

### THE SCR-79-A AND THE SCR-99 SETS.

1. *Antenna Equipment, Type A-9-A.*—The same antenna equipment is used with the SCR-79-A and SCR-99 sets. The essential component parts are the antenna, masts, counterpoise, ground mats, guys, and stakes. The antenna itself is a **V** with a 60-degree opening, 20 feet high, 100 feet long on each side, and with a 25-foot lead-in wire. Under some conditions, such as a limited space or for short-distance work, an inverted **L** may be used. This should be 20 feet high, 100 feet long, and with a 25-foot lead-in wire. The **V** antenna is supported on three masts, 20 feet high, each with two guys. The antenna wire is a bare stranded wire, and the lead-in is a lightly insulated wire or lamp cord. One end of both legs of the antenna wire forms the point of the **V** and to this is joined the lead-in wire. The two outer ends of the antenna and the point of the **V** are provided with strain insulators, which have a snap or harness hook for fastening them to the tops of the masts. The antenna, lead-in, etc., are wound on two hand reels for convenience in storing away in transportation. The masts are of spruce and in three sections, each about 6½ feet long, all sections being interchangeable. Each section is fitted at one end with a spike and at the other end with a steel tube that is tapered slightly to take the spike of the next section, and is pierced with three holes to take the snap hooks of the antenna insulators and guy ropes. The mast sections are carried in a carrying roll, which has both a handle and a shoulder strap of nonelastic webbing. The guys are of No. 5 sash cord, 40 feet long, provided at one end with a snap or harness hook, for fastening in the holes in the steel tube of the topmast section and at the other end with a tent slide for adjusting the tension on the guy after it has been passed around the ground stake. In storing away they are wound on the same type of hand reels as the antenna. The ground stakes are of galvanized pipe, 18 inches long, and are provided with a binding post that makes it possible to use them as a ground rod if desired.

The counterpoise consists of two lengths of 150 feet of heavily insulated wire which is laid out on the ground in a **V** shape with a 60-degree opening under the antenna. In storing away they are wound on two hand reels. As an alternative for the counterpoise, three ground mats, which are of a fine copper gauze, each 13 feet long and 3 feet wide are furnished. These have wood strips at both ends to keep the mats flat and are provided with binding posts at both ends for convenience in making quick connections. The mats

are generally rolled up for transportation and carried in the roll with the mast sections. The antenna and counterpoise wires, guys, stakes, hammer, etc., are carried in a carrying bag. The essential electrical constants of the V antenna are approximately: Inductance, 0.04 millihenry; capacity, 0.0004 microfarad; fundamental wave length, 240 meters; and average resistance, 50 ohms.

2. *The Dynamotor, Type DM-1.*—The dynamotor, type DM-1, is a combined motor and generator that, together with certain accessories, is contained in a cast aluminum alloy case. With the motor running light—that is, with no generator load—it takes a current of about 4 amperes at 10 or 12 volts from the storage battery. At full load the motor takes about 10 amperes at 10 or 12 volts, and the generator delivers about one-sixth ampere (167 milliamperes) at 300 to 350 volts to the plate circuit of the vacuum tubes of the transmitter. The motor input is therefore about 120 watts, the generator output about 50 watts, and the over-all efficiency is between 40 and 50 per cent. The machine is a converter from a low to a high direct-current voltage. It has separate motor and generator armature windings and commutators mounted on the same shaft, revolving in a single common magnetic field. The speed of the machine is 2,550 R. P. M. (revolutions per minute). The motor end is marked but can still further be identified by the heavier wires at the brushes. Generator ends are marked on the end shield. The necessary wiring from the motor and generator is brought up onto a bakelite panel that carries a fuse block, with 15-ampere fuse wire, a switch in the motor leads extension cords, oiling holes, etc. Spare fuse wire is wound on a small spool in the cover of the box. On the panel the motor terminals are marked “10 Volts,” “Plus,” and “Minus.” An extension cord is provided to connect them to the binding posts on the operating chest (set box) marked, respectively, “Plus 10 V” and “Minus 10 V.” The generator terminals are marked “300 Volts,” “Plus,” and “Minus.” An extension cord is provided to connect them to the binding posts on the operating chest (set box) marked, respectively, “Plus 300 V” and “Minus 300 V.” In both cords the red wire is positive and the black is negative. Both cords are permanently fastened to the dynamotor terminals and are to be stored away on top of the panel. The polarity of the dynamotor terminals is marked on the panel, but in both cases they can be identified by noting that with the cover of the case opened away from the operator the right-hand post of each pair is positive. The dynamotor is secured in place in the lower part of its carrying case by two heavy machine screws through the bottom. The approximate over-all dimensions are 7 by

11 inches by 9 inches high, its weight is about 24 pounds, and it is provided with a carrying strap.

**PARTS LIST OF SETS FOR FIELD OPERATION.**

*Equipments in 79-A Set.*—The SCR-79-A comprises the following equipment:

- One equipment, Type PE-7.
- One equipment, Type RE-5-A.
- One equipment, Type A-9-A.

*Equipments in 99 set.*—The SCR-99 comprises the following equipment:

- One equipment, Type PE-7.
- One equipment, Type RE-7.
- One equipment, Type A-9-A.

*Parts Comprising Above Equipments.*—These equipments are made up of parts as noted below:

- Equipment, Type PE-7.**
  - Battery, Type BB-14 (9).
  - Box, type BC-25 or BC-25-A (1).
  - Dynamotor, Type DM-1 (1).
- Equipment, Type A-9-A.**
  - Antenna, Type AN-8 (2).
  - Bag, Type BG-12 (2).
  - Cord, sash, No. 5, olive drab (300 feet).
  - Guy, Type GY-4 (8).
  - Hammer, 2-face, 2-pound (1).
  - Insulator, Type IN-10 (4).
  - Mast section, Type MS-14 (12) 9 in use; 3 spare.
  - Mat, Type MT-5 (3).
  - Pliers, combination, 6-inch (1 pair).
  - Reel, Type RL-3 (8).
  - Roll, Type M-15 (1).
  - Stake, Type GP-8 (12).
  - Tape, friction (1 roll).
  - Wire, Type W-4 (50 feet).
  - Wire, Type W-6 (300 feet).
  - Wire, Type W-24 (750 feet).
- Equipment, Type RE-5-A.**
  - Battery, Type BA-2 (4), 2 in use; 2 spare.
  - Battery, Type BA-4 (4), 1 in use; 3 spare.
  - Chest, Type BC-43 (1).
  - Clock, Type I-15 (1).

Cord, Type CD-15 (3).  
Cord, Type CD-38 (5).  
Cord, Type CD-47 (2).  
Cord, Type CD-48 (2).  
Cord, Type CD-49 (2).  
Head set, Type P-11 (2).  
Key, Type J-12 (1).  
Lamp, Type LM-4 (4) (for wavemeter), 1 in use; 3 spare.  
Pliers, combination, 6-inch (1 Pair).  
Screw driver, 2½-inch blade (1).  
Set box (operating chest), Type BC-32-A (1).  
Set box (wavemeter), Type BD-40 (1).  
Tape, friction (½ pound).  
Tube, Type VT-1 (6), 3 in use; 3 spare.  
Tube, Type VT-2 (4), 2 in use; 2 spare.  
Voltmeter, Type I-10 (1).  
Wire, Type W-7 (2 pounds).  
Radio Communication Pamphlet No. 17 (1).

**Equipment, Type RE-7.**  
Battery, Type BA-2 (4), 2 in use; 2 spare.  
Battery, Type BA-4 (4), 1 in use; 3 spare.  
Chest, Type BC-43 (1)  
Clock, Type I-15 (1).  
Cord, Type CD-15 (3).  
Cord, Type CD-38 (5).  
Cord, Type CD-47 (2).  
Cord, Type CD-48 (2).  
Cord, Type CD-49 (2).  
Head set, Type P-11 (2).  
Key, Type J-12 (1).  
Lamp, Type LM-4 (4) (for wavemeter), 1 in use; 3 spare.  
Pliers, combination, 6-inch (1 pair).  
Screw driver, 2½-inch blade (1).  
Set box (operating chest), Type BC-45 (1).  
Set box (wavemeter), Type BC-49 (1).  
Tape, friction (½ pound).  
Tube, Type VT-1 (6), 2 in use; 3 spare.  
Tube, Type VT-2 (4), 2 in use; 2 spare.  
Voltmeter, Type I-10 (1).  
Wire, Type W-7 (2 pounds).