



Sherline CNC Controller Start Up Procedure

Powered by MASSO

Power On

1. Turn on the controller power switch. The green light should come on.



FIGURE 1

2. Turn on the power switch for the driver box. The red light should come on.



FIGURE 2

3. Both the “Home” and “E-stop” buttons will be flashing and the “Password” box will be displayed on the monitor.

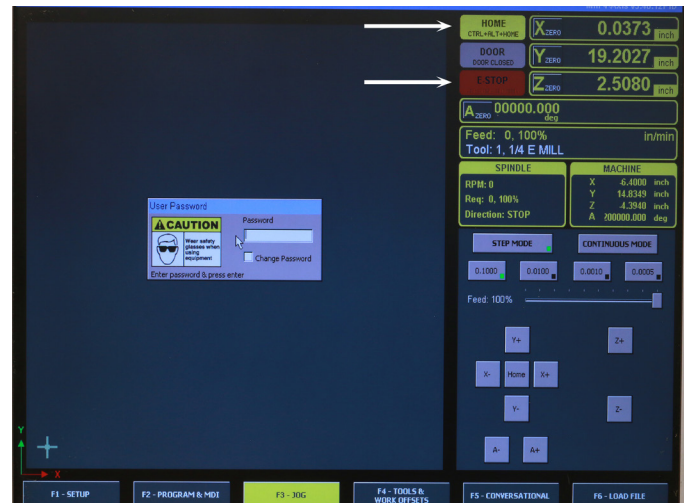


FIGURE 3—The white arrows point to the “HOME” and “E-STOP” buttons.

4. Turn the E-stop button clockwise to release it.



FIGURE 4—Note the clockwise direction of the arrows on the red button.

5. Enter the password into the password box (HTG) and hit enter. The password box will disappear.

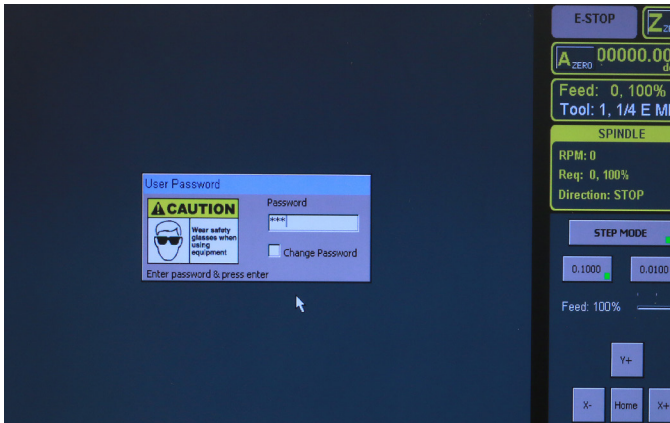


FIGURE 5

6. To home out all axes, push “Ctrl, Alt, and Home” keys on your keyboard. All axes will home out in the sequence that is saved on the set up page. Z-axis first, followed by X-axis, and then Y-axis (on the lathe it will be Z first followed by X).

F2 Program & MDI Screen

1. Push F2 on your keypad or Click on the “F2 Program & MDI” button on the screen.

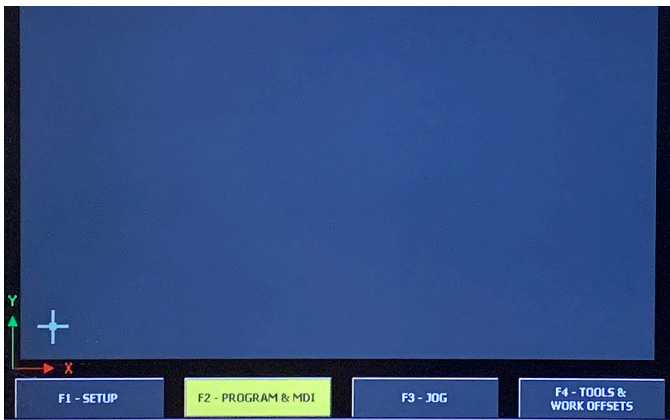


FIGURE 6

2. This is the Program and MDI page that will come up on your monitor.

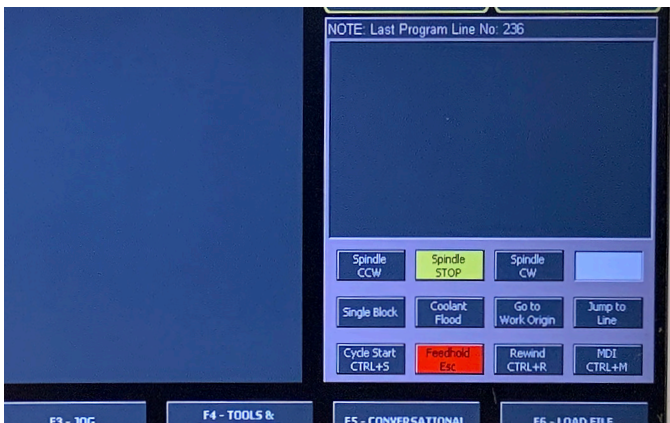


FIGURE 7—NOTE: Spindle CCW and Coolant Flood do not work on our machines at this time.

Spindle CW

1. First make sure that the power toggle switch on the speed control is in the “On” position.
2. Next input the desired spindle speed in the white box next to Spindle CW. In this case we input “1000.”

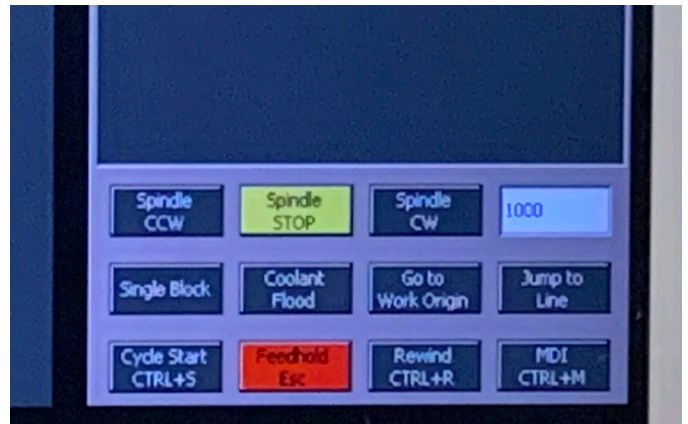


FIGURE 8

3. Now click on the Spindle CW button and the spindle will turn on, and then ramp up to 1000 RPM ± 20 RPM.

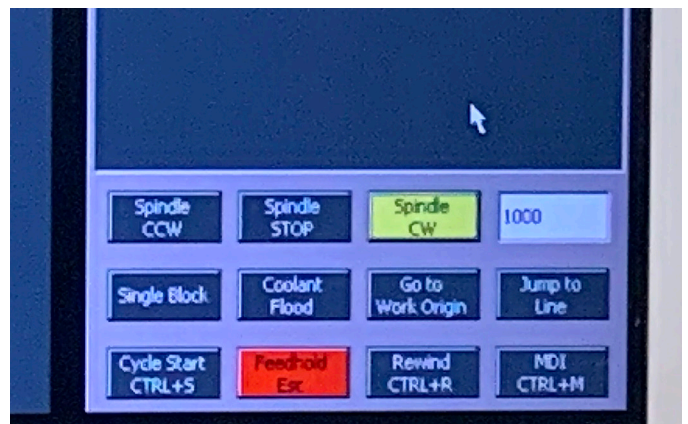


FIGURE 9

4. You will see the Requested RPM listed on the screen with the current RPM that the tach sensor is reading above it. The current RPM will vary by approximately 20 RPM.

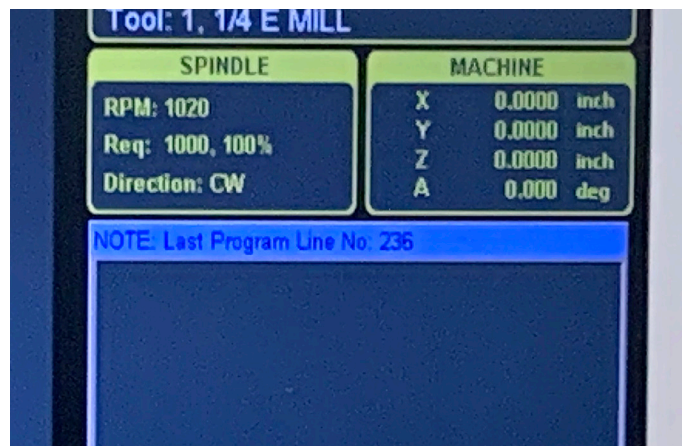


FIGURE 10

- Another way to control the spindle speed is in the MDI (Manual Data Input) control box. Either press “Ctrl + M” or click on the “MDI” box on the program screen. When you do this, the MDI box will come up.

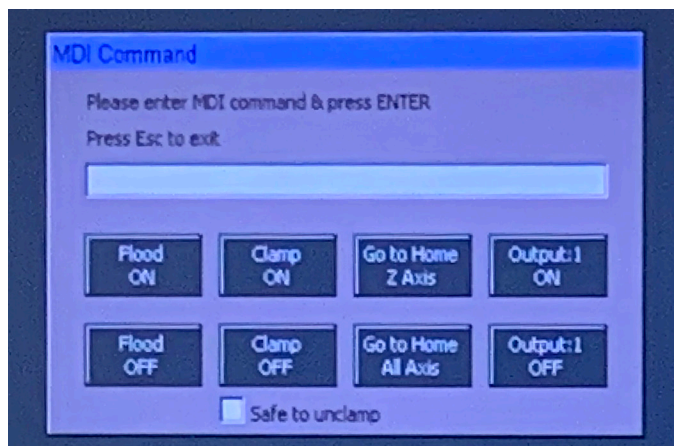


FIGURE 11

Now input “M03 (CW rotation), S (desired RPM between 70 and 2800).

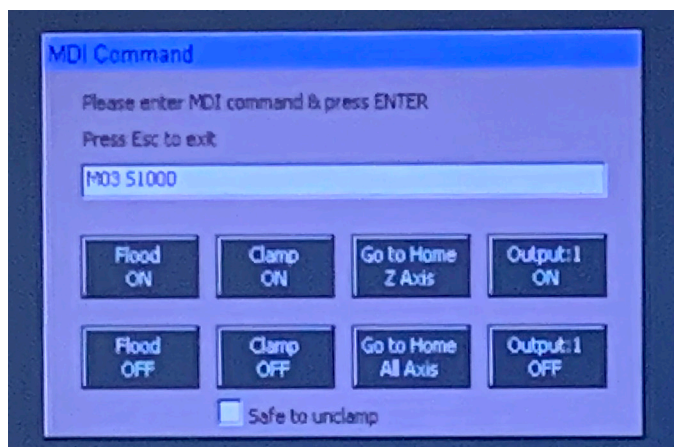


FIGURE 12—Example: M03 S1000 (Spindle CW at 1000 RPM)

Our Speed Control and How It Is Controlled by the Control Board

Our speed control is an analog electronic system that had a speed control potentiometer to adjust the RPM.

We have removed the speed control potentiometer and hard wired the speed control to the control board in our controller. Now we have a computer running an analog electronic system.

The basic way that this works is as follows:

- You give the computer an RPM value “S1000.”
- The computer sends a specific amount of current to the speed control, which is based on an algorithm that we set up based on tests that we ran with the motor pulley on the high-speed pulley groove.
- Next, the spindle starts turning at the RPM that the given current dictates. The tachometer then sends the

actual RPM to the control board. Then the control board increases or decreases the amount of current until the programmed value matches the tachometer read out.

- This causes a slight fluctuation of the spindle RPM (approximately ± 20 RPM).

Because the algorithm that is used was based on data taken from the motor pulley being located on the high-speed groove, the RPM range on the slow-speed/high-torque groove will be affected. The max RPM on the slow-speed belt location will be 1380. There will also be some additional lag time when using the threading cycle at the low-speed pulley setting.

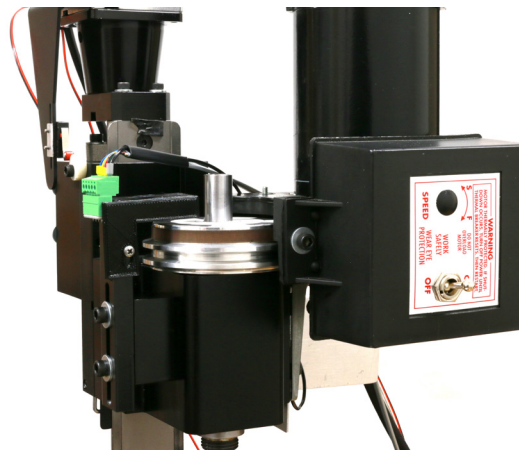


FIGURE 13—The photo shows the pulley belt in the high-speed location (upper pulley groove).

Thank you,
Sherline Products Inc.