**DEPARTMENT OF THE ARMY TECHNICAL MANUAL**

# OPERATION AND MAINTENANCE

# MANUAL TELEPHONE CENTRAL OFFICE AN/MTC-3

**This copy is a reprint which includes current pages from Changes 2, 10, 12, 13 & 14**

*HEADQUARTERS, DEPARTMENT OF THE ARMY*
*AUGUST 1959*

**WARNING**
**HIGH VOLTAGE**
is used in
this equipment.
**DEATH ON CONTACT**

may result if safety precautions
are not observed.

**DANGEROUS POTENTIALS**
**EXIST IN THE FOLLOWING UNITS:**

POWER DISTRIBUTION PANEL

SIGNAL & POWER ENTRANCE box

AC POWER DUCT

Trailer Mounted Gasoline Engine Generator Set, PU-294/G (TM 11-940A)

All operating adjustments of this equipment are made with the power applied. Be careful when working on the wiring side of the equipment.

**DON'T TAKE CHANCES!**
**VENTILATION**

When occupied, the shelter of Manual Telephone Central Office AN/MTC-3 must be ventilated at all times. Open the blower vents and the air filter cover. Operate both blowers for maximum ventilation. If only one blower is used, close the outside vents of the unused blower.

**Changes in force: C1, C10. C12. C13 and C14**

CHANGE

NO. 14

**HEADQUARTERS**
**DEPARTMENT OF THE ARMY**
Washington, DC, 15 September 1986

# OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL CENTRAL OFFICE, TELEPHONE, MANUAL ANIMTC-3 (NSN 5805-00-542-7275)

TM 11-5805-202-15, 7 August 1959, is changed as follows:

*Page 3*, paragraph 2. Delete subparagraph *a*. and substitute:

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

*Page 3,* paragraph 2. Delete in subparagraph b. NAVMATINST 4355.73A/AFR 400-54/MCO 4430.3F and replace with NAVMATINST 4355.73B/AFR 400-54/MCO 4430.3H.

*Page 3*. paragraph 2.1. Delete DRSEL-ME-MP, Fort Monmouth, New Jersey 07703 and replace with AMSEL-ME-MP. Fort Monmouth, New Jersey 07703-5000.

*Page 3*, paragraph 2.2. Delete DRSEL-ME-MP, Fort Monmouth. New Jersey 07703, and replace with AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5000.

*Page 10,* paragraph 9. Delete paragraph 9 and substitute:

**9. Trailer-Mounted Gasoline Engine-Driven Generator Set PU-618/M**

Trailer-Mounted, Gasoline Engine-Driven Generator Set PU-618/M supplies the ac power necessary to operate the AN/MTC-3. The PU-618/M is used with but is not part of the AN/MTC-3.

The generator set consists of two generator units mounted on a modified 1 1/2-ton, 2-wheel cargo trailer, Model 103A3. Each generator unit has an output of 5 kilowatts (kw), single-phase, 60 Hz, 120 volts, ac. A complete description of the generator set is included in TM 5-6115-332-14. Refer to the generator set technical manual and TB 430125 for power connections on the generator set.

*Page 24*, paragraph 28. Delete subparagraph *a.* and substitute:

*a. Connection to Generator Set (fig. 15.4).*

**WARNING**

**In 2-wire, single-phase power distribution, one conductor must be made neutral by connecting a No. 6 electrical wire between the selected generator L ( ) terminal and earth ground to avoid electrical shock.**

**CAUTION**

**Before connecting electrical power between Generator Set PU-618/M and Manual Telephone Central Office AN/ MTC-3, ensure that the generator selector switch, located behind the front panel of each generator set, is positioned to the 120V 1 PH setting. Any other control setting may result in damage to the AN/ MTC-3.**

**NOTE**

**When making power connections on Generator Set PU-618/M. refer to the applicable generator set technical manual and TB 43-0125.**

(1) Prepare the generator set for operation (refer to TM 5-6115-365-15, TM 5-6115-332-14, and TB 43-0125).

(2) Remove Power Cable CX-4694C/U and Power Cable Stub CX-4693C/U from cable reel (fig. 9).

(3) Remove the covers from the connectors of Power Cable Stub CX-4693C/U and Power Cable CX-4694C/U. Connect the power cable stub to the power cable.

(4) If Generator Set PU-618/M (fig. 15.4) includes an output connector that is compatible with the connector on the power cable assembly, connect the power cable assembly to the generator set: otherwise refer to the generator set technical manual and TB 430125 for proper power connections on the generator set.

(5) Connect the black lead at the other end of Power Cable Stub CX-4693C/U to terminal L2 on the transfer switch (fig. 15.4). Connect the white and green leads of the power cable stub to terminal L3 on the transfer switch (fig. 15.4).

(6) Connect a No. 6 AWG (jumper) wire between terminal L3 on the transfer switch and the trailer gnd stud on the trailer frame (fig. 15.4). Connect another No. 6 AWG (jumper) wire between the trailer gnd stud and the ground rod (earth ground) as shown in figure 15.4.

(7) Remove the covers from the female connector on the power cable and the POWER IN receptacle on the SIGNAL & POWER ENTRANCE BOX (fig. 11). Interconnect the connector and receptacle.

*Add new illustration*, figure 15.4, to support text of paragraph 28.

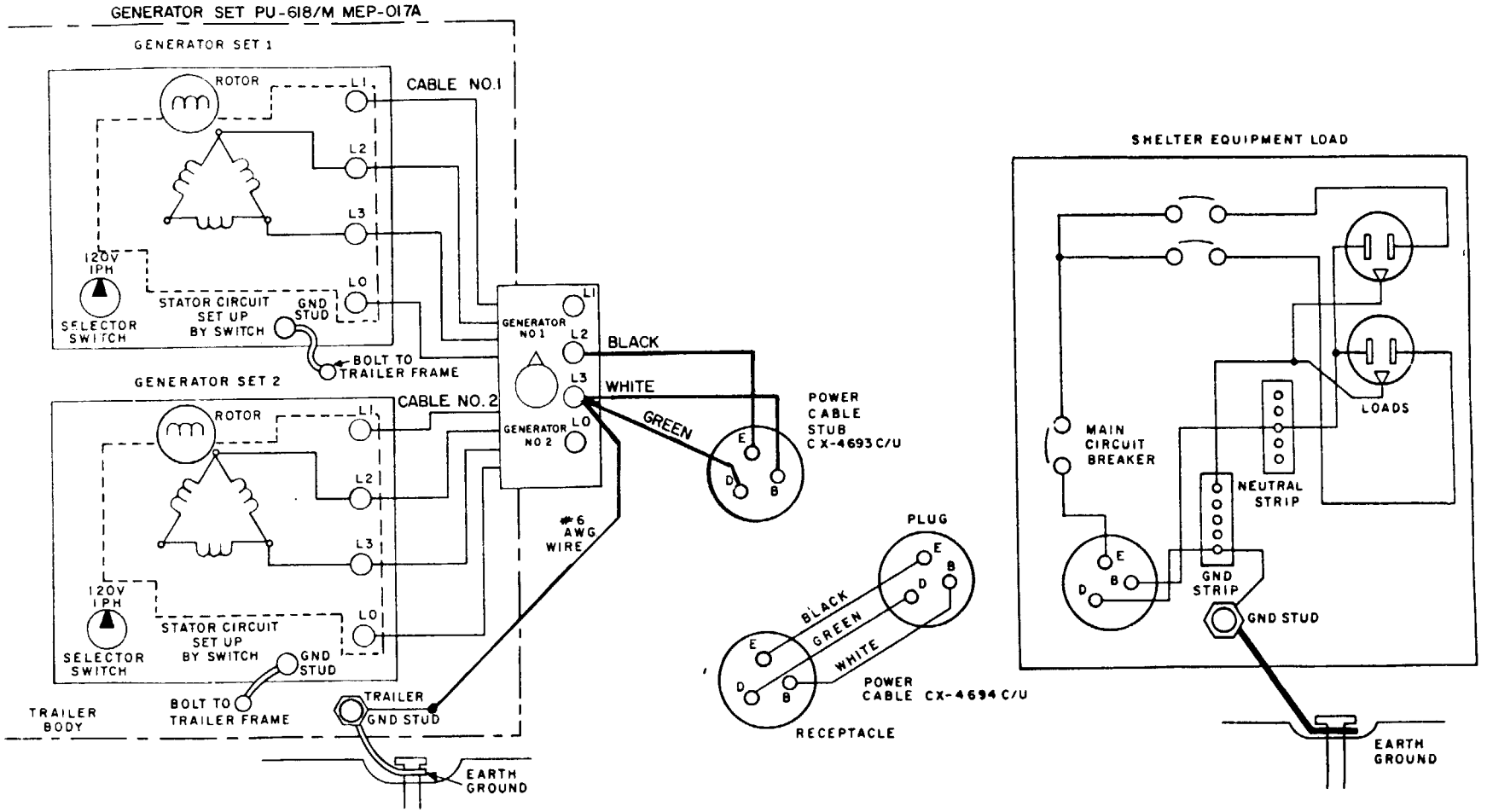


**Figure 15.4 Generator Set PU-618M Hookup: Two Generator Units, 5 kw, 115 volts, 60 Hz, Single-Phase Ac (CX-4694C/U power Cable with CX-4693C/U Stub**

*Page 25,* paragraph 29. Delete step *a.* and substitute:

a. When Generator Set PU-618/M is used to supply power, start the power unit as described in TM 5-6115332-14. Adjust the output to provide 120 volts.

*Page 39,* appendix I. Delete TM 38-750 and substitute the following:

| | |
|---|---|
| TM 11-5895-1012-10 | Operator's Manual Technical Control Facility (General). |
| TM 5-6115-365-15 | Operator, Organizational, DS, GS, and Depot Maintenance Manual (Including Repair Parts and Special Tools List); PU-326A/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 (6115-00-7223760); 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); PU-564A/G (6115-00-728-6341); PU-564B/G (6115-00-1792789); 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 (6115-00-8373915); 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) and PU-650B/G (6115-00258-1622). |
| DA Pam 738-750 | The Army Maintenance Management System (TAMMS). |

Page 40, appendix II. Delete Maintenance Allocation Chart and substitute:

## SECTION II. MAINTENANCE ALLOCATION CHART
## FOR
CENTRAL, OFFICE, TELEPHONE, MANUAL, AN/MTC-3

| (1) GROUP NUMBER | (2) COMPONENT/ASSEMBLY | (3) MAINTENANCE FUNCTION | (4) MAINTENANCE CATEGORY C | O | F | H | D | (5) TOOLS AND EQPT | (6) REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 00 | Central Office Telephone, Manual AN/MTC-3 | Inspect | 0.2 | | | | | | A |
| | | Inspect | | 0.5 | | | | 1 | |
| | | Test | | 0.6 | | | | 1, 2 | B |
| | | Test | | | 1.0 | | | 1, 2 | |
| | | Service | 0.2 | | | | | | A |
| | | Service | | 0.5 | | | | 1 | |
| | | Install | | | 1.0 | | | 1, 2 | |
| | | Repair | | 1.0 | | | | 1, 2 | C |
| | | Repair | | | 1.3 | | | 1, 2 | |
| | | Overhaul | | | | | 9.0 | 1 thru 6 | |
| 01 | Shelter, Electrical Equipment S-175( )/MTC-3 | Test | | 0.5 | | | | 1,2 | B |
| | | Test | | | 0.8 | | | 1, 2 | |
| | | Repair | 0.8 | | | | | 1, 2 | C |
| | | Repair | | | 1.0 | | | 1, 2 | |
| 0101 | Cable Assemblies | Test | | 0.2 | | | | 2 | |
| | | Replace | | 0.2 | | | | 1 | |
| | | Repair | | | 0.5 | | | 1, 2 | D |
| | | Repair | | | | 0.8 | | 1, 2, 3 | |
| 0102 | Fan, Centrifugal SM-D- 475320 | Test | | 0.2 | 2 | | | | |
| | | Replace | | 0.2 | 1 | | | | |
| | | Repair | | | 0.5 | | | 1, 2 | C |
| 0103 | Heater, Space, Electrical HD-375/U or AAT-15A | Test | | 0.2 | | | | 2 | |
| | | Replace | | 0.2 | | | | 1 | |
| | | Repair | | | 0.5 | | | 1, 2 | C |
| 0104 | Signal and Power Entrance Box | Test | | 0.2 | | | | 2 | |
| | | Repair | | 0.5 | | | | 1, 2 | E |
| | | Repair | | | 1.0 | | | 1, 2 | F |
| | | Repair | | | | 1.0 | | 1, 2, 3 | |
| 0105 | Signal Binding Posts Box | Test | | 0.2 | 2 | | | | |
| | | Repair | | 0.3 | | | | 1, 2 | G |
| | | Repair | | | 1.0 | | | 1, 2 | |
| 0106 | Power Distribution Panel | Test | | 0.3 | | | | 2 | |
| | | Repair | | 0.5 | | | | 1, 2 | H |
| | | Repair | | | 1.0 | | | 1, 2 | |
| 0107 | Shelter, Electrical Equipment, Basic S-141/G | Repair | | | | | | | I |
| 02 | Distribution Box J- 1077A/U | Replace | | 0.2 | 1 | | | | |
| | | Repair | | | | | | | J |
| 03 | Intercommunication Station LS-147( )/FI | Replace | | 0.2 | 1 | | | | |
| | | Repair | | | | | | | K |
| 04 | Switch Box SA-33/U | Replace | | 0.2 | 1 | | | | |
| | | Repair | | | | | | | L |
| 05 | Reel Unit RL-31( ) | Replace | | 0.3 | 1 | | | | |
| | | Repair | | | | | | | N |
| 06 | Switchboard, Telephone, Manual SB - 86/P | Replace | | 0.5 | 1 | | | | |
| | | Repair | | | | | | | N |
| 07 | Telephone Set TA 312/PT | Replace | | 0.6 | 1 | | | | |
| | | Repair | | | | | | | 0 |

**SECTION II. MAINTENANCE ALLOCATION CHART**
**FOR**
CENTRAL, OFFICE, TELEPHONE, MANUAL, AN/MTC-3

| TOOL OR TEST EQUIPMENT REF CODE | MAINTENANCE CATEGORY | NOMENCLATURE | NATIONAL/NATO STOCK NUMBER | TOOL NUMBER |
|---|---|---|---|---|
| 1 | O, F, H, D | Tool Kit, Electronic Equipment TK-101/G | 5180 00-064-5178 | |
| 2 | O, F, H, D | Multimeter, AN /PSM-45 | 6625-01-139-2512 | |
| 3 | H, D | Tool Kit, Electronic Equipment TK-105,G | 5180-00 610 8177 | |
| 4 | D | Ac Outlet Tester Hubbell 5200 | ------ | |
| 5 | D | Ammeter ME-65A/U | 6625-00-985-5250 | |
| 6 | D | Ohmmeter ZM-21B/U | 6625-00-172-6521 | |

## SECTION IV. REMARKS

| Reference Code | Remarks |
|---|---|
| A | External only of shelter and equipment. |
| B | Continuity checks. |
| C | By replacement of switches, lamps, circuit breakers, connectors, and major components. |
| D | All but 26 pair cables and connectors. |
| E | By replacement of power connectors. |
| F | By replacement of all but 26 pair connectors. |
| G | By replacement of binding posts. |
| H | By replacement of meters, lamps, and circuit breakers. |
| I | See TM 11-5410-206-14P for repair of S-141/G. |
| J | See TM 11-6110-201-12P for repair of J-1077A/U. |
| K | See TM 11-5830-221-12 for repair of LS-147( )/FI. |
| L | See TM 11-5930-201-14P for repair of SA-331/U. |
| M | See TM 11-362 for repair of RL-31( ). |
| N | See TM 11-2134 for repair of SB-86/P. |
| O | See TM 11-5805-201-12 for repair of TA-312/PT. |

*Page 49*, Index. Delete Gasoline Engine Generator Set, Trailer Mounted PU-294/G and substitute Trailer-Mounted Gasoline Engine-Driven Generator Set PU618/M.

By Order of the Secretary of the Army:

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

Official:

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

DISTRIBUTION:
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**This publication is required for official use or for administrative or operational purposes only. Distribution is limited to US Government Agencies. Other requests for this document must be referred to Commander, US Army Communications - Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-P, Fort Monmouth, NJ 07703-5000.**

CHANGE }
NO. 13

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 16 December 1983

**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE MANUAL**
**CENTRAL OFFICE, TELEPHONE, MANUAL ANIMTC-3**
**(NSN 5805-00-542-7275)**

TM 11-5805-202-15, 7 August 1959, is changed as follows:

*Page 3*. Add paragraph 1.1 after paragraph 1

**1.1 Consolidated Index of Army Publications and Blank Forms**

Refer to the latest issue of DA Pam 310-1 to determine whether there are new editions, changes or additional publications pertaining to the equipment.

Paragraphs 2, 2-1, 2-2 and 2-3. Delete and substitute:

**2. Maintenance Forms, Records, and Reports**

*a. Reports of Maintenance and Unsatisfactory Equipment.* Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

*b. Report of Packaging and Handling Deficiencies.* Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/NAVMATINST 4355. 73A/AFR 400-54/MCO 4430.3F.

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

**2.1. Reporting Errors and Recommending Improvements**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. In either case, a reply will be furnished direct to you.

**2.2. Reporting Equipment Improvement Recommendations (EIR)**

If your AN/MTC-3 needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: DRSEL-ME-MP, Fort Monmouth, New Jersey 07703. We'll send you a reply.

**2.3.. Administrative Storage**

Administrative Storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the PMCS charts before storing. When removing

*This change supersedes C6, 29 April 1963; C7, 28 May 1964, C9, 4 April 1968 and TM 11-5805-202 ESC 28 May 1969.

the equipment from administrative storage the PMCS should be performed to assure operational readiness. Disassembly and repacking of equipment for shipment or limited storage are covered in chapter 5 and TM 740-90-1.

*Page 20*, paragraph 25. Delete subparagraph b and substitute:

*b. Securing Shelter to Truck* (fig. 15).

(1) Install the tiedown ring assembly (A, fig. 15) (part of the sling assembly) above the center support on the cargo bed side rail of the truck.

(2) Use the hooks at the end farthest from the tumbuckles and hook each of the sling assemblies to a tiedown eye of the shelter.

(3) Secure the sling hooks to the tiedown ring (B, fig. 15).

(4) Follow the procedures given in (1), (2), and (3) above to secure the other side of the shelter.

(5) Tighten all turnbuckles evenly by hand. Turn each turnbuckle an additional one-half turn with a bar or rod inserted in the turnbuckle slot.

**CAUTION**

**Do not overtighten the turnbuckles.**

*Page 22*. Delete figure 15 and substitute new figure 15.

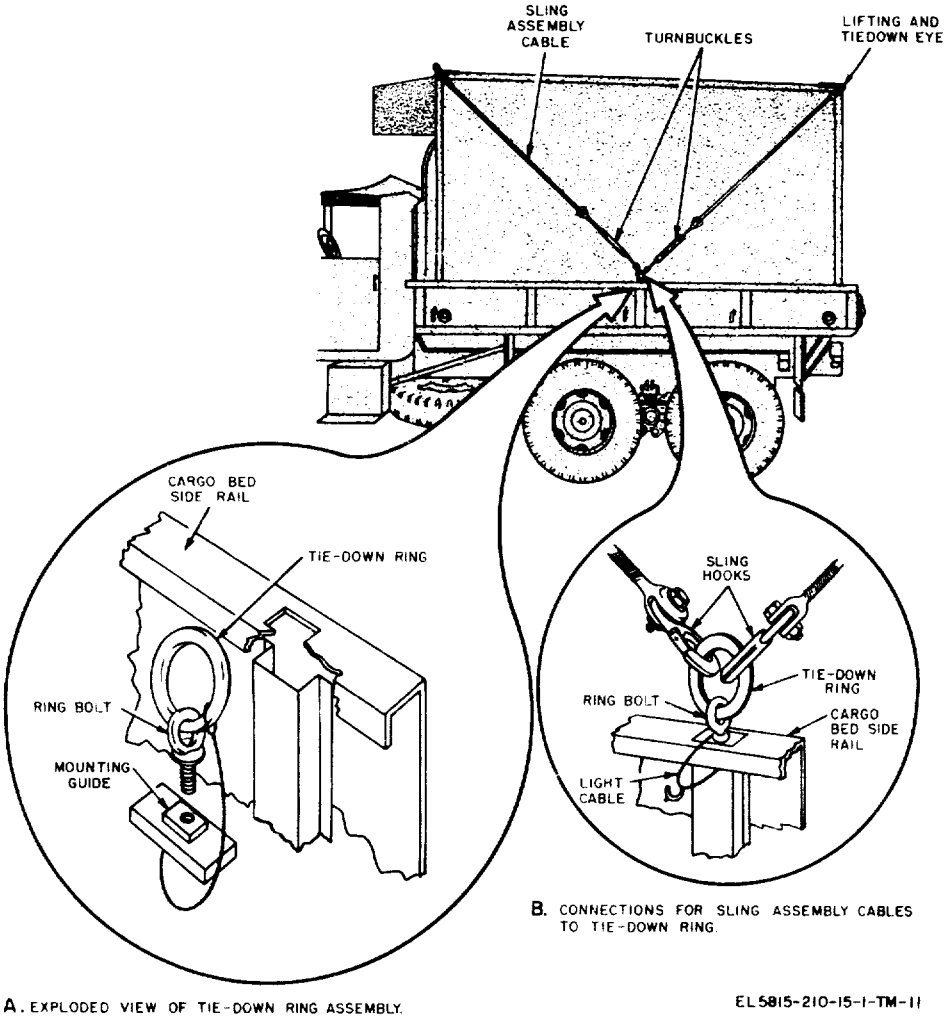



**Figure 15. Diagram of sling assembly installation.**

*Page 29*. Delete paragraphs 39 through 42 and substitute:

**39. Scope of Maintenance**

**NOTE**

**Refer to TM 750-244-2 for proper procedures for destruction of this equipment to prevent enemy use.**

*a.* Operator/crew preventive maintenance is the systematic care, servicing and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to maintain equipment in serviceable condition. To be sure that your equipment is always ready for your mission, you must do scheduled preventive maintenance checks and services (PMCS).

(1) BEFORE OPERATION, perform your B PMCS to be sure that your equipment is ready to go.

(2) When an item of equipment is reinstalled after removal, for any reason, perform the necessary B PMCS to be sure the item meets the readiness reporting criteria.

(3) Use the ITEM NO. column in the PMCS table to get the number to be used in the TM ITEM NO. column on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) when you fill out the form.

*b.* Organizational preventive maintenance procedures are designed to help maintain equipment in serviceable condition. They include items to be checked and how to check them. These checks and services, described in paragraph 42, outline inspections that are to be made at specific monthly (M) and quarterly (Q) intervals.

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

**NOTE**

**When you are doing any PMCS or routine checks, keep in mind the warnings and cautions.**

**WARNINGS**

- **Never operate the generator or shelter until it has been properly grounded. Electrical defects in the load lines or equipment can cause death by electrocution when contact is made with an ungrounded system.**
- **Adequate ventilation should be provided while using TRICHLOROTRIFLUOROETHANE. Prolonged breathing of vapor should be avoided. The solvent should not be used near heat or open flame; the products of decomposition are toxic and irritating. Since TRICHLOROTRIFLUOROETHANE dissolves natural oils, prolonged contact with skin should be avoided. When necessary, use gloves which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.**
- **Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent a chip or particle (of whatever size) from being blown into "the eyes or unbroken skin of the operator or other personnel. Goggles must be worn at all times while cleaning with compressed air. Compressed air shall not be used for cleaning purposes except where reduced to less than 29 pounds per square inch gage (psig) and then only with effective chip guarding and personnel protective equipment. Do not use compressed air to dry parts when trichlorotrifluoroethane has been used.**

**NOTES**

**The PROCEDURES column in your PMCS charts instruct how to perform the required checks and services. Carefully follow these instructions and, if tools are needed or the chart so instructs, get organizational maintenance to do the necessary work.**

**If your equipment must be in operation all the time, check those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.**

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

**39.1. Cleaning**

**WARNING**

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

(1) Use a dry, clean lint-free cloth or brush to remove dust and dirt. If necessary, moisten the cloth or brush with cleaning compound (National stock No. 6850-00-105-3084). After cleaning, wipe dry with a cloth.

**WARNING**

**Compressed air is dangerous and can cause serious bodily harm. It can also cause mechanical damage to the equipment. Do not use compressed air to dry parts where cleaning compound has been used.**

(2) Dry, compressed air, not to exceed 60 pounds per square inch, may be used to remove dirt and dust from inaccessible places.

**39.2. Touchup Painting**

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of the proper paint on bare metal to protect it from further corrosion. Refer to applicable cleaning and refinishing practices specified in TM 43-0139.

**40. Operator/Crew Preventive Maintenance Checks and Services**

Perform before operation PMCS if you are operating the item for the first time.

**NOTE**

**The checks in the interval column are to be performed in the order listed.**

**41. Operator/Crew Preventive Maintenance Checks and Services Chart**

**B - Before**

| Item No. | Interval B | Item to be Inspected | Procedures-Check for and have repaired or adjusted as necessary | Equipment Is Not Ready Available If |
|---|---|---|---|---|
| 1 | • | Mission Essential Equipment | Check for completeness and satisfactory condition of the equipment. Report missing items. | Available equipment is insufficient to support the combat mission. |
| 2 | • | Grounding | Insure that equipment grounding meets safety standards (See TB 43-0125). | Equipment fails to meet electrical safety standards for grounding. |
| 3 | * | Manual Telephone Switchboard SB-86/P | Perform operational checks as described in TM 11-2134. | |
| 4 | * | Telephone Set TA-312/PT | Perform operational checks as described in TM 11-5805-201-12. | Fails to communicate. |

*Do this check before each deployment to a mission location. This will permit any existing problems to be corrected before the mission starts. The check does not need to be done again until redeployment.

**B - Before**

| Item No. | Interval B | Item to be Inspected | Procedures-Check for and have repaired or adjusted as necessary | Equipment Is Not Ready Available If |
|---|---|---|---|---|
| 5 | * | Intercommunication Station LS-147B/FI | Perform operational checks as described in TM 11-5830-221-12. | |
| 6 | * | Telephone Manual Central Office AN/MTC-3 | Perform equipment performance checks as described in paragraphs 29, 33 and 35 through 38. | Performance checks indicate failure to support mission. |

* Do this check before each deployment to a mission location. This will permit any existing problems to be corrected before the mission starts. The check does not need to be done again until redeployment.

**42. Organizational Preventive Maintenance Checks and Services Chart**

**M - Monthly Q - Quarterly**

| Item No. | Interval M | Interval Q | Item to be Inspected. | Procedure |
|---|---|---|---|---|
| 1 | • | | Grounding | Insure that equipment grounding procedure is correct and maintains proper electrical safety standards (TB 43-0125). |
| 2 | | • | Lubrication | Lubricate the exhaust blower motors. |
| 3 | • | | Manual Telephone Switchboard SB-86/P | Perform organizational checks as described in TM 11-2134. |
| 4 | • | | Telephone Set TA-312/PT | Perform organizational checks as described in TM 11-5805-201-12 |
| 5 | • | | Intercommunication Station LS-147B/FI | Perform organizational checks as described in TM 11-5830-221-12 |
| 6 | • | | Telephone Manual Central Office AN/MTC-3 | Perform organizational checks as described in paragraph 43. |
| 7 | | • | Reel Unit | Perform organizational checks as described in TM 11-362. |
| 8 | | • | Fire Extinguisher | Refill if seal is broken. |
| 9 | | • | First Aid Kit | Replace missing parts. |

*Page 37*. Change the title of chapter 5 to "SHIPMENT, LIMITED STORAGE AND TRANSPORTATION."
*Page 38*. Section II is rescinded.
*Page 39.* appendix I. Delete appendix I and substitute:

## APPENDIX I
## REFERENCES

The following publications pertain to Central Office, Telephone Manual AN/MTC-3.

| | |
|---|---|
| DA Pam 310-1 | Consolidated Index of Army Publications and Blank Forms. |
| SB 11-573 | Painting and Preservation Supplies available for Field Use for Electronics Command Equipment. |
| TB 43-0118 | Field Instructions for Painting and Preserving Electronics Command Equipment, Including Camouflage Pattern Painting of Electrical Equipment Shelters. |
| TB 43-0124 | Maintenance and Repair Procedures for Shelters, Electrical Equipment S-141/G and S-141B/G, S-144/G, S-144A/G, S-250/G, S-250/G (Shielded), S-280/G, S-280A/G, S-280B/G, S-280B/G (Shielded), S-280C/G and S-318/G and S-318A/G. |
| TB 43-0125 | Installation of Communications-Electronic Equipment: Hookup of Electrical Cables to Mobile Generator Sets on Fielded Equipment to Meet Electrical Safety Standards. |
| TM 9-2330-213-14 | Operator's, Organizational, Direct and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Chassis Trailer: 1-1/2-Ton, 2-Wheel M103A1 (NSN 2330-00-835-8629), M103A2 (2330-00-049-8050), M103A3 (2330-00-141-8052), M103A3C (2330-00-542-2181), M103A4 (2330-00-141-8051), M103A4C (2330-00-542-2182), Trailer, Cargo, M104 (2330-00754-0509), M104A1 (2330-00-835-8630), M105A1 (2330-00-8358631), M105A2 (2330-00-141-8050), M105A2C (2330-00-5425689), Trailer, Tank, Water, 400 Gallon, M107A1 (2330-00-8358633), M107A2 (2330-00-141-8049), M107A2C (2330-00-5425688) and Trailer, Van, Shop, Folding Sides, M448 (2330-00-6315692). |
| TM 11-362 | Reel Units RL-31, RL-31B, RL-31C, RL-31D and RL-31E (Including Organizational Repair Parts and Special Tools Lists). |
| TM 11-2134 | Manual Telephone Switchboard SB-86/P; Installation and Operation (NSN 5805-00-503-2660). |
| TM 11-5805-201-12 | Operator and Organizational Maintenance Manual: Telephone Set TA-312/PT (NSN 5805-00-543-0012). |
| TM 11-5805-201-20P | Organizational Maintenance Repair Parts and Special Tools Lists for Telephone Set TA-312/PT (NSN 5805-00-543-0012). |
| TM 11-5805-202-24P | Organizational, Direct and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Central Office, Telephone, Manual AN/MTC-3 (NSN 5805-00-542-7275). |
| TM 11-5805-204-15 | Operator's, Organizational, DS, GS, and Depot Maintenance Manual (Including Repair Parts and Special Tools Lists): Panel Patching Communication SB-611/MRC. |
| TM 11-5805-304-24P | Organizational, DS, and GS Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Switchboard, Telephone, Manual SB-86/P (NSN 5805-00503-2660). |
| TM 11-5830-221-12 | Operator's and Organizational Maintenance Manual: Intercommunication Stations LS-147A/F1, LS-147B/F1, LS-147C/F1 and LS147D/F1 (NSN 5830-00-752-5357). |

| | |
|---|---|
| TM 11-5830-221-24P | Organizational, DS, and GS Maintenance Repair Parts and Special Tool Lists for Intercommunication Station LS-147C/F1 (NSN 5830-00752-5357). |
| TM 11-5930-201-14P | Operator, Organizational, DS, and GS Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools) for Switch Box SA-331/U (NSN 5930-00-548-6806). |
| TM 11-5935-203-15P | Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tools Lists: Connectors, Receptacle, Electrical U-186A/G and U-186B/G. |
| TM 11-5965-206-14P | Operator's, Organizational, DS, and GS Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools): Headset-Microphone H-91A/U (NSN 5965-00-6696871); Handset-Headset H-144/U, H-144A/U, H-144B/U, H-144C/U (NSN 5965-00-682-2769); and Headset-Microphone H-210/G (NSN 5965-00-892-1068). |
| TM 11-5965-224-14P | Operator's, Organizational, DS, and GS Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools): Handsets H-60/PT (NSN 5965-00-669-9145) and H-165/U (NSN 5965-00-543-1837). |
| TM 11-6110-201-12P | Operator's and Organizational Maintenance Repair Parts and Special Tools Lists for Distribution Boxes J-1077/U and J-1077A/U (NSN 6110-00-985-7574). |
| TM 11-6115-223-15P | Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Generator Set, Gasoline Engine, Trailer Mounted PU-294/G. |
| TM 38-750 | The Army Maintenance Management System (TAMMS). |
| TM 43-0139 | Painting Instructions for Field Use. |
| TM 740-90-1 | Administrative Storage of Equipment. |
| TM 750-244-2 | Procedures for Destruction of Electronics Materiel to Prevent Enemy Use. |

By Order of the Secretary of the Army:

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

Official:

**ROBERT M. JOYCE**
*Major General, United States Army*
*The Adjutant General*

DISTRIBUTION:

To be distributed in accordance with DA Form 12-51A-1, Operator Maintenance requirements for AN/MTC-3.

CHANGES IN FORCE: C2, C6, C7, C9, C10, and C12

CHANGE )
No. 12 )

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC 1 May 1981

**Operator's Organizational, Direct Support,
General Support, and Depot Maintenance Manual
CENTRAL OFFICE, TELEPHONE, MANUAL AN/MTC-3
(NSN 5805-00-542-7275)**

TM 11-5805-202-15, 7 August 1959, is changed as follows:
The title is changed as shown above.

Page A. Add Safety Notice after cover.

*This change supersedes C11, 14 September 1977.



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

1. **DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL**
2. **IF POSSIBLE, TURN OFF THE ELECTRICAL POWER**
3. **IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A DRY WOODEN POLE OR A DRY ROPE OR SOME OTHER INSULATING MATERIAL**
4. **SEND FOR HELP AS SOON AS POSSIBLE**
5. **AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION**

Page 1. Table of Contents. Add the following:

APPENDIX III. Depot Maintenance Final Performance Testing

Page 3. Delete paragraph 2 and substitute:

2. Maintenance Forms, Records, and Reports

a. Reports of Maintenance and Unsatisfactory Equipment. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System.

b. Report of Item Packaging and Deficiencies. Fill out and forward SF 364 (Report of Discrepancy (ROD)) as prescribed in AR 735-11-2/DLAR 4140.55/ NAVSUPINST 4440.127E/AFR 400.54/MCO 4430.E.

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 4610.33 BAFR 75-18/MCO P4610.19C and DLAR 4500.15.

2.1. Reporting Errors and Recommending Improvements

You can help improve this manual. If you find any mistakes or if you know of way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to Commander, US Army Communications-Electronics Command, ATTN: DRSEL-MEMQ, Fort Monmouth, NJ 07703. In either case, a reply will be furnished direct to you.

2.2. Reporting Equipment Improvement Recommendations (EIR)

If your Central, Office, Telephone, Manual AN/MTC-3 needs improvement, let us know. Send us and EIR. You, the user, are the only one who can tell us what you don't like about your equipment . Let us know why you don't like the design. Tell us why a procedure is hard to perform. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command, ATTN: DRSEL-ME-MQ, Fort Monmouth, NJ 07703.
We'll send you a reply.

2.3. Administrative Storage

Administrative storage of this equipment is as outlined in paragraph 48.1.

2.4. Destruction of Army Electronics Materiel

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

Page 29, paragraph 39. Delete paragraph 39 and substitute:

39. Scope of Maintenance

The operator must clean and inspect all components of Manual Telephone Central Office AN/MTC-3 regularly to keep them in good working condition. Detailed preventive maintenance procedures pertaining to the major components are described in the appropriate technical manual (App I).

a. Use a clean, dry, lint-free cloth or brush for dusting.

**WARNING**

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

b. For cleaning, if necessary, moisten the cloth or brush with TRICHLOROTRIFLUOROETHANE (NSN 6850-00-105-3084). After cleaning, wipe dry with a cloth.

**WARNING**

**Compressed air shall not be used for cleaning purposes except where reduced to less than 29 pounds per square inch (psi) and then only with effective chip guarding and personnel protection equipment. Do not use compressed air to dry parts when TRICHLOROTRIFLUOROETHANE has been used. Compressed air is dangerous and can cause serious bodily harm if protective means or methods are not observed to prevent chips or particles (of whatever size) from being blown into the eyes or unbroken skin of the operator or other personnel.**

c. Dry compressed air, not exceeding 29 psi may be used to remove dust from inaccessible places.

Page 33. Add paragraph 44.1 after paragraph 44b(3).

44.1 Repair Procedures for 26-Pair Connector

a. Removal of 26-Pair Connector (fig. 19).

(1) Remove the cover from the housing.
(2) Loosen the setscrews and slide the locking ring back on the cable.
(3) Remove the clamping bolts and clamp nuts from the cable clamp.
(4) Remove the retaining bolts and both sections of the cable clamp.
(5) Slide the enforcement and nylon insulator back on the cable.
(6) Remove the contact assembly retaining screws.
(7) Work the cable into the housing and lift the contact assembly out of the housing.

(8) Slide the separator away from the contact assembly.

**CAUTION**

**Be extremely careful when using a soldering iron to disconnect the wires from the separator. Excessive heat or pressure will damage the separator.**

(9) Tag and disconnect the leads.

(10) Remove the separator and slide the housing off the cable.

(11) Slide the nylon insulator, enforcement, locking ring, and cover off the cable.

b. Replacement of 26-Pair Connector (fig. 19).

(1) Slide the cover, locking ring, enforcement, and nylon insulator on the cable. Be sure the flange on the enforcement and nylon insulator is toward the cable end.

(2) Slide the housing on the cable.

(3) Install the separator with the leads properly positioned.

**CAUTION**

**Be extremely careful when connecting and soldering wires to the separator. Excessive heat or pressure will damage separator.**

(4) Position the contact assembly near the housing and connect the leads.

(5) Replace the contact assembly in the housing. If necessary, work the cable out of the housing to provide clearance for the contact assembly.

(6) Be sure the contact assembly is properly seated and secure it to the housing with contact assembly retaining screws.

(7) Slide the nylon insulator until its flange is flush against the housing.

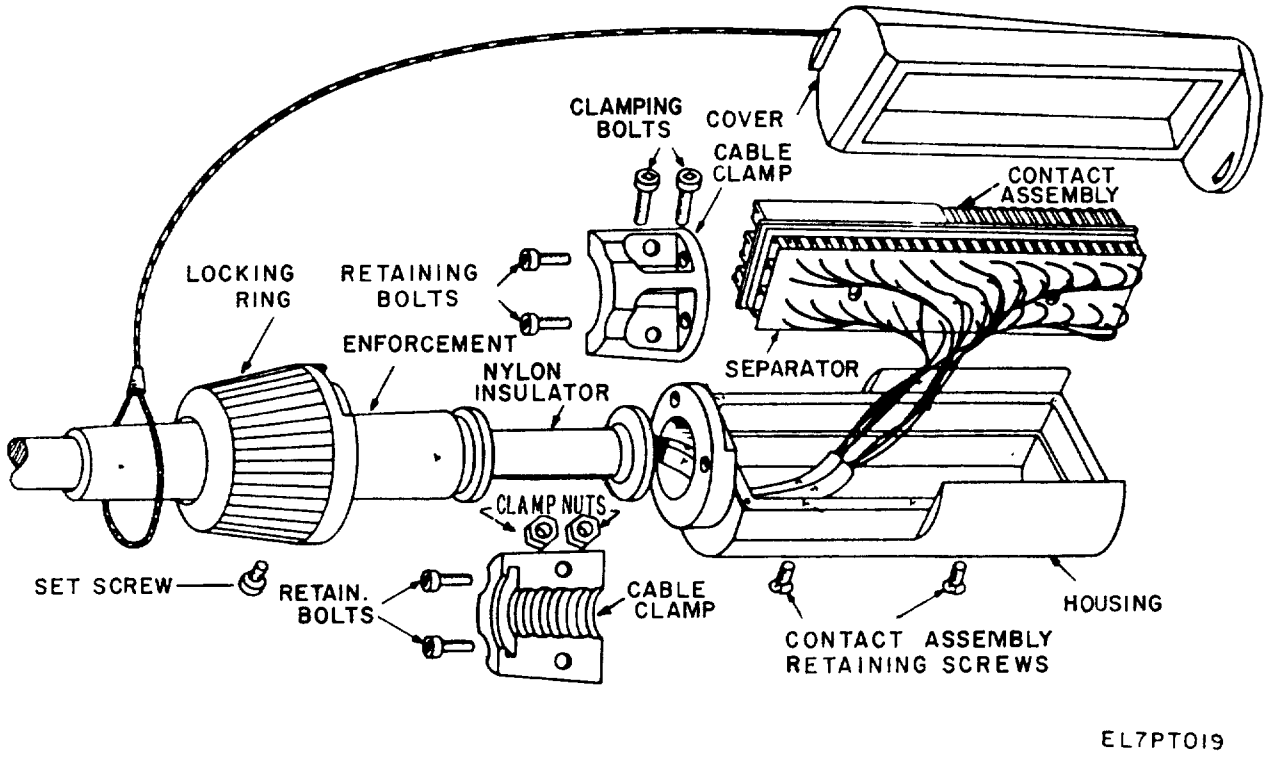
(8) Slide the enforcement until its flange is flush against the nylon insulator.

(9) Replace the sections of the cable clamp and secure them with the retaining bolts.

(10) Replace the clamping bolts and nuts, and tighten them securely.

(11) Slide the locking ring into position on the housing and secure it with the setscrews.

(12) Replace the cover.




EL7PT019

**Figure 19. 26-Pair cable connector, exploded view3**

Page 38. Add paragraph 48.1 after paragraph 48z.

48.1. Repacking for Shipment or Limited Storage

Repackaging of the AN/MTC-3 for shipment or limited storage normally will be performed at a packaging facility or by a packaging team. If emergency packaging is required, select materials from those listed in SB 38-100. Package the AN/MTC-3 as nearly in accordance with the original packaging as possible and with the available materials.

Paragraph 51. Delete paragraph 51 in its entirety.

Page 39, Appendix I. Delete the following reference:

TB SIG 354 Maintenance and Repair Procedures for S-141/G, S-144/G, S-280/G and S-318/G Type Shelters.

Add the following references:

SB 38-100 Preservation, Packaging, Packing and Marking Materials, Supplies and Equipment Used by the Army

TB 11-6625-666-50 Inspection Requirements for Repaired Electrical Indicating Instruments

TB 43-0124 Maintenance and Repair Procedures For Shelters, Electrical Equipment S-141/G and S-141B/G; S-144/G, S-144A/G, S-144B/G, S-144C/G and S-144D/G; S-250/G; 2-250/G (Shielded); S-280/G; S-280A/G, S-280B/G; S-280B/G (Shielded); S-318/G and S-318A/G

TM 11-6105-200-50 Depot Maintenance Manual for Fractional Horsepower Motors

TM 750-244-2 Procedures for Destruction of Electronics Materiel to Prevent Enemy Use (Electronics Command)

Page 40, Appendix II is superseded as follows:

## APPENDIX II

## MAINTENANCE ALLOCATION

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### Section I. INTRODUCTION

A2-1. General

This appendix provides a summary of the maintenance operations for the AN/MTC-3. 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.

A2-2. 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 comparions 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.

A2-3. 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 to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate "work time" figures will be shown for each category. The 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.

A2-4. Tool and Test Equipment Requirements (Sect. 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.

A2-5. Remarks (Sect. 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 to clarify items appearing in section II.

**SECTION II MAINTENANCE ALLOCATION CHART**
**FOR**
**CENTRAL OFFICE, TELEPHONE, MANUAL AN/MTC-3**

| (1) GROUP NUMBER | (2) COMPONENT/ASSEMBLY | (3) MAINTENANCE FUNCTION | (4) MAINTENANCE CATEGORY | | | | | (5) TOOLS AND EQPT | (6) REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| | | | C | O | F | H | D | | |
| 00 | CENTRAL OFFICE, TELEPHONE, MANUAL AN/MTC-3 | Inspect | 0.5 | | | | | | |
| | | Service | | 0.5 | | | | | |
| | | Test | | 0.6 | | | | 3 | D |
| | | Test | | | | 1.0 | | 2 | |
| | | Test | | | | | 1.5 | 1 thru 6 | E |
| | | Repair | | 1.0 | | | | 1,3 | A |
| | | Repair | | | 1.3 | | | 1,3 | B |
| | | Repair | | | | 1.6 | | 3 | C |
| | | Overhaul | | | | | 9.0 | 1,2 | E |
| 01 | SHELTER, ELECTRICAL EQUIPMENT S-175/MTC-3 OR S-175/A, B, C/MTC-3 | Test | | 0.3 | | | | 3 | D |
| | | Test | | | | 0.5 | | 2 | |
| | | Repair | | 0.6 | | | | 1,3 | A |
| | | Repair | | | 1.0 | | | 1,3 | B |
| | | Repair | | | | 1.3 | | 1 | C |
| 02 | DISTRIBUTION BOX J-1077A/U (SEE TM 11-6110-201-15P) | Repair | | | | | | | |
| 03 | INTERCOMMUNICATION STATION LS-147A, B, C/F1 (SEE TM 11-5830 -221-24P) | Repair | | | | | | | |
| 04 | SWITCH BOX SA-331/U (SEE TM 11-5930-201-14P) | Repair | | | | | | | |
| 05 | REEL UNIT RL-31A, B, D, C, E (SEE TM 11-3895-202-35P) | Repair | | | | | | | |
| 06 | SWITCHBOARD, TELEPHONE MANUAL SB-86/P (SEE TM 11-2134) | Repair | | | | | | | |
| 07 | TELEPHONE SET TA-312/PT (SEE TM 11-5805-201-12 AND TM 11-5805-201-35) | Repair | | | | | | | |

**SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS**
**FOR**
**CENTRAL OFFICE, TELEPHONE, MANUAL AN/MTC-3**

| TOOL OR TEST EQUIPMENT REF CODE | MAINTENANCE CATEGORY | NOMENCLATURE | NATIONAL/NATO STOCK NUMBER | TOOL NUMBER |
|---|---|---|---|---|
| 1 | O,F,H,D | TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G | 5180-00-064-5178 | |
| 2 | H,D | TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G | 5180-00-610-8177 | |
| 3 | 0,F,H,D | MULTIMETER AN/USM-223 | 6625-00-999-7465 | |
| 4 | D | AC OUTLET TESTER, HUBBELL 5200 | | |
| 5 | C | AMMETER ME-65A/U | 6625-00-985-5250 | |
| 6 | D | 500 VOLT MEGOHMETER | | |

## SECTION IV. REMARKS

| Reference Code | Remarks |
|---|---|
| A | EXCEPT DOOR PANEL, GASKETS, SKIDS AND MOLDING STRIP REPLACEMIENT. |
| B | EXCEPT SKIDS AND ENTRANCE DOOR PANEL. |
| C | 26 PAIR CABLE ASSEMBLIES. |
| D | CONTINUITY CHECKS. |
| E | FINAL PERFORMANCE TEST TO BE PERFORMED AFTER THE OVERHAUL FUNCTION IS COMPLETE, |

Appendix III is added as follows:

APPENDIX III

DEPOT MAINTENANCE FINAL PERFORMANCE TESTING

A3-1. General

This final performance test procedure is provided so that the depot having a maintenance overhaul requirement for the AN/MTC-3 can verify the satisfactory performance of the equipment after the overhaul function is complete.

A3-2. Test Equipment

The following test equipment is required:

a. AC Outlet Tester, HUBBELL 5200, 1 each.

b. Ammeter ME-65A/U, 1 each.

c. Multimeter AN/USM-223, 1 each.

d. 500 Volt Megohmmeter, 1 each.

A3-3. Test Procedure

**NOTE**

**The final performance checks on all main components and organizational equipment should have been successfully completed before assembly into the end item and the execution of this procedure.**

a. Initial conditions. Ground the shelter at the SIGNAL AND POWER ENTRANCE BOX ground terminal. Connect 115 vac, ±10 vac, 60 Hz, single phase power to the shelter in accordance with instructions contained in paragraph 28b.

**NOTE**

**Unless otherwise indicated, omit the following tests on the operating components of the shelter.**

b. Signal Circuits. Refer to figure 17, signal schematic-wiring diagram. Perform the following tests on all wiring and interconnecting cables.

(1) Continuity test. Using the multimeter, perform a point-to-point continuity test. Use a test plug to connect to each jack to check circuit continuity. The measured resistance shall not exceed six ohms.

(2) Insulation breakdown/resistance test. Using the 500 volt megohlmneter perform an insulation breakdown/resistance test at connectors SIGNAL 1 thru SIGNAL 5 between any one conductor and all the rest (including ground). The measured insulation resistance shall be 50 megohms minimum.

**CAUTION**

**Remove ac power before performing the ground system test.**

c. Ground System Test. Using the multimeter, perform a continuity check between each receptacle ground contact or raceway ground terminal and the ground terminal in the SIGNAL AND POWER ENTRANCE BOX. The measured resistance shall not exceed 1/2 ohm.

d. Panel Meters. Test in accordance with TB 11-6625-666-50.

e. Blower and Motor. Using the impeller as a load, test in accordance with TM 11-6105-200-50.

f. Basic Shelter Mechanical. Test in accordance with TB 43-0124.

g. Clock. The clock shall be accurate to an equivalent of 30 seconds per 24 hour period.

h. Heater Test. Connect the power cord to the 115 vac power source. For best results the heater assembly should be at room temperature (60° to 75° F) before starting test.

(1) To detect the heater-off state, connect the ammeter into the input power line. On some units the heater-off state can be detected by an audible click from the heater thermostat.

(2) If the heater under test has a FAN ONLY function, set the unit for this function. The fan shall operate expelling unheated air through the adjustable louvers.

(3) Set the heater for HEAT-PLUS-FAN operation. Set the thermostat control (if available) to maximum heat. The fan shall operate, expelling heated air through the adjustable louvers as indicated by a rise in current on the ammeter.

**NOTE**

**With some models, on a warm day the heater may turn off after a period of time as indicated by a drop in current on the ammeter or an audible click from its thermostat. If this occurs, the heater under test is accepted with no further testing.**

(4) Adjust the thermostat control (if available) to the point where the contacts just close as indicated by a rise in current on the ammeter. Temporarily enclose the heater under test with an external cover. Within a period of not more than 3 minutes the thermostat contacts should open, as indicated by a drop in current on the ammeter, and bring the heater under test to the heater-off state.

(5) Remove the temporary cover and disconnect the ac power.

(6) Repeat the heater test for all remaining heaters.

i. Power Distribution and Wiring Tests.

(1) Check all controls, indicators and functions as described in paragraphs 26a and b.

(2) Use AC Outlet Tester to check for the presence of ac voltage at each of the unused receptacles as the associated power switch is operated to the ON position.

j. Systems Operation Test.

**NOTE**

**All main components and organizational equipments should have been installed and interconnected as described in paragraphs 18 thru 21, 23, 27 and 28b, and as shown in figure 17. No external connections should exist between the AN/MTC-3 and any other communications equipment.**

(1) Preliminary connections and control settings. The following connections and control settings are required before performance of the operational test.

(a) In the SIGNAL AND POWER ENTRANCE BOX, connect 26 pair cables between the SIGNAL 1 and SIGNAL 4 receptacles and between the SIGNAL 2 and SIGNAL 5 receptacles.

(b) Insert the telephone cord of the telephone set (rear wall, left) into the PHONE LINE 115 jack on the rear wall.

(c) Insert the telephone cord of the telephone set (rear wall, right) into the SIGNAL 3 drop line box PAIR 19.

(d) Strap TA-207 No. 1, SB-86 No. 1, lines 25 through 30 to TA-207 No. 1, SB-86 No. 2, lines 25 through 30 respectively at the SIGNAL 3 receptacle using drop line box (fig. 17).

(e) Strap TA-207 No. 2, SB-86 No. 1, lines 25 through 30 to TA-207 No. 2, SB-86 No. 2, lines 25 through 30 respectively at the SIGNAL 3 receptacle using drop line box (fig. 17).

(f) Make the following control settings on all TA- 207's:

1. Set all line selector switches to M.

2. Set all CIV TRKS switches to OFF.

3. Set all N.A. switches to OFF.

4. Set all LAMPS switches to OFF.

(g) Set the INT SWBD BATT and the BATT EXT-INT switches on the power pack (PP-990/G) to the proper position as described in paragraphs 34c and 35 of TM 11-2134.

(h) Set the TALK BATT switch on the SB-248 to ON.

(i) Set the INT-EXT switch to INT and the circuit selector switch to LB on both TA-312's:

(2) Operational test. Using the TA-312 to ring down, the TALK/RING function shall be present over each line from switchboard position 1 to the corresponding line at switchboard position 2, except line 25 at TA-207 No. 2, SB-86 No. 2, connected to PHONE LINE 115 jack and line 25 at TA-207 No. 1, SB-86 No. 2, connected to pair 19 at the drop line box (SIGNAL 3).

By Order of the Secretary of the Army:

EDWARD C. MEYER
General, United States Army
Chief of Staff

Official:

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

TM 11-5805-202-15, Change 12

DISTRIBUTION:

To be distributed in accordance with special mailing list.

*Changes in force:: C2, C6, C7, C 9, and C 10*

CHANGE
No. 10

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 3 May 1974

**Operator, Organizational, DS, GS, and Depot Maintenance Manual**
**CENTRAL OFFICE, TELEPHONE MANUAL AN/MTC-3**

TM 11-5805-202-15, 7 August 1959, is changed as follows:

*Page 3*, paragraph 2. Delete paragraph 2 and substitute:

**2. Forms and Records**

*a. Reports of Maintenance and Unsatisfactory Equipment*. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

*b. Report of Packaging and Handling Deficiencies*. Fill out and forward DD Form 6 (report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army)NAVSUP Pub 378 (Navy)/AFR 71-4 (Air Force)MCO P4030.29 (Marine Corps), and 4145.8.

*c. Discrepancy in Shipment Report (DISREP) (SF 361).* Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as AR 55-38(Army)/NAVSUPINST 4610.33/AFM 75-18/MCO P4610.19A (Marine Corps), and DSAR 4500.15.

**2.1. Reporting of Equipment Publication Improvements**

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-C Fort Monmouth, NJ 07703.

*Page 4,* paragraph 5. Delete paragraph 5 and substitute:

**5. Items Comprising an Operable Equipment**

| FSN | QTY | Nomenclature, part No., and mfr code | Usable on code |
|---|---|---|---|
| | | **NOTE**<br>**The part number is followed by the applicable 5-digit Federal supply code for manufacturers (FSCM) identified in SB 708-42 and used to identify manufacturer, distributor, or Government agency, etc.** | |
| 6115-738-6337 | 1 | Generator Set, Gasoline Engine, Trailer Mounted PU-618M (Used with but not part of AN/MTC-3) | |
| 3895-252-6896 | 1 | Reel Unit RL-3 | |
| 5410-649-8081 | 1 | Shelter Electrical Equipment S-175/MTC-3; S-175A, B, C,/MTC-3 (S-141G Modified) | |
| 5805-503-2616 | 2 | Signal Assembly, Switchboard TA-207/P | |
| 5805-503-2660 | 2 | Switchboard, Telephone, Manual SB-86/P (less case) | |
| 5805-543-0012 | 2 | Telephone Set TA-312/PT: (less case)<br>SHELTER, ELECTRICAL EQUIPMENT:<br>S-175/MTC-3, S-175A, B, C/MTC-3 | |
| | | **NOTE**<br>**In usable on code column number 1 refers to S175/MTC-3; number 2 refers to S175A/MTC-3; number 3 refers to S-175B/MTC-3; number 4 refers to S-17W/MTC-3.** | |
| 5935-577-8804 | 2 | Adapter, Connector: UG-1312U: SC-DL-335344; 80063 | 1,2,3,4 |
| 7520-753-4544 | 2 | Basket, Waste Paper: SM-B-363005; 80063 | 1,2,3,4 |
| 6135-120-1020 | | Battery BA-30 | 1,2,3,4 |
| | | **NOTE**<br>**Dry batteries shown are used with the equipment but are not considered part of the equipment. They will not be preshipped automatically but are to be requisitioned in quantities necessary for the particular organization in accordance with SB 11-6.** | |
| 7510-188-6951 | 4 | Binder, Looseleaf: UU-B-346 Type 1 Grade B; 81349 | 1,2,3,4 |
| 7920-178-8315 | 1 | Brush, Dusting: H-B-201, Class B; 81349 | 1,2,3,4 |
| 5995-889-1228 | 1 | Cable Assembly, Power Electrical CX-4694A/U; (100 ft): SC-DL-335418; 80063 | 1,2,3,4 |
| 5995-889-1229 | 2 | Cable Assembly, Power Electrical CX-4693A/U; (25 ft): SC-DL 23; 80063 | 1,2,3,4 |
| 5995-904-6106 | 1 | Cable Assembly, Power Electrical CX-11215 | 1,2,3,4 |
| 5995-823-2715 | 10 | Cable Assembly and Reel do CX-4566A/G (250 ft) and Reel RC-435/U | |
| 7530-952-6802 | 1000 | Card Index Unruled 3 x 5; yellow, SM-B3652; 80063 | 1,2,3,4 |
| 7105-269-8463 | 2 | Chair, Folding: SM-B-335417; 80063 | 1,2,3,4 |
| 7110-273-8798 | 3 | Chair, Rotary: AA-295 Class 1, Size 1 (Retain mounting bracket when replacing chair) | 1,2,3,4 |
| 6645-526-4395 | 1 | Clock Aircraft Mechanical (Retain mounting bracket when replacing clock): C-3956; 81349 | 1,2,3,4 |
| 5995-681-8470 | 1 | Cord assembly, Electrical CX-4695/U: SC-B-35582; 80063 | 1,2,3,4 |
| 5995-681-8449 | 2 | Cord assembly, Electrical CX-4695U (3 ft-4-3/4 in.): SC-B-363183; 80063 | 1,2,3,4 |
| 7510-174-3205 | 2 | Crayon, Marking. Red; 165T; 07532 | 1,2,3,4 |
| 7510-240-1526 | 2 | Crayon, Marking: Black; 173T; 07532 | 1,2,3,4 |
| 7210-753-3043 | 2 | Cushion, Chair and Stool: SM-B-33542B; 80063 | 1,2,3,4 |
| 6110-985-7574 | 2 | Distribution Box J-1077A/U: SC-DL-288038; 80063 | 1,2,3,4 |

**5. Items Comprising an Operable Equipment - Continued**

| FSN | QTY | Nomenclature, part No., and mfr code | Usable on code |
|---|---|---|---|
| 5935-162-6288 | 25 | Dummy Plug, Telephone (Black): SM-B-335431; 80063 | 1,2,3,4 |
| 5935-162-6283 | 10 | Dummy Plug, Telephone (Red): SM-B-335432; 80063 | 1,2,3,4 |
| 4140-078-4883 | 2 | Fan, Centrifugal: SM-D-475320; 80063 | 1,2,3,4 |
| 7460-753-5948 | 1 | File, Visible Index, Rotary: SM-B-365497; 80063 | 1,2.3,4 |
| 5120-776-9918 | 20 | Grip, Cable, Woven; 12 in. lg: SM-B-335429; 80063 | 1,2,3,4 |
| 5120-776-9917 | 5 | Grip, Cable, Woven; 16 in. lg: SM-B-335430; 80063 | 1,2,3,4 |
| 5975-682-0519 | 2 | Hanger, Cable F/Securing Cables; V149 Type; 5 3/4 in. 9: SM-B-363104; 80063 | 1,2,3,4 |
| 4250-649-8145 | 2 | Heater, Space Electrical HD-375/U: SC-DL-335633; 80063 | 1 |
| 4520-224-7909 | 2 | Heater, Space Electrical: AAT-15A; 72143 | 2,3,4 |
| 5410-714-8488 | 5 | Holder, Cable, Reel: 17-3/16 in. lg; SM-B-335772; 80063 | 1,2,3,4 |
| 3895-766-8473 | 1 | Holder, Cable, Reel: 9-5/8 in. m lg; SM-B-363238; 80063 | 1,2,3,4 |
| 5830-752-5357 | 1 | Intercommunication Station LS-147C/FI | 1,2,3,4 |
| 2540-892-6243 | 1 | Ladder, Vehicle Boarding MX-3391/G: SC-DL-108736A; 80063 | 1,2,3,4 |
| 6230-729-9614 | 1 | Lantern, Electric: 6V; Model No. 2106-7; 32572 | 1,2,3,4 |
| 5410-752-2525 | 1 | Lead, Electrical: Ground Connection; SM-B-352116C; 80063 | 1,2,3,4 |
| 6230-752-2479 | 1 | Light, Extension: 25 ft; SM-B-370076; 80063 | 1,2,3,4 |
| 8130-656-1090 | 12 | Reel, Cable RC-435: SC-DL-69296; 80063 | 1,2,3,4 |
| 7520-162-6178 | 1 | Sharpener, Pencil: GG-S-2360, Type II; 81349 | 1,2,3,4 |
| 7510-272-6887 | 1 | Thumbtack Steel: FF-T-311; 81349 | 1,2,3,4 |

*Page 48*, appendix III. Delete appendix III and substitute:

## APPENDIX III
## BASIC ISSUE ITEMS LIST (BIIL) AND ITEMS TROOP INSTALLED OR AUTHORIZED LIST (ITIAL)

### Section I. INTRODUCTION

**1. Scope**

This appendix lists only basic issue items required by the crew/operator for installation, operation, and maintenance of Operator's, Organizational, DS, GS, and Depot Maintenance Manual Central Office, Telephone Manual AN/MTC-3.

**2. General**

This Basic Issue Items and Items Troop Installed or Authorized List is divided into the following sections:

*a. Basic Issue Items List- Section II.* A list, in alphabetical sequence, of items which are furnished with, and which must be turned in with the end item.

*b. Items Troop Installed or Authorized List - Section III.* Not applicable.

**3. Explanation of Columns**

The following provides an explanation of columns found in the tabular listings:

*a. Illustration*. This column is divided as follows:

(1) *Figure Number*. Indicates the figure number of the illustration in which the item is shown.

(2) *Item Number*. Not applicable.

*b. Federal Stock Number*. Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

*c. Part Number*. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), 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.

*d. Federal Supply Code for Manufacturer (FSCM).* The FSCM is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., and is identified in SB 70842.

*e. Description*. Indicates the Federal item name and a minimum description required to identify the item.

*f. Unit of Measure (UIM).* Indicates the standard of basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation, (e.g., ea, in., pr, etch When the unit of measure differs from the unit of issue, the lowest unit of issue that 'will satisfy the required units of measure will be requisitioned.

*g. Quantity Furnished with Equipment (Basic issue Items Only).* Indicates the quantity of the basic issue item furnished with the equipment.

*h. Quantity Authorized (Items Troop Installed or Authorized Only).* Not applicable.

**4. Special Information**

Usable on codes are included in the description column. Uncoded items are applicable to all models. Identification of the usable on codes are as follows:

| *Code* | *Used On* |
|---|---|
| 1 | S-175/MTC-3 |
| 2 | S-175A/MTC-3 |
| 3 | S-175B/MTC-3 |
| 4 | S-175C/MTC-3 |

**SECTION II. BASIC ISSUE ITEMS UST**

| (1) ILLUSTRATION | | (2) | (3) | (4) | (5) | | (6) | (7) |
|---|---|---|---|---|---|---|---|---|
| (a) FIG NO. | (b) ITEM NO. | FEDERAL STOCK NUMBER | PART NUMBER | FSCM | DESCRIPTION *USABLE ON CODE* | | UNIT OF MEAS | QTY FURN W/ EQUIP |
| 8 | | 4210-727-4544 | GGG-A-926 | 81349 | AXE, SINGLE BIT, TYPE 1 CLASS 1. DESIGN C | 1,2,3,4 | EA | 1 |
| | | 5920-285-0286 | 41-274 | 71688 | BLOCK. TELEPHONE PROTECTOR | 1,2,3,4 | EA | 78 |
| 7 | | 4210-383-7128 | SM-B-36421 | 80063 | EXTINGUISHER, FIRE CARBON DIOXIDE (2-1/2 LB CAP) | 1,2,3,4 | EA | 1 |
| 6 | | 4210-383-7129 | SM-B-26421 | 80063 | EXTINGUISHER, FIRE CARBON DIOXIDE (5 LB CAP) | 1,2,3,4 | EA | 1 |
| 7 | | 6545-922-1200 | SC-C-539483 | 80063 | FIRST AID KIT, GENERAL PURPOSE | 1,2,3,4 | EA | 1 |
| 8 | | 5120-251-4489 | GGG-H | 81349 | HAMMER, HAND STYLE 8. DOUBLE-FACED | 1,2,3,4 | EA | 1 |
| 6 | | 5975-224-5260 | | | ROD, GROUND MX-148/G | 1,2,3,4 | EA | 1 |

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
*General, United States Army*
*Chief of Staff*

Official:

VERNE L. BOWERS
*Major General, United States Army*
*The Adjutant General*

Distribution
*Active Army:*

USASA (2)
CNGB (1)
ACSCE (2)
Dir of Trans (1)
COE (1)
TSG (1)
USAARENBD (1)
USAMB (10)
AMC (1)
TRADOC (2)
ARADCOM (2)
ARADCOM Rgn (2)
OS Maj Comd (4)
LOGCOMDS (3)
MICOM (2)
TECOM 2)
USACC (4)
MDW (1)
Armies (2)
Corps (2)
HISA Ft Monmouth (18)
Svc Colleges (1)
USASESS (10)
USAADS (2)
USAFAS (2)
USAARMS (2)
USAIS (2)
USAES (2)
USAINTCS (3)
WRAMC (1)
ATS (1)
USAERDAA (1)
USAERDAW (1)
Instl (2) except
Fort Gordon (10)
Fort Huchuca (10)
Fort Carson (5)
Ft Richardson (EOOM Ofc) (2)
WSMR (1)
Army Dep (2) except
LBAD (14)
SAAD (30)
TOAD (14)
ATAD (10)
USA Dep (2)
Sig Sec USA Dep (2)
Sig Dep (2)
Sig FLDMS (1)
MAAG (1)
USARMIS (1)
Units org under fol TOE:
(1) copy each
7
11-35
11-85
11-86
11-97
11-98
11-117
11-127
11-137
11-500 (AA-AC)
17
29-134
29-136
37

NG: Three (3) copies to the fol States AG: AR, IN, KY, MN, MO, NJ, PA, SC, TN, UT.
USAR: None
For explanation of abbreviations used, see AR 310-50.

**TECHNICAL MANUAL**
**Operator's, Organizational, Field, and Depot Maintenance Manual,**
**CENTRAL OFFICE, TELEPHONE, MANUAL AN/MTC-3**

TM 11-5805-202-15

**HEADQUARTERS,**
**DEPARTMENT OF THE ARMY**
WASHINGTON 25, D. C., *7 April 1961*

CHANGES No. 2

TM 11-5805-202-15, 7 August 1959, is changed as follows:

Change the title of the manual to: OPERATOR'S, ORGANIZATIONAL, FIELD, AND DEPOT MAINTENANCE MANUAL, CENTRAL OFFICE, TELEPHONE, MANUAL AN, MTC-3.

Change "Modified Electrical Equipment Shelter S-141 G" to "Shelter, Electrical Equipment S-175/MTC-3" in the following places:

*Page .5,* paragraph 6, chart, second "Component" column, line 15.

*Page 6*, paragraph 8, heading and line 1.

*Page 7,* figure 4, caption.

Change "pink" to "red" in the following places:

*Page 17*, paragraph 21b(3), chart, "Ring lead" column, line 4. Paragraph 21c, chart, "Ring lead" column, line 4.

*Page 18*, paragraph 21f, chart, "Ring lead" column, lines 4 and 28. Paragraph 21g, chart, "Ring lead" column, line 4.

*Page 32*, paragraph 44b(1), chart, "Ring" column, lines 4 and 19. Paragraph 44b(2), chart, "Ring" column, lines 18 and 19. Paragraph 44b(3), chart, "Ring" column, line 4, and third "Ring" column, last two lines.

*Page 38*, figure 17, SIGNAL & POWER ENTRANCE box, SIGNAL 1, SIGNAL 2, SIGNAL 3, SIGNAL 4, SIGNAL 5, leads 4A, 25A and 26A. SIGNAL BINDING POSTS box at left side, 14-pair cable, pair 14. SIGNAL BINDING POSTS box at right side, 14-pair cable, pair 13 and pair 14 (spares).

*Page 3*, paragraph 1. Delete subparagraph b and substitute:

*b.* The term organizational equipment as used in this manual refers to equipment authorized the using organization and which is to be installed in Shelter, Electrical Equipment S-175/MTC-3. Shelter, Electrical Equipment S-175/MTC-3 with the organizational equipment installed constitutes Central Office, Telephone, Manual AN/MTC-3.

**5. Components**
(Superseded)

For information regarding the components in the AN/MTC-3, refer to appendix III. Appendix III also includes a list of items provided in Shelter, Electrical Equipment S-175/ MTC3.

*Page 5,* figure 2. Add the following note to figure 2:

*Note.* A cable hook is supplied instead of a shackle.

*Page 6,* paragraph 8a. Make the following changes: In line 2, change "figure 5" to: figures 5, 9.1, and 9.4. After last sentence, add: A drain-plug wrench and two cable-reel holders are also mounted on this wall.

*Page 7,* paragraph 8. Make the following changes: Subparagraph c, line 2. Change "'figure 7" to: figures 7 and 92. Line 4. Delete "and a cable reel holder." Subparagraph d, heading. Change "(fig. 8)" to: (fig. 8 and 9.3). Line 7. Delete the fourth sentence. Last sentence. Delete the last sentence and substitute: Intercommunication Station LS-147B/FI and a mounting for a telephone set are also provided on the rear wall.

*Page 10*, paragraph 9a, chart. Make the following changes: "Binding post pair No." column. Delete "115 (Note 2)". "Terminal board No." column, opposite "Not used." Add: 115 (note 2).

**Figure 5. (Superseded) Shelter, elevation drawing, left wall.**
**Located in back of C 2**

**Figure 8. (Superseded) Shelter, elevation drawing, right wall.**
**Located in back C 2**

**Figure 9. (Superseded) Shelter floor.**
**Located in back of C 2**

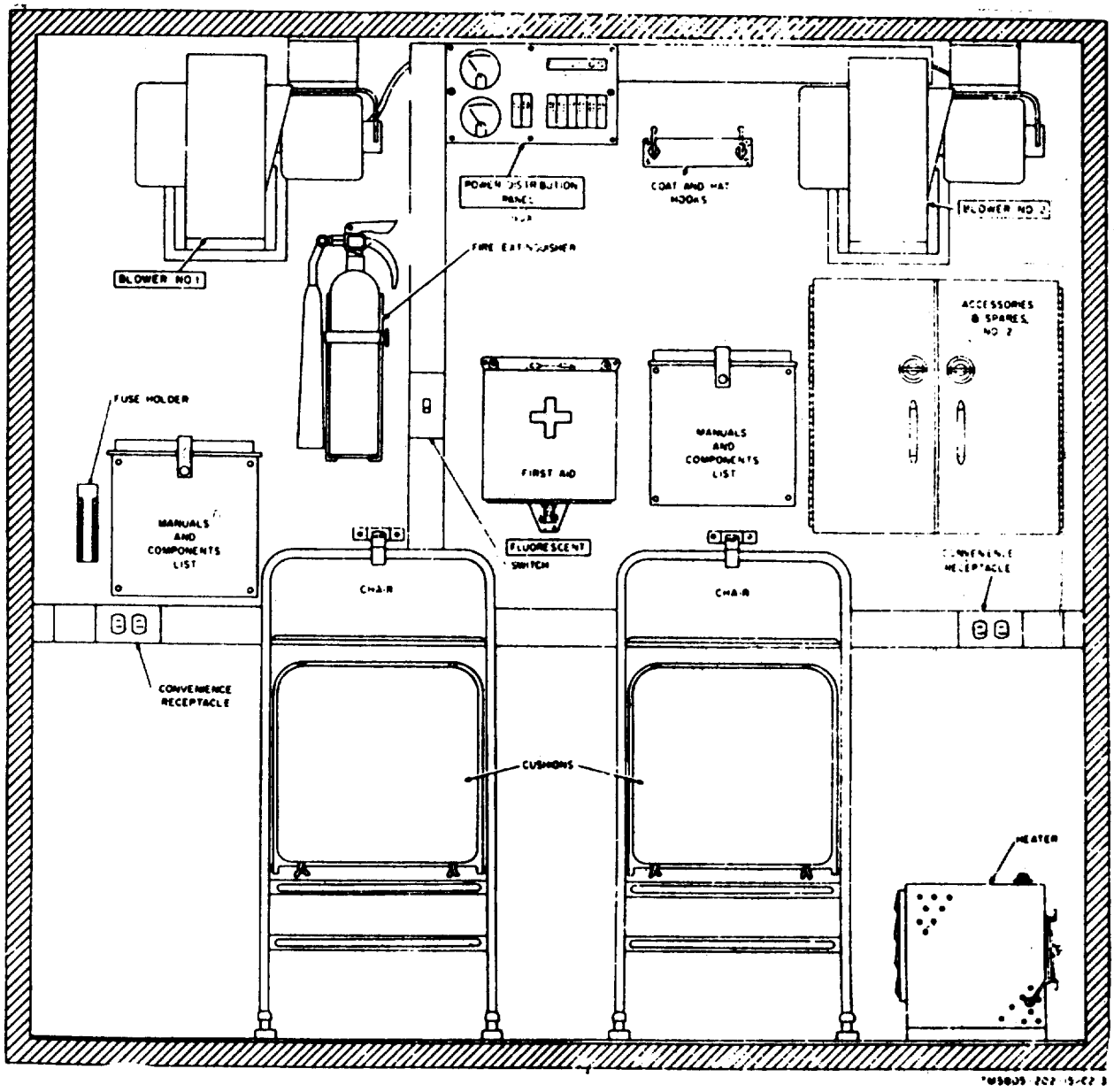


**Figure 7. (Superseded) Shelter, elevation drawing, front wall.**

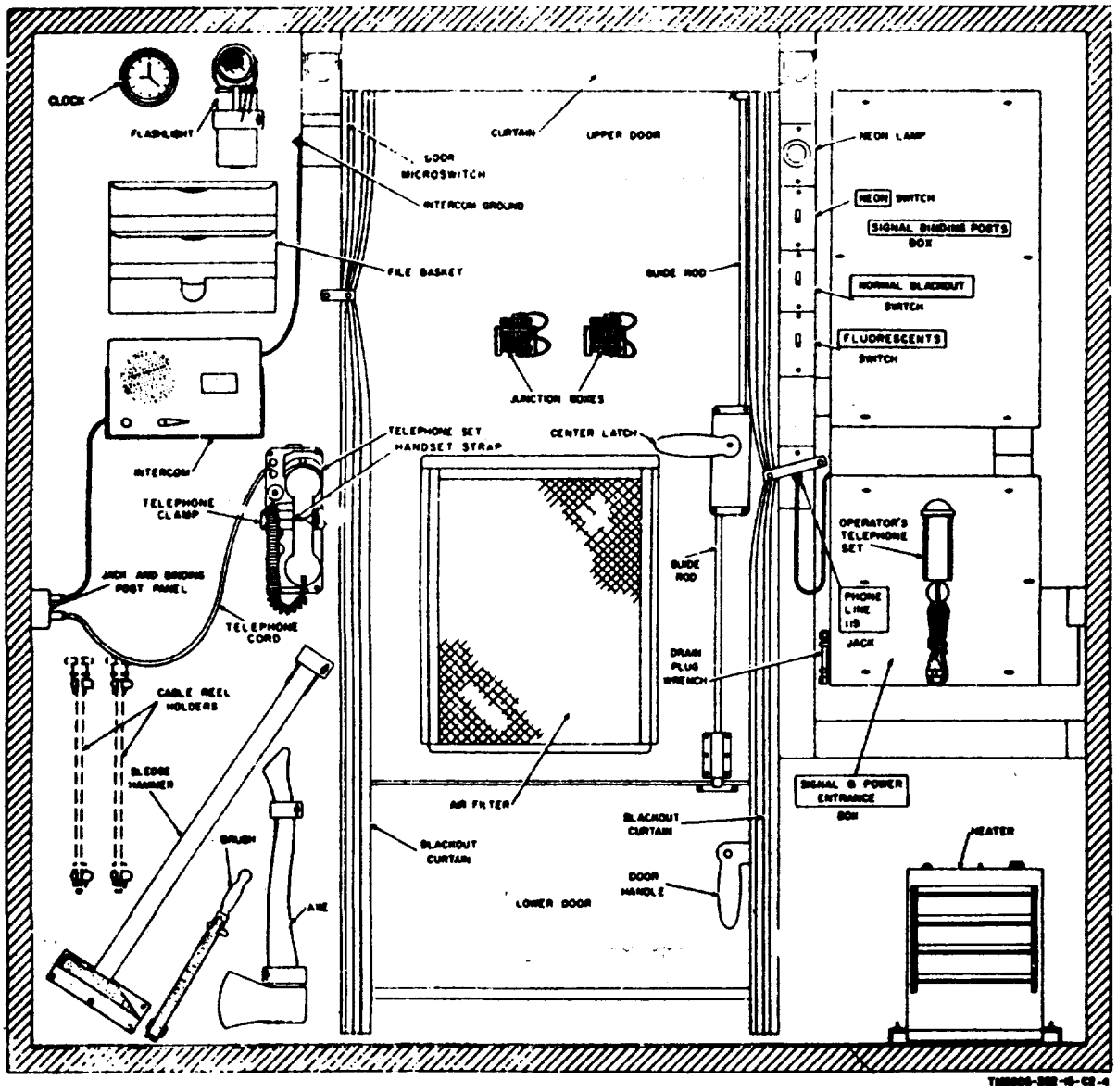


**Figure 8. (Superseded) Shelter, elevation drawing, rear wall.**

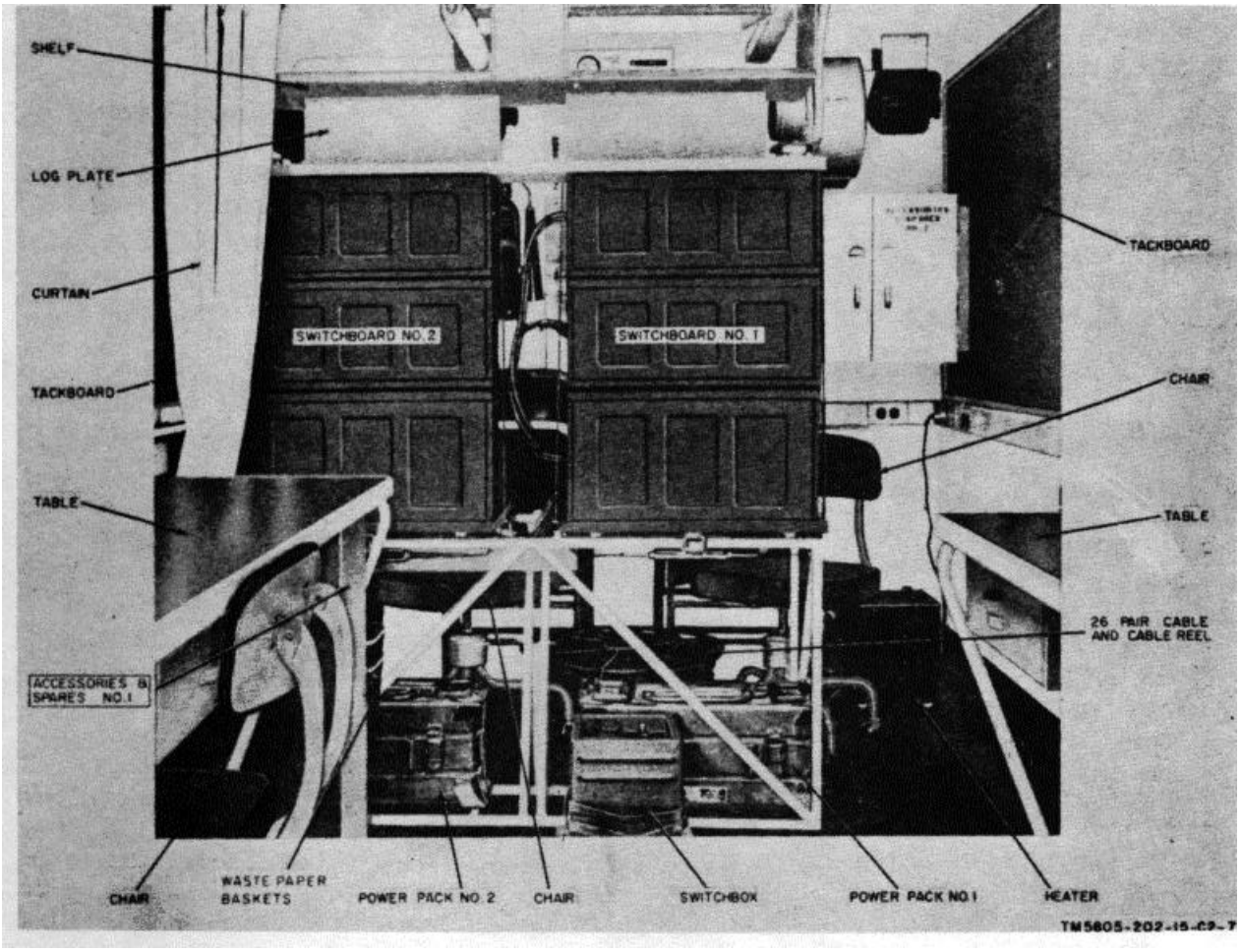


**Figure 9.1. (Added) Shelter, view from door.**

D 5494A

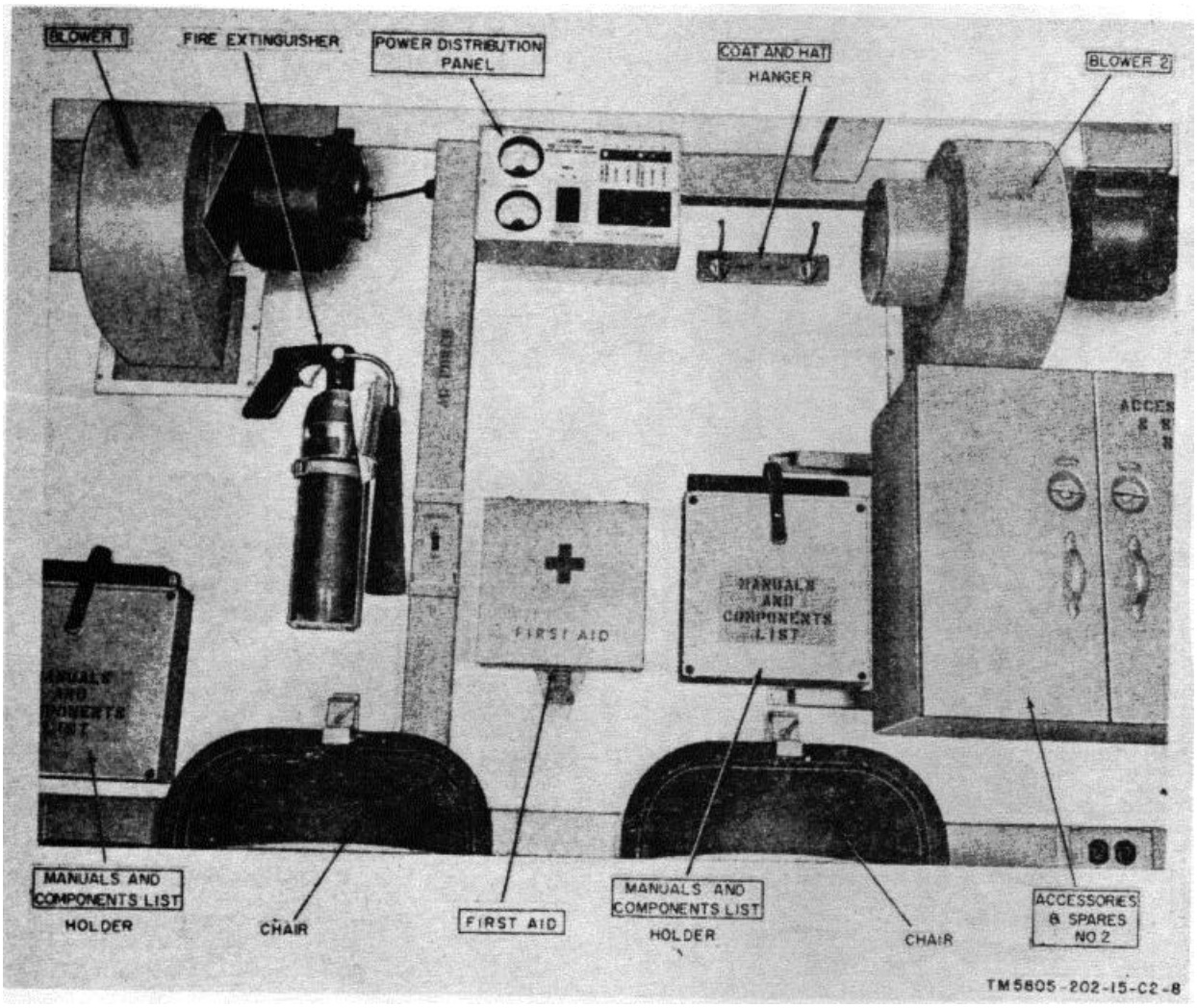


**Figure 9.2. (Added) Shelter, front wall.**

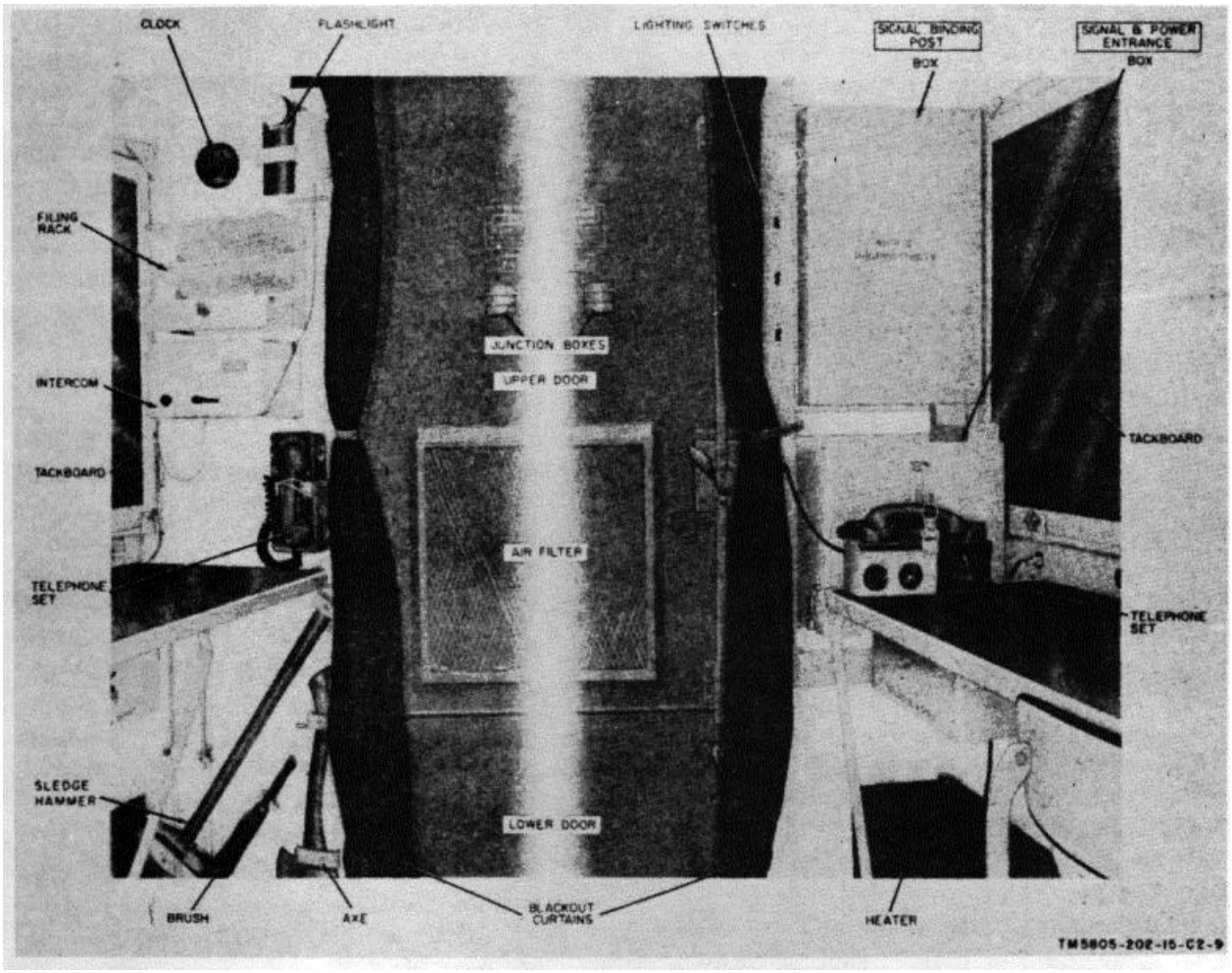


**Figure 9.3. (Added) Shelter, rear wall.**

*Page 11*, figure 11. Under the "115V AC" convenience receptacle, add: 4.

*Page 13,* paragraph 16. Delete subparagraph *b* and substitute:

*b. Telephone Set TA-312/PT*. Two telephone sets, less carrying cases (TM 11-2155), are provided. One is mounted on the rear wall to the right of the door and the other is mounted on the left table near the door (fig. 8). Both telephone sets are arranged for local battery operation.

*Page 14*, paragraph 17. After first sentence, add: To provide light inside the shelter, perform the procedures given in paragraphs 27 through 29 before installing the organizational equipment.

*Page 15,* figure 13. At top, under "ANGLE BRACKET", add a diagonal arrow to the left, stopping to the right and a quarter inch above the "SHOCK MOUNT". Add another diagonal arrow to the right, pointing to the angle fastened to the lower part of the "CEILING FRAME".

*Page 19,* paragraph 23a(2), heading. Delete the heading and substitute: Left wall (fig. 5).

*Page 25,* paragraph 29a. After the last sentence, add: Adjust the output to provide 115 volts.

**31. 26-Pair Cable Connection (Superseded)**

*a. Removal of Dust Cover With Locking Ring on Outer End (fig. 15.1 )*

(1) Grasp the locking -ring on the outer end of the dust" cover and turn it counterclockwise until the outer end of the dust cover is unlocked.

(2) Continue to turn the dust cover and the receptacle counterclockwise until the upper end is unlocked.

(3) Carefully lift the dust cover from the receptacle.

*b. Removal of Dust Cover With Flange on Outer End (fig. 15.2).*

(1) Grasp the dust cover and the receptacle and turn them counterclockwise until the upper end is unlocked.

(2) Lift the upper end of the dust cover off the receptacle.

(3) Swing the dust cover upward and outward until the flange unhooks from the lug on the outer end of the receptacle.

*c. Connection of 26-Pair Cable (fig. 15.3).*

(1) Remove the dust cover from the 26pair cable connector (a or b above).

(2) Place the 26-pair cable connector on the receptacle. Be sure the connector is positioned squarely on the receptacle.

(3) Gently press the connector into the receptacle.

**Caution: The connector or receptacle inserts may be damaged if the connector is not properly positioned or if too much pressure is required to interconnect the units.**

(4) Grasp the locking ring on the 26-pair cable connector and turn it clockwise gently until the outer end of the connector is locked to the receptacle.

(5) Continue to turn the connector and the receptacle clockwise until the upper end of the connector is securely locked to the receptacle.

(6) Check to be sure the locks on the outer and the upper ends of the connector and receptacle are securely locked.

*d. Disconnecting 26-Pair Cable Connector.*

(1) Grasp the locking ring on the 26-pair cable connector, near the cable, and turn it counterclockwise until the lock at each end of the connector is released.

(2) Carefully lift the 26-pair cable connector from the receptacle.

Caution: Do not twist the connector to remove it from the receptacle.

(3) Replace the dust covers on the 26-pair cable connector and the receptacle immediately.

**Caution: Do not drop or lay the open connector on the ground.**

*e. Replacement of Dust Cover With Locking Ring on Each End.*

(1) Place the dust cover squarely on the receptacle.

(2) Hold the dust cover in position. Grasp the locking ring on the outer end of the dust cover and turn the locking ring clockwise until the outer end is locked.

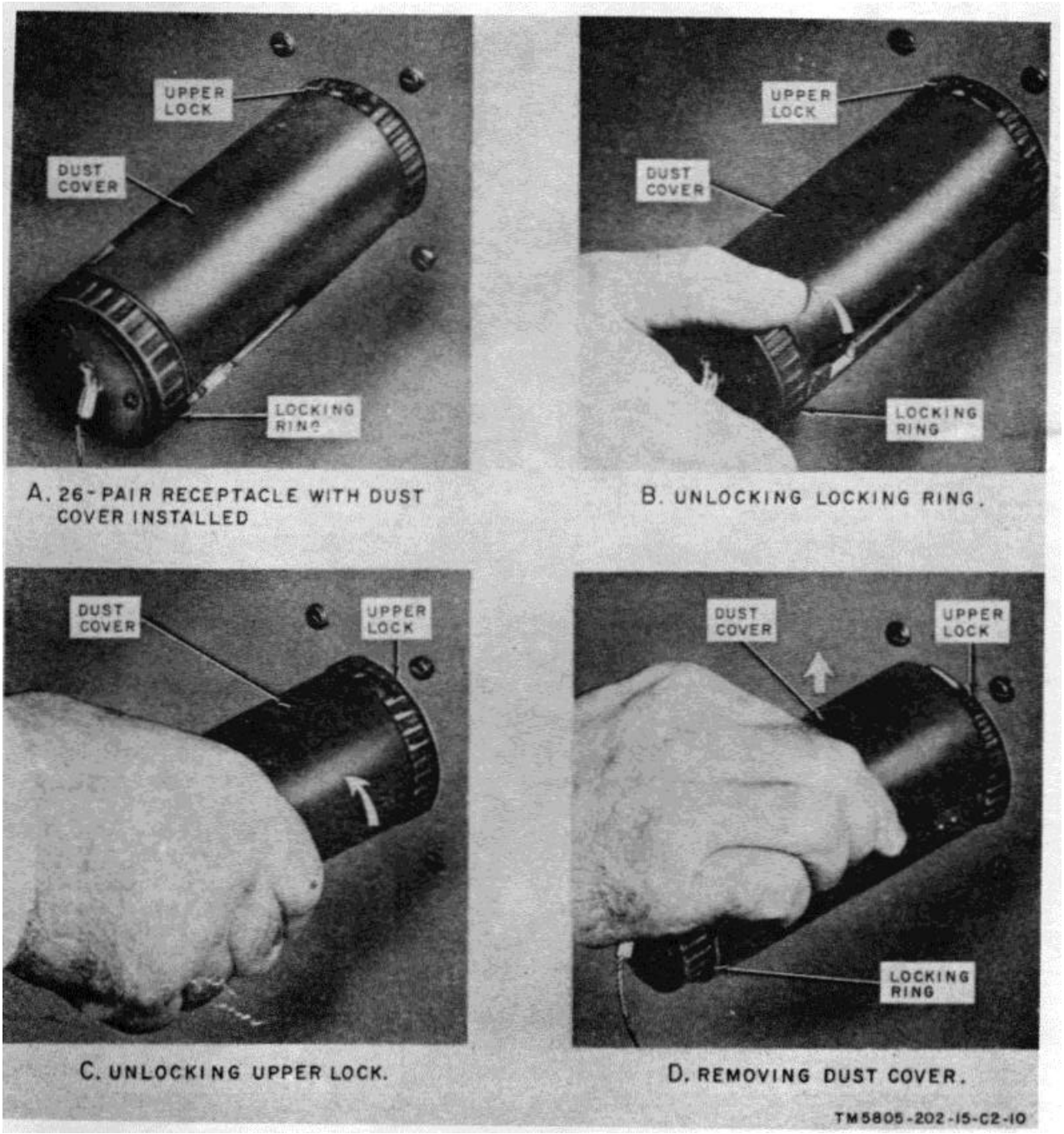


**Figure 15.1. (Added) Removal of dust cover with locking ring on outer end.**

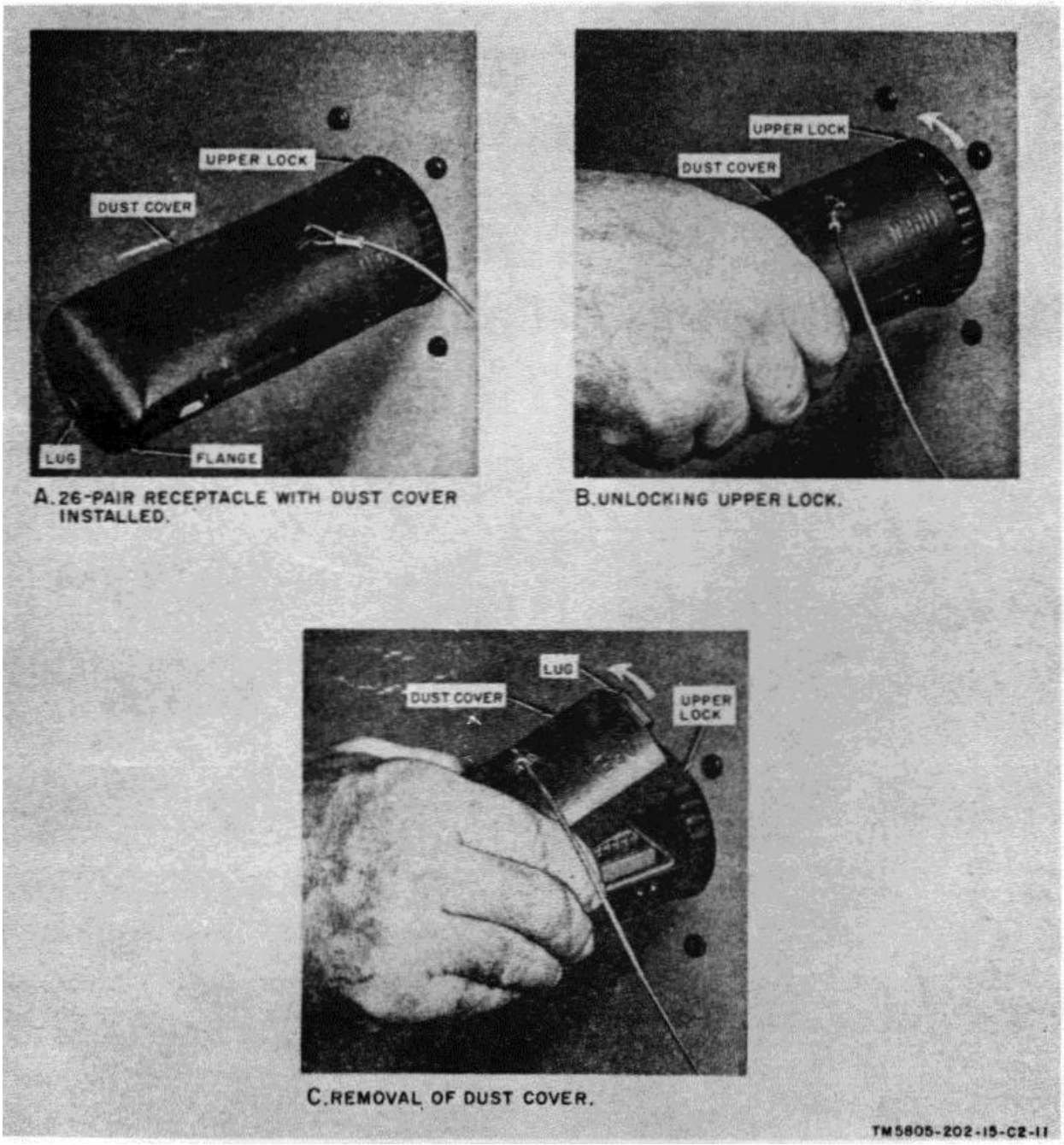


**Figure 15.2. (Added) Removing dust cover with flange on outer end.**

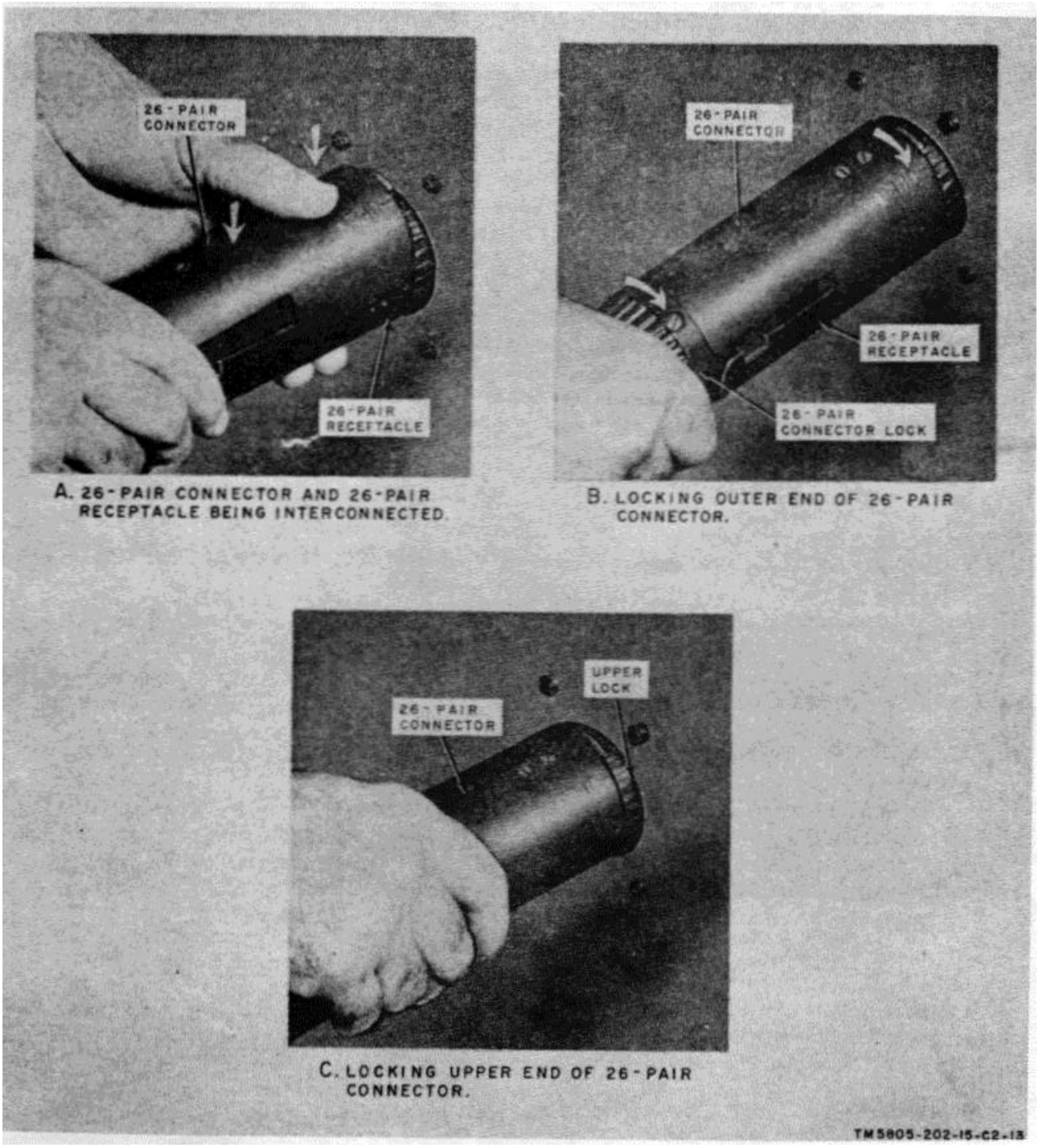


**Figure 15.3. (Added) Interconnection of 26-pair connector and receptacle.**

(3) Turn the dust cover and the receptacle clockwise until the upper end is securely locked.

*f. Replacement of Dust Covers With Flange on Outer End.*

(1) Place the hole in the Range over the lug on the outer end of the receptacle.

(2) Swing the upper end of the dust cover down, squarely onto the receptacle.

(3) Grasp the dust cover and the receptacle and turn both items clockwise until the dust cover is securely locked in position.

*Page 27,* paragraph 88c(2), line 6. After "intercom" add: or.

*Page 29*. Change title of chapter 3 to: OPERATOR AND ORGANIZATIONAL MAINTENANCE Paragraph 39. Make the following changes: Heading. After "of" add: Organizational. Subparagraph d. Add subparagraph *e* after the warning notice of subparagraph *d.*

*e.* To determine which items may be replaced by second echelon maintenance personnel, refer to appendix II. Paragraph 40. add after subparagraph i

*j.* For other maintenance procedures, refer to TM 11-5805-204-15. Paragraph 41, add after subparagraph j:

*k.* For other maintenance procedures, refer to TM 11-5805-204-15.

*Page 30,* paragraph 42. Add after subparagraph *d*:

c. Inspect the fire extinguishers (TM 11-5805-204-15).

**42.1. Troubleshooting Procedures**

(Added)

The first step in servicing defective equipment is to sectionalize the fault. Trouble may be located in the interconnecting wire, cable, or equipment. Most faults outside the shelter can be sectionalized by using the tests listed in paragraph 88. Before troubleshooting, refer to the applicable schematic-wiring diagrams.

**42.2. Test Equipment and Tools Required for Troubleshooting**

(Added)

Tools and test equipment authorized for use by organizational maintenance personnel for the S-175/MTC-3 are listed in appendix II. Refer to the applicable maintenance allocation chart for tools and test equipment authorized for use with organizational equipment.

Paragraph 43, chart, "Action or condition" item No. 7. After first line, add:

**Caution: Under blackout conditions, this test may be made only if the door is closed. After testing, operate the NORMAL-BLACK-OUT with to the BLACKOUT position.**

**43.1. Duct Cable Test**

(Added)

When trouble is suspected in the duct cable, disconnect all equipment from each end of the affected pairs. Test each pair for opens, shorts, crosses, and grounds.

**43.2. Additional Troubleshooting Data**

(Added)

The following schematic and wiring diagrams are used in troubleshooting, in addition to those in the publications listed in appendix I:

| Diagram | Fig. No. |
|---|---|
| Signal block diagram | 16 |
| Signal schematic-wiring diagram | 17 |
| Ac power schematic-wiring diagram | 18 |

*Page 36,* paragraph 47e. After the last sentence, add: Each fluorescent fixture is equipped with starter, ballast, lamp tube, and radio-interference filter. A detailed description is given in TM 11680204-15.

**47.1. Scope of Field and Depot Maintenance**

Field and depot maintenance consists of the repair and fabrication of mechanical parts, the replacement of mechanical parts not available in the organization, and the replacement of wiring harness and cable. To determine which items must be repaired or replaced by field and depot maintenance personnel, refer to appendix II.

**47.2. Removal and Replacement of Parts**

Refer to TM 11-5805-204-15 for information regarding the removal and replacement of parts on Shelter, Electrical Equipment S-175/MTC-3 except for the sliding tackboard which is given below:

*a.* Release the transit locks.

*b.* Unscrew the mounting screws and remove the lower tracks from the wall.

*c.* Remove the stop located at the front end of the upper tracks.

*d.* Slide the tackboard forward until it is clear of the upper tracks.

*e.* To replace the tackboard, follow the instructions given in a through d above in reverse order.

**47.3. Repair of Shelter Skin**

If the exterior skin of the shelter is damaged or punctured, use Patch Kit, Shelter, Electrical Equipment (Federal stock No. 5410-783-6250) to repair holes in the exterior skin of the roof or sides of the shelter. Follow the procedures provided with the kit and those given below to repair the shelter skin.

*a. Preparation of Shelter Skin and Patch.*

(1) Check the damaged area to determine if the insulation has been gouged out of the shelter wall. If necessary, fill the hole in the insulation with a clean noncombustible material. Do not use the glass cloth.

(2) Clean the shelter skin around the damaged area within a radius of 3 inches of the hole. Use sandpaper, a knife, or a scraper to remove all paint, dirt, mud, or other foreign material. Do not touch the cleaned area with your fingers.

(3) Cut a piece of glass cloth (patch) about 2 inches larger than the hole.

*b. Mixing Adherent (Glue).* The area to be covered determines the amount of adherent required; the surrounding air temperature indicates whether the cold weather promoter is required and the amount required. Follow the procedures given below to mix the ingredients:

(1) Pour 3 ounces of resin into the mixing cup for each square foot of area to be covered.

(2) Add the curing agent and cold weather promoter to the resin in the amounts shown in the chart below. These amounts are for 3 ounces of resin; increase the curing agent and cold weather promoter in proportion to the amount of resin required.

| Temperature (of) | Curing agent No. 237 (eye dropper filled to red line) | Cold weather promoter (eye dropper filled to red line) |
|---|---|---|
| Above 55 | 1 | None |
| 20-55 | 1 | ½ |
| Below 20 | 1 | 1 |

(3) Mix the ingredients thoroughly and then apply the mixture to the patch and shelter surface as indicated in c below.

*c. Application of Mixture and Patch.*

(1) Spread a liberal coating of the mixture over the surface of the entire area to be patched. Use the spatula or a brush.

(2) Place the glass cloth patch over the hole; be sure it is centered. Press the patch lightly with the spatula to be sure it is firmly embedded in the mixture.

(3) Spread a second liberal coating of the mixture over the patch. Work from the center of the patch toward the edges. Be sure the patch is completely

covered. Check the edges of the patch to be sure they are flat and are firmly embedded in the mixture.

(4) Allow the patch to dry between 4 and 24 hours, depending on the drying conditions.

**Note. To accelerate low temperature drying, heat the patch with warm, dry air or radiant heat. Do not use an open flame.**

(5) After the patch is thoroughly dry, smooth the surface with sandpaper and paint it.

*d. Cleaning Tools and Storing Components.*

(1) Tightly recap the containers and store them in a cool dry place. The shelf life is seriously affected by heat.

(2) Wait until the mixture is thoroughly dry and then flex the cup and spatula to remove the mixture. Discard the paintbrush. Store the spatula and the cup with the containers.

**47.4. Final Testing Procedure**

The tests given in this paragraph are designed to measure the performance capabilities of a repaired equipment. These tests are limited to tests for the equipment and fixtures supplied as part of the S-175/MTC3. When it is necessary to test the communications equipment, refer to the applicable technical manual for final testing procedures.

*a. Wiring and Cable.* Check all signal (fig. 17) and power (fig. 18) wiring for opens, shorts, crosses, and grounds with a multimeter arranged as an ohmmeter. Check the wiring against the wiring diagram. to be sure that all leads are properly terminated. Check the insulation resistance with Test Set I-48-B or Ohmmeter ZM-21A/U.

*b. Mechanical Tests.* Inspect mechanical parts for proper mounting and to be sure that all mounting facilities are securely tightened. If the item performs an operation, such as a door hinge, perform an operational test in addition to an inspection.

*Page 37*, paragraph 48. Add after subparts graph h: h.1. Check to be sure that the drain plug is tightened securely to prevent leakage.

*Page 38*, paragraph 48. Delete subparagraphs v, and w.

*v.* (Superseded) Secure the power cable reel to the floor at the right rear corner of the shelter (fig. 9).

Figure 17 (fold-out), note 10. Delete the brackets and the letters "A" and "B" outside the receptacle diagram.

*Facing page 39,* figure 18. Make the following changes:

Change "NOTE" to read: NOTES. Designate the existing note, 1. Add the following;

2. ALL WIRING IN THE SIGNAL & POWER ENTRANCE BOX AND TO MAIN CIRCUIT BREAKER CB7 IS NO. 6 AWG. ALL WIRING TO THE VOLTMETER, AMMETER, AND PILOT LAMPS IS NO. 18 AWG. ALL OTHER WIRING IS NO. 14 AWG.

Appendix I. Add to the list of references:

TM 11-5830-221-12 Operator's and Organizational Maintenance Manual: Intercommunication Station LS147B/FI.

BY ORDER OF THE SECRETARY OF THE ARMY

G. H. DECKER,
*General, United States Army.*
*Chief of Staff*

Official

R.V. LEE,
*The Adjutant General*
*Major General, United States Army*

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| 11-16 | |

NG: State AG (3); units - Same as Active Army except allowance is one copy to each unit.

USAR: None.

For explanation of abbreviations used, see AR 320-50.

AGO 5494A

TECHNICAL MANUAL
No. 11-5805-202-15

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D.C., *7 August 1959*

# MANUAL TELEPHONE CENTRAL OFFICE AN/MTC-3

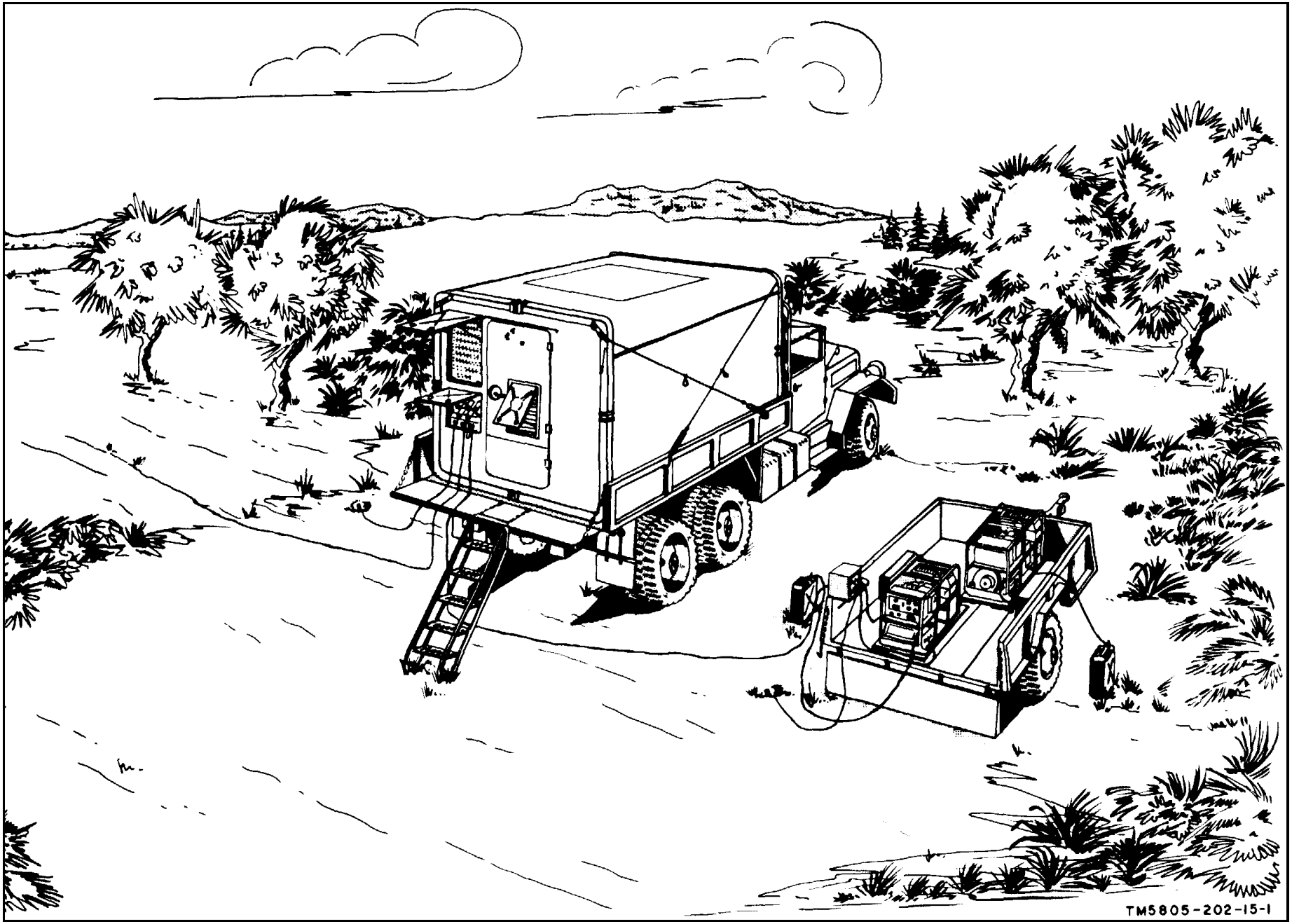


**Figure 1. Manual Telephone Central Office AN/MTC-3, connected for operation.**

# CHAPTER 1
# INTRODUCTION

## Section I. GENERAL

### 1. Scope

*a.* This manual contains a description of Manual Telephone Central Office AN/MTC-3 (fig. 1) and covers its installation, operation, maintenance, and theory. It includes instructions for operation under usual and unusual conditions and cleaning and inspection of the equipment. The major components are covered in detail in their respective technical manuals. A complete list of references is contained in appendix I. Information only system and common items for Manual Telephone Central Office AN/MTC-3 is contained in TM11-5805-204-15.

*b.* The term *organizational equipment* is used throughout this manual to indicate components of the AN/MTC-3 which are supplied by the using organization. These items of equipment are indicated in the list of components (par. 5*b*).

### 2. Forms and Records

*a. Unsatisfactory Equipment Report.* Fill out and forward DA Form 468 (Unsatisfactory Equipment Report), to the Commanding Officer, United States Army Signal Equipment Support Agency, Fort Monmouth, N.J., as prescribed in AR 700-38.

*b. Report of Damaged or Improper Shipment.* Fill out and forward I)I) Form 6 (Report of Damaged or Improper Shipment), as prescribed in AR 700-58 (Army).

*c. Preventive Maintenance Forms.* Prepare preventive maintenance form-is for the main components of the Manual Telephone Central Office AN/MTC-3 as specified in appropriate technical manuals (app. I).

*d. Comments on Manual.* Forward all comments on this publication direct to Commanding Officer, U.S. Army Signal Publications Agency, Fort Monmouth, N.,J.

## Section II. DESCRIPTION AND DATA

### 3. Purpose and Use

Manual Telephone Central Office AN/MTC-3 (fig. 1) is an air or vehicular transportable central office that contains switching facilities for 120 circuits (two Manual Telephone Switchboards & SB-86/P, each equipped with an additional Switchboard Signal Assembly TA-207/P). It is used as a telephone central office by division signal battalion personnel in the division area type communications system. It may also be used in higher echelon communication systems.

It is used to interconnect local telephone circuits to trunk circuits and to interconnect local telephone circuits. When connected to Communication Patching Panel SB-611/MRC (TM 11-5805-204-15), carrier derived trunk circuits are available.

### 4. Technical Characteristics

Technical characteristics for organizational equipment are given in their respective technical manuals (app. 1). Overall technical characteristics for Manual Telephone Central Office AN/ MT(C-3 are given below:

| | |
|---|---|
| Lines and trunks served by switchboards. | 120. |
| Maximum circuits to SB-611/MR(C. | 119. |
| Service line (PHONE LINE 115). | 1 |
| Intershelter communication facilities. | 4. |
| Type of operation (transmission) | Local battery. |
| Type of signaling | Magneto or common battery. |

Maximum line loop resistance. 600 ohms.
Minimum line leakage resistance 10,000 ohms.
Maximum trunk loop resistance 2,000 ohms.
Power requirements:
Input to shelter 115 volts ±10%, 60 cps, single-phase.
Power consumption:
2 blowers ..... 248 watts.
2 heaters ..... 3,000 watts.
All lights ..... 135 watts.
Total ..... 3,383 watts
Output from either PU-286/IT (part of PU-294/G) 115 volts ±10%, 60 cps, single-phase, 5,000 watts.
Weight:
Shelter (complete with organizational equipment). 3,398 lb.
Trailer Mounted Gasoline Engine Generator Set PU-294/G. 4,500 lb.

**5. Components of Manual Telephone Central Office AN/MTC3**

The charts in a through d below list the main components, organizational equipment, components stored in ACCESSORIES & SPARES CABINET NO. 2, and running spares. A complete list of components is contained in the publication covering the repair parts and special tools list for Manual Telephone Central Office AN/MTC-3.

*a. Main Components (Less Organizational Equipment).*

| Quantity | Item |
|---|---|
| 1 | Modified Electrical Equipment Shelter S-141/G (fig. 1) complete with mountings and minor components (80 1/2 in. high, 141 3/4 in. long, 81 in. wide, 495 cubic ft volume). |
| 1 | Trailer Mounted Gasoline Engine Generator Set PU-294/G (fig. 1) (98 in. high, 165 1/2 in. long, 83 in. wide, 779 cubic ft volume). |
| 2 | Distribution Box J- 1077/U (fig. 6). |
| 1 | Electrical Cord Assembly CX-4695/U (2 ft). |
| 1 | Electrical Cord Assembly CX-4695/U (3 ft 4 3/4 in.). |
| 2 | Electrical Power Cable Assembly CX-4693/U (25 ft). |
| 1 | Electrical Power Cable Assembly CX-4694/U (100 ft). |
| 2 | Electrical Space Heater HD-375/U (figs. 7 and 8). |
| 1 | Ground Rod MX-148/G (fig. 6). |
| 1 | Intercommunication Station LS-147B/FI (fig. 8). |
| 1 | Switch Box SA-331/1U (fig. 9). |
| 10 | Telephone Cable Assembly CX-4566/G (250 ft). |

*b. Organizational Equipment.*

| Quantity | Item |
|---|---|
| 2 | Manual Telephone Switchboard SB-86/P (fig. 5):<br>1 Manual Telephone Switchboard Section SB-248/P.<br>1 Switchboard Signal Assembly TA-207/P.<br>1 Handset-Headset H-91/U.<br>1 Power Supply PP-990/G.<br>1 set running spares (canvas roll) (par. 8c). |
| 2 | Switchboard Signal Assembly TA-207/P. |
| 2 | Telephone Set TA-312/PT (fig. 8) (less carrying case). |
| 2 | Tool Equipment TE-33 (par. 8c). |
| 1 | Tool Equipment TE-49 (fig. 5). |

*c. Components Stored in ACCESSORIES & SPARES CABINET NO. 2* (fig. 2). The miscellaneous components stored in the ACCESSORIES & SPARES CABINET NO. 2 are listed below.

| Quantity | Item |
|---|---|
| 1 | Extension light. |
| 25 | Dummy plugs (red). |
| 10 | Dummy plugs (black). |
| 1 | Ground lead. |
| 5 | Power cable grips. |
| 20 | 26-pair cable grips. |
| 2 | Shackles. |
| 1 box | Thumbtacks. |

*d. Running Spares* (fig. 3).

| Quantity | Item | Location |
|---|---|---|
| 3 | Fluorescent lamp, 20-watt, 115 volts, 24 inches. | Ceiling. |
| 1 | Incandescent lamp, 50-watt, 115 volts. | ACCESSORIES & SPARES CABINET NO. 1. |
| 1 | Shelter neon lamp, 3-watt, 105-120 volts. | ACCESSORIES & SPARES CABINET NO. 1. |
| 3 | POWER DISTRIBUTION PANEL neon lamp, 1/4 -watt, 105-120 volts. | ACCESSORIES & SPARES CABINET NO. 1. |
| 6 | Fluorescent starter | Ceiling. |
| 1 | Flashlight incandescent lamp. | Flashlight. |
| 1 | Fuse, 1 ampere, 150 volts (Intercommunication Station LS-147B/FI). | ACCESSORIES & SPARES CABINET NO. 1. |

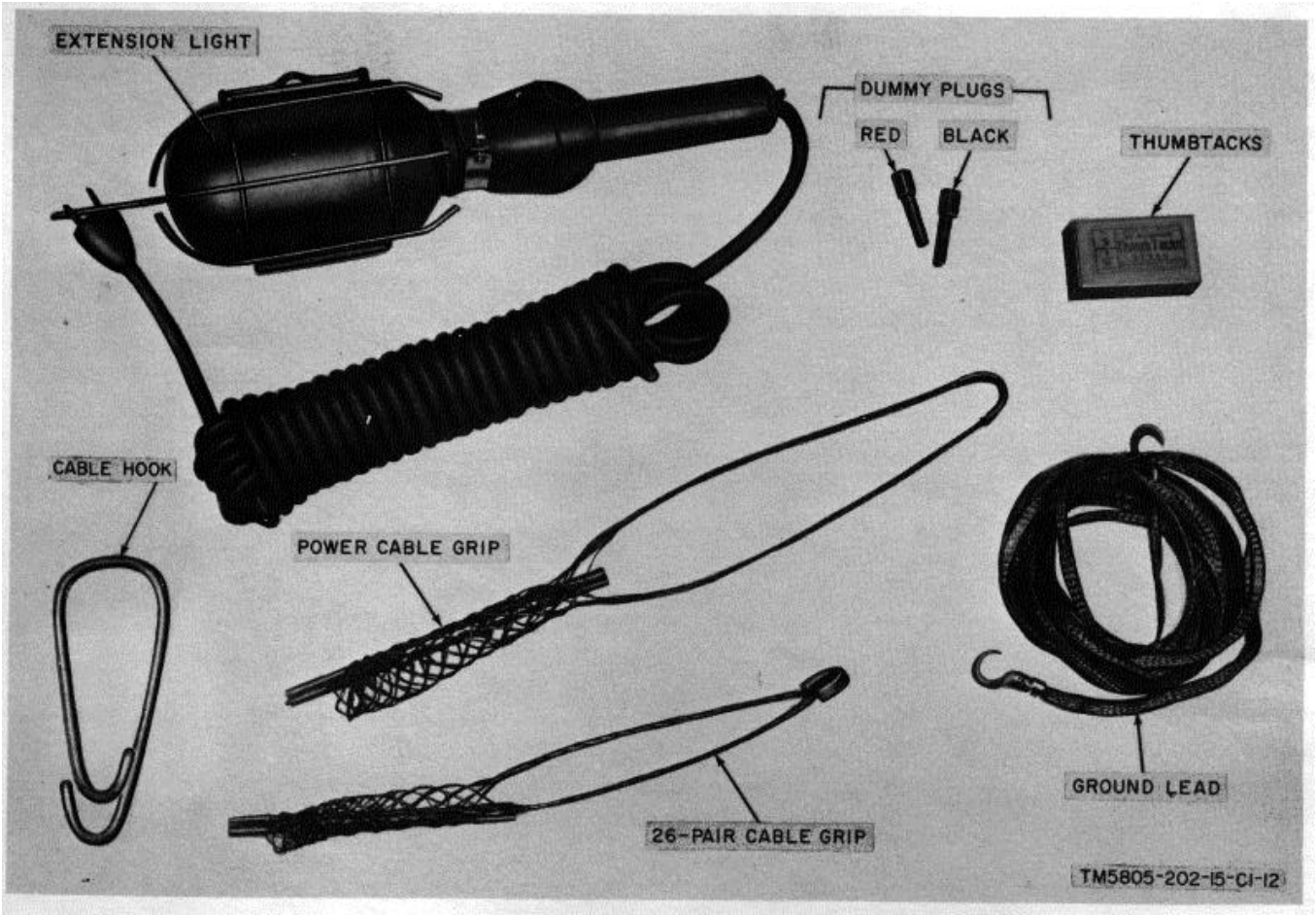


**Figure 2. Miscellaneous components stored in ACCESSORIES & SPARES CABINET NO. 2**

**6. Common Names**

Components of Manual Telephone Center Office AN/MTC-3 to which common names have been assigned are listed below:

| Component | Common name |
|---|---|
| Cable Reel RC-435/U ..... | Cable reel. |
| Connector Adapter UG-1312/U.. | Junction box. |
| Distribution Box J-1077/U ..... | Drop line box. |
| Electrical Connector Plug U- ..... 185/G. | 26-pair connector. |
| Electrical Connector Receptacle U-186/G. | 26-pair receptacle. |
| Electrical Cord Assembly CX- ... 4695/U (2 ft). | Telephone cord (2 ft). |
| Electrical Cord Assembly CX- ... 4695/U (3 ft 4y4 in.). ..... | Telephone cord (3 ft 4% in.). |
| Electrical Power Cable Assembly CX-4693/U (25 ft). | Power stub. |
| Electrical Power Cable Assembly CX-4694/U (100 ft). | Power cable. |
| Electrical Space Heater HD-..... 375/U. | Heater. |
| Ground Rod MX-148/G ..... | Ground rod. |
| Intercommunication Station LS . 147B/FI. | Intercom. |
| Two Manual Telephone Switch-. boards SB-86/P and two additional Switchboard Signal Assemblies TA-207/P. | Switchboard. |
| Manual Telephone Switchboard SB-86/P and additional Switchboard Signal Assembly TA 207/P. | Position. |
| Handset-Headset H-91/U ..... | Operator's telephone set. |
| Manual Telephone Switch- .... board Section SB-248/P. | Keyshelf section. |
| Power Supply PP-990/G ..... | Power pack. |
| Switchboard Signal Assembly TA-207/P. | Jack field section. |
| Modified Electrical Equipment... Shelter S-141/G. | Shelter. |
| Switch Box SA-331/U ..... | Switch box. |
| Telephone Cable Assembly CX-4566/G (250 ft). | 26-pair cable. |
| Telephone Set TA-312/PT ..... | Telephone set. |
| Trailer Mounted Gasoline Engine Generator PU-294/G. | Generator set. |
| Gasoline Engine Generator Set PU-286/U. | Power unit. |
| 1 1/2-ton 2-wheel Cargo Trailer M 104. | Trailer. |

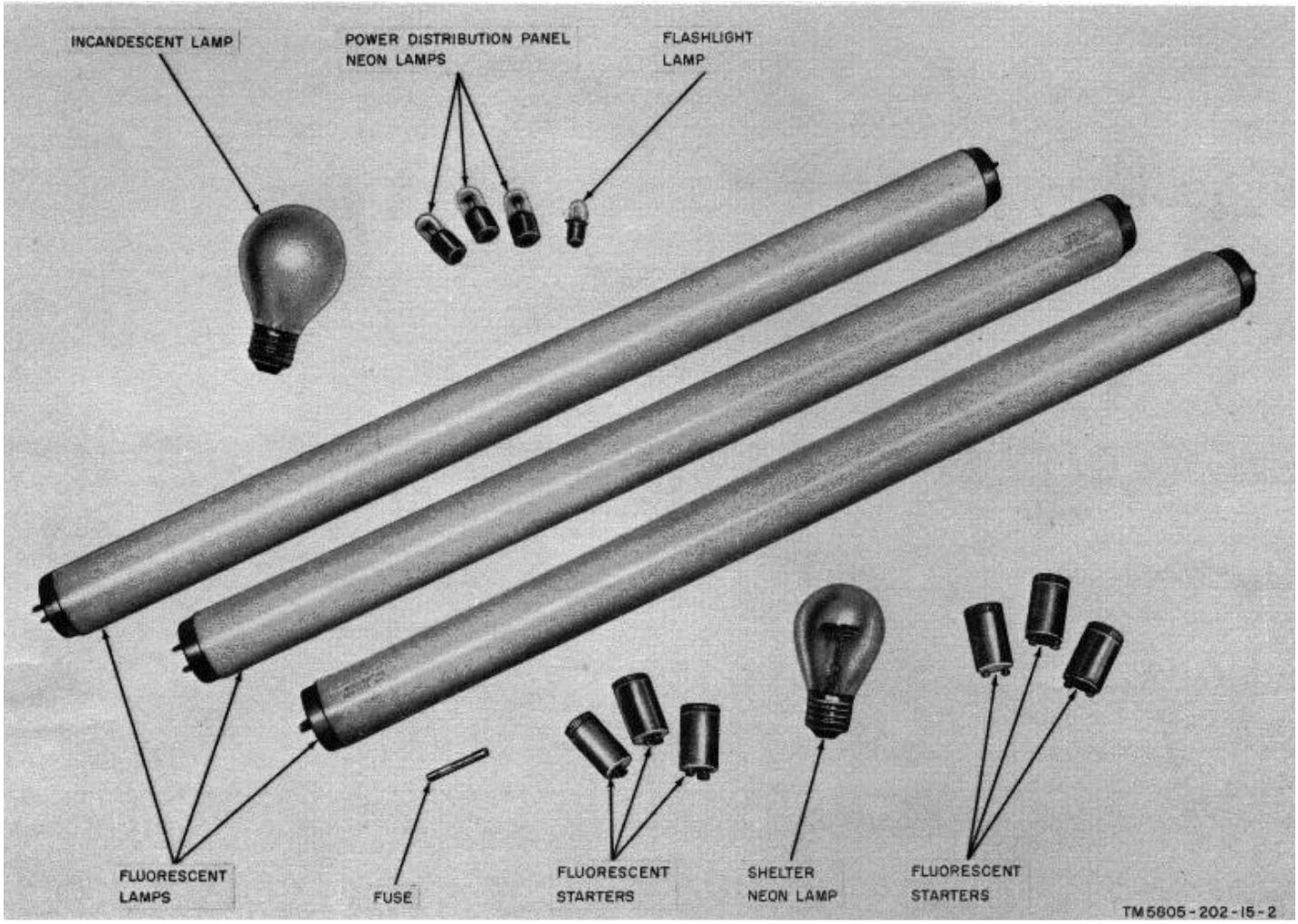


**Figure 3. Running spares.**

**7. Description of Manual Telephone Central Office AN/MTC-3**

(fig. 1)

The AN/MTC-3 is a self-contained, shelter housed, 120-line telephone central office with power source (Trailer Mounted Gasoline Engine Generator Set PU-294/G (par. 9)). It is usually furnished to the using organization less the organizational equipment (par. 5b). Tile equipment arrangement inside the shelter is shown in figures 5 through 9. Components of the AN/MTC-3 which are the same as components of other shelter-housed facilities used by division signal battalion personnel in an area type communication system, are described in TM 11-5805-204-15. The components distinctive to the AN/MTC-3 are described in paragraphs 8 through 16.

**8. Modified Electrical Equipment Shelter S-1 41 /G**

(fig. 4)

Modified Electrical Equipment Shelter S141/G, a lightweight shelter adapted for both truck and helicopter transportation, is fully insulated, watertight, and airtight. Two exhaust blower vents (not shown), with hinged covers, are located on the outside front wall. Skids (not shown) ire bolted to the bottom of the shelter. A 2-section (door is provided at, the rear of the shelter. Opening the upper door permits entrance into the shelter when it is truck-mounted and the tail gate is up. The door is secured by means of two guide rods which are connected to a center latch. The latch can be operated by handles on the inside and outside of the shelter. A drain hole is located on the floor near the door. A curtain and a switchboard mounting attached to the left wall (fig. 5) separate the shelter into two sections of operations.

*a. Left Wall.* The components mounted on and next to the left wall are shown in figure 5. For operations planning, a sliding tackboard and table with a drawer is provided. The 2-position switchboard is secured in place by the upper and lower switchboard mountings. Running spares (par. 5d) are stored in the ACCESSORIES & SPARES CABINET NO. 1.

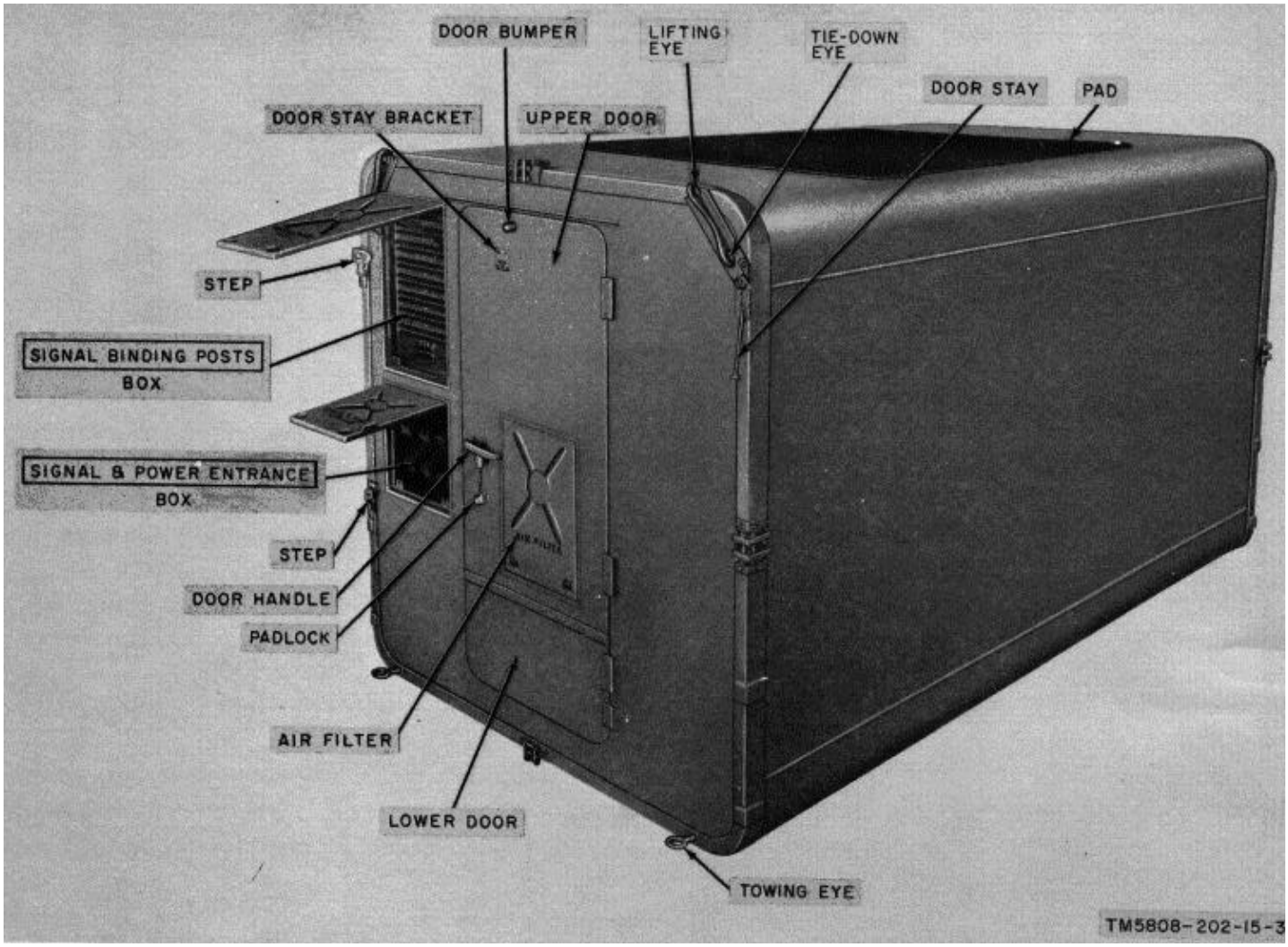


**Figure 4. Modified Electrical Equipment Shelter S-141/G.**

*b. Right Wall* (fig. 6). A sliding tackboard and a table with a drawer for office use are located along the right wall. When not in use, two waste paper baskets, a fire extinguisher, two cable reel holders, a ground rod, and two drop line boxes (used for field wire connections are mounted on the wall under the table.

*c. Front Wall.* The components, mounted on and next to the front wall are shown in figure 7. When not in use, a second fire extinguisher, first aid kit, two chairs, and a cable reel holder are mounted on the front wall. Spare fuses for the switchboard are stored in the fuseholder. The technical manuals and a complete list of components are contained in the manual holders. Other components (par. 5c), switchboard spares (less fuses), and two Tool Equipments TE-33 are stored in the ACCESSORIES & SPARES CABINET NO. 2.

*d. Real Wall* (fig. 8). The SIGNAI, & POWER ENTRANCE box and the SIGNAI, BINDING POSTS box are located in the rear wall. When not in use, two junction boxes used to interconnect the power cables and power stubs are mounted on the door. The air. vent in the door contains a filter. A drain plug wrench is mounted on the wall near the floor. An intercommunication (intercom) system for shelter intercommunication and mountings for two telephone sets are also provided on the rear wall.

*e. Floor* (fig. 9). The floor of the shelter has several mountings for retaining components of the AN/MT(C-3. Tile cables and cable reels are secured to the floor during transit; the ladder is strapped across the top of three of the cable reels.

*f. Lighting.* Eight fluorescent, lamps provide the lighting for the shelter. A neon lamp (fig. 8) is provided next to the door. The NEON, NORMAL-BLACKOUT, and FLUORESCENT switches are mounted near tile door. The FLUORESCENT switch (fig. 7), which controls the lights over the switchboard is located on the front wall. With the NORMAL BLACKOUT

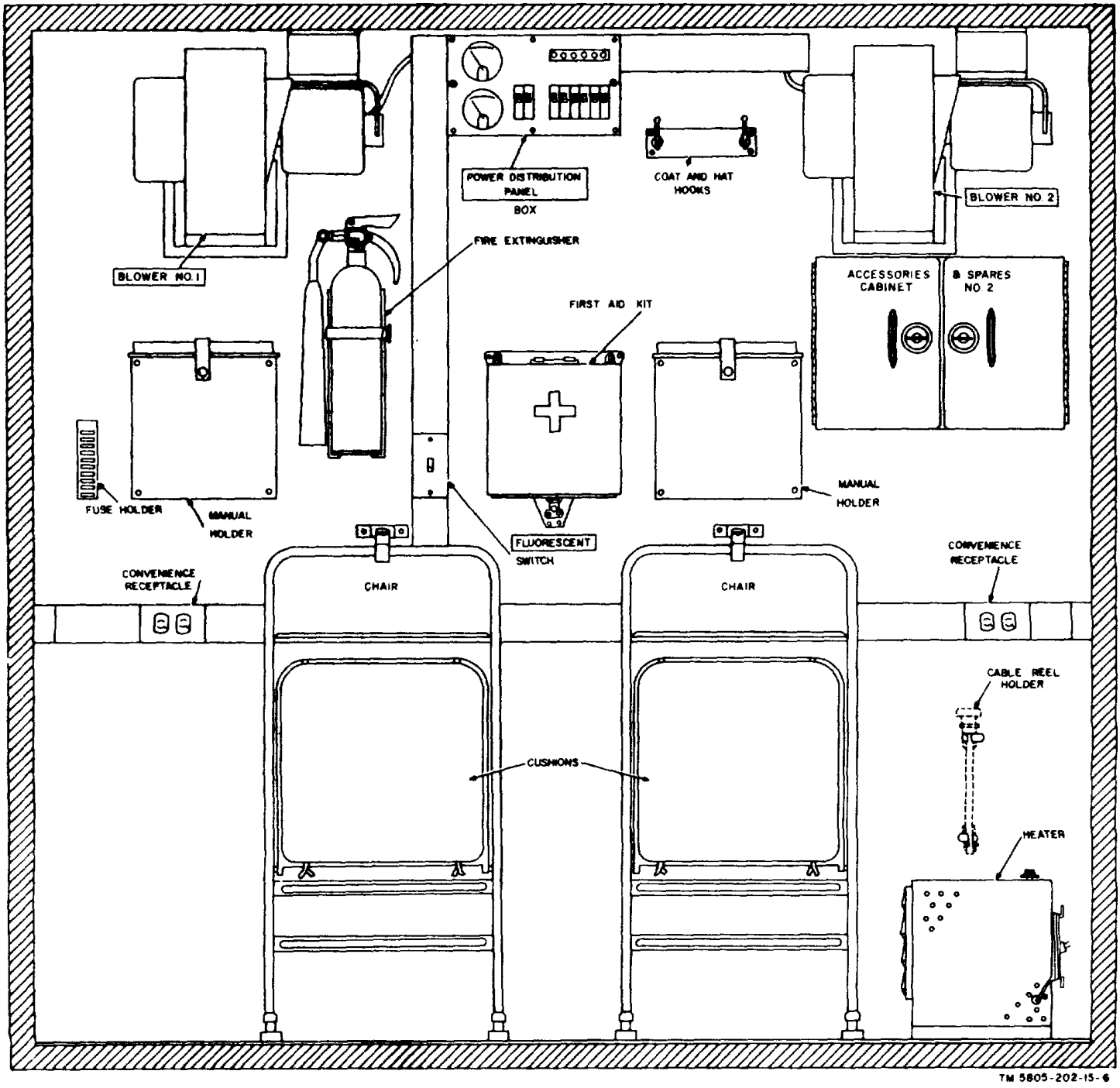


**Figure 7. Shelter, front wall.**

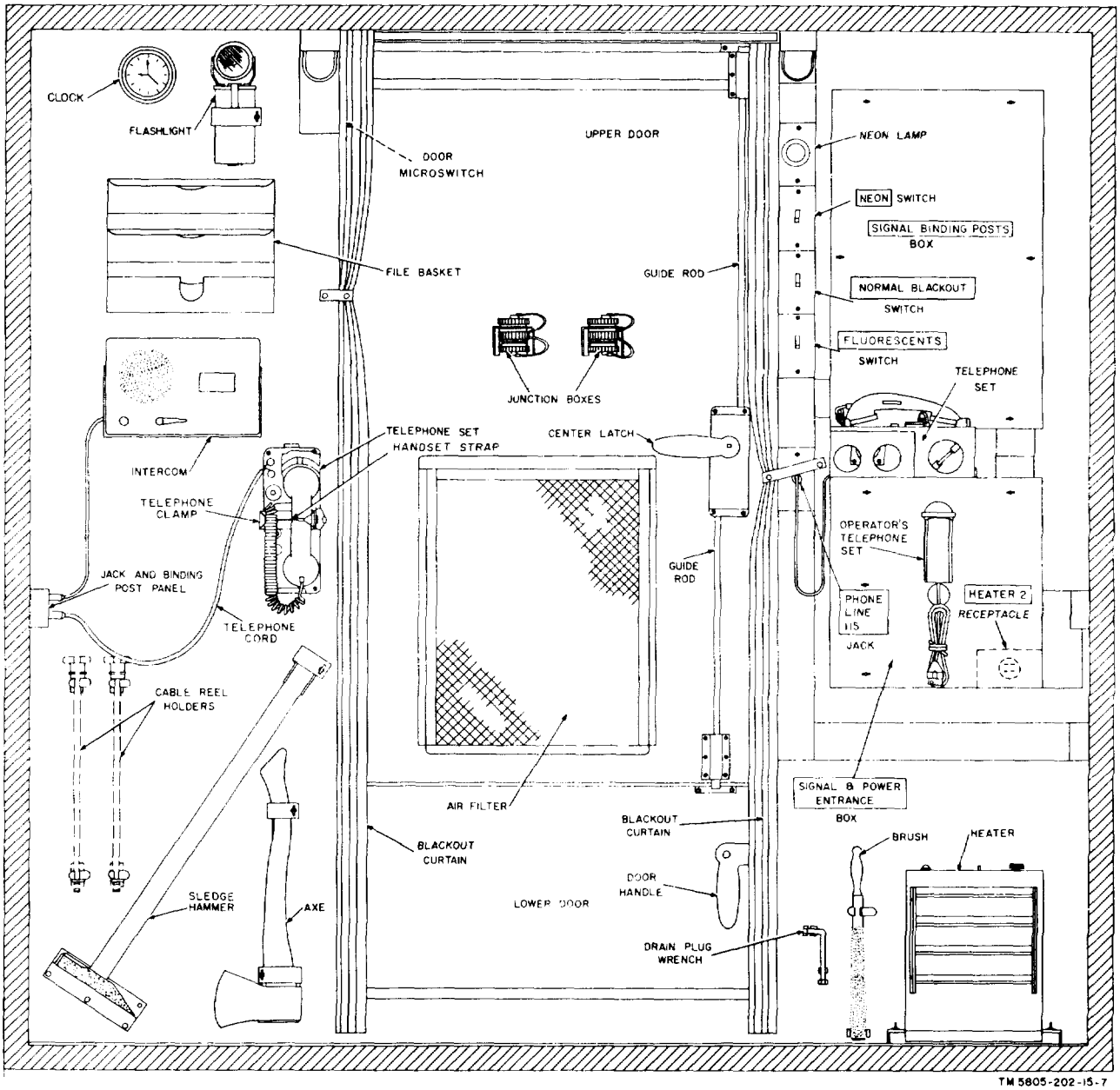


**Figure 8. Shelter, rear wall.**

switch in the BLACKOUT position, the shelter lights will go out when the door is opened.

*g. Power and Wiring.* Alternating current (.(ac) power is connected to the shelter at the SIGNAL, & POWER ENTRANCE box (fig. 11) and is routed through the POWER DISTRIBUTION PANEL (fig. 12) to the individual circuits. The telephone lines are connected to the shelter at the SIGNAL, & POWER ENTRANCE box (fig. 11 ) or the SIGNAL, BINDING POSTS box (fig. 10 and are routed through a duct to the jack and binding post panel and the jack field sections of the switchboard. All the interior shelter wiring and cabling is contained in metal ducts which are equipped with removable covers.

**9. Trailer Mounted Gasoline Engine Generator Set PU-294/G**

(fig. 1)

Trailer Mounted Gasoline Engine Generator Set PU-294/ supplies the at power necessary to operate the AN/MTC-3. The generator set consists of two Gasoline Engine Generator Sets PU-286/G mounted in 1 1/2-ton 2-wheel Cargo Trailer M104. Each power unit has an output of 5 kilowatts (kw), single-phase, 60-cycle per second (cps), 120-volt alternating current A complete description of tile generator set is incl(led in TM 11-5805-204-15.

**10. SIGNAL BINDING POSTS Box**

(fig. 10)

The SIGNAL, IINDING POSTS box contains 96 pairs of binding posts that are connected ill parallel with the contacts of the 26-pair receptacles (SIGNAL 1, SIGNAL 2, SIGNAL, 4, and SIGNAL 5) and the line circuits of the switch board. For intershelter circuits two pairs of binding posts that are connected in parallel with contracts of 26-pair receptacles and the jacks on jack and binding posts panel; and two pails of binding posts that are connected directly to the A and 13 binding posts on the jack and binding post panel. Contacts of 26-pair receptacle SIGNAL, 3 are connected to a terminal board in the rear of the SIGNAL BINDING POSTS box and front the terminal board to the line circuits at the switch board.

*a. Switchboard Circuits.*

| SIGNAL BINDING POSTS box | | 26-pair cable receptacle No. | Switchboard jack No. | Position No. |
|---|---|---|---|---|
| Binding post pair No. | Terminal board No. | | | |
| 1-24 | | SIGNAL 1 pr 1-24 | TA-207 NO. 1, 1, 1-24 | 1 |
| | 25-30 | SIGNAL 3 pr 1-6. | TA-207 NO. 1, 25-30 | 1 |
| 31-54 | | SIGNAL 2 pr 1-24 | TA-207 NO. 2, 1-24 (31-54) | 1 |
| | 55-60. | SIGNAL 3 pr 7-12 | TA-207 NO. 2, 25-30 (55-60) | 1 |
| 61-84 | | SIGNAL 4 pr 1-24 | TA-207 NO. 1, 1-24 (61-84) | 2 |
| | 85-90. | SIGNAI, 3 pr 13-18 | TA-207 NO. 1, 25-30 (85-90) | 2 |
| 91-111 | | SIGNAL 5 pr 1-24 | TA-207 NO. 2, 1-24 (91-114) | 2 |
| 115 (*Note* 2) | | Not used | TA-207 NO. 2, 25 (115) | 2 |
| | 116-120 | SIGNAL 3 pr 13-17 | TA-207 NO. 2, 26-30 (116-120) | 2 |

Notes:

1. Pairs 25 and 26 of SIGNAL, SIGNAL 2, and SIGNAL 4; pairs 18 through 24 of SIGNAL 3; and pairs 24 through 26 of SIGNAL 4 are spare pairs and are not connected In the AN/MTC-3.
2. Circuit 115 is connected 'directly to PIIONE LINE 115 jack.

*b. Intershelter Circuits.*

Binding post pair NO. 2fi-pair cable receptacle Jack and binding post NO. panel CABLE 3 PAIR 25 SIGNALI,3pr25_ CA 3 PAIR 25.
LB PHONE -_ SIGNAL3pr26I LB PHONE., A .. .....
Not used ... A.
B .-. Not used 13.
Provided for intercom use.

**11. SIGNAL & POWER ENTRANCE Box**

(fig. 11)

The SIGNAL & POWER ENTRANCE box contains five 26-pair receptacles, two 115-volt ac power receptacles (OUT POWER 115V IN), a convenience receptacle (115V AC), and a ground lug. The SIGNAL 1, SIGNAL 2, SIGNAL 3, SIGNAL 4, and SIGNAL 5 26-pair receptacles provide connections for circuits between the AN/

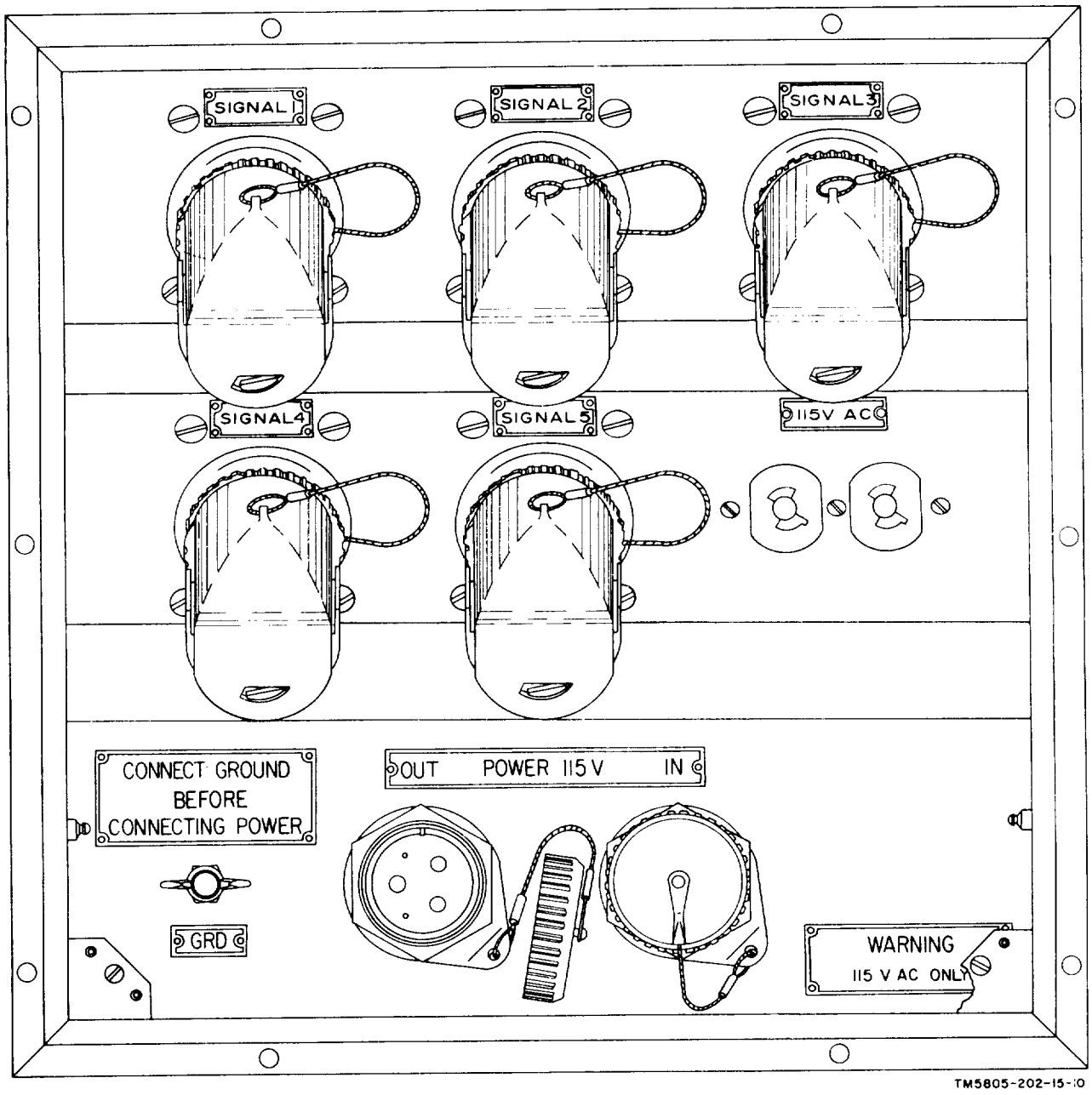


**Figure 11. SIGNAL & POWER ENTRANCE box.**

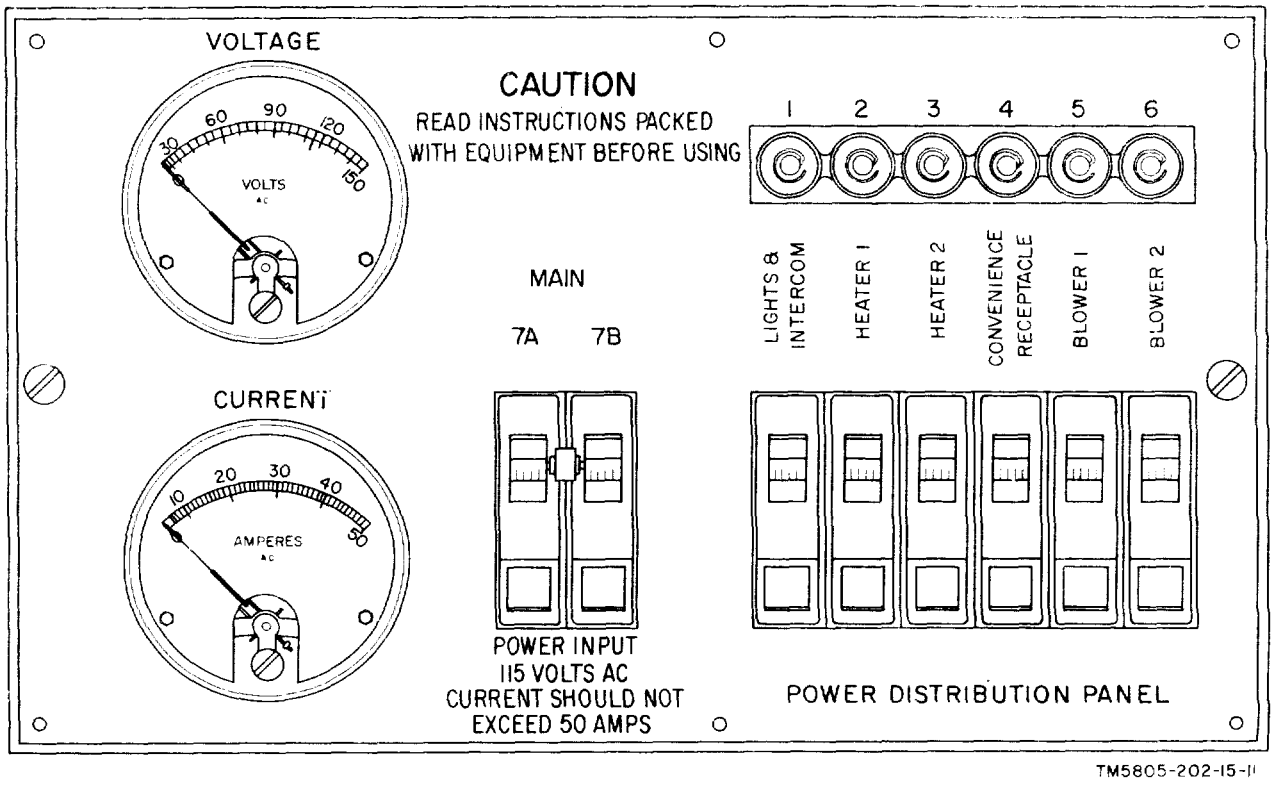


**Figure 12. POWER DISTRIBUTION PANEL.**

MTC-3 and the SB-611/MRC. From the switch box, mounted on the generator set, the incoming power to the shelter is connected to the POWER IN receptacle. The POWER OUT receptacle can be used to supply power to a second shelter if the output of the generator set (5,000 watts) is not exceeded. A ground lug with a wing nut is located next to the POWER OUT receptacle grounding the shelter.

**12. Distribution Box J-1077/U**

(fig. 6)

When not in use, two drop line boxes are mounted on the right wall of the shelter. The drop line boxes are used for testing, as wireheads, and to drop extension circuits from the cable. A complete (description is included in TM 11-5805-204-15.

**13. Electrical Space heater HD375/U**

(figs. 7 and 8)

The heaters are mounted on the floor, one just inside the door on the left side of the shelter and the other in the front right corner. A switch on each heater permits the heating element and fan to be operated together or the fan to operate alone. A complete description is included in TM 11 5805-204-15.

**14. POWER DISTRIBUTION PANEL**

(fig. 12)

A POWER DISTRIBUTION PANEL is mounted on the front wall. It is used to control the ac power circuits of the shelter. Mounted in the box are an ac ammeter with a full-scale deflection of 50 amperes, a current transformer (not shown), a voltmeter with a 0-150 scale, a main circuit breaker rated at 50 amperes, and individual 15-allmpere circuit breakers with indicating lamps.

**15. Intercommunication Station LS-147B/FI**

(fig. 8)

Intercommunication Station LS-147B/FI provides 2-way nonprivacy communication in a system consisting of LS-147B/FI equipments. It has a metal cabinet and is a 3-tube unit, complete with a speaker-microphone, an OFF and VOLUME HI-LO switch, a talk-listen lever switch, and a power cord. Binding posts are provided in the back of the unit to permit connection to other stations.

**16. Organizational Equipment**

*a. Manual Telephone Switchboards SB-86/P and Switchboard Signal Assemblies TA-07/P* (TM 11-2134). The 2-position switchboard is a local battery, field-type unit that interconnects telephone or voice-frequency teletypewriter lines. With an additional jack field section for each SB86/P, the switchboard can serve up to 120 lines or trunks. The switchboard is mounted in the front section of the shelter next to the left wall (fig. 9).

*b. Telephone Set TA-312/PT.* Two telephone sets (less carrying cases) (TM 11-2155) are mounted on the rear wall, one on each side of the door (fig. 8). Both telephone sets are arranged for local battery manual telephone operation and are used for communication between shelters.

*c. Tool Equipments.* Two Tool Equipments TE-33 are stored in ACCESSORIES & SPARES CABINET NO. 2 (fig. 7). Tool Equipment TE-49 is stored on the floor near the left front corner of the shelter (fig. 5). The tool equipments are provided for installation and organizational maintenance of the AN/MTC3.

## CHAPTER 2

## INSTALLATION AND OPERATION

### Section I. INSTALLATION OF ORGANIZATIONAL EQUIPMENT

**17. Procedures**

Usually, the shelter is received without, the organizational equipment (para. 5ib) installed. To install the organizational equipment, follow the procedures ill tile sequence given in *a* through *f* below:

*Note.* If the shelter is received with the organizational equipment installed unpack and check the equipment (para. 18); perform the preoperational procedures (paras. 24-29); make the necessary signal connections (paras. 30-33); and operate the equipment (paras. 34-38).

a. Unpack and check the equipment (para. 18).

*b.* Prepare to install the switchboard (para. 19).

*c.* Install the switchboard (para. 20).

*d.* Interconnect the switchboard (para. 21).

*e*. Test the interconnect ions to the switchboard (para. 22).

*f.* Install the telephone sets and store the tool equipments (para. 23).

**18. Unpacking and Checking**

*Note.* When packed for shipment, the shelter of Manual Telephone Central Office AN/MTC-3 is in a crate. The crate is constructed so that the shelter door can be opened and the organizational equipment installed. Shelter uncrating instructions are included in TM 11-5805-204-15.

*a. Removing Contents.* When preparing the shelter for checking the equipment, proceed as follows:

(1) Unlock and open the shelter door.

(2) Unfasten the four web straps that secure the ladder to the cable reels (fig. 9).

(3) Remove the ladder from the shelter and place it on the ground or against the tail gate of the truck.

(4) Unscrew the cable reel holders that secure the cable reels to the floor and place the cable reel holders in their mountings (figs. 58).

(5) Remove the cable reels from the shelter.

*b. Checking Contents.* Check the contents of the shelter against the list of components which is contained ill the manual holder (fig. 7). When the component list is not available, the table of components (para. 5) may be used as a general check to indicate the equipment which(l probably was packed.

*c. Unpacking and Checking Organizational Equipment.* To unpack and check organizational equipments, refer to the appropriate technical manuals (app. l).

**19. Preparation for Installing Switchboard**

(fig. 13)

When installed, the two positions of the switchboard are supported and retained by a mounting frame at the bottom and a cover at tile top. The top cover is shock-mounted to a frame which is supported from the ceiling. Prepare the mounting of the switchboards as follows:

*a.* Loosen the wing nuts of the six U-bolts o01 the lower switchboard mounting.

*b.* Unscrew the turnbuckles and open the steel straps.

*c.* Unscrew the angle brackets of the top cover from the ceiling frames.

*d.* Remove the detached cover assembly.

**20. Installation of Switchboard**

(fig. 13)

Each switchboard position consists of one Manual Telephone Switchboard SB-86/P (less carrying case and log plate) and one additional Switchboard Signal Assembly TA-207/P. Install position 2, and then position 1. Follow the procedures in *a* below. Complete the installation following the procedures in b below.

*a. Position Installation Procedures.*

(1) *Keyshelf section and jack field section No. 1.*

(*a*) Remove one attached keyshelf section and jack field section from its outer carrying case (TM 11-2134).

(*b*) Place the unit on the lower switch

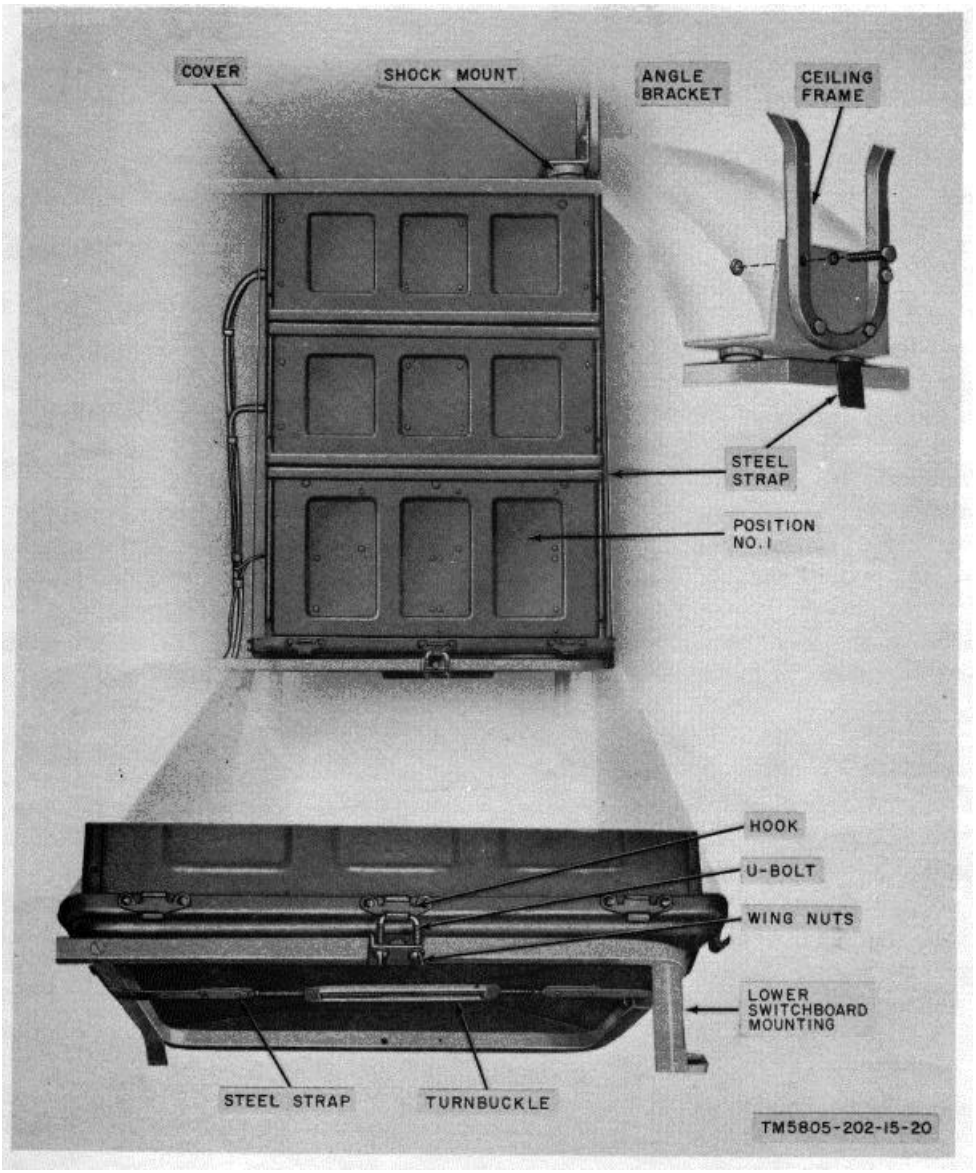


**Figure 13. Installation of switchboard.**

board mounting, near the left wall with the front of the position facing towards the front wall.

(*c*) Position the unit properly between the set of three U-bolts.

(*d*) Clamp the side and rear hooks of the bottom edge of the keyshelf section with the U-bolts and tighten the wing nuts that secure the unit to the lower switchboard mounting.

(2) *Jack field 8ection No. B.*

(*a*) Unpack an additional jack field section.

(*b*) Set the jack field section on top of the other jack field section with the jack and line signals facing the front.

(*c*) Secure the two jack field sections to each other by the side latches.

(3) *Power pack* (fig. 5).

(*a*) Remove the power pack from the outer carrying case (TM 11-2134).

(*b*) Place a power pack on the bottom frame under each position, so the two holes in the power pack's outer case are directly over the holes in the mounting frame and the inserted anchor nuts in the floor.

(*c*) Secure the power packs to the floor

with the lock rods, previously used to fasten it to the outer carrying case.

*b. Additional Installation Procedures*. Complete the installation of the switchboards as follows:

(1) Replace the detached cover assembly to its original position.

(*a*) Slide the cover assembly between the top of the positions and the overhanging log plates.

(*b*) Fit the cover over tile top of the positions and allow the steel straps to hang down along tile sides of the positions.

(*c*) Screw the angle brackets back onto the ceiling mounting frame.

(2) Fasten the steel straps under each position to their turnbuckles. And tighten the turnbuckles until each position is held rigidly to the mounting frames.

***Caution:*** Do not overtighten the turnbuckles.

(3) Unfasten all cam locks and open all covers on the rear of the positions and proceed as follows:

(*a*) Remove the two power cords from each keyshelf section.

(*b*) Open the canvas bag, which is on tile rear cover of each keyshelf section, and remove the operator's telephone set. Close the zippers.

(*c*) Place one operator's telephone set on the holder bracket located on the left wall (fig. 5) beside the switchboard.

(*d*) Place the other operator's telephone set on the holder bracket located on the lower switchboard(d mounting between the two positions.

(*e*) Install Batteries BA-30 in each of the four jack field sections (TM 11-2134).

(4) Remove the canvas rolls containing the running spares from the battery compartment in each jack field section. Place the canvas rolls in the ACCESSORIES & SPARES CABINET NO 2.

(5) On the designation strips of the jack field sections, mark (with a pencil) the assigned line numbers below each line jack.

| Position No. | Jack field section No. | Lines |
|---|---|---|
| 1 _ _ __ _ __ | 1_ _ _ __ _ __ _ _ __ | 1 through 30. |
| 1_ _ _ __ _ _ | 2_ _ _ __ _ __ _ _ __ | 31 through 60. |
| 2_ _ _ __ _ _ | 1_ _ _ __ _ __ _ _ __ | 61 through 90. |
| 2_ _ _ __ _ _ | 2_ _ _ __ _ __ _ _ __ | 91 through 120. |

(6) Install BatteriesBA-200/U in the two power packs (TM 11-2134).

(7) Unscrew the knurled nuts on the power packs and open the covers.

**21. Switchboard Connection**

(fig. 17)

*a. Position No. 2, Keyshelf Section.*

(1) Feed the 2-wireand 3-wire power cords (part of SB-86/p) and the cable designated SB-86/PSB-248/P from the SIGNAL DUCT through the power cord entry of the keyshelf section.

(2) Connect the white wire of the 3-wire power cord and the white wire of the cable (-24V) to the -24V binding post in the keyshelf section.

(3) Connect the black wire of the : 3-wile power cord and the black wire of the cable (+24V) to the +24V binding post in the keyshelf section.

(4) Connect the red wire of the 3-wire power cord to the ST VIB binding )post.

(5) Connect the 2-wire power cord across the EXT GEN binding posts.

(6) Connect the two GND black wires to the two EARTH GND binding posts.

*b. Position No. 2, Jack Field Section No. 1* Feed the SB-86/PTA-207 NO. 1 cable through the left field wire entry and the fanning rings of the bottom jack field section. Connect the cable ;as follow:

(1) Connect the two white -24V wires and the two +24V black wires to the -24V and +24V binding posts, respectively.

(2) Connect the two GND black wires to the EARTH GND binding posts.

(3) Connect the pairs of the cable to the jack field binding posts as indicated in the chart below. Connect the tip lead to the upper binding post and the ring lead to the lower binding post of each pair.

| Binding post pair No. | Ckt No. | SB-86/P TA-207/P No. 2 cable Tip lead | Ring lead |
|---|---|---|---|
| 1 | 1 | White | Yellow |
| 2 | 2 | White | Orange |
| 3 | 3 | White | Black |
| 4 | 4 | White | Pink |
| 5 | 5 | White | Light brown |
| 6 | 6 | White | Dark brown |
| 7 | 7 | White | Silver |
| 8 | 8 | White | Dark green |
| 9 | 9 | White | Light green |
| 1 | 1i0 | White | Violet |
| 11 | 11 | White | Slate |
| 12 | 12 | White | Light blue |
| 13 | 13 | White | Dark blue |
| 14 | 14 | Black | Silver |
| 15 | 15 | Black | Slate |
| 16 | 16 | Black | Light brown |
| 17 | 17 | Black | Dark brown |
| 18 | 18 | Black | Yellow |
| 19 | 19 | Black | Light blue |
| 20 | 20 | Black | Dark blue |
| 21 | 21 | Black | Light green |
| 22 | 22 | Black | Dark green |
| 23 | 23 | Black | Orange |
| 24 | 24 | Black | Violet |
| 25 | 25 | White | Dark blue |
| 26 | 26 | Black | Silver |
| 27 | 27 | Black | Slate |
| 28 | 28 | Black | Light brown |
| 29 | 29 | Black | Dark brown |
| 30 | 30 | Black | Yellow |

*c. Position No. 2, Jack Field Section No. 2.* Feed the SB-86/P TA 207 NO. 2 cable through the field wire entry and the fanning rings of the top jack field section. Follow the procedures in *b*(1) and (2) above to connect the power leads. Connect all other leads as indicated in the chart below.

| Binding post pair No. | Ckt No. | SB-86/P TA-207/P No. 2 cable Tip lead | Ring lead |
|---|---|---|---|
| 1 | 31 | White | Yellow |
| 2 | 32 | White | Orange |
| 3 | 3:3 | White | Black |
| 4 | 34 | White | Pink |
| 5 | 35 | White | Light |
| 6 | 36 | White | Dark brown |
| 7 | 37 | White | Silver |
| 8 | 38 | White | Dark green |
| 9 | 39 | White | Light green |
| 10 | 40 | White | Violet |
| 11 | 41 | White | Slate |
| 12 | 42 | White | Light blue |
| 13 | 4:3 | White | Dark blue |
| 14 | 44 | Black | Silver |
| 15 | 45 | Black | Slate |
| 16 | 46 | Black | Light brown |
| 17 | 47 | Black | Dark brown |
| 18 | 48 | Black | Yellow |
| 19 | 4i9 | Black | Light blue |
| 20 | 50 | Black | Dark blue |
| 21 | 51 | Black | Light green |
| 22 | 52 | Black | Dark green |
| 23 | 53 | Black | Orange |
| 24 | 54 | Black | Violet |
| 25 | 55 | Black | Light blue |
| 26 | 56 | Black | Dark blue |
| 27 | 57 | Black | Light green |
| 28 | 58 | Black | Dark green |
| 29 | 59 | Black | Orange |
| 30 | 60 | Black | Violet |

*d. Position No. 2, Power Pack.* Connect the 3-brownwire and 2-wire power cords to the power pack (TM 11-2134). Run the power cords from the power pack up along the switchboard mounting. Push any slack back into the duct.

*e. Position No.1, Keyshelf Section.* Wire the keyshelf section for position No. 1 the same as position No. 2 (a above).

*f.* Position No. 1, Jack Field Section No. 1 Feed the SB-86/PTA-207 NO. 1 cable through the left field wire entry and the fanning rings of the bottom jack field section. Follow the procedures in *b* (1) and (2) above to connect the power leads. Connect all other leads as indicated in the chart below.

| Binding post pair No. | Ckt No. | SB-86/P TA-207/P No. 2 cable Tip lead | Ring lead |
|---|---|---|---|
| 1 | 61 | White | Yellow |
| 2 | 62 | White | Orange |
| 3 | 6f3 | White | Black |
| 1 | 64 | White | Pink |
| 5 | 65 | White | light brown |
| 6 | 66i | White | Dark brown |
| 7 | 67 | White | Silver |
| 8 | 68 | White | Dark green |
| 9 | 69 | White | Light green |
| 10 | 70 | White | Violet |
| 11 | 71 | White | Slate |
| 12 | 72 | White | Light blue |
| 13 | 7:3 | White | Dark blue |
| 14 | 74 | Black | Silver |
| 15 | 75 | Black | Slate |
| 16 | 7f6 | Black | Light brown |
| 17 | 77 | Black | Dark brown |
| 18 | 78 | Black | Yellow |
| 19 | 79 | Black | Light blue |
| 20 | 80 | Black | Dark blue |
| 21 | 81 | Black | Light green |
| 22 | 82 | Black | Dark green |
| 2:3 | 83 | Black | Orange |
| 24 | 84 | Black | Violet |
| 25 | 85 | White | Yellow |
| 26 | 86 | White | Orange |
| 2'; | 87 | White | Black |
| 28 | 88 | White | Pink |
| 29 | 89 | White | Light brown |
| 30 | 90 | White | Dark brown |

*g. Position No. 1, Jack Field Section No. 2.* Feed the SB-86/PTA-207 NO. 2 cable through the field wire entry and the fanning rings of the top jack field section. Follow the procedures in *b*(1) and (2) above to connect the power leads. Connect all other leads as indicated in the chart below.

| Binding post pair No. | Ckt No. | SB-86/P TA-207/P No. 2 cable Tip lead | Ring lead |
|---|---|---|---|
| 1 | 91 | White | Yellow |
| 2 | 92 | White | Orange |
| 3 | 93 | White | Black |
| 4 | 94 | White | Pink |
| 5 | 95 | White | Light brown |
| 6 | 96 | White | Dark brown |
| 7 | 97 | 'White | Silver |
| 8 | 98 | White | Dark green |
| 9 | 99 | White | Light green |
| 10 | 100 | White | Violet |
| 11 | 101 | White | Slate |
| 12 | 102 | White | Light blue |
| 13 | 103 | White | Dark Blue |
| 14 | 104 | Black | Silver |
| 15 | 105 | Black | Slate |
| 16 | 106 | Black | Light brown |
| 17 | 107 | Black | Dark brow |
| 18 | 108 | Black | Yellow |
| 19 | 109 | Black | Light blue |
| 20 | 110 | Black | Dark blue |
| 21 | 111 | Black | Light green |
| 22 | 112 | Black | Dark green |
| 23 | 113 | Black | Orange' |
| 24 | 114 | Black | Violet |
| 25 | 115 | White | Silver |
| 26 | 116 | White | Dark green |
| 27 | 117 | White | Light green |
| 28 | 118 | White | Violet |
| 29 | 119 | White | Slate |
| 30 | 120 | White | Light blue |

*h. Position No. 1, Power Pack.* Connect the 3-wire and 2-wire power cords to the power pack (TM 11-2134). Run the power cords from the power )pack up along the switchboard mounting. Push any slack back into the duct.

*i. Operator's Headsets.* Insert the plug connector of each operator's headset into the receptacle connector in the lower right-hand corner of the keyshelf of each position.

**22. Connection Test**

Follow the procedures listed below to test the connections to the switchboard.

*a.* Connect a 26-pair cable (para. 31) between the SIGNAL 1 and SIGNAL 4 receptacles in the SIGNAL & POWER ENTRANCE box (fig. 4).

*b.* Lift the designation strips on the jack field sections of both positions and operate all line selector switches to the M position.

*c.* Check to be sure transmission is satisfactory between line 1 on position 1 and line 1 on position 2.

*d.* If lines 1 and 61 are satisfactory, check the transmission between lines 2 and 62; continue to check the transmission through lines 24 and 84.

*e*. Reconnect the 26-pair cable between SIGNAL 2 and SIGNAL 5 receptacles in the SIGNAL & POWER ENTRANCE box.

*f.* Check to be sure transmission is satisfactory between lines 31 through 91 and lines 54 through 114.

*g.* Move the connector of the 26-pair cable from SIGNAL 2 receptacle to SIGNAL 3 in the SIGNAL & POWER ENTRANCE box.

*h.* Check to be sure transmission is satisfactory between lines 25 through 30, 55 through 60 on position No. 1 and 85 through 90, 116 through 120, and lines 91 through 114 on position 2.

*i.* Check to be sure transmission is satisfactory between line 115 on position No. 2 and the telephone set connected to PHONE LINE 115 jack at the left of the door.

**23. Installation of Telephone Sets TA-312/PT and Storage of Tool Equipments**

*a. Telephone Sets TA-312/PT.* Install, connect, and test the two telephone sets as follows:

(1) Rear wall, right (fig. 8).

(*a*) Unfasten the two half-turn fasteners on the telephone set holder and open the clamp bracket.

(*b*) Remove the telephone set front its canvas carrying case.

(*c*) Place the telephone set in the holder and remove the handset from the handset bracket.

(*d*) Replace and fasten the clamp over the

telephone set.

(*e*) Replace the handset in the handset bracket and fasten the handset strap over the handset.

(*f*) Connect the leads of the telephone cord (3 feet, 4 3/4 inches), to the telephone set binding posts. If the intercom is to be used, insert the telephone plug in the SIGNAL, 3 PAIR 25 jack. If the intercom is not to be used, insert the telephone plug in the SIGNAL 3 PAIR 26 jack.

(2) *Rear wall, left* (fig 8).

(*a*) Repeat the procedure given in (1) (a) through (e) above.

(*b*) Connect the leads of the telephone cord (2 feet) to the telephone set binding posts.

(3) *Telephone set test.* Test each of the circuits as follows:

(*a*) Connect a pair of wires between LINES 1 binding posts to which the telephone is terminated in the SIGNAL BINDING POSTS box.

(*b*) From the telephone set, signal the switchboard operator. When the switchboard operator answers, check to be sure that transmission is satisfactory in both directions.

(*c*) Remove the wire pair that was connected for testing ((*a*) above.)

*b. Tool Equipment TE-49.* Place the Tool Equipment TE-49 in its mounting (figs. 5 and 9) and fasten it down with the webbing straps.

*c. Tool Equipment TE-33.* Place two Tool Equipments TE-33 into the ACCESSORIES & SPARES CABINET NO. 2 (fig. 7).

## Section II. PREOPERATIONAL PROCEDURES

### 24. Siting

*a.* The location of the AN/MTC-3 will depend upon its use in a particular signal center. The considerations affecting the siting of the AN/ MTC-3 arid the factors governing the distance of the AN/MTC-3 to other shelters are covered in TM 11-5805-204-l5.

*b.* When the shelter is placed on the ground, it should be located on firm, dry ground with good drainage. The site should be prepared and leveled, and if possible, the shelter should be placed on concrete blocks or wooden beams.

*c.* Place the generator set approximately 75 feet from the shelter.

### 25. Installation of Shelter

*Note.* To install the shelter on the ground or on a truck, a crane, winch, or helicopter capable of lifting 7,000 pounds and four men are required.

*a. loading Shelter* (fig. 14). If the shelter is to be mounted on a truck, proceed as follows:

(1) Use the sling hooks nearest the turnbuckles and hook the four sling assemblies to the shelter lifting eyes.

(2) Lay the sling assemblies on the top of the shelter.

(3) Hook the four sling hooks in the lifting ring.

(4) Slip the lifting ring over the lifting hook of the lifting device.

***Warning***

**To avoid injury to personnel and damage to equipment, only the personnel engaged in the actual loading operation should be permitted near the truck, lifting device, and shelter. To eliminate confusion, all instructions must come from the loading crew supervisor.**

(5) Tie a 1/2-inch rope (at least 15 feet long) to each of the rear towing eyes.

(6) Check to see that all tools and equipment are removed from the truck body.

(7) Slowly lift the shelter from the ground to a position high enough to clear the body of the truck.

(8) Back the truck into position under the shelter.

***Warning:***

**All personnel must remain clear of the truck while the shelter is being lowered into position.**

(9) Position a man at each of the 1/2-inch ropes to hold the shelter in position. Slowly lower the shelter into the truck body.

*Note.* The door of the shelter must be at the rear of the truck and the front of the shelter must be abutted against the front of the truck body.

(10) Remove the lifting ring from the lifting hook and disassemble the lifting ring and sling hooks. Remove the sling hooks from the lifting eyes of the shelter. Remove the 1/2-inch ropes from the towing eyes.

*b. Securing Shelter to Truck* (fig. 15). Secure the shelter to the truck as follows:

(1) Use the sling hooks at the end farthest from the turnbuckles and hook each of the four sling assemblies to a tie-down eye of the shelter.

(2) Use the sling assembly which is attached to the tie-down eye at the front of the shelter; place the sling hook nearest the turnbuckle under the side rail and behind the second cargo rack support for the rear of the truck.

(3) Use the sling assembly which is attached to the tie-down eye at the rear of the shelter; place the sling hook scares the turnbuckle under the side rail and in front of the second cargo rack support from the front of the truck.

(4) Follow the procedures in (1) through (3) above to secure the other side of the shelter.

(5) After the four sling assemblies have been attached to the side rails of the truck tighten the turnbuckles.

*Note.* To prevent the shelter from twisting in the truck body, tighten all of the turnbuckles at the same time.

***Caution***

**Do not overtighten the turnbuckles.**

*c. Unloading Shelter.* To unload the shelter from the truck, reverse the procedures given in *a* and *b* above and install the shelter on the ground (para. 24*b*).

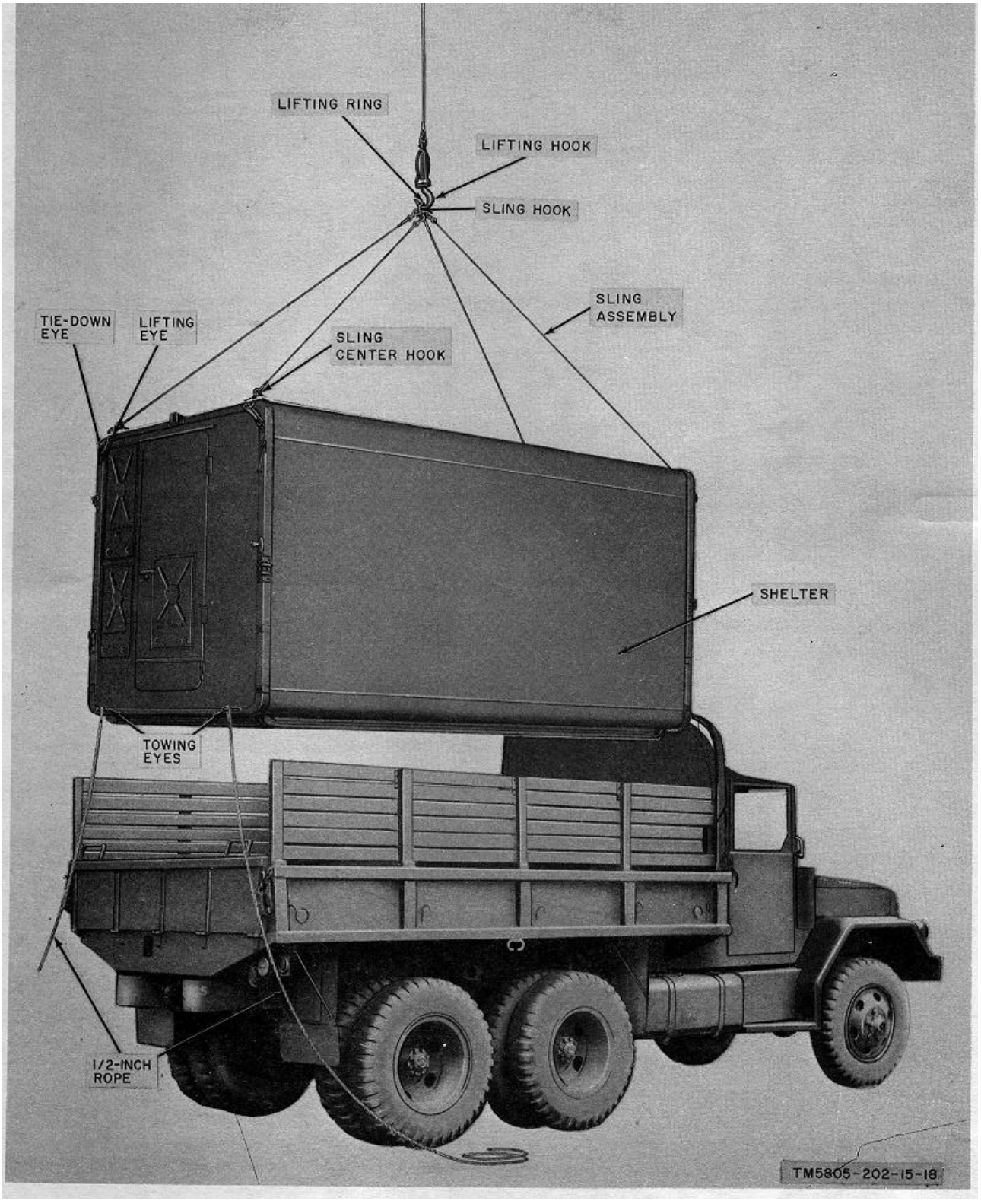


**Figure 14. Loading shelter.**

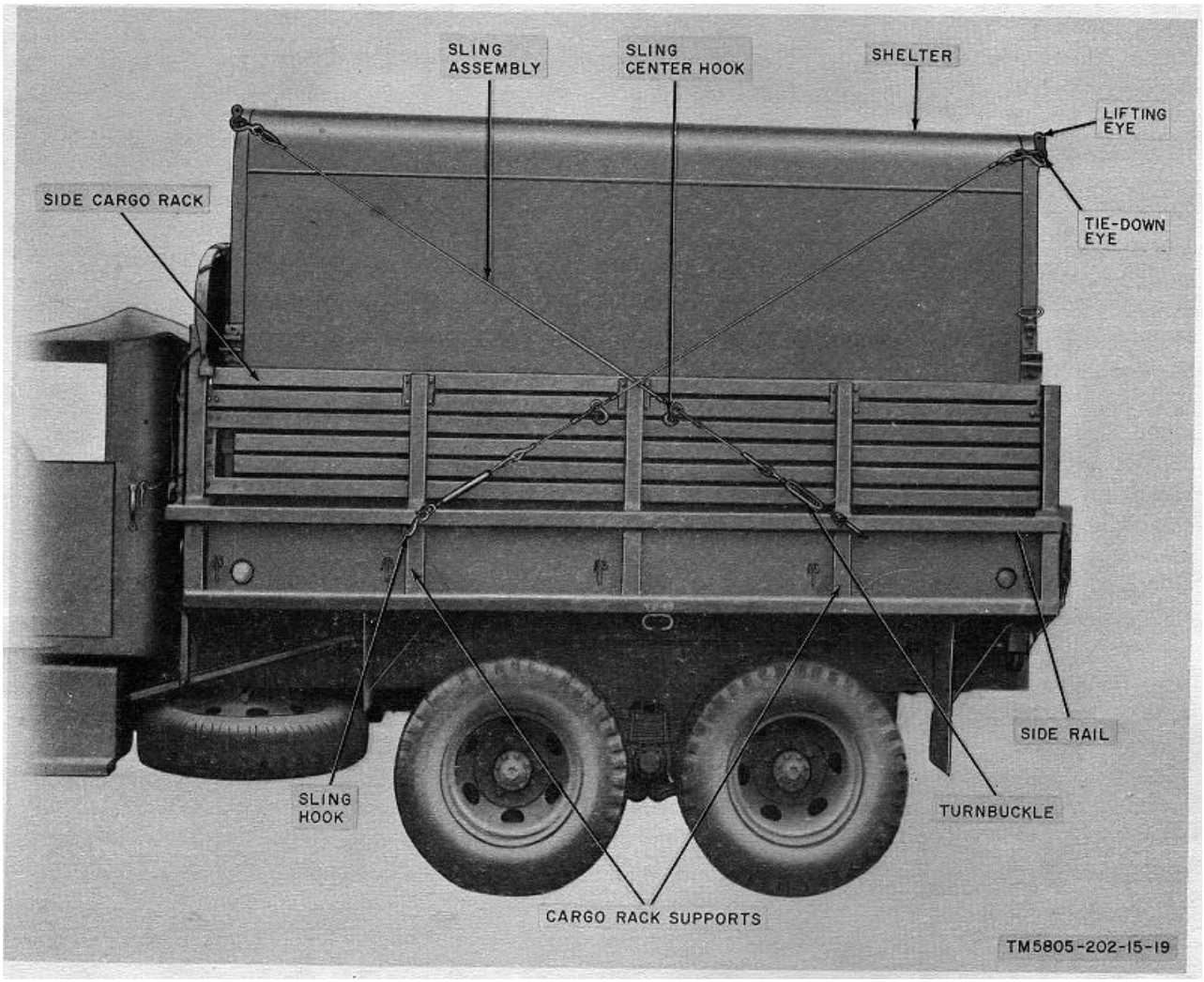


**Figure 15. Securing shelter on truck.**

**26. Controls and Instruments**

This paragraph describes, locates, illustrates, and gives the function of the controls and instruments used in Manual Telephone Central Office AN/MTC-3. The controls and instruments for the organizational equipments are covered in their respective technical manuals (app. I). The following charts apply to the POWER DISTRIBUTION PANEL and miscellaneous switches.

*a. POWER DISTRIBUTION PANEL (fig. 12).*

| Control or instrument | Function and description |
|---|---|
| MAIN circuit breaker (2 ganged circuit breakers). | Rating: 50 amperes, 2-position ON-OFF switch. Provides overload protection for incoming 115-volt ac power supply to the other circuit breakers. |
| Circuit breakers: | Rating: 15 amperes, 2-position ON-OFF switches. |
| 1-LIGHTS & INTERCOM | Provides overload protection to all lighting devices. |
| 2-HEATER 1 | Provides overload protection to HEATER 1 receptacle. |
| 3-HEATER 2 | Provides overload protection to HEATER 2 receptacle. |
| 4-CONVENIENCE RECEPTACLE | Provides overload protection to convenience receptacle. |
| 5-BLOWER 1 | Provides overload protection to BLOWER 1. |
| 6-BLOWER 2 | Provides overload protection to BLOWER 2. |
| Voltmeter (0-150 scale) | Indicates ac voltage input to shelter. |
| Ammeter (0-50 scale) | Indicates amount of alternating current being used by shelter equipment. |

*b. Miscellaneous Switches (figs. 7 and 8).*

| Control or instrument | Function and description |
|---|---|
| NEON switch | 2-position ON-OFF switch. Controls neon lamp. |
| NORMAL-BLACKOUT switch | 2-position ON-OFF switch. Controls all lighting in shelter except the neon lamp.<br>*SW pos* — *Function*<br>NORMAL — Permits lights to be controlled by their individual switches.<br>BLACKOUT — Permits door microswitch to control all lights except the neon lamp. |
| Door microswitch | Controls all lighting, except neon lamp, when NORMAL-BLACKOUT switch is on BLACKOUT. When the door is closed, the lights go on. |
| FLUORESCENT switch | 2-position ON-OFF switch. Controls six fluorescent lights. |
| FLUORESCENT switch | 2-position ON-OFF switch. Controls the fluorescent lights over the switchboards. |

*c. Heater Switches.*

| Control or instrument | Function and description |
|---|---|
| OFF-HEAT-FAN ONLY switch | 3-position switch.<br>*St pos* — *Function*<br>OFF — Cuts off ac power to heater.<br>HEAT — Applies ac power to heater element and fan motor.<br>FAN ONLY — Applies ac power to fan motor only. |
| OFF-HI-MED-LO switch | 4-position switch that controls amount of heat from heater. |
| RESET circuit breaker | Rating: 15 amperes.<br>Overload and overheat protection to heater. |

d. Switch Box Switch. The POWER SUPPLY switch is the only control. This 2-position switch is used to transfer the connections to Switch Box SA-331/U to one of two alternate sources of ac power.

**27. Grounding**

To reduce the hazard of electrical shock, Manual Telephone Central Office AN/MTC-3 must be properly grounded before connecting the shelter to the power source. Select a site for the ground rod so that it will not interfere with the entrance to the shelter, field wires, or power and signal cables. Ground the shelter and the generator set -is follows:

(1) Loosen the fasteners and lift the cover of the SIGNAL & POWER ENTRA.NCE box (fig. 4).

(2) Fold the side flaps out from under the cover and hook them onto the retaining studs at each side of the SIGNAL & POWER ENTRANCE box.

(3) Remove the switch box (fig. 9), ground rod (fig. 6), and sledge hammer (fig. 8) from their mountings.

(4) Install the ground rod as follows:

(a) Select the lowest, dampest site within 10 feet of the shelter, preferably in clay or loamy soil.

(b) Scoop out a small hole about 6 inches deep in the selected location.

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

(d) Drive the ground rod into the hole until the top is approximately 3 inches above the bottom of the hole.

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

(5) Remove the ground lead from the ACCESSORIES & SPARE cabinet No. 2.

(6) Connect one end of the ground lead to the ground rod and the other end to the GRD lug (fig. 11) in the SIGNAL & POWER ENTRANCE box to ground the shelter.

*b. Generator Set.*

(1) Remove the ground rod from its mounting.

(2) Install the ground rod (a(4) above).

(3) Mount the switch box on the trailer (fig. 1).

(4) Remove the ground lead from the ACCESSORIES box.

(5) Connect one end of the ground lead to the ground rod and the other end to the GRD lug on the switch box.

**28. Power Connections**

Before making any power connections, be sure that all circuit breakers and switches are in their OFF positions (figs. 8 and 12).

**Warning**

**Both the shelter and generator set must be grounded (para 27) before power is connected.**

*a. Generator Set.*

(1) Remove the power cable and power stubs from their cable reel (fig. 9).

(2) Connect the black and white leads of one stub to the POWER LINE TERMINALS and the red lead to the ground lug on one of the PU-286/G (TM 11-940A).

(3) Remove the cover from the connector of the power stub ((2) above) and connect the power stub to the INPUT NO. 1 receptacle on the switch box (TM 115805-204-15).

(4) Connect the other power stub to the other generator set and to the INPUT NO. 2 receptacle on the switch box ((2) and (3) above).

(5) Remove the cover from the male connector on the power cable and connect it to the OUTPUT receptacle on the switch box.

(6) Remove the covers from the female connector on the power cable and the POWER IN receptacle in the SIGNAL & POWER ENTRANCE box (fig. 11) and interconnect the connector and receptacle.

*b. Commercial Power.*

(1) Disconnect the power from the source terminals.

(2) Remove the power cable and one power stub from their cable reel (fig. 9).

(3) If the power supply is 50-60 cps, 115 volts, single-phase, connect the red and white leads of the power stub to the neutral terminal and the black lead to the other terminal.

(4) If the power supply is 5060 cps, 115/230 volts, single-phase, 3-wire, connect the

red and white leads of the power stub to the neutral terminal and connect the black lead of the power stub to either of the other terminals.

(5) If the power supply is 50-60 cps, 115/230, 4-wire, 3-pliase, grounded neutral distribution system, connect the red and white leads to the neutral terminal and the black lead to either phase 1, phase 2, or phase 3 terminals.

(6) Remove the covers from the connector of the power stub and the junction box (fig. 8) and connect the power stub to the male side of the junction box.

(7) Remove the cover from the male connector of the power cable and connect it to the OUTPUT receptacle in the junction box.

(8) Remove the covers from the female connector of the power cable and the POWER IN receptacle in the SIGNAL & POWER ENTRANCE box and inter-connect the connector and receptacle.

**29. Energizing Ac Circuits**

*a*. When the generator set is used to supply the power, start Power Unit PU-286/G (TM 11940A).

b. When a commercial power source is used, restore power to the source terminals.

*c*. Operate the MAIN circuit breaker to the ON position (fig. 12).

*d.* Check the voltmeter. It should indicate 115 volts ac.

*e*. Check the ammeter. It should indicate zero.

*f.* Operate the LIGHTS circuit breaker.

*g.* Operate the NEON, FLUORESCENTS (fig. 8), and FLOURESCENT switches (fig. 7) to ON.

*h*. Operate the NORMAL-BLACKOUT switch to the NORMAL position. When blackout conditions are required, operate the switch to BLACKOUT.

**Caution**

**Open the blower vents and the air filter cover on the outside of the shelter before operating the blowers.**

*i.* Operate BLOWER 1 and 2 circuit breakers to the ON position. Check to see that the blowers are operating. Operate BLOWER 1 or 2 circuit breaker to the OFF position. One of the blowers is used as a spare.

*j.* Operate the HEATER 1 and HEATER 2 circuit breakers to the ON position as required.

*k.* Operate the heater OFF-HEAT-FAN ONLY switch to the position required.

*l.* Check the ammeter. It should indicate less than 21 amperes.

## Section III. SIGNAL CONNECTIONS

**30. Circuit Planning**

(fig. 17)

A total of 119 telephone lines may be connected to the AN/MTC-3 switchboard from the SB611/MRC. A minimum of 23 trunk circuits will be established between the AN/MTC-3 and the SB-611/MRC, one circuit will be established for intershelter communication, and the remaining circuits are available for local telephone connections. Local, trunk, or special circuits may be connected to the AN/MTC-3 through the SIGNAL BINDING POSTS box or the SIGNAL & POWER ENTRANCE box. Each binding post in the SIGNAL BINDING POSTS box is connected in parallel with a corresponding contact of a 26-pair cable receptacle in the SIGNAL & POWER ENTRANCE box except the SIGNAL 3 receptacle; only contacts 25 and 26 A and B of the SIGNAL 3 receptacle are connected to binding posts. When a 26-pair receptacle is used, the corresponding binding posts are not available for local circuits unless a dummy plug is inserted in the patch panel of Communication Patching Panel SB-611/MRC.

*a. Local Circuits.* Local circuits may be connected to the binding posts in the SIGNAL BINDING POSTS box or to a drop line box.

(1) *SIGNAL BINDING POSTS box*. A local circuit may be connected to the SIGNAL BINDING POSTS box by connecting field wire (para 32) to a pair of binding posts.

(2) *Drop line box*. Local circuits may be connected to the drop line box by connecting a 26-pair cable (para 31) between one of the 26-pair receptacles in the SIGNAL & POWER ENTRANCE box and one of the 26-pair receptacles on the drop line

box. Field wire is then connected (para. 32) to a pair of binding posts on the drop line box.

*b. Trunk Circuits.* Trunk circuits can be connected either directly, or through a drop line box, to the SB-611/MRC. Depending on the number of trunk circuits required, use the following information as a guide:

(1) Twenty-three circuits. When from 1 to 23 trunk circuits are required, a 26-pair cable is connected between SIGNAL 3 receptacle of the AN/MTC-3 and a SIG IN receptacle of the SB-611/MRC. Six trunk circuits will appear on each of three jack field sections and five trunk circuits will appear on one jack field section (para 10).

(2) Forty-seven circuits. When more than 23 but less than 48 trunk circuits are required, 26-pair cables are connected between SIGNAL 3 receptacle ((1) above) and either SIGNAL 1 or SIGNAL 2 receptacle of the AN/MTC-3 and SIG IN receptacles of the SB-611/MRC. The trunk circuits through SIGNAL 1 and SIGNAL 2 receptacle will appear on position No. 1 TA-207 NO. 1 and TA-207 NO. 2, respectively (par'. 10).

(3) Seventy-one circuit,. When more than 47 but less than 72 trunk circuits are required, 26-pair cables are connected between SIGNAL 3 receptacle ((1) above), either SIGNALI 1 or SIGNAL, 2 receptacle ((2) above) and either SIGNAL 4 or SIGNAL 5 receptacle of the AN/MTC-3 and SIG IN receptacles of the SB-611/MRC. The trunk circuits through SIGNAL 4 and SIGNAL 5 receptacle will appear on position No. 2 TA-207 NO. 1 and TA-207 NO. 2, respectively (para 10).

**Note**

**If more than 71 circuits are required, connect 26-pair cables to all SIGNAL receptacles.**

*c. Special Circuit.* An intershelter communication circuit is established on pair 26 when a 26pair cable is connected between SIGNAL 3 receptacle of the AN/MTC-3 and a SIG IN receptacle of the SB-611/MRC. When SIGNALT 3 receptacle is not used, this special circuit can be established by connecting field wire between the SIGNAL 3 PAIR 26, binding posts in the SIGNAL BINDING POSTS box and on the jack and binding post panel provide an entry into the shelter. These binding posts can be used to interconnect additional telephone sets or other equipment within and outside the shelter.

**31. Cable Connections, 26-Pair**

Connections of 26-pair cables to either the SIGNAL & POWER ENTRANCE box or the drop line box are made in the same way. To connect a 26-pair cable, proceed as follows:

*a.* Remove a 26-pair cable assembly from its reel.

*b*. Remove the protective cover from the 26-pair receptacle in the SIGNAL & POWER ENTRANCE box or the drop line box and from the 26-pair cable connector as follows:

(1) Turn the locking ring counterclockwise until the orange mark is in line with the OPEN mark on the cover.

(2) Disengage the slot on the cover from the cam on the connector.

(3) Lift the cover off the connector.

*c*. Connect the cable connector of the 26-pair cable to the signal receptacle as follows:

(1) Place the connector on the receptacle so that the male and female portions of the connector mate with those of the receptacle, and press them firmly together.

(2) Turn the locking ring of the receptacle counterclockwise until the orange mark is in line with the CLOSED mark on the receptacle.

(3) Turn the locking ring of the connector clockwise until the orange mark is in line with the CLOSED mark on the connector.

**32. Field Wire Connections**

Make field wire connections to the binding posts in the SIGNAL BINDING POSTS box or the drop line box as follows:

*a. SIGNAL BINDING POSTS Box.*

(1) Loosen the fasteners and lift the cover of the SIGNAL BINDING POSTS box.

(2) Pull out the flaps under the cover and fasten them to the side of the SIGNATL BINDING POSTS box; a slot on the flap engages a stud on the side of the box.

(3) For switchboard connections to local circuits, connect field wire to the binding posts 1 through 114 as required (para

10) Keep a record of the connections made.

(4) To connect to the telephone set, use the SIGNAL 3 PAIR 26 binding posts if the SIGNAL 3 receptacle is not being used.

(5) When the A or B binding posts in the SIGNAL BINDING POSTS box are used, connect field wire between the binding posts of the telephone set or other equipment and the A and B binding posts on the jack and binding post panel (fig. 5).

*b. Drop Line Box.*

(1) Connect a 26-pair cable assembly (para. 31) to the drop line box.

(2) Loosen the snapslide fastener of the cover' and lift the cover.

(3) Connect, field wire through the side slots to the binding posts as required (para. 10).

**33. Preoperational Test**

*a. Trunk Circuit Test.* Perform the following test procedure for all trunk circuits that have been connected through the SB-611/MRC.

(1) Connect the terminals of a plug-ended cord (telephone cord) to the LINE binding posts of the telephone set.

(2) Insert the plug of the cord into the LISTEN jack of the first trunk circuit on the patch panel of the SB-611/MRC.

(3) Signal the switchboard operator in the AN/MTC-3. When the switchboard operator answers, check to be sure that transmission is satisfactory in both directions.

(4) Before moving to the next trunk circuit, ask the switchboard operator to signal the telephone set operator to be sure that the switchboard is operating properly.

(5) Repeat the procedures in (2) and (3) above for each circuit connected from the AN/MTC-3 to the SB-611/MRC.

*b. Local Circuit Test.* The following procedure should be performed by the personnel installing local telephone lines and telephone sets.

(1) After the telephone set has been installed and connected to the line, signal the switchboard operator.

(2) When the switchboard operator answers, check to be sure that transmission is satisfactory in both directions.

(3) Request the switchboard operator to signal the telephone set operator.

(4) After it has been determined that the line and telephone set are operating properly, inform the using personnel that the telephone set is ready for service.

*c. Special Circuit Tests.*

(1) *Sole user trunk*.. Insert the plug end of the cord into the LISTEN jack associated with the sole user trunk on the patch panel in the SB-611/MRC, and signal the telephone operator at the local end of the trunk. Check to be sure that transmission is satisfactory in both directions. Request the installer at the telephone to signal back to be sure that all equipment is operating properly.

(2) C*ABLE 3 PAIR 25, LB PHONE, A, and B binding post circuits*. For each circuit complete a call between the AN/MTC-3 and the shelter to which it is connected by using the equipment provided (intercom telephone set, as appropriate). Be sure that both equipments provide proper signaling and transmission.

## Section IV. OPERATION

**34. Types of Operation**

Manual Telephone Central Office AN/MTC-3 is arranged for local battery telephone switchboard operation. Each line circuit in either switchboard can be operated as a magneto line or as a common battery signaling line. With magneto signaling, ringing current from a hand generator on a field telephone operates the signals on the switchboard. With common battery signaling, lifting the telephone handset from its handset-retaining bracket operates the signals on the switchboard.

**35. Operating Procedures**

a. Check to see that all circuit breakers are in their OFF position.

b. Start one Power Unit PU-286/G (TM 11940A).

c. Energize the ac circuits (para 29).

d. Operate the switchboard (TM 11-2134).

**Note**

**Dummy plugs may be used to plug line jacks of sole user circuits which are not to be switched at the AN/MTC-3.**

**36. Power Transfer**

After one of the power units has been in operation for 8 hours or if the power unit begins to make unusual noise, follow the procedures below:

*a*. Start the standby power unit (TM 11940A).

*b.* When the standby power unit is running properly, operate the POWER SUPPLY switch on the switch box to the standby power unit (NO. 1 to NO. 2 or NO. 2 to NO. 1).

*c*. Stop the power unit and perform the service procedures (TM 11-940A).

**37. Stopping Procedures**

a. Emergency. To turn off the power in an emergency, operate the MAIN circuit breaker to the OFF position.

b. Normal.

(1) Operate the switches and circuit breakers listed in the chart below to their OFF positions.

| Circuit breaker or switch | Location |
|---|---|
| BLOWER 1 or BLOWER 2. | POWER DISTRIBUTION PANEL (fig. 12). |
| NEON ..... | AC POWER DUCT (fig. 8). |
| FLUORESCENTS ..... | AC POWER DUCT (fig. 8). |
| FLUORESCENT ..... | AC POWER DUCT (fig. 7). |
| OFF-HEAT-FAN ..... ONLY. | Heater (TM 11-5805-204-15). |
| HEATERS ..... | POWER DISTRIBUTION PANEL (fig. 12). |
| LIGHTS ..... | POWER DISTRIBUTION PANEL (fig. 12). |
| MAIN ..... | POWER DISTRIBUTION PANEL (fig. 12). |

(2) Stop the generator set (TM 11-940A).

**38. Operation Under Unusual Conditions**

The AN/AITC-3 has been designed to meet conditions of extreme cold and hot climates. The shelter offers protection from the elements to personnel and equipment; however, if the SIGNAL & POWER ENTRANCE box and the SIGNAL BINDING POSTS box of the shelter and the power terminals of the generator set are exposed to adverse conditions, the following precautions are necessary.

*a. Cold Climates.* Extreme cold causes cables and wires to become hard, brittle, and difficult to handle. 13e careful when handling the cables and connecting them to equipment so that kinks ;and unnecessary loops will not result. in permanent. damage. Insure that binding posts, receptacles, and connectors are free of frost, snow, and ice by replacing the covers over the connectors and receptacles and closing the cover over the SIGNAI, & POWER ENTRANCE box and the SIGNAL BINDING POSTS box when they are not in use. Replace the connector or receptacle cover as soon as it is disconnected from the equipment; never drag or place an open connector or receptacle in the snow.

**Caution**

**Be sure that the shelter is always properly ventilated.**

b. Hot Climates. In hot dry climates, the connectors, receptacles, and binding posts are subject to damage from dirt and dust. (Cover the SIGNAL & POWER ENTRANCE box and the SIGNAL BINDING POSTS box when they are not in use and replace the covers over the connectors and receptacles. Never drag or place an open connector or receptacle on the ground.

c. Warm, Damp climates. In warm, damp climates, the equipment is subject to damage from moisture and fungus. Wipe all moisture and fungus from the exterior of the equipment with a lint-free cloth. Follow the recommendations in *b* above. Never drag or place an open connector or receptacle in mud or water.

## CHAPTER 3
## MAINTENANCE

### 39. Scope of Maintenance

The operator must clean and inspect all components of Manual Telephone Central Office AN/MTC-3 regularly to keep them in good working condition. Detailed preventive maintenance procedures pertaining to the major components are described in the appropriate technical manuals (app. I).

*a*. Use a clean, dry, lint-free cloth or brush for dusting.

*b*. For cleaning, if necessary, moisten the cloth or brush with cleaning compound (Fed Stock No. 7930-395-9542); after cleaning, wipe dry with a cloth.

**Warning**

**Prolonged breathing of cleaning compound is dangerous. Make certain that adequate ventilation is provided. Cleaning compound is flammable; do not use it near a flame.**

c. To clean electrical contacts, use a cloth moistened in cleaning compound and wipe with a dry cloth.

d. Dry compressed air not exceeding 60 pounds per square inch may be used to remove dust from inaccessible places.

**Warning**

**Compressed air is dangerous and can cause serious injury to eyes, ears, nose, and other parts of the body. It can also cause mechanical damage to the equipment. Do not use compressed air to dry parts where cleaning compound has been applied.**

### 40. Daily Preventive Maintenance

*a*. Check for completeness and general condition of the equipment and spare parts.

*b*. Remove dirt, dust, grease, and moisture from the exposed parts.

*c.* Remove rust, corrosion, fungus, dirt, and moisture from binding posts, conductors, and receptacles.

*d*. Inspect the field wire connections to the binding posts for good contact.

*e*. Inspect, the ground rod connections for good contact.

*f.* Inspect the writing on the designation strips for legibility.

*g*. Inspect the ground rods.

*h*. Inspect all exposed cables for kinks, strains, moisture, fungus, and loose terminals, and frayed, cut, or damaged insulation.

*i.* Tighten any loose screws.

### 41. Weekly Preventive Maintenance

*a.* Clean and tighten components, racks, mountings, installations, cables, and connections.

*b.* Inspect components, racks, mountings, installations, and exposed metal surfaces for rust, corrosion, and moisture.

*c*. Inspect cables and wires for cuts, breaks, fraying, deterioration, kinks, and strain.

*d.* Inspect for looseness of accessible items: switches, circuit breakers, signal and ac electrical power assemblies, and neon lamps.

*e*. Clean ail filters, name plates, meters, and clock.

*f.* Inspect meters and clock for damaged glass and cases.

*g.* Wind the clock (fig. 8).

*h.* Inspect the shelter and the generator set for support, installation, rust, corrosion, and moisture.

*i.* Check entrance boxes, blower exhaust, and filter intake covers for cracks, leaks, damaged gaskets, dirt, and grease.

*j.* Check for normal operation (para 43).

### 42. Monthly Cleaning and Lubrication

*a*. Lubricate the locks and latches. Use grease, graphite, aircraft (GGA) (TM 11-5805204-15).

*b*. Lubricate the door hinges. Use lubricating oil, general purpose preservative (PL special) or lubricating oil, internal combustion engine (OE10) (TM 11-5805-204-15).

*c*. Lubricate all metal to metal moving parts (TM 11-5805-204-15).

**Caution**

**More frequent lubrication intervals may be required in excessively hot, humid, or dusty areas. Do not over-lubricate.**

d. Remove the air filter. Clean the filter with water. Air-dry the filter and replace it in its mounting.

**43. Equipment Performance Check List**

The equipment performance check list is used to systematically check the equipment performance. Corrective measures are given in the corrective measures column. When using the check list, start at the beginning and follow each step consecutively to locate the trouble. If trouble is suspected ill a particular area, start checking at that point and continue the steps sequentially. THIS CHECK LIST COVERS ONLY THE AC CIRCUITS OF THE AN/MTC-3. When a fault. or condition is located on a major component, refer to the applicable technical manual, (app. I). Operate the equipment as follows:

**Note**

**Troubleshooting and repair procedures for the blowers, heaters, and intercom are covered in TM 11,W580-204-15.**

| | Item No. | Item | Action or condition | Normal indications | Corrective measures |
|---|---|---|---|---|---|
| PREPARATORY | 1 | All switches and circuit breakers. | Operate to OFF position | | |
| | 2 | Switch Box SA-331/U switch (generator set). | Operate to NO. 1 or NO. 2 as applicable. | | |
| | 3 | Power Unit PU-286/G- - | Start (TM 11-940A)- | | |
| | 4 | MAIN circuit breaker on POWER DISTRIBU-TION PANEL. | Operate to ON position | | |
| | 5 | Voltmeter on POWER DISTRIBUTION PANEL. | Use flashlight and read volts + 10 per cent. | Voltmeter indicates 115 to OFF and then to ON. | Reset MAIN circuit breaker<br>Check connections of power cable and power stub.<br>Check position of switch on Switch Box SA-331/U.<br>Change power cable or power stub. |
| | 6 | Ammeter on POWER DISTRIBUTION PANEL. | Use flashlight and read | Ammeter indicates zero | See that all other circuit breakers on the POWER DISTRIBUTION PANEL are at the OFF position. |
| | 7 | LIGHTS & INTERCOM circuit breaker 1 on POWER DISTRIBU-TION PANEL. | Operate to ON position. Operate NORMAL-BLACKOUT switch to NORMAL. | | |
| | | | Operate NEON, FLUO-RESCENTS, and FLU-ORESCENT switches to their ON position. | Ammeter indicates ap-proximately 2 amperes. Neon lamp over LIGHTS circuit breaker lights. NEON, FLUORE S-CENTS, and FLUORES-CENT lamps light. | Any, but not all, of the, Lights fail to go on, rf:-place the faulty light or starter.<br>None of the lights go on, replace circuit breaker CB1. |
| | | | Press door microswitch and operate NORMAL BLACKOUT switch to BLACKOUT. | Lights remain on. | Check microswitch; re-place if defective. |
| | | | Release door microswitch. | Lights go out. | Check microswitch; re-place if defective. |
| | | | Operate NORMAL-BLACKOUT switch to NORMAL. | | |

| | Item No. | Item | Action or condition | Normal indications | Corrective measures |
|---|---|---|---|---|---|
| PREPARATORY | 8 | CONVENIENCE RECEPTACLE circuit breaker 4 on POWER DISTRIBUTION PANEL . | Operate to ON position. | Neon lamp above the circuit breaker lights. Ammeter indicates approximately 2 amperes. | Replace neon lamp. |
| | | | Check each convenience outlet with extension light. | Extension light lamp lights. | Check outlet with meter; replace if defective. |
| | | | Operate circuit breaker to OFF position. | | |
| | 9 | BLOWER 1 circuit breaker 5 on POWER DISTRIBUTION PANEL. | Operate to ON position Caution: Vent of blower must be open. | Neon lamp lights | Neon lamp does not light but blower operates; replace the neon lamp. |
| | | | Operate BLOWER 1 circuit breaker to OFF. | Ammeter indicates approximately 4 amperes. Blower operates | Reset circuit breakers to OFF and then to ON. If ammeter reads above 4 amperes check motor; replace if defective. |
| | 10 | BLOWER 2 circuit breaker 6 on POWER DISTRIBUTION PANEL. | Repeat procedures listed for item 9. | | |
| | 11 | HEATER 1 circuit breaker 2 on POWER DISTRIBUTION PANEL. | Connect heater power cord into heater receptacle. Operate HEATER 1 circuit breaker 2 to ON position. | Neon lamp above HEATER 1 circuit breaker 2 lights. | Replace faulty lamp. |
| | | | Operate heater switch to HEAT. Operate OFF-HI-MED-LO switch to desired position. | Heater fan operates and heat is given. When room temperature rises to thermostat temperature settings, heat will be cut off. | Press reset button on heater. Check for defective switch or heating element; replace defetive part. |
| | | | Operate heater switch to OFF. | | |
| | | | Operate OFF-HI-MED-LO switch to OFF. | | |
| | | | Operate HEATER 1 circuit breaker 2 to OFF. | | |
| | 12 | HEATER 2 circuit breaker 3 on POWER DISTRIBUTION PANEL . | Repeat the procedures of item 11. | | |
| EPQRUEIFP | P 13 | ment. | Organizational equipas described in appropriate technical manuals (app I). | Operate the equipments | |
| STOP | 14 | Organizational equipment. | Perform the stopping procedures as described in the appropriate technical manuals (app I). | | |
| | 15 | Shelter | Perform the stopping procedures (para 37). | | |

**44. Replacement of Shelter Cables**

The signal wiring of the AN/MTC-3 consists of six 26-pair cables between the 26-pair receptacles in the SIGNAL & POWER ENTRANCE box and the binding posts in the SIGNAL. BINDING POSTS box, and two 14-pair cables and four 26-pair cables between the SIGNAL BINDING POSTS box and the switchboard (fig. 17). The cables between the SIGNAL, BINDING POSTS box and the switchboard are placed in the signal duct and are secured in place (bunched) by plastic straps placed around the cables at specified intervals. Authorized replacement cables ARE NOT identical with those originally furnished in the shelter. Replacement procedures are covered in a below and the color coding of the replacement cables is given in b below.

*a. Replacement of Interior Cables.* The interior cables should not be replaced when only one or two pairs have become defective. Use the spare pairs as replacement for the defective pairs. If the spare pairs have been used previously and the defect call be located, repair the defect by splicing. However, if all entire cable is accidentally cut or damaged beyond repair, or if a cable has been repaired previously and there is not enough slack to permit another repair, the cable must be replaced. To install a replacement cable, first disconnect the defective cable and remove it from the ducts. (Cut the new cable to the proper length (same as cable removed), place it in the same relative location as the defective cable just removed, and secure it. in the ducts. Connect the new cable; use the color coding given in b below as appropriate.

*b. Cable Color Coding.* The charts in (1) through (3) be-low compare the color code of each pair of the original 14-pair or 26-pair cable to the corresponding pairs in the authorized replacement cables. Refer to figure 17 for the terminal points of the replacement cables.

*(1) Position No. 1, 14-pair cable.*

| Pair No. | Original cable color code | | Replacement cable color code | |
|---|---|---|---|---|
| | Tip | Ring | Tip | Ring |
| 1 | White | Yellow | White | Blue |
| 2 | White | Orange | White | Orange |
| 3 | White | Black, | White | Green |
| 4 | White | Pink | White | Brown |
| 5 | White | Light brown | White | Gray (slate) |
| 6 | White | Dark brown | Red | Blue |
| 7 | White | Silver | Red | Orange |
| 8 | White | Dark green | Red | Green |
| 9 | White | Light green | Red | Brown |
| 10 | White | Violet | Red | Gray (slate) |
| 11 | White | Gray (slate) | Black | Blue |
| 12 | White | Light blue | Black | Orange |
| 13 | White | Dark blue | Black | Green |
| 14 | Black | Pink | Black | Brown |

*(2) Position No. 2, 14-pair cable.*

| Pair No. | Original cable color code | | Replacement cable color code | |
|---|---|---|---|---|
| | Tip | Ring | Tip | Ring |
| 1 | White | Dark blue | Black | Green |
| 2 | Black | Silver | Black | Brown |
| 3 | Black | Gray (slate) | Black | Gray (slate) |
| 4 | Black | Light, brown | Yellow | Blue |
| 5 | Black | Dark brown | Yellow | Orange |
| 6 | Black | Yellow | Yellow | Green |
| 7 | Black | Light blue | Yellow | Brown |
| 8 | Black | Dark blue | Yellow | Gray (slate) |
| 9 | Black | Light green | Violet | Blue |
| 10 | Black | Dark green | Violet | Orange |
| 11 | Black | Orange | Violet | Green |
| 12 | Black | Violet | Violet | Brown |
| 13 | Black | Pink | Violet | Gray (slate) |
| 14 | Gray (slate) | Pink | White | Red |

(3) *26-pair cable.*

| Pair No. | Original cable color code | | Replacement cable color code | |
|---|---|---|---|---|
| | Tip | Ring | Tip | Ring |
| 1 | White | Yellow | White | Blue |
| 2 | White | Orange- | White | Orange |
| 3 | White | Black | White | Green |
| 4 | White | Pink | White | Brown |
| 5 | White | Light brown | White | Gray (slate) |
| 6 | White | Dark brown | Red | Blue |
| 7 | White | Silver | Red | Orange |
| 8 | White | Dark green | Red | Green |
| 9 | White | Light green | Red | Brown |
| 10 | White | Violet | Red | Gray (slate) |
| 11 | White | Gray (slate) | Black | Blue |
| 12 | White | Light blue | Black | Orange |
| 13 | White | Dark blue | Black | Green |
| 14 | Black | Silver | Black | Brown |
| 15 | Black | Gray (slate) | Black | Gray (slate) |
| 16 | Black | Light brown | Yellow | Blue |
| 17 | Black | Dark brown | Yellow | Orange |
| 18 | Black | Yellow | Yellow | Green |
| 19 | Black | Light blue | Yellow | Brown |
| 20 | Black | Dark blue | Yellow | Gray (slate) |
| 21 | Black | Light green | Violet | Blue |
| 22 | Black | Dark green | Violet | Orange |
| 23 | Black | Orange | Violet | Green |
| 24 | Black | Violet | Violet | Brown |
| 25 | Black | Pink (slate) | Violet | Gray |
| 26 | Dark blue | Pink | White | Red |

## CHAPTER 4
## THEORY

### 45. General

Manual Telephone Central Office AN/MTC-3 contains facilities for switching or terminating 120 circuits (trunk or local). All signal and power connections are made on the outside of the shelter. Cables from the switchboard are connected to the binding posts which are ill parallel with the 26-paiir connectors. Wiring, for both signal and ac power, is contained in metal ducts. Ac power in the shelter is controlled at the POWER DISTRIBUTION PANEL. For the theory of operation on blowers, heater, and drop line box, refer to TM 11-5805-204-15.

### 46. Signal Circuits

(fig. 16 and 17)

All incoming and outgoing circuits are connected at either the SIGNAL & POWER ENTRANCE box or the SIGNAL BINDING POSTS box. From the SIGNAL & POWER ENTRANCE box, the circuits are connected through the SIGNAL BINDING POSTS box to the jack panel, jack and binding post panel, and the jack field sections of the switchboard.

*a. Trunk and Local Circuits*. Trunk lines between the AN/MTC-3 and the SB-611/MARC are normally connected through 26-pair cables to the cable receptacles in the SIGNALI, & POWER ENTRANCE box on the AN/MTC1-3. Local circuits are connected directly from the user's telephone to binding posts in the BINDING POST box on the AN/MTC-3 by field wire or field cable, or they may be routed through the SB-611/MRC over pairs of 26-pair cables not being used for trunk circuits. A drop line box may be used as a wirehead for local circuits. Circuits from the drop line box to the AN/MTC-3 would be connected by a 26-pair cable.

*b. Cable and Connector Circuit Assignment*

The 26-pair SIGNAL 1 receptacle is wired to binding posts 1 through 24 with pairs 25 and 26 left as spares. The 26-pair SIGNAL receptacle is wired to binding posts 31 through 54 with pairs 25 and 26 left as spares. The third 26-pair SIGNAL 3 receptacle is connected to terminals E25 to E30, E55 to E60, E85 to E90, and E116 to E120 on terminal boards TB1 and TB2, and also to the SIGNAL 3 PAIR 25 and SIGNAL 3 PAIR 26 jacks. The 26-pair SIGNAL 4 receptacle is wired to binding posts 61 through 84 with pairs 25 and 26 left as spares. The 26-pair SIGNAL 5 receptacle is wired to binding posts 91 through 114 with pairs 25 and 26 as spares. The 26-pair receptacle contacts are in two groups; male and female. Each group is divided into an A ring and B tip section. The contacts on the 26-pair receptacle are interconnected so that 1 A male connects to 1 A female. All the contacts in section A male connect to the corresponding numbered contacts in A female. The same applies in the B section of the receptacle. Four 26-pair cables and two 14 pair cables are used to interconnect the binding posts and terminals to the switchboard. The cables are housed in a duct. Each 14-pair cable is divided so that 6 pairs are for connection to jack field section No. 1 and 6 pairs are for connection to jack field section No. 2. Two of the pairs ill each cable are for spares.

*c. Special Circuits.* Two telephone sets can be connected in the AN/MTC-3. One telephone set may be connected to the PHONE LINE 115 jack. The other telephone set will be connected to the SIGNAL 3 PAIR 26 jack when the intercom is not used. When the AN/MTC-3 is used in a large system and the intercom is needed, the telephone set will be connected to the SIGNAL 3 PAIR 25 jack and the intercom to the SIGNAL 3 PAIR 26 jack. In the SIGNAL BINDING POSTS box, two additional pairs of binding posts provide entry into the shelter. These pairs of binding posts, designated A and B together with the SIGNAL 3 PAIR 25 and SIGNAL 3 PAIR 26 binding posts, are terminated in the jack and binding post panel.

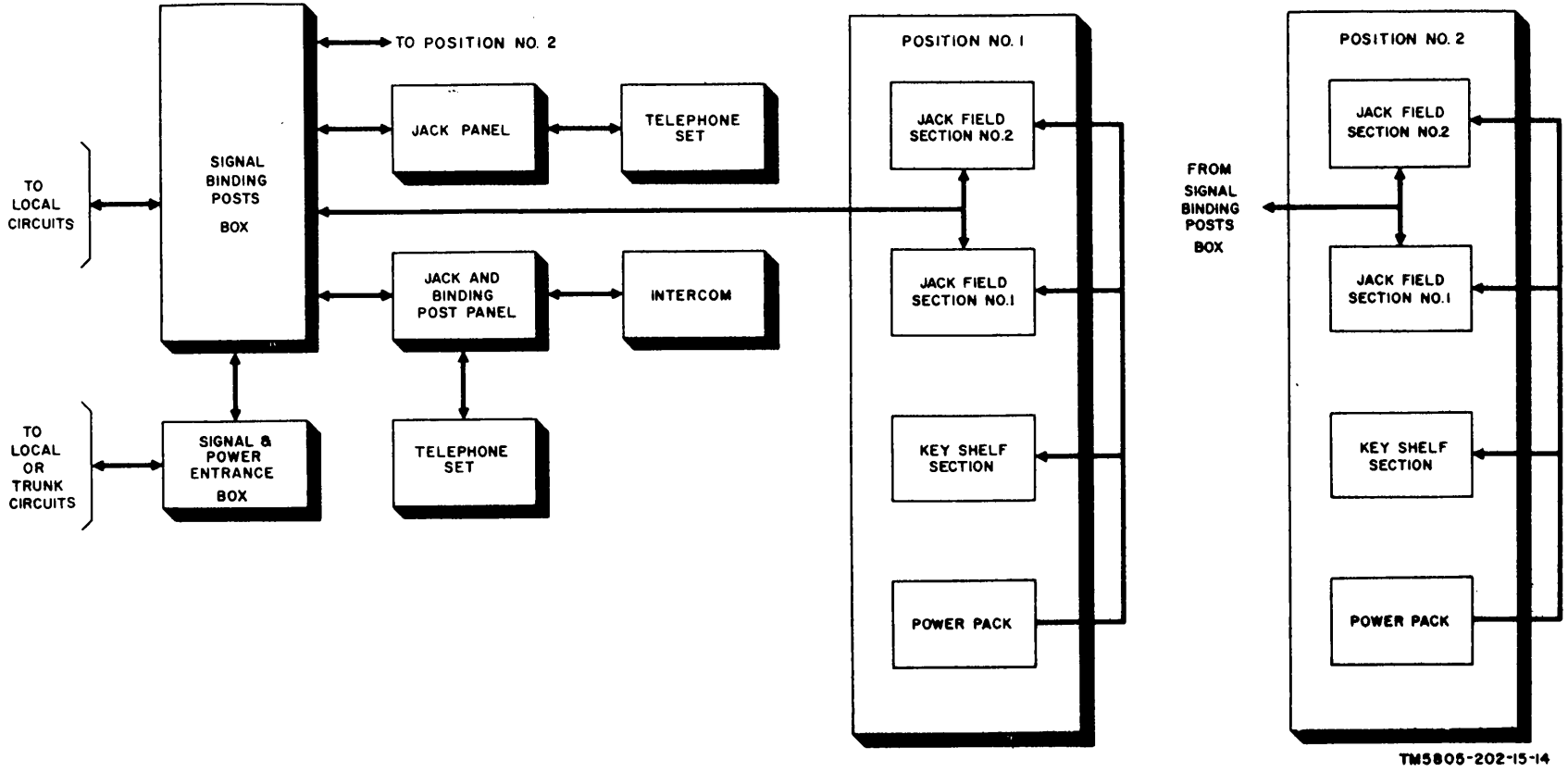


**Figure 16. Signal block diagram AN/MTC-3**

**47. Ac Power**

(fig. 18)

*a. Power Supply*. Power from the generator sets is connected into a switch box. The switch box has switching facilities to select the output of either JPUT-86/G. From the switch box, power is connected to POWER IN receptacle in the SIGNAL & POWER ENTRANCE box. Alternatively power may be obtained from a commercial source. For connection to a commercial source, refer to paragraph 28b.

*b. Main Power Circuit.* POWER OUJT receptacle J10 is wired in parallel to POWER IN receptacle J9 so that another shelter may be connected to the same power source provided the output of the generator (5,000 watts) will not be exceeded. Power wiring to the POWER DISTRIBITTION PANEL is through ducts. In the POWER DISTRIBUJTION PANEL, current flows through double-pole circuit, breaker CB7 to ammeter M1 and to voltmeter M2. Power is distributed to the different circuits through circuit breakers CB1 through CB6. Each circuit has an indicating lamp connected in parallel with the circuit breaker; voltage dropping resistors R1 through R6 are connected in series with indicating lamp DS1 through DS6, respectively.

*c. Voltmeter and Ammeter*. Voltmeter M2, wired across the ac input circuit, indicates the ac voltage applied to the AN/MTC-3. It has a 0-150-volt full-deflection scale with a red line at 115 volts. Ammeter M1, wired in series with the ac input circuit, indicates the total ac being used in the AN/MTC-3. It has a 0-50-ampere full deflection scale. A current transformer having a ratio of 10 to 1 is used. Its secondary is connected to the ammeter. Its primary, consisting of 3 turns of wire, is between the MAIN circuit breaker CB7 and the individual circuit breakers with 50 amperes flowing in the line, 5 amperes will flow in the secondary of the transformer and the meter will deflect to full scale.

*d. Tributary Power Circuits.* Individual circuit breakers CB5 and CB6C, which are also used for ON-OFF switches, are provided for each blower. Nine convenience receptacles ,J14 through J22, one in the SIGNAL, & POWER ENTRANCE box and the others inside the shelters, are connected in parallel. Separate circuit breakers CI32 and CB3 are provided for each of the heaters because of the amount of current they draw.

*e. Lamp and Equipment Circuit*. NORMAL BLACKOUT switch S3, wired in parallel with door micro switch S1, controls the flow of current to tile fluorescent lamps. NEON lamp DS15 is not controlled by this switch but has its own ON-OFF switch S5. With the NORMAL BLACKOUT switch in the BLACKOUT position, current flows through switch S1. When the door is opened, switch S1 opens and current cannot flow to the fluorescent lamps< When the NORMAL BLACKOUT switch is in the NORMAT, position, current flows through this switch and bypasses switch S1.

## CHAPTER 5
## SHIPMENT AND LIMITED STORAGE, TRANSPORTATION, AND DEMOLITION

### Section I. SHIPMENT AND LIMITED STORAGE, TRANSPORTATION

**48. Disassembly of Equipment**

If Manual Telephone Central Office AN/MTC3 is being moved to a different location, perform the following operations:

*a*. Turn off all ac power switches and circuit breakers except the FLIJORESCENTS and FLUORESCENT switches, the LIGHTS & INTERCOM circuit breaker, and the MAIN circuit breaker.

*b*. Fasten the telephone sets in their mountings (fig. 8).

*c*. Fasten the wastepaper baskets in their holders (fig. 16).

*d.* Place the operator's telephone sets in their holders (figs. 5 and 8).

*e*. Secure the chairs (figs. 5, 7, and 9).

*f*. Secure the heaters in their mountings (fig. 9)

*g*. Place the miscellaneous items (para 5c) in the ACCESSORIES & SPARES cabinet No. 2 in the shelter.

*h*. Check to see that everything is fastened in position.

*i.* Disconnect the 26-pair cables in the SIGNAL & POWER ENTRANCE box and replace the covers on the receptacles and connectors (para 31).

*j*. Wind the 26-pair cables on the cable reels.

*k*. Install the cable reels in the shelter as described below. Leave space for the power cable reel at the rear right of the shelter (fig. 9).

(1) Position the cable reels in the shelter with the center of the hub directly over the mounting plate on the floor.

(2) Remove the cable reel holders from their mountings and engage the stud with the reel hub and mounting plate and tighten the holder.

*l.* Place the ladder on top of the cable reels and secure it to the reels with the web straps.

*m*. Disconnect the field wires from the binding posts in the SIGNAL BINDING POSTS box.

*n.* Operate the FLUORESCENTS and FLUORESCENT switches, the LIGHTS & INTERCOM circuit breaker, and the MAIN circuit breaker to their OFF position.

*o.* If the power was obtained from the generator set, proceed as follows:

(1) Stop the generator set (TM 11-940A).

(2) Disconnect the power cable, power stub, and ground lead from the switch box and replace the covers on the receptacles and connectors.

(3) Remove the switch box from the trailer of the generator set and secure the switch box in its mounting (fig. 9) in the shelter.

*p.* If the power was obtained from a commercial source, proceed as follows:

(1) Operate the switch to cut off the main lines from the source terminals.

(2) Disconnect the power stub from the commercial source.

(3) Disconnect the junction box from the power cable and power stub and replace the cover on the junction box and both cables.

(4) Mount the junction box in its bracket (fig. 8).

*q*. Disconnect the power cable from the POWER IN receptacle in the SIGNAL & POWER ENTRANCE box and replace the covers on the connector and receptacle.

*r.* Disconnect the ground lead from the GND lug in the SIGNAL & POWER ENTRANCE box.

*s*. Close and secure the covers of the SIGNAL & POWER ENTRANCE and SIGNAL BINDING POSTS boxes with the wing fasteners.

*t*. Disconnect the ground leads from the shelter and generator set ground rods and store one lead in the ACCESSORIES box of the trailer

and the other in the ACCESSORIES & SPARES cabinet No. 2 in the shelter (fig. 7).

u. Remove the ground rods from the ground and install them in their mountings in the shelter and trailer (fig. 6 and TM 11-5805-204-15).

v. Wind the power stubs first and then the power cable on a cable reel.

w. Wind the power stubs first and then the

v. Wind the power cable (k above) in the right rear corner of the shelter (fig. 9).

x. Recheck the area for loose items. Be sure that all items are properly stored.

y. Close the blower vents and air filter covers.

z. Close and lock the door.

**49. Transportation**

The shelter can be transported to another site either by truck or by helicopter. To load the shelter onto a truck or lift it by helicopter, refer to paragraph 25.

## Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

**50. Authority for Demolition**

Demolition of the equipment will be accomplished only upon the order of the commander.

The destruction procedures outlined in paragraph 51 will be used to prevent further use of the equipment.

**51. Methods of Destruction**

Use any or all of the following methods to destroy the equipment.

*a. Smash.* Smash the controls, ducts, boxes, furniture, switches, connectors, reels, and meters; use sledges, axes, handaxes, pickaxes, hammers, or crowbars.

*b. Cut*. Cut all cables and cords and slash the wiring on the switchboards and ducts; use axes, hand axes, or machetes.

*c. Burn*. Burn cords, and technical manuals; use gasoline, kerosene, oil, flame throwers, or incendiary grenades.

*d. Bend*. Bend panels and cabinets.

*e. Explode*. If explosives are necessary, use firearms, grenades, or TNT.

*f. Dispose*. Bury or scatter the destroyed parts in slit trenches, fox holes, or throw them into streams.

## APPENDIX I
## REFERENCES

The following applicable references are available for the operator and installer of Manual Telephone Central Office AN/MTC-3.

| | |
|---|---|
| TM 11-2134 | Manual Telephone Switchboard SB-86/P, Installation and Operation |
| TM 11-4134 | Manual Telephone Switchboard SB-86/P, Field Maintenance |
| TM 11-2155 | Telephone Set TA312/PT |
| TM 11-940A | Gasoline Engine Generator Sets PU-286/G and PU-286A/G |
| TM 11-5805-204-15 | Communication Patching Panel SB-611/MRC Operation and Maintenance |

## APPENDIX II
## MAINTENANCE ALLOCATION CHART

### 1. General

a. The maintenance allocation portion of this manual assigns maintenance functions and repair operations to be performed by the lowest appropriate maintenance echelon.

b. Columns in the maintenance allocation chart are defined as follows:

(1) Part or component. Only the nomenclature or standard item name is annotated in this column. Additional descriptive data are included only where clarification is necessary to identify the part. Components and parts comprising a major end item are listed alphabetically. Assemblies and subassemblies are in alphabetical sequence with their components listed alphabetically immediately below the assembly listing.

(2) Maintenance function. This column indicates the various maintenance functions allocated to the echelon capable of performing the operation. These are defined as follows:

(a) Service. To clean, to preserve, and to replenish fuel and lubricants.

(b) Inspect. To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

(c) Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

(d) Replace. To substitute serviceable assemblies, subassemblies, and parts for unserviceable components.

(e) Repair. To restore to a serviceable condition by replacing unserviceable parts or by any other action required utilizing tools equipment, and skills available, to include welding, grinding, riveting, straightening, adjusting, etc.

(f) Rebuild. To restore to a condition comparable to new by disassembling the item to determine the condition of its component parts and reassembling it using serviceable, rebuilt, or new assemblies, subassemblies, and parts.

(3) 1st, 2d, 3d, 4th, and 5th echelon. The symbol X in columns 3 through 7 indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by X are authorized to perform the indicated operation.

(4) Tools required. The numbers in this column are code numbers assigned to each individual tool equipment, test k equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required td perform the maintenance function.

(5) Remarks. Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding columns.

c. Columns in the allocation of tools for maintenance functions chart are defined as follows:

(1) Tools required for maintenance functions. This column lists tools and test equipment required to perform the maintenance functions.

(2) 1st, 2nd, 3rd, 4th, 6th echelon. A dagger (t) symbol in columns 2 through 6 indicates the echelons allocated the facility.

(3) Tool code. This column lists the tool code numbers assigned.

(4) Remarks. Entries in this column are used to clarify data in the other columns.

**2. Maintenance by Using Organizations**

When this equipment is used by Signal service organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to and including fourth echelon are authorized to the organization operating this equipment.

**3. Mounting Hardware**

The basic entries of this maintenance allocation chart do not include mounting hardware such as: screws, nuts, bolts, washers, brackets, clamps, etc.

**4. References**

Additional instructions concerning maintenance of this equipment are contained in TM 11-5830221-12P, Operator's and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart for Intercommunication Station LS-147/FI.

**5. Comments or Suggestions**

Any comments concerning omissions and discrepancies in this appendix will be prepared on DA Form 2028 and forwarded direct to Commanding Officer, U.S. Army Signal Equipment Support Agency, Fort Monmouth, N.J., ATTN: SIGFM/ES-M.

| (1) PART OR COMPONENT | (2) MAINTENANCE FUNCTION | (3) 1ST ECH. | (4) 2ND ECH. | (5) 3RD ECH. | (6) 4TH ECH. | (7) 5TH ECH. | (8) TOOLS REQUIRED | (9) REMARKS |
|---|---|---|---|---|---|---|---|---|
| MANUAL TELEPHONE CENTRAL OFFICE AN/MTC-3 | service | X | | | | | | Interior. |
| | service | | X | | | | | Exterior. |
| | inspect | | X | | | | 2,3 | Interior end exterior. |
| | test | | X | | | | 1 | Continuity. |
| | repair | | | | | X | 2,3 | |
| | rebuild | | | | X | | 2,3 | |
| BULLETIN BOARD | replace | | | | X | | | Fabricate |
| | repair | | | | X | | | Fabricate. |
| CABINETS, STORAGE | replace | | | | X | | | Fabricate. |
| | repair | | | | X | | | Fabricate. |
| CABLE ASSEMBLIES | repair | | X | | | | | |
| BAND, MARKER CABLE | replace | | | X | | | | Fabricate. |
| CABLE | replace | | X | | | | | |
| CONNECTORS | replace | | X | | | | | |
| | repair | | X | | | | | Separate MAC for 26 pair connectors. |
| TERMINAL LUGS | replace | | X | | | | | Power cable only. |
| CLOCK, WALL | replace | | X | | | | | |
| CONDUIT ASSEMBLIES | repair | | X | | | | | |
| BALLASTS, LAMP | replace | | X | | | | | |
| CAPS, ELECTRICAL | replace | | X | | | | | |
| CAPACITORS | replace | | X | | | | | |
| CUPS, SPRING, TENSION | replace | | X | | | | | |
| CONNECTORS, RECEPTACLE, ELECTRICAL | replace | | X | | | | | |
| GLOSES, ELECTRIC LIGHT | replace | | X | | | | | |

| (1) PART OR COMPONENT | (2) MAINTENANCE FUNCTION | (3) 1ST ECH. | (4) 2ND ECH. | (5) 3RD ECH. | (6) 4TH ECH. | (7) 5TH ECH. | (8) TOOLS REQUIRED | (9) REMARKS |
|---|---|---|---|---|---|---|---|---|
| AN/MTC-3 (Continued) | | | | | | | | |
| GUARDS, LAMP | replace | | | X | | | | Fabricate. |
| HOLDERS, LAMPHOLDER | replace | | | | X | | | Fabricate. |
| INSULATORS, BUSHING | replace | | X | | | | | |
| JACKS, TELEPHONE | replace | | X | | | | | |
| LAMPS, FLUORESCENT | replace | X | | | | | | |
| LAMPS, GLOW | replace | X | | | | | | |
| LAMP HOLDERS | replace | | X | | | | | |
| POSTS, BINDING | replace | | X | | | | | |
| STARTERS, LAMP | replace | | X | | | | | |
| SWITCHES | replace | | X | | | | | |
| CORD ASSEMBLIES | repair | | X | | | | | |
| CABLE | replace | | X | | | | | |
| PLUGS, TELEPIHONE | replace | | X | | | | | |
| COVER, AIR FILTER | repair | | | X | | | | |
| DOOR ASSEMBLIES | replace | | | X | | | | |
| GASKETS | replace | | | X | | | | |
| LOUVERS | replace | | | | X | | | Fabricate. |
| RECEPTACLES, TURNLOCK FASTENER | replace | | X | | | | | |
| SCREW, FILTER | replace | | | | X | | | Fabricate. |
| COVERS, VENTILATORY | repair | | | X | | | | |
| DOOR ASSEMBLY | replace | | | X | | | | |

| (1) PART OR COMPONENT | (2) MAINTENANCE FUNCTION | (3) 1ST ECH. | (4) 2ND ECH. | (5) 3RD ECH. | (6) 4TH ECH. | (7) 5TH ECH. | (8) TOOLS REQUIRED | (9) REMARKS |
|---|---|---|---|---|---|---|---|---|
| AN/ITC-3 (Continued) | | | | | | | | |
| GASKETS | replace | | | X | | | | |
| FRAME | replace | | | | X | | | Fabricate. |
| RECEPTACLE TURNLOCK FASTENER | replace | | X | | | | | |
| CURTAIN, BLACKOUT | repair | | X | | | | | |
| CURTAINS | replace | | X | | | | | |
| STUDS, SNAP FASTENER | replace | | X | | | | | |
| DISTRIBUTION BOX | repair | | X | | | | | |
| CLAMPS, ELECTRICAL | replace | | X | | | | | |
| CONNECTORS | replace | | X | | | | | |
| | repair | | X | | | | | Separate MAC for 26 pair connectors. |
| COVER, ELECTRICAL, CONNECTOR | replace | | X | | | | | |
| COVER, REAR | replace | | | | X | | | Fabricate. |
| DOOR ASSEMBLY | replace | | | X | | | | |
| FRAIE ASSEMBLY | replace | | | | X | | | Fabricate. |
| GASKETS | replace | | | X | | | | |
| GASKETS (ELECTRICAL CONNECTOR) | replace | | X | | | | | |
| RECEPTACLE, TURNLOCK FASTENER | replace | | X | | | | | |
| TERMINAL STUD | replace | | X | | | | | |
| DISTRIBUTION BOX (DROP LINE BOX) | repair | | X | | | | | |
| | rebuild | | X | | | | | |
| CAPS, ELECTRICAL | replace | | | | | X | | |
| CONNECTORS, REPTACLE, ELECTRICAL | replace | | X | | | | | Separate MAC |

| (1) PART OR COMPONENT | (2) MAINTENANCE FUNCTION | (3) 1ST ECH. | (4) 2ND ECH. | (5) 3RD ECH. | (6) 4TH ECH. | (7) 5TH ECH. | (8) TOOLS REQUIRED | (9) REMARKS |
|---|---|---|---|---|---|---|---|---|
| AN/MTC-3 (Continued) | | | | | | | | |
| COVER, DISTRIBUTION BOX | replace | | | X | | | | Fabricate. |
| GASKETS | replace | | | X | | | | Fabricate. |
| POSTS, BINDING | replace | | X | | | | | |
| STRIP, DESIGNATION | replace | | | X | | | | |
| DUCT ASSEMBLY, FAN CENTRIFUGAL | repair | | X | | | | | |
| MOTOR, ALTERNATING CURRENT | replace | | X | | | | | |
| FILTER, AIR CO'DITIONING | replace | | X | | | | | |
| FLASHLIGHT | repair | X | | | | | | |
| BATTERIES, DRY (BA-30) | replace | X | | | | | | |
| LAMP, INCANDESCENT | replace | X | | | | | | |
| GENERATOR SET, GASOLINE ENGINE, TRAILER MOUNTED PU-294/G (Consists of 2 Generator Sets, Gasoline Engine PU-286/G mounted in a trailer) | | | | | | | | Separate MAC |
| HEATER, SPACE, ELECTRIC | repair | | X | | | | | |
| BRACKETS | replace | | | | X | | | Fabricate. |
| BUSHINGS, ELECTRICAL CONDUCTOR | replace | | X | | | | | |
| CABLE, POWER, ELECTRICAL | replace | | X | | | | | |
| CONNECTORS, ELECTRICAL | replace | | X | | | | | |
| HEATING ELEMENT, ELECTRICAL | replace | | X | | | | | |
| DIPELLER, FAN, AXIAL | replace | | X | | | | | |
| MOTOR, ALTERNATING CURRENT | replace | | X | | | | | |
| SWITCHES | replace | | X | | | | | |

| (1)<br>PART OR COMPONENT | (2)<br>MAINTENANCE FUNCTION | (3)<br>1ST ECH. | (4)<br>2ND ECH. | (5)<br>3RD ECH. | (6)<br>4TH ECH. | (7)<br>5TH ECH. | (8)<br>TOOLS REQUIRED | (9)<br>REMARKS |
|---|---|---|---|---|---|---|---|---|
| AN/ITC-3 (Continued) | | | | | | | | |
| HOLDERS, CABLE, REEL | replace | | X | | | | | |
| | repair | | X | | | | | |
| CHAIN, BEAD | replace | | | X | | | | |
| HOLDERS | replace | | | | X | | | Fabricate. |
| RECEPTACLES, TURNLOCK FASTENER | replace | | X | | | | | |
| INTERCO(UNICATION STATION LS-147A/FI | | | | | | | | Separate MAC |
| LIGHT, EXTENSION | repair | X | | | | | | |
| LAMP, INCANDESCENT | replace | X | | | | | | |
| PANEL, POWER DISTRIBUTION | repair | | X | | | | | |
| | rebuild | | | | | X | | |
| CIRCUIT BREAKERS | replace | | X | | | | | |
| COVERS, PANEL POWER DISTRIBUTION | replace | | | | X | | | Fabricate. |
| LAMPS, GLOW | replace | X | | | | | | |
| LAMPHOLDERS | replace | | X | | | | | |
| METERS | replace | | X | | | | | |
| MOUNT, RESILIENT | replace | | | | X | | | Fabricate. |
| RESISTORS | replace | | X | | | | | |
| TRANSFORMERS | replace | | X | | | | | |
| REEL UNIT RL-31 | | | | | | | | Separate MAC |
| SHELTER, ELECTRICAL EQUIPIENT S-141/G | | | | | | | | Separate MAC |

| (1)<br>PART OR COMPONENT | (2)<br>MAINTENANCE FUNCTION | (3)<br>1ST ECH. | (4)<br>2ND ECH. | (5)<br>3RD ECH. | (6)<br>4TH ECH. | (7)<br>5TH ECH. | (8)<br>TOOLS REQUIRED | (9)<br>REMARKS |
|---|---|---|---|---|---|---|---|---|
| AN/MTC 3 (Continued)<br>SWITCH BOX SA-331/U | | | | | | | | Separate MAC |
| SWITCHBOARD SIGNAL ASSEMBLY TA-207/P | | | | | | | | Separate MAC |
| SWITCHBOARD TELEPHONE, MANUAL SB-86/P | | | | | | | | Separate MAC |
| TELEPHONE SET TA-312/PT | | | | | | | | Separate MAC |
| TERMINAL BOX | repair | | X | | | | | |
| | rebuild | | | | | X | | |
| BOARDS, TERMINAL | replace | | | | X | | | Fabricate. |
| CAPS, ELECTRICAL | replace | | X | | | | | |
| DOORS, TERMINAL BOX | replace | | | X | | | | |
| POSTS, BINDING | replace | | X | | | | | |
| SPACERS | replace | | | | X | | | Fabricate. |
| WIRING HARNESS | replace | | | | X | | | Fabricate. |
| | repair | | | X | | | | |
| CABLE, TELEPHONE | replace | | | X | | | | |
| CONNECTORS | replace | | X | | | | | Separate MAC for 26 pair connectors. |

| (1)<br>PART OR COMPONENT | (2)<br>MAINTENANCE FUNCTION | (3)<br>1ST ECH. | (4)<br>2ND ECH. | (5)<br>3RD ECH. | (6)<br>4TH ECH. | (7)<br>5TH ECH. | (8)<br>TOOLS REQUIRED | (9)<br>REMARKS |
|---|---|---|---|---|---|---|---|---|
| AN/ITC-3 (Continued)<br>MULTIMETER AN/U1M-105 | | | † | † | † | † | 1 | If not a b use TS-29 -352/. |
| TOOL KIT, GENERAL MECHANICS | | | † | † | † | † | 2 | |
| SOIDERING IRON TL-117 | | | † | † | † | † | 3 | |

By Order of *Wilber M. Brucker*, Secretary of the Army:

L. L. LEMNITZER,
*General, United States Army*,
*Chief of Staff*.

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R. V. LEE,
*Major General, United States Army,*
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Trans Terminal Comd (1)
Army Terminals (1)
OS Sup Agcy (1)
Yuma Test Sta (2)
USA Elct PG (1)
Sig Lab (5)
Sig Fld Maint Shops (3)
Mil Dist (1)
USA Corps (Res) (1)
Sector Comd, USA Corps (Res) (1)
JBUSMC (2)
Units organized under following TOE's:

| | |
|---|---|
| 5-600 (2) | 11-86 (2) |
| 5-605 (2) | 11-87 (2) |
| 7-52 (2) | 11-95 (2) |
| 11-5 (2) | 11-97 (2) |
| 11-6 (2) | 11-117 (2) |
| 11-7 (2) | 11-137 (2) |
| 11-8 (2) | 11-155 (2) |
| 11-15 (2) | 11-500 (AA-AE) (2) |
| 11-16 (2) | 11-55 (2) |
| 11-17 (2) | 11-557 (2) |
| 11-18 (2) | 11-558 (2) |
| 11-37 (2) | 11-587 (2) |
| 11-39 (2) | 11-592 (2) |
| 11-55 (2) | 11-597 (2) |
| 11-55 (2) | 11-608 (2) |
| 11-56 (2) | 39-51 (2) |
| 11-57 (2) | 3961 (2) |
| 11-58 (2) | 3971 (2) |
| 11-85 (2) | |

NG: State Ag (3); unit -same as Active Army except allowance is one copy to each unit
USAR: None.
For explanation of abbreviations used, see AR 320-50.

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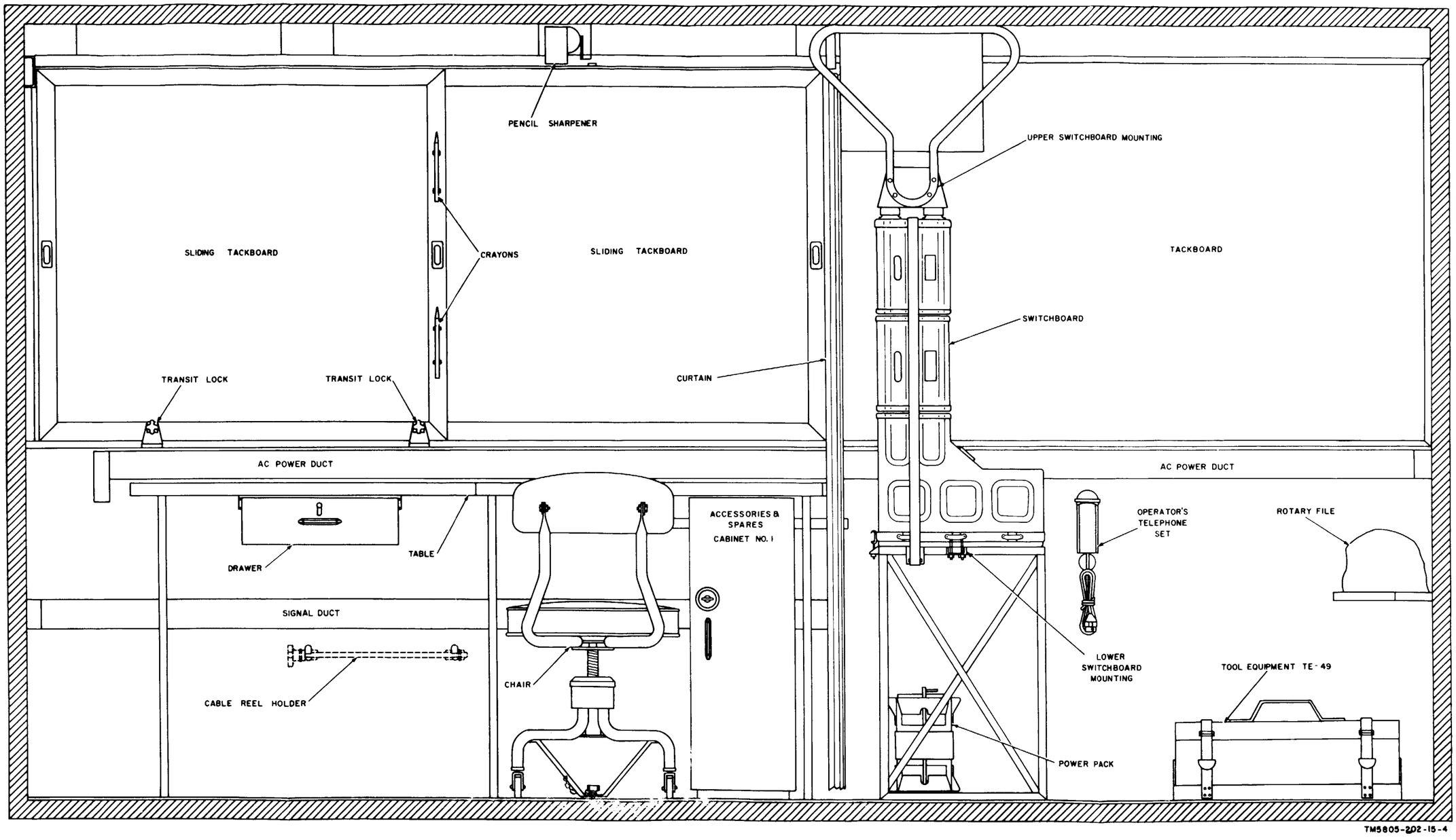



**Figure 5. Shelter, left wall.**

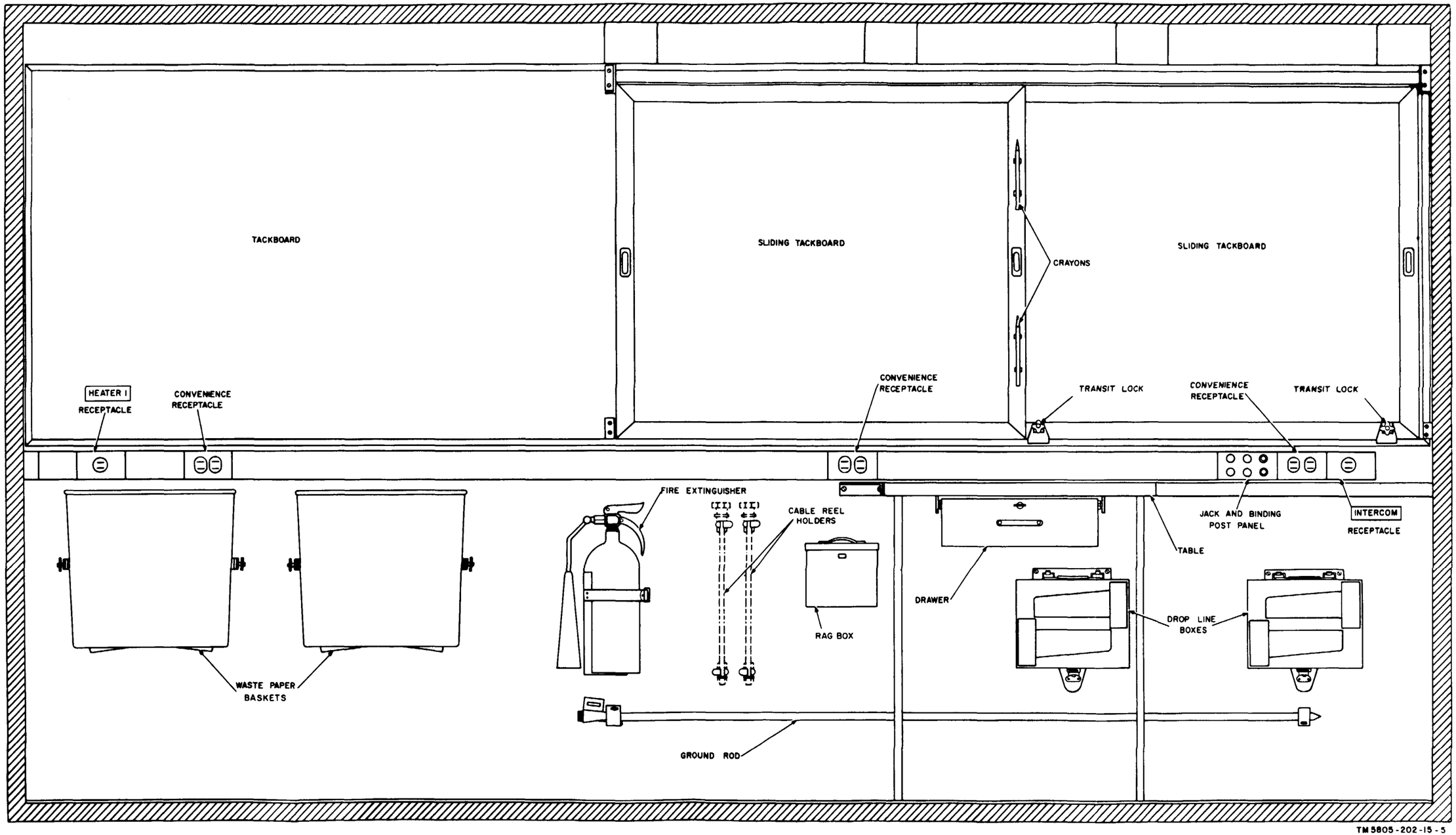



**Figure 6. Shelter, right wall.**

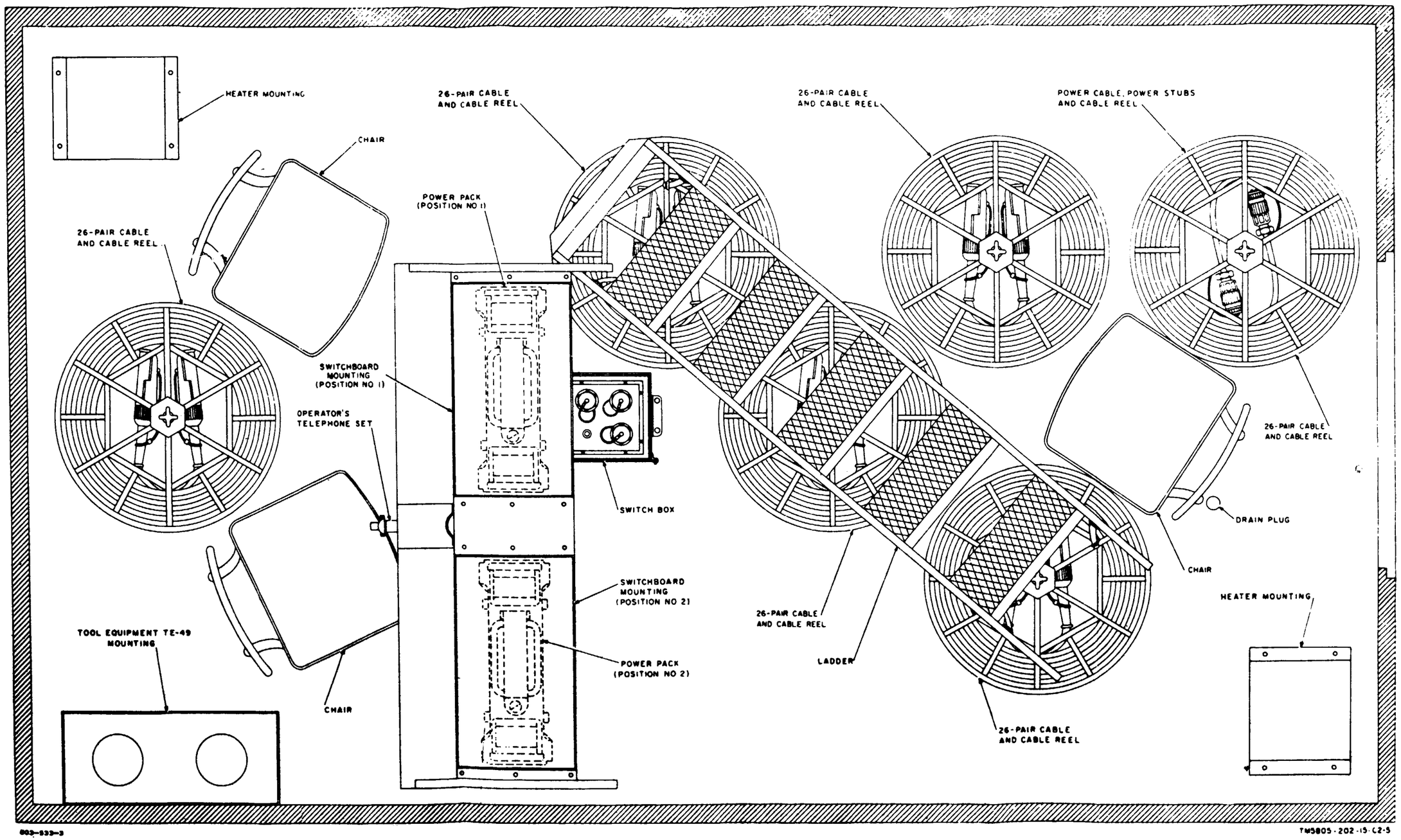



**Figure 9. (Superseded) Shelter floor.**

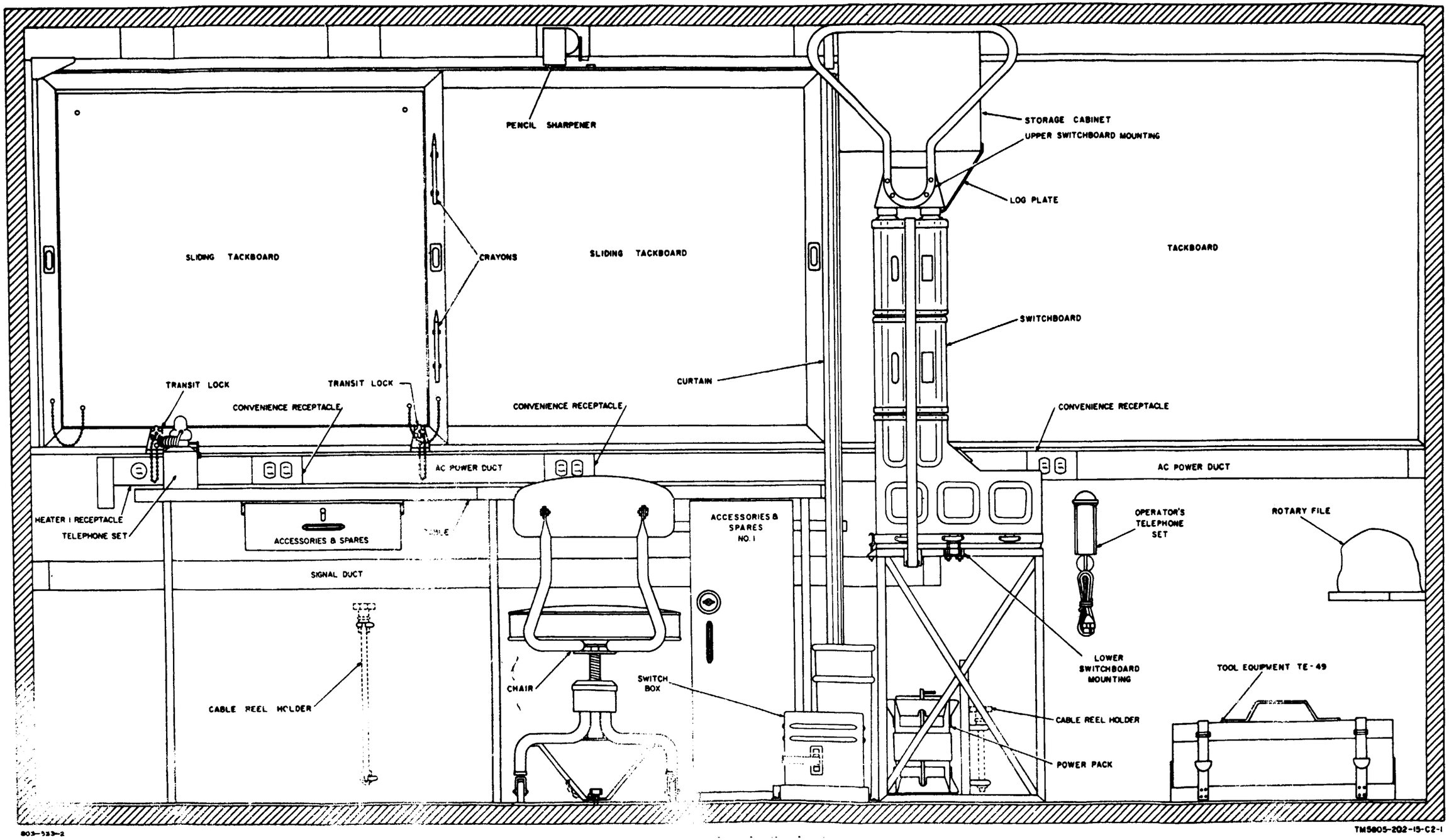



**Figure 5. (Superseded) Shelter, elevation drawing, left wall.**

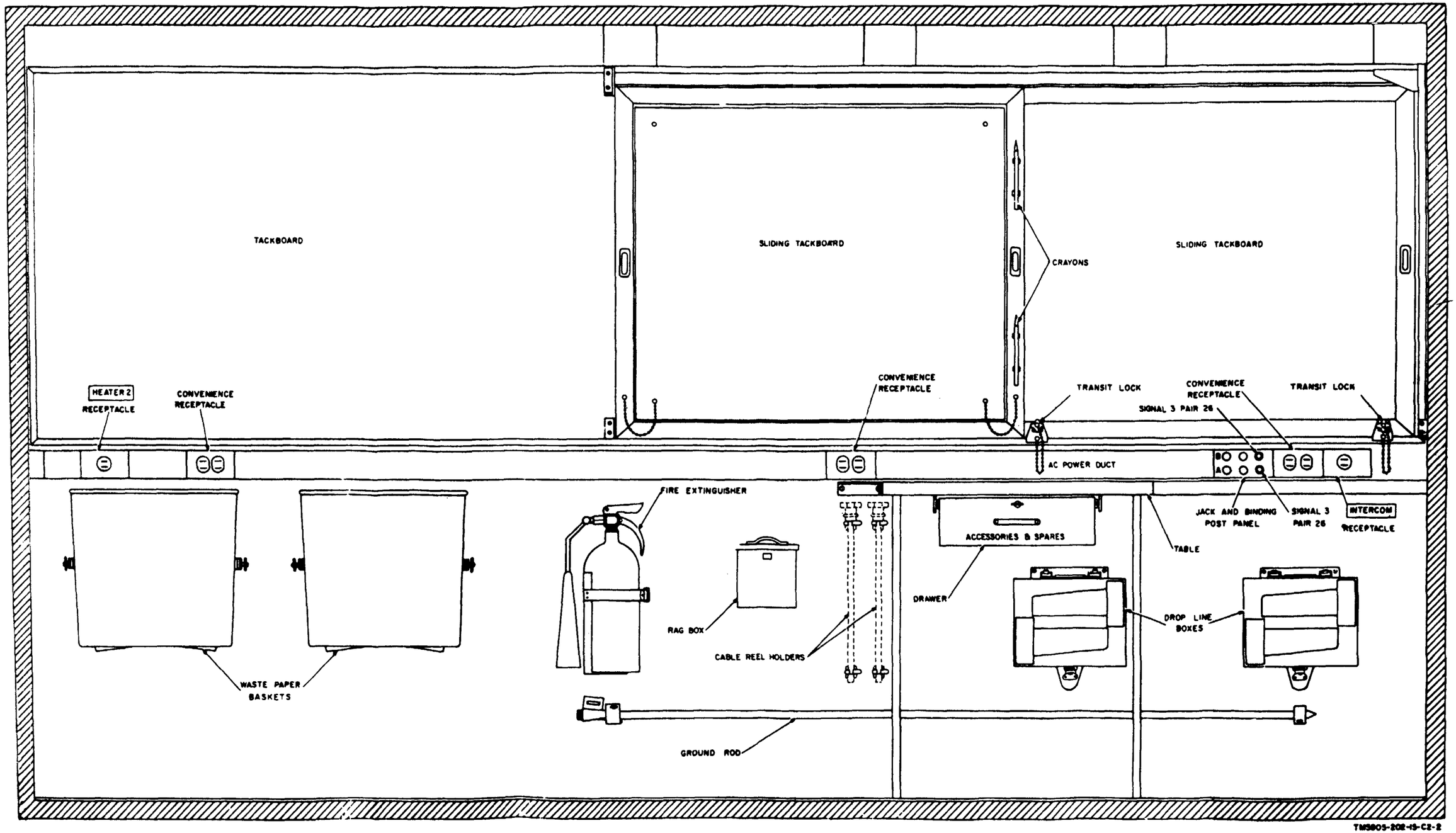



**Figure 6. (Superseded) Shelter, elevation at drawing, right wall**

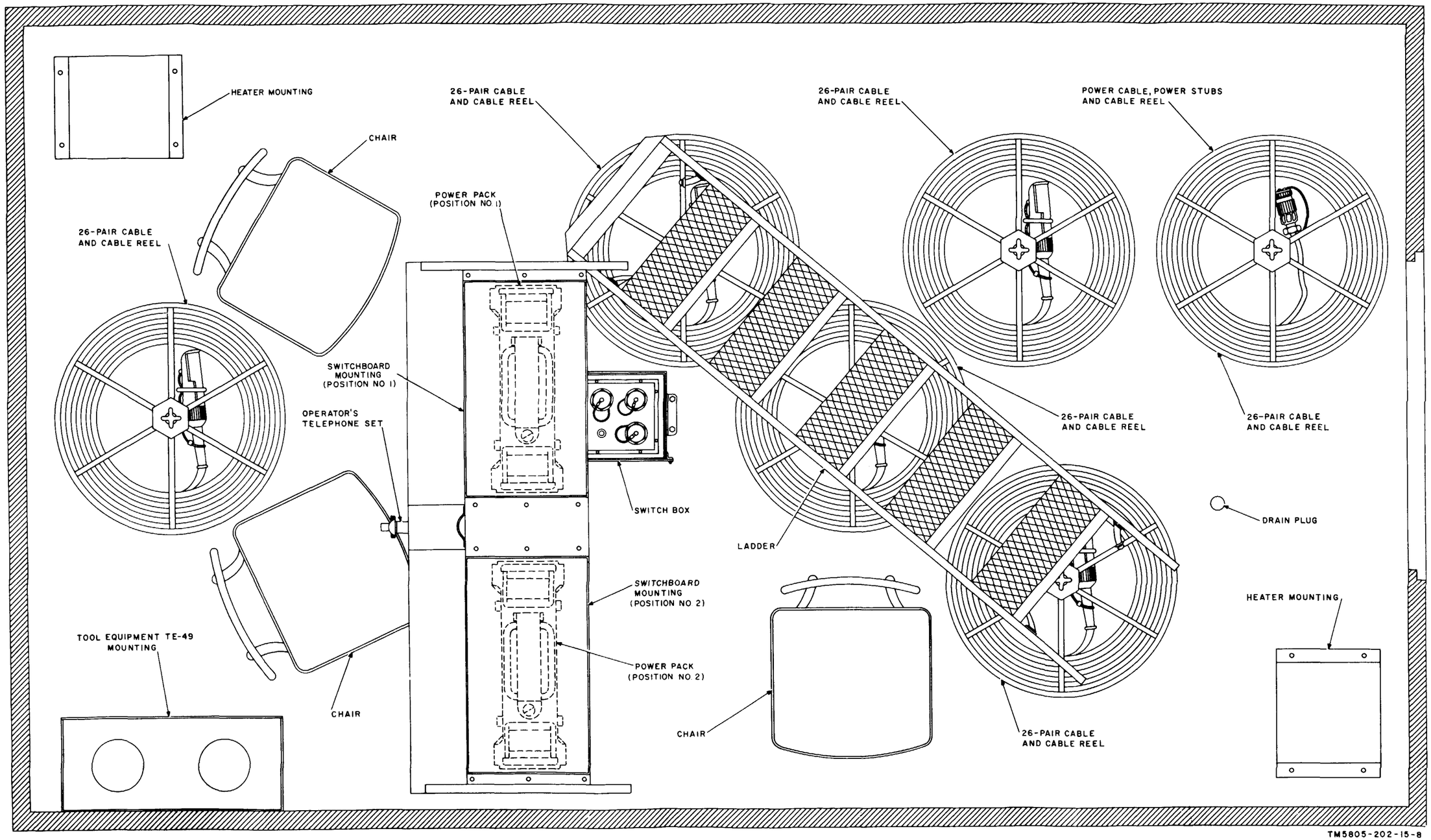



**Figure 9. Shelter, floor.**

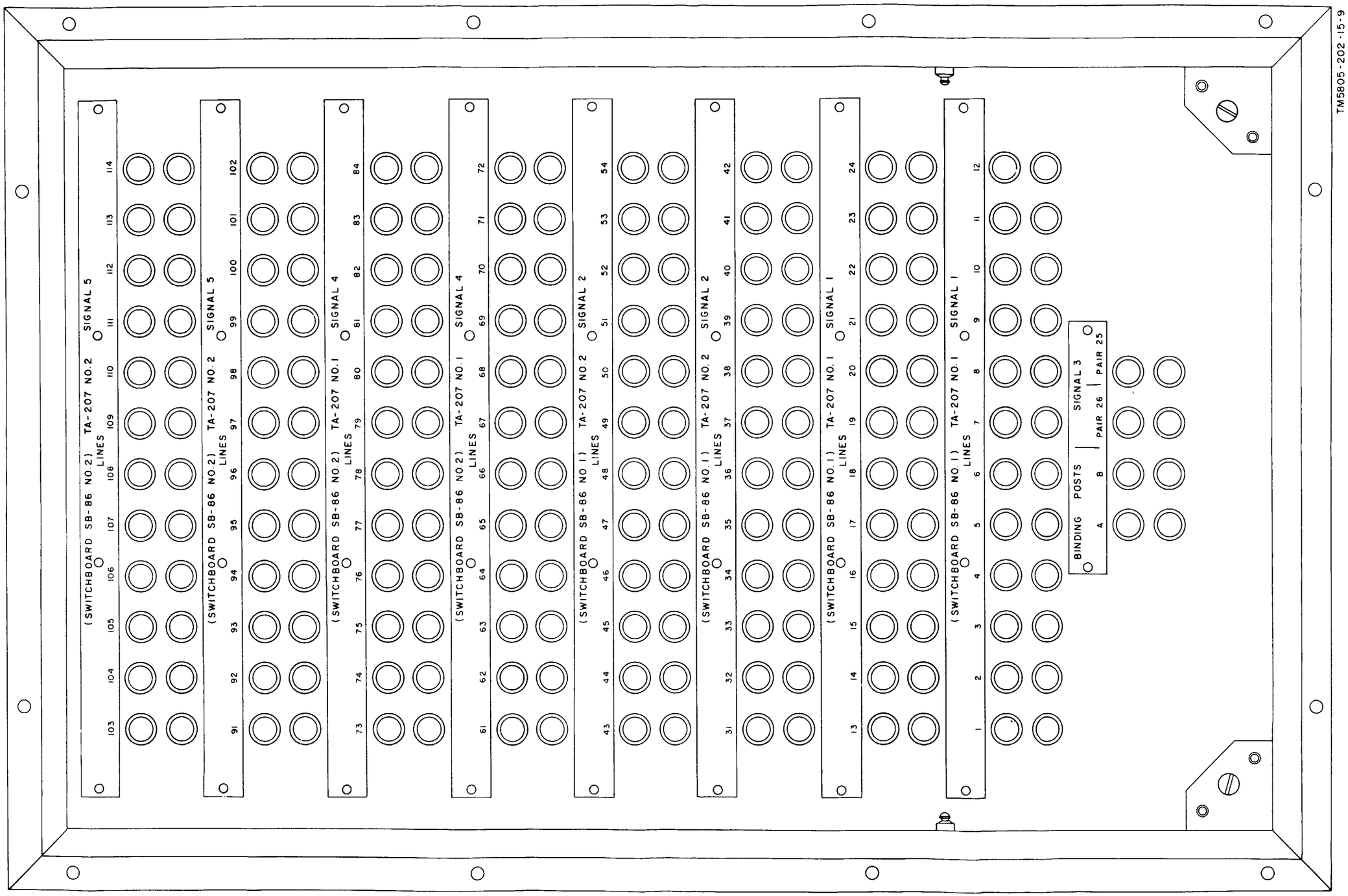
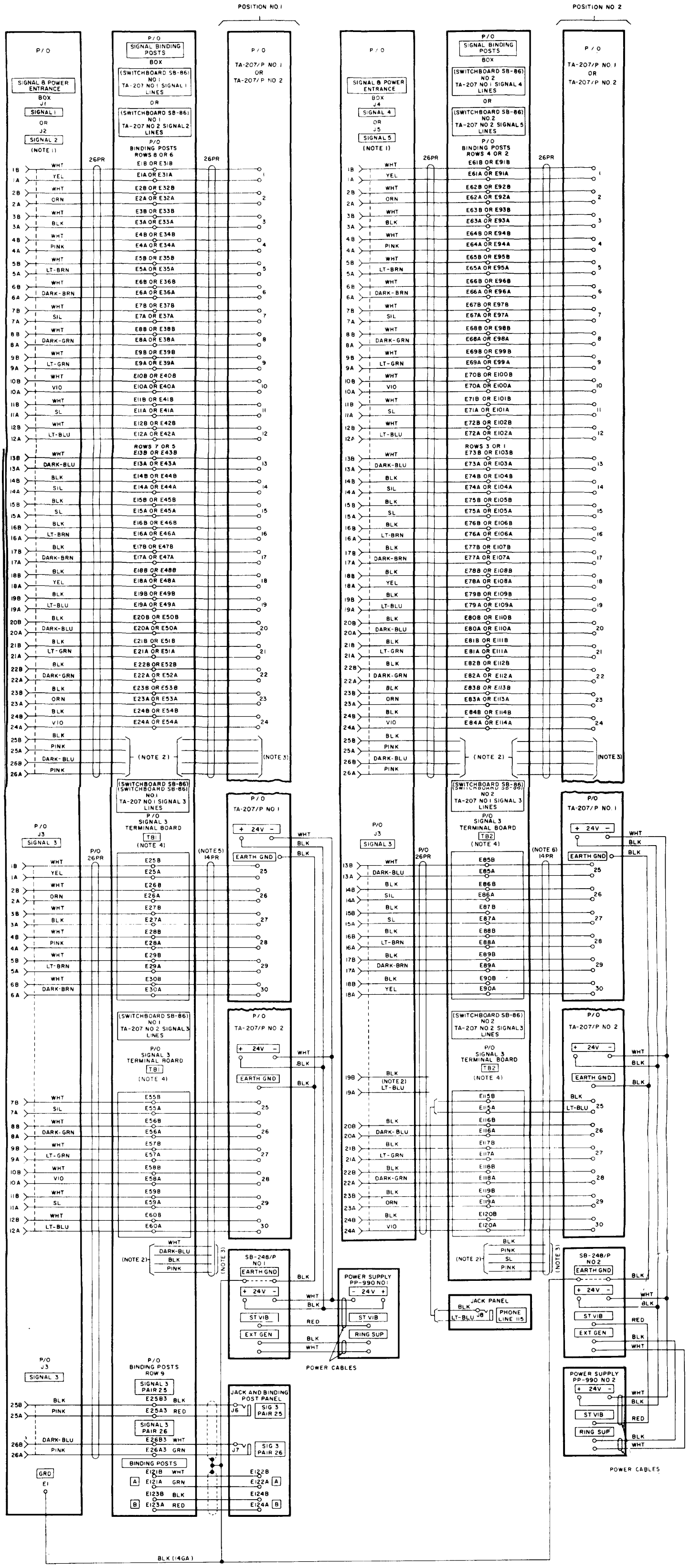



**Figure 10. SIGNAL BINDING POSTS box.**




NOTES:

1. ONLY FEMALE CONTACTS ( ⟩— ) OF 26-PAIR RECEPTACLE ARE SHOWN. EACH FEMALE CONTACT IS CONNECTED IN PARALLEL WITH A MALE CONTACT.
2. SPARE WIRES TAPED BACK TO CABLE IN SIGNAL BINDING POSTS BOX.
3. SPARE WIRES TURNED BACK AND TAPED IN SWITCHBOARD.
4. TERMINAL BOARDS TB1 AND TB2 ARE LOCATED AT REAR OF SIGNAL BINDING POSTS BOX.
5. COLOR CODING SAME AS PAIRS 1 THROUGH 13 OF 26 PAIR CABLE. PAIR 14 IS AS INDICATED.
6. COLOR CODING SAME AS PAIRS 13 THROUGH 25 OF 26 PAIR CABLE. PAIR 26 IS AS INDICATED.
7. REFERENCE DESIGNATIONS E1B, E1A, E2B ETC, ARE USED FOR REAR PANEL MARKING. SAME NUMBER DESIGNATIONS, LESS LETTERS, ARE USED FOR FRONT PANEL MARKING.
8. ALL WIRING IS 26 GAGE UNLESS OTHERWISE INDICATED.
9. [ ] INDICATES EQUIPMENT MARKING.
10. 26-PAIR RECEPTACLE VIEWED FROM PIN AND SOCKET SIDE

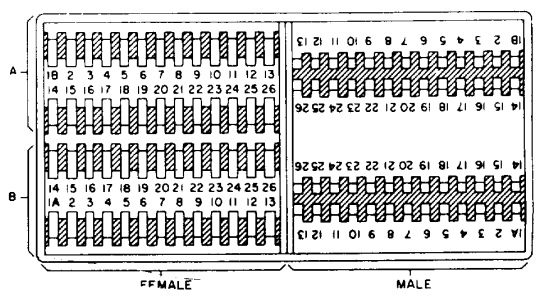



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**Figure 17. Signal schematic-wiring diagram.**

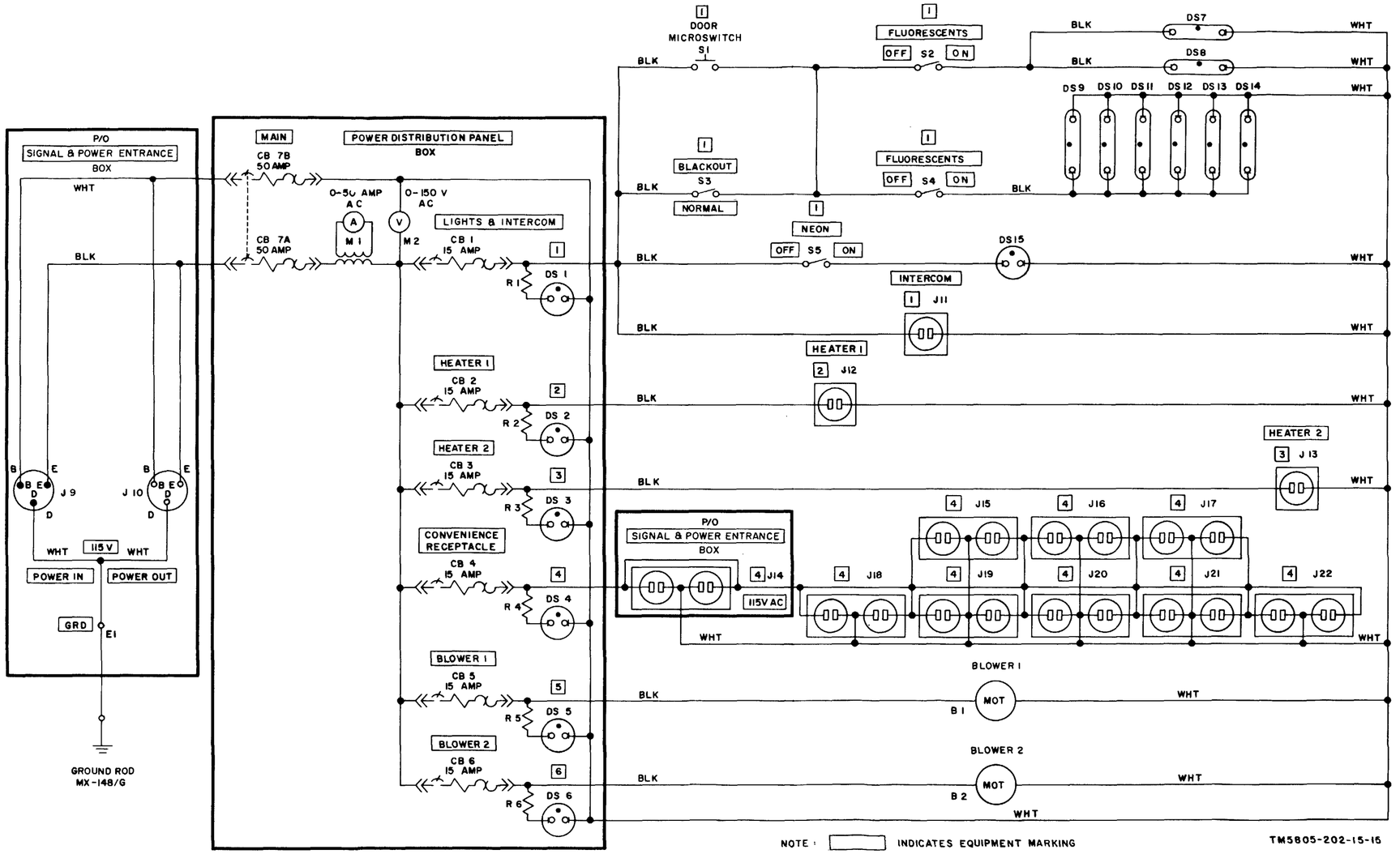


Figure 18. Ac power schematic-wiring diagram.

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