

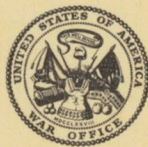
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TM 11-5895-366-15

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

US Army Advisor
270th Sig Bn (Corps)
PO Box 2086
Huntsville, Ala.

**OPERATOR, ORGANIZATIONAL,
DS, GS, AND DEPOT MAINTENANCE MANUAL
RADIO TERMINAL SET AN/TRC-117(V)**

This copy is a reprint which includes current
pages from Changes No. 1.



**HEADQUARTERS, DEPARTMENT OF THE ARMY
JANUARY 1967**

WARNING

HIGH VOLTAGE

is used in this equipment.

DEATH ON CONTACT

MAY RESULT IF SAFETY PRECAUTIONS

ARE NOT OBSERVED

Maintenance adjustments of this equipment are made with power applied. Be careful when working near the interior of the equipment or near the ac power distribution.

WARNING

VENTILATION IS ESSENTIAL

To prevent asphyxiation, ventilate the AN/TRC-117(V) at all times when occupied.

DON'T TAKE CHANCES!

Operator and maintenance personnel should be familiar with the requirements of TB SIG 291 before attempting installation or operation of the equipment covered in this manual. Failure to follow requirements of TB SIG 291 could result in injury or DEATH.

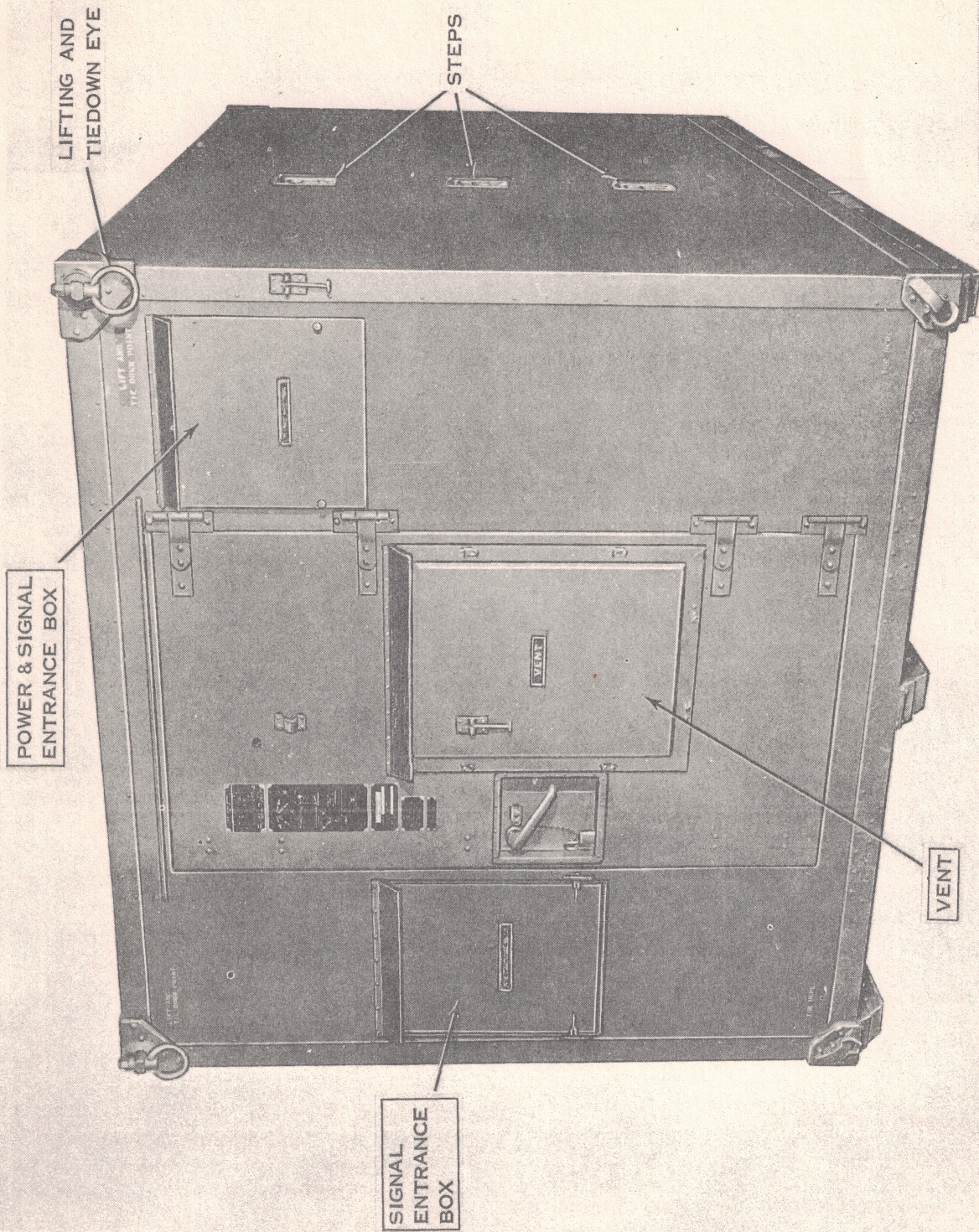
TECHNICAL MANUAL }
 No. 11-5895-366-15 }

HEADQUARTERS
 DEPARTMENT OF THE ARMY
 WASHINGTON, D.C., 6 January 1967

Operator, Organizational, DS, GS, and Depot Maintenance Manual
RADIO TERMINAL SET AN/TRC-117 (V)

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Figure 1-1. Radio Terminal Set AN/TRC-117(V), rear curbside view.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. This manual describes Radio Terminal Set AN/TRC-117(V) (fig. 1-1). It includes instructions for installing, operating, and maintaining the AN/TRC-117(V).

b. Throughout the manual, where appropriate, references are made to other publications which cover the installation, operation, and maintenance of those equipments that are installed in the AN/TRC-117(V). A complete listing of applicable publications is provided in appendix A.

c. Throughout the manual, Radio Set AN/GRC-50A(V) refers to the AN/GRC-50A(V) components as listed in the basic issue items (app B).

1-2. Index of Publications

Refer to the latest issue of DA Pam 310-4 to determine whether there are any new editions, changes, or additional publications pertaining to the AN/TRC-117(V). DA Pam 310-4 is a current index of technical manuals, technical bulletins, supply manuals (types 7, 8, and 9), supply bulletins, lubrication orders, and modification work orders which are avail-

able through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc) and the latest changes to and revisions of each publication.

1-3. Forms and Records

a. *Reports of Maintenance and Unsatisfactory Equipment.* Use equipment forms and records in accordance with instructions in TM 38-750.

b. *Report of Damaged or Improper Shipment.* Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700-58 (Army), NAVSANDA Publications 378 (Navy), and AFR 71-4 (Air Force).

c. *Reporting of Equipment Manual Improvements.* Report of errors, omissions, and recommendations for improving this manual by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-MR-NMP-AD, Fort Monmouth, N.J., 07703.

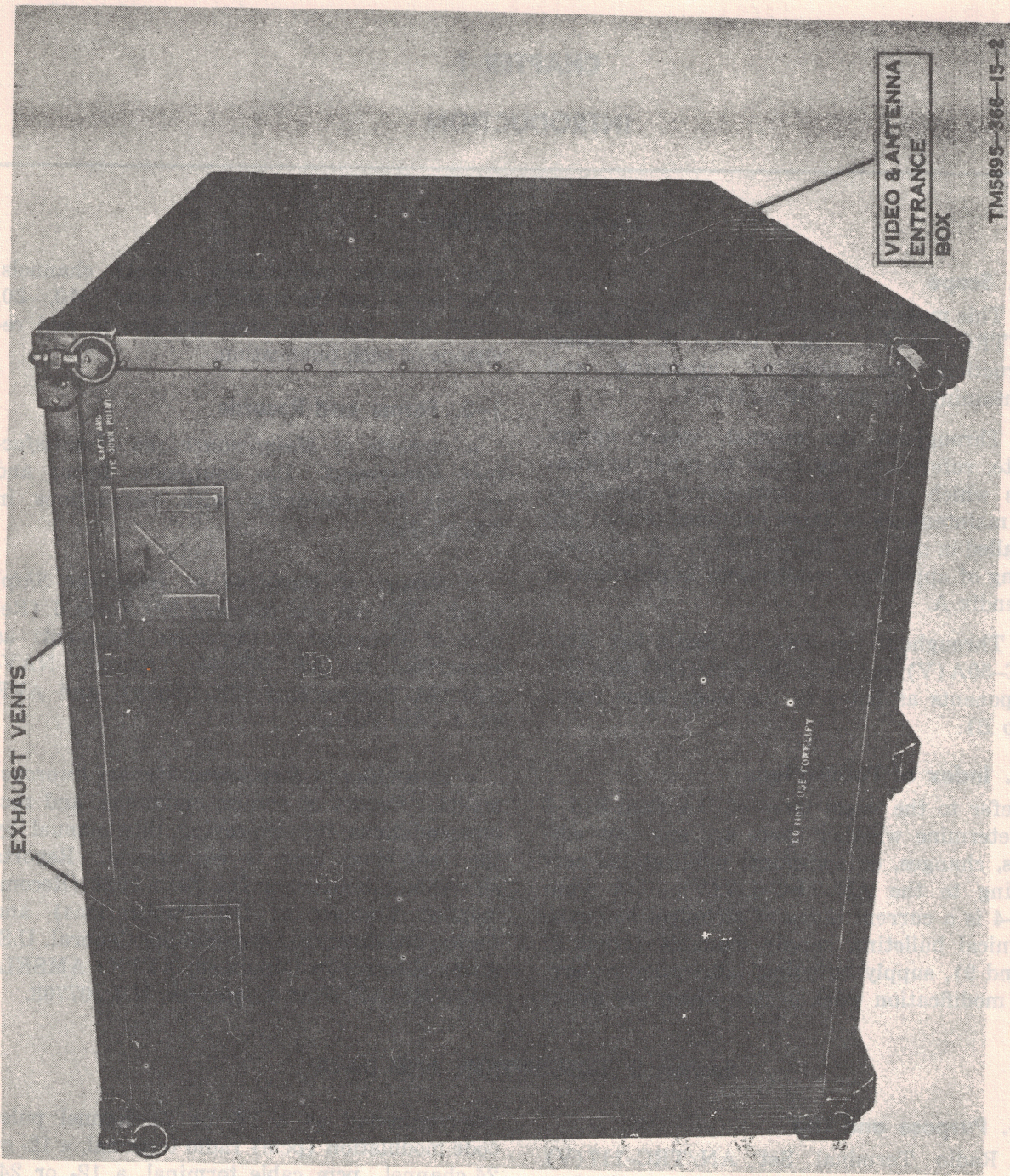
Section II. DESCRIPTION AND DATA

1-4. Purpose and Use

a. Radio Terminal Set AN/TRC-117(V) (figs. 1-1 and 1-2) is an air- or vehicular-transportable assemblage used to provide multichannel radio and cable telephone communications facilities for Army and Corps Headquarters.

b. The AN/TRC-117(V) contains two complete equipment systems. The systems may be

interconnected as a 12- or 24-channel pulse code modulation (pcm) radio terminal, a 12- or 24-channel pcm cable terminal, a 12- or 24-channel cable-radio conversion, a 12- or 24-channel radio repeater, a 24-channel radio repeater with 12-channel local or remote drop and insert (D/I) facilities, a 12-, 24-, or 48-channel cable repeater, or a 24-channel cable repeater with 12-channel local D/I facilities.



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Figure 1-2. Radio Terminal Set AN/TRC-117(V), front roadside view.

24-channel pair cable terminal, a 12- or 24-channel cable-radio converter, a 12- or 24-channel radio repeater, a 24-channel radio repeater with 12-channel local or remote drop and insert (D/I) facilities, a 12-, 24- or 48-channel cable repeater, or a 24-channel cable repeater with 12-channel local D/I facilities.

5. The AN/TRC-117(V) contains two com- munications facilities for Army and Corps Headquarters.

(figs. 1-1 and 1-2) is an air- or vehicular- transportable assembly used to provide multichannel radio and cable telephone com- munications facilities for Army and Corps Headquarters.

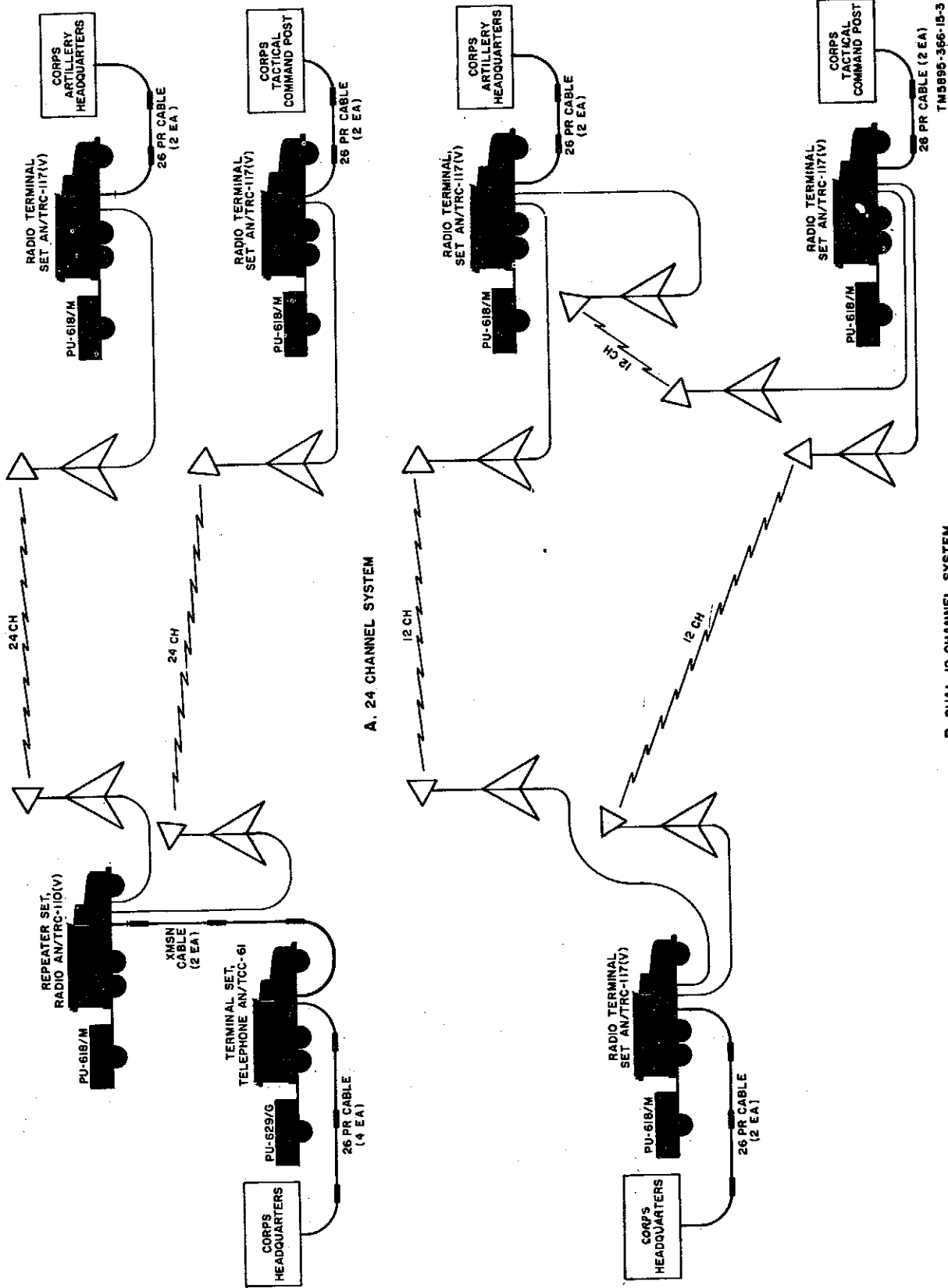
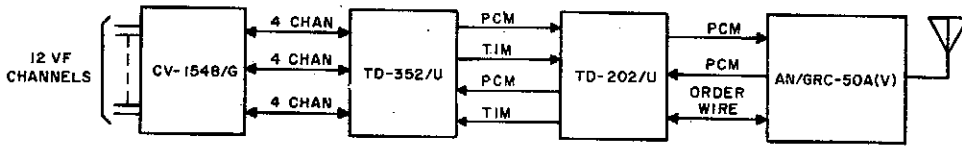
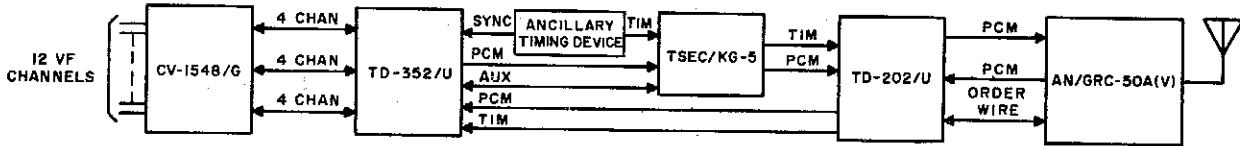


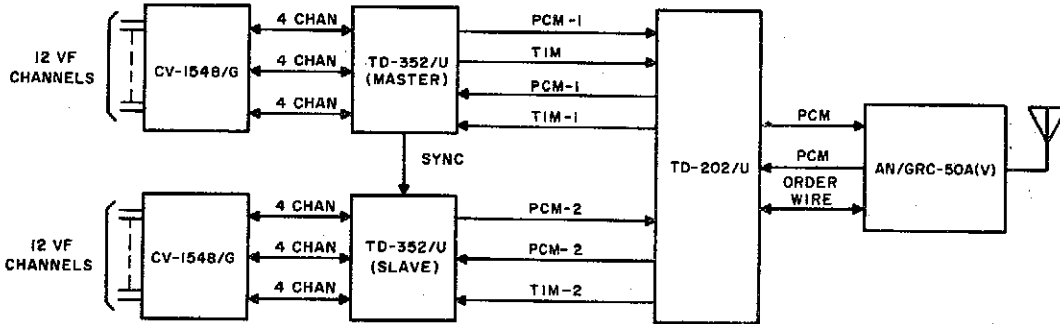
Figure 1-3. Typical applications of AN/TRC-117(V).



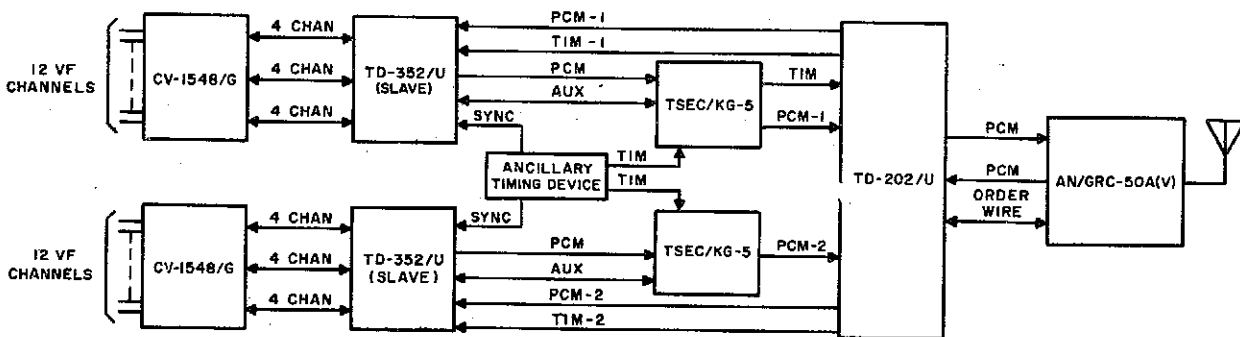
A. 12 CHANNELS, NONSECURE.



B. 12 CHANNELS, SECURE.



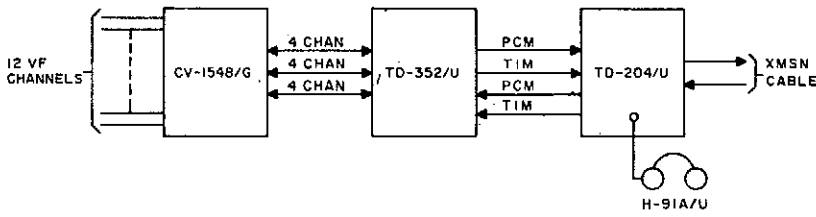
C. 24 CHANNELS, NONSECURE.



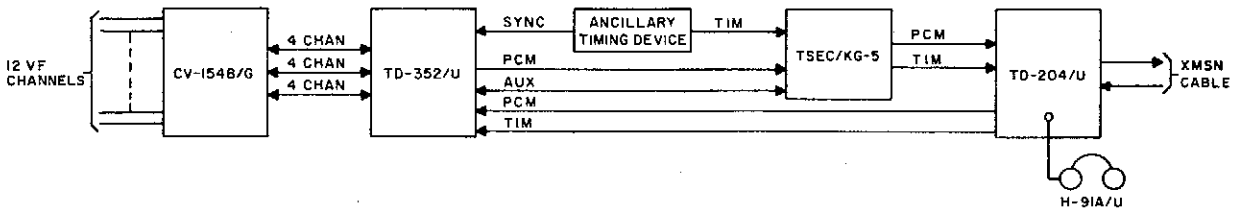
D. 24 CHANNELS, SECURE.

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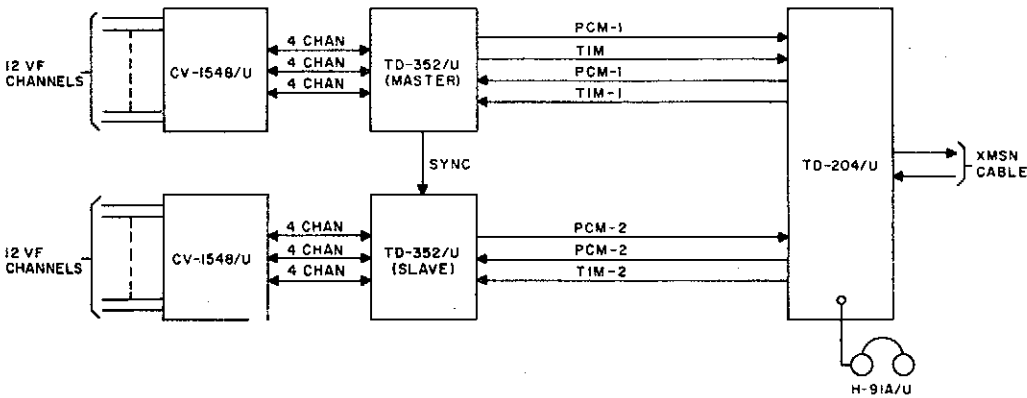
Figure 1-4. AN/TRC-117(V) radio terminal applications, block diagram.



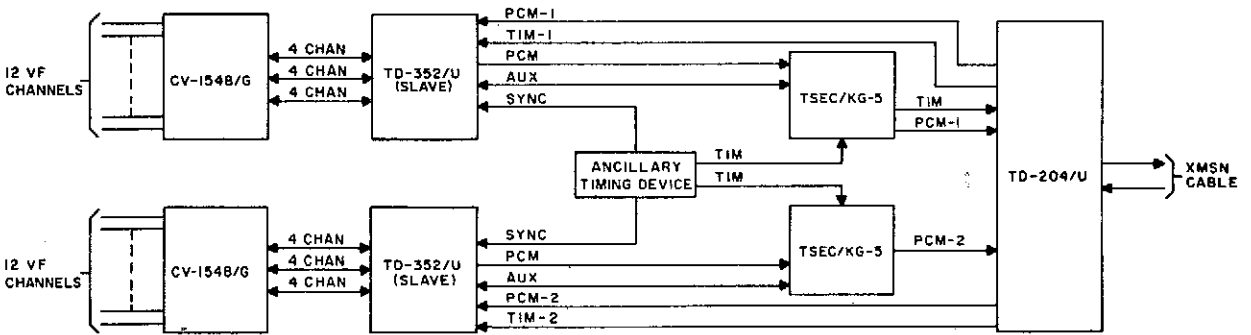
A. 12 CHANNELS, NONSECURE.



B. 12 CHANNELS, SECURE.



C. 24 CHANNELS, NONSECURE.



D. 24 CHANNELS, SECURE.

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Figure 1-5. AN/TRC-117(V) cable terminal applications, block diagram.

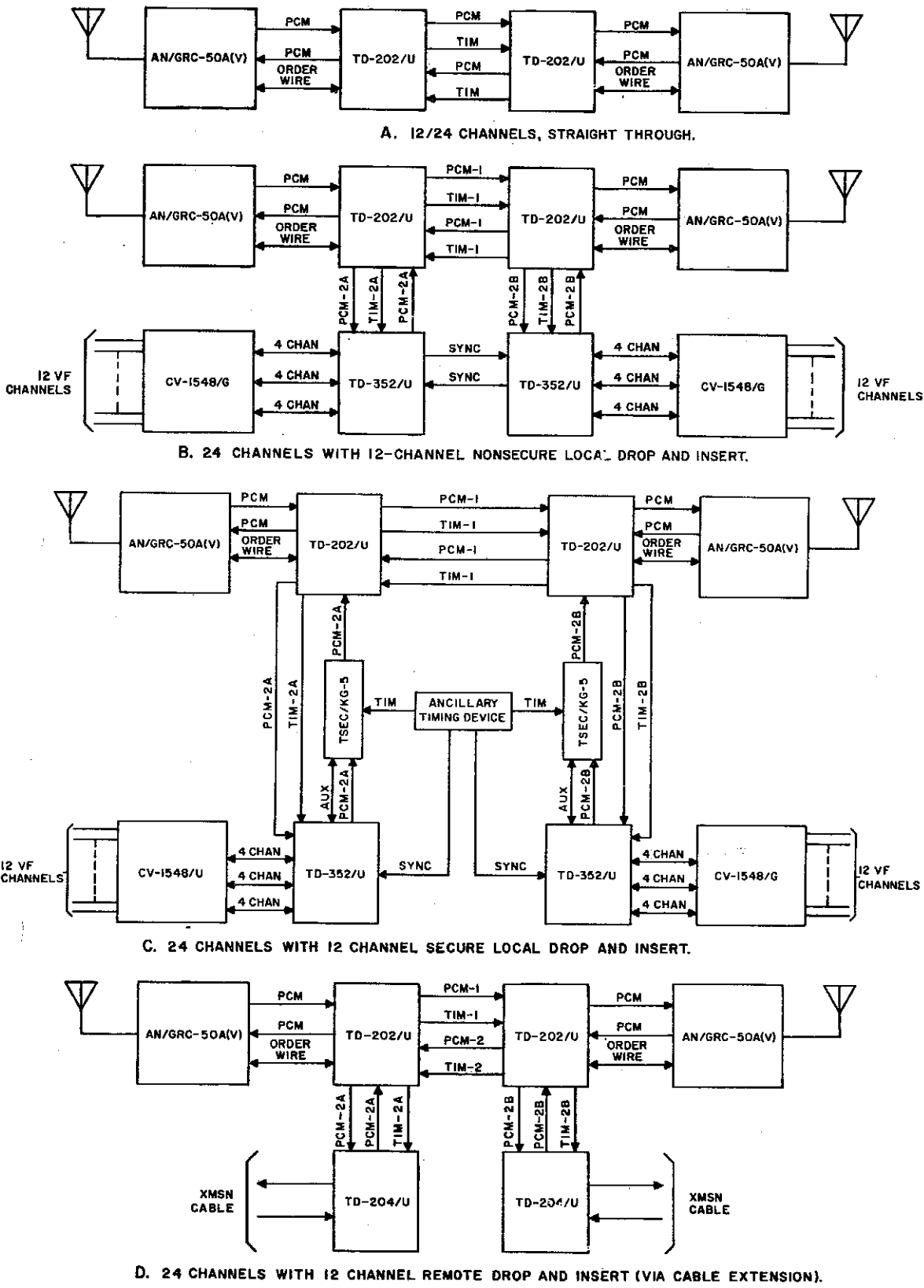
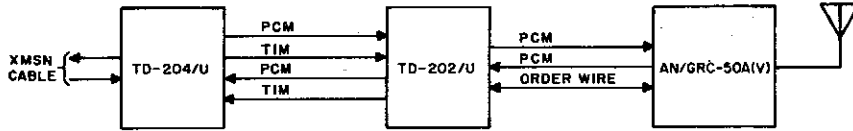
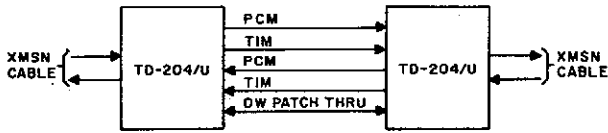


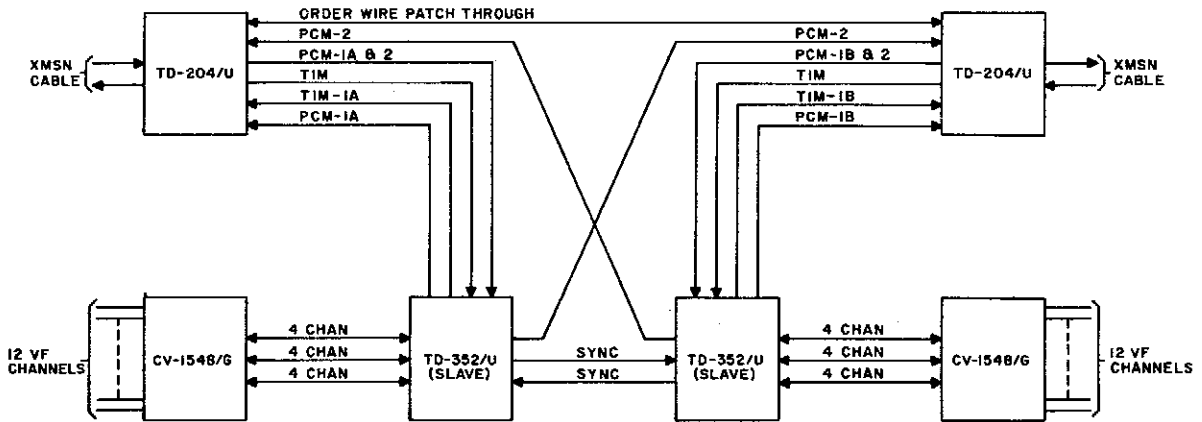
Figure 1-6. AN/TRC-117(V) cable repeater applications, block diagram. TM5895-366-15-6



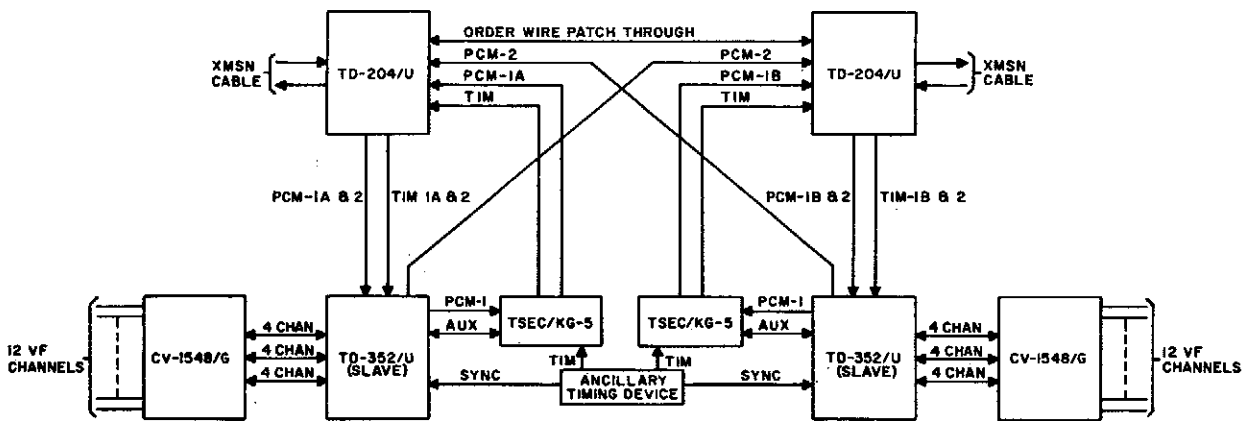
A. CONVERSION, 12/24 CHANNELS.



B. 12/24/48 CHANNELS.



C. 24 CHANNELS WITH NONSECURE 12-CHANNEL LOCAL DROP AND INSERT.



D. 24 CHANNELS, WITH SECURE 12-CHANNEL LOCAL DROP AND INSERT.

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Figure 1-7. AN/TRC-117(V) cable repeater applications, block diagram.

A typical corps application of the AN/TRC-117(V) is shown in figure 1-3. The components used in each configuration are shown in figures 1-4 through 1-7. Any of the terminal applications may be connected as secure or nonsecure circuits.

c. In the AN/TRC-117(V) type designation, the letter (V) indicates that variations of the radio equipment components are available to the user. Either of two frequency bands (determined by the specific radio equipment components utilized) in the ultrahigh-frequency (uhf) range may be used to satisfy operating frequency requirements.

1-5. Components

The basic issue items (app B) lists the components that comprise an operable AN/TRC-117(V). The major operating components consist of two Transmitters, Radio T-893(P)/GRC, two Receivers, Radio R-1331(P)/GRC, two Power Supplies PP-2054/GRC, one Regulator, Voltage CN-514/GRC, two Masts AB-577/GRC, two Antennas AT-903/G, two Multiplexers TD-202/U, two Multiplexers TD-204/U, two Multiplexers TD-352/U, two Converters, Telephone Signal CV-1548/G, two auxiliary units TSEC/KG-5, one ancillary timing device, and local communications facilities consisting of Telephone Set TA-312/PT and Intercommunications Station LS-147C/FI. Each Transmitter, Radio T-893(P)/GRC includes either Amplifier-Oscillator AM-1957/GRC or AM-1958A/GRC. Each Receiver, Radio R-1331(P)/GRC includes either Amplifier-Converter AM-1955A/GRC or AM-1956A/GRC. Amplifier-Oscillator AM-1957/GRC and Amplifier-Converter AM-1955A/GRC operate in the low band (601.5 to 999.5 megacycles (mc)). Amplifier-Oscillator AM-1956A/GRC and Amplifier-Converter AM-1958A/GRC operate in the high band (1,350.5 to 1,849.5 megacycles (mc)).

1-6. Technical Characteristics

a. Systems Available.

- 12-channel radio terminal ----- 2.
- 24-channel radio terminal ----- 1.
- 12-channel cable terminal ----- 2.
- 24-channel cable terminal ----- 1.
- 12- or 24-channel cable-radio conversion ----- 2.

- 12- or 24-channel radio repeater ----- 1.
- 24-channel radio repeater with 12-channel D/I ----- 1.
- 12-, 24-, or 48-channel cable repeater ----- 1.
- 24-channel cable repeater with 12-channel D/I ----- 1.

Note. The combinations below represent maximum utilization of the equipment in the assemblage. Any part of any of the combinations may be used as the need dictates.

Combinations:

- 2 12-channel radio terminals with one 12/24/48 channel cable repeater.
- 1 24-channel radio terminal with one 12/24/48 channel cable repeater.
- 1 12-channel radio terminal with one 12- or 24-channel cable-radio conversion.
- 2 12-channel cable terminals with one 12- or 24-channel radio repeater.
- 1 24-channel cable terminal with one 12- or 24-channel radio repeater.
- 1 24-channel radio repeater with 12-channel local drop and insert, and one 12/24/48 channel cable repeater.
- 1 24-channel cable repeater with 12-channel drop and insert, and one 12- or 24-channel radio repeater.

b. Power Requirements.

Type ----- 115 volts \pm 11.5, 50 to 60 cps, single phase.

Consumption:

- Fluorescent lights (6) -- 100 watts.
- Incandescent lights (4) -- 120 watts.
- Power distribution panel. 4 watts.
- Exhaust blowers (2) -- 500 watts.
- Heaters (2) ----- 3,000 watts.
- PP-2054/GRC (2) --- 1,550 watts.
- R-1331(P)/GRC (2) - 630 watts.
- CN-514/GRC ----- 40 watts.
- TD-202/U (2) ----- 60 watts.
- TD-204/U (2) ----- 124 watts.
- TD-352/U (2) ----- 272 watts.
- CV-1548/G (2) ----- 120 watts.
- LS-147C/FI ----- 40 watts.

Total:

- Maximum ----- 6,560 watts.
- Typical ----- 4,586 watts (fluorescent lights, one heater, one blower, LS-147C/FI, and two 12-channel radio terminals operating).

c. Radio Signal Characteristics.

Operating bands:

Low band:

Frequency range .601.5 to 999.5 mc.
 Channels1 through 399.
 Channel separation 1 mc.

High band:

Frequency range 1,350.0 to 1,849.5 mc.
 Channels400 through 899.
 Channel separation 1 mc.

Transmitter power:

Low band15 to 30 watts.
 High band8 to 20 watts.

No. of voice channels 12 or 24.
 (each system).

d. Pcm Cable Characteristics.

Pulse type Binary dipulse.

Pulse amplitude:

To cable2 volts peak.
 From cable30 mv pp nominal.

Cable typeCX-4245/G or equivalent

Input and output impedance 62 ohms.

Pulse rate and interval:

12-channel576 kc, 1,736 nsec.
 24-channel1,152 kc, 868 nsec.

e. Telephone Signal Inputs and Outputs.

Number of channels (per 12.
 system).

Operating modes (selected 20-cps signaling, 2-wire.
 independently in each Plug supervision signal-
 channel). ing (one way from
 originator to termi-
 nator).

No signaling, 2-wire (hy-
 brid only in use).

No signaling, 4-wire
 (channel patched
 straight through).

20-cps signaling, 2-wire:

From subscriber20-cps ringing voltage at
 16 volts minimum.

To subscriber20-cps ringing voltage at
 75 volts minimum
 (across four lines si-
 multaneously).

Plug supervision signaling, Opens or closes tip (T)
 2-wire. or ring (R) lead
 circuit.

Channel characteristics
 (2-wire):

Insertion loss4.5 db maximum (250 to
 3,500 cps).

Input and output

impedance600 ohms (balanced to
 ground).

f. Local Communications Facilities.

IntercomLS-147C/FI.

TelephoneTA-312/PT.

g. Mechanical Characteristics.

Dimensions:

Length147 in.

Width87 in.

Height83 in.

Weight5080

Volume614 cu ft.

Center of gravity:

Sides38.63 inches from skid
 base and 81.12 inches
 from entrance wall.

Front and rear38.63 inches from skid
 base and 43.0 inches
 from roadside wall.

1-7. Description

(figs. 1-1, 1-2, 1-8 through 1-15 and
 5-1)

All components of the AN/TRC-117(V) are mounted in Shelter, Electrical Equipment S-330/TRC-117(V). The S-330/TRC-117(V) is fully insulated and weatherproofed and can be transported by air or ground vehicle. The operating components are mounted in equipment racks secured to the floor and walls of the S-330/TRC-117(V) and mountings are provided for storing antenna and mast components, accessory bags, cable reels and spare parts.

a. Equipment Racks. The equipment racks for the AN/GRC-50A(V) components are mounted against the front wall of the assemblage (figs. 1-8 and 5-1). The two racks on which the components are mounted are separated by a signal and power duct. The SYSTEM 1 and 2 circuit breakers and the power receptacles for the components are mounted on the duct. Each rack mounts one Receiver, Radio R-1331(P)/GRC, one Transmitter, Radio T-898(P)/GRC, and one Power Supply PP-2054/GRC. The roadside rack (SYSTEM 1) accommodates a security safe, and the curbside rack (SYSTEM 2) mounts two spare cases. The equipment racks for the TD-202/U, TD-204/U, TD-352/U, CV-1548/

G, TSEC/KG-5 components, and the ancillary timing device are mounted against the roadside wall of the S-330/TRC-117(V). The SYSTEM 1 and SYSTEM 2 racks are separated by a power and signal duct upon which are mounted the SYSTEM 1 and 2 circuit breakers and the power receptacles for the rack equipment.

b. Antenna and Mast Storage. Two Antennas AT-903/G are mounted on the roadside wall of the assemblage, forward of the equipment racks (fig. 1-9). The AT-903/G's are secured to mounting brackets with spring pins. Two Masts AB-577/GRC are stack-mounted against the curbside wall (fig. 1-8). Antenna Support AB-957/GRC is mounted to the loading chute on the assemblage floor. Seven Stakes CP-113/G are mounted against the side of the roadside equipment racks (fig. 5-1).

c. Lighting. Six fluorescent light fixtures are mounted in two rows on the ceiling of the assemblage (B, fig. 5-1) to provide primary lighting. Two incandescent lights in each row provide lighting when the temperature is too low for the fluorescent lights to start. The lighting may be controlled by a door interlock switch when blackout operation is required, or the blackout switch may be bypassed when blackout operation is not required.

d. Power Connections. Watertight receptacles are provided in the POWER & SIGNAL ENTRANCE BOX (fig. 1-13), on the rear wall of the assemblage (fig. 1-1), for connection to an external power source. Alternating current (ac) power may be provided by an engine-generator set, such as the PU-618/TRC, or from a central power source.

e. Antenna and Video Connections. Antenna cable receptacles and pcm video cable receptacles are mounted in the VIDEO & ANTENNA ENTRANCE BOX (fig. 1-15) on the roadside wall of the assemblage (fig. 1-2). Two antenna receptacles and two pairs of video connectors are provided.

f. Audio Signal Connections. Telephone line connections to the AN/TRC-117(V) are made through receptacles and binding posts in the SIGNAL ENTRANCE BOX (fig. 1-14) on the rear wall of the assemblage (fig. 1-1). A 26-pair receptacle and a bank of binding posts are provided for each system. Each 26-pair receptacle and each bank of binding posts (connected in parallel) provide connections for 12 voice frequency (vf) channels and two pairs of connections for telephone (TA-312/PT) and intercommunications (intercom) connections. Binding posts are also provided for the TA-312/PT and intercom connections in the POWER & SIGNAL ENTRANCE BOX.

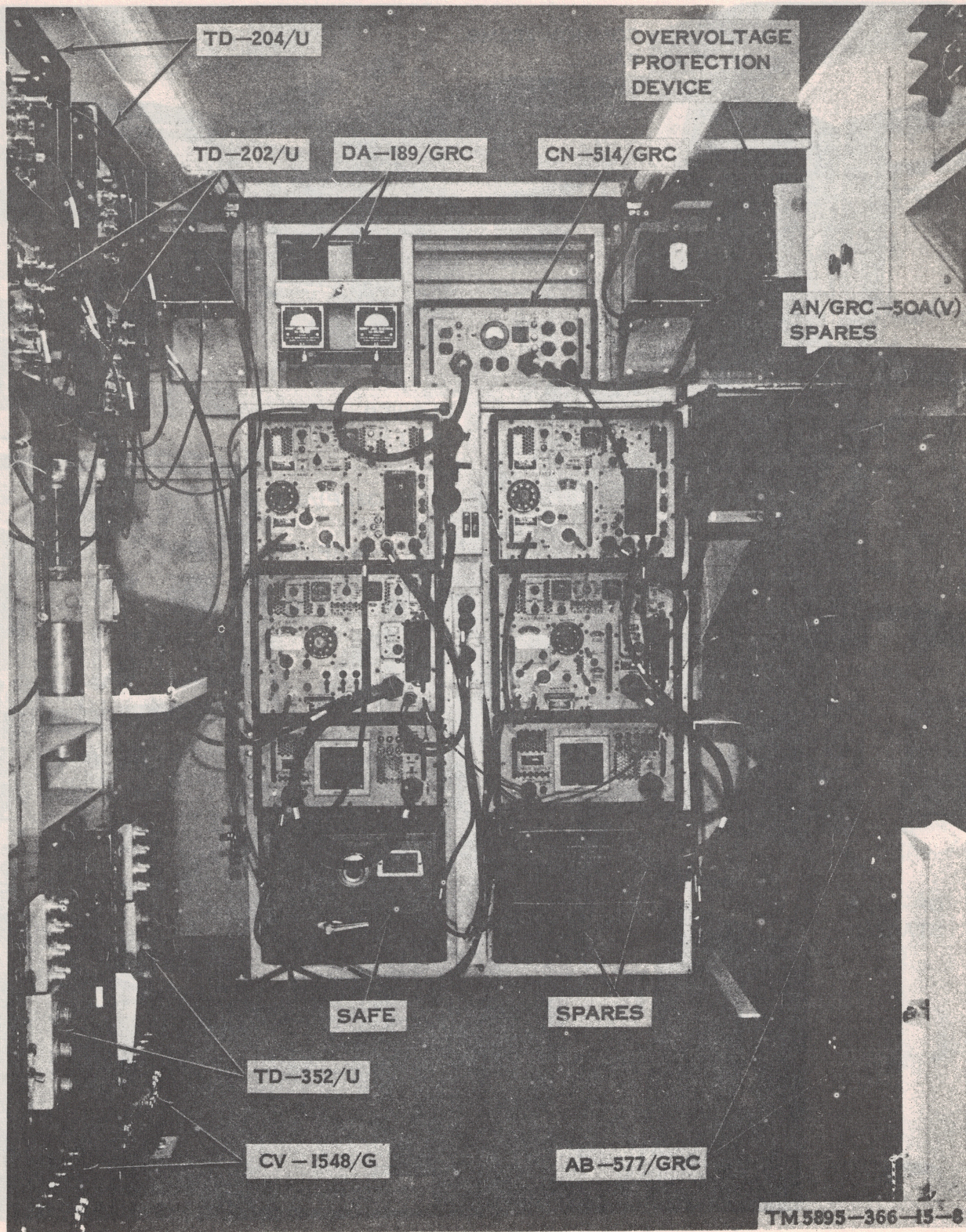


Figure 1-8. Radio Terminal Set AN/TRC-117(V), interior front view.

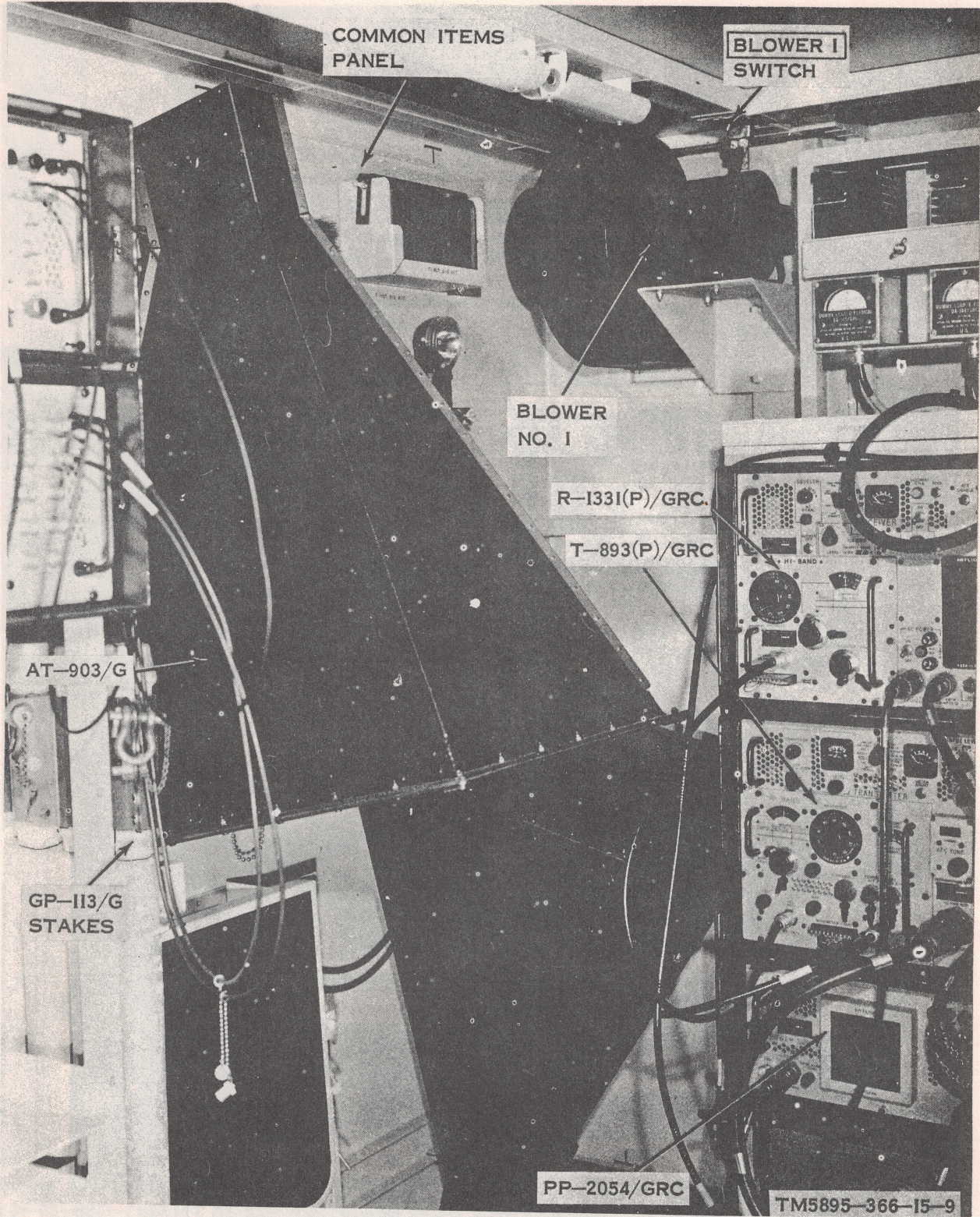


Figure 1-9. Radio Terminal Set AN/TRC-117(V), interior front roadside view.

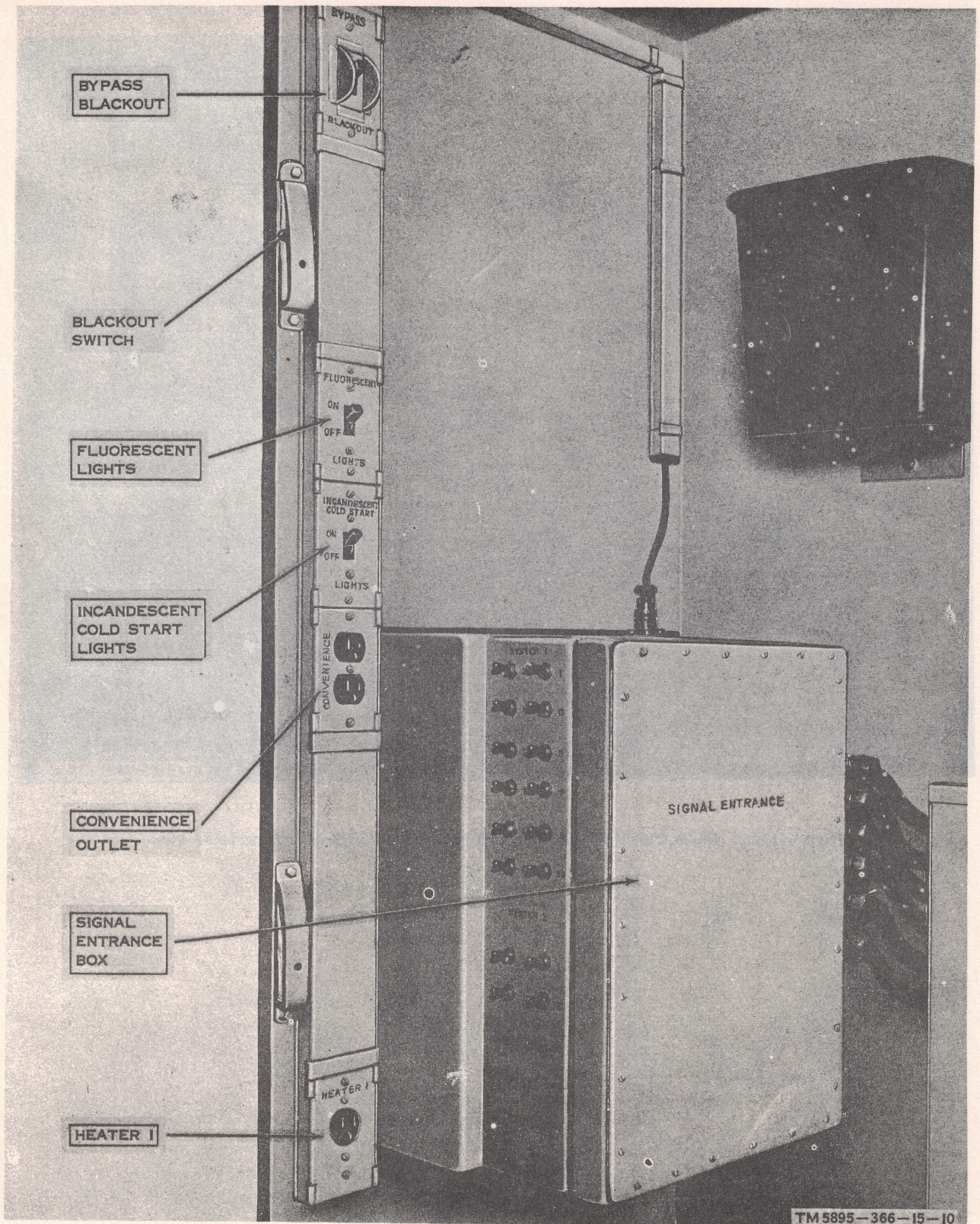


Figure 1-10. Radio Terminal Set AN/TRC-117(V), interior rear roadside view.

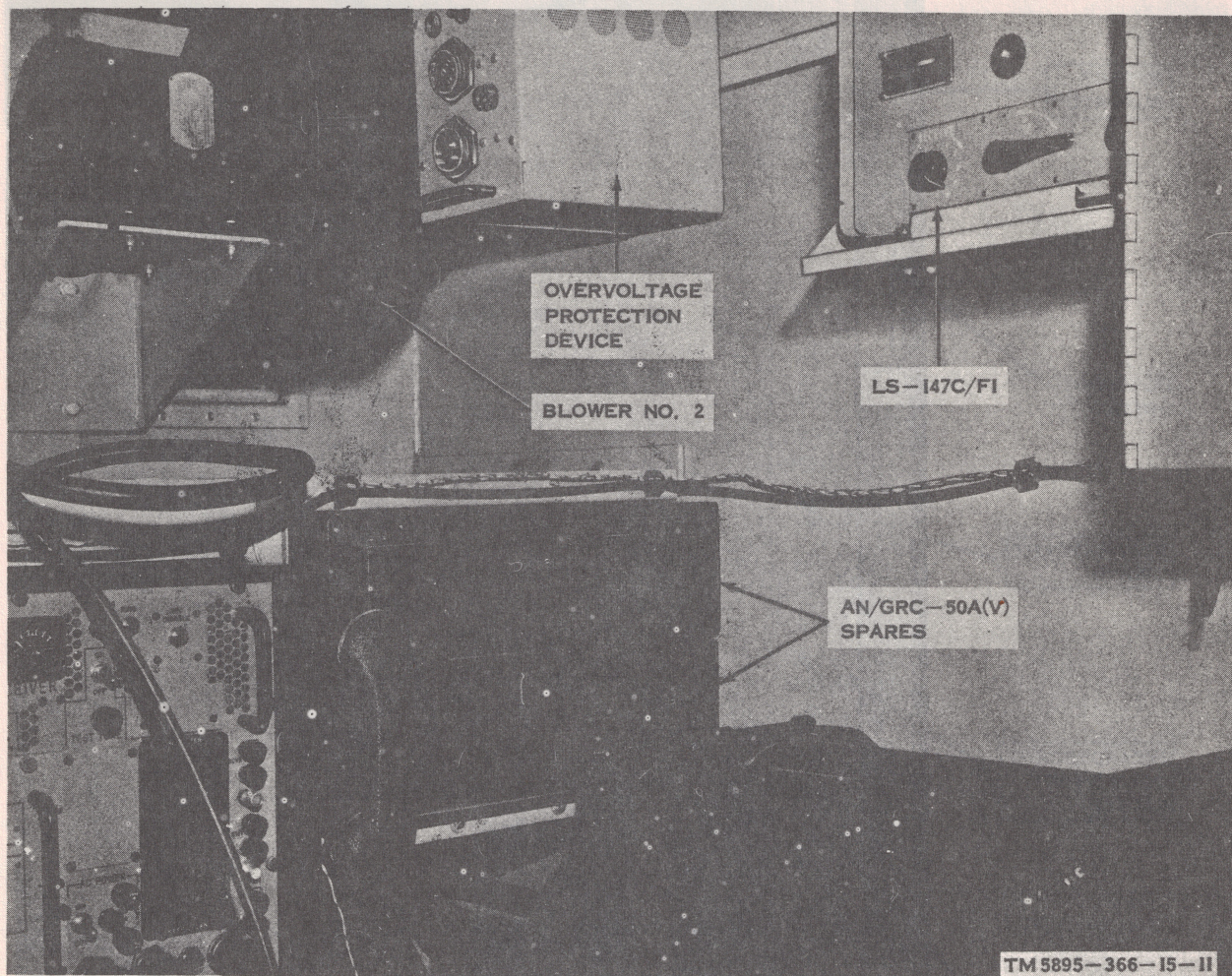


Figure 1-11. Radio Terminal Set AN/TRC-117(V), interior front curbside view.

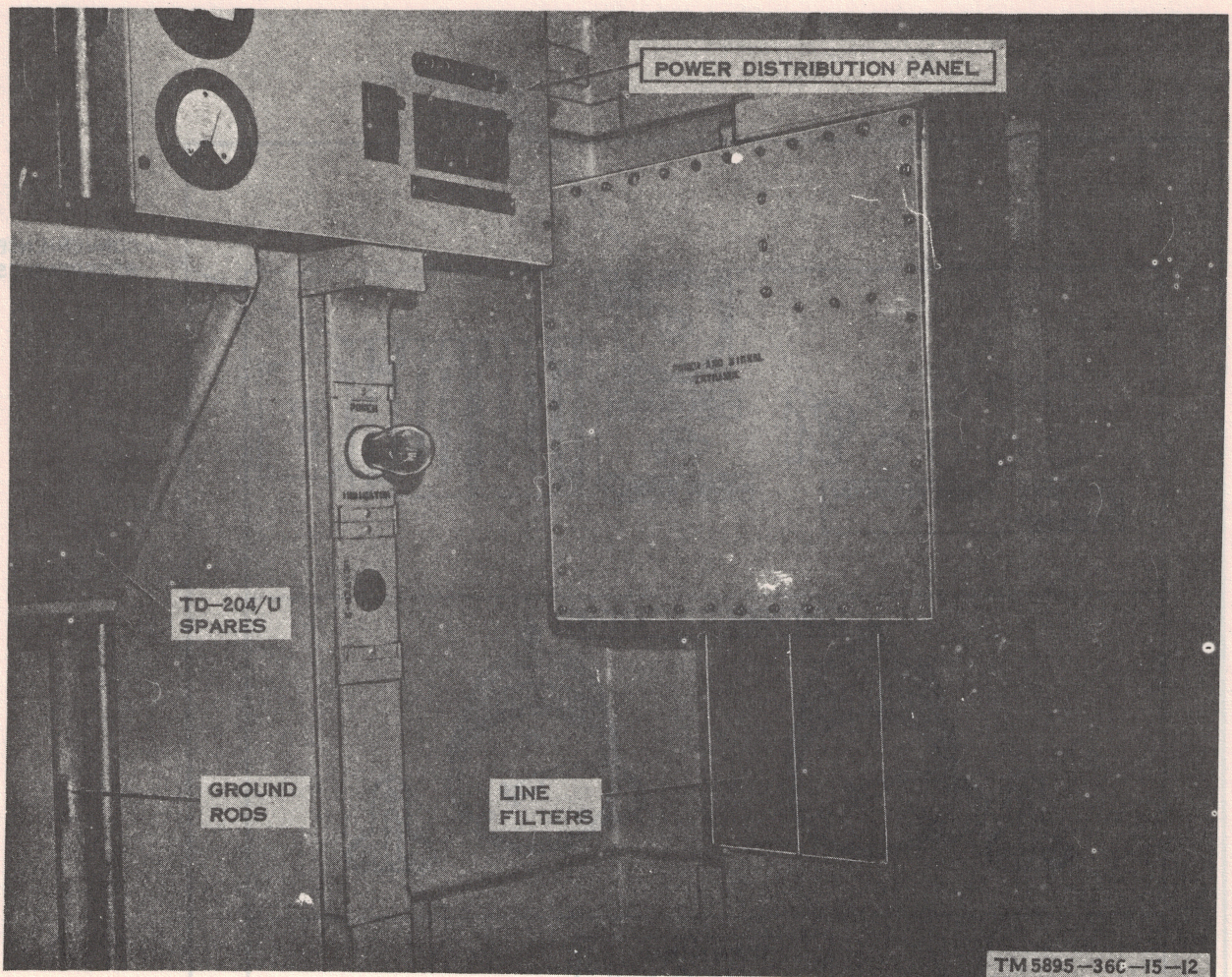


Figure 1-12. Radio Terminal Set AN/TRC-117(V), interior rear subside view.

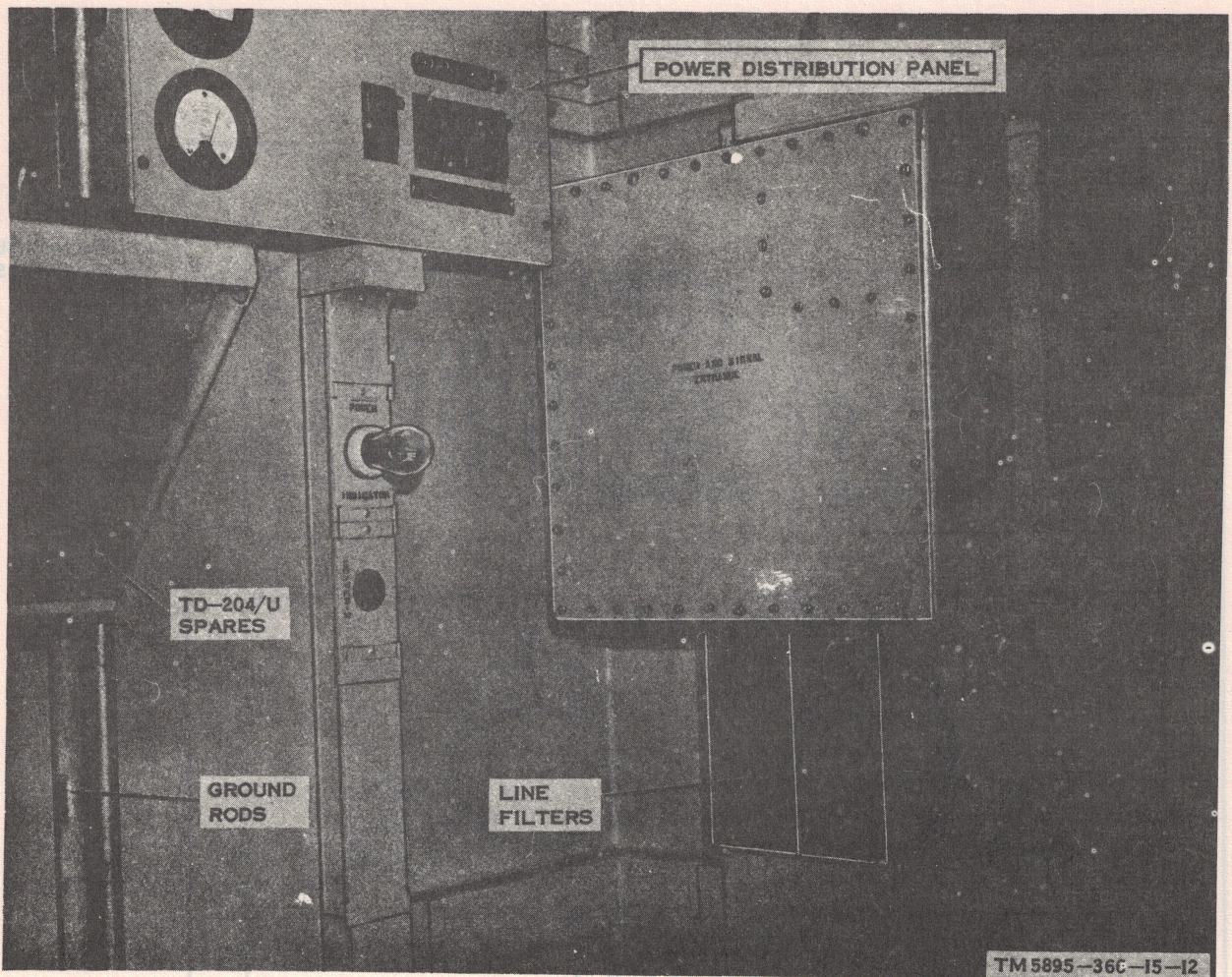
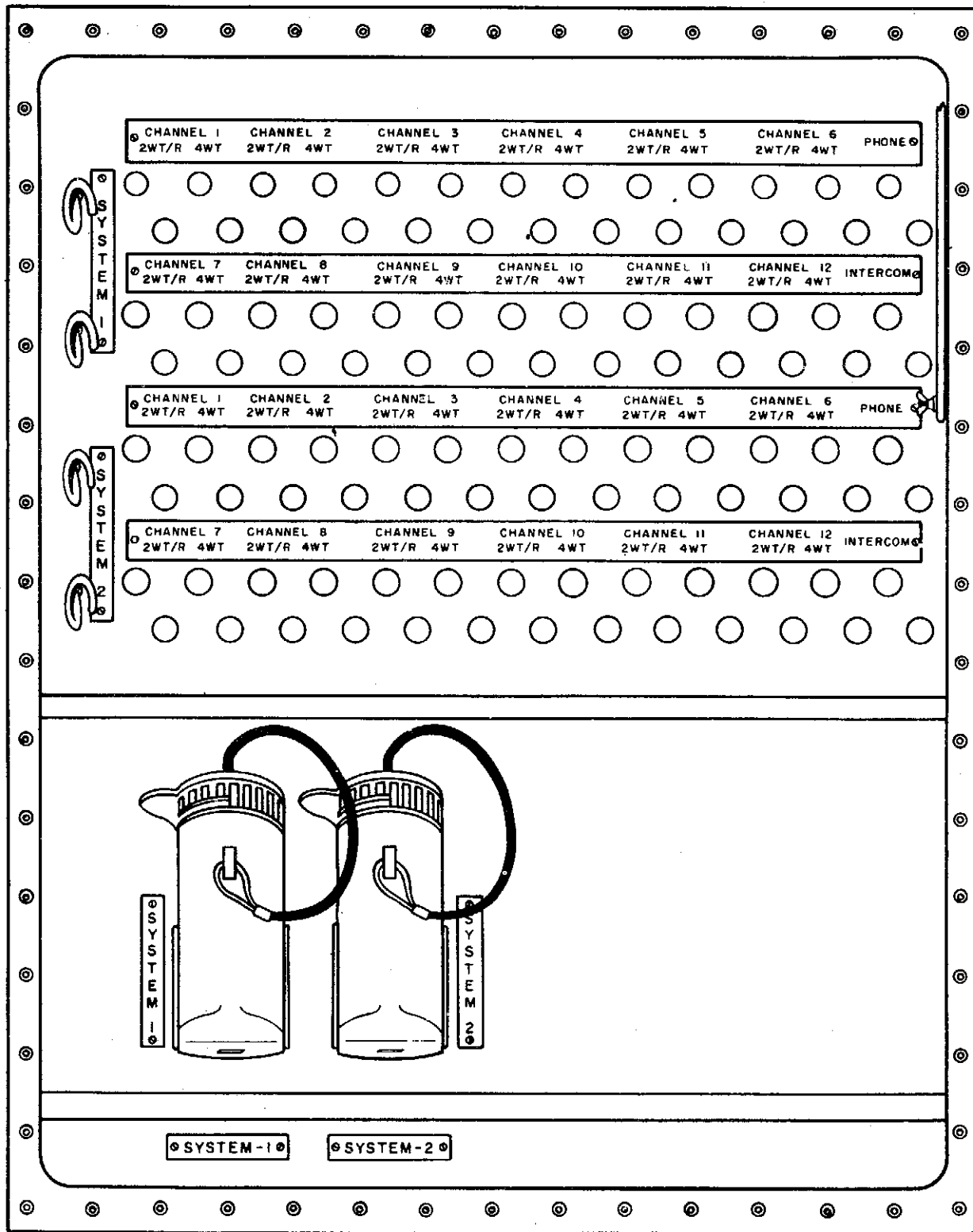
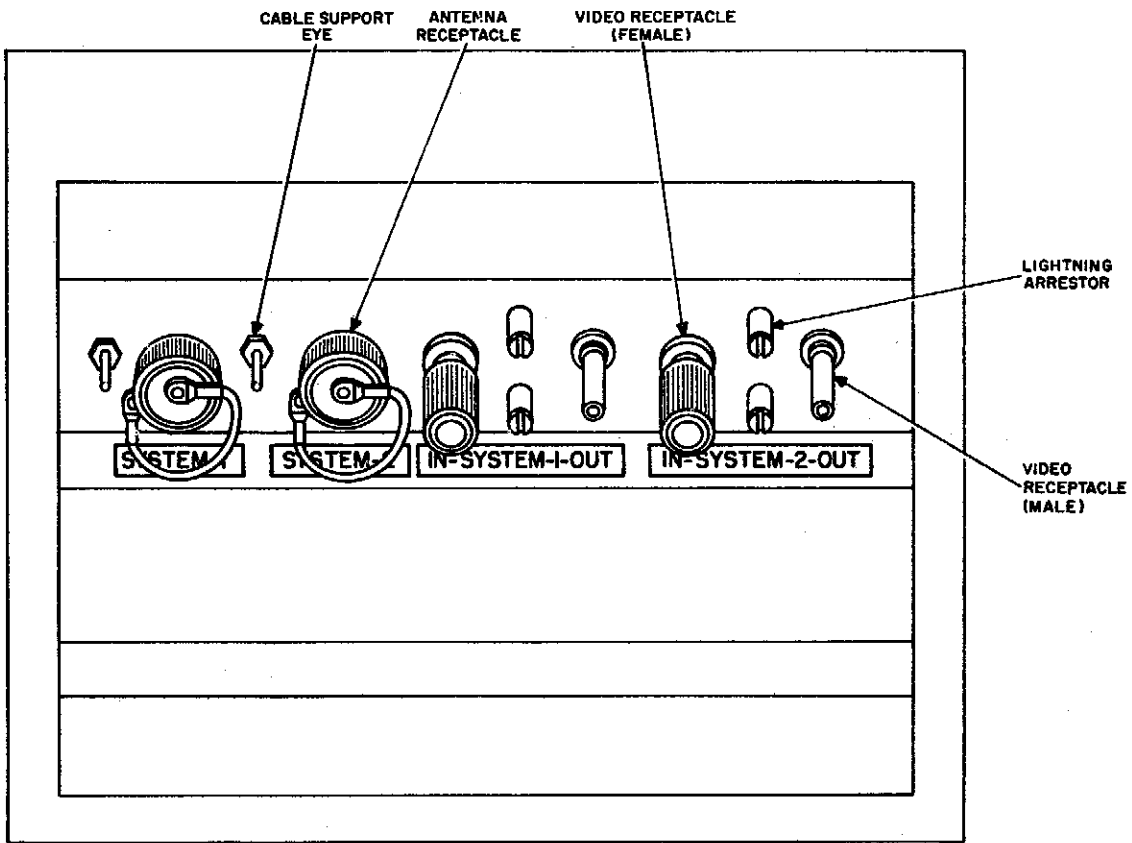


Figure 1-12. Radio Terminal Set AN/TRC-117(V), interior rear subside view.



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Figure 1-14. SIGNAL ENTRANCE BOX, exterior view, less cover.



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Figure 1-15. VIDEO & ANTENNA ENTRANCE BOX, exterior view, leas cover.

CHAPTER 2

INSTALLATION

2-1. Unpacking and Checking (fig. 2-1)

a. Packaging Data. The AN/TRC-117(V) is packed in a reusable wooden crate. The S-330/TRC-117(V), which houses the equipment, is anchored to eyebolts in the skid base of the crate are 155 by 93 by 94 inches. The ends with lumber. The skid base has entries for handling with a forklift. The dimensions of the crate are 155 by 93 by 94 inches. The volume is 874 cubic feet, and the weight of the crated AN/TRC-117(V) is approximately 6080 pounds.

b. Removal of Contents.

Caution: Do not thrust any tools into the interior of any pack or package.

- (1) Unfasten the lag bolts with wrenches and remove the top, front, rear, and side panels from the crate base.
- (2) Detach the tiedowns from the eyebolts in the base of the crate. When cables or tiedown rods are used for anchoring, loosen the turnbuckles.
- (3) Remove the wooden blocking from the sides and ends of the assemblage.

Caution: Be careful when handling tools, because the aluminum skin of the S-330/TRC-(V) can be easily damaged.

- (4) Remove the assemblage from the crate base. Use overhead lifting equipment whenever available; if it is not available, remove the headers from the crate base, lift the shelter from either side with a forklift, or drag it from the crate base by the towing eyes.
- (5) Send the crate to a local storage area, if practicable, for reuse.

c. Checking Assemblage Contents. Check the

contents of the assemblage against the packing list. If the packing list is not available, use the basic issue items (app B).

2-2. Siting

The best operating site for the AN/TRC-117(V) is determined by the tactical situation, the antenna siting considerations, and other local conditions.

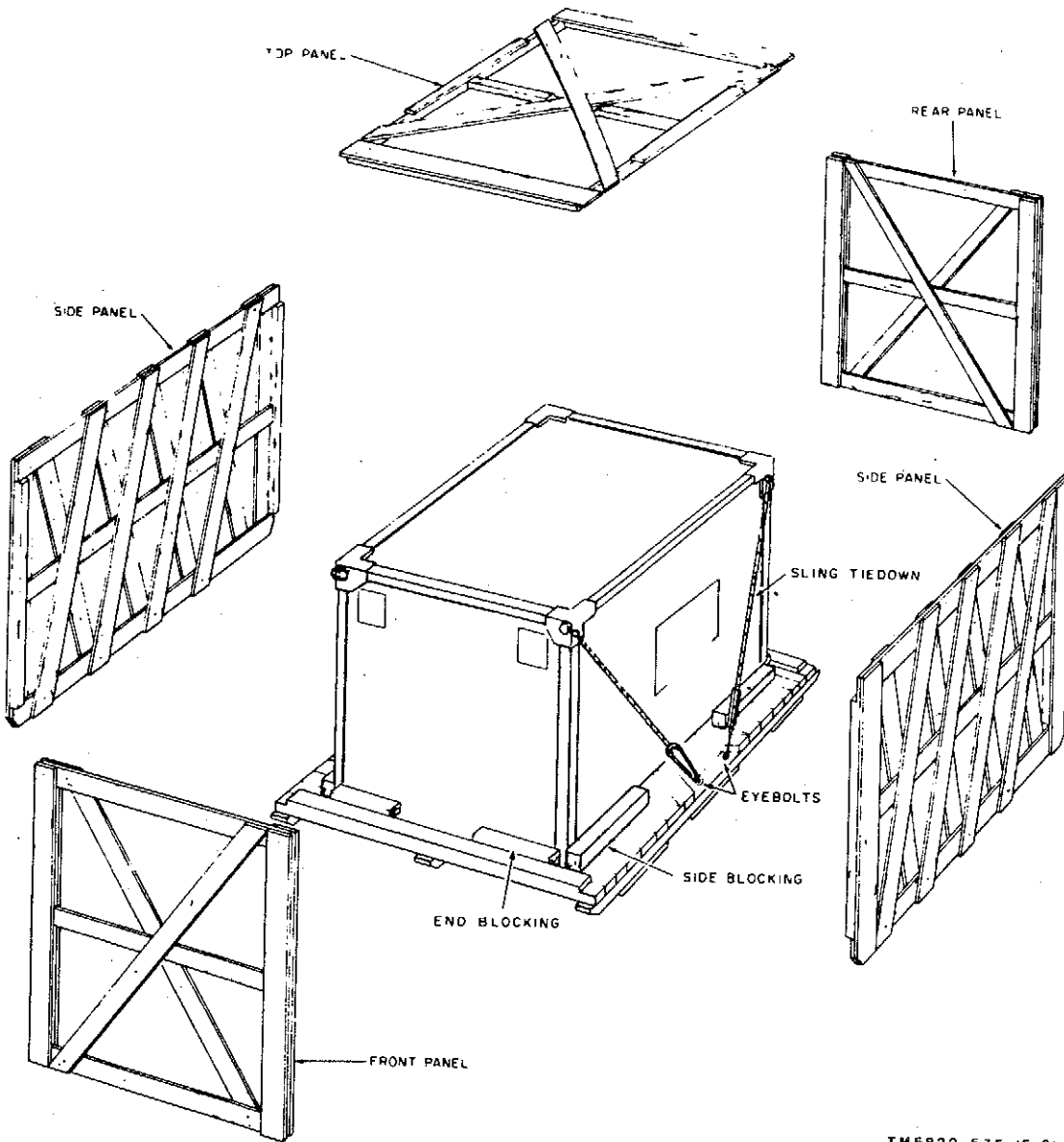
Note. To install the AN/TRC-117(V) on the ground, or on a truck, four men and a device capable of lifting 5080 pounds are required.

a. Ground Installation. When installed on the ground, the AN/TRC-117(V) should be placed on a firm, dry surface with good drainage; the site should be prepared and leveled. The assemblage should be placed on concrete blocks or wooden beams, if possible, and positioned to facilitate connections of power, signal, and antenna cables. If a generator set is used to provide power, it should be located approximately 75 feet from the assemblage to minimize fire hazard and generator noise interference.

b. Truck Installation.

- (1) Use the sling hooks (nearest turnbuckle) to connect the sling assemblies to the lifting and tiedown eyes of the assemblage (fig. 2-2). Connect the sling hooks, at the opposite ends of the cables, to the lifting ring, and place the lifting ring over the lifting hook of the lifting device.

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



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Figure 2-1. Typical packaging diagram.

- (2) Tie a 1/2-inch rope (at least 15 feet long) to each rear towing eye.
- (3) Lower the tailgate of the truck; make sure that all tools and equipment have been removed from the body of the truck. Slowly lift the assemblage high enough to clear the body of the truck.

Note. The entrance door of the assemblage must be at the rear of the truck, and the front end of the assemblage must be

- flush against the front of the truck body.
- (4) Position a man at the free end of each of the 1/2-inch ropes to guide the assemblage. Back the truck slowly into position under the assemblage and slowly lower the assemblage into the truck.

Warning: All personnel must remain clear of the truck while the assemblage is being lowered onto the truck.

- (5) Remove the lifting ring from the lifting hook and disassemble the lifting ring and the sling hooks. Remove the sling hooks from the lifting and tiedown eyes and the 1/2-inch ropes from the rear towing eyes. Raise and secure the truck tailgate.
- (6) Install a tiedown ring assembly (part of the sling assembly) above the center support of each cargo bed side rail of the truck (A, fig. 2-3).
- (7) At each side of the assemblage, use the hook at the end farthest from the turnbuckle to hook each sling assembly to a lifting and tiedown eye of the assemblage. Secure the sling hooks at the opposite end of the cables to the tiedown ring (B, fig. 2-3).
- (8) Tighten all turnbuckles evenly by hand, and then turn each turnbuckle an additional one-half turn with a bar or rod inserted into the slot of the turnbuckle.

Caution: Do not overtighten the

turnbuckles. Overtightening turnbuckles will damage the assemblage.

- (9) After the truck is driven to the operating site, lower the tailgate to the horizontal position; then remove the ladder from the assemblage and secure it to the left side of the tailgate.

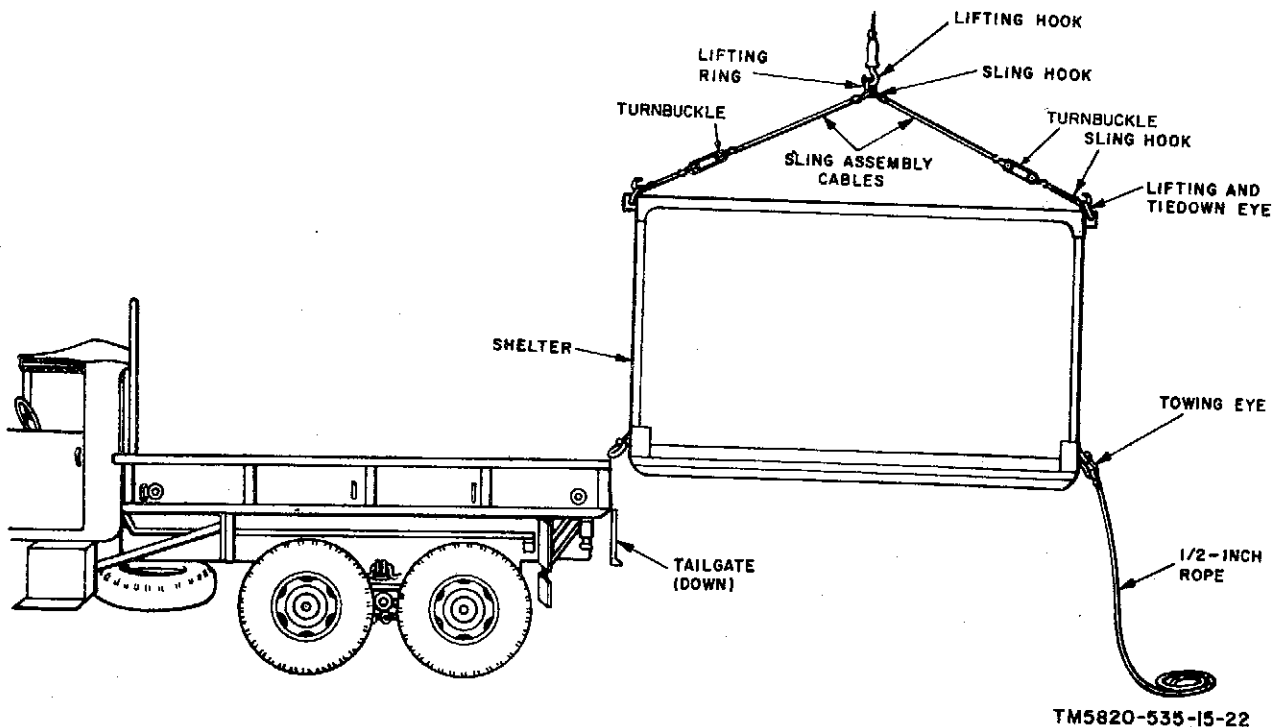
c. Unloading Assemblage. To unload the assemblage from the truck, reverse the procedures given in *b* above.

2-3. Grounding

The AN/TRC-117(V) must be properly grounded *before* input power is connected. Select a grounding site (within 6 feet of the POWER & SIGNAL ENTRANCE BOX) that is low and damp, and that will not interfere with the entrance door, field wires, antenna, power, or signal cables.

a. Loosen and lift the cover of the POWER & SIGNAL ENTRANCE BOX (fig. 1-1).

b. Use the cover support to secure the cover in the open position.



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Figure 2-2. Lifting and loading AN/TRC-117(V) on truck.

c. Remove a ground rod and the sledge hammer from their mountings in the assemblage (fig. 5-1).

d. Remove any dirt or grease from the ground rod.

e. Scoop out a small hole, about 6 inches deep, at the selected grounding site.

f. Drive the ground rod into the hole until the top of the ground rod is approximately 3 inches above the *bottom* of the hole.

g. Remove a 10-foot ground strap from the storage drawer in the assemblage.

h. Connect one end of the ground strap to the ground rod and the other end to the lower GROUND TERMINAL in the POWER & SIGNAL ENTRANCE BOX.

i. Saturate the ground around the rod with water to keep it moist.

j. If a generator set is used to supply ac power, ground it the same way as the assemblage.

2-4. Power Connections

Caution: Grounding connections (para 2-3) must be completed *before* power is connected to the AN/TRC-117(V).

a. Preliminary Procedures.

- (1) Make sure that all circuit breakers and equipment power switches in the assemblage are in the *off* position.
- (2) Remove the power cable assembly and cable reel (fig. 5-1) from the assemblage.
- (3) Unwind the power cable assembly and power cable stub from the cable reel.

Caution: Power for the AN/TRC-117(V) is normally supplied through the POWER 115V AC IN connector. The POWER 115V AC OUT connector is provided to supply power to another assemblage or to supply power to the AN/TRC-117(V) if the POWER 115V AC IN connector is damaged. When the POWER 115V AC OUT connector is used to supply power to another assemblage, do not allow the total current drain to exceed 60 amperes (current rating of power cable assembly between AN/TRC-117(V) and power source).

b. *Connection to Generator Set.* If a generator set is used to provide power to the AN/TRC-117(V), connect power to the assemblage as described in (1) and (2) below; otherwise, connect power as described in c below.

- (1) Remove the cover from the 115V AC POWER IN receptacle in the POWER & SIGNAL ENTRANCE BOX (fig. 1-13) and from the connector on one end of the power cable assembly. Connect the power cable assembly to the 115V AC POWER IN receptacle.
- (2) If the generator set 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 manual and connect the red and white (neutral) and black (hot) leads of the power cable stub to the appropriate output terminals of the generator set. Connect the power cable stub to the power cable assembly.

c. *Connection to Central Power Source.*

- (1) Turn off or disconnect the central power source before making any connections.
- (2) If the power source is a 120-volt, 50- to 60-cycle-per-second (cps), single-phase, two-wire source, connect the red and white wires of the power cable stub to the neutral wire and the black wire of the power cable stub to the hot wire.
- (3) If the power source is a 110/220-volt, 50- to 60-cps, single-phase or 2-phase, 3-wire distribution system, connect the red and white wires of the power cable stub to the neutral terminal and the black wire to either of the two hot terminals.
- (4) If the power source is a 110/220-volt, 50- or 60-cps, 3-phase, 4-wire distribution system, connect the red and white wires of the power cable stub to the neutral bus bar, and the black wire of the power cable stub to the phase 1, phase 2, or phase 3 bus bar.

- (5) Connect the power cable stub to one end of the power cable assembly. Connect the other end of the power cable assembly to the POWER 115V AC IN receptacle in the POWER & SIGNAL ENTRANCE BOX (fig. 1-13) on the assemblage.

2-5. Installation of Antenna System

a. Removal From Assemblage (fig. 5-1).

- (1) Loosen the fasteners that secure the doorsill protective bracket to the loading chute and position the bracket over the doorsill.
- (2) Unfasten the straps that secure Bag Assemblies BG-102A to the loading chute and place them outside the assemblage.
- (3) Remove Antenna Support AB-957/GRC from the loading chute and place it outside the assemblage.
- (4) Loosen the screws that secure the loading chute. If the AN/TRC-117(V) is truck-mounted, rest the feet of the loading chute on the ground and fasten the upper end of the chute securely to the tailgate of the truck. If the AN/TRC-117(V) is installed on the ground, remove the loading chute from the assemblage and store it.
- (5) Turn the reel tiedown bar to release Reels, Cable RC-436/GRC and place the reels and antenna cables outside the assemblage.
- (6) Unfasten the straps that secure the accessory bags on top of Masts AB-577/GRC. Store the straps and remove the accessory bags from the assemblage.
- (7) Remove Antennas AT-903/G from the brackets on the roadside wall and remove them from the assemblage.

Warning: Each AB-577/GRC weighs over 200 pounds and is cumbersome to handle in the limited space inside the assemblage. At least two men should handle each AB-577/GRC to avoid injury to personnel. If the AN/TRC-117(V) is truck-mounted,

slide each AB-577/GRC slowly down the loading chute.

- (8) Unfasten the straps that secure the folding chair to the lower AB-577/GRC on the curbside of the assemblage and place it out of the way.
- (9) Unfasten the top AB-577/GRC mounted next to the curbside wall and remove it from the assemblage.
- (10) If the other AB-577/GRC is required, unfasten the mounting brackets and remove it from the assemblage. *Do not* remove the lower AB-577/GRC unless it is required for operation.
- (11) Open the accessory bags and check to see that all components are present for each antenna installation.

Warning: During assembly and erection of the antenna system, conform to all safety requirements of TB SIG 291. Injury or DEATH can result from failure to comply with all safety regulations.

b. Layout and Installation of Guy Anchors (fig. 2-4).

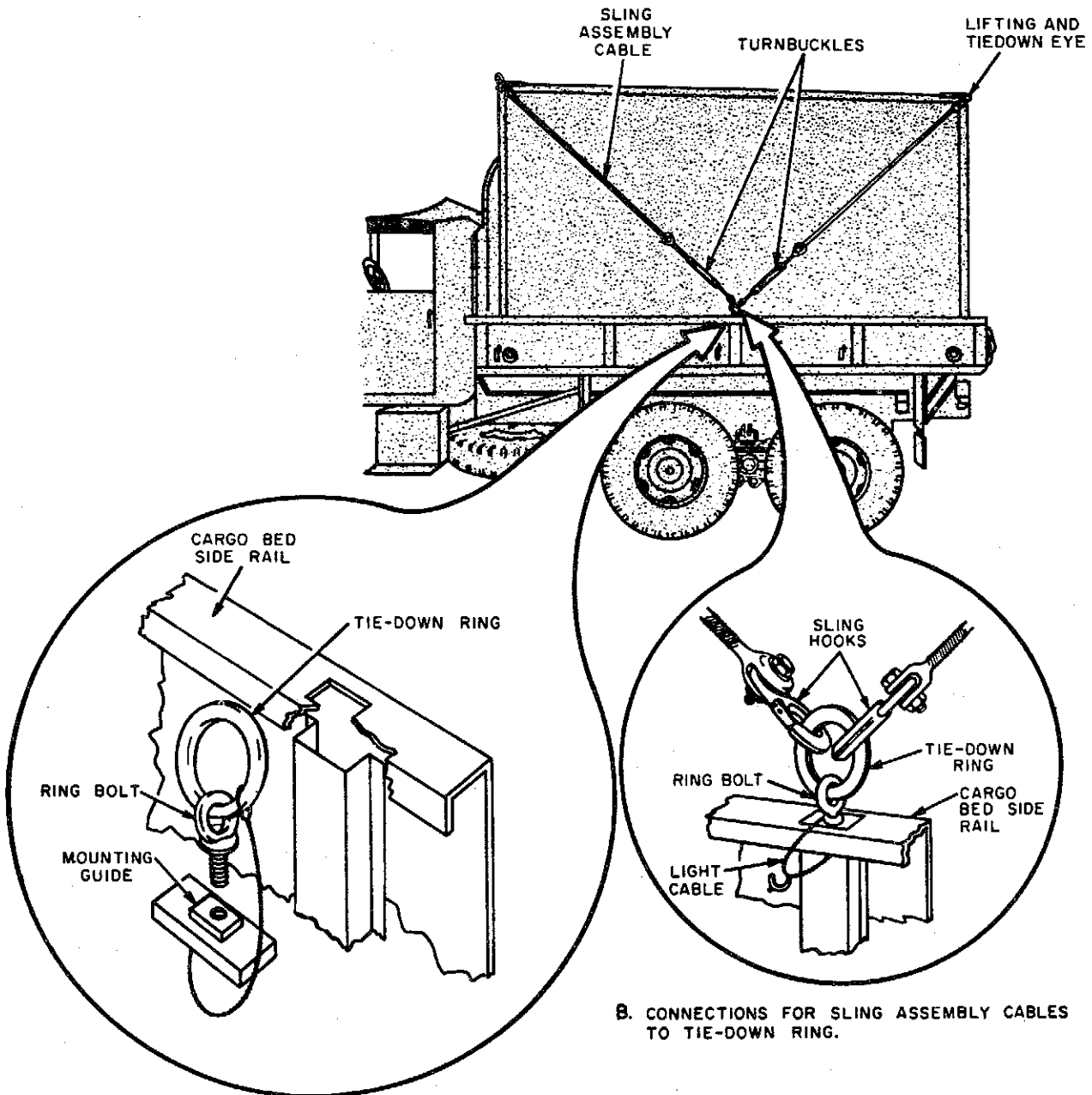
- (1) Drive a Stake GP-2 (mast location stake) approximately halfway into the ground at the spot selected for the mast location.
- (2) Slip one loop of the 30-foot leg of the radius rope over the mast location stake and extend it in the direction the AT-903/G (fixed) will face. Drive a second GP-2 (first guy anchor) into the ground at the 30-foot point to act as a marker (A, fig. 2-4).
- (3) Slip the end loop of the 52-foot section of the radius rope over the first guy anchor. Locate the point at which both sections of the rope are taut on the right side of the mast location stake and drive a third GP-2 (second guy anchor) into the ground (B, fig. 2-4).
- (4) Locate the point on the opposite side of the mast location stake where both sections of the radius rope are taut and drive a fourth GP-2 (third guy anchor) into the ground (C, fig. 2-4).
- (5) Remove the GP-2's and drive Stakes

GP-113/G into the ground at the locations of the first, second, and third guy anchors with the rings of the GP-113/G's pointing toward the mast location stake. Angle the GP-113/G's into the ground at approximately a 60° angle, away from the mast location

stake and drive them in until the three rings are just above the ground.

c. Preparation of Launcher.

- (1) Position the bottom of the launcher at the mast location stake with the top of the launcher facing away from the direction of the first guy anchor. Re-



A. EXPLODED VIEW OF TIE-DOWN RING ASSEMBLY.

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Figure 2-3. Securing AN/TRC-117(V) on truck.

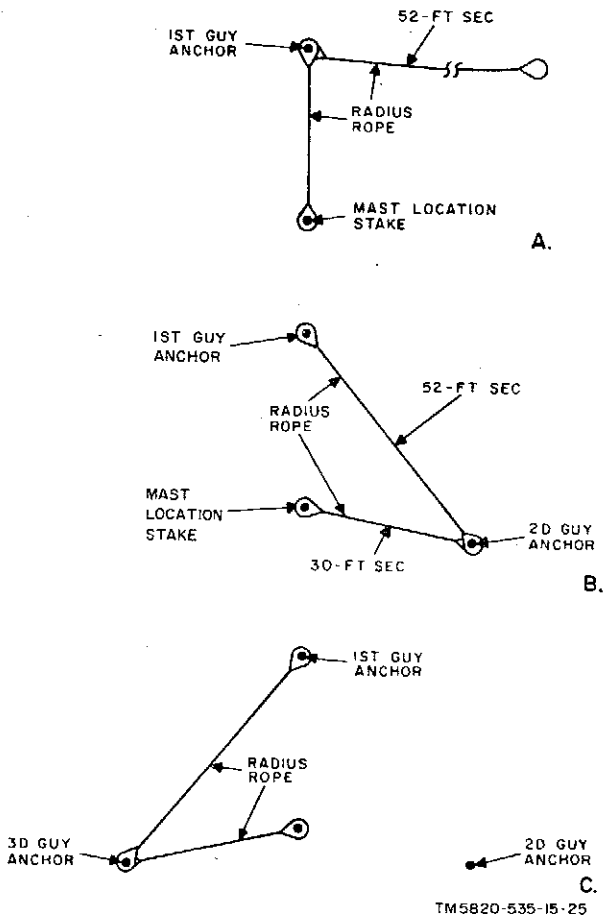


Figure 2-4. Layout of guy anchor stakes.

move the mast location stake.

- (2) Install a GP-2 in each side of the launcher base in the holes provided, to act as a hinge when the launcher is raised.
- (3) Drive a GP-2 into the ground in front of each of the GP-2's in the launcher base.
- (4) Remove one mast section from the mast section carrier and then use the mast section carrier to support the top of the launcher assembly in a convenient working position for assembling the AT-903/G and the mast.

d. Polarization and Elevation-Depression Adjustment for AT-903/G.

- (1) Check to see that the mounting frame is attached to the AT-903/G to provide proper polarization. The arrow

on the back of the AT-903/G will indicate the element polarization when mounted.

- (2) Determine the proper elevation-depression angle for the AT-903/G from the chart in figure 5-2. Refer to a local topographic map to determine the relative elevations of the sites and the distance between them.
 - (3) Release the locking handle on the elevation-depression bracket of the AT-903/G and elevate or depress as required.
 - (4) Lock the handle in position.
- e. *Assembly of Antenna AT-903/G.*

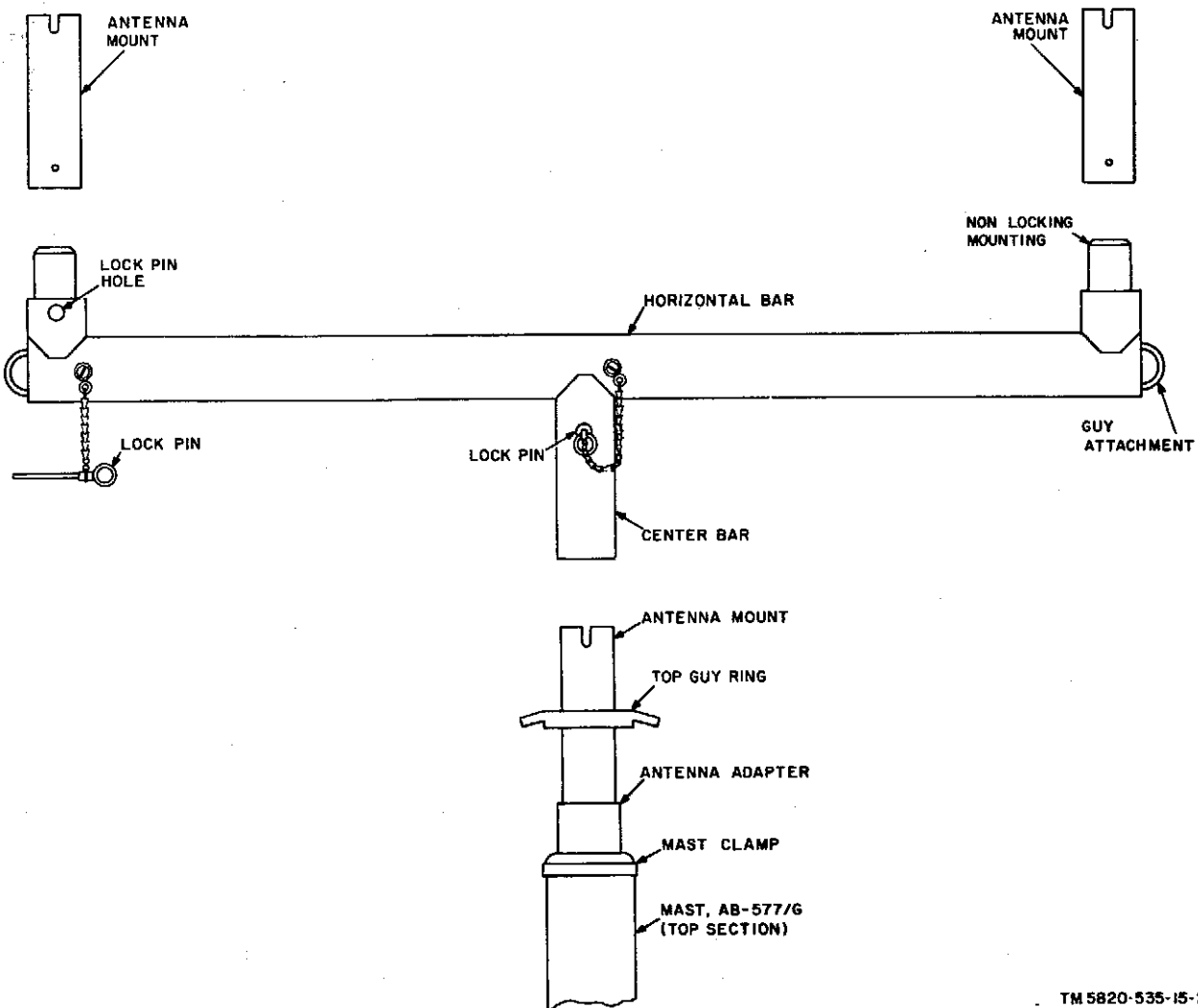
- (1) Remove the locking pin from the rear of the elevator on the launcher assembly and secure the pin to prevent tangling during assembly.
- (2) Remove the pin from the handbrake handle on the launcher assembly and insert the mast section, bottom first, through the top of the launcher assembly.
- (3) Remove the locking pin from the locking bar of the winch cable reel and lock the bar in the open position. Slightly lower the elevator platform on the launcher and push the mast section in until it engages the base bearing. Lock the handbrake.

Note. If one AT-903/G is to be mounted on the AB-577/GRC, attach it according to the procedure in (4) below. If two AT-903/G's are to be mounted with the use of Antenna Support AB-957/GRC, perform the procedures in (5) through (11) below.

- (4) Place an open mast section clamp over the top of the mast section and attach Antenna AT-903/G to the mast section. Make sure that the antenna is properly polarized and that the AT-903/G is set for the proper elevation or depression angle. Align the AT-903/G so that it points in the direction of the first guy anchor (GP-113/G) and tighten the mast section clamp.
- (5) Attach the antenna adapter (fig. 2-5) to the top mast section with a mast

section clamp so that the slot in the adapter is in line with the direction of the first guy anchor (GP-113/G).

- (6) Remove the locking pin from the hole in the center bar and remove the antenna mount. (The antenna mount is stored in this position during shipment and storage.)
- (7) Replace the locking pin in the hole in the center bar.
- (8) Slip the top guy ring over the antenna mount (on the mast) so that the guy lugs angle downward (toward the mast).
- (9) Slide the center bar of the AB-957/GRC onto the mount on the antenna adapter, and rotate the AB-957/GRC until the locking pin engages the slot in the antenna mount. The AB-957/GRC should be at right angles to the direction of the first guy anchor (GP-113/G).
- (10) Mount one AT-903/G (facing in the proper direction) on the fixed antenna mount of the AB-957/GRC. Rotate the AT-903/G until the pin in the base engages the slot in the antenna mount.
- (11) Slip the antenna mount, removed



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Figure 2-5. Assembly of Support, Antenna AB-957/GRC on Mast AB-577/GRC.

from the center bar in (6) above, onto the nonlocking mounting of the AB-957/GRC. Mount the second AT-903/G on the antenna mount and rotate the AT-903/G and the antenna mount to engage the pin in the AT-903/G in the slot of the antenna mount.

f. Attaching Guys (figs. 2-6 and 2-7).

- (1) Attach the snubber ends of two of the launcher guys (coded blue) to the second and third guy anchor (GP-113/G's). Attach the other ends of the guys to the guy holes in the top of the launcher. Adjust the lengths of these guys to approximately 36 feet.
- (2) Attach the top end of the third launcher guy (coded blue) to the remaining guy hole in the top of the launcher. Do not attach the snubber end of this guy.
- (3) Attach the three top guys (coded red) to the top guy ring assembly on the AT-903/G (on the antenna adapter if the AB-957/GRC is used). Do not attach the lower ends of the top guys.
- (4) If the AB-957/GRC is used, attach two 65-foot guys (coded red) to each guy attachment on the ends of the AB-957/GRC horizontal bar.
- (5) Attach two 65-foot guys (coded red) to the support frame of the free-moving AT-903/G on the AB-957/GRC so that it can be moved from the ground after the mast is erected.

g. Erection of Launcher.

- (1) Raise the launcher to a vertical position (fig. 2-6). The launcher will stand unsupported if the base is level. Attach the loose launcher guy to the first guy anchor (GP-113/G).
- (2) Drive two GP-2's through the holes in the front of the launcher base, into the ground to prevent the launcher from shifting position. Do not drive the GP-2's completely into the ground. Remove the GP-2's installed in the

sides of the launcher (c(2) above).

- (3) Remove the winch from the accessory bag and install it on the launcher frame. Slide the latch (on the rear of the winch reel supporting frame) over the winch shaft to lock the winch in position. Make sure the elevator cable is properly threaded over the pulley wheels.
- (4) Operate the winch to raise the elevator to the bottom of the first mast section. Drive the third GP-2 through the rear of the launcher into the ground.
- (5) Check the target level on the launcher frame to see that the launcher is level. Adjust the launcher frame if necessary.
- (6) Unscrew the snubber adjustment to the fully extended position on the launcher guys. Unlock the snubber clamp and take up the slack on the launcher guys. Check the target level and adjust the snubber adjustments until the launcher is level.
- (7) Drive the GP-2's in the base of the launcher frame completely into the ground. Recheck the level and readjust the launcher guys if necessary.
- (8) Install the spanner wrench from the accessory bag in the launcher base to act as a foot lever.

h. Attaching Antenna Cables.

Note. If the AB-957/GRC is used, connect both sets of cables according to the procedures in (1) through (4) below.

- (1) Connect Cable Assembly, Radio Frequency CG-718B/U (6 ft) to the cable connector on the AT-903/G. Use the rear of the launcher frame as a ladder to reach the connector.
- (2) Attach Adapter, Connector UG-1374/U to the lower end of the CG-718B/U (6 ft).
- (3) Connect Cable Assembly, Radio Frequency CG-1859/U (80 ft) to the UG-1374/U. Attach the snap fastener of the CG-1859/U cable grip to the top guy ring.
- (4) Set up Reel, Cable RC-436/GRC so

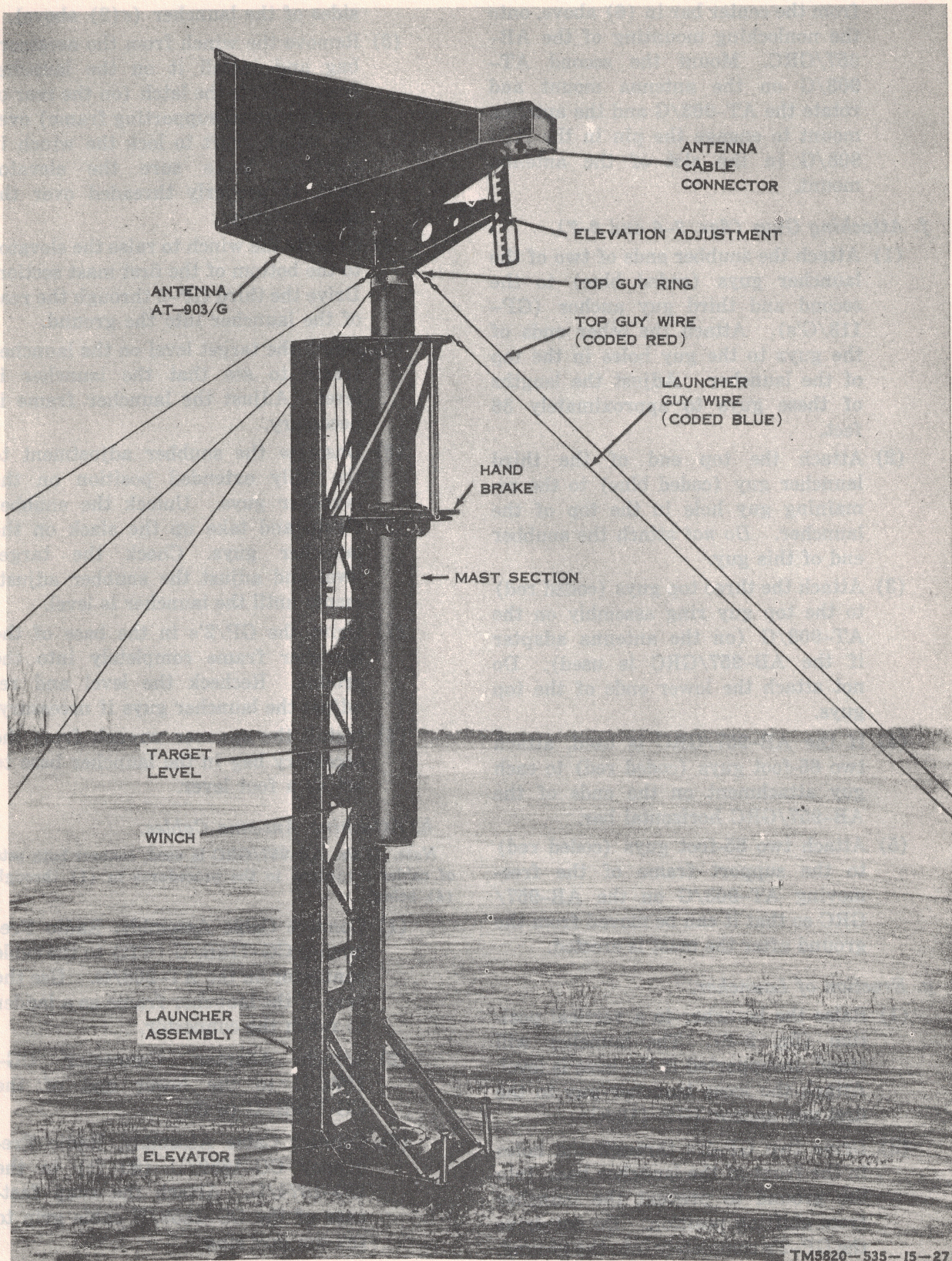
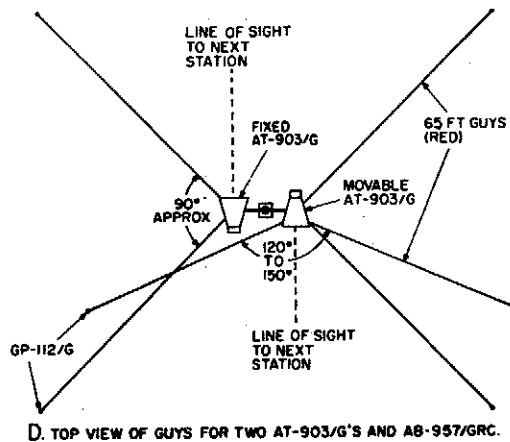
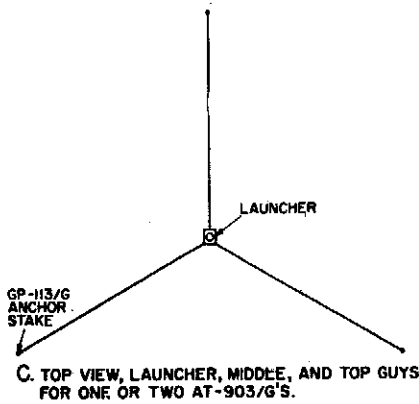
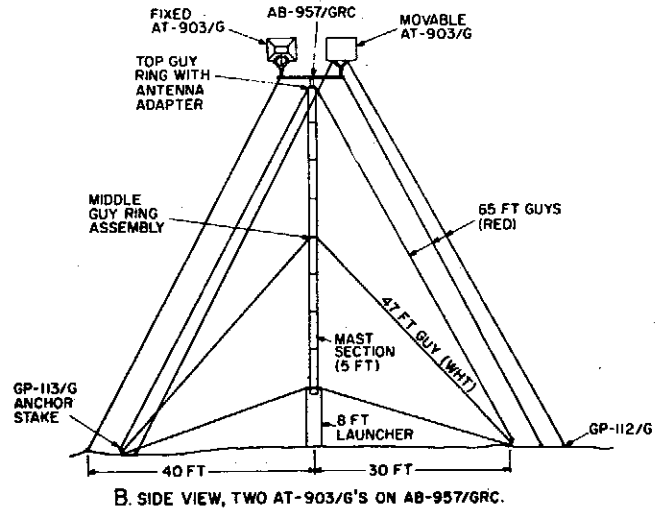
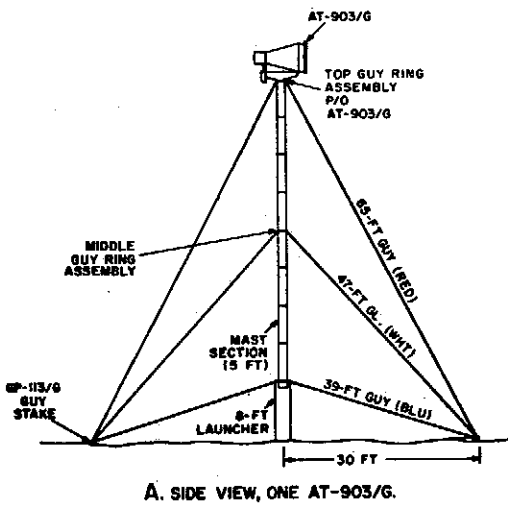


Figure 2-6. Launcher assembly in position with one mast section and one AT-903/G mounted.



- NOTES:
1. GP-112/G'S POSITIONED AS REQUIRED FOR AT-903/G ORIENTATION.
 2. AT-903/G'S SHOWN VERTICALLY POLARIZED.

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Figure 2-7. Antenna installations using one AT-903/G or two AT-903/G's on AB-957/GRC.

that the CG-1859/U comes off freely as the mast is extended.

i. Raising Mast AB-577/GRC.

- (1) Release the handbrake and operate the winch to raise the mast section to the

upper limit. The elevator stop will determine the upper limit.

Caution: Always lock the handbrake securely before lowering the elevator and attaching the next mast section.

- (2) Operate the winch to lower the elevator to its lowest position.
- (3) Slip an open mast section clamp over the bottom joint of the mast section. Do not tighten the mast section clamp.
- (4) Remove the next mast section from the mast section carrier and set the mast section in place on the elevator. Make sure that the bottom of the mast section seats correctly in the elevator platform.
- (5) Step on the foot lever (spanner wrench *g*(8) above) and raise the platform until the mast section meets the bottom of the mast section above it. Position the mast section clamp at the joint and lock it securely.
- (6) Raise the elevator about 2 inches with the winch until the mast section rests on the elevator. Repeat the procedures in (1) above.
- (7) Repeat the procedures in (2) through (6) above until the fifth mast section is raised about halfway, and then lock the handbrake.
- (8) Climb the rear of the launcher assembly and install the middle guy ring assembly between the fourth and fifth mast sections.
- (9) Insert the locking pin through the holes in the guy ring assembly to lock it in place.
- (10) Connect the top ends of the middle guy wires (coded white) to the middle guy ring. *Do not* attach the snubber ends.
- (11) Release the handbrake and operate the winch to raise the fifth mast section to the upper limit.
- (12) Repeat the procedures in (2) through (6) above until eight mast sections are raised. Align the yellow arrows on the eighth mast section and the elevator platform to insure that the mast section has engaged the base bearing.

Caution: In winds exceeding approximately 25 miles per hour (mph), hold the upper guys taut during erection.

When the antenna is fully erected, it can withstand winds up to 100 mph. If wind velocities *in excess* of 100 mph are normal for the site, reduce the height of the AB-577/GRC. The reduced height must be taken into consideration when determining line-of-sight paths and adjusting the AT-903/G elevation-depression angle (*d* above).

- (13) When the last mast section is raised, securely fasten the handbrake.
- (14) Connect the upper and middle guys to the upper and middle guy rings on the anchor stakes (GP-113/G's), and snub them loosely.
- (15) If the AB-957/GRC is used, extend the guys attached to the guy attachments and attach them to GP-112/G stakes and drive them into the ground (D, fig. 2-7). Attach the guys connected to the free-moving AT-903/G to GP-112/G's and drive them into the ground. *Do not* tighten the snubbers on the AB-957/GRC and AT-903/G guys.
- (16) Remove the foot lever from the base of the launcher.
- (17) Install the mast section carrier into the launcher to act as the base section for the mast.
- (18) Lock the mast section carrier in place by closing the catches on the launcher frame.
- (19) Release the handbrake and operate the winch to lower the mast until its complete weight rests on the mast section carrier. There should be no tension in the elevator cable. Lock the handbrake securely.

j. Final Adjustments.

- (1) Make sure that plenty of slack is in the top and middle guy wires.
- (2) Check the level of the launcher with the target level. If necessary, adjust the launcher guys to level the launcher.
- (3) Adjust the tension on the middle guy

wires until the lower half of the mast is straight.

Note. To check the vertical alignment of the AB-577/GRC, observe it from a distance and compare it with a known vertical object.

- (a) Unscrew the snubber adjustment to its fully extended position.
- (b) Unlock the snubber clamp and take up the slack in the guy.
- (c) Correct any misalignment in the AB-577/GRC by tightening the snubber adjustment.
- (4) Repeat the procedure in (3) above for the top guys.
- (5) Recheck the level of the mast with the target level. Make sure that the guys are tight and secure.
- (6) Attach Cable Assembly, Radio Frequency CG-1859/U (80 ft) to a guy stake to prevent damage in a wind.
- (7) If the CG-1859/U (80 ft) is not long enough to reach the AN/TRC-117(V), attach Adapter, Connector UG-1373/U to the CG-1859/U (80 ft) and attach the CG-1859/U (40 ft) to the UG-1373/U to extend the length of the cable.

2-6. Cable and Signal Connections

All external antenna and pcm cable connections are made through the receptacles in the VIDEO & ANTENNA ENTRANCE BOX on the roadside wall of the assemblage. Telephone line connections are made through the SIGNAL ENTRANCE BOX on the rear wall of the assemblage.

a. Antenna Cable Connections (fig. 1-15).

- (1) Remove the cover from the SYSTEM 1 or SYSTEM 2 antenna receptacle, as appropriate, and from the free end of the antenna cable.
- (2) Attach a strain-relief cable grip to the antenna cable approximately 5 feet from the connector end. Attach the cable grip to the cable support eye next to the receptacle in the VIDEO & ANTENNA ENTRANCE BOX.
- (3) Attach the connector on the end of the cable to appropriate receptacle.

Check to see that no kinks or sharp bends are in the cable.

b. *Pcm Cable Connections* (fig. 1-15). Connect Cable, Special Purpose, Electrical CX-4245/G, or equivalent, to the paired SYSTEM 1 or SYSTEM 2 IN and OUT receptacles as follows:

- (1) Slip a cable grip (supplied with the cable) through a lifting and tiedown eye or other convenient tiedown point on the assemblage or truck.
- (2) Wrap the cable grip on the CX-4245/G, or equivalent, far enough from the connectors to form a loose loop after the CX-4245/G, or equivalent, is connected to the receptacles (at least 5 feet from the connector end).
- (3) Attach the female and male connectors on the CX-4245/G to the IN and OUT receptacles in the VIDEO & ANTENNA ENTRANCE BOX and handtighten them by turning the polyethylene sleeve on the female connectors.

c. Twenty-Six Pair Cable Connection Procedure.

- (1) Unlock and remove the covers from the connectors on the 26-pair cable assembly and on the receptacles in the SIGNAL ENTRANCE BOX.
- (2) Insert the connectors into the receptacles and secure them by closing the locking collars.
- (3) Operate the associated BINDING POSTS-CABLES switches on the interior of the SIGNAL ENTRANCE BOX to CABLES.
- (4) If the required cable distance exceeds 250 feet, couple two 26-pair cable assemblies together.

Note. Do not connect more than six 26-pair cable assemblies together to avoid poor quality signals.

d. Field Wire Connection Procedure.

- (1) Connect the two-wire telephone pairs or the telephone send pairs (black or green) of a four-wire telephone circuit to the 2W-4WR binding posts in

the SIGNAL ENTRANCE BOX associated with the desired channel.

- (2) Connect the telephone receive pairs (white or gray) of the four-wire telephone circuit to the 4-WTR binding posts associated with the same channel.
- (3) Operate the associated BINDING POSTS-CABLES switches to BINDING POSTS.

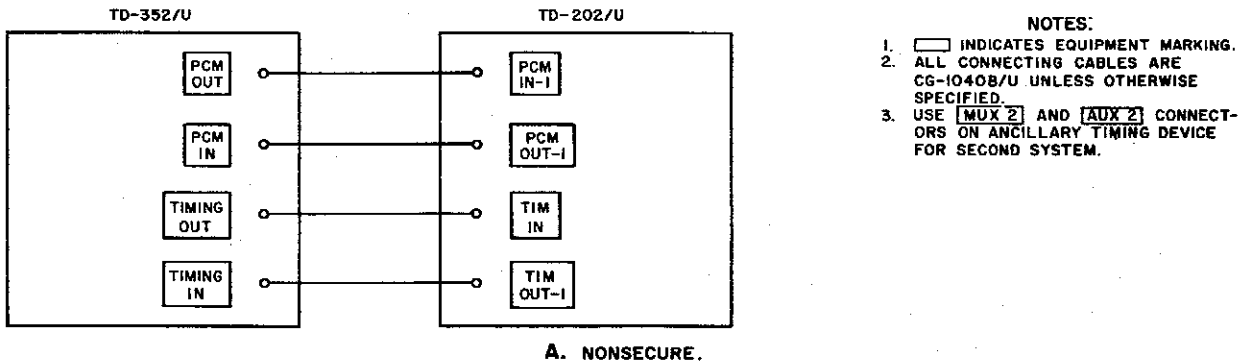
2-7. Interunit Cable Connections

The components of the AN/TRC-117(V) may be connected to provide a variety of terminal or repeater configurations. Some interunit cable connections remain the same in all applications and are shown connected in figure 5-4. The connections peculiar to each configuration are shown in the illustration for the configuration as listed in the chart below. Check to see that all common connections are

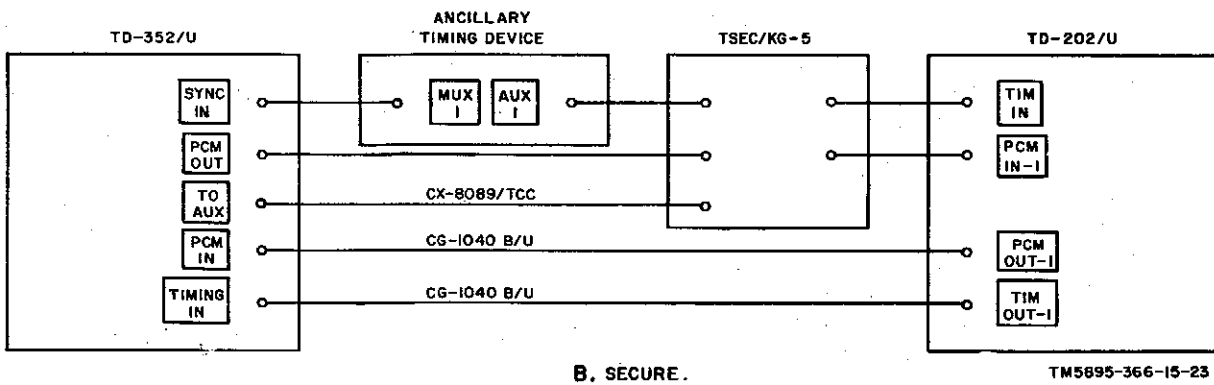
made properly, then connect the components for the particular application according to the referenced figure.

Note. When a remote drop and insert is used (fig. 2-15) do not exceed a 5-mile distance from the repeater to the drop and insert terminal.

System configuration	Fig. No.
12-channel radio terminal -----	2-8
24-channel radio terminal -----	2-9
12-channel cable terminal -----	2-10
24-channel cable terminal -----	2-11
12- or 24-channel cable-radio conversion -----	2-12
12- or 24-channel radio repeater ----	2-13
24-channel radio repeater with local 12-channel drop and insert.	2-14
24-channel radio repeater with remote drop and insert.	2-15
12-, 24-, or 48-channel cable repeater.	2-16
24-channel cable repeater with 12-channel drop and insert.	2-17

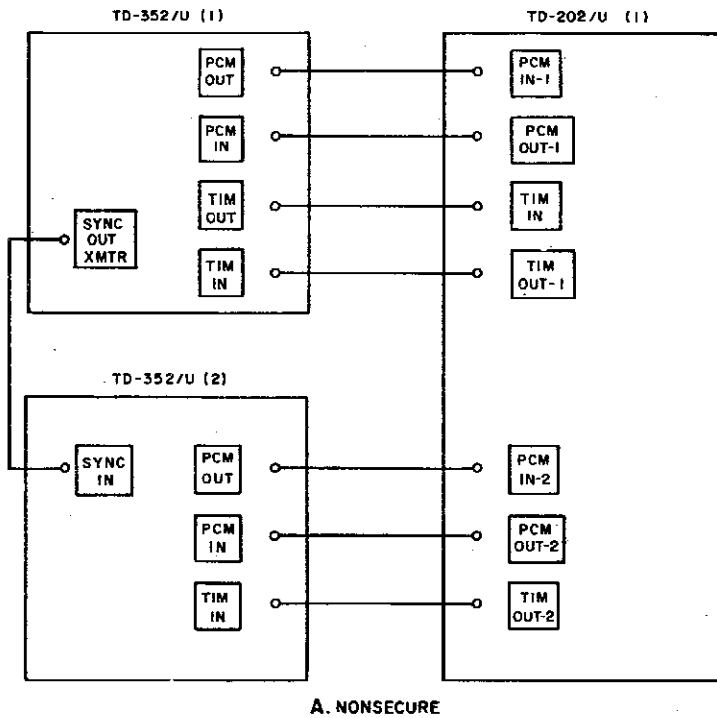


- NOTES:**
1. INDICATES EQUIPMENT MARKING.
 2. ALL CONNECTING CABLES ARE CG-1040B/U UNLESS OTHERWISE SPECIFIED.
 3. USE MUX 2 AND AUX 2 CONNECTORS ON ANCILLARY TIMING DEVICE FOR SECOND SYSTEM.

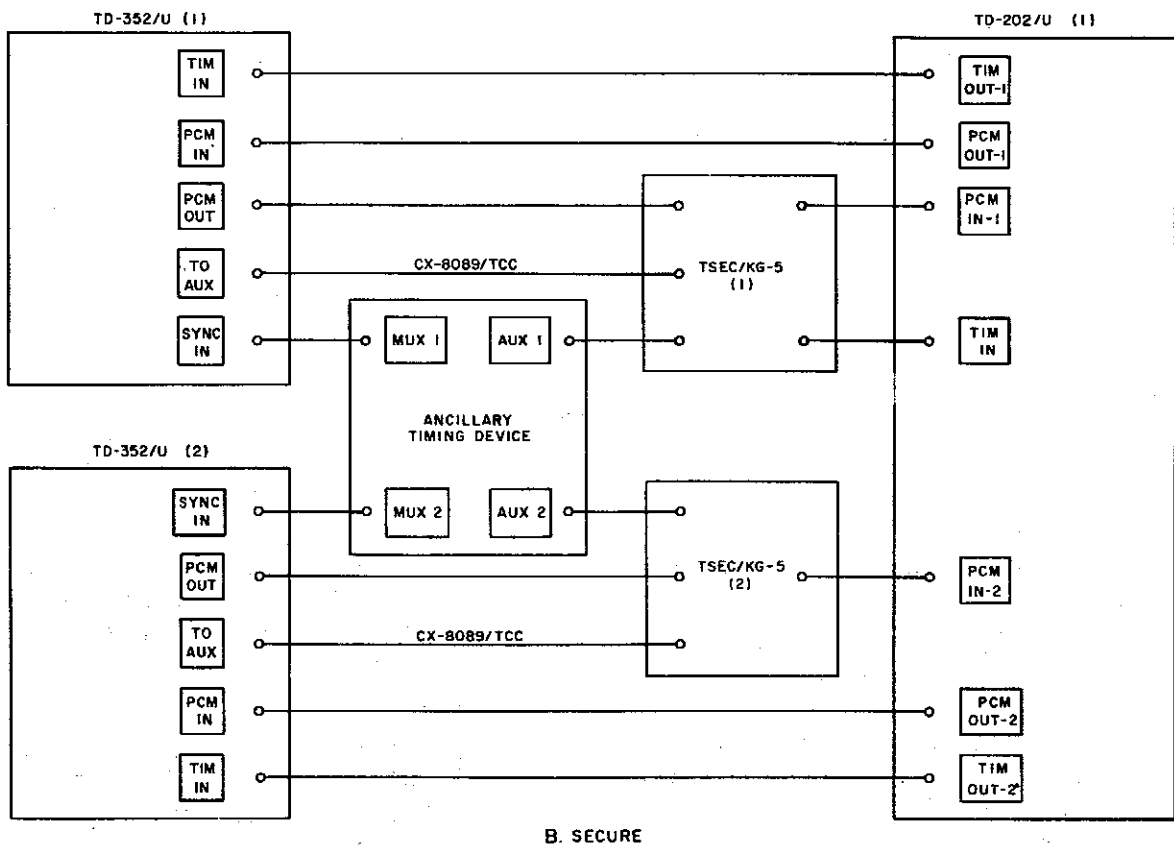


TM5895-366-15-23

Figure 2-8. Radio Terminal, 12 channels, interunit connection diagram.



- NOTES:**
1. ALL CONNECTING CABLES ARE CG-1040B/U UNLESS OTHERWISE SPECIFIED.
 2. INDICATES EQUIPMENT MARKING.



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Figure 2-9. Radio terminal, 2 channels, interunit connection diagram.

2-8. Local Communications Connections

a. Nonsecure Operation. In a nonsecure application, local communications facilities (LS-147C/FI and TA-312/PT) may be connected through pairs 25 and 26 of either 26-pair receptacle, through either set of binding posts, or through the PHONE and INTERCOM binding posts in the POWER & SIGNAL ENTRANCE BOX.

pairs 25 and 26 of the 26-pair receptacle and the corresponding binding posts in the SIGNAL ENTRANCE BOX are disconnected and may not be used for local communications. The PHONE and INTERCOM binding posts in the POWER & SIGNAL ENTRANCE BOX are connected to the TA-312/PT and LS-147C/FI, respectively, and field wire connections may be made to the binding posts as required for the application.

b. Secure Operation. In secure operation,

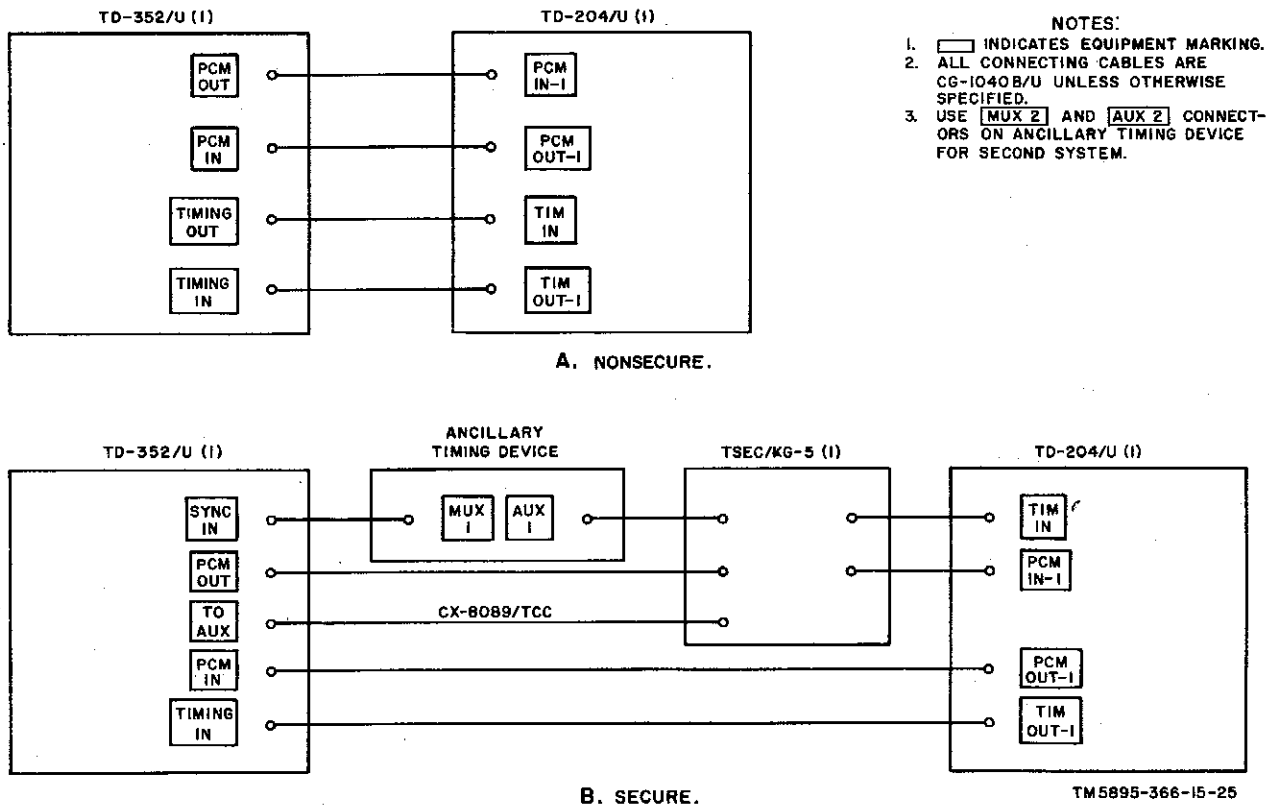


Figure 2-10. Cable terminal, 12 channels, interunit connection diagram.

2-9. Equipment Checks and Adjustments

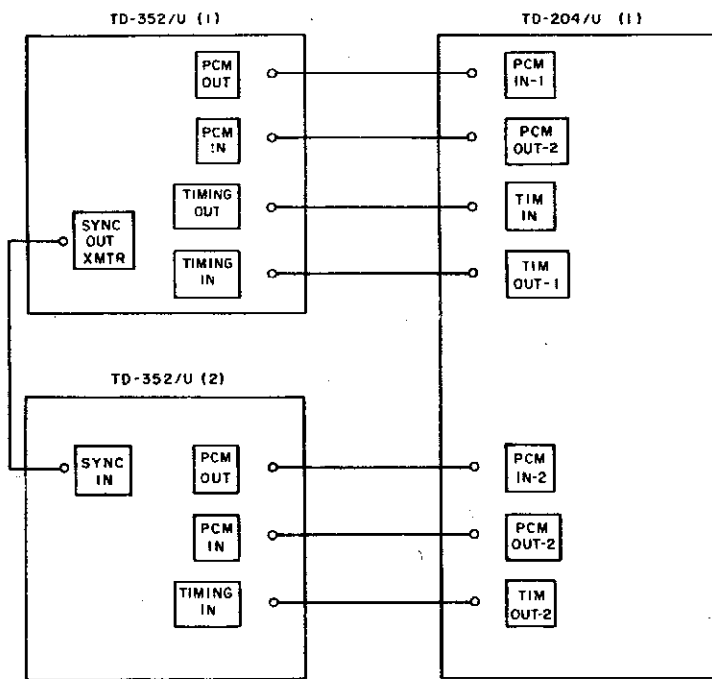
a. Assemblage Power and Lighting.

- (1) Check to see that all circuit breakers on the POWER DISTRIBUTION PANEL and the SYSTEM 1 and SYSTEM 2 circuit breakers on the front and roadside equipment racks are operated to OFF.
- (2) Energize the ac circuits in the assemblage and turn on the lights, fol-

lowing the procedures in paragraph 3-2. Check to see that all assemblage lights, blowers, and heaters operate properly.

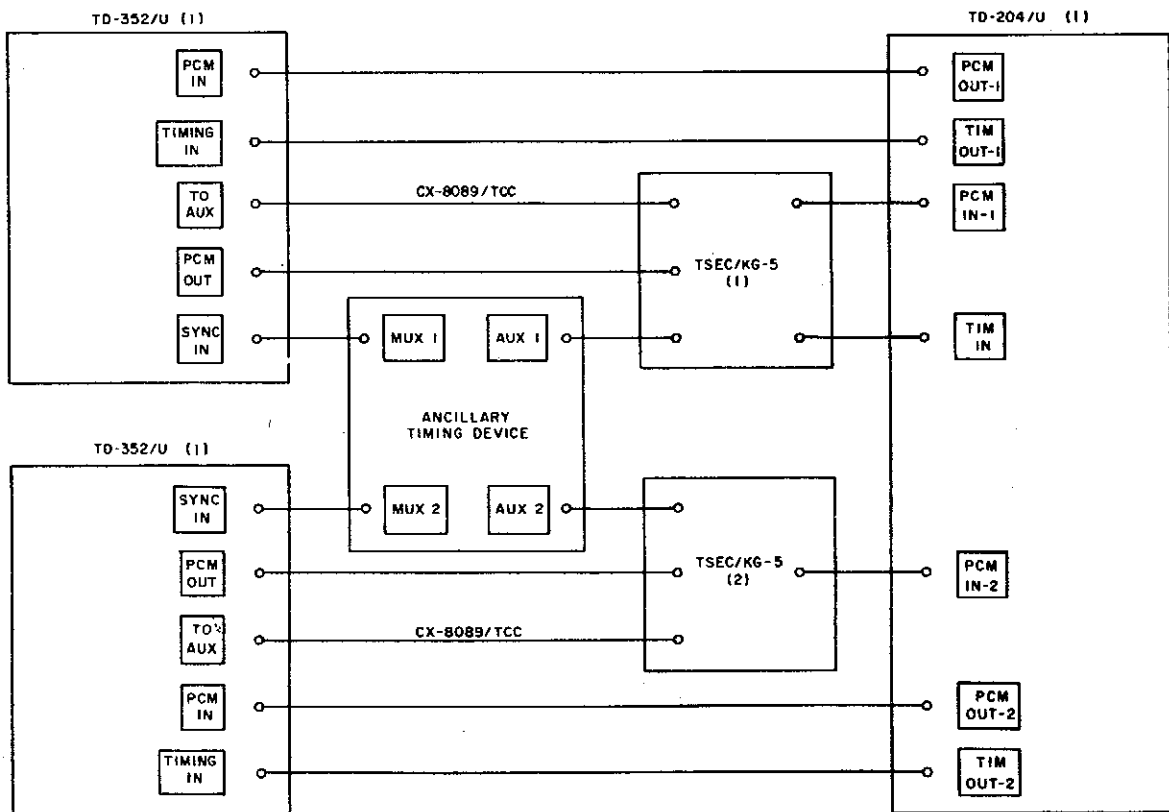
b. TA-312/PT.

- (1) Install two Batteries BA-30 in the battery case of the TA-312/PT, one facing upward and one facing downward.
- (2) Operate the CB-LB-CBS switch to LB.



A. NONSECURE

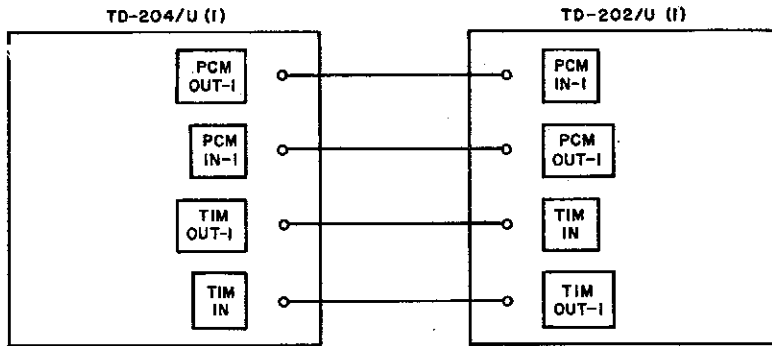
- NOTES:
1. ALL CONNECTING CABLES ARE CG-1040B/U UNLESS OTHERWISE SPECIFIED.
 2. INDICATES EQUIPMENT MARKING.



B. SECURE

TM 5895-366-15-26

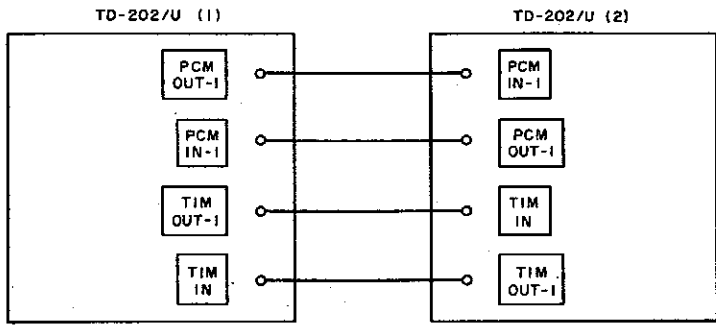
Figure 2-11. Cable terminal, 24 channels, interunit connection diagram.



NOTES:

1. INDICATES EQUIPMENT MARKING.
 2. ALL CONNECTING CABLES ARE CG-1040 B/U.
- TM5895-366-15-27

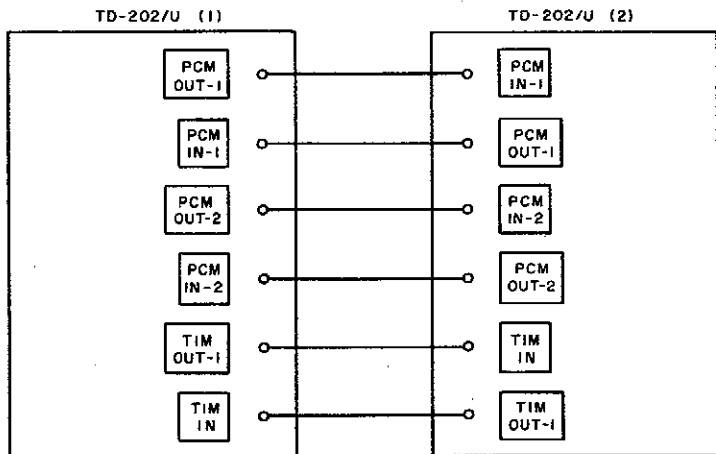
Figure 2-12. Cable-radio conversion, 12/24 channels, interunit connection diagram.



A. 12-CHANNEL

NOTES:

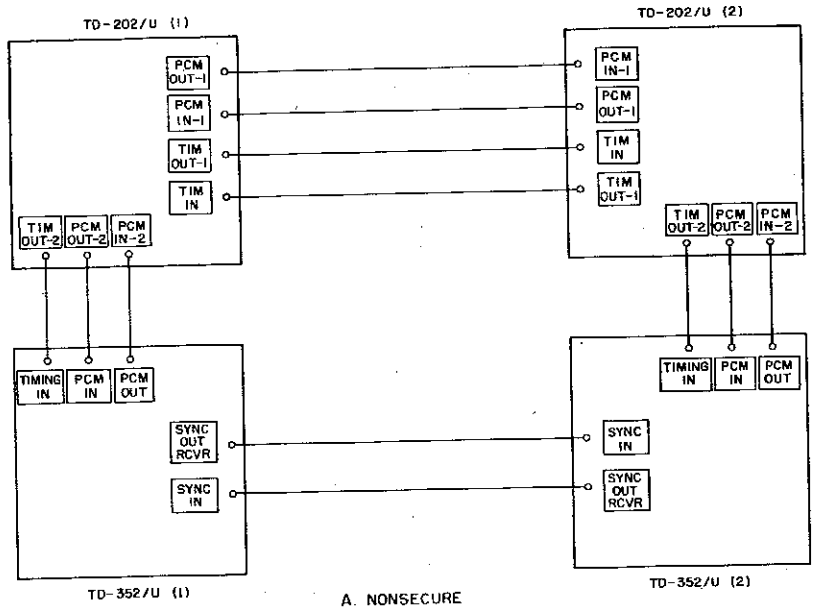
1. CONNECT FIELDWIRE BETWEEN RPTR ALARM CONN TERMINALS ON PP-2054/GRC (1) AND PP-2054/GRC (2).
2. ALL CONNECTING CABLES SHOWN ARE CG-1040B/U.
3. INDICATES EQUIPMENT MARKING.



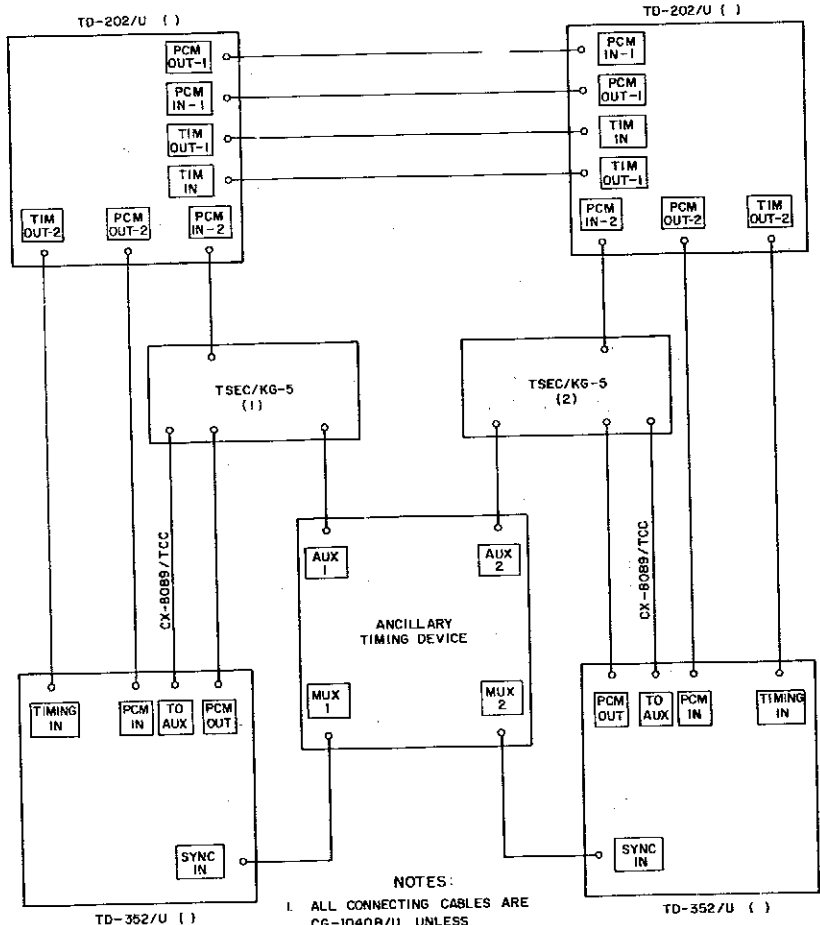
B. 24-CHANNEL

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Figure 2-13. Radio repeater, 12-24 channels, interunit connection diagram.



A. NONSECURE



NOTES:

1. ALL CONNECTING CABLES ARE CG-1040B/U UNLESS OTHERWISE SPECIFIED.
2. INDICATES EQUIPMENT MARKING.

B. SECURE

TM5895-366-15-29

Figure 2-14. Radio repeater, 24 channels, with 12-channel drop and insert, interunit connection diagram.

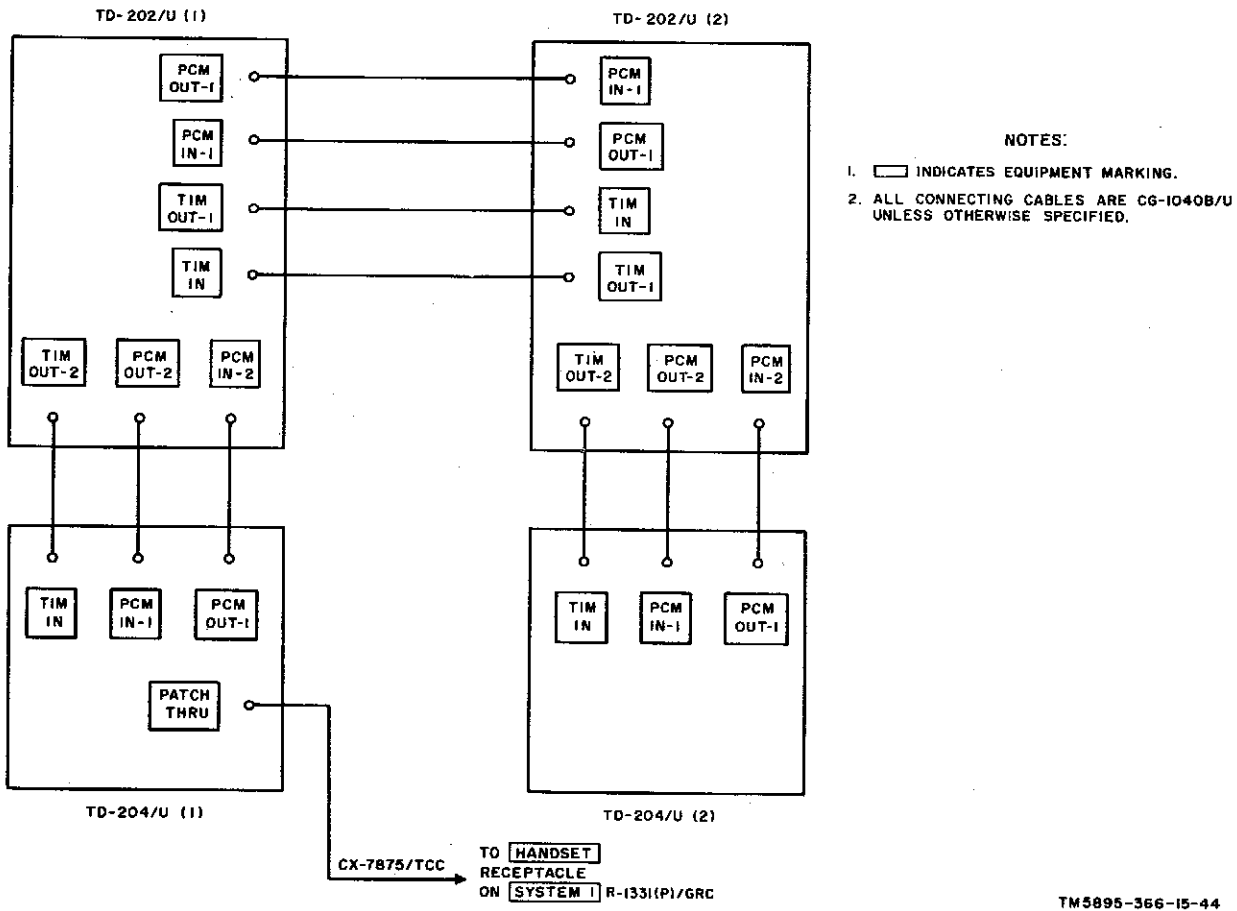


Figure 2-15. Radio repeater, 24 channels with remote drop and insert via cable extension, interunit connection diagram.

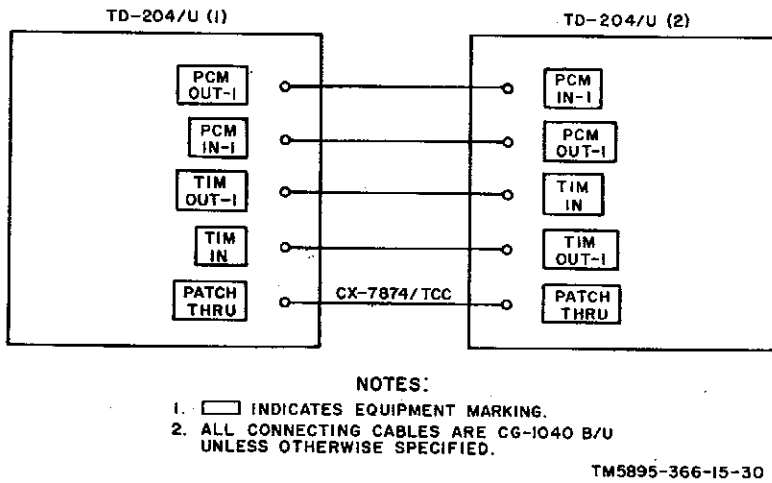
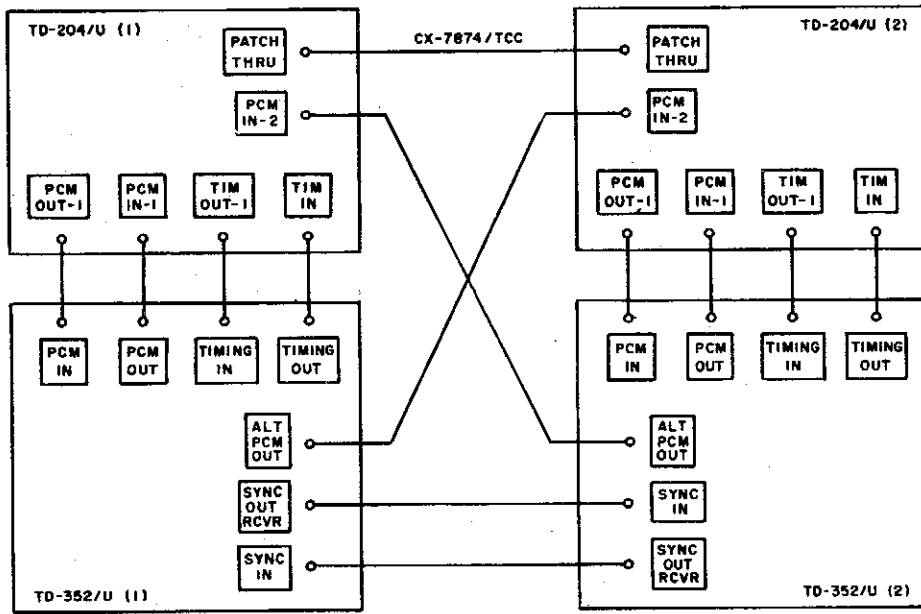
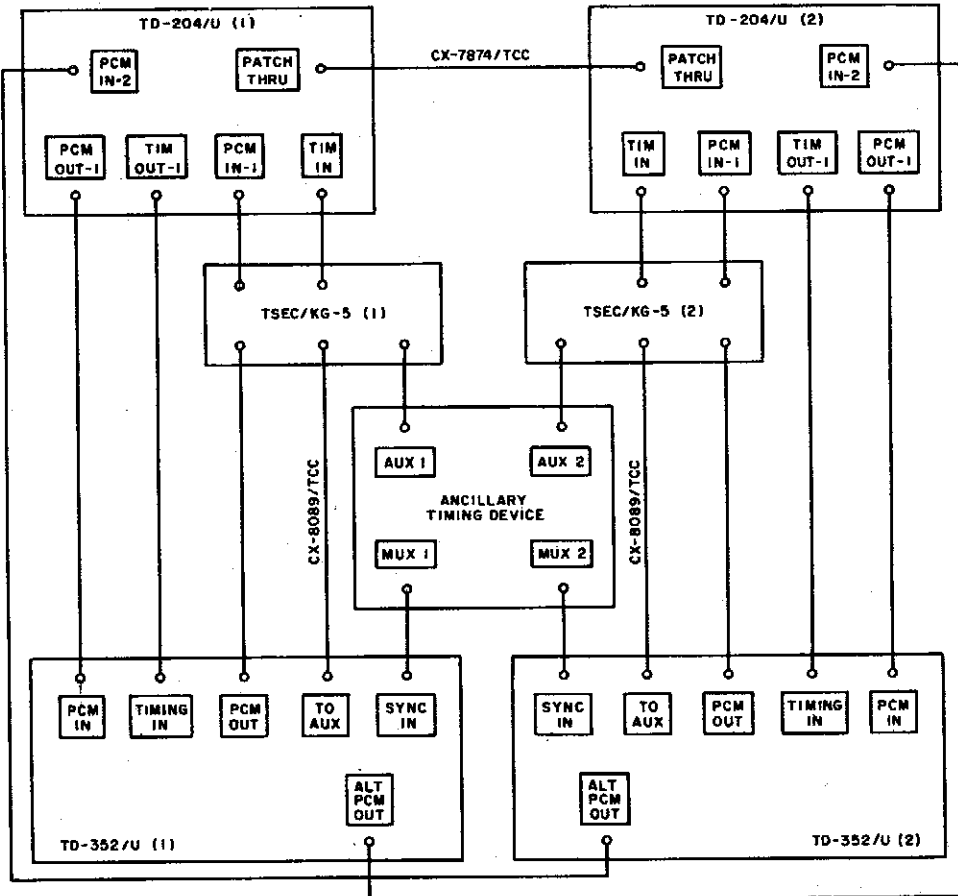


Figure 2-16. Cable repeater, 12/24/48 channels, interunit connection diagram.



A. NONSECURE

- NOTES:
1. INDICATES EQUIPMENT MARKING.
 2. ALL CONNECTING CABLES ARE CG-1040B/U UNLESS OTHERWISE SPECIFIED.



B. SECURE

TM5895-366-15-31

Figure 2-17. Cable repeater, 24 channels with 12-channel drop and insert, interunit connection diagram.

- (3) Insert the phase cable plug into the PHONE jack.

c. Voltage Regulator CN-514/GRC.

- (1) Check to see that the SYSTEM 1 and SYSTEM 2 circuit breakers on the front and roadside equipment racks are operated to OFF.
- (2) Operate the VOLT REG circuit breaker on the POWER DISTRIBUTION PANEL to ON. Check to see that the associated neon indicator lights.
- (3) Operate the MANUAL-AUTOMATIC switch on the CN-514/GRC to MANUAL. Operate the POWER switch to ON. Observe that the associated neon indicators light.
- (4) Check the indication on the REGULATED OUTPUT VOLTAGE meter on the CN-514/GRC.
- (5) If the meter indicates less than 115 volts, operate the RAISE-LOWER switch to RAISE until the meter indicates precisely 115 volts. If the meter indicates more than 115 volts, operate the RAISE-LOWER switch to

LOWER until the meter indicates 115 volts.

- (6) Operate the CN-514/GRC POWER switch to OFF for a few seconds and then back to ON. Check to see that the meter still indicates 115 volts.
- (7) Check to see that the POWER switches on all the rack equipment are operated to OFF. Turn on the over-voltage protective device and operate the SYSTEM 1 and SYSTEM 2 circuit breakers on both equipment racks to ON.

d. Multiplexer TD-202/U. Perform the following procedures on both TD-202/U's in the AN/TRC-117(V).

- (1) Check to see that the AC POWER switch is operated to OFF.
- (2) Operate the METER SELECT switch to SERV FAC.
- (3) Depress the PRESS TO RELEASE CHASSIS button and slide the TD-202/U out of its case far enough to expose the service facility panel.
- (4) Operate the TRAFFIC SEL switch to the position corresponding to the traffic capacity of the system as specified in the following chart.

System configuration	TD-202/U TRAFFIC SEL switch position		TD-204/U TRAFFIC SEL switch position		TD-352/U ADDRESS switch position	
	SYSTEM 1	SYSTEM 2	SYSTEM 1	SYSTEM 2	SYSTEM 1	SYSTEM 2
12-channel radio terminal*	12	12	--	--	MASTER	MASTER
24-channel radio terminal	24J	--	--	--	MASTER	SLAVE
12-channel cable terminal*	--	--	12	12	MASTER	MASTER
24-channel cable terminal	--	--	24	--	MASTER	SLAVE
12-channel radio repeater	12	12	--	--	--	--
24-channel radio repeater	24R	24R	--	--	--	--
12/24/48-channel cable repeater	--	--	48AR	48AR	--	--
12-channel cable-radio conversion*	12	12	12	12	--	--
24-channel cable-radio conversion*	24R	24R	48AR	48AR	--	--
24-channel radio repeater with local drop and insert.	24S	24S	--	--	SLAVE	SLAVE
24-channel radio repeater with remote drop and insert.	24S	24S	12	12	--	--
24-channel cable repeater with local drop and insert.	--	--	24	24	SLAVE	SLAVE

* Indicates that either SYSTEM 1 or SYSTEM 2 components may be used for each system connected.

- (5) Operate the OPR-TEST switch to OPR.

Note. If the buzzer sounds during the following procedures, operate the ALARMS BUZZER OFF switch on the front panel to silence the buzzer.

- (6) Operate the AC POWER switch to ON. Check to see that the AC POWER indicator lights.
- (7) Operate the SERV SEL switch through +10, +4.5, and -4.5; check to see that the TEST ALIGN meter indicates in the yellow area for each position.
- (8) Operate the SERV SEL switch to -12; check to see that the TEST ALIGN meter indicates in the green area.

e. Multiplexer TD-204/U. Perform the following procedures on each TD-204/U connected in an operating system. If a TD-204/U is not connected in a system, perform the procedures in (1) through (6), (8), and (12) through (14) below.

- (1) Operate the AC POWER, CABLE POWER, and TALK-OFF-SIG switches to OFF.
- (2) Depress the PUSH TO RELEASE CHASSIS button and slide the TD-204/U out of its case far enough to expose the service facility panel and panel 6A4.
- (3) Operate the TRAFFIC SEL switch to the position corresponding to the traffic capacity of the system as shown in the chart in *d* above.
- (4) Operate the NORM OPR-ZERO SET-READ switch to NORM OPR.
- (5) Operate both MILES switches to 0.
- (6) Operate the TONE-OFF switch on panel 6A2 to OFF.
- (7) Operate the MILE switches on panels 6A4 and 6A5 to the position corresponding to the distance to the first TD-206/G in the transmission cable.

Note. If the TD-204/U is connected to another TD-204/U less than 1 mile away and no TD-206/G's are used between them, operate both MILE switches on the TD-204/U on one end to 1 MILE, and both MILE switches on the other to the actual distance between them.

- (8) Operate the AC POWER switch to ON. Check to see that the AC POWER and ALARMS NO CABLE CURRENT indicators light and the buzzer sounds. Silence the buzzer with the ALARMS BUZZER OFF switch.

Note. If the buzzer sounds during the following procedures, press the ALARMS BUZZER OFF switch to silence it.

- (9) Operate the CABLE POWER switch to ON. Check to see that the ALARMS NO CABLE CURRENT indicator is extinguished.
- (10) Operate the METER SELECT switch to CABLE I and check for a yellow area indication on the TEST ALIGN meter.
- (11) Operate the METER SELECT switch to CABLE V and check to see that the TEST ALIGN meter indicates 11.3 times the number of TD-206/G's in the cable link, plus 17.
- (12) Operate the METER SELECT switch to SERV FAC.
- (13) Operate the SERV SEL switch through -10, +10, SUM ± 3 , and BAL and check for a yellow area indication on the TEST ALIGN meter for each position.
- (14) Operate the SERV SEL switch to RCC and check for a green area indication on the TEST ALIGN meter.

f. Multiplexer TD-352/U. Perform the following procedures on both TD-352's in the AN/TRC-117(V).

- (1) Check to see that the AC POWER switch is operated to OFF.
- (2) Press the PUSH TO RELEASE CHASSIS button and pull the TD-352/U far enough out of its case to expose the service facility panel.
- (3) Operate the CHAN switch to OFF.
- (4) If the system is secure, operate the AUX switch to IN; if the system is nonsecure, operate the AUX switch to OUT.
- (5) Operate the ADDRESS switch to the appropriate position for the configuration as listed in the chart in *d* above.

- (6) Operate the METER SELECT switch to SERV FAC.
- (7) Operate the AC POWER switch to ON.
- (8) Operate the SERV SEL switch through +25, +10, +4.5, -4.5, and -12, and check for a yellow area indication on the TEST ALIGN meter.
- (9) Operate the SERV SEL switch to -5.2 and check for a green area indication on the TEST ALIGN meter.

g. Converter, Telephone Signal CV-1548/G.

- (1) Check to see that the POWER switch is operated to OFF.
- (2) Operate the CH-2W-4W and signaling mode switches for each channel as indicated below.

Vf channel connection	Switch position	
	CH-2W-4W	Signaling mode
2-wire magneto line from SB-86/P, AN/TCC-7, TA-48/PT or TA-312/PT (20 cps signaling).	2W	AC
2-wire vf line (no signaling)	2W	OFF
4-wire line (tone signaling)	4W	OFF

- (3) Loosen the captive screws and remove the perforated inner front cover.
- (4) Operate the POWER switch to ON.
- (5) Check to see that the 20 ~ indicator on panel 18A2 is glowing.
- (6) Operate the meter selector switch through -, +, 20 ~ DRIVE, and 20 ~, and check for a yellow area indication on the TEST ALIGN meter.
- (7) Operate the meter selector switch to 1600 ~ and check for a green area indication on the TEST ALIGN meter.

Type of 2-wire line connection from SB-86/P	CV-1548/G signaling mode switch	SB-86/P switch	
		Line selector	CIV TRKS
Civilian trunk	OR	M	ON
Trunk	TE	C	OFF
Magneto	AC	M	OFF

If necessary, adjust the ADJ 1600 control on panel 18A2 for a center indication in the green area.

h. Line Polarity Checks Between CV-1548/G and AN/TTC-7.

- (1) *Local battery (LB) line.* In each panel 18A3 of the CV-1548/G connected to an LB line, press the TEST switch; if an incoming call does not register at the switchboard for the associated line, interchange the tip and ring wires.
- (2) *Common battery (CB) line (terminate (TE) only).* For each panel 18A3 of the CV-1548/G connected to a terminate CB line, disconnect the CX-7870/TCC cables between the CV-1548/G and the TD-352/U. An incoming call will register on the switchboard for each channel. If the call indication does not disappear when the TEST switch is pressed, interchange the tip and ring wires.

Note. Tip and ring wire polarity is not significant between the AN/TTC-7 originate (OR) trunks and the CV-1548/G.

i. Line Polarity Checks Between CV-1548/G and SB-86/P.

- (1) On each panel 18A3 of the CV-1548/G connected to an SB-86/P circuit, operate the signaling mode switch to OR. Operate the line selector switch to T in each line of the SB-86/P connected to the CV-1548/G, and pull down all cords on the SB-86/P.
- (2) Interchange the tip and ring wires on each line that shows a white line indicator on the SB-86/P.
- (3) Operate the signaling mode switch on each panel 18A3 of the CV-1548/G and the switches of the SB-86/P as indicated below.

- (4) Replace the perforated inner front cover of the CV-1548/G and secure it in place with the screws.

j. Radio Set AN/GRC-50A(V) Components.

- (1) Check to see that the proper receiver and transmitter heads are installed as assigned for the assemblage.
- (2) If the AN/GRC-50A(V) is connected in an operating system, and the antennas are installed, erected, and connected, turn on the AN/GRC-50A(V) and tune it; follow the procedures in paragraph 3-4.
- (3) If the AN/GRC-50A(V) is not connected in an operating system, connect a CG-718B/U between the TO ANT receptacle on the T-893(P)/GRC and Dummy Load, Electrical DA-189/GRC on top of the equipment rack (fig. 5-1) and tune it by following the procedures in paragraph 3-4.
Note. If no operating frequencies have been assigned to the standby components, tune them to the same frequencies as the operating components.
- (4) Reconnect the TO ANT receptacle on the T-893(P)/GRC to the DA-189/GRC.
- (5) Operate the R-1331(P)/GRC meter selector switch to TEST TONE CAL.
- (6) Operate the R-1331(P)/GRC TEST TONE switch to ON and adjust the TEST TONE control for an indication of 25 on the multimeter.
- (7) Operate the T-893(P)/GRC multimeter selector switch to 1 KC MOD and check for a green area indication on the multimeter.
- (8) Operate the T-893(P)/GRC multimeter selector switch to PWR OUT.
- (9) Adjust the AM-1957/GRC or AM-1958/GRC POWER OUT control for a 5-watt (high band) or 11-watt (low band) indication on the T-893(P)/GRC multimeter.
- (10) Adjust the T-893(P)/GRC ALARMS ADJ control until the LOW POWER indicator lights and the buzzer sounds. Silence the buzzer with the BUZ OFF switch.

- (11) Adjust the AM-1957/GRC or AM-1958A/GRC POWER OUT control until the DA-189/GRC meter indicates maximum power. Check to see that the T-893(P)/GRC LOW POWER indicator is extinguished.

k. AN/GRC-50(V) Order Wire Adjustment. Perform the following procedures only on operating components.

- (1) Operate the PP-2054/GRC OPERATE-STAND BY switch to STAND BY. Disconnect the CG-718B/U between the TO ANT receptacle and the DA-189/GRC. Reconnect the antenna cable to the TO ANT receptacle.
- (2) Operate the PP-2054/GRC OPERATE-STAND BY switch to OPERATE.
- (3) Operate the R-1331(P)/GRC meter selector switch to 1 KC OUT.
- (4) Contact the next terminal or repeater in the radio link on the order wire and request a 1,000-cps tone at 1 milliwatt (0 dbm).
- (5) Adjust the FDM OUTPUT LEVEL control on the R-1331(P)/GRC for a green area indication on the meter.
- (6) Operate the meter selector switch to ORDER WIRE and check the meter for a green area indication.

l. Antenna Orientation (One AT-903/G).

Note. These adjustments are for azimuth correction only. Two men are required to perform the adjustment. Elevation adjustments must be made with the mast lowered, and should be completed before the mast is raised.

- (1) Contact the operator at the next terminal or repeater in the radio link.

Note. The following procedures should be performed by the operators at both stations, at the same time.

- (2) Operate the R-1331(P)/GRC multimeter selector switch to REC SIGNAL.
- (3) Adjust the position of the antenna by having one man rotate the mast 15° from the original position, in both directions, while the second man observes the indication on the meter.

Position the mast for a maximum indication on the meter.

- (4) Tighten the snubbers on all antenna guy wires and secure them.

m. Antenna Orientation (Two AT-903/G's on AB-957/GRC).

- (1) Perform the procedures in *l* above for the fixed AT-903/G on the AB-957/GRC.
- (2) Secure the four guy wires attached to the guy attachments on the AB-957/GRC to GP-112/G stakes and drive them into the ground. Keep the two guys separated approximately 90° (D, fig. 2-7). Tighten the guys enough to hold them in position; do not overtighten them.
- (3) Point the movable AT-903/G (using the guys attached to it) in the approximate direction of the distant terminal or repeater.
- (4) Contact the distant terminal or repeater on the order wire.
- (5) Operate the R-1331(P)/GRC multimeter selector switch to REC SIGNAL.
- (6) Adjust the position of the AT-903/G by having one man swing the AT-903/G with the guys attached to it, while the second man observes the indication on the multimeter. Position the AT-903/G for a maximum indication on the multimeter.
- (7) Secure the guys attached to the AT-903/G to GP-112/G stakes driven into the ground so that the two guys form an angle between 120° and 150°. Tighten the snubbers to secure the AT-903/G in position. Do not overtighten the snubbers.

n. R-1331(P)/GRC Squelch Alarm Adjustment.

- (1) Operate the R-1331(P)/GRC meter selector switch to REC SIGNAL.
- (2) Adjust the REC SIG-1 control on the AM-1955A/GRC or AM-1056A/GRC until the signal is just audible in Handset H-156/U.
- (3) Adjust the SQUELCH INCR SENS

control until the SQUELCH NO SIGNAL indicator lights and the buzzer sounds. Silence the buzzer with the SQUELCH BUZZER OFF switch.

- (4) Readjust the REC SIG-1 control for a maximum indication on the meter. Note that the SQUELCH NO SIGNAL indicator extinguishes and the buzzer sounds. Silence the buzzer with the SQUELCH BUZZER OFF switch.

2-10. System Alignment

a. Radio Link Order Wire. After communications are established and antenna orientation is complete, perform the following procedures on the TD-202/U associated with each AN/GRC-50A(V) component.

- (1) Request a 1,000-cps, 0-dbm test tone from the distant terminal or repeater.
Note. Perform the following procedures at both ends of the radio link.
- (2) Operate the TD-202/U METER SELECT switch to SERV FAC and the SERV SEL switch to 0.
- (3) Adjust the ORDER WIRE LEVEL control for a center hairline indication TEST ALIGN meter.
- (4) Turn off the test tones and check the order wire for proper volume.

b. Cable Link Order Wire. Perform the following procedures on the TD-204/U's at both ends of the cable link, at the same time.

- (1) Connect Headset-Microphone H-91A/U to the HEADSET receptacle.
- (2) Momentarily operate the TD-204/U TALK-OFF-SIG switch to SIG, and then to TALK.
- (3) After communications is established through the link, operate the METER SELECT switch to SERV FAC and the SERV SEL switch to Q.
- (4) Operate the TONE-OFF switch on panel 6A2 to TONE.
- (5) Instruct the distant operator to adjust the CRL control on panel 6A2 of the distant TD-204/U for a center hairline indication on the TEST ALIGN meter.
- (6) Operate the TONE-OFF switch to

OFF and request the distant operator to send the tone (distant TD-204/U TONE-OFF switch to TONE).

- (7) Adjust the CRL control on panel 6A2 for a center hairline indication on the TEST ALIGN meter.
- (8) Instruct the distant operator to stop the test tone. Check communications with the distant operator for proper volume.

c. TD-202/U Video Level.

- (1) Operate the TD-202/U METER SELECT switches at both ends of the radio link to TO RADIO XMTR.
- (2) Adjust the TD-202/U panel 5A2 OL controls at both ends of the radio link for center hairline indications on the TEST ALIGN meter.
- (3) Operate the TD-202/U METER SELECT switches at both ends of the radio link to FROM RADIO RCVR.
- (4) Adjust the TD-202/U panel 5A3 RL controls at both ends of the link for center hairline indications on the TEST ALIGN meter.

Note. Perform the following for 24-channel operation only.

- (5) Operate the TD-202/U METER SELECT switch to SERV FAC and the SERV SEL switch to C. Adjust the panel 5A3 CL control for a peak indication on the TEST ALIGN meter.

d. Adjusting TD-352/U Channel Gain.

Note. Each panel 1A2/2A2 in the TD-352/U contains two channels. The channel numbers assigned to a panel are located on the frame below each panel.

The lower number channel and its associated controls are physically located on the bottom half of the panel.

- (1) Establish order-wire communications through the link (*a* or *b* above).
- (2) Adjust the TD-352/U OSC ADJUST control at both terminals for a center hairline indication on the TEST ALIGN meter.
- (3) Operate the TD-352/U SERV SEL switch at both terminals to CHAN 1-12 (vertical up).

Note. The procedures given in (4) through (7) below must be performed simultaneously at both terminals. This is necessary because the signal used for the adjustment at one end of the link is generated at the other end of the link.

- (4) Operate the TD-352/U 2 WIRE-4 WIRE switch at both terminals to the position corresponding to the type of line or trunk (two- or four-wire) connected to channel 1.
- (5) Operate the TD-352/U CHAN 1-12 switch at both ends of the link to 1.
- (6) Adjust the TD-352/U AG control for channel 1 at both ends of the link for a center hairline indication on the TEST ALIGN meter.
- (7) Perform the procedures given in (4) through (6) above for each channel of the TD-352/U's.
- (8) Operate the TD-352/U CHAN 1-12 switch at both ends of the link to OFF and the SERV SEL switch to +25.
- (9) If the AN/TRC-117(V) is not to be put into immediate use, perform the stopping procedures (para 3-9).

CHAPTER 3

OPERATING INSTRUCTIONS

3-1. Controls and Indicators

The following charts identify all controls and indicators in the assemblage ac power distribution. The controls and indicators of the equip-

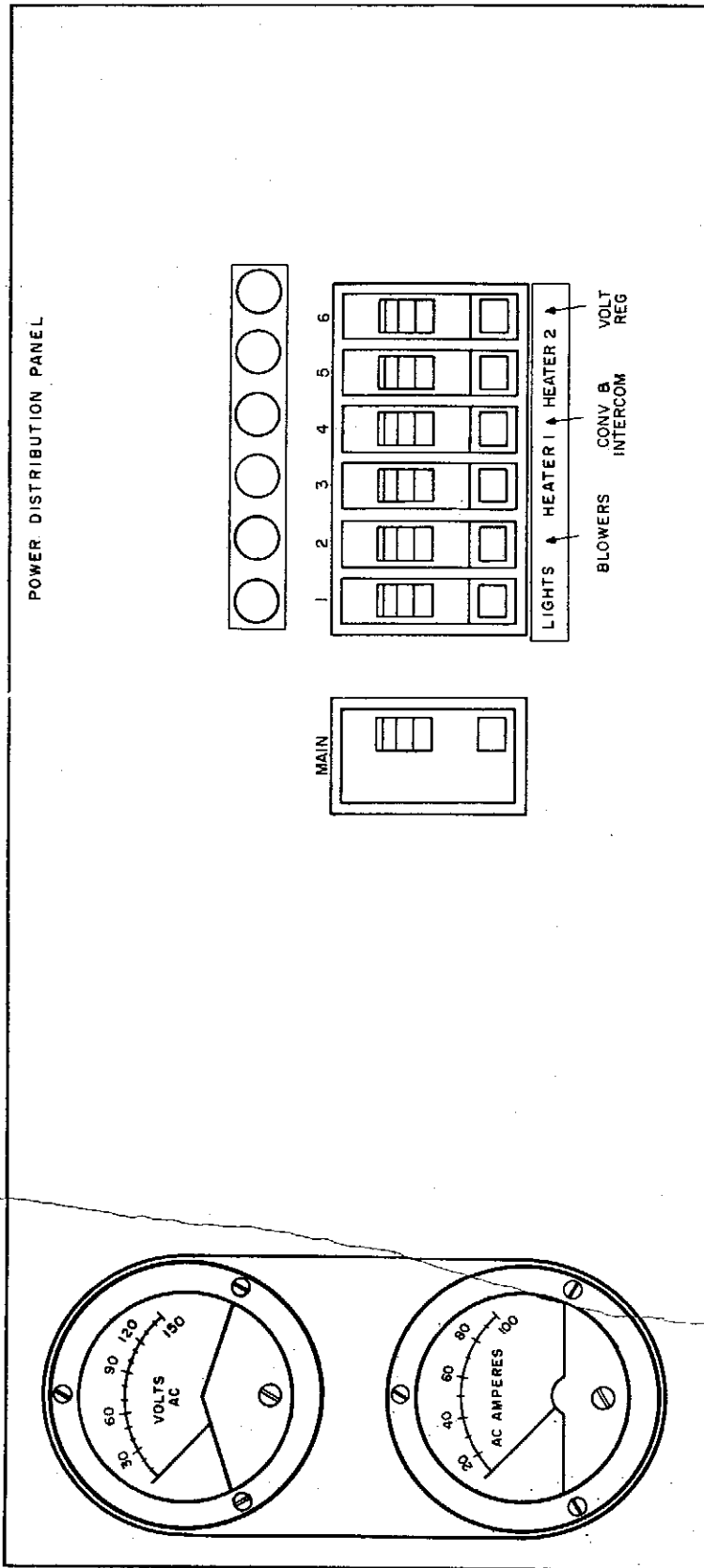
ment components installed in the assemblage are described in their respective manuals (app A).

a. POWER DISTRIBUTION PANEL (fig. 3-1).

Control or indicator	Description	Function
MAIN circuit breaker -----	70 amperes	Provides overload protection and control of tributary circuit breakers.
Circuit breakers (tributary):		Control following circuits:
LIGHTS -----	15 amperes	Ceiling lights (fluorescent and incandescent).
BLOWERS -----	15 amperes	Exhaust blowers.
HEATER 1 -----	20 amperes	HEATER 1 receptacle.
CONV & INTERCOM -----	15 amperes	CONVENIENCE and INTERCOM receptacles.
HEATER 2 -----	20 amperes	HEATER 2 receptacle.
VOLT REG -----	40 amperes	Unregulated input to CN-514/GRC.
VOLTS A. C. meter -----	0-150 vac	Indicates input voltage to assemblage.
A. C. AMPERES -----	0-100 amperes	Indicates total current drain in assemblage.
Indicators No. 1 through 6 -----	NE-45	Glow when associated circuit breaker is operated to ON.

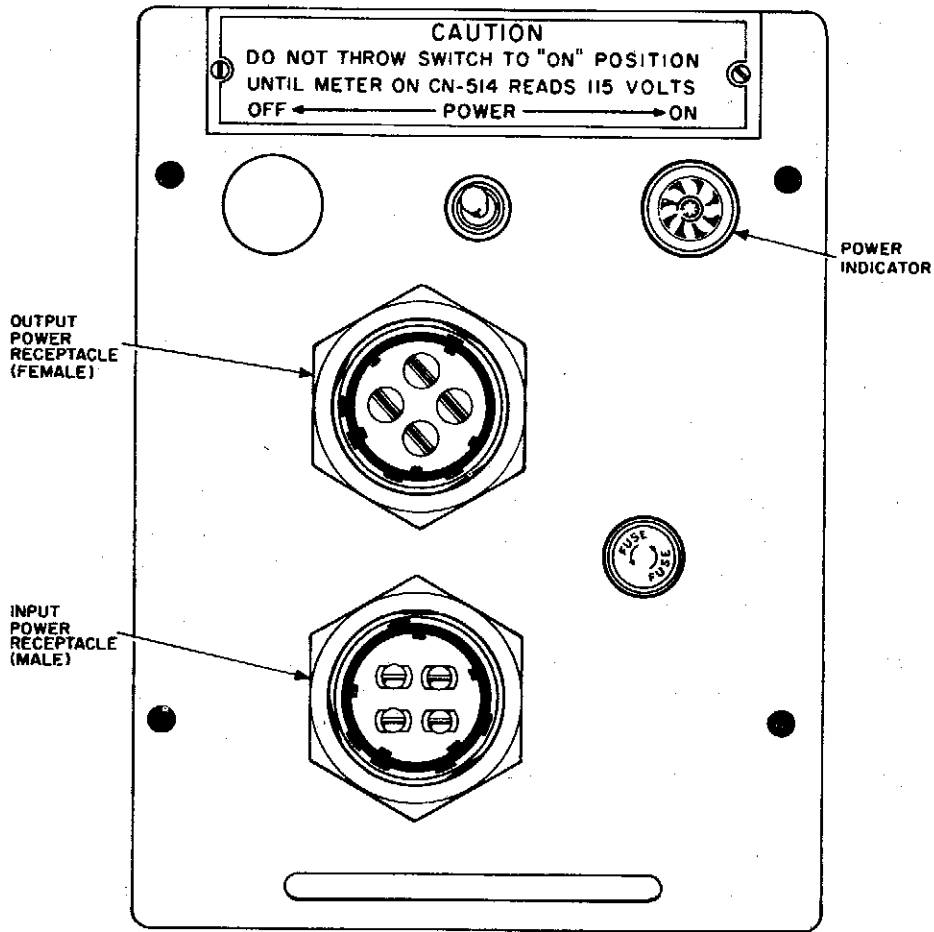
b. Overvoltage Protection Device (fig. 3-2).

Control or indicator	Description	Function
POWER switch -----	Momentary three-position switch--	ON position: momentary position resets power relay to apply power to rack equipment circuit breakers. OFF position: momentary position disengages power relay to remove power from rack equipment circuit breakers.
Power indicator -----	Neon lamp -----	Lights when power relay is operated and power is available at output receptacle.



TM5820-536-15-33

Figure 3-1. POWER DISTRIBUTION PANEL.



TM5805-358-15-25

Figure 3-2. Overvoltage protection device.

c. Miscellaneous Controls and Indicators (fig. 5-1).

Control or indicator	Description	Function
POWER INDICATOR	NE-34 neon lamp	Glowes when ac power is applied to POWER & SIGNAL ENTRANCE BOX.
Blackout switch	Microswitch	Extinguishes assemblage lights when entrance door is open and BYPASS BLACKOUT switch is at OFF.
BYPASS BLACKOUT switch	Two-position	Controls assemblage lights as follows: ON position—permits assemblage light circuits to be controlled by individual switches only. OFF position—permits blackout switch to control assemblage light circuits.
FLUORESCENT LIGHTS switch.	Two-position	Controls fluorescent ceiling lights.
INCANDESCENT COLD START LIGHTS switch.	Two-position	Controls incandescent ceiling lights.
BLOWER 1 switch	Two-position	Controls roadside blower.
BLOWER 2 switch	Two-position	Controls curbside blower.

Control or Indicator	Description	Function
SYSTEM 1 and SYSTEM 2 circuit breakers (roadside rack).	Two-position -----	Control regulated power to roadside rack equipment.
SYSTEM 1 and SYSTEM 2 circuit breakers (front rack).	Two-position -----	Control regulated power to front rack equipment.
CONV BREAKER (in POWER & SIGNAL ENTRANCE BOX).	15 amperes -----	Controls 115VAC receptacles in POWER & SIGNAL ENTRANCE BOX.
BINDING POSTS-CABLE switches (interior of SIGNAL ENTRANCE BOX).	24 two-position switches --	Select input lines from associated 26-pair connector or from individual binding posts.

3-2. Energizing Ac Circuits

Caution: If alternating-current (ac) power should fail, be sure that the SYSTEM 1 and SYSTEM 2 circuit breakers on both the roadside and front equipment racks (fig. 5-1) are operated to OFF until power is restored and the CN-514/GRC REGULATED OUTPUT VOLTAGE meter indicates 115 volts.

a. If a generator set is used to supply power, start the generator; if a central power source is used, turn on the power.

b. Operate the POWER DISTRIBUTION PANEL MAIN circuit breaker (fig. 3-1) to ON.

c. Operate the POWER DISTRIBUTION PANEL LIGHTS circuit breaker to ON, and the FLUORESENT LIGHTS switch to ON. If the temperature in the assemblage is too low for the fluorescent lights to start, operate the INCANDESCENT COLD START LIGHTS switch to ON until the assemblage is heated sufficiently for the fluorescent lights to operate.

d. If blackout conditions are required, operate the BYPASS BLACKOUT switch to OFF; otherwise operate it to ON.

e. Check the POWER DISTRIBUTION PANEL VOLTS A.C. meter; it should indicate 115 volts ±10. Check the A. C. AMPERES meter; it should indicate less than 2 amperes.

3-3. Operating Heaters, Blowers, LS-147C/FI, and TA-312/PT

a. *Exhaust Blowers.*

- (1) Open the blower vents on the outside

of the assemblage front wall.

- (2) Open the air filter cover on the outside of the entrance door.
- (3) Operate the POWER DISTRIBUTION PANEL BLOWERS circuit breaker to ON; the associated neon indicator will light.
- (4) Operate the BLOWER 1 and BLOWER 2 switches on the ceiling power ducts (B, fig. 5-1) to ON; the blowers should operate.

b. *Heaters.*

- (1) Remove the heater from the HEATER 1 storage rack and place it on the floor near the HEATER 1 receptacle.
- (2) Insert the heater power connector into the HEATER 1 receptacle.
- (3) Operate the POWER DISTRIBUTION PANEL HEATER 1 circuit breaker to ON; the associated neon indicator will light.
- (4) Operate the heater switch to ON and adjust the TEMPERATURE control for the desired temperature.

Caution: Do not operate both heaters while the rack equipment is operating. Operation of both heaters and the rack equipment at the same time will overload the POWER DISTRIBUTION PANEL MAIN circuit breaker.

- (5) If the second heater is required, remove it from the HEATER 2 storage rack and place it on the floor near the HEATER 2 receptacle. Insert the

heater power connector into the HEATER 2 receptacle and operate the POWER DISTRIBUTION PANEL HEATER 2 circuit breaker to ON.

- (6) Operate the heater switch to ON and adjust the TEMPERATURE control for the desired temperature.

c. Intercommunication Station LS-147C/FI (C, fig. 5-1).

- (1) Insert the LS-147C/FI power cord connector into the INTERCOM receptacle in the power duct.
- (2) Operate the LS-147C/FI OFF-SEND switch to 5 (about midpoint); the glowlamp will light.
- (3) Operate the PRESS-TO-TALK switch and speak into the front panel speaker-microphone. Release the PRESS-TO-TALK switch to listen.

Note. The OFF-SEND switch does not have to be turned on to receive a call.

- (4) Adjust the RECEIVE control to regulate the volume of incoming calls.

d. Telephone Set TA-312/PT.

- (1) *Initiating call.* Lift the handset from

the cradle and turn the handcrank. Press the press-to-talk switch to talk, and release it to receive. Replace the handset in the cradle after the call is completed.

- (2) *Answering Call.* When the TA-312/PT rings, lift the handset from the cradle and listen to the receiver. Press the press-to-talk switch to talk to the calling party. Replace the handset in the cradle after the call is completed.

3-4. Operating AN/GRC-50A(V)

Caution: In all starting procedures, the receiver components *must* be tuned before the transmitter components. The receive and transmit frequencies *must* be separated by at least 15 channels. Preset the tuning controls to their approximate assignments before applying power to the equipment.

a. Initial Control Settings. Operate all controls on the PP-2054/GRC, R-1441(P)/GRC (including AM-1955A/GRC or AM-1956A/GRC), and T-893(P)/GRC (including AM-1957/GRC or AM-1958A/GRC as follows:

Component	Control	Position or action
R-1331(P)/GRC	AC POWER -----	OFF
	Multimeter selector -----	OSC
	TEST TONE -----	OFF
	FDM OUTPUT LEVEL -----	Midrange
	SQUELCH INCR SENS -----	Maximum counterclockwise
AM-1955A/GRC or AM-1956A/GRC	REC SIG-1 -----	Operate to desired receive channel (indicated on respective dial).
	OSCILLATOR -----	Operate to desired receive channel (indicated on respective dial).
	WAVEMETER -----	Operate to control reading on WAVEMETER CHART corresponding to assigned channel.
PP-2054/GRC	AC POWER -----	OFF
	OPERATE-STAND BY -----	STAND BY
T-893(P)/GRC	AFC CORRECTION -----	Midrange
	INPUT LEVELS PCM -----	Midrange
	INPUT LEVELS FDM -----	Midrange
	AFC selector -----	TUNE

Component	Control	Position or action
	AFC TUNE -----	Operate for desired channel on AFC TUNE CHANNEL indicator.
AM-1957/GRC or AM-1958A/GRC	POWER OUT -----	Operate for desired channel on TRANSMIT CHANNEL indicator.
	MAIN TUNING -----	Operate to desired channel on dial indicator.
	COUPLING -----	Operate to desired channel on dial.
	REC SIG-2 -----	Operate to desired channel on RECEIVE CHANNEL indicator.
	WAVEMETER -----	Operate to reading listed under MAIN TUNE column on WAVEMETER CHART corresponding to desired channel.

b. Voltage Regulator CN-514/GRC.

- (1) Check to see that the SYSTEM 1 and SYSTEM 2 circuit breakers on the equipment racks are operated to OFF.
- (2) Operate the CN-514/GRC POWER switch to ON. The POWER ON indicator will light.
- (3) Operate the MANUAL-AUTOMATIC switch to MANUAL. The MANUAL indicator will light.
- (4) Check the indication on the REGULATED OUTPUT VOLTAGE meter and operate the RAISE-LOWER switch to adjust the meter indication to 115 volts.
- (5) Operate the MANUAL-AUTOMATIC switch to AUTOMATIC. Check to see that the MANUAL indicator extinguishes and that the meter indicates 115 volts.
- (6) Operate the overvoltage protection device power switch (momentarily) to ON and release it. The indicator will light.
- (7) Operate the SYSTEM 1 and SYSTEM 2 circuit breakers to ON.

c. Receiver, Radio R-1331(P)/GRC.

- (1) Connect the antenna cable to the TO ANT receptacle on the AM-1957/GRC or AM-1958A/GRC in the T-893(P)/GRC.
- (2) Operate the R-1331(P)/GRC AC POWER switch to ON. The AC POWER indicator will light, the INCOMING CALL indicator will light, and the buzzer will sound.

Note. After a few seconds, the INCOMING CALL indicator will extinguish and the buzzer will silence. Wait 5 minutes before continuing with the tuning procedure.

- (3) Adjust the AM-1955A/GRC or AM-1956A/GRC OSCILLATOR control for a peak indication on the R-1331(P)/GRC multimeter.
- (4) Adjust the AM-1955A/GRC or AM-1956A/GRC WAVEMETER control for a maximum indication on the multimeter. The WAVEMETER dial should indicate within two divisions of the reading indicated on the WAVEMETER CHART for the receive channel. If the difference is greater than two divisions, repeat the instructions given in (3) and (4) above.
- (5) Operate the R-1331(P)/GRC multimeter selector switch to REC SIGNAL. If a signal is being received, adjust the AM-1955A/GRC or AM-1956A/GRC REC SIG-1 control for a peak indication on the multimeter.
- (6) Hold the R-1331(P)/GRC AFC DISABLE switch depressed and adjust the AM-1955A/GRC or AM-1956A/GRC OSCILLATOR control for a peak indication on the multimeter.

Note. Do not turn on the T-893(P)/GRC to perform the procedure given in (7) below.

- (7) Adjust the AM-1957/GRC or AM-1958A/GRC REC SIG-2 control (in the T-893(P)/GRC) for a peak indication on the R-1331(P)/GRC.

d. Transmitter, Radio T-893(P)/GRC With AM-1957/GRC.

- (1) Disconnect the antenna cable from the TO ANT receptacle and connect a CG-718B/U between the TO ANT receptacle and one of the Dummy Loads, Electrical DA-189/GRC on top of the equipment rack.
- (2) Operate the PP-2054/GRC AC POWER switch to ON and the OPERATE-STAND BY switch to OPERATE. After about 75 seconds, the FIL, LV, and HV indicators will light. Wait about 15 minutes before proceeding with the tuning procedure.

Note. The buzzer will sound several times during these procedures. Silence it each time with the BUZ OFF switch.

- (3) Operate the T-893(P)/GRC multimeter selector switch to MAIN TUNE.
- (4) Adjust the AM-1957/GRC MAIN TUNING control for a peak indication on the multimeter. Lock the MAIN TUNING control.

Note. If the meter indication goes off-scale during the tuning procedure, depress the T-893(P)/GRC METER SHUNT switch.

- (5) Operate the multimeter selector switch to MIXER and adjust the AM-1957/GRC MIXER control for a peak indication on the multimeter. Lock the MIXER control.
- (6) Operate the AM-1957/GRC WAVE-METER dial to the OUT FREQ indication listed in the WAVEMETER CHART for the desired frequency.
- (7) Operate the multimeter selector switch to AMP and adjust the AM-1957/GRC AMP control for a peak indication on the meter.

Note. If the LOW POWER indicator lights and the buzzer sounds, silence the buzzer with the BUZ OFF switch.

- (8) Operate the multimeter selector switch to OUT FREQ and adjust the T-893(P)/GRC AFC CORRECTION control for a peak indication on the multimeter.
- (9) Check to see that the indication on the AFC meter is within ± 10 divisions of

midscale. If it is not, repeat the procedure given in (3) above, recenter the AFC CORRECTION control, and repeat the procedure given in (7) and (8) above.

- (10) Operate the multimeter selector switch to PWR OUT and adjust the AM-1957/GRC POWER OUT control for a peak indication on the multimeter. The POWER OUT indicator should indicate near the desired channel.
- (11) Adjust the AM-1957/GRC COUPLING control for a peak indication on the multimeter, and then repeak the multimeter with the AMP, POWER OUT, and COUPLING controls.

Note. If no output is indicated, detune the COUPLING control and repeat the tuning procedure. The LOW POWER indicator should be extinguished.

- (12) Operate the multimeter selector switch to REF PWR and note the meter indication.
- (13) Operate the multimeter selector switch to PWR OUT. The indication on the multimeter should be several times greater than that noted in (12) above.
- (14) Operate the multimeter selector switch to AFC LEV. Adjust the AFC LEVEL control for a peak indication on the multimeter.
- (15) Adjust the AFC TUNE control for a peak indication on the multimeter, and then repeak the AFC LEVEL and AFC TUNE controls.
- (16) Operate the T-893(P)/GRC AFC selector switch to ODD if the desired channel number is odd, or to EVEN if the channel is even.
- (17) Check the automatic frequency control (afc) circuit for lock-on by rotating the AFC CORRECTION control in either direction until the AFC meter indicates ± 40 . The meter indication should return to center. Return the AFC CORRECTION control to its original setting. The meter indication should again return to center and stop.

- (18) Operate the multimeter selector switch to OUT FREQ.
- (19) Adjust the WAVEMETER control for a maximum indication on the multimeter. The WAVEMETER dial should indicate within two divisions of the OUT FREQ reading in the WAVEMETER CHART. If the difference is greater than two divisions, repeat the entire tuning procedure.
- (20) Check the indication on the DA-189/GRC meter. The meter should indicate between 15 and 30 watts.
- (21) Operate the PP-2054/GRC OPERATE-STAND BY switch to STAND BY. Disconnect the CG-718B/U from the AM-1957/GRC TO ANT receptacle and reconnect the antenna cable to the TO ANT receptacle. Operate the PP-2054/GRC OPERATE-STAND BY switch to OPERATE.

e. Transmitter, Radio T-893(P)/GRC With AM-1958A/GRC.

- (1) Disconnect the antenna cable from the AM-1958A/GRC TO ANT receptacle and connect a CG-718B/U between the TO ANT receptacle and one of the DA-189/GRC's on top of the equipment rack.
- (2) Operate the PP-2054/GRC AC POWER switch to ON and the OPERATE-STAND BY switch to OPERATE. Wait about 15 minutes before proceeding with the tuning procedure.
- (3) Operate the T-893(P)/GRC multimeter selector switch to OSC and adjust the AM-1958A/GRC OSC control for a peak indication on the multimeter.
- (4) Operate the T-893(P)/GRC multimeter selector switch to MAIN TUNE and adjust the AM-1958A/GRC MAIN TUNING control for a peak indication on the multimeter. Lock the MAIN TUNING control.

Note. If the meter indication goes off-scale during the tuning procedure, depress the T-893(P)/GRC METER SHUNT switch.

- (5) Operate the multimeter selector switch to MIXER and adjust the

AM-1958A/GRC MIXER control for a peak indication on the multimeter. Lock the MIXER control.

- (6) Operate the AM-1958A/GRC WAVEMETER dial to the OUT FREQ indication listed in the WAVEMETER CHART for the desired frequency.
- (7) Operate the multimeter selector switch to AMP and adjust the AM-1958A/GRC AMP control for a peak indication on the meter.

Note. If the LOW POWER indicator lights and the buzzer sounds, silence the buzzer with the BUZ OFF switch.

- (8) Operate the multimeter selector switch to AFC LEV and adjust the T-893(P)/GRC AFC CORRECTION control for a peak indication on the multimeter.
- (9) Check to see that the indication on the AFC meter is within ± 10 divisions of midscale. If it is not, repeat the procedure given in (4) above, recenter the AFC CORRECTION control, and then repeat the procedure given in (7) and (8) above.
- (10) Operate the multimeter selector switch to PWR OUT and adjust the AM-1958A/GRC POWER OUT control for a peak indication on the multimeter. The POWER OUT indicator dial should indicate near the desired channel.
- (11) Adjust the AM-1958A/GRC COUPLING control for a peak indication on the multimeter, and then repeak the multimeter with the AMP, POWER OUT, and COUPLING controls. Check to see that the T-893(P)/GRC LOW POWER indicator is extinguished.
- (12) Operate the multimeter selector switch to REF PWR and note the indication on the meter.
- (13) Operate the multimeter selector switch to PWR OUT. The indication on the multimeter should be several times greater than that noted in (12) above.
- (14) Operate the multimeter selector

switch to AFC LEV. Adjust the AFC LEVEL control for a peak indication on the multimeter.

- (15) Adjust the AFC TUNE control for a peak indication on the multimeter, and then repeak the AFC LEVEL and AFC TUNE controls.
- (16) Operate the T-893(P)/GRC AFC selector switch to ODD if the desired channel number is odd, and to EVEN if the channel number is even.
- (17) Check the afc circuit for lock-on by rotating the AFC CORRECTION control in either direction until the AFC meter indicates ± 40 . The meter indication should return to center. Return the AFC CORRECTION control to its original setting. The meter indication should again return to center and stop.
- (18) Operate the multimeter selector switch to OUT FREQ.
- (19) Adjust the WAVEMETER control for a peak indication on the multimeter. Check the WAVEMETER dial indication; it should be within ± 2 divisions of the reading listed in the OUT FREQ column of the WAVEMETER CHART.
- (20) Check the indication on the DA-189/GRC meter. The meter should indicate between 8 and 20 watts.
- (21) Operate the PP-2054/GRC OPERATE-STAND BY switch to STAND BY. Disconnect the CG-718B/U from the AM-1958A/GRC TO ANT receptacle and reconnect the antenna cable to the TO ANT receptacle. Operate the PP-2054/GRC OPERATE-STAND BY switch to OPERATE.

3-5. Operating Pcm Components

a. TD-202/U.

- (1) Check to see that the TD-202/U is connected properly (para 2-7).
- (2) Operate the TD-202/U AC POWER switch to ON. Check to see that the AC POWER indicator lights.

b. TD-204/U.

- (1) Check to see that the TD-204/U is

properly connected (para 2-7).

- (2) Operate the TD-204/U AC POWER switch to ON. Check to see that the AC POWER indicator and ALARMS NO CABLE CURRENT indicator light and the buzzer sounds. Silence the buzzer with the ALARMS BUZZER OFF switch.
- (3) Operate the CABLE POWER switch to ON. The ALARMS NO CABLE CURRENT indicator will extinguish and the buzzer will sound. Silence the buzzer with the ALARMS BUZZER OFF switch.

c. TD-352/U.

- (1) Check to see that the TD-352/U is properly connected (para 2-7).
- (2) Check to see that the CHAN switch on the TD-352/U service facility panel is operated to OFF.
- (3) Operate the AC POWER switch to ON. Check to see that the AC POWER indicator lights.

d. CV-1548/G.

- (1) Check to see that the CV-1548/G is properly connected (fig. 5-1).
- (2) Operate the POWER switch to ON. Check to see that the POWER indicator lights.

3-6. Order-Wire Communication

Order-wire communication facilities are provided in both the AN/GRC-50A(V) components and in the TD-204/U. For communication over a radio link, use the AN/GRC-50A(V) facilities; and for communication over a cable link, use the TD-204/U facilities. At a cable-radio conversion, the facilities of either may be used.

a. Initiating Call Over Radio Link.

- (1) Lift Handset H-156/U from its mounting bracket.
- (2) Press the R-1331(P)/GRC RING switch for about 2 seconds.

Note. If identification codes are assigned, press the RING switch in accordance with the identification code assigned to the terminal or repeater being called.

- (3) Wait for an answer.
- (4) Depress the H-156/U PRESS-TO-TALK switch and talk into the handset. Release the PRESS-TO-TALK switch to listen.
- (5) When the call is completed, replace the H-156/U in its mounting bracket.

b. Answering Call Over Radio Link.

Note. If identification codes are assigned, answer only when the call corresponds to the assigned identification code.

- (1) When the INCOMING CALL indicator lights, and the buzzer sounds, lift the H-156/U from its mounting bracket.
- (2) Depress the H-156/U PRESS-TO-TALK switch and answer the call.
- (3) When the call is terminated, replace the H-156/U in its mounting bracket.

c. Initiating Call Over Cable Link.

- (1) Operate the TD-204/U TALK-OFF-SIG switch to TALK.
- (2) Listen to the H-91A/U receiver to determine whether the order-wire circuit is in use.
- (3) If the circuit is not in use, operate the TALK-OFF-SIG switch to SIG for about 2 seconds.

Note. If identification codes have been assigned, operate the TALK-OFF-SIG switch between SIG and OFF according to the code assigned to the terminal or repeater being called.

- (4) Operate the TALK-OFF-SIG switch to TALK and converse with the distant operator.
- (5) When the call is terminated, operate the TALK-OFF-SIG switch to OFF and replace the H-91A/U in its mounting bracket.

d. Answering Call Over Cable Link.

- (1) When the TD-204/U CALL indicator lights and the buzzer sounds, operate the TALK-OFF-SIG switch to TALK and answer the call.

Note. If identification codes are assigned, answer only those calls corresponding to the codes assigned to the station.

- (2) When the call is terminated, operate the TALK-OFF-SIG switch to OFF and replace the H-91A/U in its mounting bracket.

3-7. Monitoring Channels

a. Connect Headset-Microphone H-91A/U to the TALK-MONITOR receptacle on the TD-352/U front panel.

b. Operate the TD-352/U SERV SEL switch to PHONE.

Caution: When the system is in operation, never operate the TD-352/U CHAN switch from OFF if the SERV SEL switch is at CHAN 1-12 (vertical up). If the SERV SEL switch is at CHAN 1-12 and the CHAN switch is operated to a channel, a 1,000-cps tone is sent out over the channel.

c. Operate the CHAN switch to the desired channel and listen to the H-91A/U receiver. Speak into the H-91A/U microphone to converse on the monitored channel.

d. The channel being monitored may be switched by operating the CHAN switch as required.

e. After monitoring is complete, operate the CHAN switch to OFF and the SERV SEL switch to +25. Disconnect the H-91A/U from the TALK MONITOR receptacle.

3-8. Operation Under Unusual Conditions

The AN/TRC-117(V) is fully insulated and weatherproofed for operation in hot, cold, or moderate climates. The shelter facility provides complete protection from the elements for personnel and equipment; however, under extreme conditions, the following precautions are necessary.

a. Cold Climates. Extreme cold causes cables and wires to become hard, brittle, and difficult to handle. Be careful when handling the cables and connecting them to the assemblage so that kinks and unnecessary loops will not result in permanent damage. Make sure that binding posts and connectors in the entrance boxes are free of frost, snow, and ice. Replace the covers on receptacles, and close the entrance box covers when they are not in use. Lower

the folding side panels when the entrance boxes are open. Replace the connector cover as soon as a cable is disconnected. Never drag or place an open connector in the snow.

b. Hot Climates. In hot, dry climates, connectors, receptacles, and binding posts are subject to damage from dust and dirt. Replace the covers on the connectors and receptacles and close the covers on entrance boxes when they are not in use. Lower the folding side panels when the entrance boxes are open. Never place an open connector on the ground.

c. Warm, Damp Climates. In warm, damp climates, the equipment is subject to damage from moisture and fungi. Wipe all moisture and fungi from the equipment with a lint-free cloth.

d. Emergency Voltage Regulator Operation. If the CN-514/GRC fails to operate and no replacement is available, follow the procedures given in (1) below to operate the assemblage. If the overvoltage protection device fails to operate and no replacement is available, follow the procedures given in (2) below.

(1) *Defective CN-514/GRC.*

- (a) Operate the POWER DISTRIBUTION PANEL VOLT REG circuit breaker to OFF.
- (b) Disconnect the cable connected to the AC POWER INPUT receptacle of the CN-514/GRC.
- (c) Disconnect the cable connected to the IN receptacle on the overvoltage protective device.
- (d) Connect the cable disconnected in (b) above to the IN receptacle on the overvoltage protective device.
- (e) Operate all the POWER switches on the rack equipment to OFF and then perform the procedures given in paragraphs 3-4 and 3-5.

(2) *Defective overvoltage protective device.*

- (a) Operate the POWER DISTRIBUTION PANEL VOLT REG circuit breaker to OFF.
- (b) Disconnect the cable connected to

the OUT receptacle on the overvoltage protective device.

- (c) Disconnect the cable connected to the 5KVA LOAD MAX receptacle on the CN-514/GRC.
- (d) Connect the cable disconnected in (b) above to the 5KVA LOAD MAX receptacle on the CN-514/GRC.
- (e) Operate all the POWER switches on the rack equipment to OFF and then perform the procedures given in paragraphs 3-4 and 3-5.

e. Emergency Order-Wire Operation for Terminal. If the pulse-code modulation (pcm) signal is maintained during an order-wire failure, emergency order-wire communications may be established between terminals as follows:

- (1) Contact the local switchboard operator on the local communication facility.
- (2) Request the local switchboard operator to contact the distant switchboard operator over a vacant pcm channel and notify the distant terminal operator of the call and channel number.
- (3) Follow the channel monitoring procedures (para 3-7) and converse with the distant terminal operator over the vacant pcm channel.

3-9. Stopping Procedures

a. AN/GRC-50A(V). If the AN/GRC-50A(V) components are to be turned off for less than 2 hours, leave the R-1331(P)/GRC on and place the T-893(P)/GRC in standby by operating the PP-2054/GRC OPERATE-STAND BY switch to STAND BY. If the equipment is to be turned off for a longer period, proceed as follows:

- (1) Operate the R-1331(P)/GRC AC POWER switch to OFF.
- (2) Operate the PP-2054/GRC OPERATE-STAND BY switch to STAND BY.
- (3) Operate the PP-2054/GRC AC POWER switch to OFF.
- (4) Operate the T-893(P)/GRC AFC selector switch to TUNE.

b. TD-202/U, TD-204/U, TD-352/U, and CV-1548/G.

- (1) Operate the TD-204/U CABLE POWER switch to OFF. The ALARMS NO CABLE CURRENT indicator will light and the buzzer will sound.
- (2) Operate the TD-202/U, TD-204/U, TD-352/U, and CV-1548/G AC POWER switches to OFF.

c. Voltage Regulator CN-514/GRC. Operate

the CN-514/GRC POWER switch to OFF.

d. *Emergency Stopping Procedure.* To turn the equipment off in an emergency, operate the POWER DISTRIBUTION PANEL MAIN circuit breaker to OFF.

Caution: If the equipment is turned off by using the emergency stopping procedure, operate all circuit breakers and equipment power switches to OFF before attempting to restart it.

CHAPTER 4

MAINTENANCE

Section I. PREVENTIVE MAINTENANCE

4-1. Scope of Maintenance

a. General.

- (1) Operator preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to maintain the equipment in serviceable condition. Operator preventive maintenance is performed daily; specific procedures are provided in paragraph 4-2.
- (2) Organizational preventive maintenance is performed monthly and quarterly; specific procedures are provided in paragraphs 4-3 and 4-4. Troubleshooting procedures are provided in paragraphs 4-5 through 4-8 for isolation and replacement of authorized repair parts (app C).
- (3) The preventive maintenance checks and services described in paragraphs 4-2, 4-3, and 4-4 outline inspections to be made at specific intervals and are designed to help maintain equipment in serviceable condition. They indicate what items should be checked and how they should be checked. Also included are procedures for authorized repairs and references to text, illustrations, and other manuals that contain supplementary information.
- (4) Defective items that cannot be corrected must be reported to higher category maintenance personnel. Records and reports of repairs and preventive maintenance must be made in accordance with procedures given in TM 38-750.

b. Preventive Maintenance Checks and Services Periods.

Preventive maintenance checks and services for an operating AN/TRC-117(V) are required daily (para 4-2), monthly (para 4-3), and quarterly (para 4-4). These checks and services must be performed during the specified periods. In addition, the daily checks and services must be performed under the following special conditions:

- (1) When the equipment is initially installed.
- (2) When the equipment is reinstalled after removal for any reason.
- (3) At least once each week if the equipment is maintained in a standby condition.

c. Cleaning.

Warning: Cleaning compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.

- (1) Use a dry, clean, lint-free cloth or brush to remove dust or dirt. If necessary, moisten the cloth or brush with cleaning compound (Federal stock No. 7930-395-9542). After cleaning, wipe dry with a clean 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.

d. Touchup Painting. Remove rust and corrosion from metal surfaces by lightly sanding

them with fine sandpaper. Brush two thin coats of paint on bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practice specified in TB SIG 364.

Caution: Solar reflecting paint per MIL-E-46061 (MO) has been used to paint the exterior of some shelter facilities to lower the inside temperature when the shelter is exposed to the

direct rays of the sun. Before doing any touchup painting on the exterior, check for a caution notice on the inside of the entrance door. If the solar reflecting paint has been used, refer to TB SIG 354 for the proper procedures to be used in repainting or touchup painting. Do not use any other paint on shelter facilities painted with the solar reflecting paint.

4-2. Operator's Daily Preventive Maintenance Checks and Services

Note. If the AN/TRC-117(V) is in continuous use, perform only those sequence numbers which do not interfere with the operation of the equipment (sequence numbers 1 through 13).

Sequence No.	Item to be inspected	Procedures	References
EXTERIOR			
1	External condition -----	Check for skin punctures, cracks, or open seams that could permit moisture to enter wall.	None.
2	Grounding system -----	a. Check grounding system to see that it is properly installed. b. Tighten loose ground lead connections.	a. Para 2-3. b. None.
3	Sling assembly (if installed in truck).	Tighten turnbuckles to remove slack in sling assembly.	Fig. 2-3.
4	Entrance boxes -----	a. Clean area around receptacles ----- b. Put covers on unused receptacles -----	a. Para 4-1c and figs. 1-13, 1-14, 1-15. b. Figs. 1-13, 1-14, 1-15.
5	Blower vents -----	See that blower vents are open and are not obstructed.	None.
6	Air filter -----	See that air filter on assemblage door is open and not clogged or obstructed.	None.
7	Power and signal cable assemblies.	a. Clean cable insulation and connectors (if not connected). b. Tighten loose connections ----- c. Put cover on unused cable connection.	Para 4-1c. b. None. c. None.
8	Generator set (if used) -----	Perform daily preventive maintenance checks and services in applicable technical manual.	Technical manual for generator set.
INTERIOR			
9	Signal and power cables, cords, wires, and harnesses.	a. Tighten loose connections of plugs and connectors. b. See that cable insulation is not cut or cracked; remove kinks and strains.	a. None. b. None.
10	Ceiling lights -----	Inspect and replace if necessary -----	None.
11	Walls, ceiling, and floor -----	Check for holes, open seams, or signs of seepage or leaks.	None.
12	Storage compartments -----	Remove unauthorized articles -----	App B.

Sequence No.	Item to be inspected	Procedures	References
13	Unused components -----	<p>Inspect unused components for damage, dirt, grease, moisture, or fungi accumulation. Clean as required. Check to see that covers (if available) are on unused components.</p> <p style="text-align: center;">OPERATION</p> <p><i>Notes.</i> In most applications, some components will not be in use. Perform the following procedures only on operating equipment, and only during authorized downtime.</p>	None.
14	Knobs, dials, and switches -----	While making operational checks (sequence numbers 15 through 31), make sure that knobs, dials, and switches are free from internal and external binding.	None.
15	POWER INDICATOR neon light.	Apply power to assemblage by starting generator or turning on central power; POWER INDICATOR neonlight glows.	Fig. 1-12.
16	POWER DISTRIBUTION PANEL.	<p>a. Operate MAIN circuit breaker to ON; associated indicator glows, VOLTS A.C. meter indicates 115 volts ± 10 and A.C. AMPERES meter indicates 0.</p> <p>b. Sequentially operate all circuit breakers, except VOLT REG, to ON; associated indicators glow.</p>	<p>a. Fig. 3-1.</p> <p>b. Fig. 3-1.</p>
17	Fluorescent and incandescent ceiling lights.	<p>a. Operate FLUORESCENT LIGHTS switch to ON; fluorescent ceiling lights glow.</p> <p>b. Operate INCANDESCENT COLD START LIGHTS switch to ON; incandescent ceiling lights glow. Operate INCANDESCENT COLD START LIGHTS switch to OFF if they are not required.</p>	<p>a. Fig. 1-10.</p> <p>b. Fig. 1-10.</p>
18	Light tightness -----	Close the assemblage door but leave all vents open. Check the outside of the assemblage for light leaks.	None.
19	Blackout door switch -----	Operate BYPASS BLACKOUT switch to OFF and open entrance door; lights extinguish.	Fig. 1-10.
20	BYPASS BLACKOUT switch --	Operate to ON with door open; ceiling lights glow.	Fig. 1-10.
21	Exhaust blowers -----	Operate BLOWER switches to ON; exhaust blowers operate.	Fig. 5-1.
22	Heaters -----	<p>a. Operate HEAT-OFF-FAN switch to HEAT; operate TEMPERATURE control and note that warm air blows from front of heater.</p> <p>b. Operate HEAT-OFF-FAN switch to FAN; fan blows air but heating element stops glowing.</p> <p>c. Operate HEAT-OFF-FAN switch to OFF; fan stops blowing.</p>	<p>a. None.</p> <p>b. None.</p> <p>c. None.</p>

4-2. Operator's Daily Preventive Maintenance Checks and Services—Continued

Sequence No.	Item to be inspected	Procedures	References
23	Operating equipment -----	Check to see that SYSTEM 1 and 2 circuit breakers on roadside and front wall equipment racks are operated to OFF.	Fig. 5-1.
24	POWER DISTRIBUTION PANEL.	Operate VOLT REG circuit breaker to ON; associated indicator glows.	Fig. 3-1.
25	CN-514/GRC -----	Operate POWER switch to ON, adjust output to 115 volts.	Para 3-4.
26	Overtoltage protection device ---	Operate POWER switch to ON and then release; power indicator lamp lights.	Fig. 3-2.
27	AN/GRC-50A(V) -----	Operate front wall SYSTEM 1 and SYSTEM 2 circuit breakers to ON. Turn on and tune AN/GRC-50A(V) components to assigned frequencies.	Para 3-4b.
28	Pcm components -----	Operate roadside wall SYSTEM 1 and SYSTEM 2 circuit breakers to ON. Turn on pcm components connected in operating configuration.	Para 3-5.
29	Order-wire circuits -----	Contact distant terminals or repeaters on order-wire circuit and check to see that order-wire communication is clear.	Para 3-6.
30	Local communications facilities.	Operate TA-312/PT and LS-147C/FI to check out local communications facilities.	Para 3-3.
31	Assemblage power -----	Operate all rack equipment AC POWER switches to OFF; associated indicators extinguish. Operate SYSTEM 1 and SYSTEM 2 circuit breakers on front and roadside wall to OFF. Operate CN-514/GRC AC POWER switch to OFF; check to see that associated indicator is extinguished. Operate all circuit breakers on POWER DISTRIBUTION PANEL to OFF; associated indicators extinguish.	None.

4-3. Organizational Monthly Preventive Maintenance Checks and Services

Sequence No.	Item to be inspected	Procedures	References
		EXTERIOR	
1	Shelter facility skin and hardware.	Paint blistered, pitted, or flaking areas, and bare metal spots (such as steps, entrance box covers, skids, towing eyes, etc).	Para 4-1d.
2	Grounding system -----	Clean grounding rod and GROUND TERMINAL connections; tighten as required.	Para 4-1c and d.
3	Sling assembly (if installed on truck).	Clean parts, and paint bare metal spots.	Para 4-1c and d.
4	Entrance door -----	a. Clean; paint bare metal spots -----	a. Para 4-1c and d.

Sequence No.	Item to be inspected	Procedures	References
		<p>b. Tighten loose screws and bolts -----</p> <p>c. Lubricate door locks and latches with Grease, Graphite Aircraft (GGA); lubricate hinges with Lubricating Oil, General Purpose Preservative (PL-Special) or Lubricating Oil, Engine (OE-10).</p> <p>d. Put gasket cement on loose gaskets ----</p>	<p>b. None.</p> <p>c. None.</p> <p>d. None.</p>
5	Air filter and vents -----	Clean air filter; make sure vent are clear of obstructions.	None.
6	POWER & SIGNAL ENTRANCE BOX and VIDEO & ANTENNA ENTRANCE BOX.	a. Lubricate piano-type hinges of covers with oil (PL-Special or OE-10).	a. None.
7	Power and signal cables -----	<p>b. Paint bare metal spots -----</p> <p>a. Repair insulation cuts and abrasions with electrical insulation tape.</p> <p>b. Inspect cable layout and relocate cables as required so that they are not dangerous to, or endangered by, vehicles and personnel.</p>	<p>b. Para 4-1d.</p> <p>a. None.</p> <p>b. None.</p>
8	Signal and power cables, cords, and wires.	<p style="text-align: center;">INTERIOR</p> <p>a. Tighten screws and clamps that hold wires to terminals.</p> <p>b. Repair insulation cuts abrasions with electrical insulation tape.</p>	<p>a. None.</p> <p>b. None.</p>
9	Signal, power, and lighting system ducts and cables.	a. Tighten loose screws, bolts, and clips.	a. None.
10	Lighting system -----	<p>b. Repair or replace defective switches, switchplates, outlets, receptacles, and jacks.</p> <p>a. Tighten loose screws and nuts on ceiling lights, and parts on POWER DISTRIBUTION PANEL.</p> <p>b. Repair or replace defective parts of lighting system and POWER DISTRIBUTION PANEL.</p>	<p>a. None.</p> <p>b. None.</p>
11	Walls, ceiling, and floor -----	<p>a. Clean all parts -----</p> <p>b. Check for skin punctures and cracked seams.</p>	<p>a. Para 4-1c.</p> <p>b. None.</p>
12	Equipment mountings -----	<p>a. Tighten loose bolts, nuts, and screws that hold equipment racks, frames, shelves, clamps and mounting hardware. Replace missing bolts, nuts, and screws.</p> <p>b. Check to see that equipment mountings are not bent or broken so as to endanger equipment or personnel.</p>	<p>a. None.</p> <p>b. Figs. 1-4 through 1-15 and fig. 5-1.</p>
13	TA-312/PT -----	Check batteries and replace if necessary.	None.

4-3. Organizational Monthly Preventive Maintenance Checks and Services—Continued

Sequence No.	Item to be inspected	Procedures	References
14	Exhaust fans -----	a. Lubricate all points with oil (PL-Special or OE-10). b. Clean motor and fan housing -----	a. None. b. Para 4-1c.
15	Heaters -----	Clean heaters, and paint bare metal spots as required.	Para 4-1c and d.
16	AN/GRC-50A(V) -----	Perform monthly procedures as prescribed in applicable technical manual.	App A.
17	TD-202/U, TD-204/U, TD-352/U, and CV-1548/G.	Perform monthly procedures as prescribed in applicable technical manual.	App A.

4-4. Organizational Quarterly Preventive Maintenance Checks and Services

Sequence No.	Item to be inspected	Procedures	References
GENERAL			
1	Components: a. Inventory ----- b. Location of parts ----- c. Publications -----	a. Inventory equipment; requisition missing or defective parts. b. Check to see that all components are mounted or stowed in assigned places, except those that are being used (power, signal, and interconnecting cables, etc). c. Requisition all operator and organizational maintenance manuals covering AN/TRC-117(V) and its components that are not on hand or in usable condition (including all current changes publications).	a. App B. b. Fig. 5-1. c. DA Pam 310-4; para 1-2.
2	Modification work orders -----	Check to see if any MWO's are required for AN/TTC-117(V) or its components. Check equipment to see if current MWO's have been applied and MWO number is stamped as required. Perform or request modifications as applicable.	Applicable MWO (see DA Pam 310-4 for MWO listing).
EXTERIOR			
3	Shelter facility skin and hardware.	a. Check for skin punctures, cracks, or open seams that would permit moisture to enter wall. b. Repair or replace defective hardware.	a. None. b. None.
4	Grounding system -----	Replace ground rod if ground lead cannot be securely tightened. Replace ground lead if it is cut, corroded, or broken.	None.
5	Entrance door -----	Replace defective or missing rubber gaskets or those that do not provide watertight seal. Replace broken door hinges or latches.	TB SIG 354.

Sequence No.	Item to be inspected	Procedures	References
6	POWER & SIGNAL ENTRANCE BOX.	<p>a. Carefully remove dirt, sand, and moisture from around contacts of unused receptacles.</p> <p>b. Tighten locknuts, screws, and bolts that hold receptacles.</p> <p>c. Replace defective parts, such as gaskets, securing screws, etc.</p>	<p>a. Para 4-1c.</p> <p>b. None.</p> <p>c. None.</p>
7	Power and signal cable assemblies.	Replace cable assemblies in which wiring, insulation, or connectors are defective.	None.
INTERIOR			
8	Signal and power cables, cords, and wiring.	<p>a. Dress all cables, wires, and cords neatly, using cable or cord clamps provided in assemblage, or use electrical insulation tape and twine.</p> <p>b. Repair or replace defective cables, cords, wires, and harnesses.</p>	<p>a. None.</p> <p>b. App B.</p>
9	Walls, ceiling, and floor -----	Paint blistered, pitted, or flaking areas, and bare metal spots.	Para 4-1d.
10	Fire extinguisher -----	<p>a. Refill if weight of contents is less than prescribed, or if seal is broken.</p> <p>b. Replace if valve assembly is damaged.</p>	<p>a. Appropriate personnel.</p> <p>b. App B.</p>
11	Chair and chair cushion -----	<p>a. Repair or replace cushion that is torn or cut, or has split seams or exposed padding.</p> <p>b. Repair or replace chair if parts are bent or broken, or if chair is unsafe for use.</p>	<p>a. None.</p> <p>b. None.</p>
12	Sledge hammer and axe -----	Replace if handle is broken or split or not tight in head.	Fig. 5-1.
13	First aid kit -----	Replace if case is broken or damaged. Replace parts that have been used. (See parts list front cover).	App B.

Section II. TROUBLESHOOTING

4-5. General Troubleshooting Procedures

Trouble symptoms are discovered through the built-in alarms in the equipment components (app A), incorrect indications in preventive maintenance operational checks (para 4-2), from other terminals or repeaters, and the built-in test meters on the equipment components (a through f below). When a trouble

indication occurs, determine the complete symptom and then refer to the troubleshooting charts in paragraph 4-6 to find the probable cause and corrective measure.

Note. When using the charts in a through f below, make careful observations because the significance of an incorrect or out-of-tolerance indication will be different from that of a zero indication.

a. Multiplexer TD-202/U.

METER SELECT switch position	Normal TEST ALIGN meter indication
TIMING IN	Green area
PCM IN-1	Green area
PCM IN-2	Green area (24-channel operation only).
TO RADIO XMTR	Yellow area
FROM RADIO RCVR	Yellow area

b. Multiplexer TD-204/U.

METER SELECT switch position	Normal TEST ALIGN meter indication
TIMING IN	Green area
PCM IN-1	Green area
PCM IN-2	Green area (24-channel operation only).
CABLE I	Yellow area
CABLE V	17 plus 11.3 times number of TD-206/G's in line. <i>Note. If TIMING IN indication is not in green area, use 15.4 as factor for CABLE V check instead of 11.3.</i>

c. Multiplexer TD-352/U.

METER SELECT switch position	Normal TEST ALIGN meter indication
TIMING IN	Green
PCM IN	Green
NOISE GEN	Green
PCM FROM AUX	Green (only with security equipment).
SYNC IN	Green (only when used as slave)

d. Converter, Telephone Signal CV-1548/G.

Meter selector switch position	Normal TEST ALIGN meter indication
-	Yellow
+	Yellow
20 ~ DRIVE	Yellow
20 ~	Yellow
1600 ~	Green

e. Transmitter, Radio T-893(P)/GRC. Make

the following checks with either the AM-1957/GRC or AM-1958A/GRC installed in the T-893(P)/GRC.

Multimeter selector switch position	Multimeter indication
OSC (AM-1958A/GRC only)	Greater than 10
MAIN TUNE	Greater than 10
MIXER	Greater than 10
AMP	Greater than 10
OUT FREQ	Greater than 10
PWR OUT	Greater than 10
AFC LEV	Greater than 10
1 KC IN	Green area
68 KC IN	Green area
1 KC MOD	Green area
68 KC MOD	Green area
PCM IN	Green area

f. Receiver, Radio R-1331(P)/GRC. Make the following checks with the AM-1995A/GRC or AM-1996A/GRC installed in the R-1331(P)/GRC.

Multimeter selector switch position	Multimeter indication
OSC	Greater than 10
REC SIGNAL	Greater than 10 (acceptable signal from distant transmitter required).
ORDER WIRE	Green area
1 KC OUT	Green area
68 KC OUT	Green area
PCM OUT	Green area

4-6. System and Assemblage Troubleshooting

The troubleshooting charts in *a* through *d* below list trouble symptoms, probable troubles, and corrective measures for each configuration of the AN/TRC-117(V). Use the chart or charts applicable to the connected configuration. The loopback checks in *e* below may be used to verify isolation of troubles in the system and assemblage.

a. Radio Terminal Troubleshooting Chart.

Item No.	Symptom	Possible trouble	Corrective measure
1	ALARMS FRAME indicator of TD-352/U lights, buzzer sounds, and TEST ALIGN meter indicates in green area with METER SELECT switch at PCM IN and TIMING IN.	Defective TD-352/U -----	Troubleshoot TD-352/U (app A).
2	ALARMS FRAME indicator of TD-352/U lights, buzzer sounds, and TEST ALIGN meter does not indicate in green area with METER SELECT switch at PCM IN and/or TIMING IN. TD-202/U and AN/GRC-50A(V) indicate normally.	a. Defective CG-1040B/U cable between TD-352/U and TD-202/U. b. Defective TD-202/U -----	a. Check and replace if necessary. b. Troubleshoot TD-202/U (app A).
3	ALARMS FRAME indicator of TD-352/U and ALARMS TRAFFIC indicator of TD-202/U light, buzzer sounds, TEST ALIGN meter of TD-202/U does not indicate in green area with METER SELECT switch at FROM RADIO RCVR. AN/GRC-50A(V) operates normally, order wire normal.	Defective pcm component at distant terminal or repeater.	Request distant terminal or repeater troubleshooting.
4	Order wire very noisy or no reception, but all other indications on TD-352/U, TD-202/U, and AN/GRC-50A(V) are normal.	a. Defective CX-7872/TCC cable between TD-202/U and R-1331(P)/GRC. b. Defective TD-202/U -----	a. Check and replace if necessary. b. Troubleshoot TD-202/U (app A).
5	ALARMS FRAME indicator of TD-352/U and ALARMS TRAFFIC indicator of TD-202/U light and TEST METER does not indicate in green area with METER SELECT switch at FROM RADIO RCVR, all indications on AN/GRC-50A(V) are normal except for noisy or no order wire.	a. Defective CG-409H/U cable between R-1331(P)/GRC and TD-202/U. b. Defective R-1331(P)/GRC --	a. Check and replace if necessary. b. Troubleshoot R-1331(P)/GRC (app A).
6	ALARMS FRAME indicator of TD-352/U ALARMS TRAFFIC indicator of TD-202/U and R-1331(P)/GRC SQUELCH NO SIGNAL indicator light, buzzer sounds, and no order wire. <i>Note.</i> In 24-channel operation, both TD-352/U's have this symptom.	a. Defective antenna cable ---- b. Defective Antenna AT-903/G. c. Defective R-1331(P)/GRC -- d. AT-903/G not properly oriented. e. Defective T-893(P)/GRC at distant terminal or repeater.	a. Check and replace if necessary. b. Check and replace if necessary. c. Troubleshoot R-1331(P)/GRC (app A). d. Check orientation. e. Keep AN/GRC-50A(V) operating on assigned frequency. Periodically try order wire and wait response. Send man to distant terminal or repeater.
7	Distant terminal or repeater indicates loss of pcm, no indication on TEST ALIGN meter of local TD-202/U with METER SELECT switch at TO RADIO XMTR.	Defective TD-202/U -----	Troubleshoot TD-202/U (app A).

Item No.	Symptom	Possible trouble	Corrective measure
8	Distant terminal or repeater indicates loss of pcm, no indication on TEST ALIGN meter of local TD-202/U with METER SELECT switch at TIMING IN, PCM IN-1, or TO RADIO XMTR.	<p>a. Defective CG-1040B/U cables between TD-352/U and TD-202/U.</p> <p>b. Defective TD-352/U -----</p> <p><i>Note.</i> In 24-channel operation, if TEST ALIGN meter of TD-202/U indicates loss of either PCM IN-1 or PCM IN-2, check associated TD-352/U and interconnecting CG-1040B/U cables.</p>	<p>a. Check and replace if necessary.</p> <p>b. Troubleshoot TD-352/U (app A).</p>
9	Distant terminal or repeater indicates loss of pcm. Local T-893 (P)/GRC indicates loss of pcm input. All indication on local TD-352/U and TD-202/U are normal.	Defective CG-409H/U cable between TD-202/U and T-893 (P)/GRC.	Check and replace if necessary.
10	Switchboard operator indicates loss of a specific channel or only one-way communication on a specific channel. All other indications are normal.	<p>a. Defective TD-352/U -----</p> <p>b. Defective CV-1548/G -----</p> <p>c. Defective CX-7870/TCC between CV-1548/G and TD-352/U.</p> <p>d. Defective field wire in line.</p> <p>e. Defective TD-352/U or CV-1548/G at distant terminal.</p>	<p>a. Troubleshoot TD-352/U (app A).</p> <p>b. Troubleshoot CV-1548/G (app A).</p> <p>c. Check and replace if necessary.</p> <p>d. Check and repair as required.</p> <p>e. Request distant terminal troubleshooting.</p>
11	Switchboard operator reports high noise level, distortion or hum on all channels, but all other indications are normal.	<p>a. Defective TD-352/U -----</p> <p>b. Distant TD-352/U or TD-202/U defective.</p>	<p>a. Troubleshoot TD-352/U (app A).</p> <p>b. Request distant terminal or repeater troubleshooting.</p>
12	Order wire garbled and noisy; all other indications normal.	<p>a. Defective TD-202/U -----</p> <p>b. Defective AN/GRC-50A (V).</p>	<p>a. Troubleshoot TD-202/U (app A).</p> <p>b. Troubleshoot AN/GRC-50A (V) (app A).</p>
13	No indication on TEST ALIGN meter of TD-352/U with METER SELECT switch at PCM FROM AUX (secure operation only).	<p>a. Defective cables between TSEC/KG-5 and TD-352/U.</p> <p>b. Defective TSEC/KG-5 -----</p>	<p>a. Check and replace if necessary.</p> <p>b. Troubleshoot TSEC/KG-5.</p>
14	All channels are noisy and all other indications are normal (secure operation only).	Defective TSEC/KG-5 -----	Troubleshoot TSEC/KG-5.
15	No indication on TEST ALIGN meter of slave TD-352/U with METER SELECT switch at SYNC IN (24-channel operation).	<p>a. Defective CG-1040B/U cable between master and slave TD-352/U.</p> <p>b. Defective master TD-352/U.</p> <p>c. Defective slave TD-352/U ---</p>	<p>a. Check and replace if necessary.</p> <p>b. Troubleshoot master TD-352/U.</p> <p>c. Troubleshoot slave TD-352/U.</p>
16	Switchboard operator indicates that no signaling is available on any two-wire channel.	Defective CV-1548/G -----	Troubleshoot CV-1548/G (app A).

Item No.	Symptom	Possible trouble	Corrective measure
17	Incorrect indication on TEST ALIGN meter of TD-202/U with METER SELECT switch at TO RADIO XMTR.	a. Video level adjustment required on TD-202/U. b. Defective TD-202/U -----	a. Adjust OL control on panel 5A2 of TD-202/U (para 2-9). b. Troubleshoot TD-202/U (app A).
18	Incorrect indication on TEST ALIGN meter of TD-202/U with METER SELECT switch at FROM RADIO XMTR.	a. Video level adjustment required on TD-202/U. b. Defective TD-202/U -----	a. Adjust RL control on panel 5A3 of TD-202/U (para 2-9). b. Troubleshoot TD-202/U (app A).
19	Switchboard operator reports high noise level on all channels; all other indications normal.	Defective TD-202/U -----	Troubleshoot TD-202/U (app A).
20	ALARM FRAME indicator on slave TD-352/U alternately lights and extinguishes (24-channel operation).	a. Defective CG-1040B/U cable from master TD-352/U to slave TD-352/U. b. Defective master or slave TD-352/U at distant terminal.	a. Check and replace if necessary. b. Request distant terminal troubleshooting.

b. Radio Repeater Troubleshooting Chart.

Item No.	Symptom	Possible trouble	Corrective measure
1	ALARMS TRAFFIC indicator of TD-202/U lights. No indication on TEST ALIGN meter with METER SELECT switch at FROM RADIO RCVR. AN/GRC-50A(V) operates normally and order wire is normal.	Defective pem component at distant terminal or repeater.	Request distant terminal or repeater troubleshooting.
2	ALARMS TRAFFIC indicator of TD-202/U lights. No indication on TEST ALIGN meter with METER SELECT switch at FROM RADIO RCVR. AN/GRC-50A(V) operates normally except for noisy order wire.	a. Defective CG-409H/U cable between T-893(P)/GRC and TD-202/U. b. Defective AN/GRC-50A(V).	a. Check and replace if necessary. b. Troubleshoot AN/GRC-50A(V) (app A).
3	ALARMS TRAFFIC indicator of TD-202/U lights. R-1331(P)/GRC SQUELCH NO SIGNAL indicator lights, buzzer sounds, and no order wire.	a. Defective antenna cable ----- b. Defective Antenna AT-903/G. c. Defective R-1331(P)/GRC -- d. AT-903/G not properly oriented. e. Defective T-893(P)/GRC at distant terminal or repeater.	a. Check and replace if necessary. b. Check and replace if necessary. c. Troubleshoot R-1331(P)/GRC (app A). d. Check orientation. e. Keep R-1331(P)/GRC operating on assigned frequency. Periodically try order wire and wait for response. Send man to distant terminal or repeater.

Item No.	Symptom	Possible trouble	Corrective measure
4	Distant terminal or repeater indicates loss of pcm. No indication on TEST ALIGN meter of local TD-202/U with METER SELECT switch at TIMING IN, PCM IN-1, or TO RADIO XMTR. Other TD-202/U has no alarms.	<p>a. Defective CG-1040B/U cable between TD-202/U's.</p> <p><i>Note.</i> In 24-channel operation, if TEST ALIGN meter of TD-202/U indicates loss of either PCM IN-1 or PCM IN-2, check associated CG-1040B/U cable. At a drop and insert repeater, check associated TD-352/U.</p> <p>b. Defective TD-202/U (no output to T-893(P)/GRC).</p> <p>c. Other TD-202/U defective no pcm or timing out).</p>	<p>a. Check and replace if necessary.</p> <p>b. Troubleshoot TD-202/U (app A).</p> <p>c. Troubleshoot TD-202/U (app A).</p>
5	No order-wire communication available in one radio link, all other indications are normal.	<p>a. Defective CX-7872/TCC between associated TD-202/U and R-1331(P)/GRC.</p> <p>b. Defective associated TD-202/U.</p> <p>c. Defective associated R-1331(P)/GRC.</p>	<p>a. Check and replace if necessary.</p> <p>b. Troubleshoot TD-202/U</p> <p>c. Troubleshoot R-1331(P)/GRC (app A).</p>
6	Distant terminal reports high noise level. All other indications are normal.	Defective TD-202/U -----	Troubleshoot TD-202/U (app A).
7	Order wire garbled and noisy. All other indications are normal.	<p>a. Defective TD-202/U -----</p> <p>b. Defective AN/GRC-50A(V).</p> <p>c. Defective CX-7872/TCC between associated TD-202/U and R-1331(P)/GRC.</p>	<p>a. Troubleshoot TD-202/U (app A).</p> <p>b. Troubleshoot AN/GRC-50A(V) (app A).</p> <p>c. Check and replace if necessary.</p>
8	Incorrect indication on TEST ALIGN meter of TD-202/U with METER SELECT switch at TO RADIO XMTR.	<p>a. Video level adjustment required on TD-202/U.</p> <p>b. Defective TD-202/U -----</p>	<p>a. Adjust OL control on panel 5A2 of TD-202/U (para 2-9).</p> <p>b. Troubleshoot TD-202/U (app A).</p>
9	Incorrect indication on TEST ALIGN meter of TD-202/U with METER SELECT switch at FROM RADIO XMTR. Order wire noisy.	<p>a. Video level adjustment required on TD-202/U.</p> <p>b. Defective TD-202/U -----</p>	<p>a. Adjust RL control on panel 5A3 of TD-202/U (para 2-9).</p> <p>b. Troubleshoot TD-202/U (app A).</p>
10	ALARMS FRAME indicator of TD-352/U alternately lights and extinguishes (drop and insert only).	<p>a. Defective CG-1040B/U cable from master TD-352/U to slave TD-352/U.</p> <p>b. Defective master or slave TD-352/U at distant terminal.</p>	<p>a. Check and replace if necessary.</p> <p>b. Request distant terminal troubleshooting.</p>

c. Cable Terminal Troubleshooting Chart.

Item No.	Symptom	Possible trouble	Corrective measure
1	ALARMS FRAME indicator of TD-352/U lights, buzzer sounds, and TEST ALIGN meter indicates in green area with METER SELECT switch at PCM IN and TIMING IN.	<p>a. Defective TD-352/U -----</p> <p>b. Distant TD-204/U generating dummy train due to missing pcm signal input.</p>	<p>a. Troubleshoot TD-352/U (app A).</p> <p>b. Request distant terminal or repeater troubleshooting.</p>

Item No.	Symptom	Possible trouble	Corrective measure
2	ALARMS FRAME indicator of TD-352/U lights, buzzer sounds, and TEST ALIGN meter does not indicate in green area with METER SELECT switch at PCM IN and/or TIMING IN. TD-204/U operates normally. Order wire normal.	a. Defective CG-1040B/U cable between TD-352/U and TD-204/U. b. Defective TD-204/U	a. Check and replace if necessary. b. Troubleshoot TD-204/U (app A).
3	ALARMS FRAME indicator of TD-352/U and ALARM TRAFFIC indicator of TD-204/U light, buzzer sounds, and order wire normal.	a. Defective pcm component at distant terminal or repeater. b. Defective TD-206/G in cable link.	a. Request distant terminal or repeater troubleshooting. b. Troubleshoot cable link (para 4-7).
4	No order wire, but all other indications on TD-352/U and TD-204/U are normal.	a. Defective TD-204/U b. Defective TD-204/U at distant terminal or repeater.	a. Troubleshoot TD-204/U (app A). b. Keep TD-204/U operating. Periodically try order wire, and wait response. Send man to distant terminal or repeater.
5	ALARMS FRAME indicator of TD-352/U and ALARMS TRAFFIC indicator of TD-204/U light, buzzer sounds, and no order wire.	a. Defective TD-206/G in cable link. b. Defective transmission cable in cable link. c. Defective TD-204/U d. Defective TD-204/U at distant terminal or repeater.	a. Troubleshoot cable link (para 4-7). b. Troubleshoot cable link (para 4-7). c. Troubleshoot TD-204/U (app A). d. Keep TD-204/U operating. Periodically try order wire, and wait response. Send man to distant terminal or repeater.
6	ALARMS FRAME indicator of TD-352/U, ALARMS TRAFFIC indicator of TD-204/U, ALARMS NO CABLE CURRENT indicator light and buzzer sounds. No order wire available.	Open transmission cable (both directions) in cable link.	Troubleshoot cable link (para 4-7).
7	ALARMS NO CABLE CURRENT indicator on TD-204/U lights and buzzer sounds. Order wire normal.	a. Momentary overcurrent or undercurrent in cable link. b. Defective TD-204/U	a. Operate CABLE POWER switch to OFF and then to ON. b. Troubleshoot TD-204/U (app A).
8	ALARMS NO CABLE CURRENT indicator of TD-204/U lights. No order-wire transmission.	Open transmission cable (send side) in cable link.	Troubleshoot cable link (para 4-7).
9	Distant terminal indicates loss of pcm. All local indications are normal.	Defective TD-206/G in cable link.	Troubleshoot cable link (para 4-7).
10	Switchboard operator indicates loss of a specific channel or only one-way communication on a specific channel. All local indications are normal.	a. Defective TD-352/U b. Defective CV-1548/G c. Defective CX-7870/TCC between CV-1548/G and TD-352/U.	a. Troubleshoot TD-352/U (app A). b. Troubleshoot CV-1548/G (app A). c. Check and replace if necessary.

Item No.	Symptom	Possible trouble	Corrective measure
11	Switchboard operator reports high noise level, distortion or hum on all channels, but all local indications are normal.	d. Defective field wire in line. e. Defective TD-352/U or CV-1548/G at distant terminal. a. Defective TD-352/U ----- b. Defective TD-352/U at distant terminal.	d. Check and repair as required. e. Request distant terminal troubleshooting. a. Troubleshoot TD-352/U (app A). b. Request distant terminal troubleshooting.
12	Order wire garbled and noisy; all other indications normal.	Defective TD-204/U -----	Troubleshoot TD-204/U (app A).
13	No indication on TEST ALIGN meter of TD-352/U with METER SELECT switch at PCM FROM AUX (secure operation only).	a. Defective cables between TSEC/KG-5 and TD-352/U. b. Defective TSEC/KG-5 -----	a. Check and replace if necessary. b. Troubleshoot TSEC/KG-5.
14	All channels are noisy and all other indications are normal (secure operation only).	Defective TSEC/KG-5 -----	Troubleshoot TSEC/KG-5.
15	No indication on TEST ALIGN meter of slave TD-352/U with METER SELECT switch at SYNC IN (24-channel operation).	a. Defective CG-1040B/U cable between master TD-352/U and slave TD-352/U. b. Defective master TD-352/U. c. Defective slave TD-352/U ---	a. Check and replace if necessary. b. Troubleshoot master TD-352/U (app A). c. Troubleshoot slave TD-352/U (app A).
16	Switchboard operator indicates that no signaling is available on any two-wire channel.	Defective CV-1548/G -----	Troubleshoot CV-1548/G (app A).
17	High noise level on all channels but all other indications are normal.	a. Defective TD-204/U ----- b. Defective TD-206/G in cable link. c. Defective TD-204/U at distant terminal or repeater.	a. Troubleshoot TD-204/U (app A). b. Troubleshoot cable link (para 4-7). c. Request distant terminal or repeater troubleshooting.
18	ALARMS FRAME indicator on slave TD-352/U alternately lights and extinguishes (24-channel operation).	a. Defective CG-1040B/U cable from master TD-352/U to slave TD-352/U. b. Defective master or slave TD-352/U at distant terminal.	a. Check and replace if necessary. b. Request distant terminal troubleshooting.
19	Incorrect indication on TEST ALIGN meter of TD-204/U with METER SELECT switch at SERV FAC and SERV SEL switch at RCC.	Cable current adjustment required at distant terminal or repeater.	Request cable current adjustment at distant terminal or repeater.
20	Distant terminal or repeater request cable current adjustment. TEST ALIGN meter of local TD-204/U does not indicate in yellow area with METER SELECT switch at CABLE I.	Cable current adjustment required.	Adjust CABLE CURRENT ADJ control for center hairline indication in yellow area of TEST ALIGN meter.
21	TEST ALIGN meter does not give correct indication with METER SELECT switch at CABLE V.	Shorted transmission cable in cable link.	Troubleshoot cable link (para 4-7).

d. Cable Repeater Troubleshooting Chart.

Item No.	Symptom	Possible trouble	Corrective measure
1	ALARMS TRAFFIC indicator on TD-204/U lights, buzzer sounds, and order wire is normal.	a. Defective TD-206/G in cable link. b. Defective TD-204/U ----- c. Defective pcm component at distant terminal or repeater.	a. Troubleshoot cable link (para 4-7). b. Troubleshoot TD-204/U (app A). c. Request distant terminal or repeater troubleshooting.
2	Distant terminal or repeater indicates loss of pcm. No indication on TEST ALIGN meter of local TD-204/U with METER SELECT switch at TIMING IN. Other TD-204/U has no alarms.	a. Defective CG-1040B/U cable between TD-204/U's. <i>Note.</i> In 24-channel operation, if TEST ALIGN meter of TD-204/U indicates loss of either PCM IN-1 of PCM IN-2, check associated CG-1040B/U cable. At 24-channel drop and insert repeater, check associated TD-352/U. b. Other TD-204/U defective (no timing out).	a. Check and replace if necessary. b. Troubleshoot TD-204/U (app A).
3	Distant terminal indicates out of frame pcm. No indication on TEST ALIGN meter of local TD-204/U with METER SELECT switch at PCM IN-1. Other TD-204/U has no alarms.	a. Defective CG-1040B/U cable between TD-204/U's. b. Other TD-204/U defective (no pcm out).	a. Check and replace if necessary. b. Troubleshoot TD-204/U (para 4-7).
4	ALARMS TRAFFIC indicator of TD-204/U lights, buzzer sounds, and no order wire.	a. Defective TD-206/G in cable link. b. Defective transmission cable in cable link. c. Defective TD-204/U ----- d. Defective TD-204/U at distant terminal or repeater.	a. Troubleshoot cable link (para 4-7). b. Troubleshoot cable link (para 4-7). c. Troubleshoot TD-204/U (app A). d. Keep TD-204/U operating. Periodically try order wire and wait response. Send man to distant terminal or repeater.
5	ALARMS TRAFFIC indicator of TD-204/U and ALARMS NO CABLE CURRENT indicator light and buzzer sounds. No order wire available.	Open transmission cable (both directions) in cable link.	Troubleshoot cable link (para 4-7).
6	ALARMS NO CABLE CURRENT indicator on TD-204/U lights and buzzer sounds. Order wire is normal.	a. Momentary overcurrent or undercurrent in cable link. b. Defective TD-204/U -----	a. Operate CABLE POWER switch to OFF and then to ON. b. Troubleshoot TD-204/U (app A).
7	ALARMS NO CABLE CURRENT indicator on TD-204/U lights. No order-wire transmission.	Open transmission cable (send side) in cable link.	Troubleshoot cable link (para 4-7).
8	Distant terminal or repeater indicates loss of pcm. All local indications are normal.	Defective TD-206/G in cable link.	Troubleshoot cable link (para 4-7).
9	Switchboard operator at distant terminal reports high noise level, but all local indications are normal.	Defective TD-204/U -----	Troubleshoot TD-204/U (app A).

d. Cable Repeater Troubleshooting Chart—(Continued)

Item No.	Symptom	Possible trouble	Corrective measure
10	Order wire garbled and noisy; all other indications normal.	Defective TD-204/U	Troubleshoot TD-204/U (app A).
11	Through order-wire communications not available, but all other indications are normal.	Defective CX-7872/TCC cable between TD-204/U's.	Check and replace if necessary.
12	Order wire not available; all other indications normal.	a. Defective associated TD-204/U. b. Defective distant TD-204/U.	a. Troubleshoot TD-204/U (app A). b. Request distant terminal or repeater troubleshooting.
13	Distant terminal indicates out of frame pcm; all local indications are normal.	a. Defective TD-206/G in cable link. b. Defective TD-204/U	a. Troubleshoot cable link (para 4-7). b. Troubleshoot TD-204/U (app A).
14	ALARMS FRAME indicator of TD-352/U alternately lights and extinguishes (drop and insert only).	a. Defective CG-1040B/U cable from master TD-352/U to TD-204/U. b. Defective master or slave TD-352/U at distant terminal.	a. Check and replace if necessary. b. Request distant terminal troubleshooting.
15	Incorrect indication on TEST ALIGN meter of TD-204/U with METER SELECT switch at SERV FAC and SERV SEL switch at RCC.	Cable current adjustment required at distant terminal or repeater.	Request cable current adjustment at distant terminal or repeater.
16	Distant terminal or repeater requests cable, current adjustment. TEST ALIGN meter of local TD-204/U does not indicate in yellow area with METER SELECT switch at CABLE I.	Cable current adjustment required.	Adjust CABLE CURRENT ADJ control for center hairline indication in yellow area of TEST ALIGN meter.
17	TEST ALIGN meter does not give correct indication with METER SELECT switch at CABLE V.	Shorted transmission cable in cable link.	Troubleshoot cable link (para 4-7).

e. Loopback Checks. Output circuits of the pcm components may be looped back to the input circuits to verify isolation of troubles in a system. The loopback checks must be coordinated with the distant terminal or repeater whenever possible. Determine which side of the component to check, perform the special

conditions, and connect the cables as required. Check the component by operating METER SELECT switch through its positions (para 4-5) and observing the various indications. When the loopback checks are complete, reconnect the cables for the system requirements.

Component	System side	Special conditions	Connection	
			From	To
TD-202/U	Pcm	None	PCM OUT-1 PCM OUT-2 TIM OUT-1	PCM IN-1 PCM IN-2 TIM IN
	Radio	OPR-TEST switch at TEST	FROM RADIO RCVR	TEST OUT

e. Loopback Checks—(Continued)

Component	System side	Special conditions	Connection	
			From	To
TD-204/U	Pcm	None	PCM OUT-1 PCM OUT-2 TIM OUT-1	PCM IN-1 PCM IN-2 TIM IN
	Cable	MILES switches at ½ CABLE POWER switch at OFF SYSTEM video connectors connected together instead of to transmission cable.	TO CABLE	FROM CABLE
TD-352/U	Pcm	None	PCM OUT TIM OUT	PCM IN TIM IN

4-7. Cable Link Troubleshooting

a. Order Wire Available With No Pcm or Shorted Transmission Cable.

- (1) Disconnect the CG-1040B/U cable from the PCM IN-1 connector of the TD-204/U.
- (2) Operate the TD-204/U METER SELECT switch to SERV FAC.
- (3) Loosen the TD-204/U front panel screws, press the PUSH TO RELEASE CHASSIS button, and pull the front panel forward.
- (4) Operate the TD-204/U SERV SEL switch to R.
- (5) Operate the TD-204/U NORM OPR-ZERO SET-READ switch to ZERO SET.
- (6) Adjust the ZERO SET control for a center hairline indication on the TEST ALIGN meter.
- (7) Operate the TD-204/U NORM OPR-ZERO SET-READ switch to READ.
- (8) Operate the TD-204/U SYSTEM FAULT LOCATOR MILES switches for a center hairline indication on the TEST ALIGN meter (as close as possible).
- (9) From the positions of the SYSTEM FAULT LOCATOR MILES switches, determine the number of good TD-206/G's between the TD-204/U and the defective cable section or TD-206/G.
- (10) Operate the TD-204/U SYSTEM

FAULT LOCATOR MILES switches to 0 and the NORM OPR-ZERO SET-READ switch to NORM OPR.

- (11) Slide the TD-204/U front panel back until it locks into place and tighten the front panel screws.
- (12) Operate the TD-204/U CABLE POWER switch at each end of the cable link to OFF.
- (13) Send a lineman out to troubleshoot with Test Set, Telephone AN/PTM-7.
Warning: Do not operate the TD-204/U CABLE POWER switch at either end of the cable link unless requested by the lineman. If the CABLE POWER switch is at ON, voltages as high as 1,100 volts may be present in the transmission cable.
- (14) Coordinate with the lineman to troubleshoot and make the necessary replacement (cable section or TD-206/G).

b. Order Wire Available With Pcm Out of Frame or Noise on All Channels.

- (1) Operate the TD-204/U CABLE POWER switch at each end of the link to OFF.
- (2) Send a lineman out to the TD-206/G at the midpoint in the cable link with the AN/PTM-7 and instruct him to connect into the cable link.
- (3) When order wire is established with the lineman, instruct him to per-

form the loopback check with the AN/PTM-7.

Warning: Do not operate the TD-204/U CABLE POWER switch to ON at either end of the cable link unless requested by the lineman. If the CABLE POWER switch is operated to ON, voltages as high as 1,100 volts may be present in the transmission cable.

- (4) Operate the CABLE POWER switch to ON at both ends of the cable link and check to see which end of the cable link has an ALARMS FRAME indicator lighted on the terminal equipment (TD-352/U) or noise on all channels.
- (5) When the indications are obtained, operate the TD-204/U CABLE POWER switch at each end of the link to OFF.
- (6) Instruct the lineman to substitute another TD-206/G in the cable link. When the substitution is complete, operate the CABLE POWER switches to ON and check to see if the trouble still exists.
- (7) If the trouble is not corrected, instruct the lineman to replace the original TD-206/G in the cable link and proceed to a TD-206/G halfway between his position and the end of the cable link that reported a frame alarms or noise on all channels during the first loopback check ((4) above).
- (8) Perform the procedures given in (3) through (6) above at the next TD-206/G. If the trouble is not corrected, instruct the lineman to replace the original TD-206/G and continue the troubleshooting procedures until the defective TD-206/G is located.

c. No Order Wire or Pcm Available. When the TD-204/U ALARMS NO CABLE CURRENT indicator immediately lights after the CABLE POWER switch is operated to OFF and then to ON, the transmission cable is open. Perform the following procedures to locate the defective cable section.

Note. If the TD-204/U ALARMS NO CABLE CURRENT indicator remains extinguished after the CABLE POWER switch is operated to OFF and then to ON, the transmission cable is shorted. Perform the procedures given in *a* above to locate the defective cable section.

- (1) Operate the TD-204/U CABLE POWER switch to OFF.
- (2) Disconnect the cable from the TD-204/U TO CABLE connector and connect it to Test Set TS-27B/TSM.
- (3) Measure the capacitance of the cable with the TD-27B/TSM and translate the indication into the distance to the fault (fig. 4-1).
- (4) If the indicated distance exceeds 10 miles, send a lineman out to the 10-mile point to repeat the measurement.
- (5) Instruct the lineman to use the AN/PTM-7 at the cable connection nearest the fault to locate the distance to the fault.

Note. When the fault is located in a section of the cable link where two cable sections join, use the AN/PTM-7 order-wire facility to determine which cable section is at fault.

- (6) When the fault is located, replace the cable section.

4-8. Shelter Facility Troubleshooting

a. General. Replacement and repair of components and parts for the AN/TRC-117(V) are authorized for the various levels of maintenance personnel as indicated in section II of the maintenance allocation chart (app C). The tools and test equipment required are listed in section III of the maintenance allocation chart. The troubleshooting information in the troubleshooting chart (*b* below) is based on symptoms that would be obtained while performing the operator's daily preventive maintenance checks and services (para 4-2) and organizational monthly preventive checks and services (para 4-3). When an abnormal symptom is obtained, locate the symptom in the troubleshooting chart and perform the corrective measure indicated, as authorized in the maintenance allocation chart. If the corrective measure does not correct the trouble, replace the component and refer the defective component to higher category maintenance.

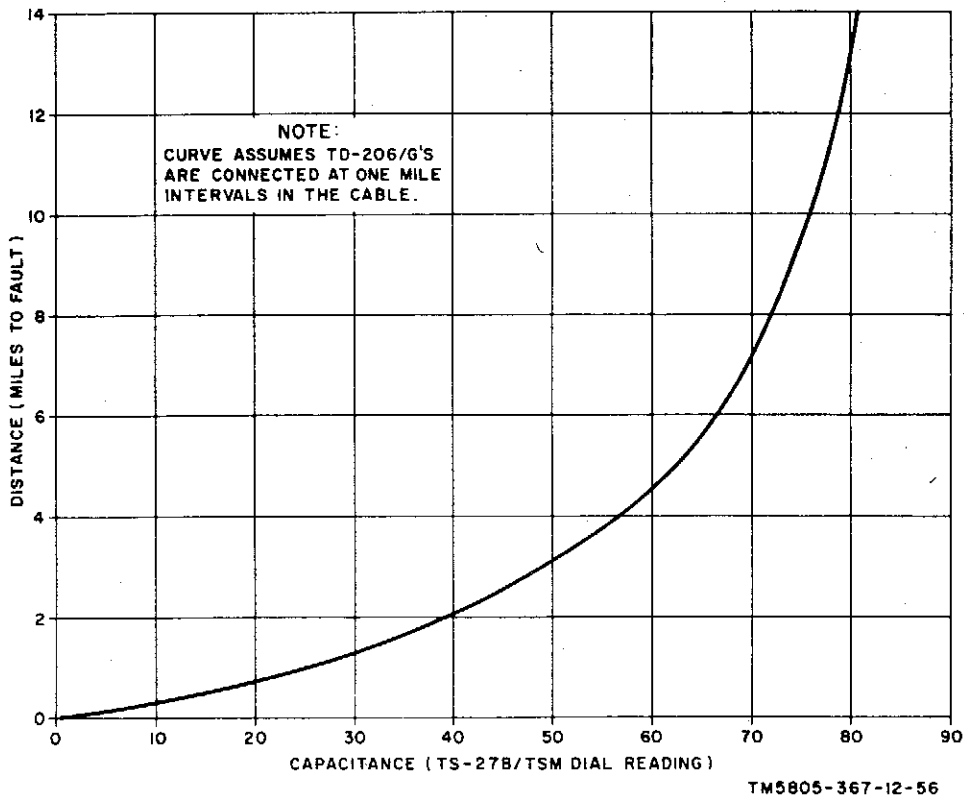


Figure 4-1. Test Set TS-27B/TSM, CX-4245/G transmission cable capacitance-distance curve.

b. Troubleshooting.

Item No.	Symptom	Probable trouble	Corrective measure
1	POWER INDICATOR neon light fails to glow when power is applied to assemblage.	a. Defective lamp ----- b. Defective power cable ----- c. Defective POWER 115V AC IN receptacle. <i>Note.</i> If immediate operation is required, and POWER 115V OUT receptacle is not used to power another assemblage, use POWER 115V AC OUT receptacle for input power.	a. Replace lamp. b. Check and repair or replace as required. c. Replace receptacle.
2	VOLTS A. C. meter indicates 0 volt when power is applied to assemblage and MAIN circuit breaker is operated to ON.	a. Defective MAIN circuit breaker. b. Defective VOLTS A.C. meter.	a. Replace circuit breaker. b. Replace meter.
3	Glowlamp fails to glow when associated circuit breaker is operated to ON.	a. Defective glowlamp ----- b. Defective circuit breaker ----	a. Replace glowlamp. b. Replace circuit breaker.
4	Fluorescent ceiling lights do not operate when FLUORESCENT LIGHTS switch is operated to ON.	a. Defective BYPASS BLACK OUT switch. b. Defective LIGHTS circuit breaker on POWER DISTRIBUTION PANEL.	a. Replace switch. b. Replace circuit breaker.

b. Troubleshooting—(Continued)

Item No.	Symptom	Probable trouble	Corrective measure
5	Incandescent ceiling lamps do not light when INCANDESCENT COLD START LIGHTS switch is operated to ON.	a. Defective INCANDESCENT COLD START LIGHTS switch. b. Defective fixture or wiring.	a. Replace switch. b. Check and repair or replace as required.
6	Ceiling lights are not extinguished when door is opened and BYPASS BLACKOUT switch is at OFF.	a. Defective door microswitch. b. Defective BYPASS BLACKOUT switch.	a. Replace switch. b. Replace switch.
7	Exhaust blower fails to operate when BLOWER switch is operated to ON.	a. Defective exhaust blower b. Defective BLOWER switch or receptacle.	a. Check and repair or replace as required. b. Check and replace as required.
8	Both exhaust blowers fail to operate when BLOWER switches are operated to ON.	a. Defective BLOWERS circuit breaker. b. Defective ac wiring	a. Check and replace as required. b. Check and repair as required.
9	Heater fails to operate properly	a. Defective HEATER receptacle. b. Defective heater c. Defective HEATER circuit breaker. d. Defective ac wiring	a. Check and replace as required. b. Check and repair as required. c. Check and replace as required. d. Check and repair as required.
10	CN-514/GRC POWER indicator does not light when POWER circuit breaker is operated to ON.	a. Defective power cable to CN-514/GRC. b. Defective VOLT REG circuit breaker on POWER DISTRIBUTION PANEL c. Defective CN-514/GRC	a. Check and repair or replace as required. b. Replace circuit breaker. c. Check and repair or replace as required.
11	No ac power available from any CONVENIENCE receptacle.	Defective CONV circuit breaker on POWER DISTRIBUTION PANEL.	Replace circuit breaker.
12	Power indicator on overvoltage protection device does not light when POWER switch is operated to ON.	a. Defective power cable between CN-514/GRC and overvoltage protection device. b. Defective overvoltage protection device. c. Defective CN-514/GRC	a. Check and repair or replace as required. b. Check and repair or replace as required. c. Check and repair or replace as required.
13	No rack equipment operates with SYSTEM 1 and SYSTEM 2 circuit breakers, CN-514/GRC, and overvoltage protection device operating.	a. Defective circuit breaker b. Defective overvoltage protection device. c. Defective ac wiring	a. Check and repair or replace as required. b. Check and repair or replace as required. c. Check and repair or replace as required.
14	Local communications not available with LS-147C/FI.	a. Defective LS-147C/FI b. Defective wiring	a. Check and repair or replace as required. b. Check and repair or replace as required.
15	Local communication not available with TA-312/PT.	a. Defective TA-312/PT b. Defective wiring	a. Check and repair or replace as required. b. Check and repair or replace as required.

Section III. ORGANIZATIONAL REPAIR PROCEDURES

4-9. Component Removal and Replacement

a. Removal.

- (1) Operate the component AC POWER switch to OFF.
- (2) Disconnect the component power cord from the associated power receptacle.
- (3) Note, and disconnect all cables, cords, and leads from the component.
- (4) Loosen and remove the screws that secure the component to the equipment rack.
- (5) Slide the component forward, out of the rack, and place it on the floor of the assemblage.
- (6) If the component is to be replaced with another component, remove the screws that secure the mounting brackets to the sides of the component, and remove the brackets.
- (7) If the component is to be shipped or taken to another location, replace the cover and case associated with it.

b. Replacement.

- (1) Mount the brackets removed from the original component (a(6) above) to the replacement component.
- (2) Slide the replacement component into position in the rack.
- (3) Fasten the mounting brackets on the component to the equipment rack with the screws removed in a(4) above.
- (4) If the replacement component is supplied with a cover, remove it.
- (5) Connect the cables, cords, and leads removed from the original component to the replacement component.
- (6) Turn on the component in accordance with the applicable procedures in chapter 3 and perform the applicable daily preventive maintenance procedures in paragraph 4-2 and the component technical manual.

4-10. Electric Heater Repairs

a. Remove the heater from its mounting base and remove the cover plates to provide access to the interior of the heater .

b. Refer to the heater instruction plates for circuit details and identification of heater parts. Replace defective parts as authorized.

4-11. Exhaust Blower Repairs

(fig. 4-2)

Organizational repair of blowers is restricted to replacement of ac power cords and the blower motor and impeller.

a. Operate the appropriate BLOWER switch to OFF.

b. Remove the defective power cord, blower motor or impeller.

c. Refer to figure 4-2 to determine the correct connections for the required motor rotation and the required position of the impeller. Be sure that the concave portion of the impeller faces the air flow hole as indicated.

Note. If the replacement motor is provided with two mounting sides, install the motor so the capacitor side is facing the front wall.

4-12. POWER DISTRIBUTION PANEL Repairs

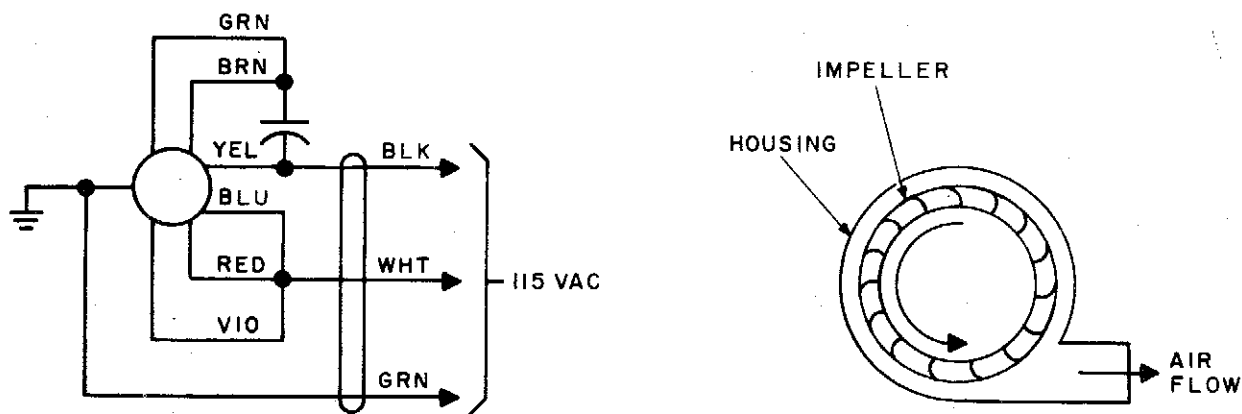
(fig. 4-3)

Warning: Before performing any POWER DISTRIBUTION PANEL repairs, disconnect the power cable from the POWER 115V AV IN receptacle in the POWER & SIGNAL ENTRANCE BOX.

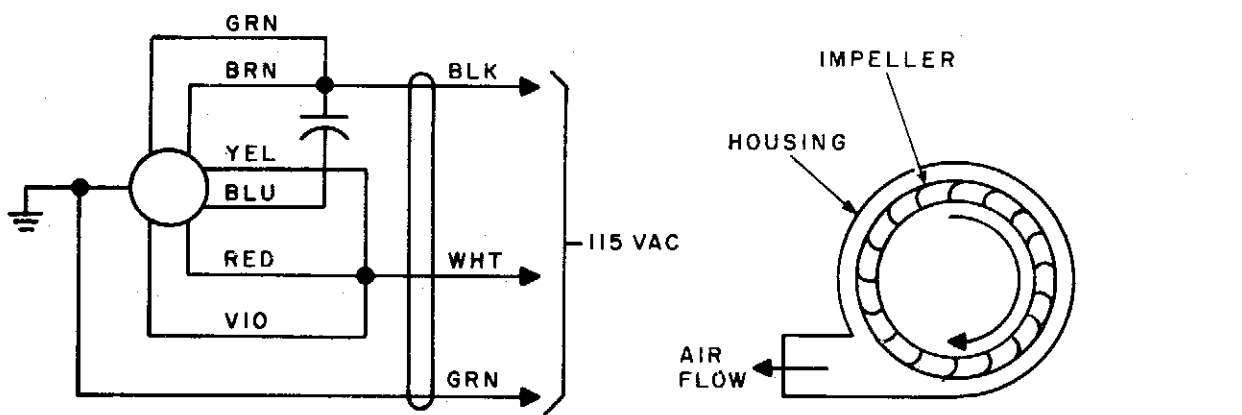
a. *Preliminary Procedures.* Remove the screws that secure the cover to the POWER DISTRIBUTION PANEL and remove the cover.

b. *Removal and Replacement of Circuit Breaker.*

- (1) Grasp the defective circuit breaker and pull it straight out from the panel.
- (2) Disconnect the wires connected to the circuit breaker.
- (3) Connect the wires to the appropriate terminals of the replacement circuit breaker.
- (4) Position the circuit breaker in the POWER DISTRIBUTION PANEL and firmly press it in place.



A. ROADSIDE (COUNTERCLOCKWISE).



B. CURBSIDE (CLOCKWISE).

NOTE:
DIRECTION OF ROTATION IS VIEWED FROM
MOTOR END OPPOSITE SHAFT.

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Figure 4-2. Blower motor connections and impeller installation diagram.

c. Removal and Replacement of Current Transformer.

- (1) Note and disconnect the black and white leads from the transformer terminals.
- (2) Remove the nuts and washers that secure the current transformer inside the panel, and remove the current transformer.

Note. Count the number of turns of heavy black wire through the center hole of the current transformer before proceeding to the next step.

- (3) Disconnect the black wire wound around the current transformer from the MAIN circuit breaker and carefully unwind the wire.

Caution: Be sure that the number of turns around the replacement current transformer is the same as that on the original transformer.

- (4) Wind the black wire around the replacement current transformer.
- (5) Reconnect the black wire to the MAIN circuit breaker.

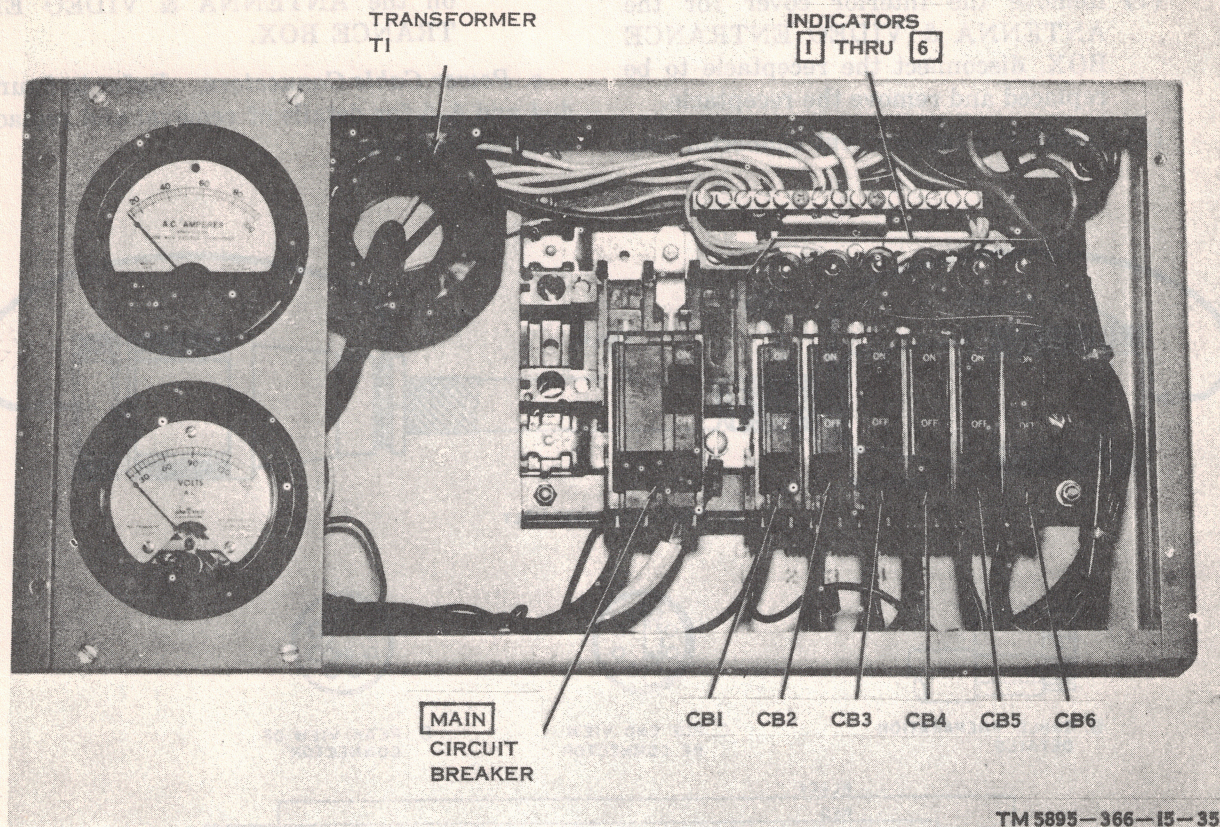


Figure 4-3. POWER DISTRIBUTION PANEL, interior details.

- (6) Position the current transformer inside the panel and secure it with the original nuts and washer.
- (7) Connect the black and white ammeter leads to the appropriate terminals of the transformer.

d. Removal and Replacement of Meters.

- (1) Note the color connections and remove the leads from the meter terminals.
- (2) Remove the bolts that secure the meter to the panel and lift the meter out.
- (3) Position the replacement meter in the panel and secure it with the original bolts.
- (4) Connect the leads to the appropriate terminals of the replacement meter.

4-13. Removal and Replacement of Power Cable and Entrance Box Connectors

a. Power Receptacles.

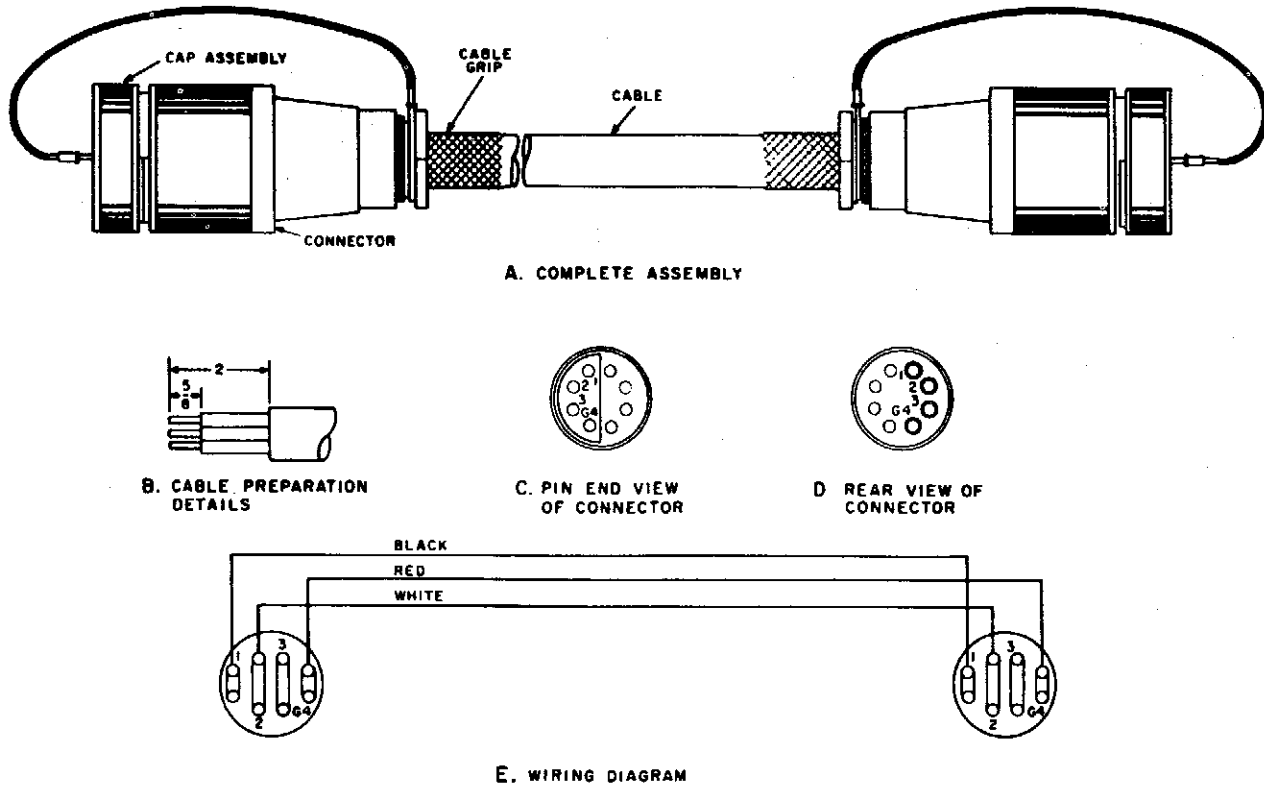
- (1) Disconnect the power cable from the POWER 115V AC IN receptacle in the POWER & SIGNAL ENTRANCE BOX.
- (2) Remove the interior cover of the POWER & SIGNAL ENTRANCE BOX, disconnect the wires from the appropriate receptacle, and remove the receptacle.
- (3) Install the replacement receptacle, connect the wires to the proper terminals of the receptacle, and replace the cover on the POWER & SIGNAL ENTRANCE BOX.

b. Antenna and Video Cable Receptacles.

- (1) Remove the interior cover for the ANTENNA & VIDEO ENTRANCE BOX, disconnect the receptacle to be replaced and remove the receptacle.
- (2) Install the replacement connector and

connect it. Replace the interior cover on the ANTENNA & VIDEO ENTRANCE BOX.

- c. Power Cable Connectors.* Refer to figures 4-4 and 4-5 for details of removal and replacement procedures.



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Figure 4-4. Power cable repair details.

Section IV. DS, GS, AND DEPOT MAINTENANCE

4-14. Scope of Direct Support and General Support Maintenance

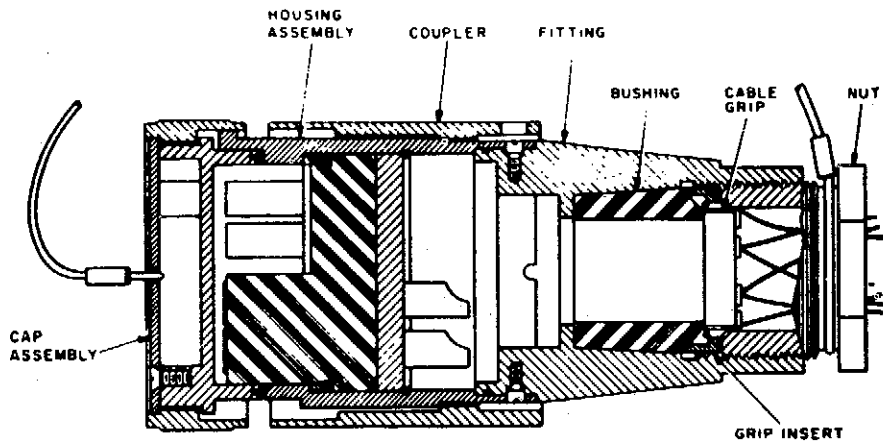
a. General. Direct and general support maintenance consists entirely of corrective maintenance procedures as indicated in the maintenance allocation chart (app C).

b. Tools and Test Equipment Required. The tools and test equipment required for direct and general support maintenance of the AN/TRC-117(V) are listed in section III of the maintenance allocation chart (app C).

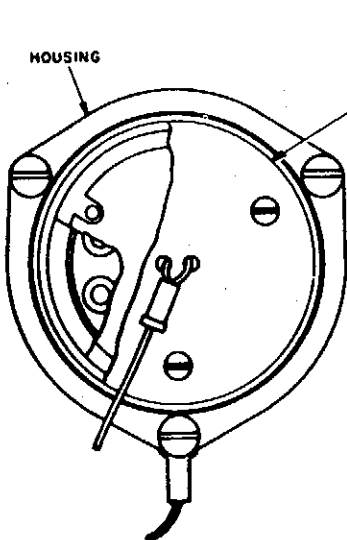
4-15. Direct Support Repair Procedures

a. Communications Equipment Repair. Refer to the applicable technical manual (app A) for instructions in performing direct support maintenance of the AN/GRC-50A(V), TD-202/U, TD-204/U, TD-352/U, CV-1548/G, LS-147C/FI, and TA-312/PT.

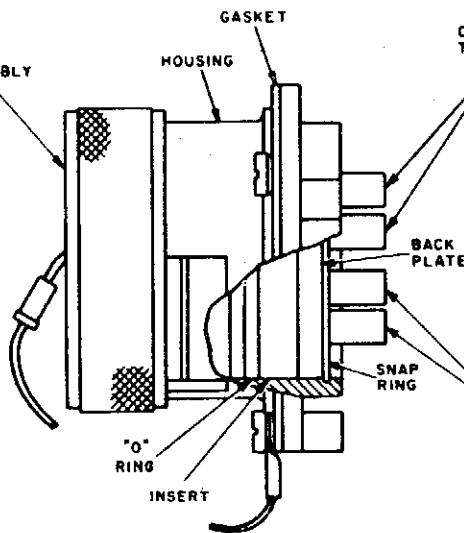
b. Shelter, Electrical Equipment S-330/TRC-117(V) Repairs. Direct support repair of the S-330/TRC-117(V) includes the following:



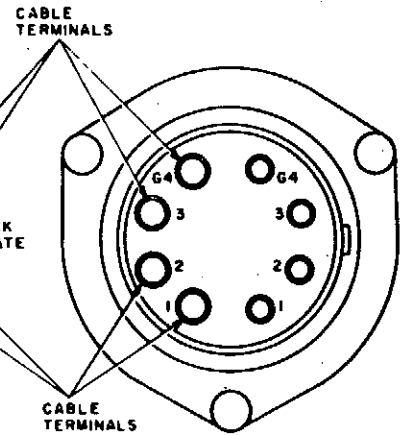
A. U-237/G, INTERIOR DETAILS



B. U-238/G, EXTERIOR VIEW



C. U-238/G, INTERIOR DETAILS



D. U-238/G, REAR VIEW

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Figure 4-5. Power cable connector and power receptacle assembly details.

- (1) Emergency repairs of holes and minor structural damage to the shelter facility.
- (2) Removal and replacement of the door handle and latchbolt assemblies, entrance door filter, and cover assemblies and gaskets for the blower vents and the entrance boxes.

Note. Refer to TB SIG 354 for additional information on direct support maintenance of the shelter facility.

c. *Overvoltage Protection Device* (figs. 4-6 and 4-7). Remove the cover from the overvoltage protection device, and then perform the required troubleshooting and repair procedures.

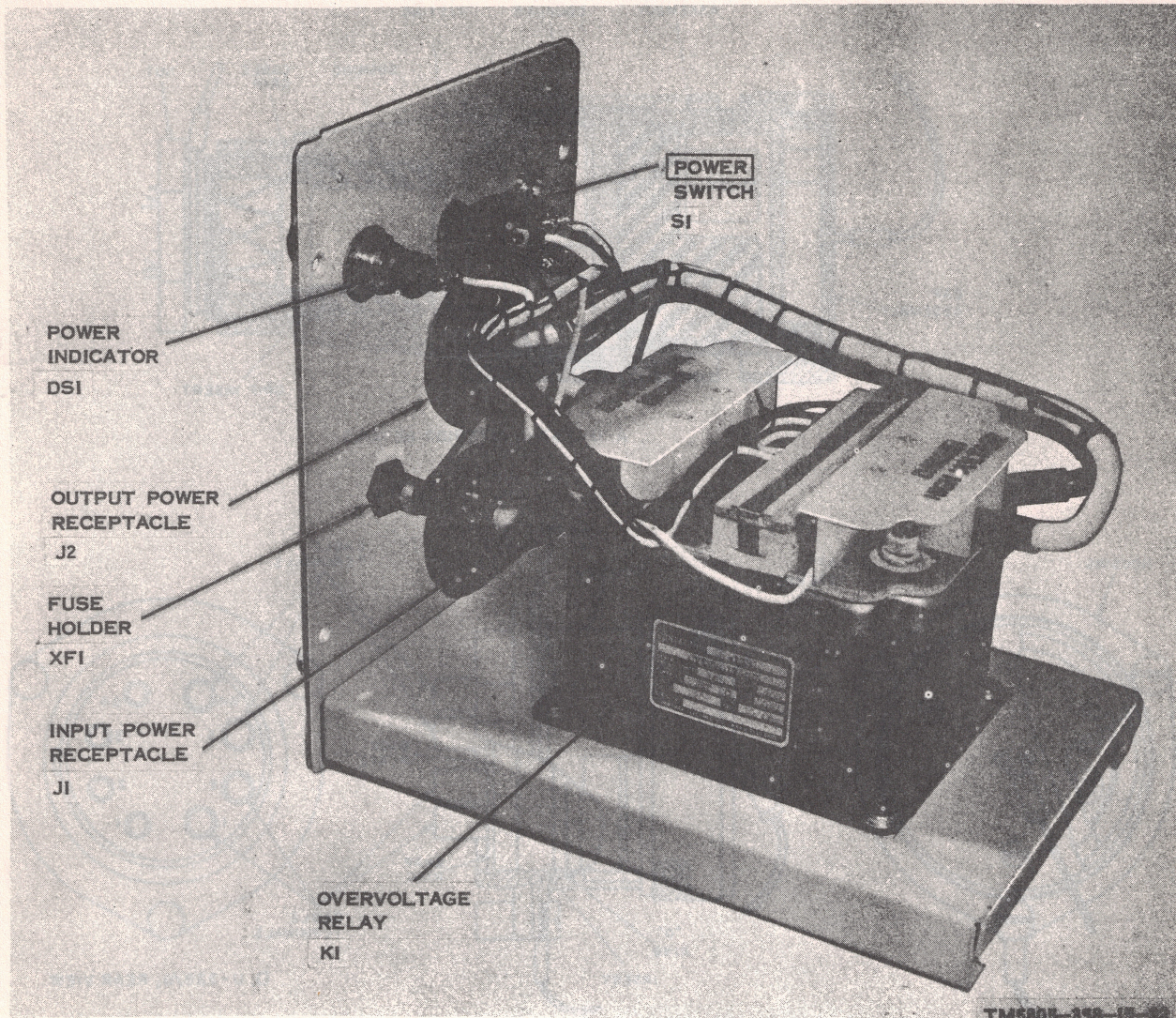


Figure 4-6. Overvoltage protection device, parts location.

4-16. General Support Repair Procedures

a. *Communication Equipment Repair.* Refer to the applicable technical manual (app A) for instructions on performing general support maintenance on the communications equipment in the assemblage.

b. *Shelter, Electrical Equipment S-330/TRC-117(V) Repair.* General support maintenance of the S-330/TRC-117(V) includes replacement of doors and skids, and permanent repair of holes and major structural damage to the shelter. Refer to TB SIG 354 for further

information on general support maintenance of the shelter facility.

c. *Removal of 26-Pair Receptacle* (fig. 4-8).

- (1) Remove the screws that secure the cover to the rear of the SIGNAL ENTRANCE BOX.
- (2) Remove the cover from the defective 26-pair receptacle.
- (3) Remove the mounting screws that secure the insert clip to the housing.
- (4) Unfasten the cable clip that secures the cable form.

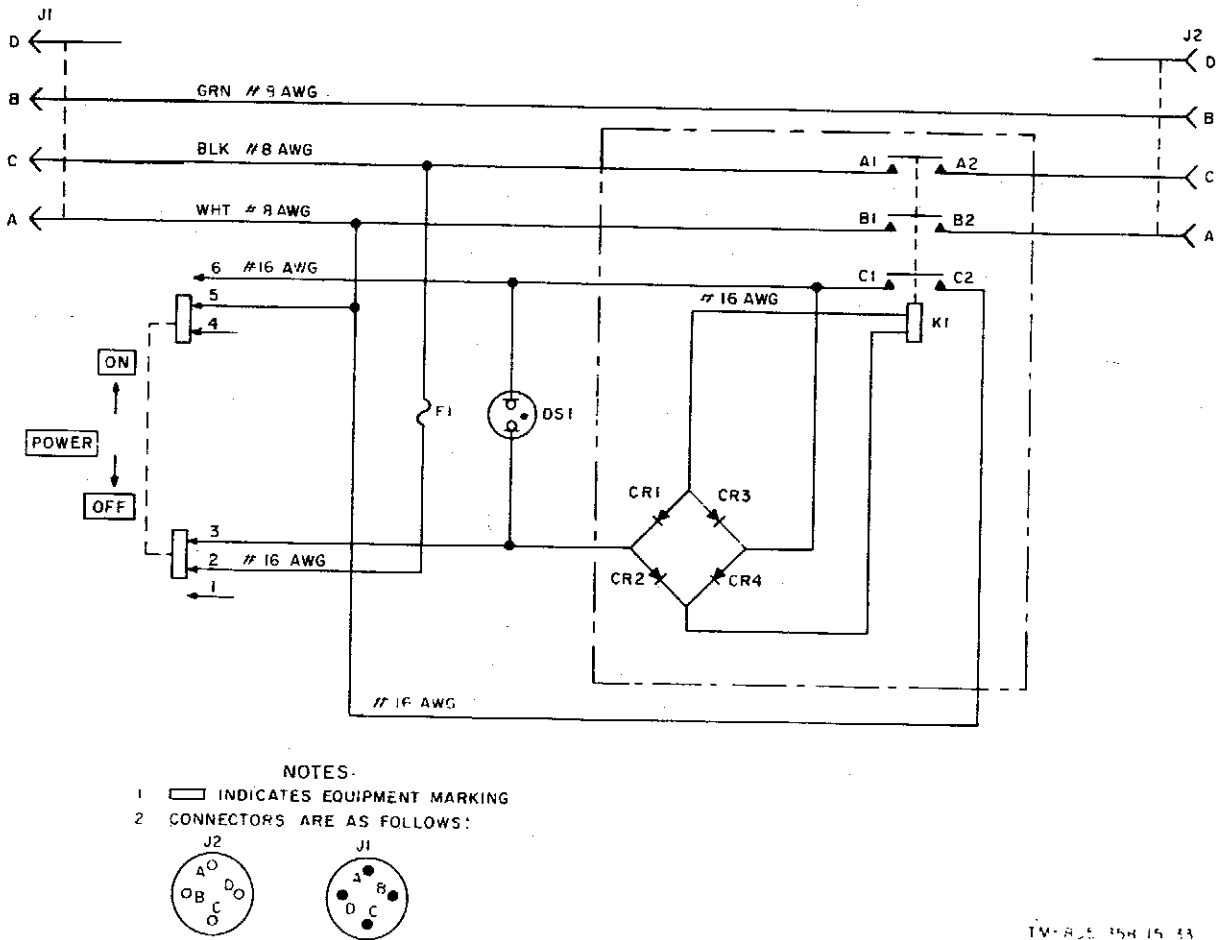


Figure 4-7. Overvoltage protection device, schematic-wiring diagram.

Caution: Be extremely careful when connecting and soldering wires to the receptacle insert. Excessive heat or pressure will damage the receptacle insert.

- (5) Lift the receptacle insert out of the housing; tag and unsolder the wires.
- (6) Remove the mounting screws and remove the housing.

d. Replacement of 26-Pair Receptacle (fig. 4-8).

- (1) Position the housing and secure it to the SIGNAL ENTRANCE BOX.

Caution: Be extremely careful when connecting and soldering wires to the receptacle insert. Excessive heat or

pressure will damage the receptacle insert.

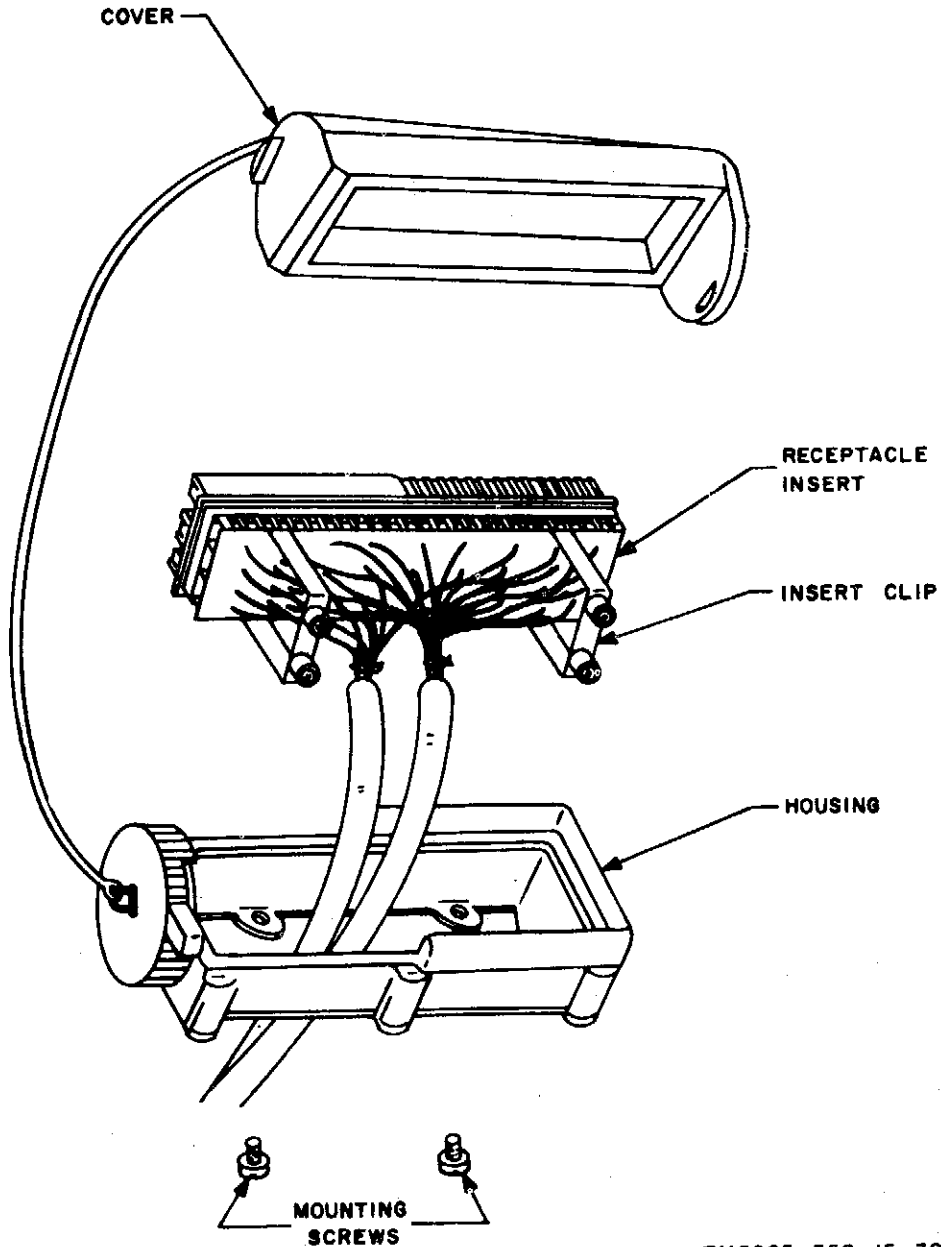
- (2) Slide the end of the cable form out through the housing and connect the wires to the receptacle insert.

Caution: Be careful not to damage the wires when replacing the receptacle insert mounting screws.

- (3) Position the receptacle insert and insert slips in the housing; secure the insert clips with the mounting screws.
- (4) Secure the cable form by fastening the cable clip.
- (5) Install the cover on the housing.
- (6) Position and secure the rear cover on the SIGNAL ENTRANCE BOX.

e. Removal of 26-Pair Cable Connectors (fig. 4-9).

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



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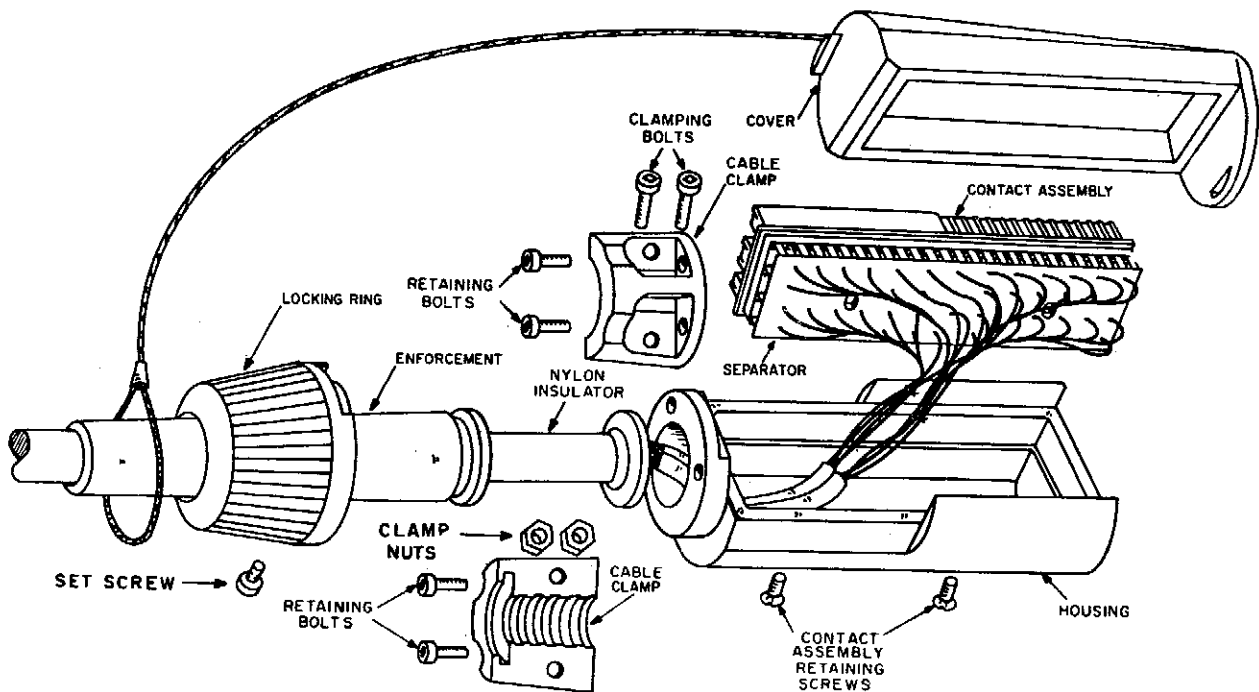
Figure 4-8. SIGNAL ENTRANCE BOX 26-pair receptacle, exploded view.

- (7) Slide the separator away from the contact assembly.
- (8) Tag and disconnect the leads.
- (9) Remove the separator and slide the housing off the cable.
- (10) Slide the nylon insulator, enforcement, locking ring, and cover off the cable.

f. Replacement of 26-Pair Cable Connectors (fig. 4-9).

- (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.
- (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 the 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 setscrew.
- (12) Replace the cover.



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Figure 4-9. Twenty-six pair cable connector, exploded view.

4-17. Depot Maintenance

Depot maintenance of the AN/TRC-117(V) includes major repair and overhaul of the equipment components and the shelter facility.

Refer to the applicable technical manual for the individual equipment components for depot overhaul standards and procedures.

CHAPTER 5

SHIPMENT AND LIMITED STORAGE AND DEMOLITION
TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

5-1. Preliminary Procedures

a. Turn off all operating equipment according to the stopping procedures in paragraph 3-9.

b. Turn off blowers and heaters. Store the heaters in the racks provided in the assemblage.

c. Lower and secure the desk top.

d. Check to see that all equipments are secure in their racks.

e. Remove the mounting straps and fixtures from the storage cabinets for use in securing the assemblage equipment.

f. Remove the batteries from the TA-312/PT and the hand lantern for prolonged storage or long distance shipment.

g. Secure all items on the common items panel with the clamps provided and mount the wastebasket in its bracket.

h. Place all miscellaneous items in the storage cabinets.

5-2. Disassembly of Antenna System

a. *Removing Mast Sections From Mast AB-577/GRC.*

- (1) Unlock the snubber clamps on the upper and middle guys and release the tension on the guys.
- (2) Rotate the snubber adjustment to the closed position.
- (3) Release the handbrake and raise the mast sections to the upper limit. Lock the handbrake.
- (4) Release the six catches on the launcher and remove the mast section carrier.

Place the carrier in a convenient place, close to the mast.

- (5) Install the spanner wrench in the launcher as a foot lever.
- (6) Release the handbrake and operate the winch to lower the bottom mast section.
- (7) Depress the foot lever (step on it) and lock the handbrake.
- (8) Release the clamp-opening tool (secured to the angle bracket under the top plate of the launcher frame) by removing the locking pin.
- (9) Unlock the mast section clamp with the tool. Operate the winch to lower the elevator to the base of the launcher.
- (10) Remove the bottom mast section and place it in the mast section carrier. Remove the mast section clamp and place it in the storage bag.
- (11) Disconnect the CG-1859/U from the receptacle in the ANTENNA & VIDEO ENTRANCE BOX. Remove the UG-1374/U from the CG-1859/U and store it in the pouch on Reel, Cable RC-436/GRC.
- (12) Operate the winch to raise the elevator platform to the bottom of the next mast section.
- (13) Repeat the procedures given in (6), (7), (9), (10), and (12) above for the next two mast sections.
- (14) Lower the next mast section above halfway and lock the handbrake.
- (15) Climb up the back of the launcher and remove the middle guys from the

middle guy ring. Remove the guy ring. Store the guy ring and the middle guys in the accessory bag.

- (16) Repeat the procedures given in (6), (7), (9), (10), and (12) above until all but the top mast section are removed.
- (17) Lower the last mast section until the top of the mast is about 12 inches from the top of the launcher frame. Lock the handbrake.

b. Lowering Launcher.

- (1) Climb up the back of the launcher and release the cables from the AT-903/G. Finish coiling the cables on the RC-436/GRC and place the UG-1374/U in the pouch.

Note. If the AB-957/GRC is used, remove the cables from both AT-903/G's.

- (2) Remove the three top guys from the top guy ring.
- (3) Remove the spanner wrench from the launcher base.
- (4) Unlock the snubber clamps on the launcher guys and release the tension on the guys. Remove the guy on the open side of the launcher.
- (5) Remove the GP-2 stakes from the launcher base by rocking the launcher to loosen them and pulling them straight out.
- (6) Move the mast section carrier to a position behind the launcher so that the launcher will lie on the carrier when it is lowered.
- (7) Insert two GP-2 stakes in the base of the launcher to act as a hinge, and drive two GP-2 stakes into the ground next to them to prevent the launcher from slipping while it is being lowered.
- (8) Lower the launcher until it is resting on the mast section carrier and remove the guys from the launcher. If the AB-957/GRC is used, remove the guys from the ends of the AB-957/GRC and from the free-moving AT-903/G.

c. Removing AT-903/G's and AB-957/GRC.

- (1) If the AB-957/GRC is used, remove both AT-903/G's from the antenna mounts, remove the AB-957/GRC from the antenna adapter, and remove the adapter from the top mast section.
- (2) Release the handbrake and remove the last mast section through the top of the launcher. Store the mast section in the mast section carrier.
- (3) Operate the winch to raise the elevator platform to the upper limit. Insert the locking pin in the rear of the elevator platform. Secure the handbrake.
- (4) Position the clamp-opening tool over the angle bracket under the top plate of the launcher and insert the pin in place to secure the tool in position.

d. Disassembly of Launcher.

- (1) Remove the GP-2 hinge stakes at the base of the launcher.
- (2) Remove the winch from the launcher frame and secure it in the accessory bag.
- (3) Lift the launcher off the mast section carrier and place it on the ground.
- (4) Place the mast section carrier in the launcher and lock the six catches.

e. Removal of Guys and Stakes.

- (1) Remove all of the guys from the stakes. Coil the guys and store them in the accessory bag.
- (2) Remove the stakes from the ground, and clean them.
- (3) Store the GP-133/G stakes in the brackets in the assemblage. Store the GP-2 and GP-112/G stakes in the accessory bag.

5-3. Packing Assemblage

(fig. 5-1)

Pack the assemblage in the order given below to avoid confusion and prevent having to remove it after it is in place.

a. Packing Masts AB-577/GRC.

- (1) If the AN/TRC-117(V) is truck-

mounted, attach the loading chute to the center of the truck tailgate.

Warning: Each Mast AB-577/GRC weighs over 200 pounds and is difficult to handle in the limited space inside the assemblage. At least two men should handle each AB-577/GRC.

- (2) Move chairs and other items on the floor of the assemblage out of the way before carrying the AB-577/GRC's into the assemblage.
- (3) Carry the first AB-577/GRC into the assemblage (top first) and place it on the floor against the curbside wall in the front corner. The opening in the top of the launcher will fit over the bracket on the front wall. Secure the AB-577/GRC in place.
- (4) Carry the second AB-577/GRC into the assemblage (top first). Secure the second AB-577/GRC into place above the first.
- (5) Secure the accessory bags on top of the second AB-577/GRC.

b. Antennas AT-903/G and Floor-Mounted Equipment.

- (1) Mount the AT-903/G's in the brackets on the roadside wall of the assemblage.
- (2) Mount Reels, Cable RC-436/GRC with the brackets supplied.
- (3) Remove the loading chute from the tailgate and secure it in place on the floor of the assemblage.
- (4) Secure Support, Antenna AB-957/GRC; Bag Assemblies BG-102A; and the doorsill bracket to the loading chute with straps.
- (5) Operate the LIGHTS switches and circuit breakers to OFF; operate the MAIN circuit breaker to OFF.
- (6) Turn off the generator set or the central power source for the assemblage.
- (7) Disconnect the power cable and power cable stub from the power source and from the assemblage. Coil the power cable on Reel RC-435/U and store the

power cable stub in the accessory cabinet.

- (8) Mount Reel RC-435/U on the loading chute and secure it in place.
- (9) Disconnect the ground strap from the ground rod and from the POWER & SIGNAL ENTRANCE BOX. Store the ground strap.
- (10) Pull the ground rod out of the ground and mount it in the bracket on the curbside of the assemblage.
- (11) Secure the folding chair and the boarding ladder to the AB-577/GRC's with straps.

c. Checking and Securing Assemblage.

- (1) Close and secure the covers on the POWER & SIGNAL ENTRANCE BOX, the AUDIO ENTRANCE BOXes, and the VIDEO & ANTENNA ENTRANCE BOX.
- (2) Close and secure the blower vent covers on the front of the assemblage and the filter cover on the entrance door.
- (3) Check the area to make sure that all components and parts have been recovered and stored.
- (4) Check the interior of the AN/TRC-117(V) to make sure that all components and parts have been properly secured and that all compartment doors are closed and secured.
- (5) Close the entrance door and secure it.
- (6) If the AN/TRC-117(V) is truck-mounted, close and secure the tailgate and check to see that the sling assembly is secure.

5-4. Repackaging for Shipment or Limited Storage

Repackaging of the AN/TRC-117(V) for shipment or limited storage will normally be performed at a packaging facility or by a packaging team. If emergency packaging is required, select materials from those listed in SB 11-100. Package the AN/TRC-117(V) in accordance with the original packaging as far as possible with available materials.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

5-5. Authority for Demolition

Demolition of the equipment will be accomplished only upon the order of the commander. The destruction procedures in paragraph 5-6 will be used to prevent further use of the equipment.

5-6. Methods of Destruction

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

a. Smash. Smash the controls, tubes, coils, relays, switches, capacitors, transformers, and meters.

b. Cut. Cut all cables and cords and slash the wiring on the components.

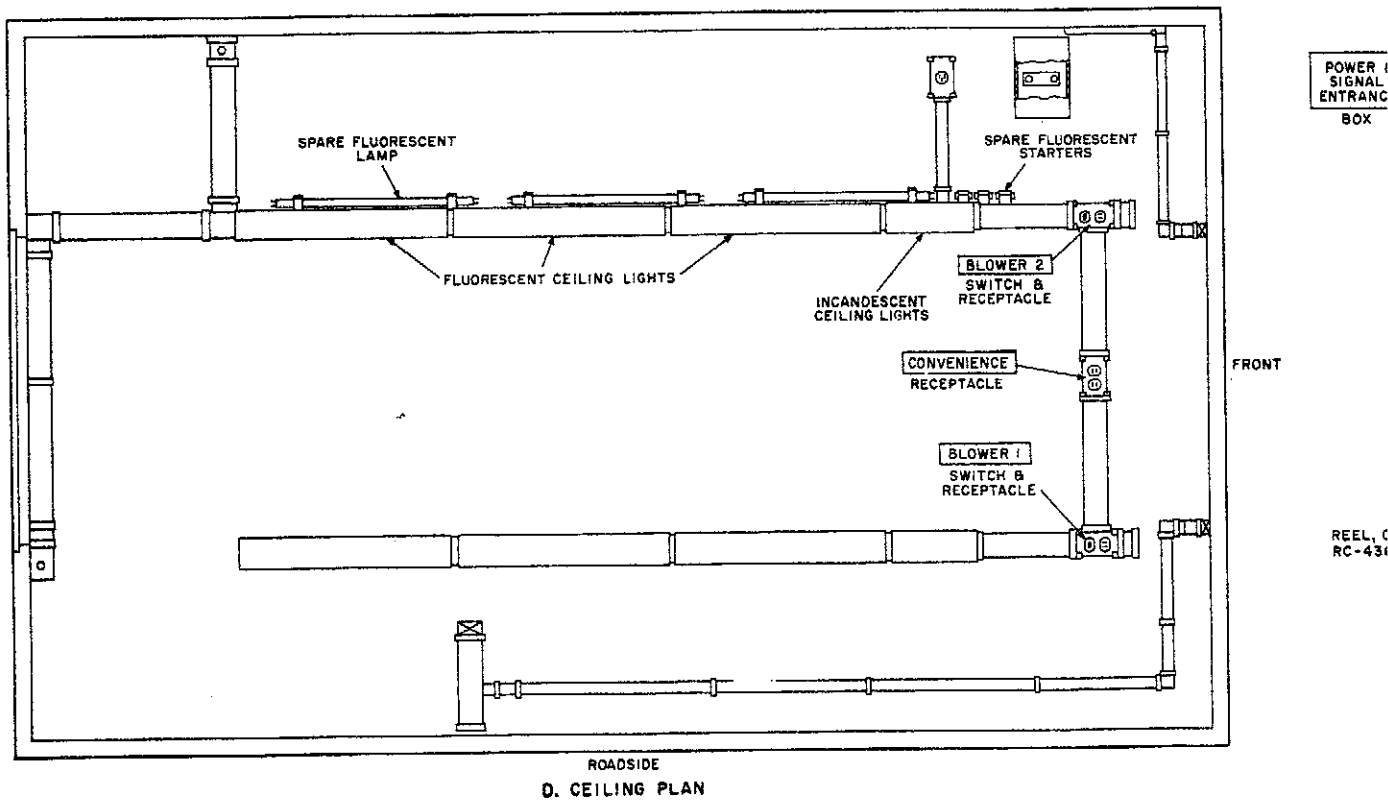
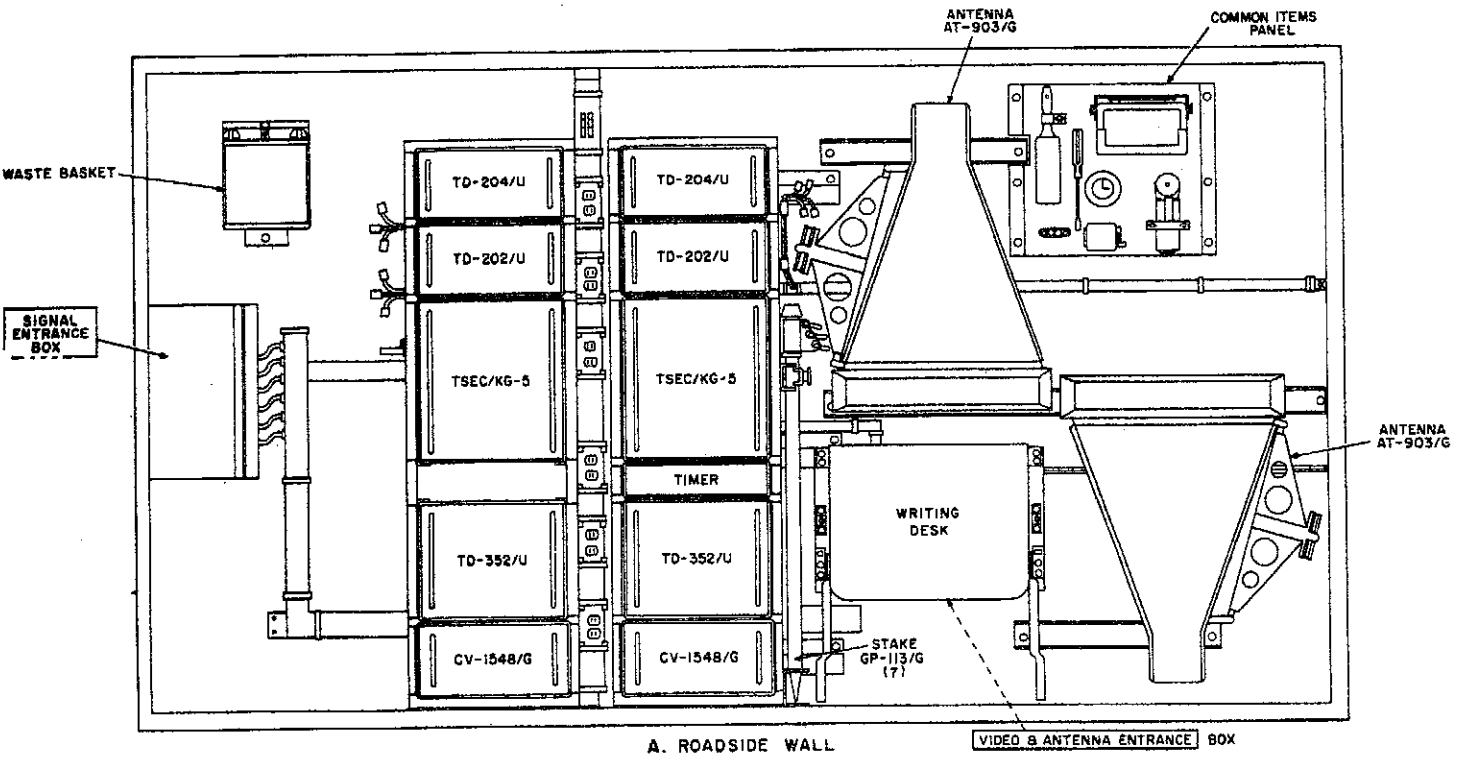
Warning: Be extremely careful when handling explosives and incendiary devices. Use these items only when the need is urgent.

c. Burn. Burn cords and technical manuals.

d. Bend. Bend panels, antenna components, and cabinets.

e. Explode. Explode if necessary.

f. Dispose. Bury or scatter the destroyed parts in slit trenches or foxholes, or throw them into streams or lakes.



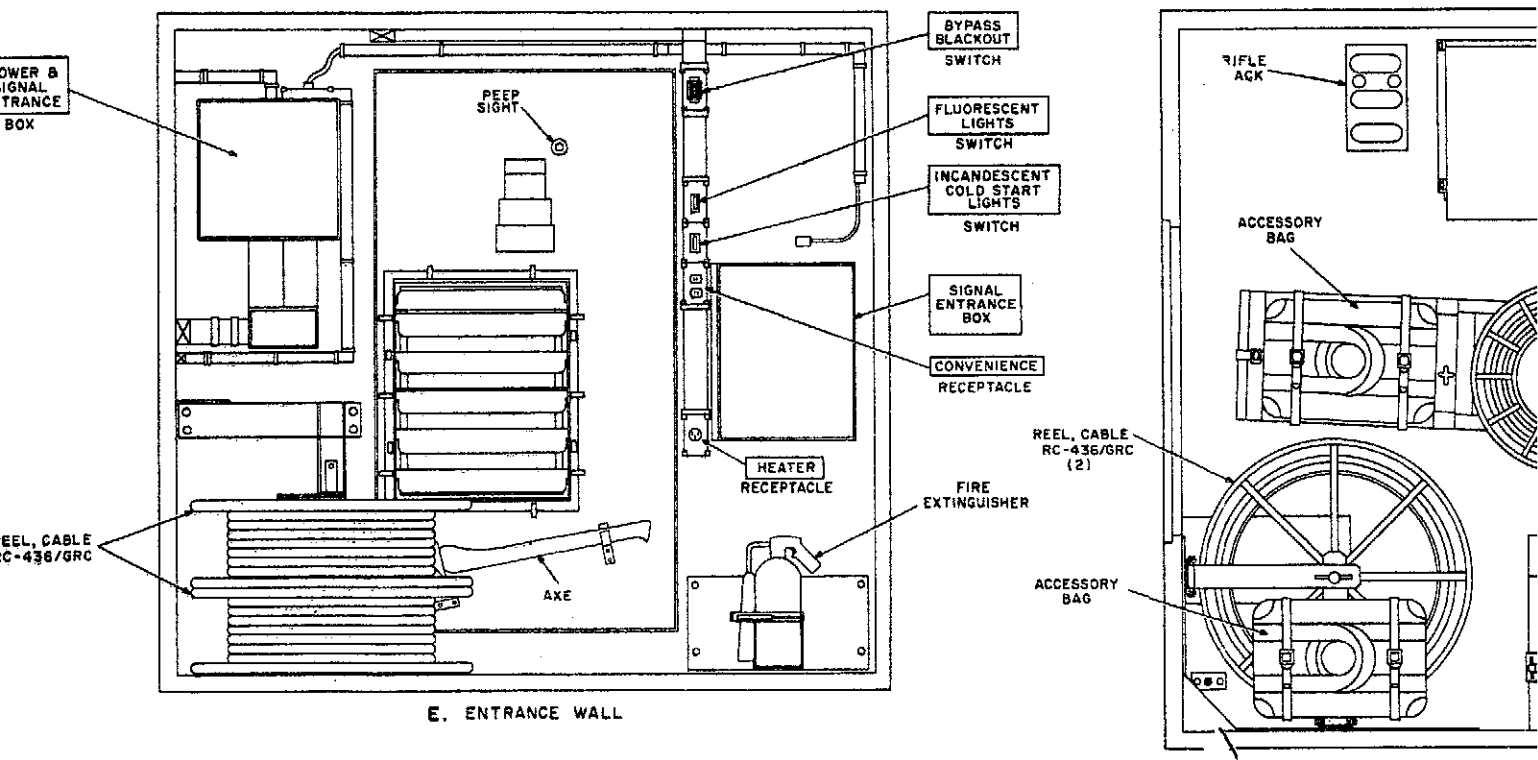
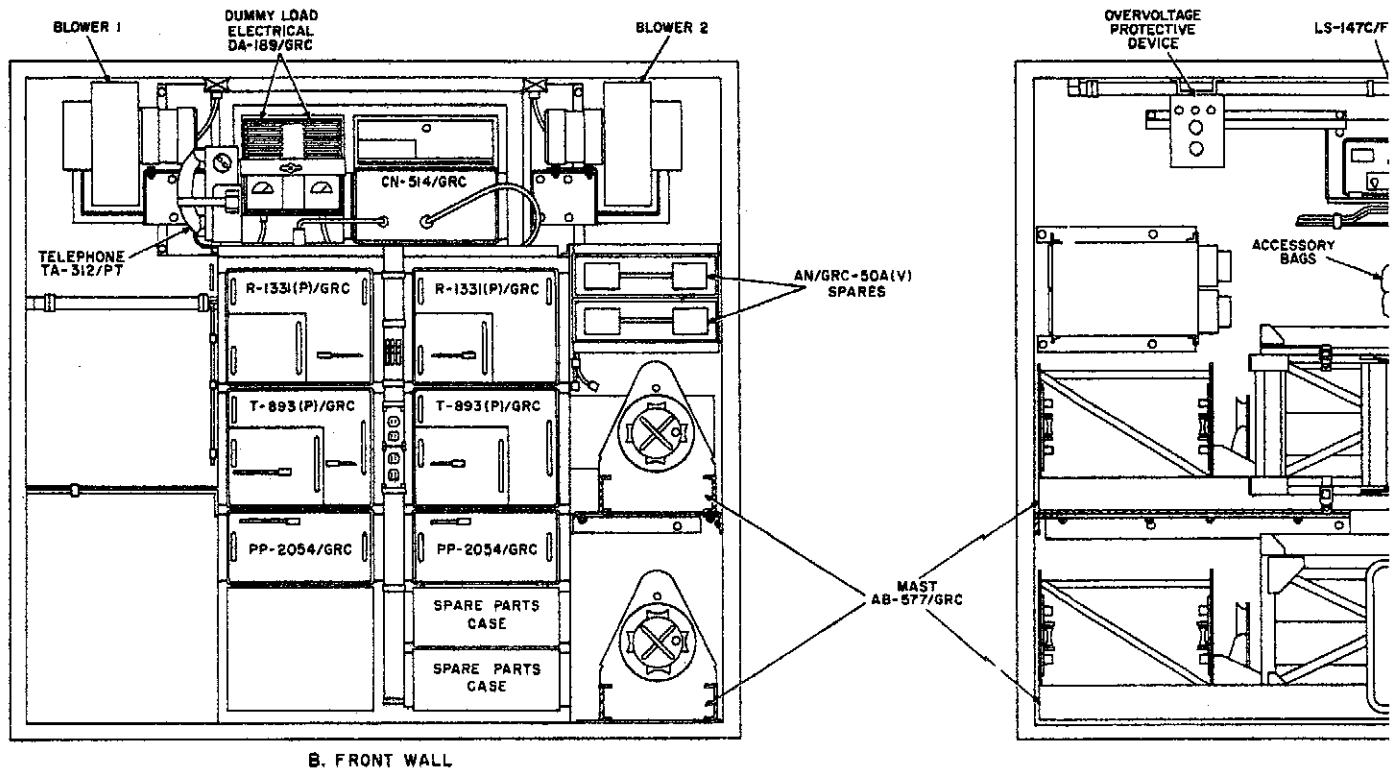
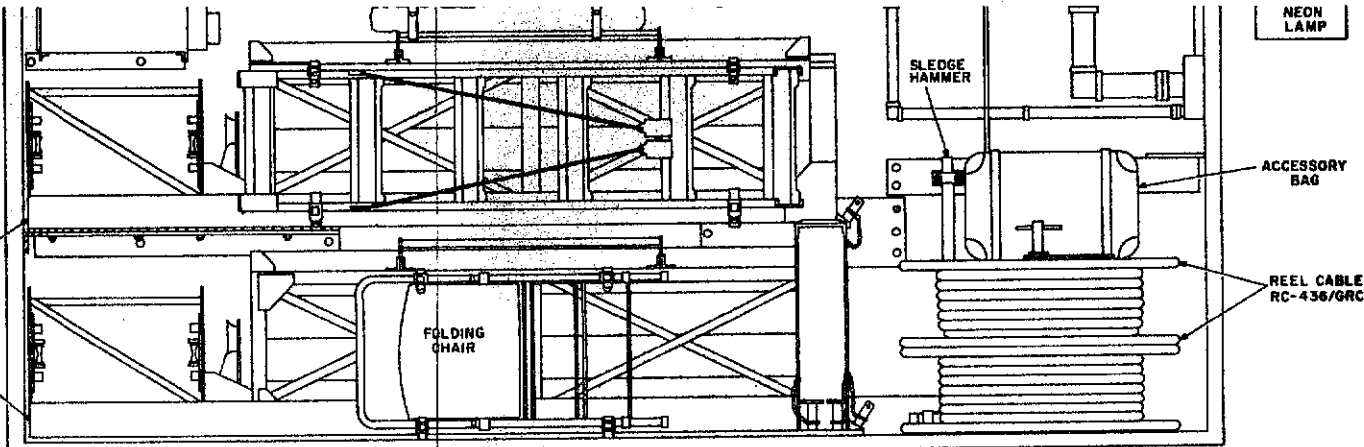
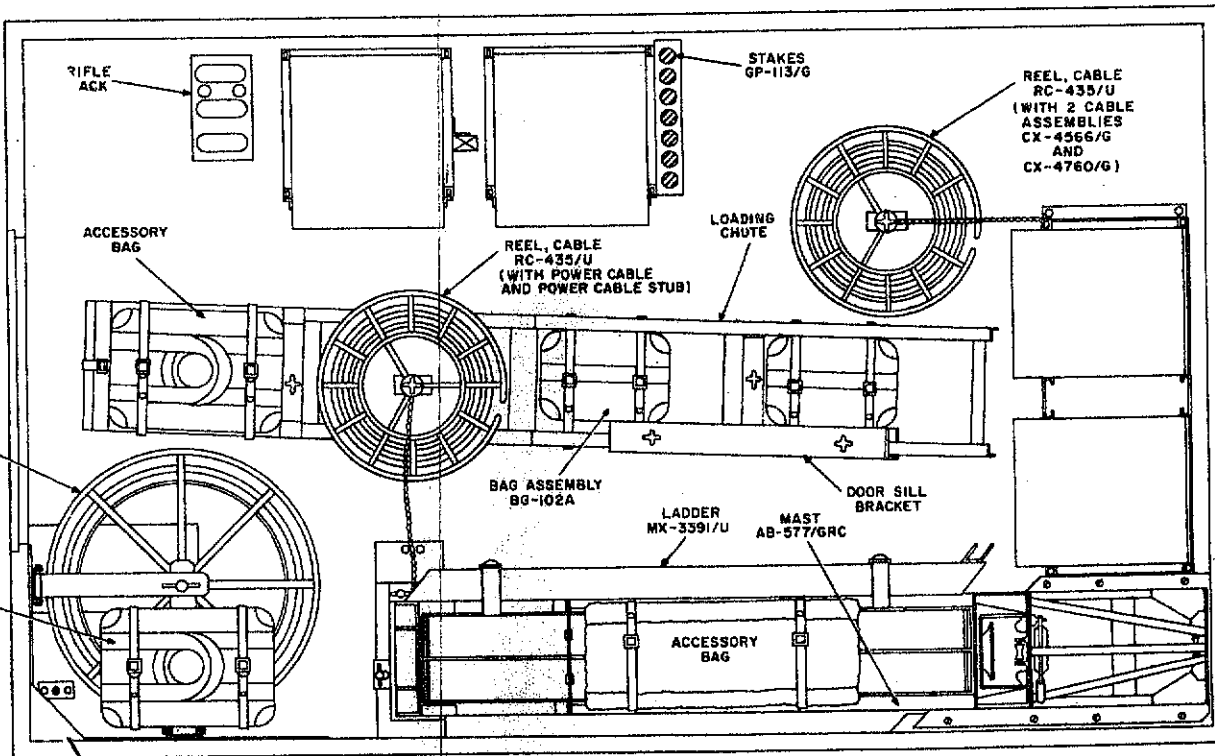


Figure 5-1. AN/TRC-117(V), floor plan and elevation diagram.



C. CURBSIDE WALL

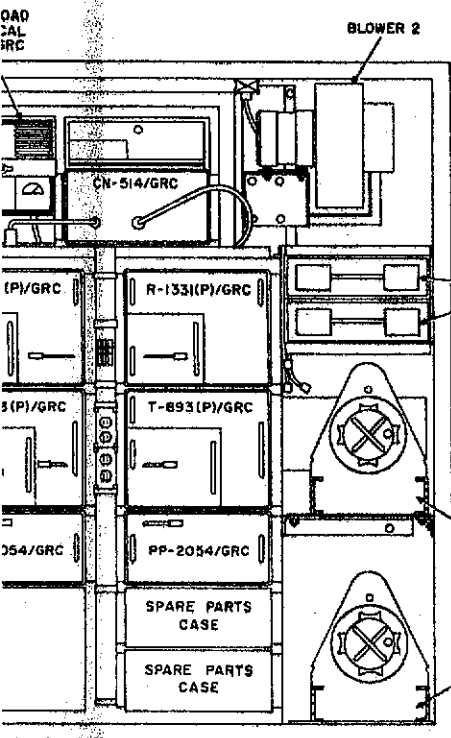


F. FLOOR PLAN

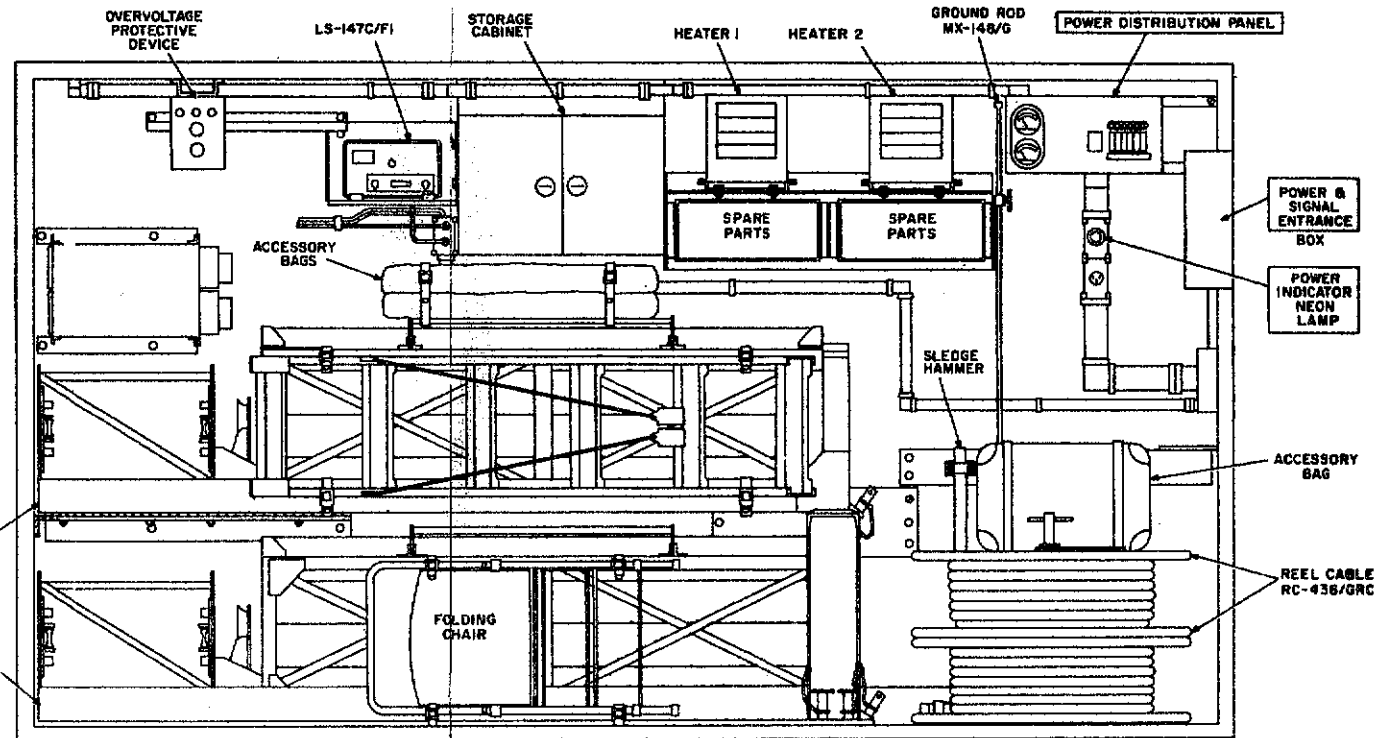
TM5695-366-15-40

- BYPASS BLACKOUT SWITCH
- FLUORESCENT LIGHTS SWITCH
- INCANDESCENT COLD START LIGHTS SWITCH
- SIGNAL ENTRANCE BOX
- CONVENIENCE RECEPTACLE

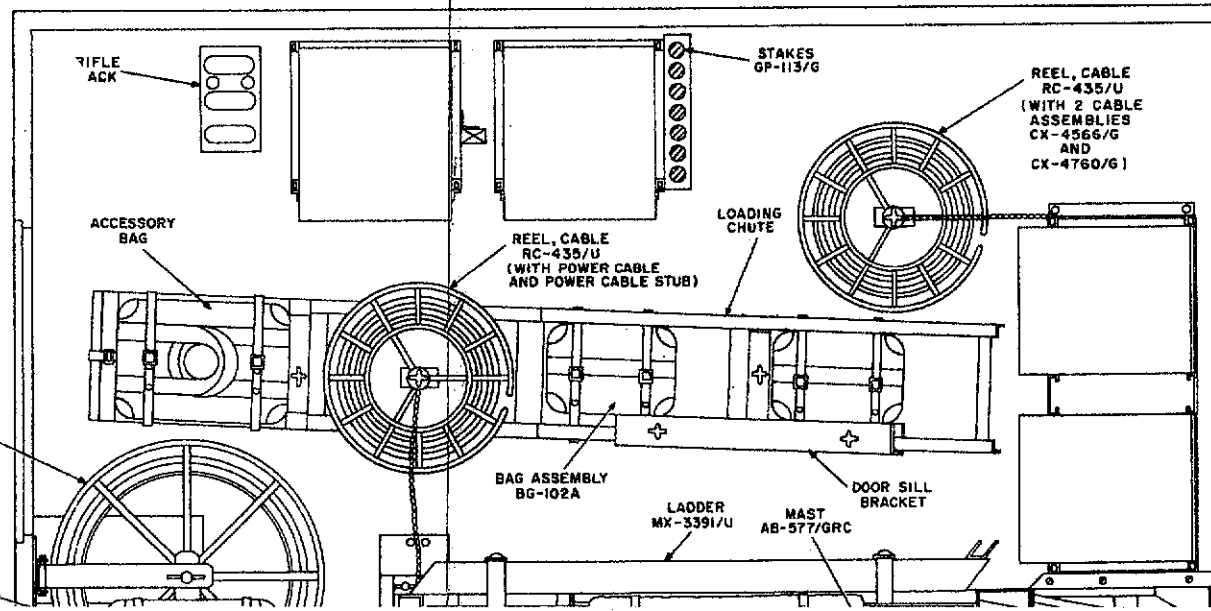
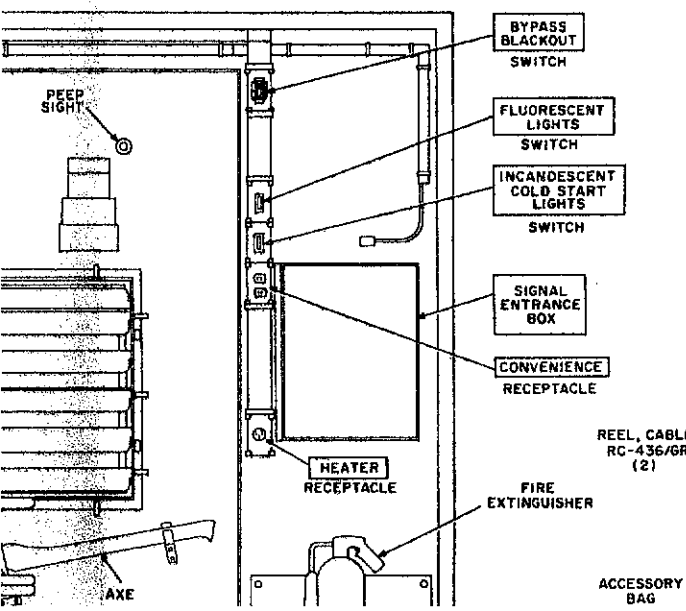
- REEL, CABLE RC-436/GRC (2)
- FIRE EXTINGUISHER
- ACCESSORY BAG



B. FRONT WALL



C. CURBSIDE WALL



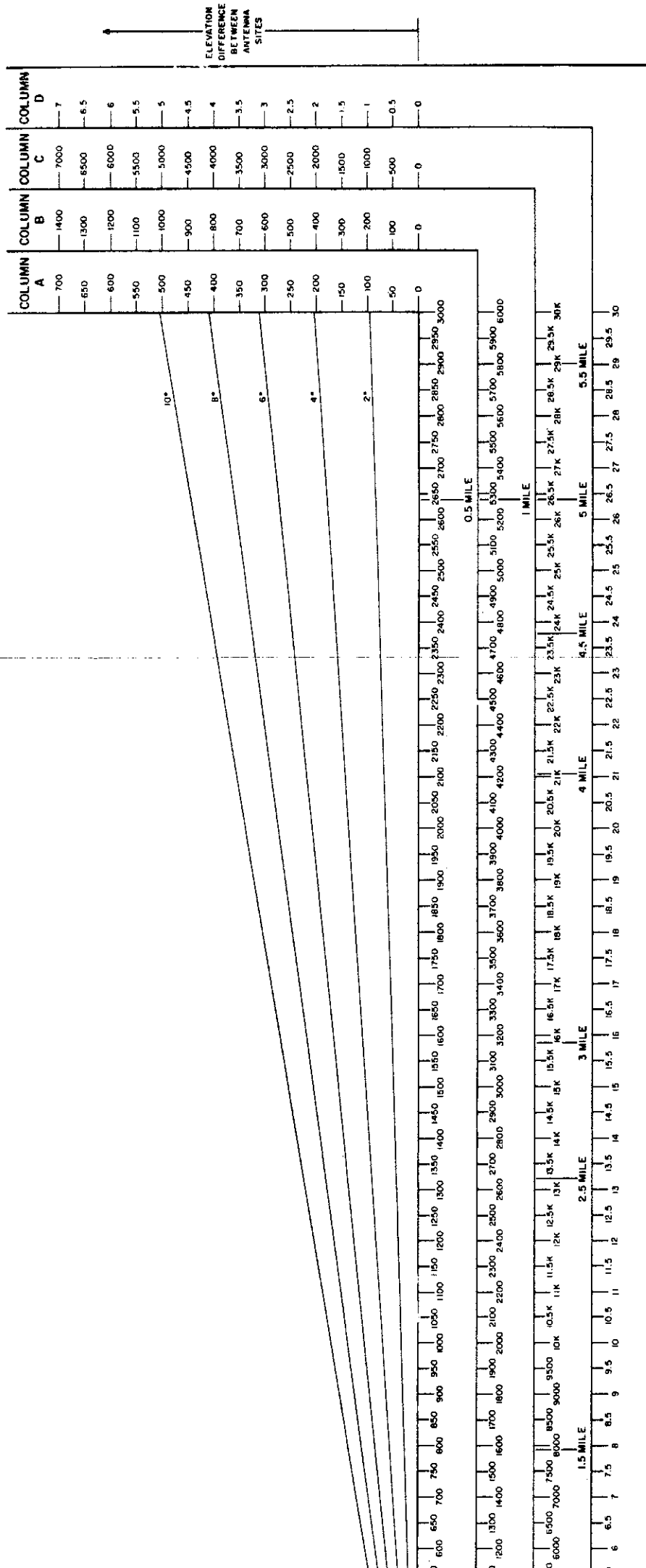


Figure 5-2. Elevation angles for AT-908/G.

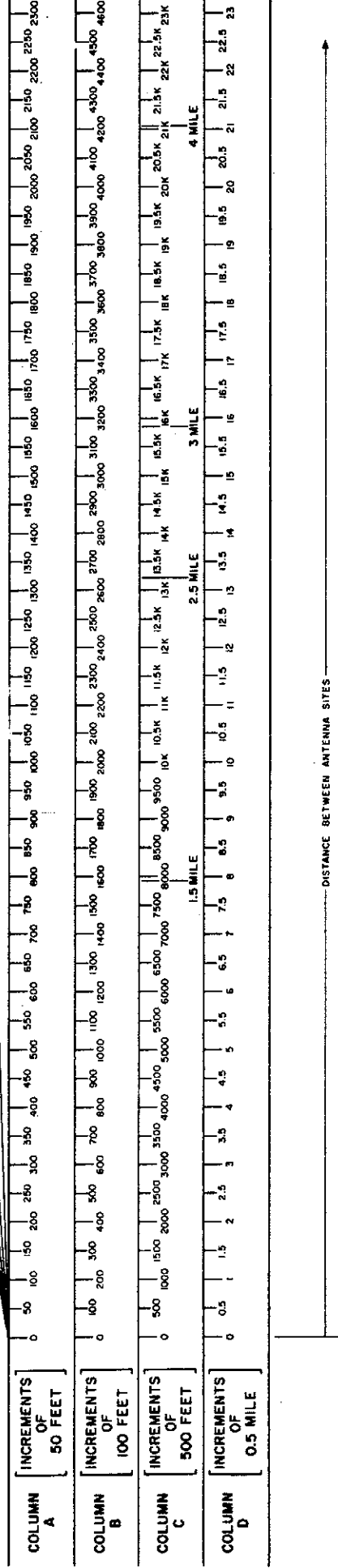
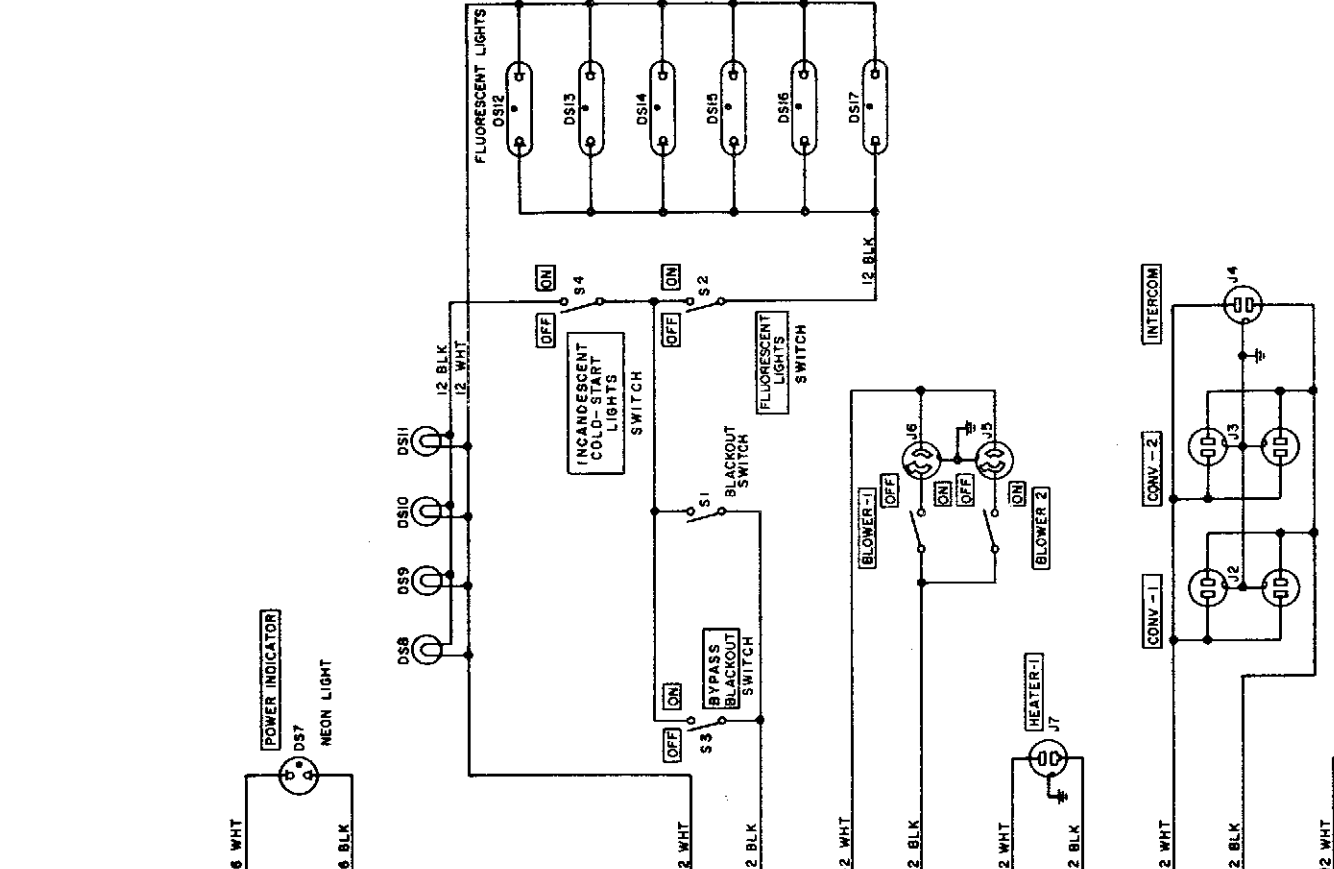
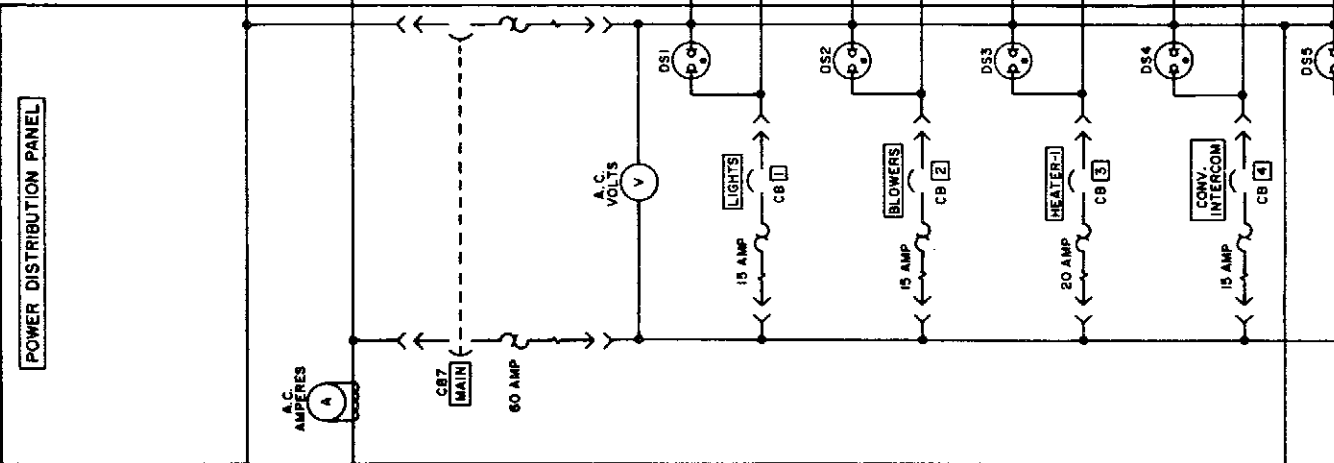
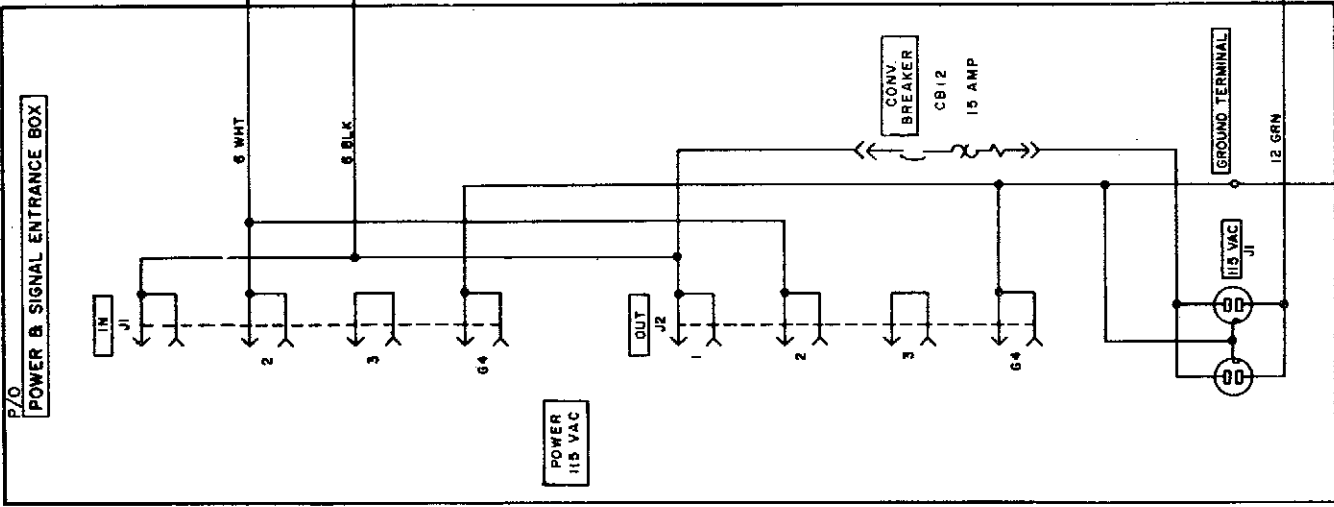


Figure 5-2. Elevation angles for AT-908/G.

P/O POWER & SIGNAL ENTRANCE BOX



10 BLK
CB
CA

CONNECTOR

CONNECTOR

DS 6

CB 5

CB 4

CB 3

CB 2

CB 1

DS 5

DS 4


DS 3

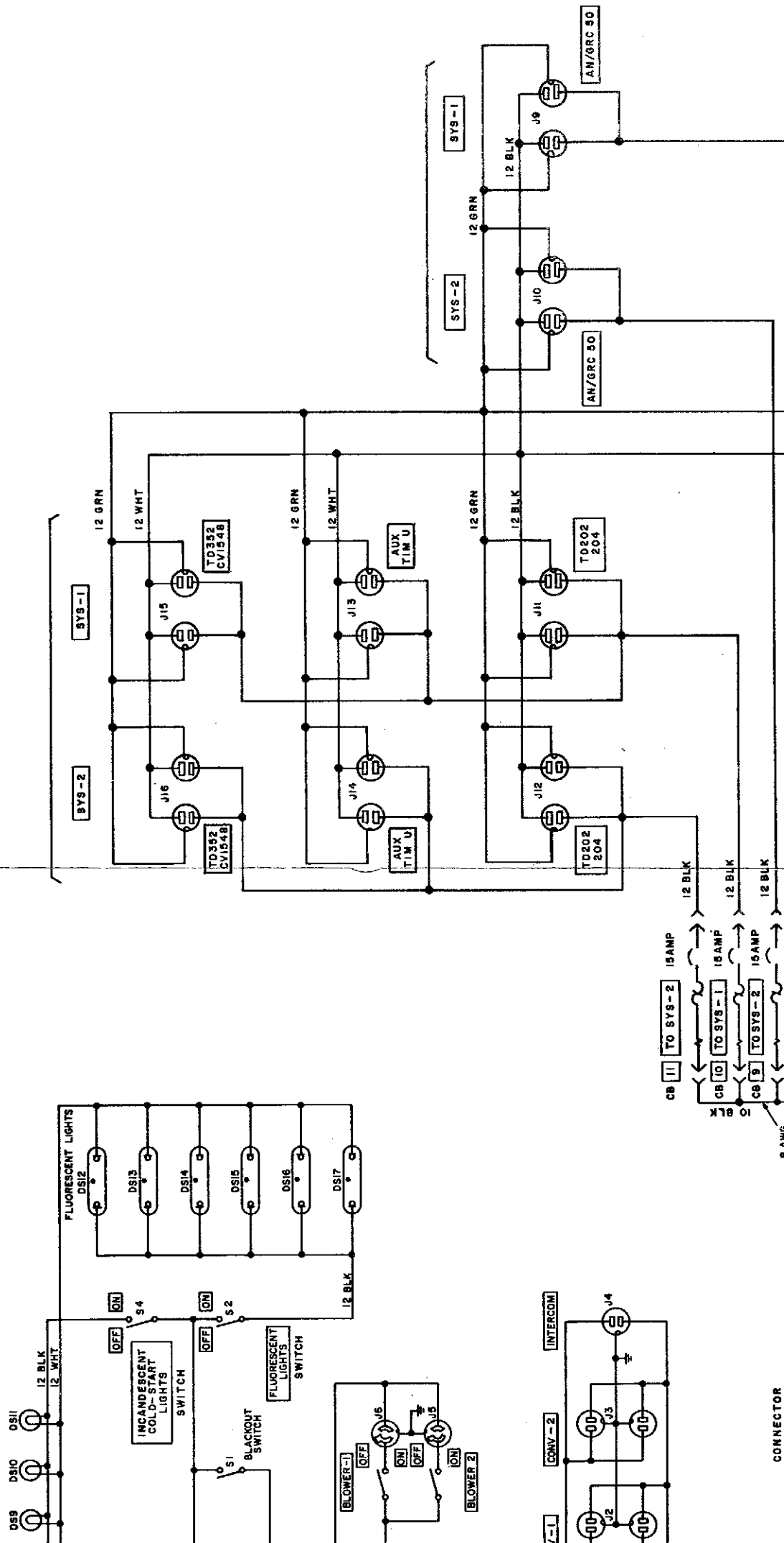
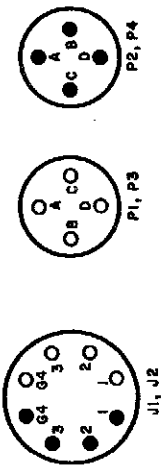
DS 2

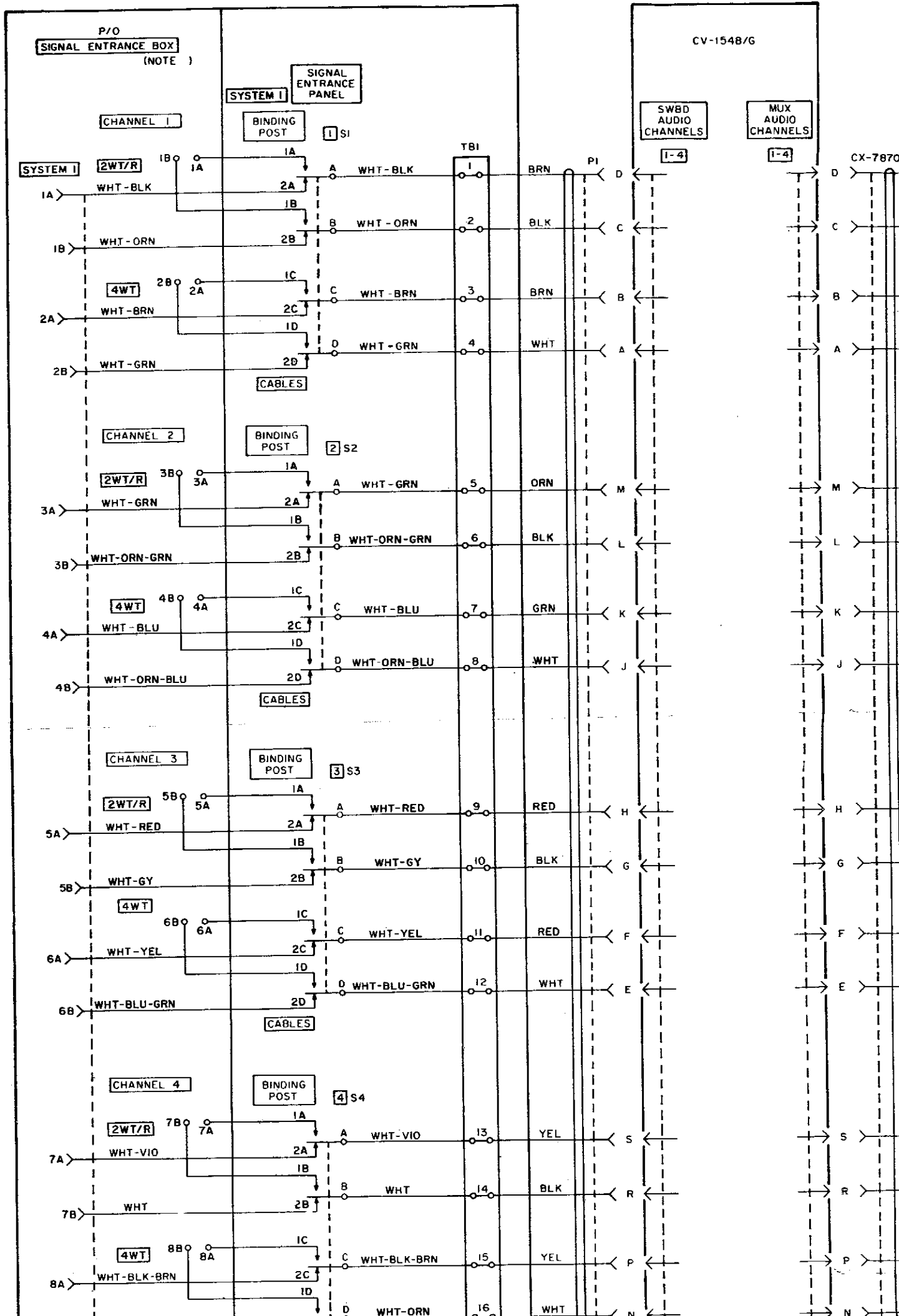
DS 1

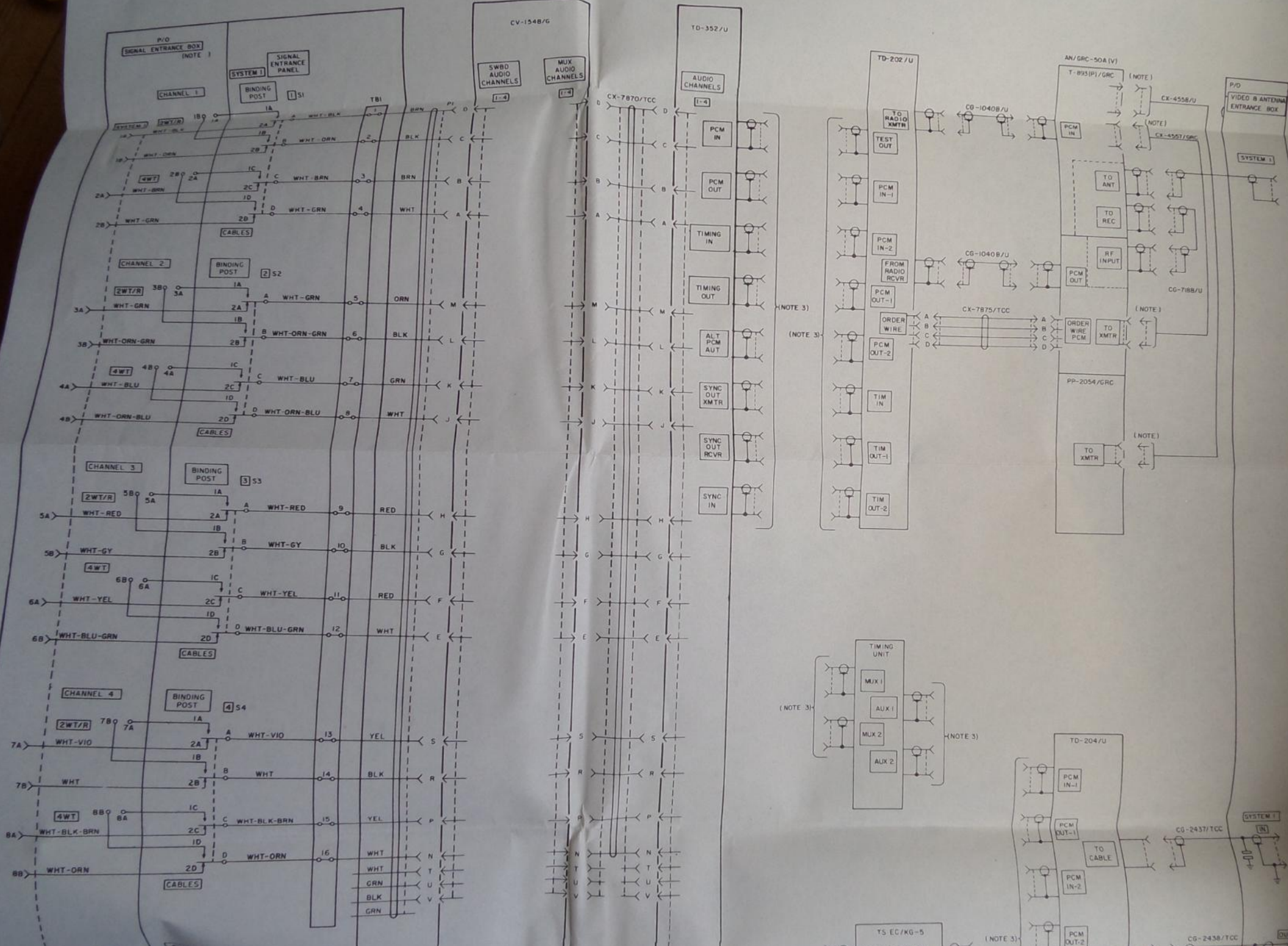
12 BLK

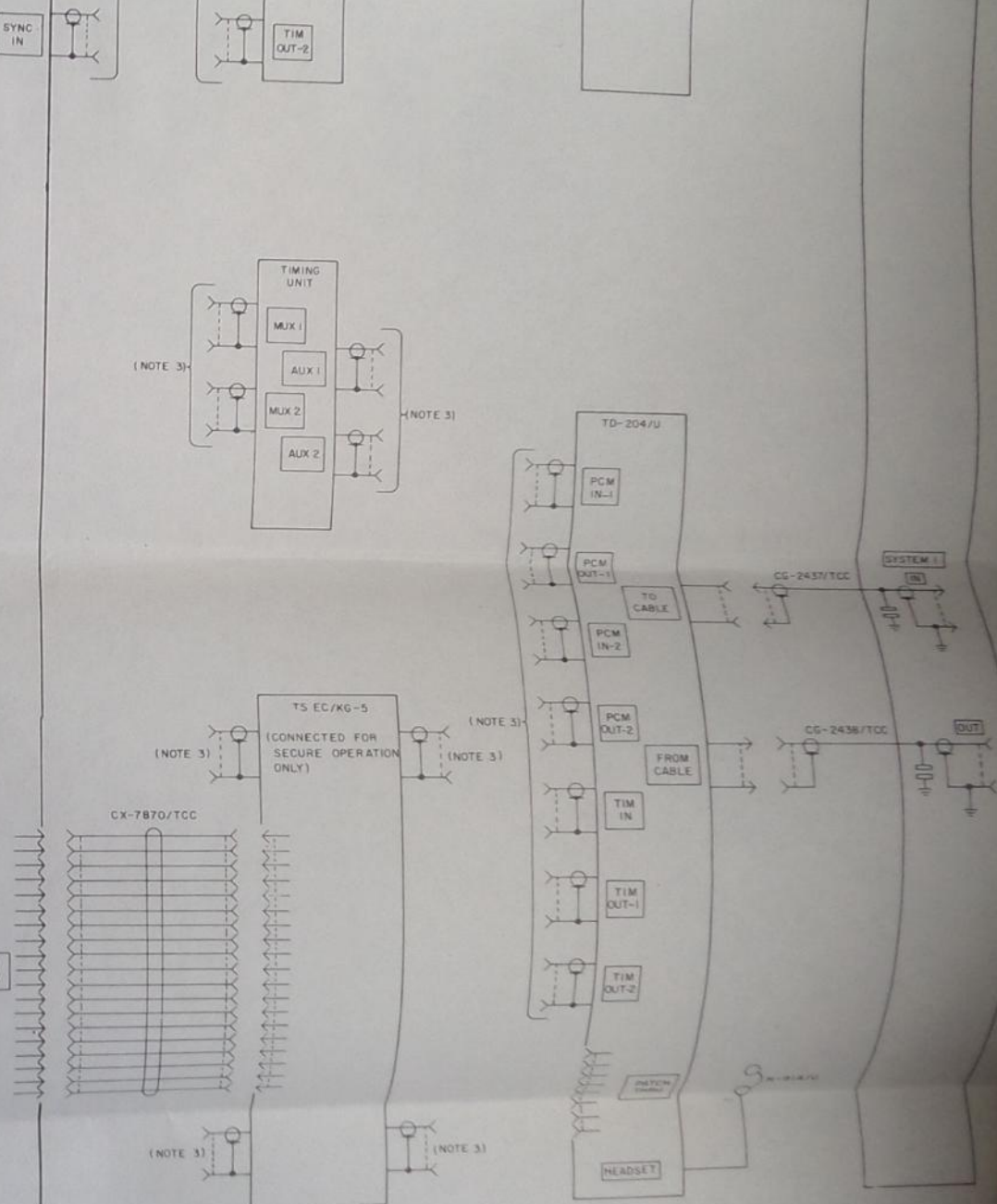
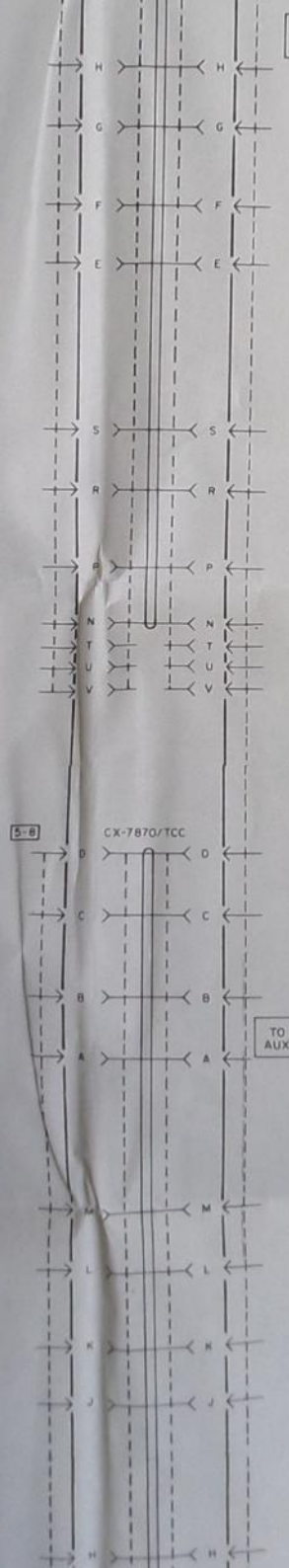
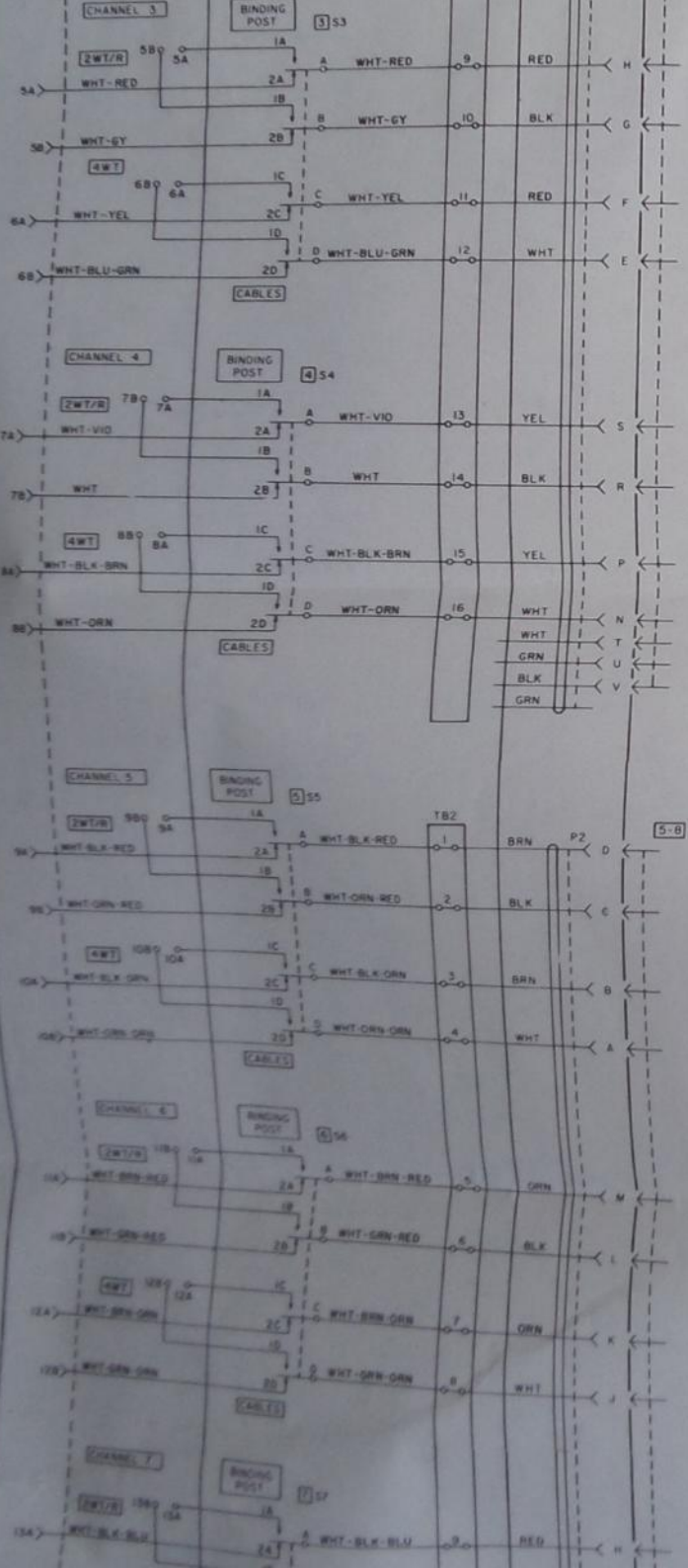
NOTES:

1.  INDICATES EQUIPMENT MARKING.
2. ALL WIRE IS 12 AWG UNLESS OTHERWISE SPECIFIED.
3. ALL GROUNDING CONNECTIONS ARE 12 AWG GRN UNLESS OTHERWISE SPECIFIED.
4. CONNECTIONS ARE AS FOLLOWS:



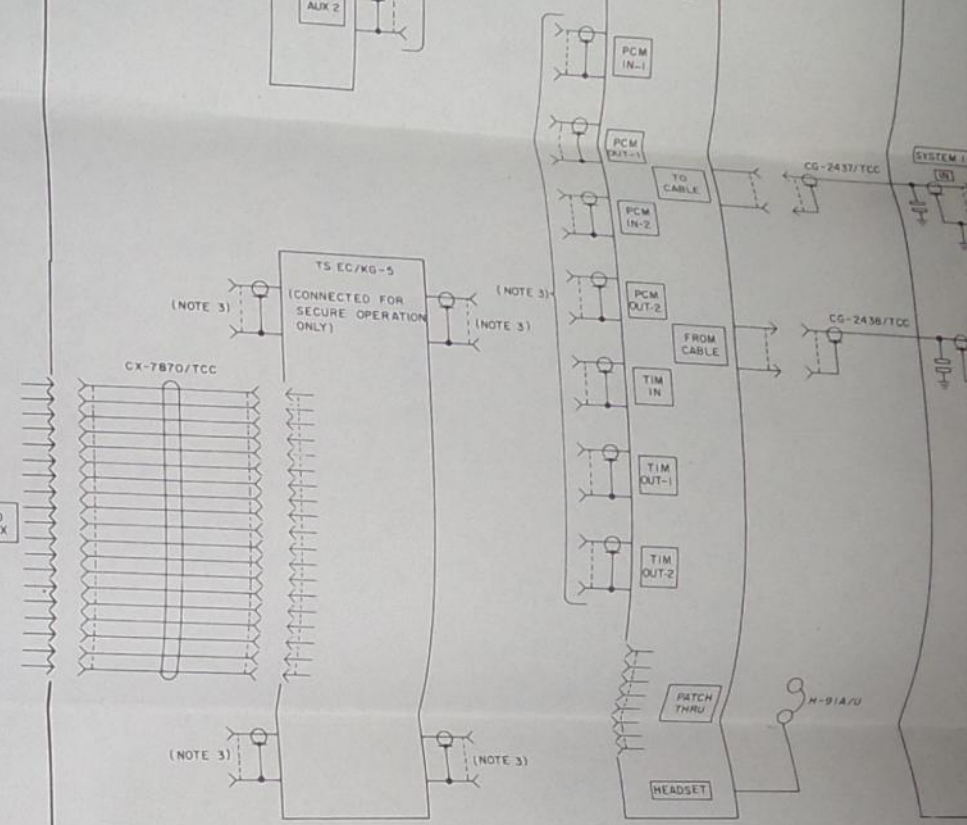
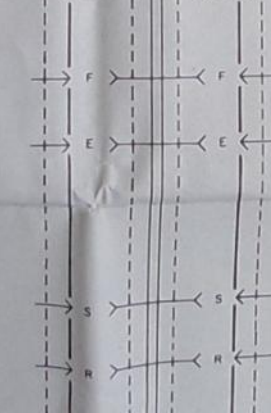
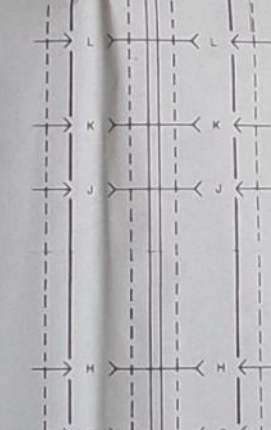
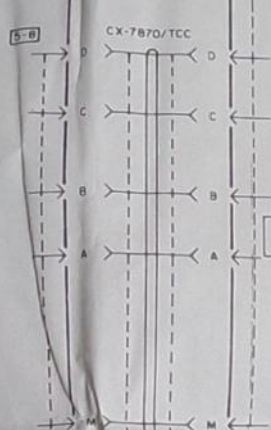
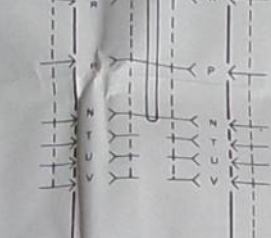
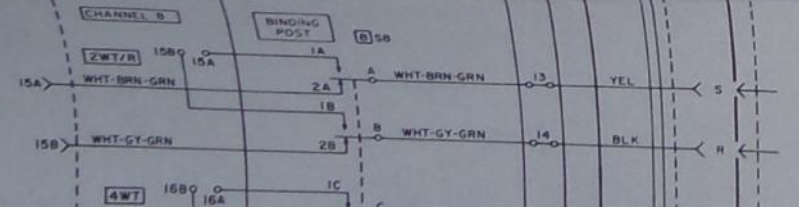
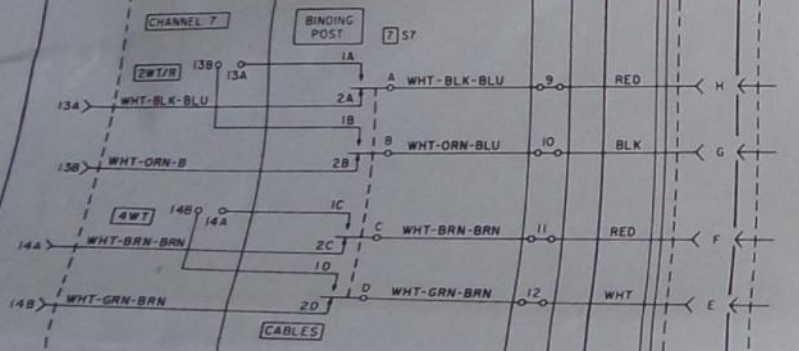
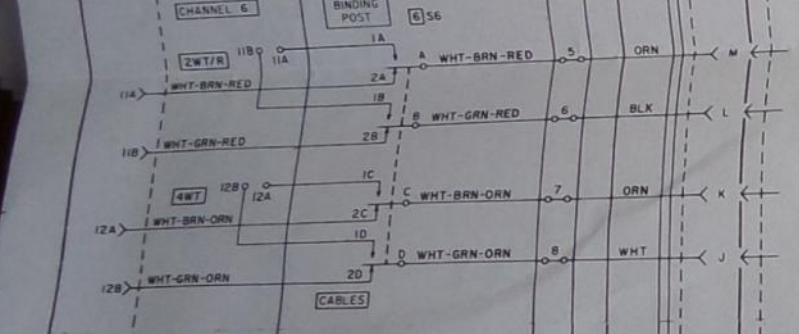
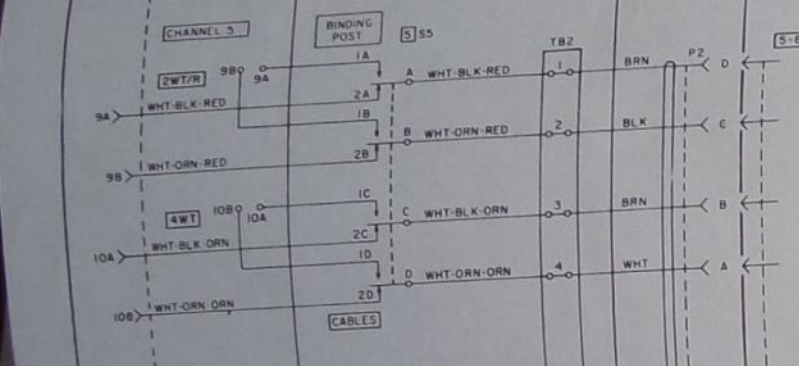
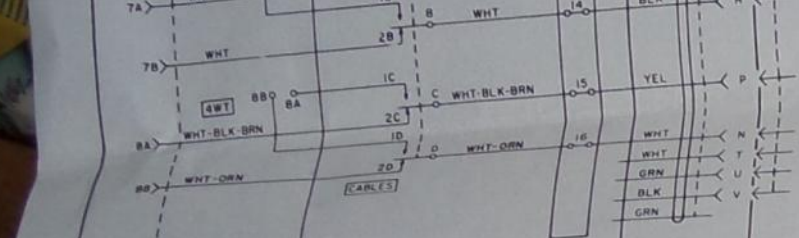






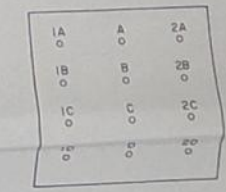
NOTES

1. SYSTEM 2 EQUIPMENTS, NOT SHOWN, ARE SAME AS SYSTEM 1 EXCEPT RECEPTACLES AND BINDING POSTS IN SIGNAL ENTRANCE BOX
2. ONLY MALE CONTACTS OF 26-PAIR RECEPTACLE ARE SHOWN EACH MALE CONTACT IS CONNECTED IN PARALLEL WITH A MALE CONTACT
3. CONNECTIONS FOR EA APPLICATION ARE SHOWN IN INTERUNIT CONNECTIC DIAGRAM
4. PAIRS 15 AND 26 OF 1 PAIR RECEPTACLE FOR EACH SYSTEM ARE PARALLEL CONNECTED FOR NON SECURE OPERATION AND ARE DISCONNECTED FOR



NOTES:

1. SYSTEM 2 EQUIPMENTS, NOT SHOWN, ARE SAME AS SYSTEM 1 EXCEPT SYSTEM 2 RECEPTACLES AND BINDING POSTS IN SIGNAL ENTRANCE BOX
2. ONLY MALE CONTACTS OF 26-PAIR RECEPTACLE ARE SHOWN EACH FEMALE CONTACT IS CONNECTED IN PARALLEL WITH A MALE CONTACT
3. CONNECTIONS FOR EACH APPLICATION ARE SHOWN IN INTERUNIT CONNECTIC DIAGRAM
4. PAIRS 15 A D 26 OF 1 PAIR RECEPTACLE FOR EACH SYSTEM ARE PARALLEL CONNECTED FOR NON SECURE OPERATION AND ARE DISCONNECTED FOR SECURE OPERATION
5. REAR OF BINDING POSTS-CABLE SWITCHES

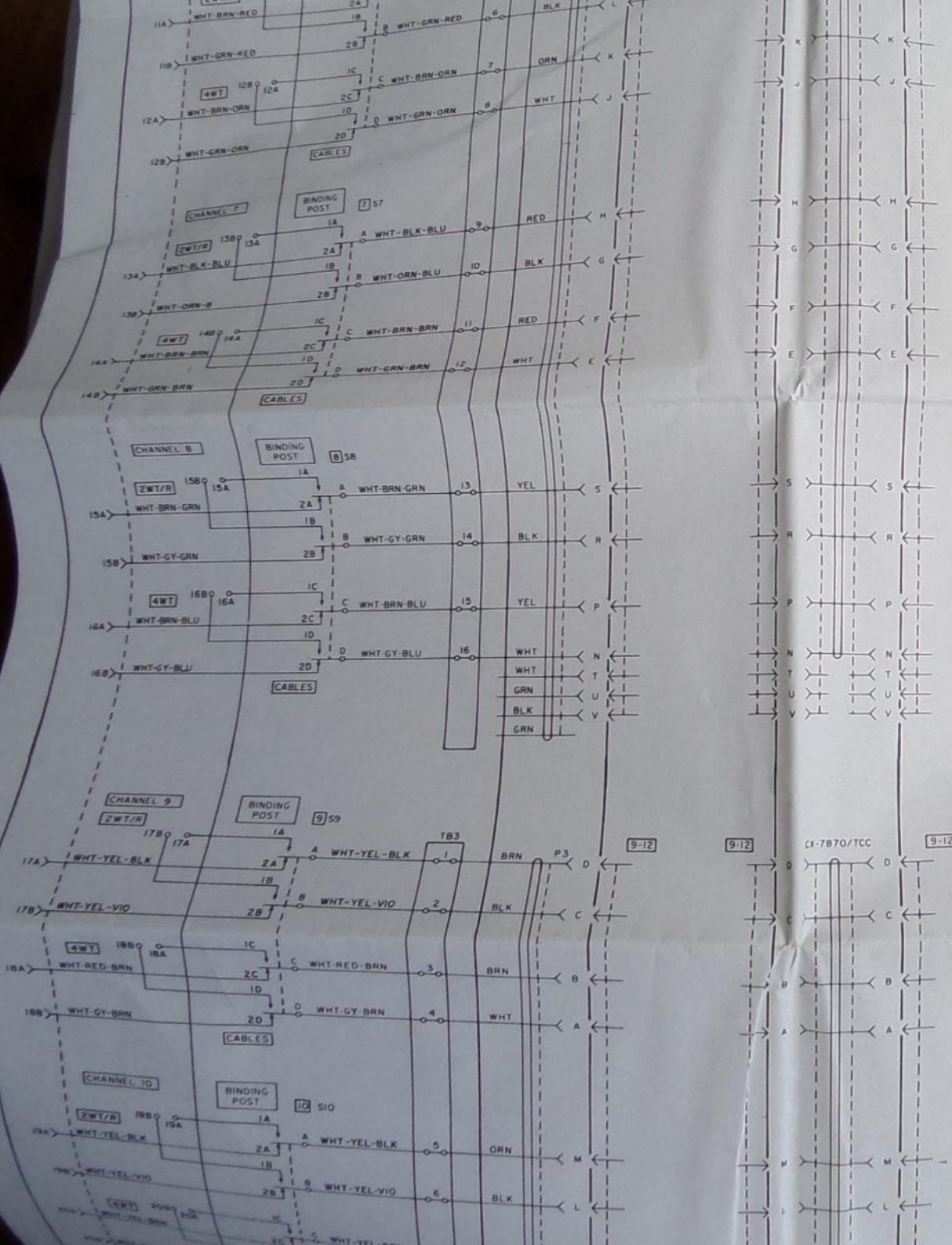
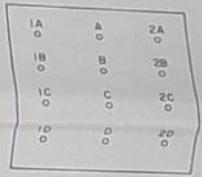


(NOTE 3)

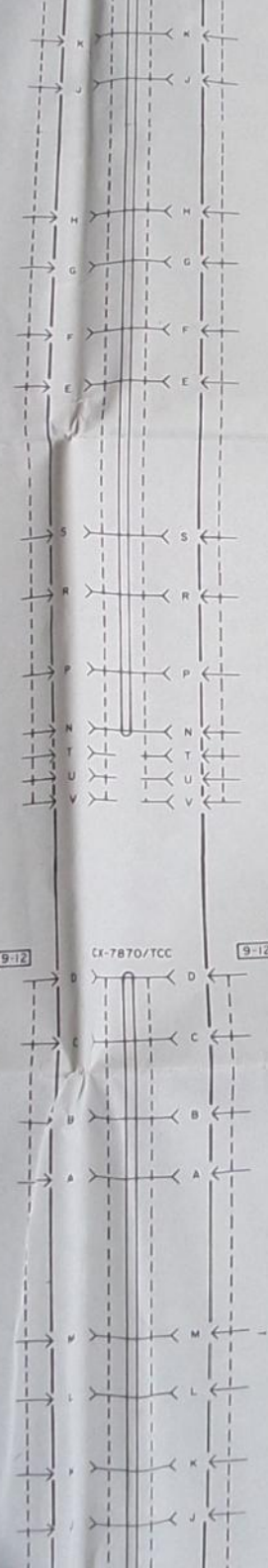
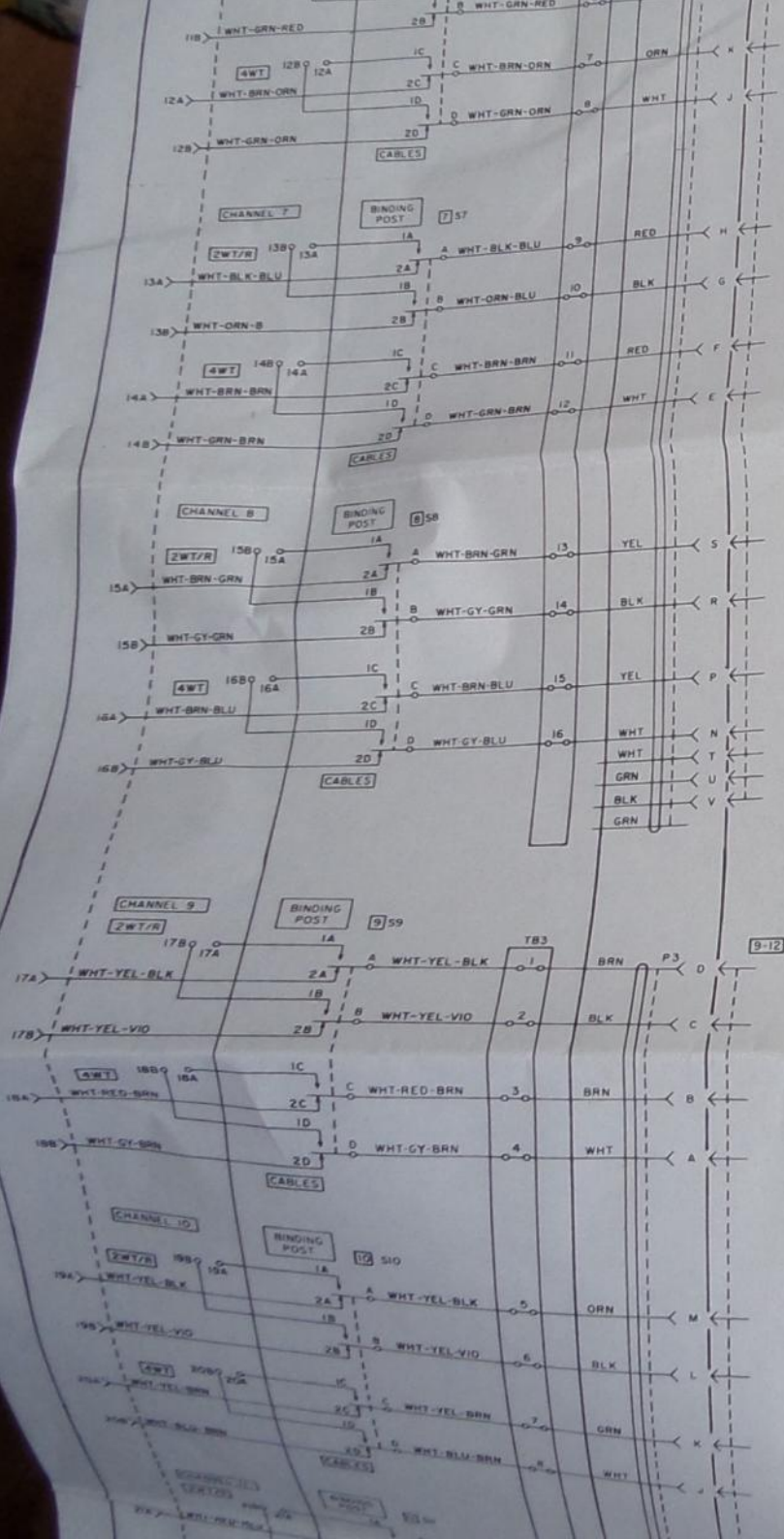
HEADSET

NOTES:

- 1. SYSTEM 2 EQUIPMENTS, NOT SHOWN, ARE SAME AS SYSTEM 1 EXCEPT RECEPTACLES AND BINDING POSTS IN SIGNAL ENTRANCE BOX
- 2. ONLY MALE CONTACTS OF 26-PAIR RECEPTACLE ARE SHOWN EACH FEMALE CONTACT IS CONNECTED IN PARALLEL WITH A MALE CONTACT CONNECTIC DIAGRAM
- 3. CONNECTIONS FOR EACH APPLICATION ARE SHOWN IN INTERUNIT CONNECTIC DIAGRAM
- 4. PAIRS 25 AND 26 OF 1-PAIR RECEPTACLE FOR EACH SYSTEM ARE PARALLEL CONNECTED FOR NON SECURE OPERATION AND ARE DISCONNECTED FOR SECURE OPERATION
- 5. REAR OF BINDING POSTS-CABLE SWITCHES



9-12 CX-7B70/TCC 9-12

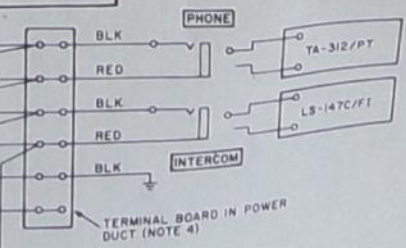
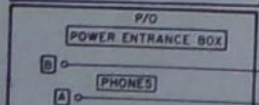
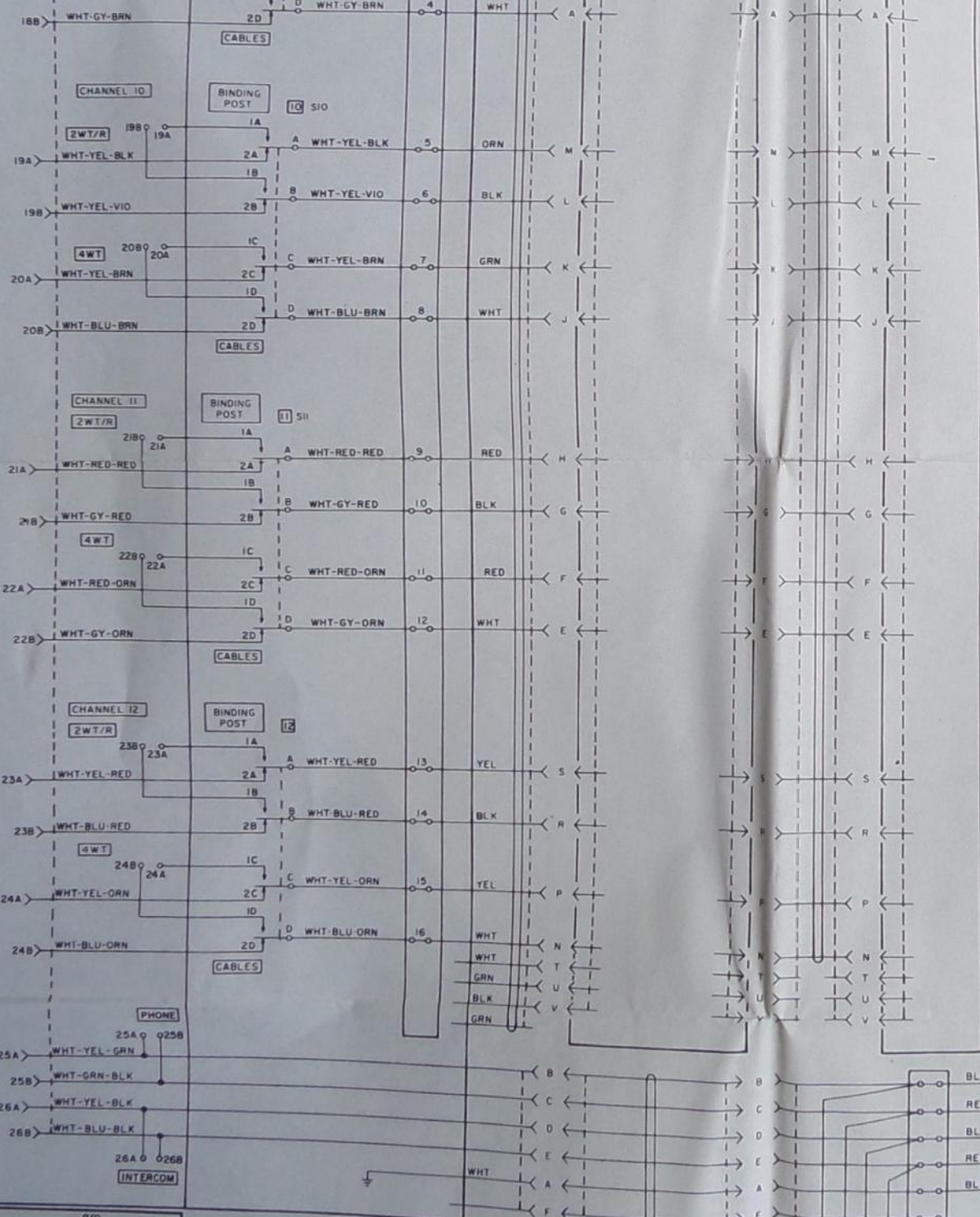


NOTES

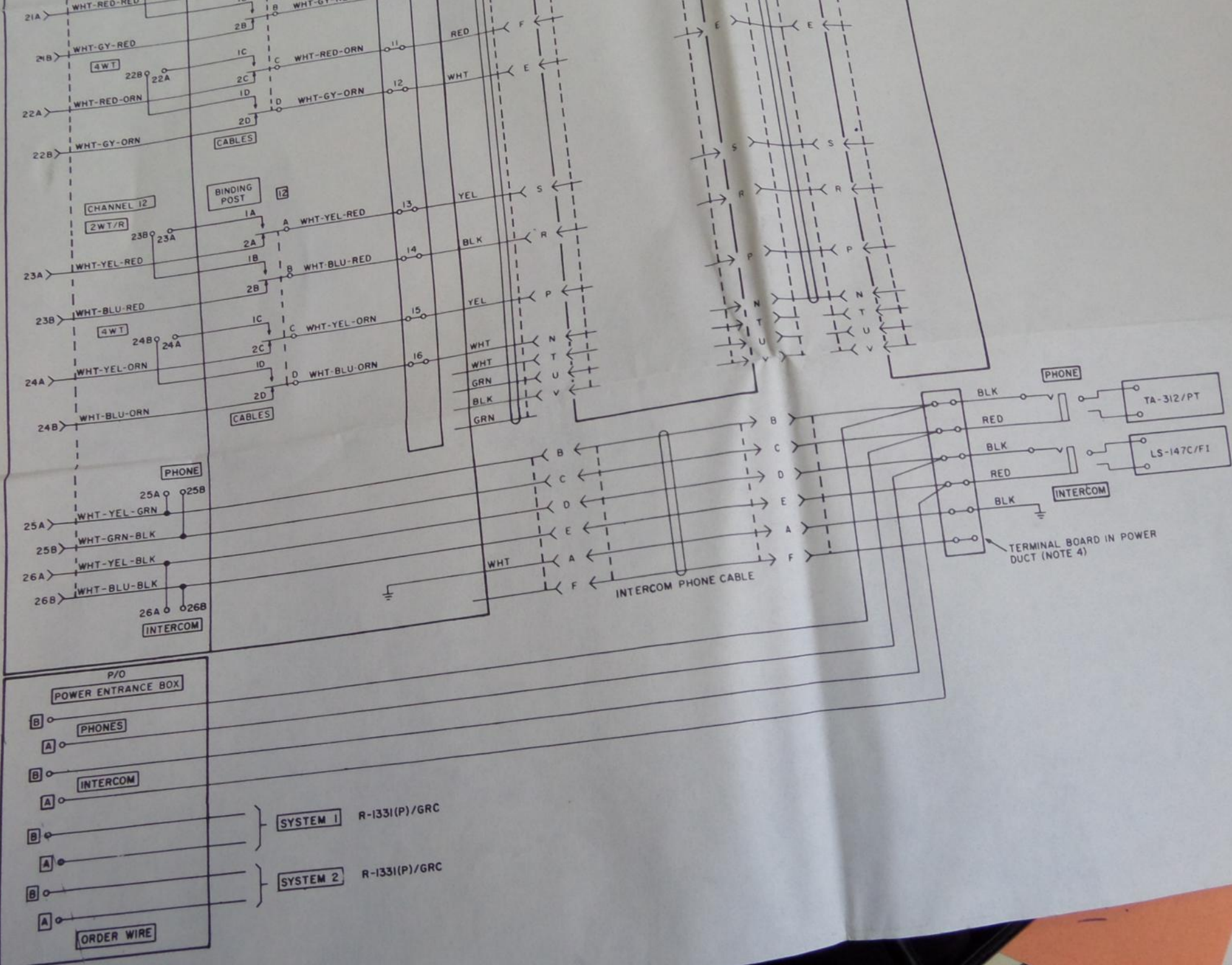
1. SYSTEM 2 EQUIPMENTS, NOT SHOWN, ARE SAME AS SYSTEM 1 EXCEPT SYSTEM 2 RECEPTACLES AND BINDING POSTS IN SIGNAL ENTRANCE BOX
2. ONLY MALE CONTACTS OF 26-PAIR RECEPTACLE ARE SHOWN EACH FEMALE CONTACT IS CONNECTED IN PARALLEL WITH A MALE CONTACT
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5. REAR OF BINDING POSTS-CABLE SWITCHES

1A	A	2A
1B	B	2B
1C	C	2C
1D	D	2D

9-12 CK-7870/TCC 9-12



INTERCOM PHONE CABLE



APPENDIX A REFERENCES

- | | |
|----------------------|--|
| DA Pam 310-4 | Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders. |
| SB 11-6 | Dry Battery Supply Data. |
| SB 11-30 | |
| SB 38-100 | Transportation, Storage, Testing, Shelf Life, and Quantity Unit Pack Requisitioning of Dry Batteries. |
| TB SIG 291 | Preservation, Packaging, and Packing Materials, Supplies, and Equipment Used by the Army. |
| TB SIG 354 | Safety Measures to be Observed When Installing and Using Whip Antennas, Field Type Masts, Towers, Antennas, and Metal Poles that are used with Communication, Radar, and Direction Finder Equipment. |
| TB 746-10 | Maintenance and Repair Procedures for S-141/G, S-144/G, S-280/G, and S-318/G Type Shelters. |
| TM 11-2057A | Field Instructions for Painting and Preserving Electronics Command Equipment. |
| TM 11-5410-213-15P | Test Set TS-27B/TSM. |
| TM 11-5805-201-12 | Operator, Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tools List: Shelter, Electrical Equipment S-280A/G. |
| TM 11-5805-201-20P | Organizational Maintenance Manual: Telephone Set TA-312/PT. |
| TM 11-5805-201-35P | Organizational Maintenance Repair Parts and Special Tool Lists: Telephone Set TA-312/PT. |
| TM 11-5805-367-12 | Field and Depot Maintenance Repair Parts and Special Tool Lists: Telephone Set TA-312/PT. |
| TM 11-5805-367-25P/1 | Operator and Organizational Maintenance Manual Multiplexers TD-202/U, TS-203/UI TD-204/U, TD-352/U, and TD-353/U, Restorer, Pulse Form TD-206/G, and Converter, Telephone Signal CV-1548/G. |
| TM 11-5805-367-25P/2 | Organizational, Direct Support, General Support, and Depot Maintenance Repair Parts and Special Tools List Multiplexers TD-202/U and TD-203/U. |
| TM 11-5805-367-25P/3 | Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tools List: Multiplexer TD-204/U. |
| TM 11-5805-367-25P/5 | Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tools List: Multiplexers TD-352/U and TD-353/U. |
| TM 11-5820-461-12 | Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tools List: Converter, Telephone Signal CV-1548/G. |
| TM 11-5820-461-25P | Operator and Organizational Maintenance Manual: Radio Sets AN/GRC-50(V)1, 2, 3, 4, and 5; Radio Sets AN/GRC-50A(V)1, 2, 3, 4, 5, 6, 7, and 8. |
| | Organizational DS, GS, and Depot Maintenance Repair Parts and Special Tools List: Radio Sets AN/GRC-50(V)1, 2, 3, 4, and 5 and AN/GRC-50A(V)1, 2, 3, 4, and 5. |

TM 11-5820-517-12P	Operator and Organizational Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Antenna AT-903/G.
TM 11-5820-517-35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Antenna AT-903/G.
TM 11-5820-538-12	Operator and Organizational Maintenance Manual Including Repair Parts List: Mast AB-577/GRC and Extension Kit, Mast MK-806/GRC.
TM 11-5820-538-35P	DS, GS, and Depot Maintenance Repair Parts and Special Tool Lists: Mast AB-577/GRC and Extension Kit, Mast MK-806/GRC.
TM 11-5830-221-12	Operator's and Organizational Maintenance Manual: Intercommunication Stations LS-147A/FI, LS-147B/FI, LS-147C/FI, and LS-147D/FI.
TM 11-5830-221-20P	Organizational Maintenance Repair Parts and Special Tool Lists: Intercommunication Stations LS-147A/FI, LS-147B/FI, LS-147C/FI, and LS-147D/FI.
TM 11-5830-221-35	Field and Depot Maintenance Manual: Intercommunication Stations LS-147A/FI, LS-147B/FI, LS-147C/FI, and LS-147D/FI.
TM 11-5830-221-35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Intercommunication Stations LS-147A/FI, LS-147B/FI, LS-147C/FI, and LS-147D/FI.
TM 11-5935-205-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Connectors, Receptacle, Electrical U-187/G and U-187A/G.
TM 11-5965-206-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Headset-Microphone H-91/U, H-91A/U; Handset-Headset H-144/U, H-144A/U, H-144B/U, H-144C/U, and Headset-Microphone H-210/G.
TM 11-5965-224-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Handsets H-60/PT and H-165/U.
TM 11-6625-240-20P	Organizational Maintenance Repair Parts and Special Tool Lists: Test Set TS-27B/TSM.
TM 11-6625-240-45P	Field (Fourth Echelon) and Depot Maintenance Repair Parts and Special Tool Lists: Test Set TS-27B/TSM.
TM 11-6625-648-12	Operator and Organizational Maintenance Manual: Test Set, Telephone AN/PTM-7.
TM 11-6625-648-25P	Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tool Lists: Test Set, Telephone AN/PTM-7.
TM 38-750	Army Equipment Record Procedures.

APPENDIX B BASIC ISSUE ITEMS

Section I. INTRODUCTION

B-1. Scope

This appendix lists items comprising an operable equipment and those required for installation, operation, or operator's maintenance for Terminal Set, Radio AN/TRC-117(V).

B-2. Explanation of Columns

The following is a list of explanations of columns in section II.

a. Source, Maintenance, and Recoverability Codes (SMR) Column.

(1) *Source code (S).* The selection status and source for the listed item is the first code indicated in this column. The source code used and its explanation is —

<i>Code</i>	<i>Explanation</i>
P —	applies to repair parts that are stocked in or supplied from GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.

(2) *Maintenance code (M).* The lowest category of maintenance authorized to install the item is indicated by the second code in the column. The maintenance category code and its explanation is —

<i>Code</i>	<i>Explanation</i>
C.....	Operator/Crew

(3) *Recoverability code (R).* The recoverability code is the third code in the column. It indicates whether unserviceable items should be returned for recovery or salvage. Recoverability code and its explanation is as follows:

Note. When no code is indicated in the recoverability column, the part will be considered expendable.

<i>Code</i>	<i>Explanation</i>
R —	applies to repair parts and assemblies that are economically repairable at DSU and GSU activities and are normally furnished by supply on an exchange basis.

b. Federal Stock Number Column. This column indicates the Federal stock number for the item.

c. Description Column. This column includes the Federal item name and any additional description of the item which may be required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacturers. When required to indicate that the part is used on the models, or serially numbered groups so identified, the numbers 1, 2, 3, 4, etc. are placed under the heading *Usable on Code*. An explanation of the codes used precedes the item in section II of the basic issue items list.

d. Unit of Measure Column. The unit used as a basis of measure (e.g., ea, pr, ft, yd, etc.) is given in this column.

e. Quantity Incorporated in Unit Column. The total quantity of the item used in the equipment is given in this column.

f. Quantity Furnished with Equipment Column. This column lists the quantity of the item supplied for initial operation of the equipment and/or the quantities authorized to be kept on hand by the operator for maintenance of the equipment.

g. Illustrations Column.

(1) *Figure number (a).* The number of the illustration on which the item is shown is indicated in this column.

(2) *Item No. or reference designation (b).* Not used.

B-3. Batteries

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.

SECTION II. BASIC ISSUE ITEMS

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS	
						(a) FIG. NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
	5895-069-8941	TERMINAL SET, RADIO AM/TRC-117(V) (This item is nonexpendable) For operable equipments listed below only 1 each technical manual is authorized. TECHNICAL MANUAL TM 11-9895-366-15 Requisition through pinpoint account number if assigned, otherwise through nearest Adjutant General facility. A quantity of one technical manual is packed with each equipment. Where a valid need exists, additional copies may be requisitioned and kept on hand. TECHNICAL BULLETIN TB SIG 354 Requisition through pinpoint account number if assigned, otherwise through nearest Adjutant General facility.					
P-C-R	5820-856-9925	ANTENNA AT-903/G	ea	2	2	5-1	
P-C-R	5820-082-4294	AMPLIFIER-CONVERTER AM-1956/GRC OR	ea	2	2	5-1	
P-C-R	5820-082-4293	AMPLIFIER-CONVERTER AM-1955A/GRC	ea	2	2	5-1	
P-C-R	5820-092-3857	AMPLIFIER-OSCILLATOR AM-1958/GRC OR	ea	2	2	5-1	
P-C-R	5820-892-3856	AMPLIFIER-OSCILLATOR AM-1957/GRC	ea	2	2	5-1	
P-C	5820-064-5450	CASE, STANDARDIZED COMPONENTS, ELECTRICAL CY-2583/GRC; Complete with running spares	ea	1	1	5-1	
P-C	5805-926-2627	CASE, ELECTRONIC EQUIPMENT, MAINTENANCE KIT CY-6097/U: Consists of the following:	ea	3	3	5-1	
P-C	5805-944-8942	MULTIPLEXER SUBASSEMBLY 1A3/2A3: SM-D-526539; 80063	ea		1		
P-C	5805-944-8144	MULTIPLEXER SUBASSEMBLY 2A5: SM-D-526557; 80063	ea		1		
P-C	5805-945-1182	MULTIPLEXER SUBASSEMBLY 1A6/2A6: SM-D-526545; 80063	ea		1		
P-C	5805-945-1180	MULTIPLEXER SUBASSEMBLY 2A7: SM-D-526560; 80063	ea		1		
P-C	5805-945-3824	MULTIPLEXER SUBASSEMBLY 2A8: SM-D-526563; 80063	ea		1		
P-C	5805-916-5963	MULTIPLEXER SUBASSEMBLY 2A9: SM-D-526566; 80063	ea		1		
P-C	5805-945-1094	MULTIPLEXER SUBASSEMBLY 2A10: SM-D-526569; 80063	ea		1		
P-C	5805-945-1130	MULTIPLEXER SUBASSEMBLY 1A12/2A12: SM-D-526551; 80063	ea		1		
P-C	5805-944-8874	MULTIPLEXER SUBASSEMBLY 2A13: SM-D-526572; 80063	ea		1		
P-C	5805-945-1121	MULTIPLEXER SUBASSEMBLY 1A14/2A14: SM-D-526554; 80063	ea		1		
P-C	5805-944-8885	MULTIPLEXER SUBASSEMBLY 2A15: SM-D-526575; 80063	ea		1		
P-C	5805-926-7288	MULTIPLEXER SUBASSEMBLY 1A16/2A16: SM-D-526584; 80063	ea		1		
P-C	2840-927-3587	COMPONENT BOARD, SPARES: Fuse/Lamp; SM-D-529124; 80063	ea		3		
P-C	5805-945-1021	MULTIPLEXER SUBASSEMBLY 5A2: SM-D-527010; 80063	ea		1		
P-C	5805-945-1186	MULTIPLEXER SUBASSEMBLY 5A3: SM-D-529513; 80063	ea		1		
P-C	5805-945-3825	MULTIPLEXER SUBASSEMBLY 5A4: SM-D-529516; 80063	ea		1		
P-C	5805-945-1185	MULTIPLEXER SUBASSEMBLY 5A5: SM-D-529519; 80063	ea		1		
P-C	5805-945-1020	MULTIPLEXER SUBASSEMBLY 4A6/5A6: SM-D-527022; 80063	ea		1		

SECTION II BASIC ISSUE ITEMS (CONTINUED)

C 1, TM 5895-366-15

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS	
						(a) FIG. NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-C	5805-945-1019	MULTIPLEXER SUBASSEMBLY 4A7/5A7: SM-D-529507; 80063	ea		1		
P-C	5805-945-1207	MULTIPLEXER SUBASSEMBLY 4A8/5A8: SM-D-529510; 80063	ea		1		
P-C	5805-944-8142	MULTIPLEXER SUBASSEMBLY 6A2: SM-D-527522; 80063	ea		1		
P-C	5805-944-8932	MULTIPLEXER SUBASSEMBLY 6A3: SM-D-527525; 80063	ea		1		
P-C	5805-926-0264	MULTIPLEXER SUBASSEMBLY 6A4: SM-D-527537; 80063	ea		1		
P-C	5805-944-8159	MULTIPLEXER SUBASSEMBLY 6A5: SM-D-527528; 80063	ea		1		
P-C	5805-944-8153	MULTIPLEXER SUBASSEMBLY 6A6: SM-D-527531; 80063	ea		1		
P-C	5805-944-8401	MULTIPLEXER SUBASSEMBLY 6A7: SM-D-527534; 80063	ea		1		
P-C	5805-944-8628	MULTIPLEXER SUBASSEMBLY (Extender board); SM-D-526592; 80063	ea	1,2	1	5-4	
P-C	5805-930-4838	ELECTRONIC COMPONENT ASSEMBLY 18A2: SM-D-528511; 80063	ea		1		
P-C-R	5805-985-9017	CONVERTER, TELEPHONE SIGNAL CV-1548/G	ea		2	2	5-1
P-C	5820-892-3861	DUMMY LOAD, ELECTRICAL DA-189/GRC	ea		1	1	5-1
P-C	5965-892-3850	HANDSET H-156/U	ea		2	2	
P-C	5965-669-6871	HEADSET-MICROPHONE H-91A/U	ea		1	1	
P-C-R	6115-738-6337	GENERATOR SET, GASOLINE ENGINE, TRAILER MOUNTED FU-618/M (Used with, but not part of this equipment)	ea		1		
P-C-R	5830-752-5357	INTERCOMMUNICATION STATION IS-147C/FT	ea		1	1	5-1
P-C	5820-892-3862	MAST AB-577/GRC: (1 digging bar and 1 hammer supplied with 2 AB-577/GRC)	ea		2	2	5-1
P-C-R	5805-884-2176	MULTIPLEXER TD-202/U	ea		2	2	5-1
P-C-R	5805-900-8200	MULTIPLEXER TD-204/U	ea		2	2	5-1
P-C-R	5805-900-8199	MULTIPLEXER TD-352/U	ea		2	2	5-1
P-C-R	5820-889-0857	POWER SUPPLY PP-2054/GRC	ea		2	2	5-1
P-C-R	5820-082-4292	RECEIVER, RADIO R-1331(P)/GRC	ea		2	2	5-1
P-C-R	6110-064-5478	REGULATOR, VOLTAGE CN-514/GRC	ea		1	1	5-1
P-C-R	5410-933-6837	SHELFER, ELECTRICAL EQUIPMENT S-330/TRC-117(V): Modified S-280A/G SHELFER	ea		1	1	
P-C-R	5410-880-2968	SHELFER, ELECTRICAL EQUIPMENT S-330A/TRC-117(V): Modified S-280B/G SHELFER	ea		1	1	
P-C-R	5805-543-0012	TELEPHONE SET TA-312/PT	ea		1	1	5-1
P-C-R	5820-892-3863	TRANSMITTER, RADIO T-893(P)/GRC SHELFER, ELECTRICAL EQUIPMENT S-330/TRC-117(V) AND S-330A/TRC-117(V) Usable on code 1 refers to the S-330/TRC-117(V); 2 refers to the S-330A/TRC-117(V).	ea		2	2	5-1
P-C	5935-064-5561	ADAPTER, CONNECTOR UG-1373/U: Mtd on Reel RC-436/GRC	ea	1,2	2	2	
P-C	5935-892-8878	ADAPTER, CONNECTOR UG-1374/U: Mtd on Reel RC-436/GRC	ea	1,2	2	2	
P-C	9920-682-6757	ASH, TRAY	ea	1,2	1	1	
P-C	5110-293-2339	AXE, SINGLE BIT: SC-C-539451; 80063	ea	1,2	1	1	5-1
P-C	8105-497-9628	BAG BG-102	ea	1,2	2	2	5-1
P-C	7520-926-4726	BASKET, WASTEPAPER: SC-D-539454; 80063	ea	1,2	1	1	5-1
P-C	6135-120-1020	BATTERY, DRY BA-30	ea	1,2			
P-C	4210-595-4085	BRACKET, FIRE EXTINGUISHER: SC-C-539468; 80063	ea	1,2	1	1	5-1
P-C	7920-178-8315	BRUSH, DUSTING HAND: SC-C-539469; 80063	ea	1,2	1	1	5-1
P-C	5410-752-2435	CABLE ASSEMBLY AND REEL: Power; SM-D-252732; 80063	ea	1,2	1	1	5-1

SECTION II. BASIC ISSUE ITEMS (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS	
							(a) FIG. NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-C	5995-823-2715	CABLE ASSEMBLY AND REEL: Signal; SC-DL-40468; 80063	1,2	ea	1	1	5-1	
P-C	5995-889-0848	CABLE ASSEMBLY, POWER, ELECTRICAL CX-4558/U: 3 ft 6 in lg	1,2	ea	2	2		
P-C	5995-935-2686	CABLE ASSEMBLY, POWER, ELECTRICAL CX-7705A/U: 15 ft lg	1,2	ea	1	1		
P-C	5995-933-5788	CABLE ASSEMBLY, POWER, ELECTRICAL CX-11173B/U: 4 ft lg	1	ea	8	8		
P-C	5995-930-9510	CABLE ASSEMBLY, POWER, ELECTRICAL: 4 ft lg; SC-C-547175-GR1; 80063	1,2	ea	4	4		
P-C	5995-781-6852	CABLE ASSEMBLY, POWER, ELECTRICAL: 4 ft lg; SC-C-547174-GR1; 80063	2	ca	8	8		
P-C	5995-810-6276	CABLE ASSEMBLY, POWER, ELECTRICAL: 3 ft 6 in lg; SC-C-547021; 80063	1,2	ca	1	1		
P-C	5995-933-5781	CABLE ASSEMBLY, RADIOFREQUENCY CG-409H/U: 23 ft lg	1,2	ea	4	4		
P-C	5995-889-0852	CABLE ASSEMBLY, RADIOFREQUENCY CG-718B/U: 3 ft lg	1,2	ea	3	3		
P-C	5995-889-0853	CABLE ASSEMBLY, RADIOFREQUENCY CG-718/G: 6 ft lg	1,2	ca	2	4		
P-C	5995-933-5800	CABLE ASSEMBLY, RADIOFREQUENCY CG-1040B/U: 4 ft lg	1	ea	14	14		
P-C	5995-935-5289	CABLE ASSEMBLY, RADIOFREQUENCY CG-1040B/U: 6 ft lg	2	ea	14	14		
P-C	5995-889-0854	CABLE ASSEMBLY, RADIOFREQUENCY CG-1859/U: 40 ft lg; mtd on Reel RC-435/GRC	1,2	ea	2	2		
P-C	5995-889-0527	CABLE ASSEMBLY, RADIOFREQUENCY CG-1859/U: 80 ft lg; mtd on Reel RC-435/GRC	1,2	ea	2	2		
P-C	5995-889-0855	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL CX-4557/GRC: 3 ft lg	1,2	ea	2	2		
P-C	5995-913-0470	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL CX-7874/TCC: 5 ft lg	1,2	ea	1	1		
P-C	5995-913-0471	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL CX-7870/TCC: 5 ft lg	1,2	ea	6	6		
P-C	5995-933-6463	CABLE ASSEMBLY, TELEPHONE CX-1200/U: 6 ft lg	1,2	ca	1	1		
P-C	5995-933-6458	CABLE ASSEMBLY, TELEPHONE CX-1201/U: 8 ft lg	1,2	ea	1	1		
P-C	5995-889-0803	CABLE ASSEMBLY, TELEPHONE CX-4760A/U: 15 ft lg	1,2	ea	1	1		
P-C	5995-933-5780	CABLE ASSEMBLY, TELEPHONE CX-7872/TTC: 20 ft lg	1,2	ca	1	1		
P-C	5995-933-5779	CABLE ASSEMBLY, TELEPHONE CX-7872/TTC: 22 ft lg	1,2	ea	1	1		
P-C	5995-933-5964	CABLE ASSEMBLY, TELEPHONE CX-7875/TTC: 20 ft lg	1,2	ca	1	1		
P-C	5995-933-5963	CABLE ASSEMBLY, TELEPHONE CX-7875/TTC: 22 ft lg	1,2	ea	1	1		
P-C	7105-943-3868	CHAIR, FOLDING: SC-D-539471; 80063	1,2	ca	1	1	5-1	
P-C	5975-395-9002	CLAMP, GUY: SC-C-547187; 80063	1,2	ea	21	21		
P-C	7910-900-1678	CLEANER, VACUUM: 29335; 2830	1,2	ea	1	1	5-1	
P-C	6645-800-7094	CLOCK, AIRCRAFT, MECHANICAL: 11B-12-24-W; 98429	1,2	ea	1	1		
P-C	6605-222-1756	COMPASS, MAGNETIC: 5600-1/2; 33363	1,2	ea	1	1		
P-C	7210-753-3043	CUSHION, CHAIR: SC-C-539526; 80063	1,2	ea	1	1		
P-C	5960-669-6861	ELECTRON TUBE: 600S/6AQ5W; 81349	1,2	ea	1	1		
P-C	5960-272-9182	ELECTRON TUBE: 6X4W; 81349	1,2	ea	1	1		
P-C	5960-262-0152	ELECTRON TUBE: 6AU6WA; 81349	1,2	ea	1	1		
P-C	4210-270-4512	EXTINGUISHER, FIRE: SC-D-539482; 80063	1,2	ea	1	1	5-1	
P-C	6945-922-1200	FIRST AID KIT: SC-C-549483; 80063	1,2	ea	1	1	5-1	
P-C	5920-280-4465	FUSE, CARTRIDGE: F02A250V1AS; 81349	1,2	ea	1	5		

SECTION II. BASIC ISSUE ITEMS (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS	
						(a) FIG. NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-C	5120-449-8083	WRANCH, OPEN END: GGG-W-63L, type 1, class 1; 81349 2 NO ACCESSORIES, TOOLS AND TEST EQUIPMENT ARE TO BE USED WITH THIS EQUIPMENT NO BASIC ISSUE TERMS ARE MOUNTED IN OR ON THIS EQUIPMENT	ea	1	1		

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Terminal Set, Telephone AN/TRC-117(V). 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.

C-2. Explanation of Format for Maintenance Allocation Chart

a. Group Number. Group numbers correspond to the reference designation prefix assigned in accordance with ASA Y32.16, Electrical and Electronics Reference Designations. They indicate the relation of listed items to the next higher assembly.

b. Component Assembly Nomenclature. This column lists the item names of component units, units, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Maintenance Function. This column indicates the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

<i>Code</i>	<i>Maintenance Category</i>
C	Operator/Crew
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
D	Depot Maintenance

d. Tools and Equipment. The numbers appearing in this column refer to specific tools and equipment which are identified by these numbers in section III.

e. Remarks. Self explanatory.

C-3. Explanation of Format for Tool and Test Equipment Requirements

The columns in the tool and test equipment requirements chart are as follows:

a. Tools and Equipment. 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 for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number.

e. Tool Number. Not used.

SECTION II. MAINTENANCE ALLOCATION CHART

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS									TOOLS AND EQUIPMENT	REMARKS		
		INSPECT	TEST	SERVICE	ADJUST	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL			REBUILD	
1	TERMINAL SET, RADIO AN/TRC-117	C	C	O									3	Preventive maintenance
1a	CONVERTER, TELEPHONE SIGNAL CV-1548/G												6	System operation using built-in facilities
1b	MULTIPLIER TD-202/U												6	Test in accordance with component maintenance allocation chart (MAC)
1c	MULTIPLIER TD-204/U												6	Adjust in accordance with component MAC
1d	MULTIPLIER TD-352/U												6	Repair in accordance with component MAC
1e	RADIO SET AN/GRC-50(V)												6	By component Shelter facility only
1f	SHELTER, ELECTRICAL EQUIPMENT S-330/TRC-117												6	See TM 11-5805-367-12
													6	See TM 11-5805-367-12
													6	See TM 11-5805-367-12
													6	See TM 11-5805-367-12
													6	See TM 11-5805-367-12
													6	Preventive maintenance
													3	Continuity of power, lighting, and signal circuits
													1	All tests
													2	Power, lighting, and signal circuits
													3	Except skids and door
													4,5	
													4,5	
													4,5	

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS	
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD			
1f1	AW/IRC-117 (continued) BLOWER, EXHAUST		0						1	0				1 3 3	Replace motor and impeller Corps engineers MOCOM responsibility See TM 11-5830-221-12
1f2	EXTINGUISHER, FIRE									#					See TM 11-5410-213-15P
1f3	HEATER, ELECTRICAL									#					See TM 11-5805-257-12P
1f4	INTERCOMMUNICATIONS SET IS-147C/PI									#					Operational
1f5	SHELTER, ELECTRICAL EQUIPMENT S-280A/G (MOD)									#					#Indicates that maintenance guidance will be found in documents referenced in remarks column.
1g	TELEPHONE SET TA-312/PI									#					
1b	VOLTAGE SENSOR		0							1				1 3	

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
1	O, F, H, D	AN/TRC-117 (continued)	6625-581-2036	
		MULTIMETER TS-352D/U		
2	H, D	NOTE: Will be replaced by AN/USM-223		
3	O, F	OHMMETER ZM-21A/U	6625-246-5880	
4	H, D	TOOL KIT, RADIO REPAIRMAN TK-115/G	5180-856-1576	
5	F, H, D	TOOL KIT, ELECTRONIC EQUIPMENT SHELTER TK-114/G	5180-987-4369	
6	O, F, H, D	TOOL KIT, GENERAL MECHANICS	5180-754-0641	
		TOOLS AND TEST EQUIPMENT ASSOCIATED WITH COMPONENTS OF THIS END ITEM		
		NOTE: DEPOT MAY USE ANY OTHER EQUIPMENT REQUIRED TO OVERHAUL OR REBUILD THIS EQUIPMENT.		

APPENDIX D

ORGANIZATIONAL, DS, GS, AND DEPOT REPAIR PARTS

Section I. INTRODUCTION

D-1. Scope

This appendix contains a list of repair parts required for the performance of organizational maintenance and a list covering the corresponding requirements for direct support, general support, and depot maintenance for Terminal Set, Radio AN/TRC-117(V).

Note. No special tools, test, and support equipment are required.

D-2. General

The repair parts list is divided into the following sections:

a. Prescribed Load Allowance (PLA), Section II. The PLA is a consolidated listing of repair parts allocated for initial stockage at the organizational maintenance category. This is a mandatory minimum stockage allowance.

b. Repair Parts for Organizational Maintenance, Section III. Repair parts authorized for organizational maintenance are included in this section.

c. Repair Parts for Direct Support, General Support, and Depot Maintenance, Section IV. Repair parts authorized for direct support, general support, and depot maintenance are included in this section.

Note. All indexes noted below are cross referenced to index numbers. The index numbers appear in ascending sequence in column 1 of the repair parts list (para D-3a). The index number for the particular item will be the same for the item in all sections of this appendix.

d. Federal Stock Number Cross-Reference to Index Number, Section V. This is a cross reference index of Federal stock numbers and manufacturer's part numbers to index numbers.

e. Figure and Item Number Cross-Reference to Index Number, Section VI. This is a cross reference index of figure number and reference designation to index number. The figure numbers are listed in numerical sequence;

reference designations are listed for each figure. Where applicable, when the same reference designation is used on different models, the usable on code (para D-3c) is indicated after the reference designation (e.g., "DS1 thru DS6—1, DS1 thru DS6—2").

f. Reference Designation Cross-Reference to Index Number, Section VII. This is a cross-reference index of reference designations to index numbers. Where applicable, when the same reference designation is used on different models, the usable on code (para D-3c) is indicated after the reference designation (e.g., "DS1 thru DS6—1, DS1 thru DS6-2").

D-3. Explanation of Columns

An explanation of the columns is given below.

a. Source, Maintenance, and Recoverability Codes (SMR) and Index Numbers Column. The first line in this column lists the applicable SMR codes for the part. Listed in ascending order directly below the SMR codes is the index number assigned to the repair part.

(1) *Source code (S).* The selection status and source for the listed item is noted here. Source code and its explanation is as follows:

<i>Code</i>	<i>Explanation</i>
P —	applies to repair parts that are stocked in or supplied from the GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.

(2) *Maintenance code (M).* The lowest category of maintenance authorized to install the listed item is noted here.

<i>Code</i>	<i>Explanation</i>
C	Operator/crew
O	Organizational maintenance
F	Direct support maintenance
H	General support maintenance

(3) *Recoverability code (R).* The information in this column indicates whether unserviceable items should be returned for recovery or salvage. Recoverability code and its ex-

planation is as follows:

Note. When no code is indicated in the recoverability column, the part will be considered expendable.

<i>Code</i>	<i>Explanation</i>
R —	applies to repair parts and assemblies which are economically repairable at DSU and GSU activities and normally are furnished by supply on an exchange basis.

b. Federal Stock Number Column. The Federal stock number for the item is listed in this column.

c. Description Column. This column includes the Federal item name and any additional description of the item required, the manufacturer's part number (reference number), and the applicable five-digit Federal Supply Code for Manufacturers (para D-5). Also included in this column are the designators 1, 2, 3, 4, etc. listed under the heading *Usable on Code*. The designators, which are explained in the description column in the repair parts list, indicates that the part is used on the model or serially numbered groups so identified.

d. Unit of Measure Column. The unit used as a basis of measure (e.g., ea, pr, ft, yd, etc.) is indicated in this column.

e. Quantity Incorporated in Unit Column. The quantity of repair parts in an assembly is given in this column.

f. Maintenance Allowances Column.

(1) The maintenance allowance columns are divided into subcolumns. Indicated in each subcolumn opposite the item is the total quantity of items authorized for the number of equipments supported. Items authorized for use as required, but not for initial stockage, are identified with an asterisk (*) in the allowance column.

(2) The quantitative allowances for organizational category of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate density column to obtain the total quantity of repair parts authorized.

(3) Subsequent changes to organizational allowances will be limited as follows: No

change in the range of items is authorized. If additional items are considered necessary, recommendations should be forwarded to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-CW, Fort Monmouth, N. J. 07703, for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the USA ECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

(4) The quantitative allowances for DS/GS categories of maintenance will represent initial stockage for a 30-day period for the number of equipments supported.

g. One-Year Allowances Per 100 Equipments/Contingency Planning Purposes Column. Opposite the item, the total quantity required for distribution and contingency planning purposes is indicated. The range of items indicates total quantities of all authorized items required to provide for adequate support of 100 equipments for one year.

h. Depot Maintenance Allowances Per 100 Equipments Column. This column indicates the total quantity of each item authorized depot maintenance for 100 equipments.

i. Illustrations Column.

(1) *Figure number (a).* The number of the illustration in which the item is shown is indicated in this column.

(2) *Item No. or reference designation (b).* The callout number or reference designation used to reference the item in the illustration appears in this column.

D-4. Location of Repair Parts

a. This appendix contains three cross-reference indexes (sec. V, VI, and VII), to be used to locate a repair part when either the Federal stock number, reference number (manufacturer's part number), figure number, or reference designation is known. The first column in each cross-reference index is prepared, as applicable, in numerical or alpha-numerical sequence. The last column of each cross-reference index lists the index number assigned to the part.

b. Refer to the appropriate cross-reference index (para D-2*d, e, and f*) and note the index

number in the last column; then refer to the repair parts list to locate the index number which is listed in ascending order in column 1 of the repair parts list.

D-5. Federal Supply Codes

This paragraph lists the Federal supply code and the associated manufacturer's name.

<i>Code</i>	<i>Manufacturer</i>	<i>Code</i>	<i>Manufacturer</i>
02660	Amphenol Corp.	32572	Justrite Mfg. Coj
02777	Hopkins Engineering Co.	33363	Keuffel and Esser Co.
05571	Sprague Electric Co. Pacific Division	71102	Boston Insulated Wire and Cable Co.
06229	Electrovert, Inc.	71183	Bryant Electric Co.
09922	Burndy Corp.	71468	ITT Cannon Electric, Inc.
12143	Bendix Corp., The Electrical Components Division	72619	Dialight Corp.
15605	Cutler-Hammer, Inc.	74545	Hubbell Harvey, Inc.
19634	Laduby Flur-O-Lock Co., Inc.	75582	Leviton Mfg., Co.
21873	Slatter Electric Inc.	77820	Bendix Corp The Electrical Components Division
23404	Callboy Company	79405	Wood Electric Corp.
24455	General Electric Co. Lamp Divi- sion of Consumer Products Group	80063	Army Electronics Command
29335	Hoover Co.	81349	Military Specifications
		81831	Filtron Co., Inc., The
		84256	Avdel, Inc.
		88065	Burwen Frank Co.
		90211	Square D Co.
		91737	Gremar Mfg Co., Inc.
		91929	Honeywell, Inc., Building Controls and Components Group
		93993	Midwest Electric Products, Inc.
		95344	Economy Cable Grip Co.
		96906	Military Standards
		98429	Wakmann Watch Co., Inc.

SECTION II. PRESCRIBED LOAD ALLOWANCE

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION	USABLE ON CODE	(3) 15-DAY ORG. MAINT. ALLOWANCE			
			(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100
5120-946-5114	GRIP, CABLE: BQA-26SH; 95344; (15 in lg)	1,2	*	2	2	3
5120-946-5148	GRIP, CABLE: BQA-68PH; 95344; (20 in lg)	1,2	*	2	2	3
5340-857-1424	CLIP, RETAINING: Holds cable in cable clamps; N1; 06229	1,2	*	*	2	2
5910-553-6096	FILTER: For fluorescent lights; 591B; 02777	1,2	*	*	2	2
5915-946-5369	FILTER, AUDIO: JW17-1122; 05571	1,2	*	*	2	2
5920-808-8342	FUSE, CARTRIDGE: F/overvoltage protection device; F03B250V1/2A; 81349	1,2	2	2	6	11
5925-583-7941	CIRCUIT BREAKER: Q0-120; 90211	1,2	*	*	*	2
5925-682-1061	CIRCUIT BREAKER: Q0-115; 90211	1,2	*	*	*	2
5925-984-2163	CIRCUIT BREAKER: Q0B115; 90211	1,2	*	*	2	2
5930-636-4014	SWITCH, TOGGLE: 9711; 74545	1,2	*	*	2	2
5930-776-0057	SWITCH, SENSITIVE: For blackout; BZ2RQ18T; 91929	1	*	*	*	2
5930-892-9393	SWITCH, TOGGLE: Mtd in audio ent box; 8838-K4; 15605	1,2	*	2	3	5
5930-944-1086	SWITCH, SENSITIVE: BZ2RQ181T; 91929	2	*	*	*	2
5935-045-9832	CONNECTOR, RECEPTACLE, ELECTRICAL U-187A/G: Mtd in audio ent box	1,2	*	*	*	2
5935-064-5731	CONNECTOR, PLUG, ELECTRICAL U-237/G: For 100 ft and 15 ft cable assys	1,2	*	*	2	2
5935-064-5732	CONNECTOR, RECEPTACLE, ELECTRICAL U-238A/G	1,2	*	*	*	2
5935-636-6236	CONNECTOR, PLUG, ELECTRICAL UG-567B/U	1,2	*	*	*	2
5935-258-4568	COVER, ELECTRICAL CONNECTOR CW-282/U	1,2	*	2	2	3
5935-258-4663	CONNECTOR, RECEPTACLE, ELECTRICAL: 5262; 74545	1,2	*	*	2	2
5935-259-3313	CONNECTOR, RECEPTACLE, ELECTRICAL: 7210B; 74545	1	*	*	*	2
5935-283-2950	CONNECTOR, PLUG, ELECTRICAL U-77/U	1,2	*	*	*	2
5935-636-7145	CONNECTOR, PLUG, ELECTRICAL UP-121/M	1,2	*	2	2	3
5935-660-4302	CONNECTOR, RADIOFREQUENCY UG-573A/U	1,2	*	*	2	2
5935-813-4080	ADAPTER, ELECTRICAL CONNECTOR: 10-101960-103; 77820	1,2	*	*	*	2
5935-892-9075	CONNECTOR, PLUG, ELECTRICAL: Q7A14A-7S; 77820	1,2	*	*	2	2

SECTION II. PRESCRIBED LOAD ALLOWANCE (CONTINUED)

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION	USABLE ON CODE	(3) 15-DAY ORG. MAINT. ALLOWANCE			
			(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100
5935-892-9083	CONNECTOR, PLUG, ELECTRICAL: Q7A24A-22P; 02660	1,2	*	*	*	2
5935-930-1204	CONNECTOR, PLUG, ELECTRICAL: BTO6J-8-4P; 09922	1,2	*	*	*	2
5935-930-1205	CONNECTOR, PLUG, ELECTRICAL: BTO6J-12-8S; 09922	1,2	*	*	*	2
5935-930-1207	CONNECTOR, PLUG, ELECTRICAL: KPT06G12-3S; T1468	1,2	*	*	2	2
5935-930-1210	CONNECTOR, RECEPTACLE, RADIOFREQUENCY: Mtd in video and antenna ent box; 13738; 91737	1,2	*	*	*	2
5935-932-3009	CONNECTOR, PLUG, ELECTRICAL UG-260R/U	1,2	*	2	3	5
5935-933-3454	CONNECTOR, RECEPTACLE, ELECTRICAL: 5361; 74545	2	*	*	*	2
5935-935-2159	CONNECTOR, PLUG, ELECTRICAL UG-88P/U	1,2	*	*	2	2
5935-946-1272	CONNECTOR, RECEPTACLE, ELECTRICAL: Female; mtd in video and antenna ent box; Gr II; ES-C-194240; 80063	1,2	*	*	*	2
5935-947-2925	CONNECTOR, RECEPTACLE, ELECTRICAL: Male; mtd in video and antenna ent box; Gr II; ES-C-194239; 80063	1,2	*	*	*	2
5935-957-0807	CONNECTOR, PLUG, ELECTRICAL: PT06W14-19S; 77820	1,2	*	*	1	2
5935-973-0637	CONNECTOR, RECEPTACLE, ELECTRICAL UG-1375/U: Mtd in radio box	1,2	*	*	*	2
5935-992-0304	CONNECTOR, PLUG, ELECTRICAL: PT06E-10-98P(SR); 12143	1,2	*	*	*	2
5935-992-0311	CONNECTOR, RECEPTACLE, ELECTRICAL: PT02E-10-98S; 12143	1,2	*	*	*	2
5935-999-6934	RECEPTACLE AND SWITCH ASSEMBLY: 5225; 75582	1,2	*	*	2	2
5940-254-2244	CAP, ELECTRICAL: For binding posts; SC-C-76202-1; 80063	1,2	2	2	3	6
5975-224-5260	ROD, GROUND MX-148/G	1,2	*	*	2	2
6105-954-4947	MOTOR, ALTERNATING CURRENT: SC-D-53961SGR2; 80063	1,2	*	*	*	2
6210-921-6682	SHIELD LIGHT: For fluorescent lights; SC-B-539466; 80063	1,2	*	*	2	2
6230-729-9614	LANTERN, ELECTRIC: 2106-7; 32572	1,2	*	*	*	2
6240-152-2996	LAMP, FLUORESCENT: F20T12/CW; 24455	1,2	*	2	2	3

SECTION II. PRESCRIBED LOAD ALLOWANCE (CONTINUED)

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION	USABLE ON CODE	(3) 15-DAY ORG. MAINT. ALLOWANCE			
			(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100
6240-179-1814	LAMP, GLOW NE-45	1	*	*	2	2
6240-223-9100	LAMP, GLOW NE-51	1	*	*	*	2
		2	*	*	2	2
6240-274-4027	LAMP, INCANDESCENT: 25T8DC; 24455	1,2	*	2	2	3
6240-635-9753	LAMP, GLOW NE-34	1,2	*	*	*	2
6250-227-0317	LAMPHOLDER: Incl starter socket; 78X736; 24455	1,2	*	*	*	2
6250-299-2884	STARTER, FLUORESCENT: FS-2; 71183	1,2	*	*	2	2
6250-691-5966	LAMP LOCK, FLUORESCENT: P-40; 19634	1,2	*	*	2	2
6250-761-6330	LAMPHOLDER: 4-06; 72619	1	*	*	*	2
6250-804-3449	BALLAST, LAMP: For fluorescent lights; 89G457D; 24455	1,2	*	*	2	2
	CONNECTOR, PLUG, ELECTRICAL: 13739; 91737	1,2	*	*	*	2
	LAMPHOLDER: 78X491; 24455	1,2	*	*	*	2
	PIN, QUICK RELEASE: BLS6TA14S; 84256	1,2	*	*	*	2
	POST, BINDING U-106/U: Mtd in power and audio ent box; SC-C-16495; 80063	1,2	2	2	3	6

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE

(1) SNR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALW				(7) ILLUSTRATIONS	
					(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-O A001	5895-069-8941	TERMINAL SET, RADIO AN/TRC-117(V) (This item is nonexpendable) SHELFTR, ELECTRICAL EQUIPMENT 8-330/TRC-117(V) AND 8-330A/TRC-117(V) NOTE: Usable on code 1 refers to the 8-330/TRC-117(V); 2 refers to the 8-330A/TRC-117(V)								
P-O A002	5935-813-1080	ADAPTER, ELECTRICAL CONNECTOR: 10-101960-103; 77820	1,2	ea	2	*	*	*	2	
P-O A003		ADAPTER, ELECTRICAL CONNECTOR: 10-37093-323; 77820	1,2	ea	1	*	*	*	*	
P-O A004	6625-752-8464	AMMETER: MR36WLOOACAR; 81349	1,2	ea	1	*	*	*	*	5-3 A
P-O A005	5920-930-2307	ARRESTER, LIGHTNING: Mtd in video and antenna ent box; SC-B-547223; 80063	1,2	ea	4	*	*	*	*	
P-O A006		BALL, LOCK, SINGLE ACTING PIN: 7-3/4 in lg o/a; BLS6CL675; 84256	1,2	ea	1	*	*	*	*	
P-O A007	6250-804-3449	BALLAST, LAMP: For fluorescent lights; 890457D; 24455	1,2	ea	6	*	*	2	2	5-3
P-O A016	5995-889-1500	CABLE ASSEMBLY, POWER, ELECTRICAL CX-7453/U: 100 ft lg	1,2	ea	1	*	*	*	*	
P-O A017	5940-254-2284	CAP, ELECTRICAL: For binding posts; SC-C-76202-1; 80063	1,2	ea	112	2	2	3	6	
P-O A018	5820-987-9269	CAP, ELECTRICAL CONNECTOR CW-593/U: F/U0-1375/U	1,2	ea	2	*	*	*	*	
P-O A019		CAP, ELECTRICAL CONNECTOR: 10-37147-28; 77820	1,2	ea	1	*	*	*	*	
P-O A020	5925-682-4102	CIRCUIT BREAKER: Q0-115; 90211	1,2	ea	3	*	*	*	2	5-3 CB1, CB2, CB4
P-O A021	5925-084-2163	CIRCUIT BREAKER: Q0B115; 90211	1,2	ea	4	*	*	2	2	5-3 CB8 thru CB11
P-O A022	5925-583-7941	CIRCUIT BREAKER: Q0-120; 90211	1,2	ea	2	*	*	*	2	5-3 CB3, CB5
P-O A023	5925-532-9142	CIRCUIT BREAKER: Q0-140; 90211	1,2	ea	1	*	*	*	*	5-3 CB6
P-O A024	5925-905-1509	CIRCUIT BREAKER: Q0-260; 90211	1,2	ea	1	*	*	*	*	5-3 7
P-O A025	5925-930-8519	CIRCUIT BREAKER: 105-201-101; 79405	1	ea	1	*	*	*	*	5-3 CB12
P-O A026	5925-681-4952	CIRCUIT BREAKER: MS25244-10; 96906	2	ea	1	*	*	*	*	
P-O A027	5340-857-1424	CLIP, RETAINING: Holds cable in cable clamps; N1; 06229	1,2	ea	17	*	*	2	2	
P-O A028		CLIP, RETAINING: Holds cable in cable clamps; N3; 06229	1,2	ea	2	*	*	*	*	
P-O A029	5340-592-7996	CLIP, RETAINING: Holds cable in cable clamps; N7; 06229	1,2	ea	4	*	*	*	*	
P-C-R A030	6645-800-7094	CLOCK, AIRCRAFT MECHANICAL: 118-12-24-W; 98429	1,2	ca	1	*	*	*	*	
P-O A031	5935-283-2950	CONNECTOR, PLUG, ELECTRICAL U-77/U	1,2	ea	2	*	*	*	2	
P-O A032	5935-064-5731	CONNECTOR, PLUG, ELECTRICAL U-237/G: For 100 ft and 15 ft cable assys	1,2	ea	3	*	*	2	2	
P-O A033	5935-935-2159	CONNECTOR, PLUG, ELECTRICAL U0-88E/U	1,2	ea	8	*	*	2	2	
P-O A034	5935-201-2753	CONNECTOR, PLUG, ELECTRICAL U0-56E/U	1,2	ea	2	*	*	*	2	
P-O A035	5935-636-7145	CONNECTOR, PLUG, ELECTRICAL UP-121/M	1,2	ea	14	*	2	2	3	

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALLOW				(7) ILLUSTRATIONS		
					(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION	
P-0 AO36	5935-892-9083	CONNECTOR, PLUG, ELECTRICAL: Q7A24A-22P; 02660	1,2	ea	2	*	*	*	2		
P-0 AO37	5935-892-9075	CONNECTOR, PLUG, ELECTRICAL: Q7A14A-7S; 77820	1,2	ea	4	*	*	2	2		
P-0 AO38	5935-992-0304	CONNECTOR, PLUG, ELECTRICAL: P106E-10-98P(SR); 12143	1,2	ea	2	*	*	*	2		
P-0 AO39		CONNECTOR, PLUG, ELECTRICAL: 13739; 91737	1,2	ea	2	*	*	*	2		
P-0 AO40	5935-932-3009	CONNECTOR, PLUG, ELECTRICAL UG-260E/U	1,2	ea	28	*	2	3	5		
P-0 AO41	5935-930-1205	CONNECTOR, PLUG, ELECTRICAL: B106J-12-8S; 09922	1,2	ea	2	*	*	*	2		
P-0 AO42	5935-930-1204	CONNECTOR, PLUG, ELECTRICAL: B106J-8-4P; 09922	1,2	ea	4	*	*	*	2		
P-0 AO43	5935-930-1207	CONNECTOR, PLUG, ELECTRICAL: K1105G12-3S; 71468	1,2	ea	8	*	*	2	2		
P-0 AO44	5935-957-0807	CONNECTOR, PLUG, ELECTRICAL: P106M14-19S; 77820	1,2	ea	6	*	*	1	2		
P-0 AO45	5935-892-9082	CONNECTOR, PLUG, ELECTRICAL: Q7A24A-22S; 02660	1,2	ea	1	*	*	*	*		
P-0 AO46	5935-660-4302	CONNECTOR, RADIOFREQUENCY UG-573A/U	1,2	ea	8	*	*	2	2		
P-0-R AO47	5935-045-9832	CONNECTOR, RECEPTACLE, ELECTRICAL U-187A/G; Mtd in audio ent box	1,2	ea	2	*	*	*	2		
P-0 AO48	5935-064-5732	CONNECTOR, RECEPTACLE, ELECTRICAL U-238A/G	1,2	ea	2	*	*	*	2	5-3	E1, E2
P-0 AO49	5935-973-0637	CONNECTOR, RECEPTACLE, ELECTRICAL UG-1375/U; Mtd in radio box	1,2	ea	2	*	*	*	2		
P-0 AO50	5935-992-0311	CONNECTOR, RECEPTACLE, ELECTRICAL; P102E-10-98S; 12143	1,2	ea	2	*	*	*	2		
P-0 AO51	5935-947-2925	CONNECTOR, RECEPTACLE, ELECTRICAL: Male; mtd in video and antenna ent box; Gr II; ES-C-194239; 80063	1,2	ea	2	*	*	*	2		
P-0 AO52	5935-946-1272	CONNECTOR, RECEPTACLE, ELECTRICAL: Female; mtd in video and antenna ent box; Gr II; ES-C-194240; 80063	1,2	ea	2	*	*	*	2		
P-0 AO53	5935-259-3313	CONNECTOR, RECEPTACLE, ELECTRICAL: 7210B; 74545	1	ea	2	*	*	*	2	5-3	J7, J8
P-0 AO54	5935-258-4663	CONNECTOR, RECEPTACLE, ELECTRICAL: 5262; 74545	1,2	ea	11	*	*	2	2	5-3	J1, J2, J3, J9 thru J16
P-0 AO55	5935-642-3652	CONNECTOR, RECEPTACLE, ELECTRICAL: 5261; 74545	1,2	ea	1	*	*	*	*	5-3	J4
P-0 AO56	5935-087-5421	CONNECTOR, RECEPTACLE, ELECTRICAL: F/overvoltage protection device; Q2A24A-22P; 02660	1,2	ea	1	*	*	*	*		
P-0 AO57	5935-087-5408	CONNECTOR, RECEPTACLE, ELECTRICAL: F/overvoltage protection device; Q2A24A-22S; 02660	1,2	ea	1	*	*	*	*		
P-0 AO58	5935-933-3454	CONNECTOR, RECEPTACLE, ELECTRICAL: 5361; 74545	2	ea	2	*	*	*	2		
P-0 AO59	5935-930-1210	CONNECTOR, RECEPTACLE, RADIOFREQUENCY: Mtd in video and antenna ent box; 13739; 91737	1,2	ea	2	*	*	*	2		
P-0 AO60	5975-947-3068	COVER, ELECTRICAL OUTLET: Mtd in pwr ent box; M3780-FS; 21873	1,2	ea	1	*	*	*	*		
P-0 AO61	5935-258-4568	COVER, ELECTRICAL CONNECTOR CW-282/U	1,2	ea	36	*	2	2	3		
P-0 AO62	5935-846-3019	COVER, ELECTRICAL CONNECTOR: 10-101957-103; 77820	1,2	ea	1	*	*	*	*		

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALLOW				(7) ILLUSTRATIONS	
						(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-O A063	5910-553-6096	FILTER: For fluorescent lights; 591B; 02777	1,2	ea	6	*	*	2	2	5-3	
P-O A064	5915-946-5369	FILTER, AUDIO: JWL7-1122; 05571	1,2	ea	8	*	*	2	2		
P-O A065	5910-905-7762	FILTER, POWER: SP-289; 81831	1,2	ea	2	*	*	*	*	5-3	FL, FL2
P-O A066	5920-892-9311	FUSEHOLDER: F/overvoltage protection device; FHR2601; 81349	1,2	ea	1	*	*	*	*		
P-C A067	5920-808-8342	FUSE, CARTRIDGE: F/overvoltage protection device; F03B250V1/2A; 81349	1,2	ea	1	2	2	6	11		
P-C A068	5120-946-5148	GRIP, CABLE: EQA-68PR; 95344; (20 in lg)	1,2	ea	5	*	2	2	3		
P-C A069	5120-946-5114	GRIP, CABLE: EQA-26SH; 95344; (15 in lg)	1,2	ea	5	*	2	2	3		
P-O A070	5935-192-4789	JACK, TELEPHONE JJ-089: For TA-312/PT and LS-1470/FI	1,2	ea	2	*	*	*	*		
P-C A071	6240-152-2996	LAMP, FLUORESCENT: F20T12/CW; 24455	1,2	ea	6	*	2	2	3	5-3	DS12 and DS17
P-C A072	6240-635-9793	LAMP, GLOW NE-34	1,2	ea	1	*	*	*	2	5-3	DS7
P-C A073	6240-179-1814	LAMP, GLOW NE-45	1	ea	6	*	*	2	2	5-3	DS1 thru DS6
P-C A074	6240-223-9100	LAMP, GLOW NE-51	1 2	ea	1 7	*	*	*	2 2	5-3	DS1 thru DS6
P-C A075	6240-274-4027	LAMP, INCANDESCENT: 25T8DC; 24455	1,2	ea	4	*	2	2	3	5-3	DS8 thru DS11
P-O A076	6250-691-5966	LAMP LOCK, FLUORESCENT: P-40; 19634	1,2	ea	12	*	*	2	2		
P-O A077	6250-761-6330	LAMPHOLDER: 4-06; 72619	1	ea	6	*	*	*	2	5-3	XDS1 thru XDS6
P-O A078		LAMPHOLDER: 4109; 74545	1,2	ea	1	*	*	*	*	5-3	XDS7
P-O A079		LAMPHOLDER: 78X491; 24455	1,2	ea	6	*	*	*	2	5-3	XDS12 thru XDS17
P-O A080	6250-227-0317	LAMPHOLDER: Incl starter socket; 78X736; 24455	1,2	ea	6	*	*	*	2	5-3	XDS12 thru XDS17
P-O A081	6250-995-9074	LAMPHOLDER: 12-240; 72619	1,2	ea	4	*	*	*	*	5-3	XDS8 thru XDS11
P-C A082	6230-729-9614	LANTERN, ELECTRIC: 2106-T; 32572	1,2	ea	1	*	*	*	2		
P-C A083	5410-752-2525	LEAD, ELECTRICAL: For gnd; SC-B-539492; 80063	1,2	ea	2	*	*	*			
P-O A084	6210-299-4172	LIGHT INDICATOR: Red lens; F/overvoltage protection device; 52408-991-241; 72619	1,2	ea	1	*	*	*	*		
P-O A086	6105-954-4947	MOTOR, ALTERNATING CURRENT: SC-D-53961SGR2; 80063	1,2	ea	2	*	*	*	2		
P-O A087	5340-930-1476	PEEPSIGHT: CB-101; 23404	1,2	ea	1	*	*	*	*		
P-O A088		PIN, QUICK RELEASE: BLS6TAL4S; 84256	1,2	ea	6	*	*	*	2		
P-O A089		POST, BINDING U-106/U: Mtd in power and audio ent box; SC-C-16495; 80063	1,2	ea	112	2	2	3	6		
P-O A090	5935-999-6934	RECEPTACLE AND SWITCH ASSEMBLY: 5225; 75582	1,2	ea	2	*	*	2	2	5-3	L76, 205
P-O A091	8130-656-1090	REEL, CABLE RC-435/U	1,2	ea	2	*	*	*	*		

SECTION III. REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (CONTINUED)

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 15-DAY ORGANIZATIONAL MAINTENANCE ALLOW				(7) ILLUSTRATIONS	
					(a) 1-5	(b) 6-20	(c) 21-50	(d) 51-100	(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
P-C AO91A		REPAIR KIT, ELECTRONIC EQUIPMENT SHIELDER MK-680/G; (NOTE: To be requisitioned for immediate use only, order direct from depot stock.)	1,2	ea	*	*	*	*		
P-C AO93	5975-224-5260	ROD, GROUND MX-148/G	1,2	ea	2	*	*	2	2	
P-O AO94	6210-921-6682	SHIELD LIGHT: For fluorescent lights; SC-B-539466; 80063	1,2	ea	6	*	*	2	2	
P-O AO95	6210-930-1217	SHIELD LIGHT: For cold start lights; SC-C-547186; 80063	1,2	ea	2	*	*	*	*	
P-C AO96	6250-299-2884	STARTER, FLUORESCENT: FS-2; 71183	1,2	ea	6	*	*	2	2	
P-O AO97	5930-776-0057	SWITCH, SENSITIVE: For blackout; B22RQ18T; 91929	1	ea	1	*	*	*	2	S1
P-O AO98	5930-944-1086	SWITCH, SENSITIVE: B22RQ18T; 91929	2	ea	1	*	*	*	2	
P-O AO99	5930-636-4014	SWITCH, TOGGLE: 9711; 74545	1,2	ea	3	*	*	2	2	5-3 S2, S3, S4
P-O AL00	5930-892-9393	SWITCH, TOGGLE: Mtd in audio ent box; 883B-K4; 15605	1,2	ea	24	*	2	3	5	
P-O AL01	5930-044-3549	SWITCH, TOGGLE: F/overvoltage protection device; M825201-9; 81349	1,2	ea	1	*	*	*	*	
P-O AL02	5950-280-4651	TRANSFORMER, CURRENT: Mtd in pwr dist panel; 3CT11B; 93993	1,2	ea	1	*	*	*	*	5-3
P-O AL03	6625-682-4723	VOLTMETER: MR36W150ACVVR; 81349	1,2	ea	1	*	*	*	*	5-3 V

SECTION IV. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SRR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) YR ALW PER EQUIP CMTGTY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS	
					(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
A001	5895-069-8941	TERMINAL SET, RADIO AN/TRC-117(V) (This item is nonexpendable) SHELTER, ELECTRICAL EQUIPMENT S-330/TRC-117(V) AND S-330A/TRC-117(V) NOTE: Usable on code 1 refers to the S-330/TRC-117(V), 2 refers to the S-330A/TRC-117(V).												
P-0 A002	5935-813-4080	ADAPTER, ELECTRICAL CONNECTOR: 10-101960-103; 77820	1,2	ea	2	*	2	2	*	*	2	13	12	
P-0 A003		ADAPTER, ELECTRICAL CONNECTOR: 10-37093-323; 77820	1,2	ea	1	*	*	2	*	*	2	8	6	
P-0 A004	6625-752-8464	AMMETER: MR36100ACAAR; 81349	1,2	ea	1	*	*	*	*	*	2	5	5	5-3 A
P-0 A005	5920-930-2307	ARRESTER, LIGHTNING: Mt'd in video and antenna ent box; SC-B-547223; 80063	1,2	ea	4	*	*	2	*	*	2	10	12	
P-0 A006		BALL, LOCK, SINGLE ACTING PIN: 7-3/4 in lg o/a; BLO601675; 84256	1,2	ea	1	*	*	*	*	*	*	4	1	
P-0 A007	6250-804-3449	BALLAST, LAMP: for fluorescent lights; 890457D; 24455	1,2	ea	6	*	2	2	*	2	2	19	12	5-3
P-F A008	6145-161-0887	CABLE ELECTRICAL RG-8A/U	1,2	ft	40	*	*	*	*	*	*	153	400	
P-F A009	6145-542-6092	CABLE, ELECTRICAL RG-58/U	1,2	ft	100	*	*	*	*	*	*	352	1000	
P-F A010	6145-504-1015	CABLE, POWER, ELECTRICAL: CO-02MGE(3/16)0360; 81349	1,2	ft	70	*	*	*	*	*	*	175	700	
P-F A011	6145-161-0768	CABLE, POWER, ELECTRICAL: CO-03HGF(3/10)0675; 81349	1,2	ft	12	*	*	*	*	*	*	53	120	
P-F A012	6145-752-2473	CABLE, POWER, ELECTRICAL: for 100 ft and 15 ft cable assys; SC-A-46608; 80063	1,2	ft	115	*	*	*	*	*	*	406	1150	
P-F A013	6145-945-1864	CABLE, POWER, ELECTRICAL: 4158-RG-04; 71102	1,2	ft	8	*	*	*	*	*	*	24	80	
P-F A014	6145-161-1277	CABLE, SPECIAL PURPOSE, ELECTRICAL WM-72/U	1,2	ft	66	*	*	*	*	*	*	198	660	
P-F A015	6145-161-0913	CABLE, RADIOFREQUENCY RG-62A/G	1,2	ft	50	*	*	*	*	*	*	187	500	
P-0 A016	5995-889-1500	CABLE ASSEMBLY, POWER, ELECTRICAL CX-74-53/U; 100 ft lg	1,2	ea	1	*	*	2	*	*	2	8	6	
P-0 A017	5940-254-2244	CAP, ELECTRICAL: For binding posts; SC-C-76202-1; 80063	1,2	ea	112	2	6	11	4	3	3	141	560	
P-0 A018	5820-987-9269	CAP, ELECTRICAL CONNECTOR CW-593/U; 1/UG-1375/U	1,2	ea	2	*	*	*	*	*	*	5	2	
P-0 A019		CAP, ELECTRICAL CONNECTOR: 10-37147-28; 77820	1,2	ea	1	*	*	*	*	*	*	4	1	
P-0 A020	5925-682-4102	CIRCUIT BREAKER: Q0-115; 90211	1,2	ea	3	*	2	2	*	*	2	15	18	5-3 CB1, CB2, CB4
P-0 A021	5925-984-2163	CIRCUIT BREAKER: Q0B115; 90211	1,2	ea	4	*	2	2	*	2	2	19	24	5-3 CB8 thru CB11
P-0 A022	5925-583-7941	CIRCUIT BREAKER: Q0-120; 90211	1,2	ea	2	*	2	2	*	*	2	13	12	5-3 CB3, CB5
P-0 A023	5925-532-9142	CIRCUIT BREAKER: Q0-140; 90211	1,2	ea	1	*	*	2	*	*	2	8	6	5-3 CB6
P-0 A024	5925-905-1509	CIRCUIT BREAKER: Q0-260; 90211	1,2	ea	1	*	*	2	*	*	2	8	6	5-3 7

SECTION IV. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SNR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGCTY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS		
					(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION	
P-O A025	5925-930-8519	CIRCUIT BREAKER: 105-201-101; 79405	1	ea	1	*	*	2	*	*	2	8	6	5-3	CR12
P-O A026	5925-681-4952	CIRCUIT BREAKER: MS25244-10; 96906	2	ea	1	*	*	2	*	*	2	8	6		
P-O A027	5340-857-1424	CLIP, RETAINING: Holds cable in cable clamps; N1; 06229	1,2	ea	17	2	2	3	2	2	2	33	170		
P-O A028		CLIP, RETAINING: Holds cable on cable clamps; N3; 06229	1,2	ea	2	*	*	*	*	*	*	5	2		
P-O A029	5340-592-7996	CLIP, RETAINING: Holds cable in cable clamps; N7; 06229	1,2	ea	4	*	*	2	*	*	2	10	40		
P-C-R A030	6645-800-7094	CLOCK, AIRCRAFT MECHANICAL: 118-12-24-W; 98429	1,2	ea	1	*	*	*	*	*	2	4	5		
P-O A031	5935-283-2950	CONNECTOR, PLUG, ELECTRICAL U-77/U	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A032	5935-064-5731	CONNECTOR, PLUG, ELECTRICAL U-237/G: For 100 ft and 15 ft cable assys	1,2	ea	3	*	2	2	*	2	2	18	15		
P-O A033	5935-935-2159	CONNECTOR, PLUG, ELECTRICAL UG-83F/U:	1,2	ea	8	2	2	3	2	2	2	40	40		
P-O A034	5935-201-2755	CONNECTOR, PLUG, ELECTRICAL UG-567B/U	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A035	5935-636-7145	CONNECTOR, PLUG, ELECTRICAL UF-121/M	1,2	ea	14	2	3	5	2	2	2	59	70		
P-O A036	5935-892-9083	CONNECTOR, PLUG, ELECTRICAL: Q7A24A-22P; 02660	1,2	ea	2	*	*	2	*	*	2	8	5		
P-O A037	5935-892-9075	CONNECTOR, PLUG, ELECTRICAL: Q7A14A-7S; 77820	1,2	ea	4	2	2	3	2	2	2	33	30		
P-O A038	5935-992-0304	CONNECTOR, PLUG, ELECTRICAL: PT06E-10-98P(SR); 12143	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A039		CONNECTOR, PLUG, ELECTRICAL: 13739; 91737	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A040	5935-932-3009	CONNECTOR, PLUG, ELECTRICAL UG-260B/U	1,2	ea	28	2	4	8	3	2	2	101	140		
P-O A041	5935-930-1205	CONNECTOR, PLUG, ELECTRICAL: B706J-12-8S; 09922	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A042	5935-930-1204	CONNECTOR, PLUG, ELECTRICAL: B706J-8-4P; 09922	1,2	ea	4	2	2	3	2	2	2	22	20		
P-O A043	5935-930-1207	CONNECTOR, PLUG, ELECTRICAL: KPT06G12-3S; 71468	1,2	ea	8	2	2	3	2	2	2	40	16		
P-O A044	5935-957-0807	CONNECTOR, PLUG, ELECTRICAL: PT06M14-19S; 77820	1,2	ea	6	2	2	3	2	2	2	33	30		
P-O A045	5935-892-9082	CONNECTOR, PLUG, ELECTRICAL: Q7A24A-22S; 02660	1,2	ea	1	*	*	2	*	*	*	8	6		
P-O A046	5935-660-4302	CONNECTOR, RADIOFREQUENCY UG-573A/U	1,2	ea	8	2	2	3	2	2	2	40	40		
P-O-R A047	5935-045-9832	CONNECTOR, RECEPTACLE, ELECTRICAL U-187A/G: Mtd in audio ent box	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A048	5935-064-5732	CONNECTOR, RECEPTACLE, ELECTRICAL U-238A/G	1,2	ea	2	*	2	2	*	*	2	13	10	5-3	PL, P2
P-O A049	5935-973-0637	CONNECTOR, RECEPTACLE, ELECTRICAL UG-1375/U	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A050	5935-992-0311	CONNECTOR, RECEPTACLE, ELECTRICAL: PT02E-10-98S; 12143	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A051	5935-947-2925	CONNECTOR, RECEPTACLE, ELECTRICAL: Male; mtd in video and antenna ent box; PS-C-194239 G-II; 80063	1,2	ea	2	*	2	2	*	*	2	13	10		

SECTION IV. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SHR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGTY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS		
					(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION	
P-O A052	5935-946-1272	CONNECTOR, RECEPTACLE, ELECTRICAL: Female; mtd in video and antenna ent box; ES-C-194240 Gr II; 80053	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A053	5935-259-3313	CONNECTOR, RECEPTACLE, ELECTRICAL: 7210B; 74545	1	ea	2	*	2	2	*	*	2	13	10	5-3	J7, J8
P-O A054	5935-258-4663	CONNECTOR, RECEPTACLE, ELECTRICAL: 5262; 74545	1,2	ea	11	2	3	5	2	2	2	53	55	5-3	J1, J2, J3, J9 thru J16
P-O A055	5935-642-3652	CONNECTOR, RECEPTACLE, ELECTRICAL: 5261; 74545	1,2	ea	1	*	*	2	*	*	2	8	5	5-3	J4
P-O A056	5935-087-5421	CONNECTOR, RECEPTACLE, ELECTRICAL: F/over voltage protection device; Q2A24A-22P; 02660	1,2	ea	1	*	*	2	*	*	*	8	6		
P-O A057	5935-087-5408	CONNECTOR, RECEPTACLE, ELECTRICAL: F/over voltage protection device; Q2A24A-22S; 02660	1,2	ea	1	*	*	2	*	*	*	8	6		
P-O A058	5935-933-3454	CONNECTOR, RECEPTACLE, ELECTRICAL: 5361; 74545	2	ea	2	*	2	2	*	*	2	13	10		
P-O A059	5935-930-1210	CONNECTOR, RECEPTACLE, RADIOFREQUENCY: Mtd in video and antenna ent box; 13738; 91737	1,2	ea	2	*	2	2	*	*	2	13	10		
P-O A060	5975-947-3068	COVER, ELECTRICAL OUTLET: Mtd in pwr ent box; M3780-F5; 21873	1,2	ea	1	*	*	*	*	*	2	5	3		
P-O A061	5935-258-4568	COVER, ELECTRICAL CONNECTOR CW-282/U	1,2	ea	36	2	3	5	2	2	2	59	72		
P-O A062	5935-846-3019	COVER, ELECTRICAL CONNECTOR: 10-101957-103; 77820	1,2	ea	1	*	*	*	*	*	2	5	2		
P-O A063	5910-553-6096	FILTER: For fluorescent lights; 591B; 02777	1,2	ea	6	*	2	2	*	*	2	19	12	5-3	
P-O A064	5915-946-5369	FILTER, AUDIO: JW17-1122; 05571	1,2	ea	8	2	2	3	2	2	2	40	16		
P-O A065	5910-905-7762	FILTER, POWER: SP-289; 81831	1,2	ea	2	*	*	2	*	*	2	10	4	5-3	FLL, FL2
P-O A066	5920-892-9311	FUSEHOLDER: F/over voltage protection device; FHN26G1; 81349	1,2	ea	1	*	*	*	*	*	*	4	1		
P-C A067	5920-808-8342	FUSE, CARTRIDGE: F/over voltage protection device; F03B250V1/2A; 81349	1,2	ea	1	4	11	20	3	4	5	200	200		
P-C A068	5120-946-5148	GRIP, CABLE: EQA-68PH; 95344; (20 in lg)	1,2	ea	5	2	3	6	3	2	2	71	100		
P-C A069	5120-946-5114	GRIP, CABLE: EQA-26SH; EQA-26SH; 95344; (15 in lg)	1,2	ea	5	2	3	6	3	2	2	71	100		
P-O A070	5935-192-4789	JACK, TELEPHONE JJ-089: For TA-312/PT and LS-147C/FT	1,2	ea	2	*	*	*	*	*	2	5	20		
P-C A071	6240-152-2996	LAMP, FLUORESCENT: F20T12/CW; 24455	1,2	ea	6	2	4	7	3	2	2	83	300	5-3	DS12 thru DS17
P-C A072	6240-635-9753	LAMP, GLOW NE-34	1,2	ea	1	*	2	2	*	*	2	12	50	5-3	DS7
P-C A073	6240-179-1814	LAMP, GLOW NE-45	1	ea	6	2	2	3	2	2	2	46	300	5-3	DS1 thru DS6
P-C A074	6240-223-9100	LAMP, GLOW NE-51	1 2	ea ea	1 7	* 2	2 2	2 3	* 2	* 2	2 2	12 46	50 350	5-3	DS1 thru DS6
P-C A075	6240-274-4027	LAMP, INCANDESCENT: 25B8DS; 24455	1,2	ea	4	2	3	5	2	2	2	59	200	5-3	DS8 thru DS11

SECTION IV. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SFR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGTY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS		
					(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION	
					INDEX NO.	REFERENCE NUMBER & MFR. CODE	USABLE CN CODE								
P-O A076	6250-691-5966	LAMP LOCK, FLUORESCENT: P-40; 19634	1,2	ea	12	2	2	2	*	2	2	120	120		
P-O A077	6250-761-6330	LAMPHOLDER: 4-06; 72619	1	ea	6	*	2	2	*	*	2	13	30	5-3	XDS1 thru XDS6
P-O A078		LAMPHOLDER: 4109; 74545	1,2	ea	1	*	*	*	*	*	2	4	5	5-3	XDS7
P-O A079		LAMPHOLDER: 78x491; 24455	1,2	ea	6	*	2	2	*	*	2	13	30	5-3	XDS12 thru XDS17
P-O A080	6250-277-0317	LAMPHOLDER: Incl starter socket; 78X736; 24455	1,2	ea	6	*	2	2	*	*	2	13	30	5-3	XDS12 thru XDS17
P-O A081	6250-995-9074	LAMPHOLDER: 12-240; 72619	1,2	ea	4	*	*	2	*	*	2	10	20	5-3	XDS8 thru XDS11
P-C A082	6230-729-9614	LAMP, ELECTRIC: 2106-7; 32572	1,2	ea	1	*	2	2	*	*	2	12	10		
P-C A083	5410-752-2525	LEAD, ELECTRICAL: For gn1; 80063	1,2	ea	2	*	*	2	*	*	2	10	20		
P-O A084	6210-299-4172	LIGHT INDICATOR: Red lens /over voltage protection device; 52408-991-241; 72619	1,2	ea	1	*	*	*	*	*	4	2			
P-H A085	5410-973-2936	MAINTENANCE KIT, ELECTRONIC EQUIPMENT SHELTER, MK-679/G: (NOTE: To be requisitioned for immediate use only, order direct from depot stock.)	1,2	ea					*	*	*		10		
P-O A086	6105-954-4947	MOTOR, ALTERNATING CURRENT: SC-D-539615GR2; 80063	1,2	ea	2	*	2	2	*	*	2	13	6		
P-O A087	5340-930-1476	PEEPSIGHT: CB-101; 23404	1,2	ea	1	*	*	*	*	*	2	4	5		
P-O A088		PIN, QUICK RELEASE: BLS6TAL4s; 84256	1,2	ea	6	*	2	2	*	2	2	15	12		
P-O A089		POST, BINDING U-106/U; Mtd in power and audio ent box; SC-U-16495; 80063	1,2	ea	112	2	6	11	4	3	3	141	560		
P-O A090	5935-999-6934	RECEPTACLE AND SWITCH ASSEMBLY: 5225; 75582	1,2	ea	2	*	2	2	*	2	2	19	10	5-3	1J6, 2J5
P-O A091	8130-656-1090	REEL, CABLE RC-435/U	1,2	ea	2	*	*	2	*	*	2	10	4		
P-O A091A		REPAIR KIT, ELECTRONIC EQUIPMENT SHELTER MK-682/G: (NOTE: To be requisitioned for immediate use only, order direct from depot stock.)	1,2	ea									10		
P-F A092	5410-771-3354	REPAIR KIT, ELECTRONIC EQUIPMENT SHELTER, MK-681/G: (NOTE: To be requisitioned for immediate use only, order direct from depot stock.)	1,2	ea		*	*	*	*	*	*		10		
P-C A093	5975-224-5260	ROD, GROUND MK-148/G	1,2	ea	2	*	2	2	*	*	2	19	30		
P-O A094	6210-921-6682	SHIELD, LIGHT: For fluorescent lights; SC-B-539466; 80063	1,2	ea	6	*	2	2	*	2	2	19	30		
P-O A095	6210-930-1217	SHIELD, LIGHT: For cold start lights; SC-C-547186; 80063	1,2	ea	2	*	*	2	*	*	2	10	10		
P-C A096	6250-299-2884	STARTER, FLUORESCENT: FS-2; 71183	1,2	ea	6	*	2	2	*	2	2	19	60		
P-O A097	5930-776-0057	SWITCH, SENSITIVE: For blackout; BZERQ18T; 91929	1	ea	1	*	2	2	*	2	2	19	10		51

SECTION IV. REPAIR PARTS FOR DIRECT SUPPORT, GENERAL SUPPORT, AND DEPOT MAINTENANCE (CONTINUED)

(1) SNR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION REFERENCE NUMBER & MFR. CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) 30-DAY DS MAINT ALLOWANCE			(7) 30-DAY GS MAINT ALLOWANCE			(8) 1 YR ALW PER EQUIP CNTGNCY	(9) DEPOT MAINT ALW PER 100 EQUIP	(10) ILLUSTRATIONS	
					(a) 1-20	(b) 21-50	(c) 51-100	(a) 1-20	(b) 21-50	(c) 51-100			(a) FIG NO.	(b) ITEM NO. OR REFERENCE DESIGNATION
					USABLE ON CODE									
P-O A098	5930-944-1086	SWITCH, SENSITIVE: B22RQ131T; 91929	2	ea	1	*	2	2	*	2	2	10	5	
P-O A099	5930-636-4014	SWITCH, TOGGLE: 9711; 74545	1,2	ea	3	*	2	2	*	2	2	18	9	5-3 82, 83, 84
P-O A100	5930-892-9393	SWITCH, TOGGLE: Mtd in audio ent box; 8838-K4; 15605	1,2	ea	24	2	4	8	3	2	2	101	72	
P-O A101	5930-044-3549	SWITCH, TOGGLE: F/over voltage protection device; MS25201-9; 81349	1,2	ea	1	*	*	2	*	*	*	8	3	
P-O A102	5950-280-4651	TRANSFORMER, CURRENT: Mtd in prr dist panel; 3CT11B; 93993	1,2	ea	1	*	*	2	*	*	2	8	3	5-3
P-O A103	6625-682-4723	VOLTMETER: MR36W150ACVVR; 81349	1,2	ea	1	*	*	*	*	*	2	5	5	5-3 V

SECTION v. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE
TO INDEX NUMBER

FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.
5120-946-5114	A069	5935-064-5732	A048	5935-992-0311	A050
5120-946-5148	A068	5935-087-5408	A057	5935-999-6934	A090
5340-592-7996	A029	5935-087-5421	A056	5940-254-2244	A017
5340-857-1424	A027	5935-192-4789	A070	5950-280-4651	A102
5340-930-1476	A087	5935-201-2755	A034	5975-224-5260	A093
5410-752-2525	A083	5935-258-4568	A061	5975-947-3068	A060
5410-771-3354	A092	5935-258-4663	A054	5995-889-1500	A016
5410-973-2936	A085	5935-259-3313	A053	6105-954-4947	A086
5820-987-9269	A018	5935-283-2950	A031	6145-161-0768	A011
5895-069-8941	A001	5935-636-7145	A035	6145-161-0887	A008
5910-553-6096	A063	5935-642-3652	A055	6145-161-0913	A015
5915-946-5369	A064	5935-660-4302	A046	6145-161-1277	A014
5920-808-8342	A067	5935-813-4080	A002	6145-504-1015	A010
5920-892-9311	A066	5935-846-3019	A062	6145-542-6092	A009
5920-930-2307	A005	5935-892-9075	A037	6145-752-2473	A012
5925-532-9142	A023	5935-892-9082	A045	6145-945-1864	A013
5925-583-7941	A022	5935-892-9083	A036	6210-299-4172	A084
5925-681-4952	A026	5935-930-1204	A042	6210-921-6682	A094
5925-682-4102	A020	5935-930-1205	A041	6210-930-1217	A095
5925-905-1509	A024	5935-930-1207	A043	6230-729-9614	A082
5925-930-8519	A025	5935-930-1210	A059	6240-152-2996	A071
5925-984-2163	A021	5935-932-3009	A040	6240-179-1814	A073
5930-044-3549	A101	5935-933-3454	A058	6240-223-9100	A074
5930-636-4014	A099	5935-935-2159	A033	6240-274-4027	A075
5930-776-0057	A097	5935-946-1272	A052	6240-635-9753	A072
5930-892-9393	A100	5935-947-2925	A051	6250-227-0317	A080
5930-944-1086	A098	5935-957-0807	A044	6250-299-2884	A096
5935-045-9832	A047	5935-973-0637	A049	6250-691-5966	A076
5935-064-5731	A032	5935-992-0304	A038	6250-761-6330	A077

SECTION V. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE
TO INDEX NUMBER (CONTINUED)

FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.
6250-804-3445	A007				
6250-995-9074	A081				
6625-682-4723	A103				
6625-752-8464	A004				
6645-800-7094	A030				
8130-656-1090	A091				
<u>REF NUMBER</u>	<u>INDEX NO.</u>				
BLC6CL675	A006				
10-37093-323	A003				

SECTION VI. INDEX-FIGURE AND ITEM NUMBER CROSS REFERENCE
TO INDEX NUMBER

FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.	FIG. NO.	ITEM NO. OR REFERENCE DESIGNATION	INDEX NO.
5-3	A	A004			
	CB1,	A020			
	CB2				
	CB3	A022			
	CB4	A020			
	CB5	A022			
	CB6	A023			
	CB8 thru	A021			
	CB11				
	CB12	A025			
	DS1--1 thru	A073			
	DS6--1				
	DS1--2 thru	A074			
	DS6--2				
	DS7	A072			
	DS8 thru	A075			
	DS11				
	DS12 thru	A071			
	DS17				
	FL1,	A065			
	FL2				
	J1,	A054			
	J2,				
	J3				
	J4	A055			
	J7,	A053			
	J8				
	J9 thru	A054			
	J16				
	FL,	A048			
	P2				
	S1	A097			
	S2,	A099			
	S3,				
	S4				
	V	A103			
	XDS1 thru	A077			
	XDS6				
	XDS7	A078			
	XDS8 thru	A081			
	XDS11				
	XDS12 thru	A079			
	XDS17				
	LJ6	A090			
	2J5	A090			
	7	A024			

**SECTION VII. INDEX-REFERENCE DESIGNATION CROSS REFERENCE
TO INDEX NUMBER**

REFERENCE DESIGNATION	INDEX NO.	REFERENCE DESIGNATION	INDEX NO.	REFERENCE DESIGNATION	INDEX NO.
A	A004	V	A103		
CB1, CB2	A020	XDS1 thru XDS6	A077		
CB3	A022	XDS7	A078		
CB4	A020	XDS8 thru XDS11	A081		
CB5	A022	XDS12 thru XDS17	A079		
CB6	A023	LJ6	A090		
CB8 thru CB11	A021	2J5	A090		
CB12	A025	7	A024		
DS1--1 thru DS6--1	A073				
DS1--2 thru DS6--2	A074				
DS7	A072				
DS8 thru DS11	A075				
DS12 thru DS17	A071				
FL1, FL2	A065				
J1, J2, J3	A054				
J4	A055				
J7, J8	A053				
J9 thru J16	A054				
F1, F2	A048				
S1	A097				
S2, S3, S4	A099				

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11-155
11-157
11-158
11-225
11-377
11-500 (AA-AC,
RC, RT, RU)
11-587

11-592
11-597
17
31-105
32-56
32-78
32-500
37-2

NG: None.

USAR: None.

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

By Order of the Secretary of the Army:

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

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

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USAESC (70)
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 Eighth USA (5)
Corps (2)
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USAAMS (5)
USAARMS (5)
USAIS (2)
USAES (2)
USASA Tng Cen & Sch (5)
USATC Armor (2)
USATC Engr (2)

USATC Inf (2)
USASTC (2)
WRAMC (1)
Army Pic Cen (2)
USACDCEC (10)
Instl (2) except
 Fort Hancock (4)
 Fort Gordon (10)
 Fort Huachuca (10)
 WSMR (5)
 Fort Carson (25)
 Fort Knox (12)
Army Dep (2) except
 LBAD (14)
 SAAD (30)
 TOAD (14)
 LEAD (7)
 SHAD (3)
 NAAD (5)
 SVAD (5)
 CHAD (3)
 ATAD (10)
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