

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. This manual contains field maintenance information for Radio Sets AN/PRC-9A and -10A (fig. 1). In addition, the theory of the equipment is presented. Installation, operation, and organizational maintenance instructions for this equipment are contained in TM 11-612, Radio Sets AN/PRC-8, -8A, -9, -9A, -10, and -10A, Operation and Organizational Maintenance.

b. Except for frequency differences, Radio Sets AN/PRC-9A and -10A are identical in structure, function, and circuit arrangement. Throughout the manual, with the above exception, both sets are treated as one. For detailed circuit differences, refer to the main schematic diagrams.

c. Forward comments on this manual directly to: Commanding Officer, The Signal Corps Publications Agency, Fort Monmouth, N. J.

2. Forms and Records

a. *Unsatisfactory Equipment Reports.*

(1) DA Form 468 (Unsatisfactory Equip-

ment Report) will be filled out and forwarded to the Office of the Chief Signal Officer as prescribed in AR 700-38.

(2) DD Form 535 (Unsatisfactory Report) will be filled out and forwarded to Commanding General, Air Materiel Command, Wright-Patterson Air Force Base, Dayton, Ohio, as prescribed in AR 700-38 and AF TO 00-35D-54.

b. *Damaged or Improper Shipment Report.* DD Form 6 (Report of Damaged or Improper Shipment) will be filled out and forwarded as prescribed in AR 700-58 (Army); Navy Shipping Guide, Article 1850-4 (Navy); and AFR 71-4 (Air Force).

c. *Preventive Maintenance Form.* DA Form 11-239 (Second and Third Echelon Maintenance Checklist for Signal Corps Equipment (Radio Communication, Direction Finding, Carrier, Radar)) will be prepared in accordance with instructions on the back of the form (fig. 28).

Section II. DESCRIPTION AND DATA

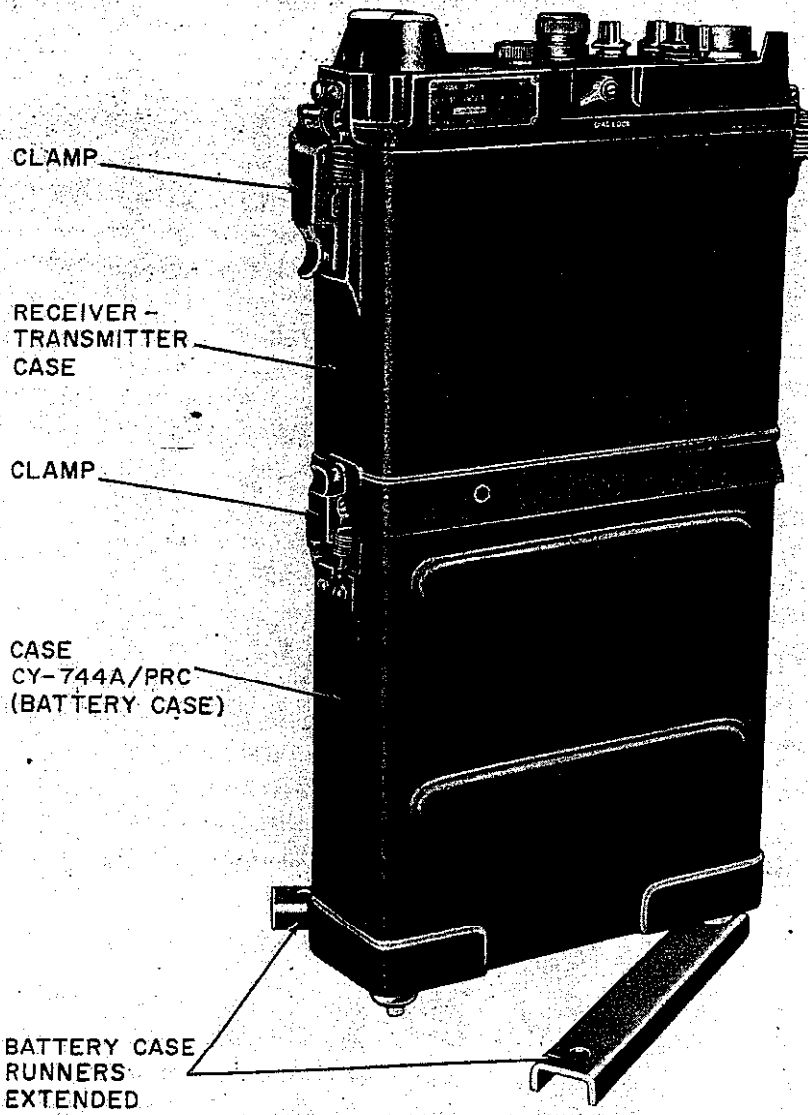
3. Description of Radio Set AN/PRC-9A or -10A

a. Radio Set AN/PRC-9A or -10A is a portable, low-power receiver-transmitter which provides voice communication over relatively short distances. It is battery-operated and carried by the operator. It may also be operated in an airplane or in a vehicular or semipermanent ground installation, in which case, Amplifier-Power Supply AM-598/U may be used to supply the power.

b. The receiver-transmitter and the battery are contained in two separate aluminum cases which are clamped together.

c. The receiver-transmitter case is clamped on top of the battery case, and the entire assembly is strapped to a carrying harness. The carrying harness is tied to belt suspenders, which when placed on an operator's back and properly adjusted to his combat belt, permits the radio set to be carried conveniently.

d. The receiver-transmitter case, which is of aluminum, fastens to the front panel to form a watertight inclosure. Each of the two cases has two spring clamps (fig. 2): Two clamps fasten the battery case to the receiver-transmitter case and the other two fasten the receiver-transmitter to



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Figure 2. Receiver-transmitter and battery cases connected.

the receiver-transmitter case. A short eight-wire cable (fig. 29) (with a socket on one end, a battery plug on the other) is permanently mounted at the bottom of the case. The socket connects the receiver-transmitter to the battery when the receiver-transmitter chassis is slid into the case. A guide web, cast as part of the case, insures alignment of the receiver-transmitter plug and the case socket. The other connector is a battery plug on the free end of the cable. It plugs into the socket on the battery.

4. Technical Characteristics

a. General.

Frequency range:	
Radio Set AN/ PRC-9A.	27 to 39 mc.
Radio Set AN/ PRC-10A.	38 to 55 mc.
Number of tubes	14.
Type of modulation	Frequency modulation.
Type of transmission	Voice.
Power source:	
Man-pack	Battery BA-279/U (not supplied).
Vehicular	Amplifier-Power Supply AM-598/U (not supplied).
Types of antennas:	
Antenna AT-272A/PRC.	3 feet long; demountable semirigid steel tape.
Antenna AT-271A/PRC.	10 feet long; multisection whip type.
Tuning	Single calibrated dial continuously tunes both transmitter and receiver.
Calibration	Built-in calibrator provides 2.15-mc. calibration points throughout operating range.
Weight (man-pack)	26 pounds (including components and battery).

b. Transmitter.

Power output:	
Radio Set AN/ PRC-9A.	1 watt.
Radio Set AN/ PRC-10A.	.9 watt.
Oscillator	Electron-coupled Hartley, with automatic frequency control.
Microphone input impedance.	150 ohms.
Distance range	5 miles (may vary from 3 to 12 miles, depending on antenna used and siting conditions).

c. Receiver.

Type	Superheterodyne (single conversion).
Sensitivity	.7 microvolt with 1 mw. output, 15 kc. deviation, and a 12 db. signal-to-noise ratio.
Selectivity	75 kc. at 6 db. down.
Output impedance	600 ohms.
Type of reception	Frequency modulation.
Intermediate frequency	4.3 mc.

5. Common Name Versus Nomenclature

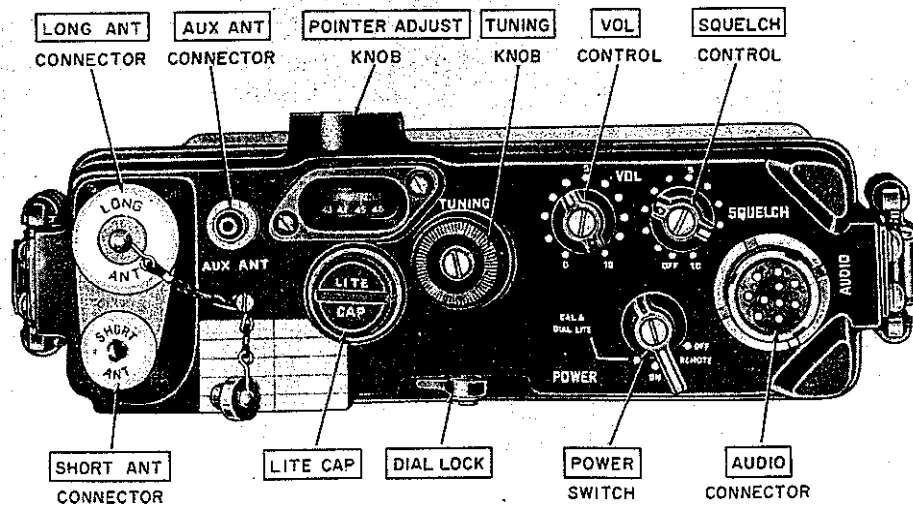
Nomenclature	Common name
Radio Sets AN/PRC-9A and -10A.	Radio set.
Radio Receiver-Transmitters RT-175A/PRC-9 and RT-176A/PRC-10.	Receiver-transmitter.
Antenna AT-271A/PRC.	Long antenna.
Antenna AT-272A/PRC.	Short antenna.
Antenna Spring Section AB-129/PR.	Spring section.
Amplifier-Power Supply AM-598/U.	Vehicular power supply.
Bag CW-216A/PR.	Carrying bag.
Battery BA-279/U.	Battery.
Belt Suspenders M-1945.	Belt suspenders.
Carrying Harness ST-120A/PR.	Harness.
Case CY-744A/PRC.	Battery case.
Discriminator Transformer TF-204/U.	Discriminator can.
Handset H-33B/PT.	Handset.
IF. Amplifier AM-427A/U.	If. can.
Pulse-Sweep Generator O-325/U.	Pulse-sweep generator.

6. Radio Set Controls and Their Uses

All the operating controls of Radio Sets AN/PRC-9A and -10A, except the handset

push-to-talk button, are located on or adjacent to the control panel of the radio sets (fig. 3). The following chart lists the controls and indicates their functions.

Control	Function
POWER switch.....	In ON position, connects receiver-transmitter to power source. In REMOTE position, connects receiver-transmitter to power source through the AUDIO receptacle and Control Group AN/GRA-6.
TUNING.....	In CAL & DIAL LITE position, connects receiver-transmitter, calibration oscillator, and dial lamp to power source (spring-returned to ON when released). Tunes receiver and transmitter to desired frequency.
VOL.....	Adjusts the loudness of signals heard in the handset earphone.
SQUELCH.....	Sets the signal level below which noise is cut off when no signal is being received. Switch S2 operating in conjunction with R35 stops squelch operation when the SQUELCH knob is in the OFF position.
AUDIO.....	A 10-prong receptacle providing external connections for the handset, remote control, or relay cable.
LONG ANT.....	Screw-type jack to mount and connect the long antenna to the radio set.
SHORT ANT.....	Screw-type jack to mount and connect the short antenna to the radio set.
AUX ANT.....	Bayonet-type jack to connect coaxial line from the homing or auxiliary antennas (not supplied) to the radio set.
LITE CAP.....	Cap holds dial lamp E8 in place. Permits rapid change of dial lamp without removing receiver-transmitter from case.
POINTER ADJUST knob.....	Varies position of pointer on TUNING dial to provide accurate dial frequency calibration.
DIAL LOCK.....	Locks TUNING control so that operating frequency cannot be changed accidentally.
Push-to-talk button.....	When pressed, puts radio set in transmit condition.



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Figure 3. Radio set control panel.