TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

REPAIR FACILITY, ELECTRONIC EQUIPMENT

OA-8991/MSM
6625-01-070-4404

This copy is a reprint which includes current pages from Changes 1 and 2.

HEADQUARTERS, DEPARTMENT OF THE ARMY

2 AUGUST 1982

CHANGE 1 - 15 MARCH 1983

WARNING

HIGH VOLTAGE is used in the operation of this equipment. DEATH ON CONTACT may result if personnel fail to observe safety precautions. Know the areas in this equipment containing high voltage. Be careful not to come in contact with the high voltage connections during operation of this equipment.

Do not be misled by the term "Low Voltage." Potentials as low as 25 volts may cause death under adverse conditions.

WARNING

FLAMMABLE SOLVENTS are used in the maintenance of this equipment. Adequate ventilation should be provided while using isopropyl alcohol. Prolonged breathing of the vapor should be avoided. The solvent is not to be used near heat, sparks, or open flames; it is highly flammable. Since isopropyl alcohol dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which are solvent-resistant. If the solvent is taken internally,. Consult a physician immediately

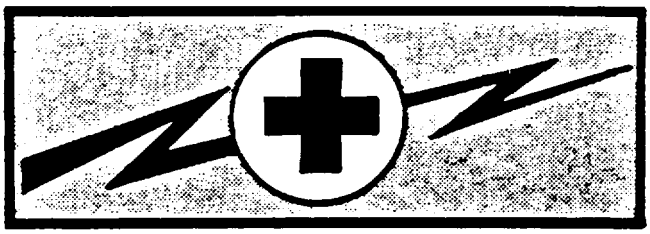
WARNING

COMPRESSED AIR is used in the maintenance of this equipment. When used for cleaning, the compressed air source must limit nozzle pressure to no more than 29 pounds per square inch (PSIG). Goggles must be worn when cleaning with compressed air.

WARNING

Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

WARNING



HIGH VOLTAGE
is used in the operation of this equipment

DEATH ON CONTACT
may result if personnel fail to observe safety precautions

Never work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Whenever possible, the power supply to the equipment must be shut off before beginning work on the equipment. Take particular care to ground every capacitor likely to hold a dangerous potential. When working inside the equipment, after the power has been turned off, always ground every part before touching it.

Be careful not to contact high-voltage connections or 115 volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through the body.

Warning: Do not be misled by the term "low voltage." Potentials as low as 50 volts may cause death under adverse conditions.

For Artificial Respiration, refer to FM 21-11.

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1 DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2 IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3 IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL

4 SEND FOR HELP AS SOON AS POSSIBLE

5 AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

CHANGE

No. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 July 1988

**Operator, Organizational,
Direct Support and General
Support Maintenance Manual**

**REPAIR FACILITY,
ELECTRONIC EQUIPMENT
OA-8991 /MSM
(NSN 6625-01-070-4404)**

TM 11-5410-217-14, 2 August 1982, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.

Remove pages	*Insert pages*
i and ii	i and ii
v and vi	v and vi
1-1 and 1-2	1-1 and 1-2
2-3 and 2-4	2-3 and 2-4
3-19 and 3-20	3-19 and 3-20
3-25 through 3-30	3-25 through 3-30
6-17and 6-18	6-17and6-18
6-23 and 6-24	6-23 and 6-24
6-39 and 6-40	6-39 and 6-40
6-55/(6-56 blank)	6-55/(6-56 blank)
A-1 and A-2	A-1 and A-2
B-3 through B-7/(B-8 blank)	B-3 through B-7/(B-8 blank)
C-3 through C-8	C-3 through C-8
C- 1 through C-18	C-11 I through C-18
D-1 and D-2	D-1 and D-2
Figure FO-1	Figure FO-1

2. File this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official

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

DISTRIBUTION:
To be distributed in accordance with DA Form 12-36 literature requirements for OA-3991/MSM.

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARM
WASHINGTON, DC 15 March 1983

Operator, Organizational,
Direct Support and General
Support Maintenance Manual

REPAIR FACILITY,

ELECTRONIC EQUIPMENT
OA-8991/MSM
(6625-01-070-4404)

TM 11-5410-217-14, 2 August 1982, is changed as follows:
1. Remove old page and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the page.

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Cover	Cover		
i and ii	i and ii		
2-1 and 2-2	2-1, 2-1.1 and 2-2		
3-29 and 3-30	3-29 and 3-30		
C-9 and C-10	C-9 and C-10		

File this change sheet in front of the publication for reference purposes.

LIST OF EFFECTIVE PAGES

INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES.

Dates of issue for original and changed pages are:

Original....0 ..... 2 August 1982
Change....1 ..... 15 March 1983

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 241 CONSISTING OF THE FOLLOWING:

Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.
Cover	1	4-44 Blank	0		
i - ii	1	4-45 - 4-79	0		
iii - viii	0	4-80 Blank	0		
1-0 - 1-6	0	5-1 - 5-2	0		
2-1	1	6-1	0		
2-1.1 Added	1	6-2 Blank	0		
2-1.2 Blank, Added	1	6-3	0		
2-2	1	6-4 Blank	0		
2-3 - 2-5	0	6-5 - 6-55	0		
2-6 Blank	0	6-56 Blank	0		
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2-8 Blank	0	7-2 Blank	0		
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3-16 Blank	0	A-4 Blank	0		
3-17 - 3-23	0	B-1 - B-7	0		
3-24 Blank	0	B-8 Blank	0		
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3-30	1	C-9	1		
4-1	0	C-10 - C-19	0		
4-2 Blank	0	C-20 Blank	0		
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4-7 - 4-37	0	F-1 - F-4	0		
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4-39 - 4-43	0				

*Zero in this column indicates an original page.

Technical Manual

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC
2 August 1982

No. 11-5410-217-14

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6625-01-070-4404**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, U.S. Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5000.

In either case, a reply will be furnished direct to you.

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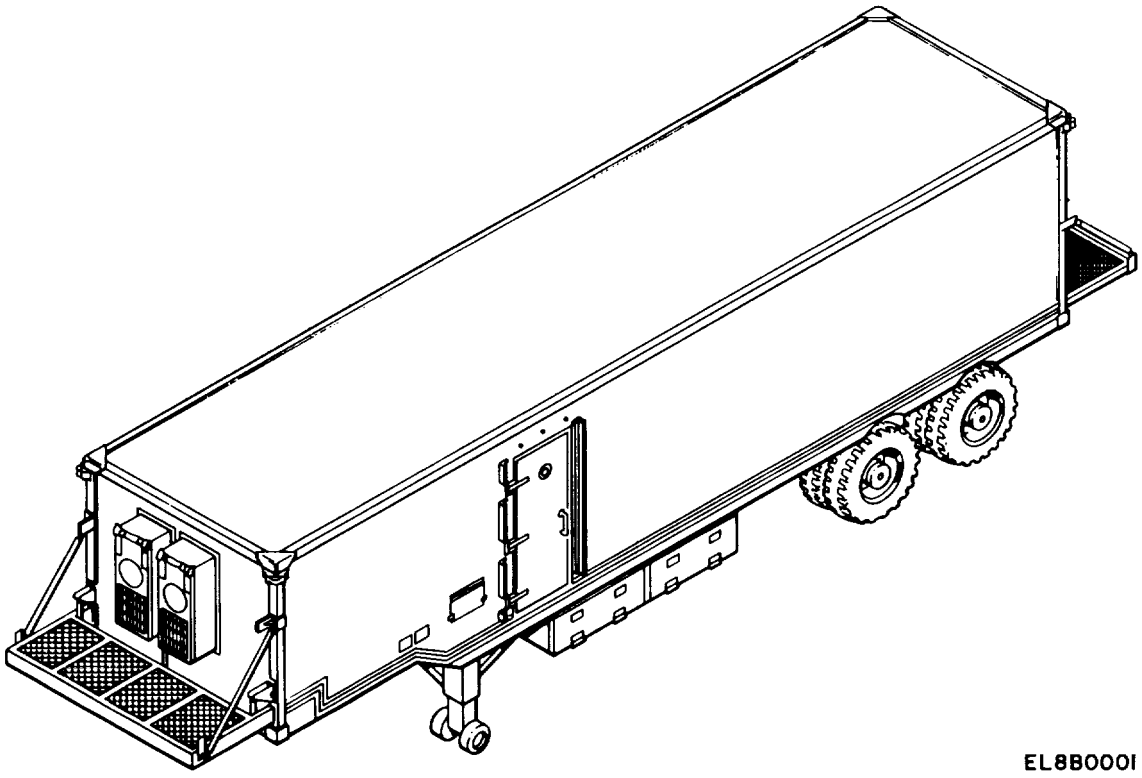


Figure 1-0. 0A-8991/MSM Electronic Equipment Repair Facility

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual provides operator, organizational, direct support, and general support maintenance instructions for the OA-8991/MSM electronic equipment repair facility (repair facility, ERF) (figure 1-0). The repair facility is part of the AN/USM-105(V) 1 test and repair system.

1-2. Consolidated Index of Publications and Blank Forms

Refer to the latest issue of DA Pam 25-30 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

1-3. Maintenance Forms, Records, and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750 as contained in Maintenance Management Update.

b. Report of Packaging and Handling Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/ NAVMATINST 4355.73B/AFR 400-54/MCC 4430.3H.

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCO P4610.19D and DLAR 4500.15.

1-4. Administrative Storage

Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS Charts before storing. When removing the equipment from administrative storage the PMCS should be performed to assure operational readiness. Disassembly and repacking of equipment for shipment or limited storage are covered in Chapter 3, Section III.

1-5. Destruction of Army Electronics Materiel

Destruction of Army electronics materiel to prevent enemy use shall be in accordance with TM 750-244-2.

1-6. Reporting Equipment Improvement Recommendations (EIR)

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications- Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, New Jersey 07703-5000. We'll send you a reply.

Section II. DESCRIPTION AND DATA

1-7. Purpose and Use

The repair facility provides housing, equipment and workspace for the maintenance of selected electronic assemblies and subassemblies.

1-8. Description

The repair facility is a modified XM991 semitrailer van which contains the following equipment as shown in figure 1-1 at the end of this chapter.

a. AC power distribution system
b. Air conditioners
c. Emergency lighting
d. Chemical agent detection and warning equipment
e. Decontamination apparatus
f. Telephone TA-312/PT
g. Intercom set LF-147F/F1
h. Oven
i. Black light
j. Common items
k. PACE soldering kit (not shown)
l. Work station grounding kit (not shown), consisting of table mat, wrist strap and ground cord.
m. Eye wash station
n. Smoke alarm

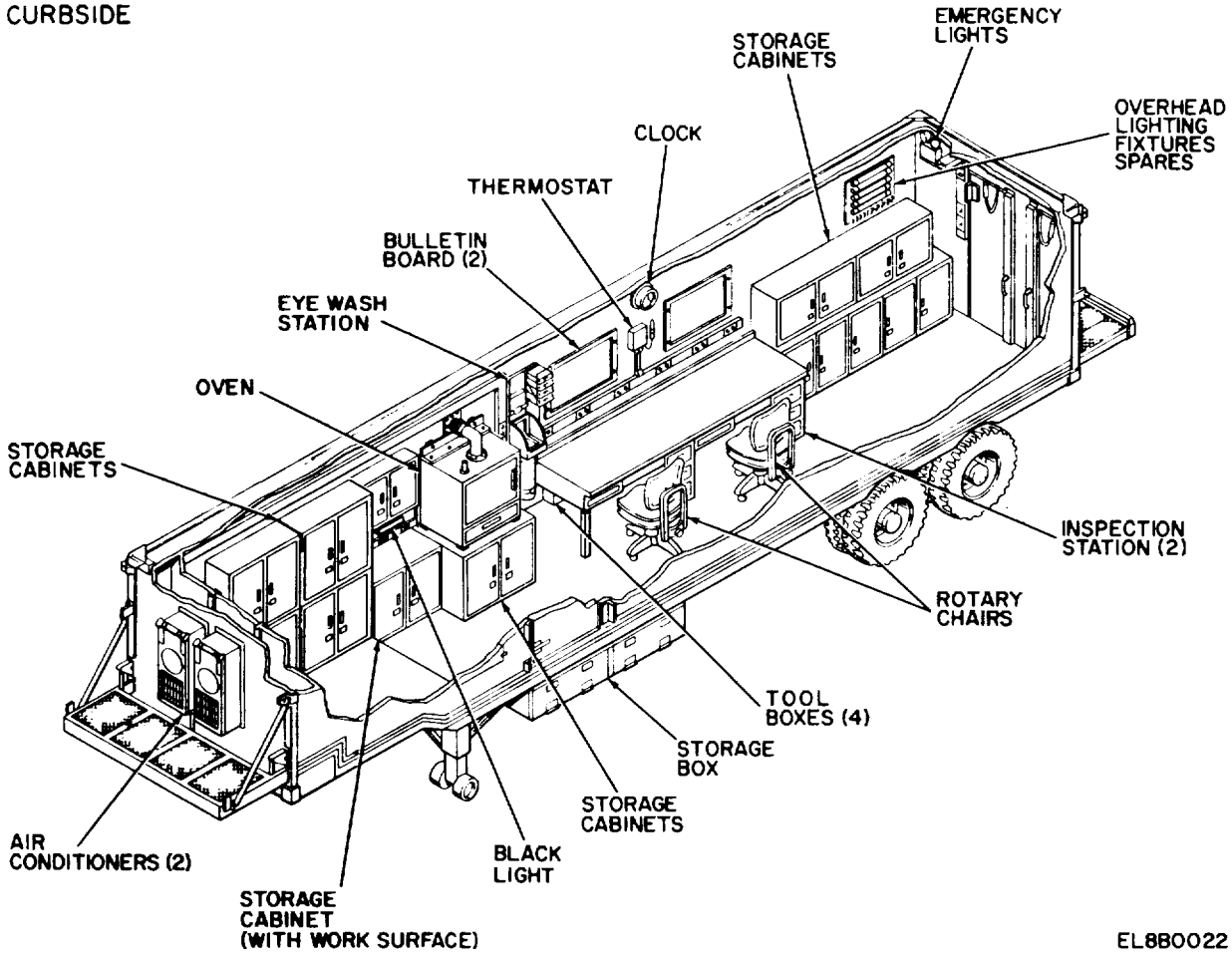


Figure 1-1. Repair Facility Interior (Sheet 1 of 2)

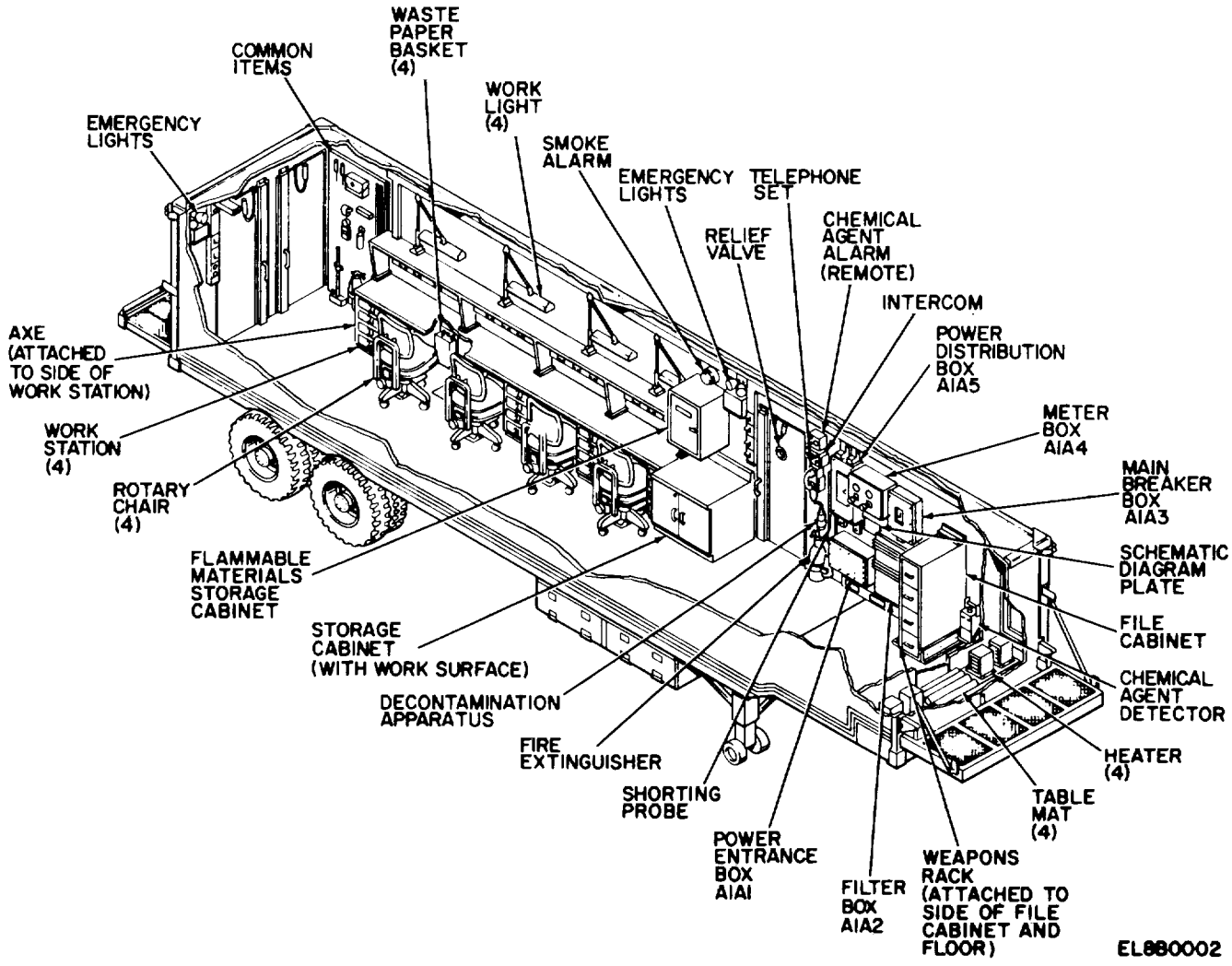


Figure 1-1. Repair Facility Interior (Sheet 2 of 2)

1-9. Tabulated Data

Refer to table 1-1 for technical characteristics of the repair facility van.

Table 1-1. Tabulated Data

Characteristic	Range
Physical:	
Overall Dimensions:	
length	425 in.
width	96 in.
height (operational)	141 in.
height (reduced)	102 in.
Weight	18,730 lbs.
Cubage	3384 cu. ft.
Electrical System:	
Transport Condition	Towing vehicle system
Emplaced:	
Voltage	120/208 ± 3%
Phase	3
Frequency	60 Hz ± 0.5 Hz
Emergency Lighting (2 Units)	6 vdc

Table 1-2. Cable Assemblies

Cable No.	Part No.	From	To	Function
50 ft. (2)	SC-D-883963, GRP 9-3	Cable SC-D-883964, GRP 9-2	Power entrance box	AC power input, 120/208 Vac, 3 phase, 60 Hz
25 ft. (1)	SC-D-883964, GRP 9-2	Cable SC-D-883963, GRP 9-3	Switch box	AC power input, 120/208 Vac, 3 phase, 60 Hz

CHAPTER 2

SERVICE UPON RECEIPT AND INSTALLATION

Section I. SERVICE UPON RECEIPT

2-1. General.

The equipment contained within the repair facility is shipped assembled. Tools and test repair equipment to support the facility repair mission are stored in appropriate storage locations.

2-2. Site.

The site requirements for the OA-8991/MSM electronic equipment repair facility consist of a three-phase 120/208-Vac, 60-Hz primary power source and a minimum of ten feet by fifty feet of level firm ground.

2-3. Equipment Placement.

NOTE

The levels (8) located on each exterior corner of the van should be used only for initial leveling and as a rough indication. (If one or more level/mounting has been damaged, or is faulty, the condition may exist where the level bubble cannot be centered.) The procedure in paragraph 2-3.1 must be performed to assure the van is level.

The repair facility van must be placed on a firm level surface which has a 6 percent slope or less. The van must be leveled where the bubbles on all eight-levels (one each corner) are centered.

CAUTION

The mobile power source must be placed at least 100 feet from the repair facility.

Refer to TM 11-6625-3019-12 for the repair facility placement as part of the AN/MSM-105(V)1 test and repair system and TM 9-2330-363-14 for the repair facility van (XM991 semitrailer, van) setup and leveling instructions.

2-3.1. Van Leveling.

Use and position level (24 inch) B4008755 on the van floor (interior) to obtain front-to-rear and curbside-to-roadside leveling. Place level near the front and rear, and each side of the van when leveling. The level bubble must be centered for each position of the level.

2-4. Lowering Front and Rear Platforms.

WARNING

Support the front and rear platforms when lowering. The platform may swing down when the quick release pins holding the platform in place are removed.

NOTE

Two persons are required to lower the front and rear platforms.

Use folding ladder to reach upper part of front platform to remove quick release pins.

To lower the front platform, use one person to support the platform, while the other person removes the quick release pins. Use both persons to lower platform.

To lower the rear platform, use both persons (one on each side) to remove the quick release pins and lower platform.

a. Lowering Front Platform.

(1) Remove the two (2) quick release pins, holding the platform in place, on the upper end of the platform (one on each side) from the brackets.

(2) Lower the platform until it is held by the chains (one on each side).

(3) Remove guard rail assembly from the platform.

(4) Position side and center sections of guard rail assembly on platform, and secure in position with quick release pins. Install guard rail chains.

(5) Unzip the two (2) air conditioner covers. Roll up each cover and stow on top of the air conditioners.

b. Lowering Rear Platform.

(1) Remove the two (2) quick release pins, holding the platform in place on the upper end of the platform (one on each side) from the brackets.

(2) Lower the platform until it is held by the chains (one on each side).

c. Installing Ladder and Handrails. Remove ladder and handrails from storage compartment under van, and install on rear platform. If ladder is used for side door entry, do not attach handrail.

2-5. Primary Power Connections.

NOTE

A portable light source is necessary to provide light inside the repair facility until prime power is applied.

a. Remove the ground rod and sledge hammer from the common items board inside the van.

b. Remove the ground cable from the stored location under the van.

c. Drive the ground rod approximately five feet into the ground below the repair facility power entrance box A1A1.

d. Connect one end of the ground cable to the terminal on the ground rod and the other end of the cable to the ground terminal on the power entrance box A1A1 located below the power connector.

e. Replace the sledge hammer in the stored position on the common items board inside the van.

WARNING

Earth ground must also be installed at the primary power source.

WARNING

The on/off switch on the primary power switch box and the test facility circuit breaker on the main breaker box A1A3 must be in the OFF position. Harm to personnel or damage to equipment in the repair facility may result if circuit breakers are in the ON position when power is applied.

NOTE

Inspect the power cables and power entrance box before making the connections described in steps g. through j. Check that the connector pins are not corroded, broken or bent; cable insulation is not cracked; cable connectors are tight and secure; and there is no moisture or condensation present. Notify direct support maintenance for necessary corrective action.

f. Remove the two 50-foot SC-D-883963, GRP9-3 and one 25-foot SC-D-883964, GRP9-2 power cables from the stored location under the van. Connect the two 50-foot cables together.

h. Connect the 25-foot cable (socket connector) to the 50-foot cable (pin connector).

WARNING

Possible high dc voltage may be present on pins of J1 due to filter capacitors of power entrance box. Ground pins of J1 before connecting cable.

NOTE

Turn J1 connector ring to the left (counterclockwise) on power entrance box A1A1 to connect cable.

i. Connect the 50-foot cables (socket connector) to the repair facility power connector (J1) on the power entrance box A1A1.

j. Connect the stripped ends of the 25-foot cable to the. primary power switch box as marked on the wires (bands).

(1) For connection to commercial power, each of the three phases, the neutral, and the ground must be connected to separate terminals.

(2) For connection to generator power, each of the three phases is connected to separate load terminals, but the ground and neutral must be tied together for connection to the fourth load terminal.

k. Turn on power as described in paragraphs 3-3 and 3-4.

2-6. Communication Connections.

Connect telephone and intercom leads to the power entrance box A1A1 shown in figure 2-1.

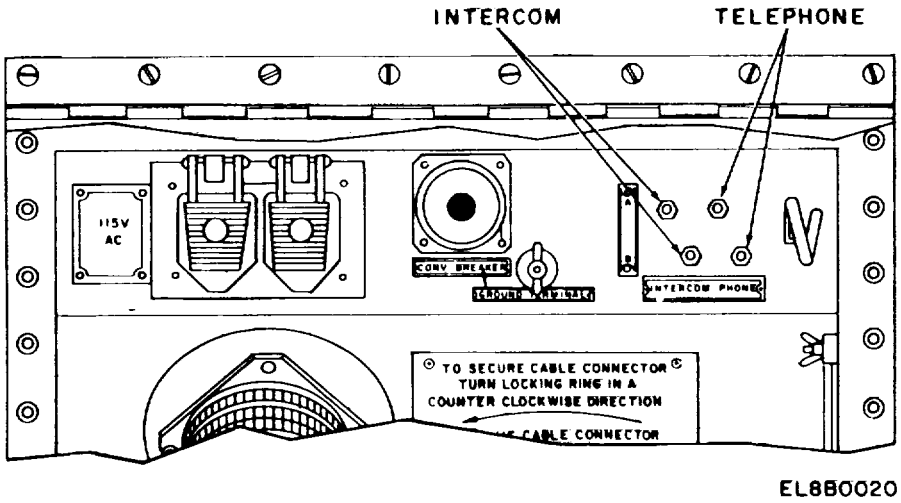


Figure 2-1. Power Entrance Box A1A1, Telephone and Intercom Connections

2-7. Unpacking.

NOTE

Stow all packing material in storage box under the repair facility van.

a. Remove any packing material from equipment within the repair facility.

b. Unscrew work station (4) and inspection station (2) chair-lock assembly handwheel.

c. Unstrap work station fluorescent lights.

2-8. Checking Unpacked Equipment.

a. Inspect the repair facility van for possible damage incurred during shipment. If the equipment has been damaged, report damage on DD Form 6 (paragraph 1-3b.).

b. Check the packing slip to see if the shipment is complete. Report all discrepancies according to the instruction of TM 38-750. The equipment should be placed in service even though a minor part that does not affect proper and safe functioning is missing.

c. Check the system for modifications, if any. Modified equipment will have a MWO number on the front panel near the nomenclature plate. Check that all current MWOs have been applied. Current MWO applicable to the equipment is listed in DA Pam 310-7.

Section II. INSTALLATION INSTRUCTIONS

2-9. Installation Testing.

Perform operational test procedures on the following equipment, as described in the referenced technical manuals after a move.

a. Air Conditioners: TM 54120-360-14 (model F18T-2)
b. Chemical Agent Detector/Alarm System M10: TM 3-6665-225-12
c. Intercom LS-147 F/F1: TM 11-5830-221-12
d. Telephone Set TA-312/PT: TM 11-5805-201-12

CHAPTER 3
OPERATING INSTRUCTIONS

Section I. CONTROLS AND INDICATORS

3-1. General.

Controls and indicators for operating the repair facility are listed in tables 3-1 through 3-9 and are shown in figures 3-1 through 3-9. The listing contains the name, which is based on the panel marking, and a brief functional description of each control and indicator.

Table 3-1. Power Entrance Box A1A1 Controls and Indicators

Fig. 3-1 Index No.	Control/Indicator	Function
1	CONV. BREAKER, circuit breaker	Provides circuit protection for the two 115V AC external convenience outlets.
	Out (extended position)	Power is removed from the outlets.
	In (depressed position)	Power is available at the outlets.

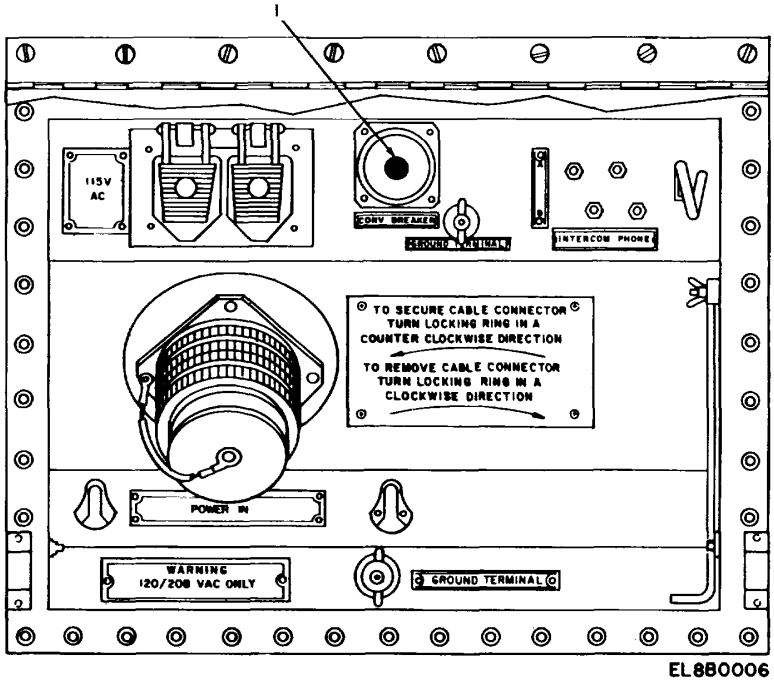


Figure 3-1. Power Entrance Box A1A1 Front Panel

Table 3-2. Main Breaker Box A1A3 Front Panel

Fig 3-2 Index No.	Control	Function
1	ON/OFF control	Provides on/off control of, and overload (100A) protection for, main input power.

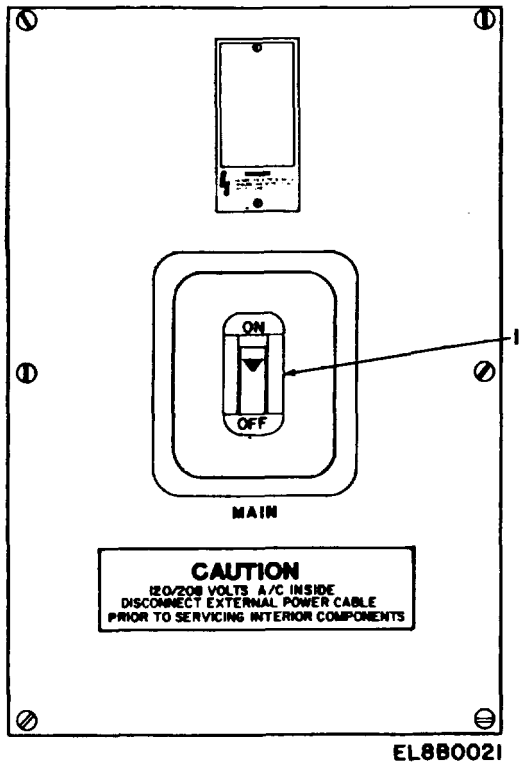


Figure 3-2. Main Breaker Box A1A3 Front Panel

Table 3-3. Meter Box A1A4 Controls and Indicators

Fig. 3-3 Index No.	Control/Indicator	Function
1	Voltage Selector Switch	
	3-1 Position	Connects VOLTAGE meter (2) between phases 3(C) and 1(A) to monitor voltage (208 Vac).
	2-3 Position	Connects VOLTAGE meter (2) between phases 2(B) and 3(C) to monitor voltage (208 Vac).
	1-2 Position	Connects VOLTAGE meter (2) between phases 1(A) and 2(B) to monitor voltage (208 Vac).
	1 Position	Connects VOLTAGE meter (2) between phase 1(A) and neutral to monitor voltage (120 Vac).
	2 Position	Connects VOLTAGE meter (2) between phase 2(B) and neutral to monitor voltage (120 Vac).
	3 Position	Connects VOLTAGE meter (2) between phase 3(C) and neutral to monitor voltage (120 Vac).
2	VOLTAGE Meter	Displays voltage of phase(s) selected by voltage selector switch (1).
3	CURRENT Meter	Displays current of phase selected by current selector switch (5).
4	Phase Indicator	Normally illuminated. Indicates proper phase sequence.
		Extinguished. Should a phase drop out, or incorrect phase sequence.
5	Current Selector Switch	
	1	Connects CURRENT meter in phase 1(A) line.
	2	Connects CURRENT meter in phase 2(B) line.
	3	Connects CURRENT meter in phase 3(C) line.

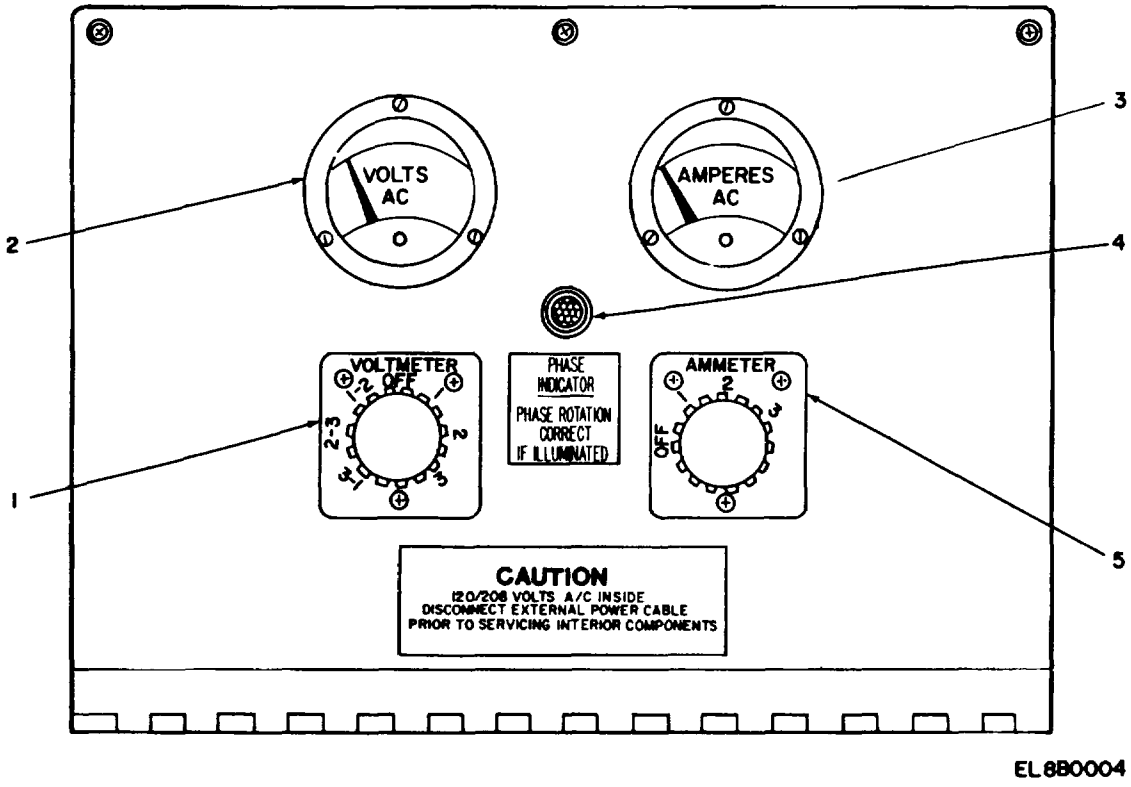


Figure 3-3. Meter Box A1A4 Front Panel

Table 3-4. Power Distribution Box A1A5 Controls and Indicators

Fig. 3-4 Index No.	Control/Indicator	Function
1 and 2	CB1 and CB2 Circuit Breakers	Provides ON/OFF control and overload (30-amp) protection to the two air conditioner connectors (P1 through P2).
3 thru 9	CB3 thru CB9 Circuit Breakers	Provides ON/OFF control and overload (15-amp) protection to connectors (115 VAC receptacles) J1 through J22.
10 and 12	CB10and CB12 Circuit Breakers	Provides ON/OFF control and overload (15-amp) protection to the fluorescent lights.
11	CB11 Circuit Breaker	Provides ON/OFF control and overload (15-amp) protection to the emergency lights and intercom connectors (115 VAC) J23, J24 and J25.
13	CBl3 Circuit Breaker	Provides ON/OFF control and overload (20-amp) protection to the oven connector (115 VAC) J26.
14	CB14 Circuit Breaker	Provides ON/OFF control and overload (15-amp) protection to the incandescent lights.
15, 17, 19 and 21	CB15, CB17, CB19 and CB21 Circuit Breakers	Provides ON/OFF control and overload (20-amp) protection to the four portable HEATER convenience outlets J27 through J30.

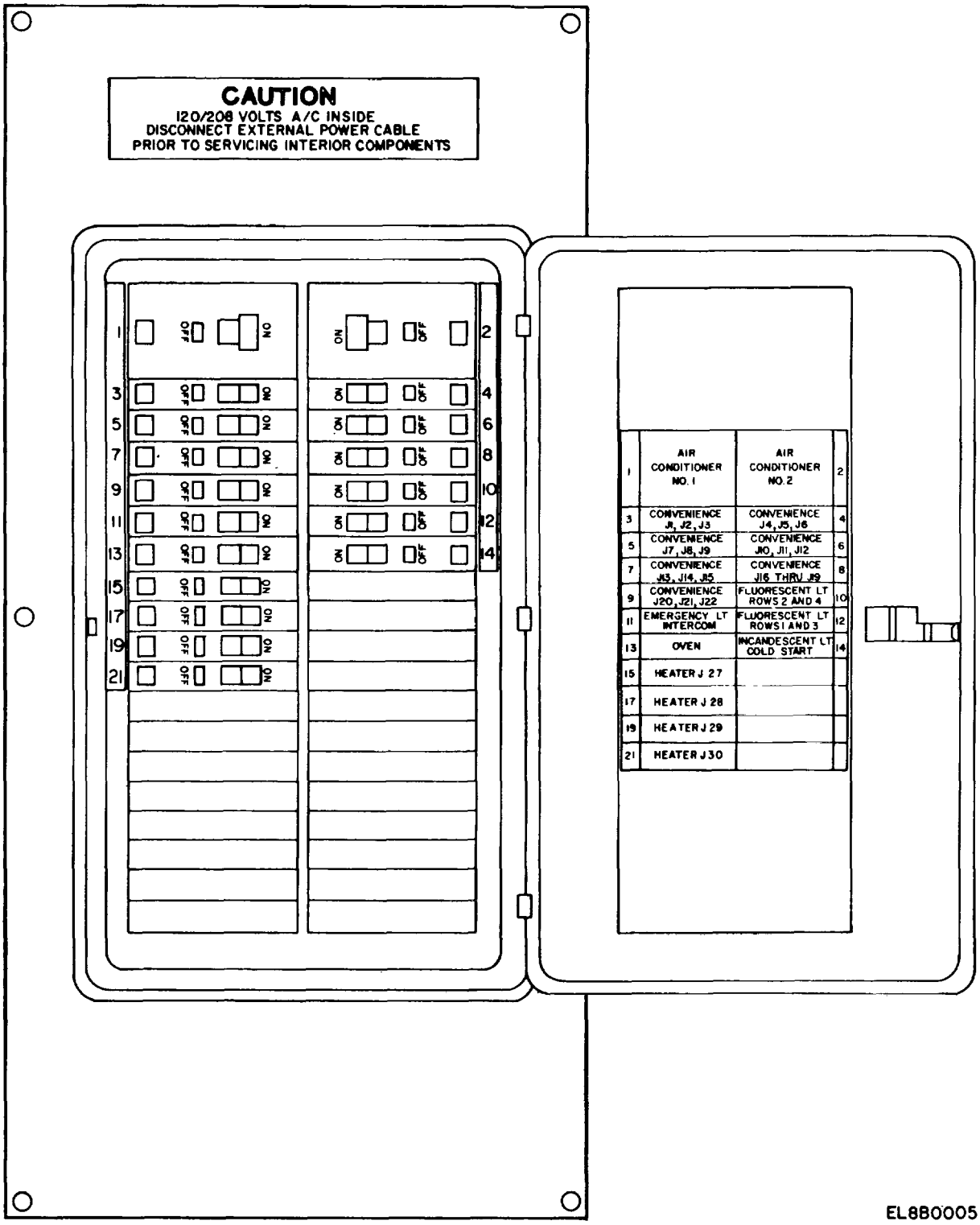


Figure 3-4. Power Distribution Box A1A5 Front Panel

Table 3-5. Air Conditioner Controls and Indicators

Fig. 3-5. Index No.	Control/Indicator	Function
1	Evaporator discharge grille	Provides path (open position) for discharge of air from evaporator area. Air direction is controlled by inner (horizontal) and outer (vertical) louvers.
2	HI SPEED/LO SPEED fan switch	HI SPEED - Fan operates at high (3450) rpm. LO SPEED - Fan operates at low (1725) rpm.
3	COOL/VENTILATE/OFF/ LO HEAT/HI HEAT selector switch	COOL position - Fan, compressor and associated controls for the refrigeration system are operable. VENTILATE position - Only the two-speed fan is operable in this position. OFF position - Shuts air conditioner off. LO HEAT position - Three heating elements and the fan are energized. HI HEAT position - Six heating elements and the fan are energized.
4	Fresh air damper control	Controls amount of fresh air for system intake.
5	PULL AND PUSH TO RESET CB knob	Provides remote control for compressor overload circuit breaker which is located in bottom of unit.
6	HIGH PRESSURE CUT OUT PUSH TO RESET switch	Trips (pops out) when refrigerant pressure exceeds preset maximum. Push in to reset.
7	LOW PRESSURE CUT OUT PUSH TO RESET switch	Trips (pops out) when refrigerant pressure drops, below preset minimum. Push in to reset.
8	Refrigerant sight glass	Provides a means of inspecting condition of the refrigerant. Condition is evaluated using color comparison chart (located below sight glass).
9	Intake grille damper control lever	Prevents air from flowing through inlet. Controls air inlet flow and prevents air backflow,

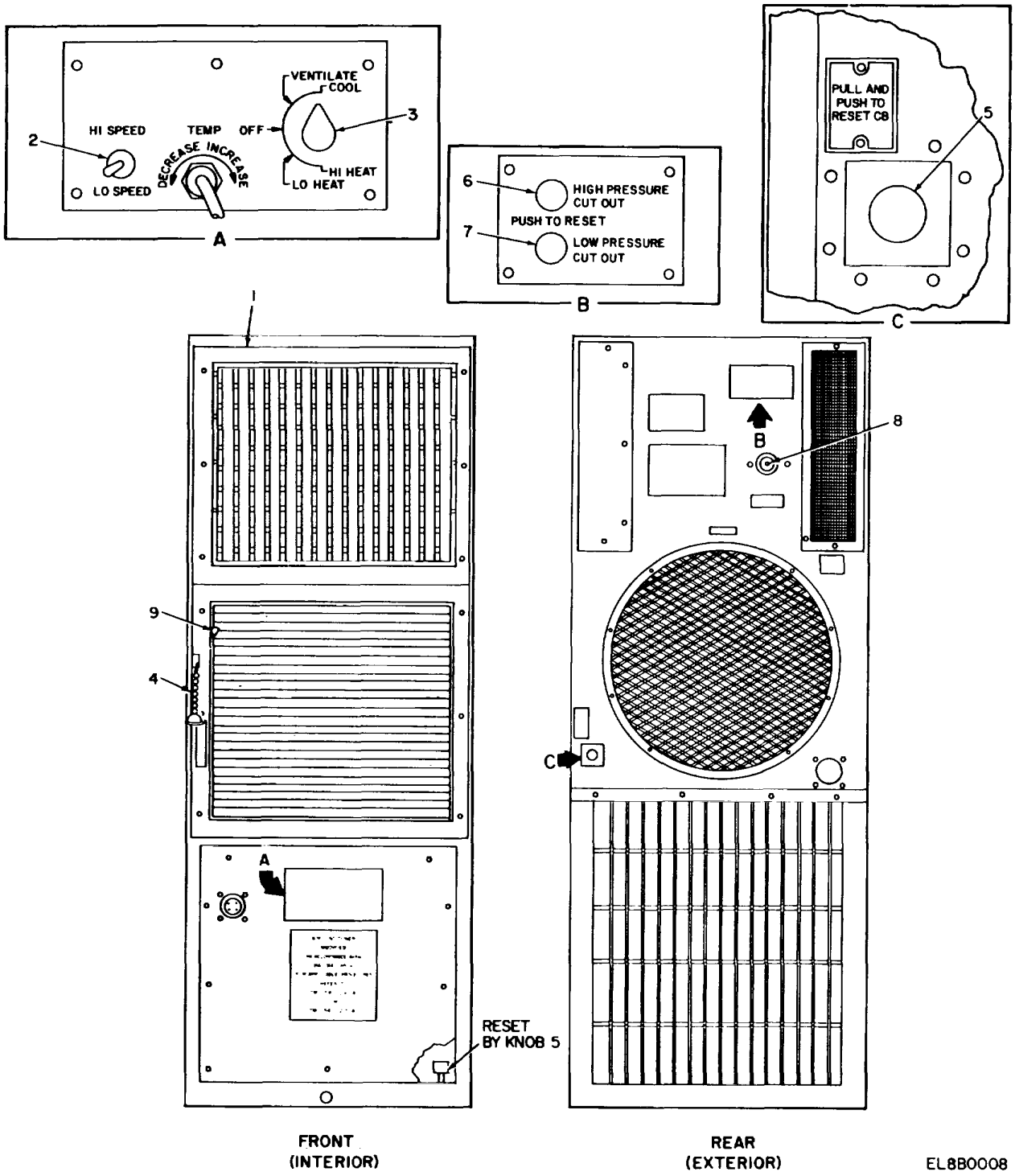


Figure 3-5. Air Conditioner Controls and Indicators

Table 3-6. Emergency Lights Controls and Indicators

Fig. 3-6 Index No.	Control/Indicator	Function
1	DC off switch	Disconnects battery power from lights when ac power has been removed. Switch is momentarily depressed to interrupt dc voltage to the two lights when emergency lights are not needed. For example, momentarily depress switch prior to transport or for extended shutdown. Circuit resets upon reapplication of ac power.
2	TEST indicator	Lights when ac power is applied to the emergency lights.
3	TEST switch	When pressed, applies battery power to the two lamps and TEST indicator goes off.

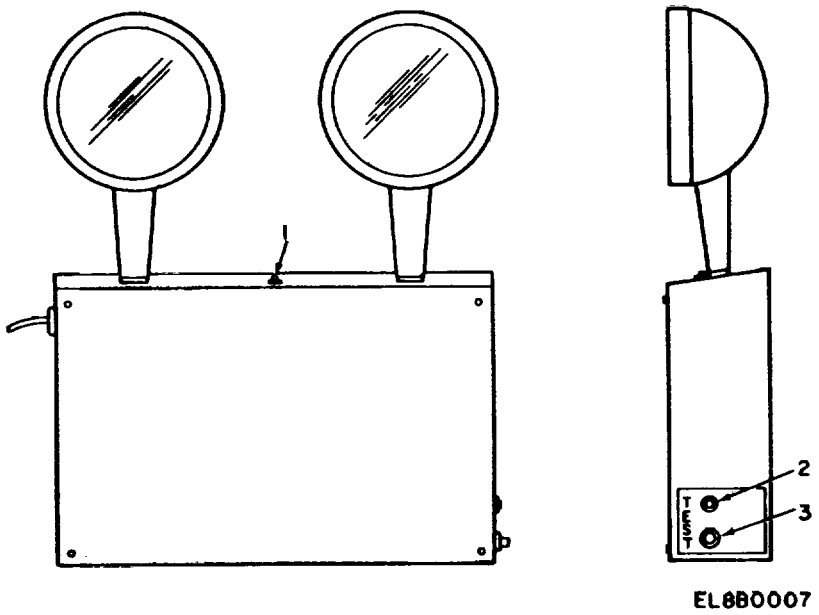


Figure 3-6. Emergency Lights Controls and Indicators

Table 3-7. Intercom Controls and Indicators

Fig. 3-7 Index No.	Control/Indicator	Function
1	Power indicator	Illuminated when power is applied to intercom.
2	SEND ON/OFF control	OFF (fully counterclockwise) - Disconnects power from unit. ON - Applies power to unit and controls volume to all other units in system (clockwise to increase volume).
3	RECEIVE control	Controls volume of incoming signal.
4	PUSH TO TALK switch	Up position - Permits operator to listen to system transmissions. Down position - Permits operator to transmit to other stations.

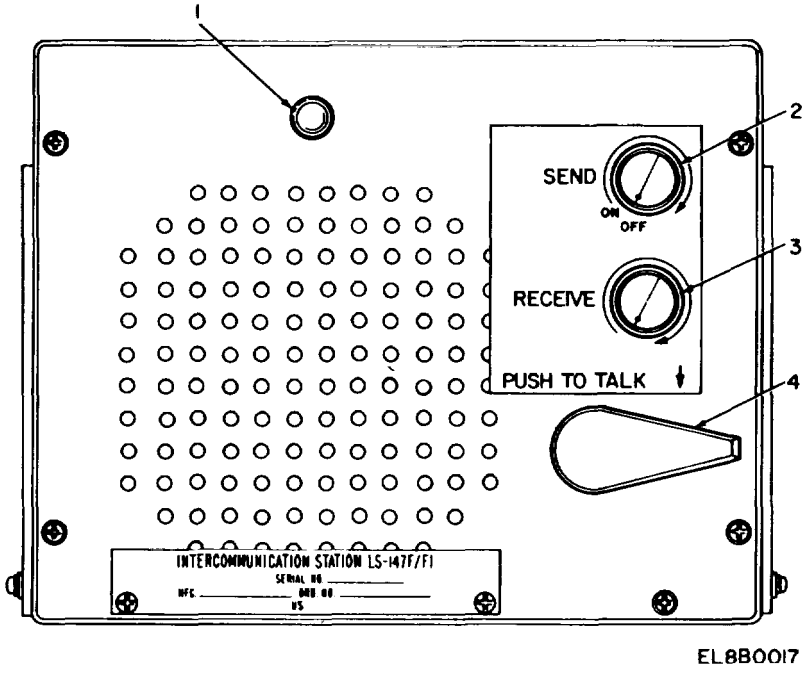


Figure 3-7. Intercom Controls and Indicators

Table 3-8. Thermostat A1A42 Control

Fig. 3-8 Index No.	Control	Function
1	Temperature control dial	Provides setting desired temperature range (Graduations in degrees F). Temperature maintained at level selected by dial setting.
2	Screwdriver slots	Provide for movement of dial to set desired temperature range.

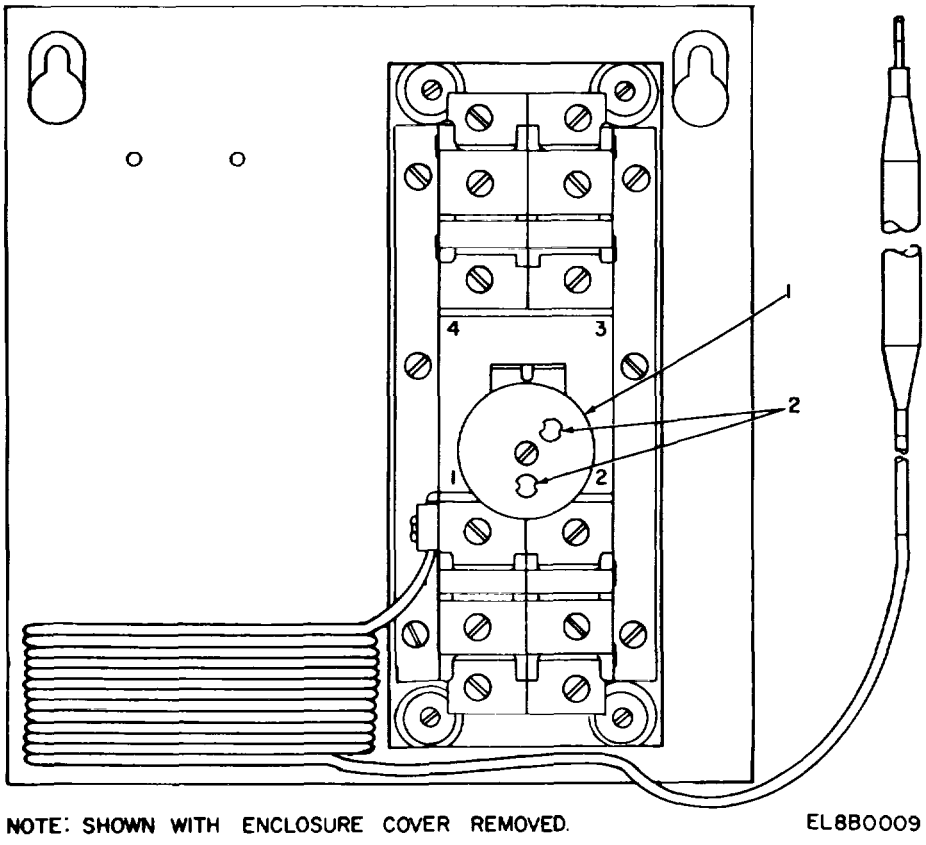


Figure 3-8. Thermostat A1A2 Control

Table 3-9. Oven Controls and Indicators

Fig. 3-9 Index No.	Control	Function
1	Temperature control safety thermostat.	Sets operating temperature of chamber and Higher number raises temperature a lower number lowers temperature.
2	CONTROL/SAFETY indicator	CONTROL (white) on when heater is operating. SAFETY (red) on when controlling thermostat fails and safety thermostat takes control.
3	ON/OFF power switch	Provides on/off control of power to oven heater. Blower is always on with switch in ON position.
4	Thermometer	Indicates temperature within oven.
5	Damper control	Controls outward flow of air from oven.

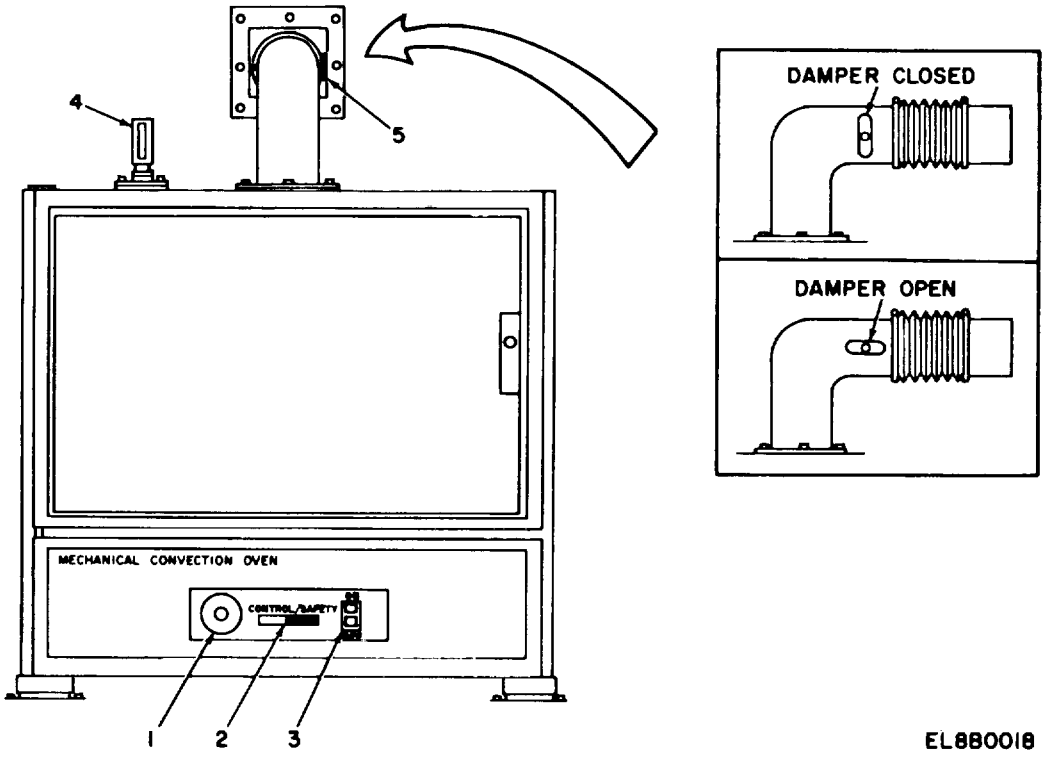


Figure 3-9. Over Controls and Indicators

Table 3-10. Smoke Alarm Controls and Indicators

Fig. 3-10 Index No.	Control/Indicator	Function
1	VERIFIER/TEST switch/indicator	
	Normal position	Lights when power is applied to unit.
	Pressed position	Activates audio alarm to test operation.
2	Audio alarm	Sounds when amount of smoke in ambient air exceeds safe level.

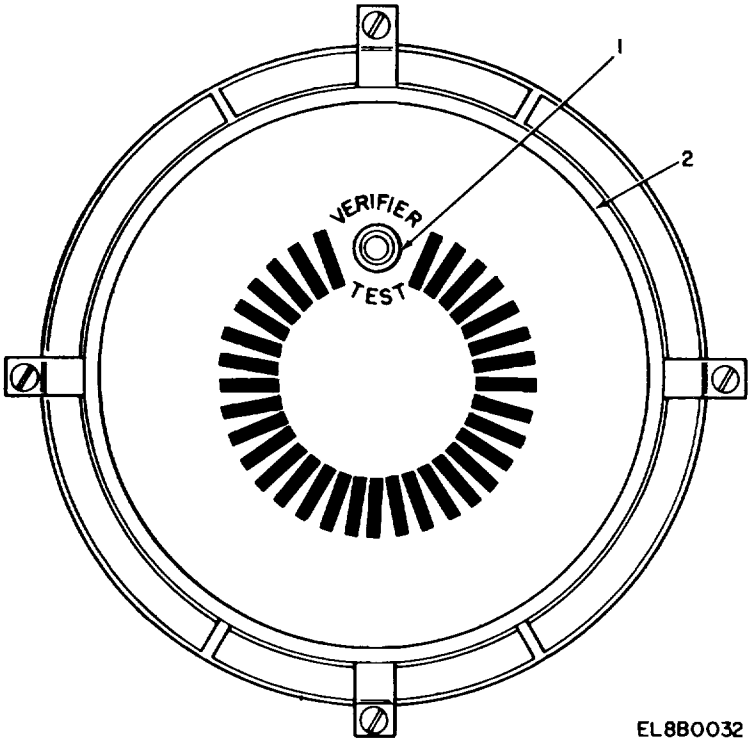


Figure 3-10. Smoke Alarm Controls and Indicators

Table 3-11. Portable Space Heater Controls

Fig. 3-11 Index No.	Control	Function
1	HEAT/OFF/FAN toggle switch	
	HEAT position	Applies power to both heating element and fan motor.
	OFF position	Disconnects all power.
	FAN position	Applies power to fan motor.
2	TEMPERATURE CONTROL dial	Provides for setting desired temperature with HEAT/OFF/FAN switch in HEAT position. Power is removed from heating element when selected temperature is reached.

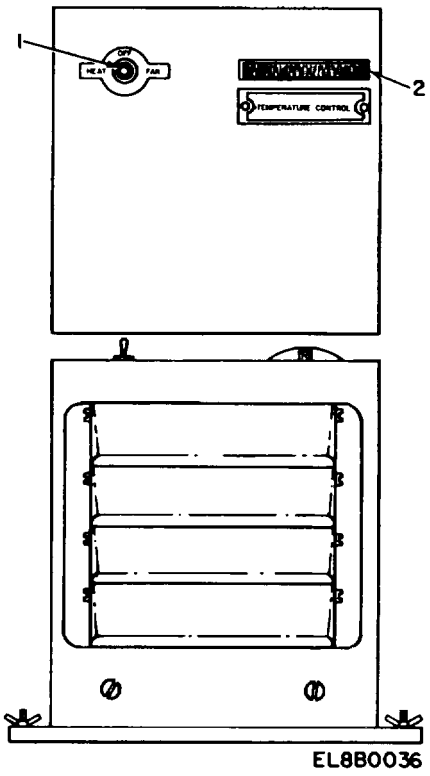


Figure 3-11. Portable Space Heater Controls

Section II. OPERATION UNDER USUAL CONDITIONS

3-2. General.

This section gives instructions for power turn-on and operation of the OA-8991/MSM electronic equipment repair facility.

3-3. Preliminary Turn On.

a. Verify that the primary power cables between the electric power plant switch box and the repair facility are connected as described in paragraph 2-5.

b. Perform normal pre-operational service checks on the electric power plant AN/MJQ-12A in accordance with TM 5-6115-545-12.

WARNING

Insure circuit breaker is off and apply a tag to deter accidental or unauthorized application of power.

c. Verify that the electric power plant AN/MJQ-12A switch box load circuit breaker is set to OFF.

d. Start electric power plant AN/MJQ-12A generator(s), and allow to stabilize. After stabilization, adjust output voltage to 120 Vac (phase to neutral).

NOTE

A portable light source is required to provide light inside the repair facility until prime power is applied.

e. Verify that the following repair facility circuit breakers are set to OFF:

(1) MAIN circuit breaker on main breaker box (A1A3).

(2) All circuit breakers no. 1 through no. 15, 17, 19 and 21 on power distribution box A1A5.

f. Set load circuit breaker on electric power plant switch box to ON. Check for proper phase rotation on sequence indicator on meter box A1A4 prior to checking VOLTMETER switch readings as indicated in step 9. If sequence indicator is on, phase rotation is correct. If sequence indicator is off, phase rotation is not correct, perform the following steps:

(1) Set load circuit breaker on electric power plant switch box to OFF.

(2) Reverse the connections of two (2) phase wires on the electric power plant switch box from the power cable to the repair facility.

(3) Set load circuit breaker on electric power plant switch box to ON.

(4) Recheck phase rotation.

g Rotate VOLTMETER switch on meter box A1A4 and observe VOLTS AC meter. Meter will read as follows:

Switch Setting	Meter Reading
1-2:	208 V
2-3:	208 V
3-1:	208 V
1:	120 V
2:	120 V
3:	120 V

If voltage readings are not correct, check power source. Adjust voltage control on electric power plant (AN/MJQ-12A) control panel to obtain the indicated voltage readings. If the indicated voltage readings are not obtained, and the electric power plant output is proper, set load circuit breaker on power plant switch box to OFF. Notify direct support maintenance personnel.

3-4. Turn-On Procedures.

a. Set MAIN circuit breaker on repair facility main breaker box A1A3 to ON (up).

b. Set circuit breakers no. 3 through no. 15, 17, 19 and 21 on power distribution box A1A5 to ON.

c. Set the following switches (located on inside wall of side door entrance to ON (up):

BYPASS FLUOR ROWS 2 AND 4
BYPASS FLUOR ROWS 1 AND 3
FLUOR ROWS 2 AND 4
FLUOR ROWS 1 AND 3

The lights will operate with any door open when the BYPASS (blackout) switches are set to ON (up). Set the BYPASS switches to OFF (down) to operate the lights in the blackout mode. In the blackout mode, the lights will not operate when any door is open. Both doors must be closed for the lights to operate when the BYPASS switch is set to OFF (down).

d. Set the following switches (located on inside wall of rear door entrance) to the positions indicated.

BYPASS INCAND - ON (up)
INCAND - OFF (down)

The lights will operate with any door open when the BYPASS (blackout) switches are set to ON (up). Set the BYPASS switches to OFF (down) to operate the lights in the blackout mode. In the blackout mode, the lights will not operate when any door is open. Both doors must be closed for the lights to operate when the BYPASS switch is set to OFF (down).

e. Verify smoke alarm (on roadside wall) VERIFIER test indicator is on. Press VERIFIER TEST switch and audible alarm should sound.

f. Remove cover from air conditioner thermostat AlA41 on curbside wall, and verify temperature control is set to 650F. Reinstall cover.

9. Verify each air conditioner COOL/VENTILATE/OFF/LO HEAT/HI HEAT selector switch is set to OFF.

h. Set circuit breakers no. 1 and no. 2 on power distribution box A1A5 to ON.

CAUTION

The evaporator intake grille control lever must be in the up position (grille dampers open) on the two (2) air conditioners before operation.

NOTE

Door to air conditioner compartment must be closed when air conditioners are on.

i. Set the controls on the two (2) air conditioners as follows: (1) Verify evaporator intake grille control lever on the two (2) air conditioners is in the up position.

NOTE

Set air conditioners for more or less heating or cooling as required. Refer to table 3-12.

NOTE

Four (4) portable space heaters are provided for additional heating.

(2) If the ambient temperature is too cold, set the COOL/VENTILATE/OFF/LO HEAT/HI HEAT selector switch to HI HEAT and HI SPEED/LO SPEED fan switch to HI SPEED on the two (2) air conditioners.

(3) If the ambient temperature is comfortable: Set the COOL/VENTILATE/OFF/LO HEAT/HI HEAT selector switch to VENTILATE, and HI SPEED/LO SPEED fan switch to LO SPEED on the two (2) air conditioners.

(4) If the ambient temperature is too hot, set the COOL/VENTILATE/OFF/LO HEAT/HI HEAT selector switch to COOL and HI SPEED/LO SPEED fan switch to HI SPEED on the two (2) air conditioners.

3-5. Air Conditioner Operation.

a. Two (2) 208-volt, three-phase, 60-cycle, 18,000 Btu air conditioners are mounted on the front of the van. They are numbered 1 and 2 from left to right as viewed from inside the van. A control panel for each is located on the lower access cover. Circuit breaker ON/OFF control and overload protection is provided at the power distribution box A5CBI and A5CB2. Refer to TM 5-4120-360-14 (SN 1 thru 50) or TM 5-4120-356-14 (SN 51 and up) for operation and service instructions.

b. Typical air conditioner control settings are listed in table 3-12.

3-6. Portable Space Heater Operation.

Four (4) 1500 watt portable space heaters are stowed in the air conditioner compartment. When space heating is required, loosen the four (4) wing bolts and remove space heater(s) from air conditioner compartment. Position space heater in desired location and connect power cord to nearest HEATER outlet. Set corresponding circuit breaker number 15 (for J27), 17 (for J28), 19 (for J29) or 21 (for J30) on power distribution box A1A5 to ON. Set heater switch to ON and thermostat to desired temperature. Fan will operate and circulate heat.

Table 3-12. Air Conditioner Control Settings

Ambient Temp. Condition	FAN		Rotary Switch Position				
	HI SPEED	LO SPEED	HI HEAT	LO HEAT	OFF	VENTILATE	COOL
Hot	1, 2						1, 2
Warm		1, 2					1, 2
Comfortable		1, 2				1, 2	
Cool		1, 2		1, 2			
Cold	1, 2		1, 2				

3-7. Eye Wash Station Operation (Figure 3-12).

WARNING

The Flash flood Emergency Eye Wash Station is for FIRSTAID use ONLY and NOT for final treatment. The Eye Wash will only MINIMIZE or ARREST further eye damage of a progressive nature by diluting and/or removing the injury causing material. In the case of solid particle injury(such as metal and wood splinters), the Flash flood irrigation stream may not be able to dislodge the particle. Proper medical examination and treatment must always be obtained as quickly as possible.

WARNING

The victim must obtain medical treatment immediately after eye irrigation, to minimize the chance of infection, and to determine and treat possible eye damage resulting from the accident.

WARNING

The eye wash solution has an indefinite shelf life until it is opened or installed. Once it is opened or installed on the unit the solution remains safe to use for twelve(12) months. A label on the bottle indicates the installed date.

NOTE

The active ingredient of the Flash flood solution is the anti-bacterial additive Methyl Paraben, which is harmless if accidently swallowed in small quantities. It is important that instructions on the bottle be carefully followed. It is normal, and expected, that a small amount of this Methyl Paraben will remain undissolved in powdered form on the surface of the solution. This small quantity will not normally leave the unit when flushing the eyes.

a. To Start Water Flow:

(1) Pull the stopper connecting strap firmly upwards until stoppers are completely removed from nozzles.

(2) When both nozzles are flowing, lower head until both water streams are striking eyes.

(3) Use thumb and forefingers of each hand to fully open both eyelids.

(4) Hold this position until both eyes are thoroughly flushed and water flow stops.

(5) Immediately after flushing get medical aid quickly.

b. How to Help Victim:

(1) The victim's eyes will involuntarily clamp shut with a foreign substance in the eye. He will need to be led quickly to the nearest eye wash fountain.

(2) Two (2) persons help by each taking one arm of the victim.

(3) After pulling the stopper connecting strap firmly upwards until full stream flow is noted from both nozzles, the aiders should place victim's left hand around the left nozzle and his right hand around the right nozzle, being careful not to obstruct the water flow. This helps guide the victim to the water flow.

(4) Help the victim lower his head until the two streams are aimed at the eyelids.

(5) Once positioned, the victim must be made to immediately force open both eyelids of each eye, using the victim's thumb and forefingers.

(6) When the streams stop flowing, get medical assistance at once.

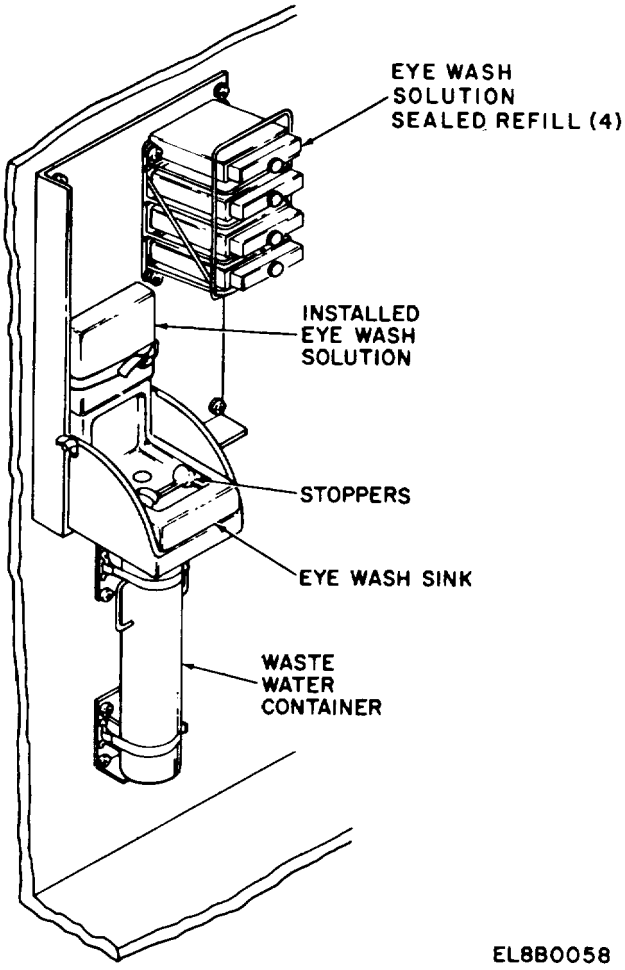


Figure 3-12. Eye Wash Station

Section III. PREPARATION FOR MOVEMENT

3-8. Securing Equipment.

NOTE

Refer to figure 1-1 for the following procedures.

a. Position chairs as shown and rotate each chair-lock handwheel clockwise to secure chair to floor.

b. Secure fluorescent light assembly to wall above each work station shelf with shipping straps.

c. Make certain all equipment shown is secured in proper position.

3-9. Storing Loose Items.

a. Position repair equipments (i.e. PACE soldering unit, microscope) in appropriate storage cabinet and tighten shipping straps snugly. (Refer to figure 3-13.)

b. Position the four tool boxes under inspection stations as shown in figure 3-13, and secure each tool box with shipping straps.

c. Position the four heaters in air conditioning compartment and secure each with the four attached wing bolts.

d. Stow any remaining items in available storage space (and in air conditioning compartment) and make certain all drawers and cabinet doors are closed. Secure work and inspection station drawers and cabinet doors with latches. Pull on all drawers and doors to verify that they are securely latched.

CAUTION

Secure the drawers in the four-drawer filing cabinet with tape or other means to prevent opening during movement.

3-10. Power Shutdown.

a. Inside Repair Facility:

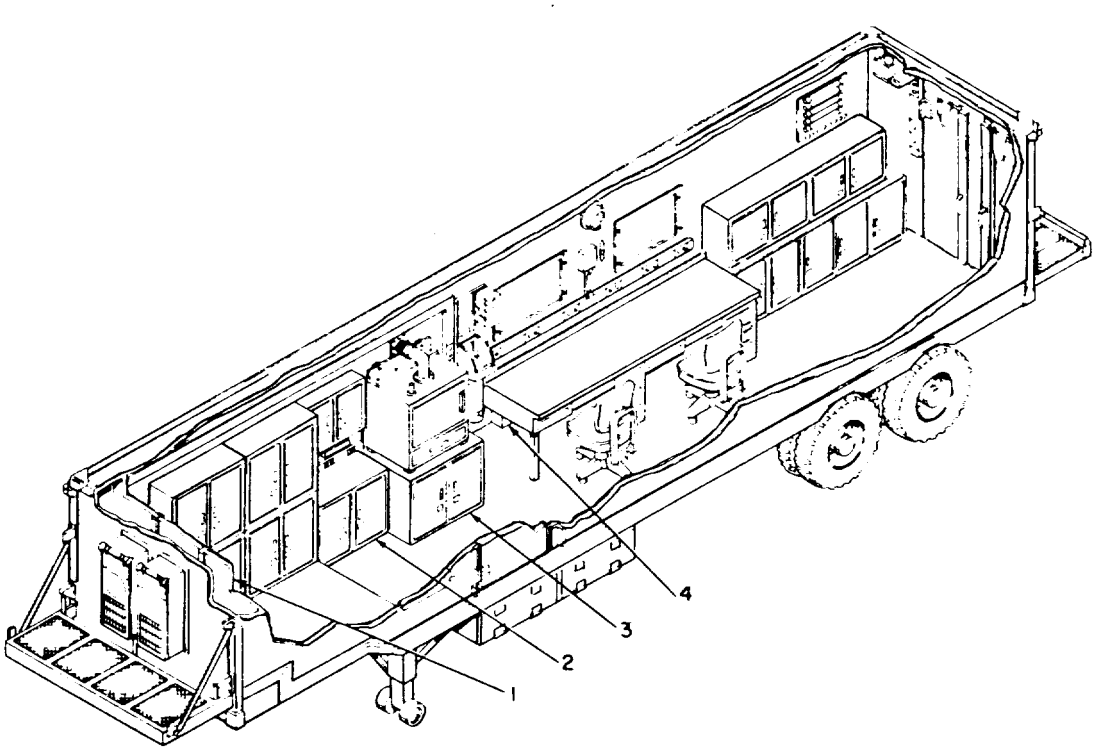
(1) Turn off all air conditioners.

(2) Set circuit breakers numbers 1 through 15, 17, 19, and 21 on the power distribution box A1A5 to OFF.

NOTE

Emergency lights will come on.

(3) Set MAIN circuit breaker on main breaker box A1A3 to OFF (down).



1. HOT CUBBY
   W/MOUNTING
   SWAPLATING UNIT
   FUSE EYELETTING SYSTEM
   MAGNIFIER
   POWER SOURCE
   MINICHINE
   VISE ASSY
   VISE KIT

2. TK-101/G TOOL KIT
   MASTER TOOL KIT

3. BINOCULAR HEAD
   MICROSCOPE BASE
   EYEPIECE
   FOCUSING UNIT
   GROUND STRAP
   MULTIMETER

4. PORTABLE TOOL KITS (4)
   WHICH CONTAINS
   PLIERS, DIAGONAL
   PLIERS (2 STYLES)
   PLIERS, ROUND NOSE
   SCREWDRIVER, FLAT (2 STYLES)
   SCREWDRIVER, PHILLIPS
   TWEEZERS
   PRO VISE
   ENVIRONMENTAL PROBE
   VACUUM CLEANING/HANDLING
   GOGGLES INDUSTRIAL
   LAPFLO
   THERMOPART
   CONDUCTWEEZ
   SOLDERING OUTFIT
   HEAT SINK
   CLIP, ELECTRICAL
   TWEEZERS
   SODR-X-TRACTOR
   STRIPTWEEZ
   RESISTWEEZ

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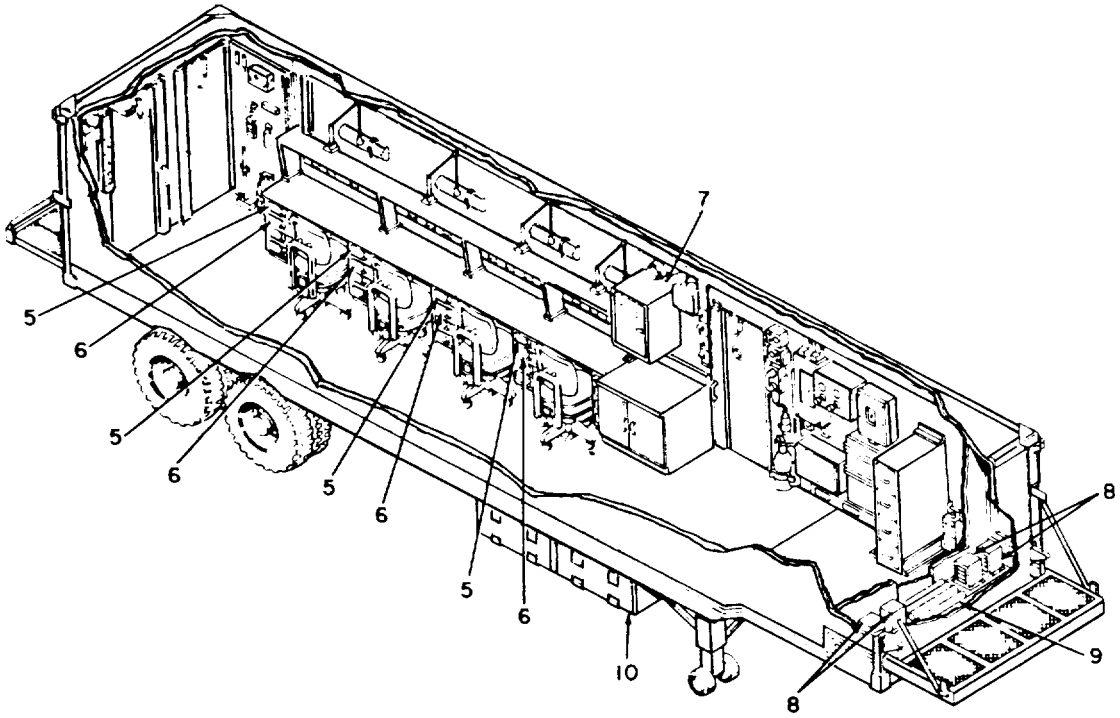
Figure 3-13. Preparation for Movement (Sheet 1 of 2)



5. STATIC CONTROL
   WRIST STRAP AND CORD
   PLIERS
   CIR KIT SELECTOR PACK
   SOLDER

6. LIGHT

7 FLUX, SOLDERING
   SEALING COMPOUND
   INSULATING COMPOUND

8. HEATERS (4)
9. TABLE MATS (4)
10. PASSAGEWAY
    LADDER ASSEMBLY AND HANDRAILS (2)
    50' POWER INPUT CABLE ASSEMBLY (2)
    25' POWER INPUT CABLE ASSEMBLY

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Figure 3-13. Preparation for Movement (Sheet 2 of 2)

b. Outside Repair Facility:

Set on/off switch on the AN/MJQ-12A primary power switch box to OFF (down).

3-11. Removing Primary Power Provided by Generators or Commercial Source and Communication Connections.

WARNING

Possible high dc voltage may be present on pins of J1due to filter capacitors of power entrance box. Ground pins of J1 before connecting cable.

NOTE

Turn J1 connector ring to the right (clockwise) on power entrance box A1A1 to disconnect cable.

(1) Disconnect the two 50-foot cables and 50-foot cable end from power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective covers on cable connectors and J1 of power entrance box. Stow cables in storage box under van.

(2) Disconnect end of 25-foot cable from primary power switch box and from 50-foot cable. Install protective cover on cable connector. Stow cable in storage box under van.

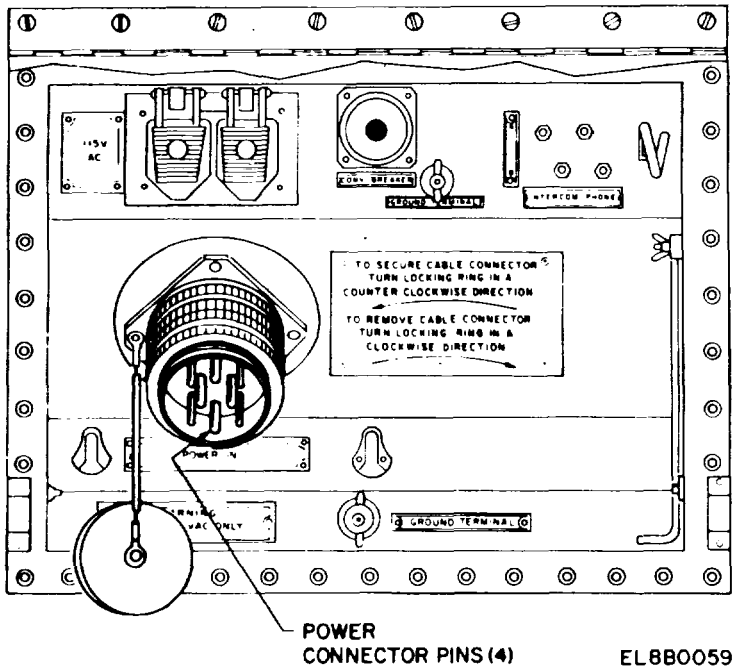


Figure 3-14. Shorting Probe Contact Points on Power entrance Box Connector A1A1J1

(3) Disconnect telephone and intercom leads from power entrance box.

(4) Remove cable from ground rod and power entrance box. Stow cable in cabinet under oven.

(5) Remove ground rod and stow on common items board inside van.

NOTE

A portable light source is necessary to provide light inside the test facility after turning-off emergency lights in step (6).

(6) Press dc off switch on emergency lights (2). If period of shutdown is to be long term (more than one week), disconnect batteries.

3-12. Raising Front and Rear Platforms.

WARNING

Support the front and rear platforms when raising. The platform may swing down until the quick release pins holding platform in place are installed.

NOTE

Two persons are required to raise the front and rear platforms.

Use folding ladder to reach upper part of front platform to install quick release pins.

Use both persons to raise the front platform. Use one person to hold the platform in the upright position, while the other person installs the quick release pins.

Use both persons (one on each side) to raise the rear platform and install the quick release pins on each side.

a. Raising Rear Platform.

(1) Remove handrail(s) and ladder from rear platform and stow in storage box under van.

(2) Raise platform to up position and install the two (2) quick-release pins (one on each side).

b. Raising Front Platform.

(1) Unroll the two air conditioner covers and close zippers.

(2) Remove guard rail chains. Remove quick release pins securing guard rail assembly to platform, and remove guard rail assembly.

(3) Fold and secure guard rail assembly to platform.

(4) Raise platform to up position and install the two (2) quick release pins (one on each side).

3-13. Coupling to Towing Vehicle.

a. Use an M818, or M915 with 5th wheel modification, (5 ton) tractor to move the repair facility van.

CAUTION

Close storage box doors on underside of repair facility van before lowering van onto tractor.

b. Couple the repair facility van to the tractor as described in TM 9-2330-363-14.

CHAPTER 4

OPERATOR/CREW AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. INTRODUCTION

4-1. Scope.

This chapter contains instructions for the operator/crew and organizational maintenance of the OA-8991/MSM electronic equipment repair facility (repair facility). It includes additional tools and equipment required for testing, evaluation, maintenance and lubrication, checkout, preventive maintenance, troubleshooting, replacement and assembly maintenance procedures. Fault isolation, troubleshooting and repair beyond the scope of this section should be directed to appropriate DS/GS maintenance personnel.

4-2. General.

a. Preventive maintenance procedures are based on daily, weekly, monthly, quarterly and semiannual time intervals. The intervals are adjusted for abnormal operations or severe conditions. The procedures, performed as directed, insure optimum performance.

b. Troubleshooting procedures provide a method of manual fault isolation.

Section II. TOOLS, TEST EQUIPMENT AND LUBRICATION

4-3. Tools and Test Equipment.

Tools and test equipment required for organizational maintenance of the repair facility are listed in table 4-1.

4-4. Lubrication.

Refer to TM 9-2330-363-14 for XM991 semitrailer van lubrication instructions. The following additional equipment requires lubrication as specified:

Equipment	Frequency	Type Lube	Lubrication Points
Clock	1 1/2 to 2 years	Light Oil	Movement

Table 4-1. Tools and Test Equipment

Item	Model/Part Number	Use
*Axe	5110-00-115-4059	General Purpose
**Sledge Hammer	5120-00-251-4489	General Purpose
***Power Source (PACE) with ZPS		Power Source
Miniature Machining System	3439-00-285-5779	Repair
Solder Extractor	3439-00-808-2144	Repair
Wire Stripper (thermal)	4920-00-009-4942	Repair
Tweezers (resistance)	3439-00-155-4597	Repair
Work Handling Unit	5999-01-035-5375	Repair
Printed Circuit Kit	4940-01-054-0041	Repair
Pro-Vise (w/cutting tools)	5110-00-175-3629	Repair
Probe (environmental)	4940-00-492-4739	Repair
Vacuum Handling Unit	4940-00-492-4739	Repair
Solder Kit (lap reflow)	3439-00-260-7719	Repair
Thermal Parting System	3439-00-029-8404	Repair
Tweezers (conductive)	3439-00-041-1985	Repair
Hot Cubby	3439-00-267-7151	Repair
Plating Kit (SWA)	3426-01-067-3616	Repair
Eye-Letting System	5130-01-041-2278	Repair
Tool Kit TK-101/G	5180-00-064-5178	Repair
Magnifier, 5" Dia.	6650-00-356-8411	Repair
Magnifier, 10 Power		Repair
Binocular Head	B4008569	Repair
Microscope Base	B4008570	Repair
Eye Piece	B4008571	Repair
Focusing Unit	B4008572	Repair
Soldering Outfit, TL-705/U	3439-00-853-8760	Repair
Vise	3460-00-836-6512	Repair
Pliers, Heat Sink	5120-00-973-2249	Repair
Clip, Electrical	5940-00-879-6320	Repair
Tweezer	5120-00-233-6985	Repair
Pliers, Round Nose	5120-00-239-8250	Repair
Pliers, Diagonal	5110-00-239-8253	Repair
Tweezers, Serated	5120-00-551-3052	Repair
Pliers, Round Nose	5120-00-293-3481	Repair
Pliers, Short Nose	5120-00-293-3486	Repair
Pliers, Diagonal	5110-00-965-0974	Repair
Screwdriver	5120-00-236-2140	Repair
Screwdriver	5120-00-278-1270	Repair
Screwdriver, Phillips	5120-00-240-8716	Repair
Tool Box	5140-00-498-8772	Repair
**Screwdriver	SC-C-539502	Repair
**Screwdriver	SC-C-539894	Repair
Digital Multimeter	AN/USM-451	Test

* Located on end of workstation (rear of van).
** Located on common items board.
*** PACE soldering system.

Section III. REPAINTING AND REFINISHING INSTRUCTIONS

4-5. General.

Repainting component parts of the test facility consists of touching up damaged areas to prevent rust and corrosion (refer to TB 43-0118). All paints and finishes required are listed in SB 11-573.

4-6. Painting Instructions.

CAUTION

Do not paint over stenciling, labels, warning notices or glass surfaces.

a. Ceiling Tiles and Ceiling Raceways. Clean the surface that requires touchup and apply two coats of No. 27875 white paint (TT-E-529) in accordance with MIL-F-14072, finish P213.1.

b. Floor Surfaces. Clean the surface that requires touchup and apply two coats of No. 26250 gray paint (FED-STD-595) in accordance with MIL-F-14072, finish P513.1.

c. Wood Paneling. Clean the surface that requires touchup, and apply two coats of varnish (TT-V-861) in accordance with MIL-F-14072, finish P911.

d. XM-991 Semitrailer, Van. Refer to TM 9-2330-363-14.

e. Other Metal Surfaces. Clean the surface that requires touchup and apply two coats of No. 10371 brown paint (FED-STD-595) in accordance with MIL-F-14072, finish P513.1.

Section IV. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

4-7. General.

a. Operator/Crew preventive maintenance is the systematic care, servicing and inspection of equipment to prevent the occurrence of trouble, to reduce downtime and to maintain the equipment in serviceable condition. To be sure that your repair facility is always ready for your mission, you must do scheduled PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).

(1) Perform your D PMCS daily to be sure that your equipment is ready to go.

(2) WEEKLY AND MONTHLY PMCS are important checks you make to keep serious problems from suddenly happening. Perform WEEKLY as well as DAILY PMCS if:

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

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

(3) When an item of equipment is reinstalled after removal for any reason, perform the necessary D PMCS to be sure the item meets the operational criteria.

b. Organizational preventive maintenance procedures are designed to help maintain equipment in serviceable condition. They include what items should be checked and how to check them. These checks and services are inspections that are to be made at specific (W) weekly, (M) monthly, (Q) quarterly, (S) semiannually and (A) annual intervals.

c. Routine checks like CLEANING, DUSTING, WASHING, CHECKING FOR FRAYED CABLES, STOWING ITEMS NOT IN USE, COVERING UNUSED RECEPTACLES AND CHECKING FOR LOOSE NUTS AND BOLTS are not listed as PMCS checks. They are things that you should do anytime you see they must be done. If you find a routine check like one of those listed in your PMCS, it was listed because other operators reported problems with this item.

WHEN YOU ARE DOING ANY PMCS OR ROUTINE CHECKS, KEEP IN MIND THE WARNINGS AND CAUTIONS.

WARNING

Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent a chip or particle (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 psi and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used.

Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

NOTE

The PROCEDURES column in your PMCS charts instructs you how to perform the required checks and services. Carefully follow these instructions, and if tools are needed or whatever the chart instructions tell you, get organizational maintenance to do the necessary work. If your equipment must be in operation all the time, check those items than can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

d. Deficiencies that cannot be corrected must be reported to higher category maintenance personnel. Records and reports of preventive maintenance must be made in accordance with procedures given in TM 38-750.

4-8. Operator/Crew and Organizational Preventive Maintenance Checks and Services.

The operator/crew and organizational preventive maintenance checks and services are listed in table 4-2.

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
•						CLEANLINESS OF EQUIPMENT a. General: **CAUTION** **Do not use solvents on painted surfaces.** **NOTE** **Anodized surfaces may be cleaned with denatured alcohol or ammonia.** (1) Clean all equipment by removing dust, oil, dirt and foreign matter. (2) Remove dirt with a mild cleaning solution (soap) and a soft cloth. (3) Remove film residue with a lint-free cloth. **CAUTION** **Polishes must not be used on special static free flooring or surrounding areas.** (4) Wash floor with warm water and a mild liquid detergent.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
•						CLEANLINESS OF EQUIPMENT (Cont.) b. Telephone Set: **WARNING** **Prolonged breathing of cleaning compound NSN 7930-395-9542 fumes is dangerous; make certain that adequate ventilation is provided. Cleaning compound is flammable; do not use near a flame. Avoid contact with the skin; wash off any that spills on your hands.** (1) Remove grease, fungus and ground-in dirt from the case, cord, handset housings, connectors and battery compartment with a clean cloth dampened (not wet) with cleaning compound. (2) Remove dust or loose dirt from terminals, binding posts, control knobs, and the handset transmitter and receiver elements with a brush.	
•						SWITCHES, KNOBS, PLUGS, CABLES, INDICATORS a. Inspect for damage. b. Check that all control knobs and switches operate properly without binding. c. Inspect indicators for burned-out lamps. d. Repair or replace as necessary.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required: | M-Monthly Time Required: | S-Semi Annual Time Required:

W-Weekly Time Required: | Q-Quarterly Time Required: | A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						AIR CONDITIONER	
		•				a. Air Filter: (1) Clean air filter and reapply filter coating in accordance with TM 5-4120-360-14 (Model F18F2). **NOTE** **Air filter may require more frequent cleaning under severe dusty conditions.** (2) Replace damaged air filter. (3) Tighten loose mounting.	
	•					b. Condenser Screen: Clean condenser screen in accordance with TM 5-4120-360-14 (Model F18T-2).	
			•			c. Evaporator and Condenser Coils: Clean coil fins in accordance with TM 5-4120-360-14 (Model F18T-2). **NOTE** **Evaporator and condenser coils may require a more frequent cleaning under severe dusty conditions.**	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						AIR CONDITIONER (Cont.)	
			•			d. Mist Eliminator: Wash and dry the mist eliminator in accordance with TM 5-4120-360-14 (Model F18T-2). **NOTE** **Mist eliminator may require a more frequent cleaning under severe dusty conditions.**	
			•			e. Sight Glass: **NOTE** **Check the sight glass during cooling mode only.** **NOTE** **Allow unit to operate one hour before checking sight glass for moisture content and refrigerant shortage.** (1) Inspect sight glass for indication of moisture. Normal indication is green. Moisture in the refrigerant system is indicated by the indicator turning from green to chartreuse (caution) to yellow (wet).	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						AIR CONDITIONER (Cont.)	
						e. Sight Glass (Cont.):	
						(2) During cooling mode of operation, with the temperature control thermostat in the maximum decrease position, check the sight glass for bubbles or cloudiness, which may indicate low refrigerant level. Normal indication is clear of bubbles. A shortage of refrigerant is indicated by bubbles in the sight glass.	
			•			f. Controls:	
						(1) High pressure cutout switch	
						(2) Low pressure cutout switch	
						(3) Two-speed condenser fan selector switch	
						(4) Rotary selector switch	
						(5) Thermostat	
						Check for proper operation in accordance with TM 5-4120-360-14 (Model F18T-2).	
			•			g. Fan:	
						(1) Listen for any unusual noise or vibration.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						AIR CONDITIONER (Cont.)	
						(2) Check for damage and secure mounting.	
			•			h. Wiring:	
						Inspect for worn or frayed insulation.	
						TELEPHONE SET	
	•					a. Battery Compartment:	
						(1) Remove the handset from the retaining cradle.	
						(2) Rotate the battery compartment cover latch clockwise until the cover is released. Lift the cover to expose the battery compartment.	
						(3) Check condition of batteries. Replace if necessary.	
						NOTE	
						Use batteries BA-30 for operation under usual conditions. Use batteries BA-2030 in place of batteries BA-30 for operation under unusual conditions (extreme cold).	
						(4) If batteries need to be replaced, proceed to (5). If batteries do not need to be replaced, proceed to (6).	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:-	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						TELEPHONE SET (Cont.) a. Battery Compartment (Cont.): (5) Install two (2) batteries, BA-30 or BA-2030, in the battery compartment. One with the positive terminal up, and the other with the positive terminal down. (6) Close the cover, and turn the cover latch counterclockwise to lock the cover closed. (7) Refasten the carrying case retaining strap over the battery compartment, and replace the handset on the retaining cradle.	
	•					b. Handset Seating: (1) Make sure that the handset seats firmly in retaining cradle and that the retaining cradle springs maintain proper tension. (2) If either spring is broken, or the spring tension is too low to hold the handset in the cradle, adjust the spring or replace the spring with a new one as follows: (a) Removing Retaining Springs - (Refer to figure 4-1.)	

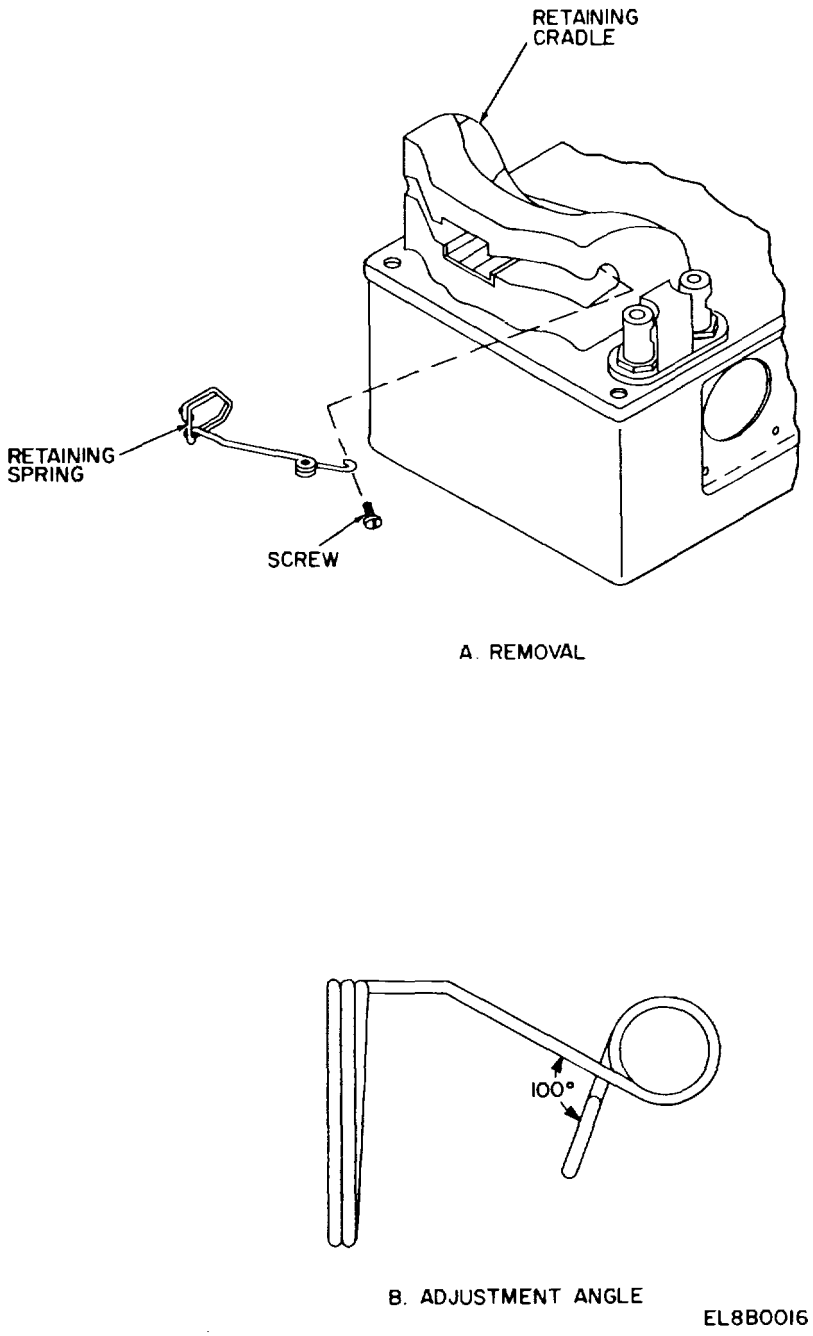


Figure 4-1. Removal and Adjustment of Handset Retaining Spring

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						TELEPHONE SET (Cont.) b. Handset Seating (Cont.): Remove the screws holding the springs in the retaining cradle. Lift the springs out of the slot. **NOTE** **The left and right springs are not identical or interchangeable. Be sure to replace a defective spring with the proper replacement part as specified in TM 11-5805-201-20P.** (b) Adjusting Retaining Springs - (Refer to figure 4-1.) Adjust the removed, or replacement, spring to approximately a 100 degree angle between the two arms of the spring. Use a pair of long-nosed pliers or adjust the angle by hand. (c) Replacing Retaining Springs - (Refer to figure 4-1.) Replace the spring with the proper replacement (see TM 11-5805-201-20P), insert the screw, and tighten it in place. Seat the handset in the cradle, and check to see that the retaining spring maintains the proper pressure to hold the handset in place.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required: | M-Monthly Time Required: | S-Semi Annual Time Required:

W-Weekly Time Required: | Q-Quarterly Time Required: | A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						TELEPHONE SET (Cont.)	
						b. Handset Seating (Cont.):	
						c. Connections:	
						(1) Inspect binding posts to insure that the connections are tight.	
						(2) Check cord on handset for cracks or breaks.	
•						d. Operational Check: Initiate a call, and check the operation of the telephone set in accordance with TM 11-5805-201-12.	
			•			e. Completeness: Check to see that the telephone set is complete and has a complete complement of running spare parts in accordance with TM 11-5805-201-12.	
			•			f. Mounting: Check to see that mounting hardware is complete and in serviceable condition.	
			•			g. Gaskets: Check gaskets and moisture blocking diaphragms on receiver and transmitter for cuts, tears or breaks.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						TELEPHONE SET (Cont.)	
			•			h. Connections: (1) Check to see that the binding posts have enough tension to hold the wires. (2) Check wires for fraying; breaks or cracked insulation.	
	•					VACUUM CLEANER a. Bag: Check for full bag. If full, replace bag. b. Filter: Check for dirty filter. If dirty, replace filter.	
						EMERGENCY LIGHTS **NOTE** **The test light should be illuminated any time ac power is applied and the unit is operating normally.**	
		•				a. Test Switch: (1) Depress the TEST switch and hold for 15 seconds. Observe that the TEST light extinguishes and the lamps (2) illuminate.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						EMERGENCY LIGHTS (Cont.) a. Test Switch (Cont.): **NOTE** **If one (1) of the two (2) lamps does not illuminate, replace the defective lamp. If both of the lamps (2) do not illuminate, check the battery voltage before replacing both lamps.** (2) Replace lamp as follows: (a) Remove ac power from the unit. (b) Remove the four (4) cover screws and cover from the unit. (c) Remove the red battery lead at the charger board. (d) Pry off the lamp head lamp retaining ring. Lift out lamp and loosen the terminal screws. Remove the wires, and remove the lamp. **NOTE** **Replace lamp with sealed beam type 7613 ONLY.**	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						EMERGENCY LIGHTS (Cont.)	
						a. Test Switch (Cont.):	
						(e) Connect wires to terminal of new lamp, position lamp in lamphead, replace lamp retaining ring on lamphead and press in place.	
						(f) Reconnect the red battery lead to the charger board.	
						(g) Replace the unit cover and secure with four (4) screws.	
						(h) Reapply ac power to the unit, and retest.	
						(3) Replace battery in accordance with step 6.	
						NOTE **The battery must be replaced when the battery will not maintain an 87.5 percent level (5.25 Vdc) after a 1.5 hour discharge.**	
					•	b. Battery Test:	
						(1) Remove ac power from the unit.	
						(2) Observe that both lamps illuminate brightly for 1.5 hours.	
						(3) Remove the four (4) cover screws and cover from the unit.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						EMERGENCY LIGHTS (Cont.) b. Battery Test (Cont.): (4) Check battery voltage. Battery should indicate a voltage reading of 5.25 Vdc or greater (after 1.5 hour test). (5) If battery test indicates battery is good, proceed to step (7). If battery test indicates battery needs to be replaced, proceed to step (6). (6) Replace battery as follows: (a) Remove the red and blue battery leads from the circuit board, and discard the battery pack. **NOTE** **Replace battery pack with Carpenter, part number 610518-2, or equivalent. The battery pack consists of three (3) 2 volt, 5 ampere-hour, lead acid (sealed) cells.** (b) Remove new battery pack from packing, and carefully pull off tape on the red and blue leads.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required: | M-Monthly Time Required: | S-Semi Annual Time Required:

W-Weekly Time Required: | Q-Quarterly Time Required: | A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						EMERGENCY LIGHTS (Cont.) b. Battery Test (Cont.): **CAUTION** **Do not allow battery connection to touch each other.** (c) Push back the clear tubing until it is flush with end of connector. (d) Place battery pack into unit cabinet. (e) Connect red battery lead to circuit (charger) board red terminal. (f) Apply ac power to the unit. (g) Connect blue battery lead to circuit board blue terminal. (7) Replace the unit cover and secure with four (4) screws. WALL LANTERN a. Battery Test: (1) Push in on the exposed corner of the triangular switch lever, located in the center of the cover, to slide switch to the "on" position.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						WALL LANTERN (Cont.) a. Battery Test (Cont.): (2) Observe that the bulb illuminates brightly. (3) Push in on the exposed corner of the triangular switch lever to slide switch to the "off" position. Proceed to step (4) if the bulb did not illuminate brightly. **NOTE** **Use standard "D" size cells for battery replacement.** (4) Replace batteries as follows: (a) Pull hinged latch on battery case forward and open battery case. (b) Remove the four (4) cells from the battery case, and dispose. (c) Install four (4) new standard "D" size cells in the battery case with the brass caps of all cells in the up position. (d) Close battery case, and push hinged latch to secure battery case. (e) Retest.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required: | M-Monthly Time Required: | S-Semi Annual Time Required:

W-Weekly Time Required: | Q-Quarterly Time Required: | A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						WALL LANTERN (Cont.)	
	•					b. Bulb Test: (1) Push in on the exposed corner of the triangular switch lever, located in the center of the cover, to slide switch to the "on" position. (2) Observe that the bulb illuminates. (3) Push in on the exposed corner of the triangular switch lever to slide switch to the "off" position. Proceed to step (4) if the bulb did not illuminate. **NOTE** **Use number PR2 bulb for replacement.** (4) Replace bulb as follows: (a) Unscrew and remove lens ring assembly. **CAUTION** **Do not touch the inside surface of the reflector. The fine aluminized coating can be damaged by rubbing or wiping.** (b) Lift out lens and reflector retaining wire inside ring, and remove lens and reflector.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						WALL LANTERN (Cont.) b. Bulb Test (Cont.): (c) Unscrew the brass cup from the rear of the reflector, which releases the coil spring that holds the bulb. Remove the bulb and dispose. **NOTE** **Make sure the coil spring is in place when bulb is replaced.** (d) Position new bulb (PR2) and coil spring in rear of reflector and secure with brass cup. (e) Position lens and reflector in ring and secure with retaining wire. (f) Position lens ring assembly on the unit and tighten. (g) Retest.	
		•				c. Battery Compartment: (1) Pull hinged latch on battery case forward, and open battery case. (2) Remove the four (4) cells from the battery case.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						WALL LANTERN (Cont.) c. Battery Compartment (Cont.): (3) Check for battery leakage. If battery leakage is present, clean with hot water. (4) Check contact points on the cover and bottom of the case for any trace of corrosion. If corrosion is present, clean contact points thoroughly, being careful not to leave any trace of corrosion. (5) Reinstall the four (4) cells in the battery case with the brass caps of all cells in the up position. (6) Close battery case, and push hinged latch to secure battery case. REPAIR SYSTEM (PACE) **WARNING** **Disconnect ac power line plug from source of supply before performing procedure.**	
	•					**Inspect and clean power source filters:** (1) Turn fasteners on rear hinged cover of unit 1/4 turn to the left (counterclockwise) to release cover, and lift cover up.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

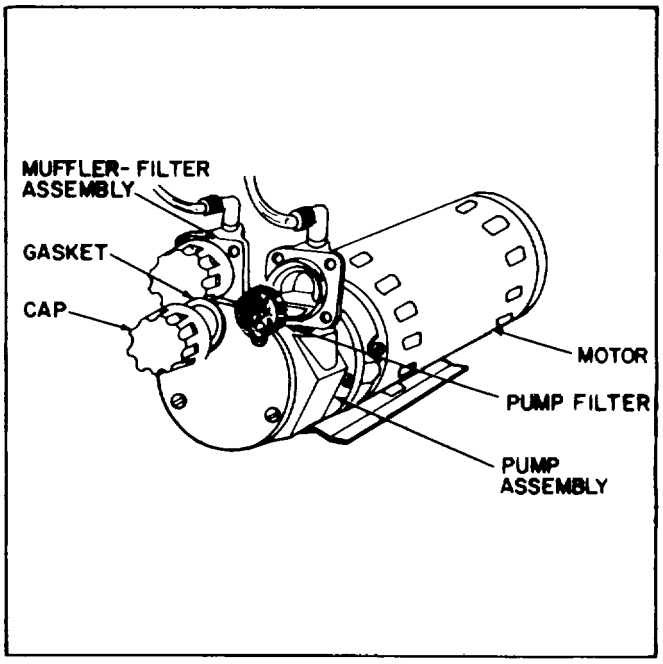
Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						REPAIR SYSTEM (PACE) (Cont.) Inspect and clean power source filters (Cont.): (2) Check and clean filters.  (3) Lower rear cover, and turn fasteners 1/4 turn to the right (clockwise) to secure cover in place.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						EYE WASH STATION	
•						a. (1) Check that installed eye wash refill is full. (2) Replace if not full with a sealed refill B4008754 (Fend-All Corp, 401). (a) Remove stoppers and drain remaining solution into waste container. Reinstall stoppers. (b) Remove strap from around eye wash solution bottle and remove empty bottle from sink. (c) Mark date in space provided on label supplied with refill and place on bottle to be installed. **NOTE** **Stoppers must be firmly in place over both sink outlets before performing step a.(2)(d).** (d) Remove refill cap and insert refill outlet into eye wash sink. (Seal over refill outlet is broken when inserted into eye wash sink.) (e) Secure eye wash refill bottle with strap. (f) Empty waste water container as described in step b.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						EYE WASH STATION (Cont.)	
		•				b. (1) Release the two (2) straps from around waste water container, and remove container.	
						(2) Check if waste water container contains eye wash solution.	
						(3) Dump contents of waste water container outside of van.	
						(4) Position container under eye wash drain, and secure with the (2) two straps.	
		•				c. (1) Check number of sealed eye wash refills in bracket.	
						(2) Bracket holds four eye wash refills. Fill bracket with new refills B4008754 if empty or less than four.	
		•				d. (1) Check installed date of solution on bottle label. If the date on the bottle label is a year or more at the time of this inspection, proceed to d.(2).	
						(2) Remove stoppers and drain outdated solution into waste container.	
						(3) Remove strap from around eye wash solution bottle and remove empty bottle from sink.	
						(4) Remove eye wash sink from sink holder, and drain solution remaining in unit outside van.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						EYE WASH STATION (Cont.) d. (Cont.): (5) Place eyewash sink into sink holder. (6) Release the two (2) straps from around waste water container, and remove container. (7) Dump contents of waste water containers outside of van. (8) Position container under eye wash drain, and secure with the two (2) straps. (9) Mark date in space provided on label supplied with refill, and place on a sealed bottle of solution B4008754 to be installed. (10) Remove refill cap and insert refill outlet into eyewash unit. (Seal over refill outlet is broken when inserted into eye wash unit.) (11) Secure eye wash refill bottle with strap.	
	•					SMOKE ALARM a. Test: (1) Press VERIFIER TEST switch and hold.	

Table 4-2. Operator Organizational Preventive
Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						SMOKE ALARM a. Test (Cont.): (2) The audible alarm will sound and the power indicator lamp will go out. (3) Release VERIFIER TEST switch. **NOTE** **The unit may sound momentarily while it is being cleaned.** b. Clean any dust deposits with a vacuum cleaner hose. SHORTING PROBE a. Check probe wire assembly for damage, and any signs of damage that would impair the use of the probe. b. Check probe wire assembly for broken, loose, or disconnected connections to the probe rod and conduit wing nut. c. Check continuity of the probe wire assembly between the probe rod and the conduit wing nut.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
		•				ELECTRICAL SYSTEM a. Check that all wall outlets are not broken or damaged. If broken or damaged, notify direct support maintenance. b. Check that all wall toggle switches are not broken or damaged and function properly. If broken or damaged and/or do not function properly, replace as described in paragraph 4-33. c. Check that all circuit breakers on power distribution box A1A5 are not broken or damaged and function properly. If broken or damaged and/or do not function properly, replace as described in paragraph 4-15. d. Check that circuit breaker on main breaker box A1A3 is not broken or damaged and functions properly. If broken or damaged and/or does not function properly, replace as described in paragraph 4-14. e. Check that microswitches on front, rear and air conditioning compartment doors are not broken or damaged and operate properly. If broken or damaged and/or do not function properly, replace as described in paragraph 4-29.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						LIGHTING FIXTURES a. Fluorescent, Overhead (1) Check that the lamps in all fixtures light. (2) If a lamp does not light, replace the lamp and/or starter. Use a lamp NSN 6240-00-152-2996 and/or starter NSN 6250-00-299-2884 from the spares board on the curside wall for replacement. (3) If after replacing the lamp and/or starter, the lamp does not light, check fixture for a faulty lamp-holder or ballast. Replace as described in paragraph 4-24 (ballast) or 4-25 (lampholder). b. Fluorescent, Work Station (1) Check that the lamps in all fixtures light. (2) If a lamp does not light, replace lamp. (3) If after replacing lamp, the lamp does not light, replace the fixture as described in paragraph 4-26. c. Black Light (1) Check that lamp in fixture lights. (2) If lamp does not light, replace lamp.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						LIGHTING FIXTURES (Cont.) c. Black Light (Cont.): (3) If after replacing lamp the lamp does not light, replace the fixture as described in paragraph 4-13. d. Incandescent, Overhead (1) Check that the lamps in all fixtures light. (2) If a lamp does not light, replace the lamp. Use a lamp NSN 6240-00-155-8653 from the spares board as the curbside wall for replacement. (3) If after replacing lamp, the lamp does not light, check fixture for a faulty socket. Replace the socket as described in paragraph 4-27. AIR CONDITIONER POWER CABLE CONNECTIONS a. Check that each cable connector is securely fitted into connector on air conditioner. If connector is loose, tighten connector ring. b. Check that each cable connector is tight and secure. If connector is loose on cable, tighten connector cable clamp. c. Check that each cable is secure in raceway strain relief. If loose, notify direct support maintenance.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required: | M-Monthly Time Required: | S-Semi Annual Time Required:

W-Weekly Time Required: | Q-Quarterly Time Required: | A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						LIGHTING FIXTURES (Cont.) d. Check that the insulation on each cable is not cracked, cut or damaged. If insulation is cracked, cut or damaged, notify direct support maintenance.	
			•			AIR CONDITIONER THERMOSTAT a. Thermostat Cable Assembly (1) Check that each cable assembly is securely fitted into raceway connector below air conditioner. If cable connector is loose, fit cable connector tightly into raceway connector. (2) Check that each cable connector is tight and secure. If connector is loose on cable, tighten connector cable clamp. (3) Check that each cable is secure in air conditioner strain relief. If loose, notify direct support maintenance. (4) Check that the insulation on each cable is not cracked, cut or damaged. If insulation is cracked, cut or damaged, notify direct support maintenance.	

Table 4-2. Operator/Crew and Organizational Preventive Maintenance Checks and Services - Continued

D-Daily Time Required:	M-Monthly Time Required:	S-Semi Annual Time Required:
W-Weekly Time Required:	Q-Quarterly Time Required:	A-Annual Time Required:

Interval						Item to be Inspected Procedure	Work Time (T/H)
D	W	M	Q	S	A		
						AIR CONDITIONER THERMOSTAT (Cont.) b. Thermostat (1) Remove cover, and check that thermostat is set at 65°F. If not set at 65°F, set to 65°F. (2) Check that capillary tube from bulb and bulb are securely connected and not damaged or bent. If capillary tube and/or bulb is damaged or bent, replace thermostat as described in paragraph 4-35. (3) Check that all electrical connections to thermostat are secure. Secure connections that are loose. Reinstall cover.	

Section V. TROUBLESHOOTING

4-9. Scope.

This section contains a listing of problems, probable causes and corrective actions for fault isolation by organizational personnel.

4-10. Troubleshooting.

Table 4-3 lists the most common problems that will be encountered during operation. Associated causes and corrective actions are given for each problem. If the problem encountered is not listed in table 4-3, or the corrective action does not correct the malfunction, contact direct support/general support (DS/GS) maintenance personnel.

Table 4-3. Organizational Troubleshooting Procedures

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
1. No lights or operational equipment.	a. Circuit breaker CB1 on main breaker box A1A3 is off.	a. Turn-on circuit breaker.
	b. Faulty circuit breaker A1A3CB1.	b. Replace circuit breaker.
	c. Faulty filter(s) A1A2 FL1, FL2, FL3 or FL4.	c. Replace faulty filter(s). Call DS/GS personnel.
	d. Primary power input cable connection A1A1J1 loose.	d. Tighten connection.
	e. Faulty primary input power.	e. Call DS/GS personnel.
2. Air conditioner (A1A5CB1 or CB2) trips and will not reset.	a. Faulty air conditioner.	a. Call DS/GS personnel.
	b. Faulty circuit breaker A1A5CB1 or CB2.	b. Replace circuit breaker.
3. No rows 2 and 4 fluorescent other lights are on.	a. Incorrect setting(s) of switch(es) A1S1 thru S4.	a. Set switches for rows 2 and 4.
	b. Faulty switch(es) A1S1, S2, S3 or S4.	b. Replace faulty switch(es).
	c. Circuit breaker A1A5CB10 is off.	c. Turn on circuit breaker.
	d. Faulty circuit breaker A1A5CB10.	d. Replace circuit breaker.
4. No rows 1 and 3 fluorescent lights. All are on.	a. Incorrect setting(s) of switch(es) A1S6 thru S9.	a. Set switches for rows 1 and 3.
	b. Faulty switch(es) A1S6, S7,, S8 or S9.	b. Replace faulty switch(es).
	c. Circuit breaker A1A5CB12 is off.	c. Turn on circuit breaker.
	d. Faulty circuit breaker A1A5CB12.	d. Replace circuit breaker.

Table 4-3. Organizational Troubleshooting Procedures - Continued

PROBLEM	PROBABLE CAUSE	CQRRECTIVE ACTION
5. No incandescent lights. All other lights are on.	a. Incorrect setting(s) of switch(es) A1S10 thru S13.	a. Set switches for incandescent lights.
	b. Faulty switch(es) A1S10, S11, S12 or S13.	b. Replace faulty switch(es).
	c. Circuit breaker A1A5CB14 is off.	c. Turn on circuit breaker.
	d. Faulty circuit breaker AlA5CB14.	d. Replace circuit breaker.
6. No power at convenience outlets J1 thru J3.	a. Circuit breaker A1A5CB3 if off.	a. Turn on circuit breaker.
	b. Faulty circuit breaker AlA5CB3.	b. Replace circuit breaker.
7. Circuit breaker A1A5CB6 trips and will not reset.	Short in equipment connected to outlets J1, J2 or J3.	Disconnect shorted equipment.
8. No power at convenience outlets J4 thru J6.	a. Circuit breaker A1A5CB4 if off.	a. Turn on circuit breaker.
	b. Faulty circuit breaker AlA5CB4.	b. Replace circuit breaker.
9. Circuit breaker A1A5CB4 trips and will not reset.	Short in equipment connected to outlets J4, J5 or J6.	Disconnect shorted equipment.
10. No power at convenience outlets J1 thru J9.	a. Circuit breaker A1A5CB5 is off.	a. Turn on circuit breaker.
	b. Faulty circuit breaker A1A5CB5.	b. Replace circuit breaker.
11. Circuit breaker A1A5CB5 trips and will not reset.	Short in equipment connected to outlets J7, J8 or J9.	Disconnect shorted equipment.
12. No power at convenience outlets J10 thru J12.	a. Circuit breaker A1A5CB6 is off.	a. Turn-on circuit breaker.
	b. Faulty circuit breaker A1A5CB6.	b. Replace circuit breaker.

Table 4-3. Organizational Troubleshooting Procedures - Continued

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
13. Circuit breaker A1A5CB6 trips and will not reset.	Short in equipment connected to outlets J10, J11 or J12.	Disconnect shorted equipment.
14. No power at convenience outlets J13 thru J15.	a. Circuit breaker AlA5CB7 is off.	a. Turn-on circuit breaker.
	b. Faulty circuit breaker A1A5CB7.	b. Replace circuit breaker.
15. Circuit breaker A1A5CB7 trips and will not reset.	Short in equipment connected to outlets J13, J14 or J15.	Disconnect shorted equipment.
16. No power at convenience outlets J16 thru J19.	a. Circuit breaker A1A5CB8 is off.	a. Turn on circuit breaker.
	b. Faulty circuit breaker A1A5CB8.	b. Replace circuit breaker.
17. Circuit breaker A1A5CB8 trips and will not reset.	Short in equipment connected to outlets J16, J17, J18 or J19.	Disconnect shorted equipment.
18. No power at convenience outlets J20 thru J22.	a. Circuit breaker AlA5CB9 is off.	a. Turn on circuit breaker.
	b. Faulty circuit breaker A1A5CB9.	b. Replace circuit breaker.
19. Circuit breaker A1A5CB9 trips and will not reset.	Short in equipment connected outlets J20, J21 or J22.	Disconnect shorted equipment.
20. No power at convenience outlets J23 thru J25.	a. Circuit breaker A1A5CB11 is off.	a. Turn on circuit breaker.
	b. Faulty circuit breaker A1A5CB11.	b. Replace circuit breaker.
21. Circuit breaker A1A5CB11 trips and will not reset.	Short in equipment connected to outlets J23, J24 or J25.	Disconnect shorted equipment.
22. No power at oven outlet J26.	a. Circuit breaker A1A5CB13 is off.	a. Turn on circuit breaker.
	b. Faulty circuit breaker A1A5CB13.	b. Replace circuit breaker.

Table 4-3. Organizational Troubleshooting Procedures - Continued

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
23. Circuit breaker A1A5CB13 trips and will not reset.	Short in oven.	Replace oven.
24. Oven inoperative.	a. Refer to problems 22 and 23.	a. Refer to problems 22 and 23.
	b. Defective oven.	b. Replace oven.
25. No power at external convenience outlet A1A1J2.	a. External CONV OUTLET circuit breaker on power entry panel A1A1 is off.	a. Push-in (reset) circuit breaker.
	b. Faulty primary input power.	b. Call DS/GS personnel.
26. Temperature not at setting on thermostat.	a. Faulty air conditioner(s).	a. Call DS/GS personnel.
	b. Faulty thermostat.	b. Replace thermostat.

Section VI. ORGANIZATIONAL MAINTENANCE

4-11. Scope.

This section contains procedures and illustrations for the maintenance and removal of a faulty component/assembly and the installation of an operational component/assembly. These procedures contain step-by-step instructions for each component, or assembly, that is replaced by organizational personnel for the repair facility OA-8991/MSM.

4-12. Removal and Replacement of Components/Assemblies.

The procedures referenced in this paragraph provide step-by-step instructions for the removal and installation of the following components/assemblies:

4-13. Black Light Fixture. (Refer to figure 4-2.)

a. Removal.

(1) Remove black light fixture ac plug from wall connector.
(2) Remove four (4) screws holding black light fixture to underside of cabinet, and remove light.
(3) Note the part number (see below) of the black light fixture removed in step a.(2).

B4008627	Black Light Fixture (Ultra-Violet Prod., XX-15)

b. Installation.

(1) Verify that the part number (see below) of the new black light fixture to be installed is the same number as the one removed.

B4008627	Black Light Fixture (Ultra-Violet Prod., XX-15)

(2) Position the black light fixture on the underside of cabinet, and secure with four (4) screws, as removed in step a.(2).

(3) Insert black light fixture ac plug into wall connector.

4-14. Circuit Breaker AlA3CB1 (Main Breaker Box A1A3). (Refer to figure 4-2.)

WARNING

High voltage is present if step a.(4) is not performed. Insure that circuit breaker (switch) is off and apply a tag to deter accidental or unauthorized activation of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers no. 1 through no. 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker A1A3CB1 on the main breaker box A1A3 in the OFF (down) position.

(3) Place the on/off switch on the primary power switch box in the OFF (down) position.

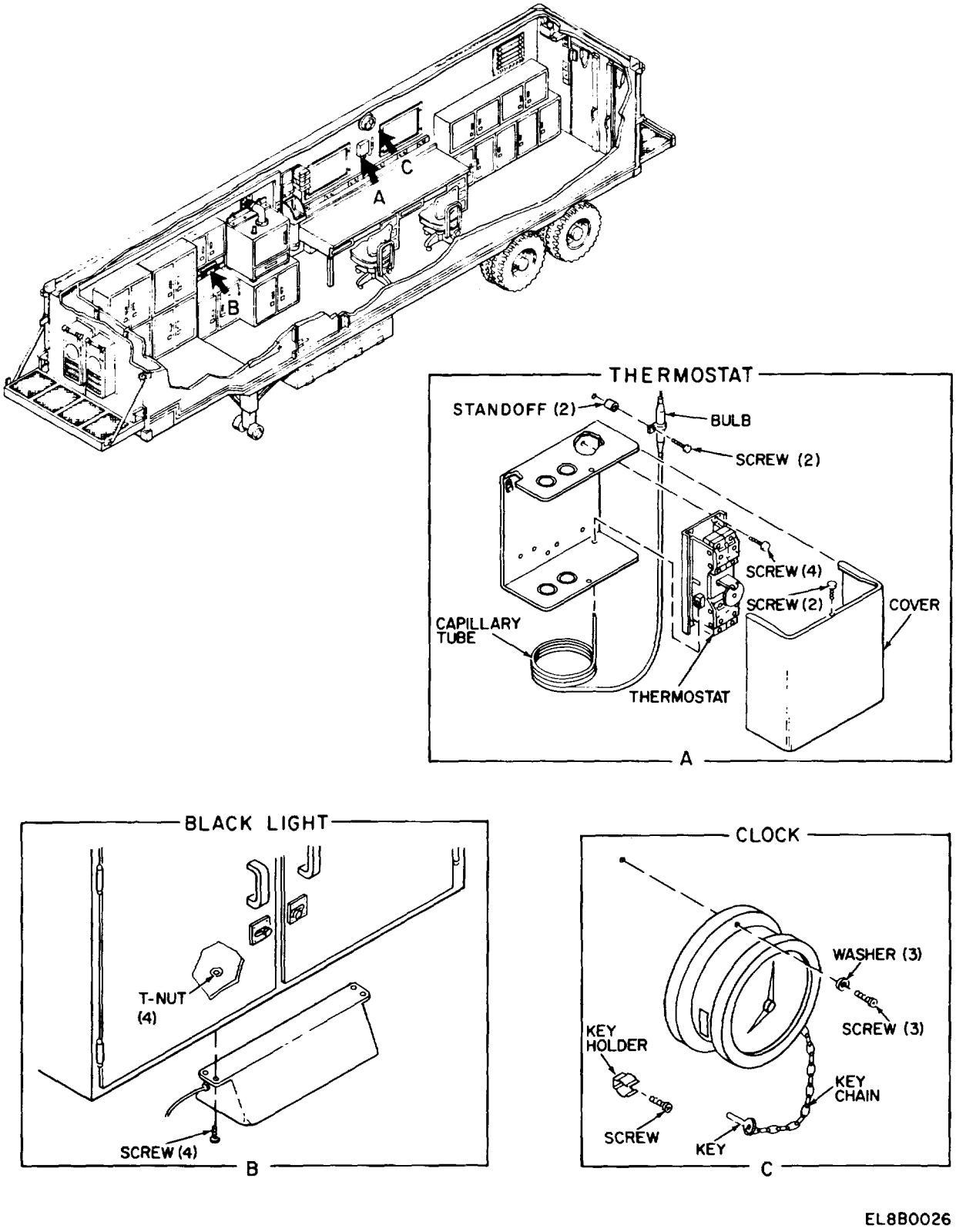


Figure 4-2. Removal and Installation of Organizational Repair Facility Components/Assemblies (Sheet 1 of 5)

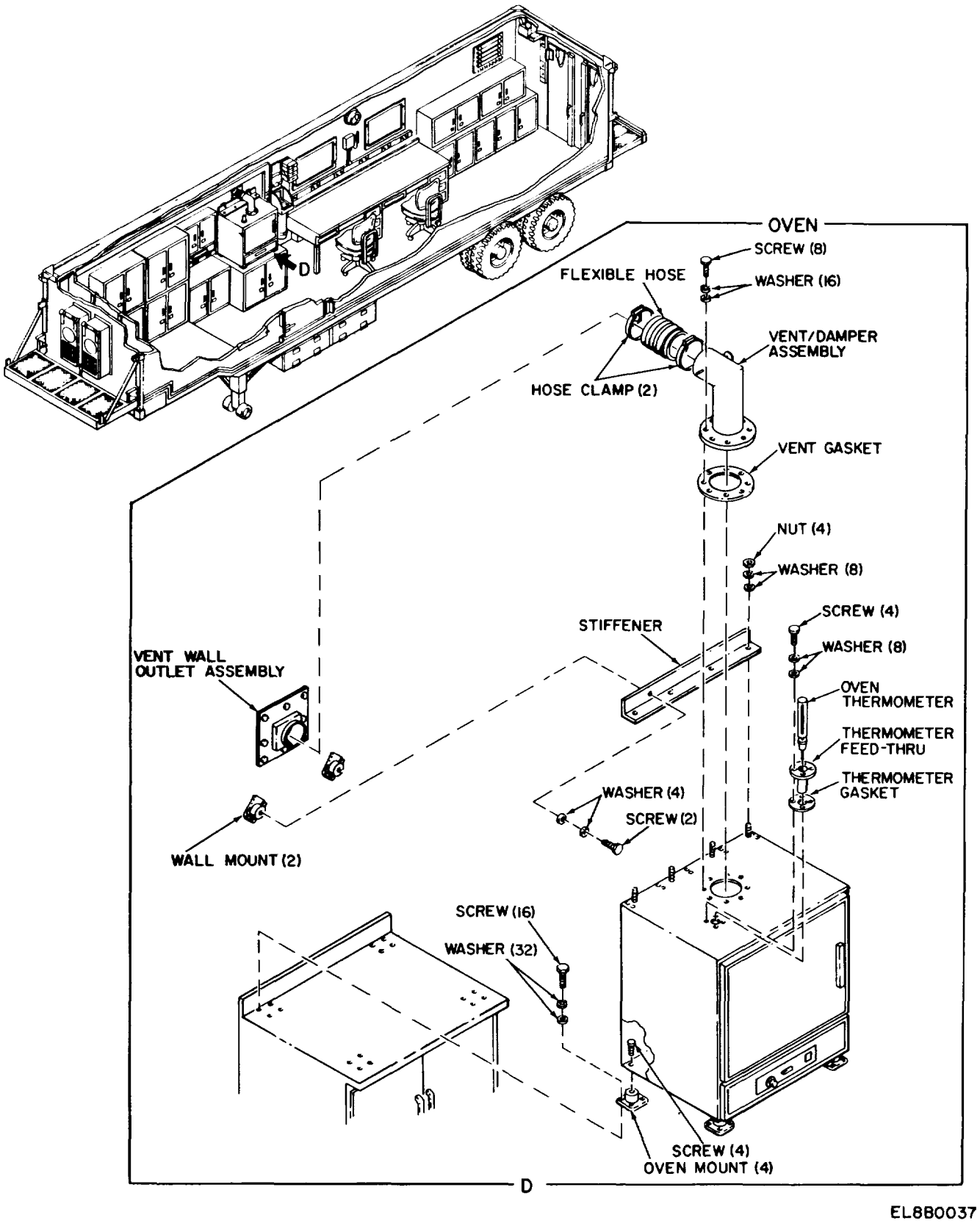


Figure 4-2. Removal and Installation of Organizational Repair Facility Components/Assemblies (Sheet 2 of 5)

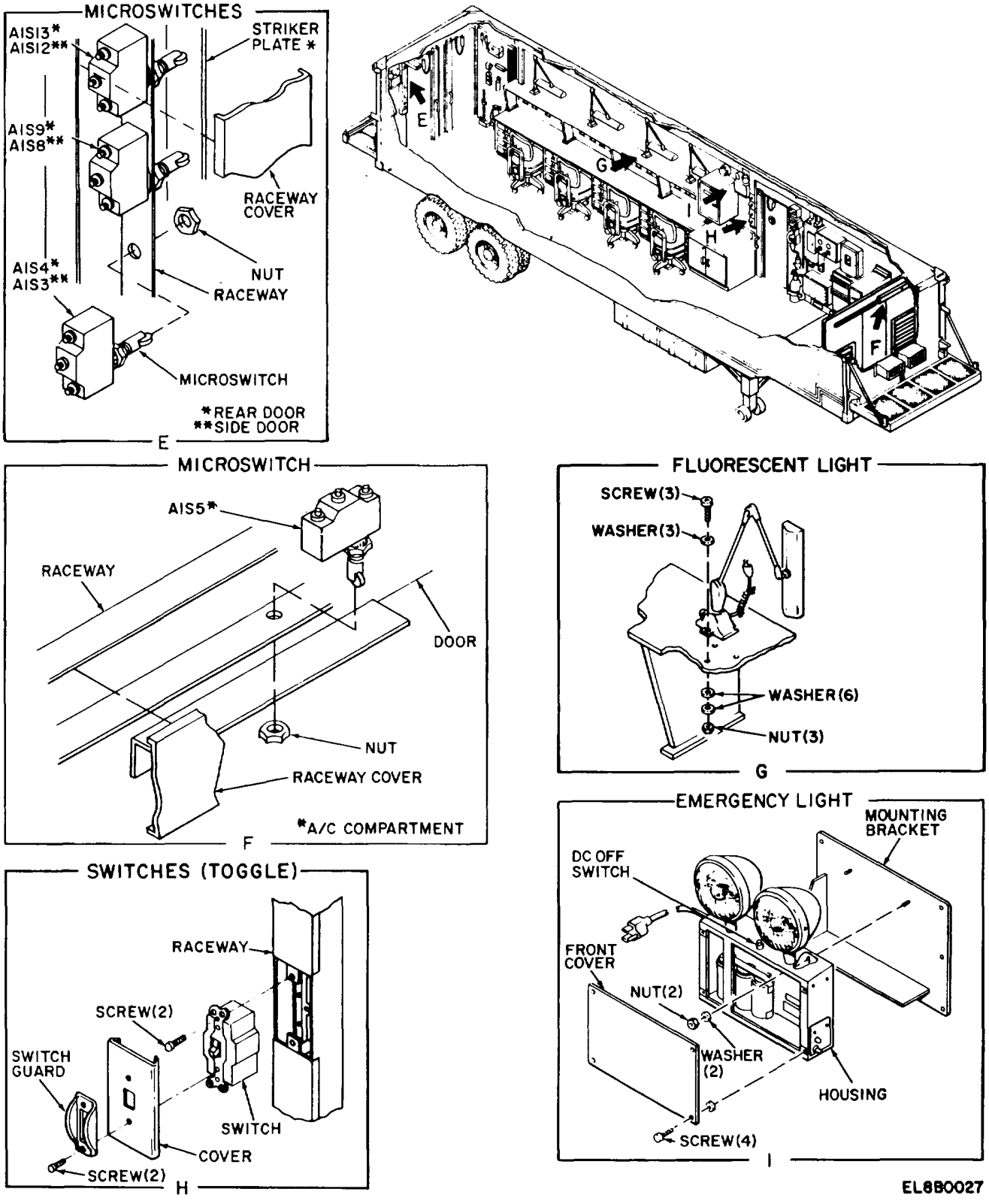


Figure 4-2. Removal and Installation of Organizational Repair Facility Components/Assemblies (Sheet 3 of 5)

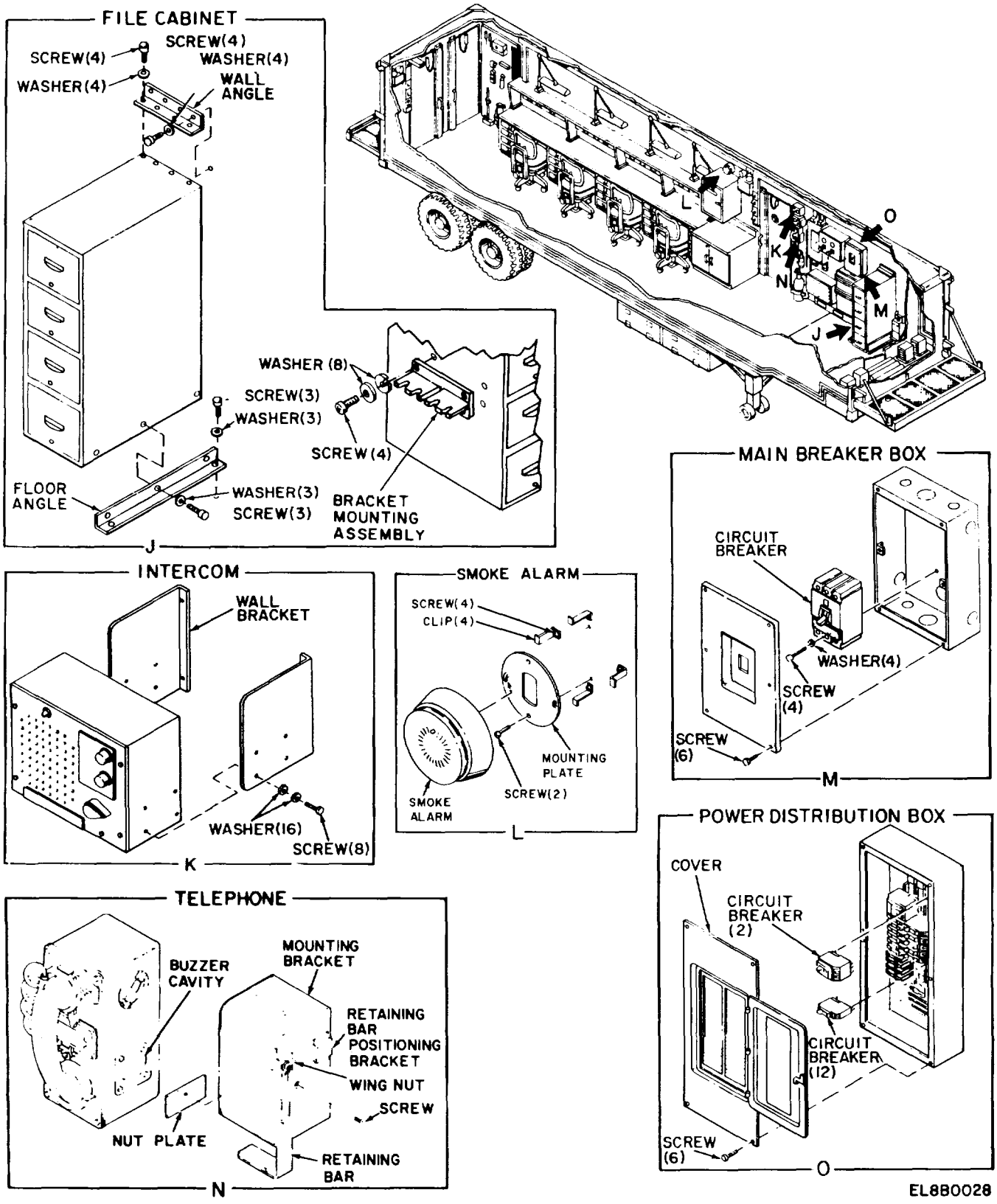


Figure 4-2. Removal and Installation of Organizational Repair Facility Components/Assemblies (Sheet 4 of 5)

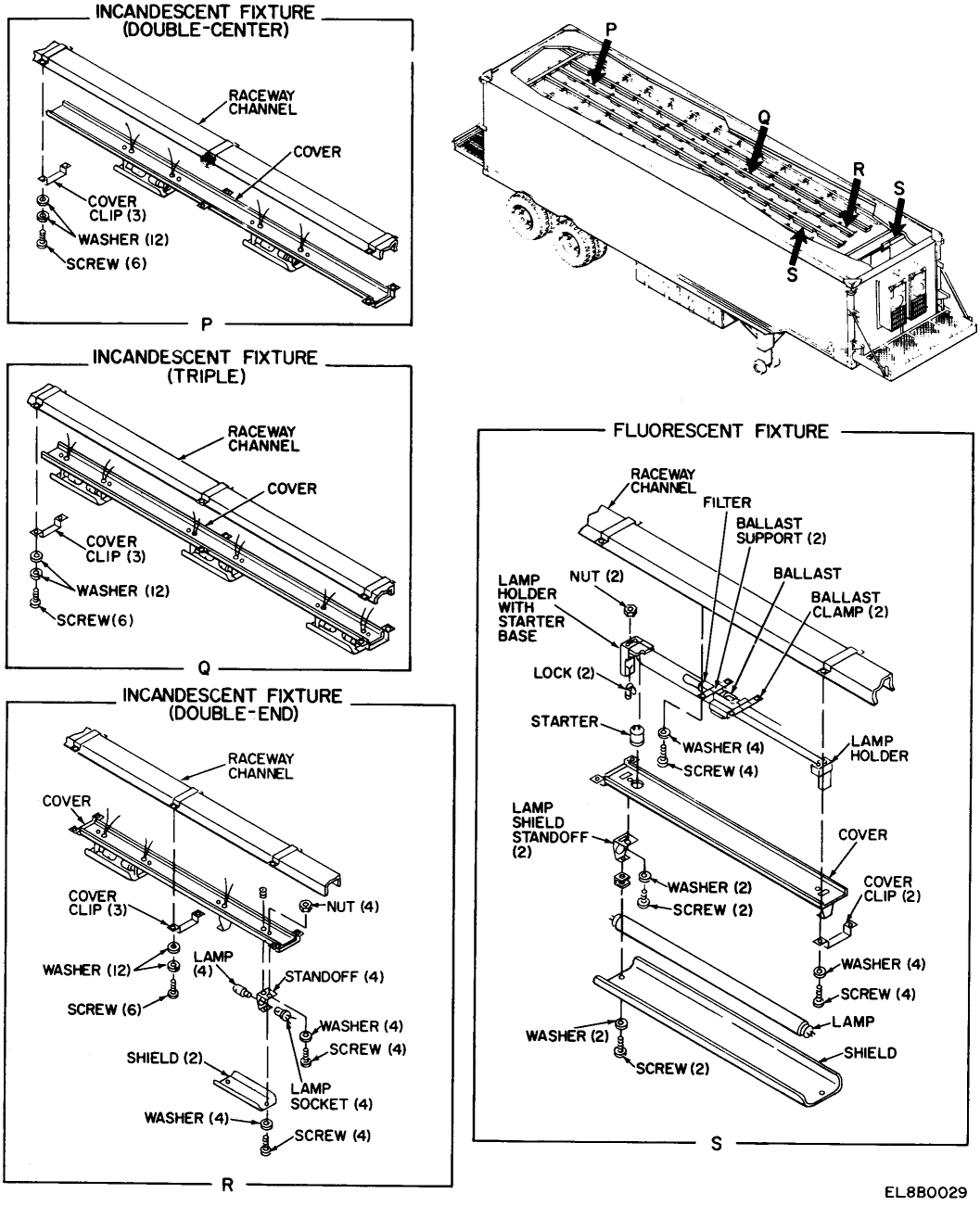


Figure 4-2. Removal and Installation of Organizational Repair Facility Components/Assemblies (Sheet 5 of 5)

WARNING

Check shorting probe before use as described in PMCS.

(4) Outside of van, remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective covers on connector J1, of power entrance box A1A1, and connector of power input cable assembly.

(5) Remove six (6) bolts holding cover to main breaker box A1A3, and remove cover. Set cover aside.

(6) Remove wires from A1A3CB1. Label, if necessary.

(7) Remove screws holding circuit breaker A1A3CB1 to main breaker box A1A3, and remove circuit breaker.

(8) Note the part number of the circuit breaker removed in step a.(7):

B4008391	Circuit Breaker, 100 amp (Square D Co., KAL 36100)

b. Installation.

(1) Verify that the part number of the new circuit breaker to be installed is the same number as the one removed:

B4008391	Circuit Breaker, 100 amp (Square D Co., KAL 36100)

(2) Position the new circuit breaker in main breaker box A1A3, and secure with screws, as removed in step a.(7).

(3) Reconnect the wires to circuit breaker being careful to place wires in proper terminals, as removed in step a.(6). Remove labels, if used.

(4) Position cover (set aside) on main breaker box, and secure with six (6) bolts, as removed in step a.(5).

(5) Place the new circuit breaker in the OFF position.

(6) Outside of van, remove protective covers from connector J1 of power entrance box A1A1, and connector of power input cable assembly. Reconnect the power input cable to the power entrance box.

(7) Place on/off switch on the primary power switch box in the ON (up) position.

(8) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(9) Place circuit breakers no. 5 through no. 14 on power distribution box A1A5 in the ON position.

CAUTION

Do not operate more than three (3) air conditioners with the AN/USM-410 in operation.

NOTE

Place one air conditioner or portable heater at a time into operation allowing the surge voltage to stabilize before starting the next.

(10) Place circuit breakers no. 1 through no. 4, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

4-15. Circuit Breakers AlA5CB1 through A1A5CB15, A1A5CB17, A1A5CB19 and A1A5CB21 (Power Distribution Box AIA5). (Refer to figure 4-2.)

WARNING

High voltage is present if step a.(2) is not performed. Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers no. 1 through no. 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Remove six (6) bolts holding cover to power distribution box A1A5 and remove cover. Set cover aside.

(4) Remove wires from faulty circuit breaker. Label, if necessary.

(5) Pull faulty circuit breaker straight out from voltage bars, and remove breaker.

(6) Note the part number of the faulty circuit breaker removed in step a.(5):

A1A5CB1 and A1A5CB2	WC375/03-004	Circuit Breaker, 30 amp
A1A5CB3 thru A1A5CB12 and A1A5CB14	WC375/01-002	Circuit Breaker, 15 amp
A1A5CB13, A1A5CB15, A1A5CB17, A1A5CB19 and A1A5CB21	WC375/01-003	Circuit Breaker, 20 amp

b. Installation.

(1) Verify that the part number of the new circuit breaker to be installed is the same number as the one removed:

A1A5CB1 and A1A5CB2	WC375/03-004	Circuit Breaker, 30 amp
A1A5CB3 thru A1A5CB12 and A1A5CB14	WC375/01-002	Circuit Breaker, 15 amp
A1A5CB13, A1A5CB15, A1A5CB17, A1A5CB19 and A1A5CB21	WC375/01-003	Circuit Breaker, 20 amp

(2) Position new circuit breaker in power distribution box AlA5, and push forward until breaker is secure (clipped to voltage bars).

(3) Reconnect the wires to circuit breaker, being careful to place in proper terminals, as removed in step a.(4). Remove labels, if used.

(4) Position cover (set aside) on power distribution box, and secure with six (6) bolts, as removed in step a.(3).

(5) Place new circuit breaker in the OFF position.

(6) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(7) Place circuit breakers no. 5 through no. 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or portable heater at a time into operation allowing the surge voltage to stabilize before starting the next.

(8) Place circuit breakers no. 1 through no. 4, no. 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

4-16. Clock. (Refer to figure 4-2.)

a. Removal.

(1) Remove three (3) screws and washers holding the clock and key chain to the wall. Remove the clock and the key. If removing key holder, proceed to step a.(2). Otherwise, proceed to step a.(3).

(2) Remove one screw holding the key holder to the wall, and remove key holder.

(3) Note the part number of the clock removed in step a.(1): MIL-C-1194 Clock, Mechanical

b. Installation.

(1) Verify that the part number of the new clock to be installed is the same number as the one removed: MIL-C-1194 Clock, Mechanical

NOTE

If key holder was removed in step a.(2), proceed to step b.(2). Otherwise, proceed to-step b.(3).

(2) Position key holder on van wall, and secure with the screw removed in step a.(2).

(3) Position the clock on van wall, and secure the clock and key chain with three (3) screws and washers as removed in step a.(l).

4-17. Emergency Light. (Refer to figure 4-2.)

a. Removal.

NOTE

If lamps illuminate when power connector is removed from the convenience outlet, press the DC off switch (top of unit).

(1) Remove emergency light ac plug from emergency light wall connector.

(2) Remove four (4) screws holding the front panel to the housing. Remove panel.

(3) Remove two (2) nuts and washers holding the emergency light to the wall bracket. Remove emergency light.

(4) Note the part number of the emergency light removed in step a.(3):

B4008167	Emergency Light (Carpenter Lighting, CC-2-BH-SRS-CP-M)

b. Installation.

(1) Verify that the part number of the new emergency light to be installed is the same number as the one removed:

B4008167	Emergency Light (Carpenter Lighting, CC-2-BH-SRS-CP-M)

NOTE

If installing a new emergency light, proceed to step (1). If installing an emergency light with the front panel removed, proceed to step (2).

(2) Remove four (4) screws holding the front panel to the housing. Remove the panel.

(3) Position emergency light on the mounting bracket, and secure with two (2) nuts and washers as removed in step a.(3).

(4) Position the front panel on the housing, and secure with the four (4) screws as removed in step a.(2), or b.(2).

NOTE

The red indicator lamp should light when the power cable is connected to the convenience outlet.

(5) Insert emergency light ac plug into emergency light wall connector.

4-18. Emergency Light, Circuit Board (Charger). (Refer to figure 4-3.)

WARNING

High voltage is present if step a.(l) is not performed.

a. Removal.

(1) Remove emergency light ac plug from emerg ency light wall connector.

(2) Remove four (4) screws holding front cover to housing of emergency light assembly, and remove cover. Set cover aside.

(3) Remove the blue battery lead from the circuit board (charger).

(4) Undo wire splices (2) from circuit board to ac line cord and one wire splice from short lead of test switch. Label, if necessary.

(5) Grip and compress the plastic strain relief bushing with pliers, and pull it from the mounting hole. Pull the two (2) circuit board wires through mounting hole from the board side.

(6) Disconnect remaining five (5) wires from circuit board (charger). Label, if necessary.

(7) Remove four (4) screws holding circuit board to the housing, and remove board.

(8) Note the part number (Carpenter Lighting, 610692-2) of the circuit board (charger) removed in step a.(7).

b. Installation.

(1) Verify that the part number (Carpenter Lighting, 610692-2) of the new circuit board (charger) to be installed is the same number as the one removed.

(2) Position circuit board on housing (inside), and secure with four (4) screws, as removed in step a.(7).

(3) Connect five (5) wires to the circuit board (charger), as removed in step a.(6).

(4) Feed the two (2) ac power circuit board wires through strain relief mounting hole. Position strain relief bushing over wires, grip and compress with pliers, and push into mounting hole.

(5) Connect the two (2) circuit board ac power leads to the ac line cord, and the remaining lead to the short lead of the TEST switch with wire splices, as recorded in step a.(4). Remove labels, if used.

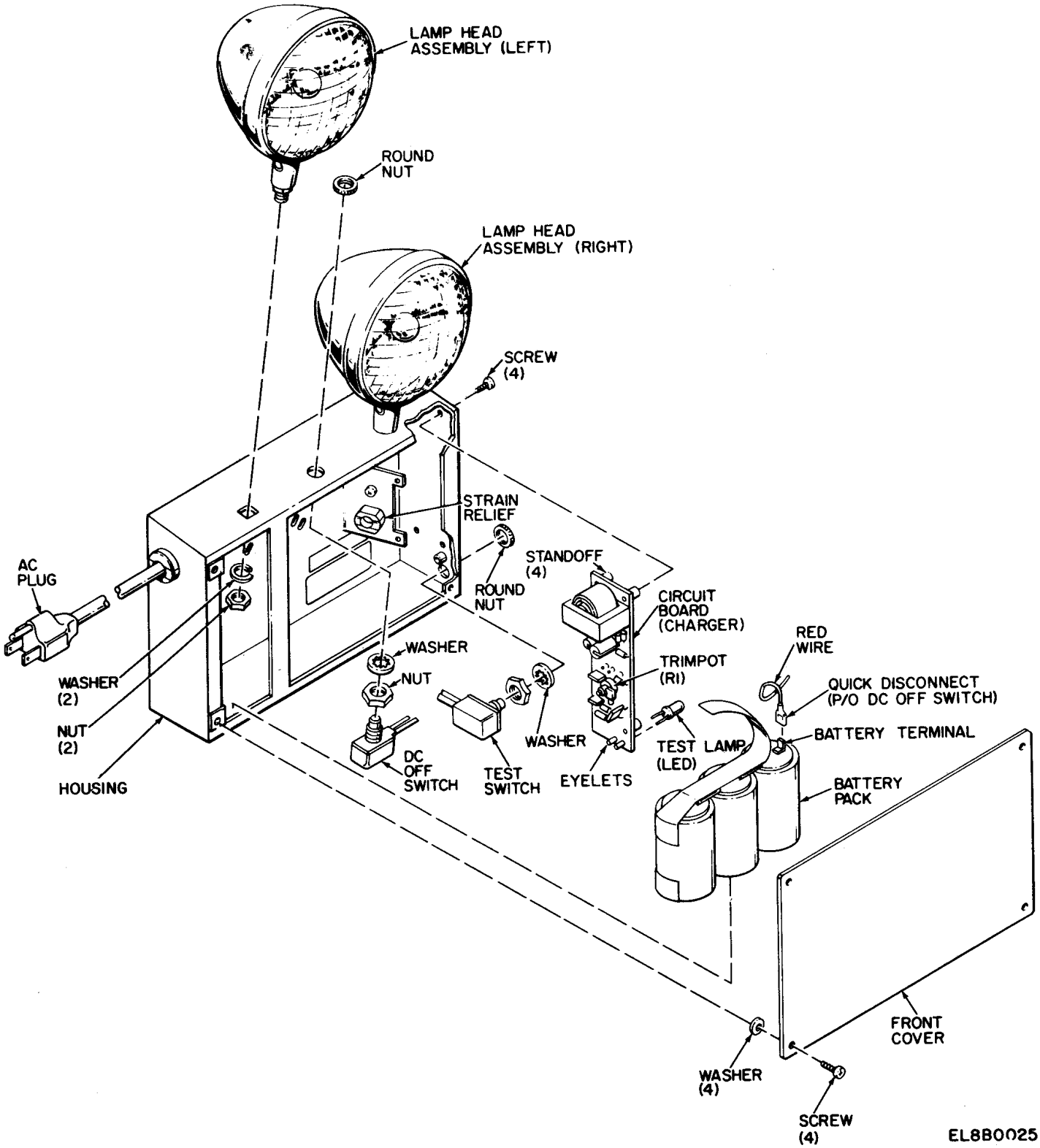


Figure 4-3. Removal and Installation of Emergency Light Components.

(6) Connect the blue battery lead to the circuit board (charger), as removed in step a.(3).

(7) Position front cover (set aside) on the housing, and secure with four (4) screws, as removed in step a.(2).

(8) Reconnect ac plug to emergency light wall connector.

(9) Charge the battery for a 24-hour period.

(10) At the end of the 24 hour period, remove the front cover (step a.(2)).

(11) Using a voltmeter, check for a reading of 7.00 Vdc across the battery terminals (at 720F). If a reading of 7.00 Vdc is not obtained, adjust R1 (refer to figure 4-3) to 7.00 Vdc.

(12) Replace the front cover (step b. (7)).

4-19. Emergency Light, DC Off Switch. (Refer to figure 4-3.)

WARNING
High voltage is present if step a.(l) is not performed.

a. Removal.

(1) Remove emergency light ac plug from emergency light wall connector.

(2) Remove four (4) screws holding front cover to housing of emergency light assembly, and remove cover. Set cover aide.

(3) Remove blue battery lead from circuit board (charger).

(4) Remove one wire of the off switch from the battery (quick disconnect) and the other wire from the (charger) printed circuit board (barret connector). Label if necessary.

(5) Remove the outside nut on the switch shaft, and remove the switch.

(6) Note the part number (Carpenter Lighting, 610815) of the dc off switch removed in step a.(5).

b. Installation.

(1) Verify that the part number (Carpenter Lighting, 610815) of the new switch to be installed is the same number as the one removed.

(2) Position new switch through hole in housing from inside of assembly, and secure with nut, as removed in step a.(5).

(3) Connect one of the wires of the switch to the battery (quick disconnect) as removed in step a.(4), and the other wire to the (charger) printed circuit board (barrel connector). Remove labels, if used.

(4) Reconnect the blue battery lead to the circuit board (charger), as removed in step a.(3).

(5)Position front cover (set aside) on the housing, and secure with four (4) screws, as removed in step a.(2).

(6) Reconnect ac plug to emergency light wall connector.

4-20. Emergency Light, Lamp Head Assemblies. (Refer to figure 4-3.)

WARNING
High voltage is present if step a.(l) is not performed.

a. Removal.

(1) Remove emergency light ac plug from emergency light wall connector.

(2) Remove four (4) screws holding front cover to housing of emergency light assembly, and remove cover. Set cover aside.

(3) Remove the blue battery lead from the circuit board (charger).

(4) Remove faulty lamp head assembly red and yellow wires from circuit board (charger). Label, if necessary.

(5) Unscrew the mounting nut from the faulty lamphead assembly shaft. Pull nut over wires, and remove nut.

(6) Lift faulty lamphead assembly, with attached wires, through opening in housing, and remove assembly.

(7) Note the part number of the lamp head assembly removed in step a.(6):

Left Lamphead Assembly - Carpenter Lighting, 610689-3
Right Lamphead Assembly - Carpenter Lighting, 610689-1

b. Installation.

(1) Verify that the part number of the new lamphead assembly to be installed is the same number as the one removed:
Left Lamphead Assembly - Carpenter Lighting, 610689-3
Right Lamphead Assembly - Carpenter Lighting, 610689-1

(2) Remove mounting nut from new lamphead assembly shaft and wires.

(3) Feed wires of lamphead assembly through opening in housing, and position assembly mounting shaft in housing opening.

(4) Feed wires through mounting nut, and secure assembly to housing with nut, as removed in step a.(5).

(5) Connect red and yellow wires of lamphead assembly to circuit board (charger), as removed in step a.(4).

(6) Reconnect the blue battery lead to the circuit board (charger), as removed in step a.(3).

(7) Position front cover (set aside) on the housing, and secure with four (4) screws, as removed in step a.(2).

(8) Reconnect ac plug to emergency light wall connector.

4-21. Emergency Light, TEST Lamp (LED). (Refer to figure 4-3.)

WARNING

High voltage is present if step a.(l) is not performed.

a. Removal.

(1) Remove emergency light ac plug from emergency light wall connector.

(2) Remove four (4) screws holding front cover to housing of emergency light assembly, and remove cover. Set cover aside.

(3) Remove the blue battery lead from the circuit board (charger).

(4) Remove four (4) screw holding circuit board (charger) to the housing, and remove board carefully (wires are attached).

(5) Unsolder LED assembly from board mounting eyelets.

(6) Note the part number (Carpenter Lighting, 711303, Red M15054-1) of the LED removed in step a.(5).

b. Installation.

(1) Verify that the part number (Carpenter Lighting, 711303 Red MV5054-1) of the new LED to be installed is the same number as the one removed.

(2) Position LED assembly in mounting eyelets on circuit board (charger), and solder in place.

(3) Position circuit board on housing and secure with four (4) screws, as removed in step a.(4).

(4) Reconnect the blue battery lead to the circuit board (charger), as removed in step a.(3).

(5) Position front cover (set aside) on the housing, and secure with four (4) screws, as removed in step a.(2).

(6) Reconnect ac plug to emergency light wall connector.

4-22. Emergency Light, Test Switch. (Refer to figure 4-3.)

WARNING
High voltage is present if step a.(l) is not performed.

a. Removal.

(1) Remove emergency light ac plug from emergency light wall connector.

(2) Remove four (4) screws holding front cover to housing of emergency light assembly, and remove cover. Set cover aside.

(3) Remove blue battery lead from circuit board (charger).

(4) Undo wire splice from white wire of ac line cord.

(5) Grip and compress the plastic strain relief bushing with pliers, and pull it from the mounting hole. Pull the white wire through the hole from the switch side.

(6) Undo wire splice on other switch (short) lead.

(7) Remove the outside nut on the switch shaft, and remove the switch.

(8) Note the part number (Carpenter Lighting, 610814) of the TEST switch removed in step a..(7).

b. Installation.

(1) Verify that the part number (Carpenter Lighting, 610814) of the new switch to be installed is the same number as the one removed.

(2) Position new switch through hole in housing from inside of assembly, and secure with nut, as removed in step a.(7).

(3) Connect short lead of switch to wire from circuit board (charger) with new wire splice (supplied with new switch).

(4) Feed the white wire of the switch through strain relief mounting hole. Position strain relief bushing over wire, grip and compress with pliers and push into mounting hole.

(5) Connect switch wire to white wire of ac power cord with new wire splice (supplied with new switch).

(6) Reconnect the blue battery lead to the circuit board (charger), as removed in step a.(3).

(7) Position front cover (set aside) on the housing, and secure with four (4) screws, as removed in step a.(2).

(8) Reconnect ac plug to emergency light wall connector.

4-23. File Cabinet. (Refer to figure 4-2.)

NOTE

Remove contents from all drawers.

a. Removal.

(1) Remove four (4) screws and eight (8) washers holding the bracket on the side of the cabinet, and remove bracket. Set bracket, screws and washers aside.

(2) Remove three (3) screws and washers holding the cabinet to the floor angle.

(3) Remove four (4) screws and washers holding the cabinet to the wall angle, and remove cabinet.

(4) Loosen four (4) screws holding the wall angle to the wall.

(5) Loosen three (3) screws holding the floor angle to the floor.

(6) Note the part number B4008769-002 of the file cabinet removed in step a.(3).

b. Installation.

(1) Verify that the part number B4008769-002 of the new file cabinet to be installed is the same number as the one removed.

(2) Position file cabinet against the floor angle and the wall.

(3) Secure file cabinet to floor angle loosely with three (3) screws and washers removed in step a.(2).

(4) Secure file cabinet to wall angle with four (4) screws and washers removed in step a.(3).

(5) Secure floor angle on van floor and secure with three (3) screws and washers left loose in step a.(5).

(6) Secure wall angle to the wall with four (4) screws and washers left loose in step a.(4).

(7) Remove the file cabinet second drawer from the top, and set aside.

(8) Using the bracket (set aside) removed in step a.(l) as a template, mark the mounting hole locations as on file cabinet removed in step a.(3).

(9) Drill four (4) holes, as marked in step b.(8), with a 0.250 - 0.256 inch (1/4) drill.

(10) Install four (4) MS27130-25 rivet nuts into holes drilled in step b.(9).

(11) Position bracket on file cabinet, and secure with four (4) screws and washers, as removed in step a.(1).

(12) Remove all drilling chips, and install the file cabinet second drawer from top (set aside), as removed in step b.(7).

4-24. Fluorescent Lighting Fixtures, A1DS1 through A1DS54: Ballasts. (Refer to figure 4-2.)

WARNING

High voltage is present if step a.(1) is not performed. Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

a. Removal.

(1) Place circuit breaker no. 10 (for fixtures A1DS1 through A1DS27) or no. 12 (for fixtures A2DS28 through A1DS54) on power distribution box A1A5 in the OFF position.

(2) Remove two (2) screws and washers holding fixture lamp shield to shield stand-offs, and remove shield. Set shield aside.

WARNING

Fluorescent lamps contain gaseous elements. Use extreme care while handling.

NOTE

Pull lamp shield support to one side to remove locks.

(3) Remove two snap-on type locks, one at each end of the fixture, from lampholders, and set aside.

(4) Grasp the fluorescent lamp with both hands and turn slowly until the prongs at each end of the lamp enter the lampholder grooves. Pull lamp downward, and remove lamp. Set lamp aside.

(5) Remove two (2) screws and washers from each clip holding the fixture/raceway cover to the raceway, and remove clips. Set clips aside.

(6) Remove fixture/raceway cover assembly (pull down) from racewa y channel.

NOTE

If necessary, loosen screws on ballast clamps to accomplish lamp ballast removal.

(7) Remove two (2) screws and washers holding lamp ballast to ballast support, and remove ballast.

(8) Disconnect wires from defective lamp ballast. Label, if necessary.

(9) Note the part number SC-C-681185 of the lamp ballast removed in step a.(7).

b. Installation.

(1) Verify that the part number SC-C-681185 of the new lamp ballast to be installed is the same number as the one removed.

(2) Reconnect the wires to the lamp ballast as removed in step a.(8). Remove labels, if used.

(3) Place lamp ballast in position, and secure lamp ballast to ballast support with two (2) screws and washers as removed in step a.(7). Tighten screws on ballast clamps, if necessary.

(4) Align fixture/raceway cover assembly with raceway channel, and push upward to snap on raceway channel.

(5) Position each clip (set aside) around fixture/raceway cover, and secure to raceway channel clip with two (2) screws and washers as removed in step a.(5).

WARNING

Fluorescent lamps contain gaseous elements. Use extreme care when handling.

(6) Position the fluorescent lamp (set aside) into grooves of lampholders and turn slowly until the prongs at each end of the lamp are secured in position.

NOTE

Pull lamp shield support to one side to install locks.

(7) Position snap-on type lock (set aside) onto bottom of each lampholder as removed in step a.(3), and snap into place.

(8) Position fixture lamp shield (set aside) onto lamp shield stand-offs and secure with two (2) screws and washers as removed in step a.(2).

(9) Place circuit breaker no. 10 (fixtures A1DS1 through A1DS27) or no. 12 (fixtures A1DS28 through A1DS54) on power distribution box A1A5 in the ON position.

4-25. Fluorescent Lighting Fixtures, A1DS1 through A1DS54: Lampholders.
(Refer to figure 4-2.)

WARNING

High voltage is present if step a.(1) is not performed.

Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

a. Removal.

(1) Place circuit breaker no. 10 (for fixtures A1DS1 through A1DS27) or no. 12 (for fixtures A2DS28 through AlDS54) on power distribution box A1A5 in the OFF position.

(2) Remove two (2) screws and washers holding fixture lamp shield to shield stand-off, and remove fixture shield. Set shield aside.

WARNING

Fluorescent lamps contain gaseous elements. Use extreme care while handling.

(3) Remove two snap-on type locks, one at each end of the fixture, from lampholders, and set aside.

(4) Grasp the fluorescent lamp with both hands, and turn slowly until the prongs at each end of the lamp enter the lampholder grooves. Pull lamp downward, and remove lamp. Set lamp aside.

NOTE

If replacing lampholder with starter base, remove starter. To remove starter: push starter upward and turn to the left (counterclockwise), and pull downward. Set starter aside.

(5) Remove two (2) screws and nuts from each clip holding the fixture/ raceway cover to raceway, and remove clips. Set clips aside.

(6) Remove fixture/raceway cover assembly (pulldown) from raceway channel.

(7) Remove wires from faulty lampholder and label, if necessary.

(8) Remove screw, washer and nut holding cover and lamp shield stand-off to faulty lampholder, and remove lampholder.

(9) Note the part number of the lampholder or lampholder with starter base removed in step a.(7):

SC-C-681183	Lampholder with starter base
SC-C-681184	Lampholder

b. Installation.

(1) Verify that the part number of the new lampholder or lampholder with starter base to be installed is the same as the number removed:

SC-C-681183	Lampholder with starter base
SC-C-681184	Lampholder

(2) Place new lampholder through opening of cover and secure lamp shield stand-off and cover to lampholder with screw, washer and nut as removed in step a.(8).

(3) Reconnect the wires to the lampholder, as removed in step a.(7). Remove labels, if used.

(4) Align fixture/raceway cover assembly with raceway channel, and push upward to snap onto raceway channel.

(5) Position each clip (set aside) around fixture/raceway cover, and secure to raceway channel clip with two (2) screws and nuts as removed in step a.(5). Repeat for second cover clip at other end of cover.

NOTE

If lampholder with starter base was replaced, install starter. To install starter: position starter (set aside) into opening of cover; push upward, and turn to the right (clockwise) to secure into starter base.

WARNING

Fluorescent lamps contain gaseous elements. Use extreme care when handling.

(6) Position the fluorescent lamp (set aside) into grooves of lampholders, and turn slowly until the prongs at each end of the lamp are secured in position.

(7) Position snap-on type lock (set aside) onto bottom of each lampholder, and snap into place.

(8) Position fixture lamp shield (set aside) on shield stand-off and secure with two (2) screws and washers, as removed in step a.(2).

(9) Place circuit breaker no. 10 (for fixtures A1DS1 through A1DS27) or no. 12 (for fixtures A1DS28 through A1DS54) on power distribution box A1A5 in the ON position.

4-26. Fluorescent Lighting Assembly, Work Station. (Refer to figure 4-2.)

a. Removal.

(1) Remove fluorescent lighting assembly ac plug from wall connector.

(2) Remove three (3) screws, nine (9) washers and three (3) nuts holding fluorescent lighting assembly to work station vertical shelf support, and remove assembly.

(3) Note the part number WL-312 of the faulty fluorescent lighting assembly removed in step a.(2).

b. Installation.

(1) Verify that the part number WL-312 of the new assembly to be installed is the same as the one removed.

(2) Position new fluorescent lighting assembly on workstation vertical shelf support, and secure with three (3) screws, nine (9) washers and three (3) nuts, as removed in step a.(2).

(3) Insert fluorescent lighting assembly ac plug into wall connector.

4-27. Incandescent Lighting Fixtures, A1DS55 through A1DS68: Sockets. (Refer to figure 4-2.)

WARNING
High voltage is present if step a.(l) is not performed.

Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

a. Removal.

(1) Place circuit breaker no. 14 on power distribution box A1A5 in the OFF position.

(2) Remove two (2) screws and washers holding fixture lamp shield to shield standoffs, and remove shield. Set shield aside.

(3) Remove faulty socket lamp. Push lamp in, turn to the left (counterclockwise), pull away from socket, and remove lamp. Set lamp aside.

(4) Depress three (3) fingers of faulty socket, and push socket through opening of standoff.

(5) Remove two (2) screws and nuts from each clip holding the fixture/raceway cover to the raceway, and remove the clips. Set clips aside.

(6) Remove fixture/raceway cover assembly (pulldown) from raceway channel.

(7) Unwrap tape from the two (2) socket wire taps in raceway. Unsolder the wires from the feeder wire Label, if necessary.

(8) Feed the two (2) wires through grommet opening in cover, and remove faulty socket.

(9) Note the part number of the socket removed in step a.(8):

SC-C-681207	Socket, Lamp (Leecraft Mfg., 12-240)

b. Installation.

(1) Verify that the part number of the new socket to be installed is the same number as the one removed:

SC-C-681207	Socket, Lamp (Leecraft Mfg., 12-240)

(2) Feed the two (2) wires through grommet opening in the cover, as removed in step a.(8).

(3) Solder two (2) socket wires to the feeder wire in the raceway, as removed in step a.(9). Remove labels, if used. Wrap the wire tap with tape.

(4) Align fixture/raceway cover assembly with raceway channel, and push upward to snap onto raceway channel.

(5) Position each clip (set aside) around fixture/raceway cover and secure to raceway channel clip with two (2) screws and nuts as removed in step a.(5).

(6) Position socket in opening of standoff, and push inward until socket is secure.

(7) Position lamp (set aside) in socket, push in, and turn lamp to the right (clockwise) to secure.

(8) Position fixture lamp shield (set aside) to lamp shield standoffs, and secure with two (2) screws and washers, as removed in step a.(2).

(9) Place circuit breaker no. 14 on power distribution box A1A5 in the ON position.

4-28. Intercom LS-147F/F1. (Refer to figure 4-2.)

WARNING

High voltage is present if step a.(l) is not performed.

a. Removal.

(1) Remove intercom ac plug from the intercom wall connector.

(2) Disconnect wires to the intercom. Label, if necessary.

NOTE

Support the intercom when removing the mounting hardware.

(3) Remove eight (8) screws and sixteen (16) washers holding the intercom to the wall bracket. Remove the intercom.

(4) Note the part number NSN 5830-01-008-3126 of the intercom removed in step a.(3).

b. Installation.

(1) Verify that the part number NSN 5830-01-008-3126 of the new intercom to be installed is the same number as the one removed.

(2) Position intercom on wall bracket and secure with eight (8) screws and sixteen (16) washers as removed in step a.(3).

(3) Reconnect the wires to the intercom. Remove labels if used.

NOTE

The intercom SEND/OFF switch control should be in the OFF position.

(4) Insert intercom ac plug into intercom wall connector.

4-29. Microswitches A1S3, A1S4, A1S5, A1S8, A1S9, A1S12 and A1S13. (Refer to figure 4-2.)

WARNING

High voltage is present if step a.(1) is not performed. Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

a. Removal.

(1) Place circuit breaker no. 10 (for A1S3, A1S4 and A1S5), no. 12 (for A1S8 and A1S9) or no. 14 (for A1S12 and A1S13) on the power distribution box A1A5 in the OFF position.

(2) Remove the snap-on raceway cover to expose faulty microswitch.

(3) Remove locknut and washer holding faulty microswitch to raceway.

(4) Remove all wires from the faulty microswitc h (label, if necessary), and remove microswitch.

(5) Note the part number of the faulty microswitch removed in step a.(4):

SC-C-539501	Microswitch (Microswitch Co., BZ-2RQ181A2)

b. Installation.

(1) Verify that the part number of the new microswitch to be installed is the same number as the one removed:

SC-C-539501	Microswitch (Microswitch Co., BZ-2RQ181A2)

(2) Reconnect the wires to the microswitch, as removed in step a.(4). Remove labels, if used.

(3) Position microswitch through opening of raceway, and secure with washer and locknut, as removed in step a.(3).

(4) Position snap-on cover over raceway opening and press into place.

(5) Place circuit breaker no. 10 (for A1S3, A1S4 and AlS5), no. 9 (for A1S8 and A1S9) or no. 14 (for A1S12 and A1S13) on the power distribution box A1A5 in the ON position.

4-30. Oven (Refer to figure 4-2.)

WARNING
High voltage is present if step a.(l) is not performed.

a. Removal.

(1) Place circuit breaker no. 13 on power distribution box A1A5 in the OFF position.

(2) Remove oven cable P1 from oven convenience outlet J26.

(3) Remove two (2) screws and four (4) washers holding the stiffener to the wall mounts.

(4) Remove the four (4) nuts and eight (8) washers holding the stiffener to the oven. Remove stiffener, and set aside.

(5) Loosen the hose clamp and pull loose end of flexible hose away from vent/damper assembly.

(6) Remove sixteen (16) screws and thirty-two (32) washers holding the oven mounts to the cabinet top, and remove the oven with attached vent/damper assembly, thermostat and four (4) oven mounts.

(7) Note the part number B4008558 of the oven removed in step a.(6).

b. Installation.

(1) Verify that the part number B4008558 of the new oven to be installed is the same number as the one removed.

(2) Position oven with attached vent/damper assembly, thermostat and four oven mounts on the cabinet top, and secure oven mounts with the sixteen (16) screws and thirty-two (32) washers removed in step a.(6).

(3) Position stiffener (set aside) on top of oven, and attach loosely with four (4) nuts and eight (8) washers, as removed in step a.(4).

(4) Position vent/damper assembly on flexible hose and secure with hose clamp.

(5) Secure stiffener to wall mounts with two (2) screws and four (4) washers as removed in step a.(3). Tighten hardware left loose in step b.(3).

NOTE
Verify that the oven ON-OFF switch on front panel of oven is in the OFF position.

(5) Insert oven cable P1 into oven convenience outlet (J26).

(6) Place circuit breaker no. 13 on power distribution box AlA5 in the ON position.

4-31. Oven, Dual Thermostat Assembly.

a. Removal.

(1) Place the ON/OFF switch on the oven control panel in the OFF position.

(2) Remove the ac power cord from the OVEN convenience outlet.

(3) Remove the oven shelves and thermometer, and set aside.

(4) Remove the screws holding bottom diffuser panel, and remove panel. Set diffuser panel aside.

(5) Disconnect the heater from the bus bars, and lift the heater from the chamber.

(6) Remove the screws holding the control panel (top and bottom edges), and remove control panel.

(7) Disconnect the electrical leads to the thermostat assembly. Label, if necessary.

(8) Remove the control knob set screws, and remove the knob. Set aside set screws and control knob.

(9) Remove the screws holding the thermostat assembly to the control panel

(10) Remove the thermostat bulbs from the chamber by twisting the retaining clips.

(11) Note the part number (Precision Scientific (GCA), 247278) of the dual thermostat assembly removed in step a.(10).

b. Installation.

(1) Verify that the part number (Precision Scientific (GCA), 247278) of the new dual thermostat assembly is the same number as the one removed.

(2) Position thermostat bulbs in chamber, and secure by twisting the retaining clips.

(3) Position the thermostat assembly on the control panel, and secure with screws, as removed in step a.(9).

(4) Position the control knob (set aside) on the shaft, and install set screws (set aside). Tighten screws to secure knob on shaft.

(5) Connect the electrical leads to the thermostat assembly, as removed in step a.(7). Remove labels, if used.

(6) Position the control panel on oven, and secure with screws, as removed in step a.(6).

(7) Reconnect the heater to the bus bars.

(8) Position the diffuser panel (set aside) in oven, and secure with screws, as removed in step a.(4).

(9) Reinstall shelves and thermometer (set aside) in oven.

(10) Reconnect ac power cord to OVEN convenience outlet.

(11) Place the ON/OFF switch on the oven control panel in the ON position.

4-32. Oven, Heater Assembly.

a. Removal.

(1) Place the ON/OFF switch on the oven control panel in the OFF position.

(2) Remove the ac power cord from the OVEN convenience outlet.

(3) Remove the oven shelves and thermometer, and set aside.

(4) Remove the screws holding bottom diffuser panel, and remove panel. Set diffuser panel aside.

(5) Disconnect the heater from the bus bars, and lift the heater from the chamber.

NOTE

Do not allow the bus bars to slip down through the porcelain insulators. (Remove the control panel to push them back.)

(6) Note the part number (Precision Scientific (GCA), 247278) of the heater assembly removed in step a.(4).

b. Installation.

(1) Verify that the part number (Precision Scientific (GCA), 247278) of the new heater assembly to be installed is the same number as the one removed.

(2) Position the new heater assembly in the oven, and reconnect the bus bars, as removed in step a.(5).

(3) Position the diffuser panel (set aside) in oven, and secure with screws, as removed in step a.(4).

(4) Reinstall shelves and thermometer (set aside) in oven.

(5) Reconnect ac power cord to OVEN convenience outlet.

(6) Place the ON/OFF switch on the oven control panel in the ON position.

4-33. Switches (Toggle) A1S1, A1S2, A1S6, A1S7, A1S10 and A1S11. (Refer to figure 4-2.)

WARNING

High voltage is present if step a.(l) is not performed.

Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

a. Removal.

(1) Place circuit breaker no. 10 (for A1S1and A1S2), no. 12 (for A1S6 and A1S7) or no. 14 (for A1S10 and A1S11) on power distribution box A1A5 in the OFF position.

(2) Remove two (2) screws holding switch guard and switch cover to faulty toggle switch, and set aside.

(3) Remove two (2) screws holding faulty toggle switch to raceway.

(4) Remove all wires from the faulty toggle switch (label if necessary) and remove switch.

(5) Note the part number WS896-12-3A of the faulty toggle switch removed in step a.(4).

b. Installation.

(1) Verify that the part number WS896-12-3A of the new toggle switch to be installed is the same number as the one removed.

(2) Reconnect the wires to the toggle switch, as removed in step a.(4). Remove labels if used.

(3) Position toggle switch in opening of raceway and secure toggle switch to raceway with two (2) screws, as removed in step a.(3).

(4) Position switch cover and switch guard (set aside) over toggle switch, and secure with two (2) screws, as removed in step a.(2).

(5) Place circuit breaker no. 10 (for A1S1 and A1S2), no. 12 (for A1S6 and A1S7) or no. 14 (for A1S10 and A1S11) on power distribution box A1A5 in the ON position.

4-34. Telephone Set TA-312/PT. (Refer to figure 4-2.)

a. Removal.

(1) Disconnect the wires to the telephone. Label, if necessary.

(2) Loosen the wing nut holding the restraining bar. Pull forward and lower the bar.

(3) Remove the nutplate retaining screws.

(4) Slide the telephone far enough out of the mounting bracket to grasp the nutplate. Remove the nutplate and telephone.

(5) Note the part number NSN 5805-00-543-0012 of the telephone set removed in step a.(4).

b. Installation.

(1) Verify that the part number NSN 5805-00-543-0012 of the new telephone set to be installed is the same number as the one removed.

(2) Position nutplate in buzzer cavity on crank side of telephone. Holding nutplate in place, slide the telephone into the mounting bracket. Secure the nutplate with retaining screw, as removed in step a.(3).

(3) Raise the restraining bar and slide it into the positioning bracket.

(4) Push the bar against the telephone receiver and tighten the wing nut.

(5) Reconnect the wires to the telephone. Remove labels if used.

4-35. Thermostat A1A42 (for Air Conditioners A/C 1 and A/C 2.) (Refer to figure 4-2.)

WARNING

High voltage is present if step a.(1) is not performed.

Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

a. Removal.

(1) Place circuit breakers no. 1 and no. 2 on power distribution box A1A5 in the OFF position.

(2) Remove two (2) screws (top and bottom) holding thermostat cover, and pull cover away from assembly housing.

(3) Remove four (4) white wires and four (4) black wires from terminals on terminal blocks. Label, if necessary.

(4) Remove capillary tube from terminal block, and feed through hole at bottom of housing. Label, if necessary.

(5) Loosen screw on each clamp holding bulb, and remove bulb.

(6) Remove four (4) screws holding thermostat to housing, and remove thermostat.

(7) Note the part number of the thermostat removed in step a.(6):

A1A41	B4008422	Thermostat (Johnson Controls, A36AHB)

b. Installation.

(1) Verify that the part number of the new thermostat to be installed is the same number as the one removed:

A1A41	B4008422	Thermostat (Johnson Controls, A36AHB)

(2) Position the thermostat in the housing, and secure to housing with four (4) screws, as removed in step a.(6).

(3) Position bulb in clamps, and secure by tightening screw on each clamp.

(4) Feed capillary tube through hole at bottom of housing, and reconnect to terminal block. Remove label, is used.

(5) Reconnect four (4) white wires and four (4) black wires to the terminal block, as removed in step a.(3).

(6) Slide cover over housing, and secure with two (2) screws, as removed in step a.(2).

NOTE

Place one air conditioner at a time into operation. Allow the surge voltage to stabilize before starting the next.

(7) Place circuit breakers no. 1 and no. 2 (associated with air conditioners placed into operation) on the power distribution box A1A5 in the ON position.

4-36. Smoke Alarm. (Refer to figure 4-2).

a. Removal.

(1) Disconnect smoke alarm ac plug from convenience outlet.

(2) Loosen four (4) screws holding the four (4) clips to van wall. Turn each clip away from alarm.

(3) Turn smoke alarm counterclockwise and remove smoke alarm from mounting plate. If the mounting plate is damaged, proceed to step a.(4). Otherwise, proceed to step a.(5).

(4) Remove two (2) screws holding mounting plate to van wall, and remove mounting plate.

(5) Note the part number of the smoke alarm removed in step a.(2):

B4008757	Alarm, Smoke (Pyrotronics, FRU-3L)

b. Installation.

(1) Verify that the part number of the new smoke alarm to be installed is the same number as the one removed:

B4008757	Alarm, Smoke (Pyrotronics, FRU-3L)

NOTE

If mounting plate was removed in step a.(4), proceed to step b.(2). Otherwise, proceed to step b.(3).

(2) Position new mounting plate on van wall, and secure with two (2) screws as removed in step a.(4).

(3) Position new smoke alarm on mounting plate, and turn clockwise against the stop.

(4) Position the four (4) clips on van wall against the smoke alarm. Tighten the four (4) screws left loose in step a.(2), holding the four (4) clips to the van wall.

(5) Connect smoke alarm ac plug to convenience outlet. VERIFIER/TEST switch/indicator will be on.

(6) Press VERIFIER/TEST switch/indicator and audible alarm will sound.

CHAPTER 5

FUNCTIONING OF EQUIPMENT

5-1. General.

This chapter gives a functional description of the electrical system of the OA-8991/MSM electronic equipment repair facility (repair facility). The repair facility contains equipment for the repair and inspection of electronic assemblies and subassemblies. The electrical system provides filtering, control, and distribution of input power. A block diagram of the repair facility is shown in figure 5-1.

5-2. Input Power Control and Distribution (figures 5-1 and FO-1).

Input power enters the repair facility at power entrance box A1A1, and is applied to power distribution box A1A5 through line filters in A1A2 (filter box), main circuit breaker A1A3CB1 and voltage/current monitor meter box A1A4. The power distribution box provides on/off control and overload protection for the following equipment:

a. Air conditioners

b. Fluorescent lights

c. Incandescent lights

d. Convenience outlets, internal

e. Heater outlets, space, portable.

Refer to TM9-2330-363-14 for a description of the basic XM-991 van electrical system.

The repair facility ac power wiring diagram is provided in figure FO-2.

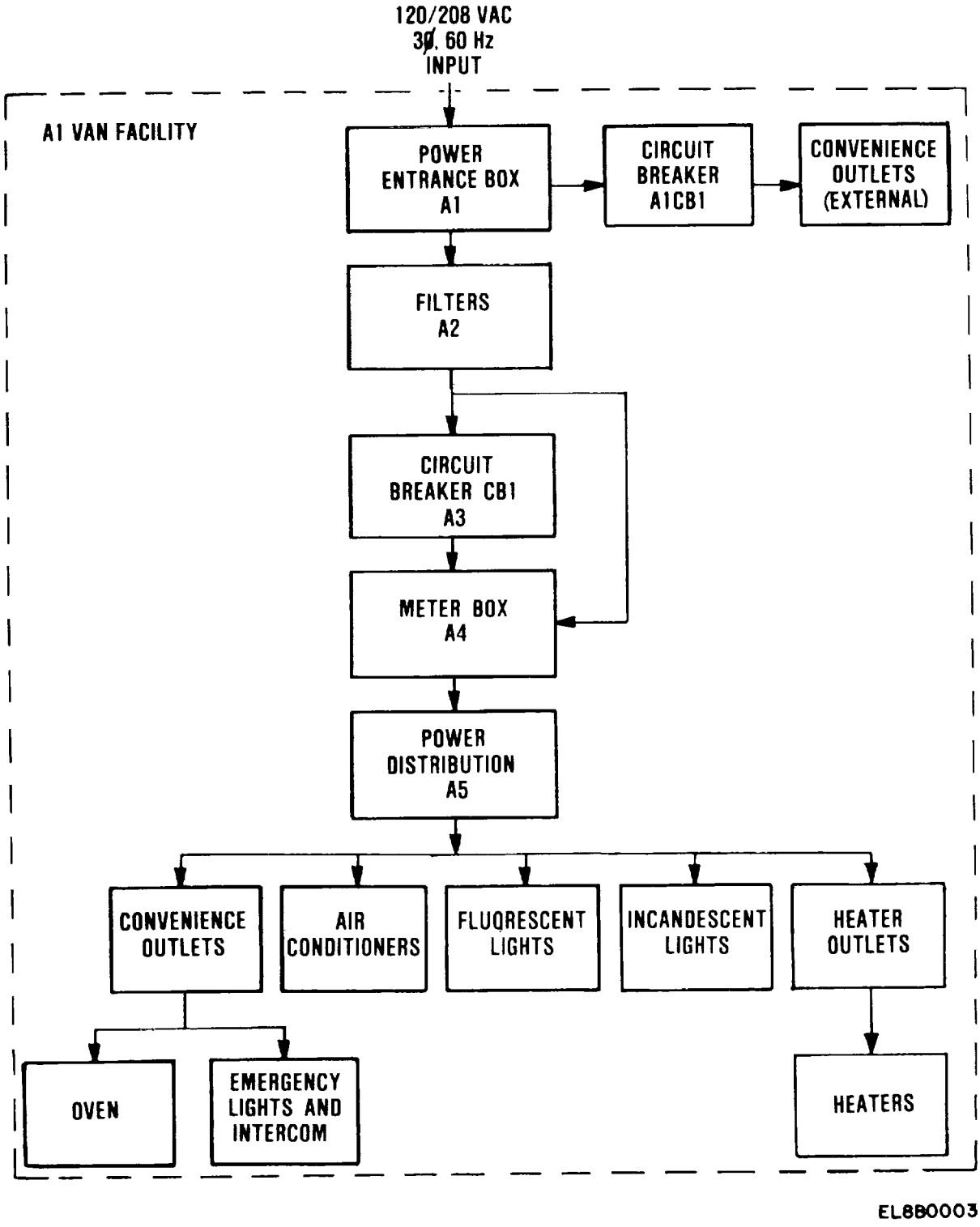


Figure 5-1. OA-8991/MSM Electronic Equipment Repair Facility Block Diagram

CHAPTER 6

DIRECT SUPPORT/GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

6-1. Scope.

This chapter contains instructions for direct support and general support maintenance of the OA-8991/MSM repair facility. It includes additional tools, test equipment, assembly removal and replacement procedures and illustrations, intercabling connector and assembly wiring lists and diagrams for the testing and repair or replacement of the facility assemblies and intercabling/wiring.

6-2. Removal and Replacement of Assemblies.

Procedures and illustrations are provided for the removal of a faulty assembly and the replacement of an operational assembly. These procedures contain step-by-step instructions for each unit or component that is replaced by direct support/general support maintenance personnel.

6-3. Continuity Testing.

A cable suspected of being faulty or damaged is checked for continuity of each cable wire between the connectors (or tie points). Assembly wiring is checked for continuity between termination points.

6-4. Wiring Lists and Diagrams.

Wiring between the pins of cable connectors (or tie points) and a diagram of the connector pin configuration is provided in this chapter. Wiring diagrams defining point-to-point wiring within the repair facility are provided at the back of this manual.

Section II. TOOLS, TEST EQUIPMENT AND ACCESSORIES

6-5. Tools and Test Equipment.

Tools and test equipment required for direct support maintenance of the repair facility are listed as follows:

	Item	Model/Part Number	Use
a.	Tool Kit	TK-101/G, 5180-00-064-5178	Repair
b.	Multimeter	AN/USM-451	Test

Section III. TROUBLESHOOTING

6-6. Scope.

This section contains cable assembly and wiring troubleshooting procedures and a listing of problems, probable causes and corrective actions for fault isolation of components/assemblies by direct support/general support (DS/GS) maintenance personnel.

6-7. Cable Assembly Troubleshooting Procedures.

Troubleshooting of the cables is accomplished by visual inspection and continuity testing. If a cable is suspected of being faulty or damaged, perform the following

a. Remove power from the unit. Place respective circuit breaker on power distribution box A1A5 in the OFF position.

b. If required, place the van facility MAIN circuit breaker on main breaker box A1A3 in the OFF position.

c. Inspect the connectors for bent or broken pins.

d. Perform a continuity test of the cable (paragraph 6-3). Refer to table 6-1 for a list of cable assemblies.

e. If test (step d.) indicates no continuity, inspect the connectors for broken wires.

f. Look for any signs of damage on cables.

g. Reconnect any broken wire or wires.

h. Check that connectors are inserted properly and tightly into sockets.

i. Place the van facility MAIN circuit breaker on main breaker box A1A3 (if turned-off in step b.) in the ON position.

j. Apply power to the unit. Place respective circuit breaker on the power distribution box A1A5 in the ON position.

Table 6-1. Cable Assembly Wiring List Table Cross Reference

Cable	Cable Assembly Part Number	Table	Page
AC Power (50 ft.)	SC-D-883963, GRP9-3	6-2	6-4
AC Power (25 ft.)	SC-D-883964, GRP9-2	6-3	6-6
Power Entrance Assembly, A1	B4008273	6-4	6-8
Air Conditioner	B4008378	6-5	6-10
Thermostat	B4008321	6-6	6-11
Oven	B4008585	6-7	6-12

Table 6-2. Cable (SC-D-883963, GRP9-3) Wiring, AC Power

From		To		Wire Size (AWG)	Wire Color	Notes
Connector	Pin	Connector	Pin			
(Socket)	A	(pin)	A	2	BLK	1,2
	B		B	2	RED	
	C		C	2	BLU	
	G1		G1	10	GRN	
	G2		G2	10	GRN	
	G3		G3	10	GRN	
	G4		G4	10	GRN	
(Socket)	N	(pin)	N	2	WHT	1,2

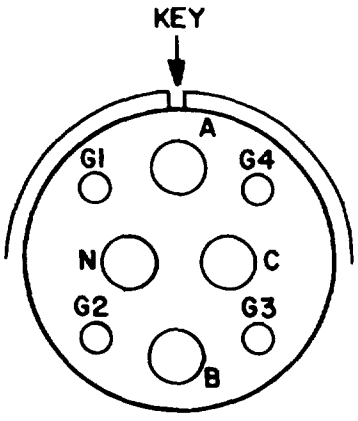
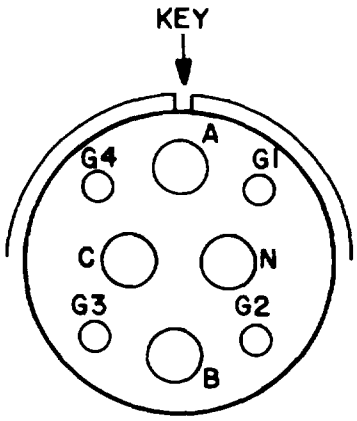
Connector (Socket) Pin Arrangement	Connector (Pin) Pin Arrangement
 MS90557C44412S	 MS90556C44412P

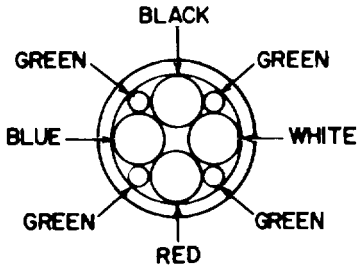
Table 6-2. Cable (SC-D-883963, GRP9-3) Wiring, AC Power - Continued

Notes:

1. Eight conductor cable; four AWG 2, four AWG 10

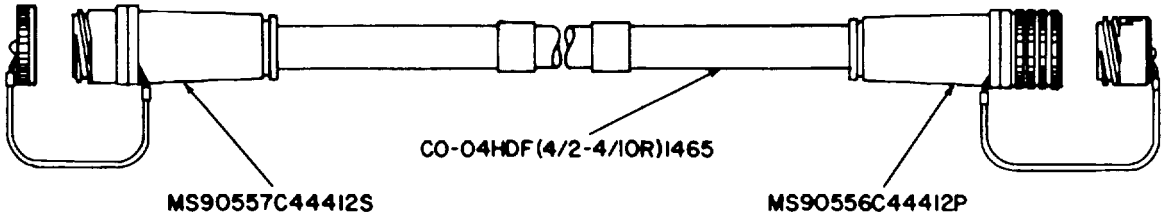
   (CO-04HDF (4/2-4/10R) 1465).

   a. Cross sectional conductor configuration of cable:



NOTE: PIN CONTACT END OF CABLE SHOWN.
SOCKET CONTACT END IS THE REVERSE.

   b. Cable configuration: (length, 50 feet)



2.a.

CRIMP TOOL DATA					
CONTACTS			CRIMPING TOOL MS25441	CRIMPING TOOL #400B PICO CRIMPING TOOL CO.	
	PIN	SOCKETS	DIE ASSEMBLY	LOCATOR	DIE ASSEMBLY
A,B,C N G1-2-3-4	MS90559-5 ↓ -6 ↓ -14	MS90560-3 ↓ -3 ↓ -8	MS3150-0 ↓	4297-3 ↓ -3 ↓ -6	414DA-1/ON ↓ -1/ON ↓ -6N

   or,

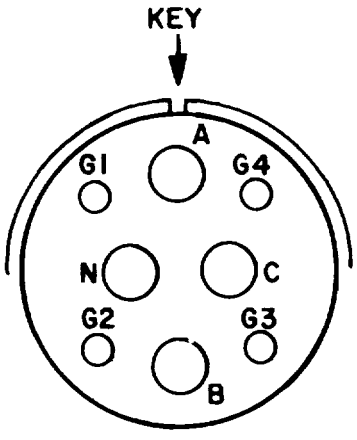
   b. Solder, QQ-S-571

Table 6-3. Cable (SC-D-883964, GRP9-2) Wiring, AC Power

From		To		Wire Size (AWG)	Wire Color	Notes
Connector	Pin	Connector	Pin			
(Socket)	A	(stripped wire)	L1	2	BLK	1,2
	B		L2	2	RED	
	C		L3	2	BLU	
	G1		GND	10	GRN	
	G2		GND	10	GRN	
	G3		GND	10	GRN	
	G4		GND	10	GRN	
(Socket)	N	(stripped wire)	LO	2	WHT	1,2

Connector (Socket)

Pin Arrangement



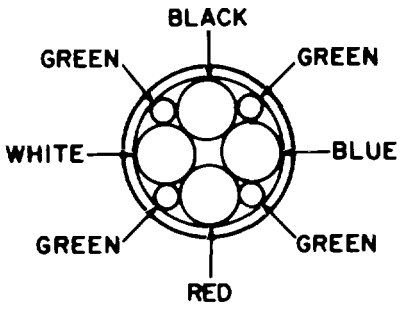
MS90557C44412S

Table 6-3. Cable (SC-D-883964, GRP9-2) Wiring, AC Power - Continued

Notes:

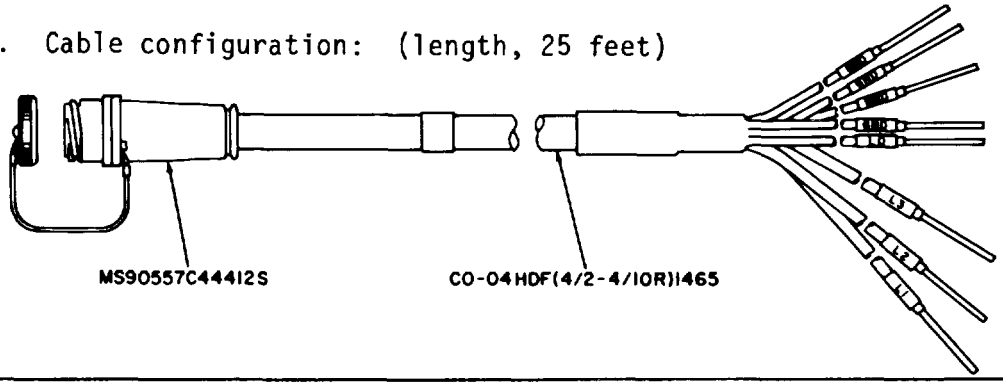
1. Eight conductor cable; four AWG 2, four AWG 10 (CO-04HDF(4/2-4/10R) 1465).

   a. Cross-sectional conductor configuration of cable:



NOTE: SOCKET CONTACT END OF CABLE SHOWN.

   b. Cable configuration: (length, 25 feet)



2.a.

CRIMP TOOL DATA				
CONTACTS		CRIMPING TOOL MS25441	CRIMPING TOOL #400B PICO CRIMPING TOOL CO.	
	SOCKETS	DIE ASSEMBLY	LOCATOR	DIE ASSEMBLY
A,B,C,N G1-2-3-4	MS90560-3 ▼ -8	MS3150-0	4297-3 4297-6	414DA-1/ON 414DA-6N

or,

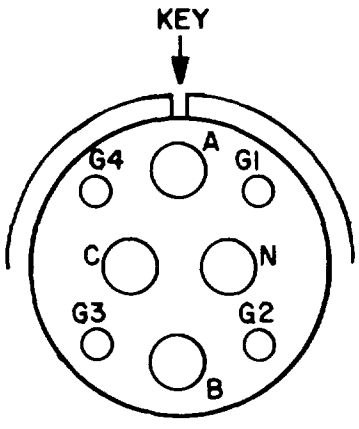
   b. Solder; QQ-S-571.

Table 6-4. Cable (B4008672) Wiring, Power Entrance Assembly, A1A1 (AC)

From		To		Wire Size (AWG)	Wire Color	Notes
Connector	Pin	Connector	Pin			
A1A1P1	A	(Stripped Wire)	(BLK)	1	BLK	1,2,9,10
	B		(RED)		BLK	3
	C		(BLU)		BLK	4
	N	(Stripped Wire)	(WHT)	1	BLK	1,5
	A	Term. Lug (A1CB1)	--	12	BLK	6
	G1	(A1E1)	--	6	GRN	7
	G2	(A1E1)	--		GRN	
	G3	(A1E1)	--		GRN	
	G4	(A1E1)	--	6	GRN	7
A1A1P1	N	Term. Lug (A1J2)	--	12	WHT	6, 9,10

Connector A1A1P1

Pin Arrangement



MS90558C44412P

Table 6-4. Cable (B4008672) Wiring, Power Entrance Assembly, A1A1 (AC) - Continued

Notes:

1. Single conductor wire, AWG 1 (B4008358 Alpha Wire .6116)
2. Sleeve, (1 inch) black (M23053/5-109-0) used over AWG 1 wire of 1, above.
3. Sleeve (1 inch), red (M23053/5-109-2) used over AWG 1 wire of 1, above.
4. Sleeve (1 inch), blue (M23053/5-109-6) used over AWG 1 wire of 1, above.
5. Sleeve (1 inch), white (M23053/5-109-9) used over AWG 1 wire of 1, above.
6. Single conductor wire, black, AWG 12 (MW-C12(65)U0); terminal lug (MS25036-156).
7. Single conductor wire, green, AWG 6 (MW-C6(133)U5); terminal lug (MS25036-116).
8. Single conductor wire, white, AWG 12 (MW-C12(65)U9; terminal lug (MS25036-156).
9. Solder; QQ-S-571, type R,Sn60.
10. Cable configuration:

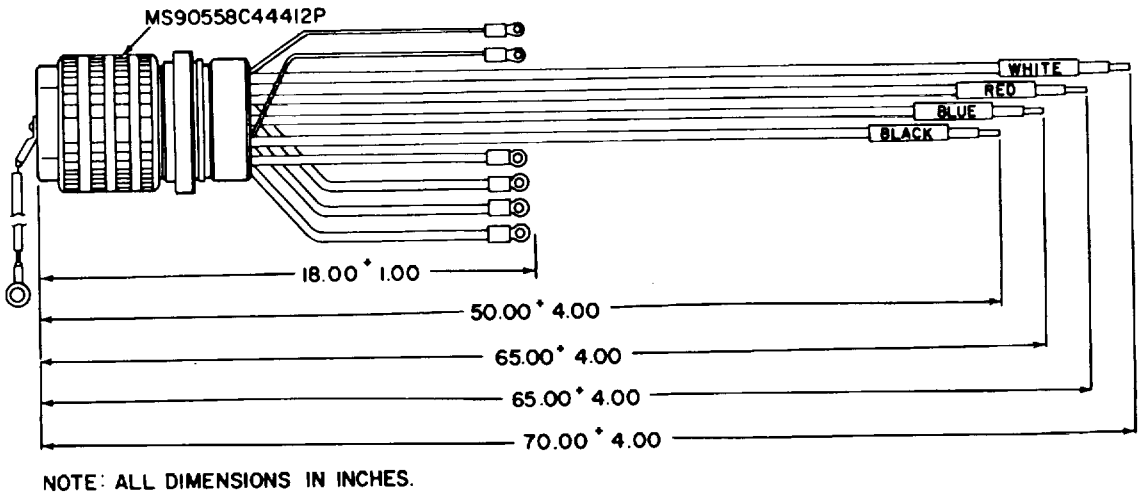
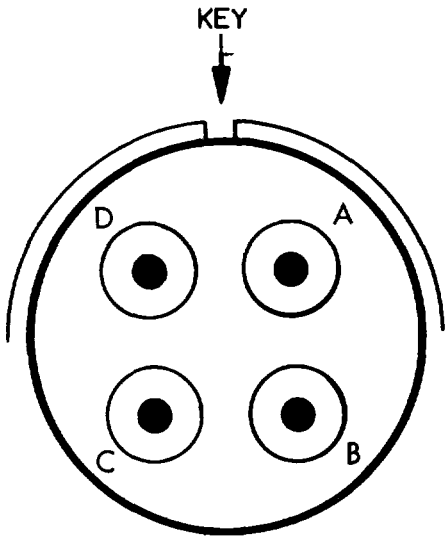


Table 6-5. Cable (B4008378) Wiring, Air Conditioner

From		To		Wire Size (AWG)	Wire Color	Notes
Connector	Pin	Connector	Pin			
A1P1/P2	A	Power Dist. Box	ØA	10	BLK	1,2,3
	B		ØB		RED	
	C		ØC		BLU	
A1P1/P2	D	Power Dist. Box	(E1) GND	10	GRN	1,2,3

Connector A1P1/P2

Pin Arrangement



MS3108R22-22S

Notes:

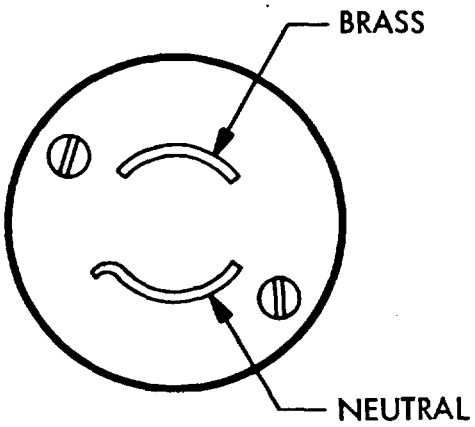
1. Soler (QQ-S-571).
2. Four conductor cable, AWG 10(CO-04HOF(4/10)0665).
3. Cable assembly spliced 36 inches from connector end. Conductors inside raceway connect cable to power distribution box (A1A5).

Table 6-6. Cable (B4008321) Wiring, Thermostat

From		To		Wire Size (AWG)	Wire Color	Notes
Connector	Pin	Connector	Pin			
AC Plug	BRASS	Terminal Lug (A/C)	D	14	BLK	1,2
AC Plug	NEUT	Terminal Lug (A/C)	E	14	WHT	1,2

Connector AC Plug

Pin Arrangement



W-C-596/20-1

Notes:

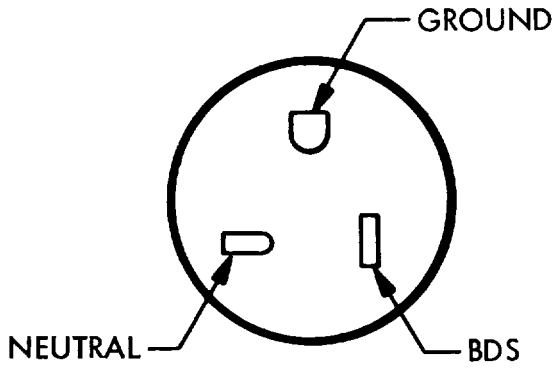
1. Terminal Lug (MS25036-115).
2. Two conductor cable, AWG 14(CO-02HOF(2/14)0400).

Table 6-7. Cable (B4008585) Wiring, Oven

From		To		Wire Size (AWG)	Wire Color	Notes
Connector	Pin	Connector	Pin			
AC Plug	BDS	Junction Box (oven)		12	BLK	1
	NEUT				WHT	
AC Plug	GND	Junction Box (oven)		12	GRN	1

Connector AC Plug

Pin Arrangement



W-C-596/42-2

Notes:

1. Three conductor cable, AWG 12(CO-03MGF(3/12)0500).

6-8. Wiring Troubleshooting Procedures.

Troubleshooting of the repair facility wiring is accomplished by visual inspection and point-to-point continuity testing. To perform a continuity check of a wire, perform the following procedures:

a. Perform a continuity test of the wire (paragraph 6-3). Refer to table 6-8 for a list of wiring diagrams.

b. If test (step a.) indicates no continuity, inspect the wire for damage and separation from terminal.

c. Reconnect wire if broken from terminal.

d. Replace any faulty or damaged wire.

e. Recheck continuity after performing step c. or d.

Table 6-8. Wiring Diagrams Cross Reference

Assembly	Part Number	Figure
Van Facility:		
AC Power Schematic Diagram	- -	FO-1
AC Power Wiring Diagram	- -	FO-2

6-9. Component/Assembly Troubleshooting.

Table 6-9 lists the most common problems that will be encountered during operation, in addition to those listed in chapter 4, which are provided for organizational maintenance personnel. Associated causes and corrective actions are given for each problem.

Table 6-9. Direct Support and General Support Component/Assembly Troubleshooting Procedures

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
1. No lights or Operational equipment.	a. Faulty filter(s) A1A2FL1, FL2, FL3 or FL4. b. Faulty primary input power.	a. Replace faulty filter. b. Connect backup primary input power source.
2. Air conditioner circuit breaker A1A5CB1 or CB2 trips and will not reset.	Faulty air conditioner.	Perform operational trouble-shooting of air conditioner as described in TM 5-4120-308-15.
3. Temperature not at setting on thermostat.	Faulty air conditioner(s)	Perform operational trouble-shooting of air conditioner as described in TM 5-4120-308-15.
4. No voltage or incorrect voltage reading on meter box voltmeter. Primary input power is correct.	Faulty voltmeter A1A4M1.	Replace voltmeter.
5. No voltage reading on meter box volt-meter at one or more VOLTMETER selector switch setting(s). Primary input power is correct.	Faulty VOLTMETER selector switch A1A4S1.	Replace VOLTMETER selector switch.
6. No ampere or incor-rect ampere reading on meter box ammeter. Primary input power is present and equipment is operational.	Faulty ammeter A1A4M2.	Replace ammeter.
7. No ampere reading on meter box ammeter at one or more AMMETER selector switch setting(s). Primary input power is present and equipment is operational.	a. Faulty AMMETER selector switch A1A4S2. b. Faulty current transformer(s) A1A4T1, T2, T3.	a. Replace AMMETER selector switch. b. Replace faulty current transformer(s).

Section IV. DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE

6-10. Scope.

This section contains instructions (and illustrations) for the removal and replacement of components/assemblies and repair of the facility cables and wiring by direct support and general support maintenance personnel for the repair facility OA-8991/MSM.

6-11. Removal and Replacement of Components/Assemblies.

The procedures referenced in this paragraph provide step-by-step instructions for the removal and installation of the following components/assemblies:

6-11.1 Air Conditioner, A/C1 and A/C2. (Refer to figure 6-1.)

WARNING

High voltage is present, and air conditioners are operating, if step a.(1) is not performed.

Insure circuit breaker is off, and apply a tag to deter accidental or unauthorized activation of power.

NOTE

Every reasonable effort should be made to repair malfunctioning air conditioner in place. Removing and replacing an air conditioner is to be done as an absolute last resort.

a. Removal.

(1) Place circuit breakers no. 1 (A/C1) or no. 2 (A/C2) on the power distribution box A1A5 in the OFF position.

(2) Disconnect connector of power cable assembly from faulty air conditioner A/C1 or A/C2.

(3) Disconnect faulty air conditioner A/C1 or A/C2 thermostat cable plug from interface connector on raceway. Turn plug to the left (counterclockwise), and pull out.

(4) Peel the sealing compound from around the outer edges of the mounting brackets on the outside wall of the van.

(5) With an appropriate lifting device, support the weight of the air conditioner.

(6) Remove four (4) screws, sixteen (16) washers and four (4) nuts, holding the top and bottom mounting brackets to the air conditioner right and left side angles. Set screws, washers and nuts aside.

CAUTION

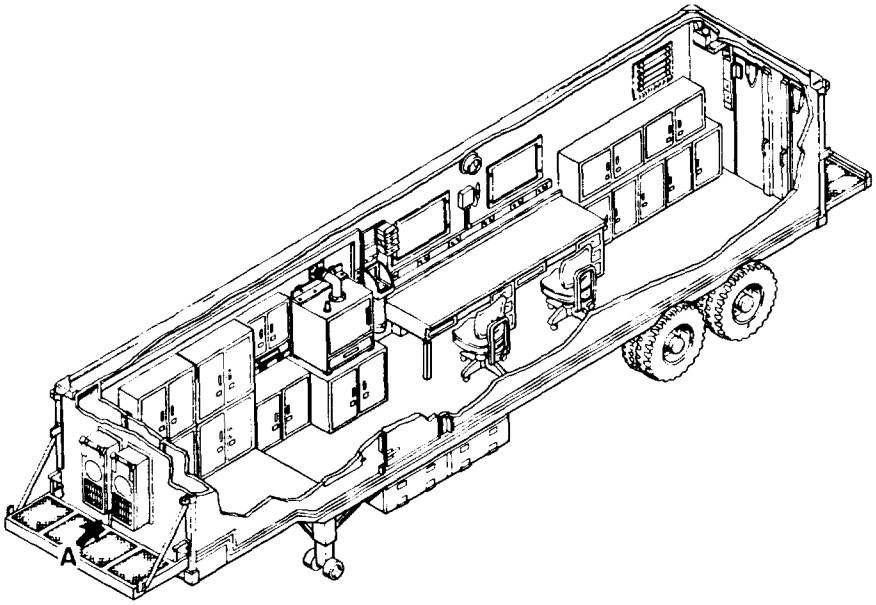
Do not damage the RFI gasket between the air conditioner side angle, top and bottom mounting brackets and the van.

(7) Remove three (3) screws and six (6) washers, holding the top mounting bracket to the van, and remove the bracket. Set bracket and hardware aside.

(8) Remove fourteen (14) screws and twenty-eight (28) washers holding the air conditioner's right and left angles to the repair facility van, and remove the air conditioner. Set screws, washers and nuts aside.

(9) Remove three (3) screws and six (6) washers holding the bottom mounting bracket to the repair facility van, and remove the bracket. Set bracket and hardware aside.

(10) Remove the van air conditioner opening cover B4008276 from the storage box under the van. Position the cover over the opening outside the van, and secure to the van using the hardware set aside in steps a.(7), a.(8) and a.(9).



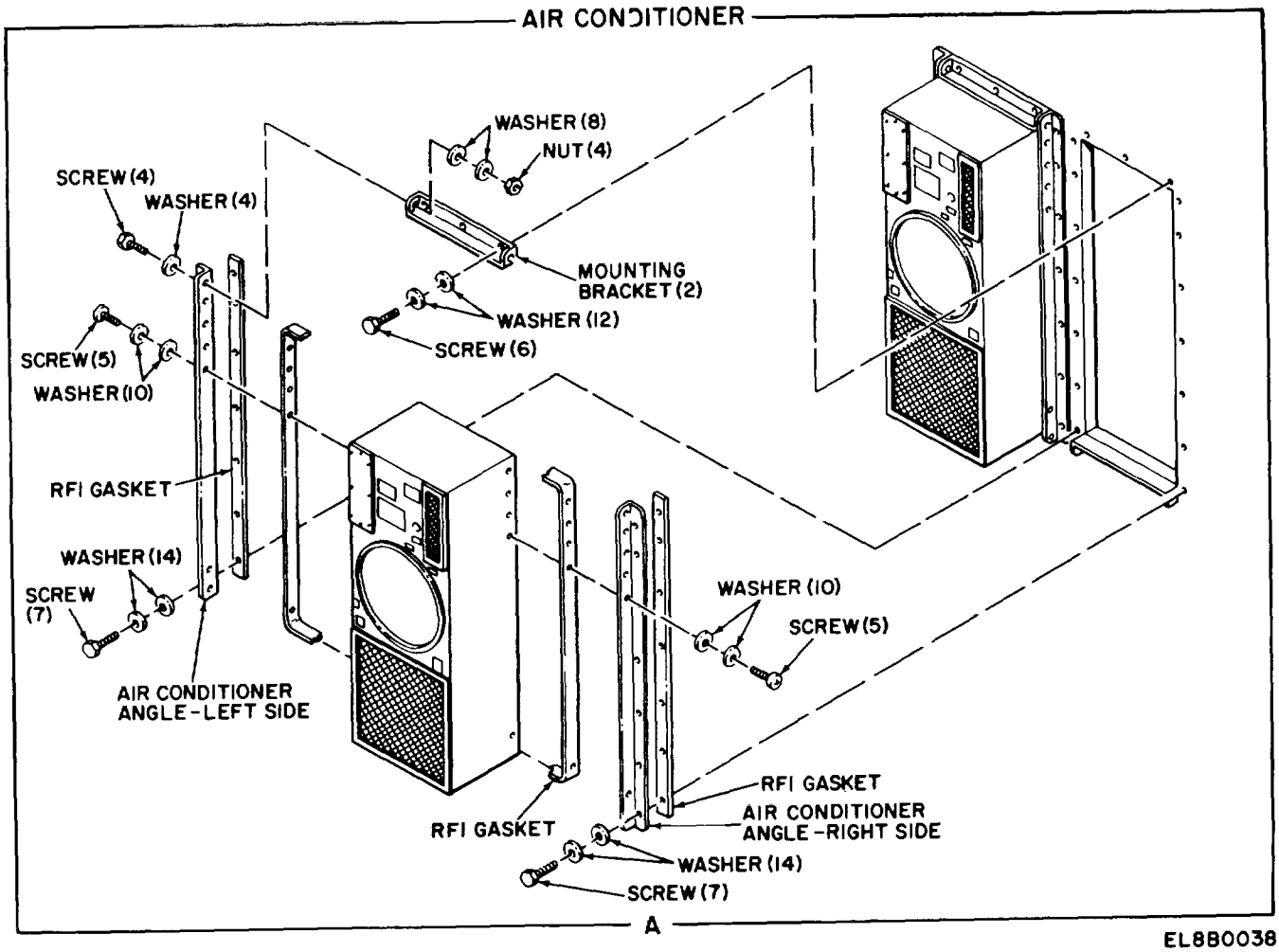


Figure 6-1. Removal and Installation of Direct Support and General Support Repair Facility Components/Assemblies (Sheet 1 of 4)

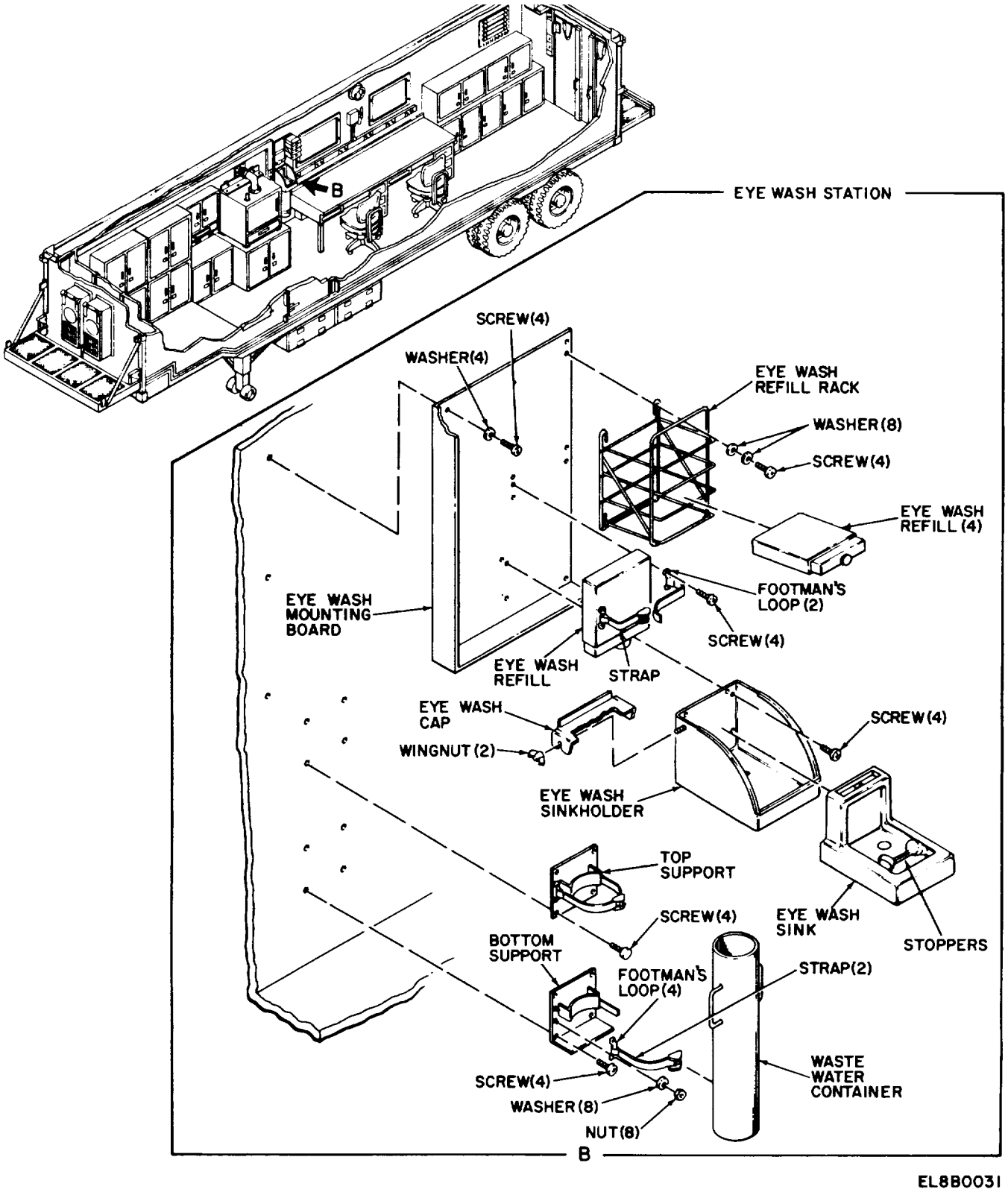


Figure 6-1. Removal and Installation of Direct Support and General Support Repair Facility Components/Assemblies (Sheet 2 of 4)

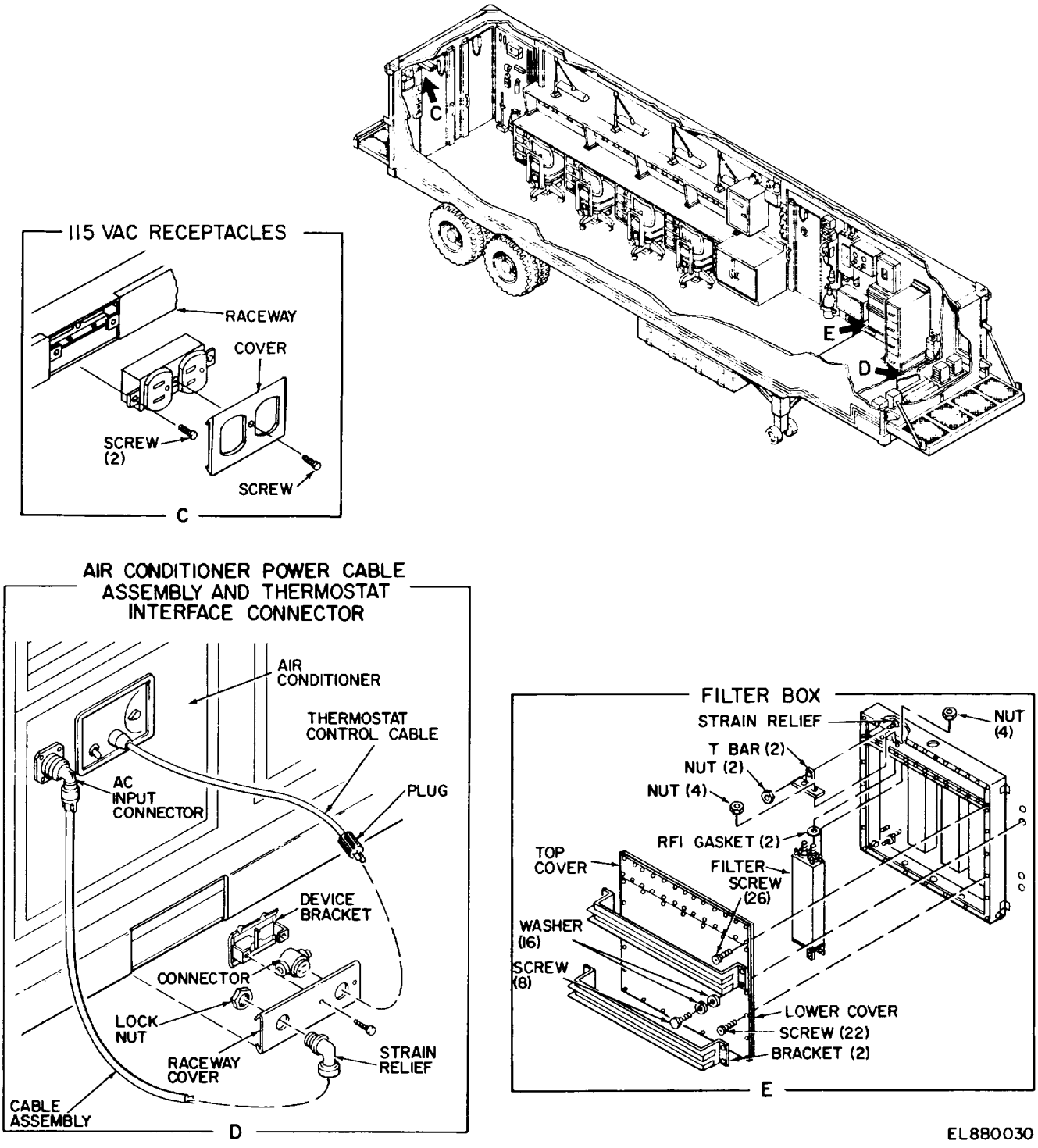


Figure 6-1. Removal and Installation of Direct Support and General Support Repair Facility Components/Assemblies (Sheet 3 of 4)

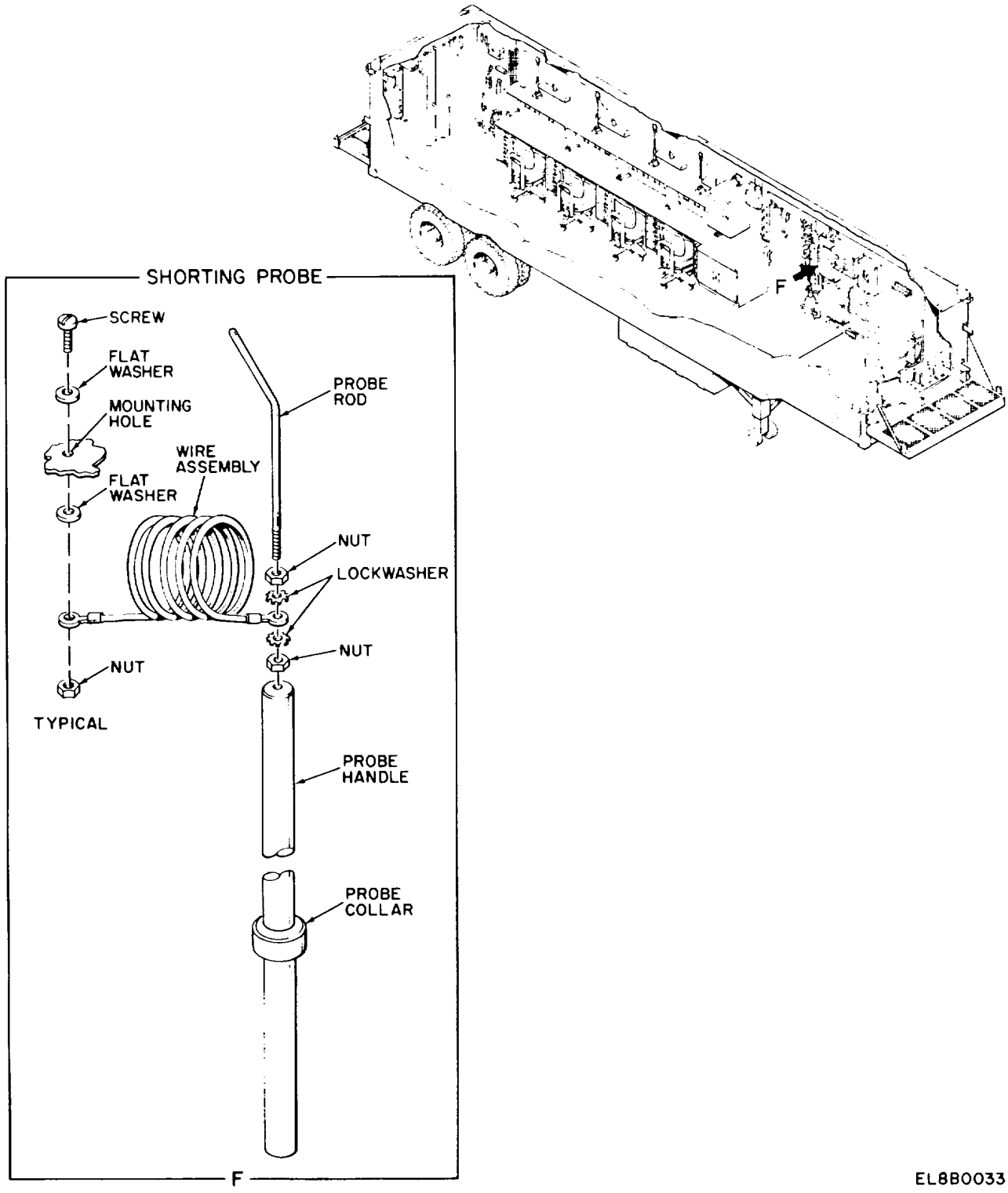


Figure 6-1. Removal and Installation of Direct Support and General Support Repair Facility Components/Assemblies (Sheet 4 of 4)

NOTE

Should opening covers not fit securely, any cracks should be sealed with pressure sensitive tape, putty or flexible foam strips.

(11) Remove five (5) screws and ten (10) washers holding each air conditioner angle to the side of the air conditioner, and remove the angles. Set the angles and hardware aside.

(12) Note the part number B4008506 of the air conditioner removed in step a.(8).

b. Installation.

CAUTION

The new air conditioner obtained in step b.(l) will not operate in the OA-8991/MSM repair facility if step b.(2) is not performed.

(1) Obtain a new air conditioner NSN4120-168-1781.

(2) Modify the new air conditioner in accordance with the instructions in Appendix F.

(3) Verify that the part number B4008506 of the new air conditioner to be installed is the same number as the one removed.

(4) Obtain new RFI gasket B4008128. Cut length of new RFI gasket to completely surround air conditioner where paint was removed, as shown in figure F-1. Cut holes in the gasket to match the mounting holes in the air conditioner.

(5) Peel the backing of the RFI gasket. Carefully position the RFI gasket on the air conditioner over the area where the paint was removed, as shown in figure F-1, and press in place.

NOTE

Peel off any old sealing compound from the air conditioner right and left angles and the top and bottom mounting brackets.

(6) Position air conditioner right side bracket on air conditioner, and secure with five (5) screws and ten (10) washers (set aside), as removed in step a.(11).

(7) Position air conditioner left side bracket on air conditioner, and secure with five (5) screws and ten (10) washers (set aside), as removed in step a.(11).

(8) Position and attach the top and bottom mounting brackets, removed in steps a.(7) and a.(9), to the side brackets with four (4) screws, sixteen (16) washers, and four (4) nuts (set aside), removed in step a.(6), finger tight.

(9) Remove twenty (20) screws and forty (40) washers holding the van air conditioner opening cover to the van, and remove cover. Set the screws and washers aside. Store the cover in the storage box under the van.

NOTE

Peel off any old sealing compound from the van surfaces.

NOTE

Remove the RFI gasket, if damaged, from the van surface. If installing a new RFI gasket on the van, proceed to step b.(10); otherwise proceed to step b.(12).

(10) Obtain new RFI gasket B4008128. Cut lengths of new RFI gasket the same as old gasket. Cut holes in the RFI gasket to match the mounting holes in the van.

(11) Peel the backing off the RFI gasket. Carefully position the RFI gasket on the van, and press in place.

(12) With an appropriate lifting device, lift the air conditioner into position on the van, and install fourteen (14) screws and twenty-eight (28) washers (set aside) removed in step b.(9), finger tight.

(13) Secure the top and bottom mounting brackets with the six (6) screws and twelve (12) washers (set aside) removed in step b.(9). Torque to 18-20 ft-lbs.

(14) Tighten the fourteen (14) screws, holding the side brackets to the van, left loose in step b.(12). Torque to 18-20 ft-lbs.

(15) Tighten the four (4) screws, sixteen (16) washers and four (4) nuts, holding the top and bottom brackets to the side brackets, left loose in step b.(8). Torque to 18-20 ft-lbs.

(16) Seal the edges of the mounting brackets to the van and air conditioner with a 3/16 inch bead of RTV sealing compound (MIL-A-46106, type I).

(17) Unzip the air conditioner cover. Roll up and store on top of the air conditioner.

NOTE

Circuit breakers no. 1 and 2 on the power distribution box A1A5 should be in the OFF position.

(18) Connect thermostat cable plug to interface connector on raceway. Insert plug into connector, and turn to the right (clockwise) to lock.

(19) Connect power cable assembly connector to air conditioner.

(20) Verify each air conditioner COOL/VENTILATE/OFF/LO HEAT/HI HEAT selector switch is set to OFF.

(21) Place circuit breakers no. 1 (A/C1) and no. 2 (A/C2) on the power distribution box A1A5 in the ON position.

6-12. Air Conditioner, A/C1 and A/C2: Power Cable Assembly. (Refer to figure 6-1.)

WARNING

High voltage is present if step a.(1) is not performed.

Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

a. Removal.

(1) Place circuit breaker no. 1 (A/C 1) or no. 2 (A/C 2) on the power distribution box A1A5 in the OFF position.

(2) Disconnect connector of faulty power cable assembly from air conditioner.

(3) Disconnect thermostat cable plug from interface connector on raceway. Turn plug to the left (counterclockwise) and pull out.

(4) Remove two (2) cover clips holding raceway cover to raceway, and remove cover. Set clips aside.

(5) Disconnect the four (4) wires of the faulty power input cable from the wire splice connections M7928/3-4 in the raceway. Label, if necessary.

(6) Remove the collar on strain relief 900 fitting, and pull through strain relief fitting. Remove bushing and collar from cable, and set aside.

(7) Note the part number B4008378 of the cable assembly removed in step a.(6).

b. Installation.

(1) Verify that the part number B4008378 of the new power cable assembly to be installed is the same as the one removed.

(2) Place the strain relief fitting collar and bushing (set aside) on new cable assembly. Insert the four (4) wires of the cable assembly and cable through the outside portion of the 900 strain relief fitting.

Allow sufficient length of cable on raceway channel side of cover. Install and tighten collar on fitting to secure cable.

(3) Connect the four (4) wires of the cable to the wire splice connections M7928/3-4 being careful to place on proper wires, as removed in step a.(5). Remove labels, if used.

(4) Position raceway cover over raceway, and secure with cover clips (set aside), as removed in step a.(4).

(5) Reconnect thermostat cable plug to interface connector on raceway. Insert plug into connector, and turn to the right (clockwise) to lock.

(6) Connect new power cable assembly connector to air conditioner.

(7) Place circuit breaker no. 1 (A/C 1) or no. 2 (A/C 2) (turned OFF in step a.(1)) in the ON position.

6-13. Connectors (115 Vac Receptacles) A1J1 through A1J30. (Refer to figure 6-1.)

WARNING

High voltage is present if step a.(1) is not performed.

Insure circuit breaker is off and apply a tag to deter accidental or unauthorized application of power.

a. Removal.

(1) Place circuit breaker no. 3 (for A1J1 through A1J3), no. 4 (for A1J4 through A1J6), no. 5 (for A1J7 through A1J9), no. 6 (for A1J10 through A1J12), no. 7 (for A1J13 through A1J15), no. 9 (A1J16 through A1J19), no. 10 (for A1J20 through A1J22), no. 11 (for A1J23 through A1J25), no. 13 (for A1J26) or no. 15, 17, 19, 21 (for J26 through J30, respectively) on power distribution box A1A5 in the OFF position.

(2) Remove screw holding receptacle cover to faulty connector (receptacle), and set aside.

(3) Remove two (2) screws holding faulty connector (receptacle) to raceway.

(4) Remove all wires from the faulty connector (receptacle), (label if necessary) and remove connector.

(5) Note the part number (see below) of the faulty connector (receptacle) removed in step a.(4).

A1J1 thru A1J25	WC-596/12-2	Connector, convenience
A1J26	WC-596/40-2	Connector, oven
A1J27 thru A1J30	WC-596/42-2	Connector, heater

b. Installation.

(1) Verify that the part number (see below) of the new connector (receptacle) to be installed is the same number as the one removed.

A1J1 thru A1J25	WC-596/12-2	Connector, convenience
A1J26	WC-596/40-2	Connector, oven
A1J27 thru A1J30	WC-596/42-2	Connector, heater

(2) Reconnect the wires to the connector (receptacle) as removed in step a.(4). Remove labels if used.

(3) Position connector (receptacle) in opening of raceway and secure connector to raceway with two (2) screws, as removed in step a.(3).

(4) Position receptacle cover (set aside) over connector (receptacle) and secure with screw, as removed in step a.(2).

(5) Place circuit breaker no. 3 (for A1J1 through A1J3), no. 4 (for A1J4 through A1J6), no. 5 (for A1J7 through A1J9), no. 6 (for A1J10 through A1J12), no. 7 (for A1J13 through A1J15), no. 9 (A1J16 through A1J19), no. 10 (for A1J20 through A1J22), no. 11 (for A1J23 through A1J25), no. 13 (for A1J26), or no. 15, 17, 19, 21 (for A1J27 through A1J30, respectively) on power distribution box A1A5 in the ON position.

6-14. Connectors A1J27 and A1J28 (Air Conditioners, A/C 1 and A/C 2, thermostat interface). (Refer to figure 6-1.)

WARNING

High voltage is present if step a.(1) is not performed.

Insure circuit breaker is off and apply a tag to deter accidental or unauthorized application of power.

a. Removal.

(1) Place circuit breaker no. 1 (A1J27) or no. 2 (A1J28) on power distribution box A1A5 in the OFF position.

(2) Disconnect a/c thermostat cable plug from faulty connector, Turn plug to the left (counterclockwise) and pull out.

(3) Remove two (2) cover clips holding raceway cover to raceway, and remove cover. Set clips aside.

(4) Remove two (2) screws holding device (connector) bracket to raceway cover, and set bracket aside.

(5) Remove wires from faulty connector (label if necessary), and remove connector.

(6) Note the part number WC596/19-1 of the connector removed in step a.(5).

b. Installation.

(1) Verify that the part number WC596/19-1 of the new connector to be installed is the same number as the one removed.

(2) Reconnect the wires to connector, as removed in step a.(5).

(3) Position connector and device (connector) bracket (set aside) on raceway cover, and secure device bracket to raceway cover with two (2) screws, as removed in step a.(4).

(4) Position raceway cover over raceway, and secure with cover clips (set aside), as removed in step a.(3).

(5) Connect a/c thermostat cable plug to replaced connector. Insert plug into connector, and turn to the right (clockwise) to lock.

(6) Place circuit breaker no. 1 (A1J27) or no. 2 (A1J28) on power distribution box A1A5 in the ON position.

6-15. Power Entrance Box A1A1 Cable Assembly. (Refer to figure 6-2.)

WARNING

High voltage is present if step a.(3) is not performed. Insure circuit breaker (switch) is off and apply a tag to deter accidental or unauthorized activation of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on the power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Place on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective covers on connector J1, of power entrance box A1A1, and connector of power input cable assembly.

(5) Remove forty-five (45) screws and washers holding the power entrance box cover, and remove cover.

(6) Remove eight (8) screws and washers holding the two (2) brackets of the filter box A1A2 to the wall of the van, and remove the brackets.

(7) Remove twenty-two (22) screws and washers holding the filter box cover, and remove cover.

(8) Remove thirty-six (36) screws and washers holding four (4) conduit assembly access covers (ten (10) screws and washers for three covers and six (6) screws and washers for one cover) located below the power entrance box A1A1 and filter box A1A2.

(9) Disconnect four (4) wires from filters (FL1-red, FL2-white, FL3-black, FL4-blue) in filter box A1A2.

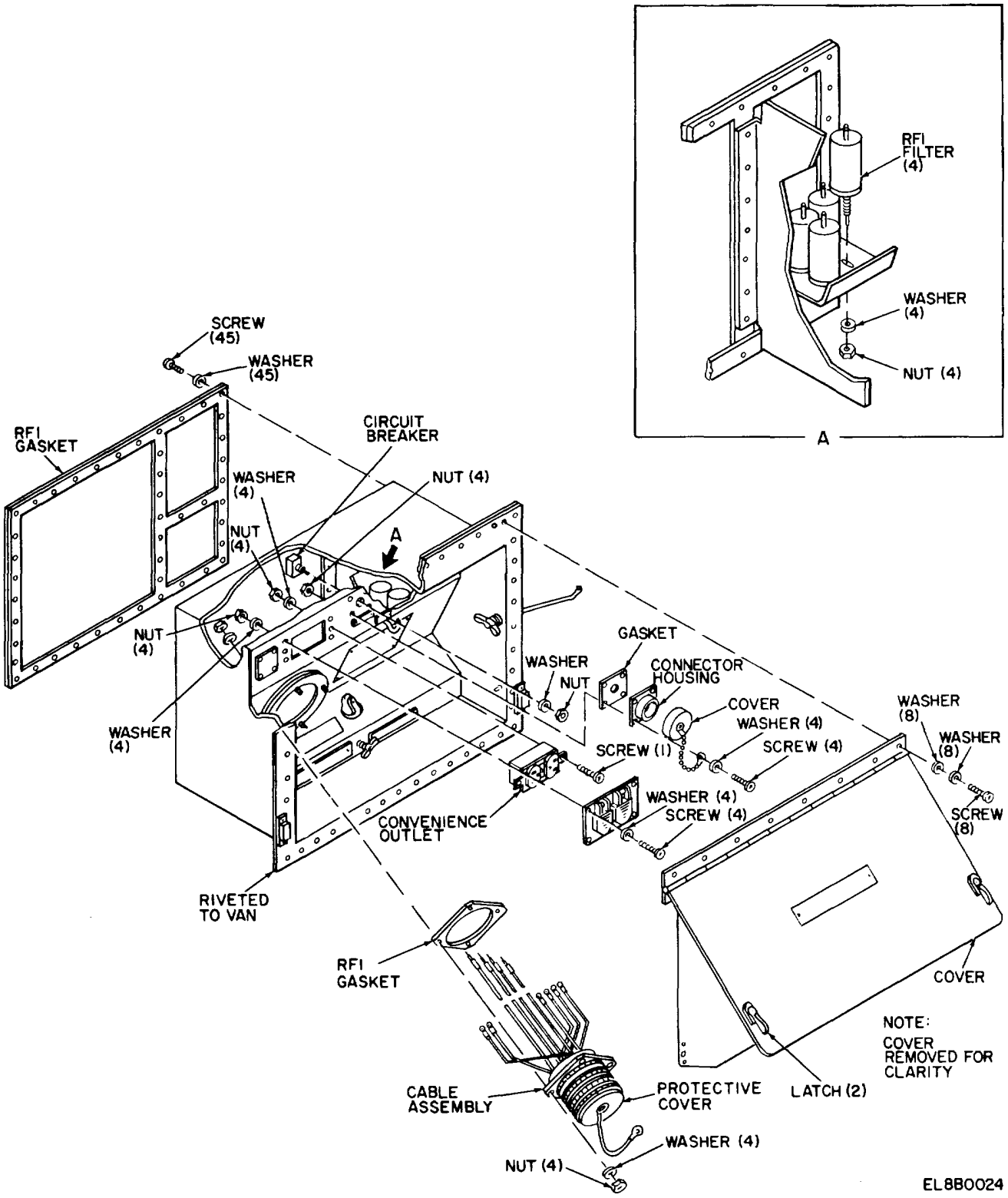


Figure 6-2. Removal and Installation of Power Entrance Box A1A1 Components

(10) Disconnect four (4) wires (green) between J1 and E1 (GND) in power entrance box A1A1.

(11) Disconnect one (1) wire (black) between J1 and circuit breaker CB1 in power entrance box A1A1. Note location of wire on circuit breaker.

(12) Disconnect one (1) wire (white) between J1 and convenience outlet J2 in power entrance box A1A1. Note location of wire as convenience outlet.

(13) Pull the four (4) disconnected wires, in filter box A1A2 through the conduit assembly, below the filter box, and into the power entrance box A1A1.

(14) Remove four (4) self-locking nuts and flat washers holding cable assembly connector J1, protective cover chain and RFI gasket. Remove cable assembly and RFI gasket. Set RFI gasket aside.

(15) Note the part number B4008672 of the cable assembly removed in step a.(14).

b. Installation.

(1) Verify that the part number B4008672 of the new cable assembly to be installed is the same number as the one removed.

(2) Place RFI gasket (set aside) over cable assembly wires and position next to connector J1.

(3) Outside of van, feed cable assembly wires through the opening in the power entrance box A1A1 and align cable assembly connector and RFI gasket holes with holes of power entrance box. Secure connector J1, gasket and connector protective cover chain with the four (4) self-locking nuts and flat washers, as removed in step a.(14).

(4) Feed the four (4) longest wires of cable assembly through the opening at the bottom of the power entrance box along the conduit assembly below the filter box and into filter box A1A2.

(5) Connect the wires of cable assembly to the filters in the filter box A1A2 as follows:

(a) red to FL1
(b) white to FL2
(c) black to FL3
(d) blue to FL4

(6) Position the four (4) covers on the conduit assembly, and secure with thirty-six (36) screws and washers (ten (10) screws and washers for three covers and six (6) screws and washers for one cover), as removed in step a.(8).

(7) Position cover on filter box and secure with twenty-two (22) screws and washers, as removed in step a.(7).

(8) Position brackets around the filter box A1A2 and secure with eight (8) screws and washers, as removed in step a.(6).

(9) Connect the white wire of cable assembly, to convenience outlet J2, as noted in step a.(12), in the power entrance box A1A1.

(10) Connect the black wire of cable assembly to circuit breaker CB1, as noted in step a.(11), in the power entrance box A1A1.

(11) Connect the four (4) green wires of cable assembly to E9 (GND) in the power entrance box A1A1.

(12) Position cover on power entrance box A1A1 and secure with forty-five (45) screws and washers, as removed in step a.(5).

(13) Outside of van, remove protective covers from connector J1 of power entrance box A1A1 and connector of power input cable assembly. Reconnect the power input cable to the power entrance box.

(14) Place on/off switch on the primary power switch box in the ON (up) position.

(15) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(16) Place circuit breakers numbers 3 through 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation allowing the surge voltage to stabilize before starting the next.

(17) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-16. Circuit Breaker A1A1CB1 (Power Entrance Box A1A1). (Refer to figure 6-2.)

WARNING

High voltage is present if step a.(3) is not performed. Insure circuit breaker (switch) is off and apply a tag to deter accidental or unauthorized activation of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Place on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective covers on connector J1 of power entrance box A1A1, and connector of power input cable assembly.

NOTE
Personnel required to perform steps a.(5) and a.(6) is two.

(5) Remove four (4) screws, washers and nuts holding housing connector, protective cover chain and gasket to power entrance box.

(6) Remove nut and washer holding circuit breaker A1A1CB1 to power entrance box.

(7) Remove forty-five (45) screws and washers holding the power entrance box cover, and remove cover.

(8) Remove the two (2) wires (black) from circuit breaker A1A1CB1 (label, if necessary), and remove circuit breaker.

(9) Note the part number MS25244-5 of the circuit breaker A1A1CB1 removed in step a.(8).

b. Installation.

(1) Verify that the part number MS25244-5 of the new circuit breaker A1A1CB1 to be installed is the same number as the one removed.

(2) Reconnect the two (2) wires (black) to circuit breaker A1A1CB1 as removed in step a.(8) (remove labels, if used), and position circuit breaker in opening of power entrance box.

NOTE
Personnel required to perform steps b.(3) and b.(4) is two.

(3) Secure circuit breaker A1A1CB1 with washer and nut, as removed in step a.(7).

(4) Secure connector housing gasket, and protective cover chain with four (4) screws, washers and nuts, as removed in step a.(5).

(5) Position cover on power entrance box A1A1 and secure with forty-five (45) screws and washers, as removed in step a.(7).

(6) Outside of van, remove protective covers from connector J1 of power entrance box A1A1, and connector of power input cable assembly. Reconnect the power input cable to the power entrance box A1A1.

(7) Place on/off switch on the primary power switch box in the ON (up) position.

(8) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(9) Place circuit breakers numbers 3 through 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation allowing the surge voltage to stabilize before starting the next.

(10) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-17. Convenience Outlet A1A1J2 (Power Entrance Box A1A1). (Refer to figure 6-2.)

WARNING

High voltage is present if step a.(3) is not performed.

Insure circuit breaker (switch) is off and apply a tag to deter accidental or unauthorized activation of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Place on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective covers on connector J1 of power entrance box A1A1, and connector of power input cable assembly.

(5) Remove forty-five (45) screws and washers holding the power entrance box cover, and remove cover.

(6) Remove the three (3) wires (white, black, and green) from the convenience outlet A1A1J2. Label, if necessary.

NOTE

Personnel required to perform steps a.(7) and a.(8) is two.

(7) Remove four (4) screws, eight (8) washers, and four (4) nuts holding the convenience outlet weatherproof cover to the power entrance box, and remove cover.

(8) Remove two (2) screws, washers and nuts holding the convenience outlet A1A1J2 to the power entrance box, and remove outlet.

(9) Note the part number WC-596/12-2 of the convenience outlet removed in step a.(8).

b. Installation.

(1) Verify that the part number WC-596/12-2 of the new outlet to be installed is the same number as the one removed.

NOTE

Personnel required to perform steps b.(2) and b.(3) is two.

(2) Position the new outlet in the opening of the power entrance box, and secure with the two (2) screws, washers and nuts, as removed in step a.(8).

(3) Position weatherproof cover over convenience outlet and secure with four (4) screws, eight (8) washers, and four (4) nuts, as removed in step a.(7).

(4) Reconnect the three (3) wires (white, black and green) to the convenience outlet, as removed in step a.(6). Remove labels, if used.

(5) Position cover on power entrance box and secure with forty-five (45) screws and washers, as removed in step a.(5).

(6) Outside of van, remove protective covers of connector J1 from power entrance box A1A1 and connector of power input cable assembly. Reconnect the power input cable to the power entrance box.

(7) Place on/off switch on the primary power switch box in the ON (up) position.

(8) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(9) Place circuit breakers no. 3 through no. 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation allowing the surge voltage to stabilize before starting the next.

(10) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-18. Filters (RFI) A1A1FL1 through A1A1FL4 (Power Entrance Box A1A1). (Refer to figure 6-2.)

WARNING

High voltage is present if step a.(3) is not performed. Insure circuit breaker (switch) is off and apply a tag to deter accidental or unauthorized activation of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Place on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective covers on connector J1 of power entrance box A1A1, and connector of power input cable assembly.

(5) Remove forty-five (45) screws and washers holding the power entrance box cover, and remove cover.

(6) Remove the two (2) wires from faulty filter. Label, if necessary.

(7) Remove the nut and flat washer holding faulty filter to power entrance box, and remove filter.

(8) Note the part number of the faulty filter removed in step a.(7):

A1A1FL1 thru A1A1FL4	B4008454	Filter, RFI (Impedance, 300 ohms) (Sprague Electric, JW17-1122)

b. Installation.

(1) Verify that the part number of the new filter to be installed is the same number as the one removed:

A1A1FL1 thru A1A1FL4	B4008454	Filter, RFI (Impedance, 300 ohms) (Sprague Electric, JW17-1122)

(2) Position new filter in the opening and of the power entrance box and secure with flat washer and nut, as removed in step a.(7).

(3) Reconnect the two (2) wires to the filter as removed in step a.(6). Remove labels if used.

(4) Position cover of power entrance box A1A1 and secure with the forty-five (45) screws and washers, as removed in step a.(5).

(5) Outside of van, remove protective covers of connector J1 from power entrance box A1A1, and connector of power input cable assembly. Reconnect the power input cable to the power entrance box.

(6) Place the power output on/off switch on the primary power AN/MJQ-12A switch box in the ON (up) position.

(7) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(8) Place circuit breakers no. 3 through no. 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation, allowing the surge voltage to stabilize before starting the next.

(9) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-19. Filter Box A1A2: Line Filter (RFI) A1A2FL1 through A1A2FL4. (Refer to figure 6-1.)

WARNING

High voltage is present if step a.(3) is not performed. Insure circuit breaker is off and apply a tag to deter accidental or unauthorized activation of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Place the on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) From outside of van, remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective covers on connector J1, of power entrance box A1A1, and connector of power input cable assembly.

(5) Remove eight (8) screws and washers holding the two (2) brackets of the filter box A1A2 to the wall of the van, and remove brackets.

(6) Remove twenty-two (22) screws holding the lower section cover of the filter box, and remove cover. Set cover aside.

(7) Remove twenty-six (26) screws holding the top section cover of the filter box, and remove cover. Set cover aside.

(8) Disconnect wire from top of filter. Label, if necessary.

(9) Disconnect wire from bottom of filter. Label, if necessary.

(10) Remove the nut holding the T-bar to the strain relief post (attached to filter box cabinet) at the top and bottom of filter.

(11) Remove two (2) nuts holding bottom of filter to filter box cabinet.

(12) Remove the two (2) nuts holding the T-bar to the top filter terminals, and remove T-bar. Set T-bar aside.

(13) Remove four (4) nuts holding top of filter to plate separating the upper and lower cabinet sections, and remove filter. Remove two (2) top RFI gaskets and bottom T-bar from filter terminals, and set aside.

(14) Note the part number of the filter removed in step (13).

b. Installation.

(1) Verify that the part number Hopkins Engineering, F-3569 of the new filter to be installed is the same number as the one removed.

(2) Position T-bar (set aside) on bottom filter terminals, and secure with two (2) nuts, as removed in step a.(13).

(3) Install two (2) RFI gaskets (set aside) around the top filter terminal insulators. Position new filter in filter box cabinet, and secure top of filter with four (4) nuts, as removed in step a.(13).

(4) Secure bottom of filter with two (2) nuts, as removed in step a.(11).

(5) Position the other T-bar (set aside) on top filter terminals, and secure with two (2) nuts, as removed in step a.(12).

(6) Secure the top and bottom filter T-bar to the strain relief post with two (2) nuts, as removed in step a.(10).

(7) Reconnect wire to bottom of filter, as removed in step a.(9).

(8) Reconnect wire to top of filter, as removed in step a.(8).

(9) Place top section of filter box cover in position and secure with twenty-six (26) screws, as removed in step a.(7).

(10) Place bottom section of filter box cover in position and secure with twenty-two (22) screws, as removed in step a.(6).

(11) Position brackets around the filter box A1A2 and secure with eight (8) screws and washers, as removed in step a.(5).

(12) From outside of van, remove protective covers from connector J1 of power entrance box A1A1 and connector of power input cable assembly. Reconnect the power input cable to the power entrance box.

(13) Place on/off switch on the primary power switch box in the ON (up) position.

(14) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(15) Place circuit breakers no. 3 through no. 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation allowing the surge voltage to stabilize before starting the next.

(16) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-20. Phase Sequence Indicator AlA4DS1 (Meter Box A1A4). (Refer to figure 6-3.)

WARNING

High voltage is present if step a.(3) is not performed.

Insure circuit breaker switch is off and apply a tag to deter accidental or unauthorized application of power.

NOTE

A portable light source is required after the main power has been disconnected.

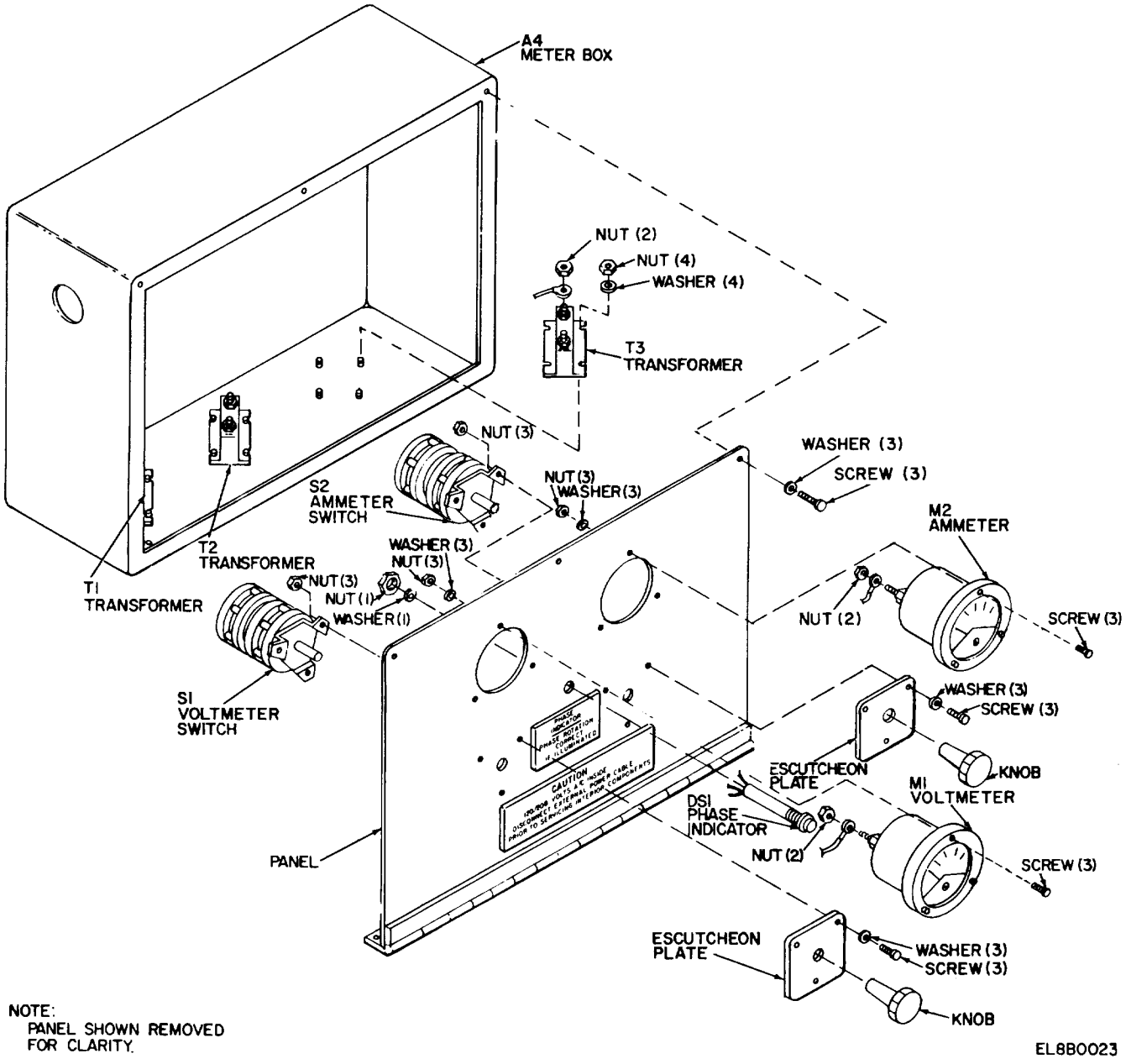


Figure 6-3. Removal and Installation of Meter Box A1A4 Components

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Place the on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective cover on connector J1 of power entrance box A1A1 and connector of power input cable assembly.

(5) Remove three (3) screws and washers holding the panel to the meter box A1A4 and lower the panel.

(6) Disconnect the red, yellow and blue phase indicator A1A4DS1 wires from the terminals of voltmeter switch A1A4S1. Label the switch terminals noting the indicator wire color.

(7) Remove the nut and washer holding the phase indicator to the panel, and remove the indicator.

(8) Note the part number of the faulty phase indicator removed in step a.(7):

A1A4DS1	B4008122	Indicator (Applied Electro Technology, 2A-5D5)

b. Installation.

(1) Verify that the part number (see below) of the new phase sequence indicator-to be installed is the same number as the one removed.

A1A4DS1	B4008122	Indicator (Applied Electro Technology, 2A-5D5)

(2) Position the phase indicator in the opening in the panel and secure with the nut and washer, as removed in step a.(7).

(3) Attach terminal (part number MS25036-112) to each wire of the phase indicator.

(4) Connect the phase indicator wires to the terminals of the voltmeter switch A1A4S1. Connect the red wire to S1-22, yellow wire to S1-23, and the blue wire to Sl-24. Remove labels if used.

(5) Raise the panel and secure with three (3) screws and washers, as removed in step a.(5).

(6) Outside of van, remove protective cover from connector J1, of power entrance box A1A1, and connector of power input cable assembly. Reconnect the power input cable to power entrance box A1A1.

(7) Place the power output on/off switches on the primary/power switch box in the ON (up) position.

(8) Place MAIN circuit breaker on main circuit breaker box A1A3 in the ON (up) position.

(9) Place circuit breakers no. 3 through no. 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation, allowing the surge voltage to stabilize for one before starting the next.

(10) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-21. Voltmeter A1A4M1 and Ammeter A1A4M2 (Meter Box A1A4).
(Refer to figure 6-3.)

WARNING

High voltage is present if step a.(3) is not performed.

Insure circuit breaker (switch) is off and apply a tag to deter accidental or unauthorized application of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position,

(3) Place on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective cover on connector J1, of power entrance box A1A1 and connector of power input cable assembly.

(5) Remove three (3) screws and washers holding the panel to the meter box A1A4, and lower the panel.

(6) Remove two (2) nuts holding the wires to the faulty meter, and remove the wires. Label, if necessary.

(7) Remove three (3) screws holding the faulty meter to the panel, and remove the meter.

(8) Note the part number of the faulty meter removed in step a.(7):

A1A4M1	MR36W300ACWR	Voltmeter
A1A4M2	MR36W200ACARR	Ammeter

b. Installation.

(1) Verify that the part number of the new meter to be installed is the same number as the one removed:

A1A4M1	MR36W300ACWR	Voltmeter
A1A4M2	MR36W200ACAAR	Ammeter

(2) Position the meter in the opening in the panel and secure with three (3) screws as removed in step a.(7).

(3) Reconnect the wires to the meter with two (2) nuts, as removed in step a.(6). Remove labels, if used.

(4) Raise the panel and secure with three (3) screws and washers, as removed in step a.(5).

(5) Outside of van, remove protective cover from connector J1, of power entrance box A1A1, and connector of power input cable assembly. Reconnect the power input cable to power entrance box A1A1.

(6) Place on/off switch on the primary power switch box in the ON (up) position.

(7) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(8) Place circuit breakers no. 3 through no. 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation allowing the surge voltage to stabilize for one before starting the next.

(9) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-22. Voltmeter Switch A1A4S1 and Ammeter Switch AlA4S2 (Meter Box A1A4). (Refer to figure 6-3.)

WARNING

High voltage is present if step a.(3) is not performed. Insure circuit breaker (switch) is off and apply a tag to deter accidental or unauthorized application of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main circuit breaker box A1A3 in the OFF (down) position.

(3) Place on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective cover on connector J1 of power entrance box A1A1 and connector of power input cable assembly.

(5) Remove three (3) screws and washers holding the panel to the meter box A1A4, and lower the panel.

(6) Disconnect the wires from the faulty switch. Label if necessary.

(7) Pull the switch knob from the faulty switch, and set aside.

(8) Remove three (3) screws, washers and nuts holding the escutcheon plate and faulty switch to the panel. Remove the escutcheon plate and the switch. Set escutcheon plate aside.

(9) Note the part number of the faulty switch removed in step a.(8):

A1A4S1	B4008223	Switch, Rotary (Electro Switch, 2405H)
A1A4S2	B4008224	Switch, Rotary (Electro Switch, 2410H)

b. Installation.

(1) Verify that the new part number of the new switch to be installed is the same number as the one removed:

A1A4S1	B4008223	Switch, Rotary (Electro Switch, 2405H)
A1A4S2	B4008224	Switch, Rotary (Electro Switch, 2410H)

(2) Position the switch on the panel, and slide the escutcheon plate (set aside) onto the switch shaft.

(3) Secure the switch and escutcheon plate to the panel with three

(3) screws, washers and nuts, as removed in step a.(8).

(4) Push the knob (set aside) onto the switch shaft.

(5) Reconnect the wires to the switch, as removed in step a.(6). Remove labels, if used.

(6) Raise the panel and secure with three (3) screws and washers, as removed in step a.(5).

(7) Outside of van, remove protective cover from connector J1, of power entrance box A1A1 and connector of power input cable assembly. Reconnect the power input cable to the power entrance box A1A1.

(8) Place on/off switch on the primary power switch box in the ON (up) position.

(9) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(10) Place circuit breakers numbers 3 through no. 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation allowing the surge voltage to stabilize for one before starting the next.

(11) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-23. Transformers A1A4Tl, A1A4T2, and A1A4T3 (Meter Box A1A4). (Refer to figure 6-3.)

WARNING

High voltage is present if step a.(3) is not performed.

Insure circuit breaker (switch) is off and apply a tag to deter accidental or unauthorized application of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on the power distribution box A1A5 in the OFF position.

(2) Place MAIN circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Place on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective cover on connector J1 of power entrance box A1A1 and connector of power input cable assembly.

(5) Remove six (6) screws holding the panel to the main breaker box A1A3, and remove the panel.

(6) Remove three (3) screws and washer holding the panel to the meter box A1A4, and lower the panel.

(7) Remove two (2) nuts holding the wires to the faulty transformer, and remove the wires. Label, if necessary.

(8) Disconnect the wire from circuit breaker CB1 in the main breaker box (A1A3) corresponding to the transformer being removed. Carefully pull the wire into the meter box A1A4.

(9) Remove four (4) nuts and washers holding the faulty transformer to the meter box A1A4. Slide the transformer from the wire.

(10) Note the part number of the faulty transformer removed in step a.(9):

A1A4T1 thru A1A4T3	B4008227	Transformer, Current (Crompton Instrument, 802-943-U-RLLS)

b. Installation.

(1) Verify that the part number of the new transformer to be installed is the same number as the one removed:

A1A4T1 thru A1A4T3	B4008227	Transformer, Current (Crompton Instrument 802-943-U-RLLS)

(2) Slide the transformer over the end of the loose wire.

(3) Position the transformer in the meter box A1A4 and secure with four (4) nuts and washers, as removed in step a.(9).

(4) Push the wire through the meter box side wall opening into the main breaker box A1A3.

(5) Reconnect the wire to circuit breaker CB1 in main breaker box A1A3.

(6) Reconnect the wires to the transformer and secure with two (2) nuts, as removed in step a.(7). Remove labels if used.

(7) Raise the panel on meter box A1A4 and secure with three (3) screws and washers, as removed in step a.(6).

(8) Position the panel on the main breaker box A1A3 and secure with six (6) screws, as removed in step a.(5).

(9) Outside of van, remove protective cover from connector J1 of power entrance box (A1A1) and connector of power input cable assembly. Reconnect the power input cable to the power entrance box A1A1.

(10) Place on/off switch on the primary power switch box in the ON (up) position.

(11) Place MAIN circuit breaker on main breaker box A1A3 in the ON (up) position.

(12) Place circuit breakers no. 3 thru no. 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation allowing the surge voltage to stabilize for one before starting the next.

(13) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-24. Shorting Probe Rod. (Refer to figure 6-1.)

a. Removal.

(1) Loosen the two (2) nuts and unscrew the probe handle from the probe rod.

(2) Remove the two (2) nuts and lockwashers and the wire assembly from threaded end of probe rod.

(3) Note the part number B4008735 of the probe rod removed in step a.(2).

b. Installation.

(1) Verify that the part number B4008735 of the new probe rod to be installed is the same number as the one removed.

(2) Install nut and lockwasher on new probe rod.

(3) Position wire assembly on threaded end of probe rod with lockwasher and nut, and install second lockwasher and nut loosely.

(4) Screw probe rod into handle, tighten nut against handle and tighten second nut to secure assembly.

6-25. Shorting Probe Wire Assembly. (Refer to figure 6-1.)

WARNING

High voltage is present if step a.(1) is not performed.

Insure that circuit breaker (switch) is off, and apply a tag to deter accidental or unauthorized activation of power.

NOTE

A portable light source is required after the main power has been disconnected.

a. Removal.

(1) Place circuit breakers numbers 1 through 15, 17, 19 and 21 on power distribution box A1A5 in the OFF position.

(2) Place the circuit breaker on main breaker box A1A3 in the OFF (down) position.

(3) Place on/off switch on the primary power switch box in the OFF (down) position.

WARNING

Check shorting probe before use as described in PMCS.

(4) Remove the power input cable from the power entrance box A1A1. Remove shorting probe from inside van near side door and touch the large connector pins of J1 as shown in figure 3-14. Install protective covers on connector J1 of power entrance box A1Al and connector of power input cable assembly.

(5) Remove conduit access cover. Remove nut, two (2) washers and screw, and remove the shorting probe.

(6) Loosen the two (2) nuts, and unscrew the probe handle from the probe rod.

(7) Remove nut and lockwasher from threaded end of probe rod, and remove wire assembly from probe rod.

(8) Note the part number B4008738 of the wire assembly removed in step a.(7).

b. Installation.

(1) Verify that the part number B4008738 of the new wire assembly to be installed is the same number as the one removed.

(2) Position new wire assembly on threaded end of probe rod with lockwasher and nut, and install second lockwasher and nut loosely.

(3) Screw probe into handle, tighten nut against handle and tighten second nut to secure assembly.

(4) Position loose terminal of wire assembly at mounting hole, and secure with screw, two (2) washers and nut. Install access cover.

(5) Outside of van, remove protective covers from connector J1 of power entrance box A1A1 and connector of power input cable assembly. Reconnect the power input cable to the power entrance box.

(6) Place on/off switch on the primary power switch box in the ON (up) position.

(7) Place the circuit breaker on the main breaker box A1A3 to the ON (up) position, and remove the tag.

(8) Place circuit breakers numbers 3 through 14 on power distribution box A1A5 in the ON position.

NOTE

Place one air conditioner or space heater at a time into operation allowing the surge voltage to stabilize before starting the next.

(9) Place circuit breakers numbers 1, 2, 15, 17, 19 and 21 on power distribution box A1A5 in the ON position.

6-26. Eye Wash Station. (Refer to figure 6-1.)

a. Removal.

(1) Eye Wash Refill Rack:

(a) Remove all refills from rack.

(b) Remove four (4) screws and eight (8) washers holding rack to mounting board, and remove rack.

(c) Note the part number of the refill rack removed in step a.(1)(b):

B4008744	Rack, Eye Wash Refill (Fend-All Corp., 402)

(2) Eye Wash Sink:

(a) Remove stoppers and drain eye wash solution into waste container.

(b) Remove strap from around eye wash solution bottle and remove empty bottle.

(c) Remove eye wash sink from sink holder.

(d) Note the part number of the sink removed in step a.(2)(c):

B4008743	Sink, Eye Wash, Flash Flood (Fend-All Corp., 400)

(3) Eye Wash Sink Holder:

(a) Remove eye wash sink as described in step a.(2).

(b) Remove four (4) screws holding sink holder to mounting board, and remove holder.

(c) Note part number B4008768 of the sink holder removed in step a.(3)(b).

b. Installation.

(1) Eye Wash Refill Rack:

(a) Verify that the part number of the new refill rack to be installed is the same number as the one removed in step a.(1)(b):

B4008744	Rack, Eye Wash Refill (Fend-All Corp., 402)

(b) Position refill rack on mounting board and secure with four (4) screws and eight (8) washers, as removed in step a.(1)(b).

(c) Fill rack with eye wash refills removed in step a.(1)(a).

(2) Eye Wash Sink:

(a) Verify that the part number of the new Eye Wash sink to be installed in the same number as the one removed in step a.(2)(c):

B4008743	Sink, Eye Wash, Flash Flood (Fend-All Corp., 400)

(b) Position eye wash sink in sink holder, as removed in step a.(2)(c).

(c) Mark date in space provided on label supplied with new refill B4008754 and place on bottle to be installed.

NOTE

Stoppers must be firmly in place over bath sink outlets before performing step b.(2)(d).

(d) Remove refill cap and insert refill outlet into eye wash sink. (Seal over refill outlet is broken when inserted into eye wash sink.)

(e) Secure eye wash refill bottle with strap.

NOTE

Dump contents of waste water container outside of van.

(f) Empty waste water container.

(3) Eye Wash Sink Holder:

(a) Verify that the part number B4008768 of the new eyewash sink holder to be installed is the same number as the one removed in step a.(3)(b).

(b) Position eye wash sink holder on mounting board and secure with four (4) screws, as removed in step a.(3)(b).

(c) Install eye wash sink as described in step b.(2).

6-27. Removal of Cables.

CAUTION'

To prevent damage to cables or connectors, hold connector securely while removing cable.

The cables are removed from each connector panel by turning the ring of the cable connector counterclockwise. When the ring is loose, remove the cable connector from the connector on the panel.

6-28. Removal of Wires.

Faulty wires are removed from the assembly by removing the terminal lugs or by unsoldering the wire from the connecting point. Remove any straps or lacing securing wire in place to permit removal of the wire from the assembly.

6-29. Repair of Cables.

Reconnect broken wires in cable connector using associated cable wiring assembly list referenced in table 6-1. Otherwise, remove and replace entire cable.

NOTE

Workmanship shall be in accordance with MIL-C-45224. Electrical solder connection to be in accordance with MIL-S-45743 using solder CMPSN 63 wrap per QQ-S-571.

6-30. Repair of Connectors.

A broken or damaged connector will be removed and replaced.

6-31. Repair of Wires.

In the case of a broken wire from a terminating point, reconnect (solder) wire directly, or attach new terminal lug (solder or crimp tape as applicable) to wire, and connect to terminal strip. Otherwise, remove and replace entire wire.

6-32. Cable Replacement Procedure.

After a cable wire has been reconnected to the connector, or the connector has been replaced, perform a continuity test (see paragraph 6-3). If the cable has continuity at all used connector pins, reconnect it to the station. If the cable does not have continuity at all used connector pins, perform the troubleshooting procedures as outlined in paragraph 6-7. When installing a new cable assembly, attach the connector to the connector panel. Install the

cable by inserting the cable connector into the receptacle on the connector panel, and tighten the connector ring (clockwise).

6-33. Wire Replacement Procedure.

After a wire has been reconnected, or replaced, perform a continuity test (paragraph 6-3). If the wire has continuity and it was necessary to remove the straps or lacing (paragraph 6-27), install new straps or lacing in the same location.

6-34. Repair of Electric Heater.

For repair instructions, refer to the applicable commercial publication supplied with the OA-8991/MSM.

6-35. Repair of Smoke Alarm

For repair instructions, refer to the applicable commercial publications supplied with the OA-8991/MSM.

CHAPTER 7

MATERIEL USED IN CONJUNCTION WITH MAJOR ITEM

7-1. Refer to table 7-1 for a list of auxiliary equipment used with the OA-8991/MSM repair facility.

Table 7-1. Auxiliary Equipment

Item	Description
(To Be Supplied)	

APPENDIX A

REFERENCES

AR 55-38	Reporting Discrepancies in Shipments.
DA Form 2028	Recommended Changes to Publications and Blank Forms.
DA Pam 25-30	Consolidated index of Army Publications and Blank Forms.
DA Pam 738-750	The Army Maintenance Management System (TAMMS).
FED-STD-595	Colors.
MIL-F-14072	Finishes for Ground Electronic Equipment.
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
TB 43-0118	Field Instruction for Painting and Preserving Communications-Electronics Equipment
TB 385-4	Safety Precautions for Maintenance of Electrical/Electronic Equipment.
TM 3-220	Chemical, Biological and Radiological (CBR) Decontamination.
TM 3-4230-204-12&P	Operating and Organizational Maintenance Manual Including Repair Parts and Special Tools List Decontaminating Apparatus, Portable, DS2 1 1/2 Quart, ABC-M11(NSN 4230-00-720-1618)

TM 3-6665-225-12	Technical Manual Operator's and Organizational Maintenance Manual Alarm, Chemical Agent, Automatic: Portable, Manpack, M8 (NSN 6665-00-935-6955); Fixed Emplacement, M10 (NSN 6665-00-169-1446); For Truck, Utility, 1/4 Ton, M11 (NSN 6665-00-169-1447); For Truck 3/4 Ton, M12 (NSN 6665-00-169-1448); For Truck, 2 1/2 Ton, M13 (NSN 6665-00-169-1449); For Full-Tracked Armored Personnel Carriers and Recovery Vehicles, M14 (NSN 6665-00-169-1450); For Carrier, Command and Reconnaissance Armored, M15 (NSN 6665-00-169-1451); W/Power Supply for Truck, Utility, 1/4 Ton, M16 (NSN 6665-00-169-1452); W/Power Supply for Truck, 3/4 Ton, M17 (NSN 6665-00-169-1453); and W/ Power Supply For Truck, 2 1/2 Ton, M18 (NSN 6665-00-169-1454).
TM 3-6625-307-10	Operator's Manual: Detector Kit, Chemical Agent: M256.
TM 5-4120-360-14	Operator, Organizational, Direct Support and General Support Maintenance Manual for Air Conditioner, Vertical Compact type i, Vertical, Size C, 18,000 BTU/HR, Class 1, 208 Volt, 3 Phase, 50/60 Hertz Keco Model F18T-2, NSN 4120-00-168-1781.
TM 9-2330-363-14	Operator's, Organizational, Direct Support and General Support Maintenance Manual Semitrailer, Van: Electronic 10-Ton, 4-Wheel XM991, XM995.
TM 11-5410-217-24P	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Repair Facility, Electronic Equipment OA-8991/MSM.
TM 11-5805-201-12	Organizational Maintenance Manual Telephone Set TA-312/PT.
TM 11-5830-256-13&P	Operator's and Organizational Maintenance Manual Intercommunication Stations LS-147A/F1, LS-147B/F1, LS-147C/F1, and LS-147D/F1.
TM 11-6625-3019-12	Operator and Organizational Maintenance Manual Test and Repair System, Electronic Equipment AN/MSM-105(V)1.
TM 11-6625-3019-20P	Organizational Maintenance Repair Parts and Special Tools List for Test and Repair System, Electronic Equipment AN/MSM-105(V)l.
TM 740-90-1	Administrative Storage of Equipment.
TM 750-244-2	Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command).

TM 38-750	The Army Maintenance Management System (TAMMS).
TM 38-750-1	The Army Maintenance Management System (TAMMS), Field Command Procedures.
TM 740-90-1	Administrative Storage of Equipment.
TM 750-244-2	Procedures for Destruction of Electronics Material to Prevent Enemy Use (Electronics Command).

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 the 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 from Section II.

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

B-2. Maintenance functions.

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

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), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, hydraulic fluids, compressed air supplies 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 equipments 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 the 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] or other maintenance actions[2] to restore serviceability to an item by correcting specific damage, fault, malfunction or failure in a part, subassembly, module (component or assembly), end item or system.

j. Overhaul. That maintenance effort (service/action) 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 materiel 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 equipments/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 components, assemblies, subassemblies and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2).

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[1]Services - inspect, test, service, adjust, align, calibrate or replace.
[2]Actions - welding, grinding, riveting, straightening, facing, remachining, 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 vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting 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 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. The code in this column is keyed to the tools and test equipment requirements list in Section III.

f. Column 6, Remarks. Column 6 contains, when applicable, a code which is 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 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 Columns in Remarks, Section IV.

a. Column 1, Reference Code. The code listed 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 FOR REPAIR FACILITY, ELCETRONIC EQUIPMENT OA-8991/MSM-CONTINUED

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL UNIT C	UNIT O	INTERMEDIATE F	INTERMEDIATE H	DEPOT D	(5) TOOLS AND EQPT	(6) REMARKS
00	Repair Facility OA-8991/MSM	Inspect		0.2					
		Overhaul					24.0		
01	Van, Repair Facility	Inspect		0.2					
	Overhaul						24.0		
0101	Electric Installation	Inspect		4.0					
		Overhaul					24.0		
010101	Raceway Installation	Inspect		2.0					
	Overhaul						24.0		
01010101	Meter box Assembly A1A4	Inspect		0.1					
		Repair			0.3			01,02,03	A
01010102	Power entrance Box Assembly	Inspect		0.1					
		Repair			0.2			01, 02, 03	A
010101-0201	Cable Assembly	Inspect			0.1				
		Replace			0.3				
		Repair			1.0			01, 02	
		Overhaul				1.0			
01010103	Air Conditioner	Inspect		0.1					B,C
		Repair			1.0				B
		Replace			2.0				D
01010104	Paneling Installation	Inspect		0.1					
		Overhaul					24.0		
0101010-10401	Van, Mod NM-991	Inspect		0.1					E
		Overhaul					24.0		
010102	Fixture Assembly	Inspect		0.1					A
		Repair		0.3					
010103	Fixture Assembly	Inspect		0.1					
		Repair		0.3				03	M
010104	Fixture Assembly	Inspect		1.0					
		Overhaul		0.3					A
010105	Fixture Assembly	Inspect		0.1					
		Repair		0.3					A
010106	Cable Assembly	Inspect			0.1				
		Replace			0.3				
		Repair			1.0			01, 02	
		Overhaul					1.0		
010107	Shorting Probe Assembly	Inspect		0.1					
		Repair			0.3			02	
		Replace			0.1				
0102	Emergency Light	Inspect		0.1					
		Repair		0.3				03	F
		Replace		0.5					
0103	Smoke Alarm	Inspect	0.1						
		Test	0.05						
		Service		0.2				02	
		Repair			0.3			01,02	A
		Replace			0.2				

Section II. MAINTENANCE ALLOCATION CHART FOR REPAIR FACILITY, ELCETRONIC EQUIPMENT OA-8991/MSM-CONTINUED

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL UNIT C	UNIT O	INTERMEDIATE F	INTERMEDIATE H	DEPOT D	(5) TOOLS AND EQPT	(6) REMARKS
0104	Telephone TA-312	Inspect		0.1					G
		Replace		0.5				03	
		Overhaul					0.1		
0105	Digital Multimeter AN/USM-451	Inspect		0.5					O
		Test				1.0			I
		Repair				0.5			I
		Replace				0.5			I
		Calibrate				1.5			I
		Overhaul					4.0		
0106	Heater, Space	Inspect	0.1						
		Test	0.1						
		Service		0.3					
		Repair			0.3				A
		Replace			0.2				
02	Cable Assembly	Inspect			0.1				
		Replace			0.3				
		Repair			1.0			01, 02	
		Overhaul					1.0		
03	Cable Assembly	Inspect			0.1				
		Replace			0.3				
		Repair			1.0			01, 02	
		Overhaul					1.0		
04	Intercom Set LS-147F/F1	Inspect		0.1					H
		Replace		1.0					
		Repair				1.0			H
		Overhaul					2.0		
05	M10 Alarm	Inspect		0.1					
		Repair		0.5					K
		Replace		0.5					K
		Overhaul					2.0	03	
06	M256 Detector	Inspect		0.1					L
		Repair		0.5					L
		Replace		0.5				03	
		Overhaul					2.0		
07	M11 Decontamination Apparatus	Inspect		0.1					
		Repair		0.5					M
		Replace		0.5					M
		Overhaul					1.0		
08	Oven	Inspect		0.1					
		Repair		0.4				01, 02	N
		Replace		1.0				03	
09	Vise System, Panna	Inspect	0.1						
		Repair		0.1					A
10	Lantern	Inspect		0.1					
		Repair		0.3					O
		Replace		1.0				03	

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR
REPAIR FACILITY, ELECTRONIC EQUIPMIENT OA - 8991 /MSM

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/ NATO STOCK NUMBER	TOOL NUMBER
01	O, F	Multimeter, AN/USM-451	6625-01-060-6804	
02	0, F	Tool Kit, TK-105/G	5180-00-610-8177	
03	0, F	Tool Kit;, TK-101/G	5180-00-064-5178	

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	Repair by replacing components
B	See air conditioner manual TM 5-4120 360-14
C	Qty. of two (2) used
D	Replacement of air conditioners may be necessary and performed in accordance with TM 11-5410-217-14
E	See van manual TM 9-2330-363-14
F	Repair by replacing starter and lamp
G	Repair by replacing battery pack and chassis mtg components
H	See telephone manual TNM 11-5805-201-12
I	See AN/USM-451 digital multimeter manual TM 11-6625-2953 14
J	See intercom set manual TM 11-5830-221-12
K	See M10 alarm manual TM 3 6665 255-12
L	See M256 detector manual TNM 3-6665 307-10
M	See M11 decontamination apparatus manual TM 3-4230-204-12
N	Repair by replacing heating element, thermostat, thermometer and cables
O	Repair by replacing bulb and battery

APPENDIX C

COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

C-1. Scope.

This appendix lists integral components of and basic issue items for the OA-8991/MSM electronic equipment repair facility (repair facility, ERF) to help you inventory items required for safe and efficient operation.

C-2. General.

This Components of End Item List is divided into the following sections:

a. Section II. Integral Components of the End Item. These items, when assembled, comprise the repair facility and must accompany it whenever it is transferred or turned in. The illustrations will help you to identify these items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the repair facility in operation, to operate it, and to perform emergency repairs. Although shipped separately packed, they must accompany the repair facility during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items. This manual is your authority to requisition replacement BII, based on TOE/MTOE authorization of the end item.

C-3. Explanation of Columns.

a. Illustration. This column is divided as follows:

(1) Figure Number. Indicates the figure number of the illustration on which the item is shown.

(2) Item Number. The number used to identify item called out in the illustration.

b. National Stock Number. Indicates the National Stock Number assigned to the item and which will be used for identifying and requisitioning the listed item.

c. Description. This column is divided as follows:

(1) Part Number. Indicates the primary number used by the manufacturer to identify an item or range of items. Controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements. Also indicates the Federal item name and gives a minimum description of the item.

(2) Federal Supply Code for Manufacturer (FSCM). The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, Government agency, etc., as applicable.

d. Location. The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

e. Usable On Code. (Not applicable.)

f. Quantity Required (Qty Req'd). This column lists the quantity of each item required for a complete major item.

g. Quantity. This column is left blank for use during an inventory. Under the Rev'd column, list the quantity you actually received on your major item. The date column is for your use when you inventory the major item at a later date, such as for shipment to another site.

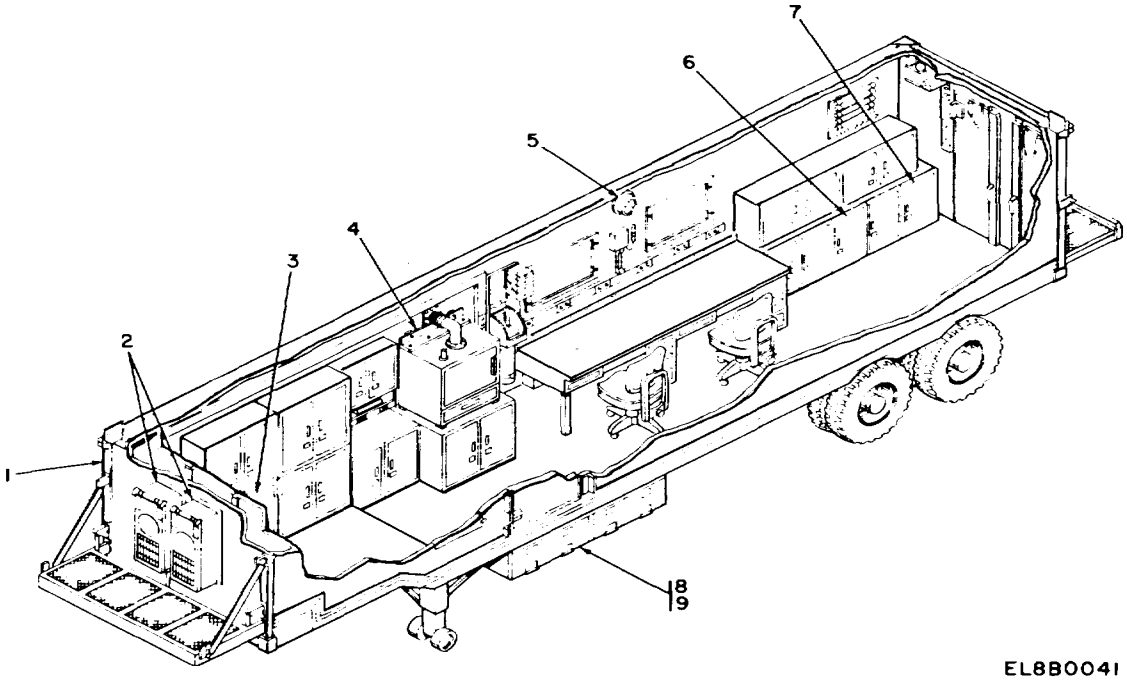


Figure C-1. Integral Components of End Item (Sheet 1 of 5)

Section II. INTEGRAL COMPONENTS OF THE END ITEM

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	FSCM	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
c-1	1	6625-01-070-4404	Repair Facility, Electronic Equipment 0A-8991/MSM	(56996)			1		
c-1	2	4120-00-168-1781	Air Conditioner, 18,000 BTU F18T-2 (SN 1-50)	(81349)	Front Exterior		2		
c-1	2	4120-01-089-4053	Air Conditioner, 18,000 BTU (SN 50-UP)						
c-1	3		Pace Power Source with ZPS PPS-200C (B4008650)	(17794)	Curbside Cabinet		4		
c-1	4	6624-01-127-3593	Oven, Precision Scientific Model 31543 (Altered) B4008558	(56996)	Curbside Wall		1		
c-1	5		Clock, 8-Day Wind Up MIL-C-1194	(81349)	Curbside		1		
c-1	6		Cabinet Assembly B4008542	(56996)	Curbside Floor		1		
c-1	7	7910-00-900-1678	Vacuum Cleaner SC-D-350218	(80063)	Curbside Cabinet		1		
c-1	8		Cable Assembly, 50-ft. SC-D-883963, Group 9-3	(80063)	Storage Box		2		
c-1	9		Cable Assembly, 25-Ft. SC-D-883964, Group 9-2	(80063)	Storage Box		1		

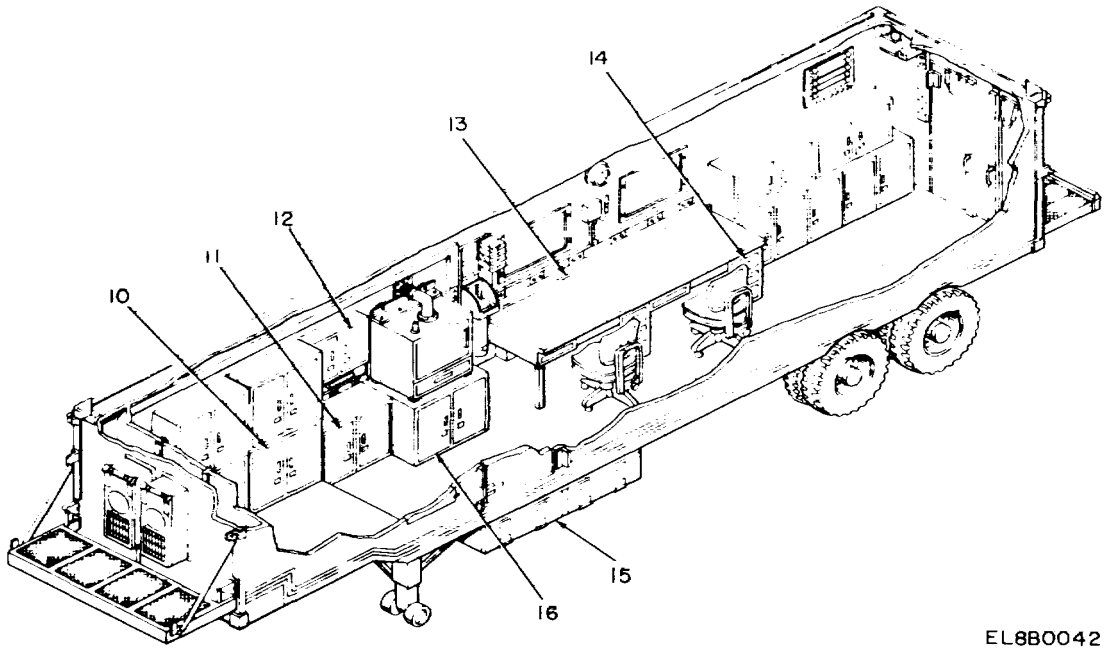


Figure C-1. Integral Components of End Item (Sheet 2 of 5)

Section II. INTEGRAL COMPONENTS OF THE END ITEM - Continued

(1) ILLUSTRATION (A) FIG.	(B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	FSCM	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	DATE
C-1	10		Cabinet Assembly B4008537	(56996)	Curbside Floor		1		
C-1	11		Cabinet Assembly B4008541	(56996)	CurbsSIde Floor		1		
C-1	12		Cabinet Assembly B4008540-002		Curbside		1		
C-1	13		Desk rop Assembly B4008551	(56996)	Curbside Floor		1		
C-1	14		Desk Assembly B4008550	(56996)	Curbside Floor		1		
C-1	15		Cover, Center Air Conditioner B4008216	(56996)	Storage Box		1		
C-1	16		Cabinet Assembly B4008529	(56996)	Curbside Floor		1		

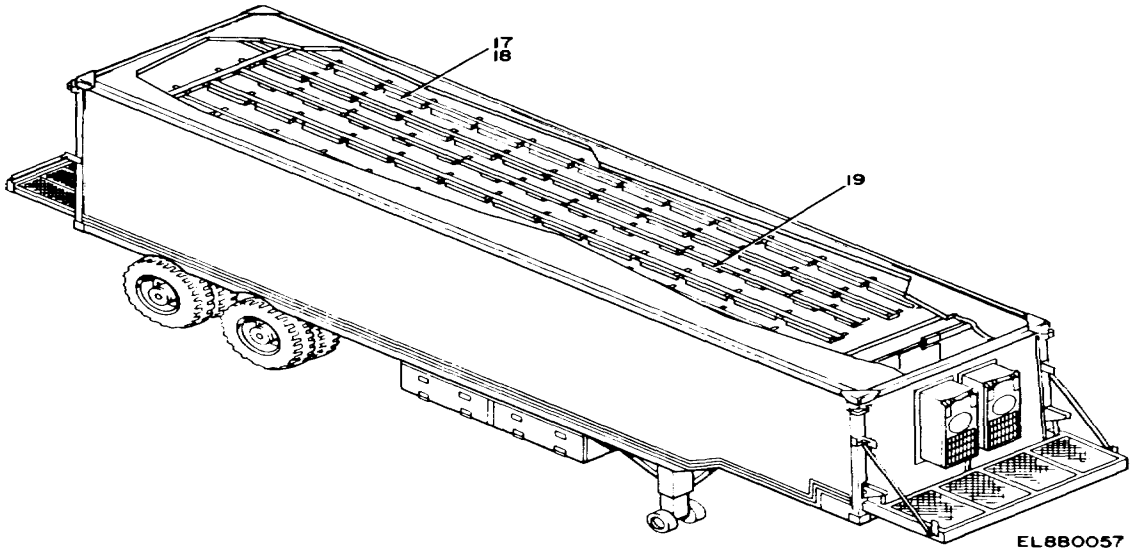


Figure C-1. Integral Components of End Item (Sheet 3 of 5)

Section II. INTEGRAL COMPONENTS OF THE END ITEM - Continued

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER FSCM	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
C-1	17	6240-01-299-2884	Starter, Fluorescent, FS-2 Ceiling SC-B-539504 (80063)			54		
C-1	18	6240-00-152-2996	Lamp, Fluorescent, 20 Watt SC-C-539495 (80063)	Ceiling		54		
C-1	19	6240-00-155-8653	Lamp. Incandescent, 25 Watt SC-C-681179 (80063)	Ceiling		28		

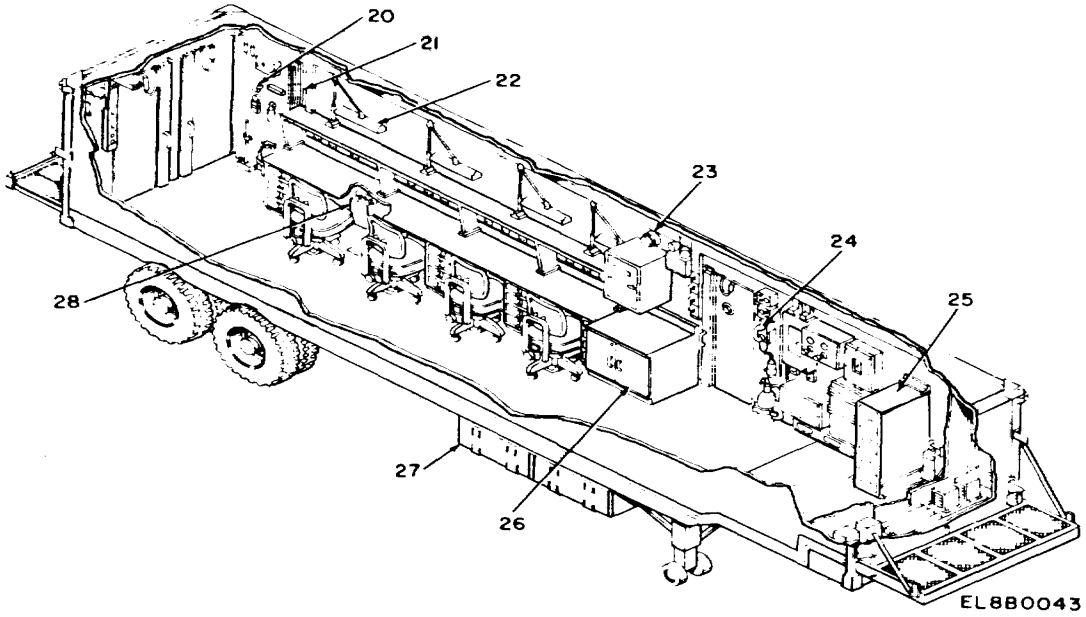


Figure C-1. Integral Components of End Item (Sheet 4 of 5)

Section II. INTEGRAL COMPONENTS OF THE END ITEM - Continued

(1) ILLUSTRATION (A) FIG.	(B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	FSCM	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	DATE
C-1	20	7520-00-162-6178	Sharpener, Pencil SC-C-539503	(80063)	Roadside Wall		1		
C-1	21	5975-00-224-5260	GrOUND Rod SC-D-14158	(80063)	Roadside Wall		2		
C-1	22	6230-00-299-7770	Lamp, Desk W-L-312	(81348)	On Desks		4		
C-1	23		Smoke Alarm 84008757	(56996)	Roadside Wall		1		
C-1	24		telephone TA312PT	(81349)	Roadside Wall		1		
C-1	25		File Cabinet B4008116	(56996)	Roadside Floor		1		
C-1	26		Cabinet Assembly B4008529	(56996)	Roadside Floor		1		
C-1	27		Ladder Assembly B4008745	(56996)	Storage Box		1		
c-1	28		Basket, Waste SC-D-539454	(80063)	Work Stations		4		

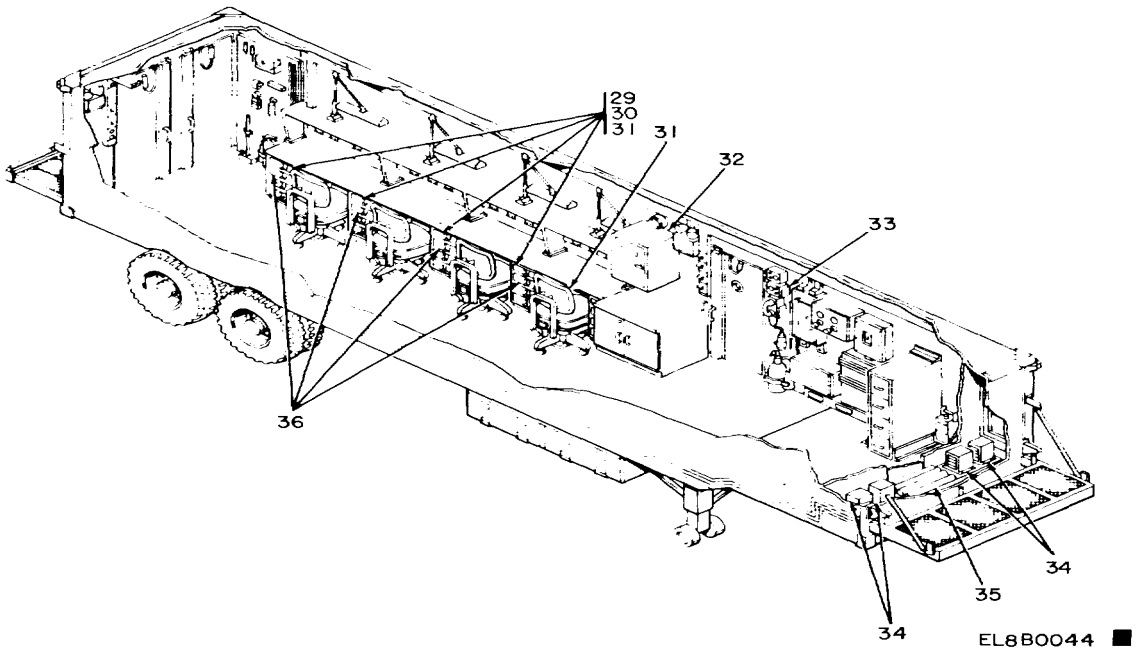


Figure C-1. Integral Components of End Item (Sheet 5 of 5)

Section II. INTEGRAL COMPONENTS OF THE END ITEM - Continued

(1) ILLUSTRATION (A) FIG.	(B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	FSCM	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	DATE
C-1	29	4940-01-054-0041	Pace Print Cir-Kit Selector Pack 6993-0037 (B4008656)	(17794)	Work Station		4		
C-1	30		Static Wrist Strap and Ground Cord 2064 (B4008628)	(53387)	Work Station		4		
C-1	31	7110-00-273-8795	Chair, Rotary W/O Arms SC-D-539551	Work (80063)	Station		6		
C-1	32		Cabinet, Bench Top B4008668	(56996)	Roadside Wall		1		
c-1	33	5830-00-008-8126	INTERCOM SET LS-147F/F1	(81349)	ROADSIDE Wall		4		
C-1	34	4520-00-177-6198	HEATER, ELECTRICAL MIL-H-52641	(81349)	ROADSIDE FRONT		4		
C-1	35		STATIC TABLE MAT 8210 (B4008622)	(53387)	BEHIND PARTITION		4		
C-1	36		Light, Extension, 25 Feet W-L-66ITYPEICL2	(8I348)	Work Station		1		

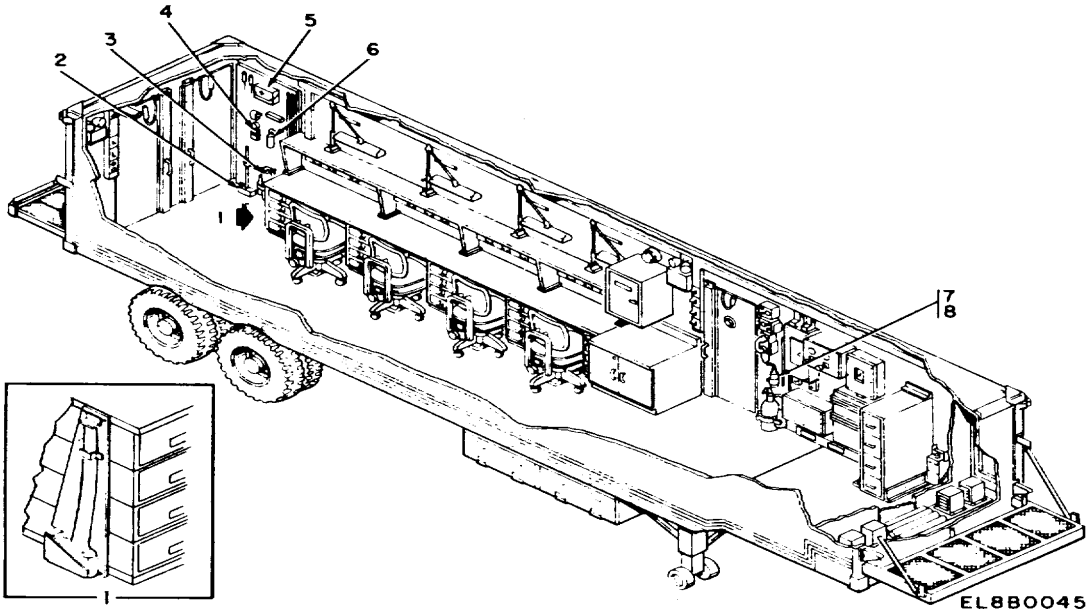


Figure C-2. Basic Issue Items (Sheet 1 of 12)

Section III. BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) DESCRIPTION FSCM	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
C-2	1	5110-00-115-4059	Fire Axe	(80063)	Work Station Left End		1		
C-2	2	5120-00-251-4489	Sledge Hammer SC-C-539451	(80063)	Common Station		1		
C-2	3	4210-00-270-4512	Fire Extinguisher SC-D-539482	(80063)	CoMmon Items Bd		2		
C-2	4	6230-00-729-9614	Lantern SC-D-539491	(80063)	Common Items Bd		1		
C-2	5	6645-922-1200	First Aid Kit SC-C-53946505	(80063)	Common Items Bd		1		
C-2	6	7720-00-043-9148	Dust Brush SC-C-539469	(80063)	Common Items Bd		1		
C-2	7	4230-00-720-1618	Mnl Decontamination Apparatus D5-51-269	(81361)	Roadside Wall		1		
C-2	8	5850-00-753-4327	Decontamination Agent MIL-D-50030	(81349)	Roadside Wall		1		

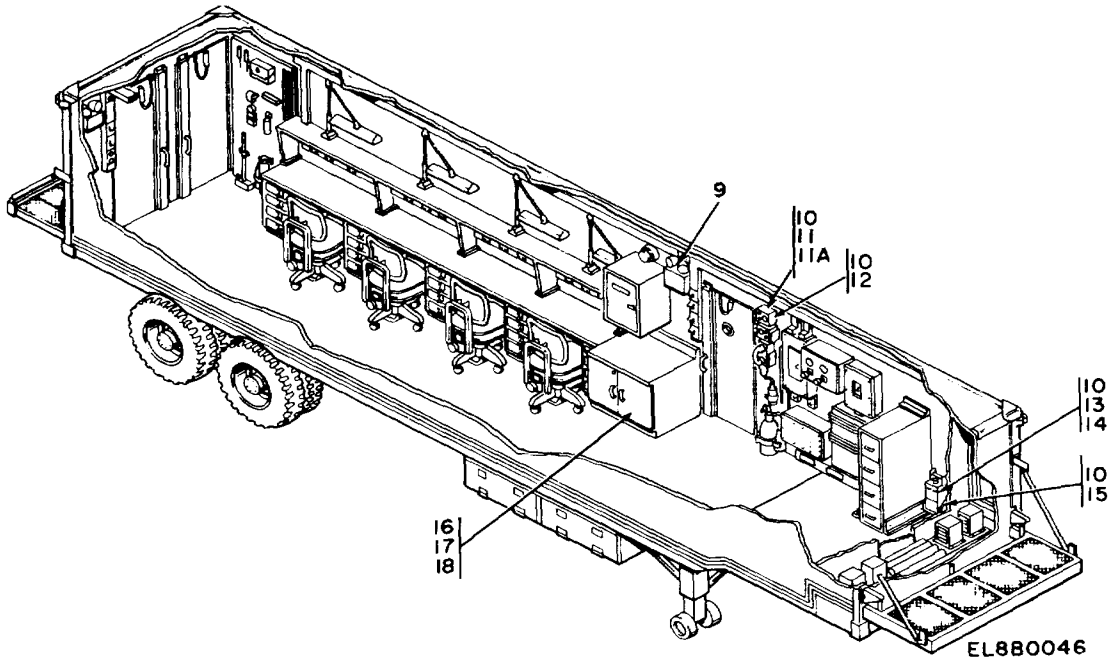


Figure C-2. Basic Issue Items (Sheet 2 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER FSCM	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
C-2	9		Emergency Lights, Carpenter Model CC-2-BH-SRS-CP-M(80538)	Roadside Rear Wall		2		
C-2	10	6665-00-169-1446	M10 Alarm System (81361)	Roadside Wall		1		
C-2	11	6665-00-859-2215	M42 Alarm Unit D5-15-4826 (81361)	Roadside Wall		1		
C-2	11A	6135-00-930-0030	Battery for M42, Alarm, 1.5 vdc BA3030/U (81349)	Roadside Wall		4		
C-2	12	6665-00-136-7182	M42 Mounting Kit E5-15-5490 (81361)	Roadside Wall		1		
C-2	13	6665-00-859-2201	M43 Detector Unit D5-15-4400(81361)	Roadside Floor		1		
C-2	14	6135-00-450-3523	Battery For M43 Detector BA3517/U (81349)	Roadside Floor		1		
C-2	15	6665-00-859-2212	M228 Mount, High Profile E5-15-5600 (81361)	Roadside Floor		1		
C-2	16	6625-00-859-2225	M10 Power Supply E5-15-4727 (81361)	Roadside Cabinet		1		
C-2	17	6665-00-859-2214	M229 Refill Kit 05-15-4700 (81361)	Roadside Cabinet		1		
C-2	18	6665-01-016-8399	M256 Detector Kit D5-77-2001 (81361)	Roadside Cabinet		1		

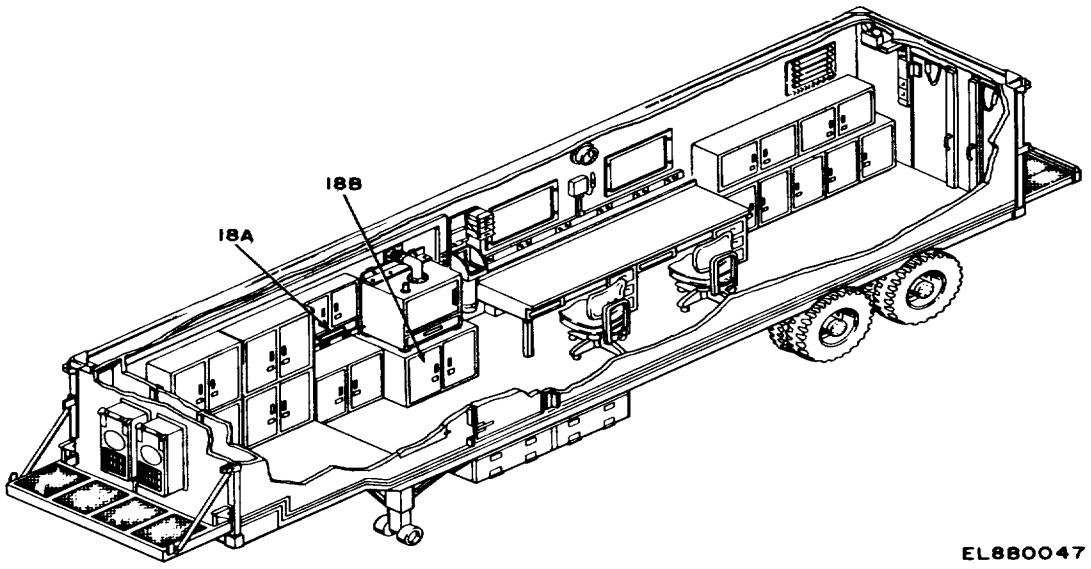


Figure C-2. Basic Issue Items (Sheet 3 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) DESCRIPTION CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
C-2	18A		Black-Ray Light B4008627	(56996)	Curbside Cabinet		1		
C-2	18B		Ground Strap SC-B-539492		Curbside Cabinet		2		

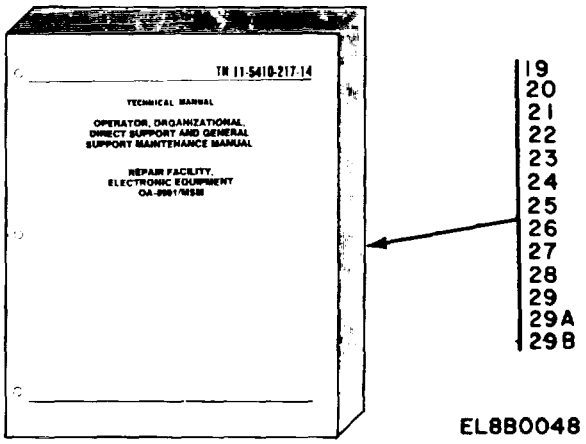


Figure C-2. Basic Issue Items (Sheet 4 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	DATE
			Technical Manuals					
C-2	19	TM 5-4120-360-14	Air Conditioner F18T-2 (SN 1-50)	File Cabinet		1		
C-2	19A	TM 5-4120-356-14	Air Conditioner (SN 50-Up)	File Cabinet		1		
C-2	20	TM 3-6665-225-12	Alarm M10 C8R	File Cabinet		1		
C-2	21	TM 3-4230-204-12P	deCONTAMINATION APPARATUS M11	File Cabinet		1		
C-2	22	TM 3-6665-307-10	Detector M256	File Cabinet		1		
C-2	23	TM 11-5830-256-13 & P	Intercom LS147F/FI	File Cabinet		1		
C-2	24	TM 3-6665-261-14	Power Supply M-10	File Cabinet		1		
C-2	25	TM 9-2330-363-14&P	Semitrailer, Van XM9991/995	File Cabinet		1		
C-2	26	TM 11-5806-201-12	Telephone TA-312/P	File Cabinet		1		
C-2	27	TM 11-5410-217-14	Repair Facility 0A-8991/MSM	File Cabinet		1		
C-2	28	TM 11-5410-217-24P	Repair Facility 0A-8991/MSM	File Cabinet		1		
C-2	29	SC-5180-91-CL-R13	Tool Kit TK101/G	File Cabinet		1		
C-2	29A	TM 9-4940-541-14&P	Pace PRC-350C Series	File Cabinet		1		
C-2	29B	TM 11-6625-2953-14	Multimeter AN/USM-451	File Cabinet		1		

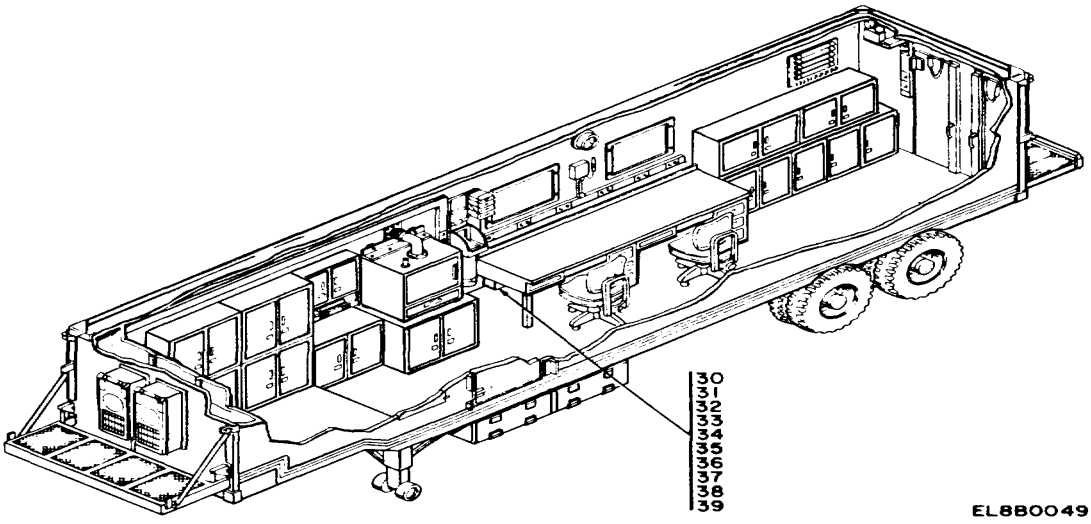


Figure C-2. Basic Issue Items (Sheet 5 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			Tools and Test Equipment						
C-2	30	5140-00-498-8772	Tool Box, Portable GG-T-558-2	(81348)	Curbside Floor		4		
C-2	31	5110-00-965-0974	Pliers, Diagonal Cutting GGG-P-468	(81348)	Portable Tool Box		4		
C-2	32	5110-00-239-8253	Pliers, Diagonal Cutting GGG-P-471	(81348)	Portable Tool Box		4		
C-2	33	5120-00-239-3481	Pliers GGG-P-471	(81348)	Portable Tool Box		4		
C-2	34	5120-00-239-3486	Pliers GGG-P-471	(81348)	Portable Tool Box		4		
C-2	35	5120-00-239-8200	Pliers, Round Nose GGG-S-121	(81348)	Portable Tool Box		4		
C-2	36	5120-00-278-1270	Screwdriver, Flat Tip GGG-S-121	(81348)	Portable Tool Box		4		
c-2	37	5120-00-236-2140	Screwdriver, Flat Tip GGG-S-121	(81348)	Portable Tool Box		4		
C-2	38	5120-00-240-8716	Screwdriver, Phillips GGG-T-870	(81348)	Portable Tool Box		4		
C-2	39	5120-00-233-6985	Tweezers		Portable		4		

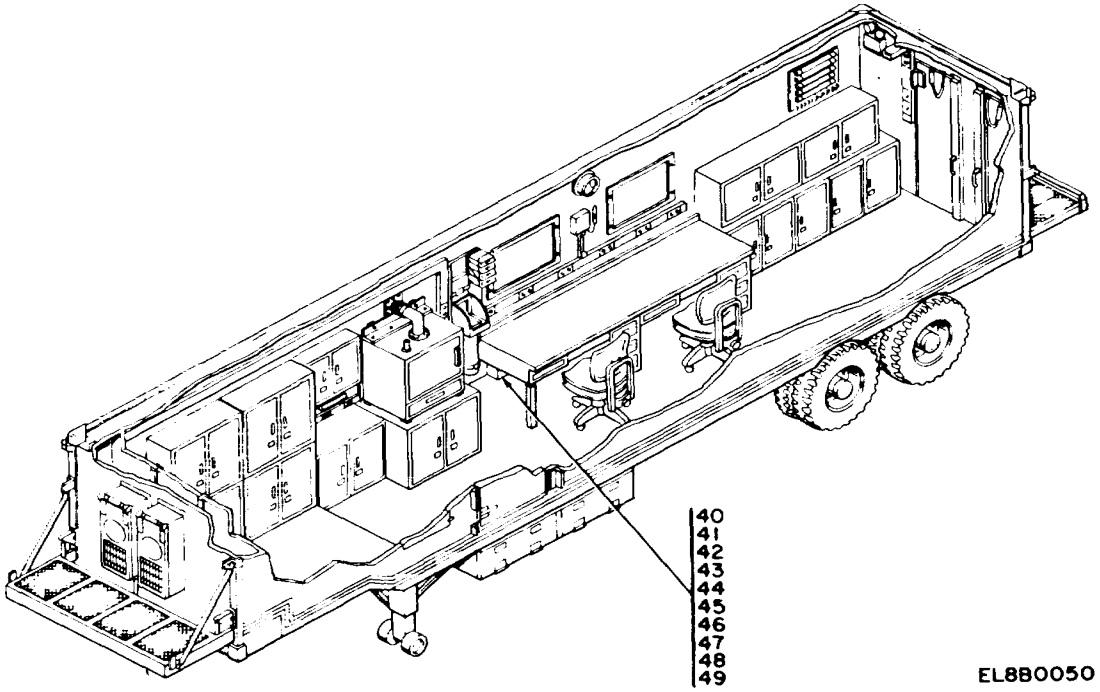


Figure C-2. Basic Issue Items (Sheet 6 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	DATE
			Tools and Test Equipment - cont.						
C-2	40	5110-00-175-3629	Pro/Vise		Portable		4		
			B4008657	(56996)	Tool Box				
C-2	41	4940-00-492-4728	Environmental Probe		Portable		4		
			B4008658	(56996)	Tool Box				
C-2	42	4940-00-492-4739	Vacuum Cleaning/Handling Unit		Portable		4		
			B4008659	(56996)	Tool Box				
C-2	43	4240-00-052-3776	Goggles, Industrial		Portable		4		
			GG-G-531	(81348)	Tool Box				
C-2	44	3439-00-260-7F719	Lapflo, LS-15		Portable		4		
			B4008660	(56996)	Tool Box				
C-2	45	3439-00-269-8404	Thermopart, Model TP-15		Portable		4		
			B4008661	(56996)	Tool Box				
C-2	46	3439-00-041-1985	Conductweez, Model CT-15		Portable		4		
			B4008662	(56996)	Tool Box				
C-2	47	3439-00-853-8760	Soldering Outfit, TL-705		Portable		4		
			Weller-W60KA	(97049)	Tool Box				
C-2	48	3439-00-973-2249	Heat Sink		Portable		4		
			B4008647	(56996)	Tool Box				
C-2	49	5940-00-879-6320	Clip, Electrical		Portable		4		
			B4008648	(56996)	Tool Box				

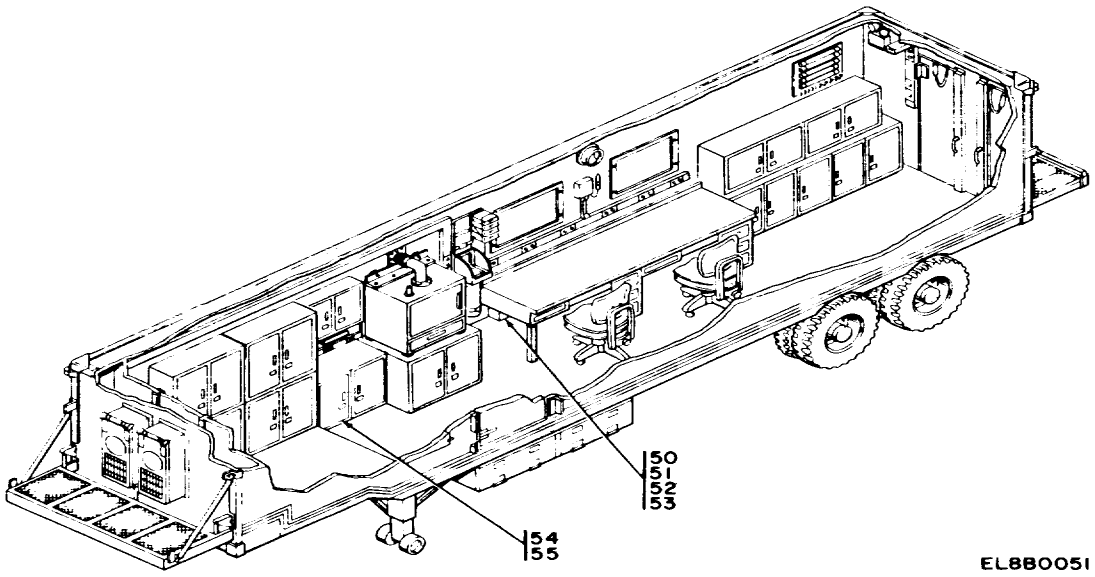


Figure C-2. Basic Issue Items (Sheet 7 of 12)

Section III.BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			Tools and Test Equipment - cont.					
C-2	50	3439-00-808-2144	Sodr-X-Tractor, Model SX-20 B4008652 (56996)	Portable Tool Box		4		
C-2	51	4920-00-009-4948	Striptweez, Model TS-15 B4008653 (56996)	Portable Tool Box		4		
C-2	52	3439-00-155-4597	Resistweeze, Model TW-15 B4008654 (56996)	Portable Tool Box		4		
C-2	53	5120-00-233-6945	Tweezers GGG-T-780 (81348)	Portable Tool Box		4		
C-2	54	5180-00-064-5178	Tool Kit, Electronic Equipment TK-101/G (81349)	Curbside Cabinet		1		
C-2	55	5180-00-123-6947	Master Tool Kit MMK-6 B4008756 (56996)	Curbside Cabinet		1		

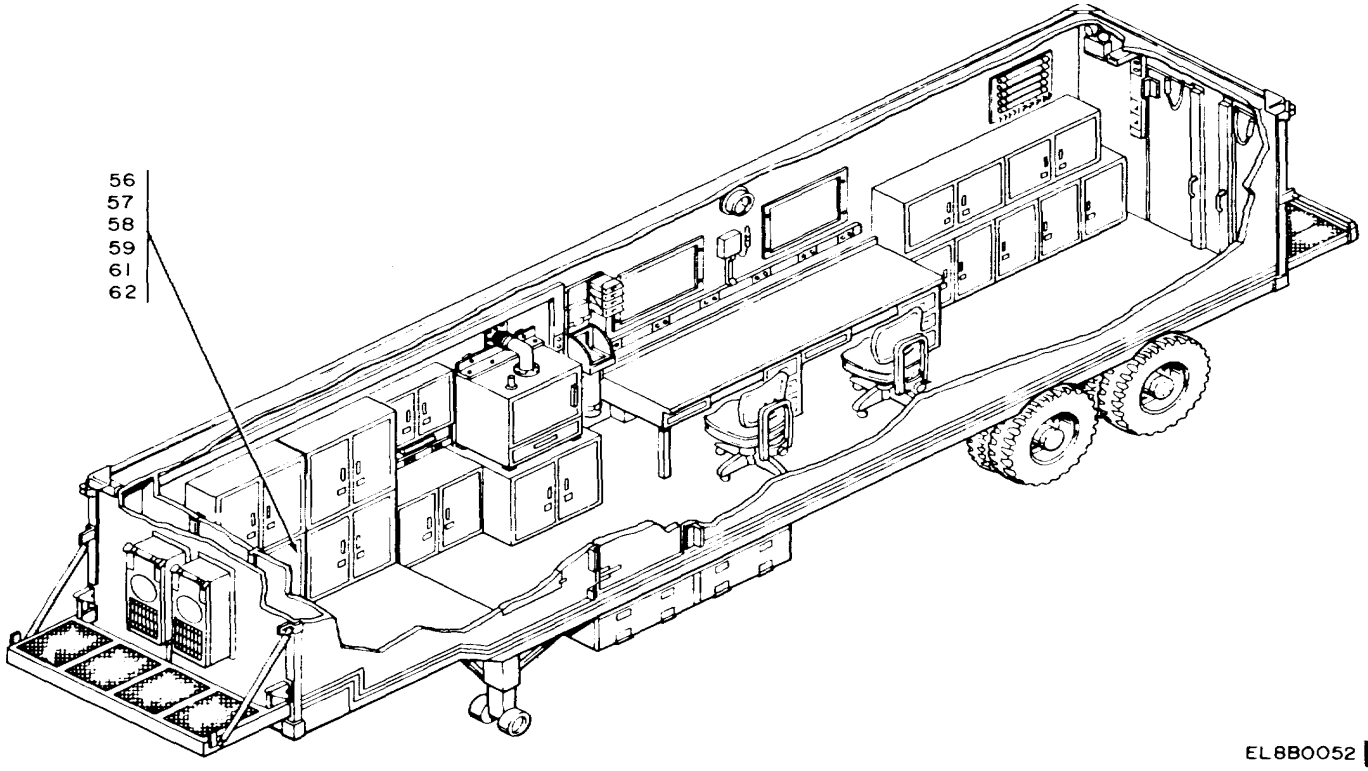


Figure C-2. Basic Issue Items (Sheet 8 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	DATE
			Tools and Test Equipment - cont.						
C-2	56	3439-00-267-7151	Hot Cubby W/Mounting Capability B4008663	(56996)	Curbside Cabinet		4		
C-2	57	3426-01-067-3616	Swaplating Unit, Model PE-200A B4008664	(56996)	Curbside Cabinet		2		
C-2	58	5130-01-041-2278	Fuse Eye-Letting System B4008665	(56996)	Curbside Cabinet		2		
C-2	59	6650-00-356-8411	Magnifier B4008642	(56996)	Curbside Cabinet		5		
			Item 60 deleted						
C-2	61		Minichine, Model PM-166 B4008651	(56996)	Curbside Cabinet		4		
C-2	62		Vise Assembly B4008670	(56996)	Curbside Cabinet		1		

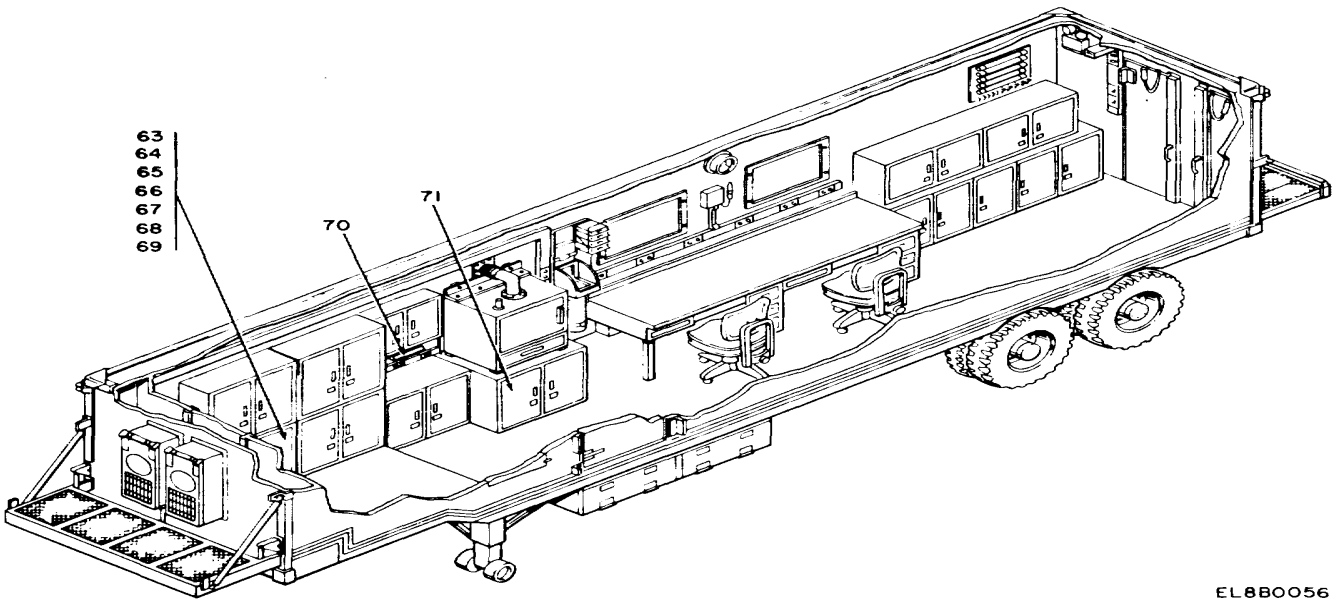


Figure C-2. Basic Issue Items (Sheet 9 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			Tools and Test Equipment - cont.						
C-2	63		Vise Kit B4008740	(56996)	Curbside Cabinet		4		
C-2	64	5120-01-180-3848	Low Profile Base, Model 305 8728	(60476)	Curbside Cabinet		1		
C-2	65		Standard Vise Head, Model 303 8729	(60476)	Curbside Cabinet		1		
C-2	66	5999-01-174-3157	Circuit Board Holder, Model 315 B4008730	(60476)	Curbside Cabinet		1		
C-2	67		Extra-Wfde Head, Model 376 B4008731	(60476)	Curbside Cabinet		1		
C-2	68		Bench Clamp, Model 311 84008732	Curbside (60476)	Cabinet	1			
C-2	69		Cross Bar, Model 318-30 B4008733	Curbside (60476)	Cabinet	1			
C-2	70		Not Used						
C-2	71		Not Used						

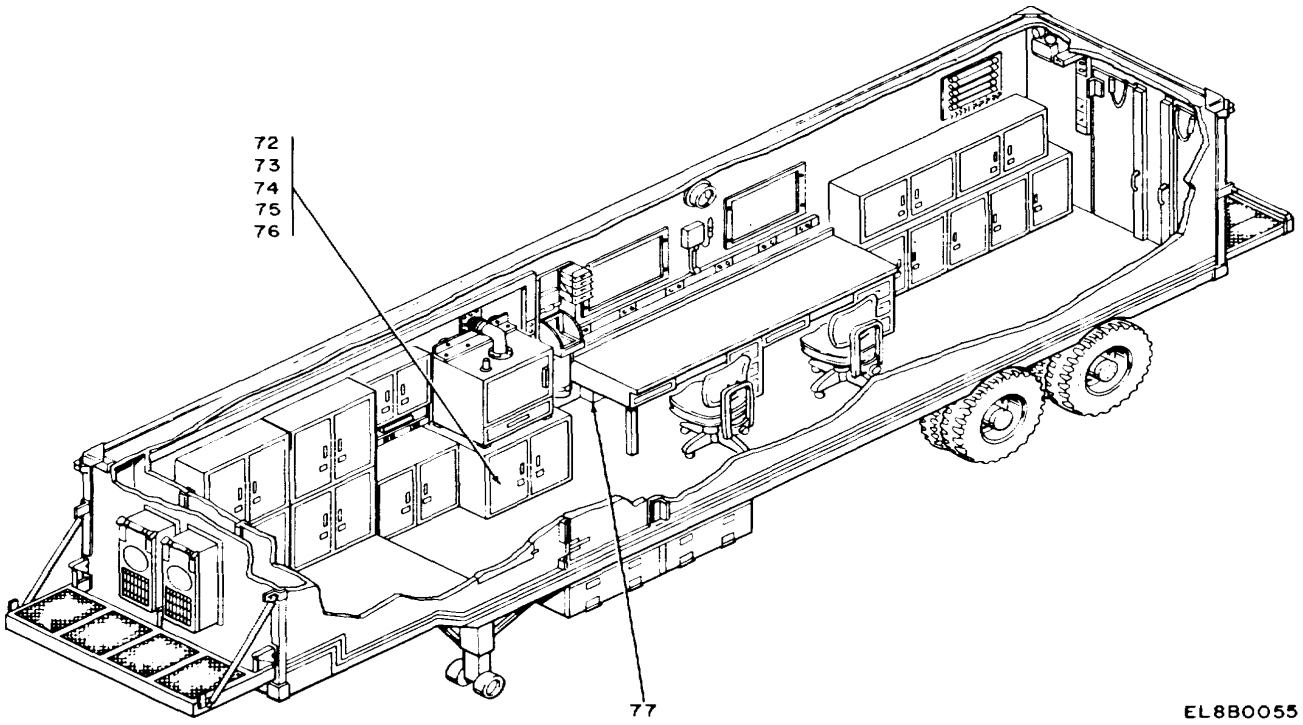


Figure C-2. Basic Issue Items (Sheet 10 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(1) ILLUSTRATION (B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			Tools and Test Equipment - cont.						
C-2	72	6650-00-356-8411	Magnifier 10 Power		Curbside Cabinet		1		
C-2	73		Binocular Head B4008569	(56996)	Curbside Cabinet		1		
C-2	74		MIcroscope Base B4008570	(56996)	Curbside Cabinet		1		
C-2	75		Eye Piece B4008571	(56996)	Curbside Cabinet		1		
C-2	76		Focusing Unit B4008572	(56996)	Curbside Cabinet		1		
C-2	77	5110-935-0890	Pliers GGG-P-468TYPE1CL1	(80348)	Portable Tool Box		4		

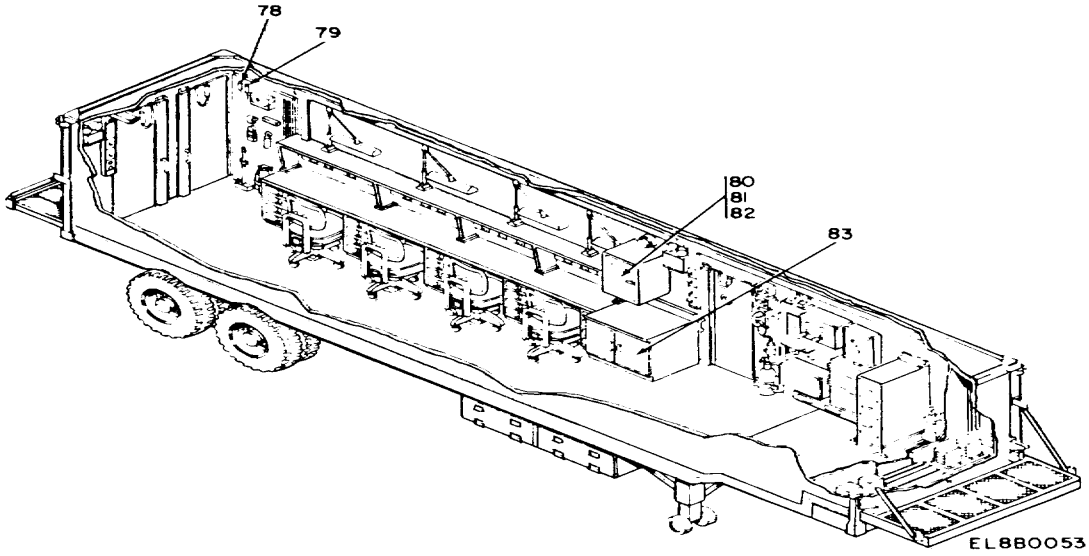


Figure C-2. Basic Issue Items (Sheet 11 of 12)

Section III.BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION (A) FIG.	(B) ITEM	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	CAGE	(4) LOCATION	(5) USUABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	DATE
			Tools and Test Equipment - cont.						
C-2	78		Screwdriver, Phillips SC-C-539894	(80063)	Roadside Wall		1		
C-2	79		Screwdriver, Flat Tip SC-C-539902	(80063)	Roadside Wall		1		
C-2	80	3439-00-400-1971	Flux, Soldering MIL-F-14256	(81349)	Roadside Cabinet		4		
C-2	81	8030-00-998-3337	Sealing Compound B4008644	(56996)	Roadside Cabinet		4		
C-2	82	8030-00-027-8770	Insulating Compound MIL-1-46058	(81349)	Roadside Cabinet		8		
C-2	83	6625-01-060-6804	Digital Multimeter AN/USM-451(80058)		Roadside Cabinet		1		

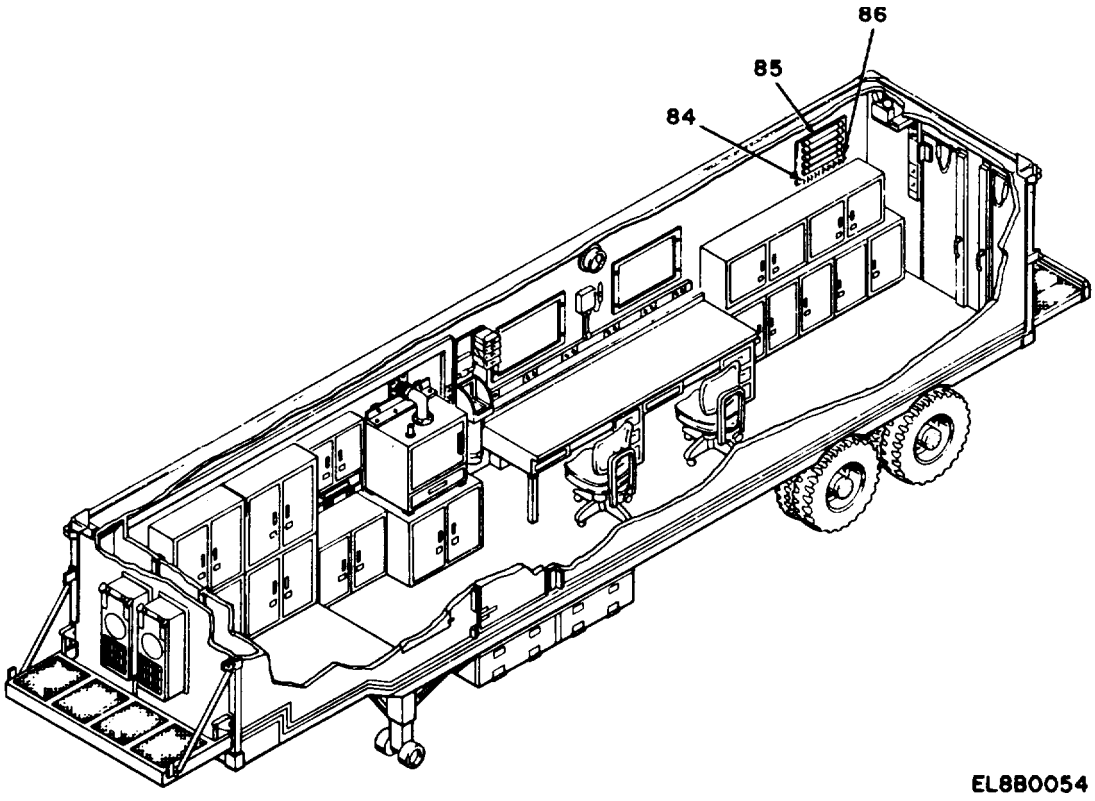


Figure C-2. Basic Issue Items (Sheet 12 of 12)

Section III. BASIC ISSUE ITEMS - Continued

(1) ILLUSTRATION		(2)	(3) DESCRIPTION		(4)	(5)	(6)	(7) QUANTITY	
(A) FIG.	(B) ITEM	NATIONAL STOCK NUMBER	PART NUMBER	CAGE	LOCATION	USUABLE ON CODE	QTY REQD	RCVD	DATE
			Repair Parts						
C-2	84	6240-01-G14-7286	Starter, Fluorescent SC-B-539504	(80063)	Curbside Wall		5		
C-2	85	6240-01-G14-8347	Bulb, Fluorescent SC-C-539495	(80063)	Curbside Wall		5		
C-2	86	5120-01-G04-3370	Bulb, Incandescent SC-C-681179	(80063)	Curbside Wall		5		

APPENDIX D
ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

D-1. Scope.

This appendix lists additional items which are authorized for the support of the OA-8991/MSM electronic equipment repair facility (repair facility, ERF).

D-2. General.

This list identifies items that do not have to accompany the repair facility 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.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION PART NUMBER AND FSCM	(3) UNIT OF MEAS	(4) QTY REQ'D
79201-00-543-7148	Brush, Dust SC-C-539469 (80063)		1
	Broom, Hand		1
	Mop, Floor		1
8030-00-027-8770	Insulating Compound MIL-I-46058 (81349)		4
8030-00-998-3337	Sealing Compound B4008644 (56996)		4
3439-00-400-1971	Flux, Soldering MIL-F-14256 (81349)		4
3439-00-912-8698	Solder, Lead Alloy QQ-S-571 (81348)		16
5920-00-892-9276 or 5920-00-832-6031 or 5920-00-225-9984	Fuse, 2 Amp Fast Blow AGC 2 (71400)		
5920-01-095-3319 or 5920-00-787-9873	Fuse, 2 Amp Slow Blow MDL 2 (71400)		1
5920-00-280-3178	Fuse, 2.5 Amp Slow Blow MDL 2.5 (71400)		1

APPENDIX E
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. Scope.

This appendix lists expendable supplies and materials you will need to operate and maintain the OA-8991/MSM electronic equipment repair facility. These items are authorized to you by CTA 50-970, Expendable Items (except Medical, Class V, Repair Parts, and Heraldic 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, App. D").

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

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

c. Column 3 - National Stock Number. 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, if required, and gives a description of the item. The last line for each item indicates the part number, followed by the Federal Supply Code for Manufacturer (FSCM) in parentheses, as applicable.

e. Column 5 - Unit of Measure (Unit of Meas). Indicates the measure used in performing the actual maintenance function. 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 SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION PART NO. AND FSCM	(5) UNIT OF MEAS.
1	O	6665-00-859-2214	M229 Refill Kit for M10 Alarm System D5-15-4700 (81361)	1
2	O	6665-01-016-8399	M256 Detection Kit, Chemical Agent D5-77-2001 (81361)	EA
3	O	6850-00-753-4870	D2 Decontamination Agent (Canister) 1-1/2 Quart	EA
4	O	6240-01-072-2278	Lamp, Sealed-Beam 7613 (08805)	EA
5	O		Lamp, Incandescent - 125 Volt, 6 Watt Westinghouse, 6S6DC-125V B4008722 (65803)	EA
6	O	6240-00-155-8653	Lamp, Incandescent - 25 Watt 25T8DC SC-C-681179 (80063)	EA
7	O	6240-00-152-2996	Lamp, Fluorescent - 20 Watt SC-C-539495 (80063)	EA
8	O	6240-00-299-2884	Starter, Fluorescent - FS-2 SC-B-589504 (80063)	EA
9	C	6240-01-155-7786	Lamp, Incandescent for Lantern PR2 (08806)	EA
10	O	6240-01-614-7299	Bulb, Incandescent, 60 Watt for Drop Light	EA
11	O	6240-00-152-2982	Lamp, Fluorescent for Desk Lamp F15T8CW (08806)	EA
12	O	6135-01-G14-6107	Battery Pack for Emergency Lights 610518-2 (80538)	EA
13	C	6135-01-103-6514	Battery for Lantern Size D (06121)	EA
14	C		Paper, Writing, Pad 8-1/4 x 10-3/4	EA
15	C		Pencil, No. 2	EA
16	C		Pen, Ball Point 011-SWPP (09185)	EA
17	C		Labels 43711 (16956)	EA
18	C		Vacuum Cleaner Bags	EA
19	C		Cleaning Rags/Towels, Cloth or Paper	ROLL/ BAG
20	C		Cleaning Solution, Mild Soap	QT
21	C		Container, 2-1/2 Gal.	EA
22			Adhesive RC680 MIL-R-4682 (81349)	EA

APPENDIX F

FIELD MODIFICATION OF AIR CONDITIONER NSN 4120-168-1781

F-1. General.

This modification applies only to a new NSN 4120-168-1781 air conditioner that has not been previously modified for use in the OA-8991/MSM repair facility van. An air conditioner that has been previously modified will contain a nameplate below the control panel stating that the air conditioner is modified in accordance with drawing B4008506. Parts from a previously modified faulty air conditioner are used to modify the new air conditioner. These instructions are used when this modification is performed in the field.

F-2. Modification Instructions. (Refer to figure F-1.)

a. Remove front access covers from faulty and new air conditioners. Save modified cover for use in modifying new air conditioner. Save unmodified cover for use in refurbishing faulty air conditioner.

b. Remove connector from left side of new air conditioner. Save for use in refurbishing faulty air conditioner.

NOTE

If the control panel assemblies from the faulty and new air conditioners are mechanically interchangeable, exchange control panel assemblies and proceed to step m. Otherwise, proceed to step c.

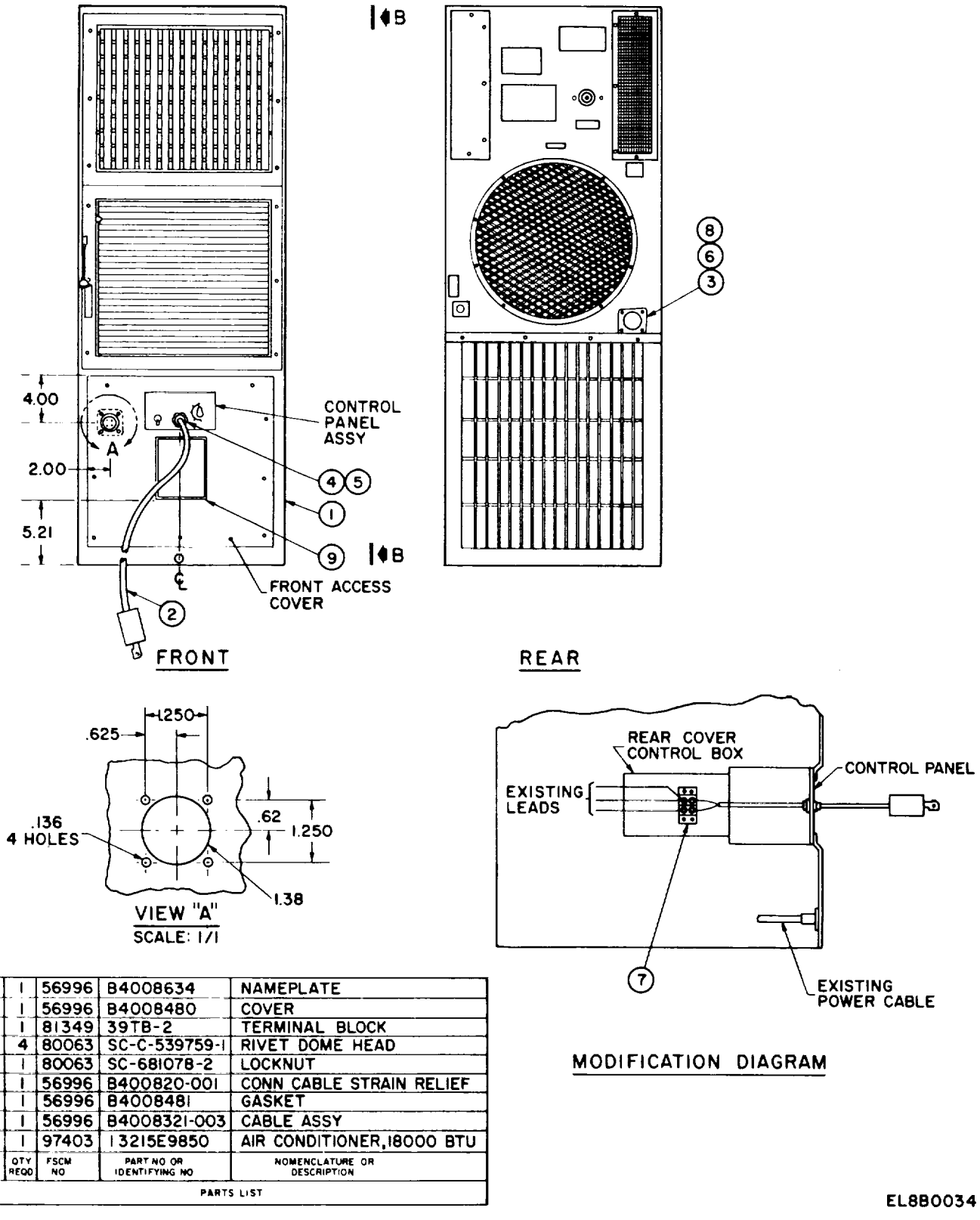
c. Remove control panel assembly from new air conditioner and disassemble.

d. Disconnect three existing wire leads from thermostat.

e. Remove thermostat, capillary and sensing bulb. Save for use in refurbishing faulty air conditioner.

f. Remove control panel assembly from faulty air conditioner.

g. Remove terminal block from control panel of faulty air conditioner. Install terminal block on inside of back plate of control panel removed from new air conditioner.



FIND NO	QTY REQD	FSCM NO	PART NO OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION
9	1	56996	B4008634	NAMEPLATE
8	1	56996	B4008480	COVER
7	1	81349	39TB-2	TERMINAL BLOCK
6	4	80063	SC-C-539759-1	RIVET DOME HEAD
5	1	80063	SC-681078-2	LOCKNUT
4	1	56996	B400820-001	CONN CABLE STRAIN RELIEF
3	1	56996	B4008481	GASKET
2	1	56996	B4008321-003	CABLE ASSY
1	1	97403	13215E9850	AIR CONDITIONER,18000 BTU

PARTS LIST

Figure F-1. Air Conditioner Modification (Sheet 1 of 2)

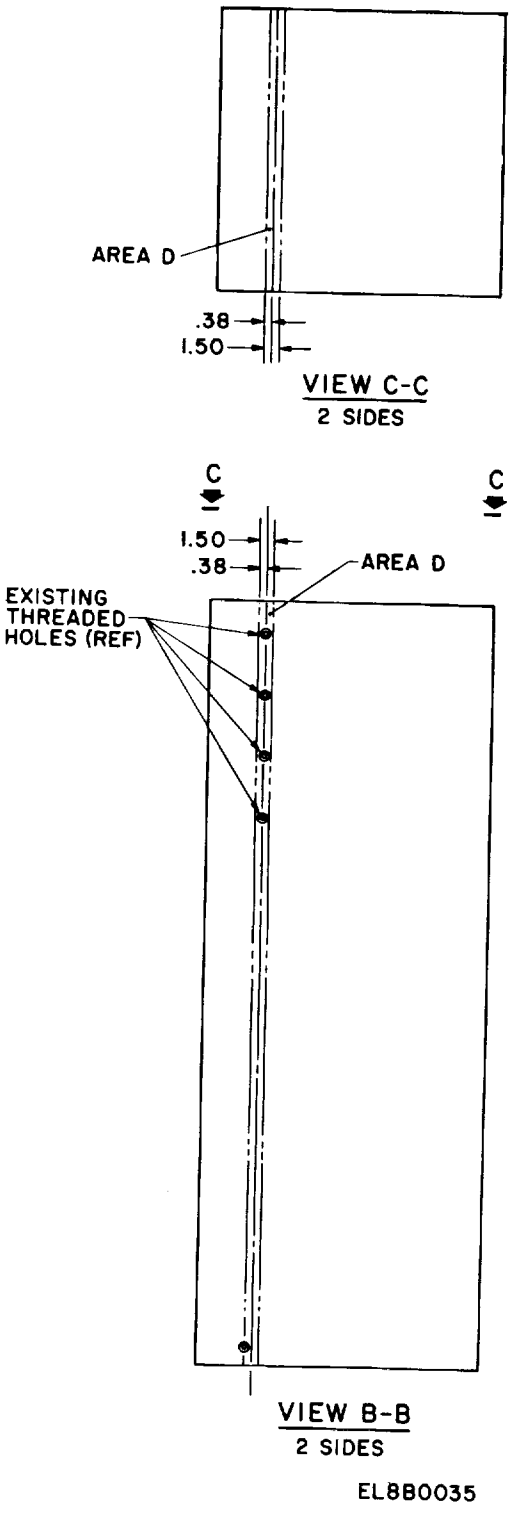


Figure F-1. Air Conditioner Modification (Sheet 2 of 2)

h. Enlarge shaft clearance hole on control panel removed from new air conditioner to accommodate a .500 Dia. conduit fitting.

i. Remove cable locknut and strain relief (F/N 2, 5, & 4) from control panel removed from faulty air conditioner, and install through enlarged hole in control panel removed from new air conditioner.

j. Connect cable terminal leads to terminal block as shown in figure F-1.

k. Reassemble control panel removed from new air conditioner, and reinstall on new air conditioner.

l. Save control panel removed in step f. for use in refurbishing faulty air conditioner.

m. Remove existing internal power cable from outside wall of new air conditioner. Relocate to front of modified front access cover from faulty air conditioner.

n. Install modified front access cover on new air conditioner.

o. Install cover plate and gasket (F/N 3 & 8) over unused outside receptacle opening of new air conditioner.

NOTE

Mask area D before stripping finish.

p. Strip existing finish from area D as shown in figure F-1. Apply steps 1 and 2 of P213.1 (protect threads) per MIL-F-14072 in preparation for installation of RFI gasket.

By Order of the Secretary of the Army:

EDWARD C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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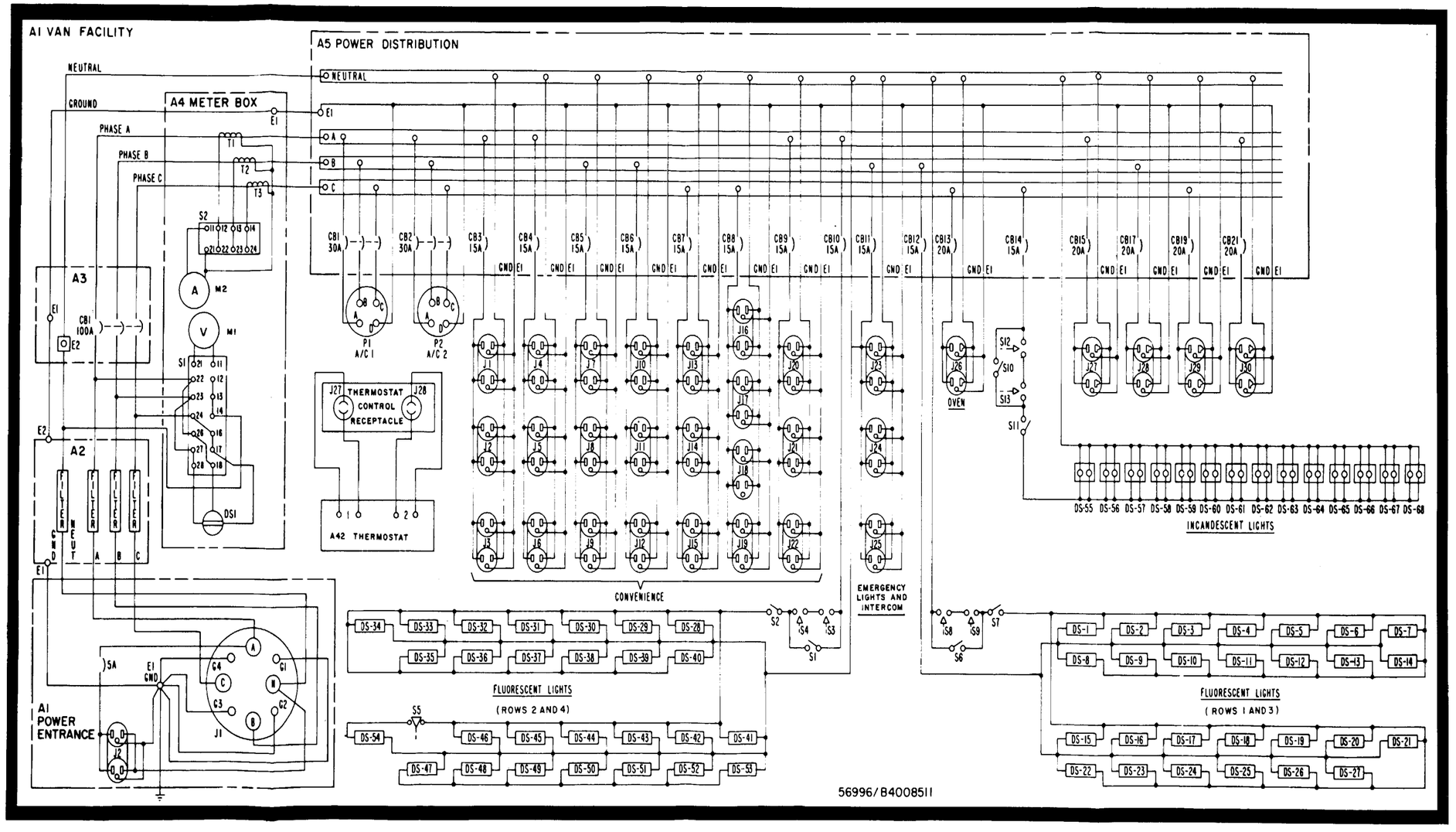


EL880010

Figure FO-1. OA-8991/MSM Electronic Equipment Repair Facility Schematic Diagram

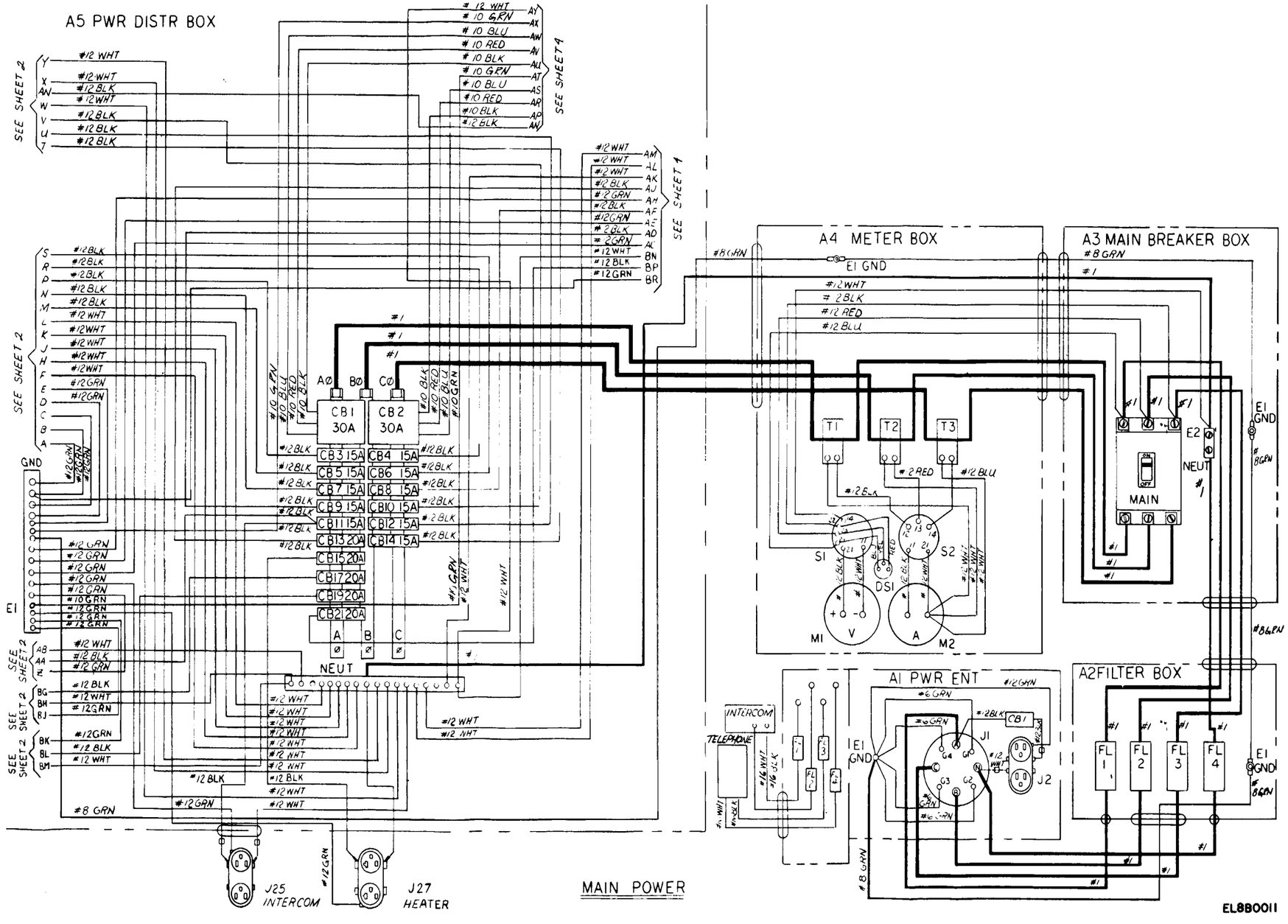


Figure FO-2. OA-8991/MSM Electronic Equipment Repair Facility AC Power Wiring Diagram (Sheet 1 of 5)

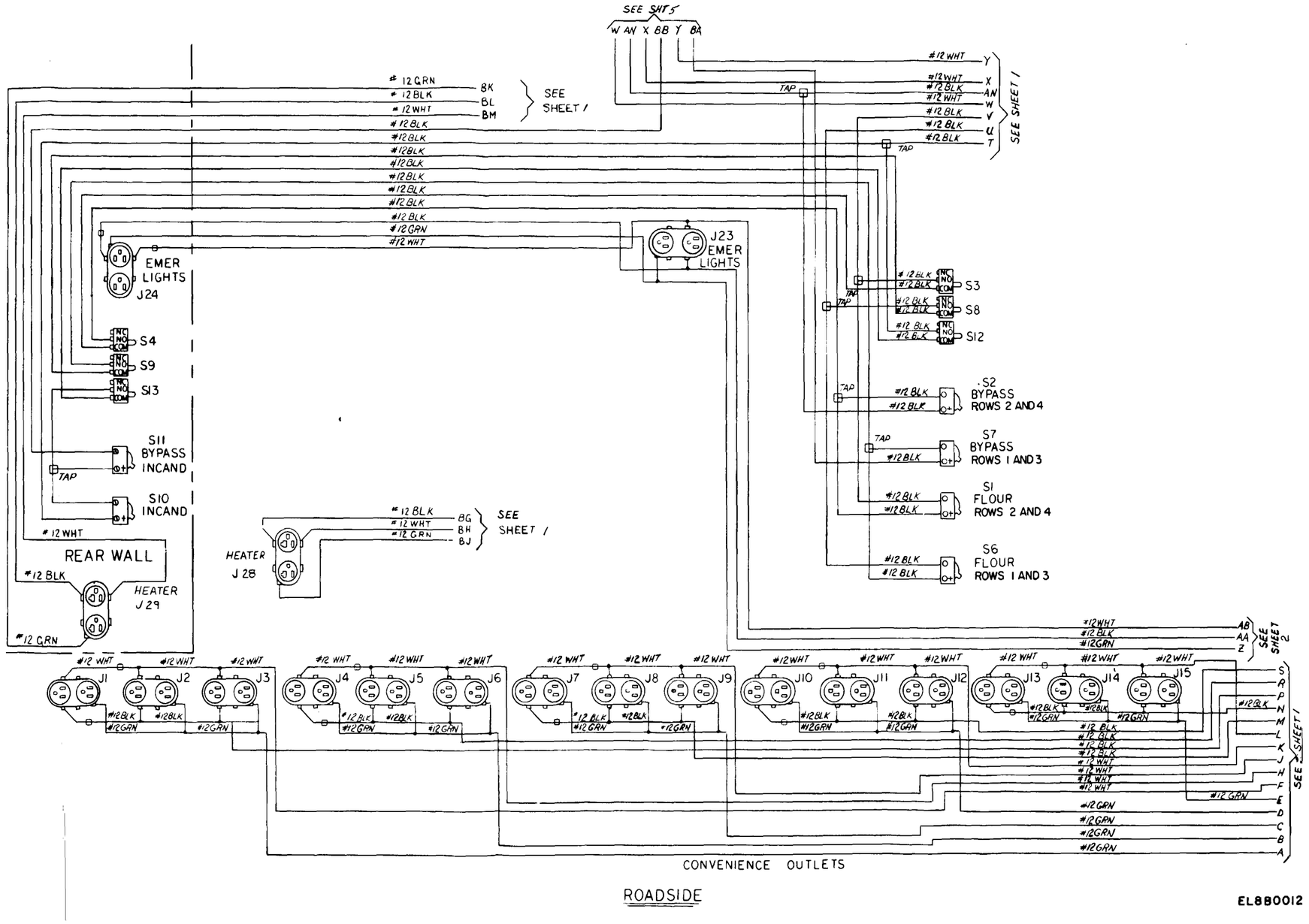


Figure FO-2. OA-8991/MSM Electronic Equipment Repair Facility AC Power Wiring Diagram (Sheet 2 of 5)

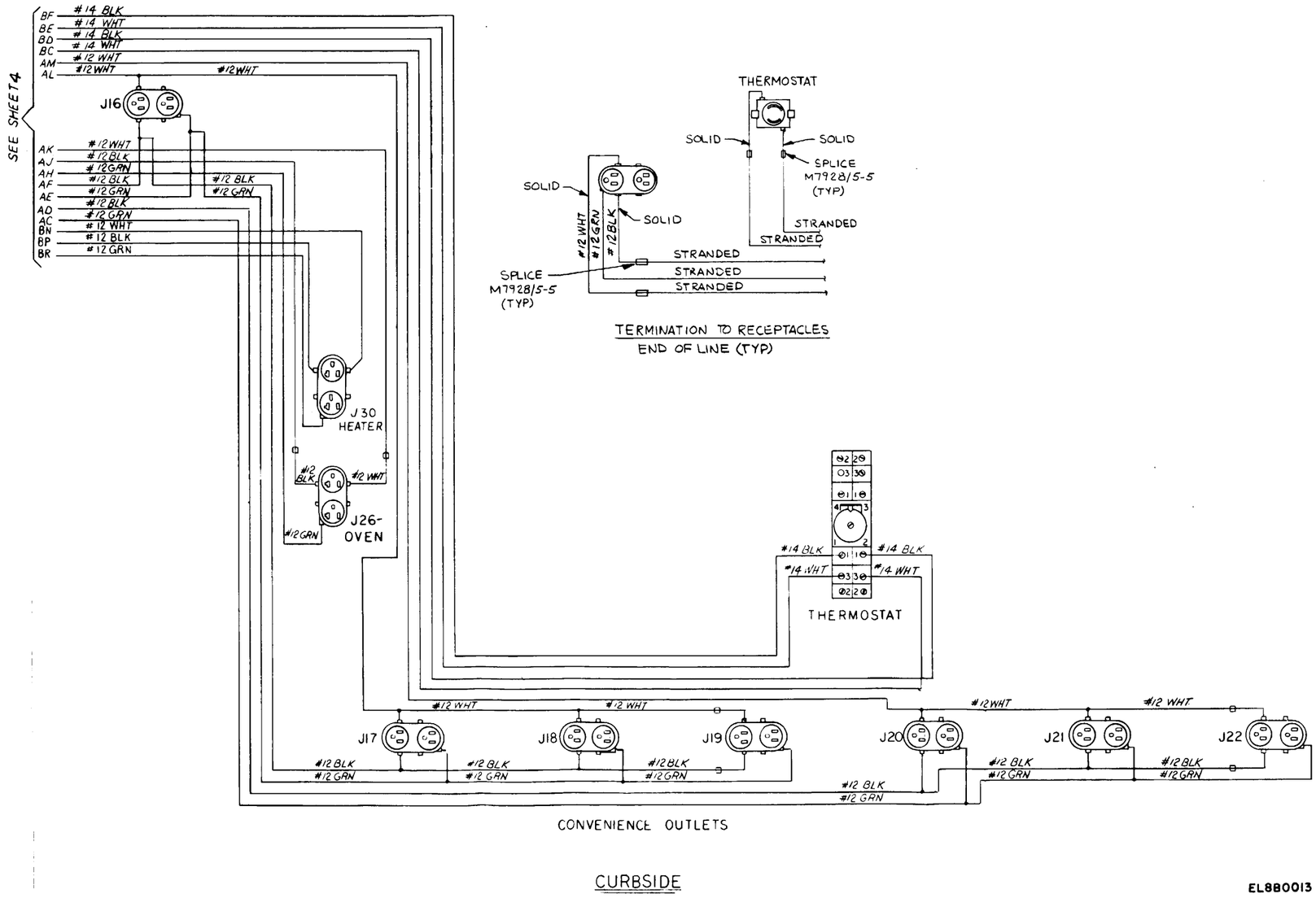


Figure FO-2. OA-8991/MSM Electronic Equipment Repair Facility AC Power Wiring Diagram (Sheet 3 of 5)

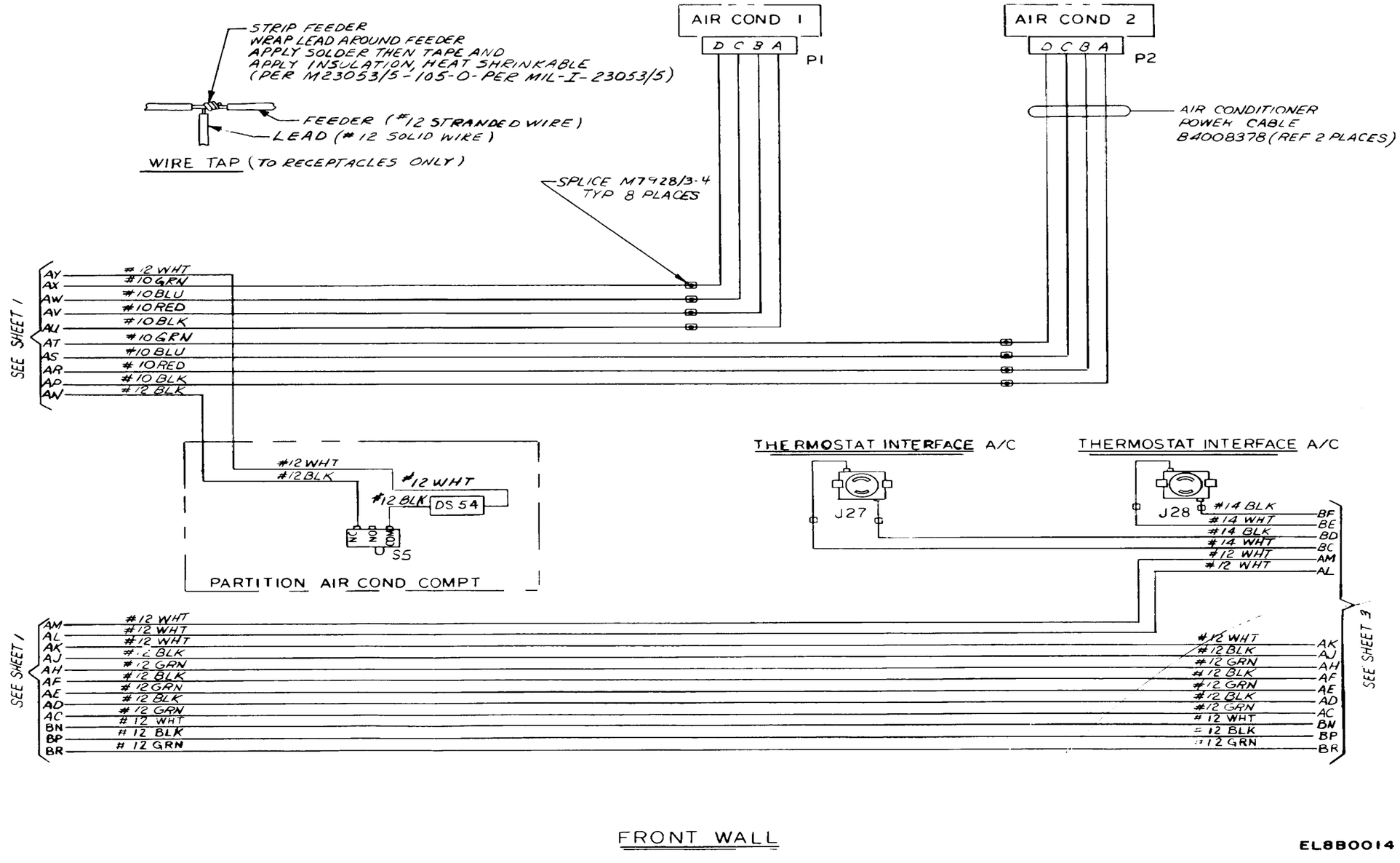


Figure FO-2. OA-8991/MSM Electronic Equipment Repair Facility AC Power Wiring Diagram (Sheet 4 of 5)

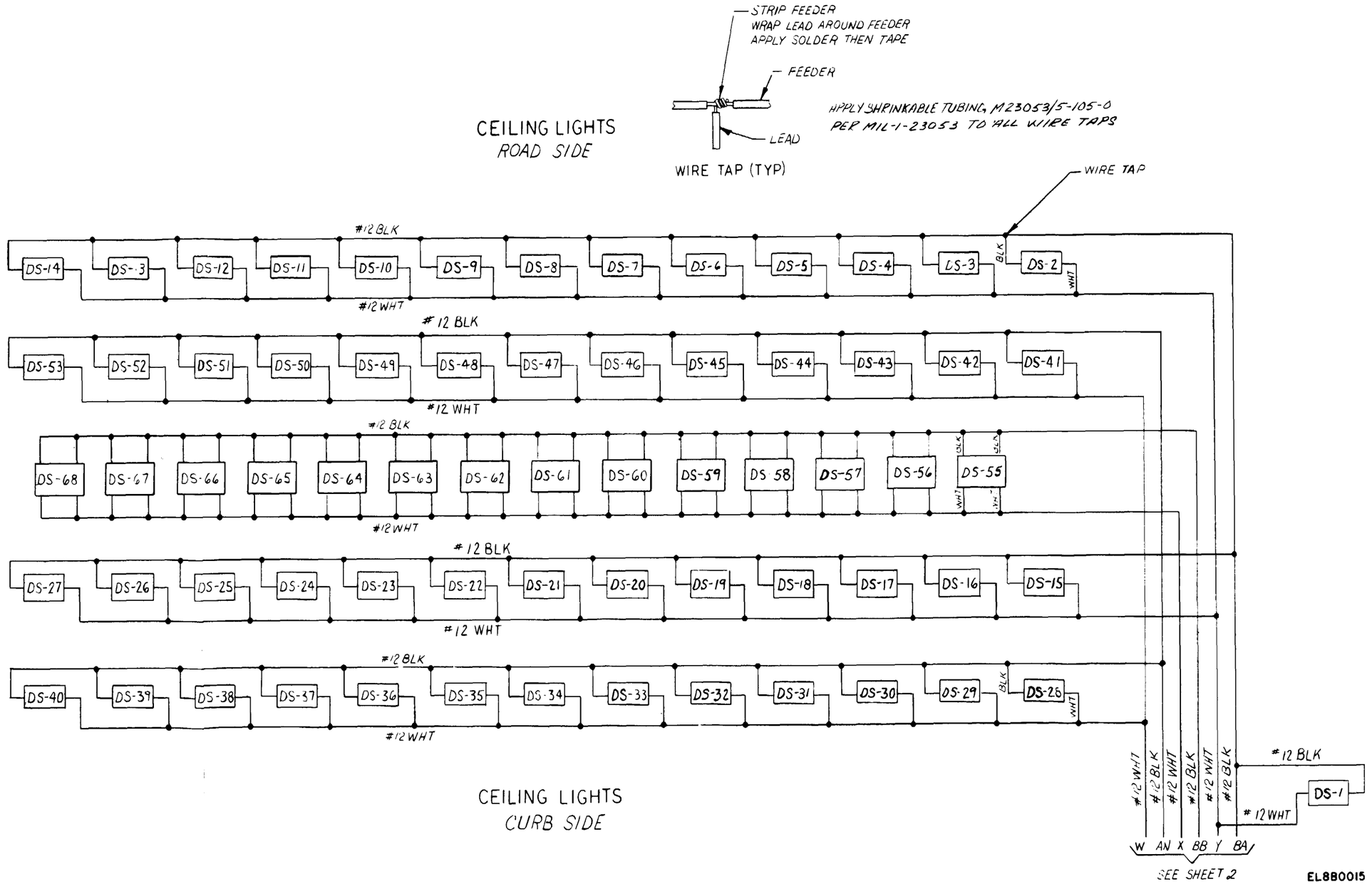


Figure FO-2. OA-8991/MSM Electronic Equipment Repair Facility AC Power Wiring Diagram (Sheet 5 of 5)

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

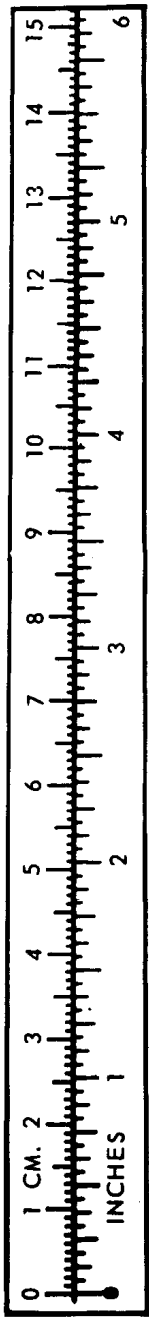
TEMPERATURE

5/9 (°F - 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 (°C + 32) = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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