

## Installation Tips

### *An SRE Bulletin on Making Your Installations Easier!*

Lately a number of you have asked us about a problem with some unusual symptoms. You'll have an SE175 or SE325 in a truck that keeps coming up with faults like "welded contactor" or "check the direction contactors," but when you look at your contactors, they're fine. Sometimes your problem is intermittent, say every couple of days or so, but soon it starts to happen more often. We've found a confusing point in our installation manual that can lead to this, and here's the source of it: **Coil Suppressors!** Now I'll explain to you what happens to cause your problem and how you can easily fix it.

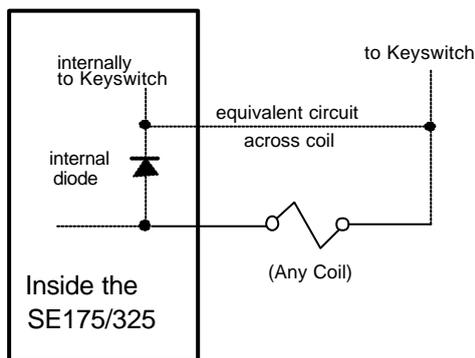


FIGURE 1

Our manual says that for your convenience, our controllers contain internal coil suppressors (to stop high voltage spikes that occur when you turn off a coil) -- and they do -- but sometimes they can't do their job. Figure 1 shows what we've done inside our box for coil suppression.

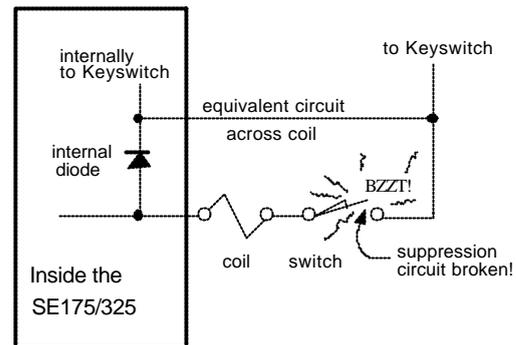


FIGURE 2

It's pretty simple: we have diodes that go from the contactor output wires, internally, to the key switch. When you connect a relay coil across an output wire and the red key switch wire (as usual), those internal diodes become connected across the coils and stop spikes.

The trouble occurs when you put a switch in series with a coil (usually a lift or side shift contactor). When the switch opens, our internal diode is no longer connected across the coil, and you get a voltage spike going into the box (see Figure 2) which can stir things up a little and give the problems I described!

The solution? Simple: WHENEVER YOU HAVE A SWITCH IN SERIES WITH A COIL, MAKE SURE THAT A SUPPRESSOR IS INSTALLED RIGHT ON THE COIL ITSELF. A three amp diode such as an MR851, MR831, MR821, or 31DF1 (all cheap and available from major electronics suppliers such as Future Electronics<sup>1</sup>) will work. I like the MR851's because they can take a licking and keep on suppressing. Remember to watch for polarity: the cathode (the bar on the diode) goes to the key switch side (see Figure 3) -- otherwise, you short out the coil.

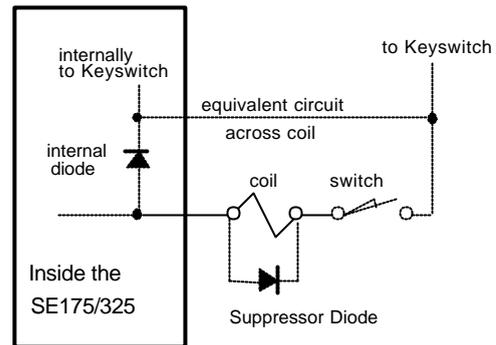
<sup>1</sup> Future Electronics has offices throughout the world. E.G. Mississauga, Ontario (905-612-9200) or San Diego, California (619-625-2800).

I recommend that you check out all of your installations to make sure that suppressors are connected directly to lift contactor coils and anywhere else there's a switch in series with a coil. If you have any questions regarding suppressors or any other technical matters, please call SRE at (800) 461-9338.

Revision History:

93-09-22 JIS -- Original Version

94-09-15 RTA – Add diagram of suppressor diode installation. Add supplier info.



**FIGURE 3**