

Army Surplus CW

Simple conversion tips for the Special Forces PRC-64.



The Delco 5300B, the CIA version of the PRC-64 transceiver.

The PRC-64 is a small, lightweight portable transceiver used by the Special Forces which frequently turns up at flea markets. Although the manual specifies a frequency range of 2 to 6 MHz, experience with a variety of units has shown that this set easily covers the 160-, 80-, and 40-meter amateur bands with no modification.

The set is housed in a waterproof aluminum case, weighs 7½ pounds, and is capable of either AM or CW operation. The rig includes a 6-kHz ladder filter for AM and a 500-Hz Collins mechanical filter for CW. It also features a panel-mounted hand key and CW sidetone. Stated rf power output is 1½ Watts for AM and 5 Watts for CW, but these figures are based on minimum battery voltage; rf output is nearly doubled for either mode with nominal battery voltages applied to the transmitter stages.

Variants

It's good to keep in mind that you may encounter variants of the PRC-64. The Delco 5300 is the CIA version of the PRC-64, but it is electrically and physically the same. The PRC-64A includes an oscillator control circuit that prevents chirping and key clicks when transmitting CW at 300 words per minute with the GRA-7 Burst Encoder. The third variant that we've seen appears to have been produced in a very limited quantity. It can be easily identified by its lack of a bandwidth switch and its microswitch hand key. There are also at least two frequency-synthesized variations of this rig; the Delco 1600 is frequency-synthesized from 2 to 10 MHz, has a tunable receiver, and features AM modulation. The Delco 3200 is the same except that it has single-sideband modulation.

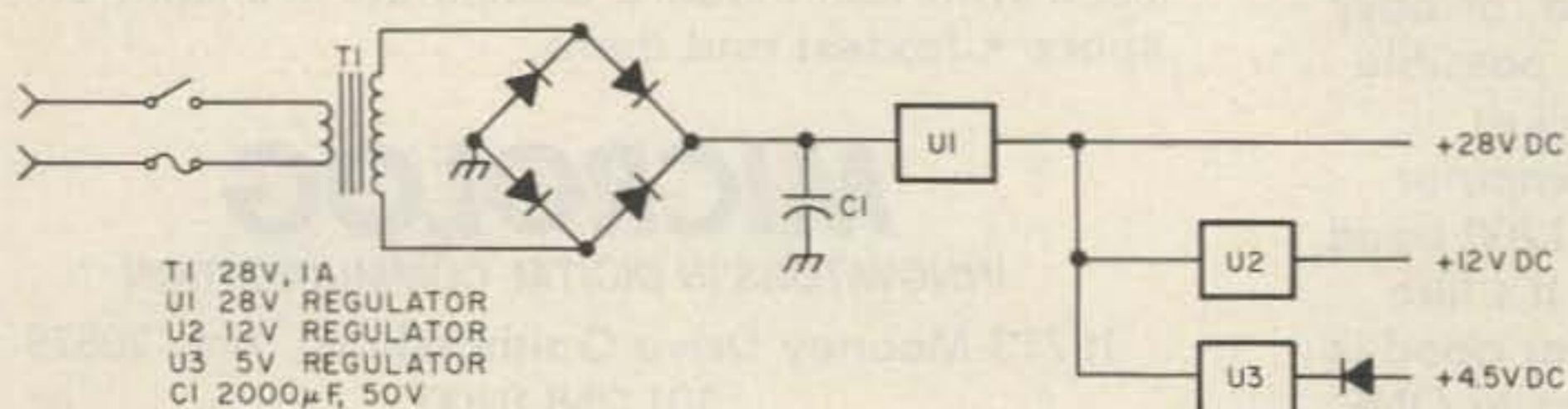
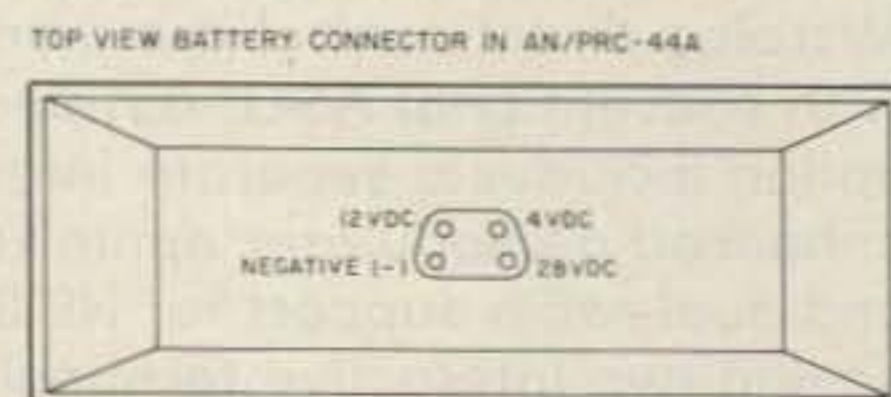


Fig. 1. Power supply.



TM5820-552-15-11

Fig. 2. Pin connections for input voltages.

Crystals

The receiver requires crystals in CR-78/U holders. The receiver crystal frequency should be the desired frequency plus 455 kHz. The transmitter requires crystals at the operating frequency in CR-89/U holders. For those of you with the Delco 5300, some, if not all, of these sets use CR-78/U holders for both the receiver and the transmitter. Check the pin spacing of the transmitter crystal sockets before ordering crystals.

You can order crystals from Sentry Manufacturing Co., Crystal Park, Chickasha OK 73018. The price is \$10 each for the receiver crystals, and \$13 each for crystals used in the transmitter.

Power Supply

Power for the PRC-64 was originally supplied by a BA-1509 magnesium battery, which produced 4 volts for the receiver, 12 volts for the oscillator, and 24 volts for the transmitter final stage. This battery probably isn't available now, so you'll have to construct either an ac power supply or a battery pack. The schematic for the power supply is shown in Fig. 1. Pin connections for the input voltages are shown in Fig. 2. The female plug for this connection is a Cinch-Jones number 13279. The 70-mA current requirement of the transmitter rules out the use of ordinary dry cells, so if you are contemplating portable operation, the battery pack should be built using heavy-duty NiCds.

Once you have a suitable power supply built and your crystals have arrived, you can proceed with the tune-up phase. We suggest that you double-check your connections before you accidentally hit the switch. Applying 12 or 28 volts to the 4-volt pin means instant death for the receiver.

Tune Up

To tune up the rig you'll need a 10-Watt, 50-Ohm resistor, a couple of tweaking sticks, and a 600-Ohm headset, if you aren't fortunate enough to get the original earphones. Install the receiver and transmitter crystals in their appropriate sockets. Each channel covers only a specific frequency range, as follows: channel 1, approximately 1.9–2.8 MHz; channel 2, 2.8–3.65 MHz; channel 3, 3.6–4.7 MHz; channel 4, 4.6–7.2 MHz.

To tune up the receiver, set the receive-send switch to receive, the bfo to off, the B/W switch to 6 kHz, the gain control to maximum, and the receiver channel switch to the proper channel. Connect the 50-Ohm, 10-Watt noninductive resistor between the antenna and ground terminals. Referring to Fig. 3, adjust the rf collector coil for this channel for maximum noise in the headset.

To tune up the transmitter, set the receive-send switch to send, the loading control to 1, the AM-CW switch to CW, the IND-SENS switch to 3, and the transmitter channel switch to the proper channel.

Refer to Fig. 4 and adjust the driver coil and final amplifier coil for this channel for maximum brightness of the antenna indicator lamp while depressing the panel telegraph

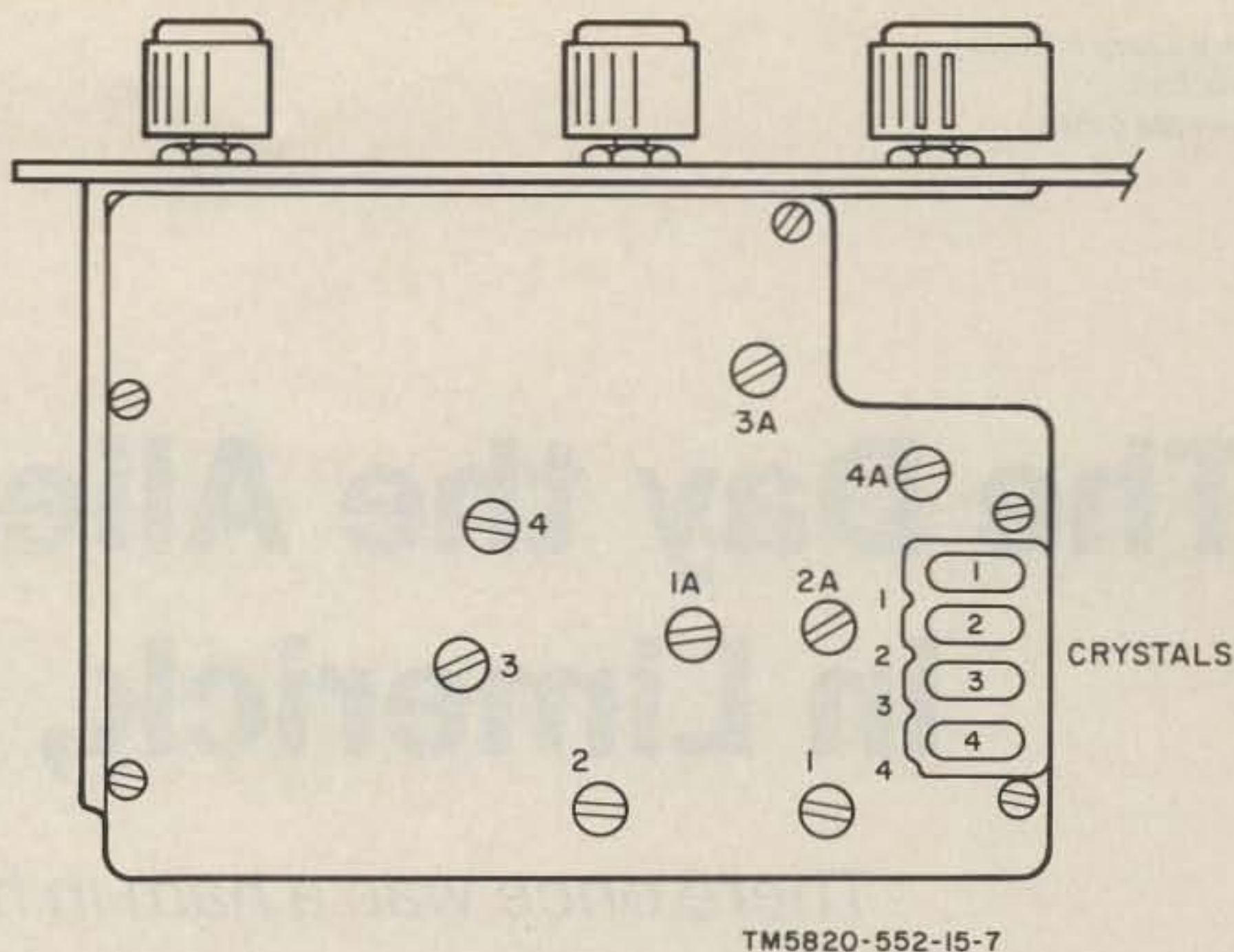


Fig. 3. Use this map to match the channel number to the appropriate rf collector coil.

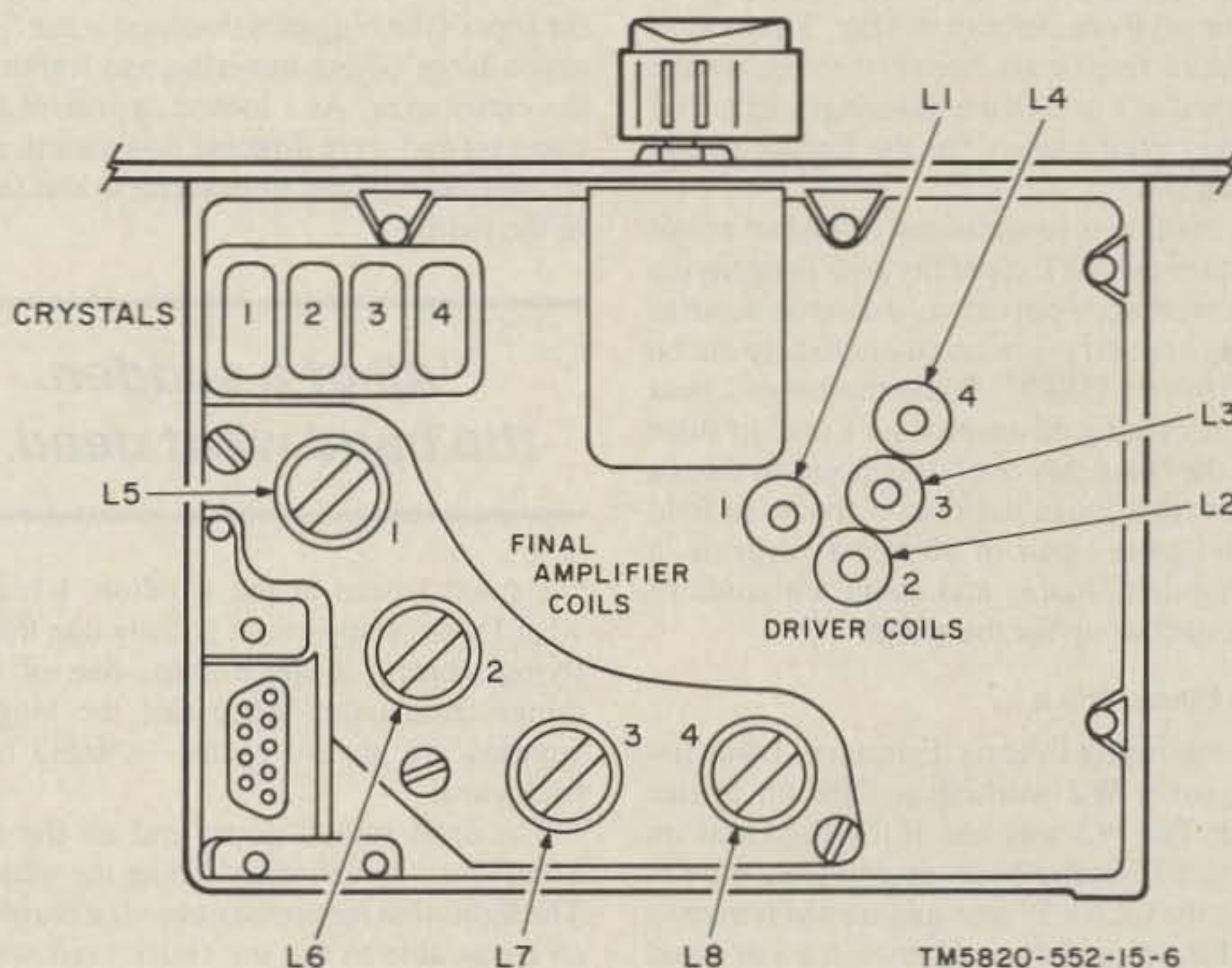


Fig. 4. Final amplifier and driver stage tuning adjustments.

key. Turn the IND-SENS switch to the lowest number that will give an indication and again adjust the two coils for maximum brightness of the lamp.

Manual and Accessories

The technical manual for this rig is TM 11-5820-552-15. It is available from most dealers of surplus manuals. We also have a few copies. For AM operation, a standard dynamic microphone works well. The earphones are 600 Ohms. (The earphones from the PRR-9 rig work well.) The rig was originally furnished with a 50-Ohm dipole antenna wound on three reels, but any standard antenna from the handbook works well with this rig. For replacement transistors in the receiver, 2N207 will replace all but the audio transistors. The equivalent number of audio transistors is 2N706A.

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External Key

An external key, or electronic keyer, may be used by plugging the key into the socket provided for the high-speed burst keyer. Wire the keyer to pins A and D of an Amphenol 125-195 plug. Ground is pin A.

In summary, the PRC-64 is an excellent portable or emergency QRP rig that is readily available at a reasonable price. It requires no conversion other than a tune-up and the acquisition of the crystals and accessories.

We'll answer any questions from amateurs who have either experience with this rig or questions about it. We are also interested in talking to anyone who has experience with synthesized versions. ■