The MGuide: Addendum
A complete guide to building your own microarrayer.

Version 1.0
http://cmgm.stanford.edu/pbrown/mguide

Joseph DeRisi, Vishy Iyer, and Patrick O. Brown

Biochemistry Department.
Stanford University
Copyright © 1998
Addendum to the MGuide, Part I

- **Wiring diagrams for the Y and Z encoders.**

  The Y stage and Z stage came pre-assembled in the wrong orientation.
  That is, when facing the assembly, the Y-axis motor is on the left. Although this is only a technicality, the software assumes the motors are on the right side. Get out your M5 screw driver, remove the z-stage from the y-stage, and reverse the orientation of the Y-Axis. Reattach the Z-Axis, and off you go!

- **The ICM-1900 terminals are slightly different than those depicted in the MGuide.**
  Depending on the board revision you receive, this may be the case. For later revisions, some of the ground terminals are now “ISO GND” terminals. These are opto-isolated terminals, which, for our case, will make them useless. If your not sure, take your handy multi meter and attempt to measure a voltage from any VCC terminal and the GND in question. (Note, the computer must be on and connected to the ICM1900). If you don’t get 5 volts, the GND is not useable. The situation is corrected by the fact that these later revisions sport a very handy block of GND terminals, which are perfectly useable, on the edge of the board. (Not part of the bright orange terminal blocks.) Use these terminals if you have this situation. Shown in the figure is Revision D of the ICM 1900, which contains the extra block of terminals.

*ICM-1900 Revision D.* Notice the extra block of GND terminals on the left side of the board. Use these instead of any terminal labeled “ISO GND”
• The coupler on my z-stage broke in half. There are two possibilities: a defective coupler, or the coupler was abused. We experienced what may have been a few defective couplers. This was replaced by Western Technology with more sturdy version. Abuse of the coupler mainly results from crashing the stage into the end of the travel length. Hopefully, if your limit switches are functioning, this should never happen. [Picture of the infamous couplers.]

### Broken Z-Axis Coupler. Stage crashes, misalignment of the coupler, or a defective coupler can result in the situation depicted above.

• Instead of floppy disks, I received a “Galil Software Products” CD. Of course, the Galil documentation usually shipped with this CD still refers to the installation floppy disks, and so it isn’t obvious how to install the drivers. When you boot up your computer and Windows comes back with a message like “Found unrecognized hardware….please locate driver,” then this is the time to put in the CD. Using the “Browse…” option to locate the “Install” folder on the CD. Within the Install folder, locate the “Dmc1700” folder. Click “OK.” Windows will then ask for the file “Galil.VXD” Use the browse option again to locate this file within the above mentioned “Dmc1700” folder. After all of this craziness, you will find that there is an installation program on the CD which gives you several options. Most are password protected, but the only one that is handy is the “Windows Utilities and Programming Library.” Go ahead and install this set of programs. This will put the Galil Registry program and Galil Terminal program on your computer.

### Installation of the DMC-1730. Professor Burdis installs the 16-bit ISA card into his new Gateway computer.