MachMotion.com

X15-350-04

CNC Control with Mitsubishi Drives and Servo Motors Setup Guide

2007

MachMotion

X15-350-04
CNC Control with:
Mitsubisi Drives
Mitsubisi Motors
24V Power Supply
IO6 Breakout Board
Mounting Arm

Setup Guide

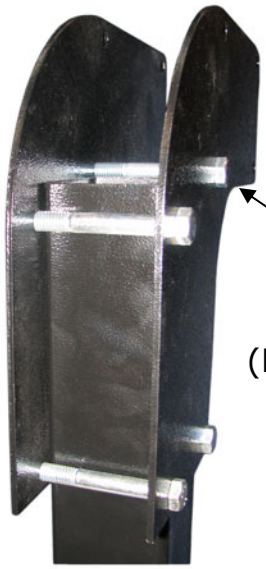
Step 1
Universal Mounting Arm Assembly

Mount arm base on a level and flat surface. (Figure 1)

(Figure 1)

Slide the vertical square tubing onto base, and make a mark at the desired arm height. Cut tubing on line with a metal chop-saw or band-saw. (Figure 2)

(Figure 2)

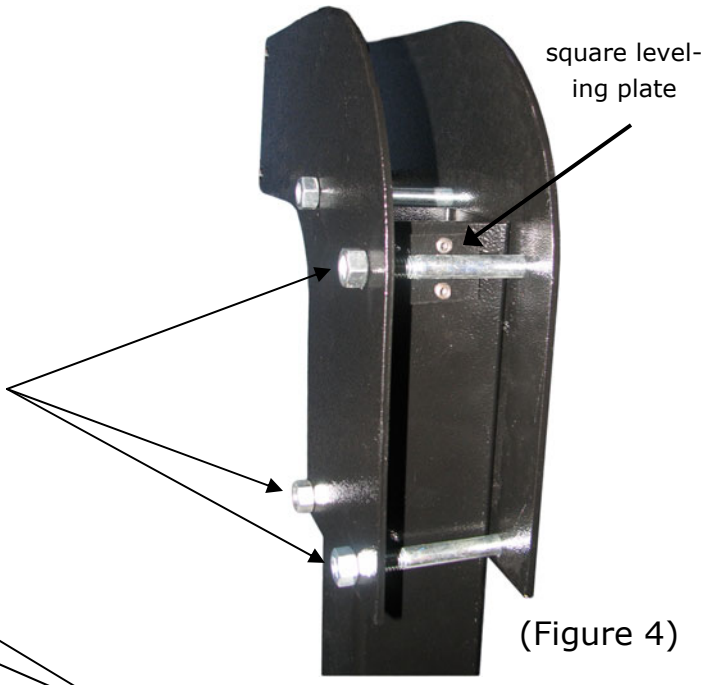


(Figure 3)

Hold the 2 90° plates on the vertical square tubing. Insert 4 bolts into the 2 90° plates and only hand tighten. (Figure 3)

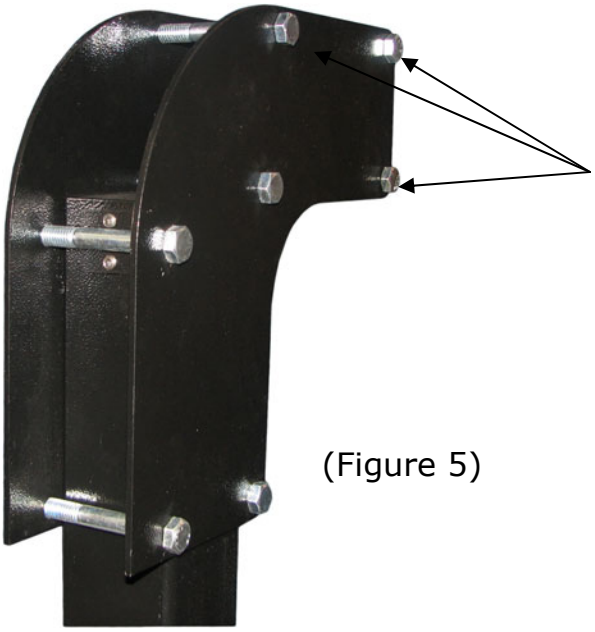
When finished, make sure this bolt is still above the vertical square tubing. (Figure 3)

Place the square leveling plate with the set-screws behind the bolt. (Figure 4)



(Figure 4)

Now lightly tighten these 3 bolts with a wrench.



(Figure 5)

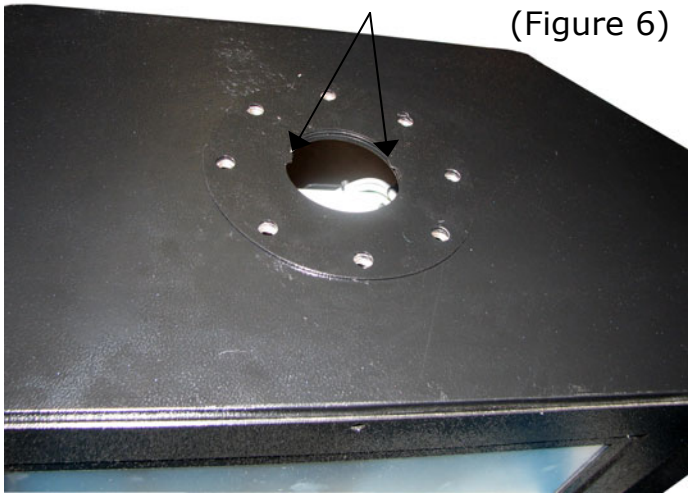
Insert the tree remaining bolts and hand tighten. (Figure 5)

Cut the horizontal square tubing to desired length. (Just like we did with the vertical square tubing in figure 2).

Place the round metal disc down the CNC Control, with the two tabs closer to the rear of the Control.

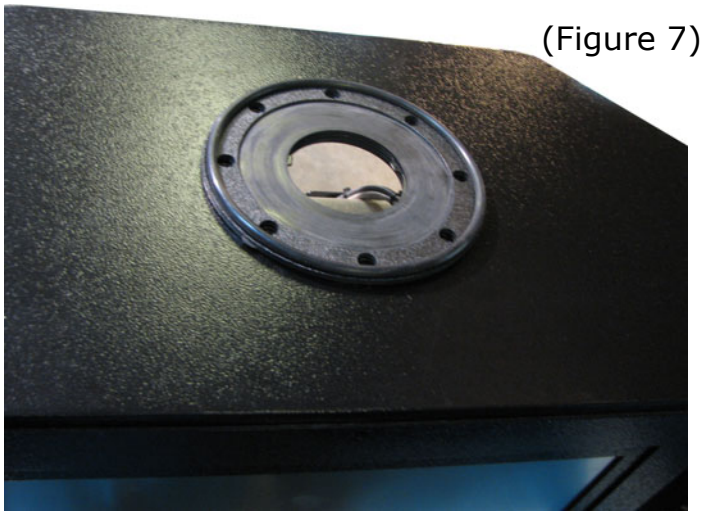
(Figure 6)

(Figure 6)



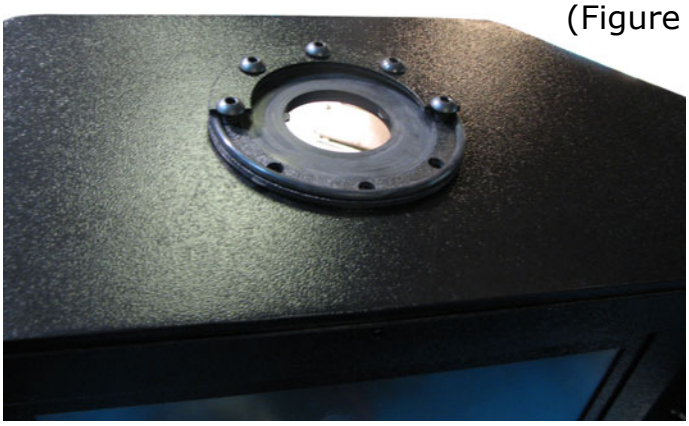
Stack the round plastic disc on top of the metal disc with the grooves facing upward. Set the O-ring in groove of the plastic disc. (Figure 7)

(Figure 7)



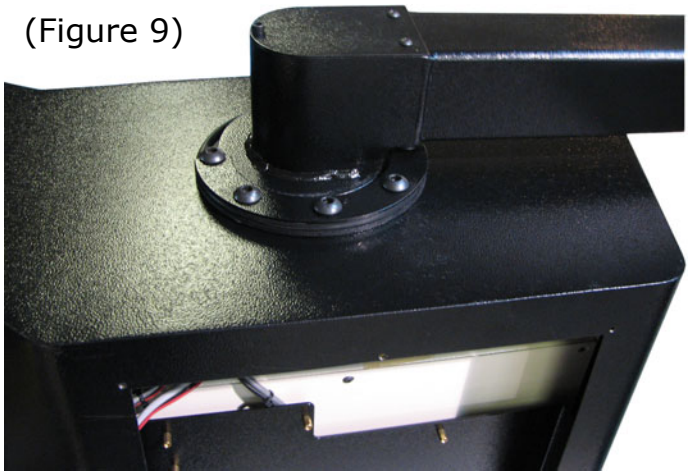
Set one of the plastic half moon rings down with a metal one on top and lightly screw down. (Figure 8)

(Figure 8)



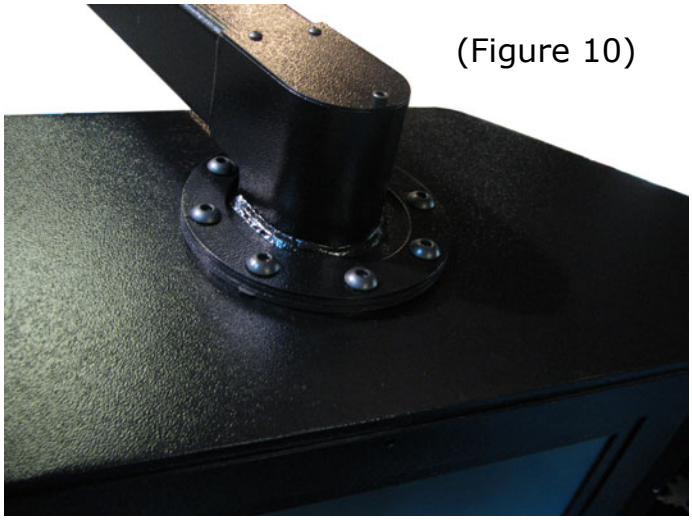
Slide the horizontal square tubing flange under the plastic and metal half moon rings which were installed in figure 8 above. (Figure 9)

(Figure 9)

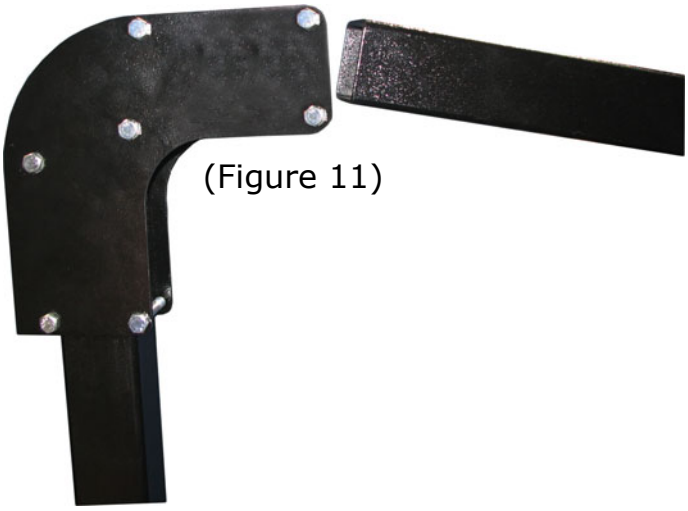


Screw the other to half moon ring down, and tighten the screws until they are snug. (Figure 10)

(Figure 10)



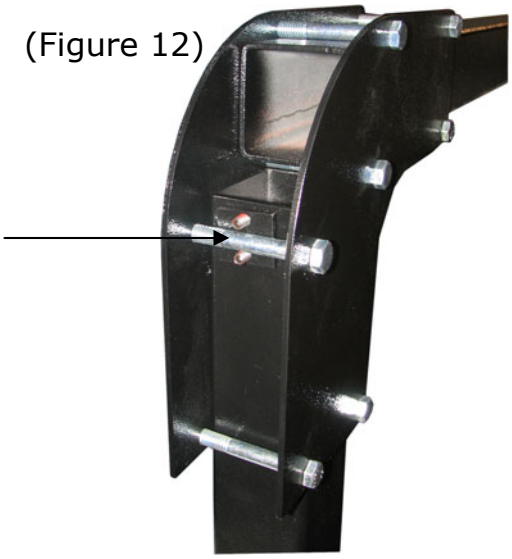
Take the whole panel and arm (horizontal square tubing) and slide into the top of the 2 90° plates as shown in figures 11 and 12.



(Figure 11)

Level the arm by using the leveling plate. Just tighten the two set-screws evenly until the arm is level (Figure 12)

(Figure 12)



Route all your wires and cables through the arm. (Figure 13)

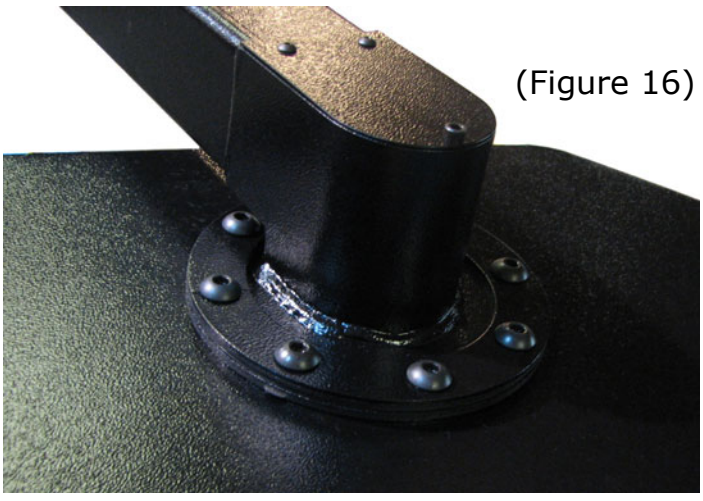
(Figure 13)

(Figure 14)

Slide the cable cover in between the 2 90° plates starting at the top front bolt and working your way down the back, tightening the bolts as you go. As shown in fig-

(Figure 15)

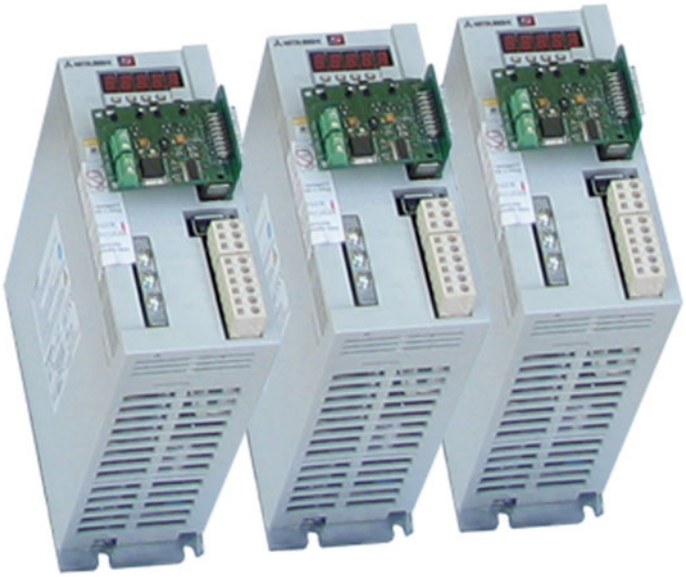
Mount the small cable cover by installing the 2 small screws in the back and the 3” screw on the round end of cover. (Figure 16)



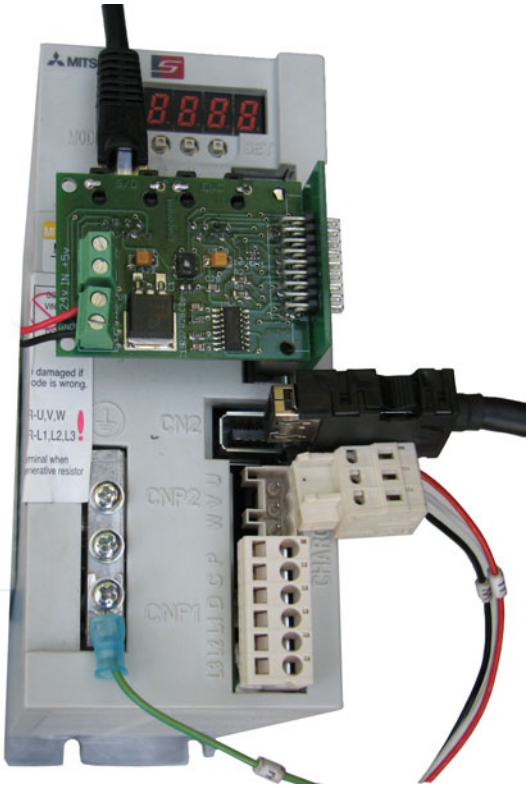
(Figure 16)

Step 2
Mount Drives and Motors to Machine.

1. Mount Mitsubishi Drives and 24V Power Supply to machine in a electrical box. (Electrical Box not Included)



2. Mount Mitsubishi Brushless Servo Motors to machine.



3. Route and connect motor drive cables to drives and motors.

Motor Drive Cables

Motor Data Cable

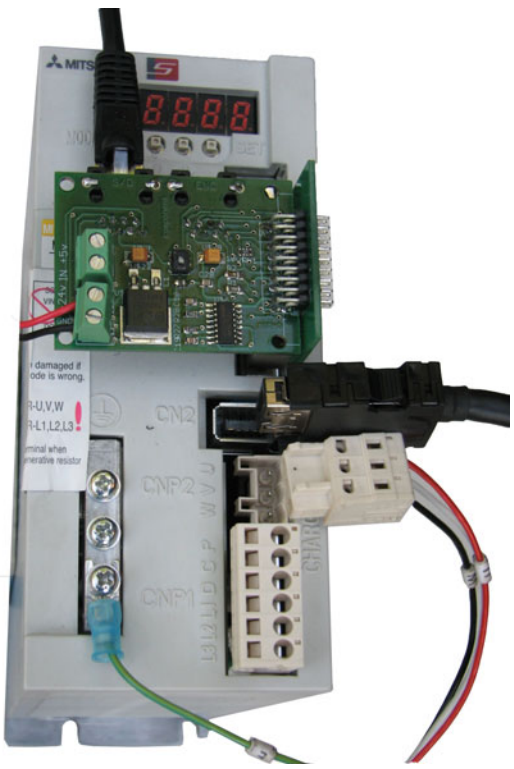
Motor Power Cable

4. Route drive control cables from CNC Control through the arm to the drives and connect to the drive in by plugging the drive control cable into the S/D port.

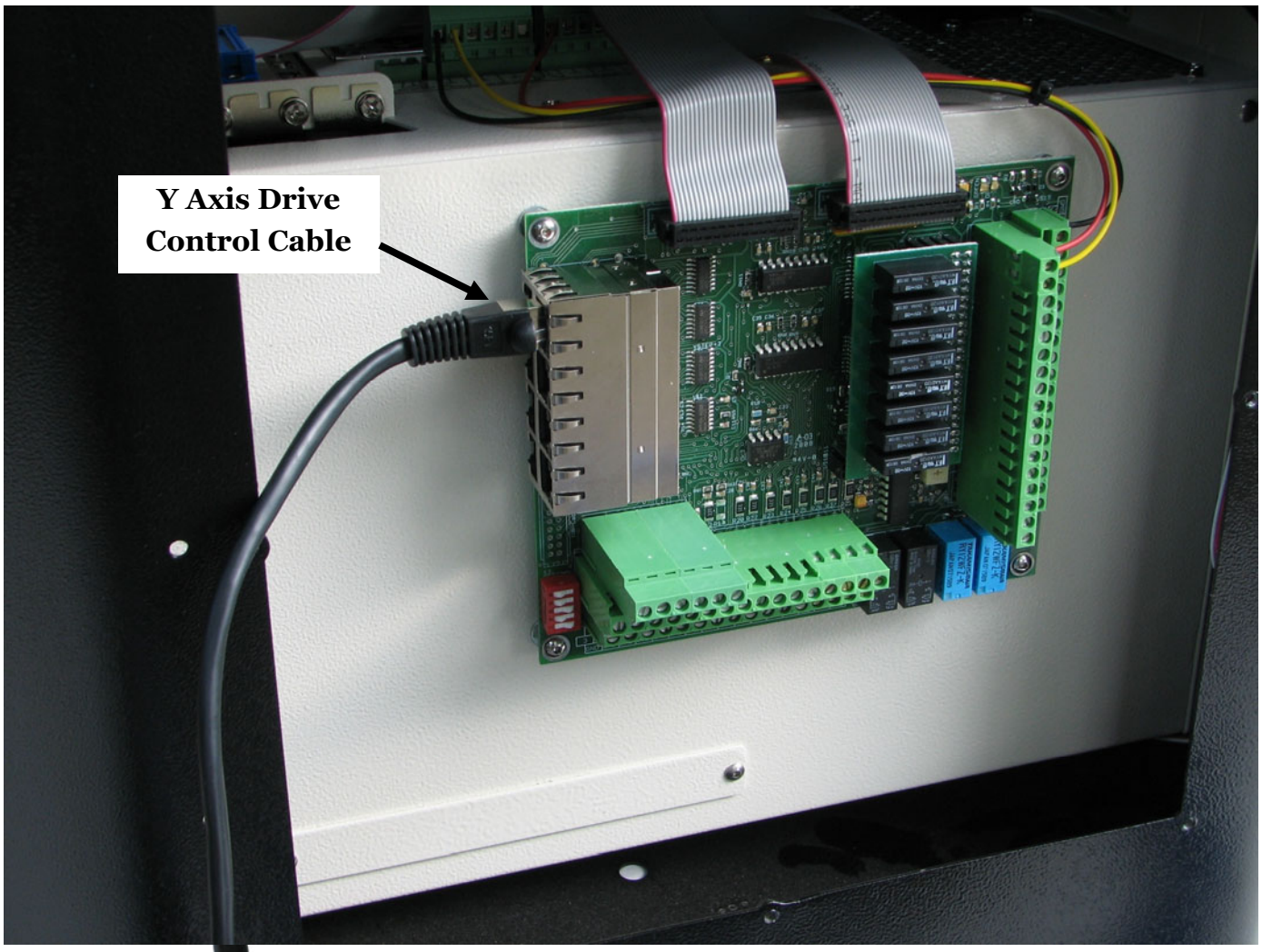
Drive Control Cable

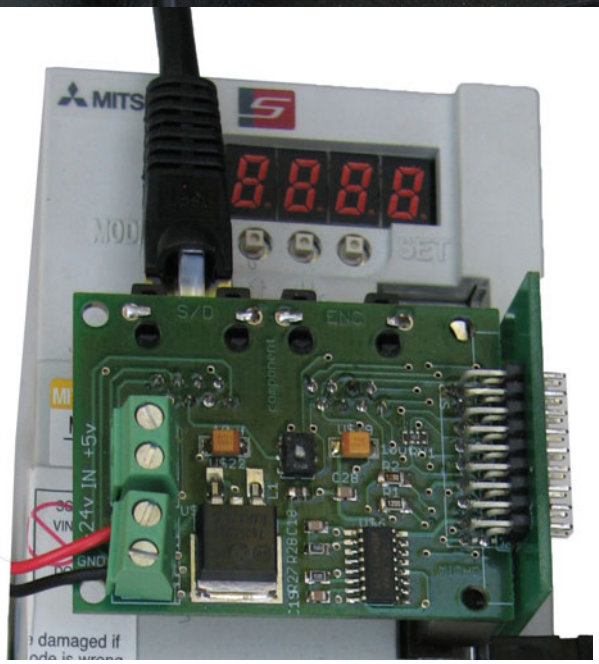
****** Warning *******

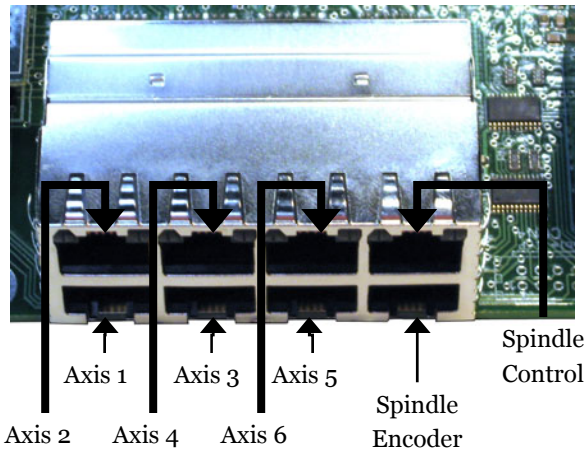
Plug the drive control cable into the S/D port only!



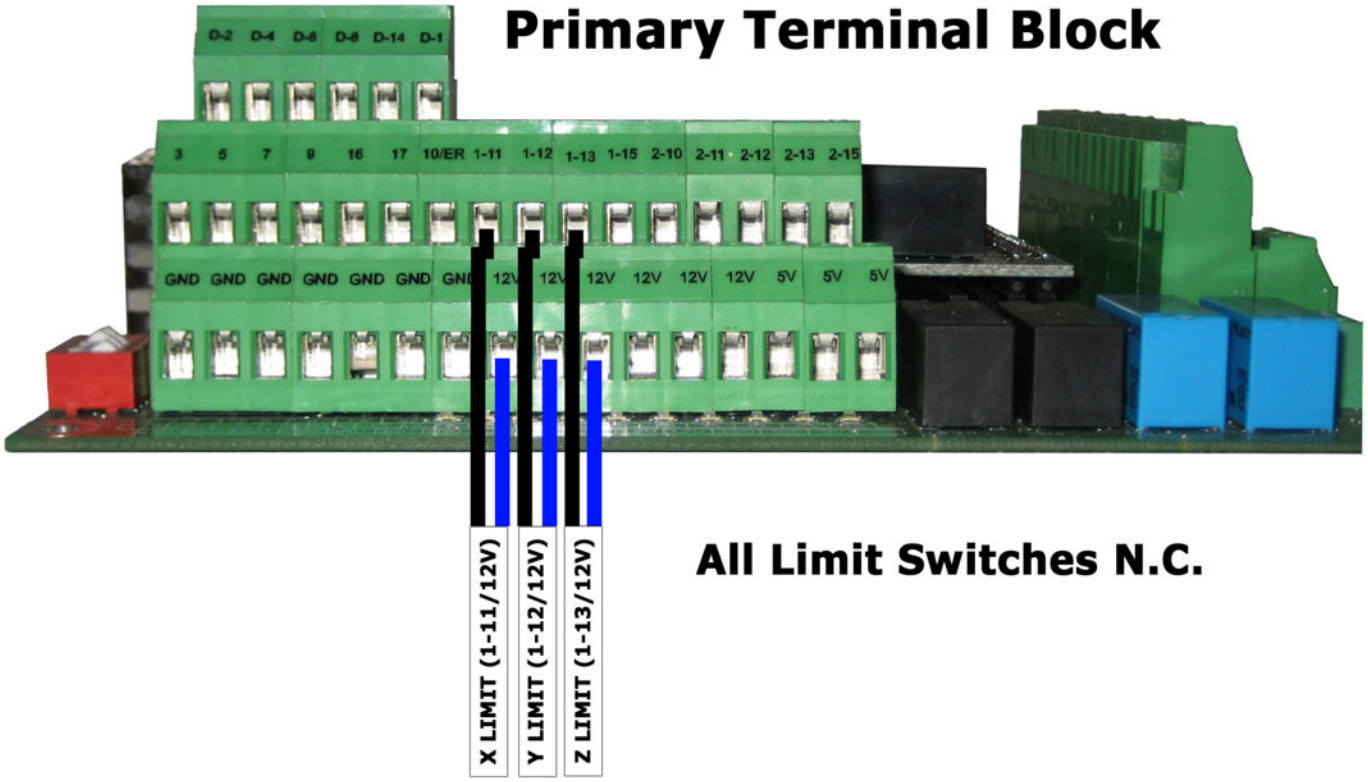
5. Connect the drive control cables to the CNC control.

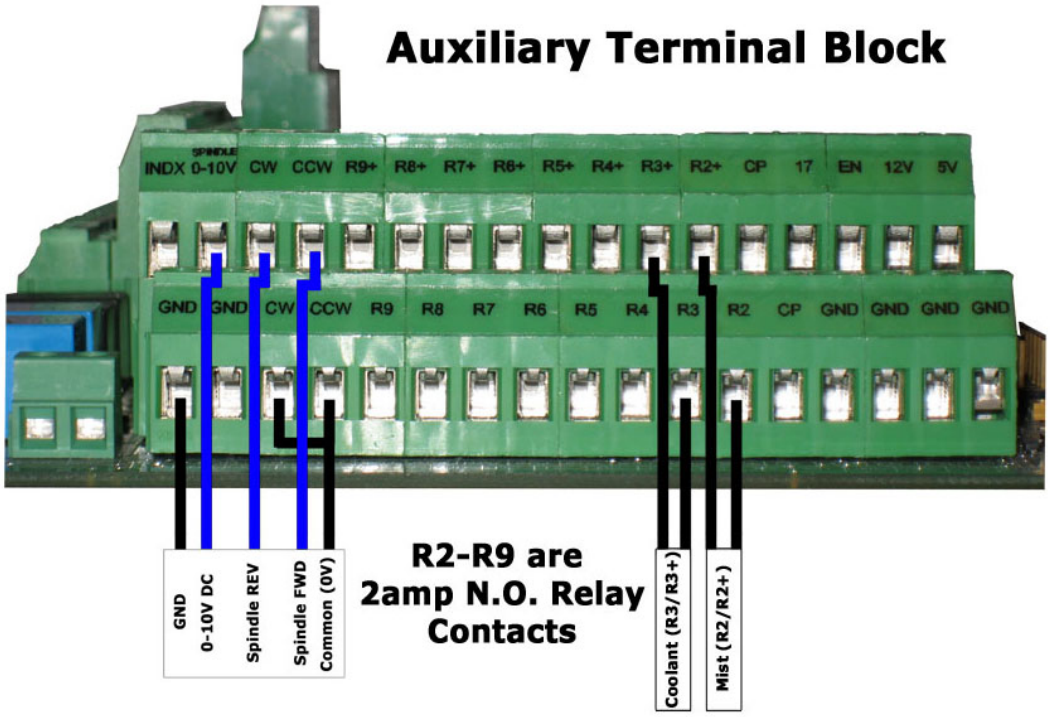




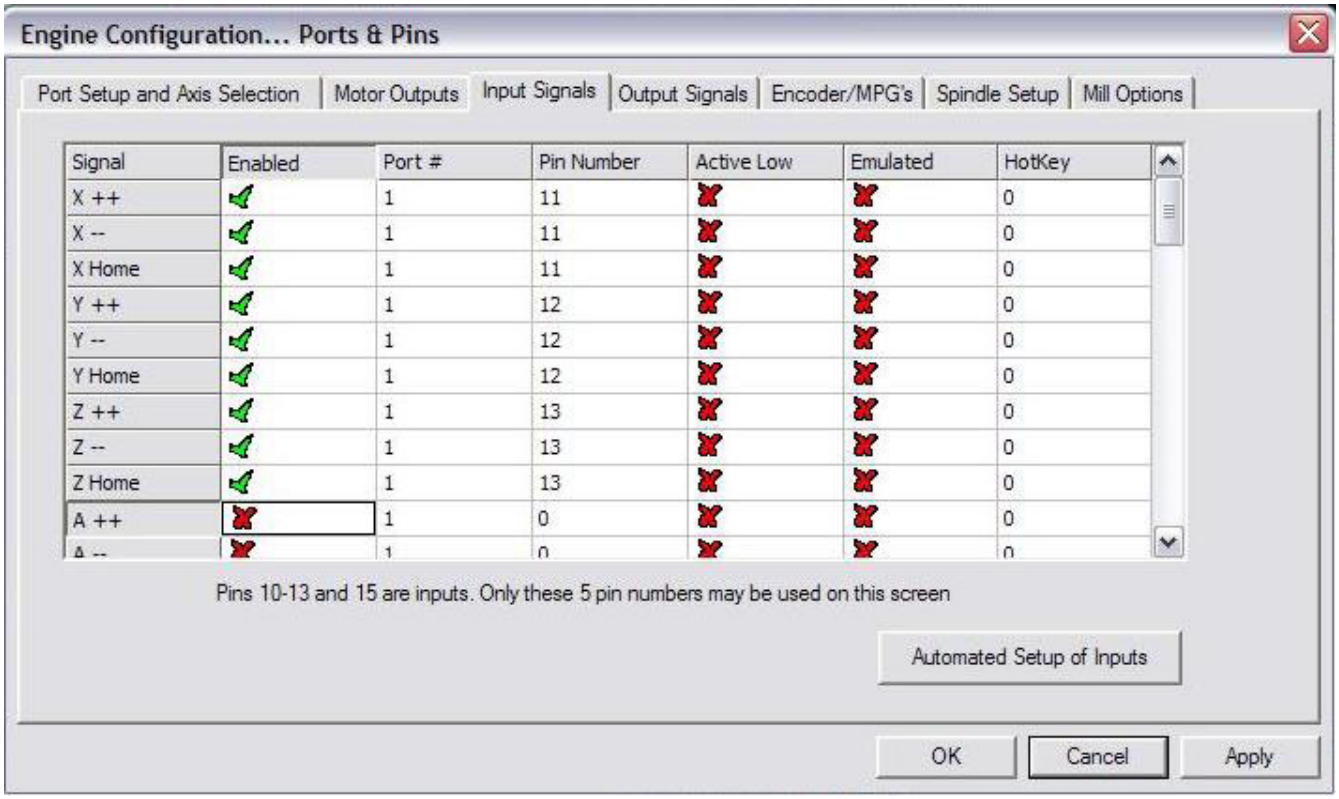


6. Wire all limit switches and solid state relays to the breakout board which is in the back of the CNC control. There are more diagrams on the following pages.



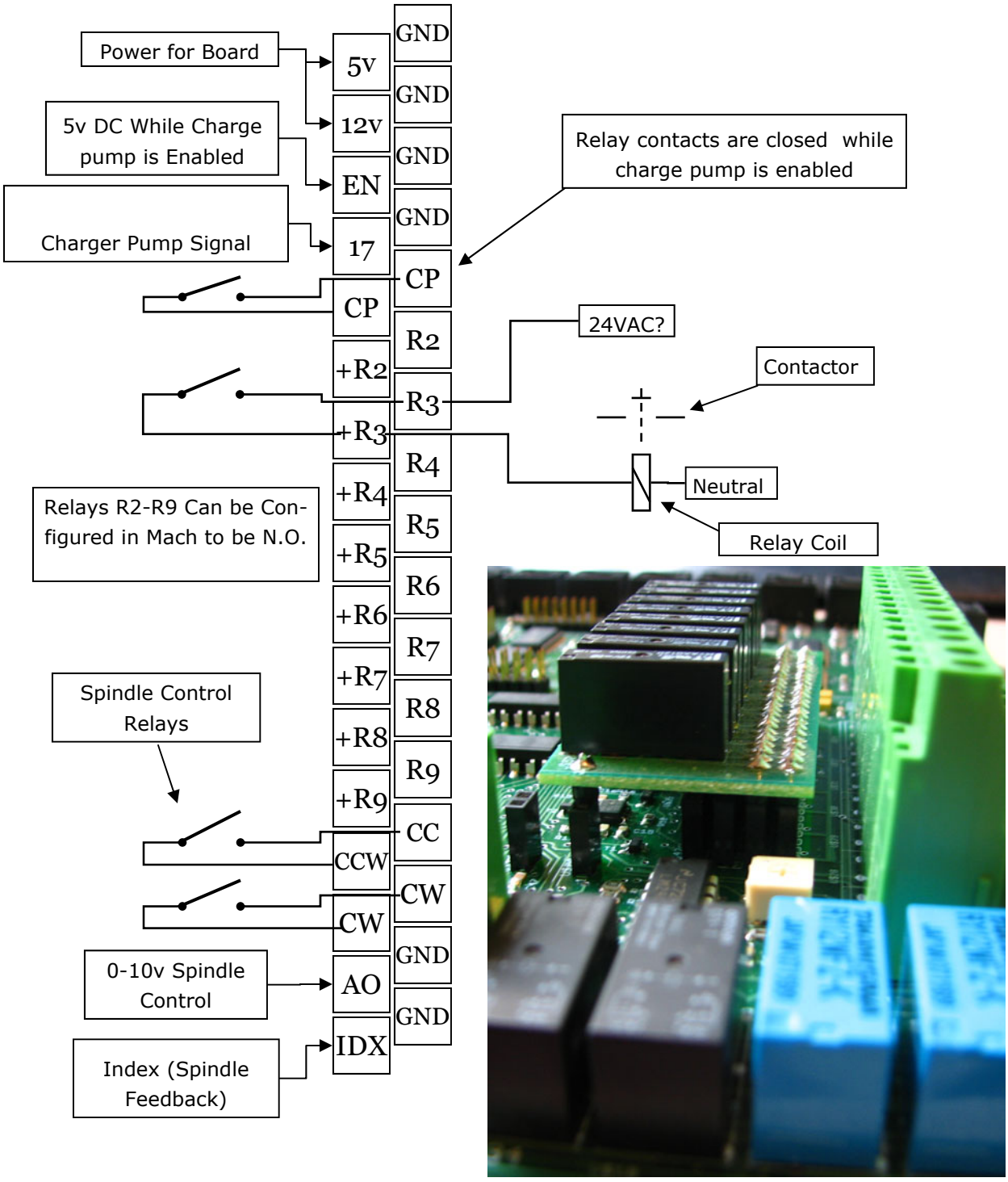


To enable the limit switches in Mach3 go to Config / Ports&Pins / Input Signals. See Example below.

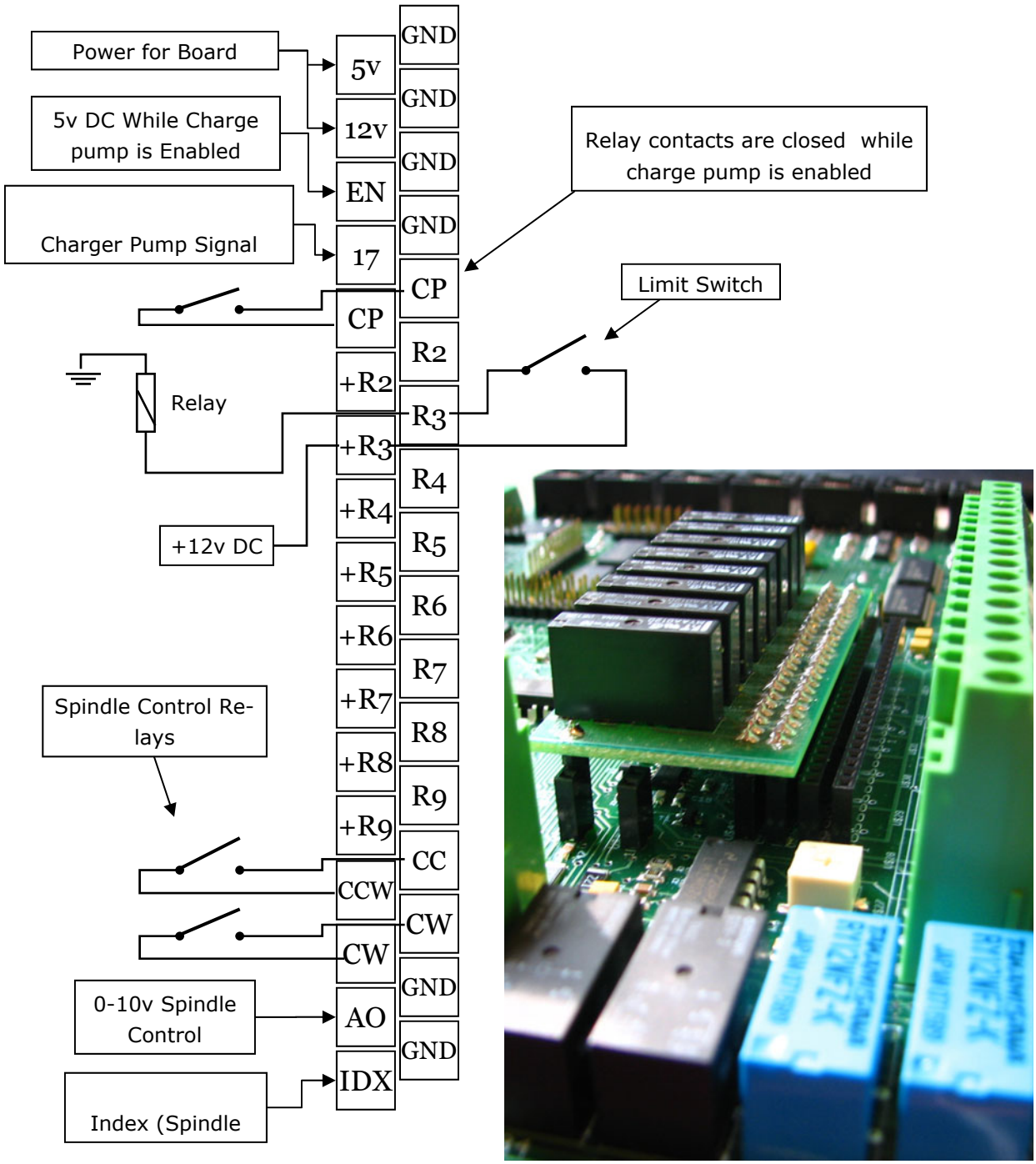


Relay Out-put Configuration

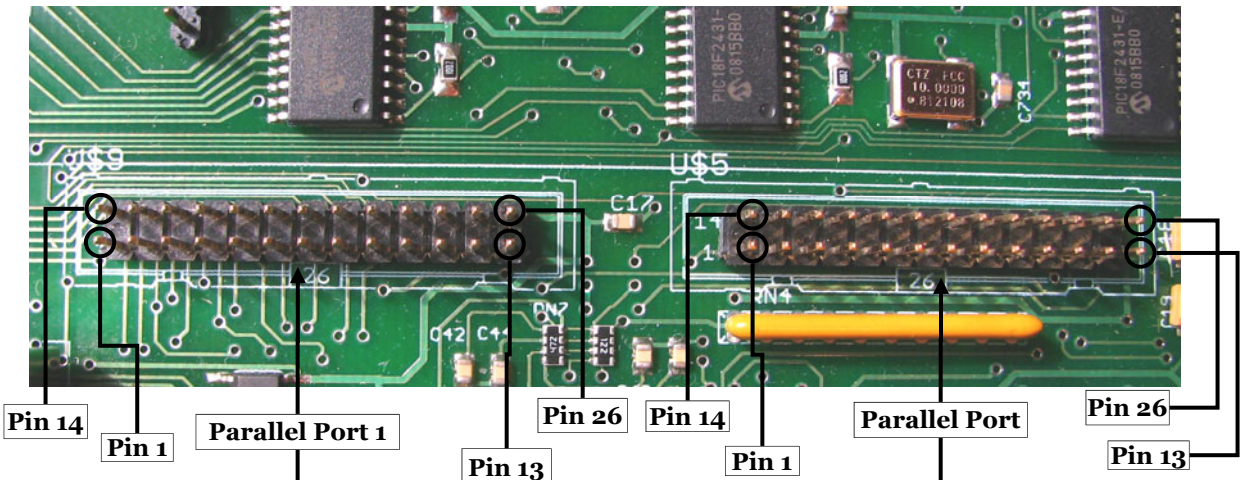
(Standard Configuration)



Relay Input Configuration



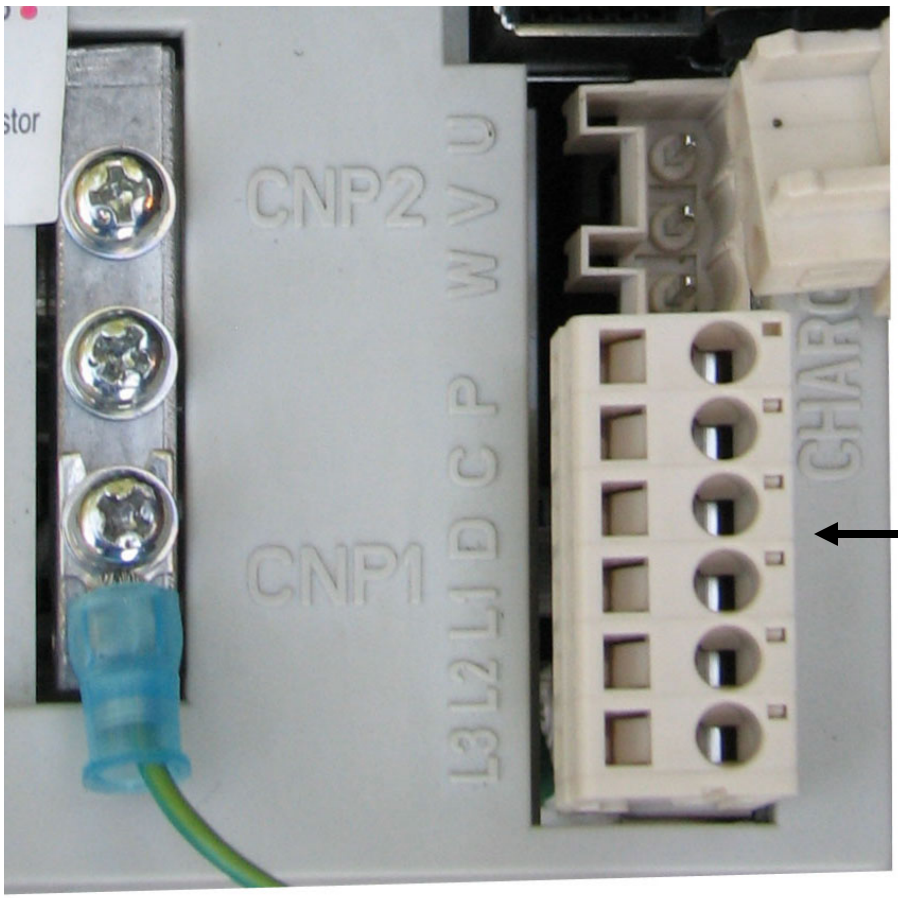
Parallel Port Pin-outs



Parallel Port Pin #	Direction (relative to the PC)	Function
1	Output	Axis 6 Direction
2	Output	Axis 1 Direction
3	Output	Axis 1 Step
4	Output	Axis 2 Direction
5	Output	Axis 2 Step
6	Output	Axis 3 Direction
7	Output	Axis 3 Step
8	Output	Axis 4 Direction
9	Output	Axis 4 Step
10	Input	Drive Error Input
11	Input	5-12v Input
12	Input	5-12v Input
13	Input	5-12v Input
14	Output	Axis 5 Direction
15	Input	5-12v Input
16	Output	Axis 5 Step
17	Output	Axis 6 Step
18-25		GND
26		5V DC

Parallel Port Pin #	Direction (relative to the PC)	Function
1	Output	0-10V Spindle Ctrl
2	Output/Input	R2 Relay
3	Output/Input	R3 Relay
4	Output/Input	R4 Relay
5	Output/Input	R5 Relay
6	Output/Input	R6 Relay
7	Output/Input	R7 Relay
8	Output/Input	R8 Relay
9	Output/Input	R9 Relay
10	Input	5-12v Input
11	Input	5-12v Input
12	Input	5-12v Input
13	Input	5-12v Input
14	Output	CW Spindle Relay
15	Input	5-12v Input
16	Output	CCW Spindle Relay
17	Output	Charge-Pump
18-25		GND
26		5V DC

7. Connect drive power to servo drive and wire in Brake Resistor.



Power Connector

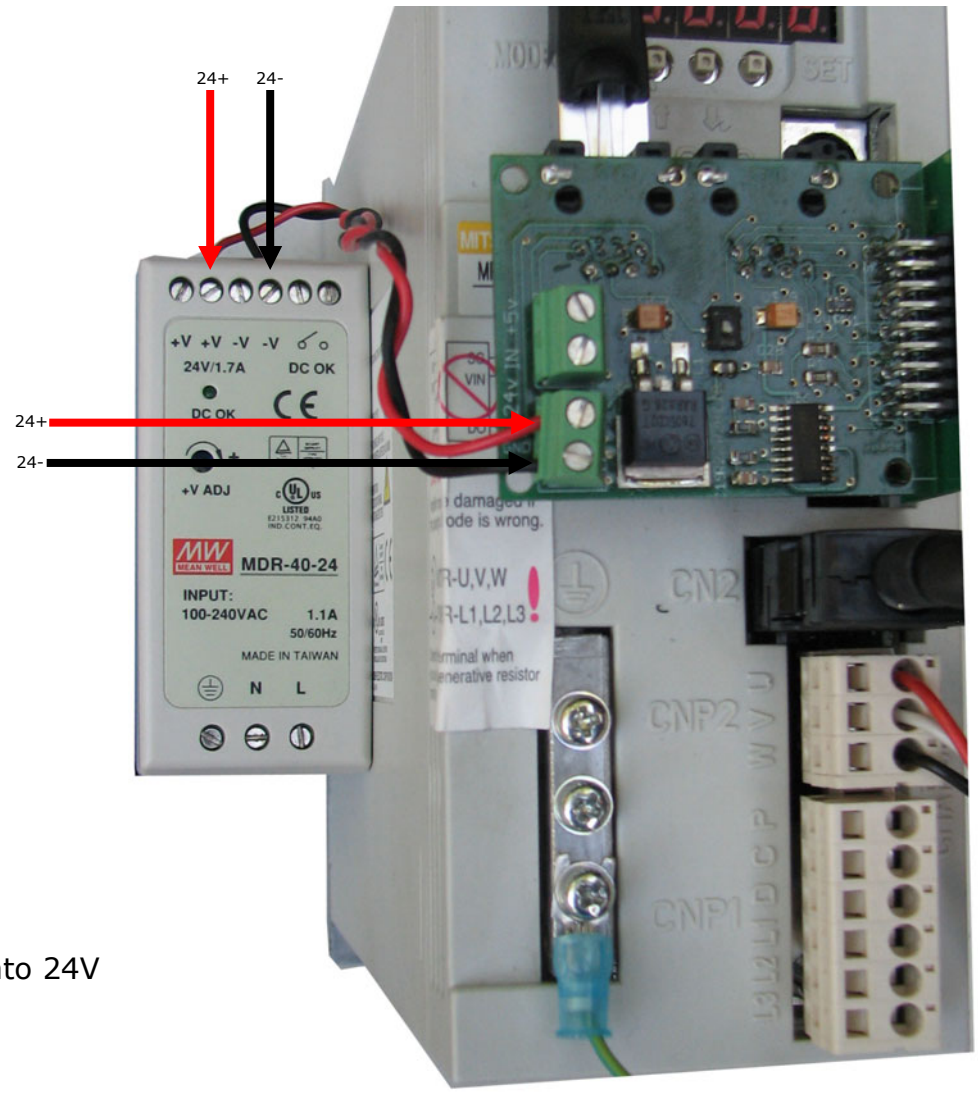
240 VAC

U	
V	
W	
P	Break Resistor
C	Break Resistor
D	
L1	240 VAC POWER
L2	240 VAC POWER
L3	

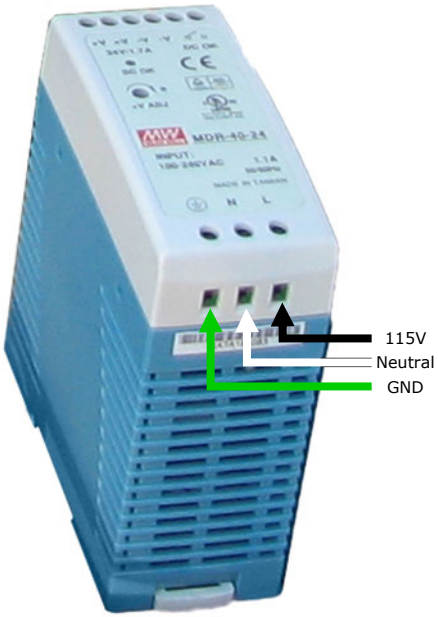
3 PHASE

U	
V	
W	
P	Break Resistor
C	Break Resistor
D	
L1	L1 POWER
L2	L2 POWER
L3	L3 POWER

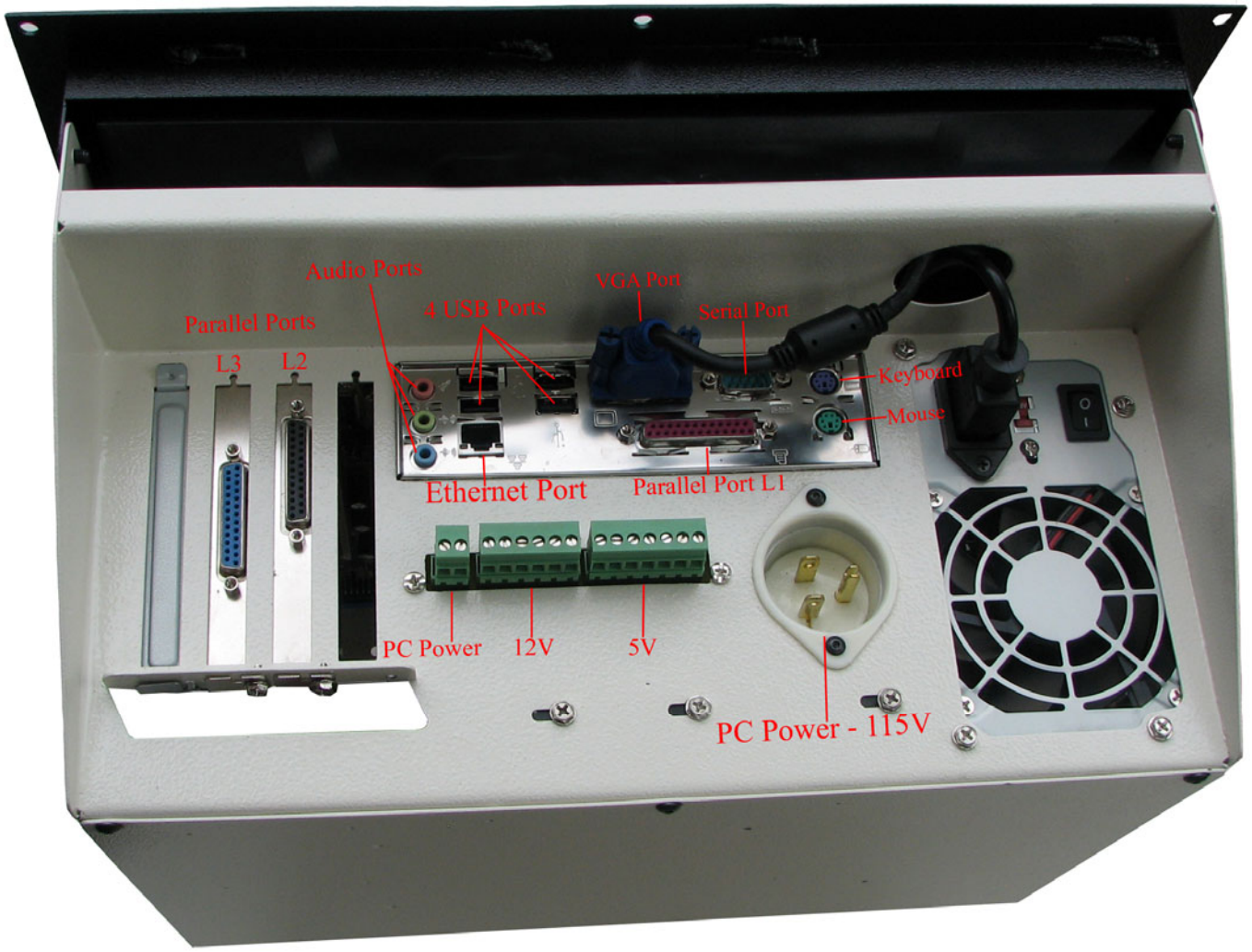
8. Wire 24V from the 24V Power Supply to all drives.



9. Wire 115V Power into 24V Power Supply



10. Route power cord (standard extension cord) and plug into CNC control.



11. Place cover back on CNC Control

12. Turn on CNC control and test motors.

For more details on the I06 Breakout Board refer to the MachMotion I06 Motion Control Manual. For more details on Mach3 Control Software please refer to the Mach3 User Manual. You can find both of these manuals and other manuals in a folder on the desktop of your new CNC Control or you can download them off of MachMotion.com

Notes:

14518 County Road 7240
Newburg, MO 65550

E-mail: support@machmotion.com
Sales@machmotion.com
Website: MachMotion.com