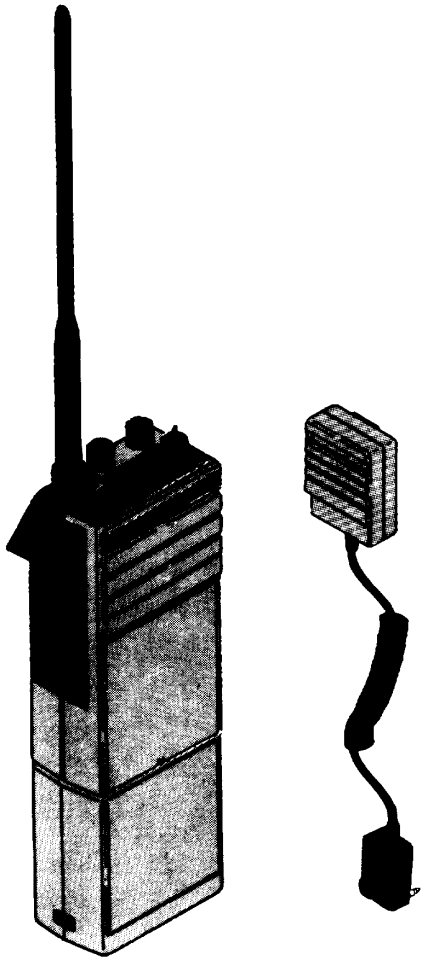
TECHNICAL MANUAL

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)



RADIO SET AN/PRC-127
(NSN 5820-01-266-5964)

HEADQUARTERS, DEPARTMENT OF THE ARMY

15 APRIL 1990

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

5 **DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL**

1 **IF POSSIBLE, TURN OFF THE ELECTRICAL POWER**

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

3 **SEND FOR HELP AS SOON AS POSSIBLE**

4 **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**

5

For artificial respiration, refer to FM 21-11.

WARNING

Alkaline and nickel-cadmium (Ni-Cd) batteries can explode causing injury to personnel and/or damage to equipment. DO NOT puncture, mutilate, crush, or heat batteries. DO NOT USE batteries which are damaged, swollen, or leaking.

WARNING

DO NOT TOUCH hot battery compartment. If you hear a hissing sound, immediately turn off equipment and place equipment in a well-ventilated area or leave the area.

Technical Manual **HEADQUARTERS DEPARTMENT OF THE ARMY**
No. 11-5820-1048-24&P **Washington, DC, 15 April 1990**

Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List)

RADIO SET AN/PRC-1271 (NSN 5820-01-266-5964)

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 Form2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in back of this manual direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-ME-PS, Fort Monmouth, New Jersey 07703-5000. A reply will be furnished direct to you.

TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

HOW TO USE THIS MANUAL

Each chapter begins with an index that lists each paragraph or section in the chapter. Each section in the maintenance chapter also has an index that lists the procedures in the section and gives page numbers. Or you can look for the information you want in the alphabetical subject index at the back of the manual.

We got rid of as many words as we could and put in lots of illustrations to show just about everything you'll be doing to maintain your equipment.

The text is keyed to the illustrations with callout numbers (sometimes words). The callout numbers are in parentheses in the text.

So HOW DO YOU USE THIS MANUAL?

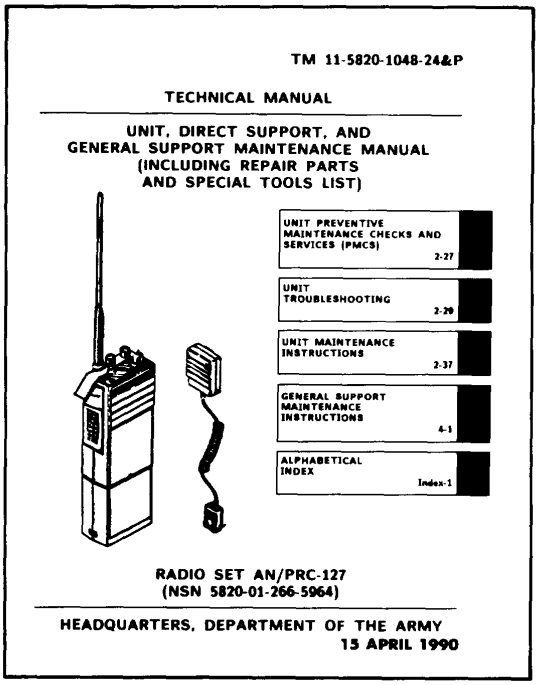
Like This:

1. Suppose the volume level is low on the radio set and you want to troubleshoot the unit.

2. Look at the cover and you'll see index boxes near the right- hand edge with subject titles in them. You'll find "UNIT TROUBLESHOOTING 2-29." You can skip over to page 2-29.

   OR

3. Bend the pages a bit and look at the edges. You'll see black bars ..n some of the pages that are lined up with the index boxes on the cover.



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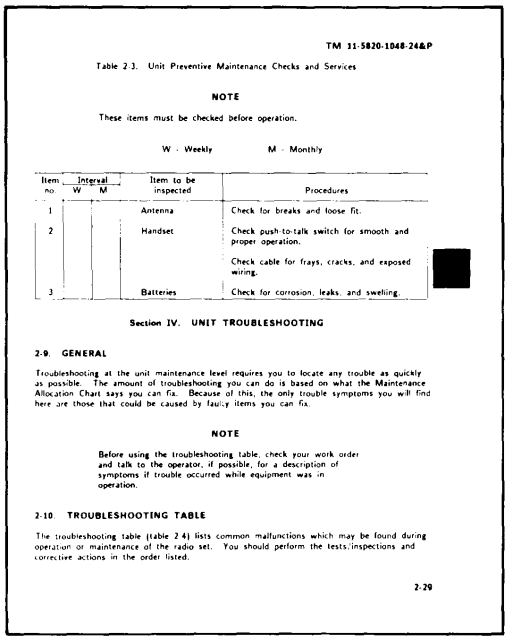


TM 11-5820-1048-24&P

Table 2-3. Unit Preventive Maintenance Checks and Services

NOTE

These items must be checked before operation.

W - Weekly M - Monthly

Item no	Interval W	Interval M	Item to be inspected	Procedures
1			Antenna	Check for breaks and loose fit.
2			Handset	Check push-to-talk switch for smooth and proper operation.
				Check cable for frays, cracks, and exposed wiring.
3			Batteries	Check for corrosion, leaks, and swelling.

Section IV. UNIT TROUBLESHOOTING

2-9. GENERAL

Troubleshooting at the unit maintenance level requires you to locate any trouble as quickly as possible. The amount of troubleshooting you can do is based on what the Maintenance Allocation Chart says you can fix. Because of this, the only trouble symptoms you will find here are those that could be caused by faulty items you can fix.

NOTE

Before using the troubleshooting table, check your work order and talk to the operator, if possible, for a description of symptoms if trouble occurred while equipment was in operation.

2-10. TROUBLESHOOTING TABLE

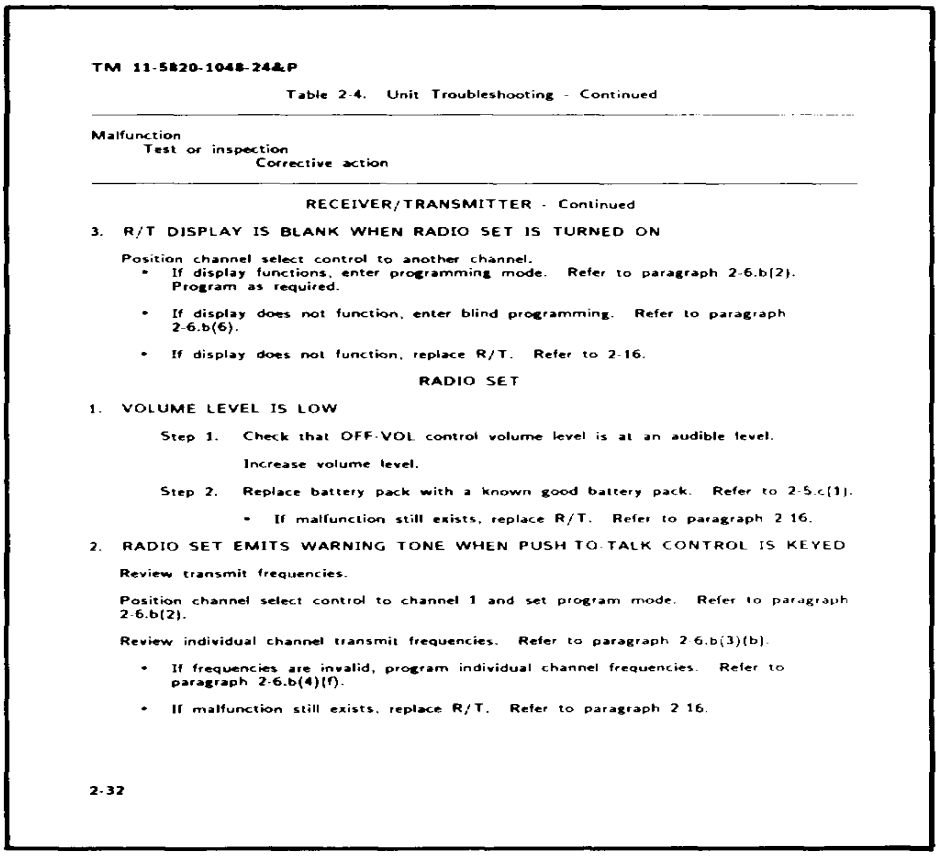
The troubleshooting table (table 2-4) lists common malfunctions which may be found during operation or maintenance of the radio set. You should perform the tests/inspections and corrective actions in the order listed.

2-29

AEAA140

4. If you put your thumbnail on the black bar that is lined up with the box on the cover for UNIT TROUBLESHOOTING and open the manual, you'll be on page 2-29.

5. On page 2-29, you'll find Section IV, UNIT TROUBLESHOOTING. Look through the troubleshooting table until you find the malfunction VOLUME LEVEL IS LOW.



TM 11-5820-1048-24&P

Table 2-4. Unit Troubleshooting - Continued

Malfunction Test or inspection Corrective action
RECEIVER/TRANSMITTER - Continued
3. R/T DISPLAY IS BLANK WHEN RADIO SET IS TURNED ON
Position channel select control to another channel. • If display functions, enter programming mode. Refer to paragraph 2-6.b(2). Program as required. • If display does not function, enter blind programming. Refer to paragraph 2-6.b(6). • If display does not function, replace R/T. Refer to 2-16.
RADIO SET
1. VOLUME LEVEL IS LOW
Step 1. Check that OFF-VOL control volume level is at an audible level. Increase volume level.
Step 2. Replace battery pack with a known good battery pack. Refer to 2-5.c(1). • If malfunction still exists, replace R/T. Refer to paragraph 2-16.
2. RADIO SET EMITS WARNING TONE WHEN PUSH-TO-TALK CONTROL IS KEYED
Review transmit frequencies. Position channel select control to channel 1 and set program mode. Refer to paragraph 2-6.b(2). Review individual channel transmit frequencies. Refer to paragraph 2-6.b(3)(b). • If frequencies are invalid, program individual channel frequencies. Refer to paragraph 2-6.b(4)(f). • If malfunction still exists, replace R/T. Refer to paragraph 2-16.

2-32

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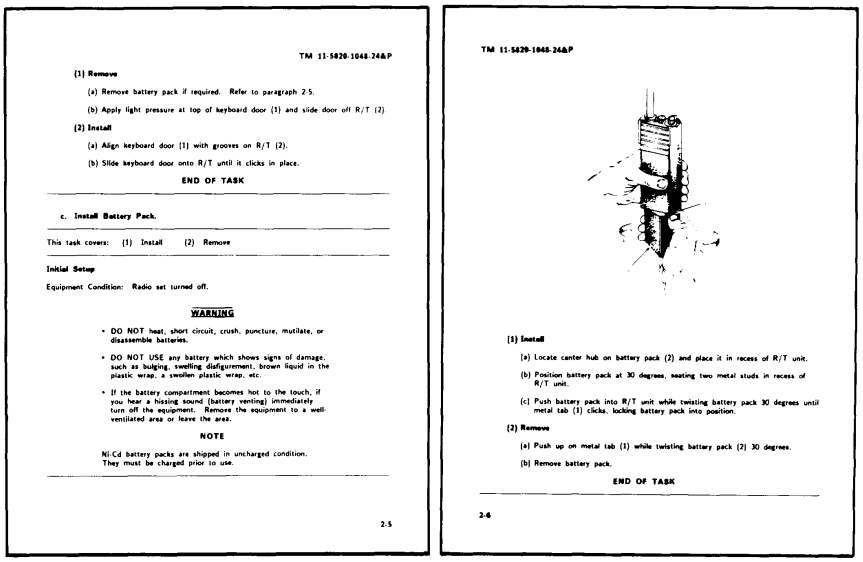
6. As you do the tests and corrective actions in the order listed, you will get to "Replace battery pack with a known good battery pack. Refer to paragraph 2-5.c."



TM 11-5820-1048-24&P

(1) Remove

(a) Remove battery pack if required. Refer to paragraph 2-5.

(b) Apply light pressure at top of keyboard door (1) and slide door off R/T (2).

(2) Install

(a) Align keyboard door (1) with grooves on R/T (2).

(b) Slide keyboard door onto R/T until it clicks in place.

END OF TASK

c. Install Battery Pack.

This task covers: (1) Install (2) Remove

Initial Setup

Equipment Condition: Radio set turned off.

WARNING

- DO NOT heat, short circuit, crush, puncture, mutilate, or disassemble batteries.
- DO NOT USE any battery which shows signs of damage, such as bulging, swelling disfigurement, brown liquid in the plastic wrap, a swollen plastic wrap, etc.
- If the battery compartment becomes hot to the touch, if you hear a hissing sound (battery venting) immediately turn off the equipment. Remove the equipment to a well-ventilated area or leave the area.

NOTE

Ni-Cd battery packs are shipped in uncharged condition. They must be charged prior to use.

2-5

TM 11-5820-1048-24&P

(1) Install

(a) Locate center hub on battery pack (2) and place it in recess of R/T unit.

(b) Position battery pack at 30 degrees, seating two metal studs in recess of R/T unit.

(c) Push battery pack into R/T unit while twisting battery pack 30 degrees until metal tab (1) clicks, locking battery pack into position.

(2) Remove

(a) Push up on metal tab (1) while twisting battery pack (2) 30 degrees.

(b) Remove battery pack.

END OF TASK

2-6

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7. Turn to paragraph 2-5.c and look at the procedure. The **"INITIAL SETUP"** section will tell you what tools, materials, and parts (if any) are needed to do this task. It will also tell you anything you must do before starting this task and gives general warnings about hazards that can exist while you do this task.

8. The procedure itself has a picture to show you where to look and what to look at, plus the steps you will do to perform the task.

9. Notice the numbered arrows. These are the callout numbers. As you read each step, we tell you where to look by including the call out number (in parentheses) after the name of each thing we call out.

10. Do the procedure, then check to see if you have corrected the malfunction.

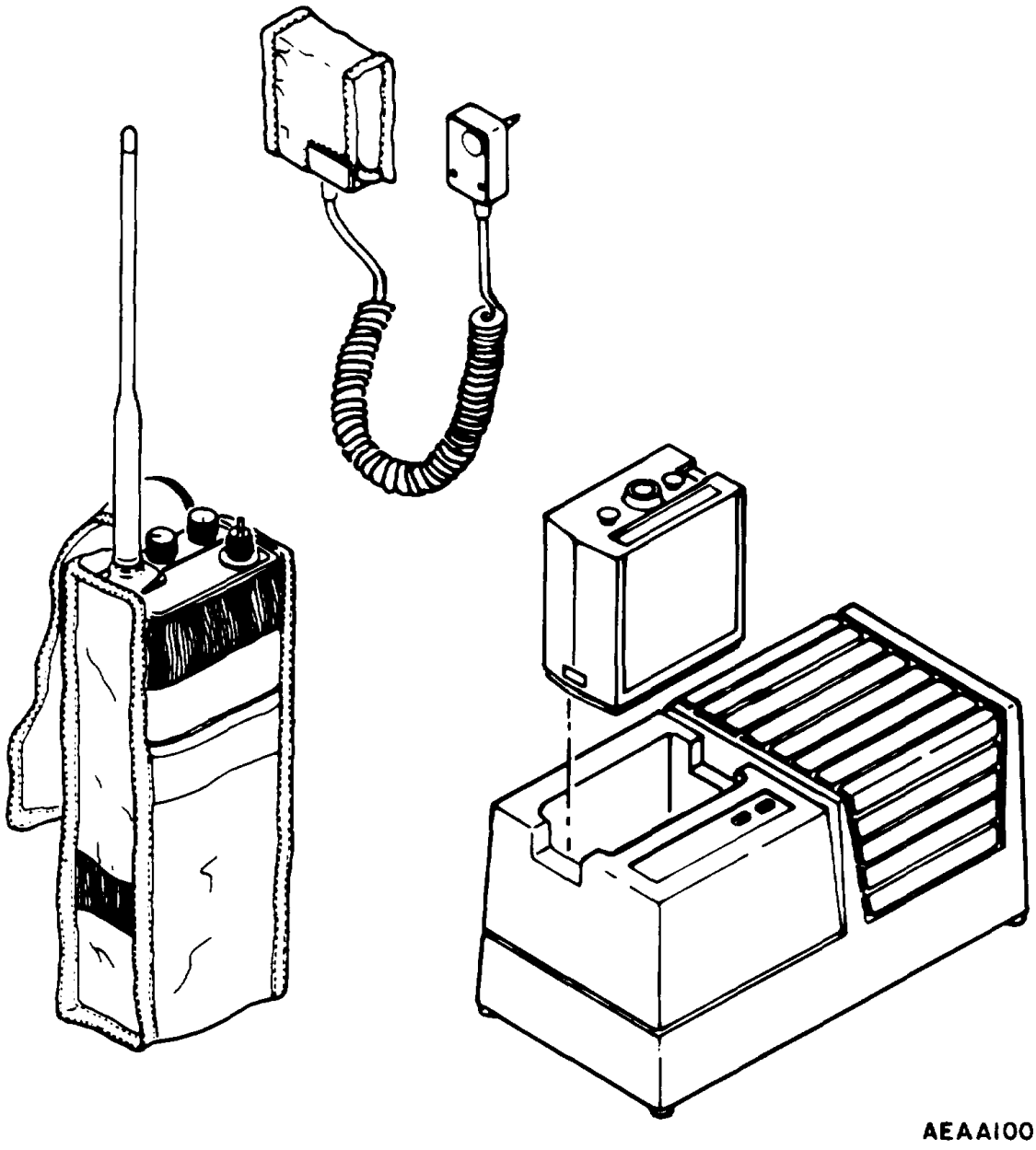


Figure 1-1. Radio Set AN/PRC-127

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE

a. *Type of Manual:* Unit, Direct Support and General Support Maintenance Manual.

b. Nomenclature: Radio Set AN/PRC-127

c. Purpose of Equipment: The AN/PRC-127 is a light weight, hand held portable radio set. It provides short range two way voice communications in applications where full environmental hardening and interoperability with other families of combat net radios are not required. Examples of such applications include but are not limited to internal communications for Combat Support and Combat Service Support Units.

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. *Report of Packaging and Handling Deficiencies*. Fill out and forward SF 364 Report of discrepancy (ROD) as prescribed in AR 735-11-2/DLAR 4140.55/SECNAVINST 4355.18/AFR 400-54/MCO 4430.3J.

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

1-3. CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS

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

1-4. DESTRUCTION OF ARMY ELECTRONICS MATERIEL

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

1-5. PREPARATION FOR STORAGE OR SHIPMENT

Instructions on preparation for storage or shipment are found in Chapter 2, Section VII.

1-6. QUALITY ASSURANCE/QUALITY CONTROL (QA/PC)

Repair and replacement standards for the radio set are given in the maintenance chapters of this manual. By replacing parts that do not meet the tolerances given by test equipment readings and adjustments, quality control of the equipment will be maintained.

1-7. NOMENCLATURE CROSS-REFERENCE LIST

Common names will be used when major system components are mentioned in this manual.

Common Name	Official Nomenclature
Radio set	Radio Set AN/PRC-127
R/T	Receiver/Transmitter RT-1594/PRC-127
Antenna	Antenna AS-3960/PRC-127

1-8. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

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

1-9. WARRANTY INFORMATION

Radio Set AN/PRC-127 is warranted by Bendix/King. Refer to Warranty Technical Bulletin TB 11-5820-1048-35.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-10. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

For information on characteristics, capabilities, and features of the AN/PRC-127, refer to TM 11-5820-1048-10.

1-11. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

For information on the location and description of the major components of the AN/PRC-127, refer to TM 11-5820-1048-10.

1-12. EQUIPMENT DATA

For equipment data on the AN/PRC-127, refer to TM 11-5820-1048-10.

1-13. SAFETY, CARE, AND HANDLING

Observe all WARNINGS, CAUTIONS, and NOTES given in this manual. The equipment covered in this manual can be extremely dangerous if these instructions are not followed.

Section III. PRINCIPLES OF OPERATION

1-14. GENERAL FUNCTIONAL DESCRIPTION

a. This section provides a functional description of the R/T. The functional description is based on the level of maintenance authorized by the Maintenance Allocation Chart (MAC), Appendix B. Figure 1-2 is a functional block diagram of the radio set described in the following paragraphs.

b. The radio set provides for operator selection of up to 14 independent preset channels in the 136-to 160-MHz band. A microprocessor and a nonvolatile programmable memory are used to provide the independent preset channels capability. The radio set is also equipped with CODE GUARD Tl circuitry that allows one radio or a group of radios to be selectively called within a system. CODE GUARD TM is a feature used in commercial versions of the radio set. The CODE GUARD T" function is present in the R/T produced for the Army. Because CODE GUARD TM is not considered an operational requirement, it is not covered by warranty. The programming instructions in this manual disable the CODE GUARDTM feature so that it will not interfere with normal operation.

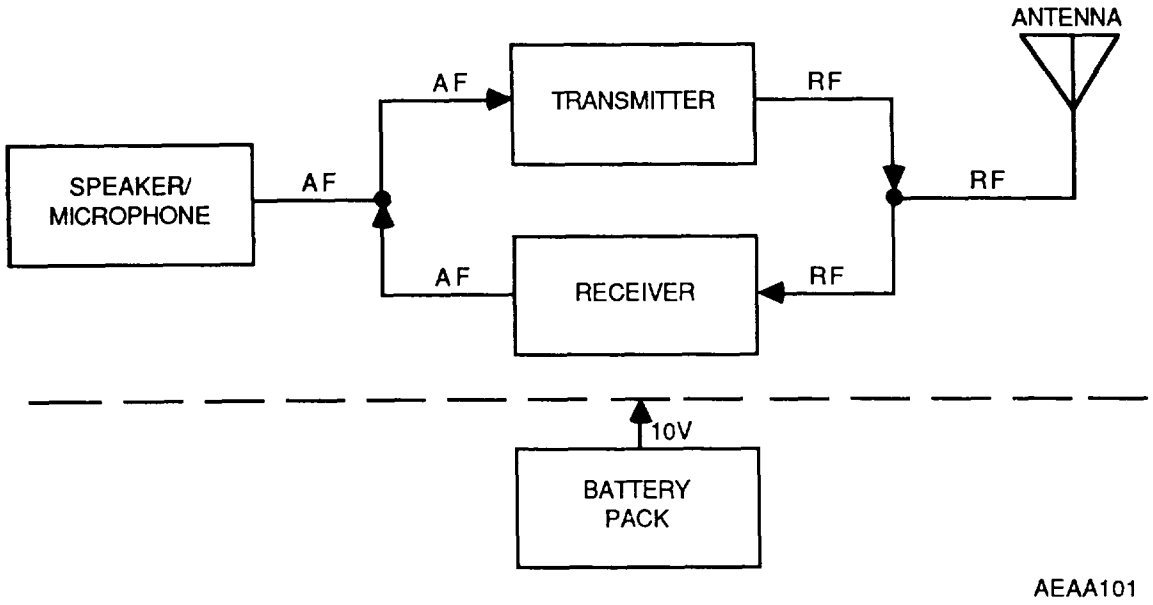


Figure 1-2. Functional Block Diagram

c. When the radio set is turned on, the unit is in the receive mode. Radio frequency (RF) signals entering the antenna are converted from RF to intermediate frequency (IF), amplified, and demodulated to audio frequency (AF). The AF output is filtered and amplified and routed to either the internal or external speaker/microphone.

d. The radio set is placed in the transmit mode when the push-to-talk control on the R/T is pressed. The internal or external speaker/microphone is used to apply a voice signal to the transmitter. The AF signal is amplified and used to frequency modulate an RF signal. The modulated RF signal is then further amplified to provide an RF output signal (2 watts, nominal) to the antenna for radiation.

e. The transmitter is equipped with a timeout timer to limit the duration of calls and to guard against locking in the transmit mode and tying up the radio net. The timeout timer inhibits the transmitter after the selected time has elapsed. Timeout time is selected (0 to 225 seconds) using the keyboard. Setting the timeout time to 0 second disables the timer so that the user may talk as long as he wishes. Use of the timeout timer is not considered an operational requirement and is not covered by warranty, except that when it is disabled in accordance with the instructions contained in this manual, it must not interfere with the normal operation of the radio set.

f. R/T power 10 Vdc is provided by the battery pack. Both a rechargeable nickel cadmium (Ni-Cd) battery pack and a nonrechargeable alkaline battery pack are provided.

CHAPTER 2
UNIT MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

2-1. COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Table of Organization and Equipment (TOE) or Table of Distribution Allowances (TDA) applicable to your unit.

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

Refer to the Repair Parts and Special Tools List (RPSTL) in Appendix C of this manual and the Maintenance Allocation Chart in Appendix B of this manual.

2-3. REPAIR PARTS

Repair parts are listed and illustrated in Appendix C of this manual covering unit, direct support, and general support maintenance for this equipment.

Section II. SERVICE UPON RECEIPT

2-4. SERVICE UPON RECEIPT OF MATERIEL

The radio set was carefully inspected both mechanically and electrically before shipment. It should be physically free of defects and in perfect electrical order. The R/T must be programmed to the frequency(ies) and operating parameters of the using unit prior to being placed in use. Ni-Cd batteries are shipped in an uncharged condition and must be charged prior to use.

a. .....*Unpacking*.
There are no special instructions for unpacking the radio set other than using normal care to prevent damage to the equipment.

b. .....*Checking Unpacked Equipment*

(1) Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 364, Report of Discrepancy (ROD).

(2) Check the equipment against the packing slip to see if the shipment is complete. Report all Discrepancies in accordance with the instructions of DA Pam 738-750.

(3) Check to see whether the equipment has been modified.

c. .....Deprocessing Unpacked Equipment**.** Not applicable.

2-5. ASSEMBLY OF EQUIPMENT

Perform the following assembly procedures as required to prepare the radio set for use.

NOTE

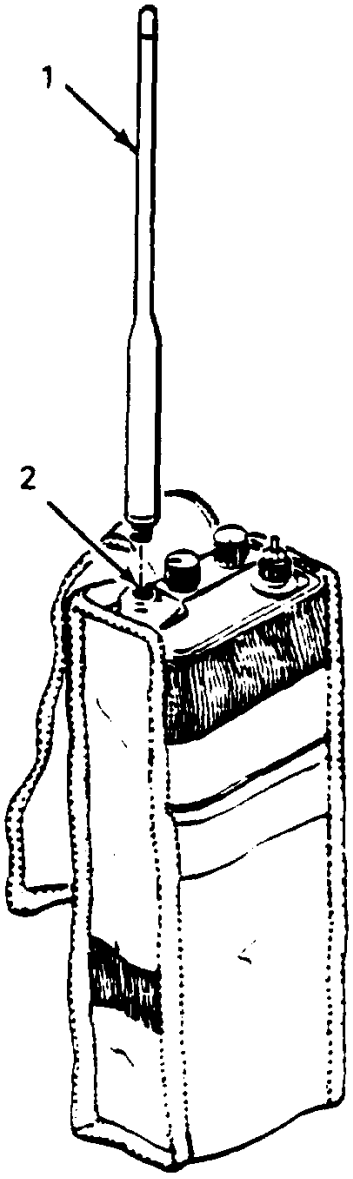
All assembly procedures are included here for convenience. Installation of the speaker/microphone, the speaker/microphone nylon cover, and the nylon holster may wait until programming is complete.

a. Install Antenna.

This task covers: (1) Install (2) Remove

Initial Setup

Equipment Condition: Radio set turned off.



(1) Install

(a) Align antenna (1) with antenna connector (2) on radio set.

(b) Rotate antenna clockwise until secure (finger-tight).

(2) Remove

(a) Grasp antenna (1) where connectors mate.

(b) Rotate antenna counterclockwise until connectors separate.

(c) Remove antenna.

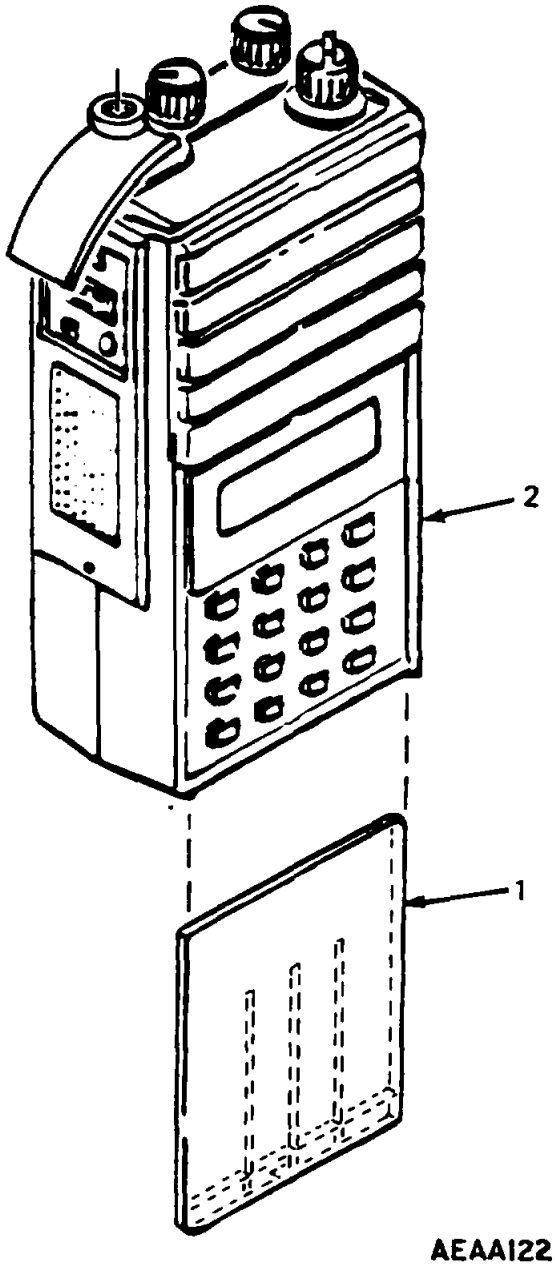
END OF TASK

b. Remove Keyboard Door.

This task covers: (1) Remove (2) Install

Initial Setup

Equipment Condition: Radio set turned off.
Nylon holster removed (para 2-14).



(1) Remove

(a) Remove battery pack if required. Refer to paragraph 2-5.

(b) apply light pressure at top of keyboard door (1) and slide door off R/T (2).

(2) Install

(a) Align keyboard door (1) with grooves on R/T (2).

(b) Slide keyboard door onto R/T until it clicks in place.

END OF TASK

c. Install Battery Pack.

This task covers: (1) Install (2) Remove

Initial Setup

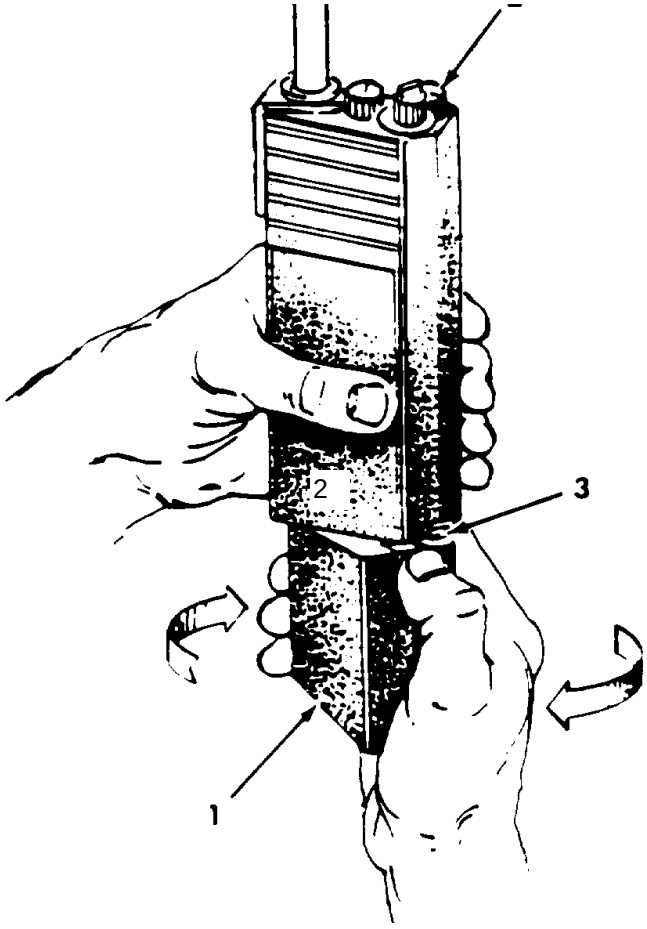
Equipment Condition: Radio set turned off.

WARNING

- **DO NOT heat, short circuit, crush, puncture, mutilate, or disassemble batteries.**
- **DO NOT USE any battery which shows signs of damage, such as bulging, swelling disfigurement, brown liquid in the plastic wrap, a swollen plastic wrap, etc.**
- **If the battery compartment becomes hot to the touch, if you hear a hissing sound (battery venting) immediately turn off the equipment move the equipment to a well ventilated area or leave the area.**

NOTE

Ni-Cd battery packs are shipped in uncharged condition. They must be charged prior to use.



(1) Install

(a) Locate center hub on battery pack (1) and place it in recess of R/T unit.
(b) Position battery pack at 30 degrees, seating two metal studs in recess of R/T unit.
(c) Push battery pack into R/T unit while twisting battery pack 30 degrees until metal tab (2) clicks, locking battery pack into position.

(2) Remove

(a) Push up on metal tab (2) while twisting battery pack (1) 30 degrees.
(b) Remove battery pack.

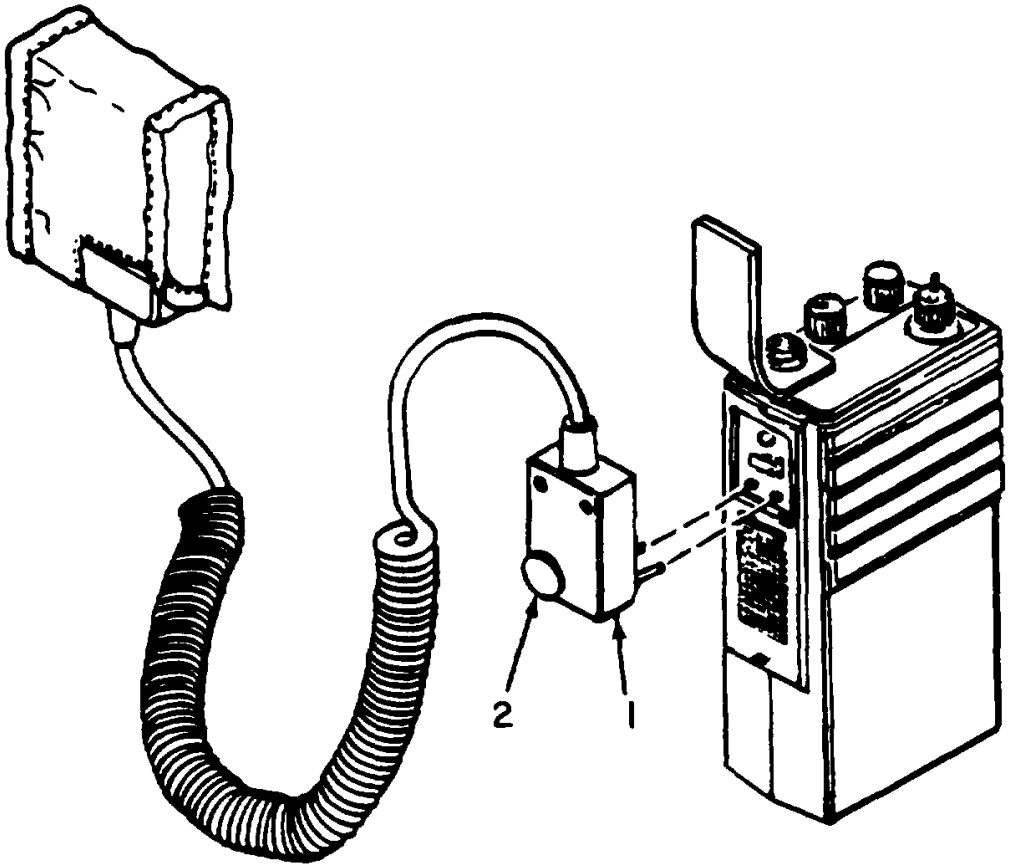
END OF TASK

d. Install Speaker/Microphone.

This task covers (1) Install (2) Remove

Initial Setup

Equipment Condition: Radio set turned off.
Nylon holster removed (para 2-14)



(1) Install

(a) Install speaker/microphone plug (1).
(b) Tighten thumbscrew (2).

(2) Remove

(a) Loosen thumbscrew (2).
(b) Remove speaker/microphone plug (1).

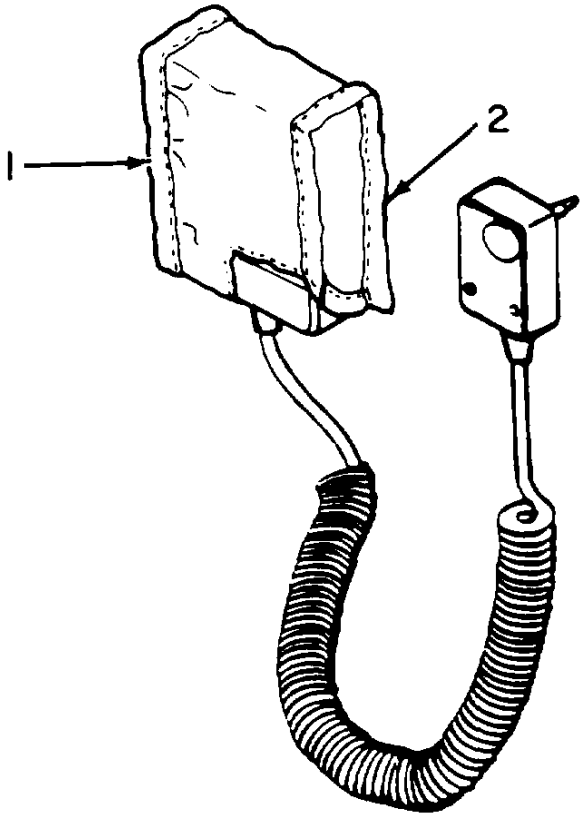
END OF TASK

e. Install Speaker/microphone Nylon Cover.

This task covers: (1) Install (2) Remove

Initial Setup

Equipment Condition: Radio set turned off.



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(1) Install

(a) Install speaker/microphone nylon cover (1) over speaker/microphone.

(b) Secure strap (2) to velcro pad.

(2) Remove

(a) Separate securing strap (2) from velcro pad.

(b) Remove speaker/microphone nylon cover (1).

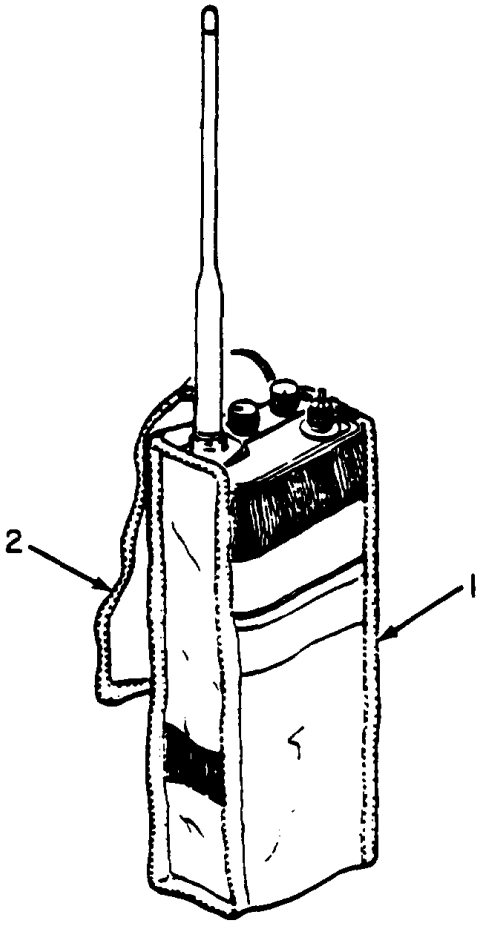
END OF TASK

f. Install Nylon Holster.

This task covers: (1) Install (2) Remove

INITIAL SETUP

Equipment Condition: Radio set turned off.



AEAA114

(1) Install

(a) Install nylon holster (1) over radio set.

(b) Secure strap (2) to velcro pad.

(2) Remove

(a) Separate securing strap (2) from velcro pad.

(b) Remove nylon holster (1) from radio set.

END OF TASK

2-6. PROGRAMMING

a. *Controls and Indicators.* Operating controls and indicators are described in the Operator's Manual, TM 11-5820-1048-10. Access keyboard. Refer to paragraph 2-5.b. Figure 2-1 shows controls and indicator locations on the keyboard and display. Table 2-1 provides a functional description for each item.

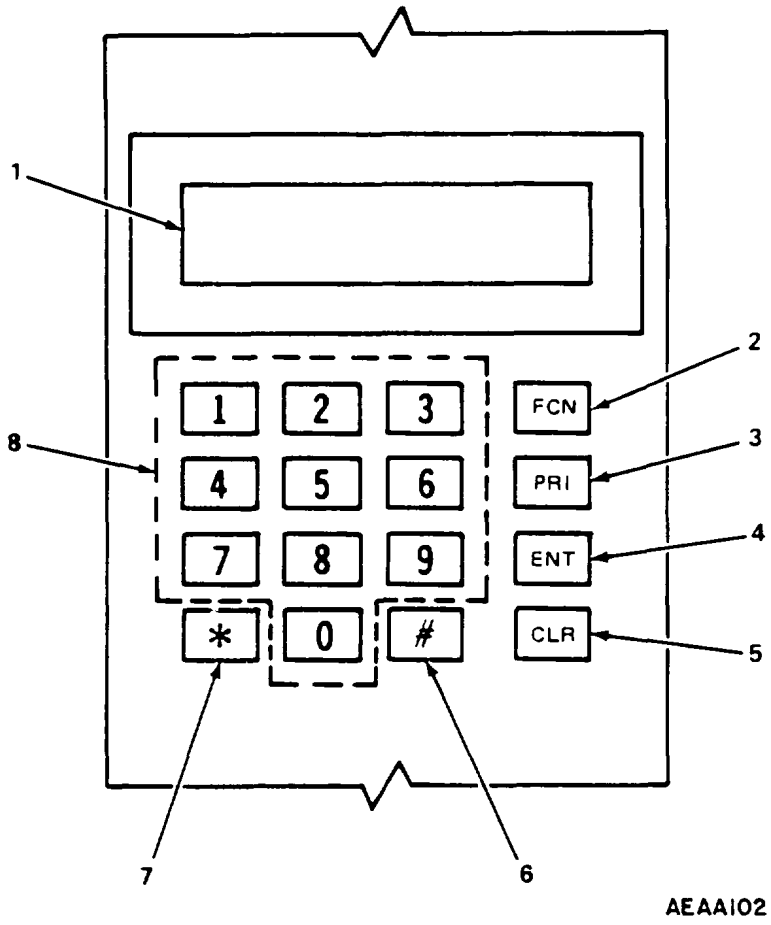


Figure 2-1. Radio Set Controls and Indicators

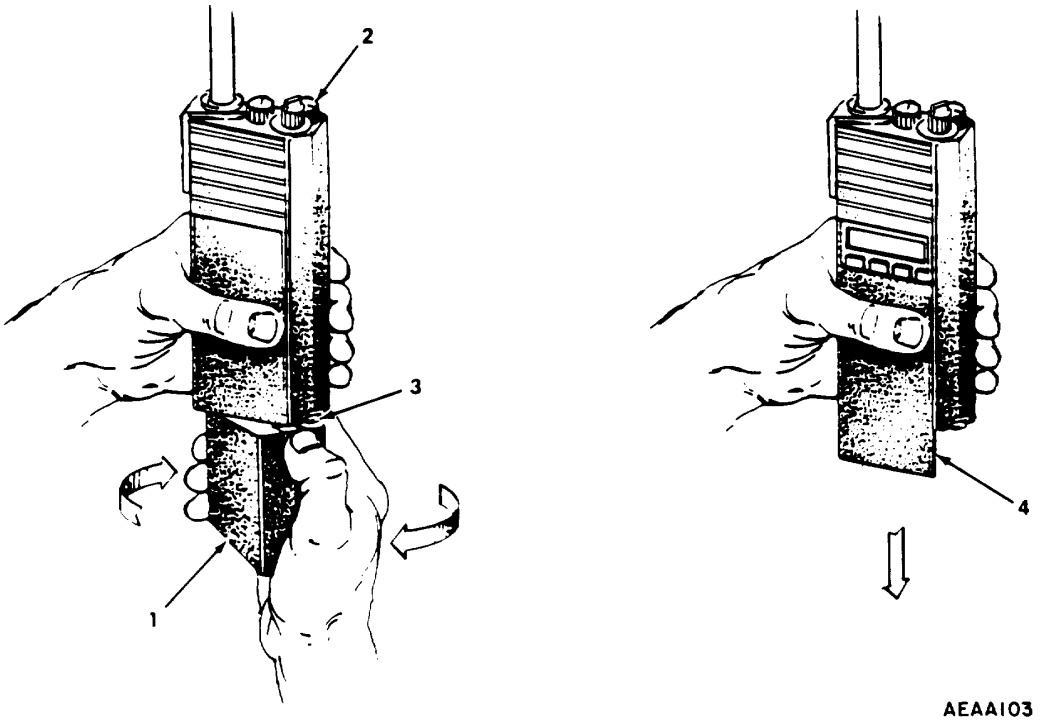
Table 2-1. Controls and Indicators

Key	Control or indicator	Function
1	display	Liquid crystal display (LCD) used to indicate selected preset channel and function values.
2	FCN	Key used to enter program and to advance program to next function without storing values.
3	PRI	Key used to change transmitter timeout function time. Time indicated on display changes by 15 seconds for each press of PRI key when setting transmitter timeout in programming mode. Also used to increment ID number one digit.
4	ENT	Key used to store values in any mode. Pressing ENT key stores entry and automatically advances program to next function.
5	CLR	Key used to clear display values.
6	#	Key used to initiate digital CODE GUARD ™.
7	*	Maintenance key used to initiate program transfer from one radio set to another.
8	0 thru 9	Keys used to enter digits for function values and frequencies.

b. ***Programming Instructions.***

- Accessing keyboard
- Setting programming mode
- Reviewing program data
- Changing program data
- Clearing unwanted scan indicator
- Blind programming

(1) Accessing Keyboard



(a) Remove nylon holster.
(b) Remove battery pack (1).

- Turn OFF-VOL control (2) to OFF.
- Push up on metal tab (3) while turning battery pack (30 degrees)
- Remove battery pack.

(c) Push in on top of cover (4) and slide downward and off.
(d) Install battery pack.

NOTE

Always use a fully charged Ni-Cd battery pack or new batteries in the alkaline battery pack when entering, reviewing, or changing the program mode.

- Locate center hub on battery pack and place it in recess of R/T unit.
- Position battery pack at 30 degrees, seating two metal studs in recesses of R/T unit.
- Push battery pack into R/T unit while twisting battery pack clockwise until metal tab clicks, locking battery pack into position.

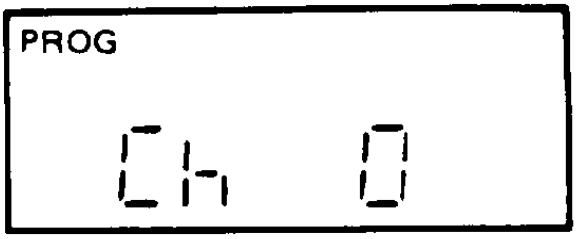
(2) Setting Programming Mode

(a) Set OFF-VOL control to on one-quarter turn.

NOTE

PROG Ch 0 is the portion of the program that controls radio performance variables such as identification number, transmitter timeout timer, and battery saver. PROG SCAN operation features are not included in the radio set.

(b) Press and hold FCN key until display shows PROG Ch 0.



(c) Release FCN key. Radio set is now in programming mode.

(3) *Reviewing Program Data*

NOTE

Variables shown are for illustration purposes only and may not correspond with data being reviewed.

(a) *Performance Variables*

- After entering the program mode, display will show PROG Ch 0.

- Press FCN key. Display will show an ID number (from 0 to seven digits).

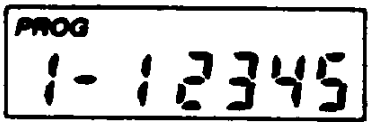
- Press FCN key. Display will show transmitter timeout timer length in seconds.

- Press FCN key. Display will show scan delay length in seconds.
-

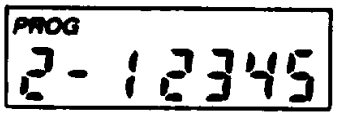
NOTE

Flashing function numbers for groups 1 and 2 indicate which functions are enabled.

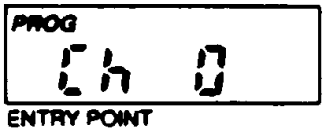
- Press FCN key. Display will show a group of five individual functions that can be enabled or disabled.



- Press FCN key. Display will show a second group of five functions.



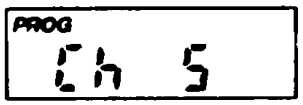
- Press FCN key. Display will loop back to channel 0 entry point and show



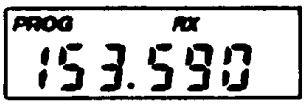
(b) Individual Channel Frequencies

- Press CLR key

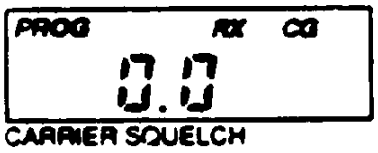
Press number key(s) for any of the 14 channels to be reviewed. Display will show channel selected.



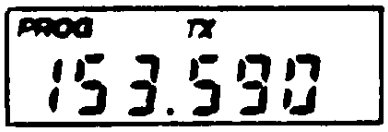
- Press FCN key. Display will show receive frequency in MHz for channel selected. Press.



- FCN key Display will show receive CODE GUARD ™ or digital CODE GUARD ™ (the value 0.0 denotes carrier squelch). Digital CODE GUARD ™ will be three-digit number preceded by a "d" in the display for channel selected

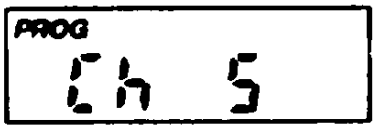


- Press FCN key. Display will show transmit frequency in MHz for channel selected.



- Press FCN key. Display will show transmit CODE GUARD TM or digital CODE GUARD™.(digital CODE GUARD ™ illustrated) for channel selected-

- Press FCN key. Display will loop back to entry point and display reviewed channel.



- Press CLR key then press number key(s) of next channel to be reviewed or press PRI to increment the channel number one digit. FCN key can then be used to review frequencies and CODE GUARDT ™ of this channel.

- To leave the programming mode, power down by setting OFF-VOL control to OFF (past detent). Normal operation will occur on next power up.

(4) *Changing Program Data*

(a) *Set Programming Mode*. Refer to 2-6 (2).

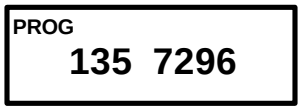
NOTE

During programming, a FAIL indication may be displayed and is corrected by pressing the CLR key.

(b) Setting ID Number

NOTE

R/T will display from 0 to a seven-digit ID number which can be used as an electronic serial number if required by using unit. ID number does not affect operation of Radio Set. ID number shown is for illustration purposes only..



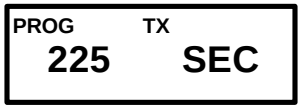
- Press FCN Key.

NOTE

ID number can be increased in one-digit increments with each press of PRI key. Pressing PRI key when display shows 9999999 returns ID number to 0.

- Press CLR key to clear display.
- Press any of up to seven numbers keys for new ID number. Numbers will enter display at right and move from right to left as more numbers are entered. If an entry error is made, press CLR key and re-enter numbers.
- Press ENT key to store new ID number. Program will advance to next function.

(c) Setting Transmitter Timeout Timer



NOTE

Transmitter timeout time can be changed, in 15-second increments, from 0 to 225 seconds. 0 SEC disables timeout timer allowing unlimited transmission time. Each press of PRI key will increase timeout by 15 seconds up to 225 seconds. Pressing PRI key when display shows 225 SEC returns timeout time to 0.

- Press CLR key to clear display and re-enter time by pressing PRI key until desired timeout time is displayed.

- Press ENT key. Program will advance to next function.

(d) Setting Program Scan. Program scan (PROG SCAN) is not available on the radio set. Time indicated will have no effect on unit operation. Press ENT key to advance to next function.

(e) Setting Group I and Group 2 Functions

NOTE

Group 1 and Group 2 each contain five firmware functions which can be individually enabled or disabled. Some of these functions pertain to options not purchased by the Army. Some will operate in the AN/PRC-127 hardware. Others will not. Some of the nonoperative settings will cause potentially confusing display indications if they are not set in accordance with the instructions that follow. While incorrect settings will not damage the equipment, performance is only warranted while programming variables are set to their normal values or settings.

A flashing digit indicates that the function is enabled. A steady digit indicates that the function is disabled. To change the setting of any digit, press the corresponding number key on the keypad.

NOTE

The steps that follow pertain to setting Group I Functions.

- Set the individual functions as indicated below:

- Function I Battery Saver Inhibit Improper setting can cause reduced battery life. Normal setting of this function is steady (not flashing). This indicates that the battery saver is operating.

- Functions 2 and 3
  These functions pertain to PRIORITY SCAN feature which does not operate in the AN/PRC-127. Improper settings of these functions can cause confusing display readings. Under certain conditions, improper settings can cause a PR indicator to show on the display along with the channel number while the R/T is in the operating mode. Improper settings will not keep the radio set from operating. Normal setting is with 2 and 3 steady.

- Function 4 (PRI) Key Lockout
  This function is part of the PRIORITY SCAN feature which does not operate in the AN/PRC-127. Improper setting of this function can cause confusing indications. Improper setting of function 4 will not keep the radio set from operating. The R/T may beep sometimes when the PRI key is pressed while in the operating mode. When coupled with improper settings of functions 2 and 3, it can cause a PR indicator to show on the display. Normal setting of function 4 is flashing.

- Function 5 (ENT) (CLR) Key Lockout
  This function is associated with the SCAN feature which does not operate in the AN/PRC-127. Improper setting of this function can cause confusing indications. Improper setting of function 5 will not keep the radio set from operating. A SCAN indicator may show on the display along with the channel number when the R/T is in the operating mode. If SCAN indicators do show on the display, they can only be removed in the operating mode (not the programming mode). Normal setting of function 5
  is flashing.

- When Group I functions 1-5 are set correctly (1-3 steady, 4 and 5 flashing). Press ENT key to store the settings and advance to Group 2 functions.

NOTE

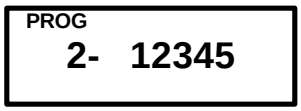
The steps that follow pertain to Setting Group 2 Functions.

- Normal settings of Group 2 functions are given below:

- User Code Guard TM Selection *This function is a part of the overall CODE GUARDTM* feature. It allows the radio to operate on one channel while using the CODE GUARD TM values programmed for another channel. Which other channel may be selected from the keypad while the R/T is in the operating mode. It does operate in the AN/PRC-127. However, it is not considered part of normal use, and is not covered by warranty. Disabling this feature does not completely disable CODE GUARD TM. It only disables the cross matching feature described above. If this feature is set incorrectly at the same time other programming variables are set incorrectly, it can cause the radio to not communicate. It can also cause confusing indications on the display while the R/T is in the operating mode. Normal setting for function 1 is steady.

- Setting Functions 2-5
  Functions 2-5 pertain to firmware features that do not operate in the AN/PRC-127. Enabling or disabling these functions will not affect operation. These functions will not produce any confusing or extraneous indications. Normal setting for functions 2-5 is steady.

- When all Group 2 functions are set correctly (all steady), press ENT key to store settings and return to Ch 0 programming entry point.



(f) Programming Frequency

NOTE

- **Once PROG Ch 0 programming is complete, the R/T will display PROG Ch 0. Any channel number (1 thru 14) can now be pressed on the keyboard to access frequency values for that channel.**

- **To prevent a false display, each channel must have a valid receive frequency programmed between 136.00 and 160.00 MHz.**

- **Press key number 1.**

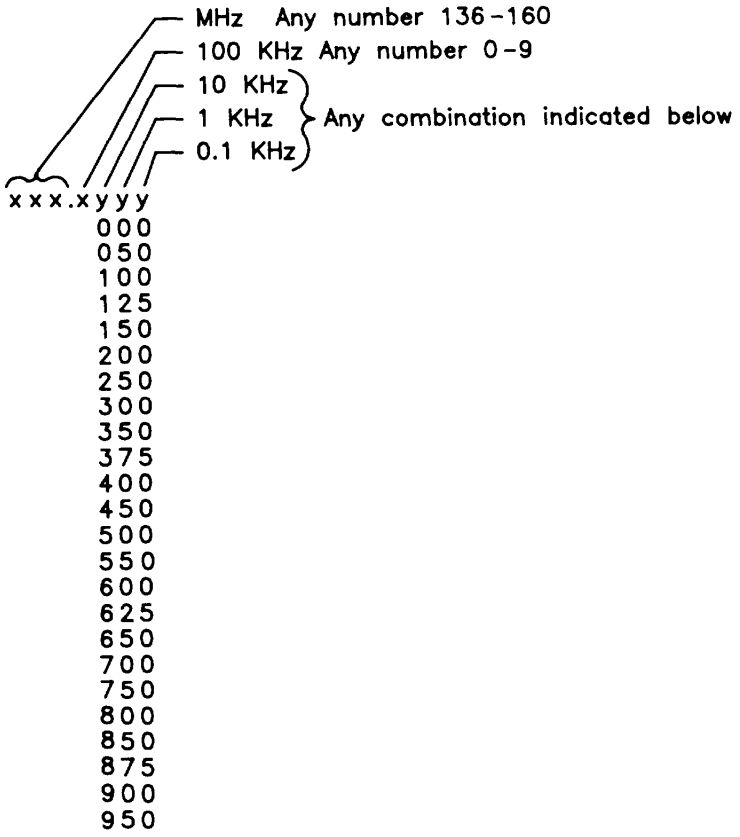
- **Press FCN key. Programmed receive frequency for channel 1 will be displayed.**

- **Press CIR key to clear display.**

NOTE

When entering new receive or transmit frequency, the first digit must be the number 1. If 2 through 9 are selected as the first digit, the number 1 will automatically be displayed at the time of your first selection. The number 0 cannot be entered as your first selection. The seventh digit will always be set automatically. If an invalid combination for digits 5, 6, and 7 (a combination not shown in table 2-2) then both the sixth and seventh digits will switch automatically to an allowable combination. If this default value is not the frequency you want, press CLR and reenter the frequency, making sure you use a valid combination for the fifth and sixth digits.

Table 2-2. Allowable Frequency Increments



- Press applicable number keys to program new receive frequency. Number will be entered from left to right.

NOTE

ENT key must be pressed to store new frequency values. If FCN key is pressed, program will move to next function without changing values. Pressing ENT key stores frequency entered and automatically moves to next function. If an error is made entering frequency, press CLR key and re-enter frequency.

- **Press ENT key to store new receive frequency and advance to next function.**

NOTE

Display will show PROG RX CG and a value. For normal operation, this value must be set to 0.0. (This disables receive CODE GUARDTM for this channel.)

- **If required, press CLR key to clear display. Press applicable number keys to enter the desired receive CODE GUARDTM value. (0.0 for normal operation).**

- **Press ENT key to store new receive CODE GUARDTM value and advance to the next function.**

- **Press CLR key to clear display.**

- **Press applicable number keys to program new transmit frequency. Number will be entered from left to right.**

- **Press ENT key to store new transmit frequency and advance to next function.**

NOTE

Display will show PROG TX CG and a value. For normal operation this must be set to 0.0. (This disables transmit CODE GUARD TM for this channel.)

- **If required, press CLR key to clear display. Press applicable number keys to enter the desired transmit CODE GUARD TM value. (0.0 for normal operation.)**

- **Press ENT key to store new transmit CODE GUARDTM value.**

- **This completes channel I programming and display will loop back to indicate PROG CH 1. Press CLR key followed by digits of any other channel number (I thru 14) to access frequency values for that channel. Each channel is then programmed using same procedure just completed for channel 1.**

NOTE

In order to prevent accidental transmission on unauthorized frequencies, it is recommended that unused channels be programmed with a transmit frequency of 0.0 MHz prior to issue to the user. In order to prevent false displays, all channels should be programmed with valid receive frequencies (136.0000 to 160.0000 MHz).

- **Prior to leaving the programming mode, refer to paragraph 2-6 (3)(a) Reviewing Program Data and check to see that all program variables and frequencies are stored as intended.**

- **Set OFF-VOL control to OFF (past detent). Normal radio operation will occur on next power up.**

NOTE

The steps that follow are a final checkout to verify correct programming.

- **Set OFF-VOL control to on and adjust to a comfortable listening level.**

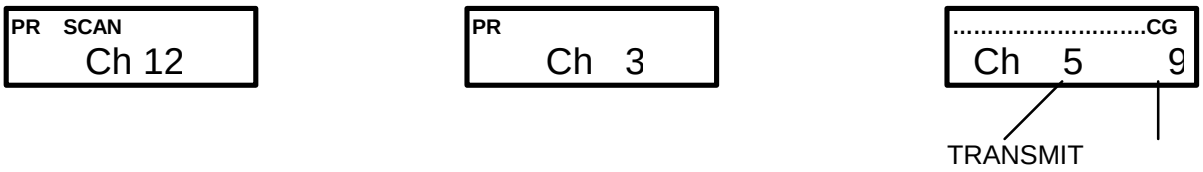
- **Set CG-SQ control fully cw.**

- **Verify the following for each setting of the Channel Select control (1-14):**

  - **A rushing noise is heard from the speaker.**

  - **The display indicates the same channel as the Channel Select control.**

  - **There are no extraneous indicators on the display such as SCAN, PR, or CG.**



EXAMPLES OF EXTRANEOUS INDICATORS

AEAAII00

- For channels programmed for use, no sound is heard from the speaker when the Push-To-Talk control is keyed.
- For unused channels (channels programmed with a transmit frequency of 0.0 MHz), a tone is heard from the speaker when the Push-To-Talk control is keyed.

- On any channel, verify that all keys on the keypad except the FCN key are disabled (no indicators change, no beeps or tones heard when keys are pressed).
- Set the Channel Select control to any other channel.
- Verify that the PRI key is disabled (no indicators change, no beeps or tones are heard when the key is pressed).

(5) CLEARING UNWANTED SCAN INDICATORS

NOTE

The purpose of this procedure is to clear indicators for SCAN feature from the display so that they will not cause confusion.

(a) Enter the programming mode by turning the R/T on and holding the FCN key until the display shows Ch 0.

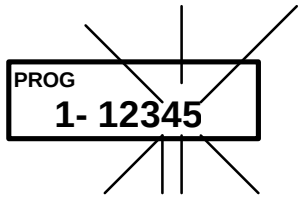
(b) Press and release the FCN key several times until the display shows Group I functions.

(c) Set Group I FUNCTION 5 to steady.

(d) Press ENT key to store this setting.

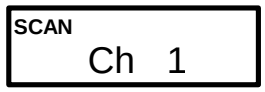
(e) Turn R/T off to exit programming mode.

(f) Turn R/T on.



(g) Set Channel Select control to channel 1.

(h) Observe display. If SCAN indicator is present, press CLR key to remove it.



(i) Set Channel Select control to channels 2 through 14 in succession and repeat step 8 for each channel.

(j) Enter programming mode by pressing and holding FCN key until display shows Ch 0.

(k) Press and release FCN key several times until Group 1 functions are displayed.

(l) Press appropriate number keys to set Group 1 functions to their normal settings (1-3 steady, 4 and 5 flashing).

(m) Press ENT key to store these settings.

(n) Turn R/T off to exit programming mode.

(o) Turn R/T on.

(p) Set Channel Select control to each channel (1-14) and verify that display does not show SCAN indicator for any channel(s).

(q) Turn R/T off.

(6) Blind Programming

NOTE

Certain programming errors can cause the radio set display and audio output to blank completely. One such error is the programming of a channel with an invalid receive frequency. If the radio is turned on with the channel select control set to that channel, the display will blank and there will be no audio output. If there is a valid transmit frequency programmed for that channel, the radio will still transmit but give no indication that it is doing so. (Lack of a valid transmit frequency will cause the radio to emit a warning tone when the push-to-talk switch is keyed.) If the display is blank when the radio is first turned on, first try switching to a different channel. If this produces a display, then you can enter the programming mode in the normal manner and correct any errors. If changing channels will not produce a display (no channels have a valid receive frequency), the following procedure is used to restore the radio to the normal operating mode.

(a) Set channel select control to channel 1.

(b) Turn OFF-VOL control clockwise out of detent.

(c) Press and hold FCN key for 10 seconds.

NOTE

R/T will beep for each of the following key strokes indicating that the R/T is functioning. If beeps are not present, R/T is malfunctioning.

(d) Press and release I key.

(e) Press and release FC N key.

(f) Press and release CLR key.

(g) Press and release I key.

(h) Press and release 5 key.

(i) Press and release ENT key.

(j) Set OFF-VOL control to OFF.

(k) Turn OFF-VOL control cw out of detent. Display should show Ch 1 Audio will be available with proper settings of OFF-VOL and CG-SQ controls. From this point, you can enter the programming mode in the normal manner.

(I) Remove battery pack. Refer to paragraph 2-5.

(m) Install keyboard door. Refer to paragraph 2-5.

(n) Install battery pack. Refer to paragraph 2-5.

(o) Install nylon holster. Refer to paragraph 2-5.

Section III. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-7. GENERAL

Unit maintenance is responsible for ensuring that the radio set is available for continuous operation. In addition to correcting the faults recorded by the operator on DA Form 2404, Equipment Inspection and Maintenance Worksheet, unit maintenance must perform the checks and services as described in table 2-3.

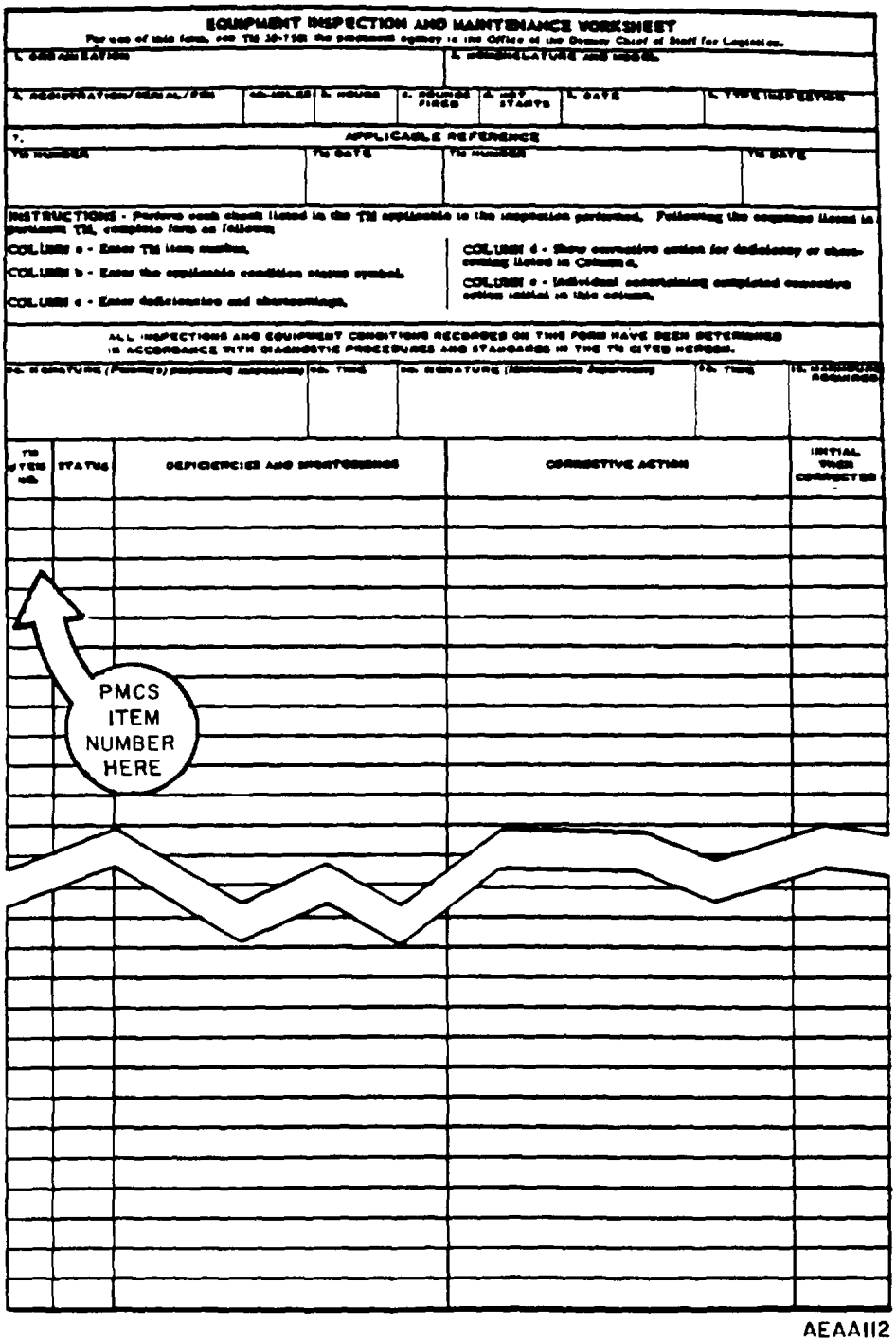
2-8. EXPLANATION OF COLUMNS

a. *Item No. Column.* This column shows the sequence of doing the checks and services and will be used as the source of item numbers for the TM Item No. column on DA Form 2404, Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.

b. *Interval* These columns tell you when to do a procedure. Each column that applies will contain a dot (e). Some procedures will have a dot in more than one column.

c. *Item To Be Inspected Column.* This column contains the common name of the itemto be inspected.

d. *Procedures Column.* This column contains a brief description of the procedure by which the check is to be performed.


EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET
APPLICABLE REFERENCE
PMCS
ITEM
NUMBER
HERE
AEAA112

DA Form 2404

Table 2-3. Unit Preventive Maintenance Checks and Services

NOTE

These items must be checked before operation.

W - Weekly M - Monthly

Item no.	Interval W	Interval M	Item to be inspected	Procedures
I			Antenna	Check for breaks and loose fit.
2			Handset	Check push-to-talk switch for smooth and proper operation. Check cable for frays, cracks, and exposed wiring.
3			Batteries	Check for corrosion, leaks, and swelling.

Section IV. UNIT TROUBLESHOOTING

2-9. GENERAL

Troubleshooting at the unit maintenance level requires you to locate any trouble as quickly as possible. The amount of troubleshooting you can do is based on what the Maintenance Allocation Chart says you can fix. Because of this, the only trouble symptoms you will find here are those that could be caused by faulty items you can fix.

NOTE

Before using the troubleshooting table, check your work order and talk to the operator, if possible, for a description of symptoms if trouble occurred while equipment was in operation.

2-10. TROUBLESHOOTING TABLE

The troubleshooting table (table 2-4) lists common malfunctions which may be found during operation or maintenance of the radio set. You should perform the tests/inspections and corrective actions in the order listed.

NOTE

This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify intermediate general support maintenance.

Table 2-4. Unit Troubleshooting

Malfunction Test or inspection Corrective action

NOTE

Ensure that battery pack is fully charged, OFF-VOL and CG- SQ controls are on and set to operating level, and channel selector is set to correct channel.

RECEIVER/TRANSMITTER

1. RADIO SET DOES NOT RECEIVE OR TRANSMIT

Step 1. Check that R/T is programmed properly.

Review programming data. Refer to paragraph 2-6.b(3).

- If programming is incorrect, reprogram R/T. Refer to paragraph 2-6.b(4).
- If programming is correct, go to next step.

Step 2. Check that antenna is securely fastened.

Tighten antenna. Refer to paragraph 2-5.a(1).

- If malfunction still exists, go to next step.

Step 3. Check antenna by replacing with a known good antenna. Refer to paragraph 2-5.a(1).

Replace antenna.

- If malfunction still exists, go to next step.
- If malfunction still exists and external speaker/microphone is not connected, replace R/T. Refer to paragraph 2-16.

Table 2-4. Unit Troubleshooting - Continued

Malfunction
Test or inspection
Corrective action

RECEIVER/TRANSMITTER - Continued

1. RADIO SET DOES NOT RECEIVE OR TRANSMIT - Continued

- If malfunction still exists and external speaker/microphone is connected, go to next step.

Step 4. Check that speaker/microphone is securely connected.

Tighten speaker/microphone plug thumbscrew. Refer to paragraph 2-5.d (l).

- If malfunction still exists, go to next step.

Step 5. Check that external speaker/microphone is functional.

Using external speaker/microphone, transmit to another radio set to verify transmission and reception.

- If transmit and/or receive not possible, remove external speaker/microphone. Refer to paragraph 2-5.d(2).

Use R/T speaker/microphone to transmit to another radio set to verify transmission and reception.

- If transmit and/or receive is possible, replace external speaker/microphone. Refer to paragraph 2-5.d(1).

- If transmit and/or receive is not possible, replace R/T. Refer to paragraph 2-16.

2. R/T DOES NOT DISPLAY PROGRAMMED DATA

Review programming data. Refer to paragraph 2-6.ti(2).

- If programming data is incorrect, reprogram R/T. Refer to paragraph 2-6.b(2).

- If programming data is still incorrect, if the radio set cannot be programmed using the instructions given in paragraph 2-6.b(2), replace R/T. Refer R/T to General Support Maintenance.

Table 2-4. Unit Troubleshooting - Continued

Malfunction
Test or inspection
Corrective action

RECEIVER/TRANSMITTER - Continued

3. R/T DISPLAY IS BLANK WHEN RADIO SET IS TURNED ON

Position channel select control to another channel.

- If display functions, enter programming mode. Refer to paragraph 2-6.b(2). Program as required.
- If display does not function, enter blind programming. Refer to paragraph 2-6.b (6).
- If display does not function, replace R/T. Refer to 2-16.
-

RADIO SET

1. VOLUME LEVEL IS LOW

Step 1. Check that OFF-VOL control volume level is at an audible level.

Increase volume level.

Step 2. Replace battery pack with a known good battery pack. Refer to 2-5.c(1).

- If malfunction still exists, replace R/T. Refer to paragraph 2-16.

2. RADIO SET EMITS WARNING TONE WHEN PUSH-TO-TALK CONTROL IS KEYED

Review transmit frequencies.

Position channel select control to channel I and set program mode. Refer to paragraph 2-6.b(2).

Review individual channel transmit frequencies. Refer to paragraph 2-6.b(3)(b).

- If frequencies are invalid, program individual channel frequencies. Refer to paragraph 2-6.b(4)(f).
- If malfunction still exists, replace R/T. Refer to paragraph 2-16.

Table 2-4. Unit Troubleshooting - Continued

Malfunction Test or inspection Corrective action
BATTERY CHARGER
BATTERY CHARGER DOES NOT OPERATE
NOTE **Ensure battery charger is connected to ac outlet.**
Check that battery charger fuse is good. Refer to paragraph 2-26. • If fuse is bad, repair battery charger fuse. Refer to paragraph 2-26. • If malfunction still exists, replace battery charger.

Section V. TESTS

2-11. OPERATIONAL (TALK) TEST

a. Verify that the radio set is programmed with the appropriate settings and authorized frequencies. Refer to Paragraph 2-6, Programming.

NOTE

Radio wave propagation will vary greatly with topography. In the steps that follow, select sites as close to 3 kilometers apart as possible that will still allow reliable communication with known good radio sets. This will provide the most useful test results.

b. Select two sites, 1 to 3 kilometers apart.

c. Use two known good radio sets to establish communication between the two sites.

d. Verify communication between the two sites can be established on all frequencies to be tested using the known good radio sets.

e. Use radio set under test to communicate with the known good radio at the other site.

f. Verify radio set under test will communicate on all authorized frequencies for which it is programmed.

g. Verify radio set under test will communicate in both the squelched andnsquelched mode. (This only needs to be tested at one frequency.)

h. Install external speaker/microphone on radio set under test.

i. Verify radio set will still communicate with distant site.

j. Verify audio signal from external speaker/microphone is intelligible.

k. Verify that the push-to-talk control on external speaker/microphone works.

2-12. BATTERY CHARGER TEST

This test is to check battery charger output voltage.

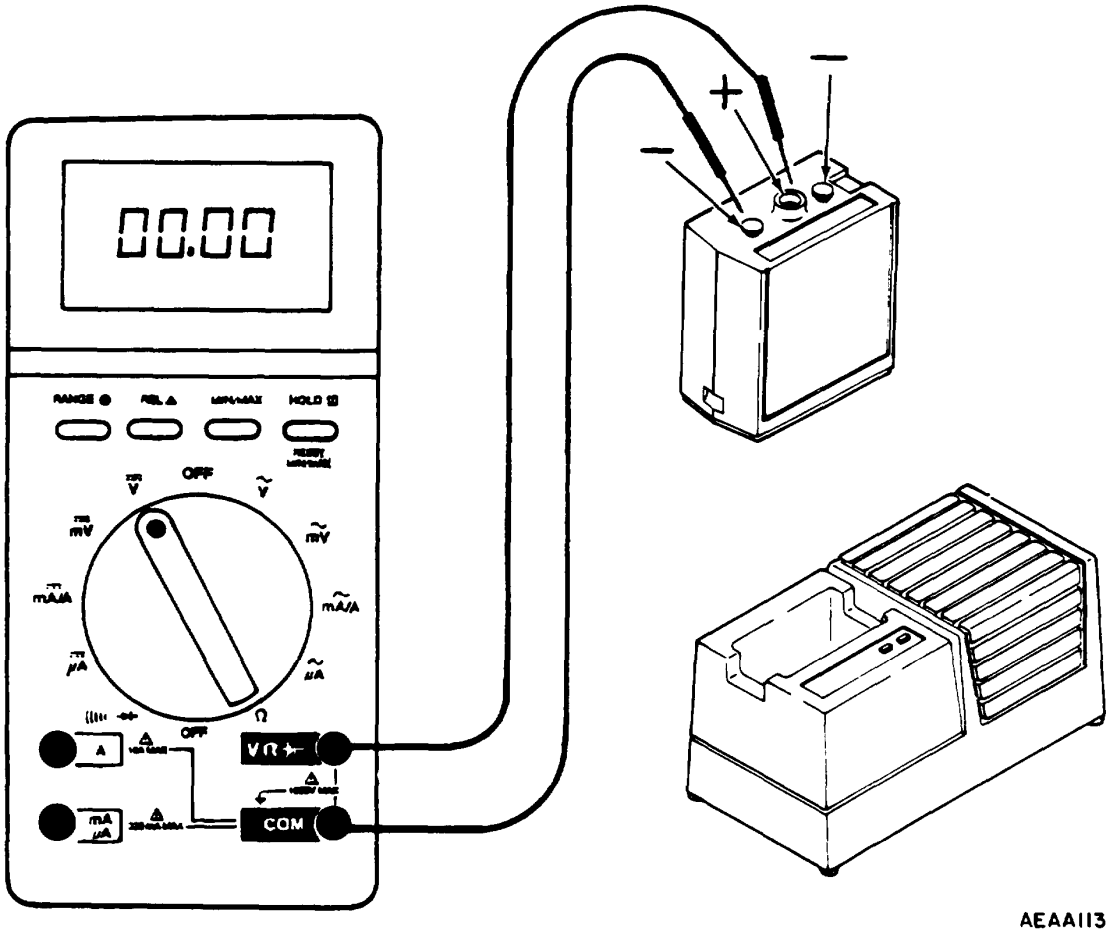
Initial Setup

Test Equipment: Digital multimeter (Appx B, Sect III, Item 9) or equivalent.

CAUTION

To prevent damage to battery charger, do not connect battery charger to 230 V ac with 115V/230V switch set to 115V position.

Test



NOTE

Battery to be used in this test must be room temperature or cooler. Do not use a battery which has been charging within the last several hours.

a. Set 115V/230V switch on bottom of battery charger to applicable 115V or 230V position.

b. Clean battery and battery charger terminals to ensure good connections.

c. Set DMM to measure 20 Vdc range.

d. Perform steps e thru g with battery pack out of charger.

e. Connect DMM positive test lead (+)to positive terminal of battery.

f. Connect DMM negative test lead (-)to negative terminal of battery.

g. Measure and record battery voltage.

h. Place battery in battery charger and verify that the red charge lamp is lit.

i. Measure and record battery voltage.

j. Subtract voltage indication recorded in step f from voltage indication recorded in step h.

k. Difference in voltage indications must be at least 0.10 V dc.

END OF TEST

Section VI. UNIT MAINTENANCE INSTRUCTIONS

2-13. REPAIR RADIO SET

Repair of the radio set is limited to replacement or repair of components covered in this manual.

2-14. REPLACE NYLON HOLSTER (Refer to paragraph 2-5.f)

2-15. REPAIR NYLON HOLSTER

For procedures to repair and waterproof the nylon holster, refer to FM 43-3.

2-16. REPLACE RECEIVER/TRANSMITTER

This task covers: a. Remove b. Install

Initial Setup

Equipment Condition: Radio set turned off.

---

a. **Remove**

(1) Remove antenna. Refer to paragraph 2-5.a(2).

(2) Remove nylon holster. Refer to paragraph 2-5.f(2).

(3) Remove battery pack. Refer to paragraph 2-5.c(2).

(4) Remove speaker/microphone. Refer to paragraph 2-5.d(2).

b. Install

(1) Install speaker/microphone. Refer to paragraph 2-5.d(1).

(2) Install battery pack. Refer to paragraph 2-5.c(1).

(3) Install nylon holster. Refer to paragraph 2-5.e(1).

(4) Install antenna. Refer to paragraph 2-5.a(1).

END OF TASK

2-17. REPLACE ANTENNA (Refer to paragraph 2-5.a)

2-18. REPLACE BATTERY PACK (Refer to paragraph 2-5.c)

2-19. REPLACE SPEAKER/MICROPHONE NYLON COVER (Refer to paragraph 2-5.e)

2-20. REPAIR SPEAKER/MICROPHONE NYLON COVER

For procedures to repair and waterproof the speaker/microphone nylon cover, refer to FM 43-3.

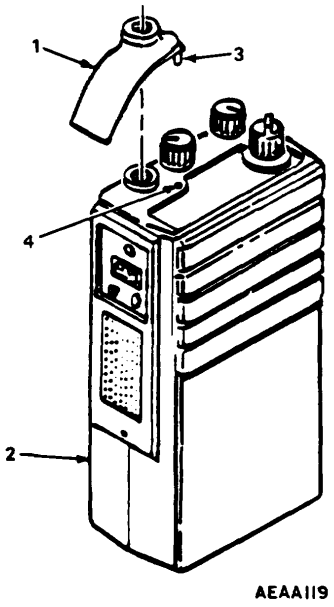
2-21. REPLACE SPEAKER/MICROPHONE (Refer to paragraph 2-5.d)

2-22. REPLACE PLUG COVER

This task covers: a. Remove b. Install

Initial Setup

Equipment Condition: Radio set turned off.
Nylon holster removed (para 2-5.e).
Antenna removed (para 2-5.e).



Remove

Slowly lift and remove plug cover (1) from R/T (2).

Install

a. Moisten rubber tit (3) with water.

b. Align rubber tit of plug cover (3) with hole in top of R/T (4).

c. Press down on plug cover and hold in place until rubber tit is secured.

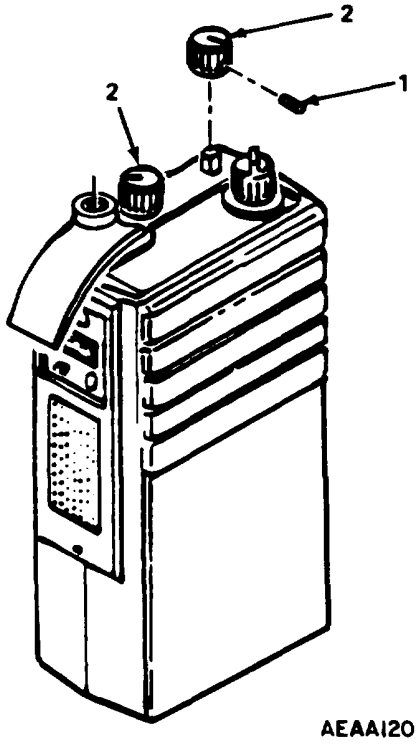
END OF TASK

2-23. REPLACE DIECAST KNOB

This task covers: a. Remove b. Install

Initial Setup

Tools: Tool Kit (Appx B, Sect III, Item 2).
Equipment Condition: Radio set turned off
Nylon holster removed (para 2-5.e).



NOTE

There are two diecast knobs. Both are removed same way.

Remove

a. Loosen setscrew (1).

b. Remove diecast knob (2).

Install

a. Install diecast knob (2).

b. Tighten setscrew (I).

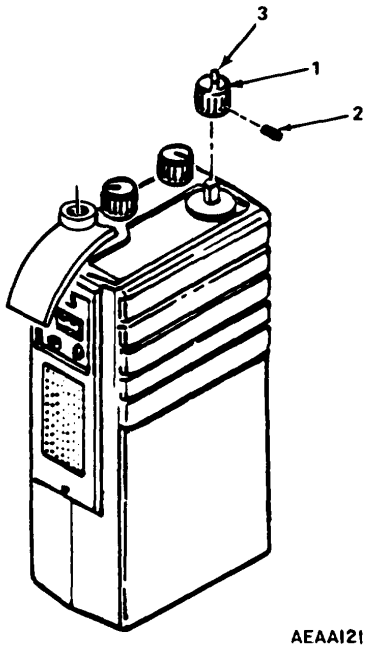
END OF TASK

2-24. REPLACE DIECAST CHANNEL KNOB

This task covers: a. Remove b. Install

Initial Setup

Tools: Tool Kit (AppxB, Sect III, Item 2).
Equipment Condition: Radio set turned off.
Nylon holster removed (para 2-5.e).



Remove

a. Place diecast channel knob (1) in channel 1 detent.

b. Loosen setscrew (2).

c. Remove diecast channel knob.

Install

a. Install diecast channel knob (1).

b. Align indicator (3) with channel 1 detent.

c. Tighten setscrew (2).

END OF TASK

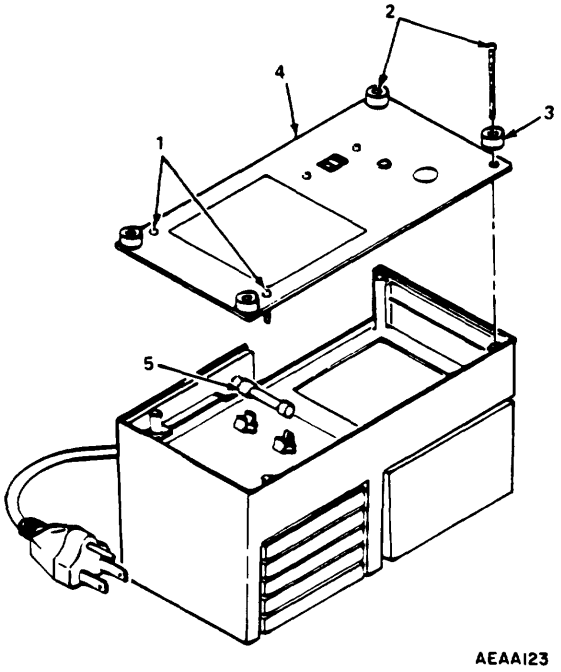
2-25. REPLACE KEYBOARD DOOR (Refer to paragraph 2-5.b)

2-26. REPAIR BATTERY CHARGER

This task covers: a. Disassemble b. Inspect c. Assemble

Initial Setup

Tools: Tool Kit (Appx B, Sect III, Item 2).
Equipment Condition: Battery charger power cord disconnected from ac outlet.



Disassemble

a. Remove two screws (1), two screws (2), and two rubber bumpers (3).

CAUTION

Damage to 115V/230V switch wiring could occur if bottom plate is not removed carefully. To avoid wire damage, raise bottom plate away from chassis just high enough to replace fuse. Do not bend or place excessive strain on wires.

b. Slowly remove bottom plate (4).

c. Remove fuse (5).

Inspect

a. Inspect screws for damaged threads. Replace as required.

b. Inspect rubber bumpers. Replace as required.

c. Inspect fuse. Replace as required.

Assemble

a. Install fuse (5).

b. Install bottom plate (4).

c. Install two rubber bumpers (3), two screws(2), and two screws ()

END OF TASK

Section VII. PREPARATION FOR STORAGE OR SHIPMENT

2-27. SECURITY PROCEDURES

Refer to AR 190-11 or AR 190-13.

2-28. PREPARATION FOR STORAGE OR SHIPMENT

a. Remove antenna. Refer to paragraph 2-5.a(2).

b. Remove battery pack. Refer to paragraph 2-5.c(2).

c. Remove batteries from alkaline battery pack. Refer to TM 11-5820-1048-10.

d. Remove speaker/microphone. Refer to paragraph 2-5.c(2).

e. If original shipping containers are available, proceed as follows:

(1) Place speaker/microphone, Ni-Cd battery pack, antenna, and R/T in styrofoam pack.

(2) Place battery charger in styrofoam pack and then in cardboard box.

(3) Place alkaline battery pack in small plastic bag.

(4) Place three packages above in large cardboard box along with speaker/microphone nylon cover and R/T nylon holster. Fill box with plastic peanuts.

(5) Seal cardboard box with filament or other suitable packaging tape.

(6) Mark shipping container 'FRAGILE--DELICATE EQUIPMENT" to ensure proper handling.

2-29. TYPES OF STORAGE

a. Short-term (administrative) = 1 to 45 days. All equipment in administrative storage must be able to be made ready within 24 hours for use on a mission. Before placing any item in administrative storage, make sure the next scheduled PMCS has been done and any deficiencies have been corrected. The administrative storage site should provide required protection from extreme weather conditions and allow you to reach the equipment for visual inspections or exercises when applicable.

b. Intermediate = 46 to 180 days.

c. Long-term = over 180 days.

CHAPTER 4

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

4-1. INTRODUCTION

Maintenance instructions at the intermediate general support maintenance level are limited to testing various parameters of the radio set. If the radio set fails any test, notify depot level maintenance. Refer to Appendix B for tools and test equipment required. Refer to Appendix E for fabrication instructions for test cables.

4-2. REVIEW AND RECORD PROGRAMMING

This procedure is to check for any programming errors which could cause a malfunction or apparent malfunction of the radio set and record frequencies used by the operator for later testing in case there is a problem which only occurs at a specific frequency.

a. Review any paperwork with the radio set for trouble symptoms which could be caused by programming errors.

b. Review and record programming settings without altering them. Normal indications are given below. Refer to Chapter 2, paragraph 2-6, for procedures to review data.

CHANNEL 0

ID number - may be any number determined by using unit

TX timeout timer 0-225 SEC

PROG SCAN - 0 - 7.5 SEC. Will not affect unit operation.

GROUP 1 FUNCTIONS
Normal setting is 1, 2, and 3 steady and 4 and 5 flashing.

GROUP 2 FUNCTIONS
Normal setting is 1, 2, 3, 4, and 5 steady.

CHANNELS 1 thru 14
Normal settings are:

RX frequency - any frequency between 136.0000 and 160.0000 MHz

RX CG - 0.0

TX frequency - same as RX frequency for channels in use, 0.0 for unused channels.

TX CG - 0.0

4-3. DISPLAY FUNCTION TEST

NOTE

This test verifies the functioning of the Liquid Crystal Display (LCD), the PRI KEY, the individual numbers keys of the keypad, and that the R/T cycles through its programming sequence correctly.

a. Remove nylon holster. Refer to paragraph 2-5.f(2).

b. Access keyboard. Refer to paragraph 2-6.b(1).

c. Set program mode. Refer to paragraph 2-6.b(2).

d. Press FCN key. Verify display shows PROG ID and up to seven numbers.

e. Press CLR key. Verify display shows PROG ID and the rest of the display blanks.

f. Press and release 0 key seven times and verify that display shows all zeros.

g. Repeat step h for number keys 1-9.

h. Press and release CLR key.

i. Press and release PRI key several times and verify that display increments each time.

j. Press FCN key. Verify display shows PROG TX and a value between 0 and 225 SEC.

k. Press FCN key. Verify display shows PROG SCAN and a value between 0.0 and 7.5 SEC.

l. Press FCN key. Verify display shows PROG 1- 12345.

m. Press FCN key. Verify display shows PROG 2- 12345.

n. Press FCN key. Verify display shows PROG Ch 0.

o. Press number key 1. Verify display shows PROG Ch 1.

p. Press FCN key. Verify display shows PROG RX and a frequency value.

q. Press FCN key. Verify display shows PROG RX CG and a value.

r. Press FCN key. Verify display shows PROG TX and a frequency value.

s. Press FCN key. Verify display shows PROG TX CG and a value.

t. Press FCN key. Verify display loops back to show previous selected channel PROG Ch 1.

u. Press PRI key. Verify display shows PROG Ch 2.

v. Press CLR key. Verify display loops back to show PROG Ch 0.

w. Set OFF-VOL control to OFF (past detent) and channel select control to channel 1.

x. Set OFF-VOL control to on. Verify display shows Ch 1.

y. Rotate channel select control to channels 2 thru 4, verifying display shows corresponding Ch channel number for each channel position.

z. Set OFF-VOL control to OFF (past detent).

4-4. CHANNEL REGISTER FUNCTION TEST

This test checks the memory locations used to store the transmit and receive frequencies. The test uses a set of numbers that set each applicable bit to a logic 1 and a logic 0.

NOTE

The Electrically Erasable Programmable Read Only Memories (programming and testing will not use up an excessive amount EEPROM) used in the radio set have a life expectancy of approximately 10, 000 rewrite cycles. Normal maintenance of this life expectancy. However, repetitious reprogramming for training or other purposes should be kept to a minimum.

a. Refer to Chapter 2, paragraph 2-6, Programming. Place radio set in programming mode and program receive and transmit frequencies of channel 1 to 137.7700 MHz.

b. Press and release FCN key as many times as necessary to review all channel I parameters and verify frequencies displayed are as programmed.

c. Clear receive and transmit frequencies and key in 148887 for both receive and transmit. Display will show 148.8875.

d. Press and release FCN key as many times as necessary to review all channel I parameters and verify frequencies displayed are as stored.

e. Repeat steps a thru e for channels 2 thru 14.

f. Exit programming mode.

4-5. PROGRAM TEST PARAMETERS

This procedure specifies the standard frequencies and values to be programmed into the R/T for the tests that follow. This is not intended to replace testing of the R/T at the frequencies of the using unit if a problem is suspected at any of those frequencies.

a. Refer to Chapter 2, paragraph 2-6.b(1), Accessing Keyboard, and 2-6.b(2), Setting Programming Mode, and enter programming mode.

b. Refer to Chapter 2, paragraph 2-6.b(4), Changing Program Data, and store the following values in the memory of the R/T.

(1) Verify display shows PROG Ch 0. If not, turn OFF-VOL control to OFF (past detent) and then refer to paragraph 2-6.b(2).

(2) Press FCN key. Verify display shows PROG ID and up to seven digits. If no digits, refer to paragraph 2-6.b(4)(a).

(3) Press ENT key. Verify display shows PROG TX and timeout time in seconds. Set timeout time to 0 SEC. Refer to paragraph 2-6.b(4)(b).

(4) Press ENT key. Verify display shows PROG SCAN and scan delay time in seconds. (Scan delay time will not affect operation) Display may be changed by pressing PRI key.

(5) Press ENT key. Verify display shows PROG l- 12345, where functions 1, 2, and 3 are steady and 4 and 5 are flashing. If functions are in accordance with specification, press FCN key. If function(s) is/are not according to specification, press the appropriate number key(s) and then press ENT key.

(6) Verify display shows PROG 2- 12345, where functions 1, 2, 3, 4, and 5 are steady. If functions are in accordance with specification, press FCN key. If function(s) is/are not according to specification, press the appropriate number key(s) and then press ENT key.

(7) Verify display shows PROG Ch 0. Press number key 1 and then press FCN key. Display shows PROG RX and a receive frequency.

(8) Press CLR key, press number keys 1, 3, 6, 0, 2, and 5 in sequence, and then press ENT key. Display shows PROG RX CG and a value.

(9) Press CLR key. Display shows PROC RX CC 0.0. Press ENT key.

(10) Display shows PROG TX and a transmit frequency. Press CLR key, press number keys 1, 3, 6, 0, 2, and 5 in sequence, and then press ENT key. Display shows PROC TX CC and a value.

(11) Press CLR key. Display shows PROC TX CC 0.0.

(12) Press ENT key. Display shows PROC Ch 1.

(13) Press PRI key. Display shows PROG Ch 2.

(14) Press FCN key. Display shows PROC RX and a receive frequency.

(15) Press CLR key, press number keys 1, 4, 7, 1, 0, and 0 in sequence, and then press ENT key. Display shows PROC RX CG and a value.

(16) Press CLR key. Display shows PROG RX CC 0.0.

(17) Press ENT key. Display shows PROG TX and a transmit frequency. Press CLR key, press number keys 1, 4, 7, 1, 0, and 0 in sequence, and then press ENT key. Display shows PROC TX CC and a value.

(18) Press CLR key. Display shows PROC TX CC 0.0.

(19) Press ENT key. Display shows PROC Ch 2.

(20) Press PRI key. Display shows PROG Ch 3.

(21) Press FCN key. Display shows PROG RX and a receive frequency.

(22) Press CLR key, press number keys 1, 5,9, 9, 0, and 0 in sequence, and then press ENT key.

(23) Press CLR key. Display shows PROG RX CG 0.0.

(24) Press ENT key. Display shows PROG TX and a transmit frequency. Press CLR key, press number keys 1, 5, 9, 9, 0, and 0 in sequence, and then press ENT key.

(25) Press CLR key. Display shows PROG TX CG 0.0.

(26) Press ENT key. Display shows PROG Ch 3.

(27) Set OFF-VOL control to OFF (past detent).

4-6. TRANSMITTER CARRIER FREQUENCY ACCURACY TEST

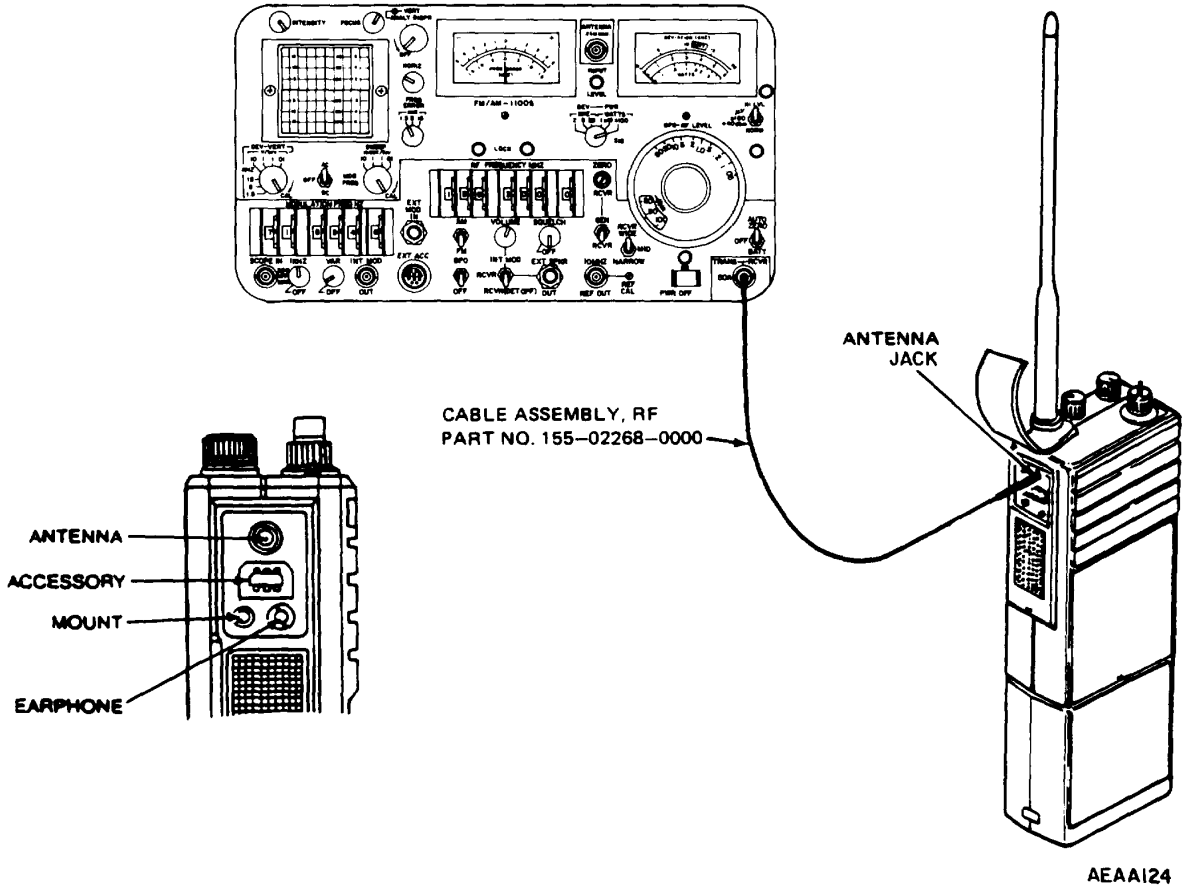
This test verifies that the R/T is transmitting at a frequency close enough to its programmed frequency to provide reliable communications.

a. Set controls as follows:

AN/GRM-114A	
HI LVL/uV x100/NORM	NORM
AUTO ZERO/OFF/BATT	AUTO ZERO
PWR/OFF/BATT	PWR or BATT
RCVR WIDE/MID/NARROW	NARROW
GEN/RCVR	RCVR
SQUELCH	fully ccw detent OFF
INT MOD/RCVR/RCVR (DET OFF)	RCVR
VOLUME	fully ccw
BFO/OFF	OFF
AM/FM	FM
1KHz/OFF	fully ccw detent OFF
AC/OFF/DC	OFF
RF FREQUENCY MHz	159.900 MHz
FREQ ERROR	1.5 KHz
DEV/POWER	x1 WATTS
VAR/OFF	fully ccw detent OFF
Radio Set R/T	
CG-SQ	any position but CG
OFF-VOL	on
channel select	channel 3 (159.900 MHz)

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

b. Connect equipment as shown.



NOTE

Transmitter should be keyed at least 5 seconds prior to reading FREQ ERROR meter.

c. Press push-to-talk control. Observe AN/GRM-114A FREQ ERROR meter while switch is keyed. Indication must be no greater than ±900 Hz.

d. Release push-to-talk control.

e. Set R/T OFF-VOL control to OFF.

4-7. TRANSMITTER OUTPUT POWER TEST

This test verifies that the R/T is generating sufficient RF output power.

a. Set controls as follows:

AN/GRM-114A

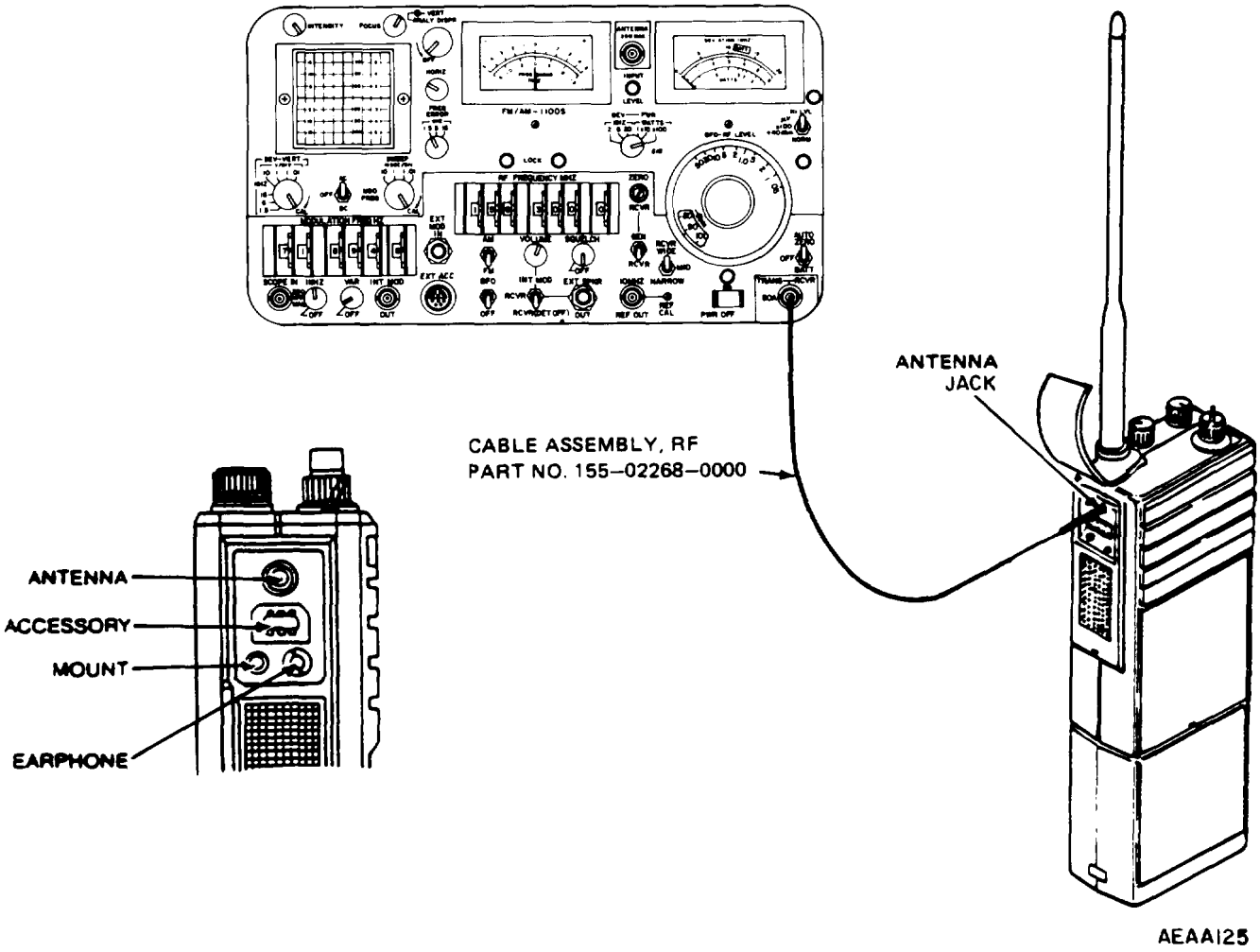
AUTO ZERO/OFF/BATT	AUTO ZERO
PWR/OFF/BATT	PWR or BATT
RCVR WIDE/MID/NARROW	NARROW
GEN/RCVR	RCVR
SQUELCH	on
INT MOD/RCVR/RCVR (DET OFF)	RCVR
BFO/OFF	OFF
AM/FM	FM
AC/OFF/DC	OFF
FREQ ERROR	1.5 KHz
DEV/POWER	x1 WATTS

Radio Set R/T

CG-SQ	any position but CG
OFF-VOL	on
channel select	channel 3 (159.900 MHz)

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

b. Connect equipment as shown.



c. Press push-to-talk control. Power meter must indicate 1.4 watts minimum.

d. Release push-to-talk control.

e. Set R/T channel select control to channel 2 (147.100 MHz).

f. Press push-to-talk control. Power meter must indicate 1.4 watts minimum.

g. Release push-to-talk control.

h. Set channel select control to channel 1 (136.025 MHz).

i. Press push-to-talk control. Power meter must indicate 1.4 watts minimum.

j. Release push-to-talk control.

k. Set OFF-VOL control to OFF.

l. Disconnect test equipment from Radio Set.

4-8. TRANSMITTER MODULATION LIMITING TEST

This test verifies that:

- The R/T is adequately sensitive to the normal signal level provided by the external speaker/microphone.
- Large increases in input signal level will not cause the R/T frequency deviation to exceed the allowable channel width and cause interference with adjacent channels.
- Modulation (deviation) will stay within acceptable limits for voice band frequencies between 300 and 3000 Hz.

a. Set controls as follows:

AN/GRM-114A

AUTO ZERO/OFF/BATT	AUTO ZERO
PWR/OFF/BATT	PWR or BATT
RCVR WIDE/MID/NARROW	NARROW
GEN/RCVR	RCVR
SQUELCH	cw out of detent
INT MOD/RCVR/RCVR (DET OFF)	RCVR
VOLUME	comfortable listening level
BFO/OFF	OFF
AM/FM	FM
1KHz/OFF	OFF
MODULATION FREQ Hz	1000 Hz
AC/OFF/DC	OFF
RF FREQUENCY MHz	136.025 MHz
DEV/POWER	6 KHz
VAR/OFF	fully ccw detent OFF

MM-1OOE

DC ZERO OFFSET	OFF
FUNCTION	HI-Z
VOL	
RANGE	.1V

Radio Set R/T

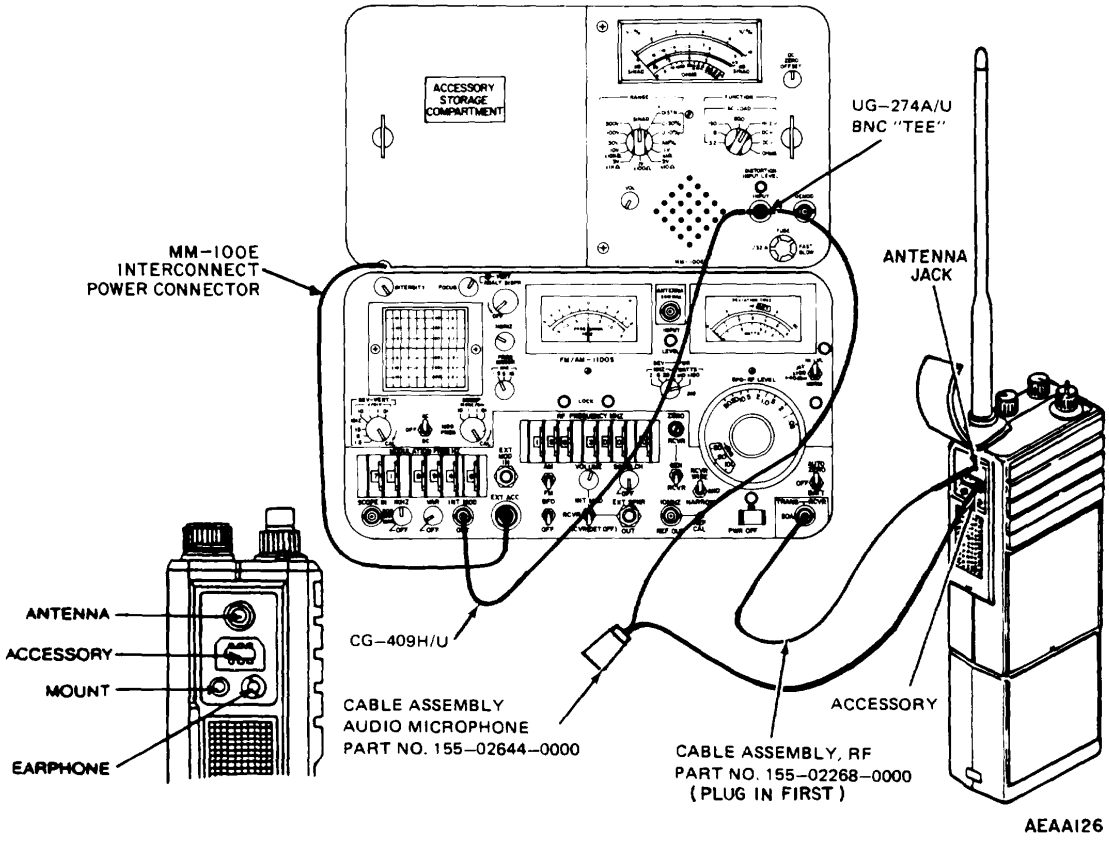
CG-SQ	any position but CG
OFF-VOL	on
channel select	channel 1 (136.025 MHz)

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

CAUTION

In step b. below, cable assembly, RF part no. 155-02268-0000 should be plugged into the R/T first, and then cable assembly, Audio microphone part no. 155-02644-0000 due to the cramped space between the connectors. Failure to follow this caution may cause damage to the equipment.

b. Connect equipment as shown.



c. Press push-to-talk control and adjust VAR/OFF control to produce an indication of 2.4 kHz on DEVIATION/WATTS meter.

d. Release push-to-talk control.

e. Record input signal level on METER display. Voltage must between 0.01 and 0.02 V rms.

f. Multiply voltage recorded in step e above by 10.

g. Set RANGE control to 0.3V.

h. Press push-to-talk control.

i. Observe DEVIATION/WATTS meter while adjusting VAR/OFF control to increase input signal level to voltage calculated in step f. Deviation must not exceed 5.4 kHz.

j. Release push-to-talk control.

k. Set MODULATION FREQ Hz thumbwheel switches to 300 Hz.

l. Press push-to-talk control. Deviation must not exceed 5.4 kHz.

m. Release push-to-talk control.

n. Set MODULATION FREQ Hz thumbwheel switches to 3000 Hz.

o. Press push-to-talk control. Deviation must not exceed 5.4 kHz.

p. Release push-to-talk control.

q. Set MODULATION FREQ Hz thumbwheel switches to 1000 Hz.

r. Set channel select control to channel 2 (147.100 MHz).

s. Set RF FREQUENCY MHz thumbwheel switches to 147.100 MHz.

t. Set VAR/OFF control fully ccw out of detent.

u. Set RANGE control to 0.1V.

v. Repeat steps c thru j.

w. Set channel select control to channel 3 (159.900 MHz).

x. Set RF FREQUENCY MHz thumbwheel switches to 159.900 MHz.

y. Set VAR/OFF control fully ccw out of detent.

z. Set RANGE control to 0.IV.

aa. Repeat steps c thru j

ab. Set OFF-VOL control to OFF.

ac. Disconnect test equipment from Radio Set.

4-9. TRANSMITTER DISTORTION TEST

This test verifies that the modulator circuits of the R/T do not distort the audio signal beyond the limits required for acceptable communication.

a. Set controls as follows:

AN/GRM-114A

AUTO ZERO/OFF/BATT	OFF
PWR/OFF/BATT	PWR or BATT
RCVR WIDE/MID/NARROW	NARROW
GEN/RCVR	RCVR
SQUELCH	ccw out of detent
INT MOD/RCVR/RCVR (DET OFF)	RCVR
VOLUME	comfortable listening level
BFO/OFF	OFF
AM/FM	FM
1KHz/OFF	OFF
MODULATION FREQ Hz	1000 HZ
AC/OFF/DC	OFF
RF FREQUENCY MHz	136.025 MHz
FREQ ERROR	1.5 KHz
DEV/POWER	6 KHz
VAR/OFF	fully ccw detent OFF

MM-100E

DC ZERO OFFSET	fully ccw detent
FUNCTION	HI-Z
VOL	fully ccw
RANGE	DISTN 0-10%

Radio Set R/T

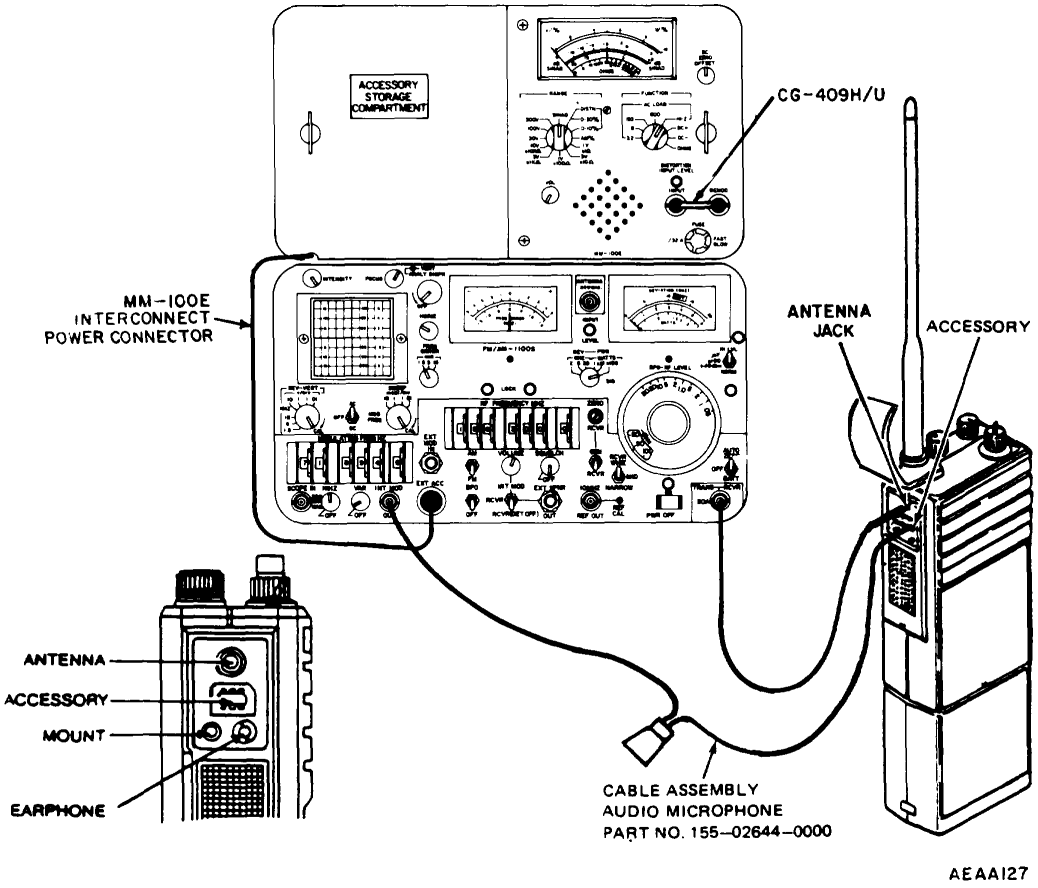
CG-SQ	any position but CG
OFF-VOL	on
channel select	channel 1 (136.025 MHz)

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

CAUTION

In step b. below, cable assembly, RF part no. 155-02268-0000 should be plugged into the R/T first, and then cable assembly, Audio microphone part no. 155-02644-0000 due to the cramped space between the connectors. Failure to follow this caution may cause damage to the equipment.

b. Connect equipment as shown.



c. Press push-to-talk control and adjust VAR/OFF control to produce an indication of 2.4 kHz on DEVIATION/WATTS meter.

d. Observe distortion on METER display. Distortion must be less than 8%.

e. Release push-to-talk control.

f. Set RF FREQUENCY MHz thumbwheel switches to 147.100 MHz.

g. Set channel select control to channel 2 (147.100 MHz).

h. Repeat steps c thru e.

i. Set RF FREQUENCY MHz thumbwheel switches to159.900 MHz.

j. Set channel select control to channel 3 (159.900 MHz).

k. Repeat steps c thru e.

I. Set OFF-VOL control to OFF.

m. Disconnect test equipment from Radio Set.

4-10. ANTENNA CONNECTOR CONTINUITY CHECK

This test verifies the quality of the connection between the antenna jack and the screw-in antenna connector. It is used to indirectly verify that transmitter output power measured in paragraph 4-7 is available at the screw-in antenna connector. This indirect method is used because the screw-in antenna connector does not provide a practical test point for connecting test equipment for a direct measurement.

a. Set controls as follows:

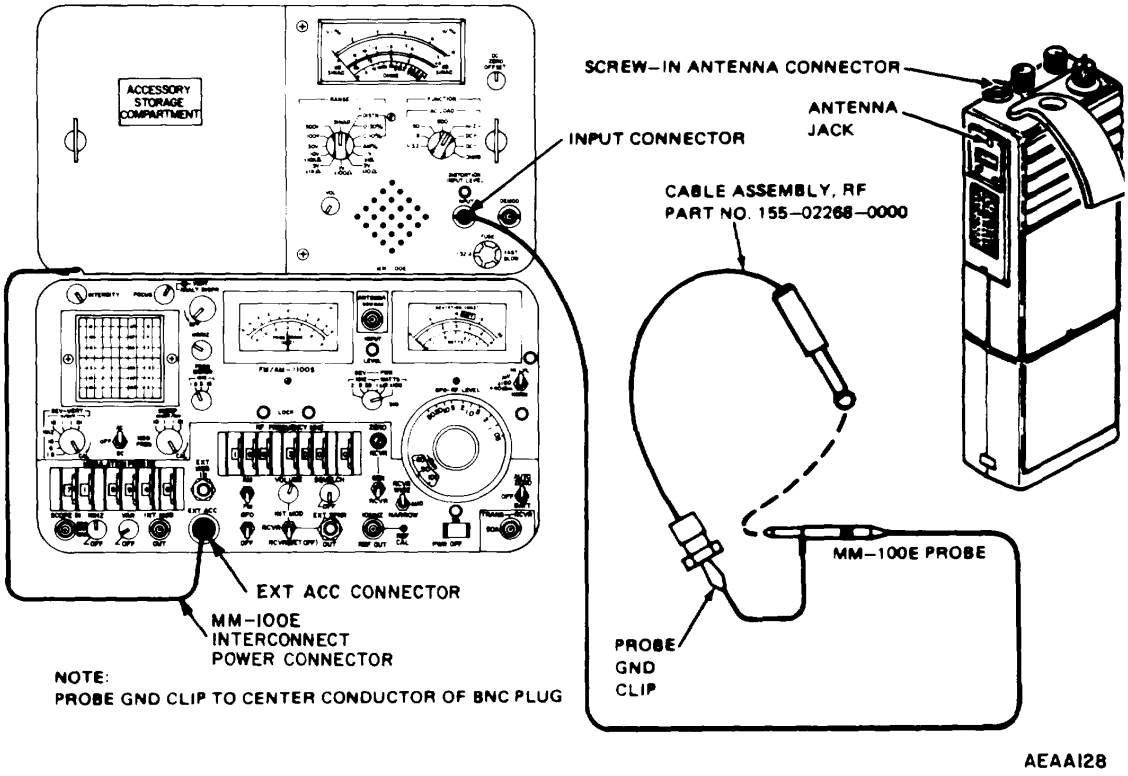
AN/GRM-114A	
AUTO ZERO/OFF/BATT	AUTO ZERO or OFF
PWR/OFF/BATT	PWR or BATT
M M-1OOE	
DC ZERO OFFSET	fully ccw detent
FUNCTION	OHMS
RANGE	xl Ohm
Radio Set R/T	
	OFF-VOL OFF

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

b. Connect equipment as shown.

NOTE

- **In steps that follow, do not let ground connection(s) of probe come in contact with outside of coaxial connector(s) or metallic portions of radio set. If you do, it could cause incorrect indications.**



c. Hold probe tip to tip of phone plug on rf cable assembly. Record ohms indication on METER display for future reference.

NOTE

In step that follows, if you insert plug too far into antenna jack, a switch will disconnect the screw-in antenna connector.

d. Leave rubber plug cover attached to R/T, but move it out of the way so that it will not interfere with measurements.

e. Hold tip of probe to screw-in antenna connector. At the same time, insert phone plug part way into R/T antenna jack until you just start to feel resistance. Record ohms indication of METER display.

f. Subtract indication in step c from indication in step d. Result must be no more than 1 ohm.

g. Disconnect test equipment from Radio Set.

4-11. TALK TEST

This test verifies that the microphone portion of the internal speaker/microphone is working, and that the R/T can be keyed by the push-to-talk control of the external speaker/microphone.

a. Set controls as follows:

AN/GRM-114A

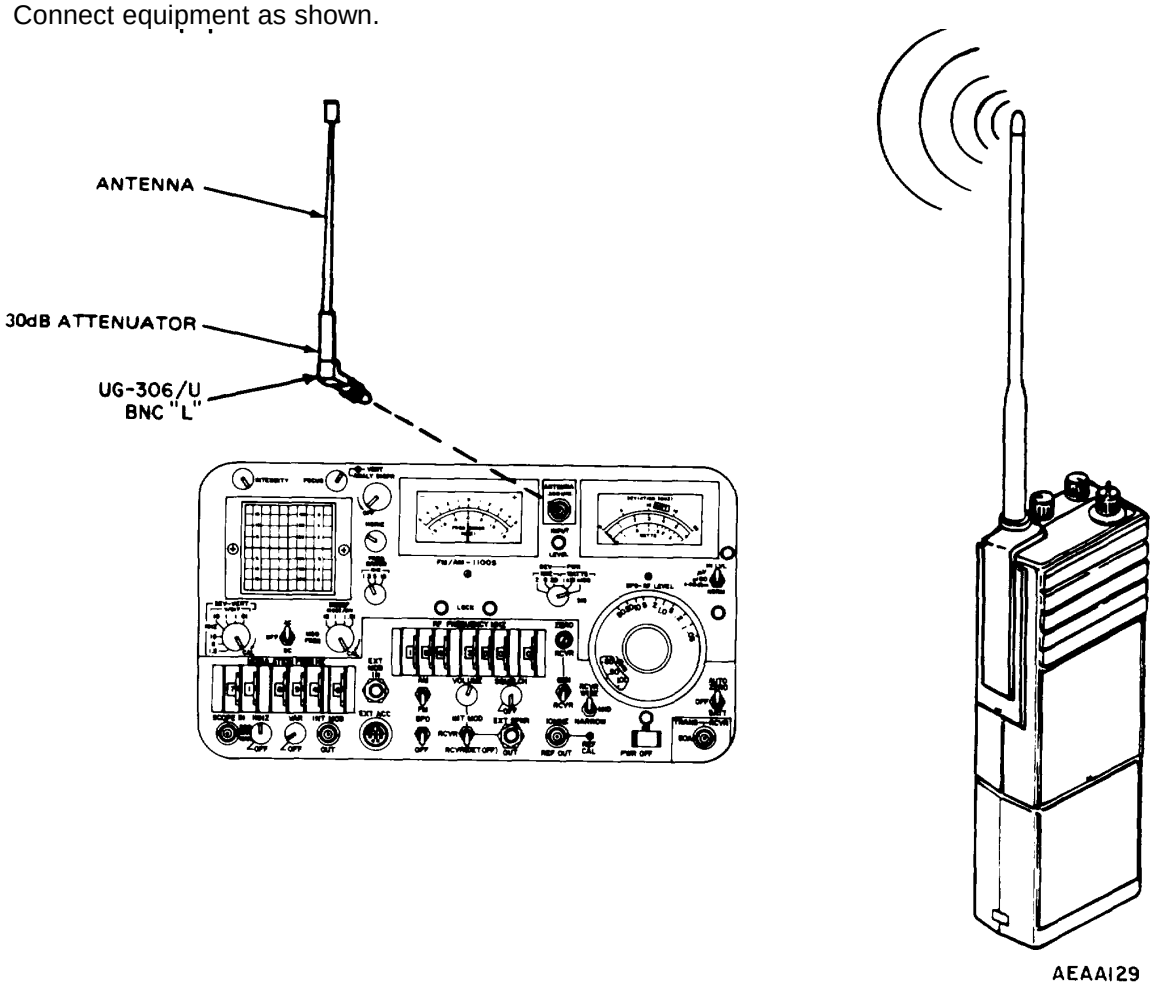
AUTO ZERO/OFF/BATT	AUTO ZERO
PWR/OFF/BATT	PWR or BATT
RCVR WIDE/MID/NARROW	NARROW
GEN/RCVR	RCVR
SQUELCH	ccw out of detent
INT MOD/RCVR/RCVR (DET OFF)	RCVR
VOLUME	comfortable listening level
BFO/OFF	OFF
AM/FM	FM
1KHz/OFF	OFF
AC/OFF/DC	OFF
RF FREQUENCY MHz	to authorized transmit frequency for your unit
FREQ ERROR	1.5 KHz
DEV/POWER	6 KHz
VAR/OFF	fully ccw detent OFF

Radio Set R/T

CG-SQ	any position but CG
OFF-VOL	on
channel select except 1, 2, 3	any channel programmed for authorized transmit frequency of your unit

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

b. Connect equipment as shown.



NOTE

In steps that follow, INPUT LEVEL indicator must light during testing, indicating that the AN/GRM-114A is receiving enough power to make accurate measurements. If it does not, move the radio set until it does or use a smaller attenuator with the AN/GRM-114A antenna.

c. Press push-to-talk control and speak into microphone at a normal speaking volume. Peak indication on DEVIATION/WATTS meter must be between 2.4 and 5.4 kHz.

d. Release push-to-talk control.

e. Connect external speaker/microphone to radio set. Refer to paragraph 2-5.d.

f. Press push-to-talk control and speak into microphone at a normal speaking volume. Peak indication on DEVIATION/WATTS meter must be between 2.4 and 5.4 kHz.

g. Release push-to-talk control.

h. Set OFF-VOL control to OFF.

i. Disconnect microphone. Refer to paragraph 2-21.

j. Disconnect test equipment from Radio Set.

4-12. RECEIVE AUDIO OUTPUT POWER AND DISTORTION TEST

This test verifies that the radio set will produce full rated audio output power and stay within acceptable distortion limits under conditions of both high and moderate input signal level.

a. Set controls as follows:

AN/GRM-1 14A

NOTE

Initial settings of HI LVL/uV x100/NORM switch and BFO- RF LEVEL control taken together produce an output signal level of 1000 uV rms (-46.5 dBm).

HI LVL/uV x100/NORM	UV x100
BFO-RF LEVEL	10 uV (-86.5 dBm)
AUTO ZERO/OFF/BATT	AUTO ZERO
PWR/OFF/BATT	PWR or BATT
RCVR WIDE/MID/NARROW	NARROW
GEN/RCVR	GEN
INT MOD/RCVR/RCVR (DET OFF)	INT MOD
VOLUME	fully ccw
BFO/OFF	OFF
AM/FM	FM
1KHz/OFF	OFF
MODULATION FREQ Hz	1000 HZ
AC/OFF/DC	OFF
RF FREQUENCY MHz	147.100 MHz
D EV/POWER	6 KHz
VAR/OFF	adjust to produce indication of 3 kHz on DEVIATION/WATTS meter

M M-100E

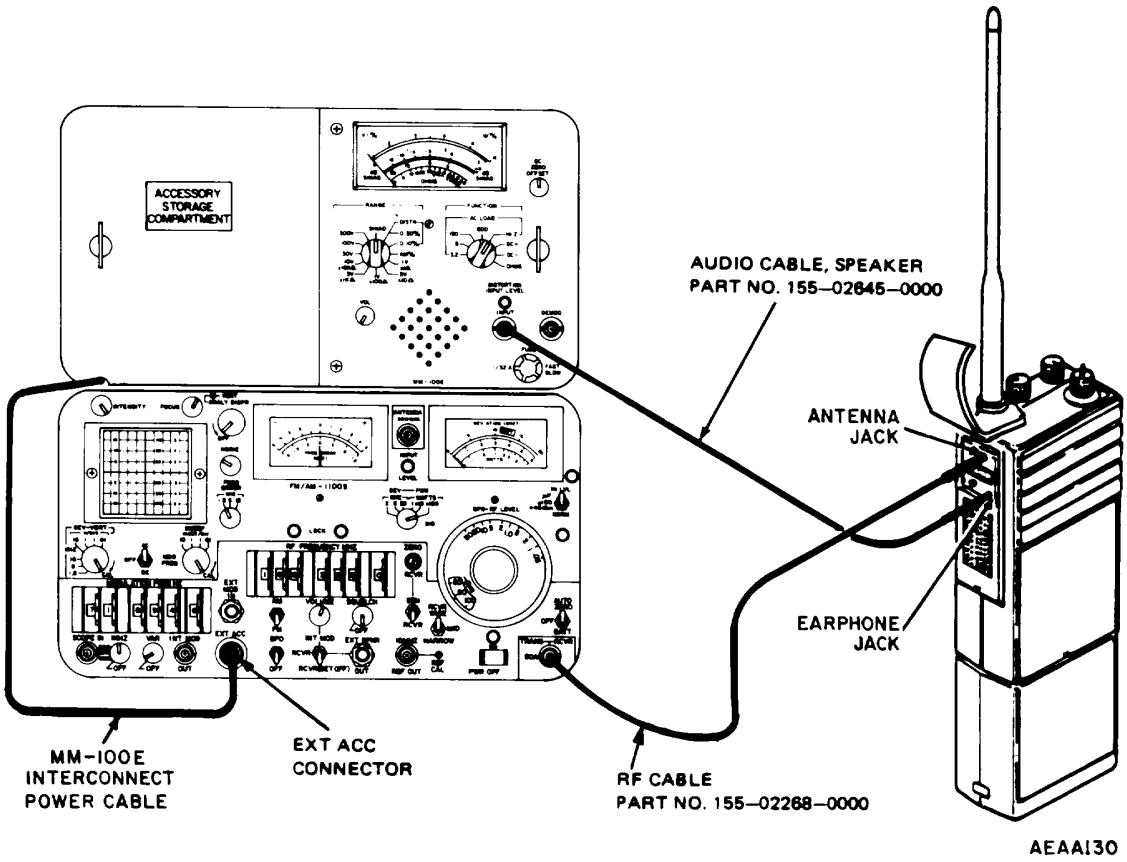
DC ZERO OFFSET	fully ccw
FUNCTION	8
VOL	comfortable listening level
RANGE	3 V

Radio Set R/T

CG-SQ	fully cw
OFF-VOL	OFF
channel select	channel 2 (147.100 MHz)

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

b. .....Connect equipment as shown.



c. Set OFF-VOL control fully cw.

d. Observe voltage on METER display. Voltage must be at least 1.85 V rms.

e. Adjust OFF-VOL control to obtain an indication of exactly 1.85 V rms.

f. Set RANGE control to DISTN 0-10% scale.

g. Observe distortion on METER display. Distortion must be less than 8%.

h. Set HI LVL/uV xlOO/NORM switch to NORM.

i. Set BFO-RF LEVEL control to -80 dBm.

j. Set RANGE control to 3V.

k. Repeat steps c thru g.

I. Set RANGE control to 300V (to avoid pegging METER display while equipment is being disconnected).

m. Set OFF-VOL control to OFF.

n. Disconnect test equipment from Radio Set.

4-13. RECEIVER SQUELCH SENSITIVITY TEST

This test verifies that squelch circuits will quiet the audio output in the absence of an incoming signal and that an incoming signal above the specified minimum level will cause the radio to 'break squelch".

a. Set controls as follows:

AN/GRM-114A

NOTE

Initial settings of HI LVL/uV x100/NORM sw itch and BFO- RF LEVEL control taken together produce an output signal level of 1000 uV rms (-46.5 dBm).

HI LVL/uV x100/NORM	UV x100
BFO-RF LEVEL	10 uV (-86.5 dBm)
AUTO ZERO/OFF/BATT	AUTO ZERO
PWR/OFF/BATT	PWR or BATT
RCVR WIDE/MID/NARROW	NARROW
GEN/RCVR	GEN
INT MOD/RCVR/RCVR (DET OFF)	INT MOD
VOLUME	fully ccw
BFO/OFF	OFF

AM/FM	FM
1KHz/OFF	OFF
MODULATION FREQ Hz	1000 HZ
AC/OFF/DC	OFF
RF FREQUENCY MHz	147.100 MHz
DEV/POWER	6 KHz
VAR/OFF	adjust to produce indication of 3 kHz on DEVIATION/WATTS meter

MM-100E

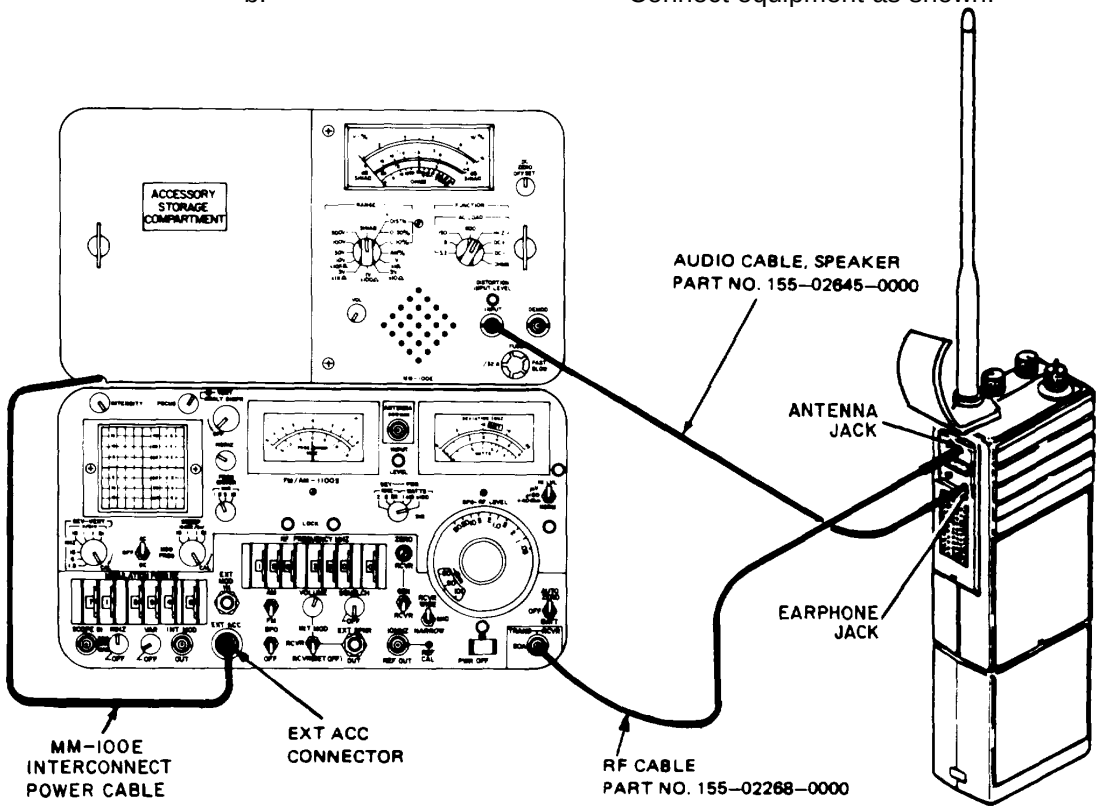
DC ZERO OFFSET	fully ccw
FUNCTION	8
VOL	comfortable listening level
RANGE	3V

Radio Set R/T

CG-SQ	fully cw
OFF-VOL	OFF
channel select	channel 2 (147.100 MHz)

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

b. Connect equipment as shown.



c. Adjust OFF-VOL control to produce an indication of 1.85 V rms on METER display.

d. Set HI LVL/uV xlOO/NORM switch to NORM.

e. Set BFO-RF LEVEL control fully ccw (output level less than -128 dBm).

f. Adjust CG-SQ control ccw just past point where receiver mutes.

g. Slowly adjust BFO-RF LEVEL control cw until receiver "breaks squelch" and stays open.

h. Observe RF signal level from BFO-RF LEVEL control. This level must be no greater than -119 dBm.

NOTE

If receiver does not mute in following step, readjust CC-SQ control slightly further ccw and repeat steps g thru i.

i. Set BFO-RF LEVEL control fully ccw (less than -128 dBm). Receiver must again mute.

j. Set OFF-VOL control to OFF.

k. Disconnect test equipment from Radio Set.

4-14. USABLE SENSITIVITY (12-dB SINAD) TEST

This test measures minimum input RF signal level required to produce a signal plus noise and distortion over noise and distortion (sinad) ratio of 12 dB at the audio output.

a. Set controls as follows:

AN/GRM-114A

NOTE

Initial settings of HI LVL/uV x100/NORM switch and BFO-RF LEVEL control taken together produce an output signal level of 1000 uV rms (-46.5 dBm).

HI LVL/uV x100/NORM	UV x100
BFO-RF LEVEL	10 uV (-86.5 dBm)
AUTO ZERO/OFF/BATT	OFF
PWR/OFF/BATT	PWR or BATT

RCVR WIDE/MID/NARROW	NARROW
GEN/RCVR	GEN
INT MOD/RCVR/RCVR (DET OFF)	INT MOD
VOLUME	fully ccw
BFO/OFF	OFF
AM/FM	FM
1KHz/OFF	OFF
MODULATION FREQ Hz	1000 HZ
AC/OFF/DC	OFF
RF FREQUENCY MHz	136.025 MHz
DEV/POWER	6 KHz
VAR/OFF	adjust to produce indication of 3 kHz on DEVIATION/WATTS meter

M M-100E

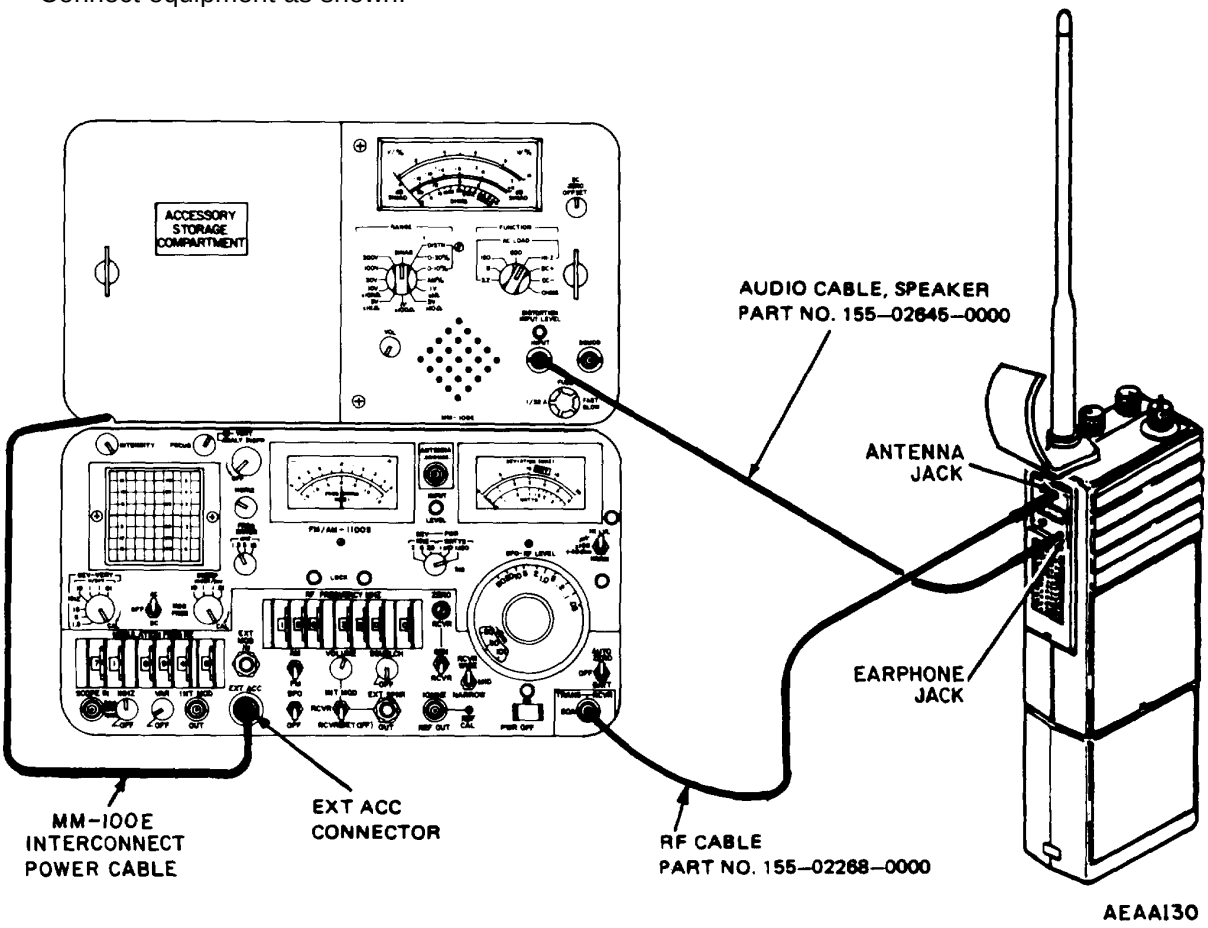
DC ZERO OFFSET	fully ccw
FUNCTION	8
VOL	comfortable listening level
RANGE	3V

Radio Set R/T

CG-SQ	fully cw
OFF-VOL	OFF
channel select	channel 1 (136.025 MHz)

SETTINGS OF OTHER CONTROLS ARE NOT APPLICABLE AT THIS TIME.

b. Connect equipment as shown.



c. Adjust R/T OFF-VOL control to produce an indication of 1.85 V rms on METER display.

d. Set HI LVL/uv x100/NORM switch to NORM.

e. Set RANGE control to SINAD.

f. Adjust BFO-RF LEVEL control to produce an indication of 12 dB on SINAD scale of METER display.

g. Observe rf signal level from BFO-RF LEVEL control. This level must be no greater than -114 dBm.

h. Set HI LVL/uV x100/NORM switch to uV x100.

i. Set BFO-RF LEVEL control to 10 uV (-86.5 dBm).

j. Set RANGE control to 3V.

k. Set RF FREQUENCY MHz thumbwheel switches to 147.100 MHz.

I. Set channel select control to channel 2 (147.100 MHz).

m. Repeat steps c thru j.

n. Set RF FREQUENCY MHz thumbwheel switches to 159.900 MHz.

o. Set channel select control to channel 3 (159.900 MHz).

p. Repeat steps c thru g.

q. Set RANGE control to 300V (to avoid pegging METER display).

r. Disconnect audio cable from R/T. A 1-kHz tone must be clearly audible from speaker.

s. Increase BFO-RF LEVEL control setting to -80 dBm.

NOTE

In following step, some distortion may be noticed at high volume. This is normal. GO/NO GO criteria for distortion is contained in other tests.

t. Adjust OFF-VOL control from fully ccw short of detent to fully cw and back. Volume must vary smoothly.

u. Set OFF-VOL control to OFF.

v. Disconnect test equipment from Radio Set.

4-15. OPERATIONAL (TALK) TEST

The purpose of this test is to insure that the GS maintenance technician looks at the radio set from the same point of view as the user and organizational maintenance. It is required only at GS level when a no-go indication is obtained for Transmitter Distortion Test (para 4-9) or Receiver Audio Output Power and Distortion Test (para 4-12).

a. .....Refer to paragraph 2-11 and proceed as indicated.

b. .....After completion of test, set OFF-VOL control to OFF and prepare radio set for return to using unit/return to stock.

APPENDIX A

REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, service bulletins, technical manuals, and miscellaneous publications referenced in 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

Report of Discrepancy (ROD) ..... DD Form 6

Transportation Discrepancy in Shipment Report (TDR) ..... SF Form 361

Product Quality Deficiency Report ..... SF Form 368

A-3. FIELD MANUALS

First Aid for Soldiers ..... FM 21-11

General Repairs for Canvas and Webbing ..... FM 43-3

A-4. TECHNICAL MANUALS

Operator's Manual, Radio Set AN/PRC-1271 ..... TM 11-5820-1048-10

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

A-5. MISCELLANEOUS

Reporting of Transportation Discrepancies in Shipment.....R 55-3

The ARMY Physical Security Program.....AR 190-11, AR 190-13

Reporting of Item and Packaging Discrepancies.....AR 735-11-2

Consolidated Index of Army Publications and Blank Forms.....DA Pam 25-30

The Army Maintenance Management System (TAMMS).....DA Pam 738-750

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL.

a. .....This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

b. .....The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

c.....Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from Section II

d. .....Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

a. .....Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination; e.g., by sight, sound, or feel.

b. .....Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, of electrical characteristics of an item and comparing those characteristics with prescribed standards.

c.....Service. Operations required periodically to keep an item in proper operating condition; i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. .....Adjust. To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. .....Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. .....Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. .....*Remove/Install*. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. .....*Replace*. To remove an unserviceable item and install a serviceable counterpart in its place. Replace' is authorized by the MAC and is shown as the third position code of the SMR code.

i.....*Repair.* The application of maintenance services, including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j.....*Overhaul* That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications; i.e., DMWR. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k.....*Rebuild*. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II.

a. .....Column 1. Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00."

b. .....Column 2. Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c.....Column 3. Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2.)

d. Column 4. Maintenance Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within maintenance function varies at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

C -Operator or crew
0 -Unit maintenance
F -Direct support maintenance
H -General support maintenance
D -Depot maintenance

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

f. .....Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

a. .....Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. .....Column 2, Maintenance Category. The lowest category of maintenance authorized to use the tool or test equipment.

c.....Column 3, Nomenclature. Name or identification of the tool or test equipment.

*d. .....*Column 4, National Stock Number. The National stock number of the tool or test equipment.

e. .....Column 5, Tool Number. The manufacturer's part number.

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

a. .....Column 1, Reference Code. The code recorded in Column 6, Section II.

b. .....Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MANTENANCE ALLOCATION CHART FOR RADIO SET AN/PRC-127

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Eqpt	(6) Remarks
			C	O	F	H	D		
00	RADIO SET AN/PRC-127	INSPECT		0.10					
		TEST							A
		SERVICE	0.05						B
		ADJUST							C
		REPLACE		0.30					
		REPAIR		0.10				2	D
01	RECEIVER/ XMTR RT-15494/ PRC-127	INSPECT		0.20		0.10			
		TEST				0.40		1, 3-8	E,F
		REPLACE							
02	BATTERY CHARGER	TEST		0.05				9	
		REPLACE							
		REPAIR		0.10				2	G
				0.05					
				0.10					

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR RADIO SET AN/PRC-127

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/ NATO STOCK NUMBER	TOOL NUMBER
1	H	RADIO TEST SET AN/GRM-114A	6625-01-144-4481	
2	O	TOOL KIT, TK-101/G	5180-00-064-7178	
3	H	RF CABLE (Local Fabrication)		155-02268-000
4	H	AUDIO CABLE, SPEAKER (Local Fabrication)		155-02645-0000
5	H	CABLE ASSY, CG-409H/U	5999-00-052-5841	
6	H	TOOL KIT, TK-105/G	5180-00-610-8177	
7	H	AUDIO CABLE, MICROPHONE (Local Fabrication)		155-02644-0000
8	H	ADAPTER CONNECTOR, UG-274A/ U	5935-00-201-2411	
9	O	MULTIMETER, DIGITAL AN/PSM-45A	6625-01-139-2512	

SECTION IV. REMARKS FOR RADIO SET AN/GRC-240

REFERENCE CODE	REMARKS
A	Operational test
B	Service radio set by recharging battery pack or by replacing battery pack.
C	Adjust radio set by programming/reprogramming channels 1-14.
D	Repair of the radioconsists of tightening/replacing the control knobs, replacing the antenna, speaker/microphone, carrying case, door cover, side plug cover.
E	Perform operational tests and receiver/transmitter power, frequency, modulation, squelch, and sensitivity tests to determine serviceability.
F	Send faulty receiver/transmitters to depot for final disposition.
G	Repair battery charger by replacing fuse, rubber bumpers, and screws.

APPENDIX C

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

C-1. Scope

This appendix lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for perrormance of organizational, direct support, and general support maintenance of theAN/PRC-127.Itauthorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

C-2. General

This Repair Parts and Special Tools List is divided into the following sections.:

a. Section II. Repair Parts List A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numeric sequence, with the parts in each group listed in ascending item number sequence. Figure numbers are listed directly beneath the group header.

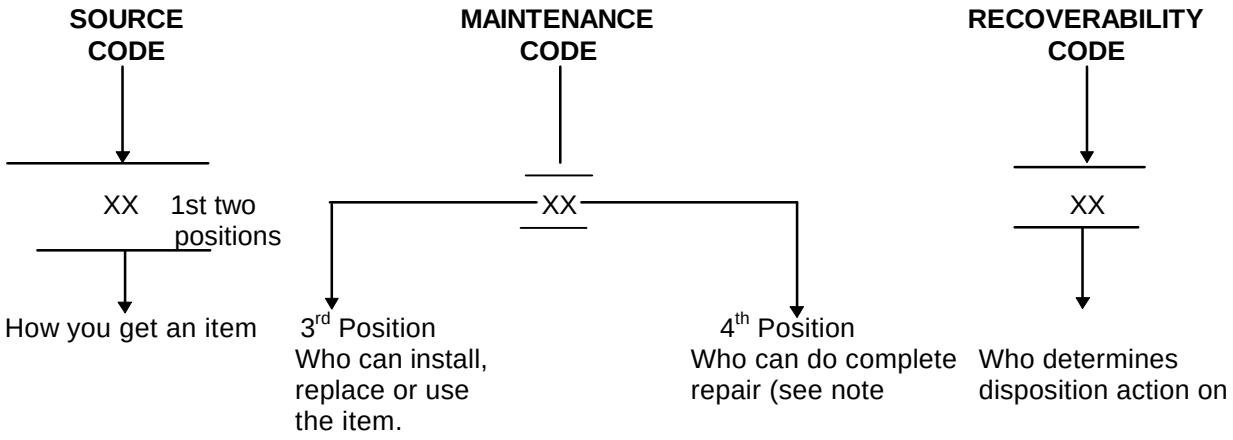
b. Section III. Special Tools List A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in (column 5)) for the performance of maintenance.

c. Section IV. Cross-Reference Indexes A list, in National item identification number (NIIN) sequence, of all National stock numbered items appearing in the listing, followed by a list in alphameric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance. The figure number and item number index lists figure and item numbers in numeric sequence and cross-references National stock number, Federal Supply Code for Manufacturer and part numbers.

C-3. Explanation of Columns (Section II and III)

a. Item No. (Column (1)). Indicates the number used to identify items called out in the illustration.

b. SMR Code(Column (2)). The source, maintenance, and recoverability(SMR)code is a five-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



NOTE

Complete repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) Source code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follows:

Code	Explanation
PA PB PC PD PE PF PG	Stocked items: use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the third position of the SMR code. **NOTE** **Items coded PC are subject to deterioration.**
KD KF KB	Items with these codes are not to be KFB)requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the third position of the SMR code. The complete kit must be requistioned and applied.

Code	Explanation
MO–Made at org/AVUM category MF–Made at DS/AVUM category MH–Made at GS category ML–Made at Specialized Repair Activity (SRA) MD–Made at Depot	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the description and usable on code (UOC) column and listed in the Bulk Material group of the repair parts list. If the item is authorized to you by the third position code of the SMR code, but the source code indicates it is made at a higher category, .order the item from the higher category of maintenance.
AO –Assembled by org/AVUM category AF –Assembled by DS/AVUM category AH –Assembled by GS category AL –Assembled by SRA AD –Assembled by Depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the category of maintenance indicated by the source code. If the third position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher category, order the item from the higher category of maintenance.

	Explanation
XA -	Do not requisition an "XA" codeditem. Order its next higher assembly.
XB -	If an "XB" item is not available from salvage, order it using the FCSM and part number given.
XC -	Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.
XD -	Item is not stocked. Order an "XD" coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

(2) Maintenance code. Maintenance codes tell you the category of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

(a)The maintenance code entered in the third position tells you the lowest maintenance category authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following categories of maintenance.

Code	Application/Explanation
C -	Crew or operator maintenance done within organizational or aviation maintenance.
O -	Organizational or aviation unit category can remove, replace, and use the item.
F -	Direct support or aviation intermediate category can remove, replace, and use the item.
H -	General support category can remove, replace, and use the item.
L -	Specialized repair activity can remove, replace, and use the item.
D -	Depot category can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies the lowest maintenance category with the capability to do complete repair (i.e., perform all authorized repair functions). This position will contain one of the following maintenance codes.

NOTE

Some limited repair may be done on the item at a lower category of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

Code	**Application/Explanation**
O -	Organizational or aviation unit is the lowest category that can do complete repair of the item.
F -	Direct support or aviation intermediate is the lowest category that can do complete repair of the item.
H -	General support is the lowest category that can do complete repair of the item.
L -	Specialized repair activity (designate the specialized repair activity) is the lowest category that can do complete repair of the item.
D -	Depot is the lowest category that can do complete repair of the item.

Code	Application/Explanation
Z -	Nonreparable. No repair is authorized.
B -	No repair is authorized.(No parts or special tools are authorized for the maintenance of a "B" coded item.) However, the item may be reconditioned by adjusting, lubricating, etc., at the user category.

(3) Recoverability code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR Code as follows:

Recoverability codes	Application/Explanation
Z -	Nonreparable item.When unserviceable, condemn and dispose of the item at the category of maintenance shown in the third position of SMR code.
O -	Reparable item. When uneconomically reparable, condemn and dispose of the item at organizational or aviation unit category.
F -	Reparable item. When uneconomically reparable, condemn and dispose of the item at direct support or aviation intermediate category.
H -	Reparable item. When uneconomically reparable, condemn and dispose of the item at general support category.
D -	Reparable item. When beyond lower category repair capability, return to depot. Condemnation and disposal of item not authorized below depot category.
L -	Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A -	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer appropriate manuals/directives for specific instructions.

c. FSCM (Column (3)). The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

d. Part Number (Column (4)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item. by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different part number from the part ordered.

e. Description and Usable on Code (UOC) (Column (5)). This column includes the following information.

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) In the Special Tools section, the basis of issue (BOI) appears as the last line in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.

(3) The statement "END OF FIGURE" appears just below the last item description in Column (5) for a given figure in both section II and section III.

f. Qty (Column (6)). Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

C-4. Explanation of Columns (Section IV)

a. National Stock Number (NSN) Index.

(1) Stock number column. This column lists the NSN by National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. When requisitioning items use the complete NSN (13 digits).

(2) Fig. column. This column lists the number of the figure where the item is identified/located.The illustrations are in numerical sequence in sections II and III.

(3) Item column. The item number identifies the item associated with the figure listed in the adjacent Fig. column. This item is also identified by the NSN listed on the same line.

b. Part Number Index. Part numbers in this index are listed by part number in ascending alphameric sequence.

(1) FSCM column. This column lists the Federal supply code for manufacturer (FSCM)

(2) Part number column. This column indicates the part number assigned to the item.

(3) Stock number column. This column lists the National stock number for the associated part number and manufacturer identified in the part number and FSCM columns to the left.

(4) Fig. column. This column lists the number of the figure where the item is identified/located in sections II and III.

(5) Item column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

c. Figure and Item Number Index.

(1) Fig. column. This column lists the number of the figure where the item is identified/located in sections II and III.

(2) Item column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

(3) Stock number column. This column lists the National stock number for the item.

(4) FSCM column. The Federal supply code for manufacturer (FSCM) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

(5) Part number column. Indicates the primary number used by the manufacturer(individual, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of item.

C-5. Special Information

National stock numbers (NSN's) that are missing from P source coded items have been applied for and will be added to this TM by future change/revision when they are entered in the Army Master Data File (AMDF). Until the NSN's are established and published, submit exception requisitions to: Commander, US Army Communications- Electronics Command and Fort Monmouth, ATTN: AMSEL-LC-MM, Fort Monmouth, NJ07703-5000 for the part required to support your equipment.

C-6. How to Locate Repair Parts

a. When National stock number or part number is not known.

(1) First. Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is

necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) Third. Identify the item on the figure and note the item number.

(4) Fourth. Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

b. When National stock number or part number is known.

(1) First. Using the index of National stock numbers and part numbers, find the pertinent National stock number or part number. The NSN index is in National item identification number (NIIN) sequence (para 4a(l)). The part numbers in the part number index are listed in ascending alphameric sequence (para 4b). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) Second. After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

C-7. Abbreviations

Not applicable.

Section II. REPAIR PARTS LIST

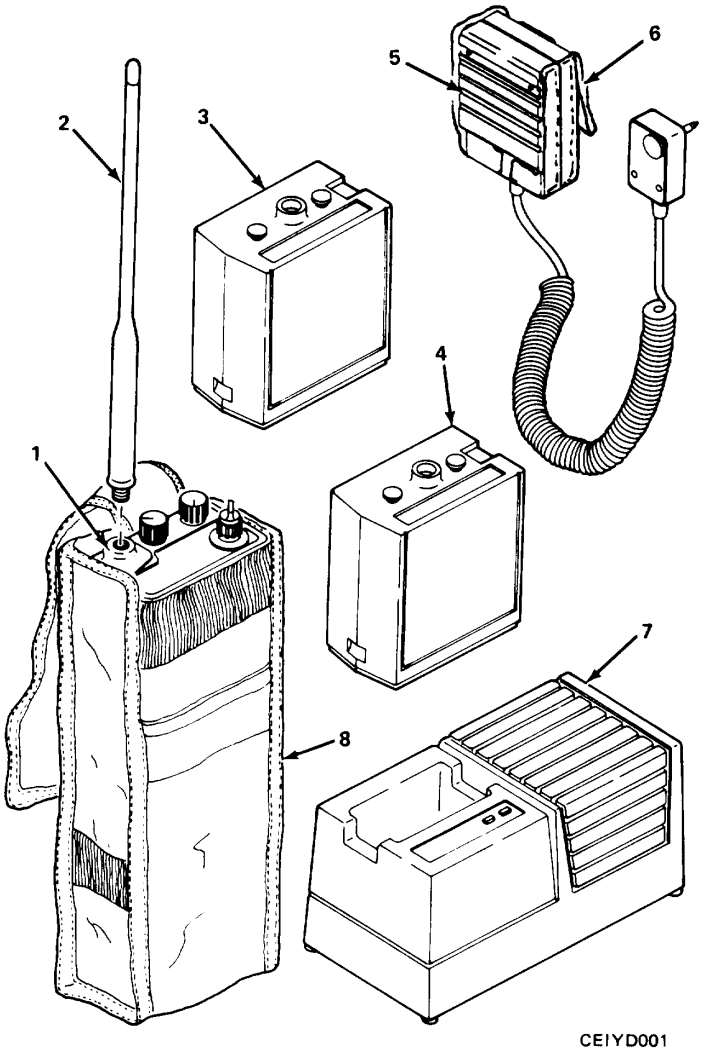


Figure C-1. Radio Set AN/PRC-127

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 00 RADIO SET AN/PRC-127	
				FIG. C-1	
1	PAODD	80058	RT-1594/PRC-127	RT-1594/PRC-127	1
2	PAOZZ	80058	AS-3960/PRC-127	ANTENNA KR-5/16-32X3/8, PORTABLE..... ANTENNA	1
3	PAOZZ	22373	200-3224-07	BATTERY ASSEMBLY BATTERY PACK, ... NICAD	1
4	PAOZZ	22373	071-0056-02	BATTERY ASSEMBLY BATTERY PACK, ... ALKAINE	1
5	PAOZZ	22373	071-3012-10	LOUDSPEAKER-MICROPH	1
6	PAOZZ	22373	071-0060-00	COVER, MICROPHONE.....	1
7	PAOOO	22373	062-0103-05	CHARGER, BATTERY	1
8	PAOZZ	22373	071-0059-00	BAG, TEXTILE	1
				END OF FIGURE	

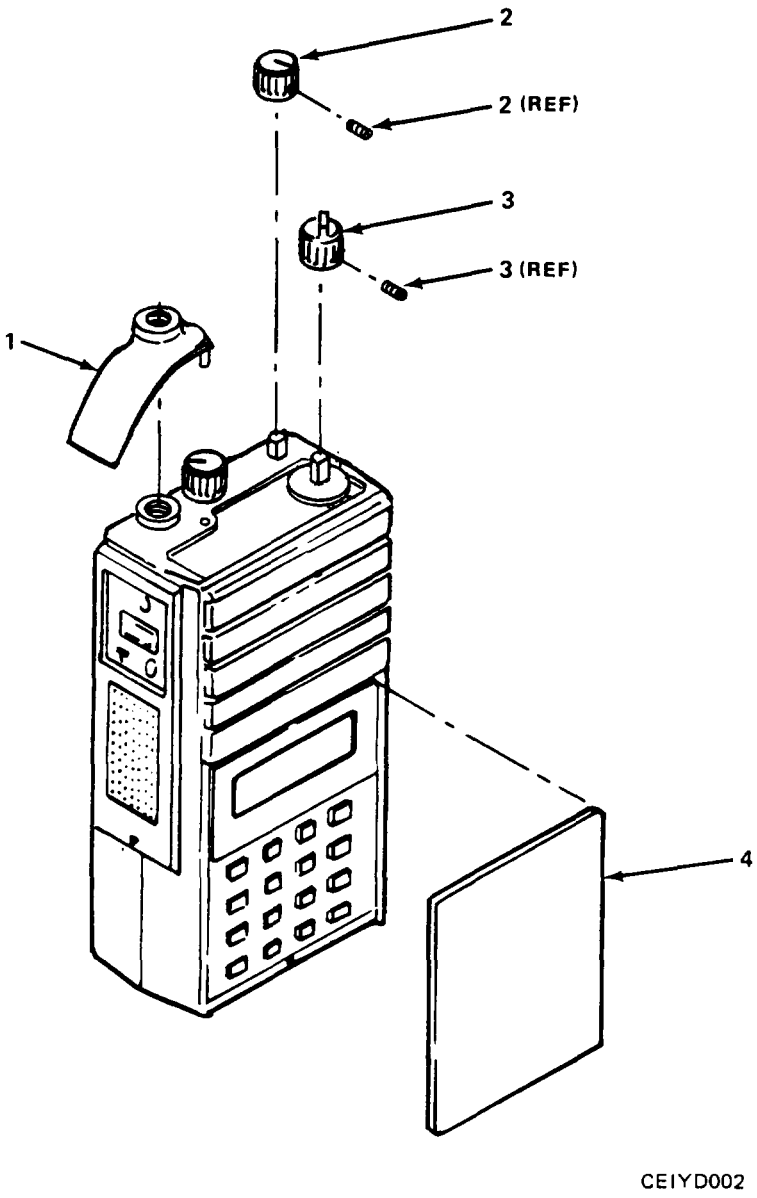


Figure C-2. Receiver/Transmitter RT-1594/PRC-127

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 01 RECEIVER/TRANSMITTER RT-1594/PRC-127 FIG. C-2	
1	PAOZZ	22373	088-2076-00	COVER, ACCESS	1
2	PAOZZ	22373	073-0602-05	KNOB	1
3	PAOZZ	22373	073-0601-05	KNOB	2
4	PAOZZ	22373	088-1306-00	DOOR, ACCESS	1

END OF FIGURE

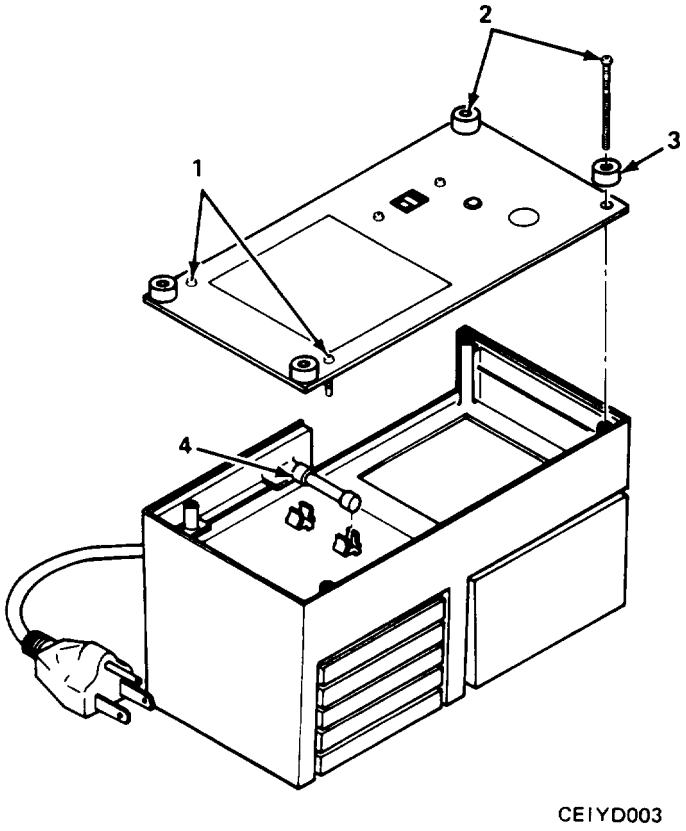


Figure C-3. Battery Charger

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 02 BATTERY CHARGER	
				FIG. C-3	
1	PAOZZ	22373	089-6294-12	SCREW, MACHINE SCR PTC 4-40X3/4	2
2	PAOZZ	22373	089-7255-28	SCREW SCR PTC 4-24X1 ¾	2
3	PAOZZ	77969	9102-A	BUMPER, NONMETALLIC	2
4	PAOZZ	81349	FM04A125V4A	FUSE, CARTRIDGE	1
				END OF FIGURE	

Section III. SPECIAL TOOLS LIST

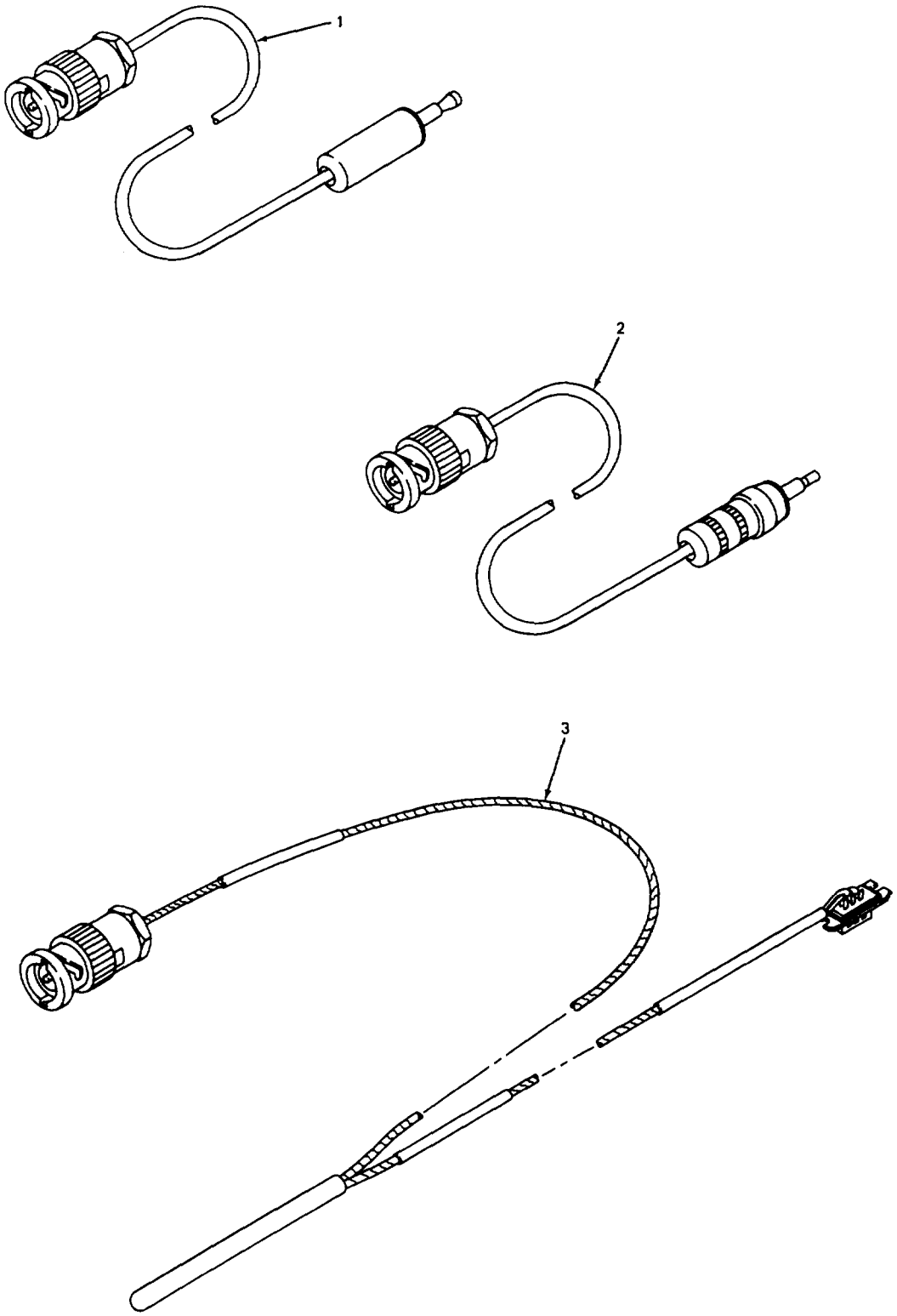


Figure C-4. Special Tools

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 20 SPECIAL TOOLS	
				FIG. C-4	
1	PAOZZ	22373	155-02268-0000	CABLE ASSEMBLY, RF BOI:1 PER 1-5 END ITEMS.....	
2	PAOZZ	22373	155-02645-0000	CABLE ASSEMBLY BOI:1 PER 1-5 END ITEMS.....	
3	PAOZZ	22372	155-02644-0000	CABLE ASSEMBLY BOI:1 PER 1-5 END ITEMS.....	
				END OF FIGURE	

CROSS- REFERENCE-INDEXES
NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5920-00-471-2548	C-3	4			
5340-00-805-6790	C-3	3			
6140-01-274-0835	C-1	3			
6130-01-274-0839	C-1	7			
5355-01-274-0840	C-2	2			
5355-01-274-0841	C-2	3			
5340-01-274-0856	C-2	4			
6135-01-274-5015	C-1	4			
5965-01-274-5016	C-1	5			
5985-01-274-5051	C-1	2			
5820-01-274-5063	C-1	1			
5340-01-274-5069	C-2	1			
8105-01-276-4810	C-1	8			
5965-01-292-8307	C-1	6			
5305-01-293-7870	C-3	1			
5305-01-298-7236	C-3	2			

CROSS-REFERENCE INDEXES
PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80058	AS-3960/PRC-127	5985-01-274-5051	C-1	2
81349	FM04A125V4A	5920-00-471-2548	C-3	4
80058	RT-1594/PRC-127	5820-01-274-5063	C-1	1
22373	062-0103-05	6130-01-274-0839	C-1	7
22373	071-0056-02	6135-01-274-5015	C-1	4
22373	071-0059-00	8105-01-276-4810	C-1	8
22373	071-0060-00	5965-01-292-8307	C-1	6
22373	071-3012-10	5965-01-274-5016	C-1	5
22373	073-0601-05	5355-01-274-0841	C-2	3
22373	073-0602-05	5355-01-274-0840	C-2	2
22373	088-1306-00	5340-01-274-0856	C-2	4
22373	088-2076-00	5340-01-274-5069	C-2	1
22373	089-6294-12	5305-01-293-7870	C-3	1
22373	089-7255-28	5305-01-298-7236	C-3	2
22373	155-02268-0000		C-4	1
22372	155-02644-0000		C-4	3
22373	155-02645-0000		C-4	2
22373	200-3224-07	6140-01-274-0835	C-1	3
77969	9102-A	5340-00-805-6790	C-3	3

CROSS-REFERENCE INDEXES
FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-1	1	5820-01-274-5063	80058	RT-1594/PRC-127
C-1	2	5985-01-274-5051	80058	AS-3960/PRC-127
C-1	3	6140-01-274-0835	22373	200-3224-07
C-1	4	6135-01-274-5015	22373	071-0056-02
C-1	5	5965-01-274-5016	22373	071-3012-10
C-1	6	5965-01-292-8307	22373	071-0060-00
C-1	7	6130-01-274-0839	22373	062-0103-05
C-1	8	8105-01-276-4810	22373	071-0059-00
C-2	1	5340-01-274-5069	22373	088-2076-00
C-2	2	5355-01-274-0840	22373	073-0602-05
C-2	3	5355-01-274-0841	22373	073-0601-05
C-2	4	5340-01-274-0856	22373	088-1306-00
C-3	1	5305-01-293-7870	22373	089-6294-12
C-3	2	5305-01-298-7236	22373	089-7255-28
C-3	3	5340-00-805-6790	77969	9102-A
C-3	4	5920-00-471-2548	81349	FM04A125V4A
C-4	1		22373	155-02268-0000
C-4	2		22373	155-02645-0000
C-4	3		22372	155-02644-0000

APPENDIX D

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE

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

D-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 materials; e.g., "Use lint-free cloth, item 3, Appx D."

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

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

c. Column (3) - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Commercial and Government Entity (CAGE) code in parentheses followed by the 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; e.g., ea, in., pr. If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	O	6135-01-274-5015	Battery Pack, Alkaline (22373) 071-0056-02	EA
2	O	6135-01-274-0835	Battery Pack, Ni-Cd (22373) 200-3224-07	EA
3	O	7920-00-965-4960	Cloth, Lint-Free (81348) CCC-C-444	YD
4	H	5985-01-274-5051	ANTENNA AS-3960/ PRC-127 (80058) 071-1299-30	EA
5	H	6130-01-274-0839	BATTERY CHARGER (22373) 062-0103-05	EA
6	H	5965-01-274-5016	SPEAKER/MICROPHONE (22373) 071-3012-10	EA

APPENDIX E

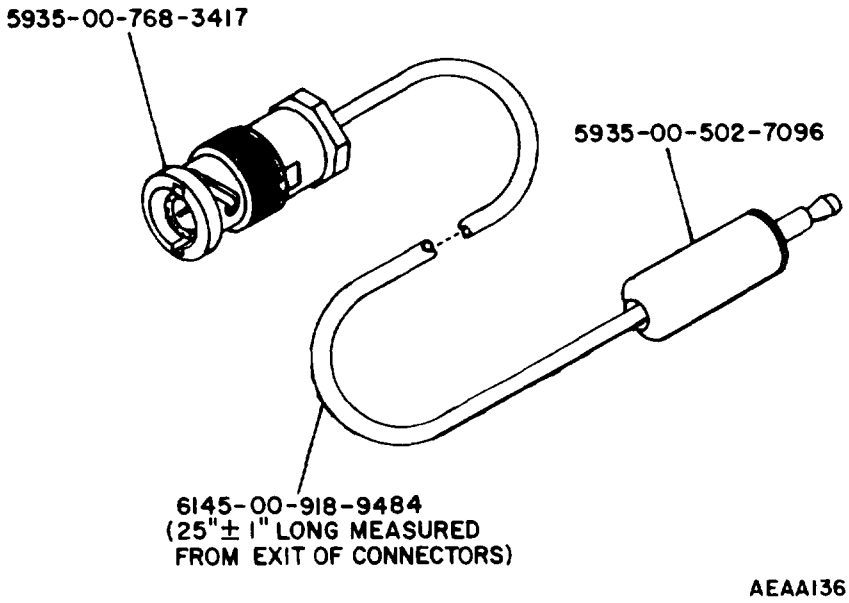
ILLUSTRATED LIST OF MANUFACTURED ITEMS

E-1. INTRODUCTION

This appendix includes complete instructions for making items authorized to be manufactured or fabricated at intermediate general support maintenance. A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the figure which covers fabrication criteria. All bulk materials needed for manufacture of an item are listed by part number on the illustration.

E-2. MANUFACTURED ITEMS PART NUMBER INDEX

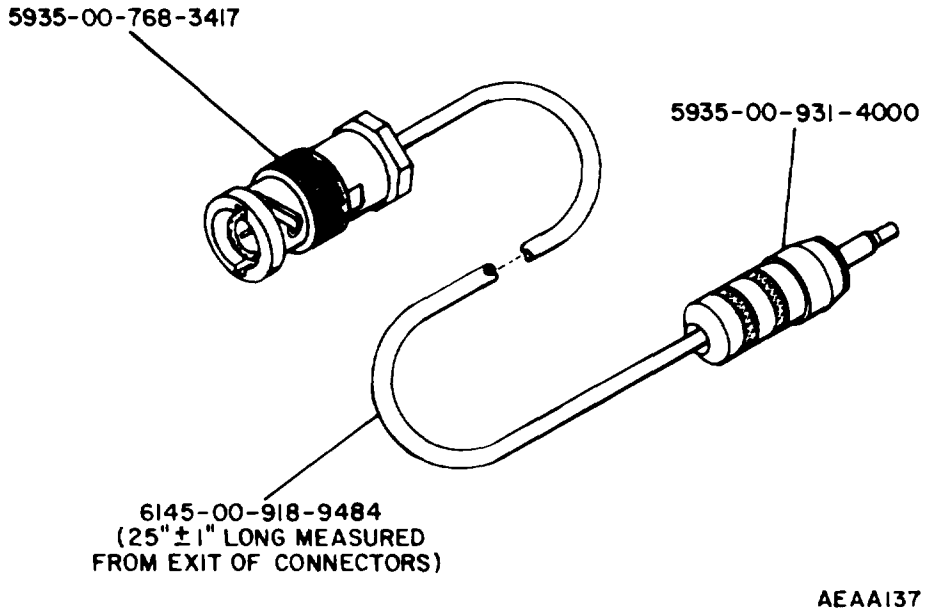
Part number/NSN	CAGE	Description	Fig.
155-02268-0000	22373	CABLE ASSEMBLY, RF, consisting of:	E-1
6145-00-918-9484	80058	CABLE, COAXIAL	
5935-00-768-3417	02660	CONNECTOR, BNC	
5935-00-502-7096	82389	PLUG, PHONE	
155-02644-0000	22373	CABLE ASSEMBLY, AUDIO, MICROPHONE, consisting of:	E-3
6145-00-918-9484	80058	CABLE, COAXIAL	
5935-00-768-3417	02660	CONNECTOR, BNC	
030-02531-0000	22373	CONNECTOR, PLUG (Alternate source: Tajimi Electronics Part No. 1206-6 MB)	
5910-00-812-2752	56289	CAPACITOR, 10 uF ± 10%, 20 V dc	
5970-00-740-2972	06090	TUBING, HEAT SHRINKABLE	
5970-00-819-9569	06090	TUBING, HEAT SHRINKABLE	
5970-00-823-3942	06090	TUBING, HEAT SHRINKABLE	
5970-00-814-2878	06090	TUBING, HEAT SHRINKABLE	
ASTM A228/ A228M-83	81346	WIRE, 16 GAGE, STEEL (Paper clip is acceptable field expedient.)	
M16878/21	81346	WIRE, 22 AWG, STRANDED, INSULATED	
155-02645-0000	22373	CABLE ASSEMBLY, AUDIO, SPEAKER, consisting of:	E-2
6145-00-918-9484	80058	CABLE, COAXIAL	
5935-00-768-3417	02660	CONNECTOR, BNC	
5935-00-931-4000	82389	PLUG, PHONE	



NOTES:

1. **ONE END OF CABLE (6145-00-918-9484) TO HAVE BNC CONNECTOR (5935-00-768-3417) INSTALLED.**
2. **OTHER END OF CABLE TO BE INSTALLED ONTO PHONE PLUG (5935-00-502-7096). CABLE CENTER CONDUCTOR TO BE SOLDERED TO PLUG TIP TERMINAL, SHIELD SOLDERED TO SLEEVE TERMINAL, AND OUTER JACKET OF CABLE CRIMPED TO SLEEVE TERMINAL CRIMP AREA.**

Figure E-1. Cable Assembly, RF (PN 155-02268-0000)



NOTES:

1. **ONE END OF CABLE (6145-00-918-9484) TO HAVE BNC CONNECTOR (5935-00-768-3417) INSTALLED.**

2. **OTHER END OF CABLE TO BE INSTALLED ON TO PHONE PLUG (5935-00-931-4000). CABLE CENTER CONDUCTOR TO BE SOLDERED TO PLUG TIP TERMINAL, SHIELD SOLDERED TO SLEEVE TERMINAL, AND OUTER JACKET OF CABLE CRIMPED TO SLEEVE TERMINAL CRIMP AREA.**

Figure E-2. Cable Assembly, Audio, Speaker assembly (PN 155-02645-0000)

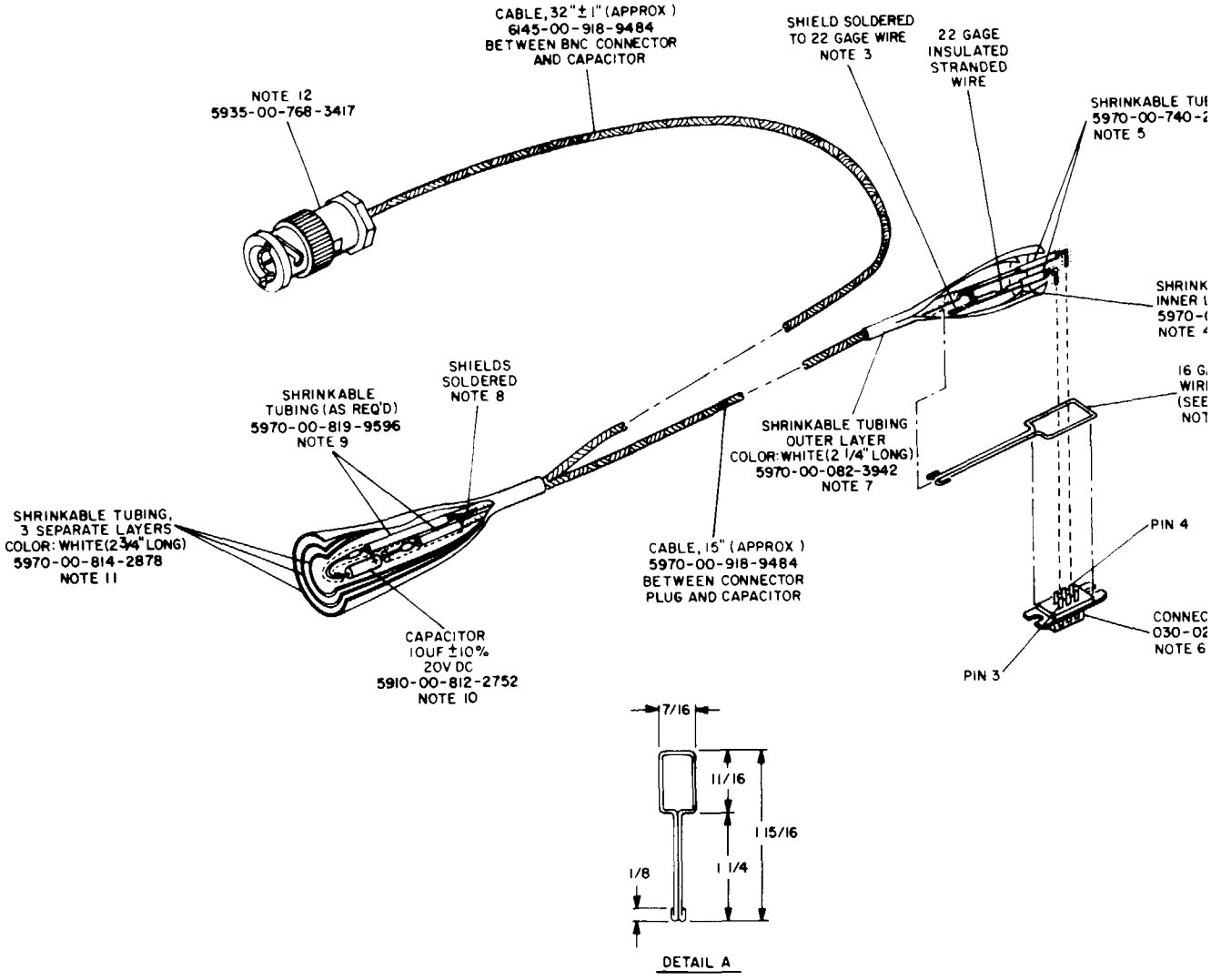


Figure E-3. Cable Assembly, Audio, Microphone Assembly (PN 155-02644-0000) (Sheet 1 of 2)

NOTES:

1. FORM WIRE CLIP WITH 16 GAGE MUSIC WIRE PER DETAIL A (A LARGE PAPER CLIP IS ACCEPTABLE FI

2. SOLDER 16 GAGE WIRE CLIP TO CONNECTOR PLUG (030-02531-0000).

3. SOLDER 22 GAGE WIRE PIGTAIL TO COAX SHIELD.

4. COVER SOLDER JOINT WITH SHRINK TUBING (5970-00-082-3942) APPLY HEAT WITH HEAT GUN TO SHI

5. SLIDE SHRINK TUBING (5970-00-740-2972) ONTO 22 GAGE PIGTAIL AND CENTER CONDUCTOR RESPEC

6. SOLDER 22 GAGE PIGTAIL TO PIN 3 OF CONNECTOR PLUG (030-02531-0000). SOLDER CENT CONNECTOR PLUG (030-02531-0000) AND SLIDE SHRINK TUBING TO COVER TERMINALS. APPLY HE TUBING UNTIL SNUG.

7. SLIDE SHRINK TUBING (5970-00-082-3942) ONTO COAX AND SHANK OF STEEL WIRE CLIP AND AF SHRINK TUBING UNTIL SNUG.

8. SOLDER COAX CABLE SHIELDS TOGETHER.

9. SLIDE SHRINK TUBING OVER CENTER CONDUCTORS OF BOTH COAX CABLES.

10. SOLDER CENTER CONDUCTORS TO CAPACITOR, + SIDE TOWARD CONNECTOR, (030-02531-0000) CO WITH SHRINK TUBING AND APPLY HEAT GUN TO SHRINK TUBING UNTIL SNUG.

11. APPLY 3 SEPARATE LAYERS OF SHRINK TUBING (5970-00-814-2878) ONTO CAPACITOR CONNECTIO TO EACH LAYER OF SHRINK TUBING INDIVIDUALLY UNTIL SNUG.

12. INSTALL BNC CONNECTOR (5935-00-768-3417).

13. COVER PINS 1, 2, 5, AND 6 OF CONNECTOR (030-02531-0000) WITH SHRINK TUBING AND APPLY HE TUBING UNTIL SNUG.

Figure E-3. Cable Assembly, Audio, Microphone Assembly (PN 155-02644-0000) (Sheet 2 o

ALPHABETICAL INDEX

ALPHABETICAL INDEX (Cont)

ALPHABETICAL INDEX (Cont)

ALPHABETICAL INDEX (Cont)

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