



Transistor amplifier is heart of Terraquaphone. Talk-Receive switch (SW2) is shown in Talk (depressed) position. In Receive position, power transistor Q3 is switched out and current drain is only 10 ma.

PARTS LIST

This list includes all components necessary for one Terraquaphone station. For two stations double the quantities.

Resistors: 1/2 watt, 10%
 R1, R8—4700 ohms
 R2—100,000 ohms
 R3—10,000 ohms
 R4—470 ohms
 R5—6800 ohms
 R6—33,000 ohms
 R7—2200 ohms

Capacitors: 15 volt or higher rating
 C1, C3—1 mf, paper or disc ceramic
 C2—15 mf, electrolytic
 C4, C5—5 mf, electrolytic

T1—Any 6.3V filament transformer (used as output transformer)

SW1—SPST toggle switch

SW2—4-pole, 2-position spring return lever switch (Centralab No. 1457)

B1, B2—Two 6V lantern batteries in series, 8 size D flashlight cells, or car storage battery

J1, J2—Insulated banana jacks

Q1, Q2—2N1191 or 2N650

Q3—2N176 or 2N669

Probes—2 each of the following 1/2"x18" copper, steel or aluminum rods—pointed. Flexible wire, banana plugs, battery clamps

Sockets—2 standard transistor sockets, 1 Motorola M-15 mounting kit

See-Zak Chassis Parts 4-R38 sides, 2-P88 panels

Handset—Includes carbon microphone and 35-100 ohm dynamic earphone. May be purchased as separate items. Handset illustrated available from Olson Electronics, stock No. PH-37 @ \$2.35 postage paid

plies, the instrument transmits voice communications through earth or water. It is an underground wireless telephone or "radio."

An Old Idea

The idea of communicating via earth currents can be traced back to the year 1885 when an American, Nathan B. Stubblefield, achieved wireless communication using telephone equipment and ground stakes. Many now credit Stubblefield with the invention of radio (see AMERICA'S OWN MARCONI, July '61 EI) but what he actually invented probably was the underground wireless telephone.

There's a considerable difference between underground radio and underground wireless telephone although the terms often are used interchangeably. In underground radio, an RF signal is radiated into the earth. A portion of it