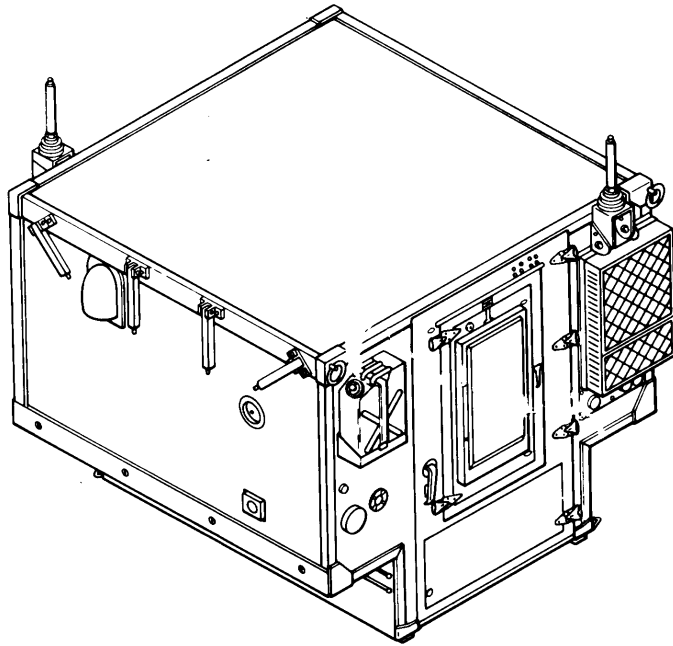


TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL



TECHNICAL PRINCIPLES OF
OPERATION
PAGE 1-5

PREVENTIVE MAINTENANCE
CHECKS AND SERVICES
(PMCS)
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TROUBLESHOOTING
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MAINTENANCE PROCEDURES
PAGE 2-26

RADIO TELETYPEWRITER SETS

AN/GRC-122 (NSN 5815-00-401-9719)
AN/GRC-122A (NSN 5815-00-167-7998)
AN/GRC-122B (NSN 5815-00-937-5295)
AN/GRC-122C (NSN 5815-01-095-1211)
AN/GRC-122D (NSN 5815-01-096-0428)
AN/GRC-122E (NSN 5815-01-095-1212)
AN/GRC-142 (NSN 5815-00-401-9720)
AN/GRC-142A (NSN 5815-00-168-1556)
AN/GRC-142B (NSN 5815-00-443-5511)
AN/GRC-142C (NSN 5815-01-100-6815)
AN/GRC-142D (NSN 5815-01-104-7264)
AN/GRC-142E (NSN 5815-01-095-6258)

Change

No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, 1 October 1994

Unit Maintenance Manual

RADIO TELETYPEWRITER SETS

AN/GRC-122 (NSN 5815-00-401-9719) (EIC: GFE)
AN/GRC-122A (NSN 5815-00-167-7998) (EIC: GFA)
AN/GRC-122B (NSN 5815-00-937-5295) (EIC: GFJ)
AN/GRC-122C (NSN 5815-01-095-1211) (EIC: GFL)
AN/GRC-122D (NSN 5615-01-096-0428) (EIC: GFP)
AN/GRC-122E (NSN 5815-01-095-1212) (EIC: GFM)
AN/GRC-142 (NSN 5815-00-401-9720) (EIC: GFF)
AN/GRC-142A (NSN 5815-00-168-1556) (EIC: GFB)
AN/GRC-142B (NSN 5815-00-443-5511) (EIC: GFG)
AN/GRC-142C (NSN 5815-01-100-6815) (EIC: GFR)
AN/GRC-142D (NSN 5815-01-104-7264) (EIC: GFT)
AN/GRC-142E (NSN 5815-01-095-6258) (EIC: GFN)

USED WITH OR WITHOUT INSTALLATION
KIT, ELECTRONIC EQUIPMENT
MODIFICATION KIT MK-2488/G

TM 11-5815-334-20, 5 March 1985, is changed as follows:

1. The title is changed as shown above.
2. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Added or revised illustrations are indicated by a miniature pointing hand.

Remove pages

i and ii
1-1 through 1-4
2-23 and 2-24
2-57 and 2-58
2-65 through 2-70
2-73 through 2-76
B-3 through B-10
FO-3
FO-9
FO-11

Insert pages

i and ii
1-1 through 1-4
2-23 and 2-24
2-57 and 2-58
2-65 through 2-70
2-73 through 2-76
B-3 through B-10
FO-3
FO-9
FO-11

Distribution authorized to the Department of Defense and DOD contractors only for official use or for administrative or operational purposes. This determination was made on 30 September 1983. Other requests for this document will be referred to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LM-LT, Fort Monmouth, New Jersey 07703-5007.

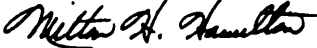
DESTRUCTION NOTICE - Destroy by any method that will prevent disclosure of contents or reconstruction of the document.

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

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:


MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army

07346

DISTRIBUTION:

To be distributed in accordance with DA Form 12-51-E, block 2370 requirements for TM 11-5815-334-20.



5

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

1

DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2

IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3

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

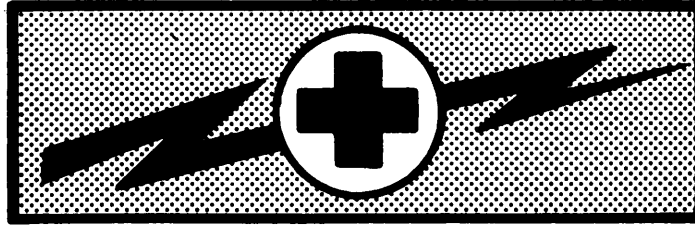
4

SEND FOR HELP AS SOON AS POSSIBLE

5

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

WARNING



WARNING

HIGH VOLTAGE

IS USED IN THE OPERATION OF THIS EQUIPMENT

DEATH ON CONTACT

MAY RESULT IF PERSONNEL FAIL TO OBSERVE SAFETY PRECAUTIONS

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

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

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

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

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

For Artificial Respiration, refer to FM 21-11.

WARNING

Extremely dangerous voltages exist in the following units of Radio Teletypewriter Sets AN/GRC-122/142(*).

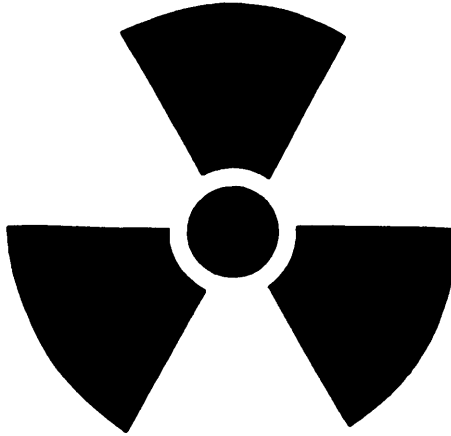
Radio Set AN/GRC-106	3,000 volts
Radio Teletypewriter, Modem MD-522A/GRC	1,000 volts
Teletypewriter TT-98/FG	110 volts
Reperforator-Transmitter TT-76(*)/GGC	110 volts
Air Conditioner AN/GRC-142, serial numbers (1 through 697)	110 volts

DON'T TAKE CHANCES!

DANGEROUS VOLTAGES EXIST AT THE ANTENNA TERMINALS

Operating and maintenance personnel should be familiar with the requirements of TB SIG 291 before attempting installation or operation of Radio Teletypewriter Sets AN/GRC-122/142(*). Be careful when working around the antenna or the antenna terminals. High radio-frequency voltages exist at these points, during transmission. Failure to follow requirements of TB SIG 291 could result in injury or DEATH.

WARNING RADIATION HAZARD



**RADIOACTIVE MATERIAL
CONTROLLED DISPOSAL REQUIRED
ACCOUNTABILITY NOT REQUIRED**

STD RW - 2

Meter	Ra 226	1.0uCi	6625-00-257-1103
Meter	Ra 226	0.6uCi	6625-00-226-5680
Meter arbitrary scale	Ra 226	1.0uCi	6625-00-226-5679
Meter, arbitrary scale	Ra 226	1.0uCi	6625-00-226-5681

Radiation Hazard Information: The following radiation hazard information must be read and understood by all personnel operating or repairing Radio Teletypewriter Sets AN/GRC-122/142(*).

Hazardous radioactive materials are present in the above listed components of the MD-522/GRC, RT-662/GRC, RT-824/GRC, and the AM-3349/GRC. The components are potentially hazardous when broken. See qualified medical personnel and the local Radiological Protection Officer (RPO) immediately if you are exposed to or cut by broken components. First aid instructions are contained in TB 43-0116, TB 43-0122, and AR 755-15.

NEVER place radioactive components in your pocket.

Use extreme care NOT to break radioactive components while handling them.

NEVER remove radioactive components from cartons until you are ready to use them.

If any of these components are broken, notify the local RPO immediately.

The RPO will survey the immediate area for radiological contamination and will supervise the removal of broken components.

The above listed radioactive components *will not* be repaired or disassembled.

Disposal of broken, unserviceable, or unwanted radioactive components will be accomplished in accordance with the instructions in AR 755-15.

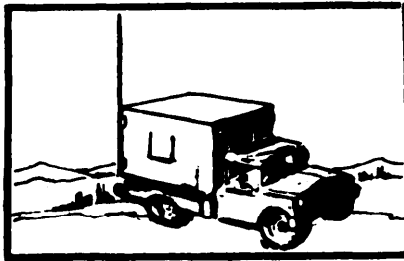
WARNING

SERIOUS INJURY OR EVEN DEATH CAN HAPPEN IF THE FOLLOWING ARE NOT CAREFULLY OBSERVED WHEN INSTALLING AND USING THE ANTENNAS USED WITH YOUR RADIO SETS.

BEFORE ANY
MISSION FIND
OUT

1. ARE THERE ANY POWERLINES IN YOUR AREA OF OPERATION?
2. HOW HIGH ARE THESE POWERLINES?
3. HOW TALL ARE THE POLES OR TOWERS CARRYING POWERLINES?

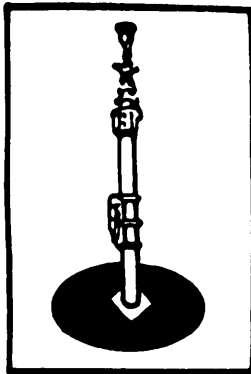
MOBILE OPERATION WITH WHIP ANTENNAS



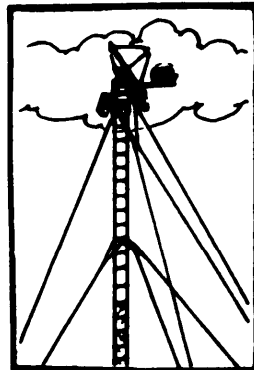
DO NOT STOP YOUR VEHICLE UNDER POWER LINES.

- IF POSSIBLE, TRY TO MAINTAIN MOBILE COMMUNICATIONS WITH YOUR ANTENNA(S) TIED DOWN.
- MAKE SURE AN ANTENNA TIP CAP IS SECURELY TAPED ON THE END OF EACH WHIP ANTENNA.
- DO NOT LEAN AGAINST OR TOUCH A WHIP ANTENNA WHILE THE TRANSMITTER IS ON.
- DURING CROSS-COUNTRY OPERATION, DO NOT ALLOW ANYONE TO STICK AN ARM, LEG OR WEAPON OVER THE SIDES OF THE VEHICLE. IF YOUR ANTENNA ACCIDENTALLY TOUCHES A POWERLINE AND A LEG, ARM OR WEAPON CONTACTS A DAMP BUSH OR THE GROUND, A SERIOUS OR FATAL ACCIDENT CAN HAPPEN.
- IF YOU ARE NOT SURE THAT AN ANTENNA ON YOUR VEHICLE WILL CLEAR A POWERLINE, STOP BEFORE YOU GET CLOSE TO THE POWERLINE AND EITHER CAREFULLY TIE DOWN THE ANTENNA OR REMOVE ANTENNA SECTIONS TO MAKE SURE THAT YOU CAN SAFELY DRIVE UNDER THE POWER LINE.

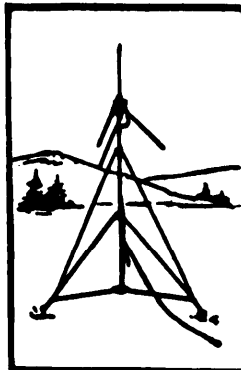
FIXED OPERATION WITH LONG RANGE ANTENNAS WARNING



**TELESCOPING ANTENNA
MAST**



TYPICAL TOWER



**EXTENDED RANGE
ANTENNA**



DOUBLET ANTENNA

NEVER ERECT THESE LONG RANGE ANTENNAS DIRECTLY UNDER POWER LINES.

IF YOU MUST ERECT THESE LONG RANGE ANTENNAS NEAR POWERLINES, POWERLINE POLES OR TOWERS, OR BUILDINGS WITH OVERHEAD POWERLINE CONNECTIONS, NEVER PUT THE ANTENNA CLOSER THAN TWO TIMES THE ANTENNA HEIGHT FROM THE BASE OF THE POWERLINE, POLE, TOWER OR BUILDINGS.

NEVER ATTEMPT TO ERECT ANY LONG RANGE ANTENNA WITHOUT A FULL TEAM.

BEFORE ERECTING ANY LONG RANGE ANTENNA, INSPECT ALL THE PARTS MAKING UP THE ANTENNA KIT. DO NOT ERECT THE ANTENNA IF ANY PARTS ARE MISSING OR DAMAGED.

DO AS MUCH OF THE ASSEMBLY WORK AS POSSIBLE ON THE GROUND.

WHEN ERECTING THE ANTENNA, ALLOW ONLY TEAM PERSONNEL IN THE ERECTION AREA.

MAKE SURE THAT THE AREA FOR THE ANCHORS IS FIRM. IF THE GROUND IS MARSHY OR SANDY, GET SPECIFIC INSTRUCTIONS FROM YOUR CREW CHIEF OR SUPERVISOR ON HOW TO REINFORCE THE ANCHORS.

WHEN SELECTING LOCATIONS FOR ANCHORS, AVOID TRAVELLED AREAS AND ROADS. IF YOU CANNOT AVOID THESE AREAS, GET SPECIFIC INSTRUCTIONS FROM YOUR SUPERVISOR AS TO WHAT CLEARANCE YOUR GUY WIRES AND ROPES MUST HAVE OVER THE TRAVELLED AREAS AND ROAD.

CLEARLY MARK ALL GUY WIRES AND ROPES WITH THE WARNING FLAGS OR SIGNS SUPPLIED BY YOUR UNIT. IN AN EMERGENCY, USE STRIPS OF WHITE CLOTH AS WARNING STREAMERS.

IF YOU SUSPECT THAT POWERLINES HAVE MADE ACCIDENTAL CONTACT WITH YOUR ANTENNA, STOP OPERATING, ROPE OFF THE ANTENNA AREA, AND NOTIFY YOUR SUPERIORS.

IF THE WEATHER IN YOUR AREA CAN CAUSE ICE TO FORM ON YOUR LONG RANGE ANTENNA AND ITS GUY WIRES AND ROPES, ADD EXTRA GUYS TO SUPPORT THE SYSTEM. ROPE OFF THE AREA AND POST IT WITH WARNING SIGNS LIKE "BEWARE OF FALLING ICE."

DO NOT TRY TO ERECT ANY ANTENNA DURING AN ELECTRICAL STORM.

KEEP A SHARP EYE ON YOUR ANCHORS AND GUYS. CHECK THEM DAILY AND IMMEDIATELY BEFORE AND AFTER BAD WEATHER.

WARNING

TRICHLOROTRIFLUOROETHANE

Fumes of TRICHLOROTRIFLUOROETHANE are poisonous. Provide adequate ventilation whenever you use TRICHLOROTRIFLUOROETHANE. Do not use solvent near heat or open flame. TRICHLOROTRIFLUOROETHANE will not burn, but heat changes the gas into poisonous, irritating fumes. DO NOT breathe the fumes or vapors. TRICHLORO-TRIFLUOROETHANE dissolves natural skin oils. DO NOT get the solvent on your skin. Use gloves, sleeves and an apron which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

WARNING

COMPRESSED AIR

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

Unit Maintenance Manual

RADIO TELETYPEWRITER SETS

AN/GRC-122	(NSN 5815-00-401-9719)	(EIC: GFE)
AN/GRC-122A	(NSN 5815-00-167-7998)	(EIC: GFA)
AN/GRC-122B	(NSN 5815-00-937-5295)	(EIC: GFJ)
AN/GRC-122C	(NSN 5815-01-095-1211)	(EIC: GFL)
AN/GRC-122D	(NSN 5815-01-096-0428)	(EIC: GFP)
AN/GRC-122E	(NSN 5815-01-095-1212)	(EIC: GFM)
AN/GRC-142	(NSN 5815-00-401-9720)	(EIC: GFF)
AN/GRC-142A	(NSN 5815-00-168-1556)	(EIC: GFB)
AN/GRC-142B	(NSN 5815-00-443-5511)	(EIC: GFG)
AN/GRC-142C	(NSN 5815-01-100-6815)	(EIC: GFR)
AN/GRC-142D	(NSN 5815-01-104-7264)	(EIC: GFT)
AN/GRC-142E	(NSN 5815-01-095-6258)	(EIC: GFN)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-LM-LT, Fort Monmouth, New Jersey 07703-5007. A reply will be furnished direct to you.

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HOW TO USE THIS MANUAL	ii
CHAPTER 1 INTRODUCTION	1-1
Section I General Information	1-1
II Equipment Description and Data.	1-4
III Technical Principles of Operation.	1-5
CHAPTER 2 UNIT MAINTENANCE.	2-1
Section I Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TDME); and Support Equipment.	2-1
II Service Upon Receipt.	2-2
III Preventive Maintenance Checks and Services (PMCS).	2-16
IV Troubleshooting.	2-18
V Maintenance Procedures.	2-26
VI Preparation for Storage or Shipment.	2-78

*This manual supersedes so much of TM 11-5815-334-12, dated May 1970, including all changes, as pertains to organizational maintenance.

	Page
APPENDIX A REFERENCES	A-1
B MAINTENANCE ALLOCATION	B-1
C EXPENDABLE SUPPLIES AND MATERIALS LIST.....	C-1
GLOSSARY	Glossary 1
INDEX	Index 1
FOLDOUTS	FO-1

HOW TO USE THIS MANUAL

This manual is designed to help you maintain Radio Teletypewriter Sets AN/GRC-142, AN/GRC-142A, AN/GRC-142B, AN/GRC-142C, AN/GRC-142D, AN/GRC-142E, AN/GRC-122, AN/GRC-122A, AN/GRC-122B, AN/GRC-122C, AN/GRC-122D and AN/GRC-122E. The front cover table of contents is provided for quick reference to important information. There is also an index located in the final pages for use in locating specific items of information.

Measurements in this manual are given in both US standard and metric units. A metric to US standard conversion chart can be found on the inside back cover.

Read all preliminary information found at the beginning of each task. It has important information and safety instructions you must follow before beginning the task.

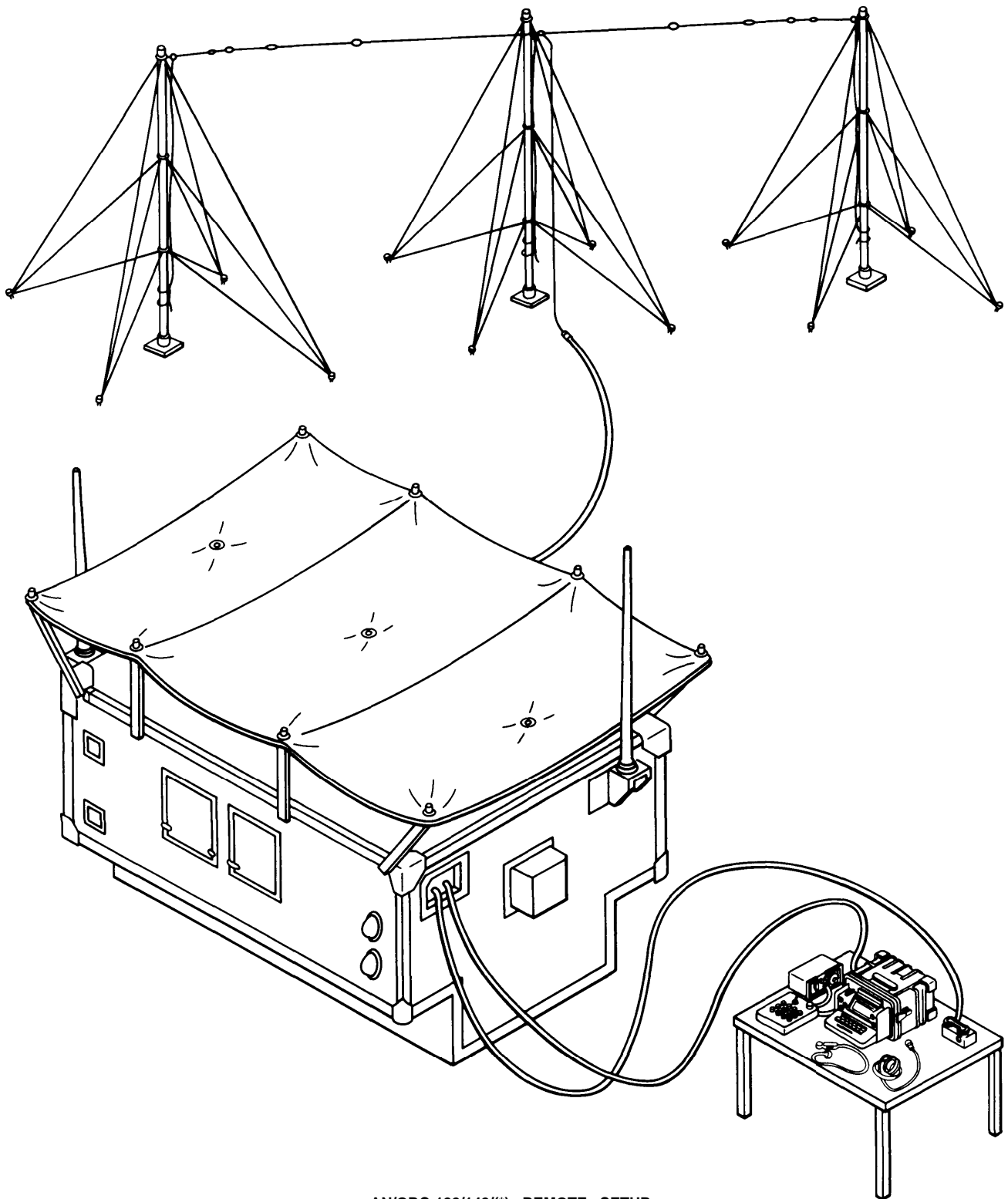
Warning pages are located in the front of this manual. You should learn the warnings before operating or doing maintenance on the equipment.

Paragraphs in this manual are numbered by chapter and order of appearance within a chapter. A subject index appears at the beginning of each chapter listing sections that are included in that chapter. A more specific subject index is located at the beginning of each section to help you find the exact paragraph you're looking for.

Instructions for using troubleshooting tables are located in paragraph 2-20.

Instructions for performing PMCS are located in paragraph 2-19.

This manual covers 12 different models. Applicable model numbers will be listed in paragraph titles. When a paragraph applies to all models, the designation AN/GRC-122/142(*) will be used.



AN/GRC-122/142(*) REMOTE SETUP

EL6VX000

CHAPTER 1

INTRODUCTION

Subject	Section	Page
General Information	I	1-1
Equipment Description and Data	II	1-4
Technical Principles of Operation	III	1-5

Section I GENERAL INFORMATION

Subject	Para	Page
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Maintenance Forms, Records, and Reports	1-2	1-1
Hand Receipt (-HR) Manuals	1-3	1-2
Consolidated Index of Army Publications and Blank Forms	1-4	1-2
Destruction of Army Electronics Materiel	1-5	1-2
Administrative Storage	1-6	1-2
Reporting Equipment Improvement Recommendations (EIR)	1-7	1-2
Nomenclature Cross-Reference List	1-8	1-2

1-1. SCOPE.

Type of Manual: Unit maintenance.

Equipment Name and Model Number: Radio Teletypewriter Sets AN/GRC-122, AN/GRC-122A, AN/GRC-122B, AN/GRC-122C, AN/GRC-122D, AN/GRC-122E, AN/GRC-142, AN/GRC-142A, AN/GRC-142B, AN/GRC-142C, AN/GRC-142D, and AN/GRC-142E.

Purpose of Equipment: Provides front line telecommunication through a teletypewriter and radio. Voice communication is also established through the radio.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

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

b. Reporting of Item and Packaging Discrepancies. Fill out and forward SF 364 [Report of Discrepancy (ROD)] as prescribed in AR 735-11-2/DLAR 4140.55 SECNAVINST 435518/AFR 400-54/MCO 4430.3J.

c. Transportation Discrepancy Report (TDR) (SF361). Fill out and forward Transportation Discrepancy Report (TDR) (SF361) as prescribed in AR 55-38/NAVSUPINST 4610.33C/AFR 75-18/MCOP 4610.19D/DLAR 4500.15

1-3. HAND RECEIPT (-HR) MANUALS.

This manual has a companion document with a TM number followed by -HR (abbreviation for Hand Receipt). The TM 11-5815-334-10-HR consists of preprinted hand receipts (DA Form 2082) that list end item related equipment (i.e., COEI, BII, and AAL) you must account for. As an aid to property accountability, additional -HR manuals may be requisitioned from the following source in accordance with procedures in chapter 3, AR-310-2 and DA Pam 310-10-3; The US Army Adjutant General Publications Center, Baltimore, MD.

1-4. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS.

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

1-5. DESTRUCTION OF ARMY ELECTRONICS MATERIEL

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

1-6. ADMINISTRATIVE STORAGE.

Administrative storage of equipment issued to and used by Army activities will have Preventive Maintenance Checks and Services (PMCS) performed before storing. When removing the equipment from administrative storage, the PMCS checks should be performed to ensure operational readiness.

1-7. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).

If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-ED-CFO, Fort Monmouth, New Jersey 07703-5023. We'll send you a reply.

1-8. NOMENCLATURE CROSS-REFERENCE LIST.

This list contains names used throughout this manual in place of official nomenclature. When official nomenclature is used and is followed by an asterisk (*), this indicates all models of the equipment.

NOTE

If your unit has a TT-722(*)/TG in place of a TT-98/FG, use procedures for the TT-98/FG to service it.

COMMON NAME	OFFICIAL NOMENCLATURE
amplifier	Amplifier, Radio Frequency AM-3349/GRC-106
AN/GRC-122(*)	Radio Teletypewriter Set AN/GRC-122(*)

1-8. NOMENCLATURE CROSS-REFERENCE LIST. (CONT)

COMMON NAME	OFFICIAL NOMENCLATURE
AN/GRC-142(*)	Radio Teletypewriter Set AN/GRC-142(*)
AN/GRC-122/142(*)	Radio Teletypewriter Sets AN/GRC-122(*) and AN/GRC-142(*)
AN/UGC-74A(V)3 or AN/UGC74B(V)3	Terminals, Communications AN/UGC-74A(V)3 and AN/UGC-74B(V)3
control group	Control Group AN/GRA-6
doublet antenna	Antenna Group AN/GRA-50
dummy box	Interconnecting Box J-2728/GRC-142
Duplex RT-662/GRC	Receiver-Transmitter, Radio RT-662/GRC or RT-834/GRC
handset	Handset H-33/PT
inverter	Invert PU-724A/G
local control	Local Control C-434/GRC
loudspeaker	Dynamic Loudspeaker LS-166/U
modem	Modem, Radio Teletypewriter MD-522/GRC
motor generator	Motor Generator PU-724/U
power meter	Standing Wave Radio Power Meter ME-165/G
power supply	Power Supply PP-4763(*)/GRC
radio set	Radio Set AN/GRC-106(*)
remote box	Remote Control Box C-7279/GRC-142
remote control	Remote Control C-433/GRC
RT-662/GRC	Receiver-Transmitter, Radio RT-662/GRC or RT-834/GRC
control panel	Switch Assembly SA-1554/GRC-142

1-8. NOMENCLATURE CROSS-REFERENCE LIST. (CONT)

COMMON NAME	OFFICIAL NOMENCLATURE
switch assembly	Switch Assembly SA-1650/GRC
SB-3018/GRC	Power Distribution Panel SB-3018/GRC
SB-3358/GRC	Power Distribution Panel SB-3358/GRC
shelter	Shelter, Electrical Equipment S-318(*)/G and S-250/G
switchbox	Switchbox SA-1555/GRC-142
TA-312/PT	Telephone Set TA-312/PT
TT-76(*)/GGC	Teletypewriter Reperator Transmitter TT-76A/GGC
TT-98/FG	Teletypewriter Set TT-98/FG

Section II EQUIPMENT DESCRIPTION AND DATA

Subject	Para	Page
Equipment Characteristics, Capabilities, and Features	1-9	1-4
Location and Description of Major Components	1-10	1-4
Differences Between Models	1-11	1-4
Equipment Data	1-12	1-4
Equipment Configurations	1-13	1-5
Safety, Care, and Handling	1-14	1-5

1-9. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

Refer to TM 11-5815-334-10.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

Refer to TM 11-5815-334-10.

1-11. DIFFERENCES BETWEEN MODELS.

Refer to TM 11-5815-334-10.

1-12. EQUIPMENT DATA.

Refer to TM 11-5815-334-10.

1-13. EQUIPMENT CONFIGURATIONS.

Refer to TM 11-5815-334-10.

1-14. SAFETY, CARE, AND HANDLING.

Observe all WARNINGS, CAUTIONS, and NOTES in this manual to avoid damage to equipment or injury to personnel.

Section III TECHNICAL PRINCIPLES OF OPERATION

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION.

AN/GRC-122/142(*) is capable of receiving and transmitting ssb, cw, and compatible am signals. Using the teletypewriter (tty) equipment provided, 850 Hertz (Hz) fsk, 85 Hz nsk, and 85 Hz nsk plus voice transmission and reception are also possible.

Types of operation include one-way reversible (owr) in the AN/GRC-142(*), and duplex in the AN/GRC-122(*). One-way reversible allows the system to transmit and receive, but not simultaneously. Duplex operation allows for simultaneous transmission and reception. When not operating in the duplex mode, pony circuit operation is possible in the AN/GRC-122(*). This circuit allows one-way reversible tty messages to be sent and received over order wire landlines, between the remote site and shelter. Remote operation of the entire tty system is possible as well.

To better understand how the AN/GRC-122/142(*) functions, a description of its two subsystems (radio portion and tty portion) is necessary. The radio subsystem includes the amplifier, RT-662/GRC, and the whip or doublet antenna. It is this portion where radio signals (ssb, cw, and am) are received or transmitted. The tty subsystem is made up of TT-98/FG or AN/UGC-74A(V)3, TT-76(*)/GRC, and modem. In this latter portion, tty impulse signals (nsk, fsk, and nsk plus voice) are either transmitted or received.

All other parts or components of the AN/GRC-122/142(*) provide either power for the communications system or control for certain parts of the system.

NOTE

Foldouts FO-1 and FO-2 show simplified system block diagrams of the AN/GRC-122/142(*). These diagrams show all portions, components, or parts of the tty communications system in a functional mode.

For principles of operation of each component, see applicable TM, appendix A.

SIGNAL PATH

Radio and teletypewriter (tty) signals travel through the AN/GRC-122/142(*) by way of components and their associated cables and connectors. Voice signals also travel through the communications system, originating at such components as Microphone M-29/U or Handset H-33/PT. To understand where all of these signals originate from, and at what point in the system they are converted to different type tones or signals, explanatory text with associated signaling diagrams follow. (Signal paths for remote and duplex operation are not shown.)

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)

RECEIVE SIGNAL PATH (AN/GRC-122/142 PLAIN AND C)

A radio signal is received at either the whip or doublet antennas. The signal travels through cable CX-10171 (whip), or CG-3562 and CG-2568A (doublet), and into the WHIP jack (whip) or 50 OHM LINE jack (doublet). It is unchanged through the amplifier and exits the amplifier through the ANT jack, then passes through cable CG-409/G and into the ANT jack of RT-662/GRC.

The signal is changed from radio signal to an audio tone signal in the RT-662/GRC. The audio tone signal exits the RT-662/GRC through the AUDIO jack, then passes through cable W17 and into the RCV TRANS AUDIO jack of the modem.

Once the signal reaches the modem, it is changed from an audio tone signal to a tty impulse signal, and exits the modem through the DC LOOP NO. 1 jack. It then passes through cable W14 and into J5 jack of the control panel.

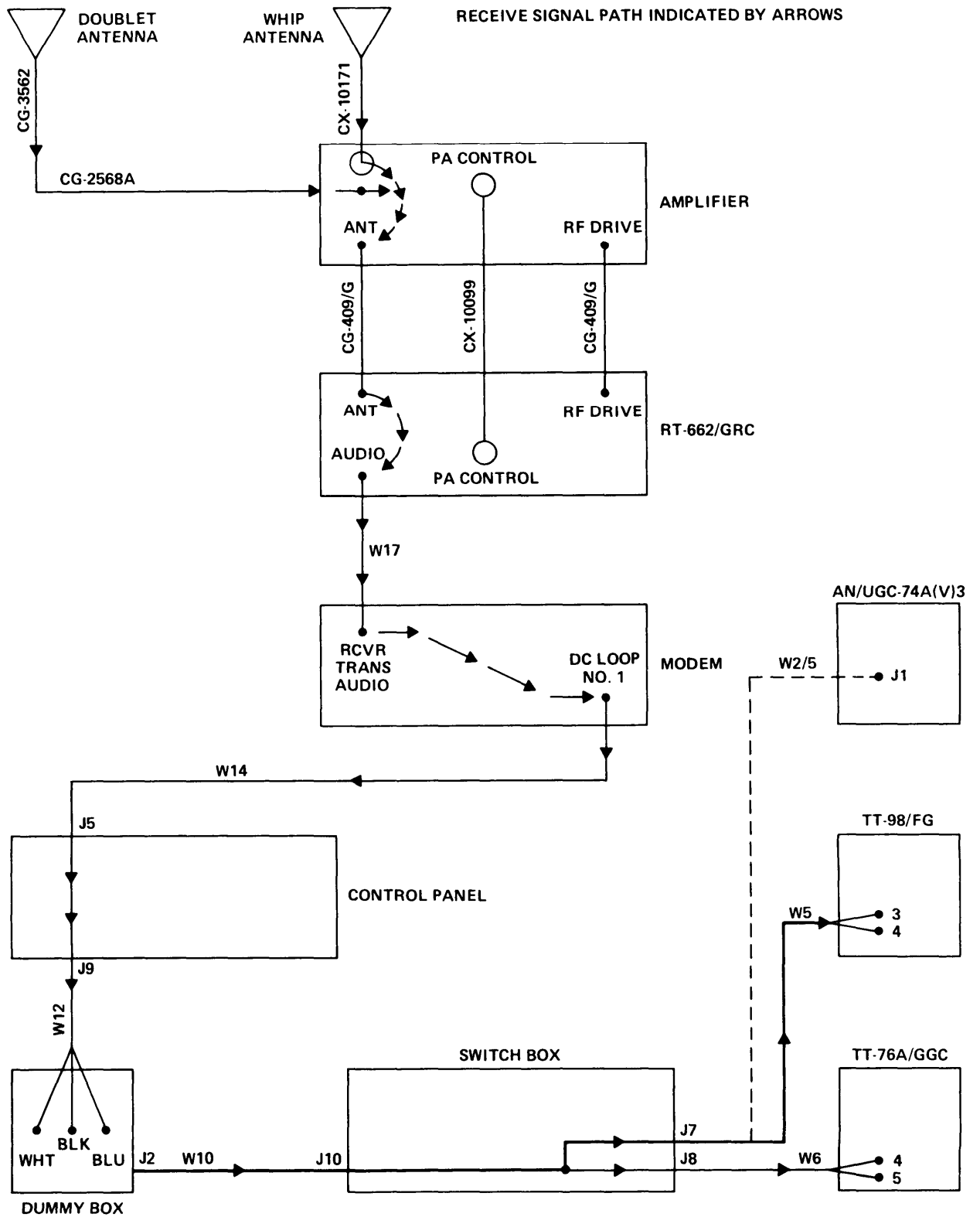
The signal is routed through the SA-1554/GRC-142 through a series of switches to jack J9, then passes through cable W12 and into the dummy box through terminals WHT, BLK, and BLU.

The signal passes through the dummy box unchanged, and exits the dummy box through jack J2. It then passes through cable W10 and into jack J10 of the switchbox.

The signal is then routed through the switchbox to jacks J7 and J8, and exits the switchbox and passes through cable W5 to the TT-98/FG or W2/5 to the AN/UGC-74A(V)3, or W6 to the TT-76(*)/GGC.

The signal enters the TT-98/FG through terminals 3 WHT and 4 BLK, then enters the TT-76(*)/GGC through terminals 4 BLK and 5 WHT. The signal enters the AN/UGC-74A(V)3 through jack J1. Once the signal enters the tty, it is changed to either a page copy on the TT-98/FG or AN/UGC-74A(V)3 or a punch tape and/or page copy on the TT-76(*)/GGC.

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)



EL6VX056

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)

TRANSMIT SIGNAL PATH FOR AN/GRC-122/142 PLAIN AND C

The transmitted signal originates at TT-76(*)/GGC, TT-98/FG, or AN/UGC-74A(V)3. It then travels through cable W1 (TT-76(*)/GGC) or cable W2 (TT-98/FG) or W2/5 (AN/UGC-74A(V)3) to jack J1 and J2 of switchbox.

The signal passes through the internal circuitry of the switchbox and exits through jack J4, then passes through cable W7 and enters the dummy box through jack J1.

The signal passes through the dummy box and exits through the WHT, BLK, and BLU terminals. Cable W12 then carries it to the control panel through jack J9 OWR-DX-SEND.

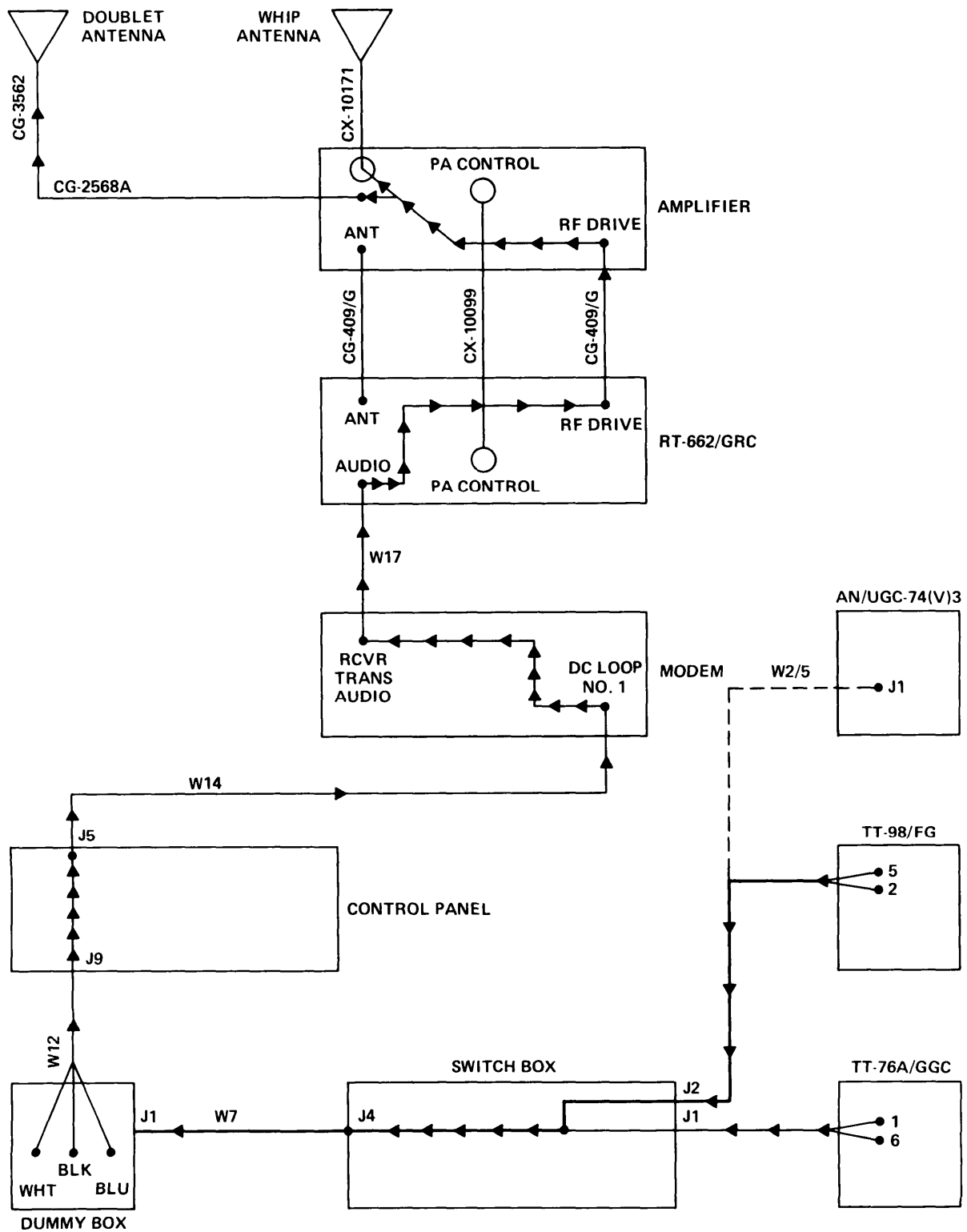
Once inside the control panel, the signal passes through the internal circuitry and is routed to J5, where it exits control panel. It then passes through cable W14 and into the DC LOOP NO. 1 jack of the modem.

Once the signal enters the modem, it is changed from tty impulse to an audio tone signal. The audio tone signal exits the modem through the RCVR TRANS AUDIO jack, and passes through cable W17 and into the AUDIO jack of the RT-662/GRC.

Once the signal enters the RT-662/GRC, it is transformed or modulated into a radio signal, and exits the RT-662/GRC through the RF DRIVE jack and travels through cable CG-409/G. Then it enters the RF DRIVE jack of the amplifier.

The amplifier amplifies the signal and transmits it through the antenna. This is accomplished through cables CX-10171 or CG-2568A and CG-3562, depending on which antenna is used.

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)



EL6VX057

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)

RECEIVE SIGNAL PATH FOR AN/GRC-122/142A, B, D, AND E

A radio signal is received at either the whip or doublet antennas. The signal travels through cable CX-10171 (whip), or CG-3562 and CG-2568A (doublet), and into the WHIP jack (whip) or 50 OHM LINE jack (doublet). It is unchanged through the amplifier and exits the amplifier through the ANT jack, then passes through cable CG-409/G and into the ANT jack of RT-662/GRC.

The signal is changed from radio signal to audio tone signal in the RT-662/GRC. The audio tone signal exits the RT-662/GRC through the AUDIO jack, then passes through cable W17 and into the RCV TRANS AUDIO jack of the modem.

Once the signal reaches the modem, it is changed from an audio tone signal to a tty impulse signal, and exits the modem through the DC LOOP NO. 1 jack. It then passes through cable W14 and into J15 jack of the switch assembly.

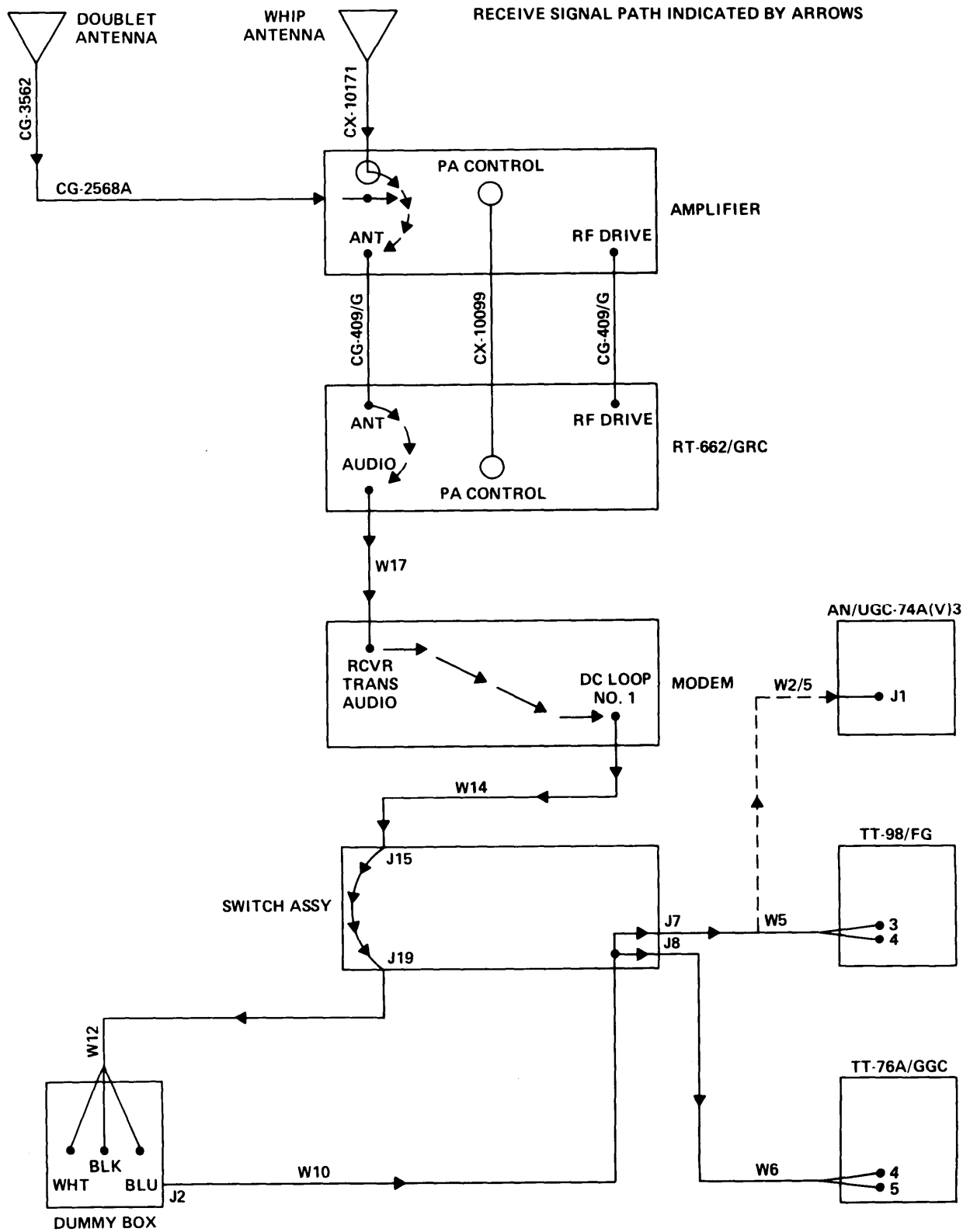
The signal is routed through the switch assembly through a series of switches to jack J19 OWR-SEND-DX, then passes through cable W12 and into the dummy box through terminals WHT, BLK, and BLU.

The signal passes through the dummy box unchanged and exits the dummy box through jack J2. It then passes through cable W10 and into jack J10 of the switch assembly.

The signal is then routed through the switch assembly to jacks J7 and J8, and exits the switch assembly and passes through cable W5 to the TT-98/FG or W2/5 to the AN/UGC-74A(V)3, or W6 to the TT-76(*)/GGC.

The signal enters the TT-98/FG through terminals 3 WHT and 4 BLK. then enters the TT-76(*)/GGC through terminals 4 BLK and 5 WHT. The signal enters the AN/UGC-74A(V)3 through jack J1. Once it enters the tty it is changed to either a page copy on the TT-98/FG or AN/UGC-74A(V)3 or punch tape and/or page copy on the TT-76(*)/GGC.

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)



EL6VX004

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)

TRANSMIT SIGNAL PATH FOR AN/GRC-122/142A, B, D, AND E

The transmitted signal originates at TT-76(*)/GGC, TT-98/FG, or AN/UGC-74A(V)3, then travels through cable W1 (TT-76(*)/GGC) or cable W2 (TT-98/FG) or cable W2/5 (AN/UGC-74A(V)3) to jack J1 and J2 of switch assembly.

The signal passes through the internal circuitry of the switch assembly and exits through jack J4. It then passes through cable W7 and enters the dummy box through jack J1.

The signal passes through the dummy box and exits through the WHT, BLK, and BLU terminals. Cable W12 then carries it into switch assembly through jack J19.

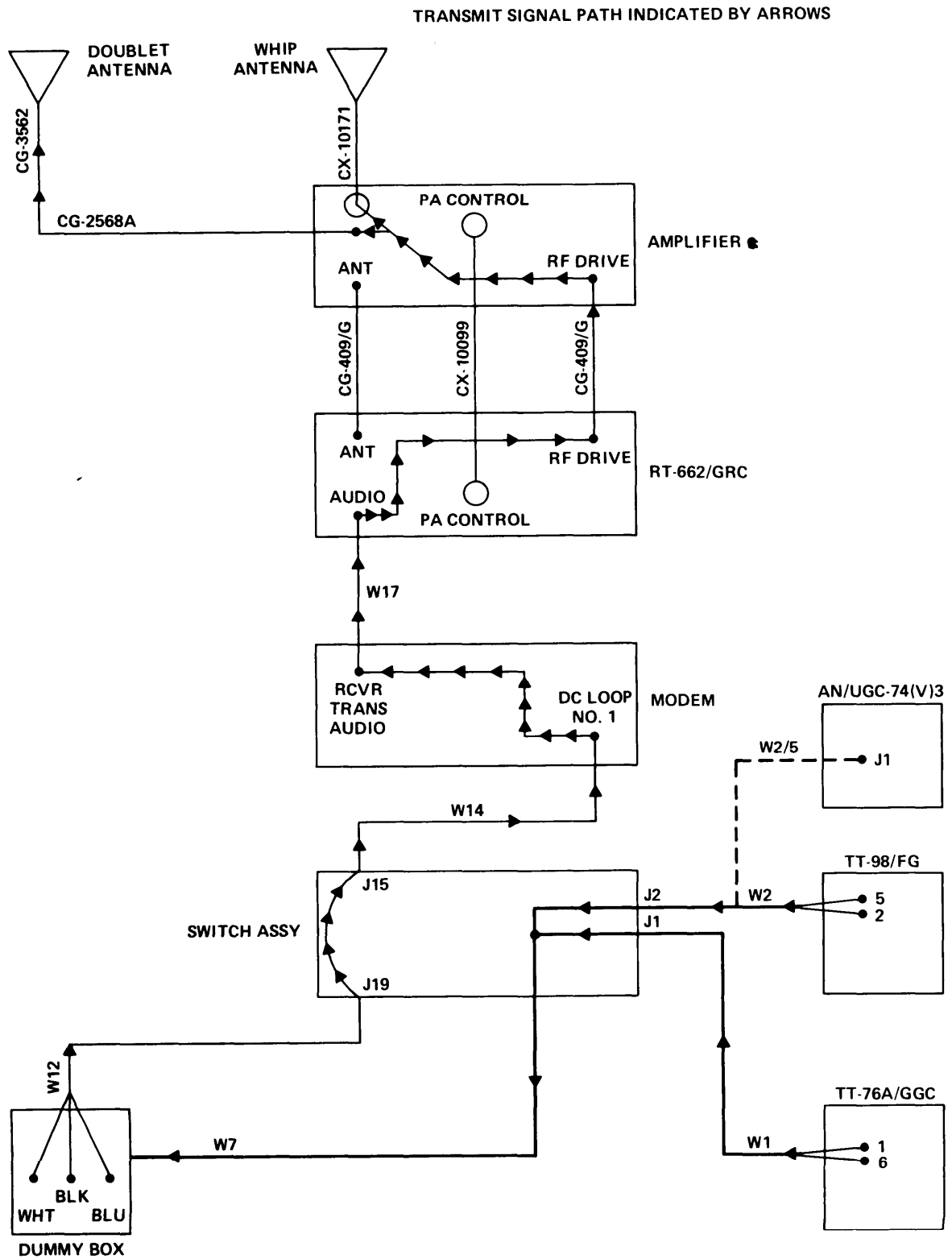
Once inside the switch assembly, the signal passes through the internal circuitry and exits through J15. It then passes through cable W14 and into the DC LOOP NO. 1 jack of the modem.

Once the signal enters the modem, it is changed from a tty impulse to an audio tone signal. The audio tone signal exits the modem through the RCVR TRANS AUDIO jack, then passes through cable W17 and into the AUDIO jack of the RT-662/GRC

Once the signal enters the RT-662/GRC it is transformed or modulated into a radio signal. It exits the RT-662/GRC through the RF DRIVE jack and travels through cable CG-409/G, and enters the RF DRIVE jack of the amplifier.

The amplifier amplifies the signal and transmits it through the antenna. This is accomplished through cables CX-10171, or CG-2568A and CG-3562, depending on which antenna is used.

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)

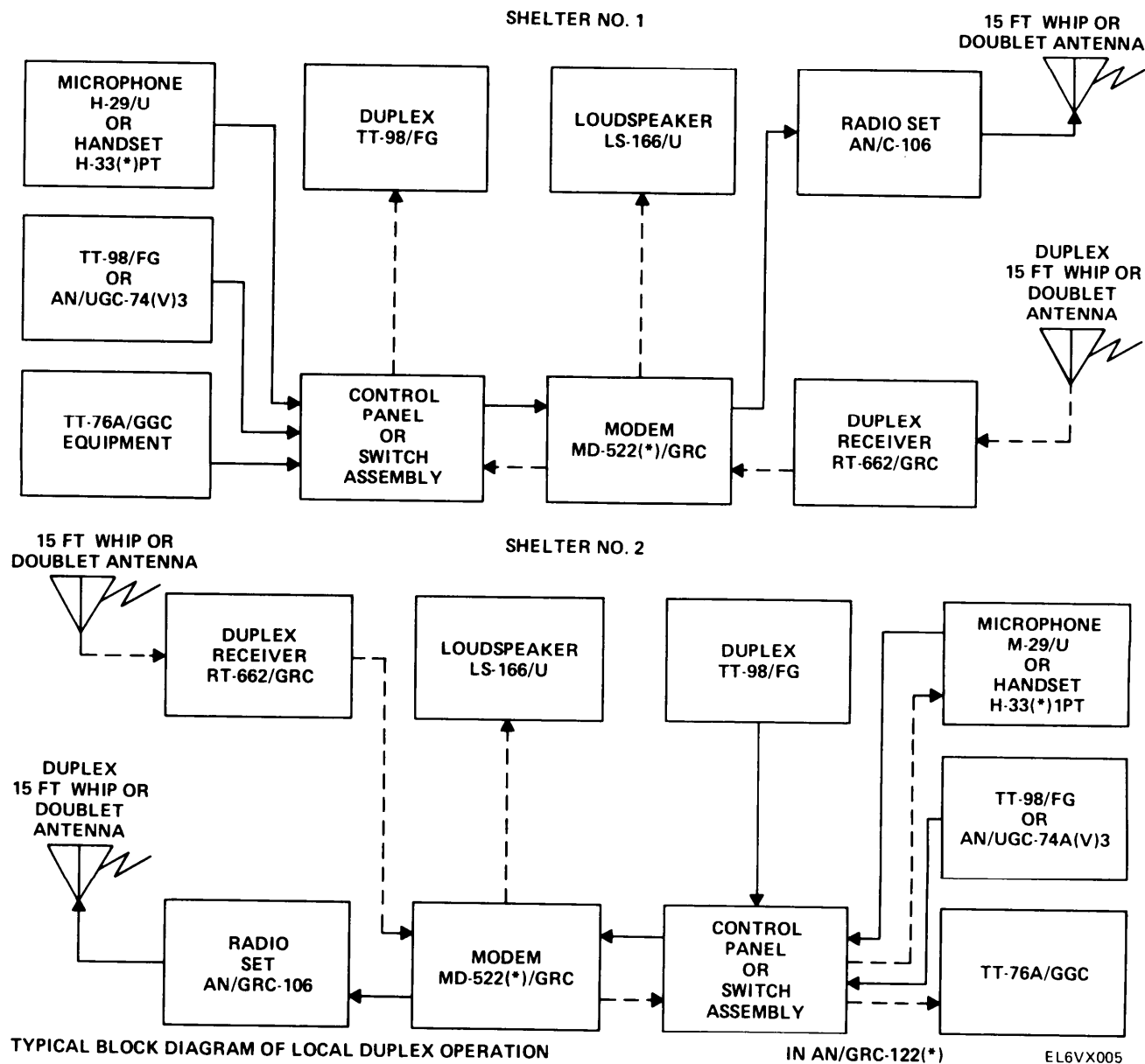


EL6VX003

1-15. FUNCTIONAL DESCRIPTION OF EQUIPMENT OPERATION. (CONT)

STATION-TO-STATION SIGNAL PATH

The tty communication system can be arranged in various configurations depending upon the particular operation desired. The simplified block diagram below illustrates duplex radio operation between two stations. This block diagram does not include all components of AN/GRC-122(*), only some of the essential equipment.



NOTE

Both shelters no. 1 and 2 are able to receive and transmit tty or voice information simultaneously. Local duplex capability is possible due to additional tty and receiver equipment.

CHAPTER 2

ORGANIZATIONAL MAINTENANCE

Subject	Section	Page
Repair Parts, Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment.....	I	2-1
Service Upon Receipt.....	II	2-2
Preventive Maintenance Checks and Services (PMCS).....	III	2-16
Troubleshooting	IV	2-18
Maintenance Procedures.....	V	2-26
Preparation for Storage and Shipment	VI	2-78

Section I REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Subject	Para	Page
Common Tools and Equipment.....	2-1	2-1
Special Tools, TMDE, and Support Equipment.....	2-2	2-1
Repair Parts	2-3	2-1

2-1. COMMON TOOLS AND EQUIPMENT.

The common tools and equipment needed for each maintenance procedure are listed in the beginning of each maintenance task. For authorized common tools and equipment, see appendix B, Maintenance Allocation Chart (MAC).

2-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT.

No special tools are authorized for use by organizational maintenance. The TMDE and support equipment are listed in appendix B (MAC).

2-3. REPAIR PARTS.

Repair parts required for organizational maintenance are listed and illustrated in TM 11-5815-334-20P.

Section II SERVICE UPON RECEIPT

Subject	Para	Page
Site and Shelter Requirements	2-4	2-2
Unpacking	2-5	2-3
Checking Unpacked Materiel	2-6	2-5
Unloading and Loading	2-7	2-5
Securing Shelter to Truck	2-8	2-8
Ladder Installation	2-9	2-9
Grounding Shelter	2-10	2-9
Antenna Assembly Installation	2-11	2-10
Remote Equipment Setup	2-12	2-10
Dummy Box Removal and Security Equipment Installation	2-13	2-11
Preliminary Procedures for AC and DC Power Connections	2-14	2-11
AC Power Connection	2-15	2-11
DC Power Connection	2-16	2-14
Loop Current Adjustment	2-17	2-15
Adjustments of Miscellaneous Equipment	2-18	2-15

2-4. SITE AND SHELTER REQUIREMENTS.

The best operating site for facility is determined by terrain in conjunction with system planning and security considerations. When a site is chosen for shelter, ground should be firm, level, dry, and have good drainage. After preparing a site, shelter should be installed on leveled concrete blocks or wood beams if possible. Position shelter to facilitate cable connections to both power and signal entrance boxes. Avoid, as much as possible, crossing power cables and field wires. When shelter is mounted on a truck, a ladder should be secured to the truck tailgate.

Consideration should also be given to the location of the whip or doublet (AN/GRA-50) antenna. Keep the doublet antenna as far as possible from both cable and field wires. Try several areas in the general site, and select the one that provides best signals from desired stations. If transmission and reception in all directions are required, install the antenna on the highest hill within designated site (transmission and reception are best over water on level ground). When the antenna is installed as high above the ground as possible, transmitted signals have a greater range. Radio signals are absorbed and sometimes reflected by nearby obstructions, such as hills, telephone lines, and metal buildings and bridges that extend above the height of the antenna.

When in built-up areas, avoid placing set near sources of electrical interference, such as power and telephone lines, radar sets, and field hospitals.

To minimize the effects of possible enemy jamming against the receiver, locate the antenna so that nearby obstructions act as a screen in the direction of probable sites of enemy jamming transmitters. This screening action may also make it more difficult for the enemy to intercept signals.

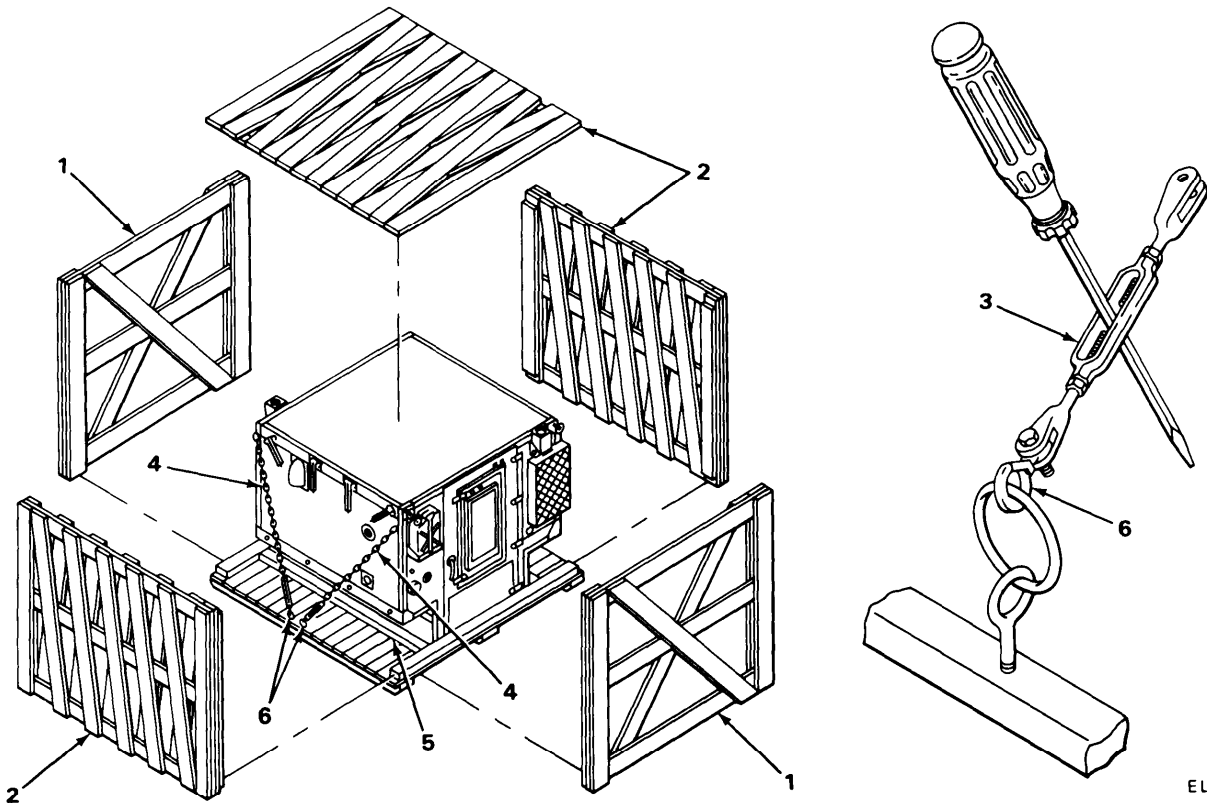
2-5. UNPACKING.

Components of Radio Teletypewriter Set AN/GRC-122/142(*) are installed in shelter, which is packed in a wooden crate. Upon receipt of shelter, it should be unpacked from wood crate as follows.

SPECIAL EQUIPMENT: Crane capable of lifting 2500 pounds (1135 kg)

TOOLS: Tool Kit, Electronic Equipment TK-101/G

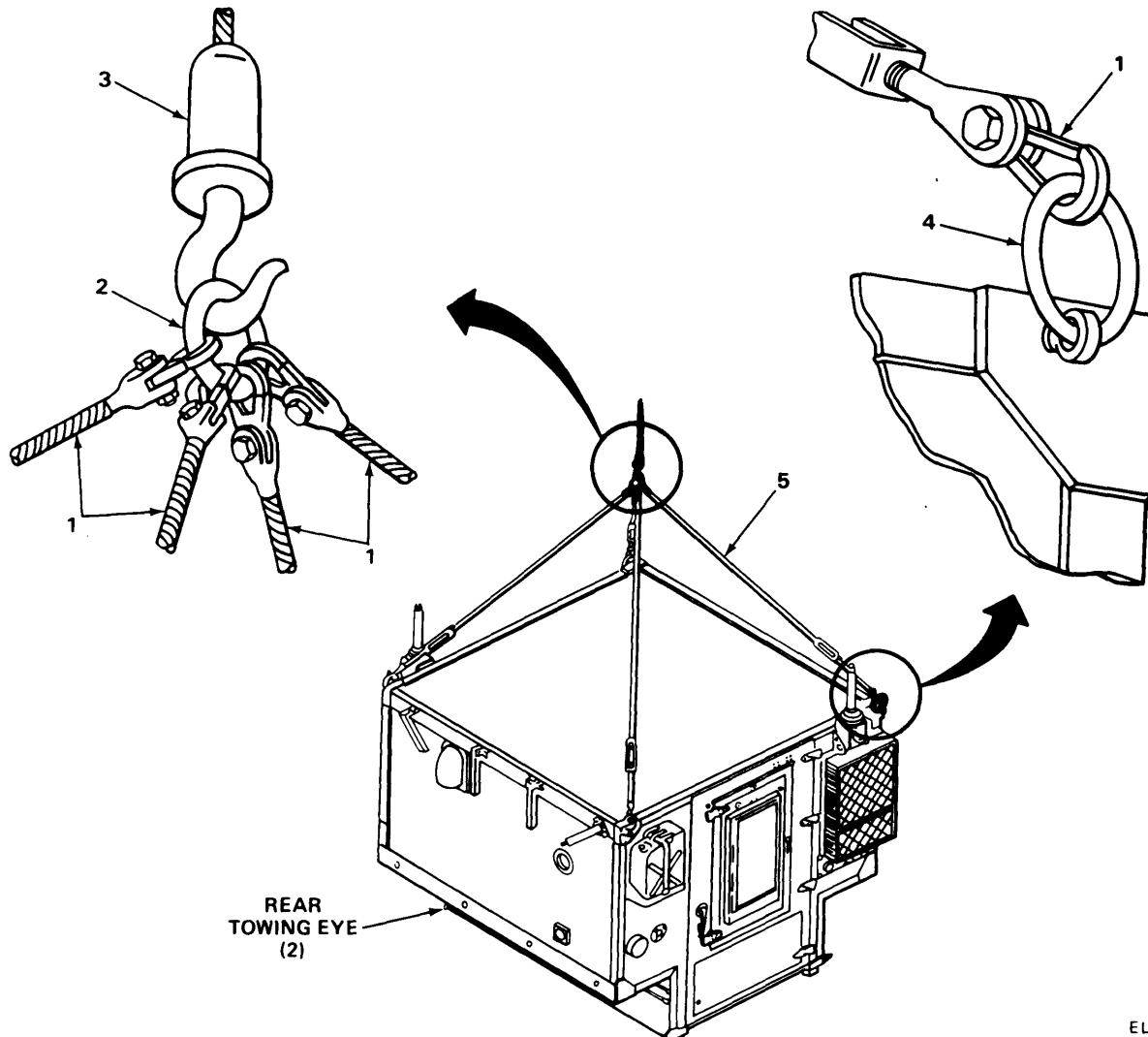
PERSONNEL REQUIRED: Four technicians



EL6VX0C

1. Remove 56 lag bolts that secure front and rear panels (1) to top and side panels (2).
2. Remove front and rear panels (1), and then top and side panels (2).
3. Using flat-tip screwdriver, turn four turnbuckles (3) of sling assembly (4) counterclockwise to loosen shelter from wood base (5).
4. Remove four sling assembly hooks (6) from wood base (5).

2-5. UNPACKING. (CONT)



EL6VX007

5. Connect four unattached sling assembly hooks (1) to lifting ring (2).
6. Connect lifting ring (2) to lifting device (3).

WARNING

When lifting shelter, all personnel should stay clear to avoid injury.

7. Lift shelter off wood base.
8. Remove crate base and lower shelter to prepared site.
9. Remove lifting ring (2) from lifting device (3).
10. Disconnect four sling assembly hooks (1) from lifting ring (2).
11. Disconnect four sling assembly hooks (1) to shelter tieddown rings (4).
12. Store sling assembly (5).

2-6. CHECKING UNPACKED MATERIEL.

Inspect equipment for possible damage which may have occurred during shipment. If equipment has been damaged, report the damage on DD Form 6 (Packing Improvement Report).

Check equipment against packing slip to see if shipment is complete. Report all discrepancies in accordance with SF 361, Discrepancy in Shipment Report.

NOTE

Shortage of a minor assembly on part that does not affect proper functioning of equipment should not prevent use of equipment.

2-7. UNLOADING AND LOADING.

UNLOADING

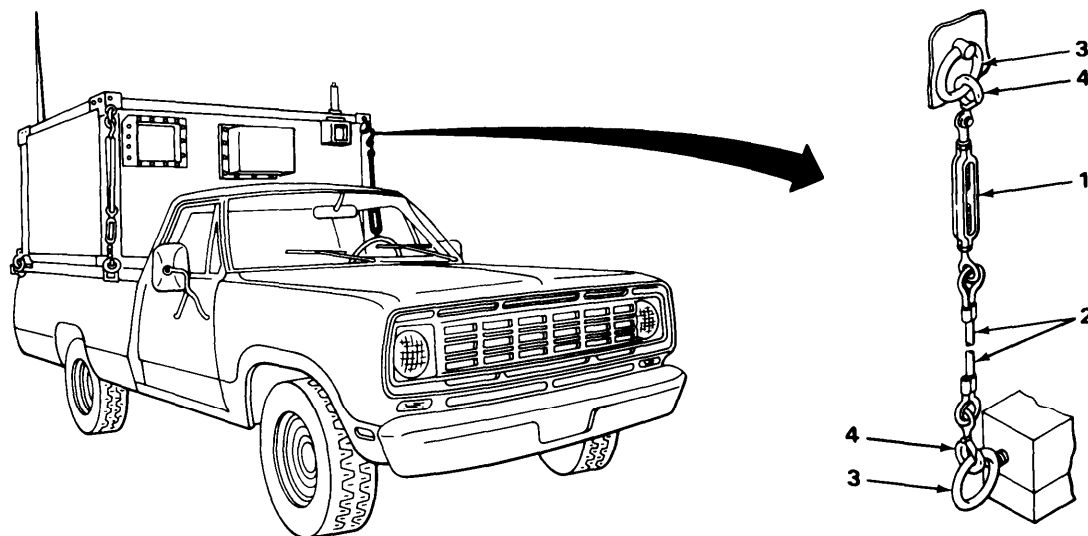
To unload shelter when secured to a truck, follow the procedure below.

SPECIAL EQUIPMENT: Crane capable of lifting 2500 pounds (1135 kg)

TOOLS: Tool Kit, Electronic Equipment TK-101/G

MATERIALS/PARTS: 1/2-inch (1.27 cm) rope, 15 feet (4.58 m) (two required)

PERSONNEL REQUIRED: Four technicians



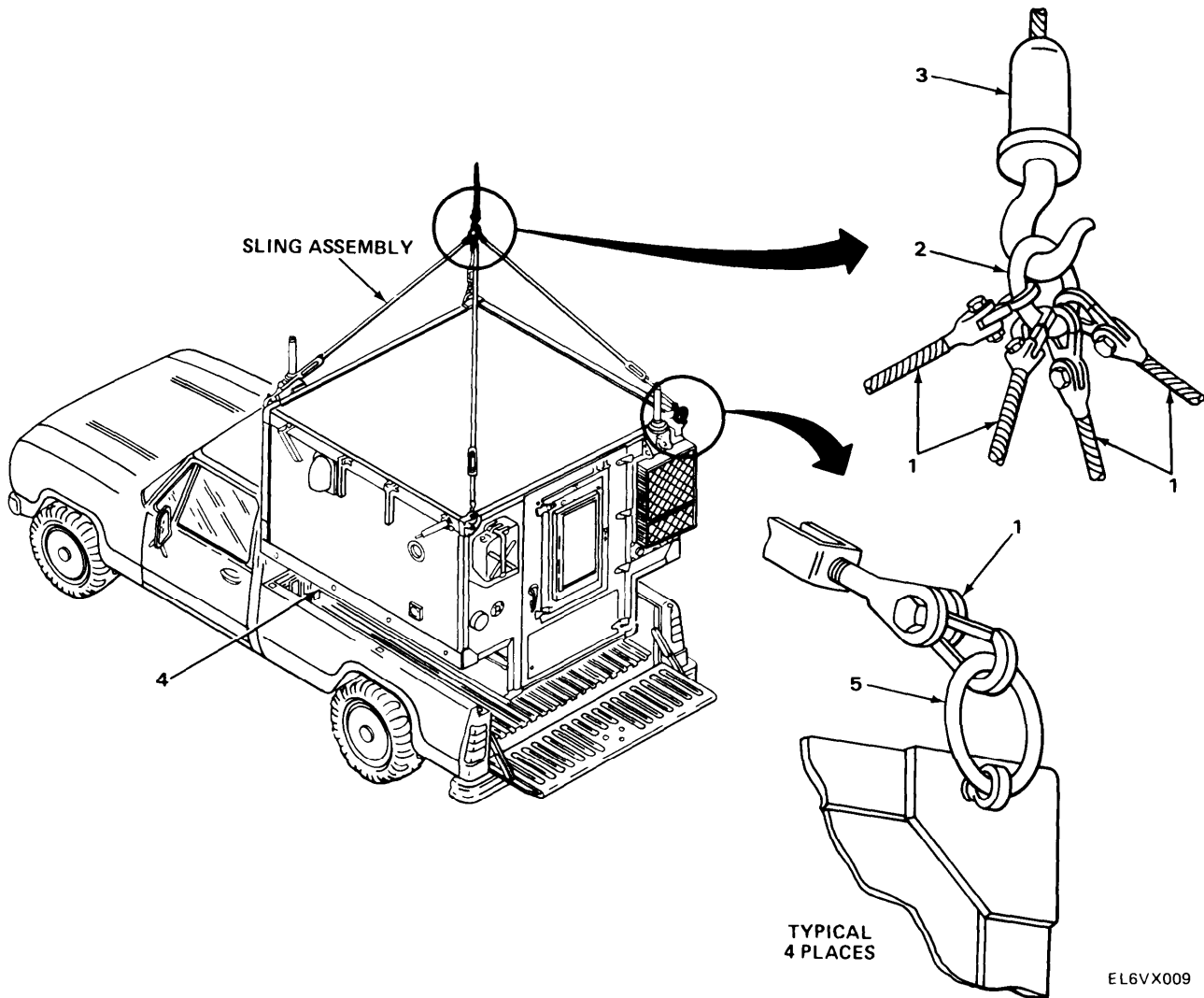
EL6VX008

WARNING

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

1. Unlock and lower tailgate.
2. Using flat-tip screwdriver, turn four turnbuckles (1) of the sling assembly (2) counterclockwise to loosen shelter holding plates or ring bolts (3).
3. Remove sling assembly hooks (4) from holding plates or ring bolts (3).

2-7. UNLOADING AND LOADING. (CONT)



4. Connect the four unattached sling assembly hooks (1) to lifting ring (2).
5. Connect lifting ring (2) to lifting device (3).
6. Tie rope to two towing eyes (4).

When lifting shelter, all personnel should stay clear to avoid injury.

NOTE

When lifting shelter, make sure it is raised high enough to clear truck body.

7. Slowly lift shelter from truck.
8. Using two ropes, guide shelter into place and lower.
9. Disconnect four sling assembly hooks (1) from lifting rings (2).
10. Disconnect four sling assembly hooks (1) from shelter tiedown rings (5).

2-7. UNLOADING AND LOADING. (CONT)**LOADING**

Shelter can be transported by helicopter as well as by truck. When shelter must be truck-mounted, follow procedure below.

WARNING

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

1. Connect four sling assembly hooks (1) to lifting ring (2).
2. Connect the four unattached sling assembly hooks (1) to the shelter tiedown rings (5).
3. Connect lifting ring (2) to lifting device (3).
4. Tie a rope to each rear towing eye (4).

WARNING

When lifting shelter, all personnel should stay clear to avoid injury.

NOTE

When lifting shelter, make sure it is raised high enough to clear truck body.

5. Lower tailgate.
6. Lift shelter from prepared surface.
7. Back truck into position under shelter.

WARNING

While shelter is being lowered into position, all personnel must remain clear of truck to avoid injury.

NOTE

Position a person at each of the ropes to guide shelter into position. Ensure shelter entrance door is at rear of truck, and front of shelter is against front of truck body.

When shelter is about 4 inches above floor of truck body, remove ropes from shelter.

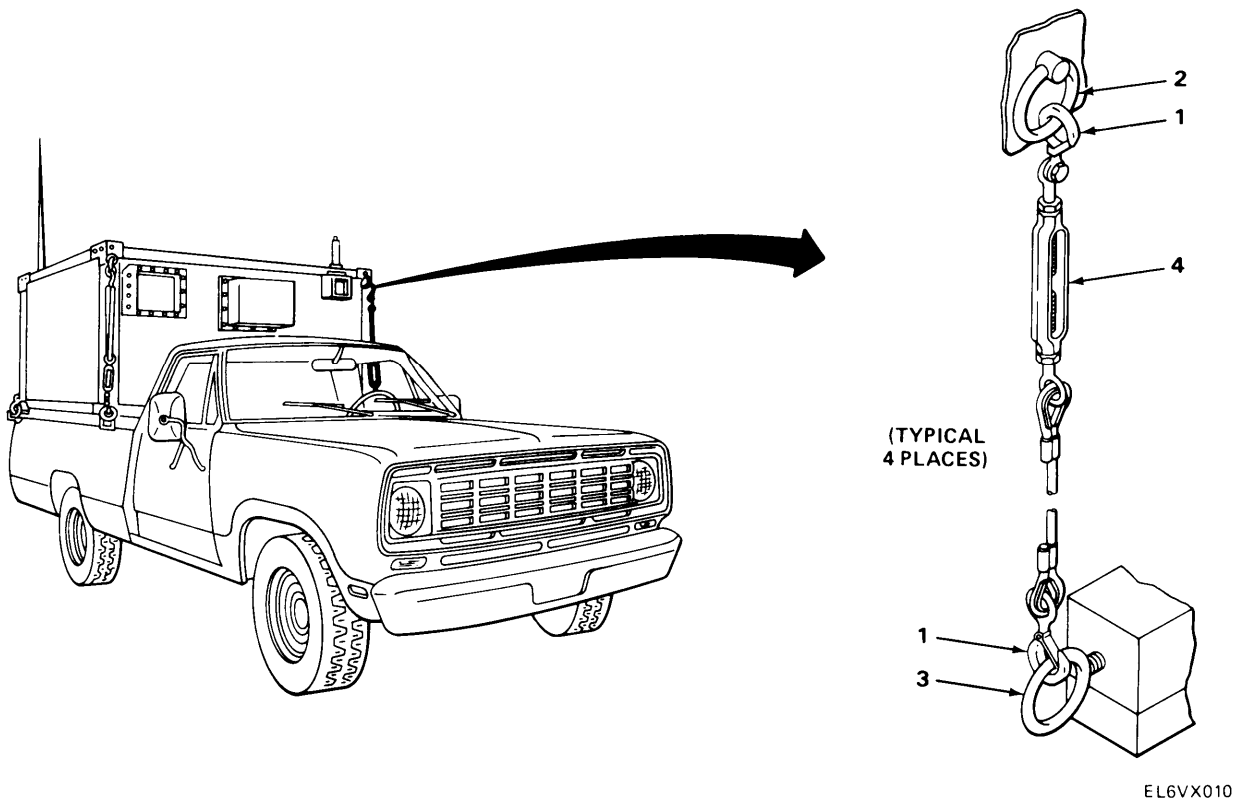
8. Slowly lower shelter onto truck body.
9. Disconnect lifting ring (2) from lifting device (3).
10. Disconnect four sling assembly hooks (1) from lifting ring (2).
11. Disconnect four sling assembly hooks (1) from shelter tiedown (5).

2-8. SECURING SHELTER TO TRUCK.

NOTE

For additional information on securing shelter to truck, refer to TB 11-2300-374-14 for S-250 and TB 11-2300-374-14-1 for S-318, and TB 43-0124 for both. For installation of dunnage, refer to SB11-640.

TOOLS: Tool Kit, Electronic Equipment TK-101/G



1. Install sling assembly hooks (1) to shelter tiedown rings (2).
2. Install ring bolts (3) on fender.
3. Install two remaining sling assembly hooks (1) on each side of shelter to ring bolts (3).

NOTE

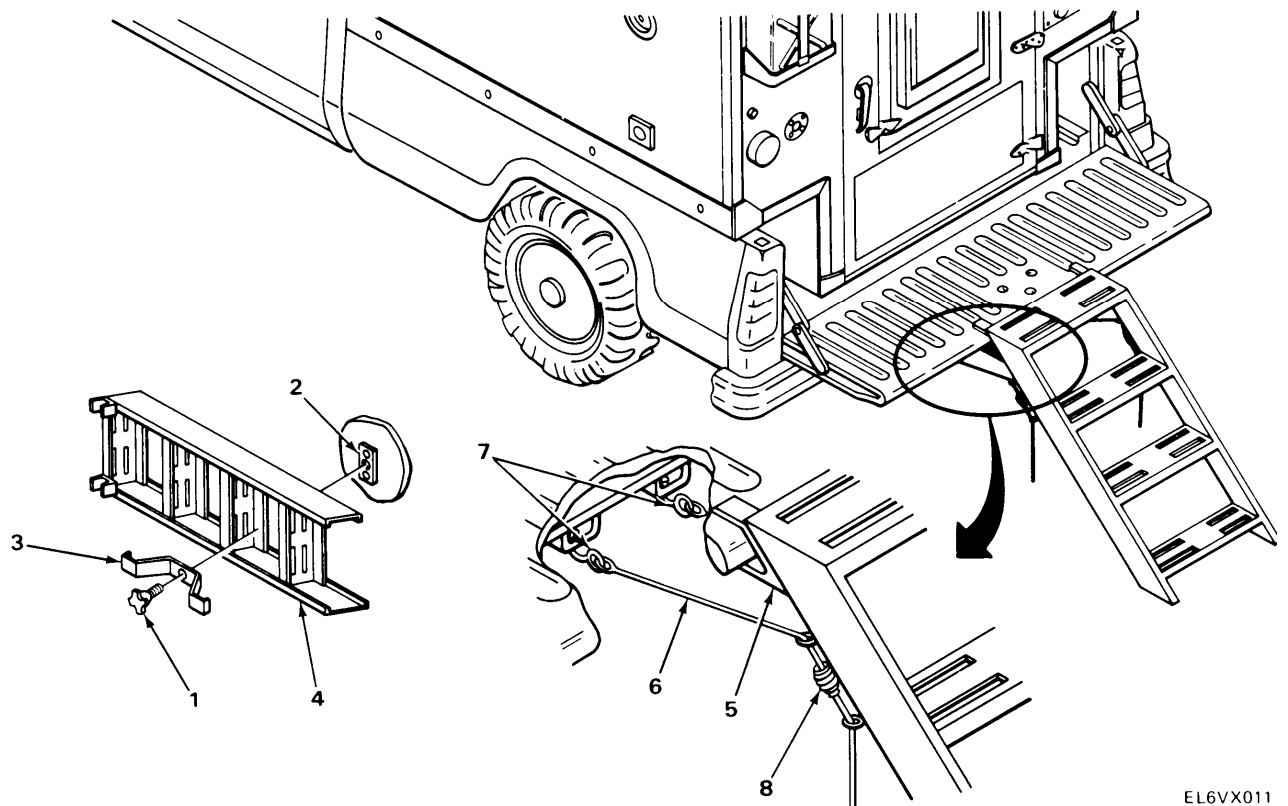
To prevent shelter from twisting in truck body, tighten all turnbuckles equally. Do not overtighten turnbuckles.

If there is too much slack in the sling assembly when tightened, install cable adapter SC-D-86652 (Shelter S-318 only).

4. Tighten turnbuckles (4).
5. Raise and secure truck tailgate.

2-9. LADDER INSTALLATION.

This procedure only applies if shelter is truck-mounted. If a trailer is attached to vehicle, it must be disconnected and moved out of the way before boarding ladder can be installed.



EL6VX011

1. Unscrew securing bolt (1) from retaining plate (2).
2. Store bracket (3) in one of the storage drawers for future use, and remove ladder (4) from shelter.
3. Install boarding ladder bracket (5) against tailgate of truck.
4. Fasten hook on each of the two boarding ladder ropes (6) to towing rings (7).

WARNING

Check that ladder is secured in place. Injury to personnel may result if ladder is loose.

CAUTION

Tighten ropes with hand pressure only.

5. Using guy fasteners (8), pull ropes taut.

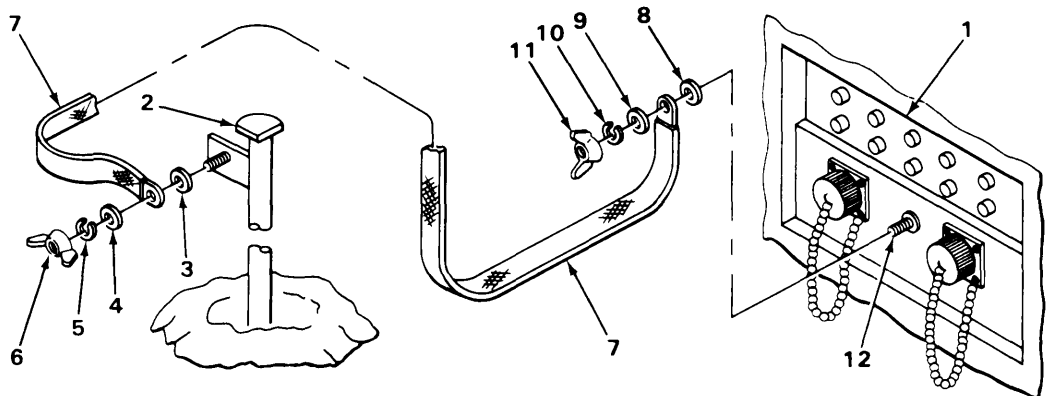
2-10. GROUNDING SHELTER.

Two ground rods are provided for grounding the shelter; one for the shelter itself and the other for a portable generator, if used. A sledge hammer is also provided. Select a site that will not interfere with entrance door, power cables, field wires, or antenna transmission cables.

2-10. GROUNDING SHELTER. (CONT)

TOOLS: Tool Kit, Electronic Equipment TK-101/G

MATERIALS/PARTS: Ground rods
 Ground straps
 8-pound (3.6 kg) sledge hammer



EL6VX012

WARNING

Shelter must be properly grounded or severe electrical shock to personnel may result.

NOTE

Ground terminal is located in DC ENTRANCE BOX in AN/GRC-122 and 142 Plain and C models.

1. Select a location within 6 feet (1.8 m) of power entrance box (1).
2. Scoop out a small hole approximately 6 inches (15.2 cm) deep.
3. Remove any paint or grease from ground rod (2).

NOTE

If possible, wet ground around ground rod with water.

4. Using 8-pound (3.6 kg) sledge hammer, drive ground rod (2) into hole until top is approximately ground level.
5. Using star washer (3), flat washer (4), lockwasher (5), and wingnut (6), connect one end of ground strap (7) to ground rod (2).
6. Using star washer (8), flat washer (9), lockwasher (10), and wingnut (11), connect other end of ground strap (7) to ground terminal (12).

2-11. ANTENNA ASSEMBLY INSTALLATION.

For instructions on installation of antenna assembly, refer to TM 11-5815-334-10.

2-12. REMOTE EQUIPMENT SETUP.

For instructions on installation of remote equipment, refer to TM 11-5815-334-10.

2-13. DUMMY BOX REMOVAL AND SECURITY EQUIPMENT INSTALLATION.

For instructions on removal of dummy box and installation of security equipment, refer to TM 11-5815-334-10.

2-14. PRELIMINARY PROCEDURES FOR AC AND DC POWER CONNECTIONS.

AN/GRC-122/142(*) must be connected to an ac and dc power source to be completely operable. Ac power source provides power for the air conditioner (AN/GRC-142 serial numbers 1 through 697 only) and ac outlet strip. Dc power source provides power for all units in shelter except air conditioner. Operation at reduced capability is possible if only ac or dc power is available. If only an ac power source is used, dc convenience outlets and shelter heater will be inoperative. If only a dc power source is used, air conditioner and ac outlets will be inoperative.

If it is desirable to conserve battery power, ac only mode can be used even though shelter is connected to vehicle battery. In this case, power distribution panel MAIN circuit breaker in both the AN/GRC-122/142(*) Plain and C models must be switched to OFF. In all other models, switch the DC MAIN circuit breaker to OFF to disconnect the vehicle battery from the shelter power system.

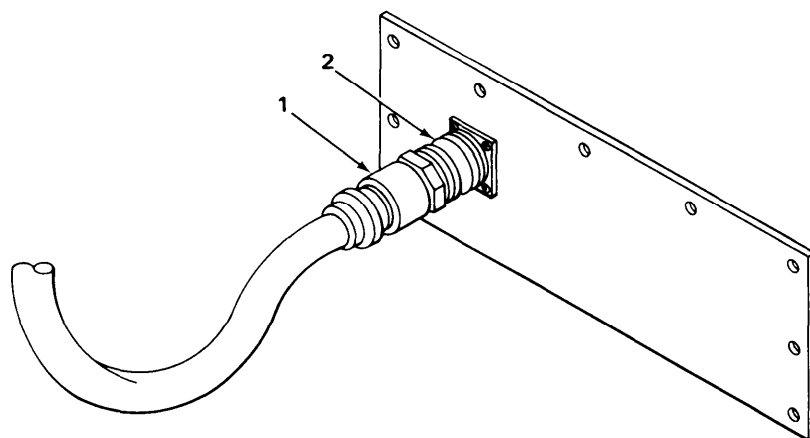
WARNING

Before connecting ac and dc power, ensure all circuit breaker switches and equipment switches are set to OFF to avoid severe shock to personnel.

To prevent severe shock to personnel, ensure shelter has been grounded as directed (para 2-10).

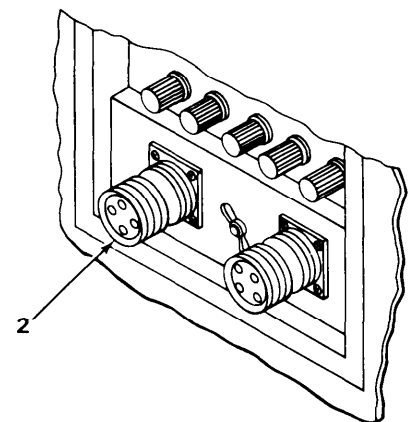
2-15. AC POWER CONNECTION.

Ac power cable CX-10951/G is supplied with AN/GRC-122/142(*) to connect shelter to an ac power source, such as a portable ac generator. If portable ac generator is used as ac power source, follow procedure below.



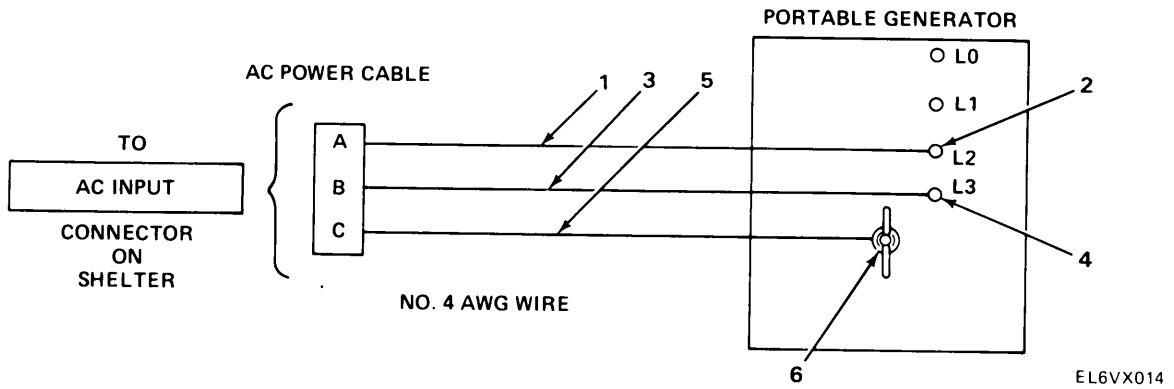
AN/GRC-122/142 PLAIN AND C

AN/GRC-122/142A, B, D AND E



1. Remove cover from shelter ac receptacle.
2. Connect ac power cable plug (1) to shelter AC INPUT J1 (2) or AC INPUT J2 (2).

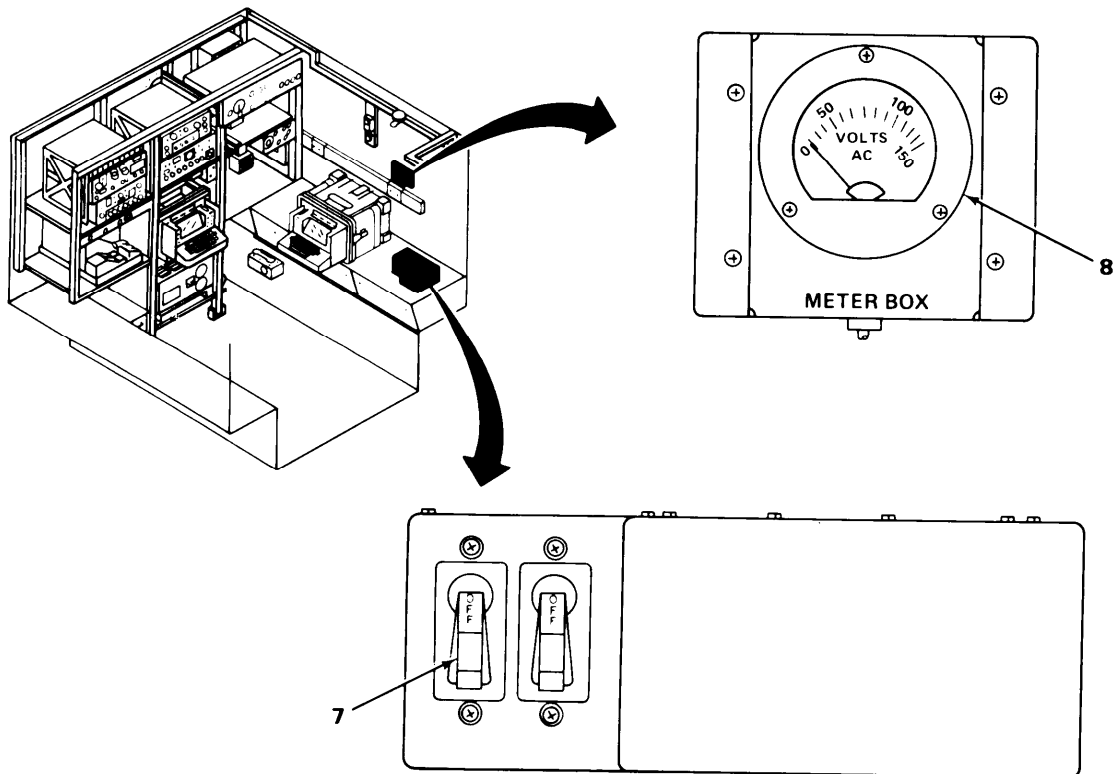
2-15. AC POWER CONNECTION. (CONT)



3. Connect ac power cable hot (black) lead (1) to L2 output terminal (2).
4. Connect ac power cable neutral (white) lead (3) to L3 output terminal (4).
5. Connect ac power cable ground (green) lead (5) to ground stud (6).

NOTE

If models AN/GRC-122/142 Plain and C models are being used, perform the following ac power check.



6. Push CB1 (7) on.

2-15. AC POWER CONNECTION. (CONT)

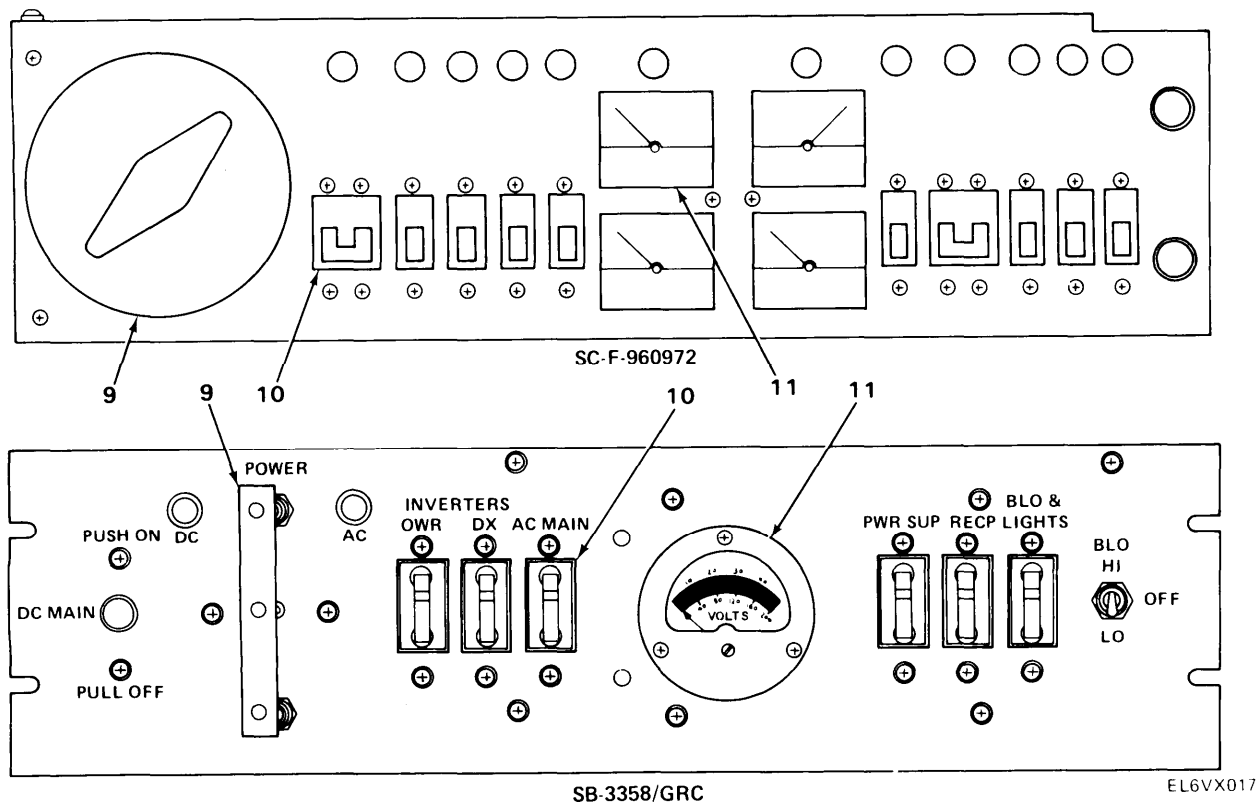
CAUTION

If voltmeter reads in the vicinity of 200 volts or more, immediately shut off CB1. Shut off power source as well and reconnect ac power cable to a correct voltage source. Serious damage to tty equipment could result.

7. Observe ac voltmeter (8) for 115-volt reading.

NOTE

AN/GRC-122/142A and B contains the SB-3358/GRC. AN/GRC-122/142D and E contains the SC-F-960972.



- 8. Set POWER switch (9) to AC on power distribution panel.
- 9. Set AC MAIN circuit breaker (10) to ON.

CAUTION

If voltmeter reads approximately 200 volts or more, immediately shut off AC MAIN circuit breaker. Shut off power source as well and reconnect ac power cable to a correct voltage. Serious damage to tty equipment could result from too much voltage.

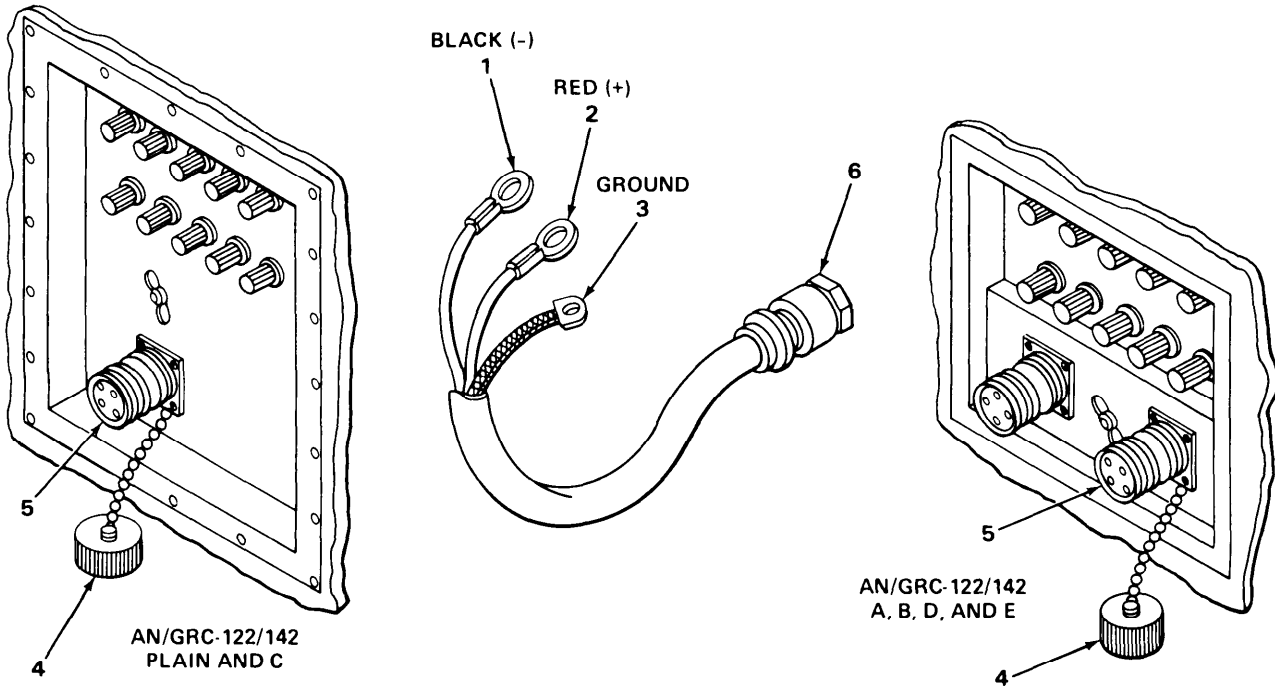
10. Observe 115-volt reading on voltmeter (11).

2-16. DC POWER CONNECTION.

Dc power cable CX-10463/GRC-142 is supplied with AN/GRC-122/142(*) to connect shelter to truck battery. This cable may also be used to connect the shelter to other dc power sources, such as a portable generator. Follow procedures below to connect dc power cable to shelter. Refer to applicable TM on the power source for hookup.

TOOLS: Tool Kit, Electronic Equipment TK-101/G

MATERIALS/PARTS: DC Power Cable CX-10463/GRC-142



EL6VX018

CAUTION

Before connecting dc power cable to the truck battery, ensure truck's charging system will support shelter's power requirements. Damage to truck may occur. Refer to applicable truck manual.

If shelter is connected to a dc power source other than truck battery, security of shelter (during secure operation) will be adversely affected.

1. Connect black (-) terminal (1) to negative terminal of power source.
2. Connect red (+) terminal (2) to positive terminal of the power source.
3. Connect cable ground strap (3) to convenient chassis ground.
4. Remove cover (4) from DC INPUT receptacle (5).
5. Connect dc power plug P1 (6) to DC INPUT receptacle (5).

NOTE

Use a dc adapter kit for shelters installed on M884 trucks.

2-17. LOOP CURRENT ADJUSTMENT.

The loop current is factory adjusted and should not require readjustment. However, it must be checked after equipment installation, and corrected, if necessary, to ensure proper tty operation. Loop current should also be checked when additional tty equipment is added to loop, such as remote or duplex equipment.

Loop current adjustments apply to either OWR-DX-SEND TTY loop or DX-RECEIVE pony loop. (DX-RECEIVE loop is used only during duplex or pony circuit operation.)

Before adjusting loop currents, ensure the following conditions have been met.

1. Dc power is connected to AN/GRC-122/142(*) (para 2-16).
2. All remote equipment installed (if used) (TM 11-5815-334-10).
3. All duplex equipment (AN/GRC-122(*) only) is installed, while security equipment is not installed.

To adjust loop current, first perform starting procedure that is applicable to your particular radio tty set model. (Refer to TM 11-5815 -334-10.) To adjust loop current in the following pieces of equipment, see appropriate TM, appendix A.

EQUIPMENT	TM
TT-76(*)/GGC	TM 11-5815-238-15
TT-98/FG	TM 11-5815-200-12
Modem	TM 11-5805-387 -15-1 and TM 11-5805-387-15-2

2-18. ADJUSTMENTS OF MISCELLANEOUS EQUIPMENT.

WARNING

Do not operate shelter exhaust fan when multifuel heater is operating. This will prevent deadly fumes from being drawn into shelter.

In shelters where amplifier vents cooling air to outside of shelter, open rear door louvers enough so that deadly fumes are prevented from being drawn into shelter when multifuel heater is operating.

NOTE

On AN/GRC-122/142B configurations that have a rain shield covering shelter exhaust fan, open shield covering before operating fan.

Before operating heater, check shelter multifuel heater (space heater) needle valve adjustment. This task is usually required only if heater has not been used for several months. Refer to TM 5-4520-211-14 (Hupp) or TM 5-4520-236-14 (Hunter) for details of this task.

Section III PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

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2-19. GENERAL.

Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent breakdowns, and ensure maximum operational capability. To be sure the equipment is always operational, perform PMCS.

The organizational PMCS procedures for AN/GRC-122/142(*) includes (M) monthly and (Q) quarterly equipment checks. Monthly PMCS should be performed every 30 calendar days of 8-hour-per-day operation. If the equipment is operated 16 hours per day, check it at 15-day intervals. Quarterly PMCS should be performed every 90 calendar days of 8-hour operation.

If the equipment fails to operate, refer to organizational troubleshooting in this manual. Use DA PAM 738-750 as a guide for reporting problems and using forms.

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

The routine covering of unused receptacles, and checks such as equipment inventory, cleaning components, checking for frayed cables, replacing items not in use, checking for loose hardware, nuts, bolts, and screws, are not listed in the PMCS table. You should do these things as a matter of good preventive maintenance. If you find a routine check in PMCS, it was listed because other operators reported problems with this item.

The column entitled ITEM NUMBER in the PMCS table is to be used as a source of item numbers for the TM NUMBER column on DA Form 2404, Equipment Inspection and Maintenance Worksheet. In this way, PMCS results can be recorded.

Deficiencies that cannot be corrected must be reported to higher category maintenance personnel. Records and reports of preventive maintenance must be made in accordance with procedures given in DA Pam 738-750.

NOTE

Keep in mind all warnings and cautions when doing PMCS or any routine checks.

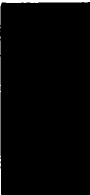
For PMCS of major components, see applicable TM, appendix A.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

M - MONTHLY

Q - QUARTERLY

ITEM NO.	INTERVAL		ITEM TO BE INSPECTED	PROCEDURE
	M	Q		
1		●	SHELTER TIEDOWN	Check shelter tiedown cables assembly for proper tension.
	●			Check shelter tiedown cables assembly for fraying.
2		●	SHELTER EXTERIOR	Check shelter skin for puncture, tears, dents, and areas without paint. (Refer to TB 43-0124.)
3		●	DOOR	Lubricate door. (Refer to TB 43-0124.)
4	●		FIRE EXTINGUISHER	If weight is less than specified or sea is broken, recharge.
5	●		FIRST AID KIT	If case is damaged or broken, replace. Replace items that have been used.
6		●	MWO'S	Check DA Pam 310-1 to determine whether all MWO's have been applied.
7	●		AN/GRC-122/142(*) PERFORMANCE	Perform all operational procedures found in TM 11-5815-334-10.



Section IV TROUBLESHOOTING

2-20. GENERAL.

The troubleshooting table lists common malfunctions you may find during the operation or maintenance of the AN/GRC-122/142(*).

This manual cannot list all malfunctions that may occur, or all tests or inspections and corrective actions. If a malfunction is not listed, or is not corrected by listed corrective actions, report it to a higher level of maintenance.

When working on any problem, be sure to report your work on the forms shown in DA Pam 738-750.

To use the troubleshooting table, first find your problem in the symptom index. The symptom index is organized by component and problems associated with each component. The index will give you a page number on which you will find your problem and the possible corrections.

For troubleshooting of major components, refer to the applicable technical manual listed in appendix A.

The AN/GRC-122/142 operates on a dc system voltage from 24 to 29 vdc. Any voltage between 24 and 29 vdc is acceptable.

Electronic Equipment Tool Kit TK-101/G and Multimeter AN/URM-105 are used to troubleshoot AN/GRC-122/142(*).

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TROUBLESHOOTING

MALFUNCTION	
	TEST OR INSPECTION
	CORRECTIVE ACTION

POWER DISTRIBUTION PANELS SB-3018/GRC, SB-3358/GRC, and SC-F-960672

1. No voltage indication on meter; power lamp does not light (dc mode).

TROUBLESHOOTING (CONT)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

1. No voltage indication on meter; power lamp does not light (dc mode). (Cont)

- Step 1. Check vehicle charging system for 28 vdc.
 - a. If 28 vdc is not present, troubleshoot vehicle charging system.
 - b. If 28 vdc is present, refer to a higher level of maintenance to troubleshoot defective shelter wiring.
- Step 2. Check cable CX-10463/GRC for continuity (para 2-46).
 - If continuity is not present, replace cable CX-10463/GRC.

2. No voltage indication on meter; power lamp does not light (ac mode).

- Step 1. Check power source for 115 vac.
 - a. If 115 vac is not present, troubleshoot the power source.
 - b. If 115 vac is present, refer to a higher level of maintenance to troubleshoot defective shelter wiring.
- Step 2. Check cable CX-10951/G for continuity (para 2-50).
 - If continuity is not present, replace cable CX-10951/G.

3. Owr or dx inverter or motor generator does not energize.

Remove cable W23 P1 or W22 P1 from inverter or motor generator and check for 28 vdc at pins A(+) and C(-) of P1.

- a. If 28 vdc is present, replace inverter or motor generator.
- b. If 28 vdc is not present, refer to a higher level of maintenance or defective shelter wiring.

TT-76(*)/GGC

1. TT-76(*)/GGC is inoperative (AN/GRC-122/142 Plain and C) (dc mode).

- Step 1. Check for 115 vac at jack J1 of owr inverter.
 - If 115 vac is not present, troubleshoot owr inverter.

TROUBLESHOOTING (CONT)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

Step 2. Check for 115 vac at jack J1 of distribution box.

a. If 115 vac is present, troubleshoot TT-76(*)/GGC. (See applicable TM, appendix A.)

b. If 115 vac is not present, refer to a higher level of maintenance for defective distribution box wiring.

2. TT-76(*)/GGC is inoperative (AN/GRC 122/142A, B, D, and E) (dc mode).

Step 1. Check for 115 vac at jack J1 of ovr inverter or motor generator.

If 115 vac is not present, troubleshoot ovr inverter or motor generator.

Step 2. Check for 115 vac at TTY-76 jack on power terminal assembly.

a. If 115 vac is not present, refer to a higher level of maintenance to troubleshoot defective power terminal assembly wiring.

b. If 115 vac is present, troubleshoot TT-76(*)/GGC. (See applicable TM, appendix A.)

TT-98/FG

1. TT-98/FG is inoperative (AN/GRC-122/142 Plain and C).

Step 1. Check for 115 vac at jack J1 of ovr motor generator.

If 115 vac is not present, troubleshoot ovr motor generator.

Step 2. Check for 115 vac at jack J1 of distribution box.

If 115 vac is not present, refer to a higher level of maintenance to troubleshoot defective distribution box wiring.

2. TT-98/FG is inoperative (AN/GRC-122/142A, B, D, and E).

Step 1. Check for 115 vac at jack J1 of ovr motor generator.

If 115 vac is not present, troubleshoot ovr motor generator.

TROUBLESHOOTING (CONT)

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

2. TT-98/FG is inoperative (AN/GRC-122/142A, B, D and E). (Cent)

Step 2. Check for 115 vac at TTY-98 jack on power terminal assembly.

a. If 115 vac is not present, refer to a higher level of maintenance to troubleshoot defective power terminal assembly wiring.

b. If 115 vac is present, troubleshoot TT-98/FG. (See applicable TM, appendix A.)

AN/UGC-74A(V)3

1. AN/UGC-74A(V)3 is inoperative (AN/GRC-122/142C).

Step 1. Check for 115 vac at jack J1 of ovr motor generator.

If 115 vac is not present, troubleshoot ovr motor generator.

Step 2. Check for 115 vac at jack J1 of distribution box.

a. If 115 vac is not present, refer to a higher level of maintenance to troubleshoot defective distribution box wiring.

b. If 115 vac is present, troubleshoot AN/UGC-74A(V)3. (See applicable TM, appendix A.)

2. AN/UGC-74A(V)3 is inoperative (AN/GRC-122/142D and E).

Step 1. Check for 115 vac at jack J1 of ovr inverter.

If 115 vac is not present, troubleshoot ovr inverter.

Step 2. Check for 115 vac at jack J1 on power distribution panel SC-F 980872.

a. If 115 vac is not present, refer to a higher level of maintenance to troubleshoot a defective power distribution panel SC-F-960672 wiring.

b. If 115 vac is present, troubleshoot AN/UGC-74A(V)3. (See applicable TM, appendix A.)

TA-312/PT

TA-312/PT is inoperative.

Perform telephone circuit checkout (para 2-53 and 2-54).

TROUBLESHOOTING (CONT)

MALFUNCTION	
TEST OR INSPECTION	
CORRECTIVE ACTION	

RADIO SET

1. Amplifier or RT-622/GRC is imperative.

- | | |
|---------|---|
| Step 1. | Remove cable W33P1 from RT-662/GRC and check for 28 vdc between pins A(+) and C(-) of P1. <ol style="list-style-type: none"> a. If 28 vdc is present, troubleshoot RT-662/GRC. (See applicable TM, appendix A). b. If 28 vdc is not present, refer to a higher level of maintenance to troubleshoot defective power distribution terminal wing. |
| Step 2. | Remove plug W34P1 from amplifier and check for 28 vdc between pins A(+) and C(-) of P1. <ol style="list-style-type: none"> a. If 28 vdc is present, troubleshoot amplifier. (See applicable TM, appendix A.) b. If 28 vdc is not present, refer to a higher level of maintenance to troubleshoot defective power distribution terminal wiring. |

2. Amplifier overload relay kicks out when tuning is attempted (whip antenna is being used).

Connect CG-2568A/U to 50 OHM LINE receptacle on the amplifier and the INPUT receptacle on the power meter. Turn selector switch on power meter to POWER. Observe that the power meter reads between 180 watts and 220 watts.

- a. If operation is not satisfactory, troubleshoot the amplifier. (See applicable TM, appendix A)
- b. If operation is satisfactory, replace the whip antenna (TM 11-5815-334-20).

3. Amplifier does not key in any local mode of operation.

Perform amplifier keying circuit checkout (para 2-49 or 2-50).

4. Amplifier does not key in any remote mode of operation.

Perform remote keying circuit checkout (para 2-51 or 2-52).

TROUBLESHOOTING (CONT)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
-------------	--------------------	-------------------

REMOTE CW OPERATION

Control panel is inoperative.

Perform checkout of remote circuit (para 2-55 or 2-56).

AIR CONDITIONER (AN/GRC-142 SERIAL NUMBERS 1 THROUGH 697)

Air conditioner is inoperative.

Step 1. Remove cable W20P1 from air conditioner and measure 110 vac between pins A(+) and C(-) of P1.

If voltage is present, refer to a higher level of maintenance to troubleshoot air conditioner.

Step 2. Perform a continuity test on cable W20 (para 2-46).

a. If continuity is not present, replace cable W20.

b. If continuity is present, refer to a higher level of maintenance to troubleshoot ac distribution circuit wiring.

MULTIFUEL HEATER

Heater is inoperative.

Step 1. Remove cable W36P1 from heater.

Step 2. Set thermostat to the highest setting and check for continuity between pins A (+) and C (-) of P1.

If continuity is not present, replace thermostat.

Step 3. Remove cable W35P1 from heater and measure 28 vdc between pins A (+) and C(-) of P1.

a. If power is not present, check power distribution circuit.

b. If power is present, refer multifuel heater to a higher level of maintenance.

ELECTRIC HEATER

Heater is inoperative.

Remove power cable from ac receptacle and check for 115 vac between pins A (+) and B (-).

TROUBLESHOOTING (CONT)

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

- a. If 115 vac is not present, troubleshoot power distribution panel.
- b. If 115 vac is present, replace electric heater.

DUPLEX TT-98/FG

1. Duplex TT-98/FG is inoperative (AN/GRC-122 Plain).

Step 1. Check for 115 vac at jack J1 of the dx motor generator.

If 115 vac is not present, troubleshoot the dx motor generator.

Step 2. Check for 115 vac at jack J2 of the distribution box.

If 115 vac is not present, refer to a higher level of maintenance to troubleshoot a defective distribution box wiring.

2. Duplex TT-98/FG is inoperative (AN/GRC-122A and B).

Step 1. Check for 115 vac at jack J1 of dx inverter or motor generator.

If 115 vac is not present, troubleshoot the dx inverter or motor generator.

Step 2. Check for 115 vac at TTY-98 jack on power terminal assembly.

- a. If 115 vac is not present, refer to a higher level of maintenance to troubleshoot a power terminal assembly.
- b. If 115 vac is present, troubleshoot TT-98/FG. (See applicable TM, appendix A.)

DUPLEX RT-662/GRC

No reception on duplex RT-662/GRC.

Remove cable W32P1 from duplex RT-662/GRC and check for 28 vdc between pins A (+) and C (-) of P1.

- a. If voltage is present, troubleshoot duplex RT-662/GRC. (See applicable TM, appendix A.)
- b. If voltage is not present, perform continuity test on cable W32.

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2-21. GENERAL.

This section provides instructions for maintenance of the AN/GRC-122/142(*). The following initial setup information applies to all procedures.

For location of components, refer to TM 11-5815-334-10.

Personnel are listed only if the task requires more than one technician. If Personnel Required is not listed, one technician can do the task.

Normal equipment condition to start a procedure is power OFF. Equipment Condition is not listed unless some other condition is required.

Tools to repair AN/GRC-122/142(*) can be found in Electronic Equipment Tool Kit TK-101/G.

2-22. CLEANING.

Cleaning of shelter is limited to the following steps. Supplies needed to clean shelter can be found in the Expendable Supplies and Materials List found in appendix C of this manual.

CAUTION

Do not press on meter face when cleaning. Damage may occur to meter.

1. Clean front of panels, meters, and control knobs with a soft, clean cloth. If dirt is ground in, a mild soap with water may be used.

WARNING

Fumes of TRICHLOROTRIFLUOROETHANE are poisonous. Provide adequate ventilation whenever you use TRICHLOROTRIFLUOROETHANE. Do not use solvent near heat or open flame. TRICHLOROTRIFLUOROETHANE will not burn, but heat changes the gas into poisonous, irritating fumes. DO NOT breathe the fumes or vapors. TRICHLOROTRIFLUOROETHANE dissolves natural skin oils. DO NOT get the solvent on your skin. Use gloves, sleeves, and an apron which the solvent cannot penetrate. If the solvent is taken internally, consult a physician immediately.

2-22. CLEANING. (CONT)

2. Remove loose dirt and dust with a dry, clean cloth.
3. Remove grease, fungus, and ground-in dirt with a cloth dampened with trichlorotrifluoroethane.
4. Clean connectors, plugs, and jacks with a brush.

2-23. PAINTING.

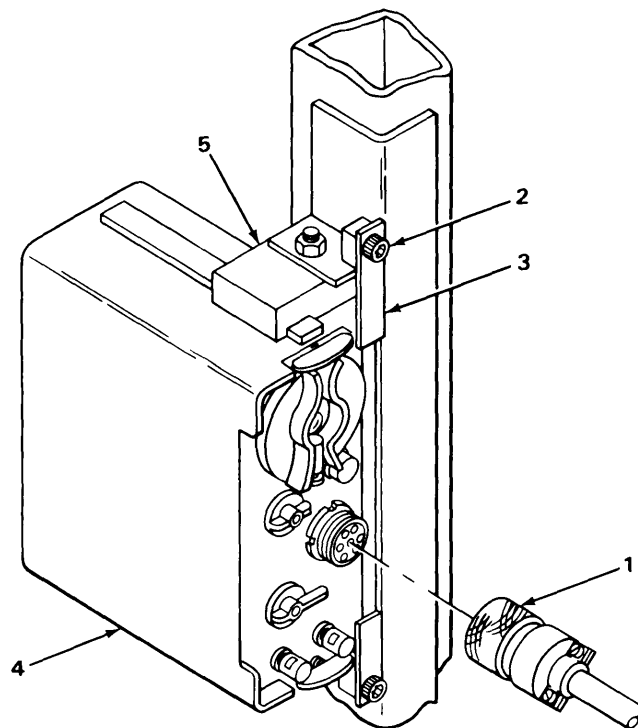
For instructions on painting electronic equipment and shelters, refer to TB 43-0118.

2-24. LUBRICATION.

For instructions on lubricating your shelter, refer to TB 43-0124. No lubrication is authorized for the internal electronic components.

2-25. LOCAL CONTROL REPLACEMENT.

MATERIALS/PARTS: Local Control C-434/GRC



2-25. LOCAL CONTROL REPLACEMENT.(CONT)**REMOVAL**

1. Disconnect and tag all cables (1).
2. Loosen two socket head screws (2) of holddown clamps (3).
3. Turn both holddown clamps (3) one-quarter turn clockwise.
4. Remove local control (4) from mounting bracket (5).

INSTALLATION

1. Slide local control (4) into mounting bracket (5).
2. Turn both holddown clamps (3) one-quarter counterclockwise.
3. Tighten two socket head screws (2) of holddown clamp (3).
4. Connect cables (1) to their corresponding receptacle.

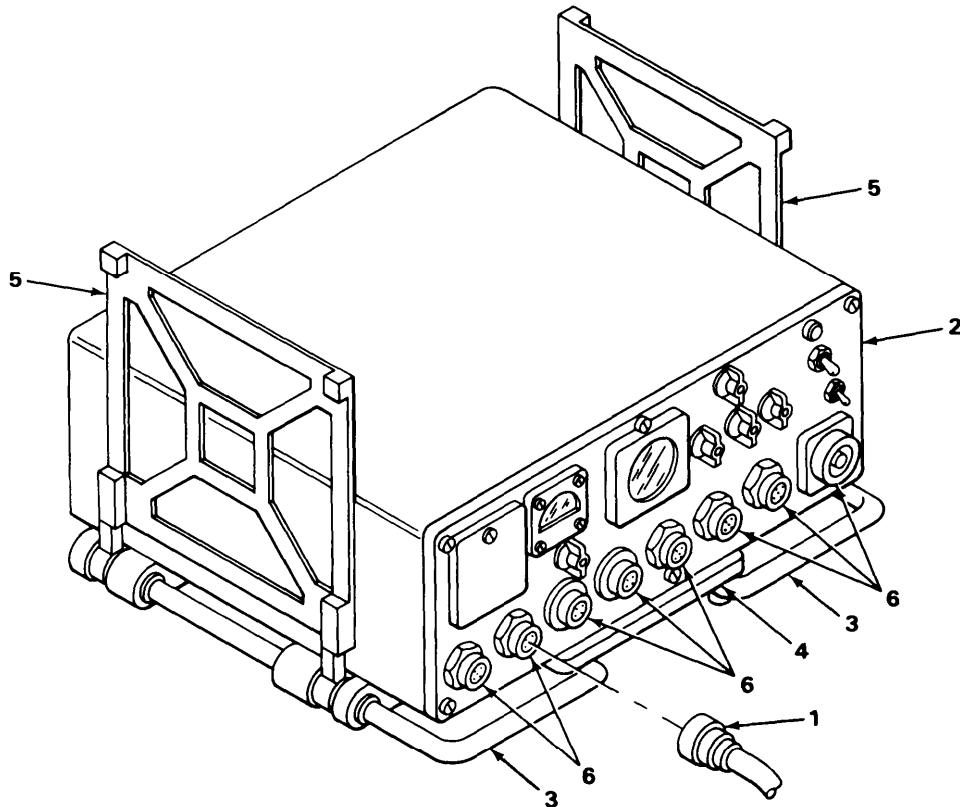
2-26. MODEM REPLACEMENT.

The modem is a shelf-mounted unit. In the AN/GRC-122(*) shelters there is a duplex RT-662/GRC mounted on top of modem.

MATERIALS/PARTS: Modem Radio Teletypewriter MD-522(*)/GRC

PERSONNEL REQUIRED: Two

PRELIMINARY PROCEDURE: Remove Duplex RT-662/GRC (para 2-43).



EL6VX021

REMOVAL

WARNING

To avoid severe shock to personnel be sure power is disconnected from modem by placing either MAIN circuit breaker or DC MAIN and AC MAIN circuit breakers on power distribution panel to OFF.

1. Tag and remove all cables (1) from modem (2).
2. Grasp two release handles (3) on front of mounting base (4) and simultaneously pull release handles (3) forward from their securing holes.
3. Turn release handles (3) towards outside of the unit to loosen crossbar assemblies (5).
4. Remove modem (2) up and off mounting base (4).

WARNING

Serious injury to personnel, or damage to equipment may occur if two technicians are not used to lift modem.

2-26. MODEM REPLACEMENT. (CONT)

INSTALLATION

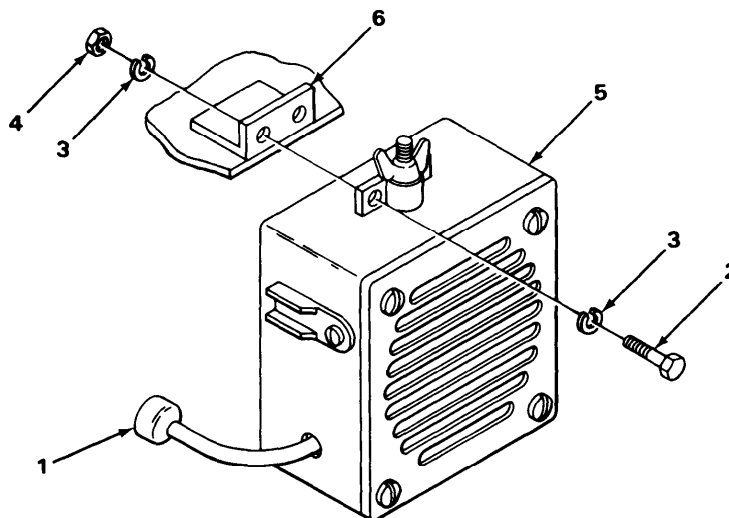
1. With help of an assistant, position modem (2) on mounting base (4) so feet set into mounting holes.
2. Position crossbar assemblies (5) so they rest against side of modem (2).
3. Simultaneously turn two release handles (3) toward inside of modem (2).
4. Push two release handles (3) back into securing holes in mounting base (4).
5. Connect cables (1) to their respective receptacles (6).

FOLLOW-ON MAINTENANCE: Install Duplex RT-662/GRC (para 2-43).

2-27. LOUDSPEAKER REPLACEMENT.

The loudspeaker is mounted in several different places, depending on which AN/GRC-122 or AN/GRC-142 you have. There are two loudspeakers used if unit has duplex capabilities. The procedure given is generic for all applications.

MATERIALS/PARTS: Dynamic loudspeaker LS-166/U



REMOVAL

1. Remove signal cable (1) from modem or duplex RT-662/GRC.
2. Remove two bolts (2), four lockwashers (3), and two nuts (4).
3. Remove loudspeaker (5) from mounting bracket (6).

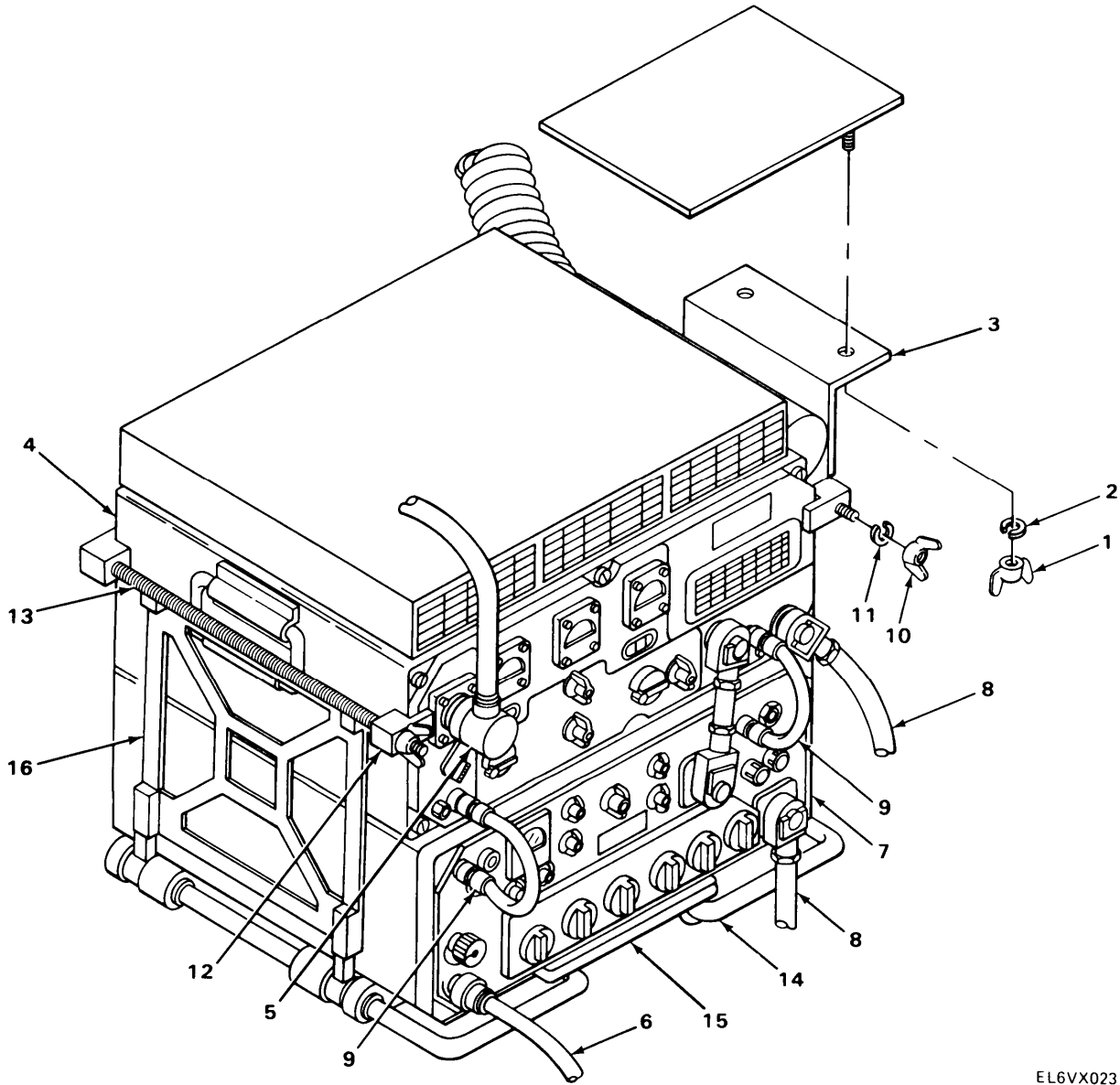
INSTALLATION

1. Place loudspeaker (5) against mounting bracket (6).
2. Install two bolts (2), four lockwashers (3), and two nuts (4).
3. Connect signal cable (1) to proper receptacle.

2-28. RADIO SET REPLACEMENT.

Radio set consists of a RT-662/GRC and an amplifier. An additional RT-662/GRC is provided in AN/GRC-122(*) for duplex operation. For duplex RT-662/GRC replacement (para 2-43).

MATERIALS/PARTS: Radio Set AN/GRC-106.
PERSONNEL REQUIRED: Two



EL6VX023

2-28. RADIO SET REPLACEMENT. (CONT)**WARNING**

To avoid severe shock to personnel, ensure power is disconnected from radio set by placing either MAIN circuit breakers or DC MAIN and AC MAIN circuit breakers on power distribution panel to OFF.

REMOVAL

1. Remove two wingnuts (1) and lockwashers (2).
2. Slide air intake manifold and bracket (3) away from amplifier (4).
3. Disconnect antenna cable (5) from amplifier (4).
4. Tag and disconnect external cords (6) to amplifier (4) and RT-662/GRC (7).
5. Disconnect power cables (8) and interconnecting cables (9).
6. Remove two wingnuts (10), lockwashers (11) and clamps (12) from threaded rod (13).
7. Grasp two release handles (14) on front of mounting base (15) and simultaneously pull forward from their securing holes.
8. Turn release handles (14) towards outside of the RT-662/GRC (7) to loosen crossbar assemblies (16).

WARNING

Serious injury to personnel or damage to equipment may occur if two technicians are not used to lift equipment.

9. With help of an assistant, lift amplifier (4) from RT-662/GRC (7) and lift RT-662/GRC (7) from mounting base (15).

INSTALLATION**WARNING**

Serious injury to personnel or damage to equipment may occur if two technicians are not used to lift equipment.

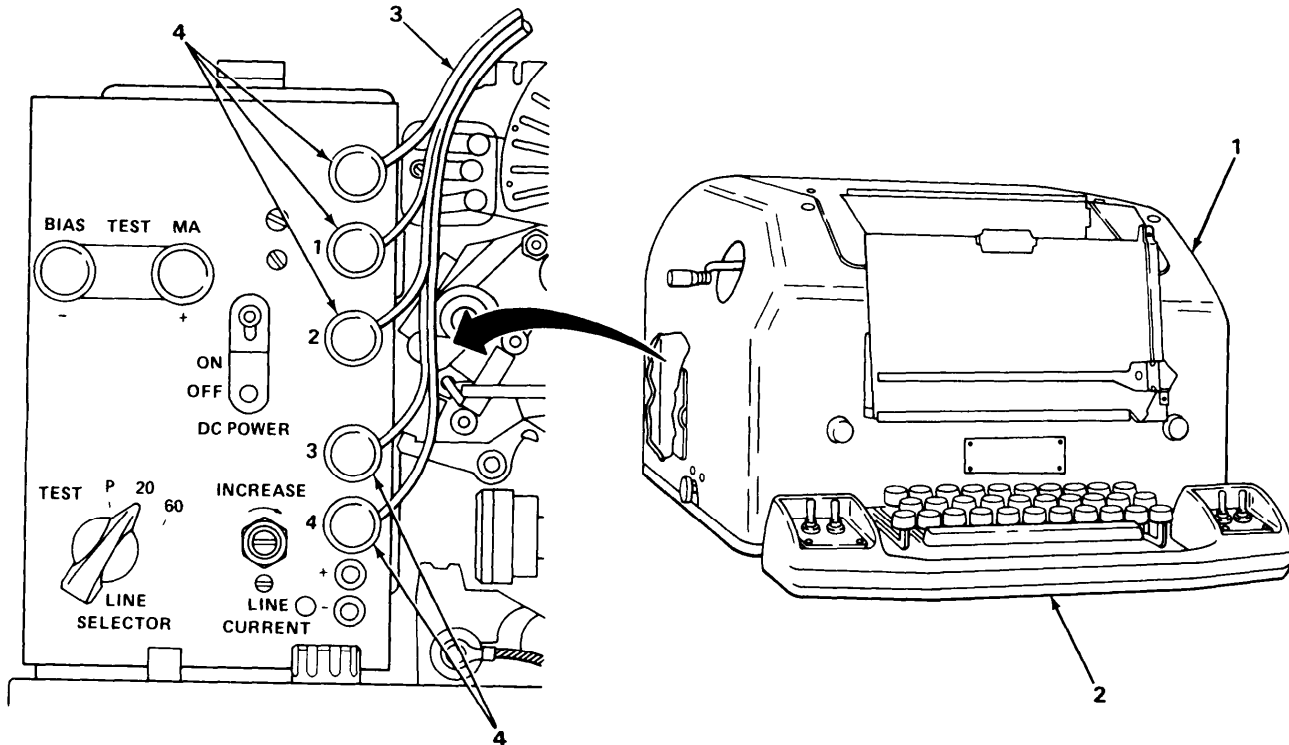
1. With help of an assistant, position RT-662/GRC (7) so feet set securely in holes on top of mounting base (15).
2. With help of an assistant, position amplifier (4) so feet set securely in holes on top of RT-662/GRC (7).
3. Position crossbar assemblies (16) so they rest against the sides of amplifier (4) and RT-662/GRC (7).
4. Simultaneously turn two release handles (14) towards the inside of RT-662/GRC (7).
5. Push two release handles (14) into their securing holes.
6. Connect interconnecting cables (9) and power cables (8).
7. Connect external cords (6).
8. Connect antenna cable (5).
9. Secure air intake manifold and bracket (3) to amplifier (4) by tightening two wingnuts (1) and lockwasher (2).
10. Place clamp (12) over threaded rod (13) and secure with two wingnuts (10) and lockwashers (11).

2-29. TT-98(*)/FG REPLACEMENT (AN/GRC-122/142 PLAIN, A, AND B MODELS).

This procedure covers replacement of slide-mounted TT-98/FG in the AN/GRC-122/142 Plain models, as well as shelf-mounted TT-98/FG in AN/GRC-122/142A and B models. In addition, replacement of shelf-mounted duplex TT-98/FG in AN/GRC-122A and B models is covered. For location of your TT-98(*)/FG, refer to TM 11-5815-334-10.

MATERIALS/PARTS: TT-98(*)/FG

PRELIMINARY PROCEDURE: Remove local control (AN/GRC-122/142B only) (para 2-2).



EL6VX024

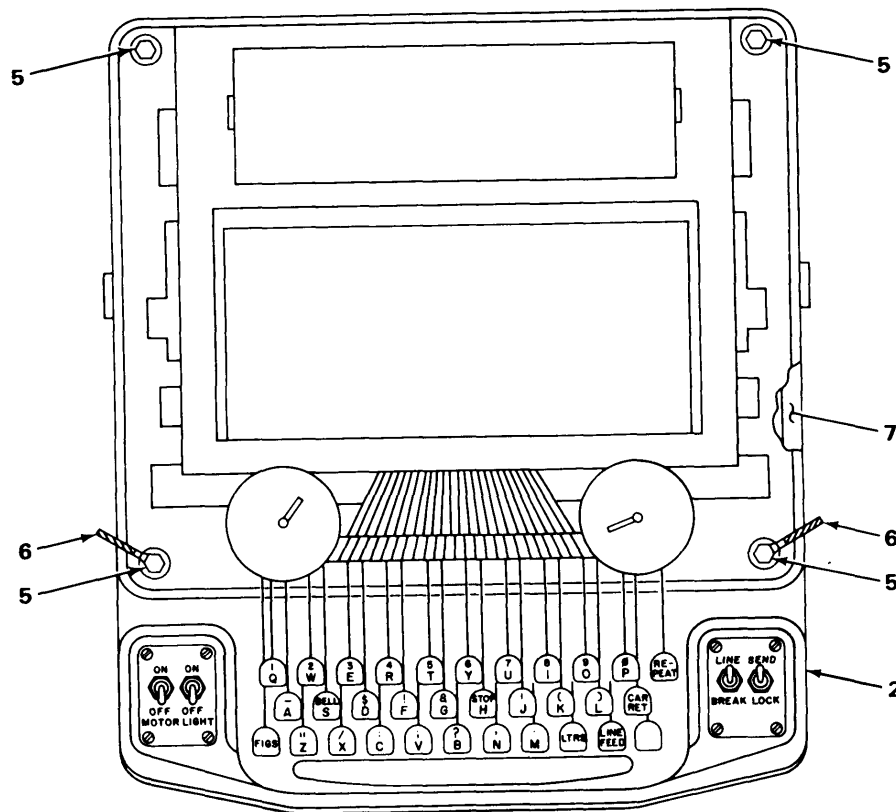
WARNING

To avoid injury to personnel, ensure INVERTERS OWR and DX switch or circuit breakers on power distribution panel are set to OFF, and TT-98(*)/FG power cord is disconnected from ac/dc power switch box or power terminal assembly before removing TT-98/FG from AN/GRC-122/142 Plain A and B models, or duplex TT-98/FG from AN/GRC-122A and B models.

REMOVAL

1. Remove dust cover (1) from TT-98(*)/FG (2).
2. Tag and disconnect signal line wires (3) from terminals 2,3,4, and 5 of signal line terminal (4).

2-29. TT-98(*)/FG REPLACEMENT (AN/GRC-122/142 PLAIN, A, AND B MODELS). (CONT)



EL6VX025

3. Loosen bolt (5) which connects shielded ground (6) to TT-98(*)/FG (2).
4. Remove four bolts (5) that secure 11-98(*)/FG (2) to either slide mount or shelter shelf (7), and remove TT-98(*)/FG(2).

INSTALLATION

1. Install four bolts (5) that secure TT-98(*)/FG(2) to either slide mount or shelter shelf (7).
2. Install shield grounds (6) to TT-98(*)/FG(2).
3. Connect signal line wires (3) to terminals 2,3,4, and 5 of signal line terminal (4).
4. Remove tags from line wires (3).
5. Install dust cover (1) on TT-98(*)/FG (2).
6. Install TT-98(*)/FG power cord to either ac/dc power switch box (AN/GRC-122/142 Plain model) or power terminal assembly (AN/GRC-122/142A and B model).

CAUTION

Ensure MOTOR, POWER, and DC POWER switches on TT-98(*)/FG are set to OFF before turning on inverter. Damage may occur to units, if they are not OFF.

7. Set INVERTERS OWR or DX switch to ON on power distribution panel.

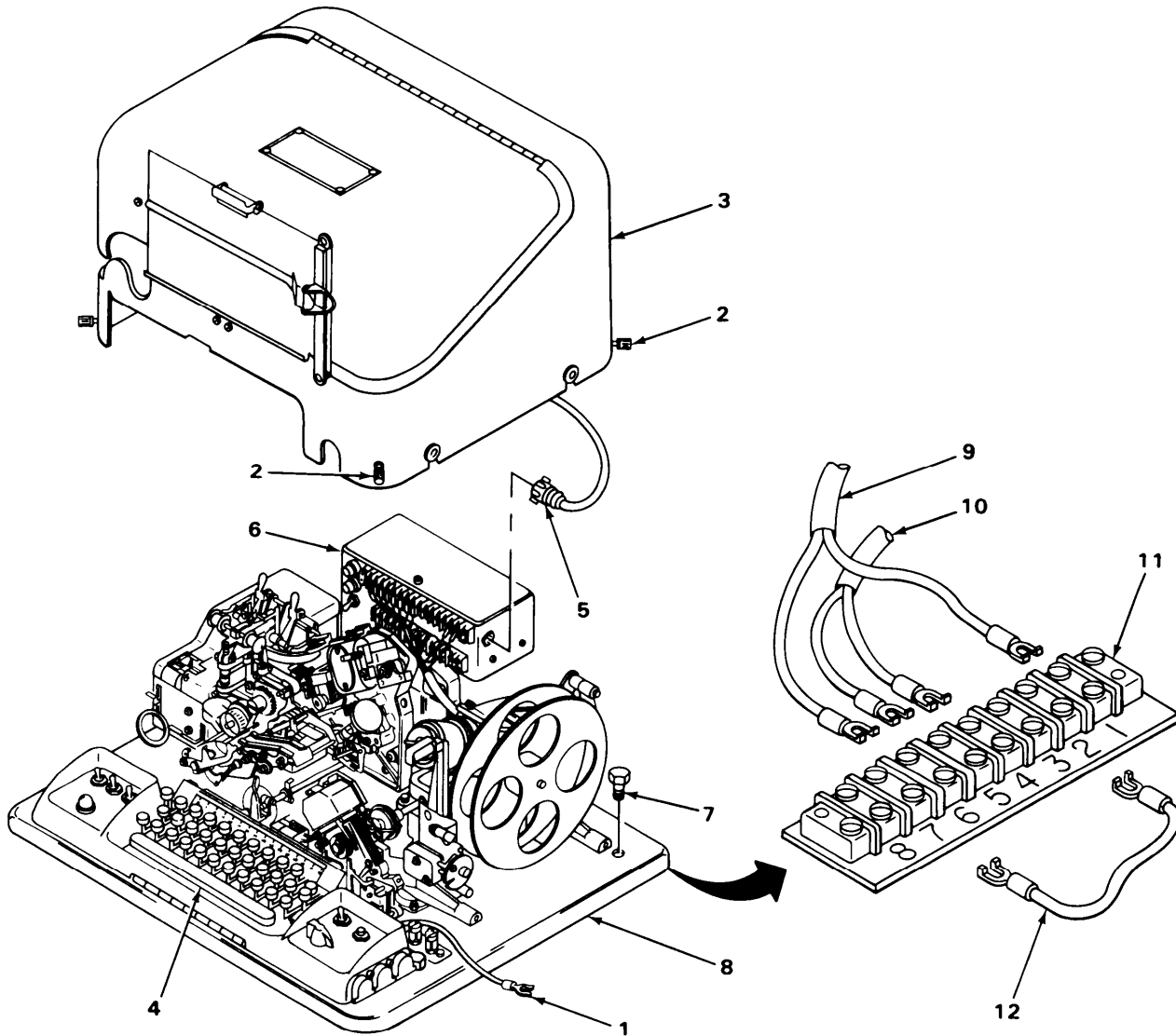
FOLLOW-ON MAINTENANCE: Replace local control (AN/GRC-122/142B only) (para 2-25).

2-30. TT-76(*)/GGC REPLACEMENT.

This procedure covers replacement of slide-mounted TT-76A/GGC in AN/GRC-122/142 Plain and C models, as well as shelf-mounted TT-76A/GGC in AN/GRC-122/142A, B, D, and E models. For location of TT-76(*)/GGC, refer to TM 11-5815-334-10.

MATERIALS/PARTS: TT-76(*)/GGC

PRELIMINARY PROCEDURE: Remove TT-523/GGC (TM 11-5815-338-14).



EL6V X026

WARNING

Severe injury to personnel/or damage to equipment can occur if INVERTER OWR switch is not set to OFF on the SB-3018/GR (AN/GRC-122/142 Plain and C) or SB-3558/GRC (AN/GRC-122/142A, B, D, AND E). Also remove power cord from ac/dc power switch box (AN/GRC-122/142 Plain and C) or from power terminal assembly (AN/GRC-122/142A, B, D, and E).

2-30. TT-76(*)/66C REPLACEMENT. (CONT)**REMOVAL**

1. Disconnect grounding straps (1) from binding posts (2) on dust cover (3) of TT-76(*)/GGC (4).
2. Raise dust cover (3), and disconnect copy light plug (5) from receptacle on power supply (6).
3. Remove four bolts (7) that secure TT-76(*)/GGC (4) to either slide mount or shelf mount (8).

NOTE

To gain access to terminal board TB1 wiring on bottom of TT-76(*)/GGC (4) set and support TT-76(*)/GGC on its back side.

4. Tag and disconnect signal line wires of cables W1 (9) and W6 (10) from terminals 1,4,5, and 6 on terminal board TB1 (11).
5. Disconnect shield grounds connected to terminal board TB1 (11).
6. Remove W48 (12) from terminals 2 and 7 of terminal board TB1 (11).
7. Lift TT-76(*)/GGC (4) from either slide or shelf mount (8).

INSTALLATION

1. Place TT-76(*)/GGC (4) on either slide or shelf mount (8).
2. Install cable W48 (12) on terminals 2 and 7 of terminal board TB1 (11).
3. Install shield grounds to terminal board (11).
4. Connect cable W1 (9) white wire to terminal 1 and black wire to terminal 6.
5. Connect cable W6 (10) white wire to terminal 5 and black wire to terminal 4.
6. Install four bolts (7) that secure TT-76(*)/GGC (4) to either slide mount or shelf mount (8).
7. Connect copy light plug (5) to receptacle on mounting base (6).
8. Install dust cover (3) on TT-76(*)/GGC (4).
9. Connect grounding straps (1) to binding posts (2) on dust cover (3).
10. Install power cord to either the ac/dc power switch box or power terminal unit.

CAUTION

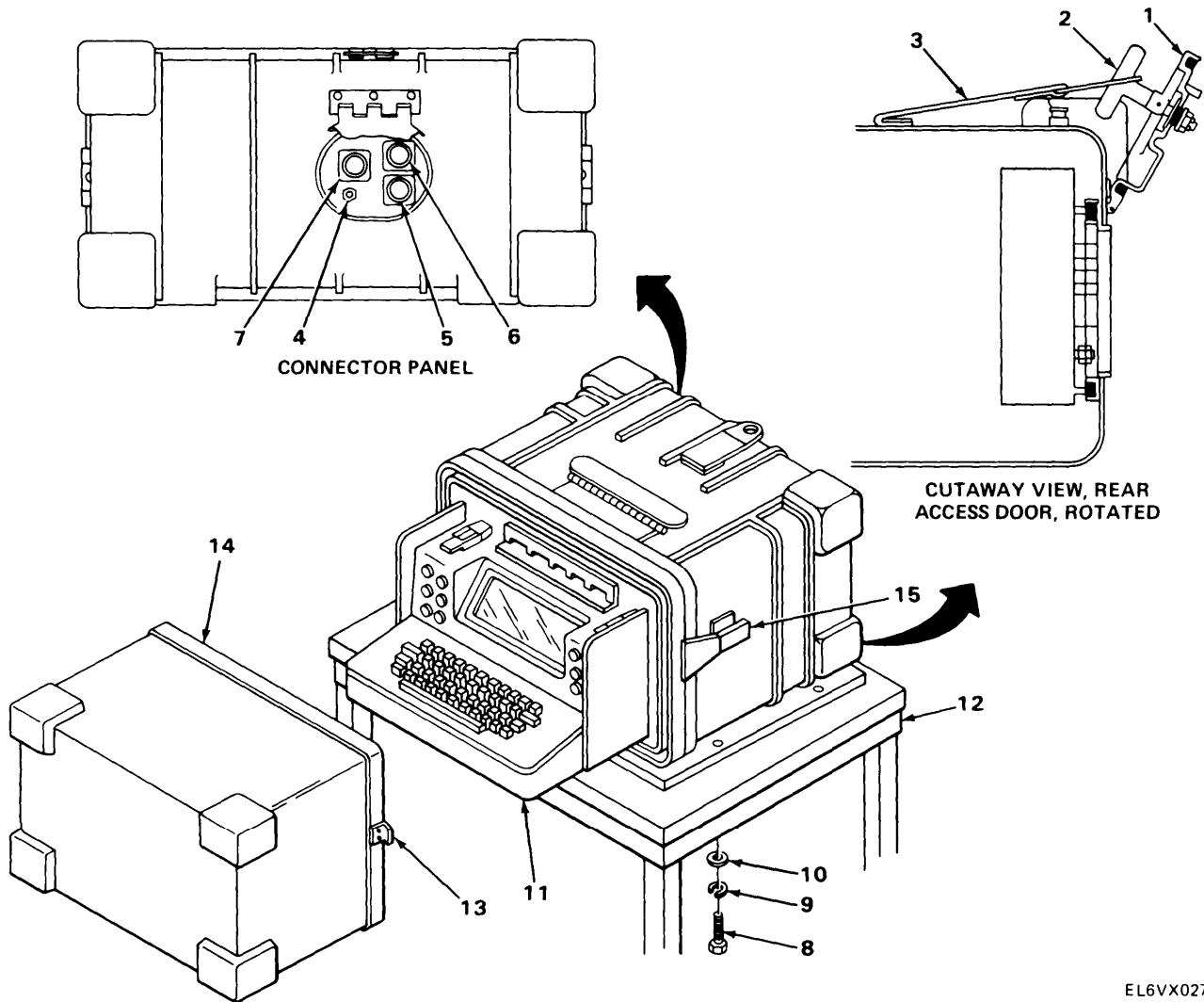
Ensure POWER and MOTOR switches on TT-76(*)/GGC are set to OFF before turning on inverter. Possible damage may occur to both units.

- 1-1. Set INVERTERS OWR or DX switch to ON on power distribution panel.

2-31. AN/UGC-74A(V)3 REPLACEMENT (AN/GRC-122/142C, D, AND E).

This Procedure covers replacement of AN/UGC-74A(V)3 in AN/GRC-122/142C, D, and E models. For location of AN/UGC-74A(V)3, refer to TM 11-5815-334-10.

MATERIALS/PARTS: Terminal Communication Set AN/UGC-74A(V)3



EL6VX027

WARNING

Ensure power switch on terminal is set to OFF before removing unit to prevent electrical shock to personnel.

NOTE

Terminal connectors are located at rear of unit. Access to connectors is gained through rear door panels.

2-31. AN/UGC-74A(V)3 REPLACEMENT (AN/GRC-122/142C, D, AND E). (CONT)

1. Open rear access door (1) by pulling door handle (2) down into horizontal position, and rotating it one-quarter to the right.
2. Secure rear access door (1) in open (raised) position by unsnapping retaining strap (3) from outer case cover, and inserting rear panel door handle (2) into retaining strap slot.
3. Disconnect grounding strap between chassis ground stud (4) on connector panel to earth ground rod (or low-resistance ground connection).

NOTE

When disconnecting a power cable from its mating connector, make sure you apply a one-half counterclockwise turn on twist-lock collar of cable.

4. Disconnect 12 vdc backup battery power cable from connector J3 (5).
5. Disconnect power cable from connector J2 (6).
6. Disconnect clock and data cable from connector J1 (7).
7. Close rear access door.
8. Remove six screws (8), with associated lockwashers (9) and flat washers (10) that secure AN/UGC-74A(V)3 (11) to shelf mount (12).
9. Lift unit up from shelf mount (12).

INSTALLATION**CAUTION**

When installing unit to shelf mount (12), ensure screw thread insertion does not exceed 3/8-inch (0.95 cm), or damage may occur.

NOTE

Before mounting unit to shelf, ensure shelf mounting is clean and unit mounting holes are aligned with holes in top shelf.

1. Install six screws (8), with associated flat washers, to secure unit to shelf mount (12).
2. Open four case latches (13) and remove front outer cover (14).
3. Using latches (15), latch unit on left and right sides to case.

NOTE

Terminal connectors are located at rear of unit. Access to connectors is gained through rear door panel.

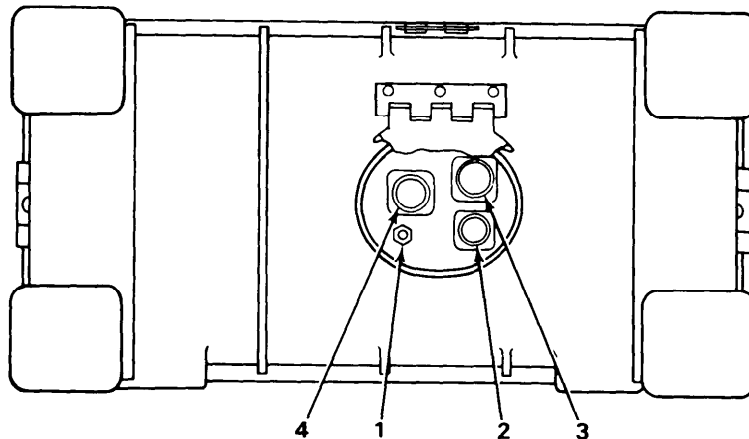
4. Open rear access door (1) by pulling door handle (2) down into horizontal position and rotating it one-quarter turn to right.
5. Secure rear access door (1) in open (raised) position by unsnapping retaining strap (3) from outer case cover, and inserting rear panel door handle (2) into retaining strap slot.

WARNING

Ensure power switch on terminal is set to OFF before installing connectors to prevent electrical shock.

2-31. AN/UGC-74A(V)3 REPLACEMENT (AN/GRC-122/142C, D, AND E). (CONT)

INSTALLATION (CONT)



EL6VX028

6. Connect grounding strap between chassis ground stub (1) on connector panel to earth ground rod or low-resistance ground connection.

NOTE

When installing a power cable to its mating connector, make sure you apply a one-half turn clockwise on twist-lock collar of the cable to lock it securely in place.

Ensure sufficient slack remains in cables after they are connected to allow for extension of unit from its case.

7. Install 12 vdc backup battery power cable to its mating connector J3 (2).
8. Install power cable to its mating connector J2 (3).

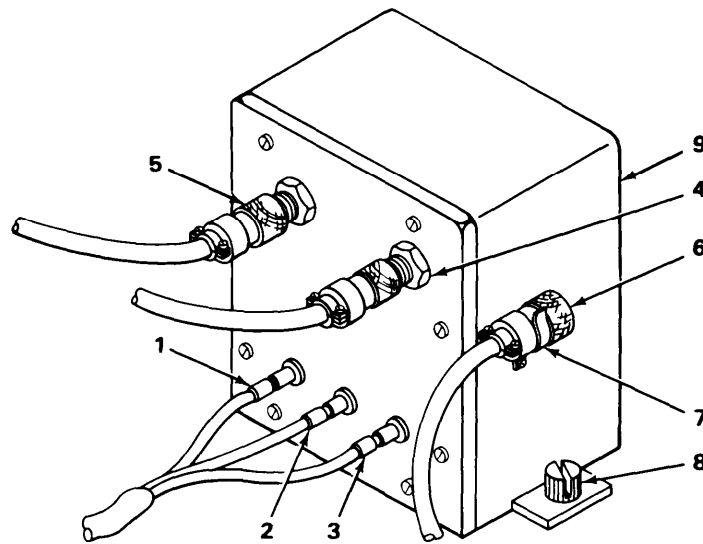
NOTE

If clock is used, connect to connector J1.

9. Install clock and data cable to its mating connector J1 (4).
10. Make free end of clock (if used) and data cable to its designated data and clock sources. (See applicable TM appendix A.)
11. Close rear access door.

2-32. DUMMY BOX REPLACEMENT.

MATERIALS/PARTS: Interconnecting Box J-2728



EL6VX025

To avoid severe shock to personnel, set either MAIN circuit breaker or AC MAIN and DC MAIN on power distribution panel to OFF before replacing dummy box.

REMOVAL

1. Disconnect cable W12 color-coded banana plugs from pin terminals E1(1), E2(2), and E3(3).
2. Disconnect cables from connectors J1(4) and J2(5).
3. Disconnect 28-volt dc cable connector W28P1 or W30P1 (6) from clamp (7).
4. Loosen captive screws (8) on the sides of dummy box (9).
5. Remove dummy box (9).

INSTALLATION

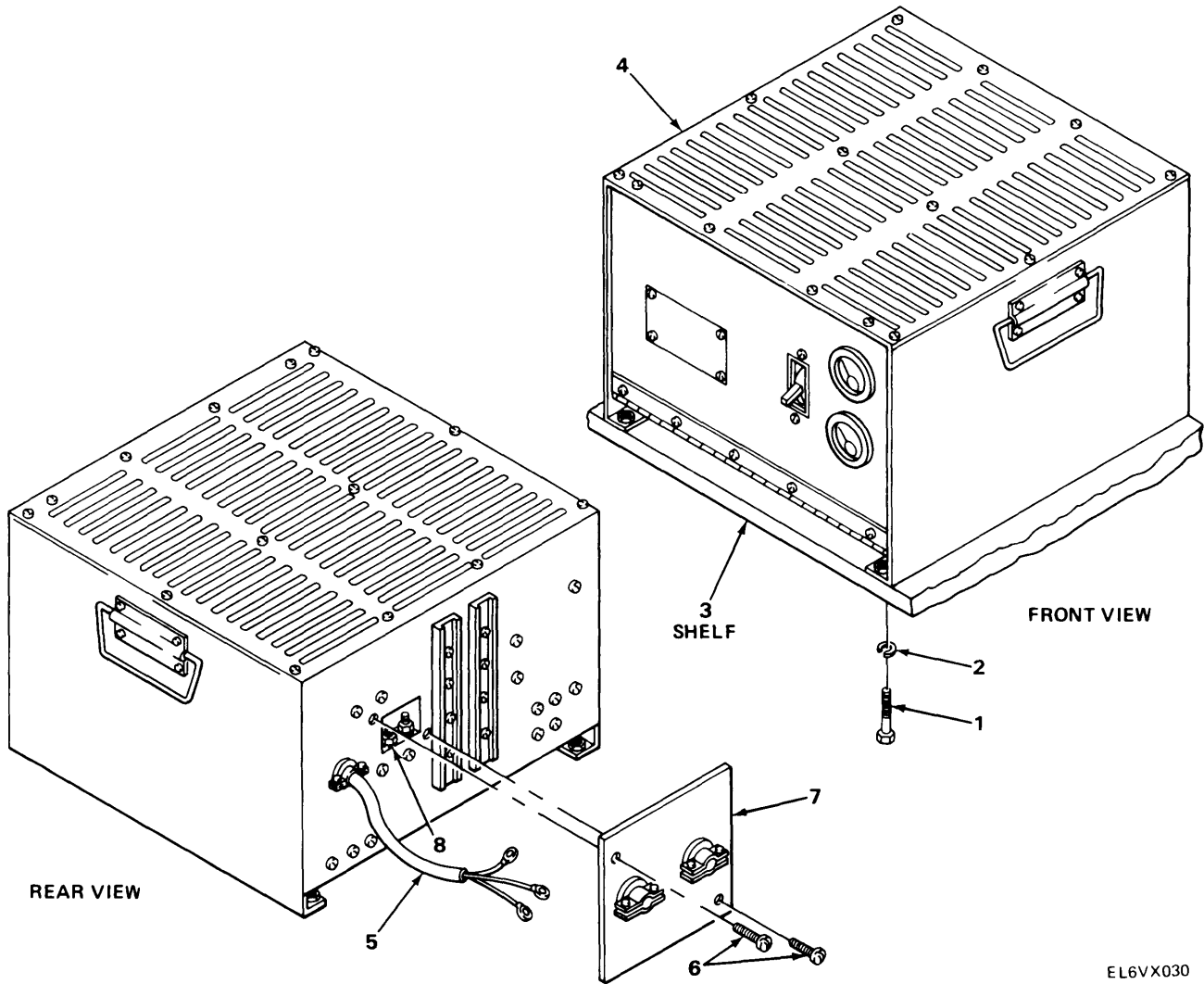
1. Position dummy box (9) over mounting holes.
2. Tighten captive screws (8) on both sides of dummy box (9).
3. Connect 28-volt dc cable connector W28P1 or W30P1 (6) to clamp (7).
4. Connect cable to connectors J1(4) and J2(5).
5. Connect color-coded banana plugs on pin terminal E1(1), E2(2), and E3(3).

2-33. POWER SUPPLY REPLACEMENT (AN/GRC-122/142(*)).

Power supply provides 28.5 vdc at 50 amperes to shelter when an external 115 vac, 60 Hz power source is used to power major components of AN/GRC-122/142(*). It is a floor- or shelf-mounted unit.

MATERIALS/PARTS: DC Power Supply PP-4763(*)/GRC

PERSONNEL REQUIRED: Two technicians



WARNING

To avoid severe shock to personnel, ensure MAIN circuit breaker on power distribution panel is set to PULL OFF position, and both ac entrance circuit breakers are set to OFF.

2-33. POWER SUPPLY REPLACEMENT (AN/GRC-122/142(*)). (CONT)**WARNING**

Power supply weighs 120 pounds (54.5 kg) and requires two persons for removal and installation. Do not try to lift alone or serious injury could result.

REMOVAL

1. Remove chair from shelter.
2. Remove eight bolts (1) and lockwashers (2) from bottom of shelf (3).
3. Pull power supply (4) forward and to gain access to electrical terminals at rear.
4. Disconnect ac cable (5) from ac power source.
5. Remove two screws (6) that secure access plate (7) to output terminals (8).
6. Tag and disconnect output terminal wires.

CAUTION

Do not permit rear of unit to drop from crossmember to floor when pulling unit forward.

7. With the assistance of another person, pull power supply (4) from mounting area.

INSTALLATION**WARNING**

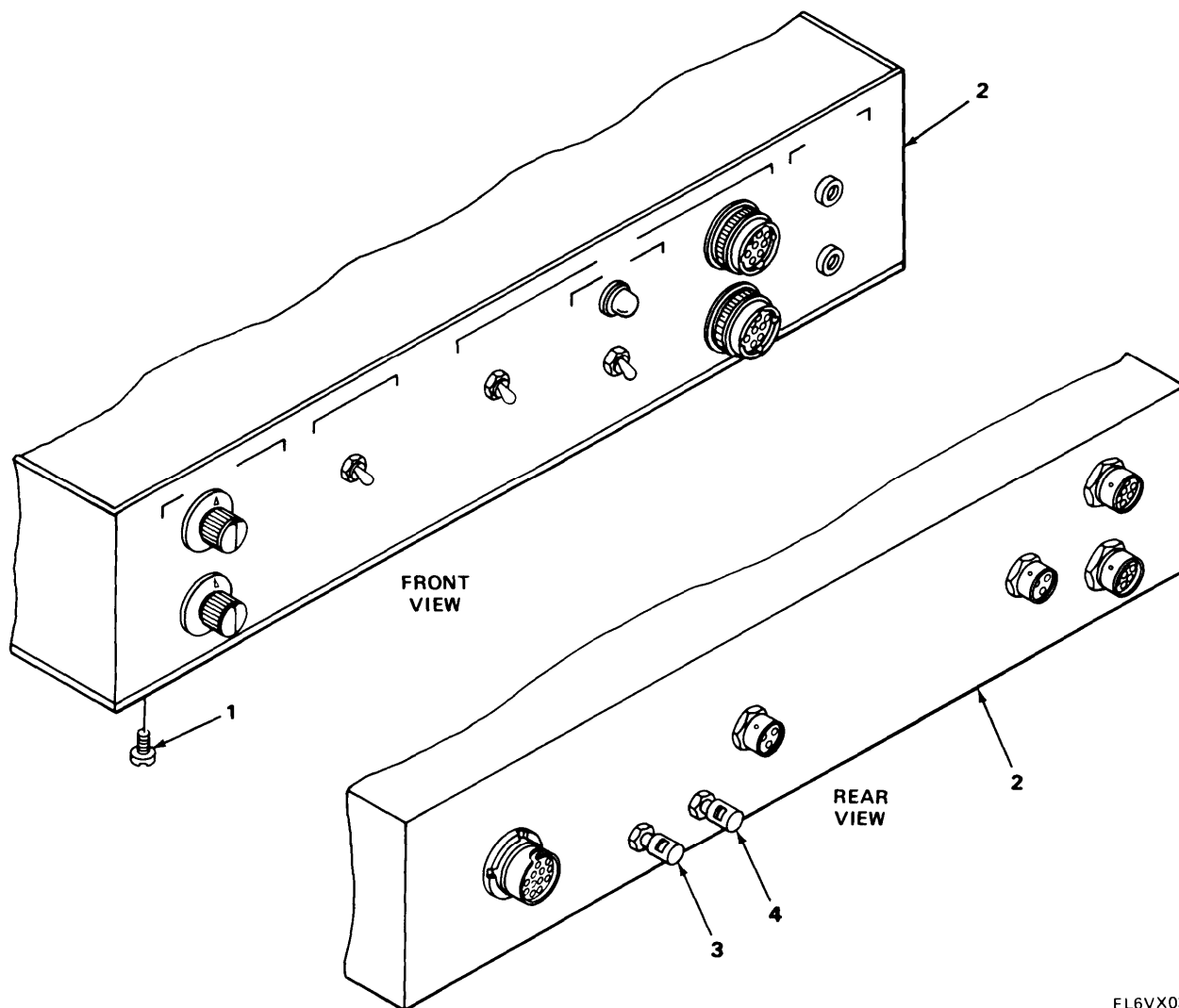
To avoid severe shock to personnel, ensure MAIN circuit breaker on power distribution panel is set to PULL OFF position, and both ac entrance circuit breakers are set to OFF.

Power supply weighs 120 pounds (54.5 kg) and requires two persons for removal and installation. Do not try to lift alone or serious injury could result.

1. Connect ac cable (8) to ac power source.
2. Connect appropriate terminal wires to output terminals (7).
3. Secure access plate (6) to output terminals by installing two screws (5).
4. Position power supply (4) into its proper location.
5. Install eight bolts (1) that secure front base of power supply (4).
6. Reposition chair.

2-34. CONTROL PANEL REPLACEMENT (AN/GRC-122/142 PLAIN AND C).

For location of control panel, refer to TM 11-5815-334-10.



EL6VX036

REMOVAL

WARNING

To avoid severe shock to personnel, set MAIN circuit breaker on power distribution panel to OFF before replacing control panel.

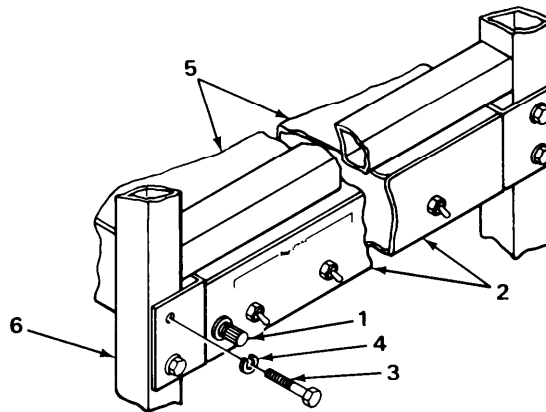
1. Tag and disconnect all external cords and cables from front panel.
2. Loosen four captive screws (1) on the control panel (2).
3. Pull control panel (2) forward to gain access to rear connectors.
4. Tag and disconnect wires from E1(3) and E2(4).
5. Tag and disconnect all cables connected to rear of control panel (2).
6. Remove control panel (2).

2-34. CONTROL PANEL REPLACEMENT (AN/GRC-122/142 PLAIN AND C). (CONT)**INSTALLATION**

1. Connect all tagged cables to appropriate connectors on rear of control panel (2).
2. Connect tagged wires to E1(3) and E2(4) connectors on rear of control panel (2).
3. Secure control panel (2) in place by installing four captive screws (1).
4. Connect all tagged external cords and cables to appropriate connectors on front panel.

2-35. SWITCH BOX SERVICING (AN/GRC-122/142 PLAIN AND C).

For location of Switchbox SA-1555, refer to TM 11-5815-334-10.



EL6VX037

NOTE

Switchbox must be removed from shelf for servicing.

REMOVAL

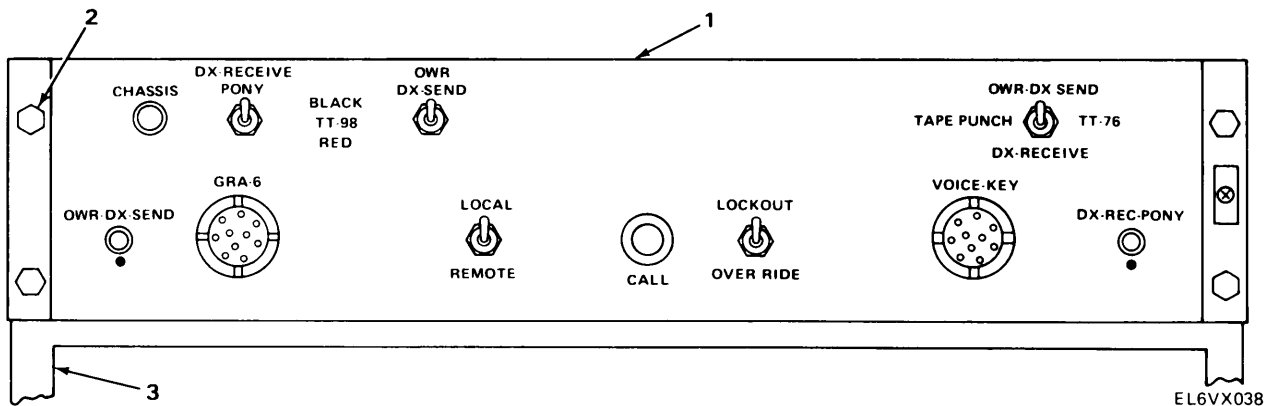
1. Disconnect wire from CHASSIS GRD terminal (1) on front panel (2).
2. Remove four screws (3) and lockwashers (4) that secure switchbox (5) to equipment rack (6).
3. Pull switchbox (5) forward.
4. Tag and remove all cables from rear of switchbox (5).
5. Remove switchbox (5).

INSTALLATION

1. Connect all tagged cables to appropriate connectors on rear of switchbox (5).
2. Secure unit to equipment rack (6) with four screws (3) and lockwashers (4).
3. Connect appropriate wire to CHASSIS GRD terminal (1) on front panel (2).

2-36. SWITCH ASSEMBLY SERVICING (AN/GRC-122/142A, B, D, and E).

For location of switch assembly, refer to TM 11-5815-334-10.



NOTE

Switch assembly must be removed from shelf for servicing.

REMOVAL

1. Tag and disconnect all external cords and cables on front panel of switch assembly (1).
2. Remove four bolts (2) that secure switch assembly (1) to equipment rack (3).
3. Pull switch assembly (1) forward.
4. Tag and disconnect all cables connected to rear of switch assembly (1).
5. Remove switch assembly.

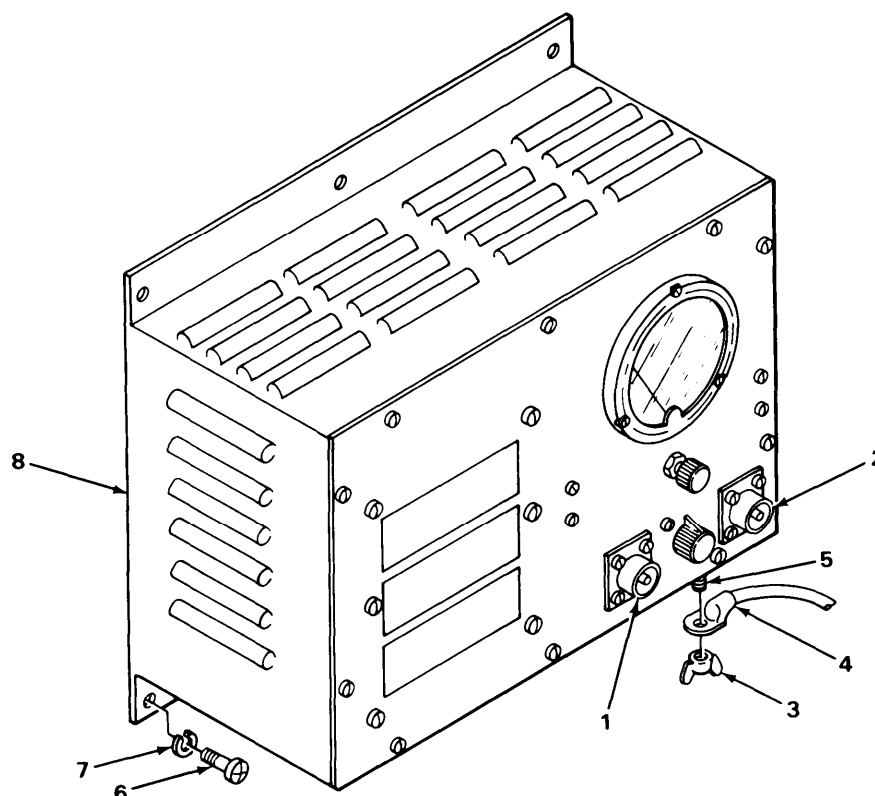
INSTALLATION

1. Connect all tagged external cords and cables to appropriate rear panel connectors.
2. Secure switch assembly (1) to equipment rack (3) with four screws (2).
3. Connect all tagged external cords and cables to appropriate front panel (1) connectors.

2-37. POWER METER REPLACEMENT.

For the location of the power meter, refer to TM 11-5815-334-10.

MATERIALS/PARTS: Standing-Wave Ratio Power Meter ME-165/C

**WARNING**

To avoid severe shock to personnel, turn off Radio Set AN/GRC-106 to remove any rf power from unit.

REMOVAL

1. Tag and disconnect rf cables from front panel input (1) and output (2) connections.
2. Remove wingnut (3) and ground strap (4) from ground stud (5).
3. Remove six screws (6) and washers (7) that secure power meter (8) to shelter.
4. Remove power meter (8).

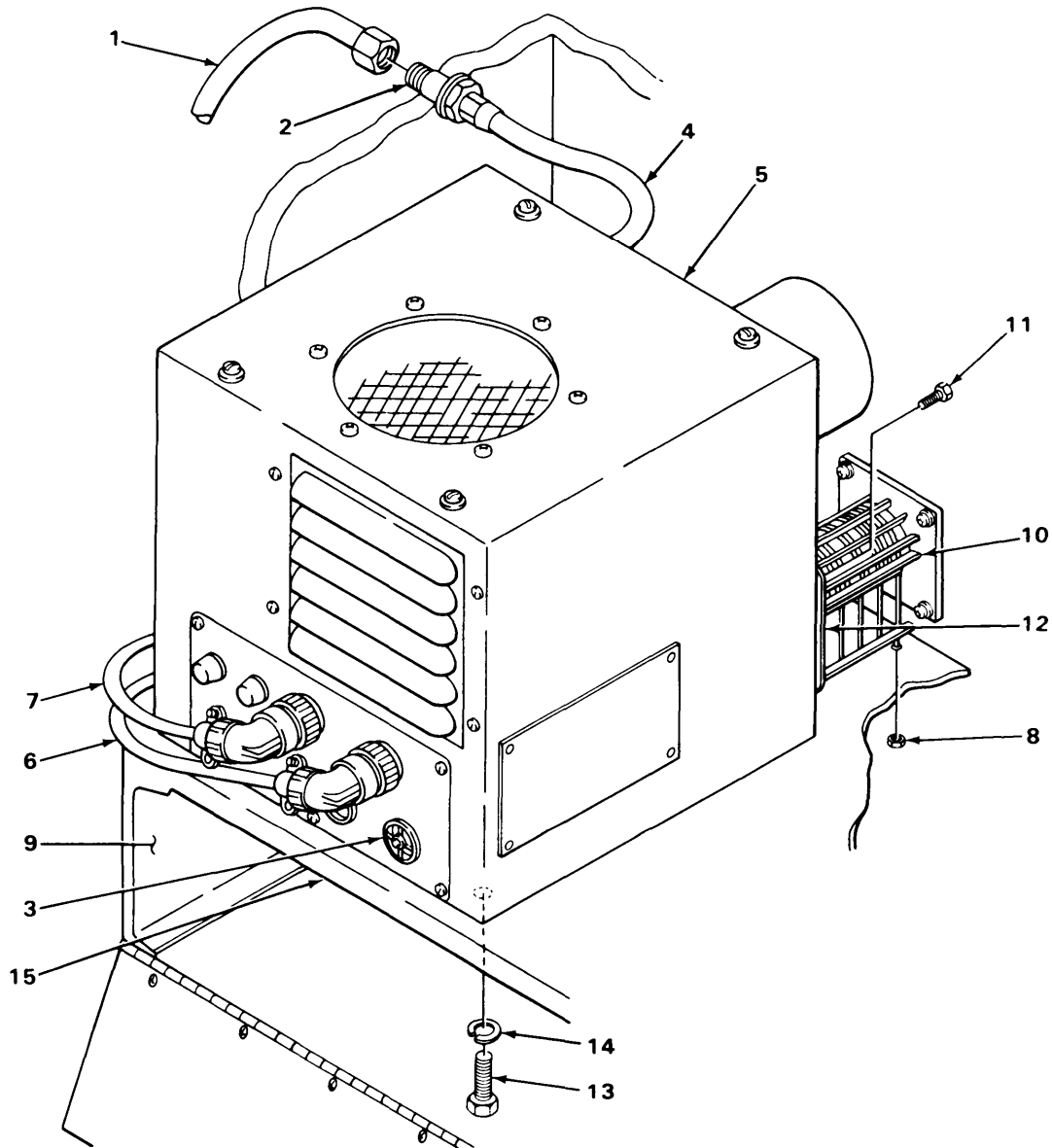
INSTALLATION

1. Place power meter (8) onto mounting area.
2. Install six screws (6) and washers (7) to secure power meter (8) to shelter.
3. Place ground strap (4) over ground stud (5) and secure with wingnut (3).
4. Connect corresponding rf cable to front panel input (1) and output (2) connections.

2-38. MULTIFUEL HEATER REPLACEMENT.

There are two types of multifuel heaters used in AN/GRC-122/142(*); Hupp and Hunter. The replacement procedure for both heaters are the same. The heater used in this procedure is the Hunter.

MATERIALS/PARTS: Excess fuel container
Multifuel heater



EL6VX040

2-38. MULTIFUEL HEATER REPLACEMENT.(CONT)

REMOVAL

WARNING

When disconnecting heater fuel lines, be extremely careful not to spill fuel on the heater exhaust pipe or down the shelter wall. Do not smoke or use a flame inside the shelter. Provide adequate ventilation. If fuel does spill, wipe it up with a rag and dispose of rag properly. A possible fire hazard exists when working with fuel.

1. Remove flexible fuel line (1) while holding container underneath coupling (2) to catch excess fuel.
2. Set control switch (3) to the ON position to burn remaining fuel.
3. Remove rigid fuel line (4) from shelter wall and rear of multifuel heater (5).
4. Remove power cord (6) and thermostat cord (7) from their respective receptacle.
5. Remove four nuts (8) from inside storage compartment (9) which secures exhaust guard (10).
6. Remove exhaust guard (10).

WARNING

Exhaust pipe flange may still be hot. Be careful not to burn yourself.

CAUTION

When removing exhaust pipe flange, be careful not to damage asbestos gasket.

7. Remove four bolts (11) from exhaust pipe flange (12).
8. Remove four bolts (13) and lockwashers (14) which secure multifuel heater (5) to shelf (15).

INSTALLATION

1. Position multifuel heater (5) on shelf (15).

NOTE

Inspect asbestos gasket, if worn or damaged, replace.

2. Secure exhaust pipe flange (12) to multifuel heater (5) with four bolts (11).
3. Install four bolts (13) and lockwashers (14) and secure multifuel heater (5).
4. Position exhaust guard (10) and secure with four nuts (8) from inside storage compartment (9).

WARNING

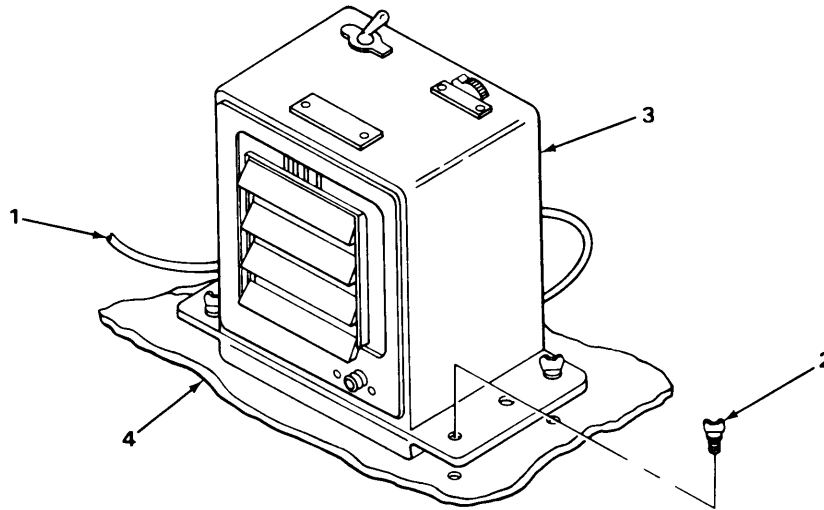
Do not smoke or use a flame when working with fuel lines. A possible fire hazard exists when working with fuel.

5. Set control switch (3) to the OFF position.
6. Connect rigid fuel line (4) to shelter wall and rear of multifuel heater (5).
7. Connect flexible fuel line (1) to coupling (2).
8. Connect power cord (6) and thermostat cord (7) from their respective receptacles.

2-39. ELECTRIC HEATER REPLACEMENT.

Removal procedure for electric heater is generic for all models. Mounting area of some are different. For the location of your electric heater, refer to TM 11-5815-334-10.

MATERIALS/PARTS: Electric heater



EL6VX041

REMOVAL

1. Unplug heater power cable (1) from receptacle.
2. Loosen four turn-lock fasteners (2).
3. Lift heater (3) from mounting base (4).

INSTALLATION

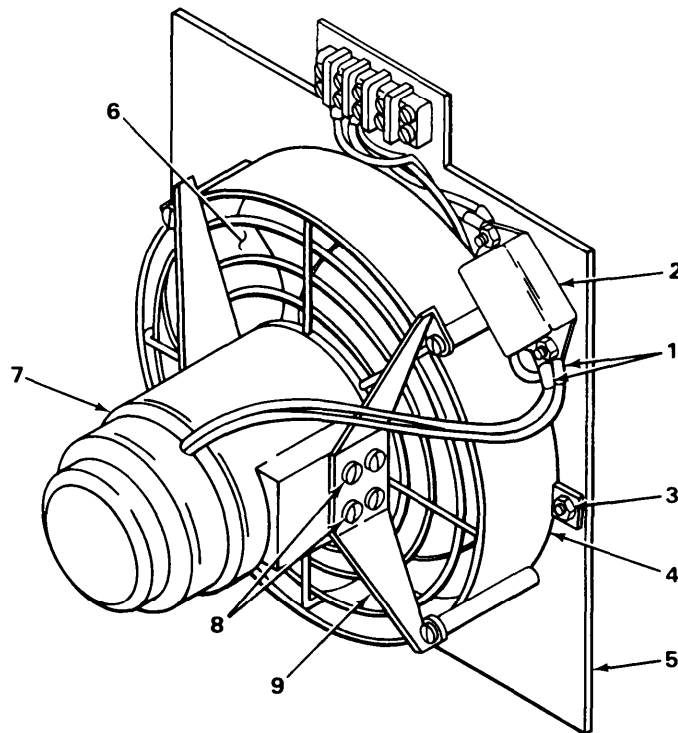
1. Position heater (3) on mounting base (4).
2. Tighten four turn-lock fasteners (2).
3. Plug heater power cable (1) into receptacle.

2-40. EXHAUST BLOWER MOTOR REPLACEMENT (AN/GRC-122/142 PLAIN AND C).

Exhaust blower motor is mounted to cab end of V shelter wall. For location of exhaust blower motor, refer to TM 11-5815-334-10.

MATERIALS/PARTS: Exhaust blower motor

PRELIMINARY PROCEDURE: Remove Duplex RT-662/GRC (para 2-43).
Remove modem (page 2-26).

2-40. EXHAUST BLOWER MOTOR REPLACEMENT (AN/GRC-122/142 PLAIN AND C). (CONT)

EL6VX042

REMOVAL

1. Tag and remove two electrical leads (1) from terminal (2).
2. Remove four nuts (3) from blower ring (4).
3. Remove blower ring (4) from mounting plate (5).
4. Remove impeller (6) from exhaust blower motor (7).
5. Remove eight screws (8) and remove exhaust blower motor (7).

INSTALLATION

1. Place exhaust blower motor (7) into motor brackets (9).
2. Install eight screws (8).
3. Place impeller (6) onto exhaust blower motor (7).
4. Position blower ring (4) onto mounting plate (5) and install four nuts (3).
5. Connect two electrical leads (1) to corresponding terminals (2).

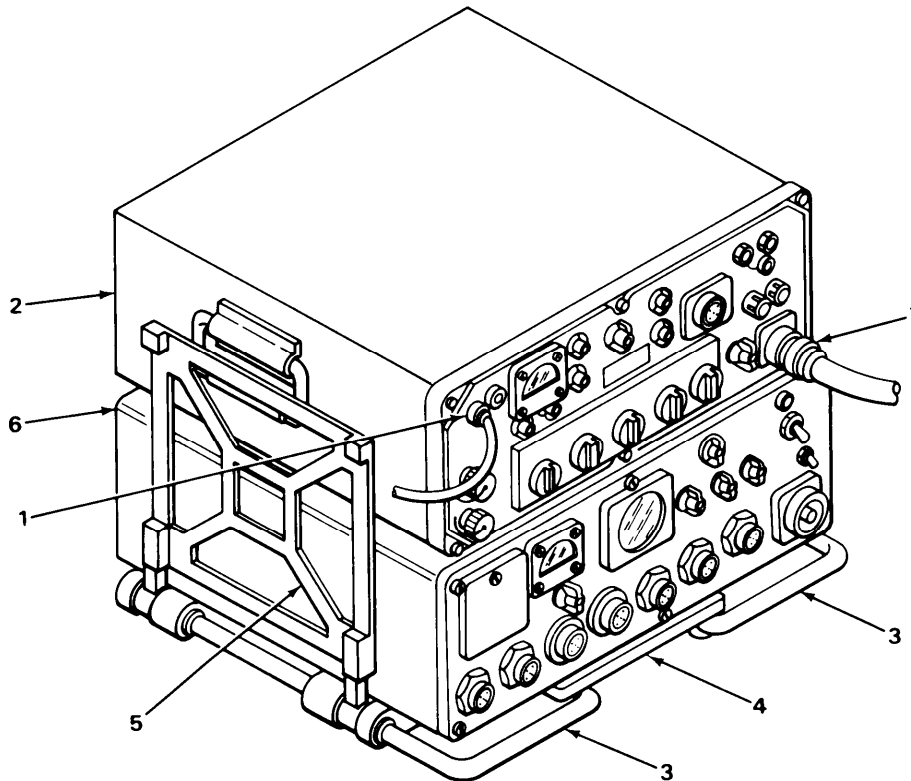
FOLLOW-ON MAINTENANCE: Replace Duplex RT-662/GRC (para 2-43).
 Replace modem (para 2-26).

2-41. DUPLEX RT-662/GRC REPLACEMENT (AN/GRC-122(*)).

Duplex RT-882/GRC is mounted on modem. For location of Duplex RT-662/GRC, refer to TM 11-5815-334-10.

MATERIALS/PARTS: Duplex RT-662/GRC

PERSONNEL REQUIRED: Two persons



EL6VX044

REMOVAL

To avoid severe shock to personnel, be sure power is disconnected from Duplex RT-662/GRC by placing either MAIN circuit breaker or DC MAIN and AC MAIN circuit breakers on power distribution panel to OFF.

1. Tag and remove all cables (1) from Duplex RT-662/GRC (2).
2. Grasp two release handles (3) on front of mounting base (4) and simultaneously pull release handles (3) forward from their securing holes.
3. Turn release handles (3) towards outside of Duplex RT-662/GRC (2) to loosen crossbar assemblies (5).
4. Lift Duplex RT-662/GRC (2) off modem (6).

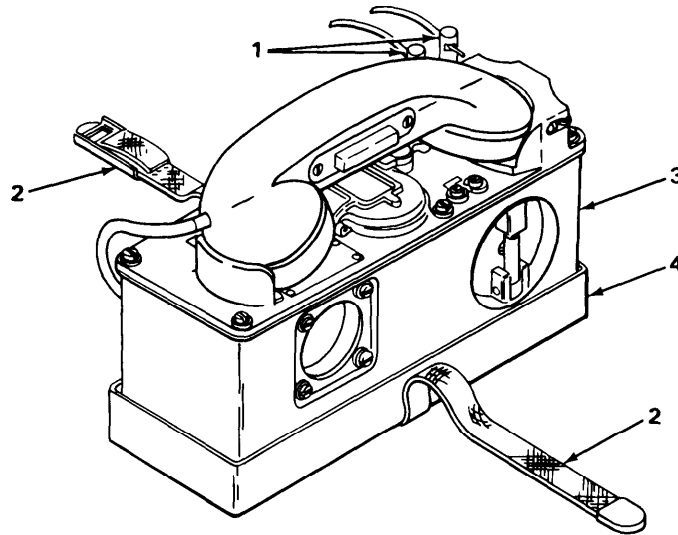
2-41. DUPLEX RT-662/GRC REPLACEMENT (AN/GRC-122(*)). (CONT)**INSTALLATION**

1. Position Duplex RT-662/GRC (2) on modem (6).
2. Position crossbar assemblies (5) so they rest against the side of the Duplex RT-662/GRC (2) and modem (6).
3. Simultaneously turn two release handles (3) toward inside of Duplex RT-662/GRC (2).
4. Push two release handles (3) back into securing holes in mounting base (4).
5. Connect cables (1) to their respective receptacles.

2--42. TA-312/PT REPLACEMENT.

For location of TA-312/PT, refer to TM 11-5815-334-10.

MATERIALS/PARTS: TA-312/PT



EL6VX045

REMOVAL

1. Tag and disconnect wires (1).
2. Unstrap strap (2).
3. Remove TA-312/PT (3) from mounting base (4).

INSTALLATION

1. Position TA-312/PT (3) in mounting base (4).
2. Secure TA-312/PT (3) with strap (2).
3. Connect wires (1) to corresponding terminals.

2-43. MOTOR GENERATOR REPLACEMENT (AN/GRC-122/142 PLAIN, A, B, AND C).

Motor generator is used in either normal or duplex operation. For location of motor generator refer to TM 11-5815-334-10 duplex operation.

MATERIALS/PARTS: Motor Generator PU-724/G

PRELIMINARY PROCEDURE: Remove DC Power Supply PP-4763(*) (AN/GRC-122/142 Plain) (para 2-33).

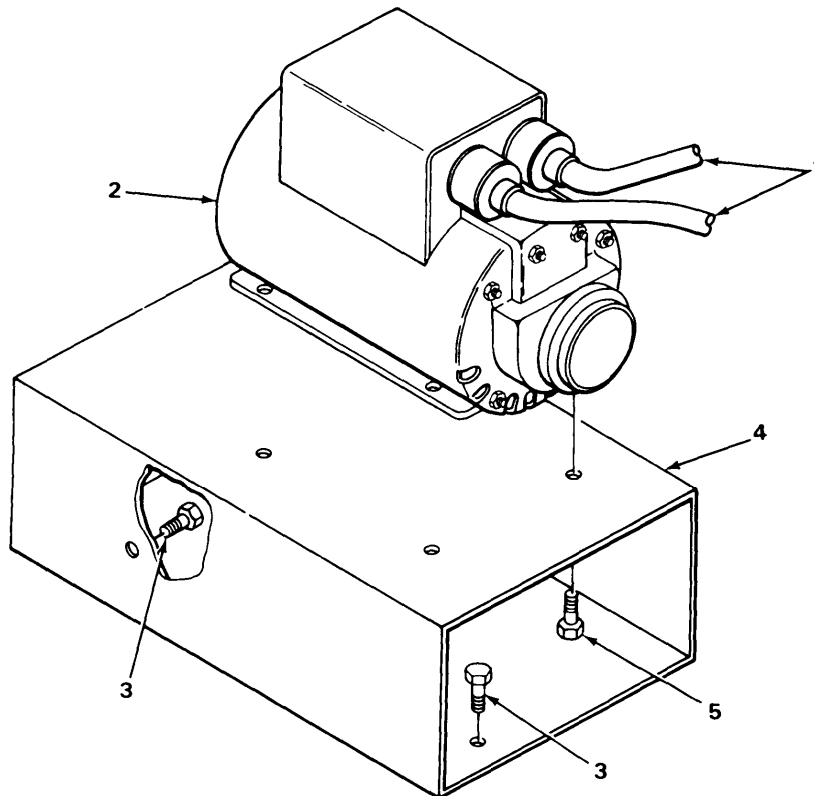
Remove antenna bag (AN/GRC-122/142 Plain).

Remove sledge hammer and bracket (AN/GRC-122/142 Plain and C).

Remove TA-312/PT (AN/GRC-122/142B) (para 2-44).

Remove TT-76(*)/GGC paper basket (AN/GRC-122/142A).

Remove chair.



EL6VX046

REMOVAL

1. Tag and disconnect cables (1) from motor generator (2).
2. Remove four bolts (3) from main motor generator frame (4).
3. Pull main motor generator frame (4) into middle of shelter.
4. Remove four bolts (5) from main motor generator frame (4).
5. Remove motor generator (2) from main motor generator frame (4).

INSTALLATION

1. Position motor generator (2) on main motor generator frame (4).
2. install four bolts (5) into motor generator (2).
3. Reposition main motor generator frame (4) into mounting area.
4. Install four bolts (3) into mounting holes.
5. Connect cables (1) to motor generator (2).

2-43. MOTOR GENERATOR REPLACEMENT (AN/GRC-122/142 PLAIN, A, B, AND C). (CONT)

FOLLOW-ON MAINTENANCE: Replace DC Power Supply PP-4763(*) (AN/GRC-122/142 Plain) (para 2-33).

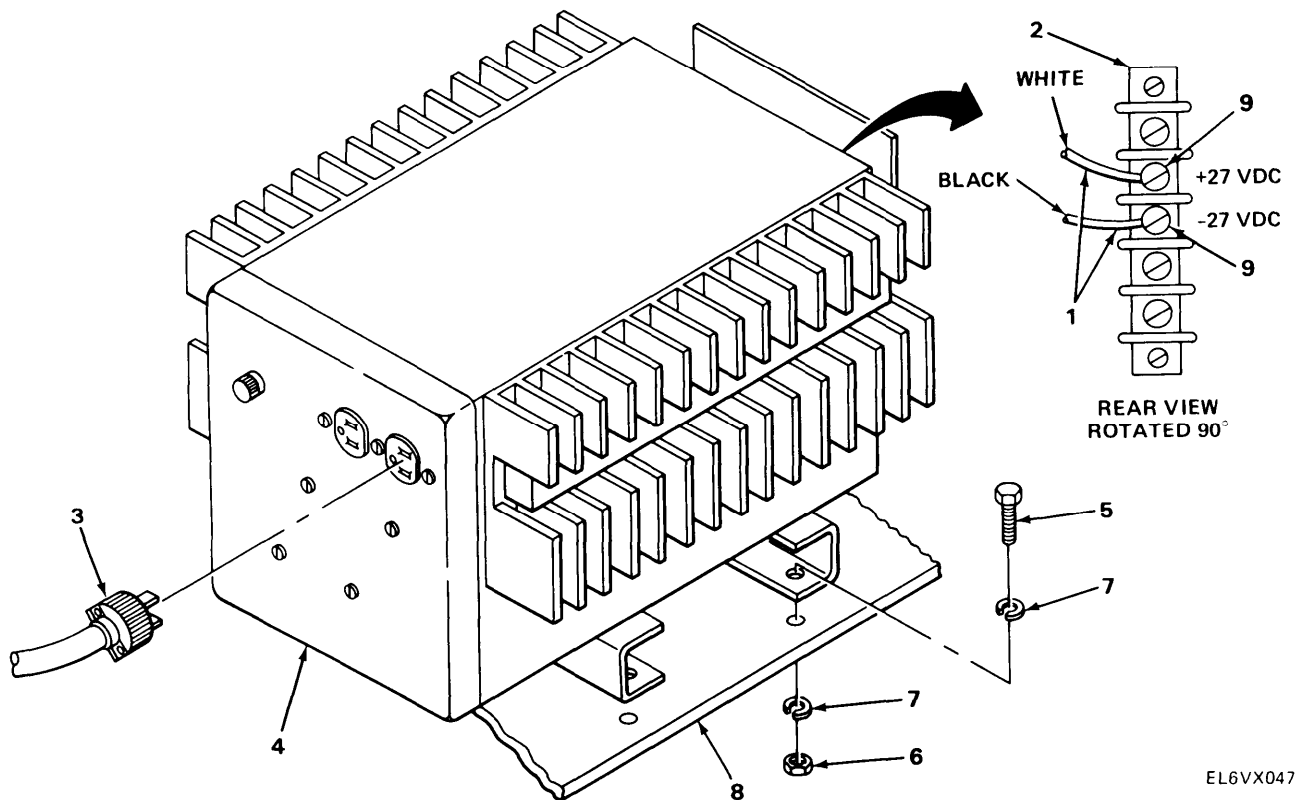
- Replace antenna bag (AN/GRC-122/142 Plain).
- Replace sledge hammer and bracket (AN/GRC-122/142 Plain and C).
- Replace TA-312/PT (AN/GRC-122/142B)
- Replace TT-76(*)/GFC paper basket (AN/GRC-122/142A).
- Replace chair.

2-44. INVERTER REPLACEMENT (AN/GRC-122/142D AND E).

For locations of inverters, refer to TM 11-5815-334-10. This procedure is generic for both duplex and OWR inverters.

MATERIALS/PARTS: Inverter PU-724A/G

- PRELIMINARY PROCEDURE: Remove auxiliary loudspeaker (AN/GRC-122/142E (para 2-27).
 Remove TA-312/PT (para 2-44).
 Remove chair.
 Remove TT-76/GGC paper/tape storage basket.



EL6VX047

REMOVAL

1. Disconnect power leads (1) from power terminal assembly (2).
2. Disconnect ac power cable (3) from inverter (4).
3. Remove four screws (5), nuts (6), and eight flat washers (7).
4. Remove inverter (4) from mounting shelf (8).

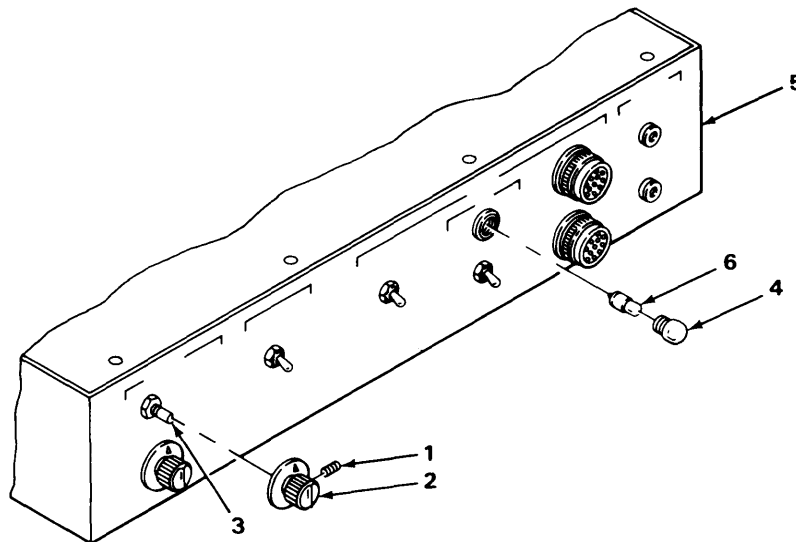
2-44. INVERTER REPLACEMENT (AN/GRC-122/142D AND E). (CONT)

INSTALLATION

1. Place inverter (4) on mounting shelf (8).
2. Install four screws (5), nuts (6), and eight flat washers (7).
3. Connect the power leads (1) to their corresponding terminals (9) on power terminal assembly (2).
4. Connect ac power cable (3) to inverter (4).

2-45. CONTROL PANEL KNOB AND INDICATOR LAMP REPLACEMENT (AN/GRC-122/142 PLAIN AND C).

For materials and parts for the control panel, see applicable TM, appendix A.



EL6VX050

REMOVAL OF KNOB

1. Loosen setscrew (1) on knob (2).
2. Pull knob (2) from switch shaft (3).

INSTALLATION OF KNOB

1. Slide knob (2) onto switch shaft (3).
2. Tighten setscrew (1) to secure knob (2).

REMOVAL OF INDICATOR LAMP

1. Unscrew lens (4) from front panel (5).
2. Pull indicator lamp (6) from lens (4).

INSTALLATION OF INDICATOR LAMP

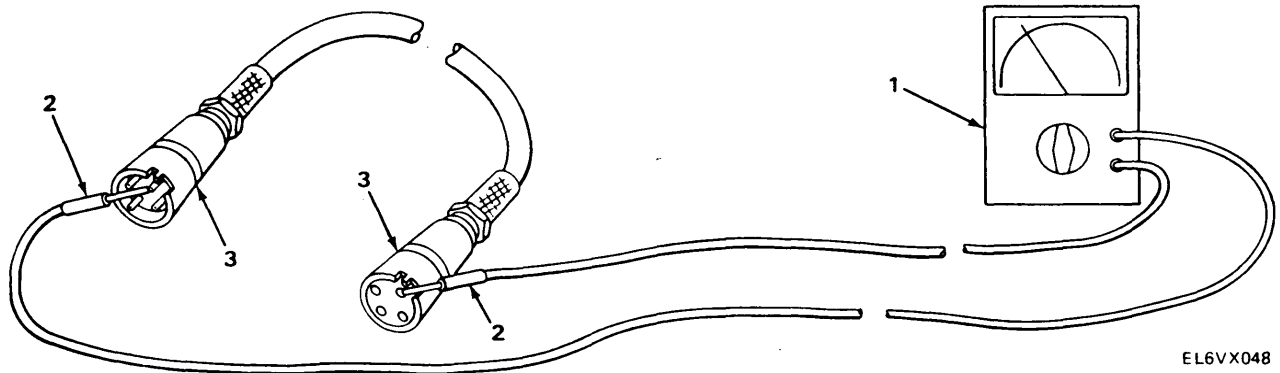
1. Insert indicator lamp bulb (6) into lens (4).
2. Screw lens (4) into front panel (5).

2-46. CABLE TESTING.

Cables are to be tested if troubleshooting finds a problem with them. If it is established during testing that a cable has a wire with a short or a break, cable should be replaced. For schematics of cables in AN/GRC-122/142(*), see FO-3.

TOOLS: Multimeter, Digital AN/PSM45

TESTING FOR CONTINUITY



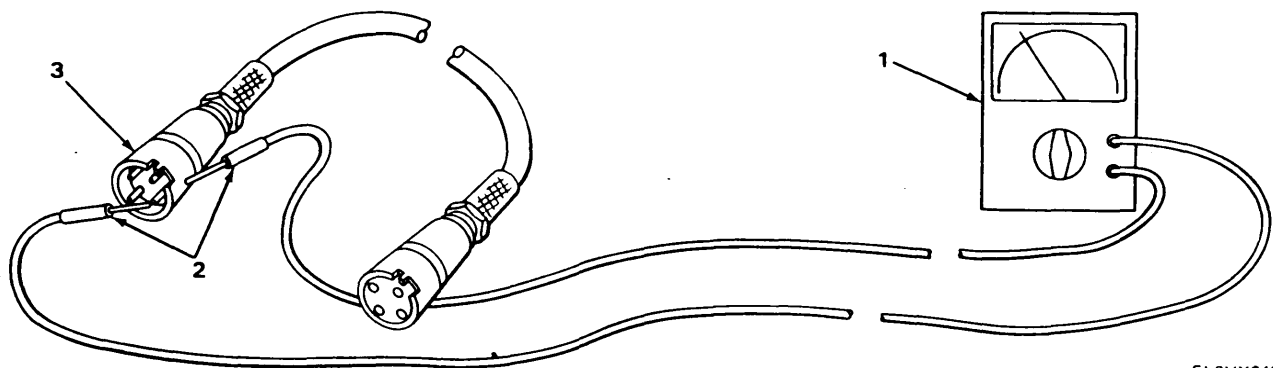
EL6VX048

1. Set multimeter (1) to R x 1.
2. Connect test lead (2) to the pin of cable (3) to be tested.
3. Connect the other test lead (2) to corresponding pin of other end of cable (3). (See cable schematics, FO-3.)
4. Multimeter (1) should read zero ohms.

NOTE

If multimeter (1) does not read zero ohms, replace cable.

TESTING FOR SHORTS



EL6VX049

1. Set multimeter (1) to R x 10000.
2. Connect test lead (2) to outer casing of cable (3).
3. Connect other test lead (2) to each pin of cable (3). (See cable schematic, FO-3).
4. Multimeter (1) should read infinity (∞).

NOTE

If multimeter (1) does not read infinity (∞), replace cable.

2-47. OWR-DX-SEND TELETYPEWRITER LOOP CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C).

Procedures for location of an open circuit within OWR-DX-SEND TTY loop (dc loop no. 1) are given below. A no-loop current condition is indicated by a zero reading on the modem meter. A no-loop current condition can be caused by a defect in the modem, switchbox, dummy box, control panel, TT-76(*)/GGC, TT-98/FG, TT-523/GGC, or cabling. For schematics on AN/GRC-122/142 Plain and C, see FO-4.

WARNING

Dangerous voltages (100 vdc, regulated) exist in loop circuits. Be extremely careful when working near these circuits.

NOTE

For location of components and their controls and indicators, refer to TM 11-5815-334-10.

1. Turn METER FUNCTION switch of modem to DC LOOP NO. 1.
2. Remove plug of cable W12P1 from OWR-DX-SEND jack of control panel.

NOTE

If meter on modem shows an indication of current, connect W12P1 and do steps 3 through 10 below. If meter shows no indication of current, do steps 11 and 12.

3. Remove W12 from dummy box.
4. Short blue and white plugs and check for 20 ma or 60 ma on modem meter.

NOTE

If 20 ma or 60 ma is not present, W12 is defective. If 20 ma or 60 ma is present, continue with step 5.

5. Turn modem, both tty, and motor generators to OFF.
6. Remove four bolts from switchbox and lower switchbox.
7. Disconnect W7P2 and W10P2 from switchbox.
8. Using multimeter, test for continuity between pin B of W10P2 and tip of W12P1.
9. Test for continuity between pin B of W7P2 and ring of W12P1.

NOTE

If there is continuity, switchbox is defective. If continuity is absent, W7, W10, or W12 is defective. Perform continuity test (para 2-48) on each cable.

10. Disconnect cables W1, W6, W2, and W5 from switchbox.
11. Set the TT-76(*)/GGC SELECTOR switch to position 1; TT-523/GGC switch TD SEND, TR SEND/RCV position; and all switchbox controls in up positions.

NOTE

When using TT-98/FG, perform step 12. When using AN/UGC-74A(V)3, perform step 13.

2-47. OWR-DX-SEND TTY LOOP CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C). (CONT)

12. Using multimeter check following cables for resistances listed in chart 2-1.

CABLE CHART 2-1

CABLE	PINS	RESISTANCE
W1 P1	B and C	Approximately 10 ohms.
W6 P1	B and C	Approximately 250 ohms.
W2 P1	B and C	Approximately 1500 ohms, depending on setting of TT-98/FG LINE INCREASE control.
W5 P1	B and C	Approximately 250 ohms.

NOTE

If resistance checks above are not satisfactory, check for resistance at terminal boards of the TT-98/FG and TT-76A/GGC. To gain access to the terminal board of the TT-98/FG, remove dust cover. Terminal board is on the right side. To gain access to the terminal board of the TT-76(*)/GGC, remove TT-76(*)/GGC (para 2-30).

CABLE CHART 2-2

CABLE	TERMINAL BOARD PINS	LOCATION	RESISTANCE
W1 P1	1 and 6	TT-76(*)/GGC	Approximately 10 ohms.
W6 P1	4 and 5	TT-76(*)/GGC	Approximately 250 ohms.
W2 P1	2 and 5	TT-98/FG	Approximately 1500 ohms, depending on setting of TT-98/FG LINE INCREASE control.
W5 P1	3 and 4	TT-98/FG	Approximately 250 ohms.

NOTE

If resistance at TT-76A/GGC is incorrect, replace TT-523(*)/GGC. If resistance is still incorrect, TT-76A/GGC is defective and a higher level of "maintenance required.

If resistance at TT-98/FG is incorrect, TT-98/FG is defective and a higher level of maintenance is required.

If resistance measurements at both TT-98/FG and TT-76(*)/GGC are satisfactory, W1, W6, W2, or W5 is defective. Perform continuity test (para 2-48) on each cable.

2-47. OWR-DX-SEND TTY LOOP CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C). (CONT)

13. Disconnect W 3/4 from AN/UGC-74A(V)3 and perform a continuity test (para 2-46).

NOTE

If continuity is not present, cable W 3/4 is defective. If continuity is present, refer AN/UGC-74A(V)3 to a higher level of maintenance.

WARNING

Dangerous voltages (100 vdc, regulated) exist in loop circuits. Be extremely careful when working near these circuits.

14. Turn modem off and short out pin A to C of DC LOOP NO. 1 jack J6 of modem.
15. Turn modem ON and check for 20 ma or 60 ma.

NOTE

If 20 ma is present, test W14 for continuity (para 2-46). If W14 is not defective, refer control panel to a higher level of maintenance.

2-48. OWR-DX-SEND TELETYPEWRITER LOOP CIRCUIT CHECK (AN/GRC-122/142A, B, D, AND E).

Procedures for location of an open circuit within OWR-DX-SEND TTY loop (dc loop no. 1) are given below. A no-loop current condition is indicated by a zero reading on modem meter. A no-loop current condition can be caused by a defect in modem, switch assembly, dummy box, TT-76(*)/GGC, TT-98/FG or AN/UGC-74A(V)3, TT-523/GGC, or defective cabling. For wiring diagram, see FO-5 and FO-6.

WARNING

Dangerous voltages (100 vdc, regulated) exist in loop circuits. Be extremely careful when working near these circuits.

1. Turn METER FUNCTION switch of the modem to DC LOOP NO 1.
2. Remove cable W12 P1 of dummy box from OWR-DX-SEND jack switch assembly.

NOTE

If meter on modem shows an indication of current do steps 3 through 10. If meter shows no indication of current, do step 11.

3. Remove W12 from dummy box.
4. Short blue and white plugs and check for 20 ma or 60 ma on modem meter.

NOTE

If 20 ma or 60 ma is not present, W12 is defective. If 20 ma or 60 ma is present, continue with step 5.

2-48. OWR-DX-SEND TELETYPEWRITER LOOP CIRCUIT CHECK (AN/GRC-122/142A, B, D, AND E). (CONT)

5. Turn modem and both motor generators or inverters OFF.
6. Remove four bolts from switch assembly and turn around to reach cable.
7. Disconnect W7 P2 and W10 P2 from the switch assembly.
8. Using multimeter, test for continuity between pin B of W10 P2 and the tip of W12 P1.
9. Test for continuity between pin B of W7 P2 and the ring of W12 P1.

NOTE

If there is continuity, switch assembly is defective. If continuity is absent, W7, W10, or W12 is defective. Perform continuity test (para 2-48) on each cable.

10. Disconnect cables W1, W6, W2, and W5 from switch assembly.
11. Set TT-76(*)/GGC SELECTOR switch to position 1; the TT-523/GGC switch to TD SEND, TR SEND/RCV position; and all switch assembly controls in the up positions.

NOTE

When using TT-98/FG, perform step 12. When using AN/UGC-74A(V)3, perform step 13.

12. Using multimeter, test the following cables for resistances listed in chart 2-3.

CABLE CHART 2-3

CABLE	PINS	RESISTANCE
W1 P1	B and C	Approximately 10 ohms.
W6 P1	B and C	Approximately 250 ohms.
W2 P1	B and C	Approximately 1500 ohms, depending on setting of TT-98/FG LINE INCREASE control.
W5 P1	B and C	Approximately 250 ohms.

NOTE

If resistance checks above are not satisfactory, check for resistance at terminal boards of TT-98/FG and TT-76(*)/GGC. To gain access to the terminal board of the TT-98/FG, remove dust cover. Terminal board is on right side. To gain access to terminal board of TT-76(*)/GGC, remove TT-76(*)/GGC (para 2-30). Tip TT-76(*)/GGC on its back. For pin configurations and resistances, refer to chart 2-4.

2-48. OWR-DX-SEND TELETYPEWRITER LOOP CIRCUIT CHECK (AN/GRC-122/142A, B, D, AND E). (CONT)

CABLE CHART 2-4

CABLE	TERMINAL BOARD PINS	LOCATION	RESISTANCE
W1 P1 W6 P1 W2 P1	1 and 6 4 and 5 2 and 5	TT-76(*)/GGC TT-76(*)/GGC TT-98/FG	Approximately 10 ohms. Approximately 250 ohms. Approximately 1500 ohms, depending on setting of TT-98/FG LINE INCREASE control.
W5 P1	3 and 4	TT-98/FG	Approximately 250 ohms.

NOTE

If resistance at TT-76(*)/GGC is incorrect, replace TT-523(*)/GGC. If resistance is still incorrect, TT-76(*)/GGC is defective and a higher level of maintenance is required.

If resistance at TT-98/FG is incorrect, TT-98/FG is defective and a higher level of maintenance is required.

If resistance measurements at both TT-98/FG and TT-76(*)/GGC are satisfactory, W1, W6, W2, or W5 is defective. Perform continuity test (para 2-48) on each cable.

13. Disconnect W 3/4 from AN/UGC-74A(V)3 and perform a continuity test (para 2-46).

NOTE

If continuity is not present, cable W 3/4 is defective. If continuity is present, refer AN/UGC-74A(V)3 to a higher level of maintenance.

WARNING

Dangerous voltages (100 vdc, regulated) exist in loop circuits. Be extremely careful when working near these circuits.

14. Turn modem off and short out pin A to C of DC LOOP NO. 1 jack J6 of modem.
15. Turn modem ON and check for 20 ma or 60 ma.

NOTE

If 20 ma is present, test W14 for continuity (para 2-46). If W14 is not defective, refer control panel to a higher level of maintenance.

2-49. AMPLIFIER KEYING CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C).

If amplifier will not key (when in override), use procedure below to localize the trouble. For location of components and their controls and indicators, refer to TM 11-5815-334-10. For the wiring diagram on the AN/GRC-122/142 Plain and C, see FO-8.

1. Remove handset from VOICE KEY jack J2 of control panel.
2. Press handset push-to-talk button.
3. Check for continuity between pins F and H of handset.

NOTE

If continuity is not present, replace handset. If continuity is present, continue with step 4.

4. Remove P1 of cable W17 from AUDIO jack of RT-662/GRC.
5. Connect handset to AUDIO jack.
6. Press handset push-to-talk button.

NOTE

If amplifier keys, do steps 7 through 13. If amplifier does not key, do step 14.

7. Remove cable W17.
8. Perform continuity test on cable W17.

NOTE

If continuity is not present, replace cable W17. If continuity is present, connect cable W17 to AUDIO jack on RT-662/GRC and RCVR TRANS AUDIO jack on modem. Continue with step 9.

9. Remove P1 of cable W18 from MICROPHONE jack of modem.
10. Connect handset to MICROPHONE jack of modem.
11. Press handset push-to-talk button.

NOTE

If amplifier does not key, replace modem (para 2-26). If amplifier keys, continue with step 12.

12. Remove P2 of cable W18 from J1 of control panel.
13. Perform continuity test on cable W18.

NOTE

If continuity is not present, replace W18. If continuity is present, refer control panel to a higher level of maintenance. If amplifier does not key, replace amplifier.

14. Troubleshoot amplifier. (See applicable TM, appendix A.)

2-50. AMPLIFIER KEYING CIRCUIT CHECK (AN/GRC-122/142A, B, D, AND E).

If amplifier will not key (when in override), use procedure below to localize the trouble. For location of components and their controls and indicators, refer to TM 11-5815-334-10. For the wiring diagram of the AN/GRC-122/142, see FO-9.

1. Remove handset from J12 voice KEY jack of switch assembly.
2. Press handset push-to-talk button.
3. Check for continuity between pins F and H of handset.

NOTE

If continuity is not present, replace handset. If continuity is present, continue with step 4.

4. Remove P1 of cable W17 from AUDIO jack of RT-662/GRC.
5. Connect handset to AUDIO jack.
6. Press handset push-to-talk button.

NOTE

If amplifier keys, do steps 7 through 13. If amplifier does not key, do step 14.

7. Remove cable W17.
8. Perform continuity test on cable W17.

NOTE

If continuity is not present, replace cable W17. If continuity is present, connect cable W17 to AUDIO jack on RT-662/GRC and RCVR TRANS AUDIO jack. Continue with step 9.

9. Remove P1 of cable W18 from MICROPHONE jack of modem.
10. Connect handset to MICROPHONE jack of modem.
11. Press handset push-to-talk button.

NOTE

If amplifier does not key, replace modem (para 2-26). If amplifier keys, continue with step 12.

12. Remove P2 of cable W18 from J11 of switch assembly.
13. Perform continuity test on cable W18.

NOTE

If continuity is not present, replace W18. If continuity is present, refer switch assembly to a higher level of maintenance. If amplifier does not key, replace amplifier.

14. Troubleshoot amplifier. (See applicable TM, appendix A.)

2-51. REMOTE KEYING CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C).

If amplifier will not key from remote site (all modes of operation except cw), procedure given below will aid in localizing trouble. This procedure is based on the assumption that local keying is satisfactory and batteries in remote control are good. For wiring diagrams see FO-8.

1. Remove P3 from J13 of remote box.
2. Connect handset to J13 of remote box.
3. Press handset push-to-talk button.

NOTE

If amplifier keys, do steps 4 through 15. If amplifier does not key, do steps 17 through 20.

4. Reconnect P3 to J13 of remote box.
5. Set LOCAL switch on local control to SET.
6. Connect handset to AUDIO connector of local control.
7. Press handset push-to-talk button.

NOTE

If amplifier does not key, replace local control (para 2-25). If amplifier keys, continue with step 8.

8. Remove cable W26 L1 and L2 from local control.
9. Twist L1 and L2 together.
10. Remove field wires L1 and L2 from C-433/GRC binding posts of dc entrance box.
11. Using multimeter, measure resistance between C-433/GRC binding posts.

NOTE

If multimeter reads infinity, do step 12. If multimeter reads less than 1/2 ohm, replace field wires to their corresponding binding post and do step 14.

12. Disconnect field wire from dc entrance box and twist ends together.
13. Perform continuity test at other end of field wires.

NOTE

If continuity is not present, replace field wires. If continuity is present, shelter wiring is defective. Refer to a higher level of maintenance.

14. Remove remote box cable from audio connector of remote control.
15. Connect handset to AUDIO connector of remote control.
16. Press handset push-to-talk button.

NOTE

If amplifier does not key, remote control is defective. If amplifier keys, remote box is defective.

17. Remove four knurled screws from control panel.
18. Pull control panel forward.
19. Disconnect cable W18 from J1 of control panel.

2-51. REMOTE KEYING CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C).(CONT)

NOTE

Cable W18 is not labeled.

20. Short circuit pin F of P2 to ground.

NOTE

If amplifier keys, refer control panel to a higher level of maintenance. If amplifier fails to key, perform continuity test on cable W18 (para 2-48).

2-52. REMOTE KEYING CIRCUIT CHECKOUT (AN/GRC-122/142A, B, D, AND E).

If amplifier will not key from remote site (all models of operation except cw), the procedure given below will aid in localizing the trouble. This procedure is based on the assumption that local keying is satisfactory and batteries in the remote control are good. For signal schematics on the AN/GRC-142/122A, B, D, and E, see FO-9.

TOOLS: Multimeter, Digital AN/PSM-45

1. Remove P3 from J13 of remote box.
2. Connect handset to J13 of remote box.
3. Press handset push-to-talk button.

NOTE

If amplifier keys, do steps 4 through 15. If amplifier does not key, do steps 16 through 19.

4. Reconnect P3 to J13 of remote control.
5. Set LOCAL switch on local control to SET.
6. Connect handset to AUDIO connector of local control.
7. Press handset push-to-talk button.

NOTE

If amplifier does not key, replace local control. If amplifier does key, continue with step 8.

8. Remove cable W26 L1 and L2 from local control.
9. Twist L1 and L2 together.
10. Remove field wires L1 and L2 from C-433/GRC binding posts of dc entrance box.
11. Using multimeter, measure resistance between C-433/GRC binding posts.

NOTE

If multimeter reads infinity, do step 12. If multimeter reads less than 1/2 ohm, replace field wires to their corresponding binding post and do step 14.

12. Disconnect field wire from dc entrance box and twist ends together.
13. Perform continuity test at other end of field wires.

2-52. REMOTE KEYING CIRCUIT CHECKOUT (AN/GRC-122/142A, B, D, and E).(CONT)**NOTE**

If continuity is not present, replace field wires. If continuity is present, shelter wiring is defective. Refer to a higher level of maintenance.

14. Remove the remote box cable from the AUDIO connectors of the remote control.
15. Connect the handset to the AUDIO connector of the remote control.
16. Press the handset push-to-talk button.

NOTE

If amplifier does not key, remote control is defective. If amplifier keys, remote box is defective.

17. Remove four mounting screws from switch assembly.
18. Pull switch assembly forward.
19. Disconnect cable W18 from J11 of switch assembly.

NOTE

Cable W18 is not labeled.

20. Short circuit pin F of P2 to ground.

NOTE

If amplifier keys, refer switch assembly to a higher level of maintenance. If amplifier fails to key, perform continuity test on W18.

21. Connect handset to AUDIO connector of the remote control.

2-53. TA-312/PT CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C).

If trouble is suspected within the TA-312/PT circuit, locate the problem as follows.

TOOLS: Multimeter, Digital AN/PSM-45.

NOTE

For location of components and their controls and indicators, refer to TM 11-5815-334-10. For signal schematics on the AN/GRC-142/122 Plain and C), see FO-8.

1. Disconnect wires from the TA-312/PT (local) LINE post.
2. Twist ends of wires together.
3. Disconnect field wires from TA-312/PT (remote) binding post in dc entrance box.

NOTE

Ensure dummy boxes are properly installed.

2-53. TA-312/PT CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C). (CONT)

NOTE

Set AUDIO TEL REMOTE-CW switch of control panel to the TEL position.

4. Using multimeter, measure one-half ohm between TA-312/PT binding posts in dc entrance box.

NOTE

If resistance is satisfactory, reconnect field wires to TA-312/PT binding posts. If resistance is not satisfactory, continue with step 5.

5. Disconnect W15P1 from J7 of control panel.
6. Using multimeter, measure one-half ohm between pins A and B of J7.

NOTE

If resistance is satisfactory, defect is in W15 or dc entrance box. Refer to a higher level of maintenance. If resistance is not satisfactory, reconnect field wires to TA-312/PT binding post and continue with step 7.

7. Using multimeter, measure one-half ohm between E1 and E2 of control panel.

NOTE

If resistance is not satisfactory, perform continuity test on W25 (para 2-48). If resistance is satisfactory, continue with step 8.

8. Connect cable W15 to J7 of control panel.
9. Disconnect W29P1 from J6 of control panel.
10. Using multimeter, measure 28 vdc between pin C(+) of W29 P1 and ground (para 2-48).
11. Measure for continuity between pins A and B of W29 P1 (para 2-50).

NOTE

If multimeter reading is satisfactory and your cable has continuity between pins A and B, control panel is defective. Refer to higher level of maintenance. If multi meter reading is not 28 vdc, troubleshoot SB-3018/GRC-142.

If continuity between pins A and B of W29 P1 is absent, check that interlock switches S1 and S2 (OWR-DX-SEND and DX-RCV-PONY) on dummy boxes are not open. If all resistance measurements above are satisfactory, continue with step 12.

12. Check field wires for breaks.

NOTE

If field wires are satisfactory, troubleshoot remote and local TA-312/PT. Refer to TM 11-5805-201-12 for troubleshooting procedures.

2-54. TA-312/PT CIRCUIT CHECK (AN/GRC-122/142A, B, D, AND E).

Locate the problem as follows, if trouble is suspected within the TA-312/PT circuit. For signal schematics on the AN/GRC-122/142A, B, D and E, see FO-9.

TOOLS: Multimeter, Digital AN/PSM-45.

NOTE

Ensure dummy boxes are installed properly.

1. Disconnect wires from the TA-312/PT (local) LINE post.
2. Twist ends of the wires together.
3. Disconnect field wires from the TA-312/PT (remote) binding post in the dc entrance box.

NOTE

Set AUDIO TEL REMOTE-CW switch of the control panel to TEL position.

4. Using multimeter, measure one-half ohm between TA-312/PT binding posts in dc entrance box.

NOTE

If resistance is satisfactory, reconnect field wires to TA-312/PT binding posts. If resistance is not satisfactory, continue with step 5.

5. Disconnect W15P1 from J17 of switch assembly.
6. Using multimeter, measure one-half ohm between pins A and B of J17.

NOTE

If resistance is satisfactory, defect is in W15 or dc entrance box. Refer to higher level of maintenance. If resistance is not satisfactory, reconnect field wires to TA-312/PT binding posts and continue with step 7.

7. Using multimeter, measure one-half ohm between E1 and E2 of switch assembly.

NOTE

If resistance is not satisfactory, perform continuity test (para 2-48) on W25. If resistance is satisfactory, continue with step 8.

8. Check field wires for breaks.

NOTE

If field wires are satisfactory, troubleshoot remote and local TA-312/PT. Refer to TM 11-5605-201-12 for troubleshooting procedures.

2-55. REMOTE CW CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C).

The following procedure should be used if the send cw operation is not satisfactory during remote operation. This procedure assumes local cw operation is functioning properly. For location of components and their controls and indicators, refer to TM 11-5815-334-10. For signal schematics on AN/GRC-122/142 Plain and C, see FO-8.

TOOLS: Multimeter, Digital AN/PSM-45.

1. Check the TA-312/PT operation.

NOTE

If operation of TA-312/PT is not satisfactory, perform checkout of TA-312/PT Circuit (AN/GRC-122/142 Plain and C) (para 2-53). If operation of TA-312/PT is satisfactory, continue with step 2.

2. Remove four knurled screws securing control panel.
3. Pull control panel forward.
4. Disconnect cables W15 and W18 from control panel.

NOTE

Cable W18 is not labeled.

5. Set AUDIO TEL REMOTE-CW switch of control panel to REMOTE-CW.
6. Check continuity between pin A of J7 and pin F of J1 of control panel.
7. Check continuity between pin B of J7 and ground of control panel.

NOTE

If continuity is present, test cable W18 for continuity (para 2-48). If continuity is not present, refer control panel to a higher level of maintenance.

if continuity is satisfactory in cable W18, perform amplifier keying circuit check steps 4 through 14 (para 2-49).

2-56. REMOTE CW CIRCUIT CHECK (AN/GRC-122/142A, B, D, AND E).

The following procedure should be used if send cw operation is not satisfactory during remote operation. This procedure assumes that the local cw operation is functioning properly. For location of components and their controls and indicators, refer to TM 11-5815-334-10. For signal schematics on AN/GRC-122/142A, B, D, and E, see FO-9.

TOOLS: Multimeter, Digital AN/PSM-45.

NOTE

Perform amplifier keying circuit check steps 4 through 14 (para 2-50).

1. Disconnect cables to VOICE-KEY and GRA-6 connectors on switch assembly.
2. Check for continuity between pin F of J12 (VOICE-KEY connector) and pin F of J13 (GRA-6 connector).
3. Check for continuity between pin H of J12 and ground.
4. Check for continuity between pin H of J13 and ground.

2-56. REMOTE CW CIRCUIT CHECK (AN/GRC-122/142A, B, D, AND E). (CONT)**NOTE**

If continuity is not present, switch assembly is defective. If continuity is present, continue with step 5.

5. Disconnect local control cable from J13 of switch assembly.
6. Check for continuity between pin F of J11 and pin F of J13 of switch assembly.
7. Check for continuity between pin H of J11 and ground of switch assembly.

NOTE

If continuity is not present, switch assembly is defective. Replace cable W18. If continuity is present, continue with step 8.

8. Remove field wires E1 and E2 from REM CW binding posts in signal entrance box.
9. Connect both REM CW binding posts with a piece of wire.
10. Check for continuity between pins F and H of remote key cable SM-C-613236.

NOTE

If continuity is not present, signal entrance box or cables are defective. Refer to a higher level of maintenance. If continuity is present, check field wires for breaks.

2-57. FAULTY TRANSMITTING OR RECEIVING OPERATION CHECK (AN/GRC-122/142 PLAIN AND C).

Faulty transmitting or receiving operation may be caused by a defect in one of the following: radio set, modem, control panel, local control, remote control, remote box, or line filter in the dc entrance box. If operational checks fail to isolate the defective item, proceed as follows:

1. Connect handset to AUDIO receptacle on RT-662/GRC.
2. Using handset, attempt to transmit or receive an audio signal.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, perform continuity test on antenna cables CG-3366/U or CG-2568A/U and CG-2340A/U (para 2-46). If problem still exists, replace RT-662/GRC (para 2-28). If RT-662/GRC transmits and receives audio signals, continue with step 3.

3. Remove handset from AUDIO receptacle on RT-662/GRC.
4. Connect handset to MICROPHONE receptacle of modem.
5. Using handset, attempt to transmit or receive an audio signal.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, perform continuity test (para 2-46) on cable W17. If problem still exists, replace modem (para 2-26). If RT-662/GRC transmits and receives audio signals, continue with step 6.

2-57. FAULTY TRANSMITTING OR RECEIVING OPERATION CHECK (AN/GRC-122/142 PLAIN AND C). (CONT)

6. Remove handset from MICROPHONE receptacle of modem.
7. Connect handset to GRA-6 receptacle of control panel.
8. Attempt to transmit or receive an audio signal using handset.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, perform continuity test (para 2-46) on cable W14. If problem still exists, refer control panel to a higher level of maintenance. If RT-662/GRC transmits and receives audio signals, continue with step 9.

9. Remove handset from GRA-6 receptacle of control panel.
10. Connect handset to AUDIO receptacle of local control.
11. Attempt to transmit or receive an audio signal using handset.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, replace local control (para 2-25). If RT-662/GRC transmits and receives audio signals, continue with step 12.

12. Remove handset from AUDIO receptacle of local control.
13. Connect handset to AUDIO receptacle of remote control.
14. Attempt to transmit or receive an audio signal using handset.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, perform continuity test (para 2-46) on field wires. If problem still exists, replace remote control. (Refer to TM 11-5815-334-10.) If RT-662/GRC transmits and receives an audio signal, continue with step 15.

15. Remove handset from AUDIO receptacle of remote control.
16. Connect handset to AUDIO receptacle of remote box.
17. Attempt to transmit or receive an audio signal using handset.

NOTE

If remote box fails to transmit or receive an audio signal, replace remote box. (Refer to TM 11-5815-334-10.) If remote box transmits and receives audio signals, continue with step 18.

18. Perform a continuity test on dc entrance box.

2-58. FAULTY TRANSMITTING OR RECEIVING OPERATION CHECK (AN/GRC-122/142A, B, D, AND E).

Faulty transmitting or receiving operation may be caused by a defect in one of the following: radio set, modem, switch assembly, local control, remote control, remote box, or line filter in the dc entrance box. For the location of components and their controls and indicators, refer to TM 11-5815-334-10. If the operational checks fail to isolate the defective unit, proceed as follows:

1. Connect handset to AUDIO receptacle on RT-662/GRC.
2. Attempt to transmit or receive an audio signal using handset.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, perform continuity test on antenna cables CG-3366/U or CG-2568A/U and CG-2340A/U (para 2-46). If problem still exists, replace RT-662/GRC (para 2-28). If RT-662/GRC transmits and receives audio signals, continue with step 3.

3. Remove handset from AUDIO receptacle on RT-662/GRC.
4. Connect handset to MICROPHONE receptacle of modem.
5. Using handset, attempt to transmit or receive an audio signal.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, perform continuity test (para 2-46) on cable W17. If problem still exists, replace modem (para 2-26). If RT-662/GRC transmits and receives audio signals, continue with step 6.

6. Remove handset from MICROPHONE receptacle of modem.
7. Connect handset to GRA-6 receptacle of switch assembly.
8. Using handset, attempt to transmit or receive an audio signal.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, perform continuity test (para 2-46) on cable W18. If problem still exists, refer switch assembly to a higher level of maintenance. If RT-662/GRC transmits and receives audio signals, continue with step 9.

9. Remove handset from GRA-6 receptacle of switch assembly.
10. Connect handset to AUDIO receptacle of local control.
11. Using handset, attempt to transmit or receive an audio signal.

NOTE

If RT-662/GRC fails to transmit or receive, replace local control (para 2-25). If RT-662/GRC transmits and receives audio signals, continue with step 12.

12. Remove handset from AUDIO receptacle of local control.
13. Connect handset to AUDIO receptacle of remote control.
14. Using handset, attempt to transmit or receive an audio signal.

**2-58. FAULTY TRANSMITTING OR RECEIVING OPERATION CHECK (AN/GRC-122/142A, B, D, AND E).
(CONT)**

NOTE

If RT-622/GRC fails to transmit or receive an audio signal, perform continuity test (para 2-48) on field wires. If problem still exists, replace remote control. (Refer to TM 11-5815-334-10.) If RT-662/GRC transmits and receives audio signals, continue with step 15.

15. Remove handset from the AUDIO receptacle of remote control.
16. Connect handset to the AUDIO receptacle of remote box.
17. Using handset, attempt to transmit or receive an audio signal.

NOTE

If RT-662/GRC fails to transmit or receive an audio signal, replace remote box. (Refer to TM 11 -5815-334-10.) If remote box transmits and receives audio signals, continue with step 18.

18. Perform a continuity test on dc entrance box.

2-59. DX-RECEIVE-PONY LOOP CIRCUIT CHECK AN/GRC-122 PLAIN AND C).

Follow the procedure given below to locate an open circuit within the DX-RECEIVE pony loop (dc loop no. 2). A no-loop current (open circuit) condition is indicated by a zero reading on the modem meter. An open circuit can be caused by a defect in the modem, control panel, dummy box, switchbox, duplex TT-98/FG or AN/UGC-74A(V)3, or cabling. For the location of components and their controls and indicators, refer to TM 11-5815-334-10. For schematics on AN/GRC-122 Plain and C, see FO-4.

TOOLS: Multimeter, Digital AN/PSM-45.

WARNING

Dangerous voltages (100 vdc) exist in loop circuits. Be extremely careful when working near these circuits. Electrocution may occur if caution is not taken.

1. Disconnect cable W11 from DX-RCV-PONY jack on front of control panel.
2. Turn METER FUNCTION switch to DC LOOP NO. 2.

NOTE

If the meter on modem shows 20 ma or 60 ma, do steps 3 through 10 below. If meter does not show 20 ma or 60 ma, do step 11.

3. Turn modem and both motor generators or inverters to OFF.
4. Remove four bolts from front of switchbox and lower.
5. Disconnect cable W3 and W4 from switchbox.
6. Set all switchbox front panel controls in the up position.

2-59. DX-RECEIVE PONY LOOP CIRCUIT CHECK (AN/GRC-122 PLAIN AND C). (CONT)

NOTE

When using TT-98/FG perform step 7. When using AN/UGC-74(V)3 perform step 8.

7. Using multimeter, check the following cables in chart 2-5 for the proper resistance.

CHART 2-5

CABLE	PINS	RESISTANCE
W3 P1	B and C	Approximately 1500 ohms (depends on the setting of TT-98/FG LINE INCREASE rheostat).
W4 P1	B and C	Approximately 250 ohms.

NOTE

If resistance checks above are not satisfactory, check resistance at the terminal board of the TT-98/FG. To gain access to the terminal board of the TT-98/FG, remove the dust cover. For pin configuration and resistances, see chart 2-6.

CHART 2-6

CABLE	TERMINAL BOARD PINS	RESISTANCE
W3 P1	2 and 5	Approximately 1500 ohms (depends on the setting of TT-98/FG LINE INCREASE rheostat).
W4 P1	3 and 4	Approximately 250 ohms.

NOTE

If resistance measurements are satisfactory, perform continuity test on cable W3 and W4. If continuity test finds cables to be good, proceed with step 9.

8. Disconnect W 3/4 from AN/UGC-74A(V)3 and perform a continuity test (para 2-46).

NOTE

If continuity is not present, cable W 3/4 is defective. if continuity is present, refer AN/UGC-74A(V)3 to a higher level of maintenance.

2-59. DX-RECEIVE-PONY LOOP CIRCUIT CHECK (AN/GRC-122/142 PLAIN AND C).(CONT)

9. Disconnect cables W8 and W9 from switchbox.
10. Check for continuity between tip of W11 and pin B of W9.
11. Check for continuity between ring of W11 and pin B of W8.

NOTE

If continuity is present, replace switchbox (para 2-37). If continuity is not present, perform continuity test (para 2-48) on cables W8, W9, and W11. If cables are found to be good, replace dummy box (para 2-32).

12. Disconnect cable W13 from modem DC LOOP jack No. 2.
13. Using a piece of wire, jump between pin A(+) and C(-) of modem's LOOP NO. 2 connector.
14. Check modem meter for 20 ma or 60 ma.

NOTE

If 20 ma or 60 ma is not present, replace modem (para 2-26). If 20 ma or 60 ma is present, remove cable W13 and test if for continuity (para 2-46). If W13 is found to be good, refer control panel to a higher level of maintenance.

2-60. DX-RECEIVE-PONY LOOP CIRCUIT CHECK (AN/GRC-122A, B, D, AND E).

Follow the procedure given below to locate an open circuit with the DX-RECEIVE-PONY loop (dc loop no. 2). A no-loop current (open circuit) condition is indicated by a zero reading on the modem meter. An open circuit can be caused by a defect in the modem, switch assembly, dummy box, duplex TT-98/FG or AN/UGC-74A(V)3, or cabling. For the location of components and their controls and indicators, refer to TM 11-5815-334-10. For schematics on AN/GRC-122 Plain and C, see FO-5 and FO-6.

TOOLS: Multimeter, Digital AN/PSM-45.

WARNING

Dangerous voltages (100 vdc) exist in loop circuits. Be extremely careful when working near these circuits. Electrocutation may occur if caution is not taken.

1. Disconnect cable W11 from DX-RCV-PONY jack J8 on front of switch assembly.
2. Turn METER FUNCTION switch to DC LOOP NO. 2.

NOTE

If meter on modem shows 20 ma or 60 ma, do steps 3 through 10 below. If meter does not show 20 ma or 60 ma, do step 11.

3. Turn modem and both motor generators or inverters to OFF.
4. Remove four bolts from front of switch assembly and lower.
5. Disconnect cables W3 and W4 from switch assembly.
6. Set all switchbox front panel controls in the up position.

2-60. DX-RECEIVE-PONY LOOP CIRCUIT CHECK (AN/GRC-122A, B, D, AND E). (CONT)

NOTE

When using TT-98/FG perform step 7. When using AN/UGC-74(V)3 perform step 8.

7. Using multimeter, check the following cables in chart 2-5 for proper resistance.

CHART 2-5

CABLE	PINS	RESISTANCE
W3 P1	B and C	Approximately 1500 ohms (depends on the setting of TT-98/FG LINE INCREASE rheostat).
W4 P1	B and C	Approximately 250 ohms.

NOTE

If resistance checks above are not satisfactory, check resistance at terminal board of the TT-98/FG. To gain access to the terminal board of TT-98/FG, remove dust cover. For pin configuration and resistances, see chart 2-6.

CHART 2-6

CABLE	TERMINAL BOARD PINS	RESISTANCE
W3 P1	2 and 5	Approximately 1500 ohms (depends on the setting of TT-98/FG LINE INCREASE rheostat).
W4 P1	3 and 4	Approximately 250 ohms.

NOTE

If resistance measurements are satisfactory, perform continuity test on cable W3 and W4. If continuity test finds cables to be good, proceed with step 9.

8. Disconnect W 3/4 from AN/UGC-74A(V)3 and perform a continuity test (para 2-46).

NOTE

If continuity is not present, cable W 3/4 is defective. If continuity is present, refer AN/UGC-74A(V)3 to a higher level of maintenance.

2-60. DX-RECEIVE-PONY LOOP CIRCUIT CHECKOUT (AN/GRC-122/142A, B, D, AND E). (CONT)

- 9. Disconnect cables W8 and W9 from switch assembly.
- 10. Check for continuity between the tip of W11 and pin B of W9.
- 11. Check for continuity between the ring of W11 and pin B of W8.

NOTE

If continuity is present, replace switch assembly.

If continuity is not present, perform continuity test (para 2-48) on cables W8, W9, and W11.

If cables are found to be good, replace dummy box (para 2-32).

- 12. Disconnect cable W13 from modem DC LOOP jack No. 2.
- 13. Using a piece of wire, jump between pin A(+) and C(-) of modems LOOP NO. 2 connector.
- 14. Check modem meter for 20 ma or 60 ma.

NOTE

If 20 ma or 60 ma is not present, replace modem (para 2-26). If 20 ma or 60 ma is present, remove cable W13 and test cable for continuity (para 2-46). If W13 is found to be good, refer switch assembly to a higher level of maintenance.

Section VI PREPARATION FOR STORAGE OR SHIPMENT

Subject	Para	Page
General	2-61	2-78
Administrative Storage	2-62	2-79

2-61. GENERAL.

To prepare for storage or shipment, secure equipment in accordance with AR 190-13, check equipment for completeness against hand receipt, TM 11-5815-334-10-HR, and perform preparation for movement found in TM 11-5840-334-10.

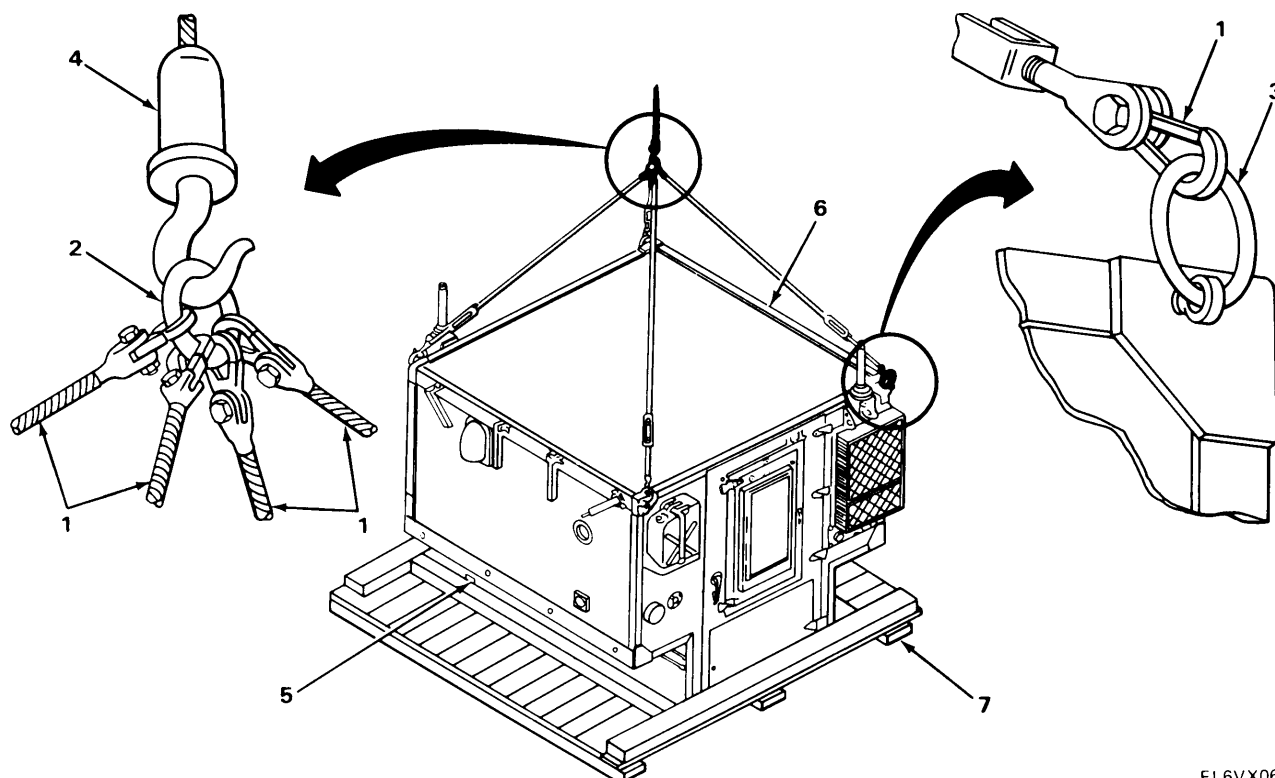
2-62. ADMINISTRATIVE STORAGE.

For administrative storage procedures, refer to AR-750-1.

TOOLS: Tool Kit, Electronic Equipment TK-101/G

MATERIALS PARTS: Shipping crates

PRELIMINARY PROCEDURE: Unload shelter from truck (para 2-7).



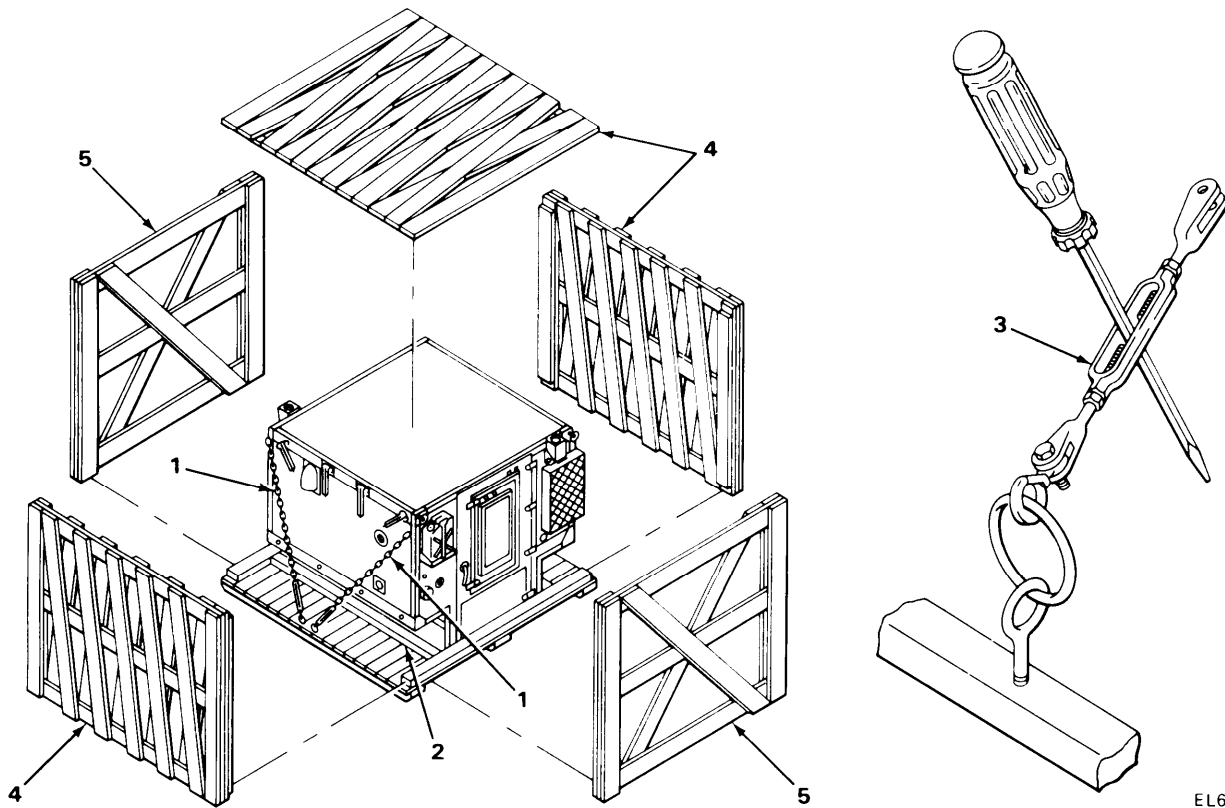
EL6VX068

PACKING**WARNING**

To avoid injury to personnel and damage to equipment, only personnel engaged in actual loading operation should be permitted near the truck, lifting device, and shelter. To eliminate confusion, all instructions must come from the loading crew supervisor. All personnel should stay clear of shelter when it is being lifted.

1. Connect four sling assembly hooks (1) to the lifting ring (2).
2. Connect the four unattached sling assembly hooks (1) to shelter tiedown rings (3).
3. Connect lifting ring (2) to lifting device (4).
4. Tie a rope to each rear towing eye (5).
5. Lift and position shelter (6) over pallet (7).
6. Lower shelter (6) on to pallet (7).

2-62. ADMINISTRATIVE STORAGE. (CONT)



EL6VX069

1. Connect sling assembly (1) to pallet (2).
2. Using screwdriver, tighten turnbuckles (3).
3. Secure sides and top panels (4) and front and rear panels (5) with 56 lag bolts.

APPENDIX A

REFERENCES

A-1. SCOPE.

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in or related to this manual.

A-2. FORMS.

Recommended Changes to Publications and Blank Forms	DA FORM 2028
Recommended Changes to Equipment Technical Manuals	DA FORM 2028-2
Equipment Inspection and Maintenance Worksheet	DA FORM 2404
Discrepancy in Shipment Report (DISREP)	SF-361
Report of Discrepancy (ROD)	SF-364
Quality Deficiency Report	SF-368

A-3. PAMPHLETS.

Index of Technical Publications	DA PAM 310-1
The Standard Army Publications System (STARPUBS)	DA PAM 310-10-2
The Army Maintenance Management System (TAMMS)	DA PAM 738-750

A-4. SERVICE AND TECHNICAL BULLETINS.

Vehicular Radio Sets and Authorized Installations	SB 11-131
Safety Measures to be Observed When Installing and Using Whip Antennas, Field-Type Masts, Towers, Antennas, and Metal Poles That Are Used With Communications, Radar, and Direction Finder Equipment	TB SIG 291
Installation of Blocking and Tiedown Kits for Shelter, Electrical Equipment, S-144()/G and S-318()/G on Truck, Cargo, 1 1/4-Ton, 6 x 6, M561 and Truck, Cargo; 1 1/4-Ton, 4 x 4, M715	TB 11-2300-374-14-1
Identification of Radioactive Items in the Army Supply System	TB 43-0116
Field Instructions for Painting and Preserving Electronics Command Equipment Including Camouflage Pattern Painting of Electrical Equipment Shelters	TB 43-0118
Instructions for Safe Handling and Identification of US Army Communications-Electronics Command Managed Radioactive Items in the Army Supply System	TB 43-0122
Maintenance and Repair Procedures for Shelters, Electrical Equipment S-141/G and S-141B/G (NSN 5410-00-752-9698), S-144A/G, S-144B/G, S-144C/G and S-144D/G (5410-00-542-2532), S-250/G (541 0-00-999-4935), S-250/G (Shielded) (5410-00-489- 6076), S-280/G (5410-00-999-5269), S-280A/G (5410-00-999- 6022), S-280B/G (5410-00-117-2868), S-280B/G (Shielded) (5410-00-001-4093), S-280C/G and S-318/G and S-318A/G (5410-00-116-7086)	TB 43-0124

A-5. FIELD MANUALS.

First Aid for Soldiers FM 21-11

A-6. TECHNICAL MANUALS.

Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Air Conditioner, Wall or Base Mounted, Air Cooled; Self-Contained, Electric Motor Driven; 6,000 BTU/HR, 115 V, 1 Phase, 2 Wire, 50/60 Cycle (Redmanson Model CE-6A-60A) (NSN 4210-00-926-1161) and 208 V, 3 Phase, 4 Wire, 400 Cycle (Redmanson Model CE-6A-400A) (4120-00-926-1162) TM 5-4120-289-15

Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Space, Fuel Oil and Gasoline: 15,000 Btu/Hr Output, DC 24V (Hupp Model MH15B3C-1) (FSN 4520-878-9393) TM 5-4520-211-14

Control Group AN/GRA-6 TM 11-5038

Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tool Lists: Shelter, Electrical Equipment S-318/G TM 11-5410-212-15P

Operator's and Organizational Maintenance Repair Parts and Special Tools List for Shelter, Electrical Equipment S-250/G (NSN 5410-00-999-4935) TM 11-5410-214-12P

Operator and Organizational Maintenance Manual: Telephone Set, TA-312/PT (NSN 5805-00-543-0012) TM 11-5805-201-12

Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual; Modem, Radio Teletypewriter MD-522/GRC (NSN 5815-00-999-5277) TM 11-5805-387-15-1

Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Radio Teletypewriter Modem, MD-522A/GRC (NSN 5815-00-919-4800) TM 11-5805-387-15-2

Organizational Repair Parts List: Modem, Radio Teletypewriter MD-522A/GRC TM 11-5805-387-20P-2

Operator's and Organizational Maintenance Manual: Teletypewriter Sets, AN/FGC-20 (NSN 5815-00-503-2652), AN/FGC-20X (5815-00-392-7743), AN/FGC-21 (5815-00-503-2653), AN/FGC-66 (5815-00-817-9277), AN/FGC-159 and AN/FGC-159X (5815-00-561-7964), AN/FGC-160 (5815-00-025-9036), AN/FGC-177 (5815-01-017-3780), AN/UGC-4 (5815-00-557-5970), AN/UGC-29 (5815-00-082-4199), AN/UGC-29X (5815-00-032-4200) and Teleprinter, TT-259/FG (5815-00-688-8761) (TO 31W4-2FGC20-31) TM 11-5815-200-12

Operator's and Organizational Maintenance Manual for Teletypewriter Sets AN/PGC-1 and AN/PGC-3 and Teletypewriters TT-4A/TG, 11-4B/TG, TT-4C/TG, TT-335/TG, TT-537/TG, TT-698/TG, TT-698A/TG, TT-698B/TG, TT-722/TG, and TT-722A/TG TM 11-5815-206-12

Operator's and Organizational Maintenance Manual: Teletypewriter Sets AN/GGC-3 (NSN 5815-00-503-3309), AN/GGC-3A (5815-00-581-9751), AN/GGC-53 (5815-01-012-8772), and AN/GGC-53A (5815-01-017-0956), and Teletypewriter Reperforator-Transmitters TT-76/GGC (581 5-00-503-2760), TT-76A/GGC, TT-76B/GGC, TT-76C/GGC (5815-00-553-6061), TT-699/GGC (5815-01-012-8446), TT-699A/GGC, TT-699B/GGC and TT-699C/GGC (5815-01-017-9166) TM 11-5815-238-12

A-6. TECHNICAL MANUALS. (CONT)

Operator's Manual: Radio Teletypewriter Sets AN/GRC-122 (NSN 5815-00-401-9719), AN/GRC-122A (NSN 5815-00-401-9719), AN/GRC-122B (NSN 5815-00-937-5295) AN/GRC-122C (NSN 5815-01-095-1211) AN/GRC-122D (NSN 5815-01-096-0428) AN/GRC-122E (NSN 5815-01-095-1212) AN/GRC-142 (NSN 5815-00-401-9720) AN/GRC-142A (NSN 5815-00-401-9720) AN/GRC-142B (NSN 5815-00-443-5511) AN/GRC-142C (NSN 5815-01-100-6815) AN/GRC-142D (NSN 5815-01-104-7264) AN/GRC-142E (NSN 5815-01-095-6258)	TM 11-5815-334-10
Hand Receipt Covering Contents of Components of End Item (COEIL), Basic Issue Items (BI), and Additional Authorization List (AAL) for RADIO TELETYPEWRITER SETS AN/GRC-122 (NSN 5815-00-401-9719), AN/GRC-122A (NSN 5815-00-401-9719), AN/GRC-122B (NSN 5815-00-937-5295), AN/GRC-122C (NSN 5815-01-095-1211), AN/GRC-122D (NSN 5815-01-096-0428), AN/GRC-122E (NSN 5815-01-095-1212), AN/GRC-142 (NSN 5815-00-401-9720), AN/GRC-142A (NSN 5815-00-401-9720), AN/GRC-142B (NSN 5815-00-443-5511), AN/GRC-142C (NSN 5815-01-100-6815), AN/GRC-142D (NSN 5815-01-104-7264), AN/GRC-142E (NSN 5815-01-095-6258)	TM 11-5815-334-10-HR
Organizational Maintenance Repair Parts and Special Tools List for Radio Teletypewriter Sets AN/GRC-122 and AN/GRC-122A (5815-00-401-9719), AN/GRC-122B (NSN 5815-00-937-5295), AN/GRC-142 and AN/GRC-142A (5815-00-401-9720), AN/GRC-142B (NSN 5815-00-443-5511) and AN/GRC-142C (5815-01-100-6815)	TM 11-5815-334-20P
Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Device, Low-Level Signaling TT-523/GGC (NSN 5815-00-937-6146) and TT-523A/GGC (NSN 5815-00-999-3048)	TM 11-5815-338-15
Operator's and Organizational Maintenance Manual for Terminal, Communications AN/UGC-74A(V)3 (NSN 5815-01-06-8194)	TM 11-5815-602-12
Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Antenna Group AN/GRA-50 (NSN 5985-00-892-0758)	TM 11-5820-467-15
Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools) for Antenna Group AN/G RA-50 (NSN 5985-00-892-0758)	TM 11-5820-467-24P
Organizational Maintenance Repair Parts and Special Tool Lists for Control Group AN/GRA-6 (NSN 5820-00-644-4554)	TM 11-5820-489-20P
Operator's and Organizational Maintenance Manual: Radio Sets AN/GRC-106 (NSN 5820-00-402-2263) and AN/GRC-106A (NSN 5820-00-223-7548)	TM 11-5820-520-12
Operator's and Organizational Maintenance Manual: Power Supplies PP-4763/GRC (NSN 5820-00-937-7690) and PP-4763A (5820-00-113-9768)	TM 11-5820-765-12
Operator's, Organizational, Direct Support, and General Support Maintenance Repair Parts and Special Tools Lists (Including Depot Maintenance Repair Parts and Special Tools): Dynamic Loudspeaker LS-166/U, (FSN 5965-243-640)	TM 11-5965-222-14P
Operator's, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Handset H-111/U	TM 11-5965-244-15P

A-6. TECHNICAL MANUALS. (CONT)

Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Motor-Generator PU-724/G (NSN 6125-00-617-1435)	TM 11-6125-252-15
Operator's, Organizational, Direct Support, General Support, and Depot Maintenance Manual: Standing-Wave-Ratio Power Meter ME-165/G (NSN 6625-00-682-4464)	TM 11-6625-333-15
Procedures for Destruction of Electronic Material to Prevent Enemy Use (Electronics Command)	TM 750-244-2

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL.

This appendix provides a summary of the maintenance operations for the Radio Teletypewriter Sets AN/GRC-122/142(*). 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.

B-2. MAINTENANCE FUNCTION.

Maintenance functions will be limited to and defined as follows:

- a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.
- b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.
- c. Service. Operations required periodically to keep an item in proper operating condition, ie, to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.
- d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.
- e. Replace. The act of substituting a serviceable, like-type part, subassembly, or module (component or assembly) for an unserviceable counterpart.
- f. Repair. The application of maintenance services (inspect, test, service, adjust, aline, calibrate, replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.
- g. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (ie, DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
- h. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc) considered in classifying Army equipments/components.

B-3. COLUMN ENTRIES, SECTION II.

- a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.
- b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.
- c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for the purpose of having the group numbers in the MAC and RPSTL coincide.
- d. Column 4, Maintenance Category. Column 4 specifies, by the listing of a worktime figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the function listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number of complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate worktime figures will be shown for each category. The number of task-hours specified by the worktime figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of column 4 are as follows:
 - C – Operator/Crew
 - O – Organizational
 - F – Direct Support
 - H – General Support
 - D – Depot
- e. Column 5, Tools and Equipment. Column 5 specifies by code those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.
- f. Column 6, Remarks. Column 6 contains an alphabetic code which is keyed to the remarks in section IV.

B-4. TOOL AND TEST EQUIPMENT REQUIREMENTS (SECTION III).

- a. Tool or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.
- b. Maintenance Category. The codes in this column indicate the maintenance category allocated to the tool or test equipment.
- c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.
- d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.
- e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code (5-digit) in parentheses for manufacturers.

B-5. REMARKS (SECTION IV).

- a. Reference Code. This code refers to the appropriate item in section II, column 6.
- b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in section II.

Section II MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS	
			C	O	F	H	D			
00	RADIO TELETYPE- WRITER SET AN/- GRC-122(*) AND AN/GRC-142(*)	Inspect	0.3						A	
		Inspect		0.6					B	
		Test	0.3						C	
		Test		1.0				2	D	
		Test			2.0			2	E	
		Service	0.5						F	
		Service		1.5					G	
		Adjust		0.3						
		Repair		0.2				1	H	
		Repair				2.0			2,3,4,5	I
		Overhaul					40.0		2,3,4,5	
Rebuild						80.0	2,3,4,5			
01	CONTROL GROUP AN/GRA-6	Replace		0.5				1	J	
02	MODEM MD-522(*)/GRC	Replace		1.0				1	K	
03	RADIO SET AN/GRC-106(*)	Replace		1.0				1	L	
04	TELEPHONE TA-312/PT	Replace		0.5				1	M	
05	TELETYPEWRITER SET TT-98/GF OR TT-722(*)/TG OR AN/UGC-74A(V)3	Replace		1.0				1	N Z BB	
06	REPERFORATOR TRANSMITTER TELETYPEWRITER TT-76/GRC	Replace		1.0				1	O	
07	POWER SUPPLY PP-4763(*)/GRC	Replace		1.0				1	P	
08	STANDING WAVE RATIO POWER METER ME-165(*)/G	Replace		1.0				1	Q	

MAINTENANCE ALLOCATION CHART (CONT)

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
09	LOW-LEVEL SIG- NALING DEVICE TT-523(*)/GGC	Replace		0.5				1	R
10	ANTENNA GROUP AN/G RA-50	Replace		0.5				1	S
11	DYNAMIC LOUDSPEAKER LS-166/U	Replace		0.5				1	T
12	HANDSET H-111/U	Replace		0.2				1	U
13	MOTOR GENERATOR PU-724/U or PU-724A/U	Replace		1.0				1	V AA
14	AIR CONDITIONER	Replace			8.0			1	W
15	HEATER 24	Replace		4.0				1	
16	CABLE ASSEMBLIES	Inspect Test Service Replace Repair	0.1 0.5	0.5 1.0	 1.0			1 3,4 3,4	A
17	REMOTE CONTROL ASSY C-7279/ GRC-142	Inspect Inspect Test Service Replace Repair Overhaul Rebuild	0.1	0.3 0.3 0.3 0.1	 1.0	 2.0	 3.0	1 3,4 3,4 3,4	A A

Section II MAINTENANCE ALLOCATION CHART (CONT)

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
18	POWER DISTRIBUTION PANEL SB-3358/GRC (AN/GRC-142A, -122A, -142B, -122B ONLY)	Inspect	0.1						A
		Inspect		0.2					C
		Test	0.1		0.4			2	F
		Service	0.2						
		Service		0.3					
		Replace			1.0			3,4	
		Repair			1.0			3,4	
		Overhaul				4.0		3,4	
Rebuild						8.0	3,4		
19	POWER DISTRIBUTION PANEL SB-3018/GRC (AN/GRC-142, -122 ONLY)	Inspect	0.1						A
		Inspect		0.2					C
		Test	0.1						F
		Test			0.5			2	
		Service	0.2						
		Service		0.6					
		Replace			1.0			3,4	
		Repair			1.0			3,4	
Overhaul				4.0		3,4			
Rebuild						8.0	3,4		
20	SWITCH ASSEMBLY SA-1554/GRC-1&2 (AN/GRC-142, -122 ONLY)	Inspect	0.1						A
		Inspect		0.2					C
		Test	0.1						F
		Test			0.4			2	
		Service	0.2						
		Service		0.3					
		Replace			1.0			3,4	
		Repair			0.2				
Repair			1.0			3,4	H		
Overhaul				4.0		3,4			
Rebuild						8.0			
21	SWITCH BOX SA-1555/GRC-142 AN/GRC-142, -122 ONLY)	Inspect	0.1						A
		Inspect		0.2					C
		Test	0.1						F
		Test			0.4			2	
		Service	0.2						
		Service		0.3					
		Replace			1.0			3,4	
		Repair			1.0			3,4	
Overhaul				4.0		3,4			
Rebuild						8.0	3,4		

Section II MAINTENANCE ALLOCATION CHART (CONT)

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
22	SWITCH ASSEMBLY SA-1650/GRC (AN/GRC-14AA, -142B, -122A, -122B ONLY)	Inspect	0.1						
		Inspect		0.2					
		Test	0.1						
		Test			0.5				
		Service	0.2						
		Service		0.3					
		Replace			1.0				
		Repair		0.1					
		Repair				1.0			
23	POWER TERMINAL ASSEMBLY (AN/ GRC-142A, -142B ONLY)	Inspect	0.1						A
		Inspect		0.3					C
		Test	0.1						F
		Test			0.5			2	
		Service	0.2						
		Service		0.3					
		Replace			1.0			3,4	
		Repair			1.0			3,4	
		Overhaul				4.0		3,4	
24	AC ENTRANCE BOX (AN/GRC-142, -122 ONLY)	Inspect	0.1						A
		Inspect		0.3					C
		Test	0.1						F
		Test			0.4			2	
		Service	0.2						
		Service		0.3					
		Replace			1.0			3,4	
		Repair			1.0			3,4	
		Overhaul				4.0		3,4	
25	DC ENTRANCE BOX (AN/GRC-142, -122 ONLY)	Inspect	0.1						A
		Inspect		0.3					C
		Test	0.1						F
		Test			0.4			2	
		Service	0.2						
		Service		0.3					
		Replace			1.0			3,4	
		Repair			1.0			3,4	
		Overhaul				4.0		3,4	
25	DC ENTRANCE BOX (AN/GRC-142, -122 ONLY)	Rebuild					8.0	3,4	

Section II MAINTENANCE ALLOCATION CHART (CONT)

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS	
			C	O	F	H	D			
26	AC-DC DISTRI- BUTION BOX (AN-GRC-142, 122 ONLY) J-2776/GRC-142	Inspect	0.1						A	
		Inspect		0.3					C	
		Test	0.1						C	
		Test			0.3			2	F	
		Service	0.2							
		Service		0.3						
		Replace			1.0				3,4	
		Repair			1.0				3,4	
27	INTERCONNECTING BOX J-2728/ GRC-142	Overhaul				4.0		3,4		
		Rebuild					8.0	3,4		
		Inspect	0.1						A	
		Inspect		0.3					C	
		Test	0.1						C	
		Test			0.2			2	F	
		Service	0.2							
		Service		0.3						
28	POWER/SIGNAL ENTRANCE BOX (AN/GRC-142A, -142B, -122A, -122B, 142 D/E, -122 D/E ONLY)	Replace		0.1					3,4	
		Repair			0.5			2	C	
		Overhaul	0.2						F	
		Rebuild		0.3						
		Inspect	0.1						A	
		Inspect		0.3					C	
		Test	0.1						C	
		Test			0.5			2	F	
29	POWER DISTRIBU- TION PANEL SB-4196/GRC (SC-D-960705) (AN/GRC-142 D/E, -122 D/E ONLY)	Service	0.2							
		Service		0.3						
		Replace			1.0				3,4	
		Repair			1.0				3,4	
		Overhaul				4.0			3,4	
		Rebuild					8.0		3,4	
		Inspect	0.1							A
		Inspect		0.3						C
29	POWER DISTRIBU- TION PANEL SB-4196/GRC (SC-D-960705) (AN/GRC-142 D/E, -122 D/E ONLY)	Test	0.1						C	
		Test			0.4			5	F	
		Service	0.2							
		Service		0.3						
		Replace			1.0				3,4	
		Repair			1.0				3,4	
		Overhaul				4.0			3,4	
		Rebuild					8.0		3,4	

Section III TOOLS AND TEST EQUIPMENT REQUIREMENTS FOR AN/GRC-122/142(*)

TOOLS OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O	TOOL KIT, ELECTRONIC EQUIPMENT TK-101/G	5180-00-064-5178	
2	O,F	MULTIMETER DIGITAL AN/PSM-45	6625-01-139-2512	
3	F	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-00-605-0079	
4	F	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	5180-00-610-8177	
5	F	WRENCH, ADJUSTABLE, 10 INCH (25.4 CM)	5120-00-449-8083	

Section IV REMARKS

REFERENCE CODE	REMARKS
A	Exterior only.
B	Connector and cables to shelters.
C	Operational testing only.
D	Shelter cabling.
E	All tests.
F	Preventive maintenance only.
G	All servicing.
H	By replacement of knob and fuses.
I	All repairs.
J	See separate MAC in TM 11-5038.
K	See separate MAC IN TM 11-5805-387-15-1 for MD-522/GRC and TM 11-5805-387-15-1 for MD-522A/GRC.
L	See separate MAC in TM 11-5820-520-12.
M	See separate MAC in TM 11-5805-201-12.
N	See separate MAC in TM 11-5815-200-12.
O	See separate MAC in TM 11-5815-238-12.
P	See separate MAC in TM 11-5820-765-12.
Q	See separate MAC in TM 11-6625-333-15.
R	See separate MAC in TM 11-5815-338-15.
S	See separate MAC in TM 11-5820-467-15.
T	See repair list in TM 11-5965-222-14P.

REMARKS (CONT)

REFERENCE CODE	REMARKS
U	See separate MAC in TM 11-5965-244-15P.
V	See separate MAC in TM 11-6125-252-15.
W	Supported by TROSCOM.
X	See separate MAC in TM 5-4520-211-14, or TM 5-4520-236-14, or TM 5-4250-240-14, or TM 5-4250-242-14.
Y	By replacement of indicator light only.
Z	See separate MAC in TM 11-5815-206-12.
AA	See separate MAC in TM 11-6130-426-13&P.
BB	See separate MAC in TM 11-5815-602-12.

APPENDIX C

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I INTRODUCTION

C-1. SCOPE.

This appendix lists expendable supplies and materials you will need to operate and maintain the Radio Teletypewriter set. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

C-2. EXPLANATION OF COLUMNS.

a. Column 1, Item Number. This number is assigned to the entry in the listing, and is referenced in the narrative instructions to identify the material (eg, Use Cleaning Compound, Item 5, app E).

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

- C - Operator/Crew
- O - Organizational Maintenance/Aviation Unit Maintenance
- F - Direct Support Maintenance/Aviation Intermediate Maintenance
- H - General Support Maintenance

c. Column 3, National Stock Number. This is the National stock number assigned to the item. Use it to request or requisition the item.

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

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

Section II EXPENDABLE SUPPLIES AND MATERIALS LISTS

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION (FSCM)	(5) U/M
1	O	8020-00-721-9657	Brush, Paint, 2 In. (5.08 Cm) (MB-451) (81848)	ea
2	O	8305-00-222-2433	Cloth, Cheesecloth (CCCC660) (81348)	yd
3	O	8010-00-111-7937	Paint, Forest Green ALKYD Enamel (TB-43-0118) (MILE-52798A) (81349)	gal
4	C		Paper, Fanfold, Single Ply	bx
5	C		Paper, Fanfold, 3-Ply	bx
6	C	7530-00-223-7966	Paper, Roll, Single Ply (81348)	rl
7	C	7530-00-223-7966	Paper, Teletypewriter (UU-P-547) (81348)	ea
8	C	7510-00-281-5234	Pencil, Number 2 (SS-P-166) (81348)	doz
9	C	7510-00-082-2648	Ribbon, Printing, Teletypewriter (DDD-R-30G) (81348)	ea
10	C	7510-00-923-0252	Ribbon, Teletypewriter SM-B-765911 (80063)	ea
11	C	7530-00-634-6237	Tape, Teletypewriter, Paper (UU-T-137) (81348)	ea
12	C	7920-00-965-5700	Towel, Machinery CCC-C-444 (81348)	ea
13	C	6850-00-105-3084	Trichlorotrifluoroethane FREONT 16 Oz (453.58 g) can (18598)	oz

GLOSSARY

ABBREVIATIONS

ant	Antenna
cw	Continuous Wave
fsk	Frequency Shift Keying
mwo	Modification Work Order
nsk	Narrow Shift Key
ow	Order Wire
owr	One Way Reversible
rcvr	Receiver
rf	Radio Frequency
ssb	Single Sideband
tty	Teletypewriter
vac	Volts Alternating Current
vdc	Volts Direct Current

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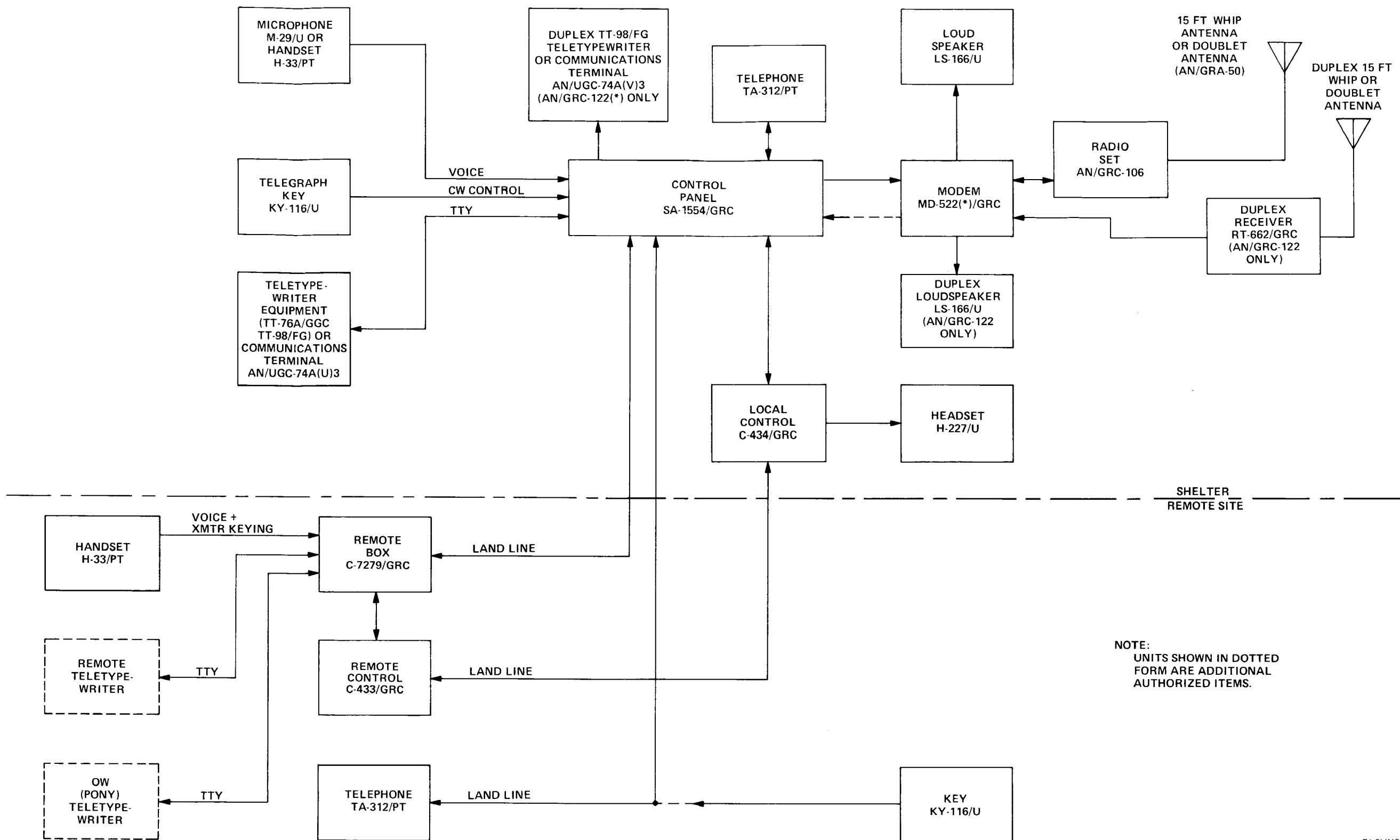
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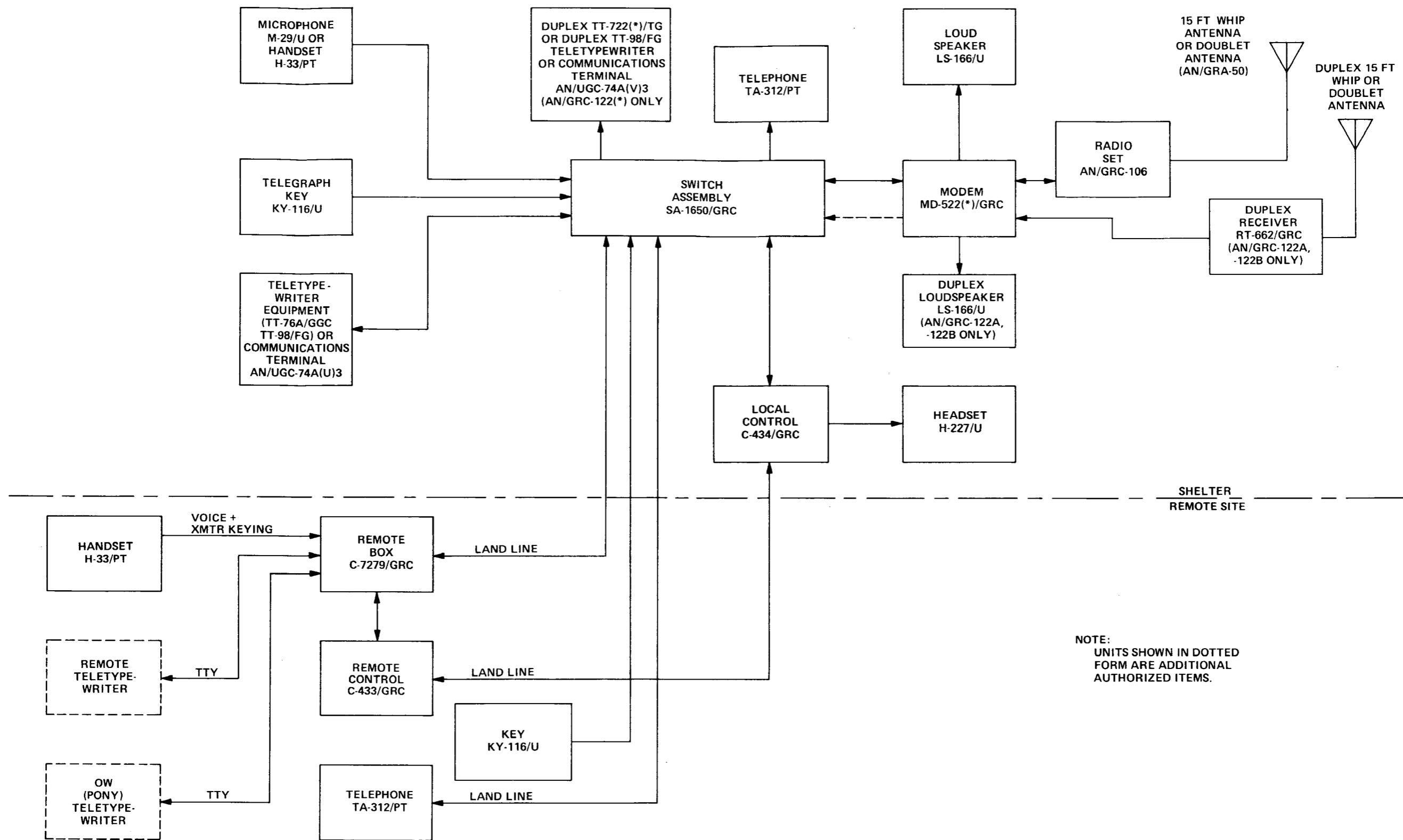
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NOTE:
UNITS SHOWN IN DOTTED
FORM ARE ADDITIONAL
AUTHORIZED ITEMS.

EL6VX001

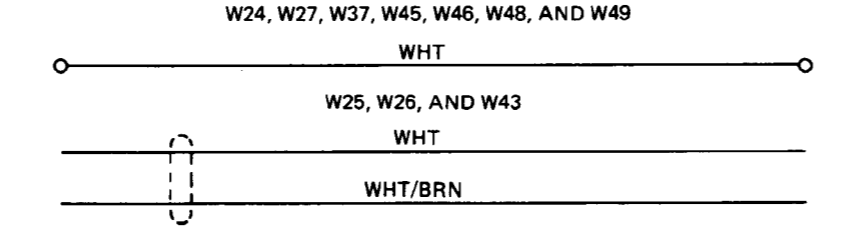
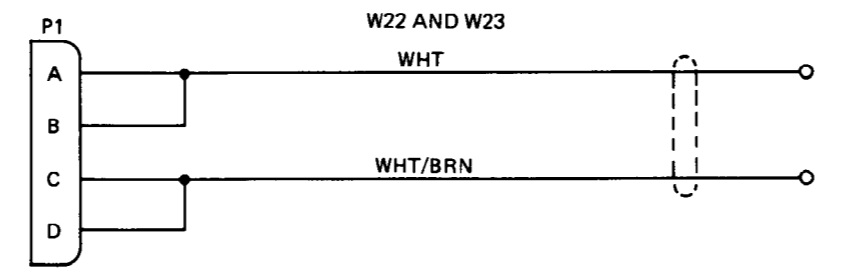
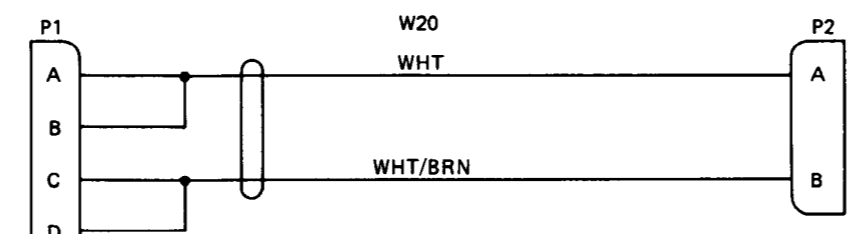
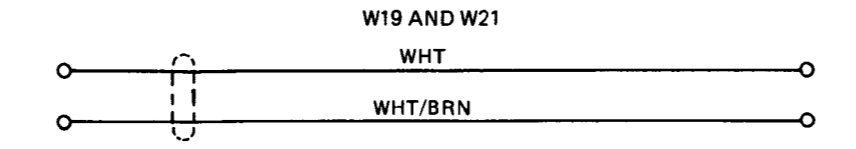
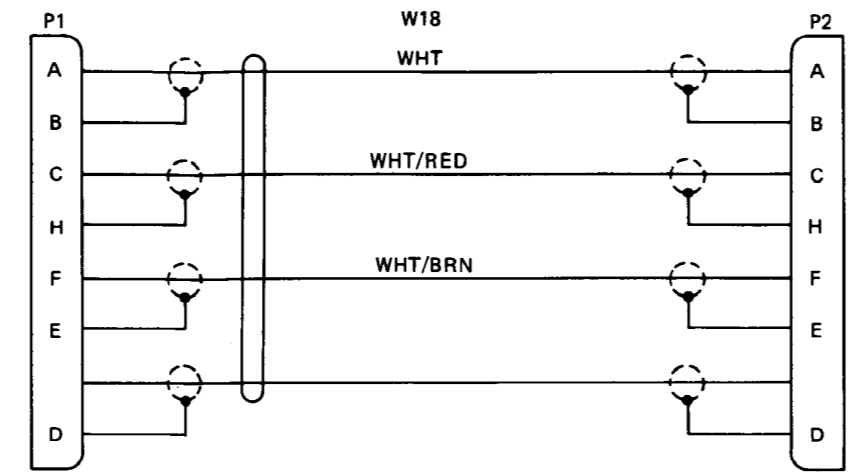
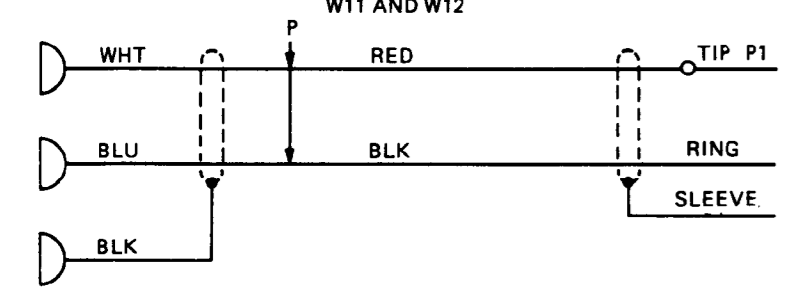
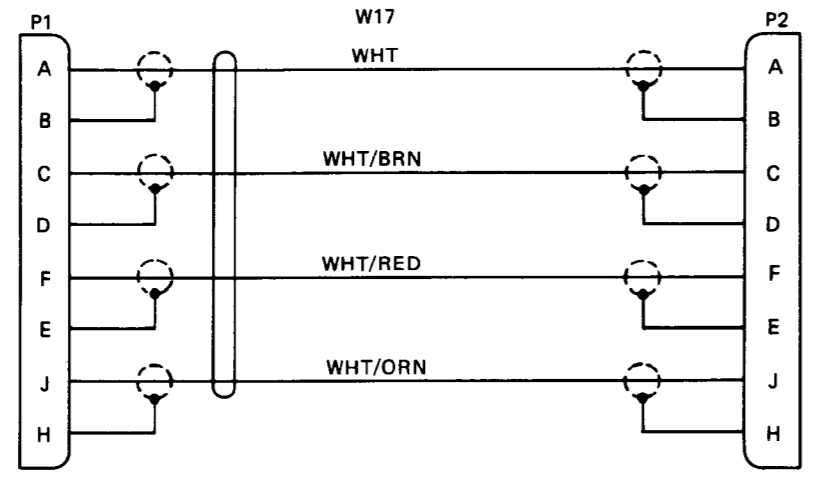
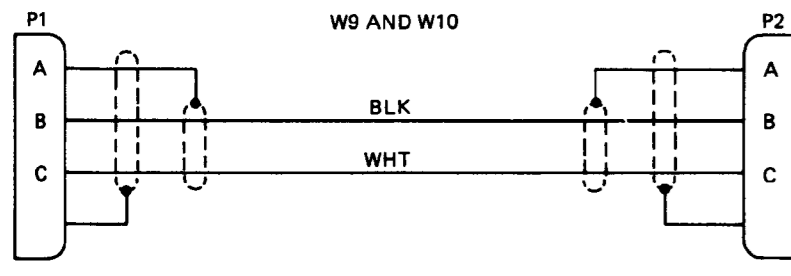
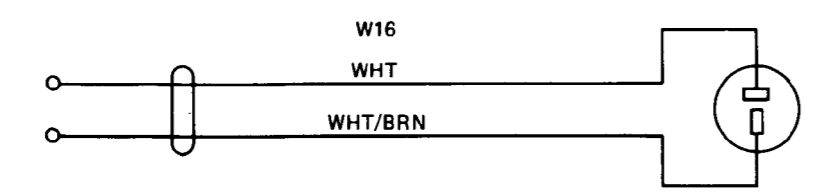
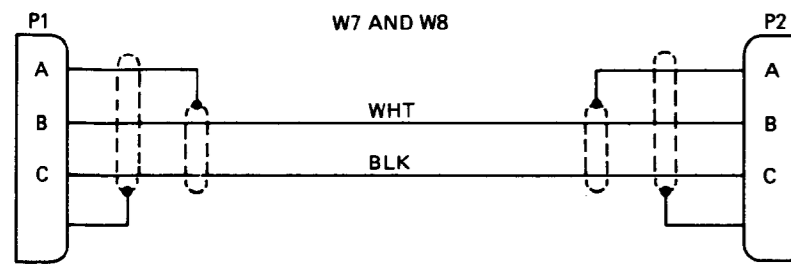
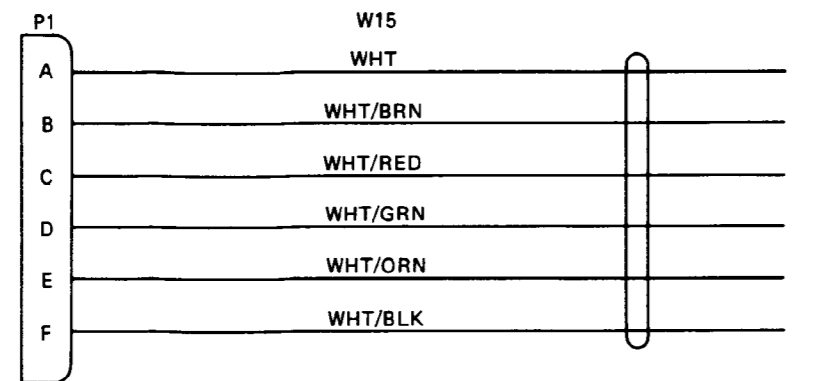
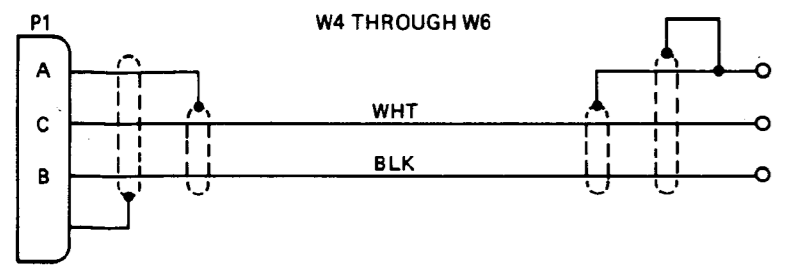
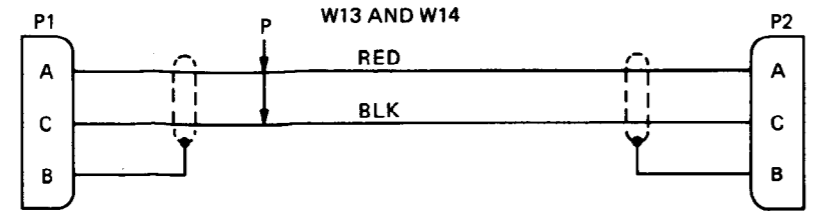
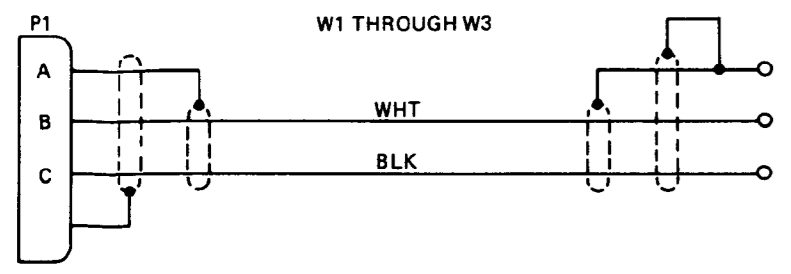
FO-1. Interconnection of Units Within Shelter Remote Site AN/GRC-122/142 Plain and C.



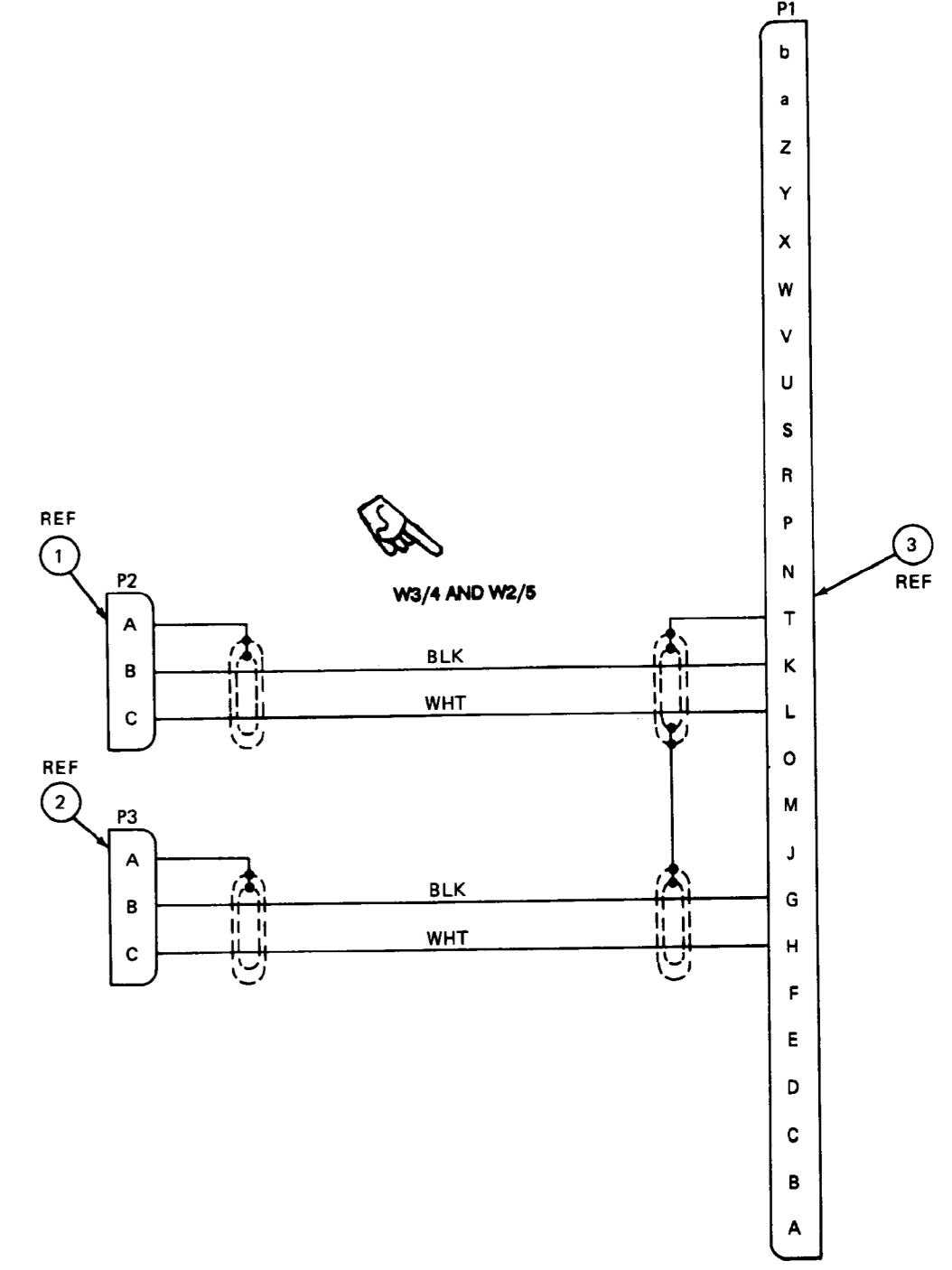
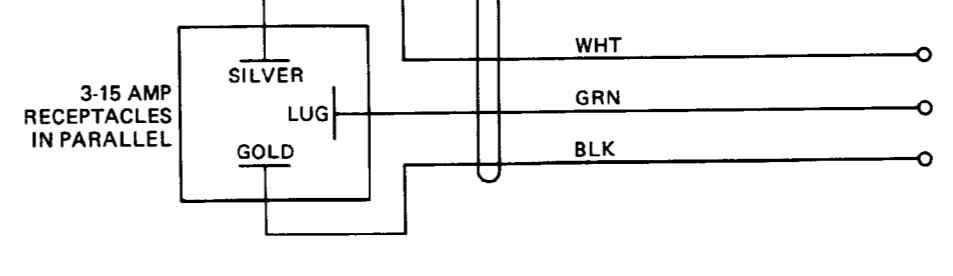
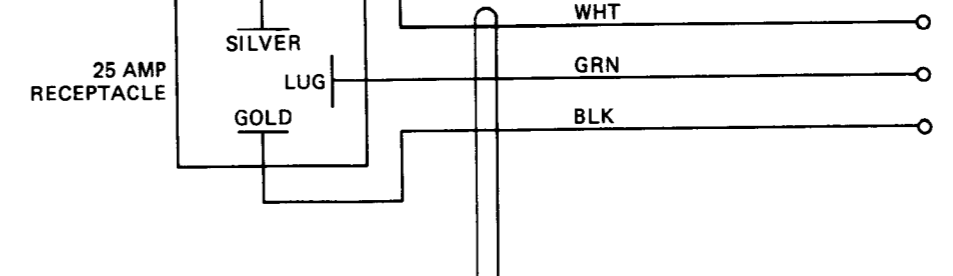
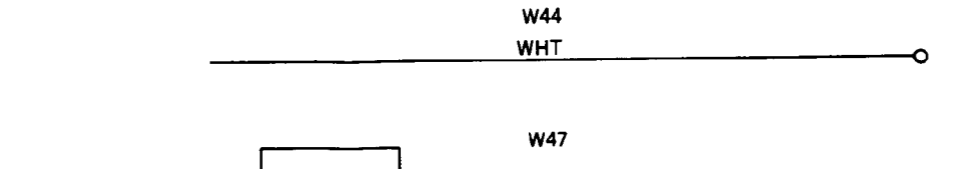
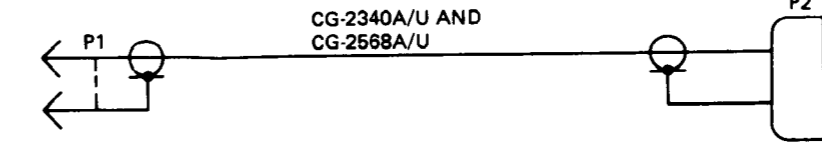
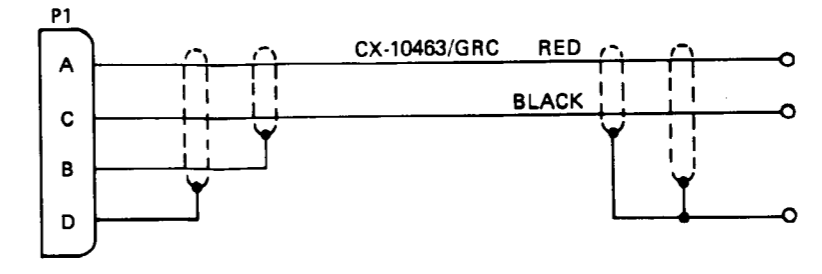
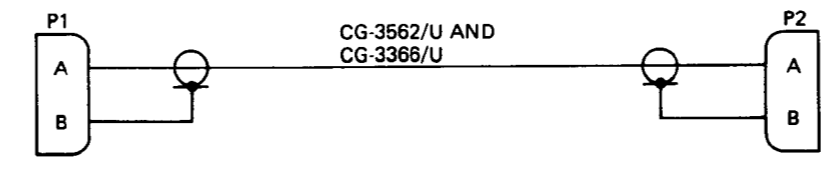
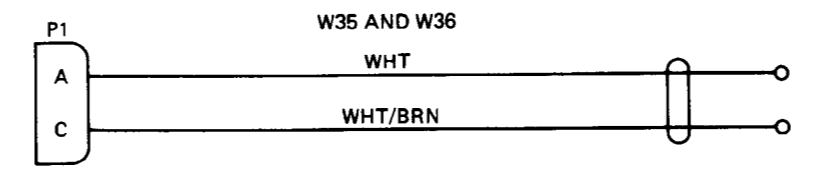
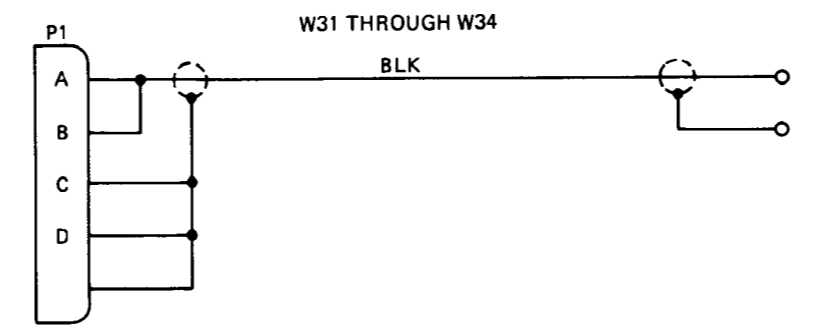
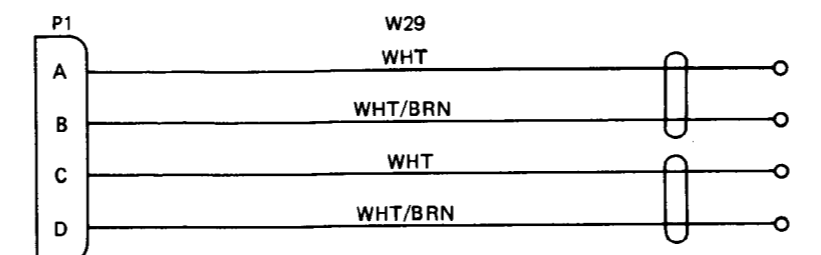
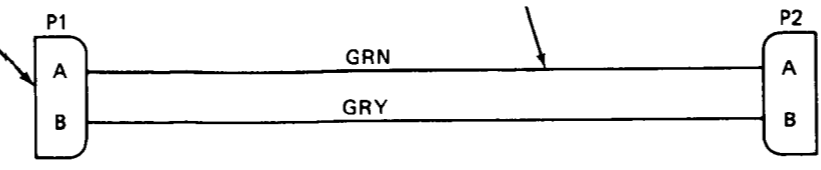
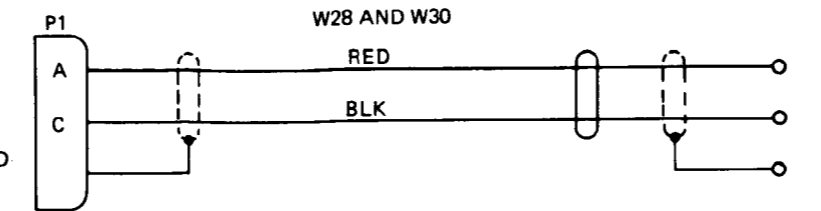
NOTE:
UNITS SHOWN IN DOTTED
FORM ARE ADDITIONAL
AUTHORIZED ITEMS.

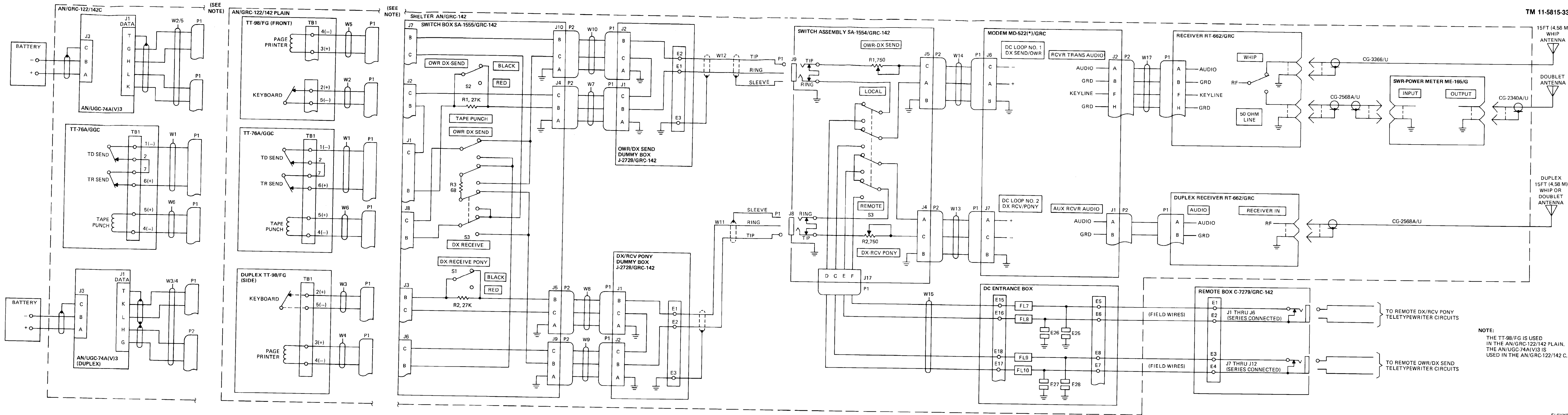
EL6VX002

FO-2. Interconnection of Units Within
AN/GRC-122/142A, B, D, and E.



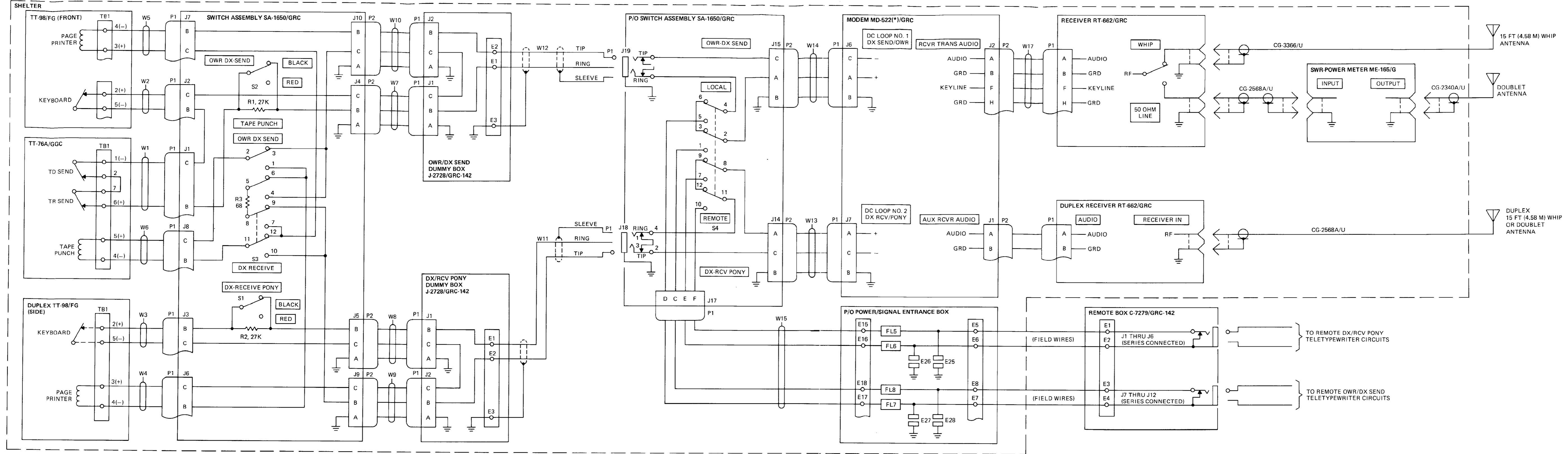
NOTE: CX-12330/G USED WITH HUNTER HEATER ONLY.





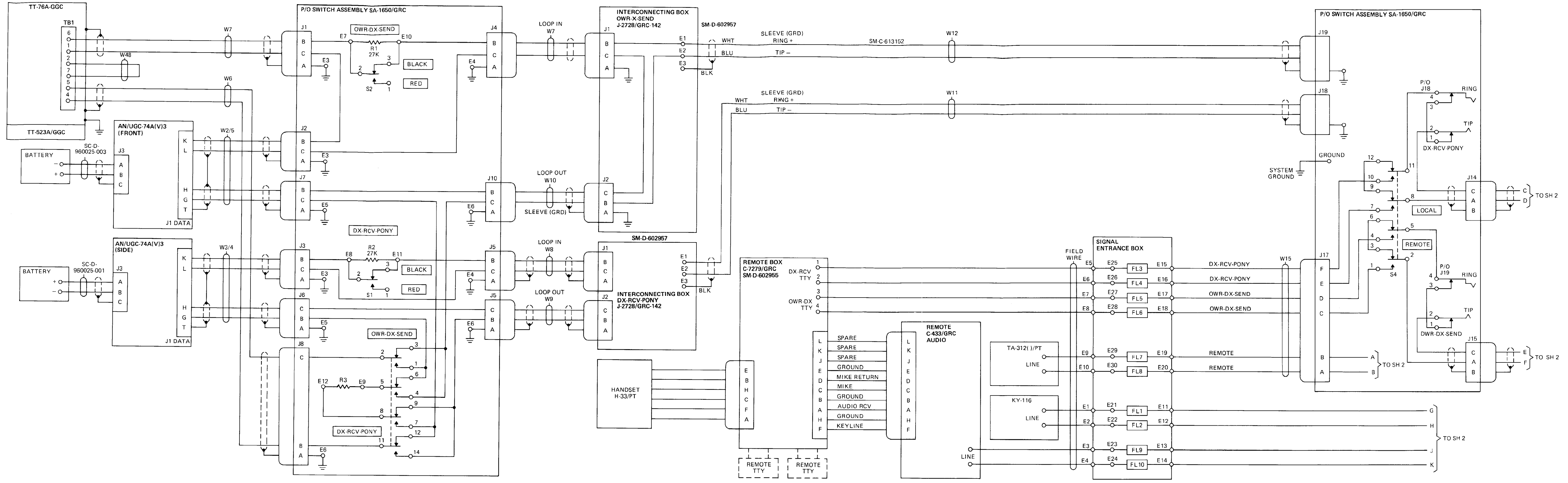
NOTE:
 THE TT-98/FG IS USED
 IN THE AN/GRC-122/142 PLAIN.
 THE AN/UGC-74A(V)3 IS
 USED IN THE AN/GRC-122/142 C.

FO-4. Teletypewriter Signal Circuits,
 AN/GRC-122/142 Plain and C.



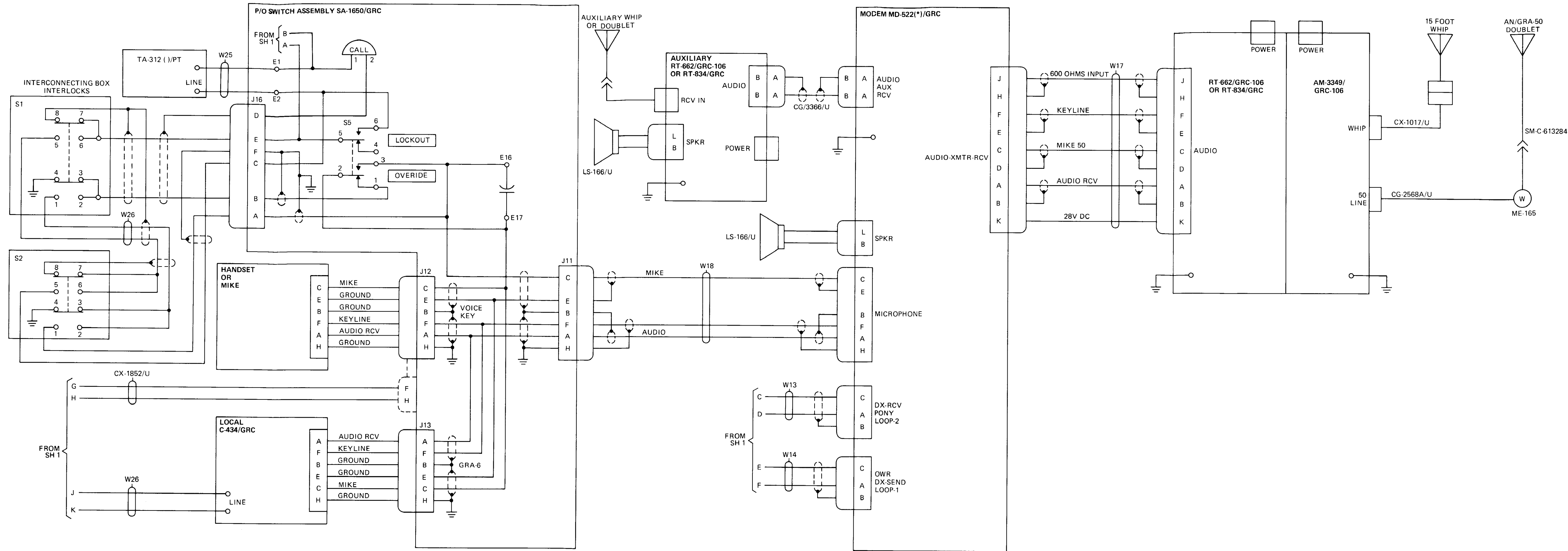
EL6VX061

FO-5. Teletypewriter Signal Circuits, AN/GRC-122/142A and B.



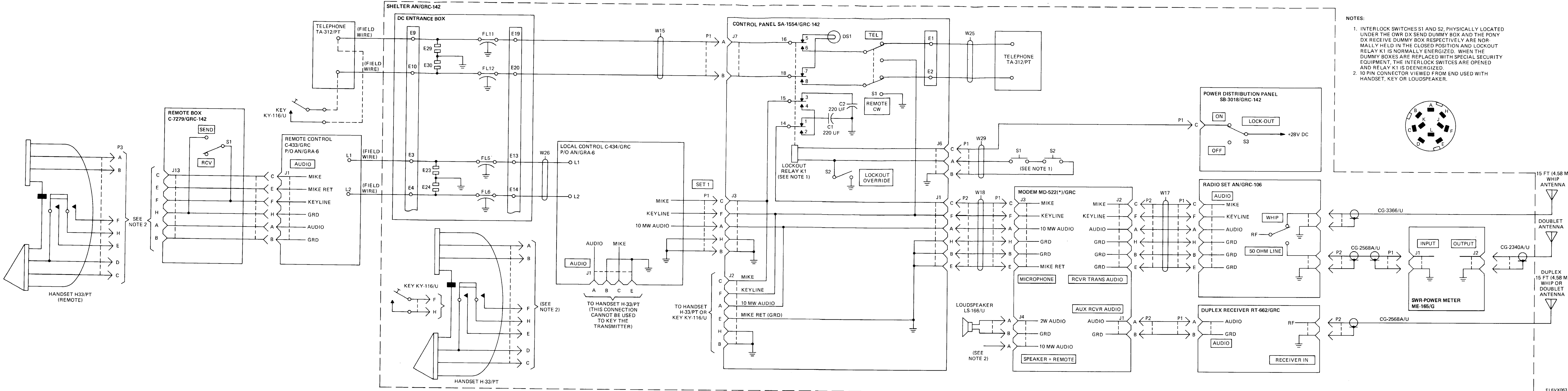
EL6VX062

FO-6. Teletypewriter Signal Circuits, AN/GRC-122/142D and E (Sheet 1 of 2).

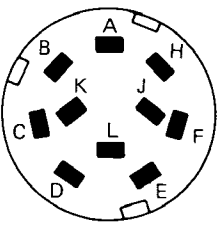


FO-6. Teletypewriter Signal Circuits, AN/GRC-122/142D and E (Sheet 2 of 2).

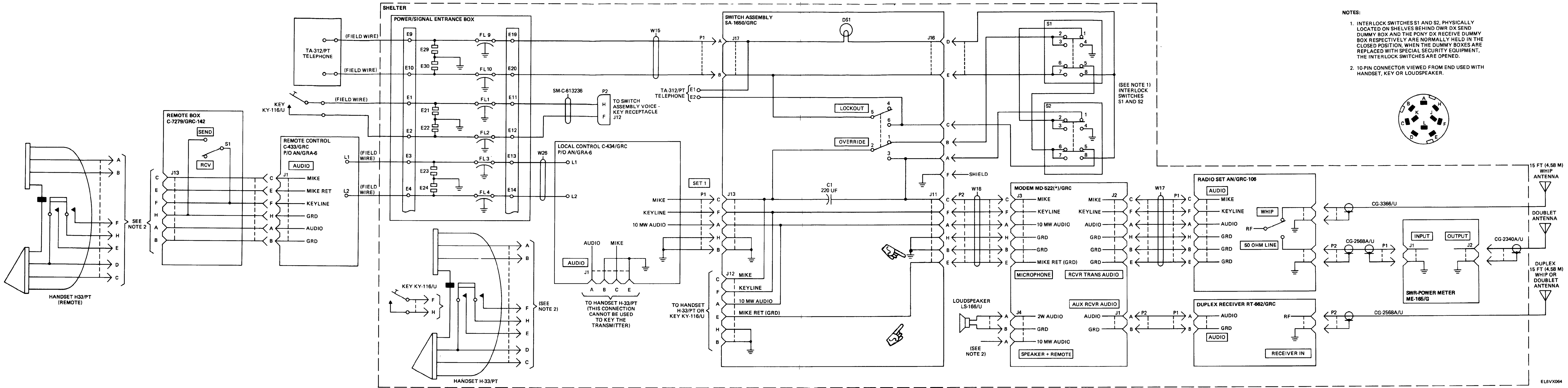
EL6VX067



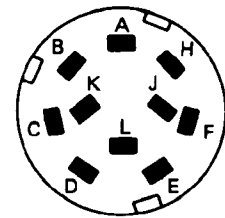
- NOTES:
- INTERLOCK SWITCHES S1 AND S2, PHYSICALLY LOCATED UNDER THE OWR DX SEND DUMMY BOX AND THE PONY DX RECEIVE DUMMY BOX RESPECTIVELY ARE NORMALLY HELD IN THE CLOSED POSITION AND LOCKOUT RELAY K1 IS NORMALLY ENERGIZED. WHEN THE DUMMY BOXES ARE REPLACED WITH SPECIAL SECURITY EQUIPMENT, THE INTERLOCK SWITCHES ARE OPENED AND RELAY K1 IS DEENERGIZED.
 - 10 PIN CONNECTOR VIEWED FROM END USED WITH HANDSET, KEY OR LOUDSPEAKER.



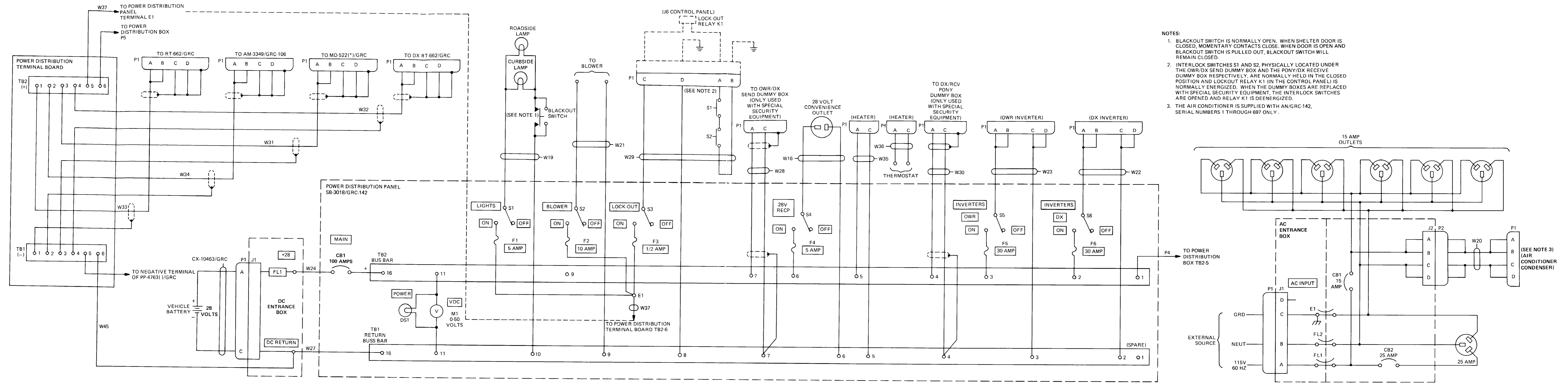
FO-7. Voice, Telephone and CW Circuits, AN/GRC-122/142 Plain and C.



- NOTES:
- INTERLOCK SWITCHES S1 AND S2, PHYSICALLY LOCATED ON SHELVES BEHIND OWR DX SEND DUMMY BOX AND THE PONY DX RECEIVE DUMMY BOX RESPECTIVELY ARE NORMALLY HELD IN THE CLOSED POSITION, WHEN THE DUMMY BOXES ARE REPLACED WITH SPECIAL SECURITY EQUIPMENT, THE INTERLOCK SWITCHES ARE OPENED.
 - 10-PIN CONNECTOR VIEWED FROM END USED WITH HANDSET, KEY OR LOUDSPEAKER.



FO-8. Voice, Telephone and CW Circuits, AN/GRC-122/142A, B, D, and E.

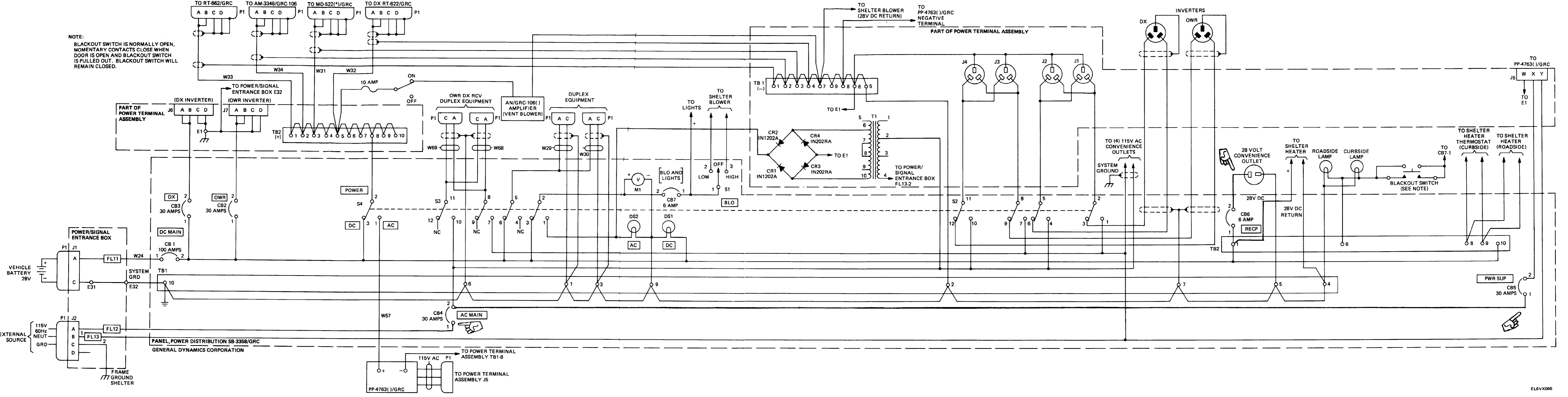


- NOTES:
1. BLACKOUT SWITCH IS NORMALLY OPEN. WHEN SHELTER DOOR IS CLOSED, MOMENTARY CONTACTS CLOSE. WHEN DOOR IS OPEN AND BLACKOUT SWITCH IS PULLED OUT, BLACKOUT SWITCH WILL REMAIN CLOSED.
 2. INTERLOCK SWITCHES S1 AND S2, PHYSICALLY LOCATED UNDER THE OWR/DX SEND DUMMY BOX AND THE PONY/DX RECEIVE DUMMY BOX RESPECTIVELY, ARE NORMALLY HELD IN THE CLOSED POSITION AND LOCKOUT RELAY K1 (IN THE CONTROL PANEL) IS NORMALLY ENERGIZED. WHEN THE DUMMY BOXES ARE REPLACED WITH SPECIAL SECURITY EQUIPMENT, THE INTERLOCK SWITCHES ARE OPENED AND RELAY K1 IS DEENERGIZED.
 3. THE AIR CONDITIONER IS SUPPLIED WITH AN/GRC-142, SERIAL NUMBERS 1 THROUGH 697 ONLY.

FO-9. Power Wiring Diagram, ANIGRC-122/142 Plain and C.

EL6VX065

NOTE:
BLACKOUT SWITCH IS NORMALLY OPEN,
MOMENTARY CONTACTS CLOSE WHEN
DOOR IS OPEN AND BLACKOUT SWITCH
IS PULLED OUT. BLACKOUT SWITCH WILL
REMAIN CLOSED.



EL6VX066

FO-10. Power Wiring Diagram,
AN/GRC-122/142A and B.

By Order of the Secretary of the Army:

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

Official:

DONALD J. DELANDRO
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-51, Operator's;
Organizational; Direct and General Support Maintenance requirements
for AN/GRC-142, AN/GRC-122.

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 Commander
 Stateside Army Depot
 ATTN: AMSTA-US
 Stateside, N.J. 07703-5007

DATE SENT 10 July 1975

PUBLICATION NUMBER
 TM 11-5840-340-12

PUBLICATION DATE
 23 Jan 74

PUBLICATION TITLE
 Radar Set AN/PRC-76

BE EXACT PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
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3-10	3-3		3-1
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5-6	5-8		
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F03

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

Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°.

REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.

Item 5, Function column. Change "2 db" to "3db."

REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.

Add new step f.1 to read, "Replace cover plate removed in step e.1, above."

REASON: To replace the cover plate.

Zone C 3. On J1-2, change "+24 VDC to "+5 VDC."

REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
 SSG I. M. DeSpirito 999-1776

SIGN HERE

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TEAR ALONG PERFORATED LINE

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AN/GRC-122/142

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DOD 314



TEAR ALONG PERFORATED LINE

Commander
US Army Communications-Electronics Command
and Fort Monmouth
ATTN: AMSEL-ME-MP
Fort Monmouth, New Jersey 07703-5007

THE METRIC SYSTEM AND EQUIVALENTS

WEIGHT MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
 1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
 1 Kilogram = 1000 Grams = 2.2 lb.
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
 1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
 1 Sq. Kilometer = 1,000,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
 1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

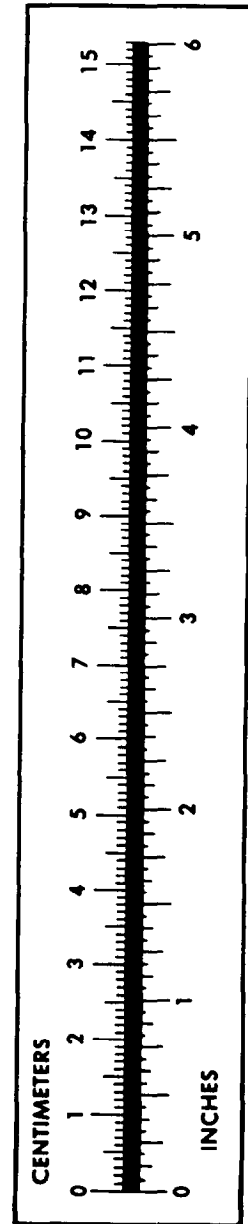
TEMPERATURE

$5/9(^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $9/5^{\circ}\text{C} + 32 = ^{\circ}\text{F}$

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
its	Liters	0.473
arts	Liters	0.946
allons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
ers	Gallons	0.264
ms	Ounces	0.035
ograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pounds-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
ometers per Liter	Miles per Gallon	2.354
ometers per Hour	Miles per Hour	0.621



PIN: 057430-001