Avoiding Electrical Problems with WL Jenkins Bells.

by Kenneth Huffines

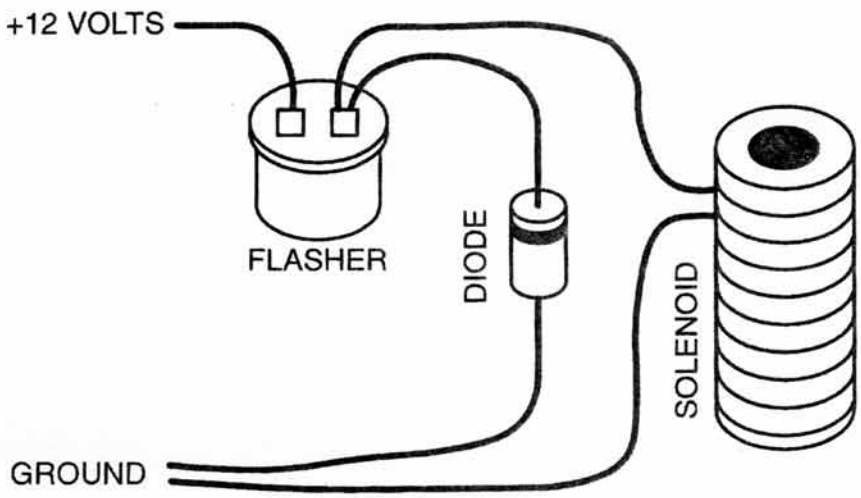
Many speeders are accessorized with bells from the *WL Jenkins Company*. I have one and my car and I like it a lot. I generally use it when people are about (such as flaggers at a crossing), when there's a bunch of folks watching us depart, or during the rare meet of trains. (Granted, no audible warning excuses the operator of due diligence, but sometimes it's handy to be heard.)

The bell worked fine for a couple of years, then it went crazy. Rather than give a polite "ding" once a second, it would ring spastically, like a kid playing with the desk bell at an old hotel. Time for maintenance!

The bell's guts consists of a 552 flasher and a solenoid—not much to go wrong. Bypassing the flasher with a jumper wire caused the solenoid to pull in fine. The problem seemed to be the flasher, and with nothing to lose, I took it apart. Indeed, that was the problem. The contacts were pitted and burned, clear evidence of arcing.

What caused the flasher to arc? It's a common problem, and one that is familiar to anyone who has been knocked on their fanny by touching the spark plug on a running engine. A coil, when energized, builds up a magnetic field. Turn the power off, and the collapsing magnetic field induces electricity back into a coil. It does not matter if the coil is a spark coil or a solenoid coil. When power is turned off (in the bell's case, by the flasher) the surge caused by the collapsing field has no where to go. The surge causes an arc across the flasher's contacts and is then absorbed by your speeder's electrical system. The flasher's contacts are damaged a little bit each time the arc. Eventually the damage adds up, and either the points stop conducting, or (in my case) they sustain an arc, thus causing the solenoid to keep firing causing the bell to ring in a disorderly fashion.

Preventing the arc is easy. All you need is a diode—a semiconductor device that's like a one-way valve, allowing current to pass only one way through it. Any good medium-current diode will do, like a 1N5402 (or better). A *Radio Shack* 276 1144 will do fine. (They call it an Epoxy Rectifier.) Because diodes are polarity sensitive you'll have to pay attention in hooking it up.



Check your bell to verify it's wiring. One end of the solenoid should be grounded. The other solenoid wire goes to one side of the flasher. The other side of the flasher goes to 12 volts.

Now have a look at the diode. The body has a silver band painted around one end. That end of the diode goes to the positive side of the solenoid, or in the above wiring, the junction between the solenoid and flasher. The other end of the diode (no band), goes to the negative (or ground) side of the solenoid.

You'll probably need to solder (or crimp) some wire onto the diode's leads so it'll reach. If you solder, be careful not to get the diode too hot. Be sure to cover the exposed wires with tape or heat-shrink tubing (*Radio Shack* 278-1627B).

And as long as you're inside the bell and before you start the work, consider replacing the flasher module, especially if your bell has been erratic. It's held in with a large amount of silicon caulking. Any good auto part store should carry the 552.

Test the bell before buttoning everything back up. If you got the diode in right, it will harmlessly bypass the surge. If you got it backwards, the bell won't work, and you'll burn out the diode. You'll know it's backwards when the smoke comes out!

This fix should keep your flasher working for a long time.