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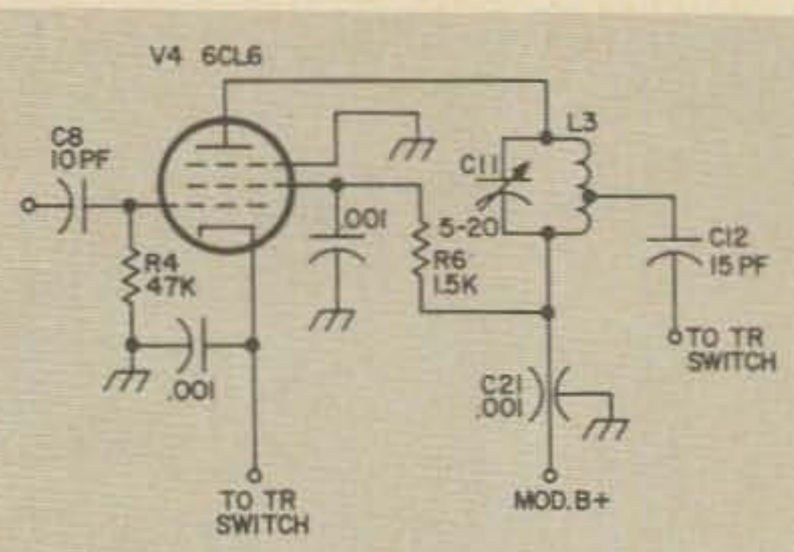
SUPER SIXER

. . . to the rescue

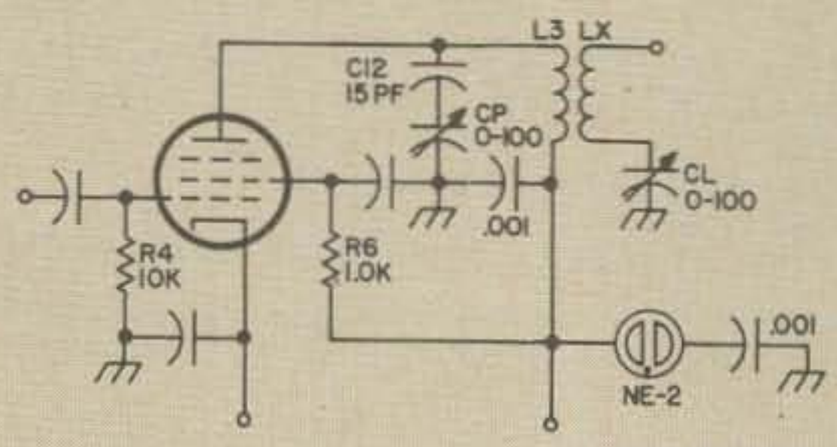
There's just something about a Sixer that can drive a ham crazy with "modification fever." Have you ever noticed the number of improvement articles written on them? It was a touch of such a "fever," induced by TVI, that got me digging into the bowels of my Sixer.

TVI has a bad way of catching up with you, sooner or later. Naturally, it wasn't too long after the little rig was first put on the air that a flood of complaints of television interference began. The use of a lowpass filter was obvious, though I couldn't bring myself to sharing the kW filter on the sideband rig with such a peanut whistle of a tranceiver. Why, the filter looked as large as the Sixer! There must be some other quick way around the interference...

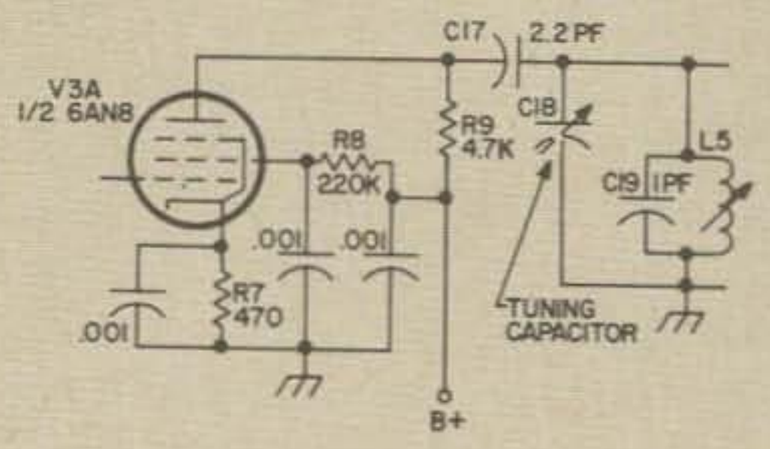
On the premonition that C12 (15 pF) in the plate tank circuit was passing something other than just 50 MHz to the antenna, I changed over to link coupling. L3 was cut down to 6 turns and another coil of insulated wire, LX, of 2 turns was wound over it.



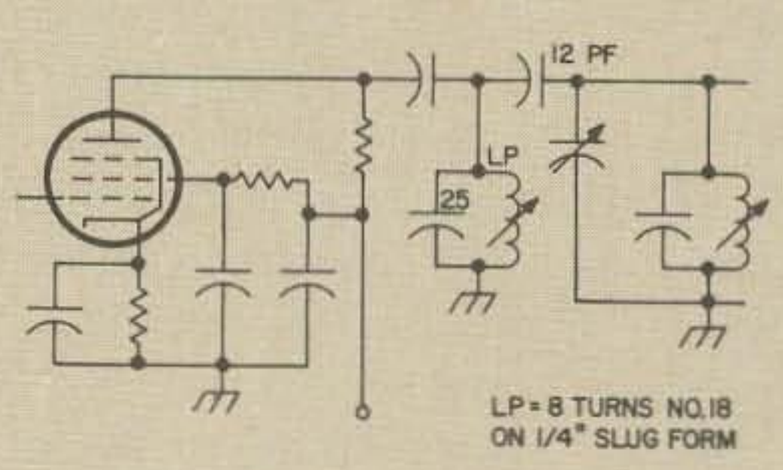
Unmodified Sixer final amplifier.



Modified Sixer final amplifier.

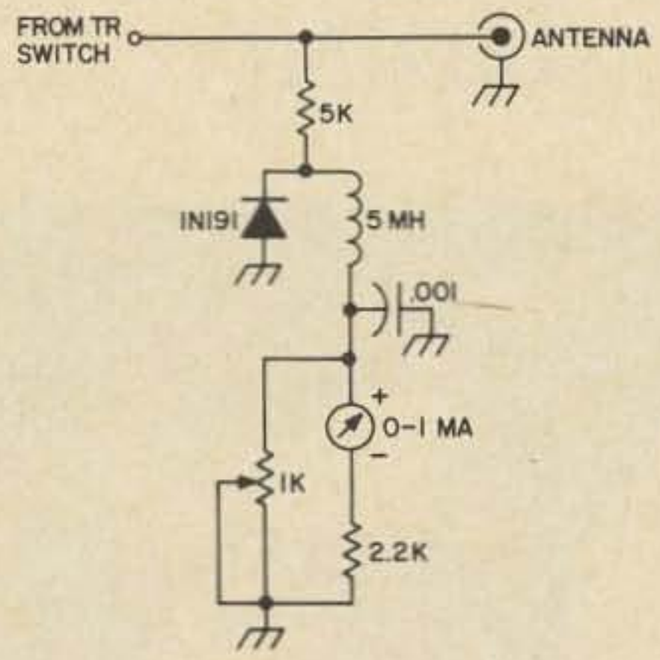


Unmodified Sixer receiver, rf stage.



Modified Sixer receiver, rf stage.

The results were amazing. The TVI was not only gone, but in addition, the transmitter loaded into the antenna better. This was great, so other modifications were begun.



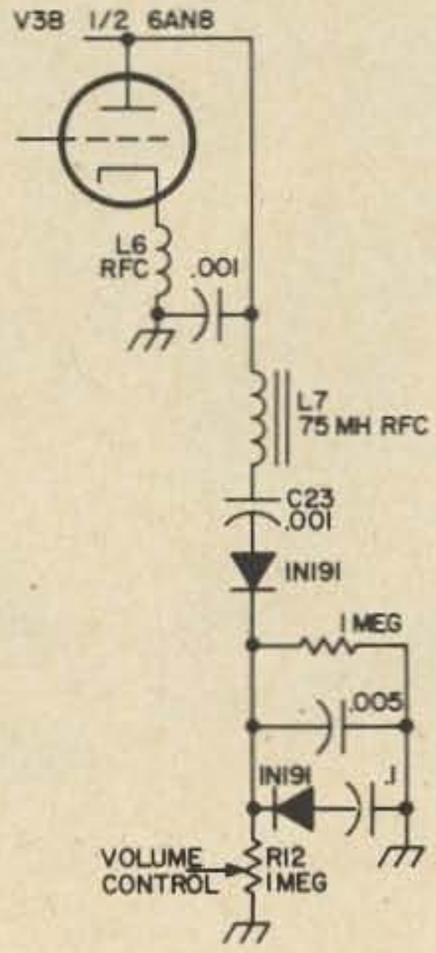
Improved tuning system.

Two holes were next drilled into the front panel, one to mount the new load control, and another for a capacitor to tune the plate of the final (6CL6). Two 0-100 pF variables were used because they were on hand at the time. The plate variable was placed in series with a 15 pF capacitor (the former C12), to make the tuning less critical at resonance.

Next, the grid and screen resistors of the final were changed from 47K and 1.5K to 10K and 1K, respectively. Input power increased two watts. Now some form of visual indicator for tuning the transmitter was needed. The original relative power output measuring arrangement of the Sixer leaves a lot to be desired. With a small light bulb as a dummy load, you can actually see a decrease in power when a meter is inserted into the circuit. A better, less lossy arrangement was substituted to sample the output rf. It is then read out on a 1 mA meter that was installed on the front panel.

Just for fun, a neon bulb was soldered in series with a .001 μF capacitor, and then to the cold side of L3. Instant modulation indicator.

The receiver section of the Sixer is its weakest spot. While the sensitivity is good, the selectivity is too broad to be usable when the band is crowded. A certain degree of selectivity was gained by adding a tuned circuit between the rf and detector stages of V3 (6AN8). How much selectivity was added, is hard to determine, but stations tune more sharply with less overload interference now.



Noise limiter.

Since the ultimate aim was to use the rig in a car, a noise limiter was tried. Even with the good limiting action inherent to a regen receiver, ignition noise was still a problem while operating mobile. From the Diode Handbook (73, Jan. 1968) came a circuit for a shunt diode noise limiter. One was installed between the detector and the first audio stage. Nothing truly spectacular resulted, for the ignition noise didn't disappear. It was reduced to a more tolerable level, however.

The crystal socket was moved to the upper right hand corner of the front panel. Instability was avoided by installing a tube shield over the 6CL6. And last, a 4PDT relay was wired in to allow PTT operation—a must when you're mobile. The Sixer was a nice rig to begin with; it's even better now.

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