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**QST Issue:** Aug 1986

**Title:** Balanced Grid Circuit for the Heath SB-200 Amplifier, A

**Author:** Mark Tyler, K5GQ

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They were severely pitted, probably because RF was applied to the amplifier with no antenna connected. The relays were apparently switching the exciter RF to the amplifier before the antenna-relay transition was complete. A spike of power was arriving at the final-tank circuit of the amplifier while there was no antenna load and was discharging through the main tuning capacitor. Once the arc was struck, it held until the key was released. Anyone experiencing this problem should thoroughly check the relays and then clean or replace them if they appear badly pitted. Also, exercise extreme caution when working on amplifiers. In high-voltage circuits, there are no slight shocks, only lethal ones!—Chris Hays, WB0LPV, Florissant, Missouri

**A BALANCED GRID CIRCUIT FOR THE HEATH SB-200 AMPLIFIER**

I have found that my SB-200, which uses two 572-B tubes, has a serious problem. The grids are unbalanced, and overdrive will destroy the same tube of the pair each time. To improve the balance, remove C29 and install an 8- to 50-pF capacitor, rated at 500 V, from the junction of R21 and R22 to C17. Fig 3 shows the modification and an X where the wiring to C29 was cut. Guy, W5VGG, designed this fix, and I installed a 20-pF capacitor in an SB-200 for NM5I after a tube failed in his.—Mark Tyler, K5GQ, Katy, Texas

**AN AUTOMOBILE VOLTMETER**

I have had a problem with my last four cars in that the "idiot" light did not come on when the alternator malfunctioned. As a result, I built the expanded-scale voltmeter shown in Fig 4.

A relay disconnects power from the mobile rig and voltmeter when the ignition switch is off. The voltmeter, however, draws only

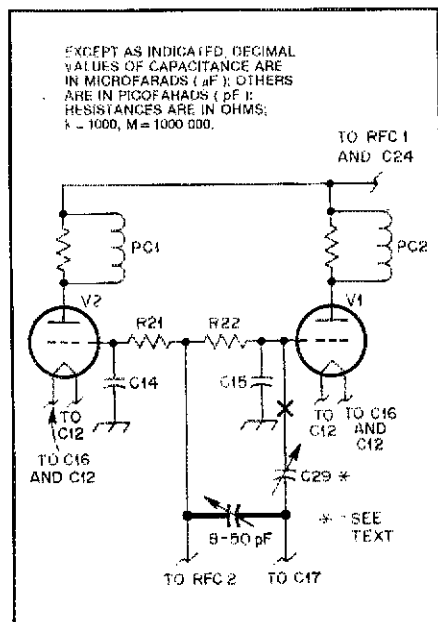


Fig 3—A partial schematic of the Heath SB-200 showing modifications to help balance the grid circuit. The changes are shown in heavy black lines.

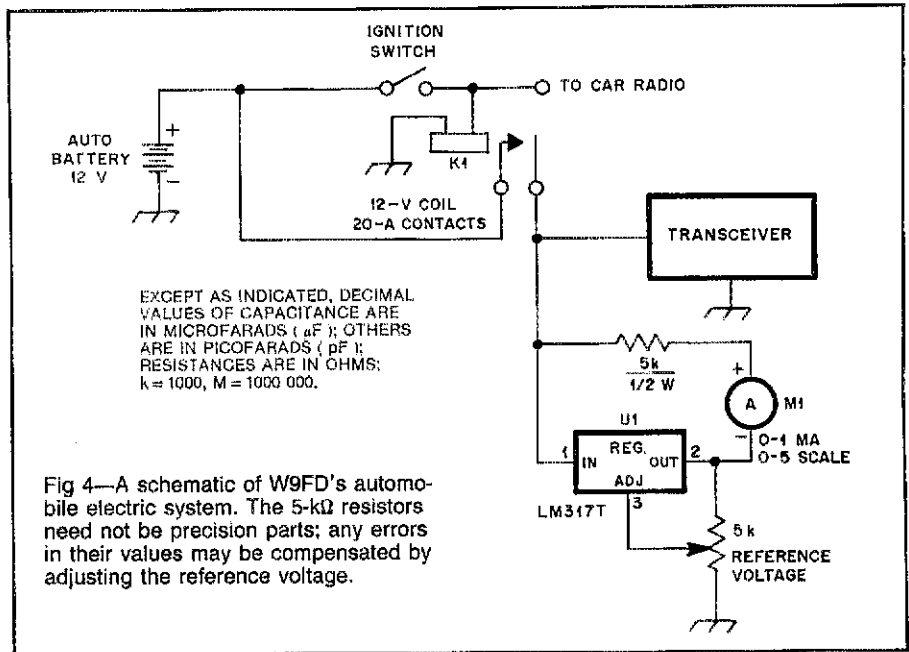


Fig 4—A schematic of W9FD's automobile electric system. The 5-kΩ resistors need not be precision parts; any errors in their values may be compensated by adjusting the reference voltage.

about 5 mA and could be left connected if so desired. A voltage regulator supplies +10 V to the negative terminal of the meter so that the meter actually reads the difference between the system voltage and the regulator output. System voltage, then, is that shown on the meter plus 10 V. I set the 5-kΩ potentiometer so that the meter reads 2.5 (12.5 V) normally and 4.0 (14.0 V) when charging. Now I need not depend on my "idiot" light.—Vern Rush, W9FDS, Lafayette, Indiana

**PLASTIC FILM SPOOLS AS WIRE SPREADERS**

I have used a parallel-wire dipole on the 80- and 40-m bands for many years. Size "120" plastic film spools make excellent spreaders to hold the parallel wires apart. The spools are quite durable and seem to resist the effects of ultraviolet light. I had one antenna up for seven years in downtown Cleveland, and it survived vicious winds and industrial fumes. There was no sign of brittleness in the plastic spools.

Here is a trick to get the spools on the wire: First, estimate how many spools are needed and place them on the ends of the wires. Then, place both wires under tension, slide the spools into position and fasten them in place. This technique makes it easier to slide the spools in position without binding, as is common when the wires are not under tension. Simply twist the no. 20 wire around the antenna or feed-line wire (as shown in Fig 5) to hold the spools in place. My spools are spaced 12 inches apart. The spools are available for the asking in "eye-popping" quantities at virtually any professional photo lab.—Timothy N. Colbert, WA8MLV, Burton, Ohio

[Those who are less concerned with appearance can avoid the trouble of sliding the spools along the antenna or feed-line wire. Simply pass the no. 20 wire through the hole drilled in the spindle, lay the spindle against the antenna wire and wrap the no. 20 wire around the large wire.—Ed.]

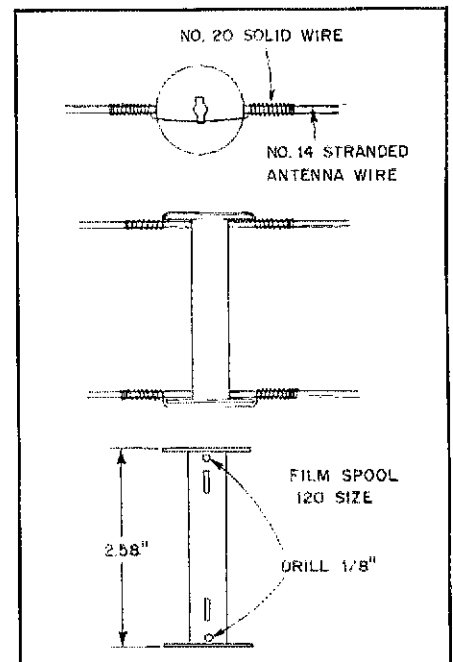


Fig 5—WA8MLV's technique for using plastic film spools as antenna spacers.

**ANOTHER SOURCE OF SPACERS FOR OPEN-WIRE LINE**

Coat hangers made of 3/8-inch-diameter plastic are an excellent source of spacer material. These hangers are periodically on sale at a cost of \$1 per dozen, and 15 two-inch spacers can be cut from each hanger.

Spacer fabrication is quick, clean and easy. Cut the hangers into the lengths you need, sand the ends, file a groove in each end to accept the conductors, and drill each end for the tie wires.

These spacers are inexpensive, easily available and light in weight. I use one every 12 inches or so in my system.—John Jarnefeld, W0TOY, Hibbing, Minnesota