TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

TOPOGRAPHIC SUPPORT SYSTEM MAP LAYOUT SECTION MODEL ADC-TSS-20 NSN: 3610-01-105-1557

HEADQUARTERS, DEPARTMENT OF THE ARMY
1 AUGUST 1986

CHANGE NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 14 April 1988

Operator's, Organizational, Direct
Support and General Support
Maintenance Manual

TOPOGRAPHIC SUPPORT SYSTEM
MAP LAYOUT SECTION
MODEL ADC-TSS-20
NSN: 3610-01-105-1557

TM 5-3610-260-14, 1 August 1986, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
1-19 and 1-20	1-19 and 1-20

2. Retain this sheet in front of manual for reference purposes.

By Order of the Secretary of the Army:

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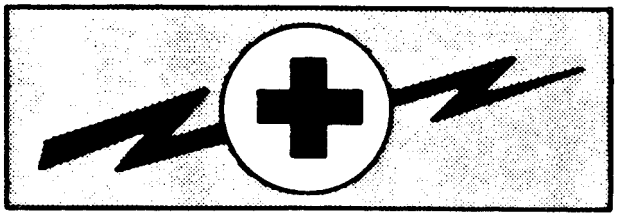
DISTRIBUTION:
To be distributed in accordance with DA Form 12-25A, Operator, Unit, Direct Support and General Support Maintenance requirements for Map Layout Section Model ADC-TSS-20 NSN: 3610-01-105-1557

WARNING



WARNING

DEATH OR SERIOUS INJURY

HIGH VOLTAGE is used in this equipment. DEATH ON CONTACT or severe injury may result if personnel fail to observe safety precautions.

Do not be misled by the term LOW VOLTAGE. Low voltage can cause serious injury or DEATH.

Test procedures requiring the operator or maintenance personnel to investigate equipment or restore casualties with interlocks disconnected or covers removed may result in DEATH ON CONTACT if personnel fail to observe safety precautions.

Voltages in switches and circuit breaker panels may result in DEATH ON CONTACT if personnel fail to observe safety precautions.

Failure to ground the Section or equipment may result in DEATH ON CONTACT if personnel fail to observe safety procedures.

For artificial respiration refer to FM 21-11.

WARNING

Dry cleaning solvent, P-D-680, used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Wear solvent impermeable gloves and eye/face protective equipment when using solvent. Do not use near open flame or excessive heat. Flash point of solvent is 100°F to 138°F (38°C to 59°C).

WARNING

Attempting to move heavy equipment that is unsecured may result in SEVERE PERSONNEL INJURY. Always have sufficient personnel and equipment to accomplish the task.

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NO. 5-3610-260-14

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Operator's, Organizational, Direct Support and General Support Maintenance Manual

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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Troop Support Command, ATTN: AMSTR-MCTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

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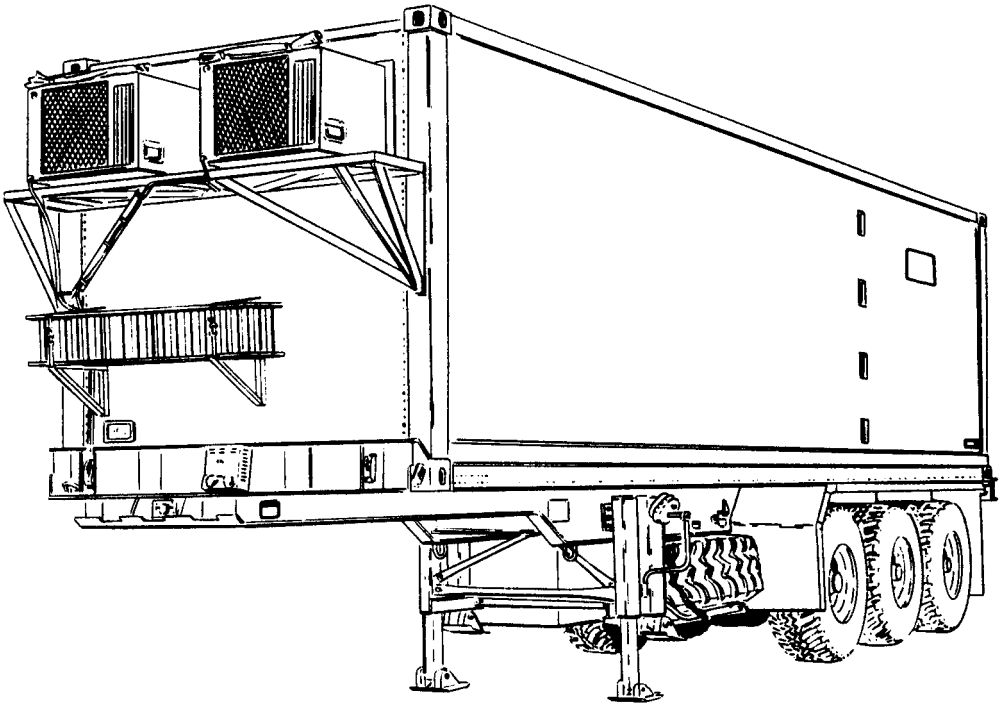


CHAPTER 1

MAP LAYOUT SECTION

Section I. INTRODUCTION

1.1.1 GENERAL INFORMATION

1.1.1.1 SCOPE. This manual contains operating and maintenance instructions for the ADC-TSS-20, Map Layout Section, Topographic Support System (TSS). The purpose of the Map Layout Section is to provide for scribing, opaquing, layout and registration of reproducible material. The trailer chassis is covered in TM 5-2330-305-14, Operator's, Organizational, Direct Support and General Support Maintenance Manual, Topographic Support System, Chassis, Semitrailer, ISO Container Transporter. Repair parts and special tools are listed in TM 5-3610-260-24P, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List, Map Layout Section, Topographic Support System. Lubrication instructions are contained in LO 5-3610-260-12, Lubrication Order, Map Layout Section, Topographic Support System. All authorized equipment, supplies, and their locations for transport are shown in Location and Description of Major Components (para 1.1.2.2).

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

1.1.1.3 REPORTING EQUIPMENT IMPROVEMENTS (EIR's). If the Map Layout Section needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: US Army Troop Support Command, ATTN: AMSTR-QX, 4300 Goodfellow Blvd, St. Louis, MO 63120-1798. We will send you a reply.

1.1.1.4 DESTRUCTION OF MATERIEL TO PREVENT ENEMY USE. For information on destruction of materiel to prevent enemy use, refer to TM 750-244-3, Procedures for Destruction of Equipment to Prevent Enemy Use.

1.1.1.5 PREPARATION FOR STORAGE OR SHIPMENT. Perform the Preparation for Movement procedures. In the event individual items of equipment must be removed from the Section for repair or replacement, contact your battalion for packing and shipping instructions (para 1.4.6).

1.1.1.6 HAND RECEIPT (-HR) MANUAL. This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt). TM 5-361O-26O-14-HR consists of preprinted hand receipts (DA Form 2062) that list end item-related equipment (i.e., Components of End Item, Basic Issue Items, and Additional Authorization Items) for which you must account. As an aid to property accountability, additional -HR manuals may be requisitioned from the following source in accordance with procedures in chapter 3, AR 310-2: The US Army Adjutant General Publications Center, 2800 Eastern Blvd, Baltimore, MD 21220.

1.1.2 EQUIPMENT DESCRIPTION AND DATA

1.1.2.1 EQUIPMENT PURPOSE, CAPABILITIES, AND FEATURES

Purpose

To provide a transportable facility for scribing, opaquing, layout and registration of reproducible materials.

Capabilities and Features

Transportable when mounted on trailer chassis using General Support transportation unit truck/tractor.

Air and sea transportable.

Limited cross-country capability when mounted on trailer chassis.

Controlled internal environment.

Special Considerations

Site must permit Section to be leveled within ± one half division on level indicator, be well drained, and provide adequate overhead concealment.

Dispersal of topographic sections is limited to the length of electric power transmission cable available for unit generators.

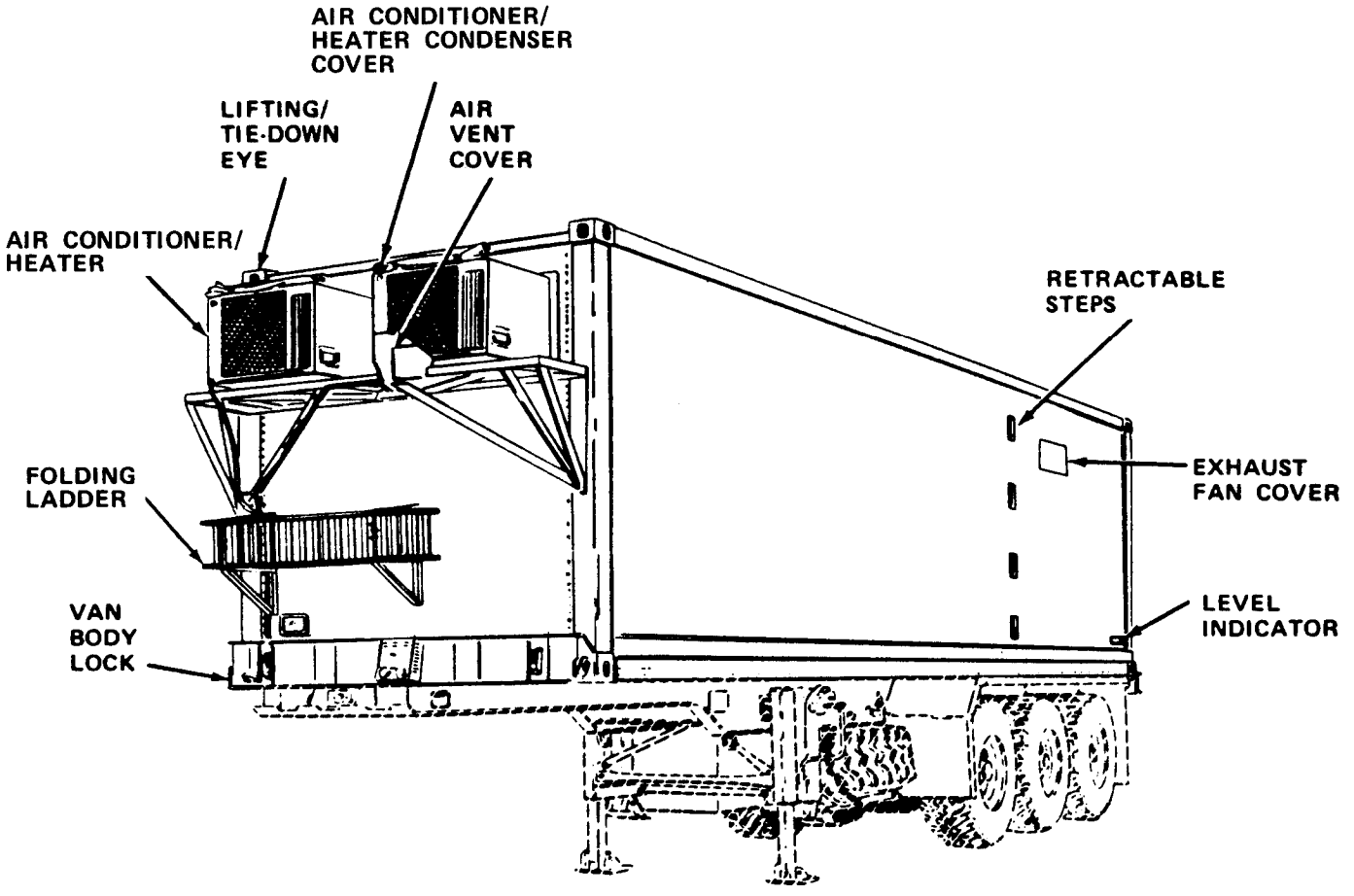
During site selection, avoid overhead power transmission lines to prevent danger from electric shock or electromagnetic interference.

Power is normally supplied by 60 kw generators. Commercial electric power should be used if it is compatible and available.

Cross-country capability of sections and transporters is limited. Relocation should be accomplished over hard-surfaced, all-weather roads whenever possible.

1.1.2.2 LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

a. Roadside Exterior



VAN BODY LOCK . Locks van body to trailer chassis.

AIR CONDITIONERS/HEATERS. Two air conditioner/heater units for internal environmental control.

LIFTING/TIE-DOWN EYE. Attachment point for lifting or tying down van body.

AIR CONDITIONER/HEATER CONDENSER COVER. Covers air conditioner/heater condenser to prevent water/air from entering air conditioner/heater unit when in transport or storage.

AIR VENT COVER. Covers air vent opening.

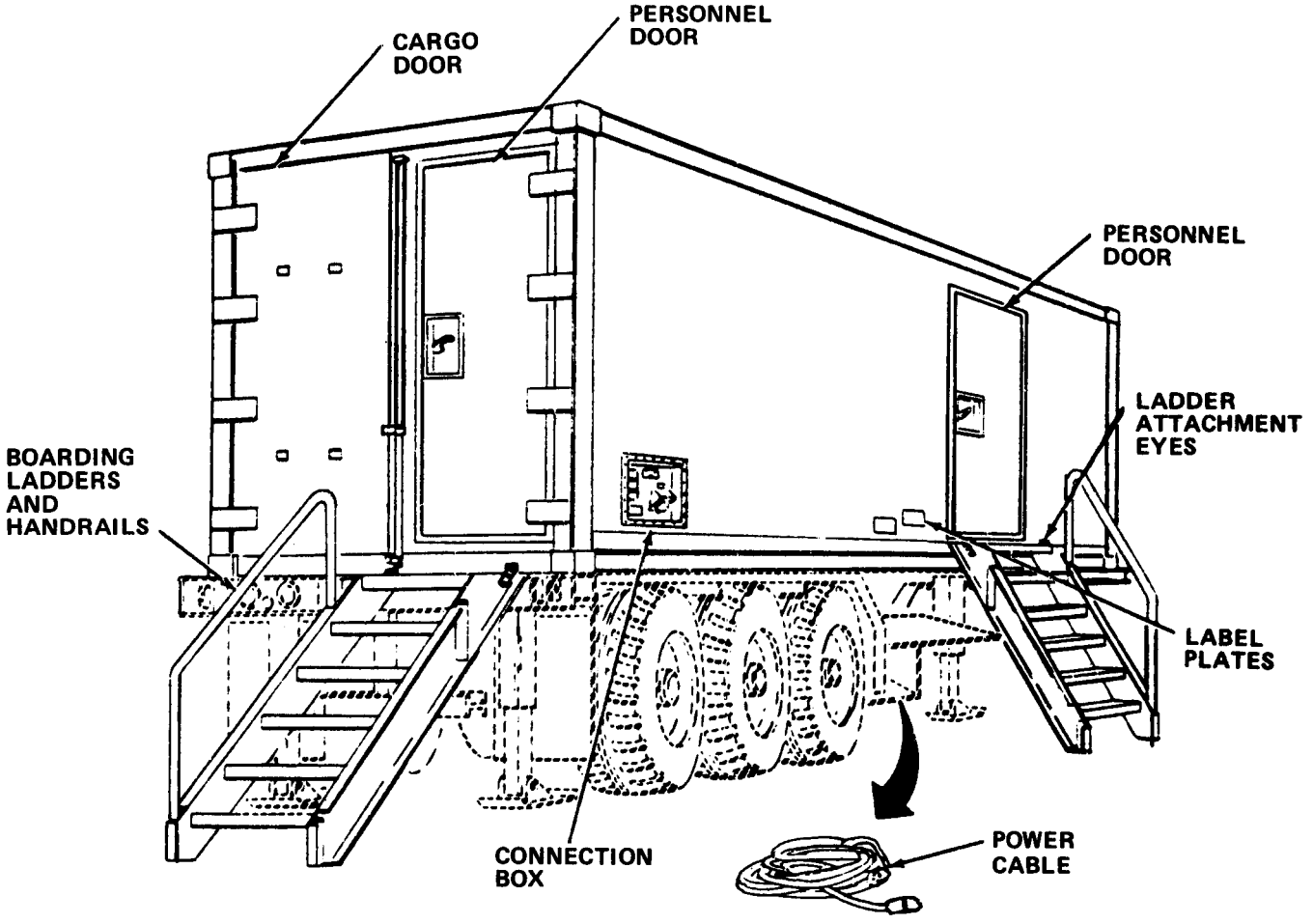
EXHAUST FAN COVER. Covers exhaust fan opening.

RETRACTABLE STEPS. Provide access to roof.

LEVEL INDICATOR. Indicates van body inclination.

FOLDING LADDER. Provides access to roof.

b. Curbside Exterior



CARGO DOOR. Access for equipment installation/removal.

PERSONNEL DOORS. Door is 26.75 in. (0.68 m) wide by 70.5 in. (1.79 m) high.

BOARDING LADDERS AND HANDRAILS. Provide access to van body.

LADDER ATTACHMENT EYES. Attachment points for boarding ladders.

LABEL PLATES. Weight/moment data.

POWER CABLE. Power cable is in 50 ft (15.2 m) sections. (Stored in trailer chassis storage box.)

CONNECTION BOX. Contains terminals for grounding cable, power cables, and telephone lines.

c. Interior

FIRST AID KIT. Provides first aid supplies.

FIRE EXTINGUISHER. Provides firefighting capability. Dry chemical.

PERSONNEL DOOR. Provides access to van. Weatherproof, fitted with black-out switch.

BLACKOUT SWITCH. Turns ceiling lights off when activated.

CARGO DOOR. Provides access for equipment removal/installation.

MAP AND PLAN FILING CABINET. Provides storage for maps/topographic products.

EXHAUST FAN. Provides ventilation. Fitted with lightproof louvers and weatherproof cover.

BLACKOUT/DOME LIGHT. Provides blackout capability. Red-lensed, white-lensed 12 V ac light actuated when blackout switch operates or from external power.

FLUORESCENT CEILING LAMP. Provides illumination. White, two-level (high/low) overhead light.

PHOTOLITHOGRAPHIC STORAGE CABINET. Provides additional storage for photolithographic supplies.

VACUUM CLEANER. Used for cleaning van equipment.

DRAFTING SCRIBING/TRACING TABLE. Provides illuminated tracing surface. Turns over for drafting.

AIR CONDITIONERS/HEATERS. Provides internal environmental control.

EMERGENCY LIGHTS. Provides emergency illumination. Battery-powered lighting actuated by power failure.

AIR VENT. Permits filtered make-up air to enter van body.

PIN REGISTER BOARD. Alines overlays and graphics.

BLACKOUT CURTAIN. Provides lightproof cover for personnel door.

CORKBOARD. Used for posting information.

TWO-DOOR STORAGE CABINET. Provides storage of miscellaneous large, bulky items.

WALL STORAGE CABINET. Provides additional storage.

FOLDING WORK SURFACE. Provides additional work surface. Folds up against the wall.

CIRCUIT BREAKER PANEL. Circuit breakers with phase test indicator.

SAFETY SWITCH. Main power safety disconnect switch.

GROUNDING ROD. Electrical ground for section.

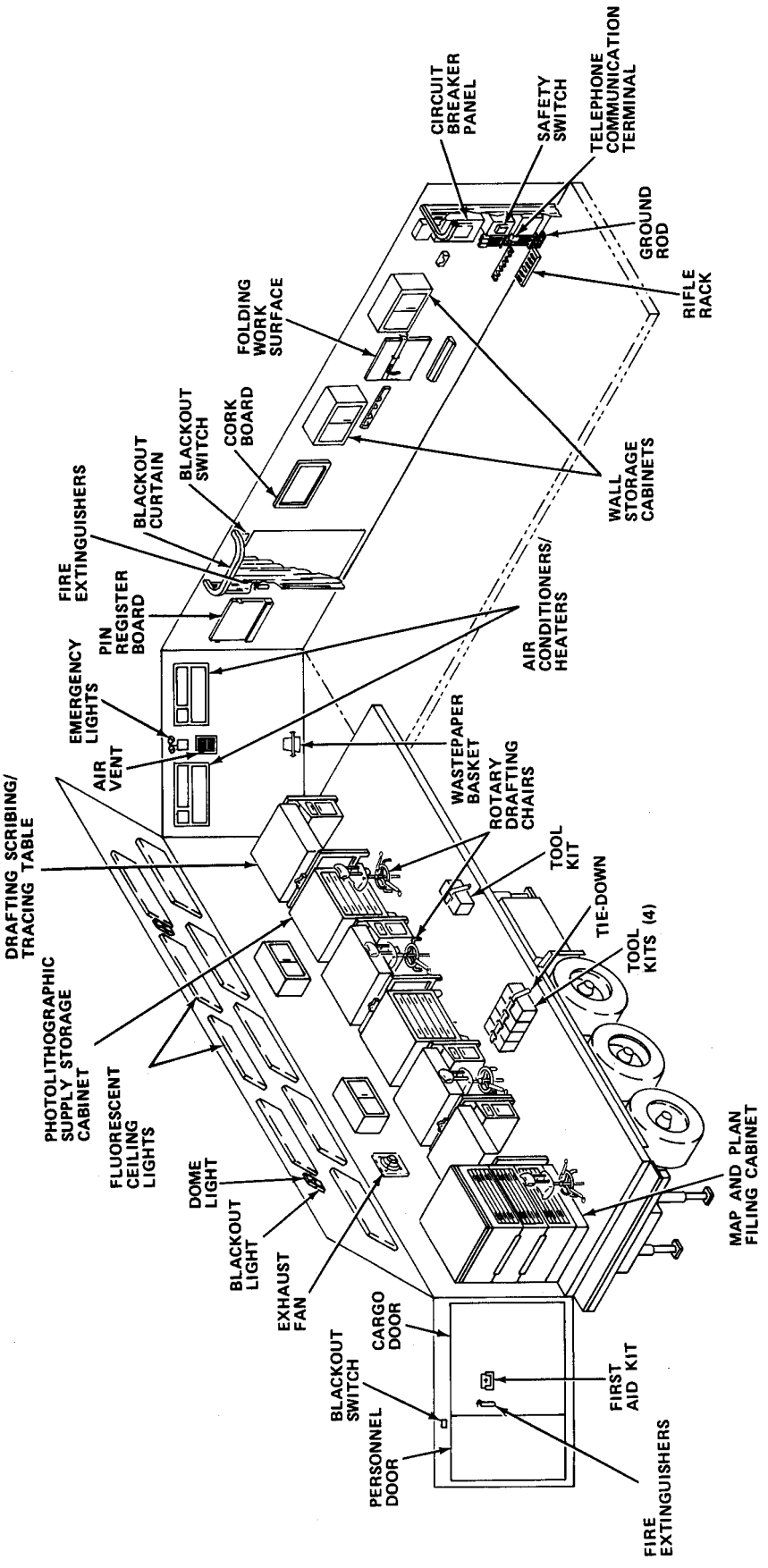
RIFLE RACK. Provides weapon storage.

WASTEPAPER BASKET. Refuse container.

ROTARY DRAFTING CHAIRS. Provides adjustable height chair.

TIE DOWN. Provides security for equipment during movement.

TOOL KITS. Provide tool storage.


CIRCUIT BREAKER PANEL
SAFETY SWITCH
TELEPHONE COMMUNICATION TERMINAL
GROUND ROD
RIFLE RACK
FOLDING WORK SURFACE
BLACKOUT SWITCH
CORK BOARD
BLACKOUT CURTAIN
FIRE EXTINGUISHERS
PIN REGISTER BOARD
EMERGENCY LIGHTS
AIR VENT
WALL STORAGE CABINETS
AIR CONDITIONERS/ HEATERS
WASTEPAPER BASKET
ROTARY DRAFTING CHAIRS
DRAFTING SCRIBING/ TRACING TABLE
TOOL KIT
TIE-DOWN
TOOL KITS (4)
PHOTOLITHOGRAPHIC SUPPLY STORAGE CABINET
FLUORESCENT CEILING LIGHTS
DOME LIGHT
BLACKOUT LIGHT
EXHAUST FAN
MAP AND PLAN FILING CABINET
CARGO DOOR
BLACKOUT SWITCH
FIRST AID KIT
PERSONNEL DOOR
FIRE EXTINGUISHERS

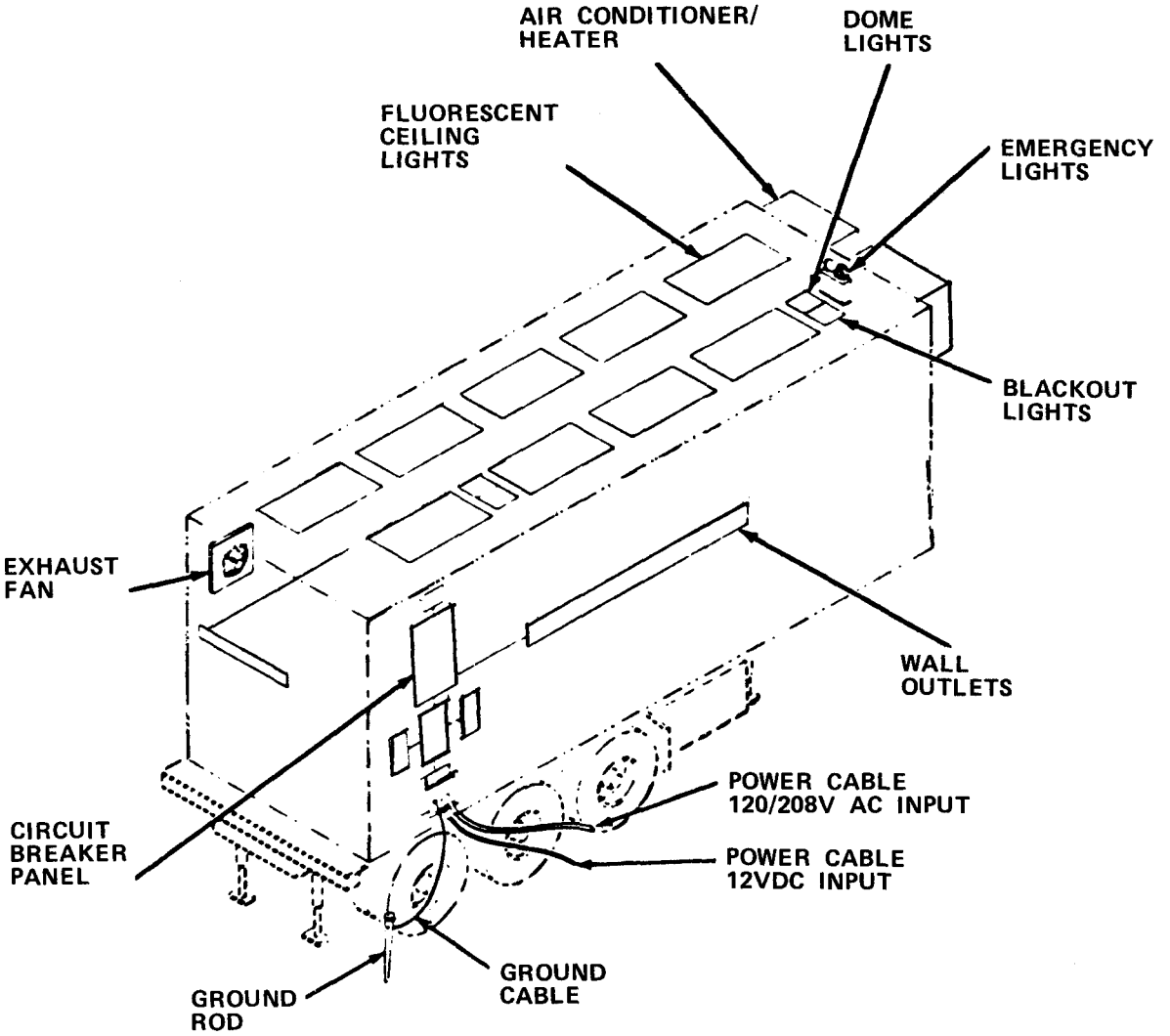
1.1.2.3 EQUIPMENT DATA

● Dimensions	
Length (with Ladders Stored Inside for Shipping)	29.92 ft (9.120 m)
Width	8 ft (2.438 m)
Height	8 ft (2.438 m)
Length (Chassis Mounted)	33.50 ft (10.2 m)
Height (Chassis Mounted)	12.50 ft (3.81 m)
● Cubage	2038 cu ft (57.5 cu m)
● Connections	
Telephones	One Telephone (Three-Post) Connection
Power	One 120/208 V, Three-Phase, Four-Wire Connection and One 12 vdc Connection
Ground	Ground Lug
● Air Conditioner/Heater (Two Units)	
Cooling	18,000 BTU/hr Each
Heating	14,300 BTU/hr (Max) Each
Power Requirements	208 V, 60 Hz, Three-Phase
● Exhaust Fan	289 cfm
● Air Vent	289 cfm (Open)
● Weight	
Gross (Container and chassis)	23,655 lbs (10743.91 kg)
Tare (Container Only)	12,020 lbs (5457.08 kg)

1.1.3 TECHNICAL PRINCIPLES OF OPERATION

1.1.3.1 GENERAL. The operation of individual equipment is explained in the appropriate chapter.

1.1.3.2 ELECTRICAL SYSTEM



a. Ground Rod. Used to ground van body.

b. Ground Cable. Used with ground rod.

c. Circuit Breaker Panel. Contains voltage indicator, phase monitor, and fifteen 50 amp circuit breakers.

d. Wall Outlets. Provide grounded outlets for portable or plug-in equipment.

e. Dome Lights. White-lensed, 12 vdc lights powered from external source. Plug in to operate. Separately switched and fused.

f. Exhaust Fan. Plug-in. Separately fused.

g. Fluorescent Ceiling Lights. Two-level (high/low) overhead lights with blackout override switches.

h. Emergency Lights. Battery-powered. Activated by power loss.

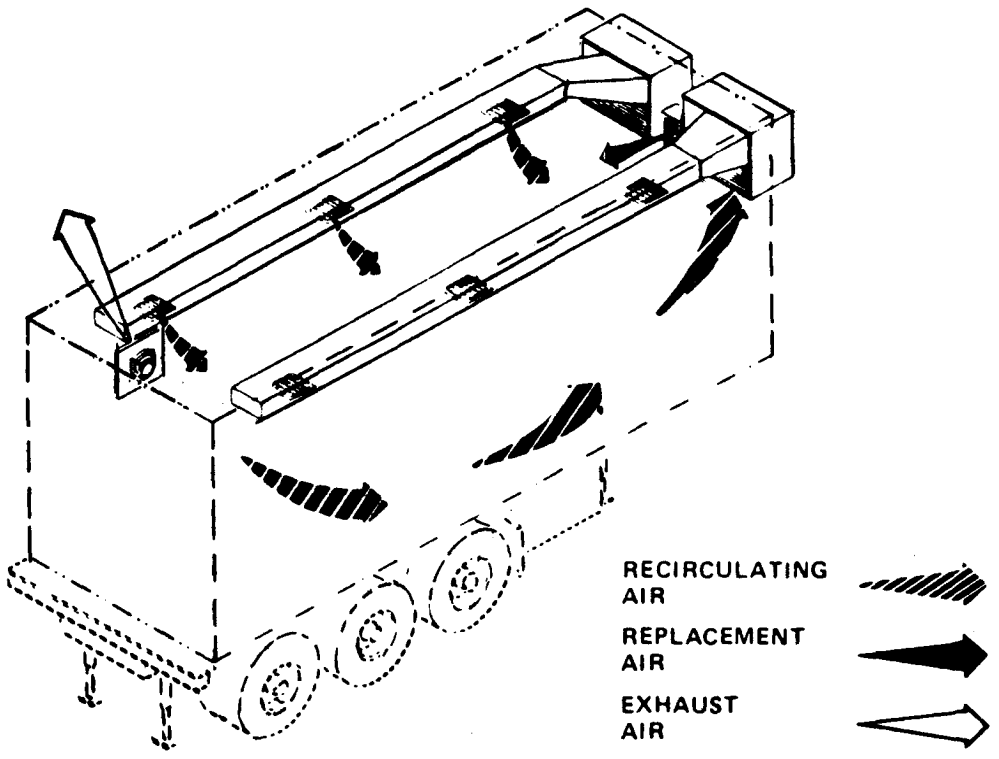
i. Air Conditioner/Heater. Air conditioner and electrical heater powered by tnree-phrase, 208 V, 30 amp current.

j. Blackout Lights. Red-lensed, 12 vac lights actuated when blackout switch operates.

k. Power Cable (120/208 vac and 12 vdc). Power input.

1.1.3.3 WIRING DIAGRAM. A foldout wiring diagram is provided at the end of this manual.

1.1.3.4 VENTILATION SYSTEM

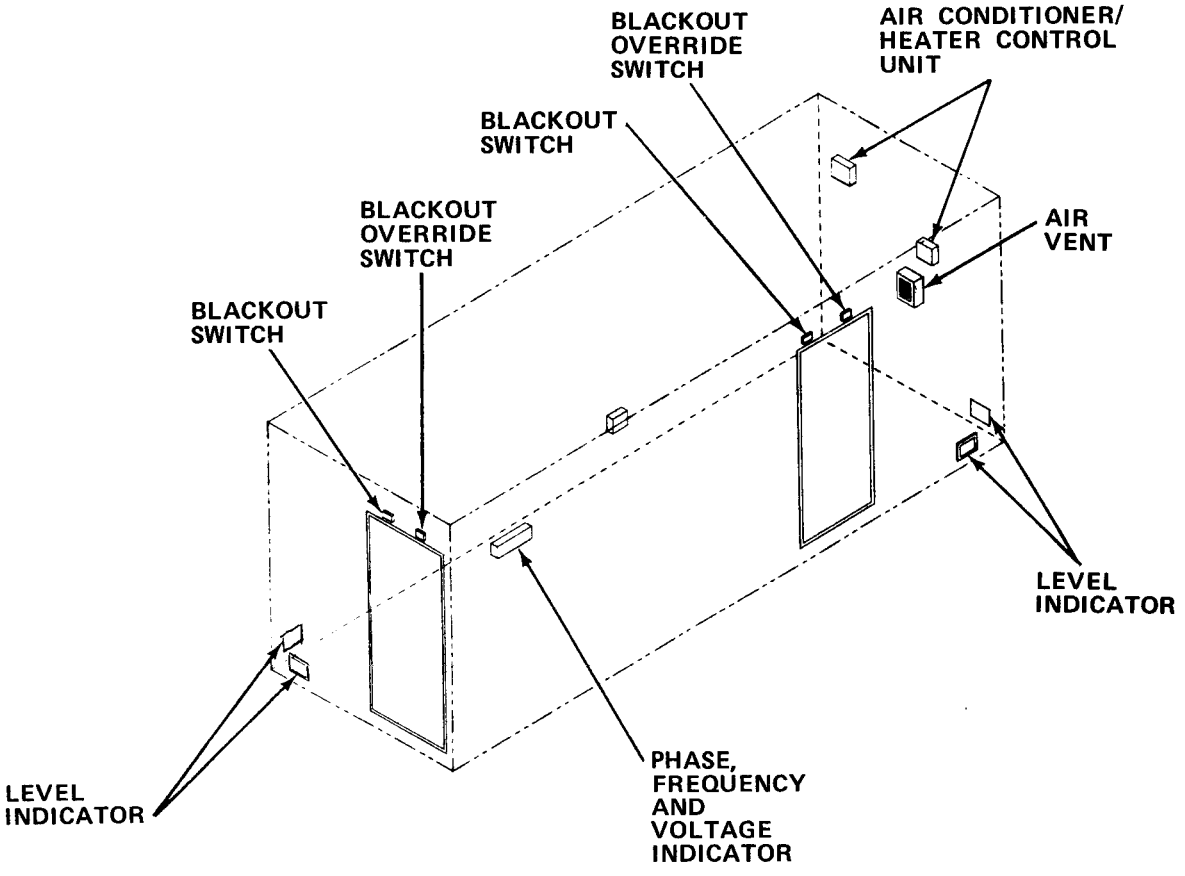


Exhaust fan exhausts air. Replacement air flows into the van body through the air vent filter. Recirculating air is filtered as it enters the air conditioners/ heaters. From the air conditioners/heaters, it flows through the ceiling vents and into the van body.

Detailed description of air conditioner/heater operation is contained in TM 5-4120-367-14, Operator's, Organizational, Direct Support, and General Support Maintenance Manual, Air Conditioner, Horizontal, Compact, 18,000 BTU/hr Cooling, and TM 5-4120-367-24P, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair) for Air Conditioner, Horizontal, Compact, 18,000 BTU/hr cooling.

Section II. OPERATING INSTRUCTIONS

1.2.1 DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS



CONTROL OR INDICATOR	FUNCTION
Air Vent	Permits make-up air to enter as required.
Air Conditioner/Heater Control Unit	Permits selection of air conditioner or heater mode of operation and temperature.
Blackout Override Switch	Bypasses blackout switch.
Blackout Switch	Turns off lights when door is opened.
Phase, Frequency, and Voltage Indicator	Monitors electrical power phase, frequency, and voltage.
Level Indicators	Aids in leveling van body, ensuring proper equipment operation.

1.1.1 OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES

a. Always keep in mind the WARNINGS and CAUTIONS when performing PMCS. Table 1-1 lists the PMCS procedures to be performed by the operator. Be sure to perform the PMCS at the frequency indicated by the INTERVAL codes in the table.

b. If your equipment fails to operate, troubleshoot with the proper equipment. Report any deficiencies in accordance with DA PAM 738-750.

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can safely be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

c. The numbers found in the ITEM NUMBER column shall be used as a source of item numbers for the TM ITEM NUMBER column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording the results of PMCS.

d. List of tools and materials required or PMCS is as follows:

Item	Quantity
Wire Brush	1 ea
Adjustable Wrench (6 in.)	1 ea
Flat-Tipped Screwdriver	1 ea
Vacuum Cleaner	1 ea
Cleaning Cloths	ar
Bucket	1 ea
General Purpose Detergent	ar
Emery Cloth	ar
Eye Dropper	1 ea

Table 1-1. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES

B - Before
D - During
A- After
W - Weekly
M- Monthly
Q - Quarterly
AN - Annually
S - Semiannually
BI - Biennially
(Number) - Hundreds of Hours

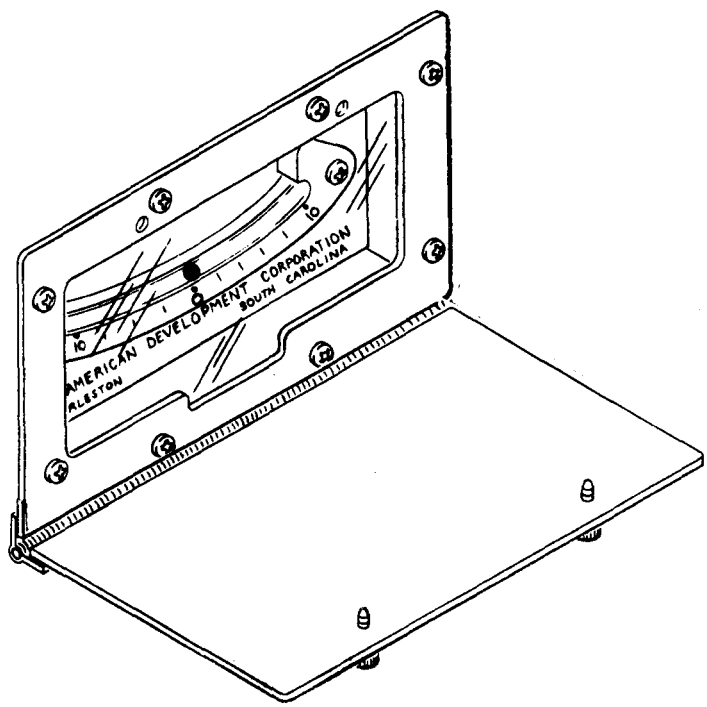
ITEM NO.	INTER-VAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
1		INSPECT EXTERIOR.	
	W	1. Inspect van body surfaces for punctures, cracks, or open seams that could permit moisture to enter wall.	Punctures, cracks, or open seams are present.
			
	B	2. Inspect four level indicators for damage and to be sure van body has remained level.	Indicators are broken.

Table 1-1. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before
D - During
A - After

W -Weekly
M - Monthly
Q - Quarterly

AN - Annually
S - Semiannually
BI - Biennially

(Number) - Hundreds of Hours

ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
		INSPECT EXTERIOR (Cont).	
		WARNING TO PREVENT DEATH OR SERIOUS INJURY, DO NOT HANDLE OR CLEAN POWER CABLE OR CONNECTORS WHEN CABLE IS CONNECTED TO POWER SOURCE.	
	B	3. Inspect power cable assembly for dirt or damaged connectors. ● Wipe cable insulation with clean, dry cloth to remove dirt. ● Clean corrosion from terminals. ● Be sure cleaning residue is removed.	Connector damaged.
	B/W	4. Inspect power entry panel for accumulated dirt, water, or corrosion. ● Clean power entry panel.	

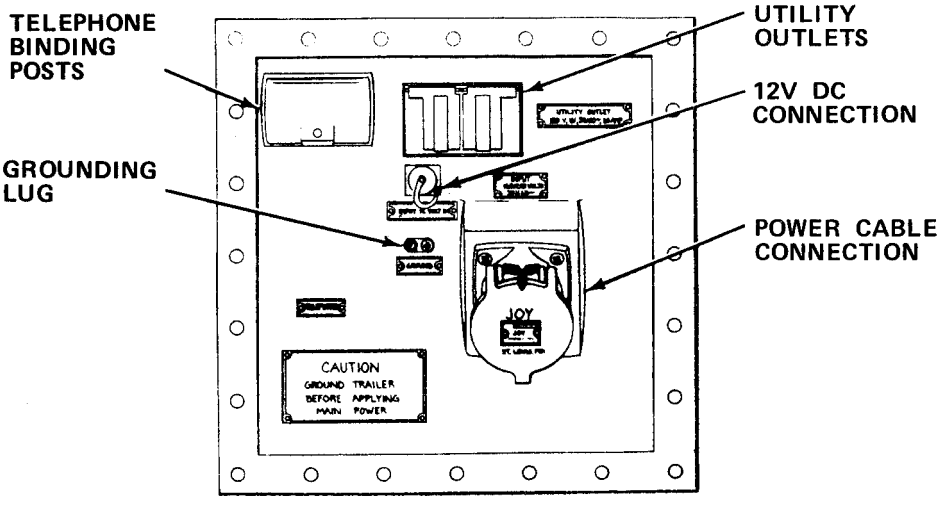


Table 1-1. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cent)

B - Before
D - During
A - After

W - Weekly
M - Monthly
Q - Quarterly

AN - Annually
S - Semiannually
BI - Biennially

(Number) - Hundreds of Hours

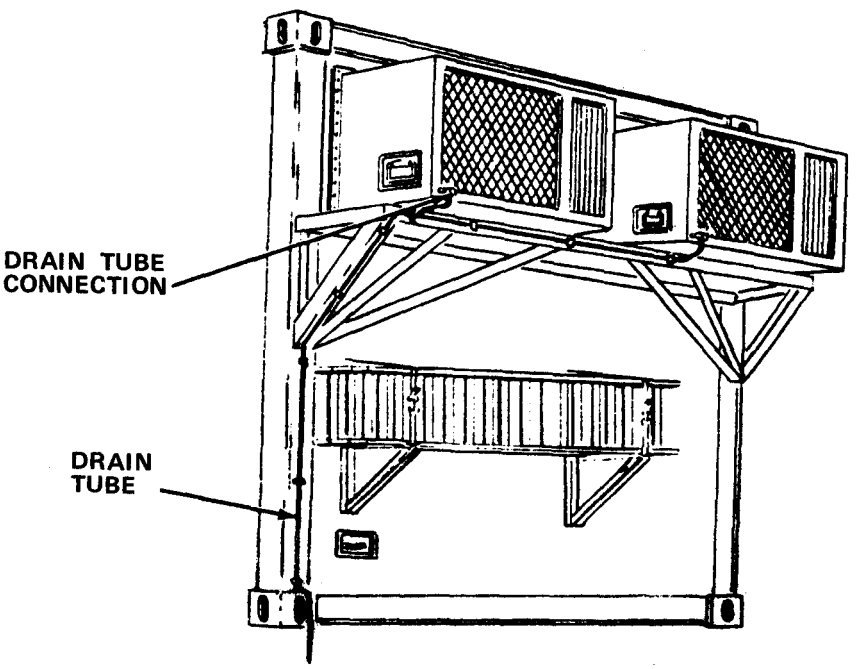
ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment IS Not Ready/ Available If:
		VAN BODY	
1		INSPECT EXTERIOR (Cont).	
	B/A	5. Inspect power entry panel to be sure any unused receptacles are covered.	Missing covers.
			
	B	6. Inspect air conditioner/heater drain tube to be sure tube is positioned as shown. Check for breaks or crimps in hose, and check connections for damage or leakage.	

Table 1-1. OPERATOR' S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before D - During A - After | W - Weekly M - Monthly Q - Quarterly | AN - Annually S - Semiannually BI - Biennially | (Number) - Hundreds of Hours

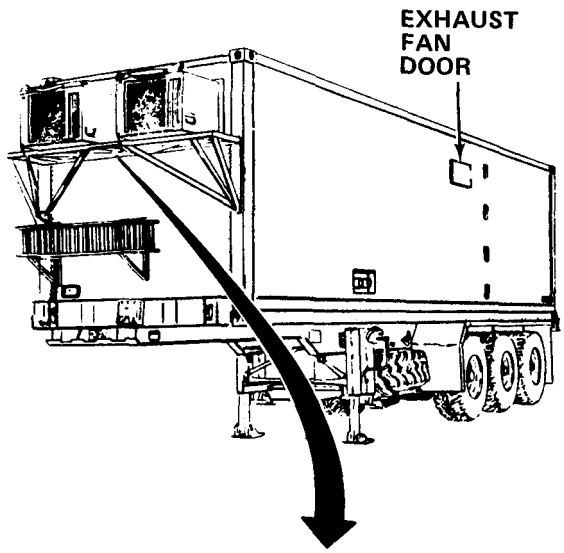
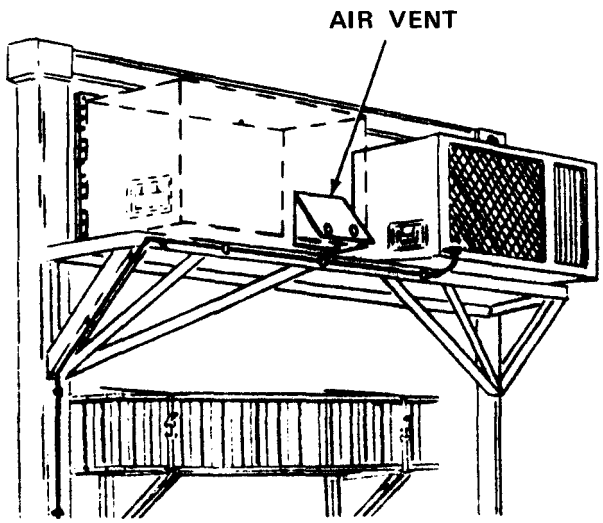
ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
1		INSPECT EXTERIOR (Cont).	
			
			
	B/D	7. Inspect exhaust fan door and air vent cover to be sure they are not blocked or clogged. Clean screen with vacuum cleaner as necessary.	Blocked or clogged covers.

Table 1-1. OPERATOR' S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before D - During A - After | W - Weekly M - Monthly Q - Quarterly | AN - Annually S - Semiannually BI - Biennially | (Number) - Hundreds of Hours

ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
1		INSPECT EXTERIOR (Cont).	
	B/W	8. Visually inspect ground connections to be sure ground cable is connected to terminal lug and ground rod. If necessary, clean:	Grounding connections are broken or missing.
		WARNING ELECTRICAL SHOCK HAZARD. POWER CABLE MUST BE DE-ENERGIZED BEFORE SERVICING ENTRY PANEL CONNECTIONS. DEATH CAN RESULT FROM FAILURE TO OBSERVE THESE SAFETY PRECAUTIONS.	
		● Turn power off to cable. Disconnect from power source.	
		● Disconnect ground lug from ground rod.	
		● Clean lug, cable end, and rod with wire brush.	
		● Reconnect ground cable to rod.	
		● Disconnect ground cable end from entry panel.	
		● Clean terminal and cable end with wire brush.	
		● Reconnect ground cable to entry panel.	
		● Reconnect cable to power source. Turn power on.	
	B	9. Inspect two boarding ladders for:	Steps broken or ladder will not lock in place.
		● Secure attachment of handrails.	
		● Broken steps.	
		● Locking pins in place.	

Table 1-1. OPERATOR' S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before W - Weekly AN - Annually (Number) - Hundreds of Hours
D - During M - Monthly S- Semiannually
A - After Q - Quarterly BI - Biennially

ITEM NO.	IN-TER VAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
1		INSPECT EXTERIOR (Cont).	
	B/A	10. Inspect folding ladder for:	
		● Secure attachment to support bracket.	Broken or missing rung.
		● Broken or missing ladder rungs.	Missing or deteriorated safety shoes.
		● Missing and deteriorated safety shoes.	
		NOTE When van body is mounted on trailer chassis, perform the following step.	
	A/W	11. Inspect front and rear van body locks to be sure locks are fully engaged.	Lock dis-engaged.
	Q	12. Inspect gaskets on personnel doors for leaks and damage.	
	W	12.1. Inspect hinges for proper placement of hinge pins.	Missing hinge pins..
	Q	13. Clean and paint blistered, pitted, or flaking areas and bare metal spots in accordance with instructions contained in TM 43-0139.	
2		INSPECT INTERIOR.	
	B/A	1. Test emergency light by pressing test button located on front panel of emergency light.	Emergency lights do not light.
	B	2. Inspect power cords and cables to be sure wires are not kinked, cut, or cracked.	Wires or cables are cracked or cut.
	B	3. Inspect plug connectors to be sure all plug connectors are tight and firmly seated. Tighten if necessary.	

Table 1-1. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before
D - During
A - After
W -Weekly
M- Monthly
Q - Quarterly
AN - Annually
S - Semiannually
BI - Biennially
(Number) - Hundreds of Hours

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
2		INSPECT INTERIOR (Cont).	
	D	4. Check bulbs and fluorescent lamps. Replace if necessary.	
	W	5. Inspect walls, ceiling, and floor for holes, open seams, or signs of seepage or leaks.	Leaks are present.
	D	6. Check storage cabinets for broken hinges, latches, and locks.	Broken hinge/latch/ lock .
	M	7. Inspect fire extinguishers. Be sure security seals are not broken.	Fire extinguisher is missing or seal is broken.
	B	8. Inspect circuit breaker panel.	Defective circuit breaker.
		NOTE Inspection is to be conducted on a not-to-interfere basis with work being conducted. Individual equipment will be inspected as directed by the appropriate chapter of this manual.	

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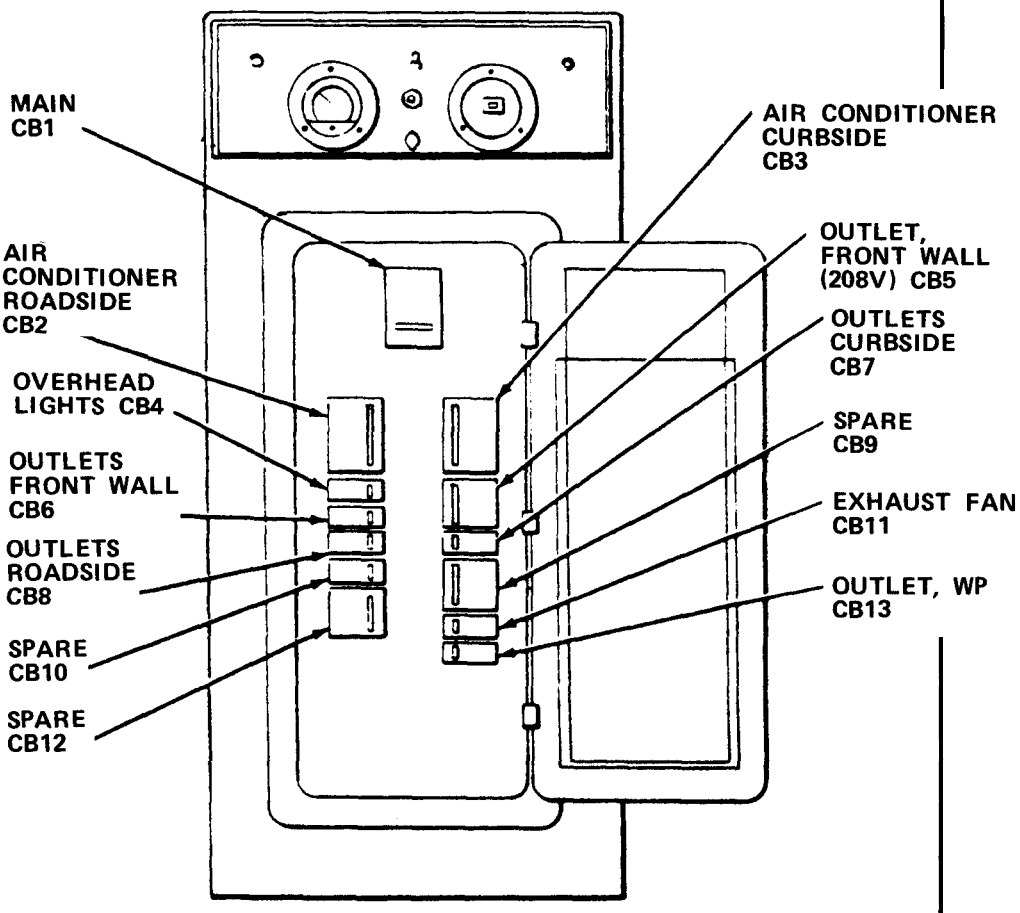
Table 1-1. OPERATOR' S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before D - During A - After | W - Weekly M - Monthly Q- Quarterly | AN - Annually S - Semiannually BI - Biennially | (Number) - Hundreds of Hours

ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
2		INSPECT INTERIOR (Cont).	



	B	● Set main circuit breaker to on.	
	B	● Set each circuit breaker to off, then on.	Circuit breakers do not reset.

Table 1-1. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before
D - During
A - After

W . Weekly
M - Monthly
Q - Quarterly

AN - Annually
S - Semiannually
BI - Biennially

(Number) - Hundreds of Hours

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
2		INSPECT INTERIOR (Cont).	
	M	9. Inspect light traps.	
		● Turn on fluorescent lamps (high level).	
		● Close entrance doors. Have exhaust fan and air vents open. Inspect for light leakage through vents.	Light leaks are present.
		● Place light switches on; blackout override switches off.	
		● Open door and make sure internal lights go	Blackout system inoperable.
	W	10. Inspect/Clean interior.	
		WARNING DEATH OR SERIOUS INJURY MAY OCCUR IF WET OR DAMP CLOTH IS USED TO WIPE OR CLEAN ENERGIZED EQUIPMENT, POWER CORDS, OR CABLES.	
		CAUTION DO NOT SWEEP INTERIOR. DISLODGED DIRT OR DUST WILL RUIN OPTICAL, ELECTRONIC, AND PHOTOGRAPHIC EQUIPMENT AND SUPPLIES.	
		● Wipe vertical and horizontal painted surfaces with cleaning cloth moistened with solution of general purpose detergent and fresh water until soil is removed from painted surfaces.	

Table 1-1. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before D - During A - After | W - Weekly M - Monthly Q - Quarterly | AN - Annually S - Semiannually BI - Biennially | (Number) - Hundreds of Hours

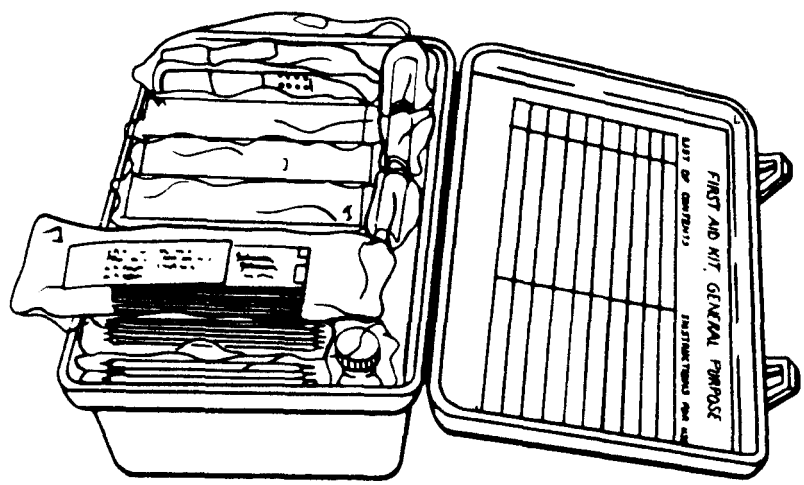
ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
2		INSPECT INTERIOR (Cont).	
		● Dry vertical and horizontal painted surfaces with clean cloth.	
		● Vacuum interior of Section to remove dirt and waste. Pay particular attention to work stations.	
	M	11. Inspect first aid kit.	First aid kit missing.
			
		● Remove first aid kit from bracket.	
		● Remove contents.	
		● Inspect container for damage.	
		● Inspect contents for damage. Then use checklist to inventory contents for completeness.	

Table 1-1. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before
D - During
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(Number) - Hundreds of Hours

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		VAN BODY	
2		INSPECT INTERIOR (Cont).	
		● Replace damaged or missing contents.	
		● Repack kit.	
		● Reinstall kit.	
	W	12. Inspect blackout curtains.	
		● Inspect blackout curtains and valances for tears, missing hooks, or broken eyelets.	Curtains damaged.
		● Inspect nylon hook tape on curtain and wall for security of attachment.	
3	B	INSPECT AIR CONDITIONER/HEATER. Refer to TM 5-4120-367-14 for preventive maintenance checks and services that pertain to air conditioners/heaters.	
4	M	Service Power Cable.	
		WARNING Electrical shock hazard. Power cable must be de-energized before servicing. Death or serious injury may occur from failure to observe this safety precaution.	
		1. Turn off safety switch.	
		2. Disconnect cable from power entry panel.	
		3. Wrap any cuts or abrasions in cable with electrical insulation tape.	
		4. Reconnect power cable to entry panel.	

1.2.3 OPERATION UNDER USUAL CONDITIONS. Operation of the Map Layout Section consists of activation of power after the Section has been located at the operation site and 12 vdc power disconnected. TM 5-2330-305-14 provides detailed instructions for disconnection of trailer chassis from tractor.

1.2.3.1 PREPARATION FOR USE

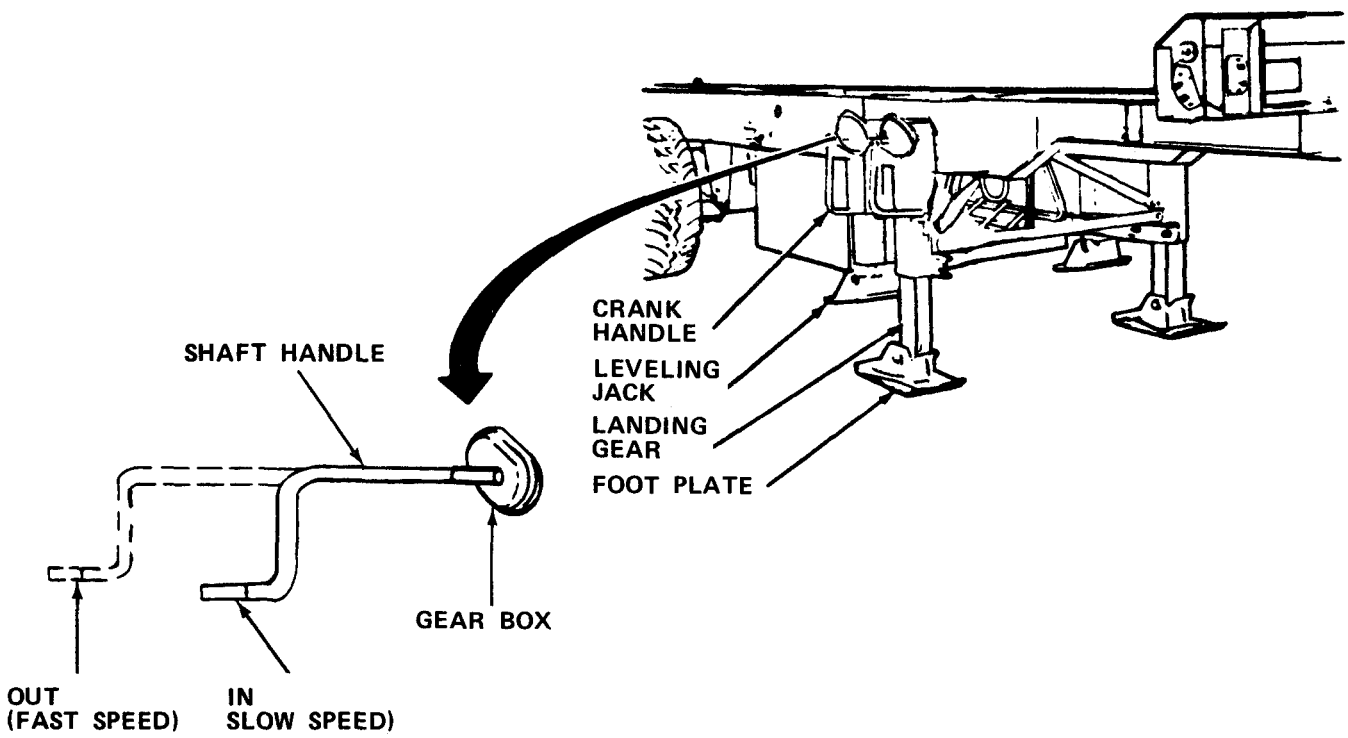
a. Procedures for Leveling

CAUTION

TRAILER-MOUNTED SECTION MUST BE ON SURFACE THAT IS APPROXIMATELY LEVEL TO AVOID UNNECESSARY STRESS OR TWISTING OF CHASSIS WHEN SECTION IS LEVELED.

NOTE

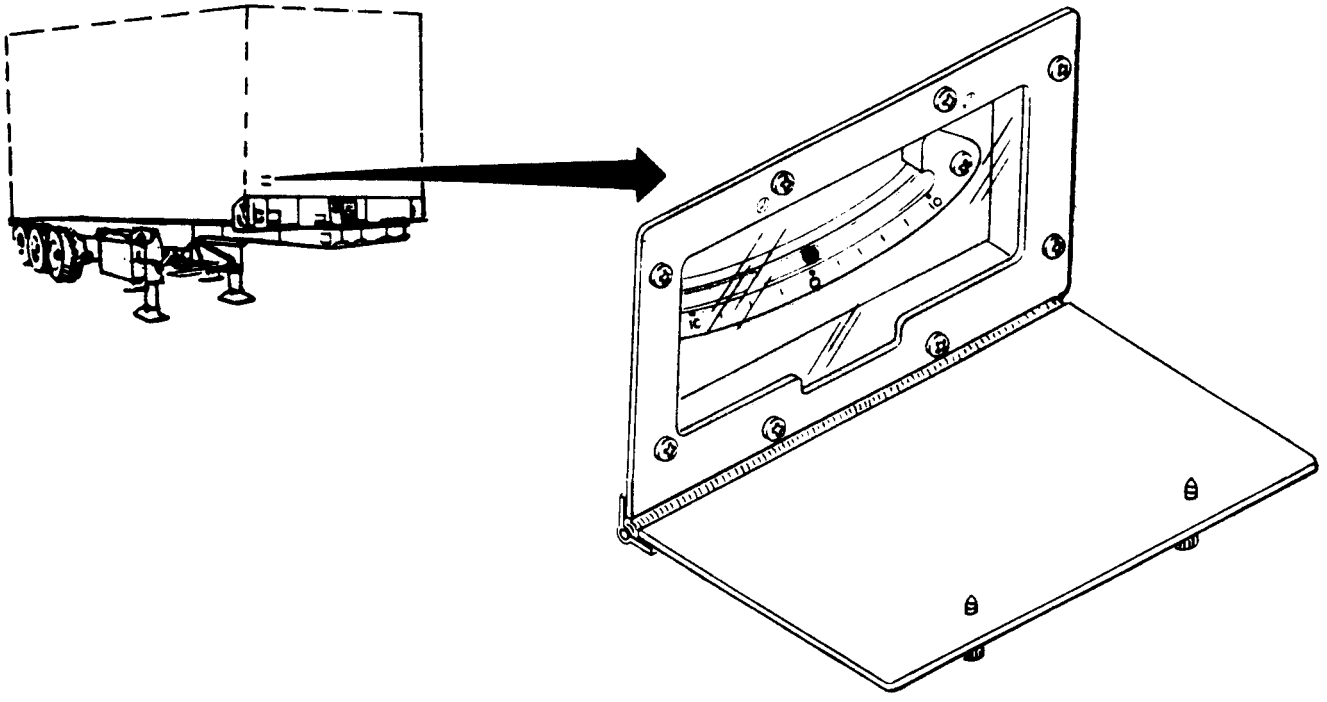
- Be sure that air suspension is deflated as indicated in TM 5-2330-305-14.
- Snow or ice should be removed from under leveling foot plate before attempting to level Section.
- Sand, soft ground, or mud requires that shoring or scrap material be placed under leveling foot plate to increase surface area and prevent foot plates from sinking into surface.



NOTE

To remove handle from secured location, extend gear box shaft.

1. Move handle from secured location and swing out. There are two positions when handle is engaged; fully in toward chassis is slow speed. Fully out is fast speed.
2. Approximately level trailer chassis by raising or lowering landing gear.
3. Swing crank handle on each leveling jack out and engage.
4. Lower each leveling jack by turning crank to left at high speed until foot plate just contacts ground.

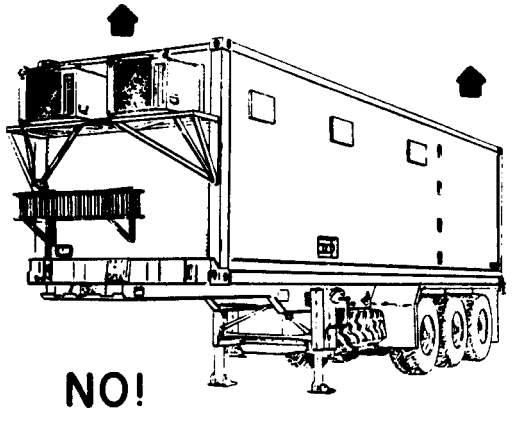


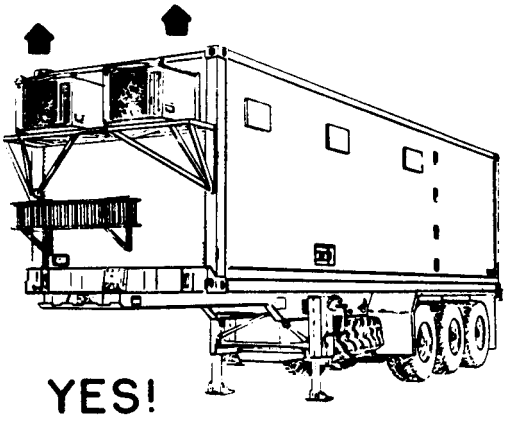
5. Station personnel to have a clear view of level indicators at both front and rear of van body.

6. Observe level indicators to determine which end and side must be raised/lowered.

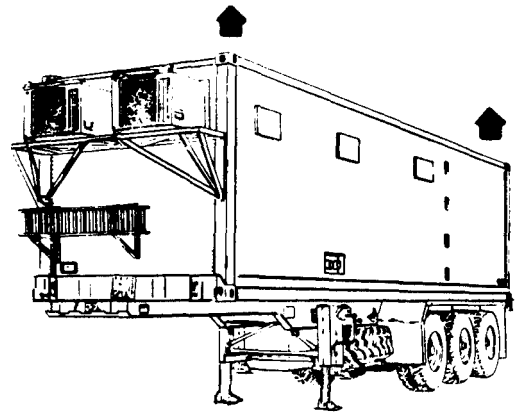
CAUTION

DO NOT ATTEMPT TO LEVEL SECTION BY LIFTING AT DIAGONAL CORNERS, OR FRAME WILL BE TWISTED.

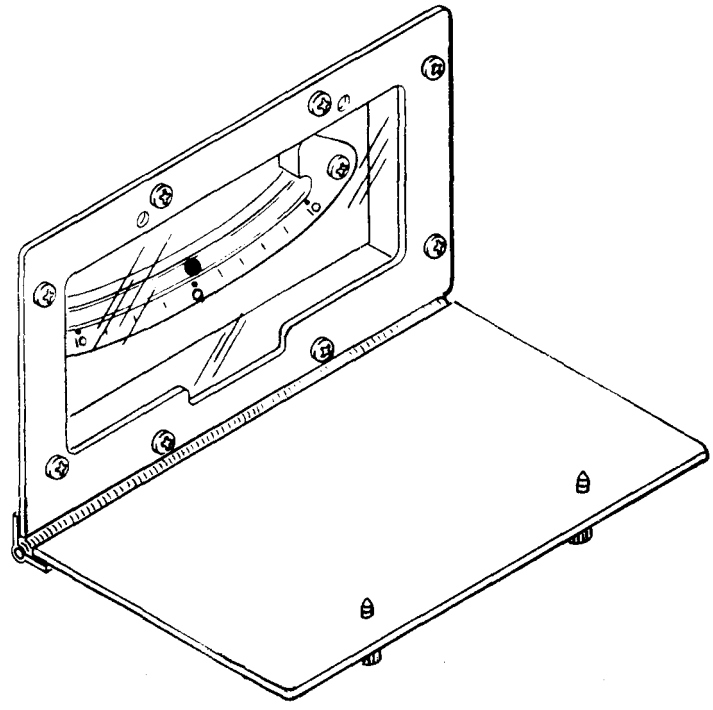




7. Raise low end by extending both leveling jacks at low end. Use low speed.



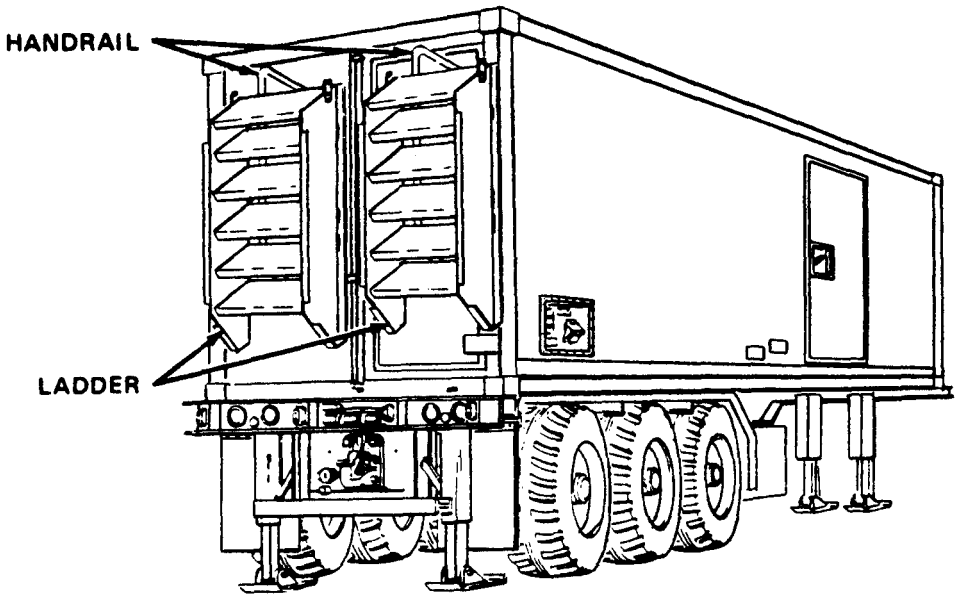
8. Raise low side by extending both leveling jacks at low side.



9. Be sure ball is within one-half division of center on all four level indicators.

10. Pull leveling crank handles away from trailer chassis, and lower crank handle to stowed position.

b. Procedures To Activate Section



WARNING

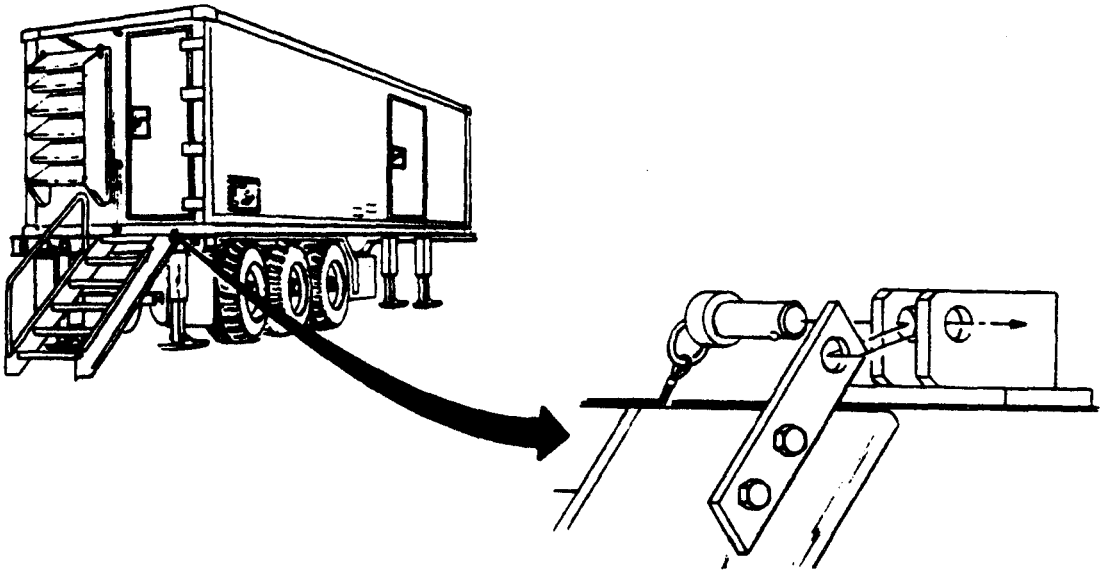
TO PREVENT PERSONAL INJURY, USE TWO PERSONNEL TO REMOVE BOARDING LADDERS FROM SECTION.

NOTE

Ladders shown in position for movement.

1. Remove boarding ladders and handrails from rear of Section.

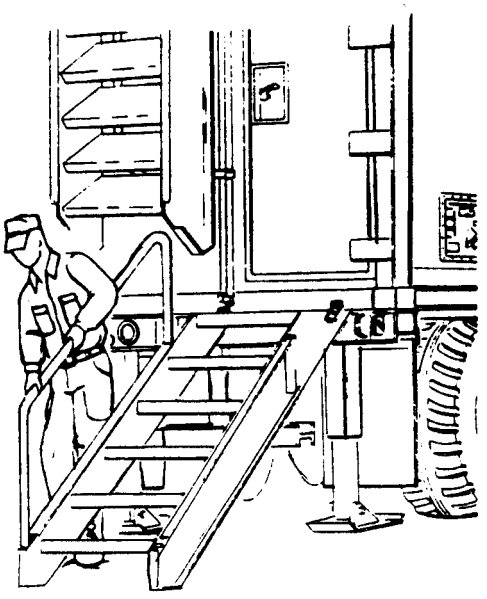
2. Remove handrails from ladders.



3. Mount ladders at personnel rear and side doors and secure with locking pins.

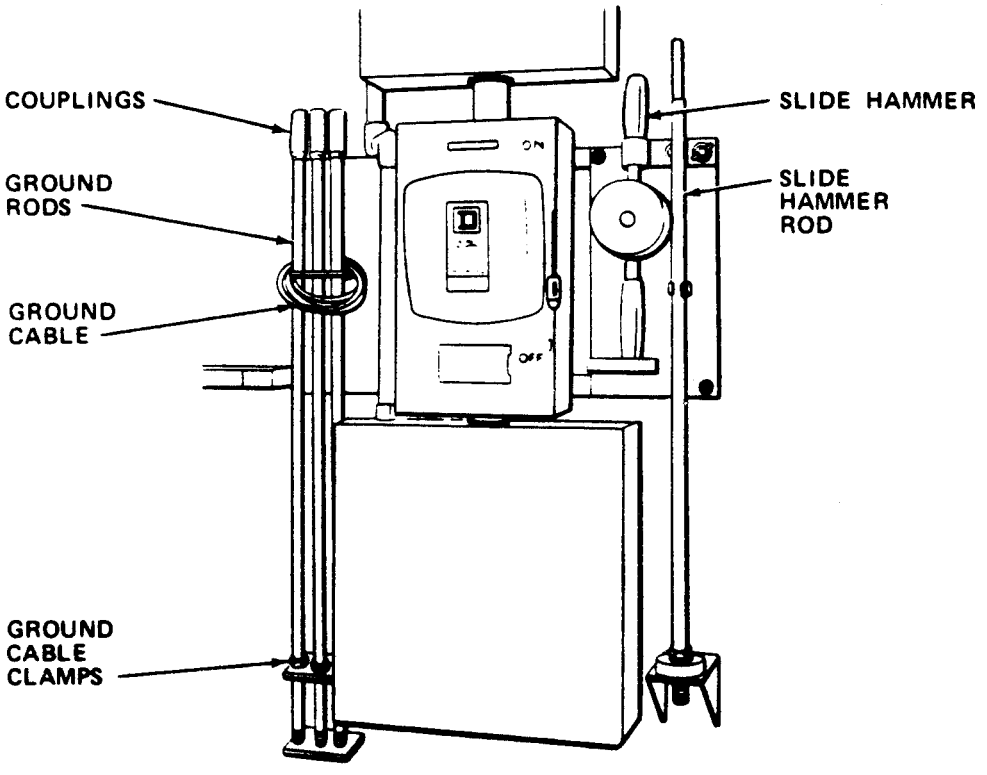
4. Mount one handrail on each ladder.

5. Enter van body and be sure safety switch, main circuit breaker, and all equipment power supply switches are off.



WARNING

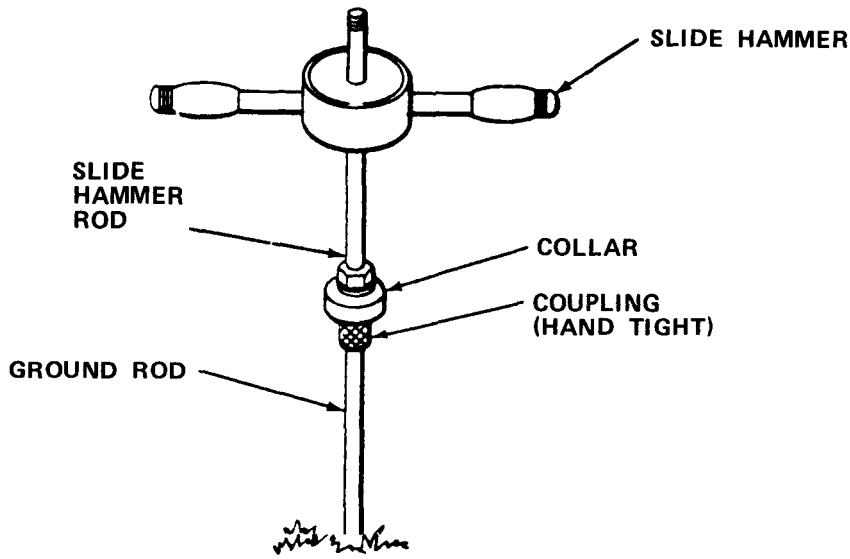
DO NOT CONNECT POWER CABLES UNTIL SECTION IS GROUNDED. DEATH OR SERIOUS INJURY MAY RESULT.



6. Remove ground rods, slide hammer, slide hammer rod, and ground cable from van body.

NOTE

- Bottom ground rod must be numbered or identified so that it will always be the first rod driven into the ground.
- Apply a thin film of grease to threaded end of rods before driving into ground. This will permit easy disassembly upon removal.



7. Select an area as close to power entry panel as possible to install ground rod. Then assemble the first ground rod and coupling to the slide hammer rod.

CAUTION

DO NOT ALLOW GROUND ROD TO ROTATE WHEN REMOVING THE SLIDE HAMMER ROD, OR GROUND ROD SECTIONS MAY BE LOST IN GROUND.

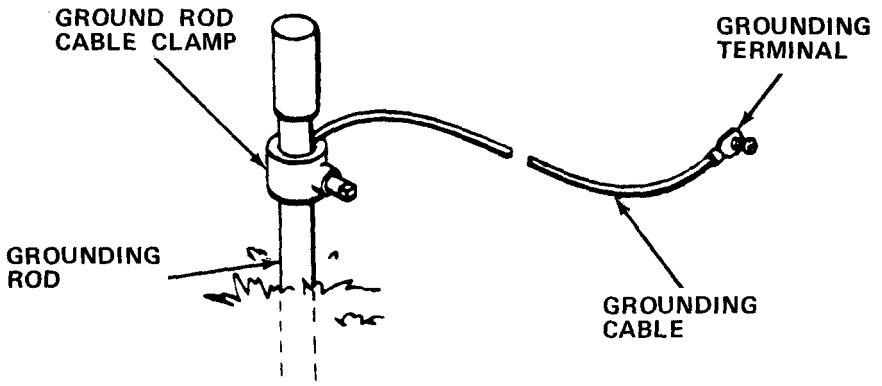
NOTE

Before driving ground rod be certain that rods meet inside coupling. Be sure collar is handtight snug against coupling.

8. Place slide hammer on hammer rod end, and drive ground rod into ground. Remove slide hammer rod. Attach slide hammer rod to a new section of ground rod, and repeat procedure until only 1 ft (304.80 mm) of the third rod is above ground.

9. Remove slide hammer and hammer rod, and place in van body.

10. Mount ground cable clamp and cable to ground rod, then connect ground cable to ground terminal lug.

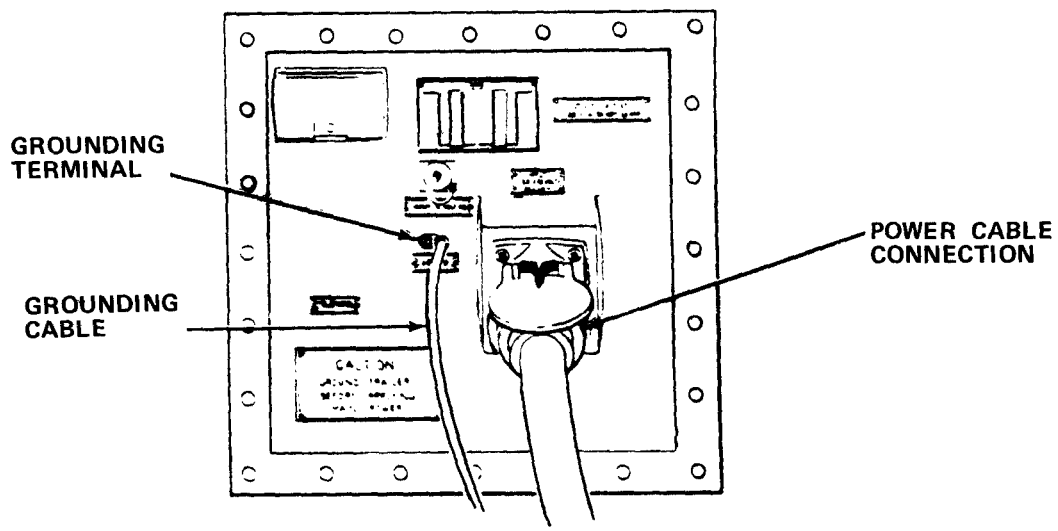


WARNING

TO PREVENT DEATH OR SERIOUS INJURY, DO NOT HANDLE OR CLEAN POWER CABLE OR CONNECTORS WHEN CABLE IS CONNECTED TO POWER SOURCE.

NOTE

The section must be properly grounded before power is connected. If it is not possible to drive the three sections of ground rod fully into ground, the rods may each be driven into the ground separately and connected in series. If it is impossible to drive a ground rod, a suitable alternative ground must be found, such as a buried metal water pipe (refer to TC 11-6 grounding techniques).

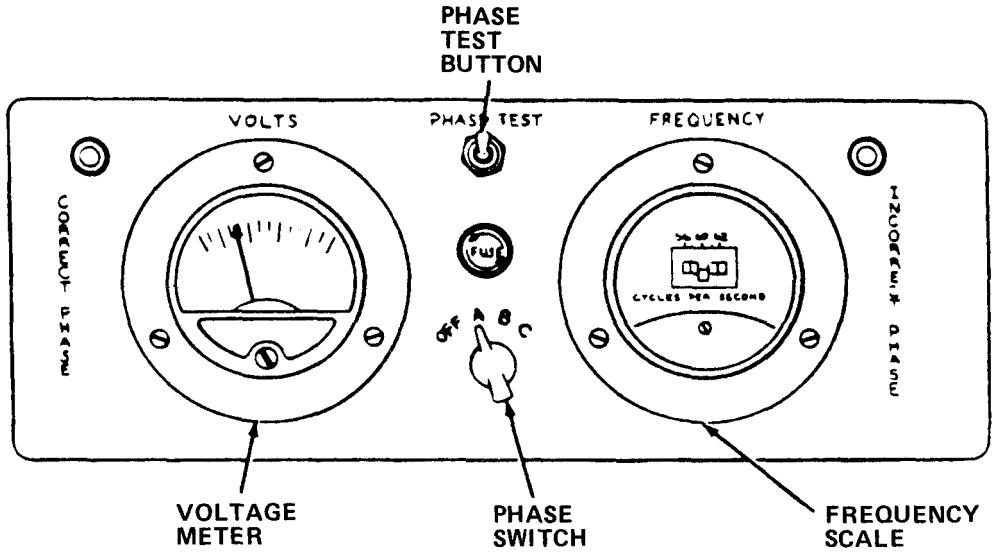


CAUTION

Be sure safety switch is off before connecting power cable to avoid equipment damage.

11. Firmly connect the power cable to the power receptacle.

11.1 Turn on safety switch.



12. Check voltage and frequency as follows:

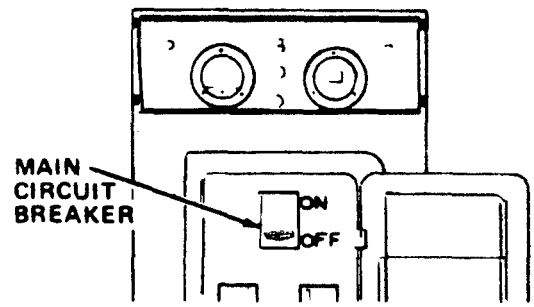
Push phase test button. Observe correct phase lamp lights.

CAUTION

DO NOT ENERGIZE SECTION IF INCORRECT PHASE LAMP LIGHTS. DAMAGE TO EQUIPMENT MAY RESULT.

VOLTAGE MUST BE BETWEEN 110 AND 120, AND FREQUENCY MUST BE AT 60±1 HZ ON EACH LEG BEFORE TURNING ON MAIN CIRCUIT BREAKER OR DAMAGE TO EQUIPMENT MAY RESULT.

- Turn phase switch to A.
- Read voltage on meter.
- Read frequency on scale for 60±1 Hz.
- Repeat for positions B and C on phase switch.



13. Set main circuit breaker on.

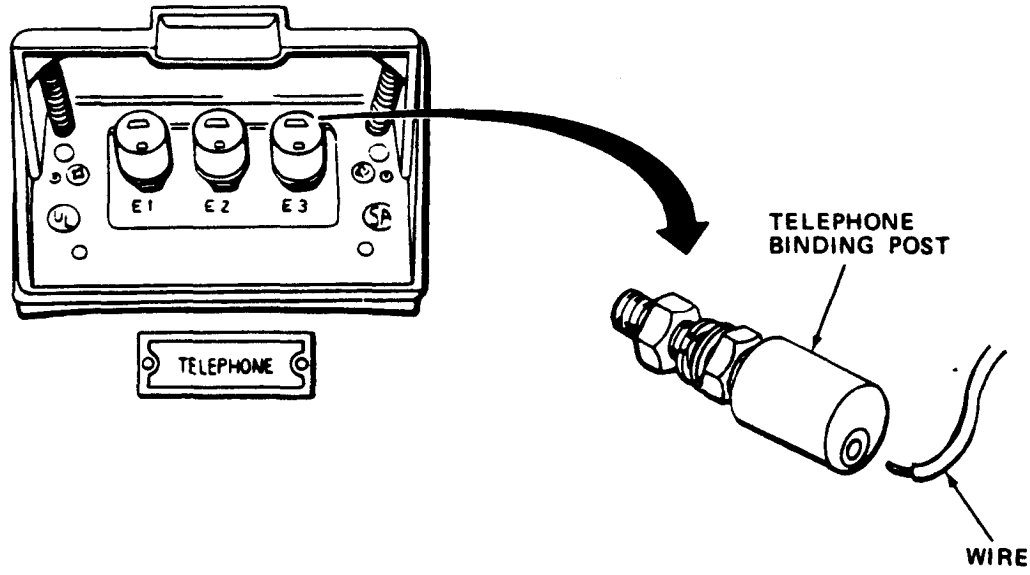
NOTE

This step must be accomplished if section is placed in operation in darkness, fog, or mist under blackout conditions.

14. Close blackout curtains, if required.

15. Turn on circuit breakers in following order:

- Individual lighting switches.
- Curbside and roadside air conditioners/heaters as directed by TM 5-4120-367-14.
- Check operation of individual equipment switches.



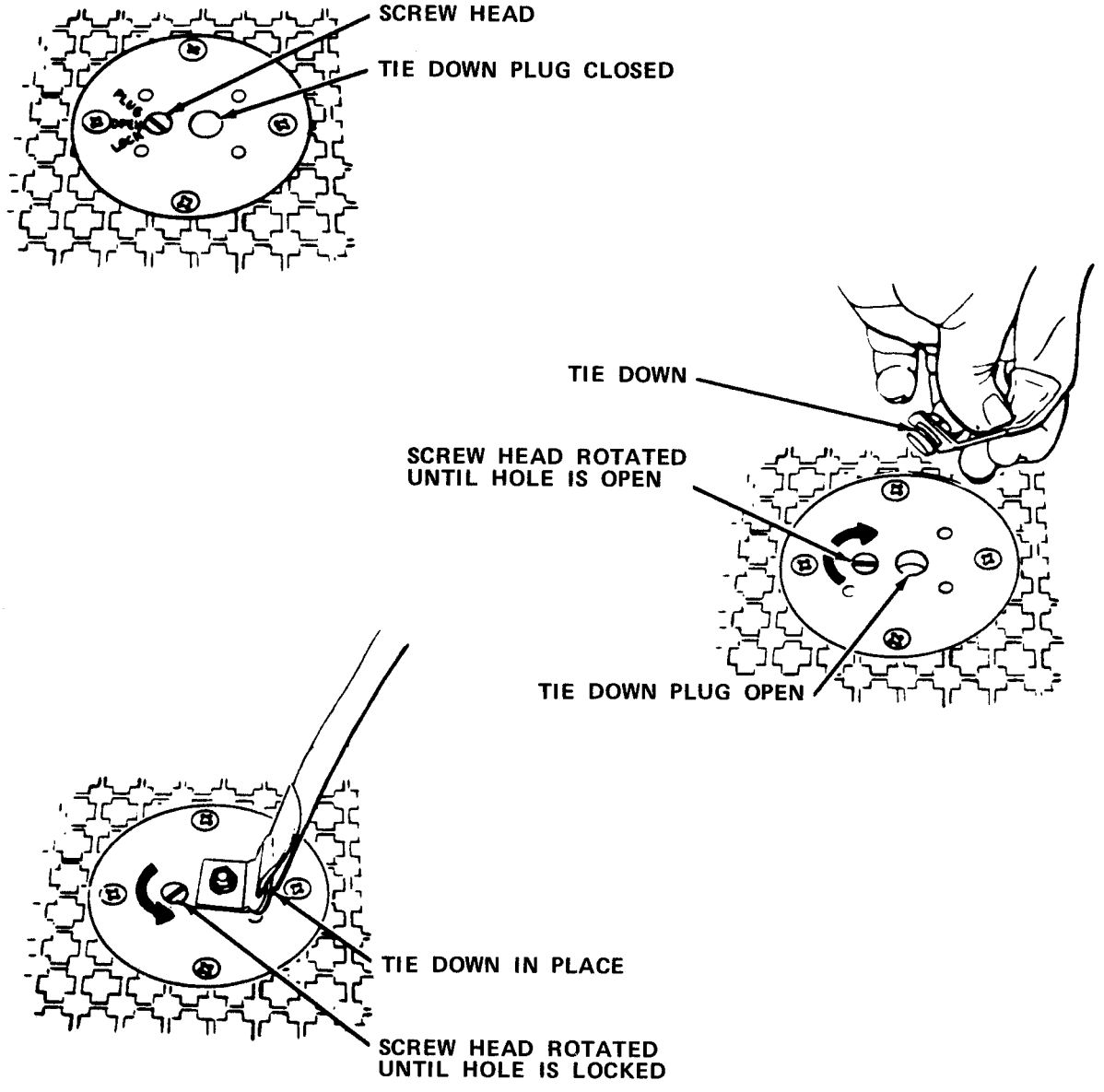
16. Connect telephone lines to corresponding telephone binding posts.

17. Check blackout switches.

18. Plug in emergency lighting and turn switch to ready.

1.2.3.2 PREPARATION FOR MOVEMENT

1. Inventory equipment and supplies.



2. Install tie-downs in tie-down sockets.

3. Secure authorized equipment in proper containers or as specified by appropriate chapters.

4. Secure straps and remove slack from tie-downs.

WARNING

DEATH OR SERIOUS INJURY MAY OCCUR IF POWER CABLE IS DISCONNECTED WHILE POWER IS ON.

5. Turn equipment switches off.

6. Set circuit breakers off.

7. Turn main power circuit breaker off.

8. Turn safety switch off.

9. Disconnect power cable at supply end. Then disconnect power cable from receptacle. Put cable in storage box on trailer chassis.

10. Turn emergency light switch off. Then disconnect plug.

11. Disconnect telephone cables.

12. Remove ground cable from ground terminal lug and ground rod cable clamp.

CAUTION

DO NOT ALLOW GROUND ROD TO ROTATE WHEN REMOVING THE SLIDE HAMMER ROD.

13. Remove ground rod with slide hammer, and put ground rods, couplings, and slide hammer inside van body. Clean threads on each ground rod before storing.

14. With auxiliary light, reinspect van body interior for loose equipment and close all vents.

15. Close van body. Secure and lock all personnel and cargo doors.

NOTE

Be certain exhaust fan and air vent doors are securely closed.

16. Be sure air conditioner/heater covers are down and secured.

17. Remove handrails from boarding ladders.

WARNING

TO AVOID SERIOUS PERSONNEL INJURY, USE TWO PERSONNEL TO LIFT BOARDING LADDERS.

18. Remove boarding ladders and insert rails into back of ladders.

19. Secure ladders to back of van body.

20. Fully extend landing gear.

21. Retract leveling jacks.

22. Couple van body to tractor as directed in TM 5-2330-305-14.

1.2.4 OPERATION UNDER UNUSUAL CONDITIONS

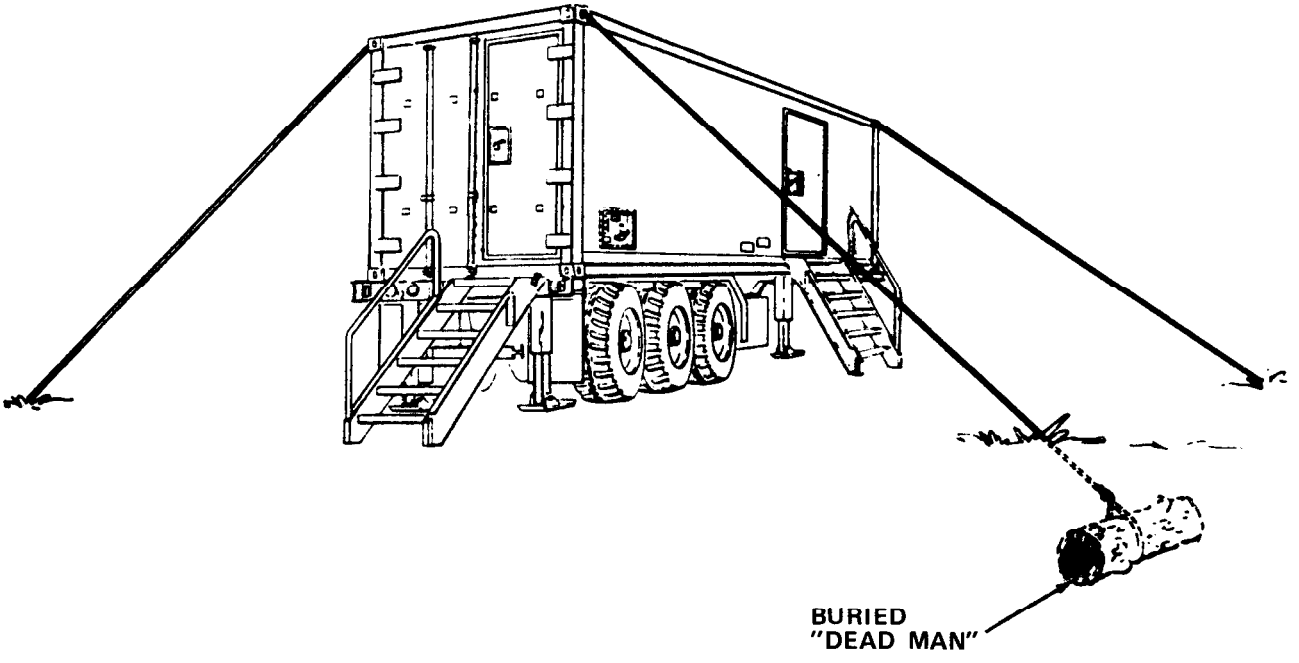
NOTE

Damage to container permitting light leaks, water, or dirt entry must be temporarily repaired using available material on hand. Maintenance personnel will conduct permanent repairs; however, crew must maintain operational capability of Section.

1.2.4.1 OPERATION IN HIGH WIND OR STORM CONDITIONS

a. Relocate van body if trees or structures present hazard.

SUGGESTED METHOD OF ANCHORING
THE SECTION IN HIGH WINDS



b. Secure van body corners at lifting eyes to deadmen or substantial objects.

c. Remove all loose objects from area.

1.2.4.2 OPERATION IN COLD WEATHER

a. The operation of the internal equipment is performed within environmentally controlled conditions; however, the main power supply cable and ground cable, in extreme cold, will become hard, brittle, and difficult to handle. Be careful when handling the cables when connecting them to the van body so that kinks and unnecessary loops will not result in permanent damage.

b. Make certain that connections and cable receptacles on the outside of the van body are free of frost, snow, and ice.

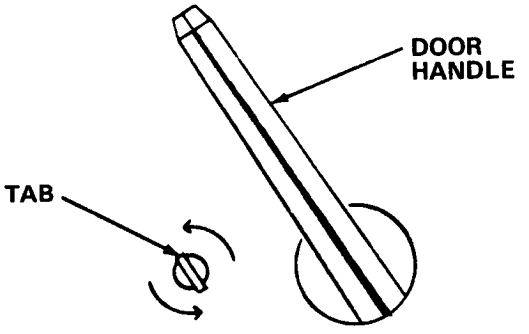
c. When van body heaters are not operating or when the van body is being transported, liquid consumable supplies may freeze, break their containers, then melt, and ruin equipment or documents.

1.2.4.3 OPERATION IN EXTREME HEAT. The operation of the internal equipment is performed within environmentally controlled conditions; however, during transportation or when air-conditioning units are not operating, consumable supplies may suffer reduced shelf life and internal components may have accelerated deterioration of gaskets, seals, or insulation.

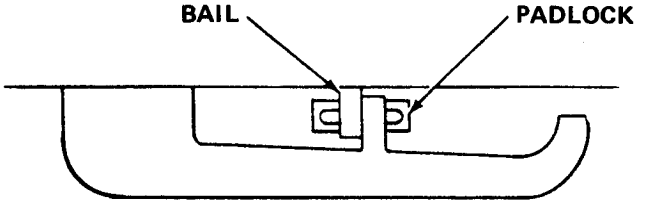
1.2.4.4 OPERATION IN TROPICAL CONDITIONS. Fungi, mildew, or mold will form on and in equipment, documents, and supplies if internal environmental control equipment is not operating and outside heat and humidity are allowed to enter the van body .

1.2.4.5 OPERATION IN DESERT CONDITIONS. Dust, grit, and sand will ruin supplies, equipment, and documents. Extreme care must be taken to prevent dust, grit, and sand from entering into the van body. Air filters will be changed whenever airflow is restricted, and cleaning of van body interior must be conducted more frequently than specified by PMCS schedules.

1.2.4.6 EMERGENCY PROCEDURES. There are no specific emergency procedures for operation of the van body. During power failures, manual operation of components will require the crew to reference the appropriate equipment chapters to determine if limitations are imposed on specific equipment.



INSIDE FRONT VIEW



OUTSIDE TOP VIEW

1.2.4.7 EMERGENCY MEANS OF EXIT. In the event personnel are locked in the van body, the tab may be turned to the left until the bail on the padlock falls free. The door handle is now free to turn.

Section III. OPERATOR' S MAINTENANCE INSTRUCTIONS

1.3.1 LUBRICATION INSTRUCTIONS

a. Lubrication instructions for the Topographic Support System, Map Layout Section are contained in LO 5-3610-260-12, Lubrication Order, Map Layout Section, Topographic Support System. The intervals and manhours specified in the Lubrication Order are based on normal operations. During inactive periods, lubrication periods may be extended with adequate preservation.

b. Topographic equipment and all optical equipment require special care in lubrication. When a specified lubricant is called for, substitutions are not authorized. Minimum amounts of lubricant are to be used and all excess lubricant is to be immediately removed. Spray lubricants must not be used in the vicinity of optical equipment unless optics are completely protected. No lubricant is to be applied unless a thorough cleaning is conducted first to remove dirt, dust, or abrasive material.

c. Be sure that you refer to the appropriate chapter before any equipment is stored after use, that the temperature has stabilized, and that required lubrication after use is accomplished.

1.3.2 OPERATOR'S TROUBLESHOOTING PROCEDURES

a. Operator's troubleshooting for the section consists of being sure switches and circuit breakers are correctly positioned and blackout switches are properly adjusted. Specific equipment malfunctions are covered in the chapter for that equipment. Air-conditioning/heating troubleshooting procedures are covered in TM 5-4120-367-14. Exact circumstances of any equipment malfunction must be carefully noted by the operator to aid in corrective action by maintenance personnel.

b. The table lists the common malfunctions which you may find during operation or maintenance of the Map Layout Section. You should perform the tests/inspections and corrective actions in the order listed.

c. THIS MANUAL CANNOT LIST ALL THE POSSIBLE MALFUNCTIONS OR EVERY POSSIBLE TEST/INSPECTION AND CORRECTIVE ACTION. IF A MALFUNCTION IS NOT LISTED OR CORRECTED BY A LISTED CORRECTIVE ACTION, NOTIFY YOUR SUPERVISOR.

Table 1-2. OPERATOR'S TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. NO ELECTRICAL POWER TO SECTION.

WARNING

Death or serious injury may result. Do not perform any electrical maintenance or make electrical connections or disconnections at main power receptacle when power cable is energized.

Step 1. Observe voltage and frequency for phases A, B, and C. Read 115 ±5V,60±1 Hz.

(a) If voltage and frequency are correct, proceed to step 2.

(b) If voltage and frequency are incorrect, notify power supply supervisor.

CAUTION

Do not energize section if voltage or frequency is not correct. Damage to equipment may result.

Step 2. Press phase test switch on power panel for A, B, and C.

(a) If phases A, B, and C are correct, proceed to step 3.

(b) If incorrect phase lamp lights, notify power supply supervisor.

CAUTION

Do not energize section if incorrect phase lamp lights. Damage to equipment may result.

Step 3. Check safety switch position.

(a) If safety switch is on, proceed to step 4.

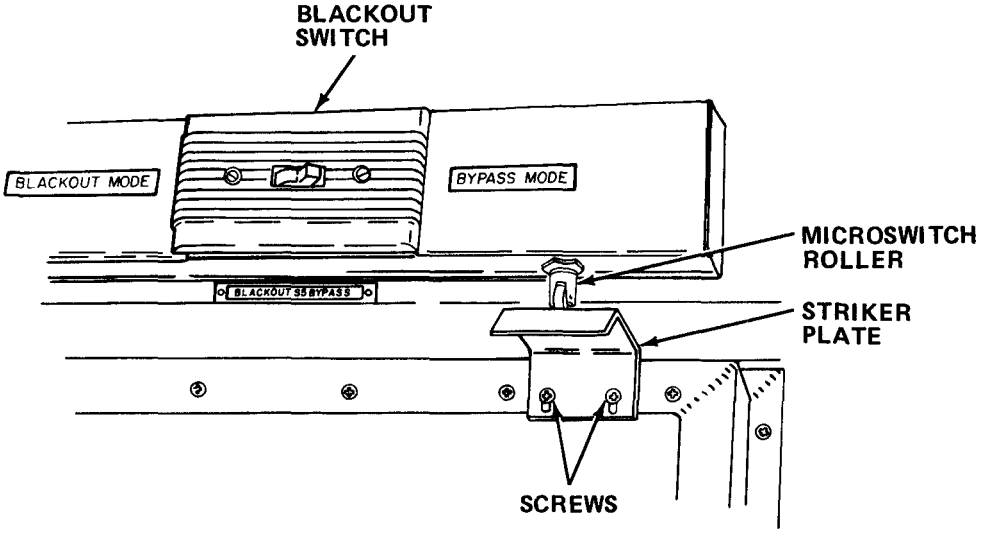
(b) If safety switch is off, turn on.

Table 1-2. OPERATOR'S TROUBLESHOOTING (Cont)

MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
1. NO ELECTRICAL POWER TO SECTION - Cont	
Step 4. Check main circuit breaker position.	
(a) If circuit breakers is ON, refer to direct/general support maintenance.	
(b) If circuit breaker is OFF, turn ON.	
(c) If circuit breaker trips repeatedly, notify power supply supervisor.	
2. NO ELECTRICAL POWER TO EQUIPMENT.	
Step 1. Check equipment power switch.	
(a) If power switch is on, proceed to step 2.	
(b) If power switch is off, turn on.	
Step 2. Check power cord.	
(a) If power cord is plugged in, proceed to step 3.	
(b) If power cord is unplugged, plug in.	
Step 3. Inspect circuit breaker panel for breakers in OFF position.	
(a) If all circuit breakers are ON, refer to organizational maintenance.	
(b) If any circuit breakers are OFF, turn ON.	

Table 1-2. OPERATOR'S TROUBLESHOOTING (Cont)

MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
3. BLACKOUT SWITCH DOES NOT OPERATE.	



Step 1. Check blackout switch position.

(a) If switch is on, proceed to step 2.

(b) If switch is off, reset switch to BLACKOUT.

Step 2. Check to see that striker plate contacts roller on microswitch.

(a) Loosen screws, and move plate up or down until microswitch operates.

(b) If blackout switch still fails to operate, refer to organizational maintenance.

1.3.3 MAINTENANCE PROCEDURES

INDEX

1.3.3.1 REPLACE FLUORESCENT CEILING LAMP.

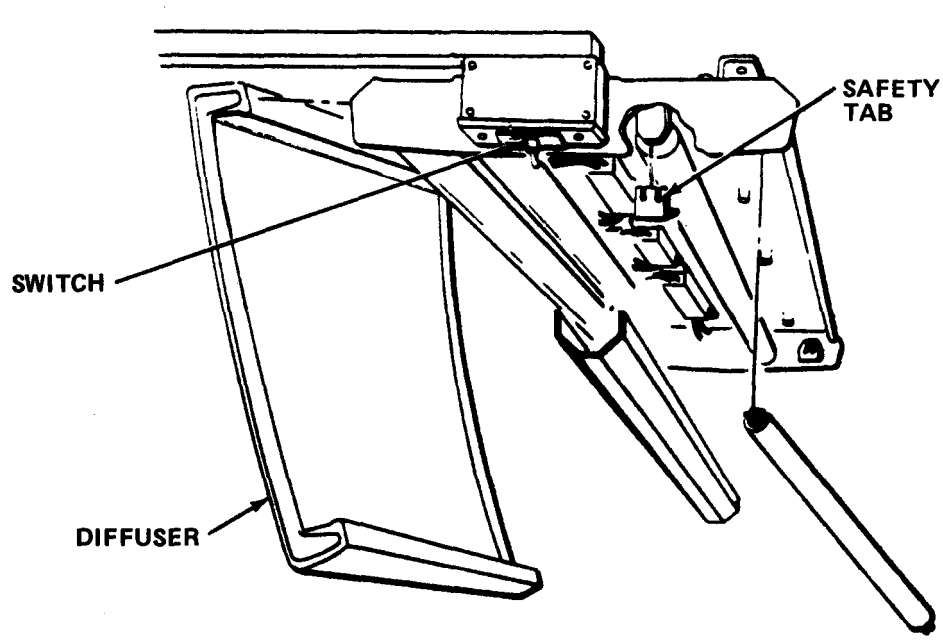
TOOLS: None
SUPPLIES: Fluorescent Ceiling Lamp

WARNING

DEATH OR SERIOUS INJURY MAY RESULT IF POWER IS LEFT ON WHILE SERVICING LAMP. TURN CIRCUIT BREAKER AND SWITCH OFF.

1. Turn circuit breaker off.

2. Turn switch off.



3. Gently pull diffuser from light bracket, and place diffuser out of the way to prevent damage.

4. Remove safety tab from lamp socket.

5. Rotate defective lamp until lamp prongs are free from slot and remove lamp.

6. Insert new lamp prongs into slot and rotate lamp 90°.

7. Reinstall safety tab into lamp socket.

8. Reinstall diffuser.

9. Turn power on.

10. Turn circuit breaker on.

1.3.3.2 SERVICE VENTILATION DUCTS.

TOOLS : Vacuum Cleaner
Cross-Tipped Screwdriver

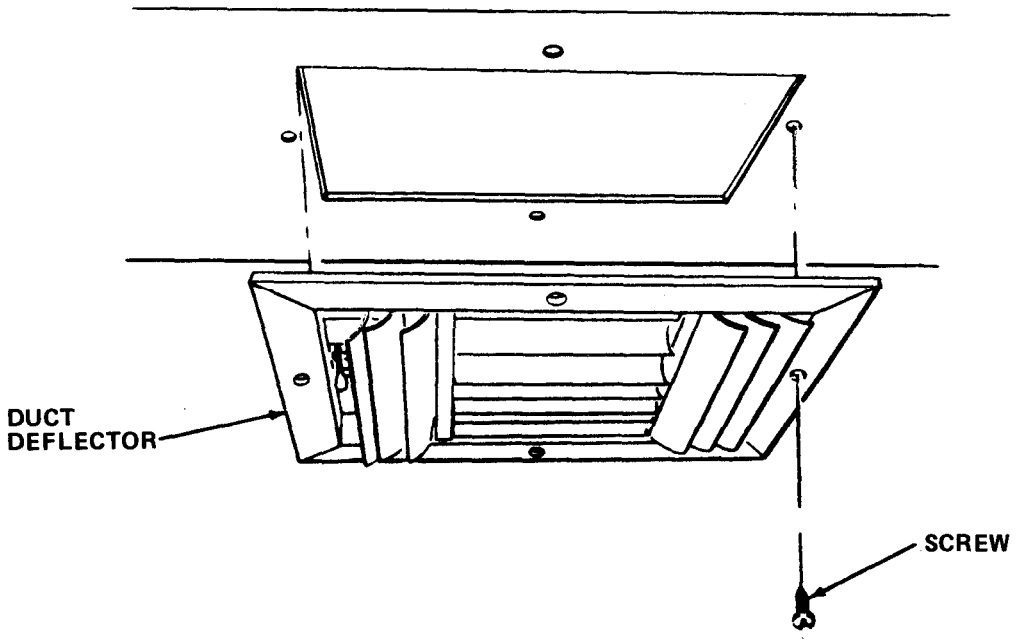
SUPPLIES: None

1. Cover equipment to prevent dust from entering equipment.

2. Close all doors and cabinets.

3. Remove any documents or other work that may be damaged by dirt/dust.

4. Turn off air conditioners/heaters.



5. Remove four screws from each ventilation duct deflector.

6. Remove all duct deflectors.

7. Vacuum dirt or dust from deflector louvers.

8. Insert vacuum cleaner probe into ventilation duct at each deflector hole, and vacuum as far as probe will reach.

9. Reinstall deflectors and secure with four screws.

10. Vacuum any dislodged dirt or dust from interior of section.

11. Turn on air conditioner/heater.

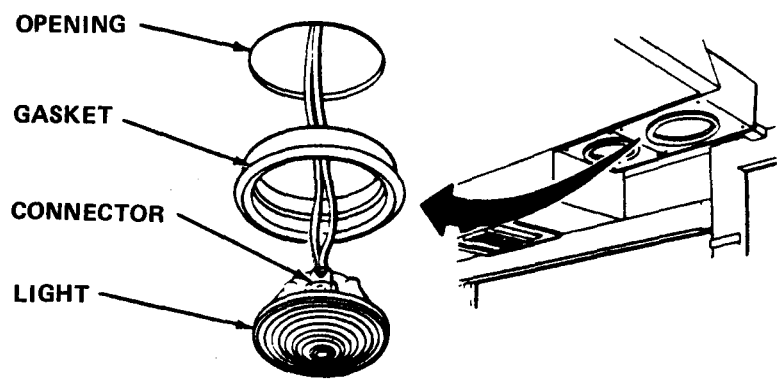
12. Remove covers from equipment for operation.

1.3.3.3 REPLACE BLACKOUT/DOME LIGHT.

TOOLS: None
SUPPLIES: Lamp (12 V)
Silicone Spray (Item 38, Appendix E)

NOTE

Blackout light and dome light are sealed units. No bulb replacement is possible. Complete light must be replaced.



1. Push light and gasket up into opening.

2. Tilt and remove light and gasket from opening.

3. Disconnect light from connector.

4. Connect new light to connector.

NOTE

The use of silicone spray on the gasket will help to position light.

5. Reinstall gasket in opening.

6. Position light in gasket and push in.

7. Test light.

Section IV. ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

1.4.1 REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT; AND SUPPORT EQUIPMENT

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

1.4.1.2 SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT; AND SUPPORT EQUIPMENT. No special tools; test, measurement, and diagnostic equipment; or support equipment are required for the repair of this Section at the Organizational level of maintenance. For test, measurement, and diagnostic equipment, refer to TM 5-3610-260-24P. Individual equipment requirements are covered in the specific equipment chapters.

1.4.1.3 REPAIR PARTS. Repair parts for this equipment are listed in TM 5-3610-260-24P, Repair Parts and Special Tools List (RPSTL), covering Organizational, Direct Support, and General Support maintenance for this equipment.

1.4.2 SERVICE UPON RECEIPT.

The section may be received mounted on a trailer chassis, as a van body for mounting on an available trailer/transporter or on site. Inspection of the trailer chassis is covered in TM 5-2330-305-14. Inspection of the air conditioners/heaters is covered in TM 5-4120-367-14.

a. Visually inspect the van body exterior starting at the rear to cover rear, curbside, roadside, front, top and bottom. Inspect for damage, tears, breaks, or corrosion.

b. Enter van body and inspect for broken equipment, tool boxes, chairs, or equipment loose and not secured.

c. Close doors/vents to determine if light leaks exist.

d. Inspect doors for damage, torn or rotted seals, and tightness of closure.

e. Inspect interior for evidence of water damage, fungi, mildew, or corrosion.

f. Inventory section contents against Components of End Item and Basic Issue Items Lists (Appendix C).

g. Inventory consumable supplies contained in section as shown in Appendix E.

h. Conduct operational checks on equipment in accordance with the chapters in this manual when operators are available and power can be safely provided to the van body.

i. Report damage or discrepancies in accordance with AR 735-11 and AR 735-11-2.

1.4.3 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

a. Always keep in mind the WARNINGS and CAUTIONS when performing PMCS. Table 1-3 lists the PMCS Procedures to be performed. Be sure to perform the PMCS at the frequency indicated by the INTERVAL codes in the table.

b. If your equipment fails to operate, troubleshoot with the proper equipment. Report any deficiencies in accordance with DA Pam 738-750.

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can safely be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

c. The numbers found in the ITEM NUMBER column shall be used as a source of item numbers for the TM ITEM NUMBER column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording the results of PMCS.

d. Preventive maintenance checks and service for the air conditioners/heaters are contained in TM 5-4120-367-14.

e. List of tools and materials required for PMCS is as follows:

Item	Quantity
Hand Wire Brush	1 ea
8 in. Adjustable Wrench	1 ea
Cross-Tipped Screwdriver	1 ea
Flat-Tipped Screwdriver	1 ea
Wrench Set	1 ea
Scraper	1 ea
Multimeter	1 ea
Cloths	ar
Electrical Insulating Tape	ar
Paint	ar
Paint Brush	1 ea
Abrasive Paper	ar
Padlock	1 ea
Air Vent Filters, Small	2 ea
Air Vent Filter, Large	1 ea

Table 1-3. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

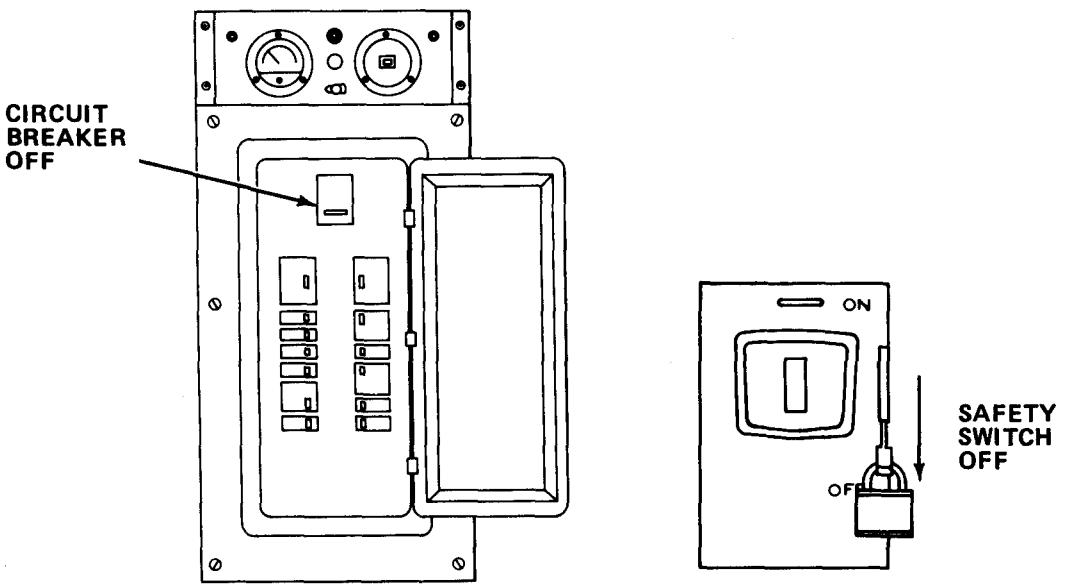
B - Before
D - During
A - After

W - Weekly
M - Monthly
Q - Quarterly

AN - Annually
S - Semiannually
BI - Biennially

(Number) - Hundreds of Hours

ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED PROCEDURE
		VAN BODY
1	M	Service Air Conditioner/Heater. Refer to TM 5-4120-367-14 for preventive maintenance checks and services.
2	M	Service Lighting System.



WARNING

Do not open or service electrical connections, cables or switches. until main power is off, and multimeter confirms circuit is not energized. Death may result from failure to observe these safety precautions.

1. Turn off main circuit breaker. Turn off safety switch.

Table 1-3. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES - Cont

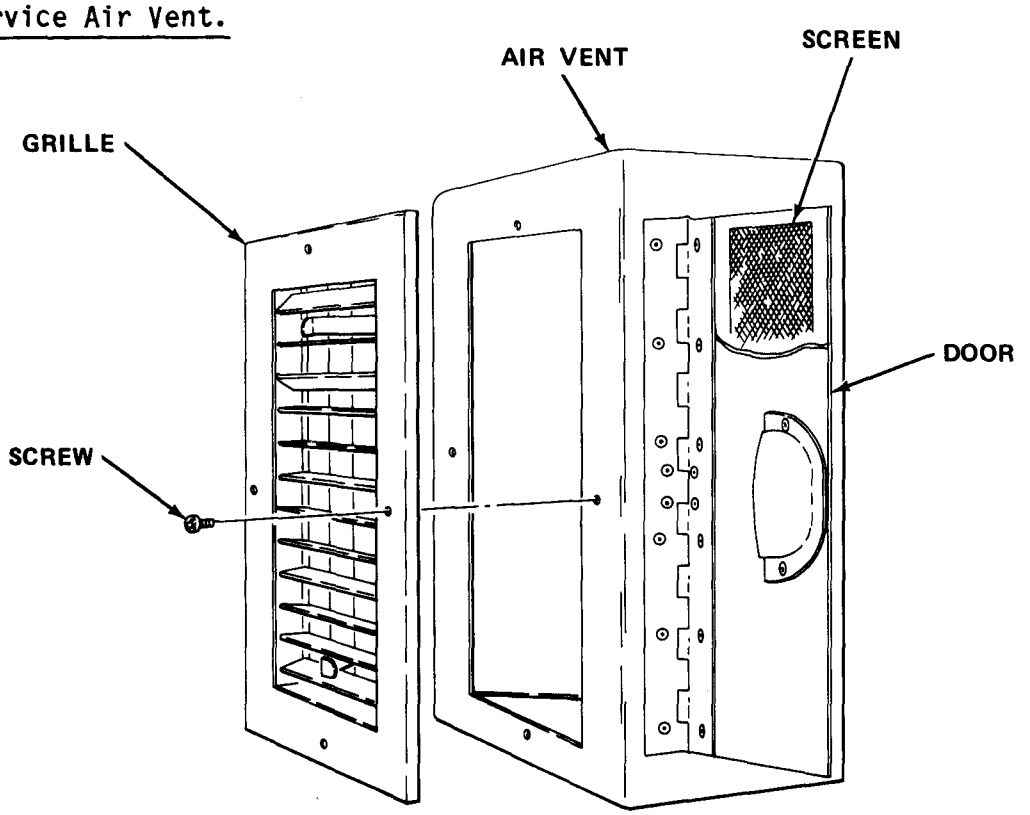
B - Before	W - Weekly	AN - Annually	(Number)	- Hundreds of Hours
D - During	M - Monthly	S - Semiannually		
A - After	Q - Quarterly	BI - Biennially		

ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED PROCEDURE
		VAN BODY
2	M	Service Lighting System - Cont 2. Padlock safety switch. 3. Tighten all loose screws, bolts, and clamps. 4. Check which switches, switch plate outlets, receptacles, and posts require repair. 5. Check for loose screws and nuts on ceiling, console lights, circuit breaker panels, and conduits. 6. Remove padlock. 7. Turn on power.

Table 1-3. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES - Cont

B - Before	W - Weekly	AN - Annually	(Number) - Hundreds of Hours
D - During	M - Monthly	S - Semiannually	
A - After	Q - Quarterly	BI - Biennially	

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE
		VAN BODY
3	M	**Service Air Vent.**



1. Remove screws from front of grille.
2. Remove front grille.
3. Using vacuum cleaner, clean screens on side doors. Vacuum inside of air vent.
4. Reinstall grille and secure with screws.

Table 1-3. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES - Cont

B - Before W - Weekly AN - Annually (Number) - Hundreds of Hours
D - During M - Monthly S - Semiannually
A - After Q - Quarterly BI - Biennially

ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED
		VAN BODY
4	M	Inspect Fire Extinguisher.
		1. Remove from mounting bracket. Check free movement of bracket.
		2. Inspect nozzle and adapter assembly for damage.
		3. Inspect seal. Check that it is not broken.
	S	4. Weigh cylinder. Replace if gross weight has decreased by 6 oz (170 g) or more.

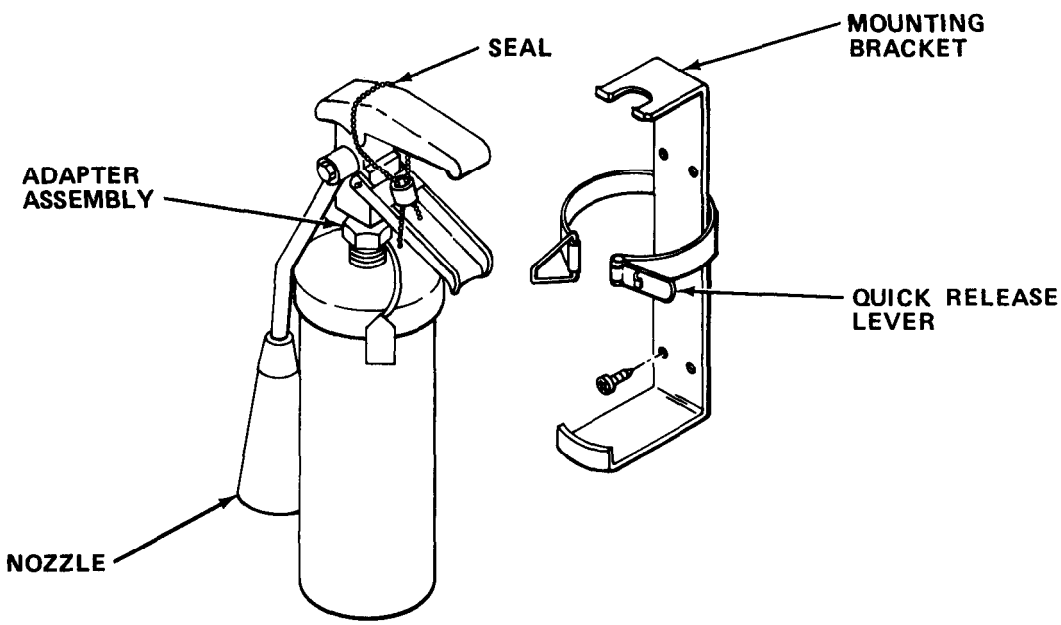
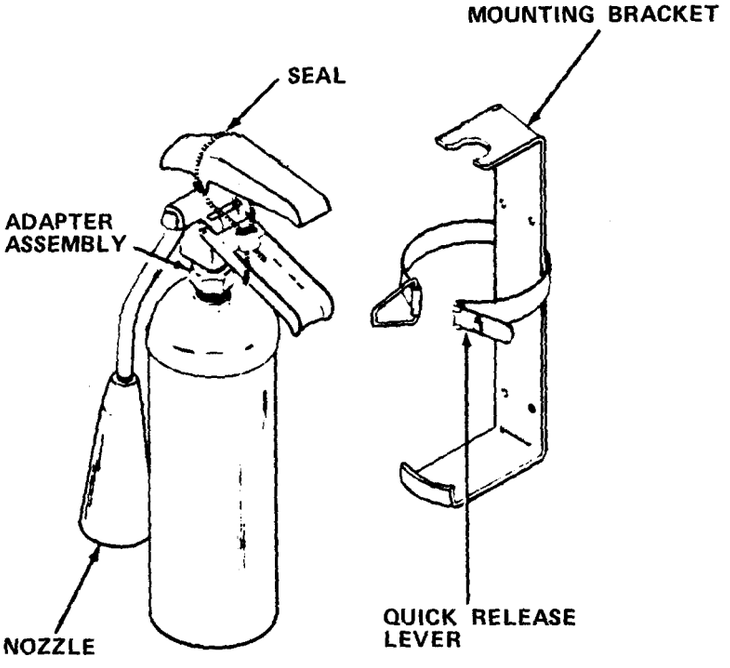


Table 1-3. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (Cont)

B - Before D - During A - After	W - Weekly M - Monthly Q - Quarterly	AN - Annually S - Semiannually BI - Biennially	(Number) - Hundreds of Hours

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE
		VAN BODY
6	M	INSPECT FIRE EXTINGUISHERS.



1. Remove from mounting bracket. Check free movement of quick release lever.
2. Inspect nozzle and adapter assembly for damage.
3. Inspect seal. Be sure it is not broken.

1.4.4 ORGANIZATIONAL TROUBLESHOOTING PROCEDURES

a. Organizational troubleshooting procedures cover the most common malfunctions that may be repaired at the organizational level. Repair or adjustment requiring specialized equipment is not authorized unless such equipment is available. Troubleshooting procedures used by the operator should be conducted in addition to the organizational troubleshooting procedures.

b. This manual cannot list all the possible malfunctions or every possible test/inspection and corrective action. If a malfunction is not listed or corrected by a listed corrective action, notify your supervisor.

c. For unidentified malfunctions, use the facing schematic or the foldout located at the end of this manual for further fault analysis.

d. If any component of the Map Layout Section does not power up when turned on, verify that 120 V ac is present at the receptacle. If voltage is not present, plug equipment into receptacle with power available and proceed with equipment troubleshooting. Perform no-power troubleshooting procedures for dead receptacle (Table 1-4).

Table 1-4. ORGANIZATIONAL TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION

WARNING

Electrical shock hazard. Be sure power is off when checking continuity at troubleshooting points. Death or serious injury could result from failure to do so.

1. FLUORESCENT CEILING LAMP IS INOPERATIVE.

Step 1. Check for continuity of fluorescent lamp switch.

(a) If continuity exists, proceed to step 2.

(b) If continuity does not exist, replace switch (paragraph 1.4.5.3.)

Table 1-4. ORGANIZATIONAL TROUBLESHOOTING (Cont)

MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
1. FLUORESCENT CEILING LAMP IS INOPERATIVE - Cont	
Step 2. Check for continuity of lamp ballast.	(a) If continuity exists, proceed to step 3. (b) If continuity does not exist, replace lamp ballast (paragraph 1.4.5.1).
Step 3. Check for shorts in RF filter.	Replace RF filter (paragraph 1.4.5.2).
2. VENTILATION FAN IS INOPERATIVE.	
Check on/off switch for continuity.	(a) If continuity exists, replace fan (paragraph 1.4.5.7). (b) If continuity does not exist, replace switch.
3. EMERGENCY LIGHTS ARE INOPERATIVE.	
Press in test indicator.	If lamps do not light, replace emergency light assembly (paragraph 1.4.5.9).
4. NO POWER TO EQUIPMENT.	
Step 1. Check circuit breaker ON/OFF position.	(a) If circuit breaker is ON, proceed to step 2. (b) If circuit breaker is OFF, turn ON. (c) If circuit breaker trips repeatedly, notify power supply supervisor.

Table 1-4. ORGANIZATIONAL TROUBLESHOOTING (Cont)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
4. NO POWER TO EQUIPMENT - Cont
Step 2. Check circuit breaker input for 120 V ac.
(a) If input voltage is present, proceed to step 3.
(b) If input voltage is not present, refer to direct/general support maintenance for repair or replacement of defective wiring.
Step 3. Check circuit breaker output for 120 V ac.
(a) If output voltage is present, proceed to step 4.
(b) If output voltage is not present, refer to direct/general support maintenance for circuit breaker replacement (paragraph 1.5.3.5).
Step 4. Remove receptacle and check for 120 V ac input.
(a) If present, replace receptacle (paragraph 1.4.5.5).
(b) If not present, refer to direct/general support maintenance for repair or replacement of defective wiring.

1.4.5 MAINTENANCE PROCEDURES. This section contains the step-by-step procedures for performing Organizational maintenance for the Van Body. Personnel required are listed only if the task requires more than one, If personnel are not listed, it means one person can do the task.

INDEX

1.4.5 MAINTENANCE PROCEDURES (Cont)

INDEX (Cont)

1.4.5.1 REPLACE FLUORESCENT LAMP BALLAST.

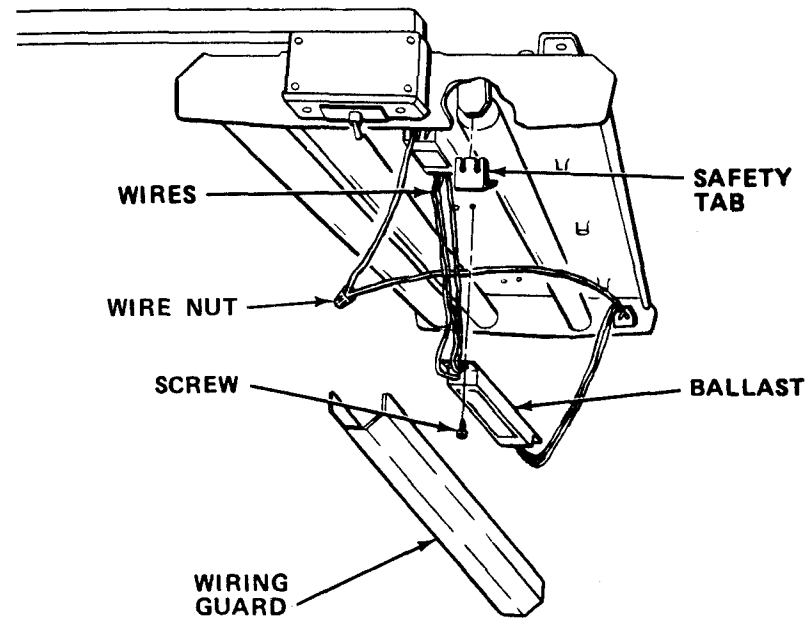
TOOLS : Tool Kit, Electronic

SUPPLIES: Lamp Ballast
Wire Ties
Wire Nuts

WARNING

DEATH OR SERIOUS INJURY MAY RESULT UNLESS OVER HEAD LIGHT SWITCH IS TURNED OFF BEFORE WORKING ON LIGHT FIXTURE.

1. Turn overhead li ght switch off.
2. Remove diffuser from light fixture.
3. Remove safety tabs and lamps. Place in diffuser.
4. Squeeze light wiring guard and remove.
5. Remove wire ties as required.



6. Label wires from ballast for reference.

7. Remove black and white wires from wire nuts.

8. Cut lamp receptacle lead-in wires close to defective ballast to eliminate excess wiring.

9. Remove screws and ballast.

10. Cut new ballast lead-in wires.

11. Label new ballast wires to correspond to old ballast wire labels.

12. Replace ballast and secure with screws.

13. Reconnect black and white ballast wires to wire nut connection and lamp receptacle.

14. Reconnect lamp receptacle wires to new ballast with wire nuts.

15. Remove labels.

16. Install new wire ties.

17. Be sure wires are free of kinks and do not interfere with placement of wire guard.

18. Reinstall wire guard.

19. Reinstall lamps and safety tabs.

20. Reinstall diffuser.

21. Turn on power.

1.4.5.2 REPLACE RADIO FREQUENCY (RF) FILTER.

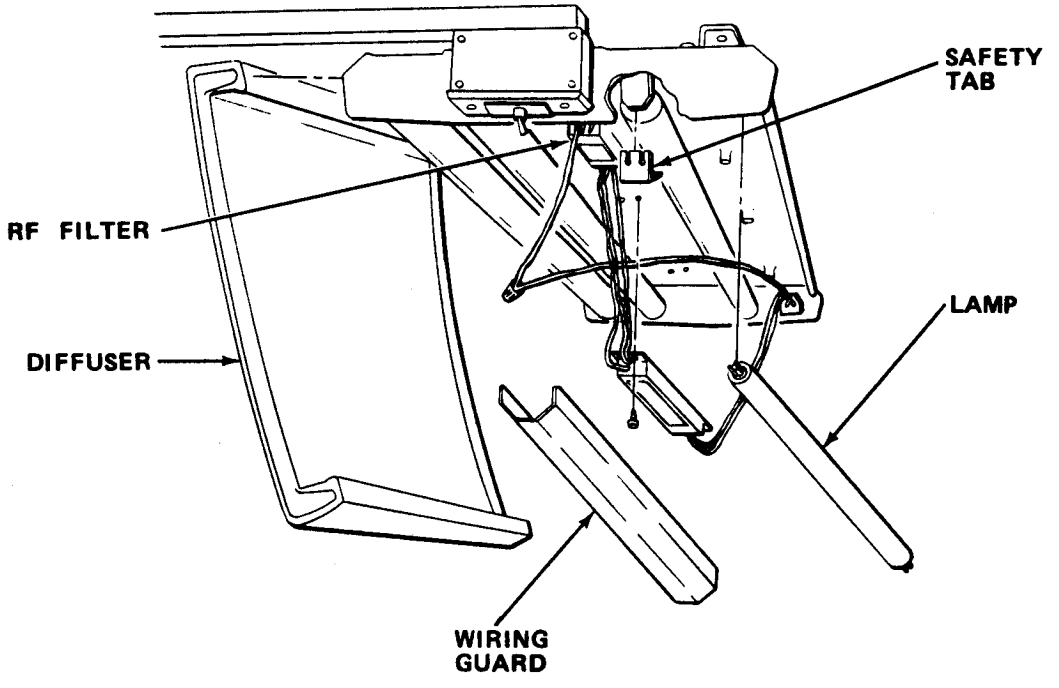
TOOLS: Tool Kit, Electronic

SUPPLIES: RF Filter
Wire Ties

WARNING

DEATH OR SERIOUS INJURY MAY RESULT UNLESS OVERHEAD LIGHT SWITCH IS TURNED OFF BEFORE WORKING ON LIGHT FIXTURE.

1. Turn overhead light switch off.
2. Remove diffuser from light fixture.
3. Remove safety tabs and lamps. Place in diffuser.
4. Squeeze light wiring guard and remove.
5. Remove wire ties as required.

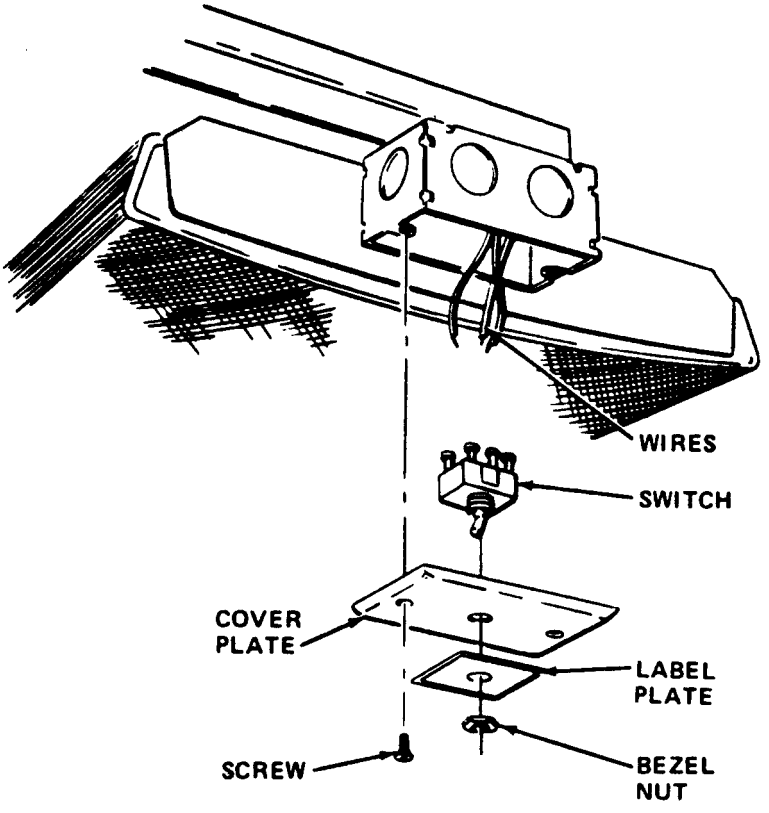


6. Label wires to filter.
7. Remove wire nuts and disconnect filter wires.
8. Remove screws and old filter.
9. Install new filter. Secure with screws.
10. Reconnect filter wires and secure with wire nuts.
11. Remove labels.
12. Install new wire ties.
13. Be sure wires are free of ki nks and do not interfere with placement of wire guard.
14. Reinstall wire guard.
15. Reinstall lamps and safety tabs.
16. Reinstall diffuser.
17. Turn light switch on.

1.4.5.3 REPLACE FLUORESCENT LIGHT SWITCH.

TOOLS : Tool Kit, Electronic
Auxiliary Lighting

SUPPLIES: Switch Assembly
Electrical Tape



WARNING

DEATH OR SERIOUS INJURY MAY OCCUR IF LIGHT SWITCH AND LIGHTING CIRCUIT BREAKER ARE NOT TURNED OFF BEFORE WORKING ON LIGHT SWITCH.

NOTE

Auxiliary lighting is required to perform this task.

1. Turn lighting circuit breaker off.

2. Remove two screws and cover plate.

3. Note position of notch on label plate and remove bezel nut and label plate.

4. Label wires and disconnect from switch.

5. Install new switch and reconnect wires.

6. Tape switch connections.

7. Insert switch through cover plate and label plate. Be sure label plate is in same direction as when removed. Secure with bezel nut.

8. Align cover plate with holes and secure with two screws.

9. Turn lighting circuit breaker on.

1.4.5.4 REPLACE ON/OFF SWITCH.

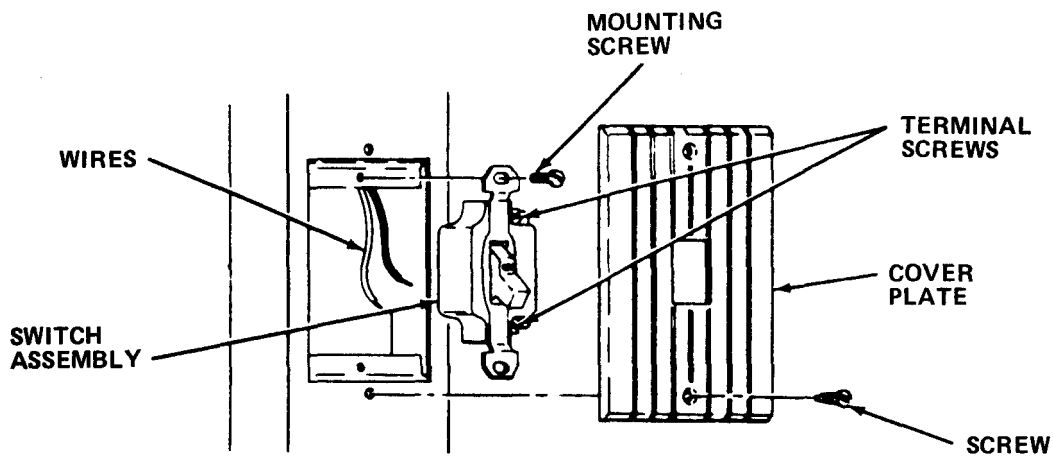
TOOLS : Flat-Tipped Screwdriver
Multimeter

SUPPLIES: Switch

WARNING

DEATH OR SERIOUS INJURY MAY OCCUR IF APPROPRIATE CIRCUIT BREAKER IS NOT TURNED OFF BEFORE WORKING ON SWITCH.

1. Turn off appropriate circuit breaker.



2. Remove two screws.
3. Remove cover plate.
4. Remove mounting screws.
5. Pull switch assembly from wire guide to gain access to wires.
6. Perform voltage check.
7. Loosen terminal screws. Then disconnect wires.
8. Reconnect wires to new switch, then tighten terminal screws.
9. Guide switch into wire guide, aligning holes.

NOTE

Be sure wires are not kinked or strained.

10. Reinstall mounting screws.
11. Reinstall cover plate and secure with two screws.
12. Turn circuit breaker on.

1.4.5.5 REPLACE RECEPTACLE.

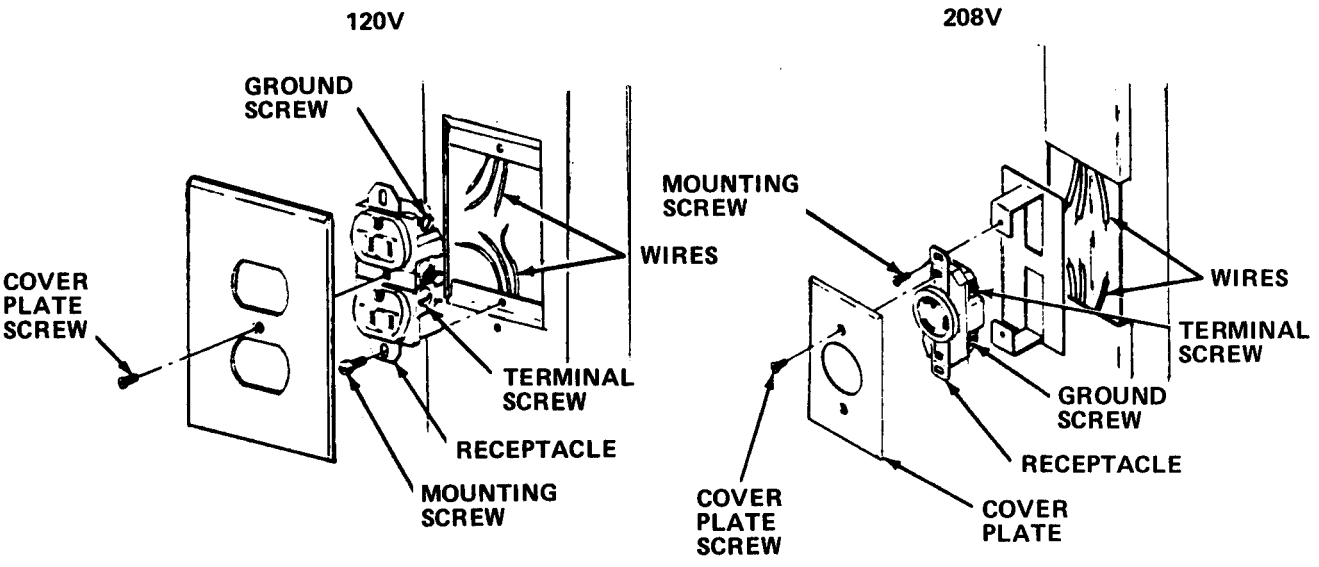
TOOLS : Flat-Tipped Screwdriver
Multimeter

SUPPLIES: Receptacle

WARNING

DEATH OR SERIOUS INJURY MAY OCCUR
IF APPROPRIATE CIRCUIT BREAKER IS NOT
TURNED OFF BEFORE WORKING ON RECEPTACLE.

1. Turn off appropriate receptacle circuit breakers.



2. Check receptacle for voltage.

3. Remove cover plate screws.

4. Remove cover plate.

5. Remove mounting screws.

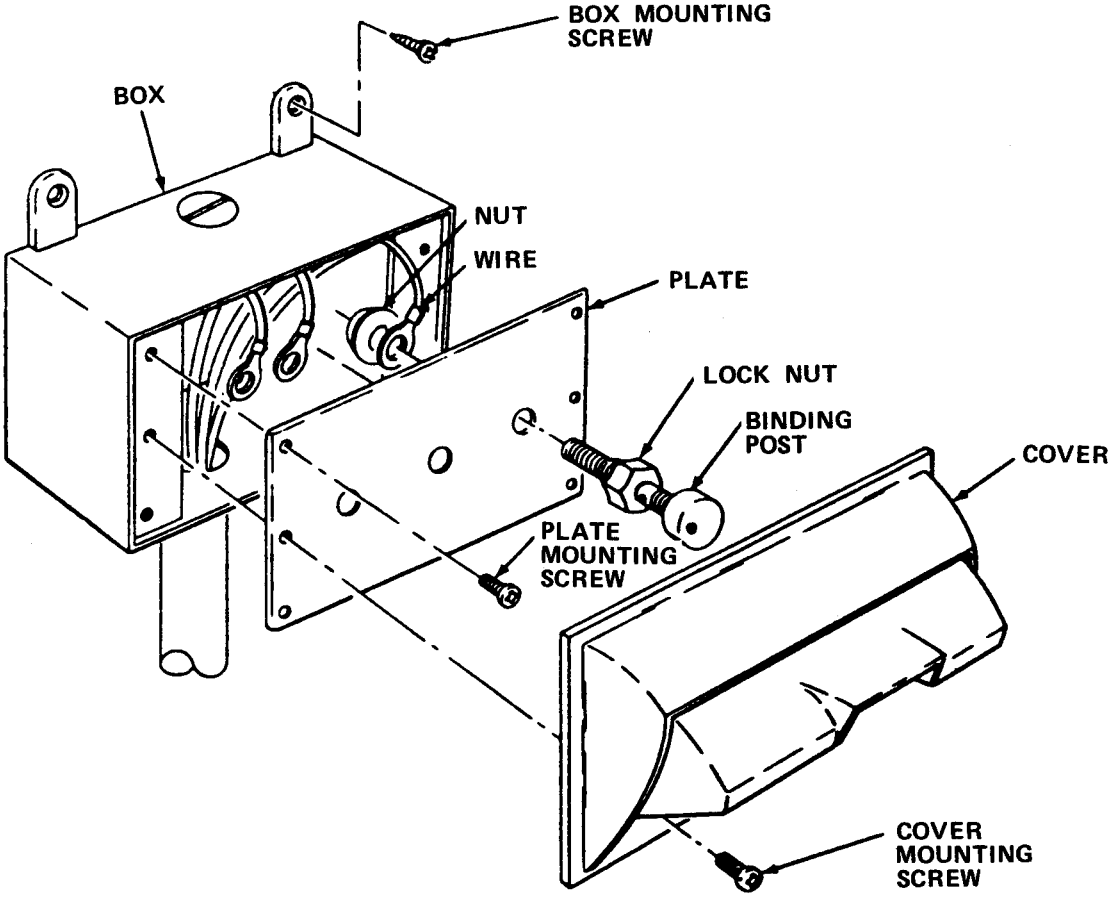
6. Withdraw receptacle to gain access to wires.

7. Loosen terminal screws and ground screw. Then disconnect wires.
8. Reconnect wires to new receptacle. Connect green (ground) wire first.
9. Install new receptacle.
10. Guide receptacle into wire guide. Be sure wires are not kinked or strained.
11. Secure receptacle with screws.
12. Reinstall cover plate. Secure with screw.
13. Turn circuit breaker on.

1.4.5.6 REPLACE TELEPHONE BINDING POST ASSEMBLY.

TOOLS : Electronic Tool Kit

SUPPLIES: Binding Post Box
Binding Posts



1. Remove cover.
2. Remove plate mounting screws to gain access to back of plate.
3. Label wires for identification.
4. Remove nuts and wires from binding posts.
5. If required, remove box mounting screws and replace box.
6. Replace any defective binding posts. Secure wires to new posts and remove labels.
7. Reinstall plate and secure with screws.
8. Secure cover with screws.

1.4.5.7 REPLACE VENTILATION FAN.

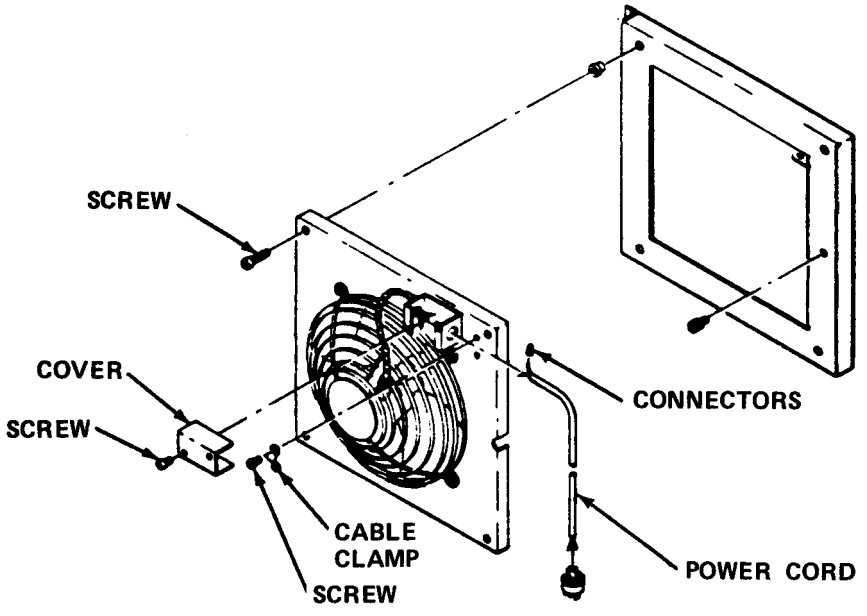
TOOLS: Tool Kit, Electronic

SUPPLIES: Fan Assembly
Wire Nuts

WARNING

TURN FAN SWITCH OFF AND DISCONNECT POWER CORD BEFORE WORKING ON VENTILATION FAN. DEATH OR SERIOUS INJURY COULD RESULT IF POWER IS LEFT ON.

1. Unplug power cord.



2. Remove four screws and place fan assembly on work surface.

3. Remove two screws and cable clamp.

4. Remove two screws and cover.

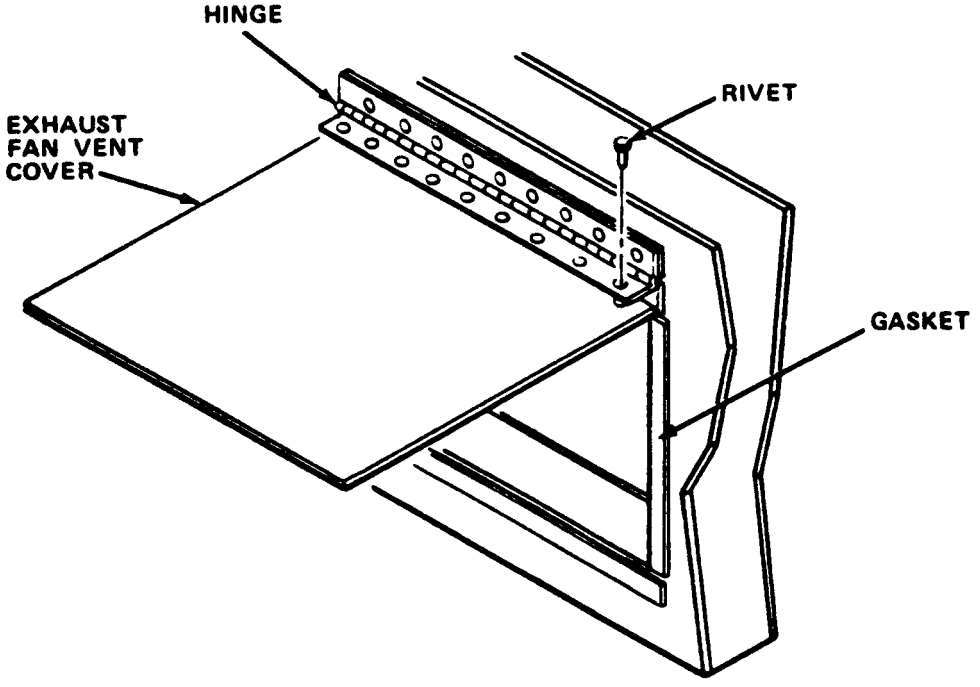
5. Label wires, cut connectors from wires, and remove power cord from fan assembly.

6. Install power cord in new fan assembly.
7. Reconnect wires with wire nuts and remove labels.
8. Reinstall cable clamp. Secure with screws.
9. Reinstall cover. Secure with screws.
10. Reinstall fan assembly.
11. Plug in power cord.

1.4.5.8 REPLACE VENTILATION FAN COVER.

TOOLS : Drill and Bits
Rivet Gun
Scraper

SUPPLIES: Rivets
Ventilation Fan Cover
Gasket
Solvent PD-680
Adhesive
Rags



1. Drill rivets out of hinged cover to remove ventilation fan cover.

2. Remove fan cover.

WARNING

DRY CLEANING SOLVENT, P-D-680, USED TO CLEAN PARTS IS POTENTIALLY DANGEROUS TO PERSONNEL AND PROPERTY. AVOID REPEATED AND PROLONGED SKIN CONTACT. WEAR SOLVENT IMPERMEABLE GLOVES AND EYE/FACE PROTECTIVE EQUIPMENT WHEN USING SOLVENT. DO NOT USE NEAR OPEN FLAME OR EXCESSIVE HEAT. FLASH POINT OF SOLVENT IS 100°F TO 138°F (38°C TO 59°C).

3. Scrape gasket off van body and clean area with solvent.

4. Secure new gasket to van body with adhesive.

5. Align new ventilation fan vent cover and rivet to hinge.

6. Test cover for tightness of closure.

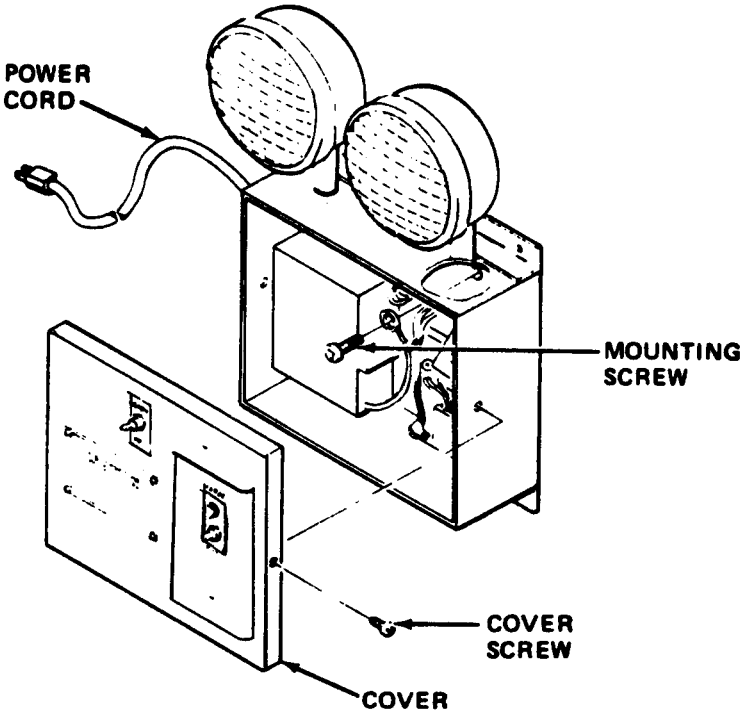
1.4.5.9 REPLACE EMERGENCY LIGHT.

TOOLS : Tool Kit, Electronic

SUPPLIES: Emergency Light

WARNING

DEATH OR SERIOUS INJURY MAY OCCUR IF POWER CORD IS NOT UNPLUGGED BEFORE SERVICING LIGHT.

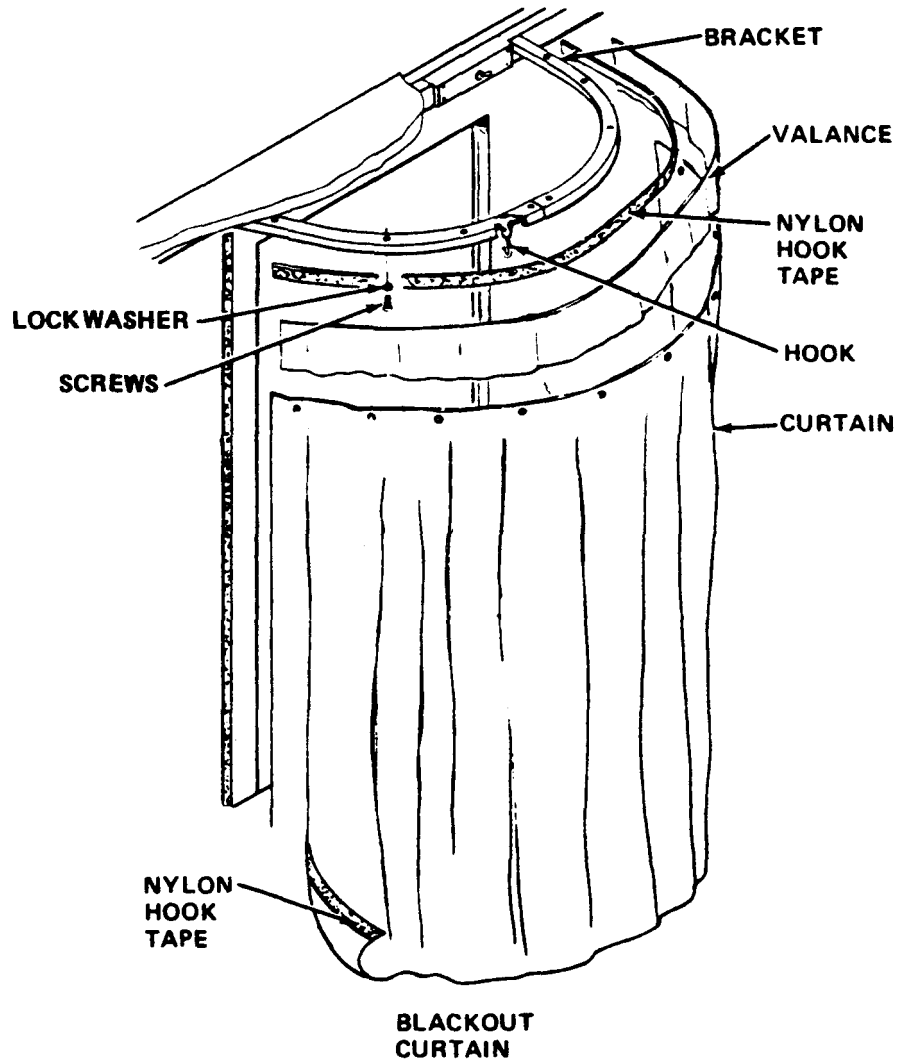


1. Unplug power cord.
2. Remove two cover screws. Move cover out of way.
3. Remove three mounting screws and emergency light assembly.
4. Install new emergency light assembly. Secure with three screws.
5. Secure cover with two screws.
6. Plug in power cord.
7. Push test button, check for proper operation.

1.4.5.10 REPAIR BLACKOUT CURTAIN.

TOOLS : Cross-Tipped Screwdriver

SUPPLIES: Hooks
Valance
Curtain
Nylon Hook Tape
Adhesive



1. Remove curtain from hooks.
2. Pull curtain and valance from nylon hook tape.
3. Replace torn or rotted curtain or valance.

4. Remove screws and lock washers fastening bracket to ceiling.

5. Replace damaged hooks.

6. Reinstall bracket with hooks. Fasten with screws and lock washers.

7. Glue loose nylon hook tape to wall or bracket. Replace tape if worn out.

8. Hook curtain to bracket.

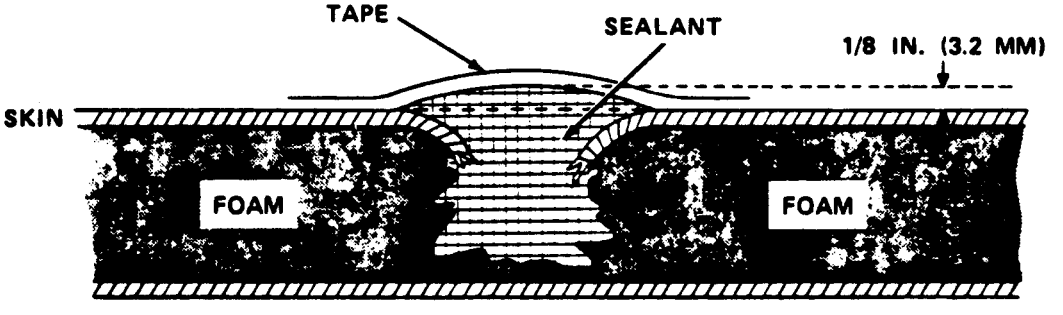
9. Attach valance.

10. Check curtain for free movement.

1.4.5.11 REPAIR VAN BODY SKIN (TEMPORARY).

TOOLS : Pliers
Ball-Peen Hammer
Scissors or Utility Knife

SUPPLIES: Cloth Duct Sealing Tape
Silicone Sealant
Cloth



WARNING

DAMAGED SHEET METAL HAS SHARP EDGES. USE CARE WHEN BENDING BROKEN EDGES BACK TO PREVENT PERSONAL INJURY.

1. Bend broken edges of punctured skin inward into puncture hole. Do not attempt to remove fragments of skin by bending or pulling outward. Bend skin inward only enough to put broken edges below surface of unbroken skin.

2. Remove any loose fragments of foam which are not now held in place by bent broken skin. Removing small pieces of foam or dust is more important than removing chunks.

3. Using cloth slightly dampened with water, wipe area around puncture to remove any dirt or mud. Then wipe dry.

4. Inject sealant into puncture. Mound sealant to about 1/8 in. (3.2 mm) above surface of unbroken skin. Apply bead of sealant about 1/4 in. (6.4 mm) wide over all cuts in skin leading out from puncture. Do not smooth out sealant.

5. Plan how puncture is to be covered with tape before applying any tape. Length and width of tape, number of tape strips, overlapping, and how tape is applied will affect sealing capability of repair. Each piece of tape should extend about 1-1/2 in. (38.1 mm) beyond sealant it will cover. If this will require more than one strip of tape, tape should overlap about 1/2 in. (12.7 mm). If three or more strips of tape are required, center strip should be applied first.

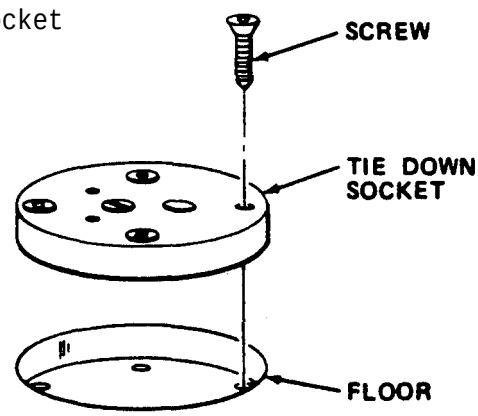
6. Holding tape taut, apply it perpendicular to panel skin. Do not apply with rolling motion either end-to-end or center-to-ends. Do not rub each strip in place individually. Apply all strips lightly with proper overlap. Then rub into place.

7. If necessary, damaged tape can be replaced; however, it should be removed with careful peeling motion to avoid damage to sealant. If sealant also peels back, new sealant should be applied. Complete removal of old sealant is not necessary. Permanent repair by Direct Support, or higher category of maintenance, should be made as soon as possible.

1.4.5.12 REPLACE TIE-DOWN SOCKET.

TOOLS: Cross-Tipped Screwdriver
Flat-Tipped Screwdriver

SUPPLIES: Tie-Down Socket



1. Remove screws from tie-down socket.

2. Pry socket from floor.

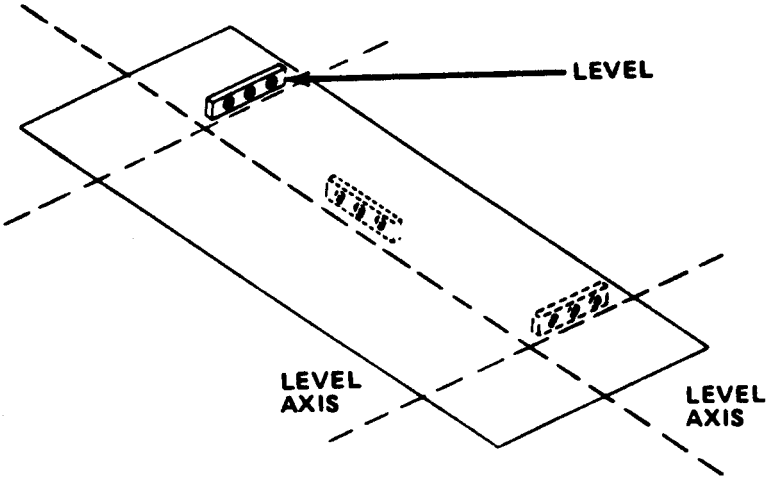
3. Install new tie-down socket. Rotate new tie-down socket enough to avoid installing screws in old screw holes.

4. Reinstall screws.

1.4.5.13 REPLACE LEVEL INDICATOR.

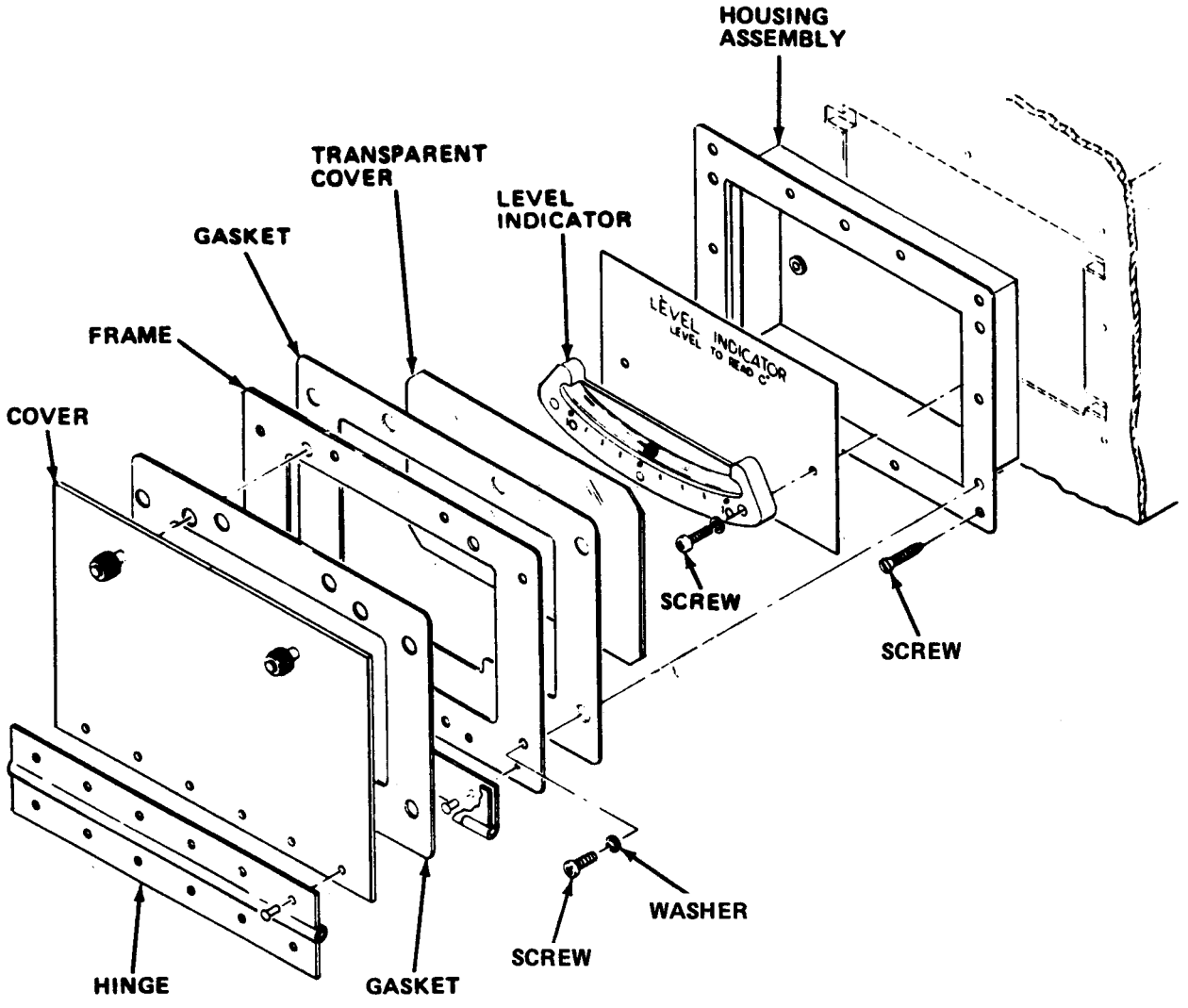
TOOLS: Tool Kit
Carpenter's Level

SUPPLIES: Level Indicator



1. Level section using level indicators. Then confirm section is level by using carpenter's level on floor inside van body.

2. Adjust section leveling jacks until section is level as shown by carpenter's level at front-rear and left-right at each end.



3. Remove screws and washers to release frame and gasket.

4. Remove transparent cover.

5. Remove screws and washers to remove level indicator.

6. Replace level indicator and loosely secure with screws and washers.

7. Move indicator ends up or down to align level indicator. Then tighten indicator screws.

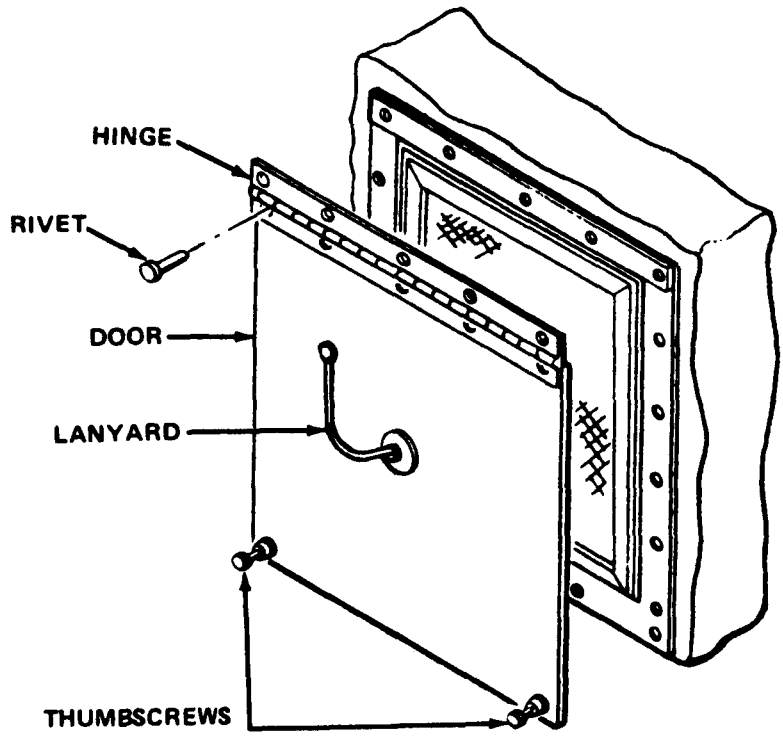
8. Reinstall transparent cover, gasket, and frame.

9. Secure with screws and washers.

1.4.5.14 REPLACE AIR VENT DOOR.

TOOLS: Tool Kit
Drill and Bits
Rivet Gun

SUPPLIES: Vent Door
Rivets
Paint
Paint Brush

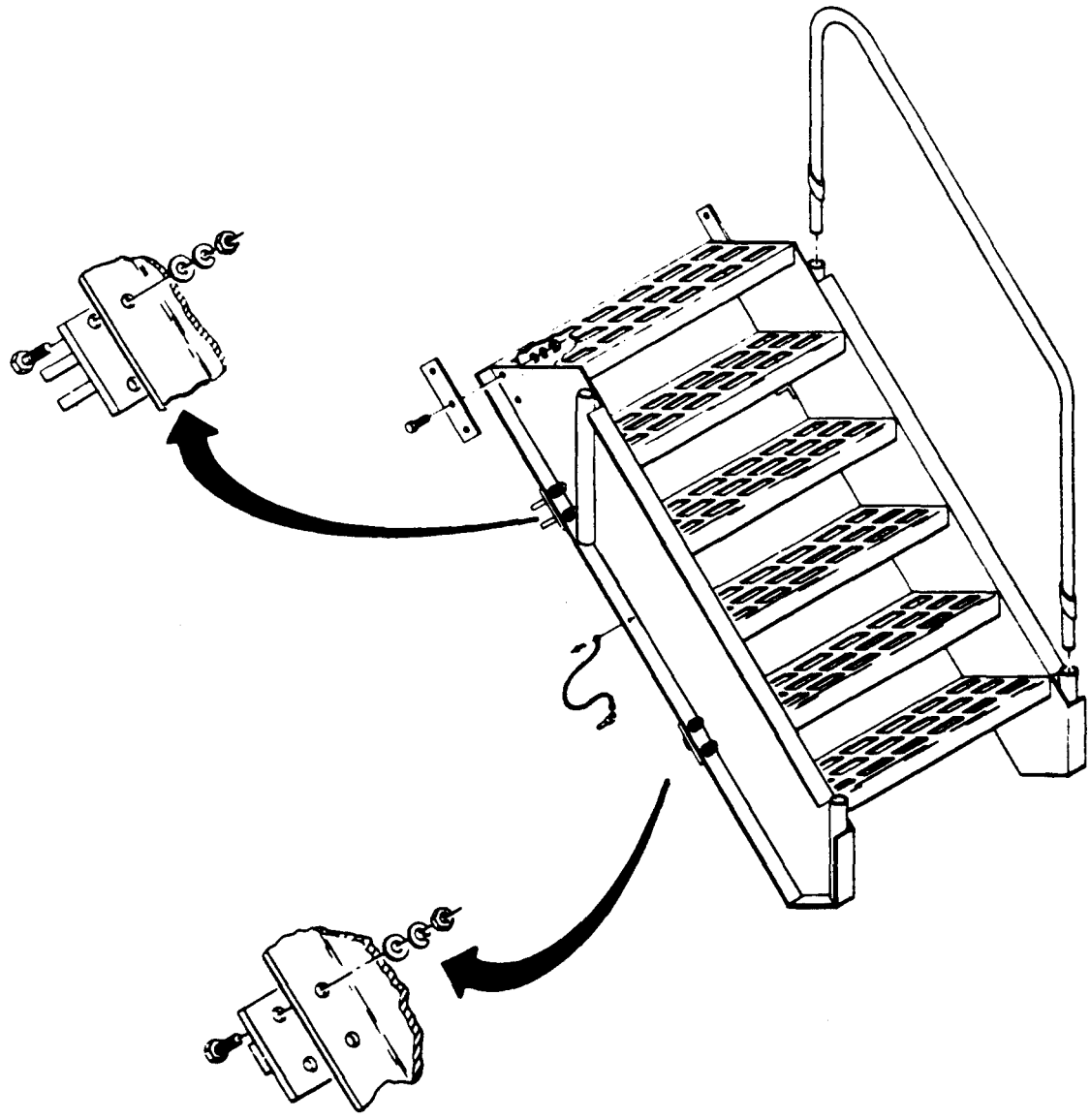


1. Loosen thumbscrews.
2. Drill rivets from hinge. Remove door.
3. Align holes and rivet new door to van body.
4. Tighten thumbscrews.
5. Paint if required in accordance with TM 43-0139, painting instructions for field use.

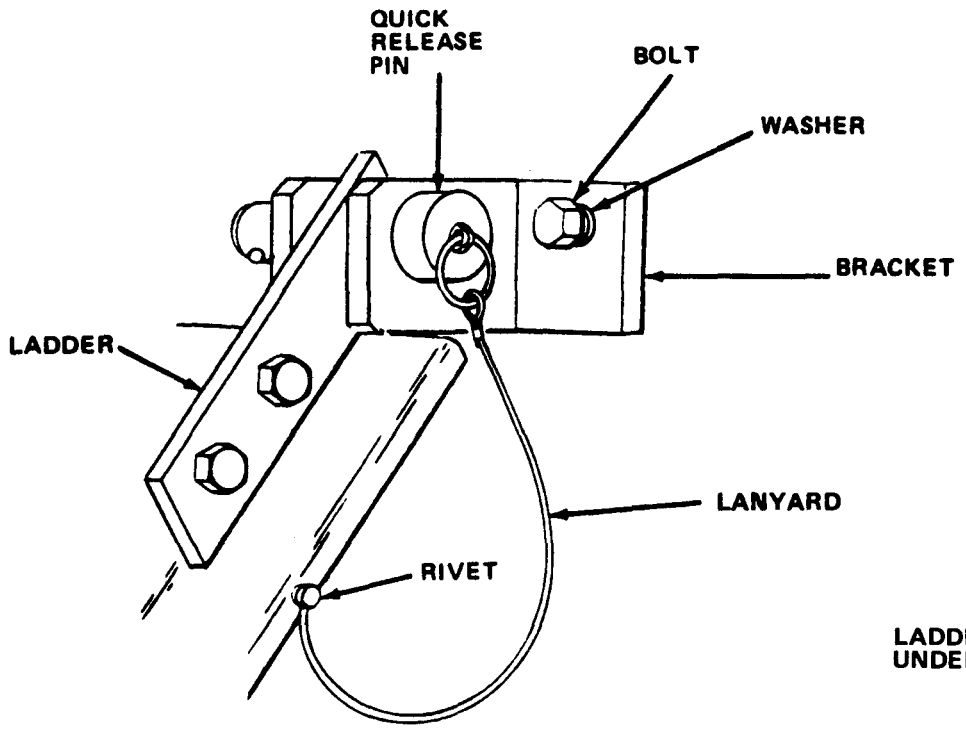
1.4.5.15 REPAIR BOARDING LADDER.

TOOLS : Tool Kit
Rivet Gun

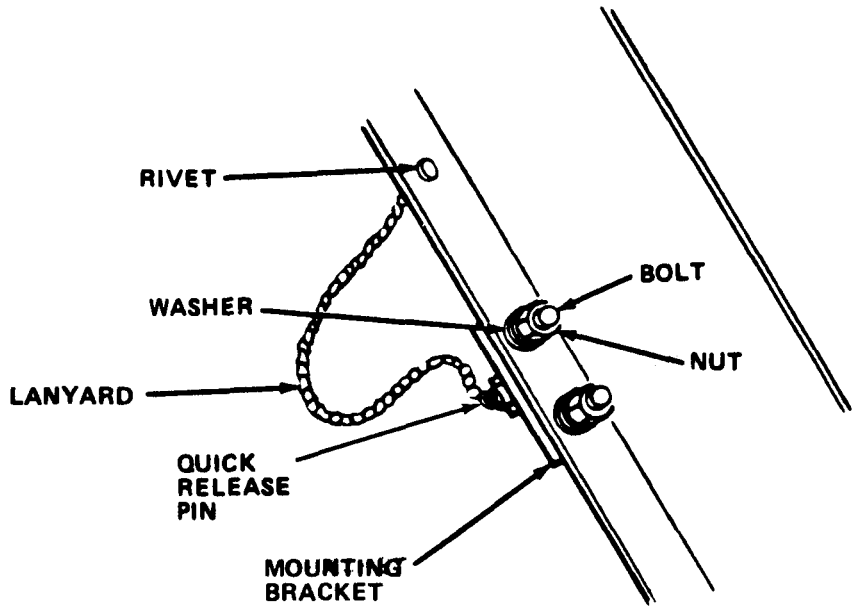
SUPPLIES: Lanyard
Quick-Release Pins
Rivets
Mounting Brackets



1. Remove ladder from mounting bracket.

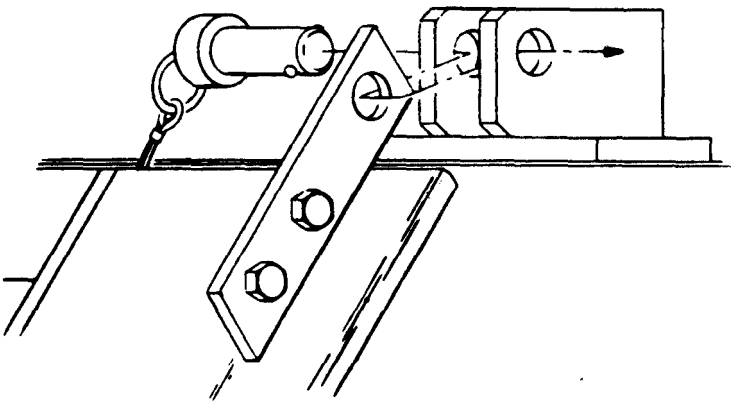


LADDER POSITIONED
UNDER PERSONNEL DOOR



2. Remove bolts, washers, and nuts securing mounting brackets to ladder.

3. Remove lanyard from ladder by drilling rivet fastener out.



4. Reinstall or install new mounting brackets. Secure with bolts, washers, and nuts.

5. Rivet new lanyard with quick-release pin to ladder.

6. Be sure ladder mounting brackets fit van body on rear and side personnel doors.

1.4.6 PREPARATION FOR STORAGE OR SHIPMENT

a. Van body may be stored or shipped either mounted on trailer chassis or unmounted. Preparation of trailer chassis is covered in TM 5-2330-305-14 and should be referred to when trailer-mounted Section is prepared for storage or shipment. TM 5-4120-367-14 must be reviewed for instructions covering air conditioners/heaters.

b. Inventory equipment and consumable supplies against Hand Receipt Manual to be sure all accountable material is contained in van body. Remove consumable supplies that have limited shelf life or broken seals. Replace missing items and be sure that all remaining consumable supplies are at authorized levels. Be sure all major components are operational.

c. Remove all unauthorized or personal equipment from van body.

d. Remove all classified material or sensitive data to proper storage. Complete all accountability and/or transfer of documents.

e. Refer to Preparation for Movement (1.2.3.2) and follow applicable steps and any additional steps directed by area authorities.

1.4.7 REPLACEMENT OF MAJOR COMPONENTS. All Map Layout Section major equipment remove/replace instructions are included in this paragraph.

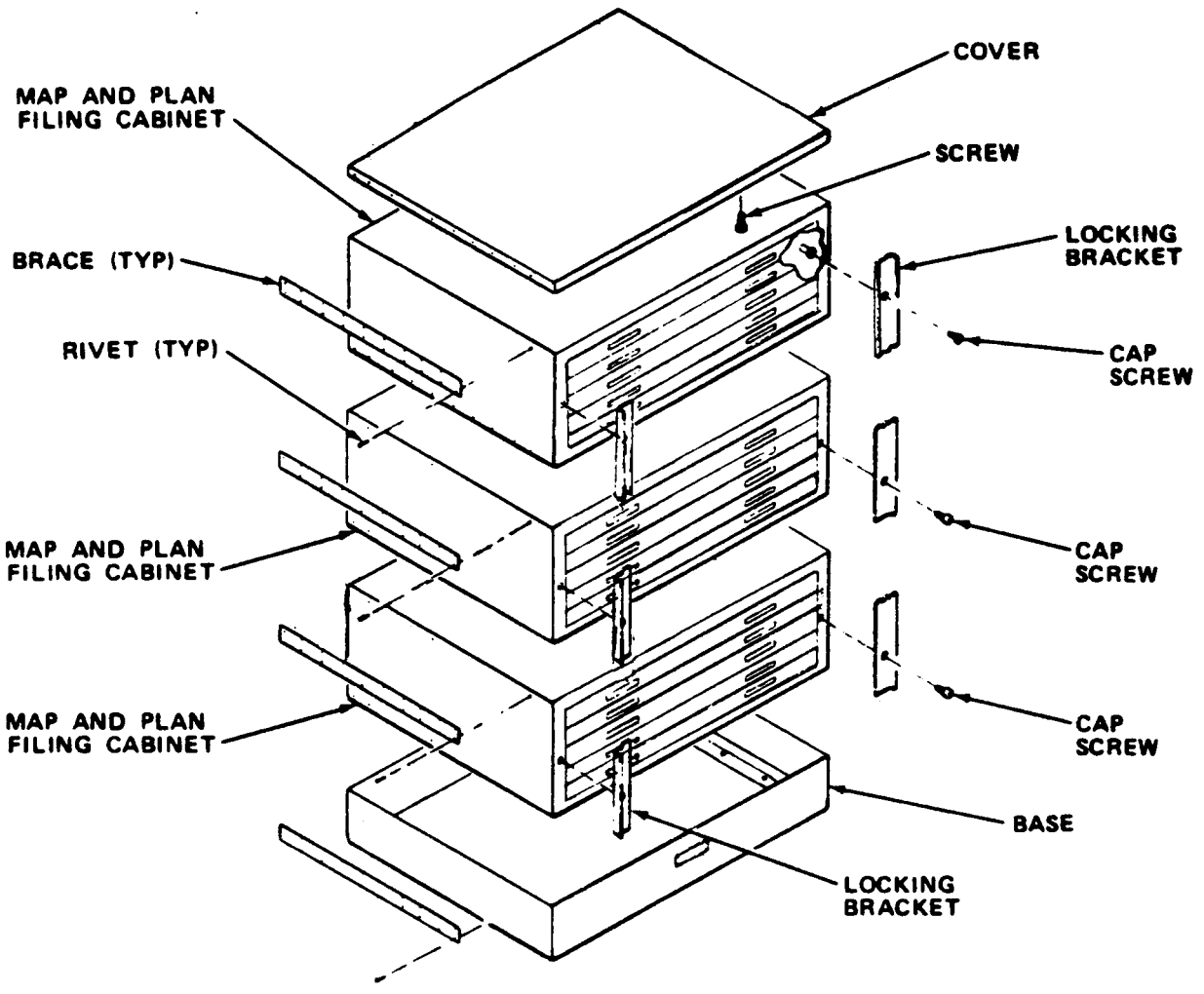
INDEX

1.4.7.1 REPLACE MAP AND PLAN FILING CABINET.

TOOLS: Tool Kit
Rivet Gun
Drill and Bits

SUPPLIES: Portable Drawing Board
Map and Plan Filing Cabinet
Rivets (2 bx)

1. Drill rivets from braces attached to damaged section(s) and sections on top and remove braces.
2. Remove map and plan filing cabinet cover.
3. Remove knurled screws from locking bracket on each side of front. Then remove locking bracket.
4. Remove damaged section.
5. Install new section as required.
6. Rivet braces to new section(s) and to section(s) it was removed from.
7. Rivet top to top section.
8. Reinstall locks and secure with knurled screws.
9. Reinstall filing cabinet cover.


COVER
MAP AND PLAN FILING CABINET
SCREW
LOCKING BRACKET
BRACE (TYP)
CAP SCREW
RIVET (TYP)
MAP AND PLAN FILING CABINET
CAP SCREW
MAP AND PLAN FILING CABINET
CAP SCREW
BASE
LOCKING BRACKET

1.4.7.2 REPLACE DRAFTING, SCRIBING/TRACING TABLE.

TOOLS: Tool Kit

SUPPLIES: Drafting, Scribing/Tracing Table

1. Remove Map and Plan Filing Cabinet (para 1.4.7.1)

2. Remove Photolithographic Supply Storage Cabinet(s) (para 1.4.7.3), if required.

3. Remove Drafting, Scribing/Tracing Table(s) as necessary.

4. Turn power switch off.

WARNING

DEATH OR SERIOUS INJURY FROM ELECTRICAL SHOCK COULD RESULT IF POWER CORD IS NOT REMOVED FROM RECEPTACLE BEFORE REMOVING TABLE.

5. Unplug power cord.

6. Remove hex-head screws, lock washers, and hex nuts from table mounting brackets.

WARNING

TO REPLACE DRAFTING, SCRIBING/TRACING TABLE, USE TWO PERSONS TO PREVENT PERSONAL INJURY.

7. Carefully pull table toward you until it clears table mounting brackets.

8. Remove defective table from section.

9. Position new drafting, scribing/tracing table in front of table mounting brackets.

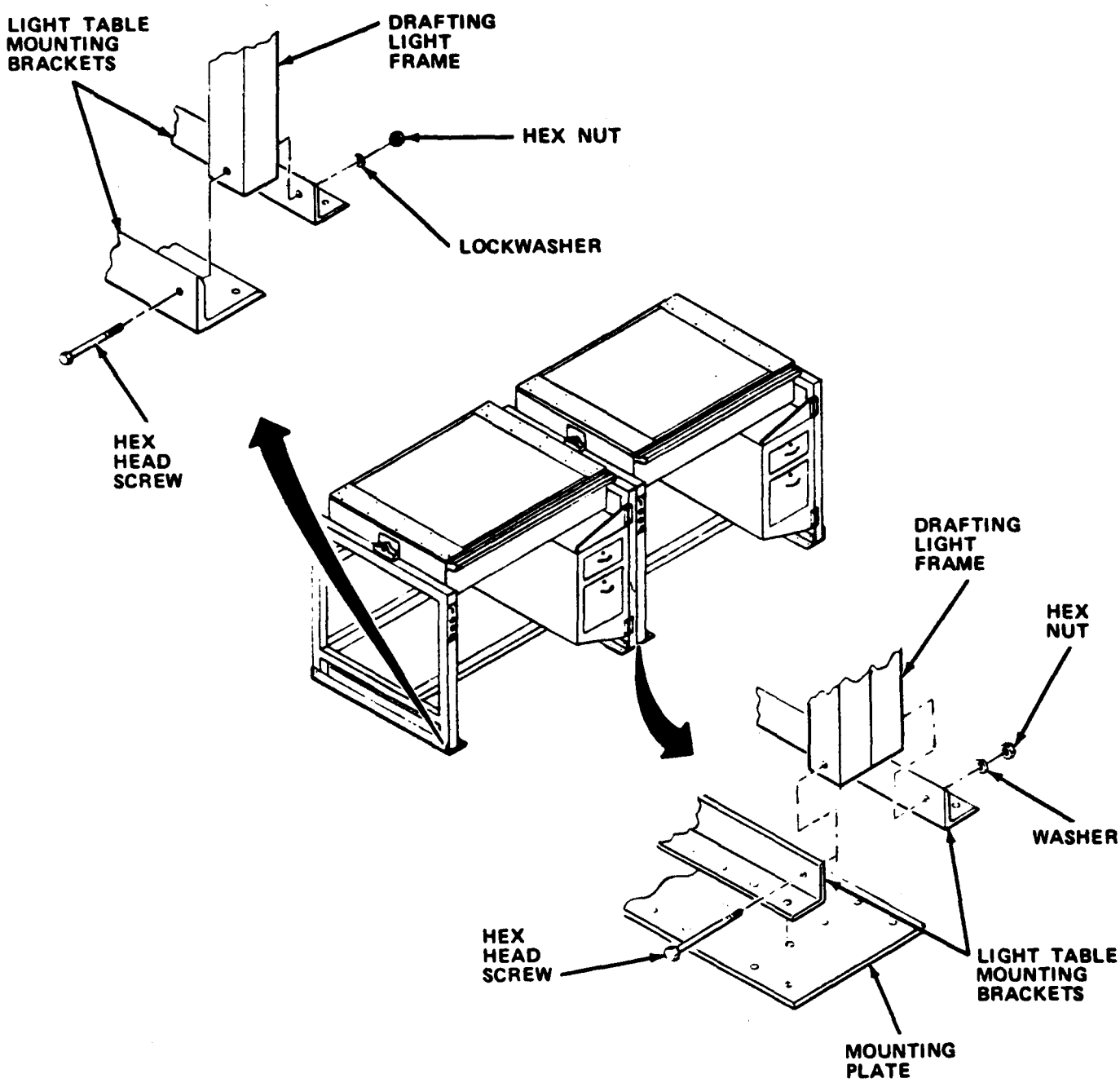
10. Slide table between table mounting brackets until holes in table frame are aligned with table mounting bracket holes.

11. Reinstall hex-head screws, lock washers, and hex nuts into table mounting brackets.

12. Plug in power cord.

13. Check for proper operation.

14. Reinstall Drafting, Scribing/Tracing Table(s) as necessary.



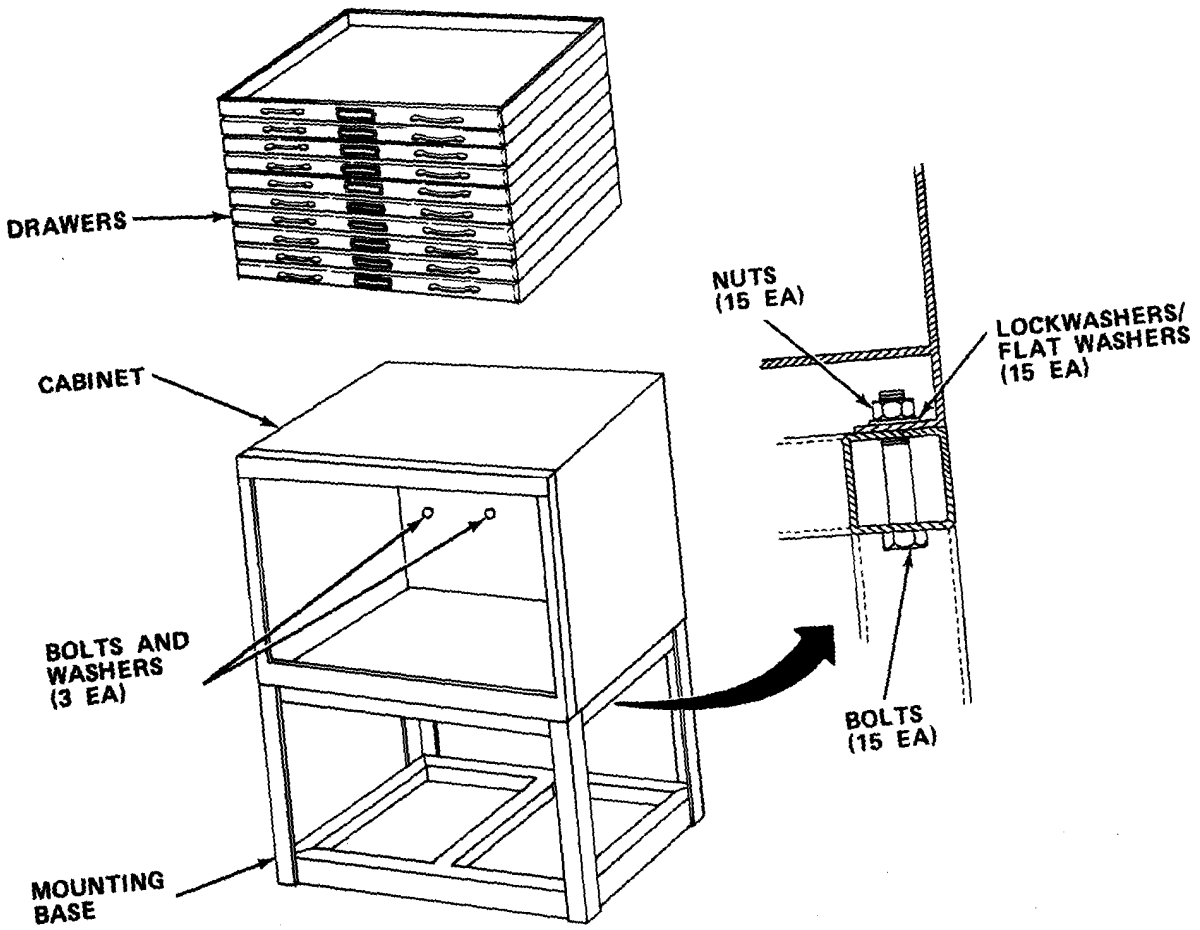
15. Reinstall Photolithographic Supply Storage Cabinet(s) as necessary (1.4.7.3).

16. Reinstall Map and Plan File Cabinet (para 1.4.7.1).

1.4.7.3. REPLACE PHOTOLITHOGRAPHIC STORAGE CABINET (10 DRAWER).

TOOLS: Tool Kit, Mechanic's

SUPPLIES: Photolithographic Storage Cabinet



1. Remove drawers.
2. Remove bolts and washers holding cabinet to wall.
3. Remove nuts bolts and washers holding cabinet to mounting base.
4. Remove cabinet.
5. Remove drawers from new cabinet.

6. Line up cabinet over holes in mounting base and install nuts, bolts and washers.

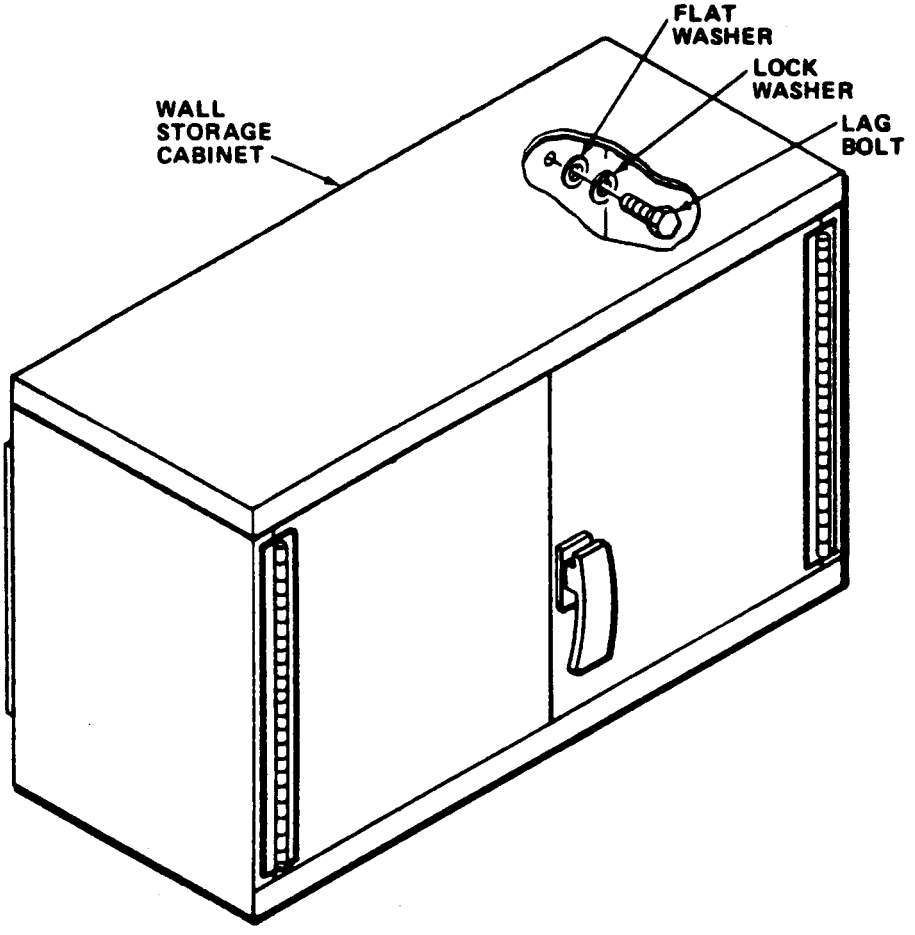
7. Install bolts and washers holding cabinet to wall.

8. Install drawers.

1.4.7.4 REPLACE WALL STORAGE CABINET.

TOOLS: Tool Kit, Mechanic's

SUPPLIES: Wall storage Cabinet



1. Remove four lag bolts, four lock washers, and four flat washers which secure cabinet to wall.

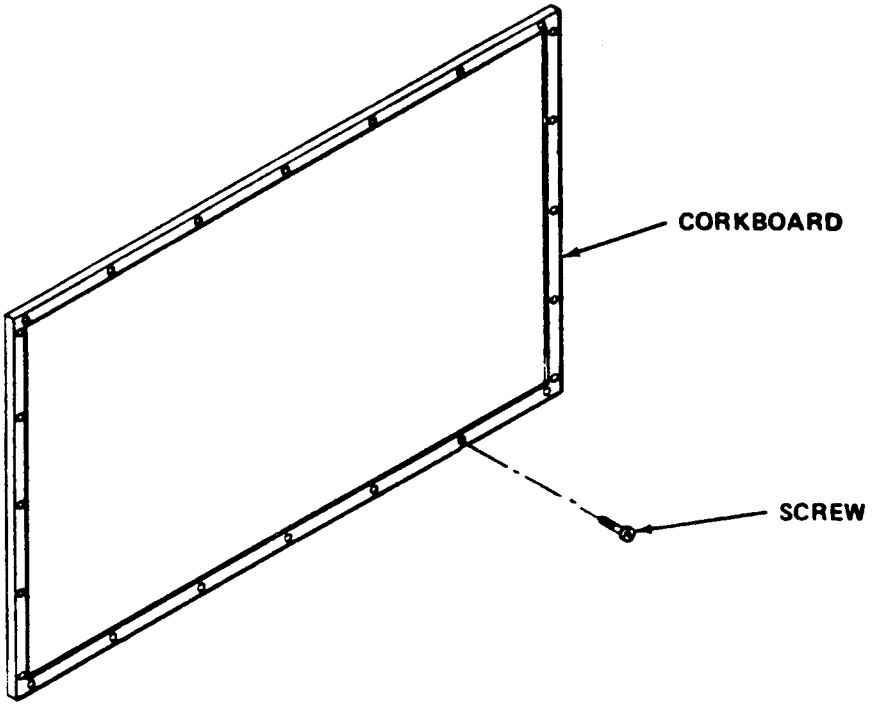
2. Remove cabinet.

3. Install new cabinet, and secure to wall with four lag bolts, lock washers, and flat washers.

1.4.7.5 REPLACE CORKBOARD.

TOOLS: Cross-Tipped Screwdriver

SUPPLIES: Corkboard

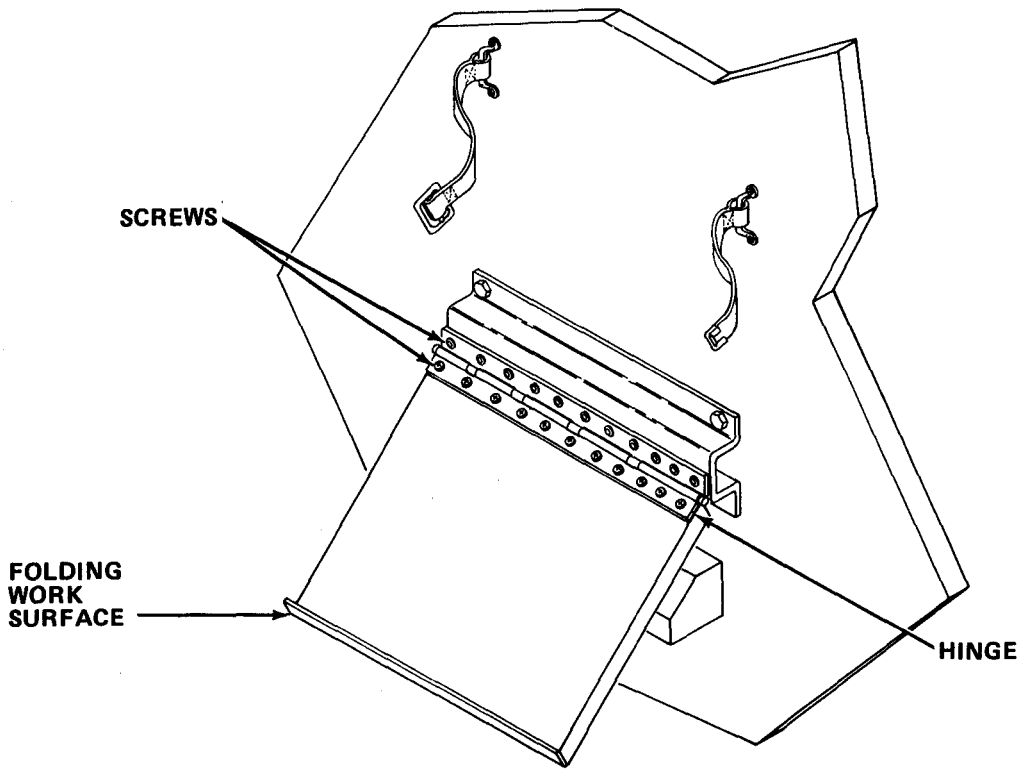


1. Remove screws.
2. Remove corkboard.
3. Position new corkboard and line up mounting holes.
4. Secure with screws.

1.4.7.6 REPLACE FOLDING WORK SURFACE.

TOOLS: Cross Tip Screwdriver

SUPPLIES: Folding Work Surface



1. Remove screws from hinge securing defective folding work surface to wall bracket.

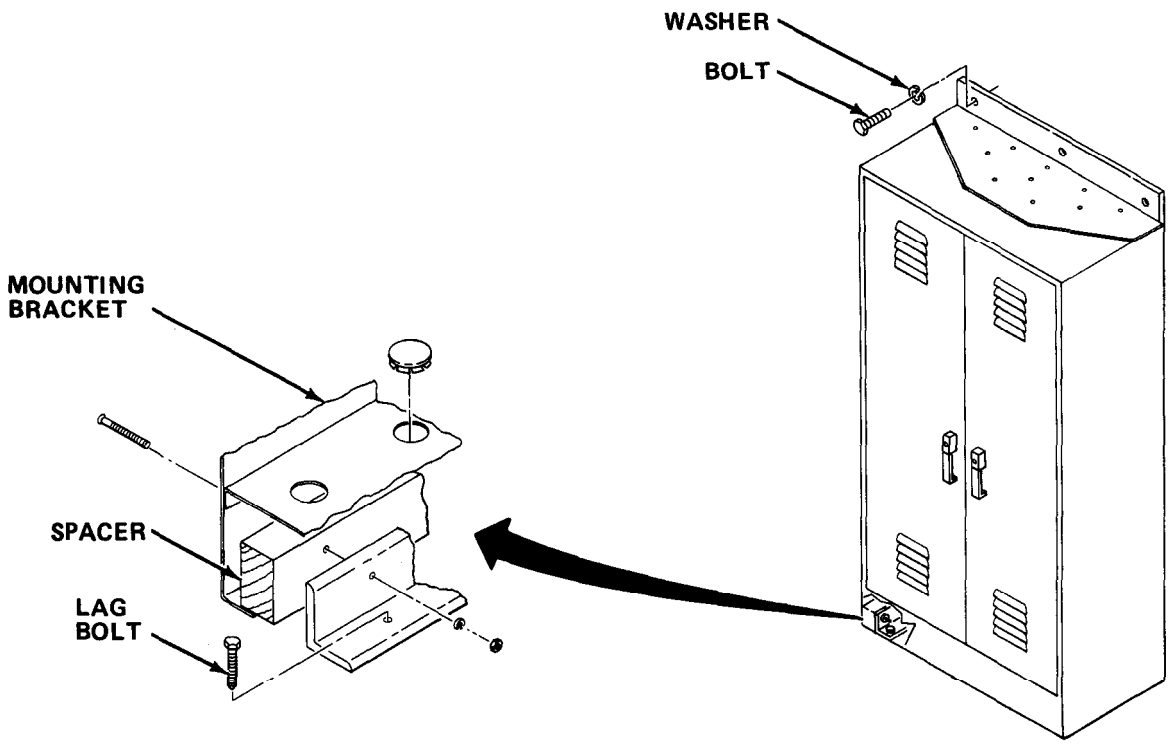
2. Remove defective folding work surface from section.

3. Aline holes in hinge on new folding work surface and secure with screws.

1.4.7.7 REPLACE TWO-DOOR STORAGE CABINET.

TOOLS: Tool Kit, Light Machine Repair

SUPPLIES: Storage Cabinet



1. Remove bolts and flat washers holding cabinet to wall.
2. Remove caps and lag bolts holding mounting bracket to floor; remove defective cabinet.
3. Remove bolts, lockwashers, nuts, mounting brackets, and spacers from cabinet. Retain mounting brackets and spacers for use on new cabinet.
4. Position spacers and mounting brackets on new cabinet and install, but do not tighten nuts, lockwashers, and bolts.
5. Place new cabinet in position and install but do not tighten lag bolts.
6. Secure cabinet to wall with flat washers and bolts.
7. Tighten bracket retaining bolts and nuts.
8. Tighten bolts holding the mounting brackets to floor and install the caps.

Section V. DIRECT/GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

1.5.1 REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT; AND SUPPORT EQUIPMENT

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

1.5.1.2 SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT; AND SUPPORT EQUIPMENT. No special tools; test, measurement, and diagnostic equipment; or support equipment are required for the repair of this Section at the Direct/General Support level of maintenance. Individual equipment requirements are covered in the specific equipment chapters.

1.5.1.3 REPAIR PARTS. Repair parts for this equipment are listed in TM 5-3610-260-24P, Repair Parts and Special Tools List (RPSTL), covering Organizational, Direct Support, and General Support Maintenance for this equipment.

1.5.2 DIRECT/GENERAL SUPPORT TROUBLESHOOTING PROCEDURES

a. Troubleshooting at Direct/General Support Maintenance levels is required to maintain or restore the van body to operational readiness. Troubleshooting procedures for the air conditioner/heater are contained in TM 5-4120-367-14. Troubleshooting for the trailer chassis is contained in TM 5-2330-305-14.

b. The most common failures are covered in this section. Failures or malfunctions not covered require that systematic evaluation and step-by-step analysis of the problem be made to isolate the fault.

Table 1-5. DIRECT/GENERAL SUPPORT TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION/PROBABLE CAUSE	CORRECTIVE ACTION
1. <u>PERSONNEL DOORS DO NOT CLOSE COMPLETELY.</u>	
Step 1. Be sure that latch rollers rotate freely.	Replace latches.
Step 2. Check to see if latch rods are bent.	Replace latch rods.

Table 1-5. DIRECT/GENERAL SUPPORT TROUBLESHOOTING (Cont)

MALFUNCTION TEST OR INSPECTION/PROBABLE CAUSE CORRECTIVE ACTION
1. (Cont)
Step 3. Check door gasket for tears or breaks causing lumps in gasket. Replace door gasket.
2. CARGO DOORS DO NOT LATCH PROPERLY.
Check door latch for missing components or damage. Replace door latch.
3. AIR OR WATER ENTERS VAN BODY AROUND DOOR.
Check door gasket for wear or damage. Replace door gasket.
4. RECEPTACLES DO NOT OPERATE, BUT CIRCUIT BREAKERS ARE ON.
WARNING DEATH OR SERIOUS INJURY FROM ELECTRICAL SHOCK MAY RESULT FROM FAILURE TO FOLLOW ELECTRICAL SAFETY PRECAUTIONS.
Step 1. Verify line voltage and frequency at power panel. Repair connections at entry panel.
Step 2. Check circuit breaker output power. Tighten loose connection. Replace circuit breaker. Contact appropriate maintenance personnel to correct power source fault.

Table 1-5. DIRECT/GENERAL SUPPORT TROUBLESHOOTING (Cont)

MALFUNCTION TEST OR INSPECTION/PROBABLE CAUSE CORRECTIVE ACTION
5. CIRCUIT BREAKERS TRIP CONTINUALLY.
Step 1. Check receptacles for overload.
Reconnect plug-in equipment to different circuits.
Step 2. Check circuit breakers for evidence of overheating, damage, or suspected failure.
Replace circuit breaker(s).
Step 3. Unplug all equipment on circuit. Then plug in equipment until circuit breaker trips.
Repair grounded or defective plug-in equipment.

1.5.3 MAINTENANCE PROCEDURES. Direct/General Support Maintenance tasks cover the tasks authorized for Direct/General Support. When investigating damage or malfunctions, particular care must be used to be sure that the van body has not been structurally damaged to prevent safe transportation.

INDEX

INDEX (Cont)

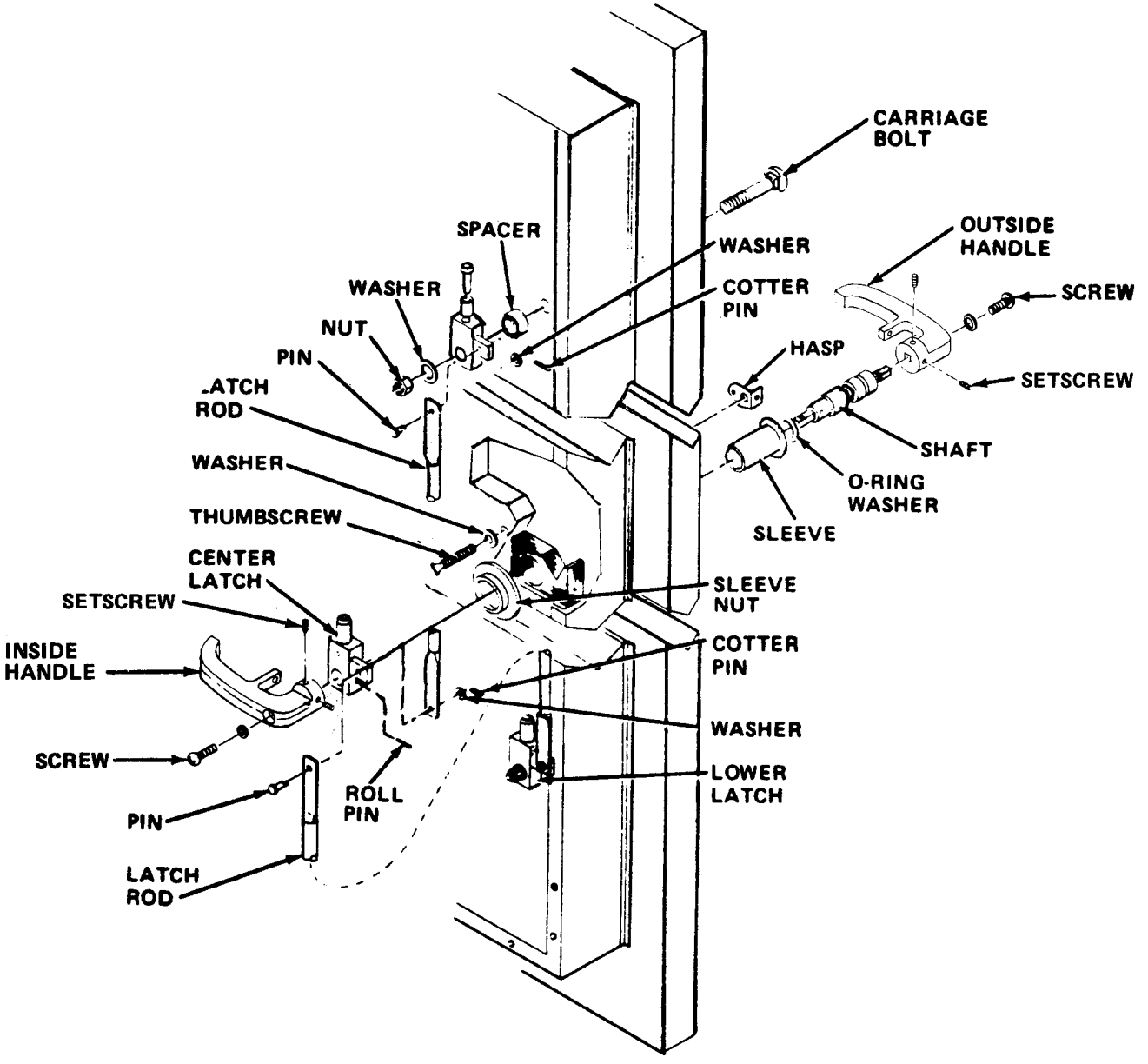
1.5.3.1 REPAIR PERSONNEL/CARGO DOOR HANDLE.

TOOLS : Tool Kit

SUPPLIES: Preformed Vinyl Gasket
Adhesive
Chalk
Solvent PD-680
Personnel Door Latch Assembly
Cargo Door Latch Assembly
Wiping Cloth
Motor Oil (30 wt)
Hand Oiler

PERSONNEL DOOR

1. Remove inside door handle.
2. Remove cotter pin and pins from center latch arm assembly.
3. Move latch rods out of way.
4. Punch pins from center latch arm and pull latch from shaft.
5. Withdraw shaft and handle from outside.
6. Inspect all components for wear.
7. Replace worn parts, the O-ring washer, and sleeve.
8. Reinstall shaft and handle from outside.
9. Align latch arm on shaft, and secure with new drift pin.
10. Align latch rod and attach to latch arms with pins, washers, and new cotter pin.
11. Reinstall handle.

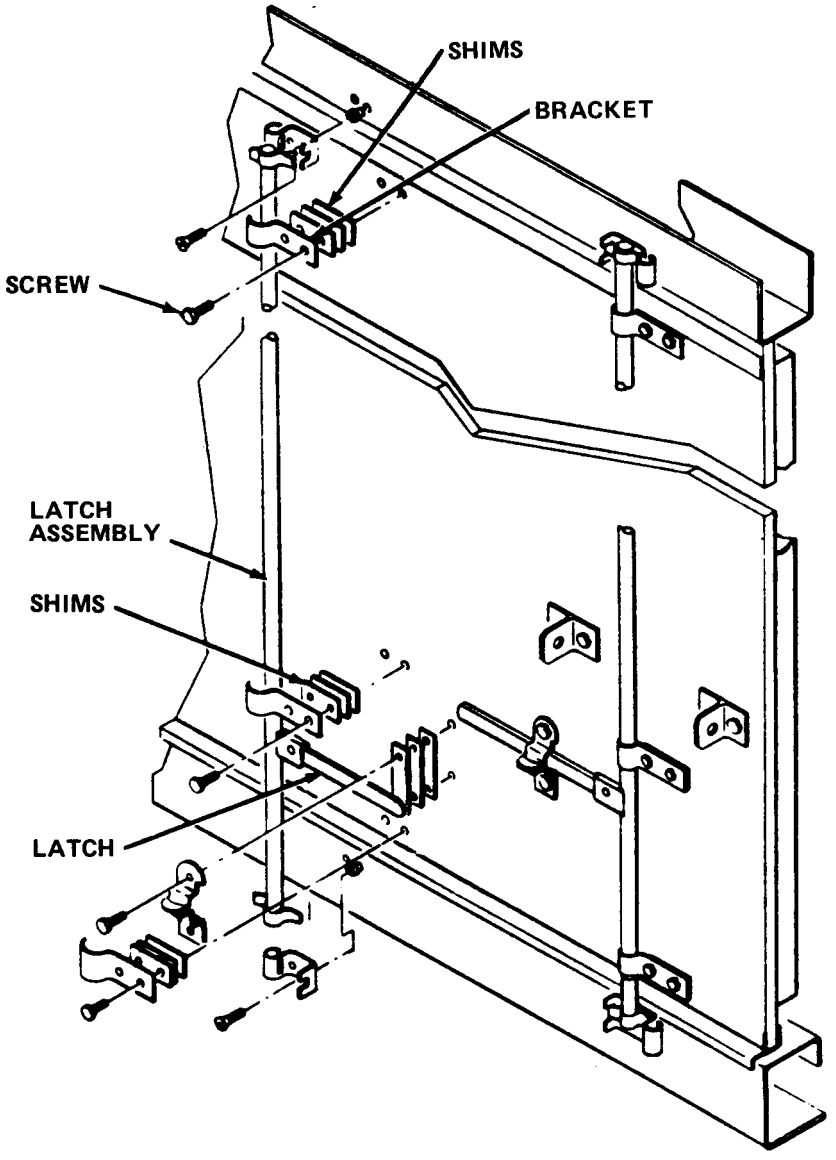


12. Lightly oil all moving parts.

13. Wipe up surplus oil.

CARGO DOOR LATCH

The Cargo Door latch is not repairable and must be replaced using the following procedure:



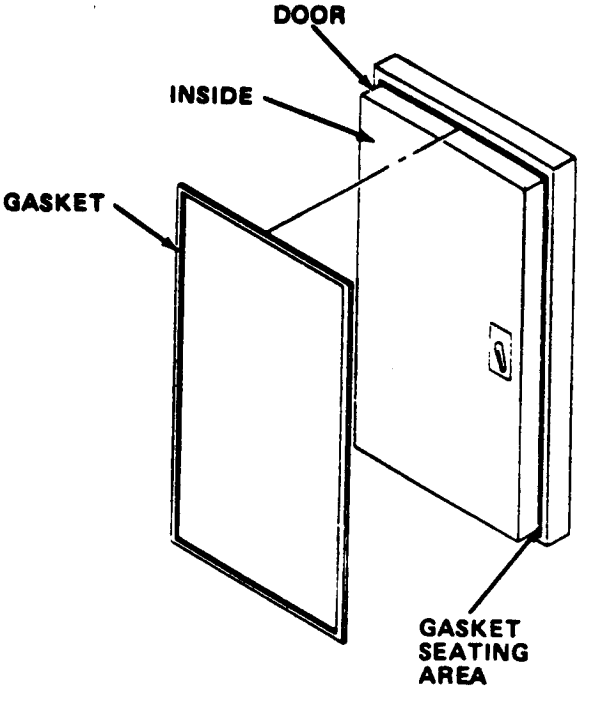
1. Unlock latch.
2. Remove screws from brackets. Save screws, brackets, and shims for reuse.
3. Replace latch assembly.

4. Secure new latch assembly with screws and brackets. Be sure that shims permit latch assembly to turn freely without chafing or binding.

DOOR GASKET

NOTE

Door gasket should be tested any time door is removed for maintenance; hinges, rollers, or other components are replaced; or if any noticeable increase in moisture, heat, cold, or dust is noticed inside van body.



1. Open door to full opening and secure in open position.

NOTE

This step may be omitted if gasket is torn or damaged.

2. Chalk edge of gasket. Then secure door in closed position. Open door and inspect inside door frame to see if chalk has been transferred completely to frame without gaps or breaks.

WARNING

DRY CLEANING SOLVENT, P-D-680, USED TO CLEAN PARTS IS POTENTIALLY DANGEROUS TO PERSONNEL AND PROPERTY. AVOID REPEATED AND PROLONGED SKIN CONTACT. WEAR SOLVENT IMPERMEABLE GLOVES AND EYE/FACE PROTECTIVE EQUIPMENT WHEN USING SOLVENT. DO NOT USE NEAR OPEN FLAME OR EXCESSIVE HEAT. FLASH POINT OF SOLVENT IS 100°F TO 138°F (38°C TO 59°C).

3. Remove defective gasket by prying entire gasket from door. Scrape all traces of gasket and adhesive from door. Wash with solvent.

4. Coat gasket seating area on door with adhesive.

5. Firmly press new gasket onto door.

6. Wipe excess adhesive from gasket.

7. Close door and latch firmly.

8. Open door and wipe excess adhesive from frame and door.

9. Allow adhesive to cure before using door.

1.5.3.2 REPLACE PERSONNEL/CARGO DOOR.

TOOLS: Tool Kit
Rivet Gun
Drill and Bits
Hoist
Paint Brushes

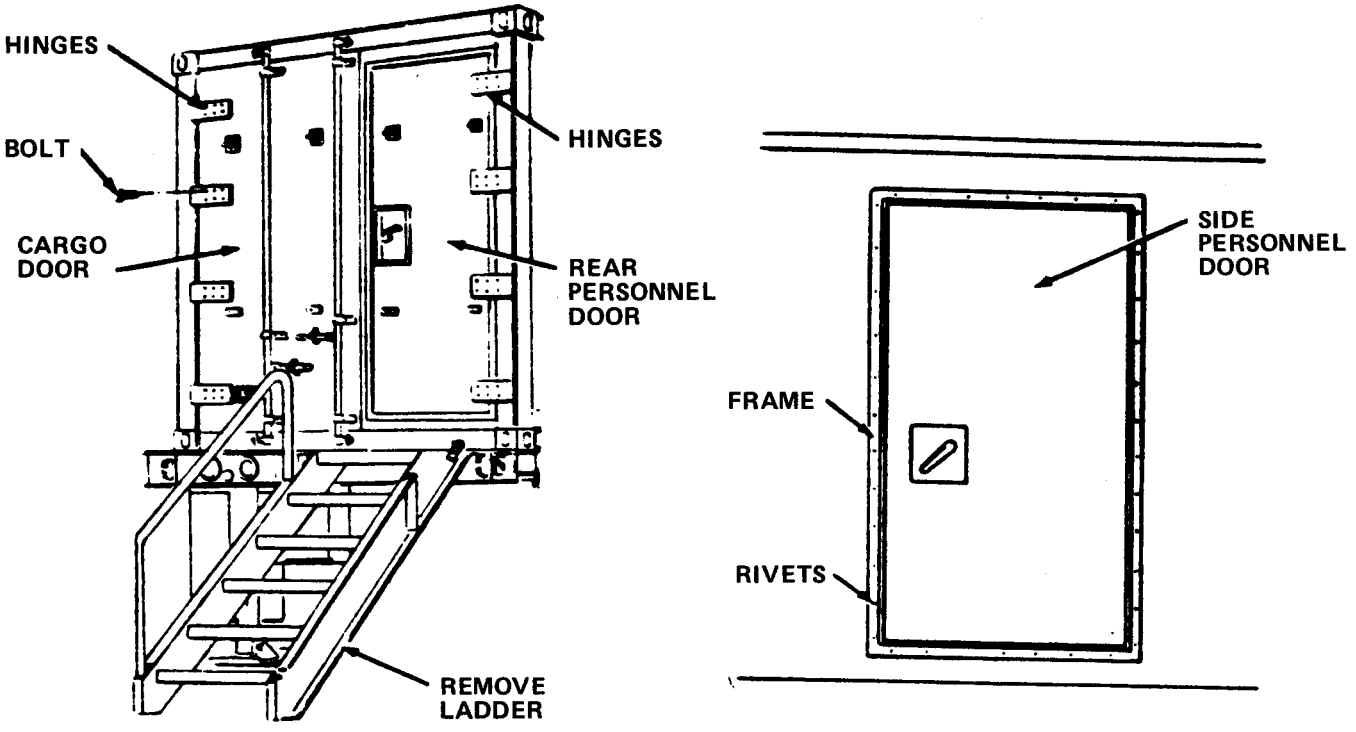
SUPPLIES: Door
Rivets
Gasket
Paint
Adhesive
Cloth

WARNING

TO PREVENT PERSONAL INJURY, DO NOT ATTEMPT TO REMOVE DOOR UNLESS SUITABLE LIFTING EQUIPMENT IS AVAILABLE.

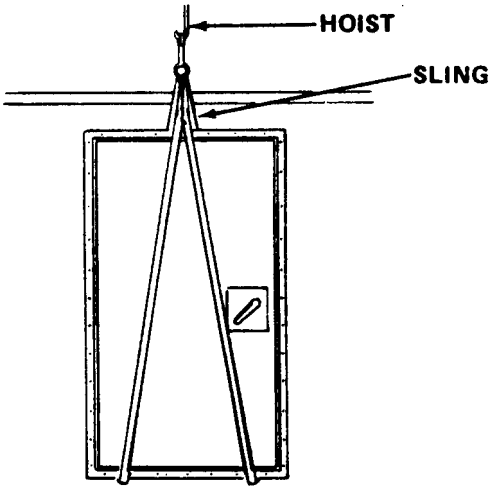
NOTE

Procedures for replacement of large cargo door at rear and smaller personnel doors differ only in method of attaching hinges to door. Both types of doors are covered in this procedure as damage to one door type normally will cause other openings in van body to be damaged.



1. Remove handrails from mounted ladders and remove ladders from stowed position if rear doors are to be replaced.

2. Unlock and open door to be replaced.



3. Place sling around door and take a slight strain on hoist until weight is removed from hinge.

4. Remove bolts from hinges on rear personnel door. On side personnel door, remove screws from hinges to remove hinges from door.

5. Remove old door. Be sure to transfer all locking and fastening hardware that is needed on new door.

6. Sling door and raise to mounted position. Then carefully align holes and reinstall bolts for rear cargo or personnel door.

7. Install new gasket after door is mounted and slings removed. (1.5.3.1, Door Gasket)

8. Chalk-test door. (1.5.3.1, Step 2.)

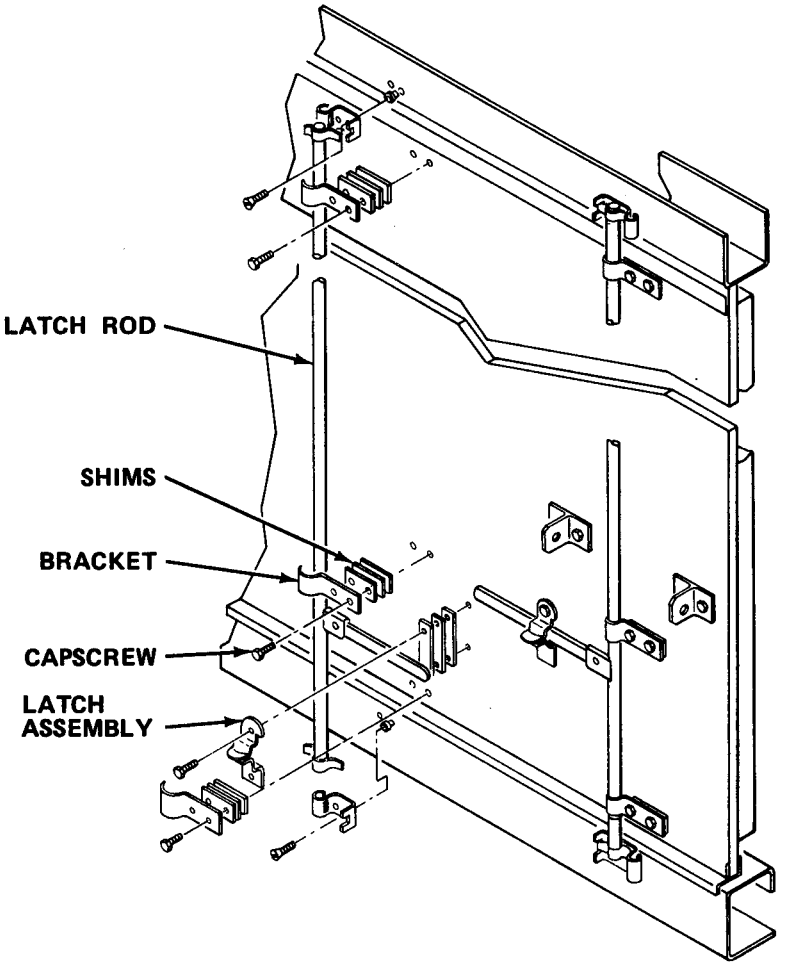
9. Repaint as required.

1.5.3.3 Replace Cargo Door Latch Assembly.

MOS: 63W, Wheel Vehicle Repairer

TOOLS: 9/16 in. Combination Wrench

SUPPLIES: Cargo Door Latch Assembly



a. Unlock latch.

b. Remove capscrews and washers from brackets. Remove brackets and shims.

c. Remove defective latch assembly and latch rod.

d. Install new latch assembly and latch rod.

e. Reinstall shims, brackets, washers, and capscrews.

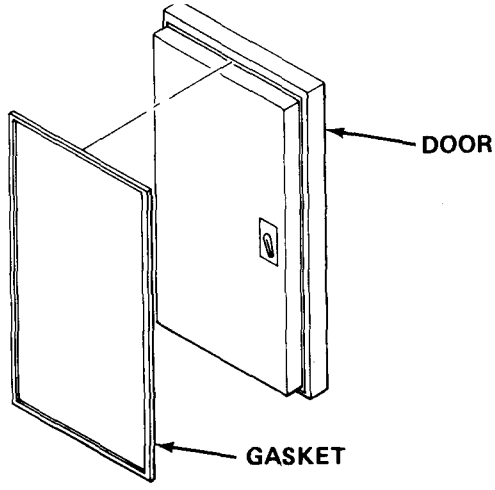
f. Check movement at latch rod and latch assembly. Lock latch.

1.5.3.4 Replace Personnel/Cargo Door Gasket.

MOS: 63W, Wheel Vehicle Repairer

TOOLS: Knife

SUPPLIES: Vinyl Gasket
Adhesive (Item 1, Appendix E)
Solvent P-D-680
Impermeable Gloves
Goggles



a. Open door completely and secure in open position.

WARNING

Dry cleaning solvent, P-D-680, used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Wear solvent impermeable gloves and eye/face protective equipment when using solvent. Do not use near open flame or excessive heat. Flash point of solvent is 100°F to 138° F (38° C to 59° C).

b. Remove defective gasket by prying gasket from door. Scrape traces of gasket and adhesive from door. Wash with solvent P-D-680.

c. Coat gasket area on door with adhesive.

d. Firmly press new gasket onto door.

e. Wipe excess adhesive fom gasket.

f. Close door and wipe excess adhesive from door and frame.

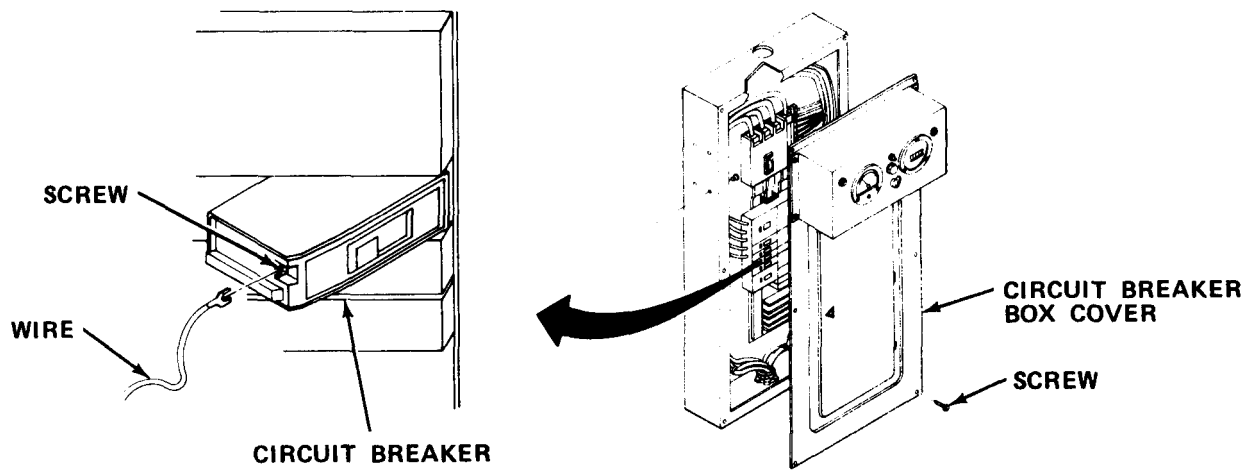
g. Allow adhesive to dry before using door.

1.5.3.5 Replace Circuit Breaker.

MOS: 35E, Special Electronic Devices Repairer

TOOLS: Flat Tip Screwdriver
Multimeter

SUPPLIES: Circuit Breaker



WARNING

Turn off and padlock safety switch and all individual circuit breakers before inspecting or servicing circuit breakers. Failure to do so may result in death or serious injury.

a. Turn off and padlock safety switch and individual circuit breakers.

b. Remove circuit breaker box cover.

c. Use multimeter to make sure voltage is not present.

d. Remove defective circuit breaker by pushing and snapping out of place.

e. Tag and remove wires from defective circuit breaker.

f. Pull circuit breaker from panel.

g. Reconnect wires to new circuit breaker. Secure wires with screws.

h. Install new circuit breaker by pushing and snapping into place.

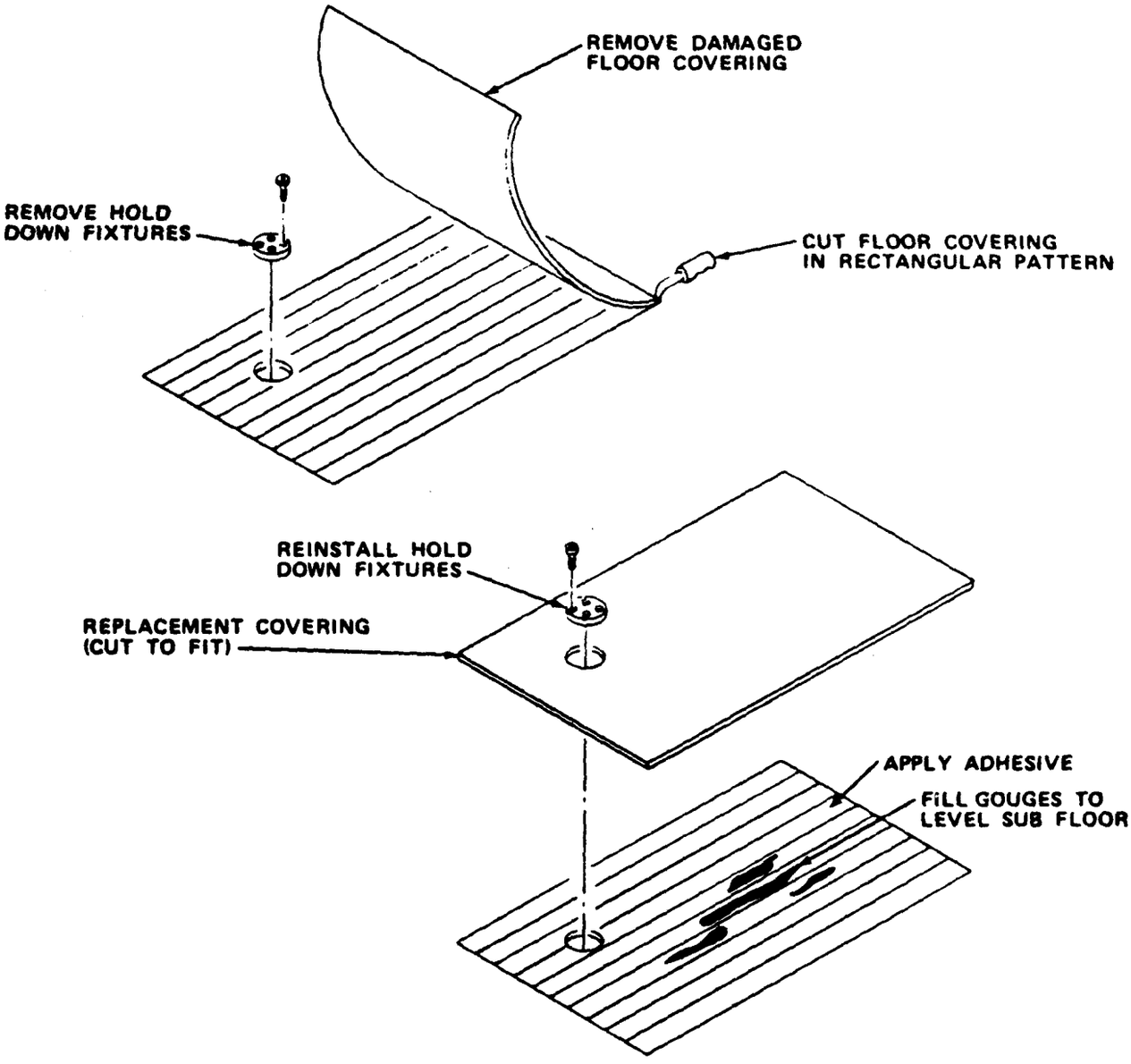
i. Reinstall circuit breaker box cover.

j. Remove padlock and turn on safety switch and individual circuit breakers.

1.5.3.6 REPAIR FLOOR COVERING.

TOOLS: Utility Knife
Cross-Tipped Screwdriver
Scraper
Straightedge

SUPPLIES: Vinyl Floor Covering
Epoxy Resin
Floor Patch
Cloth
Waterproof Adhesive



1. Inspect damaged area to determine if structural damage to subfloor, bolsters, or frame is evident. Structural damage may weaken van body to extent that transportation is unsafe, and depot level repair is required.

2. Remove damaged floor covering by cutting a rectangular pattern around damaged area with utility knife and straightedge. Then remove any floor tiedown or hold-down fixtures.

3. Remove floor covering inside cut area with scraper.

4. If required, level subfloor gouges by filling gouges with epoxy resin and allow at least 8 hours for patch to cure.

5. Trim vinyl floor covering to fit patch and trim holes for all fixture hold-downs.

NOTE

To match color of floor covering, use vinyl floor covering surface with backing NSN 7220-00-149-0483.

6. Spread MIL-A-5092B waterproof adhesive type II or III or equivalent inside patch area.

7. Place vinyl patch in hole and weight patch to hold firmly in place without edges curling.

8. Wipe up all excess adhesive that is on surface of floor.

9. Reinstall fixture hold-downs.

10. Do not wash floor for at least 24 hours to be sure adhesive has cured.

1.5.3.7 REPAIR VAN BODY SKIN (PERMANENT).

TOOLS: Rivet Gun
Drill and Bit

SUPPLIES: Rivets
Silicone Sealant
Adhesive
Sheet Metal

1. Bend broken edges of punctured skin inward into puncture hole. Do not attempt to remove fragments of skin by bending or pulling outward. Bend skin inward only enough to put broken edges below surface of unbroken skin.

2. Remove any loose fragments of foam which are not now held in place by bent broken skin. Removing small pieces of foam or dust is more important than removing chunks.

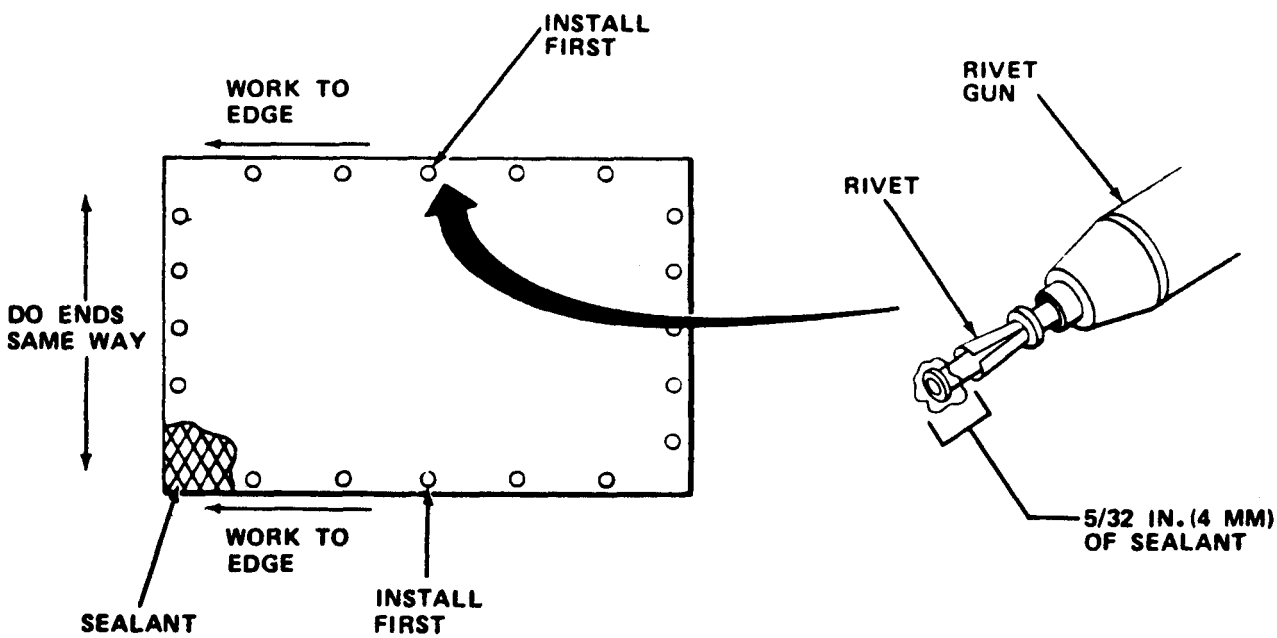
3. Using damp cloth, wipe area around puncture clean. Then wipe dry.

4. Prepare sheet metal patch sufficient in size to cover damaged area with plenty of overlap.

5. Place patch over damaged area and mark all around edges of patch. Then remove patch.

6. Clean entire area where patch will go.

7. Inject sealant into puncture. Mound sealant to about 1/8 in. (3.2 mm) above surface of unbroken skin. Apply bead of sealant about 1/4 in. (6.4 mm) wide over all cuts in skin leading out from puncture. Do not smooth out sealant.



8. Apply sealant to patch, inside borders.

9. Apply patch to van body.

10. Drill holes and install rivets as shown. Use sealant on rivets. Install first rivets at center of each side. Then work toward corners. Rivets should be spaced about 1 in. (25.4 mm) apart and .38 in. (9.5 mm) from edge of patch.

11. Apply liberal amount of sealant around patch and on rivet heads.

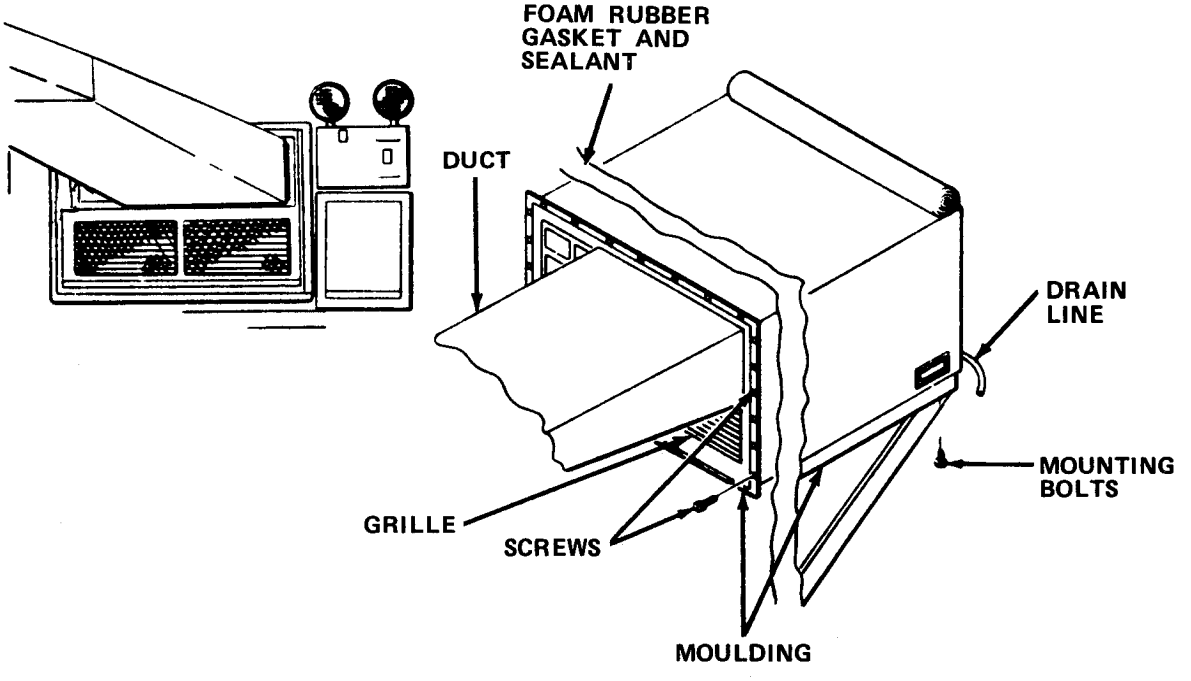
12. Paint in accordance with local directives.

1.5.3.8 REPLACE AIR CONDITIONER/HEATER.

TOOLS: Cross-Tipped Screwdriver
Flat-Tipped Screwdriver
Wrench Set
Lifting Equipment

SUPPLIES: Air Conditioner/heater
Sol vent
Gasket Material
Sealant - Adhesive

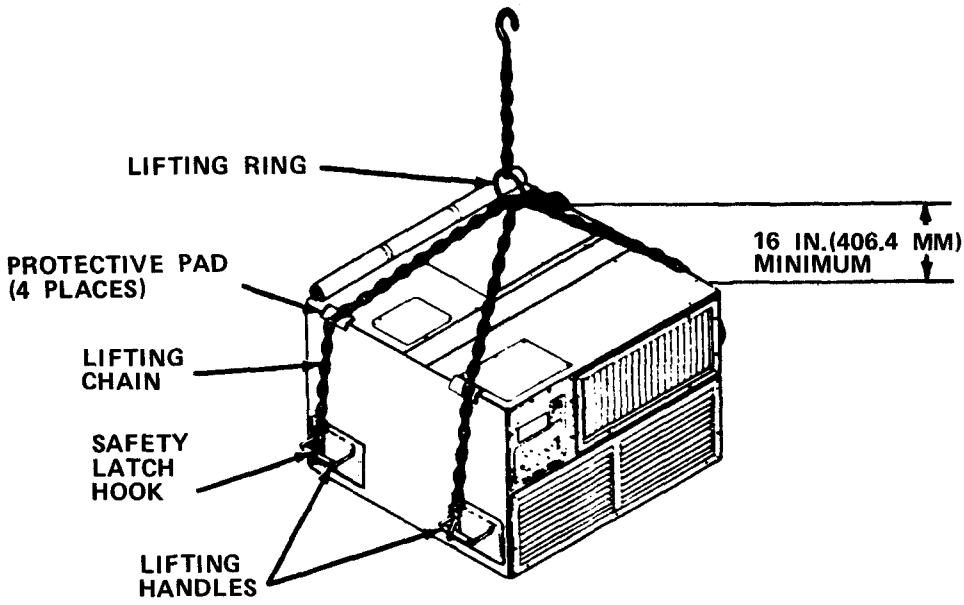
PERSONNEL: Two



WARNING

DEATH OR SERIOUS INJURY MAY RESULT FROM FAILURE TO TURN OFF POWER BEFORE SERVICING AIR CONDITIONER/HEATER.

1. Turn off circuit breakers to air conditioners/heaters.
2. Unplug power cord.
3. Unscrew duct from grille.
4. Unscrew molding from interior and exterior of van body. Remove sealant and foam rubber gasket.
5. Disconnect drain line from air conditioner/heater.



GROSS WEIGHT 256 LBS (116.1 KG)

6. Attach sling to lifting handles, and raise hoist enough to remove slack from sling.

7. Remove six mounting bolts.

8. Slide out air conditioner/heater until other lifting handles are free. Then attach sling to handles.

9. Guide air conditioner/heater unit from van body while raising hoist.

10. Lower air conditioner/heater on flat-bed lift truck or pallet.

WARNING

DRY CLEANING SOLVENT, P-D-680, USED TO CLEAN PARTS IS POTENTIALLY DANGEROUS TO PERSONNEL AND PROPERTY. AVOID REPEATED AND PROLONGED SKIN CONTACT. WEAR SOLVENT IMPERMEABLE GLOVES AND EYE/FACE PROTECTIVE EQUIPMENT WHEN USING SOLVENT. DO NOT USE NEAR OPEN FLAME OR EXCESSIVE HEAT. FLASH POINT OF SOLVENT IS 100°F TO 138°F (38°C TO 59°C).

11. Clean sealant from opening and replace if gasket is deteriorated.

CAUTION

HOLE IN VAN BODY MUST BE COVERED TO PREVENT DIRT. DUST, OR MOISTURE FROM ENTERING VAN BODY OR DOUBLE WALL OF BODY, UNLESS REPLACEMENT IS TO BE IMMEDIATELY INSTALLED.

12. Attach lifting sling to replacement.

13. Raise air conditioner/heater. Then lower onto support frame. Remove two sling hooks as unit is eased through hole until grille contacts duct. Remove remaining sling.

14. Reinstall six mounting bolts.

15. Reinstall duct and screws.

16. Reinstall interior and exterior molding. Secure with screws and seal molding to assembly.

17. Reconnect drain lines.

18. Reconnect power cord.

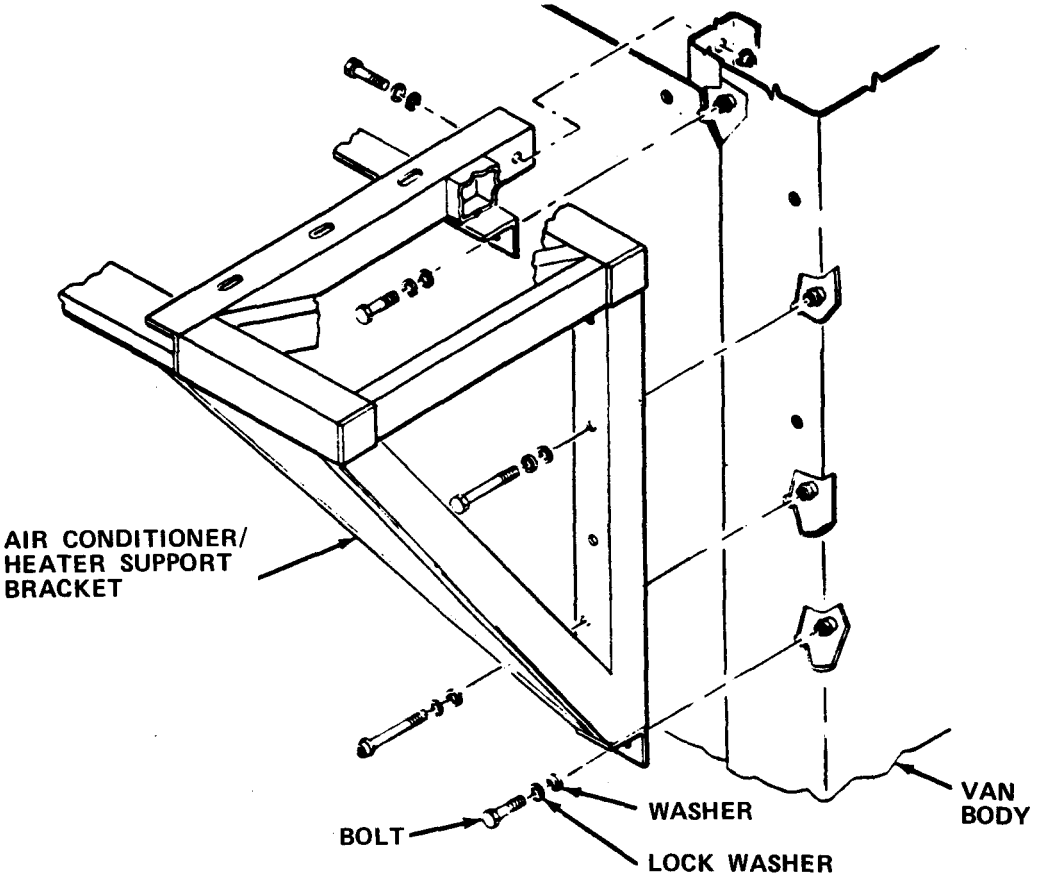
19. Turn on circuit breaker. Perform operational test.

1.5.3.9 REPLACE AIR CONDITIONER SUPPORT BRACKET.

TOOLS: Tool Kit, Mechanic's
Lifting Equipment

SUPPLIES: Air Conditioner Support Bracket

PERSONNEL: Two



WARNING

DEATH OR SERIOUS INJURY MAY RESULT FROM FAILURE TO TURN OFF POWER BEFORE SERVICING AIR CONDITIONER/HEATER.

SERIOUS INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT MAY OCCUR UNLESS TWO OR MORE PERSONNEL ARE USED TO REMOVE AND REPLACE AIR CONDITIONER/HEATER BECAUSE OF WEIGHT AND BALANCE OF AIR CONDITIONER/HEATER.

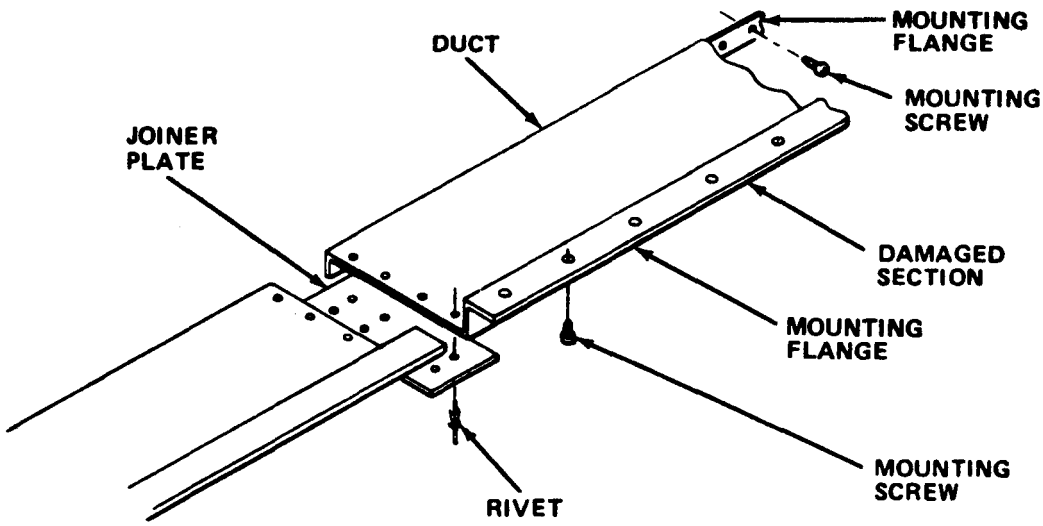
1. Remove air conditioner. (1.5.3.8)
2. Unbolt support bracket and remove bracket.
3. Replace support bracket.
4. Secure support bracket with bolts, lockwashers, and washers.
5. Reinstall air conditioner. (1.5.3.8)
6. Paint as required in accordance with TM 43-0139.

1.5.3.10 REPLACE VENTILATION DUCT.

TOOLS: Hacksaw
Drill and Bits
Ball-Peen Hammer
Rivet Gun
Paint Brush
Cross-Tipped Screwdriver
Flat-Tipped Screwdriver

SUPPLIES: Sealant
Wood Block
Rivets
Paint
Cloths
Salvaged Ventilation Duct

1. Turn off air conditioner/heater blowing air through damaged duct.



TOP VIEW

2. Drill rivets from damaged section and good sections of duct, and remove joiner plates.

3. Remove damaged sections of ductwork by removing mounting screws.

4. Straighten remaining sections of ductwork at edges with hammer and wood block.

5. Place sealant bead on all mounting flanges. Then replace duct section with salvaged section and secure to van body with screws.

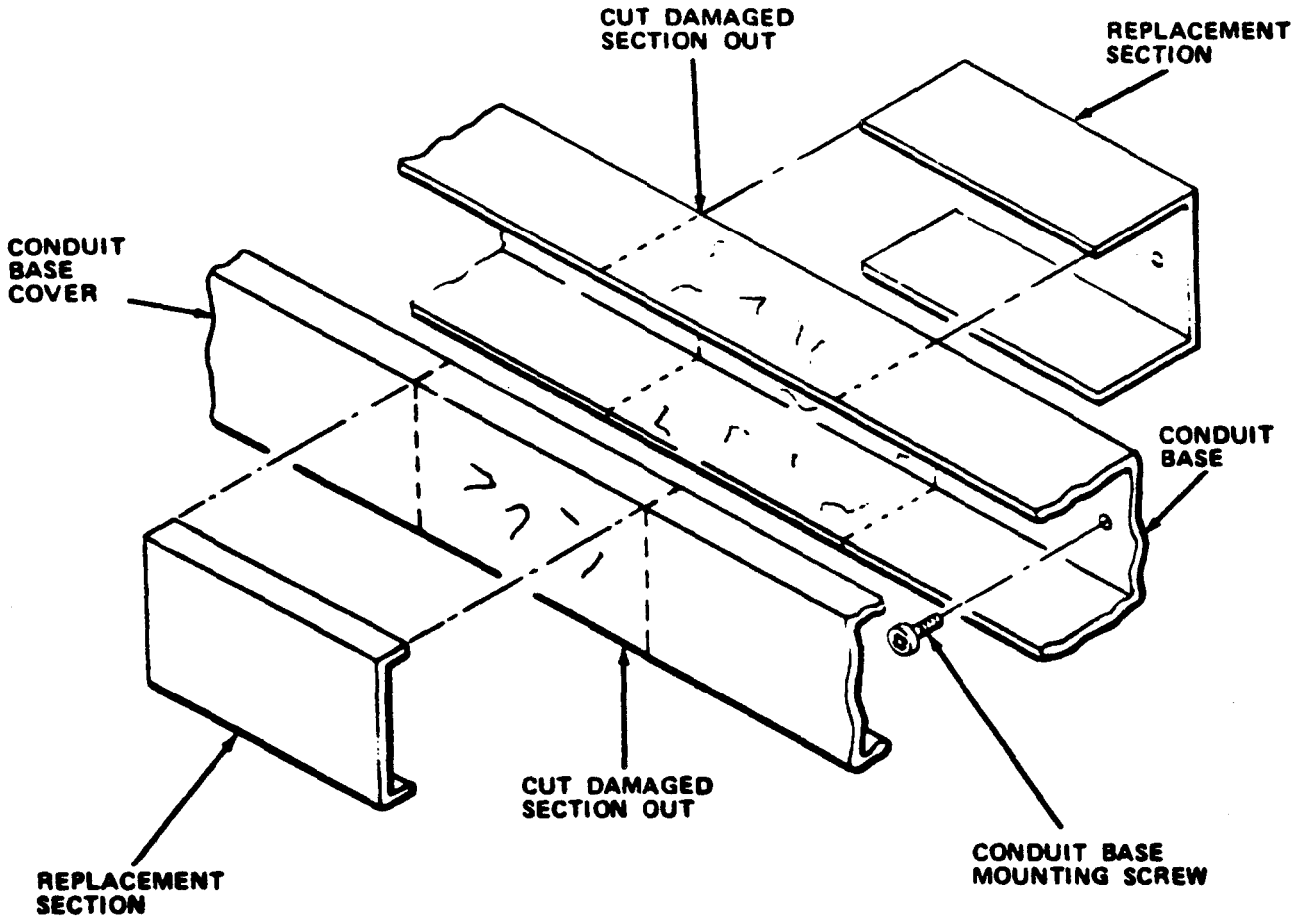
6. Replace joiner plates and rivets.

7. Turn on air conditioner/heater.

1.5.3.11 REPAIR WIRE MOLDING.

TOOLS: Tool Kit
Hacksaw
Electrical Repair Kit
Paint Brush
Multimeter
Drill and Bits

SUPPLIES: Salvaged Conduit
Paint
Cloth



WARNING

DEATH OR SERIOUS INJURY MAY RESULT FROM FAILURE TO TURN OFF SAFETY SWITCH BEFORE REPAIRING CABLE RUNS.

NOTE

Auxiliary lighting may be required for this procedure.

A qualified electrician should perform this task.

1. Turn off safety switch and secure with padlock.
2. Determine general area of fault or damage.
3. Remove conduit base cover.
4. Inspect wires for damage. Repair or replace any damaged wires.
5. Inspect conduit base for damage. If damage has occurred, proceed to the next step, otherwise go to step 18.
6. Loosen wiring and carefully pull it from the entire base section.
7. Remove screws and conduit base.
8. Measure damaged area and record readi ng.
9. Cut damaged area from base.
10. Cut new base section to the length re corded in step 8.
11. Using damaged area as a template, mark mounting holes on new piece.
12. With a number 25 drill bit, drill holes where marks were placed on new piece.
13. With file, remove all burred edges.
14. Paint base section as required.
15. Reinstall conduit base with screws on wall.
16. Carefully place wire back in conduit base.
17. If conduit base cover is damaged, proceed to the next step, otherwise go to step 22.
18. Measure damaged area and record reading.
19. Cut damaged area from cover.
20. Cut new cover section to the length recorded in step 18.

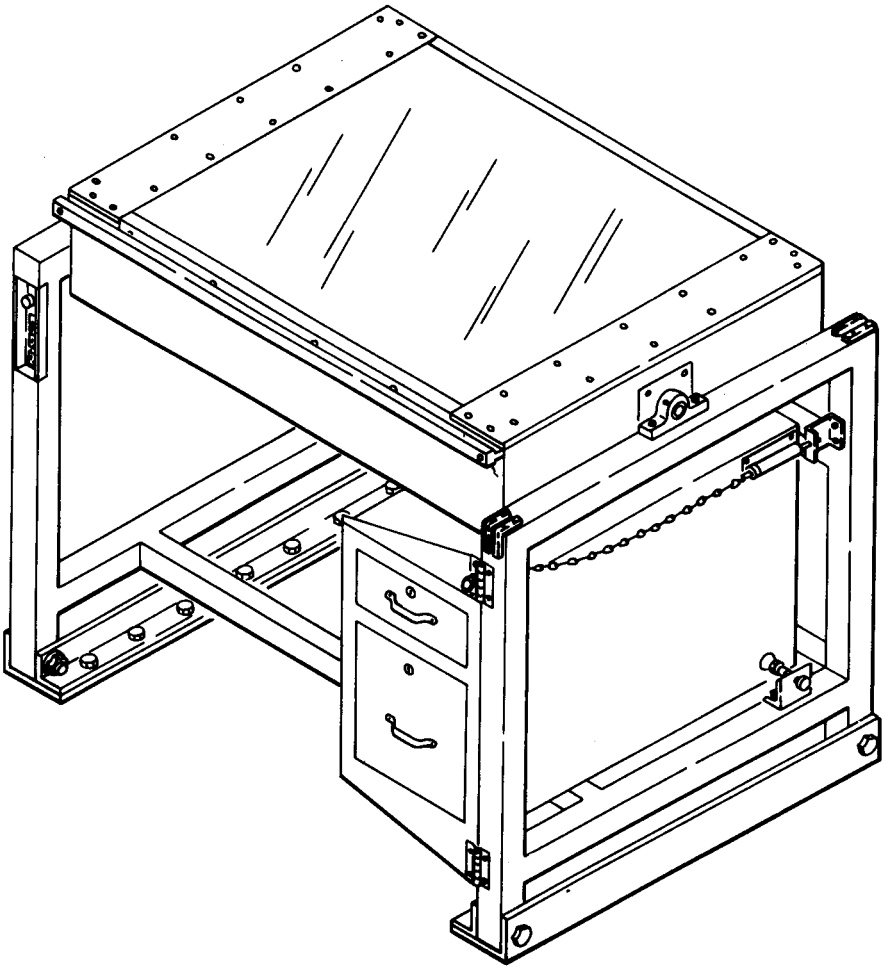
21. With file, remove all burred edges.

22. Paint cover as required.

23. Reinstall cover on base.

24. Test wiring for continuity between power wires and conduit. If there is continuity, determine and correct grounding fault.

25. Turn on power and test equipment for proper operation.



CHAPTER 2

DRAFTING, SCRIBING/TRACING TABLE

Section I INTRODUCTION

2-1. GENERAL INFORMATION.

2-1.1 Scope

a. Model Number and Equipment Name. Model 99-9933 Drafting, Scribing/Tracing Table

b. Purpose of Equipment. To provide user with drafting, scribing, or tracing table in compact unit.

2-2. EQUIPMENT DESCRIPTION.

2-2.1 Equipment Characteristics. Capabilities, and Features.

a. Rapid work surface selection.

b. Auxiliary electrical outlets.

c. Two drawer storage.

d. Tilting work surface (0, 5, and 10 degrees).

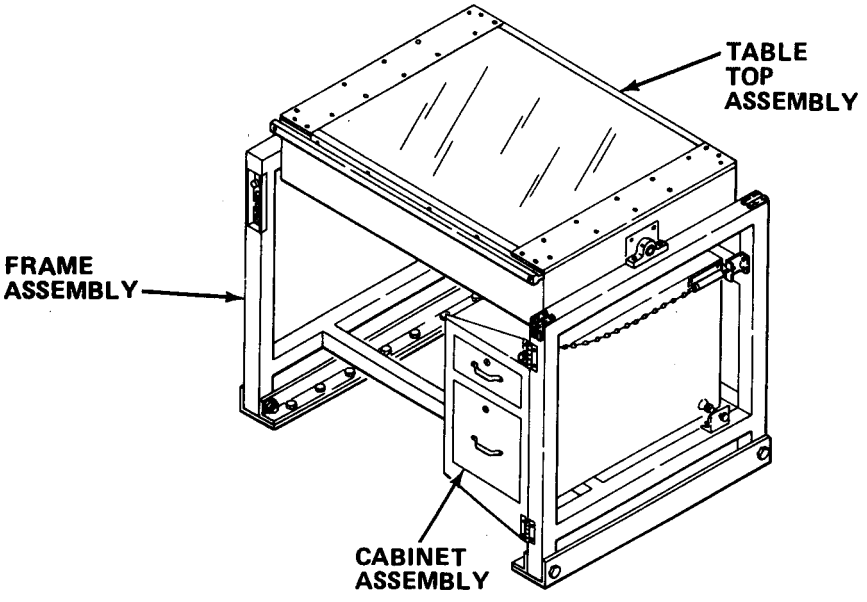
e. Easy access to all controls.

f. Diffused light source.

g. Drawing guard on front edge of drafting, scribing/tracing table.

h. Sturdy steel base.

2-2.2 Location and Description of Major Components.



FRAME ASSEMBLY. Supports table top assembly, drawer assembly, control panel, safety stops, and tilt lock.

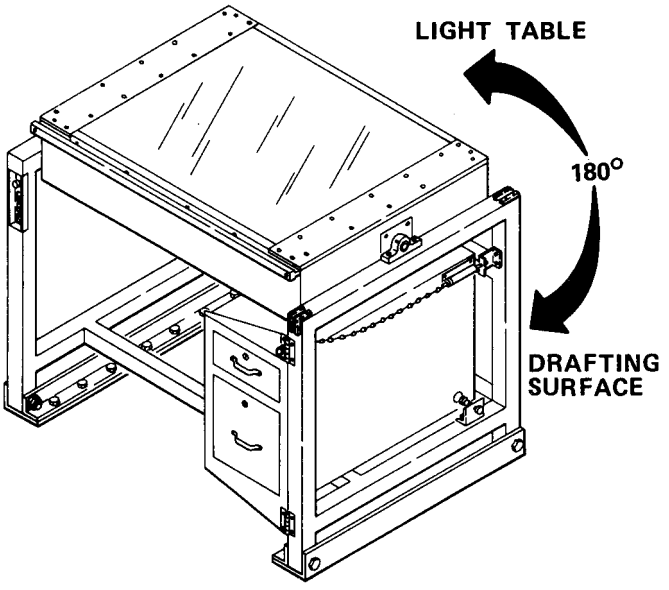
TABLE TOP ASSEMBLY. Consists of drafting board, light board, diffused lighting, and drawing guard.

CABINET ASSEMBLY. Consists of two drawers and drawer lock module.

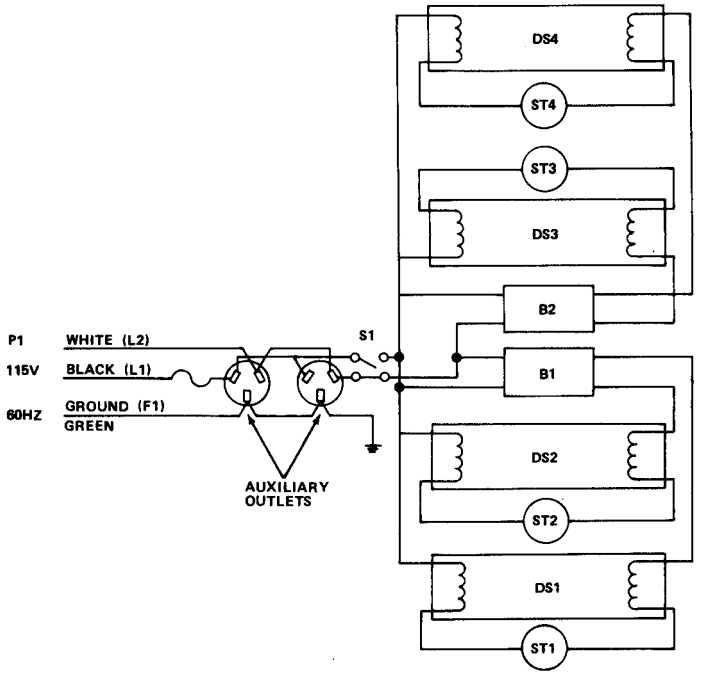
2-2.3 Equipment Data.

Power Requirements	115 V, 60 Hz, Single-Phase
Drafting Surface	42 in. X 31 in. (106.7 cm X 78.7 cm)
Light Table Surface	30 in. X 30 in. (76.2 cm X 76.2 cm)
Dimensions	
Width	47 in. (119.4 cm)
Depth	34 in. (86.4 cm)
Height (Table Flat)	42 in. (106.7 cm)

2-3. TECHNICAL PRINCIPLES OF OPERATION.



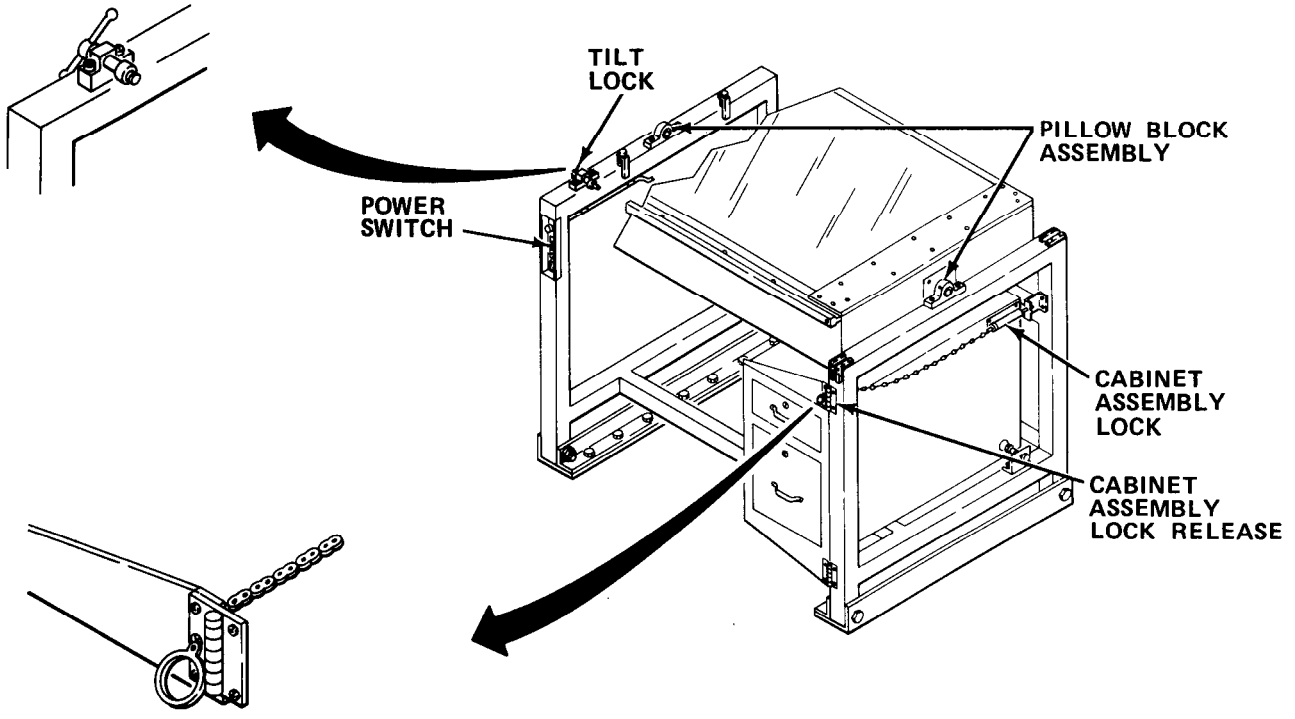
2-3.1 General. The movable top permits selection of drafting surface or light table. Has safety stops so that table top will turn only 180 degrees to prevent damage to electrical wiring. For drafting surface, rotate top away from operator. For light table, rotate top toward operator.



2-3.2 Electrical System. Provides power to the light table and two auxiliary outlets. The auxiliary outlets are located on the control panel. When plug P1 is connected, 115 V ac is applied to auxiliary outlets even if power switch S1 is off.

Section II OPERATING INSTRUCTIONS

2-4. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS.



Control or Indicator	Function
Tilt Lock	Used to change angle of work surface or to change work surface. Loosen tilt lock to change work surface. Tighten to secure in position.
Pillow Block Assembly	Houses the bearing which allows easy rotation of the work surface.
Cabinet Assembly Lock and Cabinet Assembly Lock Release	Located at upper cabinet assembly hinge on right front table leg. To open cabinet assembly, pull cabinet assembly lock release and swing assembly out, so it is not under table.
Power Switch	Provides power to light table lamps only.

2-5. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES.

Before You Operate. Always keep in mind the WARNINGS and CAUTIONS. Perform your before (B) PMCS.

b. While You Operate. Always keep in mind the WARNINGS and CAUTIONS. Perform your during (D) PMCS.

c. After You Operate. Be sure to perform your after (A) PMCS.

d. If Your Equipment Fails to Operate. Troubleshoot with proper equipment. Report any deficiencies using the proper forms. See DA Pam 738-750.

2-5.1 PMCS Procedures.

a. PMCS are designed to keep the equipment in good working condition by performing periodic service tasks.

b. Service intervals provide you, the operator, with time schedules that determine when to perform specified service tasks.

c. The "Equipment is Not Ready/Available If" column is used for identification of conditions that make the equipment not ready/available for readiness reporting purposes or denies use of the equipment until corrective maintenance is performed.

d. If your equipment fails to operate after PMCS is performed, immediately report this condition to your supervisor.

e. Perform weekly as well as before operation if you are the assigned operator and have not operated the item since the last weekly or if you are operating the item for the first time.

f. Item number column. Item numbers are assigned in chronological ascending sequence regardless of interval designation. These numbers are used for your "TM Number" column on DA Form 2404, Equipment Inspection and Maintenance Worksheet in recording results of PMCS.

g. Interval columns. This column determines the time period designated to perform your PMCS.

h. Item to be inspected and procedures column. This column lists functional groups and their respective assemblies and subassemblies as shown in the Maintenance Allocation chart (Appendix B). The appropriate check or service procedure follows the specific item to be inspected.

i. Equipment is not ready/available if: column. This column indicates the reason or cause why your equipment is not ready/available to perform its primary mission.

j. List of tools and materials required for PMCS is as follows:

Item	Quantity
Liquid Detergent (Item 9, Appendix E)	ar
Cheesecloth (Item 6, Appendix E)	ar

Table 2-1. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

B - Before
D - During
A - After

W - Weekly
M - Monthly
Q - Quarterly

AN - Annually
S - Semiannually
BI - Biennially

(Number) - Hundreds of Hours

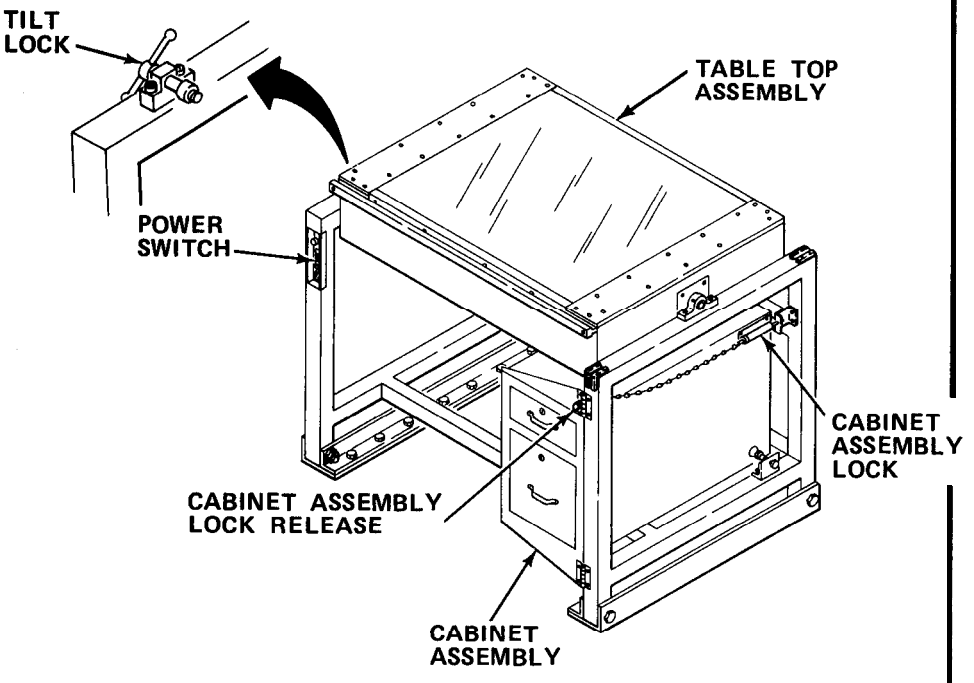
ITEM No.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		DRAFTING, SCRIBING/TRACING TABLE	
1	B/A	Inspect	
		1. Glass table surface.	Glass cracked or broken.
			
		2. Turn power switch off.	

Table 2-1. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES - Cont

B - Before
D - During
A - After

W - Weekly
M - Monthly
Q - Quarterly

AN - Annually
S - Semiannually
BI - Biennially

(Number) - Hundreds of Hours

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		DRAFTING, SCRIBING/TRACING TABLE - Cont	
1	B/A	Inspect - Cont	
		3. Pull cabinet assembly lock release ring and swing out cabinet assembly.	
		4. Loosen tilt lock until it clears table top assembly.	Tilt lock is damaged.
		5. Rotate table top 180°.	Table top does not rotate.
		6. Tighten tilt lock to secure table top assembly in position.	Table top will not lock in position.
		7. Inspect wooden table top.	Table top has gouges, dents, or cuts.
		8. Rotate table top 180° and tighten tilt lock.	
		9. Return cabinet assembly to its normal position under table.	
		10. Press firmly on cabinet assembly front until cabinet assembly lock clicks.	
		11. Turn power switch on. Be sure all table lights are on. Check surface for cracks or breaks.	Table lights do not illuminate. Glass is broken. Power switch is broken.
		12. Turn off power switch.	

Table 2-1. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES - Cont

B - Before
D - During
A - After

W - Weekly
M . Monthly
Q - Quarterly

AN . Annually
S - Semiannually
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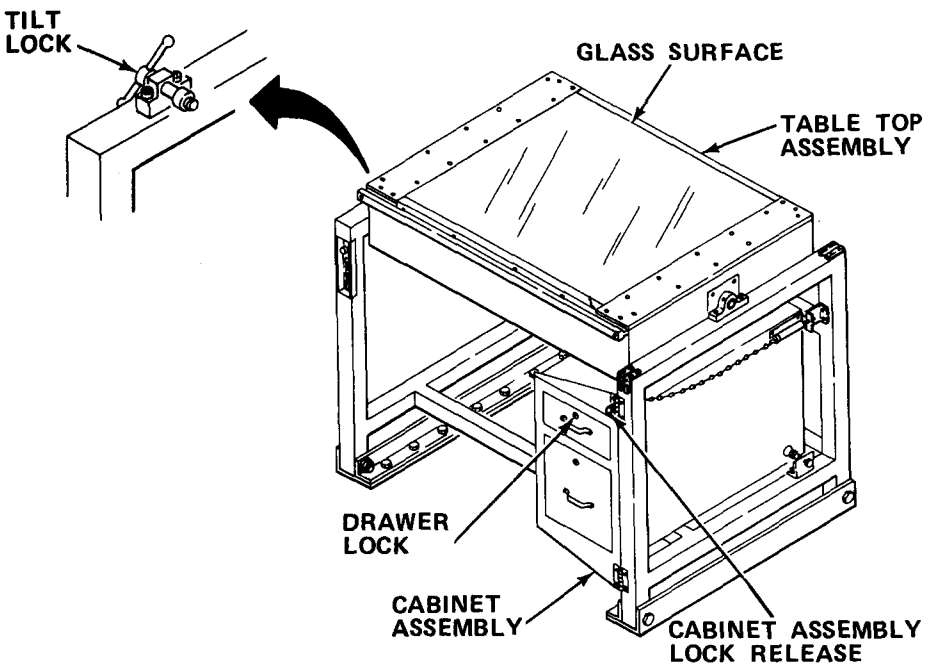
(Number) - Hundreds of Hours

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		DRAFTING, SCRIBING/TRACING TABLE - Cont	
2	B	Service.	



WARNING

Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

1. Unplug power cord.
2. Pull cabinet assembly lock release ring and swing out cabinet assembly.
3. Loosen tilt lock until it clears table top assembly.
4. Rotate table top assembly until glass surface is on top. — Table top does not rotate.

Table 2-1. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES - Cont

B - Before
D - During
A - After

W - Weekly
M - Monthly
Q - Quarterly

AN - Annually
S - Semiannually
BI - Biennially

(Number) - Hundreds of Hours

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		DRAFTING, SCRIBING/TRACING TABLE - Cont	
2	B	Service - Cont 5. Tighten tilt lock to secure table top assembly in-position. CAUTION Do not use abrasive cleaner on glass surface. Do not use running water or excessive water on cloth. Use moist cloth. Abrasive cleaner will scratch glass surface. Excessive water can cause equipment damage. 6. Wipe glass surface with cheesecloth moistened in mild solution of detergent and water. 7. Wipe glass surface with dry cheesecloth to remove streaks and smears. 8. Swing cabinet assembly to its normal position under table. 9. Plug in power cord.	

2-6. OPERATION UNDER USUAL CONDITIONS.

2-6.1 Assembly and Preparation for Use.

a. Clean work surface.

b. Plug power cord into electrical receptacle.

c. Turn power switch on for light table use.

2-6.2 Operating Procedures.

a. Changing work surface.

CAUTION

Safety stem have been included to prevent overtravel of table top and damage to electrical wiring. If drafting surface is in top position, swing front edge of table top down to change work surface. If light table is in top position, swing front edge up to change work surface. Table cannot be rotated until cabinet assembly is swung out.

(1) Pull cabinet assembly lock release ring and swing out cabinet assembly.

(2) Loosen tilt lock until it clears table top assembly.

(3) Rotate table top to desired position.

(4) Tighten tilt lock to secure table top assembly in position.

(5) Return cabinet assembly to its normal position under table top assembly.

(6) Press firmly on cabinet assembly front until cabinet assembly lock clicks.

2-6.3 Preparation for Movement.

a. Turn off power.

b. Unplug power cord. Coil power cord and tape to table.

c. Rotate table top assembly, if necessary, to be sure glass surface faces upward.

d. Tighten tilt lock to secure table top assembly.

e. Press firmly on cabinet assembly front until cabinet assembly lock clicks.

f. Check cabinet drawers for open containers and loose items. Seal containers and secure all loose items.

g. Lock cabinet drawers.

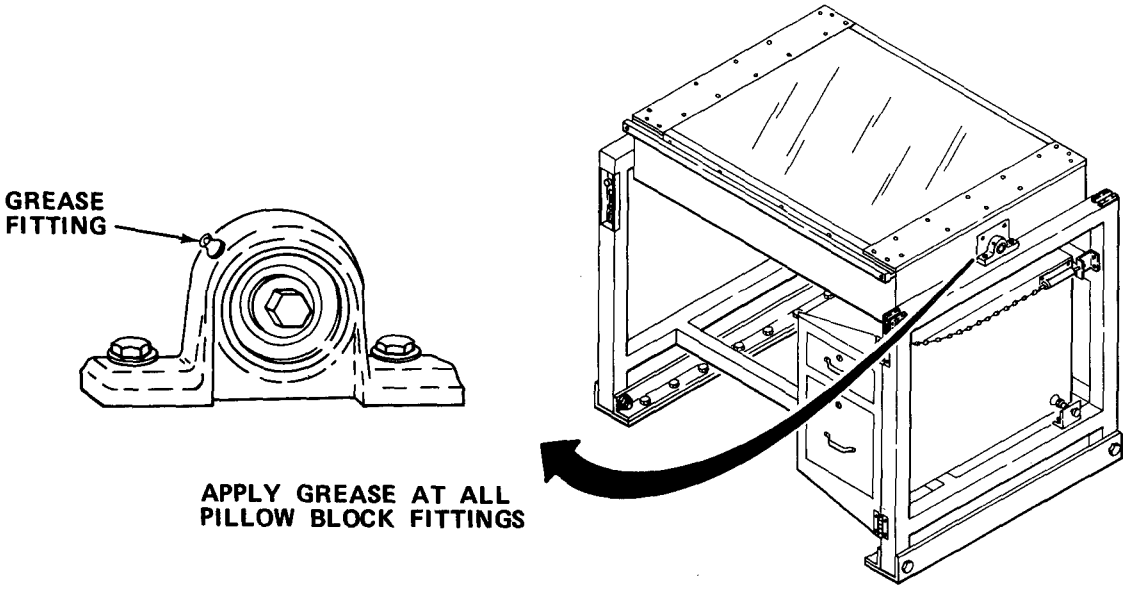
2-7. OPERATION UNDER UNUSUAL CONDITIONS. This equipment is designed for operation only in a controlled environment.

Section III OPERATOR MAINTENANCE

2-8. LUBRICATION INSTRUCTIONS.

NOTE

These lubrication instructions are mandatory.



2-8.1 Pillow Block Fittings. Apply ball and roller bearing grease (Item 16, Appendix E) to both pillow blocks annually.

a. Apply grease sparingly using grease gun.

b. Wipe grease fittings clean after application.

2-9. TROUBLESHOOTING PROCEDURES.

a. The table lists the common malfunctions which you may find during operation or maintenance of the drafting, scribing/tracing table, or its components. You should perform the test/inspections and corrective actions in the order listed.

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

Table 2-2. TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
1. LAMPS DO NOT LIGHT.	
Step 1. Check that power switch is on.	(a) If power switch is on, proceed to step 2. (b) Turn on power switch.
Step 2. Check that power cord is plugged in.	(a) If power cord is plugged in, proceed to step 3. (b) Plug in power cord.
Step 3. Visually check fuse for broken filament.	(a) Replace fuse (paragraph 2-10.1) (b) If filament is not broken, refer to organizational maintenance.
2. TABLE DOES NOT LOCK.	
Check for loose tilt lock.	(a) If loose, tighten. (b) If tight, refer to organizational maintenance.

2-10. MAINTENANCE PROCEDURES .

a. This section contains instructions covering operator maintenance functions for the drafting, scribing/tracing table. Personnel required are listed only if the task requires more than one.

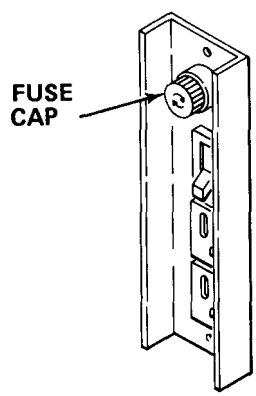
b. After completing each maintenance procedure, perform operational check to be sure that equipment is properly functioning.

INDEX

2-10.1 Replace Fuse.

MOS: 83E, Photo and Layout Specialist

SUPPLIES: Fuse



a. Turn off power switch.

WARNING

Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

b. Unplug power cord.

c. Push in on cap and turn left.

d. Remove defective fuse.

e. Install new fuse, push in, and turn right.

f. Plug in power cord.

Section IV ORGANIZATIONAL MAINTENANCE

2-11. LUBRICATION INSTRUCTIONS.

2-11.1 Pillow Block Fittings. After replacement, apply ball and roller bearing grease to pillow blocks (Item 16, Appendix E).

a. Apply grease sparingly using grease gun.

b. Wipe grease fittings clean after application.

2-12. REPAIR PARTS: SPECIAL TOOLS: TEST. MEASUREMENT. AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT-EQUIPMENT.

2-12.1 Common Tools and Equipment. For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

2-12.2 Special Tools: Test, Measurement, and Diagnostic Equipment; and Support Equipment. Special Tools, TMDE, and Support Equipment is listed in the applicable repair parts and special tools list and in Appendix B of this manual.

2-12.3 Repair Parts. Repair parts are listed and illustrated in the Repair Parts and Special Tools List, TM 5-361O-26O-24P covering organizational maintenance for this equipment.

2-13. SERVICE UPON RECEIPT. The drafting, scribing/tracing table may be received mounted in the section or in a shipping crate.

2-13.1 Checking Unpacked Equipment.

a. Inspect the equipment for damage incurred during shipment. If equipment has been damaged, report the damage on DD Form 6, Packing Improvement Report.

b. Check the equipment against the packing list to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA Pam 738-750.

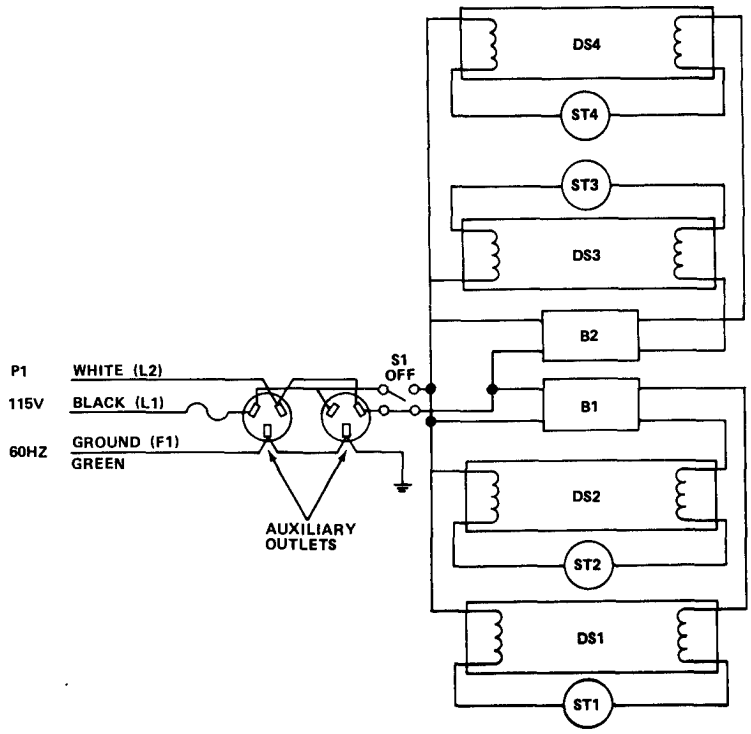
c. Check to see whether the equipment has been modified.

2-14. ORGANIZATIONAL PREVENTATIVE MAINTENANCE CHECKS AND SERVICES. There are no organizational PMCS procedures assigned for this equipment.

2-15. ORGANIZATIONAL TROUBLESHOOTING PROCEDURES.

a. Organizational troubleshooting procedures cover the most common malfunctions thay may be repaired at the organizational level. Repair or adjustment requiring specialized equipment is not authorized unless such equipment is available. Troubleshooting procedures used by the operator should be conducted in addition to the organizational troubleshooting procedures.

b. This manual cannot list all the possible malfunctions or every possible test/inspection and corrective action. If a malfunction is not listed or corrected by a listed corrective action, notify your supervisor.



c. For unidentified malfunctions, use the above schematic for further fault analysis.

d. If the drafting, scribing/tracing table does not power-up when turned on, verify that 115 V ac is present at the receptacle. If voltage is not present, plug equipment into receptacle with power available and proceed with equipment troubleshooting. Perform no-power procedures for dead receptacle (Table 1-4).

Table 2-3. ORGANIZATIONAL TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. LAMPS DO NOT LIGHT.
Step 1. Check continuity of power switch.
(a) If continuity exists, proceed to step 2.
(b) If no continuity exists, replace power switch (paragraph 2-16.1).
Step 2. Check continuity of power cord.
(a) If no continuity exists, replace power cord (paragraph 2-16.2)

Table 2-3. ORGANIZATIONAL TROUBLESHOOTING - Cont

MALFUNCTION TEST OR INSPECTION	CORRECTIVE ACTION
1. LAMPS DO NOT LIGHT - Cont	
Step 2. Check continuity of power cord - Cont	
	(b) If continuity exists, replace lamp starter (paragraph 2-16.5).
	(c) If lamps still do not light, replace ballast (paragraph 2-16.4).
2. POWER RECEPTACLES DO NOT WORK.	
Step 1. Check continuity of power cord.	
	(a) If continuity exists, proceed to step 2.
	(b) If no continuity exists, replace power cord (paragraph 2-16.2).
Step 2. Check continuity of receptacle.	
	Repair receptacle (paragraph 2-16.3).
3. TABLE DOES NOT LOCK.	
Step 1. Check for loose tilt lock.	
	(a) If tight, proceed to step 2.
	(b) Tighten tilt lock.
Step 2. Check for defective tilt lock.	
	(a) If good, proceed to step 3.
	(b) If defective, replace (paragraph 2-16.6).
Step 3. Check for loose tilt locking block.	
	(a) If tight, proceed to step 4.
	(b) If loose, tighten.

Table 2-3. ORGANIZATIONAL TROUBLESHOOTING - Cont

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
3. TABLE DOES NOT LOCK - Cont
Step 4. Check for defective tilt locking block.
(a) If good, proceed to step 5.
(b) If defective, replace (paragraph 2-16.6).
Step 5. Check for defective tilt locking plate.
If defective, replace (paragraph 2-16.6).

2-16. MAINTENANCE PROCEDURES.

a. This section contains instructions covering organizational maintenance functions for the drafting, scribing/tracing table. Personnel required are listed only if the task requires more than one.

b. After completing each maintenance procedure, perform operational check to be sure that equipment is properly functioning.

INDEX

2-16.1 Replace Power Switch.

MOS: 83FJ6, Reproduction Equipment Repairer

TOOLS:

Tool Kit, Light Machine Repair
Hex Head Key Wrench Set

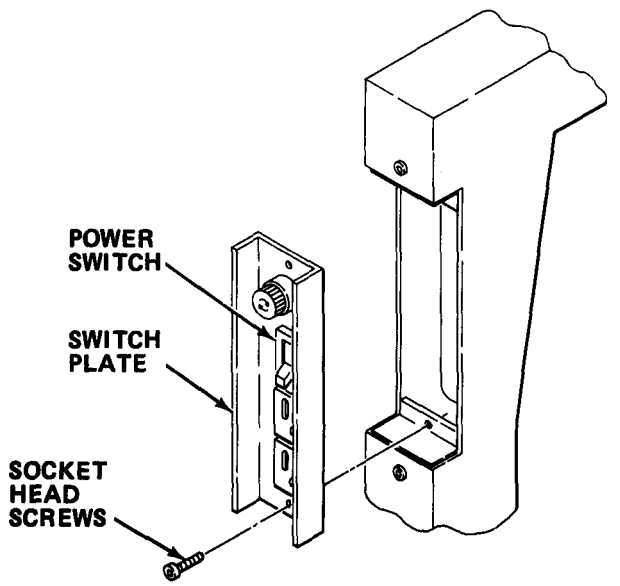
SUPPLIES: Power Switch

WARNING

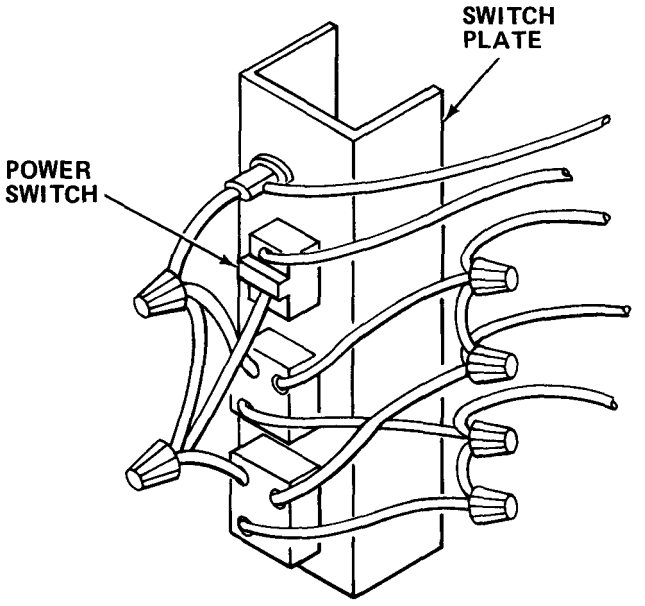
Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

a. Turn off power switch.

b. Unplug power cord.



c. Remove socket head screws and pull switch plate out.



d. Tag and disconnect wires from power switch.

e. Remove defective power switch from front of switch plate.

f. Install new power switch.

g. Reconnect wires to power switch and remove tags.

h. Reinstall switch plate and secure with socket head screws.

i. Plug in power cord.

2-16.2 Replace Power Cord.

MOS: 83FJ6, Reproduction Equipment Repairer

TOOLS:

Tool Kit, Light Machine Repair
- Flat Tip Screwdriver
- Hex Head Key Wrench Set
- Soldering Iron

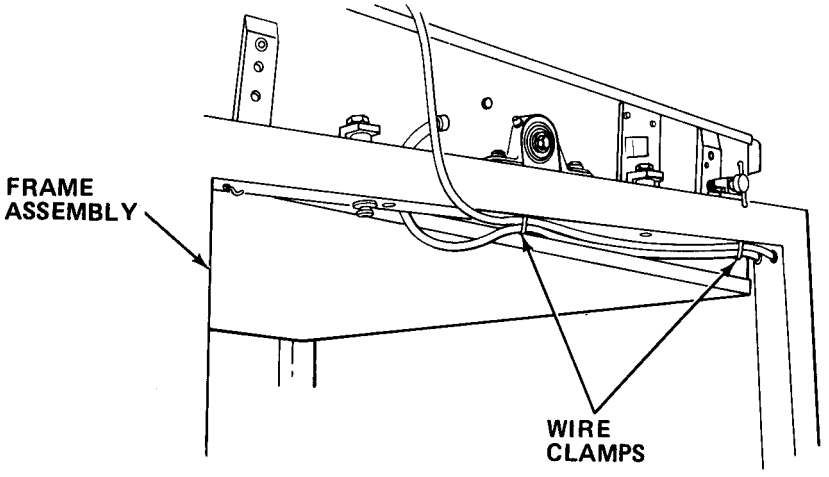
SUPPLIES: Power Cord
Solder

WARNING

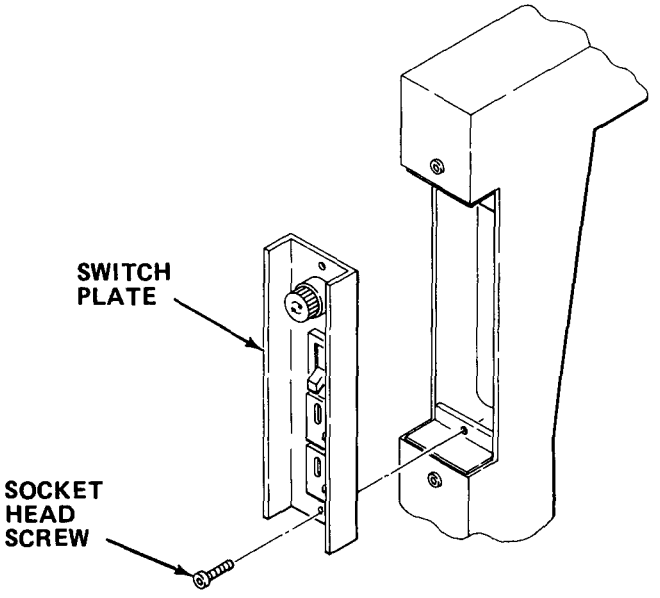
Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

a. Turn off power switch.

b. Unplug power cord, and remove fuse from fuse holder.

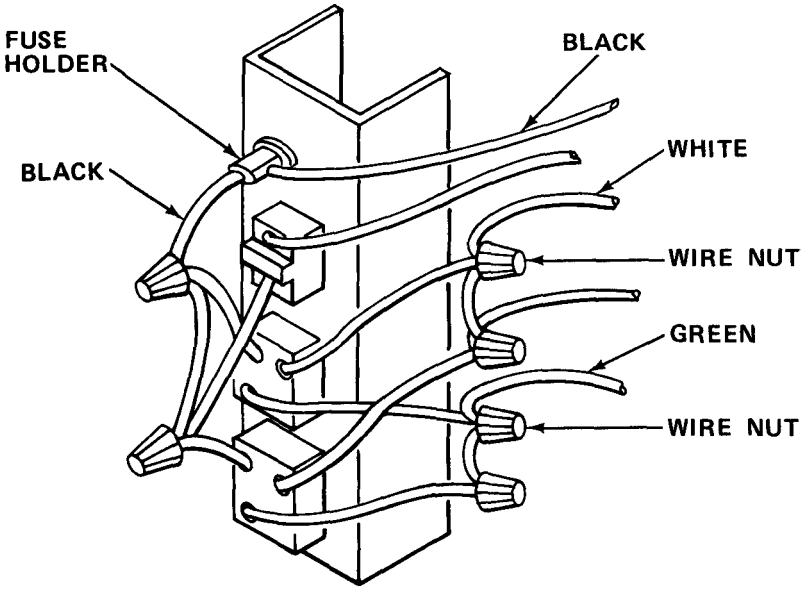


c. Remove wire clamps located on frame assembly.



d. Remove socket head screws and pull switch plate out.

e. Tag wire connections for proper reconnection of wires.



f. Desolder black power cord lead from fuse holder.

g. Disconnect white lead and green ground at wire nuts.

h. Remove power cord.

i. Insert new power cord through hole in back of leg.

j. Reconnect white lead and green ground and tighten wire nuts.

k. Solder black lead to fuse holder.

l. Reinstall wire clamps.

m. Reinstall switch plate and secure with socket head screws.

n. Reinstall fuse in fuse holder and plug in power cord.

2-16.3 Replace Receptacle.

MOS: 83FJ6, Reproduction Equipment Repairer

TOOLS:

Tool Kit, Light Machine Repair
  Flat Tip Screwdriver
  Hex Head Key Wrench Set

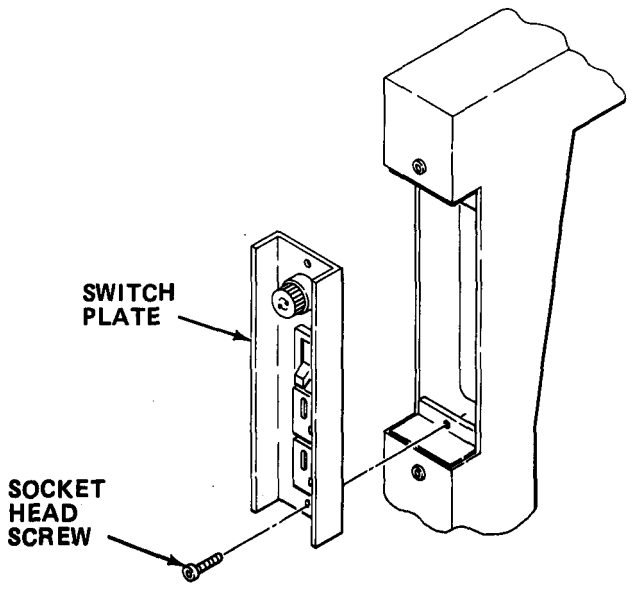
SUPPLIES: Receptacle

WARNING

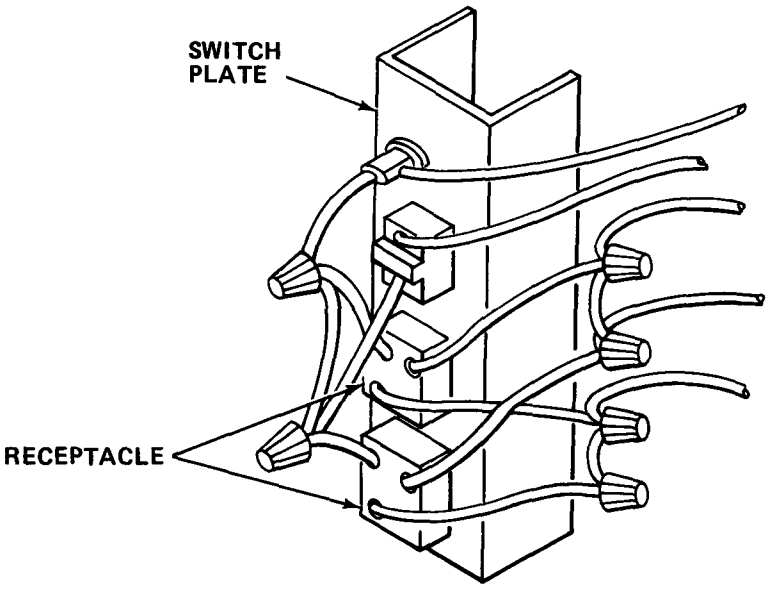
Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

a. Turn off power switch.

b. Unplug power cord.



c. Remove socket head screws and pull switch plate out.



d. Tag and disconnect wires from defective receptacle.

e. Remove defective receptacle from switch assembly.

f. Install new receptacle and reconnect wires.

g. Reinstall switch plate and secure with socket head screws.

h. Plug in power cord.

2-16.4 Replace Lamp Ballast.

MOS: 83FJ6, Reproduction Equipment Repairer

TOOLS:

Tool Kit, Light Machine Repair
- Hex Head Key Wrench Set
- Nut Driver Set
- 1/4 in. Drive Ratchet
- 3/8 in. Socket, 1/4 in drive

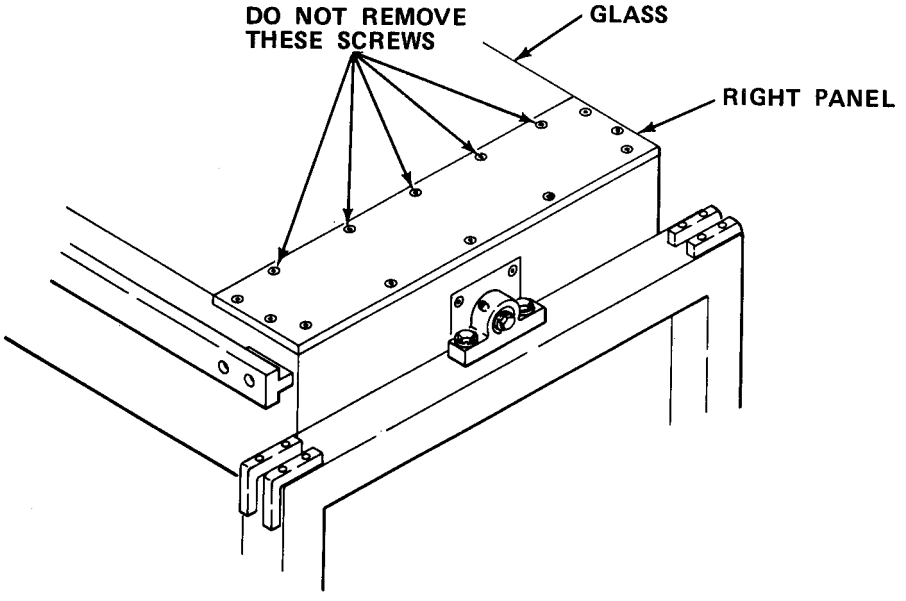
SUPPLIES: Lamp Ballast

WARNING

Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

a. Turn off power switch.

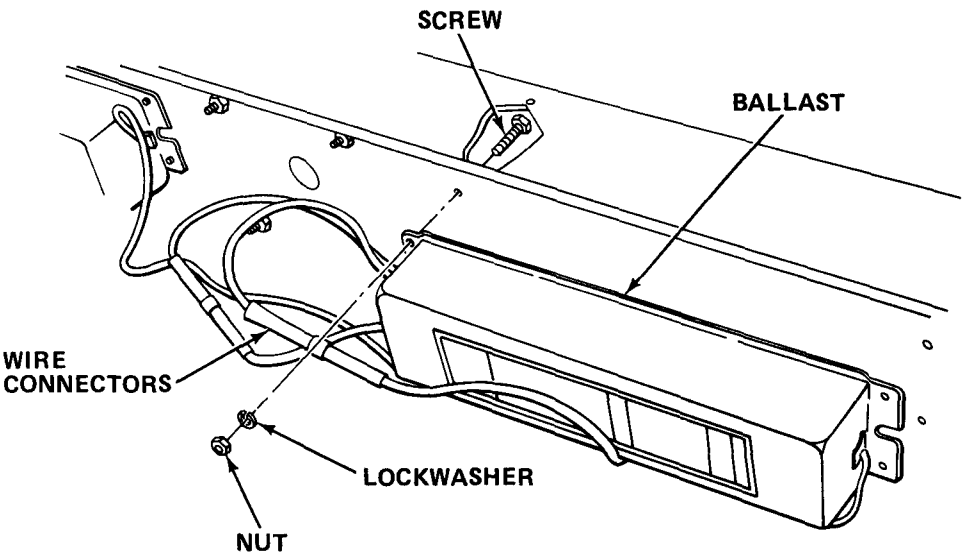
b. Unplug power cord.



CAUTION

Removal of five socket head screws located closest to glass surface may result in damage to equipment.

c. Remove nine socket head screws and right panel, but do not remove five socket head screws indicated in CAUTION and illustration.



d. Remove socket head screws, lockwashers, and nuts that secure ballast.

e. Lift ballast out of table to gain access to wire connectors.

f. Tag and disconnect all wires.

g. Install new ballast.

NOTE

Be sure wires are not kinked.

h. Reconnect all wires.

i. Secure ballast with nuts, lockwashers, and socket head screws.

j. Reinstall right panel and secure with socket head screws.

k. Plug in power cord.

2-16.5 Replace Flourescent Lamp/Starter.

MOS: 83FJ6, Reproduction Equipment Repairer

TOOLS:

Tool Kit, Light Machine Repair
  Flat Tip Screwdriver
  Hex Head Key Wrench Set

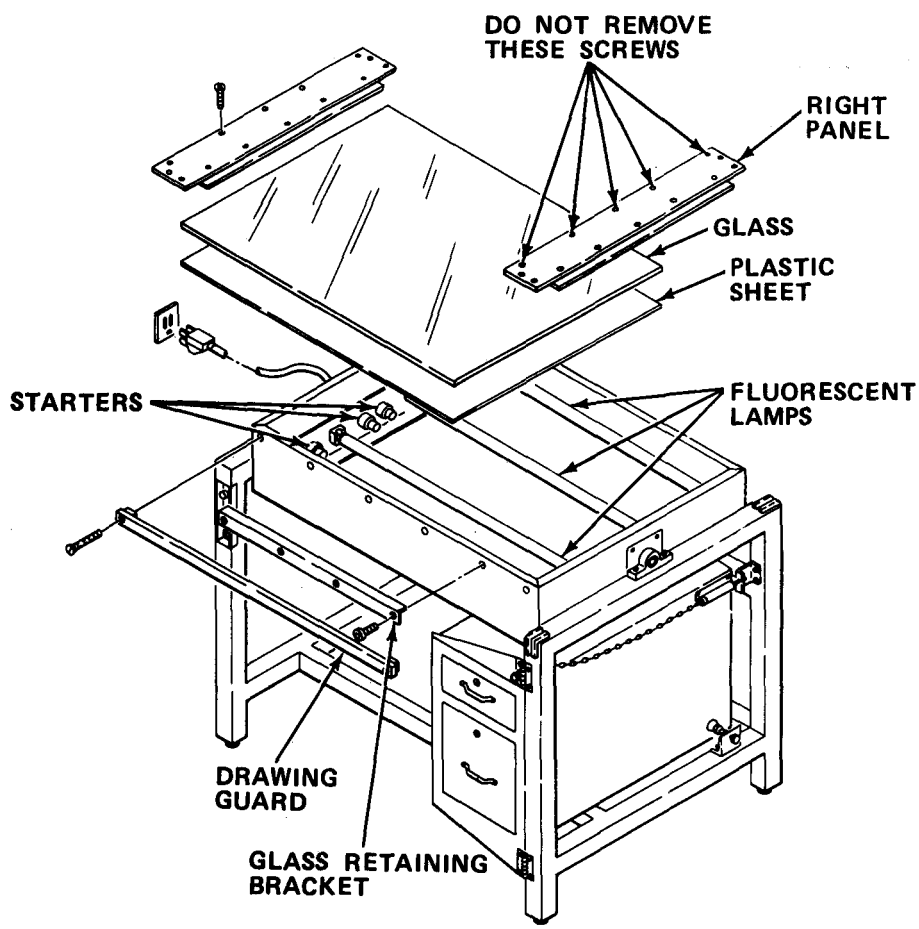
SUPPLIES: Fluorescent Lamp/Starter

a. Place light surface up, turn on power switch, and note defective lamp.

WARNING

Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

b. Turn off power switch and unplug power cord.



CAUTION

Removal of five socket head screws located closest to glass surface may result in equipment damage.

c. Remove nine socket head screws and remove right panel, but do not remove five socket head screws indicated in CAUTION and illustration.

d. Remove socket head screws and drawing guard.

e. Remove socket head screws and glass retaining bracket.

f. Carefully slide glass and plastic sheet from retaining glass bracket and left panel.

g. Remove defective lamp/starter.

h. Install new lamp/starter.

i. Reinstall plastic sheet and glass.

j. Reinstall right panel and secure with socket head screws.

k. Reinstall glass retaining bracket and secure with socket head screws.

l. Reinstall drawing guard and secure with socket head screws.

m. Plug in power cord.

2-16.6 Repair Tilt Lock Assembly.

MOS: 83FJ6, Reproduction Equipment Repairer

TOOLS:

Tool Kit, Light Machine Repair
- Flat Tip Screwdriver
- Combination Wrench Set
- Hex Head Key Wrench Set

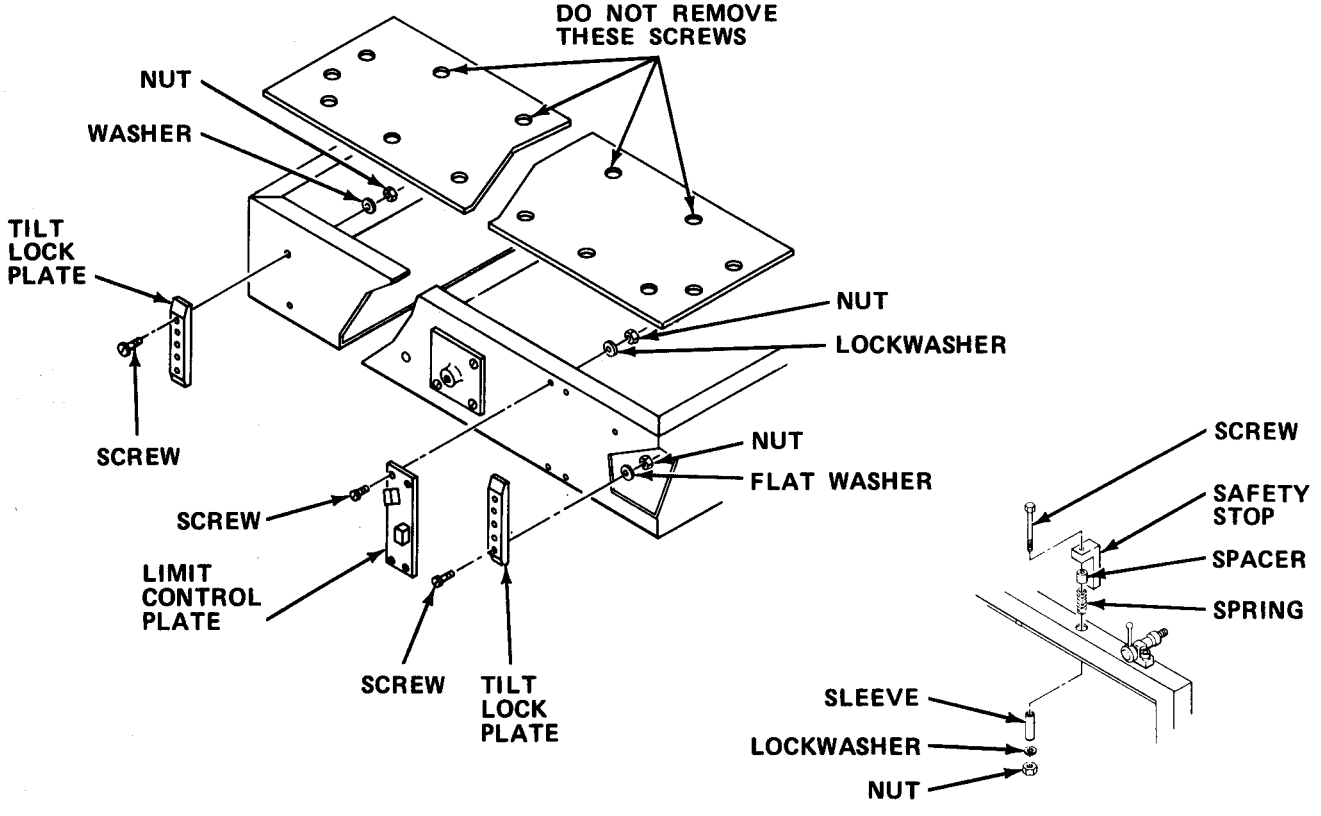
SUPPLIES: Tilt Plate
Limit Control Plate
Safety Stop

WARNING

Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

a. Turn off power switch.

b. Unplug power cord.



CAUTION

Removal of five socket head screws located closest to glass surface may result in damage to equipment.

c. Remove nine socket head screws and left panel, but do not remove five socket head screws indicated in CAUTION and illustration.

d. Pull cabinet assembly lock release and swing cabinet assembly out so that it is not under table.

NOTE

Tilt locking plates are not interchangeable and must be replaced in same positions.

e. Remove upper screws, nuts, and washers from defective tilt locking plate.

f. Tilt table top as necessary and remove defective tilt lock plate by removing lower screws, nuts, and washers.

g. Install new tilt locking plate, and secure with washers, nuts, and screws.

h. Check position of tilt lock plate and readjust if required.

i. Remove defective limit control plate by removing screws, washers, and nuts.

j. Install new limit control plate. Secure with nuts, washers, and screws.

k. Reinstall left panel and secure with nine socket head screws.

NOTE

Use care in disassembly of safety stop to prevent spring from falling inside frame.

l. Remove defective safety stop by removing nut, lockwasher, sleeve, spring, spacer, and screw.

m. Install new safety stop. Secure with screw, spacer, spring, sleeve, lockwasher, and nut.

n. Swing cabinet assembly to its normal position under table.

o. Plug in power cord.

2-16.7 Replace Pillow Block Assembly.

MOS: 83FJ6, Reproduction Equipment Repairer

TOOLS:

Tool Kit, Light Machine Repair
  Combination Wrench Set
  Hex Head Key Wrench Set
Grease Gun

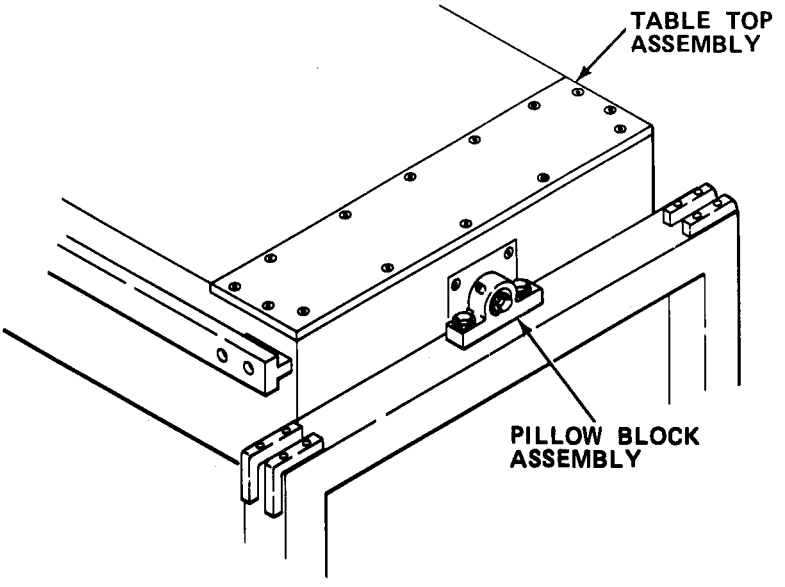
SUPPLIES: Pillow Block Assembly
GAA Grease (Item 16, Appendix E)

WARNING

Death or serious injury may occur from electrical shock unless power cord is unplugged before servicing.

a. Turn off power switch.

b. Unplug power cord.

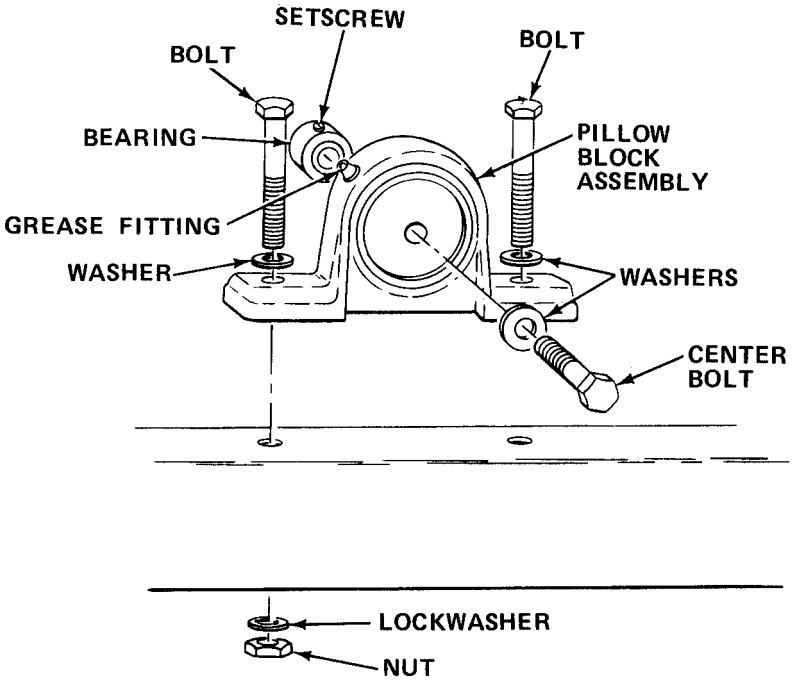


CAUTION

Table top assembly must be supported with drafting surface down to prevent table top from falling, causing equipment damage.

c. Support table top assembly.

d. Loosen, but do not remove socket head setscrew.



e. Remove center bolt and washer.

f. Remove bolts, washers, lockwashers, and nuts, and remove defective pillow block assembly.

g. Install new pillow block assembly, and secure with nuts, lockwashers, washers, and bolts.

h. Grease bearing (Paragraph 2-11.1).

i. Reinstall washer and center bolt.

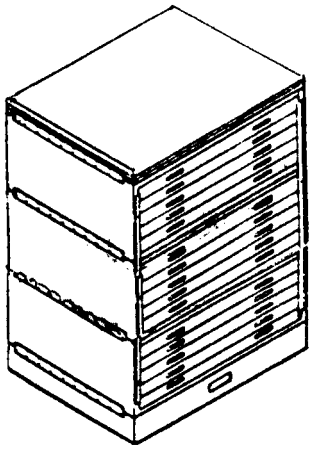
j. Tighten socket head setscrew.

k. Remove table top assembly supports.

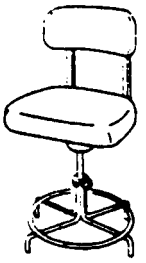
2-17. PREPARATION FOR STORAGE OR SHIPMENT. Contact your battalion for packing and shipping instructions.

Section V DIRECT/GENERAL SUPPORT MAINTENANCE

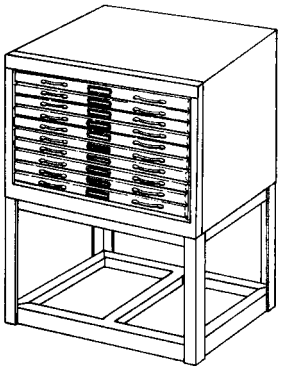
There are no direct/general support maintenance procedures assigned for this equipment.



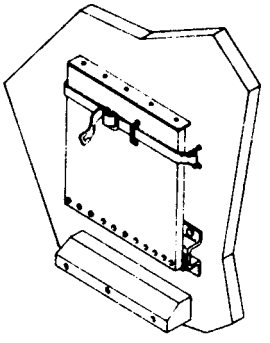
MAP AND PLAN
FILING CABINET



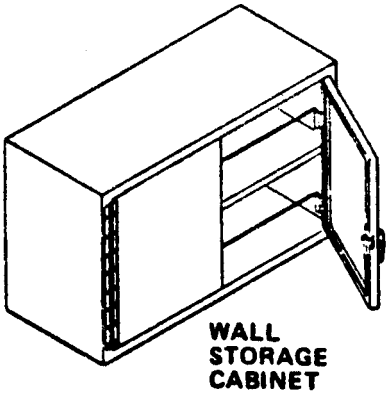
ROTARY
DRAFTING
CHAIR



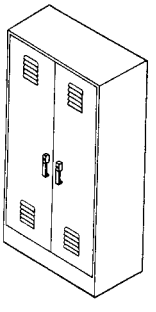
TEN-DRAWER
PHOTOLITHOGRAPHIC
CABINET



FOLDING
WORK
SURFACE



WALL
STORAGE
CABINET



TWO-DOOR
STORAGE
CABINET

CHAPTER 3

FURNITURE AND CABINETS

Section I. INTRODUCTION

3.1.1 GENERAL INFORMATION

3.1.1.1 SCOPE. This chapter contains the description of all furniture and cabinets contained in this section.

3.1.1.2 WALL STORAGE CABINET. Used for TMs and miscellaneous storage. There are two shelves. The two doors are held shut by a handle-type latch. Dimensions:

Width	30 in. (762.00 mm)
Depth	12 in. (304.80 mm)
Height	18 in. (457.20 mm)

3.1.1.3 TEN-DRAWER PHOTOLITHOGRAPHIC CABINET. Used for the storage of photolithographic materials and supplies. The Cabinet has ten sliding drawers. Dimensions:

Width	37 in. (939.80 mm)
Depth	32 in. (812.80 mm)
Height	34 in. (836.60 mm)

3.1.1.4 MAP AND PLAN FILING CABINET. Used for flat, horizontal storage of maps, blueprints. charts and plans of various sizes. The fifteen drawers are held shut by two locking bars on either side of the front of the cabinet. Dimensions:

Width	46.750 in. (1187.45 mm)
Depth	32.250 in. (819.19 mm)
Height	46.750 in. (1187.45 mm)

3.1.1.5 ROTARY DRAFTING CHAIR. Provides seating for drafting personnel. It has adjustable seat height and back position. Dimensions:

Width	17.12 in. (434.80 mm)
Depth	17.12 in. (434.80 mm)
Height	42 in. (1066.80 mm), Max 36 in. (914.40 mm), Min

3.1.1.6 FOLDING WORK SURFACE. Wall mounted. Used for additional work space. Dimensions:

Width	25.0 in. (635 mm)
Height	31.0 in. (787 mm)

3.1.1.7 TWO-DOOR STORAGE CABINET. Used for storage of miscellaneous large, bulky items. There are six shelves within the cabinet. It has two doors secured by handle type latches with a built-in lock. Dimensions:

Width	36.0 in. (91.4 cm)
Depth	18.0 in. (45.7 cm)
Height	68.75 in. (174.63 cm)

Section II. OPERATOR'S MAINTENANCE INSTRUCTIONS

3.2.1 LUBRICATION INSTRUCTIONS. This equipment does not require periodic lubrication.

3.2.2 MAINTENANCE PROCEDURES

3.2.2.1 INSPECT CABINETS AND FURNITURE. Inspect cabinets and furniture for structural damage, rust, and proper operation of all latches, hinges, and adjustment mechanisms.

Section III. ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

3.3.1 MAINTENANCE PROCEDURES. This section contains the step-by-step procedures for performing Organizational Maintenance for the furniture and cabinets. Personnel required are listed only if the task requires more than one. If personnel are not listed, it means one person can do the task.

INDEX

3.3.1.1 REPLACE PIANO HINGE.

TOOLS: Tool Kit, Mechanic's
Rivet Tool

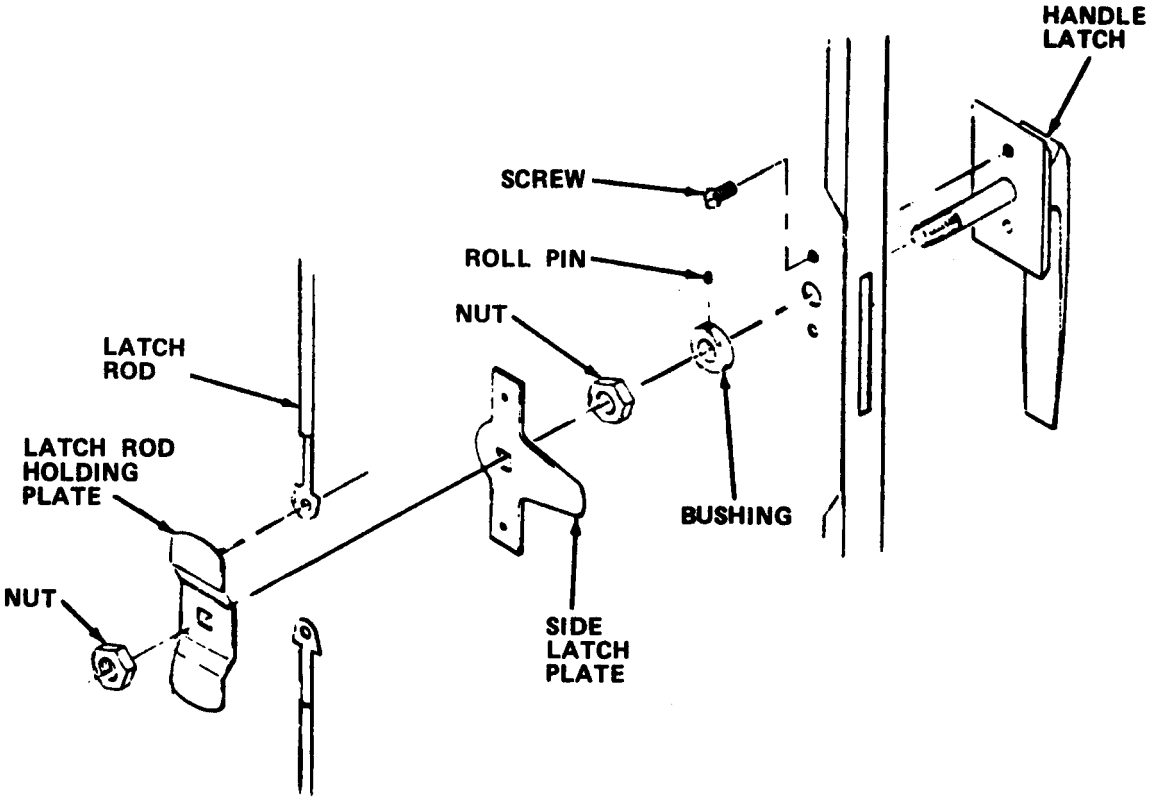
SUPPLIES: Hinge
Rivets (5/32 in.)

1. Drill out 16 rivets using no. 22 twist drill and remove hinge.
2. Install new hinge. Secure to cabinet with new rivets.

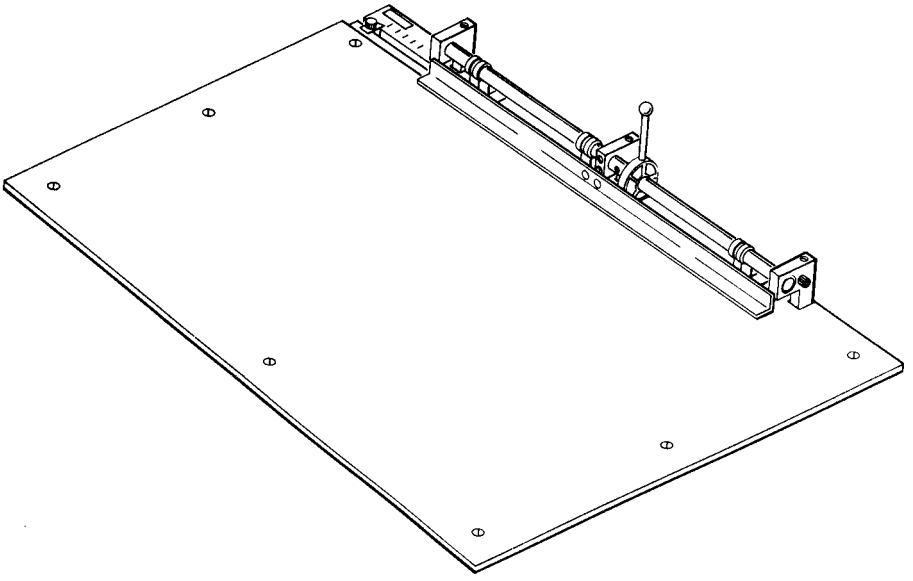
3.3.1.2 REPLACE HANDLE LATCH.

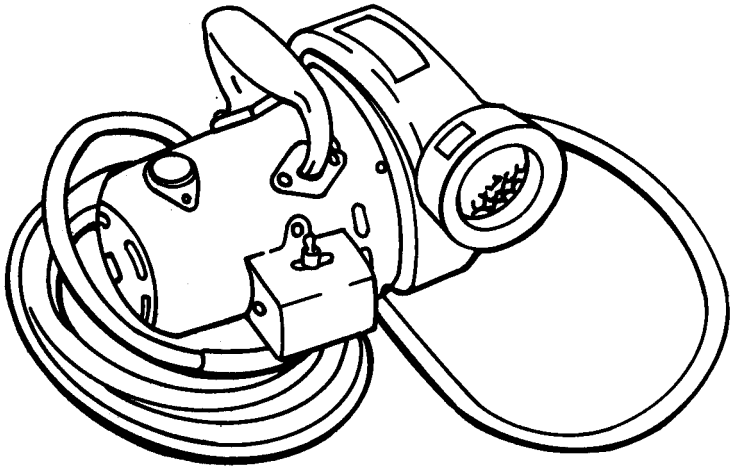
TOOLS: Tool Kit

SUPPLIES: Handle Latch



1. Remove nut which secures handle latch rod holding plate.
2. Remove handle latch rod holding plate and latch rods.
3. Remove side handle latch plate.
4. Remove two screws which hold secure handle latch to door and remove latch.
5. Install new latch and two screws which attach handle latch to door.
6. Reinstall side handle latch plate.
7. Reinstall handle latch rod and handle latch rod holding plate.
8. Attach latch rod holding plate with nut.





CHAPTER 4

SUPPORT ITEMS

Section I. INTRODUCTION

4.1.1 GENERAL INFORMATION

4.1.1.1 SCOPE. This chapter covers the support items contained in this section and consists of the following equipment:

a. Carlson Cartographic Pin Punch Register.

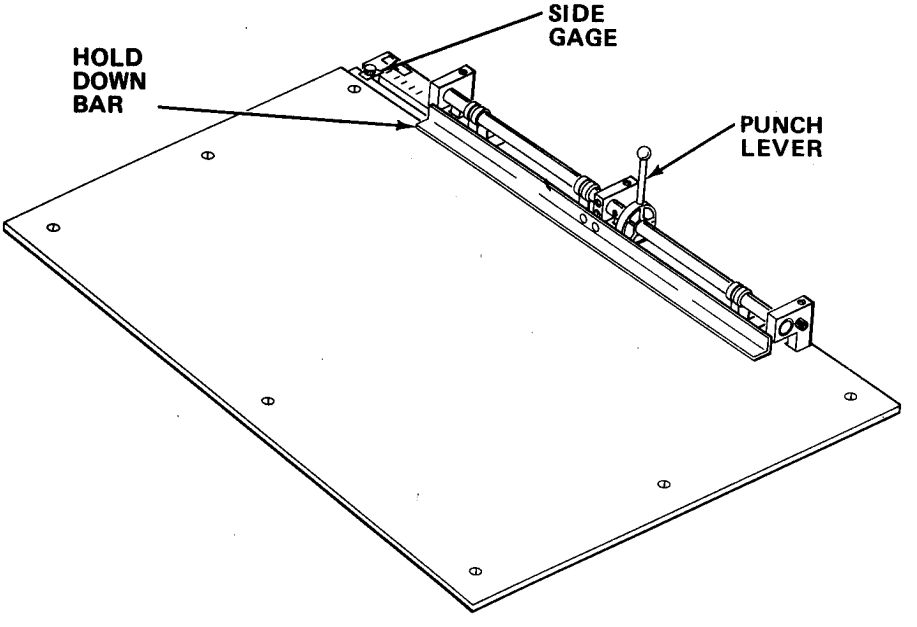
b. Model 3400 Vacuum Cleaner.

Section II. OPERATING INSTRUCTIONS

4.2.1 LUBRICATION INSTRUCTIONS. This equipment does not require periodic lubrication.

4.2.2 DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS.

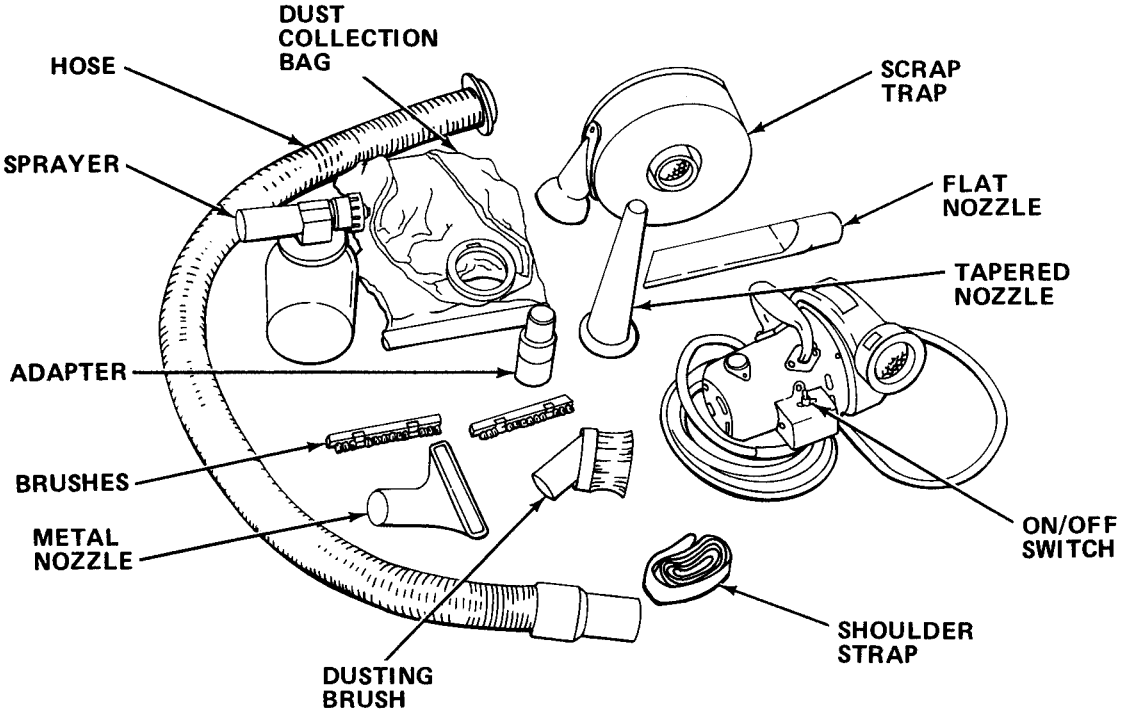
4.2.2.1 PIN PUNCH REGISTER.



CONTROL OR INDICATOR	FUNCTION
Punch Lever	Operates an eccentric which presses down on punch pin and forces it through material to be punched.
Side Gage	Positions material for proper positioning of punch holes.
Hold Down Bar	Secures material in place during operation.

4.2.2 DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS, CONT

4.2.2.2 VACUUM CLEANER.



CONTROL OR INDICATOR	FUNCTION
Sprayer	Sprays liquids when hooked to blower side of vacuum cleaner.
Flexible Hose	Directs airflow to hard-to-reach areas.
Dust Collection Bag	Collects and holds dust and dirt.
Scrap Trap	Traps large particles before they enter fan.
Flat Nozzle	Used for hard-to-reach areas.
Tapered Blower Nozzle	Directs airflow.
On/Off Switch	Turns power on or off.
Shoulder Strap	Attaches to vacuum cleaner for easier carrying.

CONTROL OR INDICATOR	FUNCTION
Round Dusting Brush	Used for light dust and dirt.
Metal Nozzle	Used for large, flat surfaces.
Brushes	Used on metal nozzle.
Adapter	Connects various attachments to hose.

4.2.3 OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES.

a. Always keep in mind the WARNINGS and CAUTIONS when performing PMCS. Table 4-1 lists the PMCS procedures to be performed by the operator. Be sure to perform the PMCS at the frequency indicated by the INTERVAL codes in the table.

b. If your equipment fails to operate, troubleshoot with the proper equipment. Report any deficiencies in accordance with TM 38-750.

c. The numbers found in the ITEM NUMBER column shall be used as a source of item numbers for the TM ITEM NUMBER column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording the results of PMCS.

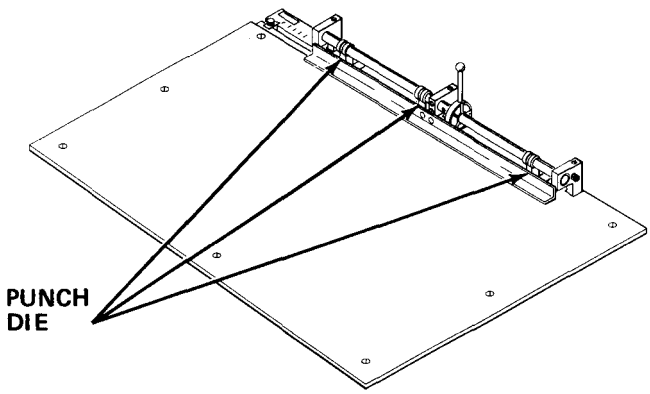
Table 4-1. OPERATOR'S PREVENTIVE MAINTENANCE CHECKS AND SERVICES

B - Before
D - During
A - After

W - Weekly
M - Monthly
Q - Quarterly

AN - Annually
S - Semiannually
BI - Biennially

(Number) - Hundreds of Hours

ITEM NO.	IN-TER-VAL	ITEM TO BE INSPECTED PROCEDURE	For Readiness Reporting, Equipment Is Not Ready/ Available If:
		SUPPORT ITEMS	
1	B/A	INSPECT PIN PUNCH REGISTER DIE.  Check punch die for buildup of punched out material and clean as required.	
2	Q	Vacuum Cleaner. Inspect vacuum cleaner for damage to housing, frayed or worn power cord, and proper operation of motor.	Housing is cracked or broken. Power cord is frayed, worn or damaged. Motor is noisy or operates improperly.

4.2.4 OPERATION UNDER USUAL CONDITIONS.

4.2.4.1 PIN PUNCH REGISTER.

1. Remove from wall mount to working surface and attach punch lever.

2. Set side gage to desired position.

3. Insert material into throat.

4. Press punch lever down and punch register holes.

4.2.4.2 VACUUM CLEANER.

1. Using as vacuum.

a. Attach dust collection bag to air discharge opening.

b. Remove protective screen lock from air intake opening and attach scrap trap to that opening.

c. Attach swivel end of hose to strap trap by turning lock to right until secure.

d. Attach required tool to other end of hose.

e. Insert plug into 120 V ac wall outlet and turn on/off switch to on.

2. Using as blower.

a. Attach tapered rubber nozzle to discharge opening.

b. Attach protective screen lock to air intake opening.

c. Insert plug into 120 V ac wall outlet and position on/off switch to on.

3. Using as sprayer.

a. Attach protective screen lock to air intake opening.

b. Attach swivel end of hose to air discharge opening by turning lock to right until secure.

c. Attach sprayer to other end of hose,

NOTE

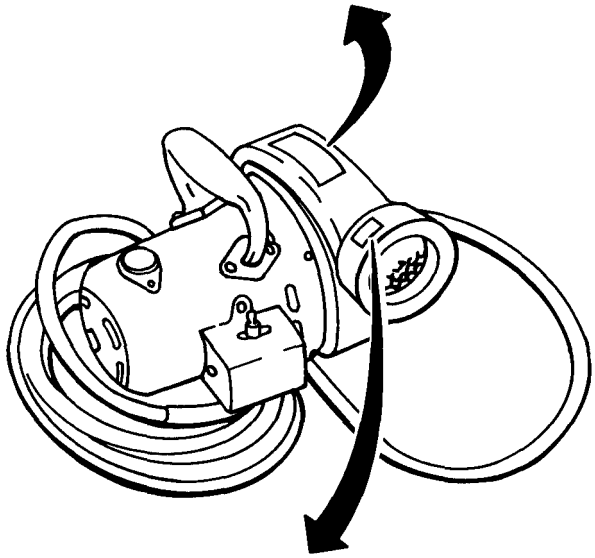
Size of spray pattern is determined by adjusting screw located on top of sprayer.

d. Insert plug into 120 V ac wall outlet and turn on/off switch to on.

4.2.4.3 OPERATING INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES.

WARNING

THIS DEVICE IS NOT TO BE USED IN “HAZARDOUS LOCATIONS” AS DEFINED BY UNDERWRITERS LABORATORIES. IT SHOULD BE GROUNDED IN ACCORDANCE WITH PROVISIONS OF THE NATIONAL ELECTRIC CODE, OR ANY APPLICABLE LOCAL CODE, AND MAINTAINED IN ACCORDANCE WITH MANUFACTURER’S RECOMMENDATIONS.



WARNING!

ELECTRIC SHOCK COULD OCCUR IF USED ON WET SURFACES. DO NOT EXPOSE TO RAIN. STORE INDOORS.

Section III. OPERATOR MAINTENANCE

4.3.1 LUBRICATION INSTRUCTIONS. This equipment does not require lubrication.

4.3.2 TROUBLESHOOTING PROCEDURES.

a. The table lists the common malfunctions which you may find during operation or maintenance of the vacuum cleaner. You should perform the test/inspections and corrective actions in the order listed.

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

Table 4-2. TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
VACUUM CLEANER MOTOR DOES NOT OPERATE.
Step 1. Check power cord.
(a) If plugged in, proceed to step 2.
(b) Plug in power cord.
Step 2. Check position of power switch.
(a) If turned on, proceed to step 3.
(b) Turn power switch on.
Step 3. Check circuit breaker position in circuit breaker box.
(a) If turned off or tripped, turn circuit breaker on.
(b) If turned on, refer to supervisor.

4.3.3 There are no assigned Operator’s Maintenance Procedures.

APPENDIX A

REFERENCES

A-1. SCOPE. This appendix lists all forms, technical manuals and other publications referenced in this manual, as well as other pertinent information.

A-2. PUBLICATION INDEX. The following index should be consulted frequently for the latest changes or revisions and for new publications relating to the material covered in this technical manual.

Consolidated Index of Army Publications and Blank Forms . . . . . DA PAM 310-1

A-3. FORMS. Refer to DA Pam 738-750 - The Army Maintenance Management System (TAMMS) - for instructions on the use of maintenance forms pertaining to this material.

Recommended Changes to Publications and Blank Forms . . . . . DA Form 2028

Recommended Changes to Equipment Technical Publications . . . . . DA Form 2028-2

Hand Receipt/Annex Number.. . . . . DA Form 2062

Equipment Inspection and Maintenance Worksheet . . . . . DA Form 2404

Quality Deficiency Report . . . . . SF 368

A-4. TECHNICAL MANUALS

Administrative Storage of Equipment . . . . . TM 740-90-1

Procedures for Destruction of Equipment to Prevent Enemy Use. . . . . .TM 750-244-3

Operator's, Organizational, Direct Support and General Support Maintenance Manual, Air Conditioner, Horizontal, Compact, 208-Volt, 3-Phase, 18,000 BTUH Cooling, 12,000 BTUH Heating . . . . . TM 5-4120-367-14

Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Air Conditioner/Heater . . . . . TM 5-4120-367-24P

Operator's, Organizational, Direct Support and General Support Maintenance Manual for Chassis, Semi-Trailer, Container Transporter (ADCOR) . . . . . TM 5-2330-305-14

Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Chassis, Semi-Trailer, Container Transporter (ADCOR) . . . . . TM 5-2330-305-24P

Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (RPSTL) (Including Depot Maintenance Repair Parts and Special Tools) for Map Layout Section . . . . . TM 5-3610-260-24P

Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Item (BII) and Additional Authorization List (AAL) for Map Layout Section . . . . . TM 5-3610-260-14-HR

Lubrication Order for Map Layout Section . . . . . LO 5-3610-260-12

Components List for Map Layout Section . . . . . SC 3610-97-CL-E24

A-5. MISCELLANEOUS PUBLICATIONS. The following Technical Bulletins, Technical Manuals and Field Manuals contain information pertinent to the major items of hardware and/or accessory equipment contained in this section.

a. Maintenance and Repair

Organizational Care, Maintenance and Repair of Pneumatic Tires, Inner Tubes and Radial Tires . . . . . TM 9-2610-200-20

Metal Body Repair and Related Operations . . . . . FM 43-2

Welding Theory and Related Operations . . . . . TM 9-237

Painting Instructions for Field Use . . . . . TM 43-0139

Inspection, Care and Maintenance of Antifriction Bearings . . . . . TM 9-214

b. Cold Weather Operation and Maintenance

Basic Cold Weather Manual. . . . . FM 31-70

Northern Operations. . . . . FM 31-71

Operation and Maintenance of Ordnance Material in Extreme Cold Weather (0° to -65°F -- -18° to -54°C) . . . . . TM 9-207

c. Decontamination

Chemical, Biological and Radiological (CBR) Decontamination. . . . . .TM 3-220

Nuclear, Biological and Chemical (NBC) Defense (Reprinted with Basic Incl. C1) . . . . . .FM 21-40

d. General

Camouflage . . . . . FM 5-20

Use and Care of Hand Tools and Measuring Tools. . . . . .TM 9-243

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

b. The Maintenance Allocation Chart (MAC) in Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III lists the special tools and test equipment required for each maintenance function as referenced in Section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

a. INSPECT. To determine the serviceability of an item by comparing its physical, mechanical and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

b. TEST. To verify serviceability by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. SERVICE. Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), preserve, drain, paint, or replenish fuel, lubricants, chemical fluids, or gases.

d. ADJUST. To maintain, within prescribed limits, by bringing into proper or exact position or by setting the operating characteristics to specified parameters.

e. ALIGN. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. CALIBRATE. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. INSTALL. The act of emplacing, seating, or fixing into position an item, part or module (component or assembly) in a manner to allow proper functioning of an equipment or system.

h. REPLACE. The act of substituting a serviceable like-type part, subassembly or module (component or assembly) for an unserviceable counterpart.

i. REPAIR. The application of maintenance services[1], including fault location/ troubleshooting[2], removal/installation, and disassembly/assembly[3] procedures, and maintenance actions[4] to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module, (component or assembly), end item or system.

j. OVERHAUL. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like-new condition.

k. REBUILD. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc) considered in classifying Army equipment/ components.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II

a. COLUMN (1): GROUP NUMBER. Column (1) lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies and modules with the next higher assembly. End item group number shall be “00”.

b. COLUMN (2): COMPONENT/ASSEMBLY. Column (2) contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

COLUMN (3): MAINTENANCE FUNCTION. Column (3) lists the functions to be performed on the item listed in Column (2). (For detailed explanation of these functions, see paragraph B-2.)

---

[1]Services - Inspect, test, service, adjust, calibrate and/or replace.

[2]Fault locate/troubleshoot - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit under test (UUT).

[3]Disassemble/assemble - Encompasses the step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least componency identified as maintenance significant (i.e., assigned an SMR code) for the category of maintenance under consideration.

[4]Actions - Welding, grinding, riveting, straightening, facing, remachining and/or resurfacing.

d. COLUMN (4): MAINTENANCE CATEGORY. Column (4) specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column (3). This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operation conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the Maintenance Allocation Chart. The symbol designations for the various maintenance categories are as follows:

C	Operator or Crew
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
D	Depot Maintenance

e. COLUMN (5): TOOLS AND EQUIPMENT. Column (5) specifies by code those common tool sets (not individual tools) and special tools, TMDE and support equipment required to perform the designated function.

f. COLUMN (6): REMARKS. This column shall, when applicable, contain a letter code, in alphabetical order, which shall be keyed to the remarks-contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III

a. COLUMN (1): REFERENCE CODE. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column (5).

b. COLUMN (2): MAINTENANCE CATEGORY. The lowest category of maintenance authorized to use the tool or test equipment.

c. COLUMN (3): NOMENCLATURE. Name or identification of the tool or test equipment.

d. COLUMN (4): NATIONAL STOCK NUMBER. The National stock number of the tool or test equipment.

e. COLUMN (5): TOOL NUMBER. The manufacturer’s part number.

B-5 . EXPLANATION OF REFERENCE CODES, SECTION IV

a. COLUMN (1): REFERENCE CODE. The code recorded in Column (6), Section II.

b. COLUMN (2): REMARKS. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQPT	(6) REMARKS
00	MAP LAYOUT SECTION								
01	VAN BODY	Inspect	.75						
		Service	.62	.30				14	
		Repair		.50	1.50	4.00		1,2,3, 4,6,7, 8,9	
	BOARDING LADDER ASSEMBLY	Replace		.10				2,6	
		Repair		.50					
	ELECTRICAL SYSTEM	Inspect	.25					10,12	
		Service		.25				6,3	
		Repair			.85			4,6	
	BRACKET ASSEMBLY, POWER AND COMMUNICATIONS	Inspect	.10						
		Repair		.20	2.00			3	
	CIRCUIT BREAKER INSTALLATION	Inspect	.05						
		Replace			1.05			3,11	
		Repair			.75				
	PWR/COMM ELECTRICAL INSTALLATION	Inspect	.05						
		Repair			.25			3,11	
	PANEL ASSEMBLY PWR/COMM	Replace			3.08			3,4,11	
	POWER CABLE	Service		.25				3,6	
	EMERGENCY LIGHT ASSEMBLY	Inspect	.10						
		Replace		.30				6	
	LIGHT FIXTURE INSTALLATION	Inspect	.10						
		Repair		.30				3,6,11	
	EXHAUST FAN INSTALLATION	Inspect	.11						
		Replace		.30				3,6	

Section II. MAINTENANCE ALLOCATION CHART (Cont)

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQPT	(6) REMARKS
	SUPPORT BRACKET ASSEMBLY, AIR CONDITIONER	Inspect	.11						
		Replace			2.50			5,15	
	AIR CONDITIONER	Inspect	.80						
		Replace			1.50			5,15	
	AIR CONDITION AND MAKEUP AIR INSTALLATION	Inspect	.12						
		Service		.30				6	
		Repair			.50			6,9	
	AIR CONDITIONING DUCT INSTALLATION	Inspect	.17						
		Service	.17						
		Repair				2.00		6,9	
	BLACKOUT CURTAIN ASSEMBLY	Inspect	.08						
		Repair		.25				6	
	PERSONNEL DOOR INSTALLATION	Inspect		.08					
		Replace			2.50			2,6,9	
		Repair			3.00				
	REAR DOOR INSTALLATION	Inspect		.08					
		Replace			2.00			2,6,9	
		Repair			2.50				
02	DRAFTING, SCRIBING/TRACING TABLE	Inspect	.10						
		Service	.17					13,16	
		Replace		..00				2	
		Repair		1.75				2,6	
	TABLE TOP ASSEMBLY	Inspect	.08						
		Replace		.33				6,13	
		Repair		.33				6	
	PILLOW BLOCK	Replace		.75				2,6,16	
	ELECTRICAL PLATE ASSEMBLY	Repair		.30				4,6,11	

Section II. MAINTENANCE ALLOCATION CHART (Cont)

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQPT	(6) REMARKS
03	FURNITURE AND CABINETS	Inspect Replace Repair	.33	 2.00 2.50				6	
04	SUPPORT ITEMS	Inspect	.02						

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS

(1) TOOL OR TEST EQUIPMENT REFERENCE CODE	(2) MAINTENANCE CATEGORY	(3) NOMENCLATURE	(4) NATIONAL/NATO STOCK NUMBER	(5) TOOL NUMBER
1	O	Level, Carpenter's	5210-00-239-0892	
2	O	General Mechanic's Automotive Tool Kit	5180-00-177-7033	SC5180-90-CL-N26
3	F, H	Electronic Equipment Tool Kit	5180-00-605-0079	SC5180-91-CL-S21
4	F, H	Electronic Equipment Tool Kit	5180-00-610-8177	SC5180-91-CL-RO7
5	O, F, H	Refrigeration Unit Service Tool Kit	5180-00-596-1474	SC5180-90-CL-N18
6	O, F, H	Light Machine Repair Tool Kit	5180-00-596-1540	SC5180-90-CL-N27
7	C	Pliers	5120-00-223-7396	276
8	C	Shears, Straight	5110-00-162-2207	22
9	O, F	Rivet Gun	5120-00-017-2849	
10	C	Screwdriver, Cross Tipped	5120-00-764-8102	2753
11	F	Multimeter	6625-01-128-8015	3435A
12	C	Screwdriver, Flat Tipped	5120-00-234-8910	1006
13	C	Key Set, Socket Head Screw	5120-00-729-6392	
14	0	Brush, Wire	7920-00-282-9246	
15	0, F, H	Soldering Gun Kit	3439-00-930-1638	
16	C,O	Grease Gun	4930-00-965-0288	

Section IV. REMARKS

REFERENCE CODE	REMARKS
A	See TM 5-4120-367-14 for maintenance procedures.

APPENDIX C

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

C-1. SCOPE. This appendix lists components of end item and basic issue items for the Map Layout Sect on to help you inventory items required for safe and efficient operation.

C-2. GENERAL. The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. SECTION II: COMPONENTS OF END ITEM. This listing is for informational purposes only and is not authority to requisition replacements. These items are part of the end item but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. SECTION III: BASIC ISSUE ITEMS (BII). These are the minimum essential items required to place the Map Layout Section in operation, to operate it and to perform emergency repairs. Although shipped separately packaged, BII must be with the Map Layout Section during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement BII based on TOE/MTOE authorization of the end item.

C-3. EXPLANATION OF COLUMNS. The following provides an explanation of columns found in the tabular listings:

a. COLUMN (1): ILLUSTRATION NUMBER (ILLUS NUMBER). This column indicates the number of the illustration in which the item is shown.

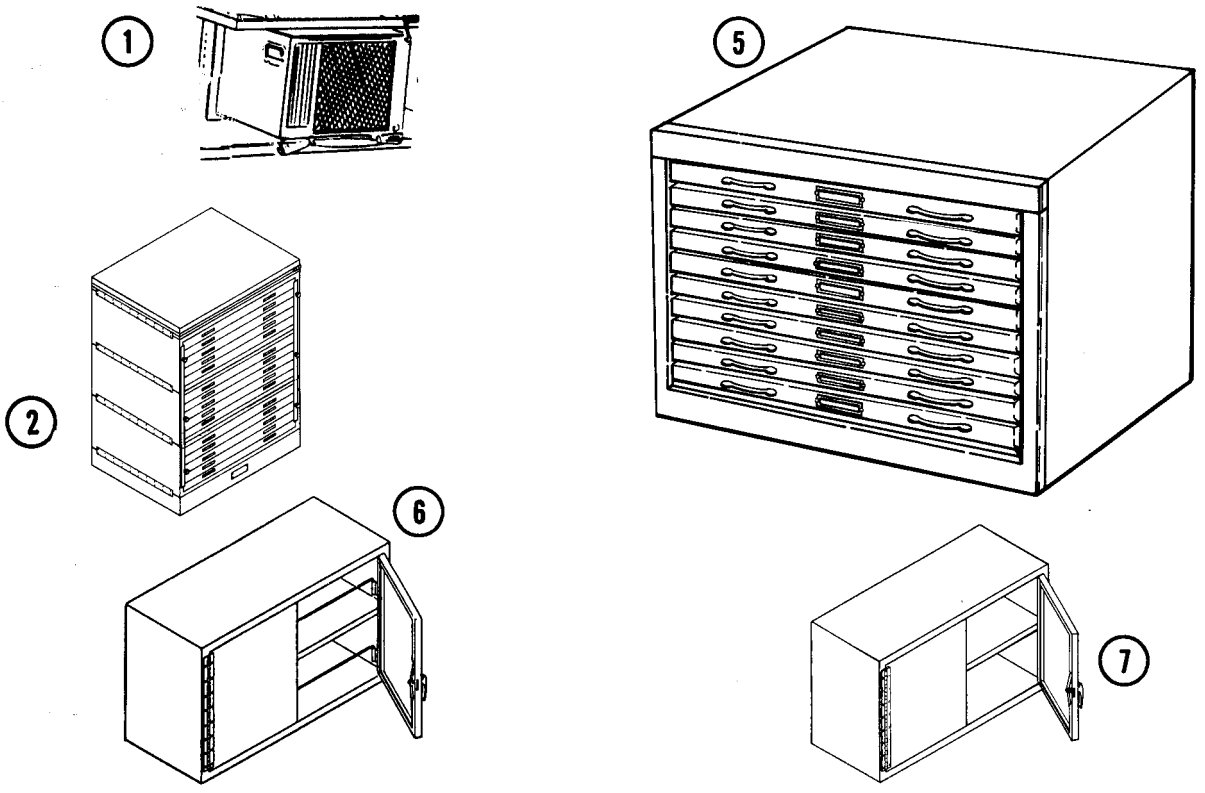
b. COLUMN (2): NATIONAL STOCK NUMBER. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. COLUMN (3): DESCRIPTION. Indicates the National item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. COLUMN (4): UNIT OF MEASURE (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).

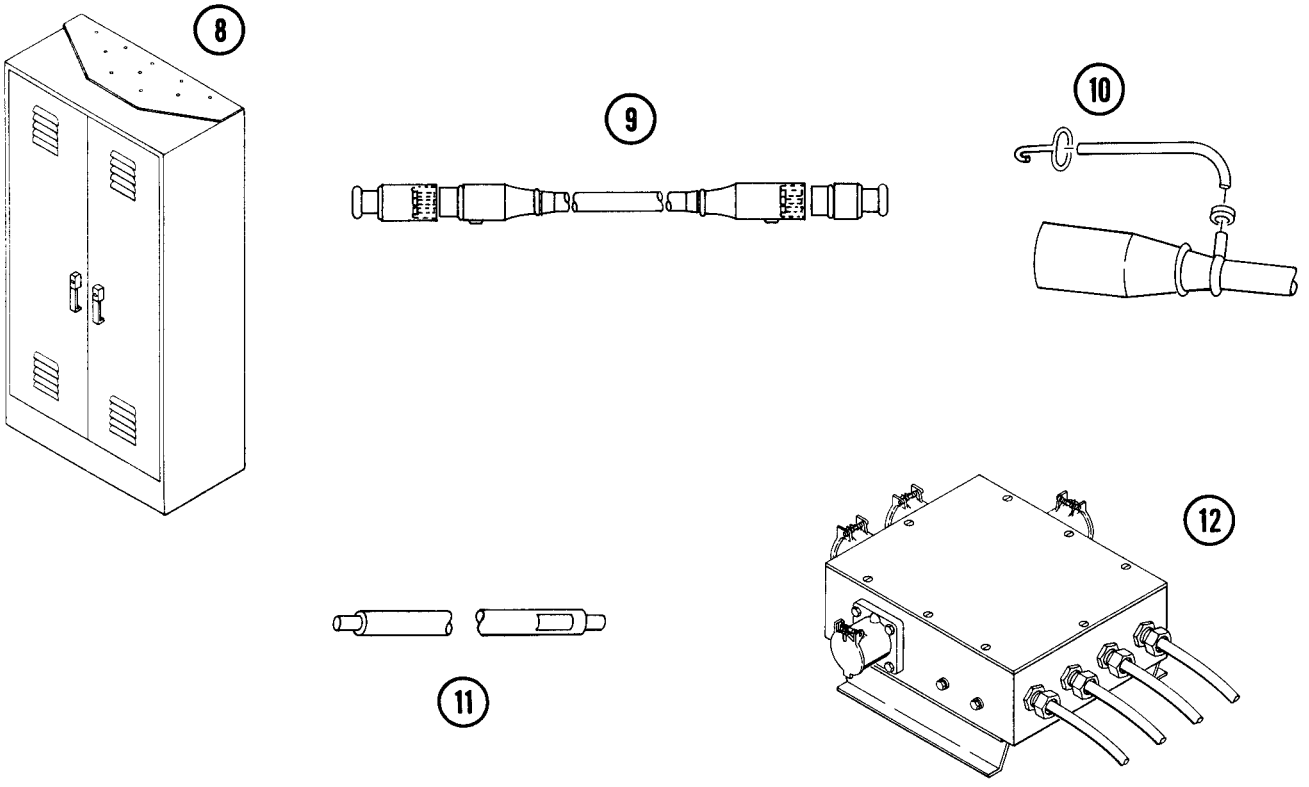
e. COLUMN (5): QUANTITY REQUIRED (QTY RQR). Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM



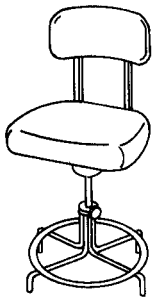
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
1	4120-00-974-7206	Air conditioner (81349) MIL-M-52767	ea	2
2		Cabinet, Filing, Map and Plan (97403) 13225	ea	1
3	Deleted			
4	Deleted			
5		Cabinet, Photolithographic Storage (97403) 13225	ea	2
6	7125-00-286-5259	Cabinet, Storage (97403) 13225	ea	2
7	7125-01-219-6799	Cabinet, Storage (97403) 13225	ea	1

Section II. COMPONENTS OF END ITEM - Cont



(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
8	7125-00-764-5744	Cabinet, Wall Storage, Upright	ea	1
9	6150-00-134-0847	Cable Assembly, Power (19207) Joy Mfg. PNX8728-30	ea	1
10	6150-01-221-6032	Cable Assembly, Power, Modified (97403) 13225	ea	1
11		Cable, Ground (97403) 13225	ft	6
12	6150-01-081-9264	Cable, Terminal Box (97403) 13222	ea	1

Section II. COMPONENTS OF END ITEM - Cont



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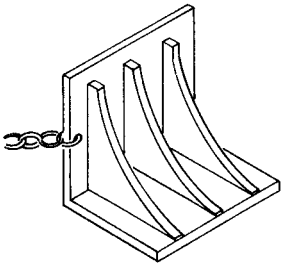

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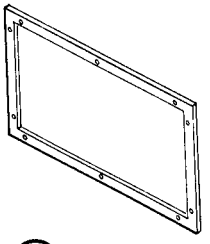

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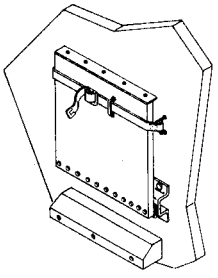

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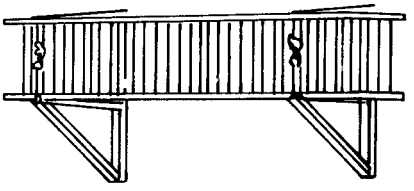
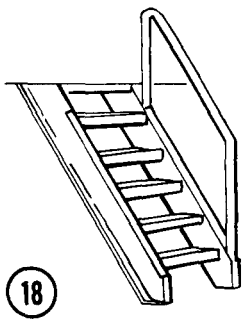
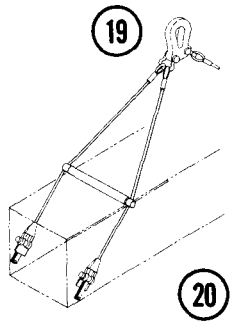


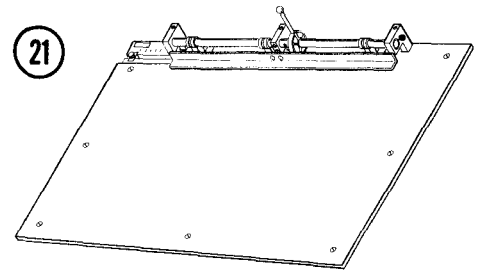
17

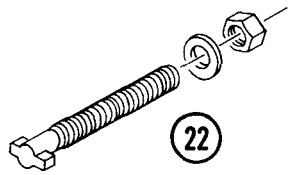
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
13	7110-00-216-5334	Chair, Rotary (59177) D-42	ea	4
14	2530-01-216-2575	Chock, Wheel Track (97403) 13225	se	1
15		Corkboard (51745) ADC-2111	ea	1
16		Folding Work Surface Assembly (97403) 13225	ea	1
17	5440-01-152-7751	Ladder, Extension-Fo ding (39428) 8028T16	ea	1

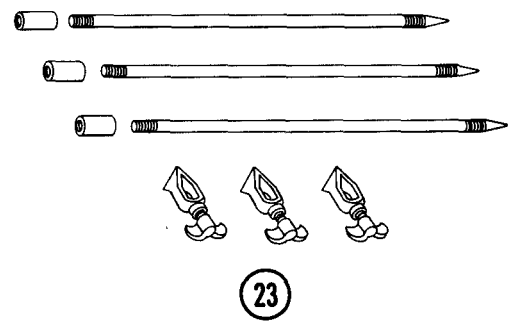
Section II. COMPONENTS OF END ITEM - Cont





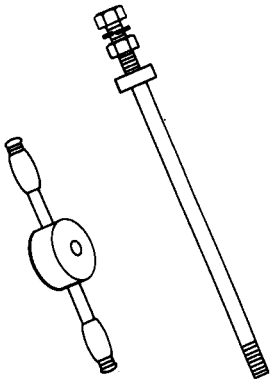






(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
18	2540-01-133-9726	Ladder, Vehicle Boarding (97403) 13225	ea	2
19		Lifting and Tiedown Device, Transportable Shelter: Left Hand (52555) 1390-4	ea	2
20		Lifting and Tiedown Device, Transportable Shelter: Right Hand (52555) 1390-3	ea	2
21	6675-00-999-7254	Pin Register Board (25042) 0510247	ea	1
22		Release Stud Assembly (50153) 11M011	ea	6
23	5975-00-878-3791	Rod, Ground (81348) W-R-550TYIIICLB	ea	1

Section II. COMPONENTS OF END ITEM - Cont



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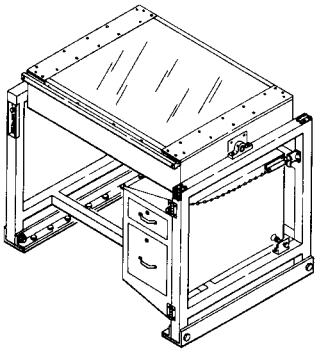

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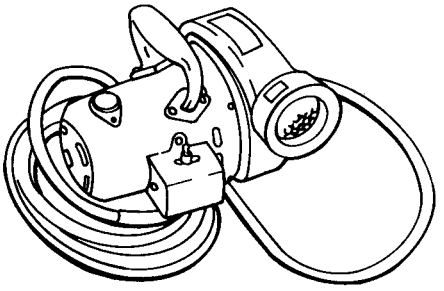

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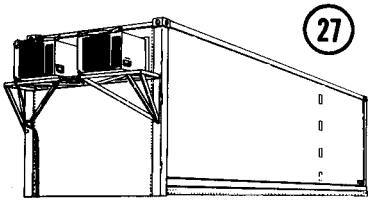

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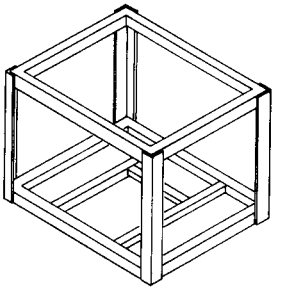

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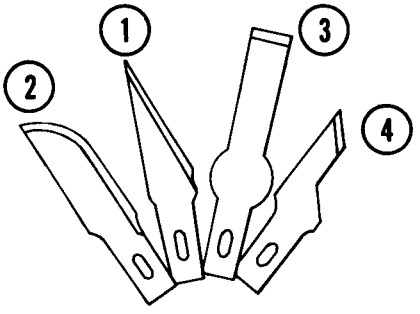
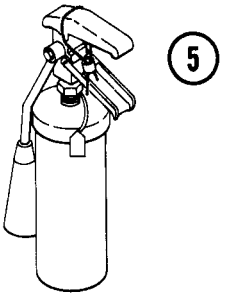
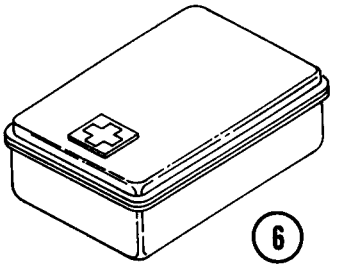
Section II. **COMPONENTS OF END ITEM - Cont**

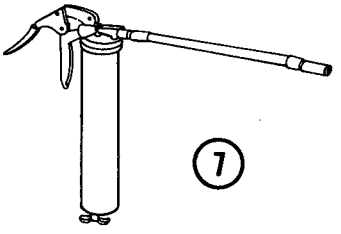
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
24	5120-01-013-1676	Slide Hammer, Ground Rod Emplacement (45225) P74-144	ea	1
25	3610-00-289-7234	Table, Drafting, Scribing/Tracing (97403) 13225	ea	4
26	7910-00-205-3400	Vacuum Cleaner, Electric (51745) MVV3400	ea	1
27	3610-01-105-1557	Van, Map Layout Section, Topographic Reproduction Set, Semitrailer Mounted (51745) ADC-TSS-20	se	1
28		Base, Cabinet, 10 Drawer (97403) 13225	ea	1

Section III. BASIC ISSUE ITEMS



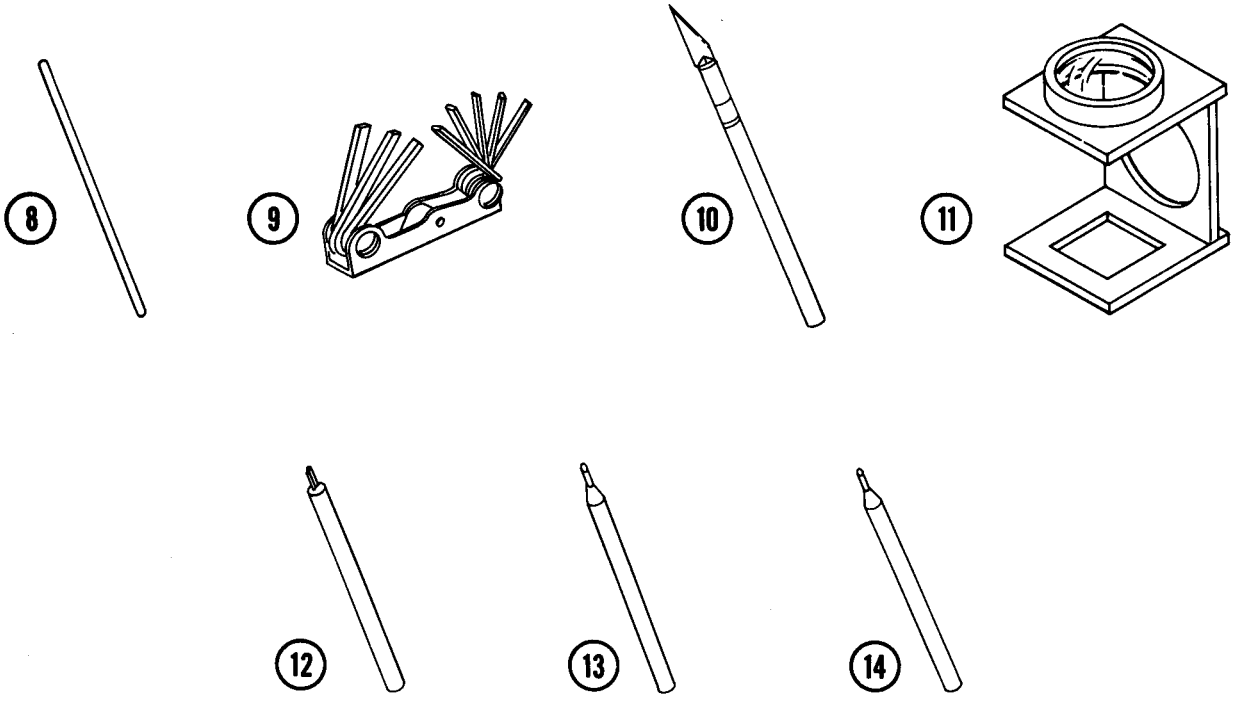






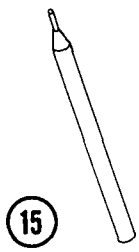
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
1	5110-00-359-6478	Blade, Beveled (99941) 11	pg	2
2	5110-00-542-2043	Blade, Curved (99941) 10	pg	2
3	5110-00-542-2044	Blade, Square (99941) 17	pg	2
4	5110-00-765-4144	Blade, Stencil (99941) 16	pg	2
5	4120-00-555-8837	Extinguisher, Fire (06535) FH-900-2	ea	2
6	6545-00-922-1200	First Aid Kit (81348) A-A-92	ea	1
7	4930-00-965-0288	Grease, Gun (77335) 30-171	ea	1

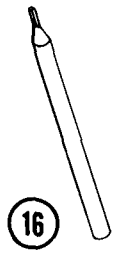
Section III. BASIC ISSUE ITEMS - Cont

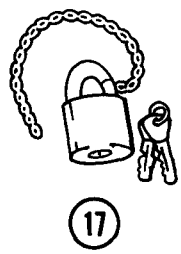


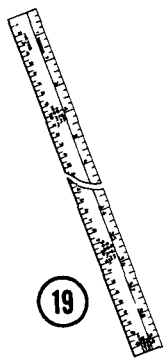
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
8	5120-01-134-9422	Handle, Socket Wrench (75204) TR5	ea	1
9		Key Set, Socket Head Screw (70276) 644	se	1
10	5110-00-595-8400	Knife, Craftsman's (99941) 3001	ea	6
11	6650-00-255-8268	Magnifier, Monocular Type (94480) 12-064-10	ea	4
12	5120-00-293-1132	Needle, Etching, Flat (81349) MIL-N-43186STYIVSZ1	ea	4
13	5120-00-293-0589	Needle, Etching, Oval (81349) MIL-N-43186STYIIISZ1	ea	4
14	5120-00-293-0591	Needle, Etching, Round (81349) MIL-N-43186STYISZ1	ea	4

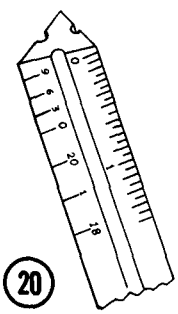
Section III. BASIC ISSUE ITEMS - Cont

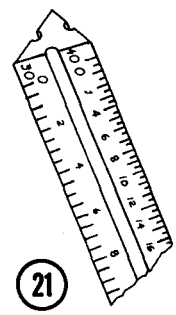






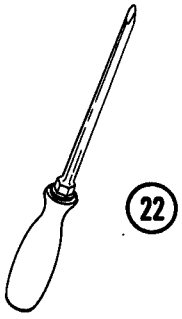


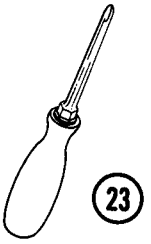


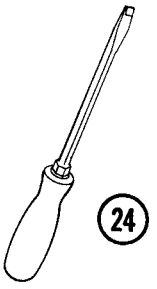


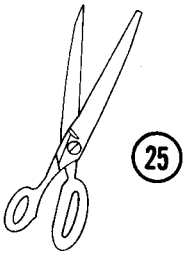
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
15	5120-00-293-0593	Needle, Etching, Round (81349) MIL-N-43186STYISZ2	ea	4
16	5120-00-278-0813	Needle, Etching, Square (81349) MIL-N-43186STYIISZ4	ea	4
17	5340-00-682-1505	Padlock Set (96906) MS21313-52	se	1
18	5120-00-223-7396	Pliers, Slip Joint (93389) 276	ea	1
19	5210-00-273-1960	Rule, Steel (57163) C607R-36	ea	4
20	6675-00-234-5099	Scale, Drafting (23366) 240/18	ea	4
21	6675-00-234-5109	Scale, Drafting (23366) 241/24	ea	4

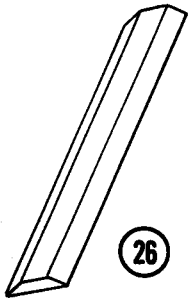
Section III. BASIC ISSUE ITEMS - Cont

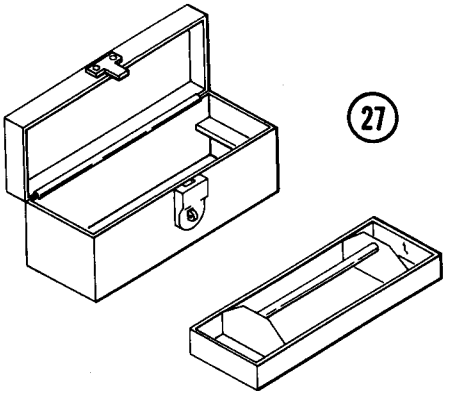


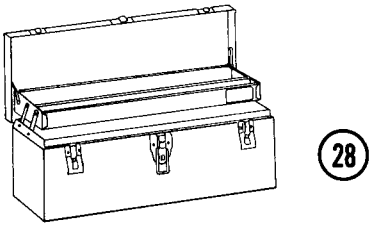






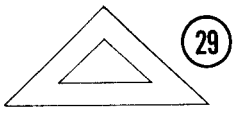


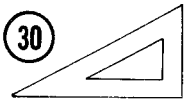


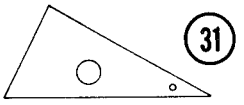


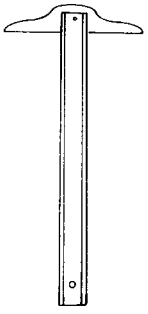
(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
22	5120-00-764-8080	Screwdriver, Cross Tipped (28356) SSDP31	ea	1
23	5120-00-764-8102	Screwdriver, Cross Tipped (28356) SSDP63	ea	1
24	5120-00-234-8910	Screwdriver, Flat Tipped (28356) SSD6	ea	1
25	5110-00-162-2207	Shears, Straight Trimmer's (96508) 22	ea	4
26	6675-01-136-1494	Straightedge (09058) 599-526-60	ea	4
27	5140-00-315-2747	Tool Box (7 2 7 4 7	ea	1
28	5140-00-331-5496	Tool Box (75206) CS-19	ea	1

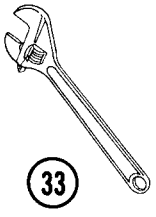
Section III. BASIC ISSUE ITEMS - Cont

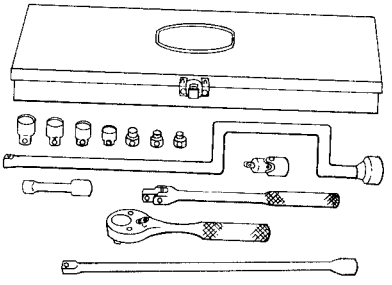












(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	(4) U/M	(5) Qty Rqr
29	6675-00-190-5860	Triangle, Drafting (88997) A-346 12"	ea	4
30	6675-00-190-5865	Triangle, Drafting (88997) A-345 15"	ea	4
31	6675-00-254-4862	Triangle, Drafting (81562) 140511	ea	4
32	6675-00-183-6487	T-Square (81562) 140791	ea	3
33	5120-00-240-5328	Wrench, Adjustable (93389) 708	ea	1
34	5120-00-081-2305	Wrench Set, Socket (93389) 5200AB	se	1
35	5120-00-203-6480	Wrench, Socket (75204) TR98	ea	1

APPENDIX D

ADDITIONAL AUTHORIZATION LIST

Section I INTRODUCTION

D-1. SCOPE .

This appendix lists additional items you are authorized for the support of the Map Layout Section.

D-2. GENERAL.

This list identifies items that do not have to accompany the Map Layout Section and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA or JTA.

D-3. EXPLANATION OF LISTING.

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

Section II ADDITIONAL AUTHORIZATION LIST

(1) National Stock Number	(2) Description FSCM and Part Number	(3) U/M	(4) Qty Auth
	TOE AUTHORIZED ITEMS		
6115-00-283-9051	Generator Set, DSL Eng TM:60 kW	ea	1
5805-00-543-0012	Telephone Set: TA-312/PT	ea	1

APPENDIX E

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

E-1. SCOPE.

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

E-2. EXPLANATION OF COLUMNS

a. COLUMN (1): ITEM NUMBER. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., “Use cleaning compound, Item 5, Appendix E.”).

b. COLUMN (2): LEVEL. This column identifies the lowest level of maintenance that requires the listed item.

C	Operator/Crew
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance

c. COLUMN (3): NATIONAL STOCK NUMBER. This is the National stock number assigned to the item. Use it to request or requisition the item.

d. COLUMN (4): DESCRIPTION. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. COLUMN (5): UNIT OF MEASURE (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by two-character alphabetical abbreviations (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	C		Adhesive, Spray (21436) 83-5-104571	qt
2	C	8020-00-262-9099	Brush, Artist's (81348) H-B-118TY1CL1STASZ10/128	ea
3	C	8020-00-264-3883	Brush, Artist's (81348) H-B-118TY1CL1STASZ32	ea
4	C	7920-00-291-5812	Brush, Dusting, Draftman's (81348) H-B-00190TY3CL2	ea
5	C	7920-00-282-9246	Brush, Wire, Scratch (81348) HB178	ea
6	C	8305-00-222-2423	Cloth, Cheesecloth	yd
7	C	8040-00-225-4548	Compound, Adhesive Sealing (01139) RTV102	cn
8	C	6675-00-910-2237	Covering, Drawing Board (33363) 99-9970	ea
9	C	7930-00-530-8067	Detergent, General Purpose	gl
10	C	7520-00-285-1772	Dispenser, Tape (81348) GG-D-458TY5CL3	ea
11	C	7510-00-223-7044	Eraser, Rubber (81348) ZZ-E-00661TY4CPBSTA	bx
12	C	7510-00-285-5866	Lead, Pencil (75364) 2200I-H	pg
13	C	7510-00-272-9820	Lead, Pencil (75364) 2200-3H	pg
14	C	7510-00-233-2638	Lead, Pencil (75364) 2200-5H	pg
15	C	7510-00-295-6170	Lead Repointer (75364) 234	ea

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
16	C	9150-00-190-0904	Lubricant, Grease GAA	lb
17	C	6750-00-264-6763	Opaque, Photographic, Black (19139) 146 4312	jr
18	C	6750-00-264-6764	Opaque, Photographic, Red (19139) 146 4296	jr
19	C	7240-00-060-6006	Pail, Utility, Plastic (05668) C-6270-10	ea
20	C	8010-00-068-8779	Paint, Olive Drab (81352) MIL-L-81348	gl
21	C	5350-00-235-0137	Paper, Abrasive (81352) A-A-1202	pg
22	C	3610-00-183-7085	Paper, Photolithographic (81348) UUP381	pg
23	C		Pen, Broad Felt-Tip, Opaque, Red (04457) Dalomarker Point Number 5	bx
24	C		Pen, Fine Felt-Tip, Opaque, Red (04457) Dalomarker Point Number 2	bx
25	C	7510-00-240-1525	Pencil, Surface Marking (75364) 1555	dz
26	C	7520-00-222-1250	Pencil, Mechanical, Nonautomatic (75364) 5611	ea
27	C	6675-01-216-7302	Pin, Register, Oblong (25042) 04325110	ea
28	C	6675-01-216-0917	Pin, Register, Round (25042) 04250110	ea
29	C	9330-00-282-8319	Plastic Sheet, Cellulose (81348) LP504	pg
30	C	7520-00-162-6178	Sharpener, Pencil (81348) GG-S-236	ea

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (Cont)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
31	C	5345-00-265-3126	Stone, Sharpening (81348) HM-8	ea
32	C	7510-00-051-1171	Tape, Pressure Sensitive Adhesive (76381) 616	ro
33	C	7510-00-285-6403	Tape, Pressure Sensitive Adhesive (81349) MIL-T-40620	ro
34	C	7510-00-551-9823	Tape, Pressure Sensitive Adhesive (81348) L-T-90	ro
35	C		Tape, Double-Coated, Adhesive (33363) 58 1582	ro
36	C	7920-00-823-9772	Towel, Paper (81348) UU-T-595	ro
37	C	7240-00-965-4427	Waste Receptacle (81348) L-W-25	ea
38	C	6850-00-880-1013	Spray, Silicone	cn

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By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

R. L. DILWORTH
Brigadier General, United States Army
The Adjutant General

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

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

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 5-3610-260-14	1 August 1986	Topographic Support System, Map Layout Section

BE EXACT. . . PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
6	2-1 a		
B1		4-3	
125	line 20		

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

In line 6 of paragraph 2-1a the manual states the engine has 6 Cylenders. The engine on my set only has 4 Cylenders. Change the manual to show 4 Cylenders.

Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 4-3, item 16 is called a shim - Please Correct one or the Other.

I ordered a gasket, item 19 on figure B-16 by NSN 2 910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is Wrong. Please give me a good NSN

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

SIGN HERE: John Doe
JOHN DOE

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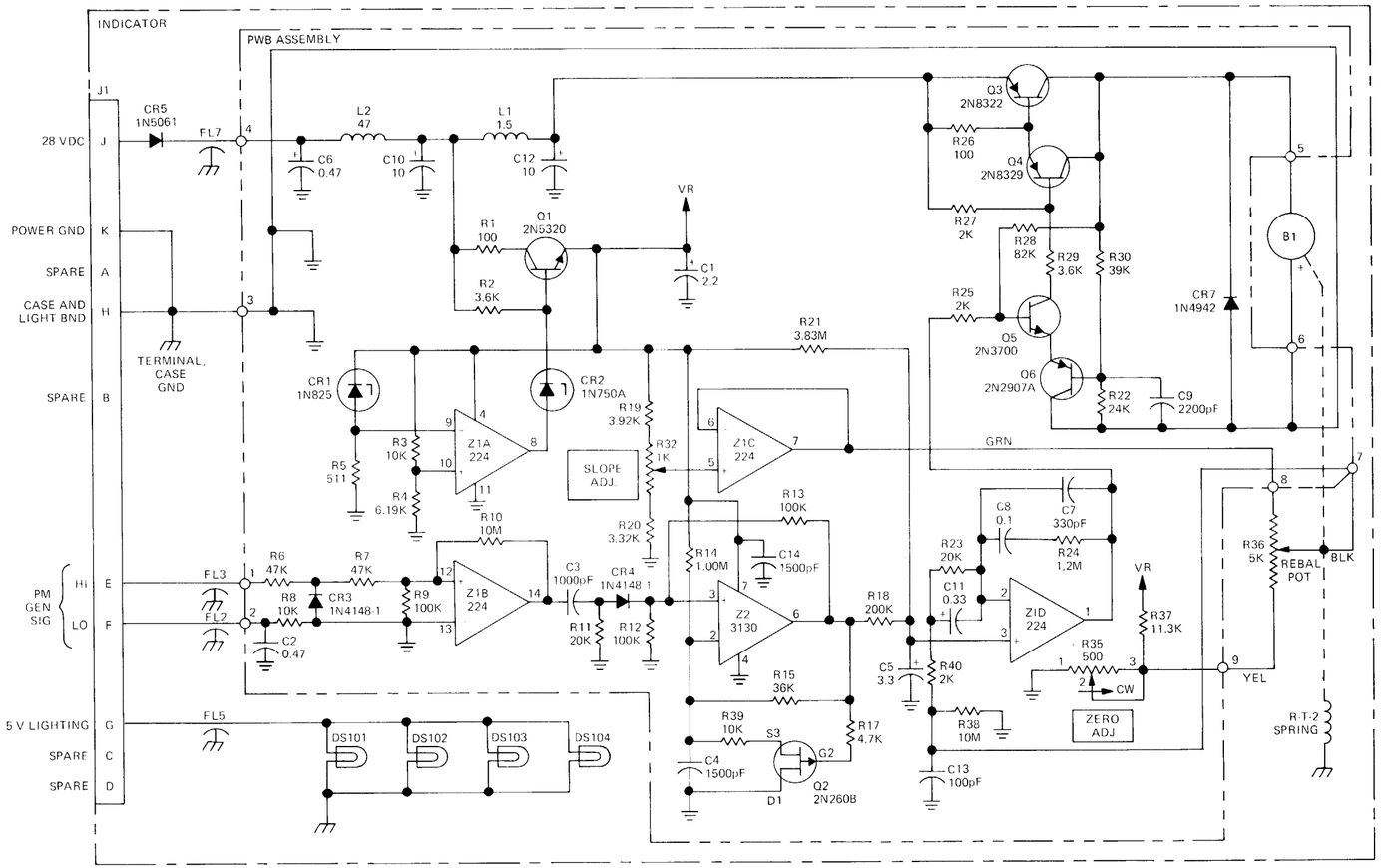

NOTES:

UNLESS OTHERWISE INDICATED: ALL RESISTANCE VALUES ARE IN OHMS. ALL CAPACITANCE VALUES ARE IN MICROFARADS. ALL INDUCTOR VALUES ARE IN MICROHENRIES. DIODE AND TRANSISTOR TYPES ARE PREFIXED WITH JAN.

3344 1-5

Figure FO-1. Indicator Schematic Diagram

The Metric System and Equivalents

Linear Measure

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

Weights

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

Liquid Measure

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

Square Measure

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

Cubic Measure

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

Approximate Conversion Factors

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

Temperature (Exact)

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

PIN: 060432-000