TECHNICAL MANUAL

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

ELECTRONIC SHOP MAINTENANCE FACILITY

AN/ARM-164

(NSN 4940-00-122-7224)

HEADQUARTERS, DEPARTMENT OF THE ARMY
OCTOBER 1979

WARNINGS

HIGH VOLTAGE is used in the operation of this equipment. DEATH ON CONTACT may result if personnel fail to observe safety precautions. All components in the system may have high voltage on exposed terminals. Before replacing equipment, set power switches to off. and remove the power cable from the power source. Ground high voltage touching them.

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 TRICHLOROTHIFLUOROETHANE 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.

Turn off the shelter's MAIN circuit breaker and disconnect the power input cable from the input power receptacle in the POWER ENTRANCE BOX before attempting any repairs on the POWER ENTRANCE BOX or POWER DISTRIBUTION BOX.

The ground rods and grounding leads must be installed before power is connected to the shelters. To avoid injury to personnel and damage to the equipment. make sure that the power lines at the external power source have been deenergized before power is connected to the shelters.

When occupied, shelters must be ventilated at all times to prevent asphyxiation.

TECHNICAL MANUAL

NO. 11-4940-479-14

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *10 OCTOBER 1979*

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

ELECTRONIC SHOP-MAINTENANCE FACILITY AN/ARM-164

(NSN 4940-00-122-7224)

REPORTING OF ERRORS

You can improve this manual by recommending improvements using DA Form 2028-2 located in the back of the manual. Simply tear out the self-addressed form, fill it out as shown on the sample, fold it where shown, and drop it in the mail.

If there are no blank DA Forms 2028-2 in the back of your manual, use the standard DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forward to the Commander, US Army Communications and Electronics Materiel Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703.

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

LIST OF ILLUSTRATIONS

*A fold-in page. located in the back of the manual.

LIST OF TABLES

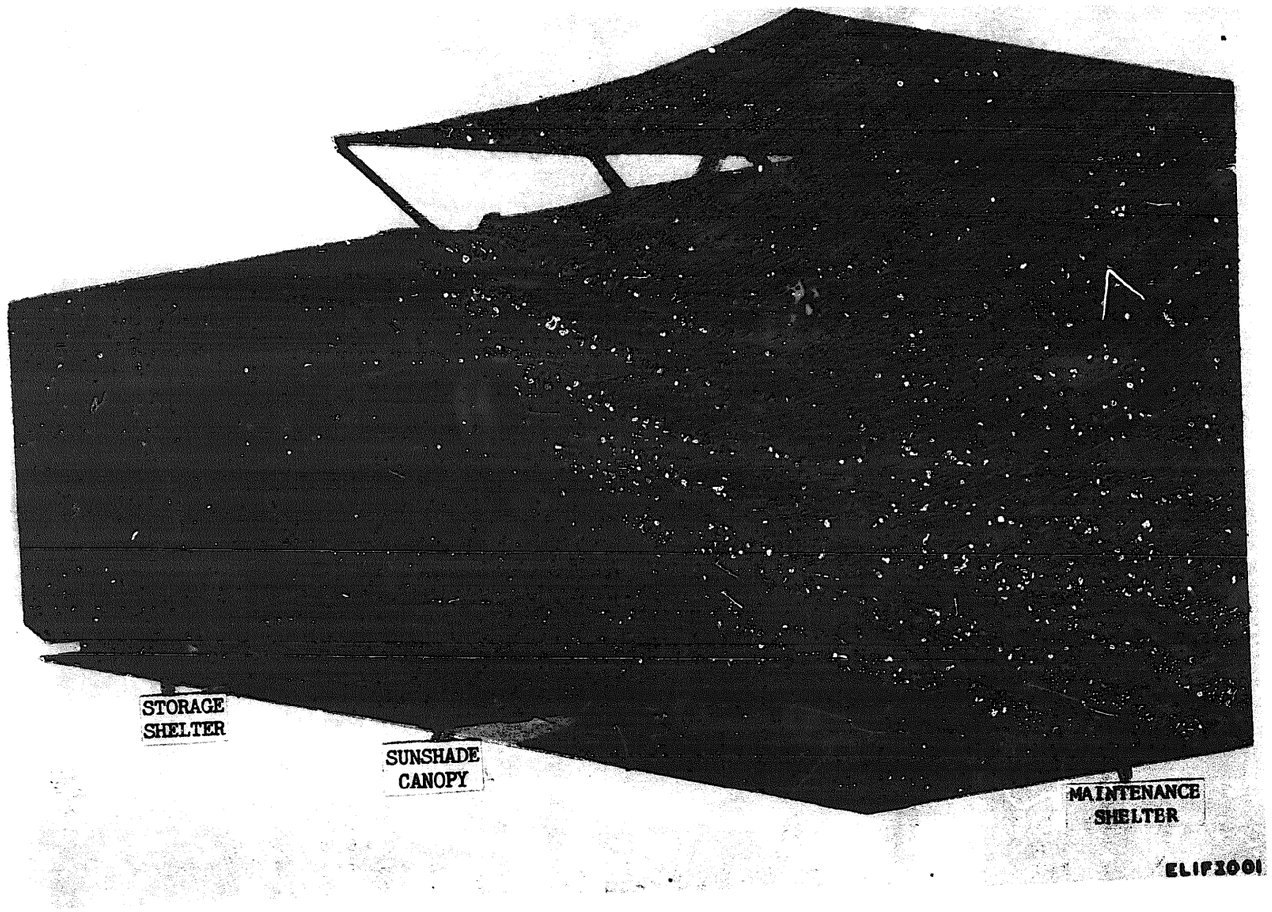


Figure 1-1. Electronic Shop-Maintenance Facility AN/ARM-164.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Electronic Shop-Maintenance Facility AN/ARM-164 (fig. i - 1. and provides instruction for installation, operation and operator/crew and organizational maintenance. Included are operations under usual and unusual conditions. preparation for for movement, inspect inspection, cleaning, preventive maintenance, and replacement of parts. It also covers direct support and general support maintenance instructions. Repair parts and special tool lists are contained in TM 11-4910-479-23P.

b. Throughout this manual, where appropriate. references are made to other publications which cover installation, operation. and maintenance of equipment installed in, or used in conjunction with, the AN/ARM-164. A complete Testing of applicable reference publications is provided in appendix A. The components of end item list are in appendix B. The maintenance allocation chart i:. in appendix D.

1-2. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are modification work orders (MWO's) pertaining to the equipment.

1-3. Forms and Records

a Reports of Maintenance and Unsatisfactory *Equ*ipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at maintenance levels are listed in and prescribed by TM 3S-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Packaging Improvement Report) as prescribed in AR 700-58/NAVSUUPINST 4030.29/AFR 71-13/MCO P4030-29A and DLAR 4148.8.

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 4610.33B/AFR 75-18/MCO P4610.19C AND DLAR 4500.15.

1-4. Destruction of Army Electronics Materiel

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

1-5. Administrative Storage

Administrative storage of equipment issued to and used by Army activities shall be in accordance with TM 740-90-1.

1-6. Reporting Equipment Improvement Recommendations (EIR)

EIR can and must be submitted by anyone who is aware of an unsatisfactory condition with the equipment design or use. It is not necessary to show a new design or list a better way to perform a procedure; just simply tell why the design is unfavorable or why a procedure is difficult. EIR may be submitted on SE' 368 (Quality Deficiency Report). Mail direct to Commander. US Army Communications and Electronics Materiel Readiness Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, N J 07703. A reply will be furnished to you.

Section II. DESCRIPTION AND DATA

1-7. Purpose and Use

a. Purpose. One Electronic Maintenance-Shop Shelter S-551/ARM-164, commonly known as the maintenance shelter, and two Storage Shelters S-552/ARM-164 are the major components of Electronic Shop-Maintenance Facility AN/ARM-164, commonly known as the AN/ARM-164 maintenance facility. This facility provides transportable facilities for direct support bench testing troubleshooting. alignment. repair. and limited storage of airborne electronic equipment and components. Repair tools and test equipment. as authorized by the using organization's tables of allowance, are installed in the maintenance shop to accomplish field maintenance functions.

b. Use. The AN/AR164 - 16-C maintenance facility is

used for maintenance support of the airborne AN/ARQ-33 countermeasures system. The AN/ARM-164 storage shelters are used as storage facilities for repair parts and components.

1-8. Tabulated Data

a. Maintenance Facility AN/ARM-164.

External Power Source. . . . . Motor-Generator PU-619/M
Inputpower.. . . . . 208 vac, 60Hz, 36
Shelter type. . . . . Modified S-280B/G shelters
Shelter weights and dimensions:
- Length. . . . . 147 inches (3.7 meters)
- Width . . . . . 87 inches (2.2 meters)
- Height. . . . . 83 inches 12.1 meters)
- Weight:
  - Maintenance shelter without test equipment. . . . . 4.000 pounds
  - Storage shelter without test equipment. . . . 3.450 pounds

Lighting. . . . . Fluorescent and cold incandescent lamps

b. Maintenance Shelter S-551/ARM-164.

workbench area. . . . . 36 square feet (3.3 square meters).
Number of storage cabinets 6
Number of 6-drawer card files. 1
Availablepower.. . . . . 208 vac, 60Hz, 36: 120 vac, 60 Hz, 10,: 208 vac, 400 Hz, 30; 115 vac, 400 Hz, 10; 28 vdc.
Number of power outlets:
- 60-Hz convenience 12
- 60-Hz bench strip 15
- 60-Hz heater 3
- 400-Hz36 4
- 400-Hz10 6
- 28-vdc binding post pairs 4
- Air conditioner 2

Power requirements:
- Fluorescent lights (16) . . . . . 320 watts
- Incandescent lights (8). . . . . 200 watts
- Extension light. . . . . 75 watts
- Air conditioners (2). . . . . 2000 watts
- Heaters (2). . . . . .3000 watts

c. Storage Shelter S-552/ARM-164.

Shelf storage area . . . . . 150 square feet (13.9 square meters).
Number of storage cabinets 2
Number of 16-drawer card files. . . 1
Available power. . . . . 208 vac, 60 Hz,36: 120 vac, 60 Hz, 10.
Number of power outlets:
- 60-Hz convenience 4
- Exhaust blowers (switched). 2
- Heaters. 3
- Dehumidifier. 1

Power requirements:
- Fluorescent lights (121 . . . . . 240 watts
- Incandescent lights (6). . . . . 150 watts
- Exhaust blower (2) . . . . . 400 watts
- Electric heaters (2) . . . . . 3000 watts
- Dehumidifier. . . . . 1500 watts

1-9. Description

The AN/ARM-164 maintenance facility consists of one maintenance shelter (S-551/ARM-164) and two storage shelters (S-552/ARM-164). The maintenance and storage shelters are modified S-280B/G shelters. The electronic maintenance and storage shelters are adapted for transportation by truck, helicopter or fixed-wing cargo aircraft and for ground or' truck-operating emplacements under all climatic conditions. All shelters are fully insulated. watertight and airtight. At each of the four top corners are lifting and tiedown eyes for the sling assembly cables (supplied with the shelters) used to tie down the shelters during transit or for lifting the shelters during installation and siting. The sling assembly cables and lifting eyes can be used for transporting the shelters by helicopter. Towing eyes are mounted on the lower outside corners and three skids are bolted to the bottom of each shelter. To reach the top, three steps are installed on the center curbside wall of each shelter. A sun shield is provided for the maintenance shelter only. The entrance door in the rear wall contains a hinged air vent with cover. Alternating current for the shelters is obtained from an externally connected motor-generator, or other external 208-volt, 60-Hz, 30 power source.

a. Maintenance Shelter S-551/ARM-164.

(1) Roadside wall (fig. 1-Z). Three storage cabinets with a total of 30 drawers and a wastebasket are located under the workbench. Storage extends the full length of the roadside wall. Each group of storage drawers is secured with a tiedown bar. Two electric heaters and a fire extinguisher are located under the workbench near the rear of the shelter. Eight 120-volt. 60-Hz receptacles are flush mounted on the facing edge of the workbench. Power Supply PP-4763A/GRC, located on the floor at the front of the shelter. supplies 28-volt direct current power to the equipment being tested or calibrated. A 28-volt dc power duct.. located directly above the workbench, contains two sets of 28-volt dc terminal binding posts with associated circuit breakers and two 120-volt, 60-Hz convenience duplex receptacles. The power duct installed just below the air conditioner ducting contains four 120-volt, 60-Hz duplex convenience outlets and two grounding studs. A 400-Hz power duct, located just. above the 28-volt dc power duct, contains three 115-volt, 400-Hz duplex outlets, two single 208-volt. 400-Hz, 3-phase receptacles. and two grounding studs. Shock-mounted test equipment. shelving extends approximately three quarters of the length of

the shelter toward the front wall. Tiedown straps are provided in one of the storage cabinets for mounting and securing test equipment to the test equipment shell. Mounted to the roadside wall and the ceiling is an air conditioner duct with three ventilators. Telephone Set TA-312/PT is mounted on the front roadsie wall over the test equipment shelf.

Figure 1-2. Maintenance shelter, roadside wall, interior view.

(2) Roadside/rear wall (fig. l-3 and 1-5). A fire axe is mounted on the lower section of the entrance door. A filtered air vent, with an outside hinged cover is in the center section of the entrance door. An interlock micro-switch, mounted in the power duct adjacent to the door frame, extinguishes the shelter lights when the door is opened during blackout conditions. A POWER DISTRIBUTION BOX, MAIN FILTER box, and POWER ENTRNACE BOX are mounted on the roadside of the rear wall. A power duct immediately to the roadside of the entrance door contains the INCANDESCENT COLD START LIGHTS switch, two switches labeled FLUORESCENT LIGHTS ODD and FLUORESCENT LIGHT EVEN, and a BYPASS-BLACK-OUT switch. At the bottom of this power duct are two 120-volt, 60-Hz receptacles for HEATER 1 and HEATER 2. A weapons rack, mounted to the common items panel and a metallic plate attached to the floor, holds two weapons.

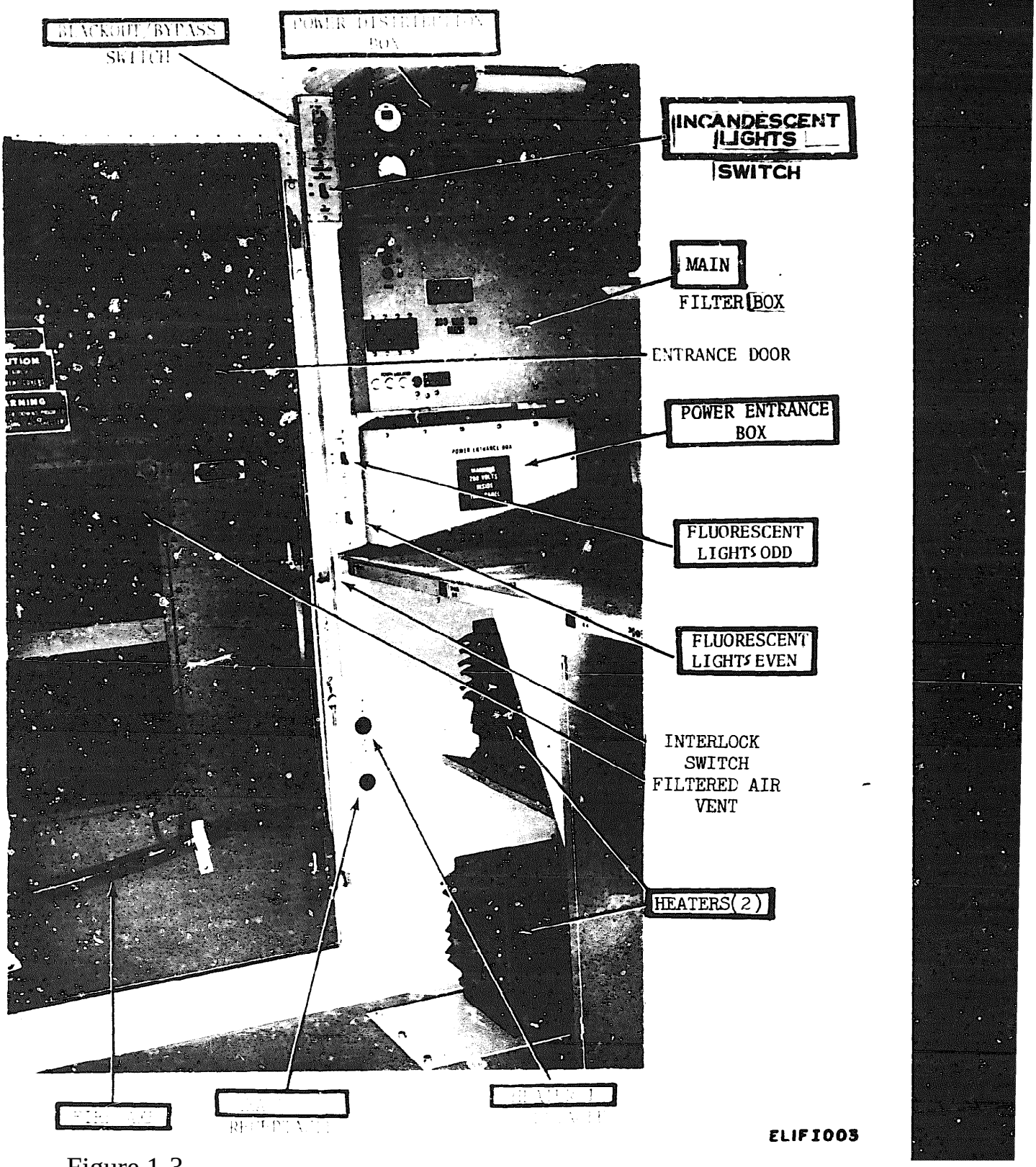

BLACKOUT/BYPASS SWITCH
INCANDESCENT LIGHTS SWITCH
MAIN FILTER BOX
ENTRANCE DOOR
POWER ENTRANCE BOX
FLUORESCENT LIGHTS ODD
FLUORESCENT LIGHTS EVEN
INTERLOCK SWITCH
FILTERED AIR VENT
HEATERS(2)
ELIF1003

Figure 1-3.

(3) Curbside wail (fig. l-4). Three storage cabinets with a total of 30 drawers and a sledge hammer are located under the workbench, which extends approximately the full length of the curbside wall. Each group of storage drawers is secured with a tiedown bar. Spaces are provided between the storage cabinets for two shop stools. Each stool is equipped with a holddown device to secure it in place during shipment. Seven bench strip receptacles are flush mounted on the facing edge of the workbench. One of two power ducts located immediately above the workbench contains 28-volt dc binding post sets with associated circuit breakers and two 120-volt, 60-Hz convenience duplex receptacles, two 115-volt, 400-Hz, 3-phase receptacles and two grounding studs. A frequency converter is used to convert 208-volt, 60-Hz, 3-phase power to 208-volt, 400-Hz, 3-phase power, and is installed under the workbench on the floor at the rear of the shelter. The output power from the frequency converter is fed by a four-wire cable to a circuit breaker box through a duct. Shock-mounted equipment shelving is located above the workbench and extends approximately three quarters of the length of the shelter toward the front wall.

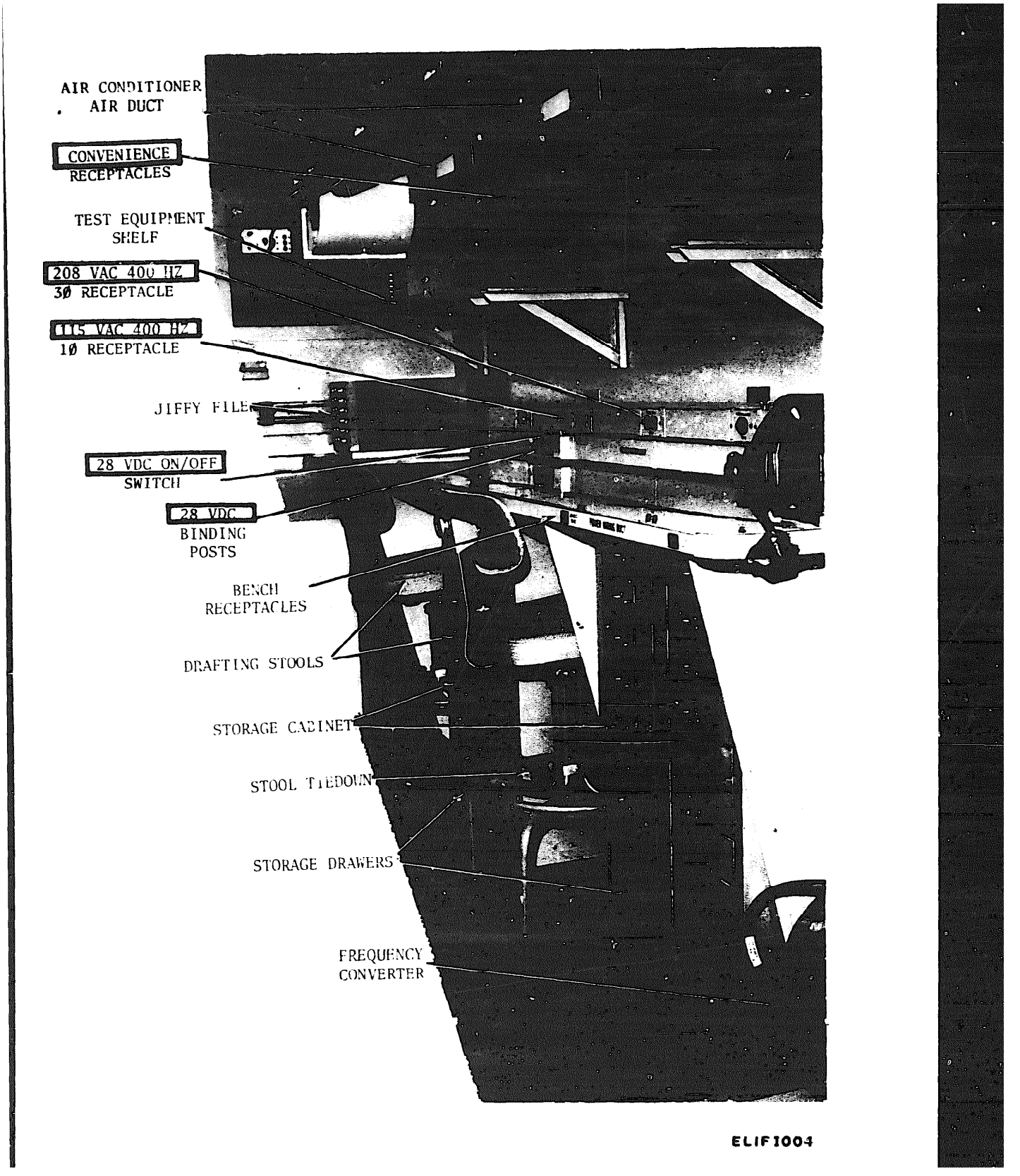


Figure 1-4. Maintenance shelter, curbside wall, interior view.

(4) Curbside wall (fig. 1-5). A hand lantern, first aid kit, hand brush, pencil sharpener and battery-operated clock are mounted on a common items panel located on the curbside of the rear wall. A power schematic wiring diagram is secured to the wall at the rear curbside wall of the shelter. A machinists vise is installed at the rear end of the workbench, and a six-drawer cardex file is located at the front end of the workbench. An air conditioning duct with three ventilators is mounted to the curbside wall and the ceiling.

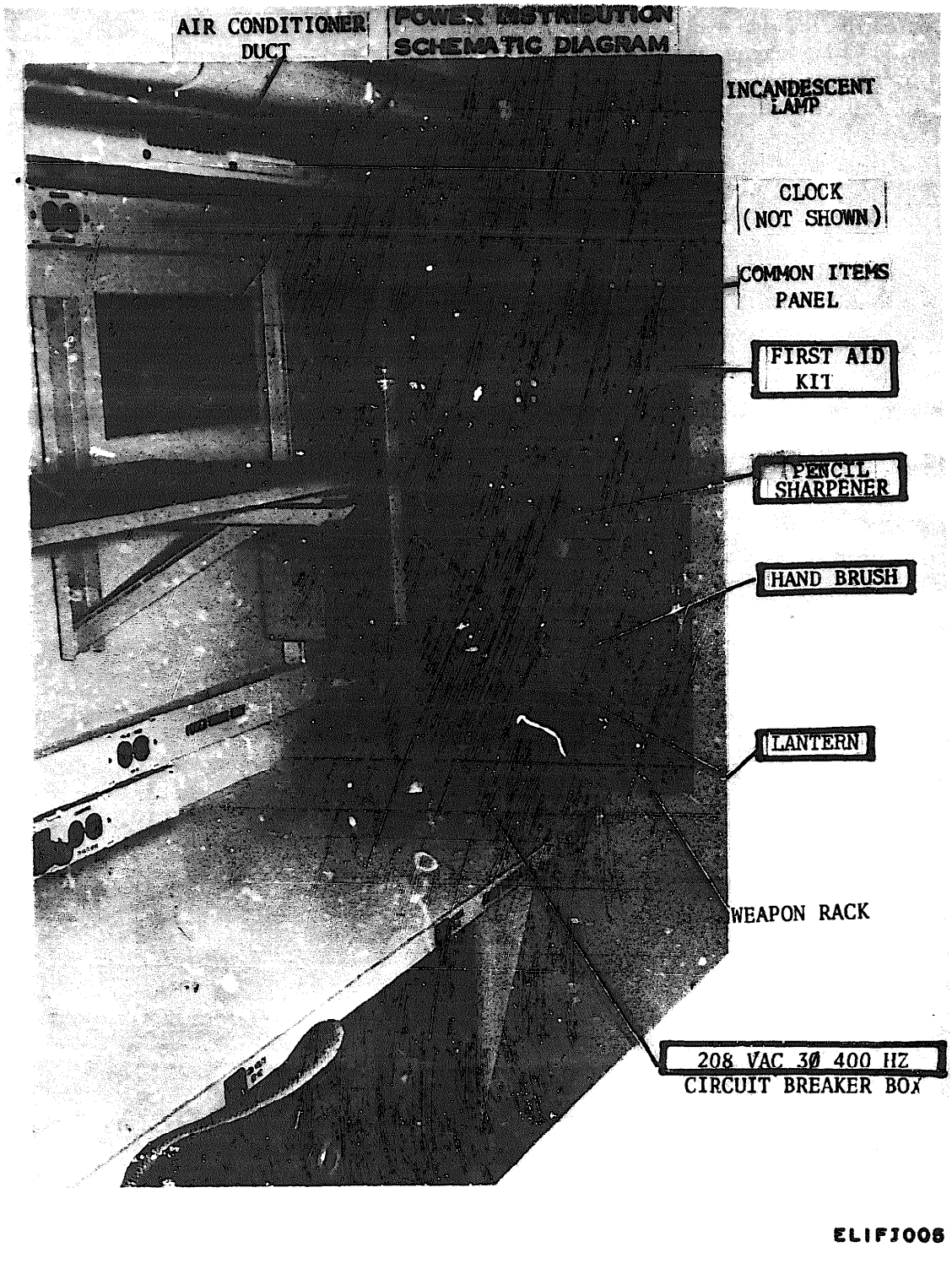


Figure 1-5. Maintenance shelter. curbside/rear wall, interior view.

(5) Floor plan (fig. l-6). When the equipment is secured for shipment or limited storage, the power cable assemblies with reels and the ladder are secured to the floor. A rubber mat is provided for the floor covering.

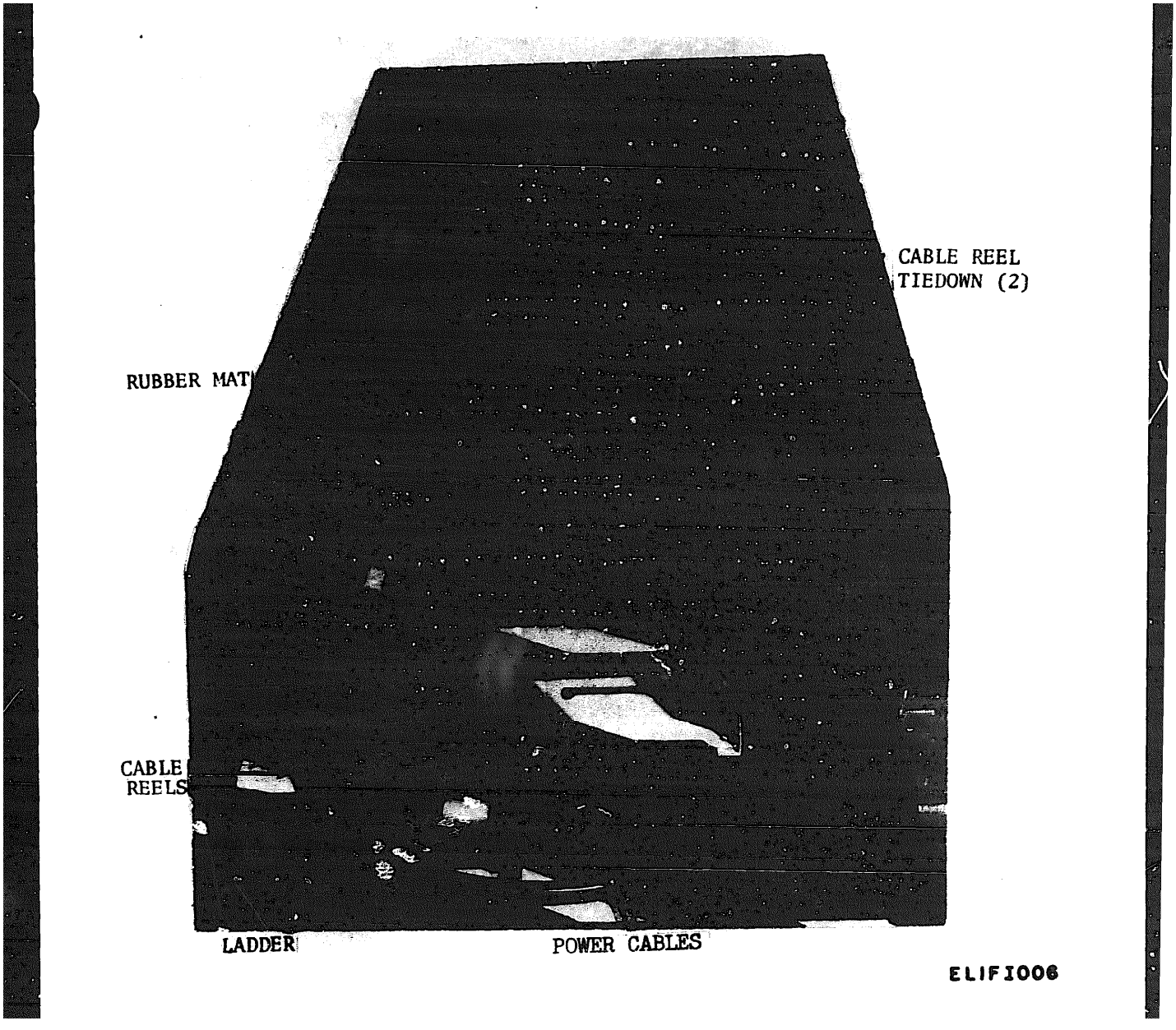


Figure 1-6. Maintenance shelter, floor plan.

(6) Ceiling plan (fig. 1-7). Two sets of power ducts are attached to the ceiling; a set near the curbside and roadside walls, respectively. Toward the front of each set of ducts is a 208-volt, 60-Hz, 3-phase air conditioner receptacle.

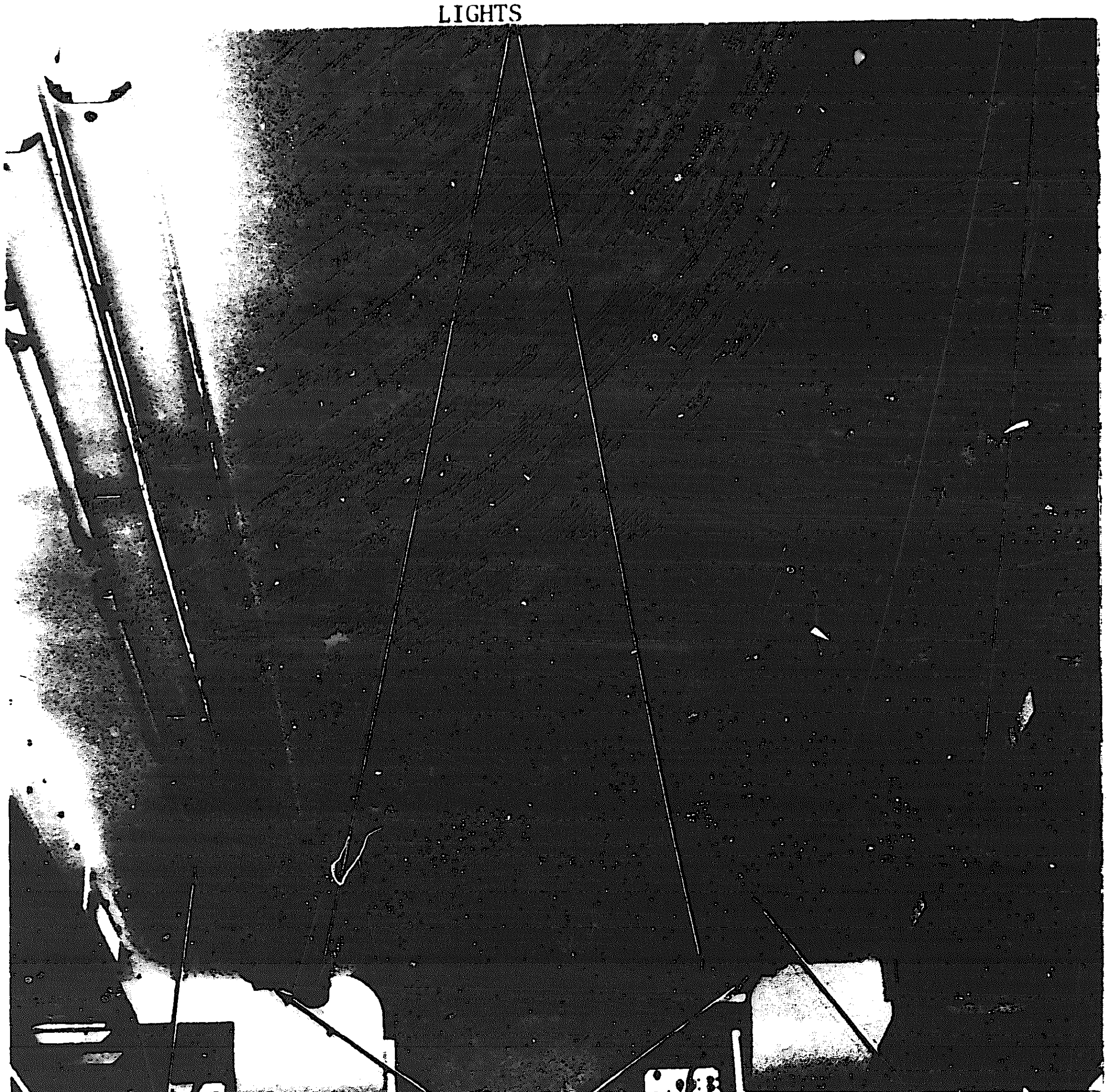


Figure 1-7. Maintenance shelter ceiling plan

(7) *Front wall* (fig. 1-8). On the upper portion of the front wall two air conditioners are installed with air ducts running nearly the length of the ceiling close to the roadside and curbside walls. A four-hook coat rack is installed on the front wall between the air conditioner units. A power wiring duct spans the front wall with a vertical branch containing 120-volt, 60-Hz power receptacles for Power Supply PP-4763A/GRC and HEATER 1. When not in use, the cable reel tiedown bars are fastened and stowed on the front wall. An oily waste can is located on the floor, against the front wall.

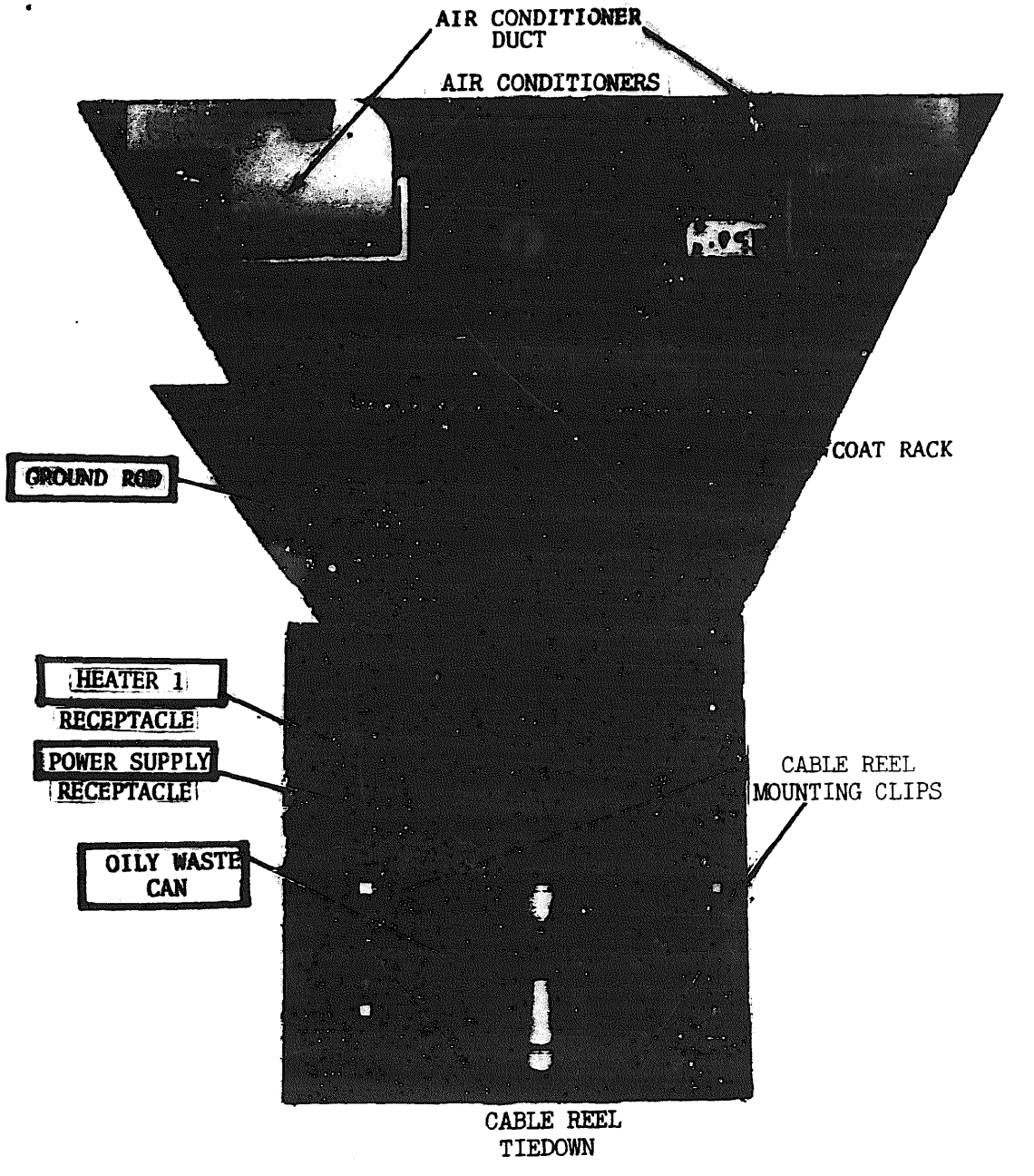


Figure 1-8. Maintenance shelter, front wall, interior view.

6. Storage Shelter.

(1) Front/roadside wall (fig. 1-9). Mounted toward the front of the roadside wall is a desk with one drawer and a swivel chair. The chair is equipped with a holddown device to secure it in place during shipment. A 16-drawer index card file on the right side of the desk is attached in place by brackets bolted to the wall and desk top. Above the desk. and mounted to the wall, is a Telephone Set TA-312 PT, a pencil sharpener, and a pencil holder. Above these

items is a battery-operated clock. Below the desk is a mounting bracket which holds a wastepaper basket. Located approximately in the center of the wall area is a rack with five shock-mounted shelves. A 10-drawer storage cabinet is mounted to the left of the rack. The cabinet is equipped with a vertically mounted bar to secure the drawers during shipment. Tiedown straps for use with the shock-mounted shelves are stored in the cabinet when not in use. Two electric heaters, mounted one above the other on brackets, are stored at the rear of the wall. A power duct with a 115-volt, 60-Hz duplex receptacle is mounted on the wall above the storage cabinet. An exhaust blower is mounted to the front/roadside wall.

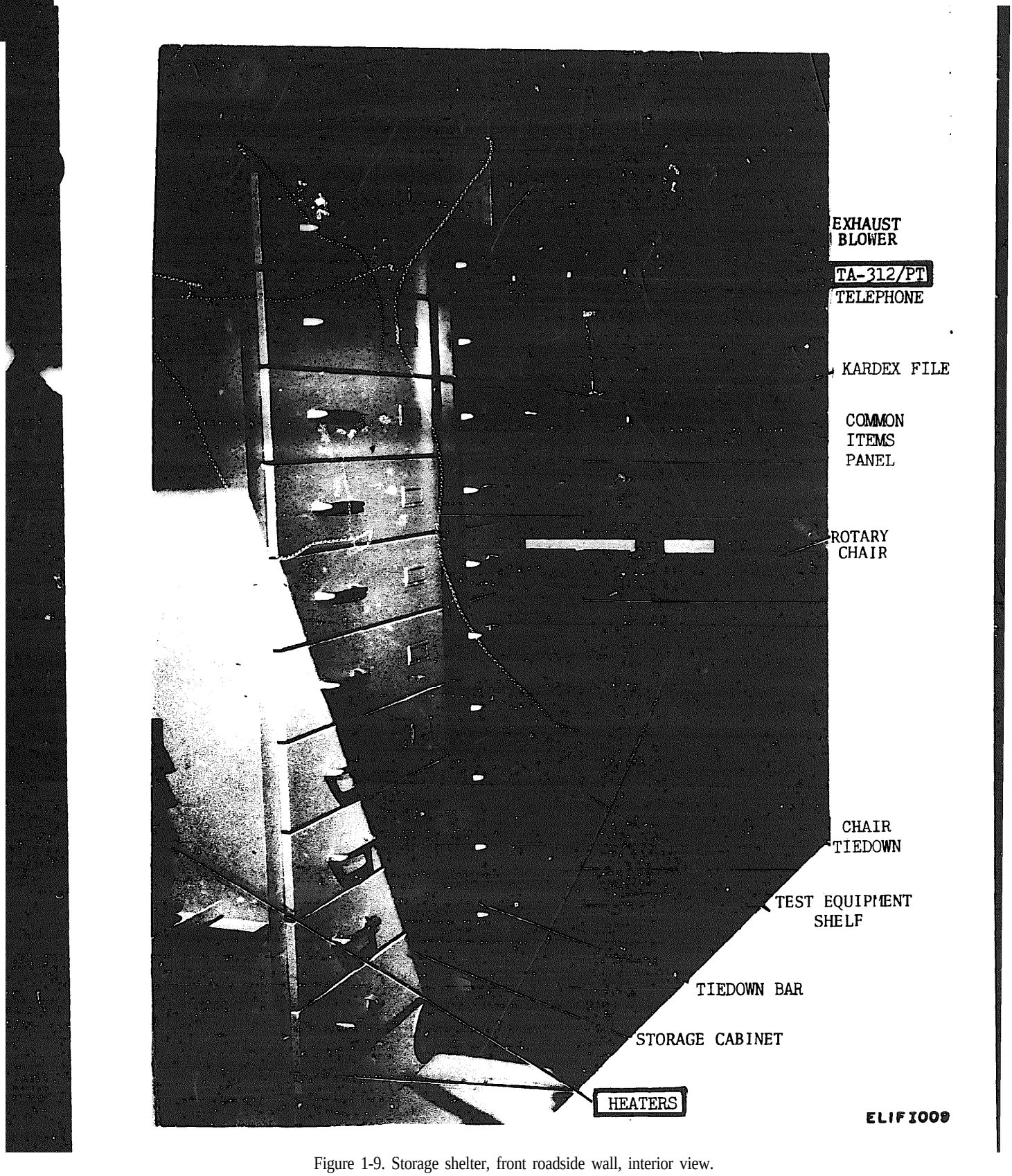


Figure 1-9. Storage shelter, front roadside wall, interior view.

(2) Front/curbside wall (fig. 1-10). A storage cabinet with 10 drawers is installed toward the rear section of the curbside wall. The cabinet is also equipped with a vertically mounted bar to secure the drawers during shipment. A power duct with a 115-volt, 60-Hz duplex receptacle is mounted above the storage cabinet. Two storage racks with adjustable shelves are used to store loose items. A dehumidifier is mounted on the lower shelf toward the front curbside wall. A 115-volt, 60-Hz convenience power duct with one duplex and two single receptacles is attached to the front portion of the curbside wall. The extension light, dust pan and other items are stored in the storage cabinet drawers. On the lower curbside of the front wall is the weapons rack. When not in use, the cable reel tiedown bar is fastened and stowed on the front wall. A power wiring schematic diagram for the shelter is centrally located on the upper part of the wall. An exhaust blower is mounted to the front curbside wall.

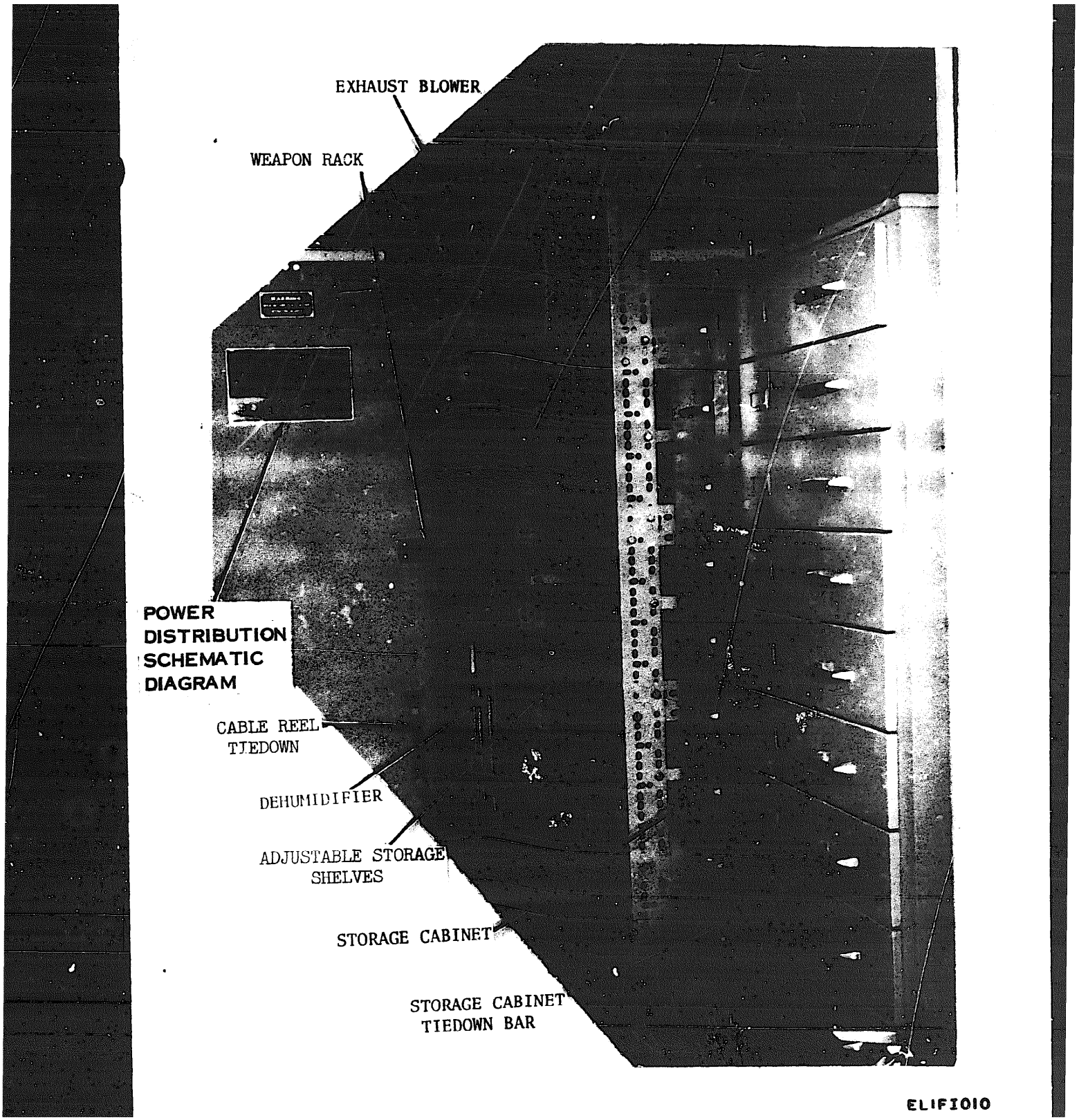


Figure 1-10. Storage shelter, front/curbside wall, interior view.

(3) Ceiling plan (fig. 1-11). **Three wiring ducts on the ceiling run parallel with the curbside and roadside walls. Toward the front wall end of each duct is a switched 120-volt, 60-Hz receptacle for BLOWER 1 and BLOWER 2. Lighting is a double row of fluorescent lamps on the roadside of the center aisle and a single row on the curbside. There is a total of 12 fluorescent lamps per storage shelter, with four lamps in each of the three rows. Located on the ceiling ducts are three spare fluorescent lamps and six spare starters.**

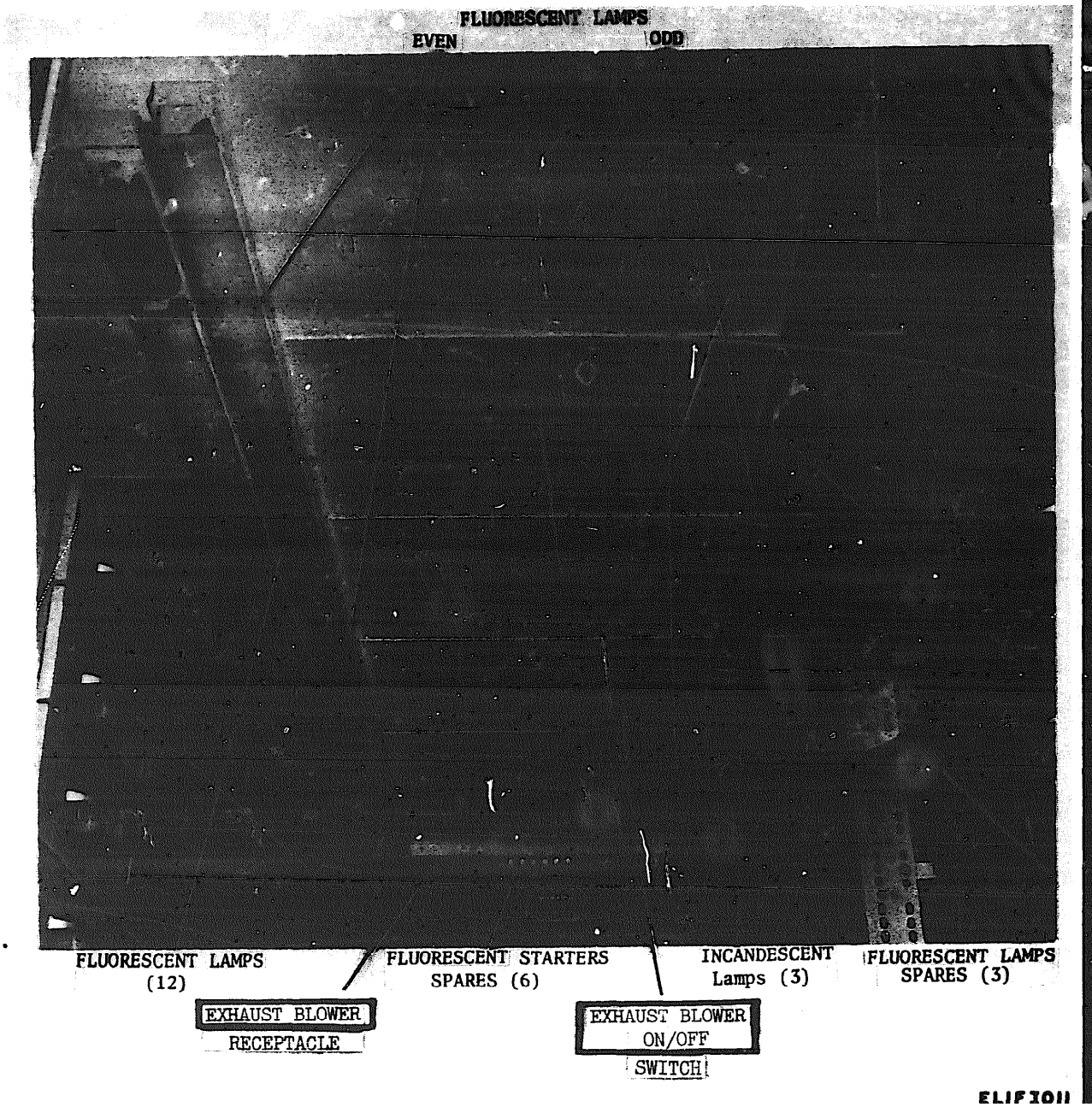


Figure 1-11. Storage shelter, ceiling plan.

(4) Rear/roadside wall (fig. 1-12). Mounted on the door frame is a microswitch which extinguishes the shelter lights when the door is opened during blackout operations. A power duct, immediately to the roadside of the entrance door, contains the switches for the INCANDESCENT COLD START LIGHTS, FLUORESCENT LIGHTS EVEN, FLUORESCENT LIGHTS ODD. and BYPASS-BLACKOUT. At the lower portion of the power duct are two 115-volt, 60-Hz receptacles for HEATER 1 and HEATER 2. Located in the same duct, but closer CO the roadside wall, is a 60-Hz POWER INDICATOR light. A POWER DISTRIBUTION BOX, 208 VAC, 3 Ø MAIN circuit breaker box and a POWER ENTRANCE BOX are mounted at the roadside of the rear wall.

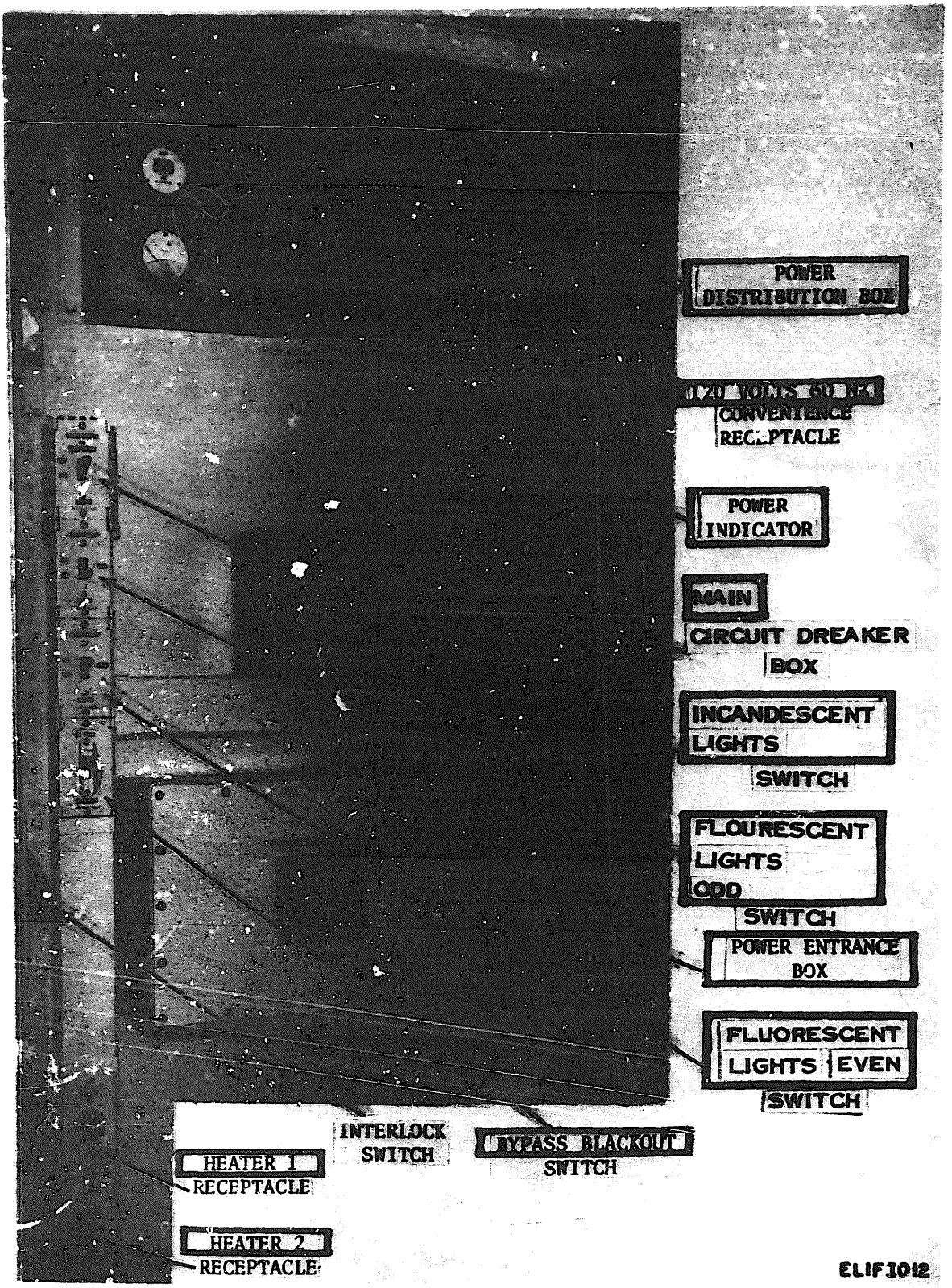


Figure 1-12. Storage shelter. rear/roadside u all, interior view.

(5) Rear/curbside wall (fig. 1-13). A fire axe is mounted on the lower section of the entrance door. A filtered air vent with an outside hinged cover is in the center section of the entrance door. A HAND LANTERN, FIRST AID KIT, HAND BRUSH, SCREWDRIVER, SLEDGE HAMMER, ground rods, and FIRE EXTINGUISHER are mounted at the curbside of the rear wall.

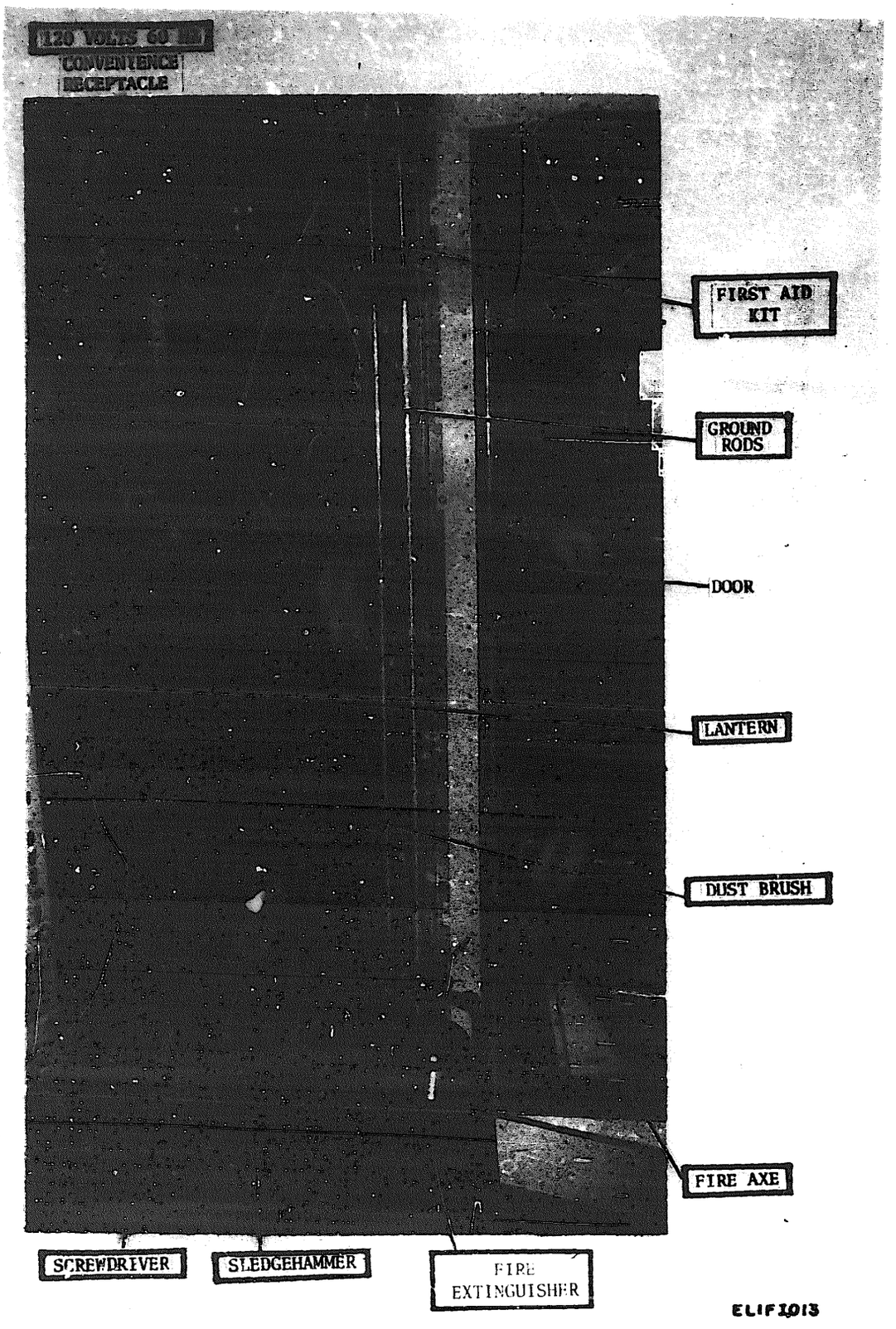


Figure 1-13. Storage shelter. rear/curbside wall, interior view.

(6) Floor plan (fig. l-14). When the shelter is prepared for shipment or limited storage, the power cable assemblies with reel, exhaust blowers and ladder are secured to the floor. Fasteners are provided for securing the equipment. A rubber mat is provided for floor covering when the shelter is in operation.

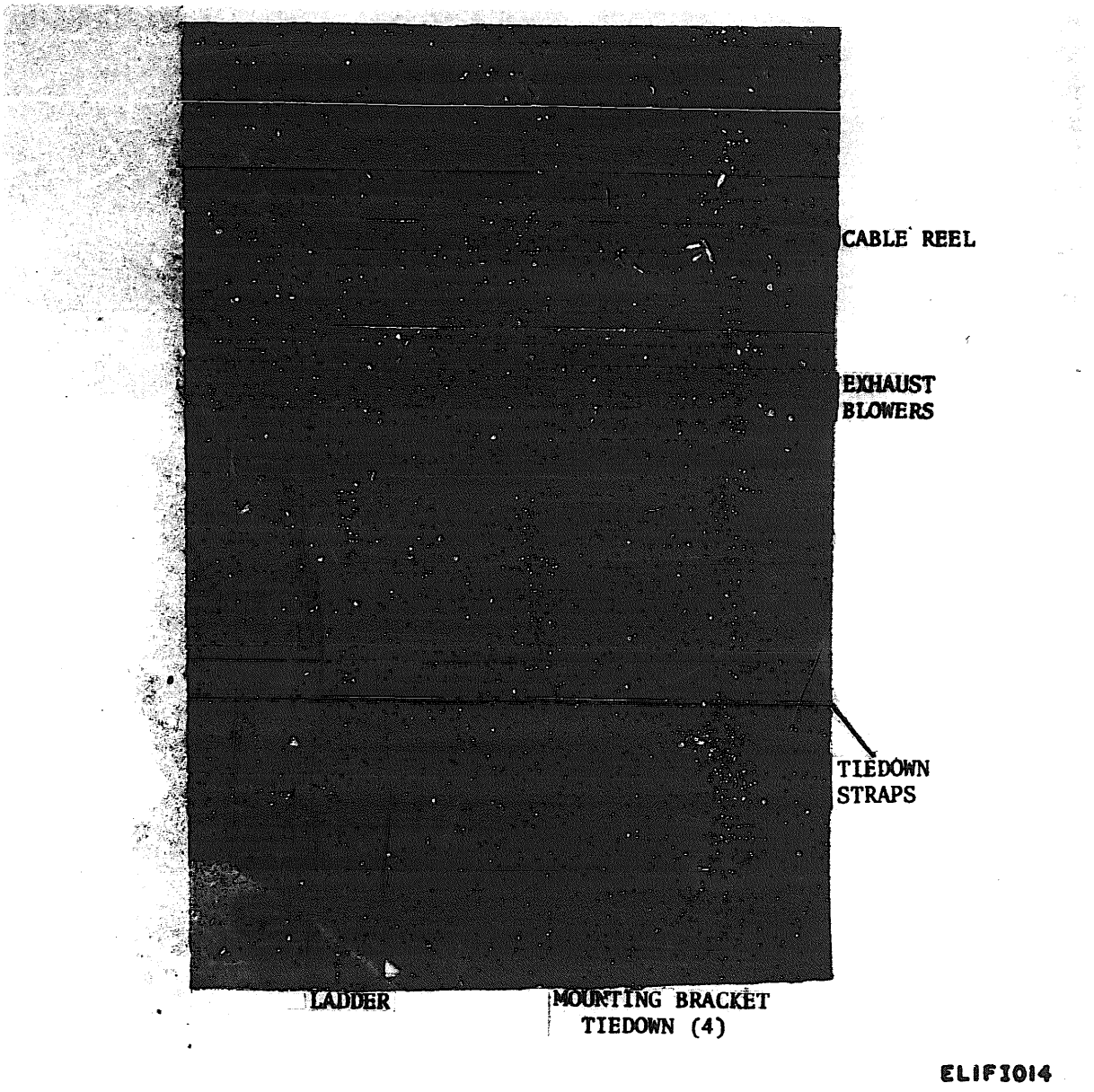


Figure 1-14. *Storage shelter, floor plan.*

1-10. Description of Major Components (fig. 1-15- and 1-16)

a. Air Conditioner. The maintenance shelter contains two horizontal compact air conditioners. The air conditioners are electric motor driven, 208-volt, 3-phase, 60-Hz units with capacities of 9,000 BTU HR for cooling and 7,000 BTU/HR for heating. Horizontal louvers on the front of the air conditioner are adjustable to deflect the air return. A control module located on the front contains switches to select temperature, fan speed, mode of operation, and a circuit breaker to protect

the compressor. Above the module is a power input connector and a circuit breaker to protect the control circuits. Below the module are pushbutton switches to reset, high and low pressure sensors. On the rear panel are located an alternate power input connector, a refrigerant sight glass, a thermostat, a fresh air intake, and a condensate drain port. Detailed information is contained in TM 5-4120-239-14.

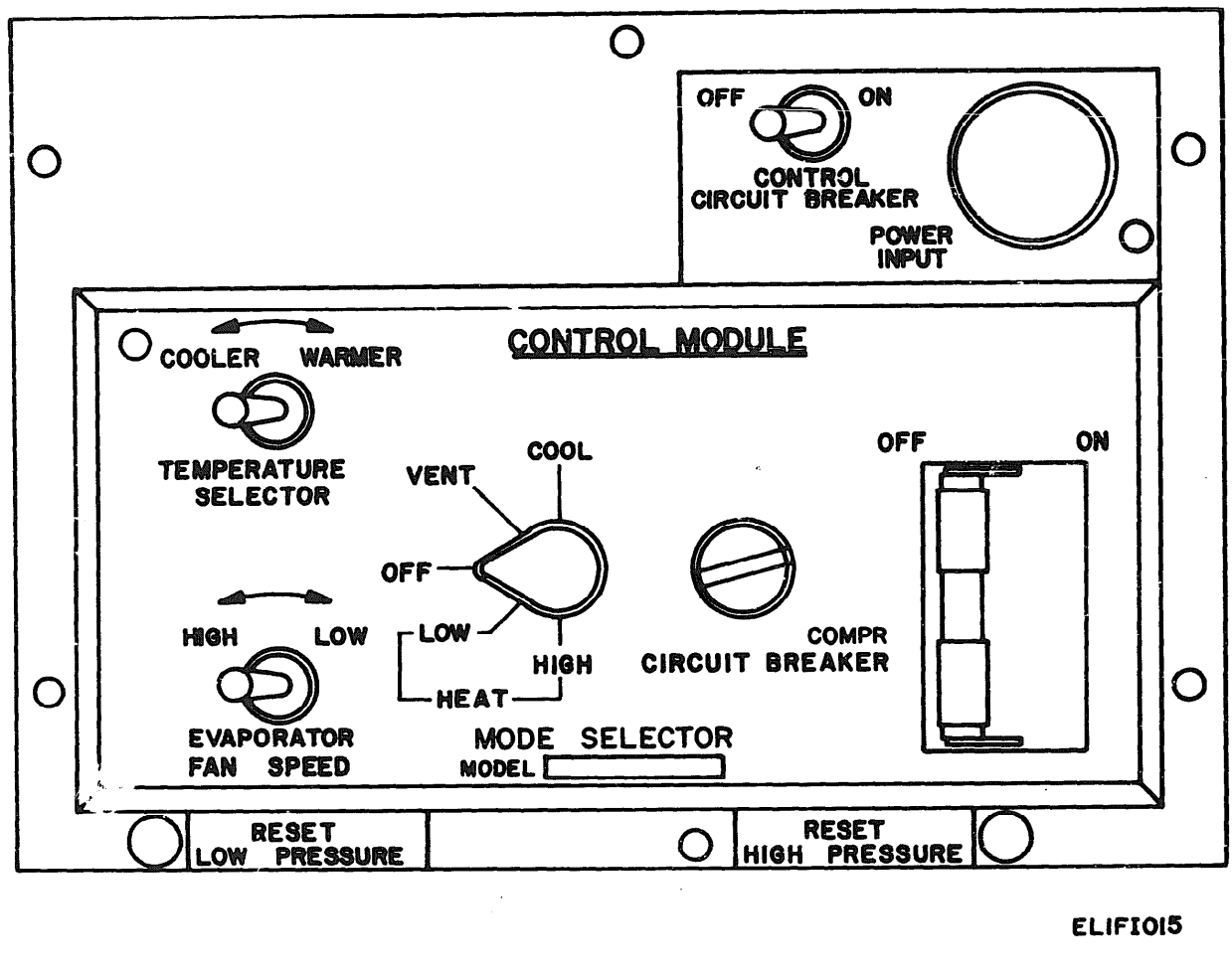


Figure 1-15. Air conditioner control panel.

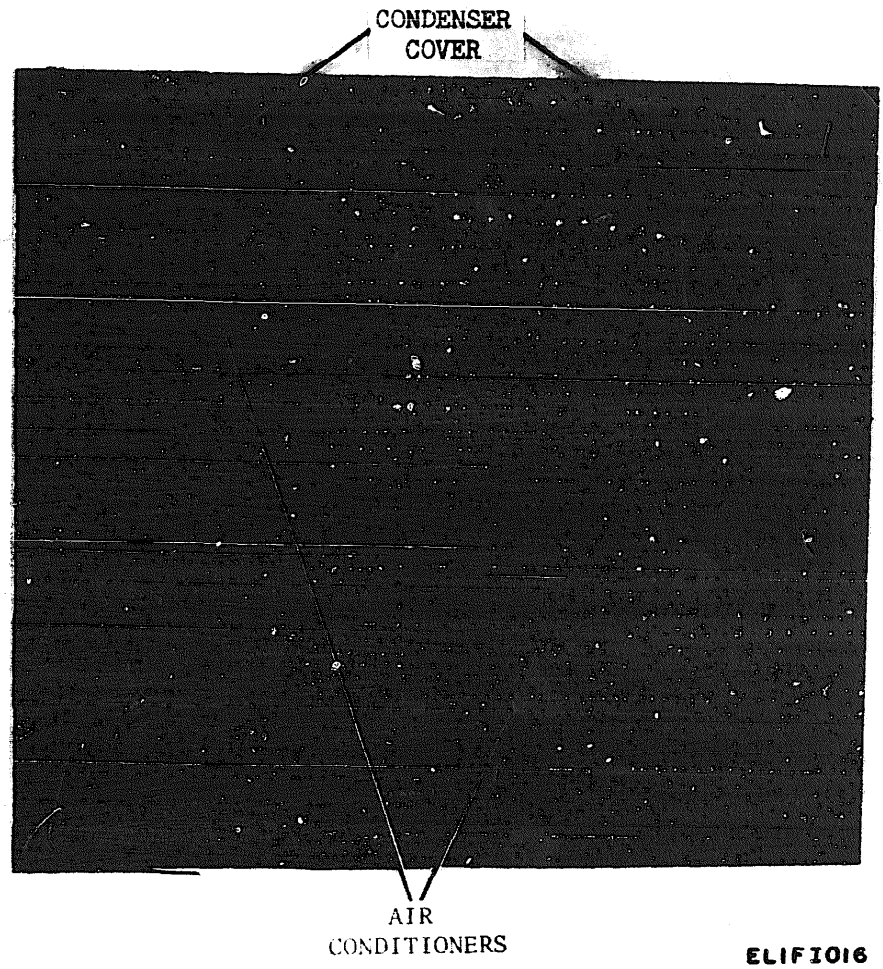


Figure 1-16. Maintenance shelter. air conditioner, exterior view.

b. POWER ENTRANCE BOX (fig. 1-17 and l-18). The power entrance boxes are fitted with hinged covers, rain caps and rain shields. The covers are secured by two cam-action fasteners. All power and signal connections are made through cable connectors on each power entrance box, located at the rear exterior roadside of the shelters. Power and telephone feedthrough connections are made through the POWER ENTRANCE BOX.

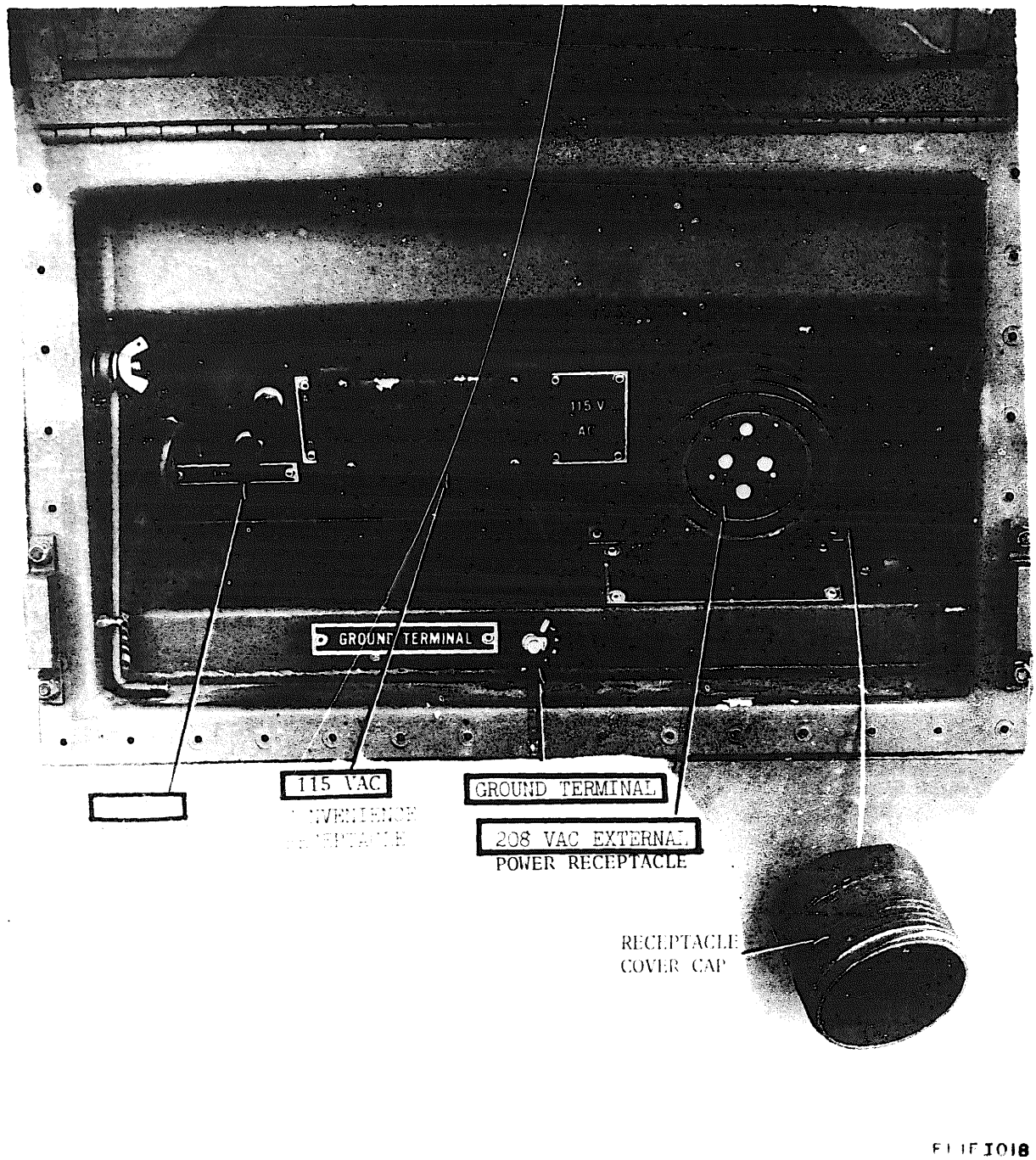


Figure 1-17. *POWER ENTRANCE BOX*

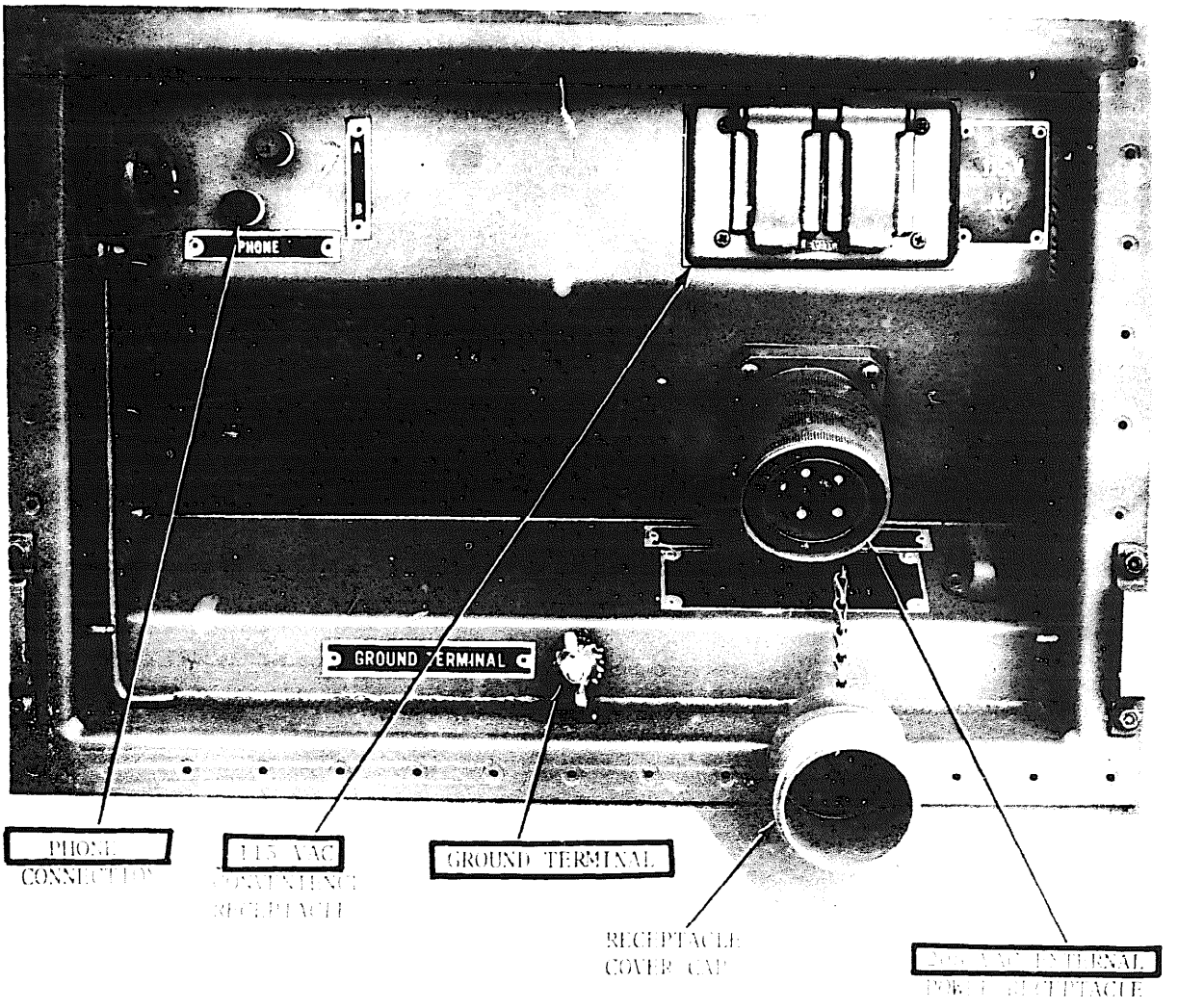


Figure 1-18. *SHELTER POWER ENTRANCE BOX*

c. POWER DISTRIBUTION BOX.

(1) The maintenance shelter POWER DISTRIBUTION BOX (fig. 1-19) is the main power distribution source. It contains a frequency meter, a voltmeter, and a phase sensing circuit. Correct or incorrect phasing, as monitored by the phase sensing circuit, is displayed by an amber PHASE CORRECT lamp or a red PHASE INCORRECT lamp. Voltage of each power phase is checked by a voltmeter and switch combination on the POWER DISTRIBUTION BOX. It also contains 10 power distribution circuit breakers, with associated neon glowlamps. These lamps illuminate when the respective circuit breakers are placed to ON.

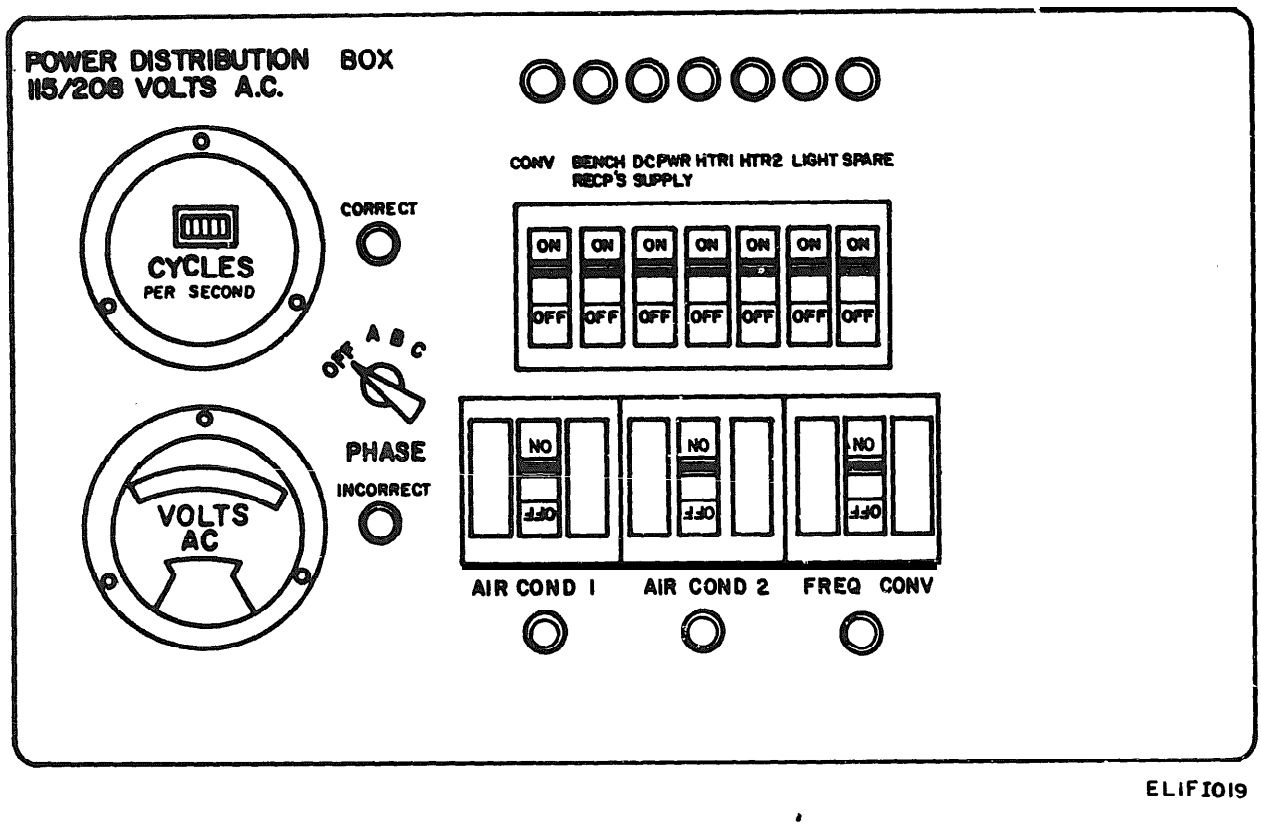


Figure 1-19. Maintenance shelter. PO POWER DISTRIBUTION BOX, front panel.

(2) The storage shelter POWER DISTRIBUTION PANEL (fig. l-20) contains a frequency meter, a voltmeter, a phase sensing circuit. seven neon power indicator lamps, and seven circuit breakers. A neon lamp, connected to each circuit breaker, illuminates when the corresponding circuit breaker is set to ON.

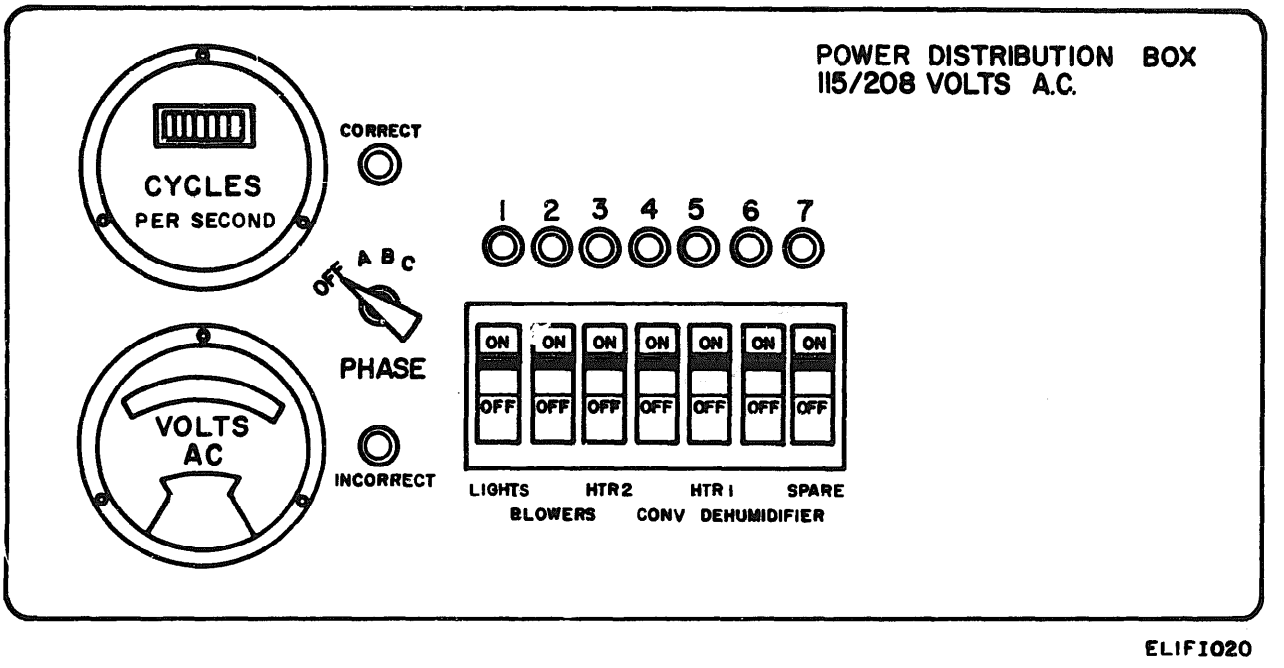


Figure 1-20. Storage shelter, POWER DISTRIBUTION BOX, front panel.

d. MAIN filter Box (fig. l-21). The MAIN filter box for the maintenance shelter contains a 208-volt, 60-Hz, 3-phase circuit breaker box with filters to eliminate incoming line voltage noise. POWER INDICATOR lamps with white lamp shields illuminate when the ac primary input power is applied to the shelter entrance panel. An AC FAULT WHEN LIT lamp with a red shield illuminates when primary power circuit is faulty, caused by improper ground or imbalance between primary power phases.

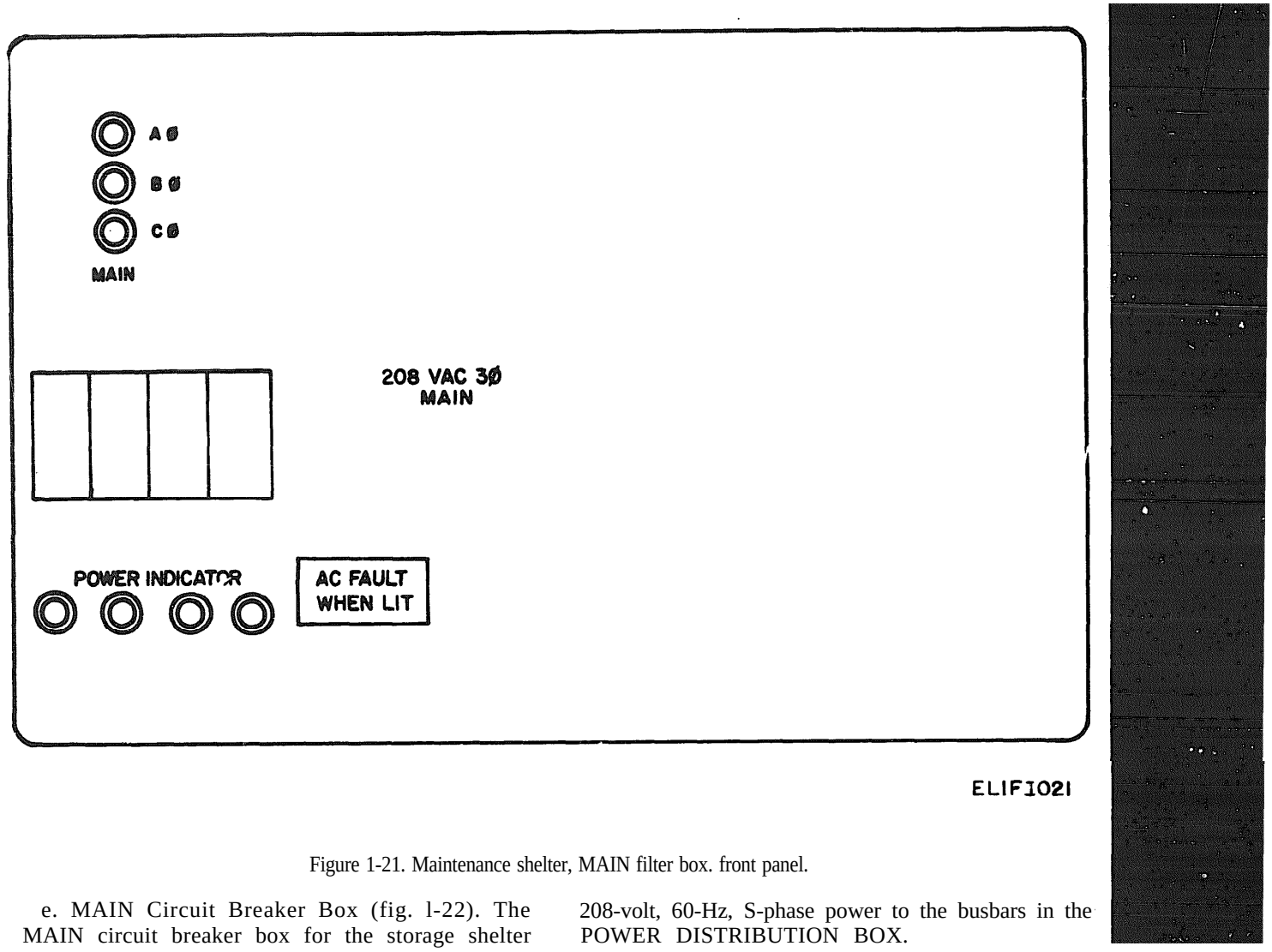


Figure 1-21. Maintenance shelter, MAIN filter box. front panel.

e. MAIN Circuit Breaker Box (fig. l-22). The MAIN circuit breaker box for the storage shelter contains a 50-ampere circuit breaker that applies 208-volt, 60-Hz, S-phase power to the busbars in the POWER DISTRIBUTION BOX.

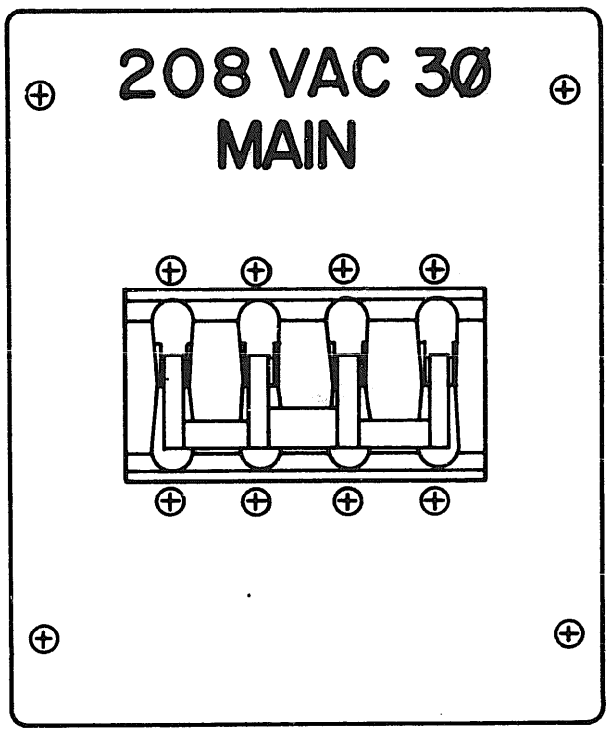


Figure 1-22. Storage shelter, MAIN circuit breaker box. front panel.

f. Frequency Converter (fig. 1-23). The frequency converter provided with the maintenance shelter converts 208-volt, 60-Hz, 3-phase power to 208-volt, 400-Hz, 3-phase power. The output power from the frequency converter is connected through a four-wire cable to a circuit breaker box and then ducted to 208-volt, 400-Hz, 3-phase receptacles, and 115-volt, 400-Hz, single-phase receptacles. Detailed information on the frequency converter is contained in the instruction manual provided with it.

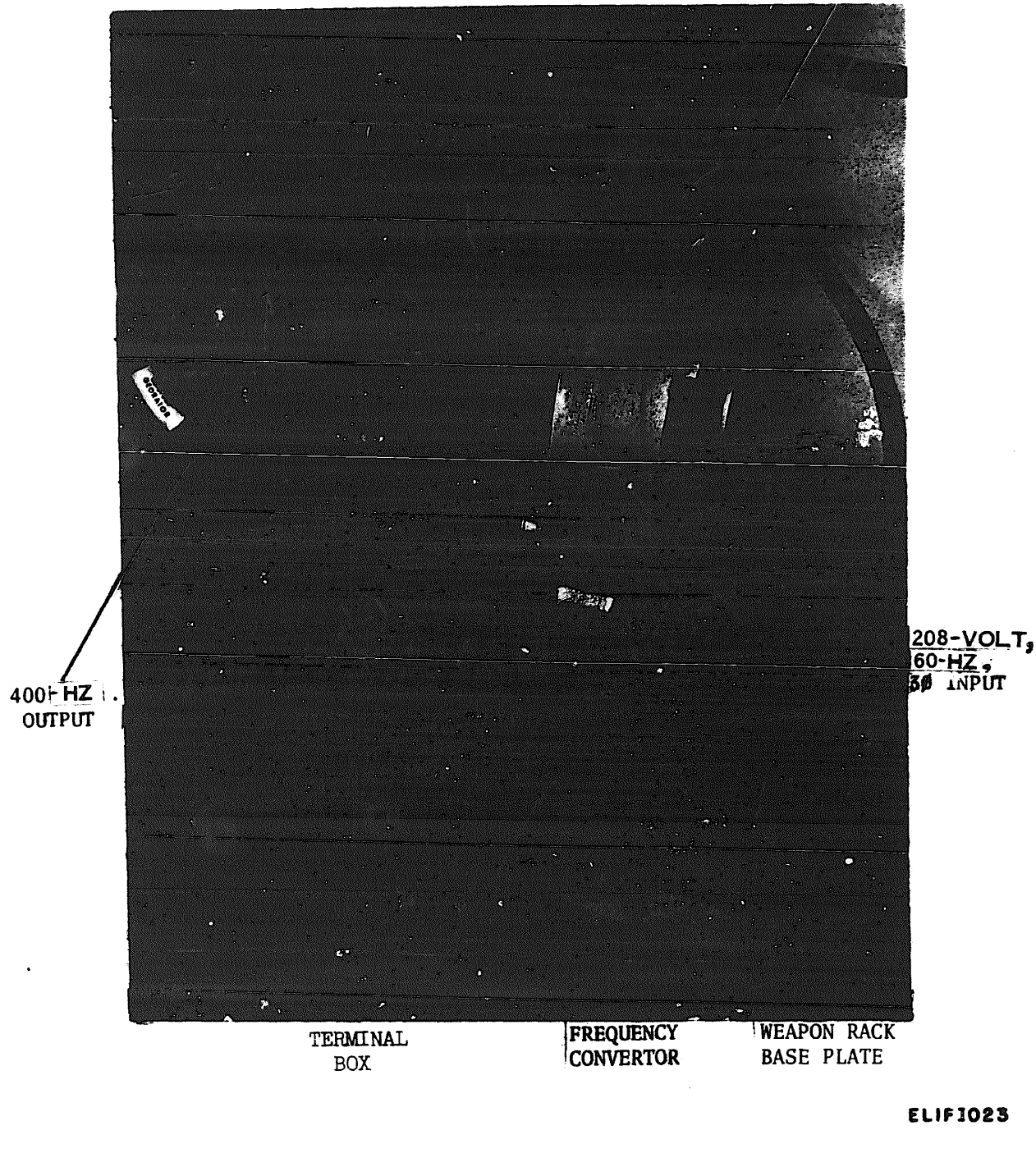


Figure 1-23. Maintenance shelter, frequency converter.

g. Electric Heater (fig. 1-24). Each shelter contains two electric heaters. Each heater contains a 1.5-kilowatt heating element, a thermostat, and a fan for air circulation. The heater controls consist of a three-way switch, which allows operation of the fan with or without heat, and a temperature selector. Setting the temperature selector allows the thermostat to automatically regulate the heater output.

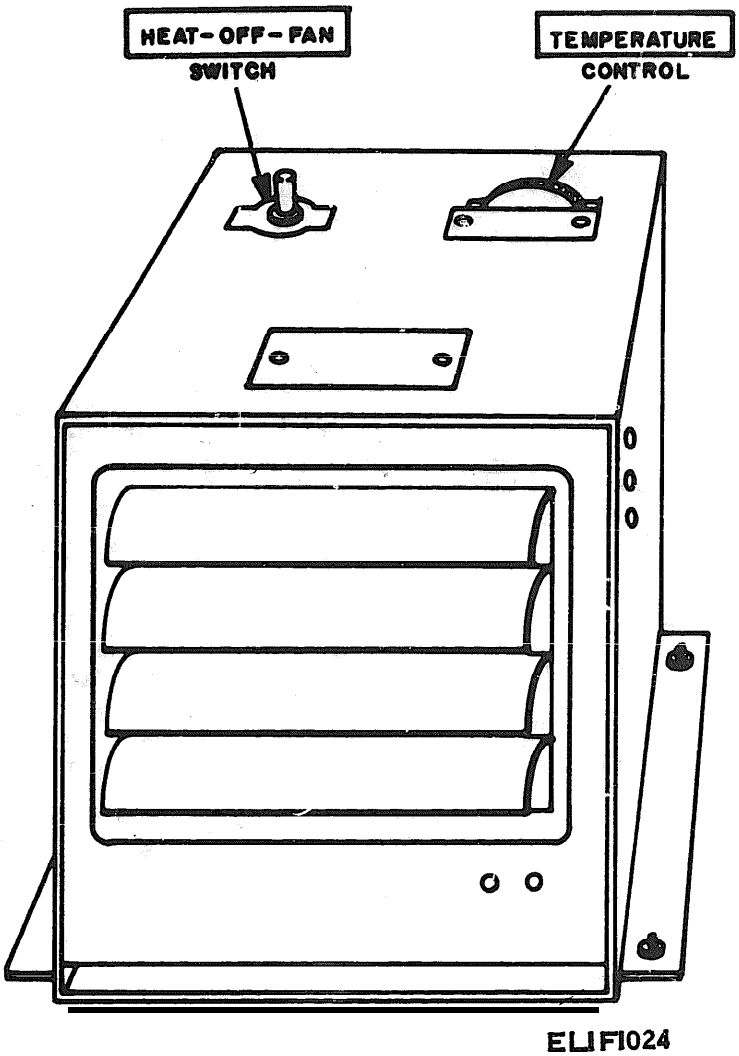


Figure 1-24. Electric heater.

h. DC Power Supply PP-4763A/GRC (fig. l-25). Power Supply PP-4763A/GRC converts 115-volt, 60-Hz single-phase primary power to 28 volts dc. It is used in the maintenance shelter Lo provide a source of low voltage dc power. Front panel controls provide means to energize. adjust., and monitor the direct-current output of the power supply. Refer to TM 11-5820-765-12 for detailed information.

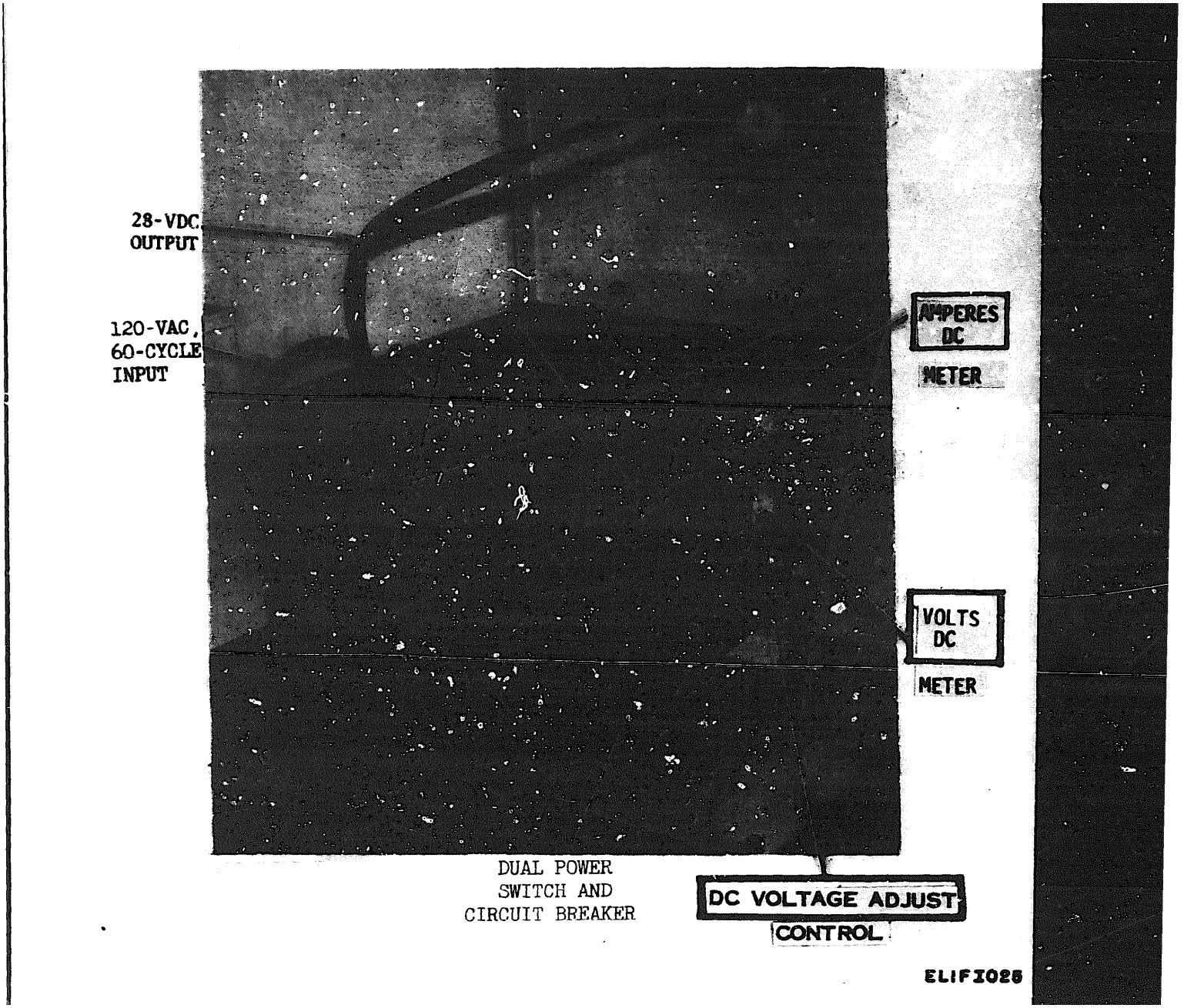


Figure 1-25. Maintenance shelter, Power Supply, PP-4763A/GRC, front panel.

i. Telephone Set TA-312/PT (fig. 1-26). A Telephone Set TA-312/PT is installed in each shelter and is used for local telephone communication. Refer to TM 11-5805-201-12 for detailed information on Telephone Set TA-312/PT.

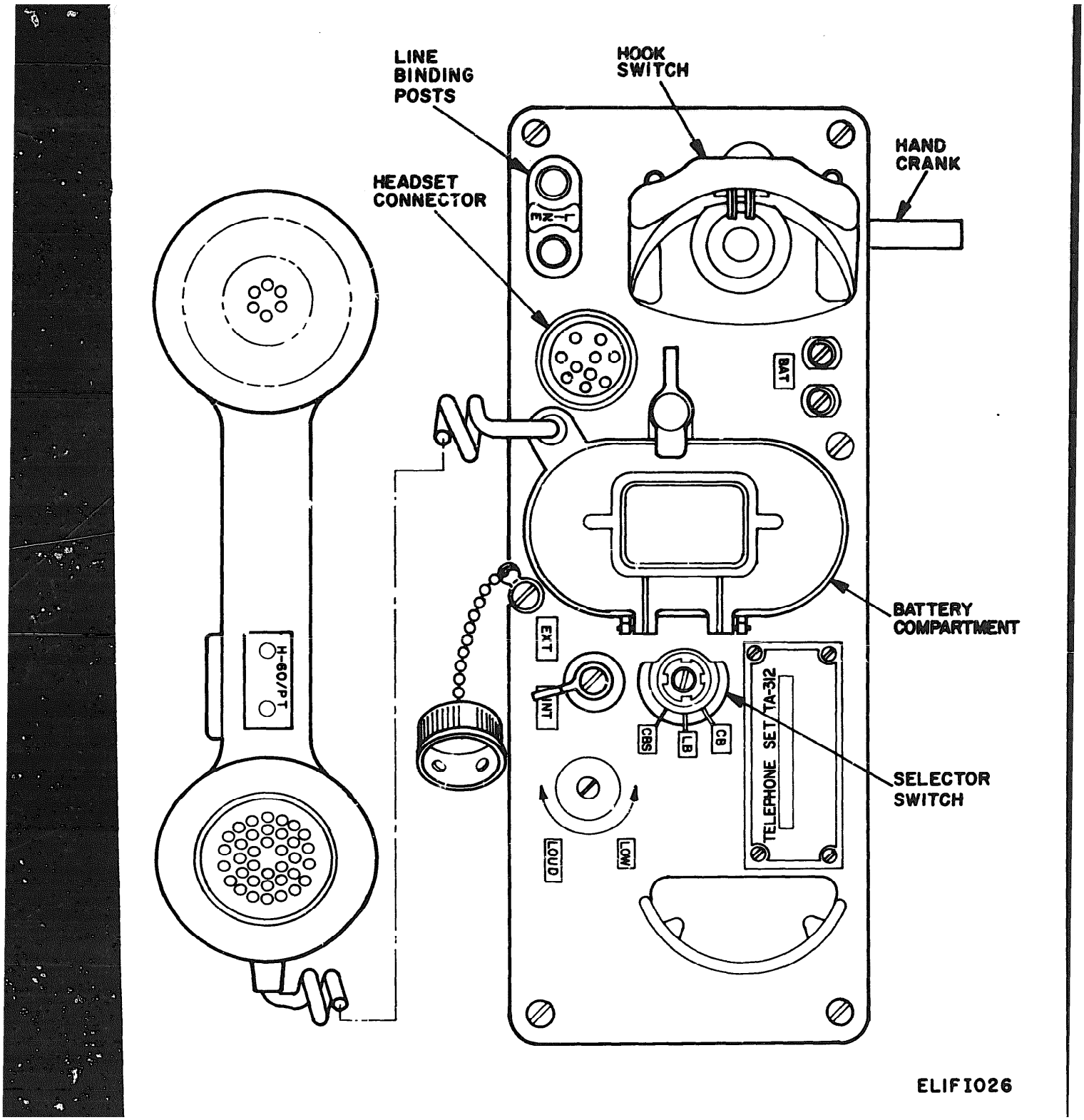


Figure 1-26. Telephone Set TA-312/PT.

j. Exhaust Blower Assembly (fig. l-27). Two exhaust blowers are mounted on the front wall exterior near the top of each storage shelter. BLOWER 1 is mounted on the roadside and BLOWER 2 on the curbside. Each blower is capable of moving 500 cubic feet of air per minute.

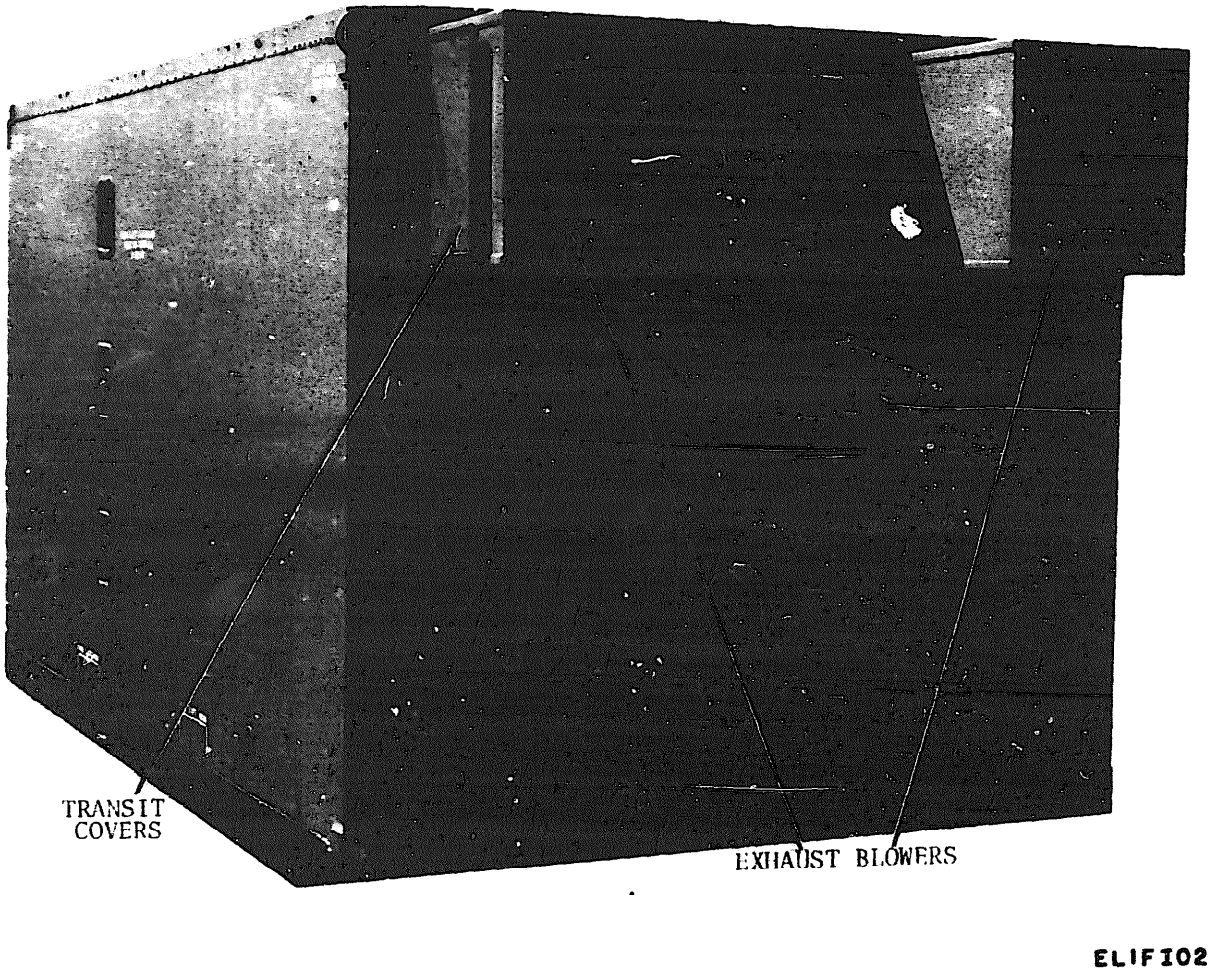


Figure 1-27. Storage shelter, exhaust blower assemblies. exterior view.

k. Dehumidifier (fig. l-28). Each storage shelter contains one dehumidifier. It is an electrical refrigerated dehumidifier using cooling and heating to reduce relative humidity. The dehumidifier operates on 120-volt, 60-Hz, single-phase power. It is equipped with an automatic humidistat which alternately switches the unit on or off to maintain the preset humidity level.

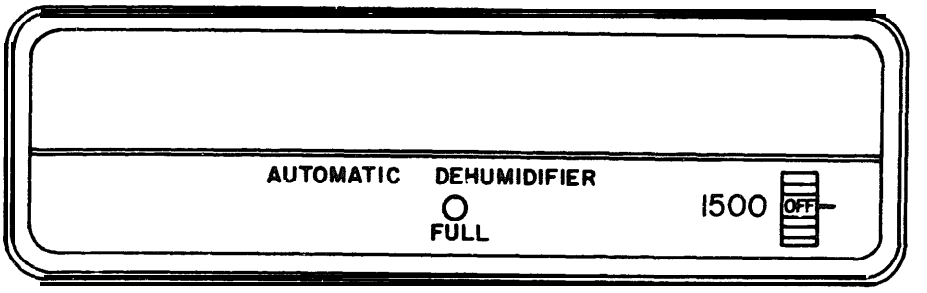


Figure 1-28. Storage shelter. dehumidifier control panel.

l. Power Cables. Two 50-feet cables, rated for 100-ampere service, supply power to the maintenance shelter. The cables are coupled together if a single 100-foot conductor is required. One cable is used if the distance between the maintenance shelter and the power source is less than 50 feet. The power cable for each storage shelter is 100 feet long, and is rated for 60-ampere service. Each power cable assembly has a connector on each end. The cable assemblies are used to connect the shelters to an external power source.

m. Power Cable Stub. The power cable stub assembly for the maintenance shelter is 10 feet long and is rated for l00-ampere service. The power cable stub for each storage shelter is 10 feet long and rated for 60-ampere service. Each cable stub has a connector on one end and eight leads on the opposite end. The eight leads connect to terminal lugs on a power source. The cable stubs are designed to mate with the power cables to complete the power connection between the power source and each shelter.

n. 400-Hz Main Circuit Breaker Box (fig. 1-29). The 400-Hz main circuit breaker box contains a 15-ampere, four-gang circuit breaker that applies 400 Hz power from the frequency converter to the 400-Hz power receptacles.

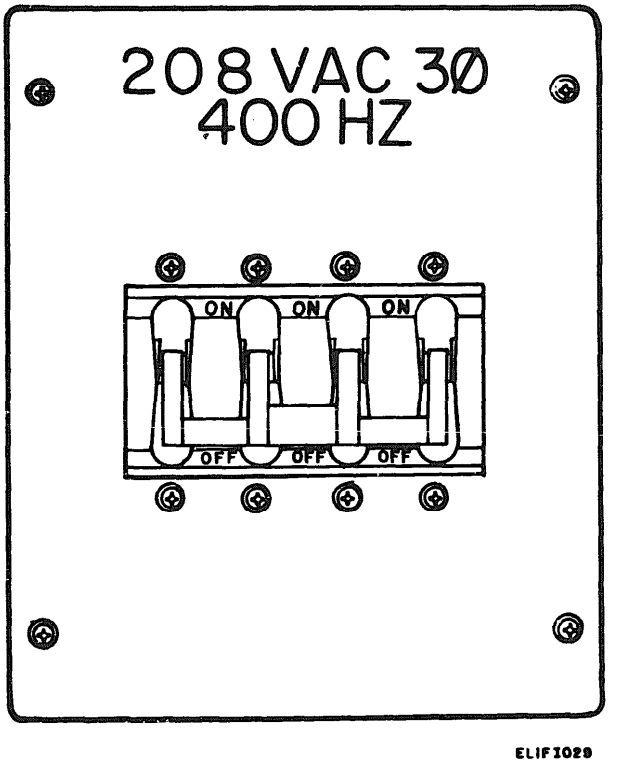


Figure 1-29. Maintenance shelter. 400-Hz main circuit breaker box.

1-11. Description of Additional Equipment Required

m Power Source. Minimum requirement for the AN/ARM-164 maintenance facility is a 15-kilowatt, 208-volt. 60-Hz, 3-phase power source. An engine-driven power generator set is the primary source of power for the facility.

b. Batteries. Two Batteries BA-30/U are required for operation of Telephone Set TA-312/PT. Each clock is powered by a single 9-volt battery.

1-12. Description of Test Equipment

a. Variable Attenuator CN--796/U. The CN-796/U is used to provide low output signals and to attenuate signals from 0 to 101 decibels. Refer to TM 11-5985-237-14P for a listing of repair parts.

b. Digital Readout Electronic Counter AN/USM-207A. The AN/USM-207A is used for precise measurement. It displays an 8-digit numerical readout of frequency and period of a cyclic electrical signal. It also displays the frequency ratio of two signals, the time interval between two points on the same or different signals. and the total number of electrical impulses. Refer to TM 11-6625-700-14-1 for more information.

c. Signal Generator AN URM-127. The AN URM-127 produces an output sine wave of 20 Hz to 200 Hz. Signal amplitude can be adjusted from 0 to 10 volts. Refer to TM 11-6625-683-15 for operation and maintenance information.

d R.F. Signal Generator Set AR/URM-25D. The AN/URM-25D produces modulated or unmodulated radiofrequency (rf) signals over a continuous range of frequencies from 10 to 50,000 Hz. Operating and maintenance information is in TM 11-5551D.

e. Signal Generator AN/URM-4S. The AN URM-48 produces 19.5 MHz to 102 MHz radiofrequency and 1.4 MHz to 15.0 MHz intermediate frequency signals. The generator provides both modulated and unmodulated signals. Refer to TM 11-1257 for operation and maintenance.

f. Signal Generator AN/URM-61A. The AN/URM-61A produces frequencies from 1800 to 4000 MHz at amplitudes from 0.1 microvolt to 0.224 volt when loaded with its rated load of 50 ohms. Refer to TM 11-5091 for operation and maintenance information.

g. Signal Generator AN/USM-44B. The AN/USM-44B comprises Signal Generator TS-510B/U and various adapters and cable assemblies. It is a general purpose, very high frequency signal generator set which provides radiofrequency signals from 10 MHz to 480 MHz at calibrated output levels of 0.1 microvolt to 1.0 volt. Refer to TM 11-6625-508-14-1 for operation and maintenance instructions.

h. Sweep Signal Generator SG-677/U. The SG-677/U is used with an external oscilloscope to measure frequency response, gain and bandwidth of equipment which operates within the frequency range of 500 KHz to 1200 MHz. For further information, refer to Air Force T.O. 33A1-8-509-1.

i. Permanent Magnet Loudspeaker LS-454/U. The LS-454/U provides 600 ohms impedance. Refer to TM 11-5965-255-14P for further information.

j. Multimeter AN/URM-105C. The AN! URM-105C battery-operated multimeter is used to measure ac voltage. dc voltage, and resistance. Refer to TM 11-6625-203-12 and TM 11-6625-203-35 for operation and maintenance.

k. Multimeter AN/USM-223. The AN/USM-223 is a battery-powered, general-purpose multimeter test set used to measure ac and dc voltages to 5000 volts, direct current to 10 amperes, and resistance to 10 megohms. It has a low output voltage in the ohm range for safe measurement of components in solid-state circuitry. Refer to TM 11-6625-654-14 for operation and maintenance information.

l. Multimeter ME-26D/U. Multimeter ME-26D/U measures 0 LO 1000 volts dc. 0 to 300 volts ac in the 20-Hz to 700-MHz range and 0 to 500 megohms resistance. Refer to TM 11-6625-200-15 for more information.

m. Voltmeter, Meter ME-30A/U. The ME-30A/U is a vacuum tube voltmeter to measure ac voltages from 0.001 volt full scale to 300 volts full scale through a frequency range of 10 Hz to 4 MHz. Refer to TM 11-6625-320-12 and TM 11-6625-320-35 for operation and maintenance information.

II. Oscilloscope AN/USM-281C. The AN/USM-281C is a portable wideband oscilloscope capable of accurately displaying and measuring simple and complex waveforms from dc to 50 MHz at magnitudes up to 400 volts. The unit uses solid-state circuitry with a cathode ray tube. See TM 11-6625-2658-14 for further information.

o. Radar Signal Simulator SM-674/UPM. The SM-674/UPM is a hand-held, battery-powered radar signal simulator which generates and radiates pulsed radiofrequency test signals suitable for checking operation of the AN/APR-39 radar signal detecting set. Various types of radar can be simulated, resulting in a go or no go condition. See TM 11-6940-211-12 and TM 11-6940-211-34 for operation and maintenance.

p. Electrical Power Test Set AN/UPM-93. The AN/UPM-93C is used to make voltage and frequency measurements of 400 and 60 Hz power circuits. Refer to TM 11-6625-303-12 and TM 11-6625-303-35 for operation and maintenance.

q. Wattmeter AN/URM-120. The AN/URM-120 measures incident and reflected radiofrequency

power from 10 to 1000 watts within a frequency range of 2 to 1000 MHz. Refer to TM 11-6625-446-15 for operation and maintenance information.

r. Transistor Test Set TS-1836C/U. The TS-1836C/U is capable of testing semiconductors either in or out of a circuit. Test set operating and maintenance information is in TM 11-6625-539-14-3.

s. Flutter and Wow Meter ME-254/U. The ME-254/U provides an accurate visual indication of wow and flutter content of tape recorder and playback equipment including 33 1/3, 45 and 78 rpm disks and 16 and 35mm sound film. Refer to TM 11-6625-670-12-1 and TM 11-6625-670-34-l for operation and maintenance.

t. Transponder Test Set AN/APM-123. The AN/APM-123 provides coded radiofrequency interrogation signals to check the transponder set receiver and decoder and checks the transponder set transmitter and coder by t-valuating the coded replies. It will check Transponder Set AN/APX-44, and AN/APX-64 and AN/APX-72. Refer to TM 11-6625-667-12 and TM 11-6625-667-45 for operation and maintenance.

u. Digital Voltmeter AN/GSM-64B. The AN/GSM-64B is capable of accurately measuring voltages from 0 to 1100 volts dc. It also allows voltage ratio comparison between the voltage input and an external reference voltage source from 0 to ± 100 volts dc. Refer to TM 11-6625-444-14-1 for information about operation maintenance.

v. Electronic Voltmeter AN/URM-145. The AN/URM-145 is used for measurement of voltages of 300 microvolts to 3 volts spanning a frequency range of 20 Hz to 600 MHz. Refer to TM 11-6625-524-15-1 for operation and maintenance information.

w. Electronic Voltmeter AN/USM-98A. The AN?USM-98A is a precision dc vacuum tube voltmeter used to measure direct current potentials from 0 to 500 volts. Refer to TM 11-6625-599-12 and TM 11-6625-599-45 for operation and maintenance information.

x. Electronic Voltmeter AN?USM-224. The AN/USM-224 is used to accurately measure true root-mean-square voltage and dBm. Refer to TM 11-6625-1541-15 for further information.

yv. Electronic Voltmeter ME-303/U. The ME-303/U is a general purpose instrument for measuring direct current voltage, resistance, and ac voltage. Refer to TM 11-6626-1614-16 for further information.

. Distortion Analyzer AN/URM-184A. The AN/URM-184A is a solid-state instrument for measuring distortion and ac voltages. Included are two control loops that automatically tune both legs of a bridge circuit which rejects the fundamental when the rejection circuit is initially set within the range of the loops. See TM 1-6625-1576-15 for further information.

aa. Spectrum Analyzer *IP-1216(P)/GR.* The IP-1216(P)/GR (HP-141T) makes frequency measurement from 20 Hz to 40 MHz. Refer to TM 11-6625-2781-14&P.

ab. Plug-In IF Section PL-1388/U. The PL-1388/U (HP-8552B) is a high performance if. section designed to be plugged into Spectrum Analyzer IP-1216(P)/GR. Refer to TM 11-6625-2781-14-1.

ac. Noise Figure Meter TS-2436-G. The TS-2436/G (HP-342A), when used with a noise source, automatically measures, and continuously displays noise figure for frequencies of 30 and 60 MHZ. Refer to TM 11-6625-1613-15.

ad Down Converter HP-11710B. The HP-11710B is an accessory for the SG-1112(V)1/U (HP-8640) signal generator. Frequency inputs from the signal generator in the range of 5.005 to 5.500 MHz are down converted to the 5-Hz to 500-Hz range. Refer to the instructions packed with the equipment.

ae. Function Generator SG-1133/U. The SG-1133/U (HP-3312A) produces sine, square, triangle, plus or minus ramp, pulse, am, fm, sweep, trigger, and gate waveforms. Frequency ranges from 0.1 Hz to 13 MHz in 8-decade ranges. Refer to the instructions packed with the equipment.

af. Plug-In RF Section PL-1399/U. The PL-1399/U (HP-8553B) tuning section makes absolute amplitude and frequency measurements over the l-Hz to 110-MHz range. It is designed to be plugged into the IP-1216(P)/GR (HP-141T) spectrum analyzer. Refer to the instructions packed with the equipment.

ag. Tracking Generator SG-1122/U. The SG-1122/U (HP-8553B) can be used with the PL-1399/U plug-in rf section and the IP-1216(P)/GR (HP-141T) spectrum analyzer to make swept insertion loss and return loss measurement over the 100-MHz frequency range. Because the signal source tracks the analyzer's tuning up to 130-dB, dynamic measurement range is possible. Refer to the instructions packed with the equipment.

ah. Signal Generator SG-1112(V)1/U. The SG-1112(V)1/U (HP-8640 B004) NAV/COM signal generator is an am/fm signal generator, specially adapted for testing ILS (marker beacon, localizer, and glideslope), VOR and VHF communications receivers. Refer to the instructions packed with the equipment.

ai. Signal Generator SG-978/G. The SG-978/G (HP-343A) provides calibrated signals for

measurements on various equipment from if. amplifiers to complete radar systems. The SG-978/G. operates from 10 to 600 MHz with 50-ohm impedance.

aj. AC current Probe HP-456A. The ac current probe clamps around a current currying wire and provides a voltage readout on a voltmeter or scope. Refer to the instructions packed with the equipment.

ak. Spectrum analyzer RF Section PL-1406/U. The PL-1406/U (HP-8554B) covers the frequency range from 100 kHz to 1250 MHz. This frequency coverage allows analysis from baseband through VHF navigation bands. Applications include power and frequency measurements of filter, amplifiers, modulators, and mixers. This rf section is designed to be plugged into the IP-1216(P)GR (HP-1411‘) spectrum analyzer. Refer to the instructions packed with the equipment.

al. Decade Resistor ZM-16/U. The ZM-16/U is a portable unit that provides fixed, accurate, conveniently selectable resistance values from 0.1 ohm to 111,111,111 ohms for use in dc or ac circuits up to approximately 60 Hz. Refer to TM 11-5102 for operation and maintenance.

am. Power Supply PP-2309A/U. The PP-2309A/U converts nominal 115 volts, single-phase, 60 Hz to regulated 0 to 36 volts dc. It is designed for mounting on a standard 19-inch rack. Refer to TM l l-6130-245-15 for operation and maintenance instructions.

CHAPTER 2

INSTALLATION

Section I. HANDLING REQUIREMENTS

2-1. General

This section covers lifting, loading, and the securing of the shelters on trucks. Refer to TB 750-240 for detailed handling requirements.

2-2. Lifting

Before lifting a shelter, check the center of gravity placard attached to the outside of the entrance door. Placement of test equipment and spare parts inside the shelter (para 3-12i) directly affects the weight and balance of the shelter. Use the information on the placard as a guide. Equipment and repair parts stored inside may be out of place. If so, the center of gravity may not be the same as that posted on the door. Use TB 750-240 for detailed instructions.

Section II. SERVICE UPON RECEIPT

2-3. Site Requirements

The site selected for the AN/ARM-164 depends on access to the equipment being maintained. Site selection also depends on terrain, system planning, and physical considerations whenever possible. Shelters should be located on level, firm, dry ground with good drainage. Advantage should be taken of natural conditions in the area, such as trees or other cover, that will protect the maintenance facility from the prevailing winds. Position the shelters approximately 10 feet (3 meters) apart within a 90-foot (27.5meter) radius of the power source for power connections. The PU-619/M external power unit should be approximately 90 feet (27.5 meters: away from shelters to minimize fire hazard and noise interference.

2-4. Service Upon Receipt

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

6. Check the equipment against the component packing slip to see whether the shipment is complete. Report all discrepancies in accordance with paragraph l-3. The equipment should be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

c. Check to see whether the equipment has been modified (equipment which has been modified will have the MWO number on the front, plate;. Check to see whether all currently applicable MWO's have been applied. Current MWO's applicable to the equipment are listed in DA Pam 310-i.

2-5. Release of Stowed and Secured Equipment

Many components in the AN/ARM-164 are in a mobility tiedown or secured configuration. Miscellaneous components. including expendable supplies, are stowed in storage cabinets. Release of equipment from the mobility tiedown or storage configuration and positioning for operation are discussed below.

a. Boarding Ladder. The boarding ladder of each shelter must be removed if the shelter is truck mounted. See procedure listed below:

(1) Remove the six-step boarding ladder in the maintenance shelter by loosening tiedown straps on cable reel assembly. In the storage shelter, loosen the ladder tiedown straps and remove tiedown brackets securing both the exhaust blower covers and ladder. Remove the ladder from the shelter. Reinstall tiedown brackets on the exhaust blower covers.

(2) With the tailgate down, place the lauder firmly over the bottom edge of the tailgate and rest the bottom of the ladder on the ground.

6. Shelter Entrance Door (fig. 2-l). The fresh air inlet cover panel on entrance door exterior must be opened when the shelter is occupied and the air conditioner is not in operation. Open the cover panel by loosening and turning the four latch-type fasteners that secure the panel to the shelter entrance door exterior. Lift the panel up and use the latch on the front panel cover to secure to the latch holder on the upper entrance door. The same procedure applies to the storage shelters.

c. POWER ENTRANCE BOX (fig. 2-1). A hinged cover assembly with hinged inner flaps protects the POWER ENTRANCE BOX. These flaps may be secured to the walls of the POWER ENTRANCE BOX to keep the cover assembly in a partially open position for cabling and wiring access. Release this assembly by turning the two latch-type fasteners that secure it.

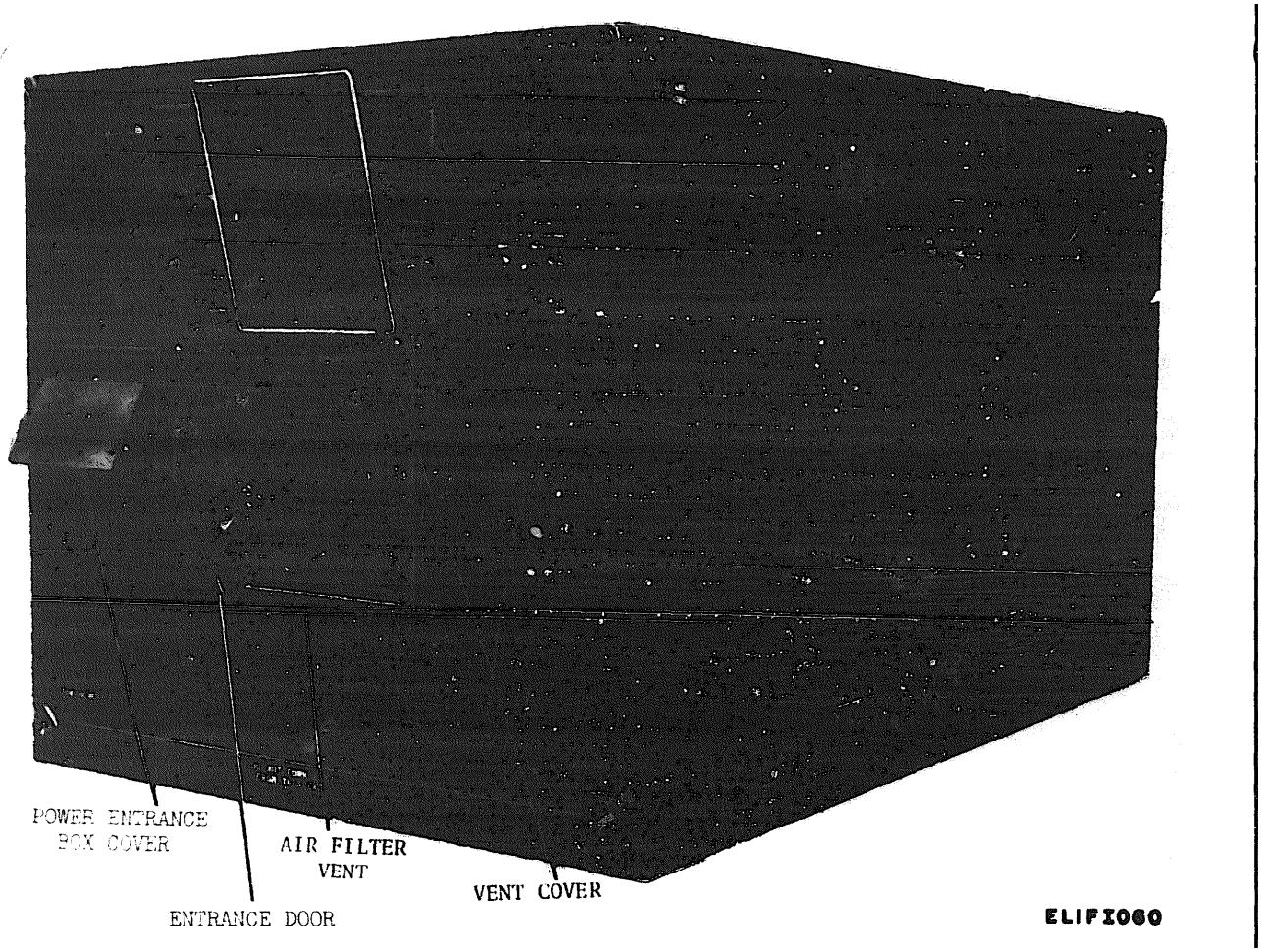


Figure 2-1. Maintenance facility, shelter, front view.

d. Air conditioner (fig. 1-16). An external weatherproof condenser cover assembly is provided for the air conditioner. The cover must be opened before the air conditioner is operated. Roll up the condenser cover and tie it at the top of the air conditioner to clear the condenser opening. Remove the drain plug and stow it in the storage cabinet drawer in the maintenance shelter.

e. Drafting Stools (fig. 1-4). Release the two adjustable drafting stools from the mobility tiedown configuration in the maintenance shelter by turning the knob on the lock assembly counterclockwise. This action will release the lock assembly from the retainer plate assembly in the floor of the shelter.

f. Cable Reels and Power Cables (figs. 1-6 and 1-14). Release the RC-405/U cable reel and the electrical power cable assemblies from mobility tiedown by loosening and removing the reel tiedown assemblies that secure the reel to the retainer plate assembly in the floor. Remove the reels with the cable assemblies from the shelter.

g. Exhaust Blowers (fig. 2-2).

(1) Loosen ladder tiedowns from mounting brackets inside each storage shelter.

(2) Remove cover panel from exhaust blower box by removing 12 mounting bolts.

(3) Remove exhaust blower box mounting brackets from floor by loosening tiedowns. Store brackets in a storage cabinet drawer.

(4) Remove blower box by lifting it vertically over blowers, then set aside.

(5) Remove exhaust blower transit covers mounted on both sides of the exterior front wall be removing cover bolts.

(6) Mount each transit cover to mounting bracket on each exhaust blower box.

(7) Remove four self-locking nuts from exhaust blower floor mounting plate and remove exhaust fan assembly.

(8) Replace self-locking nuts onto floor mounting plate studs.

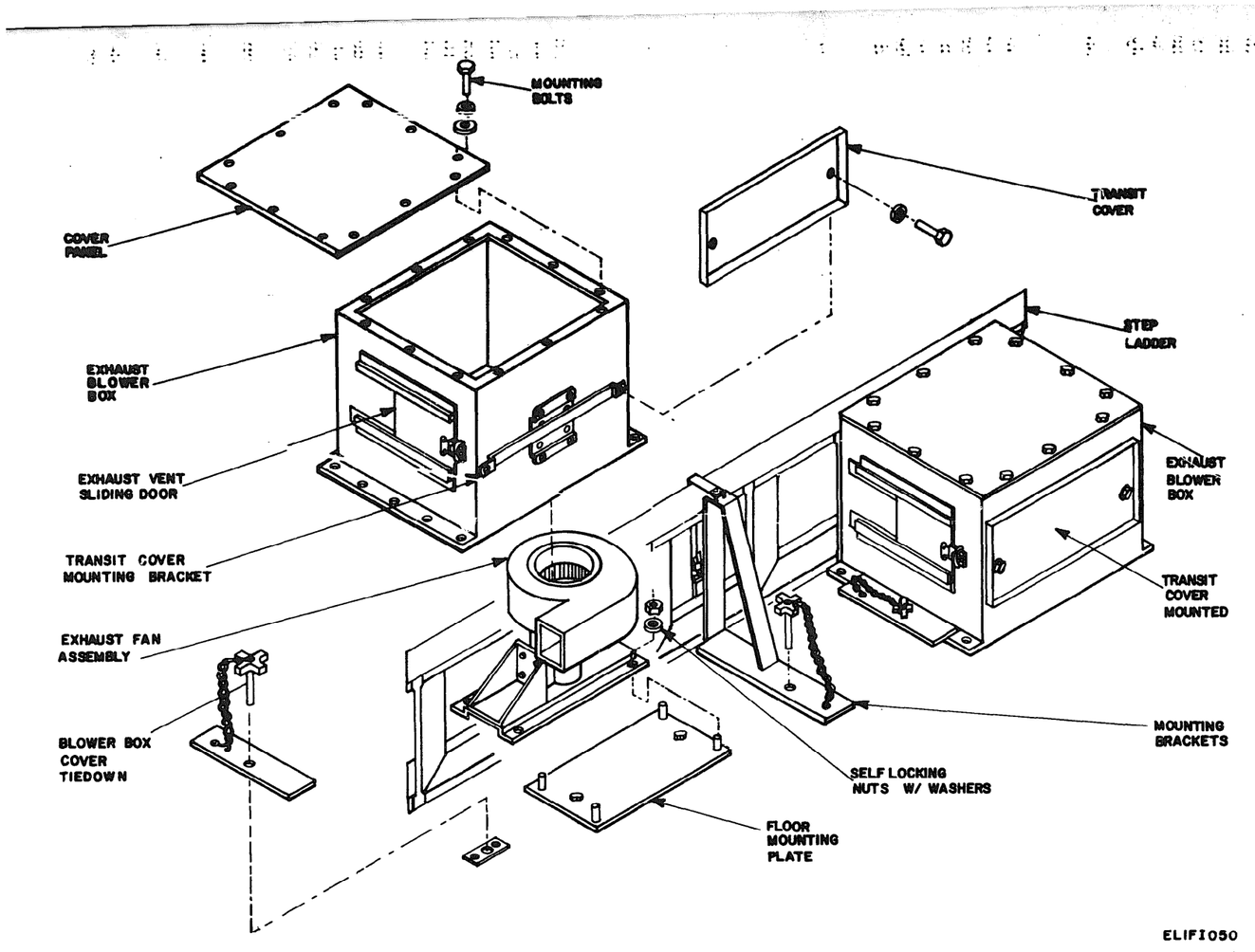
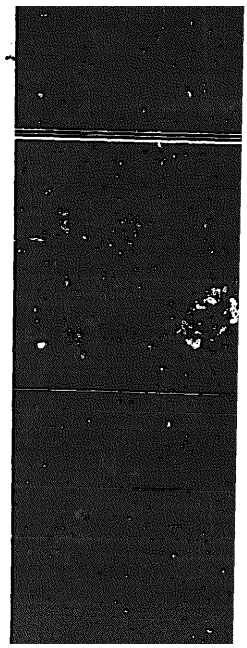


Figure 2-2. Removal of Exhaust Blowers from Storage shelter Floor.



h. Ground rod mx-148/G (fig. 1-8 and 1-13). Remove one of the ground rods from its mobility tiedown location on the front wall interior in the maintenance shelter. In the storage shelter, the ground rods are located on the common items panel at the rear wall. Loosen the knob on the ground rod bracket assembly and remove a rod from the brackets and head stop. Remove this rod from the shelter and secure the remaining rod.

i. Sledge Hammer. Remove the sledge hammer from the bracket assembly under the roadside bench. This hammer is used to drive the ground rod (h above) at the selected grounding site.

j. Storage Cabintes (figs. 1-2 and 1-9). To unlock and lock the storage cabinets in the AN/ARM-164 maintenance facility rotate the thumbscrew on tiedown bars counterclockwise. Lift tiedown bar straight up and remove from cabinets.

k. Rotary Chair (fig. l-9). The rotary chair located on the floor at roadside (interior) in the storage shelter can be released from mobility tiedown configuration by turning the knob on the lock assembly counterclockwise. This will release the lock assembly from the retainer plate assembly in the floor of the shelter.

l. Floor Mat. Unroll the floor mat and place it on the shelter floor.

2-6. Preparation for Use

Most of the components and test equipment comprising the AN/ARM-164 maintenance facility are installed when shipped, or are specially fitted for mobility tiedown; therefore, a minimum of installation tools are required. Tools required for installation include those listed below. Refer to the maintenance allocation chart in appendix D, for additional data on authorized tools.

Item	Purpose	*Applicable publication*
Tool Kit. Electronic Equipment TK-100/G.	Used for maintenance and installation of facility and equipment.	SC 5180-91-CL-S21
Tool Kit. Electronic Equipment TK-101/G.	Used for maintenance and installation of facility and equipment.	SC 5180-91-CL-R13
Tool Kit. Electronic Equipment TK-105/G.	Used for maintenance and installation of facility and equipment.	SC 5180-91-CL-07
Multimeter AN URM-105C	Used for maintenance and installation of facility and equipment..	TM 11-6625-203-12
Multimeter AN/URM-223	Used for maintenance and installation of facility and equipment.	TM 11-6625-654-14
Sledge Hammer	Used for installation of ground rods.	

a. Ground Rods. The shelter must be grounded before input power is connected. Select grounding sites that will not interfere with entrance doors, telephone wires, or power cables. Ground each shelter as follows:

(1) Loosen POWER ENTRANCE BOX cover latches and lift the cover.

(2) Unfold support flaps and fit onto holding studs to support the cover in the open position.

(3) Obtain the two ground rods and sledge hammer (para 2-5).

(4) Select a low, damp site within 10 feet of the POWER ENTRANCE BOX, preferably in clay or loamy soil, and scoop out a small hole about 6 inches deep.

(5) Remove any paint or grease from the ground rod.

(6) Drive the ground rod into the hole until its top is approximately 12 inches above the ground.

(7) Saturate the ground around the rod with water to keep it moist.

(8) Remove the lo-foot ground strap from shelter storage cabinet.

(9) Connect one end of the ground strap to the ground rod and the other end to the lower GROUND TERMINAL in the POWER ENTRANCE BOX.

b. Sunshade Canopy (figs. 1-1 and 2-3).

(1) Remove the sunshade, 4 corner brackets, 6 side brackets, 10 lanyards, 10 eyebolts. and other mounting hardware from inside the storage shelter-

(2) On the maintenance shelter, mount and secure each of the four corner bracket assemblies on each upper outside shelter corner using four 5/16 inch flat washers, four 5/16 inch lockwashers, and four 5/16 inch by 1 1/8 inch long capscrews.

(3) Mount and secure six side bracket assemblies, three on the top edge of the t exterior curbside wall and three on the top edge of the exterior roadside wall, using two 5/16 inch flat washers, two 5/16 lockwashers and two 5/16 inch by 1 1/8 inch long capscrews for each bracket assembly.

(4) Screw five eyebolts into the five rivnuts on the lower external curbside wall.

(5) Screw five eyebolts into the five rivnuts on the lower external roadside wall.

(6) Spread the sunshade over the top of the maintenance shelter.

(7) Set five of the grommets, located on one side of the sunshade, over the the end pins of the five shelter-mounted brackets.

(8) Place a looped end of five lanyards over each of the five bracket end pins protruding through the sunshade grommets.

(9) Insert the grommets on the opposite side of the sunshade over the bracket end pins on the opposite side of the shelter.

(10) Place a looped end of five lanyards over each of the five bracket end pins protruding through the sunshade grommets.

(11) Tie the free end of each lanyard to the corresponding eyebolts previously mounted on the exterior shelter wall.

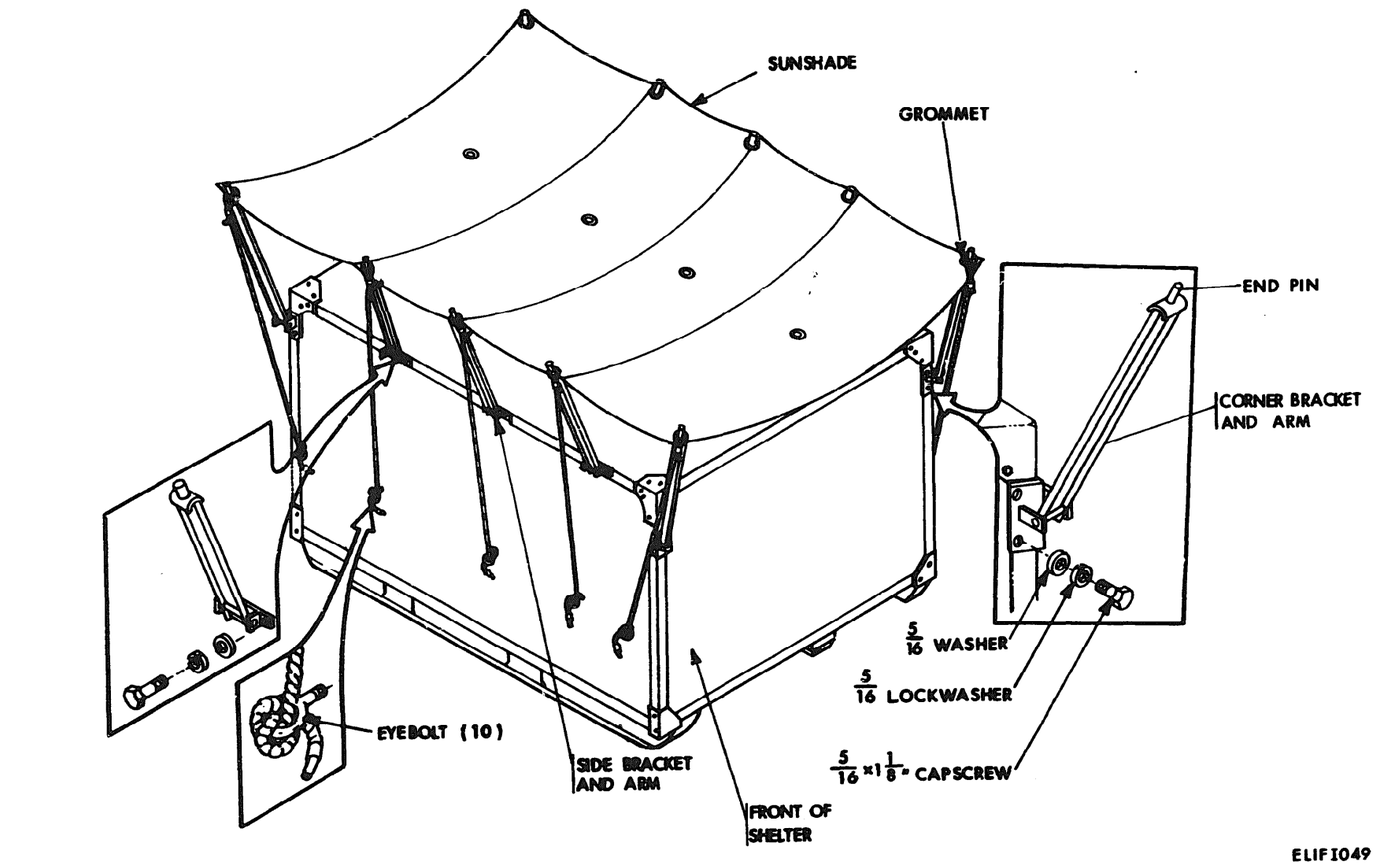


Figure 2-3. Sunshade canopy installation.

c. Air Conditioner. The air conditioner is shipped assembled and mounted in the maintenance shelter. Be certain that outside condenser cover is roiled up and tied at the top of the air conditioner to clear the condenser opening.

d. Telephone Set (fig. l-26). Telephone Set TA-312/PT is shipped assembled and mounted in the maintenance shelter and each storage shelter. Check to see that the telephone signal wires are connected to LINE 1 and LINE 2 on the telephone set. If the TA-312/PT is to be used in the local battery (LB) mode, install Batteries BA-30 in the battery compartment. Refer to TM 11l-5805-201-12 for additional information.

e. Exhaust Blower (fig. 2-4).

NOTE

Mounting bolts for exhaust blowers and exhaust blower box covers are packaged and shipped in storage cabinet.

(1) Mount each exhaust fan assembly to storage shelter with mower exhaust pointed down.

(2) Pass exhaust fan assembly electrical cord through shelter wall exhaust opening.

(3) Mount exhaust blower box over each fan assembly with exhaust vent pointed down and aligned with blower housing and secure to shelter wall with mounting bolts.

(4) Place adjustable hose clamps over exhaust fan outlet and exhaust vent opening.

(5) Install rubber hose gaskets and tighten adjustable clamps.

(6) install each blower box cover panel and tighten cover bolts.

CAUTION

Be sure the exhaust vent sliding door on bottom exhaust blower box exterior is open before use.

(7) Insert each exhaust blower electrical cord into ceiling receptacle outlets.

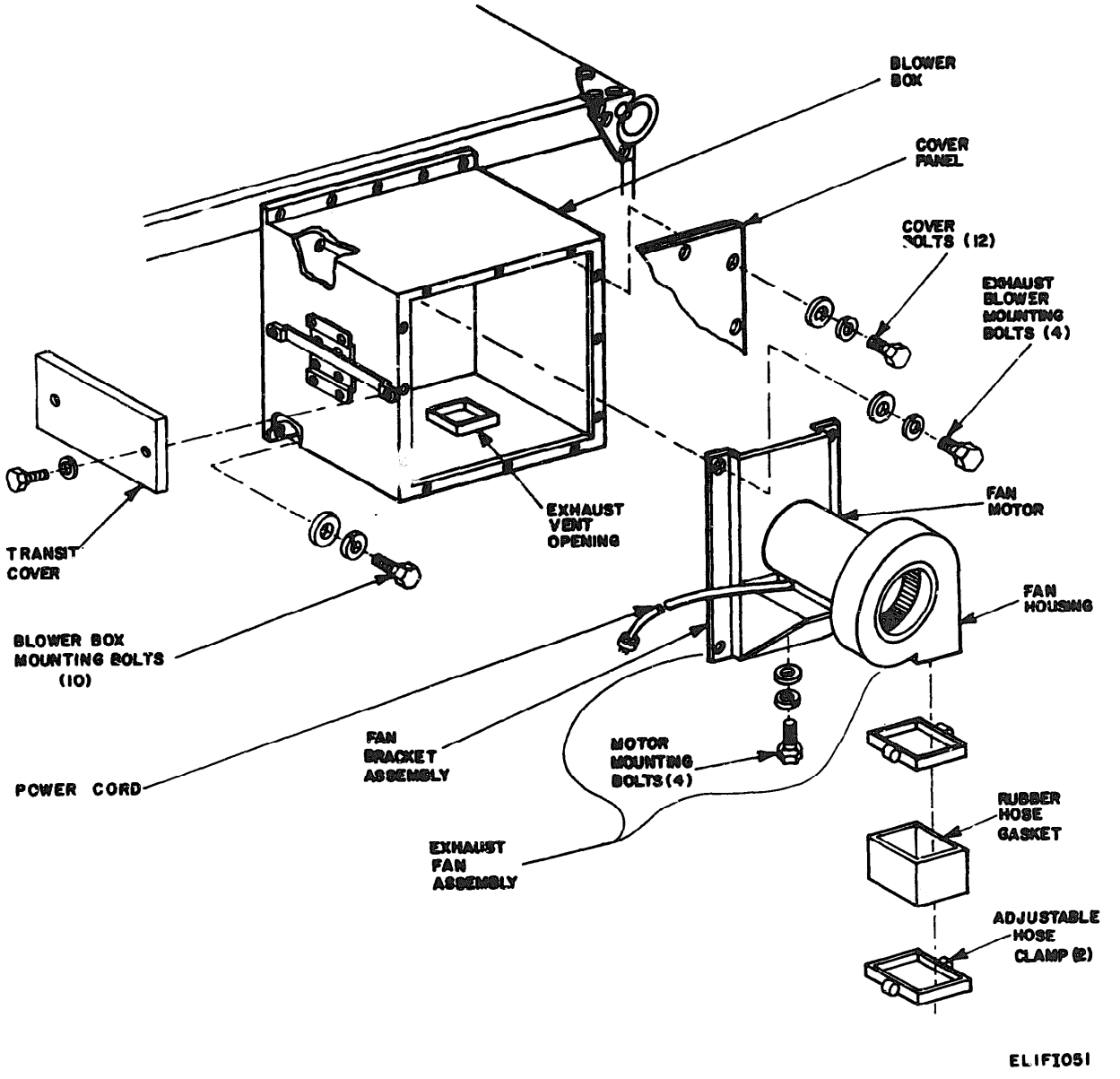


Figure 2-4. Exhaust blower assembly, exploded view.

f. Dehumidifier.

(1) Remove cap from drain on storage shelter curbside exterior wall if installed.

(2) Ensure that the drain shutoff valve at interior curbside wall, behind the dehaumidifier, is open. Refer to figure 6-8 for reference.

NOTE

Be sure that the curbside wall drain is free of obstructions and foreign matter before using dehumidifier.

(3) Insert power cord into DEHUMIDIFIER receptacle on shelter curbside wall.

Section III. POWER CONNECTIONS

2-7. General

This section covers the connection of the external power source, Generator Set PU-619/M, to Electronic Shop-Maintenance Facility AN/ARM-164. The facility is operated with two PU-619/M generator sets. One generator set powers the maintenance shelter, and the other powers both storage shelters. The power cable stub connects each power cable to the generator set terminal box. Two 50-foot cables and one 10-foot power cable stub are connected end-to-end to form a single 110-foot, 100-ampere power conductor for the maintenance shelter. One 100-foot cable and one lo-foot power cable stub are connected end-to-end to form a single 110-foot, 60-ampere power conductor for each storage shelter. Both storage shelter 60-ampere cable stubs are connected to one generator set terminal box.

2-8. Maintenance Shelter Power connection

a. Remove the power cables from the cable reels.

b. After checking to see that the generator set is shut off, connect the loo-ampere power stub leads to the terminal box on the generator set as follows: Black lead to L1, white lead to LO, red lead to L2, storage lead to L3, and the four green smaller-gage ground leads to the ground connector.

c. Connect one end of one 50-foot, loo-ampere cable to the cable stub.

d. Connect the second 50-foot, loo-ampere cable to the first 50-foot cable.

e. Connect the cable to the power receptacle in the maintenance shelter POWER ENTRANCE BOX.

2-9. Storage Shelter Power Connection

a Remove the power cables from the cable reels.

b. After checking that the generator set is shut off, connect the leads of both 60-ampere power cable stubs to the terminal box on the generator set as follows: Black leads to L1, white leads to LO, red leads to L2, orange leads to L3, and all the smaller-gage ground leads to the ground connector.

c. Connect one end of each 100-foot, 60-ampere power cable to each power cable stub.

d. Connect one power cable to one storage shelter POWER ENTRANCE BOX power receptacle.

e. Connect the remaining power cable to the other storage shelter.

2-10. Operational Checkout

Refer to paragraph 4-2.

WARNING

Ground rods and straps (para 2-6a) must be installed and inspected for good contact before application of power.

CHAPTER 3

OPERATING INSTRUCTIONS

Section I. CONTROLS AND INDICATORS

3-1. Damage From Improper Settings

There are no controls or combinations of controls, the operation of which can cause damage to the equipment or create a condition hazardous to operating personnel. Improper operation, however, is likely to cause interruption of service.

3-2. Operator Controls and Indicators

Tables 3-1. through 3-10 describe the operator's controls and indicators of the components which make up the AN/ARM-164. Refer to these tables for the location of the controls and indicators. Tables 3-l through 3-4 cover the controls of the maintenance shelter. Controls and indicators common to both the maintenance and storage shelters are listed in tables 3-5, 3-6, and 3-i. Controls and indicators found in the storage shelters are covered in tables 3-8 through 3-10. Paragraph 3-3 covers other controls and indicators in the storage shelter.

Table 3-l Maintenance Shelter, POWER DISTRIBUTION BOX. Controls and Insicators (fig. 1-19)

Control, indicator, connector	Function
CYCLES meter	indicates the frequency of the power phase to that which the PHASE switch is set (A, B, or C).
VOLTS AC meter	indicates the voltage of the ac power phase to which the PHASE switch is set (A. B. or C).
PHASE CORRECT lamp	Illuminates when ac power applied to the shelter is properly connected to the power source.
PHASE selector rotary switch	Allows voltage and frequency checks of individual input power phases.
PHASE INCORRECT lamp	illuminates when ac power applied to the shelter is not properly connected to the power source.
CONV circuit breaker	30-ampere circuit breaker. Applies power to convenience receptacles.
BENCH RECP's circuit breaker	20-ampere circuit breaker. Applies power to bench receptacles.
DC PWR SUPPLY circuit breaker	30-ampere circuit breaker. Applies primary power to dc power supply for normal operation.
HTR 1 circuit breaker	20-ampere circuit breaker. Applies primary power to HEATER 1 receptacle.
HTR 2 circuit breaker	20-srmpere circuit breaker. Applies primary power to HEATER 2 receptacle.
LIGHT circuit breaker	lb-ampere circuit breaker. Applies primary power to light circuits.
SPARE circuit breaker	20-ampere circuit breaker. Not used.
AIR COND 1 circuit breaker	20-ampere, 3-phase circuit breaker. Applies primary power to the air conditioner.
AIR COND 2 circuit breaker	20-ampere. 3-phase circuit breaker. Applies primary power to the air conditioner.
FREQ CONV circuit	20-ampere, 3-phase circuit breaker. Applies primary power to the frequency converter circuit.
Circuit breaker indicator lamps (white lamp near each circuit breaker).	Illuminates when primary power is applied by corresponding circuit breaker.

Table 3-2. Maintenance Shelter. MAIN Filter box, Controls and Indicators (fig. 1-21)

Control, indicator, connector	**Function**
A indicator lamp (amber)	**Illuminates when input power phase A is applied by MAIN circuit breaker.**
B indicator lamp (amber)	**Illuminates when input power phase B is applied by MAIN circuit breaker.**
C indicator lamp (amber)	**Illuminates when input power phase C is applied by MAIN circuit breaker.**
AC FAULT WHEN LIT lamp (red)	**Illuminates when prime y power circuit is faulty, caused by improper ground or imbalance between primary power phases.**
MAIN circuit breaker	**70-ampere circuit breaker. Applies 208 volts ac, 3-phase primary power to circuit breakers bus bar.**
POWER INDICATOR lamps (3 white)	**Illuminates when the ac primary input power is applied to shelter POWER ENTRANCE BOX.**

Table 3-3. Maintenance Shelter. Power Supply PP-4763A/GRC, Controls and indicators (fig. 1-25)

Control. indicator, connector	Function
AC ON/OFF (two position switch1	Serves dual function: On/off switch for normal operation, and protection circuit breaker if operating current exceeds safe current load.
AMPERES DC meter	Indicates equipment current load.
VOLTS DC meter	Indicates power supply output voltage.
DC VOLTAGE ADJUST control	Permits varying output voltage of power supply from 27 to 29 volts.

Table 3-4. Maintenance Shelter, Air Conditioner, Controls and Indicators (fig. 1-15)

Control, indicator connector	Function
CONTROL CIRCUIT BREAKER	Permits input voltage to be applied to air conditioner circuit when in the ON position.
COMPR CIRCUIT BREAKER	Applies primary power to compressor when set to ON.
RESET HIGH PRESSURE switch	Resets refrigeration high pressure cutout circuit if refrigeration system pressure is too high.
RESET LOW PRESSURE switch	Resets refrigeration low pressure cutout circuit if refrigeration system is too low.
MODE SELECTOR switch	Allows selection of COOL, VENT, or HEAT mode of operation.
EVAPORATOR FAN SPEED switch	Permits selection of HIGH or LOW fan speed.
TEMPERATURE SELECTOR	Allows control of COOLER or WARMER temperature.
VENT control actuator (located on front corner).	Controls vent damper which opens or closes fresh air inlet vent.
Inlet louver lever (located on right front).	Restricts or allows shelter air to be drawn into air conditioner.
Liquid sight indicator (located rear right side).	Cloudy fluid or bubbles indicate insufficient charge or cantaminated refrigerant system.
Condenser fan relay thermostatic switch (located rear right side).	Closes high speed circuit as temperature rises to 100 degrees F.

Table 3-5. Maintenance and Storage Shelters, lighting Controls (figs. l-3 and l-121

Control, indicator, connector	Function
BYPASS-BLACKOUT	Two position on/off switch. Controls shelter lighting in conjunction with entrance door position. BYPASS: Shelter lights remain on when entrance door is opened and BYPASSBLACKOUT switch is at BYPASS. BLACKOUT: Shelter lights are extinguished when entrance door is open.
FLUORESCENT LIGHTS EVEN switch	Controls alternate fluorescent lights.
FLUORESCENT LIGHTS ODD switch	Controls alternate fluorescent lights.
INCANDESCENT COLD START LIGHTS switch	Controls power to incandescent lights.

Table 3-6. Maintenance and Storage Shelters, Electric Heater. Controls and Indicators (fig. l-24)

Control, indicator, connector	Function
HEAT-OFF-FAX switch	Permits operation of heater in either heat or air circulation mode.
TEMPERATURE control	Selects the amount of heat to be generated by heater.

Table 3-7. Maintenance and Storage Shelters. Telephone Set TA-312/PT. Controls and Indicators (fig. l-26)

Control. indicator, connector	Function
Hook switch	Connects Handset H-60/PT to line during operation. Switch is closed when the handset is removed from the retaining cradle and is open when the handset is in the retaining cradle.

Table 3-7. Maintenance and Storage Shelters, Telephone Set TA-312/PT, Controls and Indicators (fig. 1-26)-Continued

Control, indicator, connector	Function
Selector switch	Connects internal circuits of TA-312/PT for the particular type of service Lo be used: Position — Function CB — Common battery operation LB — Local battery operation CBS — Common battery signaling (local battery for voice).
EXT I NT switch	Permits selection of Handset-Headset 11144/U in place of Handset, H-60/PT: Position — Function EXT — Selects Handset-Headset INT — Selects Handset H-60. PT
LOW-LOUD control	Adjusts Buzzer BZ-23/PT volume.
Handcrank (part of G-42A/PT)	When turned. operates generator G-42A/PT for signaling in LB operalion.
Buzzer BZ-23/PT	Provides audible indication of incoming calls or disconnect.
Receptacle Connector U-79/U	Allows connection of Handset-Headset H-144/U for use in place of the Handset H-60/PT.
LINE 1-2 binding posts	Allows connection of two line signal wires.
BAT connection	Used to connect external batteries.

Table 3-8. Storage Shelter, POWER DISTRIBUTION BOX. Controls and Indicators (fig. 120)

Control, indicator. connector	Function
CYCLES meter	Indicates frequency of power phase to which PHASE switch is set (A. B. or C)
VOLTS AC meter	Indicates voltage of ac power phase to which the PHASE switch is set (A, B, or C).
PHASE CORRECT lamp	Lights when ac power applied to sheller is properly connected CO the power source.
PHASE selector rotary switch	Connects each power phase (A, B, or C) to the VOLTS AC and CYCLES meters.
PHASE INCORRECT lamp	Lights when ac power applied LO shelter is not properly connected to the power source.
LIGHTS circuit breaker	l&ampere circuit breaker. Applies primary power to lights.
BLOWER circuit breaker	Is-ampere circuit. breaker. Provides on/off control and overload protection.
HTR 2 circuit breaker	20-ampere circuit breaker. Applies primary power to HEATER 2 receptacle.
CONV circuit breaker	20-ampere circuit breaker. Applies primary power to convenience receptacle circuits.
HTR 1 circuit breaker	20-ampere circuit breaker. Applies primary power to HEATER 1 receptacle.
DEHUMIDIFIER circuit breaker	15-ampere circuit. Applies primary power to dehumidifier circuit.
SPARE circuit breaker	20-ampere circuit. Sot used.
Circuit breaker indicator	Illuminates when primary power is applied by corresponding circuit breaker.

Table 3-9. Storage Sheller. Dehumidifier. Controls and Indicators (fig. 1-28)

Control, indicator, connector	Function
ON/OFF thumbwheel switch	When set to ON, the dehumidifier will operate. Humidity levels are selected by turning the switch to DRY, VERY DRY, OR CONT RUN as marked on the thumbwheel.
FULL indicator lamp	Illuminates red when the water receptacle inside the dehumidifier is full.

Table 3-10. Storage Shelter. Exhaust Blowers. Controls and Indicators (fig. 1-11)

Control, indicator, connector	Function
BLOWER 1 switch (on ceiling raceway).	Provides power to curbside exhaust air fan when set to ON.
BLOWER 2 switch	Provides power to roadside exhaust air fan when set to ON.

3-3. Other Controls and Indicators

a. MAIN Circuit Breaker (fig. 1-22). A MAIN 60-Hz, 50-ampere circuit breaker is located in the storage shelter on the rear roadside wall. The breaker protects and controls the 208-volt ac, 60-hz, 3-phase circuit to the storage shelter.

b. POWER INDICATOR lamp (fig. 1-12). A POWER INDICATOR. lamp is located on a vertical raceway on the rear roadside wall of the storage shelter. The lamp illuminates when ac power is applied to the shelter.

Section II. OPERATING UNDER USUAL CONDITIONS

3-4. Energizing Power Distribution Circuits

a. *Maintenance Shelter.*

(1) Check to be sure the power connections are correctly and securely made at the power entrance box.

(2) Check the installation of the ground rod and the connection of the ground strap (para 2-6a).

(3) Check to see that all POWER DISTRIBUTION BOX and MAIN filter box circuit breakers are placed in the OFF position. Be certain that all 28-vdc circuit breakers and 400-cycle circuit breakers are at OFF, and that all equipment power switches are set to off.

(4) Energize Generator Set PU-619/M. See TM 5-6115-365-15 for starting and operating procedures. The three white POWER INDICATOR lamps on the MAIN filter panel should illuminate.

NOTE

The red AC FAULT WHEN LIT lamp on the MAIN filter panel will illuminate when the primary power circuit is faulty. This could be due to an improper ground or a significant imbalance between primary power phases.

(5) On the POWER DISTRIBUTION BOX, check the PHASE CORRECT lamp to see that it is illuminated. Also check the VOLTS AC METER for 120 volts ±10 volts and the CYCLES meter for 60 HZ ±1 HZ for each active position of the PHASE selector switch.

NOTE

If voltage and frequency vary from the indicated parameters, both may be adjusted at the power unit. See adjustment procedure in the power unit manual.

(6) Set the MAIN circuit breaker on the filter panel to ON. The amber A, B, and C lamps should illuminate.

(7) Set BLACKOUT/BYPASS switch at BYPASS; if blackout conditions are required, place the switch at BLACKOUT.

(8) Set LIGHTS circuit breaker at ON; place the ODD and EVEN light switches at ON.

(9) Set INCANDESCENT light switch at ON, if required.

(10) Set AIR COND 1, AIR COND 2, HTR 1, and HTR 2 circuit breakers to ON.

(11) Set air conditioner or electric heater power switches at their units on, if required (para 3-6).

(12) Set DC PWR SUPPLY and FREQ CONV circuit breakers at ON, if required.

(13) Set power switch on dc power supply on, if required.

(14) Set the four individual INT 28-vdc circuit breakers to ON. They are located on roadside and curbside raceway above work benches.

(15) Set 208 VAC 3 400 HZ circuit breaker on curbside wall above the frequency converter to ON, if required.

(16) Set remaining circuit breakers on POWER DISTRIBUTION BOX to ON.

(17) Set other unit controls as required.

b. Storage Shelter.

(1) Check to be sure that the power connections are correctly and securely made at the POWER ENTRANCE BOX.

(2) Check the installation of the ground rod(s) and the connection of the ground strap.

(3) Check to be sure that all circuit breakers at the POWER DISTRIBUTION BOX, and MAIN circuit breaker are set to OFF. Also check to see that equipment power switches are set to off.

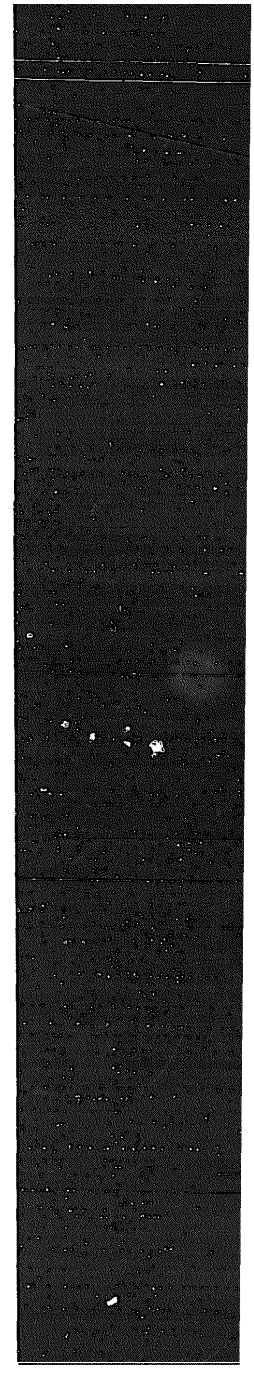
(4) Energize Generator Set PU-619/M. See TM 5-6115-365-15 for starting and operating procedures. The POWER INDICATOR lamp should illuminate. At the POWER DISTRIBUTION BOX, check the PHASE CORRECT lamp to see that it is illuminated. Also check the VOLTS AC METER for 120 volts ±10 volts and the CYCLES meter for 60 Hz ±1 Hz for each active position of the PHASE selector switch. See a (5) above.

NOTE

If voltage and frequency vary from the indicated parameters, both may be adjusted at the power unit. See adjustment procedure in the power unit manual.

(5) Set the MAIN circuit breaker to ON.

(6) Set BLACKOUT/BYPASS switch at BYPASS; if blackout conditions are required, place the switch at BLACKOUT.



(7) Set LIGHTS circuits breaker at ON; place the ODD and EVEN light switches at ON.

(8) Set INCANDESCENT light switch at ON, if required.

(9) Set BLOWERS, HTR 1, and HTR 2 circuit breakers at ON, if required.

(10) Set DEHUMIDIFIER circuit breaker to ON, if required.

(11) Set CONV circuit breaker to ON.

(12) set unit controls as required.

NOTE

For emergency stopping, set maintenance and storage shelter's MAIN circuit breakers to OFF.

3-5. Stopping Procedures

a. Maintenance Shelter.

(1) Place the dc power work position circuit breakers to OFF.

(2) Turn the DC POWER SUPPLY off.

(3) Turn the 208 VAC, 3, 400 Hz frequency converter circuit breaker to OFF.

(4) Check to be sure that heaters; are set to OFF.

(5) Check to be sure that air conditioner is set to OFF.

(6) Set LIGHTS switches to OFF.

(7) Set all POWER DISTRIBUTION BOX circuit breakers to OFF.

(8) Set filter box MAIN circuit breaker to OFF.

b. Storage Shelter.

(1) Set BLOWERS 1 and 2 switches to OFF.

(2) Check to be sure that dehumidifier is set to OFF.

(3) Be sure that heaters are set to OFF.

(4) Set LIGHTS switches to OFF.

(5) Set all POWER DISTRIBUTION PANEL circuit breaker

(6) Set MAIN circuit breaker to OFF.

3-6. Maintenance Shelter Cooling and Heating

a. Cooling. When air conditioner cooling is required, use the air conditioners as follows:

(1) Check to see that the frequency converter and 28-volt dc power supply are shut off.

(2) Operate both air conditioners to cool the shelter down to operating temperature (approximately 78° F/25.5° C).

(3) Shut off one of the air conditioners, leaving the other on to maintain the temperature. After first checking to see that the 400-Hz circuit, breaker is in the OFF position, the frequency converter and 28-volt dc power supply may now be turned on.

b. Heating. When heating is required, use the air conditioner and auxiliary heaters as follows:

(1) Check to see that the frequency converter and 28-volt dc power supply are shut off.

(2) Operate the air conditioners in the heating mode and both auxiliary heaters until operating temperature is reached.

(3) Turn off the auxiliary heaters. After first checking to see that the 400-Hz circuit breaker is in the OFF position, the frequency converter and 28-volt dc power supply may now be turned on.

Section III. OPERATING UNDER UNUSUAL CONDITIONS

3-7. General

The maintenance facility has been designed to meet conditions of extreme cold and hot climates. Each shelter offers complete protection from the elements for personnel and equipment. However, when the equipment is exposed to continuous and adverse conditions, the following precautions should be taken.

3-8.

Extreme cold causes cables and wires to become hard, brittle, and difficult to handle. Be careful when handling and connecting the cables to the shelter. Be sure that kinks and unnecessary loops will not result in permanent damage. To keep the POWER ENTRANCE BOX (fig. 1-17 for the maintenance shelter and fig. 1-18 for the storage shelter) binding posts, receptacles, and connectors free of frost, snow and ice, replace connector receptacale covers and close the POWER ENTRANCE BOX cover when not in use. The dehumidifier in the storage shelter is designed to operate in conditions with room temperatures above 65 degrees F (18 degrees C) and a relative humidity above 60 percent. Operation of the dehumidifier below these ranges is not required and should be avoided to prevent equipment damage.

3-9. Hot Climates

In hot, dry climates, the connectors, receptacles, and binding posts are subject to damage from dirt. dust, and sand. Always cover the POWER ENTRANCE BOX when not in use and replace the covers over the connectors and receptacles.

3-10. Warm, Damp, Climates

In warm, damp climates, the equipment is subject to damage from moisture and fungi. Be extremely watchful for these conditions. Wipe all moisture and fungi from the exterior of the equipment with a lint free cloth. Use the dehumidifier in each storage

shelter to maintain a dry environment. Keep the storage shelter doors closed, the exhaust blowers off, and the dehumidifiers operating to maintain a maximum moisture free environment.

Section IV. PREPARATION FOR MOVEMENT

3-11. General

electronic Shop-Maintenance Facility AN/ ARM-164 can be moved to, and operate at a new location as required. Before being moved, the facility must be prepared for movement. Instructions for getting the facility ready to move are covered in paragraph 3-12. If the facility is to be used at the new location, the exhaust blowers can remain mounted to the front wall during movement. If the facility is to be placed in storage, install the blowers on the shelter floor in accordance with paragraph 3-12. If ground rods cannot be removed from the ground. replacement rods can be ordered for use at the new site.

3-12. Preparation for Movement

a. Stopping Procedure. **Follow stopping procedure (para 3-5). Be sure all circuit breakers and switches are set to OFF.**

b. Power Cables. Shut down Generator Set PU-619/M. Disconnect power cable assemblies from the power unit. Clean power cable assemblies of dirt and debris; then wind power cable assemblies on appropriate cable reels. Do not secure cable reels to floor mounting plate assembly at this time.

c. Chairs.

(1) Secure drafting chairs in maintenance shelter to mounting bracket with the chair tiedown assembly.

(2) Secure rotary chair in storage shelter to mounting bracket with the chair tiedown assembly.

d. Ground Hods. Remove ground rods from ground, if possible. Clean rods of dirt and debris. Secure rods into mounting brackets located at the front wall of the maintenance shelter, and on the common items panel at rear wall in the storage shelter.

e. Batteries. Remove batteries from TA-312/PT telephone and store batteries in storage cabinet drawer.

f. Miscellaneous Items. Secure the sledge hammer in the mounting bracket assembly of each shelter. Secure the telephone. fire extinguisher, and first aid kit in the mounting bracket, assemblies of each shelter.

g. Air Conditioner. Be sure air conditioners are drained of condensation. Secure the condenser cover on the outside of each unit.

h. Dehumidifier. Be sure dehumidifier is drained. Set shut-off valve to the closed position. install drain cap on storage shelter exterior wall.

i. Test Equipment. Ensure test equipment transported in Electronic Shop-Maintenance Facility AN/ARM-164 is mounted and secured in storage area. Certain critical test equipment must be mounted and secured on shock-mounted adjustable shelves. Figures 3-1, 3-2, and 3-3, indicate where each critical piece of test equipment is located for facility movement. The shock-mounted shelves are located on the roadside and curbside walls in the maintenance shelter. The shock-mounted shelves in the storage shelters are located approximately at the center road-side wall only. Adjustable steel shelves at the curbside wall in each storage shelter are not shock mounted, and should not be used for securing critical test equipment. Damage to test equipment may occur if not properly secured.

j. Accessories. Store miscellaneous items such as test equipment components, adapters, probes, resistors. etc., including expendable supplies shipped with the equipment, in the storage cabinets. Close and secure storage cabinet drawers with the tiedown bar.

k. Sunshade Canopy Removal.

(1) Untie each lanyard from its corresponding eyebolt.

(2) Remove grommets over the bracket end pins.

(3) Remove sunshade tarpaulin, fold and stow in storage cabinet d rawer.

(4) Remove eyebolts from rivnuts on lower external roadside wall. Place eyebolts in plastic bag and stow with tarap aulin in storage drawer.

(5) Remove side bracket assemblies, by removing flat washers, lockwashers. and capscrews from each bracket assembly. Place hardware in plastic bag and stow in storage drawer.

(6) Remove four corner bracket assemblies on each upper outside shelter corner. Place flat washers, lockwashers, and capscrews into plastic bags and stow in storage drawer.

(7) Stow corner brackets and side brackets in storage cabinet drawers.

l. Shelter Interior. Check the shelter interior and secure any loose items. Be sure that shelter interior is clean.

m. Cable Keels. Secure cable reels of the Electronic Shop-Maintenance Facility AN/ARM-164 to the floor mounted' plate assembly. Use the reel tiedown assembly mounted in spring clips attached to front wall to secure reels in place. See figures 1-3 and l-9.

n. Exhaust Blowers.

(1) Remove exhaust blowers from the front wall by following the steps below and referring to figure 2-3.

(a) Remove electrical cord from exhaust blower receptacles and pass the cord through shelter wall exhaust opening.

(b) Remove mounting bolts securing blower box cover panel.

(c) Remove rubber hose gaskets by loosening adjustable clamps. Remove adjustable clamps from exhaust fan outlet and exhaust vent opening.

(d) Remove exhaust blower box from fan assembly by removing mounting bolts from shelter wall.

(e) Remove transit cover from exhaust blower box and mount to exterior front wall. Secure with mounting bolts.

(2) Install the exhaust blowers on the storage shelter floor by following the steps below and referring to figure 2-4.

(a) Remove self-locking nuts on exhaust blower floor mounting plate.

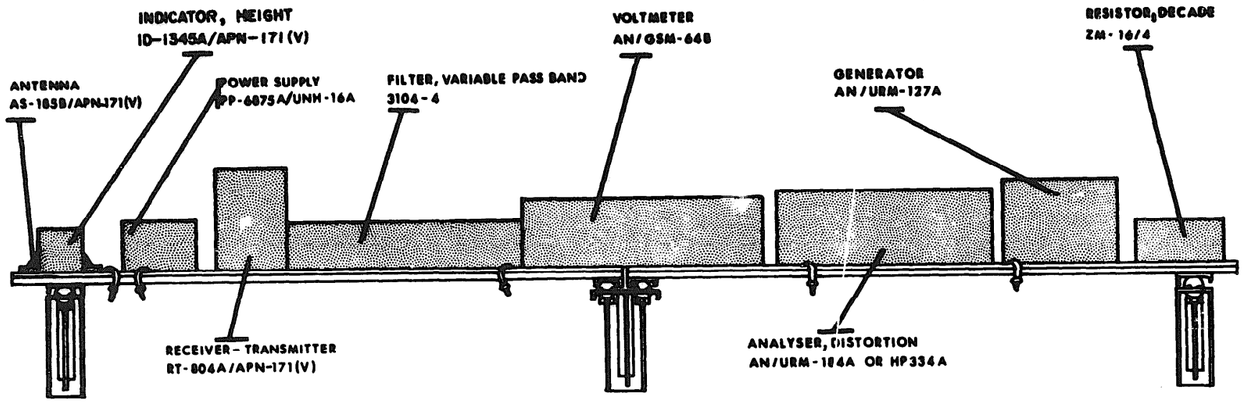
(b) Place fan assemblies onto mounting plate studs and secure with selflocking nuts.

(c) Place blower box cover vertically over blowers, being very careful not to damage insulation.

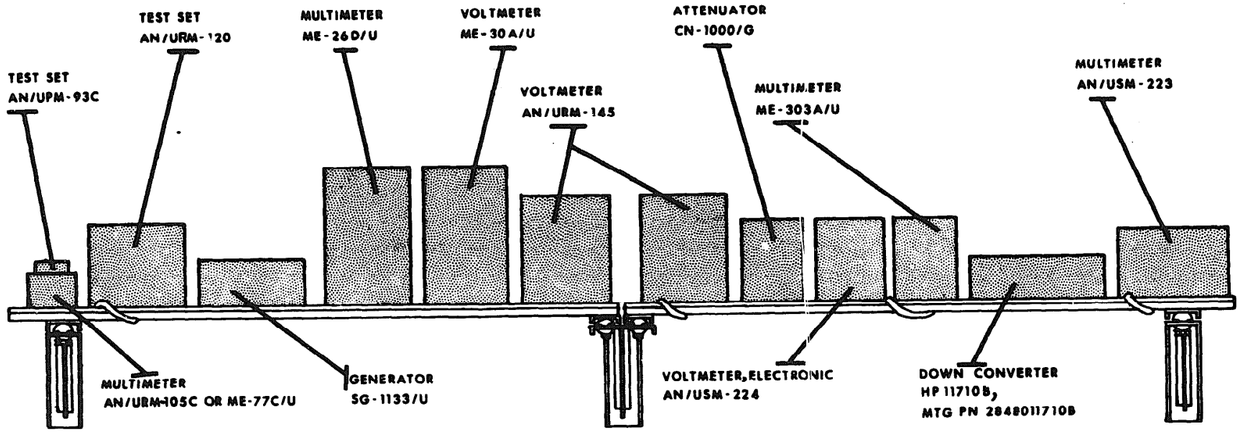
(d) Remove exhaust blower box mounting brackets from storage cabinet drawer. Secure mounting brackets with tiedowns.

(e) Install cover panel to exhaust blower box with twelve (12) mounting bolts.

(f) install ladder on exhaust blower box and secure with tiedowns.



A. ROADSIDE WALL



B. CURBSIDE WALL

Figure 3-1.

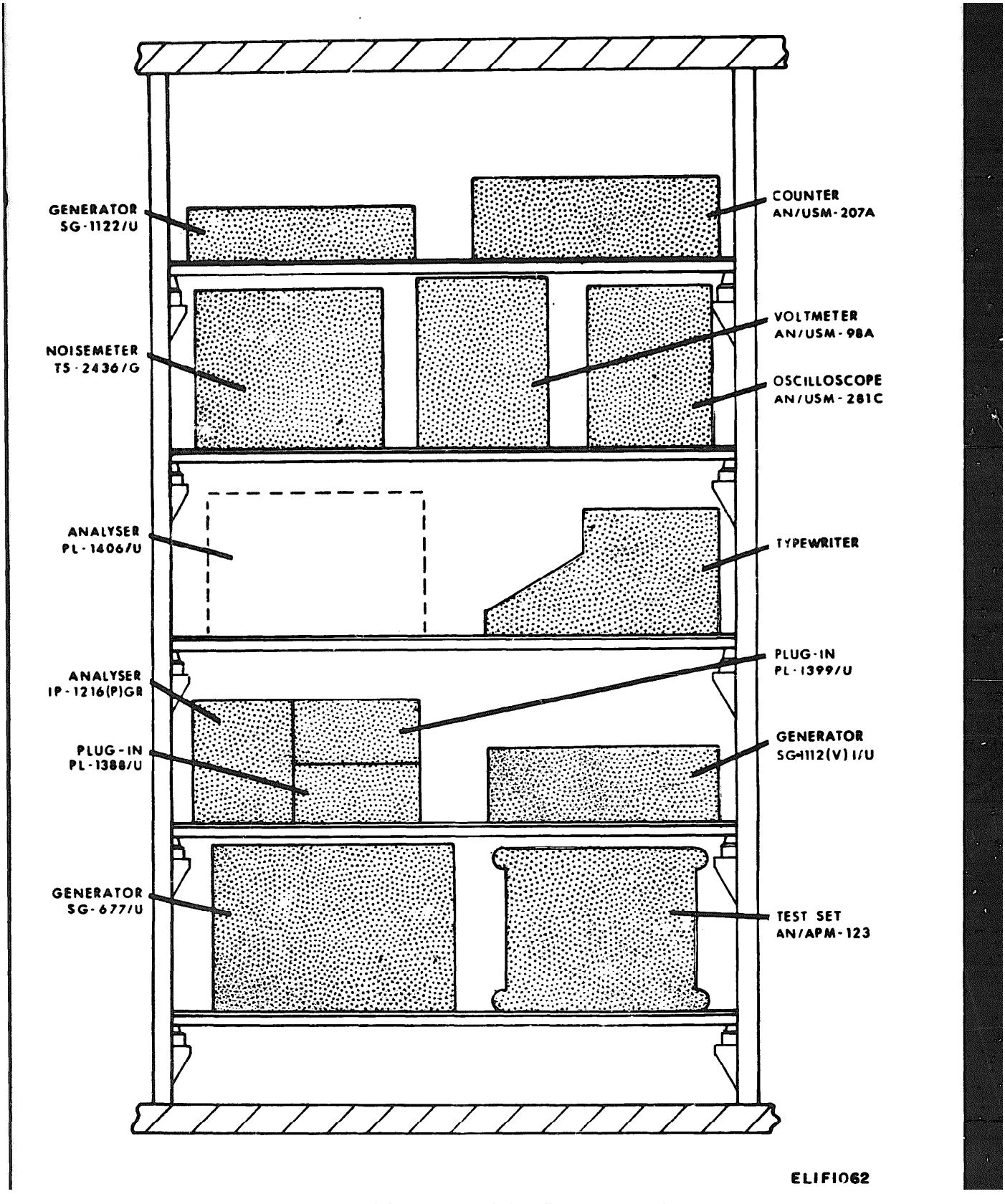


Figure 3-2. Storage Shelter No. 1, Roadside wall, test equipment location.

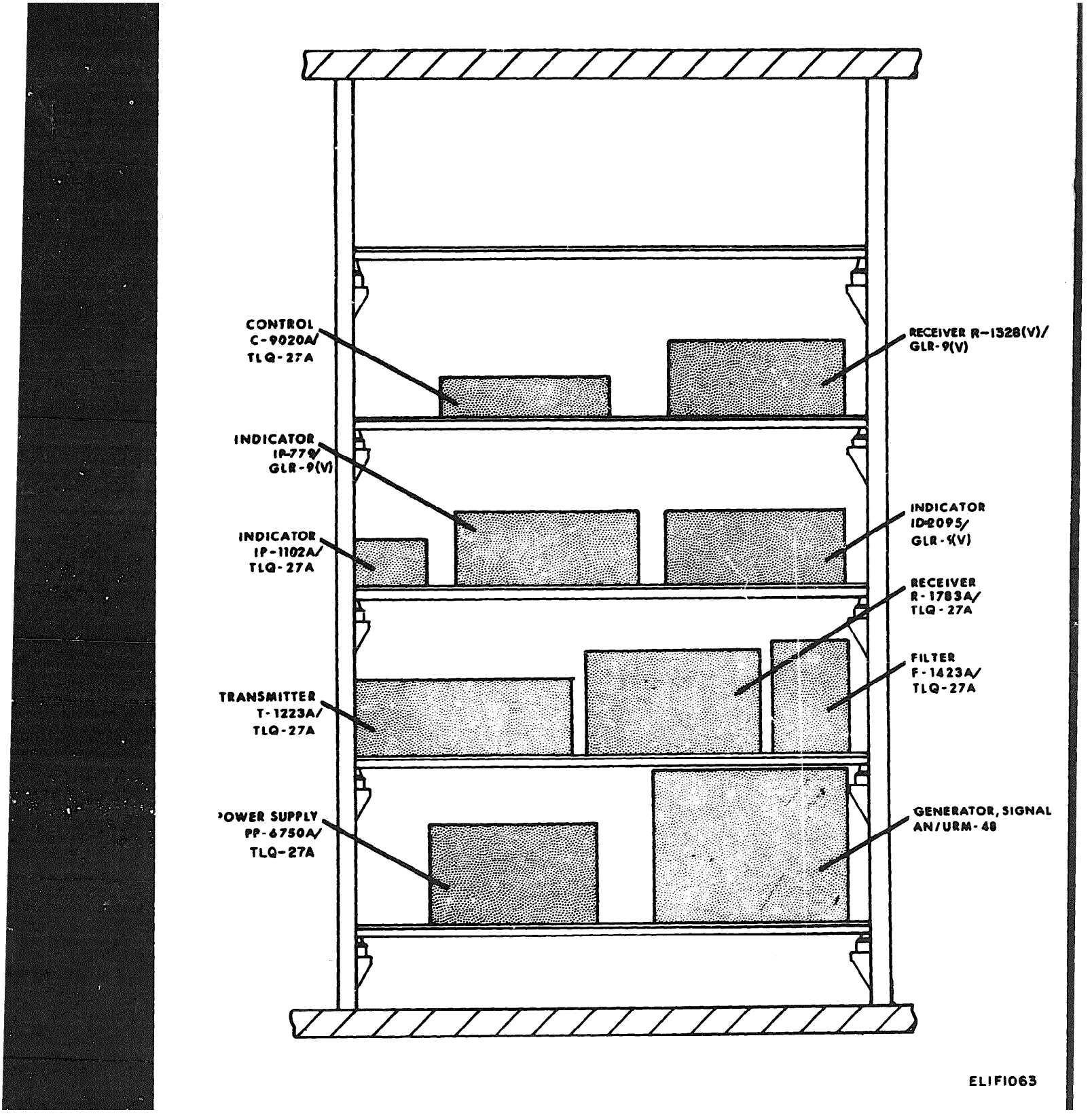


Figure 3-3. Storage shelter No. 2. roadside wall, test equipment Location.

o. Final Preparations.

(1) Close and fasten the cover assembly on each POWER ENTRANCE BOX assembly.

(2) Close and secure shelter extrance door.

(3) Refer to paragraphs 2-l and 2-2 for details on loading shelter on truck.

CHAPTER 4

OPERATOR/CREW MAINTENANCE INSTRUCTIONS

4-1. General

To be sure Electronic Shop-Maintenance Facility AN/ARM-l64 is always ready for operation, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services to be performed are listed and described in tables 4-1 and 4-2. Table 4-l covers the maintenance shelter; table 4-2 covers storage shelters. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit will be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment. Record all deficiencies together with the corrective action taken on DA Form 2407.

a. Systematic Care. The procedures given in tables 4-l and 4-2 cover systematic care essential to proper upkeep and operation of the facility.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services tables outline functions to be performed at specific intervals. These checks and services are designed to maintain Army equipment in a combat-serviceable and mission-ready condition. Routine checks and services are not included. Routine services such as cleaning, dusting, repairing cable insulation nicks and abrasions with electrical tape, and tightening loose nuts and bolts are to be performed when the need is obvious. If the equipment does not meet readiness/avadability requirements, and the defect cannot be remedied by the operator/crew, higher category maintenance is required.

4-2. Preventive Maintenance Checks and Services Periods

Tables 4-l and 4-2 specify intervals for the operator/crew preventive maintenance checks and services. Perform the equipment checks and services at these intervals and:

a When initially installed.

b. When reinstalled following movement or return from another category of maintenance.

c. At least once a week if the equipment is maintained in a standby condition.

Table 4-l. Operator/Crew Preventive Maintenance Checks and Services. Maintenance Shelter.

B-Before Operation w-weekly

Item No.	Interval B	Interval W	Item to be inspected Procedure	Equipment will be reported not Ready/Available if:
1	*		Ground rods and straps: Inspect ground rod and strap connections for good contact. Be sure no corrosion exists at connections. Clean and tighten as required. Water the area where the rod is driven into earth.	A condition is present which does not give shelter a reliable, safe ground.
2		*	Shelter exterior: Inspect for skin abrasions; punctures, cracks. or open seams that could permit dirt or moisture to enter walls or interior. Report unusual conditions or faults to direct support.	Shelter leaks or other damage causing actual or potential hazard to personnel or equip ment exists.
3	*		Shelter cleanliness: Remove debris. grease. dirt. rust fungus, and corrosion from all surfaces and accessible parts.	Only if presence of grease or corrosion creates a hazard to personnel or interrupts operations.
4		*	Fire extinguisher: Inspect fire extinguishers. Follow instructions on the extinguisher. NOTE Chock if the seal is broken; if so. turn unit in for servicing, and replace with serviceable unit.	Fire extinguisher is unserviceable.

Table 4-1. Operator/Crew Preventive Maintenance Checks and Services, Maintenance Shelter-Continued

B-Before Operation w-weakly

Item NO.	Interval B	Interval W	Item to be inspected procedure	Equipment will be reported not ready/available if:
5		*	Glass: Check all dials, gages. and meters for cracked or broken glass.	Glass condition affects equipment operation.
6	*	*	Power source: Set all circuit breakers, all light switches. and all equipment switches to OFF. Start primary power source. Three white POWER INDICATOR lamps shall illuminate on the MAIN filter panel. The red AC FAULT WHEN LIT lamp shall not illuminate. On the POWER DISTRIBUTION BOX. the amber PHASE CORRECT lamp shall illuminate.	Any of the following occur: POWER INDICATOR lamps fail to illuminate. AC FAULT WHEN LIT lamp illuminates. PHASE INCORRECT lamp illuminates.
7	*	*	VOLTS AC: Set the PHASE selector switch alternately from OFF to A6.B6. andC6. The VOLTS AC meter shall indicate 120 ±10. volts for each selected power phase.	Voltage not within 110 to 130 volts ac.
8	*	*	CYCLES PER SECOND: Set the PHASE selector switch alternately from OFF to A6. 6. and C6. The CYCLES PER SECOND mete. shall indicate 60 ±1 cycles per second (Hz). Return switch to OFF.	AC frequency not within 59 to 61 Hz (cycles per second).
9	*	*	MA J N circuit breaker: Set the MAIN circuit breaker ON. Three amber MAIN lamps (A6. B6. and C6) shall illuminate.	Lamps fail to illuminate.
10	*	*	POWER DISTRIBUTION BOX: Set all circuit breakers to ON. Associated indicator lamps shall illuminate.	Necessary equipment is effected by a faulty circuit or circuit breaker.
11	*	*	FLUORESCENT LIGHTS ODD switch: Set BYPASS-BLACKOUT switch to BYPASS. Set FLUORESCENT LIGHTS ODD switch ON. Eight lamps shall illuminate.	Other lamp circuits do not provide adequate lighting.
12	*	*	FLUORESCENT LIGHTS EVEN switch: Set BYPASS-BLACKOUT switch to BYPASS. Set FLUORESCENT LIGHTS EVEN switch ON. Eight lamps shall illuminate.	Other lamp circuits do not provide adequate lighting.
13	*	*	INCANDESCENT LIGHTS switch: Set BYPASS-BLACKOUT switch to BYPASS. Set INCANDESCENT LIGHTS switch ON. Incandescent ceiling lamps shall illuminate.	Other lamp circuits do not provide adequate lighting.
14	*	*	BY PASS BLACKOUT switch: Close and latch shelter door. Set BYPASS-BLACKOUT switch to BLACKOUT. Set FLUORESCENT LIGHTS ODD and EVEN switches ON. Set INCANDESCENT LIGHTS switch ON. Lamps shall illuminate. Open shelter door: ceiling lights shall extinguish.	Lights do not extinguish when door is opened during blackout conditions.
15		*	Cables. exterior: Inspect cables for damage along cables and at connectors. Replace cables requiring maintenance other than minor abrasions.	Cables are faulty. Connectors loose. Pins broken or loose. Cable jacket worn to conductor. Cable jacket cut to conductor.
16		*	Air conditioner: Inspect and clean evaporator outlet and inlet Louvers. Be sure condenser cover is rolled up and fasteners are not damaged. Inspect fresh air inlet screen. Inspect drains for obstructions. Check condenser louver for damage. Check con-	Air conditioner faulty. Louvers or screens congested with debris. Fails to respond to controls. Liquid sight indicator shows bubbles, yellow. or milky color.

Table 4-1. Operator/Crew Preventive Maintenance Checks and Service Maintenance Shelter-Continued

B-Before Operation W-Weekly

Item NO.	Interval B	Interval W	Item to be inspected procedure	Equipment will be reported not ready/available if:
			trols for visual damage. Check operation of damper control. Check for good power connection. Check air conditioner for abnormal operation. vibration, unusual noise, and failure to respond to controls. Observe liquid sight indicator for moisture and low refrigerant. Yellow color indicates moisture; bubbles or milky color indicates low charge (TM5-4120-239-14).	
17		*	Heaters: Set HEAT-OFF-PAS switch to FAN, observe fan operation without heat. Set same switch to HEAT, note fan operation and heat output. Move TEMPERATURE CONTROL thumbwheel to minimum heat. observe that heat coils cool while fan continues to operate.	Heater(s) faulty. Fan does not operate. No heat output while the HEAT-OFF-FAN switch is set to HEAT and TEMPERATURE CONTROL set to maximum.
18		*	Power Supply PP-4Y63A/.GRC: Set dual purpose AC ON/OFF circuit breaker, switch to ON. Internal cooling fan shall operate. At shelter 28 volts dc binding posts. check power supply output voltage. Use multimeter set on an adequate dc scale. If 28 volts not present, refer to TMl l-5820-765-12.	Power supply faulty.
19		*	Frequency converter: Check that frequency converter 208 VAC 36 400 HZ circuit breaker is OFF. Be sure power cord is plugged into 208 VAC 36 400 HZ receptacle. Set circuit breaker ON. Test output at 400 Hz receptacles with test equipment or equipment requiring 400 Hz. Four receptacles are labeled 208 VAC 3 400 HZ; six are marked 113 VAC 1 400 HZ.	Voltage and frequency output at 400 Hz receptacles is not as marked on receptacles.
2		*	Light extension (trouble light,: Inspect cap plug. cord. and lamp assembly fur damage. Check lamp operation from a 115-volt ac convenience receptacle. Replace if faulty.	Light assembly presents a hazard or is inop erative. except for burned-out lamp.
21		*	Sunshade: Inspect sunshade for torn or frayed conditions. Tighten loose lanyards. Tighten loose bracket bolts.	Sunshade accessories are unserviceable.

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

B-Before Operation W-Weekly

Item No.	Interval W	Item to be inspected procedure	Equipment will be reported not ready/available if:
1	*	Ground rods and straps: Inspect ground rod and strap connections for good contact. Be sure no corrosion exists at connections. Clean and tighten as required. Water the area where rod is driven into earth.	A condition is present which does not give shelter a reliable. safe ground.
2	*	Shelter exterior: Inspect for skin abrasions. punctures. cracks. or open seams that could permit dirt or moisture to enter walls or interior. Report unusual conditions or faults to direct support.	Shelter leaks or other damage causing actual or potential hazard to personnel or equip ment exists.

Table 4-2. Operator/Crew Preventive Maintenance Checks and Services, Storage shelter-Continued

B-Before Operation W—Weekly

Item No.	Interval B	Interval W	Item to be inspected procedure	Equipment will be reported not ready/available if:
3	*		Shelter cleanliness: Remove debris, grease. dirt, rust, fungus. and corrosion from all surfaces and accessible parts.	Only if grease or corrosion creates a hazard to personnel or interrupts operations.
4		*	Fire extinguisher: Inspect fire extinguishers. Follow instructions on the extinguisher. NOTE Check to see that seal is not broken. If sea1 is broken, turn unit in for servicing and replace with serviceable unit.	Fire extinguisher is unserviceable.
5		*	Glass: Check all dials, gages. and meters for cracked or broken glass.	Glass conditions affect equipment operation.
6	*	*	Power source: Set all shelter circuit breakers. light switches: and equipment switches to OF?'. Start primary power source. POWER INDICATOR lamp shall illuminate. On the POWER DISTRIBUTION BOX. the amber PHASE CORRECT lamp shall illuminate.	POWER INDICATOR lamp fails to illuminate. PHASE INCORRECT lamp illuminates.
7	*	*	VOLTS AC: Set the PHASE selector switch alternately from OFF to A6. B6. and C8. The VOLTS AC meter shall indicate 120 ±10. volts for each selected power phase.	Voltage not within 110 to 130 volts ac.
8	*	*	CYCLES PER SECOND: Set the PHASE selector switch alternately from OFF to A6, B6. and C6. The CYCLES PER SECOND meter shall indicate 60 ±1, cycles per second (Hz). Return switch to OFF.	AC frequency not within 59 to 61 Hz (cycles per second).
9	*	*	MAIN circuit breaker: Set the MAIN circuit breaker to ON.	MAIN circuit breaker is faulty.
10	*	*	POWER DISTRIBUTION BOX: Set all circuit breakers to ON. Associated indicator lamps shall illuminate.	Necessary equipment is affected by a faulty circuit or circuit breaker.
11	*	*	FLUORESCENT LIGHTS ODD switch: Set BYPASS-BLACKOUT switch to BYPASS. Set FLUORESCENT LIGHTS ODD switch ON. Six lamps shall illuminate.	Other lamp circuits do not provide adequate lighting.
12	*	*	FLUORESCENT LIGHTS EVEN switch: Set BYPASS-BLACKOUT switch to BYPASS. Set FLUORESCENT LIGHTS EVENS witch ON. Six Lamps shall illuminate.	Other lamp circuits do not provide adequate lighting.
13	*	*	INCANDESCENT LIGHTS switch: Set BYPASS-BLACKOUT switch to BYPASS. Set INCANDESCENT LIGHTS switch ON. Incandescent ceiling lamps shall illuminate.	Other lamp circuits do not provide adequate lighting.
14	*	*	BY PASS BLACKOUT switch: Set BYPASS-BLACKOUT switch to BLACKOUT. Set FLUORESCENT LIGHTS ODD and EVEN switches Oh'. Set INCANDESCENT LIGHTS switch Oh'. Close shelter door; ceiling lights shall remain illuminated. Open shelter door; ceiling lights shall extinguish.	Lights do not extinguish when door is opened during blackout condition.
15		*	Blowers: Be sure blower exhaust ports are open and fret? of debris. Check to see that blower assembly mounting hardware is tight. Set each BLOWER switch to ON and check for unusual noises.	Blowers fail to operate or are excessively noisy

Table 4-2. Operator/Crew Preventive Maintenance Checks and Services, Storage Shelter-Continued

B—Before Operation W—Weekly

Item NO.	Interval B	Interval W	Item to be inspected procedure	Equipment will be reported not ready/available if:
16			Light extension (trouble light): Inspect cap plug. curd. and lamp assembly for damage. Check lamp operation from a 115-volt ac convenience receptacle. Replace if faulty.	Light assemble presents a hazard or is inoperative, except for burned-out lamp.
17			Heaters: Set HEAT-OFF-FAN switch to FAN, observe fan operation without heat. Set same switch to HEAT, note fan operation and heat output. Stove TEMPERATURE CONTROL thumbwheel to minimum heat, observe that heat coils cool while fan continues to operate.	Heater(s) faulty. Fan does not operate. No heat output.
18		*	Cables, exterior: Inspect cables for damage along cable insulation and at connectors. Replace cables requiring maintenance other than minor abrasions.	Cables are faulty. Connectors loose. Pins broken or loose. Cable jacket worn or cut to conductor.
19		*	Dehumidifier: Be sure drain line is properly attached and free of kinks and obstructions. Check that drain valve is in open position. Check for moisture around and under the dehumidifier. Rotate humidistat thumbwheel switch to CONT RUN. Note operation of fan. Slowly rotate humidistat switch until unit shuts off. Do not operate for long periods during check if temperature is below 65 degrees F (18 degrees C). See manual packed with dehumidifier.	Dehumidifier is faulty due to leak. bad switch, inoperative fan or other fault that disables equipment.
20		*	Vacuum cleaner: Check general condition of hose, attachments. power cord, and cap plug. Be sure internal dust bag is emptied. Insert power cord cap into 115 VAC. 1, 60 HZ convenience receptacle. Turn on vacuum cleaner. Check for unusual noises. Check for normal suction at hose end. Replace unit if faulty.	Cleaner presents an electrical hazard. lacks sufficient suction, is excessively noisy, or inoperative.

4-3. Test Equipment Replacement

It is the responsibility of the operator/crew to replace test equipment found to be faulty or in need of calibration.

WARNING

Adequate ventilation should be provided while using TRICHLORORTRIFLUOROETHANE. 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 in ternally, consult a physician immediately.

4-4. Cleaning

A mild soap or detergent and water may be used for most general cleaning including walls, floors, and door louver filter. Use a dry, clean, lint-free cloth, or brush to remove dust or dirt. To remove ground-in dirt, grease, or fungus, moisten (do not soak) the cloth with trichlorotrifluorethane. After cleaning wipe dry with a clean cloth.

CHAPTER 5
ORGANIZATIONAL MAINTENANCE

Section I. MAINTENANCE INSTRUCTIONS

5-1. Scope of Organizational Maintenance

The **maintenance** duties assigned to organizational personnel of Electronic Shop-Maintenance Facility AN/ARM-164 are listed below together with reference to paragraphs covering specific maintenance functions. The duties assigned do not require tools, test equipment. or materials other than those listed in paragraph 5-2, and those listed in applicable unit manuals.

a. Touchup painting (para 5-4).
b. Lubrication (para 5-5).
c. Troubleshooting chart (para 5-6).
d. **Lighting** maintenance (para *5-7).*
e. **Heat**er replacement (para 5-8).
f. Indicator lamp replacement (para 5-9).
g. Telephone Set TA-312/PT replacement *(para* 5- 10).

5-2. Tools Test Equipment and Supplies Required

Refer to the maintenance allocation chart in appendix D) for organizational maintenance activities and for tool and test equipment requirements. Appendix E list supplies and materials used for organizational maintenance. Below is a list of tools, test equipment, and supplies listed in appendixes D, and E needed to perform organizational maintenance:

a. Tool Kits, Electronic Equipment TK-101/G and TK-105/G.
b. Multimeter AN/URM-105C.
c. Cloth, cotton (cheesecloth).
d. Detergent, General Purpose.
e. Lubricating Oil.
f. Trichlorotrifluoroethane.
g. Solder, Lead-Tin Alloy 60/40.
h. Rosin Solder Flux. Lead-Tin Alloy.

Section II. PREVENTIVE MAINTENANCE

5-3. Preventive Maintenance Checks and Services

The preventive maintenance checks and services table outlines functions to be performed at quarterly intervals. These checks and services are designed to maintain Army equipment in a combat-serviceable and mission-ready condition. Routine checks and services are not included. Routine services such as cleaning: dusting:. repairing cable insulation nicks and abrasions with electrical tape and tightening loose nuts and bolts are to be performed when the need for these services is obvious. If the equipment does not meet readiness/availability requirements, and the defect cannot be remedied at organizational maintenance, higher category maintenance is required.

Table 5-1. Quarterly Preventive Maintenance Checks and Services

Item NO.	Item to be inspected	Procedure
1	Shelter hardware	Inspect **all holddown assemblies. vises. hooks. mountings** steps, and cabling for proper **installation. looseness. or damage.**
2	Shelter skin	Inspect shelter **skin for punctures. tears. dents, or abrasions.**
3	Preservation	**Inspect the painted surfaces. They must be free of bare spots, rust, or corrosion.**
4	Door. **vents, and covers**	**Inspect the door sections. vents, and the covers *of* the vents and POWER ENTRANCE BOX. Note that they open and close freely and do not impair the light tightness of the shelter.**
5	First aid kit	**Check first aid kit and replace parts that, are missing.**
6	Publications	Check **to see that all technical manuals are present and that publications** are complete **serviceable. and current. Refer to latest issue of** DA **Pam 310-4.**

Table 5-1. Quarterly Preventive Maintenance Checks and Services-Continued

Item No.	Item to be inspected	Procedure
7	Water drains	Check that water drains are free of obstructions and foreign matter to allow free flow of water.
8	Gaskets	Inspect water proofing gaskets on entrance door, air conditioners, exhaust blowers. and POWER ENTRANCE BOX cover. Note that the gaskets are clean and free of paint and grease. There should be no leaks, loose edges. or signs of excessive wear,
9	Air filter	Inspect the air ***vent*** filter. Note that it does not obstruction the free flow of air.
10	Power cables	Inspect power cables for physical damage and proper connections. The cable should be free of fraying, cracks and strain. and damaged connectors.
11	Grounding system	Replace ground rod if ground lead cannot be tightened securely. Replace ground lead if it is cut. corroded, or broken.
12	Fire extinguisher	Refill if weight of contents is less than prescribed. Have valve replaced if damaged.
13	Modification Work Orders (MWO's)	Check DA Pam 310-7 for MWO's required for the facility or components. Check equipment to see if current MWO's have been applied and the MWO Number is stamped as required. Perform or request modification as applicable.
14	Parts	Be sure that all components and test equipment are mounted or stowed in assigned places, except those that are being used.
15	Dehumidifier	Wipe the top. sides, and front. grill with a soft, damp cloth. Remove the outer cabinet **skin** by removing two screws in front and three screws on each side. Clean dirt from interior parts with a dust brush and vacuum cleaner. Lubricate condenser fan motor with a few drops of lubricating oil. Remove kinks, sharp bends, and internal impediments from the drain hose.

5-4. Touchup hinting

a. Remove rust and corrosion from metal surfaces by lightly sanding with fine sandpaper. Brush two thin coats of the proper paint (SB 11-573) on bare metal to protect it from further corrosion. Refer to applicaible cleaning and refinishing practices specified in TB 43-0118.

b. Refer to painting instruction for the S-280/G shelter in TB 750-240.

5-5. Lubrication

a. Refer to TB 550-240 for lubrication instruction on the shelter door assembly hinges and latches. and the power entrance box cover hinge.

b. Lubricate the sliding and rotating parts on the table assembly drawers and chair assemblies using a general purpose oil. Refer to appendix F, for proper lubricant.

Section III. CORRECTIVE MAINTENANCE

5-6. Troublshooting

Troubleshooting of the shelter is **based** upon malfunctions that may occur during normal operation of the equipment. in the system. When a problem occurs, refer to The corrective action column in the applicable troubleshooting chart (table 5-2, 5-3, or 5-4). If the corrective actions indicated do not result in correction of the trouble. higher level maintenance is required. Refer to the applicable power distribution schematic diagram (fig. FO-1 or FO-2) for detailed circuit information.

Table 5-2. Troubleshooting Chart, Maintenance Shelter

Malfunction	Probable cause	Corrective action
1. 208-vac, 60-Hz,. 3-phase power not present at maintenance shelter receptacle.	External power cable not properly seated	a. Install power cable properly. b. Recheck external **power source setting.** c. Observe voltage meter on power distribution box for 120 vac ±10 volts. cl. Recheck power distribution box circuit for proper setting.
2. 60-Hz power not available at frequency converter.	***a. POWER DISTRIBUTION BOX*** frequency converter circuit breaker defective. b. 60-Hz power cable defective.	a. Check frequency converter circuit **breaker** for continuity; replace if defective. b. Check ends of frequency converter input power cable. If necessary replace or seat plugs in receptacles.
3. Internal 208-vac, 400-Hz power not present at 400-Hz circuit breaker.	a. Frequency converter output cable disconnected from frequency converter. b. 400-Hz circuit breaker defective.	a. Check frequency converter output cable; if necessary, replace **and reseat output** terminals. b. Repair or replace circuit breaker if defective.
4. Frequency converter indicator lamp on the POWER DISTRIBUTION BOX does not illuminate.	Indicator lamp loose in socket or **defective.**	Check **indicator lamp for proper** seating; replace if **defective.**
5. 28 vdc ***not*** available at binding posts.	u. Dc power supply circuit breaker defective. b. DC power **supply output** wires disconnected. c. DC power **supply** defective.	a. Check dc power **supply** circuit breaker **for** continuity; replace if defective. b. Check dc power supply output wires for connection or defect. c. Repair or replace defective power **supply.**
6. DC PWR SUPPLY circuit breaker indicator lamp on POWER DISTRIBUTION BOX does not illuminate	Indicator lamp loose in socket or defective.	Check indicator lamp for proper seating; replace if defective.
7. a. 115-volt, 60-Hz power not available at bench receptacles. b. Bench receptacles glow lamp on the POWER DISTRIBUTION BOX does not illuminate.	a. BENCH RECPT circuit breaker defective. b. Indicator lamp loose in socket or defective.	a. Check BENCH RECPT circuit breaker for continuity; replace if defective. b. Check indicator lamp for proper seating; replace if defective.
8. a. Power for the CONV outlets not available. b. CONV indicator lamp does not illuminate POWER DISTRIBUTION BOX.	a. CONV circuit breaker defective. b. Indicator **lamp loose** in socket or defective.	a. Check CONV circuit breaker for continuity; replace if defective. b. Check indicator lamps for proper seating; replace if defective.
9. a. Air conditioner 1 or air conditioner 2 does not operate. b. Air conditioner 1 or air conditioner 2 indicator lamp on the POWER DISTRIBUTION BOX does not illuminate.	a. Air conditioner 1 or air conditioner 2 circuit breaker defective. ***b.*** Indicator lamp loose in socket or defective.	a. Check air conditioner 1 or air conditioner 2 circuit breaker for continuity; replace if defective. b. Check indicator lamp for proper seating; replace if defective.

Table 5-3. Troubleshooting Chart. All Shelters

Malfunction	Probable cause	Corrective action
1. VOLTS AC meter indicates abnormal **voltage.**	Power unit.	Adjust power unit. Replace if defective.
2. **One or** more of the fluorescent lights **does** not light.	u. The extinguished fluorescent light or starter is loose in socket or defective. b. Defective FLUORESCENT LIGHTS EVEN FLUORESCENT LIGHTS ODD switches.	a. Check extinguished fluorescent light **and** starter for proper seating: replace if defective. b. Check FLUORESCENT LIGHTS EVEN and FLUORESCENT LIGHTS ODD switches for continuity; **replace if defective.**

Table 5-3. Troubleshooting Chart, All Shelters-Continued

Malfunction	Probable cause	Corrective action
	c. LIGHTS circuit breaker or door microswitch defective.	c. Check LIGHTS circuit breaker for continuity; **replace** if defective. Check door microswitch for continuity; replace if defective.
3. Fluorescent lights do not go out when door is opened, and BYPASS-BLACKOUT switch is at BLACKOUT.	Door microswitch defective.	Check door microswitch for smooth operation. Adjust switch mounting; replace if defective.
4. Fluorescent lights do not go out with door open, when BYPASS-BLACKOUT switch is set to BLACKOUT.	BY PASS-BLACKOUT switch is defective.	Check BY PASS-BLACKOUT switch for continuity: replace if defective.
5. HTH or HTR 2 does not radiate heat.	a. HTR 1 **or** HTR 2 HEAT-OFF-FAN switch or temperature control defective.	a. Check HEAT-OFF-FAIL switch for continuity or check TEMPERATURE CONTROL for proper operation; replace if defective.
	b. HTR 1 or HTR 2 circuit breaker defective.	b. Check HTR 1 or HTR 2 circuit breaker for continuity; replace if defective. Check convenience circuit breaker for proper operation; replace if defective.
6. HTR 1 or HTR 2 fan does not **operate.**	HTR 1 or HTR 2 HEAT-OFF-FAN switch defective.	Check HEAT-OFF-FAN switch for continuity; replace if defective.
7. HTR 1 or HTR 2 indicator lamp on the POWER DISTRIBUTION BOX does not illuminate.	Indicator lamp loose in socket or defective.	Check indicator lamp for proper seating; replace if defective.
8. 115-volt ac power not available at the convenience outlets.	CONV circuit breaker defective.	Check CONV circuit breaker for continuity; replace if defective.
9. Droplight does not light.	a. 75-watt lamp burned out.	a. Replace 75-watt lamp.
	b. Power cord defective.	b. Check power cord for continuity and repair or replace if damaged.
10. TA-312/PT fails **to** operate.	a. Disconnected or defective signal lines.	a. Heconnect or replace defective signal line.
	b. Defective batteries.	b. Check batteries; replace if defective.
	c Defective telephone.	c. Replace defective telephone.

Table 5-4. Troubleshooting Chart, Storage Shelters

Malfunction	Probable cause	Corrective action
1. POWER INDICATOR **lamp** does not light.	a. Power cable improperly installed.	a. Check power cable for proper installation.
	b. Indicator lamp loose in socket or defective.	b. Check indicator lamp for proper seating; replace if defective.
2. **Blower** 1 and blower 2 do not **operate.**	a. Operating power disrupted.	u. Restore operating power.
	b. Defective blower.	b. Replace ***or*** repair defective blower.
	c. Defective circuit breaker.	c. Check continuity and repair or replace defective circuit breaker.
	d. Power cable.	d. Replace or repair power cable.
3. Dehumidifier.	a. Operating power disrupted.	a. Restore operating power.
	b. Defective circuit disrupted.	b. Check continuity and repair or replace defective circuit breaker.
	c. Power cable.	c. Replace or repair power cable.

5-7. Lighting Maintenance

Refer to the power distribution schematic diagrams (figs. FO-1 and FO-2) for circuit information.

a. Fluorescent Lamp Replacement.

(1) Remove plastic shield from fluorescent light fixture of defective lamp by removing two cross-recessed screws.

(2) Pull the lamp lock on each end of the lamp socket straight down and off **the** fixture.

(3) Rotate the defective lamp in its socket one-quarter turn and remove the lamp.

(4) Remove a spare fluorescent lamp from the ceiling storage bracket.

(5) Aligh pins on each end of replacement lamp with the slots in the lamp sockets.

(6) Insert pins into slots by pushing lamp in and rotating the lamp one-quarter turn to seat the pins in the socket.

(7) Install a lamp lock by pushing the lock straight up and over each end of the lamp socket.

(8) Replace fluorescent shield.

b. Fluorescent Lamp Starter Replacement.

(1) Remove fluorescent lamp by following the above paragraph to expose the starter.

(2) Press in on *starter.* rotate it one-quarter turn counterclockwise, and withdraw starter.

(3) Insert new starter, press in and turn clockwise, until the starter seats.

(4) Replace fluorescent lamp by following the procedures in a above.

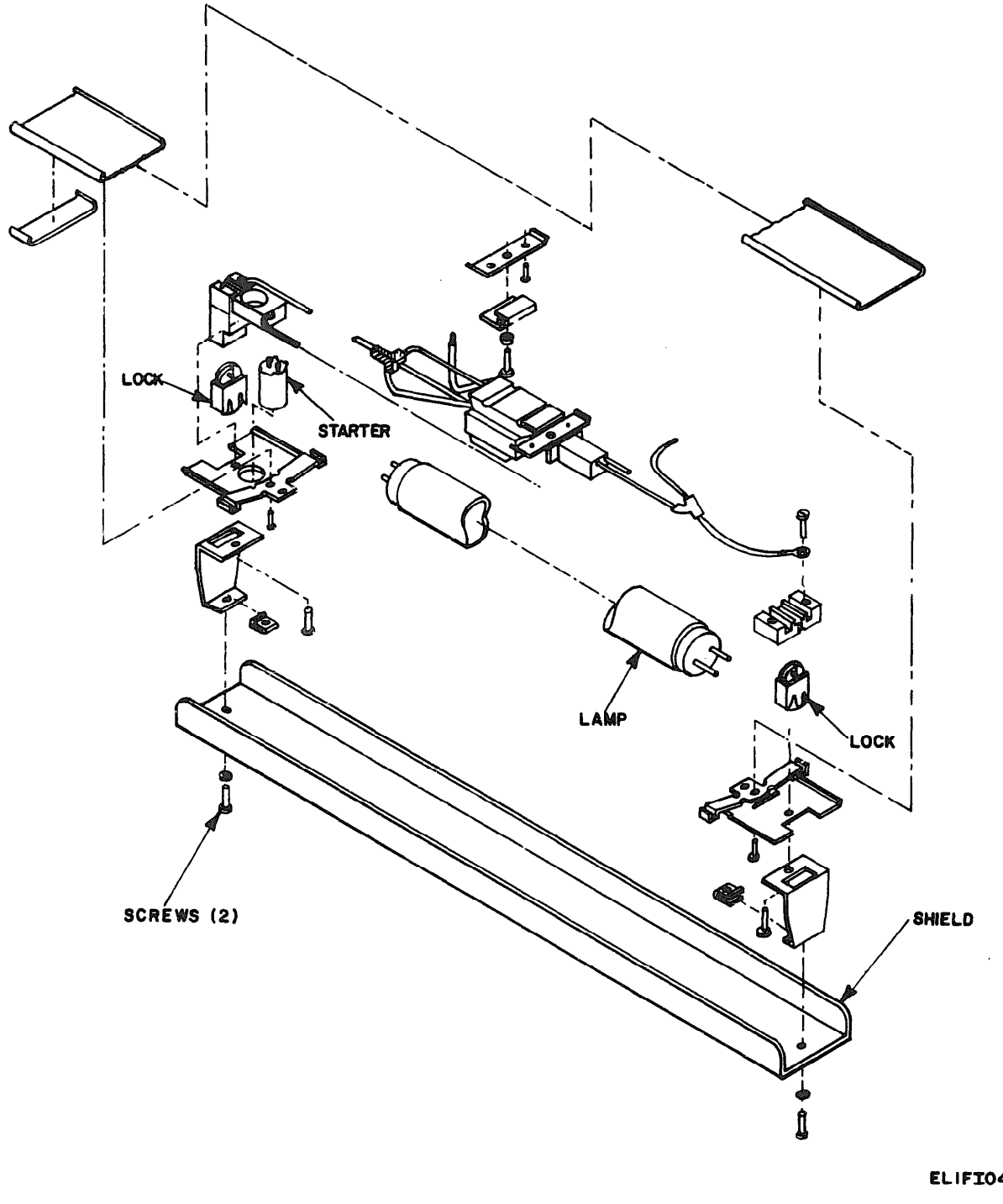


Figure 5-1. Fluroescent lamp replacement details.

5-8. Heater Replacement

Refer to Figure-6 during removal and replacement of the heater.

a. Removal.

(1) Operate HEAT-OFF-FAN switch to OFF.

(2) Remove power cord connector plug from HEATER receptacle.

(3) Loosen four turnlock fasteners that secure healer to mounting Base.

(4) Lift heater until it clears mounting base and remove heater.

b. Replacement

(1) Set heater onto mounting base so that the four turnlock fasteners drop into holes.

(2) Tighten four turnlock fasteners.

(3) Insert power cord connector into HEATER receptacle.

5-9. Indicator Lamp Replacement

a. Glowlamps.

(1) Remove lens by turning the lens counterclockwise.

(2) Press in on lamp, turn counterclockwise then withdraw the lamp from the socket.

(3) Insert replacement lamp, press in, turn clockwise until seated, then release.

(4) Install the lens by screwing clockwise.

b. Power Indicator Lamp. *The* ***POWER*** INDICATOR lamp used in the storage shelter is a screw base lamp and is removed by rotating counterclockwise until it is free of the socket. Replace by inserting the lamp into socket and rotating clockwise until firmly seated in the socket.

5-10. Telephone Set TA-312/PT Replacement

a. Removal

(1) Remove the TA-312/PT from its mounting bracket.

(2) Disconnect the TA-312/PT from the signal lead coming from the POWER ENTRANCE ***BOX*** terminal lugs.

b. Replacement. Refer to figure 1-26 for signal lead connections. Reconnect the replacement TA-312/PT to the signal lead and secure to the mounting bracket. install D batteries in the telephone.

CHAPTER 6

DIRECT AND GENERAL SUPPORT MAINTENANCE

6-1. General

Direct support and general support maintenance of major items is covered in this chapter. or applicable unit manuals. Instructions are provided for the replacement or repair of components installed in the maintenance facility. For troubleshooting of the shelter power distribution circuitry, refer to the power distribution schematic diagram. To test the repaired power distribution circuits for satisfactory performance, complete the operational checks in tables 4-1 and 4-2. Additionally, refer to applicable manuals listed in appendix A for maintenance coverage of equipment units used in the maintenance facility.

6-2. Tools and Test Equipment

Tools and test equipment required for maintenance are listed in the maintenance allocation chart ***(MAC)*** (app D).

6-3. Power Cable Repair

Details for repairing the shelter power cable and the power cable stub are contained in figures FO-3, and 6-l and 6-2. Refer to these illustrations for power cable repairs, and TM 55-1500-323-25 for general cabling/wiring repairs.

6-4. POWER ENTRANCE BOX Receptacle Replacement
(fig. 6-3)

WARNING

Disconnect the power input cable from the input power receptacle in the POWER ENTRANCE BOX before attempting any repairs on the POWER ENTRANCE BOX.

To remove and replace the power connector. the wires must be cut from the original connector pins. The original pins are crimped to the wires with special equipment. Replacement pins or connectors can be soldered with a soldering iron rated at a minimum of 500 watts. Refer to figure FO-3 for sodering details.

a. Remove inside cover from POWER ENTRANCE BOX.

b. Open the outside cover of the POWER ENTRANCE BOX.

C. Remove the four mounting screws which secure the power receptacle to the POWER ENTRANCE BOX.

d. Pull the receptacle connector through the mounting hole toward the outside of the shelter.

e. Unscrew the backside retaining nut from the shell and coupling nut assembly.

f. Cut the wire leads flush with the back of each pin.

g. Strip enough insulation from each wire lead to expose in inches of bare wire.

h. Solder the replacement connector pins to each of the wire leads.

i. insert each pin into the pin grommet assembly until fully seated.

j. Assemble the pin grommet assembly into the shell and coupling nut assembly.

k. Screw the backside retaining nut into the shell and coupling nut assembly .

l. Install the connector in the POWER ENTRANCE BOX, and secure in place with the mounting hardware.

m. Close and secure the inside cover.

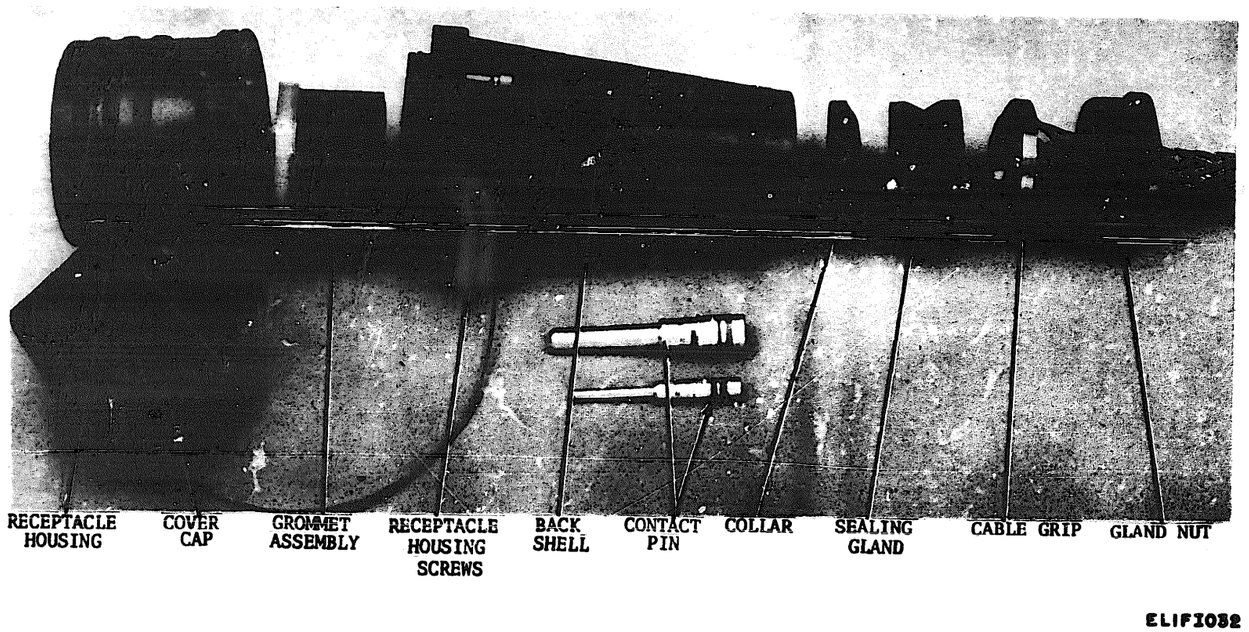


Figure 6-1. Power cable receptacle connector, exploded view.

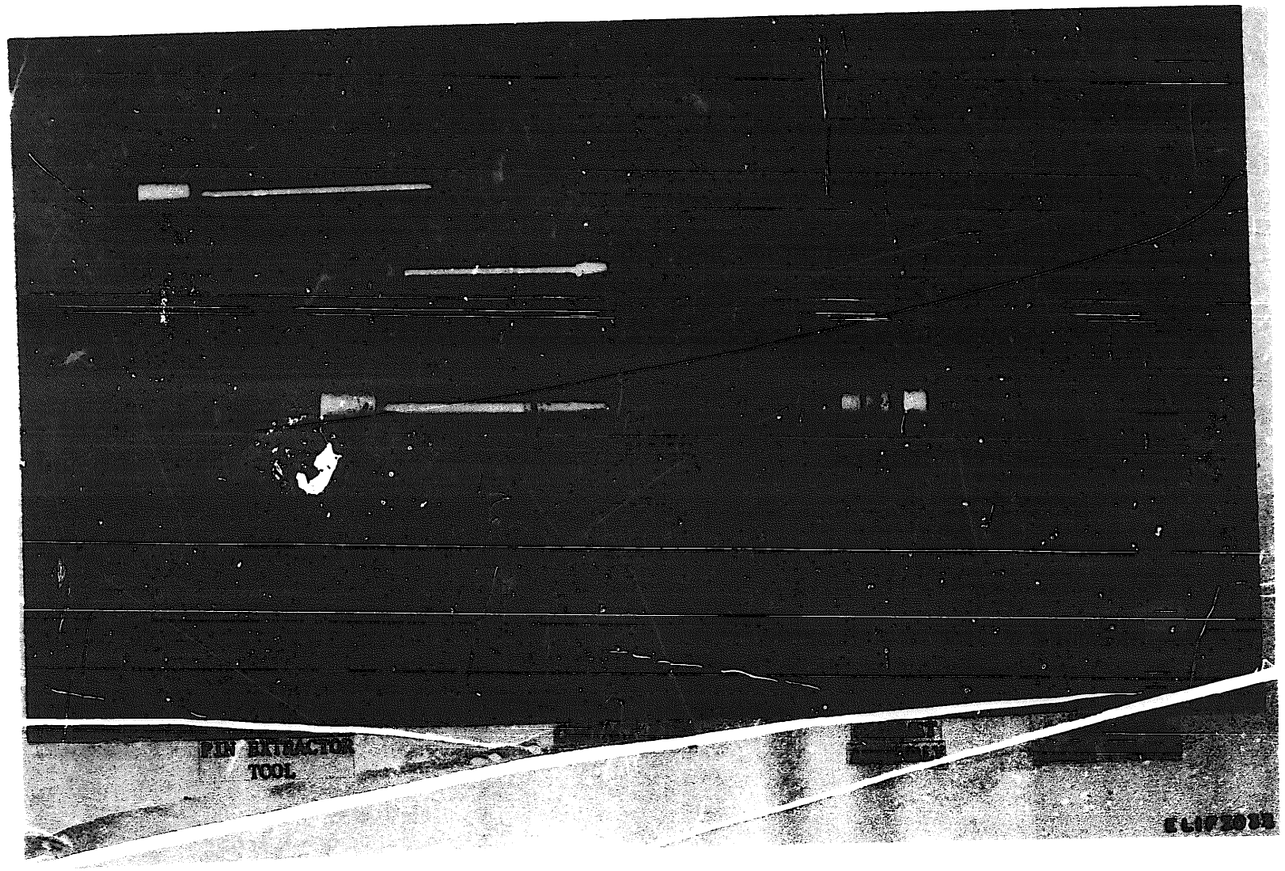


Figure 6-2. Power cable connector repair tools.

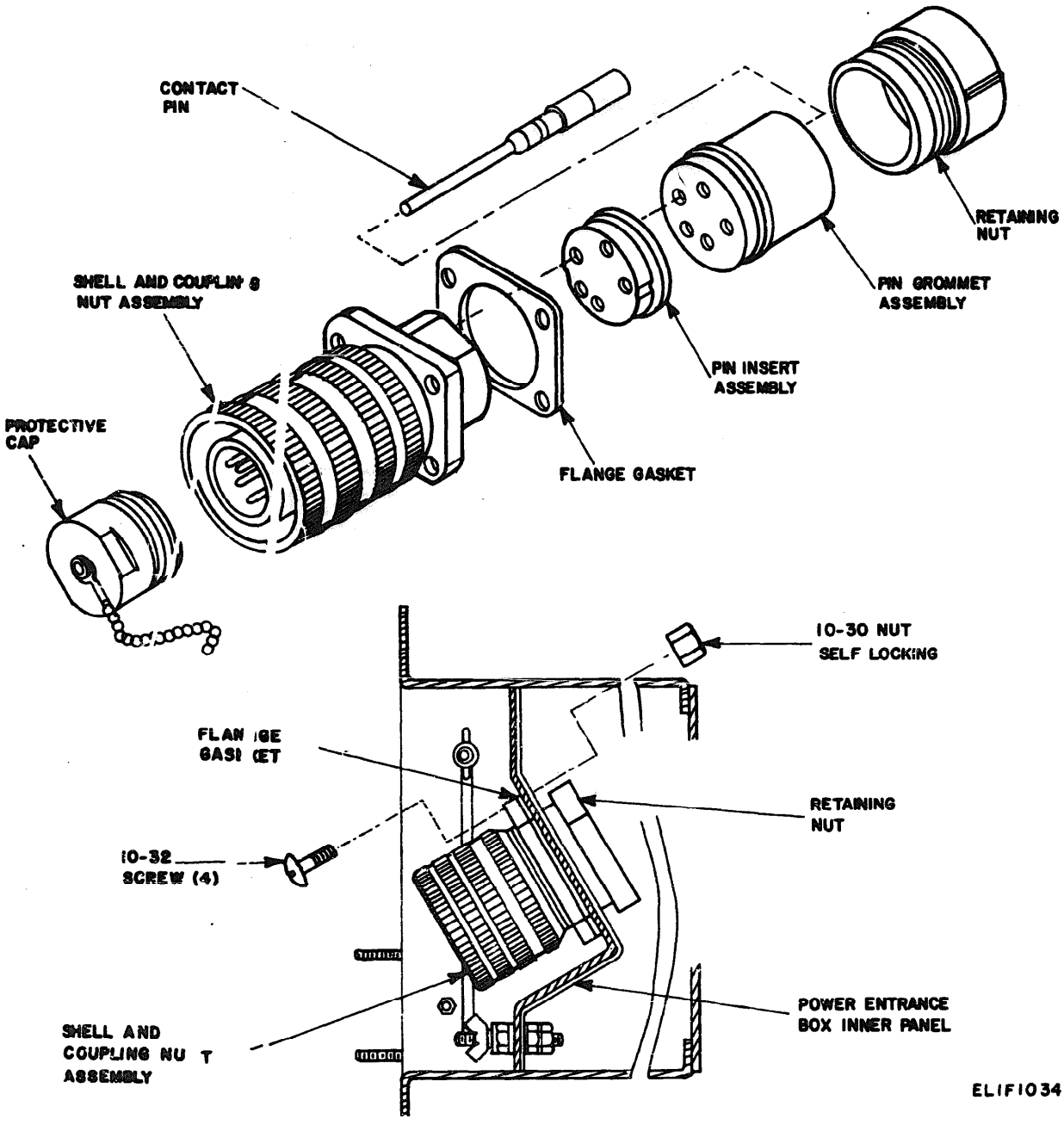


Figure 6-3. POWER ENTRANCE BOX receptacle exploded view.

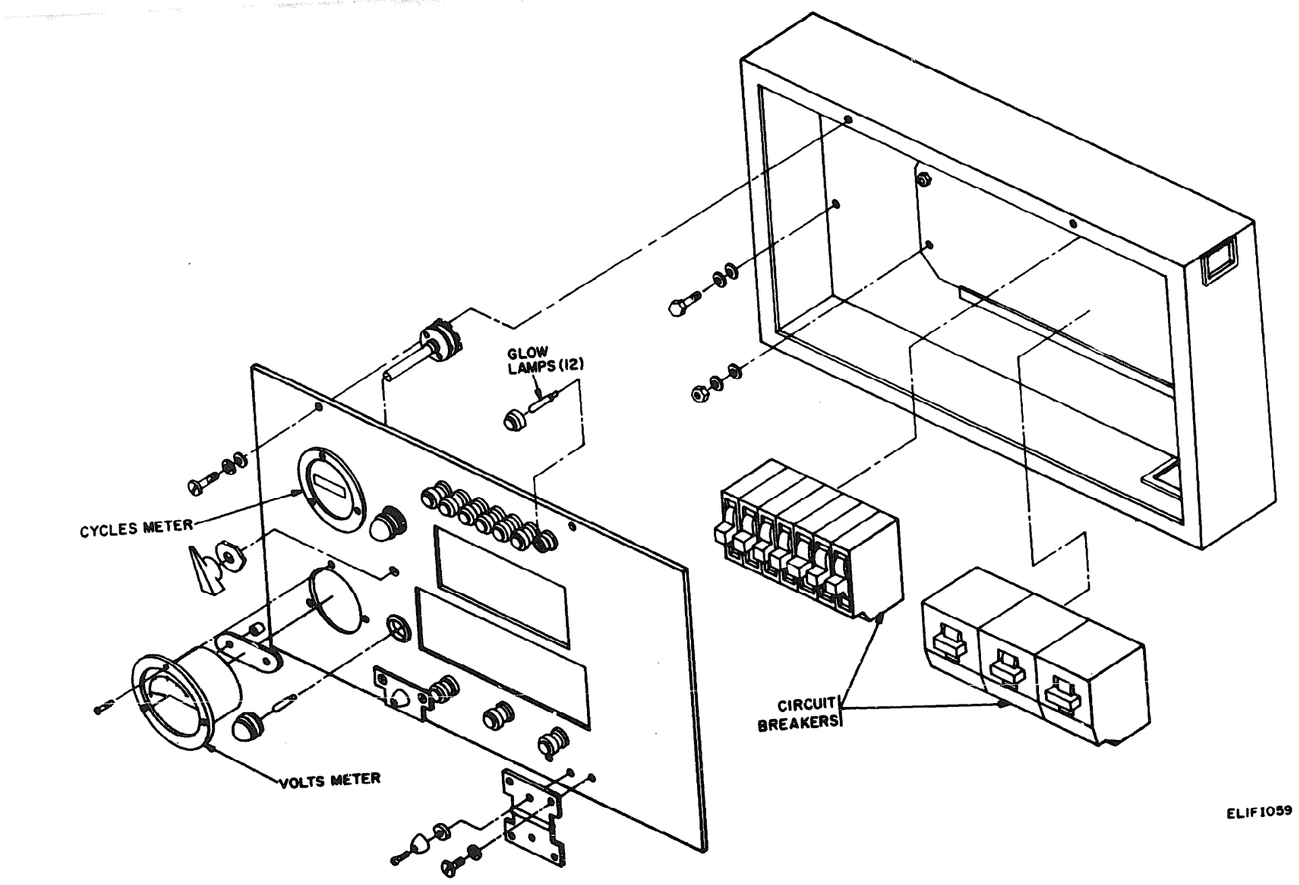


Figure 6-4. POWER DISTRIBUTION BOX components.

6-5. POWER DISTRIBUTION BOX Repair
(fig. 6-4)

WARNING

Disconnect the power input cable for the POWER ENTRANCE BOX before attempting any repairs on the POWER. DISTRIBUTION BOX.

a. Circuit Breaker Replacement.

(1) Remove the screws which secure the POWER DISTRIBUTION BOX hinged cover, and open the cover.

(2) Grasp the top of the circuit breaker, and pull straight out and down.

(3) Remove the wires attached lo the lop of the circuit breaker by removing the terminal screw.

(4) Attach the previously removed wires lo the top of the replacement circuit breaker.

(5) Set the replacement circuit breaker in position inside the POWER DISTRIBUTION BOX.

(6) Push the circuit breaker in until it snaps into place.

(7) Close and fasten the hinged cover with the holding screws.

b. Meter Replacement.

(1) Remove the screws which secure the POWER DISTRIBUTION BOX hinged cover and open the cover lo expose the back of the meter.

(2) Mark the wire leads for reconnection to the correct meter terminals, then remove the wires from the terminals.

(3) Remove three meter retaining screws and remove the meter.

(4) Position the replacement meter in the hinged cover and secure in place with the three mounting screws.

(5) Reconnect the previously marked wire leads lo the meter terminals,

(6) Close the hinged cover and secure with the cross recessed screws.

6-6. Electric Heater Repair
(fig. 6-5 and 6-6)

a. HEAT-OFF-FAN Switch Replacement.

(1) Remove heater from mounting base (para 5-8).

(2) Remove the four mounting screws that hold the backplate lo the heater cabinet and remove the backplate.

(3) Remove the mounting nut from the HEAT-OFF-FAN switch on top of the heater cabinet.

(4) Tag and remove the switch leads.

(5) Connect switch leads lo replacement switch.

(6) Fit the replacement switch into the mounting hole on the top of the heater cabinet.

(7) Secure switch lo top of heater cabinet with switch mounting nut.

(8) Secure backplate to heater cabinet with four mounting screws.

(9) Replace heater on mounting base.

b. Temperature Control Unit Replacement.

(1) Remove heater from mounting base.

(2) Remove four mounting screws that hold barkplate to heater cabinet and remove backplate.

(3) Loosen screws that connect two wires to temperature control unit.

(4) Remove two screws that secure temperature control unit to heater cabinet and remove temperature control unit.

(5) Insert temperature control on replacement unit through slot in heater cabinet.

(6) Replace and tighten screws.

(7) Connect two wires to temperature control unit.

(8) Secure backplate to heater cabinet with four mounting screws.

(9) Replace heater cabinet on mounting base.

c. Heating Element Replacement.

(1) Remove heater from mounting base.

(2) Remove four mounting screws that hold bottom plate lo heater cabinet and remove bottom plate.

(3) Remove conductor from terminal on finned heating element.

(4) Remove finned heating element mounting screws.

(5) Remove conductor from terminal on thermal cutout.

(6) Grasp finned heating element and pull downward to remove.

(7) Install replacement finned heating element.

(8) Secure finned heating element with mounting screws.

(9) Replace connector to terminal on finned heating element.

(10) Secure bottom plate to heater cabinet with four mounting screws.

(11) Replace heater cabinet on mounting base.

d. Motor and Impeller Replacement

(1) Remove heater from mounting base.

(2) Remove four screws that hold bottom plate to heater cabinet and remove bottom plate.

(3) Remove four mounting screws that hold backplate lo heater cabinet, and remove backplate.

(4) Remove four screws that secure motor bracket to heater cabinet, and lift out motor and bracket as a single unit.

(5) Tag and remove motor leads from HEATER-OFF-FAN switch and from taped splice in heating element cable.

(6) Remove three screws that secure motor to bracket.

(7) Unscrew metal fastener that secures impeller to motor shaft and remove impeller.

(8) Place new impeller on motor shaft. and secure it with metal fastener.

(9) Place new motor on bracket. and secure it with three screws.

(10) Connect tagged or corresponding leads on new motor to HEATER-OFF-FAN switch and to taped splice in heating element cable.

(11) Place motor in cabinet; replace and tighten four screws that secure motor bracket to cabinet.

(12) Secure backplate to heater cabinet with four mounting screws.

(13) Secure bottom plate to heater cabinet with four mounting screws.

(14) Replace heater cabinet on mounting base.

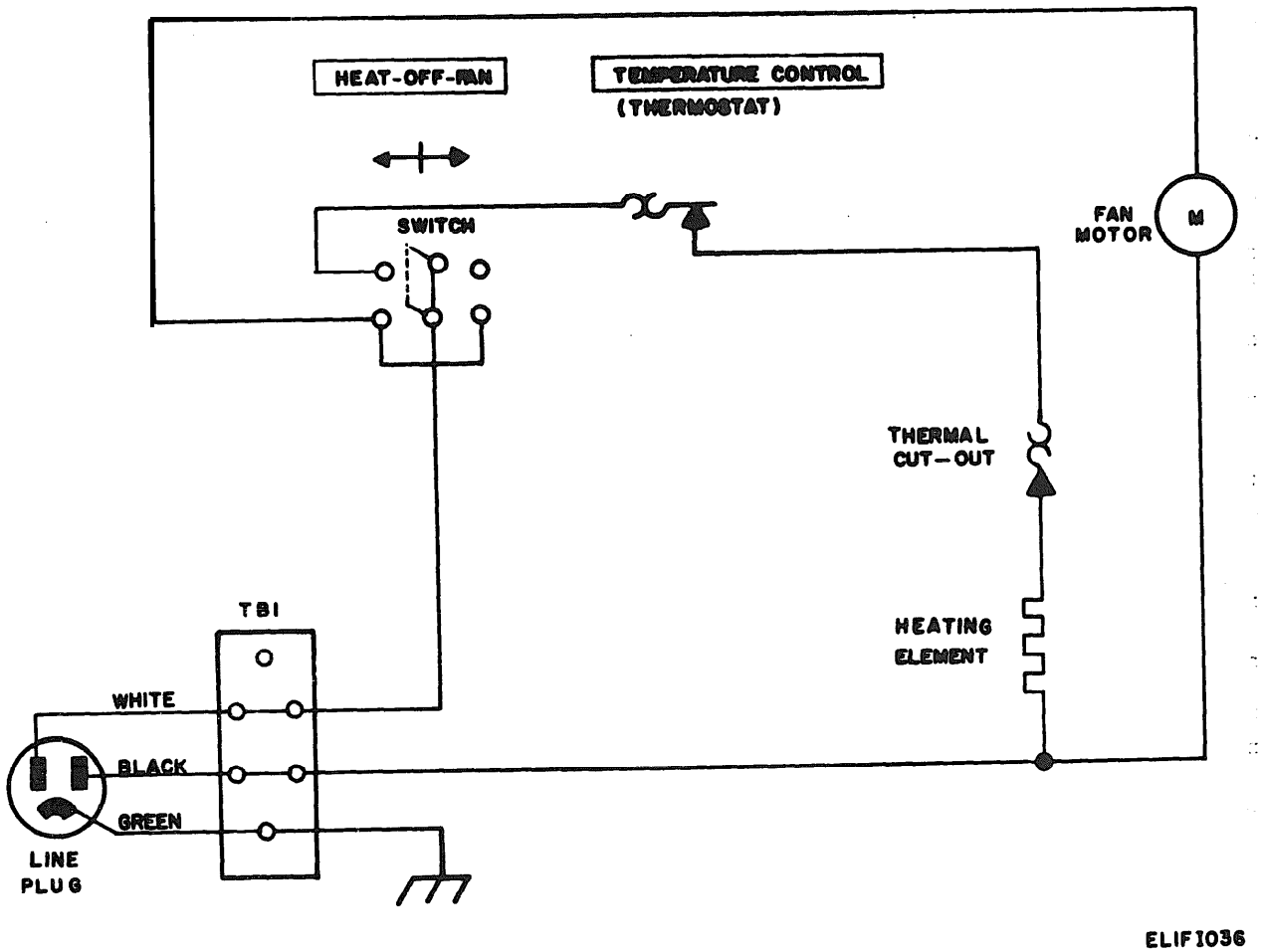


Figure 6-5. Electric heater, schematic diagram.

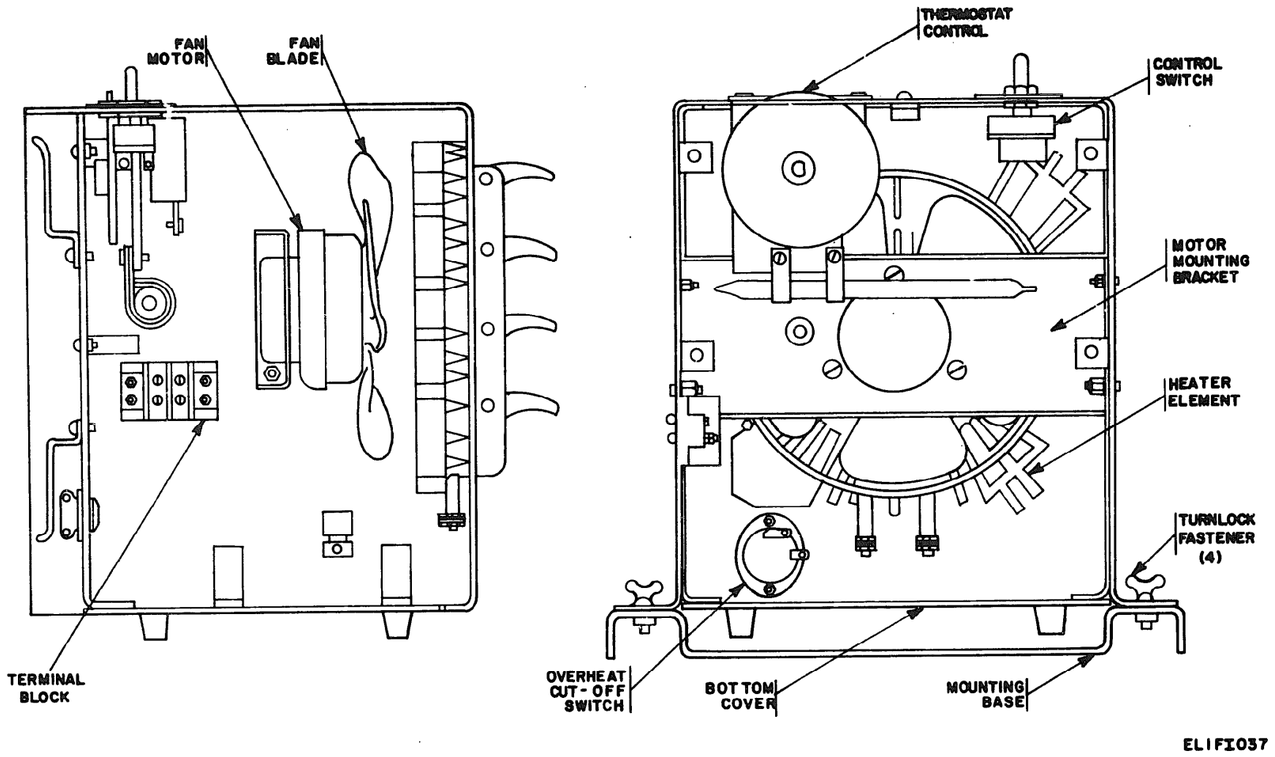


Figure 6-6. Electric heater components.

6-7. Frequency Converter Replacement
(fig. 6-7)

a. Set the FREQ CONV circuit breaker on the POWER DISTRIBUTION BOX to OFF.

b. Remove the frequency converter 60 Hz power input, connector plug from the receptacle outlet.

c. Remove the frequency converter front terminal box cover.

d. Disconnect and tag the 60 Hz input and 400-Hz output cable leads from the frequency converter leads.

e. Withdraw the input and output cables from the terminal box.

f. Replace the front terminal box cover.

g. Remove the four mounting bolts from the base support bracket.

h. Slide frequency converter away from the wall.

i. Set the replacement frequency converter on the base support bracket.

j. Bolt the frequency converter to the base sup port bracket.

k. Remove the front access cover.

l. Pass the input and output cables through the terminal box, and secure into place.

m. Reconnect the 60-Hz and 400-Hz frequency converter leads. Refer to figure FO-1 for cable connections.

n. Replace the front access cover.

o. Plug the 60-Hz power input connector into the frequency converter outlet receptacle.

p. Activate the frequency converter and check for proper output.

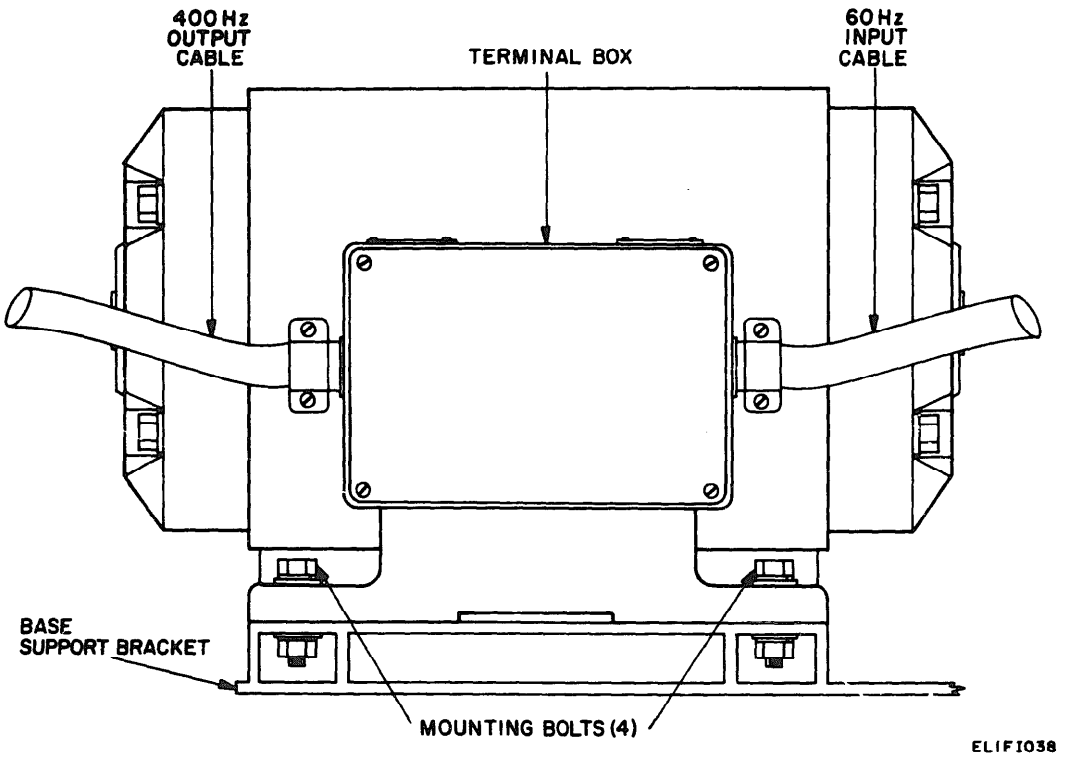


Figure 6-7. Frequency converter mounting.

6-8. Dehumidifier Replacement
(fig. 6-8)

a. At the POWER DISTRIBUTION ON BOX, set the DEHUMIDIFIER circuit breaker to OFF.

b. Rotate the humidistat thumbwheel past DRY, to the lowest demand setting.

c. Remove the *power* cord cap from the DEHUMIDIFIER receptacle.

d. Two horizontal metal straps crossing in front of the dehumidifier must be removed. Refer to figure 1-10. Remove four ¼-20 screws and nuts from the strap. Retain the straps and hardware.

e. Along the base at, each side of the dehumidifier, remove three 10-32 screws and nuts which secure the unit to two angle brackets.

f. Under the front panel of the dehumidifier, remove the three 10-32 screws and nuts which secure the unit to its shelf.

g. Reach around to the backside and lift the drip tray free of the dehumidifier frame. If a replacement dehumidifier is to be installed, there is no need to disconnect all the drain plumbing. Simply reuse the existing drip tray in the replacement unit.

h. Remove the dehumidifier. It weighs about 55 pounds (25 kilograms).

i. Set the replacement dehumidifier in place between the two angel mounting holes.

j. Under the front edge, replace the three sets of 10-32 screws and nuts to fasten the unit to the shelf.

k. At the angle brackets, replace six screws and nuts removed in *e* above.

l. At the rear, fit the existing drip tray into place. This replaces the tray in the replacement unit. Put the new tray in the replaced dehumidifier.

m. Replace the two horizontal metal straps and hardware removed in *d* above.

n. Plug the power cord cap into the DEHUMIDIFIER receptacle.

o. At the POWER DISTRIBUTION BOX, set the DEHUMIDIFIER circuit breaker to ON.

p. At the dehumidifier control panel, rotate the humidistat thumbwheel to CONT RUN. Check for normal operation.

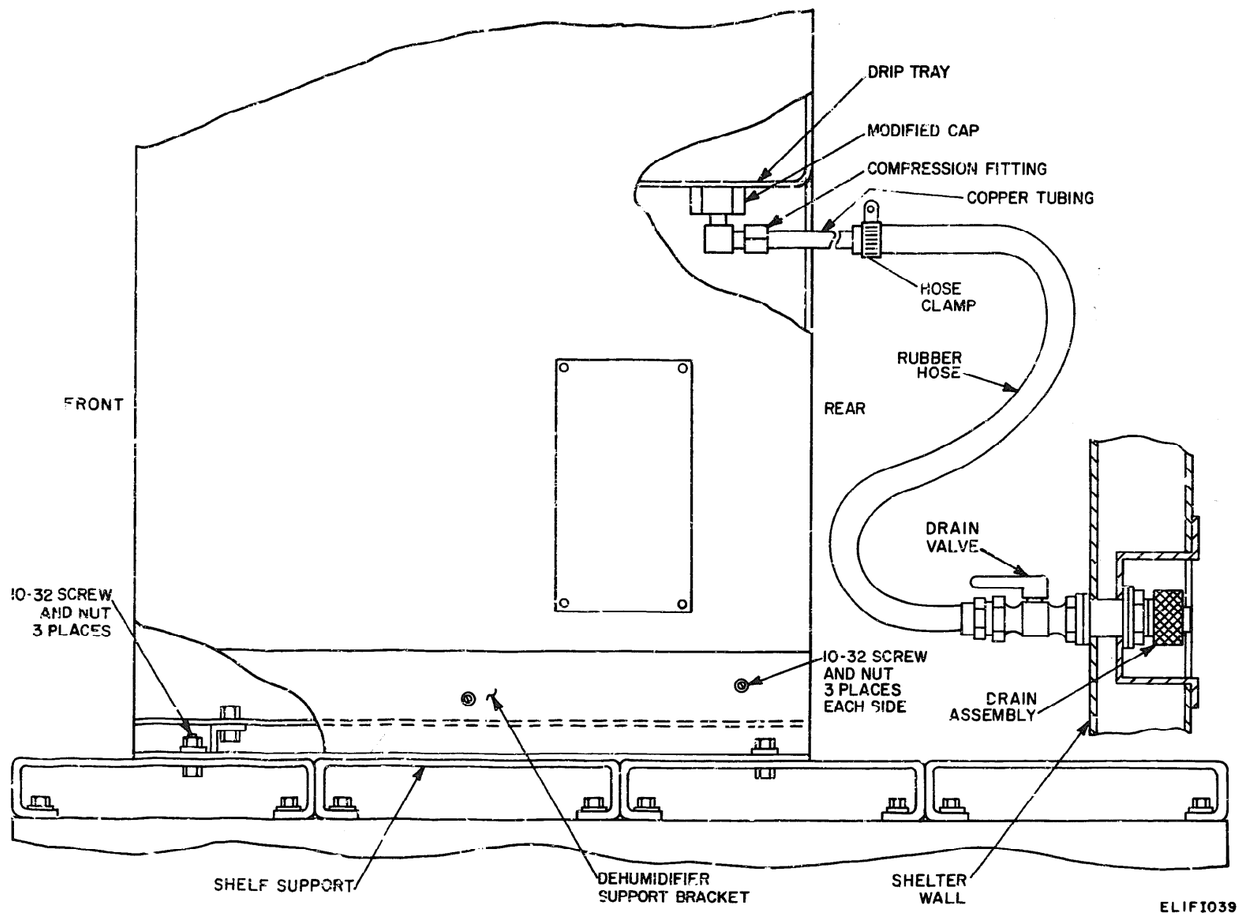


Figure 6-8. Dehumidifier mounting.

6-9. DC Power Supply PP-4763/GRC Replacement (fig. 6-9)

a. Set the DC PWR SUPPLY circuit breaker on the POWER DISTRIBUTION BOX to OFF.

b. Remove the 60-Hz power input plug from the POWER SUPPLY outlet receptacle.

c. Remove the power supply mounting bolts from the base support bracket.

d. Pull the power supply away from the wall, and remove the rear plate to gain access to the output terminals.

e. Mark and disconnect the dc output leads.

f. Reinstall the rear access plate.

g. On the replacement power supply, remove the rear access plate.

h. Connect the dc output cable to the output terminals, and reinstall the access plate.

i. Place the power supply in position on top of the base support plate.

j. Bolt the power supply in place on the support bracket.

k. Connect the 60-Hz input cable plug to the POWER SUPPLY outlet receptacle.

l. Refer to TM 11-5820-765-12 for preliminary operating procedures before using Power Supply PP-4763/GRC.

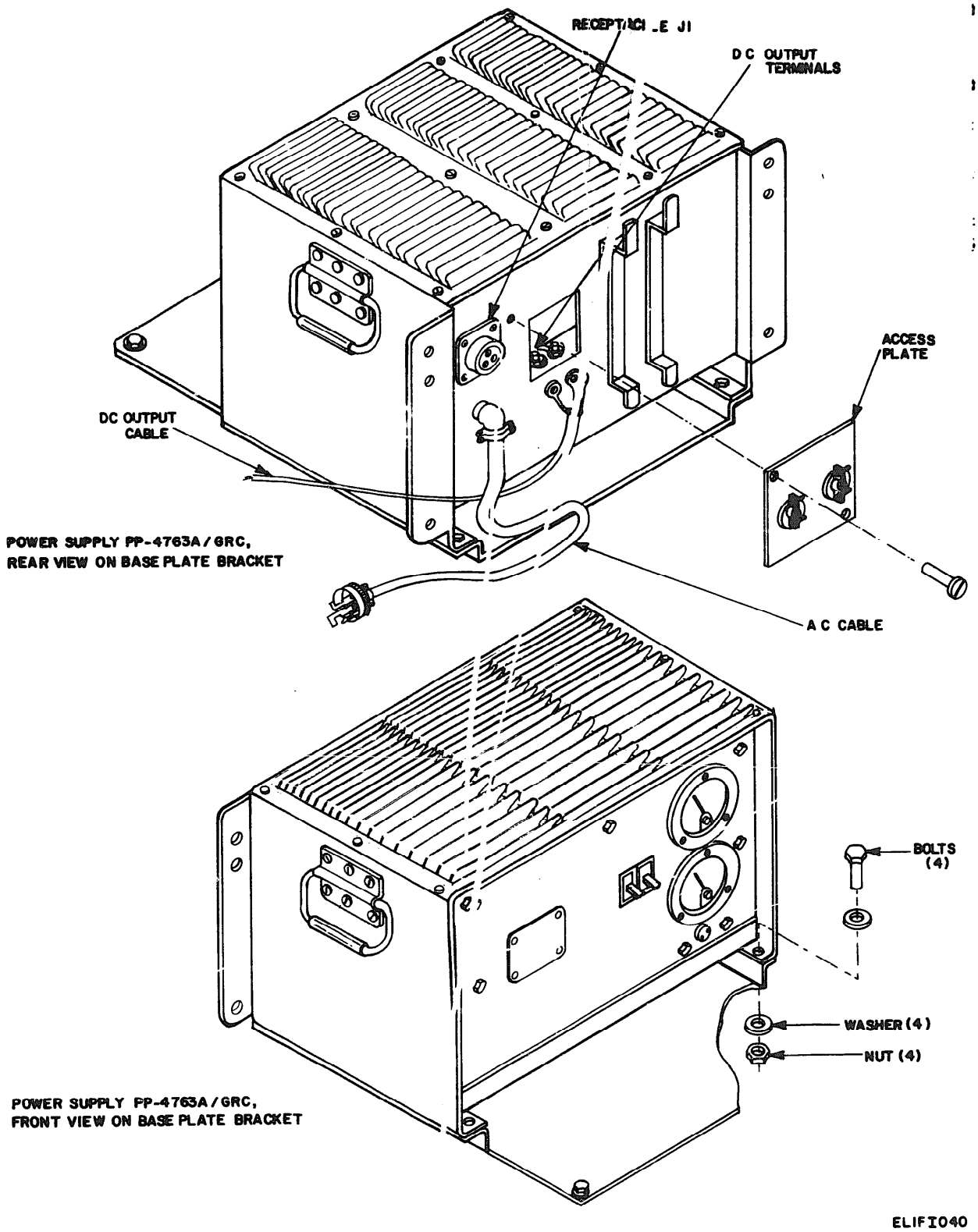


Figure 6-9. DC power supply mounting.

6-10. Air Conditioner Replacement
(fig. 6-10)

Removal and replacement of the maintenance shelter air conditioner requires disconnecting the air outlet duct and removing the outside protective cover. Because the air conditioner weighs 200 pounds (91 kilograms. Use either suitable mechanical lifting equipment. or enough personnel to manually lift and move the unit. Keep the power cord for use with the replacement air conditioner. Follow the steps below to remove and replace the air conditioner.

a. Inside the shelter, set both AIR COND circuit breakers to OFF.

b. Unplug the air conditioner power cord from the ceiling outlet receptacle, and from the air conditioner's POWER INPUT connector.

c. Loosen the screws on the clamps that hold the air duct boot between the ceiling air duct and duct flange on the air conditioner, and remove the duct boot.

d. Remove the flanged air duct from the front of the air conditioner by loosening and removing the six cross-recessed screws.

e. Outside the shelter, remove the protective cover by removing eight self-locking nuts and the six cross-recessed screws on the lower sides of the cover.

f. Remove four bolts from the bottom support bracket.

g. Using a lifting device, or four technicians, remove the air conditioner from the support bracket.

h. Place the replacement air conditioner on the support bracket using a suitable lifting method.

i. Set the unit firmly against the opening in the shelter wall.

j. Install but do not tighten the four mounting bolts in the bottom support bracket.

k. Replace the protective cover over the top of the unit.

l. Install and tighten the six cross-recessed screws on the lower sides of the cover.

m. install and tighten the eight captive nuts which secure the protective cover to the shelter.

n. Tighten the four bolts which secure the air conditioner to the bottom support bracket.

o. Inside the shelter, replace the air duct flange onto the front of the air conditioner and secure with six cross-recessed screws.

p. Install the air duct boot between the unit mounted flange and the ceiling mounted air ducting.

q. Replace the duct clamps and tighten the holding screws.

r. Install the power cable between the POWER INPUT connector on the air conditioner and the ceiling outlet receptacle.

s. Activate, and check for normal operation. Refer to TM 5-4120-239-14.

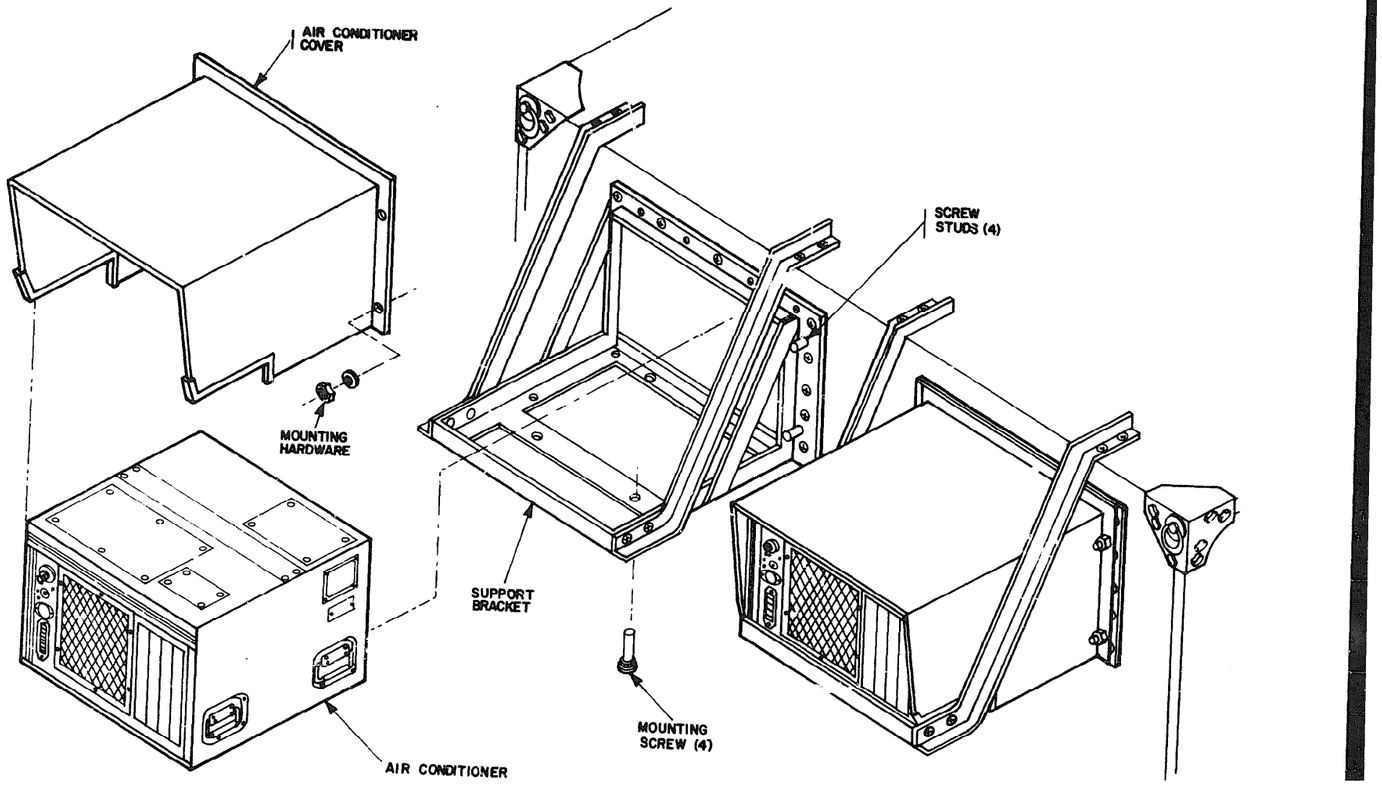


Figure 6-10. Air conditioner replacement.

6-11. Power Distribution Components Replacement

Removal and replacement of electrical components not covered by other paragraphs in this chapter are covered here. Circuit breaker removal and replacement for both 400-Hz MAIN and 60-Hz MAIN circuit breakers are covered in one set of instructions since they are mounted in the same manner. Main power filters are located inside the MAIN 60-Hz circuit breaker box. Replacement of the dc circuit breakers and the dc binding posts are also covered in this paragraph.

WARNING

Before attempting maintenance on power distribution components, set all circuit breakers to OFF and disconnect the power input cable from the POWER ENTRANCE BOX input power receptacle.

a. Main Circuit Breakers (400-Hz and 60-Hz) (fig. 6-11).

(1) Set MAIN circuit breaker to OFF.

(2) Disconnect the input power cable from the POWER ENTRANCE BOX..

(3) Open the main circuit breaker box cover.

(4) Mark and disconnect all wires from the circuit breaker.

(5) Loosen and remove eight cross-recessed screws from the front cover which secure the circuit breaker.

(6) Remove the circuit breaker.

(7) Install the replacement circuit breaker so that the words OFF and ON read properly. Tighten the eight mounting screws.

(8) Connect the wires to the circuit breaker, and tighten the terminal screws.

(9) Close the circuit breaker box, and secure in place by tightening the cross-recessed screws.

(10) Set the circuit breaker to the OFF position.

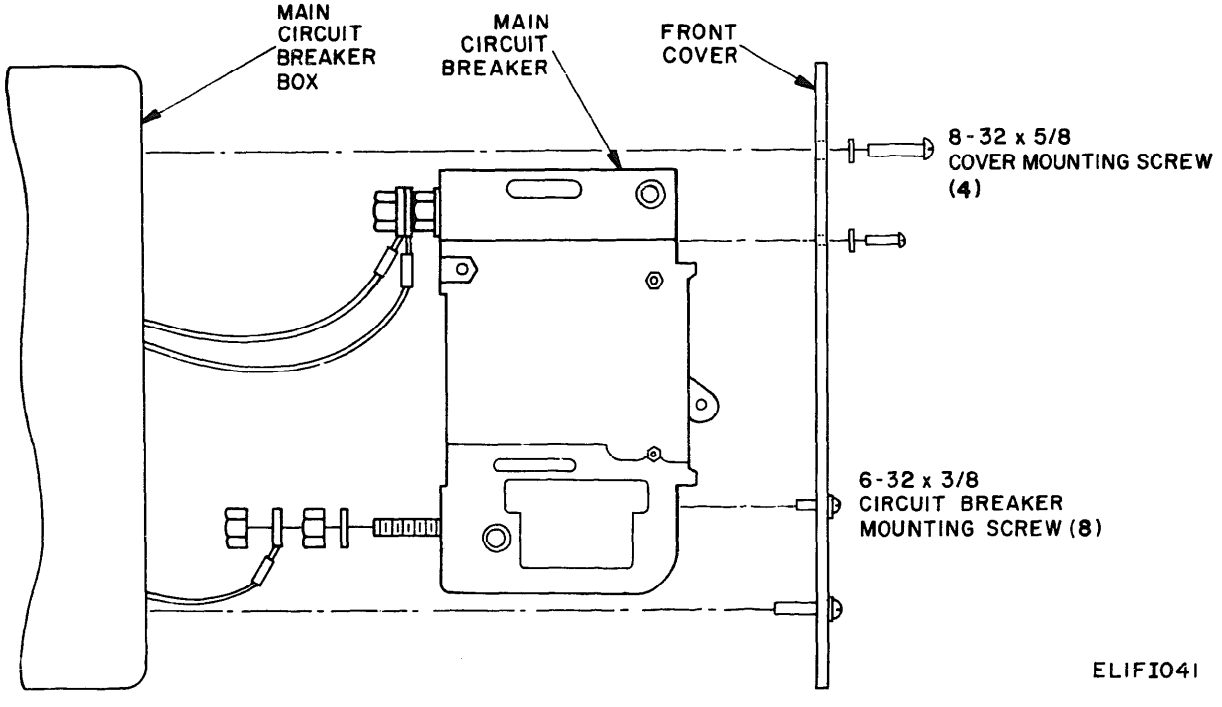


Figure 6-11. Main circuit breaker replacement.

6. DC Circuit Breakers (fig. 6-12).

(1) Set the DC POWER SUPPLY circuit breaker on the POWER DISTRIBUTION BOX to OFF.

(2) Remove the two slotted screws from the dc circuit breaker housing.

(3) Unsolder both red wire leads from the circuit breaker.

(4) Remove the circuit breaker from the housing by removing the two slotted retaining screws.

(5) Install the replacement dc circuit breaker in the housing, and secure with the two slotted screws.

(6) Solder one red wire to each of the two circuit breaker terminals.

(7) Reinstall the circuit breaker assembly onto the power duct, and fasten in place with the two mounting screws previously removed.

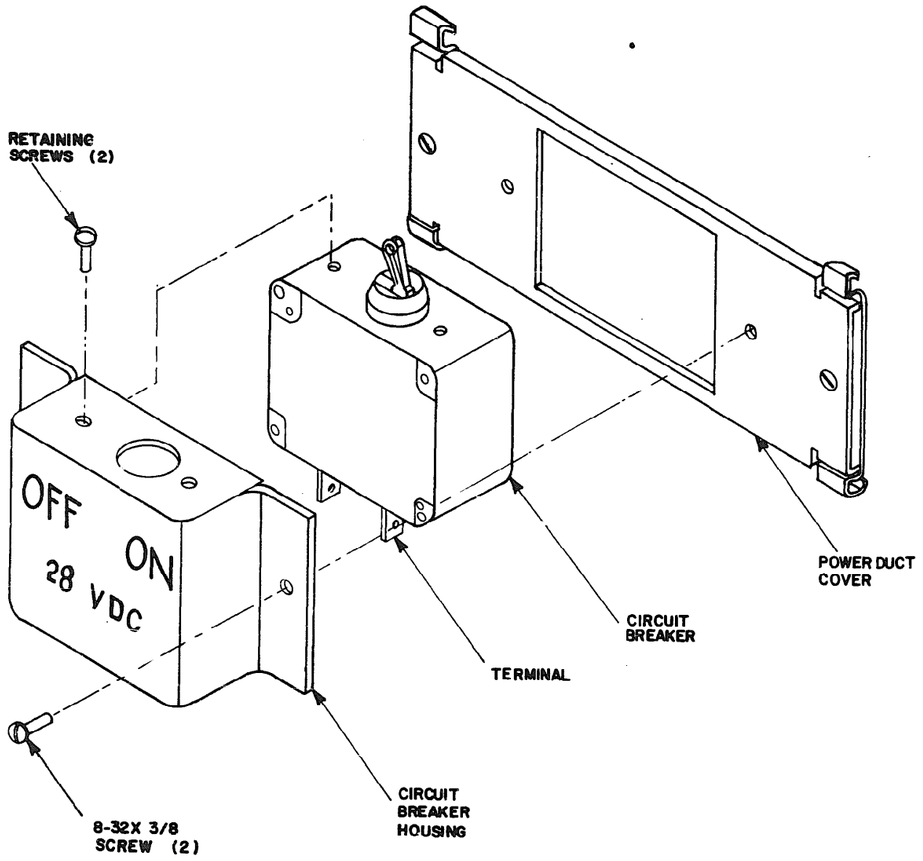


Figure 6-12. DC circuit breaker replacement.

*c. **DC Binding Post*** (fig. 6-13).

(1) At Power Supply PP-4763/GRC, set the AC circuit breaker/switch to OFF.

(2) Remove the two slotted screws from the insulated mounting board.

(3) Pull the insulated mounting 'board and attached binding posts away from the power duct.

(4) Remove the terminal nut from the backside of the binding post and remove the wire lead.

(5) Remove the mounting nut and spacer from the backside of the binding post and withdraw the binding post.

(6) Install the replacement binding post and secure into place with the rear mounting nut.

(7) Reinstall the wire lead over the binding post terminal.

(8) Install the terminal nut, and tighten securely.

(9) Replace the insulated mounting board into the power duct, and fasten securely with the two slotted screws previously removed.

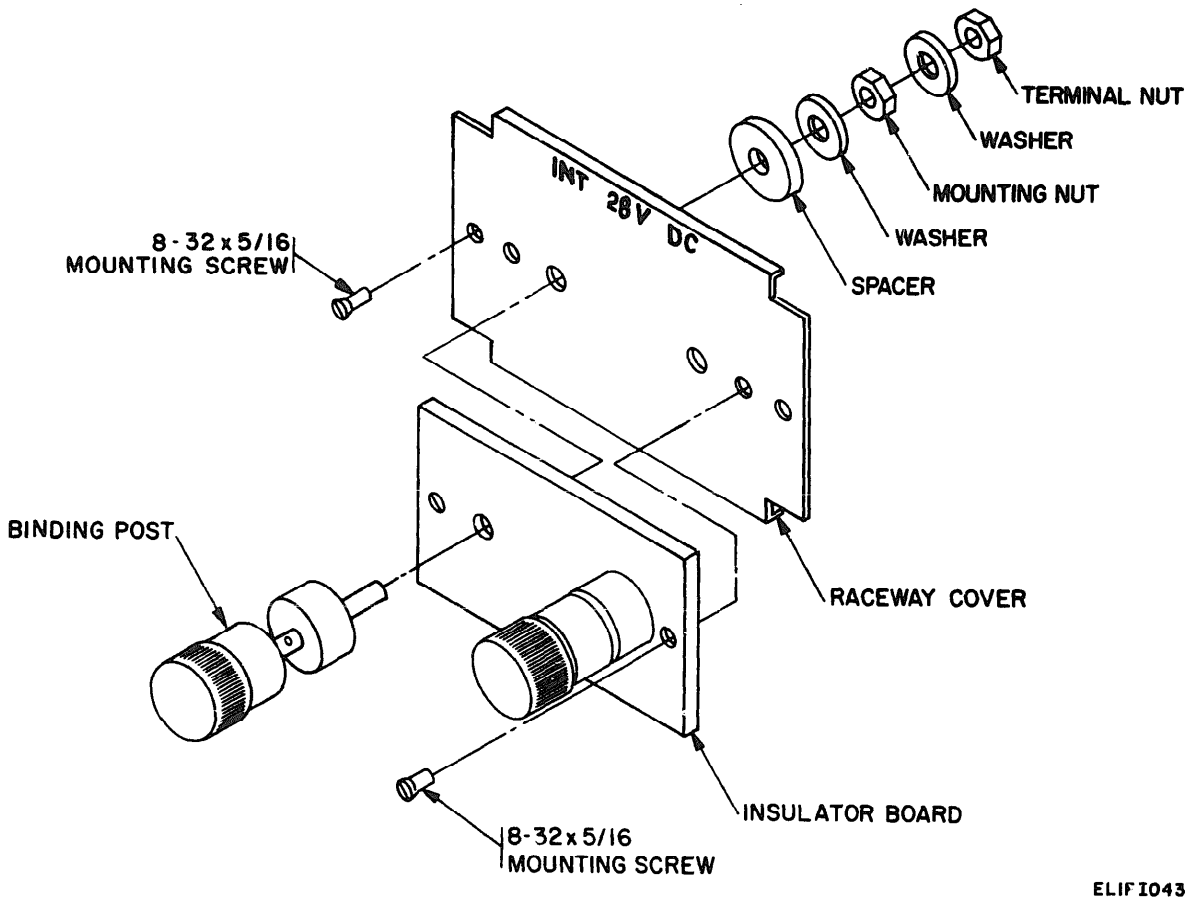


Figure 6-13. DC binding post replacement.

*d. **AC Filters*** (fig. 6-14).

(1) Open the 60-Hz MAIN filter box by loosening the two cross-recessed screws.

(2) Mark and disconnect the top and bottom wire leads from the filter by loosening and removing the terminal nuts and washers.

(3) Loosen and remove the four nuts and washers from the bottom of the filter.

(4) Loosen and remove the two mounting nuts from the top bracket of the filter. Remove ground wires, if any, that are attached to the top filter mounting nuts.

(5) Lift the filter up and away from the bottom mounting bracket.

(6) Set the replacement filter in place on the lower mounting bracket.

(7) Install and tighten the four filter bottom mounting nuts.

(8) Install and tighten the two top filter mounting nuts. replace ground.

(9) install the wire leads previously removed onto the top and bottom filter terminal lugs and tighten the terminal nuts.

(10) Close the cover of the MAIN filter box and secure with the two cross-recessed screws.

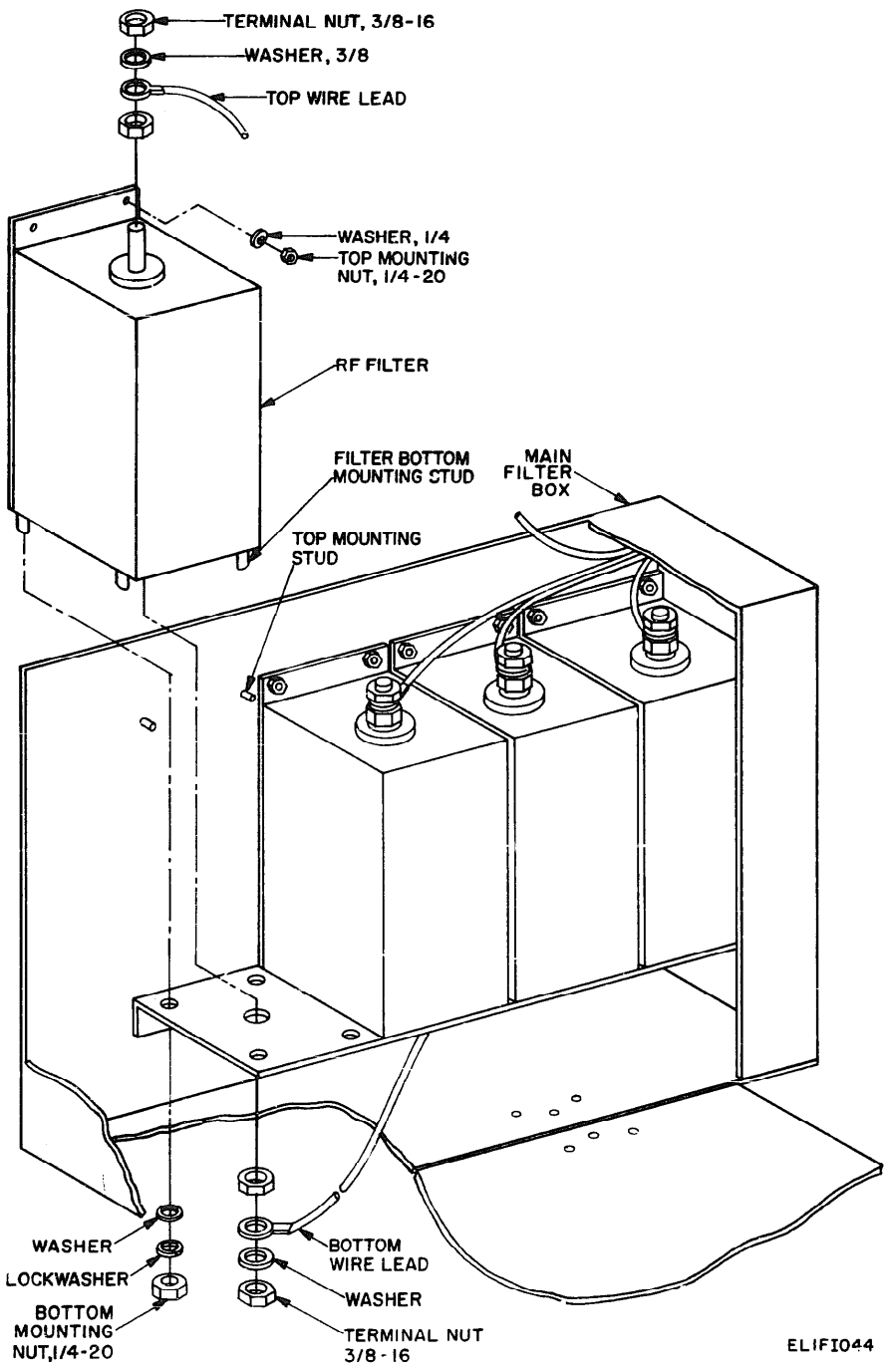


Figure 6-14. AC filter replacement.

6-12. Exhaust Blower Repair`

Repair instructions for the exhaust blower assembly cover the removal and replacement of the fan motor. Follow the instructions below for step-by-step procedures to remove and replace the fan motor. Refer to figure 2-4 for an exploded view of the exhaust fan assembly. The fan motors rotate in opposite directions. Rotation of the curbside fan is clockwise. Rotation of the roadside fan is counterclockwise. Direction of shaft rotation is as viewed from the end of the motor opposite the shaft. Be sure to use a clockwise rotating motor for curbside application. Use a counterclockwise rotating motor for the roadside fan assembly. Refer to figure 6-15 for fan motor schematic diagram.

a. Fan Motor Removal (fig. 2-4).

(1) Set the BLOWERS circuit breaker on the POWER DISTRIBUTION BOX to OFF.

(2) Set the BLOWER 1 or BLOWER 2 switch on the ceiling duct to OFF.

(3) Unplug the power cord from the ceiling blower power receptacle.

(4) Remove the 12 bolts from the outside blower box cover panel.

(5) Remove the outside cover panel.

(6) Inside the blower box. loosen two clamps from the rubber air duct.

(7) Remove four exhaust blower mounting bolts securing the fan bracket assembly inside the blower box.

(8) Remove the exhaust fan assembly from inside the blower box.

(9) Remove the fan impeller from the fan motor shaft by loosening the recessed hex head socket screw on the impeller hub.

(10) Remove the four fan outlet housing screws which secure the fan housing.

(11) Remove the four bolts which secure the fan motor to the fan bracket assembly.

(12) Remove the fan motor from the fan bracket assembly.

(13) Disconnect the power cord from the fan motor. Tag the leads. Keep the cord for reuse in case the replacement motor has no cord.

b. Fan Motor-Replacement (figs. 2-4 and 6-15).

(1) If the replacement fan motor has no power cord attached, use the old power cord. Connect the power cord leads to the motor leads as shown in figure 6-15.

(2) Install the fan outlet housing on the fan motor. The air discharge opening must be pointed down, toward the mounting base of the fan motor.

(3) Install the fan impeller on the fan motor shaft and tighten the hex head socket screw. Be sure the impeller does not rub on any moving part of the assembly. Adjust the location of the impeller on the motor shaft if the impeller cannot spin freely.

(4) Apply power to the fan by connecting the cord plug to a 115-volt 60-Hz power outlet. Be sure the impeller spins freely without binding. Be sure the air is discharging through the fan housing outlet.

(5) Install the fan and fan housing assembly on the fan bracket assembly Be sure the air discharge outlet is pointed down. Bolt the fan assembly in place with four fan motor mounting bolts.

(6) Install the exhaust fan assembly in the blower box and bolt into place with four exhaust blower mounting bolts.

(7). Pass the power cord through the blower box into the shelter.

(8) Install the flexable rubber boot between the fan outlet housing and the exhaust vent opening.

(9) Install and tighten both adjustable hose clamps around both ends of the flexible rubber boot.

(10) Install and bolt the box cover panel on the blower box.

(11) Inside the shelter, plug the power cord into the ceiling receptacle marked BLOWER.

(12) Set the BLOWERS circuit breaker on the POWER DISTRIBUTION BOX to OK.

(13) Set the ceiling switch marked BLOWER to ON. The fan will operate.

(14) Outside the shelter, be sure the fan is discharging air from the bottom of the blower box.

(15) Set the BLOWER switch to OFF.

(16) Set the BLOWERS circuit breaker on the POWER DISTRIBUTION BOX to OFF.

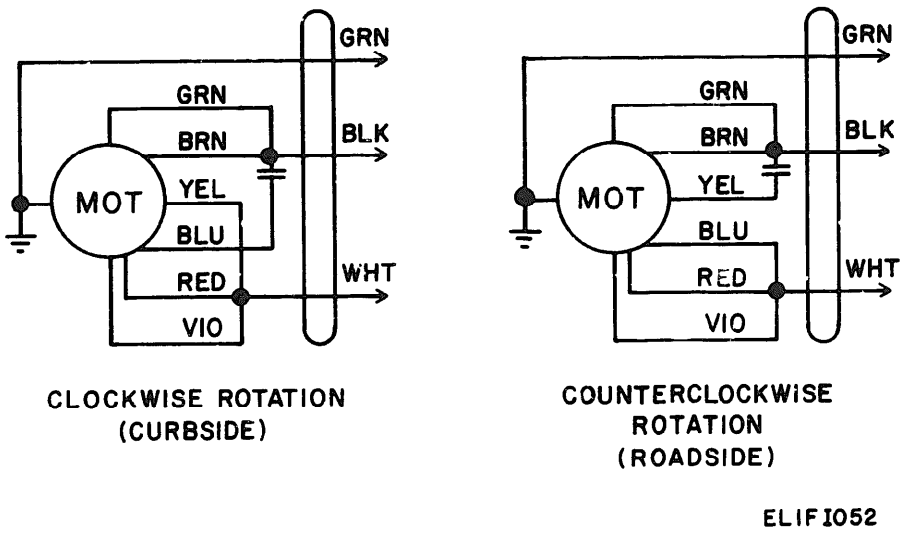


Figure 6-15. Exhaust blower, schematic diagram.

APPENDIX A
REFERENCES

DA Pam 310-4	Index of Technical Publications: Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-6	Index of Supply Catalogs and Supply Manuals (Excluding Types 7, 8, and 9).
DA Pam 310-7	US Army Equipment Index of Modification Work Orders.
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
SB 38-100	Preservation, Packaging, Packing and Marking Materials, Supplies and Equipment Used by the Army.
SC 5180-91-C1-R07	Tool Kit, Electronic Equipment TK-105/G (NSN 5180-00-610-8177).
SC 5180-91-CL-R13	Tool Kit, Electronic Equipment TK-101/G (NSN 5180-00-064-5178).
SC 5180-91-CL-S21	Tool Kit, Electronic Equipment TK-100/G (NSN 5180-00-605-0079).
TB 43-0118	Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters.
TB 750-240	Maintenance and Repair Procedures for S-141/G, S-144/G, S-250/G, S-280/G, and S-318/G Type Shelters.
TM 5-4120-239-14	Operator's, Organizational, Direct Support, and General Support Maintenance Manual: Air Conditioner, Horizontal Compact, 9,000 BTU (Trane Models) 208 V, 3 Phase, 50/60 Hz (Model MAC6H9-208-1101-03). (NSN 4120-00-411-5444, 208 V, 3 Phase, 400 Hz (Model MAC4H9-208-1101-04 (NSN 4120-00-411-5445) 115 v, 1 Phase, 50/60 Hz (Model MAC6H9-115-1101-01) (NSN 4120-00-411-5442) and 230 Volt, 1 Phase, 50/60 Hz (Model MAC6H9-230-1101-02) (NSN 4120-00-411-5443).
TM 5-6115-275-14	Operator, Organizational, Intermediate (Field) (Direct Support and General Support) and Depot Maintenance Manual: Generator Set, Gasoline Engine Driven, Skid Mounted, Tubular Frame, 10 KW, AC, 120/208V, 3 Phase, and 120/240V, Single Phase, Less Engine: DOD Models MEP-018A, 60 Hz, (NSN 6115-00-889-1447) and MEP-023A, 400 Hz (6115-00-926-0843).
TM 5-6115-365-15	Operator, Organizational, Direct Support, General Support and Depot Maintenance Manual (Including Repair Parts and Special Tools List): Generator Sets, Gasoline and Diesel Engine Driven, Trailer Mounted, PU-236A/G, PU-236/G (NSN 6115-00-393-1709), PU-236B/G (6115-00-738-6334) PU-253A/U, PU-253/U (6115-00-697-2402). PU-304C/MPQ-4 (6115-00-056-8421) PU-332/G (6115-00-577-8471), PU-332A/G (6115-00-738-8336). PU-375A/G. PU-375/G (6115-00-753-2231), PU-375B/G (6115-00-931-6789). PU-401/M (6115-00-823-2217), PU-402/M (6115-00-722-3760), PU-406/M (6115-00-738-6342). PU-409/M (6115-00-702-3343), PU-409A/M (6115-00-733-6338), PU-495/G (6115-00-823-2218). PU-551/G (6115-00-889-1307), FU-564A/G (6115-00-728-6341), PU-564B/G (6115-00-179-2789), PU-617/M (6115-00-738-6335). PU-618/M (6115-00-738-6337), PU-619/M (6115-00-738-6339). PU-620/M (6115-00-738-6340), PU-625/G (6115-00-873-3915). PU-628/G (6115-00-087-0873), PU-629/G (6115-00-937-5555), PU-631/G (6115-00-059-5172). PU-656/G (6115-00-939-3296). PU-650B/G (6115-00-258-1622) and PU-656/G (6115-00-989-3296).

TM 11-1257	Signal Generator AN/URM-48.
TM 11-4940-479-23P	Organizational. and Direct Support Maintenance Repair Parts and Special Tools Lists: Electronic Shop Maintenance Facility AN/ARM-164 (NSN 4940-00-122-7224).
TM 11-5091	Maintenance Instructions: Signal Generator AN/URM-61, AN/URM-61A, TS-403/U, TS-403A/U, and TS-403B/U.
TM 11-5102	Resistors. Decade ZM-16/U (NSN 6625-00-669-0266), ZM-16A/U, and ZM-16B/U.
TM 11-5410-213-14P	Operator's, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Shelters, Electrical Equipment S-280A/G (NSN 5410-00-999-6022) and S-280B/G (5410-00-117-2868).
TM 11-5551D	R. F. Signal Generator Set AN/ARM-25D.
TM 11-5805-201-12	Operator and Organizational Maintenance Manual: Telephone Set TA-312/PT (NSN 5805-00-543-0012).
TM 11-5805-201-35	Direct Support, General Support, and Depot Maintenance Manual (Including Repair Parts and Special Tools Lists): Telephone Set TA-312/PT (NSN 5805-00-543-0012).
TM 11-5820-765-12	Operator's and Organizational Maintenance Manual: Power Supplies PP-47631GRC (NSN 5820-90-967-7690) and PP-4763/GRC (5820-00-113-9768).
TM 11-5820-765-35	Direct Support, General Support, and Depot Maintenance Manual for Power Supply PP-4763/GRC.
TM 11-5895-237-14P	Operator's, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools): Attenuator, Variable CN-796/U (NSN 5985-00-831-5991).
TM 11-6130-245-15	Organizational, DS, GS, and Depot Maintenance Manual Including Repair Parts and Special Tool Lists: Power Supply PP-2309A/U.
TM 11-6625-200-15	Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual Multimeters ME-26A/U (NSN 6625-00-360-2493), ME-26B/U and ME-26C/U (6625-00-646-9409), and ME-26D/U (6625-00-913-9781).
TM 11-6625-203-12	Operator's and Organizational Maintenance Manual: Multimeter AN/URM-105 and AN/URM-105C (Including Multimeter ME-77/U and ME-776/U).
TM 11-6625-203-35	Direct Support, Genera) Support, and Depot Maintenance Manual: Multimeters AN/URM-105 (NSN 6625-00-581-2035) and AN/URM-105C (NSN 6625-00-999-6282) Including Mu&meters ME-77/U (NSN 6625-00-284-0854) and ME-77C/U (NSN 6625-00-999-6625).
TM 11-6625-303-12	Operator's and Organizational Maintenance Manual: Electrical Power Test Sets AN/UPM-93A, AN/UPM-93B, AN/UPM-93C, and AN/UPM-100.
TM 11-6625-303-35	DS, GS, and Depot Maintenance Manual: Electrical Power Test Sets AN/UPM-93B, AN/UPM-93C and AN/UPM-100.
TM 11-6625-320-12	Operator's and Organizational Maintenance Manual: Voltmeter, Meter ME-30A/U and Voltmeters, Electronic ME-30B/U, ME-30C/U, and ME-30E/U.
TM 11-6625-320-35	Direct Support, General Support, and Depot Maintenance Manual: Voltmeter, Met er -ME-30A/U, and Voltmeters, Electronic ME-30B/U and ME-30C/U.
TM 11-6625-444-14-1	Operator's Organizational, Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools Lists: Voltmeter, Digital AN/GSM-64B (NSN 6625-00-022-7894) Including Plug-In, Electronic Test Equipment PL-1370/GSM-64B (NSN 6625-00-137-8366).
TM 11-6625-446-15	Operator's, Organizational, DS, GS, and Depot Maintenance Manual: Wattmeter AN/URM-120.

TM-11-6625-508-14-1	**Operator's Organizational, Direct Support,** and Genera4 Support Maintenance **Manual: Signal Generator** AN/USM-44B (NSN **6625-00-176-5078).**
TM 11-6625-524-15-1	**Operator, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Electronic Voltmeter AN/URM-145 (NSN 6625-00-973-3986).**
TM 11-6625-539-14-3	**Operator, Organizational, Direct Support** and General Support Maintenance Manual: **Test Set, Transistor TS-1836C/U (NSN 6625-00-159-2263).**
TM 11-6625-599-12	**Operator's and Organizational Maintenance Manual Including Repair Parts and Special Tools Lists: Voltmeters, Electronic AN/USM-98A and AN/USM-98B.**
TM 11-6625-599-45	**General Support and Depot Maintenance Manual (Including Repair Parts and Special Tools List): Voltmeters, Electronic AN/USM-98A and AN/USM-98B (NSN 6625-00-753-2115).**
TM 11-6625-654-14	**Operator's Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools Lists) for Multimeter AN/USM-223.**
TM 11-6625-667-12	**Operator and Organizational Maintenance M**anual: Test Sets, Transponder **AN/APM-123 (V)1 (FSN** 6625-948-0071), AN/APM-123(V)2 **(6625-948-0077) and AN/APM-123**(V)3 (6625-948-0076).
TM 11-6625-667-45	**General Support and Depot Maintenance Manual: Transponder Test Set AN/APM-123(V)1, AN/APM-123(V)2, and AN/APM-123(V)3 (NSN 6625-00-948-0071).**
TM 11-6625-670-12-l	**Operator's and Organizational Maintenan**ce Manual: Flutter and Wow Meter **ME-254/U (NSN 6625-0-987-8527).**
TM 11-6625-670-34-1	**Direct Support and General Support Maintenance Manual Including Repair Parts and Special Tools Lists: Meter, Flutter and Wow ME-254/U (NSN 6625-987-8527).**
TM 11-6625-683-15	**Operator's, Organizationa**l, Direct Support, General Support and Depot **Maintenance Manual: Signal** Generator AN/URM-127 (NSN 6625-00-783-5965),.
TM 11-6625-700-14-1	**Operator, Organizational,** Direct Support and General Support Maintenance **Manual** Including Repair Parts and Special Tools Lists (Including **Depot Maintenance Repair** Parts and Special Tools Digital Readout Electronic **Counter AN/US**M-207A (Serial Nos. 1A thu 1100A) (NSN **6625-00-044-3228).**
TM 11-6625-1541-15	**Operator, Organizational,** US, GS and Depot Maintenance Manual: Hew-' **lett-Packard RMS Voltm**eter Mode 3400A.
TM 11-6625-1576-15	Organizational, US, GS and Depot Maintenance Manual: Distortion Ana-. **lyzer, Hewlett-Packard Models 333A and 334A.**
TM 11-6625-1613-15	**Organizational, DS, GS, and Depot** Maintenance Manual: Hewlett-Packard **Noise Figure Meter Model 342A an**d Noise Source Model 349A.
TM 11-6625-1614-15	**Organizational, DS, GS, and Depot** Maintenance Manual: Hewlett-Packard **Electronic Voltmeter Model 410C.**
TM 11-6625-2658-14	**Operator's, Organizational, Direct Support an**d Genera4 Support Maintenance **Manual for Oscilloscope AN/USM-2**81C (NSN 6625-00-106-9622).
TM 11-6625-2781-14&P	**Operator's, Organizational, Direct Support,** and Genera4 Support Maintenance **Manual Including Repair Parts and Spec**ial Tools List for Spectrum **Analyzer IP-1216(P)/GR (Hewlett-Packard** Model 141T) (NSN **6625-00-424-4370).**
TM 11-6625-2781-14-1	**Operator's, Organizational, Direct Support and General Support Maintenance Manual for Plug-In Unit, Electronic Test Equipment PL-1388/U (Hewlett-Packard Model 8552B) (NSN 6625-00-431-9939).**
TM 11-6940-211-12	**Operator's and Organizational Maintenance Manual: Simulator, Radar Signal SM-674/UPM (NSN 6940-01-031-5887) and Test Adapter, Radio Signal MX-9848/APR-39(V) (5841-01-025-0379).**

(C)TM 11-6940-211-34	Direct Support and General Support, Maintenance Manual: Simulator, Radar Signal SM-674/UPM (NSN 6940-01-031-5887) and Test Adapter, Radar Signal MX-9848/APR-39 (NSN 5841-01-025-0379) (U).
TM 38-750	The Army Maintenance Management System (TAMMS).
TM 55-1500-323-25	Organizational, DS, GS, and Depot Maintenance Manual: Installation Practices for Aircraft Electric and Electronic Wiring.
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

COMPONENTS OF END ITEM LIST

Section I. INTRODUCTION

B-1. Scope

This appendix lists integral components of and basic issue items for the AN/ARM-164 to help you inventory items required for safe and efficient operation.

B-2. General

This Components of End item List is divided into the following sections:

a. Section II. Integral Components of the End Item. Not applicable. These items, when assembled. comprise the AN/ARM-164 and must accompany it whenever it is transferred or turned in. The illustrations will help you identify these items.

b. Section III. Basic Issue Items. These are the minimum essential items required **to** place the AN/ARM-164 in operation, to operate it, and to perform emergency repairs. **Although** shipped separately packed they must accompany the **AN/ARM-164** 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 B11, based on TOE, MTOE authorization of the end i tern.

B-3. Explanation of Columns

a. Illustratiou. 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 requisitioning.

c. Part Number. Indicates the primary number used by the manufacturer, which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. Following the part number, the Federal Supply Code for Manufacturers (FSCM) is shown in parentheses.

d. Description. Indicates the Federal item name and, if required, a minimum description to identify the item.

e. ***Location.*** The physical location of each item listed is given in this column. The lists are designed to inventory a44 items in one area of the major item before moving on to an adjacent area.

f. Usable on Code. Not applicable.

g. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

h. Quantity. This column is left blank for use during an inventory. Under the Rcvd column, list the quantity you actually receive on your major item. The Date columns are for your use when you inventory the major item at a later date; such as for shipment to another site.

SECTION II. INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
		4940-00-7224	Electronic Shop-Maintenance Facility AN/ARM-164 Consisting of: Three each S-2808/G shelters (NSN 5410-00-117-2868) modified for use as: One each S-551/ARM-164 Maintenance Shelter and two each S-552/ARM-164 Storage Shelters.	A11 items are located inside the shelter except		1		
1-8		4120-00-411-5444	Air Conditioner MAC 6H9-208-1101-03 (09732)	Exterior Front Wall		2		
1-9		4140-00-451-8257	Blower Assembly Roadside (CCW)	Exterior Front Wall		1		
						1		
1-10		4140-00-451-8257	Blower Assembly Curbside (CW)	Exterior Front Wall				
				S-552/ARM-164		1		
				S-552/ARM-164		1		
1-6			Cable Assy, Power, 10' SC-D-883964-GP9-1 (80063)	Floor S-551/ARM-164		2		
1-6			Cable Assy, Power, 50' SC-D-883963-GP9-3 (80063)	Floor S-551/ARM-164		2		
1-14			Cable Assy, Power, 100' SC-D-883963-GP5-4 (80063)	Floor S-552/ARM-164		1		
1-14			Cable Assy, Power, 10' SC-D-883964-GP5-1 (80063)	Floor S-552/ARM-164		1		
1-8			Can, Oily Waste SC-C-916237 (80063)	Floor S-551/ARM-164		1		
1-9		7460-00-449-0556	Card File (Kardex) MS63019 (96906)	Roadside S-552/ARM-164		1		
				S-552/ARM-164		1		
1-9		7110-00-273-8791	SC-D-$39551 (80063)	Roadside Wall S-552/ARM-164		1		
				S-552/ARM-164		1		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
1-5		6645-00-410-2395	Clock, Electric	Roadside Wall				
			SC-C-539475 (80063)	S-551/ARM-164		1		
				Rear Wall				
				S-552/ARM-164		1		
				S-552/ARM-164		1		
1-10		4440-00-904-6364	Dehumidifier	Curbside Wall				
			X-D-916366 (80063)	S-552/ARM-164		1		
				S-552-/ARM-164		1		
1-4			Frequency Converter	Roadside Wall				
			3KVA30-008 (91723)	S-551/ARM-164		1		
		5120-00-946-5148	Grip, Power Cable	Storage Drawer				
			SC-B-539592 (80063)	S-551/ARM-164		1		
				S-552/ARM-164		1		
				S-552/ARM-164		1		
		5120-00-946-5114	Grip, Power Cable	Storage Drawer				
			SC-B-539593 (80063)	S-551/ARM-164		1		
				S-552/ARM-164		1		
				S-552/ARM-164		1		
1-8		5975-00-224-5260	Ground Rod	Front Wall				
1-13			MX-148/G (80058)	S-551/ARM-164		1		
				Rear Wall				
				S-552/ARM-164		1		
				S-552/ARM-164		1		
		4940-00-752-2525	Ground Strap	Storage Drawer				
			SC-B-539492 (80063)	S-551/ARM-164		1		
				S-552/ARM-164		1		
				S-552/ARM-164		1		
1-3		4520-00-177-6198	Heater, Electric	Roadside Wall				
1-9			DL-SC-B-539644 (80063)	S-551/ARM-164		2		
				S-552/ARM-164		2		
				S-552/ARM-164		2		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
1-6		2540-00-192-6243	**Ladder, Vehicle,** Boarding	Floor				
1-14			MX-3391/G (80058)	S-551/ARM-164		1		
				S-552/ARM-164		1		
				S-552/ARM-164		1		
1-3		6240-00-223-9100	**Lamp** (NE-51)	**Pwr. Dist. Box**				
1-12			M15098/10-001 (81349)	S-551/ARM-164		12		
				Filter Box				
				S-551/ARM-164		3		
				Pwr. Dist. Box				
				S-552/ARM-164		9		
				Pwr. Dist. Box				
				S-552/ARM-164		9		
1-3		6240-00-415-9293	**Lamp** (Power Indicator)	Filter Box				
			120PSB (23653)	S-551/ARM-164		4		
1-12		6240-00-635-9753	**Lamp, Power** Indicator (NE-34)	**Rear Wall**				
			M15098/3-003	S-552-/ARM-164		1		
1-5, I-7, 1-11		6240-00-155-8653	**Lamp,** Incandescent	Ceiling				
			MS15548-1 (96966)	S-551/ARM-164		10		
				S-552/ARM-164		5		
				S-552/ARM-164		5		
1-7,		6240-00-152-2996	**Lamp, Fluorescent**	Ceiling				
1-11			1615589-S (96906)	S-551		16		
				j-552		12		
				j-552		12		
1-6		220-W-793-2982	**Mat,** Floor, Rubber	Floor				
			SM-C-617073 (80063)	S-551/ARM-164		1		
				S-552/ARM-164		1		
				S-552/ARM-164		1		
1-9			Pencil Holder	Roadside Wall Common Items Panel				
			SC-D-S39455 (80063)	S-552/ARM-164		1		
				S-552/ARM-164		1		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
1-5,		7520-00-162-6178	Pencil Sharpener	Rear Wall				
1-9			SC-C-539503 (80063)	S-551/ARM-164		1		
				S-552/ARM-164		1		
				S-552/ARM-164		1		
1-2		20-00-113-9768	Power Supply, PF-4763A	Floor				
			BS030-50PPX212 (02294)	S-551/ARM-164		1		
1-7,		10-00-921-6682	Shield, Fluorescent Lamp	Ceiling				
1-10			SC-C-539466 (80063)	S-551/ARM-164		16		
				S-552-ARM-164		12		
				S-552/ARM-164		12		
1-5, 1-7, 1-11		6210-00-451-8350	Shield, Incandescent	Ceiling				
			SC-D-539466 (80063)	S-551/ARM-164		4		
				S-552/ARM-164		3		
				S-552/ARM-164		3		
1-7, 1-11		6250-00-194-4794	Starter, Fluorescent	Ceiling				
			SC-B-539504 (80063)	S-551/ARM-164		16		
				S-552/ARM-164		12		
				S-552/ARM-164		12		
1-2,		5805-00-543-0012	Telephone Set	Roadside Wall				
1-9			TA-312/PT (80058)	S-551/ARM-164		1		
				S-552/ARM-164		1		
				S-552/ARM-164		1		
		7520-00-159-4863	Wastepaper Basket	Roadside Wall				
			SC-D-539454 (80063)	S-551/ARM-164		1		
				Front Wall				
				S-552/ARM-164		1		
				S-552/ARM-164		1		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			RUNNING SPARE PARTS						
		6240-00-223-9100	Lamp (NE-51)		Roadside Drawer				
			M15098/10-001	(81349)	S-551/ARM-164		3		
					S-552/ARM-164		2		
					S-552/ARM-164		2		
		6240-00-415-9293	Lamp (Power Indicator)		Roadside Drawer				
			120PSB	(23633)	S-552/ARM-164		1		
					S-552/ARM-164		1		
1-7,		6240-00-155-8653	Lamp, Incandescent		Ceiling Duct				
1-11			MS15548-1	(96906)	S-551/ARM-164		2		
					Storage Drawer				
					S-552/ARM-164		1		
					S-552/ARM-164		1		
1-7,		6240-00-152-2996	Lamp, Flourescent		Ceiling Duct				
1-11			MS15589-5	(96906)	S-551/ARM-164		2		
					Storage Drawer				
					S-552/ARM-164		1		
					S-552/ARM-164		1		
1		6250-00-194-4794	Starter, Flourescent		Ceiling				
1			SC-B-539504	(80063)	S-551/ARM-164		2		
					S-552/ARM-164		1		
					S-552/ARM-164		1		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			TEST EQUIPMENT AND TEST EQUIPMENT COMPONENTS						
		5935-00-643-9875	Adapter, UG-29B/U	(80058)	S-552/ARM-164		2		
		5935-00-539-0851	Adapter, UG-57B/U	(80058)	S-552/ARM-164		2		
		5935-00-169-9386	Adapter, UG-107B/U	(80058)	S-552/ARM-164		6		
		5935-00-259-0205	Adapter, UG-201A/U	(80058)	S-552/ARM-164		4		
		5935-00-926-7523	Adaptar. UG-274C/U	(80058)	S-552/ARM-164		4		
		5935-00-732-1919	Adapter, UG-349B/U	(80058)	S-552/ARM-164		1		
		5935-00-681-5013	Adapter, UG-491B/U	(80058)	S-552/ARM-164		1		
		5955-00-280-1454	Adapter. UG-914/U	(80058)	S-552/ARM-164		6		
		5935-00-501-8025	Adapter, UG-999A/U	(80058)	S-552/ARM-164		1		
		5935-W-797-4934	Adapter, 33-103	(98278)	S-552/ARM-164		1		
		5935-01-033-5404	Adapter, 50-674-6700-89	(98291)	S-552/ARM-164		1		
		5935-01-031-6995	Adapter, 50-674-6801-89	(98291)	S-552/ARM-164		1		
		5955-00-892-9773	Adapter, 91-6C	(04901)	S-552/ARM-164		1		
		6625-00-424-4370	Analyser Spectrum, IP-1216(P)GR	(80058)	S-552/ARM-164		1		
		6625-00-802-8718	Analyzer Distortion, AN/URM-184A	(80058)	S-552/ARM-164		1		
		6625-w-087-2547	Attenuator Variable. CN-796/U	(80058)	S-552/ARM-164		1		
		6625-00-215-4931	Attenuator Variable, CN-1000/G	(80058)	S-552/ARM-164		1		
		5985-00-110-0333	Attenuator Fixed, 1-3DB	(93459)	S-552/ARM-164		1		
		5985-00-110-0344	Attenuator Fixed, 1-6DB	(93459)	S-552/ARM-164		1		
		5965-w-411-3698	Attenuator Fixed, 1-10DB	(93459)	S-552/ARM-164		1		
		5995-00-109-5317	Cable Assembly, AB-270	(19905)	S-552/ARM-164		1		
		5995-00-234-3445	Cable Assembly, AB-106101	(19905)	S-552/ARM-164		5		
			Cable Assembly, AC-076-265	(19905)	S-552/ARM-164		2		
		5995-00-165-3831	Cable Assembly, AC-848-1	(19905)	S-552/ARM-164		2		
			Cable Assembly, C-5004		S-552/ARM-164		2		
			Cable Assembly, C-5005		S-552/ARM-164		2		
			Cable Assembly, CG-3577/TLQ-17	(80058)	S-552/ARM-164		1		
			Cable Assembly, CG-3717/U-(Modify to 6 Ft. Lg.)	(80058)	S-552/ARM-164		1		
			Cable Assembly, CG-3718/U	(80058)	S-552/ARM-164		1		
			Cable Assembly, CX-12864/TLQ-27A	(80058)	S-552/ARM-164		1		
			Cable Assembly. CX-12865/TLQ-27A	(80058)	S-552/ARM-164		1		
			Cable Assembly, CX-12866/TLQ-27A (Modify to 6 Ft. Lg.)	(80058)	S-552/ARM-164		1		
			Cable Assembly, CX-12867/TLQ-27A	(80058)	S-552/ARM-164		1		
			Cable Assembly. CX-12868/TLQ-27A	(80058)	S-552/ARM-164		1		
			Cable Assembly, CX012869/TLQ-27A	(80058)	S-552/ARM-164		1		
			Cable Assembly, RG-214, 2 Ft. Lg.		S-552/ARM-164		2		
			Cable Assembly, RG-214, 4 Ft. Lg.		S-552/ARM-164		2		
			Cable Assembly, RG-223. 1 Ft. Lg.		S-552/ARM-164		4		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			Cable Assembly, RG-223, 2 Ft. Lg.	S-552/ARM-164		6		
			Cable Assembly, RG-223, 3 Ft. Lg.	S-552/ARM-164		1		
			Cable Assembly, RG-223, 4 Ft. Lg.	S-552/ARM-164		6		
			Cable Assembly, RG-223, 6 Ft. Lg.	S-552/ARM-164		6		
			Cable Assembly, RG-5/U, 3 Ft. Lg.	S-552/ARM-164		1		
			Cable Assembly, 0231-1-4027	S-552/ARM-164		1		
			Cable Assembly, 0231-l-4021)	S-552/ARM-164		1		
		5910-00-835-2710	Capacitor Fixed Plastic MIL-C-27287/1 (81349) CTM103VAJ	S-552/ARM-164		1		
				S-552/ARM-164				
			Card Extender, C-4307-691 (19905)	S-552/ARM-164		2		
		5835-00-464-3728	Cassette Sound Recording, C60 (73877)	S-552/ARM-164		6		
		5935-01-013-9677	Connector Plug, 55-622-9141-31 (98291)	S-552/ARM-164		1		
			Converter Down (Frequency) HP-11710B (28480)	S-552/ARM-164		1		
		6625-00-044-3228	Counter Electronic Digital Readout (80058) AN/USM-207A	S-552/ARM-164		1		
		5961-00-125-1313	Coupler, HP-8471A (28480)	S-552/ARM-164		1		
		6625-00-177-1659	Dummy Load Electrical DA-75/U (80058)	S-552/ARM-164		1		
		5985-00-563-9679	Dummy Load, Electrical DA 471/U (80058)	S-552/ARM-164		1		
		5915-00-138-0878	Filter Variable Band Pass Model 3104-4 (88865)	S-552/ARM-164		1		
			Flasher Board ES-C-212854 (16250)	S-552/ARM-164		4		
		6625-00-793-1344	Generator Noise Source SG-978/G (80058)	S-552/ARM-164		1		
		6625-00-649-5193	Generator Signal AN/URM-25D (80058)	S-552/ARM-164		2		
		6625-00-138-7773	Generator Signal AN/USM-44C (80058)	S-552/ARM-164		2		
		6625-00-553-1176	Generator Signal AN/URM-48 (80058)	S-552/ARM-164		1		
		6625-00-519-2056	Generator Signal AN/URM-61A (80058)	S-552/ARM-164		1		
		6625-01-014-4587	Generator Signal AN/URM-127A (80058)	S-552/ARM-164		1		
		625-W-566-5067	Generator Signal SG-1112(V)1/U (80058)	S-552/ARM-164		1		
		6625-01-021-4989	Generator Signal SG-1133/U (80058)	S-552/ARM-164		1		
		6625-00-957-0439	Generator Sweep SG-677/U (80058)	S-552/ARM-164		1		
		625-W-155-5990	Generator Tracking SG-1122/U (80058)	S-552/ARM-164		1		
		5965-00-069-8886	Handset H-189/GR (80058)	S-552/ARM-164		1		
		5965-00-043-3460	Handset H-251/U (80058)	S-552/ARM-164		1		
		5965-00-876-2375	Loudspeaker LS-454/U (80058)	S-552/ARM-164		1		
			Jumper Lead ES31778 (16250)	S-552/ARM-164		2		
		5865-00-195-1260	Maintenance Kit MK-1215/TLQ-17 (80058)	S-552/ARM-164		1		
		5865-01-030-5669	Maintenance Kit MK-1215A/TLQ-17 (80058)	S-552/ARM-164		1		
		6625-00-987-8527	Meter Flutter and Wow ME-254/U (80058)	S-552/ARM-164		1		
		1625-W-999-7465	Multimeter AN/USM-223 (80058)	S-552/ARM-164		2		
		1625-00-999-6282	Multimeter AN/URM-105C (80058)	S-552/ARM-164		1		
		6625-00-913-9781	Multimeter ME-26D/U (80058)	S-552/ARM-164		1		
		6625-00-969-4105	Multimeter ME-303A (80058)	S-552/ARM-164		1		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
		6625-00-106-9622	Oscilloscope AN/USM-281C (80058)	S-552/ARM-164		1		
		5935-00-847-4660	Plug Telephone MIL-P-642/2A PJ-051B (81349)	S-552/ARM-164		1		
		5935-00-192-4753	Plug Telephone MIL-P-642/5A PJ-068 (81349)	S-552/ARM-164		1		
		6625-W-431-9339	Plug-In unit Electronic Test Equipment (80058) PL-1388/U	S-552/ARM-164		1		
		6625-W-432-5055	Plug-In unit Electronic Test Equipment (80058) PL-1399/U	S-552/ARM-164		1		
		4920-01-012-1466	Power Combiner PD-20-50 Model 2 (12457)	S-552/ARM-164		1		
		6130-00-985-8305	Power Supply PP-2309A/G (80058)	S-552/ARM-164		1		
		6625-00-076-0806	Probe Current HP-456A ( )	S-552/ARM-164		1		
		6625-01-014-0391	Probe DC to 250 KC HZ P60538 10X (80009)	S-552/ARM-164		1		
		6625-00-669-0266	Resistor Decade ZM-16/U (80058)	S-552/ARM-164		1		
		5905-00-945-6176	Resistor Fixed Film 93.1 OHM 2W 1% (81349) MIL-R-10509/6F	S-552/ARM-164		1		
		5905-00-725-8025	Resistor Fixed Film 604 OHM 2W 1% (81349) MIL-R-10509/6F RN8086040F	S-552/ARM-164		1		
		5905-00-930-1388	Resistor Fixed Wire Wound 56 OHM 5W (44655) 5%, 4582	S-552/ARM-164		1		
		6940-01-031-5887	Simulator Radar Signal SM-674/UPM (80058)	S-552/ARM-164		1		
		5985-00-947-1266	Termination 5N000-51 (94375)	S-552/ARM-164		1		
		5841-01-025-0379	Test Adapter Radar Set MK-9848/APR-39(V) (80058)	S-552/ARM-164		1		
			Test Lead A ES 31782 (16250)	S-552/ARM-164		2		
			Test Lead B ES 31779 (16250)	S-552/ARM-164		2		
			Test Lead C ES 31780 (16250)	S-552/ARM-164		4		
			Test Lead D ES 31781 (16250)	S-552/ARM-164		2		
			Test Lead E ES 31788 (16250)	S-552/ARM-164		2		
			Test Lead F ES 31783 (16250)	S-552/ARM-164		2		
			Test Lead G ES 32099 (16250)	S-552/ARM-164		2		
			Test Lead H ES 31777 (16250)	S-552/ARM-164		2		
			Test Lead K ES 31776 (16250)	S-552/ARM-164		2		
			Test Lead M ES 31785 (16250)	S-552/ARM-164				
			Test Lead N ES 31784 (16250)	S-552/ARM-164		2		
			Test Lead R ES 31786 (16250)	S-552/ARM-164		2		
			Test Lead S ES 31787 (16250)	S-552/ARM-164		2		
			Test Panel #1 ES 31680 (16250)	S-552/ARM-164		1		
			Test Panel #2 ES 31702 (16250)	S-552/ARM-164		1		
		66X-00-892-5286	Test Set Amplifier (Noise) TS-2436/G (80058)	S-552/ARM-164		1		
		6625-00-971-6210	Test Set Electrical Power AN/UPM-93C (80058)	S-552/ARM-164		1		
		6625-00-813-8430	Test Set Radio Frequency AN/URM-120	S-552/ARM-164		1		
		6625-00-159-2263	Test Set Semiconductor Device TS-1836C/U (80058)	S-552/ARM-164		1		

SECTION II INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM No.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
		6625-00-948-0071	Test Set Tranponder Set AN/APM-123V1 (80058)	S-552/ARM-164		1		
		5835-01-053-1236	Test Tape 3KHZ	S-552/ARM-164		1		
		5835-01-053-1235	Test Tape 333HZ	S-552/ARM-164		1		
		6625-00-070-4932	Voltage Divider RP 91-7C (04901)	S-552/ARM-164		1		
		6625-00-022-7894	Voltage Digital AN/GSM-64B (80058)	S-552/ARM-164		1		
		6625-00-973-3986	Voltmeter Electronic AN/URM-145 (80058)	S-552/ARM-164		2		
		6625-00-753-2115	Voltmeter Electronic AN/USM-98A (80058)	S-552/ARM-164		1		
		6625-00-727-4706	Voltmeter Electronic AN/USM-224	S-552/ARM-164		1		
		6625-00-643-1670	Voltmeter Electronic ME-30A/U (80058)	S-552/ARM-164		1		

SECTION III. BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER	(3) (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
1-3,		4210-00-293-2339			Rear Wall				
1-13			SC-D-539451	(80065)	S-551/ARM-164		1		
					S-552/ARM-164		1		
					S-552/ARM-164		1		
1-5,		7920-00-291-5812	Dust Brush		Rear Wall				
1-13			SC-C-S39469	(80063)	S-551/ARM-164		1		
		7290-00-224-8308	Dust Pan						
			RR-D-600 Class II. Type II		Storage Drawer				
				(81343)	S-551/ARM-164		1		
					S-552/ARM-164		I		
					S-552/ARM-164		1		
1-6,		8160-00-711-0537	Cable Reel		Floor				
1-14			RC-4D5U	(80058)	S-551/ARM-164		2		
					S-552/ARM-164		1		
					S-552/ARM-164		1		
1-3,		5820-00-474-9554	Cable Reel Tiedown		Floor				
1-14			SC-C-681100GP3	(80063)	S-551/ARM-164		2		
					S-552/ARM-164		1		
					S-552/ARM-164		1		
1-1		4940-00-491-0437	Canopy		Storage Shelf				
			CW-924/G	(80058)	S-551/ARM-164		1		
1-2,		1210-00-270-4512	Fire Extinguisher		Roadside Wall				
1-13			SC-D-539482	(80063)	S-551/ARM-164		1		
					Floor				
					S-552/ARM-164		1		
					S-552/ARM-164		1		
i-s,		6545-00-822-1200	First Aid Kit		Rear Wall				
1-13			SC-D-539483	(90063)	S-551/ARM-164		1		
					S-552/ARM-164		1		
					S-552/ARM-164		1		

SECTION III BASIC ISSUE ITEMS

(1) ILLUSTRATION (A) FIG NO.	(1) ILLUSTRATION (B) ITEM NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION PART NUMBER (FSCM)	(4) LOCATION	(5) USABLE ON CODE	(6) QTY REQD	(7) QUANTITY RCVD	(7) QUANTITY DATE
			PUBLICATIONS SUBJECT					
			TM 11-6625-1576- Analyser, Distortion AN/URM-184A					
			TM 11-5985-237-14P Attenuator, Variable CN-796/U					
			TM 11-6625-700-14-1 Counter, Electronic AN/USM-207A					
			TM 11-55510 Generator, Signal URM-25D					
			TM 11-1257 Generator, Signal AN/URM-48					
			TM 11-5091 Generator, Signal AN/URM-61A					
			TM 11-6625-683-15 *Generator,* Signal AN/URM-127					
			TM 11-6625-508-14-1 Generator, Signal AN/USM-44B					
			T.O. 33A1-5-509-1 Generator, Sweep SG-677/U					
			TM 11-5965-255-14P Loudspeaker, Perm. Magnet LS-454/U					
			TM 11-6625-203-12 Multimeter AN/URM-105C					
			TM 11-6625-654-14 & P Multimeter AN/USM-223					
			TM 11-6625-200-15 Multimeter ME-26D/U					
			TM 11-6625-320-12 Voltmeter ME-30A/U					
			TM 11-6625-2658-14 Oscilloscope AN/USM-281C					
			TM 11-6940-211-12 Simulator, Radar Signal SM-674/UPM					
			TM 11-6625-303-12 Test Set, Electrical AN/UPM-93C					
			TM 11-6625-539-14-3 & P Test Set, Semiconductor Device TS-1836C/U					
			TM 11-6625-670-12-1 Test Set, Sound Recorder ME-254/U					
			TM 11-6625-667-12 Test Set, Transponder AN/APM-123					
			TM 11-6625-444-14-1 Voltmeter, Digital AN/GSM-64B					
			TM 11-6625-524-15-1 Voltmeter, Electronic AN/URM-145					
			TM 11-6625-599-12 & P Voltmeter, Electronic AN/USM-98A					
			TM 11-6625-1541-15 Voltmeter, Electronic AN/USM-224					
			TM 11-6625-1614-15 Voltmeter, Electronic ME-303/U					
			Generator, Signal SG-1112(V) 1/U					
			Generator, Function SG-1133/U					
			Generator, Source SG-978/G					
			TM 11-6625-1613-15 Amplifier Test Set TS-2436/G					
			TM 11-6130-240-15 Power Supply PP-2309A/U					
			PLUG-IN PP-1399/U					
			PLUG-IN PL-1406/U					
			TM 11-6625-2781-14-1 PLUG-IN PL-1388/U					
			TM 11-6625-2781-14&P Spectrum Analyser IP-1216(P)/GR					
			Generator, Tracking SG-1122/U					
			Down Converter HP-11710A					
			AC Current Probe HP-456A					
			SC-5180-91-CL-S21 Tool Kit TK-100/G			1		
			SC-5180-91-CL-R13 Tool Kit TK-101/G			1		
			SC-5180-91-CL-R07 Tool Kit TK-105/G			1		
			Packing List for Maintenance Shelter S-551					
			Packing List for Storage Shelter S-552 #1					
			Packing List for Storage Shelter S-552 #2					

APPENDIX C

ADDITION AUTHORIZATION LIST

Section I. INTRODUCTION

C-1. Scope

This appendix lists additional items you are **authorized** for the support of the Electronic Shop **Maintenance** Facility AN/ARM-164.

C-2. General

This list identifies items that do not have to accompany the **AN/ARM-164** and that **do** not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

C-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 USABLE ON CODE	(3) UNIT OF MEAS	(4) QTY AUTH
6115-00-738-6339	Generator Set, Gasoline Engine PU-619/M (80058)		1
6135-00-542-6216	Battery, Dry, 1.5 Volt (TM-312/PT Telephone) BA-30 (80204)		6
6135-00-850-3177	Battery, Dry, 9 Volt (Clock) BA-90/V (81348)		3

APPENDIX D

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

D-1. General

This appendix provides a summary of the maintenance operations for AN/ARM-164. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

D-2. Maintenance Function

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 and to detect incipient failure 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 (decontaminate;. to preserve, to drain. to paint, or to replenish fuel. lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits. by bringing into proper or exact position. or by setting the operating characteristics to the 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, module (component or assembly) in a manner to allow the proper functioning of the 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 (inspect. test, service, adjust. align, calibrate. replace; or other maintenance actions (welding. grinding, riveting. straightening, facing. remachining. or resurfacing) 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 (i.e., DMWR) in appropriate technical publications. 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.

D-3. Column Entries

a. Column 1. Group *Number.* Column 1 lists group 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 noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. *Column* 3, Maintenance *Functions.* Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions. it is solely for purpose of having the group numbers in the MAC and RPSTL coincide.

d. *Column* 4, *Maintenance Category.* Column *4* specifies, by the listing of a "work time" figure in

the appropriate subcolumn(s), the lowest level of maintenance authorized LO 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 of 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 number of task-hours specified by 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. Subcolumns of column 4 are as follows:

C--Operator/Crew
O--Organizational
F-Direct Support
H-General Support
D-Depot

e. Column 5, ***Tools and Equipment.*** Column 5 specifies by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code which leads to the remark in **section** IV, Remarks, which is pertinent to the item opposite the particular code.

D-4. Tool **and** Test Equipment Requirements (Sec III)

a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers **used** in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Category. The codes in this column indicate the maintenance category allocated the tool or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply **Code** for manufacturers (5-digit) in parentheses.

D-5. Remarks (Sec IV)

a. Reference Code. This code refers to the appropriate item in section II, column 6.

b. ***Remarks.*** This column provides the required explanatory information necessary Lo clarify items appearing in section II.

SECTION II. MAINTENANCE ALLOCATION CHART
FOR

ELECTRONIC SHOP-MAINTENANCE FACILITY AN/ARM-164

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
00	Electronic Shop - Maintenance Facility AN/ARM-164								
01	Shelter Facility S-551/ARM-164	Inspect	0.5						
		Repair		2.0	3.0			1-5	A
0101	Shelter S-280B/g (for maintenance refer to TM 11-5410-213-15P and TB750-240)								
0102	Air Conditioner, 9000 BTU (for maintenance refer to TM-4120-239-14)	Replace			2.0			1	
0103	Box, Power Entrance (208V-3Ø)								B
0104	Box, Power Distribution (208V-3Ø)								B
0105	Box, Main Filter								B
0106	Cables, Power								
010601	10' Cable W( )	Inspect	0.2						
		Test		0.5				4	
		Repair			1.0			1-5	
010602	100' Cable W ( )								C,D
0107	Converter, Frequency 60 to 400 Hz Generator P/N 30-008	Replace			1.0			1	E
	Fire Extinguisher	Inspect	0.1						
		Service		0.4					F
		Replace	0.2						

SECTION II MAINTENANCE ALLOCATION CHART - CONTINUED
FOR

ELECTRONIC SHOP-MAINTENANCE FACILITY AN/ARM-164

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
0108	**Heater, Electric**	Test	0.2						G
		Test		0.5				4	
		Replace		0.2				3	
		Repair			1.5			1-5	
0109	**Kit, Sunshade**	Inspect	0.2						
		Replace			0.5			1	
		Repair			0.5			1	H
0110	Light, Extension	Replace	0.1						
		Repair		0.5				3,4	
0111	*Power* Supply, D.C. PP-4763A/GRC (for maintenance refer to **TM11-5820-765-12** and TM11-5820-765-35 & P)	Replace			0.5			1	
0112	Telephone TA-312/PT (for repair refer to TM11-5805-201-12)	Replace		0.4				3	
02	Shelter, Storage S-552/ARM-164	Inspect	0.5						
		Repair		2.0	3.0			1-5	A
0201	Shelter S-280B/G for maintenance refer to TM11-5410-213-15P and TB750-240)								
0202	Blower, Exhaust Assembly	Inspect	0.1						
		Test	0.1						G
		Test		0.5				4	
		Replace		0.5				3	
		Repair			1.5			1-5	
0203	Box, Power Entrance **(208V - 30)**								B
0204	Box, Power Distribution (208V - 30)								B
0205	Box, Circuit **Breaker**								B
0206									

SECTION II MAINTENANCE ALLOCATION CHART - CONTINUED
FOR

ELECTRONIC SHOP-MAINTENANCE FACILITY AN/ARM-164

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
020601	10' Cable W ( )	Inspect	0.2						
		Test		0.5				4	
		Repair			1.0			1-5	
020602	100' Cable W ( )								D
0207	Dehumidifier	Test	0.1						G
		Test		0.5				4	
		Service		0.4					
		Replace			0.2			1	
		Repair			0.5			3,4,5	
	Fire Extinguisher	Inspect	0.1						
		Service		0.4					F
		Replace	0.2						
0208	Heater, Electric	Test	0.2						G
		Test		0.5				4	
		Replace	0.2	0.2				3	
		Repair			1.5			1-5	
0209	Light, Extension	Replace	0.1						
		Repair		0.5				3,4	
0210	Telephone TA-312/PT (for repair refer to TM11-5805-201-12)	Replace		0.4				3	
0211	Vacuum Cleaner	Test	0.1						G
		Test		0.5				4	
		Service		0.4					
		Replace	0.1						
		Repair			1.5			1-5	
03	Test Equipment								
0301	Analyzer, Distortion AN/URH-184A (for repair refer to TM11-6625-1576-15)	Replace	0.3						

SECTION II MAINTENANCE ALLOCATION CHART - CONTINUED
FOR

ELECTRONIC SHOP-MAINTENANCE FACILITY AN/ARM-164

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
0302	Attenuator, Variable CN-796/U (for repair refer to TM11-5985-237-14P)	Replace	0.3						
0303	Counter. Electronic AN/USM-207A (for repair refer to TM11-6625-700-14-1)	Replace	0.3						
0304	Generator, Signal AN/URM-25D (for repair refer to TM 11-5551D	Replace	0.3						
0305	Generator, Signal AN/URM-48 (for repair refer to TM11-1257 and TM11-6625-267-35P)	Replace	0.3						
0306	Generator, Signal AN/URM-61A (for repair refer to: TM11-5091, TM11-6625-268-20P, TM11-6625-268-35P)	Replace	0.3						
0307	Generator, Signal AN/URM-127 (for repair refer to TM11-6625-683-15)	Replace	0.3						
0308	Generator, Signal AN/USM-44B (for repair refer to TM11-6625-508-14-1)	Replace	0.3						
0309	Generator, sweep SG-677/U (for repair refer to Dept of Air Force 'NJ 33A1-8-509-1)	Replace	0.3						
0310	Loudspeaker, Permanent Magnet LS-454/U (for repair refer to TM11-5965-255-14P)	Replace	0.3						
0311	Multimeter AN/URM-105C (for repair refer to TM11-6625-203-12 end TM11-6625-203-35)	Replace	0.3						
0312	Multimeter AN/USM-223 (for repair refer to TM11-6625-654-14 & P).	Replace	0.3						
0313	Multimeter ME-26D/U (for repair refer to TM11-6625-200-15)	Replace	0.3						
0314	Multimetar ME-30A/U (for repair refer to TM11-6625-320-12 and TM11-6625-320-35)	Replace	0.3						

SECTION II MAINTENANCE ALLOCATION CHART - CONTINUED
FOR

ELECTRONIC SHOP-MAINTENANCE FACILITY AN/ARM-164

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
0315	**Oscilloscope AN/USM-281C (for** repair refer to TM 11-6625-2658-14	**Replace**	0.3						
0316	Simulator, **Radar** Signal SM-674/UPM (for repair refer to TM11-6940-211-12 and TM11-6940-211-34)	Replace	0.3						
0317	Test Set, Electrical Power AN/UPM-93C (for repair refer to TM11-6625-303-12 and TM11-6625-303-35)	Replace	0.3						
0318	Test Set, Radio **Frequency Power AN/URM-120** (for repair refer to TM11-6625-446-15)	Replace	0.3						
0319	Test Set, Semiconductor Device TS-1836C/U ***(for*** repair refer to TM11-6625-539-14-3 & P)	Replace	0.3						
0320	Test Set, Sound Recorder ME-254/U (for repair refer to TM11-6625-670-12-1 & P and TM11-6625-**670-34-l** & P)	Replace	0.3						
0321	**Test *Set,*** Transponder AN/APM-123 (for repair refer **to TM11-6625-667-12 and TM11-6625-667-45)**	Replace	0.3						
0322	Voltmeter, Digital AN/GSM-64B (for repair refer to TM11-6625-444-14-1)	Replace	0.3						
0323	Voltmeter, Electronic AN/URM-145 (for repair refer to TM11-6625-524-15-1)	Replace	0.3						
0324	Voltmeter, Electronic **AN/USM-98A** (for repair refer to TM11-6625-599-12 & P and TM11-6625-599-**45 & P)**	Replace	0.3						
0325	Voltmeter, Electronic AN/USM-224 (for repair refer to TM11-6625-1541-15)	Replace	0.3						
0326	Voltmeter. Electronic ME-303/U (for repair refer to TM11-6625-1614-15)	Replace	0.3						

SECTION II MAINTENANCE ALLOCATION CHART- CONTINUED
FOR

ELECTRONIC SHOP-MAINTENANCE FACILITY AN/AM-164

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	o	F	H	D	(5) TOOLS AND EQPT.	(6) REMARKS
0327	Generator SG-1122/U (for repair refer to Hewlett-Packard manual for HP-8443A)	Replace	0.3						
0328	Generator SG-1112 (V)1/U (for repair refer to Hewlett-Packard manual for HP-8640B-004)	Replace	0.3						
0329	Noise source SG-9798/G (for repair refer to Hewlett-Packard manual for HP-343A)	Replace	0.3						
0330	Generator SG-1133/U (for repair refer to Hewlett-Packard Manual for HP-3312A)	Replace	0.3						
0331	Down Converter, Frequency HP-11710B (for repair: refer to Hewlett-Packard manual for HP-11710B),	Replace	0.3						
0332	Analyzer. Spectrum IP-1216(P)/GR (for repair refer to TM11-6625-2781-14&P)	Replace	0.3						
0333	Plug-In Unit PL-1388/U (fop repair refer to TM11-6625-2781-14-1)	Replace	0.3						
0334	Plug-In Unit PL-1399/U (for repair refer to Hewlett-Packard Manual for HP-8553B)	Replace	0.3						
0335	Power Supply PP-2309A/U (for repair refer to TM11-6130-245-15)	Replace	0.3						
0336	Meter, Noise TS-2436/G (for repair refer to TM-6625-1613-15)	Replace	0.3						
0337	Resistor, Decade ZM-16/U (for repair refer to TM11-5102)	Replace	0.3						
0338	Handset H-189/GR (for repair refer to TM11-5965-280-15)	Replace	0.3						
0339	Handset H-251/U	Replace	0.3						

SECTION III. TOOL AND TEST EQUIPMENT *REQUIREMENTS*
F O R

ELECTRONIC SHOP MAINTENANCE FACILITY AN/ARM-164

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO) STOCK NUMBER)	TOOL NUMBER
1	F	Tool Kit, Electronic Repairman TK-100/G	5180-00605-0079	
2	O	Tool Kit, Electronic Repairman TK-101/G	5180-00-064-5178	
3	O,F	Tool Kit, Electronic Repairman TK-105/G	5180-00-610-8177	
4	O,F	Multimeter, AN/URM-105C	6625-00-999-6282	
5	F	Multimeter, AN/USM-223	6625-00-99-7465	

SECTION IV. REMARKS

REFERENCE: CODE	REMARKS
A	REPLACEMENT OF LAMPS AND STARTERS AT ORGANIZATIONAL CATEGORY.
B	REPAIRED AS PART OF NEXT HIGHER ASSEMBLY.
C	THE 100' CABLE CONSISTS OF TWO INTERCONNECTED 50' CABLES.
D	MAINTENANCE FUNCTIONS ASSIGNED ARE THE SAME AS THE PRECEDING ASSEMBLY.
E	SACRAMENTO DEPOT IS DESIGNATED AS THE PRIME REPAIR DEPOT FOR THIS ITEM.
F	RECHARGE.
G	OPERATIONAL CHECK.
H	BY REPLACEMENT OF PARTS.

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 AN/ARM-164. 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 Lo identify the material (e.g., "Use cleaning compound, item 5, App. D").

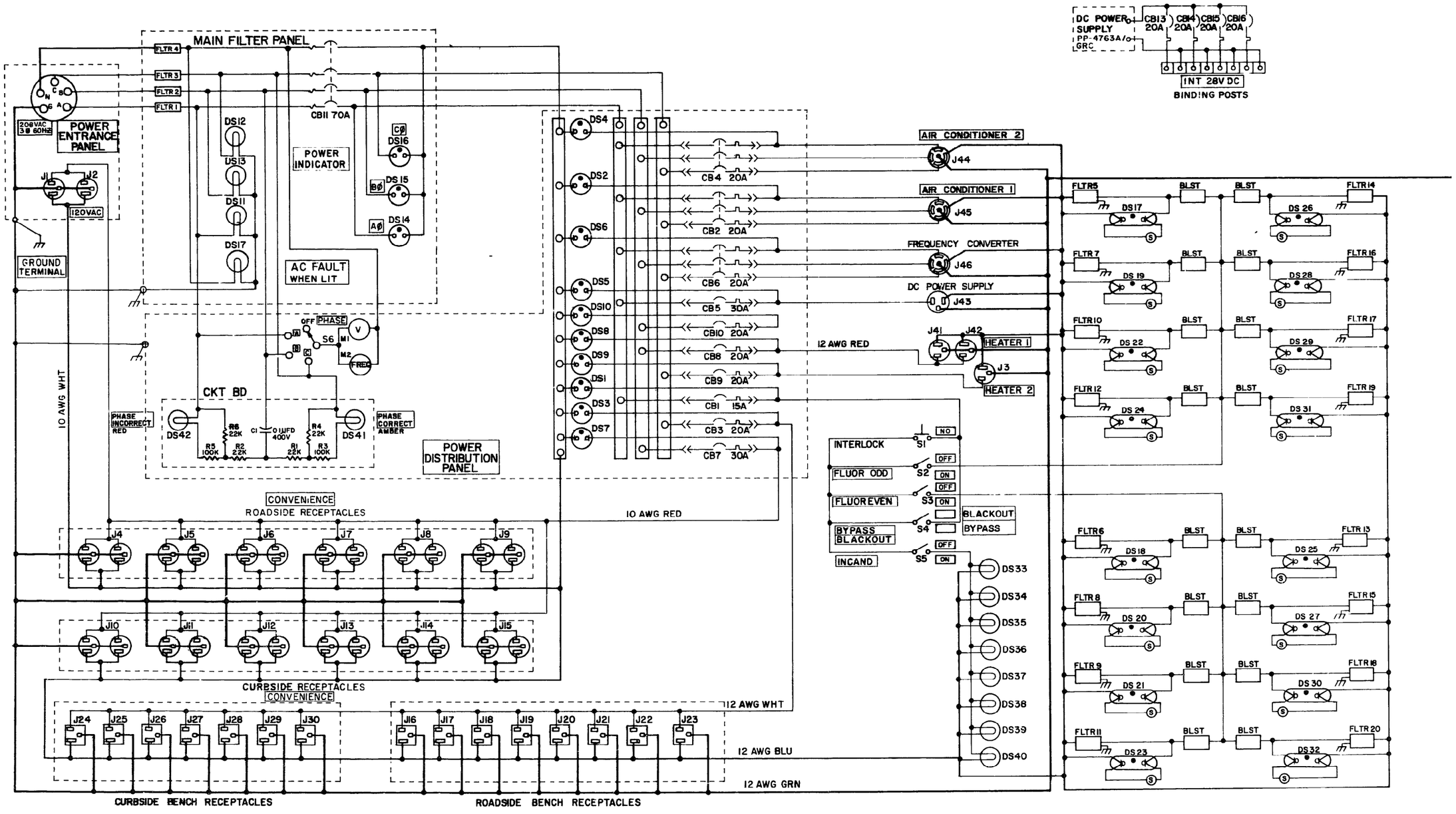
b. ***Column*** 2-Level. This column identifies the lowest level of maintenance that requires the listed item.

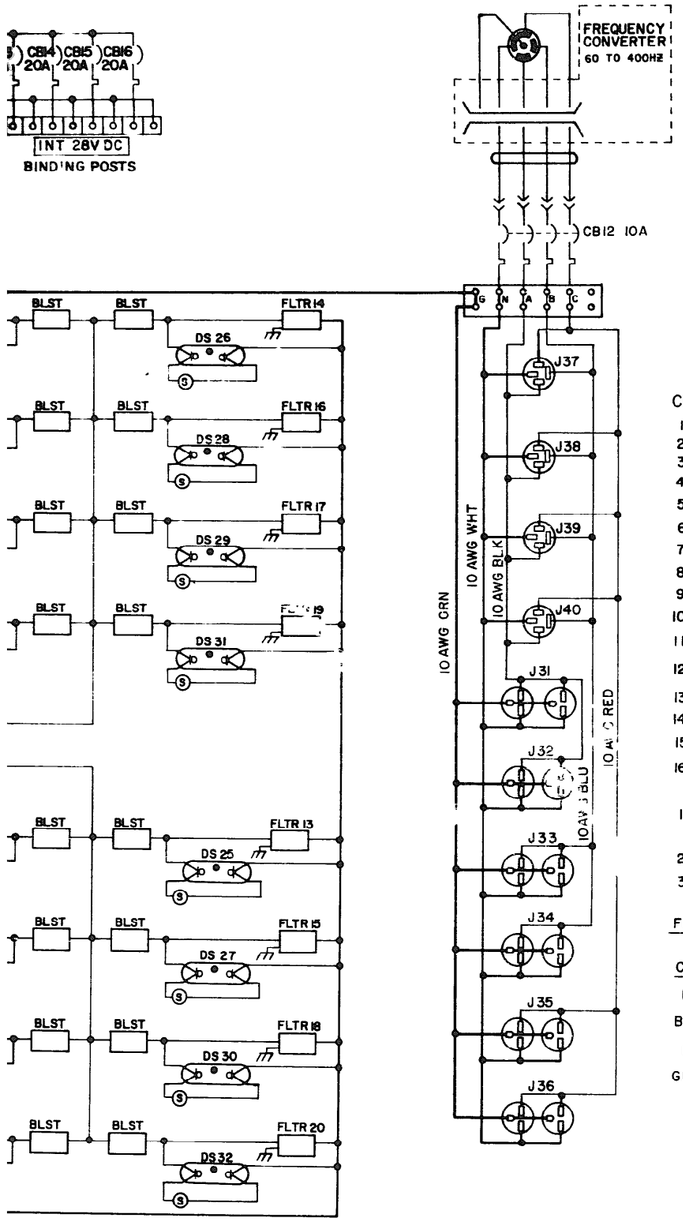
C-Operator, Crew
O--Organizational Maintenance
F-Direct Support Maintenance
H-General Support Maintenance

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

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

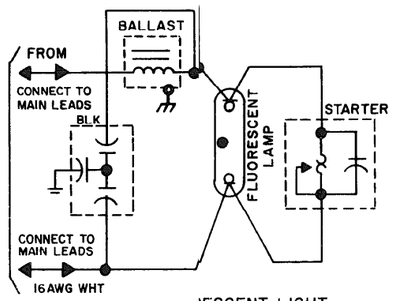
e. Column 5-Unit of Measure (U/M). Indicates the measure used in performing **the** actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea. in, pr). if the unit of measure differs from the unit of issue, requisition the lowest **unit** of issue that will satisfy your requirements.


MAIN FILTER PANEL
FLTR 4
FLTR 3
FLTR 2
FLTR 1
CB11 70A
POWER INDICATOR
DS12
DS13
DS11
DS17
C Ø
DS16
B Ø
DS 15
A Ø
DS 14
AC FAULT WHEN LIT
POWER ENTRANCE PANEL
208VAC 3 Ø 60HZ
J1
J2
120VAC
GROUND TERMINAL
10 AWG WHT
OFF
PHASE
S6
M1
M2
FREQ
V
A
B
C
CKT BD
PHASE INCORRECT RED
DS42
R6 22K
R5 100K
R2 22K
C1 0.1 MFD 400V
R1 22K
R4 22K
R3 100K
DS41
PHASE CORRECT AMBER
POWER DISTRIBUTION PANEL
DS4
DS2
DS6
DS5
DS10
DS8
DS9
DS1
DS3
DS7
CB4 20A
CB2 20A
CB6 20A
CB5 30A
CB10 20A
CB8 20A
CB9 20A
CB1 15A
CB3 20A
CB7 30A
12 AWG RED
AIR CONDITIONER 2
J44
AIR CONDITIONER 1
J45
FREQUENCY CONVERTER
J46
DC POWER SUPPLY
J43
J41
J42
HEATER 1
J3
HEATER 2
INTERLOCK
S1
NO
FLUOR ODD
S2
OFF
ON
FLUOR EVEN
S3
BYPASS BLACKOUT
S4
BLACKOUT
BYPASS
INCAND
S5
DS33
DS34
DS35
DS36
DS37
DS38
DS39
DS40
CONVENIENCE
ROADSIDE RECEPTACLES
10 AWG RED
J4
J5
J6
J7
J8
J9
J10
J11
J12
J13
J14
J15
CURBSIDE RECEPTACLES
CONVENIENCE
12 AWG WHT
J24
J25
J26
J27
J28
J29
J30
J16
J17
J18
J19
J20
J21
J22
J23
12 AWG BLU
12 AWG GRN
CURBSIDE BENCH RECEPTACLES
ROADSIDE BENCH RECEPTACLES
DC POWER SUPPLY PP-4763A/GRC
CB13 20A
CB14 20A
CB15 20A
CB16 20A
INT 28V DC
BINDING POSTS
FLTR5
FLTR7
FLTR10
FLTR12
FLTR6
FLTR8
FLTR9
FLTR11
FLTR14
FLTR16
FLTR17
FLTR19
FLTR13
FLTR15
FLTR18
FLTR20
BLST
DS17
DS 19
DS 22
DS 24
DS18
DS 20
DS 21
DS23
DS 26
DS 28
DS 29
DS 31
DS 25
DS 27
DS 30
DS32
S



1 FLUORESCENT (EVEN) SWITCH CONTROLS
DS 18, DS 20, DS 21, DS 23, DS 25, DS 27, DS 30, DS 32

2 FLUORESCENT (ODD) SWITCH CONTROLS
DS 17, DS 19, DS 22, DS 24, DS 26, DS 28, DS 29, DS 31



TYPICAL FLUORESCENT LIGHT SCHEMATIC DIAGRAM

CIRCUIT BREAKERS

CB	AMPS	CIRCUIT
1	15A	LIGHTS
2	20A	AIR CONDITIONER 1
3	20A	BENCH RECEPTACLES
4	20A	AIR CONDITIONER 2
5	30A	DC POWER SUPPLY
6	20A	FREQUENCY CONVERTER
7	30A	CONVENIENCE
8	20A	HEATER 1
9	20A	HEATER 2
10	20A	SPARE
11	70A	MAIN
12	10A	208V 400HZ
13	20A	28V DC OUTLETS
14	20A	28V DC OUTLETS
15	20A	28V DC OUTLETS
16	20A	28V DC OUTLETS

NOTES

1 UNLESS OTHERWISE SPECIFIED ALL OUTLETS ARE DESIGNATED CONVENIENCE.

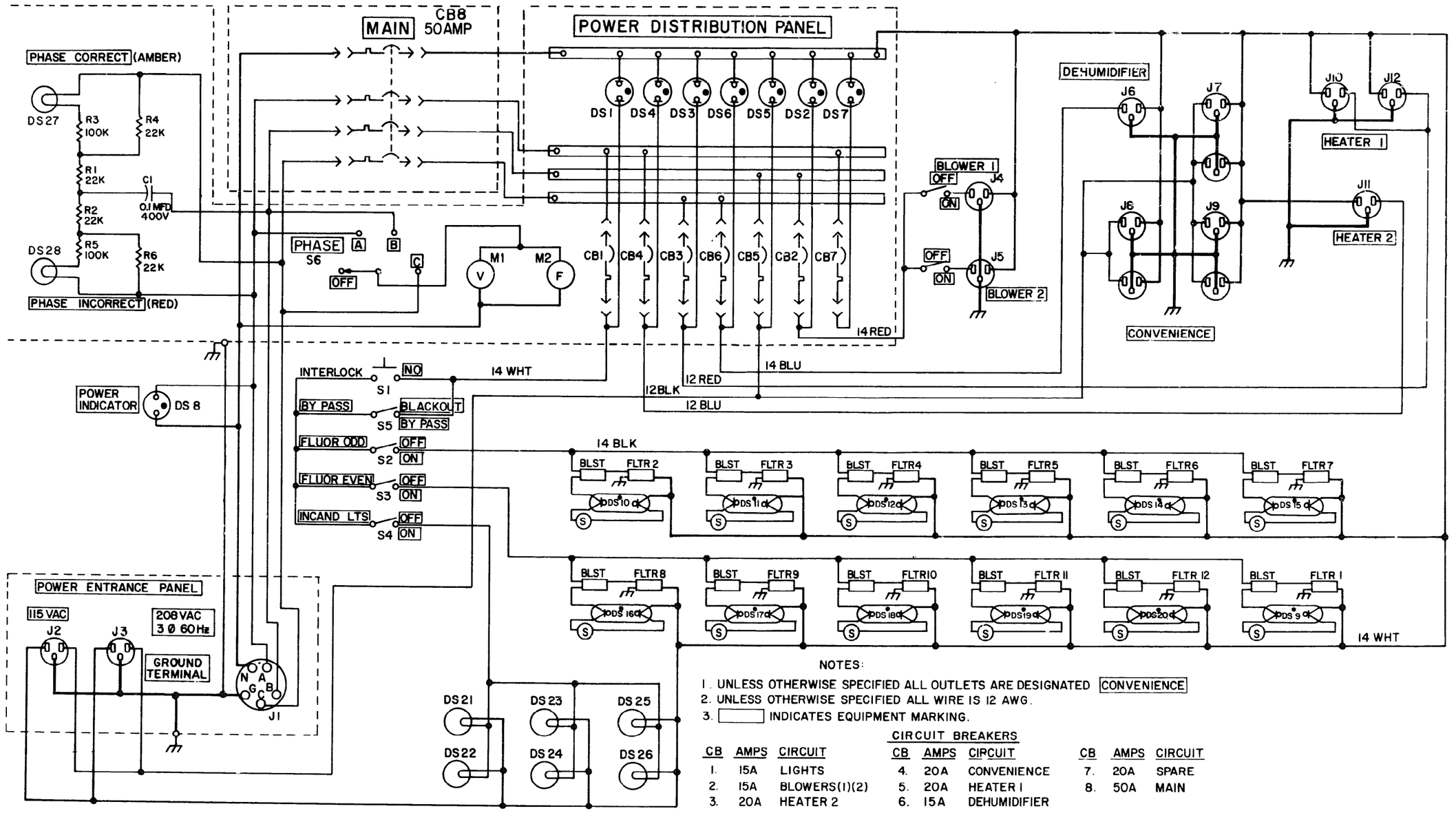
2. [ ] INDICATES EQUIPMENT MARKING.

3 UNLESS OTHERWISE SPECIFIED ALL WIRE IS 12AWG

FREQUENCY CONVERTER CONNECTIONS

OUT (400Hz)		IN(60Hz)	
CABLE	CONV	CABLE	CONV
PINK	1,3,5	WHITE	T-4, T-5, T-6
BLACK	2	ORANGE	T-3, T-9
RED	4	BLACK	T-1, T-7
GREEN	6	RED	T-2, T-8
		GREEN CASE GND	

ELIF1053

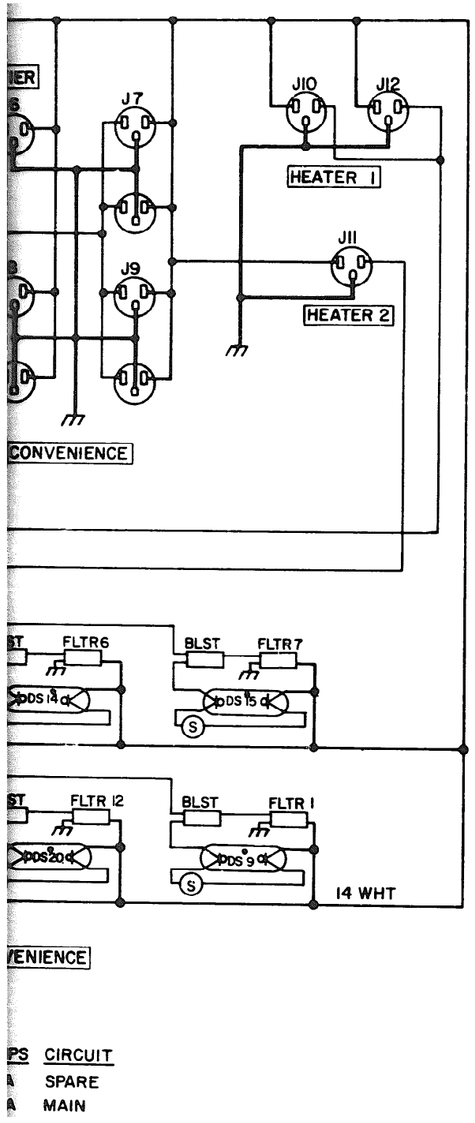


NOTES:

1. UNLESS OTHERWISE SPECIFIED ALL OUTLETS ARE DESIGNATED CONVENIENCE
2. UNLESS OTHERWISE SPECIFIED ALL WIRE IS 12 AWG.
3. ☐ INDICATES EQUIPMENT MARKING.

CIRCUIT BREAKERS

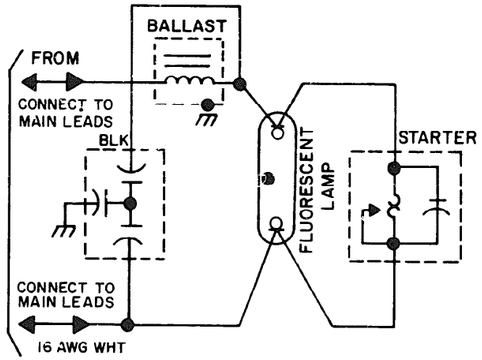
CB	AMPS	CIRCUIT	CB	AMPS	CIRCUIT	CB	AMPS	CIRCUIT
1.	15A	LIGHTS	4.	20A	CONVENIENCE	7.	20A	SPARE
2.	15A	BLOWERS(1)(2)	5.	20A	HEATER 1	8.	50A	MAIN
3.	20A	HEATER 2	6.	15A	DEHUMIDIFIER			



PS CIRCUIT
A SPARE
A MAIN

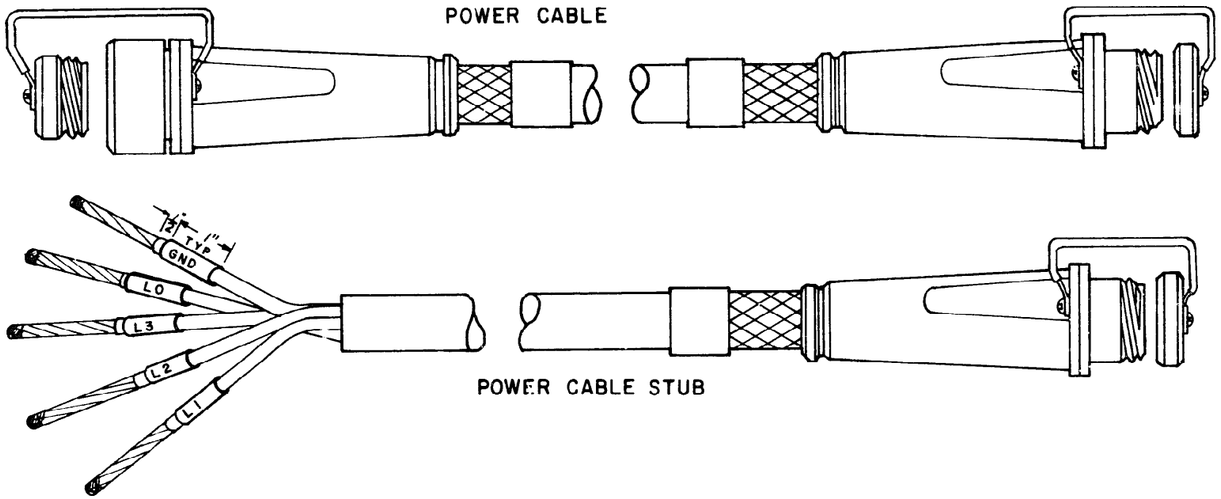
1. FLUORESCENT (EVEN) SWITCH CONTROLS
   DS 18, DS 20, DS 21, DS 23, DS 25, DS 27, DS 30, DS 32

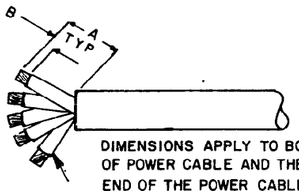
2. FLUORESCENT (ODD) SWITCH CONTROLS
   DS 17, DS 19, DS 22, DS 24, DS 26, DS 28, DS 29, DS 31



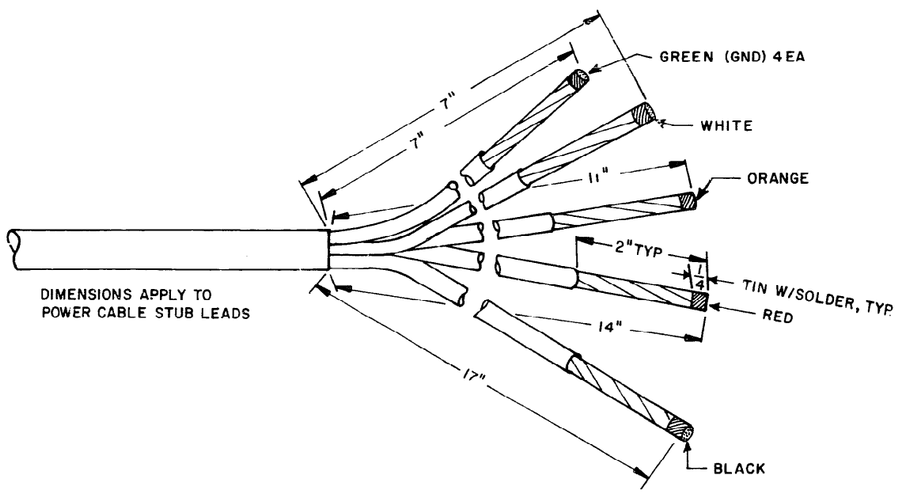
TYPICAL FLUORESCENT LIGHT SCHEMATIC DIAGRAM

ELIFI054

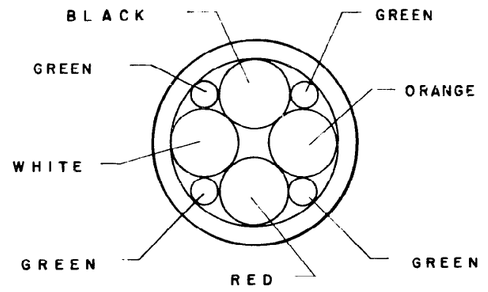




DIMENSIONS APPLY TO BOTH ENDS OF POWER CABLE AND THE CONNECTOR END OF THE POWER CABLE STUB.



DIMENSIONS APPLY TO POWER CABLE STUB LEADS

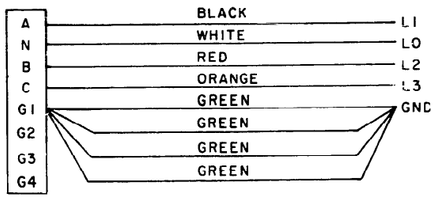


CROSS-SECTIONAL CONDUCTOR CONFIGURAT N FOR ALL CABLES.

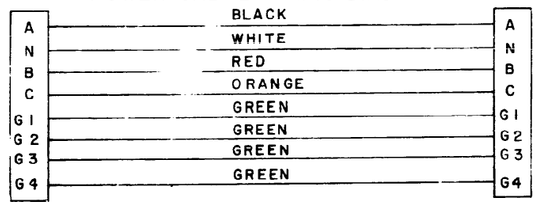
PIN CONTACT END OF CABLE SHOWN. SOCKET CONTACT END IS THE REVERSE.

CABLE	CABLE NOMENCLATURE	COLOR	A INCH	B INCH
60 AMP	CO-04 HDF (4/6-4/12R) 1090	WHITE BLACK RED ORANGE GREEN	2-3/4 ↓ 3-1/4	3/4 ↓ 25/32
100 AMP	CO-04 HDF (4/2-4/10R) 1465	WHITE BLACK RED ORANGE GREEN	4-5/16 ↓ 4-13/16	3/4 ↓

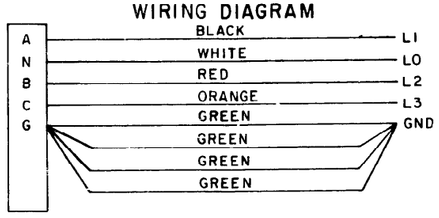
100 AMP STUB WIRING DIAGRAM



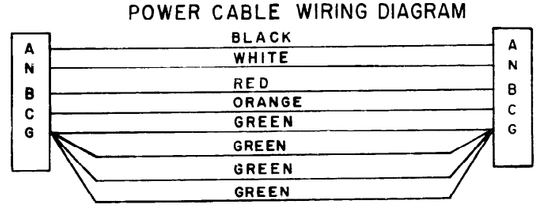
100 AMP POWER CABLE WIRING DIAGRAM



60 AMP STUB WIRING DIAGRAM



60 AMP POWER CABLE WIRING DIAGRAM



POWER CABLE REPAIR

A. DISASSEMBLY OF POWER

(1) VISUALLY INSPECT THE AND CONTACTS FOR IDENTIFYING FOR DAMAGED PIECES.

(2) REMOVE LEFT HAND THRE (CLOCKWISE), CABLE GRIP, SEALI

(3) LOOSEN THREE SCREWS HEX HEAD ALLEN WRENCH AND R RECEPTACLE HOUSING.

NOTE

IF A CABLE LEAD IS BROKEN PIN ALL CABLE LEADS AND CO BE REPLACED IN CONNECTOR THERE CAN NOT BE ANY CABL OR SHORTER THAN THE OTHE

(4) USE PIN EXTRACTOR TO ASSEMBLY AND CONTACTS FRO

(5) USING THE CONTACT RE OVER FRONT OF CONTACT UNT OF GROMMET ASSEMBLY HOLE

(6) WITHDRAW THE CONTA OF THE GROMMET ASSEMBLY.

(7) STRIP CABLE JACKET F CUTTING OR NICKING INDIVIDUA

(8) DETERMINE LAY OF CAB THE END OF CABLE FOR PIN CONT CROSS SECTIONAL CONFIGURATI

(9) STRIP INSULATION FROM

(10) USE A PUTTY COMPOUND HOLE IN THE SIDE OF EACH CONT SOLDER FROM ESCAPING.

(11) USE ROSIN-ALCOHOL SOL SOLDER AND AT LEAST 500 WATT

(12) PRETIN CONDUCTORS.

(13) SOLDER REPLACEMENT

POWER CABLE REPAIR

A. DISASSEMBLY **OF POWER CABLE (FIG.6-1 AND 6-2)**

(1) VISUALLY INSPECT THE CABLE, CONNECTORS AND CONTACTS FOR IDENTIFYING PART NUMBERS AND FOR DAMAGED PIECES.

(2) REMOVE LEFT HAND THREADED GLAND NUT (CLOCKWISE), CABLE GRIP, SEALING GLAND, AND COLLAR.

(3) LOOSEN THREE SCREWS ON BACK SHELL WITH HEX HEAD ALLEN WRENCH AND REMOVE CONNECTOR RECEPTACLE HOUSING .

NOTE

IF A CABLE LEAD IS BROKEN FROM A CONTACT PIN ALL CABLE LEADS AND CONTACT PINS MUST BE REPLACED IN CONNECTOR RECEPTACLE.
THERE CAN NOT BE ANY CABLE LEAD(S) LONGER OR SHORTER THAN THE OTHER.

(4) USE PIN EXTRACTOR TOOL TO REMOVE GROMMET ASSEMBLY AND CONTACTS FROM CONNECTOR.

(5) USING THE CONTACT REMOVAL TOOL, PUSH TOOL OVER FRONT OF CONTACT UNTIL IT SEATS IN BOTTOM OF GROMMET ASSEMBLY HOLE.

(6) WITHDRAW THE CONTACT PIN FROM THE REAR OF THE GROMMET ASSEMBLY

(7) STRIP CABLE JACKET FROM CABLE. AVOID CUTTING OR NICKING INDIVIDUAL CONDUCTOR INSULATION.

(8) DETERMINE LAY OF CABLE ENDS AND SELECT THE END OF CABLE FOR PIN CONTACT ASSEMBLY. REFER TO CROSS SECTIONAL CONFIGURATION DIAGRAM.

(9) STRIP INSULATION FROM INDIVIDUAL CONDUCTORS.

(10) USE A PUTTY COMPOUND TO SEAL **THE** SMALL HOLE IN THE SIDE OF EACH CONTACT PIN TO PREVENT SOLDER FROM ESCAPING.

(11) USE ROSIN -ALCOHOL SOLDER FLUX, 60/40 SOLDER AND AT LEAST 500 WATT SOLDERING EQUIPMENT.

(12) PRETIN CONDUCTORS.

(13) BOLDER REPLACEMENT CONTACT PINS.

B. RE - ASSEMBLY OF POWER CABLE.

(1) ALIGN AND SIMULTANEOUSLY INSERT CONTACTS INTO SPACER ASSEMBLY UNTIL CONTACTS ARE FULLY SEATED IN RETAINING BUSHING.

(2) ALIGN FRONT INSERT WITH SHELL SO THAT LARGE KEY ON INSERT MATES WITH LARGE KEYWAY IN SHELL.

(3) PUSH INSERT INTO SHELL UNTIL IT SEATS.

(4) ALIGN CONTACTS WITH PROPER INSERT HOLES AND SLIDE CONTACTS INTO INSERT HOLES UNTIL SPACER BUTTS AGAINST INSERT.

(5) RE-ASSEMBLE CONNECTOR RECEPTACLE ACCESSORY PARTS.

(6) INSTALL CONNECTOR RECEPTACLE HOUSING AND TIGHTEN WITH HEX HEAD ALLEN WRENCH.

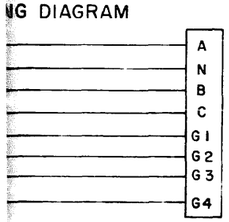
(7) INSTALL COLLAR, SEALING GLAND, CABLE GRIP AND LEFT HAND THREAD GLAND NUT (COUNTERCLOCKWISE).

(8) TIGHTEN THE GLAND NUT UNTIL A METAL-TO-METAL SEATING WITH SHELL OCCURS.

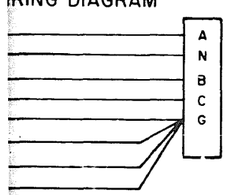
(9) PERFORM CONTINUITY AND INSULATION BREAKDOWN CHECKS OF REPAIRED CABLE.

	COLOR	A INCH	B INCH
090	WHITE	2-3/4	3/4
	BLACK	↓	↓
	RED	↓	↓
	ORANGE	↓	↓
	GREEN	3-1/4	25/32
465	WHITE	4-5/16	3/4
	BLACK	↓	↓
	RED	↓	↓
	ORANGE	↓	↓
	GREEN	4-13/16	↓

NG DIAGRAM



IRING DIAGRAM



RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE 10 July 1975

PUBLICATION NUMBER	DATE	TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/MPS-76

BE EXACT. . .PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.	
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of [illegible] knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		F03		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. + 24 VDC is the input voltage.

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE: SSG I. M. DeSpiritof

DA FORM 1 AUG 74 2028-2

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

TEAR ALONG DOTTED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER	DATE	TITLE
TM 11-4940-479-14	10 Oct 79	Electronic Shop-Maintenance Facility AN/ARM-164

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.

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

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 1 AUG 74 2028-2

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

TEAR ALONG DOTTED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

Commander
US Army Communications and
Electronics Materiel Readiness Command
ATTN: DRSEL-ME-MQ
Fort Monmouth, New Jersey 07703

FOLD BACK

TEAR ALONG DOTTED LINE

REVERSE OF DA FORM 2028-2

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER	DATE	TITLE
TM 11-4940-479-14	10 Oct 79	Electronic Shop-Maintenance Facility AN/ARM-164

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.

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

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 1 AUG 74 2028-2

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

TEAR ALONG DOTTED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

Commander
US Army Communications and
Electronics Materiel Readiness Command
ATTN: DRSEL-ME-MQ
Fort Monmouth, New Jersey 07703

TEAR ALONG DOTTED LINE

FOLD BACK

REVERSE OF DA FORM 2028-2

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER	DATE	TITLE
TM 11-4940-479-14	10 Oct 79	Electronic Shop-Maintenance Facility AN/ARM-164

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.

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

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 1 AUG 74 2028-2

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

TEAR ALONG DOTTED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

Commander
US Army Communications and
Electronics Materiel Readiness Command
ATTN: DRSEL-ME-MQ
Fort Monmouth, New Jersey 07703

FOLD BACK

TEAR ALONG DOTTED LINE

REVERSE OF DA FORM 2028-2

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703

DATE 10 July 1975

PUBLICATION NUMBER	DATE	TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/MPS-76

BE EXACT. . .PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.	
2-25	2-28			Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°. REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of [illegible] knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation
3-10	3-3		3-1	Item 5, Function column. Change "2 db" to "3db." REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.
5-6	5-8			Add new step f.1 to read, "Replace cover plate removed in step e.1, above." REASON: To replace the cover plate.
		F03		Zone C 3. On J1-2, change "+24 VDC to "+5 VDC." REASON: This is the output line of the 5 VDC power supply. + 24 VDC is the input voltage.

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE: SSG I. M. DeSpiritof

DA FORM 1 AUG 74 2028-2

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

TEAR ALONG DOTTED LINE

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER	DATE	TITLE
TM 11-4940-479-14	10 Oct 79	Electronic Shop-Maintenance Facility AN/ARM-164

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.

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

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 1 AUG 74 2028-2

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

TEAR ALONG DOTTED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

Commander
US Army Communications and
Electronics Materiel Readiness Command
ATTN: DRSEL-ME-MQ
Fort Monmouth, New Jersey 07703

FOLD BACK

TEAR ALONG DOTTED LINE

REVERSE OF DA FORM 2028-2

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER	DATE	TITLE
TM 11-4940-479-14	10 Oct 79	Electronic Shop-Maintenance Facility AN/ARM-164

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.

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

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 1 AUG 74 2028-2

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

TEAR ALONG DOTTED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

Commander
US Army Communications and
Electronics Materiel Readiness Command
ATTN: DRSEL-ME-MQ
Fort Monmouth, New Jersey 07703

TEAR ALONG DOTTED LINE

FOLD BACK

REVERSE OF DA FORM 2028-2

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL MANUALS

SOMETHING WRONG WITH THIS MANUAL?

THEN. . .JOT DOWN THE DOPE ABOUT IT ON THIS FORM, TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL!

FROM: (YOUR UNIT'S COMPLETE ADDRESS)

DATE

PUBLICATION NUMBER	DATE	TITLE
TM 11-4940-479-14	10 Oct 79	Electronic Shop-Maintenance Facility AN/ARM-164

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.

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

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 1 AUG 74 2028-2

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

TEAR ALONG DOTTED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE, $300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD-314

Commander
US Army Communications and
Electronics Materiel Readiness Command
ATTN: DRSEL-ME-MQ
Fort Monmouth, New Jersey 07703

FOLD BACK

TEAR ALONG DOTTED LINE

REVERSE OF DA FORM 2028-2

By Order of the Secretary of the Army:

E. C. MEYER
General, *United States Army*
Chief of Staff

Official:
J. C. PENNINGTON
Major General, United States Army
The Adjutant General

Distribution.

Active Army.

HISA (Ft Monmouth) (21)	USASIGS (2)
USAINSCOM (2)	LBAD (5)
DARCOM (1)	TOAD (5)
THADOC (2)	SAAD (5)

NG. None.

USAR. None.

For explanation of abbreviations used, see AH 310-50.

US GOVERNMENT PRINTING OFFICE: 1979-603-028/ 1243

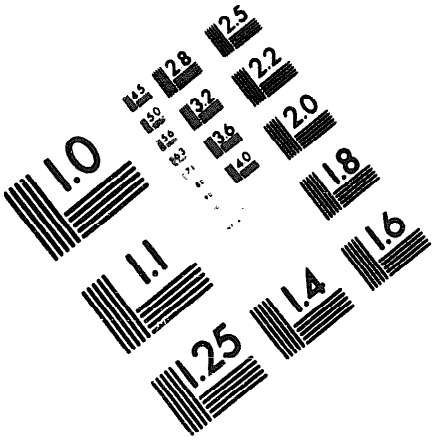
END

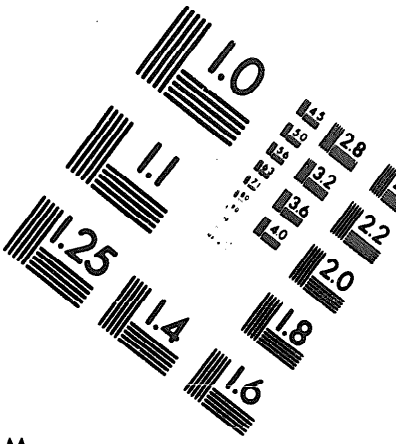
7-18-83

DATE

DEPARTMENT OF THE ARMY

MICROFORM
TEST TARGET





150 MM

10 mm (e= 81 mm)

ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
abcdefghijklmnopqrstuvwxyz$¢£/%#½¼¾—=+×&@*

1.5 mm (e= 1.09 mm)

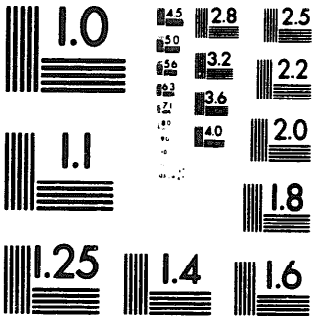
ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
abcdefghijklmnopqrstuvwxyz$¢£/%#½¼¾—=+×&@*

2.0 mm (e= 1.37 mm)

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890$¢£/%#½¼¾—=+×&@*

2.5 mm (e= 1.77 mm)

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890$¢£/%#½¼¾—=+×&@*



10 mm (e= 81 mm)

ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
abcdefghijklmnopqrstuvwxyz$¢£/%#½¼¾—=+×&@*

1.5 mm (e= 1.09 mm)

ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890
abcdefghijklmnopqrstuvwxyz$¢£/%#½¼¾—=+×&@*

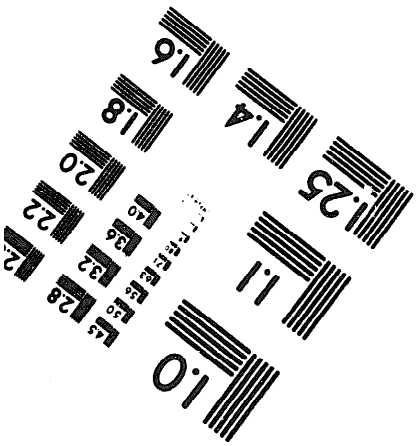
2.0 mm (e= 1.37 mm)

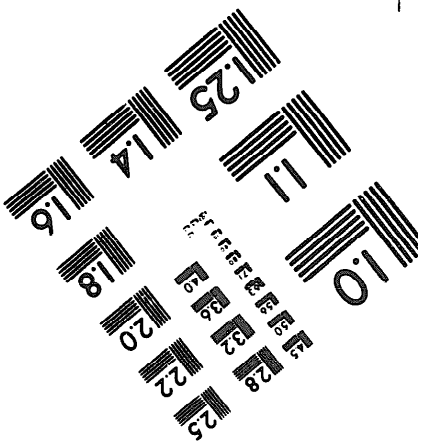
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890$¢£/%#½¼¾—=+×&@*

2.5 mm (e= 1.77 mm)

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890$¢£/%#½¼¾—=+×&@*

200 MM





250 MM