

# Converting the Knight C-100 CB Transceiver to 50 Mc.

*Short-Range Communication at Low Cost*

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Following the appearance of the description of a tiny self-contained 50-Mc. transmitter by W8BEB in November 1962, *QST*, he received many requests for more information. Seems lots of people are interested in low-cost, easy-to-build portable gear. To satisfy this demand, Ed searched the market for the simplest and most inexpensive Citizens Band rig he could find, and then converted it to the 50-Mc. band. You won't work the world with one of these handfuls, but they're very useful and lots of fun.

Fig. 1—The Knight Kit C-100 transceiver, as it looks when converted for 50-Mc. operation. Only visible change is installation of a regeneration control adjustable from the outside of the case.

If you're beginning to feel bad about all the fun you're missing by not having a battery-portable rig for 6 meters, particularly when the guy next door with a CB job kids you about it, this transceiver may be for you. It represents the absolute minimum investment, and it can be assembled easily in one evening. But one word of warning: if you're thinking of working some choice 50-Mc. DX, this one *isn't* for you. It will give about a half-mile range in conjunction with a low-powered 6-meter mobile station, and 1 to 3 miles with an ordinary fixed station.<sup>1</sup>

But in spite of its limited range, a very light compact portable station of this type comes in very handy for camping or fishing trips, work on antennas and many other uses. The transceiver is so small it can be carried in a coat pocket, and you can be radio-equipped without your non-ham friends realizing it.

Reason for the choice of the Allied Knight-Kit C-100 transceiver was not necessarily that it was one of the best electrically, but rather its very low price. There are several other comparable designs in the low-price field, but conversion of them to 50-Mc. service has not been generally satisfactory.

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<sup>1</sup> The W8BEB transceiver was taken along on a September V.H.F. Party trip to a 2200-foot elevation in western Massachusetts. With just its whip antenna, the little box pulled in signals from as far away as northern New Jersey, some 125 miles distant. — *Editor*

## *Assembly and Conversion*

Assembly instructions that come with the C-100 kit are excellent, and these should be followed except for the substitutions indicated below. Only one point seems to have been missed in the kit information: where the whip antenna runs down inside the case there is some trouble with it rubbing against capacitor  $C_3$ , unless the leads to that item are left just a bit longer than necessary, to permit bending it slightly to one side. To make for clarity in interpreting the instructions and making the modifications, we are using the parts designations given in the kit instructions, though they in some instances do not follow standard *QST* style.

Five changes are made during assembly. The antenna loading coil,  $L_1$ , is changed to 8 turns No. 30 wire, closewound on the same form. The collector coil,  $L_2$ , is changed to  $4\frac{3}{4}$  turns closewound on the original form. The oscillator transistor,  $TR_1$ , should be a 2N1742. The original transistor will work, but with reduced efficiency at 50 Mc. If the original is used,  $L_2$  should have one less turn than specified above. The crystal should be for the desired frequency in the 50-Mc. band. Crystals for 8.4 or 25 Mc. will not work in this circuit. Finally, a 5600-ohm resistor,  $R_{11}$ , should be connected to terminal 3 or the back of the circuit board, as shown in Fig. 2. This resistor is not absolutely necessary, but without it there may be settings of the regeneration control where the transmitter will not work, especially when battery voltage is low.

The original regeneration control was very hard to adjust, so a miniature control of the same re-