

# A Perfect Match for the HW-8

*Heath's little rig is the QRPer's dream come true. So is 30 meters. Join them with this super-fast mod.*

On October 28, 1982, the Federal Communications Commission opened up most of 30 meters to US amateurs. Those of us with newer rigs were able to get on the air by adding a new dipole to the antenna farm or by finding a new tap on the antenna tuner coil. However, most of us with older

rigs were faced with the possibility of having to wait until we could get a newer rig. Many older rigs, like the Heath SB/HW series, would be a little difficult to modify.

QRP operators, though, are fortunate to have the much-modified HW-8 to play with. The purpose of this article is to describe a simple modification to allow you to convert your HW-8 to 30 meters with a crystal and three capacitors.

The HW-8 is a direct-conversion receiver which

generates the local oscillator signal by mixing a crystal oscillator and a variable-frequency oscillator. This allows the vfo to run at one frequency and facilitates multiband operation. This same system allows easy conversion to other bands.

In order to convert the HW-8 to 30 meters, all you need to do is change one of the crystals and realign the rig. I suggest that you change the 20-meter crystal. It appears to be easier to move the rf circuits at 20 meters down to 30 meters than it would be to move the 40-meter circuits up. In addition, the transmitter PA-output network is a low-pass filter, and moving the 40-meter low-pass up might require major surgery. This modification requires no surgery at all—only a few additions.

Once you gather the parts together, the entire conversion should not take you very long. Following are step-by-step instructions covering the conversion and realignment:

1. Referring to the Heath-kit™ HW-8 circuit diagram, remove both covers, unsolder the 20-meter crystal, Y3, and replace it with the 30-meter crystal at 18.895 MHz.

2. Locate L19 and C121. Solder a 30-pF capacitor across L19 in parallel with C121. It is easiest to tack this new capacitor on the bottom of the circuit board. This facilitates reversal of the modification.

3. Locate C7 and C22 in the rf amplifier circuit. Add 60 pF of capacitance in parallel with each capacitor. I used two 30-pF capacitors across C7 and C22 each. Anything in the 60-pF range should work as well.

4. Replace the bottom cover. This completes the modification; only alignment is left.

5. Attach an rf probe and VTVM to the base of Q7. If you don't have an rf probe, use the circuit Heath suggests in Fig. 1. Adjust L19 for maximum response on the VTVM and then turn the coil slug ¼ turn counterclockwise. L19 is the bottom slug in the L19/L21 coil can.

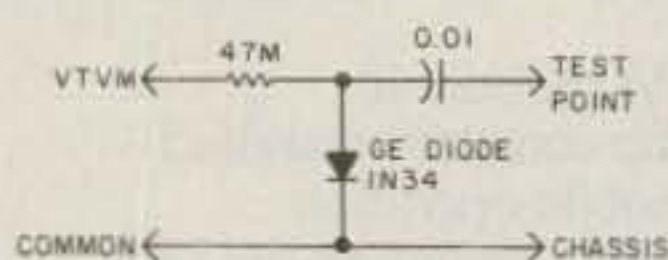


Fig. 1. Rf probe for alignment.

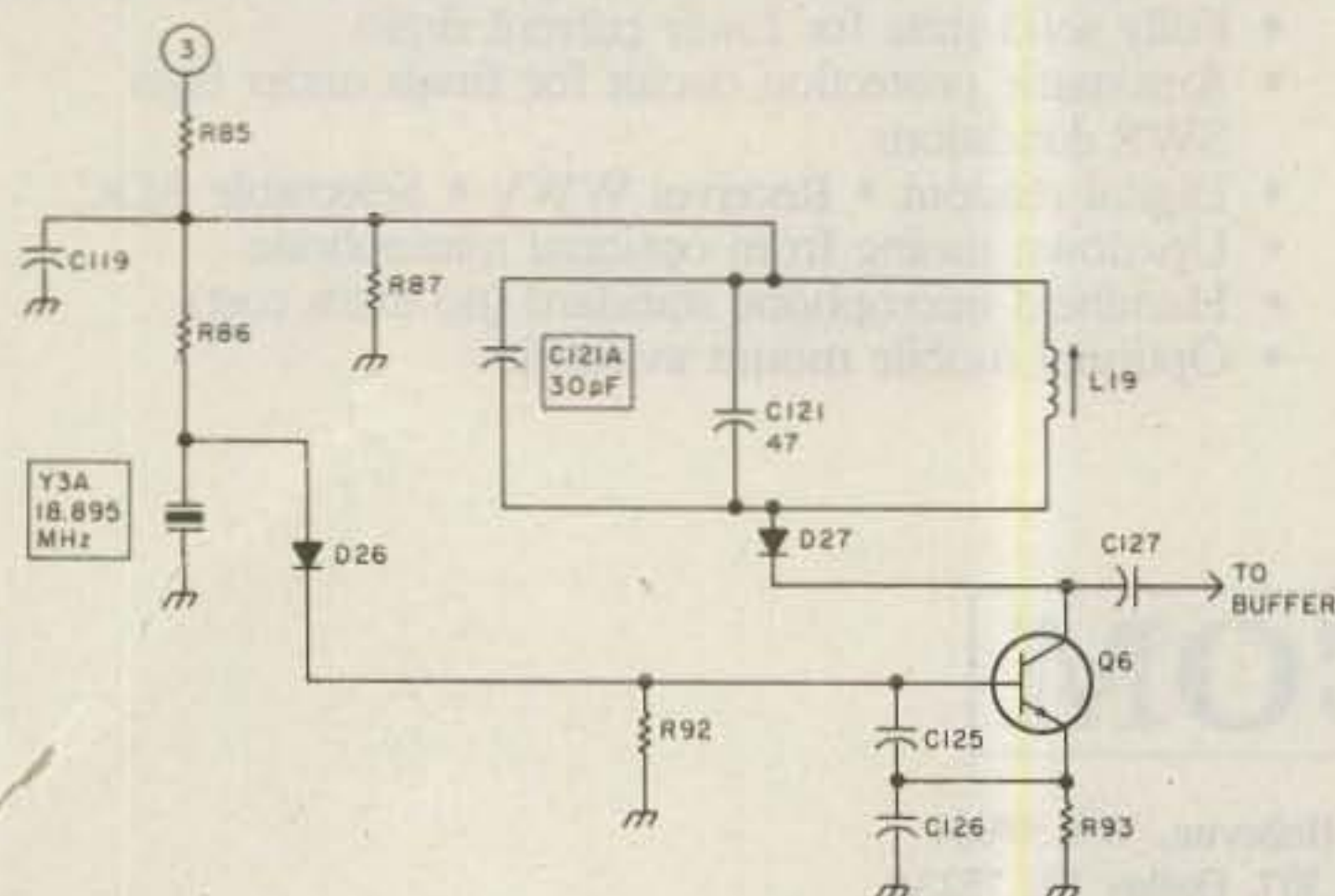


Fig. 2. HW-8 heterodyne oscillator, showing added parts C121A and Y3A.

6. Move the rf probe to the emitter of Q5. Adjust L15 for maximum response. You will have to move the coil slug almost to the bottom.

7. While listening to an on-the-air signal (WWV is convenient), adjust C7 and C22 for maximum received-signal strength.

8. Attach a 50-Ohm dummy load to the output, key the transmitter, and adjust C103 (in the final amplifier) for maximum output with the loading control at the 12-o'clock position.

9. If you want, you can calibrate the vfo using WWV at 10 MHz. Put the top cover back on.

10. Have your first QRP QSO on 30 meters.

The results are excellent. My HW-8 has a 30-meter power output of 1.2 Watts into a 50-Ohm load. Within two minutes after finishing the realignment, I worked NN4F in Memphis. He gave

me a 579. I find that I can work stations on 30 meters easier than I can on 20 while using QRP. There is some high-power teletype on the band, but you can sneak around that.

The receiver performs fine although I have not been able to evaluate it for sensitivity and dynamic range. The converted HW-8 seems to work just as well on 30 meters as it does on any other band!

So there you have it; a thirty-minute modification to

put you QRP on thirty 10.1 MHz and have some meters. Come on down to fun! ■

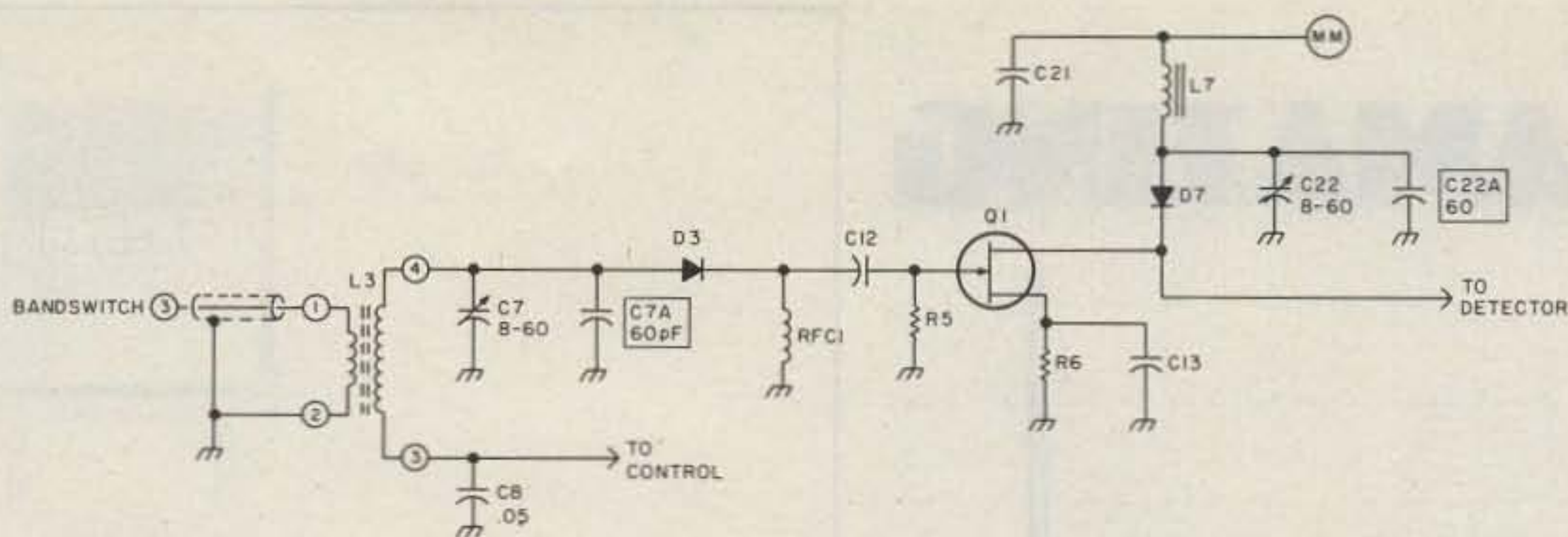


Fig. 3. HW-8 rf amp showing added capacitors C7A and C22A.

#### Parts List

- |           |  |
|-----------|--|
| Y3A       | 18.895-MHz crystal, type OF-L, cat. no. 031300, International Crystal Mfg. Co., Inc., 10 North Lee, Oklahoma City OK 73102. Price: \$6.88. |
| C7A, C22A | 60-pF capacitor, Radio Shack, Jameco, and other suppliers. Value of 50 pF to 70 pF acceptable.   |
| C121A     | 30-pF capacitor, Radio Shack, Jameco, and other suppliers.   |

Capacitor values may be approximate and determined experimentally. I used 30-pF capacitors from a Radio Shack assortment, paralleling two to get 60 pF.

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