

Power Plus for the Omni

— improving on Ten-Tec's power supply

The Ten-Tec Omni (#252-MO) power supply is a fine unit, but there are some improvements that can be made. I am sure competition dictates just how much a manufacturer can put into a piece of equipment, but there is no reason ham operators cannot make a few usable modifications themselves. The modifications I made were relatively simple, and I now have a better and more useful power supply.

My first modification was to install a chassis-mounted ac receptacle to

be powered whenever the power switch is turned on. This provides a switched source for a cooling fan. By doing this, my cooling fan is on any time that my power supply is on and I cannot forget to turn it on (see Fig. 1).

My next undertaking was to install an overvoltage protection (crowbar) circuit. This is a must to protect expensive gear from being zapped should a pass transistor become shorted and allow excessive high voltage to reach places it should not! The crowbar circuit described in the

August issue of 73 Magazine (page 90) by K9MLD was used. (See Fig. 2). All of the components were mounted on a three-lug terminal strip with the exception of the 25-Amp SCR, which was mounted on a bracket of its own. Space is no problem. I used a 2N685 SCR which must be isolated from ground, as the stud is the positive terminal. Fuse installation is very simple. With a fuse holder mounted on the back cover of the power supply near the top edge, the red wire from the pass transistor can be cut near the center and connected to the fuse holder without disconnecting either end of the wire.

With this circuit connected to the 13.8 positive voltage line, should the SCR be gated by an overvoltage signal, the SCR will short the 13.8 positive voltage line to ground and blow the fuse, thereby positively disconnecting the output of

the power supply. Should you have a variable power source available, the trim-pot can be adjusted to gate the SCR at 15 V and marked at that position. After installation in the power supply, the trimpot can be turned to test for proper operation, and when testing is completed, returned to the marked (15-V) position. During checkout, the current limiter (not the fuse) was shutting down the power supply inadvertently. This apparently was being caused by rf getting on the gate of the SCR, causing the SCR to conduct. The installation of the two .01 caps corrected this problem (see Fig. 2).

There was no reason to have two 12-volt power supplies in my shack (one for my Omni and the other for other equipment such as the 2m rig), so I set out to eliminate the home-brew job and use the Ten-Tec #252MO for everything.

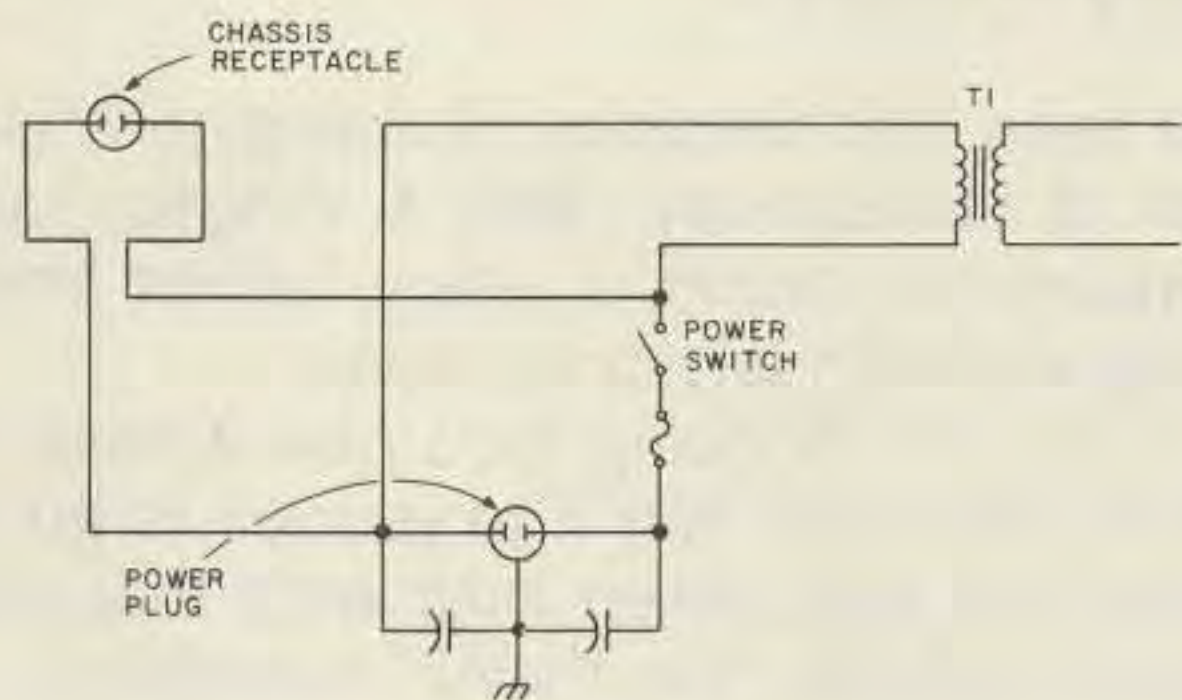


Fig. 1.

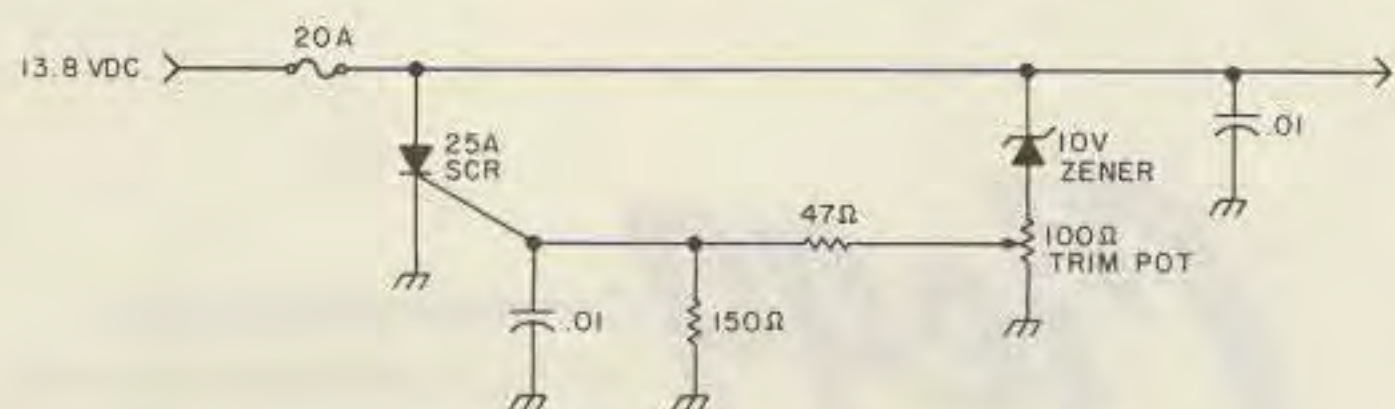


Fig. 2.

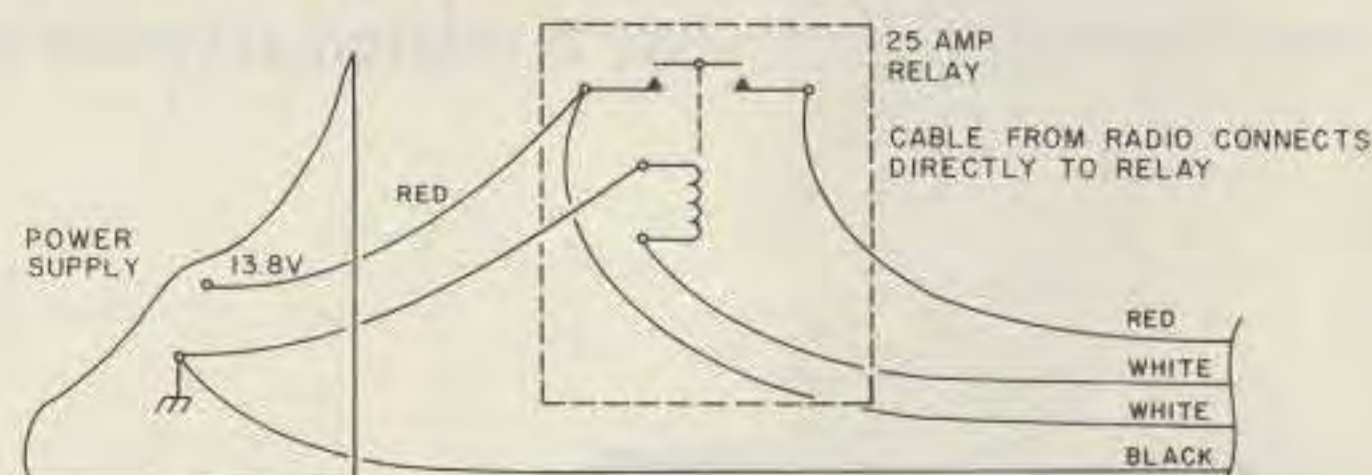


Fig. 3.

The manufacturer designed it to be turned on by the power switch on the Omni in series with the on/off switch on the front of the power supply. The power supply could not be turned on and used without the Omni being turned on as well. A simple rearrangement of the 115-V ac wiring in the power supply bypassed the switch on the radio and allowed the power supply to be turned on by the switch on the power supply only (see Fig. 1).

To control the 13.8 V dc to the Omni, a 25-Amp Potter & Brumfield #PR5DY relay was installed, as suggested in the owner's manual. The relay coil is controlled by the switch on the Omni through the two center wires of the cable between the power supply and the radio. Now my Ten-Tec power supply can be turned on without turning the Omni on (see Fig. 3).

Note: To facilitate mounting the relay, the two auxiliary phono jacks and their associated wiring were removed and discarded, and two banana plug type jacks were installed in the front panel, with wiring capable of handling the total output of the power supply. This makes 13.8 V dc readily available for anything in the shack with current limiting and overvoltage protection.

So, Ten-Tec owners, if you are of the mind to do a little improving of your equipment, the details are left to your discretion, imagination, and ingenuity. I might add that the #252M and #252MO are identical electrically, so these modifications apply to both. The peace of mind that comes from having the overvoltage protection is reward enough, not to mention the good feeling of knowing that I did it myself! 73. ■