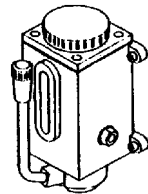# MILLMASTER STARTUP/SHUTDOWN INSTRUCTIONS

Sartup Instructions

1. Obtain from the shop manager the key to the lock on the machine's On/Off switch.

2. Check the oil level in the following reservoirs and refill if necessary:

- Hand pump reservoir below the table on the left side. (Refill with Vactra oil No. 2 Way Oil; ISO VG 68.)


- Air line lubricator on pneumatic tool changer. Air pressure must be off and pressure released. Unscrew the bowl, fill to below maximum mark and screw bowl back into lubricator head. (Refill with Air lube 10W/NR oil.)
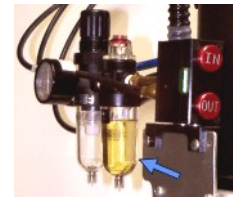
3. Turn on the air-line ball valve near the ceiling. (Rotate the green handle upward to a vertical position.)

4. Ensure that the protruding handles on the table hand wheels are folded in. (Pull and fold, if necessary.)

5. Lower the table so that the bottom of the spindle clears the highest object on the table. (Use the large silver handle to turn the screw on the upper left side of the knee.)

6. Turn the JOG knob to continuous mode (/\/\/).

7. Turn the "FEED /\/\/ %" knob to 50.

8. Add SAE 10W (ISO 32) multipurpose machine oil in the spindle oil caps. There are 3 of them, silver in color, around the spindle body, just below the head. This should be done weekly as the oil drips out of the spindle housing. Put two long squirts into each cap.
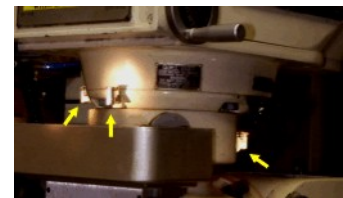
9. Pump the handle on the hand-pump reservoir until oil seeps out from between the ways. (Usually 3-5 pumps.)

10. Press the START button on the grey (600V) interrupter box. (On the bottom left side of the machine, next to the black transformer.)

11. Remove the lock from the red On/Off switch and rotate the switch to the *On* position. (See large black enclosure at the back of the machine.)

12. Release the Emergency Stop button. (Turn the knob CW.)

13. Wait for controller to boot up.

14. If "External emergency activated" message appears press ESC.

15. Select the controller working units: imperial or metric.

    - If numbers are displayed with 4 decimal places the controller is working in inches.

    - The *in./mm* button toggles between modes. (Follow on-screen instructions after pressing this button.)

    - If you change measurement units hit *SHIFT RESET* to re-boot the controller.

16. If a message appears asking to confirm the RPM setting, press OK.

17. Determine the current spindle speed setting on the milling machine (*n* RPM), program it into the controller: *S <n>* [⎵] and respond to the messages displayed.

18. Set the desired feed rate: *F <n>* [⎵]. (~400 mm/min is a good starting value.)

19. Home the machine: [ZERO] + [⎵].

20. (Optional) Set the tool-change X-Y coordinate. (Use this feature only after you are comfortable with the machine. Improper coordinate specifications can result in crashes.)

    - Jog the table to the (X, Y) position to where the tool change is to occur.

    - Raise the spindle all the way up to the soft limit. (*Z+*)

    - Set the tool change position: *T X RECALL ENTER*; *RECALL ENTER*; *RECALL ENTER*.

    - Issue ISO command: M20 (This enables X-Y coordinate use during tool change.)

21. Define the tool that you will be using: *T <n>* [⎵].

22. Define the tool's diameter and length through the tool calibration menu (F1).

23. Set the machine work piece zero coordinate: *X* 0 *ENTER* (×2); *Y* 0 *ENTER* (×2); *Z* 0 *ENTER* (×2).

Shutdown Instructions

1. Press in Emergency Stop button.

2. Turn the red On/Off button at the back of the machine to *Off* and lock the switch. (Press in the grey tab on the switch to be able to insert the lock.)

3. Press the STOP/RESET button on the grey (600V) interrupter box.

4. Close the air-line ball valve near ceiling. (Rotate the green handle downward to a horizontal position.)

5. Release the air pressure in the line by squeezing the handle on the air gun.

6. Return the key to the shop manager.