



CNC Axis Stopped Working

If one or more of your CNC axes stops working, you may have blown a fuse on the driver box. Two extra fuses should be inside the driver box. If you are using our PC with Linux, the spare fuses should be taped to the inside of the PC cover where the power toggle switch for the stepper motors is. Here is the direct link to the CNC driver box instructions that detail how to replace the fuses: <https://sherline.com/wp-content/uploads/2016/01/8760inst.pdf>.

If you need a replacement fuse, you can purchase it on our website. <https://www.sherline.com/product/fuse-3a-125v/>.

NOTE: The major reason for blown fuses occurs when the power connection to a stepper motor is disconnected or connected with the power on. A loose connector may also cause the fuse to blow.

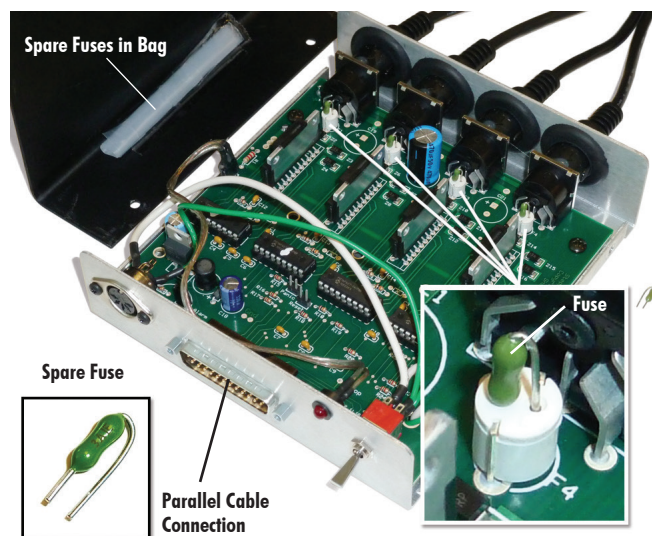


Figure 1—The driver box with the cover removed and individual axis fuse locations shown.

CAUTION! Make sure the female power plug is fully seated in the power supply unit socket. A blue light should be lit. A poor connection can short out components on the driver board.

CAUTION STATEMENTS!

1. Do not "hot plug" the stepper motors. Always turn the power off to the driver box before plugging in or unplugging a stepper motor. Failure to do so can burn out a chip in the driver box.
2. When unplugging axis and motor cables, always grip the plastic connector. Do not pull on the wires themselves.

3. **Mach 3 and 4 software will NOT work with the Sherline driver box without the addition of a special dongle.** The dongle has a small computer on the parallel side to avoid dropping steps as it converts from parallel to USB. Mach 3/4 does not work well parallel/parallel either, so you must use a dongle. Contact Sherline for the information needed to purchase this dongle. In addition, the free version of Mach 3 does not run satisfactorily with or without the dongle, the paid version is provided with customer support.
4. **Sherline takes extra care to ensure our motherboards and the parallel ports are a match with the correct power needed to run EMC2.** There are no published plus/minus tolerances on parallel ports. As noted the port must have enough power to run up to six axes. If you are using your own computer and having problems transmitting data, it is highly recommended you add Sherline's parallel port signal booster. (P/N 8763, \$52.00).

Driver Board replacement for Linux PC

First, disconnect the power cord from your power source so there is no power to the PC

1. Remove the two rear side panel screws and pull the side panel back towards the rear of the PC to remove it.

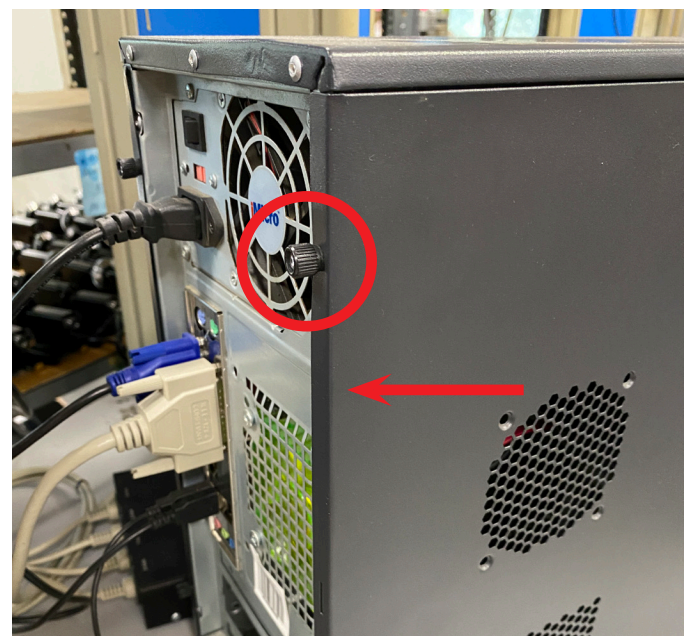


FIGURE 2

2. Place the panel to the side. Away as far as the power switch wires will allow (see Figure 3).

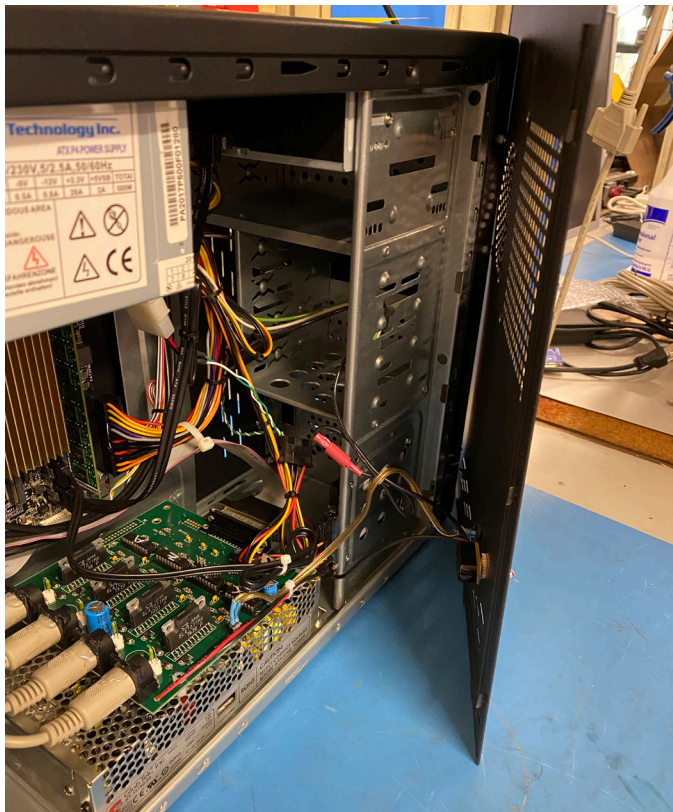


FIGURE 3

3. Remove each of the stepper motor cables from the back of the board. These cables have a small amount of glue on each one to keep them from coming loose (see Figure 4, circled in yellow).

You will need to hold the black connector on the board while you pull the connector from this black board connector.

Watch you hand so it doesn't get cut by the sharp edge of the PC housing (circled in blue).

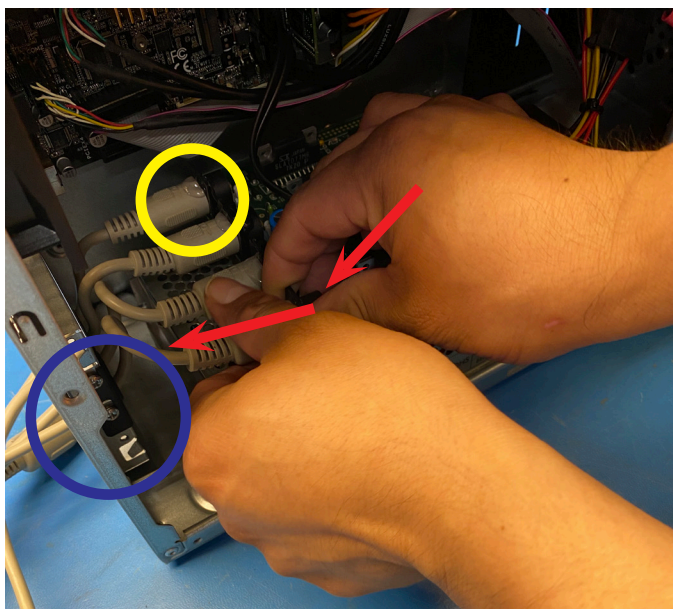


FIGURE 4

4. After all of the stepper motor cables are removed from the board, turn the PC on its side and remove the (4) screws that hold the driver box in place (see Figure 5).

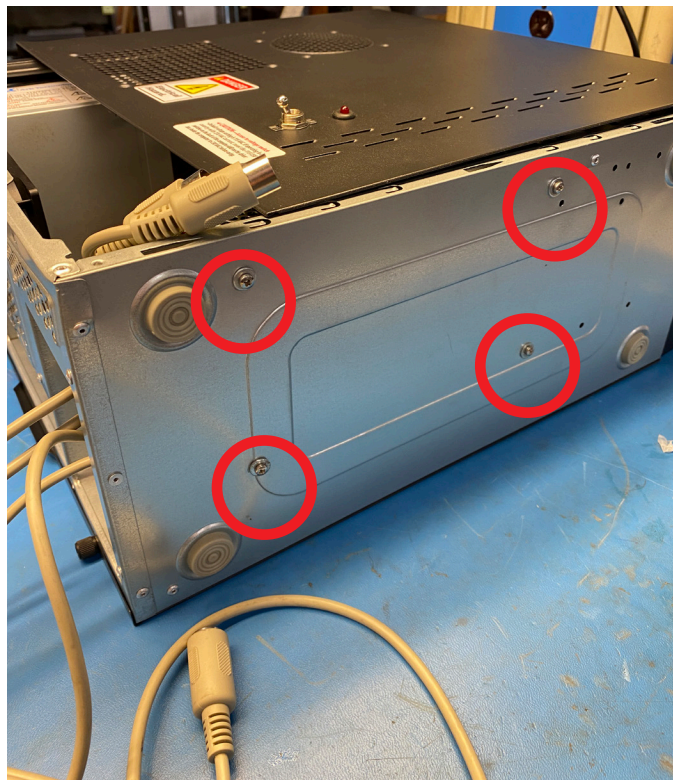


FIGURE 5

5. Clip the zip ties shown circled in red (see Figure 6). You may need to pull the stepper motor cables into the PC a bit to allow space to remove the driver box.

Pull the driver box out at an angle (rear first).

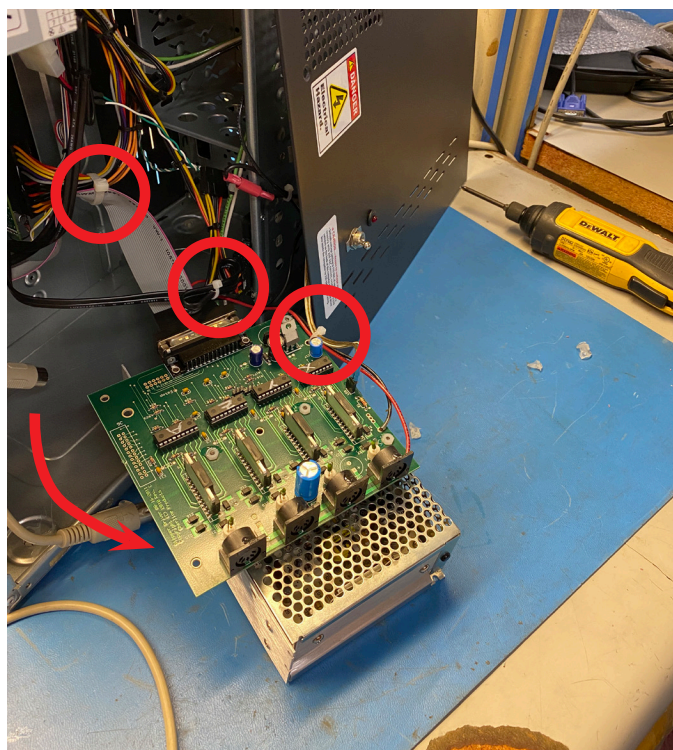


FIGURE 6

6. Pull the blue connector from the board (see Figures 7 and 8).

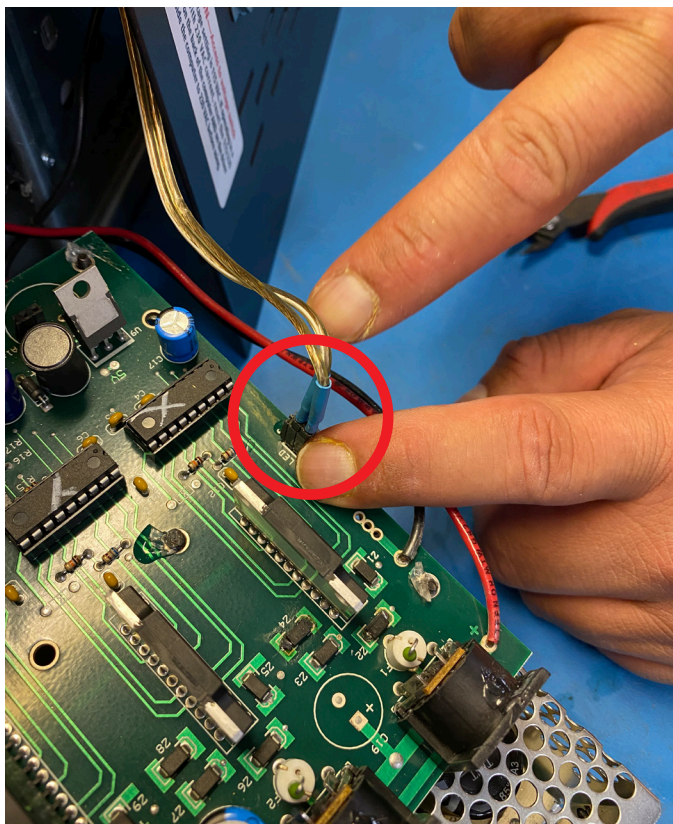


FIGURE 7

7. Remove the (4) plastic nuts from the board. These hold the board onto the power supply (see Figures 9 and 10).

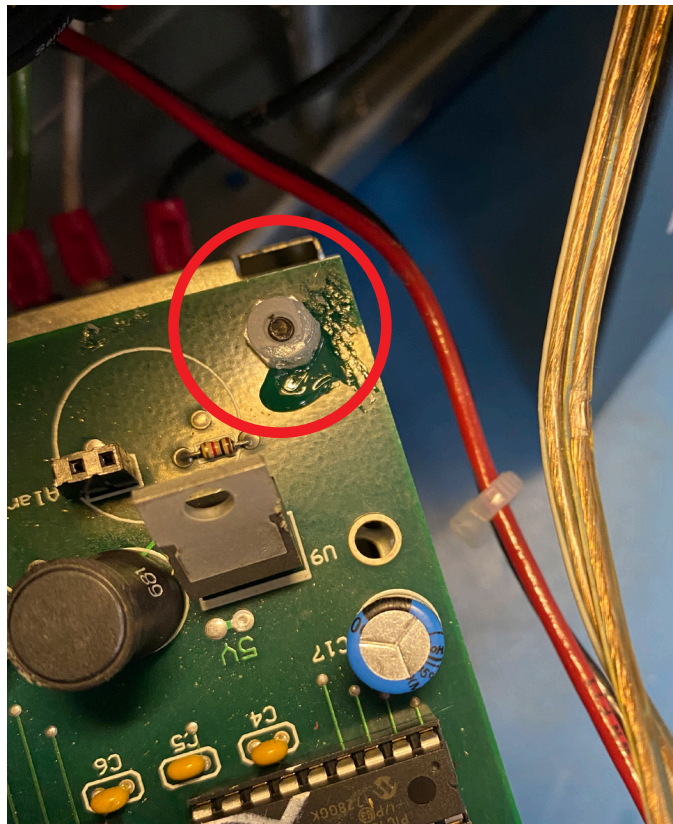


FIGURE 9

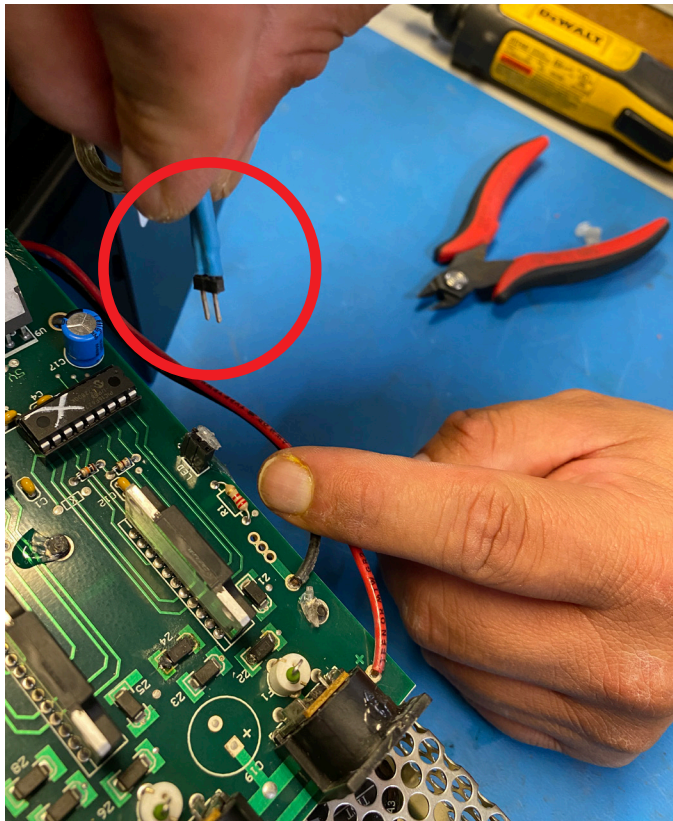


FIGURE 8

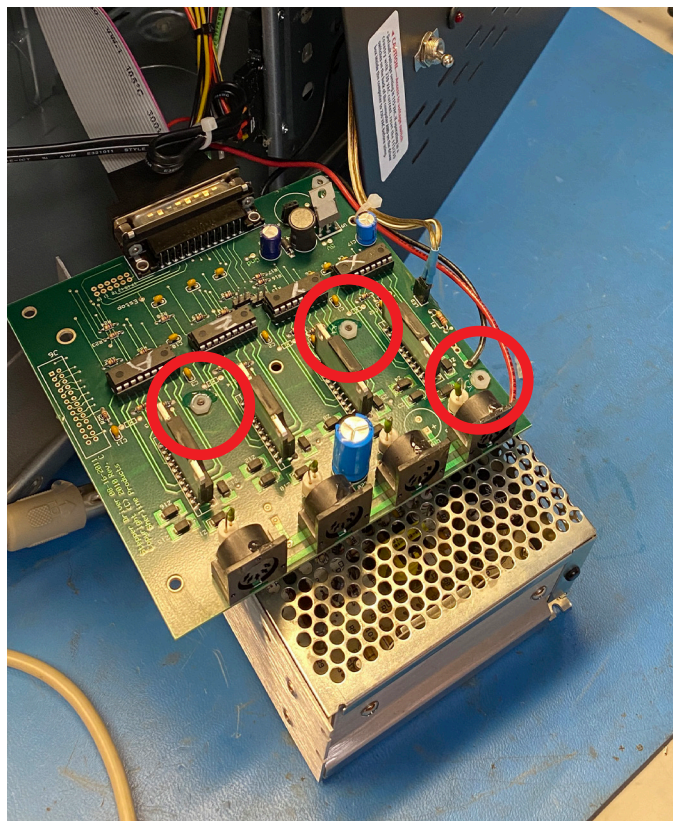


FIGURE 10

8. Pull the board off (see Figure 11).

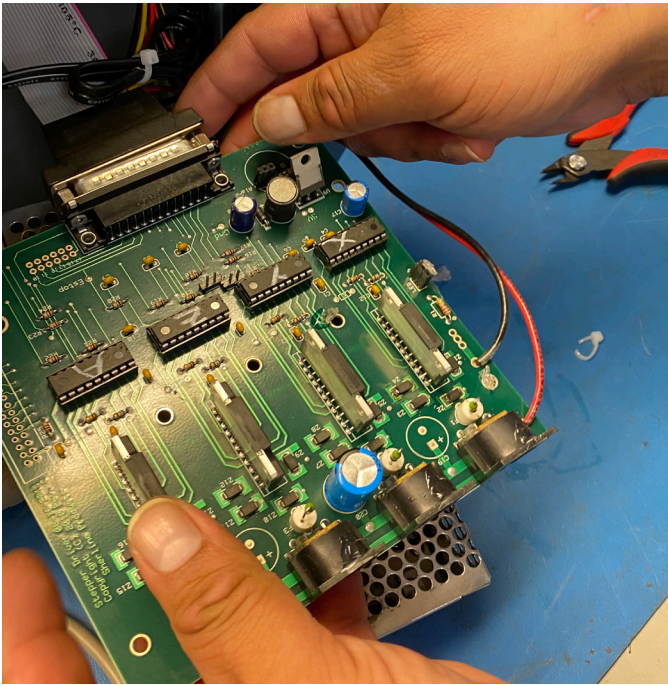


FIGURE 11

9. Remove the Red and Black wires from the power supply at -V and +V (see Figure 12).

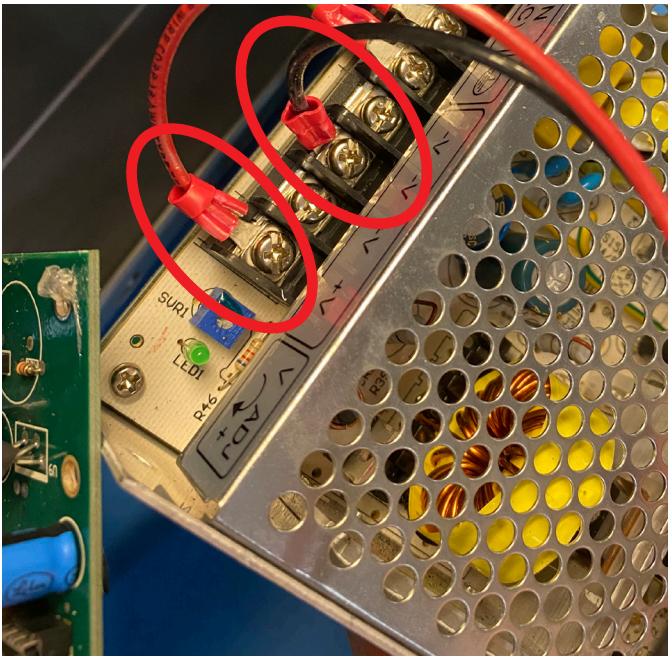


FIGURE 12

10. Remove the parallel port cable (see Figure 13).

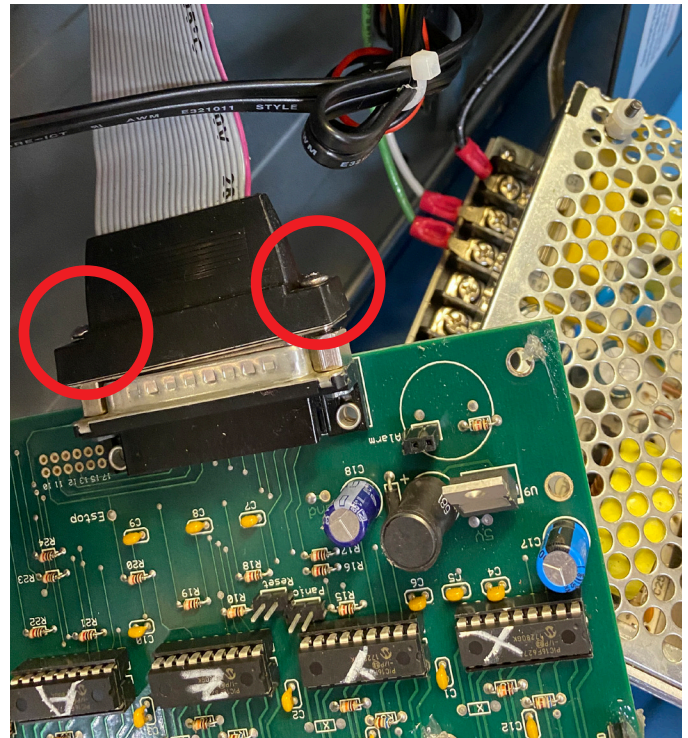


FIGURE 13

11. To reinstall, follow these instructions in the reverse order.

Additional Notes for Troubleshooting

1. Most of the time when there is a problem with the cable connection, or the stepper motor connection, the fuse will blow. This stops any major damage to the driver board.
2. Sometimes there will be damage to the surge protector that is next to the fuse. If this (SP) is bad, sometime it will be burnt, and sometime it will not.



FIGURE 14

3. If you swap the stepper motor power cord from a good axis to the bad axis, and the bad axis works, that means that the problem is with the bad axis on the board. Either a blow fuse or other.

NOTE: If you swap the power cords and the axis works, and then it doesn't work. This generally means that there is a short in the stepper motor cable on the bad axis that is blowing the fuse.

To check this, do the following: The connector on the wire harness that goes into the stepper motor has all of the wires going into it (see Figure 15). Sometimes one of these wires breaks and shorts out, or the connector itself has a short in it. This may be what is happening with your machine. Pull the connector out of the stepper motor and look at it. See if any of the wires are broken or if there are any black areas on the connector where the wires go in, or inside the connector where it plugs into the stepper motor. If so, this is the problem. Generally when this short happens, it blows the fuse and does not damage the stepper motor or the driver board.

Another situation that can cause this to happen is if the connector to the stepper motor has come loose. This can also cause a short.

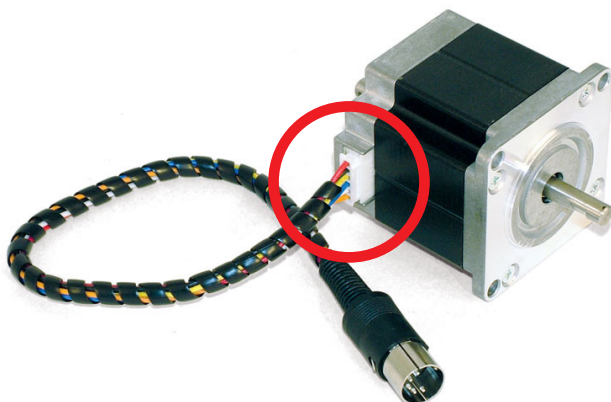


FIGURE 15

You can place an order for a new wire harness (**P/N 671291 Stepper Motor Wire Harness W/Plug**) and some fuses (**P/N 870911 Fuse – 3A 125V**).

You can buy a replacement CNC Control Board here (**P/N 87625-09 CNC Controller Board – Sherline Products**).

Thank you,
Sherline Products Inc.