

## ZENER DIODE NOISE

CI Zener diodes generate noise. I caught onto this more than a year ago and decided to try an idea I had to decrease the receiver noise floor in my Drake TR-7 and ICOM 551 transceivers.

The TR-7 was modified first. I put a 0.1-uF capacitor across all the Zener diodes. Because most three-terminal regulators employ Zener diodes, I filtered the input and output pins of all of the three-terminal regulators on the power supply boards and in both VCOs. LM723 voltage-regulator ICs 'also have internal Zener diodes. So, I bypassed pins 4,6, 10, 12 of the LM723s in the TR-7 and PS-7 power supply with 0.1-uF 'and 5-uF capacitors. In the ICOM 551, I filtered all the Zeners with 0.1-uF capacitors.

Results? A noticeable lowering of the receiver noise floor in both receivers. I was able to increase the TR-7's IF gain (by adjusting R1136 on the 2nd IF board) to maximum. The receiver now performs very well on 10 meters; signals seem to pop up out of nowhere. I also noticed that noise modulation of received signals by strong nearby signals now occurs only with the noise blanker turned on. I can now listen to S4 or S5 CW signals wedged between two S9 + 50 signals only 1 kHz apart. When I'm using my external receiver preamplifier with my IC-551, the received-noise-level increase with the preamplifier turned on is dramatic.

My findings are anecdotal. I don't have

the test gear to measure receiver noise floor or transmitted noise. I hope someone who has the proper test equipment will try what I've done on a few pieces of HF, VHF and UHF equipment, make before and after measurements (transmitter phase noise, receiver noise floor, blocking and so on) and publish the results.--Bud Moist, *AE7K, Box 2143, Nevada 89801*