



December 2004

Subject: Part 1 - Checking for Internal grounds on a Speedtronic Mark V panel
Applies to: General Electric gas and steam turbines equipped with GE Speedtronic Mark V control panels

Part 1 - Checking for internal grounds on a Speedtronic Mark V panel

Ground faults, commonly referred to as “grounds” are something you definitely do not want to fool around with. This is the first part in a three-part series of “Tips of the Month” covering the craft (some may say Witchcraft!) of ground-fault detection.

One type of ground fault occurs when a wire from a device or circuit is connected to or touching ground when it should not. At best, the circuit will not work. At worst, it will work badly and drive you crazy for weeks.

Fortunately, the MKV has an easy way to see if something is incorrectly grounded. This is explained in the Speedtronic Application manual GEH 6195 in the Section EQUIPMENT GROUNDING (2-7 in Rev. D) and in the Maintenance Manual CONTROL PANEL ENERGIZATION section, (5-3.1.2 in Rev D) but it is so important, that we will briefly expand upon it.

As the manual says, you need to disconnect the ground wire from the CCOM (computer common) and also disconnect the capacitor.

The capacitor is strategically located in a place where it will be completely hidden by the wires coming from the field, such that it should take you several hours to find it if you do not know where it is.

So, go to the upper left side of the MKV cabinet, next to the <S> and look under the cables, it is there (see photo).



Mark V CCOM Capacitor

Disconnect the capacitor and the pig-tail wire connected to the MKV frame. Then go to the <PD>. Across the top, between <PD> and <C> there is a connection bar. On the right of this bar is bolted a thick cable connected to the MKV frame, probably to a ground shield. This is the MKV main ground, and in a later “Tip of the Month” we’ll talk more about it. For now just disconnect it.

Now you have isolated the MKV electronic ground.

Next, get a VOM, connect one lead to the frame and check the resistance between the frame and the MKV circuits. With the free lead, touch the CCOM bar. The VOM should show a high resistance, in the order of several Kohms.

If the VOM reads a short or low resistance value, like a couple of hundred ohms or so, there may be a ground and you need to find it.

Notice that since there are field I/O’s connected when you are doing this, some field devices may be grounded on the field, sometimes incorrectly. So, if you detect a ground, although it may be right, you need to determine the cause.

Reconnect the CCOM grounding capacitor and the thick cable linking the connection bar to the MKV frame.

Stay tuned for next month’s “Tip of the Month”:

"Part 2 - Looking for Grounds on a Speedtronic Mark V panel"

For more information or for assistance in troubleshooting controls problems, please contact Pond And Lucier, LLC.