

STP 10-92S14-SM-TG

**HEADQUARTERS
DEPARTMENT OF THE ARMY**

**Soldier's Manual
And Trainer's Guide**

MOS 92S

**SHOWER/LAUNDRY AND CLOTHING
REPAIR SPECIALIST**

SKILL LEVEL 1/2/3/4



JUNE 2003

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SOLDIER'S MANUAL and TRAINER'S GUIDE

MOS 92S

SHOWER/LAUNDRY and CLOTHING REPAIR SPECIALIST

Skill Levels 1, 2, 3 and 4

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PREFACE

This publication is for skill level 1, 2, 3, and 4 soldiers holding MOS 92S and for their trainers or first-line supervisors. It contains standardized training objectives, in the form of task summaries, which can be used to train and evaluate soldiers on critical tasks, which support unit missions during wartime. Soldiers holding MOS 92S should have access to this publication. It should be made available in work areas, unit learning centers, and unit libraries. Trainers and first-line supervisors should actively plan for soldiers to have access to this publication. However, it is not intended that an individual copy be available for each soldier holding the MOS.

All tasks in this manual are trained to wartime conditions for Active Army, Army Reserve, and Army National Guard Component soldiers.

Users of this publication are encouraged to recommend changes and submit comments for its improvement. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons will be provided for each comment to ensure understanding and complete evaluation. Comments should be prepared on DA Form 2028 and forwarded directly to Commander, US Army Combined Arms Support Command and Fort Lee, ATTN: ATCL-AQ, Training Directorate, 401 1st Street, Suite 227, Fort Lee, Virginia 23801-1511

Unless otherwise stated, whenever the masculine or feminine gender is used, both men and women are included.

CHAPTER 1

Introduction

This Soldier Manual (SM) is a field manual listing the critical tasks for each skill level for MOS 92S. It provides the performance steps, the conditions under which the task is performed, and the standards, which must be met. All tests tested in the Skill Qualification Test (SQT) are in the SM. This Soldier's Manual (SM) is designed to support the Army Training and Evaluation Program (ARTEP). Leaders base their assessments of soldier and subordinate leader proficiency on (1) *Job performance*; (2) *Performance during unit training*; (3) *Common Task Test results*; (4) *Spot check results*.

Army Regulation 350-41(Training in Units) prescribes Department of the Army (DA) policy for Training in units.

This SM is the soldier's primary reference to prepare for leader's assessment of MOS-specific tasks and the SQT. It contains task summaries for all the critical tasks specific to his/her MOS/SL. Commanders and trainers will use this SM to plan and conduct training and leader's assessment.

The MOS Training Plan (MTP) in Chapter 2 of this STP contains necessary information for planning training requirements for this MOS. The MTP --

- * Identifies subject areas in which soldiers must be trained.
- * Identifies the critical tasks for each subject area.
- * Specifies where soldiers are initially trained on each task.
- * Recommends how often each task should be trained to sustain proficiency.
- * Recommends a strategy for cross training soldiers.
- * Recommends a strategy for training soldiers to perform higher-level tasks.

This manual should be used along with other STP(s), ARTEP(s), and the Army training manuals (FM(s) 25-4 and 25-5, 25-100, and 25-101) to establish effective training plans and programs, which integrate individual and collective tasks.

COMMANDER'S RESPONSIBILITIES

Each commander must ensure that his unit-training plan prepares the unit for war by enabling soldiers to develop and sustain proficiency in the tasks for their MOS and SL. The commander should design the unit-training program to provide individual training for all soldiers assigned to the unit and routinely evaluate soldier proficiency as part of the ARTEP. The unit-training program should also integrate individual training with crew drills and other collective training. The MTP provides information on which to base integration, cross, train-up, and sustainment training programs and should be used by commanders when developing unit training plans. To properly develop an effective unit-training program, a six-step cycle is recommended:

1. Set objectives.
2. Plan resources (personnel, time, funds, facilities, devices, and training aids).
3. Train the trainer.

4. Provide resources.
5. Conduct training.
6. Evaluate soldier performance.

TRAINER'S RESPONSIBILITIES

Training is the business of all unit leaders. The first-line leaders (normally SLs 2 and 3 NCO's) are the principal trainers in the unit because they directly supervise the soldiers and lead the crews, squads, sections, or teams.

The MTP can be used to determine the critical tasks for which each soldier is responsible. Each soldier should be told which tasks he or she must be able to perform. The trainer should evaluate task performance to find out which tasks each soldier can or cannot perform to standard. Soldiers who cannot perform a task to standard need further training. This manual helps the trainer to do what trainers are trained to do: train. To train effectively, the trainer must--

1. Plan the training. Training for specific tasks can usually be integrated or conducted concurrently with other general training or during slack periods. The unit's ARTEP can assist in identifying individual tasks, which can be trained and evaluated concurrently with collective task training and evaluation.
2. Gather the training references and materials. This information is listed in the reference column of the MTP for each task.
3. Train each soldier. Show the soldier how the task is done to standard and explain how the task is done step-by-step. Give each soldier at least one chance to do the task step-by-step.
4. Evaluate each soldier. Evaluate how well each soldier performs the tasks in this manual. These evaluations may be conducted during individual training sessions or while evaluating individual proficiency during the conduct of unit collective tasks. The MTP contains information which can be used as a guide to determine how often to evaluate soldiers on each task to ensure that soldiers sustain proficiency.

CHAPTER 2

Trainer's Guide

2-1. General. The MOS Training Plan (MTP) identifies the essential components of a unit-training plan for individual training. Units have different training needs and requirements based on differences in environment, location, equipment, dispersion, and similar factors. Therefore, the MTP should be used as a guide for conducting unit training and not a rigid standard. The MTP consists of two parts. Each part is designed to assist the commander in preparing a unit training plan which satisfies integration, cross training, training up, and sustainment training requirements for soldiers in this MOS.

Part One of the MTP shows the relationship of an MOS skill level between duty position and critical tasks. These critical tasks are grouped by task commonality into subject areas.

Section I lists subject area numbers and titles used throughout the MTP. These subject areas are used to define the training requirements for each duty position within an MOS.

Section II identifies the total training requirement for each duty position within an MOS and provides a recommendation for cross training and train-up/merger training.

- **Duty Position column.** This column lists the duty positions of the MOS, by skill level, which have different training requirements.
- **Subject Area column.** This column lists, by numerical key (see Section I), the subject areas a soldier must be proficient in to perform in that duty position.
- **Cross Train column.** This column lists the recommended duty position for which soldiers should be cross trained.
- **Train-up/Merger column.** This column lists the corresponding duty position for the next higher skill level or MOSC the soldier will merge into on promotion.

Part Two lists, by general subject areas, the critical tasks to be trained in an MOS and the type of training required (resident, integration, or sustainment).

- **Subject Area column.** This column lists the subject area number and title in the same order as Section I, Part One of the MTP.
- **Task Number column.** This column lists the task numbers for all tasks included in the subject area.
- **Title column.** This column lists the task title for each task in the subject area.
- **Training Location column.** This column identifies the training location where the task is first trained to soldier training publications standards. If the task is first trained to standard in the unit, the word "Unit" will be in this column. If the task is first trained to standard in the training base, it will identify, by brevity code (ANCOC, BNCOC, etc.), the resident course where the task was taught. Figure 2-1 contains a list of training locations and their corresponding brevity codes.

AIT	Advanced Individual Training
UNIT	Trained in the Unit
BNCOC	Basic NCO Course
ANCOC	Advanced NCO Course

Figure 2-1. Training Locations

- **Sustainment Training Frequency column.** This column indicates the recommended frequency at which the tasks should be trained to ensure soldiers maintain task proficiency. Figure 2-2 identifies the frequency codes used in this column.

BA	- Biannually
AN	- Annually
SA	- Semiannually
QT	- Quarterly
MO	- Monthly
BW	- Bi-weekly
WK	- Weekly

Figure 2-2. Sustainment Training Frequency Codes

- **Sustainment Training Skill Level column.** This column lists the skill levels of the MOS for which soldiers must receive sustainment training to ensure they maintain proficiency to soldier's manual standards.

2-2. Subject Area Codes.

Skill Level 1

- 1 SPACE HEATER
- 2 3,000-GALLON COLLAPSIBLE TANK
- 3 TENTS
- 4 SHOWER OPERATIONS
- 5 LAUNDRY OPERATIONS
- 6 MACHINE-SEWN TEXTILE
- 7 TENT PITCHING
- 8 MOBILE REPAIR OPERATIONS
- 9 HAND AND MACHINE REPAIR OF WEBBED ITEMS

Skill Level 2

- 10 UNIT SHOWER/LAUNDRY CLOTHING REPAIR OPERATIONS

Skill Level 3

- 11 SUPERVISION OF SHOWER/LAUNDRY/CLOTHING REPAIR OPERATIONS

Skill Level 4

- 12 DIRECT SUPERVISION OF SHOWER/LAUNDRY/CLOTHING REPAIR OPERATIONS

2-3. Duty Position Training Requirements.

Skill Level	Duty Position	Subject Area	Cross-Train	Train-UP/ Merger
1	Laundry Specialist Shower Specialist Clothing Repair Specialist	1-9	NA	92S2
2	Section Chief Laundry NCO Team Chief Laundry/Textile NCO Laundry and Shower Specialist	1-10	Section Chief Laundry/Textile Spec	92S3
3	Section Chief Shower/Laundry/and Clothing Repair Specialist	1-11	Platoon Sergeant	92S4
4	Platoon Sergeant Shower/Laundry and Clothing Repair Specialist	1-12	First Sergeant	92S5

2-4. Critical Tasks List.

**MOS TRAINING PLAN
92S14**

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
Skill Level 1					
1. SPACE HEATER	101-92S-1028	Set Up The H-45 Space Heater	AIT	SA	1-4
	101-92S-1029	Operate The H-45 Space Heater	AIT	SA	1-4
	101-92S-1030	Dismantle The H-45 Space Heater	AIT	SA	1-4
2. 3,000-GALLON COLLAPSIBLE TANK	101-92S-1038	Set Up The 3,000-Gal Collapsible Tank	AIT	SA	1-2
	101-92S-1039	Dismantle The 3,000-Gallon Collapsible Tank	AIT	SA	1-2
3. TENTS	101-92S-1034	Pitch A Temper Tent	AIT	SA	1-4
	101-92S-1035	Strike And Store A Temper Tent	AIT	SA	1-4
4. SHOWER OPERATIONS	101-92S-1026	Set Up The Twelve-Head Shower Unit	AIT	SA	1-3
	101-92S-1027	Dismantle The Twelve-Head Shower Unit	AIT	SA	1-3
	101-92S-1040	Operate The 18 To 20 Gallons-Per-Minute (GPM) Water Pump	AIT	SA	1-3
	101-92S-1041	Operate The Shower Unit's Water Heater	AIT	SA	1-3
	101-92S-1042	Operate The Equipped Generators	AIT	SA	1-4
5. LAUNDRY OPERATIONS	101-92S-1022	Set Up The M-85 Series Laundry Unit	AIT	AN	1-3
	101-92S-1023	Perform Operator PMCS On M-85 Series Laundry Unit	AIT	BM	1-3
	101-92S-1024	Operate The M-85 Series Laundry Unit	AIT	SA	1-2
	101-92S-1025	Perform Shutdown Procedures And After Operations PMCS On M-85 Series Laundry Unit	AIT	SA	1-2
	101-92S-1043	Receive The Laundry Turn-In	AIT	SA	1-2
	101-92S-1044	Mark Individual Bundles Of Laundry	AIT	SA	1-2
	101-92S-1045	Process Finished Laundry	AIT	SA	1-2

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	101-92S-1046	Operate 30KW Generator	AIT	SA	1-2
	101-92S-1047	Prepare The LADS For Operation	AIT	SA	1-2
	101-92S-1048	Perform initial Adjustments, Before Use And Self Test	AIT	SA	1-2
	101-92S-1049	Operate LADS System	AIT	SA	1-2
	101-92S-1050	Prepare LADS For Movement	AIT	SA	1-2
	101-92S-1051	Service Dryer Lint Filter	AIT	SA	1-2
	101-92S-1052	Perform Still Servicing	AIT	SA	1-2
6. MACHINE-SEWN TEXTILE	101-92S-1007	Construct And Sew A Seam Type 1 On Clothing	AIT	AN	1-2
	101-92S-1008	Construct And Sew A Seam Type 2 On Clothing	AIT	SA	1-2
	101-92S-1009	Construct And Sew A Seam Type 3 On Clothing	AIT	SA	1-2
	101-92S-1010	Construct And Sew A Seam Type 4 On Clothing	AIT	AN	1-2
	101-92S-1011	Construct And Sew A Seam Type 5 On Clothing	AIT	AN	1-2
	101-92S-1012	Construct And Sew A Seam Type 6 On Clothing	AIT	AN	1-2
	101-92S-1013	Construct And Sew A T-Patch To Repair And L-Shaped Tear	AIT	AN	1-2
	101-92S-1014	Zigzag Darn Holes Up To 1/2-Inch In Diameter	AIT	AN	1-2
	101-92S-1015	Reinforce Darn Holes Up To 1-Inch In Diameter	AIT	AN	1-2
	101-92S-1016	Repair Small Holes, Tears, And Rips In Sleeping Bags With An Iron-On Patch	AIT	QT	1-2
	101-92S-1018	Sew Organizational Shoulder Insignia And Name Tapes On Organizational Clothing	AIT	AN	1-2
	101-92S-1019	Replace A Damaged Slide Fastener In A Sleeping Bag	AIT	QT	1-3
7. TENT PITCHING	101-92S-1036	Pitch A General-Purpose Medium Tent	AIT	SA	1-4
	101-92S-1037	Strike And Store A General Purpose Medium Tent	AIT	SA	1-4
8. MOBILE REPAIR OPERATIONS	101-92S-1000	Prepare And Operate The Light-Duty Sewing Machine	AIT	AN	1-3

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	101-92S-1001	Troubleshoot The Light-Duty Sewing Machine	AIT	AN	1-2
	101-92S-1002	Prepare And Operate The Darning Machine	AIT	AN	1-2
	101-92S-1003	Troubleshoot The Darning Machine	AIT	AN	1-2
	101-92S-1004	Prepare And Operate The Button Machine	AIT	QT	1-3
	101-92S-1005	Troubleshoot and Adjust The Button Machine	AIT	QT	1-2
	101-92S-1006	Prepare The Trailer-Mounted Clothing Repair Shop For Operation	AIT	QT	1-3
	101-92S-1021	Inspect And Classify Clothing For Repair	AIT	AN	2-3
9. HAND AND MACHINE REPAIR OF WEBBED ITEMS	101-92S-1020	Sew A Simple Top Patch	AIT	AN	1-2
Skill Level 2					
10. UNIT SHOWER/LAUNDRY CLOTHING REPAIR OPERATIONS	101-92S-2000	Process Incoming DA Form 2404 (Maintenance Request)	UNIT	SA	2-3
	101-92S-2001	Perform final inspection on repaired common table of allowance (CTA) 50-900 Items	UNIT	SA	2-3
	101-92S-2002	Provide technical guidance For Repair Of Textile, Clothing And Webbed Equipment Items	UNIT	SA	2-3
	101-92S-2003	Perform Quality Assurance Inspection Of Textile, Clothing And Webbed Items	UNIT	SA	2-3
	101-92S-2004	Inspect and Classify Clothing items	UNIT	SA	2-3
	101-92S-2005	Inspect, Classify, And Determine Reparability Of Textile, Clothing And Webbed Items Received For Repair	UNIT	SA	2-3
	101-92S-2006	Provide Technical Guidance To Subordinates In Adjustment And Operation Of The Textile And Clothing Machines	UNIT	SA	2-3
	101-92S-2007	Inspect Irreparable Items To Ensure Removal Of All Salvable Parts	UNIT	SA	2-3
	101-92S-2008	Provide Technical Guidance To Subordinates In Preventing Maintenance Checks and Services	UNIT	SA	2-3

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
		(PMCS) On All Sewing			
	101-92S-2009	Prepare DA Form 4765-R (Laundry Activity Record)	UNIT	SA	2-3
	101-92S-2010	Direct The Processing Of A Field Laundry	UNIT	SA	2-3
	101-92S-2011	Direct Laundry Operations	UNIT	SA	2-3
	101-92S-2012	Supervise The Use Of Washing Formulas, Soaps And Detergents	UNIT	SA	2-3
	101-92S-2013	Prepare DA Form 4766-R (Shower Activity Record)	UNIT	SA	2-3
	101-92S-2014	Direct Shower Operations	UNIT	SA	2-3
	101-92S-2015	Prepare Shower Schedules For Supported Personnel	BNCOC	SA	2-3
	101-92S-2016	Direct The Preparation Of Shower Equipment For Movement	UNIT	SA	2-3
	101-92S-2017	Supervise Operators And Preventive Maintenance Checks And Services (PMCS) On The Shower Equipment	UNIT	SA	2-3
	101-92S-2018	Select Laundry and Shower Field Operational Sites	UNIT	SA	2-3
Skill Level 3					
11. SUPERVISION OF SHOWER/LAUNDRY/CLIPPING REPAIR OPERATIONS	101-92S-3000	Establish A Shop Safety Program	BNCOC	SA	3-4
	101-92S-3001	Direct Operations Of The Shop Receiving, Classification And Repair Area	BNCOC	SA	3-4
	101-92S-3002	Control And Maintain Records Of Equipment	BNCOC	SA	3-4
	101-92S-3003	Supervise Preventive Maintenance Checks And Services (PMCS) Activities In Mobile Textile	BNCOC	SA	3-4
	101-92S-3004	Coordinate Maintenance Requirements With Supporting Units	BNCOC	SA	3-4
	101-92S-3005	Prepare Master Work Schedules For Skill Level 1 And 2 Soldiers	BNCOC	SA	3-4

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	101-92S-3006	Supervise Work Flow And Quality Control Of Clothing Textiles And Webbed Equipment Items	BNCOC	SA	3-4
	101-92S-3007	Prepare Internal And External Standing Operating Procedures (SOPs) For Shop Operations	BNCOC	SA	3-4
	101-92S-3008	Establish And Supervise Quality Control Standards For Shop Operations	BNCOC	SA	3-4
	101-92S-3009	Supervise The Request For Shop Supplies	BNCOC	SA	3-4
	101-92S-3010	Direct Laundry and Shower Site Selection	BNCOC	SA	3-4
	101-92S-3011	Inspect The Setup Of A Laundry Unit	BNCOC	SA	3-4
	101-92S-3012	Inspect The Setup Of A Shower Operation	BNCOC	SA	3-4
	101-92S-3013	Supervise Shower Setup And Operations	BNCOC	SA	3-4
	101-92S-3014	Supervise The Acquisition Of Water	BNCOC	SA	3-4
	101-92S-3015	Supervise The Preparation Of Shower Equipment For Movement	BNCOC	SA	3-4
	101-92S-3016	Supervise Laundry Setup And Operations	BNCOC	SA	3-4
	101-92S-3017	Supervise Preventive Maintenance Checks And Services (PMCS) On Laundry And Shower Equipment	BNCOC	SA	3-4
	101-92S-3018	Establish Laundry Turn-In With Supporting Units	BNCOC	SA	3-4
	101-92S-3019	Troubleshoot Of Laundry Advanced System (LADS)	BNCOC	SA	3-4
Skill Level 4					
12. DIRECT SUPERVISION OF SHOWER/LAUNDRY/CLOTHING REPAIR OPERATIONS	101-92S-4000	Prepare And Schedule Equipment, Personnel, And Administrative Reports For Shop Operations	ANCOC	SA	4
	101-92S-4001	Prepare And Maintain Records Of Cost, Dates, And Expenditures For Shop Operations	ANCOC	SA	4
	101-92S-4002	Inspect Shop's Safety Program	ANCOC	SA	4
	101-92S-4003	Supervise Inspection Of Shop Equipment For Serviceability	ANCOC	SA	4

CRITICAL TASKS

Subject Area	Task Number	Title	Training Location	Sust Tng Freq	Sust Tng SL
	101-92S-4004	Prepare For Mobile Laundry And Shower Operations	ANCOC	SA	4
	101-92S-4005	Supervise Road Movement And Set Up Of Laundry Equipment	ANCOC	SA	4
	101-92S-4006	Supervise Road Movement And Set Up Of Shower Equipment	ANCOC	SA	4
	101-92S-4007	Supervise Laundry Operations	ANCOC	SA	4
	101-92S-4008	Supervise Shower Operations	ANCOC	SA	4
	101-92S-4009	Supervise The Requisitioning Of Shower And Laundry Supplies And Preparing Of Shower And Laundry Reports And Records	ANCOC	SA	4
	101-92S-4010	Direct Supervision Of Troubleshooting Of Laundry Advanced System (LADS)	ANCOC	SA	4

CHAPTER 3**MOS/Skill Level Tasks**

Skill Level 1

Subject Area 1: SPACE HEATER

Set Up The H-45 Space Heater**101-92S-1028**

Conditions: You have been instructed to set up the H-45 space heater. A two-person detail will assist you. Materials and equipment required: H-45 space heater with accessory tools and components for either type 1 fuel (solid) or type 2 (Liquid), tent shield, a 5-gallon liquid fuel supply with adapter kit, sandbox, or a bed of bricks and TM 9-4520-257-12&P.

Standards: Complete all necessary steps to set up the H-45 space heater. Continue until the heater is prepared for operation.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Position the heater base directly under the stovepipe opening in the tent roof.
 - a. Place the base (16) in or on one of the following:
 - (1) On a bare earthen area.
 - (2) In a prefabricated sandbox, no smaller than 40 x 28 x 4 within a sheet metal bottom with at least 3 1/2 inches of sand.
 - (3) On a pile of stones or brickbats, in emergencies.
 - b. Clear an area 4 feet around the heater base, from the floor to the ceiling, so that it is free of combustible material.

Performance Steps

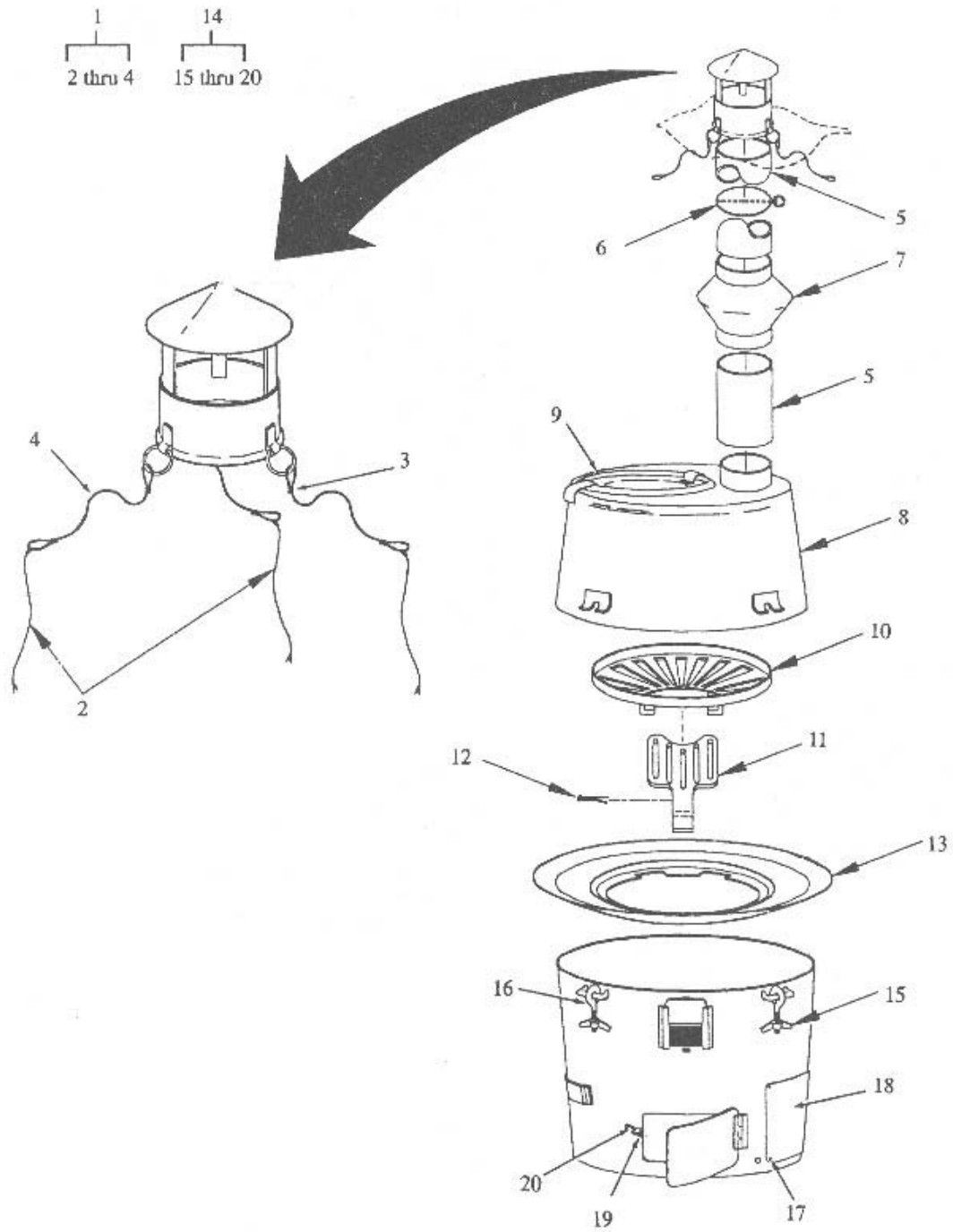


Figure 3-1
Heater, Space, Large (H-45) Type I (Solid Fuel)

Performance Steps

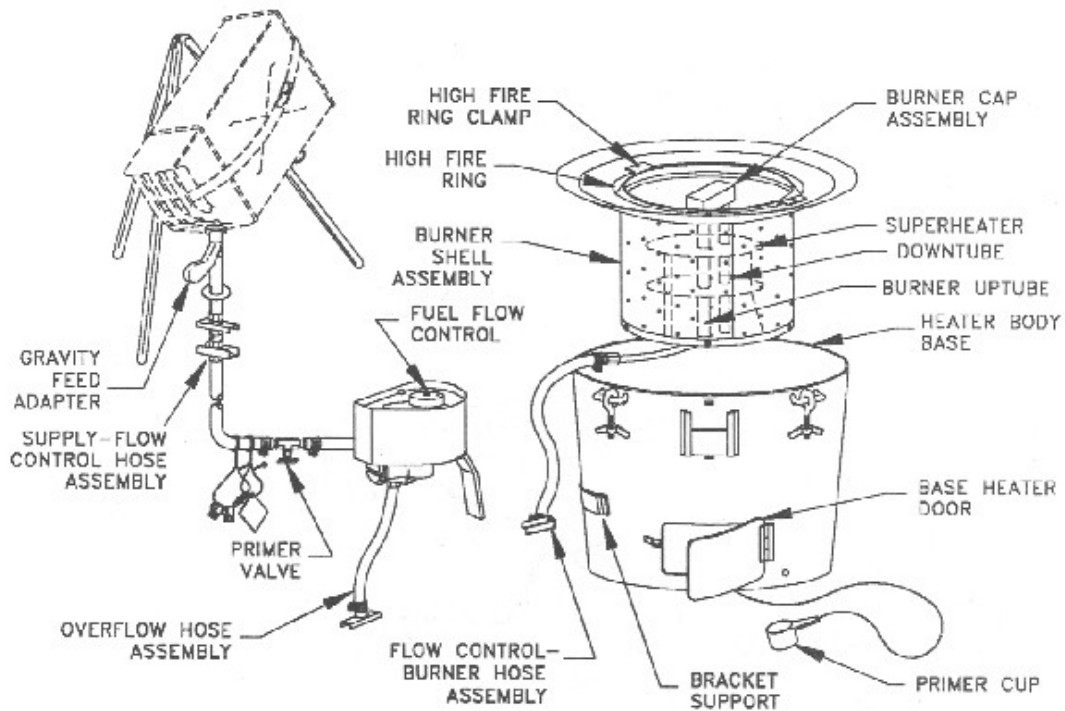


Figure 3-2
Type II (Liquid Fuel) Burner Shell Assembly

2. Assemble the type I (solid fuel) H-45 space heater body. (1 thru 4 and 14 thru 20).
 - a. Place the adapter ring (13) on top of the heater body base (16) level the base by sight.
 - b. Insert the grate assembly (10,11and12) into the adapter ring, (13) with the draw grate(12) on the bottom of the assembly and the shaker catch facing the grate heater door.
 - c. Place the top heater shell (8) on the adapter ring (13) and secure with bolts and wing nuts (15) on heater body base.
 - d. Assemble the stack pipe.

NOTE: Hold the sheet metal securely while curling it to prevent it from slipping and causing severe cuts.

- (1) Join the formed edges of one of the curved sheets of metal to formed a cylindrical pipe (5).
- (2) In one section of stack pipe insert the flue damper (6).
- (3) Punch a hole through the pipe at a position half the length of the stack pipe.
- (4) Hold the flue damper (6) in place inside the pipe and thread the flue,damper shaft through the holes, locking the curved shank of the flue damper shaft into the center slot of the flue damper; When properly locked together, the flue damper and operating handle will be parallel.
- e. Assemble the stack pipe sections, starting with an unaltered pipe section.
- f. Install the spark arrester (7) between the first two stack pipe sections, the second the being the pipe section containing the flue damper.
- g. Place the assembled stack pipe through the vent stack shield opening; Placing the stack (1 thru 5) pipe over the flange on the heater shell (8).

Performance Steps

3. Assemble the Type 2 (Liquid Fuel H-45 space heater body (SEE Figure 3-2).

NOTE: For the best operation, be sure that heater is as level as possible. If used on top of a tent floor, the base should be set in a sandbox or placed on a bed of bricks.

- a. Open door and pull priming cup on retainer wire all the way out.
- b. Open lid and remove all accessory components from inside heater, e.g., hose assemblies, fuel flow control, stack cap assembly, etc.
- c. If necessary, rotate burner shell assembly to ensure that the pipe nipple aligns with the left side of the door opening in the heater body base; pull the flow control burner hose assembly through the door opening.

NOTE: The burner shell assembly and adapter ring welded to its top must be level and fully engaged all around the circumference of the heater body base.

- d. Make sure the space heater and burner cap assemblies and high fire ring are all in place.
- e. Insert fuel flow control and bracket assembly into the bracket holder on the heater body base.
- f. Attach the free end of the flow control-burner hose assembly to flow control outlet fitting on bottom of flow control. Tighten fitting.
- g. Attach over-flow hose assembly to overflow fitting on fuel flow control. (This hose must drain downward and discharge into a safe outside location).
- h. Connect supply-flow control hose assembly to fuel inlet fitting on fuel flow control, and tighten fitting.

CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for spill prevention during fueling operations.

- i. Assemble all six-stack pipe sections and stack cap assembly.
 - (1) Insert stack cap and stack pipes through the tent stack shield opening.
 - (2) Position open end of assembled stack pipes on flue collar on top heater shell.
 - (3) Secure and adjust lines to anchor stack pipe in place.

4. Assemble gravity feeder adapter kit and insert in fuel can.

NOTE: When changing fuel cans, release cam before removing adapter from empty can. The washer on the adapter may squeeze out of place when the adapter is screwed into place on the fuel can. Wipe excess fuel from washer, washer seat, and lid of fuel can. Be sure that the supply-flow control hose assembly from the fuel can is connected to the fitting marked INLET.

- a. Attached the male end of the supply-flow control hose assembly to the gravity feed adapter hose.
- b. Make sure that the fuel ON/OFF control on fuel flow control is in the OFF position.
- c. Invert fuel can and mount on fuel can stand assembly. If fuel can stand is not available, invert fuel can on a support no more than eight feet above the fuel flow control.

5. Set up 5-Gallon fuel can stand assembly.

- a. Fully extend all three legs until they reach stops.
- b. Remove lower end of braces from their locked positions and insert rear leg.

6. Mount 5-gallon fuel can.

- a. Pass left arm of stand through can handle, keeping the mouth facing the ground.

CAUTION: Make sure adapter kit gravity feed is fully seated to avoid leaking.

- b. Position left strap under left arm of stand, through can handles and across the can body.
- c. Position right strap across can body, running down towards the left strap.
- d. Secure left and right straps using D-rings.

7. Perform Before Operations PMCS on H-45 space heater in accordance with TM-9-4520-257-12&P.

- a. Inspect components for damage, completeness, and repair needs.
- b. List deficiencies on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

Performance Steps

- c. Send form to organizational Maintenance.

Evaluation Preparation: Review the evaluation guide to become familiar with the information on which the soldier will be scored.

Determine if the soldier has to be watched while performing the task (process) or if focus on what results from the soldier doing the task (product).

Prepare the test site according to the conditions section of the task summary.

Provide the soldiers with any special instructions from the evaluation preparation section before testing.

Score the soldier according to the performance steps and standards contained on the evaluation guide.

Record results on DA Form 5164-R.

Record the date in the appropriate GO or NO-GO block in the individual soldier's leader book and, if used, DA Form 5165-R.

Have those soldiers who fail to perform to SM standards continue practicing.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Positioned the heater base directly under the stovepipe opening in the tent roof.	—	—
2. Assembled the type 1 (Solid Fuel) H-45 space heater body.	—	—
3. Assembled the Type II (Liquid Fuel) H-45 space heater body.	—	—
4. Assembled gravity feeder adapter kit and insert in fuel can.	—	—
5. Performed Setup of 5-gallon fuel can strand assembly.	—	—
6. Mounted 5-gallon fuel can.	—	—
7. Performed Before-Operations PMCS on H-45 space heater in accordance with TM-9-4520-257-12&P.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- TM 10-4500-200-13
- TM 9-4520-257-12&P
- TM 9-4520-258-14

Related

- DA PAM 738-750
- FM 3-5
- TM 750-244-3

Operate The H-45 Space Heater
101-92S-1029

Conditions: You have been instructed to operate the H-45 space heater. Materials and equipment required: an assembled H-45 space heater with accessories, Solid fuel (i.e. coal or wood) or liquid fuel (i.e diesel DF-A, DF-I or DF-2; gasoline; jet fuel JP-4, JP-5, or JP-8), matches, scratch paper, DA Form 2404, DA Pam 738-750, and TM 9-4520-257-12&P.

Standards: Complete all necessary steps to operate the H-45 space heater. List deficiencies on DA Form 2404. Operation is complete when after-operation PMCS is performed.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Perform before-operation PMCS on the H-45 space heater in accordance with TM 94520-257-12&P.
 - a. Inspect components for damage, completeness, inoperability, and repair needs.
 - b. List deficiencies on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).
 - c. Sent form to organizational maintenance.

See Figure 3-1 And Figure 3-2

2. Start the Type I (Solid Fuel) heater.

NOTE: Although coal is referred here, wood or other solid fuel may be used as well.

- a. Set the flue damper in the open position.
- b. Open the base heater door.
 - (1) Remove heater lid.
 - (2) Put crumpled paper on grate.
 - (3) Put kindling crisscross on top of paper.
 - (4) Replace heater lid.
- c. Ignite paper.
 - (1) When kindling catches fire and is burning well, put one shovel of coal on the kindling.
 - (2) When coal is burning well, close base door halfway. Regulate heat output by varying the base heater door opening and by turning the flue damper in the stack pipe.
 - (3) Add coal at intervals to maintain a fire-bed of about three inches on the grate. Push live coal to rear, and add fresh coals at the front. (The escaping gases from the fresh coal will be burned off as they pass over the live coals.)
 - (4) Add a shovel of coal after each previous shovel of coal begins to burn, until the desired fire bed is reached. (Never cover up all of the brightly burning coal with fresh coal.)
- d. Remove ashes and clinkers.
 - (1) Gently push the draw grate back and forth with the shaker until a faint red glow appears.
 - (2) Use the shaker sparingly.
 - (3) Do not extinguish the fire and do not waste fuel by shaking burning coals into the ashpit. (Leaving some ashes on the grate will protect the grate and help control the fire.)
- e. Bank the fire.
 - (1) Fill the stove with coal and open the base heater door slightly.
 - (2) Partially close the damper.

3. Start the Type II (Liquid Fuel) heater when fuel type is known.

NOTE: For best operation, insure that heater level as possible. Inspect burner and drain any water that has collected on the bottom of the burner assembly due to rain, snow, or moisture before lighting heater.

- a. Open both base heater doors.
 - (1) Be sure the three wing nuts securing top heater shell to heater body base are tight.

Performance Steps

- (2) Set fuel selector control to proper position for ambient temperature and fuel being used by lifting knob and turning entire control assembly until selector knob engages.

CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for spill prevention during fueling operations.

- b. Turn fuel ON/OFF control on fuel flow control to ON position.

NOTE: The flow adjustment knob on top of the fuel flow control increases fuel flow when turn clockwise, and decreases fuel flow when turned counterclockwise.

- (1) Turn flow adjustment knob to HI position and wait 5-10 minutes for fuel flow control and burner up tube to fill with fuel and then, turn flow adjustment knob back to position 3 after 5 minutes.
- (2) Using the four-ounce cup provided and taking fuel from the primer valve on the flow control-burner hose assembly. Pour one four-ounce cup of fuel into the bottom of the burner shell assembly.
- (3) Using a piece of tissue paper or similar material, wipe out the cup to remove the remaining fuel.

NOTE: If using gasoline or JP-4, drop the paper into the burner shell assembly before lighting the burner. If using diesel fuel, JP-5 or JP-8, use the paper to light the burner as described below.

- c. Lighting the fuel.

WARNING: Keep hands and face away from lid opening to prevent burns. If flame is accidentally extinguished, WAIT UNTIL THE BURNER COOLS BEFORE RELIGHTING. AN EXPLOSION COULD OCCUR.

- (1) When lighting the burner with gasoline or JP-4 drop a lighted match into the burner shell assembly, keeping hands and face away from the lid opening to prevent burns.
- (2) Replace lid immediately and DO NOT LOCK LID.

WARNING: If flame is accidentally extinguished, WAIT UNTIL THE BURNER COOLS BEFORE RELIGHTING.

- (3) When lighting the burner with diesel fuel, JP-5 or JP-8, drop a lit piece of paper into the burner shell assembly, making sure it goes to the bottom of the burner shell assembly. (The burner-reaming tool can be used to knock the lit paper to the bottom of the burner shell assembly if necessary.)
- (4) Replace the lid immediately and DO NOT LOCK LID.

NOTE: If fuel flow is slow, gently shake hose assembly to purge air bubbles.

- (5) With fuel flow adjustment knob at position 3, wait until burner warms up before increasing fuel flow with the fuel adjustment knob.
- (6) Check all hose assemblies, fuel flow control, and adapter kit for leaks; Tighten any loose fittings and notify your supervisor if leak is not corrected.

4. Start the Type II (Liquid Fuel) heater when fuel Type is known.

- a. Set the fuel selector control in the JP4-8 GAS position by lifting the knob and turning the entire control assembly until the selector knob engages the recess.
- b. Start the heater as described above in performance measure 3 and operate for 10-15 minutes: If fire is burning low, set the fuel selector knob to the DIESEL position.

5. Operate the H-45 space heater.

- a. Maintain heater's firing rates.

NOTE: The heater is designed to operate at various firing rates, producing between 20,000 to 45,000 BTUs. A smoking pulsing, or sooty heater indicates an over-fire condition.

- (1) Type I (Solid Fuel): Adjust the base heater door and flue damper until pulsing stops.

Performance Steps

- (2) Type II (Liquid Fuel): Viscosity of liquid fuel is not consistent at all times and locations. If the heater appears to be over firing at high settings or under firing at low settings, adjust the flow adjustment knob backward or forward until the flame is clear, no smoke or soot is observed and plusing stops.

b. Perform during operation PMCS

WARNING: Do not exchange heater unit fuel can unless the heater is turned off. Do not smoke, and ensure that there is no open flame in vicinity. Fire or explosion may result.

c. Change Fuel Can (Type II- Liquid Fuel Heater).

- (1) Turn fuel ON/OFF control to the OFF position.
- (2) Remove empty fuel can from stand and set upright on the ground.
- (3) Release cam and remove adapter kit from empty fuel can.
- (4) Install adapter kit into fuel can, insuring that the gasket on the adapter stays in place during installation; and wipe excess fuel from the washer, washer seat, and the lid of the fuel can.
- (5) Place fuel can in an inverted position, on fuel can stand or other support, not less than 1 foot (.3m) and no more than 8 feet (2.5m) above fuel flow control.
- (6) Turn fuel ON/OFF control to the ON position.
- (7) Start heater in accordance to performance measure 3 above.

6. Stop H-45 Space Heater.

a. Type I (Solid Fuel) Heater.

- (1) Shake burning coals into the ashpit.
- (2) Remove burning coals, open base heater door, and allow remaining fire to burn out.

b. Type II (Liquid Fuel) Heater.

- (1) To stop heater operation turn the fuel ON/OFF control to the OFF position.
- (2) Remove fuel can from stand and set upright on ground.

NOTE: See TM 9-4520-257-12&P for special operating instructions for H-45 space heater in extreme cold conditions (below 0/Fto-18/C), dusty or sandy areas, saltwater area, and high altitude areas.

7. Perform after -operations PMCS on the H-45 space heater in accordance with TM 9-4520-257-12&P.

- a. Inspect components for damage, completeness, and repairs needed.
- b. List deficiencies on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).
- c. Send form to organization Maintenance.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Performed before-operation PMCS on the H-45 space heater in accordance with TM 94520-257-12&P.	—	—
2. Started the Type I (Solid Fuel) heater.	—	—
3. Started the Type II (Liquid Fuel) heater when fuel type is known.	—	—
4. Started the Type II (Liquid Fuel) heater when fuel Type is known.	—	—
5. Operated the H-45 space heater.	—	—
6. Stopped H-45 Space Heater.	—	—
7. Performed after -operations PMCS on the H-45 space heater in accordance with TM 9-4520-257-12&P.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

DA PAM 738-750

TM 10-4500-200-13

Related

**Dismantle The H-45 Space Heater
101-92S-1030**

Conditions: Your immediate supervisor tells you to dismantle the H-45 Space Heater. The Fuel On/Off control on the float valve is in the off position; fuel can to the heater has been removed from its support stand. The heater has cooled for 30 minutes. A two-person detail will assist you. Materials and equipment required: H-45 Space Heater, barrier material, clean rags, anti-size compound, dry cleaning solvent (P-D-680), pressure adhesive tape (pipe wrapping RO L-T-1512, Type I), DA Form 2404, DA Pamphlet 738-750, and TM 9-4520-257-12&P.

Standards: Complete all necessary steps to dismantle the H-45 Space Heater. Continue until the heater is loaded onto a carrier.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Dismantle the H-45 Space Heater For Movement.

NOTE: If heater unit is to be relocated in the same general location, it does not need to be completely disassembled. After heater has cooled, disconnect hose assemblies and drain fuel from burner, fuel flow control, and fuel lines. Carry equipment to new position and reinstall components. Restart the heater unit in accordance with procedures described in task 101-92S-1029.

CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for spill prevention during fueling operations.

- a. For Type II (Liquid Fuel) heater, set fuel can on ground and disconnect adapter kit; replace fuel can cap.
- b. For Type II (Liquid Fuel) heater, disconnect supply flow control hose assembly from adapter kit and fuel flow control.
- c. For Type II (Liquid Fuel) heater, disconnect flow control burner hose assembly from fuel flow control and remove fuel flow control and bracket.
- d. For Type II (Liquid Fuel) heater, drain fuel from flow control and hose assemblies.
- e. Remove and separate stack cap assembly, tent lines stack pipes from each other. (Leave stack pipe sections closed).
- f. Loosen three wing nuts holding top heater body base and remove top heater shell.
- g. For Type I (Solid Fuel) heater, remove grates and adapter ring from heater body base.
- h. For Type II (Liquid Fuel) heater, remove burner shell assembly from heater body base.
- i. Clean all components of soot, carbon buildup and fuel residue.
- j. For Type I (Solid Fuel) heater, return grates and adapter ring to heater body base.
- k. For Type II (Liquid Fuel) heater, return burner shell assembly to heater body base.
- l. Return top heater shell to heater body base and secure with bolts and wing nuts.
- m. Open lid and return all accessory components to heater body base.

2. Prepare H-45 Space Heater for Storage.

WARNING: Ensure the heater unit has cooled down completely before disassemble. Do not smoke and ensure there is no open flame in the vicinity. Fuel fumes are explosive and highly flammable. Severe burns or injuries due to explosion may result.

- a. Remove heater unit from workstation and transport to servicing area.
- b. Disassemble heater in accordance with performance measure 1 above.
- c. For Type I (Solid Fuel) heater, remove ashes and clinkers.
- d. For Type II (Liquid Fuel) heater, drain hose assemblies and fuel flow control.
- e. Remove excess soot from components before packing.
- f. Pack heater unit into original crates if available. Use barrier material to pack smaller components.

Performance Measures

GO NO GO

1. Dismantled the H-45 Space Heater For Movement

Performance Measures

2. Prepared H-45 Space Heater For Storage

GO NO GO

— —

Subject Area 2: 3,000-GALLON COLLAPSIBLE TANK

Set Up The 3,000-Gal Collapsible Tank**101-92S-1038**

Conditions: Your immediate supervisor tells you to set up the 3,000-gallon collapsible tank. You will have the help of a four-person detail from the supported unit. Materials and equipment required: 3,000-gallon collapsible tank with accessories, repair kit, foot bellows, water source, and, TM 5-5430-225-12&P.

Standards: Complete all necessary steps to set up the 3,000-gallon collapsible tank. Continue until the tank is completely assembled.

Performance Steps

NOTE: Apply Risk Management Procedures

1. 1. Prepare a location close to the work area for the tank assembly (12) by removing any sharp or pointed objects that might pierce the tank.
2. Position the tank and its components (See Figure 3-4 for steps a, b and c.
 - a. Lay out the ground cloth in the center of the prepared location.
 - b. Place the folded tank in the center of the ground cloth, and unfold the tank.
 - c. Place the top cover, repair kit, foot bellows and hose near the positioned tank.
3. Inflate the tank collar and cover float. (See Figure 3-3)

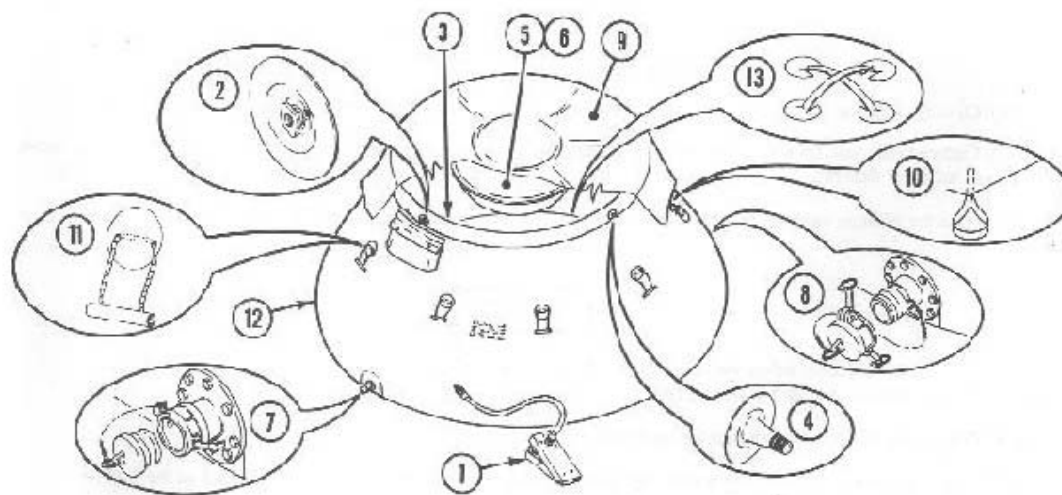


Figure 3-3
Tank Filling/Draining Details

- a. Remove foot bellows and hose (1) from the repair pouch and connect hose to foot bellows.
- b. Thread the foot bellows hose into one of the inflation valves (2) in the tank collar.
- c. Open the inflation valve (2) by turning the center part of the valve clockwise, as stenciled on the collar.

Performance Steps

- d. Make sure the remaining inflation valve (2) point located on the tank collar are closed by turning the center part of each valve counterclockwise.
- e. Operate the foot bellows (1) to inflate the collar until it is firm.
- f. Close the inflation valve (2) by turning the center part of the valve counterclockwise.
- g. Unthread the foot bellows hose (1) from the inflation valve (2) on the collar and thread into the inflation valve in the cover float (5).
- h. Open the inflation valve by turning the center part of the valve clockwise, as stenciled on the float.
- i. Operate the foot bellows (1) to inflate the cover float (5) until firm.
- j. Close the inflation valve by turning the center part of the valve counterclockwise.
- k. Unthread the foot bellows hose from the inflation valve disconnect hose from foot bellows, and store in the repair pouch.

CAUTION:

Do not over inflate the tank collar or cover float. Maximum air pressure is 0.5 PSI (3.4kpa). Tank collar and cover float may be damaged if over inflated.

NOTE:

The 3, 000 gallon collapsible water tank have an automotive valve (4) attachment part for a standard automotive-type air pump system, for inflating the tank collar.

- 4. Install filler plug (7) and dust cap (8).
 - a. Insert the 2-inch male plug (7) inside the filler fitting female supply end and lock the female fitting quick disconnect locking levers in place.
 - b. Install the dust cap (8) over the tank 2-inch male discharge fitting and locked the cap quick disconnect locking levers in place.

NOTE:

Do not exceed capacity of tank. If metering gauge is not available, tank is full when water level reaches lower edge of the tank collar.

- 5. Begin filling the tank.
 - a. While the tank is being filled, have the cover float side down and ready to be placed on top of the tank.
 - b. Turn off water flow when tank is full.
 - c. If tank is being filled at the filler fitting (7). Disconnect supply line from the tank and stop the flow of water by installing the dust plug in the filler filling or the dust cap on the discharge fitting.
 - d. Place cover (9) over top of the tank (12) ensuring that float (6) is positioned inside first, and align the ten handles (10) around the edge of the cover (9) with the ten handle-toggles (11) around the tank.
 - e. Loop the cover handles (10) over the handle-toggles (11). Pull the handle-toggles (11) down over the handles (10) and tuck the ends under the rope, to secure the cover into position.
 - f. Check the tank for holes.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Prepared a location.	_____	_____
2. Positioned the tank and its components.	_____	_____
3. Inflated the tank collar and cover float.	_____	_____
4. Installed filler plug and dust cap.	_____	_____
5. Filled the tank with water a maximum of 3,000 gallons.	_____	_____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Dismantle The 3,000-Gallon Collapsible Tank 101-92S-1039

Conditions: Your immediate supervisor tells you to dismantle the 3,000-gallon collapsible tank. A four-person detail from the supported unit will assist you. Materials and equipment required: 3,000-gallon collapsible tank with accessories, tools, and FM 5-5430-225-12&P.

Standards: Complete all necessary steps to dismantle the 3,000-gallon collapsible tank. Continue until the tank is folded for movement.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Draining and Drawing water from the tank. (See Figure 3-3)

NOTE

The filler fitting (7) provides a 2-inch (50.8 mm) female coupling end. The discharge fitting (8) provides a 2-inch (50.8 mm) male end. Either, or both, may be used to draw water from the tank. Do not remove the dust cap/plug from either fitting until any lines, containers, etc., are in place. Water will be discharged from the fitting as soon as the dust cap/plug (7 and 8) is removed.

- a. Remove the dust cap from the discharge fitting (8) or the dust plug from the filler fitting (7). Connect any lines, containers, etc. and withdraw desired amount of water from the tank.
- b. Disconnect lines, containers, etc. from the fitting and install the dust cap on the discharge fitting (8) or the dust plug in the filler fitting (7).

2. Deflate tank collar and cover float (6).

- a. Drain all water from the tank as instructed in TM 5-5430-225-12&P paragraph 2-7.
- b. Disconnect the ten handles (11) around the edge of the cover from the ten handle-toggles (10) around the tank and remove the cover (6).

CAUTION: When tank is being prepared for storage or transportation, make sure that the inflation valves remain open. The tank collar and cover float may be damaged if the valves are closed and the tank encounters different atmospheric pressures.

- c. Deflate the cover float (5) by turning the center part of the inflation valve (2) clockwise to open. Do not close the inflation valve (2) after float is deflated.
- d. Deflate the tank collar (2) by turning the center part of the three inflation valves (2) clockwise to open. Do not close the inflation valves after collar is deflated.
- e. Clean the outside of the tank (12) and the cover (6) with a mild detergent/water solution and rinse thoroughly with clean water.
- f. Allow the cover (9) and the outside of the tank (12) to dry thoroughly.

CAUTION: Do not lift or move the tank with the lift handles if there is any standing water remaining in the bottom of the tank. Damage to the handles and/or tank fabric may occur.

- g. Using the inside lift handles (11) suspend the tank inside out.
- h. If needed, clean the inside of the tank with a mild detergent/water solution, and rinse thoroughly with clean water.
- i. Keep the tank suspended until dry.
- j. Take down the tank; position it with the handle-toggles (10) to the outside.

3. Fold the tank for movement. (See Figure 3-4).

Performance Steps

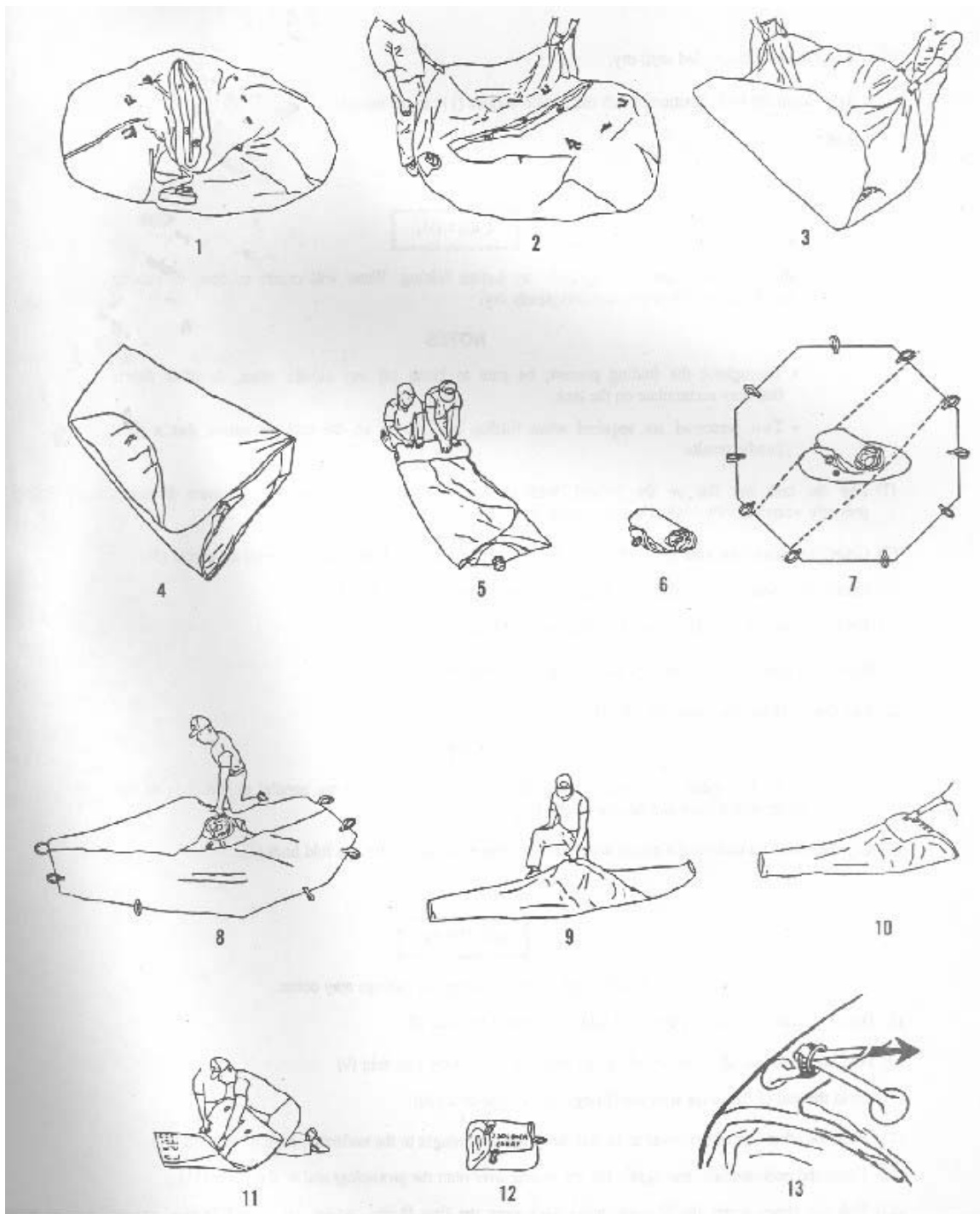


Figure 3-4
Folding The Tank

CAUTION

Make sure the tank is completely dry before folding. Water will create mildew, decreasing the life of the tank if it is not completely dry.

Performance Steps

NOTES

Throughout the folding process, be sure to brush off any stones, grass, or other debris that may accumulate on the tank. Two personnel are required when folding and rolling up the tank to ensure that a tight bundle results.

- a. Lay the tank out flat on the ground, with the tank collar up; (1) ensure ruler/discharge fittings are properly wrapped with original wrapping material.
- b. Grasp one side of the tank (2) without a filler/discharge fitting), and fold inward toward the center (3). Grasp the opposite side of the tank (3) and fold inward, over the first fold (4). Fold any overhang of the second fold back on top of itself (4).
- c. Starting at one end of the tank (5), tightly roll up the tank (6).
- d. Lay the cover out flat with float side up (7).

NOTE

If the fold lines have worn off, the length of the tank should run parallel to the ends of the cover which have two handles each (7).

CAUTION

Do not walk on tank or cover, as damage may occur.

- e. Lay the rolled up tank on the cover, with its length perpendicular to the two fold lines (7).
- f. Fold one side of the cover, along the fold line, in over the tank (8).
- g. Fold the other side of the cover, along the fold line, in over the first fold (9).
- h. Fold the end of the cover with the D-rings up over the tank (10).
- i. Fold the other end of the cover in so that the straps are brought to the underside edge of the fold (11).
- j. Grasp the enclosed tank and tightly roll the bundle over onto the protruding end of the cover (12).
- k. Pull the straps under the D-rings, bring back over the first D-ring, under the second D-ring, and pull snug to secure the bundle (13).

Performance Measures

- 1. Draining/Drawing water from the tank.
- 2. Deflated the tank collar and cover float.
- 3. Folded the tank for movement.

<u>GO</u>	<u>NO GO</u>
—	—
—	—
—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Subject Area 3: TENTS

**Pitch A Temper Tent
101-92S-1034**

Conditions: Your immediate supervisor tells you to pitch a TEMPER (Tent, Extendable, Modular, Personnel). A four-person detail from the supported unit will assist you. Materials and equipment required: Tent fabric assemblies /sections ; three unique frame sections (End Section, Type Extendable Section, Type II; Extendable Door Section, Type III); a 120V or a 208 power control system; a Type I light set; a Type I and II light cables; guy lines and pins / stakes; camouflage screen systems; entrenching tool; poles, wooden mallets, and TM 10 -8340-224-13.

Standards: Complete all necessary steps to pitch a TEMPER tent. Continue until the pole assemblies are erected.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Lay out the TEMPER TENT components and camouflage.
 - a. Remove the following support system components for the camouflage screen from the storage case.
 - (1) Eighteen stakes.
 - (2) Twelve 4-foot pole assemblies.
 - (3) Six spreader adapter assemblies.
 - (4) Eighteen batten spreaders (either design).
 - (5) Repair kit.
 - b. Arrange the screen and components.
 - (1) Join the screens by clipping the edges together with the lanyard cord, which is packed with the screen.
 - (2) Ensure all pins on the lanyard cord point in the same direction.
 - (3) Make repairs, if needed.
 - c. Place the TEMPER TENT in position on the ground. (See Figure 3-5,3-6,3-7)

Performance Steps

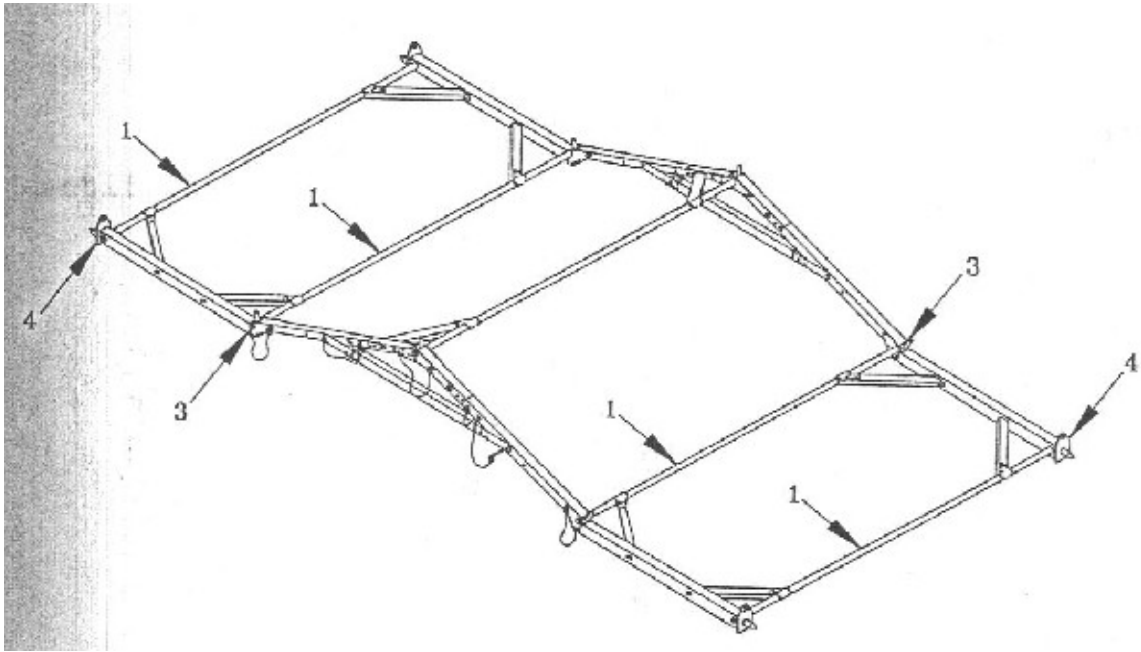


Figure 3-5
Tent, Extendable, Temper

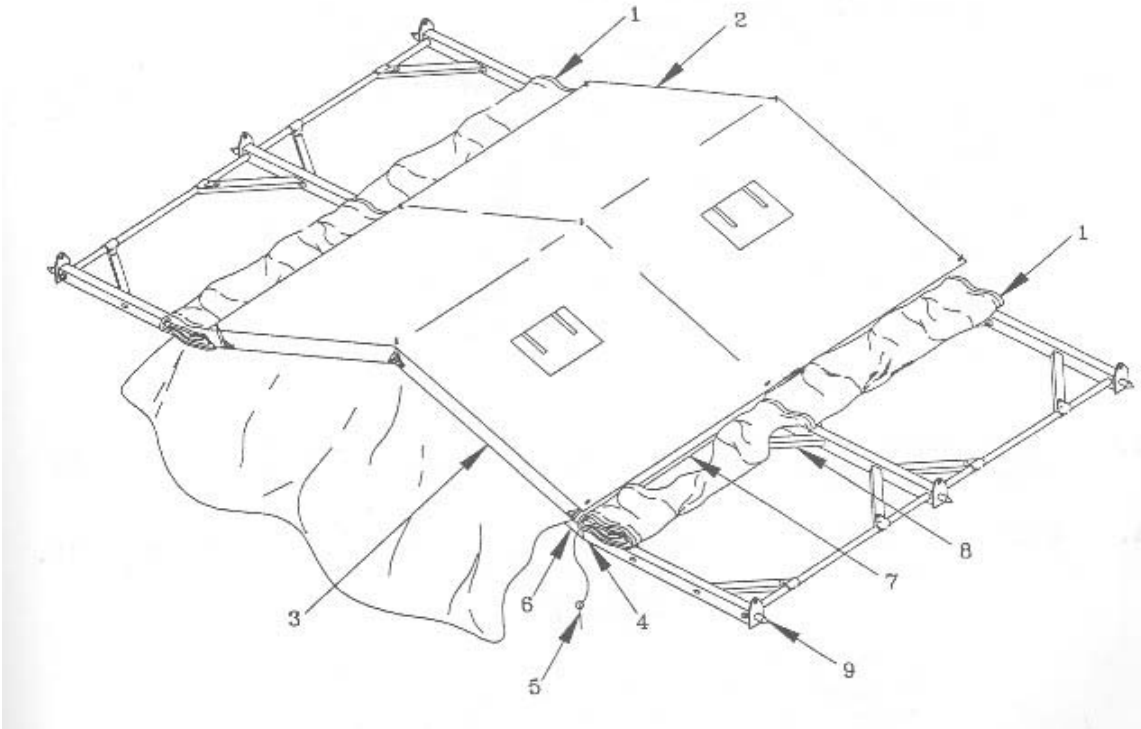


Figure 3-6
Tent, Temper

Performance Steps

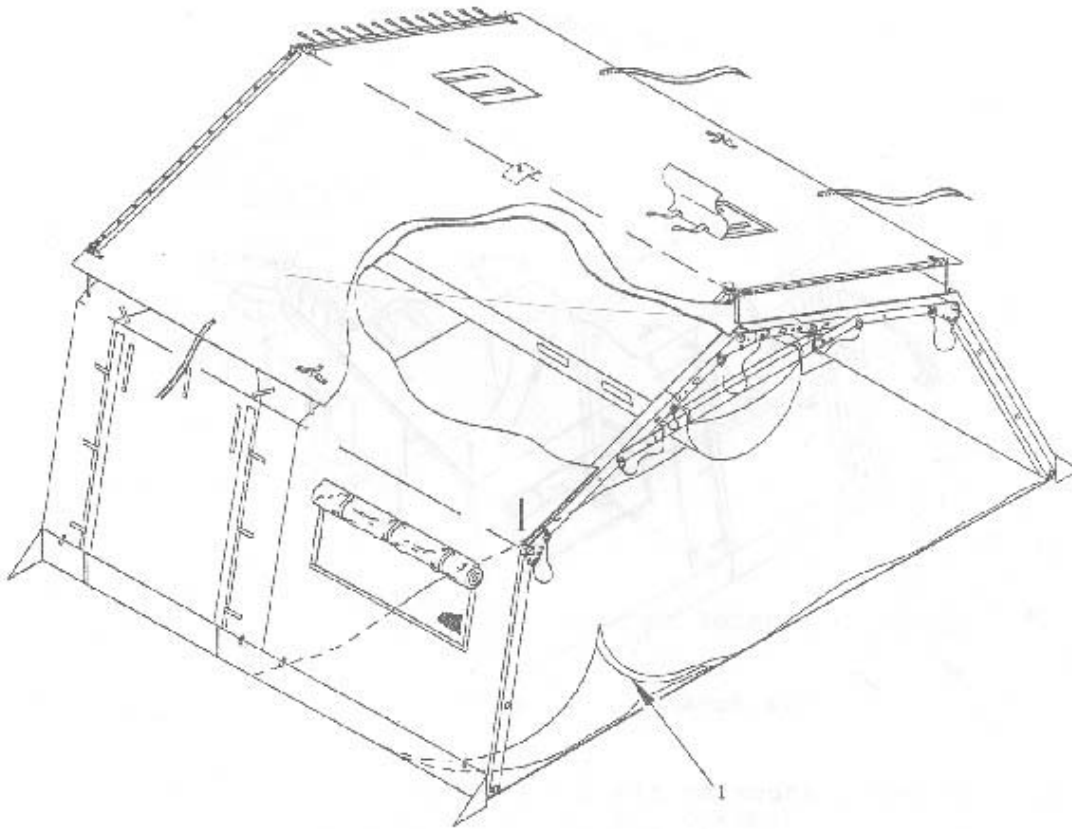


Figure 3-7
Tent, Temper, Fabric

- (1) Position tent on level ground area.

CAUTION: Unpack components carefully. Improper or hasty handling may result in damage to the TEMPER components and accessories.

- (2) Clear ground area of rocks and underbrush, which might damage the tent.
- (3) Shelter tent from high winds.
- (4) Lineup each frame bundle along the side of the site to be utilized.
- (5) Place the roof sections (2) between tent frame sections (See Figure 3-6).
- (6) Place end walls at each end of tent.
- (7) Place fly at every other roof section.

- (8) Place intermediate lines next to roof sections when applicable.

- (9) Place end section lines next to end roof sections.

2. ERECT TEMPER TENT.

- a. Open up frame and align the hole at the ridge extender assembly and lock in place by inserting hitch clip pin.
- b. Align holes on header assembly with holes in roof portion of arch (See Figure 3-4).
 - (1) Secure in place with hitch clip (3) pin.
 - (2) Repeat the same procedures for other side of header.
- c. Start constructing the frame by joining two assembled arches (4) with purlins (1).

Performance Steps

- (1) Starting at the ridge, two soldiers working together, one on each end of purlins, align and insert purlin stud in hole frame and rotate 90 degrees to lock purlin to frame.
- (2) Align stud in purlin (1) diagonal brace with hole in the arch (4) See Figure 3-5.
- (3) Insert stud in hole and lock in place by rotating the handle right or left 90 degrees, and push handle down until it is parallel with frame.

NOTE: Do not lay handle in the brace channel when working near frame hinges, be careful to avoid pinching your hands or fingers. Do not hold the hinge itself at ridge or eave locations.

- d. Place roof section (1,2 and 3) over frame starting at one end (See Figure 3-6).
 - (1) Find ridge grommet and insert it over pin (6) protruding up from frame.
 - (2) Do the same at the eaves.
- e. Join end wall section starting at the ridge after the first roof section is on (1,2 and 3).
 - (1) Insert grommet over pin and then join the roof section and end wall by engaging the loops.
 - (2) Place remaining roof sections on frame and join together by engaging the loops See (Figure 3-7).
 - (3) Put on the other end wall, joining it to the roof sections.
- f. Place and secure the extender in their respective places.
 - (1) Place extenders over pin protruding from frame.
 - (2) Align hole in extenders with hole in pin, locking in place with securing clip.
 - (3) Use one 19' guy line on eave extenders and two 19' guy lines on ridge extenders.
 - (4) Pass sewn end on guy line around ridge and eave extenders and thru eye splice.
 - (5) Pass sewn end of guy lines thru both holes in tent slips and place knot in sewn ends, after guy lines are in place.
- g. TBD
 - (1) Place fly on extenders starting at the ridge.
 - (2) Place grommet over pin and lock in place (secure clip attached to fly) with clip thru hole in pin.
 - (3) Repeat this sequence to secure fly to eave extenders. (All eave extenders have two securing clips attached; all eaves extenders should have guy lines.)
- h. Raise the tent.
 - (1) Place two people at each arch section at the eave location, to ensure the frame is raised evenly and simultaneously at each arch.
 - (2) Raise the shelter (at eave line) and swing the lower leg of the frame into place.
 - (3) Secure in place with pin.

NOTE: The personnel at each end of the shelter should make certain that the fabric does not get caught in the frame hinge.

- i. Finish closing the tent by engaging the loops and secure them.

NOTE: When tent is in this position, check screen flap lines and guy lines to make certain they are free to operate.

- j. Raise the opposite side in the same manner and finish closing the tent.
 - k. Go inside the tent to secure roof sections to the frame at the eaves and lower purlin by engaging the nylon hook and loop fastener around the purlin.
 - l. Secure the guy lines to the ground stakes after dressing the tent.
 - (1) Use two guy lines to one ground stake; one from the fly and one from the base of the extender.
 - (2) Drive steel ground pins in hole in footplate, door purlins and loops on bottom of tent sections before closing tent.
 - m. Install end section liner by securing the tie tapes to the arch and purlins.
- NOTE: Intermediate liner shall be installed in a similar way and shall be fastened to the end liner by securing the fastener tape.
- n. Assemble three vestibules frame and place front of doorway. Attach adapter to one frame and prepare for assembly of vestibule.
 - o. Place vestibule over adapter frame and the other two frames.
 - (1) Place guy lines over frame spindles securing with hitch pins.
 - (2) Secure tie tapes on inner walls to all three frames.

Performance Steps

- (3) Pull vestibule outward away from tent and stake guy lines to ground with wood stakes.
- (4) Install single ply vestibule floor by securing tie tapes to vestibule frame and fastening the hook and pile fasteners on floor to those on the vestibule walls.
- (5) Place vestibule insulated floor on top of single ply floor.
- (6) Attach vestibule door to adapter by placing grommets over frames spindles, lacing loops together as described in paragraph II.
- (7) Secure weather flaps over laces by means of the hook and pile fasteners.
- (8) Drive steel ground pin through loops on bottom of vestibule.
- p. Install one of the single ply tent floor sections by aligning notches with frame members.
 - (1) Secure tie tapes to frame.
 - (2) Install additional floor sections by mating hook and pile fasteners along edge of floor securing tie tapes to frame.
- q. Insulated floor panels:
 - (1) Install by placing them over the single ply floor sections.
 - (2) Lock together by mating hook and pile fasteners along edge of floor sections.

NOTE: An electrical distribution system is available for use with this tent.

- (a) A lamp cable assembly is available which contains molded sockets for two incandescent light bulbs. These assemblies can be substituted for the fluorescent lights when low-level lighting is adequate.
- (b) Four luminaries come packed in a fiberglass carry container. Each luminary is furnished with a light support strap with four attached support straps. The light support straps fasten over the frame header assembly. The luminaries are suspended from the light support strap by means of the 2 support straps. When the liner is installed, the 2 straps are passed thru the slits in the liner and then attached to the luminaries.
- (3) Perform Temper before and during- operations PMCS in accordance with TM10-8430-224-13.
 - (a) Inspect components for damage, completeness, inoperability, and repair needs.
 - (b) List deficiencies on DA Form 2404 (Equipment Inspection and Maintenance worksheet).
 - (c) Send form to organizational maintenance.
- (4) Prepare a trench around the outside base of TEMPER.
 - (a) Dig a trench around the bottom of tent.
 - (b) Dig the trench no more than 5 inches deep.
- (5) Erect the camouflage pole assemblies under the camouflage screens to break the silhouette of TEMPER.
 - (a) Place the spreader over the top of the pole, pushing down to secure.
 - (b) Turn the top nut counterclockwise to extend the arm of the spreaders, than turn the top nut clockwise to tighten.
 - (c) Raise the spreader up and attach the pole to desired length needed.
 - (d) Ensure the screen is at least 2 feet above the tentage.
 - (e) Stagger the poles to disrupt the straight lines.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Lay out the TEMPER components and the camouflage.	—	—
2. Erected Temper tent.	—	—
a. Performed TEMPER TENT (PMCS).		
b. Positioned camouflage over the tentage.		
c. Prepared a trench around the outside base of TEMPER TENT.		
d. Erected and secure camouflage screen systems to break the silhouette of the TEMPER TENT.		

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

**Strike And Store A Temper Tent
101-92S-1035**

Conditions: Your immediate supervisor tells you to pitch a TEMPER (Tent, Extendable, Modular, Personnel). A four-person detail from the supported unit will assist you. Materials and equipment required: Tent fabric assemblies /sections; three unique frame sections (End Section, Type; Extendable Section, Type II; Extendable Door Section, Type III); a 120V or a 208 power control system; a Type I light set; a Type I and II light cables; guy lines and pins / stakes; camouflage screen systems; entrenching tool; poles, wooden mallets, and TM 10 -8340-224-13.

Standards: Complete all necessary steps to strike a TEMPER tent. Continue until the fabric, poles, frame assemblies are stored and secured.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Clean and dry the TEMPER tent.
 - a. Remove the dirt from the fabric with a solution of mild soap and water applied with a soft-bristled brush.
 - b. Scrub the tentage from the field with stiff brushes to remove layered dirt and possible mildew.
 - c. Rinse with clear water.
 - d. Wipe dry.
 - e. Dry thoroughly in the sun and /or air.

NOTE: The tent fabric will mildew if folded or stored while damp or covered with dew.

- f. If the tent fabric dried outdoors, hang the fabric off the ground and in bright sunlight. Remove the fabric before evening dampness is absorbed.
- g. If the tent fabric is dried indoors, hang the tent in a well-ventilated area suspended off the floor.
- h. Check the seams and edges to ensure tent fabrics are totally dry.

2. Strike and fold the TEMPER tent.

NOTE: First locate the transport bag and the light set storage container. Fold fabric, label side out.

- a. Remove insulated floors.
 - (1) Remove debris and clean insulated floors.
 - (2) Disconnect hook and pile tape fasteners at insulated floor section joints.
 - (3) Fold and remove individual insulated floor sections.
- b. Remove vestibules.
 - (1) Remove single ply floors.
 - (2) Release tension on all guy lines and remove stakes.
 - (3) Unlace vestibules door sides from vestibule.
 - (4) Untie vestibule tie tapes.
 - (5) Remove steel pins in vestibule foot stops and frame base plates.
 - (6) Collapse vestibule and position frames against end wall.
 - (7) Remove hitch pins and complete door removal.
 - (8) Remove pins and complete door removal.
 - (9) Open weather seal flap, unlace vestibule, remove and fold.
- c. Remove guy lines, foot stop tent pin/stakes, partitions, base flaps, side arch assembly, distribution box/power control stand, and electric cables.
 - (1) Release guy lines tension except at each tent corner; release tension on high wind lines and disconnect from wooden stakes.
 - (2) Remove the stakes and foot stop tent pins.
 - (3) Remove section partitions and modesty curtains, if installed.
 - (4) Disconnect all becket laces up to eave.
 - (5) Disconnect the base purling flaps.
 - (6) Untie liner and floor tie tapes from base purlin and side arch assembly.

Performance Steps

- (7) Disconnect electric cables from distribution box. Remove distribution box from power control stand. Remove power control stand.

CAUTION: Connect all dust caps together. Dirt and dampness may damage electrical connections.

- (8) Disconnect and remove electrical cables and outlets.

d. Lower tent frame.

- (1) Close all windows and doors on all fabric sections.
- (2) Lift fabric from side of the tent and place underneath fly.
- (3) Untie and pull single ply floor back approximately 4 feet from side of being lowered.
- (4) Remove frame foot tent pins.

CAUTION: Frame assembly hinges can pinch or crush hands and finger. Keep hands and fingers away from frame assembly ridges and eaves. Avoid folding wall fabric into joints. Material may rip or tear if caught in joint.

- (5) Place two soldiers at each arch on side of the tent being lowered.
- (6) On command, remove quick release pins holding arches erect.

NOTE: Do not twist or turn frame components because damage to equipment may result. If pins cannot be removed easily, loosen corner guy lines and adjust the frame, then remove.

- (7) Relieve tension from four corner ropes.
- (8) Standing clear of tent place one hand below eave joint of arch and one on the eave purlin. Swing frame outside. Extra student may assist in lowering frame.
- (9) Remove luminaries.
- (10) Remove plenums.
- (11) Remove liners.
- (12) Remove light support strap assemblies.
- (13) Untie and remove single ply floor.
- (14) Disconnect eave purlin flaps.
- (15) Repeat steps A through H to lower other side of the tent.

e. Remove tent fabric.

- (1) Disconnect hitch clip pins, remove fly from eave extenders and remove eave extenders.
- (2) Untie tie off point and disconnect becket lacing of all roof sections.
- (3) Remove hitch clip pin from ridge extender. Remove fly and remove ridge extender.
- (4) Remove end walls.

NOTE: Fold fabric, label side out.

- (5) Remove window/door section.

f. Disassemble Frame.

Disassembly sequence is from base to ridge.

- (1) Disconnect each purlin diagonal brace, fold and secure.

WARNING: Position one soldier at each ridge arch to hold arch upright during frame disassembly. Failure to hold frame upright may allow frame to fail and injury to personnel.

- (2) Rotate pullins and remove.
- (3) Remove headers.
- (4) Disassemble roof arch and side arch assembly and fold.
- (5) Pack in appropriate transport bag.

3. Perform TEMPER tent after-operations PMCS in accordance with TM 10-8430-224-13.

- a. Inspect components for damage, completeness, and repairs needed.
- b. List deficiencies on DA Form 2404 (Equipment Inspection and Maintenance Work sheet).
- c. Send form to organizational maintenance.

4. Store the TEMPER tent.

- a. Pack the fabric and frame assemblies.
 - (1) Place components into the tent cover and frame sections cover assembly.
 - (2) Place bags onto wooden pallet and store in a building, sled or other dry place.
 - (3) Store the light set in its storage container.

Performance Steps

- b. Place equipment in administrative storage for short periods of time when a storage of maintenance resources exit.
 - (1) Make sure items are in mission readiness within 24 hours or within the time factors as determined by the directing authority.
 - (2) Keep appropriate maintenance records during storage.
 - (3) Before placing equipment in administrative storage, current maintenance services and equipment serviceability criteria (ESC) evaluations should be completed; shortcomings and deficiencies should be corrected; and all MWDs should be applied.
- c. Select storage site.
 - (1) Select inside storage facility for items being maintained in administrative storage.
 - (a) Stake the TEMPER tent on dunnage supported by 2-by 4-inch lumber.
 - (b) Lumber used must be thoroughly cured prior to use. Green lumber promotes mildew.
 - (c) Make sure tentage is at least 4 inches above hard surfaced or wooden floors and 8 inches above a ground surface.
 - (d) Insert the dunnage between the tentage when in a damp environment; thus, permitting proper air circulation.
 - (e) Cover the tentage with waterproof material when stored near openings or ventilators.
 - (f) Mark the date the TEMPER tent was stored on blocks; give priority issue to the longest stored TEMPER tent.
 - (g) If TEMPER tent components are to be stored without regular PMCS being performed, consult TM 38-230-2 for preservation requirements.
 - (2) If inside storage is not available, use trucks, vans, conex or other containers.
- 5. Prepare TEMPER tent for shipment.
 - a. Prepare the TEMPER tent for shipment by packing components into wooden crate, using the original packing material in which they were received.
 - b. Strap crates onto wooden pallet.
 - c. Move pallet/crates to transportation assets and/or storage area.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Cleaned and dry the TEMPER tent.	—	—
2. Strike and fold the Temper tent.	—	—
3. Performed TEMPER tent after-operations PMCS in accordance with TM 10-8430-224-13.	—	—
4. Stored the TEMPER tent.	—	—
5. Prepared TEMPER tent for shipment.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

Subject Area 4: SHOWER OPERATIONS

**Set Up The Twelve-Head Shower Unit
101-92S-1026**

Conditions: You work in a shower section. Your immediate supervisor tells you to set up the twelve head shower unit equipment. A four-person detail from the supported unit will assist you. Frame tents extendable have been erected and connected together. Ensure the hose couplings are free of dirt or foreign matter and gaskets are in place to prevent equipment damage. Materials and equipment required: shower unit complete with accessory items of issue DA Form 2404 or DA Form 5988-E and TM 10-4510-207-14.

Standards: Complete all necessary steps to set up the twelve head shower unit. Continue until the shower unit is ready for operation.

Performance Steps

NOTE: Apply Risk Management Procedures.

NOTE: Position the generator, the water heater, and the water pump in a straight line alongside of the shower tent.

1. Place the water pump on a level surface approximately 15 to 20 feet from the water source. Ensure the suction lift does not exceed 15 feet above the water source. (See Figure 3-8)

Performance Steps

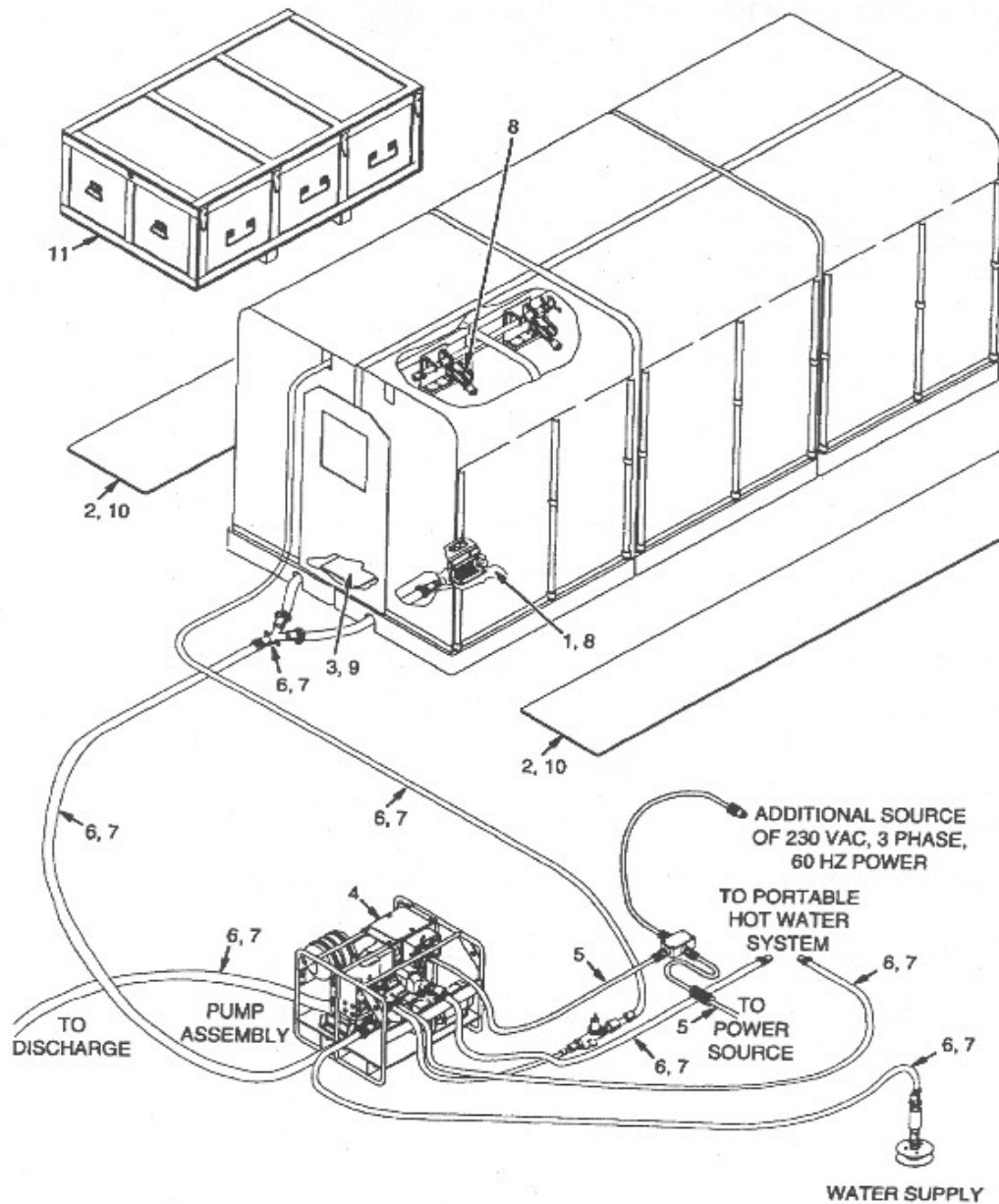


Figure 3-8
Equipment Diagram

2. Install the water supply suction hose.
 - a. Connect the supply suction hose strainer to the male end of the 35-foot 1-inch water supply hose and secure the coupling quick - disconnect locking levers.
 - b. Place the supply suction hose assembly and suction strainer into the water source.
 - (1) Place the strainer on a mound of stones or gravel.
 - (2) Make a large pile of stones upstream from the strainer to divert debris from the strainer.
 - (3) Build a tripod using tree branches and suspend the strainer from the tripod or builds a barrier using tree branches. Place the tripod upstream from the strainer to prevent leaves, weeds, or other debris from entering the strainer. (See Figure 3-8)

Performance Steps

3. Place the water heater on level ground approximately 5 feet from the water pump and install supply hoses.

NOTE: Arrange a suitable shelter or windbreak for the water heater to conserve fuel, if possible.

- a. Connect the male coupling of the 61 x 1-1/2-inch water supply hose to the water pump outlet. Connect the female end of the hose to the water heater intake and secure the quick - disconnect locking levers.
- b. Connect the 90 x 1-inch red water hose to the M80 water heater output manifold. Connect the other end to the water pump temperature regulator inlet. Secure the hoses quick - disconnect locking levers.
- c. Connect the 35 feet 1-inch main water supply hose to the water pump inlet and secure the quick - disconnect locking levers. The other end of the supply hose is connected to the strainer out to the water source.
- d. Connect a 1 inch water hose to the supply pump temperature regulator output and the opposite end to the regular valve assembly inlet, and secure the quick-disconnect locking levers.
- e. Connect the regular valve assembly male coupling to a 1-inch shower supply hose female coupling. Place the supply hose through the fabric cover and connect it to the shower top frame assembly manifold, and secure the quick-disconnect locking levers.
- f. Install the smokestack. (See Figure 3-9)

Performance Steps

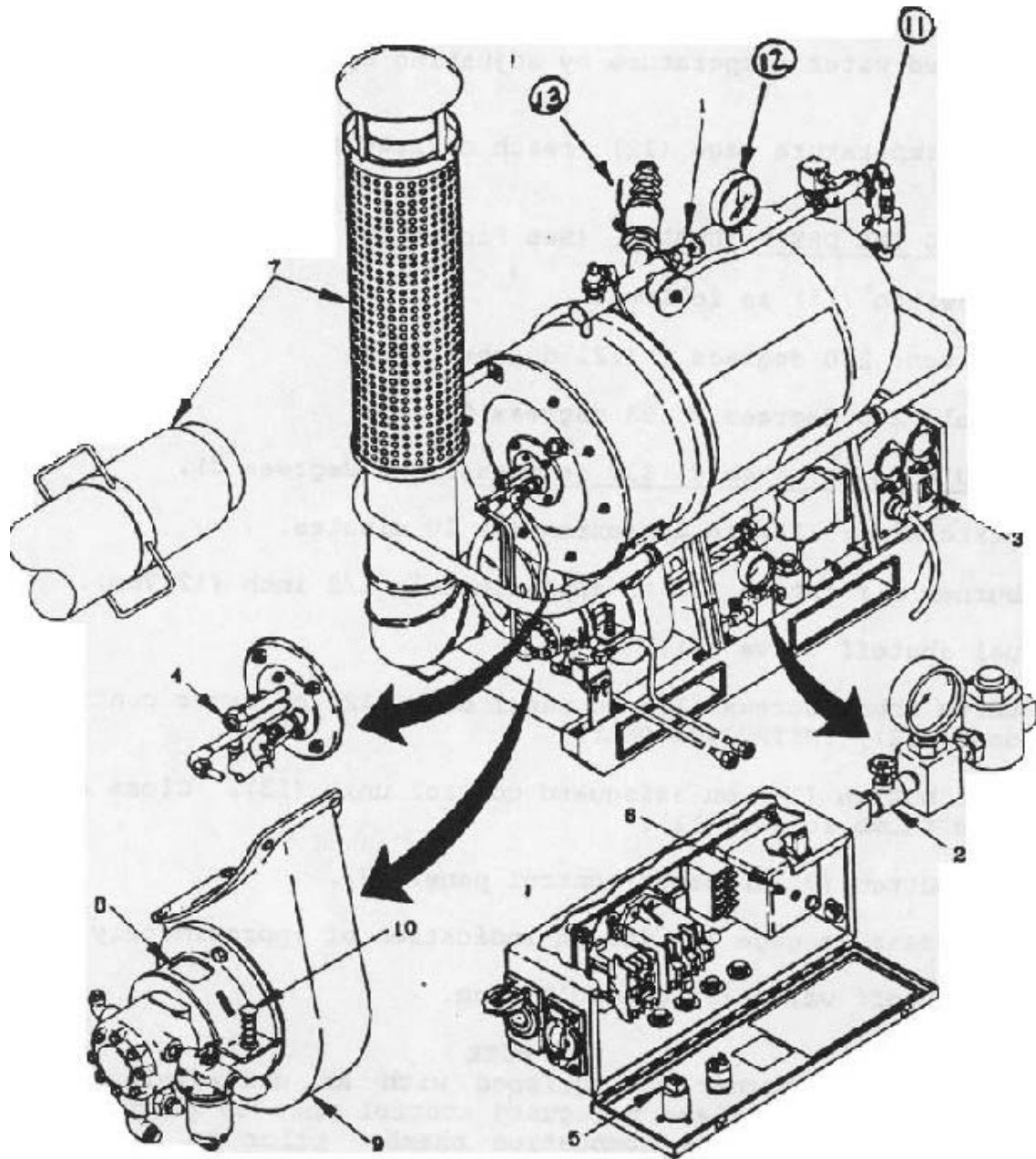


Figure 3-9
Smoke Stack Diagram

g. Install an elbow on the water heater by turning slightly to the right to seat the pin in the slot.
NOTE: Insert the smokestack and guard assembly through the bracket onto the elbow. Tighten the bracket screw to secure the smokestack and guard assembly.

4. Position shower base assembly. (See Figure 3-11 within Task 101-92S-1027)
 - a. Stand six shower base assemblies (1) lengthwise in two columns with drain hose cutouts (2) facing away from the centerline. Ensure base units are back to back and heel to toe.
 - b. Remove five pipe caps (3) from drain manifolds, repeat step (a & b) for the other side (4). Do not remove the two end caps farthest away from the pump assembly.

Performance Steps

- c. Connect drain hose to the base assembly manifold using six 4 feet X 2 inch drain hoses, and secure the quick - disconnect locking levers.
 - d. Lower base assemblies three at time, align base and butt them together.
5. Set up shower frame assembly (See Figure 3-10 within Task 101-92S-1027)
- a. Install six vertical support poles (6) with peg (7) facing upward in one of the middle base assembly (1).
 - b. Position top frame assembly (8) over vertical support poles with overhang toward the center. Align the pole pegs with top frame tubes and lower until firmly seated.
 - c. Position fabric cover (9) over the top frame assembly. Pull fabric cover down and secure to vertical support poles using hook and fastener tapes (11). Secure cover to base assembly with hook and fastener tapes (10). Repeat steps (a) through (c) for the remaining middle base assembly.
 - d. Secure top frames together at the center overhang with hook and fastener tape. Overlap hook fastener tape inside fabric cover to pile fastener tape on top facing cover and press together. Repeat these steps for the remaining end assemblies working them in pairs.
 - e. Position shower floor cover (12) over central walkway and secure with faster tapes.
 - f. Remove five shower manifold caps, leaving terminal cap on.
 - g. Place four 1-inch water supply-hose, through openings in fabric covers and connect hoses to shower top frame manifolds between a adjacent showers. Secure all quick - disconnect locking levers.
 - h. On end opposite water pump, install two water hose between the shower manifolds to form a crossover connection between rows. Secure quick - disconnect locking levers.
 - i. Connect a 35-feet 1-inch water supply hose to the shower manifold. The shower manifold on the opposing shower end must remain capped. Secure quick - disconnect locking levers.
 - j. Connect the two shower base 2-inch drain hoses to "Y" fitting male couplers and secure the hoses quick-disconnect locking levers.
6. Connect diaphragm Pump assembly.
- a. Connect a 35 feet 2-inch main drain suction hose to the "Y" fitting and connect the other end to diaphragm pump inlet. Secure the quick-disconnect locking levers.
 - b. Connect a 35 feet 2-inch drain hose to the diaphragm pump outlet and the other end out to drain field. Secure the quick-disconnect locking levers.
7. Place the fuel container approximately 5 feet from the water heater and install fuel lines.
- NOTE: Fuel used with the shower unit is highly flammable and may be dangerous to human life if handled improperly. Tighten all fuel fittings firmly with a wrench to prevent leaks. Recheck all fittings when the water heater is operating to ensure there are no fuel leaks with the system under pressure.
- CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for spill prevention during fueling operations.
- a. Screw the drum fill adapter into the fuel container.
 - b. Connect the fuel line from the pump filter to the supply fittings on the drum fill adapter assembly.
 - c. Connect the fuel line from the pump return nipple to the drum fill adapter return fitting.
- NOTE: Use only specified fuel. Failure to do so may result in injury to personnel or equipment.
8. Connect the cable assembly to the water heater, water pump, and power source.
- a. Connect power supply cable to the generator load terminals stud, secure terminals stud nuts.
 - b. Connect power supply cable to T-junction power wire harness.
 - (1) Insert the male plug end and female plug together.
 - (2) Twist the male plug to the right and the female plug to the left to secure in place.
 - c. Connect the T-junction power wire harness female plug to the water heater receptacle.
 - (1) Lift the water heater receptacle cover.
 - (2) Insert the plug in receptacle and twist to the right to secure.
 - (3) Release the receptacle cover.

Performance Steps

- d. Connect the T-junction power wire harness female plug to the water pump assembly receptacle.
 - (1) Lift the water pump assembly receptacle cover.
 - (2) Insert the plug in receptacle and twist to the right to secure.
 - (3) Release the receptacle cover.
- 9. Ground the power generator system.
 - a. Drive a solid or hollow ground rod at least 8 feet into the ground, with one foot above the ground level.
 - b. Connect the cable or wire to the grounding device's ground stud.
 - c. Connect other end of the cable or wire to the generator frame ground stud.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Placed the water pump on a level surface approximately 15 to 20 feet from the water source.	—	—
2. Installed the supply suction hose.	—	—
3. Placed the water heater on level ground approximately 5 feet from the water pump and install supply hoses.	—	—
4. Positioned shower base assembly.	—	—
5. Set up shower frame assembly.	—	—
6. Connected diaphragm pump assembly.	—	—
7. Placed the fuel container approximately 5 feet from the water heater and install fuel lines.	—	—
8. Connected the cable assembly to the water heater, the water pump, and the power source.	—	—
9. Ground the power generator system.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

TM 10-4510-206-14

Related

Dismantle The Twelve-Head Shower Unit 101-92S-1027

Conditions: You work in a shower section. Your immediate supervisor tells you to dismantle the twelve head shower unit. A four-person detail from the supported unit will assist you. The shower equipment has been stopped and cooled. Materials and equipment required: shower unit, clean rags, water, soap, and TM 10-4510-207-14.

Standards: Complete all necessary steps to dismantle the twelve-head shower unit. Continue until the fuel hose assembly is disconnected from the fuel drum and the water heater.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Disconnect the grounding system from the generator.
 - a. Disconnect the cable or wire from the grounding device's ground stud.
 - b. Disconnect the cable or wire from the generator frame's ground stud.
 - c. Remove the grounding device from the ground.
2. Disconnect the power supply cables.
 - a. Disconnect the supply cable between the generator and T-junction power wire harness male plug connector from the female plug connector.
 - (1) Twist the plug to the left.
 - (2) Pull the two plugs apart.
 - (3) Wipe the power cable with a clean cloth, coil it, and tie it together
 - b. Disconnect the female plug connector end of the power wire harness from the water heater receptacle.
 - (1) Lift the water heater receptacle cover.
 - (2) Twist the plug to the left.
 - (3) Pull the plug out of the receptacle.
 - (4) Release the receptacle cover.
3. Disconnect the power wire harness from the water pump assembly.
 - a. Disconnect the female plug connector end of the power wire harness from the water pump assembly receptacle.
 - (1) Lift the receptacle cover.
 - (2) Twist the plug to the left.
 - (3) Pull the plug out of the receptacle.
 - (4) Release the receptacle cover.
 - b. Wipe the power wire harness with a clean cloth, coil it, and tie it together.
4. Disconnect the water heater and pump supply hoses.
 - a. Disconnect the 61 x 1-1/2-inch water supply hose between the water heater intake and the water pump assembly outlet. Disconnect the 90 x 1 inch red M80 heater hose between the heater and pump assembly temperature regulator inlet, by pulling out the quick-disconnect locking levers.
 - b. Disconnect the hoses between water pump, regulator and the shower stand manifold assembly, by pulling out the quick-disconnect coupling locking levers on each coupler.
 - c. Disconnect the 35 feet 1 - inch main water supply hose from the water pump inlet, by pulling out the quick-disconnect coupling locking levers.
 - d. Remove the supply suction hose and strainer from the water source.
 - e. Disconnect the strainer from the supply suction hose, by pulling out on the strainer quick-disconnect locking levers.
 - f. Clean the hoses with a brush using a mild, soapy water solution; rinse them; and let them dry.
 - g. Roll each hose and tie them together.
5. Disassemble the six shower top frame assemblies. (See Figure 3-10)

Performance Steps

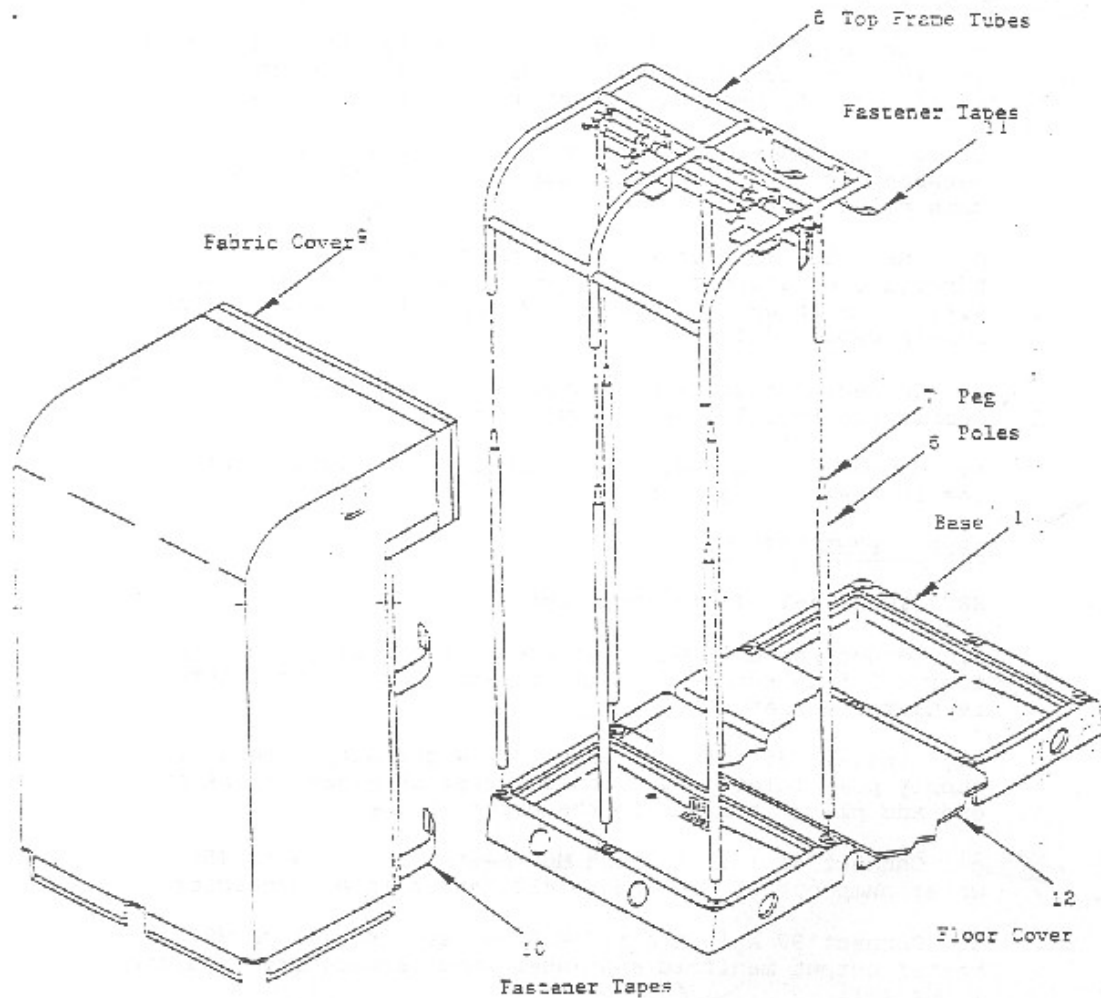


Figure 3-10
Shower Frame Assembly

- a. Disconnect the six 1- inch supply hoses by unlocking the quick-disconnect locking levers from each of the shower upper manifold couplers.
 - b. Remove all six shower fabric covers (9), by unfasten the cover hook and fastener tape (10) from the top frame assemblies (6) and shower base assemblies (1).
 - c. Remove the six shower top frame assemblies from over vertical support poles (5).
 - d. Remove the 36 vertical support poles from the six shower base assemblies.
 - e. Remove all floor covers (12).
 - f. Clean each shower top frame assemblies (6), fabric covers (9), floor cover (10) and vertical support poles (5) with soapy water, rinse and wipe dry with a clean cloth.
6. Disassemble the shower base assemblies. (See Figure 3-11)

Performance Steps

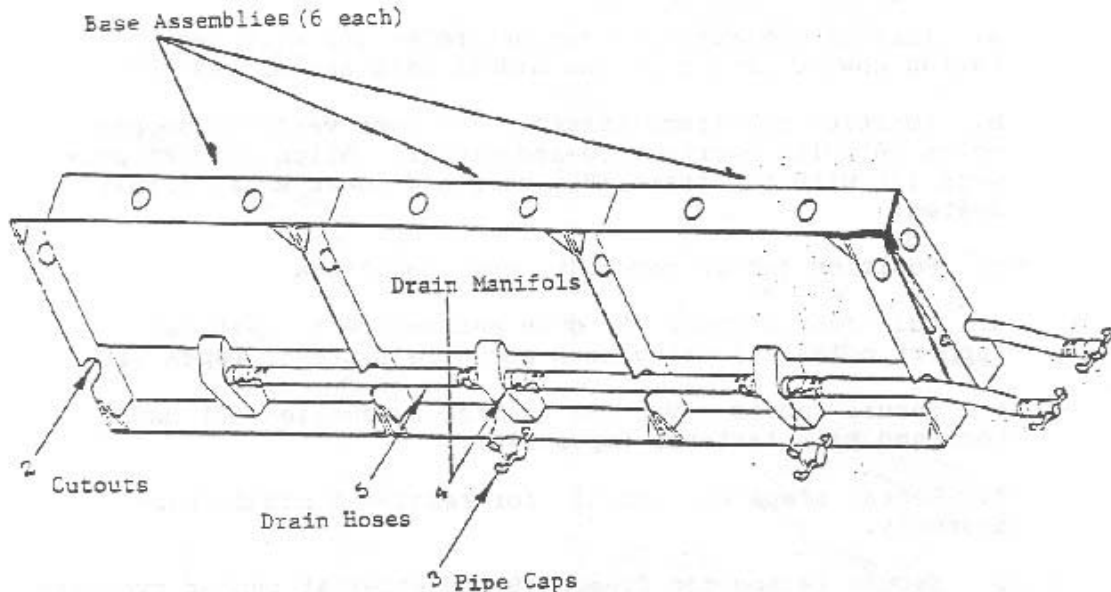


Figure 3-11
Base Assembly

- a. Raise the shower base assemblies (6) three at a time.
 - b. Stand the six shower base assemblies lengthwise in two columns with drain hose cutouts (2) facing away from centerline.
 - c. Disconnect the six drain hoses (5) from the base manifold (4), by pulling out the quick-disconnect coupler-locking lever on each side of the hose coupler.
 - d. Disconnect the other end of the suction hose from the water pump intake port adapter by pulling out the quick-disconnect coupler locking levers on each side of the coupler.
 - e. Disconnect the two 2-inch drain hoses from the "Y" fitting by pulling out the quick-disconnect locking levers.
 - f. Clean the hoses with mild soapy warm water; rinse and let dry.
7. Disconnect the diaphragm pump suction hoses.
 - a. Disconnect the 2-inch suction hose coupler from the "Y" fitting on one end of the suction hose, by pulling out the quick-disconnect coupler-locking lever on each side of the coupler.
 - b. Disconnect the other end of the suction hose from the diaphragm pump intake port adapter by pulling out the quick-disconnect coupler-locking lever on each side of the coupler.
 - c. Disconnect the 2 inch drain hose from the diaphragm pump coupler to drain field, by pulling out the quick-disconnect locking levers.
 8. Disconnect the water heater smokestack from the exhaust vent opening on the water heater.
 - a. Loosen the screw on the bracket of the smokestack guard assembly.
 - b. Pull the smokestack flanges from the slots of the exhaust vent opening.
 9. Disconnect the fuel hose assembly between the fuel drum and the water heater.

CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for spill prevention during fueling operations. Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for wastewater disposal.

 - a. Disconnect the fuel hose from the fitting marked SUPPLY on the barrel plug adapter.
 - b. Disconnect the other end of the hose from the fuel filter on the water heater.
 - c. Disconnect the fuel hose from the fitting marked RETURN on the barrel plug adapter.

Performance Steps

- d. Disconnect the other end of the hose from the fitting on the bottom of the fuel pump.
- e. Remove the barrel plug adapter from the large opening on the top of the fuel drum, and replace it with a barrel plug.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Disconnected the grounding system from the generator.	—	—
2. Disconnected the power supply cable between the generator, T-junction power wire harness and water heater.	—	—
3. Disconnected the power wire harness from the water pump assembly.	—	—
4. Disconnected the water heater and pump assembly supply.	—	—
5. Disassembled the six shower top frame assemblies.	—	—
6. Disassembled the shower base assemblies.	—	—
7. Disconnected the diaphragm pump suction hoses.	—	—
8. Disconnected the water heater smokestack from the exhaust vent opening on the water heater.	—	—
9. Disconnected the fuel hose assembly between the fuel drum and the water heater.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

TM 10-4510-206-14

Related

**Operate The 18 To 20 Gallons-Per-Minute (GPM) Water Pump
101-92S-1040**

Conditions: You work in a slower / laundry and clothing repair (SLCR) platoon. Your immediate supervisor tells you to operate the 18 to 20 GPM water pump. The 18 to 20 GPM water pump has been installed, and hoses have been connected. Materials and equipment required: 18 to 20-GPM water pump, electric power, water source, DA Form 2404 or DA Form 5988-E, and TM 10-4510-206-14.

Standards: Complete all necessary steps to operate the 18 to 20 GPM water pump. Continue until the after-operation preventive maintenance is completed.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Perform before-operation preventive maintenance.
 - a. Check the pump for possible damage.
 - b. Ensure the drain port is closed.
 - c. Inspect the strainer for cleanliness, leaks, and proper position.
 - d. Check the power cable for proper connection and cracks.
 - e. Check hoses for twists or kinks in connections.
 - f. Ensure the suction lift does not exceed 15 feet.
2. Start the water pump.
 - a. Check for proper position of the suction strainer.
 - b. Prime the water pump by unlocking the quick disconnect locking levels and removing the plug, fill the pump with water, and replace the plug.
 - c. Check the shaft rotation by turning the pump switch ON then OFF. (Rotation should be in the direction of the arrow located on the water pump housing.)
 - d. Turn the pump control switch to the ON position.
 - e. Observe a steady flow of water from the shower stands.
3. Perform during-operation preventive maintenance checks and services.
 - a. Listen for unusual noises.
 - b. Check for water leaks.
4. Place the water pump in the OFF position.
5. Perform after-operation preventive maintenance checks and services.
 - a. Inspect the water strainer for dirt, breakage, and leaks.
 - b. Inspect the suction strainer to make sure that it is not dirty or clogged.

NOTE: The twelve - head shower unit water pump has two electrical motors, one is the supply pump assembly and the other is the diaphragm drain pump assembly.

6. Operate the diaphragm (drain) pump assembly.
 - a. Place the diaphragm drain pump ON/OFF switch in the ON position.
The diaphragm pump switch control power to the diaphragm pump as well as providing overload protection for the motor. The pump switch needs to be in the OFF position when not in use. If the motor overloads, the switch will move to a midway Tripped position and power will be interrupted. If the switch is in the Tripped position, it must be switched to OFF then ON to reset it.
 - b. Perform during-operation preventive maintenance checks and services.
 - (1) Inspect for leaks.
 - (2) Inspect for clogging.
 - (3) Listen for unusual noises.
 - c. Place the diaphragm pump in the OFF position.
 - d. Perform after-operation preventive maintenance checks and services.

Performance Measures

1. Performed before-operation preventive maintenance.
2. Started the water pump.
3. Performed during-operation preventive maintenance.
4. Placed the water pump in the OFF position.
5. Performed after-operation preventive maintenance.
6. Operated the diaphragm (drain) pump assembly.

GO **NO GO**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

DA PAM 738-750
TM 10-4510-206-14

Related

Operate The Shower Unit's Water Heater 101-92S-1041

Conditions: You work in a shower section. Your immediate supervisor tells you to operate the shower unit water heater. The water heater has been set up for operation. Materials and equipment required: shower unit water heater, water pump assembly, fuel, water source, DA Form 2404 or DA Form 5988-E and TM 10-4510-206-14.

Standards: Complete all necessary steps to operate the shower unit water heater. Continue until the after-operation preventive maintenance checks and services are completed and list deficiencies on DA Form 2404 or DA Form 5988-E.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Perform before-operation preventive maintenance.
 - a. Make certain the water heater load limit switch is in the OFF 8 position and has not tripped from an overload condition.
 - b. Make sure the manual fuel valve is closed.
 - c. Check the temperature gauge and fuel pressure gauge for glass cover breaks or cracks.
 - d. Ensure the THERMAL switch is set at 160 degrees Fahrenheit.
 - e. Check the electrode holder for secured mounting.
 - f. Check the spark and burner peep-sight tube for cracks, clearness, and broken or missing parts.
 - g. Check the smoke pipe elbow, smoke pipe guard assembly, and smoke pipe for breaks, cracks, and tightness.
 - h. Check the fuel supply control assembly for leaks, incorrect fuel, and return line connection. Replenish the fuel, if necessary.
 - i. Check the fuel filter and turn the T-handle one complete turn.
 - j. Check the fuel pump for leaks, tightness, and damage.

CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for spill prevention during fueling operations.

- k. Check the blower shutter to ensure it moves freely.
 - l. Check the fuel line to the burner for defects. (See Figure 3-64)
2. Start the water heater when the water flows steadily from the bleeder assembly and the shower-heads.
 - a. Turn off the water heater outline valve.
 - b. Vent the water heater.
 - c. Check the motor rotation by turning the control switch on then off to ensure the blower fan is rotating in the direction of the arrow located on the water heater fuel pump.
 - d. Close the blower shutter approximately halfway.
 - e. Open the fuel valve completely (all the way) and turn the load limit switch on. (The fuel pressure gauge should show 100psi).
 - f. View the ignition spark through the sight tube.
 - g. Wait seven seconds and view the combustion through the sight tube.
 - h. Slowly open the air band on the blower assembly unit if smoke is present. (Exhaust gases should be transparent and smokeless.)
 - i. Wait until the unit water temperature gauge shows 160 degrees Fahrenheit (71 degrees Celsius), then turn on the water heater outlet valve.
 - j. Observe the mixing valve outlet temperature gauge and adjust the water temperature control to the desired water temperature, if the temperature is incorrect.
3. Perform during-operation preventive maintenance.
 - a. Check the smokestack and guard assembly for tight connections, breaks, leaks, or foreign material lodged in pipes.

Performance Steps

- b. Check the exhaust gases for light heat haze. Depress the spring-loaded rivet on the blower shutter and adjust the shutter up or down until the exhaust gas is clear, if haze is present.
- c. Check the fuel supply control assembly for leaks, incorrect fuel, and return line connection spills.

4. Reserve fuel for later use.

NOTE: Turn the water heater off when hot water is no longer needed.

5. Perform after-operation preventive maintenance.

- a. Check all elements checked during the before-operation preventive maintenance.
- b. Complete DA Form 2404.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Performed before-operation preventive maintenance.	—	—
2. Started the water heater when the water flows steadily from the bleeder assembly and the showerheads.	—	—
3. Performed during-operation preventive maintenance.	—	—
4. Reserved fuel for later use.	—	—
5. Performed after-operation preventive maintenance.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- DA PAM 738-750
- TM 10-4510-206-14

Related

Operate The Equipped Generators 101-92S-1042

Conditions: Your immediate supervisor tells you to operate the equipped (3-kilowatt) generator. The equipment has been placed in position and set up for operation. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration (OSHA) requires that personal protective equipment (PPE) be worn while working with hazardous materials. Materials and equipment required: 3-kilowatt generator with ground rod, 5-gallon can with fuel, oil, drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids, DA Form 2404, and TM 5-6115-271-14.

Standards: Complete all necessary steps to operate the equipped (kilowatt) generator. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, solvents). Continue until the after-operation preventive maintenance is completed.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Perform before-operation preventive maintenance.
 - a. Visually inspect the frame assembly for dents, cracks, and other damages.
 - b. Inspect the shock mounts and bonding straps for damage.
 - c. Check to make sure no glass covers are broken on the gauges.
 - d. Inspect the generator set ground stud for damaged threads.
 - e. Check to ensure the generator is properly grounded.
 - f. Service the generator set by adding fuel and oil, as needed.
 - g. Inspect the engine and electrical wires and cables for damages.
 - h. Report deficiencies you cannot correct to organizational maintenance personnel. (See Figure 3-93)
2. Start the generator.
 - a. Place the fuel selector valve in the SET or AUX tank position, depending on the source of fuel supply.
 - b. Place the intake shutter lever in the WINTER position (to the left) when the temperature is 32 degrees Fahrenheit or below, or in the SUMMER position (to the right) when the temperature is above 32 degrees Fahrenheit.
 - c. Place the governor control in the START/IDLE position.
 - d. Close the choke with the choke control lever.
 - e. Place the OFF/RUN switch to the RUN position.
 - f. Wrap the starter rope clockwise around the flange, and pull the rope with a quick, steady motion. Repeat until the engine starts.
 - g. Place the circuit breaker in the ON position.
 - h. Adjust the controls, as required, for smooth operation.
 - i. Open the choke gradually with the choke control lever, as the engine increases to operating speed.
 - j. Regulate the governor control to obtain 60 cycles.
 - k. Adjust the output voltage increase knob to produce 110 volts.
3. Perform during-operation preventive maintenance.
 - a. Visually inspect engine for excessive vibrations, unusual noises, loose mountings, and connections.
 - b. Check controls and instruments for damage, loose mountings, and normal gauge readings.

Performance Steps

- c. Note for future correction any defects discovered during operation. Stop operation immediately, if a deficiency is noticed which would damage the equipment if operation were continued.
 - d. Report deficiencies that you cannot correct to organizational maintenance personnel.
4. Turn off the generator.
 - a. Place the circuit breaker in the OFF position.
 - b. Turn the output voltage increase knob fully counterclockwise.
 - c. Allow the engine to run 3 to 5 minutes.
 - d. Place the OFF/RUN switch in the OFF position.
 - e. Place the fuel selector switch in the OFF position.
 5. Perform after-operation preventive maintenance.
 - a. Check the fuel lines, the connections, and the fuel tank for leaks.
 - b. Check the instruments for broken glass and loose connections.
 - c. Service the generator by adding oil, as needed.
 - d. List deficiencies that you cannot correct, and turn in the form to the organizational maintenance section.
 6. Prevent hazardous materials from contaminating the environment.
 - a. Actions required to perform the step:
 - (1) Place drip pans, or similar initial containment devices completely under area where fluid leaks may occur.
 - (2) Remove any spills.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Comply with disposal requirements for contaminated/hazardous materials.
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - (2) Ability to use spill cleanup materials to remove/cleanup spills.
 - (3) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
 - (1) Knowledge of spill cleanup equipment.
 - (2) Knowledge of unit or Installation SOP/Operations Order requirements for requisitioning, storage, handling, and disposal of hazardous materials.
 - (3) Knowledge of how to properly drain/replace fluids from vehicles.
 - (4) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Spill kits.
 - (c) Containers for contaminated hazardous fluids.
 - (d) Drip pans.
 - (e) Absorbent materials (e.g. dry sweep).
 - (f) Rags.
 - (g) Shovel for removing contaminated materials.
 - (h) Containers for transporting of contaminated material.
 - (2) Supporting individual task(s): None
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: CAUTION! Dispose of hazardous materials (such as, fuels, grease, oil, and contaminated rags) IAW unit Standing Operating Procedures/Operations Order (OPORD), local regulations, and/or host nation laws. Use rags to contain any excess fluids. Dispose of rags in appropriate accumulation containers.
 7. Employ procedures to dispose of solid waste.

Performance Steps

- a. Actions required to performed the step:
 - (1) Place contaminated rags in appropriate container for recycling (laundry).
 - (2) Place contaminated absorbents (dry sweep) into appropriate container.
 - b. Environmental skills required:
 - (1) Ability to select hazardous materials container.
 - (2) Ability to locate appropriate accumulation point container for recycling solid waste.
 - c. Environmental knowledge required:
 - (1) Knowledge of solid waste disposal requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Absorbent materials (e.g. dry sweep).
 - (c) Rags.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: None.
8. Secure the flow of the hazardous substance.
- a. Actions required to performed the step:
 - (1) Pick up or upright the container.
 - (2) Close valves or spigots.
 - (3) Clamp hoses.
 - (4) Use containers to catch the flow.
 - b. Environmental skills required:
 - (1) Ability to identify the source of a spill.
 - c. Environmental knowledge required:
 - (1) Knowledge of procedures for stopping the flow of a spill.
 - (2) Knowledge of the location(s) of watersheds in the area of the spill.
 - (3) Knowledge of the location(s) of storm drains in the area of the spill.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Non-sparking tools.
 - (b) Material Safety Data Sheets (MSDS).
 - (c) Non-reactive tools.
 - (d) Absorbent materials.
 - (e) Drip pans.
 - (2) Supporting individual task(s):
 - (a) Determine substance hazards using Material Data Sheets (MSDS).
 - (b) Employ personal protective measures.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.
9. Employ spill containment procedures for a hazardous substance spill.
- a. Actions required to performed the step:
 - (1) Obtain the spill kit.
 - (2) Take appropriate measures to contain the spill.
 - b. Environmental skills required:
 - (1) Ability to determine safety measures from Material Safety Data Sheets (MSDSs).
 - (2) Ability to apply appropriate materials (i.e. sandbags, drip pans, booms, absorbent materials, soil berms, etc.).

Performance Steps

- c. Environmental knowledge required:
 - (1) Knowledge of spill kit location.
 - (2) Knowledge of the employment methods of each item in the spill kit.
- d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Material Safety Data Sheets (MSDS).
 - (b) Drip pans.
 - (c) Absorbent materials.
 - (d) Spill kits.
 - (e) Non-sparking tools.
 - (f) Non-reactive tools.
 - (2) Supporting individual task(s):
 - (a) Employ spill response kits.
 - (b) Employ drip/belly pans.
- e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substance.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.

10. Report the spill of a hazardous substance.

- a. Actions required to performed the step:
 - (1) Notify the chain of command.
 - (2) Notify the Unit Environmental Compliance Officer (UECO).
 - (3) Notify Emergency Operations Center (EOC).
 - (4) Notify the local fire department, if required.
 - (5) Notify the appropriate spill coordinator, if required.
- b. Environmental skills required: None.
- c. Environmental knowledge required:
 - (1) Knowledge of state spill reporting procedures.
 - (2) Knowledge of environmental appendix to the Engineer annex to the OPORDs.
 - (3) Knowledge of unit or Installation Standing Operating Procedures (SOP)/Operations Order (OPORD) requirements.
- d. Resource requirements:
 - (1) Equipment/material requirements: None.
 - (2) Supporting individual task(s): None.
- e. Safety factors/hazards: None.

11. Employ spill clean-up measures.

- a. Actions required to performed the step:
 - (1) Select non-sparking equipment for flammable materials.
 - (2) Select non-reactive equipment for acids and caustics.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Place contaminated materials into over-pack drums, if necessary.
 - (6) Comply with disposal requirements for contaminated materials.
- b. Environmental skills required:
 - (1) Ability to use spill cleanup materials to remove/cleanup spills.
 - (2) Ability to select hazardous materials container.

Performance Steps

- c. Environmental knowledge required:
 - (1) Knowledge of environmental appendix to the Engineer annex to the OPORDs.
 - (2) Knowledge of unit or Installation Standing Operating Procedures (SOP)/Operations Order (OPORD) requirements.
 - (3) Knowledge of spill cleanup equipment.
 - (4) Knowledge of requirements for containers of contaminated materials.
 - (5) Knowledge of labeling requirements for hazardous waste containers.
- d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Spill kits.
 - (b) Non-sparking tools.
 - (c) Non-reactive tools.
 - (d) Absorbent materials.
 - (e) Containers.
 - (f) Over-pack drums.
 - (2) Supporting individual task(s):
 - (a) Determine substance compatibility using Material Safety Data Sheets (MSDS).
 - (b) Turn-in hazardous waste to the designated Hazardous Waste collection point.
- e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.

12. Replace spill response equipment.

- a. Actions required to performed the step:
 - (1) Request replacement items consumed or damaged in the spill clean-up.
 - (2) Conduct training as required.
- b. Environmental skills required: None.
- c. Environmental knowledge required:
 - (1) Know the spill kit required materials/equipment.
 - (2) Know the procedure to request replacement items.
- d. Resource requirements:
 - (1) Equipment/material requirements: Supply request form (DA 2765-1 or DD 1348-1).
 - (2) Supporting individual task(s):
 - (a) Initiate a request for supplies.
 - (b) Determine the status of a supply request.
- e. Safety factors/hazards: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Performed before-operation preventive maintenance.	—	—
2. Started the generator.	—	—
3. Performed during-operation preventive maintenance.	—	—
4. Turned off the generator.	—	—
5. Performed after-operation preventive maintenance.	—	—
6. Placed drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—
7. Removed spills (small).	—	—
8. Collected contaminated soil, absorbent materials, and debris into approved containers.	—	—

Performance Measures	<u>GO</u>	<u>NO GO</u>
9. Complied with container labeling requirements	—	—
10. Complied with disposal requirements for contaminated materials.	—	—
11. Identified the type of hazardous substance spill.	—	—
12. Protected self from contamination.	—	—
13. Determined if evacuation required.	—	—
14. Secured the flow.	—	—
15. Employed spill containment procedures.	—	—
16. Reported spill to the proper local authorities.	—	—
17. Selected appropriate equipment for cleanup.	—	—
18. Replenished spill response kits.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

DA PAM 738-750
 TM 5-6115-271-14

Related

Subject Area 5: LAUNDRY OPERATIONS

**Set Up The M-85 Series Laundry Unit
101-92S-1022**

Conditions: You are working in the laundry section. Your immediate supervisor tells you to set up the laundry trailer unit for operation. The area for setup has been designated. Personnel are available to assist in the setup. Material and equipment required: One M85-100 laundry trailer unit with all accessory items of issue, TM10-3510-220-10, TM 5-6115-585-12, TM 9-2330-376-14 & P; 10-kw generator, 8-inch adjustable wrench, 8 pound sledgehammer, 5-gal can of diesel drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids and TM 5-6115-275-14.

Standards: You must complete all performance measures necessary to position the laundry unit, disconnect the laundry trailer and set up the platform. Ensure Placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, solvents). Continue until the electrical power cables for the M-85 series Laundry unit water pump is installed.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Position the Trailer. (See Figure 3-12)

Performance Steps

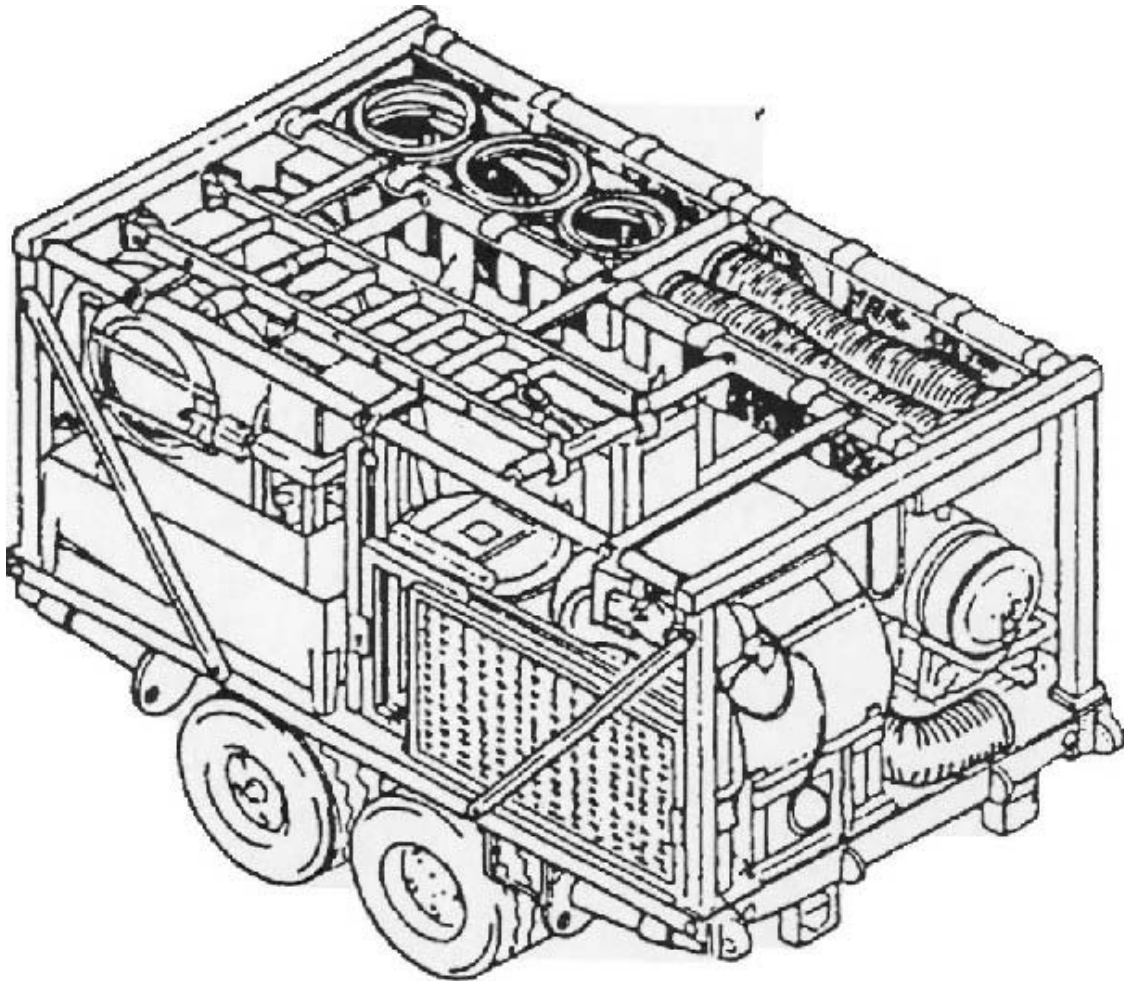


Figure 3-12
M85 Laundry Unit Street Side

- a. Select a relatively level area, approximately 75 square feet.
- b. Positioned the laundry unit so that the water heater is next to the water source.
2. Disconnect and level the laundry trailer.
 - a. Set the hand brake lever and lower the trailer supports. If necessary, dig holes or block wheels to ensure the trailer is level.
 - b. Remove tarp assembly and inspect it for cuts, frays, weather rot, and damage. If tarp assembly is damaged notify supervisor.
 - c. Remove bottom bolts from transportation braces on the left side of trailer assembly. Rotate transport braces downward into the vertical position.
 - d. Remove ball-locking pin from the trailer leveling support jackleg.
 - e. Lower locking support jackleg and lock support jackleg in place with locking pin.
 - f. Use the jack hand crank to raise or lower the jackleg. Repeat steps (d-f) for the remaining leveling support jacklegs; continue until the laundry trailer is completely leveled.
3. Position and set up the laundry unit platform assembly.

Performance Steps

NOTE: Each component on the laundry trailer has to be prepared before laundry operation can start.

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

- a. Remove ball locking pin (6) from work stand storage support (7) and remove front work stand storage support by lifting up.
- b. Remove bracket (5) and store in toolbox, which is located under dryer (4). (See figure 3-13-Platform)

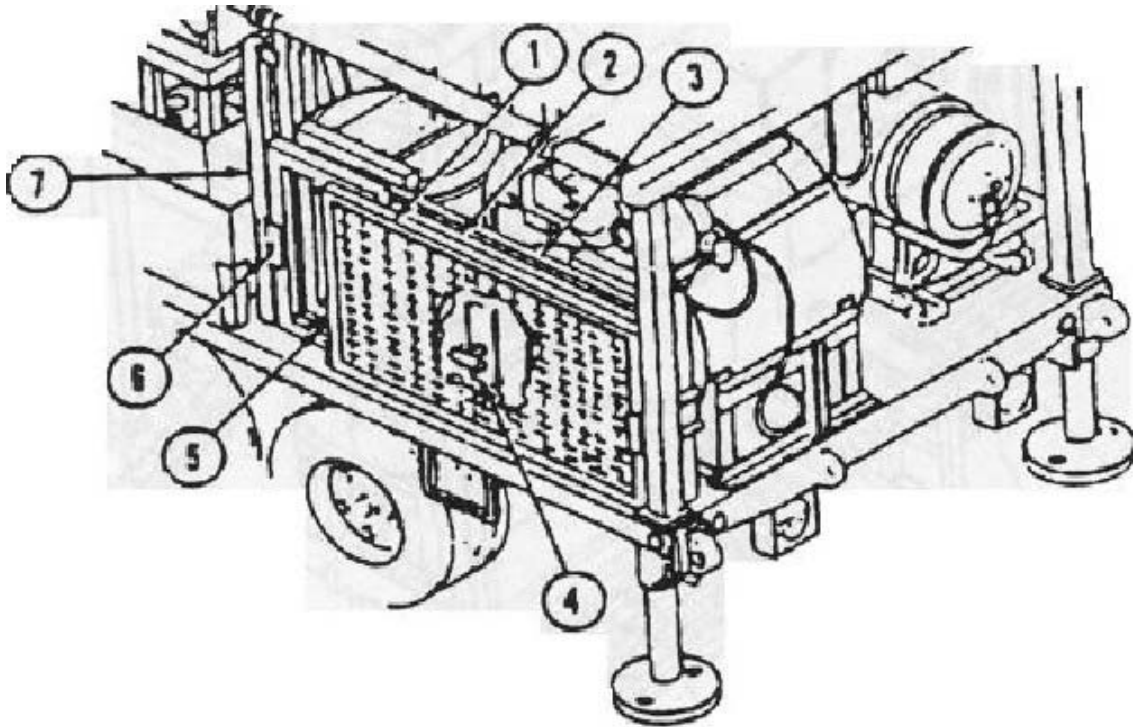


Figure 3-13
Setup Platform

- c. Slide washer platform (1) toward front of trailer and remove washer platform from trailer.
- d. Remove clamp (4) from short platform (2) and dryer platform (3).
- e. Remove short platform from trailer and store clamp in toolbox.
- f. Repeat procedures in steps (1) and (3) and remove dryer platform.
- g. Remove ball-locking pins from platform assemblies. Adjust stabilizer bars and insert ball-locking pin in holes provided.
- h. Place washer platform assembly (1) and dryer platform assembly (3) next to the trailer. Install short platform assembly (2). Remove two-step (11) from pre-extraction bin and install on dryer platform assembly (3). See Figure 3-14

Performance Steps

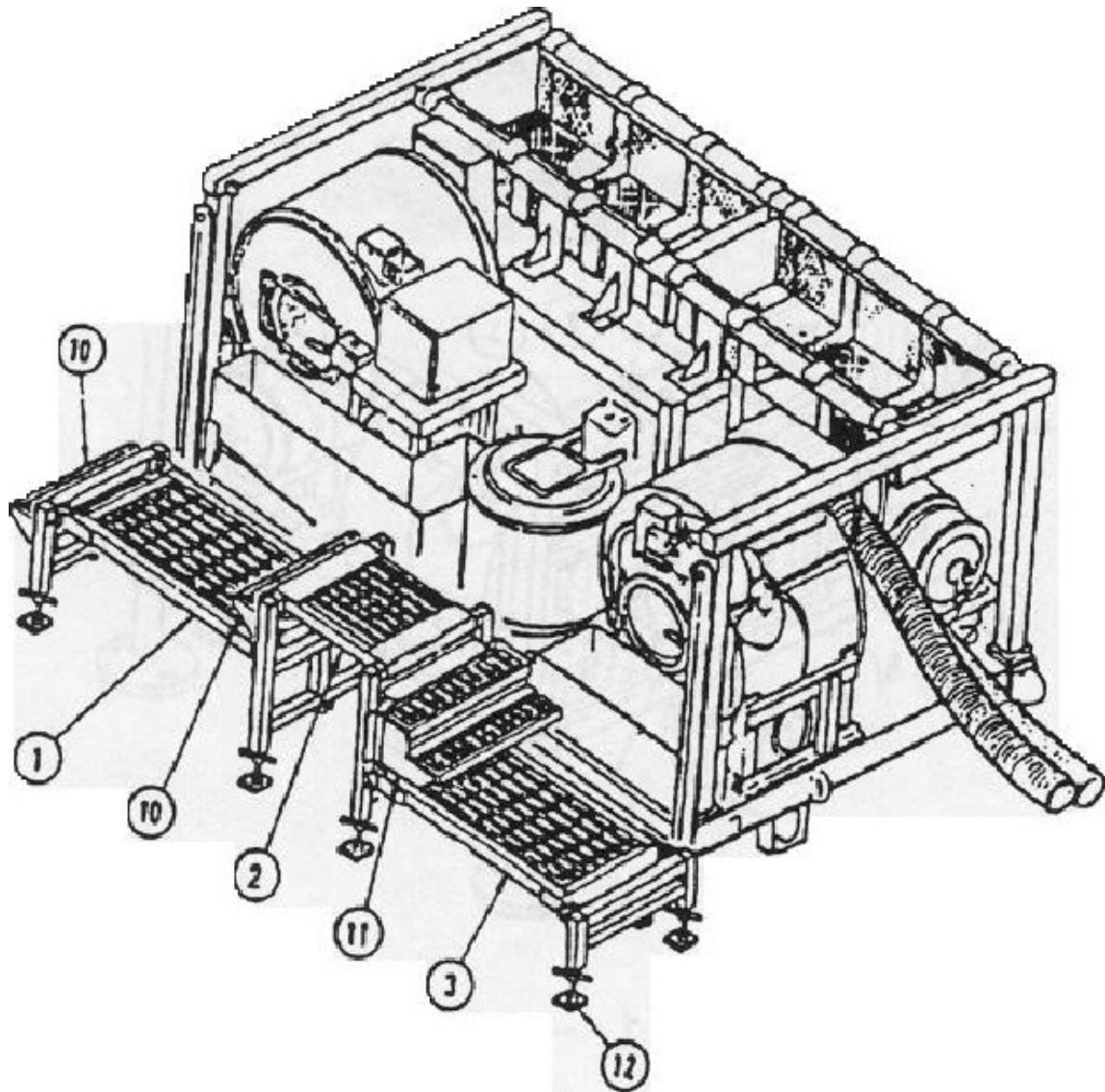


Figure 3-14
Setup and Assembly

- i. Locate and remove steps (10) from midsection of trailer and install steps on washer platform (1).
- j. Adjust leveling plates and brace with footing platform as needed. (See Figure 3-15)

Performance Steps

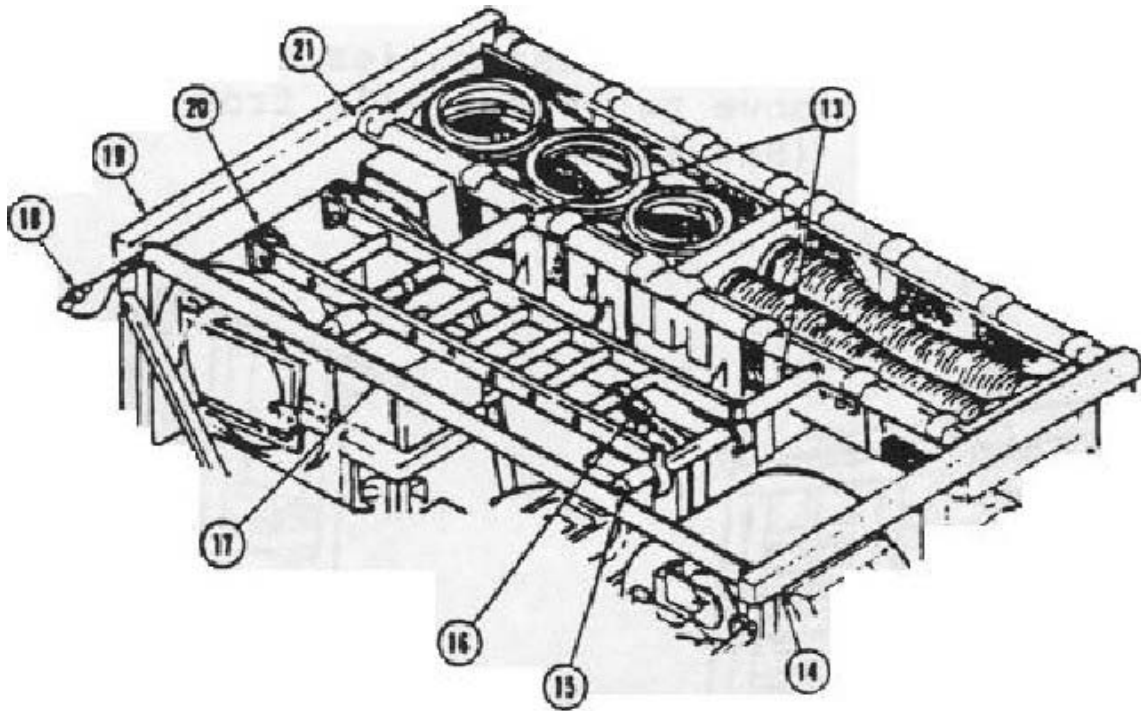


Figure 3-15
Ladder Removal

- k. Unhook two straps (16) and remove ladder (20) from two struts (13).
- l. Remove four ball locking pin (15) from left beam and center beam (17), and remove the two struts (13).
- m. Remove two ball locking pins (18) from left beam (17) and remove left beam from front and back frame assemblies (14). Store left beam (17) underneath trailer. (See Figure 3-16)

Performance Steps

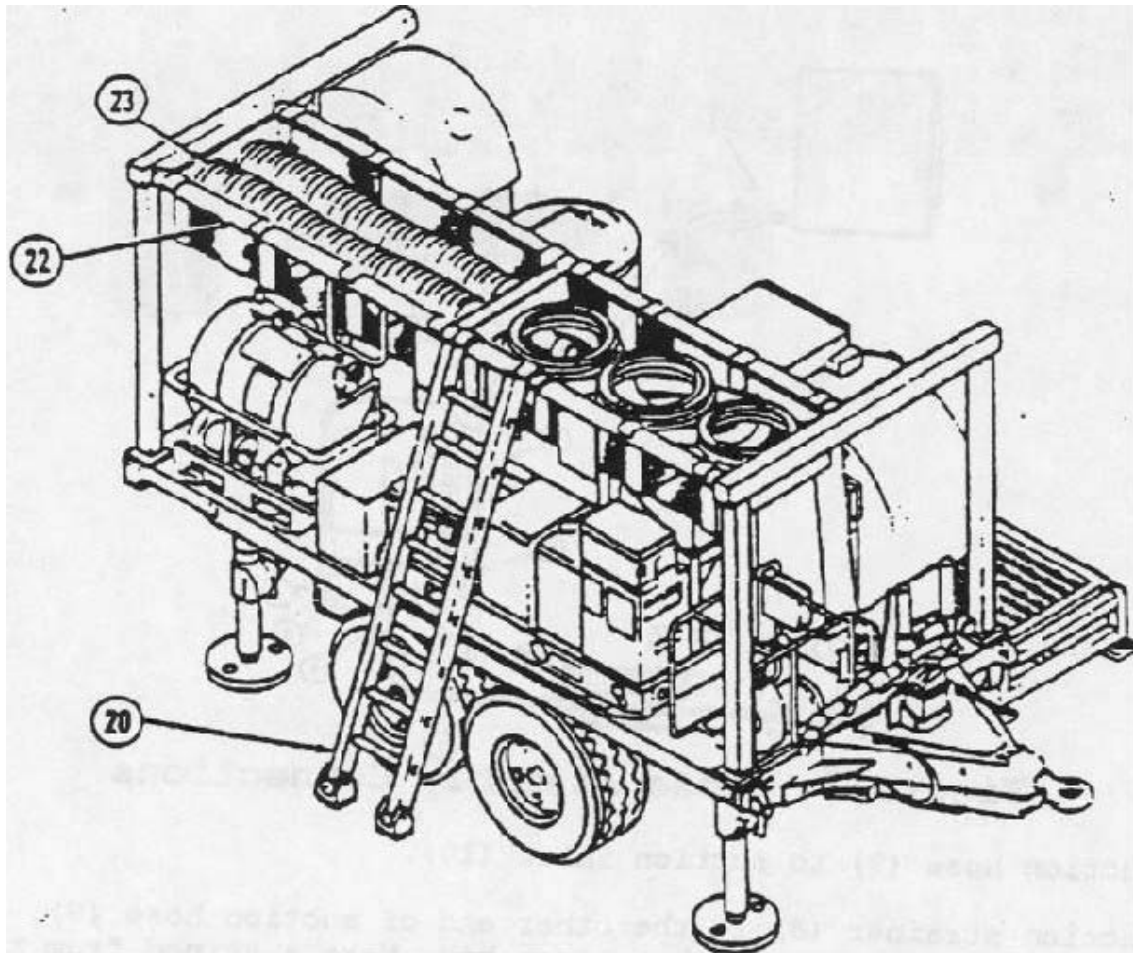


Figure 3-16
M85 Laundry Unit Ladder Position

- n. Position ladder (20) on right beam (22) as required.
 - o. Remove contents from hose basket assemblies (23). (See Figure 3-15)
 - p. Store tarp assembly, two struts, and work stand storage supports in hose basket assemblies. (See Figure 3-16)
4. Install the laundry trailer's 10-kilowatt generator exhaust duct and grounding system. (See Figure 3-17)

Performance Steps

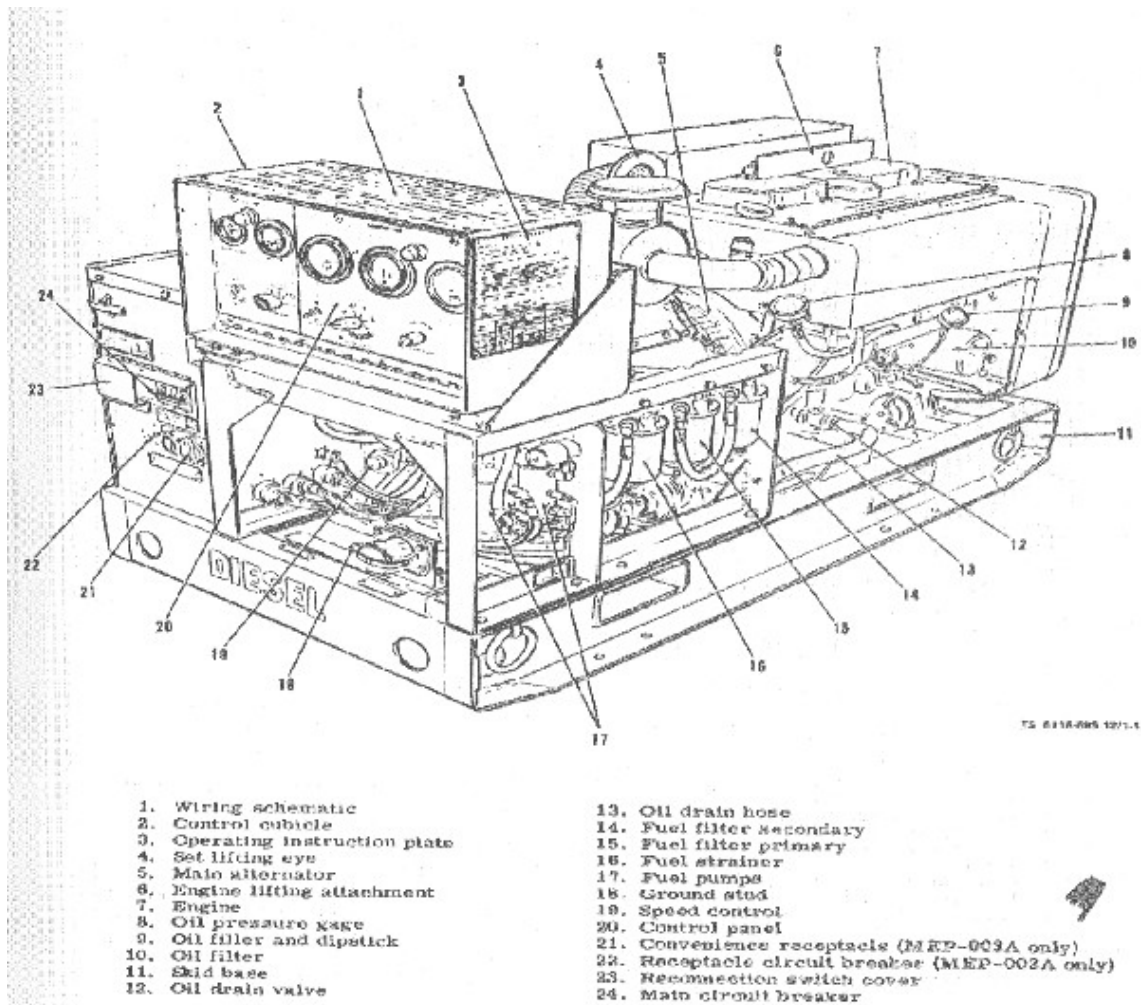


Figure 3-17
10K Generator

- a. Install the 2-inch exhaust duct on the generator muffler exhaust adapter.
 - (1) Remove the 2-inch combustion exhaust duct from its storage location inside the storage bin.
 - (2) Insert the copper gaskets into the coupling.
 - (3) Position the coupler end of the exhaust duct over the muffler exhaust adapter.
 - (4) Secure the exhaust duct in place by screwing the 2-inch exhaust duct to the generator muffler exhaust adapter.
- b. Install a grounding system to the generator to prevent electrical shock.
 - (1) Use one of the following grounding device methods.
 - (a) Drive a 5/8-inch grounding rod into the ground.
 - (b) Drive a 3/4-inch diameter, copper or steel, grounding pipe into the ground to a depth of at least 8 feet.
 - (2) Saturate the area around the grounding device with water to increase conductivity.
 - (3) Connect one end of abraded copper grounding cable or No. 6 AWG or larger copper wire to the grounding device ground stud.
 - (4) Tighten the ground stud nut to make sure the connection is secure.
 - (5) Connect the other end of the cable or wire to the generator frame ground stud.

Performance Steps

- (6) Tighten the ground stud nut to make sure the connection is secure.
5. Remove water pump assembly and connect the supply hoses.
 - a. Identify bracket assembly, which is located on the left-hand side of the water pump assembly.
 - b. Remove two bolts (5) and remove bracket assembly (4).
 - c. Remove two bolts (3) and remove bracket assembly (2).
 - d. Remove water-pump (1) and located it no more than 10 feet (3m) from the water source.

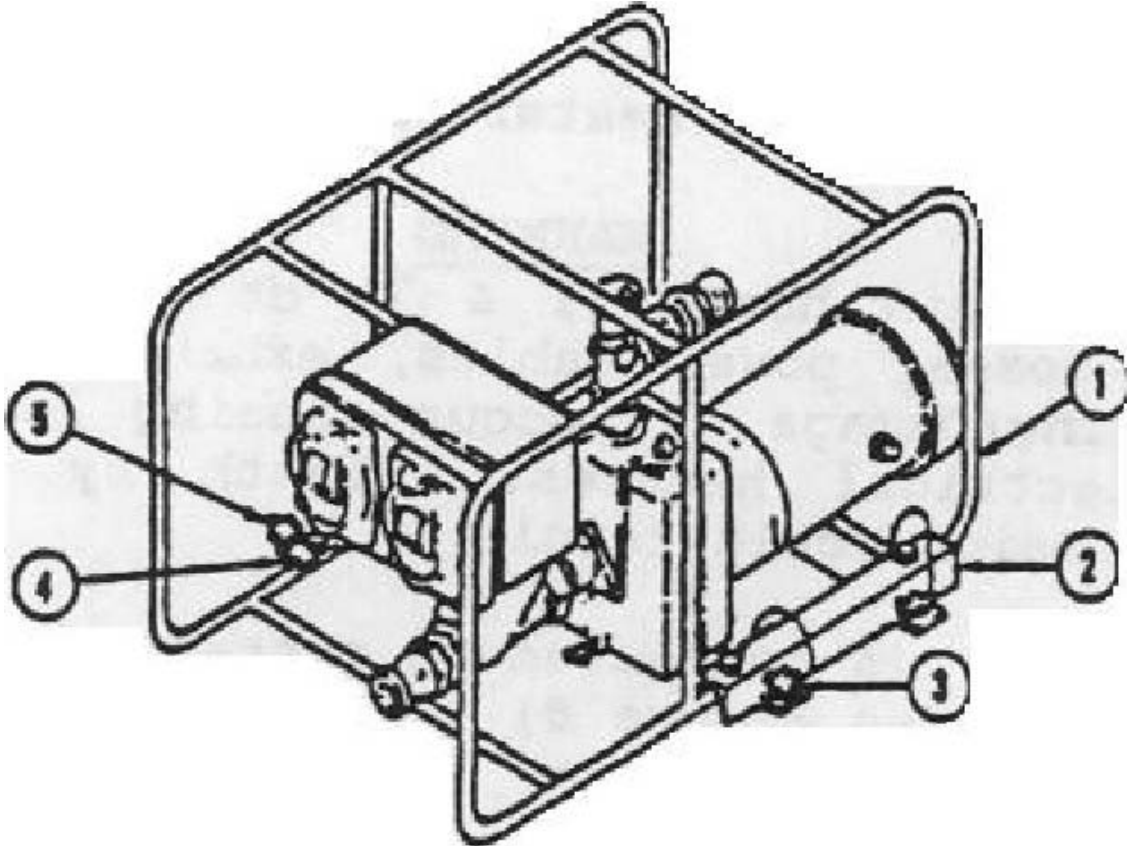


Figure 3-18
Water Pump And Hose Assembly

- e. Install and tighten bolts (2-3 and 4-5) removed in step b. (See Figure 3-18)

Performance Steps

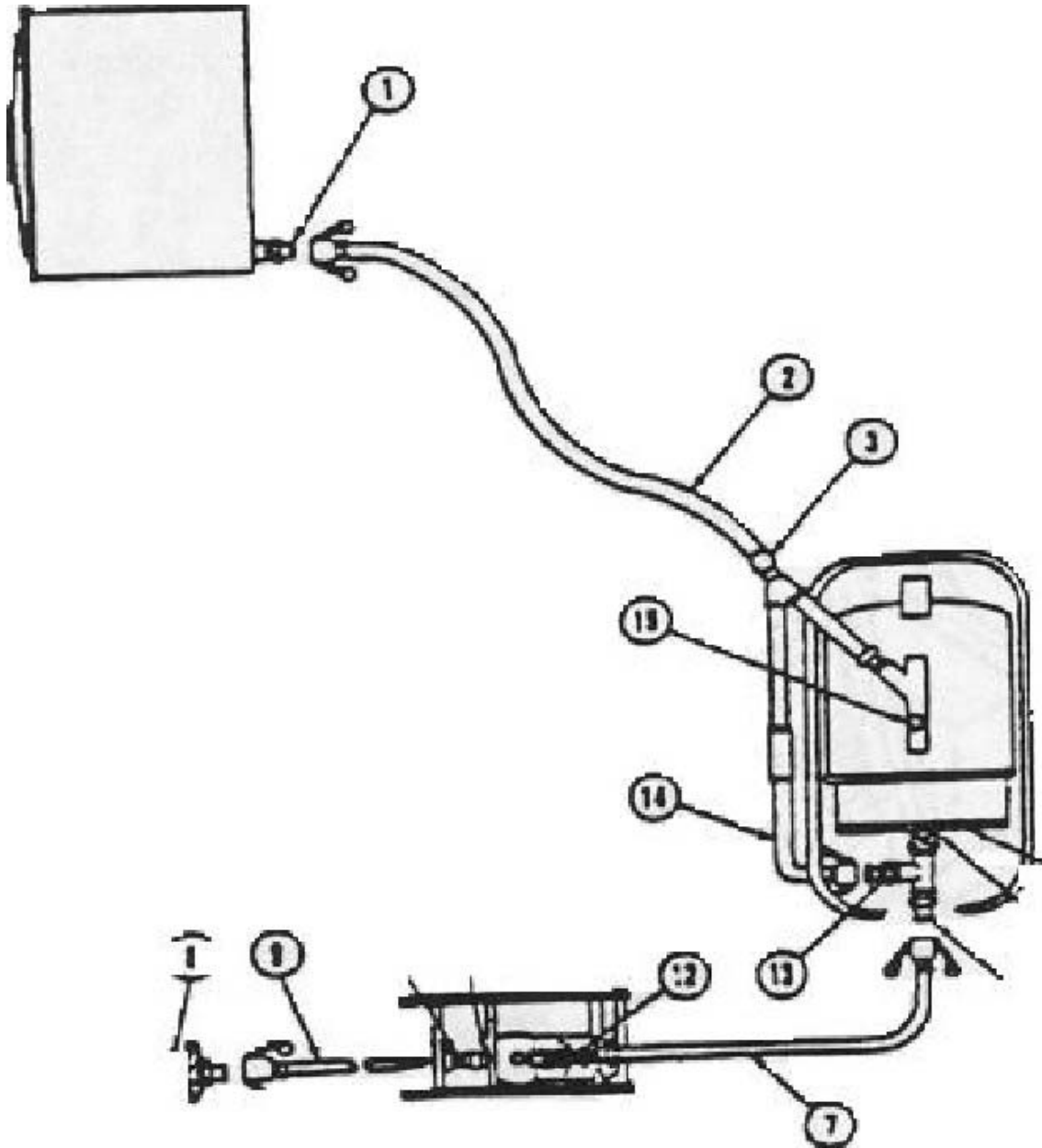


Figure 3-19
Water Supply Connection Diagram

- f. Connect suction hose (9) to suction inlet. (See Figure 3-19)
- g. Connect suction strainer (8) to the other end of the suction hose (9). Position the strainer in the water source above the team bed. Make a tripod from tree branches or sapling and hang the strainer from the place where the branches are tied together, or position the strainer on a bed of stones or gravel.
- h. Connect water heater inlet hose (7) to water pump discharge outlet (12).
- i. Connect the other end of water heater intake hose (7) to water heater inlet (6).
- j. Ensure petcock valve (11) on water pump housing is closed. Clockwise rotation closes valve.

Performance Steps

- k. Ensure petcock valve (4) and vent valve (15) on the water heater are closed. Clockwise rotation closes valve.
- l. Ensure washer inlet hose (2) is connected to washer inlet (1) and to washer heater outlet (3).
- m. Ensure washer inlet hose (14) is connected to washer inlet (13) and to water heater outlet.

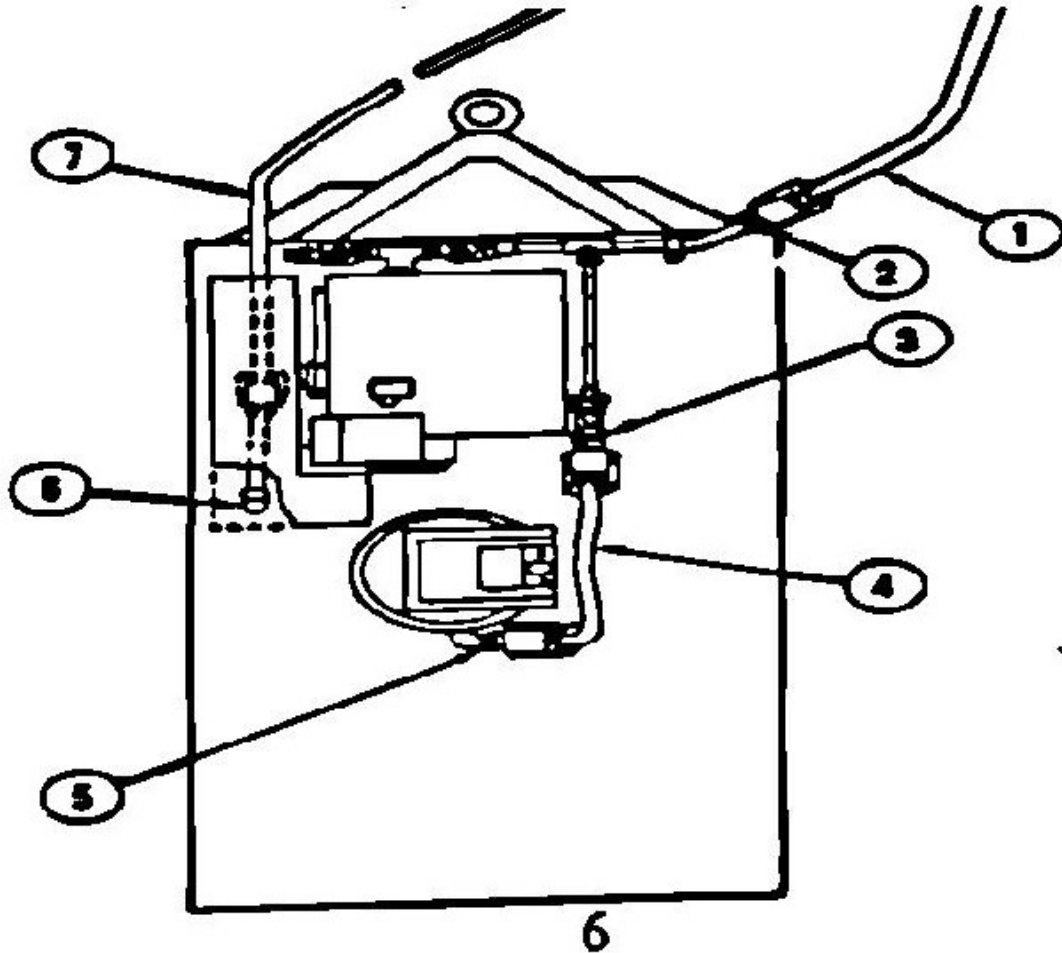


Figure 3-20
Drain Hose Connection Diagram

- n. Ensure that drain hose (4) is connected to extractor drain connection (5) and washer drain connection (3). (See Figure 3-20)
 - o. Connect one 25-foot (7.6 m), 1 1/2-inch diameter drain hose (7) to washer drain and route the hose to a drain field.
 - p. Connect one 25-foot (7.6 m), 1 1/2-inch diameter drain hose (1) to pre-extraction bin drain and route the hose to a drain field.
6. Install the electric power cables. (See Figure 3-21)

Performance Steps

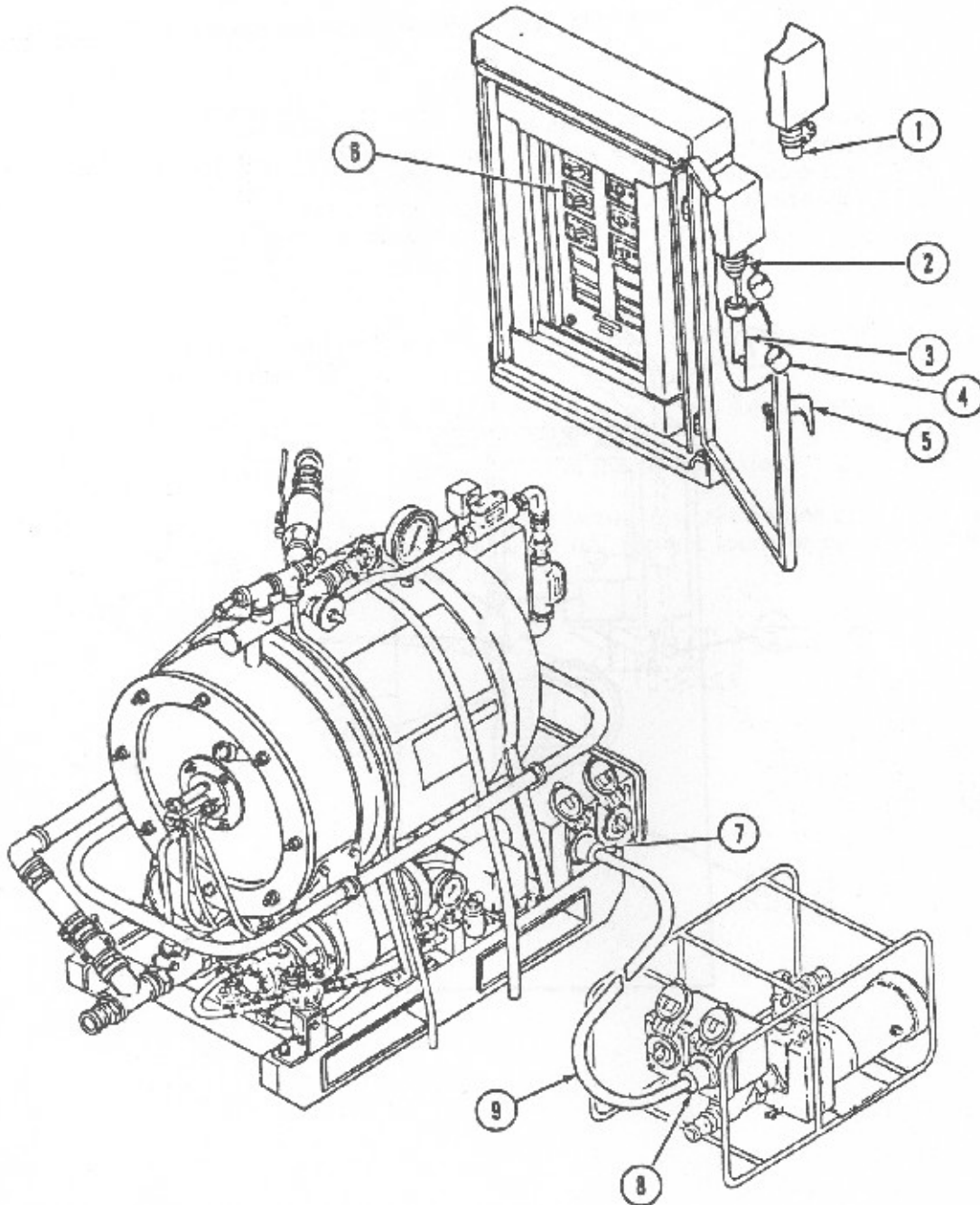


Figure 3-21
Electrical Panel Cable Connection

NOTE: The laundry unit uses 208 volts AC. All circuit breaker on the electrical panel must be off prior to connecting electrical power cables. Failure to observe safety precautions may result in death or serious injury.

- a. Open electrical panel door (5) and turn off all circuit breakers (6).
- b. Remove dust cap (1) on main power connection (2).
- c. Remove dust cap (4) from main power cable (3).

Performance Steps

d. Connect main power cable to main power connection. Connect other end of power cable to power source. Refer to TM 5-6115-585-12.

NOTE: Lock power cables in place by rotating connector clockwise.

e. Ensure water heater pump ON/OFF switch is in the OFF position.

f. Ensure water heater load limit switch is in the OFF position. (See Figure 3-21)

7. Remove and install dryer bin.

a. Remove four bolts and washer located in front of dryer assembly.

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

c. Install bolts and washers (1) removed in the same location from which they were removed. (See Figure 3-22)

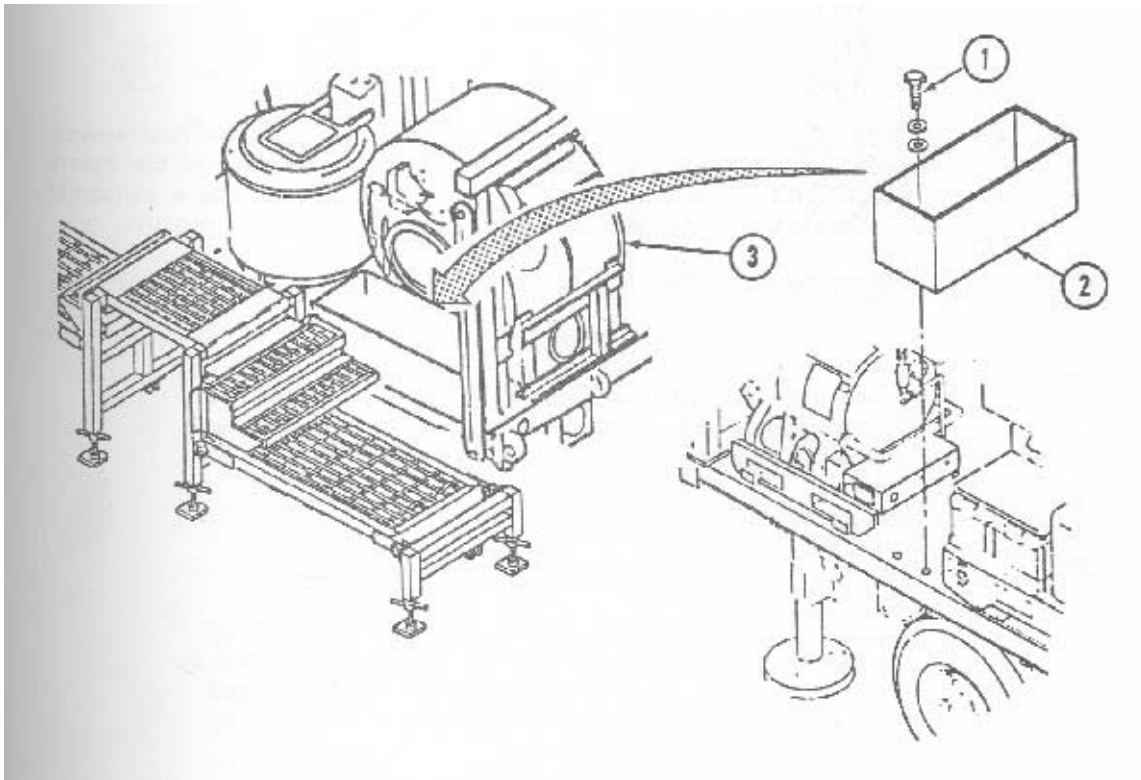


Figure 3-22
Dryer Bin Removal And Installation

8. Connect the dryer fuel lines. (See Figure 3-23)

Performance Steps

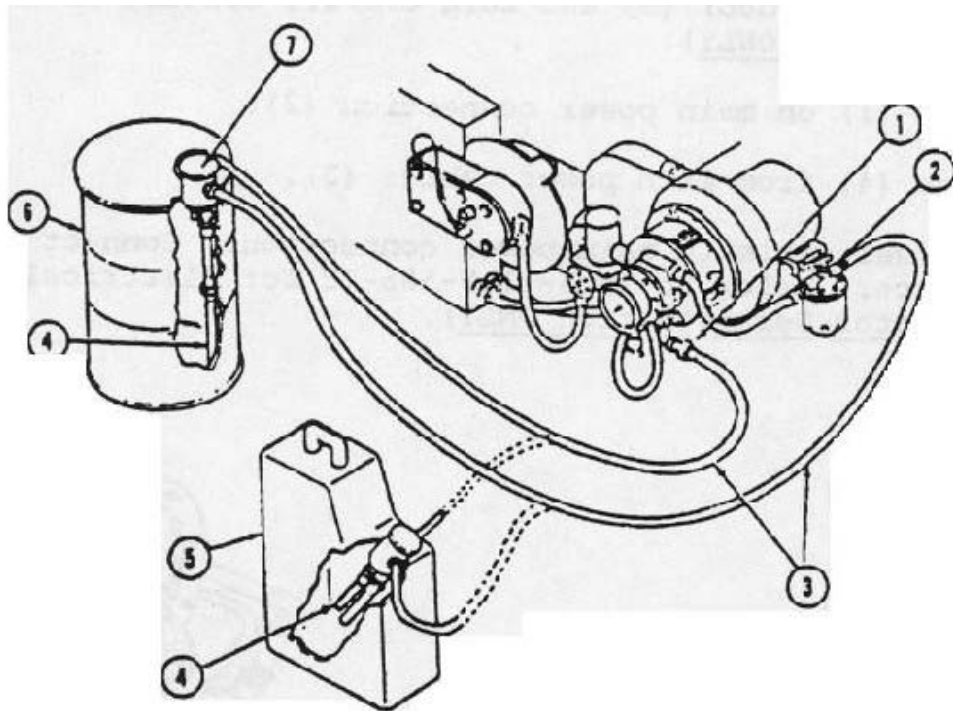


Figure 3-23
Dryer Fuel Line Connections

NOTE: Be sure that fuel lines do not touch or cross water hoses, power cables, or exhaust ducts. Melting/damage can occur leaking fuel and water or electrical hazards. Death by electrocution, fire or explosion could result.

CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for spill prevention during fueling operations.

- a. Obtain two fuel lines.
- b. Connect one fuel line (3) to fuel filter inlet (2) and one fuel line to fuel pump outlet (1).
- c. Connect the other end of fuel lines (3) to drum fill adapter (7). The line from the fuel filter connects to fitting labeled SUPPLY on drum fill adapter. The line from the bottom of fuel pump connects to fitting labeled RETURN on the drum fill adapter.
- d. If a 55-gallon (208 liter) drum (6) is being used as the fuel source, remove drum fill adapter extension (4) from the bottom of the return port and install it in the drum fill adapter pipe. When using 5-gallon (19 liter) cans (5) the extension remains attached to the return port.

9. Connect the water heater fuel lines.

NOTE: Use only specified fuel. Failure to do so may result in death or serious injury to personnel or damage to equipment.

- a. Obtain two fuel lines (2).
- b. Connect one fuel line (2) to fuel filter inlet (3) and one fuel line to fuel pump outlet (1). (See Figure 3-24)

Performance Steps

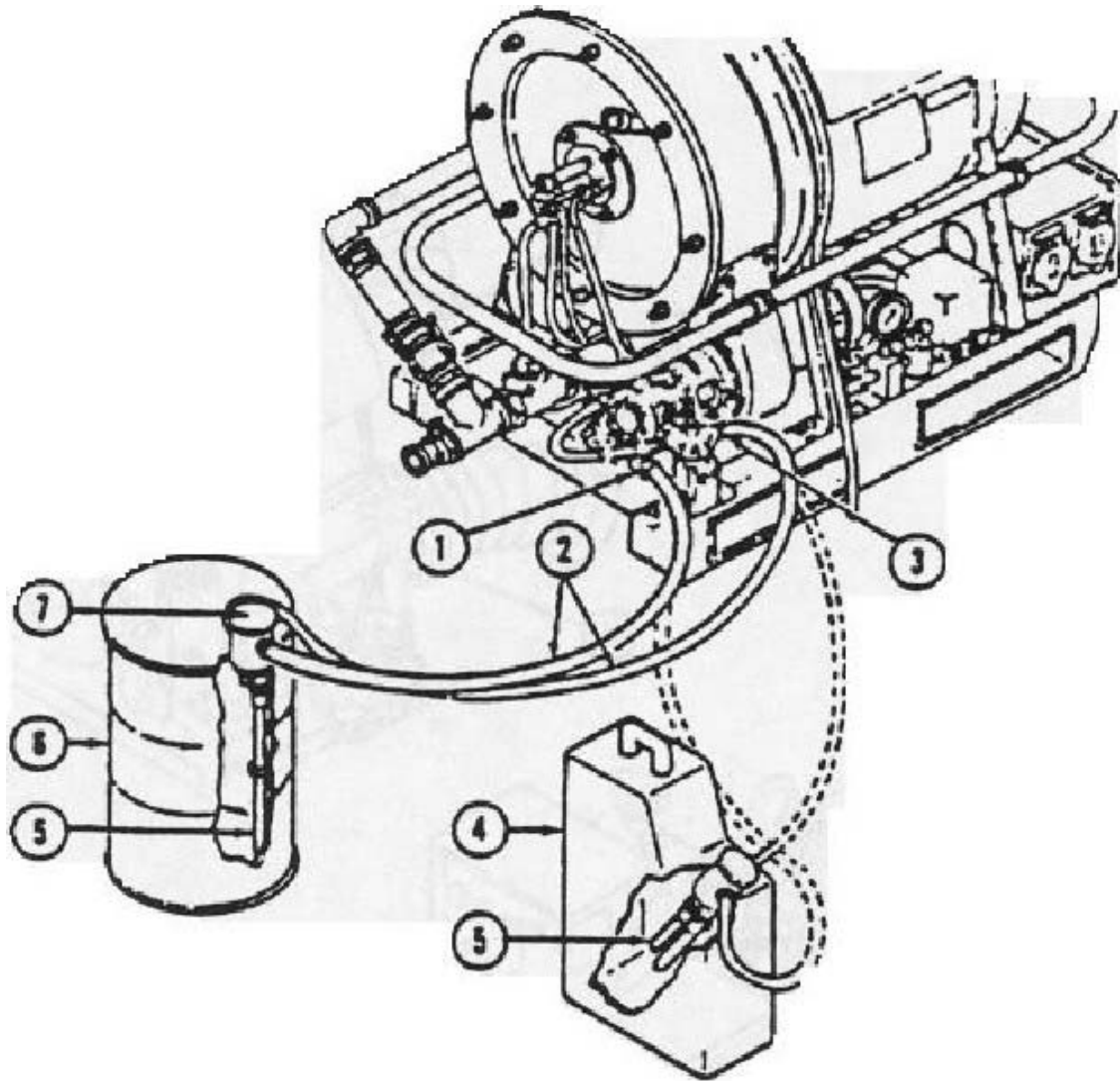


Figure 3-24
Water Heater Fuel Line Connection

- c. Connect the other end of fuel lines (2) to drum fill adapter (7). The line from the fuel filter connects to fitting labeled SUPPLY on the drum adapter. The line from the bottom of fuel pump connects to fitting labeled RETURN on the drum adapter.
 - d. If a 55-gallon (208 liter) drum (6) is being used as the fuel source, remove drum fill adapter extension from the bottom of the return port and install it in the drum fill adapter pipe. When using 5-gallon (19 liter) (4), the extension remains attached to the return port.
10. Connect the dryer exhaust duct. (See Figure 3-25)

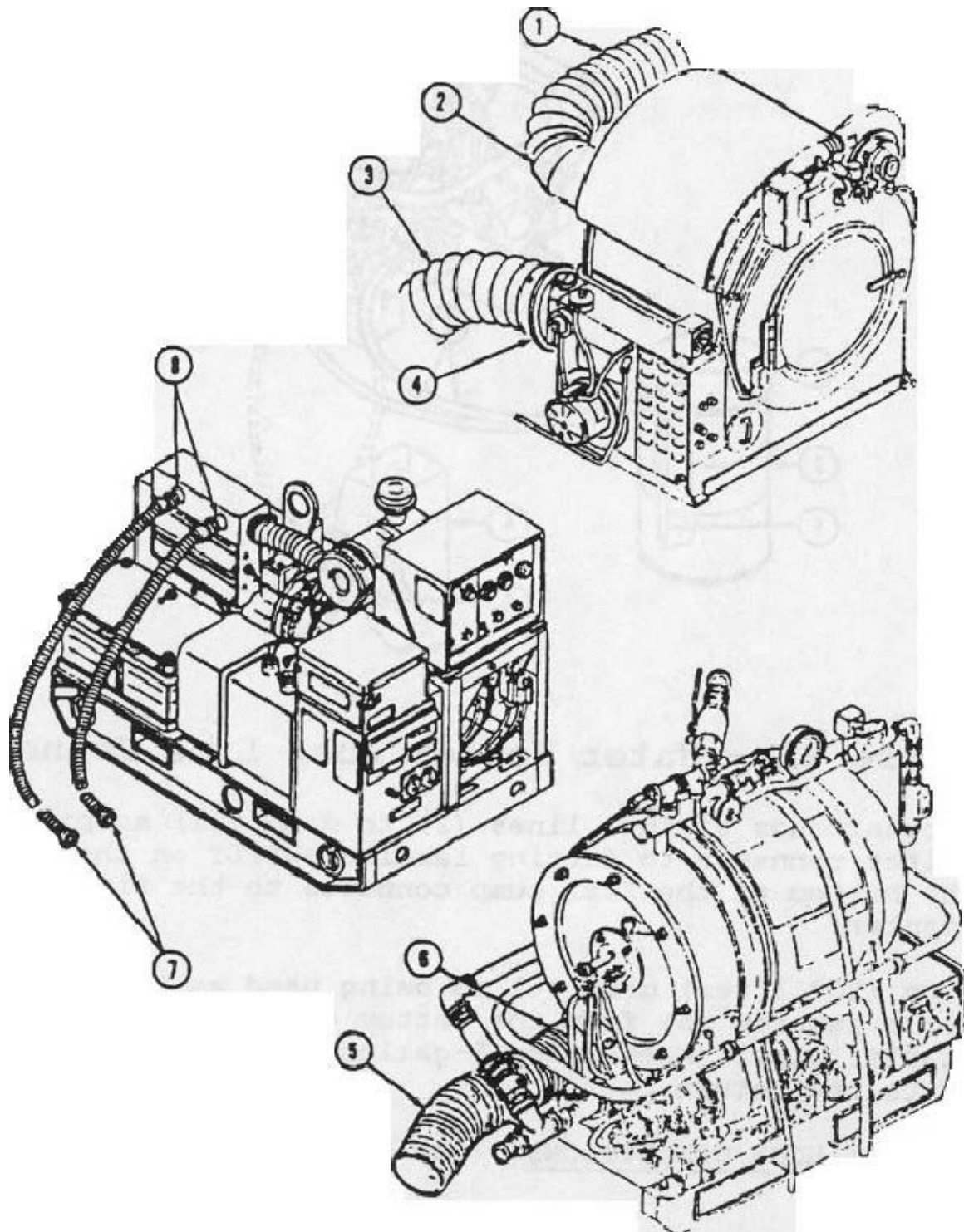
Performance Steps

Figure 3-25
Exhaust Hose Connections

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

Performance Steps

- a. Unhook three straps and remove combustion exhaust duct from trailer assembly.
 - b. Connect 5-inch (127mm) combustion exhaust duct to dryer exhaust port . Extend duct away from trailer assembly.
 - c. Obtain 12-inch (305) lint duct and install on lint duct port. Extend duct full length along right side of trailer.
 - d. Connect two 7-inch (178mm) combustion exhaust-ducts together and connect to water exhaust port. Extend duct full length away from rear of trailer.

 - e. Connect two 2-inch combustion exhaust ducts to generator exhaust ports. Extend ducts away from trailer assembly. (See Figure 3-25)
11. Perform safety checks.
 - a. Assure that a serviceable fire extinguisher is present.
 - b. Check the seal, the gauge, and tag.
 - c. Check to see if the ground rod is properly installed and grounded, 3 sections of 3 feet long each together; 8 feet into the ground and 1 foot above the ground.
 - d. Assure that ear protection is on individual's possession and worn when needed.
 12. Inspect 10kw diesel generator set.
 - a. Inspect the control panel - Check gauges, switches and selections for damage and loose mountings.
 - b. Assure DC control breaker is pulled out in the OFF position.
 - c. Ensure main circuit breaker is in the OFF position.
 - d. Assure throttle knob is pushed in.
 - e. Check the fuel filter for leaks.
 - f. Check the fuel filter.
 - g. Check the air filter.
 - h. Remove protective cover on top of batteries.
 - i. Check the batteries fluid level, Add water if it is needed; Clean battery filter cap vents, Tighten loose battery cables. NOTE: DO NOT overfill battery with water.
 - j. Check the oil and add if needed.
 - k. Check the oil filter for leaks.
 13. Inspect water source.
 - a. Assure water suction hose and strainer are secure and in the proper location.
 - b. Assure there is plenty of water.
- NOTE:
If the 3,000 Collapsible Tank is being used, make sure that the tank is serviceable and in good working conditions.
14. Inspect water pump.
 - a. Check for correct and tight connection of water pump outlet hose and suction.
 - b. Make sure drain cock is closed.
 - c. Inspect the pump-housing strainer, and clean it weekly.
 - d. Check priming port gasket.
 - e. Inspect the electric motor for obstruction to ventilation, loose mounting, and exposed wires.
 - f. Check cable for condition and proper connection.
 - g. Assure the control switch is in the OFF position.
 15. Inspect water heater (See Figure 3-26).

Performance Steps

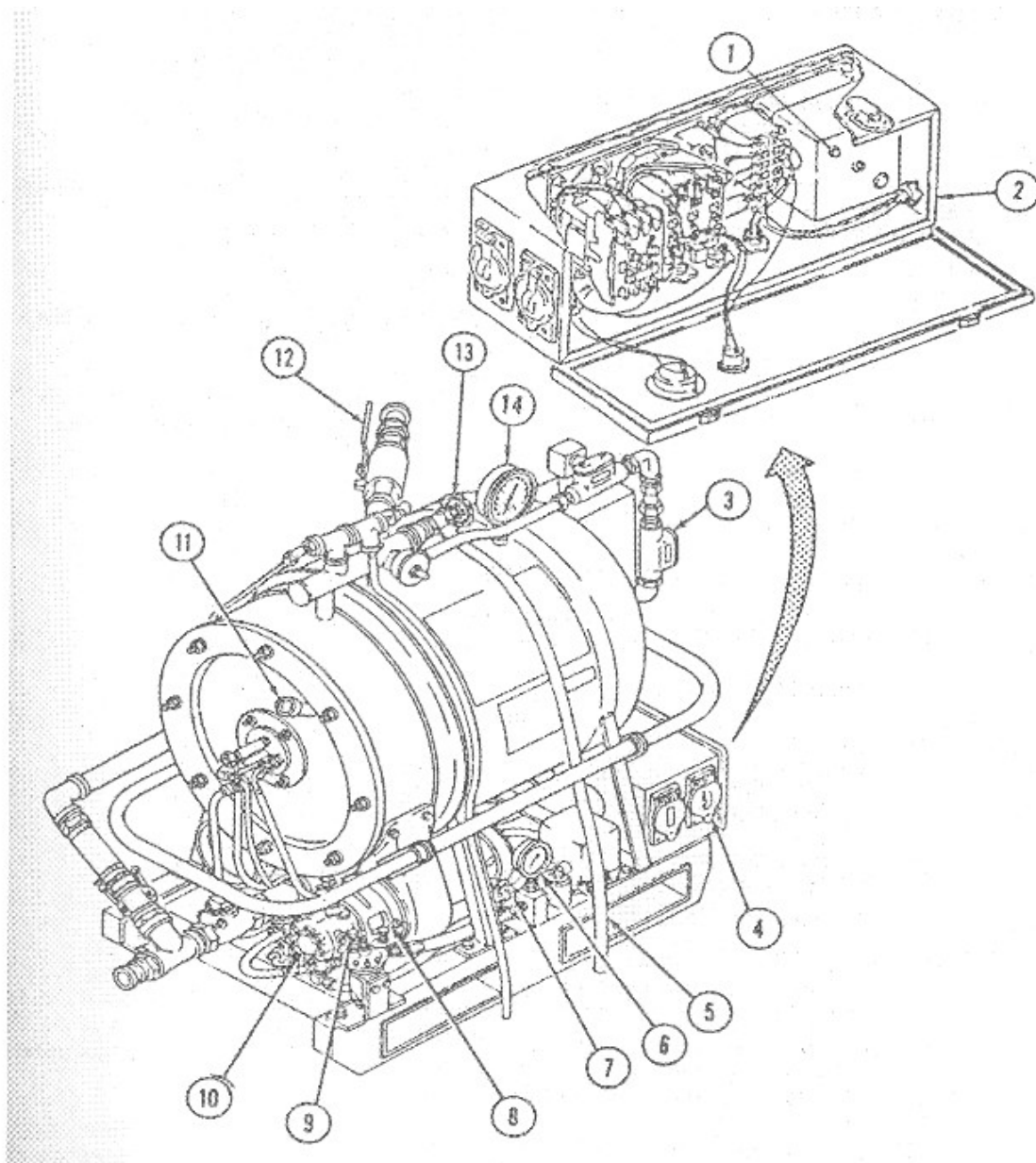


Figure 3-26
Water Heater System Controls And Indicators

- a. Inspect the inlet hose coupler to water heater.
- b. Check electrode holder for secure mounting.
- c. Ensure peep sight tubes (11) on burner assembly are clear, NOT loose or broken.
- d. Inspect fuel filter and turn "T" handled (9) one complete turn either way.
- e. Check fuel pump for proper mounting (10).
- f. Check fuel lines for proper connections and fuel supply.
- g. Check fuel shut off valve (7) to assure it is closed.
- h. Check fuel pressure gauge (6) for damage.
- i. Make sure the control switch (4) is in the OFF position.
- j. Check cable for condition and proper connections.
- k. Check water temperature gauge for damage (14).

Performance Steps

- l. Close vent valve (12).
 - m. Ensure thermal switch is set at 160 degrees F (3).
16. Inspect dryer tumbler (See Figure 3-27).

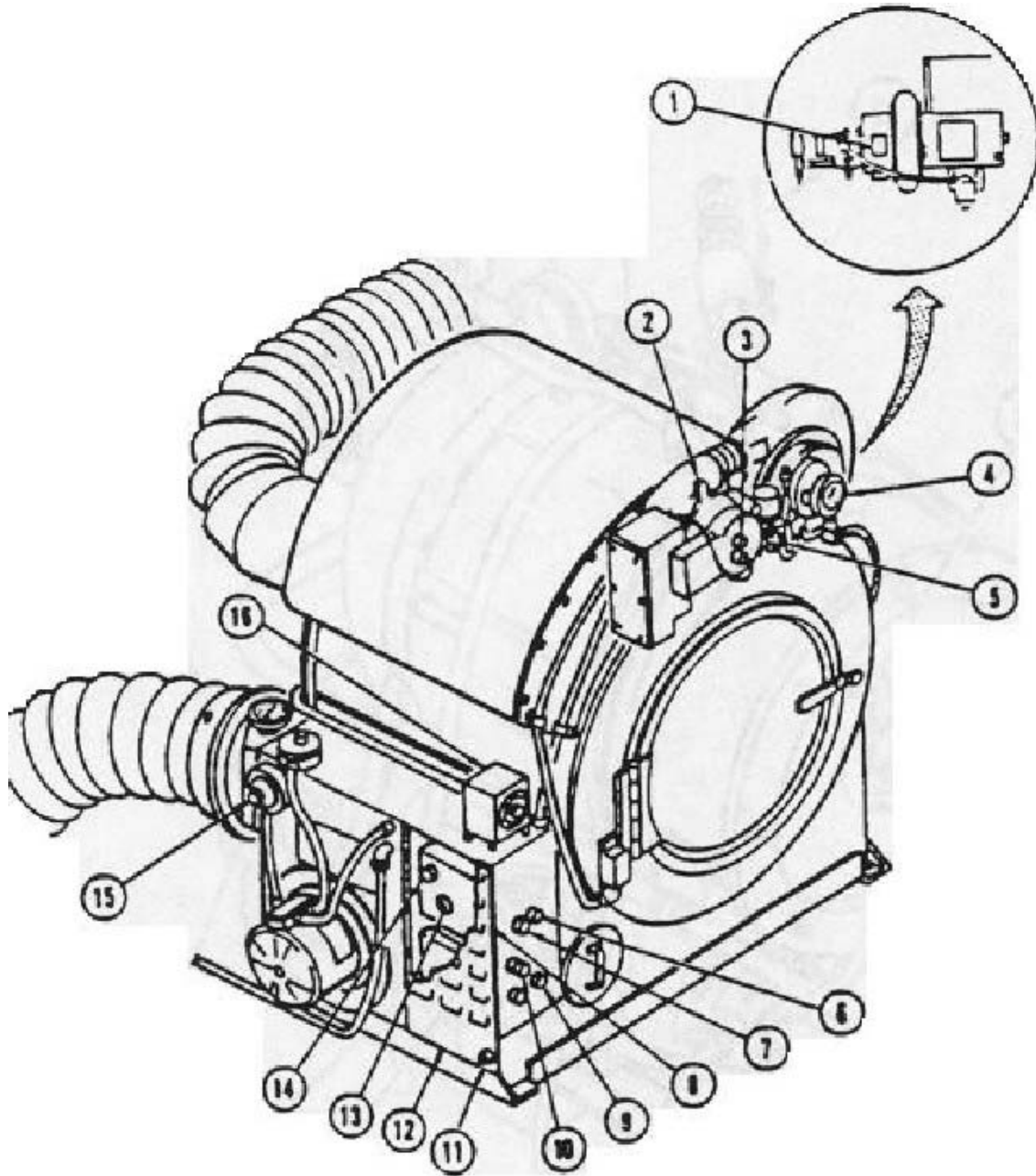


Figure 3-27
Drying Tumbler Controls

- a. Check fuel lines and fuel supply to dryer.
- b. Inspect fuel pump (1) and fuel filter (turn "T" handle one full turn either way).
- c. Inspect blower shutter (1) (must move freely).
- d. Check petcock valve and make sure is close.
- e. Check fuel pressure gauge (4).

Performance Steps

- f. Check fuel shut off valve (5) and leave in the close position.
 - g. Check burner peep sight (3) for cracks or missing cover.
 - h. Check lint trap.
 - i. Inspect dryer door and latch; Inspect the door macro switch; Inspect cylinder (inside dryer) for dirt, nicks or dents.
 - j. Check temperature controller and gauge for damage.
 - k. Check lint screen.
 - l. Check 12-inch plastic duct for damage.
 - m. Check dryer gear reduction box:
 - (1) Turn grease cups one quarter turn daily (before Operation).
 - (2) Add grease as needed and check flexible coupling (check TM for lubrication order "LO").
 - (3) Inspect chain for broken links and tension.
17. Inspect extractor (See Figure 3-28).

Performance Steps

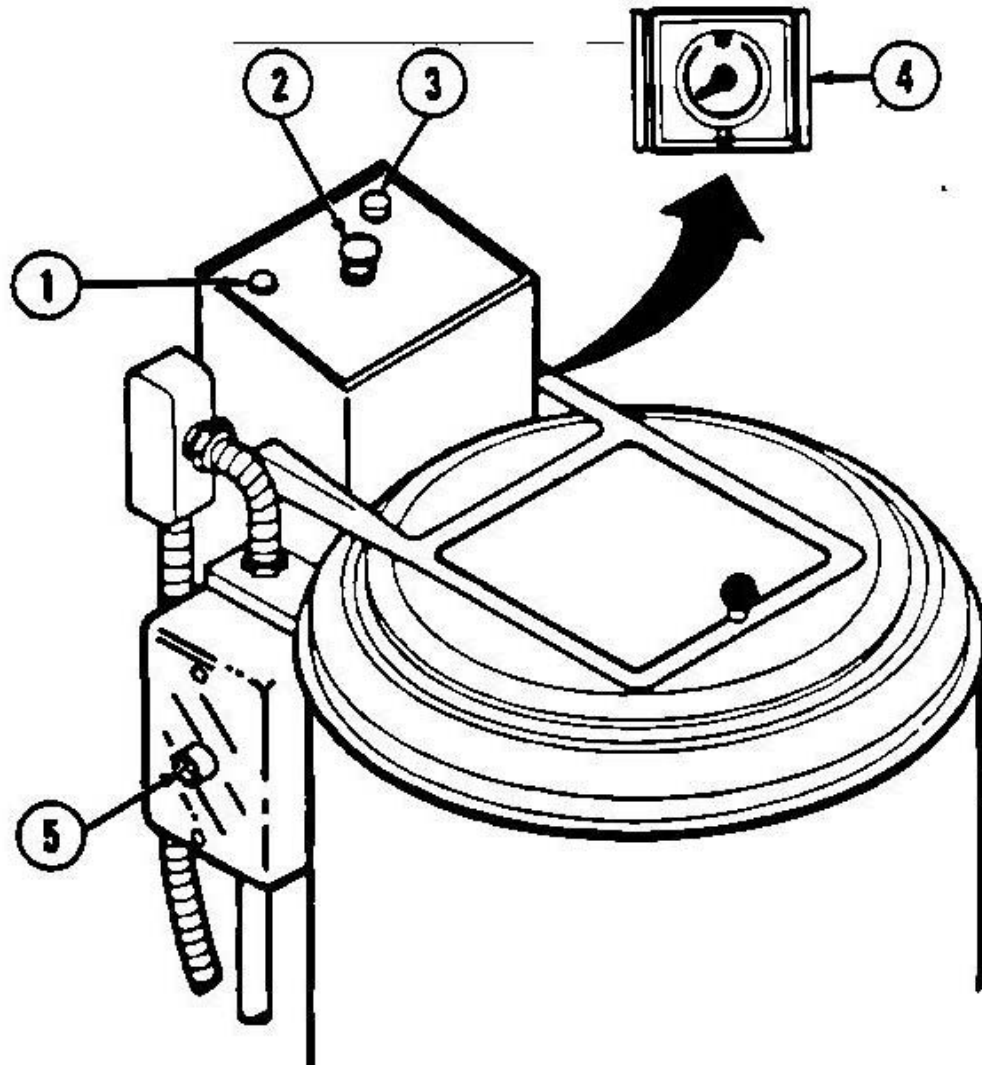


Figure 3-28
Extractor System Controls And Indicators

- a. Assure emergency STOP button is pulled up (2).
 - b. Inspect timer glass for damage (4).
 - c. Ensure basket is free of clothes.
 - d. Inspect reset button box (5) for cracks or damage.
18. Inspect washer (See Figure 3-29).

Performance Steps

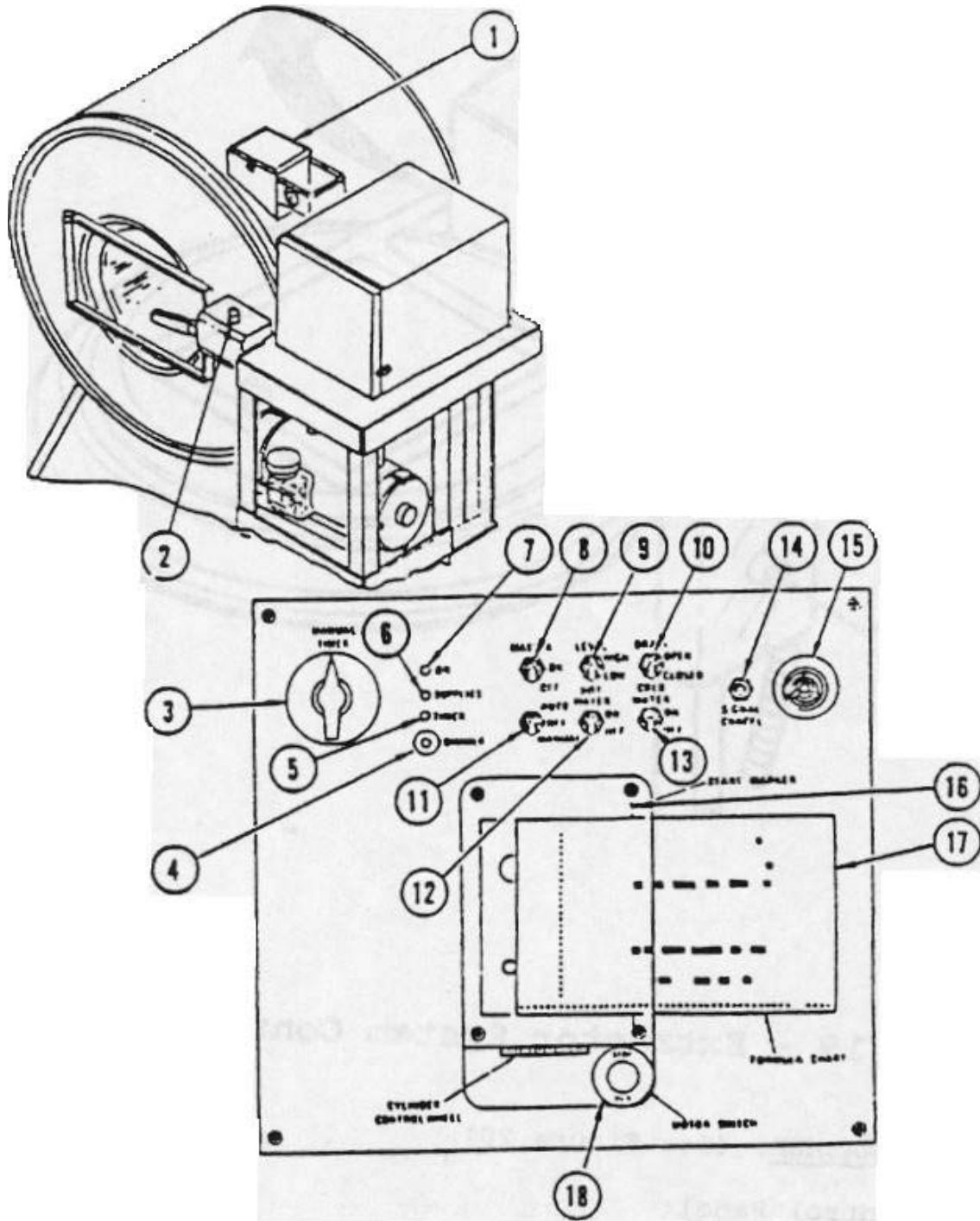


Figure 3-29
Washer And Controller

- a. Inspect the Control Panel:
 - (1) Check Timer for damage (3).
 - (2) Ensure that all switches are in the OFF position (8, 9, 10, 11, 12 and 13).
- b. Inspect Washer body:

Performance Steps

- (1) Check the washer door for dents, warp or cracks.
 - (2) Inspect cylinder for cracks, breaks, rust, or distortion.
 - (3) Check water temperature gauge.
 - (4) Check the latch assembly.
 - (5) Check washer drain assembly.
- c. Check Belts:
- (1) Check belts for frying, wear and tear, and improper tension.

NOTE:

Report any deficiencies in DA Form 2404 that cannot be corrected on the spot.

19. Prevent hazardous materials from contaminating the environment.
 - a. Actions required to performed the step:
 - (1) Place drip pans, or similar initial containment devices completely under area where fluid leaks may occur.
 - (2) Remove any spills.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Comply with disposal requirements for contaminated/hazardous materials.
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - (2) Ability to use spill cleanup materials to remove/cleanup spills.
 - (3) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
 - (1) Knowledge of spill cleanup equipment.
 - (2) Knowledge of unit or Installation SOP/Operations Order requirements for requisitioning, storage, handling, and disposal of hazardous materials.
 - (3) Knowledge of how to properly drain/replace fluids from vehicles.
 - (4) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Spill kits.
 - (c) Containers for contaminated hazardous fluids.
 - (d) Drip pans.
 - (e) Absorbent materials (e.g. dry sweep).
 - (f) Rags.
 - (g) Shovel for removing contaminated materials.
 - (h) Containers for transporting of contaminated material.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: CAUTION! Dispose of hazardous materials (such as, fuels, grease, oil, and contaminated rags) IAW unit Standing Operating Procedures/Operations Order (OPORD), local regulations, and/or host nation laws. Use rags to contain any excess fluids. Dispose of rags in appropriate accumulation containers.
20. Employ procedures to dispose of solid waste.
 - a. Actions required to performed the step:
 - (1) Place contaminated rags in appropriate container for recycling (laundry).
 - (2) Place contaminated absorbents (dry sweep) into appropriate container.
 - b. Environmental skills required:
 - (1) Ability to select hazardous materials container.
 - (2) Ability to locate appropriate accumulation point container for recycling solid waste.
 - c. Environmental knowledge required:
 - (1) Knowledge of solid waste disposal requirements.

Performance Steps

- d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Absorbent materials (e.g. dry sweep).
 - (c) Rags
- e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Positioned the trailer.	—	—
2. Disconnected and leveled the laundry trailer.	—	—
3. Positioned and set up the laundry unit platform assembly.	—	—
4. Installed the laundry Trailer's 10 KW generator exhaust duct and grounding system.	—	—
5. Removed the water pump assembly and connect the supply hoses.	—	—
6. Installed the electric power Cables.	—	—
7. Removed and installed dryer bin.	—	—
8. Connected the dryer fuel lines.	—	—
9. Connected the water heater fuel lines.	—	—
10. Connected the dryer exhaust duct.	—	—
11. Performed Safety Checks.	—	—
12. Inspected the 10KW diesel generator set.	—	—
13. Inspected the water source.	—	—
14. Inspected the water pump.	—	—
15. Inspected the water heater.	—	—
16. Inspected the dryer tumbler.	—	—
17. Inspected the extractor.	—	—
18. Inspected the washer.	—	—
19. Place drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—
20. Remove spills (small).	—	—
21. Collect contaminated soil, absorbent materials, and debris into approved containers.	—	—
22. Comply with container labeling requirements.	—	—
23. Comply with disposal requirements for contaminated materials.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier No-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

Related

TM 10-3510-220-10

TM 5-6115-585-12

**Perform Operator PMCS On M-85 Series Laundry Unit
101-92S-1023**

Conditions: You are working in a laundry section. Your immediate supervisor tells you to perform before operator PMCS on the M85-100 laundry unit. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration (OSHA) requires that protective equipment (PPE) be worn while working with hazardous materials. Materials and equipment required: One M85-100 laundry unit trailer-mounted to include the 10 KW generator, water pump, water heater, dryer tumbler, air compressor, washer, extractor, fire extinguisher, TMs 10-3510-220-10, 5-6115-585-12, drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids, and DA PAM 735-750.

Standards: Complete all necessary steps in conducting a before operator PMCS on the M85-100 laundry unit trailer-mounted. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, solvents). Continue performing PMCS until the after-operation maintenance is performed. List deficiencies on DA Form 2404 or DA Form 5988-E for processing.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Fill in DD Form 1970 (Equipment Utilization Record)
 - a. Fill in the heading of the form correctly.
 - b. Be careful the time and hour reading are placed in the correct block.
 - c. Record all malfunctions that cannot be corrected on DA Form 2404.
2. Fill in DA Form 2404 (Equipment Inspection and Maintenance Work sheet)
 - a. Fill in applicable portions of the form correctly.
 - b. Do not list anything in column C unless something is detected.
3. Make safety checks.
 - a. Ensure that a serviceable fire extinguisher is present.
 - b. Check the seal, the gauge, and the tag.
 - c. Check to see if ground rod is properly installed.
4. Inspect 10 KW Diesel Generator Set.
 - a. Remove protective cover on top of batteries.
 - b. Check the battery fluid level.
 - (1) Add water if it is needed.
 - (2) Clean battery filter cap vent.
 - (3) Tighten loose battery cables.
 - c. Check the oil and add if needed.
 - d. Check the air filter.
 - e. Check the oil filter for leaks.
 - f. Check the fuel supply.
 - g. Check the fuel filter for leaks.
 - h. Ensure main circuit breaker is in the off position.
 - i. Ensure DC control breaker is pulled out.
 - j. Inspect control panel.
 - k. Check gauge, switches, and selectors, for damages and loose mountings.

Performance Steps

- I. Ensure throttle knob is pushed in.

5. Inspect Water Pump.

- a. Inspect the pump-housing strainer, and clean it weekly.
- b. Ensure the control switch is in the OFF position.
- c. Check cables for condition and proper connection.
- d. Make sure drain cock is closed.
- e. Check for correct and tight connection of water pump outlet hose and suction hose.
- f. Check priming port gasket.
- g. Check suction strainer for tight connection and proper positioning.
- h. Electric motor: Inspect for obstruction and ventilation and for loose mounting.

6. Inspect Water Heater.

- a. Ensure thermal switch is set at 160 degree F.
- b. Close vent valve.
- c. Check fuel pressure gauge for damage.
- d. Make sure the control switch is in the OFF position.
- e. Check cable for condition and proper connections.
- f. Check fuel shut off valve to ensure it is closed.
- g. Check water temperature gauge for damage.

NOTE: Hand tighten VU scanner.

- h. Ensure peep sight tubes on burner assembly are clear, not loose or broken.
- i. Check electrode holder for secure mounting.
- j. Inspect inlet hose coupler to water heater.
- k. Inspect fuel filter and turn "T" handle one complete turn.
- l. Check fuel pump for proper mounting.
- m. Check fuel lines for proper connection and fuel supply.

NOTE: Make certain that one fuel line from fuel filter to the fitting on barrel plug marked "SUPPLY" is connected. Connect the other fuel line from the water heater fuel pump outlet to the barrel plug adapter marked "RETURN".

7. Inspected Dryer Tumbler.

- a. Check temperature controller and gauge for damage.
- b. Check lint screen.
- c. Check 12-inch plastic duct for damage.
- d. Ensure reset- button is in the STOP position.
- e. Check lint trap.
- f. Inspect door and latch.
- g. Inspect door MICRO switch.
- h. Inspect cylinder for dirt, nicks, or dents.
- i. Check burn peep sight for cracks or missing cover.
- j. Check fuel shut off valve (closed position).
- k. Check fuel pressure gauge.
- l. Inspect blower shutter (must move freely) .
- m. Inspect fuel pump and fuel filter (turned "T" handle one full turn).
- n. Check petcock valves.
- o. Check fuel lines and fuel supply to dryer.

8. Check dryer gear reduction box.

- a. Turn grease cups one quarter turn daily.
- b. Add oil as needed and check flexible coupling.
- c. Inspect chain for broken links and tension.

9. Inspect the Air Compressor.

- a. Check air filter element.

Performance Steps

- b. Check air hose for any damage.
 - c. Check electrical cable and wires.
 - d. Check the pressure gauge for cracked or broken lenses.
 - e. Ensure bleeder valve is closed (turn clockwise).
10. Inspect Extractor.
- a. Ensure emergency STOP button is pulled up.
 - b. Inspect timer glass for damage.
 - c. Ensure basket is free of clothes.
11. Check Belts. Check belt for fraying, wear, and improper tension.
12. Inspect washer.
- a. Check the washer door for dents, warps, or cracks.
 - b. Inspect washer cylinder for cracks, breaks, or distortion.
 - c. Check water temperature gauge.
 - d. Check the latch assembly.
 - e. Check washer drain.
13. Inspect the control panel.
- a. Check timer for damage.
 - b. Make certain that all switches are in the " OFF" position.
14. Inspection Fire Extinguisher.
- a. Inspect fire extinguisher pin for damage or missing condition.
 - b. Inspect pressure gauge for indication of being fully charged.
15. Prevent hazardous materials from contaminating the environment.
- a. Actions required to performed the step:
 - (1) Place drip pans, or similar initial containment devices completely under area where fluid leaks may occur.
 - (2) Remove any spills.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Comply with disposal requirements for contaminated/hazardous materials.
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - (2) Ability to use spill cleanup materials to remove/cleanup spills.
 - (3) Ability to select hazardous materials container
 - c. Environmental knowledge required:
 - (1) Knowledge of spill cleanup equipment.
 - (2) Knowledge of unit or Installation SOP/Operations Order requirements for requisitioning, storage, handling, and disposal of hazardous materials.
 - (3) Knowledge of how to properly drain/replace fluids from vehicles.
 - (4) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Spill kits.
 - (c) Containers for contaminated hazardous fluids.
 - (d) Drip pans.
 - (e) Absorbent materials (e.g. dry sweep).
 - (f) Rags.
 - (g) Shovel for removing contaminated materials.
 - (h) Containers for transporting of contaminated material.

Performance Steps

- e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: CAUTION! Dispose of hazardous materials (such as, fuels, grease, oil, and contaminated rags) IAW unit Standing Operating Procedures/Operations Order (OPORD), local regulations, and/or host nation laws. Use rags to contain any excess fluids. Dispose of rags in appropriate accumulation containers.

- 16. Employ procedures to dispose of solid waste.
 - a. Actions required to performed the step:
 - (1) Place contaminated rags in appropriate container for recycling (laundry).
 - (2) Place contaminated absorbents (dry sweep) into appropriate container.
 - b. Environmental skills required:
 - (1) Ability to select hazardous materials container.
 - (2) Ability to locate appropriate accumulation point container for recycling solid waste.
 - c. Environmental knowledge required:
 - (1) Knowledge of solid waste disposal requirements.
 - d. (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Absorbent materials (e.g. dry sweep).
 - (c) Rags.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: None.

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Filled in DD Form 1970.	—	—
2. Filled in And Or Performed Recorded Deficiencies/Malfunctions Or Failures On DA Form 2404.	—	—
3. Made safety checks.	—	—
4. Inspected 10KW Diesel Generator Set.	—	—
5. Inspected Water Pump.	—	—
6. Inspected Water Heater.	—	—
7. Inspected Dryer Tumbler.	—	—
8. Performed Checks On The Dryer Gear Reduction Box.	—	—
9. Inspected The Air Compressor.	—	—
10. Inspected Extractor.	—	—
11. Performed Checks On Belts And Fraying, Wear, Warps, Or Cracks Of Belt.	—	—
12. Inspected Washer.	—	—
13. Inspected The Control Panel.	—	—
14. Inspected Fire Extinguisher.	—	—
15. Placed drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—

Performance Measures

	<u>GO</u>	<u>NO GO</u>
16. Removed spills (small).	—	—
17. Collected contaminated soil, absorbent materials, and debris into approved containers.	—	—
18. Complied with container labeling requirements.	—	—
19. Complied with disposal requirements for contaminated materials.	—	—

**References
Required**

Related
TM 5-6115-585-12

Operate The M-85 Series Laundry Unit
101-92S-1024

Conditions: You work in a laundry section. Your immediate supervisor tells you to operate the M85-100 series laundry unit trailer-mounted. Materials and equipment required: laundry unit complete with accessories, fuel, source of water, DA Form 2404 or DA Form 5988-E and TM 10-3510-220-10.

Standards: Complete all necessary steps to operate the M85-100 series laundry unit trailer-mounted. Continue operating the laundry unit, until the after-operation preventive maintenance checks and services is performed. List deficiencies on DA Form 2404 for processing as required.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Prepare generator for use.
 - a. Ensure that the ON/OFF switch on the water pump and water heater is in the OFF position and that all circuit breaker in the power distribution box are turned off.

NOTE: Do not operate the unit until the ground terminal stud of the engine-generator set has been connected to a suitable ground. Electrical faults in the engine-generator set, load lines, or load equipment can cause death by electrocution from contact with an ungrounded system. Do not touch exhaust ducts while running or immediately after shutdown, as severe burns may result.

- b. Starting the 10-KW diesel generator.
 - (1) When starting generator with a dry fuel system or after a filter drain or change.
 - (a) Ensure DC control circuit breaker is pushed in.
 - (b) Move master switch to Prime & Run position
 - (c) The slowing of pump action indicates the system is primed.
 - (2) Move master switch to PREHEAT position and hold for one minute.

NOTE: Preheat is not required when engine is warm.

- (3) Place master switch in the start position and hold until engine comes to operating speed. If engine does not start within 15 second, repeat steps 1 and 2.

NOTE: If engine does not come to operating speed within 15 second, a minimum of 30 seconds cooling period must be observed before attempting another start.

- (4) Master switch will return to Prime & Run position when released. If running from auxiliary fuel source, move master switch to PRIME & RUN AUX fuel position.
 - (5) Check oil pressure on engine grounded gauge. Oil pressure should be at least 20 PSI. Check frequency meter, pushing the control knob in will decrease frequency reading.
 - (6) Place ammeter -voltmeter transfer switch in position corresponding to the position of the re-connection switch. Adjust voltage adjust rheostat to desired voltage. Turn rheostat counterclockwise to decrease voltage.
 - (7) Place AC circuit breaker in ON position. Adjust speed control to obtain full load frequency.

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

2. Prepare the air compressor for use. (See Figure 3-30)

Performance Steps

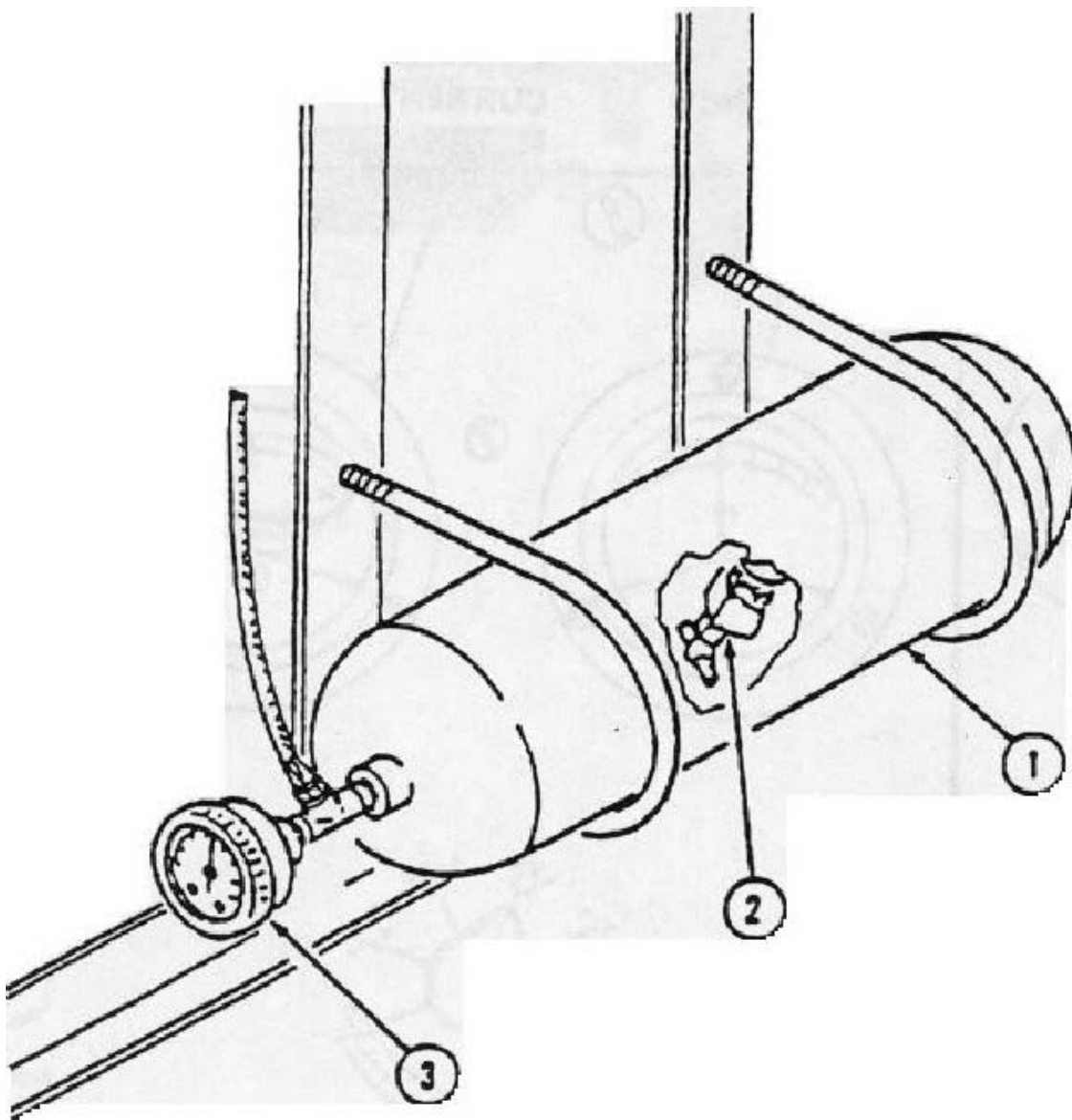


Figure 3-30
Air Tank Controls

- a. Wait 2 minute for pressure to build up inside air tank assembly (1) and check air tank gauge (3) for an indication of 60 to 80 PSI (414 to 552 KPA).
 - b. Open drain valve (2) to bleed condensation from air tank.
 - c. Close drain valve.
 - d. Turn off generator. (Refer to TM 5-6115-585-12)
 - e. Listen for air leaks. If air leaks are found, report the problem to your supervisor. If leaks are not found, restart and reset the generator.
3. Prepare the water pump for use. (See Figure 3-31)

Performance Steps

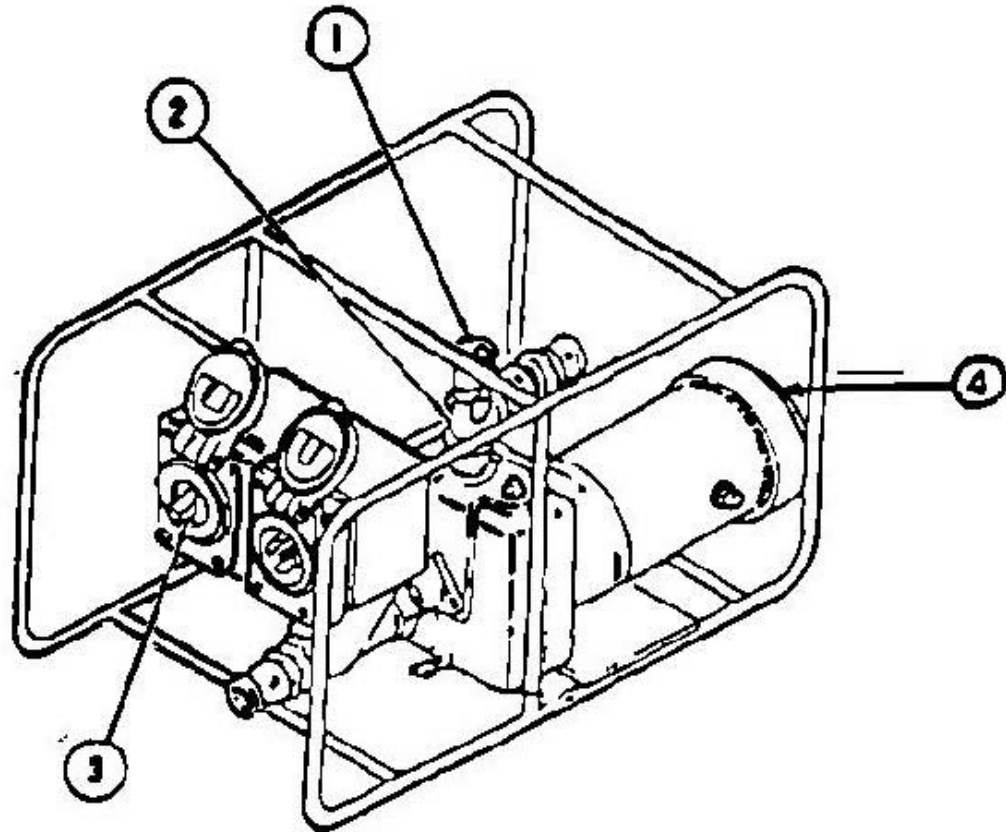


Figure 3-31
Water Pump

- a. Remove priming plug (1) located at the top of plug housing.
 - b. Prime pump with clean water.
 - c. Replace priming plug (1).
 - d. Set the water pump ON/OFF (3) switch to ON position, then OFF. To check the pump motor rotation. If motor (4) is rotating in the right direction, place switch to ON position for operation.
4. Prepare the water heater for operation. (See Figure 3-26)
- a. Be sure that the fuel shutoff valve is closed. Turn the fuel adjustment knob clockwise to close valve.

CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for spill prevention during fueling operations. Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for wastewater disposal.

Performance Steps

- b. Set load limit switch on the water heater to the ON position, then to the OFF position, and check for proper rotation. If motor does not rotate in direction of the arrows, refer to similar troubleshooting procedures according to TM 310-3510-220-10. If motor is rotating in the correct direction, place switch in the on position for operation.
- c. Open water outlet valve.
- d. Open bleeder valve until a steady stream of water flows from the vent hose. Close the valve.

NOTE: Use only specified fuel. Failure to do so may result in death or serious injury to personnel or damage to equipment.

- e. Remove priming plug and prime fuel pump by pouring fuel into the line. Install priming plug.
- f. Open air shutter halfway.
- g. Open the door to control panel and press FLAME SAFEGUARD reset button. Close control panel.
- h. Set water temperature control to the desired setting. (Refer to FM 10-3510-220-10 for water temperatures.)
- i. Place load limit switch to the on position.

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

- j. Check fuel pressure gauge for an indication of 75 to 80 psi (517 to 552 kpa). If the pressure gauge does not indicate 75 to 80 psi within 15 seconds, place switch to the OFF position and repeat steps (a) through (i) until a minimum of 75 to 80 psi is indicated on pressure gauge. After three unsuccessful attempts, notify your supervisor.
- k. As soon as 75 to 80 psi is reached, open fuel shutoff valve one full turn. The burner should ignite within 20 seconds and be visible in the sight glass combustion chamber. Open valve fully.

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

- l. If the water heater buzzer sounds on the control box, turns off load switch and wait approximately two minutes. Repeat steps (a) through (k) to start water heater.
- m. Adjust air shutter until there is little or no smoke in the heater exhaust.
- n. When the water heater reaches the specified temperature, check temperature gauge reading with thermostat setting. The heater flame will shut off automatically and fuel pressure gauge will register zero.

5. Prepare drying tumbler for use.

- a. Set thermostat as follows:
 - (1) For cotton: 250 degrees F (121 C).
 - (2) For wool: 200 degrees F (93 C).
 - (3) For battle dress uniform (BDUs): do not exceed 130 degrees F (54 C).
- b. Set electric timer to approximately 10 minutes.
- c. Adjust burner air intake to approximately 1/2 inch (12.7 mm).
- d. Close fuel shutoff valve.
- e. Remove three thumbscrews on panel door of dryer control panel and open panel door.
- f. Press reset button on safeguard control unit. Close and secure panel door with three thumbscrews.
- g. Push START button on dryer control panel.
- h. Check fuel pressure gauge for an indication of approximately 100 psi.
- i. Open shutoff valve one full turn.

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

- j. If dryer warning light lights and the beeper sound on the front of dryer control panel, perform the following actions.
 - (1) Push STOP/RESET on dryer control panel.
 - (2) Loosen three thumbscrews on panel door of dryer control panel and open panel door.

Performance Steps

- (3) Wait for approximately 2 minutes after shutdown to allow for the safeguard timer to reset and cool the electrical igniter.
- (4) Press and release reset button on safeguard control unit. Close panel door on dryer control panel and secure with three thumbscrews.
- (5) Push START button on dryer control panel.
- (6) If the burner ignites but does not remain on, adjust burner air intake and repeat steps (e), (f), and (g) until the burner remains on. After two unsuccessful attempts, notify your supervisor.
- (7) After the burner remains on, open fuel shutoff valve fully and adjust air shutter so that the heater burner has a steady roar. A bright, clean flame will be seen in the sight glass.
- (8) Open dryer door until first load is placed in the dryer. This will prevent excess fuel consumption until dryer is ready to be used.

6. Prepare washer controller for use.

- a. Use pre - punched formula charts with preset formulas or operate washer controller manually.
- b. Use Formula Chart.

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

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

- (a) Place RUN/STOP knob in stop position.
- (b) Pull formula chart to the side and remove.
- (c) Holding chart to be used with track assignments on left and printed side operator, insert into program timer from right side. Toward the left.
- (d) Using cylinder control wheel align start position with hairline start marker on timer front and place RUN/STOP knob in RUN position. Timer is now ready to start.

7. OPERATE THE M-85-100 laundry unit.

- a. Perform automatic washing procedures. (The following steps are for operating the washer using the program timer to control the wash cycle.)

NOTE: Master switch must be in ON with AUTO/OFF/MANUAL switch in OFF to unlock door.

- (1) Push unlock switch on door lock cover and unlock the door.
- (2) Load the washer with up to 60 lbs. of wash. Table2-3 lists the weight of specific clothing items.
- (3) Check the air tank pressure gauge for pressure of 60 to 90 psi.
- (4) Refer to FM 42-414 for field laundry washing and decontamination formulas. Select proper formula chart.
- (5) With Run/Stop knob in Stop position and chart with track assignment to left, insert chart into timer from the right side until first increment of chart is below hairline star marker on the face of the program timer. Turn Run/Stop knob to RUN.

NOTE: When washing camouflage clothing use warm water and mild detergent. Do not use chlorine on camouflage clothing.

- (6) Add the proper amount of washing supplies through soap chute.
- (7) Place AUTO/OFF/MANUAL switch in AUTO. Washer will start and run the formula selected.
- (8) When supplies light and audible signal activates add supplies called for in formula.
- (9) At end of formula, a supplies signal is called for to alert operator that formula is complete.
- (10) At the end of the cycle place AUTO/OFF/MANUAL switch in the OFF position.
- (11) Push unlock switch on door lock cover and unlock the door.

Performance Steps

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

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

b. Perform manual procedures. The control assembly provides complete manual operation. The level, drain, and water toggle switch are used in manual mode to obtain desired operation.

The following steps are for manual operation.

(1) With master switch ON and AUTO/OFF/MANUAL switch in OFF press unlock switch and unlock door and load the washer with up to 60 lbs of wash. Table lists the weights of specific clothing items.

(2) Check the air tank pressure gauge for a pressure of at least 60 to 90 psi.

(3) Select the proper formula from FM 10-3510-220-10.

NOTE: The washer drain switch must be in the closed position before water inlet valve will operate.

(4) Set the drain, water, and level switch for desired operation.

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

(6) Add proper supplies through soap chute.

NOTE: Washer will continue to run indefinitely when manual timer times-out audible signal will sound and timer light will come on but machine will not stop agitating until Auto/Off/Manual switch is switched to the Off position.

(7) When signal goes off, switch drain to open to drain water.

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

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

(10) Continue sequence until formula is completed.

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

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

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

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

c. Perform extracting procedures.

NOTE: While extractor basket is spinning, keep hands away. Failure to observe this may cause serious injury to personnel. Do not force extractor lid open. Failure to observe this may cause serious damage to equipment.

(1) Place 30 lbs of laundry (approximately one-half of a load) from the pre-extraction bin into the extractors.

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

(3) Close the extractor lid.

(4) Pull out EMERGENCY STOP button.

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

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

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

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

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

d. Perform Emergency Stop Procedures.

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

Performance Steps

- (2) When the signal light goes out, open the lid and rebalance the load. Ensure nothing has dropped between the basket and the curb.
- (3) To restart the extractor, pull out the EMERGENCY STOP button, close the lid, and press the START button. When extraction is completed, the basket will stop and the lid lock signal light will go out.

e. Drying Procedures.

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

- (1) Remove the load from the extractor and place no more than 30 lbs in the dryer.
- (2) Close the tumbler door securely.
- (3) Set the temperature control as follows;
 - (a) For cotton: 250 degrees F (121c).
 - (b) For Wool: 200 degrees (93 c).
 - (c) For battle dress uniform (BDUs), do not exceed 130 degrees F (54 c).
- (4) Set drying time to approximately 10 minutes.
- (5) Press START button on dryer.
- (6) When the beeper sounds, turn timer off, open dryer door, and check laundry for dryness.
- (7) If laundry is dry remove, If laundry is not dry repeat steps (4) and (5) using a 3-minute drying cycle until laundry is dry.
- (8) Remove laundry from dryer and place in dryer bin.

8. Perform during operation PMCS on the 10 KW diesel generator.

a. Check water heater.

- (1) Inspect temperature gauge: normal indication 95 to 160 degree F.
- (2) Inspect fuel pressure gauge: normal indication 75 to 80 PSI.

NOTE: Exhaust ducts become very hot during operation. Wear protective gloves when handling hot exhaust ducts. Failure to wear protective gloves could result in severe burns.

- (3) Inspect exhaust duct: visually inspect exhaust ducts for leaks.
- (4) Inspect fuel pump, filter, and lines: Inspect for fuel leaks and for kinks or crushed lines.
- (5) Inspect water hose and lines: Inspect for water leaks and for kinked or crushed hose or lines.

b. Check dryer assembly.

NOTE: Exhaust ducts become very hot during operation. Wear protective gloves when handling hot exhaust ducts. Failure to wear protective gloves could result in severe burns.

- (1) Inspect exhaust duct: visually inspect exhaust ducts for leaks.
- (2) Inspect fuel pump, filter, and lines: Inspect for leaks and for kinked or crushed lines.
- (3) Inspect for lint collection around thermostat and temperature sensor.

c. Check Extractor.

- (1) Ensure Emergency/Stop button is in upward position.
- (2) Check timer.
- (3) Listen for unusual noise.

d. Check water source. (Check water level in tank).

e. Check water pump.

- (1) Check on/off switch and power cables.
- (2) Check inlet hose.
- (3) Check drain cock.

f. Check generator.

- (1) Check fire extinguisher.
- (2) Check Hertz Meter----60 cycles.
- (3) Check % rate current meter.
- (4) Check voltage (208).
- (5) Check main /ac circuit breaker.
- (6) Check oil pressure gage30-50 PSI.

Performance Steps

- (7) Check fuel gauge.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Prepared the 10 KW Generator for operation.	—	—
2. Prepared the laundry unit air compressor for operation.	—	—
3. Prepared the water pump for operation.	—	—
4. Prepared the water heater for operation.	—	—
5. Prepared the dryer tumbler for operation.	—	—
6. Prepared the washer controller operation.	—	—
7. Operated the M-85-100 laundry unit. Extractor.	—	—
a. Performed automatic washing procedures.		
b. Performed manual washing procedures.		
c. Performed extracting procedures.		
d. Performed emergency stop procedures.		
e. Performed drying procedures.		
8. Performed during operation PMCS.	—	—

**Perform Shutdown Procedures And After Operations PMCS On M-85 Series Laundry Unit
101-92S-1025**

Conditions: You work in a laundry section. Your immediate supervisor tells you to shut down the M-85 100 series laundry unit, and complete an after-operation PMCS. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration (OSHA) requires that personal protective equipment (PPE) be worn while working with hazardous materials. Materials and equipment required: one laundry unit trailer mounted, 10 KW generator, air compressor, dryer, water pump, water heater, washer, extractor, DA Form 2404 or DA Form 5988-E, TM 10-3510-220-10, drip pans or similar initial containment devices, PPE, spill kit, absorbent materials and rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids.

Standards: Complete, in order, all steps to perform shutdown procedures on the M85 series laundry unit. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, and solvents). Continue until after operation PMCS is performed and deficiencies recorded on DA Form 2404 or DA Form 5988-E.

Performance Steps

NOTE: Apply Risk Management Procedure.

1. Shutdown procedure.

NOTE: The laundry unit may begin to be shutdown while the last load of wash is being dried.

- a. Make certain that all washer control panel switches are in the OFF position.
- b. Turn off air compressor circuit breaker at the power distribution panel.
- c. Turn water temperature control to 0 degrees F. Allow the water heater to operate for 2 minutes so that the blower may purge vaporized fuel from the burner, Turn ON/OFF switch to the OFF position and close shutoff valve. Open drain valve, to drain water from the heater. Close valve.
- d. Turn the water pump ON/OFF switch to OFF. Open drain valve and drain water from the pump. Close valve.
- e. When drying operations are complete. Turn dryer temperature control to 0 degrees F. Allow the dryer to operate for 2 minutes so that the blower may purge vaporized fuel from the burner. Press the START / STOP button and close fuel shutoff valve.
- f. Open the dryer door and allow the dryer to cool 3 to 5 minutes.
- g. Set all circuit breaker on the power distribution box to off.
- h. Shutdown the M85-100 generator.
 - (1) Turn off the circuit breaker.
 - (2) Decrease the voltage.
 - (3) Push the throttle in all the way.
 - (4) Turn the master switch OFF.
 - (5) Pull the DC control circuit breaker out.

2. Perform After-operation PMCS on the M85-100 laundry unit IAW technical manual.

NOTE: After-operations maintenance is the same as before-operations maintenance, except the oil will be checked in the 10 KW Generator last. DA Form 2404 or DA Form 5988-E will be completed at the end of the day and given to your supervisor.

3. Prevent hazardous materials from contaminating the environment.

Performance Steps

- a. Actions required to performed the step:
 - (1) Place drip pans, or similar initial containment devices completely under area where fluid leaks may occur.
 - (2) Remove any spills.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Comply with disposal requirements for contaminated/hazardous materials.
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - (2) Ability to use spill cleanup materials to remove/cleanup spills.
 - (3) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
 - (1) Knowledge of spill cleanup equipment.
 - (2) Knowledge of unit or Installation SOP/Operations Order requirements for requisitioning, storage, handling, and disposal of hazardous materials.
 - (3) Knowledge of how to properly drain/replace fluids from vehicles.
 - (4) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirement:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Spill kits.
 - (c) Containers for contaminated hazardous fluids.
 - (d) Drip pans.
 - (e) Absorbent materials (e.g. dry sweep).
 - (f) Rags.
 - (g) Shovel for removing contaminated materials.
 - (h) Containers for transporting of contaminated material.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: CAUTION! Dispose of hazardous materials (such as, fuels, grease, oil, and contaminated rags) IAW unit Standing Operating Procedures/Operations Order (OPORD), local regulations, and/or host nation laws. Use rags to contain any excess fluids. Dispose of rags in appropriate accumulation containers.
4. Employ procedures to dispose of solid waste.
 - a. Actions required to performed the step:
 - (1) Place contaminated rags in appropriate container for recycling (laundry).
 - (2) Place contaminated absorbents (dry sweep) into appropriate container.
 - b. Environmental skills required:
 - (1) Ability to select hazardous materials container.
 - (2) Ability to locate appropriate accumulation point container for recycling solid waste.
 - c. Environmental knowledge required:
 - (1) Knowledge of solid waste disposal requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Absorbent materials (e.g. dry sweep).
 - (c) Rags.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: None.
 5. Secure the flow of the hazardous substance.

Performance Steps

- a. Actions required to performed the step:
 - (1) Pick up or upright the container.
 - (2) Close valves or spigots.
 - (3) Clamp hoses.
 - (4) Use containers to catch the flow.
 - b. Environmental skills required:
 - (1) Ability to identify the source of a spill.
 - c. Environmental knowledge required:
 - (1) Knowledge of procedures for stopping the flow of a spill.
 - (2) Knowledge of the location(s) of watersheds in the area of the spill.
 - (3) Knowledge of the location(s) of storm drains in the area of the spill.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Non-sparking tools.
 - (b) Material Safety Data Sheets (MSDS)
 - (c) Non-reactive tools.
 - (d) Absorbent materials
 - (e) Drip pans
 - (2) Supporting individual task(s):
 - (a) Determine substance hazards using Material Safety Data Sheets (MSDS)
 - (b) Employ personal protective measures
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.
6. Employ spill containment procedures for a hazardous substance spill.
- a. Actions required to performed the step:
 - (1) Obtain the spill kit.
 - (2) Take appropriate measures to contain the spill.
 - b. Environmental skills required:
 - (1) Ability to determine safety measures from Material Safety Data Sheets (MSDSs)
 - (2) Ability to apply appropriate materials (i.e. sandbags, drip pans, booms, absorbent materials, soil berms, etc.)
 - c. Environmental knowledge required:
 - (1) Knowledge of spill kit location.
 - (2) Knowledge of the employment methods of each item in the spill kit.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Material Safety Data Sheets (MSDS).
 - (b) Drip pans.
 - (c) Absorbent materials.
 - (d) Spill kits.
 - (e) Non-sparking tools.
 - (f) Non-reactive tools.
 - (2) Supporting individual task(s):
 - (a) Employ spill response kits.
 - (b) Employ drip/belly pans.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.

Performance Steps

7. Report the spill of a hazardous substance.
 - a. Actions required to performed the step:
 - (1) Notify the chain of command.
 - (2) Notify the Unit Environmental Compliance Officer (UECO).
 - (3) Notify Emergency Operations Center (EOC).
 - (4) Notify the local fire department, if required.
 - (5) Notify the appropriate spill coordinator, if required.
 - b. Environmental skills required: None.
 - c. Environmental knowledge required:
 - (1) Knowledge of state spill reporting procedures.
 - (2) Knowledge of environmental appendix to the Engineer annex to the OPORDs.
 - (3) Knowledge of unit or Installation Standing Operating Procedures (SOP)/Operations Order (OPORD) requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements: None.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.

8. Employ spill clean-up measures.
 - a. Actions required to performed the step:
 - (1) Select non-sparking equipment for flammable materials.
 - (2) Select non-reactive equipment for acids and caustics.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Place contaminated materials into over-pack drums, if necessary.
 - (6) Comply with disposal requirements for contaminated materials.
 - b. Environmental skills required:
 - (1) Ability to use spill cleanup materials to remove/cleanup spills.
 - (2) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
 - (1) Knowledge of environmental appendix to the Engineer annex to the OPORDs.
 - (2) Knowledge of unit or Installation Standing Operating Procedures (SOP)/Operations Order (OPORD) requirements.
 - (3) Knowledge of spill cleanup equipment.
 - (4) Knowledge of requirements for containers of contaminated materials.
 - (5) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Spill kits.
 - (b) Non-sparking tools.
 - (c) Non-reactive tools.
 - (d) Absorbent materials.
 - (e) Containers.
 - (f) Over-pack drums.
 - (2) Supporting individual task(s):
 - (a) Determine substance compatibility using Material Safety Data Sheets (MSDS).
 - (b) Turn-in hazardous waste to the designated Hazardous Waste collection point.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.

9. Replace spill response equipment.

Performance Steps

- a. Actions required to performed the step:
 - (1) Request replacement items consumed or damaged in the spill clean up.
 - (2) Conduct training as required.
- b. Environmental skills required: None.
- c. Environmental knowledge required:
 - (1) Know the spill kit required materials/equipment.
 - (2) Know the procedures to request replacement items.
- d. Resource requirements:
 - (1) Equipment/material requirements: Supply request form (DA 2765-1 or DD 1348-1).
 - (2) Supporting individual task(s):
 - (a) Initiate a request for supplies.
 - (b) Determine the status of a supply request.
- e. Safety factors/hazards: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Performed shutdown procedures.	—	—
2. Performed after-operation PMCS <ul style="list-style-type: none"> a. Checked the generator oil level last. 	—	—
3. Placed drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—
4. Removed spills (small).	—	—
5. Collected contaminated soil, absorbent materials, and debris into approved containers.	—	—
6. Complied with container labeling requirements.	—	—
7. Complied with disposal requirements for contaminated materials.	—	—
8. Identified the type of hazardous substance spill.	—	—
9. Protected self from contamination.	—	—
10. Determined if evacuation required.	—	—
11. Secured the flow.	—	—
12. Employed spill containment procedures.	—	—
13. Reported spill to the proper local authorities.	—	—
14. Selected appropriate equipment for cleaned up.	—	—
15. Replenished spill response kits.	—	—

**Receive The Laundry Turn-In
101-92S-1043**

Conditions: You work in a laundry section. Your immediate supervisor tells you to receive laundry turn-ins. Materials and equipment required: bulk work laundry, bulk organizational laundry, DA Form 1974, DA Form 1687, DA Form 2886, red and blue pencils, and FM 42-414.

Standards: Complete all necessary steps to receive laundry turn-ins. Continue until the organization representative receives a verified, signed copy of DA Form 1974.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Determine what type of turn-in is being made.
 - a. Bulk.
 - b. Organizational.
 - c. Individual.
2. Verify laundry is being turn-in according to the NCOIC(s) laundry facility schedule.
3. Check all accompanying documents for completeness and accuracy.
 - a. Check DA Form 1687 to ensure the individual making the turn-in is authorized to sign for the supported unit's commander.
 - b. Make sure DA Form 1974 has been filled out by the unit making the bulk organizational turn-in, so any claims can be handled.
4. Count each item turned in to the laundry facility.
 - a. Verify items of individual bundles on DA Form 2886.
 - b. Verify items of bulk and organizational laundry with the unit representative turning in items matched against those listed on DA Form 1974.
 - c. Recount and make a total piece count correction, if a discrepancy occurs, to the TOTAL NUMBER OF PIECES block at the bottom left-hand side of DA Form 1974 by drawing a red circle around the incorrect entry and placing the correct entry (in red) beside the circle.
5. Receive the receipt for turn-in.
 - a. Verify receipt of laundry turn-in by signing both copies of DA Form 1974.
 - b. Return one verified, signed copy of DA Form 1974 to the organization's representative as a valid receipt.

Evaluation Preparation: Setup: Use a classroom or field environment and provide the soldier with individual bundles of laundry. The soldier will use a pin tray set to mark individual laundry items to ensure individual(s) get their garments back. Provide the soldier with DA Form 1974 and DA Form 2886. Brief Soldier: Tell the soldier to verify bundle count with the unit representative and DA Form 1974 and DA Form 2886.

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Determined what type of turn-in is being made.	—	—
2. Verified laundry is being turned-in according to the NCOIC(s) laundry facility schedule.	—	—
3. Checked all accompanying documents for completeness and accuracy.	—	—
4. Counted each item turned in to the laundry facility.	—	—
5. Received the receipt for turn-in.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

**Mark Individual Bundles Of Laundry
101-92S-1044**

Conditions: You work as a marker in a laundry section. Your immediate supervisor tells you to mark individual bundle laundry. Materials and equipment required: laundry bundle containing 20 pieces of assorted laundry items, laundry table, DA Form 2886, pin set, pin marking stamp, pencils, and red pencil or red ballpoint pen.

Standards: Complete all necessary steps to mark individual laundry. Continue marking until the laundry is arranged into individual lots, marked by the same pin set assigned by the supervisor.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Pick the first bundle available, open the bundle, and empty it onto the marking table.
2. Locate DA Form 2886 and make sure it has been completed.
3. Prepare DA Form 2886, if no list is found.
4. Select a pin tray from the pin set assigned by the supervisor as the next set for processing.
5. Write the pin tray number in the bundle number block on DA Form 2886.
6. Check the number of items in the bundle against the entries on the laundry list.
 - a. Place a red checkmark beside each entry on the list, if no differences are noted.
 - b. Place a red circle around any incorrect quantity listed and entered the correct quantity beside the original entry, if differences are noted.
7. Pin the laundry items with marking pins.
 - a. Pin each garment with a pin bearing the same number as that written in the BUNDLE NUMBER block on DA Form 2886.
 - b. Pin pairs of socks or handkerchiefs together.
 - c. Pin the laundry bag as if it were a garment.
8. Separate items when marking them by checking fiber content and color of the item.
 - a. Sort white cotton and colored garments separately.
 - b. Sort light wool items. (Caution must be used so that light or white wool items are not mixed with cotton items.)
 - c. Sort colored wool items. (Caution must be used so that colored wool items are not mixed with cotton items or items of other fiber content.)
 - d. Sort polyester and wool blended items from cotton and wool-blended items. (Caution must be used so that these items are not mixed with unlike items.)
9. Separate laundry into individual lots marked by the same pin set assigned by the supervisor.
 - a. Move all baskets, which contain laundry that is sorted and bears the same pin set to the washing area.
 - b. Hold the baskets until full to achieve one washer load (60 lbs, dry weight).

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Picked the first bundle available, open the bundle, and empty it onto the marking table.	—	—
2. Located DA Form 2886 and make sure it has been completed.	—	—
3. Prepared DA Form 2886, if no list is found.	—	—

Performance Measures	<u>GO</u>	<u>NO GO</u>
4. Selected a pin tray from the pin set assigned by the supervisor as the next set for processing.	—	—
5. Wrote the pin tray number in the BUNDLE NUMBER block on DA Form 2886.	—	—
6. Checked the number of items in the bundle against the entries on the laundry list.	—	—
7. Pinned the laundry items with marking pins.	—	—
8. Separated items when marking them by checking fiber content and color of the item.	—	—
9. Separated laundry into individual lots marked by the same pin set, assigned by the supervisor.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

**Process Finished Laundry
101-92S-1045**

Conditions: You work in a laundry section. Your immediate supervisor tells you to process finished laundry. Materials and equipment required: finished bulk, individual, and organizational laundry; DA Form 1974, laundry baskets, laundry tables, DA Form 2886, pin sets, pin marking stamp, red and blue marking pencils, and FM 42-414.

Standards: Complete all necessary steps to process finished laundry. Continue until the laundry is shipped and the receipt copy of the laundry list is filed in the receipt file.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Receive laundry from the drying area.
 - a. Make sure the items you received are for the correct company.
 - b. Check all paper work to verify that you have received the correct clothing.
2. Sort laundered items that contain individual marking pins.
 - a. Locate the pins on each laundry item.
 - b. Read the pin mark.
 - c. Place the laundry on the sorting table with the corresponding DA Form 2886 and pin tray.
3. Assemble the marked items into bundles.
 - a. Remove DA Form 2886 from the lowest number to the highest number (for example, A-1 through A-24).
 - b. Verify the laundered items with DA Form 2886.
 - c. Place a blue check mark by the verified items.
 - d. Remove the pin from each item.
 - e. Place the item inside the laundry bag.
 - f. Place the removed pins in the appropriate pin tray.
 - g. Initial the CHECKER block of DA Form 2886 if all items are present.
 - h. Tie up the bundle with the laundry slip attached.
4. Replace the lost pins from the pin tray.
 - a. Obtain the pin stamping set.
 - b. Obtain the blank pins.
 - c. Stamp the blank pins with the corresponding pin tray number.
 - d. Place the stamped pins in empty positions in the pin tray.
5. Prepare the laundry for shipment.
 - a. Count the bundles to ensure the total count is correct.
 - b. Ensure all bulk, organizational, and individual laundry is present.
 - c. Place the correct laundry in the areas designated for each unit.
6. Ship laundry.
 - a. Verify the shipping issue.
 - b. File the receipt copy of DA Form 1974 in the receipt file.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Received laundry from the drying area.	_____	_____
2. Sorted laundered items that contain individual marking pins.	_____	_____
3. Assembled the marked items into bundles.	_____	_____
4. Replaced the lost pins from the pin tray.	_____	_____

Performance Measures

- 5. Prepared the laundry for shipment.
- 6. Shipped laundry.

<u>GO</u>	<u>NO GO</u>
—	—
—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Operate 30KW Generator 101-92S-1046

Conditions: You work in a laundry section. Your immediate supervisor tells you to operate the 30-kilowatt generator. Materials and equipment required: Laundry Advanced System (LADS), oil, fuel, drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids, tools, DA Form 2404 or DA Form 5988-E, TM 10-3510-221-10 and 30 KW generator operator's maintenance manual to understand the operation of the generator.

Standards: Complete all necessary steps to operate the generator of Laundry Advanced System (LADS). Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, and solvents). Continue operating until after-operation preventive maintenance is completed.

Performance Steps

NOTE: Apply Risk Management Procedures.

WARNING:

Inspect the Generator Set ground connection prior to starting the unit. Electrical defects in load lines or load equipment can cause death by electrocution when contact is made with an ungrounded system. Remove all rings, watches and other jewelry when performing maintenance on this equipment. Loose fitting clothing should be secured to prevent it from catching in moving parts.

1. Move master switch to PREHEAT position and hold for one minute.
2. Place master switch in START position and hold until engine comes to operating speed. If engine does start within 15 seconds repeat above step. If engine cranks too slow utilize slave receptacle (J14) for extra cranking power.
3. Master switch will return to PRIME & RUN position when released. If running from auxiliary fuel source, move master switch to PRIME & RUN AUX. FUEL position.
4. Check oil pressure on engine mounted gauge. Oil pressure should be at least 20psi minimum. Check frequency on frequency meter on control panel and adjust governor if necessary, using speed control. Pulling speed control knob out will increase frequency, pushing speed control knob in will decrease frequency. For fine control turn knob CW to increase and CCW to decrease.
5. Place ammeter-voltmeter transfer switch in position corresponding to the position of the reconnection switch. Adjust voltage adjust rheostat to desired voltage as read on voltmeter. Turn rheostat clockwise to increase voltage or counterclockwise to decrease voltage.
6. Place AC circuit breaker in ON position. Adjust speed control to obtain full load frequency.
7. Place ammeter-voltmeter transfer switch in position to check percent rated current for either 1-phase 120 V. output, 1-phase 120/240 V. output, or 3-phase 120/208 V. output. Observe percent rated current meter. Do not exceed 5% load difference between phases. A 0.8 power factor load equals a 100% meter reading for maximum rated load. A 1.0 power factor load equals 80% meter reading for maximum rated load.

NOTE:

For 3-phase output each of the four positions must be checked.

8. During operating of the Generator Set observe the following:
 - a. Check % rated current meter.
 - b. Check fuel level gauge periodically.
 - c. Oil pressure gauge located on engine should indicate 20psi minimum.

Performance Steps

- d. Check running time meter periodically in order to perform preventive maintenance check and services at proper intervals.
 - e. Battery indicator should indicate yellow while battery is charging, green when battery is fully charged.
 - f. AC voltmeter should indicate 120V., 208V. or 240 V. depending on load connection.
 - g. Frequency meter should indicate 60 Hz (MEP-003A) or 400 Hz (MEP-112A) at rated load.
9. During operation, inspect for leaks, paying particular attention to engine fuel and oil lines and connections.
10. During operation, listen for unusual noises, which may indicate a pending malfunction.
11. Prevent hazardous materials from contaminating the environment.
12. Prevent hazardous materials from contaminating the environment.
- a. Actions required to perform the step:
 - b. (1) Place drip pans, or similar initial containment devices completely under area where fluid leaks may occur.
(2) Remove any spills.
(3) Collect contaminated materials, absorbent materials, and debris into approved containers.
(4) Comply with container labeling requirements.
(5) Comply with disposal requirements for contaminated/hazardous materials.
 - b. Environmental skills required:
(1) Ability to identify potential environmental hazards.
(2) Ability to use spill cleanup materials to remove/cleanup spills.
(3) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
(1) Knowledge of spill cleanup equipment.
(2) Knowledge of unit or Installation SOP/Operations Order requirements for requisitioning, storage, handling, and disposal of hazardous materials.
(3) Knowledge of how to properly drain/replace fluids from vehicles.
(4) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements:
(1) Equipment/material requirements:
(a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
(b) Spill kits.
(c) Containers for contaminated hazardous fluids.
(d) Drip pans.
(e) Absorbent materials (e.g. dry sweep).
(f) Rags.
(g) Shovel for removing contaminated materials.
(h) Containers for transporting of contaminated material.
 - e. Safety factors/hazards:
(1) Task may involve personal exposure to hazardous substances.
(2) Brief personnel in accordance with OSHA HAZCOM requirements.
(3) Caution Statement: CAUTION! Dispose of hazardous materials (such as, fuels, grease, oil, and contaminated rags) IAW unit Standing Operating Procedures/Operations Order (OPORD), local regulations, and/or host nation laws. Use rags to contain any excess fluids. Dispose of rags in appropriate accumulation containers.
13. Employ procedures to dispose of solid waste.
- a. Actions required to performed the step:
(1) Place contaminated rags in appropriate container for recycling (laundry).
(2) Place contaminated absorbents (dry sweep) into appropriate container.

Performance Steps

- b. Environmental skills required:
 - (1) Ability to select hazardous materials container.
 - (2) Ability to locate appropriate accumulation point container for recycling solid waste.
- c. Environmental knowledge required:
 - (1) Knowledge of solid waste disposal requirements.
- d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Absorbent materials (e.g. dry sweep).
 - (c) Rags.
 - (2) Supporting individual task(s): None.
- e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Removed all rings, watches, jewelry, and inspect the Generator grounding device.	—	—
2. Moved master switch to PREHEAT position.	—	—
3. Placed master switch in START position.	—	—
4. Checked oil pressure reading and frequency.	—	—
5. Performed during operation PMCS.	—	—
6. Placed drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—
7. Removed spills (small).	—	—
8. Collected contaminated soil, absorbent materials, and debris into approved containers.	—	—
9. Complied with container labeling requirements.	—	—
10. Complied with disposal requirements for contaminated materials.	—	—

Prepare The LADS For Operation

101-92S-1047

Conditions: You work in a Laundry section. Your immediate supervisor tells you to prepare the Laundry Advanced System (LADS) for operation. The (LADS) trailer has already been positioned, leveled, and uncovered. The generator has been set up. Materials and equipment required: one Laundry Advanced System with all accessory items of issue, one 55gallon drum, one operators tool box complete, DA Form 2404 or DA Form 5988-E and TM 10-3510-221-10.

Standards: Complete all task necessary for setting up the Laundry Advanced System. Conduct before operation PMCS on the LADS to include making appropriate entries on the DA Form 2404 or DA Form 5988-E. Continue until the LADS systems are prepared for operation.

Performance Steps

NOTE: Apply Risk Management Procedures

1. MAIN CONTROL ENCLOSURES (GENERAL)

The Laundry Advanced System, Operator's Manual have the following paragraphs contains illustrations that show the location of each control and indicator used to operate the LADS. Each control and indicator is clearly labeled as it appears on the equipment. Review these paragraphs located in Chapter II of TM 10-3510-221-10 thoroughly before operating the system.

- a. MAIN CONTROL ENCLOSURE CONTROLS AND INDICATORS. The below diagram shows the location of the controls and indicators found on the main control enclosure. The below Table describes the use of these controls and indicators. To access the controls located inside the main control enclosure, loosen the eleven latches with a flat tip screwdriver and open door. (See Figure 3-32)

Performance Steps

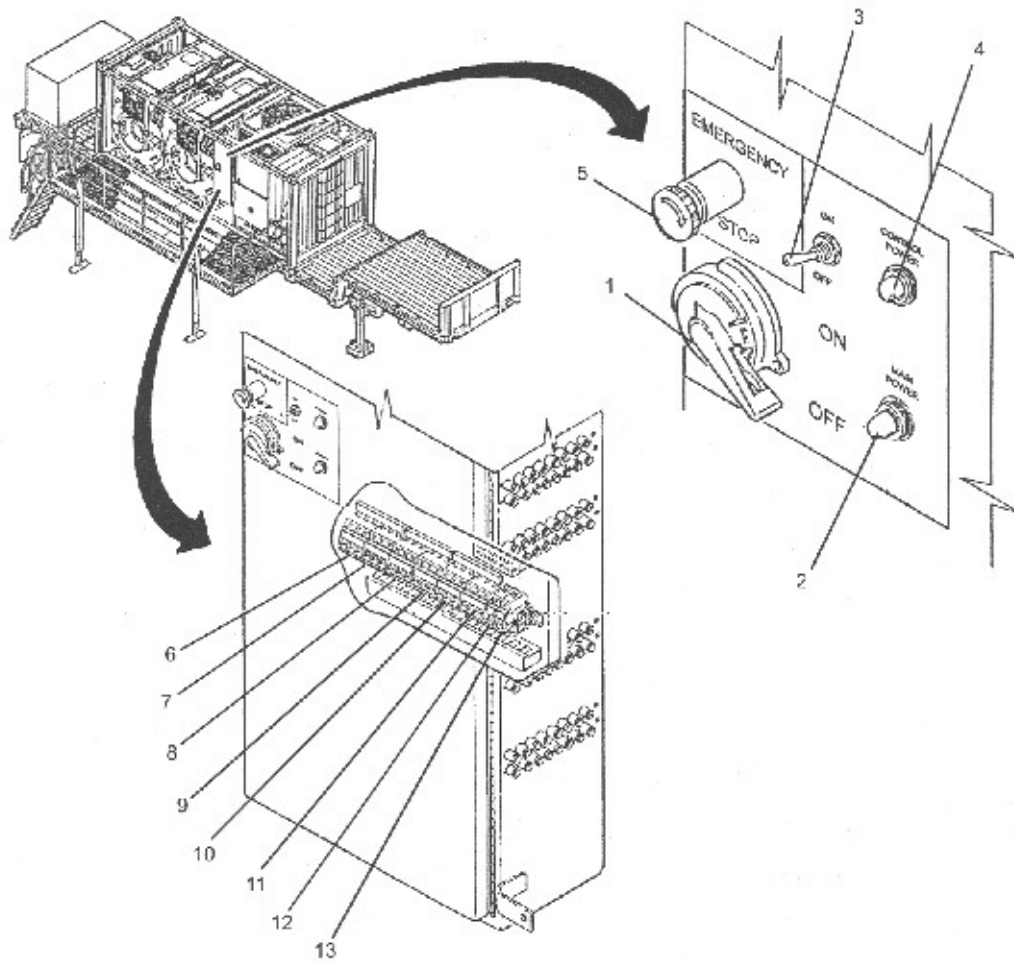


Figure 3-32
Main Control Enclosure Controls And Indicators

- | | |
|----------------------------|-------------------------|
| (1) Main Disconnect ON/OFF | -2 position switch |
| (2) Main Power | -Indicator |
| (3) Control Power ON/OFF | -2 position switch |
| (4) Control Power | -indicator |
| (5) Emergency Stop | -push button switch |
| (6) Circuit Breaker CB1 | -63 AMP, lever actuated |
| (7) Circuit Breaker CB2 | -40 AMP, lever actuated |
| (8) Circuit Breaker CB3 | -40 AMP, lever actuated |
| (9) Circuit Breaker CB4 | -40 AMP, lever actuated |
| (10) Circuit Breaker CB5 | -40 AMP, lever actuated |
| (11) Circuit Breaker CB6 | -40 AMP, lever actuated |
| (12) Circuit Breaker CB7 | -40 AMP, lever actuated |
| (13) Circuit Breaker CB8 | -40 AMP, lever actuated |

Performance Steps

- b. MAIN CONTROL ENCLOSURE CONTROLS AND INDICATOR. OPERATOR PANEL CONTROLS AND INDICATORS. Two operator panels are used on LADS. Operator panel A is used to operate washing/drying system A. Maintenance personnel also use operator panel A to control, monitor, and test LADS operation. Operator panel B is used only to operate washing/drying system B. Below Figure shows the location of the controls and indicators found on the operator panels. Below describes the use of these controls: (See Figure 3-33)

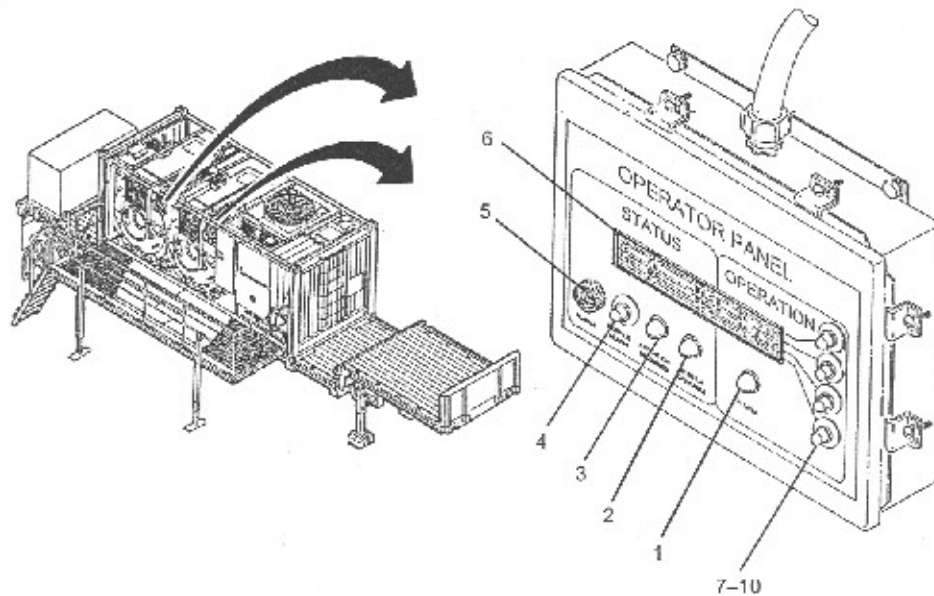


Figure 3-33
Operator Panel Control Enclosure Controls And Indicators

- | | |
|--------------------------|-----------------------|
| (1) Power | -indicator |
| (2) System Operable | -indicator |
| (3) Attention Required | -indicator |
| (4) Silence Alarm | -push button switch |
| (5) Alarm | -Audio |
| (6) Display | -vacuum fluorescent |
| (7) -10). Menu Selection | -push button switches |

- c. INVERTER ENCLOSURE CONTROLS shows the controls found on the inverter enclosure. Below describes the use of these controls. (See Figure 3-34)

Performance Steps

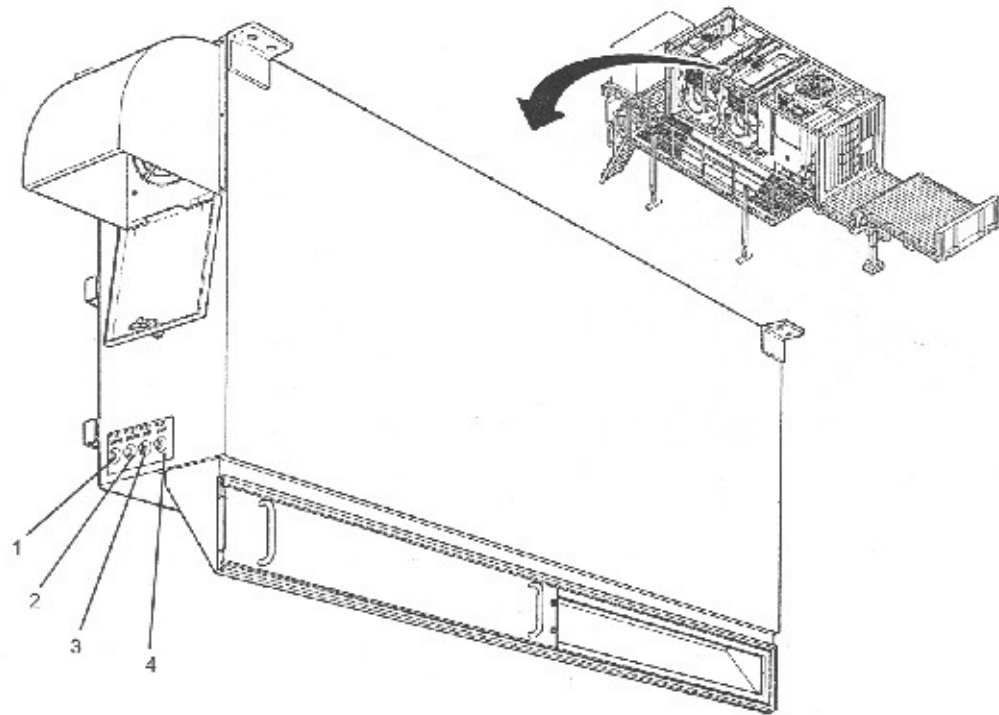


Figure 3-34
Inverter Enclosure Controls

- | | |
|------------------|---------------------|
| (1) Reset Drum A | -push button switch |
| (2) Reset Drum B | -push button switch |
| (3) Reset 20 HP | -push button switch |
| (4) Reset 10 HP | -push button switch |

d. HEATER CONTROLS AND INDICATORS, Figure 4 shows the location of the controls and indicators found on the heating system. Below describes the use of these controls and indicators. (See Figure 3-35)

Performance Steps

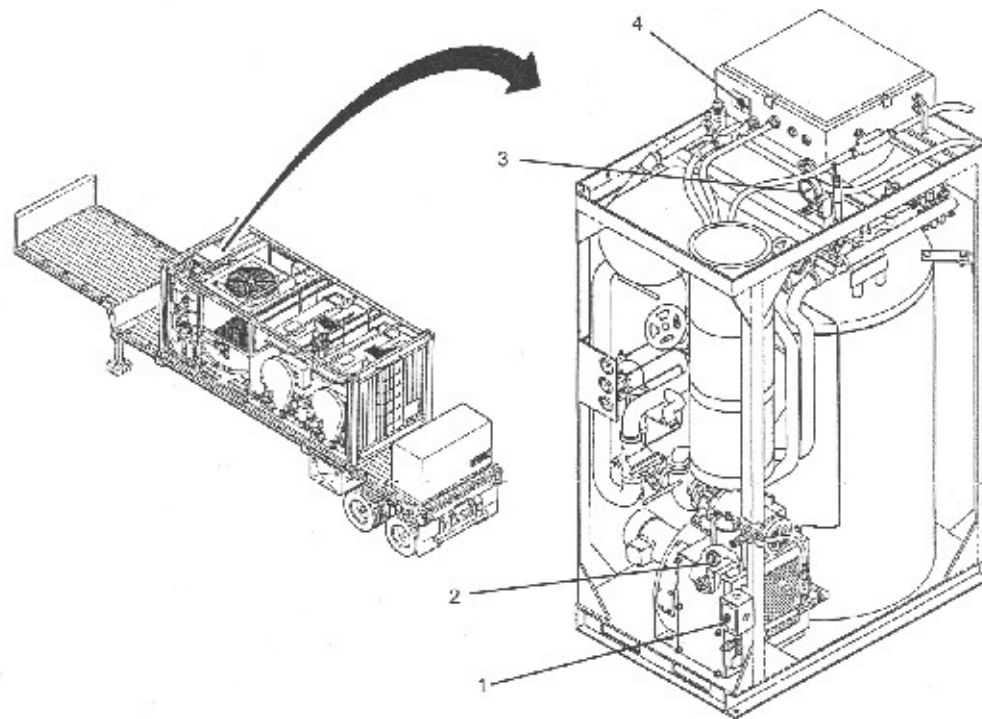


Figure 3-35
Heating System Controls And Indicators

- | | |
|--------------------------|--------------------------|
| (1) Prime Pump ON/OFF | -momentary toggle switch |
| (2) Fuel Pump Pressure | -gauge, 0-200 PSIG |
| (3) Burner Fuel Pressure | -gauge, 0-400 PSIG |
| (4) FP300 Reset | -push button switch |

GENERAL

LADS is normally shipped assembled on an M871 semi-trailer along with an MEP--805A TQG. SITING and sheltering requirements are provided for guidance when emplacing LADS. The assembly and preparation for use paragraph provides procedures for the steps to be taken once the LADS is emplaced and disconnected from the prime mover. The initial adjustments before use paragraph, contains instructions to ensure LADS is ready to conduct laundry operations. The operating paragraph provides procedures for daily start-up, laundry loading, selecting, laundry cycles, performing laundry cycles, unloading laundry, system shutdown. The ready-for-movement paragraph contains procedures to prepare LADS for transport to next operational site or to storage.

2. SITING REQUIREMENTS

- a. Terrain -- LADS must be operated on firm level ground with 5 percent slope or less. LADS may be oriented in any direction, however, positioning LADS so that left side is slightly lower than the right side will allow for easier draining of water prior to movement. The landing legs on the front of the M871 trailer can be used adjust the level if necessary.
- b. Drainage -- LADS contains a 100 ft of drain hose. It is recommended that the drain hose outlet be placed downhill, and far enough away from LADS, to prevent drain water from becoming a nuisance while conducting laundry and maintenance operations.

Performance Steps

- c. Fuel Supply -- LADS requires up to 250 gallons of JP--8 fuel per day. Additional fuel may also be required for the LADS external power source. LADS is provided with a 70 ft fuel hose. It is recommended that the fuel supply be setup approximately 50 ft from LADS with fuel supply at a slightly higher elevation. This will ensure fuel hoses remain full of fuel when LADS is not operating. The fuel hose should be routed in a manner that will prevent equipment traffic from continually running over or stopping on hoses.
- d. Water Supply -- LADS requires up to 540 gallons of potable water per day. LADS, is provide with a 100 ft of water supply hose and a 100 ft electrical cable for the water supply pump. The water supply can be setup anywhere within 100 ft however, it should not be set up so close to LADS that equipment such as forklifts, cranes, etc. cannot be moved around LADS to facilitate maintenance.
- e. Electrical Power -- Normally LADS will be powered by the MEP--805A Tactical Quiet Generator Set contained on the same M871 semi-trailer as the LADS. If other 208 VAC, 50--60 Hz, 3 Phase electrical power is utilized 100 ft of electrical cable is provided. The external power source can be setup anywhere within 100 ft, however, it should not be set up so close to LADS that equipment such as forklifts, cranes, etc. cannot be moved around LADS to facilitate maintenance. It is also recommended that the electrical cable between the power source and LADS be routed in a manner that will prevent equipment traffic from continually running over or stopping on a cable. (See Figure 3-36)

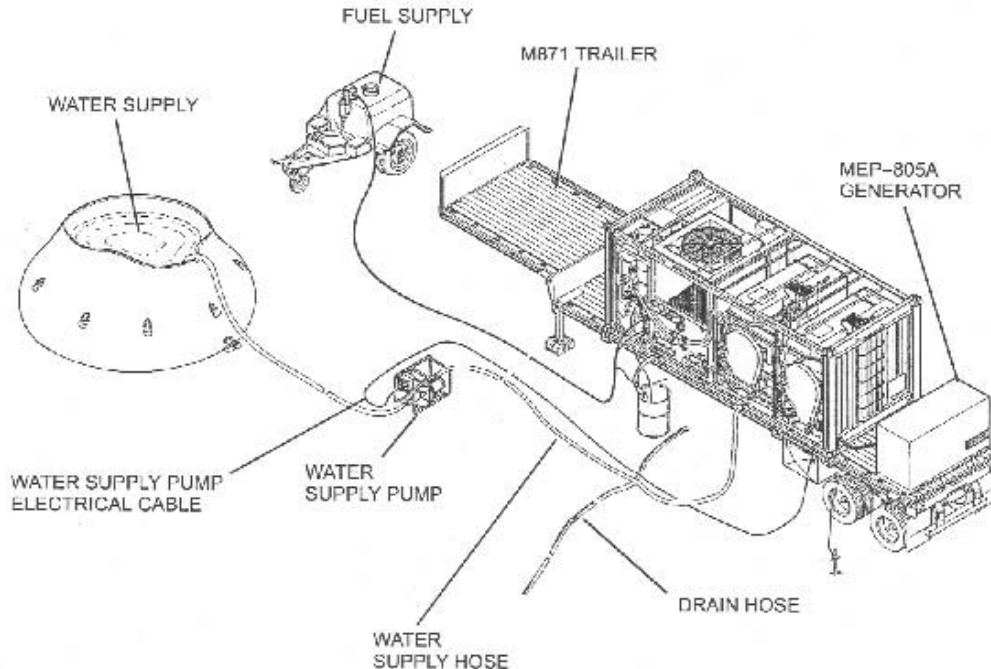


Figure 3-36
SITING Requirements

3. SHELTER REQUIREMENTS

Performance Steps

NOTE. The LADS exhaust discharge contains deadly gases. Do not operate Laundry System in an enclosed area unless exhaust discharge is properly vented outside. Severe personnel injury or death due to carbon monoxide poisoning could result.

- a. The LADS can be operated at ambient temperatures between 33 and 120 degrees F outside of a shelter. If ambient temperatures are expected to be below 33 degrees F, LADS may be operated in a modified Lightweight Maintenance Shelter (LME) as shown below.
- b. It is recommended that the LADS water supply be kept inside the LME during cold weather operation. For operation and maintenance of the LME refer to TM 10-5410-284-13&P. (See Figure 3-37)

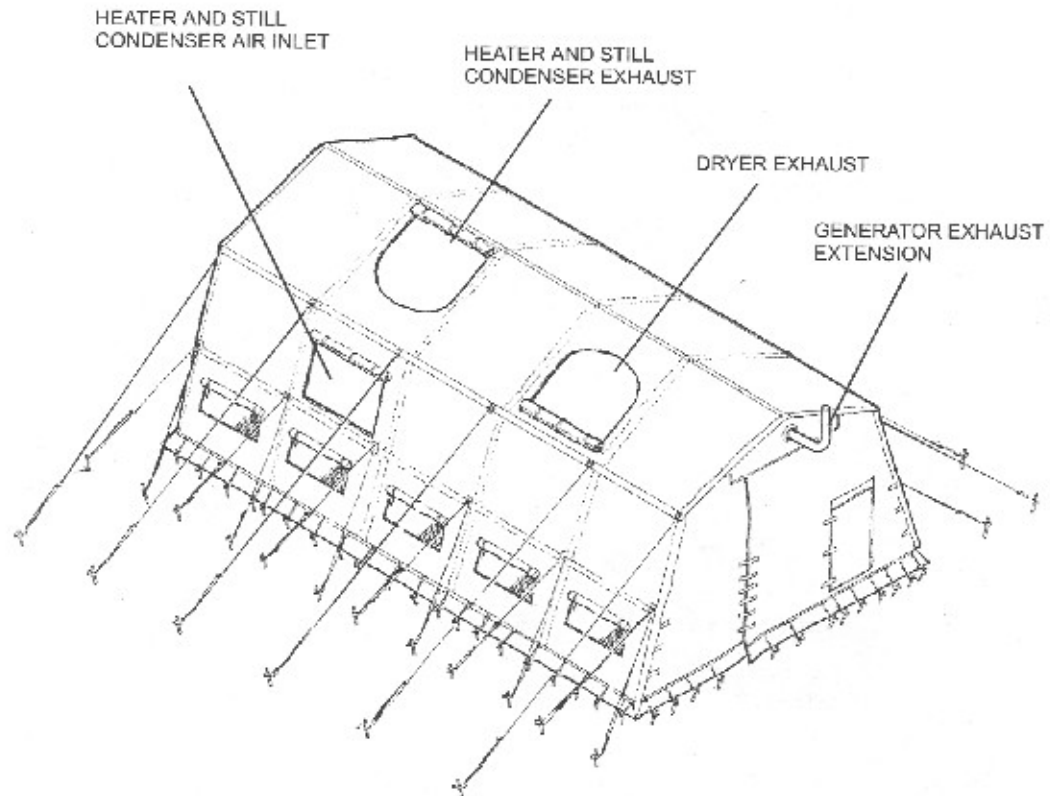


Figure 3-37
Shelter Requirements

4. REMOVE STOWED ACCESSORIES.

- a. Loosen and disconnect straps securing stowed equipment to M871 semi-trailer.
- b. Remove following items from storage area on M871 semi-trailer:
 - (1) a. Ladder, b. Stairs, c. Handrails qty 2, d. Awning supports qty 6, e. Side railing, f. Operator tool box, g. Water supply pump, h. Fuel probe, i. 70 ft fuel hose, j. 25 ft fuel hose, k. Adapter- fuel hose, l. clean-out rake, m. Sluice tray, n. Anti-foam container qty 2, o. Detergent container, p. Container 55 gallon. (See Figure 3-38)

Performance Steps

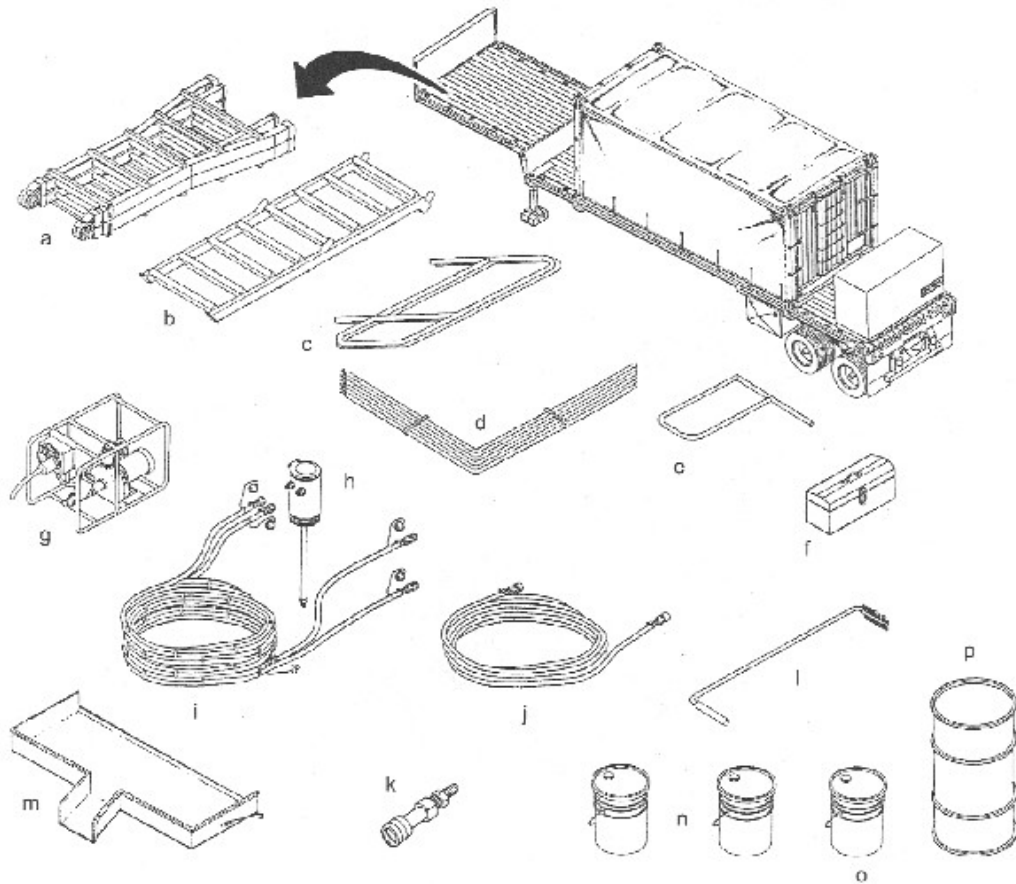


Figure 3-38
Remove Stowed Accessories

5. SETUP LADDER.

WARNING

Keep hands and fingers away from hinge points on ladder halves when opening and closing. Keep hands and fingers away from inner and outer rungs of ladder when adjusting. Never climb on ladder unless knobs and locking devices are properly tightened. Failure to observe these precautions may result in severe personal injury.

- a. Place ladder (1) flat on ground.
- b. Loosen knobs (2) then separate jaws (3) on each side of ladder (1).
- c. Unfold ladder (1) to desired angle then tighten knobs (2) to lock jaws (3) in place.
- d. Pull out and pivot locking devices (4) on each side of ladder (1).
- e. Slide outer section of ladder (1) to desired height.
- f. Pivot locking devices (4) back into ladder (1) to lock in height adjustment.

WARNING

Always make sure ladder is resting on and supported by firm ground. Always keep ladder rungs dry and free of dirt. Do not over-reach. Move the ladder instead. Keep body centered between side rails. Never allow more than one person on the ladder at a time. Failure to observe these precautions may result in severe personal injury.

- g. If ladder (1) is set-up straight ensure top of ladder is resting on support angle (5) and bottom of ladder.

Performance Steps

6. LOWER AND SECURE PLATFORM.

- a. Loosen and disconnect straps (1) securing ends of tarp (2) to ISO frame (3).
- b. Loosen and disconnect straps (4) securing front and back of tarp (2) to ISO frame (3).
- c. Flip tarp (2) over to expose front and back of LADS.

WARNING

Winch cable must be connected to platform prior to unlocking platform from flat-rack. Verify that all personnel remain clear of platform while it is being lowered. Failure to follow this precaution can cause severe injury or death to yourself or other personnel working nearby.

- d. Ensure shackle (5) is attached to u-bolt (6) on platform (7). Attach shackle if necessary.
- e. Install winch handle (8) onto winch (9).
- f. Use winch (9) to remove any slack in cable (10).
- g. Unlock platform (7) from ISO frame (3) as follows:
 - (1) Pivot hasp (11) then lift and turn handle (12) until stow bar (13) retracts.
 - (2) Repeat step a to unlock other end of platform (7).
- h. Use winch (9) to lower platform (9) slightly until stow bars (13) are clear of ISO frame (3).

CAUTION

Handles must be secured prior to lowering platform. Failure to follow this precaution may result in damage to platform locking components.

- i. Place handles (12) back into retainers (14) then pivot hasps (11) to secure handles.

CAUTION

When lowering platform never allow slack to build up in winch cable. Failure to follow this precaution may result in sudden drops of platform during raising and lower operations and cause excess strain on cable.

During use platform should be level with ISO frame. Lowering platform below ISO frame can cause damage to torsion bars.

- j. Use winch (9) to lower platform (7) until platform is level with ISO frame.
- k. Lower and secure two support legs (15) as follows:
 - (1) Pull quick-connect pin (16) out of support leg (15).
 - (2) Pull quick-connect pin (17) out of support leg (15) then rotate support leg to vertical position.
 - (3) Install quick-connect pin (16) to secure support leg (15) to platform (7).
 - (4) Adjust height of support leg (15) so that foot (18) has solid contact with ground and is supporting weight of platform (7).
 - (5) Install quick-connect pin (17) to fix position of support leg (15).
- l. Position stairs (19) onto platform (7) then secure with two quick-connect pins (20).
- m. Install handrails (21) onto stairs (19) then secure each handrail with two quick-connect pins (22).
- n. Unhook shackle (5) from u-bolt (6). (See Figure 3-39)

Performance Steps

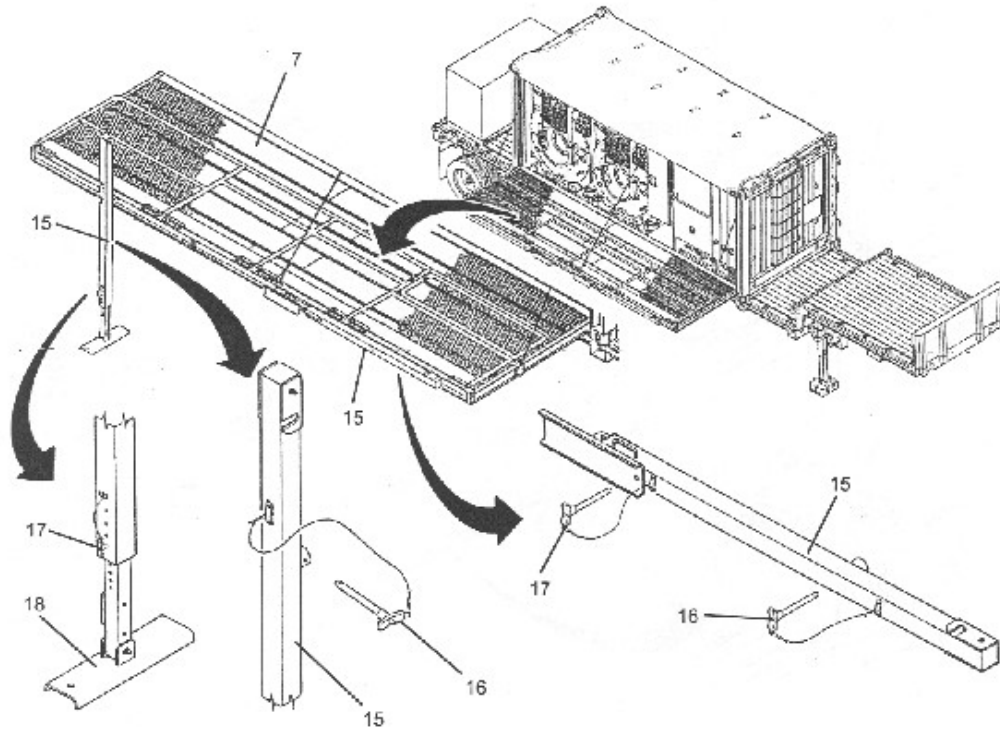


Figure 3-39
Lower And Secure Platform

CAUTION

Maintain a slight tension when winding up winch cable to ensure cable wraps tightly on winch. Failure to follow this precaution may result in sudden drops of platform during raising and lower operations causing excess strain on cable.

- o. Use winch (9) to retract cable (10) while maintaining a slight tension on cable.
- p. Hook shackle (5) on u-bolt (23) then remove slack from cable (10).
- q. Remove and stow winch handle (8) in toolbox. (See Figure 3-40)

Performance Steps

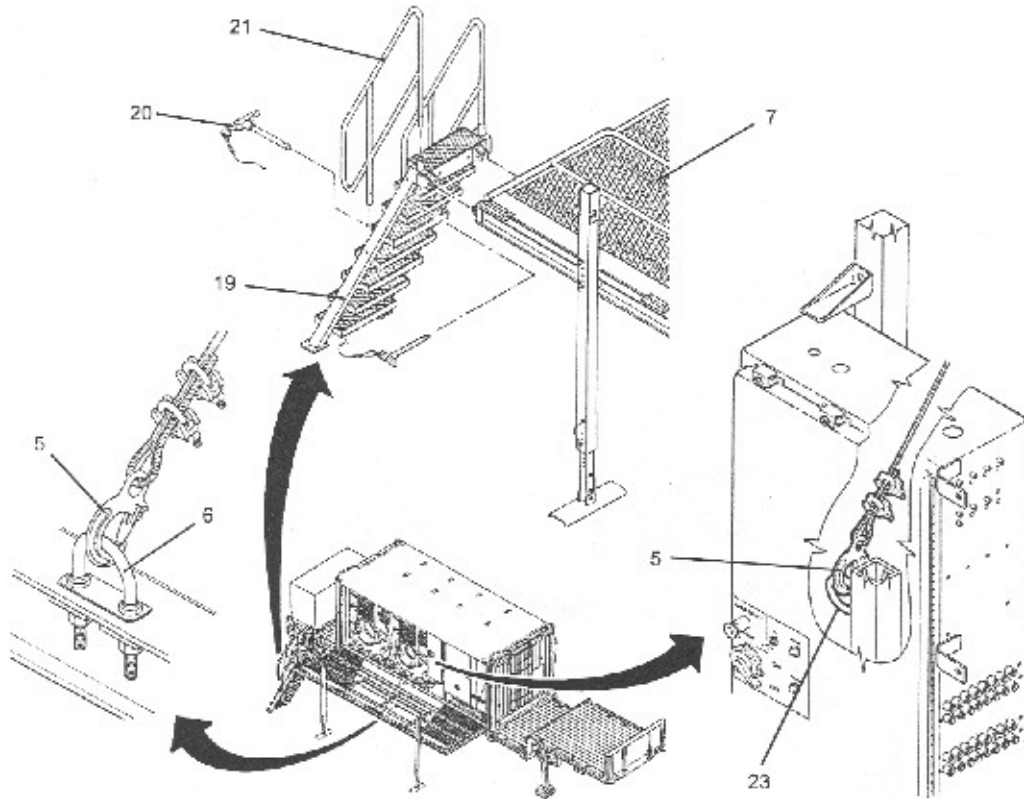


Figure 3-40
Lower And Secure Platform CONT

7. INSTALL RAILING AND AWNING.

NOTE

When securing railings to ISO frame, misalignment of mating holes for quick-connect pins are an indication that platform is not level. This problem can be corrected, by slightly raising or lower, platform as necessary.

- a. Raise and secure railing (1) as follows:
 - (1) Lift railing (1) up to vertical position.
 - (2) Pull quick-connect pin (2) out of railing (1) and gate (3).
 - (3) Swing gate (3) over and mate with ISO frame (4).
 - (4) Install quick-connect pin (2) to secure gate (3) to ISO frame (4).
 - (5) Flip four support brackets (5) over railing (1).
- b. Install side railing (6) as follows: (See Figure 3-41)

Performance Steps

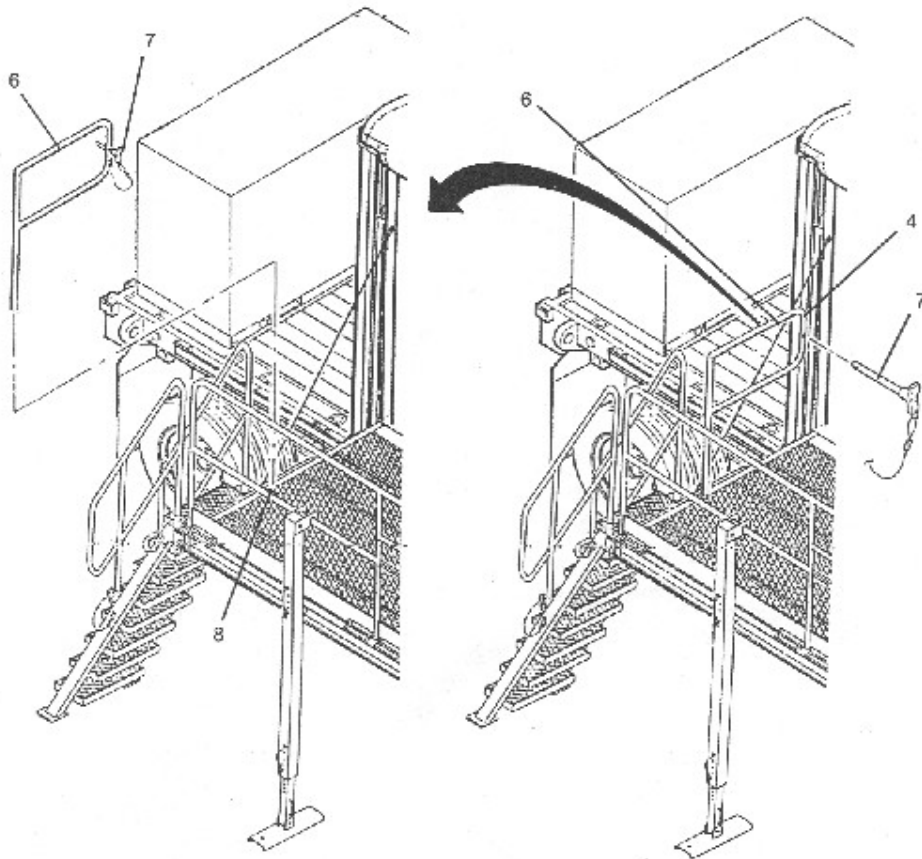


Figure 3-41
Install Railing And Awning

- (1) Pull quick-connect pin (7) out of side railing (6).
 - (2) Slide side railing (6) into hole in platform (8).
 - (3) Mate side railing (6) with ISO frame (4).
 - (4) Install quick-connect pin (7) to secure side railing (6) to ISO frame (4).
- c. Install six awning supports (9) as follows:
- (1) Loosen and remove straps (10) securing awning supports (9) together.
 - (2) Insert t-bolt (11) into front support (12).
 - (3) Rotate awning support (9) downward and mate with railing (1).
 - (4) Insert quick-connect pin (13) to secure awning support (9) to railing (1).
- d. Flip front half of tarp (14) over awning supports (9) and (10).
- e. Secure front half of tarp (14) to inboard awning supports (9) with straps (15).
- f. Flip back half of tarp (14) over awning supports (9) and (10).
- g. Secure back half of tarp (14) to outside awning supports (10) with straps (16).
- h. Secure back half of tarp (14) to inside awning supports (9) with straps (17). (See Figure 3-42)

Performance Steps

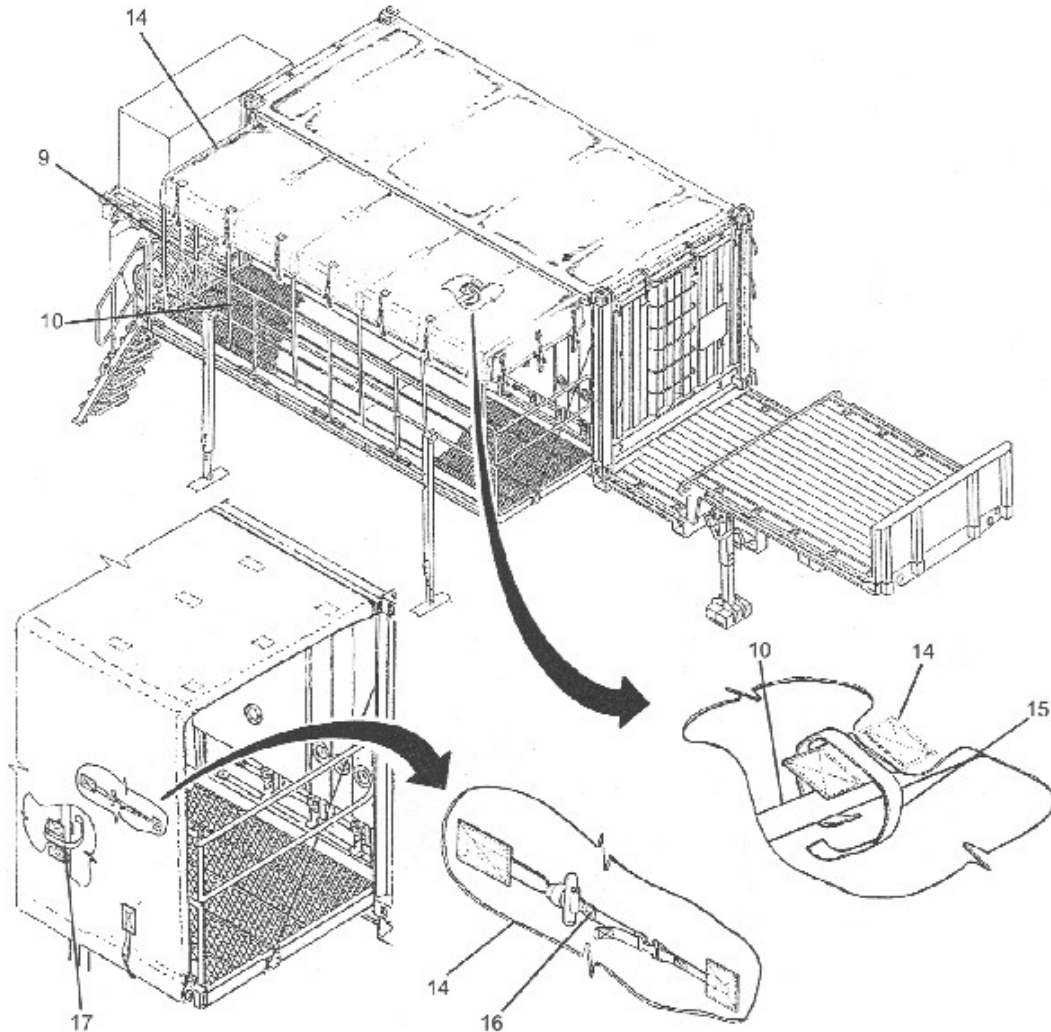


Figure 3-42
Install Railing And Awning CON'T

- i. Roll up excess tarp (14) and secure to underside of platform (8) with bungee cords (18).
- j. Ensure awning extension (19) is secured to tarp supports (20) and ISO frame (4). Tighten straps (21) if necessary.
- k. Install light (22) to underside of tarp (14) as follows:
 - 1. Position light (22) at desired location and secure with straps (23).
 - 2. Route electrical cable (24) between tarp (14) and awning supports (9).
 - 3. Connect electrical cable (24) at receptacle (25).

8. UNLOCK DRUMS AND REMOVE STOWED ACCESSORIES.

- a. Remove four load binders (1) securing back of washing/drying drums (2) to ISO frame (3).

NOTE

During transport drums may shift slightly making it difficult to remove pins from front of drums. If a pin is stuck it can be removed as air bags inflate during start-up.

- b. Remove four pins (4) securing front of washing/drying drums (2) to ISO frame (3).
- c. Pull out on handles (5) and open doors (6) on washing/drying drums (2).

Performance Steps

- d. Remove items stowed in washing drying drums (2) as follows
 1. 5 ft drain hose d. 10 ft water supply hose g. Utility hose
 2. 50 ft drain hoses, qty 2 e. 100 ft electrical cable h. Spray nozzle
 3. 50 ft water supply hoses, qty 2 f. Anti-foam hand pump (See Figure 3-43)

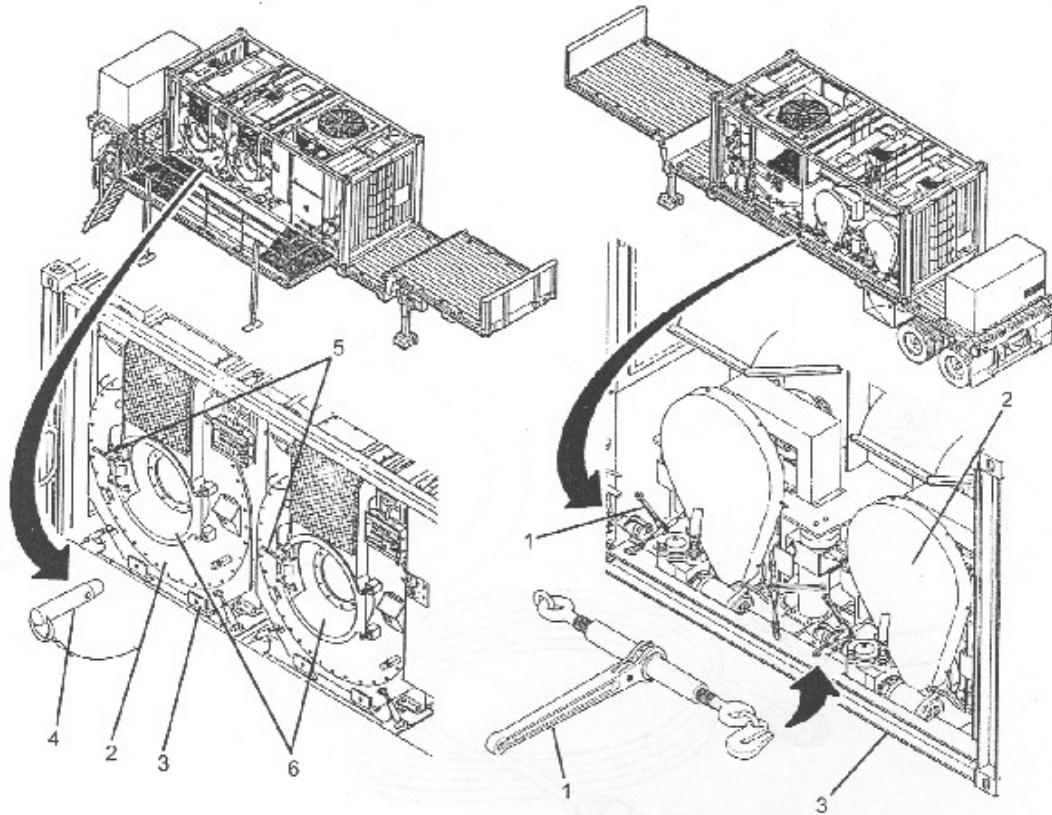


Figure 3-43
Unlock Drums And Remove Stowed Accessories

9. ESTABLISH ELECTRICAL POWER SOURCE**WARNING**

Master power must be shutoff before connecting LADS power cable. Be careful not to come into contact with high-voltage connections. Whenever possible, keep one hand away from the equipment to reduce the hazard of current flowing through the body's vital organs. Failure to follow this warning may result in personnel injury or death.

- a. Determine what power source will be used to operate LADS. If the MEP--805A generator is to be used proceed to step 3, otherwise continue to step 2.

Performance Steps

- c. Establish connection to electrical power source as follows:
 - 1. Ensure MAIN DISCONNECT switch (1) on main control enclosure (2) is OFF. Position switch to OFF if necessary.
 - 2. Drive grounding rod (3) into the earth, near grounding lug (4), to a minimum depth of eight feet
 - 3. Ensure grounding wire (5) is attached to grounding lugs (4) and (6). Attach grounding wire if necessary.
 - 4. Connect grounding wire (7) to grounding rod (3) and grounding lug (4).
 - 5. If connected, disconnect power cable (8) at junction box (9).
 - 6. Ensure external power source is not on.
 - 7. Connect power cable (10) from power source to junction box (9). Proceed to step G.
- c. Establish connection to MEP--805A generator as follows:
 - 1. Ensure MAIN DISCONNECT switch (1) on main control enclosure (2) is OFF. Position switch to OFF if necessary.
 - 2. Drive grounding rod (3) into the earth, near grounding lug (4), to a minimum depth of eight feet.
 - 3. Ensure grounding wire (5) is attached to grounding lugs (4), (6) and (9). Attach grounding wire if necessary.
 - 4. Connect grounding wire (7) to grounding rod (3) and grounding lug (4).
 - 5. Ensure MEP--805A generator is not on.
 - 6. Ensure power cable (8) is connected at junction box (9) and MEP--805A generator. Connect power cable if necessary. (See Figure 3-44)

Performance Steps

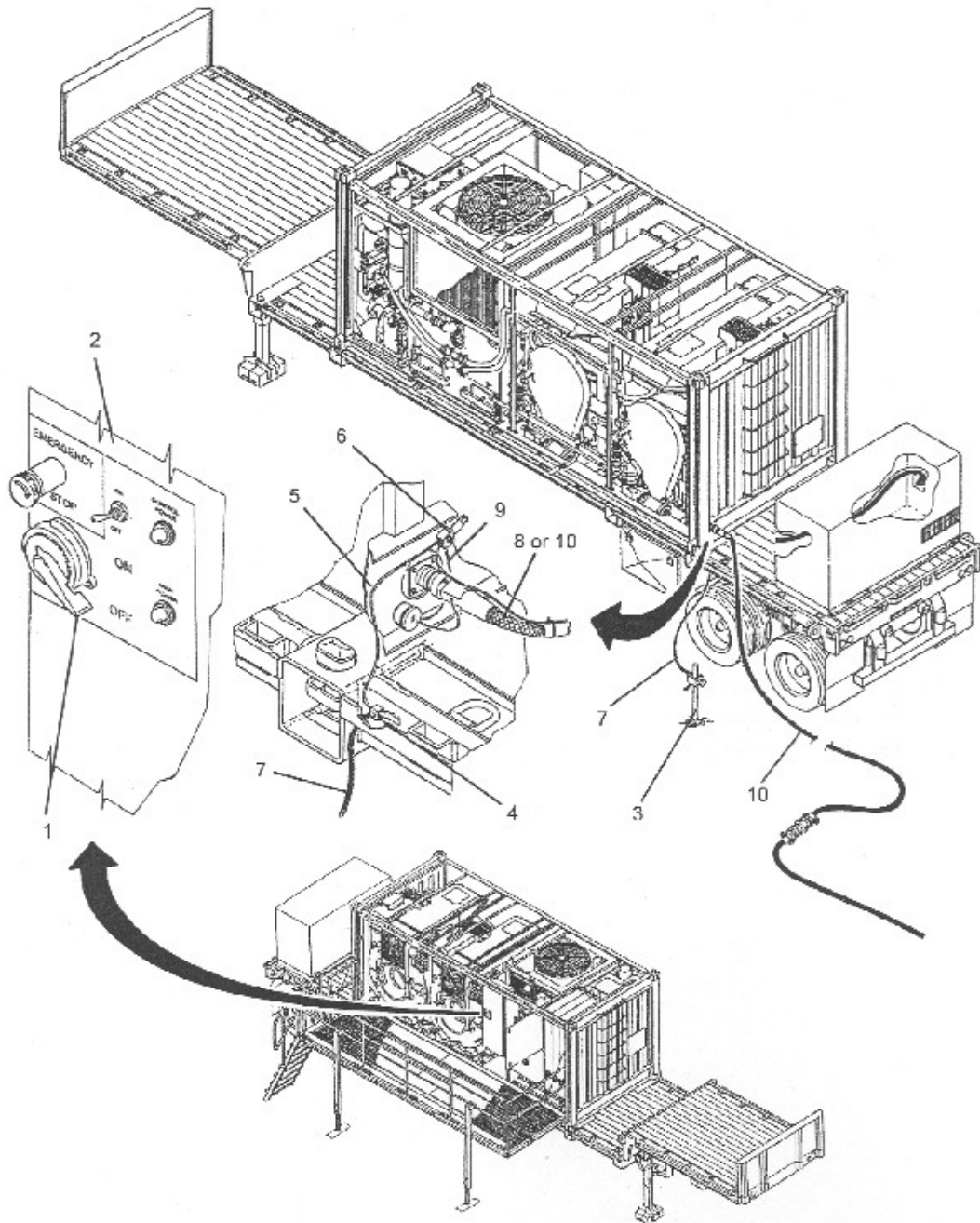


Figure 3-44
Electrical Power Source/Power Cable Supply

Performance Steps

10. ESTABLISH WATER SUPPLY.
 1. Place water supply pump (1) at desired location.
 2. Connect a 50 ft water supply hose (2) at water supply port (3).
 3. Connect electrical cable (4) at junction box (5).
 4. Roll out and route hose (2) and cable (4) towards water supply pump (1).
 5. If necessary connect second 50 ft water supply hose (2) to first 50 ft water supply hose and roll out towards water supply pump (1)
 6. Connect hose (2) at water supply pump (1).
 7. Connect electrical cable (4) at water supply pump (1).
 8. Connect 10 ft water supply hose (6) at water supply pump (1).
 9. Connect or insert hose (6) at water supply.
 10. Connect utility hose (7) to faucet (8) then place hose on ground. (See Figure 3-45)

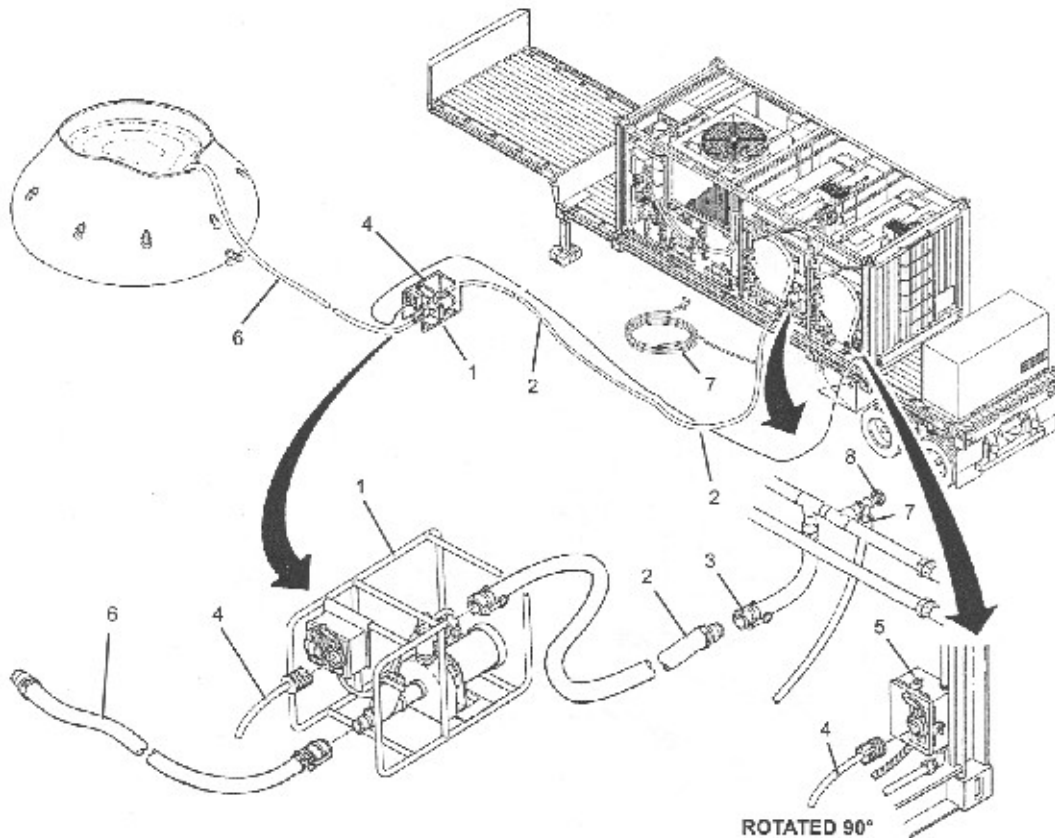


Figure 3-45
Water Supply

- a. Establish Water and Waste Drain.
 1. Place waste container (1) in front of and centered below still (2).
 2. Place coalesces drain hose (3) in waste container (1)
 3. Place 5 ft drain hose (4) below two drain ports (5).
 4. Connect two 50 ft drain hoses (6) together.
 5. Roll out and route hose (6) to drainage area. Leave enough slack in hose to connect to drain port (5).

Performance Steps

11. Establish Fuel Supply

WARNING

Connections on fuel hoses must be clean prior to connecting to heater and fuel supply. Dirt or other contamination on connections can cause damage to heater fuel system.

1. Connect fuel hose (1) at inlet port (2) and outlet port (3).
2. Roll out and route fuel hose (1) towards fuel supply.
3. Insert and secure fuel probe (4) at fuel supply.
4. Connect fuel hose (1) with direction arrow (5) to supply port on fuel probe (4).
5. Connect return half of fuel hose (1) to return port on fuel probe (4).
6. Connect fuel hose (6) to adapter (7).
7. Connect adapter (7) to MEP--805A generator (TM 9--6115--644--10).
8. Roll out and route fuel hose (6) towards fuel hose (1) along side of M871 trailer.
9. Connect fuel hose (6) to fuel hose (1). (See Figure 3-46)

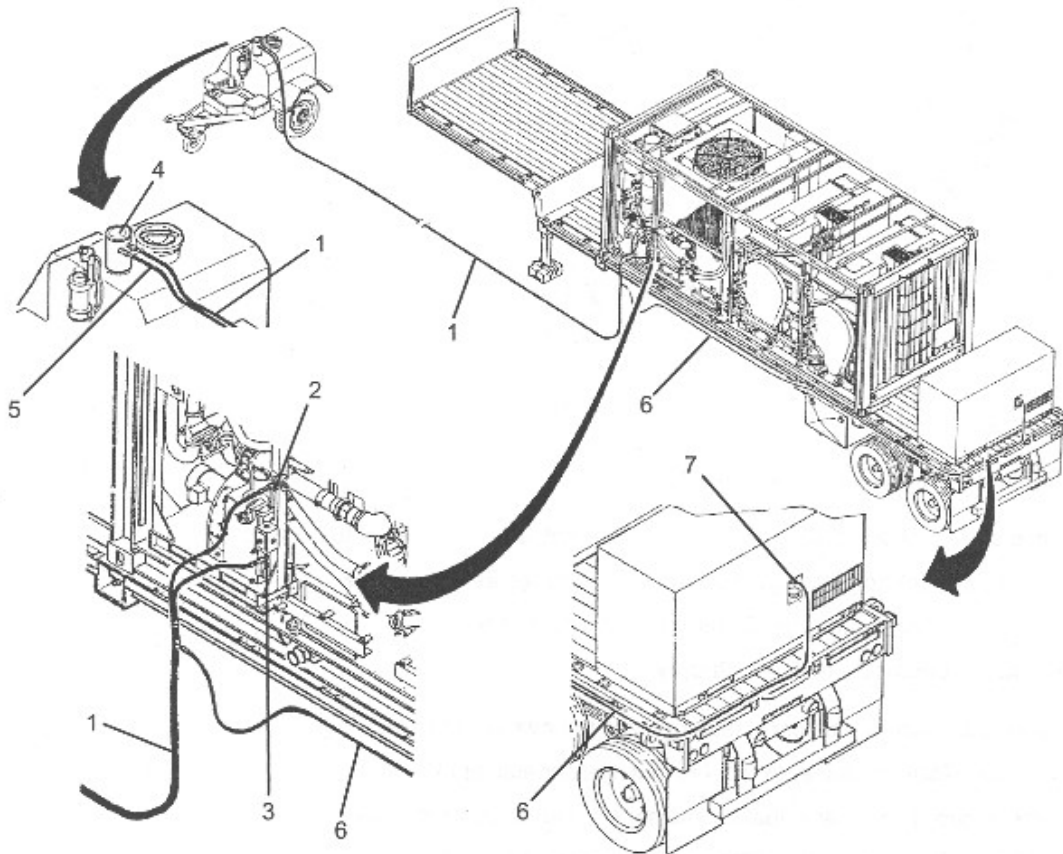


Figure 3-46
Fuel Supply

12. INSTALL EXHAUST DUCT

1. Pulled exhaust duct extension (1) up out of exhaust stack (2).
2. Flip the exhaust duct extension (1) over and mate with exhaust stack (2).

Performance Steps

13. Establish Automatic Detergent Supply

1. Place detergent container (1) on platform (2) next to front corner of ISO frame (3).
2. Remove cap (4) from detergent container (1) and retain for later use.
3. Insert detergent supply tube (5) into detergent container (1).

a. Establish Automatic Anti-foam Supply

1. Shake anti-foam container (6) thoroughly to remove any clumps.
2. Place anti-foam container (6) next to detergent container (1).
3. Remove cap (7) from anti-foam container (6) and retain for later use.
4. Insert anti-foam supply tube (8) into anti-foam container (6).
5. Open petcock (9) at bottom of main control enclosure (10). (See Figure 3-47)

Performance Steps

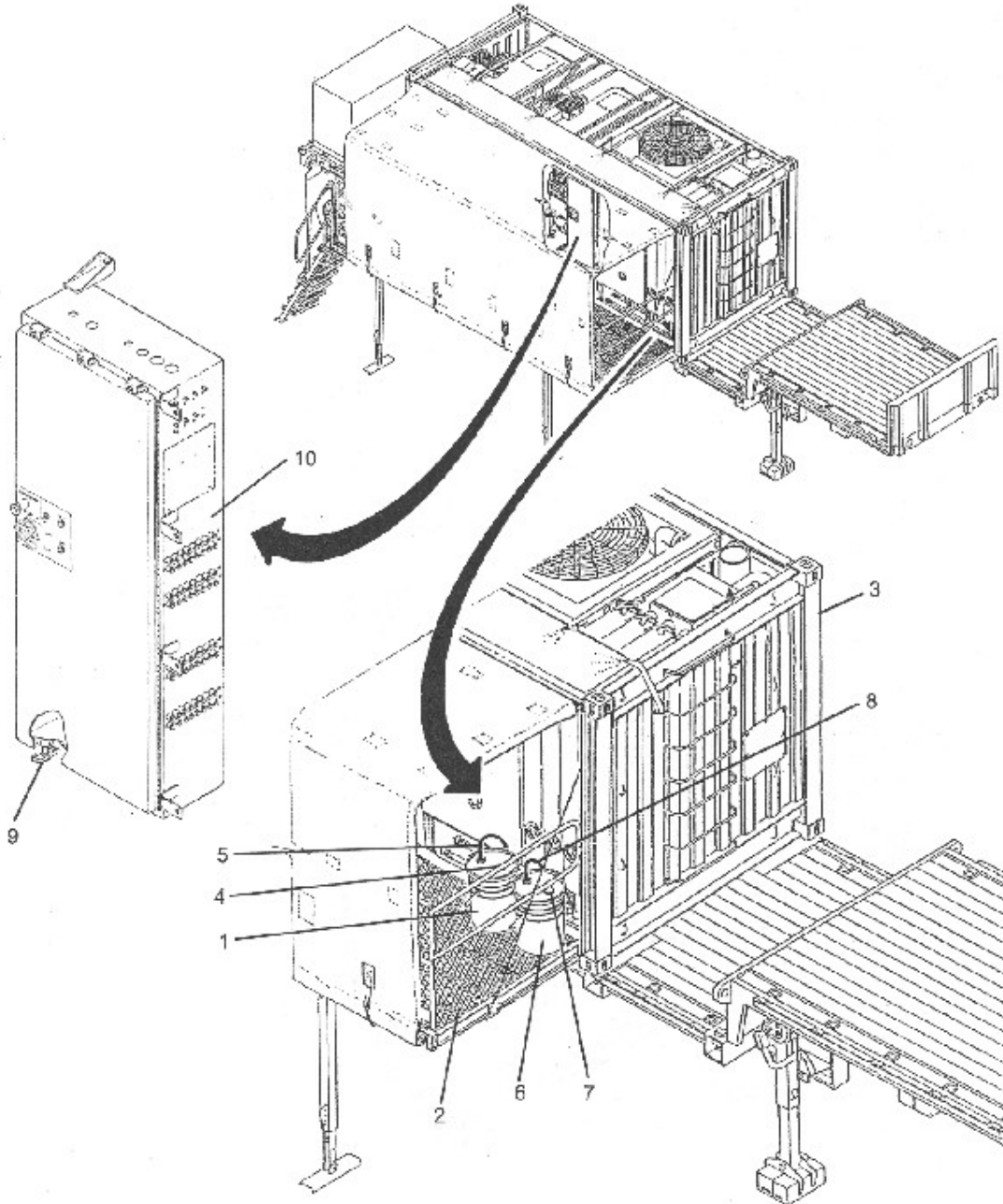


Figure 3-47
Automatic Anti-Foam Supply

Performance Steps

14. Establish Manual Anti-foam Supply

1. Shake anti-foam container (1) thoroughly to remove any clumps.
2. Position anti-foam container (1) below still (2).
3. Remove cap (3) from anti-foam container (1) and retain for later use.
4. Insert hand pump (4) into anti-foam container (1).
5. Stroke hand pump (4) until anti-foam squirts out of discharge hose (5).
6. Connect discharge hose (5) to manual valve (6).
7. Open manual valve (6).
8. Stroke hand pump (4) once to inject anti-foam into still (2).
9. Close manual valve (6).

15. Open Inverter Air Flow Doors

1. Slide air inlet door (1) forward until it contacts stop (2).
2. Loosen knob (3) then rotate latch (4) to opened air outlet door (5).

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Identified all main control enclosure controls and indicators.	—	—
2. Identified all SITING requirements (i.e.) terrain, drainage, fuel supply, water supply and electrical power.	—	—
3. Determined shelter requirement.	—	—
4. Removed stowed accessories.	—	—
5. Performed Set up ladder assembly.	—	—
6. Lowered and secure platform assembly.	—	—
7. Installed railing and awning.	—	—
8. Unlocked drums and remove stowed accessories.	—	—
9. Established electrical power source.	—	—
10. Established water supply and wastewater drain system.	—	—
11. Established fuel supply system.	—	—
12. Installed exhaust duct system.	—	—
13. Established automatic detergent and anti foam supply system.	—	—
14. Established manual anti foam supply system.	—	—
15. Opened inverted airflow doors.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

Perform initial Adjustments, Before Use And Self Test
101-92S-1048

Conditions: You are working in a laundry section. Your immediate supervisor tells you to perform the laundry advanced system (LADS) Initial Adjustments, Before Use, and Self-Test for operation. The (LADS) trailer has already been positioned and ready for uses. Materials and equipment required: one laundry advanced system with all accessory items of issue, one 55 gallon drum, one operators tool box complete and FM 10-3510-221-10.

Standards: Complete all the necessary functions to perform initial adjustments, before use and self-test. All safety and environmental consideration will be followed.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Initial System Start-Up

- a. Ensure all BEFORE PMCS procedures have been completed.
- b. Bring MEP-805A generator on line (TM 9-6115-644-10) or apply external power as required.
- c. Set generator output to 210 VAC, 60 HZ.
- d. Verify EMERGENCY STOP switch is pulled out.
- e. Position MAIN DISCONNECT switched to ON.
- f. Verify MAIN POWER lamp is ON.
- g. Position CONTROL POWER switch to ON.

LADS, contains a monitor that verifies correct electrical phasing with external power source. If phasing is not correct, CONTROL POWER lamp will not come on, with CONTROL POWER switch in ON Position.

- h. Verify CONTROL POWER lamp is ON.
- i. Verify POWER lamps are on at operator panels A and B.
- j. Monitor display at operator panel A, it should read: Testing Control System Wait; then Press to Start.

2. Pressurized Air System

CAUTION

When Pressurizing the air system, the drum air bags will begin to inflate. If drum stowage pins could not be removed previously, ensure they are removed at this time. Attempting to inflate the air bags fully with the pins installed will result in damage to the air bags, pins, and drum structure.

- a. Press MENU SELECTION switch to start operation.
- b. Monitor display. It should read: Testing Air system Air Pressure=XXXPSIG wait

It will take approximately 20 minutes for air system to pressurize when air system is empty.

- c. Continue to monitor display, after air system has pressurized, it should read: Water Level Low; Fill Tanks Override Filling

3. Prime Water Supply

- a. Check rotation and prime water supply pump.

4. Fill Water Tanks

For continuous laundry operations, always start with full water tanks for both systems. If a laundry cycle is started without enough water in the tanks, the laundry cycle will be interrupted.

- a. Press MENU SELECTION switch to start water filling.
- b. Monitor display. It should read: Filling Water Tanks; Override Filling; Examine Inputs.

It will take approximately 15 minutes for tanks to fill when completely drained.

- c. Wait for tanks to fill, then proceed to monitor display. Monitor display should read: Set Water Temperature; SETPNT=XXX F TEMP=XXXF; Modify Set point; Heat Water; Override Heating; Examine Inputs.

5. Prime Fuel Supply and Heat Water Tanks

- a. Slide air inlet filter out of heater.

Performance Steps

WARNING

When priming fuel supply, reading at pressure gauge must be at "ZERO". If pressure at this gauge increases when the "PRIME PUMP" switch in on, STOP the priming operation and notify Unit maintenance. Attempting to start the heater with excess fuel in the combustion chamber can cause an explosion and injury to personnel.

b. Prime fuel supply to heater as follows:

- (1) Lift and hold PRIME PUMP switch.
- (2) Observe reading on pressure gauge.
- (3) Release switch when pressure gauge remains steady at 135 PSI or higher for a continuous 120 seconds period.

c. Slide air inlet filter back into heater with direction arrow pointing towards heater inlet.

If the water heating operation is stopped while in progress, OVERRIDE FILLING should be selected when system is restarted. Selecting the FILL TANKS option will result in excess water being added to the rinse number 2 tank.

d. Press appropriate MENU SELECTION switch as follows:

- (1) Select MODIFY SETPOINT to change displayed set point in 5 degree increments until desired set point is displayed.
- (2) Select HEAT WATER to heat water in tanks. Proceed to monitor display.
- (3) Select OVERRIDE HEATING to bypass water heating. Proceed to DAILY OPERATING PROCEDURES, step B to load laundry.

e. Monitor display. It should read: Heat Water; SETPNT= xxxF TEMP=xxxF; Modify Set point; Examine Inputs.

f. Observe heater operation as follows:

While priming heater fuel system, blower may turn on and off. PRIME PUMP switch may be released when blower is not operating and pushed when blower starts. If correct fuel pressure cannot be obtained within five priming attempts, notify maintenance.

1. Wait for blower to come on.
2. Lift and hold PRIME PUMP switch while monitoring pressure gauge.
3. With blower operating, observe fuel pressure at gauge. If above 125 PSI, release PRIME PUMP switch.
4. Observe fuel pressure gauge. If pressure remains above 125 PSI, wait for water heating to be completed, then proceed to Daily Operating Procedures to load laundry, otherwise repeat steps 1 through 3. (See Figure 3-48)

Performance Steps

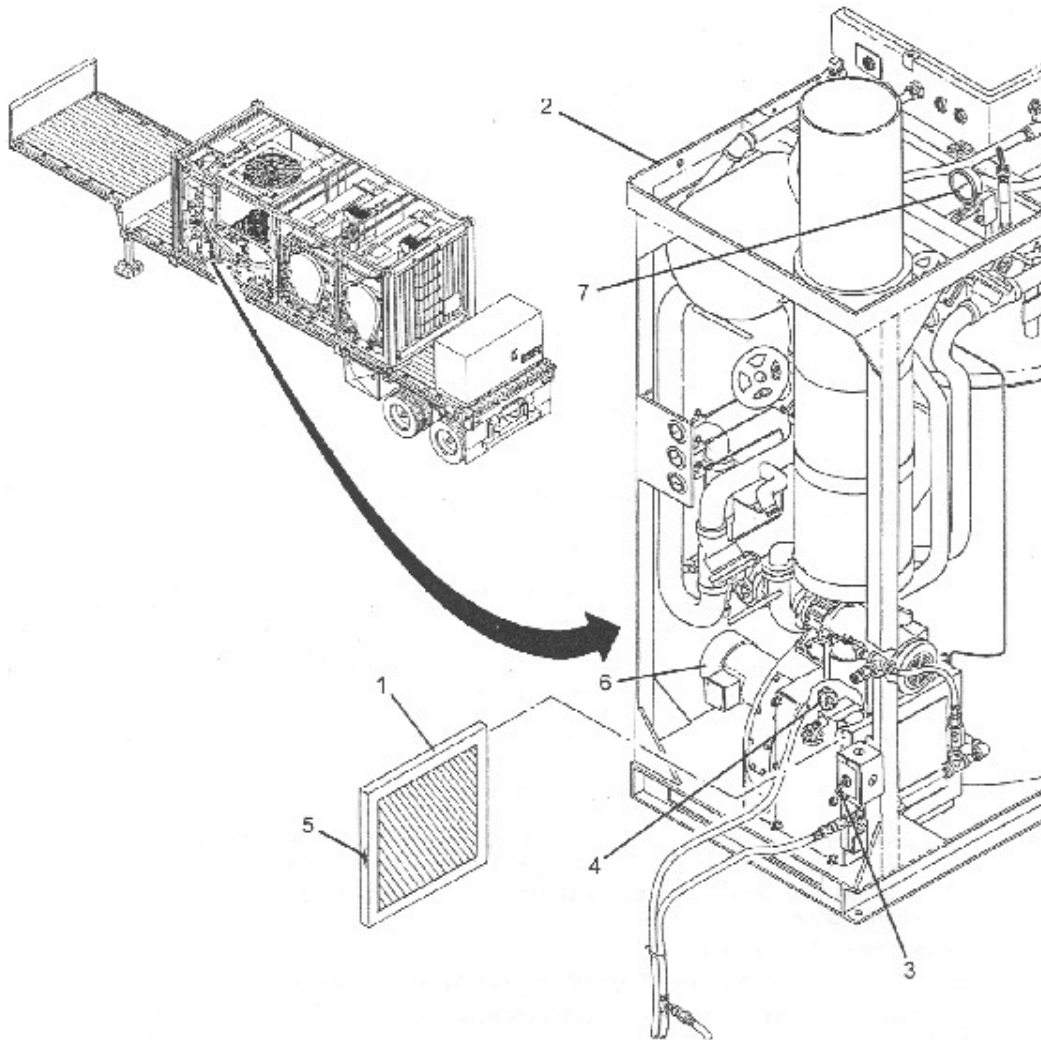


Figure 3-48
Initial Adjustment, Before Use/Fuel Supply And Water Tanks

It will take approximately 20-40 minutes for heat water operation to be completed.

- g. Wait for water heating to be completed then proceed to DAILY OPEARATING PROCEDURES to load laundry.

Performance Measures

1. Completed the initial system start up procedures.
2. Pressurized the air system.
3. Primed the water supply system.
4. Filled the water tanks.
5. Primed the fuel supply and heat water tanks.

GO **NO GO**

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

Operate LADS System 101-92S-1049

Conditions: You are assigned to a laundry section. Your immediate supervisor tells you to operate the Laundry Advanced System (LADS). Materials and equipment required: Laundry Advanced System, water pump, fuel, water, oil, fire extinguisher, 55 gal drum, DA Form 2404 or DA Form 5988-E and TM 10-3510-221-10.

Standards: Complete all the necessary steps to operate the (LADS). Continue until the washer is loaded with laundry, select and start laundry cycle(s), operate Laundry Cycle(s), unload Laundry, and shutdown procedures is performed.

Performance Steps

NOTE: Apply Risk Management Procedures

1. System Start-up

WARNING

Operating personnel must be familiar with system operation and emergency procedures prior to operating LADS. Failure to operate this system properly can cause severe injury or death to yourself or other personnel working nearby. If any hazardous or unusual conditions are observed during operation perform an emergency stop shutdown immediately.

NOTE

If indications displayed at main control enclosure or at operator panels are not as stated in the following procedures, refer to troubleshooting procedures to determine the proper action to take. If the control system detects a system failure the audible alarm will go on and off intermittently. Further operations may or may not be interrupted, depending on how critical the failure is. If this occurs, the operator panel display will read: System Shutdown; xxxx Failure. In either case, refer to troubleshooting procedures work package within TM to determine the proper action to take.

- a. Ensure all BEFORE PMCS procedures have been completed.
- b. Bring MEP - 805A generator on line (TM9-6115-644-10) or apply external power as required.
- c. Set generator output to 210 VAC, 60 HZ
- d. Verify EMERGENCY STOP switch is pulled out
- e. Position MAIN DISCONNECT switch to ON
- f. Position CONTROL POWER switch to ON
- g. Verify POWER lamps are on at operator panels A and B.
- h. Monitor display at operator panel A, it should read: Testing Control System, Wait, then press to start.
- i. Press MENU SELECTION switch to start operation
- j. Monitor display, it should read: Testing Air System Air Pressure=xxxxPSIG Wait

NOTE: It will take approximately 20 minutes for air system to pressurize when air system is empty.

- k. Continue to monitor display, after air system has pressurized, it should read: Water Level Low; Fill Tanks, Override Filling

If WATER LEVEL LOW is displayed, continue to step L, otherwise proceed to step O

- l. Press appropriate MENU SELECTION switch as follows:
 1. Select FILL Tanks to fill all water tanks to proper level. Proceed to step M.
 2. Select OVERRIDE FILLING to bypass water filling. Proceed to step O
- m. Monitor display, it should read: Filling Water Tanks; Override Filling; examine inputs

NOTE: It will take approximately 15 minutes for tanks to fill when completely drained.

- n. Wait for tanks to fill, then proceed to step O
- o. Monitor display. It should read: Set Water Temperature; SETPNT=xxx F Temp=xxx F

NOTE: If the water heating operation is stopped while in progress, OVERRIDE FILLING should be selected when system is restarted. Selecting the FILL TANKS option will result in excess water being added to the rinse number 2 tank.

- p. Slide a air inlet filter out of heater.

Performance Steps

WARNING

When priming fuel supply, reading at pressure gauge must be at "zero". If pressure at this gauge increases when the "PRIME PUMP" switch is on, STOP the priming operation and notify Unit maintenance. Attempting to start the heater with excess fuel in the combustion chamber can cause an explosion and injury to personnel.

- q. Prime fuel supply to heater as follows:
 1. Lift and hold PRIME PUMP switch.
 2. Observe reading on pressure gauge.
 3. Release switch when pressure gauge remains steady at 135 PSI or higher for a continuous 120 seconds period.
- r. Slide air inlet filter back into heater with direction arrow pointing towards heater inlet. (See Figure 3-49)

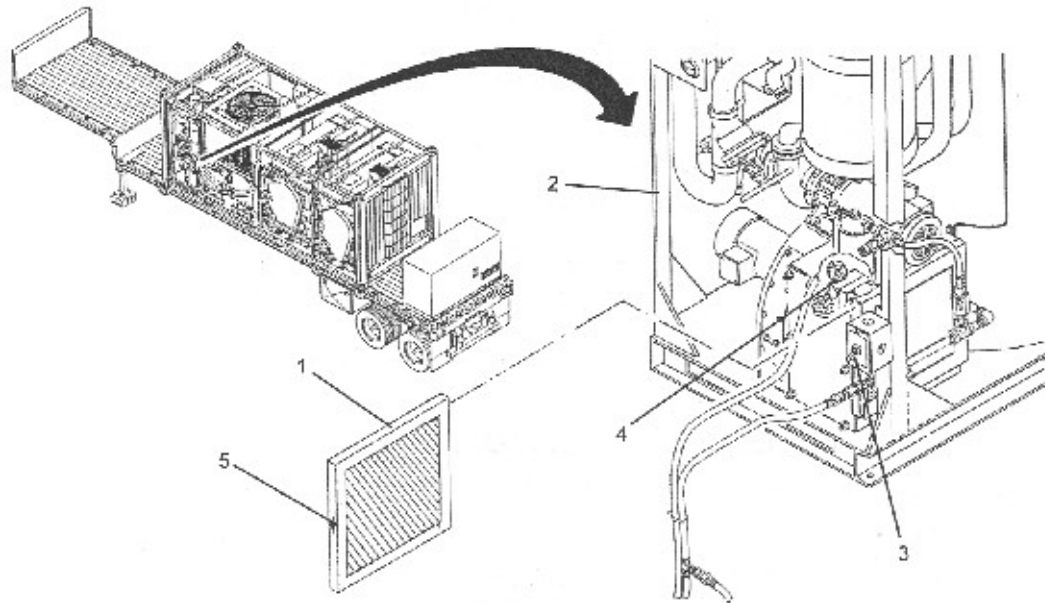


Figure 3-49
Air Inlet Filter

NOTE

If the water heating operation is stopped while in progress, OVERRIDE FILLING should be selected when system is restarted. Selecting the FILL TANKS option will result in excess water being added to the rinse number 2 tank.

- s. Press appropriate MENU SELECTION switch as follows:
 1. Select MODIFY SETPOINT to change displayed set point in 5 degrees increments until desired set point is displayed.
 2. Select HEAT WATER to heat water tanks.
 3. Select OVERRIDE HEATING to bypass water heating. Proceed to load laundry.
- t. Monitor display. It should read: Heat Water, SETPNT=xxxF Temp=xxxF

NOTE

It will take approximately 20-40 minutes to heat water operation to be completed.

- u. Wait for water heating to be completed then proceed to step B to load laundry.

2. Load Laundry

- a. Pull out on handle (1) until drum door (2) is free to open.
- b. Open drum door.

Performance Steps**CAUTION:**

Never load more than 200 lbs of laundry into one drum. Excessive loads can cause stress to drum structure and drive components leading to premature failure.

- c. Load laundry. Make sure laundry is clear of door.
- d. Close drum door.
- e. Push in on handle until drum door is locked.
- f. Repeat loading procedure at other drum and/or proceed to step 3 to select and start laundry cycle.

3. Select and start Laundry Cycle(s)

NOTE

The following procedures are performed at operator panel A for drum A and operator panel B for drum B.

- a. Monitor display. It should read: Wash Cycle x; Wash=xxxxF; Dry=xxxF; Select Cycle, Temp, Start.
- b. Press appropriate MENU SELECTION switch as follows:
Press appropriate MENU SELECTION switch as follows:
 1. Select, SELECT CYCLE to toggle to next available cycle until desired laundry cycle is displayed.
 2. Select MODIFY TEMPS to change displayed washing or drying temperature.
 3. Select START CYCLE to start laundry cycle.
- c. Monitor display. It should read: Wash Cycle x; Wash=xxxxF; Dry=xxxxF; Select Cycle, Temp, Start.

NOTE

If wash temperature set point is changed, water temperature for systems A and B will change. If dry temperature set point is changed only the system where change was made will be affected. Changes made to wash temperatures will return to the default set point when control power is removed from LADS and reapplied.

Temperature of water used during a laundry cycle will not change to modify wash temperature until 3 laundry cycles after the change was selected.

Changes made to dry temperature will return to the default set point after the laundry cycle is completed.

NOTE

- d. Press appropriate MENU SELECTION switch as follows:
 1. Select MODIFY WASH TEMP to change displayed set point in 5 degrees increments until desired set point is displayed.
 2. Select MODIFY DRY TEMP to change displayed set point in 5 degrees increments until desired set point is displayed.
 3. Select RETURN to accept changed set points. Return to step 2.
- e. Repeat laundry cycle selection and start up for other drum and/or proceed to run laundry cycle.

4. Laundry Cycle Operation

NOTE

A normal laundry cycle lasts about 65 minutes. Once a laundry cycle starts, operation is automatic until the cycle is complete. When a continuous audible alarm sounds this indicates the cycle is complete.

If the FRS or SANITIZER cycle is selected the audible alarm will sound during the cycle to let you know when it is time to add FRS or sanitizer.

- a. Monitor display. It should read: Wash Cycle x In Progress; Wash=xxxF; Dry=xxxF; Fill From Wash Tank

Performance Steps

- b. If laundry cycle is operating properly and you wish to continue cycle proceed to step E. If you want to interrupt cycle or monitor system operation press appropriate MENU SELECTION switch as follows:
 - 1. Select PAUSE to interrupt laundry cycle. Proceed to step c.
 - 2. Select EXAMINE INPUTS to monitor system operation.
- c. Monitor display. It should read: Cycle Paused. Continue Cycle, End Cycle
- d. Press appropriate MENU SELECTION switch as follows:
 - 1. Select CONTINUE CYCLE to finish current cycle. Proceed to step e.
 - 2. Select END CYCLE to interrupt current cycle. Proceed to step e.
- e. If FRS or sanitizer needs to be added proceed to step f, otherwise proceed to step to unload laundry and complete laundry cycle.
- f. When audible alarm sounds press SILENCE ALARM switch).
- g. Monitor display (6), it should read: Cycle Paused; Add FRS or Sanitizer
- h. Unlock latch on lid.
- i. Open lid on sluice and add FRS or Sanitizer
- j. Engage latch to secure lid
- k. Press MENU SELECTION switch to continue cycle. Proceed to complete laundry cycle. (See Figure 3-50)

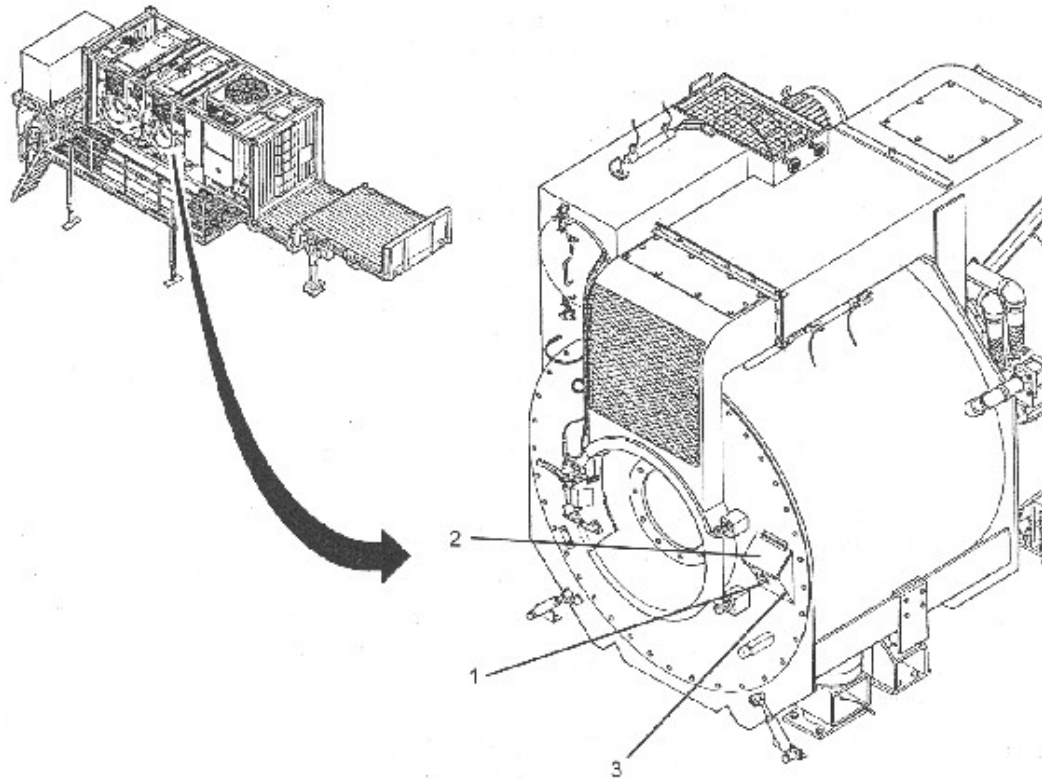


Figure 3-50
Laundry Cycle Operation

5. Unload Laundry

- a. Wait for cycle to be completed. When audible alarm sounds press SILENCE ALARM switch on operator panel.
- b. Monitor display (6), it should read: Cycle Complete; Unload Laundry
- c. Pull out on handle until drum door is free to open

Performance Steps

- d. Open drum door
- e. Unload Laundry
- f. Clean lint filter
- g. Repeat steps above to perform additional laundry operations, otherwise proceed to step 6 for system shutdown.

6. System Shutdown

This procedure describes steps required to perform a normal system shutdown after daily laundry operations have concluded. If LADS is being prepared for movement refer to PREPARATION FOR MOVEMENT procedures System Shutdown

WARNING

Prior to removing power from LADS a cool down cycle must be run. This allows piping and system components to cool down to safe temperatures prior to performing AFTER PMCS procedures. Failure to perform the cool down procedure could result in personnel being exposed to hot fluids and external surfaces causing severe injury or death.

NOTE

Laundry cycle must be completed for system B before a cool down cycle can be initiated.

- a. Close both drum doors
- b. Push in on handle until each drum door is locked
- c. Monitor display at operator panel A, it should read:
Wash Cycle x; Wash=xxxF Dry=xxxxF
Select Cycle, Temp, Start
- d. Press MENU SELECTION switch to toggle through available cycles until COOL DOWN CYCLE is displayed.
- e. Press MENU SELECTION switch to start cool down cycle.

NOTE

A normal cool down lasts about 30 minutes. Once a cool down cycle starts, operation is automatic until cycle is completed. When a continuous audible alarm sounds this indicates the cycle is complete.

- f. Wait for cycle to be completed. When audible alarm sounds, press SILENCE ALARM switch on operator panel A.
- g. Monitor display. It should read: Cycle Complete; Perform After PMCS
- h. Perform AFTER PMCS
- i. Position CONTROL POWER switch to OFF
- j. Position MAIN DISCONNECT switch to OFF
- k. Discontinue operation of MEP-805A generator on line (TM9-6115-644-10) or remove external power as required.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Familiarized with The System Start Up Procedures	—	—
2. Performed Leading Laundry Procedures	—	—
3. Selected And Started Laundry Cycles	—	—
4. Completed Laundry Cycles Operation Procedures	—	—
5. Performed Unloading Laundry Procedures	—	—
6. Completed System Shutdown Procedures	—	—
7. Performed The Concept Of Operation Under Unused Conditions	—	—
8. Performed Setting The Heater Air Inlet Settings	—	—
9. Performed Interim Nuclear, Biological, And Chemical (NBC) Procedures	—	—

Performance Measures

GO NO GO

10. Performed Emergency Procedures

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

Prepare LADS For Movement 101-92S-1050

Conditions: You are the operator for the Laundry Advanced System (LADS). Your immediate supervisor tells you to properly dismantle the LADS and prepare it for movement. All Safety precautions applications will be executed as needed. Materials and equipment required: LADS complete with all accessory items of issue, toolbox, 5 ton Tractor, and TM 10-3510-221-10.

Standards: Complete all necessary steps to prepare LADS for movement. Continue until the LADS, is secure to the 5 ton tractor for movement.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Preparation For Movement
 - a. Drain LADS and System Shutdown

NOTE

Laundry cycles must be completed for systems A and B before a drain cycle can be initiated.

- (1) Close both drum doors. (See Figure 3-51)

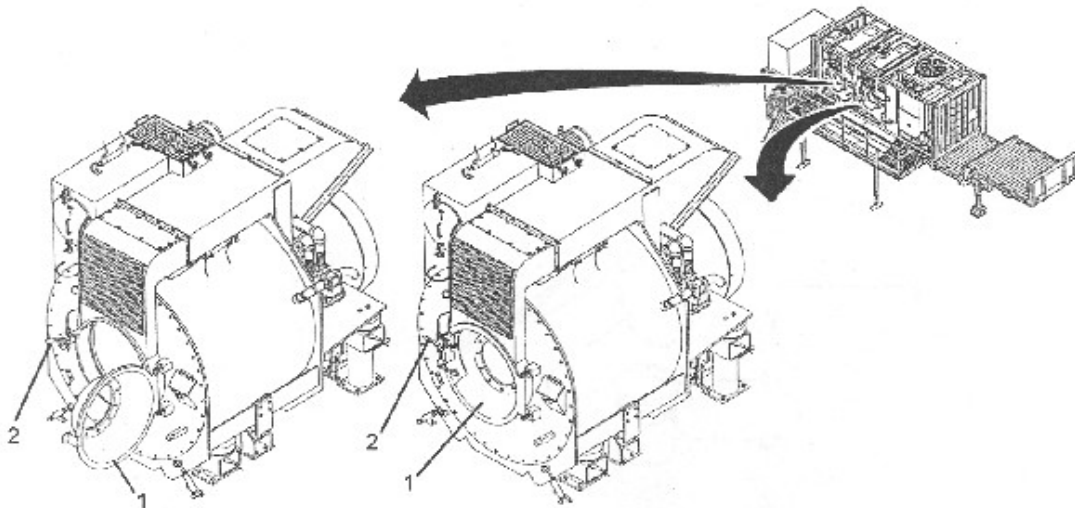


Figure 3-51
Preparation For Movement/Close Both Drum Doors

- (2) Push in on handle until each drum door is locked.
- (3) Fill a clean container with about 1-gallon of water.
- (4) Place water container next to detergent container and anti-foam container.
- (5) Remove detergent supply tube from detergent container then place in water container.
- (6) Install cap onto detergent container.
- (7) Remove anti-foam supply tube from anti-foam container then place in water container.
- (8) Install cap onto anti-foam container.
- (9) Disconnect hose from manual valve.
- (10) Remove hand pump from anti-foam container.
- (11) Place hose into anti-foam container.
- (12) Stroke hand pump until all residual anti-foam is purged.
- (13) Install cap onto anti-foam container.
- (14) Make sure manual valve is closed. (See Figure 3-52)

Performance Steps

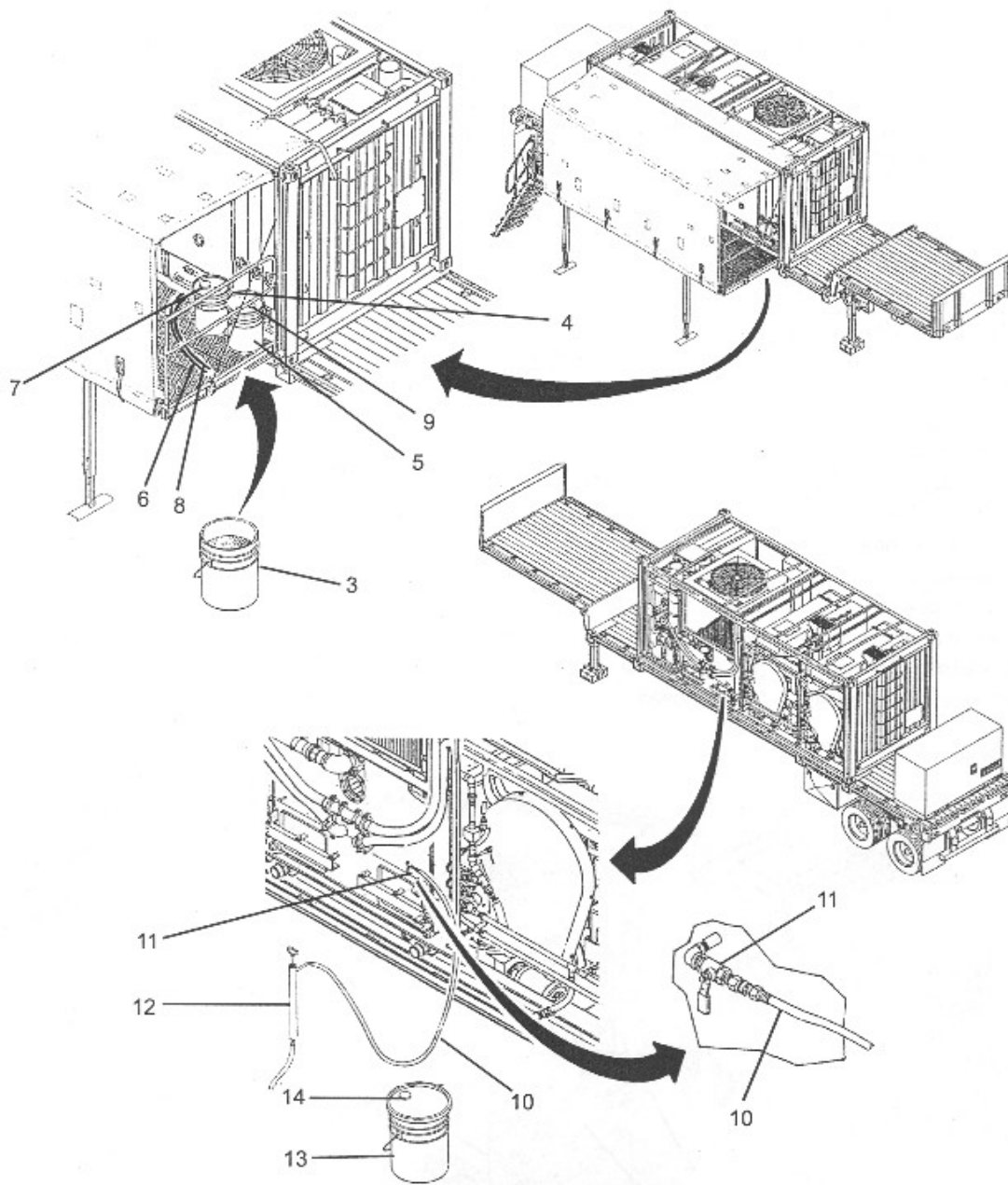


Figure 3-52
Preparation For Movement/Closed Manual Valve

- (15) Monitor display at operator panel A, it should read:
Wash Cycle X; Wash=xxxF, Dry=xxxF; Select Cycle, Temp, Start
- (16) Press MENU SELECTION switch to toggle through available cycles until DRAIN CYCLE is displayed.
- (17) Monitor display at operator panel A, it should read:
Drain Cycle; Wash=xxxF, Dry=xxxF; Select Cycle, Temp, Start

Performance Steps

- (18) Press MENU SELECTION switch to start drain cycle.

NOTE

The control system will automatically perform a cool down cycle when a drain cycle is initiated. A normal cool down lasts about 30 minutes. Operation is automatic until the cool down portion of drain cycle is complete. When a continuous audible alarm sounds this indicates the cool down cycle is complete.

- (19) Wait for cool down cycle to be completed. When audible alarm sounds press SILENCE ALARM switch on operator panel A.
- (20) Monitor display, it should read:
Drain Cycle Paused; Perform After PMCS
- (21) Perform AFTER PMCS except when cleaning still do not add anti-foam.
- (22) Connect 5 ft drain hose to drain port.
- (23) Connect 50 ft drain hose to 5 ft drain hose.
- (24) Open drain valve on side of still where hose is connected.
- (25) Monitor display; it should read:
Drain Cycle
- (26) Press MENU SELECTION switch to continue drain cycle.

NOTE

The control system will automatically drain water tanks. This will take about 15 minutes. When a continuous audible alarm sounds this indicates the water tanks are drained.

- (27) Wait for water tanks to drain. When audible alarm sounds press SILENCE ALARM switch on operator panel A.
- (28) Monitor display; it should read:
Cycle Paused; Open Drains, Remove Caps
- (29) Drain residual water from plumbing as follows:
- (a) Open petcocks on both water pumps.
 - (b) Remove four caps from water manifolds.
 - (c) Press MENU SELECTION switch to continue drain cycle.
 - (d) Lift up on hoses to allow water to drain towards water manifolds.

NOTE

The control system will wait several minutes to allow residual water to drain. The control system will then automatically open and close all control valves several times to complete the drain cycle. This will take about 5 minutes. When a continuous audible alarm sounds this indicates the drain cycle is complete.

- (e) Wait for residual water to drain. When audible alarm sounds press SILENCE ALARM switch on operator panel A.
 - (f) Monitor display, it should read:
Cycle Complete; Shutdown
 - (g) Install four caps and close petcocks.
- (30) Position CONTROL POWER switch to OFF.
- (31) Position MAIN DISCONNECT switch to OFF.
- (32) Push in on EMERGENCY STOP switch.
- (33) Discontinue operation of MEP-805A generator on line(TM 9-6115-644-10 or remove external power as required.
- (34) Drain residual water from distillate plumbing as follows:
- (a) Open eight petcocks on sub-cooler.
 - (b) Open petcock at bottom of coalesces.
 - (c) Open petcock on distillate pump.
 - (d) Allow water to drain then close petcocks.
- (35) Open petcock on air compressor. Allow water to drain then close petcock.
- (36) Close petcock at bottom of main control enclosure.
- (37) Close drain valve on side of still where hose is connected. (See Figure 3-53)

Performance Steps

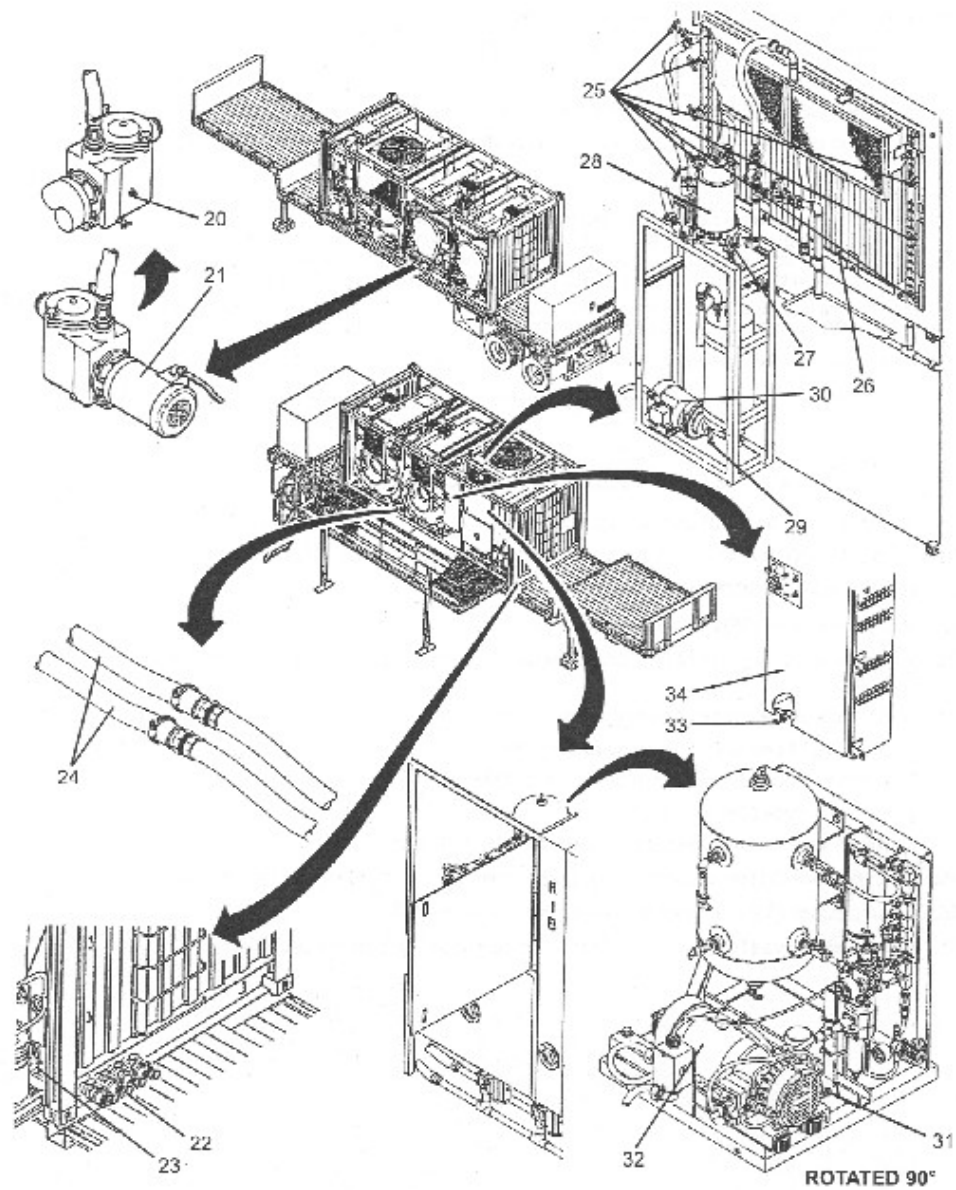


Figure 3-53
Drain System

b. Disconnect Water Drain

- (1) Disconnect 5 ft drain hose from drain port and 50 ft drain hose.
- (2) Disconnect two 50 ft drain hoses from each other.
- (3) Roll up two 50 ft drain hoses.
- (4) Stow coalesces drain tube between still and heater. (See Figure 3-54)

Performance Steps

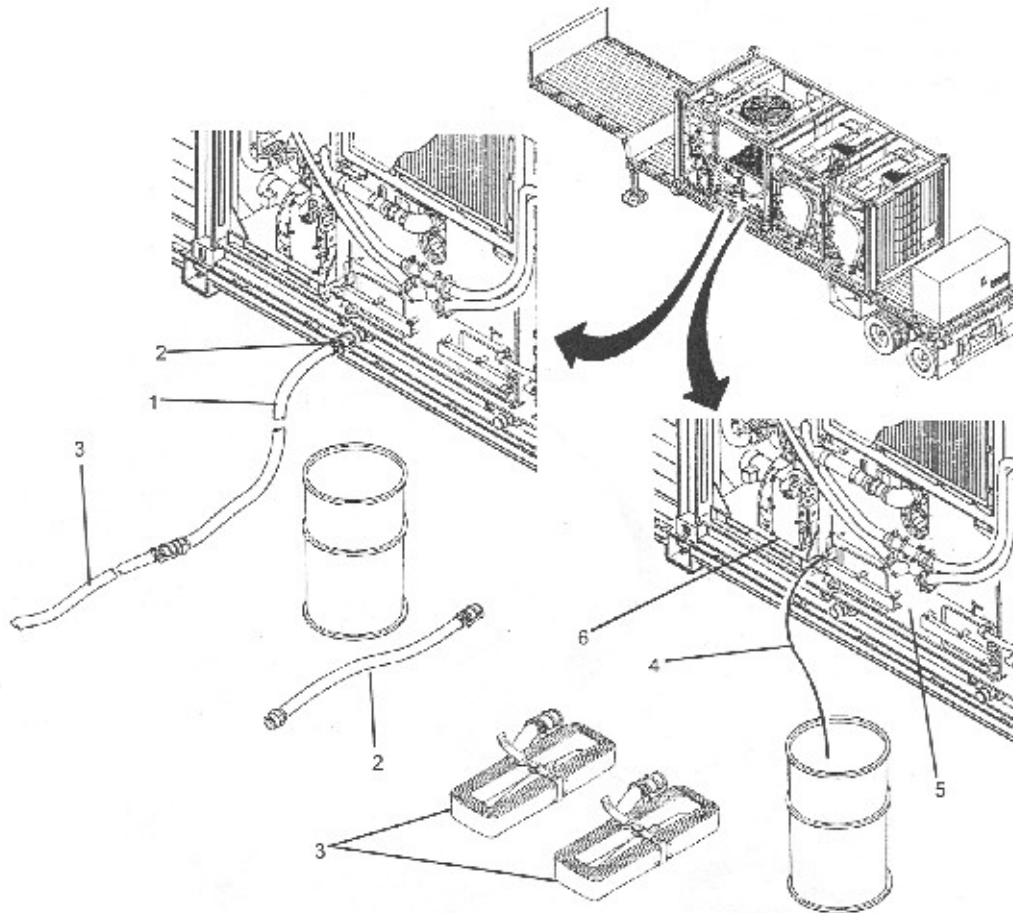


Figure 3-54
Water Drain

c. Disconnect Water Supply

- (1) Disconnect 50 ft water supply hose at water supply port.
- (2) Disconnect electrical cable at junction box.
- (3) Disconnect hose at water supply pump.
- (4) Disconnect electrical cable at water supply pump.
- (5) Disconnect two 50 ft water supply hoses from each other.
- (6) Roll up two 50 ft water supply hoses and electrical cable.
- (7) Disconnect 10 ft water supply hose at water supply pump.
- (8) Remove or disconnect hose at water supply.
- (9) Disconnect utility hose from faucet. (See Figure 3-55)

Performance Steps

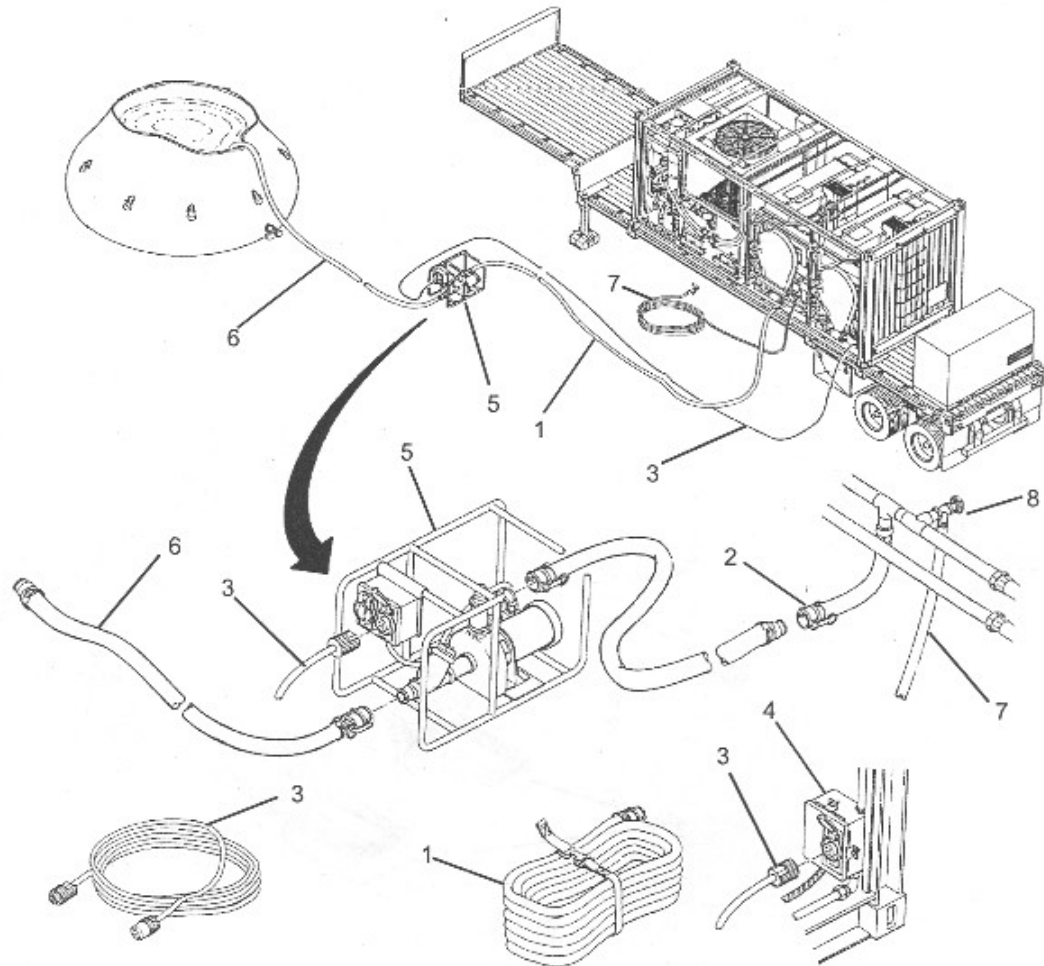


Figure 3-55
Disconnect Water Supply

d. Stow Anti-Foam and Detergent Supply Hoses

- (1) Roll up anti-foam supply hose and stow under water tanks.
- (2) Roll up detergent supply hose and stow under water tanks.

e. Secure Drums and Stow Equipment

WARNING

Keep hands and feet clear drums bottoms when venting air bags. Failure to follow this precaution could result in severe personnel injury.

NOTE

In order for drums to rest properly on ISO frame, air pressure must be vented from front air bags before, air pressure is vented from rear air bags.

- (1) Close shutoff valve.
- (2) Open four petcocks under front air bags.
- (3) Wait for air pressure to vent front air bags then open valve.
- (4) Wait for air pressure to vent from rear air bags then close petcocks.
- (5) Insert four pins to secure front of drums to ISO frame.
- (6) Rotate pins as necessary to ensure ball is contacting ISO frame.

Performance Steps

- (7) Attach four load binders at hook points.
- (8) Tighten load binders. (See Figure 3-56)

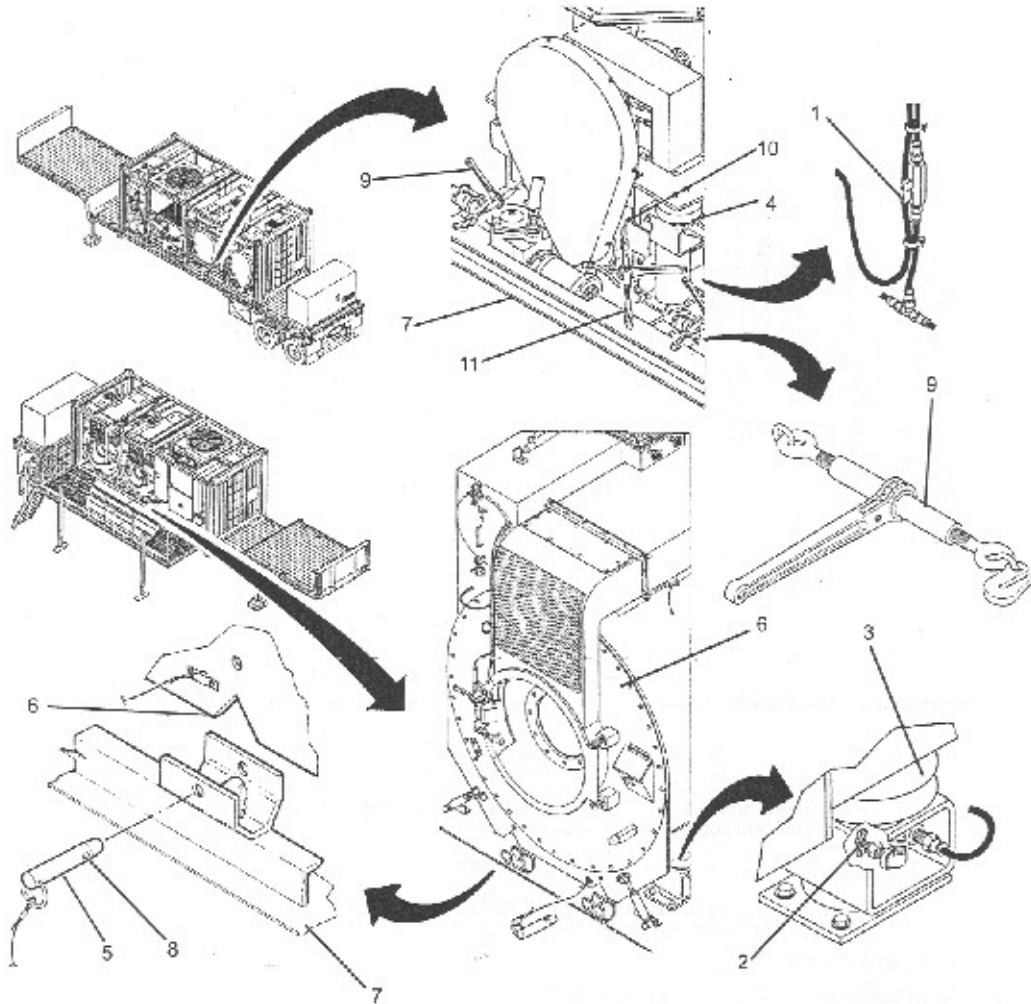


Figure 3-56
Secure Drums And Stow Equipment

- (9) Pull out on handles and open doors on drums.
- (10) Stow items in drums as follows:
 - (a) 5 ft drain hose; 10 ft water supply hose, Utility hose.
 - (b) 50ft drain hoses, qty 2 each; 100 ft electrical cable; spray nozzle.
 - (c) 50ft water supply hoses, qty 2; hand pump.
- (11) Close drum doors then push in on handles to lock doors.
- (12) Ensure sluice lids are closed and latches are engaged.
- f. Stow Exhaust Duct
 - (1) Pull exhaust duct extension up out of exhaust stack.
 - (2) Flip exhaust duct extension over and place inside exhaust stack.
- g. Disconnect Fuel Supply

WARNING

Hose(s) connections must not be left uncovered when stowed. Dirt or other contamination on connections can cause damage to heater fuel system.

- (1) Disconnect adapter from MEP-805A generator (TM 9-6115-644-10)

Performance Steps

- (2) Disconnect fuel hose from adapter.
- (3) Roll fuel hose back towards fuel hose.
- (4) Disconnect fuel hose from fuel hose.
- (5) Install dust plug and cap on fuel hoses.
- (6) Disconnect fuel hose at inlet port and outlet port.
- (7) Install dust plugs and caps onto fuel hose, inlet port, and outlet port.
- (8) Roll up fuel hose whole draining fuel back into fuel supply.
- (9) Disconnect fuel hose at fuel probe.
- (10) Remove fuel probe from fuel supply. (See Figure 3-57)

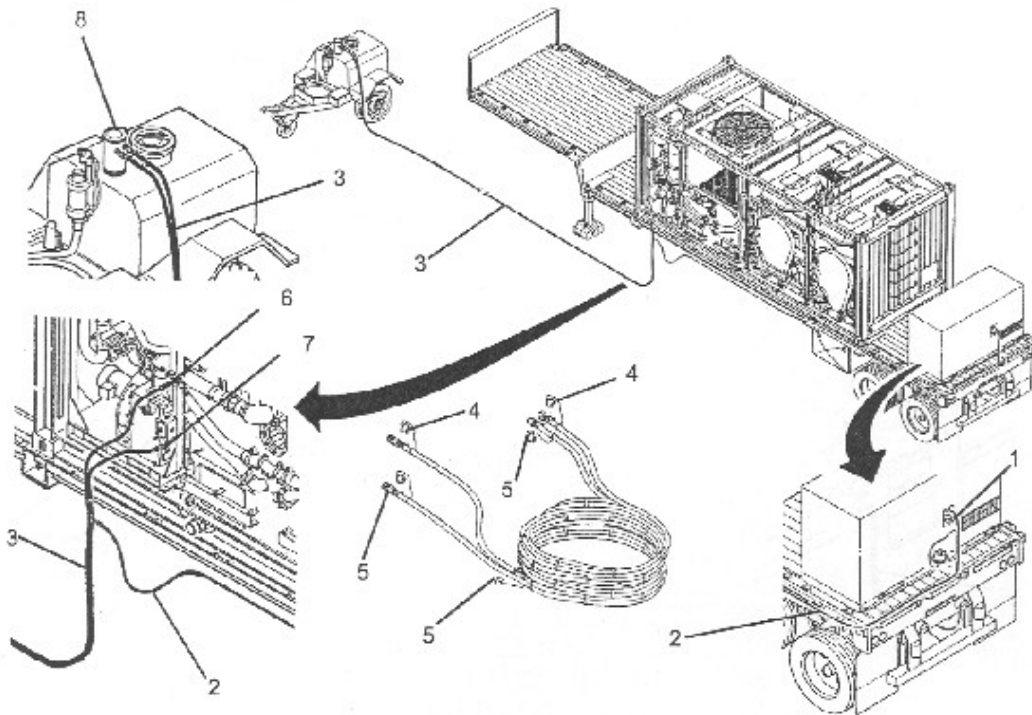


Figure 3-57
Disconnect Fuel Supply

h. Disconnect Electrical Power Source

WARNING

Master power must be shutoff before disconnecting LADS power cable. Be careful not to contact high-voltage connections. Whenever possible, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body. Failure to follow this warning may result in personnel injury or death.

- (1) Determine what power source was used to operate LADS. If the MEP-805A generator was used, proceed to disconnect grounding wire and grounding rod. Otherwise, continue to next step 2.
 - (2) Disconnect power cable at junction box.
 - (3) Disconnect grounding wire from grounding rod.
 - (4) Pull grounding rod out of ground.
 - (5) Roll up grounding wire and stow on floor of M871 semi-trailer.
- i. Secure Inverter Air Flow Doors
- (1) Close air outlet door than rotate latch to lock door in place.

Performance Steps

- (2) Tighten knob.
- (3) Slide air inlet door rearward until door is engaged with lip seal.
- j. Stow Awning and Railing
 - (1) Remove light from underside of tarp as follows:
 - (a) Disconnect electrical cable at receptacle.
 - (b) Pull electrical cable out from between tarp and awning supports.
 - (c) Unfasten straps securing light.
 - (d) Stow light.
 - (2) Remove bungee cords securing tarp to underside of platform and stow bungee cords in toolbox.
 - (3) Unfasten straps securing back half of tarp to inside awning supports and stow straps in toolbox.
 - (4) Unfasten straps securing back half of tarp to outside awning supports.
 - (5) Flip back half of tarp over top of ISO frame.
 - (6) Unfasten straps securing front half of tarp to inside awning supports and stow straps in toolbox.
 - (7) Flip front half of tarp on top of ISO frame. (See Figure 3-58)

Performance Steps

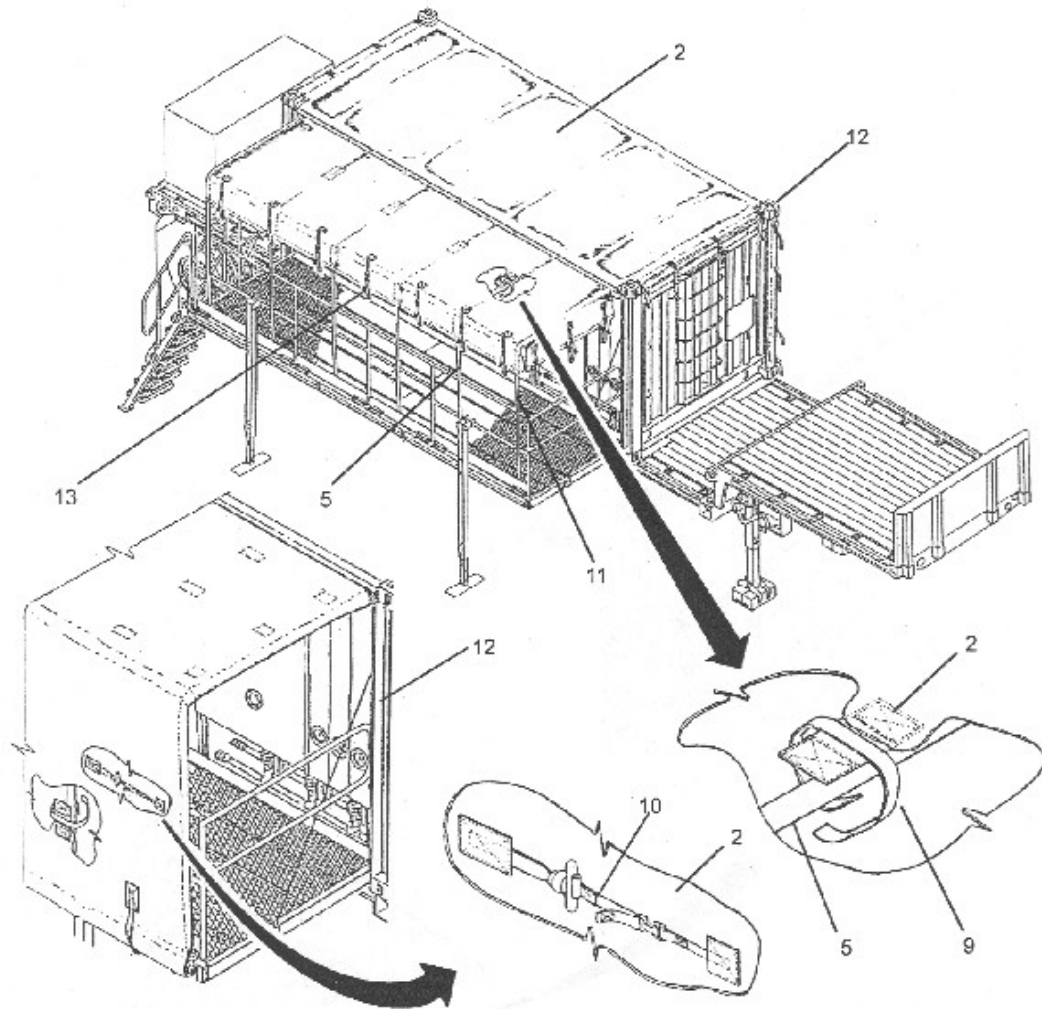


Figure 3-58
Unfasten Straps Remove

- (8) Remove six awning supports as follows:
 - (a) Pull quick-connect pin securing awning support to railing.
 - (b) Lift awning support then rotate upward to unhook t-bolt from front support.
 - (c) Stack awning supports and secure together with straps.
 - (d) Install six quick-connect pins into top holes on railing.
- (9) Remove side railing as follows:
 - (a) Pull quick-connect pin out of side railing and ISO frame.
 - (b) Lift side railing out of hole in platform.
 - (c) Install quick-connect pin into side railing.
- (10) Lower and stow railing as follows:
 - (a) Flip four support brackets off of railing.
 - (b) Pull quick-connect pin out of gate and ISO frame.
 - (c) Swing gate inside of railing then secure with quick-connect pin.

Performance Steps

(d) Lower railing to horizontal position.

k. Raise and Secure Platform

CAUTION

Maintain a slight tension when paying out winch cable to ensure cable wraps remain tight on winch. Failure to follow this precaution may result in sudden drops of platform during raising and lower operations causing excess strain on cable.

- (1) Install winch handle onto winch.
- (2) Loosen cable slightly then unhook shackle from u-bolt.
- (3) Use winch to pay out cable while maintaining a slight tension on cable.
- (4) Connect shackle to u-bolt. (See Figure 3-59)

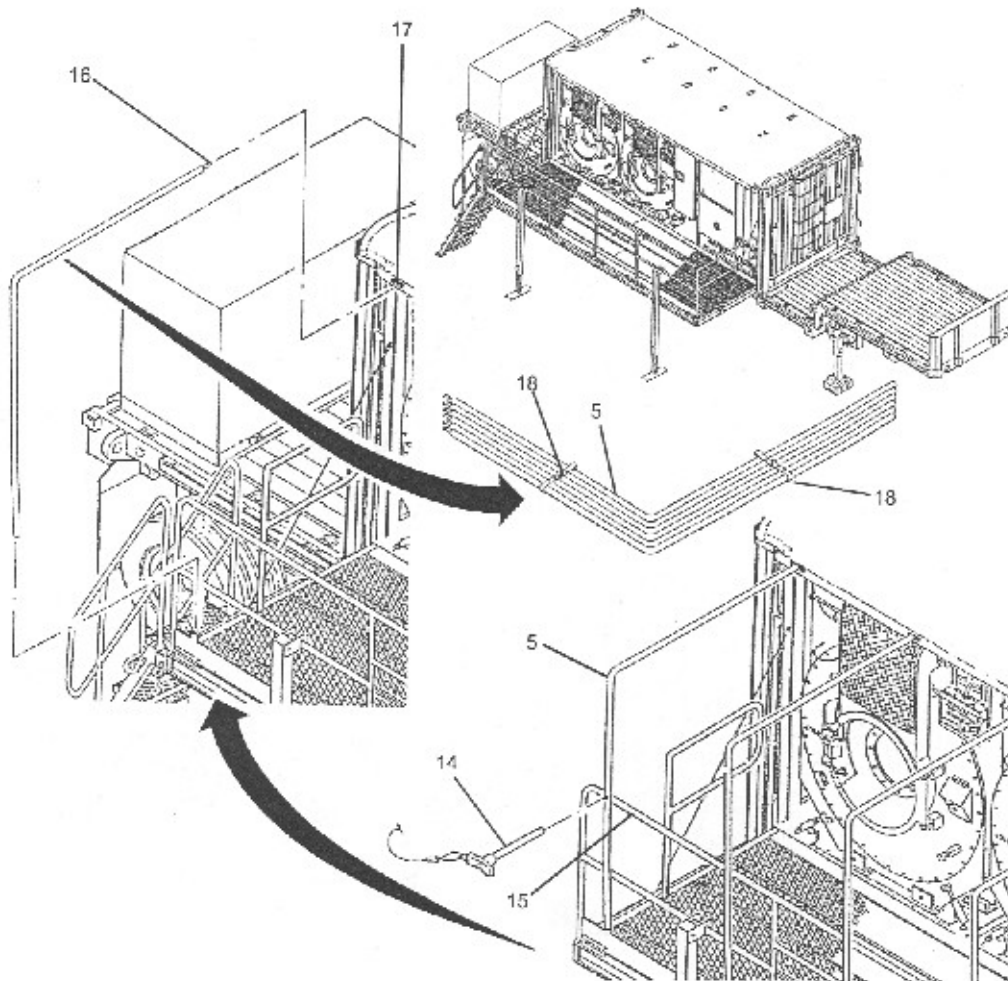


Figure 3-59
Awning And Railing Remove

- (5) Use winch to raise platform until support legs are no longer contacting ground.
- (6) Remove stairs from platform as follows:
 - (a) Remove two quick-connect pins from each handrail, then remove handrails from stairs.
 - (b) Pull two quick-connect pins from each handrail, then remove handrails from stairs.
 - (c) Lift stairs off of platform and place on ground.
 - (d) Insert quick-connect pins and into stairs.
- (7) Raise and secure two support legs as follows:

Performance Steps

- (a) Pull quick-connect pin and slide inner leg up until handle contacts outer leg.
- (b) Fold foot over, then insert quick-connect pin through foot and front side of outer leg.
- (c) Pull quick-connect pin securing support leg to platform.
- (d) Rotate support leg to horizontal position.
- (e) Insert quick-connect pin through support leg then into platform.
- (f) Insert quick-connect pin into support leg. (See Figure 3-60)

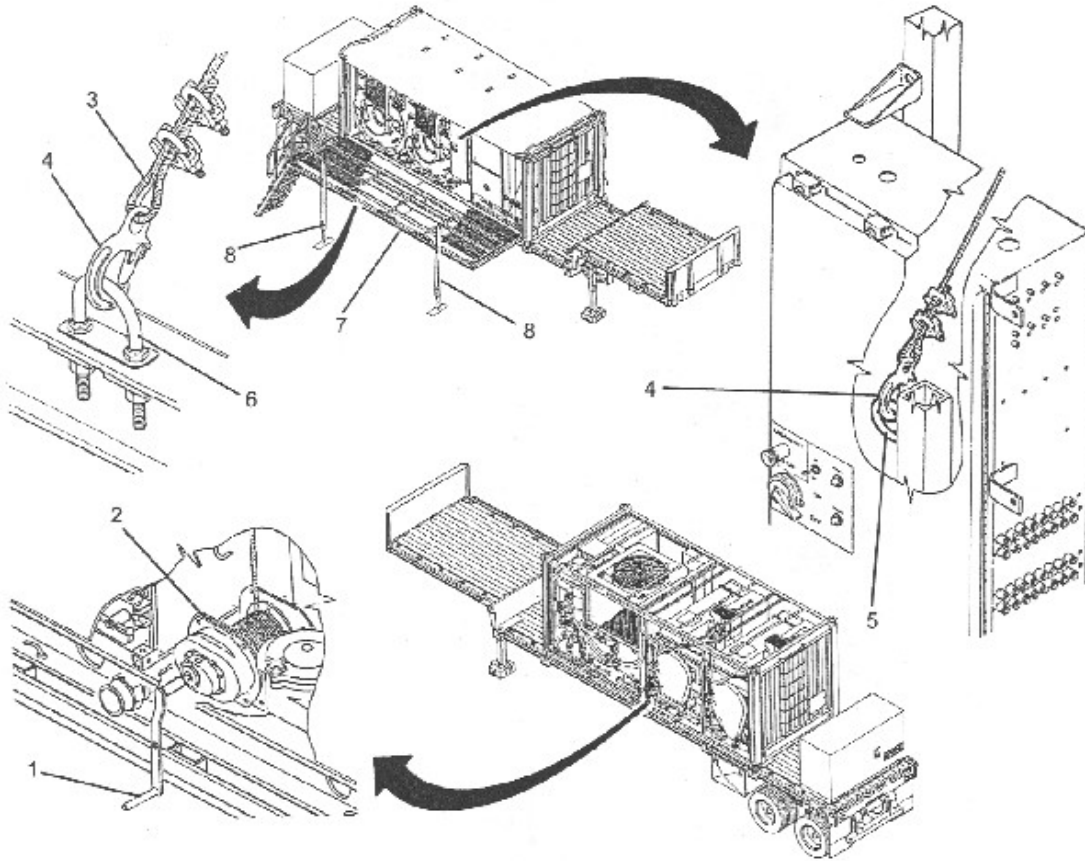


Figure 3-60
Raise Platform

CAUTION

Stow bars must be retracted prior to raising platform. Failure to follow this precaution may result in damage to platform locking components.

- (8) Pivot hasps then lift and turn handles until stow bars retract.

WARNING

Verify that all personnel remain clear of platform while it is being raise. Failure to follow this precaution can cause severe personnel injury or death.

- (9) Use winch to raise platform until stow bars are aligned with stow brackets. (See Figure 3-61)

Performance Steps

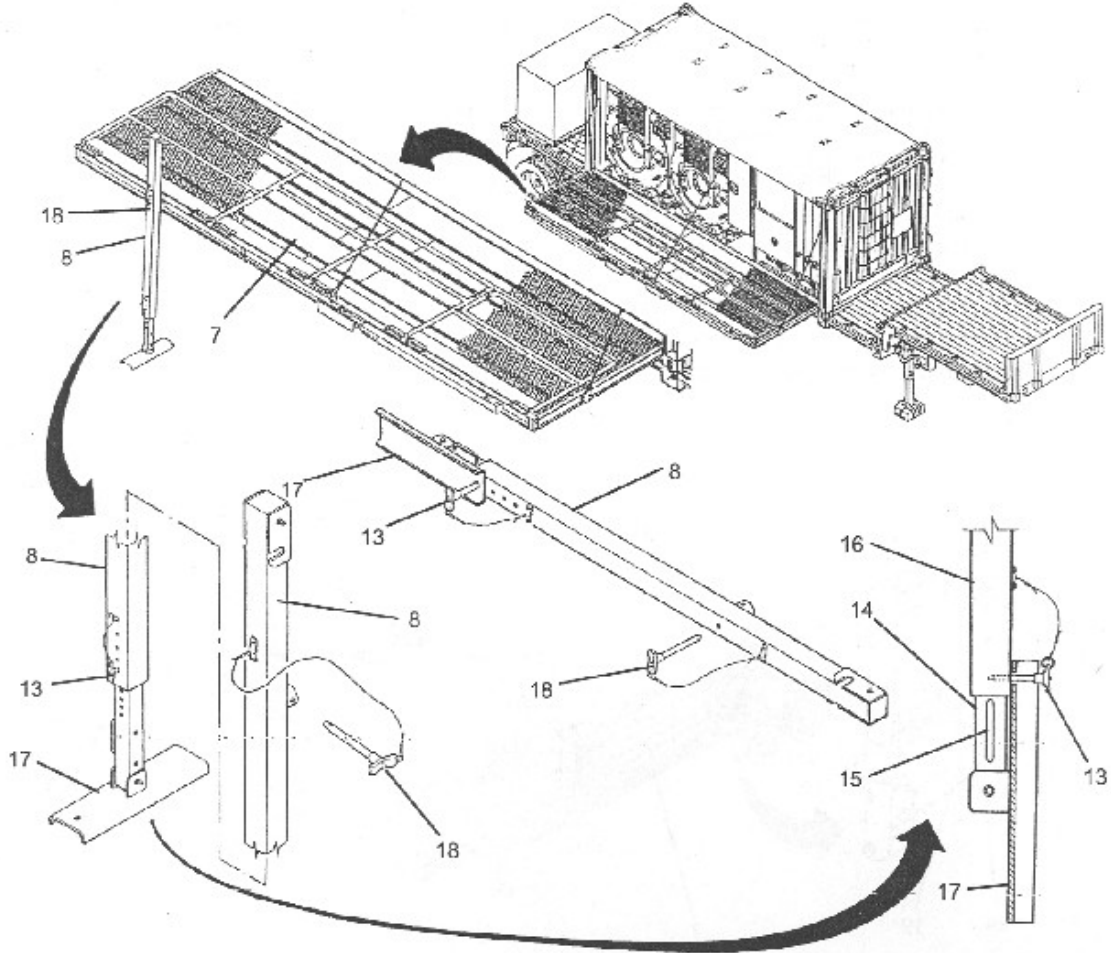


Figure 3-61
Raise And Secure Platform

WARNING

Platform must be secured before movement. Improper stowage of platform could result in platform extending during transport. Failure to follow this precaution may cause damage to platform and/or result in serious injury or death to personnel involved with movement and handling of LADS.

(10) Lock platform to ISO frame as follows:

- (a) Turn handle until stow bar extends into stow bracket.
- (b) Insert handle into retainer.
- (c) Pivot hasp over top of handle.
- (d) Repeat step a through c to lock other end of platform. (See Figure 3-62)

Performance Steps

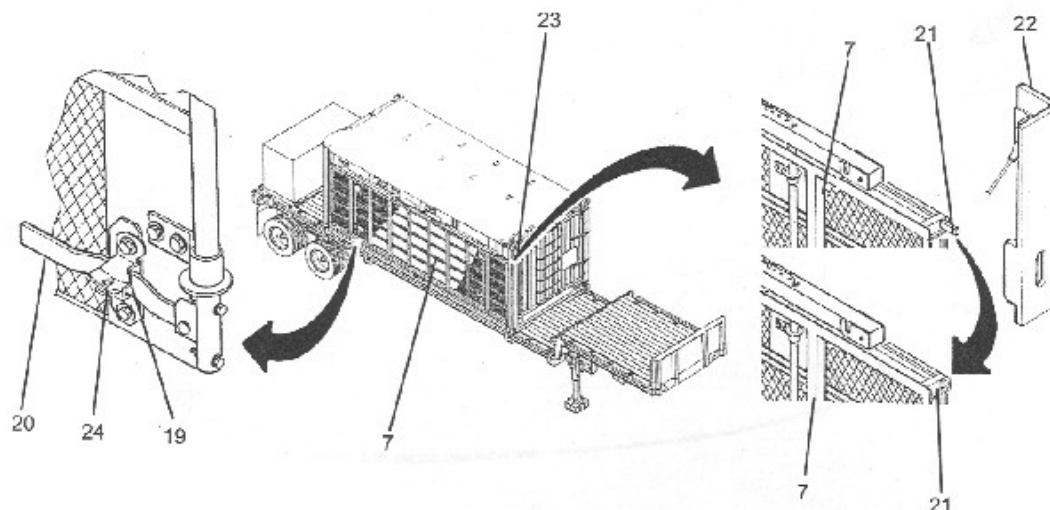


Figure 3-62
Lock Platform

(11) Use winch to pull cable taught. Remove winch handle and stow in tool box.

I. Secure Tarp

- (1) Flip front half of tarp over to cover front of LADS.
- (2) Connect straps to ISO frame then pull straps tight.
- (3) Flip back half of tarp over top and back of LADS.
- (4) Connect straps to ISO frame then pull straps tight.
- (5) Pull sides of tarp over end walls of ISO frame.
- (6) Connect straps to ISO frame then pull straps tight.

m. Breakdown Ladder

WARNING

Keep hands and fingers away from hinge points on ladder halves when opening and closing. Keep hands and fingers away from inner and outer rungs of ladder when adjusting. Never climb on ladder unless knobs and locking devices are properly tightened. Failure to observe this precaution may result in severe personal injury.

- (1) Place ladder flat on ground.
- (2) Pull out and pivot locking devices on each side of ladder.
- (3) Slide outer section of ladder in as far as possible.
- (4) Pivot locking devices back into inner section of ladder.
- (5) Loosen knobs then separate jaws on each side of ladder.
- (6) Fold ladder then tighten knobs to lock jaws in place.

n. Stow Accessories

CAUTION

Stowed equipment can shift during transport if not properly secured. Use care when arranging equipment on semi-trailer. Ensure cargo straps cover all items and are pulled tight. Failure to follow this precaution may result in equipment becoming unserviceable for next mission.

- (1) Stow following items at storage area on M871 semi-trailer:
 - (a) Ladder
 - (b) Stairs
 - (c) Handrails qty 2
 - (d) Awning supports, qty 6
 - (e) Side railing
 - (f) Operator tool box
 - (g) Water supply pump

Performance Steps

- (h) Fuel probe
 - (i) 70 ft fuel hose
 - (j) 25 ft fuel hose
 - (k) Adapter, fuel hose
 - (l) Clean-out rake
 - (m) Sluice tray
 - (n) Anti-foam container, qty 2
 - (o) Detergent container
 - (p) Container, 55 gallon
- (2) Install cargo straps to M871 semi-trailer to secure stowed equipment.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Prepared for movement and drained LADS and performed system shutdown.	—	—
2. Disconnected water drain.	—	—
3. Disconnected water supply.	—	—
4. Stowed Anti-Foam and detergent supply hoses.	—	—
5. Secured drums and stow equipment.	—	—
6. Stowed exhaust duct.	—	—
7. Disconnected fuel supply.	—	—
8. Disconnected electrical power source.	—	—
9. Secured inverter airflow doors.	—	—
10. Stowed awning and railing.	—	—
11. Raised and secured platform.	—	—
12. Secured tarp.	—	—
13. Breakdown and secured ladder.	—	—
14. Stowed accessories.	—	—

Service Dryer Lint Filter
101-92S-1051

Conditions: You are the operator of a Laundry Advanced System (LADS). Your immediate supervisor tells you to service the (LADS) dryer lint filter. Materials and equipment required: LADS complete with accessory, DA Form 2404 or DA Form 5988-E, replacement filters, TM 10-3510-221-10 and tool box.

Standards: Complete all necessary steps to service the dryer Lint Filter. Continue until the LADS lint filter door gasket is inspected.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Initial Setup:

a. Cleaning

- (1) Unlock latches.
- (2) Slide lint filters out of dryer ducting.
- (3) Brush lint off of lint filters.
- (4) Inspect lint filters for tears or obvious damage. Replace if torn or damaged.
- (5) Inspect gaskets on backside of lint filters for tears or obvious damage. Notify maintenance if torn or damaged.
- (6) Reinstall lint filters with direction arrow pointing up.
- (7) Engage latches to secure lint filter. (See Figure 3-63)

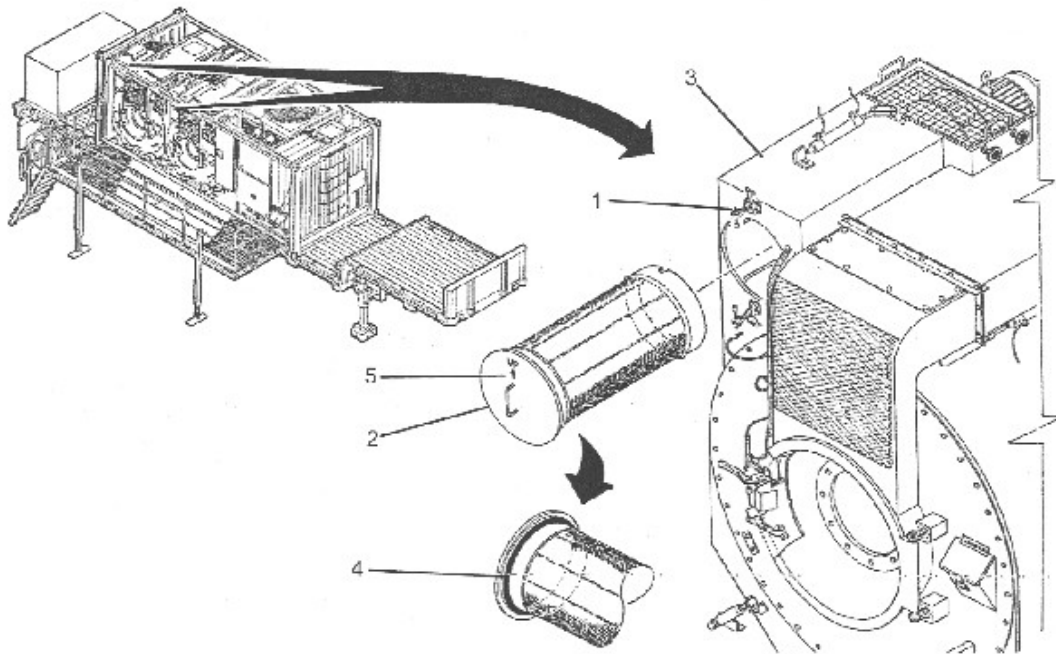


Figure 3-63
Lint Filter

b. Removal

- (1) Remove lint filter from drum.
- (2) Loosen two clamps and slide off of frame.
- (3) Slide filter element off of frame.

c. Installation

Performance Steps

- (1) Slide new filter element onto frame.
- (2) Slide two clamps over filter element.
- (3) Tighten two clamps ensuring clamps are seated in grooves on frame.
- (4) Install lint filter into drum.

Performance Measures

GO **NO GO**

1. Performed Dryer Lint Filter Servicing.
 - a. Cleaned filter.
 - b. Removed filter.
 - c. Installed filter.

Perform Still Servicing

101-92S-1052

Conditions: You work in the platoons laundry section. Your immediate supervisor tells you to perform still servicing on the Laundry Advanced System (LADS), and inspect surface of the door gasket. Materials and equipment required: one (LADS) complete with accessory, 5 ft drain hose, water source, container, rake, door gasket, and TM 10-3510-221-10.

Standards: Complete all necessary steps to perform still servicing. Continue until the still is drain, clean and still door gasket is replaced if the gasket is damaged.

Performance Steps

NOTE: Apply Risk Management Procedures

WARNING

Still can reach temperatures near 220 degrees F when operating. Make sure cool down cycle has been run prior to performing maintenance. Be aware that temperature of water inside still may be near 150 degrees F even after cool down cycle is finished. Always wear gloves and eye protection. Failure to follow this precaution could result in severe burn injuries.

1. Place an empty container below still and connect 5 ft drain hose to still then place hose in the container.
2. Open drain valve on side of still where hose is connected; allow STILL to drain.
3. Install sluice tray under still then connect two lanyards.
4. Open doors on still as follows:
 - a. Loosen clamping knobs and pivot off of door arms.
 - b. Swing doors open.
5. Use rake to scrape residue out of still into container.
6. Use rake to brush residue off of heat plates.
7. Rinse inside of still with water until all residue are removed.
8. Inspect surface of door gaskets for cuts or tears. Replace if damaged.
9. Close doors on still as follows:
 - a. Swing doors closed. Ensure door is tight against still.
 - b. Pivot clamping knobs onto door arms and hand tighten.
10. Disconnect lanyards then remove sluice tray from under still.
11. Close drain valve.
12. Remove hose from container and disconnect hose from still. Dispose of container contents per local regulations.
13. Open manual valve.
14. Stroke hand pump one time to inject anti-foam into still.
15. Close manual valve. (See Figure 3-64)

Performance Steps

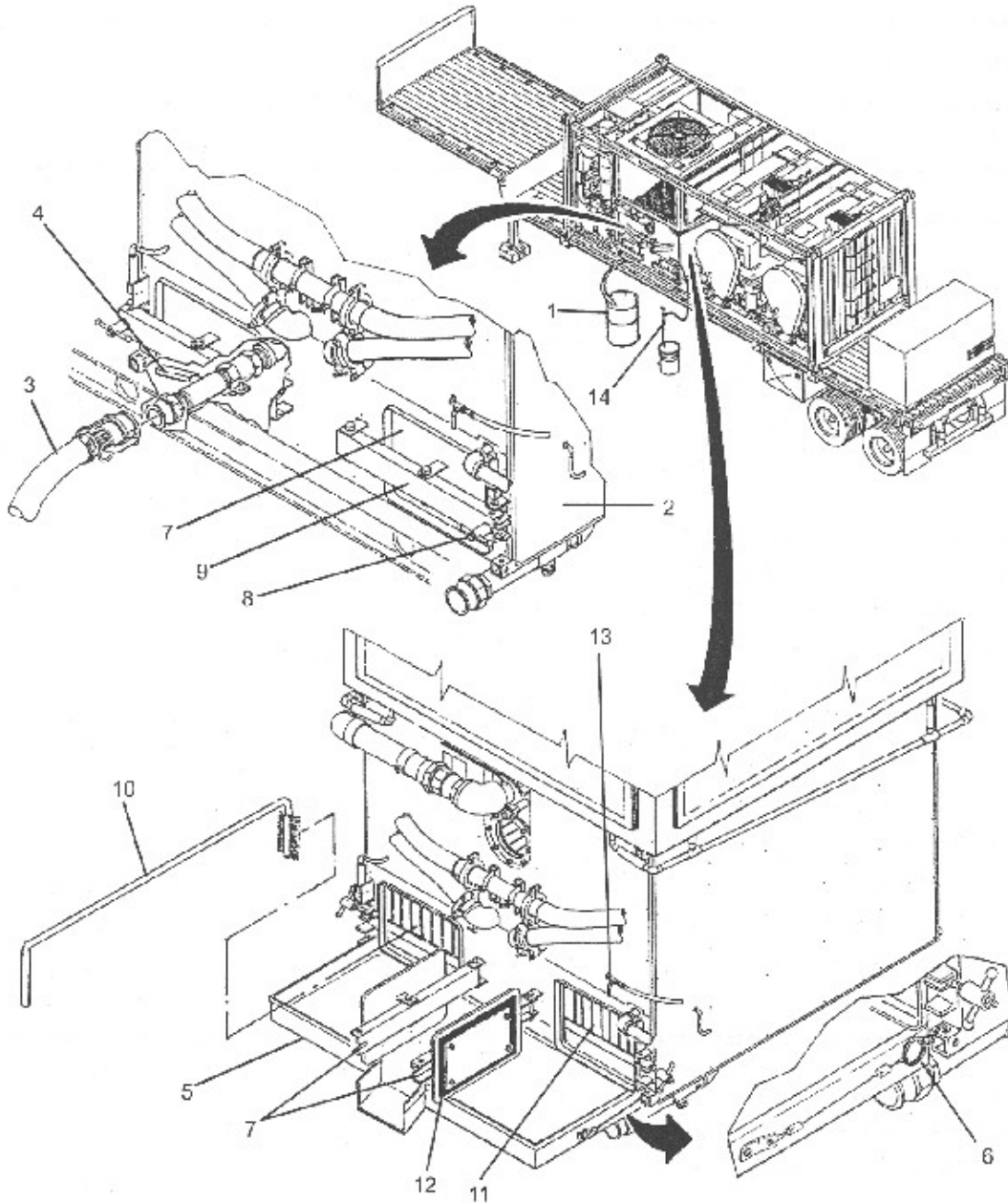


Figure 3-64
Still Cleaning

CAUTION: Still door gasket replacement and installation see TM 10-3510-221-10, Chapter 4 for operator's maintenance instructions.

Performance Measures

1. Connected 5 ft drain hose.
2. Opened drain valve.

<u>GO</u>	<u>NO GO</u>
—	—
—	—

Performance Measures

- 3. Opened still doors and manual valve.
- 4. Rinsed inside of still with water.
- 5. Inspected surface of door gaskets.
- 6. Closed drain valve, still doors, and manual valve.

<u>GO</u>	<u>NO GO</u>
—	—
—	—
—	—
—	—

Subject Area 6: MACHINE-SEWN TEXTILE

Construct And Sew A Seam Type I On Clothing
101-92S-1007

Conditions: You are working in a fabric repair shop. Your immediate supervisor tells you to make a seam type 1 on a trouser leg. Materials required: light-duty sewing machine prepared for operation, white or yellow chalk, shears, ruler, worktable, and one pair of trousers.

Standards: Complete, in order, all necessary steps to repair a hem in the trousers using a seam type 1. There must be no skipped stitches, and stitch row must end with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Prepare the trouser legs for sewing.
 - a. Position the trousers on the worktable, face side up, with the trouser legs fully extended.

NOTE: If the trousers have a hem, remove the stitches from the hem to give a raw edge.

 - b. Measure and mark 1/2-inch from the raw edge.
 - c. Measure and mark 1-inch from the 1/2-inch line. This is the hem line.
 - d. Make a fold on the 1/2-inch mark.
 - e. Make a fold on the 1-inch mark.
2. Sew a hem in the trouser legs with a seam type 1.
 - a. Sew a straight row of stitches 1/16-inch from the folded edge completely around the trouser legs.
 - b. Finish the stitch row with a 1-inch tack. (See Figure 3-65)

Performance Steps

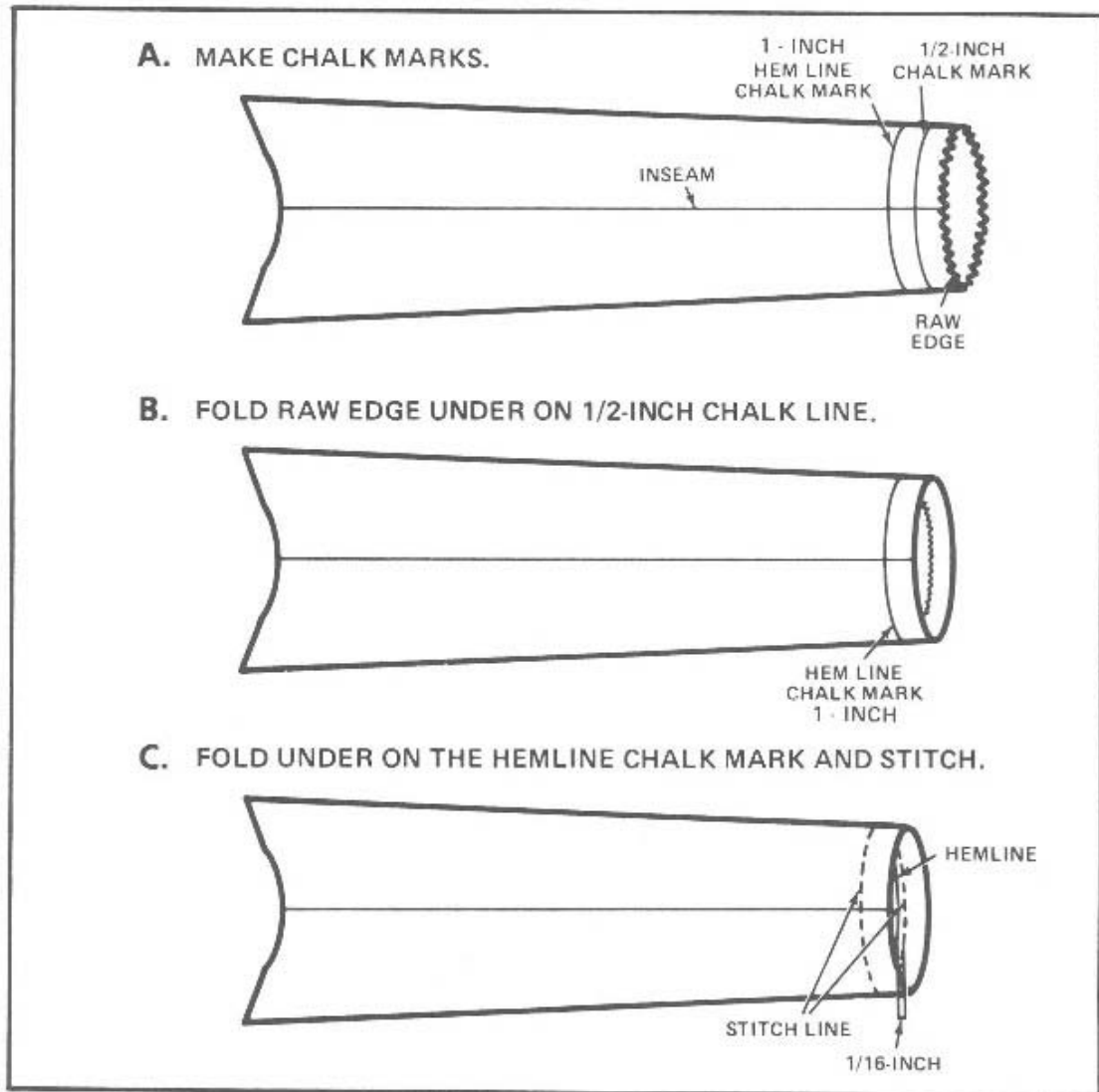


Figure 3-65
Steps In Hemming The Trousers

Performance Measures

1. Prepared the trouser legs for sewing.
2. Sewed a hem in the trouser legs with a seam type 1.

GO **NO GO**

____ ____
____ ____

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Construct And Sew A Seam Type 2 On Clothing
101-92S-1008

Conditions: You are working in a fabric repair shop. Your supervisor tells you to sew a pocket to a shirt using a seam type 2. Materials required: fully operational light-duty sewing machine, shears, chalk, ruler, straight pins, a shirt, and a precut patch-type shirt pocket.

Standards: Complete, in order, all necessary steps to construct and attach one pocket to a shirt using a seam type 2. The pocket and sewn seams must be straight with no raw edges protruding. The stitch row must end with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Prepare the pocket for sewing.
 - a. Place the pocket material face up on a worktable.
 - b. Measure with a ruler, and mark a chalk line 1/2-inch from the raw edge on both sides and the bottom of the pocket.
 - c. Measure with a ruler and mark a chalk line 1-inch on the top of the pocket.
 - d. Fold the sides on the 1/2-inch marks.
 - e. Fold the bottom on the 1/2-inch mark.
 - f. Fold the top on the 1-inch mark.
 - g. Crease all folded edges with the handle of a pair of shears to hold them in place, or pin the folds in place.
 - h. Sew the top fold in place 1/16-inch, and tack no less than 1-inch at both ends.
2. Position and sew pocket in place, using a seam type 2 with the light-duty sewing machine.
 - a. Position the new pocket over the area where the old pocket was located, and pin in place (face up) with the folds inside of the pocket.
 - b. Measure with a ruler, 1/4-inch from the folded edge, and mark a chalk line on both sides and the bottom of the pocket face.
 - c. Position the item being repaired so that the bottom of the pocket is facing you.
 - d. Start the stitch row on the top of the right side of the pocket. Insert the needle 1/16-inch down from the top and 1/16-inch in from the side.
 - e. Make a tack by stitching 1-inch down and back up to the starting point.
 - f. Stitch over the 1/4-inch chalk line.
 - g. Continue the stitch row by stitching along the chalk line down the right side, across the bottom, and up the left side to 1/16-inch from the top.
 - h. Stitch from the 1/4-inch chalk line across the top of the pocket to 1/16-inch from the side.
 - i. Make a tack by stitching 1-inch down and back up to the starting point. (See Figure 3-66)

Performance Steps

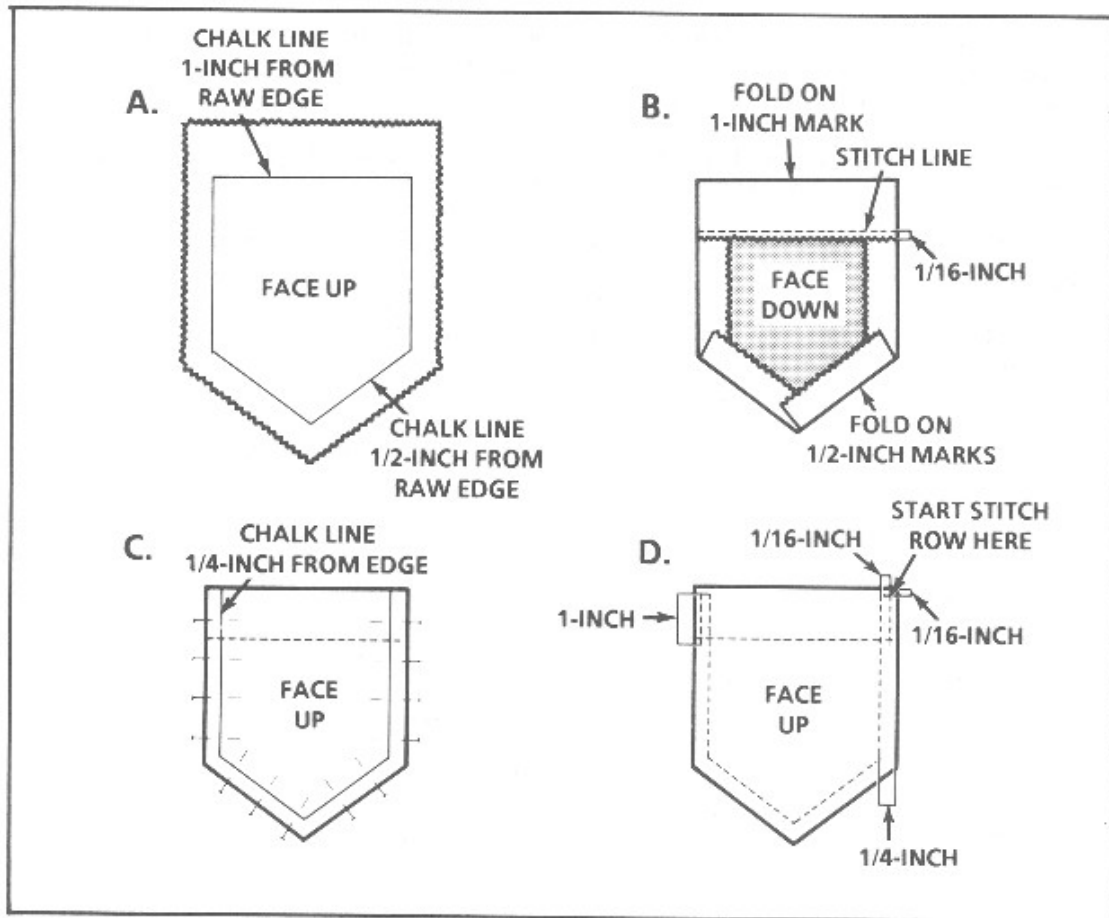


Figure 3-66
Steps In Attaching A Pocket

Performance Measures

1. Prepared the pocket for sewing.
2. Positioned and sew pocket in place using a seam type 2 with the light-duty sewing machine.

GO **NO GO**

— —
— —

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16
TM 10-8400-201-23

Related

Construct And Sew A Seam Type 3 On Clothing
101-92S-1009

Conditions: You are working in the fabric repair shop. Your supervisor tells you to sew a top pocket flap to a coat using a seam type 3. Materials required: light-duty sewing machine prepared for operation, shears, 12-inch ruler, straight pins, chalk, one coat, and precut replacement material.

Standards: Complete, in order, all necessary steps to construct and attach one patch top flap to the coat using a seam type 3. The stitches securing the flap to the coat must be straight with no skipped stitches. All stitch rows must end with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Construct the pocket flap.
 - a. Place the two precut pieces of material together, face to face, with the edges even and pinned.
 - b. Measure in 1/2-inch from the raw edge, and mark a straight line with the tailor's chalk around all edges except the top edge of the flap.
 - c. Make sure both edges of the material (top and bottom pieces) are even at the marked edge.
2. Sew the measured, marked, and cut pieces of material together, using a seam type 3.
 - a. Make a 1-inch tack and sew the two pieces of material together with a simple seam following the chalk line.
 - b. Finish the stitch row with a 1-inch tack.
 - c. Turn the joined pieces of material right side out.
 - d. Make a 1-inch tack and top stitch a row of stitches 1/4-inch from the edge of the material around the side and bottom.
 - e. Measure 1/2-inch from the raw edge of the top edge of the flap. Mark with chalk and then stitch along the chalk line.
 - f. Cut off the bottom layer 1/2-inch from the raw edge.
 - g. Position the pocket flaps 1/2-inch above the pocket. Make a 1-inch tack, and sew one row of stitches 1/4-inch from the folded edge. Finish the stitch row with a 1-inch tack. (See Figure 3-67)

Performance Steps

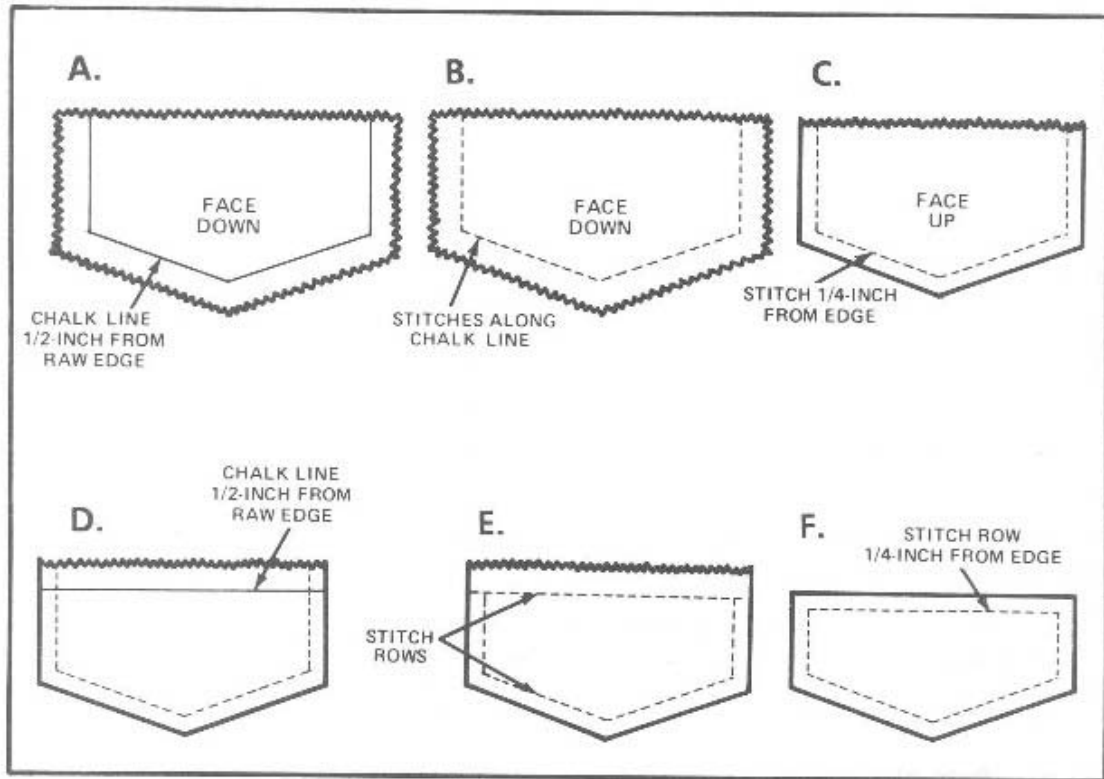


Figure 3-67
Steps In Constructing And Attaching A Pocket Flap

Performance Measures

1. Constructed the pocket flap.
2. Sewed the measured, marked, and cut pieces of material together using a seam type 3.

GO NO GO

— —
— —

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Construct And Sew A Seam Type 4 On Clothing
101-92S-1010

Conditions: You are working in the clothing and CTA 50-900 equipment repair area of a fabric repair shop. Receive and repair parka shells with damaged seams. Materials required: one fully operational light-duty sewing machine, shears, worktable, and one parka shell.

Standards: Complete, in order, all necessary steps to re-stitch one parka shell using a seam type 4. The seam must be a double thickness of material with no loose or skipped stitches. Sew straight stitch rows and secure them with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Prepare the parka shell for sewing by folding the top panel under 1/4-inch.
2. Sew the two panels together using a seam type 4.
 - a. Sew a row of stitches 1/16-inch from the folded edge on the face side of the top panel, beginning 1-inch above the open seam.
 - b. Stitch 1-inch beyond the open seam. (Overlap the old stitch row.)
 - c. Turn the parka shell over so that the inside is now face up.
 - d. Fold the raw edge of the bottom panel on the inside of the parka shell under the raw edge of the top panel to interlock the two panels.
 - e. Start 1-inch above the open seam and sew a straight row of stitches 1/16-inch from the folded edge of the bottom panel. Overlap the old stitch row 1-inch beyond the end of the open seam. (See Figure 3-68)

Performance Steps

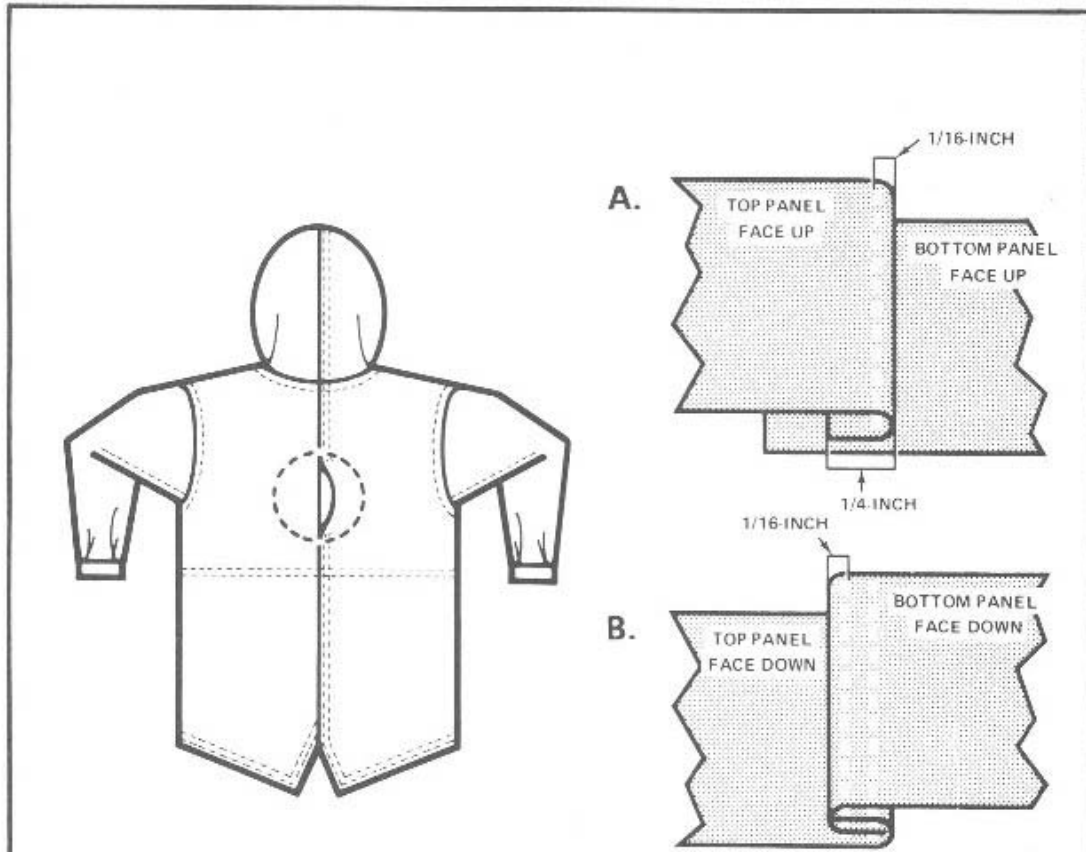


Figure 3-68
An Open Seam Repaired In The Back Panel Of A Parka Shell

Performance Measures

1. Prepared the parka shell for sewing by folding the top panel under 1/4-inch.
2. Sewed the two panels together using a seam type 4.

GO **NO GO**

— —
— —

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Construct And Sew A Seam Type 5 On Clothing**101-92S-1011**

Conditions: You are working in a fabric repair shop. Your immediate supervisor tells you to sew a damaged item of clothing using a seam type 5. Materials required: a fully assembled light -duty sewing machine, shears, chalk, 12-inch ruler, fabricated or cannibalized collar, and a damaged item of clothing.

Standards: Complete, in order, all steps necessary to repair a damaged item of clothing by constructing and sewing a seam type 5. All edges must be evenly aligned. Secure the stitch row with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Position the prepared collar for sewing.
 - a. Position the back of the shirt face up on the table.
 - b. Mark a chalk line 1/2-inch from the raw edge across the length of the neck of the shirt.
 - c. Position the bottom layer of the collar material on the 1/2-inch mark on the neck of the shirt. The collar and the shirt neck must be face-to-face.
2. Sew the collar and the shirt together using a seam type 5.
 - a. Sew the bottom layer of the collar to the face side of the neck. At one end of the chalk line make a 1-inch tack, and stitch the other end of the chalk line and make another 1-inch tack.

NOTE: The top layer of the collar must be sewn to the inside of the neck.

- b. Fold the bottom piece of the collar so that the sewn edges are inside the collar.
- c. Make a fold in the top piece of the collar 1-inch from the raw edge. The raw edge must be folded to the inside of the collar.
- d. Position the top piece of the collar on the shirt neck so the fold line overlaps the first seam by 1/8-inch. (See Figure 3-69)

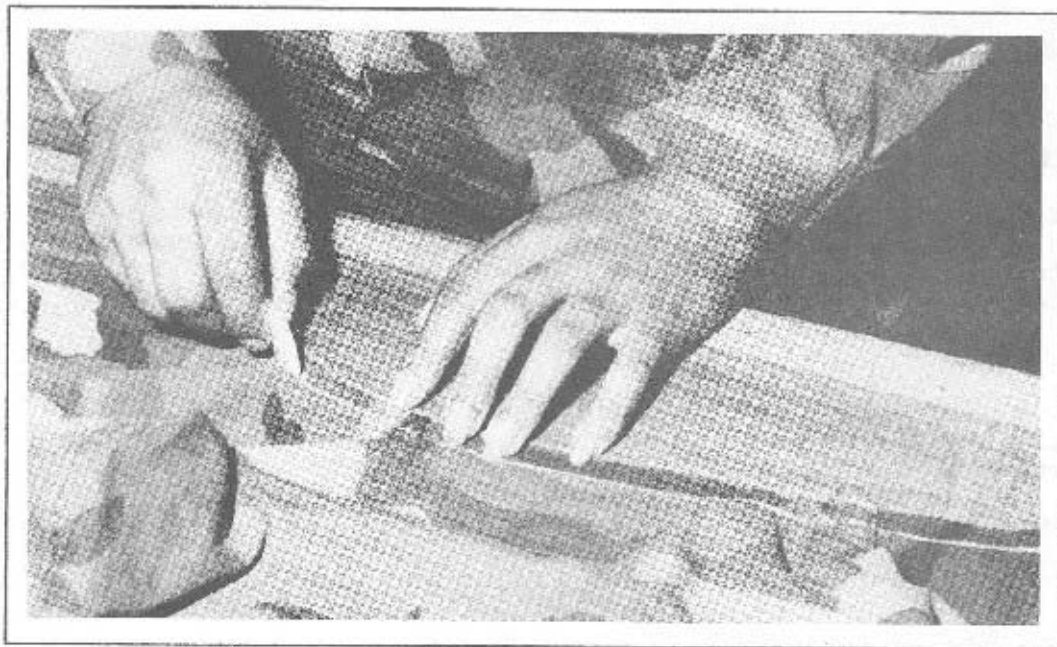


Figure 3-69

Make A Chalk Line 1/2 Inch From The Raw Edge On The Shirt Neck

Performance Steps

- e. Make a 1-inch tack by overlapping the 1/4-inch stitch row in the collar, and sew a row of stitches 1/16-inch from the folded edge. Finish the stitch row with a 1-inch tack by overlapping the 1/4-inch stitch row 1-inch. (See Figure 3-70 and Figure 3-71.)

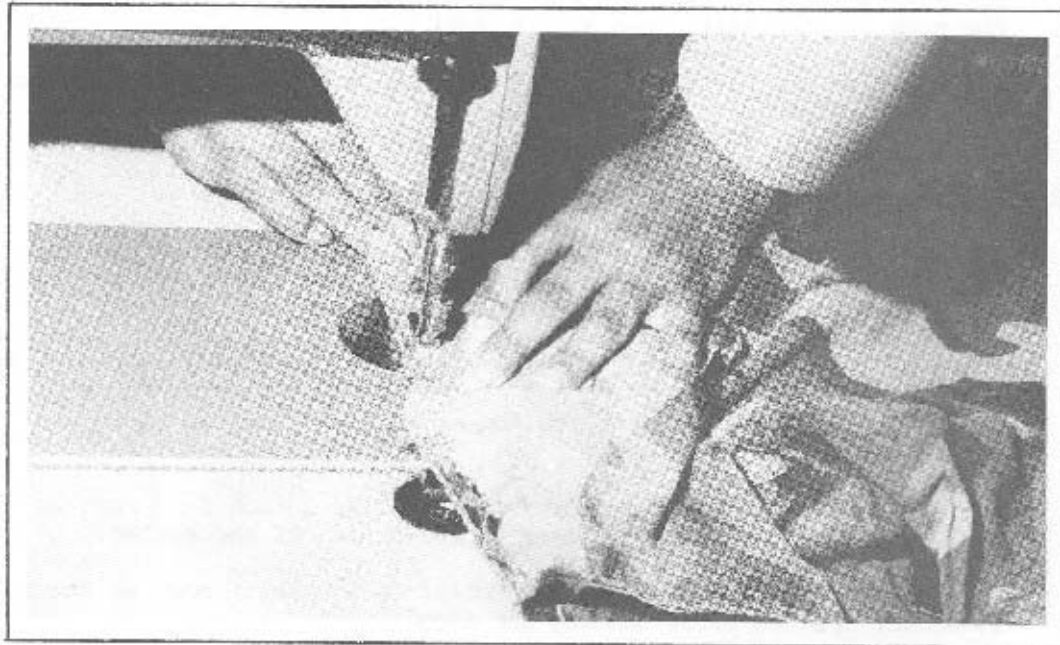


Figure 3-70
Sew The Bottom Layer Of The Collar To The Shirt Neck

Performance Steps

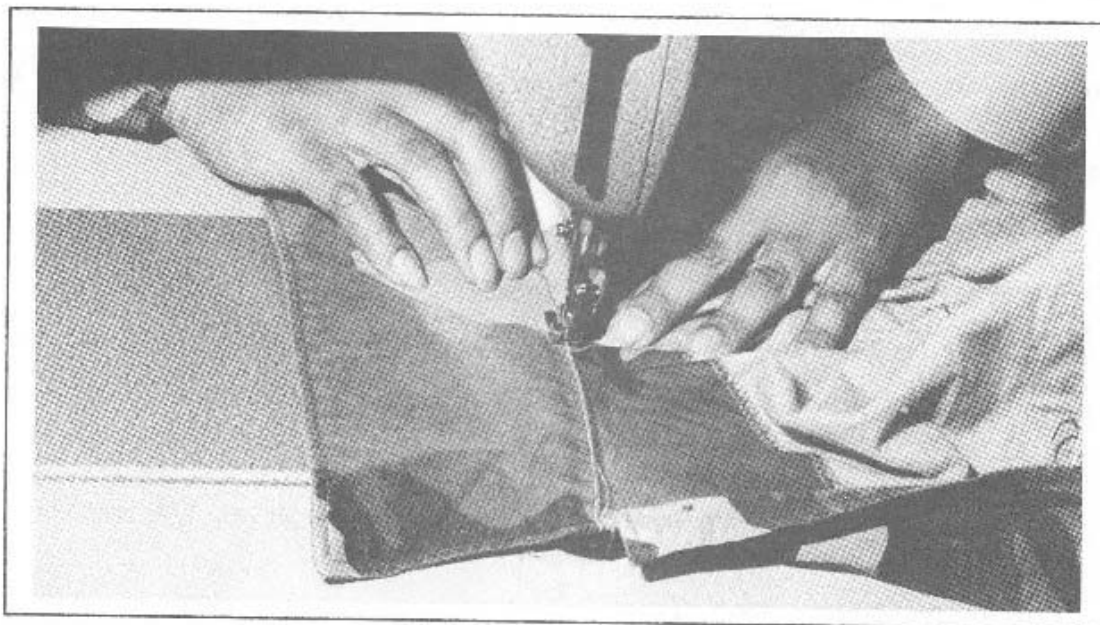


Figure 3-71
Finish The Collar

Performance Measures

1. Positioned the prepared collar for sewing.
2. Sewed the collar and the shirt together using a seam type 5.

<u>GO</u>	<u>NO GO</u>
—	—
—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

- Required**
 TM 10-3530-203-10
 TM 10-3530-205-14

Related

Construct And Sew A Seam Type 6 On Clothing

101-92S-1012

Conditions: You are working in a clothing and CTA 50-900 repair area of a fabric repair shop. Your immediate supervisor tells you to repair a damaged item of clothing using a seam type 6. Materials required: light-duty sewing machine prepared for operation, shears, chalk, ruler, precut collar material, iron, and worktable.

Standards: Complete, in order, all necessary steps to repair a damaged item of clothing by constructing and sewing a seam type 6. Seams must not have any skipped stitches or puckers; folds of the seams must be even across the length of the material and have no raw edges protruding. Seams must have a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Prepare the collar to be top stitched.
 - a. Turn the collar inside out.
 - b. Cut 1/4-inch off pointed ends of the collar.
 - c. Press the seams open on all sides of the collar.
 - d. Turn the collar face-side out. Mark the top material 1/4-inch from all three stitched sides.
2. Finish the collar.
 - a. Begin stitching 1/2-inch from the raw edge of the collar. Follow the 1/4-inch chalk mark to stitch the three sides.
 - b. Finish the seam type 6 with a 1-inch tack by overlapping the 1/4-inch stitch row at the beginning point. (See Figure 3-72, 3-73, and 3-74)

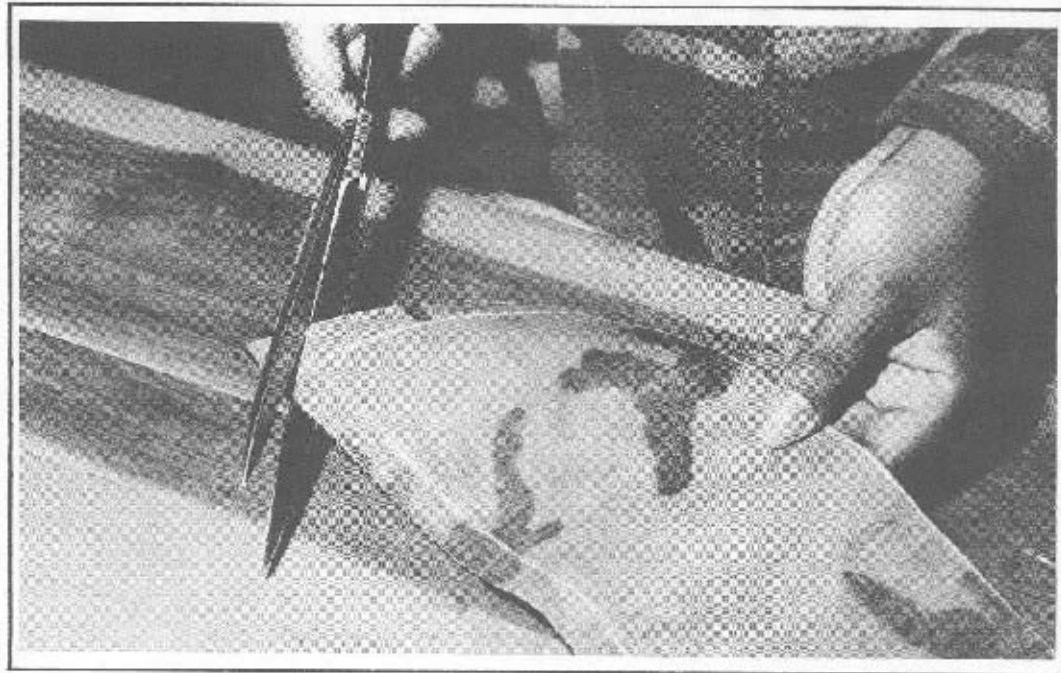


Figure 3-72
Cut 1/4 Inch Off The Pointed Ends Of The Collar

Performance Steps

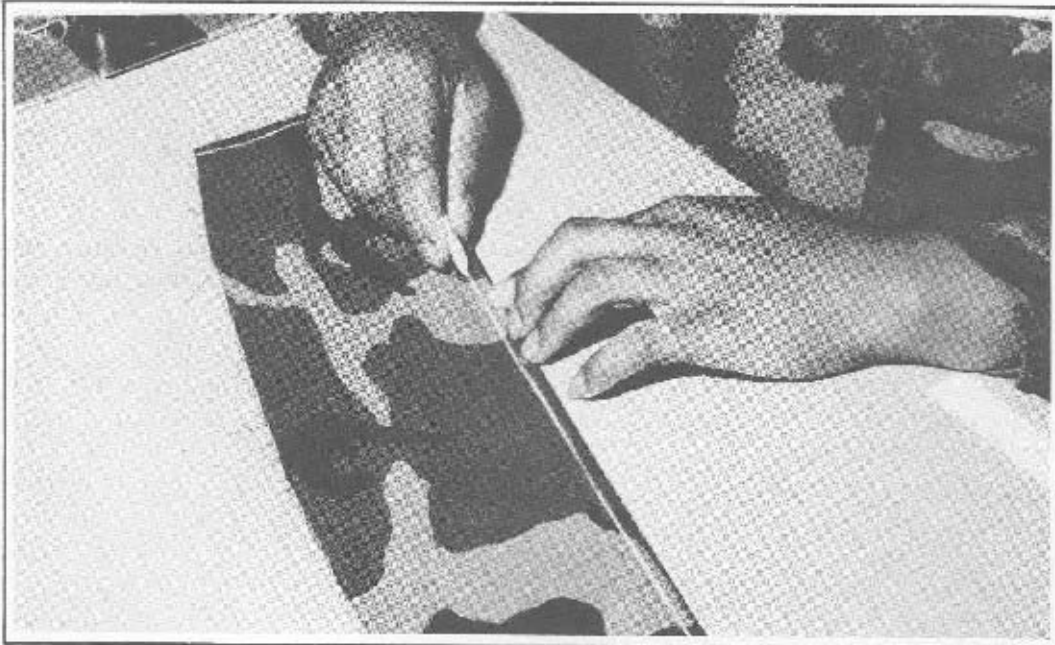


Figure 3-73
Turn The Collar Face-Side Out

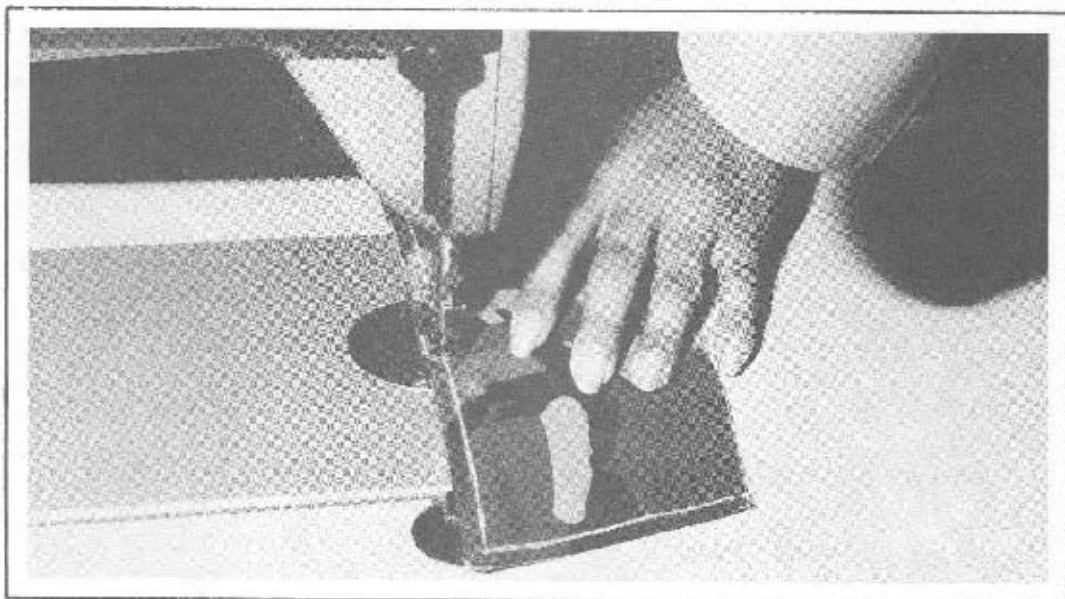


Figure 3-74
Finish The Collar

Performance Measures

1. Prepared the collar to be top stitched.

GO NO GO

— —

Performance Measures

GO **NO GO**

2. Finished the collar.

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Construct And Sew A T-Patch To Repair And L-Shaped Tear
101-92S-1013

Conditions: You are working in a fabric repair shop and receive repairs with an L-shaped tear in a CTA 50-900 item. Materials required: a fully prepared light-duty sewing machine, shears, chalk, 12-inch ruler, and a laundry bag with an L-shaped tear.

Standards: Complete, in order, all necessary steps to repair an L-shaped tear on a CTA 50-900 item by making a T-patch and sewing it on a tear. The repair area must be free of puckers and the stitches sewn securely. Secure the stitch row with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Prepare the L-shaped tear for repair.
 - a. Cut the L-shaped tear so that it has a T-shape.
 - b. Fold the material on the vertical tear face-to-face.
 - c. Measure with a ruler and mark with chalk 1/4-inch from the damaged edges of the vertical tear.
 - d. Measure and mark vertically an additional 1-inch beyond the ends of the vertical tear.
 - e. Fold the material on the horizontal tear face-to-face.
 - f. Measure and mark 1/4-inch from the damaged area along the horizontal tear.
 - g. Measure and mark horizontally an additional 1-inch beyond the ends of the horizontal tear.
 - h. Draw a line horizontally from the end of each 1-inch mark to the 1/4-inch marks.
2. Sew the T-patch.
 - a. Fold the material on the vertical tear face-to-face.
 - b. Tack and sew the entire length of the vertical mark. Finish the stitch row with a tack.
 - c. Press the seams open and cut back the bottom of the vertical tear.
 - d. Fold the material on the horizontal tear face-to-face.
 - e. Tack and sew the entire length of the horizontal mark. Finish the stitch row with a tack.
 - f. Position the item so the face side is down, and press open the seams.
 - g. Cut back 1/4-inch on the horizontal tear.
 - h. Position the item so the face side is up. Sew a row of stitches 1/16-inch around the outside seams. Finish the seam by overlapping the stitch row 1-inch to form a tack. (See Figure 3-75)

Performance Steps

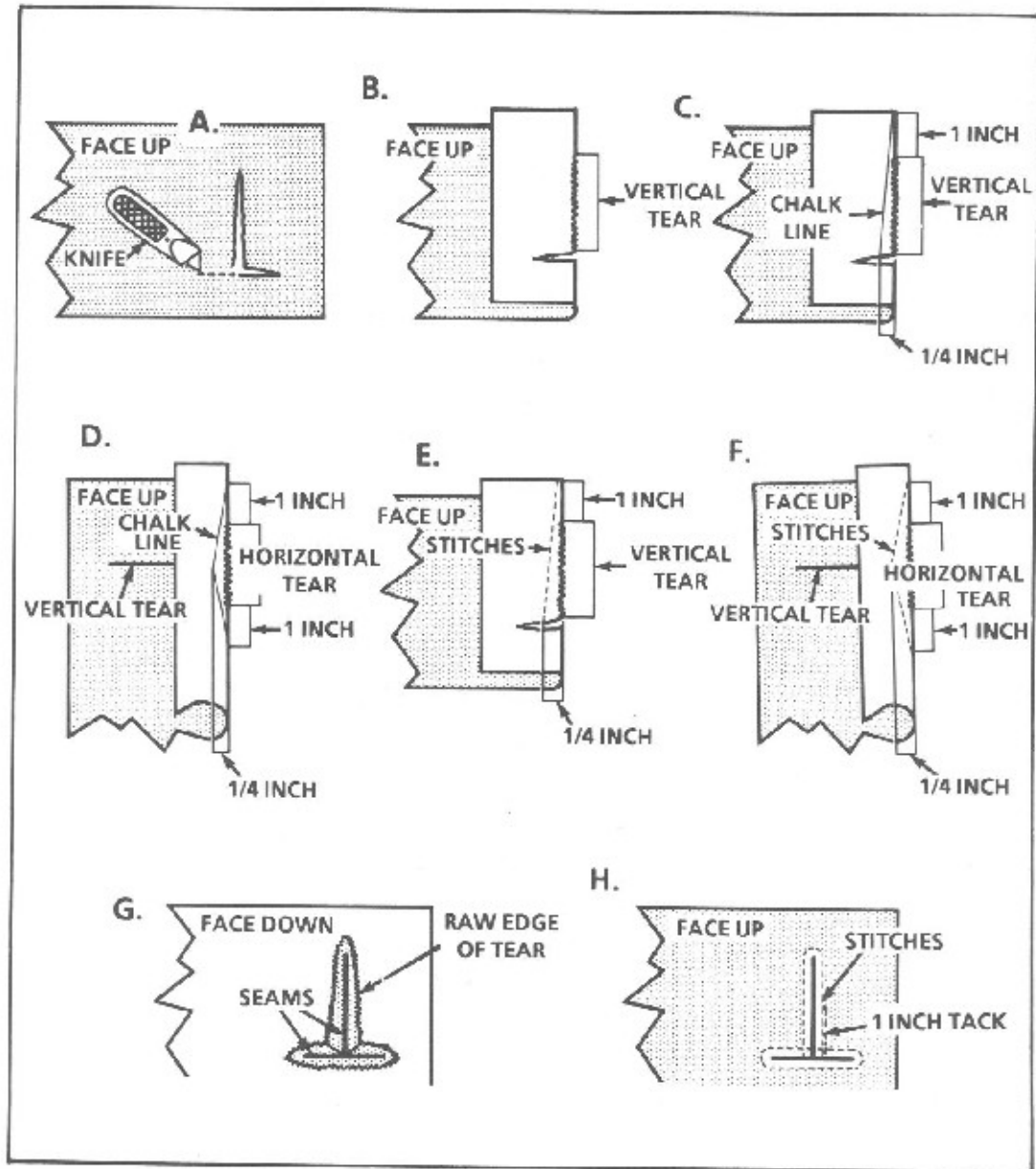


Figure 3-75
Steps In Constructing And Sewing A T-Patch

Performance Measures

1. Prepared the L-shaped tear for repair.
2. Sewed the T-patch.

GO **NO GO**

— —
— —

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References
Required
FM 10-16

Related

Zigzag Darn Holes Up To 1/2-Inch In Diameter
101-92S-1014

Conditions: You are working in a fabric repair shop. A sleeping bag cover with a 1/2-inch in diameter tear has been submitted for repair. Materials required: one damaged sleeping bag cover, ruler, light-duty sewing machine, chalk, and shears.

Standards: Complete, in order, all necessary steps to darn holes in a sleeping bag using zigzag stitches. The darn must be even, smooth, and without puckers. The repair requires a zigzag darn.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Position and mark the sleeping bag cover for repair.
 - a. Position the sleeping bag cover horizontally with face-up.
 - b. Measure with a ruler, 1/4-inch from each end of the tear, and mark material with the chalk.
 - c. Measure 1/4-inch around the tear and mark material with the chalk.
2. Darn the tear with a zigzag stitch.
 - a. Start sewing on the 1/4-inch line at either end of the tear.
 - b. Sew up and down across the tear, keeping stitches 1/16-inch apart until stitches cover the marked area. (See Figure 3-76)

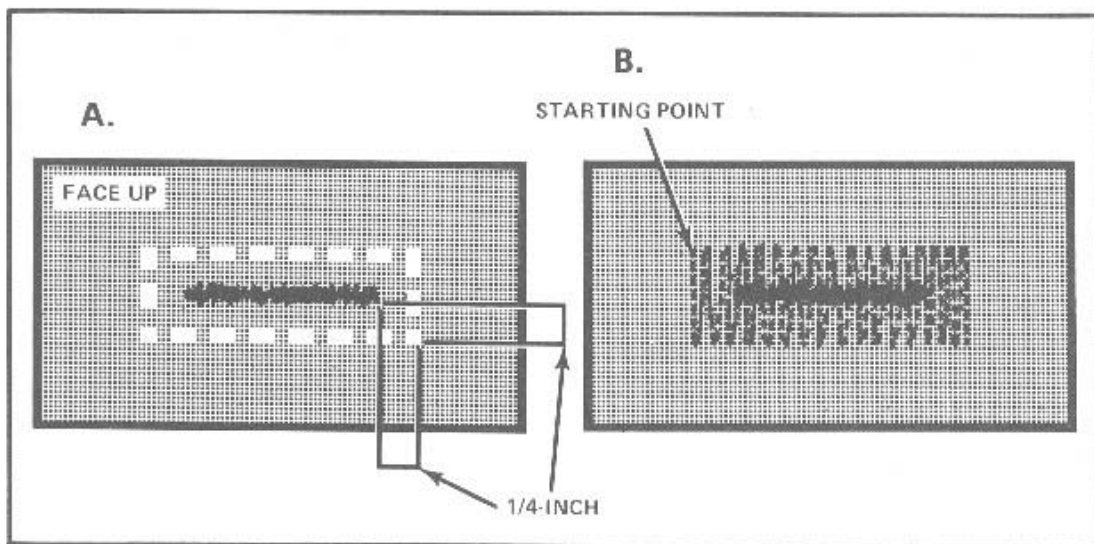


Figure 3-76
Zigzag Stitch

Performance Measures

1. Positioned and mark the sleeping bag cover for repair.
2. Darned the tear with a zigzag switch.

<u>GO</u>	<u>NO GO</u>
—	—
—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References
Required
FM 10-16

Related

Reinforce Darn Holes Up To 1-Inch In Diameter

101-92S-1015

Conditions: You are working in a fabric repair shop. A sleeping bag cover with a hole 1-inch in diameter has been submitted for repair. Materials required: one damaged sleeping bag cover, ruler, light-duty sewing machine, chalk, and shears.

Standards: Complete, in order, all necessary steps to repair a sleeping bag cover using a reinforced darn. The darn must be smooth and without puckers.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Prepare the material to reinforce a darn.
 - a. Cut a piece of material of the same color and texture.
 - b. Measure and mark a chalk line that is 1/4-inch larger, on all sides, than the damaged area.
 - c. Center the material under the hole on the damaged item.
2. Reinforce the darn over the damaged area.
 - a. Make sure that the reinforcement material is centered under the hole. Sew one row of stitches to secure the item for darning.
 - b. Begin sewing on the chalk line. Stitch up and down across the damaged area. Keep the stitches 1/16-inch apart until the area marked is stitched over.
 - c. Cut off the excess material. (See Figure 3-77)

Performance Steps

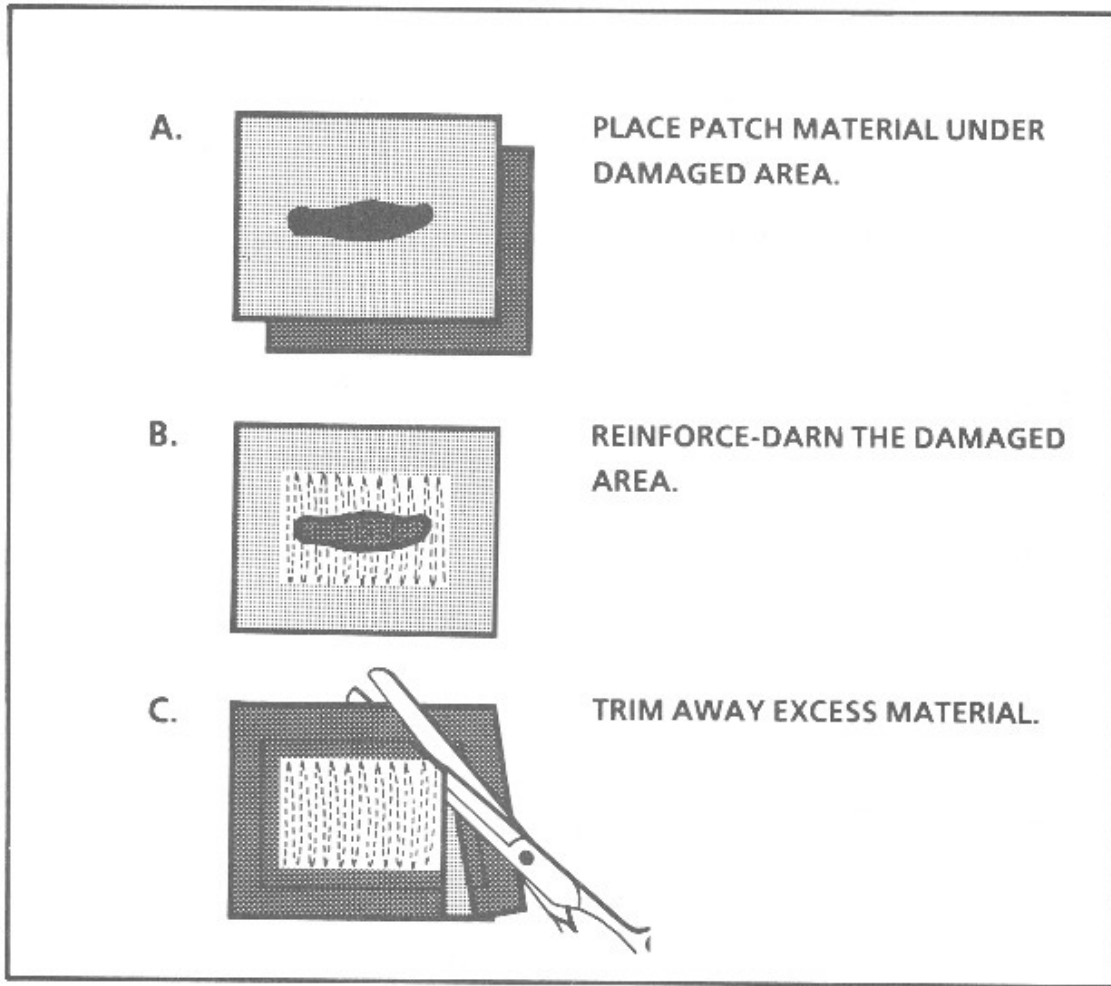


Figure 3-77
Steps To Reinforce The Damaged Area

Performance Measures

1. Prepared the material to reinforce a darn.
2. Reinforced the darn over the damaged area.

<u>GO</u>	<u>NO GO</u>
—	—
—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Repair Small Holes, Tears, And Rips In Sleeping Bags With An Iron-On Patch

101-92S-1016

Conditions: You are working in a fabric repair shop and receive a sleeping bag with a small hole, tear, or rip. Materials required: one fully operational light-duty sewing machine, shears, chalk, ruler, patch material of the same color and texture as the item being repaired, and one sleeping bag with a small hole, tear, or rip.

Standards: Complete, in order, all necessary steps to repair the sleeping bag with a machine-sewn pinch patch. The patch must be centered over the damaged area and sewn only through the top layer of the sleeping bag. The stitch row must be straight and without puckers. Secure the stitch row with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Prepare the patch material.
 - a. Select the patch material of the same color and texture as the sleeping bag to be repaired.
 - b. Measure and mark 2 1/2-inches from all sides of the damaged area on the sleeping bag.
 - c. Measure, mark, and cut patch material 2 1/2-inches larger than the damaged area of the sleeping bag.
 - d. Measure and mark 1/2-inch in from the raw edges of the patch material.
 - e. Fold the raw edge under on the 1/2-inch lines. Crease the folded edge with the handle of the shears.
2. Position and sew the patch in place.
 - a. Pinch the fold and the sleeping bag material together so that the folded patch and the sleeping bag material are flush with each other. (Do not pick up any insulation when pinching.)
 - b. Insert the material under the presser foot so that the inner material (insulation) of the sleeping bag will not be sewn.
 - c. Lower the presser foot of the machine and insert the needle at the upper right corner of the patch.
 - d. Stitch 1/16-inch from the right edge of the patch material. Stitch all four sides of the patch in place.
 - e. Secure the stitch row with a 1-inch tack. (See Figure 3-78)

Performance Steps

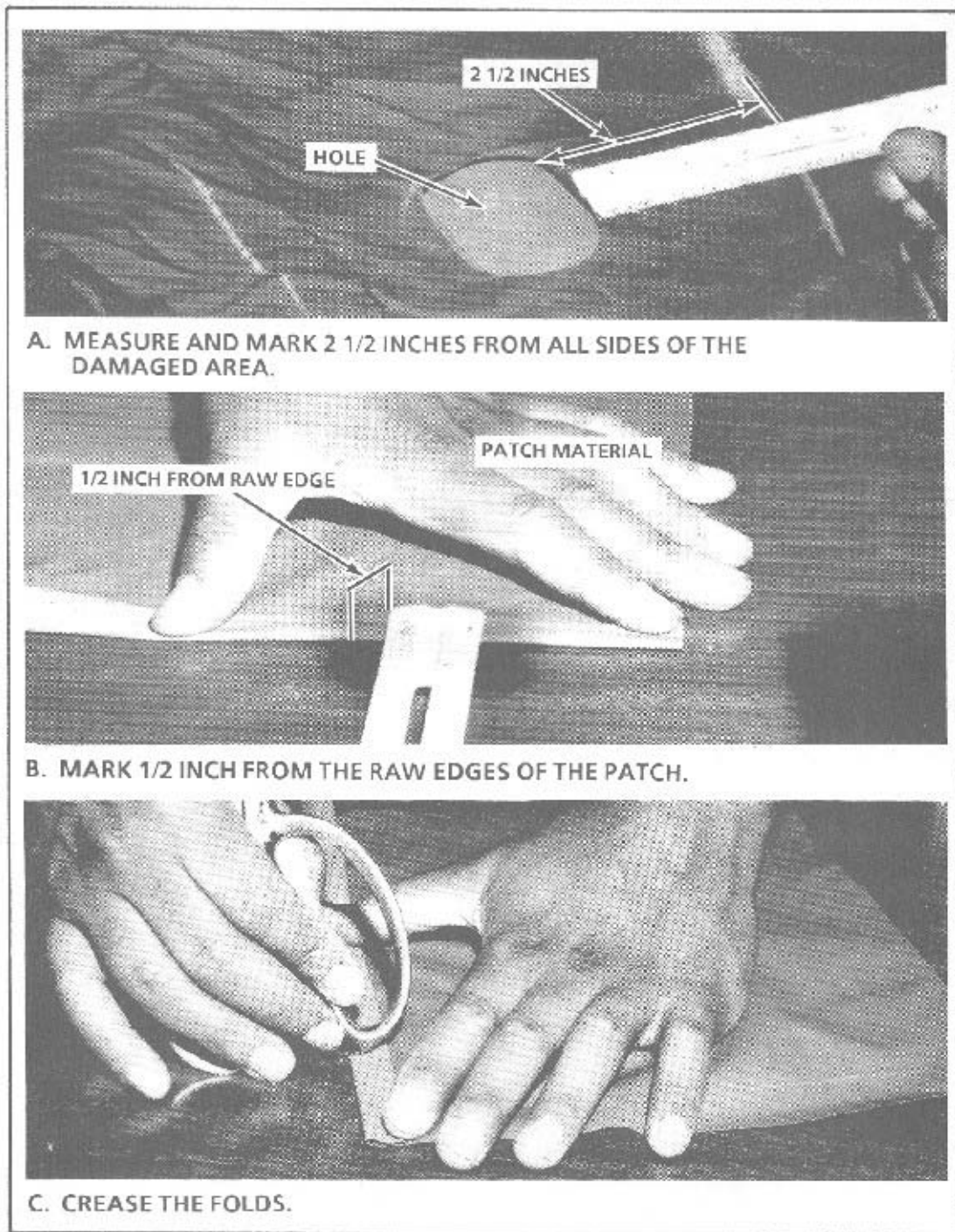


Figure 3-78
Machine Sewn Pinch Patch

Performance Measures

1. Prepared the patch material.

GO **NO GO**

— —

Performance Measures

GO **NO GO**

2. Positioned and sew the patch in place.

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Sew Organizational Shoulder Insignia And Name Tapes On Organizational Clothing
101-92S-1018

Conditions: You are working in a fabric repair shop. Your immediate supervisor tells you to sew organizational shoulder insignia on personal and organizational clothing. Materials required: a fully prepared light-duty sewing machine, 12-inch ruler, straight pins, chalk, organizational insignia, and personal and organizational clothing items.

Standards: Complete, in order, all necessary steps to sew an organizational insignia on a uniform. The patch must be centered with no run-off stitches going from the edges of the insignia. Secure the stitch row with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Measure, mark, and pin in place the organizational shoulder insignia (left sleeve).
 - a. Measure 1/2-inch down the sleeve from the shoulder seam and mark material with a chalk line. [See Figure 3-78 (A).] If an epaulet covers the shoulder seam, measure the width of the epaulet and use the center point of the epaulet as the shoulder seam.
 - b. Position the center of the organizational shoulder insignia on the 1/2-inch mark.
 - c. Make sure the design of the insignia is in the proper position, and pin the insignia in place with the pins at the top and bottom to make sure it stays in place.
2. Sew the insignia to the sleeve.
 - a. Turn the sleeve inside out and be careful not to pull out any of the pins. The pins must hold the insignia securely in place.
 - b. Start a stitch row at the upper point of the insignia by stitching 1/16-inch from the edge of the patch. Sew completely around the insignia and finish the stitch row by overlapping the stitch row at the upper point, or make a 1-inch tack.
 - c. Turn the sleeve right side out. Remove all the pins, and cut and remove the loose threads. (See Figure 3-79)

Performance Steps

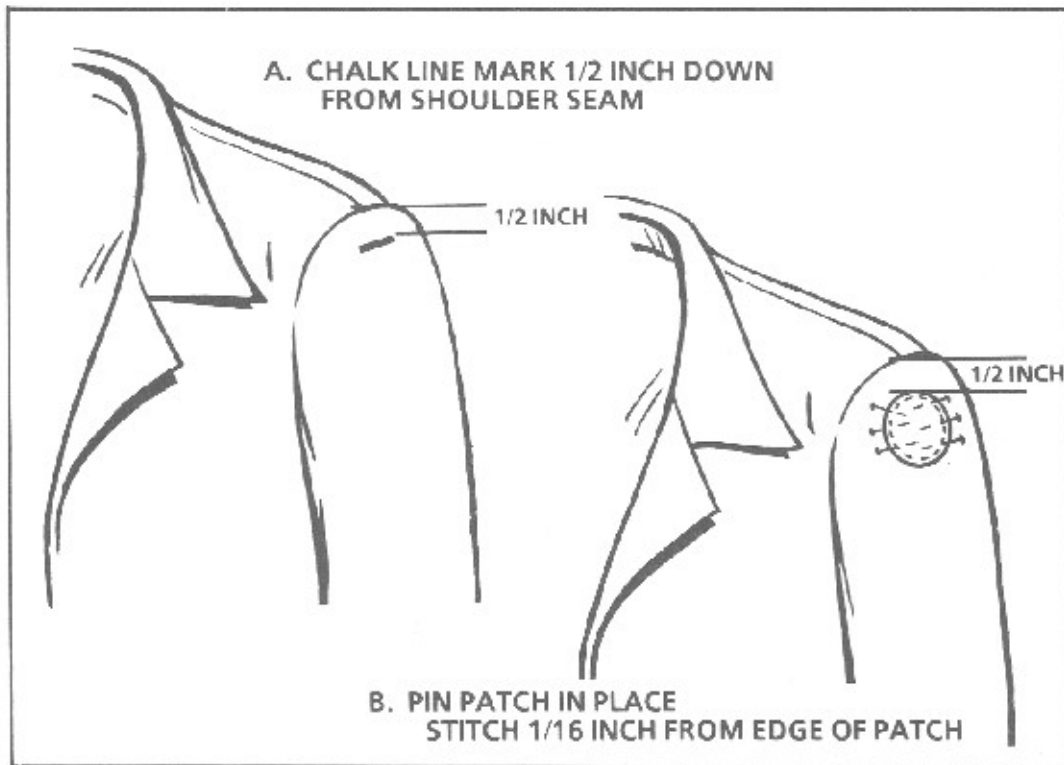


Figure 3-79
Construction Of An Organization Shoulder Insignia

Performance Measures

1. Measured, marked, and pin in place the organizational shoulder insignia (left sleeve).
2. Sewed the insignia to the sleeve.

GO NO GO

— —
— —

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Replace A Damaged Slide Fastener In A Sleeping Bag

101-92S-1019

Conditions: You are working in a fabric repair shop and receive a damaged slide fastener on a sleeping bag. Materials required: one sleeping bag with a damaged slide fastener, light-duty sewing machine, needle-nose pliers, chalk, shears, knife, and new slide fastener.

Standards: Complete, in order, all necessary steps to replace a damaged slide fastener in a sleeping bag so the new slide fastener moves freely and without any obstructions. Secure the stitch rows with a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Remove the damaged slide fastener (left side).
 - a. Position the sleeping bag with the slide fastener facing up. The 2-inch top guard webbing is to the left side with the foot end of the sleeping bag away from you.
 - b. Remove the stitches on the left side from the folded edge to 1/2-inch past the top guard webbing. (Sleeping bag must be unzipped.)
 - c. Remove the first stitch row nearest to the eyelets carefully from the head end to the folded edge of the tape. (Under the top guard webbing.)
 - d. Cut off the slide fastener tape carefully along the second stitching which fastens the guard webbing in place.
2. Remove the damaged slide fastener (right side).
 - a. Position the sleeping bag with the slide fastener facing up.
 - b. Remove the stitches on the right side from the folded edge to 1/2-inch past the top guard webbing. (Sleeping bag must be unzipped.)
 - c. Remove the first stitch row nearest to the eyelets. (Under the guard webbing, from the head end to the folded edge of the tape.) (This is done carefully so nothing is damaged.)
 - d. Cut off the slide fastener tape along the second stitching which fastens the guard webbing in place. (This is done carefully so nothing is damaged.)
3. Install the new slide fastener (left side).
 - a. Position the edge of the slide fastener tape between the 1 1/4-inch top guard webbing and the 2 1/2-inch weather strip tape.
 - b. Place the slide fastener tape parallel to the stitching, which fastens the guard webbing in place. (See Figure 3-80 and Figure 3-81)

Performance Steps

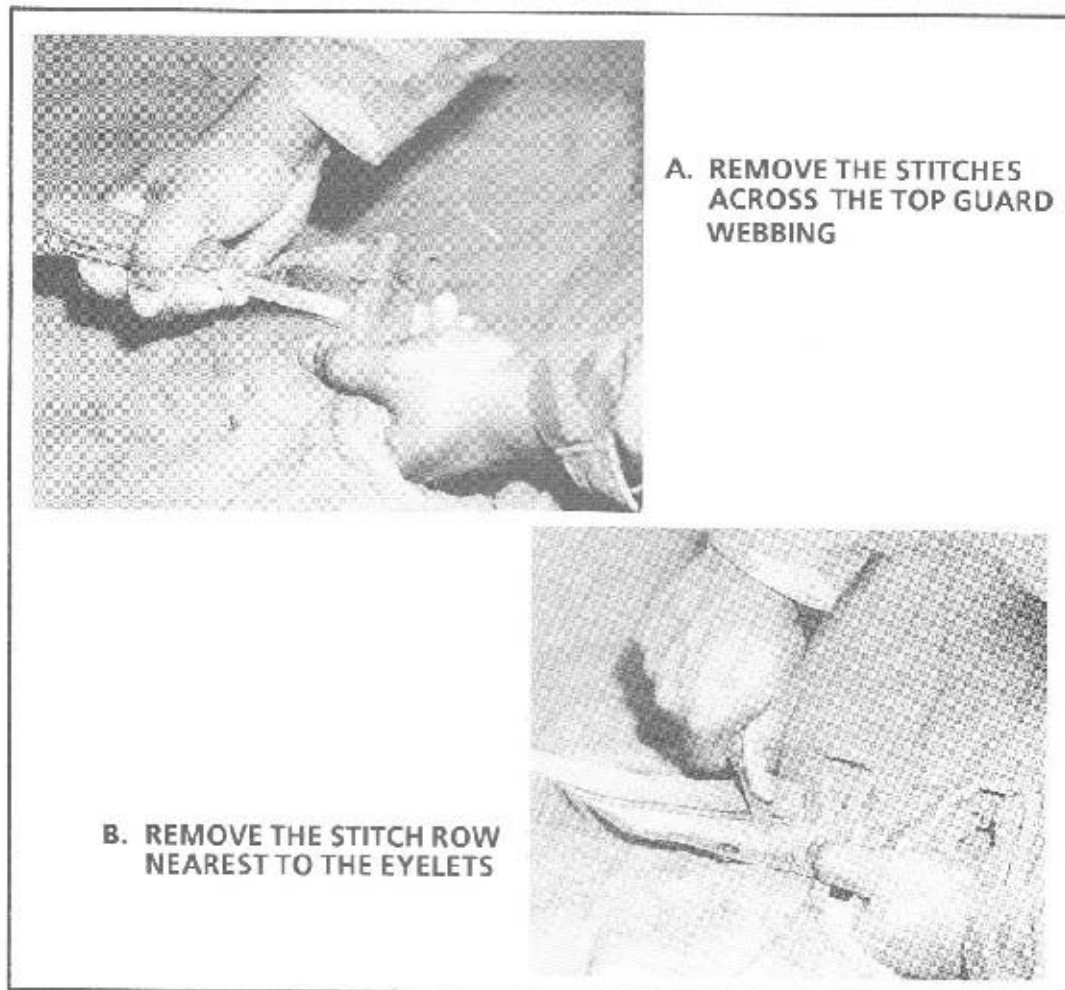


Figure 3-80
Removal Of The Slide Fastener

Performance Steps

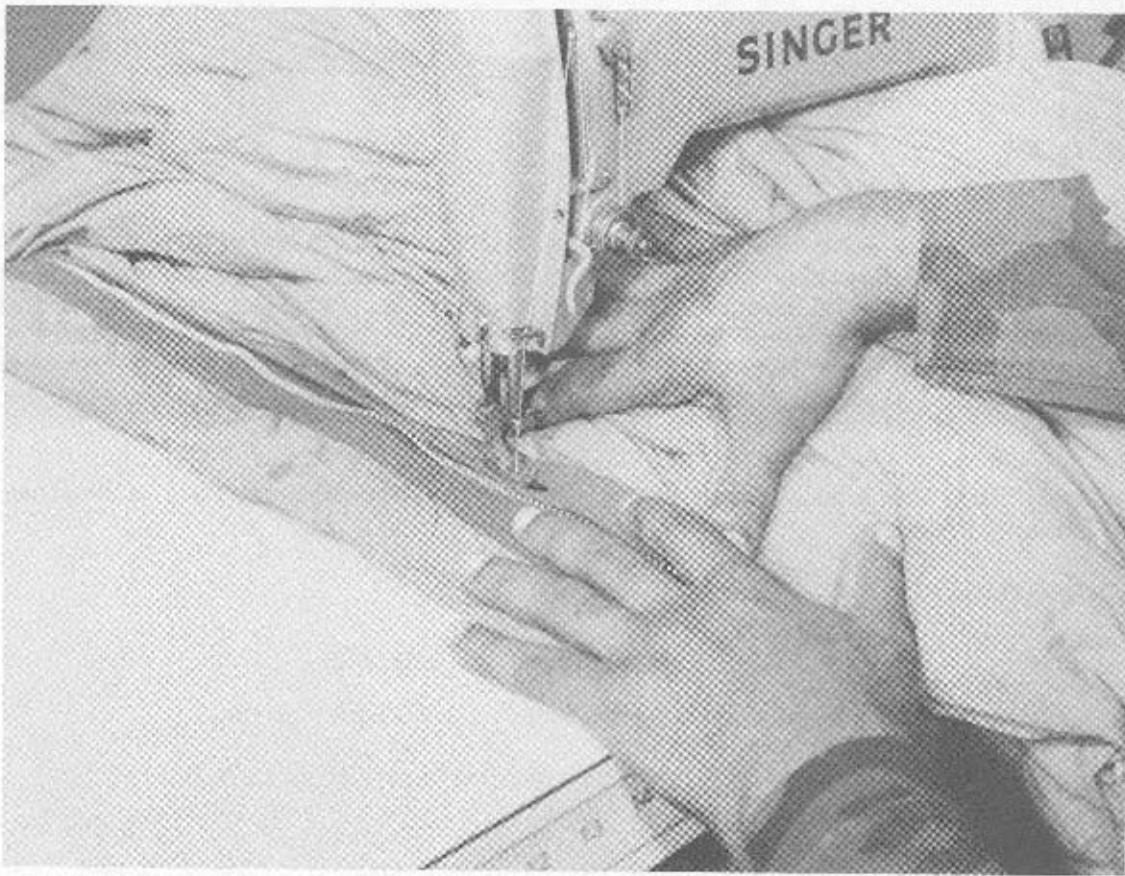


Figure 3-81
Placement Of The Slide Fastener

- c. Attach the slide fastener tape to the weather strip tape with a row of stitching 1/8-inch from the edge along the full length of the opening.
 - d. Sew an additional row of stitching through the guard webbing and the fastener tape approximately 1/2-inch from the edge of the guard webbing furthest from the eyelets. The weather strip should not be caught in the stitching.
4. Install the new slide fastener (right side).
 - a. Position the edge of the slide fastener tape between the 1 1/4-inch top and bottom guard webbings.
 - b. Place the slide fastener tape parallel to the stitching, which fastens the guard webbing in place.
 - c. Attach the slide fastener tape to the bottom guard webbing with a row of stitching 1/8-inch from the edge along the full length of the opening.
 - d. Sew an additional row of stitching through both guard webbings and the fastener tape. Sew approximately 1/2-inch from the edge of the guard webbing furthest from the eyelets.
 - e. Sew the fastener tape to the guard webbing 1- inch to 1- 1/4-inches beyond the foot end of the metal chain. Sew two double rows of stitching 1/4-inch apart and parallel across the webbing.
 5. Re-stitch the face opening binding.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Removed the damaged slide fastener (left side).	—	—
2. Removed the damaged slide fastener (right side).	—	—
3. Installed the new slide fastener (left side).	—	—
4. Installed the new slide fastener (right side).	—	—
5. Re-stitched the face opening binding.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Subject Area 7: TENT PITCHING

**Pitch A General-Purpose Medium Tent
101-92S-1036**

Conditions: Your immediate supervisor tells you to pitch a GP medium tent. A four-person detail from the supported unit will assist you. Materials and equipment required: GP medium tent, tent pins, tent poles, wooden mallets, camouflage screen systems, entrenching tool, and TM 10-8340-211-13.

Standards: Complete all necessary steps to pitch a GP medium tent. Continue until the pole assemblies are erected.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Lay out the tent and the camouflage.
 - a. Remove the support system components for the camouflage screen from the storage case.
The components consist of:
 - (1) Eighteen stakes.
 - (2) Twelve 4-foot pole assemblies.
 - (3) Six spreader adapter assemblies.
 - (4) Eighteen batten spreaders (either design).
 - (5) Repair kit.
 - b. Arrange the screen and components.
 - (1) Join the screens by clipping the edges together with the lanyard cord, which is packed with the screen.
 - (2) Ensure all the pins on the lanyard cord point in the same direction.
 - (3) Make repairs, if needed.
 - c. Place the tent in position on the ground so that the corners are square.
 - d. Close the slide fasteners at the tent corners.
 2. Lay out the poles and the pins.
 - a. Place the 16-inch pins at the corners of the tent.
 - b. Insert the 5-foot 8-inch eave poles, 6-foot 2-inch door poles, and the 10-foot 3-inch center poles in position.
 - c. Drive the tent pins in the ground.
 3. Place camouflage across the tent.
- NOTE: Ensure sufficient camouflage overhang is present to allow for erecting the camouflage assemblies and securing the camouflage to the stakes.
4. Raise the tent.
 - a. Attach all the guy lines to the 24-inch pins.
 - b. Raise the side and the door poles.
 - c. Raise the four center upright poles to a vertical position.
 5. Secure and straighten the tent.
 - a. Adjust the ventilator flap lines and tie them to the corner eave poles.
 - b. Straighten all the poles and tighten all the lines until the tent is smooth.
 - c. Tie the tie-tapes at the inside corners of the tent.
 6. Prepare a trench around the tent.
 - a. Dig a trench around the tent, just outside of the foot-stop pins.
 - b. Dig the trench no more than 5 inches deep.
 7. Erect the camouflage pole assemblies under the camouflage screens to break the silhouette of the tent.

Performance Steps

- a. Place the spreader over the top of the pole, pushing down to secure.
- b. Turn the top nut counterclockwise to extend the arms of the spreaders, then turn the top nut clockwise to tighten.
- c. Raise the spreader up and attach the pole to the desired length needed.
- d. Ensure the screen is at least 2 feet above the tentage.
- e. Stagger the poles to disrupt the straight lines.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Layed out the tent and the camouflage.	—	—
2. Layed out the poles and the pins.	—	—
3. Placed camouflage across the tent.	—	—
4. Raised the tent.	—	—
5. Secured and straighten the tent.	—	—
6. Prepared a trench around the tent.	—	—
7. Erected the camouflage pole assemblies under the camouflage screens to break the silhouette of the tent.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- FM 10-16
- FM 20-3
- TM 10-8340-211-13

Related

**Strike And Store A General Purpose Medium Tent
101-92S-1037**

Conditions: Your immediate supervisor tells you to strike, fold, and store a GP medium tent. A four-person detail will assist you. Materials required: one GP medium tent with cover pins, poles, wooden mallets, dunnage support, chalk, soap, water, brushes, and TM 10-8340-211-13.

Standards: Complete all necessary steps to clean, dry, strike, and store the GP medium tent.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Clean and dry the tent.
 - a. Remove the dirt from the fabric with a solution of mild soap and water applied with a soft-bristled brush.
 - b. Scrub the tentage from the field with stiff brushes to remove layered dirt and possible mildew.
 - c. Rinse with clear water.
 - d. Wipe dry.
 - e. Dry thoroughly in the sun and/or air.

NOTE: The tent will mildew if folded or stored while damp or covered with dew.

- f. If the tent is dried outdoors, hang the tent off the ground and in bright sunlight. Remove the tent before evening dampness is absorbed.
 - g. If the tent is dried indoors, hang the tent in a well-ventilated area suspended off the floor.
 - h. Check the seams and edges to ensure tentages are totally dry.
2. Untie the corner lug tie tapes and unwrap the lugs from the corner eave poles.
 - a. Close the doors and fasten the wood toggles to the toggle chaps.
 - b. Untie the jumper lines from the center, eave, and door poles.
 3. Remove all foot-stop pins except those at each corner.
 - a. Remove all eave guy lines from the pins except those at the corners of the tent; remove all unused pins.
 - b. Remove the door eave poles and all other eave poles except those at the corners.
 4. Remove the ridge guy lines; frame the pins and lower the center poles, and ridge poles gently to the ground. Remove all unused tent pins.
 5. Remove the center poles from the ridgepoles.
 - a. Disassemble the jointed ridgepoles.
 - b. Disassemble the center poles.
 6. Remove the eight corner eave guy lines from the pins.
 - a. Remove the corner eave poles.
 - b. Remove the foot-stops from the pins.
 - c. Remove the remaining tent pins.
 7. Prepare the tent for folding.
 - a. Open the corner-slide fasteners and close the stovepipe openings.
 - b. Spread the tent out flat outside up.
 - c. Coil the guy lines and placed them on the tent roof.
 8. Fold the tent and place it in the cover.
 - a. Fold the end and sidewalls along the eave line and place on the tent roof.
 - b. Fold the ends of the tent toward the center, making 6-foot folds.
 - c. Fold one end of the tent over the other. The folded tent is now 6 feet by 16 feet.
 - d. Fold each end toward the center in 3-foot folds and lap one over the other.
 - e. Fold in half (3 feet by 3 feet) and position the folded tent on the cover, then close and fasten the cover securely.

Performance Steps

- f. Bundle similar length tent pins and poles together.
- 9. Separate the pins and the poles from the tent when storing or transporting, except when instructions require them to be packed together. Pins and poles should be clean when packed with the tent.
- 10. Store the tent.
 - a. Stack the tent on dunnage supported by 2-inch by 4-inch lumber.
 - b. Lumber used must be thoroughly cured prior to use. Green lumber promotes mildew.
 - c. Make sure tentage is at least 4 inches above hard-surfaced or wooden floors and 8 inches above a ground surface.
 - d. Insert the dunnage between the tentage when in a damp environment; thus, permitting proper air circulation.
 - e. Cover the tentage with waterproof material when stored near openings or ventilators.
 - f. Mark the date the tentage was stored on blocks. Give priority issue to the longest stored tentage.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Cleaned and dried the tent.	—	—
2. Untied the corner lug tie tapes and unwrapped the lugs from the corner eave poles.	—	—
3. Removed all foot-stop pins except those at each corner.	—	—
4. Removed the ridge guy lines from the pins and lower the center poles and the ridgepoles gently to the ground. Removed all unused tent pins.	—	—
5. Removed the center poles from the ridgepoles.	—	—
6. Removed the eight corner eave guy lines from the pins.	—	—
7. Prepared the tent for folding.	—	—
8. Folded the tent and placed in the cover.	—	—
9. Separated the pins and the poles from the tent when storing or transporting, except when instructions required them to be packed together. Cleaned the Pins and Poles when packed with the tent.	—	—
10. Stored the tent.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
TM 10-8340-211-13	

Subject Area 8: MOBILE REPAIR OPERATIONS

Prepare And Operate The Light-Duty Sewing Machine
101-92S-1000

Conditions: You are assigned to a fabric repair shop. Your immediate supervisor tells you to operate a light-duty sewing machine. Materials required: one light-duty sewing machine (fully assembled), DA Form 2404, LO, tool kit, cleaning rags, general-purpose oil, and TM 10-3530-205-14.

Standards: Complete all steps necessary in preparing and operating one light-duty sewing machine and make all necessary adjustments.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Perform before-operation maintenance using the daily preventive maintenance checklist that follows.
 - a. Check the table assembly.
 - (1) Check for cut, cracked, broken, warped, and dirty tabletop.
 - (2) Check for loose or missing bolts, nuts, and mountings on the folding stand.
 - (3) Check for bent or broken components.
 - (4) Check for loose or missing bolts and nuts on components.
 - b. Check the lamp assembly.
 - (1) Check for loose or missing bolts, nuts, and screws.
 - (2) Check for dirty, cracked, or broken housing and lens.
 - (3) Check for frayed insulation and broken wiring on the electrical cord.
 - (4) Check for a broken lamp switch.
 - (5) Check for improper switch operation and burned-out lamp (bulb).
 - c. Check the clothing machine head.
 - (1) Check for dirty surfaces and grease deposits.
 - (2) Check for bent, broken, or missing components and loose mounting.
 - (3) Check for broken or excessively worn needlepoint.
 - (4) Check for correctly installed needle (long groove is to your left).
 - d. Check the thread un-winder.
 - (1) Check for loose or missing bolts, nuts, and screws.
 - (2) Check for bent or broken components.
 - (3) Check for loose mountings.
 - e. Check the drive belt and the pulleys.
 - (1) Check for broken, frayed, or worn drive belt.
 - (2) Check for loose mounting of the belt on the pulleys.
 - (3) Check for cracked, chipped, or broken edges, and loose mounting of the pulleys.
 - (4) Check for a 1/4-inch distance between the sides of the belt when both sides of the belt are pressed inward midway between the pulleys.
 - f. Check the bobbin winder.
 - (1) Check for bent, broken, loose, or missing components.
 - (2) Check for excessively worn leather brake.
 - (3) Check for incorrect tension of the thread spring.
 - (4) Check for improper adjustment of the pulley with the drive belt.
 - g. Check the electric motor.
 - (1) Check for dirty surfaces and grease deposits.
 - (2) Check for bent, cracked, or broken housing.
 - (3) Check for loose or missing bolts and nuts.
 - (4) Check for loose electrical connections and loose mountings.
 - (5) Check for unusual noises and excessive vibrations during operation.
 - h. Check the folding stand.
 - (1) Check for bent or broken components.

Performance Steps

- (2) Check for loose or missing bolts and nuts.
 - (3) Check for loose mountings on the table assembly.
 - (4) Check for level placement on the floor.
 - i. Check the starting treadle.
 - (1) Check for bent, broken, or loose components and loose mountings.
 - (2) Ensure the pulley brake lever engages the motor drive pulley with the drive motor, when the treadle is depressed.
 - (3) Ensure the pulley brake lever disengages the drive pulley, when the treadle is released during operation.
 - j. Check the motor switch.
 - (1) Check for broken or bent motor switch.
 - (2) Check for loose mountings in the switch box.
 - (3) Check for improper switch operation. (Ensure the switch turns the motor on and off.)
 - k. Check the pressure bar lifter.
 - (1) Ensure it is not bent or broken.
 - (2) Check for loose mountings.
 - (3) Ensure the lifter raises, locks, unlocks, and lowers the presser foot.
2. Lubricate the light-duty sewing machine.
3. Prepare the light-duty sewing machine for operation.
- a. Remove the bobbin case.
 - (1) Position the needle bar at its highest point by turning the balance wheel toward you.
 - (2) Tilt the sewing machine head and lay it on the machine headrest pin.
 - (3) Open the latch on the bobbin case with the thumb and forefinger of the left hand. (Hold the latch open.)
 - b. Thread the bobbin winder.
 - (1) Place a bobbin on the bobbin spindle.
 - (2) Use a cone of thread on the right side of the thread stand. Put the thread over and through the thread guide un-winder.
 - (3) Bring the thread down and through the hole in the tension bracket on the bobbin winder.
 - (4) Place the thread on the back of the tension bracket. Pull the thread between the tension disks.
 - (5) Bring the thread from the lower side of the tension disks to the bobbin.
 - (6) Pass the thread around the bottom side of the bobbin. Wind the end of the thread around the bobbin several times.(See Figure 3-82)

Performance Steps

**LUBRICATION OF SEWING MACHINE MODELS
331K1 and 331K4**

LUBRICANT - INTERNAL

OILING POINTS - REAR VIEW

LUBRICANT - INTERNAL

OILING POINTS BEHIND FACE PLATE AND IN SHUTTLE RACE

OILING POINTS - FRONT VIEW

OILING BENEATH MACHINE BED

BOBBIN WINDER

NOTE: Model NA-79, 1/3 hp motor has sealed bearings and requires no lubrication.

LUBRICANTS	EXPECTED TEMPERATURES	INTERVALS
LO-Lubricating Oil, General Purpose	all temperatures	Intervals given are hours of normal operation.

Intervals are based on normal hours of operation. Reduce to compensate for abnormal operation and severe conditions. During inactive periods, sufficient lubrication must be performed for adequate preservation.

Clean parts with SOLVENT drycleaning. Dry before lubricating.

Apply two to three drops of LO at each friction point unless otherwise noted.

Figure 3-82
Lubrication of Light-Duty Sewing Machine Models 331K1 and 331K4

- (7) Push the bobbin winder pulley over against the drive belt as far as it will go, by pressing on the stop latch thumb lever. Force the automatic stop latch to catch and hold the bobbin winder pulley against the drive belt. (See Figure 3-83)

Performance Steps

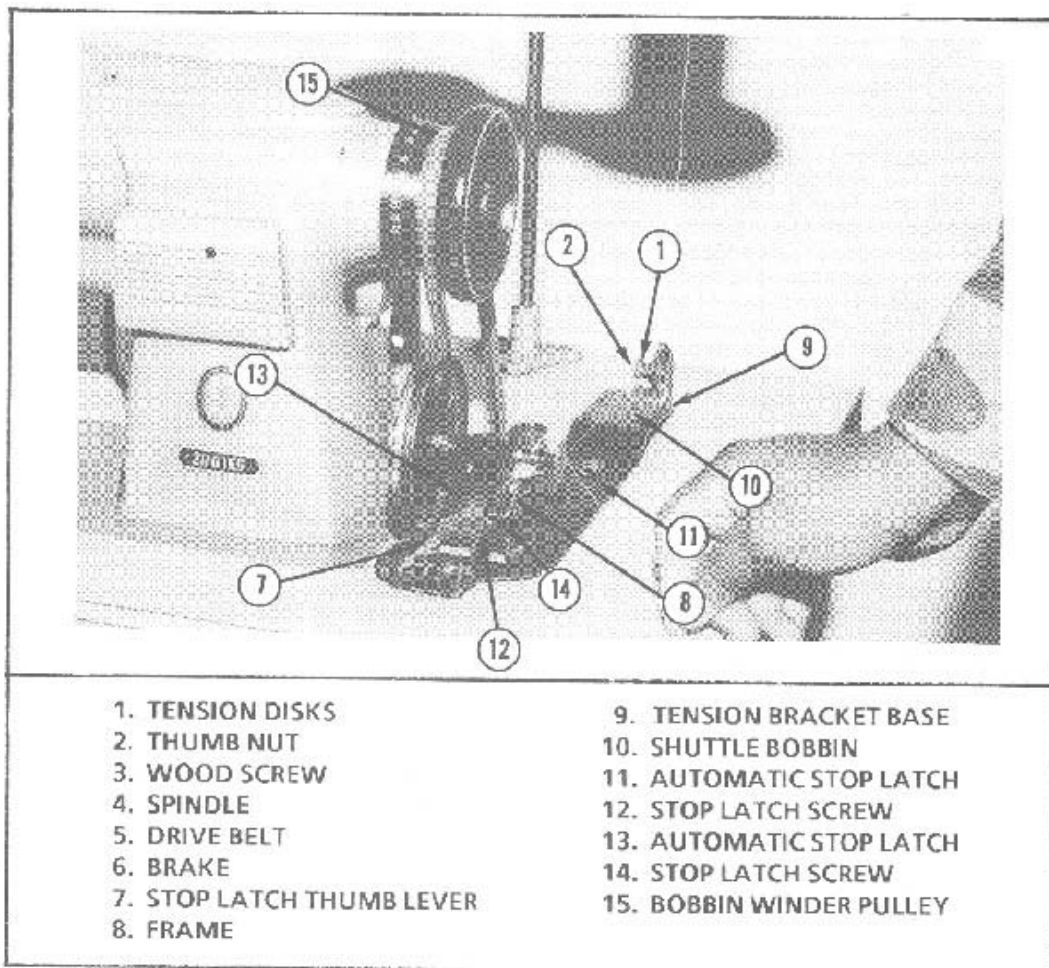
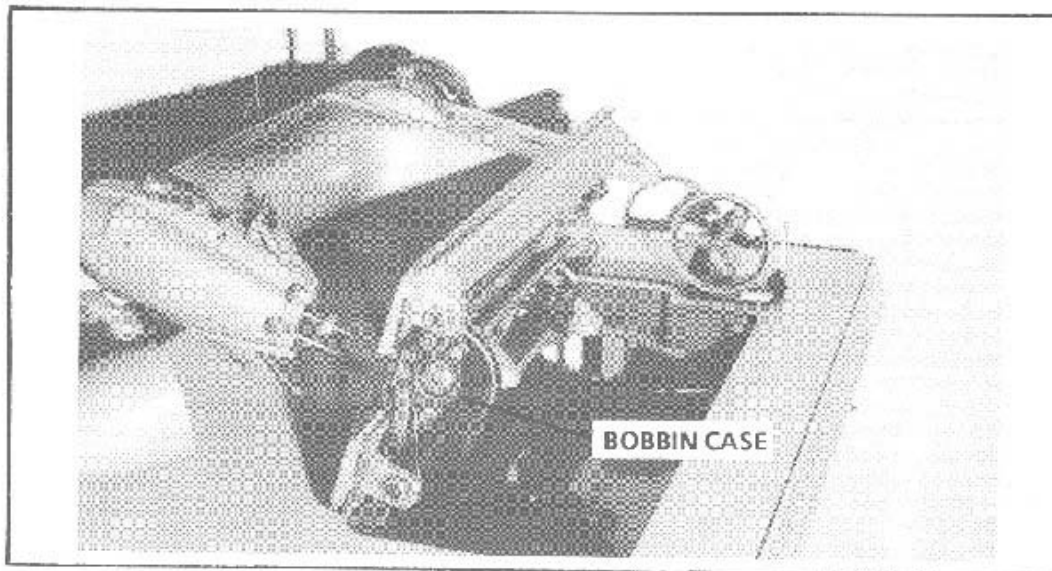


Figure 3-83
Components of Bobbin Winder

Performance Steps

NOTE: To change the amount of thread wound on the bobbin before the automatic release operates, use the bobbin winder stop latch screw. To wind more thread on the bobbin, turn the screw to the right. To wind less thread, turn the screw to the left.

NOTE: If the thread fails to wind evenly on the bobbin or piles up on one side of the bobbin, loosen the screw that holds the tension bracket and move the bracket to the right or left, as required, then tighten the screw.

- c. Thread the bobbin case. (See Figure 3-83)
 - (1) Hold the bobbin in the bobbin case, so that the slot in the edge is near the top.
 - (2) Place the bobbin in the bobbin case.
 - (3) Pull the thread over the top of the bobbin and away from you.
 - (4) Place the thread under the bobbin tension spring and into the delivery eye. Pull the thread into the slot.
- d. Replace the bobbin case.
 - (1) Position the needle at its highest point by turning the balance wheel toward you.
 - (2) Tilt the machine head back and let it rest on the machine rest pin.
 - (3) Hold the latch open with the thumb and forefinger of the left hand. Place the bobbin case on the center stud of the shuttle body.
 - (4) Place the bobbin case in the slot of the position plate.
 - (5) Return the machine head to the upright position.
- e. Remove and install the needle.
 - (1) Position the needle bar at its highest point by turning the balance wheel toward you.
 - (2) Remove the needle.
 - (a) Use a straight screwdriver to loosen the needle clamp screw.
 - (b) Ensure the needle does not drop down into the shuttle race assembly.
 - (3) Replace the needle.
 - (a) Select the correct sized needle for the thread to be used and the item to be repaired.
 - (b) Place the needle up in the needle clamp as far as it will go.
 - (c) Ensure the long groove of the needle is to your left.
 - (d) Tighten the needle clamp screw.
- f. Thread the machine.
 - (1) Thread the sewing machine by bringing the thread up from the cone and from the back to the front through the thread guide un-winder.
 - (2) Thread the spool pin.
 - (a) Pass the thread through the top hole of the first spool pin.
 - (b) Pass the thread through the top hole of the second spool pin.
 - (3) Thread the thread retainer by passing the thread through the top hole from right to left, the middle hole from left to right, and the bottom hole from right to left.
 - (4) Thread the tension disks.
 - (a) Pass the thread down between the tension disks with the thread running from right to left under the tension controller stud.
 - (b) Bring the thread around the tension controller, over the thread take up spring, and down to the thread regulator.
 - (c) Pass the thread under the hook of the thread take up spring and up to the thread take-up lever.
 - (5) Thread the thread take-up lever, by passing the thread through the hole in the thread take-up lever from right to left.
 - (6) Thread the thread top guide on the faceplate.
 - (7) Thread the thread guide on the bottom of the faceplate. (See Figure 3-84)

Performance Steps

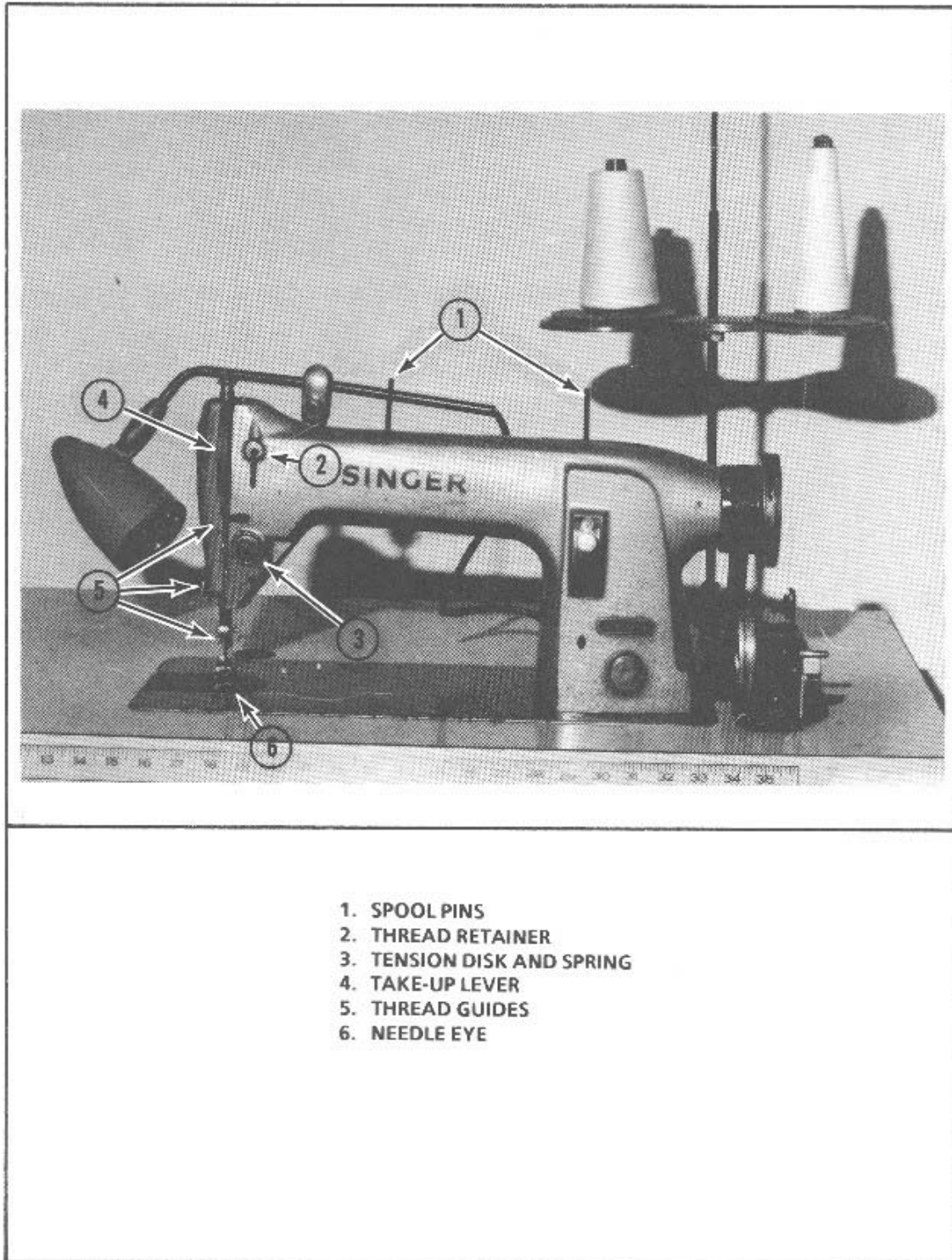


Figure 3-84
Threading Sequence For The Light-Duty Sewing Machine

(8) Thread the needle guide.

Performance Steps

- (a) Hold the end of the thread in your right hand, and bring the thread up into the horizontal position with your left hand.
 - (b) Snap the thread through the needle bar guide.
 - (9) Thread the needle.
 - (a) Pass the thread through the eye of the needle from left to right.
 - (b) Bring about 6 inches of thread through the needle.
 - g. Catch the bobbin thread.
 - (1) Raise the presser bar lifter to lock the presser foot in its raised position.
 - (2) Hold the end of the thread with your left hand, allow a little slack, and bring thread toward the upright of the arm of the machine.
 - (3) Turn the balance wheel toward you with your right hand until the needle moves down from its highest point and back to its highest position. If the needle is correctly timed, it will catch the bobbin thread.
 - (4) Pull the thread up, drawing the bobbin thread up through the hole in the throat plate. Lay both threads (about 3-inches to 6-inches) back under and behind the presser foot.
 - 4. Operate the light-duty sewing machine.
 - a. Place material under the presser foot.
 - b. Lower the presser foot by pulling down the presser bar lever.
 - c. Insert the needle into the material by manually turning the balance wheel toward you.
 - d. Turn on the machine by placing the machine motor switch in the ON position.
 - e. Press the machine treadle with the right foot, and sew a straight row of stitches on the material (to determine needed adjustments).
 - f. Turn off the machine by placing the machine motor switch to the OFF position.
 - 5. Perform during-operation maintenance.
 - a. Watch the machine, to ensure it is running properly.
 - b. Pay attention to any warnings or caution signals that might cause the machine to malfunction.
 - c. Perform any other maintenance function to ensure the machine runs properly.
 - 6. Perform after-operation maintenance.
 - a. Remove the shuttle race assembly.
 - (1) Tilt the machine head forward and let it rest on the rest pin.
 - (2) Remove the shuttle race screws and race assembly. The needle bar must be in the highest position. Turn the screws to the left. Place your left index finger on the shuttle body stud and pull it out and down.
 - (3) Remove the shuttle body. The back of the shuttle race must be face up. Turn the shuttle body and pull up until the body slides out the back.
 - (4) Remove the position plate screws and the position plate by turning the screws counterclockwise.
 - (5) Remove the shuttle race assembly back spring screw and the spring by turning the screw counterclockwise.
- NOTE: The spring acts as a safety clutch. The spring will expand when the shuttle race assembly becomes extremely dirty, causing the machine to bind.
- b. Clean the shuttle race assembly.
 - (1) Clean the shuttle race assembly using a cloth with a light coat of oil on it.
 - (2) Remove all dirt, dust, and lint from the shuttle race assembly with a clean dry cloth.
 - c. Install the shuttle race assembly. (See Figure 3-85)

Performance Steps

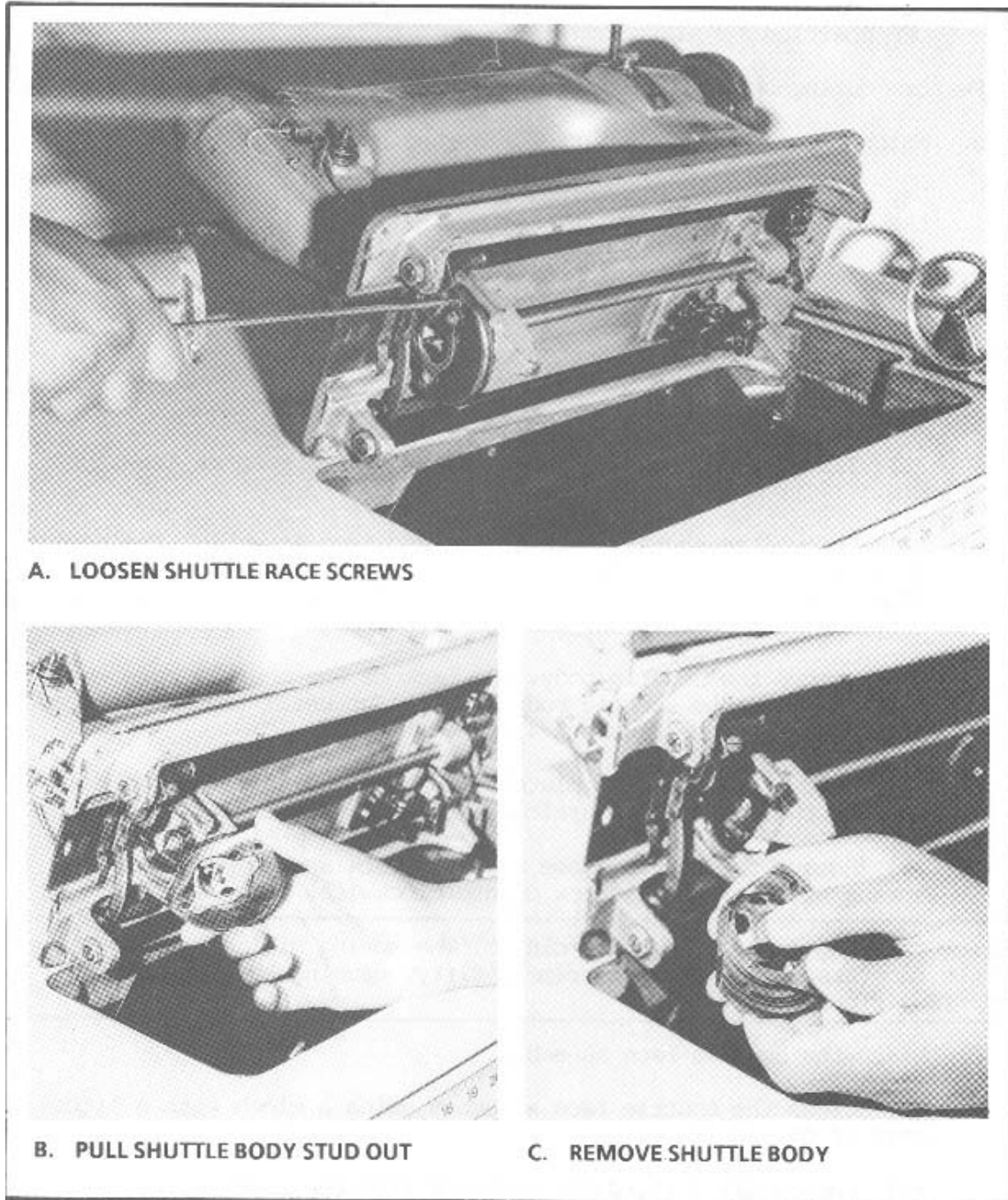


Figure 3-85
Removal Of The Shuttle Race Assembly

- (1) Hold the shuttle race assembly in your left hand with the cap up and the front side to the left. (See Figure 3-86)

Performance Steps

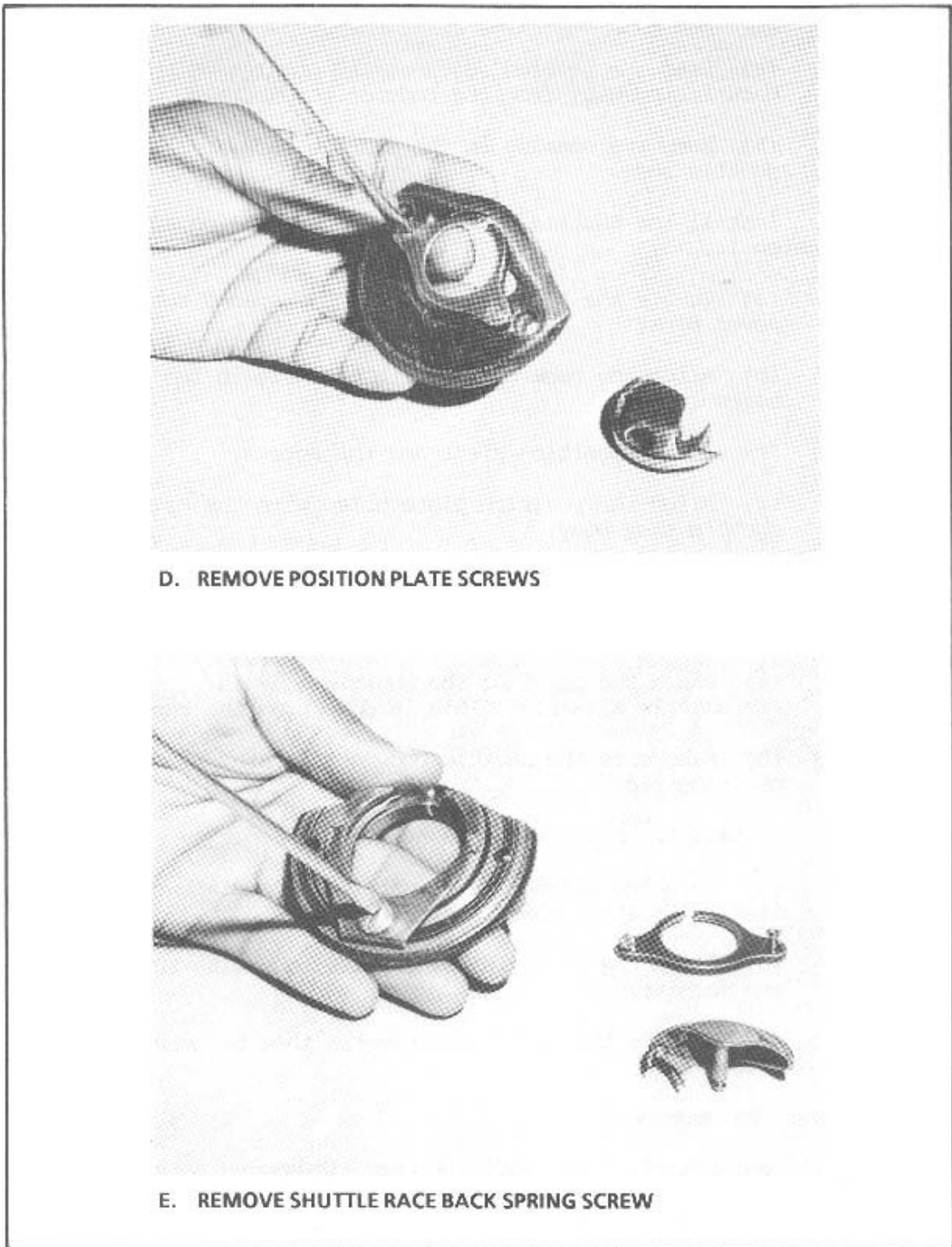


Figure 3-86
Removal Of The Shuttle Race Assembly Con't

(2) Remove all dirt, dust, and lint from the shuttle race assembly with a clean dry cloth.

Performance Steps

- (a) Keep the beveled edges on the opening of the shuttle back facing away from the body of the shuttle.
- (b) Keep the opening in the shuttle back at the top of the shuttle body.
- (3) Install the shuttle race assembly-back spring screw and tighten it.
 - (a) Ensure the back spring is evenly spaced between the dowel pins.
 - (b) Align the back spring with the hole in the shuttle race assembly body.
- (4) Install the position plate and the screws.
 - (a) Align the position plate holes with the holes in the shuttle race body.
 - (b) Tighten the screws by turning them clockwise.
- (5) Install the shuttle body in the shuttle race assembly.
 - (a) Place the point of the shuttle body in at the bottom of the shuttle assembly. (This is done from the back.)
 - (b) Make sure the shuttle body center stud faces the position plate.
- (6) Install the shuttle race assembly.
 - (a) Turn the balance wheel until the needle bar connecting link is at its highest position.
 - (b) Align the holes in the shuttle body with the hole in the machine.
 - (c) Replace the screws and tighten them by turning them clockwise.
- d. Clean the machine.
 - (1) Remove dirt, lint, and grit from all moving parts.
 - (2) Cover the machine.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Performed before-operation maintenance using the daily preventive maintenance checklist that follows. <ul style="list-style-type: none"> a. Checked the table assembly. b. Checked the lamp assembly. c. Checked the clothing machine head. d. Checked the thread un-winder. e. Checked the drive belt and the pulleys. f. Checked the bobbin winder. g. Checked the electric motor. h. Checked the folding stand. i. Checked the starting treadle. j. Checked the motor switch. k. Checked the pressure bar lifter. 	—	—
2. Lubricated the light-duty sewing machine.	—	—
3. Prepared the light-duty sewing machine for operation. <ul style="list-style-type: none"> a. Removed the bobbin case. b. Threaded the bobbin winder. c. Threaded the bobbin case. d. Replaced the bobbin case. e. Removed and installed the needle. f. Threaded the machine. g. Caught the bobbin thread. 	—	—
4. Operated the light-duty sewing machine.	—	—
5. Performed during-operation maintenance.	—	—
6. Performed after-operation maintenance.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

TM 10-3530-203-10

TM 10-3530-205-14

Related

TM 10-3530-203-24

TM 10-3530-203-34P

Troubleshoot The Light-Duty Sewing Machine
101-92S-1001

Conditions: You are assigned to the operation area of a fabric repair shop. Your immediate supervisor tells you to locate and correct all malfunctions on a light-duty sewing machine. Materials required: one fully assembled light-duty sewing machine, flat-tip screwdriver set, wrench set, sash brush, machine oil, DA Form 2404, TM 10-3530-203-10, and TM 10-3530-205-14.

Standards: Complete, in order, all necessary steps to determine the probable cause of each malfunction of the light-duty sewing machine and take the appropriate corrective action.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Troubleshoot the light-duty sewing machine.
2. Adjust the light-duty sewing machine.
 - a. See the correct action for thread tension listed for the malfunction "Needle thread breaks."
 - b. Adjust the bobbin thread tension by turning the regulating screw to the right to increase tension or to the left to decrease tension.
 - c. Adjust the bobbin winder tension. If the tension is too tight, turn the tension-regulating thumbnut to your left. If the tension is too loose, turn the tension-regulating thumbnut to your right.
3. Record all malfunctions that cannot be corrected on DA Form 2404. (See Figure 3-87, 3-88, 3-89, 3-90, 3-91, 3-92, 3-93)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
<p>Needle thread breaks.</p>	<p>Thread is too heavy.</p> <p>Thread is damp or defective.</p> <p>Machine is not threaded correctly.</p>	<p>Use thread of the same color and texture as item to be sewn.</p> <p>Use dry, smooth thread.</p> <p>Thread the light-duty machine head and needle.</p> <p>Thread the machine.</p> <ol style="list-style-type: none"> (1) Thread the machine stand by bringing the thread up from the cone and from the back to the front through the thread guide unwinder. (2) Thread the spool pin. Pass the thread through the top hole of the first spool pin. Pass the thread through the top hole of the second spool pin. (3) Thread the thread retainer by passing the thread through the top hole from right to left, the middle hole from left to right, and the bottom hole from right to left. (4) Thread the tension disks. Pass the thread down between the tension disks with the thread running from right to left under the tension controller stud. Bring the thread around the tension controller over the thread takeup spring down to the thread regulator. Pass the thread under the hook of the thread takeup spring and up to the thread takeup lever. (5) Thread the thread takeup lever by passing the thread through the hole in the thread takeup lever from right to left. (6) Thread the thread top guide on the faceplate. (7) Thread the thread guide on the bottom of the faceplate. (8) Thread the needle guide. Hold the end of the thread in your right hand, and bring the thread up into a horizontal position with your left hand. Snap the thread through the needle bar guide.

Figure 3-87
 Troubleshooting Information For The Light-Duty Sewing Machine

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
	<p>Needle is not installed correctly.</p>	<p>(9) Thread the needle. Pass the thread through the eye of the needle from left to right. Bring about 6 inches of thread through the needle.</p> <p>Catch the bobbin thread.</p> <p>(1) Raise the presser bar lifter to lock the presser foot in its raised position.</p> <p>(2) With your left hand, hold the end of the thread a little slack and toward the upright of the arm of the machine.</p> <p>(3) With the right hand, turn the balance wheel toward you until the needle moves down from its highest position and back to its highest position. If the needle is correctly threaded, it will catch the bobbin thread.</p> <p>(4) Pull the thread up, drawing the bobbin thread up through the hole in the throat plate. Lay both threads (about 3 to 6 inches each) back under and behind the presser foot.</p> <p>Regulate stitch length.</p> <p>(1) Use the stitch-regulating thumbscrew located on the vertical arm on your right to regulate the length of the stitch.</p> <p>(2) Turn the stitch-regulating screw to the left to loosen it. Slide it up to shorten the stitch and down to lengthen the stitch. (Normally the machine should be set to sew 12 to 16 stitches per inch.) Tighten the screw so it will stay in a set position.</p> <p>Remove and install the needle.</p> <p>(1) Turn the balance wheel toward you until the needle is at its highest point.</p> <p>(2) Loosen the needle setscrew.</p> <p>(3) Remove the needle from the needle bar.</p> <p>(4) Check the needle for serviceability.</p> <p>(5) Install a new needle into the needle bar. The long groove of</p>

Figure 3-88
Troubleshooting Information For The Light-Duty Sewing Machine (Continued)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
	<p>Bobbin is wound unevenly, too loosely, or is too full to revolve freely.</p>	<ol style="list-style-type: none"> (2) Tilt the machine head back and let it rest on the machine rest pin. (3) Hold the latch open with the thumb and forefinger of the left hand. Place the bobbin case on the center stud of the shuttle body. (4) Place the bobbin case in the slot of the position plate and into the shuttle race assembly. (5) Return machine head to the upright position. (6) Sew a 2 to 3 inch stitch row on a piece of material to check bobbin thread breakage. <p>Adjust bobbin winder tension.</p> <ol style="list-style-type: none"> (1) If the tension is too tight, turn the tension-regulating thumbnut to your left. (2) If the tension is too loose, turn the tension-regulating thumbnut to your right. <p>Remove the bobbin case.</p> <ol style="list-style-type: none"> (1) Position the needle bar at its highest point by turning the balance wheel toward you. (2) Lift the sewing machine head and lay it on the machine head rest pin. (3) Open the latch on the bobbin case with the thumb and forefinger of your left hand. (Make sure you hold the latch open.) (4) Remove the thread from the bobbin. <p>Thread the bobbin winder.</p> <ol style="list-style-type: none"> (1) Place the bobbin on the bobbin spindle. (2) Use the cone of thread on the right side of the thread stand. Put the thread over and through the thread guide unwinder. (3) Bring the thread down and through the hole in the tension bracket on the bobbin winder. (4) Place the thread on the back of the tension assembly. Pull the thread between the tension disks. (5) Bring the thread from the underside of the tension assembly to the bobbin.

Figure 3-90
 Troubleshooting Information For The Light-Duty Sewing Machine (Continued)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
<p>Stitches skip or fail to lock.</p>	<p>Needle is not installed correctly.</p> <p>Needle bar is out of adjustment.</p>	<p>(6) Pass the thread around the bottom side of the bobbin. Wind the end of the thread around the bobbin several times.</p> <p>(7) Push the bobbin winder pulley over against the machine belt as far as it will go by pressing on the stop latch thumb lever. Force the automatic stop latch to catch and hold the pulley against the drivebelt.</p> <p>See the correct procedure for installing the needle listed for the malfunction: needle thread breaks.</p> <p>Report this to your supervisor.</p> <p>Time the needle.</p> <p>(1) Remove the throat plate by turning the throat plate screws to the left.</p> <p>(2) Remove the feed dog. Turn the balance wheel toward you until the point of the shuttle moves to the back of the machine and then forward to the center of the needle.</p> <p>(3) Remove the thumbscrews located on the bottom of the faceplate.</p> <p>(4) Pull up on the faceplate to remove it.</p> <p>(5) Raise or lower the needle bar so that the eye of the needle is 1/16-inch below the point of the shuttle body.</p> <p>(6) Replace the feed dog.</p> <p>(7) Replace the throat plate.</p> <p>(8) Replace the faceplate.</p>
<p>Thread balls up under the throat plate.</p>	<p>Thread tension is out of adjustment.</p>	<p>See the correct action for thread tension listed for the malfunction "Needle thread breaks."</p>
<p>Stitches do not chain.</p>	<p>Threading is not correct or threads are broken.</p>	<p>See the correct action for threading machine listed for malfunction "Needle thread breaks."</p>
<p>Stitch is too tight.</p>	<p>Bobbin tension is too great.</p>	<p>See the correct action for bobbin tension listed for the malfunction "Bobbin thread breaks."</p>

Figure 3-91
 Troubleshooting Information For The Light-Duty Sewing Machine (Continued)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
Stitch is too loose.	Thread tension is too loose.	See the correct action for thread tension listed for the malfunction "Needle thread breaks."
Seams draw.	Thread tension is too tight.	See the correct action for thread tension listed for the malfunction "Needle thread breaks."
	Operator is feeding material at an improper speed.	Operator must feed material in relation to machine speed.
Stitches are uneven or piled up.	Pressure is too light on the presser foot.	Report this to supervisor.
	Feed dogs are too low.	Report this to supervisor.
Feed dogs strike the throat plate.	Feed dogs are out of adjustment.	Report this to supervisor.
Lamp does not light when switch is in the ON position.	Light cord is not plugged into the electrical power receptacle.	Plug cord in.
	Light cord is broken.	Report this to supervisor.
	Incandescent lamp (bulb) is burned out.	Replace the lamp.
	Lamp assembly or switch is defective.	Report this to supervisor.
	Electrical power receptacle is defective.	Report this to supervisor.
Motor does not start when switch is in the ON position.	Power cable is not plugged into electrical power receptacle.	Plug power cable in.
	Power cable is broken.	Report this to supervisor.
	Switch is defective.	Report this to supervisor.
Motor makes unusual noises.	Motor is defective.	Shut down the sewing machine and report the noise to supervisor.
Motor does not pull the load.	Drivebelt is slipping.	Report this to supervisor.
	Voltage is not correct or the motor is faulty.	Report this to supervisor.

Figure 3-92
 Troubleshooting Information For The Light-Duty Sewing Machine (Continued)

Performance Steps

EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET										
For use of this form, see TM 38 750. The proponent agency is the Office of the Deputy Chief of Staff for Logistics.										
1. ORGANIZATION 133d Maint Co (DS)					2. NOMENCLATURE AND MODEL Machine, Sewing, Darning-47W20					
3. REGISTRATION/SERIAL/NSN 3530-01-133-3494		4a. MILES	4b. HOURS	4c. ROUNDS FIRED	4d. HOT STARTS	5. DATE 10 Dec XX	6. TYPE INSPECTION Daily			
7. APPLICABLE REFERENCE										
TM NUMBER 10-3530-203-10 W/C4			TM DATE Aug 81		TM NUMBER 10-3530-205-14			TM DATE Apr 85		
COLUMN a - Enter TM item number. COLUMN b - Enter the applicable condition status symbol COLUMN c - Enter deficiencies and shortcomings					COLUMN d - Show corrective action for deficiency or shortcoming listed in Column c. COLUMN e - Individual ascertaining completed corrective action initial in this column.					
STATUS SYMBOLS										
"X"-Indicates a deficiency in the equipment that places it in an inoperable status. CIRCLED "X"-Indicates a deficiency, however, the equipment may be operated under specific limitations as directed by higher authority or as prescribed locally, until corrective action can be accomplished. HORIZONTAL DASH "-"-Indicates that a required inspection, component replacement, maintenance operation check, or test flight is due but has not been accomplished, or an overdue MWO has not been accomplished.					DIAGONAL "/"-Indicates a materiel defect other than a deficiency which must be corrected to increase efficiency or to make the item completely serviceable. LAST NAME INITIAL IN BLACK, BLUE, BLACK INK, OR PENCIL. Indicates that a completely satisfactory condition exists. FOR AIRCRAFT Status symbols will be recorded in red.					
ALL INSPECTIONS AND EQUIPMENT CONDITIONS RECORDED ON THIS FORM HAVE BEEN DETERMINED IN ACCORDANCE WITH DIAGNOSTIC PROCEDURES AND STANDARDS IN THE TM CITED HEREON										
9a. SIGNATURE (Person performing inspection)			9b. TIME		9c. SIGNATURE (Maintenance Supervisor)			9d. TIME		10. MAN-HOURS REQUIRED
<i>James Brown PFC</i>										
TM ITEM NO.	STATUS	DEFICIENCIES AND SHORTCOMINGS			CORRECTIVE ACTION			INITIAL WHEN CORRECTED		
2	X	Sewing hook is missing.								
11	X	Defective motor switch.								
		TM 10-3530-205-14								
28/4	X	Needle bar is out of adjustment.								
37	X	Motor does not start.								
<div style="border: 2px solid black; padding: 5px; display: inline-block; transform: rotate(-15deg);"> <p>DA FORM 2404 1 APR 79 Replaces edition of 1 Jan 64, which will be used</p> </div>										

Figure 3-93
Sample DA Form 2404

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Performed Troubleshoot of the light-duty sewing machine.	—	—
2. Adjusted the light-duty sewing machine.	—	—
3. Recorded all malfunctions that cannot be corrected on DA Form 2404.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- TM 10-3530-203-10
- TM 10-3530-205-14

Related

Prepare And Operate The Darning Machine
101-92S-1002

Conditions: You are assigned to the sewing machine operation area. Your supervisor tells you to operate the darning machine to repair a clothing item. Materials required: a fully assembled darning machine, flat-tip screwdriver set, cleaning cloths, 1-inch sash brush, general-purpose oil, pliers, DA Form 2404, LO 10-3530-205-12-2, LO 10-3530-203-10-3, thread, and needle.

Standards: Thread the machine so that it does not miss any thread points, adjust the tension, and sew a smooth darn.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Perform before-operation maintenance using the preventive maintenance daily checklist that follows. (Figure 3-94 lists darning machine components.)
 - a. Inspect the table assembly.
 - (1) Inspect for cut, cracked, broken, warped, or dirty tabletop.
 - (2) Inspect for loose or missing bolts and nuts and for loose mounting to the folding stand.
 - (3) Inspect to make certain it is level.
 - (4) Inspect for bent or broken components.
 - (5) Inspect for loose or missing bolts and nuts on components.
 - (6) Inspect for loose mounting.
 - b. Inspect the machine head. (See Figure 3-94)

Performance Steps

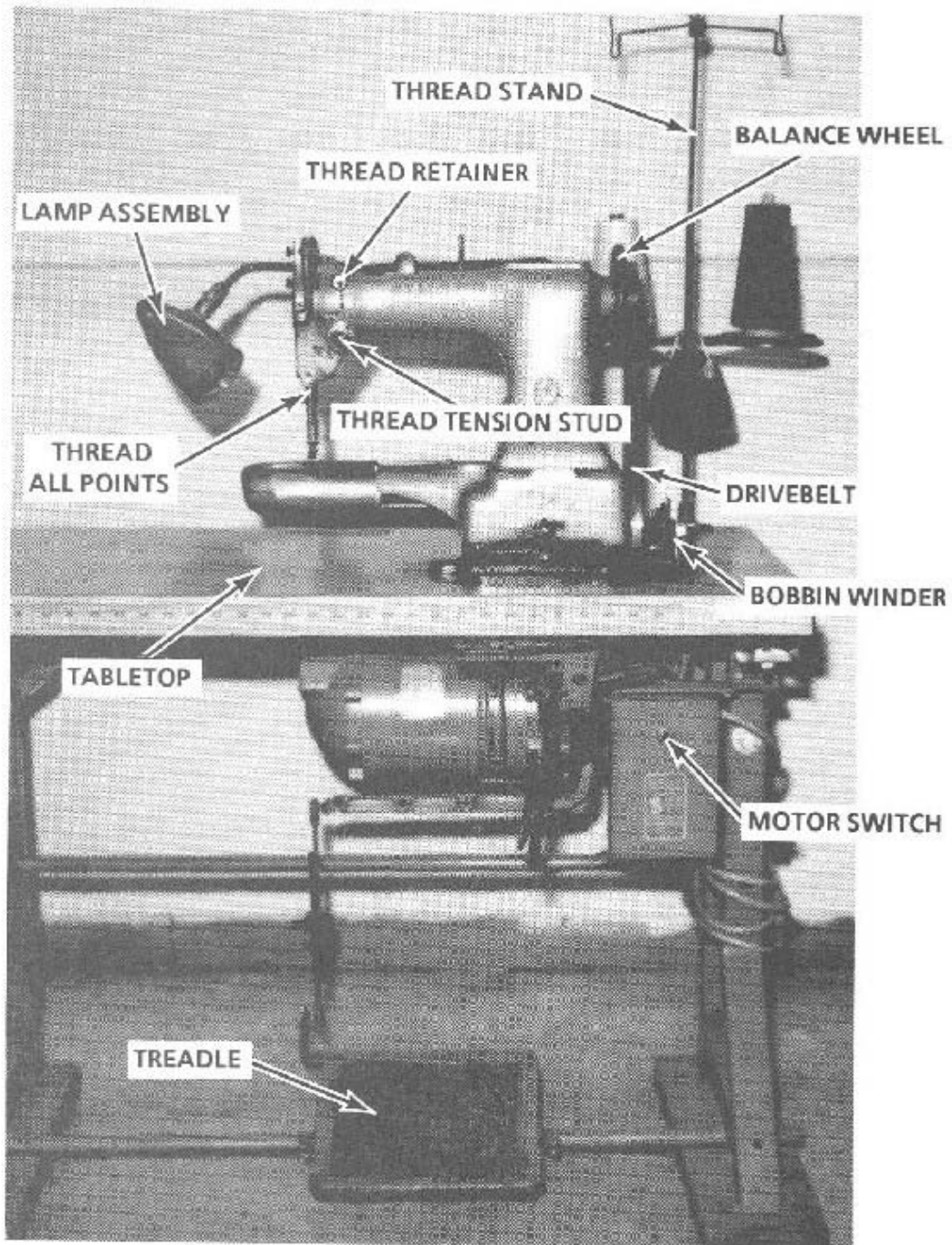


Figure 3-94
Components Of The Darning Machine

- (1) Inspect for dirt and grease deposits.
- (2) Inspect for bent, broken, loose, or missing components and for loose mounting.

Performance Steps

- (3) Inspect for broken or excessively worn needlepoint.
- (4) Inspect for bent or broken needle shaft and for loose mounting.
- c. Inspect the lamp assembly.
 - (1) Inspect for loose or missing bolts, nuts, and screws and for loose mounting.
 - (2) Inspect for dirty, cracked, or broken housing and lens.
 - (3) Inspect for frayed insulation or broken wiring on the electrical cord.
 - (4) Inspect for broken lamp switch.
 - (5) Inspect for improper operation of switch and burned out lamp (bulb).
- d. Inspect the thread un-winder.
 - (1) Inspect for loose or missing bolts, nuts, and screws.
 - (2) Inspect for bent or broken components and for loose mounting.
- e. Inspect the drive belt and the pulleys.
 - (1) Inspect for broken, frayed, or excessively worn drive belt.
 - (2) Inspect for loose mounting of the belt on the pulleys.
 - (3) Inspect for cracked, chipped, or broken edges and for loose mounting.
 - (4) Inspect a 3/4-inch distance between the sides of the belt, when both sides of the belt are pressed inward midway between the pulleys.
- f. Inspect the bobbin winders.
 - (1) Inspect for bent, broken, loose, or missing components and for loose mountings.
 - (2) Inspect for excessively worn leather brake.
 - (3) Inspect for incorrect tension of the thread tension spring.
 - (4) Inspect for incorrect adjustment of the pulley with the drive belt.
- g. Inspect the electric motor.
 - (1) Inspect for dirty surfaces, grease deposits, and for bent, cracked, or broken housing.
 - (2) Inspect for loose or missing bolts and nuts.
 - (3) Inspect for loose electrical connections and loose mounting.

NOTE: Observe the motor for excessive vibrations and listen for unusual noises during operation.

- h. Inspect the folding stand.
 - (1) Inspect for bent or broken components.
 - (2) Inspect for loose or missing bolts and nuts and for loose mounting to the table assembly.
 - (3) Inspect to make certain the stand is level on the floor.
- i. Inspect the starting treadle.
 - (1) Inspect for bent, broken, or loose components and loose mounting.
 - (2) Inspect to see that the pulley brake lever engages the motor drive pulley with the drive motor, when the treadle is depressed.
 - (3) Inspect to ensure the pulley brake lever disengages the drive pulley from the motor and stops the pulley, when the treadle is released during operation.
- j. Inspect the knee lifter.
 - (1) Inspect for bent, broken, loose, or missing components and for loose mounting.
 - (2) Inspect to see that it raises and lowers the presser foot.

2. Lubricate the darning machine according to LO 10-3530-203-10-3. (See Figure 3-95.)

Performance Steps

**LUBRICATION
ORDER**

LO 10-3530-203-10-3

22 October 1965

**CLOTHING, REPAIR SHOP, TRAILER MTD, ARMY MODEL SPV34,
YORK ASTRO MODEL D8700337, TEXTILE REPAIR SHOP,
TRAILER MTD, ARMY MODEL SPV35, YORK ASTRO
MODEL D8700447, MACHINE, SEWING, DARNING
SINGER MODEL 47W70**

Reference LO 10-3530-203-10-1 and 2, C9100 II.

Intervals are based on normal hours of operations. Reduce to compensate for abnormal operations and severe conditions. During inactive periods sufficient lubrication must be performed for adequate preservation.

Clean parts with SOLVENT drycleaning. Dry before lubricating. Apply two to three drops of LO at each friction point unless otherwise noted.

INTERVAL • LUBRICANT

Lubrication Points for Face Are Shown Below

Hook Drive Shaft LO 4

Bobbin Case Oiling Felt (See Note 1) LO 4

Thread Hook Bevel Gear and Pin-on Gear LO 4

Motor GAA (See Note 2) 250

HEAD ASSEMBLY (FRONT) AND MOTOR

LUBRICANT • INTERVAL

4 LO Arm Shaft

4 LO Arm Shaft

LO Hook Drive Shaft

4 LO Bobbin Winder Frame

4 LO Bobbin Winder Frame Hinge

250 GAA Motor (See Note 2)

FOLD

FOLD

Presser Bar Bushing LO 4

Presser Bar Lifting Fork Bushing LO 4

Takeup Lever Hinge Stud Oil Packing LO 4

Takeup Lever Drive Stud LO 4

FACE DETAIL

— KEY —

4 LO Presser Bar Lifting Crank

4 LO Needle Bar Connecting Stud Oil Packing

4 LO Needle Bar Bushing

4 LO Presser Bar Bushing

LUBRICANTS	EXPECTED TEMPERATURES	INTERVALS
LO- Lubricating Oil, General Purpose	all temperatures	Intervals given are in hours of normal operation.
GAA- Grease, Automotive and Artillery	all temperatures	

NOTES:

1. **BOBBIN CASE OILING FELT.** Keep felt pad on the side of the bobbin case to lubricate the hook race. When this pad is wet with oil it appears nearly black, when it appears light green it is dry. Check pad for oil each time a bobbin is replaced and oil if necessary.

2. **MOTOR.** Lubricate oil points with two or three drops of LO every 4 hours. Fill grease cups as necessary with GAA grease. Turn grease cups clockwise three turns every 250 hours.

Copy of this Lubrication Order will remain with the equipment at all times; instructions contained herein are mandatory.

BY ORDER OF THE
SECRETARY OF THE ARMY:

HAROLD K. JOHNSON,
General, United States Army
Chief of Staff,

OFFICIAL:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

MEC 3530 203 10/46

Figure 3-95
Sample Of LO 10-3530-203-10-3 For Darning Machine

NOTE: In humid, dusty, or sandy areas, the darning machine may need to be lubricated more often.

Performance Steps

3. Prepare the darning machine for operation.

- a. Pushback the slide-stop and slide out. Raise the bobbin latch and remove the bobbin from the bobbin case.
- b. Wind thread on the bobbin by placing the bobbin on the bobbin winder spindle. Push it on as far as it will go. Thread it correctly to keep the thread even and smooth on the bobbin.

NOTE: The bobbin may be wound while the machine is sewing. However, if no fabric is under the needle, ensure the needle thread is pulled out of the eye of the needle.

- c. Lock the presser foot in the raised position by pressing the knee lifter to the right. The needle thread should be pulled from the needle so the thread will not ball up in the shuttle race assembly.
 - (1) Use the bobbin winder stop latch screw to change the amount of thread wound on the bobbin before the automatic release operates. To wind more thread on the bobbin, turn the screw to the right. To wind less thread, turn the screw to the left.
 - (2) Loosen the screw that holds the tension bracket, if the thread fails to wind evenly on the bobbin or piles up on one side of the bobbin. Move the bracket to the right or left, as required, then tighten the screw.
- d. Thread the bobbin case.
 - (1) Position the bobbin in the bobbin case. Pull the thread through the tension slot clockwise.
 - (2) Close the bobbin latch.
 - (3) Pull the thread counterclockwise through the tension slot.
 - (4) Position the slide stop over the bobbin case.
- e. Remove the needle.
 - (1) Position the needle bar at its highest point by turning the balance wheel toward you.
 - (2) Remove the needle.
 - (a) Use a flat-tip screwdriver to loosen the needle setscrew.
 - (b) Make sure the needle does not drop down into the shuttle case assembly.
 - (3) Replace the needle.
 - (a) Select a needle that is right for the thread to be used and the item to be repaired. (Size 18 class 126 and variety 3.)
 - (b) Place the needle in the needle clamp as far up as it will go.
 - (c) Make sure the long groove of the needle is to your left.
 - (d) Tighten the needle clamp screw. (See Figure 3-96)

Performance Steps

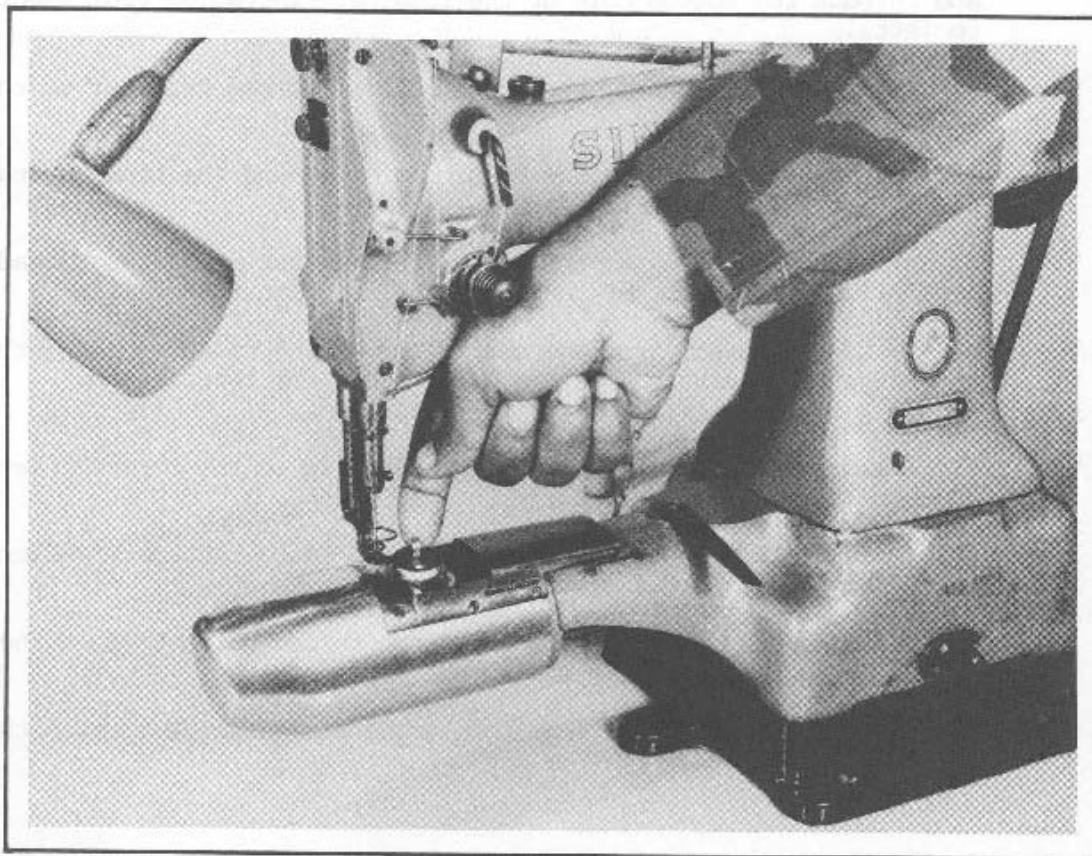
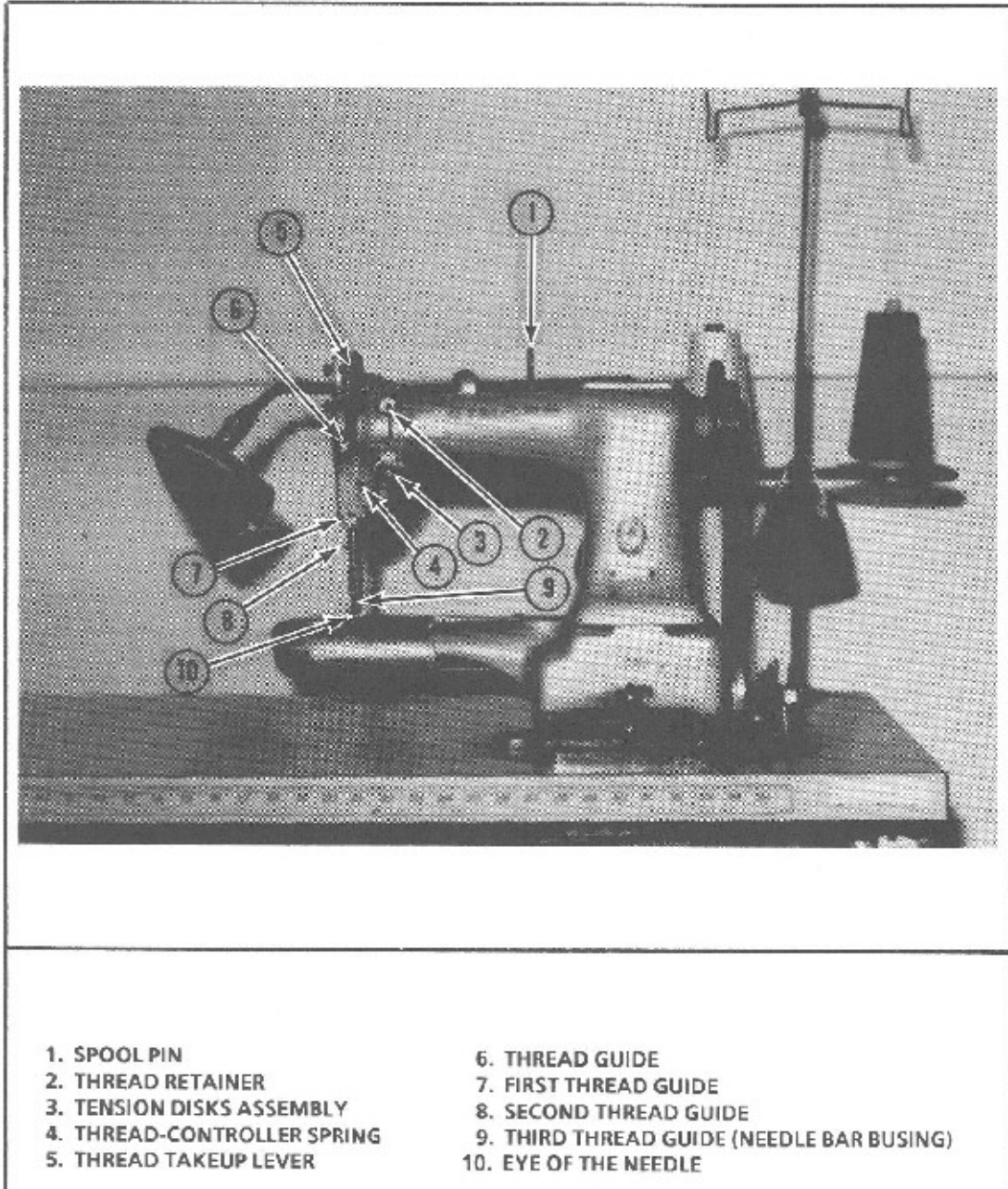


Figure 3-96
Bobbin Position In The Darning Machine

- f. Thread the darning machine.
- (1) Pass the thread up from the thread cone and over the thread un-winder.
 - (2) Pass the thread from the back to the front through the bottom hole of the thread guide.
 - (3) Pass the thread from the bottom eyelet of the thread guide to the top hole of the thread guide.
 - (4) Pass the thread from the top of the thread guide to the top hole of the thread retainer.
 - (5) Pass the thread from the top hole of the thread retainer through the middle hole of the thread retainer. (Thread from right to left when facing the machine.)
 - (6) Pass the thread from the middle hole of the thread retainer and through the bottom hole of the retainer (threading from right to left).
 - (7) Pass the thread from the bottom of the thread retainer to the thread tension assembly.
 - (8) Pass the thread from the tension disk around the tension stud and into the front tension disk.
 - (9) Pass the thread from the front tension disk under the thread-controller spring, so that the thread pulls against the spring.
 - (10) Pass the thread from the controller spring up and through the thread guide, so that the thread guide keeps the thread from becoming loose or twisted.
 - (11) Pass the thread up from the thread guide to the thread take-up lever from right to left.
 - (12) Pass the thread down from the take-up lever through the first thread guide on the faceplate.

Performance Steps

- (13) Pass the thread down from the first thread guide through the second thread guide on the needle bar thread guide.
- (14) Pass the thread down from the second thread guide through the needle bar thread guide. (See Figure 3-97)



- | | |
|-----------------------------|-------------------------------------------|
| 1. SPOOL PIN | 6. THREAD GUIDE |
| 2. THREAD RETAINER | 7. FIRST THREAD GUIDE |
| 3. TENSION DISKS ASSEMBLY | 8. SECOND THREAD GUIDE |
| 4. THREAD-CONTROLLER SPRING | 9. THIRD THREAD GUIDE (NEEDLE BAR BUSING) |
| 5. THREAD TAKEUP LEVER | 10. EYE OF THE NEEDLE |

Figure 3-97
Darning Machine Threading Sequence

- (15) Pass the thread down from the thread guide through the thread guide on the needle bar thread guide.
- (16) Pass the thread down from the thread guide on the needle bar pushing through the needle bar thread guide.

Performance Steps

- (17) Pass the thread from the needle bar thread guide through the eye of the needle (feeding the thread from left to right).
- g. Catch the bobbin thread.
 - (1) Raise the presser foot to its highest position, and hold the needle thread.
 - (2) Hold the end of the needle thread with a little slack and pull the thread toward the upright of the arm of the machine with the left hand.
 - (3) Turn the balance wheel toward you with the right hand until the needle moves down from its highest position, then back up to its highest position. If the needle thread is held firmly during this operation and if the needle is correctly timed, the needle will catch the bobbin thread.
 - (4) Pull the thread up, drawing the bobbin thread up through the hole in the throat plate. Lay both needle and bobbin threads (about 3-inches to 6-inches each) back under and behind the presser foot.
- 4. Operate the darning machine.
 - a. Raise the presser foot by pressing the knee lifter to the right or by pushing the presser bar-adjusting thumbscrew backward (away from you).
 - b. Place the material on the cylinder end cover of the machine. Make sure the damaged area lies flat and does not pinch or pucker.
 - c. Lower the presser foot on the material by releasing the knee lifter or by pushing the presser bar-adjusting thumbscrew toward you.
 - d. Press the starter switch to turn the machine on.
 - e. Darn the material by manually turning the balance wheel forward, holding both the needle and bobbin thread until a few stitches are made. (Check the tension on the treadle to engage the clutch to continue sewing.)
 - f. Release the treadle to stop the machine.
 - g. Remove the material from the machine by manually turning the balance wheel, until the thread take up lever is at its highest point. Raise the presser foot to release the tension on the thread and material. Cut the threads 6-inches from the cylinder end cover.
 - h. Press the starter switch to turn the machine off.
- 5. Perform during-operation maintenance.
- 6. Perform after-operation maintenance by cleaning dirt, lint, grit, and excess oil from moving parts of the machine.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Performed before-operation maintenance using the preventive maintenance daily checklist.	—	—
a. Inspected the table assembly.		
b. Inspected the machine head.		
c. Inspected the lamp assembly.		
d. Inspected the thread un-winder.		
e. Inspected the drive belt and the pulleys.		
f. Inspected the bobbin winders.		
g. Inspected the electric motor.		
h. Inspected the folding stand.		
i. Inspected the starting treadle.		
j. Inspected the knee lifter.		
2. Lubricated the darning machine according to LO 10-3530-203-10-3.	—	—
3. Prepared the darning machine for operation.	—	—
4. Operated the darning machine.	—	—

Performance Measures

	<u>GO</u>	<u>NO GO</u>
5. Performed during-operation maintenance.	—	—
6. Performed after-operation maintenance by cleaning dirt, lint, grit, and excess oil from moving parts of the machine.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- DA FORM 2404
- TM 10-3530-203-10
- TM 10-3530-205-14
- TM 10-8400-201-23

Related

Troubleshoot The Darning Machine
101-92S-1003

Conditions: You are assigned to the operations area. Your supervisor tells you to locate and correct malfunctions on a darning machine. Materials required: one fully assembled darning machine, flat-tip screwdriver set, wrench set, sash brush, machine oil, test material, and DA Form 2404.

Standards: Complete, in order, all necessary steps to determine the cause of malfunctions and take appropriate corrective action.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Troubleshoot the darning machine for malfunctions.
NOTE: See Figure 3-93

2. Adjust the darning machine.
 - a. Adjust the needle thread tension by turning the tension thumbnut to the right to increase tension or to the left to decrease tension.
 - b. Adjust the bobbin thread tension by turning the regulating screw to the right to increase tension or to the left to decrease tension.
 - c. Use needle size 18, class 126, and variety 3.
 - d. Adjust the presser foot pressure. (See Figure 3-98 and 3-99)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
<p>Needle thread breaks.</p>	<p>Thread is too heavy.</p> <p>Thread is damp or defective.</p> <p>Machine is not threaded correctly.</p>	<p>Use thread of the same color and texture as item to be sewed.</p> <p>Use dry, smooth thread.</p> <p>Thread the darning-duty machine head and needle.</p> <p>Thread the darning machine.</p> <ol style="list-style-type: none"> (1) Pass the thread up from the thread cone and over the thread unwinder. (2) Pass the thread from the back to the front through the bottom hole of the thread guide. (3) Pass the thread from the bottom eyelet of the thread guide to the top hole of the thread guide. (4) Pass the thread from the top of the thread guide to the top hole of the thread retainer. (5) Pass the thread from the top hole of the thread retainer through the middle hole of the thread retainer. (Thread from left to right when facing the machine.) (6) Pass the thread from the middle hole of the thread retainer to the bottom hole of the retainer and through it (thread from right to left). (7) Pass the thread from the bottom hole of the thread retainer to the thread tension assembly. (8) Pass the thread from the tension disk around the tension stud and into the front tension disk. (9) Pass the thread from the front tension disk under the thread-controller spring so that the thread pulls against the spring. (10) Pass the thread from the controller spring up and through the thread guide so that the thread guide keeps the thread from becoming loose or twisted. (11) Pass the thread up from the thread guide to the thread takeup lever from right to left. (12) Pass the thread down from the takeup lever through the first thread guide on the faceplate.

Figure 3-98
 Troubleshooting Information For The Darning Machine

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
	<p>Needle is not installed correctly.</p>	<p>(13) Pass the thread down from the first thread guide through the second thread guide on the needle bar thread guide.</p> <p>(14) Pass the thread down from the second thread guide through the needle bar thread guide.</p> <p>(15) Pass the thread down from the thread guide through the thread guide on the needle bar bushing.</p> <p>(16) Pass the thread down from the thread guide on the needle bar bushing through the needle bar thread guide.</p> <p>(17) Pass the thread from the needle bar thread guide to the eye of the needle and through it (feeding the thread from left to right).</p> <p>Catch the bobbin thread.</p> <p>(1) Raise the presser foot to its highest position, and hold the needle thread.</p> <p>(2) Hold the end of the needle thread a little slack and towards the upright of the arm of the machine with your left hand.</p> <p>(3) Turn the balance wheel toward you with your right hand until the needle moves from its highest position down and back to its highest position. If the needle thread is held firmly during this operation, and if the needle is correctly timed, the needle thread will catch the bobbin thread.</p> <p>(4) Pull the needle thread up, drawing the bobbin thread up through the hole in the thread plate. Lay both threads (about 3 to 6 inches each) back under and behind the presser foot.</p> <p>Remove and install the needle.</p> <p>(1) Turn the balance wheel toward you until the needle is at its highest position.</p> <p>(2) Loosen the needle setscrew.</p> <p>(3) Remove the needle from the needle bar.</p> <p>(4) Check the needle for serviceability.</p>

Figure 3-99
 Troubleshooting Information For The Darning Machine (Continued)

3. Record all malfunctions that cannot be corrected on DA Form 2404. (See Figure 3-100, 3-101, 3-102)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
<p>Needle breaks.</p>	<p>Thread tension is too great.</p> <p>Needle is defective, blunted, or bent at the point.</p> <p>Needle is loose in the clamp.</p> <p>Needle is of wrong class or variety.</p> <p>Presser foot is loose.</p>	<p>(5) Install a new needle into the needle bar. The long groove of the needle must be on your left.</p> <p>(6) Tighten the setscrew securely.</p> <p>Adjust the needle thread tension by turning the tension thumbnut to the right to increase tension or to the left to decrease tension.</p> <p>Install a serviceable needle.</p> <p>Tighten the needle setscrew.</p> <p>Use needle size 18, class 126, and variety 3.</p> <p>Adjust the presser foot pressure.</p> <p>(1) Place a piece of material under the presser foot.</p> <p>(2) Adjust the pressure of the presser foot on material with the regulating thumbscrew.</p> <p>(3) Adjust the pressure on the vibrating presser foot by turning the thumbscrew on top of the machine head to the right to increase the pressure or to the left to decrease the pressure.</p>
<p>Bobbin thread breaks.</p>	<p>Thread is damp or defective.</p> <p>Bobbin tension is too great.</p> <p>Bobbin case is incorrectly threaded.</p>	<p>Use dry, smooth thread.</p> <p>Adjust the bobbin thread tension by turning the regulating screw to the right to increase tension or to the left to decrease tension.</p> <p>Install the bobbin.</p> <p>(1) Hold the bobbin so that the thread pulls counterclockwise.</p> <p>(2) Slip the bobbin over the latch and center stud. Push the latch down.</p> <p>(3) Draw the thread into the slot between the bobbin case opener and the triangular projection on the bobbin case.</p> <p>(4) Pull about 6 inches of the bobbin thread above the throat plate.</p>

Figure 3-100
 Troubleshooting Information For The Darning Machine (Continued)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
<p>Stitches skip or fail to lock.</p>	<p>Bobbin is wound unevenly, too loosely, or is too full to revolve freely.</p> <p>Needle is not installed correctly.</p> <p>Needle fails to catch bobbin thread because sewing hook is out of adjustment.</p> <p>Needle bar is out of adjustment.</p>	<p>(5) Close the slide plate but leave enough space between the slide and throat plate for the thread to slip through when it is caught by the needle thread.</p> <p>Wind the bobbin.</p> <p>(1) Push the bobbin on the bobbin spindle as far as it will go.</p> <p>(2) Pass the thread from the bobbin thread cone on the thread unwinder down through the thread hole in the tension bracket.</p> <p>(3) Pass the thread down between the bobbin winder tension disks.</p> <p>(4) Pull the thread from the lower side of the tension disks to the bobbin.</p> <p>(5) Pass the thread around the bottom side of the bobbin. Wind the end of the thread around the bobbin a few times.</p> <p>(6) Push the bobbin winder pulley forward against the machine belt by pressing on the stop latch thumb lever until the automatic stop latch catches and holds the pulley against the drivebelt.</p> <p>(7) Turn the motor switch on and lift the presser foot.</p> <p>(8) Depress the treadle to start the machine. Operate the machine until the bobbin is full.</p> <p>(9) Remove the bobbin from the bobbin winder spindle.</p> <p>(10) Turn off the motor switch,</p> <p>See the correct action for installing the needle listed for the malfunction "Needle thread breaks."</p> <p>Time the needle bar.</p> <p>(1) Remove faceplate screw.</p> <p>(2) Remove faceplate.</p> <p>(3) Loosen the needle bar pinch screw.</p> <p>(4) Move the needle bar up or down as necessary to bring the eye of the needle 1/16" below the point of the hook.</p>

Figure 3-101
 Troubleshooting Information For The Darning Machine (Continued)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
Stitch is too loose.	Thread tension is too loose.	(5) Tighten the needle bar pinch screw. See the correct action for thread tension listed for the malfunction "Needle thread breaks."
Seams draw.	Thread tension is too tight.	See the correct action for thread tension listed for the malfunction "Needle thread breaks."
Stitches are uneven or piled up.	Operator is feeding material at an improper speed.	Operator must feed material in relation to machine speed.
Lamp does not light when switch is in the ON position.	Not enough pressure on presser foot.	Increase the pressure. See the correct action for "Presser foot is loose" listed for the malfunction "Needle thread breaks."
	Light cord is not plugged into the electrical power receptacle.	Plug cord in.
	Light cord is broken.	Report this to your supervisor.
	Incandescent lamp (bulb) is burned out.	Replace the lamp.
	Lamp assembly or switch is defective.	Report this to your supervisor.
Motor does not start when switch is in the ON position.	Electrical power receptacle is defective.	Report this to your supervisor.
	Power cable is not plugged into electrical power receptacle.	Plug power cable in.
	Power cable is broken.	Report this to your supervisor.
Motor makes unusual noises.	Switch is defective.	Report this to your supervisor.
	Motor is defective.	Shut down the sewing machine and report it to your supervisor.
Motor does not pull the load.	Drivebelt is slipping.	Report this to your supervisor.
	Voltage is not correct or the motor is faulty.	Report this to your supervisor.

Figure 3-102
 Troubleshooting Information For The Darning Machine (Continued)

Performance Measures

GO **NO GO**

- | | | |
|------------------------------------------------------------------------|-------|-------|
| 1. Performed Troubleshoot of the darning machine for malfunctions. | _____ | _____ |
| 2. Adjusted the darning machine. | _____ | _____ |
| 3. Recorded all malfunctions that cannot be corrected on DA Form 2404. | _____ | _____ |

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- TM 10-3530-203-10
- TM 10-3530-205-14

Related

Prepare And Operate The Button Machine

101-92S-1004

Conditions: You are assigned to a fabric repair shop which receives items of clothing requiring buttons. Your supervisor tells you to check the machine for proper operation. Material required: salvage material, machine oil, tool kit, button machine, sash brush, cleaning rags, TM 10-3530-203-10, and LO 10-3530-203-10-1.

Standards: Complete, in order, all necessary steps to operate a button machine correctly. Perform all required maintenance.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Perform before-operation maintenance. (See Figure 3-103, 3-104, 3-105)

Performance Steps

PREVENTIVE MAINTENANCE SERVICES DAILY	
TM 10-3530-203-10	MACHINE, SEWING, BUTTON
LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER	
ITEM	PAR REF
1	<p>TABLE ASSEMBLY. Inspect the table assembly for cut, cracked, broken, warped, and dirty tabletop; for loose or missing bolts and nuts; and for loose mounting to the folding stand. Make certain the table assembly is level. Inspect for bent or broken components. Inspect the components for loose or missing bolts and nuts, and for loose mounting to the table assembly.</p>

Figure 3-103
Daily PMCS For The Button Sewing Machine

Performance Steps

ITEM		PAR REF
2	<u>DRIVE BELT GUARD.</u> Inspect the drive belt guard for bends, dirty surface, loose or missing screws, and loose mounting.	
3	<u>DRIVE BELT AND PULLEYS.</u> Inspect for broken, frayed, and excessively worn drive belt. Inspect the belt for loose mounting on the pulleys. Inspect the pulleys for cracked, chipped or broken edges, and loose mounting. Check for a 1-inch distance between the sides of the belt when both sides of the belt are pressed inward midway between the pulleys.	
4	<u>BUTTON MACHINE HEAD.</u> Inspect the button machine head for dirty surfaces and grease deposits; for bent, broken, loose, or missing components; and for loose mounting. Inspect the needle for broken or excessively worn point; for bent or broken shaft; and for loose mounting.	
5	<u>THREAD UNWINDER.</u> Inspect the thread unwinder for loose or missing bolts, nuts, and screws; for bent or broken components; for corroded surfaces; and for loose mounting.	
6	<u>LAMP ASSEMBLY.</u> Inspect the lamp assembly, bracket, and stand for loose or missing bolts, nuts, and screws, and loose mounting. Inspect for dirty, cracked, or broken housing and lens. Inspect the electrical cord for frayed insulation and broken wiring. Inspect for a broken lamp switch. Check the switch for improper operation, and make certain the lamp (bulb) is not burned out.	
7	<u>FOLDING STAND.</u> Inspect the folding stand for bent or broken components; for loose or missing bolts and nuts; and for loose mounting to the table assembly. Make certain the folding stand is level on the floor.	
8	<u>STARTING TREADLE.</u> Inspect the starting treadle for bent, broken, loose, or missing components, and loose mounting. Press the treadle and make certain that the pulley shifter engages with the machine drive pulley.	

Figure 3-104
Daily PMCS For The Button Sewing Machine

Performance Steps

ITEM	
9	<u>BUTTON CLAMP LIFTER TREADLE.</u> Inspect the button clamp lifter treadle for bent, broken, loose, or missing components, and loose mounting. Press the treadle to make certain that the lifting rod raises and lowers the button clamp.
10	<u>ELECTRIC MOTOR.</u> Inspect the electric motor for dirty surfaces and grease deposits; for bent, cracked, or broken housing; for loose or missing bolts and nuts; for loose electrical connections; and for loose mounting. Observe the motor for unusual noise and excessive vibration (during operation).
11	<u>MOTOR SWITCH.</u> Inspect for broken or bent motor switch. Inspect it for loose mounting in the switch box. Check the switch for improper operation; make certain it turns the motor on and off.
	<u>NOTE 1. OPERATION.</u> During operation observe for any unusual noise or excessive vibration.

Figure 3-104
Daily PMCS For The Button Sewing Machine (Con't)

Performance Steps

LUBRICATION ORDER

LO 10-3530-203-10-1

20 OCTOBER 1965

**CLOTHING, REPAIR SHOP, TRAILER MTD, ARMY MODEL SPV34,
YORK ASTRO MODEL D8700337, TEXTILE, REPAIR SHOP,
TRAILER MTD, ARMY MODEL SPV35, YORK ASTRO
MODEL D8700447, MACHINE, SEWING BUTTON
SINGER MODEL 175-60/62**

Reference: LO 10-3530-203-10-2 and 3, C9100-II.

Intervals are based on normal hours of operation. Reduce to compensate for abnormal operation and severe conditions. During inactive periods, sufficient lubrication must be performed for adequate preservation.

Clean parts with SOLVENT dry cleaning. Dry before lubricating.

Apply two to three drops of LO of each friction point unless otherwise noted.

FIG. 79.

LUBRICANT • INTERVAL

- ① Needle Bar LO 4
- ② Vibrating Lever Hinge Screw 4
- ③ Presser Bar LO (2 points) 4
- ④ Hinge Stud LO 4
- ⑤ Looper Drive Shaft LO 4
- ⑥ Looper Driven Shaft LO (2 points) 4
- ⑦ Stop Motion Shaft LO 4
- ⑧ Stop Motion Block LO Hinge Screw 4
- ⑨ Feed Plate LO Carrier Regulator 4
- ⑩ Connecting Rod LO 4
- ⑪ Button Clamp Lifting Shaft LO 4
- ⑫ Lifting Rod LO 4

FIG. 79

INTERVAL • LUBRICANT

- ④ LO Thread Nipper Release Rod 4
- ④ LO Needle Bar Vibrating Cam 4
- ④ LO Cam Shaft 4
- ④ LO Hinge Lever Screw 4
- ④ LO Connecting Rod 4
- ④ LO Tension Release Rod Sleeve 4
- ④ LO Stop Motion Shaft 4
- ④ LO Drive Shaft 4
- ④ LO Drive Pulley 4
- ④ LO Drive Pulley Shifter 4
- ④ GAA Motor (2 points) (See Note 1) 250
- ④ LO Button Clamp Lifting Shaft 4
- ④ LO Rock Shaft 4
- ④ Upper Needle Bar Connecting Stud 4
- ④ LO Drive Shaft 4

HEAD ASSEMBLY RIGHT SIDE AND MOTOR

HEAD ASSEMBLY LEFT SIDE

MEC 3530-203-10/78 ①

Figure 3-105
Daily PMCS For The Button Sewing Machine

2. Lubricate the button machine according to LO 10-3530-203-10-1.

Performance Steps

3. Prepare the button machine for operation.
 - a. Select the needle.
 - (1) Use a size 16 or 18 needle. Size of needle describes the gauge of the needle eye.
 - (2) Use a 175 (class number) and a 3 or 7 (variety number) needle.
 - (a) Class number describes the shank of the needle.
 - (b) Variety number describes the length and the type of point on the needle. (See Figure 3-106)

Performance Steps

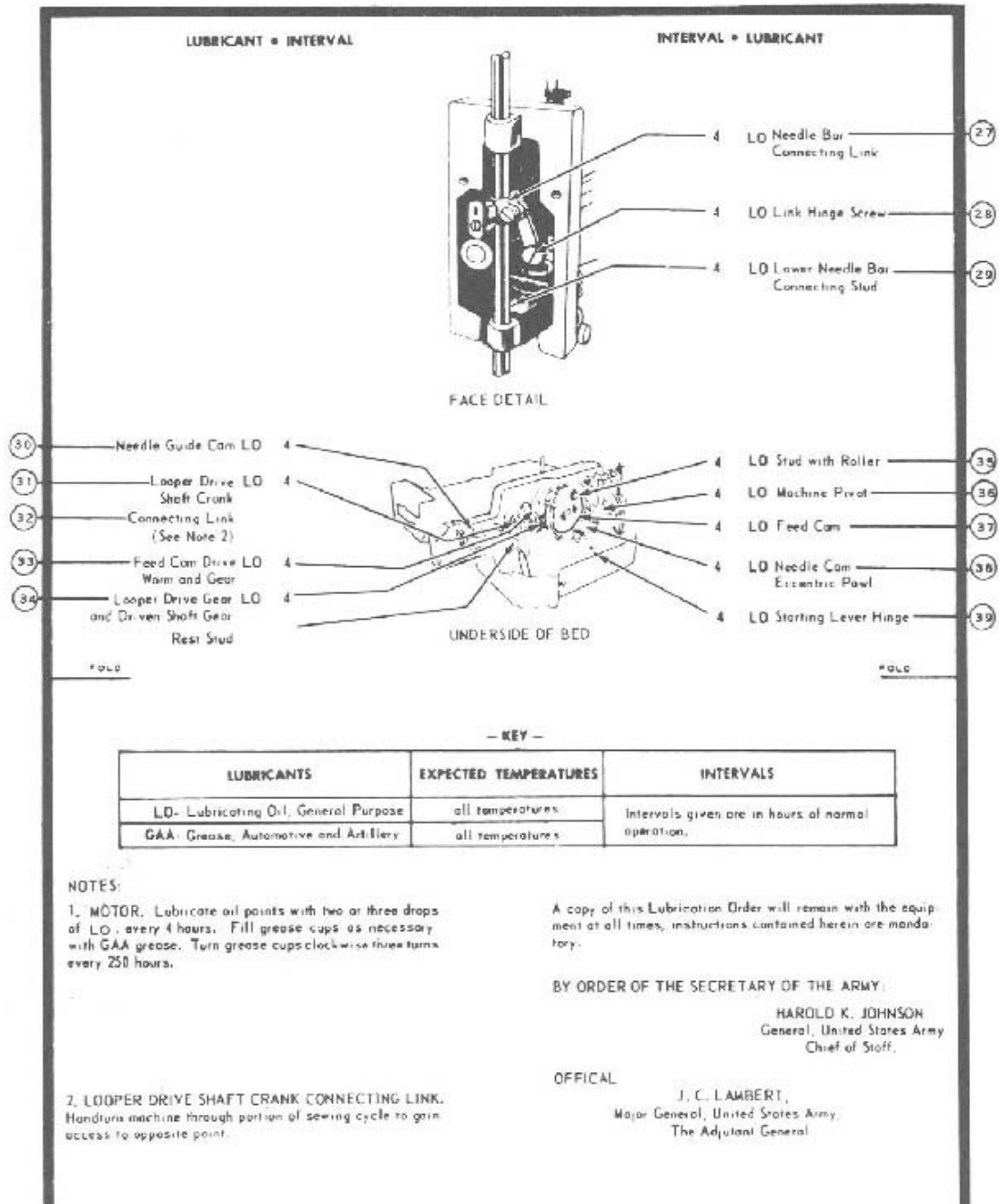


Figure 3-106
Sample of LO-10-3530-203-10-1 For Button Sewing Machine

b. Install the needle. (See Figure 3-107 and 3-108)

Performance Steps

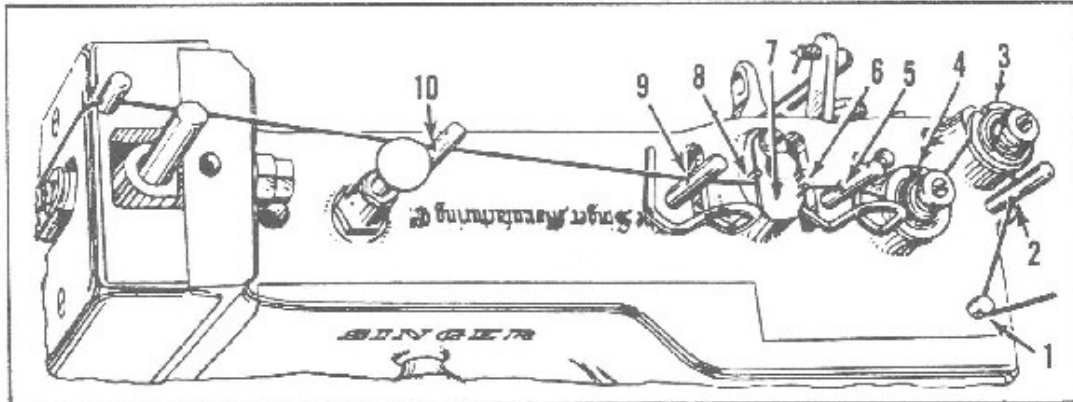


Figure 3-107
Sequence Of Threading Points on Top Of Button Sewing Machine Arm

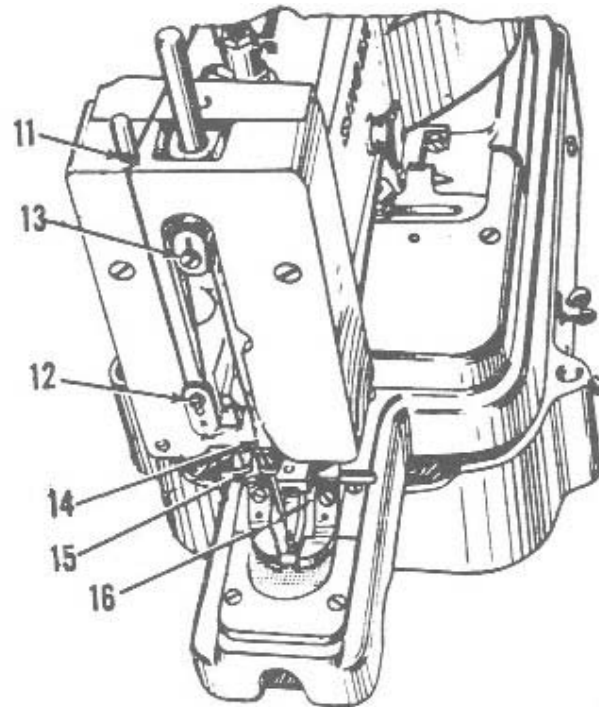


Figure 3-108
Sequence Of Threading Points On Face Of Button Sewing Machine

- (1) Loosen the needle setscrew.
- (2) Install a new needle in the needle bar as far as it will go. The long groove of the needle must face to your left.
- (3) Tighten the needle setscrew securely.

c. Thread the needle. Follow the instructions below.

NOTE: Move the thread take up lever to its highest point. Start and run the thread freely from the thread un-winder.

- (1) Pass the thread from right to left through the thread eyelet.
- (2) Pass the thread from right to left through the eyelet.

Performance Steps

- (3) Pass the thread from behind the automatic tension and between the tension disks of the automatic tension.
 - (4) Pass the thread forward to the right-hand side of and between the stationary tension disks.
 - (5) Pass the thread forward through the eyelet.
 - (6) Pass the thread forward between the guide pins.
 - (7) Pass the thread under the thread nipper plate.
 - (8) Pass the thread to the right of the guide pins.
 - (9) Pass the thread forward and through the eyelet.
 - (10) Pass thread forward through the eyelet.
 - (11) Pass the thread forward and through the guide at the top of the faceplate.
 - (12) Pass the thread down and from left to right through the roller guide near the bottom of the faceplate.
 - (13) Pass the thread up and from left to right through the needle bar connecting the link hinge stud thread guide.
 - (14) Pass the thread down through the faceplate thread retainer at the bottom of the faceplate.
 - (15) Pass the thread down through the guide at the lower end of the needle bar.
 - (16) Pass the thread down and from front to back through the eye of the needle.
- d. Adjust the tension on the thread.
- (1) Adjust the tension on the thread with the thumbnut.
 - (2) If the tension is too tight on the thread, the thread will break, if it is too loose, the stitches in the button will not pull down close enough to make firm bars of thread and the thread will ball or knot up under the needle. Turn the thumbnut to the right to increase the tension, or to the left to decrease the tension of the thread.
- e. Adjust opening in the button clamp.
- (1) Use the button clamp spreader handle to adjust the opening in the clamp enough to hold the button.
 - (2) Loosen the thumbscrew, move the adjusting lever to a point where it just clears the bottom stops crew and tighten the thumbscrew securely.
- f. Adjust pressure on the button clamp.
- (1) Loosen the pressure-regulating locknut.
 - (2) Turn the thumbscrew to the right to increase the pressure and to the left to decrease it.
 - (3) Tighten the locknut securely.
- g. Adjust the button clamp for two-hole and four-hole buttons.
- (1) Remove the hinge pin, which holds the button clamp.
 - (2) Insert the hinge pin in the upper hole to adjust the button clamp to hold two-hole buttons.
 - (3) Place the hinge pin in the lower pinhole to adjust the button clamp to hold four-hole buttons.
- h. Adjust the forward and the backward motion of the button clamp when sewing four-hole buttons. Sew the first bar of stitches in the two back holes. (See Figures 3-109 and 3-110)

Performance Steps

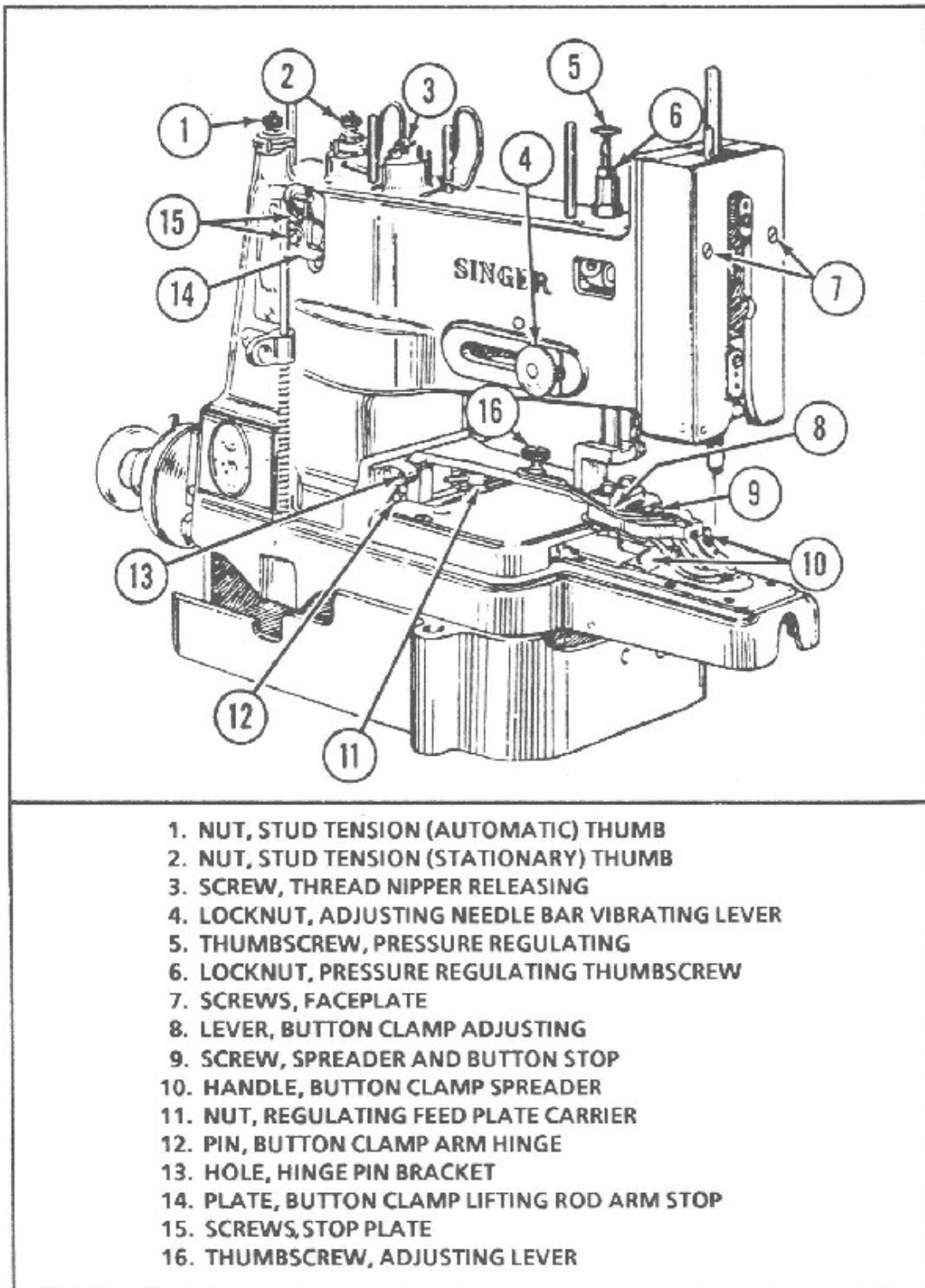
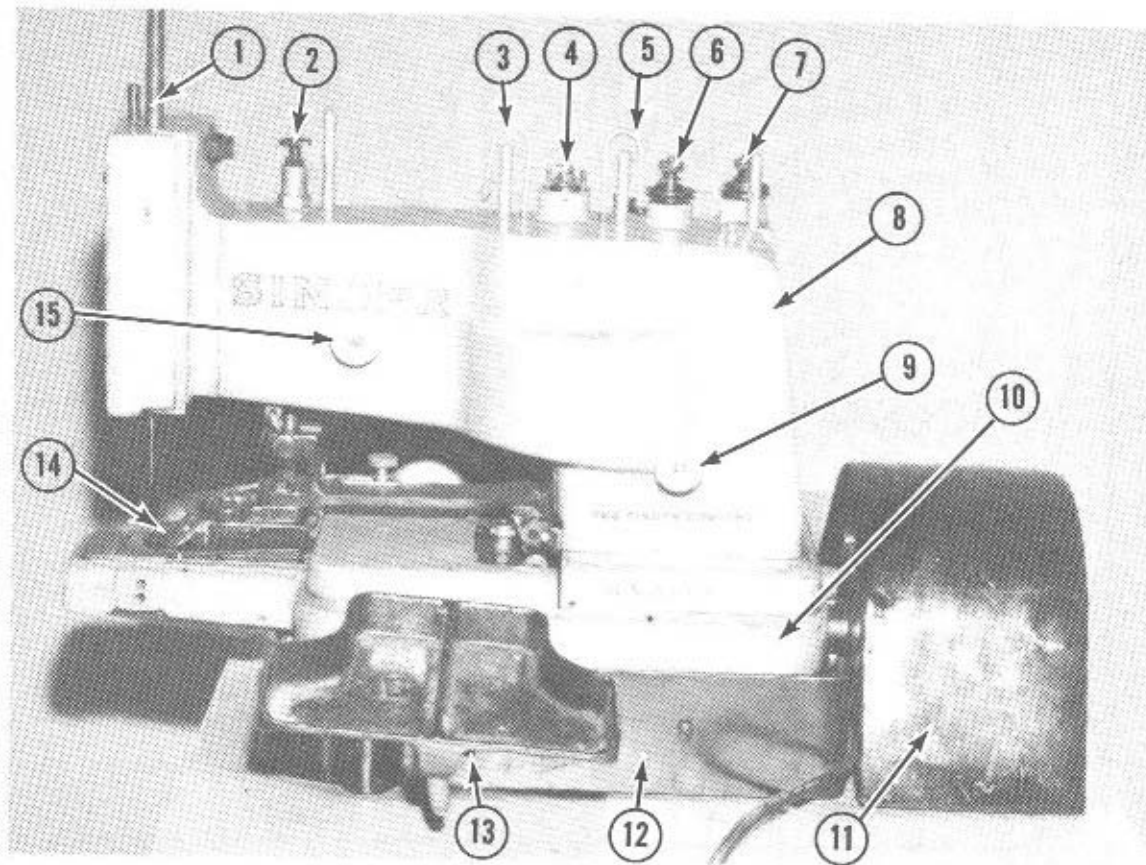


Figure 3-109
Left-Side View Of Button Sewing Machine

Performance Steps



- | | |
|-----------------------------------------|----------------------------|
| 1. BAR, NEEDLE | 9. NUT, COVER STUD THUMB |
| 2. THUMBSCREW, PRESSURE REGULATING | 10. BED, MACHINE |
| 3. PULLOFF, FRONT THREAD | 11. GUARD, BELT AND PULLEY |
| 4. NIPPER, THREAD | 12. BASE, MACHINE |
| 5. PULLOFF, REAR THREAD | 13. WINGNUT, MACHINE LOCK |
| 6. NUT, STUD TENSION (STATIONARY) THUMB | 14. CLAMP, BUTTON |
| 7. NUT, STUD TENSION (AUTOMATIC) THUMB | 15. NUT, COVER STUD THUMB |
| 8. ARM, MACHINE | |

Figure 3-110
Right-Side View Of Button Sewing Machine

- i. Regulate the needle bar vibration.
 - (1) Loosen the locknut.
 - (2) Move the needle bar slide toward the needle to decrease the width of vibration on the needle bar.
 - (3) Tighten the locknut.
- 4. Operate the button machine.

Performance Steps

- a. Depress the button clamp lifter treadle to raise the button clamp enough to insert the button in the jaws of the clamp. While the clamp is raised, insert the material between the clamp and the feed plate.
- b. Release the treadle, so the button clamp will come down upon the material over the place where the button is to be sewn.
- c. Turn on the machine with the motor switch.
- d. Step firmly upon the treadle, thus making the pulley shifter draw the pulley against the stop dog.
- e. Use a quick firm tread with a prompt release to start the button machine.
- f. Release the treadle and the machine will automatically make its cycle of 16 stitches and then will stop with the needle raised to its highest position.

5. Perform during-operation maintenance.

6. Stop the button machine.

- a. The button machine automatically stops after it has made its cycle for sewing on a button.

NOTE: Do not raise the button clamp until the machine stops.

- b. Press on the button clamp lifter treadle to raise the clamp. This step severs or cuts the thread from the looper under the needle. Pull the material with button sewn on it from the jaws of the button clamp.

- c. Turn off the machine with the motor switch.

NOTE: See Figure 3-93 pertaining to DA Form 2404.

7. Record all malfunctions on DA Form 2404 that cannot be corrected. (See Figure 3-111 and 3-112)

Performance Steps

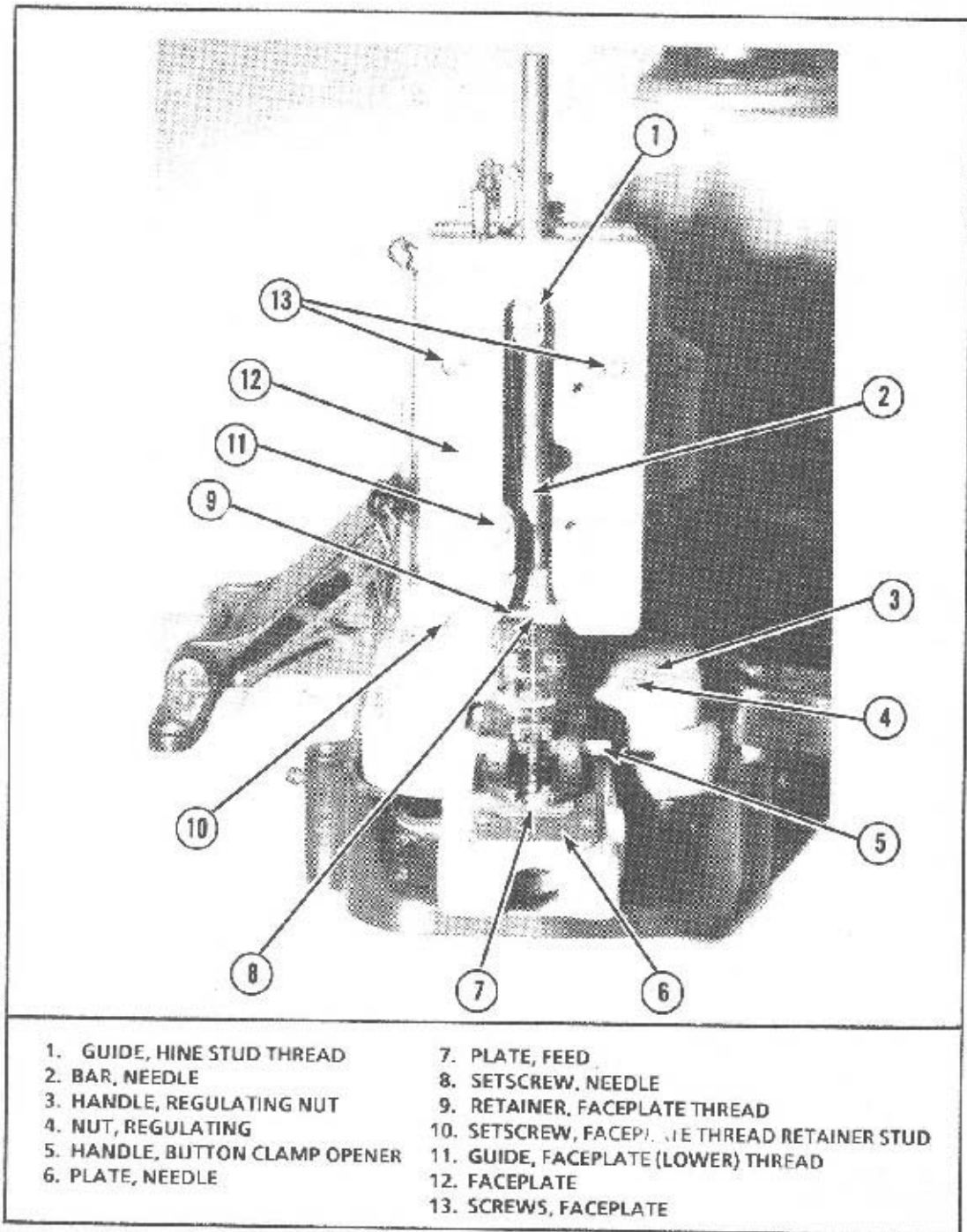


Figure 3-111
Face Of Button Sewing Machine

Performance Steps

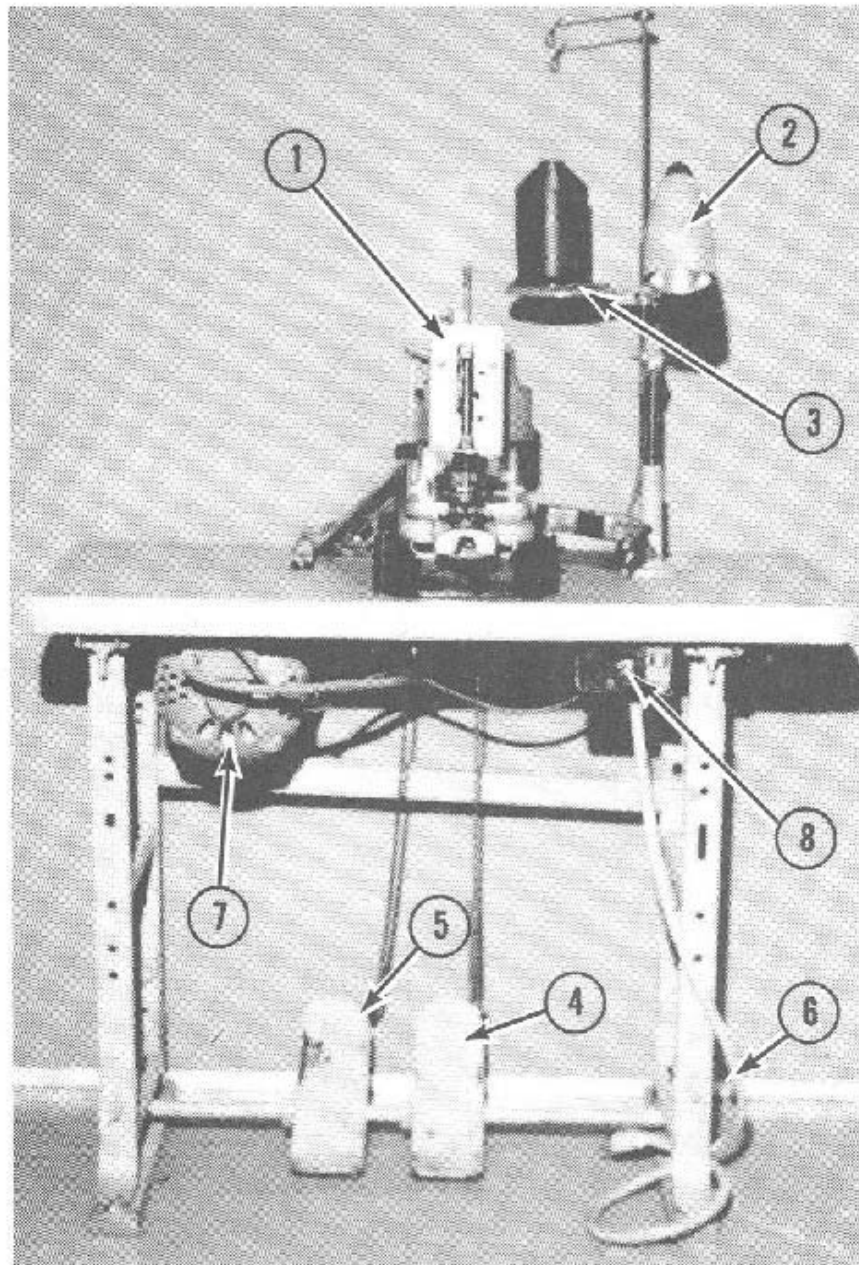


Figure 3-112
Front View Of Button Sewing Machine

Performance Measures

1. Performed before-operation maintenance.
2. Lubricated the button machine according to LO 10-3530-203-10-1.

<u>GO</u>	<u>NO GO</u>
—	—
—	—

Performance Measures

	<u>GO</u>	<u>NO GO</u>
3. Prepared the button machine for operation.	—	—
4. Operated the button machine.	—	—
5. Performed during-operation maintenance.	—	—
6. Stopped the button machine.	—	—
7. Recorded all malfunctions on DA Form 2404 which cannot be corrected.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

- Required**
 TM 10-3530-203-10
 TM 10-8400-201-23

Related

Troubleshoot and Adjust The Button Machine
101-92S-1005

Conditions: You are assigned to a sewing machine operations area. Your supervisor tells you to locate and correct malfunctions on a button machine. Materials required: button machine, sash brush, machine oil, DA Form 2404, and a tool kit.

Standards: Correct all malfunctions of the button machine and record all malfunctions that cannot be corrected on DA Form 2404.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Troubleshoot the button machine for malfunctions.
2. Correct all malfunctions that can be corrected.
3. Record all malfunctions that cannot be corrected on DA Form 2404. (See Figure 3-113 and Figure 3-114)

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
Needle breaks.	<p>Needle is of wrong size, class, and variety.</p> <p>Needle is bent or has a blunt point.</p> <p>Button is not aligned firmly and correctly in clamp.</p> <p>Stepping on starting treadle before letting button clamp down firmly on material</p> <p>Raising button clamp before machine stops.</p> <p>Button clamp is not set to correspond to number of holes in button.</p> <p>Feed plate is not locked in.</p> <p>Button clamp is out of adjustment.</p> <p>Needle bar vibration not coinciding with distance between holes.</p> <p>Clamp adjusting lever is out of adjustment.</p> <p>Needle guide is out of adjustment.</p> <p>Thread finger is out of time.</p> <p>Looper is out of adjustment or out of time.</p> <p>Needle bar or feed plate operating cam is out of time.</p> <p>Thread nipper is out of adjustment.</p>	<p>Install needle of correct size, class, and variety (para 159a and b).</p> <p>Install serviceable needle (paras 159a and b).</p> <p>Align button firmly and correctly in clamp (paras 159g and h).</p> <p>Do not step on starting treadle before machine stops.</p> <p>Do not raise button clamp before machine stops.</p> <p>Set button clamp to correspond with number of holes in button (paras 159g and h).</p> <p>Lock feed plate in securely.</p> <p>Report this condition as stipulated in DA PAM 738-750</p> <p>Report this condition as stipulated in DA PAM 738-750</p> <p>Adjust lever thumbscrew (para 159e).</p> <p>Report this condition as stipulated in DA PAM 738-750</p> <p>Report this condition as stipulated in DA PAM 738-750</p> <p>Report this condition as stipulated in DA PAM 738-750</p> <p>Report this condition as stipulated in DA PAM 738-750</p> <p>Report this condition as stipulated in DA PAM 738-750</p>
Thread breaks.	<p>Machine is improperly threaded.</p> <p>Needle is of wrong size, class, or variety.</p> <p>Needle point is blunt or broken.</p> <p>Thread tension is too tight or too loose.</p> <p>Thread is damp or defective.</p> <p>Right-twist thread being used.</p> <p>Incorrect size of thread is being used.</p> <p>Needle strikes button.</p> <p>Needle bar is incorrectly installed in needle bar.</p>	<p>Rethread machine (para 159c).</p> <p>Install needle of correct size, class, or variety (paras 159a and b).</p> <p>Install serviceable needle (paras 159a and b).</p> <p>Adjust thread tension (para 159d).</p> <p>Use good dry thread.</p> <p>Use left-twist thread for needle.</p> <p>Use correct size of thread for needle and material (para 159a).</p> <p>Report this condition as stipulated in DA PAM 738-750</p> <p>Install needle correctly (para 159b).</p>

Figure 3-113
Troubleshooting Information For The Button Machine

Performance Steps

MALFUNCTION	POSSIBLE CAUSES	ACTION
	Looper is out of adjustment or out of time. Looper has rough edges or looper point is bent. Needle guide is out of adjustment. Needle guide is bent, burred, or broken. Thread finger is bent, burred, or broken. Needle guide oscillating crank spring is broken. Automatic tension is out of adjustment. Thread nipper is out of adjustment.	Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750
Lamp does not light when switch is in ON position.	Light cord is not plugged into electrical power receptacle. Light cord is broken. Incandescent lamp (bulb) is burner' out. Lamp assembly or switch is defective. Electrical power receptacle is defective.	Plug cord into receptacle. Report this condition as stipulated in DA PAM 738-750 Replace lamp. Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750
Motor fails to start when switch is in the ON position	Power cable is not plugged into power receptacle. Power cable is broken. Switch is defective. Motor is defective.	Plug power cable into receptacle. Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750
Unusual noise in motor.	Motor is defective.	Shut down sewing machine and report this condition as stipulated in DA PAM 738-750
Motor does not pull load.	Drive belt is slipping. Improper voltage or motor is faulty	Report this condition as stipulated in DA PAM 738-750 Report this condition as stipulated in DA PAM 738-750

Figure 3-114
 Troubleshooting Information For The Button Machine (Continued)

NOTE: See Figure 3-93

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Performed Troubleshoot of the button machine for malfunctions.	—	—
2. Corrected all malfunctions that can be corrected.	—	—
3. Recorded all malfunctions, which cannot be corrected, on DA Form 2404.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- DA PAM 738-750
- TM 10-3530-203-10
- TM 10-3530-205-14

Related

Prepare The Trailer-Mounted Clothing Repair Shop For Operation
101-92S-1006

Conditions: As a Laundry/Textile Specialist in a field environment, given one fully equipped clothing repair shop trailer, 2-1/2 ton truck, and TM 10-3530-203-10 or TM 10-3530-205-14.

Standards: Complete, in order, the setting up, preparing, and unloading of the trailer-mounted clothing repair shop.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Disconnect the clothing repair shop.
 - a. Set the right and left hand brakes by pulling each hand brake forward to apply the brake.
 - b. Lift, lower and lock the caster in the vertical position by pulling down the caster release until it locks in place.
 - c. Disconnect the inter-vehicular cable from the towing vehicle by pulling the socket out of the receptacle.
 - d. Close the air shutoff valve on the 2-1/2-ton truck by pushing the handle in.
 - e. Turn the air hose couplings counterclockwise to disconnect them from the 1-1/2-ton truck.
 - f. Place the disconnected air hose in the brackets provided on the clothing repair trailer.
 - g. Unhook the safety chains from the 2-1/2-ton truck, and hook them to the lifting bar on the clothing repair trailer.
 - h. Pull out the cotter key from the pintle.
 - i. Lift the draw bar coupler from the pintle of the 2-1/2-ton truck.
 - j. Pull out the cotter key to release the support leg located underneath the rear of the trailer.
 - k. Lower the rear support leg to the ground.
 - l. Adjust the rear support leg as needed.

NOTE: To lower the rear support leg, turn it counterclockwise; to raise the rear support leg, turn it clockwise.

2. Unlock and raise the doors to the cabinet assembly.
 - a. Unlatch and let down the tailgate.
 - b. Turn the locking latch handles to unlock and open each door on the cabinet assembly.
 - c. Raise the doors and position the stays to hold the doors in the open position.

NOTE: Make sure the stays are fully extended and locked into position.

3. Unload the equipped generator set.
 - a. Loosen the wing screws on the generator rear hold down assembly that secures the generator set to the slide tracks.
 - b. Remove the hold down assembly from the cabinet.
 - c. Loosen the wing screws on the generator front hold down assembly.
 - d. Pull the generator set toward you.
 - e. Lift the generator set from the slide track and out of the cabinet.
 - f. Place the generator set at least 25-feet from the work area.
4. Unload the machine table assemblies, folding stands, and storage boxes.
 - a. Slide the machine tabletops from the racks and out of the cabinets.
 - b. Unfasten the hold down straps that secure the eight folding stands in the lower compartments on each side of the cabinet.
 - c. Remove the cross-braces from the tops of the folding stands and from the cabinet.
 - d. Remove the folding stands from the compartments.
 - e. Slide out the four storage boxes from the left and right sides of the cabinet.
5. Unload the folding chairs.
 - a. Unfasten the strap assemblies that hold the eight folding chairs in the rear of the cabinet.
 - b. Remove the folding chairs from the cabinet.

Performance Steps

6. Unload the table assemblies.
 - a. Pull the worktables from the slides in the rear of the cabinet.
 - b. Position the worktable inside the tent.
7. Set up the mobile clothing repair shop equipment.
 - a. Assemble the folding stands.
 - (1) Loosen the wing nuts at each corner of each folding stand.
 - (2) Raise the ends of the folding stands to the vertical position.
 - (3) Press down on the ends of the folding stand until the bottoms come in contact with the top of the foot section.
 - (4) Tighten the wing nuts securely.
 - (5) Place the foot treadle in its operating position.
 - (6) Install a cross-brace to the back of the folding stand.
 - b. Position the tabletop assemblies on the folding stands.
 - (1) Open storage boxes to gain access to all bolts, wing nuts, and clamps used to secure the tabletops to the folding stands.
 - (2) Install a tabletop assembly on each folding stand.
 - (3) Insert the bolts through the tabletop, into the slots in the top of the steel-folding stand, and through the holes in the clamps. Fasten each bolt securely with the wing nuts.
 - c. Install the sewing machine heads and components on the tabletop assemblies.
 - (1) Pull each tray with a machine head out of the slide until it hits the stop located on the bottom of the tray.
 - (2) Remove the thumbscrews that secure the hold down strap assembly to each machine head.
 - (3) Open the straps and remove each machine head from the cabinet.
 - (4) Place the sewing machine head into the cutout slot on the tabletop.
 - (5) Remove the pitman rod from the storage box and connect it to the clutch assembly and to the foot treadle.
 - (6) Remove the bobbin winder and the wood screw from the storage box.
 - (7) Install the bobbin winder under the balance wheel on the tabletop.
 - d. Install the thread un-winder.
 - (1) Remove the thread un-winder base, thread cone rests, setscrews, and screws from the storage box.
 - (2) Place the thread un-winder base to the rear of the bobbin winder on the tabletop. Tighten setscrews.
 - (3) Place the thread cone rests on the thread un-winder, and install a setscrew in them (underneath the cone rests). Place the thread cone rests to the thread un-winder base, and tighten the setscrews.
 - (4) Place the thread guidelines into the positioned thread guide cup.
 - (5) Screw the thread guide locknut into the positioning thread guide cup.
 - e. Put the sewing machine rest pins through the hole in the rear of the machine head and the hole on the rear of the tabletop.
 - f. Remove the light cord from the storage box.
 - g. Attach the light cord to the bracket on the rear of the machine head.
 - h. Plug the light cord into the receptacle box underneath the tabletop.
 - i. Remove the drive belt from the storage box.
 - j. Install the retaining pin in the drive belt.
 - k. Install the belt on the motor drive pulley and on the machine drive pulley.
 - l. Place a folding chair in position in front of each sewing machine.
 - m. Position the worktable assemblies.
 - (1) Turn the table assemblies upside down.
 - (2) Unfold the legs and lock them by sliding the backs downward into position to secure the leg support.
 - (3) Turn the table assemblies over to an upright position.

Performance Steps

- n. Position the grommet press.
 - (1) Remove the grommet press from the storage box.
 - (2) Remove the nuts, washers, and screws from the end of the tabletop assembly. Install the grommet press. Tighten the nuts securely.
- o. Position the tack-button attaching machine.
 - (1) Remove the tack-button attaching machine from the storage box.
 - (2) Remove the nuts, washers, and screws from the tabletop.
 - (3) Install the tack-button attaching machine to the tabletop.
 - (4) Tighten the nuts securely.
- p. Connect the power cables and light cords.
 - (1) Connect the three-receptacle outlet power cables to the generator set.
 - (2) Connect the 3 two-duplex outlet power cables to the three-receptacle outlet power cable.
 - (3) Connect the four light cords to the two-duplex outlet power cable receptacles marked with the letter "L."
- q. Open the bracket in the rear of the cabinet and remove the fire extinguisher.
- r. Place the fire extinguisher in a convenient location near the work area.

NOTE: Dismantle the components of the clothing repair shop, and load everything in the cabinet by reversing the unloading and setting up procedures. Before closing the cabinet doors, make sure all trays, table assemblies, and storage boxes are secured in their proper positions to prevent damage to equipment and doors.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Disconnected the clothing repair shop.	—	—
2. Unlocked and raise the doors to the cabinet assembly.	—	—
3. Unloaded the 3-kilowatt generator set.	—	—
4. Unloaded the machine table assemblies, folding stands, and storage boxes.	—	—
5. Unloaded the folding chairs.	—	—
6. Unloaded the table assemblies.	—	—
7. Performed set up of the mobile clothing repair shop equipment.	—	—

Inspect And Classify Clothing For Repair**101-92S-1021**

Conditions: You are assigned to a fabric repair shop, which receives items of clothing for repair.
Materials required: chalk, items of clothing with defects, and TM 10-8400-201-23.

Standards: In order, inspect, mark, fold, and place repairable clothes in the repair area, and place salvageable clothes in the designated area.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Inspect the clothing for defects.
 - a. Holes and worn places.
 - b. Tears and cuts.
 - c. Torn or missing tabs, straps, hanger loops, and shoulder loops.
 - d. Worn pockets and pocket flaps.
 - e. Open seams and broken stitches.
 - f. Missing or broken buttons.
 - g. Loose, damaged, or missing bar tacks.
 - h. Worn or damaged collars.
 - i. Worn or damaged linings.
 - j. Fading of material.
2. Classify the clothing as repairable or salvageable using item classification codes. (See Figure 3-115)

Performance Steps

CODE	EXPLANATION
A	New and unused property possessing original appearance and serviceability.
B	<p>Serviceability as to be acceptable for issue or sale in lieu of class A like-new property.</p> <p>(1) Items peculiar to the clothing allowance system will possess a high degree of appearance and serviceability. These items affect the personal appearance of the individual and should be in such condition as to be readily acceptable for issue and cash sale purposes. In no case should the wear expectancy be less than 75 percent of a like-new item.</p> <p>(2) Items of organizational clothing and equipage will possess such appearance and degree of serviceability as to justify their issue to troops and afford a satisfactory military appearance. As a guide only and where practicable for application, these items should possess not less than 50 percent of the life of a like-new item.</p>
F	Unserviceable items which are economically repairable. Economically repairable items are those which may be restored to Class B condition for not more than 65 percent (clothing) or equipage of prices contained in current Army Master Data File.
H	Unserviceable items which are obviously scrap or salvage, for which any would require a repair cost exceeding 65 percent for clothing or equipage of the current cost of the item.
X	Items which do not possess the appearance or degree of serviceability to justify the classification of B or which cannot be repaired economically for the purpose originally intended, but which can be used as an end item (without benefit of repair) for duties which are harmful to clothing, i.e., mechanics, painters, construction workers, etc.

Figure 3-115
Item Classification Codes

3. Mark all defects found on clothing.
 - a. Items to be mended are marked with white or yellow tailor's clay chalk.
 - b. Use the marking symbols shown in Figure 3-115.
 - c. Return the items with defect symbols to the initial repairer. (See Figure 3-116)

Performance Steps**MARKING SYMBOLS**

FOR DEFECTS, MARK WITH WHITE TAILOR'S CHALK CLOSE TO THE SPOT THAT NEEDS THE REPAIR. USE ONE OF THE FOLLOWING MARKS:

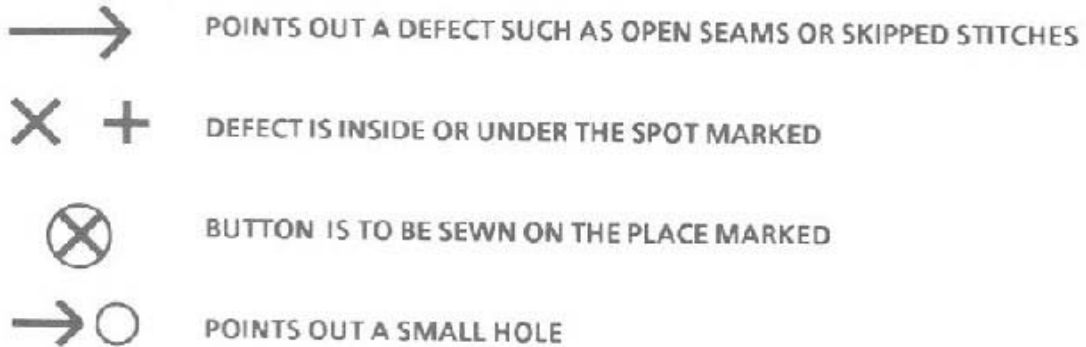


Figure 3-116
Symbols Used To Mark Defects

Performance Measures

1. Inspected the clothing for defects.
2. Classified the clothing as repairable or salvageable using item classification codes.
3. Marked all defects found on clothing.

GO **NO GO**

— —

— —

— —

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References**Required**

FM 10-16
TM 10-8400-201-23

Related

Subject Area 9: HAND AND MACHINE REPAIR OF WEBBED ITEMS

Sew A Simple Top Patch

101-92S-1020

Conditions: You are working in the repair section of a repair shop and receive field trousers, field shirts, and sleeping bag covers with splits or tears. Materials required: light-duty sewing machine, shears, chalk, ruler, and patch material.

Standards: Complete, in order, all necessary steps to repair splits or tears in items by constructing and sewing a simple top patch. The patch must be centered over the damaged area. All edges must be folded under with no raw edges showing. Each stitch row must have a 1-inch tack.

Performance Steps

NOTE: Apply Risk Management Procedures

1. Measure and mark the damaged area.
 - a. Measure from the edge of the damaged area 2 3/4-inches from all sides of the damage and mark with chalk lines.
 - b. Connect the marked lines around the damaged area.
2. Prepare the patch material.
 - a. Measure and mark with chalk lines, a piece of patch material the same size as the marked area to be patched.
 - b. Cut out the patch.
 - c. Fold the patch in half lengthwise. Crease the fold with the shears.
 - d. Fold the patch again widthwise. Crease the fold with the shears.
 - e. Lay the patch out flat.
 - f. Measure and mark a chalk line, 3/4-inch from all raw edges of the patch.
 - g. Fold the edges under on the patch on the chalk lines.
3. Repair the damaged area on the item.
 - a. Measure 1-inch from each end of the hole or tear, and mark with chalk lines.
 - b. Measure and mark a chalk line, 1/2-inch above and below the damaged area.
 - c. Place the item under the presser foot of the sewing machine.
 - d. Stitch the damaged area between the 1-inch and the 1/2-inch chalk lines with a zigzag stitch.
4. Position and sew the patch over the damaged area using the light-duty sewing machine.
 - a. Place the prepared patch over the damaged area.
 - b. Align the patch so that it is centered over the damaged area and has a 2-inch overlap on all sides.
 - c. Hold the patch over the damaged area, and place both the patch and the item under the presser foot of the machine.
 - d. Insert the needle 1/8-inch from the edge and midway between the right corners of the patch.
 - e. Sew a stitch row 1/8-inch from the folded edge of the patch.
 - f. Finish the stitch row with a tack that overlaps the beginning of the stitch row by 1-inch.
5. Construct the felled top patches.
 - a. If the tear is not practical to use a zigzag stitch, cut away the damaged area and make a felled top patch. The felled top patch differs from the simple top patch only in the manner of finishing. After stitching the patch in place from the top side, turn the material over.
 - b. Measure and mark 1-inch all around from the stitch row.
 - c. Cut out the damaged area to the 1-inch mark and measure and mark from the 1-inch mark, 1/2-inch all around, then notch the corner to the 1/2-inch line.
 - d. Fold under 1/2-inch around the inside of the patch and measure and mark 1/8-inch for the stitch line from the felled or folded edge.(See Figure 3-117)

Performance Steps

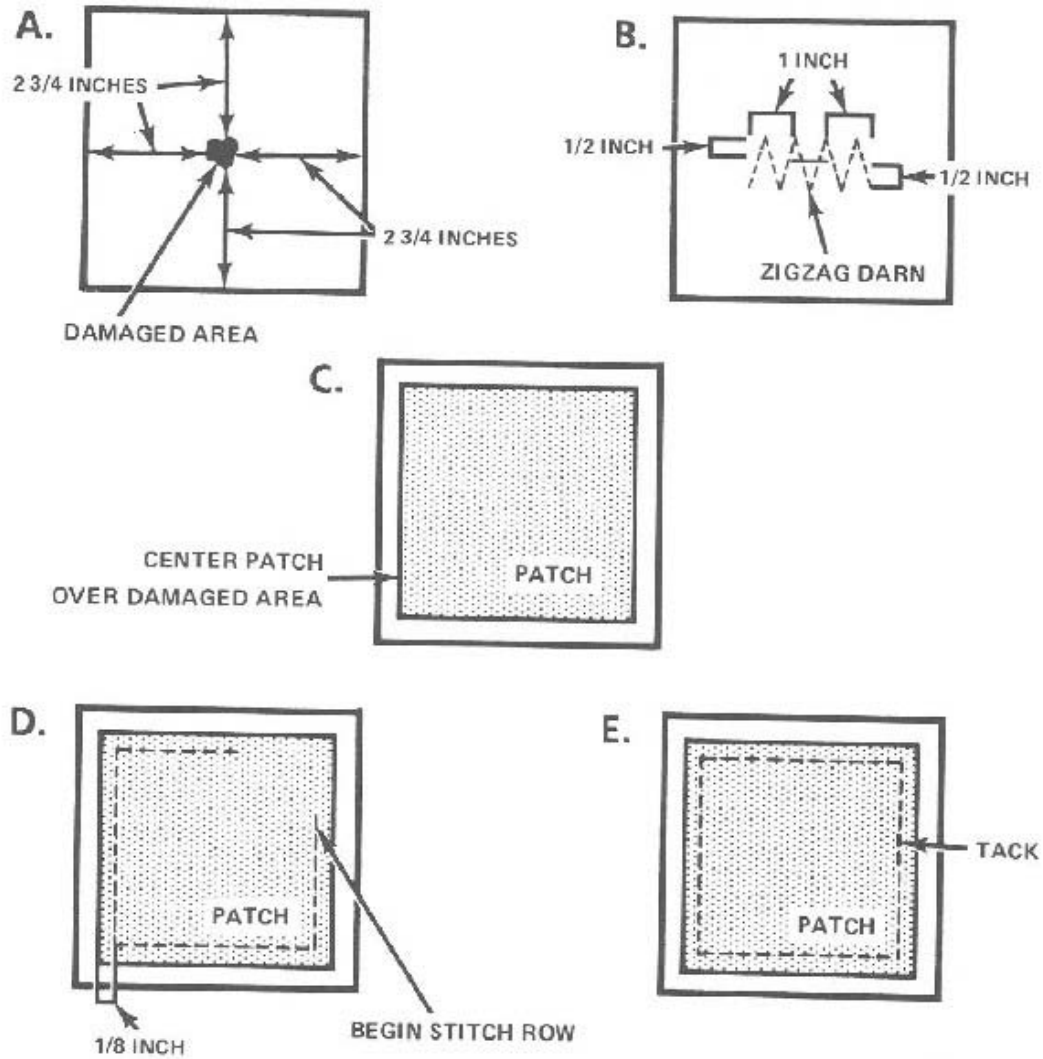


Figure 3-117
Steps In Constructing And Sewing A Simple Top Patch

- e. Sew a stitch row 1/2-inch all around the folded edges of the inside of the patch.
- f. Finish the stitch row with a 1-inch tack by overlapping the beginning of the stitch row.

Performance Measures

1. Measured and marked the damaged area.
2. Prepared the patch material.
3. Repaired the damaged area on the item.
4. Positioned and sewed the patch over the damaged area using the heavy-duty sewing machine.
5. Constructed the felled top patches.

GO **NO GO**

—	—
—	—
—	—
—	—
—	—

Performance Measures

	<u>GO</u>	<u>NO GO</u>
6. Place drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—
7. Remove spills (small).	—	—
8. Collect contaminated soil, absorbent materials, and debris into approved containers.	—	—
9. Comply with container labeling requirements.	—	—
10. Comply with disposal requirements requirements for contaminated materials.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16

Related

Skill Level 2

Subject Area 10: UNIT SHOWER/LAUNDRY CLOTHING REPAIR OPERATIONS

**Process Incoming DA Form 2404 (Maintenance Request)
101-92S-2000**

Conditions: You are assigned to a shower / laundry and clothing repair (SLCR) platoon, and work in the receiving section of a fabric repair shop. You receive and process maintenance requests from a supported unit on a partially completed DA Form 2407. Materials and equipment required: one partially completed DA Form 2407, completed DA Form 1687, and DA Pam 738-750.

Standards: Complete, accurately, all necessary steps to process maintenance requests from a supporting unit on a partially completed DA Form 2407.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Check signature and initials of the person or persons listed on current DA Form 1687 to ensure that the person submitting DA Form 2407 is authorized.
2. Check DA Form 2407 to ensure that the supporting unit entered the required information.
 - a. Sign and date receipt copy 1 of DA Form 2407 in block 24, Received By and Julian Date.
 - b. Enter receiving section information in Section II-Work Accomplished of copies 2, 3, 4, and 5 of DA Form 2407.
 - c. Ensure that the repair section repaired all items and completes all required blocks in Section II-Work Accomplished of copies 2, 3, 4, and 5 of DA Form 2407.
 - d. Sign and date copies 2, 3, 4, and 5 of DA Form 2407 in block 26, Inspected By and Julian Date.
 - e. Ensure that the supporting unit's authorized representative signs and dates copies 2, 3, 4, and 5 of DA Form 2407, block 27, Accepted By and Julian Date.
 - f. Check proper disposition box in block 28 of copies 2, 3, 4 and 5 of DA Form 2407.
 - g. Place repaired items in storage until the supporting unit picks them up.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Checked signature and initials of the person or persons listed on current DA Form 1687 to ensure that the person submitting DA Form 2407 is authorized.	—	—
2. Checked DA Form 2407 to ensure that the supporting unit entered the required information.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
DA PAM 738-750

Related

**Perform final inspection on repaired common table of allowance (CTA) 50-900 Items
101-92S-2001**

Conditions: You are assigned to a shower / laundry and clothing repair (SLCR) platoon, and work in the clothing repair section. You must perform the final inspection on CTA 50-900 items repaired and returned to the inspection section. Materials and equipment required: repaired and returned CTA 50-900 items.

Standards: Complete all necessary steps to complete final inspection of a CTA 50-900 item.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Inspect repaired CTA 50-900 item.
 - a. Make sure rips, tears, and cuts are sewn or patched.
 - b. Make sure worn and deteriorated places are darned or patched.
 - c. Make sure torn, missing, and worn tabs, straps, hanger loops, and epaulets are repaired or replaced.
 - d. Make sure frayed edges, hems, sleeves, and shirttails are repaired.
 - e. Make sure damaged pockets and pocket flaps are repaired or replaced.
 - f. Make sure damaged button holes are repaired.
 - g. Make sure all new stitch rows are secured by tacking.
 - h. Make sure torn or excessively worn collar and cuffs are replaced or repaired.
 - i. Make sure all stitches are smooth and evenly spaced.
 - j. Make sure thread and the patch are of the same color and texture as the repaired item.
2. Mark any defects found during the inspection.
3. Return the item with defect(s) to the initial repairer.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Inspected repaired CTA 50-900 item.	_____	_____
2. Marked any defects found during the inspection.	_____	_____
3. Returned item with defect(s) to the initial repairer.	_____	_____

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

FM 10-16
TM 10-8400-201-23

Related

**Provide technical guidance For Repair Of Textile, Clothing And Webbed Equipment Items
101-92S-2002**

Conditions: You have been assigned to a shower / laundry and clothing repair (SLCR) platoon. You are to supervise the clothing repair shop. You must give guidance and assignments to subordinates on the repairs of textiles, clothing, and webbed equipment items. Materials and equipment required: light-duty sewing machine, darning machine, button machine, TM 10-8400-201-23, FM 10-16, CTA 50-900 items, replacement material, and one tool kit.

Standards: Complete all necessary steps to provide technical guidance for accurate repairs of textile, clothing, and webbed equipment items.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Instruct soldiers to use serviceable materials for repairs of clothing, textiles, and webbed items.
2. Instruct soldiers on how to determine the necessary repairs on:
 - a. Worn fabric, especially in knee, crotch, seat, elbow, and underarm areas.
 - b. Frayed edges, especially on hems, cuffs, collars, fly fronts, and pocket flaps.
 - c. Holes.
 - d. Rips and tears.
 - e. Open seams, broken stitching, and missing bar tacks.
 - f. Worn, torn, or missing tabs, straps, loops, and epaulets.
 - g. Worn or damaged pockets and pocket flaps.
 - h. Worn or torn linings.
 - i. Missing padding.
 - j. Loose buttons and snaps.
 - k. Frayed, enlarged, or ripped buttonholes.
 - l. Broken zippers.
 - m. Loose hook and loop tape.
 - n. Missing or damaged buckles.
 - o. Worn drawstrings, laces, and belts.
 - p. Missing or worn elastic.
 - q. Other missing or defective fasteners or hardware.
 - r. Areas that need alterations.
3. Provide technical guidance on repairing CTA items and fabricating replacement seat covers for tactical vehicles.
 - a. Darn to reinforce small areas.
 - b. Patch holes larger than 1-inch across.
 - c. Re-stitch or replace missing snaps or straps.
 - d. Use snap fasteners in place of buttons.
4. Inspect items for compliance with TM 10-8400-201-23.
 - a. Inspect for worn or weak areas.
 - b. Inspect for holes.
 - c. Inspect for tears.
 - d. Inspect for mildew stained area.
 - e. Inspect for mildew rotten area.
 - f. Inspect for overly patched area.
 - g. Inspect for badly repaired area.
 - h. Inspect for broken threads.
 - i. Inspect for open seams.
 - j. Inspect for poorly sewn seams.
 - k. Inspect for seams which thread has rotted.

Performance Steps

- l. Inspect for soiled area.
- 5. Provide technical guidance on repairing items.
 - a. Replace or patch worn or weak area.
 - b. Patch holes.
 - c. Replace area with several holes.
 - d. Darn or patch tears.
 - e. Clean mildew-strained area.
 - f. Patch or replace rotten area.
 - g. Repair area again.
 - h. Re-stitch broken thread.
 - i. Re-stitch open seam.
 - j. Re-stitch poorly sewn seam.
 - k. Re-stitch seam, which thread has rotted.
 - l. Clean and retreat soiled area.
- 6. Inspect all items to determine the amount of repairs needed.
 - a. Inspect for frayed ends.
 - b. Inspect for broken or loose stitching.
 - c. Inspect for worn or damaged webbing.
 - d. Inspect for mildew-stained webbing.
 - e. Inspect for mildew-rotted webbing.
- 7. Provide technical guidance on repairing webbing items.
 - a. Replace frayed ends of webbing.
 - b. Re-stitch the broken or loose stitching.
 - c. Replace worn, torn, or damaged webbing.
 - d. Clean and retreat mildew-stained webbing.
 - e. Replace mildew-rotten webbing.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Instructed soldiers to use serviceable materials for repairs of clothing, textiles, and webbed items.	—	—
2. Instructed soldiers on how to determine the necessary repairs.	—	—
3. Provided technical guidance on repairing CTA items and fabricating replacement seat covers for tactical vehicles.	—	—
4. Inspected items for compliance with TM 10-8400-201-23.	—	—
5. Provided technical guidance on repairing items.	—	—
6. Inspected all items to determine the amount of repairs needed.	—	—
7. Provided technical guidance on repairing webbing items.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
FM 10-16	
TM 10-8400-201-23	

**Perform Quality Assurance Inspection Of Textile, Clothing And Webbed Items
101-92S-2003**

Conditions: You have been assigned to the platoons, clothing repair section. As supervisor, you instruct the section subordinates to mark repairs on textiles, clothing, and webbed equipment items for the supported units. You are to perform quality assurance inspection of textile, clothing and webbing items after repairs has been made, and place items in a specified area. Materials and equipment required: (CTA) 50-900 items, textile, webbing, TM 10-8400-201-23 and a blank DA Form 2407.

Standards: To conduct, accurately, completion of all necessary steps to perform quality assurance inspection of textiles, clothing, and webbed equipment items.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Inspect quality of work performed by repairer.
 - a. Examine the size and color of thread.
 - b. Examine the type and length of the stitch.
 - c. Examine the type of seam used.
 - d. Ensure the breaks in stitching are tacked.
 - e. Ensure the patches match the color, texture, and weight of fabric.
 - f. Ensure that the correct type and size of zipper snaps is used.
 - g. Examine to ensure that two pieces of fabric have not been sewn together.
2. Ensure that all items submitted for repair are recorded on DA Form 2407.
3. Ensure that all items are repaired according to TM 10-8400-201-23.
 - a. Examine for rips, tears, or if dry rotted.
 - b. Examine for mildew, broken threads, or open seams.
 - c. Examine to see if the repairs were stitched properly.
 - d. Examine for hidden defects.
 - e. Examine to see if the hardware is installed properly.
4. Ensure that all items have been properly tagged and marked for temporary storage.
 - a. DD Form 754 is used to identify an item to be repaired, the nature of the repairs, and the owner or organization of the item.
 - b. DD Form 754 is to accompany by a DA Form 2407.
 - c. When the item goes to the shop for repair, it is the shop's responsibility to see that the item is tagged, or that a tag is filled out in the shop and placed on the item.
 - d. Store textile fabric when dry.
 - e. Spread textile fabric out flat and fold.
 - f. Stack textile fabric on dunnage supported by 2-inch by 4-inch lumber.
 - g. For temporary storage, textile should be marked, dated and stored on dunnage.
 - h. Cover textile fabric with waterproof material when stored near ventilators.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Inspected quality of work performed by repairer.	—	—
2. Ensured that all items submitted for repair are recorded on DA Form 2407.	—	—
3. Ensured that all items are repaired according to TM 10-8400-201-23.	—	—
4. Ensured that all items have been properly tagged and marked for temporary storage.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

DA PAM 738-750

FM 10-16

TM 10-8400-201-23

Related

Inspect and Classify Clothing items
101-92S-2004

Conditions: You are supervising the receiving and inspection section of a clothing repair shop. You receive clothing items from the supported units that needs inspected and classify. This task can be performed in garrison or in a field environment. Materials and equipment required: clothing items, chalk and TM-10-8400-201-23.

Standards: Complete all necessary steps to inspect and classify items of clothing. Continue until all items are repaired and return to supported units.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Inspect clothing items.
 - a. Holes and worn places.
 - b. Tears and cuts.
 - c. Torn or missing tabs, straps, hanger loops, and shoulder loops.
 - d. Worn pockets and pocket flaps.
 - e. Open seams and broken stitches.
 - f. Missing or broken buttons.
 - g. Loose, damaged, or missing bar tacks.
 - h. Worn or damaged collars.
 - i. Worn or damaged linings.
 - j. Fading of material.
2. Classify items using the appropriate item classification code.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Inspected clothing items.	—	—
2. Classified items using the appropriate item classification code.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
FM 10-16	
TM 10-8400-201-23	

**Inspect, Classify, And Determine Reparability Of Textile, Clothing And Webbed Items Received
For Repair
101-92S-2005**

Conditions: As supervisor in a shower / laundry and clothing repair (SLCR) platoon, and work in the clothing repair section, you are to direct subordinates to inspect, classify, and determine repair ability of textile, clothing, and webbed items received for repair. This task can be performed in garrison or in a field environment. Materials and equipment required: clothing repair shop, textile, clothing, and webbed items needing repair.

Standards: Direct subordinates to correctly inspect, classify, and determine the repair ability of textile, clothing, and webbed items.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Ensure that all repairable items are inspected.
2. Ensure that all salvage items are properly labeled and classified.

Performance Measures

1. Ensured that all repairable items are inspected.
2. Ensured that all salvage items are properly labeled and classified.

<u>GO</u>	<u>NO GO</u>
_____	_____
_____	_____

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 10-16
TM 10-8400-201-23

Related
QM4129

Provide Technical Guidance To Subordinates In Adjustment And Operation Of The Textile And Clothing Machines

101-92S-2006

Conditions: As the supervisor of a clothing repair shop, within a shower/laundry and clothing repair (SLCR) platoon, you are to provide technical guidance to subordinates, in adjusting and operation of the textile, and clothing repair machines. Materials and equipment required: light-duty sewing machine, darning machine, button machine, TM 10-3530-203-10, TM 10-3530-203-24, and one tool kit.

Standards: Complete all steps necessary to provide accurate technical guidance to subordinates in adjusting and operating textile and clothing machines using the appropriate TMs.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Ensure that preparations for operation are according to TM 10-3530-203-10, TM 10-3530-203-24.
2. Ensure that adjustments for operation are according to TM 10-3530-203-10, TM 10-3530-203-24.
3. Ensure that cleaning and lubricating are according to TM 10-3530-203-10, TM 10-3530-203-24.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Ensured that preparations for operation are in accordance with TM 10-3530-203-10, TM 10-3530-203-24.	—	—
2. Ensured that adjustments for operation are in accordance with TM 10-3530-203-10, TM 10-3530-203-24.	—	—
3. Ensured that cleaning and lubricating are in accordance with TM 10-3530-203-10, TM 10-3530-203-24.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

FM 10-16
 TM 10-3530-203-10
 TM 10-3530-203-24

Related

690-091-0738-B
 760-101-0014-B

Inspect Irreparable Items To Ensure Removal Of All Salvable Parts
101-92S-2007

Conditions: You work in the clothing repair shop, your supervisor direct you to receive salvageable items with irreparable parts that are placed in a specified area. You will inspect irreparable items and ensure subordinates remove all salvable parts. Materials and equipment required: irreparable items, storage area, tags, ink pen, TM 10-8400-201-23 and one tool kit.

Standards: Complete, in order, all necessary steps to inspect irreparable items to ensure that all salvageable parts have been removed and have been properly identified and stored.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Inspect irreparable items to ensure that all functional parts have been removed for further use.
2. Make sure parts that have been removed are properly identified and stored.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Inspected irreparable items to ensure that all functional parts have been removed for further use.	—	—
2. Ensured that the parts have been removed and are properly identified and stored.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

FM 10-16

TM 10-8400-201-23

Related

QM4129

Provide Technical Guidance To Subordinates In Preventing Maintenance Checks and Services (PMCS) On All Sewing

101-92S-2008

Conditions: You must supervise the (SLCR) platoon clothing repair shop. You will provide technical guidance to subordinates in performing preventive maintenance checks and services (PMCS) on all sewing machines and hand tools. Materials and equipment required: light medium duty sewing machine, darning machine, button machine, TM 10-3530-203-10, LO, troubleshooting chart, DA Form 2404, and one tool kit.

Standards: Complete all necessary steps to provide technical guidance to subordinates. In the performing of preventive maintenance on sewing machines and hand tools by providing proper instructions on lubrication techniques, spot checking procedures, and troubleshooting techniques.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Provide soldiers with instructions on proper lubrication, using the appropriate LO, troubleshooting chart, and DA Form 2404.
2. Show soldiers how to perform spot checks for preventive maintenance of all sewing machines and hand tools.
 - a. Check item number of the figure, which indicates the sequence of PMCS.
 - b. Troubleshoot equipment if it does not work or notify your supervisor.
3. Show soldiers how to troubleshoot and correct all malfunctions in equipment.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Provided soldiers with instructions on proper lubrication, using the appropriate LO, troubleshooting chart, and DA Form 2404.	—	—
2. Demonstrated to soldiers how to perform spot checks for preventive maintenance of all sewing machines and hand tools.	—	—
3. Demonstrated to soldiers how to troubleshoot and correct all malfunctions in equipment.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- DA PAM 738-750
- TM 10-3530-203-10
- TM 10-3530-205-14

Related

Prepare DA Form 4765-R (Laundry Activity Record)
101-92S-2009

Conditions: You are assigned to a shower / laundry and clothing repair platoon and work in the laundry section. Your immediate supervisor tells you to prepare a weekly laundry activity record. Materials and equipment required: blank DA Form 4765-R, production figures for one week of a field laundry operation and FM 42-414.

Standards: Complete DA Form 4765-R so the HEADING, OPERATING PERSONNEL, SHIFT, AMOUNT PROCESSED, and the SUPPLIES sections are complete and accurate.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Complete the HEADING of DA Form 4765-R.
 - a. Check the block, which is appropriate for the record you are keeping (daily, weekly, or monthly).
 - b. Enter the name of the organization including the laundry activity in the ORGANIZATION section.
 - c. Enter the grid coordinates of the laundry site in the LOCATION section.
 - d. Enter the date on the date line for which the record covers. Be sure the date or dates coincide with the block that has been checked.
2. Complete the OPERATING PERSONNEL section of DA Form 4765-R.
 - a. List under the TITLE column, the job title of the operating personnel.
 - b. List in the first column titled AUTHORIZED, the number of people for each job as authorized by the TOE.
 - c. List the number of personnel assigned in the ASSIGNED column.
 - d. List in the TOTAL MAN-HOURS WORKED column the number of hours each person worked.
3. Complete the SHIFT section of DA Form 4765-R.
 - a. Enter the name of the major end item in the EQUIPMENT column.
 - b. Enter the time started and time stopped.
 - c. Enter the total number of hours operated in the HOURS OPERATED (HRS OP) block.
 - d. Enter the total loads of laundry completed in the TOTAL LOADS block.
 - e. Enter the number of hours the equipment was down and the reason why in the EQUIP DOWNTIME and REASON blocks.
4. Complete the AMOUNT PROCESSED section of DA Form 4765-R.
 - a. Enter the number of bundles processed for each unit in the BUNDLE column. Put the total on the bottom line.
 - b. Enter the number of pieces for each source in the PIECES column. Put the total on the bottom line.
 - c. Enter the number of pounds processed for each listed source in the POUNDS column. Enter the total on the bottom line.
5. Complete the SUPPLIES section of DA Form 4765-R.

NOTE: Make sure laundry supplies are listed in pounds and POL products are in pints, quarts, or gallons.

 - a. List all the items used in the ITEMS list.
 - b. List the amount of items leftover from the last report in the ON HAND LAST REPORT column.
 - c. Show the amount used in the AMOUNT USED column.
 - d. Enter the amount of laundry items ONLY in the ON HAND THIS REPORT column.

NOTE: This figure is determined by subtracting the amount used from the amount on hand last report.
 - e. Enter the amount required in the AMT REQUIRED column.

NOTE: This figure should be the same as the figure in the AMT USED column.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Completed the HEADING of DA Form 4765-R.	—	—
2. Completed the OPERATING PERSONNEL section of DA Form 4765-R.	—	—
3. Completed the SHIFT section of DA Form 4765-R.	—	—
4. Completed the AMOUNT PROCESSED section of DA Form 4765-R.	—	—
5. Completed the SUPPLIES section of DA Form 4765-R.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Direct The Processing Of A Field Laundry
101-92S-2010

Conditions: You are a Section Chief within a shower / laundry and clothing repair (SLCR) platoon. You are supervising the field laundry receiving section. You have directed the your subordinates to process field laundry. Materials and equipment required: laundry turn-in items bulk or organizational, DA Form 1974, DA Form 2886, red and blue pencils, chalk and FM 42-414.

Standards: Complete all necessary steps to direct the processing of a field laundry. Continue until the shipping of the finished laundry is completed.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Direct the processing of organizational and bulk laundry using DA Form 1974.
 - a. Keep items from different organizations separate from each other.
 - b. Verify DA Form 1974.
 - c. Verify the listed items have been received.
 - d. Ensure each unit's items are processed separately when like items from different units are laundered.

NOTE: This ensures that each unit receives its own clothing.

- e. Do not mark bulk-laundered items returned for hospital stock or clothing exchange facility stock.
- f. Sort bulk laundered items either as wool or cotton.

NOTE: Sort each of these two groups into white and colored wool or cotton items.

2. Direct the shipping process of the finished laundry as individual, organizational, and bulk laundry.
 - a. Fill out DA Form 2886 for individual laundry.
 - (1) Remove DA Form 2886 from the file and write the receipts pin tray number and letter on the sorting table in chalk.
 - (2) Sort the clean laundry and place all laundry with the same letter and pin tray number beside the corresponding letter and number on the sorting table.
 - (3) Count the number of each type of garment and verifies the count against that shown on the receipt.
 - (4) Remove the laundry pins BEFORE the laundry is placed in the laundry bag.
 - (5) Write the checker's initials in blue in the BUNDLER block, if the bundle is complete.
 - (6) Attach the receipt to the laundry bag using the drawstrings.

NOTE: If there are any garments missing, the bag of laundry is kept until items can be replaced. Loose, unmarked garments are used as replacement items for missing items.

- b. Fill out DA Form 1974 for organizational and bulk laundry.
 - (1) Make sure the supported unit's personnel sort their finished laundry when a laundry team, section, or platoon handles laundry for only one unit.
 - (2) Check the laundry for quantity and place it in containers marked with the unit name.
 - (3) Sort the items carefully so that each unit receives the same items it turned in, if two or more units' clothes are washed together.
- c. Fill out DA Form 1974 for resizing bulk laundry.
 - (1) Resize finished bulk laundry.

NOTE: Methods for resizing clothing are given in the Appendix.

- (2) Resize only when a laundry section or platoon supports a clothing and textile maintenance facility or a clothing exchange facility.

Performance Measures

GO NO GO

1. Directed the processing of organizational and bulk laundry using DA Form 1974. _____ _____

Performance Measures

GO **NO GO**

2. Directed the shipping process of the finished laundry as individual, organizational, and bulk. laundry. — —

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Direct Laundry Operations
101-92S-2011

Conditions: You are a section chief within a shower / laundry and clothing repair (SLCR) platoon. Your immediate supervisor directs you to supervise the laundry section operation. Materials and equipment required: laundry units M85, tentage, pin marking, fuel, water source, DA Form 2886, DA Form 1974, daily register record, unit schedule and FM 42-414.

Standards: Complete all necessary steps to direct laundry operations. Continue until personnel adjust the blower shutter and the exhaust makes a steady muffled roar, during operation PMCS.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Direct receiving of soiled laundry items.
 - a. Determine types of turn-in.
 - b. Verify turn-in with schedule written by laundry NCOIC.
 - c. Check all accompanying documents for completeness and accuracy.
 - d. Count each item turned in to the laundry facility.
 - e. Receive receipts for turn-in.

2. Receive and post laundry schedule for supported units.
 - a. Receive from laundry headquarters a list of units in the area.
 - b. Receive a list of turn-in and pickup times.
 - c. Post supported units schedule on daily register record.

3. Direct the operation of the laundry washer and extractor.
 - a. Make sure personnel install formula control record for a complete automatic operation.
 - b. Make sure personnel load washer and extractor with 60 pounds (27 kg) of soiled laundry.

NOTE: M85-100 washer load is 60 pounds and the extractor is 30 pounds.

 - c. Make sure personnel check formula and add proper amount of washing supplies through supply lid.
 - d. Make sure personnel place auto/manual switch to the AUTO position to start automatic operation.

4. Direct the operation of the dryer-tumbler.
 - a. Make sure personnel set the temperature control for 100 percent items at 200 degrees Fahrenheit for wool or 250 degrees Fahrenheit for cotton, and they set control for less than 100 percent items at 160 degrees Fahrenheit for wool or 180 degrees Fahrenheit for cotton.
 - b. Make sure personnel push upper start button.
 - c. Check to make sure pressure gauge reads 100 psi (7.03 kilograms per square centimeter).
 - d. Make sure personnel push lower start button.
 - e. Make sure personnel open burner fuel shut off valve one full turn.
 - f. Make sure personnel adjust blower shutter until exhaust makes a steady muffled roar.

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Directed receiving of soiled laundry items.	—	—
2. Received and post laundry schedule for supported units.	—	—
3. Directed the operation of the laundry washer and extractor.	—	—
4. Directed the operation of the dryer-tumbler.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References
Required
FM 42-414

Related

Supervise The Use Of Washing Formulas, Soaps And Detergents
101-92S-2012

Conditions: You are a supervisor of the laundry equipment operation, within a shower / laundry and clothing repair (SLCR) platoon laundry operation. You must supervise the equipment operator on the use of washing formulas, soaps, and detergents. Materials and equipment required: complete laundry operation setup, soiled clothing, and formula charts, washing detergents and DA Form 4765-R.

Standards: Complete all necessary steps to supervise the use of washing formulas, soaps, and detergents. Continue until the use of washing Formulas I through X are complete.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Supervise the use of wash Formula I for cotton clothing, synthetics, and contaminated cotton and synthetic blends below the maximum tolerance level.
 - a. Use bleaching agent when laundering white clothing.
 - b. Place approximately 3 ounces of bleach (80ppm to 100 ppm) in the third sudsing operation.
 - c. Add 1.5 ounces of anti-chlorite sodium thiosulfate to the second rinse operation, when bleach is used.
 - d. Extract for two minutes.
 - e. Tumble dry at 150 degrees Fahrenheit.

2. Supervise the use of wash Formula II for polypropylene and woolen items.
 - a. Use Formula II to launder sleeping bags, polypropylene underwear for the ECWCS, and woolen items such as blankets, winter underwear, and socks.

NOTE: Turn sleeping bags inside out, close zippers, and tie neck openings.

- b. Add 3 ounces of commercial available quaternary ammonium softener and bacteriostat to the second rinse (low water level) for underwear items.
- c. Fully load and stop the washer during filling and draining, to reduce shrinkage and strain on the items.
- d. Allow the extractor to reach top speed, than shut it off.

NOTE: Be sure the tumbler is fully loaded.

- e. Place the sleeping bags in the dryer-tumbler at a temperature not exceeding 130 degrees Fahrenheit.
- f. Dry polypropylene underwear at a temperature not exceeding 110 degrees Fahrenheit.
- g. Dry woolen items at a temperature not exceeding 120 degrees Fahrenheit.

3. Supervise the use of wash Formula III for hospital garments and linen items.
 - a. Use a bleaching agent and sodium thiosulfate for white items only.
 - b. Extract for two minutes and dried at 150 degrees Fahrenheit.

4. Supervise the use of wash Formula IV for water-repellent items.

NOTE: Formula IV is used to help outer clothing, such as field wear and raincoats remain water-repellent. Treated garments are never starched.

- a. Treat the garments again if they show poor water-repellency after they are laundered and dried.

NOTE: Soiled garments lose repellency sometimes.

- b. Be sure that the final rinse operation contains no residual suds.

NOTE: Sudsing interferes with the water repellency treatment. (Additional rinsing may be necessary.)

CAUTION: Comply with unit Standing Operating Procedures (SOP), Operations Orders (OPORD), local regulations, and/or host nation laws for waste water disposal, such as soapy cleaning water, unused or excess cleaning solvents, and contaminated rags).

- c. Dry according to care label instructions on garment.

5. Supervise the use of wash Formula V for mothproofing woolen items.

- a. Use Formula V for wools before they are stored for the summer or returned to stock.

Performance Steps

- b. Place washed items in the extractor for two minutes.
- c. Dry the clothing at a temperature not exceeding 130 degrees Fahrenheit (55 degrees Celsius).
- d. Mix 1 ounce of Permanone 40 EC to 1 quart of water (100 degrees Fahrenheit) in a separate container.
- e. Add 5 ounces of commercial liquid fabric softener to the Permanone and water solution.
- f. Stir well and add to the final rinse water.

6. Supervise the use of wash Formula VI to decontaminate radioactive clothing contaminated above the maximum tolerance level.

NOTE: For woolen clothing, use Formula II powder detergent with a water temperature of not more than 100 degrees Fahrenheit (38 degrees Celsius).

- a. Fully load the washer and extractor cylinder and stop the cycle during the filling and draining cycle.
- b. Add a bleaching agent to white clothing and bedding.
- c. Increase the amount of chelate at the rate of 1 ounce of chelate per 83 grains of water hardness, when using hard water.

NOTE: An equal weight of sodium tetraphosphate may be substituted for the organic chelating agent.

- d. Dry cotton and synthetic items at 150 degrees Fahrenheit.
- e. Dry woolen items at a temperature not exceeding 120 degrees Fahrenheit.

7. Supervise the use of wash Formula VII for chemically or biologically contaminated unimpregnated cotton, synthetic, and woolen items.

- a. Mix detergent and super tropical bleach (NSN 6850-00-264-8942) together BEFORE it is poured into the washer.

NOTE: Cotton and woolen items must not be put in the same wash load. When items such as belts, webbing, canteen covers, and pack carriers are washed, the time of the first suds should be increased to 15 minutes.

- b. Extract for two minutes and tumble-dry cotton and synthetics at 150 degrees Fahrenheit.
- c. Tumble dry wool at a temperature not exceeding 120 degrees Fahrenheit.

8. Supervise the use of wash Formula VIII for durable press garments, BDUs, and ECWCS PTFE parka and trousers.

- a. Load the washer and dryer to two-thirds capacity.

NOTE: Use Type II detergent to launder PTFE laminated items. DO NOT exceed the two-thirds loading capacity of the washer or dryer.

- b. Allow the extractor to reach top speed and shut it off immediately, to prevent the setting of creases.
- c. Dry BDUs at a temperature not exceeding 130 degrees Fahrenheit.
- d. Dry PTFE parka and trousers at a temperature not exceeding 100 degrees Fahrenheit.

NOTE: Do not wring or twist garments. DO NOT STARCH, BLEACH, OR PRESS BDU OR ECWCS ITEMS.

9. Supervise the use of wash Formula IX for white cotton-polyester nursing uniforms.

- a. Load the washer and dryer to two-thirds capacity.
- b. Close all uniform zippers and snap fasteners.
- c. Place the uniforms in the washer.
- d. Extract for two minutes.
- e. Tumble-dry at 150 degrees Fahrenheit.

10. Supervise the use of wash Formula X for white arctic snow camouflage trousers and coat outliners.

- a. Wash the garment using detergent.

NOTE: If required, use bleach with detergent. DO NOT use detergent in the last rinsed, it has a detrimental effect on the water repellency of the garments. Further rinsing may be necessary to prevent residual detergent sudsing.

- b. Extract for two minutes.
- c. Tumble-dry at 160 degrees Fahrenheit.

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Supervised the use of wash Formula I for cotton clothing, synthetics, and decontaminated cotton and synthetic blends below the maximum tolerance level.	—	—
2. Supervised the use of wash Formula II for polypropylene and woolen items.	—	—
3. Supervised the use of wash Formula III for hospital garments and linen items.	—	—
4. Supervised the use of wash Formula IV for water-repellent items.	—	—
5. Supervised the use of wash Formula V for mothproofing woolen items.	—	—
6. Supervised the use of wash Formula VI to decontaminate radioactive clothing, contaminated above maximum tolerance level.	—	—
7. Supervised the use of wash Formula VII for chemically or biologically contaminated un-impregnated cotton, synthetic, and woolen items.	—	—
8. Supervised the use of wash Formula VIII for durable press garments, BDUs, and ECWCS PTFE parka and trousers.	—	—
9. Supervised the use of wash Formula IX for white cotton-polyester nursing uniforms.	—	—
10. Supervised the use of wash Formula X for white arctic snow camouflage trousers and coat outliners.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References
Required
 FM 42-414

Related

Prepare DA Form 4766-R (Shower Activity Record)
101-92S-2013

Conditions: You are assigned to a shower / laundry and clothing repair (SLCR) platoon. You are to supervise the shower team operation. Your immediate supervisor tells you to prepare DA Form 4766-R (Shower and Clothing Exchange Activity Record). Materials and equipment required: DA Form 4766-R, production figures for seven days of a field operation and FM 42-414.

Standards: Complete sections of DA Form 4766-R, Heading, Organization, Shower Point Location, Supplies and Equipment status. Continue until DA Form 4766-R is accurate, and the amount used is the amount required.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Complete the HEADING and SHOWER Facility section of DA Form 4766-R.
 - a. Place an X in the appropriate block to indicate daily, weekly, or monthly record.
 - b. Enter the section's organization in the ORG space.
 - c. Enter the bath team number in the TEAM NO. space.
 - d. Enter the grid coordinates of your operational site in the LOCATION space.
 - e. Enter the date or dates in the DATE(s) space.
 - (1) Enter the day's date of the report for a DAILY record.
 - (2) Enter the inclusive dates for the week for a WEEKLY record.
 - (3) Enter the inclusive dates for the month for a MONTHLY record.
 - f. Enter the unit's name using the Shower facility in the UNITS SERVICED column.
 - g. Enter the total number of personnel processed through the Shower facility for each unit serviced in the NO. SOLDIERS PROCESSED column.
 - h. Enter the time each unit started at the shower facility in the TIME STARTED column.
 - i. Enter the START and STOP times the operation was stopped and restarted for such periods as equipment operation time, maintenance, and down time.
 - j. Enter the time each unit finished at the shower facility in the TIME STOPPED column.
 - k. Enter the total time any piece of equipment was down for maintenance in the equipment DOWN-TIME column.
 - l. Enter the reason for equipment down time (if applicable) in the REASON column.

2. Complete the SUPPLIES section of DA Form 4766-R.

NOTE: Round amounts up to the nearest pound, ounce, pint, quart, or gallon.

- a. List in the ITEMS column all operational supplies used and enter the appropriate unit of issue for each item.

NOTE: The unit of issue for dry, powder-type supplies must be in pounds or ounces. The unit of issue for liquid supplies must be in pints, quarts, or gallons.

- b. Enter in the ON HAND LAST REPORT column the total amount of each listed item that is on hand or left over from the last operation.
- c. Enter in the AMT USED column the total amount of each listed item used during the period covered by the record.
- d. Enter in the ON HAND THIS REPORT column the total amount of each listed item that remains on hand.

NOTE: Subtract the amount in the AMT USED column from the amount in the ON HAND LAST REPORT column. NOTE: The AMT REQUIRED figures are the same as AMT USED figures.

- e. Enter in the AMT REQUIRED column the total amount of each listed item that must be requisitioned to replenish the amount used.

3. Complete the CLOTHING EXCHANGE section of DA Form 4766-R.

- a. Enter in the appropriate spaces of the CLOTHING EXCHANGE section the same information as that entered in the heading portion of the shower facility section.
- b. List in the ITEMS column all clothing exchange stock.

Performance Steps

- c. Enter in the ON HAND LAST REPORT column the total number of each listed item that is on hand or left over from the last operation.
- d. Enter in the RECEIVED column the total number of each listed item that was received from a laundry activity or supply point during the period covered by the record.
- e. Enter in the ISSUED column the total number of each listed item that was issued during the period covered by the record.
- f. Enter in the ON HAND THIS REPORT column the total number of each listed item that is still on hand at the end of the recorded period by adding the ON HAND LAST REPORT amount to the RECEIVED amount and then subtracting the ISSUED amount.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Completed the HEADING and SHOWER FACILITY section of DA Form 4766-R.	—	—
2. Completed the SUPPLIES section of DA Form 4766-R.	—	—
3. Completed the CLOTHING EXCHANGE section of DA Form 4766-R.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Direct Shower Operations

101-92S-2014

Conditions: You are the supervisor within a shower section. The shower facility is set up and in operation. Your immediate supervisor tells you to direct shower operations for the supported units. Materials and equipment required: daily report forms, water pump, 5-kilowatt generator, water heater, fuel drums, shower assembly, fire extinguishers, and FM 42-414.

Standards: Complete all necessary steps to direct shower operations continue until the shower is operating and a adequate drainage system is provided.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Coordinate the work schedules with the section chief.
 - a. Assign the number of soldiers per shift.
 - b. Schedule the hours of operation for each shift.
2. Coordinate the supply requirements with the section chief.
 - a. Determine supply requirements.
 - b. Send supply request to the company commander or to higher headquarters.
3. Direct the scheduling of the shower for males and females.
 - a. Ensure there are separate bathing schedule times for men and women.
 - b. Prepare a schedule showing the hours and times of both male and female showering.
4. Prepare the daily reports on the number of personnel processed and supplies used.
 - a. Prepare and submit required reports.
 - b. Keep accountability of soldiers processed and supplies used.
5. Ensure reports are accurate and contain all required information and accountability of all supplies.
6. Direct the traffic flow through the shower facility.
 - a. Start showers at the boot cleaning area where boots are scraped to remove mud and dirt.
 - b. Move soldiers to the undressing area to remove soiled clothing.
 - c. Leave helmets, valuables, and boots in the reserved area.
 - d. Give soldiers one numbered tag to use as a claim check.
 - e. Tag property with the same number.
 - f. Provide a soldier to guard the property and issue claim checks.
7. Direct the issue of soap and towels if required and supplied by higher headquarter.
 - a. Issue each soldier one 2-ounce cake of soap.
 - b. Use the footbath to clean mud and other debris before entering the shower area.
8. Direct the presentation of instructions for delousing personnel.
 - a. Test soldiers who arrive at the bath point after an NBC attack for contamination.
 - b. Use the AN/PDR-27 radiac set or the AN/VDR-1 to test for nuclear contamination.
 - c. Use the M256 chemical agent detector to test for chemical contamination.
 - d. Send each soldier to a waiting area for contaminated personnel or to a separate waiting area for uncontaminated personnel.
 - e. Process the two categories of personnel through the shower facility in separate groups.
 - f. Give priority to those who are contaminated.
 - g. Rerun tests after showering to see if personnel are free from contamination.
 - h. Issue new clothing to the soldiers if required and supplied by higher headquarters.
 - i. Decontaminate the shower equipment by washing it down.
 - j. Use the power-driven decontamination apparatus or the vehicle mounted decontamination apparatus, if available, to decontaminate the shower equipment.
 - k. Carry the towels and clothing to the nearest field laundry to be decontaminated.

Performance Steps

- I. Process decontaminated personnel as promptly as possible so they can return to their units.
- 9. Direct the exchange of soiled item.
 - a. Take the soiled item to the supporting laundry.
 - b. Give clean item to the soldier at the same time step a is performed.
- 10. Correct all errors of subordinates.
 - a. Check to ensure all steps are being followed. Help those who need help.
 - b. Make sure that all hazards are made safe.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Coordinated the work schedules with the section chief.	—	—
2. Coordinated the supply requirements with the section chief.	—	—
3. Directed the scheduling of the shower facility for males and females.	—	—
4. Prepared the daily reports on the number of personnel processed and supplies used.	—	—
5. Ensured reports are accurate and contain all required information and accountability for all supplies.	—	—
6. Directed the traffic flow through the shower facility.	—	—
7. Directed the issue of soap and towels.	—	—
8. Directed the presentation of instructions for delousing personnel.	—	—
9. Directed the exchange of soiled items.	—	—
10. Corrected all errors of subordinates.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

**Prepare Shower Schedules For Supported Personnel
101-92S-2015**

Conditions: You are the team chief of a shower section. Your supervisor directs you to prepare a shower schedule for the supported units personnel. Materials and equipment required: required blank forms, paper, shower facility and pen or pencil.

Standards: Complete all necessary steps to prepare a shower schedule for the supported units personnel. Continue until the schedule is posted and meets the supported units requirements.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Prepare and post the schedule for each supported unit.
 - a. Coordinate with the supported units and match the shower operations hours with the unit's requirements.
 - b. Ensure each schedule shows as a minimum, the unit serviced, the dates the shower will be available to that units, and a separate time for males and females.

NOTE: A shower team works two 10-hour shifts with two hours of maintenance time per shift. Maintenance is done one hour before operation and one hour after operation.

2. Post a traffic flow chart.
 - a. Prepare and post the traffic flow chart at the entrance to the shower point (when required).
 - b. Ensure the traffic flow chart shows the layout of the shower station, the station's name, and directional arrows or dots to show traffic flow.
3. Prepare a schedule for dusting infested personnel (when required).
 - a. Ensure personnel are dusted after they have received a medical inspection.
 - b. Ensure personnel are dusted (when required) at the same time the unit is scheduled to visit the shower facility.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Prepared and posted the schedule for each supported unit.	_____	_____
2. Posted a traffic flow chart.	_____	_____
3. Prepared a schedule for dusting infested personnel.	_____	_____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Direct The Preparation Of Shower Equipment For Movement
101-92S-2016

Conditions: You are assigned to a (SLCR) platoon shower team. Your team shower facility has been set up and in operation. Your mission is to relocate to a new operation site. Your supervisor directs you to prepare the shower equipment for movement. Materials and equipment required: Vehicles, cargo trailer, tentage, water heater, water pump, generator, fuel drums, shower assembly, fire extinguishers and FM 42-414.

Standards: Complete all necessary steps to direct the preparation of shower equipment for movement. Continue until the facility are move to a new operating site.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Direct the shower team to dismantle equipment and shower assembly.
 - a. Disconnect the equipment, be sure to drain the water from the water heater and the water pump.
 - b. Put the shower base, top frame assembly, vertical supports, shower cover, drain and supply hose, regular valve assembly, suction strainer, shower heads, Y-fitting coupler, floor panels, door panels, floor mat, power cable, fuel hose, in the storage container 1-6.
 - c. Drain the fuel from the generator, and delousing outfit fuel lines if using auxiliary fuel supply.
 - d. Take down the tents and fold the canvas.
2. Direct the preparation of equipment for transport and pack supplies.
 - a. Inventory the equipment.
 - (1) Tent frame assembly and pins.
 - (2) Spare parts.
 - (3) Prescribed load list and basic issue list items.
 - (4) Supplies such as soap, detergent, disinfectant and foot powder.
 - (5) Maintenance supplies and materials for 2 1/2-ton truck. (Authorized in TM 9-2330-209-10-1, includes an ax, crowbar, screwdrivers, pliers, hammers, and wrenches.)
 - b. Check personnel's equipment and clothing.
 - (1) Field uniforms.
 - (2) Weapons.
 - (3) Protective masks.
 - (4) TA-50.
 - (5) Meal cards, if required.
 - (6) Personal Hygiene Items.
 - c. Pick up replenishment supplies, as required.
3. Coordinate with section chief for additional transportation.
4. Direct the loading of shower equipment onto transporting vehicles.
 - a. Load cargo truck and trailer using the team-loading plan to place equipment and supplies in the vehicles.
 - b. Secure shower unit equipment in the truck to minimize vibrations and movement. Bolt equipment to heavy frame boards, if available. Tie down with rope or tie-down straps.
 - c. Place the delousing equipment and the duct-type heater in the cargo trailer.
 - d. Load personnel's personal property on the cargo trailer.
5. Direct the team's movement to a new site.
 - a. Make final site selection.
 - (1) Select a site beside a stream, lake, river, or water tanks (if running water is not available). Place tents and equipment out of the path of the river, should the river overflow its banks.
 - (2) Select a site with downhill or downstream drainage.
 - (3) Select a site with firm ground for tents and equipment.

Performance Steps

- b. Drive carefully on bumpy roads so that ropes, connections and braces do not come loose and cause damage.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Directed the shower team to dismantle equipment and shower assembly.	—	—
2. Directed the preparation of equipment for transport and pack supplies.	—	—
3. Coordinated with section chief for additional transportation.	—	—
4. Directed the loading of shower equipment onto transporting vehicles.	—	—
5. Directed the team's movement to a new site.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- FM 42-414
- TM 10-4230-203-14
- TM 10-4510-206-14
- TM 10-8340-211-13
- TM 5-4520-224-14

Related

Supervise Operators And Preventive Maintenance Checks And Services (PMCS) On The Shower Equipment
101-92S-2017

Conditions: You are the supervisor of a (SLCR) platoon, shower team. You have been directed to supervise operators (PMCS) on the shower equipment. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration (OSHA) requires that personal protective equipment (PPE) be worn while working with hazardous materials. Materials and equipment required: pen or pencil, TM 5-4520-224-14, TM10-4230-203-14, TM 10-4510-206-14, DA Form 2404 or DA Form 5988-E, generator, shower equipment, tentage, delousing equipment, drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids, and DA Pam 738-750.

Standards: Complete all necessary steps to supervise preventive maintenance checks and services on shower and delousing equipment. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, and solvents). Continue until preventive maintenance is performed on shower equipment, delousing equipment, tentage, and collapsible tanks. List deficiencies on DA Form 2404 or DA Form 5988-E for processing.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

1. Supervise before-operation, during-operation, and after-operation maintenance on shower and delousing equipment.
 - a. Maintain the 10-kilowatt generator set.
 - (1) Supervise before-operation maintenance.
 - (a) Check to see if the ground rod is properly installed.
 - (b) Check the oil level and add oil, if needed.

CAUTION: DO NOT OVERFILL.

- (c) Check the battery water level and add water, if it is needed. Clean the battery filler cap vent, if needed. Tighten loose battery cables.

CAUTION: DO NOT OVERFILL BATTERY.

- (d) Check the air filter.
- (e) Check the fuel supply.
- (f) Check the fuel filter for leaks.
- (g) Lubricate the generator according to the current lubrication order.
- (h) Inspect all controls and instruments for damage and loose mountings.
- (i) Check the wiring for cuts, frays, and loose connections and repair any wiring defects.
- (2) Supervise during-operation maintenance.
 - (a) Check to see if the ammeter reads on the plus side of the scale. Turn off the generator and get a mechanic to check it, if the reading is too high.
 - (b) Check to see if the oil pressure gauge reads 30 psi to 40 psi.
 - (c) Check to see if the voltmeter reads 208 volts.
 - (d) Check to see if the frequency meter reads 60 cycles.
 - (e) Check to see that the current indicator meter does not read in the red area. Turn the generator off if the current is too high and have mechanic check it.
 - (f) Watch for any unusual vibrations and listen for any unusual noises.
 - (g) Check for fuel and oil leaks.
- b. Supervise before-operation maintenance on the fire extinguisher.

Performance Steps

- (1) Inspect the seal on the fire extinguisher. If the seal is broken, exchange the extinguisher for another one.
 - (2) Check the gauge to be sure the extinguisher has the proper charge.
 - c. Maintain the water heater.
 - (1) Supervise before-operation maintenance.
 - (a) Clean the fuel filter weekly.
 - (b) Clean the lens on the sight tube.
 - (c) Check the fuel lines for leaks.
 - (d) Check the wiring for cuts, frays, or loose connections.
 - (e) Inspect the controls and the gauges for damage or loose mountings.
 - (f) Check the fuel filter for leaks. Turn the T-handle one full turn.
 - (2) Supervise during-operation maintenance.
 - (a) Check the burner electrodes for a proper spark. The spark should be blue and jump continuously from one electrode to the other.
 - (b) Check the temperature gauge to see if it reads 160 degrees Fahrenheit. Adjust the temperature control switch until the gauge reads 160 degrees Fahrenheit, if necessary.
 - (c) Check the pressure gauge to see if it reads between 60 psi and 100 psi.
 - (d) Watch for any unusual vibrations and listen for any unusual noises.
 - d. Maintain the water pump.
 - (1) Supervise before-operation maintenance.
 - (a) Inspect for sediment. Clean out sediment weekly or as needed.
 - (b) Inspect the control switch for damage and loose mounting.
 - (c) Inspect the suction strainer daily before and during operations, to see if it is properly positioned and free of debris.
 - (2) Supervise during-operation maintenance.
 - (a) Check the suction strainer position daily.
 - (b) Watch for leaks and unusual vibrations.
 - (c) Listen for any unusual noises.
 - (3) Supervise after-operation maintenance.
 - (a) Check the strainer for debris daily.
 - (b) Clean the strainer weekly or when needed.
 - (c) Drain the pump daily.
2. Supervise maintenance of tentage before, during, and after use.
 - a. Inspect for mildew, dry rot, and holes.
 - b. Ensure all zippers are in good working condition.
 - c. Ensure all materials are present for each tent.
 - d. Ensure tentage is stored properly.
 3. Supervise maintenance of collapsible tanks before, during, and after use.
 - a. Inspect for mildew, dry rot, and holes.
 - b. Ensure all materials are present for each tank.
 - c. Ensure all collapsible tanks are stored properly.
 4. Prevent hazardous materials from contaminating the environment.
 - a. Actions required to performed the step:
 - (1) Place drip pans, or similar initial containment devices completely under area where fluid leaks may occur.
 - (2) Remove any spills.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Comply with disposal requirements for contaminated/hazardous materials.

Performance Steps

- b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - (2) Ability to use spill cleanup materials to remove/cleanup spills.
 - (3) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
 - (1) Knowledge of spill cleanup equipment.
 - (2) Knowledge of unit or Installation SOP/Operations Order requirements for requisitioning, storage, handling, and disposal of hazardous materials.
 - (3) Knowledge of how to properly drain/replace fluids from vehicles.
 - (4) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Spill kits.
 - (c) Containers for contaminated hazardous fluids.
 - (d) Drip pans.
 - (e) Absorbent materials (e.g. dry sweep).
 - (f) Rags.
 - (g) Shovel for removing contaminated materials.
 - (h) Containers for transporting of contaminated material.
 - (2) Supporting individual task(s): None
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: CAUTION! Dispose of hazardous materials (such as, fuels, grease, oil, and contaminated rags) IAW unit Standing Operating Procedures/Operations Order (OPORD), local regulations, and/or host nation laws. Use rags to contain any excess fluids. Dispose of rags in appropriate accumulation
5. Employ procedures to dispose of solid waste.
- a. Actions required to performed the step:
 - (1) Place contaminated rags in appropriate container for recycling (laundry).
 - (2) Place contaminated absorbents (dry sweep) into appropriate container.
 - (3) Place the scrap metal into the appropriate container.
 - b. Environmental skills required:
 - (1) Ability to select hazardous materials container.
 - (2) Ability to locate appropriate accumulation point container for recycling solid waste.
 - c. Environmental knowledge required:
 - (1) Knowledge of solid waste disposal requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Absorbent materials (e.g. dry sweep).
 - (c) Rags.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: CAUTION! Comply with unit/installation Standing Operating Procedures (SOP) Operations Order (OPORD) requirements for disposal of scrap metal.
6. Secure the flow of the hazardous substance.

Performance Steps

- a. Actions required to performed the step:
 - (1) Pick up or upright the container.
 - (2) Close valves or spigots.
 - (3) Clamp hoses.
 - (4) Use containers to catch the flow.
 - b. Environmental skills required:
 - (1) Ability to identify the source of a spill.
 - c. Environmental knowledge required:
 - (1) Knowledge of procedures for stopping the flow of a spill.
 - (2) Knowledge of the location(s) of watersheds in the area of the spill.
 - (3) Knowledge of the location(s) of storm drains in the area of the spill.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Non-sparking tools.
 - (b) Material Safety Data Sheets (MSDS).
 - (c) Non-reactive tools.
 - (d) Absorbent materials.
 - (e) Drip pans.
 - (2) Supporting individual task(s):
 - (a) Determine substance hazards using Material Safety Data Sheets (MSDS).
 - (b) Employ personal protective measures.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.
7. Employ spill containment procedures for a hazardous substance spill.
- a. Actions required to performed the step:
 - (1) Obtain the spill kit.
 - (2) Take appropriate measures to contain the spill.
 - b. Environmental skills required:
 - (1) Ability to determine safety measures form Material Safety Data Sheets (MSDSs).
 - (2) Ability to apply appropriate materials (i.e. sandbags, drip pans, booms, absorbent materials, soil berms, etc.).
 - c. Environmental knowledge required:
 - (1) Knowledge of spill kit location.
 - (2) Knowledge of the employment methods of each item in the spill kit.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Material Safety Data Sheets (MSDS).
 - (b) Drip pans.
 - (c) Absorbent materials.
 - (d) Spill kits.
 - (e) Non-sparking tools.
 - (f) Non-reactive tools.
 - (2) Supporting individual task(s):
 - (a) Employ spill response kits.
 - (b) Employ drip/belly pans.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.

Performance Steps

8. Report the spill of a hazardous substance.
 - a. Actions required to performed the step:
 - (1) Notify the chain of command.
 - (2) Notify the Unit Environmental Compliance Officer (UECO).
 - (3) Notify Emergency Operations Center (EOC)
 - (4) Notify the local fire department, if required.
 - (5) Notify the appropriate spill coordinator, if required.
 - b. Environmental skills required: None.
 - c. Environmental knowledge required:
 - (1) Knowledge of state spill reporting procedures.
 - (2) Knowledge of environmental appendix to the Engineer annex to the OPORDs.
 - (3) Knowledge of unit or Installation Standing Operating Procedures (SOP)/Operations Order (OPORD) requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements: None.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
9. Employ spill clean-up measures.
 - a. Actions required to performed the step:
 - (1) Select non-sparking equipment for flammable materials.
 - (2) Select non-reactive equipment for acids and caustics.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Place contaminated materials into over-pack drums, if necessary.
 - (6) Comply with disposal requirements for contaminated materials.
 - b. Environmental skills required:
 - (1) Ability to use spill cleanup materials to remove/cleanup spills.
 - (2) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
 - (1) Knowledge of environmental appendix to the Engineer annex to the OPORDs.
 - (2) Knowledge of unit or Installation Standing Operating Procedures (SOP)/Operations Order (OPORD) requirements.
 - (3) Knowledge of spill cleanup equipment.
 - (4) Knowledge of requirements for containers of contaminated materials.
 - (5) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Spill kits.
 - (b) Non-sparking tools.
 - (c) Non-reactive tools.
 - (d) Absorbent materials.
 - (e) Containers.
 - (f) Over-pack drums.
 - (2) Supporting individual task(s):
 - (a) Determine substance compatibility using Material Safety Data Sheets (MSDS).
 - (b) Turn-in hazardous waste to the designated Hazardous Waste collection point.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Inform personnel about the necessity of using only non-sparking tools and ensure that metal-to-metal contact is avoided.
10. Replace spill response equipment.

Performance Steps

- a. Actions required to performed the step:
 - (1) Request replacement items consumed or damaged in the spill cleanup.
 - (2) Conduct training as required.
- b. Environmental skills required: None.
- c. Environmental knowledge required:
 - (1) Know the spill kit required materials/equipment.
 - (2) Know the procedures to request replacement items.
- d. Resource requirements:
 - (1) Equipment/material requirements: Supply request form (DA 2765-1 or DD 1348-1).
 - (2) Supporting individual task(s):
 - (a) Initiate a request for supplies.
 - (b) Determine the status of a supply request.
- e. Safety factors/hazards: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Supervised before-operation, during-operation, and after- operation of preventive maintenance on shower and delousing equipment.	—	—
2. Supervised before-operation, during-operation, and after-operation of preventive maintenance on delousing equipment.	—	—
3. Supervised maintenance of tentage before, during, and after use.	—	—
4. Supervised maintenance of collapsible tanks before, during, and after use.	—	—
5. Placed drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—
6. Removed spills (small).	—	—
7. Collected contaminated soil, absorbent materials, and debris into approved containers.	—	—
8. Complied with container labeling requirements.	—	—
9. Complied with disposal requirements for contaminated materials.	—	—
10. Identified the type of hazardous substance spill.	—	—
11. Protected self from contamination.	—	—
12. Determined if evacuation required.	—	—
13. Secured the flow.	—	—
14. Employed spill containment procedures.	—	—
15. Reported spill to the proper local authorities.	—	—
16. Selected appropriate equipment for clean-up.	—	—
17. Replenished spill response kits.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
DA PAM 738-750

Related

References

Required

FM 42-414

TM 10-4230-203-14

TM 10-4510-206-14

TM 10-8340-211-13

TM 5-4520-224-14

Related

**Select Laundry and Shower Field Operational Sites
101-92S-2018**

Conditions: Your immediate supervisor has directed you to select a field operational site for Shower and Laundry support. Materials and equipment required: military map, paper, pen or pencils, truck utility, compass and FM 42-414.

Standards: Complete all necessary steps to select a Shower and Laundry field operational site. Continue until a sketch of the selected site layout is prepared.

Performance Steps

NOTE: Supervise the Execution of Risk Management Reduction

CAUTION: Ensure you obtain environmental guidance and considerations on erosion control, vegetation, endangered species, archeological, and historical sites before selection of proposed operation sites.

1. Obtain and review the maps of the area where support will be given.
 - a. Select maps which show the areas of interest.
 - b. Coordinate with higher headquarters for any maps needed, that is not available.
 - c. Review selected maps of potential sites within the supported area.
 - d. Plot the locations of potential sites within the support area on the map.
 - e. Prepare map overlays of the potential support areas.

2. Plan, organize, and conduct the reconnaissance of each potential site location.
 - a. Select and equip reconnaissance team members based on mission requirements and location of areas.
 - b. Check terrain to plotted locations.
 - c. Check potential sites for an adequate clean water source.
 - d. Check to make sure terrain is fairly level, firm, and well drained.
 - e. Check to make sure sites are accessible to travel routes or road nets that are capable of handling vehicles and equipment in all kinds of weather.
 - f. Check to make sure sites contain natural cover for protection from attack and provide maximum concealment from observation.

3. Select a primary and an alternate location for each requirement.
 - a. Select the most suitable location as the primary site based on all available data.
 - b. Select an alternate location in case you are forced to move (ALWAYS).

4. Prepare a sketch of the selected site layout.
 - a. Sketch natural terrain features that are easily recognizable, such as road junctions, fence lines, curves in streams, forks of streams, and large trees.
 - b. Sketch suggested equipment component layout locations in relation to natural terrain features of the actual site.
 - c. Include information notes such as location of support unit, location of using units, and relationship of your location to the overall support area.

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Obtained and reviewed the maps of the area where support will be given.	—	—
2. Planned, organized, and conducted the reconnaissance of each potential site location.	—	—
3. Selected a primary and an alternate location for each requirement.	—	—
4. Prepared a sketch of the selected site layout.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Skill Level 3

Subject Area 11: SUPERVISION OF SHOWER/LAUNDRY/CLOTHING REPAIR OPERATIONS

**Establish A Shop Safety Program
101-92S-3000**

Conditions: You are working in a clothing repair shop. You are responsible for establishing a shop safety program for your facility. Materials and equipment required: clothing repair shop facility, AR 385-10 and AR 385-55.

Standards: Complete, in order, all necessary procedures involved in establishing a shop safety program, by preparing the shop safety SOP, fire evacuation plan, and identifying requirements for attendance to the driving course.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Prepare shop's SOP on safety.
 - a. State purpose and scope of the safety program.
 - b. Schedule weekly or monthly safety meetings.
 - c. Show safety log sheet and explain its purpose and scope.
 - d. List all points to be inspected daily.
 - e. Describe lifting techniques to be used by personnel.
 - f. Prepare list of personal protective clothing and equipment.
 - g. Make layout of smoking and nonsmoking areas and fire exits in the shop.
2. Prepare and post the shops fire Evacuation Plan.
 - a. Describe fire-fighting equipment. Prepare and post layout of equipment locations.
 - b. State procedures for specific fire drills.
3. Prepare and post requirements for all drivers to attend the National Safety Council Defensive Driving Course conducted within the command.

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Prepared shop's SOP on safety.	—	—
2. Prepared and posted the shop's fire evacuation plan.	—	—
3. Prepared and posted requirements for all drivers to attend the National Safety Council Defensive Driving Course conducted within the command.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
AR 385-10	
AR 385-55	
DA PAM 750-35	

**Direct Operations Of The Shop Receiving, Classification And Repair Area
101-92S-3001**

Conditions: As a supervisor of the clothing repair shop, you are to direct subordinates on the shop operation procedures of the receiving, classification and repair area. Materials and equipment required: clothing repair shop trailer-mounted, pen or pencil, paper, completed DA Form 2407, DA Form 1687, DA Pam 738-750, TM 42-414 and TM 10-8400-201-23.

Standards: Complete, in order, all necessary steps to direct operations of the clothing repair shop's receiving, classification, and repair area.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Direct processing of DA Form 2407.
 - a. Make sure requests are complete with appropriate information.
 - b. Make sure high priority requests have been approved by the shop officer before the requests are accepted.
 - c. Make sure persons or units submitting requests have DA Form 1687 on file. Check the form for the following:
 - (1) Make sure soldier is a valid ID card holder.
 - (2) Make sure soldier submitting DA Form 1687 was appointed by the commander or designated representative. An assumption of command orders showing who submitted the name must be filed with DA Form 1687.
2. Direct operations of the receiving and classification section.
 - a. Make sure inspectors use the correct procedures for inspecting and classifying items by using item classification codes.
 - b. Make sure inspectors use the correct item classification codes.
 - c. Make sure section maintains a current copy of the shop's SOP.
3. Monitor repair section.
 - a. Make sure all phases of repairs meet the standards of the shop's SOP and the repair manuals.
 - b. Make sure equipment maintenance is being performed.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Directed processing of DA Form 2407.	___	___
2. Directed operations of the receiving and classification section.	___	___
3. Monitored repair section.	___	___

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
DA PAM 710-2-1	
DA PAM 738-750	
FM 10-16	
TM 10-8400-201-23	

**Control And Maintain Records Of Equipment
101-92S-3002**

Conditions: As supervisor of the clothing repair shop, you control and maintain records of equipment. Materials and equipment required: clothing repair shop trailer-mounted, pen and pencil, DA Form 2062, DA Form 2405, DA Form 2407, DA Form 2404 or DA Form 5988-E, DD Form 314, DA Pam 710-2-1, and DA Pam 738-750.

Standards: Check and review applicable forms for completeness, accuracy, and clarity to control and maintain records of equipment.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Check DA Form 2062 (called a "hand receipt").
 - a. Make sure that all accountability items are listed.
 - b. Make sure the signature of the hand receipt holder appears on the last page of the receipt.
2. Check equipment and adjust hand receipts.
 - a. Check all components of the sewing machine, tool sets, and textile repair kits for shortages.
 - b. Prepare and post the hand receipt annex for any shortage.
 - c. Adjust balances shown on the hand receipt by using temporary hand receipts.
 - d. File completed hand receipts in a hand receipt folder.
3. Review maintenance records.
 - a. Review DA Form 2405 to make sure DA Form 2407 has been posted for all unserviceable equipment.
 - b. Brief subordinates on errors.
 - c. Correct all errors.
4. Check DA Form 2404 to make sure equipment faults found during operator's daily inspection or periodic maintenance service have been entered if they cannot be corrected by operator or crew by replacing parts.
5. Check DD Form 314.
 - a. Make sure the year, REGISTRATION NUMBER or serial number, NOMENCLATURE, MODEL, unit ASSIGNED TO, and REMARKS blocks are correctly filled in and that weekly and monthly maintenance and lubrication service was recorded.
 - b. Make sure appropriate symbol was entered in MONTH and DATE block, in pencil, for service scheduled at a later date.
 - c. Make sure appropriate symbol was entered in MONTH and DATE block, in ink, on the date which service was completed.
 - d. Make sure that like items of equipment covered by one DD 314 are scheduled for service on the same day, and each item is identified by serial number in the REMARKS section of the form or on an attached sheet.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Reviewed for correctness the DA Form 2062 (called a "hand receipt").	—	—
2. Reviewed for correctness the equipment and adjust hand receipts.	—	—
3. Reviewed maintenance records.	—	—
4. Reviewed the DA Form 2404 to ensure equipment faults found during operator's daily inspection or periodic maintenance service has been entered if they cannot be corrected by operator or crew by replacing parts.	—	—

Performance Measures

GO **NO GO**

5. Reviewed for correctness the DD Form 314.

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

DA PAM 710-2-1

DA PAM 738-750

Related

**Supervise Preventive Maintenance Checks And Services (PMCS) Activities In Mobile Textile
101-92S-3003**

Conditions: As supervisor of the mobile clothing repair shop, you must direct subordinates to perform preventive maintenance checks and services (PMCS) on the mobile clothing repair shop. Materials and equipment required: TM 10-3530-203-10, light-duty sewing machine, darning machine, button machine, 3-kw generator, 1 1/2-ton cargo trailer (W) cabinet assembly, completed DA Form 2404, and completed DD Form 314.

Standards: Complete all necessary steps to perform daily maintenance on the clothing repair shop trailer mounted by inspecting operator’s maintenance and the accuracy of completed forms.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Inspect operator's maintenance on sewing machines, using the daily preventive maintenance checklist, located in TM 10-3530-203-10 Chapter 3, section III.
 - a. Machine, sewing, clothing. (Task 101-513-1107, performance measure 1.)
 - b. Machine, darning. (Task 101-513-1109, performance measure 1.)
 - c. Machine, sewing, textile. (Task 101-513-1201, performance measure 1.)
 - d. Machine, button. (Task 101-513-1366, performance measure 1.)
2. Inspect operator's maintenance on the 1 1/2 ton cargo trailer.
 - a. Check trailer mounted cabinet assembly.
3. Inspect DA Form 2404 for completeness and accuracy using daily preventive maintenance checklist.
4. Inspect DD Form 314 for complete and accurate updated information.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Inspected operator's maintenance on sewing machines using the daily preventive maintenance checklist.	—	—
2. Inspected operator's maintenance on the 1 1/2 ton cargo trailer.	—	—
3. Inspected DA Form 2404 for completeness and accuracy using daily preventive maintenance checklist.	—	—
4. Inspected DD Form 314 for complete and accurate updated information.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
DA PAM 738-750	
TM 10-3530-203-10	
TM 10-3530-203-24	
TM 10-3530-205-14	

**Coordinate Maintenance Requirements With Supporting Units
101-92S-3004**

Conditions: As NCOIC of a clothing / textile repair shop, you are to coordinate maintenance requests from the supported units. Materials and equipment required: a operating repair facility, completed DA Form 1687, DA Form 2407, DA Pam 710-2-1, and DA Pam 738-750.

Standards: Complete, in order, all necessary steps to coordinate all maintenance requirements with supported units. Continue until a turn-in is scheduled.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Ensure that maintenance requirements of supported units are met.
 - a. Make sure DA Form 1687 has been signed by submitting person.
 - b. Keep a current DA Form 1687 on file.

NOTE: Only the responsible officer or person(s) authorized by DA Form 1687 will sign for maintenance support.

2. Verify information on the DA Form 2407 for accuracy and completeness.
3. Determine proper urgency of need from a DA Form 2407.
 - a. ORD PD: The organization work request is identified by ORG PDs 01 through 13.
 - b. PD authentication. The commander's designated representative signs for all ORG PDs 01 through 10 requests.
4. Supervise processing of equipment turn-in.
 - a. Complete block 24 on DA Form 2407.
 - b. Complete section II, DA Form 2407.
5. Supervise receipt of equipment.
 - a. Return copy 1 to the supported unit. The support unit returns copy 1 when the equipment is fixed and ready for pickup.
 - b. Handle copies 2 through 5 as directed by the local command.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Ensured that maintenance requirements of supported units are met.	___	___
2. Reviewed the information on the DA Form 2407 for accuracy and completeness.	___	___
3. Determined proper urgency of need from a DA Form 2407.	___	___
4. Supervised processing of equipment turn-in.	___	___
5. Supervised receipt of equipment.	___	___

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
AR 750-1	
DA PAM 710-2-1	
DA PAM 738-750	

Prepare Master Work Schedules For Skill Level 1 And 2 Soldiers
101-92S-3005

Conditions: As NCOIC of a clothing / fabric repair shop, you are to prepare a masterwork schedule for SL 1 and SL 2 soldiers to repair items. Materials and equipment required: a clothing repair facility, writing paper and pen, roster of assigned personnel, and list of job orders.

Standards: Complete, in order, all necessary steps to prepare a masterwork schedule for soldiers. Task is complete when assignments have been made to the QA section.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Prepare work schedule for assigned personnel.
2. Prepare workload distribution for SL 1 and SL 2 soldiers.
3. Assign responsibilities to the QA section.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Prepared work schedule for assigned personnel.	_____	_____
2. Prepared work load distribution for SL 1 and SL 2 soldiers.	_____	_____
3. Assigned responsibilities to the QA section.	_____	_____

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
 AR 750-1
 DA PAM 5-3

Related
 DA PAMPHLET 5-3

**Supervise Work Flow And Quality Control Of Clothing Textiles And Webbed Equipment Items
101-92S-3006**

Conditions: As NCOIC of a clothing repair shop. You are to supervise the workflow and quality control of clothing, textile, and webbing equipment items that are received for repairs. Materials and equipment required: a operating clothing repair shop, clothing items, completed DA Form 2407, completed DA Form 2404, DA Pam 738-750, TM 10-8400-201-23, and FM 10-16.

Standards: Complete, in order, all necessary steps to verify that items have been repaired; supervising workflow and quality control of clothing, textile, and webbed equipment.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Ensure that items received for repair are processed in a timely manner based on the ORG PD shown on DA Form 2407.
2. Ensure that items are separated by item classification codes.
3. Supervise the repair work to ensure that items meet QA repair standards.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Ensured that items received for repair are processed in a timely manner based on the ORG PD shown on DA Form 2407.	—	—
2. Ensured that items are separated by item classification codes.	—	—
3. Supervised the repair work to ensure that items meet QA repair standards.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

AR 750-1
DA PAM 738-750
FM 10-16
TM 10-8400-201-23

Related

DA PAMPHLET 738-750
QM2011
QM4102
QM4103
QM4126
QM4129

**Prepare Internal And External Standing Operating Procedures (SOPs) For Shop Operations
101-92S-3007**

Conditions: As supervisor of a clothing repair facility, you are to prepare an internal and external SOP for a clothing / fabric repair shop operation. Materials required: TM 10-8400-201-23, FM 10-16, AR 385-10, AR 385-55, DA Pam 710-2-1, FM 42-414 and DA Pam 738-750.

Standards: Prepare an internal and external fabric repair shop SOP outlining the duties and responsibilities of all shop personnel and day-to-day operations.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Establish an internal SOP for the clothing repair shop.
2. Establish an external SOP for supported units for clothing shop operation procedures.
3. Establish, SOPs to determine what is economically repairable.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Established an internal SOP for the clothing repair shop.	—	—
2. Established an external SOP for supported units for clothing repair shop operation procedures.	—	—
3. Established SOPs to determine what is economically repairable.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- AR 385-10
- AR 385-55
- AR 750-1
- DA PAM 710-2-1
- DA PAM 738-750
- FM 10-16
- TM 10-8400-201-23

Related

- 612-051-0129-B
- 690-091-0738-B
- 712-053-0076-B
- DA PAMPHLET 738-750
- MM4625
- OD1403
- QM4126
- QM4150

Establish And Supervise Quality Control Standards For Shop Operations
101-92S-3008

Conditions: As NCOIC of a clothing repair shop, you have been directed to establish and supervise quality control standards for your shop operations. Materials and equipment required: a operating clothing repair shop with clothing items, shop personnel, writing paper, pen, TM 10-8400-201-23, and FM 10-16.

Standards: Complete all necessary steps to establish quality control standards for shop operations. Task is complete when all personnel are knowledgeable about their duties.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Determine which tasks will be performed
2. Determine, which SL is required to perform each task.
3. Inform personnel of their duties.
 - a. Classifier.
 - b. Inspector.
 - c. Light duty sewing machine operator.
 - d. Darning machine operator.
 - e. Button machine operator.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Determined, which tasks will be perform.	—	—
2. Determined, which SL is required to performed each task.	—	—
3. Informed personnel of their duties.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
AR 750-1	QM4126
FM 10-16	QM4129
TM 10-8400-201-23	

**Supervise The Request For Shop Supplies
101-92S-3009**

Conditions: As NCOIC of a clothing / fabric repair shop, you are to tell your subordinates to request supplies for shop operation. Materials required: DA Form 2761-1, TM 10-3530-203-34P and the Army Master Data File (AMDF).

Standards: Complete, in order, all necessary steps to verify the requisition process by supervising the request for shop supplies.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Determine class of parts that are needed.
2. Requisition parts using DA Form 2765-1.
3. Maintain accurate record keeping requests and receipts.
 - a. Keep a receipt copy of DA Form 2765-1 on file.
 - b. When the shop receives equipment, the receipt copy is destroyed.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Determined the parts, which are needed.	—	—
2. Requisitioned the required parts using DA Form 2765-1.	—	—
3. Maintained accurate record-keeping requests and receipts.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
AMDF	
AR 750-1	
DA PAM 710-2-1	
DA PAM 738-750	
TM 10-3530-203-34P	

Direct Laundry and Shower Site Selection

101-92S-3010

Conditions: You are the section chief within a shower / laundry and clothing repair (SLCR) platoon. You have been told to direct the selection of a laundry and shower field operation site for the supported units. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration (OSHA) requires that personal protective equipment (PPE) be worn while working with hazardous materials. Materials and equipment required: recon- vehicle, maps, paper, pencils, compass, drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids, FM 42-414 and FM 21-26.

Standards: Complete all necessary steps to direct the laundry and shower site selection. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, and solvents). Continue until the selected site is coordinated with higher headquarters.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Plan area pre-reconnaissance analysis.
 - a. Select the area of reconnaissance.
 - b. Determine the route to the area.
 - c. Gather all materials and information needed to complete the mission.
2. Prepare map overlays of selected areas.
 - a. Orient the overlay over the place on the map to be selected. If possible, attach the overlay to the edge of the map with tape.
 - b. Trace the grid intersections nearest the two opposite corners of the overlay and label each with the proper grid coordinates. These register marks show the receiver of your overlay exactly where to fit the overlay on a second identical map without the marks. The overlay is difficult to orient.

NOTE: It is important that absolute accuracy be maintained in plotting the cross hairs. The smallest mistake will cause the overlay to be unusable.

3. Perform area reconnaissance and site selection.
 - a. Obtain information about a specific location and the area immediately around it (for example, road junctions, hills, bridges, and enemy positions).
 - b. Identify the location by either grid coordinates or a map overlay with a boundary line drawn around the area.
 - c. Have the soldier reconnaissance the appointed area in the shortest possible time.
 - d. Select a site near the units or the command that will be supported.
 - e. Choose a location that has plenty of clean water, gentle sloping terrain, good roads nearby, and good natural cover and concealment.
4. Coordinate with higher headquarters the area of the operation site.
 - a. Give an oral or written report or a copy of the setup operation.
 - b. Ensure headquarters fully approve and understand everything about the site selection.
5. Prevent hazardous materials from contaminating the environment.

Performance Steps

- a. Actions required to performed the step:
 - (1) Place drip pans, or similar initial containment devices completely under area where fluid leaks may occur.
 - (2) Remove any spills.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Comply with disposal requirements for contaminated/hazardous materials.
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - (2) Ability to use spill cleanup materials to remove/cleanup spills.
 - (3) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
 - (1) Knowledge of spill cleanup equipment.
 - (2) Knowledge of unit or Installation SOP/Operations Order requirements for requisitioning, storage, handling, and disposal of hazardous materials.
 - (3) Knowledge of how to properly drain/replace fluids from vehicles.
 - (4) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Spill kits.
 - (c) Containers for contaminated hazardous fluids.
 - (d) Drip pans.
 - (e) Absorbent materials (e.g. dry sweep).
 - (f) Rags.
 - (g) Shovel for removing contaminated materials.
 - (h) Containers for transporting of contaminated material.
 - (2) Supporting individual task(s): None
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: CAUTION! Dispose of hazardous materials (such as, fuels, grease, oil, and contaminated rags) IAW unit Standing Operating Procedures/Operations Order (OPORD), local regulations, and/or host nation laws. Use rags to contain any excess fluids. Dispose of rags in appropriate accumulation
6. Employ procedures to dispose of solid waste.
- a. Actions required to performed the step:
 - (1) Place contaminated rags in appropriate container for recycling (laundry).
 - (2) Place contaminated absorbents (dry sweep) into appropriate container.
 - b. Environmental skills required:
 - (1) Ability to select hazardous materials container.
 - (2) Ability to locate appropriate accumulation point container for recycling solid waste.
 - c. Environmental knowledge required:
 - (1) Knowledge of solid waste disposal requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Absorbent materials (e.g. dry sweep).
 - (c) Rags.
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: None.

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Planned area pre-reconnaissance analysis.	—	—
2. Prepared map overlays of selected areas.	—	—
3. Performed area reconnaissance and site selection.	—	—
4. Coordinated with higher headquarters the area of the operation site.	—	—
5. Placed drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—
6. Removed spills (small).	—	—
7. Collected contaminated soil, absorbent materials, and debris into approved containers.	—	—
8. Complied with container labeling requirements.	—	—
9. Complied with disposal requirements for contaminated materials.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- FM 3-25.26
- FM 42-414
- TM 10-3510-208-12
- TM 10-4230-203-14
- TM 10-4510-206-14
- TM 5-4520-224-14
- TM 5-6115-271-14

Related

**Inspect The Setup Of A Laundry Unit
101-92S-3011**

Conditions: As a laundry section chief, you will inspect the laundry site and equipment setup. Materials and equipment required: laundry units trailer mounted, water source, power source, tentage, FM 42-414 and DA Form 4765-R.

Standards: Complete all necessary steps to inspect the setup of laundry equipment. Continue until the site equipment is completely setup and DA Form 4765-R is inspected.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Inspect the laundry and clothing repair shop site.
 - a. Ensure the layout plan allows for the placement of the 3,000-gallon collapsible tanks; if the water, must be brought in by a water tank truck.
 - b. Ensure intake hoses and drainage ditches are properly placed.
 - c. Ensure soldiers set up separate tents for receiving and shipping if possible.
 - d. Ensure the tents are placed close to the laundry trailers and allow a traffic flow pattern for rapid pickup and delivery.
2. Inspect the laundry equipment (trailer, generator, water pump, water heater, air compressor, washer and extractor, dryer tumbler, and 3,000-gallon collapsible tank).
 - a. Ensure the water pump is not more than 10 feet from the water source.
 - b. Ensure the water heater exhaust duct opening is outside the tent, so the exhaust fumes stay out of the work area.
3. Inspect DA Form 4765-R.
 - a. Ensure all forms are complete and accurate.
 - b. Ensure the amount used in the SUPPLIES section is equal to the amount required.
 - c. Ensure the EQUIP DOWN-TIME and REASON column is completed to ensure equipment is being properly maintained and repaired.

Performance Measures	<u>GO</u>	<u>NO GO</u>
1. Inspected the laundry and clothing repair shop site.	_____	_____
2. Inspected the laundry equipment (trailer, generator, water pump, water heater, air compressor, washer and extractor, dryer-tumbler, and 3,000-gallon collapsible tank).	_____	_____
3. Inspected DA Form 4765-R.	_____	_____
4. Inspected the clothing repair shop equipment, sewing machine, darning machine, button machine and fire extinguisher.	_____	_____
5. Transferred information from DA Form 2407 to DA Form 2405.	_____	_____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

**Inspect The Setup Of A Shower Operation
101-92S-3012**

Conditions: As a shower / laundry and clothing repair specialist, and perform duty as the shower NCOIC. You are required to inspect the shower site, equipment, and setup. Materials and equipment required: DA Form 4766-R, TM 10-4510-206-14, water heater, water pump, tent extendable, 5 KW generator, shower base and top frame assembly.

Standards: Complete all necessary steps to inspect the setup of a shower operation site. Continue until the site, equipment, and DA Form 4766-R are completed.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Inspect the shower site.
 - a. Ensure the layout plan allows for the placement of a 3,000-gallon collapsible tank; if, fresh or potable water must be brought in by a water tank truck.
 - b. Ensure wastewater drains are positioned so water does not re-enter the water heater and circulating system.
 - c. Ensure fire hazards, such as oily waste, cleaning rags, oil, grease, fuel, rubbish, or trash DO NOT collect around the bath unit.
 - d. Ensure no unspecified fuel is used.
 - e. Ensure the water supply has been tested.
 - f. Ensure soldiers are dusted outside in good weather when there is no wind.

NOTE: Delousing operations use only for steps f and g if directed by higher headquarter.

- g. Ensure soldiers are dusted in a separate tent (from the tents used for dressing, undressing, and showering) when the weather is inclement.

2. Inspect shower equipment (water pump, water heater, shower base and top frame assembly, generator, fire extinguisher, tent extendable, drainage system, and space heaters).
 - a. Ensure the water pump is 15 feet to 20 feet from the water source.
 - b. Ensure the strainer of the suction hose is in the deepest part of the water source.
 - c. Ensure the water heater is 5 feet from the water pump.
 - d. Ensure the fuel drum is 3 feet to 5 feet from the water heater.
 - e. Ensure the water heater exhaust duct opening is away from the shower area.
 - f. Ensure signs are posted to alert soldiers NOT to brush their teeth or rinse their mouths in the shower area.
 - g. Ensure a dry chemical fire extinguisher is beside the bath equipment.
 - h. Ensure the drainage ditch is completely around the shower area and away from the parking area.
3. Inspect DA Form 4766-R.
 - a. Check for completeness and accuracy.
 - b. Ensure the amount used in the supplies section is EQUAL to the amount required.
 - c. Ensure the ON HAND LAST RECORD column has been added to the RECEIVED column and subtracted from the ISSUED column to equal the ON HAND THIS RECORD column.
 - d. Ensure EQUIP DOWN-TIME and REASON column is completed to ensure equipment is being properly maintained and repaired.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Inspected the shower site.	_____	_____
2. Inspected shower equipment (water pump, water heater, shower base and top frame assembly, tent extendable, generator, fire extinguisher, drainage system, and space heaters).	_____	_____

Performance Measures

GO **NO GO**

3. Inspected DA Form 4766-R.

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

FM 42-414

TM 10-4510-206-14

Related

Supervise Shower Setup And Operations

101-92S-3013

Conditions: You are the section chief of a shower operation site. You must supervise your subordinates during shower equipment set up and operations. Materials and equipment required: shower equipment, DA Form 2404, DA Form 4766-R, TM 10-4510-206-14, and DA Pam 738-750. Water Heater, 5K generator, water pump, delousing unit, 3,000 gallon collapsible water tank, tent extendable temper, shower base and top frame assembly, and H-45 Space Heater.

Standards: Complete all necessary steps to supervise shower set - up and operations. Continue until the equipment is shutdown. List deficiencies on DA Form 2404 for processing.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Observe the personnel setting up the equipment.
 - a. Ensure each shower section has three frame extendable tents.
 - b. Ensure three GP medium tents are used for the shower operations.
 - c. Ensure four frame extendable tents, if delousing is required, are used for the delousing operations.
 - d. Ensure water is stored in a 3,000-gallon collapsible tank and plenty of room is allowed for layout.

NOTE: Ensure the intake hoses and drainage ditches are properly placed. (The intake hose should be upstream and the drainage hose should be downstream).

- e. Ensure the shower base units are back to back and heel to toe to connect 5 feet drain hose to shower base manifold.
- f. Ensure shower base drain hose is connected to the other end of the Y-fitting coupler.
- g. Ensure Y-fitting drain hose is connected to the water pump suction male coupler.
- h. Ensure the supported unit furnishes personnel for unloading the frame tents and putting the duckboards in for the flooring.
- i. Ensure the water pump is placed not more than 10 feet from the water source.
- j. Ensure the suction hose is connected to the intake side of the water pump and the strainer is placed in the deepest part of the water source.
- k. Ensure a mound of stones and gravel, or tripod is used for the strainer to keep mud or debris out of the water system, when using a lake, stream, or river.
- l. Ensure the water heater is 5 feet from the water pump.
- m. Ensure the drain hose is clear and connected to the discharge end side of the water pump and other end to the drain field.
- n. Ensure the 55-gallon fuel drum is 3 feet to 5 feet from the heater.
- o. Check the fuel drum to be sure it is full.
- p. Ensure the barrel plug adapter is installed in the large opening in the fuel drum.
- q. Ensure the fuel supply and the fuel return hoses are connected.
- r. Ensure the exhaust duct to the water heater is attached and the opening of the duct is away from the shower area.

NOTE: The duct must not touch the hoses or any temper tent cover.

- s. Ensure the generator set is placed 15 feet to 20 feet from the water heater and is the same distance from the water pump, so that the three pieces of equipment are in the approximate form of a triangle.

NOTE: The generator must not tilt more than 15 degrees. It must be grounded before operating and a fire extinguisher is within arms length.

- t. Check the switch operating the blower and fuel pump on the water heater to ensure it has been turned off.
- u. Connect the power cord cables to the generator receptacle box connection.
- v. Ensure a ditch is dug for drainage and is 1 foot wide and 1 foot to 3 feet deep.

Performance Steps

NOTE: Since delousing powder irritates the nose and throat, dusting should not take place in the tent where soldiers are undressing, showering, or dressing. Soldiers should be dusted outside in good weather, when there is no wind. However, if weather is inclement, dusting should take place in a SEPARATE tent.

2. Observe the operation of the equipment.
 - a. Ensure before-operation, during-operation, and after-operation PMCS is performed.
3. Observe the shower and delousing operations.
 - a. Supervise shower operation.
 - (1) Ensure equipment-operating distances are correct.
 - (2) Ensure the generator is placed 15 feet to 20 feet from the water heater and the water pump.
 - (3) Ensure the water pump suction lift does not exceed 15 feet.
 - (4) Ensure the fuel supply is 3 feet to 5 feet from the water heater.
 - (5) Ensure the shower base and top frame assembly inside the tent is 15 feet to 20 feet from the water heater.
 - (6) Ensure before-operation, during-operation, and after-operation PMCS is performed on the shower equipment.
 - (a) Supervise before-operation PMCS on the 5-kilowatt generator set. - Ensure the ground rod is properly installed. - Make sure oil level is correct. Add oil, as needed. (SEE CAUTION:)- Check the battery water level, clean the battery filler cap vent, and tighten loose battery cables. - Make sure the air filter is clean. - Make sure the fuel supply is satisfactory. - Ensure the fuel filter does not have leaks. - Ensure the seal on the fire extinguisher is not broken. (SEE NOTE:)- Make sure the generator is lubricated according to the current lubrication order. - Make sure all controls and instruments are inspected for damage and loose mountings. - Make sure the wiring is checked for cuts, frays, and loose connections and defects are repaired.

CAUTION: DO NOT OVERFILL THE GENERATOR WITH OIL. NOTE: If the seal is broken, turn the extinguisher in for another one; check the gauge to be sure the extinguisher has the proper charge.

- (b) Supervise before-operation PMCS on the water heater. - Make sure the lens, on the sight tube are cleaned. - Ensure the fuel lines are checked for leaks. - Make sure the wiring is checked for cuts, frays or loose connections and defects are repaired. - Make sure the controls and gauges are inspected for damage or loose mountings.
- (c) Supervise during-operation PMCS on the 5-kilowatt generator set. - Make sure the ammeter reads on the plus side of the scale. If the reading is too high, the generator is turned off and a mechanic inspects for ammeter. - Make sure the oil pressure gauge reads 30 psi to 40 psi. - Make sure the voltmeter reads 208 volts. - Make sure the frequency meters reads 60 cycles. - Make sure any unusual vibrations and noises are investigated. - Ensure fuel and oil leaks are investigated.
- (d) Supervise during-operation PMCS on the water heater. - Make sure the burner electrodes are checked for a proper spark. Make sure the spark is blue and jumps continuously from one electrode to the other. - Check the temperature gauge. Make sure it reads 160 degrees Fahrenheit. If necessary, the temperature control switch is adjusted until the gauge reads 160 degrees Fahrenheit. - Make sure the pressure gauge reads between 60 psi and 100 psi. - Ensure any unusual vibrations and noises are investigated.

CAUTION: Laundry and Shower equipment is cleaned with solvent in a well ventilated area. Solvent will not be used on rubber parts. Do not inhale solvent fumes. Do not use solvent near open flames or excessive heat. The flash point of solvent is 100 degrees to 138 degrees Fahrenheit (38 to 59 degrees Celsius).

Performance Steps

- (e) Supervise after-operation PMCS on the 5-kilowatt generator set. - Ensure the wiring is inspected for cuts, frays, and loose connections and repaired, as needed. - Make sure the controls and instruments are inspected for damage and loose mounting. - Make sure the generator is lubricated according to the current lubrication order. - Ensure the fire extinguisher's seal is inspected to see if it is broken. - Make sure the ground rod is properly installed. - Make sure the fuel filter does not have leaks. - Make sure the fuel supply is satisfactory. - Make sure the air filter is clean. - Ensure the soldier checks the battery water level and adds water if it is needed, clean the battery filler cap vent if it is needed, and tighten loose battery cables. (SEE CAUTION: 1.) - Add oil to the oil level, if needed. (SEE CAUTION: 2.)

CAUTION: 1. DO NOT OVERFILL BATTERY. CAUTION: 2. DO NOT OVERFILL.

- (f) Supervise after-operation PMCS on the water heater. - Make sure the exhaust duct is inspected for damage. - Make sure the water hoses are checked for obstructions. - Make sure the glass, on the instruments are checked for breakage or loose connections. - Make sure the blower and motor are mounted properly and the shutter operates freely. - Make sure the lead assemblies are checked for secure connections. - Make sure the nozzle and electrode holder is checked for secure mounting. - Make sure the water is drained from the system to prevent freezing.
 - (g) Make sure an adequate fuel supply is available. - Ensure the using unit is contacted and informed of fuel requirements. - Make sure using unit is informed of any changes in fuel requirements and when fuel is no longer needed.
 - (h) Make sure the H-45 space heater body is assembled. - Make sure the heater body is assembled. - Make sure the air conditioning and heating pipes (smoke stack) are installed. - Make sure a 5-gallon liquid fuel supply is installed. (Use for type 2 space heater only.)
 - (i) Make sure the traffic flow through the shower section is controlled. - Ensure a traffic flow chart for the shower section is posted. - Ensure the users are briefed on the traffic flow when entering the shower tent.
 - (j) Make sure an adequate water source is used. - Make sure medical personnel are present to test water, if it is from a lake or pond. - Make sure water is stored in a 3,000-gallon collapsible tank.
 - (k) Ensure drainage system is adequate. - Make sure drainage ditch is 1 foot wide and 1 inch to 3 inches deep to handle wastewater. - Make sure drainage ditch is away from the water supply and parking area. - Make sure wastewater runs into a drainage ditch. See FM 42-414.
- b. Supervise delousing operations, if directed by higher headquarter, complete steps.
- (1) Make sure before-operation preventive maintenance is performed.
 - (a) Make sure the delousing outfit frame is inspected for dents, cracks, and other damage.
 - (b) Make sure the delousing outfit engine and compressor are inspected to ensure connections and mountings are not loose.
 - (c) Make sure the delousing outfit is serviced by adding fuel and oil, as needed.
 - (2) Check the delousing outfit engine and compressor.
 - (a) Make sure the compressor relief cock located on the end of the compressor manifold is opened.
 - (b) Make sure the fuel shutoff cock located on the bottom of the fuel tank is opened.
 - (c) Make sure the choke lever is placed in the CLOSED position.
 - (d) Make sure the magneto stop switch is pulled out or down (depending on the model).
 - (e) Make sure the starter rope is removed from the tubular frame and wrapped clockwise around the top sheave of the engine pulley.
 - (f) Make sure the starter rope is pulled with a hard, steady pull until the engine starts (more than once, if necessary).
 - (g) Make sure the choke is opened slowly until the engine warms up and runs at normal speed.

Performance Steps

- (h) Make sure the compressor relief cock is closed and the air pressure is allowed to build up to the operating pressure.
 - (3) Delouse infested personnel.
 - (a) Make sure personnel have loosened their shirts and trousers, and their headgear is in their hands.
 - (b) Dust the head and headgear first.
 - (c) Insert nozzle into right and left sleeve, and squeeze dust powder in each.
 - (d) Insert the nozzle into the trouser waist and dust the right and left side.
 - (e) Insert the nozzle into the shirtfront and dust the right and left side.
 - (f) Insert the nozzle into the trouser back and dust the right and left side.
 - (g) Insert the nozzle into the shirt back and dust the right and left side.
 - (4) Perform during-operation preventive maintenance.
 - (a) Ensure mountings are not loose and there are no fuel leaks.
 - (b) Listen and watch for unusual noises or vibrations.
 - (c) Check reading on air pressure gauge. Make sure it reads 25 psi.
 - (5) Stop the delousing outfit engine and compressor.
 - (a) Push the magneto stop switch up or in, depending on the model, to stop the engine.
 - (b) Close the fuel shutoff cock.
 - (6) Perform after-operation preventive maintenance.
 - (a) Check the delousing outfit for operational damage.
 - (b) Check the fuel tank for leaks.
 - (c) Remove clogging debris from shroud and scroll screens.
 - (d) Add fuel and oil, as needed.
4. Ensure procedures are set up to process each supported unit in a timely manner.
- a. Post the chart showing the flow of traffic.
 - b. Replenish supplies.
5. Ensure the accountability of personal property, supplies, and equipment is maintained.
- a. Process personnel entering the shower facility.
 - (1) Issue each soldier a valuables bag and a metal claims disk for the valuables bag.
- NOTE: For example, some field operation requires the issuing of personnel item. The supported Higher Headquarter will supply these items only. Shower personnel will maintain the control and issuing of the item.
- (2) Issue each soldier a 2-ounce cake of soap, and inform bather to place used soap in the designated holder.
 - (3) Show each soldier to the area where valuables are stored.
 - (4) Instruct each soldier to place the metal claims disk around the neck while in the shower.
 - (5) Show each soldier to the shower area.
 - (6) Tell each soldier to remain in the shower no more than seven minutes.
- b. Process personnel coming out of the shower.
 - (1) Issue towels, if required, and foot powder to returning bathers.
 - (2) Return valuables bag and other items left for safekeeping when each soldier's metal claims disk is returned.
 - (3) Show each person to the drying and dressing area.
 - (4) Tell each soldier to place the used towels in the soiled clothing bin, before leaving the facility.
 - c. Maintain accountable records of issued item.
 - (1) Account for all items issued from the clean cloth towels stock bins.
 - (2) Account for all items placed in the soiled cloth bins.
 - (3) Inventory stock on hand at the close of each day of operation.
 - (4) Account for the valuable bags and the claim disks.
 - d. Process soiled cloth towels at the supporting laundry facility.
 - (1) Prepare laundry turn-in slips required by the laundry facility.
 - (2) Load the dirty cloth towels onto a carrier.

Performance Steps

- (3) Transport the soiled cloth towels to the laundry facility.
- (4) Pick up clean cloth towels from the laundry facility. (See DA Form 4766-R)

- 6. Ensure shower records are accurate and complete.
 - a. Ensure males AND females shower schedule are prepared.
 - b. Make sure each shower point has a prepared schedule.
 - c. Supervise the requisitioning and re-supplying of the cloth towels and supplies for the (SLCR) operation.
- 7. Ensure accountability of cloth towels and personal items is maintained.
 - a. Ensure supported units submit a number of personnel to be supported.
 - b. Ensure a one-day supply of cloth towels is on hand.
 - c. Ensure soiled cloth towel is delivered to the laundry site and clean towels are picked up.
 - d. Ensure personnel from the supported units who work under Field Service personnel are supervised.
 - e. Ensure a careful inventory is maintained and a complete record of towel and personal items, if required, is on hand.
 - f. Ensure DA Form 4766-R is prepared.
 - g. Ensure supply requirements are determined and requests are submitted for supplies and repair parts.
- 8. Submit completed DA Form 4766-R and other reports according to the unit's SOPs.
 - a. Completed the HEADING and BATH POINT section of DA Form 4766-R.
 - (1) Place an X in the appropriate block to indicate daily, weekly, or monthly record.
 - (2) Enter the (SLCR) organization in the ORG space.
 - (3) Enter the shower team number in the TEAM NO. Space.
 - (4) Enter the grid coordinates of the shower site in the LOCATION space.
 - (5) Enter the date or dates in the DATE(s) space.
 - (a) List the date of the day for a DAILY record.
 - (b) List the inclusive dates for a WEEKLY record.
 - (c) List the inclusive dates for a MONTHLY record.
 - (6) Enter the unit's name using the shower point during the period covered by the record in the UNITS SERVICED column.
 - (7) Enter the total number of personnel processed through the bath point for each unit serviced in the NO. MEN PROCESSED column.

NOTE: The total number of females and males processed will be entered in the NO. MEN PROCESSED column.

- (8) Enter the time each unit began service at the shower point in the TIME STARTED column.
- (9) Enter the START and STOP times the operation was stopped and restarted for equipment operation time, maintenance and down time.
- (10) Enter the time each unit left the shower point in the TIME STOPPED column.
- (11) Enter the total time any piece of equipment was down for maintenance.
- (12) Enter the reason for equipment down time (if applicable) in the REASON column.

- b. Complete the SUPPLIES section of DA Form 4766-R.

NOTE: Round up amounts to the nearest pound, ounce, pint, quart, or gallon.

- (1) List in the ITEMS column all operational supplies used by the activity and enter the appropriate unit of issue for each item.

NOTE: The unit of issue for dry, powder type supplies must be in pounds or ounces. The unit of issue for liquid supplies is given as pint, quart, or gallon.

- (2) Enter in the ON HAND LAST REPORT column the total amount of each listed item that was on hand or left over from the last operation.
- (3) Enter in the AMT USED column the total amount of each listed item used during the period covered by the record.
- (4) Enter in the ON HAND THIS REPORT column the total amount of each listed item that remains on hand.

Performance Steps

NOTE: Subtract the amount in the AMT USED column from the amount in the ON HAND LAST REPORT column. NOTE: The AMT REQUIRED figures are the same as AMT USED figures.

- (5) Enter in the AMT REQUIRED column the total amount of each listed item that must be requisitioned to replenish the amount used.
- c. Complete the CLOTHING EXCHANGE section of DA Form 4766-R for towel items only.
 - (1) Enter in the appropriate spaces of the CLOTHING EXCHANGE section the same information that was entered in the HEADING portion of the BATH POINT section.
 - (2) List in the ITEMS column all clothing stocks.
 - (3) Enter in the ON HAND LAST REPORT column the total number of each listed item that was on hand or left over from the last operation.
 - (4) Enter in the RECEIVED column the total number of each listed item that was received from the laundry activity or supply point during the period covered by the record.
 - (5) Enter in the ISSUED column the total number of each listed item that was issued during the period covered by the record.
 - (6) Enter in the ON HAND THIS REPORT column the total number of each listed item still on hand at the end of the recorded period by adding the ON HAND LAST REPORT figure to the RECEIVED figure and then subtract the ISSUED figure.
- 9. Observe the equipment shutdown procedures.
 - a. Ensure all equipment is handled properly.
 - b. Ensure all equipment is safe as possible.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Observed the personnel setting up the equipment.	—	—
2. Observed the operation of the equipment.	—	—
3. Observed the shower and delousing operations.	—	—
4. Ensured procedures are set up to process each supported unit in a timely manner.	—	—
5. Ensured accountability of personal property supplies, and equipment is maintained.	—	—
6. Ensured the shower records are accurate and complete.	—	—
7. Ensured accountability of towel items is maintained.	—	—
8. Ensured the submission of completed DA Form 4766-R and other reports are processed to supervisor in accordance to the unit's SOPs.	—	—
9. Observed the equipment shutdown procedures.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
AR 200-1	
AR 700-141	
DA PAM 738-750	
FM 42-414	
TM 10-4510-206-14	
TM 10-8340-211-13	
TM 5-6115-271-14	

Supervise The Acquisition Of Water
101-92S-3014

Conditions: You are assigned to a shower / laundry and clothing repair (SLCR) platoon. As NCOIC your mission is to supervise the acquisition of water for shower and laundry operations. Materials and equipment required: adequate fresh water, FM 42-414.

Standards: Complete all necessary steps to supervise the acquisition of water. Continue until the water allotment is received.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Request the water requirement from higher headquarters.
 - a. Coordinate with the battalion operations officer who will make arrangements for shipping water to laundry units, if an adequate fresh water supply is not available.
 - b. Inform the battalion operations officer of how much water is needed and your location.
2. Request support personnel to test water to ensure water can be used for showers.
 - a. Notify the battalion operations officers who will arrange water testing by preventive medicine personnel or water treatment specialists.
 - b. Ensure company commander verifies that preventive medicine personnel or water treatment specialists check the water supply.
3. Receive the water allotment.
 - a. Compute the number of soldiers that need to be showered per day to verify that you have received enough water.
 - b. Request the additional amount of water, if needed.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Requested the water requirement from higher headquarters.	—	—
2. Requested supported personnel to test water to ensure water can be used for showers.	—	—
3. Received the water allotment.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

**Supervise The Preparation Of Shower Equipment For Movement
101-92S-3015**

Conditions: You are assigned to a shower / laundry and clothing repair (SLCR) platoon. Your leaders had directed the shower site equipment to be relocated. You, the shower NCOIC, is to supervise the preparation of the shower equipment for movement. Materials and equipment required: load plans, trucks cargo, trailer cargo shower equipment, tents, water tank, and TM 10-4510-206-14.

Standards: Complete all necessary steps to supervise the preparation of shower equipment for movement. Continue until the shower loading operations are completed.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Notify personnel of movement and individual responsibilities.
 - a. Brief personnel.
 - b. Give movement orders to designated personnel.
 - (1) Ensure movement order include the situation, the mission, execution, service support, command and signal.
 - (2) Prepare a strip map to include movement order.
 - c. Establish a loading plan to include the type of vehicle, driver, passengers, equipment, vehicle convoy number, and section the vehicle is from.
 - d. Ensure each team has assembles equipment as the mission requires.
2. Determine the transportation requirements based on the mission.
 - a. Contact the battalion headquarters for prime movers.
 - b. Assemble the vehicles in the designated area for loading.
3. Supervise bath-loading operations.
 - a. Ensure equipment is loaded according to the unit-loading plan.
 - b. Ensure each vehicle is loaded to its capacity.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Notified personnel of movement and individual responsibilities.	_____	_____
2. Determined the transportation requirements based on the mission.	_____	_____
3. Supervised shower loading operations.	_____	_____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
FM 42-414	
TM 10-4510-206-14	
TM 10-8340-211-13	
TM 5-6115-271-14	

Supervise Laundry Setup And Operations
101-92S-3016

Conditions: You are a laundry section chief within a shower / laundry and clothing repair (SLCR) platoon. You the laundry section chief is to supervise the laundry section equipment setup and operation. Materials and equipment required: DA Form 1974, DA Form 2886, TM 5-6115-275-14, TM 10-3510-208-12, Laundry Units, water pump, 3,000 gallon collapsible tank, pin marking kit and tentage.

Standards: Complete all necessary steps to supervise the setup and operation of field laundry. Continue until the equipment is dismantled.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Supervise the equipment setup.
 - a. Ensure the water pump is level and not more than 10 feet above the water supply.
 - b. Ensure the hose and strainer are connected to the pump.
 - c. Ensure the gaskets are tight in order to prevent air and water leaks.
 - d. Ensure the pump is primed.
 - e. Ensure the engine generator unit is checked for oil, water, and gas.
 - f. Ensure the belts are checked for wear.
 - g. Ensure the instruments and switches are mounted properly and the start and stop switches and circuit breaker are in the OFF position.
 - h. Ensure the unit is checked for unusual noises before turning on the main power switch after starting.
 - i. Ensure the water heater is to be filled by venting all air and starting the burner unit.
 - j. Check the washer for operation.
 - k. Check the extractor for operation.
 - l. Check out the drying tumbler prior to operation.
 - m. Ensure the drying unit and burner assembly are started properly.
2. Supervise the receiving operations.
 - a. Ensure the type of turn-in is determined.
 - b. Check the turn-in schedule to make sure the turn-in and the unit making the turn-in follow the schedule.
 - c. Make sure DA Form 2404 is complete and accurately filled out.
 - d. Ensure each item is turned in to the laundry facility and verified against the appropriate laundry list.
 - e. Ensure the receipt for turn-in is received.
3. Supervise marking of individual laundry.
 - a. Ensure each garment is pinned with a pin bearing the number written in the upper right corner of DA Form 2886.
 - b. Make sure pairs of socks or handkerchiefs are pinned together.
 - c. Ensure the laundry bag is pinned, as if it were a garment.
4. Supervise classification of individual laundry.
 - a. Ensure items are classified by fiber content and color.
 - b. Ensure the laundry is arranged into lots of 24 bundles marked with the same pin set.
5. Supervise equipment operation.
 - a. Enforce safety rules.
 - b. Ensure PMCS is performed.
 - c. Ensure equipment is operated properly.
6. Supervise washing and drying operations.
 - a. Ensure only 60 pounds of laundry are washed per washer load.

Performance Steps

- b. Ensure the formula used applies to the type of clothing being laundered.
- c. Ensure an average load is dried for 13 minutes.

- 7. Supervise processing of finished laundry.

- 8. Supervise the shipping of laundered items.
 - a. Ensure bundles are counted to ensure total count is correct.
 - b. Ensure shipping receipt is verified and filed.

- 9. Supervise the shutdown of laundry equipment.
 - a. Check to make sure the exhaust blower is allowed to run five minutes to purge all gases.
 - b. Check to make sure the water is drained from all components.
 - c. Ensure the generator is allowed to run three to five minutes without a load.
 - d. Ensure after-operation maintenance is performed.

- 10. Supervise dismantling of equipment.
 - a. Ensure the laundry trailer's 10-kilowatt generator, washer and extractor, water pump, water heater, and dryer-tumbler are properly dismantled.
 - b. Ensure all hoses are drained and cleaned.
 - c. Ensure all safety rules are followed.
 - d. Ensure all power cables are properly disconnected.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Supervised the equipment setup.	___	___
2. Supervised the receiving operations.	___	___
3. Supervised marking of individual laundry.	___	___
4. Supervised classification of individual laundry.	___	___
5. Supervised equipment operation.	___	___
6. Supervised washing and drying operations.	___	___
7. Supervised processing of finished laundry.	___	___
8. Supervised the shipping of laundered items.	___	___
9. Supervised the shutdown of laundry equipment.	___	___
10. Supervised dismantling of equipment.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
AR 200-1	
AR 700-141	
FM 42-414	
TM 10-3510-208-12	
TM 10-8340-211-13	

**Supervise Preventive Maintenance Checks And Services (PMCS) On Laundry And Shower
Equipment
101-92S-3017**

Conditions: You are the section chief of a laundry and shower operation. You have ordered PMCS to be performed on all of the sections equipment. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration Materials and equipment required that personal protective equipment (PPE) be worn while working with hazardous materials. Materials and equipment required: laundry units, shower unit, 5-kw generator set, drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids, TM 5-6115-271-14, TM 5-6115-275-4, TM 10-3510-208-12, TM 10-4510-206-14, DA Pam 738-750, and DA Form 2404 or DA Form 5988-E.

Standards: Complete all necessary steps to supervise PMCS on laundry and shower equipment. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, and solvents). Continue until after-operation PMCS is completed. List deficiencies on DA Form 2404 or DA Form 5988-E for processing.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Supervise before-operation, during-operation, and after-operation PMCS on laundry equipment.
 - a. Supervise before-operation PMCS on the generator set.
 - (1) Check to see if the ground rod is properly installed.
 - (2) Check the oil level and add oil, if needed.

CAUTION: DO NOT OVERFILL.

- (3) Check the battery water level and add water if it is needed, clean the battery filler cap vent if it is needed, and tighten loose battery cables.

CAUTION: DO NOT OVERFILL BATTERY.

- (4) Check the air filter.
- (5) Check the fuel supply.
- (6) Check the fuel filter for leaks.
- (7) Inspect the fire extinguisher to see if the seal is broken.

NOTE: If the seal is broken, turn in the extinguisher for another one. Also, check the gauge to be sure the extinguisher has the proper charge.

- (8) Make sure the generator is lubricated according to the current lubrication order.
 - (9) Ensure all controls and instruments are inspected for damage and loose mountings.
 - (10) Make sure the wiring is checked for cuts, frays, and loose connections and any wiring defects are repaired.
- b. Supervise before-operation PMCS on the water heater.
 - (1) Make sure the lens are cleaned on the sight tube.
 - (2) Make sure the fuel lines are checked for leaks.
 - (3) Make sure the wiring is checked for cuts, frays, or loose connections.
 - (4) Ensure the controls and the gauges are inspected for damage or loose mountings.
 - c. Supervise before-operation PMCS on the water pump.
 - (1) Inspect for sediment and clean out sediment weekly.
 - (2) Inspect the control switch for damage and loose mounting.
 - (3) Inspect the suction strainer daily before and during operation to see if it is properly positioned and free of debris.
 - d. Supervise before-operation PMCS on the dryer-tumbler.

Performance Steps

- (1) Inspect the cylinder for damage.
 - (2) Make sure the lint trap is cleaned, if necessary.
 - (3) Check the fuel filter for leaks and turn the T-handle one full turn.
 - (4) Check the fuel lines for leaks.
 - (5) Check the wiring and repair any defects.
 - (6) Check the chain for proper tension.
- e. Supervise before-operation PMCS on the washer and extractor.
- (1) Make sure the cylinder is inspected for damage.
 - (2) Check the drain valves to see if they operate properly.
 - (3) Make sure the sheaves, the brake discs, and the shoes are clean.
 - (4) Check the tension of the belts.
 - (5) Check the wiring and the air hoses.
 - (6) Make sure the controls and gauges are inspected for damage and loose wiring. If the wiring is loose or damaged, have it repaired before using the washer and extractor.
- f. Supervise during-operation PMCS on the 10kw generator set.
- (1) Check to see that the amp meter reads on the plus side of the scale. If the reading is too high, turn the generator off and get a mechanic to check it.
 - (2) Check to see if the oil pressure gauge reads 30 psi to 40 psi.
 - (3) Check to see if the voltmeter reads 208 volts.
 - (4) Check to see if the frequency meter reads 60 cycles.
 - (5) Watch and listen for any unusual vibrations and noises.
 - (6) Check for fuel and oil leaks.
- g. Supervise during-operation PMCS on the water heater.
- (1) Check the burner electrodes spark. Make sure the spark is blue and jumps continuously from one electrode to the other.
 - (2) Check the temperature gauge, it should read 160 degrees Fahrenheit. If necessary, adjust the temperature control switch until the gauge reads 160 degrees Fahrenheit.
 - (3) Check the pressure gauge, it should read between 60 psi and 100 psi.
 - (4) Watch and listen for any unusual vibrations and noises.
- h. Supervise during-operation PMCS on the water pump.
- (1) Watch for leaks and unusual vibrations.
 - (2) Listen for any unusual noises.
- i. Supervise during-operation PMCS on the dryer-tumbler.
- (1) Make sure the mercoid switch is set on DURABLE PRESS or COTTON/WOLENS.
 - (2) Check the pressure gauge, it should read 100 psi.
 - (3) Check the air temperature control, it should read 250 degrees Fahrenheit for cotton and 200 degrees Fahrenheit for wool.
 - (4) Make sure the ducts are inspected for leaks.
 - (5) Watch and listen for any unusual vibrations and noises.
- j. Supervise during-operation PMCS on the washer and extractor.
- (1) Check the drain valves, the controls, and all instruments to see if they operate properly.
 - (2) Check the controls and gauges for damage.
 - (3) Lubricate according to the current lubrication order.
- k. Supervise after-operation PMCS on the water pump.
- (1) Make sure the strainer is cleaned weekly.
 - (2) Make sure the pump is drained daily.
- l. Supervise after-operation PMCS on the dryer-tumbler.
- (1) Make sure the door's micro switch operates freely.
 - (2) Make sure the controls and instruments are inspected for damage or loose mountings.
 - (3) Make sure the filter is drained weekly.
- m. Supervise after-operation PMCS on the washer and extractor.
- (1) Inspect the cylinder for dents and other damage.
 - (2) Ensure all switches on the control panel are in the OFF position.

Performance Steps

CAUTION: Watch and listen for any unusual vibrations and noises. Clean all laundry equipment with solvents in a well ventilated area. Do not use solvent on rubber parts. Avoid inhaling solvent fumes. Do not use solvent near open flames or excessive heat. The flash point of solvent is 100 degrees to 138 degrees Fahrenheit (38 degrees to 59 degrees Celsius).

2. Supervise before-operation, during-operation, and after-operation PMCS on shower equipment.
 - a. Supervise before-operation PMCS on the water pump.
 - (1) Check the pump for possible damage.
 - (2) Ensure the drain ports are closed.
 - (3) Ensure the strainer is clean, properly positioned, and has no leaks.
 - (4) Check the power cord cable to see if it is properly connected and not cracked.
 - (5) Check the hoses, for leaks, twists, and kinks.
 - (6) See if the suction lift is not more than 15 feet.
 - b. Supervise before-operation PMCS on the generator set.
 - (1) Check the fuel tank to see if it is full and does not leak.
 - (2) Check the oil level and add oil if the level is low.
 - (3) Check the air cleaner for dirt.
 - (4) Inspect the fuel filter for water, dirt, and cracks.
 - (5) Check the power cord cables for loose or broken connections and cracked insulation.
 - (6) Inspect all meters for broken glass or loose mountings.
 - (7) Make sure worn or frayed starter ropes are replaced.
 - (8) Check the fuel line for loose connections.
 - c. Supervise before-operation PMCS on the water heater.
 - (1) Check the nozzle and electrode holder on the burner for secure mountings. Make sure the connections on the lead assemblies are secure.
 - (2) Ensure the blower shutter operates freely and check the blower mounting.
 - (3) Make sure the fuel pump is primed and the connections are checked for leaks.
 - (4) Ensure there are no broken instrument lenses and that connections are secure.
 - (5) Check the pump and burner motor rotation. If the motor rotation is incorrect, change or reverse the motor's two power leads.
 - (6) Check all valves and controls operations.
 - (7) Ensure the exhaust duct is properly connected and has no breaks or leaks.
 - (8) Inspect the two water outlets on the upper manifold to ensure the pipes do not contain any trash.
 - d. Supervise during-operation PMCS on the water pump.
 - (1) Re-inspect the hoses for leaks, twists, or kinks.
 - (2) Recheck the strainer for proper position.
 - (3) Recheck the 15-foot distance of the suction lift.
 - e. Supervise during-operation PMCS on the generator set.
 - (1) Recheck the meters for cracked glass, loose mountings, and faulty operation.
 - (2) Check for overheating or excessive vibration.
 - (3) Recheck for fuel leaks.
 - f. Supervise during-operation PMCS on the water heater and shower facility.
 - (1) Check the sight glass for a steady flame.
 - (2) Inspect all hoses and fittings for leaks. If leak is found, take appropriate action indicated in leakage definition.
 - (3) Watch the exhaust duct to see if the exhaust is a light haze. If the exhaust is black, adjust the shutter to get the proper intake of air.
 - (4) Check that rain grate is not obstructed, clear obstruction.
 - g. Supervise after-operation PMCS on the water pump.
 - (1) Inspect the water line strainer for dirt, breakage, and leaks.
 - (2) Make sure the suction strainer is clean.
 - h. Supervise after-operation PMCS on the water heater and shower facility.
 - (1) Inspect the exhaust duct for damage.
 - (2) Ensure all obstructions are removed from the water hoses.

Performance Steps

- (3) Check the glass on the instruments for breakage or loose connections.
 - (4) Ensure the blower and motor are mounted properly and the shutter operates freely.
 - (5) Check the lead assemblies for secure connections.
 - (6) Check the nozzle and electrode holder for secure mounting.
 - (7) Make sure all water is drained from the system to prevent freezing.
 - (8) Brush or scrub shower base to remove soap buildup.
3. Identify hazards to the environment.
 - a. Actions required to performed the step:
 - (1) Identify potential hazards to streams, lakes, ponds, and wetlands.
 - (2) Identify potential hazards to threatened and endangered species.
 - (3) Identify potential hazards to historical and archeological sites.
 - (4) Identify potential hazards to maneuver damage (soil erosion).
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - c. Environmental skills required:
 - (1) Knowledge of unit missions.
 - (2) Knowledge of operational areas.
 - (3) Knowledge of previous environmental problems.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
 4. Assess the probability of environmental damage/violations using environmental risk-assessment matrices.
 - a. Actions required the step:
 - (1) Evaluate potential archeological and historical site hazards for each type of unit operation.
 - (2) Evaluate potential hazardous materials and waste problems for each type of unit operation.
 - (3) Evaluate potential threatened and endangered species hazards for each type of unit operation.
 - (4) Evaluate potential water pollution hazards for each type of unit operation.
 - (5) Evaluate potential dangers to wetlands for each type of unit operation.
 - (6) Identify high-risk missions by environmental area.
 - (7) Determine overall environmental risk.
 - (8) Determine if environmental risk is low (0-58 points), medium (59-117 points), high (118-149 points), or extremely high (above 150 points).
 - b. Environmental skills required:
 - (1) Ability to employ risk assessment matrix checklist.
 - (2) Ability to determine low, medium, high, or extremely high risk.
 - c. Environmental knowledge required:
 - (1) Knowledge of environmental risk assessment matrix procedures.
 - (2) Knowledge of environmental risk categories.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
 5. Develop measures to reduce high risks.
 - a. Actions required to performed the step:
 - (1) Make decisions to reduce risk or accept risk at the appropriate level.
 - (2) Ensure an increase of soldier awareness of high-risk areas.
 - (3) Ensure an increase of supervision for high-risk areas.
 - b. Environmental skills required:
 - (1) Ability to develop plans.

Performance Steps

- c. Environmental knowledge required:
 - (1) Knowledge of decision-making authority.
 - (2) Knowledge of mission requirements.
 - (3) Knowledge of environmental office requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
6. Brief the chain of command on the proposed plan.
- a. Actions required to performed the step:
 - (1) Inform chain of command of the proposed plan.
 - (2) Inform chain of command of decisions to reduce or eliminate risk.
 - (3) Inform chain of command of potential high-risk areas.
 - (4) Inform chain of command of measures to increase soldier awareness.
 - (5) Inform chain of command of measures to increase supervision.
 - (6) Determine whether installation environmental office must be informed.
 - b. Environmental skills required:
 - (1) Ability to conduct information and decision briefings.
 - c. Environmental knowledge required:
 - (1) Knowledge of environmental office requirements.
 - (2) Knowledge of briefing procedures.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
7. Comply with host nation, local, state and federal environmental laws and regulations.
- a. Actions required to performed the step:
 - (1) Follow all host nations, local, state and federal environmental laws and regulations.
 - (2) Follow all installation/army regulations.
 - b. Environmental skills required:
 - (1) Ability to understand and comply with applicable local, state and federal environmental impact laws and regulations.
 - c. Environmental knowledge required: None.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Supervised before-operation, during-operation, and after-operation PMCS on laundry equipment.	—	—
2. Supervised before-operation, during-operation, and after-operation PMCS on shower equipment.	—	—
3. Identified hazards during mission analysis.	—	—
4. Assessed the probability of environmental damage/violations using risk assessment matrices.	—	—
5. Made decisions to reduce high risk.	—	—
6. Briefed the chain of command on proposed plan and potential high-risk areas.	—	—

Performance Measures

	<u>GO</u>	<u>NO GO</u>
7. Implemented environmental measures by integrating them into plans, SOPs, training conditions, or rehearsals.	—	—
8. Supervised environmental standards.	—	—
9. Assessed the probability of environmental damage/violations using unit self-assessment checklist during operations.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- DA PAM 738-750
- FM 42-414
- TM 10-3510-208-12
- TM 10-4510-206-14
- TM 5-6115-271-14

Related

**Establish Laundry Turn-In With Supporting Units
101-92S-3018**

Conditions: You are assigned to the platoons laundry section. You the laundry section chief is task to, establish a laundry turn-in schedule with the supported units, and ensure the turn - in schedule meets supported units requirement. Materials and equipment required: laundry facility, map, DA Form 2886, DA Form 168, DA form 1974.

Standards: Complete all necessary steps to establish laundry turn-in with supported units. Continue until all laundry turn-ins are handled.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. Coordinate and establish the laundry turn-in schedule.
 - a. Ensure the schedule is flexible, so not to interfere with the supported unit's mission.
 - b. Ensure the turn-in times per units are scheduled far enough apart to prevent a heavy backlog.
2. Establish laundry turn-in procedures.
 - a. Coordinate with higher headquarters the number of personnel to be supported, the scheduling of turn-in and pickup of laundry, and the type of turn-in to be made.
 - b. Check to ensure the receiving clerk determines the type of laundry turn-in being made, verifies the turn-in with the laundry schedule, checks DA Form 1974 for completeness and accuracy, counts each item turned in to the laundry facility and notes discrepancies on DA Form 1974, and receives receipt for turn-in.
3. Establish what will be received.
 - a. Establish with supported units that soldiers will bring socks, underwear, field uniforms, towels, and individual bundle laundry.
 - b. Establish with supported units that supply elements will bring sleeping bags and blankets.
 - c. Establish with supported units that medical units will bring personal clothing and lightweight textile items.
4. Establish how laundry turn-in will be handled.
 - a. Ensure items from the NBC defense companies are wash separately and processed as bulk laundry.
 - b. Ensure dirty items are processed in lots.
 - c. Ensure supply elements sort sleeping bags and blankets into separate piles and process as organizational laundry.
 - d. Ensure unserviceable, non-repayable sleeping bags and blankets are given back to the supply elements for replacement.
 - e. Ensure items from medical units are processed as organizational laundry and contaminated items are stored separately.
 - f. Ensure organizational laundry is sorted.
 - g. Ensure bulk laundry is resized.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Coordinated and established the laundry turn-in schedule.	___	___
2. Established laundry turn-in procedures.	___	___
3. Established what will be received.	___	___
4. Established how laundry turn-ins will be handled.	___	___

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References
Required
FM 42-414

Related

Troubleshoot Of Laundry Advanced System (LADS)

101-92S-3019

Conditions: You are the section chief of a laundry operation. Your section laundry advanced system (LADS) equipment malfunction, and has developed many operating problems. You the supervisor is to troubleshoot the LADS by examining systems status and correct malfunctions. Materials and equipment required: LADS with accessories, 30-KW generator set, TM 10-3510-221-10, fuel, water source, DA Form 2404 or DA Form 5988- E.

Standards: Complete all necessary steps to bring LADS to operating status. Use of TM troubleshooting guidelines will assist to correct problems. Follow guidelines and do not skip any procedures.

Performance Steps

NOTE: Train and Assess Risk Management Program

1. ALARM CONDITIONS

When the control system detects the need for some type of operator attention relating to a laundry cycle, an audible alarm will sound and a message will be displayed at operator panel A or B. If a fault occurs or attention is required on washing/drying system A or B, the water recycle system, heating system, air system, or control system, the indication will be provided at operator panel A. There are four alarm levels associated with LADS operation:

Level 1: When the system is operating normally the audible alarms are off, the SYSTEM OPERATIONAL lamps are on, and the ATTENTION REQUIRED lamps are off.

Level 2: If the alarm(s) comes on, and remains steady, this indicates that some type of operator action is required. In most cases level 2 alarms alert the operator of a condition that must be corrected, but is not necessarily a fault (i.e. "DRUM DOOR NOT LOCKED", "ADD FRS", "UNLOAD LAUNDRY", etc.).

In all cases (except "DRUM WON'T BALANCE") the operator must perform the required action before the control system will allow laundry cycle(s) to continue.

Level 3: If the alarm comes on with a slow pulse a non-critical fault has occurred. In most cases the current laundry cycle(s) may be completed, however, in some cases the current laundry cycle must be ended.

Level 4: If the alarm comes on with a fast pulse a critical fault has occurred and LADS operation will be shutdown by the control system. Whenever a (level 4) alarm comes on the ATTENTION REQUIRED lamp(s) will also be on and the SYSTEM OPERATIONAL lamp will be off.

EXAMINING SYSTEM STATUS

During water filling, water heating, laundry, cool down, and draining operations, the status of key system parameters can be monitored using the EXAMINE INPUTS mode. Also, when conducting troubleshooting procedures, references may be made to use the EXAMINE INPUTS mode to observe a particular sensor or switch status. Obtaining access to this information is described below:

- a. Monitor display; it should read:
Wash Cycle x In Progress
Wash=XXXXF Dry= XXXF
Fill From Wash Tank
- b. Press MENU SELECTION switch to select EXAMINE INPUTS
Monitor display; it should read:
Examine Inputs

Performance Steps

- c. Press appropriate MENU SELECTION switch as follows:
 1. Select ANALOG INPUTS to monitor status of analog inputs.
 2. Select DISCRETE INPUTS to monitor status of discrete inputs.
 3. Select RETURN to exit examine inputs menu.
 4. Monitor display; it should read:
ANALOG INPUTS
LT10DA=150 VDC=0 GALS
- d. Press appropriate MENU SELECTION switch as follows:
 1. Select PREVIOUS INPUT to monitor previous input.
 2. Select NEXT INPUT to monitor next input.
 3. Select RETURN to exit analog or discrete inputs menu and return.

2. MALFUNCTION/SYMPTOM INDEX

The malfunction/symptom index work package is a quick reference index for determining the proper disposition of system malfunctions/symptoms. There are two methods for finding malfunctions/symptoms on LADS.

Operators may observe a malfunction or the control system may detect a fault.

Malfunction/symptoms are listed in the index as follows: The faults that would normally be observed during startup are listed first. The remaining faults that could be observed at any time during laundry operations are listed next. These malfunctions /symptoms are listed alphabetically by system. The faults that are detected by the control system, and communicated to the operator through the operator panel A display, are listed last in Table 1. This table lists the alarm messages in alphabetical order along with listing of the "ALARM LEVEL" associated with each message. Associated with each malfunction/symptom or alarm message is an "OPERATOR ACTION" column. This column provides information on what action you should take when a fault occurs.

Possible dispositions include:

PAUSE CYCLE-- If "Pause Cycle" is listed, you may be able to troubleshoot and fix the fault during current laundry cycle(s). Pause a laundry cycle as follows:

- a. Monitor display; it should read:
Wash Cycle X In Progress
Wash =XXXF Dry=XXXF
Press MENU SELECTION switch to select EXAMINE INPUTS.
Monitor display; it should read:
CYCLE PAUSED
- b. Once the laundry cycle is paused, perform the reference troubleshooting work package or notify maintenance as required. After fault has been corrected continue laundry cycle as follows:
Monitor display; it should read:
CYCLE PAUSED
Press MENU SELECTION switch to continue laundry cycle.

3. COMPLETE CYCLE: If "Complete Cycle" is listed, the fault should not prevent you from completing the current laundry cycle(s). Once the laundry cycle is complete, perform the referenced troubleshooting work package or notify maintenance as required. If you cannot complete the laundry cycle, follow the "End Cycle" instructions.

4. END CYCLE -- If "End Cycle" is listed, the fault will prevent you from completing the current laundry cycle(s), and therefore, must be terminated as follows:

- a. Monitor display; it should read:
WASH CYCLE X IN PROGRESS
WASH=XXXF DRY=XXXF
Press MENU SELECTION switch to interrupt laundry cycle.
Monitor display; it should read:
CYCLE PAUSED

Performance Steps

- b. Press MENU SELECTION switch (8) to end laundry cycle.
Once the laundry cycle has ended, perform the referenced troubleshooting work package or notify maintenance as required. If the laundry cycle cannot be ended follow the "Notify Maintenance" instructions.

5. NOTIFY MAINTENANCE: If "Notify Maintenance" is listed, the fault will prevent further laundry operations from continuing and maintenance should be notified immediately. When "Notify Maintenance" is required leave LADS in power on condition if possible. This will enable maintenance personnel to troubleshooting and correct problems more efficiently and result in bringing LADS back into operation more rapidly.

If a work package is listed, proceed directly to the referenced work package to start the troubleshooting process. Should any one malfunction/symptom require more than one troubleshooting procedure to arrive at the most likely fault, a reference will be made within the starting procedure to lead you to subsequent procedures, until successful fault isolation or disposition is achieved.

6. TROUBLESHOOTING PROCEDURES

Troubleshooting work packages contain step-by-step procedures of the tests or inspections, and corrective actions required to return LADS to normal operation or to determine if the malfunction requires a higher level of maintenance be performed. Each work package is headed by initial setup information that outlines certain conditions that must be met before starting the task. DO NOT start a task until you understand what you are to do.

Malfunction/Symptom Troubleshooting Procedure

CONTROL SYSTEM (Main Control Enclosure Indications)

1. MAIN POWER lamp is not on.
2. CONTROL POWER Lamp is not on.

CONTROL SYSTEM (Operator Panel Indications)

1. ATTENTION REQUIRED lamp is not on.
2. Display does not come on Notify Unit Maintenance
3. Display comes on but has scrambled or no characters Notify Unit Maintenance
4. Display states, does not change when menu selection switch is pressed Notify Unit Maintenance
5. SYSTEM OPERABLE lamp is not on.
6. ALARM does not sound Complete Cycle/Notify Unit Maintenance
7. ALARM will not turn off when SILENCE ALARM switch is pressed Complete Cycle/Notify Unit Maintenance

CONTROL SYSTEM (Observed Faults)

1. Inverter enclosure fan does not come on Notify Unit Maintenance
2. Drum motor cooling fan does not come on Notify Unit Maintenance

WASHING/DRYING SYSTEM (Observed Faults)

1. Drum Door Will Not Open Notify Unit Maintenance
2. Drum Motor Stalls During Extract Pause Cycle
3. Drum Shaking Excessively Pause Cycle
4. R2 Tank Not Heating
5. Laundry Cycle Cannot Be Started Notify Unit Maintenance
6. Laundry Not Drying
7. R2 Tank Not Heating
8. Water Spraying From Blower During Extract Complete Cycle/Notify Unit Maintenance
9. Water Not Draining From Drum Pause Cycle
10. Water Visible at Rear Seal of Drum Complete Cycle

Performance Steps

- a. WATER RECYCLE SYSTEM (Observed Faults)
 - 1. Cool down or Drain Cycle Will Not Finish Notify Unit Maintenance
 - 2. Recycled Water Temperature High Complete Cycle(s)
 - 3. Still Door(s) Will Not Open
- b. HEATING SYSTEM (Observed Faults)
 - 1. Heater Smoking
 - 2. Fuel Pump Will Not Prime
- c. AIR SYSTEM (Observed Faults)
 - 1. Air Compressor Does Not Come On
 - 2. Water In Air Lines Complete Cycle(s)/Notify Unit Maintenance
- d. AUXILIARY EQUIPMENT (Observed Faults)
 - 1. Auxiliary Overhead Light Does Not Turn On

Performance Steps

7. Troubleshooting Faults Indicated at Main Control Enclosure

INITIAL SETUP:

Maintenance Level Materials/Parts
Operator

MAIN POWER LAMP IS NOT ON

1. Verify external power is connected to LADS and is on line.

Is external power connected and on-line?

YES Go to step 2.

NO Connect external power or bring power on line. Return to normal operation.

2. Check position of MAIN POWER switch.

Is SW1 in ON position?

YES Go to step 3.

NO Position SW1 to ON. Return to normal operation.

3. Replace MAIN POWER lamp.

Does lamp come on?

YES Return to normal operation.

NO Go to step 4.

WARNING

High voltage is present in main control enclosure. Use extreme caution when working inside. Never place hands or tools on exposed wire connections. Death on contact may result if personnel fail to observe this safety precaution.

4. Open door on main control enclosure.

5. Observe position of circuit breaker CB7.

Is circuit breaker ON?

YES Go to step 8.

NO Go to step 6.

6. Position circuit breaker (12) to ON then close and secure door.

7. Position MAIN POWER switch (1) to ON.

Does MAIN POWER lamp (2) come on?

YES Return to normal operation.

NO Notify Maintenance.

MAIN POWER LAMP IS NOT ON -- Continued

8. Check voltage and frequency output from power source.

Is voltage and frequency set to correct levels?

YES Notify Maintenance.

NO Correct external power source output voltage and/or frequency as necessary.

CONTROL POWER LAMP IS NOT ON

1. Check status of MAIN POWER lamp.

Is MAIN POWER lamp on?

YES Go to step 2.

NO GO to the MAIN POWER LAMP IS NOT ON.

2. Check position of CONTROL POWER switch (3).

Is switch in ON position?

YES Go to step 3.

NO Position CONTROL POWER to ON. Return to normal operation.

3. Replace CONTROL POWER lamp.

Does lamp come on?

YES Return to normal operation.

NO Notify maintenance.

Troubleshooting Non-displayed Faults Indicated at Operator Panel

Performance Steps

8. INITIAL SETUP:
Maintenance Level Materials/Parts
Operator

ATTENTION REQUIRED LAMP IS NOT ON

1. Observe status of SYSTEM OPERABLE lamp.
Is lamp on?
YES No attention is required. Return to normal operation.
NO Go to step 2.
 2. Observe status of display (6).
Does display indicate a failure message?
YES Go to step 3.
NO Notify maintenance.
 3. Replace ATTENTION REQUIRED lamp.
Does lamp come on?
YES Return to normal operation.
NO Notify maintenance.
- DISPLAY DOES NOT COME ON**
1. Check status of CONTROL POWER lamp.
Is CONTROL POWER lamp on?
YES Notify maintenance.
NO Go to CONTROL POWER LAMP IS NOT ON FAULT.

SYSTEM OPERABLE LAMP IS NOT ON

1. Observe status of ATTENTION REQUIRED lamp.
Is lamp on?
YES Perform appropriate corrective action.
NO Go to step 2.
2. Observe status of display.
Does display indicate a failure message?
YES Perform appropriate corrective action.
NO Go to step 3.
3. Replace SYSTEM OPERABLE lamp.
Does lamp come on?
YES Return to normal operation.
NO Notify maintenance.

Performance Steps

9. Troubleshooting Observed or Displayed Faults on Washing/Drying System

INITIAL SETUP:

Maintenance Level Materials/Parts
Operator

AMBIENT TEMPERATURE HI OR LO

1. Obtain ambient temperature.

Is temperature between 33 and 120 degrees F?

YES Notify maintenance.

NO Operate LADS only at ambient temperatures between 33 and 120 degrees F.

DETERGENT SUPPLY A OR B NO FLOW

NOTE

When operating at temperatures below 33 degrees F, detergent may freeze resulting in blockage in supply tubing.

1. Check detergent supply container.

Is detergent container empty?

YES Replenish detergent supply. Return to normal operation.

NO Go to step 2.

2. Check pickup tube inserted into detergent container.

Is tube inserted far enough into detergent container?

YES Go to step 3.

NO Properly insert pickup tube. Return to normal operation.

3. Check entire length of detergent tube for kinks or blockage.

Is tube kinked?

YES Remove kink(s) or blockage from tube. Return to normal operation.

NO Continue laundry cycle(s) adding detergent through sluice on front of drum. When laundry cycles are complete notify maintenance.

DRUM A OR B INVERTER FAULT

1. Use MENU SELECTION switch to select PAUSE.

2. Verify drum is not rotating, drum door is closed, and handle is engaged.

3. Check voltage and frequency output from power source.

Is voltage and frequency set to correct levels?

YES Go to step 4.

NO Correct external power source output voltage and/or frequency as necessary. Go to step 4.

4. At inverter enclosure press DRUM A (Figure 3, 1) or DRUM B (2) RESET switch.

5. Wait about 20 seconds, then at operator panel where cycle was paused press MENU SELECTION switch to CONTINUE CYCLE.

Does another "DRUM INVERTER FAULT" occur?

YES Notify Maintenance.

NO Return to normal operation.

DRUM A OR B NO ROTATION FAULT

WARNING

High voltage is present in main control enclosure. Use extreme caution when working inside. Never place hands or tools on exposed wire connect

Performance Steps

10. DRUM MOTOR STALLS DURING EXTRACT

1. Use MENU SELECTION switch to select PAUSE.
2. At operator panel where cycle was paused press MENU SELECTION switch (7) to CONTINUE CYCLE.

Does another drum motor stall occur?

YES Go to step 3.

NO Return to normal operation.

3. Check for debris in water pump strainer.

Is strainer clean?

YES Go to step 4.

NO Clean and replace strainer. Return to normal operation.

4. Check for presence of standing water inside drum.

Is standing water visible through window in drum door?

YES Go to WATER NOT DRAINING FROM DRUM FAULT.

NO Go to step 5.

5. Check voltage and frequency output from power source.

Is voltage and frequency set to correct levels?

YES Notify Maintenance.

NO Correct external power source output voltage and/or frequency as necessary.

DRYER A or B INLET TEMP HI/LO or LAUNDRY NOT DRYING

1. Use MENU SELECTION switch to select PAUSE.

2. Remove and inspect lint filter.

Is lint filter clean?

YES Go to step 3.

NO Clean and reinstall lint filter. Return to normal operation.

3. Check cleanliness of dryer inlet screen.

Is dryer inlet screen clean?

YES Go to step 4.

NO Clean and reinstall dryer inlet screen. Return to normal operation.

4. Check dryer outlet guard for debris.

Is dryer outlet guard clear?

YES Go to step 5.

NO Remove debris from dryer outlet guard. Return to normal operation.

DRYER A or B INLET TEMP HI/LO or LAUNDRY NOT DRYING -- Continued

5. Check drying temperature used versus drying instructions for laundry load.

Was correct drying temperature used?

YES Go to step 6.

NO Repeat laundry cycle with proper drying temperature.

6. At operator panel where cycle was paused press MENU SELECTION switch (7) to CONTINUE CYCLE.

Does dryer blower come on?

YES PAUSE cycle. Go to step 11.

NO Go to step 7.

WARNING

High voltage is present in main control enclosure. Use extreme caution when working inside. Never place hands or tools on exposed wire connections. Death on contact ma

Performance Steps

11. LAUNDRY NOT CLEANED

1. Repeat laundry cycle the observe laundry.

Is laundry load clean?

YES Return to normal operation.

NO Go to step 2.

2. Check water temperature used versus washing instructions for laundry load.

Was correct water temperature used?

YES Check for blockage in detergent tube at connection to water manifold.

NO Repeat laundry cycle with proper water temperature.

R1 or WASH TANK NOT FILLING

1. Determine if problem occurred during initial filling or during normal operation.

Did problem occur during initial filling?

YES Go to step 2.

NO Go to step 9.

2. Check water supply.

Is water supply adequate?

YES Go to step 3.

NO Replenish water supply. Return to normal operation.

3. Check hose connections at water supply, water supply pump, and LADS.

Are hoses properly connected?

YES Go to step 4.

NO Properly connect hoses. Return to normal operation.

4. Check electrical cable connection at water supply pump and LADS.

Is electrical cable properly connected?

YES Go to step 5.

NO Properly connect cable. Return to normal operation.

5. Check rotation and proper priming of water supply pump.

Is pump running properly?

YES Go to step 6.

NO: Install an operational water supply pump.

6. Check petcock on water supply pump.

Is petcock open?

YES: Close petcock. Return to normal operation.

NO Go to step 7.

R1 or WASH TANK NOT FILLING -- Continued

7. Check caps on water tank manifolds.

Are caps installed?

YES Go to step 8.

NO Properly install cap(s). Return to normal operation.

8. Check all water hose connections for signs of leakage.

Are any leaks found?

YES Repair as necessary or notify maintenance.

NO Notify Maintenance.

9. Check for debris in water pump strainer.

Is strainer clean?

YES Go to step 10.

NO Clean and replace strainer. Return to normal operation.

10. Check for presence of standing water inside drum.

Is standing water visible through window in drum door?

YES Go to WATER NOT DRAINING FROM DRUM FAUL

Performance Steps

12. WATER NOT DRAINING FROM DRUM

1. Use MENU SELECTION switch to select PAUSE.

2. Check for debris in water pump strainer.

Is strainer clean?

YES Go to step 3.

NO Clean and replace strainer. Return to normal operation.

3. Disconnect hose from drain port at bottom of drum the check for debris block drain port or hose.

Is drain port or hose blocked with debris?

YES Remove blockage. Go to step 4.

NO Go to step 4.

4. Reconnect hose to drain port at bottom of drum.

5. At operator panel where cycle was paused press MENU SELECTION switch (7) to CONTINUE CYCLE.

Does water drain from drum?

YES Return to normal operation.

NO Notify Maintenance.

WATER VISIBLE AT REAR SEAL OF DRUM

1. Use appropriate MENU SELECTION switch to select PAUSE.

2. Check for presence of standing water inside drum.

Is standing water visible through window in drum door?

YES Go to WATER NOT DRAINING FROM DRUM FAULT.

NO Go to step 3.

3. Lubricate rear drum seal.

4. At operator panel where cycle was paused press MENU SELECTION switch (7) to CONTINUE CYCLE.

5. Observe rear drum seal during extract portions of laundry cycle.

Does water come out of rear drum seal?

YES Notify Maintenance.

NO Return to normal operation.

10 HP INVERTER FAULT.

1. Use MENU SELECTION switch to select PAUSE.

2. Position CONTROL POWER switch to OFF.

3. Position MAIN POWER switch (1) to OFF.

4. Wait about 20 seconds, then position MAIN POWER switch (1) to ON.

5. Position CONTROL POWER switch (3) to ON.

6. At inverter enclosure press 10 HP RESET switch (Figure 3, 4).

7. Wait about 20 seconds, then at operator panel where cycle was paused press MENU SELECTION

switch (Figure 2, 7) to CONTINUE CYCLE.

Does another "10 HP INVERTER FAULT" occur?

YES Notify Maintenance.

NO Return to normal operation.

Performance Steps

13. WATER RECYCLE SYSTEM TROUBLESHOOTING

Troubleshooting Observed or Displayed Faults on Water Recycle System

INITIAL SETUP:

Maintenance Level Materials/Parts

Operator

ANTI--FOAM SUPPLY NO FLOW

1. Check anti-foam supply container.

Is anti-foam container empty?

YES Replenish anti-foam supply. Return to normal operation.

NO Go to step 2.

2. Check pickup tube inserted into anti-foam container.

Is tube inserted far enough into anti-foam container?

YES Go to step 3.

NO Properly insert pickup tube. Return to normal operation.

3. Remove pickup tube inserted into anti-foam container.

4. Check for clumps of anti-foam or dried anti-foam blocking screen on end of pickup tube.

Is screen blocked with anti-foam?

YES: Flush anti-foam clumps from screen with water. Return to normal operation.

NO Go to step 5.

5. Check entire length of anti-foam tube for kinks.

Is tube kinked?

YES Remove kink(s) from tube. Return to normal operation.

NO Continue laundry cycle(s) adding anti-foam through hand pump connected to still (WP 0013 00). When laundry cycles are completed notify maintenance.

CONDENSATE TEMPERATURE HI

1. Perform a cool down cycle then shutdown LADS.

2. Check for debris on heat exchanger inlet screens.

Are inlet screens clear?

YES Go to step 3.

NO Remove debris from inlet screens. Return to normal operation.

CONDENSATE TEMPERATURE HI -- Continued

3. Remove inlet screens and check for debris on heat exchangers.

Are heat exchangers clear?

YES Go to step 3.

NO Remove debris from heat exchangers. Return to normal operation.

4. Check for debris on still condenser fan guard.

Is fan guard clear?

YES Notify maintenance.

NO Remove debris from fan guard. Return to normal operation.

RECYCLED WATER TEMPERATURE HIGH

1. Perform cool down cycle then shutdown LADS.

2. Check for debris on sub-cooler inlet screen.

Is inlet screen clear?

YES Go to step 3.

NO Remove debris from inlet screen. Return to normal operation.

3.

Performance Steps

14. STILL DOOR(s) OPEN

CAUTION

When still doors are properly closed and tightened there should be a gap of approximately 1/8 inch between still door arms target and each position sensor. Never tighten the doors to the point where the target is contacting the sensor. Failure to observe this precaution may result in damage to the target and/or sensor.

1. Check still doors.

Are doors closed?

YES Go to step 2.

NO Close still doors. Return to normal operation.

2. Check position of sensor targets on still door arms.

Are targets within 1/8 inch of door sensors?

YES Notify Maintenance.

NO Go to step 3.

3. Tighten knobs to achieve proper clearance between still door targets and sensors.

4. Observe operator panel A display.

Is "STILL DOOR(s) OPEN displayed?

YES Notify Maintenance.

NO Return to normal operation.

STILL DOORS WILL NOT OPEN

NOTE

STILL Doors are locked when control power is removed from LADS. Doors will not unlock unless still temperature is less than 150 degrees F and water level is less than four inches.

1. Run cool down cycle.

Do doors unlock?

YES Return to normal operation.

NO Go to step 2.

2. Open drain valves and allowed STILL to be drained.

Do doors unlock?

YES Return to normal operation.

NO Notify maintenance.

STILL PRESSURE HI

NOTE

When a STILL PRESSURE HI fault occurs there is good possibility that a boil over will occur.

Boil-over will cause steam loaded with anti-foam to be carried through the distillate plumbing into the coalescing filter. This will result in the premature clogging of the coalescing filter.

Repeated STILLPRESSUREHI faults are an indication that the boiling rate in the still is too fast due to high ambient temperatures. Staggering the laundry cycles so that one drum is washing and rinsing while the other drum is drying will limit the amount of water in the still and greatly reduce the likelihood of a boil over.

1. Observe the sight glass on the still.

Is boiling water or foam visible?

YES Add

Performance Steps

15. HEATING SYSTEM TROUBLESHOOTING

THIS WORK PACKAGE COVERS:

Troubleshooting Observed or Displayed Faults on Heating System

INITIAL SETUP:

Maintenance Level Materials/Parts

Operator

BURNER BLOWER INLET OR OUTLET PRESSURE LO

1. Observe operator panel A display.

Is "20 HP INVERTER FAULT" message also displayed?

YES Go to 20 HP INVERTER FAULT.

NO Go to step 2.

2. Observe operation of still condenser fan.

Is condenser fan on?

YES Go to step 3.

NO Go to 20 HP INVERTER FAULT.

3. Check for debris blocking burner blower assembly.

Is screen blocked?

YES Remove debris. Go to step 6.

NO Go to step 4.

4. Remove and inspect burner blower inlet screen.

Is inlet screen clean?

YES Go to step 5.

NO Clean and reinstall inlet screen. Go to step 6.

5. Check adjustment on inlet cover.

Is inlet cover set properly?

YES Go to step 6.

NO Adjust inlet cover as necessary. Go to step 6.

6. At heater control enclosure press FP300 RESET switch.

7. Wait about 30 seconds then observe heater operation.

Does burner blower come on?

YES Go to step 8.

NO Notify Maintenance.

BURNER BLOWER INLET OR OUTLET PRESSURE LO -- Continued

8. Observe operator panel A display for approximately 5 minutes.

Does another "BURNER BLWR INLET PRESS LO" message appear?

YES Notify Maintenance.

NO Return to normal operation.

FUEL PRESSURE LO OR FUEL PUMP WILL NOT PRIME

1. Lift up on PRIME PUMP switch and listen for burner blower to come on.

Does burner blower come on?

YES Go to step 3.

NO Go to step 2.

2. Observe operation of still condenser fan.

Is condenser fan on?

YES Go to step 3.

NO Go to 20 HP INVERTER FAULT.

3. Check fuel supply.

Is fuel supply adequate?

YES Go to step 4.

NO Replenish fuel supply. Go to step 7.

4. Check hose connections at fuel source.

Are hoses properly connected?

YES Go to step 5 NO Properly connect hoses. Go to step 7.

5. Check the quick connect hose connections at heater.

16.

3-330
17.

18.

Performance Steps

16.FUEL PUMP WILL NOT PRIME OR FUEL PRESSURE LO -- Continued

9. Wait about 30 seconds then observe heater operation.

Does heater come on?

YES Go to step 10.

NO Notify Maintenance.

10. Observe operator panel A display for approximately 5 minutes.

Does another "FUEL PRESSURE LO" message appear?

YES Notify Maintenance.

NO Return to normal operation.

HEATER SMOKING

1. Check adjustment on inlet cover.

Is inlet cover set properly?

YES Notify Maintenance.

NO Adjust inlet cover as necessary. Return to normal operation.

HEATING SYSTEM FAILURE

1. Observe operator panel A display.

Is "20 HP INVERTER FAULT" message also displayed?

YES Go to 20 HP INVERTER FAULT.

NO Go to step 2.

2. Observe operation of still condenser fan.

Is condenser fan on?

YES Go to step 3.

NO Go to 20 HP INVERTER FAULT.

3. At heater control enclosure press FP300 RESET switch.

4. Wait about 30 seconds then observe heater operation.

Does burner blower come on?

YES Go to step 5.

NO Notify Maintenance.

5. Observe operator panel A display for approximately 5 minutes.

Does another "HEATING SYSTEM FAILURE" message appear?

YES Notify Maintenance.

NO Return to normal operation.

TF FLOW, PUMP INLET PRESSURE, OR PUMP OUTLET PRESSURE LO

1. Observe operator panel A display.

Is "20 HP INVERTER FAULT" message also displayed?

YES Go to 20 HP INVERTER FAULT.

NO Go to step 2.

2. Observe operation of still condenser fan.

Is condenser fan on?

YES Go to step 3.

NO Go to 20 HP INVERTER FAULT.

3. At heater control enclosure press FP300 RESET switch.

4. Wait about 30 seconds then observe heater operation.

Does burner blower come on?

YES Go to step 5.

NO Notify Maintenance.

5. Observe operator panel A display for approximately 5 minutes.

Does another "TF FLOW, PUMP IN PRESS, or PUMP OUT PRESS LO" message appear?

YES Notify Maintenance.

NO Return to normal operation.

Performance Steps

17. AIR SYSTEM TROUBLESHOOTING

Troubleshooting Observed or Displayed Faults on Air System

INITIAL SETUP:

Maintenance Level Materials/Parts

Operator

AIR COMPRESSOR DOES NOT COME ON

1. Observe operator panel A display.

Is "AIR COMPR INVTR FAULT" message also displayed?

YES Go to AIR COMPRESSOR INVERTER FAULT.

NO Go to step 2.

2. Position CONTROL POWER switch to OFF.

WARNING

208 VAC electrical power is present in main control enclosure. Use extreme caution when working inside. Never place hands or tools on exposed wire connections. Death on contact may result if personnel fail to observe this safety precaution.

3. Open door on main control enclosure.

4. Observe position of circuit breaker CB6 (11).

Is circuit breaker ON?

YES Notify Maintenance.

NO Go to step 5.

5. Position circuit breaker to ON then close and secure door.

6. Position CONTROL POWER switch (3) to ON.

7. At operator panel A select PRESS TO START.

8. Open access door to air system.

9. Observe air compressor operation.

Is air compressor on?

YES Go to step 10.

NO Notify Maintenance.

10. Wait about 15 minutes verify correct operation.

Does air compressor stay on until air system is pressurized?

YES Return to normal operation.

NO Notify Maintenance.

Performance Steps

18. 6. Observe operator panel A display for about 20 seconds.
Does "AIR COMPR INVTR FAULT" message disappear?
YES Go to step 7.
NO Notify Maintenance.
7. At operator panel A select use MENU SELECTION switch to select PRESS TO START.
8. Open access door to air system.
9. Observe air compressor operation.
Is air compressor on?
YES Close access door and return to normal operation.
NO Notify Maintenance.
- AIR COMPRESSOR INVERTER FAULT
1. Position CONTROL POWER switch to OFF.
WARNING
208 VAC electrical power is present in main control enclosure. Use extreme caution when working inside. Never place hands or tools on exposed wire connections. Death on contact may result if personnel fail to observe this safety precaution.
2. Open door on main control enclosure.
3. Position CONTROL POWER switch to ON.
4. Press PRG/RESET key (1) on air compressor inverter (2)
5. Close and secure door to main control enclosure.
6. Observe operator panel A display for about 20 seconds.
Does "AIR COMPR INVTR FAULT" message disappear?
YES Go to Step 7.
NO Notify Maintenance
7. At operator panel A select use MENU SELECTION switch to select PRESS TO START
8. Open access door to air system.
9. Observe air compressor operation.
Is Air Compressor On?
YES Close access door and return to normal operation.
NO Notify Maintenance

Performance Steps

19. AIR TANK NOT PRESSURIZING OR PRODUCT PRESSURE LO
1. Position CONTROL POWER switch to OFF and then back to ON.
 2. At operator panel A select use MENU SELECTION switch to select PRESS TO START.
 3. Open access door to air system.
 4. Observe air compressor operation.
Is air compressor on?
YES Go to step 5.
NO: Go AIR COMPRESSOR DOES NOT COME ON FAULT.
 5. Check for air venting from petcocks on front air bags.
Is air venting from petcock(s)?
YES: Close petcocks. Return to normal operation.
NO Go to step 6.
 6. Check for air venting from petcock at outlet of pressure regulator.
Is air venting from petcock?
YES Close petcock and access door. Return to normal operation.
NO Go to step 7.
 7. Check position of manual valve at outlet of air tank.
Is valve open?
YES Go to step 8.
NO Open valve and close access door. Return to normal operation.
 8. Check petcock at bottom of air tank.
Is petcock open?
YES: Close petcock. Open manual valve at air tank outlet then return to normal operation.
NO Go to step 9.
 9. Check for a clogged inlet filter.
Is filter element clogged?
YES Replace filter element.
NO Go to step 10.
 10. Check for a clogged coalescing filter.
Is filter element clogged?
YES Replace filter element.
NO Notify maintenance.

AIR TANK NOT PRESSURIZING OR PRODUCT PRESSURE LO -- Continued

11. Observe air dryer operation.
Is air dryer blow down heard about every 30 seconds?
YES Notify Maintenance.
NO Go to step 12.
12. Position CONTROL POWER switch to OFF.
WARNING
208 VAC electrical power is present in main control enclosure. Use extreme caution when working inside. Never place hands or tools on exposed wire connections. Death on contact may result if personnel fail to observe this safety precaution.
13. Open door on main control enclosure.
14. Observe position of circuit breaker CB8 (13).
Is circuit breaker ON?
YES Notify Maintenance.
NO Go to step 4.
15. Position circuit breaker to ON then close and secure door.

Performance Steps**20. EMERGENCY STOP ACTIVATED****WARNING**

Before attempting to clear an emergency stop make sure condition causing the emergency shutdown has been corrected. Failure to follow this precaution may result in equipment damage and/or serious personal injury or death.

1. Determine cause of emergency stop condition.

Was EMERGENCY-STOP selected by Operator or Maintenance Personnel?

YES Correct unsafe condition. Go to step 2.

NO Go to step 6.

2. Perform LADS shutdown.

3. Twist and pull out on EMERGENCY STOP switch.

4. Perform LADS startup.

5. Observe display at operator panel A.

Does emergency stop message appear?

YES Go to step 6.

NO Return to normal operation.

6. Observe position of EMERGENCY STOP switch.

Is EMERGENCY STOP switch pulled out?

YES Go to step 7.

NO Twist and pull out on switch. Return to normal operation.

7. Check voltage and frequency output from power source.

Is voltage and frequency set to correct levels?

YES Notify Maintenance.

NO Correct external power source output voltage and/or frequency as necessary.

CPU, RAM, OR ROM TEST FAILURE

1. Position CONTROL POWER switch to OFF then back to ON.

2. Observe display at operator panel A.

Does CPU, RAM, or ROM TEST FAILURE" message reappear?

YES Notify Maintenance.

NO Return to normal operation.

Performance Steps

21. AUXILIARY EQUIPMENT TROUBLESHOOTING
OVERHEAD LIGHT DOES NOT TURN ON

1. Check electrical connection at outlet box.

Is light cable connected?

YES Go to step 2.

NO Properly connect cable. Return to normal operation.

2. Check RESET button on GFI receptacle.

Is button tripped?

YES Press RESET button. Go to step 6.

NO Go to step 3.

WARNING

208 VAC electrical power is present in main control enclosure. Use extreme caution when working inside. Never place hands or tools on exposed wire connections. Death on contact may result if personnel fail to observe this safety precaution.

3. Open door on main control enclosure.

4. Observe position of circuit breaker CB8.

Is circuit breaker ON?

YES Go to step 7.

NO Go to step 5.

5. Position circuit breaker to ON then close and secure door.

6. Check overhead light.

Are lights on?

YES Return to normal operation.

NO Notify maintenance.

7. Check lamp in overhead light.

Is lamp burnt out?

YES Replace lamp. Return to normal operation.

NO Notify maintenance.

Performance Measures

GO NO GO

1. Performed Examine System Status

____ ____

2. Performed Troubleshooting Procedures

____ ____

Skill Level 4

Subject Area 12: DIRECT SUPERVISION OF SHOWER/LAUNDRY/CLOTHING REPAIR OPERATIONS

**Prepare And Schedule Equipment, Personnel, And Administrative Reports For Shop Operations
101-92S-4000**

Conditions: As NCOIC of a fabric repair shop, you prepare schedules for equipment, personnel, and administrative reports for shop operations. You, the supervisor, direct subordinates who process the schedules and reports to do so. Material and equipment required: trucks cargo 2-1/2 ton and 5 ton, laundry units, shower units, generators, DA Pam 5-3 and DA Pam 738-750.

Standards: Complete, in order, all necessary steps to prepare maintenance and equipment schedules and work flow charts; and direct the subordinates who process administrative reports for shop operations.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Prepare maintenance chart using DD Form 314.
 - a. Check DD Form 314 to make sure that it has been filled out correctly. Check registration and administration number, nomenclature, model number, unit assigned, date received, remarks, weekly or monthly maintenance and lubrication service, to see if it was properly recorded.
 - b. Make sure that the appropriate symbol was entered in pencil for services scheduled at a later date.
 - c. Alike items of equipment scheduled for services on the same date, are listed on the same DD Form 314, and each item is identified by serial number.
2. Prepare a work flow chart for supervisor and subordinates.
3. Direct subordinates processing administrative reports for shop operations.
4. Monitor workflow and administrative reports.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Prepared maintenance chart using DD Form 314.	—	—
2. Prepared a work flow chart for supervisor and subordinates.	—	—
3. Directed subordinates processing administrative reports for shop operations.	—	—
4. Monitored workflow and administrative reports.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
DA PAM 5-3	
DA PAM 738-750	
DA PAM 750-35	

**Prepare And Maintain Records Of Cost, Dates, And Expenditures For Shop Operations
101-92S-4001**

Conditions: As the shower/laundry and clothing repair specialist or platoon sergeant for a fabric repair shop operation. You control and maintain records for shop operations. Materials and equipment required: record keeping file, cost-accounting sheet, DA Pam 710-2-1 and DA Pam 738-750.

Standards: Complete, in order, all necessary steps to account for requisition system by preparing and maintaining records of cost, dates, and expenditures for shop operations.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Prepare and maintain a record keeping file.
 - a. DA Form 2405 is a record of all job orders (DA Forms 2407) received and handled by a maintenance activity.
 - b. Use DA Form 2405 as a support maintenance management record.
 - c. DA Form 2405 will normally be kept for 6 months after the date of the last entry in column h, then destroyed.
 - d. Move open document numbers to a new register when you close out DA Form 2405 on a calendar or fiscal year basis.
2. Establish an automatic requisition system for shop supplies, when they reach a predetermined low point.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Prepared and maintain a record keeping file.	—	—
2. Established an automatic requisition system for shop supplies, when they reach a predetermined low point.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
DA PAM 710-2-1	
DA PAM 738-750	

**Inspect Shop's Safety Program
101-92S-4002**

Conditions: As a shower/laundry and clothing repair specialist or platoon sergeant of a fabric repair shop operation. You must inspect to ensure that safety has been integrated into all shop activities. Materials required: record keeping file, copy of shop's safety program, AR 385-10, and AR 385-55.

Standards: Complete, in order, all necessary steps to prevent unsafe actions by inspecting the shop's safety program. Integrate safety rules and procedures.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Monitor shop's safety program for unsafe acts and procedures.
 - a. Inspect shops annually using SASOHI procedures.
 - b. Qualify safety and occupational health personnel.
 - c. Reports under these procedures will be completed on DA Form 4755.
2. Review injury records.
 - a. Use Figure 3-154 for a sample form.
 - b. Anonymous reports will be investigated in the same manner as other reports.
 - c. Health personnel will investigate all reports.
3. Schedule safety meetings.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Monitored shop's safety program for unsafe acts and procedures.	—	—
2. Reviewed injury records.	—	—
3. Scheduled safety meetings.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required	Related
AR 200-1	
AR 385-10	
AR 385-55	
AR 700-141	

**Supervise Inspection Of Shop Equipment For Serviceability
101-92S-4003**

Conditions: As NCOIC of a clothing repair shop, you are responsible for the upkeep of the shop equipment. Materials required: light-duty, medium-duty, and heavy-duty (long-arm) sewing machines, button machine, darning machine, lubrication oil, cloths, 3-kilowatt generator set with ground rod, 5-gallon can of gasoline, DA Form 2404, DA Pam 738-750, TM 5-6115-271-14, TM 10-3530-203-10, and TM 10-3530-205-14.

Standards: Complete, in order, all necessary steps to verify maintenance by inspecting shop equipment.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Ensure that before-and during operation preventive maintenance checks and services (PMCS) is performed.
 - a. Check to make sure DA Form 2404 is completed.
 - b. Check to make sure lubrication order is on hand.
2. Ensure the operator is following safety procedures.
 - a. Check to make sure operator remove jewelry.
 - b. Ensure the operator is license.
3. Ensure after-operation maintenance is performed correctly.
 - a. Process DA Form 2404 to organizational maintenance.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Ensured that before-operation and during-operation PMCS are performed.	—	—
2. Ensured the operator is following safety procedures.	—	—
3. Ensured after-operation maintenance is performed correctly.	—	—

Evaluation Guidance: --Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required

- DA PAM 738-750
- DA PAM 750-35
- TM 10-3530-203-10
- TM 10-3530-205-14
- TM 5-6115-271-14

Related

- DA PAMPHLET 738-750

Prepare For Mobile Laundry And Shower Operations
101-92S-4004

Conditions: You are the supervisor of a shower and laundry platoon. You are to prepare your platoon for a mobile shower and laundry operation. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration (OSHA) requires that personal protective equipment (PPE) be worn while working with hazardous materials.

Materials and equipment required: truck utility, tractor 5-ton, truck cargo (LMTV) 5-ton, laundry advanced system (LADS) trailer mounted, shower unit, 5-kw generator, trailer cargo, maps, drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids, DA Form 4765-R, DA Form 4766-R, DA Form 2407, DA Form 2405, and FM 42-414.

Standards: Complete all necessary steps to prepare movement plans for Shower and Laundry platoon operation. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Remove all spills IAW Unit/Installation SOP/Operations Order. Comply with Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, and solvents). Continue until the site is completely operational.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Select a site for an individual laundry and Shower mission.
 - a. Select a site near the units that will be supported.
 - b. Select from possible locations, a location with the greatest number of the following factors:
 - (1) Ample supply of clear water.
 - (2) Suitable natural cover and concealment.
 - (3) Good road network.
 - (4) Firm gently sloping terrain.
2. Coordinate through higher headquarters the number of personnel needed from the supported units to help set up the laundry and shower site and any external transportation needed to move supplies and equipment.
 - a. Use the size, weight, and amount of assigned equipment to determine the number of soldiers required to set up a laundry and shower site.
 - b. Determine the number of soldiers required to set up tents.
 - c. Identify supplies and equipment to be moved by size and weight.
3. Prepare, plan, and conduct route reconnaissance.
 - a. Receive warning order.
 - b. Brief team chief, squad leader, and the rest of the platoon on the time, date, general destination, and route information given in the warning order.
 - c. Brief team chief and squad leader on the uniform, rations, fuel, sleeping equipment, and operational equipment needed for the move.
 - d. Check the route reconnaissance for the following information:
 - (1) Bridges.
 - (2) Condition of roads, bypasses, and detours.
 - (3) Distances between check points.
 - (4) Side and overhead clearances.
 - e. Ensure that all personnel received a movement order BEFORE departure time.
 - f. Ensure that the movement order has an attached strip map with the following details:
 - (1) Start point.
 - (2) Release point.

Performance Steps

- (3) Route number.
 - (4) Place names.
 - (5) Critical points.
 - (6) Directional arrows.
 - (7) Distance between points.
 - (8) Bivouac areas.
 - g. Ensure a loading plan is part of the platoon's SOP.
 - h. Ensure that the loading plan includes:
 - (1) The type of transportation used.
 - (2) The number of personnel to be transported.
 - (3) The type, size, weight, and number of supplies and equipment to be moved.
 - (4) The priorities of unloading (last on/first off).
 - (5) The safeguarding of equipment and supplies while in the convoy.
 - (6) The placement of platoon personnel with their equipment and supplies.
 - i. Ensure each vehicle's loading plan identifies:
 - (1) The type of vehicle.
 - (2) The driver.
 - (3) The passengers.
 - (4) The equipment.
 - (5) The vehicle number in convoy.
 - (6) The section that the vehicle is from.
4. Determine the supply requirements for laundry and shower operations.
- a. Base the quantities of supplies needed on the number of troops supported and quantities used in the past.
 - b. Base the supply requests on the number of bundles or pieces processed during a period.
 - c. Use DA Form 4765-R as an estimate of supplies needed for the mobile laundry section.
 - d. Use DA Form 4766-R SUPPLIES section as an approximate estimate of the supplies needed to adequately supply the bath unit.
5. Prevent hazardous materials from contaminating the environment.
- a. Actions required to performed the step:
 - (1) Place drip pans, or similar initial containment devices completely under area where fluid leaks may occur.
 - (2) Remove any spills.
 - (3) Collect contaminated materials, absorbent materials, and debris into approved containers.
 - (4) Comply with container labeling requirements.
 - (5) Comply with disposal requirements for contaminated/hazardous materials.
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - (2) Ability to use spill cleanup materials to remove/cleanup spills.
 - (3) Ability to select hazardous materials container.
 - c. Environmental knowledge required:
 - (1) Knowledge of spill cleanup equipment.
 - (2) Knowledge of unit or Installation SOP/Operations Order requirements for requisitioning, storage, handling, and disposal of hazardous materials.
 - (3) Knowledge of how to properly drain/replace fluids from vehicles.
 - (4) Knowledge of labeling requirements for hazardous waste containers.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS.
 - (b) Spill kits.
 - (c) Containers for contaminated hazardous fluids.
 - (d) Drip pans.
 - (e) Absorbent materials (e.g. dry sweep).

Performance Steps

- (f) Rags.
- (g) Shovel for removing contaminated materials.
- (h) Containers for transporting of contaminated material.
- e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: CAUTION! Dispose of hazardous materials (such as, fuels, grease, oil, and contaminated rags) IAW unit Standing Operating Procedures/Operations Order (OPORD), local regulations, and/or host nation laws. Use rags to contain any excess fluids. Dispose of rags in appropriate accumulation containers.
- 6. Employ procedures to dispose of solid waste.
 - a. Actions required to performed the step:
 - (1) Place contaminated rags in appropriate container for recycling (laundry).
 - (2) Place contaminated absorbents (dry sweep) into appropriate container.
 - b. Environmental skills required:
 - (1) Ability to select hazardous materials container.
 - (2) Ability to locate appropriate accumulation point container for recycling solid waste.
 - c. Environmental knowledge required:
 - (1) Knowledge of solid waste disposal requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements:
 - (a) Applicable Technical Manuals, lubrication orders (LO) and MSDS
 - (b) Absorbent materials (e.g. dry sweep).
 - (c) Rags
 - e. Safety factors/hazards:
 - (1) Task may involve personal exposure to hazardous substances.
 - (2) Brief personnel in accordance with OSHA HAZCOM requirements.
 - (3) Caution Statement: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Selected a site for an individual Laundry and Shower section mission.	—	—
2. Coordinated through higher headquarters the number of personnel needed from the supported units to help set up the laundry and Shower site and any external transportation needed to move supplies and equipment.	—	—
3. Prepared, planned, and conducted route reconnaissance.	—	—
4. Determined the supply requirements for laundry and shower operations.	—	—
5. Placed drip pans, or similar initial containment devices completely under area where fluid drainage occurs.	—	—
6. Removed spills (small).	—	—
7. Collected contaminated soil, absorbent materials, and debris into approved containers.	—	—
8. Complied with container labeling requirements.	—	—
9. Complied with disposal requirements for contaminated materials.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Supervise Road Movement And Set Up Of Laundry Equipment

101-92S-4005

Conditions: You are a platoon sergeant in charge of road movement and set up of laundry equipment. You receive a movement order from higher headquarters to move to a new location. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration (OSHA) requires that personal protective equipment (PPE) be worn while working with hazardous materials.

Materials and equipment required: truck utility, (10-kilowatt generator, dryer-tumbler, washer and extractor, water heater this equipment is on the M-85 series laundry unit), water pump, tractor 5-ton for (LADS), truck cargo 5-ton, tent extendable (temper), tent lightweight maintenance enclosure (LME) laundry advanced system (LADS), semi-trailer flat bed, laundry tables, and laundry baskets, drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids.

Standards: Complete all necessary steps to supervise road movement and set up of laundry equipment. Continue until all laundry equipment is set up. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Comply with the removal of all spills IAW Unit/Installation SOP/Operations Order. Comply with the Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, and solvents).

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Determine mission requirements from warning orders received from higher headquarters:
 - a. Determine length of mission, number of troops supported, and type of support needed.
 - b. Determine location in which to set up company operations, the date of the move, route information, interference to expect during the move, and when to start operating at the new site.
2. Alert platoon to prepare equipment for movement.
 - a. Hold platoon formation to inform platoon of mission requirements.
 - b. Assign duties and responsibilities.
 - c. Review loading and unloading plans.
3. Supervise loading of equipment for movement according to the unit-loading plan.
 - a. Supervise pick up of vehicles.
 - b. Supervise movement of vehicles to the equipment storage area.
 - c. Supervise loading of equipment from storage area according to unit loading plan.
 - d. Supervise hook up of laundry unit or laundry advanced system (LADS).
4. Supervise road movement.
 - a. Send out reconnaissance vehicles to the primary site.
 - b. Send out reconnaissance vehicles to the alternate site, if time permits.
 - c. Prepare convoy for movement.
5. Supervise set up of tentage (LME) and (Temper).
 - a. Supervise unloading of tentage, lightweight maintenance enclosure (LME) and tent extendable (Temper)..
 - b. Supervise set up of tentage, lightweight maintenance enclosure (LME) and tent extendable (Temper).
6. Supervise placement of equipment in tentage.
 - a. Ensure trailer-flatbed is positioned at the work area.

Performance Steps

- b. Ensure equipment is properly placed in tents.
- 7. Supervise set up of Laundry Advanced System (LADS).
 - a. Ensure 30KW generators are prepared for operation.
 - b. Ensure Washing/Drying system is prepared for operation.
 - c. Ensure Water Recycle and Heating system is prepared for operation.
 - d. Ensure Air and Control System is prepared for operation.
- 8. Identify hazards to the environment.
 - a. Actions required to performed the step:
 - (1) Identify potential hazards to streams, lakes, ponds, and wetlands.
 - (2) Identify potential hazards to threatened and endangered species.
 - (3) Identify potential hazards to historical and archeological sites.
 - (4) Identify potential hazards to for maneuver damage (soil erosion).
 - (5) Identify potential sources of noise pollution.
 - (6) Identify potential sources of air pollution.
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - c. Environmental knowledge required:
 - (1) Knowledge of unit missions.
 - (2) Knowledge of operational areas.
 - (3) Knowledge of previous environmental problems.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
- 9. Assess the probability of environmental damage/violations using environmental risk-assessment matrices.
 - a. Actions required to performed the step:
 - (1) Evaluate potential air pollution hazards for each type of unit operation.
 - (2) Evaluate potential archeological and historical site hazards for each type of unit operation.
 - (3) Evaluate potential hazardous materials and waste problems for each type of unit operation.
 - (4) Evaluate potential noise pollution hazards for each type of unit operation.
 - (5) Evaluate potential threatened and endangered species hazards for each type of unit operation.
 - (6) Evaluate potential water pollution hazards for each type of unit operation.
 - (7) Evaluate potential dangers to wetlands for each type of unit operation.
 - (8) Identify high-risk missions by environmental area.
 - (9) Determine overall environmental risk.
 - (10) Determine if environmental risk is low (0-58 points), medium (59-117 points), high (118-149 points), or extremely high (above 150 points).
 - b. Environmental skills required:
 - (1) Ability to employ risk assessment matrix checklists.
 - (2) Ability to determine low, medium, high, or extremely high risk.
 - c. Environmental knowledge required:
 - (1) Knowledge of environmental risk assessment matrix procedures.
 - (2) Knowledge of environmental risk categories.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
- 10. Develop measures to reduce high risks.

Performance Steps

- a. Actions required to performed the step:
 - (1) Make decisions to reduce risk or accept risk at the appropriate level.
 - (2) Ensure an increase of soldier awareness of high-risk areas.
 - (3) Ensure an increase of supervision for high-risk areas.
 - b. Environmental skills required:
 - (1) Ability to develop plans.
 - c. Environmental knowledge required:
 - (1) Knowledge of decision-making authority.
 - (2) Knowledge of mission requirements.
 - (3) Knowledge of environmental office requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
11. Brief the chain of command on the proposed plan.
- a. Actions required to performed the step:
 - (1) Inform chain of command of the proposed plan.
 - (2) Inform chain of command of decisions to reduce or eliminate risk.
 - (3) Inform chain of command of potential high-risk areas.
 - (4) Inform chain of command of measures to increase soldier awareness.
 - (5) Inform chain of command of measures to increase supervision.
 - (6) Determine whether installation environmental office must be informed.
 - b. Environmental skills required:
 - (1) Ability to conduct information and decision briefings.
 - c. Environmental knowledge required:
 - (1) Knowledge of environmental office requirements.
 - (2) Knowledge of briefing procedures.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
12. Comply with host nation, local, state and federal environmental laws and regulations.
- a. Actions required to performed the step:
 - (1) Follow all host nations, local, state and federal environmental laws and regulations.
 - (2) Follow all installation/army regulations.
 - b. Environmental skills required:
 - (1) Ability to understand and comply with applicable local, state and federal environmental impact laws and regulations.
 - (2) Ability to identify key environmental laws and regulations.
 - c. Environmental knowledge required:
 - (1) Knowledge of sources of environmental laws as federal, state, local and host nation.
 - (2) Knowledge of the key requirements for each law and regulation.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Determined mission requirements from warning orders received from higher headquarters.	—	—
2. Alerted platoon to prepare equipment for movement.	—	—

Performance Measures	<u>GO</u>	<u>NO GO</u>
3. Supervised loading of equipment for movement according to the unit-loading plan.	—	—
4. Supervised road movement.	—	—
5. Supervised set up of tentage (LME) and (Temper).	—	—
6. Supervised placement of equipment in tentage.	—	—
7. Supervised set up of laundry Advanced System (LADS).	—	—
8. Identified hazards during mission analysis.	—	—
9. Assessed the probability of environmental damage/violations using risk assessment matrices.	—	—
10. Made decisions to reduce high risk.	—	—
11. Briefed the chain of command on proposed plan and potential high-risk areas.	—	—
12. Implemented environmental measures by integrating them into plans, SOPs, training conditions, or rehearsals.	—	—
13. Supervised environmental standards.	—	—
14. Assessed the probability of environmental damage/violations using unit self-assessment checklist during operations.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Supervise Road Movement And Set Up Of Shower Equipment
101-92S-4006

Conditions: You, the Platoon Sergeant, are to supervise road movement and set up of shower equipment. You receive a movement order from higher headquarters to move to a new location. The Resource Conservation and Recovery Act (RCRA) requires that those that generate hazardous waste are responsible for the proper handling, transport, storage, treatment and disposal of hazardous waste. You are required to properly dispose of self-generated hazardous waste in accordance with environmental laws and regulations. Occupational Safety and Health Administration (OSHA) requires that personal protective equipment (PPE) be worn while working with hazardous materials. Materials and equipment required: trucks cargo, trailer cargo, truck utility, tents extendable modular (temper), water pump, generator, water heater, fuel drums, 3,000 gal collapsible tank, shower assembly with all accessories, FM 42-414 and fire extinguishers; Drip pans, or similar initial containment devices, PPE, spill kit, absorbent materials, rags, approved accumulation containers for contaminated soil/absorbent materials/debris/hazardous fluids

Standards: Complete all necessary steps to supervise road movement and set up of shower equipment. Continue until all shower equipment is set up and operational. Ensure placement of drip pans, or similar initial containment devices so as to contain any drips or leaks. Comply with the removal of all spills IAW Unit/Installation SOP/Operations Order. Comply with the Unit/Installation SOP/Operations Order (OPORD) disposal requirements for contaminated/hazardous material (e.g., oil, contaminated fuel, and solvents).

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Determine mission requirements from warning orders received from higher headquarters.
 - a. Determine length of mission, number of troops supported, and type of support needed.
 - b. Determine location in which to set up company operations, the date of the move, route information, interference to expect during the move, and when to start operating at the new site.
2. Alert platoon to prepare equipment for movement.
 - a. Hold platoon formation to inform platoon of mission requirements.
 - b. Assign duties and responsibilities.
 - c. Review loading and unloading plans.
3. Supervise loading of equipment for movement according to the unit-loading plan.
 - a. Supervise pick up of vehicles.
 - b. Supervise movement of vehicles to the equipment storage area.
 - c. Supervise loading of equipment from storage area according to unit loading plan.
4. Supervise road movement.
 - a. Send out reconnaissance vehicles to the primary site.
 - b. Send out reconnaissance vehicles to the alternate site, if time permits.
 - c. Prepare convoy for movement.
5. Supervise set up of tentage.
 - a. Supervise unloading of tentage.
 - b. Supervise set up of tent extendable, modular, (temper)
6. Supervise placement of equipment in tentage.
 - a. Ensure shower equipment is positioned in the work area.
 - b. Ensure shower equipment is properly placed in tents.
7. Supervise set up of shower equipment.
 - a. Ensure 5-kilowatt generators are prepared for operation.

Performance Steps

- b. Ensure the shower stands are prepared for operation.
8. Identify hazards to the environment.
 - a. Actions required to performed the step:
 - (1) Identify potential hazards to streams, lakes, ponds, and wetlands.
 - (2) Identify potential hazards to threatened and endangered species.
 - (3) Identify potential hazards to historical and archeological sites.
 - (4) Identify potential hazards to for maneuver damage (soil erosion).
 - (5) Identify potential sources for noise pollution.
 - (6) Identify potential sources of air pollution.
 - b. Environmental skills required:
 - (1) Ability to identify potential environmental hazards.
 - c. Environmental knowledge required:
 - (1) Knowledge of unit missions.
 - (2) Knowledge of operational areas.
 - (3) Knowledge of previous environmental problems.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazard: None.
 9. Assess the probability of environmental damage/violations using environmental risk-assessment matrices.
 - a. Actions required to performed the step:
 - (1) Evaluate potential air pollution hazards for each type of unit operation.
 - (2) Evaluate potential archeological and historical site hazards for each type of unit operation.
 - (3) Evaluate potential hazardous materials and waste problems for each type of unit operation.
 - (4) Evaluate potential noise pollution hazards for each type of unit operation.
 - (5) Evaluate potential threatened and endangered species hazards for each type of unit operation.
 - (6) Evaluate potential water pollution hazards for each type of unit operation.
 - (7) Evaluate potential dangers to wetlands for each type of unit operation.
 - (8) Identify high-risk missions by environment area.
 - (9) Determine overall environmental risk.
 - (10) Determine if environmental risk is low (0-58 points), medium (59-117 points), high (118-149 points), or extremely high (above 150 points).
 - b. Environmental skills required:
 - (1) Ability to employ risk assessment matrix checklists.
 - (2) Ability to determine low, medium, high, or extremely high risk.
 - c. Environmental knowledge required:
 - (1) Knowledge of environmental risk assessment matrix procedures.
 - (2) Knowledge of environmental risk categories.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
 10. Develop measures to reduce high risks.
 - a. Actions required to performed the step:
 - (1) Make decisions to reduce risk or accept risk at the appropriate level.
 - (2) Ensure an increase of soldier awareness of high-risk areas.
 - (3) Ensure an increase of supervision for high-risk areas.
 - b. Environmental skills required:
 - (1) Ability to develop plans.

Performance Steps

- c. Environmental knowledge required:
 - (1) Knowledge of decision-making authority.
 - (2) Knowledge of mission requirements.
 - (3) Knowledge of environmental office requirements.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
11. Brief the chain of command on the proposed plan.
- a. Actions required to performed the step:
 - (1) Inform chain of command of the proposed plan.
 - (2) Inform chain of command of decisions to reduce or eliminate risk.
 - (3) Inform chain of command of potential high-risk areas.
 - (4) Inform chain of command of measures to increase soldier awareness.
 - (5) Inform chain of command of measures to increase supervision.
 - (6) Determine whether installation environmental office must be informed.
 - b. Environmental skills required:
 - (1) Ability to conduct information and decision briefings.
 - c. Environmental knowledge required:
 - (1) Knowledge of environmental office requirements.
 - (2) Knowledge of briefing procedures.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.
12. Comply with host nation, local, state and federal environmental laws and regulations.
- a. Actions required to performed the step:
 - (1) Follow all host nations, local, state and federal environmental laws and regulations.
 - (2) Follow all installation/army regulations.
 - b. Environmental skills required:
 - (1) Ability to understand and comply with applicable local, state and federal environmental impact laws and regulations.
 - (2) Ability to identify key environmental laws and regulations.
 - c. Environmental knowledge required:
 - (1) Knowledge of sources of environmental laws as federal, state, local and host nation.
 - (2) Knowledge of the key requirements for each law and regulation.
 - d. Resource requirements:
 - (1) Equipment/material requirements: Checklist.
 - (2) Supporting individual task(s): None.
 - e. Safety factors/hazards: None.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Determined mission requirements from warning orders received from higher headquarters.	—	—
2. Alerted platoon to prepare equipment for movement.	—	—
3. Supervised loading of equipment for movement according to the unit-loading plan.	—	—
4. Supervised road movement.	—	—
5. Supervised set up of tentage.	—	—
6. Supervised placement of equipment in tentage.	—	—

Performance Measures	<u>GO</u>	<u>NO GO</u>
7. Supervised set up of shower equipment.	—	—
8. Identified hazards during mission analysis.	—	—
9. Assessed the probability of environmental damage/violations using risk assessment matrices.	—	—
10. Made decisions to reduce high risk.	—	—
11. Briefed the chain of command on proposed plan and potential high-risk areas.	—	—
12. Implemented environmental measures by integrating them into plans, SOPs, training conditions, or rehearsals.	—	—
13. Supervised environmental standards.	—	—
14. Assessed the probability of environmental damage/violations using unit self-assessment checklist during operations.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

**Supervise Laundry Operations
101-92S-4007**

Conditions: You are a platoon sergeant in charge of a laundry operation. Your platoon is on a field mission, you are to supervise your platoon laundry operations. Materials and equipment required: 10-kilowatt generator, washer and extractor, water heater, water pump, dryer-tumbler, FM 42-414, DA Form 1974 and DA Form 2886.

Standards: Complete all necessary steps to supervise laundry operations. Continue until an adequate drainage system is provided.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Inspect the receiving section.
 - a. Make sure all items are properly recorded on DA Form 2886 and DA Form 1974.
 - b. Make sure marking pen sets are correctly used.
 - c. Ensure each unit's clothing is handled separately.
2. Inspect the washing section.
 - a. Supervise before-operation, during-operation, and after-operation PMCS.
 - b. Make sure the correct washing formulas are used.
 - c. Make sure the machines are correctly loaded.
3. Inspect the shipping section.
 - a. Ensure all items are accounted for.
 - b. Ensure all bundles of laundry have a completed DA Form 2886, which is tied to the top of the bundles with a drawstring.
 - c. Ensure all organizational and bulk items are accounted for on DA Form 1974.
4. Ensure before-operation, during-operation, and after-operation PMCS is being performed on laundry equipment.
 - a. Make sure all forms are properly maintained.
 - b. Make sure the lubricating oil is properly applied to the equipment.
 - c. Inspect ground rods, oil levels, level of water in batteries, air filter, fuel supply, and check for fuel leaks.
 - d. Check ammeter, oil pressure meter, voltmeter, frequency meter, and battery charge indicator.
 - e. Inspect tentage for mildew, dry rot, and holes.
 - f. Ensure tentage is stored correctly.
 - g. Supervise maintenance of collapsible tanks, before-use, during-use, and after-use.
5. Ensure an adequate water source is used.
 - a. Ensure medical personnel test water if it is from a pond or lake.
 - b. Ensure water is stored in a 3,000-gallon collapsible tank.
6. Ensure the drainage system is adequate.
 - a. Ensure the drainage ditch is wide and deep enough to handle wastewater.

NOTE: The ditch should be 5 inches wide and 6 inches deep.

 - b. Ensure drainage is away from the water supply and parking area.
 - c. Ensure wastewater runs into the drainage ditch.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Inspected the receiving section.	—	—
2. Inspected the washing section.	—	—
3. Inspected the shipping section.	—	—

Performance Measures

- 4. Ensured before-operation, during-operation, and after-operation PMCS is being performed on laundry equipment.
- 5. Ensured an adequate water source is used.
- 6. Ensured the drainage system is adequate.

<u>GO</u>	<u>NO GO</u>
—	—
—	—
—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Supervise Shower Operations

101-92S-4008

Conditions: You are a shower / laundry and clothing repair specialist in charge of a shower operation. Your unit is on a field mission. You are to supervise your platoon shower operations. Materials and equipment required: water pump, 5-kilowatt generator, water heater, fuel drums, shower assembly, FM 42-414, DA Form 4766-R all accessories, and fire extinguishers.

Standards: Complete all necessary steps to supervise shower operations. Continue until an adequate drainage system is provided.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Ensure the correct distance is between all equipment.
 - a. Make sure the generator is placed 15 feet to 20 feet from the water heater and the water pump.
 - b. Ensure the water pump suction lift does not exceed 15 feet.
 - c. Ensure the fuel supply is 3 feet from the water heater.
 - d. Ensure the shower stand inside the tent is 15 feet to 20 feet from the water heater.
2. Ensure before-operation, during-operation, and after-operation PMCS is being performed on the shower equipment.
 - a. Supervise before-operation PMCS on the 5-kilowatt generator set.
 - (1) Check to ensure if the ground rod is properly installed.
 - (2) Add oil, if needed.

CAUTION: DO NOT OVERFILL ENGINE OIL.

- (3) Check the battery water level and add water, if needed. Clean the battery filler cap vent, if needed, and tighten loose battery cables.

CAUTION: DO NOT OVERFILL BATTERY.

- (4) Check the air filter.
- (5) Check the fuel supply.
- (6) Check the fuel filter for leaks.
- (7) Inspect the fire extinguisher to see if the seal is broken.

NOTE: If the seal is broken, turn the extinguisher in for another one. Also, check the gauge to be sure the extinguisher has the proper charge.

- (8) Make sure the generator is lubricated according to the current lubrication order.
- (9) Inspect all controls and instruments for damage and loose mountings.
- (10) Check the wiring for cuts, frays, and loose connections, and repaired any wiring defects.
- b. Supervise before-operation PMCS on the water heater.
 - (1) Make sure the sight tube lens is clean.
 - (2) Check the fuel lines for leaks.
 - (3) Check the wiring for cuts, frays, or loose connections.
 - (4) Inspect the controls and the gauges for damage or loose mountings.
- c. Supervise before-operation PMCS on the water pump.
 - (1) Inspect for sediment and clean out sediment weekly.
 - (2) Inspect the control switch for damage and loose mounting.
 - (3) Inspect the suction strainer daily before and during operation to see that it is properly positioned and free of debris.
- d. Supervise during-operation PMCS on the 5-kilowatt generator set.
 - (1) Make sure the ammeter reads on the plus side of the scale. If the reading is too high, turn the generator off and get a mechanic to check it.
 - (2) Make sure the oil pressure gauge reads 30 psi to 40 psi.
 - (3) Make sure the voltmeter reads 208 volts.
 - (4) Make sure the frequency meter reads 60 cycles.
 - (5) Watch and listen for any unusual vibrations and noises.
 - (6) Check for fuel and oil leaks.

Performance Steps

- e. Supervise during-operation PMCS on the water heater.
 - (1) Check the burner electrodes for a proper spark. The spark should be blue and jumps continuously from one electrode to the other.
 - (2) Check the temperature gauge, it should read 160 degrees Fahrenheit. If necessary, adjust the temperature control switch until the gauge reads 160 degrees Fahrenheit.
 - (3) Make sure the pressure gauge reads between 60 psi and 100 psi.
 - (4) Watch and listen for any unusual vibrations and noises.

CAUTION: Clean all Shower and laundry equipment with solvents in a well-ventilated area. Do not use solvent on rubber parts. Avoid inhaling solvent fumes. Do not use solvent near open flames or excessive heat. The flash point of solvent is 100 degrees to 138 degrees Fahrenheit (38 degrees to 59 degrees Celsius).

- f. Supervise during-operation PMCS on the water pump.
 - (1) Watch for leaks and unusual vibrations.
 - (2) Listen for any unusual noises.
- g. Supervise after-operation PMCS on the 5-kilowatt generator set.
 - (1) Check the wiring for cuts, frays, and loose connections, and repaired any wiring defects.
 - (2) Inspect all controls and instruments for damage and loose mountings.
 - (3) Make sure the generator is lubricated according to the current lubrication order.
 - (4) Inspect the fire extinguisher to see if the seal is broken.
 - (5) Check to see if the ground rod is properly installed.
 - (6) Check the fuel filter for leaks.
 - (7) Check the fuel supply.
 - (8) Check the air filter.
 - (9) Check the battery water level and add water, if needed. Clean the battery filler cap vent, if needed, and tighten loose battery cables.

CAUTION: DO NOT OVERFILL BATTERY.

- (10) Add oil, if needed.

CAUTION: DO NOT OVERFILL.

- h. Supervise after-operation PMCS on the water heater.
 - (1) Inspect the exhaust duct for damage.
 - (2) Check the water hoses for obstructions.
 - (3) Check the glass on the instruments for breakage or loose connections.
 - (4) Make certain the blower and motor are mounted properly and that the shutter operates freely.
 - (5) Check the lead assemblies for secure connections.
 - (6) Check the nozzle and electrode holder for secure mounting.
 - (7) Drain all water from the system to prevent freezing.
- i. Supervise after-operation PMCS on the water pump.
 - (1) Ensure the strainer is cleaned weekly.
 - (2) Ensure the pump is drained daily.

- 3. Ensure an adequate fuel supply is available.
 - a. Contact the using unit and inform them of fuel requirements.
 - b. Inform the using unit of any changes in fuel requirements and when fuel is no longer needed.
- 4. Ensure the traffic flow through the bath section is controlled.
 - a. Ensure a traffic flow chart is posted for bathers.
 - b. Ensure the users are briefed on the traffic flow.
- 5. Ensure an adequate water source is used.
 - a. Make sure medical personnel test water if it is from a lake or pond.
 - b. Make sure water is stored in a 3,000-gallon collapsible tank.
- 6. Ensure drainage system is adequate.
 - a. Make sure drainage ditch is 1 foot wide and 1 inch to 3 inches deep to handle wastewater.
 - b. Make sure drainage ditch is away from the water supply and parking area.

Performance Steps

- c. Make sure wastewater runs into the ditch.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Ensured the correct distance is between all equipment.	—	—
2. Ensured before-operation, during-operation, and after-operation PMCS is being performed on the shower equipment.	—	—
3. Ensured an adequate fuel supply is available.	—	—
4. Ensured the traffic flow through the shower section is controlled.	—	—
5. Ensured an adequate water source is used.	—	—
6. Ensured drainage system is adequate.	—	—

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References

Required
FM 42-414

Related

Supervise The Requisitioning Of Shower And Laundry Supplies And Preparing Of Shower And Laundry Reports And Records

101-92S-4009

Conditions: You are assigned to a Quartermaster Field Service company (Modular) platoon. You the platoon sergeant are to supervise the requisitioning of the platoons supplies, and the preparing of shower and laundry and reports and records. Materials and equipment required: DA Form 4765-R, DA Form 4766-R and FM 42-414.

Standards: Complete all necessary steps to supervise the requisitioning of Shower and Laundry supplies, and prepare reports and records. Continue until requisitioning requirement is completed.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Supervise the preparation of Shower and Laundry schedules.
 - a. Ensure the unit commander is told what assistance must be given to the Shower and Laundry Platoon at operation site.
 - b. Ensure each unit receives a scheduled time for showers.
 - c. Make sure female soldiers are scheduled separately from male soldiers.
2. Supervise the preparation of laundry point operation schedules.
 - a. Coordinate laundry schedules with supported units.
 - b. Complete DA Form 4765-R.

THE QUARTERMASTER FIELD SERVICE COMPANY (MODULAR) DO NOT EXCHANGE CLOTHING FOR SOLDIER IN A FIELD ENVIRONMENT, UNLESS THE HIGHER HEADQUARTER'S SUPPLY THE CLOTHING ITEMS AND SUPPORT THE MISSION.

3. Supervise the requisitioning and re-supplying of clothing for operations if supported by higher head quarters.
 - a. Make sure the supported units submit a list of the quantity and sizes of clothing needed.
 - b. Make sure a one-day supply of clothing is on hand.
 - c. Make sure soiled clothing is delivered to a laundry unit and the clean laundry is picked up.
 - d. Supervise personnel from the supported units who work under laundry personnel.
 - e. Make sure a careful inventory is maintained and a complete record of clothing exchange is on hand.
4. Supervise the requisitioning for clothing exchange operations.
 - a. Make sure DA Form 4766-R is completed.
 - b. Make sure supply requirements are determined and requests are submitted for supplies and repair parts.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Supervised the preparation of Laundry schedules.	_____	_____
2. Supervised the preparation of shower point operation schedules.	_____	_____
3. Supervised the requisitioning and re-supplying of clothing for exchange operations.	_____	_____
4. Supervised the requisitioning for exchange operations.	_____	_____

Evaluation Guidance: Score the soldier GO if all steps are passed (P). Score the soldier NO-GO if any step is failed (F). If the soldier fails any step, show what was done wrong and how to do it correctly.

References
Required
FM 42-414

Related

Direct Supervision Of Troubleshooting Of Laundry Advanced System (LADS)

101-92S-4010

Conditions: You are assigned to a Quartermaster Field Service Company (Modular). You the platoon sergeant are to direct supervision of Troubleshooting on the Laundry Advanced System (LADS). This task can be performed in garrison or field environment. You are to provide direct supervision on troubleshooting the (LADS) to your laundry platoon personnel. Materials and equipment required: Refer to TM 10-3510-221-10 (Operator's Manual For Laundry Advanced System (LADS), TM 10-3510-221-24, (Unit, Direct Support And General Support Maintenance Manual For Laundry Advanced System (LADS); and the Laundry Advanced System (LADS) Mobile Laundry unit.

Standards: Complete all necessary steps to bring LADS to operating status. Use of TM troubleshooting guidelines will assist to correct problems. Follow guidelines to the letter and do not skip any procedures. Be very aware of the LADS alarm system. The alarm system will sound and a message will be displayed at operator panels A or B. Be alert to the four alarm levels associated with LADS operation.

Performance Steps

NOTE: Develop the Risk Management Program and Procedures

1. Review possible Alarm Conditions. Four levels associated with LADS operation are:
 - a. Level 1: When the system is operating normally, the audible alarms are off, the System Operational lamps are on, and the Attention Required lamps are off.
 - b. Level 2: If the alarm(s) comes on, and remains steady, this indicates that some type of operator action is required. In most cases, level 2 alarms alert the operator of a condition that must be corrected, but is not necessarily a fault (i.e. "DRUM DOOR NOT LOCKED", "ADD FRS", "UNLOAD LAUNDRY", etc.) In all cases (except "DRUM WON'T BALANCE"), the operator must perform the required action before the control system will allow laundry cycle(s) to continue.
 - c. Level 3: If the alarm comes on with a slow pulse, a non-critical fault has occurred. In most cases, the current laundry cycle(s) may be completed, however, in some cases the current laundry cycle must be ended.
 - d. Level 4: If the alarm comes on with a fast pulse, a critical fault has occurred and LADS operation will be shutdown by the control system. Whenever (4) alarm comes on, the ATTENTION REQUIRED lamp(s) will also be on and the SYSTEM OPERATIONAL lamp will be off.
2. Troubleshooting Procedures
 Troubleshooting work packages contain step-by-step procedures of the tests or inspections, and corrective actions required to return LADS to normal operation or to determine if the malfunction requires a higher level of maintenance be performed. Each work package is headed by initial setup information that outlines certain conditions that must be met before starting the task. DO NOT start a task until you understand what you are to do.
3. Examining system status.
 - a. Monitor display reading
 - b. Press MENU selection switch to select examine inputs.
 - c. Press appropriate MENU selection switch.

Performance Measures

	<u>GO</u>	<u>NO GO</u>
1. Reviewed possible alarm conditions.	—	—
2. Performed Direct Supervision of Troubleshooting Procedures.	—	—
3. Examined System Status.	—	—

References

Required

TM 10-3510-221-10

TM 10-3510-221-24

Related

CHAPTER 4

Duty Position Tasks

Shower/Laundry and Clothing Repair Specialist

- a. Major duties. The Laundry and Textile Specialist supervises or perform Shower, Laundry, and Clothing Repair (SLCR), personnel and clothing decontamination, and re-impregnation functions. Duties for MOS 92S at each level of skill are:
- (1) MOSC 92S10. Receives bulk, individual, or organizational laundry and reviews laundry lists for accuracy of bundle count or contents of individual laundry bag. Segregates, classifies, and marks washable and un-washable items. Operates mobile washers, extractors, dryers, re-impregnation, decontamination, and delousing equipment. Sorts and issues cleaned laundry and equipment. Conducts clothing exchange in conjunction with bag operations. Installs, inspects, operates, and maintain shower, laundry, decontamination and delousing equipment, and generators. For Clothing Repair functions, inspect, tally, mark, tag, and segregate repair of textile and webbed items. Sews, patches, darns, and bastes worn or damaged fabrics. Alters sizes and repairs uniform, attach unit patches, nametapes, and chevrons and replaces fasteners and zippers. Fabricates and repairs other items. Operates and maintains sewing, darning, and button machines.
 - (2) MOSC 92S20. Perform duties shown in preceding level of skill and provides technical guidance to lower grade personnel. Supervises establishment of Shower, Laundry, and Clothing Repair (SLCR) facility. Supervises marking, classifying, and washing operations. Coordinates flow of personnel through shower and delousing operations with supported units. Supervises preventive maintenance of Shower, Laundry, and Clothing Repair, and delousing equipment. Estimates supply requirements; request supplies, and supervises receipt, storage, and issue of supplies, clothing, and equipment. Prepares facility layout. Inspects, classifies, and determines repairable of textile and webbed items received for repair shop.
 - (3) MOSC 92S30. Performs duties shown in preceding level of skill and provides technical guidance to lower grade personnel in accomplishment of these duties. Planning of shower reconnaissance operations and organizes reconnaissance teams for selection of operational sites. Coordinates with medical authorities for delousing requirements. Determines personnel requirements and plans and supervises training program. Perform preventive maintenance activities in mobile and fixed textile repair shops. Coordinates maintenance requirements with supporting units. Establishes quality control standards. Estimates supply requirements and requests, stores, safeguards, and issues repaired items. Prepares equipment schedules and operational, personnel, and administrative reports. Maintains records of cost data, manpower, and expenditures.
 - (4) MOSC 92S40. Determines requirements and adequacy of Shower, Laundry, and Clothing Repair activities and prepares operational plan to meet requirements. Establishes, evaluates, and monitors unit training and preventive maintenance programs. Consolidates production reports and schedules. Performs the duties of the preceding skill level and provides technical guidance to lower grade personnel.

GLOSSARY***UNIT**

trained in the unit

1LT

first lieutenant

1SG

first sergeant

AC

Active Component

ac/AC

alternating current

ACCP

Army Correspondence Course Program

ADT

active duty for training

advanced individual training

Training given to enlisted personnel upon completion of basic training that will qualify them for award of a military occupational specialty (MOS).

AG

Adjutant General/Adjutant General Corps

AIT

advanced individual training

ALM

Alarm

AMDF

Army Master Data File

AN

annually

ANCOC

advanced noncommissioned officer course

Annual training

The minimal period of annual active duty training a member performs to satisfy the annual training requirements associated with a Reserve Component assignment. It may be performed during one consecutive period or in increments of one or more days, depending upon mission requirements.

AO

area of operations

AOC

area of concentration

AOR

area of responsibility

app

appendix

aptitude

A soldier's ability to acquire a skill/related skills or to demonstrate the potential for acquiring a skill/related skills when given the opportunity and proper training. Aptitude may be the ability to learn a specific skill or the potential to receive general training.

AR

Army regulation

ARC

accounting requirements code

Army Training and Evaluation Program (ARTEP)

The Army's collective training program that unit training objectives critical to unit survival and performance in combat. They combine the training and evaluation process into one integrated function. The ARTEP is a training program and not a test. The sole purpose of external evaluation under this program is to diagnose unit requirements for future training.

Army National Guard

The Army National Guard (ARNG) is a component of the United States Army (the Active Army, Army National Guard, and Army Reserve). It is composed primarily of civilians who serve on a part-time basis (usually one weekend each month and two weeks during the summer). Each state, territory, and the District of Columbia has its own National Guard. Guard forces have a dual federal and state mission. For state missions, the governor, through the state Adjutant General, commands Guard forces. The governor can call the National Guard into action during local or statewide emergencies, such as storms, fires, earthquakes or civil disturbances. The President of the United States can activate the National Guard for participation in federal missions.

Army training system

The concept used by the Army to develop, manage, and conduct training. System components are institutional training, forces (unit) training, and training support.

Armywide Doctrinal and Training Literature

Includes DA-numbered, indexed, and published products available in a variety of media, to include the following: Field manuals (FMs), training circulars (TCs), ARTEP (Army Training and Evaluation Program) products (mission training plans (MTPs), drills, exercises), soldier training publication (STP) products (soldier's manuals (SMs), trainer's guides (TGs), military qualification standard (MQS) and Officer Foundation Standard (OFS) manuals), nonequipment technical manuals (TMs), Reserve Officers Training Corps Manual (ROTCM), and selected DA pamphlets (350 and 351 series) and posters.

ARNG

Army National Guard

ARTEP

Army Training and Evaluation Program

ARTEP-MTP

Army Training and Evaluation Program Mission Training Plan

ARTEPP

Army Training and Evaluation Program publication(s)

ASAT

Automated Systems Approach to Training

ASL

authorized stockage list

ASP

ammunition supply point

attn

attention

auth

authorized

authenticate

To establish or prove that facts or documents are valid, true, or genuine.

AUTO

automatic; automotive

aux

auxiliary

avg

average

AWG

American wire gauge

backwash

The reversal of flow through a filter to wash clogging material out of the filtering medium and reduce conditions causing loss of head. Also called filter wash or backwash waste.

bde

brigade

BDU

battle dress uniform

bdg

building

BM

bimonthly

BNCOC

basic noncommissioned officers course

BOI

basis of issue

BSA

brigade support area

BT

basic training

BTU

British thermal unit

CDR

commander

CEB

clothing exchange and bath

class

classification

Class II

(supply) clothing, individual equipment, tentage, and organizational tool sets.

Class IX

(supply) repair parts

CO (1)

company

collective training

Training, either in institutions or units, that prepares cohesive teams and units to accomplish their missions on the battlefield and in operations other than war.

common task (2)

A critical task for which all soldiers at a given skill level are accountable, regardless of their MOS.

CPT

captain

critical task

A collective or individual task determined to be essential to wartime mission, duty accomplishment, or survivability. Critical individual tasks are trained in the training base and/or unit, and they are reinforced in the unit.

cross training

The systematic training of soldiers on tasks related to another duty position.

CSM

Command Sergeant Major

CSS

combat service support

CTA (1)

common table(s) of allowances

CTT (common task test)

A hands-on test used to evaluate the soldier's proficiency on common tasks.

DA

Department of the Army

DA Pam

Department of the Army pamphlet

DC (1)

direct current

decon

decontamination

dept

department

Directed training

Any training dictated by a higher headquarters. Common Core Training is directed training.

disinfectant

Any oxidant, including, but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms.

disinfection

The process of killing most (but not necessarily all) of the harmful and objectionable microorganisms in a fluid by various agents such as chemicals, heat, ultraviolet light, ultrasonic waves, radiation, and so forth.

Disposal

The act of getting rid of records, documents, and excess, obsolete, or surplus property under proper authority. Disposal may be accomplished by, but is not limited to, transfer, donation, sale, or abandonment, but does not include redistribution.

dissolved solids

Solids that are present in solution.

Div

division

DODAAC

Department of Defense activity address code

DS/GS

direct support/general support

DS2

decontaminating solution #2

due-in

The quantity of munitions expected to be received based on the receipts of supply status from the supply source.

Duty Position

Duty positions are determined by military occupational specialties (MOSs), which are subdivided into five major skill levels (SLs). These SLs are further subdivided into related individual tasks which identify a soldier's SL or job.

Duty Position Task

A task identified with and related to a particular position at a given SL within a specified MOS or area of concentration (AOC).

ECOD

estimated cost of damage

ECWCS

extreme cold weather clothing system

Equipment

Articles needed to outfit an individual or organization. Clothing, tools, utensils, vehicles, weapons, and similar items are articles of equipment.

Evaluation guide

Section of the task summary in a soldier's manual that lists pass/fail performance measures for evaluating the soldier's performance on the task.

Exhaust

Product of combustion from an engine cylinder. Also, the air discharge from the brake pipe or brake cylinder during operation of the brake equipment.

F

Fahrenheit

Field Manual (FM)

A DA publication that contains doctrine that prescribes how the Army and its organizations function on the battlefield in terms of missions, organizations, personnel, and equipment. The level of detail should facilitate an understanding of "what" and "how" for commanders and staffs to execute their missions and tasks. The FM may also be used to publish selected alliance doctrinal publications that are not readily integrated into other doctrinal literature.

fig

figure

filter

A device or structure for removing solid or colloidal matter (which usually cannot be removed by sedimentation) from water, or other liquids or semiliquids, by a straining process whereby the solids are held on a medium of some kind (such as granular, diatomaceous earth, woven, porous) while the liquid passes through.

fire hazard area

A location in which the primary, but not necessarily the only, hazard is that of fire, including explosions of gas or vapor and air mixtures.

FIRST-LINE

Of first importance; available for immediate service.

flameproof

Combustible materials (e.g., clothing) treated or coated as to decrease their burning characteristics.

flammable

Combustible material which is easily ignited and which burns readily.

flammable liquid

Any liquid the vapor of which will burn.

fld

field

FM (1)

field manual

FREQ

Frequency

Ft

feet

gal

gallon

Generator

A rotating electrical machine that changes mechanical energy into electrical energy. The main generator on a diesel-electric locomotive receives power from the engine and delivers electrical energy to the traction motor.

GO,NO GO

A pass-fail grade given when a soldier is evaluated on how well he or she can perform a task. The soldier is either given a pass or fail, that is, GO or NO GO.

GP

General Purpose

GPD

gallons per day

GPH

gallons per hour

GPM

gallons per minute

GS

general support

HHC

headquarters and headquarters company

hr

hour(s)

HR (1)

hand receipt

HV

high-voltage

hvy

heavy

Hz
hertz

i.e.
that is

lb
pound(s)

IC
integrated circuit

ID
identification

ILO
in lieu of

Individual training

Training that prepares the soldier to perform specified duties or tasks related to assigned duty position or subsequent duty positions and skill level.

individual training plan

The document prepared immediately after identification of a requirement for new or revised training. Generally, this document consists of a narrative description, a milestone schedule, a resource estimate, a resource summary supplement, a list of ammunition requirements, and an analysis plan, when available. The ITP covers a period of eight years. Normally, at the time the ITP is prepared, dates and resource requirements in the early years can be determined with reasonable accuracy while those for the later years will be "best guess" estimates.

Intake

That portion of a pipe or other apparatus through which water, air, or other fluid enters from the source of supply.

INVENTORY

A physical count to determine the quantity on hand of an item.

IRR
Individual Ready Reserve

ITEP
Individual Training Evaluation Program

kg
kilogram

Kilowatt
A unit of power. 1,000 watts. 1.34 horsepower.

km
kilometer

kw
Kilowatt

LADS

Laundry Advanced System

loc

location

Lubricant

Any liquid or grease employed to coat a surface upon which another surface rotates or slides in order to reduce the friction.

Lubrication

Term applied to the use of oil, grease, or other substances between moving parts of machinery for reducing friction, resistance, and heating caused by motion of the parts in contact.

LVPS

low voltage power supply

maint

maintenance

MAJ

major

max

maximum

MCSR

materiel condition status report

merger training

Training that prepares an NCO to supervise one or more different MOSs at lower skill levels when the soldier advances in skill level in his career management field.

METL

mission essential task list

METT-T

mission, enemy, terrain, troops, and time available

MFR

memorandum for record

Military occupational specialty (MOS) code

A fixed number which indicates a given military occupational specialty. Also known as military occupational number and specification serial number.

Mission

A series of related tasks that comprise the major capabilities and/or requirements imposed on a unit by its parent organization or table(s) of organization and equipment. Examples: Defend in sector, conduct a hasty attack, and delay. Missions may be imposed to support the parent unit.

Mission Training Plan (MTP)

A MTP provides comprehensive training and evaluation outlines, and exercise concepts and related training management aids to assist field commanders in the planning and execution of effective unit training. It provides units a clear description of "what" and "how" to train to achieve wartime mission proficiency.

mm
millimeter

MO
monthly

Mobilization

The process by which the Armed Forces are brought to a state of readiness for war or other national emergency. This includes activating all or part of the Reserve Components, and assembling and organizing personnel, supplies, and material.

MOGAS
motor gasoline

MOS
military occupational specialty

MOSC
military occupational specialty code

Mtd
mounted

MTP
mission training plan

MWO
modification work order

NA
not applicable

NBC
nuclear, biological, and chemical

NCO
noncommissioned officer

NCOIC
noncommissioned officer in charge

NG
National Guard

No.
number

NSN
national stock number

OCIE
organizational clothing and individual equipment

OJT
on-the-job training

OPER

operation

org

organization

ORG PD

organization priority designator

P

pass

para

paragraph

PBO

property book officer

PCS

permanent change of station

PFC

Private First Class

PLL

prescribed load list

PLT

platoon

PLT LDR

platoon leader

PLT SGT

platoon sergeant

PMCS

preventive maintenance checks and services

POL

petroleum, oils, and lubricants

pollution

The addition of sewage, industrial wastes, or other harmful or objectionable material to water. A general term that does not necessarily signify the presence of disease-producing bacteria.

ppm

parts per million

psi

pounds per square inch

QM

Quartermaster

QMC&S

Quartermaster Center and School

QMS

Quartermaster School

QRTRLY

quarterly

qty (or QTY)

quantity

R&U

repair and utilities

renv

renovation

reportable item

all equipment authorized or on hand which is listed in DA Pamphlet 738-750, Appendix B

REQ

request

REQD

required

S&S

supply and service

S4

supply officer (US Army)

SA (2)

semiannually

salv

salvage

SL

skill level

SM

soldier's manual

SMCT

soldier's manual of common tasks

Soldier training publication (STP)

Publications that contain critical tasks and other training information used to train soldiers and serve to standardize individual training for the whole Army; provide information and guidance in conducting individual training in the unit; and aid the soldier, officer, noncommissioned officer (NCO), and commander in training critical tasks. They consist of Soldier's Manuals, Trainer's Guides, Military Qualification Standards Manuals, and Officer Foundations Standards System manuals.

SOP

standing operating procedure(s)

SSA

supply support activity

STP

soldier training publication

SVC

service

TAMMS

The Army Maintenance Management System

TASC

training and audiovisual support center

Task - Critical individual task

An individual task that is critical. See "individual task" and "critical task."

Task - Critical task

A collective or individual task a unit or individual must perform to accomplish their mission and duties and to survive in war or operations other than war (OOTW). Critical tasks must be trained.

Task - Individual task

The lowest behavioral level in a job or duty that is performed for its own sake. It should support a collective task; it usually supports another individual task.

TB

technical bulletin

TDA

Table of Distribution and Allowance

TEC

training extension course

TG

trainer's guide

TM

technical manual

TNG

training

TOE

table(s) of organization and equipment

TRADOC

United States Army Training and Doctrine Command

Trainer's guide

A publication that covers the information needed by your commander, training manager, and trainer to plan, conduct, and evaluate training in your MOS. There is a trainer's guide for each MOS.

Trainer's guide (TG)

A soldier's training publication that provides the information needed by the commander, training managers, and trainers to meet their responsibilities in the overall training plan for a particular MOS. It indicates where additional training is conducted. The TG explains the trainer's responsibilities for the soldier's MOS training and evaluation.

UI (unit of issue)

Standard or basic quantity in which an item of supply is issued.

UIC

unit identification code

UN

United Nations

unit training

Training that is conducted in a unit.

US

United States

USA

United States Army

Vdc

volt direct current

Vol

volume

Volt

The unit of electromotive force that, when impressed on an electrical conductor whose resistance is 1 ohm, will produce a current of 1 ampere.

Voltage Drop

The decrease in voltage to a current carrying conductor.

Voltmeter

An instrument for measuring in terms of volts the electromotive force of an electric current.

VOM

volt ohmmeter

Watt

This is the unit of electrical power and equals one volt multiplied by one ampere. To determine the power of a circuit, multiply the volts across the circuit by the amperes flowing (in direct current circuits). 746 watts equals 1 horsepower.

WK

weekly

yds

yards

REFERENCES

Required Publications

Required publications are sources that users must read in order to understand or to comply with this publication.

Army Regulations

AR 200-1	Environmental Protection and Enhancement 21 February 1997
AR 350-41	Training in Units 19 March 1993
AR 385-10	The Army Safety Program 23 May 1988
AR 385-55	Prevention of Motor Vehicle Accidents 12 March 1987
AR 700-135	Mobile Field Laundry and Bath Operations (This item is included on EM 0001) 1 August 1984
AR 700-138	Army Logistics Readiness and Sustainability 16 September 1997
AR 700-141	Hazardous Material Information System (HMIS) (RCS DD-FM&P (A,Q,&AR) 1486) (This Item is Included on EM 0001) 1 July 1997
AR 710-2	Inventory Management Supply Policy Below the Wholesale Level 31 October 1997
AR 735-5	Policies and Procedures for Property Accountability 10 June 2002
AR 750-1	Army Materiel Maintenance Policy and Retail Maintenance Operations 1 August 1994

Army Training and Evaluation Program

ARTEP 10-414-30-MTP	Mission Training Plan for Quartermaster Field Service Company (Modular), Corps Support Battalion or Supply and Service Battalion 9 December 2002
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Department of Army Forms

DA FORM 1687	Notice of Delegation of Authority-Receipt for Supplies 1 January 1982
DA FORM 1974	Laundry List (Medical Treatment Facility and Organization). June 1986. 1 June 1986
DA FORM 2028	Recommended Changes to Publications and Blank Forms 1 February 1974
DA FORM 2028-2	Recommended Changes to Equipment Technical Publications 1 July 1979
DA FORM 2062	Hand Receipt/Annex Number 1 January 1982
DA FORM 2404	Equipment Inspection and Maintenance Worksheet 1 April 1979
DA FORM 2405	Maintenance Request Register 1 April 1962
DA FORM 2407	Maintenance Request 1 July 1994
DA FORM 2765-1	Request for Issue or Turn-in 1 April 1976
DA FORM 2886	Laundry List for Military Personnel 1 February 1982
DA FORM 4755	Employee Report of Alleged Unsafe or Unhealthful Working Conditions 2 October 1978
DA FORM 4765-R	Laundry Activity Record (LRA) 1 March 1979
DA FORM 4766-R	Bath and Clothing Exchange Activity Record 1 March 1979
DA FORM 5164-R	Hands-On Evaluation (LRA) 1 September 1985
DA FORM 5165-R	Field Expedient Squad Book (LRA) 1 September 1985
DA FORM 5988-E	Equipment Inspection Maintenance Worksheet (EGA) 1 March 1991

Department of Army Pamphlets

DA PAM 25-30	Consolidated Index of Army Publications and Blank Forms 1 January 2003
DA PAM 5-3	Management Improvement Techniques for First-Line Supervisors 15 April 1974
DA PAM 710-2-1	Using Unit Supply System (Manual Procedures) (Standalone Pub) 31 December 1997
DA PAM 738-750	Functional Users Manual for The Army Maintenance Management System (TAMMS) 1 August 1994
DA PAM 738-751	Functional Users Manual for the Army Maintenance Management System-Aviation (TAMMS-A) 15 March 1999
DA PAM 750-35	Guide for Motor Pool Operations 1 August 1994

Field Manuals

FM 10-1	Quartermaster Principles 11 August 1994
FM 10-16	General Fabric Repair 24 May 2000
FM 10-52	Water Supply in Theaters of Operations 11 July 1990
FM 10-52-1	Water Supply Point Equipment and Operations 18 June 1991
FM 20-3	Camouflage, Concealment, and Decoys 30 August 1999
FM 21-10	Field Hygiene and Sanitation 21 June 2000
FM 22-100	Army Leadership 31 August 1999
FM 25-101	Battle Focused Training 30 September 1990
FM 25-4	How to Conduct Training Exercises 10 September 1984
FM 25-5	Training for Mobilization and War 25 January 1985
FM 3-25.26	Map Reading and Land Navigation 20 July 2001
FM 3-5	NBC Decontamination MCWP 3-37.3 28 July 2000
FM 42-414	Tactics, Techniques, and Procedures for Quartermaster Field Service Company, Direct Support 3 July 1998
FM 7-0	Training The Force 22 October 2002
FM 9-207	Operation and Maintenance of Ordnance Materiel in Cold Weather 20 March 1998

Lubrication Orders

LO 10-3510-220-12	Laundry Unit, Trailer Mounted Model M85-100, (NSN 3510-01-2918169) (This is Included on EM 0127) 3 May 1990
LO 10-3530-203-10-1	Clothing Repair Shop, Trailer Mounted, Army Model SPV 34 (York Astro Model D8700337); Textile Repair Shop, Trailer Mounted, Army Model SPV 35 (York Astro Model D8700447) and Machine, Sewing, Button (Singer Model 175-60/62) (24X Microfiche) 20 October 1965
LO 10-3530-203-10-2	Clothing Repair Shop, Trailer Mtd, Army Model SPV34 (York Astro Model D8700337) Textile Repair Shop, Trailer Mtd, Army Model SPV35 (York Astro Model D8700447) and Machine, Sewing, Clothing, Singer Model 31-15 20 October 1965
LO 5-6115-465-12	Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 30 kW
LO 5-6115-584-12	Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 5 kW
LO 5-6115-585-12	Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 10 kW

Other Product Types

AMDF	Army Master Data File (AMDF)
CTA 50-900	Clothing and Individual Equipment 1 September 1994

DD FORM 314	Preventive Maintenance Schedule and Record 1 December 1953
DD FORM 754	Repair Tag 1 February 1954
MANUFACTURER'S LO	MANUFACTURER'S LO
SF 368	Product Quality Deficiency Report 1 October 1985

Soldier Training Publications

STP 21-1-SMCT	Soldier's Manual of Common Tasks, Skill Level 1 1 October 1994
STP 21-24-SMCT	Soldier's Manual of Common Tasks (SMCT), Skill Level 2-4 1 October 1992

Technical Manuals

TM 10-3510-208-12	Operator's And Organizational Maintenance Manual: Laundry Unit, Single Trailer Mounted W/Canvas Cover; Army Model M-532 (Eidal Model EIT9T) (NSN 3510-00-782-5294) and (Edro Model EP120-LTU) (3510-00-169-4735) (Reprinted W/Basic Incl C1-7) 16 September 1977
TM 10-3510-220-10	Operator's Maintenance Manual for Laundry Unit, Trailer-Mounted, Model M85-100 (NSN 3510-01-291-8169) 20 April 1990
TM 10-3510-221-10	Operators Manual for Laundry Advanced Systems (LADS) (NSN 3510-01-463-0114) (This Item is Included on EM 0127) 1 October 2000
TM 10-3510-221-24	Unit, Direct Support, and General Support Maintenance Manual for the Laundry Advanced System (LADS) (NSN 3510-01-463-0114) (This Item is Included on EM 0127) 1 November 2000
TM 10-3530-203-10	Operator's Manual for Clothing Repair Shop, Trailer-Mounted (York Astro Model D8700337), Army Model SPV 34 (NSN 3530-00-819-2007), And York Astro Model D8700680 (3530-00-999-8577) and Natick Model NA-79 (3530-01-075-3503) 18 April 1966
TM 10-3530-203-24	Organizational, Direct Support And General Support Maintenance Manual For Clothing Repair Shop, Trailer-Mounted York Astro Model B8700377, Army Model SPV-34 (NSN 3530-00-819-2007) And York Astro Model D8700680 (3530-00-999-8577) 1 June 1966
TM 10-3530-203-34P	Direct and General Support Maintenance Repair Parts and Special Tools List for Clothing Repair Shop, Trailer Mounted York Astro Models D8700337, Army Model Spv-34 (NSN 3530-00-819-2007) And (Model D8700680) (3530-00-999-8577) 11 May 1971
TM 10-3530-205-14	Operator's Organizational, Direct Support, and General Support Maintenance Manual for Clothing Repair Shop, Trailer Mounted 15 April 1985
TM 10-4230-202-15	Operator's, Organizational, Direct Support, General Support and Depot Maintenance Manual (Including Repair Parts List): Delousing Outfit, Power Driven, Gasoline Engine w/10 Dusting Guns (Johnson Service Co., Model 252 QM) (NSN 4230-00-889-2 23 January 1967
TM 10-4230-203-14	Operator, Organizational, Direct and General Support Maintenance Manual: Delousing Outfit, Power Driven, Gasoline Engine, 4 Cycle, Air-Cooled, 3600 rpm, 4.7 Hp, 10 Dusting Guns (Curtis Automotive Devices, Inc., Model CDR 70000) and (Curtis 5 November 1970
TM 10-4500-200-13	Operator's, Organizational and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List): Heaters, Space: Radiant-Type, Portable, and Heaters, Immersion; Liquid Fuel Fired for Corrugated Cans 1 December 1969
TM 10-4510-206-14	Operator, Organizational, Direct Support and General Support Maintenance Manual for Bath Unit, Portable, Automated Multi-Head, Model PBU-100 (NSN 4510-01-139-4973) 6 July 1984

TM 10-5410-284-13&P Operator's, Unit and Direct Support Maintenance Manual, including Repair Parts and Special Tools List for Lightweight Maintenance Enclosure (LME) (NSN 5410-01-456-3637) 30 July 1999

TM 10-8340-211-13 Operator's, Organizational, and Direct Support Maintenance Manual: Tent, General Purpose, Small, Medium, and Large 16 September 1990

TM 10-8340-222-10 Operator's Manual: Tent, General and Special Use, Pole Supported: Arctic, 10-Man; Assembly, M-1942; Command Post, M-1945; and Hexagonal, Lightweight, M-1950 21 November 1972

TM 10-8340-224-13 Operator, Unit, and DS Maintenance Manual for Tent, Extendable, Modular, Personnel (TEMPER) 1 March 1993

TM 10-8400-201-23 Unit and Direct Support Maintenance Manual for General Repair Procedures for Clothing (Reprinted w/Basic Incl C1-2) (This item is Included on EM 0123 & EM 0131) 7 May 1990

TM 5-4520-224-14 Operator's, Organizational, Direct Support and General Support Maintenance Manual: Heater, Duct-Type, M-68, Portable, Gasoline; 250,000 BTU (VBM Corp., Model VBM-250 and VBM-250A) (NSN 4520-00-001-7726) (Reprinted W/Basic InclC1-8) 19 March 1973

TM 5-5430-225-12&P Operator's and Unit Maint. Manual (Including Repair Parts and Special Tools List) for Tank, Fabric, Collapsible, Air Column Supported, Open Top, Water Storage, 3,000 Gal, Model 90028 (NSN 5340-01-318-9434) (This Item Is Included on EM 0077) 18 August 1988

TM 5-6115-271-14 Operator's, Organizational, Direct Support, and General Support Maintenance Manual for Generator Set, Gasoline Engine Driven, Skid Mounted, Tubular Frame, 3 kW, 2 Phase AC, 120/208 and 120/240 V, 28, VDC (Less Engine) 3 August 1976

TM 5-6115-275-14 Operator's, Organizational, Intermediate (Field) (DS and GS) and Depot Maint Manual: Generator Set, Gasoline Engine Driven, Skid Mounted, Tubular Frame, 10KW, AC, 120/208V, 3 Phase, and 120/240V, Single Phase, Less Engine 16 June 1977

TM 5-6115-465-12 Operator's and Organizational Maintenance Manual for Generator Set, Diesel Engine Driven, Tactical Skid Mounted, 30 KW, 3 Phase, 4 Wire, 120/208 and 240/416 V (DOD Model MEP-005A), Utility Class 50/60 HZ (NSN 6115-00-118-1240) 31 January 1975

TM 5-6115-585-12 Operator and Organizational Maintenance Manual for Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 10 kW 25 July 1977

TM 750-244-3 Procedures for Destruction of Equipment to Prevent Enemy Use (Mobility Equipment Command) 23 September 1969

TM 9-214 Inspection, Care, and Maintenance of Antifriction Bearings 19 November 1959

TM 9-2330-376-14&P Operator's Organizational DS and GS Maintenance Manual (Including Repair Parts and Special Tools List) for Chassis, Tlr 5 Ton, 4-Wheel, GEMSS, XM 979; Tlr Flatbed: 5 Ton 4-Wheel XM1061; Tlr, Gen Purpose, Flatbed: 7 1/2 Ton XM1073 31 March 1992

TM 9-247 Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials Including Chemicals

TM 9-4520-257-12&P Operator's and Unit Maintenance Manual for Heater, Space, Radiant, Large (H-45) (Type I, Solid Fuel) (Type II, Liquid Fuel) 17 September 1992

TM 9-4520-258-14 Operator's, Unit, DS and GS Maintenance Manual for Army Space Heater (ASH, Electric Powered, Multi-fuel 120,000 BTU, Model H120 (NSN 4520-01-367-2739) 31 August 1994

TM 9-6115-644-10 Operator's Manual, Generator Set, 30 Kw, Skid Mounted, Tactical Quiet 30 July 1983

Training Circulars

TC 5-400	Unit Leaders' Handbook for Environmental Stewardship (Preprinted w/Basic Incl C1) 29 September 1994
TC 9-510	Metal Body Repair and Related Operations 30 September 1993

Related Publications

Related publications are sources of additional information. They are not required in order to understand this publication.

Army Correspondence Course Program Subcourses

MM4625	Preparing Standing Operating Procedures
OD1403	Shop Safety
QM2011	Check the Accuracy of TAMMS Maintenance Records
QM4102	Inspect and Classify Individual Issue Items of Clothing
QM4103	Perform Final Inspection on Repaired CTA 50-900 Items
QM4126	Direct Operations of the Shop Receiving, Classification, and Repair Area
QM4129	Perform Quality Assurance Inspection of Textiles, Canvas, Clothing, and Webbed Equipment Items
QM4150	Prepare Schedules for Equipment, Personnel, and Administrative Reports for Shop Operations

Department of Army Pamphlets

DA PAM 738-750	Functional Users Manual for The Army Maintenance Management System (TAMMS) 1 August 1994
DA PAMPHLET 5-3	(RESCINDED) - Management Improvement Techniques for First Line Supervisors 15 April 1974
DA PAMPHLET 738-750	Functional Users Manual for the Army Maintenance Management System (TAMMS) 1 August 1994

Department of Army Visual Information Production and Distribution Program

612-051-0129-B	Shop Management
690-091-0738-B	Clothing Repair Shop, Trailer Mounted, Introduction
712-053-0076-B	Shop Safety
760-101-0014-B	Clothing Repair Shop (Trailer Mounted) Operations

Field Manuals

FM 3-5	NBC Decontamination MCWP 3-37.3 28 July 2000
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Technical Manuals

TM 10-3510-220-10	Operator's Maintenance Manual for Laundry Unit, Trailer-Mounted, Model M85-100 (NSN 3510-01-291-8169) 20 April 1990
TM 10-3530-203-24	Organizational, Direct Support And General Support Maintenance Manual For Clothing Repair Shop, Trailer-Mounted York Astro Model B8700377, Army Model SPV-34 (NSN 3530-00-819-2007) And York Astro Model D8700680 (3530-00-999-8577) 1 June 1966

STP 10-92S14-SM-TG

TM 10-3530-203-34P	Direct and General Support Maintenance Repair Parts and Special Tools List for Clothing Repair Shop, Trailer Mounted York Astro Models D8700337, Army Model Spv-34 (NSN 3530-00-819-2007) And (Model D8700680) (3530-00-999-8577) 11 May 1971
TM 5-6115-585-12	Operator and Organizational Maintenance Manual for Generator Set, Diesel Engine Driven, Tactical, Skid Mounted, 10 kW 25 July 1977
TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use (Mobility Equipment Command) 23 September 1969

By Order of the Secretary of the Army:

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