake or replace brakeshoe. (Refer to paragraph 2-29.)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

11. EXTRACTOR WILL NOT OPERATE AFTER POWER SURGE.

Check time delay relay (1) in extractor control box. substitute a known good relay for the suspected relay.

a. If relay is defective, replace relay:



- (1) Tag and disconnect wires (2) from relay terminals.
- (2) Remove relay mounting bolt (3).
- (3) Remove time delay relay (1)
- (4) Install new time delay relay (1)
- (5) install relay mounting bolt (3).
- (6) Connect wires (2) to their respective terminals and remove tags.
- b. If problem persists, notify your supervisor.

DRYER ASSEMBLY

12. DRYER CYLINDER DOES NOT OPERATE.

- Step 1. Check for defective starter circuit wiring. Use a multimeter and test wiring for continuity.
 - a. If wiring is damaged, repair or replace defective wiring. (Refer to paragraph 3-7 and 3-25.)
 - b. If wiring is not damaged, proceed to next step.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

12. DRYER CYLINDER DOES NOT OPERATE. (CONT)

- Step 2. Check for damaged drive chain.
 - a. If drive chain is damaged, replace drive chain. Notify your supervisor.
 - b. If problem persists, notify your supervisor.
- Step 3. Check for cracked, worn, or broken cylinder drive motor parts, damaged shaft threads, and bent shaft.
 - a. If motor is damaged, replace motor. (Refer to paragraph 3-26.)
 - b. If motor is not damaged, proceed to next step.
- Step 4. Check for defective reduction gearbox. Check for rough rotation of shafts and sprockets.
 - a. If gearbox is damaged, replace gearbox. Notify your supervisor.
 - b. If gearbox is not defective, proceed to next step.
- Step 5. Check for defective drive motor coupling. Check for looseness, broken parts, and slipping.
 - a. If drive coupling is defective, replace drive motor coupling. Notify your supervisor.
 - b. If drive coupling is not defective, proceed to next step.
- Step 6. Check for proper adjustment of door switch.

If door switch is set right, proceed to next step.

13. DRYER EXHAUST FAN DOES NOT OPERATE.

Step 1. Check for broken starter wiring. Use a multimeter and test wiring for continuity.

- a. If starter wiring is defective, repair or replace defective wiring. (Refer to paragraphs 3-7 and 3-25.)
- b. If starter wiring is not defective, proceed to next step.

Step 2. Check for cracked, broken, or worn exhaust motor parts and bent shaft..

- a. If exhaust motor is damaged, replace motor. (Refer to paragraph 3-26.)
- b. If problem persists, notify your supervisor.

Table 3-1. Direct Support Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

14. DRYING TAKES TOO LONG.

- Step 1. Check for reversed motor direction.
 - a. If motor direction is reversed, disconnect and reverse any two phase lines.
 - b. If motor direction is correct, proceed to next step.
- Step 2. Check for cracked, worn, or broken exhaust motor parts.
 - a. If motor is damaged, replace motor. (refer to paragraph 3-26.)
 - b. If problem persists, notify your supervisor.

15. DRYER'S HEATED AIR IS NOT DRAWN THROUGH TUMBLER.

- Step 1. Check for defective dryer blower impeller. Check for loose coupling and for missing or damaged parts.
 - a. If impeller is defective replace impeller. (refer to paragraph 3-26.)
 - b. If impeller is not defective, proceed to next step.
- Step 2. Check for defective dryer exhaust motor. With power off, remove exhaust motor connection box cover. With power on, measure 120 VAC between each leg and ground.
 - a. If exhaust motor voltage is present and motor does not turn, replace exhaust motor. (Refer to paragraph 3-26.)
 - b. If problem persists, notify your supervisor.

16. DRYER FAILS TO OPERATE FOR SELECTED TIME.

Check for defective dryer timer. Compare operating time of dryer to a known standard.

If timer is defective, replace dryer timer. (Refer to paragraph 3-24.)

Section III. DIRECT SUPPORT MAINTENANCE PROCEDURES

3-7. GENERAL MAINTENANCE PROCEDURES.

a. <u>Electric Motor and Generator Repair.</u> Repair electric motors and generators in accordance with TM 5-764.

b. Wiring.

(1) <u>General</u>. Wires on laundry units, whether run individually or in a harness, are color coded. Be sure to tag all wires upon disconnection to ensure proper installation.

(2) <u>Inspection.</u> Inspect insulation for cracks or frayed material. Pay particular attention to wires passing through holes in the frame or over rough metal edges. If wire is cut or broken and the break in the wire is exposed, the wire must be repaired as in step (4) below. If the break in the wire is in a harness, conduit, or inaccessible area, replace the wire as in step (5) below.

WARNING

High voltage is present on this equipment. Do not perform continuity (resistance) tests with power on. Death or serious injury may result.

- (3) <u>Testing for broken wires</u>. Set multimeter to low ohms scale and zero the meter. Isolate the wire to be tested by disconnecting at least one end. Connect the multimeter probes to each end of the wire. A measurement of zero ohms indicates continuity (wire is unbroken). A measurement of high resistance (infinity) indicates no continuity (wire is defective). If the wire is defective, repair or replace it in accordance with step (5) or (6) below.
- (4) <u>Testing for grounded wires.</u> Set multimeter to high ohms scale and zero the meter. Isolate the wire to be tested by disconnecting both ends. Connect the multimeter probe to frame ground, and connect remaining probe to either end of the wire. A measurement of high resistance (infinity) indicates no continuity (wire is not grounded). A measurement of low resistance indicates a grounded wire (wire is defective). If the wire is defective, replace it in accordance with step (6) below.
- (5) <u>Repair.</u> Use electrical repair kit or shave the insulation on the wire to expose 1/2 inch (1.27 cm) of bare wire at both ends of the break. Twist the bare wire together and solder the connection. Cover the break with electrical friction tape. Be sure to leave no bare wire exposed. If a terminal lug breaks off a wire, replace it with an exact duplicate.
- (6) <u>Replacement.</u> Replace a wire by disconnecting it from the component or components to which it is attached and remove the wire. Connect a new wire to the component or components. If a broken wire is part of a harness, disconnect the wire at each end and tape the loose ends with electrical tape. Install a new wire and attach it to the outside of the wiring harness.
- c. Bearings. For cleaning and inspection of anti friction bearings, refer to TM 9-214.

3-7. GENERAL MAINTENANCE PROCEDURES. (CONT)

d. Cleaning and Inspection of Mechanical Parts.

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use 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. The /lash point is 100- 138°F (38 - 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

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.).

- (1) Clean metal parts in dry cleaning solvent (Item 10, App C). Thoroughly dry the parts with compressed air, observing all safety precautions.
- (2) Clean fibrous or rubber parts with warm, soapy water and dry with compressed air.
- (3) Inspect metal parts for cracks, breaks, bends, worn edges, and rough bearing surfaces. Replace the part if damage alters the part or its function.

e. General Repair.

- (1) Repair the laundry unit by replacing or repairing a defective component and/or by making needed adjustments.
- (2) Clean and lubricate the laundry unit as needed to return the item to operating condition.
- (3) Remove and replace only those items necessary to make repairs. After replacing the defective components, ensure that the laundry operates correctly by making a visual inspection. Refer to TM 10-3510-220-10.

3-8. TARP COVER ASSEMBLY

This task covers:

Repair

INITIAL SETUP

Tools

Sewing Equipment

Personnel Required

Two

<u>Materials/Parts</u> Thread (Item 14, App C) Glue (Item 22, App C) Grommets MIL-G-1649-1 (81349) Rope, 5/16 dia 6-1-9962-8 (81337) Canvas body 6-1-9962 (81337)

REPAIR

NOTE

Refer to FM 10-16, General Repair of Tents, Canvas, and Webbing, for repair procedures of canvas and webbing items.

- 1. Remove torn or damaged areas of canvas.
- 2. Patch, sew, glue, or otherwise repair damaged areas.
- 3. Replace damaged or missing ropes, grommets, and Velcro fasteners.
- 4. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed from trailer.

3-9. LOWER SOUND DEADENING TRACK

This task covers:

Repair

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Heli-arc welding equipment

Materials/Parts

Primer (Item 19, App C)

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed. Paragraph 2-17, Sound deadening panels removed. Paragraph 2-18, Lower track removed from trailer.

General Safety Instructions

Wear protective glasses while grinding, welding, and cleaning lower track.

REPAIR

- 1. Repair track by replacing damaged or missing straps (1), footman loops (2), and screws (3).
- 2. Straighten track if bent. Weld track if broken or cracked.
- 3. File rough or burred edges and remove corrosion as necessary.
- 4. Clean unpainted areas and apply one coat of primer to all metal surfaces.
- 5. Perform follow-on installation.

Install lower track to trailer (para. 2-18). Install sound deadening panels (para. 2-17). Install tarp assembly (TM 10-3510-220-10).



3-10. WASHER ASSEMBLY

This task covers:

a. Removal	b. Disassembly	c. Repair	d. Assembly	e. Installation
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INITIAL SETUP

Tools

General mechanic's tool kit

Personnel Required

Two

Materials/Parts

Washer assembly (81337) 6-1-9944

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed. Paragraph 2-22, washer drain assembly removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Components of the washer assembly are heavy and may be awkward to bundle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Disconnect electrical power from the washer and the control panel.

REMOVAL (Cont)

- **2** . The level switch tube and all conduits except incoming power are part of the control console; disconnect them from the locations to which they are connected; motor at top junction box and door lock at cover, disconnect level switch tube at air trap. Incoming power wires are disconnected inside console at terminal strip and conduit disconnected from rear of control console.
- **3.** Remove drivebelt cover (1) by turning the four quarter-turn wing head studs (5) counterclockwise and pulling out on studs, then slide drivebelt cover to rear to remove.



REMOVAL (Cont)

- **4.** Remove four screws (8) from cover (7) and remove cover. Tag and disconnect wires (6) from motor junction box (3).
- **5.** Remove nut (9) and electrical cable (2) from junction box (3). Remove electrical cable from washer assembly (4).



REMOVAL (Cont)

- **6.** Remove four screws (10) and toothed washers (11) from door lock cover (12) and remove door lock cover (12).
- 7. Tag and disconnect wires (14) from door and unlock switch (13).

8. Remove 16 bolts (16) flatwashers (18), lockwashers (17) and seven nuts (15) from trailer assembly.

WARNING

Components of the washer assembly are heavy and may be awk ward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

9. Remove washer assembly (4) from trailer assembly.



DISASSEMBLY

1. Remove drive motor.

NOTE

To remove belt cover and electrical connections refer to Removal, Steps 3 & 4.

- a. Loosen four adjusting nuts (24) on the sides of motor mounting bracket (25) and release tension on drive belt (27).
- b. Remove four bolts (26), lockwashers (23), and nuts (22).
- c. Remove drive belt (27) from sheave and bushing assembly (20) and remove motor (21) from mounting bracket (25).
- d. Remove three bolts (28), lockwashers (29), sheave and bushing assembly (20) and key (19) from motor (21).
- e. Remove drive belt (27) from gear reducer sheave.
- 2. Remove washer cylinder.

CAUTION

Support drum head (34) while removing drawbands (32).

- a. Remove the two socket head cap screws (30) and nuts (31) from the drawband (32) around the front of the machine while supporting the drum front head (34) and door assemblies.
- b. Remove drawbands (32) and gasket (33).
- c. Remove drum front head (34).





DISASSEMBLY (Cont)

- d. Remove two setscrews (46) and remove two set collars (45) from basket shaft
 (49) where it passes through the gear reducer (36) (one on front, one on back).
- e. Loosen the three set screws (48) in the quill (47) of the gear reducer (36) on both sides.
- f. Slide washer cylinder (35) forward until clear of gear reducer and seal assembly (located on rear of washer drum).
- **3.** Remove gear reducer.

WARNING

Components of the washer assembly are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

a. Remove three bolts (42), lockwashers (43), and insert in jacking holes tighten bolts to remove sheave and bushing assembly (44), remove key (37) from gear reducer (36).

NOTE

Use shims as required.

b. Support gear reducer (36) and remove four bolts (38), lockwashers (39), flatwashers (40) attaching gear reducer mounting plate to "Z" bars and remove gear reducer (36) with mounting plate attached.



DISASSEMBLY

- 4. Remove door.
 - a. Loosen set screw (50) in set collar (51) on hinge pin (52) of door and remove set collar (51).
 - b. Slip hinge pin (52) out of hinge (55) and remove door (56).
 - c. Remove four hex head cap screws (53) and washers (54) holding hinge (55) to machine front.
 - d. Remove screw (58) and nut (57) and remove drawband (59).
 - e. Remove door gasket (60).
 - f. Remove 18 acorn nuts (61) and 36 washers (62) holding door glass retaining ring (63) and remove retaining ring (63).
 - g. Lift out door glass (65) and gaskets (64) and (66).



DISASSEMBLY (Cont)

4. Remove shaft seal.

- a. Remove washer cylinder, see paragraph 2.
- b. Remove six nuts (71) and washers (72) holding seal carrier (68) to back of drum (67) (between gear reducer and drum).
- c. Using pointed tool, separate seal carrier (68) from drum (67).
- d. Clean silicone sealant from back of drum (67) and seal carrier (68).
- e. Remove old seals (69) from seal carrier (68) and clean seal carrier.





REPAIR

Repair of the washer assembly restores the unit to normal operating condition by replacing the defective component and making needed adjustments. Remove and replace only those items necessary to make repair. After replacing the defective component, ensure that the washer operates correctly by making a visual inspection or by performing an operational check.

ASSEMBLY

- **1.** Assemble door.
 - a. Position gasket (64) and (66) and door glass (65) in place.

ASSEMBLY (Cont)

- e. Position retaining ring (63) in place and secure with eighteen acorn nuts (61) and 36 washers (62).
- f. Position door gasket (60) in place and install drawband (59) over door gasket (60) and secure with screw (58) and nut (57).
- g. Position hinge (55) in place and install four hex head cap screws (53) and washers (54) securing hinge (55) to door frame.
- h. position door (56) in place and slide hinge pin (52) thru hinge (55) and door (56).
- i. Install set collar (51) on hinge pin (52) and tighten setscrew (50).



ASSEMBLY (Cont)

WARNING

Components of the washer assembly are heavy and may be awk ward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- **2.** Install shaft seal.
 - a. Press in new seals (69) into seal carrier
 (68) and lubricate with petrolatum, item
 8, appendix C.
 - b. Apply silicone sealant around shaft openings on back side of drum.
 - c. Loosely install washers (72) and nuts (71) on studs on back of drum. Do not tighten.
 - d. Gently slide basket shaft through seals (69) and gear reducer (70).
 - e. Tighten nuts holding seal carrier assembly (68).
 - f. Align keyway in basket shaft with keyway in gear reducer and install key (41).
 - g. Reinstall drum front and drawbands. (See Assembly, paragraph 1).
 - h. Install collars on each side of gear reducer. (See Assembly, paragraph 3).
 - i. Fill washer and check for water leaks.



ASSEMBLY (Cont)

3. Install gear reducer unit and washer cylinder.

WARNING

Components of the washer assembly are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- a. Position gear reducer (36) with mounting plate in place on rear on washer unit and align with seal assembly. Install bolt (38), lockwasher (39) and washer (40), do not tighten bolt (38) at this time.
- b. Slide washer cylinder basket shaft through seal assembly and gear reducer (36).
- c. Seat drawband gaskets (33) in drawband sections (32) and using socket head cap screws (30) and nuts (31) loosely attach drawband to lip at front of drum with gasket in front of lip.
- d. Place drum front (34) in lower section of drawband (32) in front of gasket (33) and using two screwdrivers snap under upper section.
- e. Evenly tighten drawband screws (30) while tapping drawbands from top and bottom center to sides with a plastic faced mallet.

NOTE

Provide shims as necessary to provide even tightening of drawband.

- f. Adjust washer cylinder (35) position by moving gear reducer (36) in slots on mounting bracket.
- g. Set clearance between drum front and washer cylinder at 3/8" to 1/2" and tighten bolt (38).
- h. Install key (41) in basket shaft (49) at gear reducer (36).
- i. Instal set collars (45) and (47) on both sides of gear reducer (36) and tighten set screws (46) and (48).
- j. Install key (37), sheave and bushing assembly (44) and secure with lockwashers (43) and bolts (42).



ASSEMBLY (Cont)

- 4. Install drive motor.
 - Install key (19), sheave and bushing a. assembly (20), two lockwashers (29), and bolts (28) on motor (21).
 - b. Position motor (21) on adjusting tray (25) and install four bolts (26), lockwashers (23), and nuts (22).
 - Install drive belt (27) on sheave and c. bushing assembly (20).
 - Adjust drivebelt. (Refer to para 2-23). d.

INSTALLATION

WARNING

Components of the washer assembly are heavy and may be awk ward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

Position washer assembly (4) on trailer assembly 1. and install 16 bolts (16) lockwashers (17) and flatwashers (18) and seven bolts (15).





INSTALLATION (Cont)

- 2. Connect wires (14) on door interlock safety switch (13). Remove tags.
- **3.** Install cover (12) using four screws (10) and washers (11).



INSTALLATION (Cont)

- 4. Install electrical cable (2) and nut (9) on junction box (3).
- 5. Connect wires (6) and remove tags. Install cover (7) and four screws (8) on junction box (3).



INSTALLATION (Cont)

6. Install drivebelt cover (1) on washer assembly (4) and secure with four thumbscrews (5).



- 7. Ensure electrical connections are properly connected.
- **8.** Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

3-11. WASHER CONTROLLER ASSEMBLY

This task covers:

a. Test b. Service c. Adjustment d. Repair e. Removal f. Installation

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed.

General Safety Instructions

WARNING

<u>Materials/Parts</u>

Tiedown strap (Item 11, App C), Cleaning solvent (Item 10, App C) Wiping cloth (Item 13, App C) High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

TEST

NOTE

A standardized test has not been developed for the military design of the washer.

- **1.** Test operate all cycles and functions, both manual and automatic, of washer. Refer to TM 10-3510-220-10.
- 2. Observe each function for proper and complete action.
- **3.** Check for incorrect timing or water temperature.
- 4. Refer to malfunctions in troubleshooting section, (para 3-6) and perform corrective action.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

5. Use a multimeter and check each wire run from end to end. Check continuity of wound coils on each relay or magnetic switch. Replace defective wires or coils. Refer to Figure 2, Appendix E.

TEST (Cont)

- 6. Inspect each component and wire for burns or breaks and replace defective items.
- **7.** Check continuity of timer, timer motor, reversing motor, and transformer. Replace defective items.
- 8. Inspect terminal strips for corrosion, loose screws, frayed wires, and insulation breaks.

SERVICE

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).

- 1. Clean interior of controller with compressed air.
- 2. Wipe exterior of controller with a damp cloth (Item 3, App C).

WARNING

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use 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. The flash point is 100- 138°F (38 - 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

- 3. Clean metal parts with drycleaning solvent (Item 10, App C).
- 4. Clean electrical parts with dry compressed air and a clean, dry cloth.

ADJUSTMENT

Adjust switch in timer (2) using multimeter set to resistance scale. Connect multimeter to common (4) and normally open (5) contacts. Without a card (3) in timer (2) adjust Allen screw (6) until meter shows open, put card (3) in timer (2) such that uncut portion of card (3) covers the trip of the switch being adjusted, if meter shows circuit with card in the switch is properly adjusted, if not, turn adjusting screw (6) until circuit is established. Then remove card (3) and recheck. Repeat check on other tracks as required.

REPAIR

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Inspect for cracks, breaks, dents, or other damage.

WARNING

Welding procedures specified may cause injury if safety precautions are not followed. Wear protective clothing and eyewear while performing welding operations. Serious injury could result.

- **2.** Weld minor cracks or breaks, straighten dents, and replace missing or damaged hardware.
- **3.** Replace controller box (1) if damaged beyond repair.

NOTE

A record of wire removal is needed so that installation hookup is exactly duplicated. Refer to Figure 2, Appendix E for wiring connections.



- **4.** The following items (magnetic controls and switches) can be removed individually and replaced for repair of the controller. Replace only those items that have been tested and found defective.
 - **a.** Reversing controller (10). Refer to Figure 2, Appendix E and repair by replacement.
 - **b.** Transformer (1). Refer to Figure 2, Appendix E and repair by replacement.
 - c. Barrier block (2). Refer to Figure 2, Appendix E and repair by replacement.
 - d. Relays (3). Refer to Figure 2, Appendix E and repair by replacement.
 - e. Socket (4). Refer to Figure 2, Appendix E and repair by replacement.
 - **f.** Relays 4 PDT (5). Refer to Figure 2, Appendix E and repair by replacement.
 - g. Reversing timer (16). Refer to Figure 2, Appendix E and repair by replacement.
 - h. Time out timer (7). Refer to Figure 2, Appendix E and repair by replacement.
 - i. Fuse block (8). Refer to Figure 2, Appendix E and repair by replacement.
 - j. Reuse contactor (9).
 - **k.** Water level switches (11).



- **1.** Remove setscrew (4) and repair by replacing knob (15).
- 2. Remove four screws (2) and washers (3) securing window (6) to panel (1). Repair by replacing window (6).



REMOVAL

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Remove twelve screws (1) and remove top panel (2) from controller (3).

NOTE

A record of wire removal is needed so that installation hookup is exactly duplicated. Refer to Figure 2, Appendix E.

- **2.** Locate wires coming from door lock, motor, and incoming power conduits on inside of controller (3). Tag and disconnect each wire individually.
- **3.** Cut nylon ties as needed.
- **4.** Remove three locknuts (4) from conduit fittings on inside of controller (3). Remove conduit, fittings, and wires from controller.
- **5.** Tag and remove hoses (5).
- **6.** Disconnect level tube at air trap.
- 7. Remove four locknuts (8), eight washers (7), from controller (3) and stand (6).
- 8. Remove controller (3) from stand (6).

INSTALLATION

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- 1. Position controller (3) on stand (6). Install eight washers (7), and four locknuts (8).
- **2.** Install wires and fittings of four conduits through holes of controller (3). Install three locknuts (4) on conduit fittings.
- **3.** Connect each wire to its proper connector and remove tags. Tie wire bundles with wire ties (Item 11, App C) as needed.
- 4. Install hoses (5) and remove tags.
- 5. Connect level tube at air trap.
- 6. Position top panel (2) on controller (3) and install twelve screws (1).
- 7. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

INSTALLATION (Cont)



3-39

3-12. WASHER CONTROLLER STAND

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Tools

General mechanic's tool kit

TM 10-3510-220-10, Tarp assembly removed. Paragraph 2-28, Pre-extraction bin removed. Paragraph 3-11, Washer controller removed. Paragraph 2-26, Air compressor removed. Paragraph 3-14, Power distribution panel removed.

General Safety Instructions

Equipment Condition

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

- 1. Remove seven bolts (2), flatwashers (3), flatwashers (4), lockwashers (5) and nuts (6).
- **2.** Remove controller stand (1) from trailer.

INSTALLATION

- 1. Install controller stand (1) on trailer.
- 2. Install seven bolts (2), flatwashers (3), six flatwashers (4), seven lockwashers (5) and six nuts (6).
- **3.** Perform follow-on installation.

Install power distribution panel (para 3-14). Install air compressor (para 2-26). Install washer controller (para 3-11). Install pre-extraction bin (para 2-28). Install tarp assembly (TM 10-3510-220-10)

3-12. WASHER CONTROLLER STAND (CONT)

INSTALLATION (Cont)



3-41

3-13. WASHER DRIVE MOTOR

This task covers:

a. Removal b. Disassembly	c. Repair	d. Assembly	e. Installation
INITIAL SETUP	Equipment Condition		
Tools	TM 10-3510-220-10, Tarp assembly removed. Paragraph 3-10, Drivebelt removed.		
General mechanic's tool kit			
Lifting device (forklift or crane)	General Safety Instructions		
Personnel Reauired	WARNING		
Тwo	Components of the drive unit are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.		

REMOVAL

Refer to paragraph 3-10 and remove drive motor and gear reduction unit in accordance with DISASSEMBLY procedures, steps 1 and 2.

DISASSEMBLY

Disassemble drive motor.

- **a.** Remove three screws (1) and fan cover (2) from motor housing (9).
- **b.** Loosen setscrew (3) and remove fan (4) from rotor shaft (8).
- **c.** Match mark end plate (6) and front plate (13) and motor housing (9) for assembly purposes.
- d. Remove slinger (12) from rotor shaft (8).
- e. Remove four nuts (11), bolts (5) and remove front plate (13) and end plate (6).
- f. Remove rotor (8) from motor housing (9).
- g. Remove bearings (7) and (10) from rotor shaft (8). Replace bearings if rough or excessively worn.
3-13. WASHER DRIVE MOTOR (CONT)

DISASSEMBLY (Cont)



3-43

3-13. WASHER DRIVE MOTOR (CONT)

REPAIR

- **1.** Refer to TM 5-764 for inspection and repair of the electric motors.
- **2.** Inspect the drive unit gearbox by rotating input shaft and listening/feeling for grinding, binding, or rough movement.

WARNING

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use 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. The flash point is 100 - 138°F (38 - 59°C). Ifyou become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

3. Repair drive unit gearbox by cleaning the exterior with solvent (Item 10, App C) or by replacing gearbox.

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).

- 4. Use compressed air and blow dry the gear case.
- **5.** Inspect the drain plug threads and bearing cap threads for damage and broken studs. Repair threads as needed. Installation of threaded insert is permissible.

ASSEMBLY

- 1. Assemble drive motor.
 - a. Install bearings (7) and (10) on rotor shaft (8).
 - b. Install rotor (8) in motor housing (9).
 - c. Position front plate (13) and end plate (6) on motor housing (9) and install four bolts (5) and nuts (11).
 - d. Install slinger (12) on rotor shaft (8).

3-13. WASHER DRIVE MOTOR (CONT)

ASSEMBLY (Cont)

- e. Install fan (4) on rotor shaft (8) and tighten screw (3).
- f. Install fan cover (2) on motor housing (9) and secure with three screws (1).

WARNING

Components of this washer assembly are heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

NOTE

Gear reduction unit should be installed before the drive motor is installed.

- 1. Refer to paragraph 3-10 and install gear a reduction unit in accordance with ASSEMBLY, step 3.
- **2.** Refer to paragraph 3-10 and install drive motor in accordance with ASSEMBLY, step 4.
- **3.** Refer to paragraph 3-10 INSTALLATION, steps 6 and 7 and connect electrical wires to motor.
- **4.** Perform follow-on installation.

Install drivebelt guard (para 3-10). Install tarp assembly (TM 10-3510-220-10).



3-14. POWER DISTRIBUTION PANEL

This task covers:

b. Installation a. Removal

INITIAL SETUP

Tools

General mechanic's tool kit

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed.

General Safety Instructions

WARNING

Tags, identification (Item 12, App C)

Materials/Parts

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

WARNING

Higah voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- 1. Disconnect main power cable (1) from receptacle (2).
- 2. Loosen four screws (3) and remove four panels (4) from panel box assembly (5).
- **3.** Remove five screws (6) and circuit breaker cover (7).



REMOVAL (Cont)

- **4.** Loosen three screws (8). Tag and disconnect three wires (9) from circuit breaker (10). Remove circuit breaker (10).
- **5.** Repeat step 4 for remaining circuit breakers.



TM 10-3510-220-24

3-14. POWER DISTRIBUTION PANEL (CONT)



REMOVAL (Cont)

NOTE

Tag wires before removal.

- **6.** Tag three ground wires (34) and three ground wires (37). Remove six set screws (35) from bus bar (36) and six ground wires from panel box (5).
- 7. Loosen set screws (32). Tag and remove neutral wires (31) from connector strips (33).
- **8.** Loosen large hex head set screw on connection block (26). Tag and remove neutral wire (27) from connector blocks.

CAUTION

Carefully remove cable assemblies from panel box to prevent stripping insulation from the wires.

- **9.** Remove nut (12) and cable assembly (11) from panel box (5). Tag and remove associated wires (38) from panel box (5).
- **10.** Remove nut (15) and cable assembly (13) from panel box (5). Tag and remove associated wires (14) from panel box (5).
- **11.** Remove chase nipple (28) and conduit assembly (29) from panel box (5). Tag and remove associated wires (30) from panel box (5).
- **12.** Remove four screws (24) and four flatwashers (25). Remove connector box assembly (16) including gasket (17). Tag and remove associated wires (20) from panel box (5). Remove rubber grommet (18) from panel box (5).
- **13.** Remove four screws (23) and four flatwashers (22) to separate connector (21) from connector box (19). Feed wires (20) through connector box (19).

REMOVAL (Cont)

14. Remove two locknuts (41) and flatwashers (40) from screw (39). Remove panel box.

INSTALLATION

1. Position panel box (5) and install two flat washers (40) and locknuts (41) on screw (39).





INSTALLATION (Cont)

- **2.** Feed wires (20) from connector (21) through connector box (19). Attach connector (21) to connector box (19) using four screws (23) and four lockwashers (22).
- **3.** Insert rubber grommet (18) into hole on side of panel box (5). Feed wire (20) through gasket (17) and rubber grommet (18) into panel box (5). Apply vulcanized adhesive to both sides of gasket (17) item 23, appendix C, and position connector box (19) and gasket (17) and secure from inside panel box with four screws (24) and four flatwashers (25).
- 4. Reconnect wires (20) to panel box (5). Remove tags.
- **5.** Feed wires (30) into panel box (5). Install conduit assembly (29) and chase nipple (28) on panel box.
- 6. Reconnect wires (30) to panel box (5). Remove tags.
- 7. Feed wires (14) into panel box (5). Install cable assembly (13) and nut (15) on panel box.
- 8. Reconnect wires (14) to panel box (5). Remove tags.
- 9. Feed wires (38) into panel box (5). Install cable assembly (11) and nut (12) on panel box (5).
- 10. Reconnect wires (38) to panel box (5). Remove tags.
- **11.** Install neutral wire (27) on connector block (26) and tighten large hex head set screw. Remove tag.
- 12. Install neutral wire (31) on connector strip (33) and tighten set screws (32). Remove tags.
- **13.** Install three ground wires (34) and three ground wires (37) on bus bar (36) and secure with six set screws (35).

INSTALLATION (Cont)

- **14.** Install circuit breaker (10) and three wires (9). Tighten three screws (8). Remove tags.
- **15.** Repeat step 14 for remaining circuit breakers.
- **16.** Install circuit breaker cover (7) and four screws (6).



INSTALLATION (Cont)

17. Install four panels (4) on panel box assembly (5) and tighten four screws (3).



- **18.** Connect main power cable (1) to receptacle (2).
- **19.** Check for proper operation of all equipment and check for proper motor rotation (TM 10-3510-220-10).
- 20. Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10).

3-14.1 EXTRACTOR PIPING.

This task covers:

Repair

INITIAL SETUP

Materials/Parts

Solder (App C, Item 9) Flux (App C, Item 24) Antiseize Compound (App C, Item 25)

<u>Tools</u>

General Mechanics Tool Kit (App B, Item 1) Automotive Vehicle Shop Equipment (App B, Item 7)

Equipment Condition

Extractor piping removed (Para 2-33.1)

General Safety Instructions

WARNING

Chemical Agent Resistance Coating (CARC) produces toxic fumes when flame is applied. It is necessary to remove CARC in area where flame is to be applied.

REPAIR

(1) Copper fitting(s).

Remove damaged sections of copper tubing on extractor piping (1) using torch. Refer to TM 10-3510-220-24P for breakdown of copper tubing.

(2) Threaded coupling.

Remove damaged coupling (2). Before installing coupling, apply antiseize compound to male threads.

(3) Install extractor piping (1) (Para 2-33.1).



3-15. EXTRACTOR ASSEMBLY

This task covers:

a. Removal

b. Repair

c. Installation

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Materials/Parts

Lubricating oil (Item 17, App C) Lubricating oil, multipurpose (Item 18, App C) Turbine oil (Item 20, App C) Equipment Condition

TM 5-6115-585-12, Generator off.
TM 10-3510-220-10, Tarp assembly and platform removed.
Paragraph 2-28, Pre-extraction bin removed.
TM 10-3510-220-10, Left beam assembly removed.
TM 10-3510-220-10, Strut assembly removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Components of the extractor are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

REMOVAL

WARNING

Components of the extractor are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

1. Disconnect drain hose (1) for quick-disconnect fitting (2).



REMOVAL (Cont)

- 2. Loosen two screws (8) and remove cover (7) from electrical box (3).
- **3.** Tag and disconnect three wires (6) from circuit breaker (4) and one wire from ground screw (10). Remove nut (9), conduit, and wires from electrical box (3).
- **4.** Remove five capscrews (11), flat washers (12) and (14), lockwashers (15) and nuts (16) from small legs (13).
- 5. Remove four capscrews (17), flat washers (18) and (20), lockwashers (21), and nuts (22) from large legs (19).
- **6.** Use lifting strap and hoist and remove the extractor from the laundry trailer.



REPAIR

1. Remove and replace brakeshoe.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- **a.** Place extractor circuit breaker on electrical panel in OFF position.
- **b.** Open extractor lid (23).

WARNING

Components of the extractor are heavy and may be awkward to bundle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- c. Remove extractor basket (24).
- d. Remove two brass bolts (28), flat washers (29), and gaskets (30). Remove capscrew (25), lockwasher (26), and drain clamp (27). Remove curb (31) from base (32).
- e. Measure thinnest part of brake shoe (33) lining. Replace brakeshoe if lining thickness measures less than 1/8 inch (3.2 mm).



REPAIR (Cont)

- e. Remove two snaprings (34) from brake arm pivot (38) and anchor stud (39).
- **g.** Use brake arm (37) and manually push in brake solenoid plunger (36), releasing brake pressure.
- **h.** Pry off brakeshoe (33) at pivot points and clean the pivot points with a clean cloth.
- **i.** Install new brakeshoe (33) with lubrication points (35) aligned in the direction shown and install snaprings (34).
- **j.** Lubricate the brakeshoe pivot points. Refer to LO 10-3510-220-12.
- **k.** Adjust brakeshoe. Refer to paragraph 2-29.
- Install curb (31) on base (32).
 Secure with capscrew (25), lockwasher (26), drain clamp (27), two brass bolts (28), flat washers (29), and gaskets (30).



REPAIR (Cont)

- **m.** Lift basket (24) and gently install in extractor. Turn basket slightly until it engages with hex drive.
- **n.** Connect extractor drain line. Refer to TM 10-3510-220-10.
- **o.** Lower extractor lid (23) to operating position.
- 2. Remove and replace brake solenoid.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- **a.** Set extractor circuit breaker on the electrical power panel to the OFF position.
- **b.** Open extractor lid (23).
- c. Disconnect electrical drain. Refer to TM 10-3510-220-10.

WARNING

Components of the extractor assembly are heavy and may be awk ward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- d. Manually lift out basket (24).
- e. Refer to REPAIR, step 1d, and remove curb from base.



REPAIR (Cont)

- **f.** Remove two hex head screws (40), washers (41), and solenoid shield (42).
- g. Tag and disconnect wires (50) on brake solenoid (49).
- **h.** Straighten and remove cotter pin (44), three spacers (45), pin (47) and connector link (46) from brake solenoid (49).
- **i.** With a multimeter on the low ohms scale, measure across the brake solenoid (49). Multimeter should indicate approximately 12.5 ohms.
- **j.** Remove four screws (43) and brake solenoid (49).
- **k.** Install new brake solenoid (49) and secure with four screws (43).
- **I.** Install connector link (46) on new brake solenoid (49), and secure with three spacers (45), pin (47) and cotter pin (44). Bend end of cotter pin.
- m. Connect wires (50) to brake solenoid (49). Remove tags.
- **n.** Install solenoid shield (42) and secure with two allen-head screws (40) and washers (41).
- **o.** Refer to paragraph 2-29 and adjust the brake.
- **p.** Refer to REPAIR, step 1,1 and install curb on base.



REPAIR (Cont)

WARNING

Components of the extractor are heavy and may be awk ward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

NOTE

Lubricate gyro ball (52) in accordance with LO 10-3510-220-12.

- **q.** Refer to REPAIR, step lm, and install basket in extractor.
- r. Connect extractor drain line. Refer to TM 10-3510-220-10.
- s. Lower extractor lid to operating position.
- **3.** Test extractor. Refer to TM 10-3510-220-10.
- 4. Remove and replace gyro ball cap (51).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- **a.** Set extractor circuit breaker on electrical power panel to the OFF position.
- **b.** Open extractor lid. Remove basket.



REPAIR (Cont)

- **c.** Remove gyro ball cap (51) from the top of gyro ball (52).
- **d.** Install new gyro ball cap (51) on gyro ball (52) and tap into place with plastic mallet. If the ball cap does not easily fit in place, soak it in warm water for a few minutes.
- e. Lubricate gyro ball (52). Refer to LO 10-3510-220-12.
- f. Install extractor basket and lower lid to operating position. (Refer to step 2q above.)
- 5. Remove and replace gyro ball (52).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- **a.** Remove ball cap (51) from the top of gyro ball (52). (Refer to step 4 above.)
- **b.** Use a block of wood and a hammer and remove gyro ball (52) from the shaft. Place the block under the gyro ball and drive the ball from the shaft.



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REPAIR (Cont)

- c. Use a block of wood and drive new gyro ball (52) into position.
- d. Install ball cap (51) on top of gyro ball (52). (Refer to step 4d above.)
- e. Lubricate gyro ball (52). Refer to LO 10-3510-220-12.
- **f.** Refer to REPAIR, step 1m, and install basket in extractor. Lower lid to operating position.



INSTALLATION

WARNING

Components of the extractor are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- **1.** Use lifting straps and hoist and place extractor in position on trailer.
- 2. Install four capscrews (17), flat washers (18) and (20), lockwashers (21), and nuts (22) in large legs (19).
- **3.** Install five capscrews (11), flat washers (12) and (14), lockwashers (15), and nuts (16) in small legs (13).
- **4.** Install conduit and three wires (6) in electrical box (3). Secure with nuts (9).
- 5. Connect three wires (6) to circuit breaker (4) and one green wire to ground screw (10). Remove tags.
- **6.** Install cover (7) and two screws (8) on electrical box (3).
- 7. Refer to REMOVAL, step 1, and connect drain hose to quick disconnect fitting.
- **8.** Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10). Install strut assembly (TM 10-3510-220-10). Install left beam assembly (TM 10-3510-220-10). Install pre-extraction bin (para 2-28).



3-15. EXTRACTOR DRIVE UNIT

This task covers:

a. Removal	b. Adjustment	c. Installation
INITIAL SETUP	Equipment	Condition
<u>Tools</u>	TM 10-3510	-220-10, Tarp assembly removed.
General mechanic's tool kit	General Safe	ety Instructions
Materials/Parts		<u>WARNING</u>
Center unit assembly 2400-200 Ball bearing grease (Item 19, Aj Turbine oil (Item 20, App C)	(81337) High voltage pp C) not perform Death or serv	e is present on this equipment. Do maintenance with power on. ious injury may result.

REMOVAL

NOTE

The center unit is an assembly thut contains the turbine drive unit and its associated mounting trunnions.

NOTE

The center unit is replaced as a unit and returned to the manufacturer or depot for repair or exchange.

1. Remove center unit.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

a. Place extractor circuit breaker on electrical panel to OFF position.

3-16. EXTRACTOR DRIVE UNIT

REMOVAL (Cont)

b. Disconnect extractor drain line. Refer to TM 10-3510-220-10.

WARNING

Components of the extractor are heavy and may be awk ward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- c. Refer to paragraph 3-15, REPAIR, step 1, and remove extractor basket.
- **d.** Refer to paragraph 3-15, REPAIR, step 1, and remove curb from base.
- e. Tag and disconnect two brake solenoid electrical wires (1) from brake solenoid (2).
- f. Refer to paragraph 2-29 and disconnect drivebelt.

NOTE

Matchmark the positions of base (13), trunnion ring (8), and drive unit (7) in relation to each other as an aid for assembly.

NOTE

If flatwashers are found under trunnion caps, mark location and number as an aid for assembly.



REMOVAL (Cont)

g. Remove four bolts (3) and lockwashers (4) securing two trunnion caps (5) over trunnion rubbers (6). Remove the trunnion caps.

WARNING

The center unit is heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- **h.** Lift out the drive unit (7) from trunnion ring (8). Set drive unit on blocks to protect brake solenoid and brake components from damage.
- **i.** Remove six bolts (9) and lockwashers (10) securing three bumper caps (11) over bumper rubbers (12). Remove three bumper caps and lift out trunnion ring (8).

NOTE

Replace trunnion rubbers ano/or bumper rubbers at this time if they show signs of wear.

2. Remove drive unit.

The center unit is replaced as a complete assembly, with the drive unit intact. The only maintenance available on the drive unit is the runner gap adjustment.

ADJUSTMENT

NOTE

Adjustments consists of increasing or decreasing the runner gap of the drive unit.

1. Refer to REMOVAL above and remove drive unit (7).

ADJUSTMENT (Cont)

CAUTION

Do not rest drive unit on brake components or the brake solenoid.

- **2.** Lay drive unit (7) on its side with fill plug (14) up to prevent oil from spilling.
- **3.** Remove fill plug (14).

CAUTION

If oil is spilled, drain old oil and replace in accordance with LO 10-3510-220-12. Too much or too little oil will result in damage to drive unit.

NOTE

If 1000 hours have elapsed since last oil change, refer to LO-10-3510-220-12 and change oil.

4. Use feeler gage through fill hole and measure runner gap (15). Runner gap should be 0.090 inch (2.29 mm).

CAUTION

A runner gap that is too wide or too narrow will damage drive unit and motor.

- 5. Adjust runner gap.
 - **a.** Remove rubber shaft seal (16).
 - **b.** Loosen four setscrews (17) on shaft nut (18).
 - **c.** Loosen or tighten shaft nut (18). Tighten nut to widen the runner gap. Loosen nut and strike shaft with plastic hammer to make gap smaller.
 - d. Tighten four setscrews (17) on shaft nut (18).
 - e. Measure the runner gap to see if it changed. Adjust again if necessary.
 - f. Install rubber shaft seal (16).
- **6.** Install fill plug (14).

NOTE

If turbine oil was lost during adjustment, refer to LO 10-3510-220-12 for servicing.

ADJUSTMENT (Cont)



INSTALLATION

1. Install center unit in extractor.

NOTE

Refer to matchmarks on base, trunnion ring, and drive unit made instep 1 above forproperpositioning of these parts in relation to each other.

- **a.** Place trunnion ring (8) inside base (13).
- **b.** Place three bumper caps (11) over bumper rubbers (12) with raised lips facing away from the center of the extractor. Secure bumper caps with six lockwashers (10) and bolts (9).

WARNING

The drive unit is heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

c. Place drive unit (7) inside trunnion ring (8).

NOTE

If flat washers were located under trunnion caps, install at this time in the same location.

d. Place two trunnion caps (5) over trunnion rubbers (6) with raised lips facing away from center of the extractor. Secure with four lockwashers (4) and bolts (3).



ADJUSTMENT (Cont)

NOTE

You should be able to pull/push the top of the drive shaft approximately 1/2 inch (12. 7 mm) off center. If movement is less than 1/2 inch (12.7 mm), add a flat washer under the trunnion caps. If movement is more than 1/2 inch (12.7 mm), remove flat washer from under the trunnion caps.

- 2. Lubricate brake mechanism and gyro ball. Refer to LO 10-3510-220-12.
- **3.** Connect three brake solenoid wires (1) to brake solenoid (2). Remove tags.
- 4. Refer to paragraph 3-16 REPAIR, step 1, and install curb on base.

<u>WARNING</u>

Components of the extractor are heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

- 5. Refer to paragraph 3-16 REPAIR, step 1m, and install extractor basket.
- **6.** Connect extractor drain line. Refer to LO 10-3510-220-12.
- 7. Place extractor circuit breaker on electrical panel to ON position.
- **8.** Operate extractor to test. Refer to TM 10-3510-220-10.
- **9.** Perform follow-on installation.

Install tarp assembly (TM 10-3510-220-10.)

3-17. EXTRACTOR CONTROL BOX

This task covers:

a. Adjustment

b. Repair

INITIAL SETUP

Tools

General mechanic's tool kit

Materials/Parts

Lubricating oil (Item 17, App C) Lubricating oil, multipurpose (Item 18, App C) Turbine oil (Item 20, App C)

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed. Paragraph 2-17, Sound deadening panel removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

ADJUSTMENT

1. Adjust lid free fall.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- **a.** Check lid closure. The lid should not fall freely from the full open position. The lid must require downward pressure to close.
- **b.** Set extractor circuit breaker on electrical panel to the OFF position.
- c. Remove twelve screws (1), lockwashers (2), and extractor control panel cover (3) from rear of unit.



3-17. EXTRACTOR CONTROL BOX (CONT)

ADJUSTMENT (Cont)

- d. Adjust lid hinge brake adjusting bolt (4), located on the center of hinge brake (5), for proper lid tension.
- e. Install extractor control panel cover (3), twelve lockwashers (2), and screws (1).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Failure to properly adjust the lid safety switch could result in injury to personnel.

- **2.** Adjust lid safety switch (9).
 - a. Set extractor circuit breaker on electrical panel to the OFF position.
 - b. Remove twelve screws (1), lockwashers (2), and extractor control panel cover (3) from rear of unit.
 - c. Ensure lid (6) is closed.
 - d. Use allen wrench and loosen lid safety cam screw (7).
 - e. Rotate lid safety cam (8) until lid safety switch (9) is pressed.



3-17. EXTRACTOR CONTROL BOX (CONT)

ADJUSTMENT (Cont)

- f. If lid safety switch (9) cannot be pressed, perform the following:
 - (1) Loosen two screws (10) that secure lid safety switch (9).
 - (2) Adjust lid safety switch (9) against lid safety cam (8) until switch is pressed.
 - (3) Tighten two screws (10) securing lid safety switch (9).
 - (4) Repeat steps e and f until safety switch (9) is pressed.
- g. Tighten lid safety cam screw (7).
- h. Install extractor control panel cover (3), twelve lockwashers (2), and screws (1). Set extractor circuit breaker in power panel to the ON position.

WARNING

Keep clear of the extractor basket when checking operation of the lid safety switch.

- i. Open lid and try to start extractor to ensure unit does not operate with lid open. Refer to TM 10-3510-220-10.
- **3.** Adjust solenoid safety switch.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Failure to properly adjust the lid safety switch properly could result in injury to personnel.

a. Set extractor circuit breaker on electrical panel to the OFF position.



3-17. EXTRACTOR CONTROL BOX(CONT)

ADJUSTMENT (Cont)

- b. Remove twelve screws (1), lockwashers (2), and extractor control panel cover (3).
- c. Ensure lid (6) is closed.
- d. Loosen two solenoid screws (11) and slide solenoid safety switch (12) upward. A small amount of adjustment is necessary to prevent sliding the switch upward too far and damaging the lid solenoid.
- e. Tighten safety switch screws (11).

WARNING

High voltage is present on this equipment. Use extreme caution while power is on and control box components are exposed.

- f. Connect power to the extractor.
- g. Start the extractor. Refer to TM 10-3510-220-10.
- h. [f the extractor motor fails to run, repeat steps d thru g above.
- i. Turn off extractor.
- j. Install extractor control panel cover (3), twelve lockwashers (2), and screws (1).



3-17. EXTRACTOR CONTROL BOX(CONT)

ADJUSTMENT (Cont)

4. Adjust lid lock lever.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Set extractor circuit breaker on electrical panel to the OFF position.
- b. Remove twelve screws (1), lockwashers (2), and extractor control panel cover (3).
- c. Loosen locknut (13) on the end of the lid lock lever (14).
- d. Rotate lid lock lever adjusting screw (15) until it is within 1/16 inch (1.58 mm) of the face on the lid lock dam (16). Tighten locknut (13).
- e. Attempt to lift lid. Lid is properly adjusted when gap between lid and curb is no more than 1/2 inch (1 .27 mm) when closed and locked.
- f. Install extractor control panel cover (3), twelve lockwashers (2), and screws (1).

Turn extractor circuit breaker in power panel to ON.


3-17. EXTRACTOR CONTROL BOX (CONT)

REPAIR

1. Remove and replace lid safety switch and/or solenoid safety switch.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Failure to adjust the lid safety switch and/or solenoid safety switch could result in injury to personnel.

- a. Set extractor circuit breaker to the OFF position.
- b. Remove twelve screws (1), lockwashers (2), and extractor control panel cover (3).

NOTE

A record of wire removal is needed so that installation of wires on the replacement switch is exactly duplicated.

- c. Tag and disconnect electrical wires (17) from lid safety switch (19).
- d. Remove two screws (10) and lid safety switch (19).
- e. Install lid safety switch (19) and two screws (10).
- f. Connect wires (17) to lid safety switch (19). Remove tags.
- g. Refer to ADJUSTMENT, step 2, and adjust lid safety switch (19).
- h. Install twelve screws (1), lockwashers (2), and extractor control panel cover (3).



3-17. EXTRACTOR CONTROL BOX (CONT)

REPAIR (Cont)

- i. Set extractor circuit breaker to the ON position.
- 2. Remove and replace timer control.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Set extractor circuit breaker to the OFF position.
- b. Loosen screw (18) on timer (19).
- c. Lift locking clamp (20) to horizontal position.
- d. Slide timer (19) and gasket (21) outward and remove it from its housing.
- e. Insert new timer (19) and gasket (21).
- f. Push locking clamp (20) down to vertical position.
- g. Tighten screw (18).
- h. Set extractor circuit breaker to the ON position.
- **3.** Perform follow-on installation.

Install sound deadening panel (para 2-17). Install tarp assembly (TM 10-3510-220-10).

3-18. WATER HEATER ASSEMBLY

This task covers:

a. Removal b. Installation

INITIAL SETUP

Tools

General mechanic's tool kit

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed and water heater drained. TM 10-3510-220-10, Brace removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

The water heater becomes hot during operation. Burns or bodily injury may result from contact with the water heater and exhaust tube before it cools if safety precautions are not followed.

REMOVAL

- **1.** Unlatch and open cover on circuit box (10).
- 2. Cut and remove wire ties on inside of circuit box (10) as required.
- **3.** Remove two screws (11) and remove limit switch (12) from circuit box (10).

NOTE

A record of wire removal is needed so that installation hookup is exactly duplicated. See Appendix E.

- 4. Tag and disconnect five wires (9) from conduit (8).
- 5. Remove conduit nut (7), conduit (8) and wires (9) from control box (10).
- 6. Disconnect half couplings (1) and (6) and remove water line.
- **7.** Tag and disconnect airlines (3) and (5) from two hose fittings located on the two air actuated ball valve assemblies (2) and (4).

REMOVAL (Cont)



REMOVAL (Cont)

10. Remove eight capscrews (14), lockwashers (15), flat washers (16), and four brackets (17).

WARNING

Components of the water heater are hea and may be awkward to handle. Use correct lifting procedures, lifting device and/or assistance from other personnel avoid injury,

11. Remove water heater (13) from trailer.

INSTALLATION

WARNING

Components of the water heater are heavy and may be awk ward to handle. Use correct lifting devices, and/or assistance from other personnel to avoid injury.

- **1.** Install water heater (13) on trailer bed. Line up holes of heater skid with threaded holes in trailer.
- 2. Install eight capscrews (14), lockwashers (15), flat washers (16), and four brackets (17).
- **3.** Install conduit nut (7), conduit and wires (9) in control box (10).
- 4. Connect five wires (9), and remove tags. See Appendix E.
- 5. Install limit switch (12) in control box (10) and secure with two screws (11).
- **6.** Install new wire ties as needed and bundle wires neatly in circuit box (10).
- 7. Close and latch cover on circuit box (10).
- **8.** Remove tags and connect airlines (3) and (5) to two air actuated ball valve assemblies (2) and (4).
- 9. Position water hose in place and connect half couplings (1) and (6).
- **10.** Perform follow-on installation

Install tarp assembly (TM 10-3510-220-10).



INSTALLATION (Cont)



3-83

This task covers:

a. Test

INITIAL SETUP

b. Disassembly

c. Assembly

Equipment Condition

<u>Tools</u>

General mechanic's tool kit

Materials/Parts

Control box 6-1-9972 (81137)

TM 10-3510-220-10, Tarp and dry clothes bin removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

TEST

WARNING

High voltage is present on this equipment. Do not perform maintenance withpower on. Death or serious injury may result.

- **1.** Set water heater circuit breaker to OFF at distribution panel box.
- **2.** Set power limit switch (1) to OFF and disconnect power cable (2) from circuit box (3).
- **3.** Unlatch and open cover on circuit box (3).
- **4.** Inspect components and wires for burns and breaks and replace defective components or wires.



TEST (Cont)

NOTE

It maybe necessary to remove receptacle (4) from circuit box (3) to contact rear output pins.

5. Use multimeter on low ohms scale and check continuity from the front of receptacle (4) to rear output on each pin. Replace receptacle (DISASSEMBLY, step 1, and ASSEMBLY, step 11) if continuity is not indicated on any pin.



TEST (Cont)

- **6** . Check power limit switch (1) as follows:
 - a. Set power limit switch (1) to OFF.
 - b. Use multimeter on high ohms scale and measure from receptacle (4) to input terminals of the motor contractor (7). Meter should indicate open circuit.
 - c. Set power limit switch (1) to ON.
 - d. Use multimeter on low ohms scale and repeat measurements in step b. above. Meter should indicate contiguity for points connected by same color of wire.
 - e. Replace power limb switch (1) if defective (DISASSEMBLY, steps 2 and 3).
- 7. Check motor contactor (7) as follows:
 - a. Use multimeter on high ohms scale and measure from the three input terminals to the three corresponding output terminals of motor contractor (7). Meter should indicate open circuit.
 - b. Use multimeter on low ohms scale, push up motor contractor solenoid, and repeat measurements instep a. above. Meter should indicate continuity.
 - c. Replace motor contractor (7) if defective (DISASSEMBLY, step 5).



TEST (Cont)

- 8. Check low water relay (8) as follows:
 - a. Tag and disconnect wires from terminals 1 and 2 of low water relay (8).
 - b. Use multimeter on high ohms scale and measure between terminals 1 and 2. Meter should indicate open.
 - c. Measure between terminal 1 aud chassis ground. Meter should indicate open.
 - d. Measure between terminal 2 and chassis ground. Meter should indicate open.
 - e. If meter indicates continuity for step b. thru d. above replace low water relay (8) (DISASSEMBLY, step 4, and ASSEMBLY, step 8).
 - f. Connect wires to terminals 1 and 2 of low water relay (8). Remove tags.
 - g. Tag and disconnect wires from terminal 9 and 10 of low water relay (8).
 - h. Repeat measurement on terminals 9 and 10 in accordance with step b, thru d. above. If continuity is indicated replace low water relay (8) (DISASSEMBLY, step 4, and ASSEMBLY, step 8).
 - i. Connect wires to terminals 9 and 10 of low water relay (8). Remove tags.
 - j. Use a multimeter on low ohms scale and measure between terminals 3 and 4 of low water relay (8). Meter should indicate continuity. If continuity is not indicated, replace low water relay (DISASSEMBLY, step 4, and ASSEMBLY, step 8).
 - k. Turn temperature control to zero. Use multimeter on high ohms scale and measure between terminals 7 and 8 of low water relay (8). Meter should indicate open. If continuity is indicated, replace low water relay (DISASSEMBLY, step 4, and ASSEMBLY, step 8).
- **9.** Check alarm (9) as follows:
 - a. Close fuel shut off valve on the water heater (TM 10-3510-220.10) to simulate a low fuel and loss of flame condition.
 - b. Ensure that alarm (9) sounds and water heater shuts down.
 - c. Open fuel shut off valve and reset water heater (TM 10-3510-220-10).

DISASSEMBLY

- **1.** Remove receptacle (4) from circuit box (3).
 - a. Remove four screws (10) cover plate (11) and gasket (14) with receptacle (4).
 - b. Tag and disconnect five wires (13) connected to the rear of receptacle (4).
 - c. Remove two screws (12) under the receptacle cap and separate receptacle (4) from cover plate(11).



DISASSEMBLY (Cont)

- **2.** Remove power limit switch (1).
 - a. Remove two screws (15).
 - b. Turn power limit switch (1) over.
 - c. Tag all wires (17). Remove six screws (16), wires, and power limit switch (1) from circuit box (3).



DISASSEMBLY (Cont)

3. Tag wires connected to low water relay (8). Remove eight screws (20) securing wire lungs to terminals. Loosen three screws (21) and raise up and remove low water relay from circuit box(3).



4. Tag and disconnect 10 wires at output and input terminals of motor contactor (7). Refer to Appendix E. Remove two bottom screws (23) and washers (22) and loosen top screw. Remove motor contactor from circuit box (3).



DISASSEMBLY (Cont)

5. Remove six screws (25) and remove three contact heaters (24).



- 6. Tag and disconnect two terminal lugs (26). Remove three screws (28) washers (29), nuts (30) and hour meter (27) from front of circuit box (3).
- 7. Tag two wires (32) on buzzer (31), loosen two screws (33), and disconnect wires. Remove cap (34) and buzzer from front of circuit box (3).



DISASSEMBLY (Cont)

- 8. Tag and disconnect all wires from panel-mounted components.
- 9. Remove six conduit locknuts (35) and conduit fitting (36) from circuit box (3).
- 10. Remove four nuts (40), lockwashers (41), screws (42), and circuit box (3) from skid assembly (43).
- 11. Remove four nuts (37), spacers (39), and mounting panel (38).

ASSEMBLY

- 1. Install mounting panel (38), four spacers (39), and nuts (37) in circuit box (3).
- 2. Install circuit box (3), four screws (42), lockwashers (41) and nuts (40) on skid assembly (43).
- **3.** Install six conduit fittings (36) and conduit locknuts (35) in circuit box (3).
- 4. Connect all wires to panel-mounted components. Remove tags.

ASSEMBLY (Cont)



ASSEMBLY (Cont)

- 5. Install buzzer (31) and cap (34) on circuit box (3) connect and secure two wires (32) with two screws (33).
- **6.** Install hour meter (27) three screws (28), washers (29) and nuts (30) on circuit box (3). Connect two terminal lugs (26) and remove tags.



7. Install contactor heaters (24) and secure with screws (25).



ASSEMBLY (Cont)

- 8. Install motor contactor (7) and three screws (23) and washers (22) on control box. Connect 10 wires at input and output terminals of motor contactor. Remove tags.
- **9.** Install low water relay (8) and tighten three screws (21). Connect wire lugs to terminals with eight screws (20). Remove tags.





ASSEMBLY (Cont)

- 10. Connect wires (17) to power limit switch (1) and secure with six screws (16). Remove tags. Install power limit switch and two screws (15) on circuit box (3). Position gasket (14) and cover plate (19) in place and secure with four screws (18).
- **11.** Install receptacle (4).
 - a. Connect five wires (13) to rear of receptacle (4). Remove tags.
 - b. Insert receptacle (4) inside circuit box (3) and secure with three screws (12) under receptacle cap.
 - c. Install cover plate (11) and gasket (14) and secure with four screws (10).
- **12.** Perform follow-on installation. Install tarp and dry clothes bin assemblies (TM 10-3510-220-10).



3-20. WATER HEATER BLOWER MOTOR ASSEMBLY

This task covers:

a. Disassembly	b. Repair	c. Assembly
INITIAL SETUP	Equipment Cor	ndition
<u>Tools</u> General mechanic's tool kit	TM 10-3510-22 Paragraph 2-38 removed.	0-10, Tarp assembly removed. 3, water heater blower motor
<u>Materials/Parts</u> Blower motor assembly 6-1-6225 (8	<u>General Safety</u> 1137)	Instructions WARNING
	<i>High voltage is not perform ma Death or seriou</i>	present on this equipment. Do intenance with power on. s injury may result.

DISASSEMBLY

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

NOTE

Matchmark cover and motor housing before disassembly for ease in assembly.

1. Remove three screws (1) and cover (2) from housing (3).



3-20. WATER HEATER BLOWER MOTOR ASSEMBLY (CONT)

ASSEMBLY (Cont)

- 2. Loosen two setscrews (4) and remove yoke (5) from shaft (6).
- **3.** Loosen two setscrews (7) and remove squirrel cage (8) and key (9) from shaft (6).
- **4.** Remove four capscrews (10), lockwashers (11), and mounting flange (12).
- **5.** Loosen setscrew (13) and remove impeller (14) from shaft (6).

NOTE

Matchmark endplates and housing before disassembly for ease in assembly.

- **6.** Remove four screws (15) and end plate (16) from shaft (6).
- 7. Remove end plate (17) from shaft (6).
- 8. Remove armature (18) from housing (3).
- **9.** Remove shims (19) and bearings (20) from armature (18).
- **10.** Inspect for broken or cracked motor, bent shaft, burned armature, bent fins, damaged mounting plate, and damaged wiring. If any of these conditions exist, replace motor.
- **11.** Replace bearings if they are rough or excessively worn.

REPAIR

Repair of the motor blower assembly consists of replacing damaged and/or defective components.



3-20. WATER HEATER BLOWER MOTOR ASSEMBLY (CONT)

ASSEMBLY

NOTE

Align matchmarks during assembly.

- **1.** Install bearings (20) and shims (19) on aramature (18).
- **2.** Install armature (18) in housing (3).
- **3.** Install end plate (17) on shaft (6).
- 4. Install end plate (16) on shaft (6) and install four screws (15).
- 5. Install impeller (14) on shaft (6) and tighten setscrew (13).
- 6. Install mounting flange (12), four lockwashers (11), and four capscrews (10).
- 7. Install key (9) and squirrel cage (8) on shaft (6) and tighten two setscrew (7).
- **8.** Install yoke (5) on shaft (6) and tighten two setscrews (4).

NOTE

Align matchmarks during assembly.

- **9.** Install cover (2) and four screws (1) on housing (3).
- **10.** Perform follow-on installation. Install tarp assembly (TM 10-3510-220-10). Install water heater blower motor (para 2-38).



3-21. WATER HEATER UV SCANNER AND FLAME SAFEGUARD ASSEMBLY

b. Service

This task covers:

a. Test

c. Replace

INITIAL SETUP

Tools

General mechanic's tool kit

Materials/Parts

Flame controller UVM2 (72144) Wiping cloth, (Item *3*, App C)

Equipment Condition

TM 10-3510-220-10, Tarp assembly removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

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.

TEST

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

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.

- 1. Prepare water heater for operation (TM 10-3510-220-10).
- **2.** Turn on fuel and power.
- Wait approximately 20 seconds. If audible alarm sounds, go to step 10. If blower motor does not come on and ignition does not occur, go to next step.

3-21. WATER HEATER UV SCANNER AND FLAME SAFEGUARD ASSEMBLY

TEST (Cont)

4. Open water heater control box lid (1) and check motor contractors (2). If contractors are tripped, reset contractors and check for normal operation. If contractors continue to trip, test motor contactor operation (step 5). If contractors are not tripped, go to step 6.

CAUTION

Ensure that power is off before making continuity check. Damage to test equipment could result.

- **5.** Use a multimeter and check continuity from input terminals to output terminals on motor contactor solenoid (3). Meter should indicate open circuit at each set of terminals. push up on motor contactor solenoid. Meter should indicate continuity at each set of terminals.
- **6.** Loosen screw (4) and remove cover (5) on flame safeguard control.

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.

WARNING

Use extreme caution when performing the following test with power ON.

- Set load limit switches to ON and check for 120 V ac at test points (6) and (7) with multimeter. If voltage is not normal, test load limit switch (step 9). If voltage is normal, go to next g step.
- 8. Turn off load limit switch and remove two screws (8) and flame safeguard control circuit card (9).



3-21. WATER HEATER UVSCANNERAND FLAME SAFEGUARD ASSEMBLY

TEST (Cont)

9. Turn on load limit switch and check for 120 V ac on terminals (23) and (24) of base terminal board (10). If voltage is not normal, disconnect power source and replace load limit switch (para 3-20, DISASSEMBLY, step 2). If voltage at terminals 2 and 7 is normal, install flame safeguard control circuit card (9) and two screws (8).

NOTE

If the buzzer sounds, an ignition failure is indicated.

NOTE

Unit maintenance has determined that ignition takes place momentarily but system shuts down immediately after ignition.

10. With multimeter set for dc operation, set load limit switch to ON and press reset pushbutton (11) and check voltage at test points (15) and (16). If voltage is not 5 to 6 V dc, replace UV scanner.

NOTE

Unit maintenance has determined that ignition does not occur after pressing reset pushbutton but buzzer sounds.

11. With multimeter set for ac operation, set load limit switch to ON and check for 120 V ac at test points (12) and (13) after pressing reset pushbutton (11). If voltage is zero, replace flame safeguard control circuit card (9).





NOTE

Callouts (23) and (24) are actually terminals 2 and 7 respectively.

3-21. WATER HEATER UV SCANNER AND FLAME SAFEGUARD ASSEMBLY (CONT)

SERVICE

- **1.** Disconnect UV scanner (19) at burner head assembly (20) and clean scanner lens with a clean dry cloth (Item 3, App c).
- 2. Connect UV scanner (19) to burner head assembly.

REPLACE

- **1.** Loosen two screws (8) and flame safeguard control circuit card (9).
- 2. Tag and disconnect two wires (17) and (18) from terminals S1 and S2 on base terminal board (10).
- **3.** Disconnect UV scanner (19) at burner head assembly (20) and remove conduit nut (21). Pull UV scanner and wires from conduit (22).
- **4.** Install UV scanner (19) with wires in conduit (22) and secure with conduit nut (21). Install UV scanner on burner head assembly (20).
- **5.** Connect wires (17) and (18) to terminals S1 and S2 on base terminal board (10). Remove tags.
- **6.** Install flame safeguard control circuit card (9) and secure with two screws (8).
- 7. Perform follow-on installation. Install tarp assembly (TM 10-3510-220-10).



3-22. WATER HEATER OPERATING LIMIT AND HIGH-LIMIT CONTROLS

This task covers:

a. Replace

b. Adjustment

INITIAL SETUP	Equipment Condition
<u>Tools</u>	TM 10-3510-220-10, Tarp assembly removed.
General mechanic's tool kit	General Safety Instructions
	WARNING
<u>Materials/Parts</u> Operating/high limit relay 6-1-8121	High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.
(81137) Thread sealer compound	WARNING
(Item 5, App C)	Ensure water heater is cold before servicing the high-limit temperature control. The water vessel becomes hot during operation and burns or bodily injury may result from contact with the water heater before it cools. Allow water heater to cool before servicing the high- limit temperature control.

REPLACE

- **1.** Remove cap (1), retainer (2), and cover plate (3) from high-limit control (4).
- **2.** Tag and disconnect two wires (5).
- **3.** Loosen conduit nut (6) on each end of conduit (7) and slide nuts toward center of conduit.
- 4. Open inspection plate (8) and pull wires until wires do not extend beyond end of conduit (7).

3-22. WATER HEATER OPERATING LIMIT AND HIGH-LIMIT CONTROLS

REPLACE (Cont)

- 5. Push conduit (7) to the right while turning high-limit control (4) counterclockwise until control is clear of manifold. Remove limit control from manifold by continuing to turn counterclockwise.
- **6.** Remove nut (9) and remove raintight connect (10).

NOTE

Before installing the replacement high-limit control (4), coat threads with thread sealer compound (Item 5, App C).

- Install raintight connector (10) and nut (9) in high-limit control (4).
- 8. Install high-limit control (4) in manifold and turn clockwise. On last turn insert end of conduit (7) into control housing and push conduit into housing.
- **9.** Install conduit nuts (6) on raintight connectors (10).
- **10.** Pull two wires (5) out of end of conduit (7). Connect wires and remove tags.
- **11.** Close inspection plate (8).
- **12.** Install cover plate (3) on high-limit control (4) and install retainer (2) and cap (1).



3-22. WATER HEATER OPERATING LIMIT AND HIGH-LIMIT CONTROLS (CONT)

REPLACE (Cont)

- **13.** Loosen setscrew (11) and remove control knob (12) from operating control (13).
- **14.** Remove nut (14) and cover plate (15).
- 15. Tag and disconnect two wires (16). Remove nut (17) from end of conduit.
- 16. Remove screw (18), inspection plate (19), and wires (20) from operating control (13).
- 17. Push lower wire (20) down in conduit.
- **18.** Remove nut (21) and turn conduit assembly at elbow (22) to the left until conduit (23) is free of operating control (13).
- **19.** Remove operating control (13) by turning counterclockwise.

NOTE

Before installing the replacement operating limit control, coat the threads with pipe joint compound (Item 5, App C).

20. Install new operating control (13) by turning clockwise. Align hole in housing with conduit (23).



3-22. WATER HEATER OPERATING LIMIT AND HIGH-LIMIT CONTROLS (CONT)

REPLACE (Cont)

- **21.** Turn conduit assembly at elbow (22) until conduit (23) fits inside operating control (13).
- **22.** Connect nut (21) to elbow (22).
- **23.** Match wire colors and connect wires (20).
- **24.** Push wires (20) into operating control housing (13) and install inspection plate (19) with screw (18).
- **25.** Install conduit nut (17) on end of conduit.
- **26.** Connect two wires (16) to operating control (13). Remove tags.
- **27.** Place cover plate (15) over operating control (13) and install nut (14).
- **28.** Install control knob (12) on control shaft on operating control (13) and tighten setscrew (11).

ADJUSTMENT

Turn knob from 0 to 250 degrees and check pointer calibration. Adjust position by loosening setscrew and moving knob to correct position. Tighten setscrew.

Perform follow-on installation. Install tarp assembly (TM 10-3510-220-10).





3-23. DRYER TUMBLER ASSEMBLY

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Tools

General mechanic's tool kit

Materials/Parts

Plastic wire ties, (Item 11, App *C*) Equpiment Condition

TM 10-3510-220-10, Tarp assembly removed. Paragraph 2-15, Left beam removed. TM 10-3510-220-10, Platform removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Dryer tumbler is heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, andlor assistance from other personnel to avoid injury.

REMOVAL

WARNING

High voltage is present on the equipment. Do not perform maintenance with power on. Death or serious injury may result.

- **1.** Remove three thumb screws (1) and open control panel door (2).
- **2.** Remove three screws (3), lockwashers (4), flatwashers (5) and cover plate (4).
- **3.** Loosen screws (9) on terminal board (8). Tag and disconnect four incoming wires (7) from terminal board.
- **4.** Remove nut (11), washer (10) and remove ground wire (12).
- 5. Cut and remove plastic wire ties as required.



3-23. DRYER TUMBLER ASSEMBLY (CONT)

REMOVAL (Cont)

6. Remove conduit nut (14) from elbow (22) and wires (7). Remove elbow and wires from control box (13).

WARNING

Components of the dryer are heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

 Remove 16 bolts (21), flat washers (20), 16 flatwashers (19), lockwashers (18) and 11 nuts (17) and dryer (16) from trailer (15).

INSTALLATION

WARNING

Components of the dryer are heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

1. Install dryer (16), 16 bolts (21), 15 flat washers (20), 16 flatwashers (19), lockwashers (18), and 11 nuts (17) on trailer (15).

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- 2. Install wires (7) and elbow (22) in control box (13) and install conduit nut (14).
- **3.** Connect wires (7) to terminal board (8) and tighten screws (9). Remove tags.
- 4. Connect ground wire (12) and install washer (10) and nut (11).
- 5. Install plastic wire ties (Item 11, App C) as required.
- 6. Install cover plate (6) and three screws (3), lockwashers (4), and flatwashers (5).
- 7. Close control panel door (2) and tighten three screws (1).
- **8.** Perform follow-on installation. Install platform (TM 10-3510-220-10). Install left beam (para 2-15). Install tarp assembly (TM 10-3510-220-10).



3-24. DRYER ELECTRIC CONTROL ASSEMBLY

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Tools

General mechanic's tool kit

Materials/Parts

Plastic wire ties, (Item 11, App C)

Equipment Condition

TM 10-3510-220-10, Tarp assembly and platform removed.

General Safety Instructions

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

1. Remove thermoswitch control assembly.

WARNING

High voltage is present on the equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Remove electrical power from the dryer.
- b. Remove two screws (1) and cover (2) from electrical connector box (3) on dryer blower motor (4).
- c. Remove plastic wire ties as required.
- d. Tag and disconnect electrical wires (5) from the terminals and connectors in electrical connector box (3).

3-24. DRYER ELECTRIC CONTROL ASSEMBLY (CONT)

REMOVAL (Cont)

- e. Remove thermoswitch conduit nut (6) from electrical connector box (3). Remove conduit (7) and wires (5).
- f. Remove conduit connector (8) and conduit (7) from thermoswitch (9).
- g. Remove thermoswitch (9) from the dryer.
- 2. Remove dryer timer.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

a. Disconnect electrical power from the dryer.



3-24. DRYER ELECTRIC CONTROL ASSEMBLY (CONT)

REMOVAL (Cont)

- b. Remove three thumbscrews and open dryer electrical panel cover (10) and remove plastic wire ties as required.
- c. Tag and disconnect four wires (11) from electrical panel (12).
- d. Remove four nuts (13), lockwashers (14), conduit nut (15), and timer (16) from dryer.
- e. Remove conduit (17) from the base of timer (16).

INSTALLATION

1. Install thermoswitch control assembly.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Install thermoswitch (9) on the dryer.
- b. Route wires (5) through conduit (7) and install the conduit on thermoswitch (9).
- c. Install conduit connector (8) on the electrical connector box (3).
- d. Connect wires (5) to terminals and connectors in electrical connector box (3). Remove tags.
- e. Install plastic wire ties (Item 11, App C) as required.
- f. Position cover (2) on electrical connector box (3) on dryer blower motor (4) and secure with two screws (1).


3-24. DRYER ELECTRICAL CONTROL ASSEMBLY (CONT)

INSTALLATION (Cont)

- **2.** Install dryer timer.
 - a. Route four wires (11) of replacement timer (16) through conduit (17) and to electrical panel (12).
 - b. Secure the conduit (17) on the base of timer (16). Install conduit nut (15) on inside of control box.
 - c. Install timer (16), four nuts (13), and lockwashers (14) on the dryer.
 - d. Connect wires (11) on electrical panel (12). Remove tags.
 - e. Install plastic wire ties (Item 11, App C) as required.
 - f. Close dryer electrical panel cover (10) on electrical panel (12).
- **3.** Perform follow-on installation. Install tarp assembly and platform (TM 10-3510-220-10).



3-25. DRYER UV SCANNER AND FLAME SAFEGUARD ASSEMBLY

This task covers:

a. Test b. Service

c. Repair d. Replace

INITIAL SETUP

<u>Tools</u>

General mechanic's tool kit

Materials/Parts

Flame controller UVM2 (72144) Wiping cloth, (Item *3*, App C)

Equipment Condition

TM 10-3510-220-10, Tarp assembly and platform removed.

General Safety Instructions WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

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.

TEST

WARNING

High voltage is present on the equipment. Do not perform maintenance with power on, Death or serious injury may result.

- 1. Prepare dryer for operation (TM 10-3510-220-10).
- **2.** Turn on fuel and power.
- **3.** Wait approximately 20 seconds. If audible alarm sounds, go to step 10. If blower motor does not come on and ignition does not occur, go to next step.
- **4.** Remove thumbscrews (1) and open dryer control box door (2) and check motor contractors (3). If contractors are tripped, reset contractors and check for normal operation. If contactors continue to trip, test motor contactor operation (step 5). If contractors are not tripped go to (step 6).



3-25. DRYER UVSCANNERAND FLAME SAFEGUARD ASSEMBLY (CONT)

TEST (Cont)

5. Remove three screws (3), lockwashers (4), flatwashers (5) and cover plate (6).

CAUTION

Ensure that power is off before making continuity check. Damage to test equipment could result.

- **6.** Use a multimeter and check continuity from input terminals to output terminals on motor contactor solenoid (7). Meter should indicate open circuit at each set of terminals. Push upon motor contactor solenoid. Meter should indicate continuity at each set of terminals.
- 7. Loosen screw (8) and remove cover (9) on flame safeguard control.

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.

WARNING

Use extreme caution when performing the following test with power ON.

- **8.** Push dryer start switch and check for 120 V ac at test points (12) and (11) with multimeter. If voltage is not normal, test for 120 V ac input to dryer (appendix E, figure 4). If voltage is normal, go to next step.
- **9.** Push dryer stop switch and remove two screws (10) and flame safeguard control circuit card (13).





3-25. DRYER UVSCANNERAND FLAME SAFEGUARD ASSEMBLY(CONT)

TEST (Cont)

10. Push dryer start switch and check for 120 V ac on terminal (22) and (23) of base terminal board (24). If voltage is not normal, check incoming power source (appendix E, figure 4). If voltage at terminals 2 and 7 is normal, install flame safeguard control circuit card (13) and two screws (10).

ΝΟΤΕ

If buzzer sounds, an ignition failure is indicated.

NOTE

Unit maintenance has determined that ignition takes place momentarily but system shuts down immediately after ignition.

11. With multimeter set for dc operation, press dryer start switch, press reset pushbutton (14), and check voltage at test points (16) and (17). If voltage is not 5 to 6 Vdc, replace UV scanner.

NOTE

Unit maintenance has determined that ignition does not occur after pressing reset pushbutton but buzzer sounds.

12. With multimeter set for ac operation, press dryer start switch and check for 120 V ac at test points (19) and (18) after pressing reset pushbutton (15). If voltage is zero, replace flame safeguard control circuit card (13).





NOTE

Callouts (22) and (23) are actually terminals 2 and 7 respectively.

3-25. DRYER UVSCANNERAND FLAME SAFEGUARD ASSEMBLY (CONT)

SERVICE

- **1.** Disconnect UV scanner (25) at burner head assembly (26) and clean scanner lens with a clean dry cloth (Item 3, App C).
- **2.** Connect UV scanner (25) to burner head assembly (26).

REPAIR

Repair the UV scanner and flame safeguard assembly by replacing defective components.

REPLACE

<u>WARNING</u>

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- **1.** Loosen two screws (10) and flame safeguard control circuit card (13).
- **2.** Tag and disconnect two wires (20) and (21) from terminals S1 and S2 on base terminal board (24).
- **3.** Disconnect UV scanner (25) at burner head assembly (26). Pull UV scanner and wires from conduit.
- **4.** Install UV scanner with wires in conduit. Install UV scanner on burner head assembly (26).
- **5.** Connect wires (20) and (21) to terminals S1 and S2 on base terminal board (24).
- **6.** Install flame safeguard control circuit card (13) and secure with two screws (10).



3-26. DRYER UVSCANNERAND FLAME SAFEGUARD ASSEMBLY (CONT)

REPLACE (Cont)

- 7. Install cover (9) on flame safeguard control and tighten screw (8).
- 8. Install cover plate (6) using three screws (3), lockwashers (4) and flatwashers (5).
- 9. Close dryer control box door (1) and tighten three thumb screws (2).
- **10.** Perform follow-on installation. Install tarp assembly and platform (TM 10-3510-220-10).



3-26. DRYER TUMBLER DRIVE MOTOR AND GEARBOX ASSEMBLY

This task covers:

a. Removal	b. Repair	c. Installation
INITIAL SETUP	Equipment Condition	<u>n</u>
Tools	TM 10-3510-220-10,	Tarp assembly removed.
General mechanic's tool kit	<u>General Safety Instr</u>	uctions_
Personnel Required	WA	RNING
Two	High voltage is prese	nt on this equipment. Do
<u>Materials/Parts</u>	not perform maintena Death or serious inju	ance with power on. ry may result.
Tumbler motor 38A545161 (81137) Tumbler gearbox 6-2-2330 (81137)		

REMOVAL

1. Remove drive motor.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- Remove electrical power from the dryer. a.
- Remove two screws (6) and cover (5) for connector box (7). b.

NOTE

A record of wire removal is needed so that installation of wires on the replacement motor is exactly duplicated. See Figure 4, Appendix E.

Tag and disconnect electrical wires (2) from the terminals and connectors. Remove c. conduit nut (3) and conduit (4) from connector box (7).

REMOVAL (Cont)

- d. Remove four bolts (19), flat washers (21), lockwashers (20), and motor (1).
- e. Remove key (22) from motor shaft (8).



REMOVAL (Cont)

2. Remove gear box and trunnion.

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- a. Remove electrical power from the dryer.
- b. Remove three screws (23) and chain guard (24).
- c. Loosen tension nut (12) and release tension on drive chain (16).



REMOVAL (Cont)

- d. Remove four bolts (11) lockwashers (10) and flatwashers (9) on the bottom of gear reduction unit (13).
- e. Remove gear reduction unit (13) by removing chain sprocket (15) from drive chain (16).
- f. Loosen setscrew (17) from chain sprocket (15) and remove chain sprocket and sprocket key (18) from shaft (14).
- g. Remove three capscrews (25), lockwashers (26) and cover (27) from trunnion (34).
- h. Remove lockwire, two capscrews (28), flatwashers (29) and keeper (30).
- i. Remove four capscrews (31), lockwashers (32), flat washers (33) and remove trunnion (34).

REPAIR

- **1.** No repair is authorized on the tumbler motor. Replace the motor, if damaged or defective, with a new motor.
- 2. No repair is authorized on the gear reduction unit. Replace unit if damaged or defective.



INSTALLATION

- 1. Install gearbox and trunnion.
 - a. Position trunnion (34) in place and secure with four flatwashers (33), lockwashers (32) and capscrews (31).
 - b. Position keeper (30) in place and secure with two flatwashers (29) and capscrews (28). Lockwire capscrews (28).
 - c. Position cover (27) in place and secure with three lockwashers (26) and capscrews (25).
 - d. Turn adjusting screw (35) until dryer tumbler rotates freely.
 - e. Install sprocket key (18) and chain sprocket (15) on shaft (14) and tighten setscrew (17) in chain sprocket.
 - f. Place drive chain (16) on chain sprocket (15).
 - g. Install gear reduction unit (13) using four bolts (11), lockwashers (10) and flatwashers (9). Tighten four mounting bolts (11).





INSTALLATION (Cont)

- h. Tighten tension on drive chain (16) and tighten tension nut (12).
- i. Install chain guard (24) and three screws (23).



INSTALLATION (Cont)

2. Install drive motor.

NOTE

Align the key and keyway on the motor shaft with the keyway in the gearbox before installing the replacement motor.

a. Install key (22) on motor shaft (8) and slide motor shaft into gearbox (13).

b. Install motor (17) using four bolts (11), flatwashers (9) and lockwashers (10).



INSTALLATION (Cont)

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

- c. Install conduit (4), conduit nut (3), and electrical wires (2) in connector box (7).
- d. Connect electrical wires (2) to terminals and connectors. Remove tags.
- e. Install cover (5) and two screws (6) on connector box (7).
- **3.** Perform follow-on installation. Install tarp assembly (TM 10-3510-220-10).



3-27. DRYER EXHAUST MOTOR AND FAN ASSEMBLY

This task covers:

a. Removal	b. Repair	c. Installation
INITIAL SETUP	<u>Equipment</u> Cor	ndition
Tools	TM 10-3510-22	0-10, Tarp assembly removed.
General mechanic's tool kit	Paragraph 3-24	, Thermoswitch removed.
Materials/Parts	<u>General Safety</u>	Instructions
Blower motor assembly 6-1-8	392 (81137)	<u>WARNING</u>
	<i>Components of a</i> <i>be awkward to</i> <i>procedures, lifti</i> <i>from other pers</i>	the dryer are heavy and may handle. Use correct lifting ing devices, and/or assistance onnel to avoid injury.
		<u>WARNING</u>

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

REMOVAL

WARNING

Components of the dryer are heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

WARNING

High voltage is present on the equipment. Do not perform maintenance with power on. Death or serious injury may result.

1. Disconnect electrical power from the dryer tumbler.

3-27. DRYER EXHAUST MOTOR AND FAN ASSEMBLY (CONT)

REMOVAL (Cont)

- 2. Remove two screws (1) and cover (2) from connector box (3).
- **3.** Tag and disconnect motor wires (4) from inside connector box (3).
- 4. Remove conduit nut (7) from elbow (8) and remove conduit (9) from connector box (3).
- 5. Remove two screws (5) and connector box (3) from motor (6).
- 6. Remove four screws (10), washers (11), and motor (6) from dryer (12).

REPAIR

Repair of the motor consists of replacing damaged or defective components.

INSTALLATION

- 1. Install motor (6) on dryer (12) and secure with four nuts (10) and washers (11).
- **2.** Install elbow (8), conduit (9), and conduit nut (7) in connector box (3).
- **3.** Install connector box (3) and two screws (5) on motor (6).
- 4. Connect wires (4) inside connector box (3). Remove tags.
- 5. Install cover (2) using two screws (1) on connector box (3).
- 6. Perform follow-on installation. Install tarp assembly (TM 10-3510-220-10). Install thermoswitch paragraph 3-24.

3-27. DRYER EXHAUST MOTOR AND FAN ASSEMBLY (CONT)



This task covers:

a. Disassembly

b. Repair

c. Assembly

INITIAL SETUP

<u>Tools</u>

General Safety Instructions

WARNING

General mechanic's tool kit

Personnel Required

Two

Equipment Condition

TM 10-3510-220-10, Water pump removed from trailer.

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Components of the water pump are heavy and may be awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

DISASSEMBLY

WARNING

High voltage is present on this equipment. Do not perform maintenance with power on. Death or serious injury may result.

WARNING

Components of the water pump are heavy and maybe awkward to handle. Use correct lifting procedures, lifting devices, and/or assistance from other personnel to avoid injury.

CAUTION

Do not pry on flange (6) use a block of wood and hammer to bump off.

- 1. Matchmark bracket and casing before disassembly for ease in assembly.
- **2.** Remove three capscrews (5), flange (6), gasket (9), screw (7), lockwasher (4) and weights (8) and (10).
- **3.** Remove six hex nuts (32) and lockwashers (31) from studs (2) and remove housing (1), gasket (25), and O-ring (20) from motor (11). Discard gasket and O-ring.



REMOVAL (Cont)

4. Remove cap screws (19) and lockwashers (18) and pull volute (24) from intermediate coupling (30) and remove nut (26) and washers (23) and (27).

NOTE

The impeller (22) is screwed onto the shaft with right hand threads.

5. Hold a block of wood on edge of impeller (22) blade and strike sharply with a hammer to break impeller loose. Remove impeller (22) from motor shaft.

CAUTION

Handle seal parts with extreme care. Do not scratch or mar lapped faced.

- 6. Remove impeller shims (28) shaft seal (29), slinger (17) and sleeve (33) from motor shaft.
- 7. Remove screws (12), washers (13), lockwashers (14) and nuts (15) from base (16).

DISASSEMBLY (Cont)

- **8.** Remove drain cock (34) from casing (1).
- **9.** Remove fill plug (3) from casing (1).
- **10.** Matchmark motor housing and end plate for ease in assembly.



DISASSEMBLY (Cont)

- **11.** Remove three screws (1) and fan cover (2) from motor housing (12).
- **12.** Loosen screw (3) and remove external fan (4).
- **13.** Remove four bolts (5) and remove end plate (6).
- **14.** Remove two screws (14), tag and disconnect wiring from reset button (13).
- **15.** Remove two screws (15) and remove rotor (9) from motor housing (12).
- **16.** Remove shim (7), bearings (8) and (11) and bearing retainer (10) from rotor shaft (9). Replace bearings if rough or excessively worn.

REPAIR

Repair of water pump assembly restores the unit to normal operating condition by replacing the defective component and making needed adjustments. Remove and replace only those items necessary to make repair. After replacing the defective component, ensure that the water pump operates correctly by making a visual inspection or by performing an operational check.



ASSEMBLY

- **1.** Align matchmarks for ease in assembly.
- 2. install bearing retainer (10), bearings (8) and (11) and shim (7) on rotor shaft (9).
- **3.** Install rotor (9) in motor housing (12) and secure with two screws (15).
- **4.** Connect wiring as tagged to reset button (13) and secure with two screws (14).
- **5.** Install end plate (6) on motor housing (12) and secure with four bolts (5).
- **6.** Install fan (4) on rotor shaft (9) and tighten screw (3).
- **7.** Install fan cover (2) on motor housing (12) and secure with three screws (1).



ASSEMBLY (Cont)

8. Install fill plug (3) and drain cock (34) in housing (1).



ASSEMBLY (Cont)

- **10.** Install sleeve (33), and slinger (17) on motor shaft.
- **11.** Lightly oil ring and press shaft seal stationary member (29B) into intermediate coupling (30). Install intermediate coupling (30) onto motor shaft.
- **12.** Lightly oil shaft and the inner surface of shaft seal rotating member (29A) and with lapped surface facing intermediate coupling (30), slide shaft seal rotating member (29A) onto shaft until lapped faces of (29A) and (29B) are together.
- **13.** Install impeller shims (28).

NOTE

The impeller (22) is screwed onto the shaft with right hand threads.

- **14.** Install impeller (22) onto motor shaft and install washers (23) and (27) and nut (26). Push volute (24) onto intermediate coupling (30).
- **15.** Install lockwashers (18) and cap screws (19).
- **16.** Install O-ring (20) and gasket (25) to housing (1) and secure housing (1) to motor (11) using six washers (31) and nuts (32).

NOTE

When reassembling flange (6) make sure that hinge section of gasket (9) is at top and that large weight (10) is on pump side of gasket.

- 17. Install weights (8) and (10), lockwasher (4), screw (7), gasket (9), flange (6) and secure with three nuts (5).
- **18.** Position motor (11) on base (16) and install screws (12) washers (13), lockwashers (14) and nuts (15).

Section IV. PREPARATION FOR STORAGE OR SHIPMENT

3-29. PREPARATION FOR STORAGE OR SHIPMENT.

- a. Perform laundry shutdown procedures. Refer to TM 10-3510-220-10, Operator's Manual for the M85-100 Trailer-Mounted Laundry Unit.
- b. Drain all water from unit: washer, water heater, water pump, and air compressor tank.
- c. Disconnect and drain all hoses. Stow hoses in bins.
- d. Disconnect and drain all fuel supply and drain lines. Install protective caps on fuel pump inlet and outlet connections. Stow fuel lines in bins.
- e. If stowage is for more than 5 days, perform the following:
 - (1) Close the burner fuel shut off valves on both the dryer and the water heater.
 - (2) Operate the unit a few minutes after the burner shutoff valve is closed. This allows the blower to purge any vaporized fuel from the burner.
 - (3) Remove the end of fuel feed hose assembly from the supply drum and place it in a quart container filled with OE-30 oil (Item 17, App C). Operate both units until the container is empty and the burner stops.
 - (4) Install protective caps on fuel pump inlet and outlet connections.
- f. Stow water pump and work platform in transport position.

CHAPTER 4

GENERAL SUPPORT MAINTENANCE PROCEDURE

Section I. GENERAL

Para	Title	Page
4-1	Scope	4-1
4-2	Common Tools and Equipment.	4-1
4-3 4-4	Special tools, TMDE, and Support Equipment	4-1 4-1

4-1. SCOPE. This chapter contains maintenance instructions for repairing the laundry unit components at the general support maintenance level.

4-2. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

4-3. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. Refer to appendix B, Maintenance Allocation Chart, for a list of special tools, TMDE, and support equipment and TM 10-3510-220-24P, Repair Parts and Special Tools List.

4-4. REPAIR PARTS. Repair parts are listed and illustrated in the repair parts and special tools list (TM 10-3510-220-24P) covering unit through intermediate general support maintenance for this equipment.

Section II. GENERAL SUPPORT MAINTENANCE PROCEDURES

Para	Title	Page
4-5	Scope	4-1
4-6	General Repair.	4-2
4-7	Welding Certification.	4-4
4-8	Welding Repair	4-4

4-5. SCOPE. This section contains procedures that involve welding, cleaning and painting assemblies to repair the laundry unit. General procedures to be followed in the removal, repair, replacement, or installation of components and testing are also included. When a special procedure is used in the removal, repair, or installation of a component, that procedure will be detailed in the section covering the component. If no special procedure is mentioned, then standard maintenance practices will apply.

4-6. GENERAL REPAIR.

WARNING

High voltage is present on this equipment. Do not perform maintenance with the power on. Death or serious injury may result.

- a. <u>Wiring.</u>
 - (1) <u>General</u>. Most wires on laundry units, whether run individually or in a harness, are marked or numbered. Be sure to tag any unnumbered wire upon disconnection to ensure proper installation.
 - (2) <u>Inspection</u>. Inspect insulation for cracks or frayed material. Pay particular attention to wires passing through holes in the frame or over rough metal edges. If inspection reveals a cut or broken wire, and the break in the wire is exposed, the wire must be repaired(step (4) below). If the break in the wire is in a harness, conduit, or in accessible area, replace the wire (step (5) below).
 - (3) <u>Testing</u>. Test wires for continuity by disconnecting one end from the components to which it is attached, making an open circuit. Touch the test probes of a multimeter to each end of the wire. If the meter shows no indication, the wire is defective and should be repaired or replaced (steps (4) and (5) below).
 - (4) <u>Repair.</u> Shave the insulation on the wire to expose 1/2 inch (1.27 cm) of bare wire at both ends of the break. Twist the bare wire together and solder the connection. Cover the break with electrical friction tape. Be sure to leave no bare wire exposed. If a terminal lug breaks off a wire, replace it with an exact duplicate.
 - (5) <u>Replacement</u>. Replace a wire by disconnecting it from the component or components to which is is attached and remove the wire. Connect a new wire to the component or components. If a broken wire is part of a harness, disconnect the wire at each end and tape the loose ends with electrical tape. Install a new wire and attach it to the outside of the wiring harness.
- b. <u>Cleaning and Inspection of antifriction bearings</u>. Refer to TM 9-214 Inspection, Cure, and Maintenance of Antifriction Bearings.

4-6. GENERAL REPAIR. (CONT)

c. <u>Cleaning and Inspection of Mechanical Parts.</u>

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use 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. The flash point is $100 - 138^{\circ}F$ (38 - $59^{\circ}C$). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

WARNING

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 (2.11 kgcm²) or less, When working with compressed air always use chip guards, eye protection and other personal protective equipment.

- (1) Clean metal parts in drycleaning solvent (item 10, app C). Thoroughly dry the parts with compressed air, observing all safety precautions.
- (2) Fibrous or rubber parts can generally be cleaned with warm, soapy water and dried with compressed air.
- (3) Inspect metal parts for cracks, breaks, bends, worn edges, and rough bearing surfaces. Damage that alters the part or its function is cause for replacement of that part.
- d. General Repair.
 - (1) Repair the laundry unit to normal operating condition by replacing or repairing a defective component and/or needed adjustments.
 - (2) Cleaning and lubrication is sometimes all that is needed to return an item to operating condition.
 - (3) Remove and replace only those items necessary to make repairs. After replacing the defective components, ensure that the laundry operates correctly by making a visual inspection and by performing an operational check. Refer to TM 10-3510-220-10.

4-7. WELDING CERTIFICATION. Before welding any assembly of the laundry unit, the welder must be certified as a welder of ferrous metals, aluminum, and stainless steel. The certification is based on ASME Boiler and Pressure Vessel code, Section IX, and meets or exceeds the intent of the following military specifications and standards:

- a. MIL-W-52574 (ME), Welding, Steel
- b. MIL-STD-1261, Welding Procedures for Construction Steel
- c. MIL-W-45206A, Welding Aluminum

4-8. WELDING REPAIR. Assemblies of the laundry unit that require general support maintenance are made up of two types of material: stainless steel and aluminum. Repair of assemblies containing these types of materials require separate processes and procedures for welding, cleaning, and painting. Use these procedures to make the repairs.

- a. <u>Components Made of Steel</u>. The following procedures provide instructions for repairing the air tank, frame assembly, and other components of the laundry that are made of steel.
 - (1) Before welding, thoroughly clean surface to be welded. Do not use solvent for cleaning.
 - (2) Remove burrs and sharp edges.
 - (3) Weld damaged area in accordance with MIL-W-52574 (ME), Type I.
 - (a) Weld rods shall conform to Federal Specification E-15599, Class SA 233, 3/32inch diameter.
 - (b) Power source can be ac or dc reverse polarity, 30 to 80 amperes.
 - (c) Penetration shall be full, at 14 inches (36 cm)/minute welding rate.
 - (d) Preheat material to be welded to 50°F (10°C).
 - (e) Avoid starts and stops when welding. Chip the slag and restart the weld.
 - (4) Inspect weld joints for conformance with specification details and for surface uniformity.
 - (5) Grind welded seams smooth.
 - (6) Clean exposed metal surfaces.
 - (7) Apply one coat of primer (item 6, app C).
 - (8) Apply finish cost (item 17, app C) in accordance with FED STD 595.
 - (9) Apply finish coat (item 24, app C) to high temperature areas of laundry components (dryer hood) in accordance with FED STD 595.

4-8. WELDING REPAIR. (CONT)

- b. <u>Components Made of Aluminum</u>. The following procedures provide instructions for repairing assemblies of the laundry unit that are made of aluminum. Those assemblies are: hose bin assembly, sound deadening panel assemblies, lower panel track, pre-extraction bin assembly, platform assembly, and controller stand.
 - (1) Before welding, use a stainless steel wire brush and thoroughly clean surface to be welded.
 - (2) Weld damaged area in accordance with MIL-W-45206A (MR), Class B.
 - (a) Use welding rods that conform to AWS AS 10-61T, Federal Specification QQ-R-566A, Class 4043, 3/32-inch diameter.
 - (b) Use ac power source, 25 to 115 amperes.
 - (c) Use argon inert shielding gas at 20 cubic feet per hour (0.57 cubic meters per hour), 3/8-inch (9.5 mm) gas cup, and short arc to ensure good gas coverage.
 - (d) Ensure penetration is to full depth, at 10 inches (25 cm) per minute welding rate.
 - (e) Preheat material to be welded to 50°F (10°C).
 - **(3)** Inspect weld joints for conformance with specification details and for surface uniformity.
 - (4) Grind welded surfaces smooth.
 - (5) Use compound (item 14, app C) and clean exposed metal surfaces.
 - (6) Apply me coat of primer (item 6, app C).
 - (7) Apply finish coat (item 7, app C) in accordance with FED STD 595.

Section III. AUXILIARY EQUIPMENT

4-9. GENERATOR MAINTENANCE. Refer to TM 5-6115-585-34 for maintenance of generator and its major components.

4-10. TRAILER (M10-61E1) MAINTENANCE. Refer to TM 9-2330-376-14&P for maintenance of M10 trailer.

APPENDIX A

REFERENCES

A-1. SCOPE. This appendix lists forms and publications pertinent to the laundry unit and associated equipment.

A-2. FORMS.

DA Form 2028-2	Recommended Changes to Equipment Technical Publications
DA Form 2404	Equipment Inspection and Maintenance Work Sheet
SF 364	Report of Item Discrepancy
SF 368	Quality Deficiency Report

A-3. FIELD MANUALS.

FM 5-20	Camouflage
FM 9-207	Operation and Maintenance of Ordinance Materiel in Cold Weather (0 Deg to Minus 65 Deg F)
FM 10-16	Repair of Tents, Canvas, and Webbing
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
FM 43-2	Metal Body Repair and Related Operations

A-4. TECHNICAL BULLETINS.

TB 10-3510-220-24	Warranty Program for Trailer Mounted Laundry
TB 740-97-2	Preservation for USAMECOM Mechanical Equipment for Shipment and Storage (US Army)

A-5. TECHNICAL MANUALS.

TM 5-764	Repair of Electric Motors and Generators
TM 9-214	Inspection, Care, and Maintenance of Antifriction Bearings
TM 9-237	Operators Manual for Welding Theory and Application

A-5. TECHNICAL MANUALS. (CONT)

TM 9-247	Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordinance Materiel and Related Materials Including Chemicals
TM 10-3510-220-10	Operator's Manual for: Laundry Unit, Trailer Mounted, Model M85-100.
TM 10-3510-220-24P	Unit, Direct Support, and General Support Maintenance Repair Parts and Special Tools List: Laundry Unit, Trailer-Mounted, Model M85-100
TM 9-2330-376-14&P	Unit, Direct Support, and General Support Maintenance Manual Including Repair Parts and Special Tools List: Trailer, 5-ton, Tandem Axle, Flatbed, M10-61E1
TM 5-6115-585-12	Operator's and Organizational Maintenance Manual for Generator Set, Diesel, 10 kW
TM5-6115-585-34	Direct and General Support Maintenance Manual for Generator Set, Diesel, 10 kW
TM 38-230-1	Packaging of Material: Preservation (VOL I)
TM 38-230-2	Packaging of Material: Preservation (VOL II)
TM 38-236	Preparation of Freight for Air Shipment
TM 55-2200-001-12	Transportability Guidance for Application of Blocking, Bracing, and Tiedown Materials for Rail Transport
TM 743-200-1	Storage and Materials Handling
TM 743-200-2	Storage Modernization
TM 743-200-3	Storage and Materials Handling
TM 750-244-6	Destruction of Tank-Automotive Equipment to Prevent Enemy Use

A-6. MISCELLANEOUS PUBLICATIONS.

AR 385-40	Accident Report and Records
DA PAM 738-750	The Army Maintenance Management System (TAMMS)
LO 10-3510-220-12	Lubrication Order: Laundry Unit, Trailer Mounted Model M85-100
MIL-STD-1261	Welding, Construction Metals
MIL-W-52574	Welding, Steel
MIL-W-45206A	Welding, Aluminum
SB 38-100	Preservation, Packaging, Packing, and Marking Materials, Supplies, and Equipment Used by the Army
APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL.

- **a** This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.
- **b.** The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.
- **c.** Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.
- **d.** Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

- **a.** <u>**Inspect.**</u> To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (i.e., by sight, sound, or feel).
- **b. Test.** To verify serviceability by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.
- **c.** <u>Service</u>. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontamination, when required), to preserve, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.
- **d. Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.
- **e. Aline.** To adjust specified variable elements of an item to bring about optimum or desired performance.
- **f.** <u>**Calibrate.**</u> To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
- **g. <u>Remove/Install</u>.** To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

B-2. MAINTENANCE FUNCTIONS. (Cont)

- **h. <u>Replace.**</u> To remove an unserviceable item and install a serviceable counterpart in its place. Replace is authorized by the MAC and is shown as the 3rd position code of the SMR code.
- **i. Repair.** The application of maintenance services or other maintenance actions to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.
- **j. Overhaul.** That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
- **k.** <u>**Rebuild.**</u> Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment and components.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II.

- **a.** <u>**Column 1- Group Number.**</u> Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.
- **b.** <u>**Column 2- Component/Assembly.**</u> Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.
- **c.** <u>**Column 3- Maintenance Function.**</u> Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph 1-2.)
- **d.** <u>Column 4- Maintenance Category.</u> Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:</u>

С						Operator or Crew
0						Unit Maintenance
F						Direct Support Maintenance
Н						General Support Maintenance
D						Depot Maintenance

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II. (Cont)

- e. <u>**Column 5- Tools and Equipment.</u>** Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.</u>
- f. **<u>Column 6- Remarks.</u>** This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

- a. <u>**Column 1- Reference Code.</u>** The tool and test equipment reference code correlates with a code used in the MAC, section II, column 5.</u>
- b. <u>**Column 2- Maintenance Category.</u>** The lowest category of maintenance authorized to use the tool or test equipment.</u>
- c. <u>Column 3- Nomenclature</u>. Name or identification of the tool or test equipment
- d. <u>**Column 4- National Stock Number.</u>** The National Stock number of the tool or test equipment.</u>
- e. <u>Column 5- Tool Number</u>. The manufacturer's part number.

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

- a. **<u>Column 1- Reference Code.</u>** The code recorded in column 6, section II.
- b. <u>**Column 2- Remarks.**</u> This column lists information pertinent to the maintenance function being performed as indicated in the MAC, section II.

Section II. MAINTENANCE ALLOCATION CHART

for

LAUNDRY, TRAILER MOUNTED

(1) GBOUP	(2) COMPONENT/	(3) MAINTENANCE			(4 [ENA		EVEI		(6)	
NUMBER	ASSEMBLY	FUNCTION	U	NIT	DS	GS	DEPOT	EQUIPMENT	REMARKS	
00	Laundry Unit								A, B, C	
01	Cover Assembly, Tarp	Inspect Replace Repair	0.5	0.5	2.0			1,2		
02	Frame Assembly, Tarp	inspect Repair Replace		0.5 1.0 3.0				1		
	Beam Assemblies, Tarp, Center and Right	Inspect Repair Replace		0.5 1.0 1.0				1		
	Basket Assemblies	Inspect Repair Replace		0.5, 1.0 1.0				1,2,6		
	Right Center Support (Water Reuse System)	Inspect Repair Replace		0.1 1.0 1.0						
03	Panel Assemblies, Sound Deadening	Inspect Replace		0.5 0.5						
	Track, Lower Sound Deadening	Inspect Repair Replace		0.5 1.0	1.0	2.0		1,2		
04	Platform Assemblies	Inspect Repair Replace		0.5 1.0 0.5				1,2		
05	Washer Assembly	Inspect Service Adjust Repair Disassembly Replace	0.5	1.0 1.0 0.6	2.0 8.0 8.0			1,2, 3		
	Washer Intake Plumbing and Drain Assembly	Inspect Replace		0.5 8.0						

(1)	(2)	(3)		MAIN	(4) TENANC	ELEVEL		(5)	(6)
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	U	NIT	DIRECT SUPPOR	JENERAI Juppor1	DEPO1	TOOLS& EQUIP.	REMARKS
			С	0	F	н	D		
	Washer Controller	Test			1.0	_			
	Assembly	Service			1.0				
		Adjust			1.0				
		Repair		0.1	2.0				
		Replace		0.1	2.0				
	Washer Controller Stand	Replace			1.0				
	Washer Drive	Disassembly			3.0				
	Motor	Repair			3.0				
		Replace			1.0				
06	Panel, Power	Test		1.0					
	Distribution	Repair		1.0				1,2	
		Replace			2.0				
07	Air Compressor	Service		1.0					
	Assembly	Adjust		1.0					
		Repair		1.0				1	
		Replace		1.0					
	Air Tank Assembly with Air Hoses	Replace).5					
08	Bin Assembly, Pre- Extract	Replace		1.0				1,2	
09	Extractor	Service		1.0					
	Assembly	Adjust		1.5					
		Repair		0.5	1.0			1,2,3	
		Replace			1.5				
	Fytractor Duive	Porviso		1 5					
	Unit	Replace		1.0	20				
	C III C	Adjust			1.0				
					1.0				
	Extractor Brake	Adjust			0.5				
	Shoe	Repair			1.0				
		Replace			2.0				
l					2.0				

Section II. MAINTENANCE ALLOCATION CHART (CONT)

_				М	(4) AINTENANC	ELEVEL		-	
(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	UN	IT)IRECT UPPORT	ENERAL UPPORT	DEPOT	(5) OOLS & EQUIP.	(6) Remarks
			C	0	F	Н	D		
	xtractor Drive	Adjust		_	1.0				
	elt	teplace			1.0				
	xtractor Control	ervice		0.5					
	Box	Adjust			1.0				
		Repair			2.0			1, 2, 3	
	Extractor Piping	Replace		0.5				1	
		Repair		0.5	1.0			1,7	
	Extractor Drain	nspect		0.5					
	ipe Assembly	as em		1.0					
		Replace		1.0					
10	leater Assembly,	Service		1.0					
	Vater	ſest		0.1					
		Adjust		1.0					
		Repair		2.0					
		Replace			1.0			1, 2, 3	
	Drum Fill and	Repair		1.0					
	lose Assembly	Replace		1.0				1	
	Burner Head and	Disassembly		0.5					
	Nozzle Assembly	Inspect		0.2					
		Repair		1.0				1	
		Adjust		1.0					
		Replace		1.0					
	Electric Control	Test		1.0	1.0				
	Assembly, Water	Service		1.0					
	ricater	Repair		0.3				1, 2, 3	
		Disassembly			2.0				
	Blower Motor	Replace		2.0					
	Assembly	Disassembly			1.0				
		Repair			2.0				
	Fuel Pump	Inspect	0.5						
	Assembly	Repair		1.0					
		Replace		1.0					
		Adjust		0.5				1, 4, 5	

Section II. MAINTENANCE ALLOCATION CHART (CONT)

(I)	(2)	(3)		MAIN	(4) TENANC		(5)	(6)	
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	UI	NIT	DIRECT SUPPORT	GENERAL Support	DEPOI	TOOLS& EQUIP.	(6) REMARKS
			С	0	F	Н	D		
	Water Manifold Assembly Fuel Filter	Dísassembly Repair Replace Adjust Service	0.5	2.5 1.0 1.0 0.3					
	Assembly	Inspect Repair Replace	0.0	0.2 0.1 0.5 0.5				1	
	UV Scanner and Flame Safeguard Assembly Water Heater	Test Service Replace			1.0 1.0 2.0			1, 2, 3	
	Operating Limit and High Limit Controls, Water Heater	Adjust Replace			1.0 2.0				
	Air Shutter Assembly	Inspect Adjust Repair Replace	0.5 0.5	1.0 2.0				1	
	Pressure Relief Valve	Inspect Replace		0.1 0.5				1	
11	Dryer Tumbler Assembly	Inspect Service Fest Adjust Replace Repair	0.5	1.0 1.0 1.0 2.0	2.0			1, 2, 3, 4	
	Dryer Door Assy	Repair		0.5					
	Dryer Door Interlock Safety Switch	Adjust Replace		0.2 0.2					
	Dryer Drive Chain	Adjust Replace		0.2 0.2					
	Dryer Electrical Control Assembly	Fest Service Replace		1.0 1.0	2.0				

Section II	MAIN	NTENANCE	ALLOCATION	CHART	(CONT)
------------	------	----------	------------	-------	--------

(1)	(2)	(3)		MAIN	(4) TENANCI	(5)	(6)		
GROUP NUMBER	COMPONENT/ ASSEMBLY	/ MAINTENANCE FUNCTION		лт	DIRECT ;UPPORT	IENERAL Support)EPO1	FOOLS & EQUIP.	REMARKS
			С	0	F	H	D		
	Dryer Temp.	Adjust		1.0					
	Control	Replace			1.0				
	Drver Fuel Pump	Disassemble		1.0					
	Assembly	Service		0.5					
		Repair		1.5					
		Replace		1.0					
		Adjust		0.1					
	Drver Fuel Filter	Inspect		0.1					
	Assembly	Service	0.5	0.1					
	Assembly	Banair	0.0	0.5					
		Replace		0.5					
	DunnellUSeennen	M+		1.0	1.0				
	Bryer U v Scanner	1 est		1.0	1.0				
	& riame Saleguard	Service		1.0	1.0				
	Assembly	Repair		1.0	1.0				
		Replace		2.0	2.0				
	Dryor Air Shutter	Pongin		1.0					
	Assembly	Replace		2.0					
	Assembly	replace		2.0					
	Drver Tumbler	Service		1.0					
	Drive Motor and	Adjust		1.0					
	Gear Box	Repair			1.0				
	Assembly	Replace			1.0				
	Drver Burner	Inspect		0.1					
	Assembly	Service		0.2					
		Renair		1.0					
		Replace		2.0					
		Adjust		0.5					
	Drver Combustion	Repair		2.0					
	Blower and Motor	Replace		2.0					
	Assembly								
	ž								

Section II. MAINTENANCE ALLOCATION CHART (CONT)

(1)	(2)	(3) MAINTENANCE FUNCTION		MAIN	(4) TENANC	(5)	(6)		
GROUP NUMBER	COMPONENT/ ASSEMBLY		UNIT		DIRECT SUPPORT	JENERAL SUPPORT	DEPOT	FOOLS & EQUIP.	REMARKS
			С	0	F	H	D		
	Dryer Exhaust Motor and Fan Assembly	Repair Replace			1.0 1.0				
12	Water Pump and Motor Assembly	Inspect Service Repair Replace	0.5	0.5 1.0 1.0	1.0 2.0			1, 2, 3	
	Water Pump Fiedown Assembly	Replace		0.5				1	
13	Hose Assemblies, Water	inspect Repair Replace	0:1 0.1	0.5 0.5				1	
14	Exhaust Duct Assemblies	inspect Repair	0.5	1.0				ı	
15	Generator Tiedown	Replace		1.0				1,7	
16	Fire Extinguisher	inspect Service Replace	0.5	0.1 0.5	1.0			1	
17	Fool Box	Replace		0.5				L	
18	M13 Decontamination Apparatus Bracket	Replace		0.5					

Section II. MAINTENANCE ALLOCATION CHART (CONT)

TOOL OR TEST EQUIPMENT REF. CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/ NATO STOCK NUMBER	TOOL NUMBERS
1	0	Tool Kit, General Mechanics Automotive	518000-177-7033	SC5180-90-CL-N26
2	F	Tool Kit, Master Mechanics	5180-00-699-5273	SC5180-90-CL-N05
3	F	Multimeter, Digital	6625-01-139-2512	AN/PSM-45
4	0	Wrench, Torque 6063 or Equivalent	5120-00-177-7328	6063
5	0	Wrench, Pin, 1 in. (2.54 cm)		
6	0	Riveter, Blind, Hand	5120-00-017-2849	
7	0	Shop Equipment, Automotive Maintenance and Repair	4910-00-754-0654	SC4910-95-CL-A74-HR

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS

Section IV. REMARKS

REFERENCE CODE	REMARKS
А	Refer to TM 5-6115-585-12 for Generator MAC items.
В	Refer to TM 9-2330-376-14&P for Trailer MAC items.
С	Refer to TM 5-6115-585-34 for Generator DS/GS items.

APPENDIX C

EXPENDABLE/DURABLE MATERIALS AND SUPPLIES LIST

Section I. INTRODUCTION

C-1. SCOPE. This appendix lists expendable/durable supplies and materials you will need to operate and maintain the LU100 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.** <u>**Column (1)**</u> <u>**Item Number.**</u> This number is assigned to the entry in the listing and is referenced in the Materials/Parts portion of Initial Setup to identify the material, e.g., use cleaning compound (item 5, app D).
- **b.** <u>**Column (2) Level.** This column identifies the lowest level of maintenance that requires the listed item.</u>
 - C Operator/Crew
 - O- Unit
 - F Direct Support Maintenance
 - H General Support Maintenance
- c. <u>Column (3) National Stock Number</u>. This is the National stock number assigned to the item; use it to request or requisition the item.
- **d.** <u>**Column (4)**</u> <u>**Description.**</u> 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. <u>Column (5)</u> <u>Unit of Measure (U/M)</u>. 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.

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	0	8040-00-273-8697	Cement, gasket, 8 oz (237 cc) (81349) MIL-C-4003	OZ
2	0	5350-00-187-6289	Cloth, crocus abrasive, 50 yd (45.7 m) (58536) A-A-1048	ro

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) It	(1) (2) (3) Item National Stock		(4)	(5)
Item Number	Level	National Stock Number	Description	U/M
3	С	7920-00-292-9204	Cloth, wiping, 100 ea (58536) A-A-162	ea
4	0	6850-00-656-1292	Compound, cleaning 5-gl (19 L) drum (81349) MIL-C-5546	gl
5	0	8030-01-104-5392	Compound, thread sealing, 10-cc bottle (05972) 242-21	သ
6	0	8010-01-193-0518	Paint, epoxy primer, kit (81349) MIL-P-53022	ea
7	0	8010-01-229-9561	Paint, green 383 CARC, 5-gl (19 L) can (81349) MIL-C-53039	gl
8	0	9150-00-250-0926	Petrolatum, technical (PET), 1.75-lb (0.8 kg) can (41857) DEF2333PX7	lb
9	ο	3439-00-043-3623	Solder, SN60, 1-lb (0.45 kg) roll (81348) QQ-S-571	lb
10	F	6850-00-281-1985	Solvent, drycleaning (SD-I), 1-gl (3.8 L) can (81348) P-D-680, Type I	gl
11	Ο	9905-00-027-4577	Strap, tiedown, adjustable, plastic 50 ea (96906) MS3367-2	pg
12	0	9905-00-5 37- 895 4	Tags, identification, 50 ea (81349) MIL-T-12755	pg
13	Ο	5970-00-644-316 7	Tape, electrical, 85-ft (25.9 m) (58536) A-A-2094	ft

(1) (2) (3) (4) (5) National Stock Item Number Number Description U/M Level 14 F 8310-00-227-1244 Thread, polyester, yd 1362.5 yd (1 245.9 m) (81348) V-T-295 15 0 5350-00-224-7203 Paper, abrasive (320 Gr) pg (58536) A-A-1047 F Adhesive-Sealant, Silicone 16 8040-00-843-0802 oz RTV, General-Purpose 108 3 ounce tube (88.7 cc)(01139) MIL-A-46106A 17 0 Oil, lubricating, engine OE/HDO 30 9150-01-040-2236 gl (81349) MIL-L-2104C 18 0 9150-00-851-0181 Oil, lubricating, gear, qt multipurpose (81349) MIL-L-2105 19 0 9150-01-024-6469 Grease, ball bearing qt (81349) MIL-G-18709 20 F 9150-01-144-3808 Oil, turbine oz (81349) MIL-L-23699 21 0 9150-00-265-9428 Oil, lubricating, engine gl OE10, 5 gallon pail (81349) MIL-L-2104 22 0 Glue oz (51135) 08080 23 F Adhesive, Vulcanized ΟZ (81348) MMM-A-121 24 F Flux, Paste ASTM B-486, Grade 77, Allow Comp SN50, Type OA 25 0 8030-01-009-2590 **Compound Antiseize** pt Slic-Tite (Thread Compound) (08845)

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

APPENDIX D

TORQUE LIMITS

D-1. GENERAL This appendix provides general torque limits for fasteners. Special torque values are indicated in the maintenance procedures for applicable components. The general torque values given in this appendix shall be used when specific torque values are not indicated in the maintenance procedures.

D-2. TORQUE LIMITS. Torque limits are listed in table D-1 for fasteners. Dry fasteners are defined as fasteners on which no lubricants are applied to the threads; wet fasteners are defined as fasteners on which specific graphite or moly-disulphide greases or other extreme-pressure lubricants are applied to the threads. Table D-2 lists minimum breakaway torque values for-locknuts.

	Torque requirement in lb ft (N.m)					
Bolt/screw	SAE grade	SAE grade	SAE grade	SAE grade		
size	1or2	5	6 or 7	8		
1/4 - 20 UNC	5 (7)	8 (11)	10 (14)	12 (16)		
1/4 - 20 UNC	5 (1) 6 (9)	10 (11)	10 (14) 19 (16)	12(10) 14(10)		
1/4 - 20 UNI	U (8)	10 (14)	12 (10)	14 (13)		
5/16 - 18 UNC	11 (15)	17 (23)	19 (26)	24 (33)		
5/16 - 24 UNF	13 (18)	19 (26)	23 (31)	27 (37)		
0,10	()					
3/8 - 16 UNC	18 (24)	31 (42)	34 (46)	44 (60)		
3/8 - 24 UNF	20 (27)	35 (47)	42 (57)	49 (66)		
7/16 - 14 UNC	28 (38)	49 (66)	55 (75)	70 (95)		
7/16 - 20 UNF	30 (41)	55 (75)	67 (91)	78 (106)		
1/2 - 13 UNC	39 (53)	75 (102)	85 (115)	105 (142)		
1/2 - 20 UNF	41 (56)	85 (115)	102 (138)	120 (163)		
9/16 - 12 UNC	51 (69)	110 (149)	120 (163)	155 (210)		
9/16 - 18 UNF	55 (75)	120 (163)	145 (197)	170 (231)		
5/8 - 11 UNC	63 (85)	150 (203)	167 (226)	210 (285)		
5/8 - 18 UNF	95 (129)	170 (231)	205 (278)	240 (325)		
3/4 - 10 UNC	105 (142)	270 (366)	280 (380)	375 (509)		
3/4 - 16 UNF	115 (156)	295 (400)	357 (484)	420 (570)		
			、 <i>,</i>			
7/8 - 9 UNC	160 (217)	395 (536)	440 (597)	605 (820)		
7/8 - 14 UNF	175 (237)	435 (590)	555 (753)	675 (915)		
	. ,	, í	, í			
1 - 8 UNC	235 (319)	590 (800)	660 (895)	910 (1234)		
1 - 14 UNF	250 (339)	660 (895)	825 (1119)	990 (1342)		

Table D-1. General Torque Requirements for Dry Fasteners*

*See footnote at end of table.

Dalt/series	Torque requirement in lb ft (N.m)							
size	SAE grade 1or 2	E gradeSAE gradeSAE gradeSAE grade1 or 256 or 7						
1-1/8 -7 UNC	350 (475)	800 (1085)	1000 (1356)	1280 (1736)				
1-1/8 -12 UNF	400 (542)	880 (1193)	1050 (1424)	1440 (1953)				
1-1/4 -7 UNC	500 (678)	1080 (1464)	1325 (1797)	1820 (2468)				
1-1/4 -12 UNF	550 (746)	1125 (1526)	1500 (2034)	2000 (2712)				
1-3/8 -6 UNC	660 (895)	1460 (1980)	1800 (2441)	2380 (3227)				
1-3/8 -12 UNF	740 (1003)	1680 (2278)	1960 (2658)	2720 (3688)				
1-1/2 -6 UNC	870 (1180)	1940 (2631)	2913 (3950)	3160 (4285)				
1-1/2 -12 UNF	980 (1329)	2200 (2983)	3000 (4068)	3560 (4827)				

Table D-1. Gene	eral Torque Re	equirements for	r Dry Fasteners*	(Continued)
-----------------	----------------	-----------------	------------------	-------------

*Torque given is for clean, dry threads. Reduce torque by 10 percent when engine oil is used as a lubricant.

Table D-2. Locknut Breakaway Torque Values

NOTE

To determine breakaway torque, thread locknut on to screw or bolt until at least two threads stick out. Locknut shall not make contact with a mating part. Stop the locknut. Torque necessary to begin turning locknut again is the breakaway torque. Do not reuse locknuts that do not meet minimum breakaway torque.

Throad	Minimum breakaway torque				
size	lb-in.	(N.m.)			
10-32	2.0	(0.23)			
1/4-28	3.5	(0.40)			
5116-24	6.5	(0.73)			
318-24	9.5	(1.07)			
7/16-20	14.0	(1.58)			
1/2-20	18.0	(2.03)			
9/16-18	24.0	(2.71)			
5/8-18	32.0	(3.62)			
3/4-16	50.0	(5.65)			
7/8-14	70.0	(7.91)			
1-12	90.0	(10.17)			
1-1/8-12	117.0	(13.22)			
1-1/4-12	143.0	(16.16)			

APPENDIX E

CABLE DIAGRAMS, WIRE RUN LIST, AND CONTROL CIRCUITS

E-1. The following wiring diagrams show the electrical components and connecting wires of each major appliance used on the laundry unit.





Figure 1. Laundry wiring diagram.



TM 10-3510-220-24

E-3/(E-4 Blank)



Figure 2-1. Washer wiring diagram with Water Reuse System.



208V.-3PH.-60HZ INCOMING POWER



Figure 3. Extractor wiring diagram. 11.1

TM 10-3510-220-24



Figure 4. Dryer wiring diagram.



TM 10-3510-220-24



Figure 6. Water Pump wiring diagram.



Figure 7. Air Compressor wiring diagram.

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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

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

Liquid Measure

1 centiliter = 10 milliters = .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	То	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 vards	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	5/9 (after	Celsius	°C
	temperature	subtracting 32)	temperature	