

TM 11-5820-590-12

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

INCLUDING REPAIR PARTS
AND SPECIAL TOOL LISTS
RADIO SET AN/PRC-74



HEADQUARTERS, DEPARTMENT OF THE ARMY
MARCH 1966

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WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be careful when working on universal power supply circuits or on ac line connections.

DON'T TAKE CHANCES!

THE BATTERY ELECTROLYTE IS EXTREMELY DANGEROUS TO THE EYES

If any electrolyte from the wet cell battery is splashed on person or clothing, the exposed area should be quickly and thoroughly washed with water or acid neutralizing solution such as vinegar or boric acid solution.

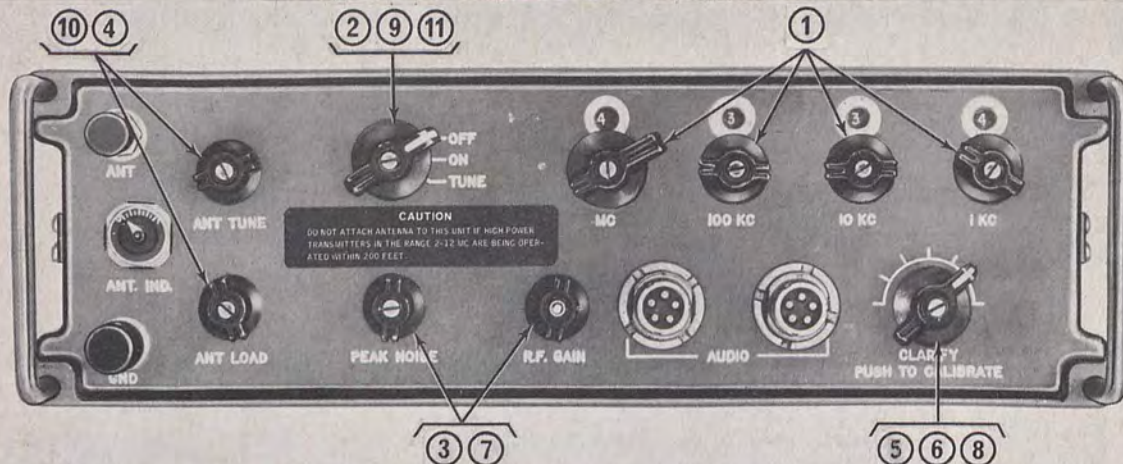
WARNING

Always remove battery case and battery cell covers when charging batteries. Provide adequate ventilation in room or shelter by opening doors and windows.

WARNING

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

CONDENSED OPERATING INSTRUCTIONS FOR RADIO SET AN/PRC-74



Receive Mode

- a. Attach whip antenna mounting bracket to receiver-transmitter.
- b. Install whip antenna and adjust to desired frequency range.
- c. Attach lead wire from whip antenna to front panel ANT terminal.
- d. Connect headset to either front panel AUDIO jack.
- e. The numbers (1) through (8) below are the same as the numbers on the diagram.
 - (1) Set front panel MC, 100 KC, 10 KC, and 1 KC selector knobs to the desired frequency.
 - (2) Turn OFF-ON-TUNE switch to ON position.
 - (3) Set RF GAIN control to maximum and adjust PEAK NOISE control for maximum noise heard in the headset.
 - (4) Adjust ANT LOAD and ANT TUNE controls for maximum noise heard in headset.
 - (5) Press in CLARIFY/PUSH TO CALIBRATE knob and adjust so that a zero beat condition is observed in the headset.
 - (6) Release the CLARIFY/PUSH TO CALIBRATE knob and reset the pointer to midscale.
 - (7) Set RF GAIN control for desired volume of received signal.
 - (8) Adjust CLARIFY knob so that quality of received voice signals is natural.

Transmit Mode

- f. Perform steps outlined above, do not perform steps (7) and (8) if no received signal is present.
- g. Connect either microphone or key (depending on mode of operation desired) to the remaining audio jack.
- h. The numbers (9) through (11) below are the same as the numbers on the diagram.
 - (9) Turn OFF-ON-TUNE switch to the TUNE position and listen for tone in headset.
 - (10) Alternately adjust ANT TUNE and ANT LOAD knobs until a maximum reading is obtained on ANT IND meter.
 - (11) Release OFF-ON-TUNE knob and allow to return to ON position.
- i. Press microphone button and speak directly into the microphone.

TECHNICAL MANUAL

No. 11-5820-590-12

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 23 March 1966

Organizational Maintenance Manual Including Repair Parts and Special Tool Lists

RADIO SET AN/PRC-74

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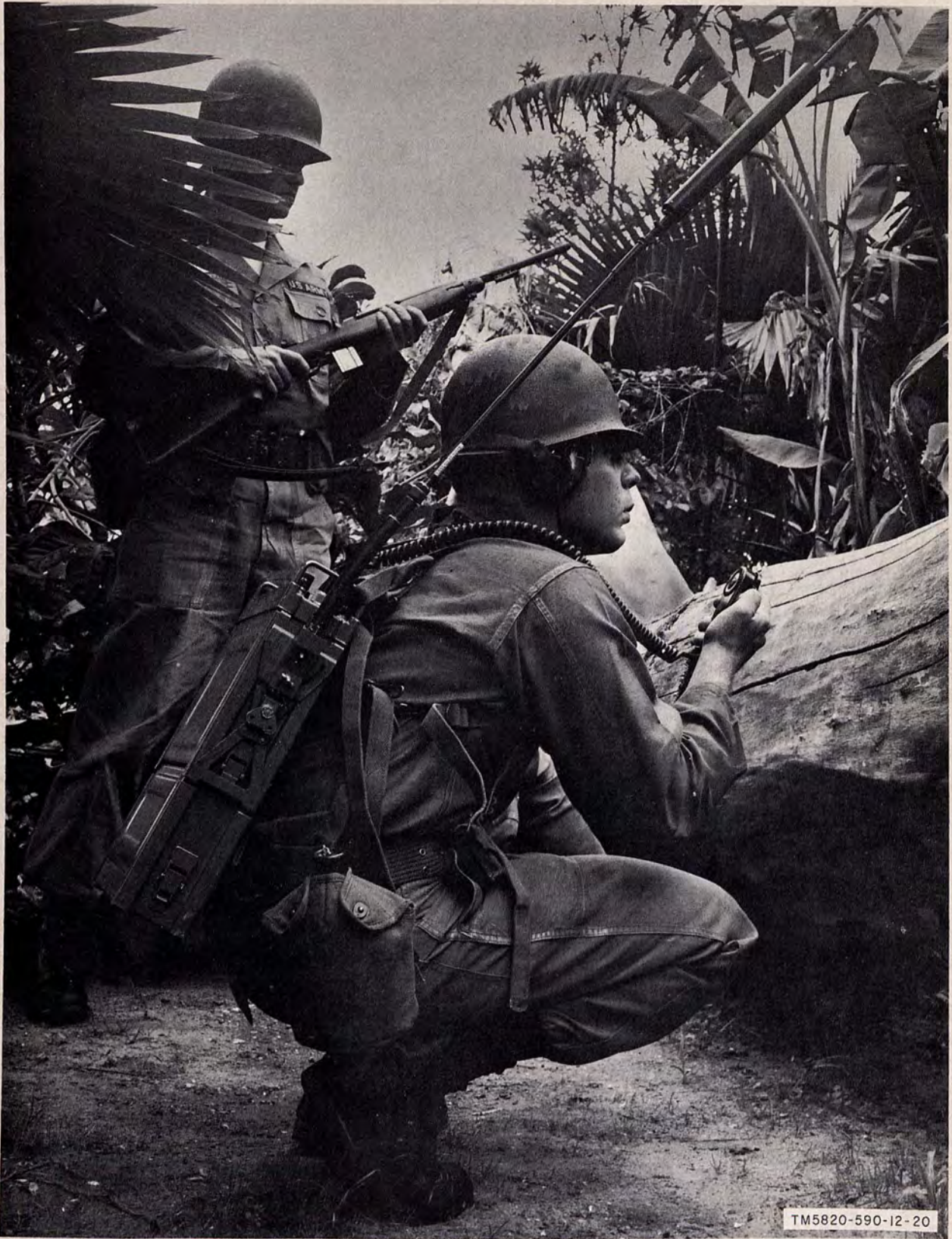
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Figure 1-1. Radio Set AN/PRC-74, typical use.

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual describes Radio Set AN/PRC-74 (fig. 1-1) and covers its installation, operation, and maintenance. Operator and organizational maintenance instructions are limited to those services listed in appendix III.

1-2. Index of Publications

Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to your equipment. DA Pam 310-4 is an index of current technical manuals, technical bulletins, supply manuals, supply bulletins, lubrication orders, and modification work orders that are available through publications supply channels. The index lists the individual parts (-10, -20, -35P, etc.) and the latest changes to and revisions of each equipment publication.

1-3. Forms and Records

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

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

c. Reporting of Equipment Manual Improvements. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Publications) will be used for reporting these improvement recommendations. This form will be completed using pencil, pen, or typewriter and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-MR-(NMP)-MA, Fort Monmouth, N.J., 07703.

Section II. DESCRIPTION AND DATA

1-4. Purpose and Use

a. Radio Set AN/PRC-74 (referred throughout this manual as the radio set) provides dependable two-way communications within the frequency range of 2 to 11.999 megacycles (mc). This radio set is a single-sideband (ssb) Receiver-Transmitter Radio RT-794/PRC-74 (fig. 1-2) which uses either voice or telegraph continuous wave (cw) communication. Since the radio set operates at the low end of the high-frequency (hf) spectrum, signals are propagated by both groundwave and skywave. Groundwave propagation is normally used for communication at distances up to 25 miles. For greater distances, skywave propagation is used and signals reach distant points by refraction from the ionosphere. The operating range of the radio set may be extended to several hundred miles by proper selection of frequency, antenna, and time of day.

b. The radio set is primarily designed for use as a man pack set in areas where direct line-of-sight communication is not possible.

1-5. Technical Characteristics

a. Receiver-Transmitter Radio RT-794/PRC-74.

| | |
|-----------------------------------|---|
| Frequency range..... | 2.000 to 11.999 mc in 1.0 kc steps. |
| Frequency standard stability..... | ± 6 parts/million from -20° C. to $+55^{\circ}$ C. |
| Intermediate frequency .. | 1,750 kc. |
| Transmitter performance: | |
| Modulation modes.... | Upper sideband suppressed carrier, voice or cw. |
| Carrier suppression.. | 40 db below the level of a 1,000-cycle modulation usb signal of rated output. |
| Power output..... | 15 watts peak envelope power nominal. |

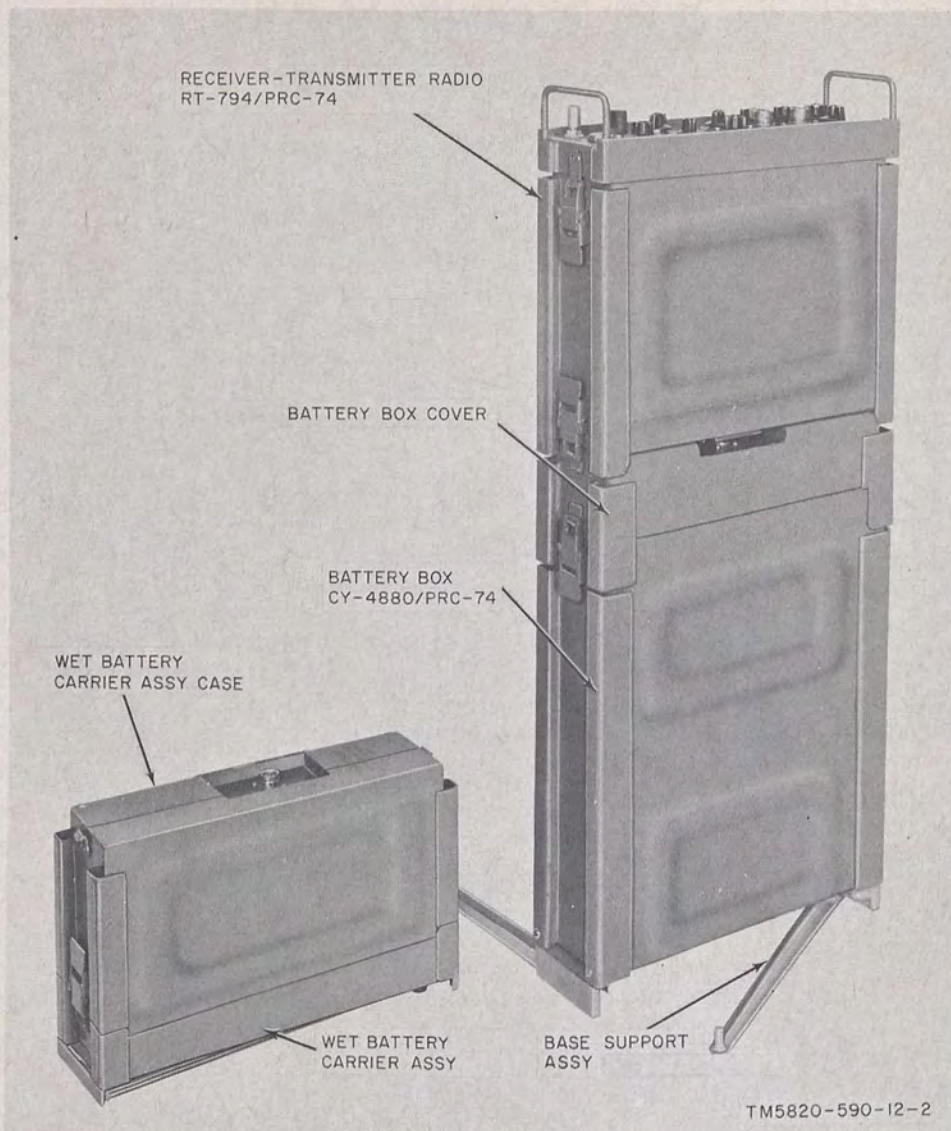


Figure 1-2. Receiver-Transmitter Radio RT-794/PRC-74 with wet and dry battery packs.

- | | | | |
|-----------------------|---|----------------------|--|
| Monitor sidetone..... | Voice or tone as determined by modulation mode. | Power source..... | Determined by fixed or portable requirements: |
| Tuning indicator..... | Meter (operated by vswr bridge). | | An external power supply may be used as a power source during fixed operation. |
| Receiver performance: | | | For portable use, wet or dry battery pack may be used. |
| Sensitivity..... | 0.7 microvolt for 10 db S+N/N. | Input power..... | +10.5 to +17.0 volts. |
| Selectivity..... | 3-db points at +300 and +2,700 cps, 45-db points at -350 and +6,500 cps (referenced to carrier frequency). | <i>b. Batteries.</i> | |
| Audio output..... | 1 mw minimum into a 500-ohm headset. | Wet cell: | |
| Audio distortion..... | 10 percent maximum at frequencies between 300 cps and 2,700 cps with an audio output level of 4 milliwatts. | Type..... | Rechargeable nickel-cadmium. |
| | | Capacity..... | 14-ampere hours. |

Life----- 24 hours with a 1-minute transmit/9-minute receive continuous duty cycle.

Terminal voltage--- +12 volts.

Dry cell:

Type----- BA-30 or equivalent.

Quantity----- 70 cells per battery pack.

Terminal voltage--- 1½ volts dc per cell (dry battery pack terminal voltage is +15 volts).

Capacity----- 14-ampere hours.

Life----- 24 hours, 9-minute receive, 1-minute transmit duty cycle.

c. Power Supply PP-4514/PRC-74.

Input voltage----- +28 volts, +10 percent to -25 percent, 110 volts or 220 volts single phase, +15 percent to -25 percent at line frequency from 47 to 400 cps.

Power supply module:

Output voltage----- +14 volts ± 3 at load currents between 0 and 6.5 amperes.

Ripple voltage at output. 1.0 volt peak-to-peak maximum.

Battery charger module:

Charging rate to wet cell battery. Variable from 1 to 5 amperes.

1-6. Components of Radio Set AN/PRC-74

Note. This listing is based on the equipment shipment by the contractor according to Order FR-36-039-Z-5-14546(E). For the current official listing of components, see the basic issue items list (app II).

a. Major Components. Major components of the radio set (figs. 1-2—1-8) are listed in the chart below.

| Quantity | Item | Height (in.) | Depth (in.) | Width (in.) | Unit weight (lb) |
|----------|---|--------------|-------------|-------------|------------------|
| 1 | Receiver-Transmitter Radio RT-794/PRC-74. | 15.50 | 3.75 | 12.0 | 14.5 |
| 1 | Battery Box CY-4880/PRC-74 (including 70 dry cells).* | 13.00 | 3.75 | 12.0 | 27.0 |
| 1 | Wet battery pack----- | 6.25 | 3.75 | 12.0 | 15.0 |
| 1 | Bag, Accessories CW-863/PRC-74. Microphone M-80/U Headset H-140/U Key, Telegraph KY-562/U. Antenna AS-1887/PRC-74. Antenna Kit MK-911/PRC-74. Running spares (c below). | 12.00 | 5.00 | 18.0 | 6.0 |
| 1 | Power Supply PP-4514/PRC-74. | 10.50 | 18.0 | 12.0 | 50.0 |

*Dry cells are not shipped with the radio set.

b. Minor Components. The minor components of the radio set are listed in the chart below. The *Fig. No.* column indicates the figure in which the minor component is illustrated.

| Qty | Item | Fig. No. |
|-----|--|-------------|
| 1 | Mounting MT-3613/PRC-74----- | 1-4 |
| 1 | Base, Antenna Support AB-955/PRC-74. | 1-4 and 1-5 |
| 4 | Power cables----- | 1-8 |
| 1 | Battery charger cable----- | 1-8 |
| 1 | Cable Assembly, Power Electrical CX-11468/U. | 1-6 |

c. *Running Spares.* The following is a list of running spare components for the radio set:

| In use | Quantity | Item |
|--------|----------|---|
| | | Receiver-Transmitter Radio RT-794/PRC-74 |
| 1 | 5 | Fuses 1AG, 7.5 amp. |
| 1 | 5 | Fuses 1AG, 2 amp. |
| | | Power Supply PP-4514/PRC-74 |
| 1 | 3 | Fuses F2A, 32 volts, 15 amp. |
| 1 | 5 | Fuses F2A, 250 volts, 2 amp. |
| 1 | 5 | Fuses F2A, 250 volts, 4 amp. |
| 2 | 6 | Fuses F3A, 250 volts, 6 amp. |
| 1 | 3 | Fuses F3A, 250 volts, 8 amp. |
| 2 | 2 | Lamps, MS-25237-327. |

1-7. Description of Major Components

a. The radio set is a low-powered and fully transistorized receiver-transmitter that can be used for either point-to-point or netting operation. The radio set operates on a single frequency for both transmit and receive functions. The transmitter is operated by either a push-to-talk microphone button or a telegraph key. The receiver is operative only when the transmitter is not being used; therefore, communication is only on a one-way reversible basis.

b. The radio set may be operated from alternating current (ac) or direct current (dc) powerlines, or from a 24-volt vehicle battery. In addition, it may be man-carried and operated from either a dry or wet battery pack (fig. 1-3). Latches on two sides of the receiver-transmitter permit attachment to either the dry or wet battery pack, or to Power Supply PP-4514/PRC-74 (external power supply and battery charger). Retractable legs are provided on the base of the battery packs to support Receiver-Transmitter Radio RT-794/PRC-74 (rt unit) when it is used in an upright position.

c. The radio set can be operated with the use of either Antenna AS-1887/PRC-74 (whip antenna) (fig. 1-4) or various configurations of a wire antenna. The whip antenna consists of Mounting MT-3613/PRC-74 (mounting bracket) which

attaches to the radio set (fig. 1-4), a Base, Antenna Support AB-955/PRC-74 which attaches to the mounting bracket, and the whip antenna which attaches to the antenna support. The wire antenna kit (shown in the top half of fig. 1-5) consists of two reels of antenna wire with the required plugs and weights, one reel of Dacron cord, and a dipole fixture. The components of the wire antenna kit can be arranged in any of the configurations described in paragraphs 2-1 through 2-5.

d. Accessory equipment (fig. 1-6) includes Headset H-140/U, Key, Telegraph KY-562/U (modified for use with the radio set), and Microphone M-80/U. Bag, Accessories CW-863/PRC-74 (fig. 1-7) is provided to store the antennas and accessory equipment when they are not in use.

e. Power Supply PP-4514/PRC-47 (fig. 1-8) is provided as part of the radio set and can be used with 110 and 220 v ac or 21 to 31 v dc. Five power cables (fig. 1-8) are provided to connect power from the source to the power supply and battery charger. The power supply subassembly provides controls and indicators to establish and monitor the charging rate of the battery charger, the actual charge stored in the wet cell battery, or the voltage supplied to the radio from the external source. The battery charger subassembly contains a control for adjusting the charging current from 0 ampere to 5 amperes.

f. The dry battery (fig. 1-3) consists of seventy 1.5-volt dry cells connected in a series-parallel arrangement which provides an open circuit terminal voltage of 15 volts. There are 7 groups of 10 dry cells connected in series and all 7 groups of cells are then connected in parallel. A battery terminal voltage of less than 11 volts, measured during transmission, indicates low batteries which will result in a reduced radio frequency (rf) power output from the radio set.

g. The wet cell battery (fig. 1-3) consists of 10 nickel-cadmium cells, connected in series, to provide a nominal voltage of 12.0 volts. The open circuit voltage of a discharged battery is 12.5 volts or less, and that of a fully charged battery will be 13 volts or more. Unless otherwise indicated by a warning tag on the battery, the wet cell battery is always shipped in a discharged state.

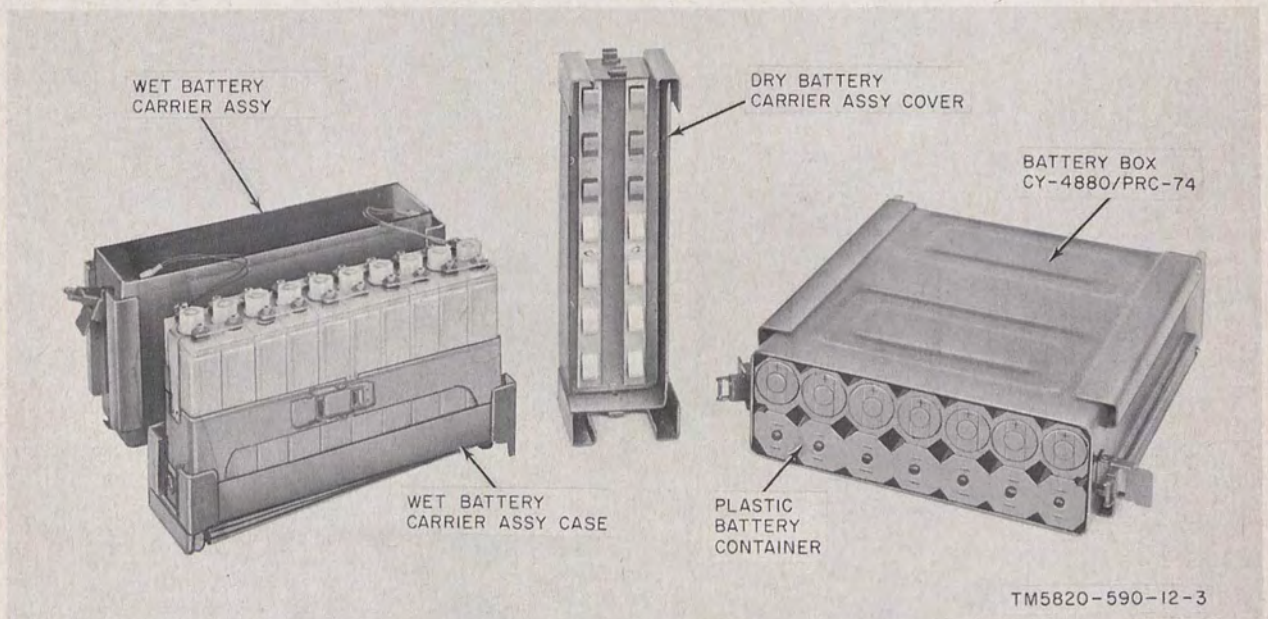


Figure 1-3. Wet and dry battery carrier assemblies, covers removed.

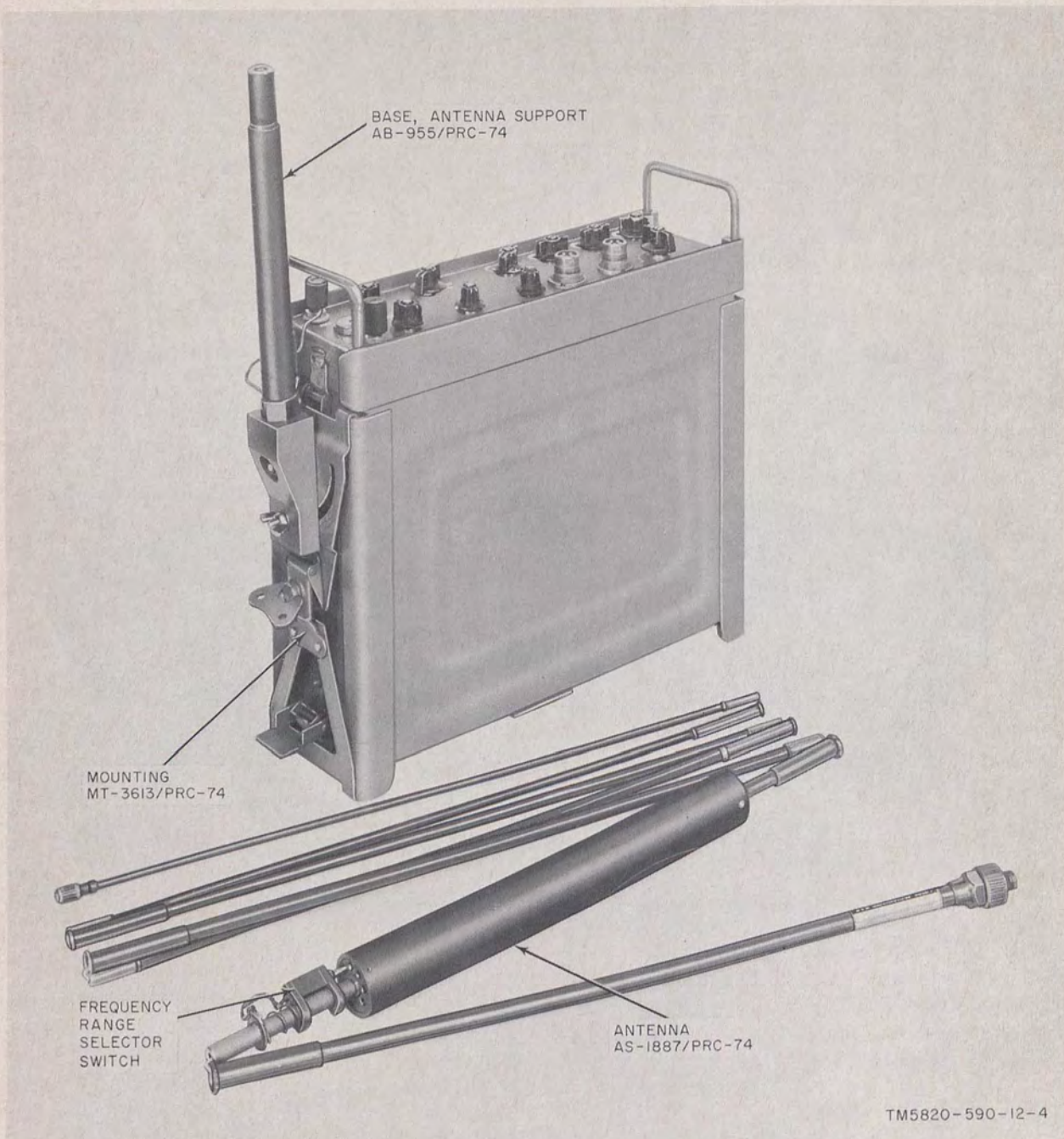


Figure 1-4. Receiver-Transmitter Radio RT-794/PRC-74 with whip antenna.

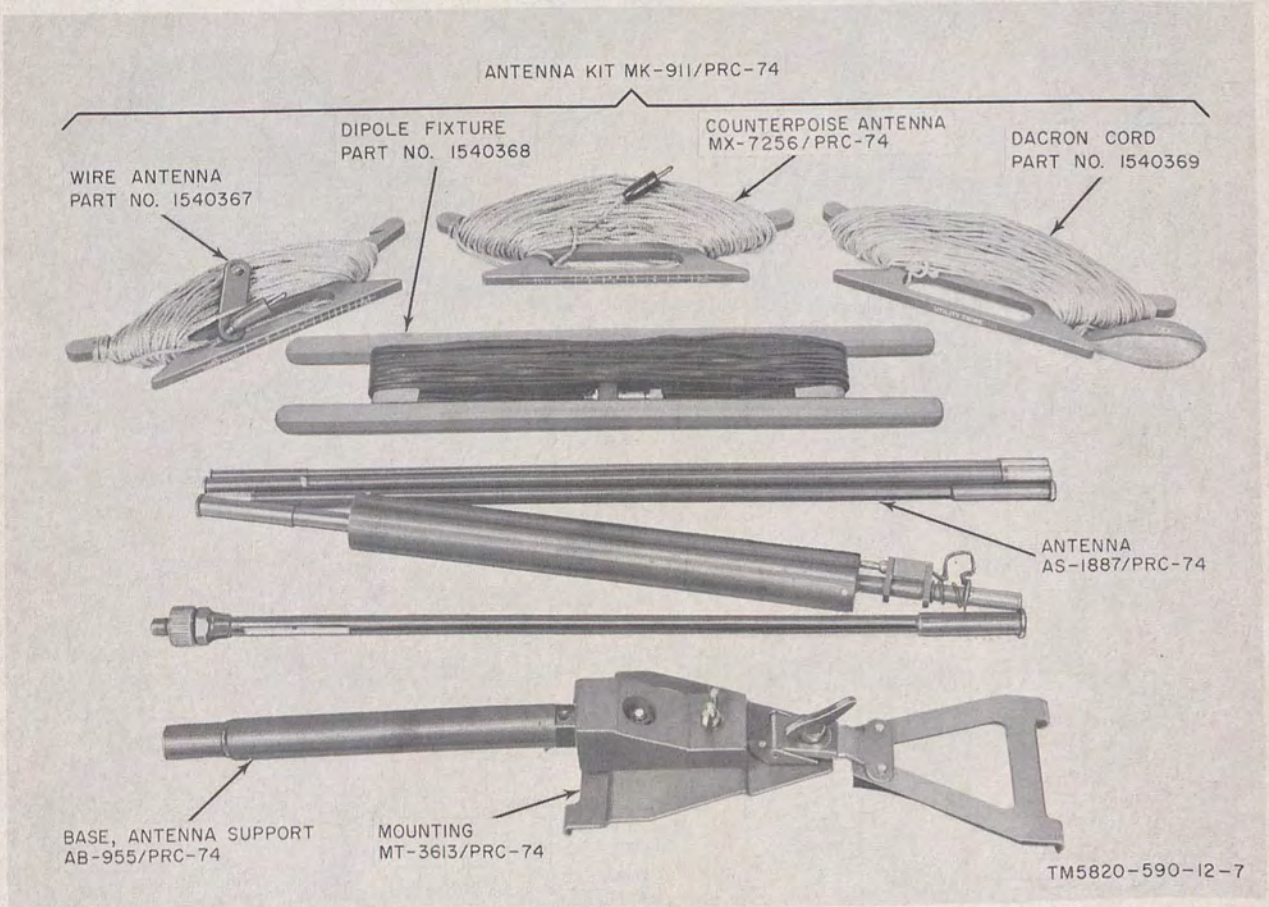
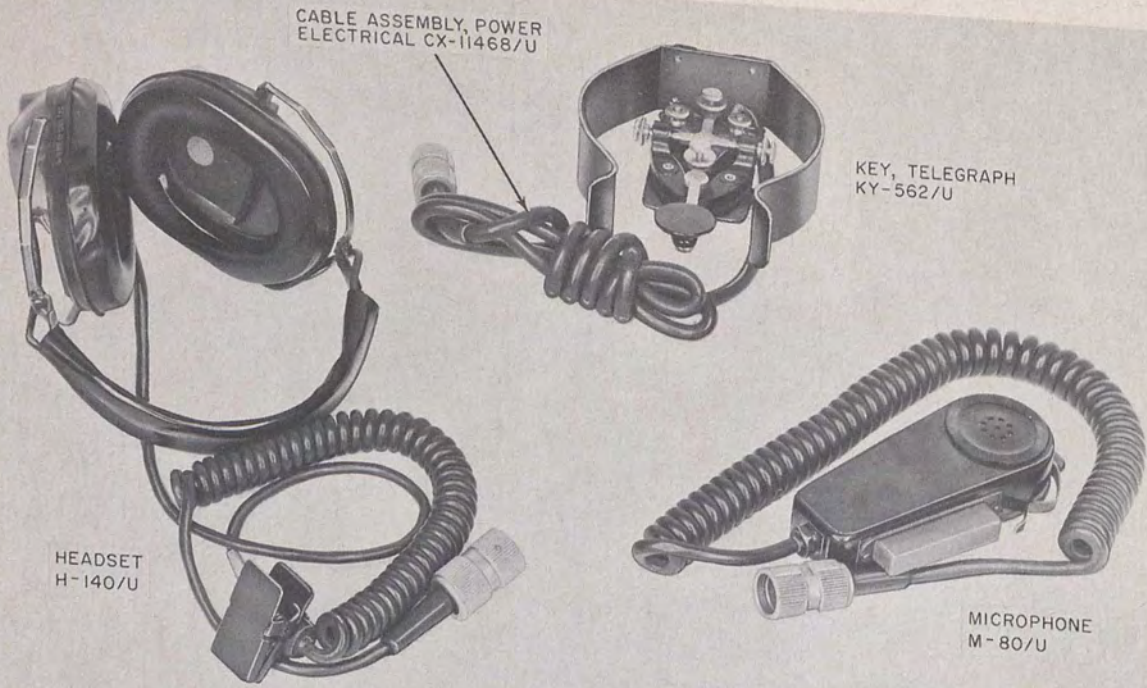
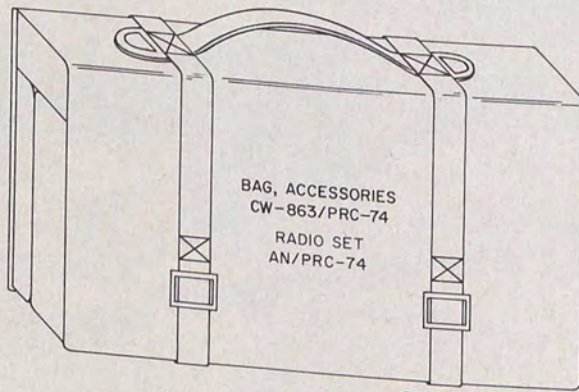


Figure 1-5. Antenna kit.



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Figure 1-6. Headset, telegraph key, and microphone.



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Figure 1-7. Bag, Accessories CW-863/PRC-74.

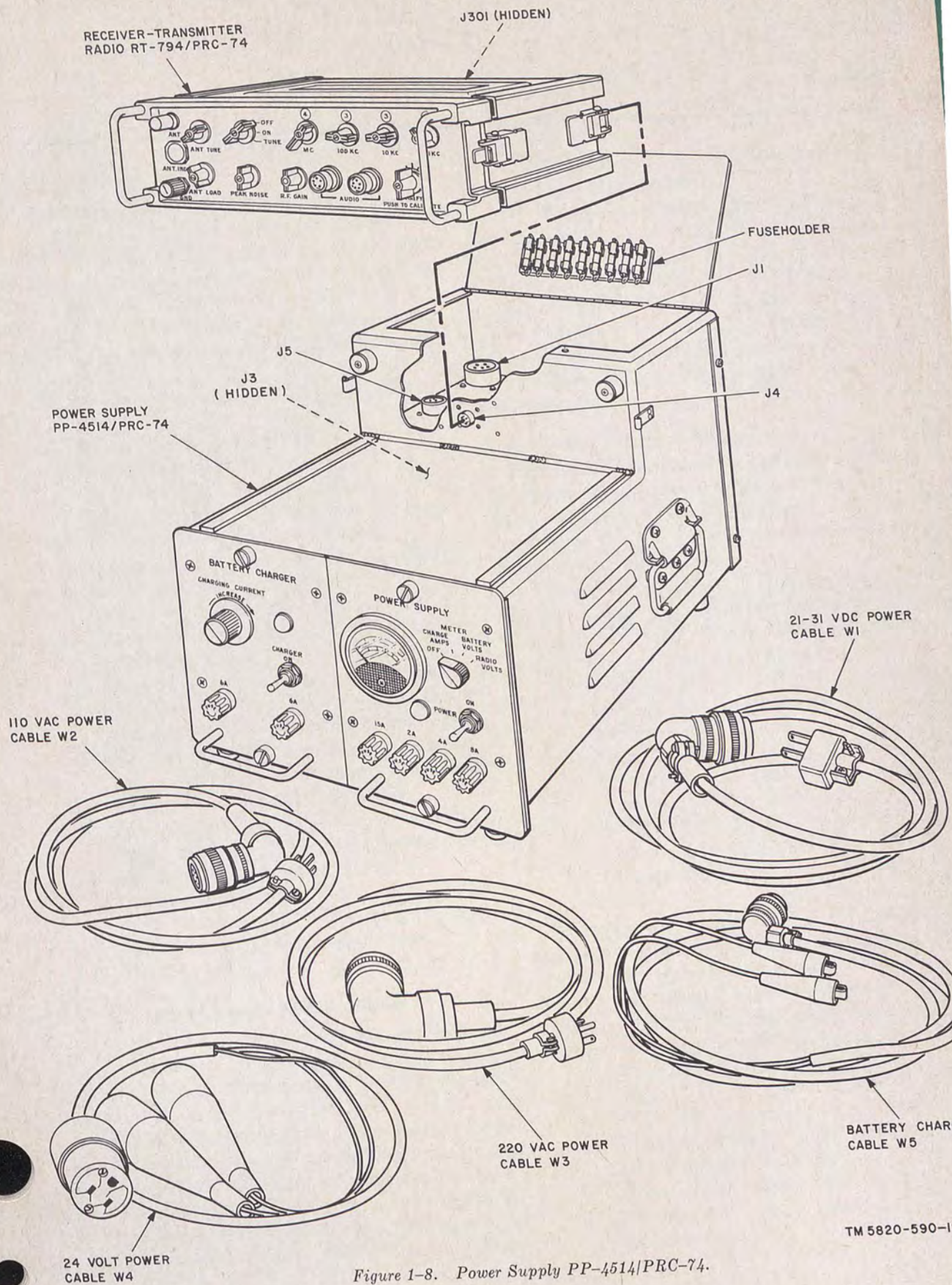


Figure 1-8. Power Supply PP-4514/PRC-74.

CHAPTER 2

INSTALLATION

2-1. Unpacking

a. Packaging Data. When packed for shipment or extended storage, the radio set should be packed as indicated in figure 2-1. The inner carton is 24 inches high by 19 inches long by 12½ inches wide. The volume of the box is 3.5 cubic feet and the weight is approximately 80 pounds. The box contains the following equipment:

- (1) Receiver-Transmitter Radio RT-794/PRC-74.
- (2) Battery Box CY-4880/PRC-74.
- (3) Bag, Accessories CW-863/PRC-74.
- (4) Power Supply PP-4514/PRC-74. (Five power cables are located inside the case.)
- (5) TM 11-5820-590-12 (two copies).

b. Removing Contents. Perform the procedures below when unpacking the radio set.

- (1) Transport the packing box as close as possible to the desired location before unpacking.
- (2) Cut and remove the two metal straps.
- (3) Use a crowbar to pry off the wooden cover and remove the two technical manuals.
- (4) Cut and remove the external waterproof and vaporproof aluminum foil that covers the fiberboard outer carton.
- (5) Cut the taped seams of the outer carton with a sharp knife and remove the moisture-vaporproof barrier.
- (6) Cut the taped seams of the inner carton and remove the filler material that surrounds each piece of equipment.
- (7) Remove the contents of the box.

2-2. Checking Unpacked Equipment

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6 (para. 1-3).

b. See that the equipment is complete as listed on the packing slip. If a packing slip is not available, check the equipment against the basic issue items list (app II). Report all discrepancies in accordance with TM 38-750. Shortage of a minor assembly or part that does not affect

proper functioning of the equipment should not prevent use of the equipment.

c. If the equipment has been used or reconditioned, see whether it has been changed by a modification work order (MWO). If the equipment has been modified, the MWO number will appear on the front panel near the nomenclature plate. Check to see whether the MWO number (if any) and appropriate notations concerning the modification have been entered in the equipment manual.

2-3. Radio Set Installation

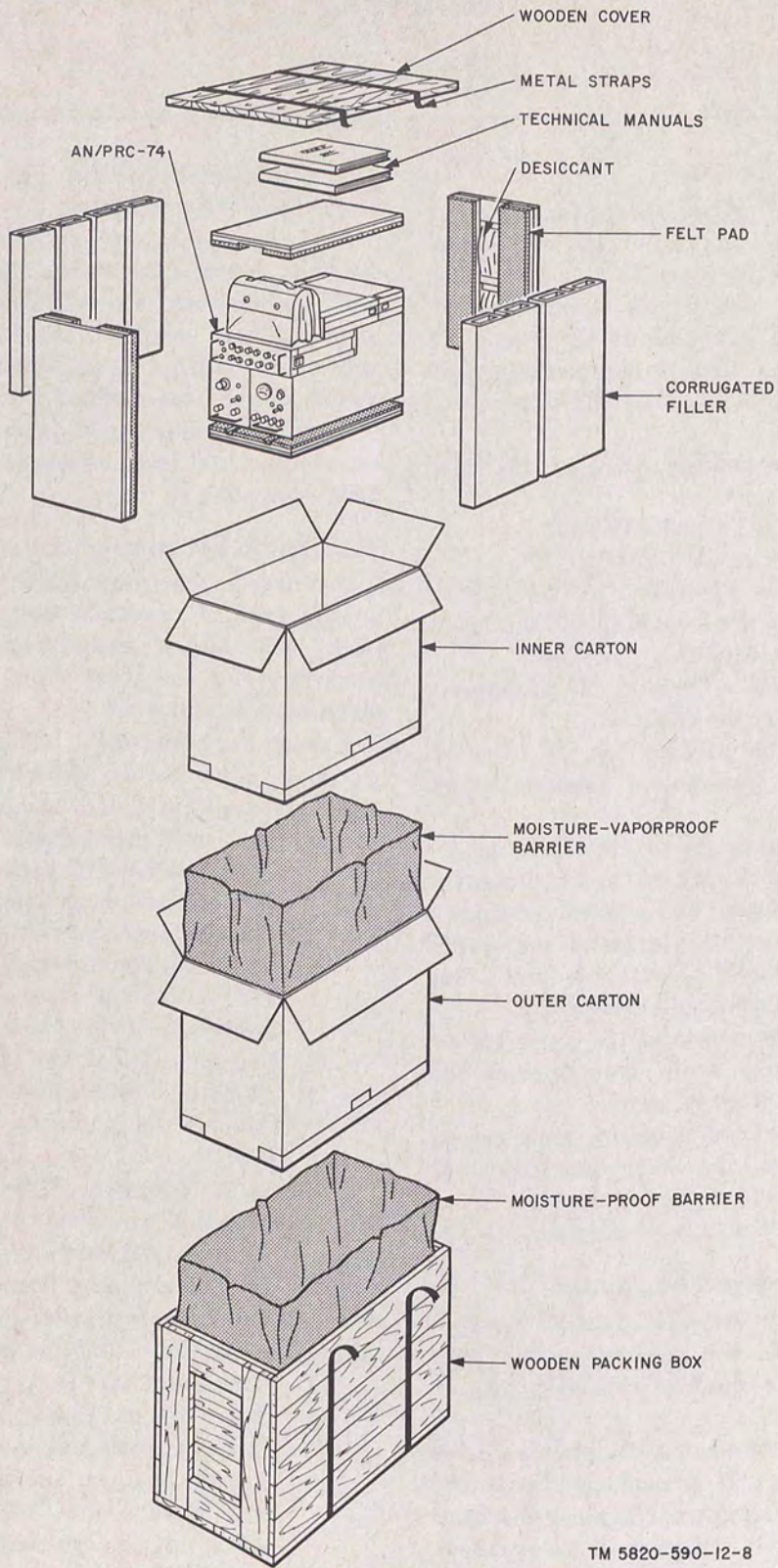
Installation procedures for the radio set depend on the type of operation desired; that is, man pack, vehicular, or semipermanent. Installation procedures for the three types of operation are given in *a*, *b*, and *c* below.

a. Man Pack Operation. This method requires the use of either the dry or wet cell battery packs (figs. 1-2 and 1-3). To connect either battery pack to the rt unit, proceed as follows:

- (1) Place the battery pack on a flat surface so that the connector on the battery pack is facing upward.
- (2) Mate the connector (J301, fig. 1-8) on the bottom of the rt unit with the connector on the battery pack.
- (3) Engage and lock the two latches located on both sides of the rt unit.
- (4) Connect the rt unit to the antenna (para 2-5).

b. Vehicular Operation. This method requires the use of a vehicle with a 24- to 28-volt generating system. To connect the rt unit to the vehicle, remove the battery case from the rt unit by releasing the two snap fasteners that secure the battery case to the rt unit and proceed as follows:

- (1) Place the rt unit in its mounting position (fig. 1-8) on Power Supply PP-4514/PRC-74 (external power supply and battery charger) slides and slide the rt unit forward until J301 on the back of the rt unit mates with J4 on the PP-4514/PRC-74 case. Secure the two side latches.



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Figure 2-1. Typical packaging.

- (2) Select two dc power cables (cables W4 and W1, fig. 1-8) and connect the two cables as shown in B, figure 3-4. (The location of J1 on the power supply is shown in fig. 1-8.) Be sure to connect the positive terminal of cable W4 to the positive terminal of the vehicle battery and the negative terminal of the cable to the negative terminal of the vehicle battery.
- (3) Connect the rt unit to the antenna (para 2-5).

c. Semipermanent Operation. This method requires a source of 220 volts at 50 to 400 cycles per second (cps), or 110 volts at 50 to 400 cps, or a 28-volt dc power supply. To connect the rt unit to the fixed source of power, remove the battery case from the rt unit by releasing the two snap fasteners that secure the battery case to the rt unit, and proceed as follows:

- (1) Place the rt unit in its mounting position (fig. 1-8) on the PP-4514/PRC-74 slides and slide the rt unit forward until J301 on the back of the rt unit mates with J4 on the PP-4514/PRC-74. Secure the two side latches.
- (2) Refer to figure 1-8 and select the correct power cable for the available power source.

Note. The selection of the correct power cable for the available power source automatically provides the correct input connections to J1 on the PP-4514/PRC-74. No other adjustments or connections are required when changing from one source of fixed power to another.

- (3) Connect the selected cable between J1 on the PP-4514/PRC-74 and the power source as shown in A, figure 3-4.
- (4) Connect the rt unit to the antenna (para 2-5).

2-4. Siting

(fig. 2-2)

The following should be considered when locating the antenna:

a. Radio signals are absorbed and sometimes reflected by nearby obstructions, such as hills, metal buildings and bridges, or telephone lines that extend above the height of the antenna. Transmitted signals have a greater range when the antenna is as high above ground as possible.

Transmission and reception are best over water or level ground.

b. If transmission and reception in all directions is required, place the antenna on the highest hill within the designated area.

c. When in rear areas, avoid placing the radio set near sources of electrical interference, such as powerlines or telephone lines, radar sets, and field hospitals.

d. Try several locations within the general area and select the one that provides the best signals from the desired stations.

e. Enemy jamming action against the receiver is always a possibility. The effects of enemy jamming may be reduced by locating the antenna so that nearby obstructions act as a screen in the direction of probable sites of enemy jamming transmitters. This screening action may also reduce the transmitted signal strength in a direction toward the enemy, thereby making it more difficult for the enemy to intercept the signals.

2-5. Antenna Assembly

Warning: During installation of this equipment, conform to all safety requirements set forth in TB SIG 291. Injury or DEATH could result from failure to comply with safety practices.

Three types of antennas are supplied with the radio set. The type used will depend on the tactical situation and the transmission distance required.

a. Whip Antenna. The whip antenna (Antenna AS-1887/PRC-74) (fig. 1-4) is the least effective of the three antennas supplied with the radio set; however, it may be erected quickly and requires no support. To connect the whip antenna, proceed as follows:

- (1) Place the radio set in as high and clear a location as circumstances permit.

Note. The whip antenna is mounted on a swivel to permit the operator to lay the radio flat on the ground and swivel the antenna into the upright position. Under combat conditions, this permits the operator to use the radio set from a prone position.

- (2) Attach the whip mounting bracket (Mounting MT-3613/PRC-74) to the side of the radio set as shown in figure 1-4.
- (3) Assemble the whip antenna.

Note. The antenna sections are connected internally by a wire cable that is under tension.

When the antenna sections are set in line, the individual sections will automatically snap into place.

- (4) Attach the whip antenna to the antenna support base and screw the antenna support base (fig. 1-4) into the whip mounting bracket.
- (5) Connect the lead from the antenna base to the ANT (red) terminal (fig. 3-1) of the radio set.
- (6) Set the frequency range selector switch (fig. 1-4), located at the bottom of the antenna loading coil, to correspond to the operating frequency.
- (7) Tune the radio set using the procedure outlined in paragraphs 3-2 and 3-3.

Note. If time and conditions permit, a counterpoise may be connected to the radio set ground terminal as indicated in (8) and (9) below.

- (8) Attach one of the antenna reels to the GRD (black) terminal of the radio set.
- (9) Unwind the antenna wire to approximately twice the length of the whip antenna and lay wire on the ground in a convenient direction away from the radio set. (This wire acts as the counterpoise.)

Note. If the radio set is operated near a large metal structure, a clip lead attached to a clean conducting point will permit the structure to be used as a counterpoise in place of the antenna wire.

- (10) Check the frequency range selector switch whenever the operating frequency of the radio set is changed.

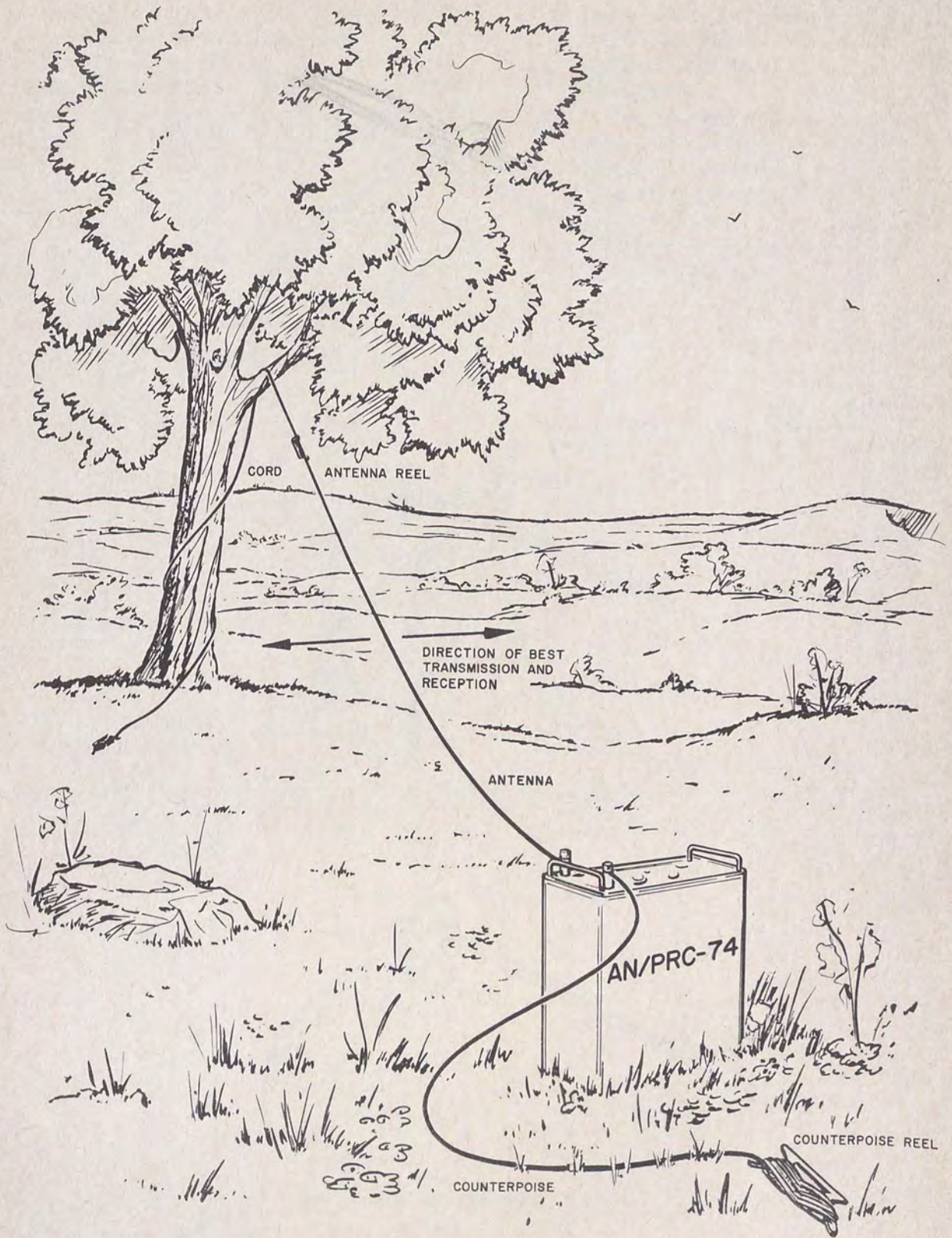
b. Slant Wire Antenna. A slant wire antenna is much more effective than the whip antenna. The slant wire antenna requires the use of dipole antenna wire (fig. 1-5) and an antenna support. It is used when greater range is necessary than the whip antenna can provide, and when time or conditions do not allow the erection of a dipole. The proper arrangement for a slant wire antenna is shown in figure 2-2. Use the following procedure to erect a slant wire antenna:

- (1) Decide on the direction that transmission is required and determine the alignment of the antenna.

- (2) Unwind one of the dipole antenna reels until the mark on the antenna wire matches the scale on the antenna reel (scale given in chart, *c* below).
- (3) Fasten the antenna wire to the notch on the reel and lay the reel about 20 feet from the antenna support. Position the radio set at the end of the antenna and insert the red plug of the antenna wire into the ANT (red) terminal of the radio set.
- (4) Insert the black plug of the remaining antenna reel into the GND (black) terminal. Unwind this wire and lay it on the ground in line with the antenna and in the opposite direction of the antenna support. Unwind the reel until it is about $1\frac{1}{2}$ times the antenna length and place the reel on the ground. (When the antenna is completely erected, this wire provides a counterpoise.)
- (5) Attach a lead weight (fig. 2-3) to one end of the Dacron cord. Throw the weight over any convenient antenna support (such as a tree limb), and then remove the lead weight and fasten the end of the cord to the antenna reel. Raise the antenna, and fasten the cord to hold the antenna in place.
- (6) Tune the rt unit using the procedures in paragraphs 3-2 and 3-3.

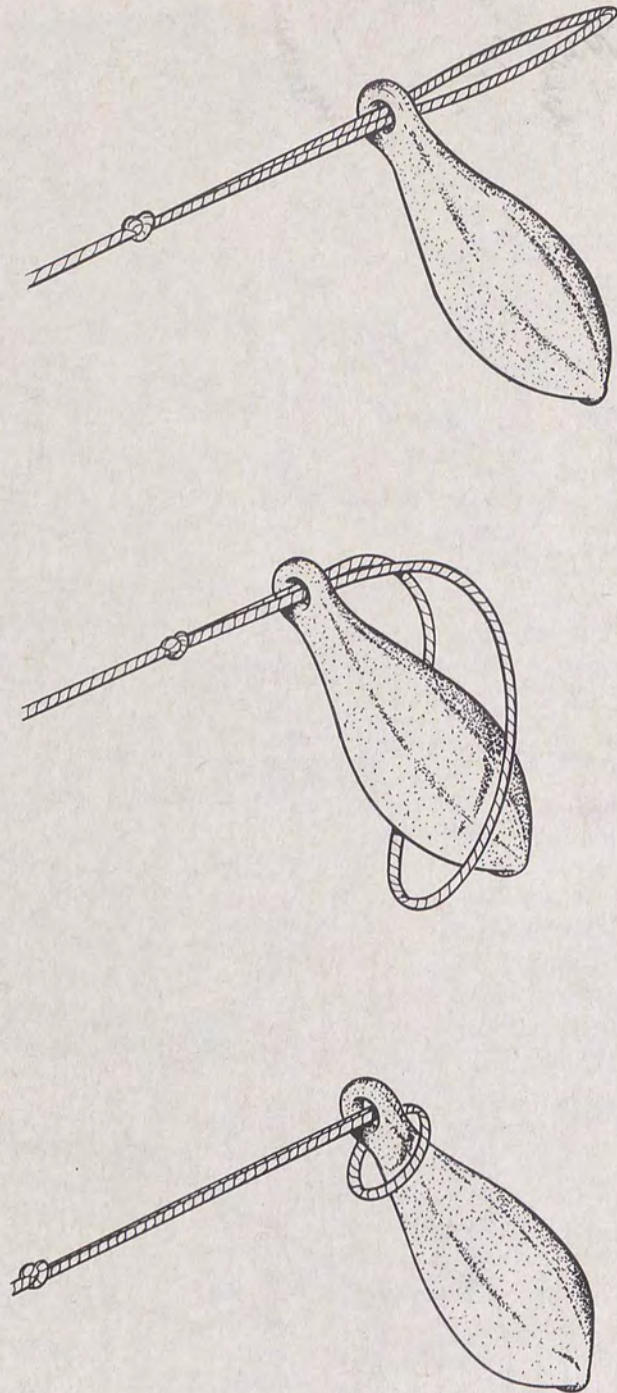
c. Dipole Antenna. The dipole antenna is the most effective antenna and, time and tactical circumstances permitting, should be used in preference to either the whip or slant wire antenna. A dipole antenna is usually erected between two supports as shown in figure 2-4. Antenna supports are not provided with this equipment and it is not always possible to find two supports that are properly oriented and spaced. If only one support is available, or if terrain prohibits, a one-support dipole (figs. 2-5 and 2-6) should be used. Note that for both the dipole and slant wire antennas, the most effective receiving and transmitting direction is broadside, or 90 degrees to the line of the wire. Use the following procedure to erect a dipole antenna:

- (1) Attach each dipole antenna wire to the dipole fixture as shown in figure 2-7.



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Figure 2-2. Slant wire antenna.



TM5820-590-12-10

Figure 2-3. Attaching weight to Dacron line.

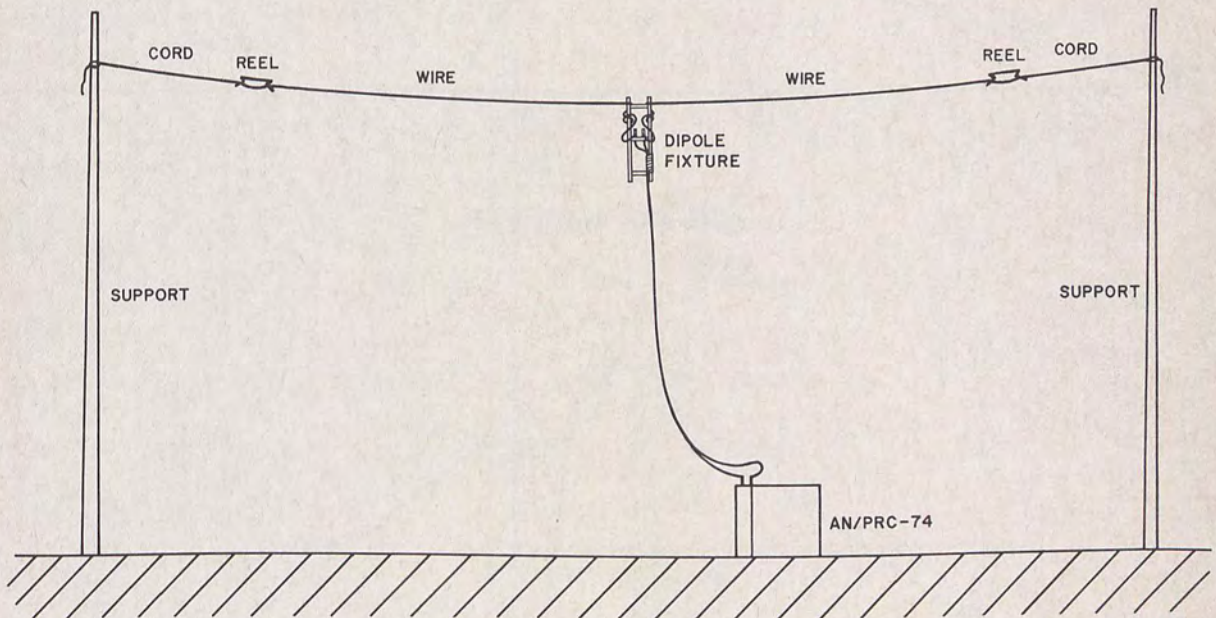
(2) Determine the length of the legs by referring to the chart below.

| MC selector position | Unwind to mark | Length (ft) |
|----------------------|----------------|-------------|
| 11, 10, or 9..... | 1 | 19 |
| 8 or 7..... | 2 | 26 |
| 6..... | 3 | 33 |
| 5..... | 4 | 47 |
| 4..... | 5 | 58 |
| 3..... | 6 | 67 |
| 2.5..... | 7 | 78 |
| 2..... | Full | 93 |

(3) Insert either lead of the feedline to the ANT (red) terminal and the other to the GRD (black) terminal on the rt unit front panel.

(4) If two antenna supports are available, erect the antenna as illustrated in figure 2-4. If only one support is available, use the method shown in figure 2-5 or 2-6.

(5) Tune the rt unit as described in paragraphs 3-2 and 3-3.



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Figure 2-4. Two support dipole.

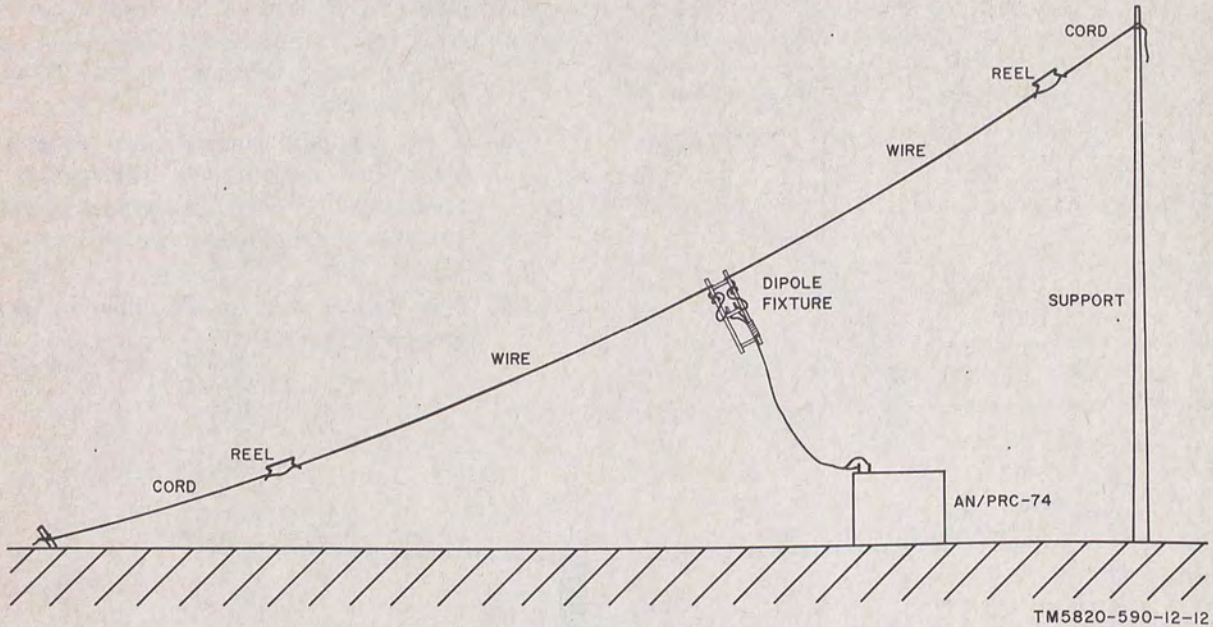


Figure 2-5. Sloping dipole.

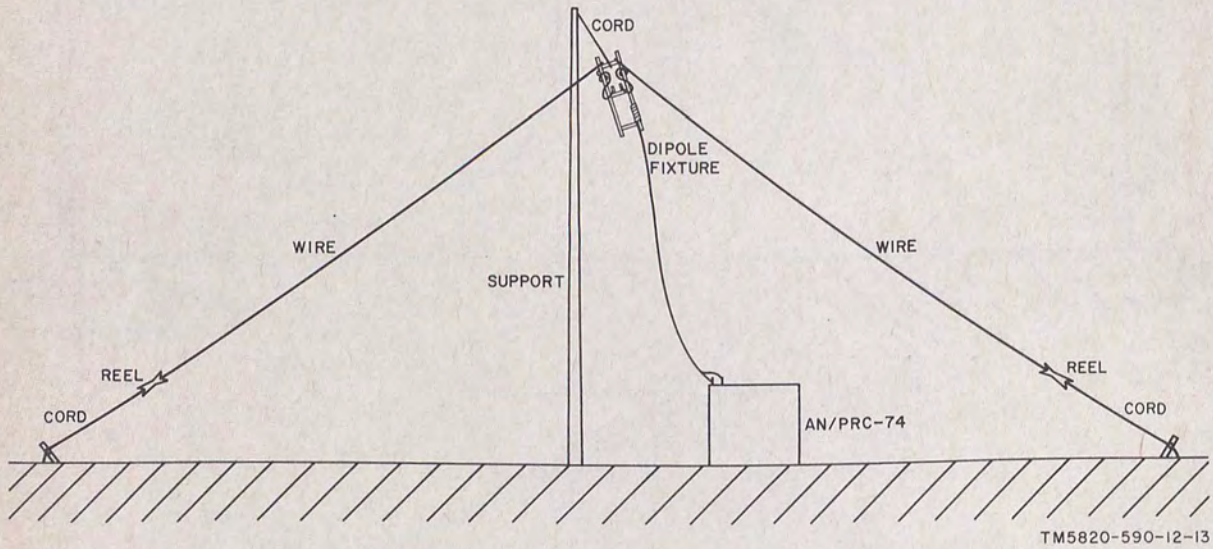
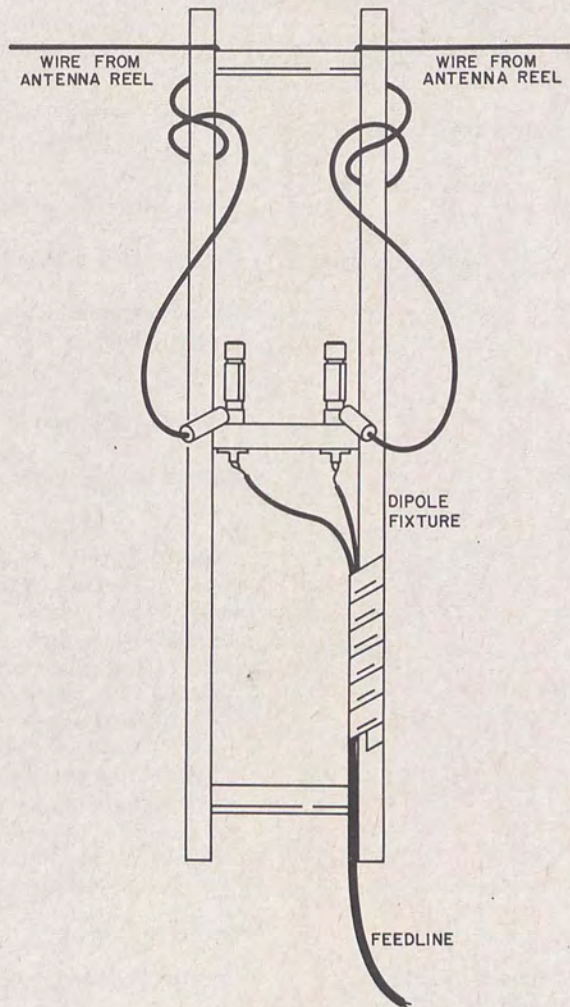


Figure 2-6. Inverted V-dipole.



TM5820-590-12-14

Figure 2-7. Attaching antenna wires to dipole fixture.

CHAPTER 3

OPERATING INSTRUCTIONS

Warning: Before operating this equipment make certain that all requirements of TB SIG 291 are met. Injury or DEATH could result from improper or careless operation.

3-1. Controls and Indicators

a. *Rt Unit* (fig. 3-1).

| Controls and indicators | Function |
|-------------------------|---|
| ANT TUNE..... | Adjusts antenna coupler capacitor. |
| ANT LOAD..... | Adjusts antenna coupler inductor. |
| OFF-ON-TUNE..... | Selects required function. |
| R.F. GAIN..... | Adjusts receiver gain. |
| PEAK NOISE..... | Tunes rf circuits to operating frequency. |
| AUDIO (2 jacks)..... | Accepts microphone, key, or headset. |
| CLARIFY..... | Receiver frequency vernier tuning. |
| PUSH TO CALIBRATE. | Sets synthesizer to coincide with frequency standard (engages only when pushed in). |
| MC..... | Selects frequency in 1 mc steps. |
| 100 KC..... | Selects frequency in 100 kc steps. |
| 10 KC..... | Selects frequency in 10 kc steps. |
| 1 KC..... | Selects frequency in 1 kc steps. |
| ANT. IND. (meter)... | Indicates proper tuning for antenna coupler. |
| ANT (terminal)..... | Accepts antenna wire or one wire of dipole feedline. |
| GND (terminal)..... | Accepts antenna wire used for counterpoise or one wire of dipole feedline. |

b. *Power Supply Subassembly (Part of PP-4514/PRC-74)* (fig. 3-2).

| Control or indicator | Function |
|-----------------------|--|
| POWER ON switch... | Controls input power to power supply. |
| Power on indicator... | Illuminates when power is applied from an external source. |
| METER switch..... | Four-position switch that selects meter function. |
| | <i>Sw pos</i> <i>Function</i> |
| | OFF Shorts out meter. |
| | CHARGE Charging rate in |
| | AMPS amps (1 to 5) |
| | of the battery |
| | charger. |
| | BATTERY Charge available |
| | VOLTS in the battery |
| | pack. |
| | RADIO Voltage being |
| | VOLTS supplied to |
| | the rt unit. |
| Fuses..... | 15-ampere fuse (15A) for 28-volt dc input. |
| | 2-ampere fuse (2A) for 220-volt ac input. |
| | 4-ampere fuse (4A) for 110-volt ac input. |
| | 8-ampere fuse (8A) for 14-volt dc output. |

c. *Battery Charger Subassembly (Part of PP-4514/PRC-74)* (fig. 3-2).

| Control or indicator | Function |
|------------------------------------|--|
| CHARGER ON switch----- | Applies input power to the battery charger. |
| Charger on indicator-- | Illuminates when power is applied to the battery charger. |
| CHARGING CURRENT INCREASE control. | Controls amount of charge current applied to external batteries. |
| Fuses----- | 6-ampere fuse (6A) for input. 6-ampere fuse (6A) for output. |

d. Whip Antenna (fig. 1-4).

| Control or indicator | Function |
|----------------------------------|---|
| Frequency range selector switch. | Selects antenna loading coil frequency ranges comparable with the operating frequency of the radio set. |

3-2. Receiver Tuning

Connect the rt unit to a suitable power source (para 2-3) and use the following procedure to tune the radio set for receive mode:

- a. Connect an antenna to the rt unit (para 2-5).
- b. If a vehicular power supply or commercial power source is used (para 2-3), place the POWER switch on the PP-4514/PRC-74 to ON. Set the METER switch to the RADIO VOLTS position and check to see that the meter reading is 14 volts \pm 3. If the battery pack is used, omit this step.
- c. Plug the headset into either of the AUDIO jacks.

d. Set the four frequency selector knobs to the desired frequency.

e. When using the whip antenna, check the antenna load coil for proper frequency range setting.

f. Turn the OFF-ON-TUNE switch to the ON position.

g. Set the R.F. GAIN control to maximum and adjust it so that noise is heard in the headset.

h. Rotate the PEAK NOISE knob until the noise peaks up; then adjust it carefully for maximum noise in the headset.

i. If the set is to be used in receive mode only, adjust the ANT TUNE and ANT LOAD knobs for maximum noise in the headset (otherwise these knobs are adjusted in the transmit tune procedure).

j. Push in the CLARIFY/PUSH TO CALIBRATE knob and adjust it so that a zero beat condition is observed in the headset. Release the knob; then reset the pointer to midscale.

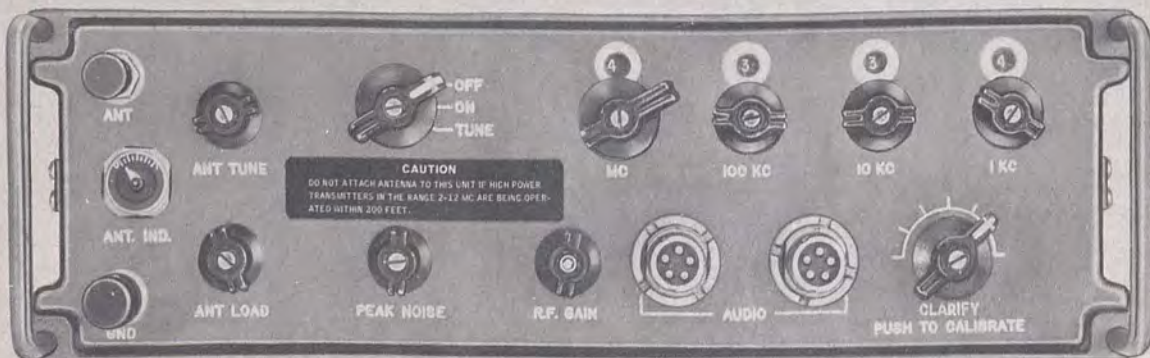
k. Set the R.F. GAIN control to the desired audio volume of the received signal.

l. When receiving voice signals, it may be necessary to adjust the CLARIFY knob so that the quality is natural. Do not push the knob in when making this adjustment.

3-3. Transmitter Tuning

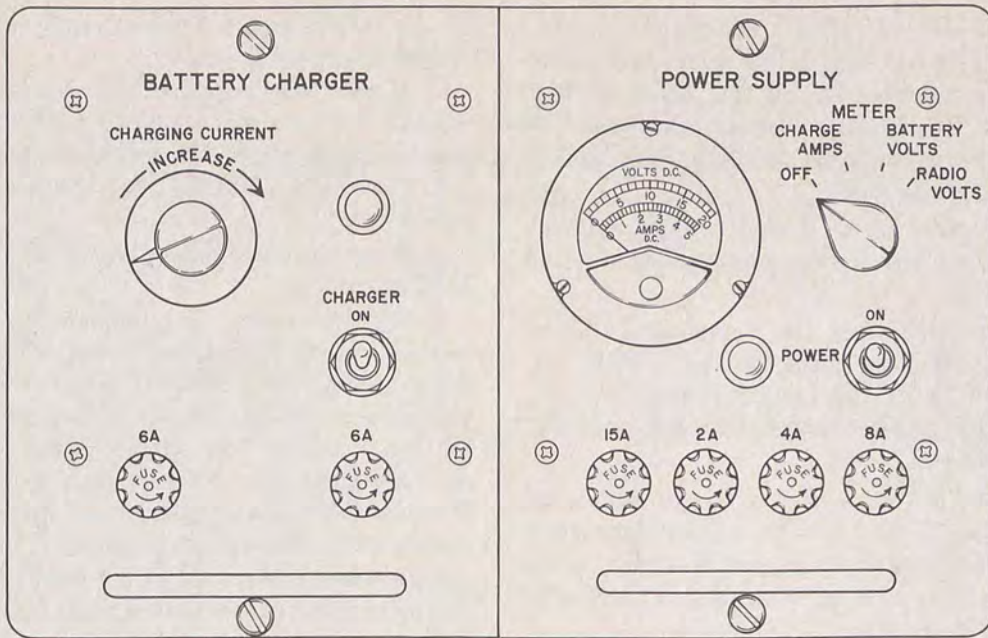
Use the following procedure to tune the radio set for transmit mode.

Caution: Do not attempt to tune the radio set without a suitable antenna connected. Remember that, during tuning, the radio set transmits a signal and therefore breaks radio silence.



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Figure 3-1. Receiver-Transmitter Radio RT-794/PRC-74, front panel.



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Figure 3-2. Power Supply PP-4514/PRC-74, front panel.

a. Perform the receiver tuning procedure given in paragraph 3-2. After the receiver tuning procedure has been completed, do not make further adjustments to the PEAK NOISE control.

b. Using the left hand as shown in figure 3-3, turn and hold the OFF-ON-TUNE switch in the TUNE position. A tone should be heard in the headset.

c. With the right hand, alternately adjust the ANT TUNE and ANT LOAD knobs until a maximum reading is obtained on the ANT. IND. meter. Release the OFF-ON-TUNE knob. The knob should return to the ON position.

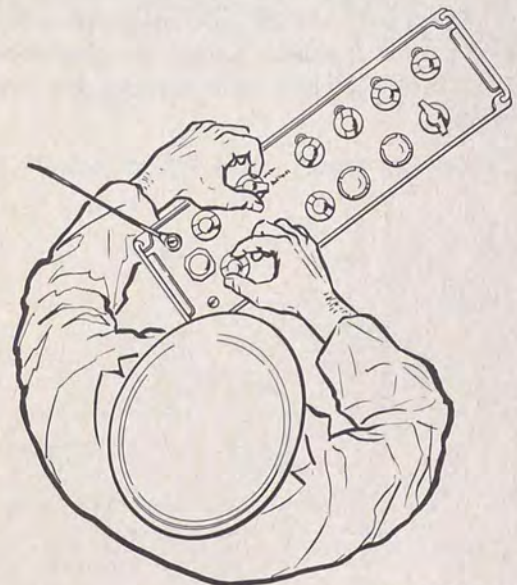
d. If voice operation is to be used, insert the microphone connector into either of the AUDIO jacks. To transmit, press the microphone button and speak directly into the microphone. Hold the microphone one-fourth inch from the lips. When the radio set is transmitting voice, a voice sidetone should be heard in the headset. Releasing the microphone button returns the set to the receive mode.

e. If telegraph operation is to be used, insert the telegraph key connector into one of the AUDIO jacks. To transmit, begin sending the message with the telegraph key. The radio set automatically goes into transmit mode as soon as the key is depressed, and stays in the transmit mode for

2 seconds after the key has been released. The keyed signal may be monitored by the keyed sidetone heard in the headset.

3-4. Netting Procedure

In some operations, a primary or command station communicates with many secondary or port-



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Figure 3-3. Transmitter tuning adjustment.

able stations. This is called *net operation*, and the command station is called the *net control*. Obviously, it is desirable for all the secondary stations to synchronize their frequencies with net control. This procedure is called *netting* and is accomplished as follows:

a. Set the radio set to the operating frequency and follow the receiver tuning procedure given in paragraph 3-2.

b. If after calibration the net control station seems off frequency, push in the PUSH TO CALIBRATE control and adjust it slightly clockwise. Release the knob and set the CLARIFY pointer to midscale.

c. If the net station clarity is improved, repeat the adjustment given in *b* above; if the net station clarity is not improved, repeat *b* above, using counterclockwise rotation of the PUSH TO CALIBRATE control.

3-5. Battery Charger Operation

(figs. 3-4)

The battery charger portion of the PP-4514/PRC-74 (fig. 3-2) may be placed in operation at any time, since the battery charger circuits are isolated from the power supply portion of the PP-4514/PRC-74. To use the battery charger during operation of the radio set, perform the following procedure:

Warning: Always remove all the battery cell vent caps (fig. 5-3) and provide adequate ventilation for the room or shelter during charging operations. Failure to observe this warning may cause an explosion.

a. Connect accessory cable W5 to jack J5 (A,

fig. 3-4) of the external power supply and battery charger assembly housing.

b. Attach the negative and positive battery clips of the accessory cable to the negative and positive terminals of the wet battery.

c. Place the CHARGER switch to the ON position.

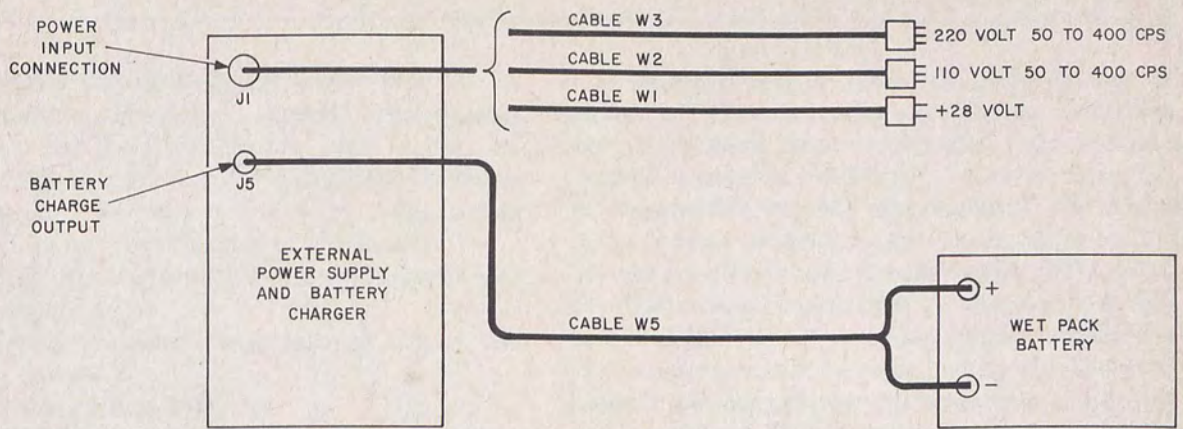
d. Place the METER switch to the CHARGE AMPS position.

e. Set the battery charging rate to the desired level (1 ampere minimum to 5 amperes maximum) by adjusting the CHARGING CURRENT potentiometer located on the front panel of the battery charger. The charging rate is indicated on the panel meter of the external power supply. A completely discharged wet cell battery should receive 20 ampere-hours of charge. The suggested charge rate is 5 amperes for a 4-hour period. For complete maintenance instructions for the wet cell battery, refer to paragraph 5-12.

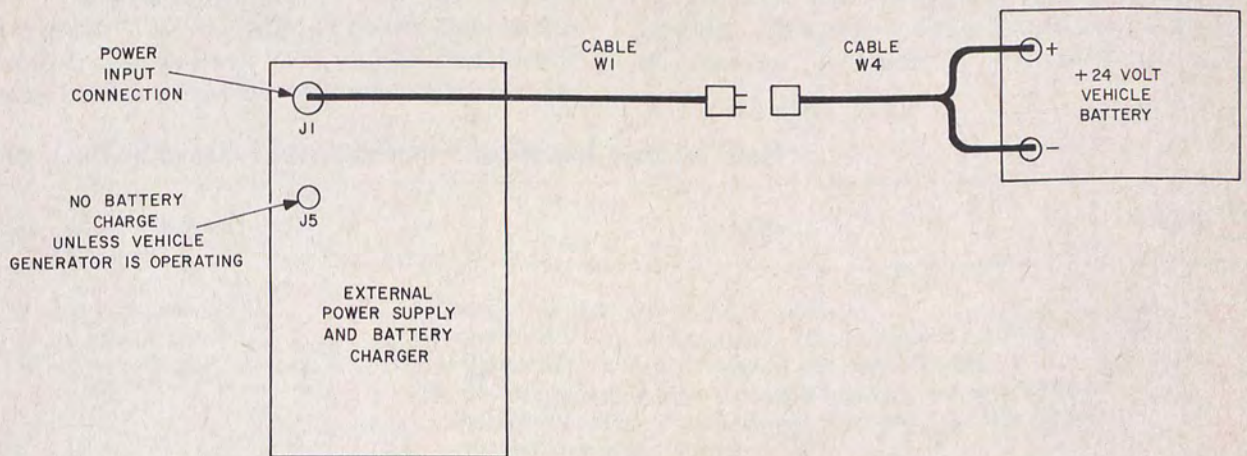
Caution: The battery electrolyte level should be checked only when the battery is fully charged. Add only enough distilled water to cover the plates. If distilled water is added to a discharged battery, the electrolyte will leak out of the vent during charging.

Warning: The battery electrolyte is extremely dangerous to the eyes. If electrolyte is splashed on person or clothing, quickly and thoroughly wash the exposed area with water, vinegar, or boric acid solution.

f. To check the battery voltage under a no load condition, place the METER switch to the BATTERY VOLTS position and the CHARGER power switch to OFF, and note the reading on the panel meter.



A. FIXED OPERATION



B. 24V BATTERY OPERATION

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Figure 3-4. External power supply and battery charger cable connections.

CHAPTER 4

OPERATOR'S MAINTENANCE INSTRUCTIONS

4-1. Scope of Operator's Maintenance

The maintenance duties assigned to the operator of Radio Set AN/PRC-74 are listed below, together with a reference to paragraphs covering the specific maintenance functions. The duties assigned do not require tools or equipment.

- a. Daily preventive maintenance checks and services (para 4-4).
- b. Weekly preventive maintenance checks and services (para 4-5).
- c. Cleaning (para 4-6).
- d. Checking antenna and battery connections (para 4-5).

4-2. Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce downtime, and to assure that the equipment is serviceable.

a. *Systematic Care.* The procedures given in paragraphs 4-3 through 4-7 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. *Preventive Maintenance Checks and Services.* The preventive maintenance checks and services charts (paras 4-4 and 4-5) outline functions to be performed at specific intervals. These checks

and services are to maintain Army electronic equipment in a combat-serviceable condition; that is, in good general (physical) condition and in good operating condition. To assist operators in maintaining combat serviceability, the charts indicate what to check, how to check, and what the normal conditions are; the *References* column lists the illustrations, paragraphs, or manuals that contain detailed repair or replacement procedures. If the defect cannot be remedied by the operator, higher maintenance or repair is required. Records and reports of the checks and services must be made in accordance with the requirements set forth in TM 38-750.

4-3. Preventive Maintenance Checks and Services Periods

Preventive maintenance checks and services for Radio Set AN/PRC-74 are required daily. Paragraph 4-4 specifies the items to be checked and serviced. In addition to the routine daily checks and services, the equipment should be rechecked and serviced immediately before going on a mission and as soon after completion of the mission as possible. Paragraph 4-5 specifies additional checks and services that must be performed *once* each week.

4-4. Daily Preventive Maintenance Checks and Services Chart

| Se- quence No. | Item to be inspected | Procedure | References |
|----------------------|----------------------------------|--|-----------------------|
| 1 | Completeness----- | Check to see that equipment is complete----- | Para 1-6. |
| 2 | Exterior surfaces----- | Remove dust, dirt, and moisture from equipment surfaces---- | Para 4-6. |
| 3 | Controls----- | a. Check all controls for looseness and other damage----- b. During operational check (item 5 below), observe that the mechanical action of each control is smooth, and free from external or internal binding. | Para 3-1. |
| 4 | Meter movements----- | During operation (item 5 below), check for sticking meter movements or bent needles on the rt unit and power supply (if used). | |
| 5 | Transmitter-receiver tuning----- | Check rt unit and antenna for proper operation----- | Paras 3-2 and 3-3. |

4-5. Weekly Preventive Maintenance Checks and Services Chart

| Sequence No. | Item to be inspected | Procedure | References |
|--------------|------------------------|--|------------|
| 1 | Exterior surfaces----- | Check all equipment surfaces for rust and corrosion. Clean as required. | Para 4-6. |
| 2 | Cables----- | Check power supply and battery charger cables for cuts, cracks, fraying, deterioration, or corrosion. Refer to higher level maintenance as required. | |
| 3 | Connectors----- | Check all equipment connectors for evidence of damage to connectors or pins. Refer to higher level maintenance as required. | |
| 4 | Antenna kit----- | Check antennas for evidence of kinks, breaks, or strain. Refer to higher level maintenance as required. | |
| 5 | Batteries----- | Check for evidence of condensation, metallic dust, or corrosion. Clean as required. | |

4-6. Cleaning

a. *General.* Inspect the exterior of the rt unit and power supply unit. The exterior surfaces should be free of dust, grease, and fungus.

- (1) Remove dust and loose dirt with a clean, soft cloth.

Warning: Prolonged breathing of cleaning compound is dangerous; make certain that adequate ventilation is provided. Cleaning compound is flammable; do not use near a flame. Avoid contact with the skin; wash off any that spills on your hands.

- (2) Remove grease, fungus, and ground-in dirt from the cases; use a cloth dampened (not wet) with Cleaning Compound FSN 7930-395-9542.
- (3) Remove dust or dirt from plugs and jacks with a brush.

Caution: Do not press on the meter face (glass) when cleaning; the meter may become damaged.

- (4) Clean the front panels, meters, and control knobs; use a soft, clean cloth. If dirt is difficult to remove, dampen the cloth with water; mild soap may be used for more effective cleaning.

b. *Wet Batteries.* To clean wet batteries, proceed as follows:

Caution: When cleaning wet batteries, observe the following:

- (1) Keep open flames and metal objects away from exposed parts of the battery.

- (2) Do not clean battery tops with solvents, acids, or chemical solutions.

- (3) Do not use wire brushes to clean batteries.

Warning: Avoid contact with electrolyte. If electrolyte is splashed on any person or clothing, the exposed area should be quickly and thoroughly washed with water or a boric acid solution.

- (4) Clean the tops of batteries with water and a brush.
- (5) Drain excess water from the battery and allow the battery to dry. Compressed air may be used to aid in drying the battery.

4-7. Dry Battery Replacement

(fig. 4-1)

Note. Replacement of cells in the wet battery is performed by organizational maintenance (para. 5-12).

To replace the dry batteries, proceed as follows:

Caution: Do not expose the dry batteries to excessive heat or moisture. If the dry battery carrier assembly is to be placed in storage for long periods of time (2 months or more), remove the dry batteries from the battery carrier assembly.

a. Release the latch located on each side of the rt unit carrier assembly.

b. Lift the rt unit from the battery box.

c. Release the latch located on each side of the battery box and remove the battery box cover.

d. Lift the plastic battery container from the battery box.

e. Grasp the top plug at the positive end of each battery compartment, push in, and turn

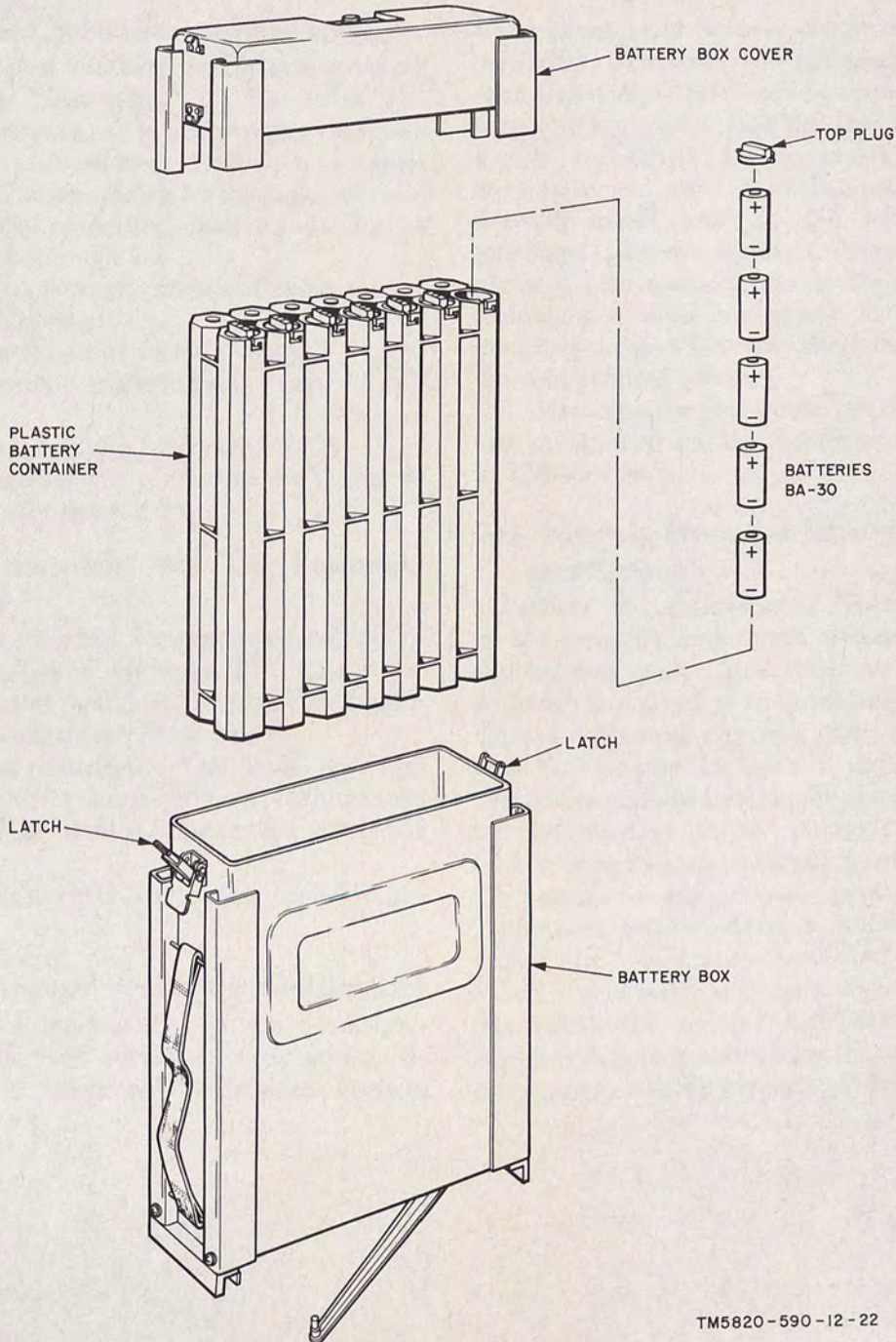
counterclockwise. Lift the plug and remove the dry batteries.

f. Replacement batteries are type BA-30 or equivalent. Insert the new dry batteries (negative end first) in the plastic battery container. Replace the top plug at the positive end of each battery compartment.

g. Insert the plastic battery container in the battery box in the original mounting position.

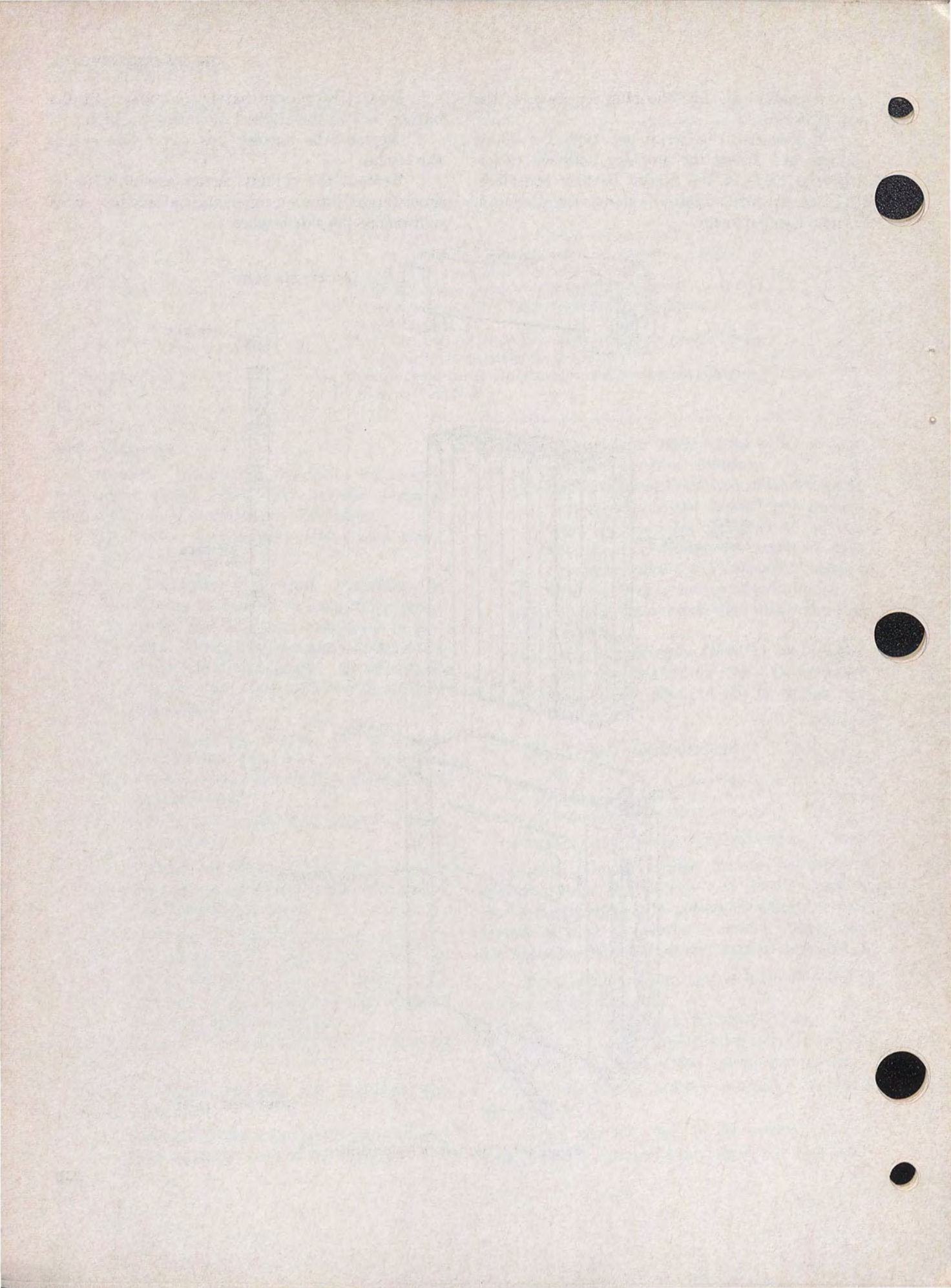
h. Replace the battery box cover and secure the latches.

i. Replace the rt unit carrier assembly to its mounting position on top of the battery box cover and secure the side latches.



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Figure 4-1. Dry battery replacement.



CHAPTER 5

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. MAINTENANCE

5-1. Scope of Organizational Maintenance

a. This chapter contains instructions covering organizational maintenance of the radio set. It includes instructions for performing preventive and periodic maintenance services, and repair functions to be accomplished by the organizational repairman. The operating instructions are in paragraphs 3-2 through 3-5.

b. Organizational maintenance of the radio set includes the following:

- (1) Replacement of defective fuses.
- (2) Preventive maintenance (para 5-3-5-8).
- (3) Troubleshooting (para 5-9-5-13).
- (4) Sectionalization of trouble to a unit or assembly (para 5-10).

5-2. Tools, Materials, and Test Equipment Required

The parts authorized for organizational maintenance are listed in appendix IV. The tools, materials, and test equipment required for organizational maintenance are listed below.

a. Tools and Materials. The tools and materials required for organizational maintenance are contained in Radio Repairman's Tool Kit TK-115/U.

b. Test Equipment. Multimeter AN/URM-105.

5-3. Organizational Preventive Maintenance

a. Preventive maintenance is the systematic care, inspection, and servicing of equipment to maintain it in serviceable condition, prevent

breakdowns, and assure maximum operational capability. Preventive maintenance is the responsibility of all levels of maintenance concerned with the equipment, and includes the inspection, testing, and repair or replacement of parts, sub-assemblies, or units that inspection and tests indicate would probably fail before the next scheduled periodic service. Preventive maintenance checks and services at the organizational maintenance level are made at monthly and quarterly intervals unless otherwise directed by the commanding officer.

b. Maintenance forms and records to be used and maintained on this equipment are specified in TM 38-750.

5-4. Monthly Preventive Maintenance Checks and Services

Perform the maintenance functions indicated in the monthly preventive maintenance checks and services chart (para. 5-5) once each month. A month is defined as approximately 30 calendar days of 8-hour-per-day operation. If the equipment is operated 16 hours a day, the monthly preventive maintenance checks and services should be performed at 15-day intervals. Adjustment of the maintenance interval must be made to compensate for any unusual operating conditions. Equipment maintained in a standby (ready for immediate operation) condition must have monthly preventive maintenance checks and services performed on it. Equipment in limited storage (requiring service before operation) does not require monthly preventive maintenance.

5-5. Monthly Preventive Maintenance Checks and Services Chart

| Se- quence No. | Item to be inspected | Procedure | References |
|----------------------|---------------------------------|---|----------------------|
| 1 | Exterior----- | Check all equipment surfaces for evidence of fungus, rust, corrosion, and other foreign materials. Spot-paint bare spots. | Paras 4-6 and 5-8. |
| 2 | Knobs, dials, and switches----- | Observe that the mechanical action of each knob, dial, and switch is smooth, and free of external or internal binding. Replace lost or defective knobs as required. | |
| 3 | Fuses----- | Check for blown or damaged fuses. See that all operating fuses are of the proper values. Replace as required. | Paras 5-11 and 5-13. |
| 4 | Cables and connections----- | Check all cables for breaks, cracks, and damage to connectors. Clean all module connections and plugs, and check for damage to pins or connectors. | |
| 5 | Battery cases----- | Check interiors of battery cases for evidence of water leakage, condensation, and corrosion. Clean as required. | Para 4-6. |
| 6 | Batteries----- | Test batteries under load----- <i>a.</i> Wet battery voltage is between 11 and 17 volts. Charge as required. <i>b.</i> Dry battery voltage should be at least 11 volts. | Para 3-5. |

5-6. Quarterly Maintenance

Quarterly preventive maintenance checks and services on the radio set are required. Periodic weekly and monthly services constitute a part of the quarterly preventive maintenance checks and services, and must be performed concurrently.

All deficiencies or shortcomings will be recorded in accordance with the requirements of TM 38-750. Perform all the checks and services listed in the quarterly preventive maintenance checks and services chart (para 5-7) in the sequence listed.

5-7. Quarterly Preventive Maintenance Checks and Services Chart

| Se- quence No. | Item to be inspected | Procedure | References |
|---|--|--|-----------------------------|
| <i>Radio Set AN/PRC-74</i> | | | |
| 1 | Completeness..... | Insure that the equipment is complete..... | Para 1-6. |
| 2 | Installation..... | Insure that the equipment is properly installed..... | Para 2-3. |
| 3 | Cleanliness..... | Insure that the equipment is clean..... | Para 4-6. |
| 4 | Preservation..... | Check all surfaces for evidence of fungus. Remove rust and corrosion, and spot-paint bare spots. | Paras 4-6 and 5-8. |
| 5 | Publications..... | Insure that all publications are complete, serviceable, and current. | DA Pam 310-4. |
| 6 | Modifications..... | Check DA Pam 310-4 to determine whether new applicable MWO's have been published. All URGENT MWO's must be applied immediately. All NORMAL MWO's must be scheduled. | TM 38-750 and DA Pam 310-4. |
| 7 | Mounting..... | Insure that all bolts, nuts, and washers are correctly positioned and properly tightened. | |
| 8 | Spare parts..... | Check all spare parts (operator and organizational) for general condition and method of storage. There should be no evidence of overstock, and all shortages must be on valid requisitions. | Apps. II and IV. |
| <i>Receiver-Transmitter Radio RT-794/PRC-74</i> | | | |
| 9 | Operational check..... | Operate the rt unit as specified in paragraphs 3-2 and 3-3... | Para 5-10. |
| <i>Power Supply PP-4514/PRC-74</i> | | | |
| 10 | External power supply operational check. | Connect the rt unit to the external power supply as outlined in paragraph 2-3b or 2-3c (depending on the source power available). Perform the procedures specified in paragraph 3-2 a and b. | Para 5-10. |
| 11 | Battery charger operational check. | Operate the battery charger as outlined in paragraph 3-5... | Para 5-10. |

5-8. Touchup Painting Instructions

Remove rust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal

to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TB SIG 364.

Section II. TROUBLESHOOTING

5-9. General

Troubleshooting of the radio set is based on the operational check contained in the quarterly preventive maintenance checks and services chart. To troubleshoot the equipment, perform all functions starting with item 10 in the quarterly preventive maintenance checks and services chart

(para 5-7) and proceed through the items until an abnormal condition or result is observed. When an abnormal condition or result is observed, note the item and turn to the corresponding item number in the troubleshooting chart (para 5-10). Perform the checks and corrective measures indicated in the troubleshooting chart. If the corrective measures indicated do not result in correc-

tion of the trouble, higher level maintenance is required. Paragraphs 5-11, 5-12, and 5-13 contain additional information and step-by-step in-

structions for performing equipment tests and adjustments to be used during troubleshooting procedures.

5-10. Troubleshooting Chart

Note. The *item No.* in this chart corresponds to the *sequence No.* in the quarterly preventive maintenance checks and services chart (para 5-7).

| Item No. | Trouble symptom | Probable trouble | Checks and corrective measures |
|----------|--|--|--|
| 9 | Rt unit cannot be operated as described in paragraph 3-2 and 3-3. | a. Defective fuse F1 or F2 (fig. 5-2). b. Low source voltage----- | a. Check fuses; replace as necessary (para 5-11b). b. If dry cell battery pack is used, replace batteries (para 4-7). If wet cell battery pack is used, charge battery (para 3-5) or replace (para 5-12) as required. If external power supply is used, proceed to step 10. |
| 10 | External power supply cannot be operated as described in paragraph 2-3b or 2-3c. | a. Defective fuse in external power supply. b. Poor or defective power cable connections. c. Defective power supply----- | a. Check external power supply front panel fuses (para 5-13). b. Check power cables. c. Higher level maintenance required. |
| 11 | Battery charger cannot be operated as described in paragraph 3-5. | a. Defective fuse in battery charger. b. Defect in battery charger----- | a. Check fuses on front panel of battery charger (para 5-13). b. Refer to paragraph 5-13. If those procedures do not correct trouble, higher level maintenance is required. |

5-11. Supplementary Rt Unit Troubleshooting Information

Troubleshooting of the rt unit at this maintenance level consists of a power supply voltage test and the replacement of fuses. If the power supply voltage is not as specified or the replacement of fuses does not correct the trouble, the rt unit must be replaced and forwarded to higher level maintenance personnel.

a. Power Supply Voltage Test. When troubleshooting of the rt unit is required, the rt unit case must be removed to gain access to the test points (fig. 5-1). The wet or dry battery must be used as a power source during this test. To check the receiver-transmitter power supply, proceed as follows:

- (1) Release the latches attaching the rt unit to the power source. Remove the rt unit.
- (2) Release the latches attaching the rt unit front panel to the case.
- (3) Using the handles located on each side of the rt unit front panel, remove the rt unit from the case.

Caution: When using the wet battery as the power source, perform this test with the battery and rt unit connected in the upright position (fig. 1-2). If the dry battery is used, the rt unit and the dry battery may be connected and laid flat with the test points facing upward. Avoid excess movement of the rt unit and the battery to prevent damage to the connectors.

- (4) Referring to figure 5-1, set the OFF-ON-TUNE switch in the TUNE position and use the AN/URM-105 to make the following measurements:
 - (a) TB201 pin 7: 8.8 to 9.3 volts dc.
 - (b) TB201 pin 5: 10.5 to 17 volts dc.
 - (c) TB201 pin 3: 38.0 to 42.0 volts dc.
- (5) If the readings in (4) above are normal and the radio set does not operate normally, higher level maintenance is required. If any of the readings in (4) are not normal, check F1 and F2 in the power supply module (b below). If fuse

replacement does not correct the trouble, higher level maintenance is required.

- (6) After the test has been completed, place the rt unit in the upright position and disconnect it from the battery pack.
- (7) Insert the rt unit in the case and secure it with the latch located on each side of the case.
- (8) Connect the rt unit to the power source and secure it with the latch located on each side of the case.

b. *Fuse Replacement* (fig. 5-2). To replace the

rt unit fuses, remove the rt unit from the case (a(1), (2), and (3) above) and proceed as follows:

- (1) Remove the three screws that secure the power supply module cover.
- (2) Replace fuse F1 and/or F2 as required.
- (3) Replace the power supply module cover and secure it with the three screws removed in (1) above.
- (4) Replace the rt unit in its case (a(6), (7), and (8) above).

Note. If the fuse blows again, higher level maintenance is required.

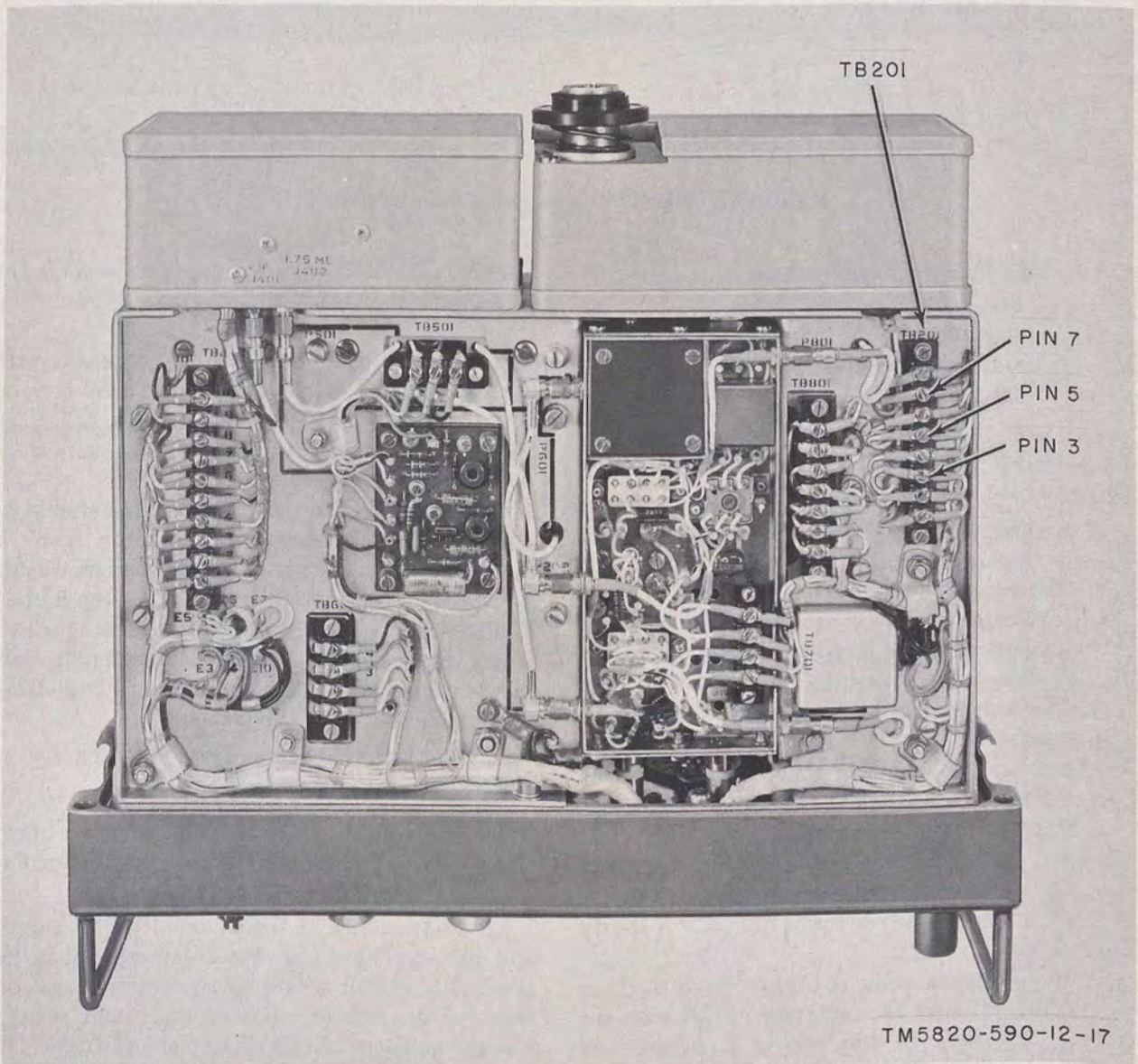


Figure 5-1. Rt unit, location of test points.

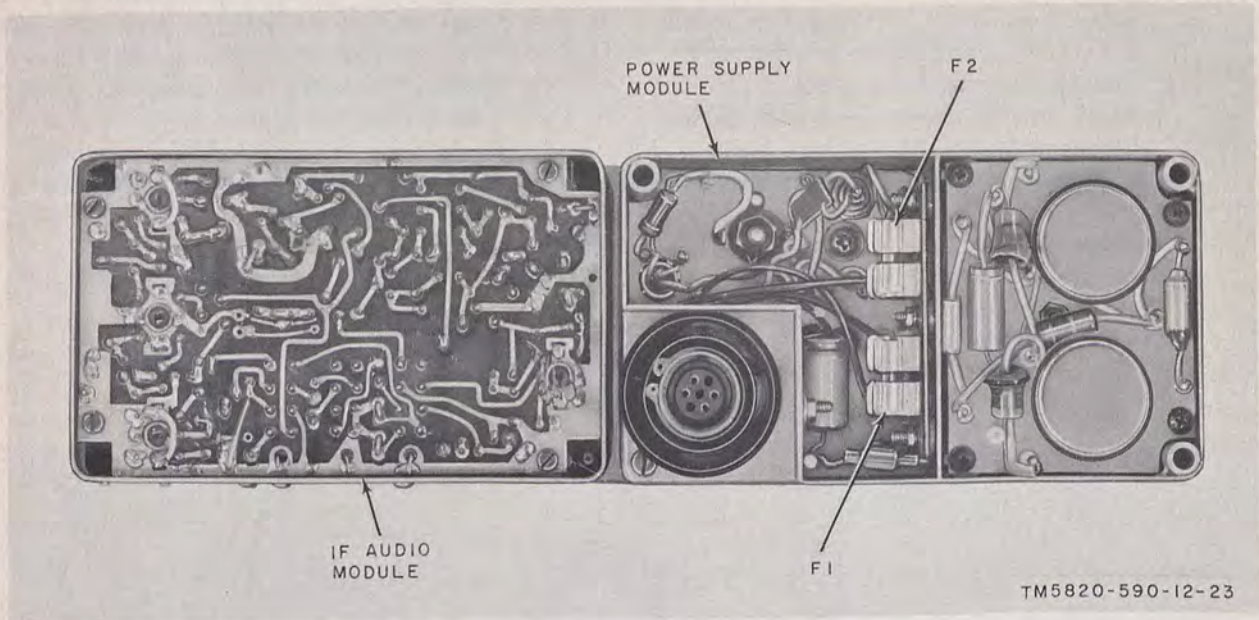


Figure 5-2. Rt unit, rear view, module covers removed.

5-12. Wet Battery Replacement

(fig. 5-3)

When a wet battery cell becomes contaminated or damaged, use the following procedure for removal and replacement.

Caution: Remove all jewelry and wristwatches when working on batteries. Use metal tools with extreme care.

a. Release the latches attaching the wet battery to the rt unit.

b. Disconnect the rt unit from the wet battery carrier assembly.

c. Release the latch located on each side of the battery case, and remove the case.

d. Disconnect the battery terminal connections (fig. 5-3).

e. Release the holddown clamp that secures the battery cells.

f. Remove two sockethead capscrews and washers, and remove the intercell connector attached to the damaged cell (or cells). Remove the cell. Note the direction of the polarity symbols.

g. Replacement cells are type BB-418/U or equivalent. Insert the replacement cell with the polarity symbols in the proper direction, and attach the intercell connector with the washers and sockethead capscrews.

h. Attach the holddown clamp that secures the battery in the battery carrier.

i. Connect the battery terminals.

j. Replace the battery case and secure it with the latch located on each side of the case.

Note. When the condition of the wet cell battery is not known, it should receive a full charge; the battery is not damaged by overcharging at the specified rate.

Caution: The level of the electrolyte should be checked AFTER recharging. If the level is below the top of the plates, distilled water should be added. When time permits, allow the battery to stand for 12 hours or more after adding water. If the battery must be used immediately, add just enough water to bring the level to one-eighth inch above the top of the plates.

k. Charge the battery as described in paragraph 3-5.

5-13. External Power Supply and Battery Charger Supplementary Troubleshooting Information

Troubleshooting of the external power supply and battery charger at the organizational maintenance level will consist of removal and replacement of the external power supply and battery charger subassemblies, replacement of fuses, and an output voltage check. If the output voltage is not as specified and replacement of fuses does

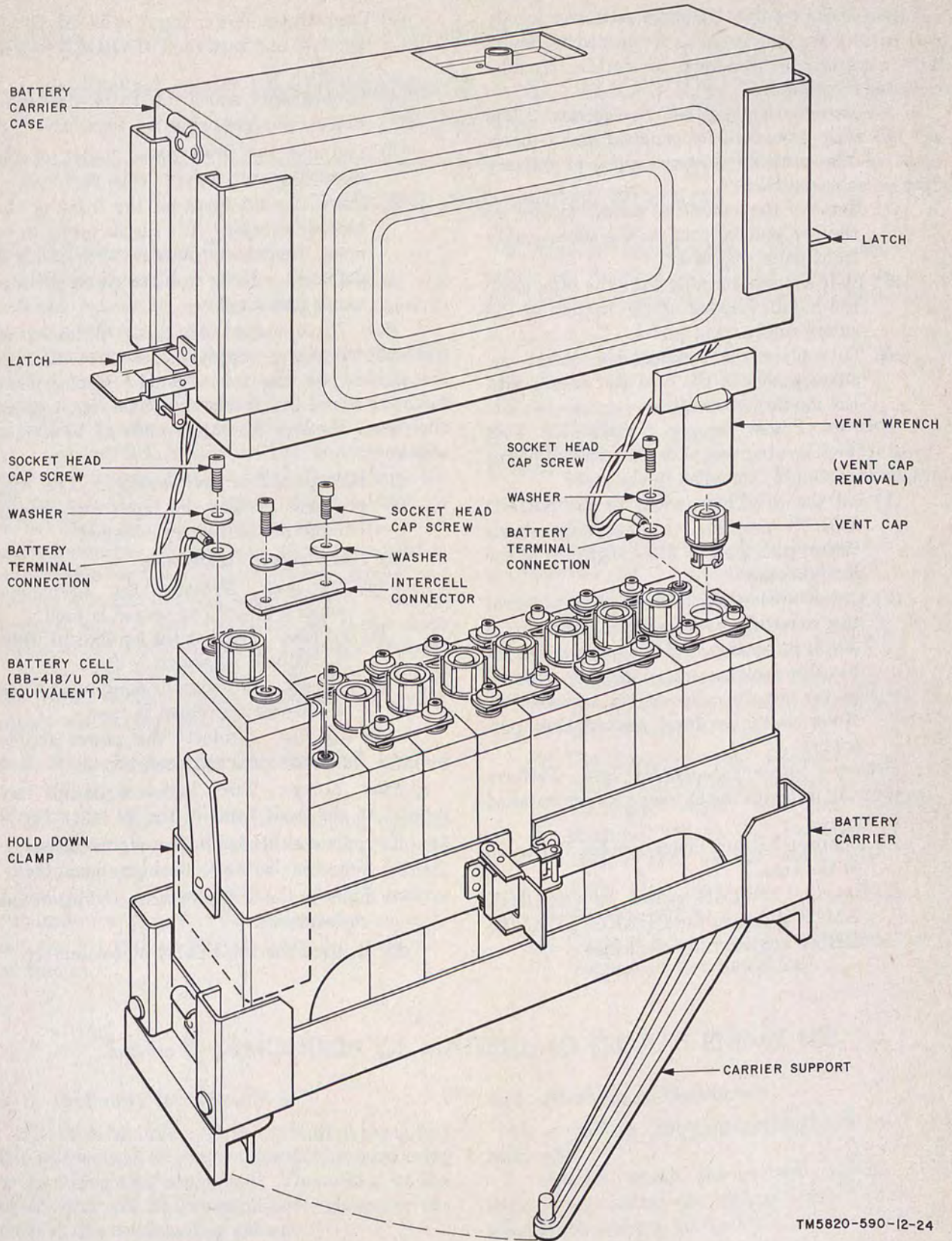


Figure 5-3. Wet battery and vent cap removal.

TM5820-590-12-24

not correct the trouble, the external power supply and battery charger must be forwarded to higher level maintenance personnel for further troubleshooting of the unit.

a. Subassembly Removal and Replacement. Use the following procedure for removal and replacement of the external power supply or battery charger subassemblies:

- (1) Remove the mounting screws located in the top and bottom on the subassembly front panel (fig. 3-2).
- (2) Slide the subassembly from the case, using the handle located at the bottom of the subassembly front panel.
- (3) To replace the subassembly, insert the subassembly in the case and secure with the mounting screws.

b. External Power Supply Subassembly Test. Perform the following test with the external power supply subassembly installed in the case:

- (1) Set the METER switch to the RADIO VOLTS position. Momentarily short-circuit pins 2 and 6 of J4 (fig. 1-8) of the module case.
- (2) Check to see that the front panel meter of the external power supply drops to a 0-volt indication. If the panel meter indication remains unchanged, the external power supply subassembly is defective. Refer to higher level maintenance personnel.

c. Battery Charger Subassembly Test. Perform the following test with the battery charger installed in the case:

- (1) Connect battery charger cable W5 to J5 of the case.
- (2) Set the METER switch to CHARGE AMPS and turn the CHARGING CURRENT control fully clockwise.

- (3) Connect the power input cable to J1 (A, fig. 3-4) and turn the CHARGER switch to ON.
- (4) Momentarily short the battery clips of battery charger cable W5 together.
- (5) See that the front panel meter of the external power supply drops to 0 volt.
- (6) Check the 6A fuses on the front of the battery charger. If a fuse is found to be open, the battery charger subassembly is defective. Refer to higher level maintenance personnel.

d. Fuse Replacement. All fuses contained in the external power supply and battery charger are located on the front panel. Replacement fuses are stored in a fuseholder panel (fig. 1-8) on the case. Replace fuses ((1) and (2) below) as required:

- (1) *Battery charger subassembly.* The two 6A fuses protect the input and output circuits of the battery charger.
- (2) *Power supply subassembly.*
 - (a) *15A fuse.* Protects the equipment when a 28-volt dc source is used.
 - (b) *2A fuse.* Protects the equipment when a 220-volt ac source is used.
 - (c) *4A fuse.* Protects the equipment when a 110-volt ac source is used.
 - (d) *8A fuse.* Protects the power supply against external short circuits.

e. Pilot Lamps. Two indicator lamps are located on the front panel of the PP-4514/PRC-

74. To replace either lamp, proceed as follows:
 - (1) Unscrew the front panel lens assembly.
 - (2) Remove the defective lamp and insert the replacement.
 - (3) Replace the front panel lens assembly.

CHAPTER 6

SHIPMENT AND LIMITED STORAGE AND DEMOLITION TO PREVENT
ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

6-1. Disassembly of Equipment

a. Disassemble and remove the antenna and antenna mounting bracket, and place them in the accessory equipment bag.

b. Remove all accessory equipment (headset, microphone, etc.) from the radio set, and place it in the accessory equipment bag.

c. Remove the radio set from the battery pack by releasing the latches at the bottom of the radio set, and remove the dry batteries from the plastic container. If a wet battery is used, it is not necessary to drain the wet battery for limited storage. If the radio set is being used in conjunction with an external power supply and battery charger, remove the radio set from the external supply and disconnect all cables from the external power supply and battery charger.

d. Coil the power cables, and place them in the cable storage compartment of the power supply and battery charger.

6-2. Repackaging for Shipment or Limited Storage

The exact procedure for repackaging depends on the material available and the conditions under which the equipment is to be shipped or stored. Adapt the procedures outlined below whenever circumstances permit. The information concerning the original packaging (para 2-1) will also be helpful.

a. *Material Requirements.* The following materials are required for packaging the radio set. For stock numbers of materials, consult SB 38-100.

| Material | Quantity |
|----------------------------------|-----------|
| Moisture-vaporproof barrier..... | 36 sq ft. |
| Waterproof tape..... | 18 ft. |
| Filler material..... | 5 lb. |
| Fiberboard..... | 40 sq ft. |

b. *Packaging.* Be sure that the dry batteries are removed and the solution is drained from wet battery before packing the radio set.

- (1) Cushion the radio set with pads of filler material on all sides.
- (2) Package each technical manual within a close-fitting waterproof bag; seal the bags with waterproof tape.
- (3) Use fiberboard and waterproof tape to form a carton large enough to hold the packaged radio set and technical manuals. Place the packages in the carton and fill all voids with filler material.
- (4) Seal the carton.
- (5) Cover the carton with moistureproof and vaporproof aluminum foil.

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

6-3. Authority for Demolition

The demolition procedures outlined in paragraph 6-4 will be used to prevent the enemy from using or salvaging this equipment. Demolition of the equipment will be accomplished only upon the order of the commanding officer.

6-4. Methods of Destruction

Use any of the following methods to destroy the radio set:

a. *Smash.* Smash the controls, meters, and minor components; use sledges, axes, handaxes, pickaxes, hammers, or crowbars.

b. Cut. Cut all power cables; use axes, hand-axes, or machetes.

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

c. Burn. Burn the cords and technical manuals;

use gasoline, kerosene, oil, flamethrowers, or incendiary grenades.

d. Bend. Bend the panel and cabinet.

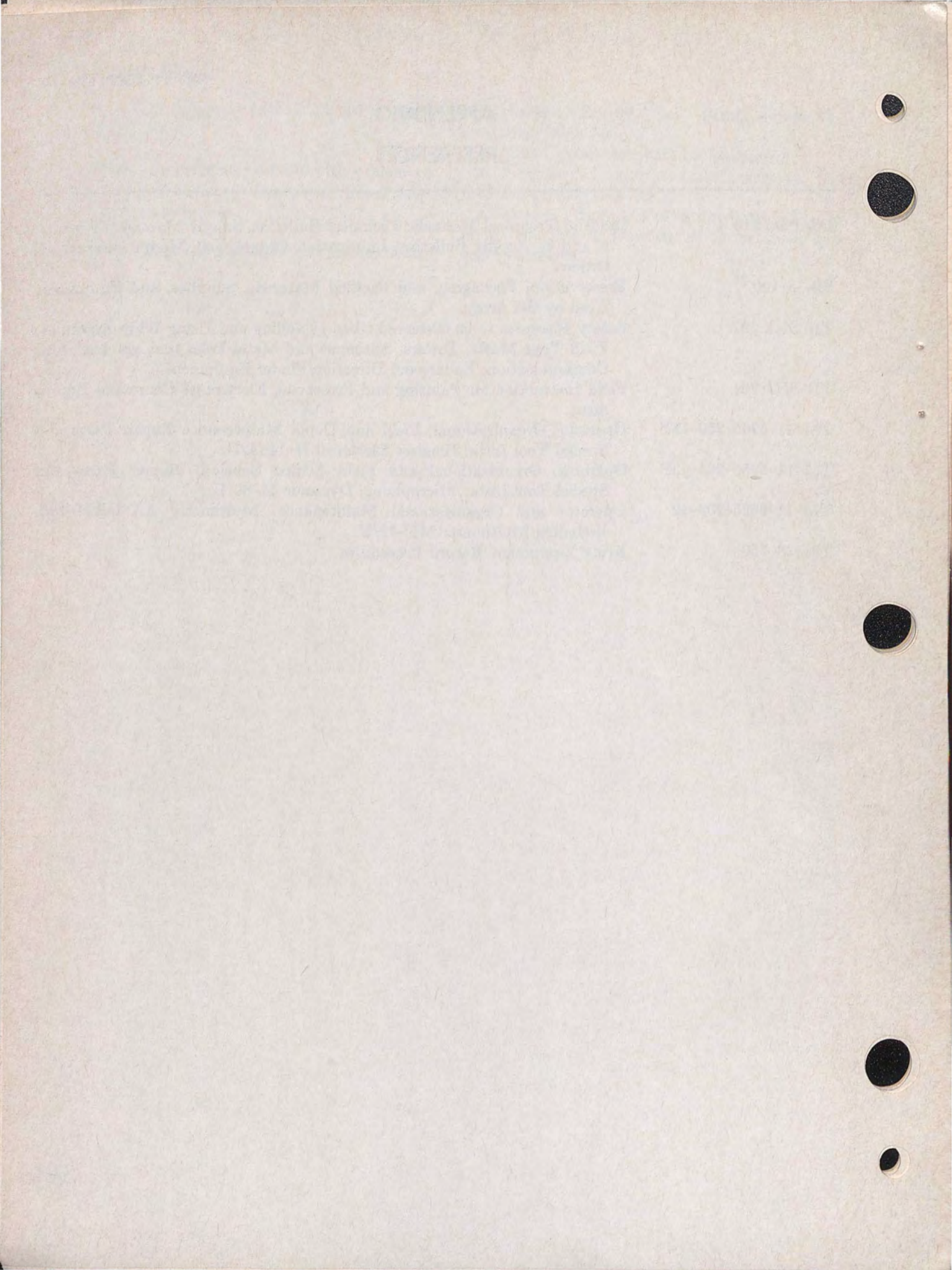
e. Explode. If explosives are necessary, use firearms, grenades, or TNT.

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

APPENDIX I

REFERENCES

- DA Pam 310-4 Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
- SB 38-100 Preservation, Packaging, and Packing Materials, Supplies, and Equipment Used by the Army.
- TB SIG 291 Safety Measures to be Observed when Installing and Using Whip Antennas, Field Type Masts, Towers, Antennas and Metal Poles that are used with Communication, Radar, and Direction Finder Equipment.
- TB SIG 364 Field Instruction for Painting and Preserving Electronics Command Equipment.
- TM 11-5965-260-15P Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Headset Electrical H-140A/U.
- TM 11-5965-265-13P Operator, Organizational and Field (Third Echelon) Repair Parts and Special Tool Lists: Microphone, Dynamic M-80/U.
- TM 11-6625-203-12 Operator and Organizational Maintenance: Multimeter AN/URM-105, Including Multimeter ME-77/U.
- TM 38-750 Army Equipment Record Procedures.



APPENDIX II

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

A2-1. General

This appendix lists items supplied for initial operation and for running spares. The list includes tools, parts, and material issued as part of the major end item. The list includes all items authorized for basic operator maintenance of the equipment. End items of equipment are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

A2-2. Columns

Columns are as follows:

- a. *Federal Stock Number.* This column lists the 11-digit Federal stock number.
- b. *Designation by Model.* Not used.
- c. *Description.* Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.
- d. *Unit of Issue.* The unit of issue is each unless

otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

e. *Expendability.* Nonexpendable items are indicated by NX. Expendable items are not annotated.

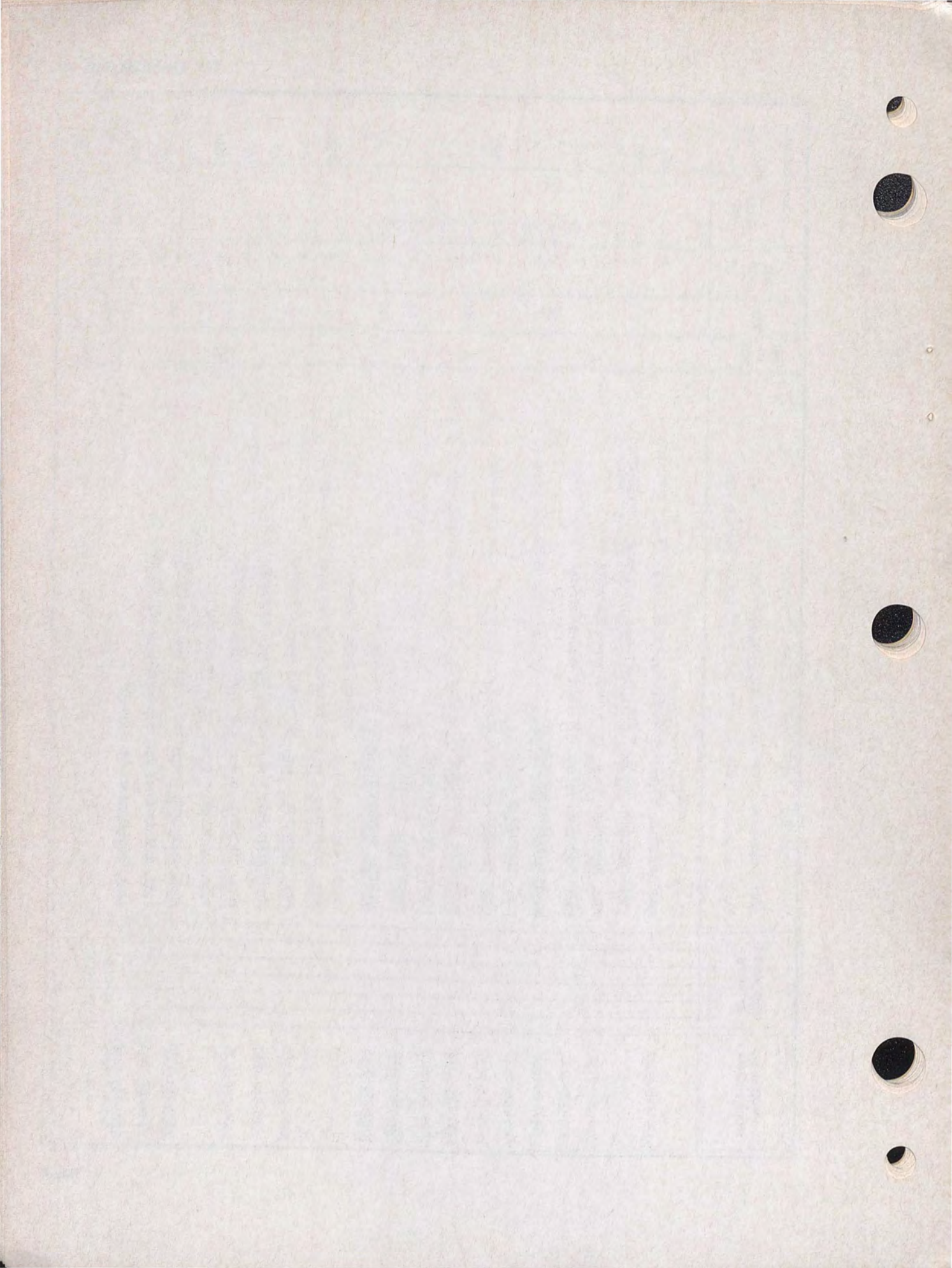
f. *Quantity Authorized.* Under "Items Comprising an Operable Equipment," the column lists the quantity of items supplied for the initial operation of the equipment. Under "Running Spare Items" the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on hand by the operator for maintenance of the equipment.

g. *Illustration.* The "Item No." column lists the reference designations that appear on the part in the equipment. These same designations are also used on any illustrations of the equipment. The numbers in the "Figure No." column refer to the illustrations where the part is shown.

SECTION II. OPERATOR'S FUNCTIONAL PARTS LIST

| FEDERAL STOCK NUMBER | DESIGNATION BY MODEL | DESCRIPTION | UNIT OF ISSUE | EXP | QTY AUTH | ILLUSTRATION | |
|----------------------|----------------------|--|---------------|-----|----------|--------------|----------|
| | | | | | | FIGURE NO. | ITEM NO. |
| 5820-912-3991 | | RADIO SET AN/PRC-74 | | NX | | | |
| | | ITEMS COMPRISING AN OPERABLE EQUIPMENT | | | | | |
| ORD THRU AGC | | TECHNICAL MANUAL TM 11-5820-590-12 | | | 2 | | |
| | | NOTE: A quantity of 2 technical manuals is packed with each AN/PRC-74 equipment. Where a valid need exists, additional copies may be requisitioned and kept on hand. | | | | | |
| 5820-942-0490 | | ANTENNA AS-1887/PRC-74 | | | 1 | 1-4 | |
| 5820-942-0489 | | ANTENNA KIT MX-911/PRC-74 | | | 1 | 1-5 | |
| 8105-921-6711 | | BAG, ACCESSORIES CW-863/PRC-74 | | | 1 | 1-7 | |
| 5820-942-0500 | | BASE, ANTENNA SUPPORT AB-955/PRC-74 | | | 1 | 1-5 | |
| 6135-926-3317 | | BATTERY BOX CY-4880/PRC-74 | | | 1 | 1-3 | |
| 5995-926-0797 | | CABLE ASSEMBLY, POWER, ELECTRICAL CX-11468/U: p/o Key KY-562/U, 5 ft 5 in lg o/a | | | 1 | 1-6 | |
| | | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 60 in lg o/a; Hughes p/n 1541131-1 (M5CR57-A088) | | | 1 | 1-8 | W-1 |
| | | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 60 in lg o/a; Hughes p/n 1541131-2 (M5CR57-A091) | | | 1 | 1-8 | W-2 |
| | | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 60 in lg o/a; Hughes p/n 1541131-3 (M5CR57-A094) | | | 1 | 1-8 | W-3 |
| | | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 36 in lg o/a; Hughes p/n 1541131-4 (M5CR57-A097) | | | 1 | 1-8 | W-4 |
| | | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 48 in lg o/a; Hughes p/n 1541131-5 (M5CR57-A103) | | | 1 | 1-8 | W-5 |
| 5820-942-0844 | | COUNTERPOISE, ANTENNA MX-7256/PRC-74 | | | 1 | 1-5 | |
| | | FUSE, CARTRIDGE: 2 amp, 32 v; Littlefuse p/n 2A1AG (M5CR56-A570) | | | 1 | 5-2 | F302 |
| 5920-280-4960 | | FUSE, CARTRIDGE: 2 amp, 250 v; MIL type FO2A250V2A | | | 1 | | F4 |
| 5920-557-2647 | | FUSE, CARTRIDGE: 4 amp, 250 v; MIL type FO2A250V4A | | | 1 | | F3 |

| FEDERAL STOCK NUMBER | DESIGNATION BY MODEL | DESCRIPTION | UNIT OF ISSUE | EXP | QTY AUTH | ILLUSTRATION | |
|----------------------|----------------------|--|---------------|-----|----------|--------------|----------|
| | | | | | | FIGURE NO. | ITEM NO. |
| | | AN/PRC-74 (continued) | | | | | |
| 5920-548-3126 | | FUSE CARTRIDGE: 6 amp, 250 v; MIL type F02A250V6A | | | 2 | | F1, F2 |
| | | FUSE, CARTRIDGE: 7.5 amp, 32 v; Littlefuse p/n 7.5A1AG (M5CR56-A571) | | | 1 | 5-2 | F301 |
| 5920-284-7732 | | FUSE, CARTRIDGE: 8 amp, 250 v; MIL type F03A250V8A | | | 1 | | F2 |
| 5920-012-0151 | | FUSE, CARTRIDGE: 15 amp, 32 v; MIL type F02A32V15A | | | 1 | | F1 |
| 5965-892-1010 | | HEADSET, ELECTRICAL H-140/U | | NX | 1 | 1-6 | |
| 5805-926-0221 | | KEY, TELEGRAPH KY-562/U | | | 1 | 1-6 | |
| 6240-155-7836 | | LAMP, INCANDESCENT: MS-25237-327 | | | 2 | | DS2 |
| 5965-875-1313 | | MICROPHONE DYNAMIC M-80/U | | NX | 1 | 1-6 | |
| 5820-942-0818 | | MOUNTING MT-3613/PRC-74 | | | 1 | 1-4 | |
| 5820-942-0821 | | POWER SUPPLY PP-4514/PRC-74 | | NX | 1 | 1-8 | |
| 5820-999-3015 | | RECEIVER TRANSMITTER, RADIO RT-794/PRC-74 | | NX | 1 | 1-8 | |
| | | RUNNING SPARE ITEMS | | | | | |
| | | FUSE, CARTRIDGE: 2 amp, 32 v; Littlefuse p/n 2A1AG (M5CR56-A570) | | | 5 | | F302 |
| 5920-280-4960 | | FUSE, CARTRIDGE: 2 amp, 250 v; MIL type F02A250V2A | | | 5 | | F4 |
| 5920-557-2647 | | FUSE, CARTRIDGE: 4 amp, 250 v; MIL type F02A250V4A | | | 5 | | F3 |
| 5920-548-3126 | | FUSE, CARTRIDGE: 6 amp, 250 v; MIL type F02A250V6A | | | 6 | | F1, F2 |
| | | FUSE, CARTRIDGE: 7.5 amp, 32 v; (M5CR56-A571) | | | 5 | | F301 |
| 5920-284-7732 | | FUSE, CARTRIDGE: 8 amp, 250 v; MIL type F03A250V8A | | | 3 | | F2 |
| 5920-012-0151 | | FUSE, CARTRIDGE: 15 amp, 32 v; MIL type F02A32V15A | | | 3 | | F1 |
| 6240-155-7836 | | LAMP, INCANDESCENT: MS-25237-327 | | | 2 | | DS2 |



APPENDIX III

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

A3-1. General

a. This appendix assigns maintenance functions to be performed on components, assemblies, and subassemblies by the lowest appropriate maintenance category.

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

- (1) *Part or component.* This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the component. Components, assemblies, and subassemblies are listed in top-down order. That is, the assemblies which are part of a component are listed immediately below that component, and subassemblies which are part of an assembly are listed immediately below that assembly. Each generation breakdown (components, assemblies, or subassemblies) are listed in disassembly order or alphabetical order.
- (2) *Maintenance function.* This column indicates the various maintenance functions allocated to the categories.
 - (a) *Service.* To clean, to preserve, and to replenish lubricants.
 - (b) *Adjust.* To regulate periodically to prevent malfunction.
 - (c) *Inspect.* To verify serviceability and detect incipient electrical or mechanical failure by scrutiny.
 - (d) *Test.* To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.
 - (e) *Replace.* To substitute serviceable components, assemblies, or subassemblies, for unserviceable components, assemblies, or subassemblies.
 - (f) *Repair.* To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to welding, grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses, lamps, or electron tubes.
 - (g) *Align.* To adjust two or more components of an electrical system so that their functions are properly synchronized.
 - (h) *Calibrate.* To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.
 - (i) *Overhaul.* To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.
 - (j) *Rebuild.* To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements using original manufacturing tolerances and/or specifications and subsequent reassembly of the item.
- (3) *Operator, organizational, direct support, general support, and depot.* The symbol X indicates the categories responsible for performing that particular maintenance operation, but does not necessarily indi-

cate that repair parts will be stocked at that level. Categories higher than those marked by X are authorized to perform the indicated operation.

- (4) *Tools required.* This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.
- (5) *Remarks.* Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding columns.

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

- (1) *Tools required for maintenance functions.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions.
- (2) *Operator, organizational, direct support, general support, and depot.* The dagger (†) symbol indicates the categories normally allocated the facility.
- (3) *Tool code.* This column lists the tool code assigned.

A3-2. Maintenance by Using Organizations

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

SECTION II. MAINTENANCE ALLOCATION CHART

| PART OR COMPONENT | MAINTENANCE FUNCTION | MAINTENANCE CATEGORY | | | | | TOOLS REQUIRED | REMARKS | |
|--|-------------------------|-------------------------|---|----|----|---|-------------------------------|--|--|
| | | O/C | O | DS | GS | D | | | |
| RADIO SET AN/PRC-74 | service | X | | X | | | 16 | | |
| | inspect | X | | X | | | 17 | | |
| | test | | X | | X | | 16 | | |
| | | | | | | | 17 | | |
| RECEIVER-TRANSMITTER, RADIO, RT-794/PRC | test | | | | | X | 9,16 | | |
| | | | | | | X | 5,6,7,8,10,15,17,20, 21,22 | | |
| | | | | | X | 1,2,3,4,5,6,7,8,9,11, 13,14,15,17,18,19,20, 21,22 | | | |
| | | | | | X | 1,2,3,4,5,6,7,8,9,10, 11,12,13,14,15,17,18, 19,20,21,22 | | | |
| | service | X | | X | | | 16 | | |
| | inspect | X | | X | | | 17 | | |
| | test | | X | | X | | 16 | | |
| | | | | | | X | 9,16 | | |
| | | | | | X | 5,6,7,8,10,15,17,20, 21,22 | | | |
| | | | | | X | 1,2,3,4,5,6,7,8,9,11, 13,14,15,17,18,19,20, 21,22 | | | |
| | | | | | X | 1,2,3,4,5,6,7,8,9,10, 11,12,13,14,15,17,18, 19,20,21,22 | | | |
| | replace repair | X | | X | | | | | |
| | | | | X | | | | By replacing Modules only, see eqpt. reqmnts. for each Mod. | |
| align | | | X | | | | Same as for testing | | |
| calibrate | | | | X | | | Same as for testing | | |
| rebuild | | | | X | | | Same as for testing | | |
| MODULE, POWER SUPPLY A6, (HAC No. 1541053-100) | service | | X | | | | 17 | | |
| | inspect | | X | | | | | | |
| | test | | X | | | X | X | 7,8,17 | |
| | | | | | | X | X | 8,9,14 | |
| replace repair rebuild | | X | | | | | 15 | | |
| | | | | X | | X | 8,9,14,17,18 | | |
| FUSES: F1=7.5A, F2=2.0A | replace | | X | | | | 8,9,14,17,18 | | |
| | | | | | | | 16 | | |

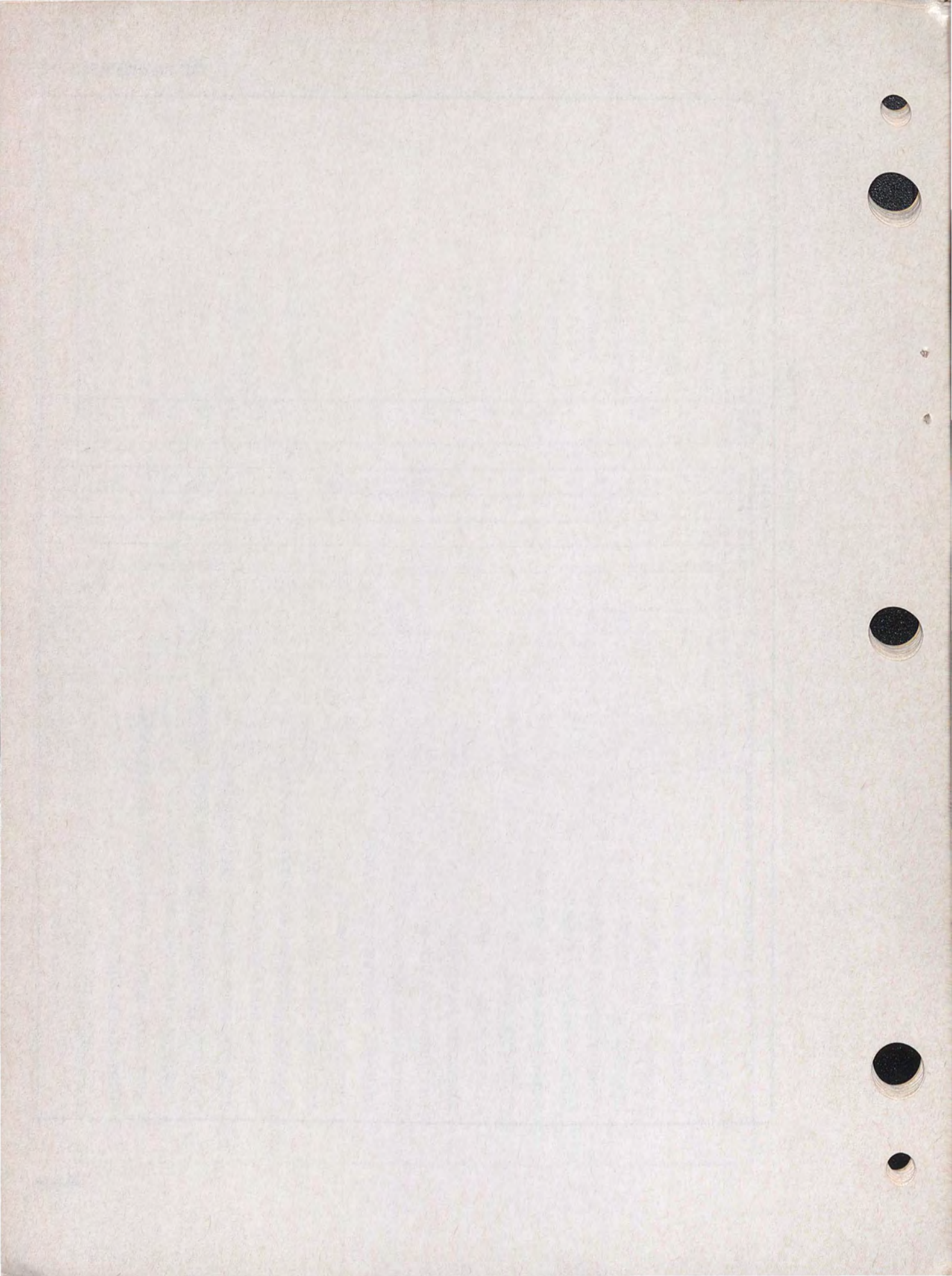
| PART OR COMPONENT | MAINTENANCE FUNCTION | MAINTENANCE CATEGORY | | | | | | TOOLS REQUIRED | REMARKS |
|--|----------------------|----------------------|---|----|----|---|---|------------------|--|
| | | O/C | O | DS | GS | D | | | |
| AN/PRC-74 (Continued) | | | | | | | | | |
| MODULE, IF/AUDIO UNIT A9, (HAC No. 1541054-100) | test | | | X | | | | 5,7,8,20 | |
| | replace | | | X | | | | 15 | |
| | repair | | | | X | | | 5,6,7,19,20 | |
| | align | | | | | X | | 5,6,7,19,20 | |
| MODULE, FREQUENCY GENERATOR A4, (HAC No. 1541055-100) | adjust | | | | | | X | 8,10 | |
| | test | | | X | | | | 15 | |
| | replace | | | X | | | | 8,11,14,17,18,19 | |
| | repair | | | | | X | | 8,11 | |
| MODULE, SYNTHESIZER A8, (HAC No. 1541056-100) | test | | | | X | | | 2,11,17,18,19 | |
| | replace | | | X | | X | | 2,11,17,18,19 | |
| | repair | | | | X | | | 15 | |
| | align | | | | X | X | | 2,11,14,17,18,19 | |
| MODULE, POWER AMPLIFIER A5, (HAC No. 1541057-100) | adjust | | | | | X | | 19,21 | |
| | test | | | X | | | | 8,21 | |
| | replace | | | | | X | X | 5,8,19,21 | |
| | repair | | | X | | | | 15 | |
| MODULE, RADIO FREQUENCY UNIT A7, (HAC No. 1541058-100) | rebuild | | | | | X | X | 5,8,17,19,21 | |
| | test | | | | X | | | 4,13,17,18,19 | |
| | replace | | | X | | X | | 4,13,17,18,19 | |
| ASSEMBLY, PANEL & CHASSIS A3, (HAC No. 1540903-100) | repair | | | | X | | X | 4,13,14,17,18,19 | |
| | adjust | | | X | | | | 5 | |
| | replace | | | X | | | | 15 | |
| FRONT PANEL KNOBS | repair | | | | | X | | | Shop facilities |
| | replace | | X | | | | | 16 | Shop facilities Total of 10 knobs, not maintained |

| PART OR COMPONENT | MAINTENANCE FUNCTION | MAINTENANCE CATEGORY | | | | | TOOLS REQUIRED | REMARKS | |
|--|-------------------------|-------------------------|---|----|----|---|----------------|--|--|
| | | O/C | O | DS | GS | D | | | |
| AN/PRC-74 (Continued) | | | | | | | | | |
| POWER SUPPLY PP-4514/PRC-74 | service | X | | | | | 16 | | |
| | inspect | X | | X | | | 17 16 | | |
| | test | | X | | X | | | 17 | |
| | | | | | X | | | 9,16 7,8,14,18 | |
| | | | | | | X | | 7,8,14,18 7,8,14,18 | |
| | replace | X | | | | | | 7,8,14,18 | |
| | repair | X | | | | | | 16 | By replacement of fuses and power supply and battery charger sub-assemblies only |
| calibrate rebuild overhaul | | | | X | | | 7,8,14,18 | | |
| | | | | | X | | | Shop facilities | |
| | | | | | X | | | Shop facilities | |
| BATTERY, CHARGER B1 A-1, (HAC No. 1541125-100) | service | X | | | | | 16 | | |
| | inspect | X | | X | | | 17 16 | | |
| | test | | X | | X | | | 17 | |
| | | | | | X | | | 9,16 7,8,14,18 | |
| | | | | | | X | | 7,8,14,18 | |
| | replace | X | | | | | | 16 | |
| | repair | X | | | | | | | By replacement of fuses and complete battery charger assembly |
| calibrate rebuild overhaul | | | | X | | | 7,8,14,18 | | |
| | | | | | X | | | Shop facilities | |
| | | | | | X | | | Shop facilities | |
| FUSES: F1=6A, F2:6A | replace | X | | | | | 16 | | |
| KNOB | replace | X | | | | | 16 | Not maintained | |
| LAMP, INCANDESCENT | replace | X | | | | | 16 | | |
| POWER SUPPLY B2 A-2, (HAC No. 1541128-100) | service | X | | | | | 16 | | |
| | inspect | | X | | | | | 17 16 | |
| | | | | | | | | 17 | |
| | | | X | | | | | 9,16 | |
| | test | | X | | X | | | 7,8,14,18 | |
| | | | | | | X | | 7,8,14,18 | |
| | replace | X | | | | | | 16 | |
| repair | X | | | | | | | By replacement of fuses and complete power supply assembly | |
| calibrate rebuild overhaul | | | | X | | | 7,8,14,18 | | |
| | | | | | X | | | Shop facilities | |
| | | | | | X | | | Shop facilities | |

| PART OR COMPONENT | MAINTENANCE FUNCTION | MAINTENANCE CATEGORY | | | | | TOOLS REQUIRED | REMARKS | |
|--------------------------------------|-------------------------|-------------------------|---|----|----|----|----------------|------------------|------------------------|
| | | O/C | O | DS | GS | D | | | |
| AN/PRC-74 (Continued) | | | | | | | | | |
| FUSES: F1=15A, F2=8A, F3=4A, F4=2A | replace | | X | | | | 16 | | |
| KNOB | replace | | X | | | | 16 | Not maintained | |
| LAMP, INCANDESCENT | replace | | X | | | | 16 | | |
| POWER CABLES W1, W2, W3, W4, and W5 | replace | | X | | | | 16 | | |
| | repair | | | X | | | 17 | | |
| HEADSET, ELECTRICAL, H-140/U | service | | X | | | | | | |
| | inspect | | X | | | | | See separate MAC | |
| | replace | | X | | | | | | |
| MICROPHONE, DYNAMIC, M-80/U | service | | X | | | | | | |
| | inspect | | X | | | | | See separate MAC | |
| | replace | | X | | | | | | |
| KEY, TELEGRAPH KY-562/U | service | | X | | | | 16 | | |
| | inspect | | X | X | | | 17 | | |
| | | | | X | | | | 16 | |
| | replace | | X | | X | | 17 | | |
| | | | | X | | | | 7,17 | |
| | repair | | | X | | | 16 | | |
| rebuild | | | | | X | 17 | | | |
| BAG, ACCESSORIES CW-863/PRC-74 | replace | | X | | | | | | |
| | repair | | | X | | | | Shop facilities | |
| | | | | | X | | | Shop facilities | |
| ANTENNA KIT MK-911/PRC-74 | service | | X | | | | | | |
| | replace | | X | | | | | Not maintained | |
| ANTENNA AS-1887/PRC-74 | service | | X | | | | | | |
| | replace | | X | | | | | Not maintained | |
| BASE, ANTENNA SUPPORT AB-955/PRC-74 | service | | X | | | | | | |
| | replace | | X | | | | | Not maintained | |
| MOUNTING MT-3613/PRC-74 | replace | | X | | | | | Not maintained | |
| BATTERY BOX CY-4880/PRC-74 | service | | X | | | | | | |
| | inspect | | X | | | | | | |
| | replace | | X | | | | | | |
| | rebuild | | | | | X | | | Repair shop facilities |
| | | | | | | | | | |
| COUNTERPOISE, ANTENNA MX-7256/PRC-74 | service | | X | | | | | | |
| | inspect | | X | | | | | Not maintained | |
| | replace | | X | | | | | | |

SECTION III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

| TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS | MAINTENANCE CATEGORY | | | | | TOOL CODE | REMARKS |
|---|----------------------|---|----|----|---|-----------|---------|
| | O/C | O | DS | GS | D | | |
| AN/PRC-74 (Continued) | | | | | | | |
| SPECTRUM ANALYZER TS-723A | | | | + | + | 1 | |
| FREQUENCY METER AN/USM-26 | | | | + | + | 2 | |
| FREQUENCY METER AN/USM-159 | | | | + | + | 3 | |
| SIGNAL GENERATOR AN/GRM-50 | | | | + | + | 4 | |
| SIGNAL GENERATOR AN/URM-25 | | | | + | + | 5 | |
| SIGNAL GENERATOR TS-382()/U | | | | + | + | 6 | |
| MULTIMETER ME-26()/U | | | | + | + | 7 | |
| MULTIMETER ME-30 ()/U | | | | + | + | 8 | |
| MULTIMETER AN/URM-105 | | + | | | | 9 | |
| OSCILLOSCOPE AN/USM-50 | | | | + | | 10 | |
| OSCILLOSCOPE AN/USM-164 | | | | | + | 11 | |
| FREQUENCY CALIBRATOR SET AN/URM-18 | | | | | + | 12 | |
| TEST SET RADIO AN/URM-134 | | | | | + | 13 | |
| TEST SET, TRANSISTOR TS-1836()/U | | | | | + | 14 | |
| TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G | | | | + | + | 15 | |
| TOOL KIT, RADIO REPAIRMAN TK-115/U | | | | + | | 16 | |
| TOOL KIT, RADAR AND RADIO REPAIRMAN TK-87/U | | | | + | + | 17 | |
| TOOL KIT, SUPPLEMENTARY RADAR AND RADIO REPAIRMAN TK-88/U | | | | | + | 18 | |
| VOLTMETER, ELECTRONIC AN/URM-145 | | | | | + | 19 | |
| DUMMY LOAD, AUDIO (1/2 watt, 500-ohm resistor) | | | | + | + | 20 | |
| DUMMY LOAD DA-75 | | | | + | + | 21 | |
| WATTMETER AN/URM-120 | | | | + | + | 22 | |



APPENDIX IV

ORGANIZATIONAL REPAIR PARTS LIST

Section I. INTRODUCTION

A4-1. General

a. This appendix lists the repair parts authorized for organizational maintenance and constitutes a basis of requisitioning when the major item of equipment is authorized to the organization. These equipments are issued on the basis of allowances prescribed in equipment authorization tables and other documents which are a basis of requisitioning.

b. Columns are as follows:

- (1) *Federal stock number.* This column lists the 11-digit Federal stock number.
- (2) *Designation by model.* Not used.
- (3) *Description.* Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.
- (4) *Unit of issue.* The unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.
- (5) *Expendability.* Nonexpendable items are indicated by NX. Expendable items are not annotated.

(6) *Quantity incorporated in unit.* This column lists the quantity of each part found in a given assembly, component, or equipment.

(7) *Organizational.* An asterisk (*) indicates that an item is not authorized for stockage but if required, may be requisitioned for immediate use only.

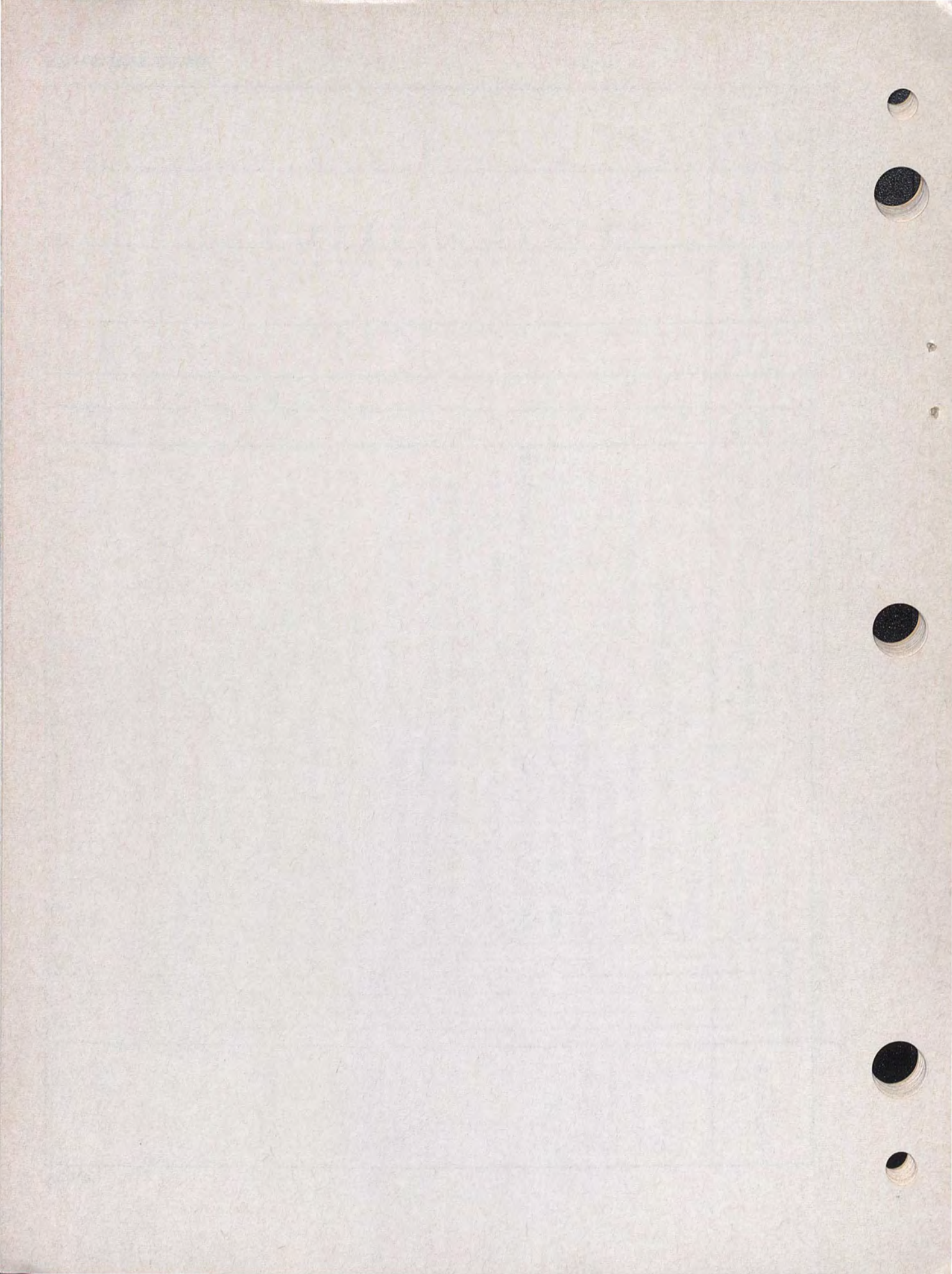
(8) *Illustration.* The "Item No." column lists the reference designations that appear on the part in the equipment. These same designations are also used on any illustrations of the equipment. The numbers in the "Figure No." column refer to the illustrations where the part is shown.

A4-2. Parts for Maintenance

When this equipment is used by signal service organizations organic to theater headquarters or communication zones to provide theater communications, those repair parts authorized up to and including general support are authorized for stockage by the organization operating this equipment.

| | | | | | |
|---------------|--|--|----|---|-------|
| 5820-912-3991 | RADIO SET AN/PRC-74 | | NX | | |
| 5820-942-0490 | ANTENNA AS-1887/PRC-74 | | | 1 | * 1-5 |
| 5820-942-0489 | ANTENNA KIT MX-911/PRC-74 | | | 1 | * 1-5 |
| 8105-921-6711 | BAG, ACCESSORIES CW-863/PRC-74 | | | 1 | * 1-7 |
| 5820-942-0500 | BASE ANTENNA SUPPORT AB-955/PRC-74 | | | 1 | * 1-4 |
| | BATTERY, CHARGER: 12 v charging, 5 amp continous; Hughes p/n 1541125-100 (M5CR57-A002) | | NX | 1 | * 3-2 |
| 6135-926-3317 | BATTERY BOX CY-4880/PRC-74 | | | 1 | * 1-3 |
| | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 60 in lg o/a; Hughes p/n 1541131-1 (M5CR57-A088) | | | 1 | * 1-8 |
| | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 60 in lg o/a; Hughes p/n 1541131-2 (M5CR57-A091) | | | 1 | * 1-8 |
| | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 60 in lg o/a; Hughes p/n 1541131-3 (M5CR57-A094) | | | 1 | * 1-8 |
| | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 36 in lg o/a; Hughes p/n 1541131-4 (M5CR57-A097) | | | 1 | * 1-8 |
| | CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 48 in lg o/a; Hughes p/n 1541131-5 (M5CR57-A103) | | | 1 | * 1-8 |
| 5820-942-0844 | COUNTERPOISE, ANTENNA MX-7256/PRC-74 | | | 1 | * 1-5 |
| | FUSE, CARTRIDGE: 2 amp, 32 v; Littelfuse p/n 2A1AG (M5CR56-A570) | | | 1 | * |
| 5920-280-4960 | FUSE, CARTRIDGE: 2 amp, 250 v; MIL type FO2A2502A | | | 1 | * |
| 5920-557-2647 | FUSE, CARTRIDGE: 4 amp, 250 v; MIL type FO2A250V4A | | | 1 | * |
| 5920-548-3126 | FUSE, CARTRIDGE: 6 amp, 250 v; MIL type FO2A250V6A | | | 2 | * |
| | FUSE, CARTRIDGE: 7.5 amp, 32 v; Littlefuse p/n 7.5A1AG (M5CR56-A571) | | | 1 | * |
| 5920-284-7732 | FUSE, CARTRIDGE: 8 amp, 250 v; MIL type FO3A250V8A | | | 1 | * |

| FEDERAL STOCK NUMBER | DESIGNATION BY MODEL | DESCRIPTION | UNIT OF ISSUE | EXP | QTY IN UNIT | ORGANIZATIONAL | ILLUSTRATION | |
|----------------------|----------------------|--|---------------|-----|-------------|----------------|--------------|----------|
| | | | | | | | FIGURE NO. | ITEM NO. |
| | | AN/PRC-74 (continued) | | | | | | |
| 5920-012-0151 | | FUSE, CARTRIDGE: 15 amp, 32 v; MIL type F02A32V15A | | | 1 | * | | F-1 |
| 5965-892-1010 | | HEADSET, ELECTRICAL, H-140/U | | | 1 | * | 1-6 | |
| 5805-926-0221 | | KEY, TELEGRAPH KY-562/U | | | 1 | * | 1-6 | |
| 5355-577-5882 | | KNOB: p/o batt charger; MS91528-2F2B | | | 1 | * | 1-8 | |
| 5355-556-0145 | | KNOB: p/o power supply; MS91528-1K2B | | | 1 | * | 1-8 | |
| | | KNOB: rd, 0.718 in od; blk; Vemaline Products p/n V24-1 (M5CR56-A297) | | | 4 | * | 3-1 | |
| | | KNOB: rd, w/extended bar; 0.875 in od; Vemaline Products p/n V25-1 (M5CR56-A298) | | | 4 | * | 3-1 | |
| | | KNOB: rd, 0.875 in od; Vemaline Products p/n V25-2 (M5CR56-A299) | | | 2 | * | 3-1 | |
| 6240-155-7836 | | LAMP, INCANDESCENT: MS-25237-327 | | | 2 | * | | DS-2 |
| 5965-875-1313 | | MICROPHONE, DYNAMIC M-80/U | | | 1 | * | 1-6 | |
| 5820-942-0818 | | MOUNTING MT-3613/PRC-74 | | | 1 | * | 1-4 | |
| 5820-942-0827 | | POWER SUPPLY PP-4514/PRC-74 | | NX | 1 | * | 1-8 | |
| | | POWER SUPPLY: 17 v 8 amp dc, output; Hughes p/n 1541128-100 (M5CR57-A162) | | | 1 | * | 3-2 | A-2 |
| 5820-999-3015 | | RECEIVER TRANSMITTER, RADIO RT-794/PRC-74 | | NX | 1 | * | 1-8 | |



By Order of the Secretary of the Army:

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

Official:

J. C. LAMBERT,
*Major General, United States Army,
 The Adjutant General.*

Distribution:

Active Army:

USASA (2)
 CNGB (1)
 CC-E (7)
 Dir of Trans (1)
 CofEngrs (1)
 CofSptS (1)
 USACDCEA (1)
 USACDCCBRA (1)
 USACDCCEA (1)
 USACDCCEA:
 Ft Huachuca (1)
 USACDCOA (1)
 USACDCQMA (1)
 USACDCTA (1)
 USACDCADA (1)
 USACDCARMA (1)
 USACDCAVNA (1)
 USACDCARTYA (1)
 USACDCSWA (1)
 USAMC (5)
 USCONARC (5)
 ARADCOM (5)
 ARADCOM Rgn (2)
 OS Maj Comd (4)
 1st LOGCOMD (10)
 9th LOGCOMD (20)
 LOGCOMD (2)
 USAMICOM (4)
 USASMC (2)
 USASCC (4)
 USAECOM (80)

MDW (1)
 Armies (2)
 Corps (2)
 USAC (3)
 11th Air Aslt Div (3)
 362nd Sig Co (10)
 505th Sig Co (10)
 39th Sig Bn (40)
 379th Sig Bn (10)
 Svc Colleges (2)
 Br Svc Sch (2)
 Sig Fld Maint Shops (2)
 AMS (1)
 USAERDAA (2)
 USAERDAW (13)
 USACRREL (2)
 GENDEP (2)
 Sig Sec GENDEP (5)
 Sig Dep (12)
 A Dep (2) except
 LBAD (14)
 SAAD (30)
 TOAD (14)
 FTWOAD (10)
 LEAD (7)
 SHAD (3)
 NAAD (5)
 SVAD (5)
 CHAD (3)
 ATAD (10)
 USASTC (2)

USATC AD (2)
 USATC Armor (2)
 USATC Engr (2)
 USATC Inf (2)
 USACDCEC (10)
 Army Pic Cen (2)
 WRAMC (1)
 USASPTCP (11)
 Instl (2) except
 Ft Monmouth (70)
 Ft Hancock (4)
 Ft Gordon (10)
 Ft Huachuca (10)
 Ft Carson (23)
 Ft Knox (12)
 WSMR (5)
 Units organized under following
 TOE's (2 copies each):
 11-7
 11-57
 11-97
 11-98
 11-117
 11-155
 11-157
 11-158
 11-500 (AA-AC)
 11-587
 11-592
 11-597

NG: State AG (3).

USAR: None.

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