

Dear CNC Customer:

I have sent this training schedule to you in advance so that you can prepare for your CNC machine training session. You will notice that the day has been broken down into specific topics and time slots. Please take the time to review the specific chapters in your manual that cover the subjects on the training outline. This will greatly enhance your ability to quickly understand what is being presented.

Be sure that the students have watched the Mill DVD training video that came with your machine and have learned as much as possible from the video and by using the machine. (The ideal situation for learning with the video is for it to be right beside the machine when being played.) Learning from the video and reading the sections of the manual that we will cover will ensure that you get the most value out of the training.

Since this is a hands on training session, it is best to train no more than 2 persons at a time. Trying to train more than 2 people at once cannot be effectively done in the allotted time. Additional training time is available. Please contact CNC Services for rates and availability.

### 1.) Student Prerequisites for CNC Training

Working knowledge and understanding for the following:

- Cartesian Coordinate System
- Polar Coordinate System
- Absolute positioning
- Incremental positioning
- Basic Math
- Basic Geometry
- Blue Print reading
- Watched the Mill Training DVD and review the Control operators manual.

### 2.) Learning Environment: To get the most out of your training:

Please eliminate or minimize the following: **Noise, Distractions, Smoke, Low light**

### 3.) Hardware requirements: materials that you will need to have on hand.

- Machine vise, mounted on the machine
- Tools and tool holders. Its nice to have at least 3 tool holders with tools on hand for a proper tool setup training. .5", .625" and a Drill Chuck minimum.
- 123 or gage blocks
- Set of Parallels
- Calculator
- Fast cutting material, Aluminum, Wood , Plastic, Wax
- Notebook and pencil
- Blank formatted 1.44 meg 3.5" disks
- If you have a Knee Mill, supply a piece of round bar stock at least 7" long that will fit in a tool holder. To Make a reference tool as seen the Mill Training DVD video
- Control Operators manual

If you don't have your Operators Manual and/or the Mill Training DVD Call your Dealer. They are shipped with your machine.

## **CNC Services One Day on site Basic CNC Training Time line**

1. Mill inspection (8:30 to approx. 9:15)
  - a. Verify proper installation and operation of control. Proper Voltage, Lube, parameters.
  - b. Preventive Maintenance procedures.  
( This is a good time for plant technician to be present )
  - c. Backup of control parameters to floppy.
2. Training begins with Jog panel and keyboard ( 9:15 to approx. 9:30)
  - a. The function of the jog panel, jogging. Keyboard, Functions keys.
3. Tool library Setup. (9:30 to 10:30)
  - a. Setting tool Height and Diameter offsets. (best method for your type of mill).
  - b. Defining Tool library functions, flood,mist,spindle on off
  - c. Setup tool height offset in tool library using gage block method.
4. Teach Student To Programs a Basic part in Intercon Conversational
  - a. Use canned-cycles and bolt hole circles.
  - b. Post program and review in G code backplot.
5. Part Zero Setup & Machine the part that is programmed in #4.
  - a. Set part zeros, use edge finder and gage block method.
  - b. Machine the part in practice material. (11:00 to 12:00)
  - c. Practice Feed hold, Tool Check, Estop, Program restart.
- 6.) Program Lines and Arcs tutorial with depth repeat and cutter comp. and then machine part.
  - a. Teaches polar coordinates, Increment positioning, Connect radius

### **Break for Lunch**

7. Program a more complex part using MATH ASSISTANCE.
  - a. Program the "Cam" print and cut part.
  - b. Add depth repeat and cuttercomp on the Cam Program.
  - c. Review Cutter comp use. When to turn on and off, use with a repeat,depth repeat.
  - d. Cutter comp and G code backplot use and advantage.
8. Intercon programming additional features
  - a. Teach Mode, DXF if applicable, Irregular Pocket Cleanout
  - b. Copy, Move, Delete, Undelete,Save,Save as,Load
9. Utility menu ( 3:00 to 4:00)
  - a. The functions under Utilities screen (IMPORT,EXPORT,BACKUP,RESTORE
  - b. G-code editor use and discussion of G-code. Advantages of using G-code editor
  - c. Loading a G-code program from floppy.
  - d. Loading Intercon program from floppy. (If applicable)
10. If time permits, additional part programming.(to reinforce #4,5,6,7) questions and answer session,  
as time permits. More practice with the Servo rod drawing with tangent arcs (supplied in the manual) or Mirror, Rotate, Repeat the Cam part. Or pick a part of a specific drawing that the customer intends to machine.