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# VFO OPERATION FOR THE TWO'er

**T**his article may be of some interest to newcomers in the 2 meter band, or even some amateurs who might be tired of being rock-bound. Maybe you might want to check in on a club net, or break in on an interesting QSO. Vfo operation would be handy on Field Day, or to do a little DX chasing. If you were to buy half a dozen crystals or so, you would have spent enough money to build a good solid-state vfo or perhaps buy one cheap at a club auction.

For this article I used the equipment on hand, which was a Heath HG10 vfo and a Twoer (HW30). The receiver being what it is, there is a disadvantage not being able to spot the vfo frequency on the B-R-O-A-D regenerative receiver. There is a way to solve this broadness. If you haven't already converted your Twoer receiver, as described in an article titled "More Selectivity For The Twoer" in the June 1963, 73 I recommend the conversion. It is well worth your effort! It makes the receiver usable.

I might add that several members of the Hayward Radio Club, including myself, use Twoers on the club net, with the receivers converted as described in the article. We are very satisfied with the results.

The vfo coupling circuit description is simple and parts cost little or nothing. The HG10 vfo covers 80 through 2 meters and is a fairly stable vfo. The output circuit is a low Z cathode follower, with a common ground return. The Twoer uses a Pierce oscillator which does not have a common ground on the crystal oscillator.

This means that the vfo output cannot be directly coupled to the Pierce oscillator.

The vfo was link coupled to an 8 MHz series tuned tank for load isolation and impedance matching. I found it necessary to isolate the 8 MHz tank from the screen dc voltage in the Twoer. C1 of the 8 MHz tank is the dc blocking condenser. The 8 MHz tank was built on a crystal socket holder, so it could simply be plugged in and out.

Perhaps you might want to make a more permanent setup and use a DPDT switch. One thing of importance is to make sure the one turn link is kept from moving once the tank is tuned. The 8 MHz tank is sharp and moving the link will cause detuning. Keep the link secured well.

Tune the 8 MHz tank for resonance in the middle of the band. The length of the output cable from the vfo will change C1 somewhat from the value shown.

The method used for spotting the vfo frequency on the receiver is to key the Twoer oscillator coil (L1) and the B+ bus from the transmit function switch. In the forward direction, the transmitter with the diode works normally. In the reverse direction, it keeps B+ from the rest of the transmitter circuit when the oscillator is keyed. I might add, other types of vfos could be used with the Twoer as long as the coupling circuit remains the same.

As a final comment, I also cannot see why the Sixer (HW29A) will not work with a vfo the same as the Twoer, since the circuit is basically the same.

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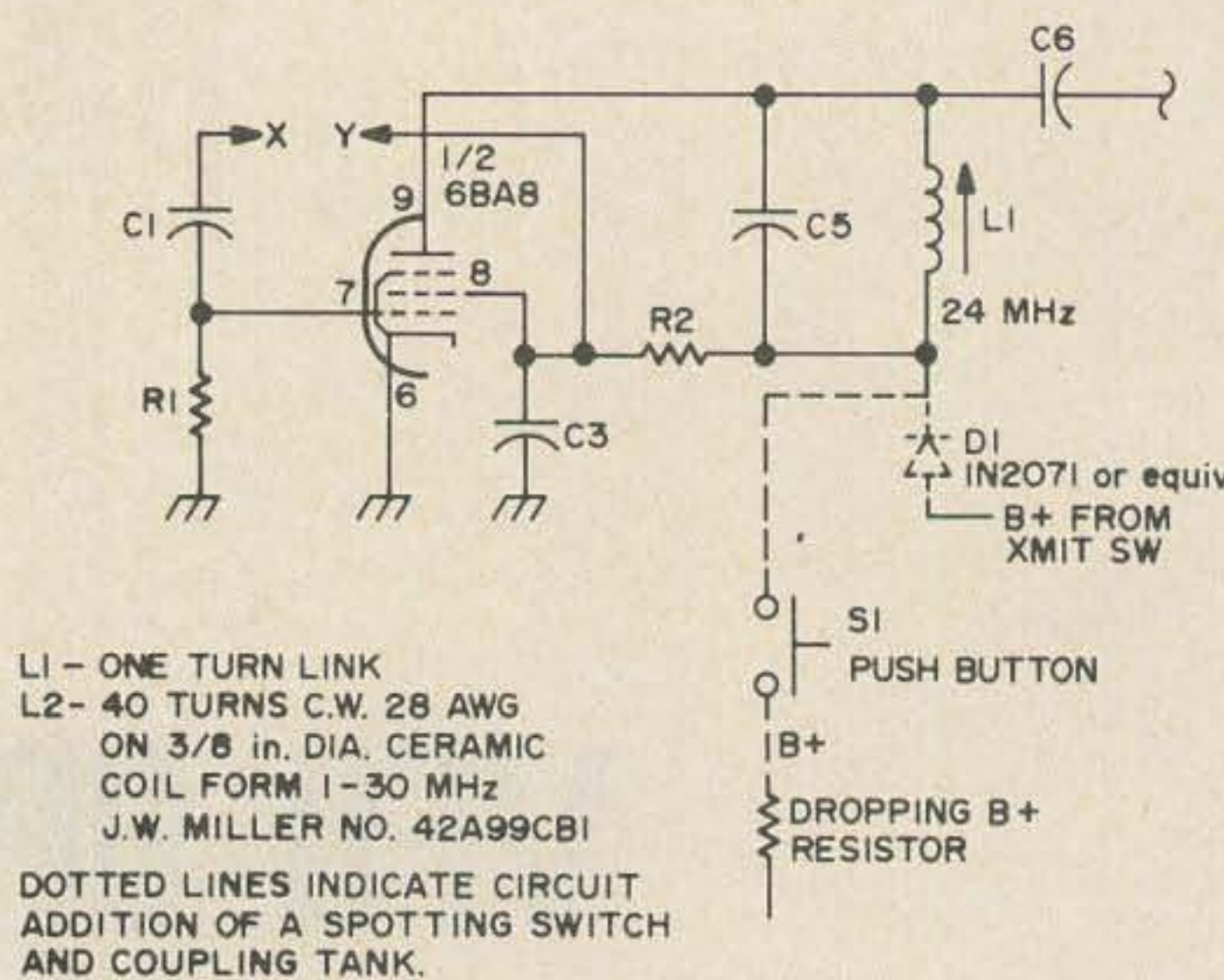
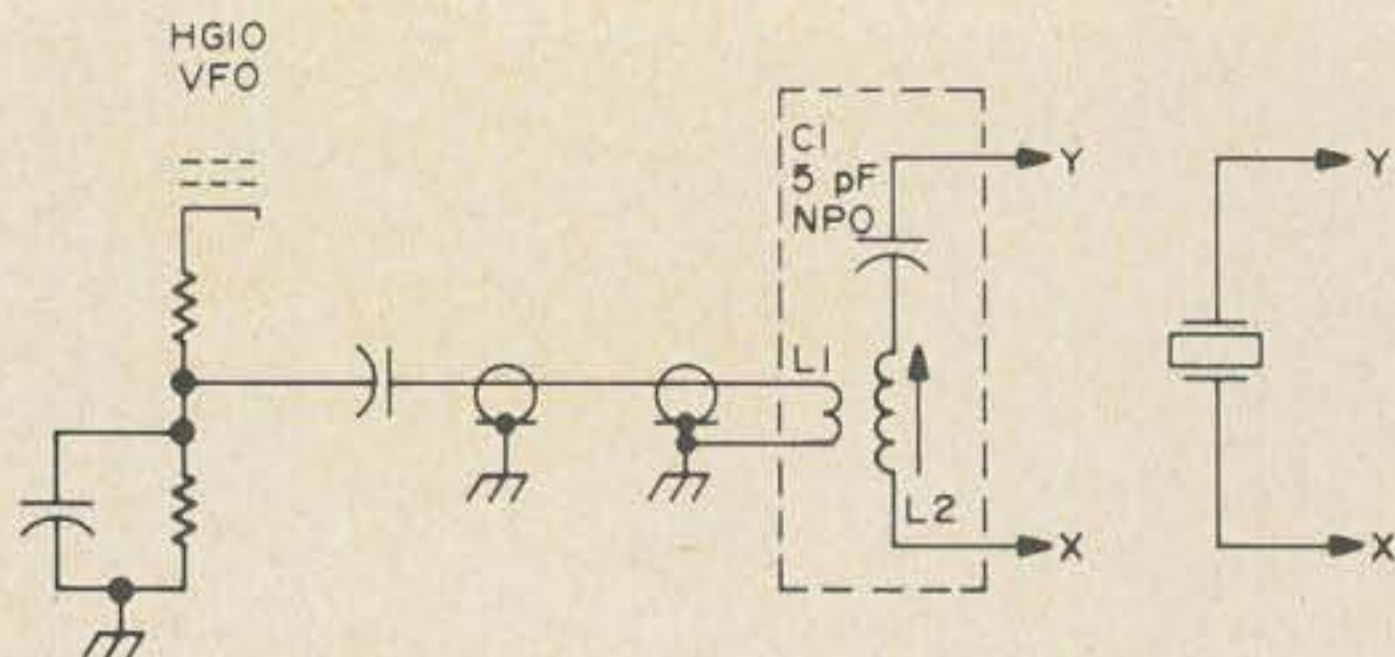


Fig. 1. MHz series tune tank.

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