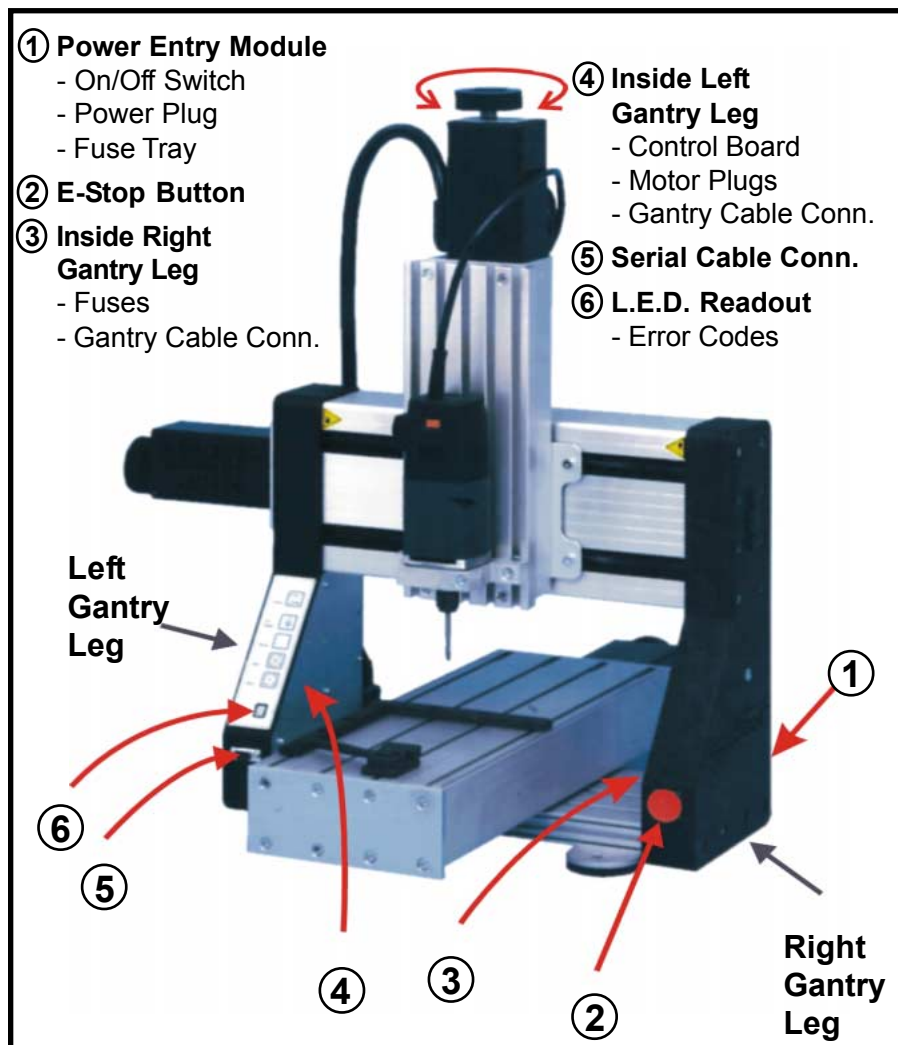


Techno Stepper DaVinci Trouble Shooting Guide



If You Are Experiencing This, Click Thru:

[click here](#) > **1. No Power to the Unit; No L.E.D. Readout**

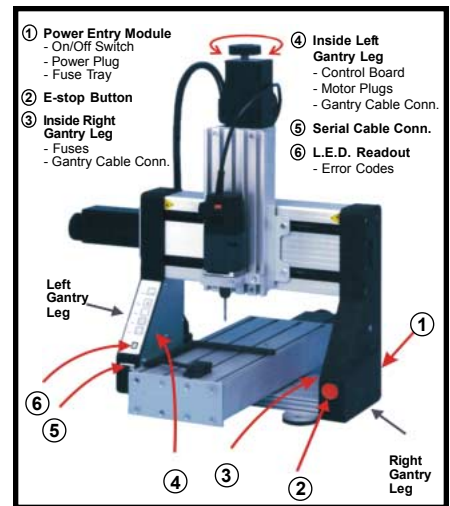
[click here](#) > **2. Error Messages**

[click here](#) > **3. Noise or No Movement of an Axis**

1. No Power to the Unit; No L.E.D. Readout

Possible Causes:

- [click here](#) > **1A.** On/Off Switch
- [click here](#) > **1B.** E-Stop Button
- [click here](#) > **1C.** Power Entry Fuses
- [click here](#) > **1D.** Internal Gantry Fuses
- [click here](#) > **1E.** Gantry Cable



< click on picture to enlarge >

1A. On/Off Switch

Located in the Entry Module on the back right gantry leg (#1).

When the **top** portion of the On/Off switch is pushed in, the power is **ON**.



When the **bottom** portion of the On/Off switch is pushed in, the power is **OFF**.



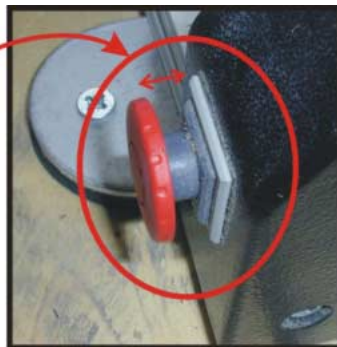
Make sure you have the power turned ON with the top portion of the switch pushed in.

1B. E-Stop Button

Located on the front right gantry leg (#2).

OUT Position = Machine ON

When the E-Stop button is in the **OUT** position, the machine is **ON**. Notice the red button is separated from the machine.



IN Position = Machine OFF

When the E-Stop button is in the **IN** position, the machine is **OFF**. **Turn the button clockwise to release the E-Stop button.**

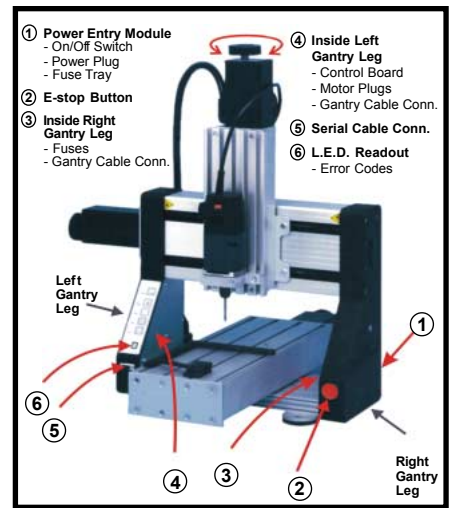
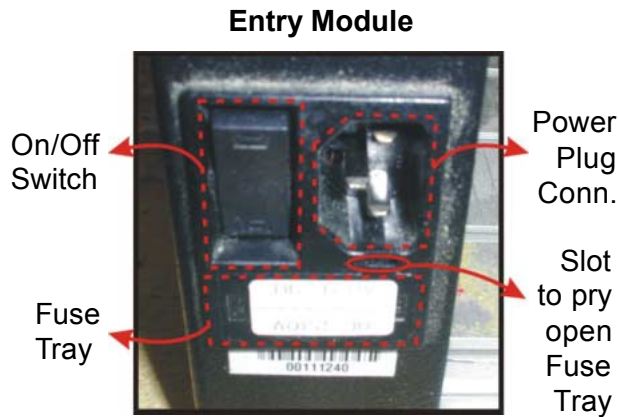


E-Stop Button Symptoms:

The E-Stop button is the DaVinci's emergency shut-off/stop switch. When pushed in, the machine will shut down power. The button needs to be released, by turning it clockwise, in order to resume operation.

1C. Power Entry Fuses

Located on the back right gantry leg (#1).



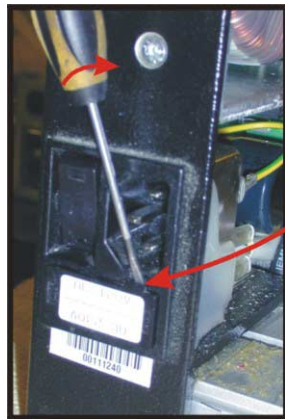
< click on picture to enlarge >

Follow the directions below to remove the **Fuse Tray** from the **Entry Module** to check Fuses.

WARNING: The manner / orientation in which the Fuse Tray is removed, must be the EXACT same position when it is reinstalled. For example, if the lever is on the top when removed, then it should be on top when reinstalled. The tray can be reinstalled in a different position than how it was removed, so take notice of tray's orientation during the removal procedure.



Pry Open Fuse Tray



Insert screwdriver into slot.

Gently pry open Fuse Tray.

Open tray just enough to grab it.

Grab the tray, gently remove.
REMEMBER position of the tray.
Write it down, so you place it back in the EXACT same way.

Pull Out Tray REMEMBER TRAY'S POSITION (see WARNING above)



Remove Fuses From Tray



Simultaneously, lift the lever and pull out fuses.

Check if the fuses are blown with a Volt or Continuity Meter. Place the meter's probes at either end of the fuse to get a reading.

Fuses



NOTE: Make sure to check the fuses using a meter and not just by sight. The fuse, even if clear glass, may be blown under the end cap so you won't be able to see it.

WARNING: When a fuse needs to be replaced, do so with a fuse of the exact same amperage. Read the amperage off the fuse you are removing. Standard volts and amperages: **250V / 4 AMP** for 120VAC operation and **250V / 2 AMP** for 220VAC operation.

1D. Internal Gantry Fuses

Located on the inside of the right gantry leg (#3).

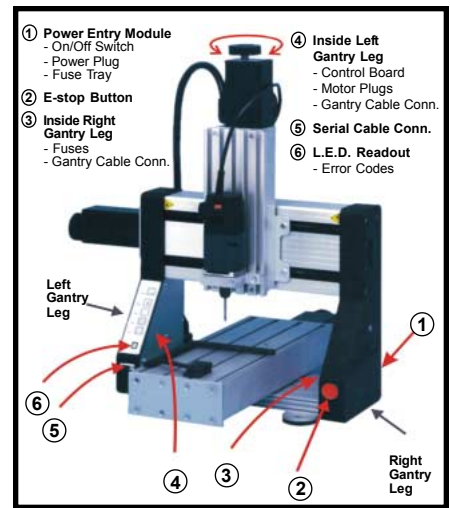
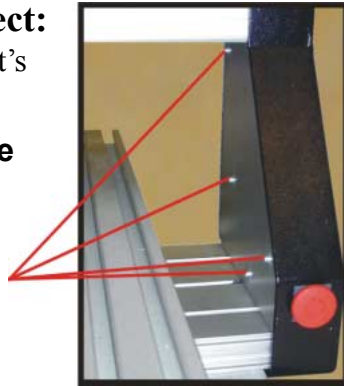
Trouble Shooting Object:

To check the 2 fuses on unit's Power Module.

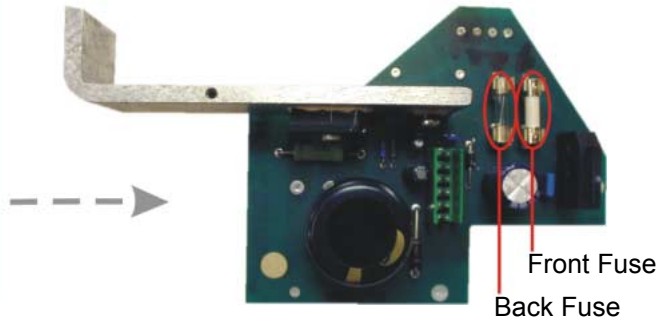
Remove the Cover Plate

Remove the screws that secure the cover plate to the Gantry.

NOTE: The screws may either be Hex or Phillip's Head screws.



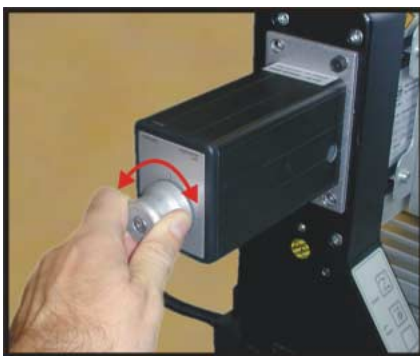
< click on picture to enlarge >



NOTE: You do not need to remove the Power Board from the Gantry Leg. It is shown here as an isolated stand-alone to more clearly display the location of the fuses.

Front Fuse = 1.6 AMPS
Back Fuse = 6.3 AMPS

Testing Motor Torque



If you are able to move an axis' knob easily, without much resistance, then there isn't any TORQUE on the motor. If the machine is running properly, there should be TORQUE on the motor and it should resist turning.

Check the Fuses

Make sure to check the fuses using a meter and not just by sight. The fuse, even if clear glass, may be blown under the end cap so you won't be able to see it.

WARNING:

When a fuse needs to be replaced, do so with a fuse of the exact same amperage. Read the amperage off the fuse you are removing. The standard amperages are: **Front Fuse = 1.6 AMPS; Back Fuse = 6.3 AMPS..**

Front Fuse Symptoms:

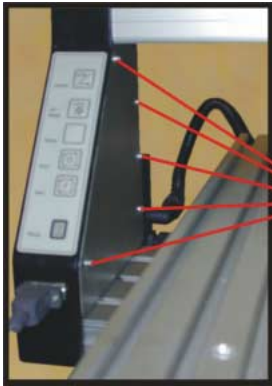
If the front fuse is faulty, then the L.E.D. will **not** light up and the motors will not have any torque (see Axial Torque, at left).

Back Fuse Symptoms:

If the back fuse is faulty, then the L.E.D. **will** light up, and the motors will not have any torque (see Axial Torque, at left).

1E. Gantry Leg-to-Leg Cable

This cable runs between the two gantry legs (#3, #4).



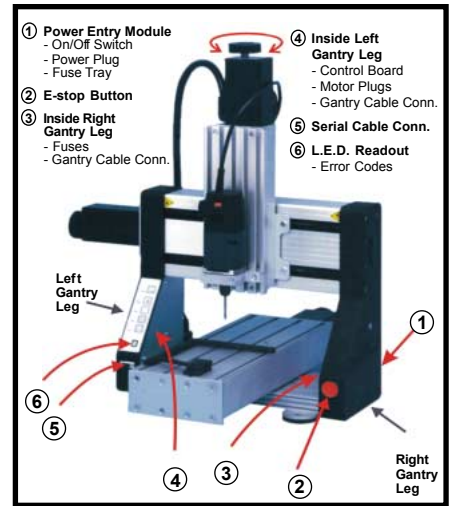
Trouble Shooting Object:

To check condition of the cable and if it is properly connected to both boards.

Remove the Cover Plate

Remove the screws that secure the cover plate to the Gantry. Do this for both sides (left and right).

NOTE: The screws may either be Hex or Phillip's Head screws.



< click on picture to enlarge >

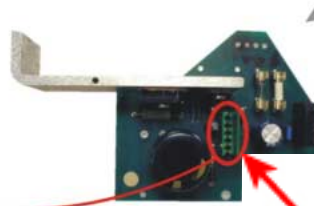
Left Gantry Leg



Control Board (isolated)



Power Board (isolated)



Locations where the cable connects to the boards

Right Gantry Leg



NOTE: You do **not** need to remove the Power or Control Board from the Gantry Leg. It is shown here as an isolated stand-alone to more clearly display the location of the cable connection.

Cable Connector (Left Gantry Leg)



Cable Connector (Right Gantry Leg)



Check that the wires are firmly set in the connector (displayed in pictures above as green) and that the connector snaps into the board fully. Test that the wires are securely held in the connector by gently tugging on them. If they come loose or pull out, the unit will not function properly

Bad Cable Connection Symtoms:

If the cable connection is faulty, then the L.E.D. will not light up and the motors will not have any torque.

2. Error Messages

Possible Causes:

[click here](#) > **2A.** Serial Cable Connection

[click here](#) > **2B.** Interface COM Port Settings

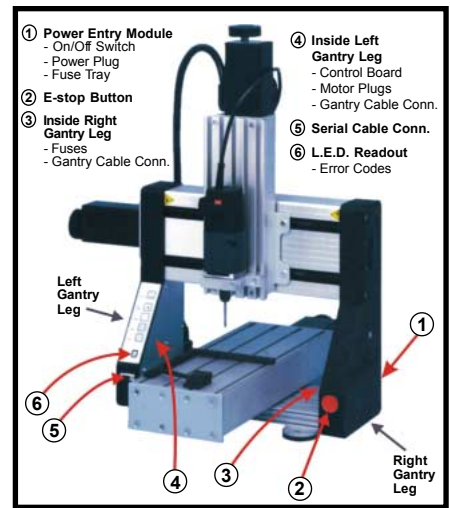
[click here](#) > **2C.** L.E.D. Readout #2

2A. Serial Cable Connections

Serial Cable connections are located on the back of your computer tower and on the front of the left gantry leg (#5).

Trouble Shooting Object:

To check the connections of both ends and that the correct end of the cable is connected to your computer.



< click on picture to enlarge >

Serial Cable

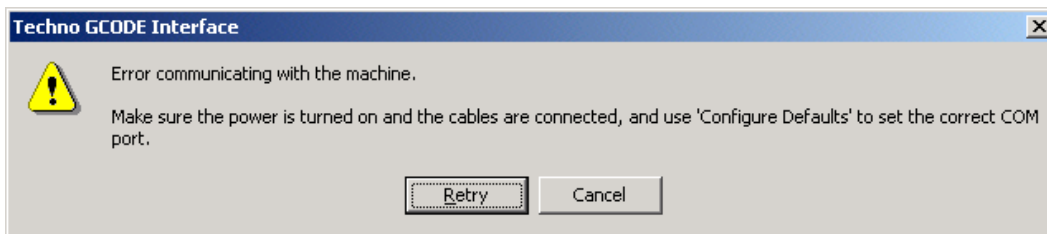
Serial Cable Connector

The end labeled **PC** gets connected to the Serial Port on your computer and the end with a part number on the label gets connected to the Serial Port on the DaVinci (#5).



Both ends are female connectors and can fit into either your computer or the DaVinci male-end Serial Ports. **Make sure to match the PC-end with your PC/computer!**

If you connect the wrong ends of the Serial Cable, this Error Message may appear:



If you do get this message, double check that you have the right cable connection (i.e. PC labeled end in your PC/computer) and that the connections themselves are secure. Also, check that the top 5-hole line matches the top 5-pin line of the serial port (see picture above).

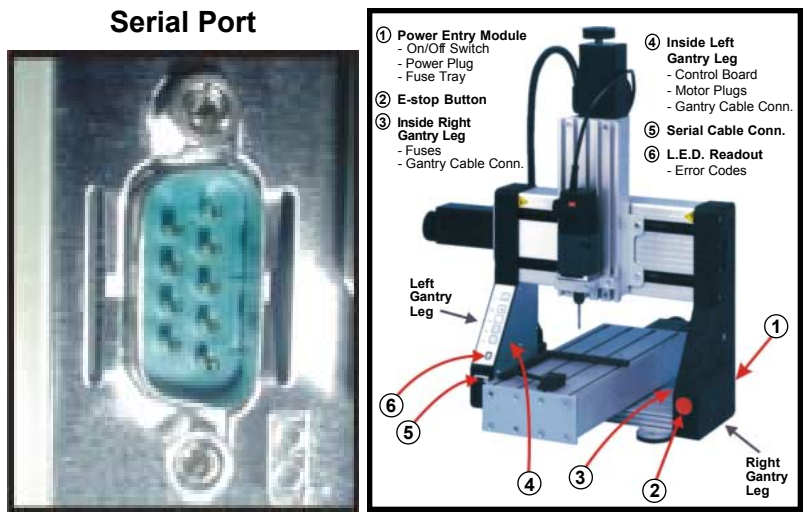
Make these checks and/or corrections and hit . If the same Error Message (as above) returns, hit , exit the Interface and move onto to Trouble Shooting Step # **2B. Interface COM Port Settings.**

2B. Interface COM Port Settings

Serial Cable Ports are located on the back of your computer tower and look like the picture (Serial Port) shown at right. These ports are referred to as COM Ports in the Interface.

Trouble Shooting Object:

Since there is often more than one Serial Port on a computer, if the port used does not match the port designated in the Interface (COM port), this Error Message will appear:




< click on picture to enlarge >

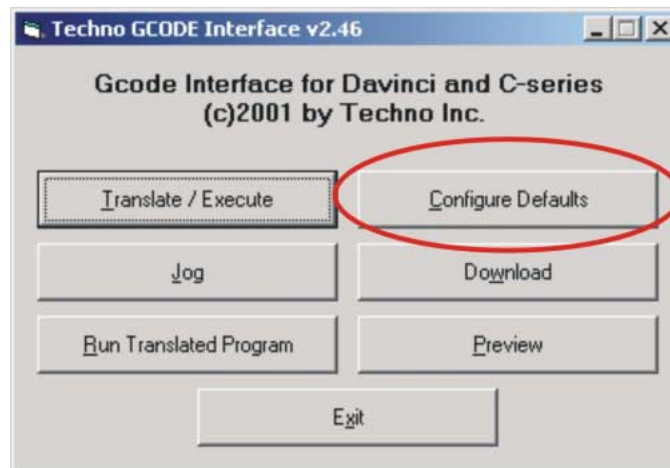


Trouble Shooting the COM Ports entails going into the Interface's Configure Screen and running a COM Port Test. Follow the directions below:

NOTE: This Trouble Shooting procedure (#2B) assumes that you have the correct serial cable connections as described in procedure 2A.

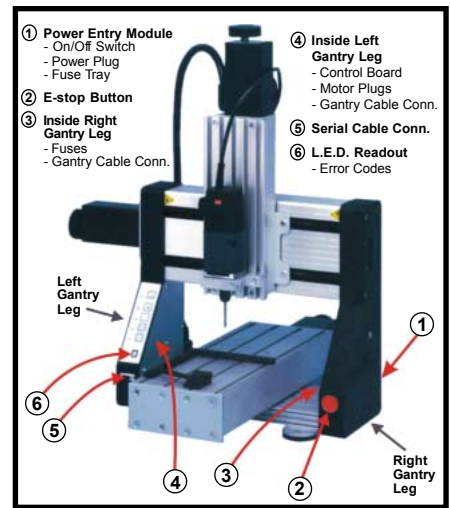
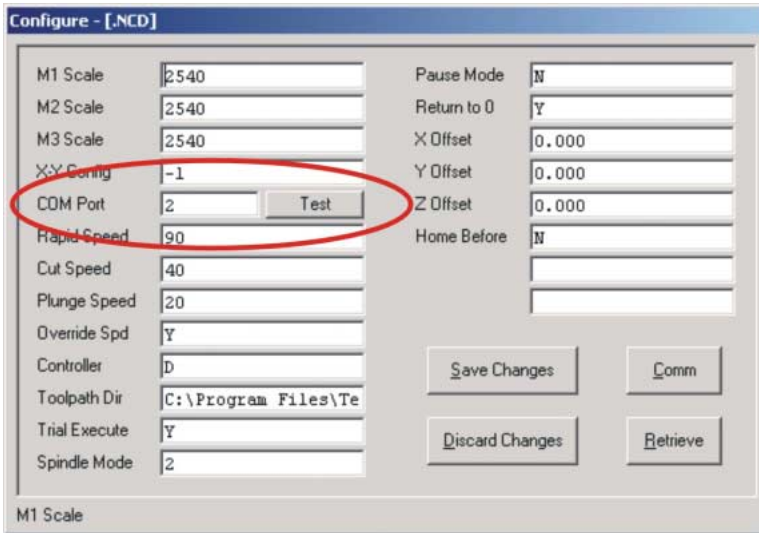
After starting the Interface and receiving the above Error Message, click  and the Interface's Main Menu should appear:

Main Menu



Click  to enter the Configure Screen:

Configure Screen



< click on picture to enlarge >

Notice the number in the **COM Port** input box (usually, either 1 or 2). To find out if you have the right **COM Port** number, click . There should only be two possible options (after clicking).

1. If, after clicking , the Error Message comes back, then you need to try and change the Interface's **COM Port** number. Click , to exit the Error Message. This should take you back to the Configure Screen. Change the number in the **COM Port** input box to 1 (if it displayed 2 originally), or 2 (if it displayed 1 originally).

Click after changing the number.

2. If after clicking you see this screen:



Then you have the correct **COM Port** designated in the Interface.

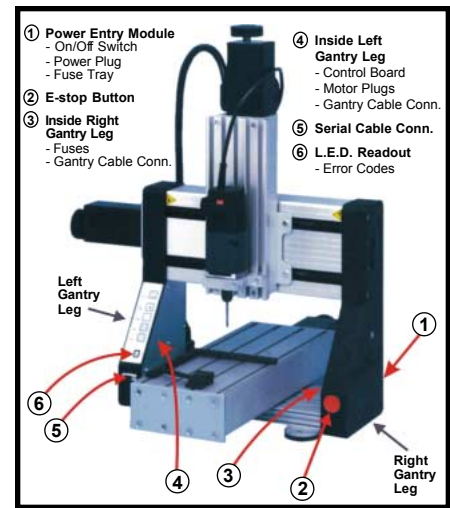
Once you get the Communications OK screen, click then in the Configure Screen. This will save the settings to the proper **COM Port**.

2C. L.E.D. Readout #2

The L.E.D. error message readout is located on the front left leg of the DaVinci (#6).

Trouble Shooting Object:

When the L.E.D reads #2 (see picture shown at right), this indicates that one (or more) of the Axes are on the home switch. You will need to move the axis (axes) off the home switch. When this is accomplished the L.E.D. status window should return to a readout of 0.



< click on picture to enlarge >

To move an axis off the home switch, you must manually turn the motor's damper knob (see pictures below).

Motor 3



Motor 2



Motor 1



When you get a #2 readout in the L.E.D., push the E-Stop button (in). This will turn off power to the DaVinci, eliminating torque to the motors and making it easier to turn the damper knobs.

Look at each axis. Determine which one is closest to its own home switch (the home switch is located just prior to the end of an axis travel, in one direction).

Grab a hold of that axis' damper knob (located at the end of each motor, shown in the red circles above). Begin turning the damper knob slowly, keeping an eye on the travel of the axis.

NOTE: It will not take too many turns of the damper knob to move the axis off the home switch. In fact, if you listen carefully, you will hear the "click" of the home switch.

After you have moved the axis off the home switch (using the damper knob), release the E-Stop button (by turning it clockwise).

The L.E.D. should now read "0". If it does not, repeat the above procedure for the other two axes.

3. No Movement or Too Much Noise on an Axis

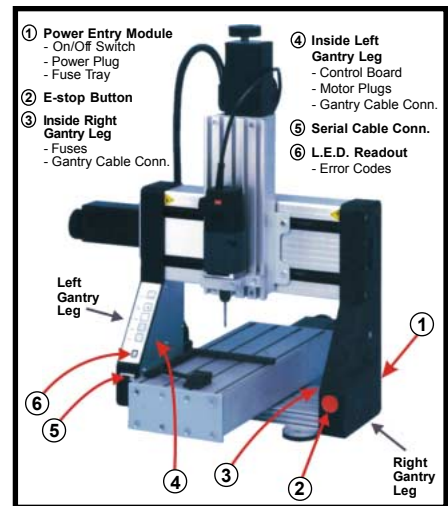
Possible Causes:

3A. Motor Section or Controller Board

Remove the Cover Plate

Remove the screws that secure the cover plate to the Gantry. Do this for the inside of left gantry leg.

NOTE: The screws may either be Hex or Phillip's Head screws.



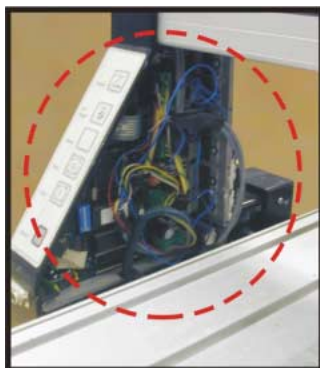
< click on picture to enlarge >

Trouble Shooting Object:

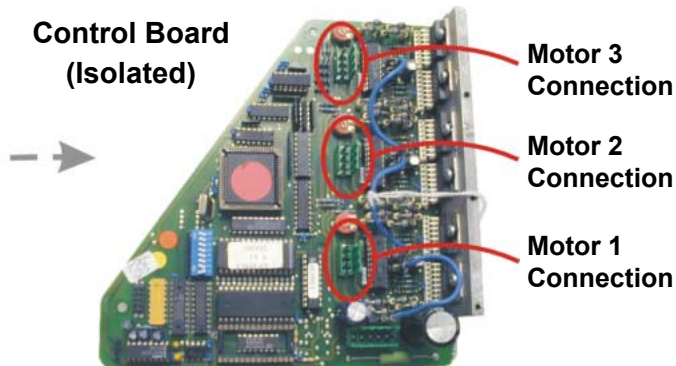
To determine what is making the noise and/or causing the axis not to move at all, by swapping the motor plugs on the Control Board. By doing this, we hope to narrow the trouble shooting search down to two possibilities: the Control Board or a Motor Section.

After removing the coverplate to the left gantry leg, locate the three motor plugs on the Controller Board (see picture of isolated Control Board below, with callouts in red).

Left Gantry Leg



Control Board (Isolated)



NOTE: You do not need to remove the Control Board from the Gantry Leg. It is shown here as an isolated stand-alone to more clearly display the location of the Motor Plug connections.

Whatever motor is not performing well (MOTOR A), unplug that connector from the Control Board (**DO NOT PULL ON WIRES TO UNPLUG**, grab and gently pull connector out) and swap it with the adjacent connector (MOTOR B).

After swapping there will be two possibilities.

Possibility 1: After the swap, MOTOR B is now **not** performing well.

In this case, it is NOT the Motor Section that is faulty, but the Control Board (that is faulty).

What To Do: Please call Techno for Advanced Tech Support or send the machine to Techno for on-site tech support.

Possibility 2: After the swap, MOTOR B **is** performing well.

In this case, it is NOT the Control Board that is faulty, but the Motor Section (that is faulty).

What To Do: Please call Techno for Advanced Tech Support or send the machine to Techno for on-site tech support.