HOMING A MACHINE (WITHOUT LIMIT SWITCHES)

1. Move your machines X & Y table and Z quill as shown in the Figure 1 below. Note that the table is all the way to the right and back and the quill is retracted. A small safe distance was left on each axis. The position now defines the table and quill zero location to the software and we will call it home. There are no switches, but if there were, the tables could “home” / move to this location on start up.

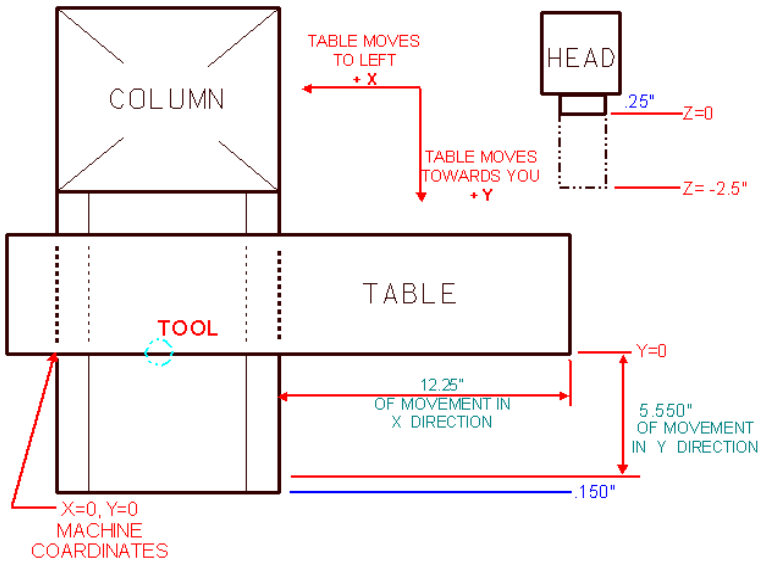
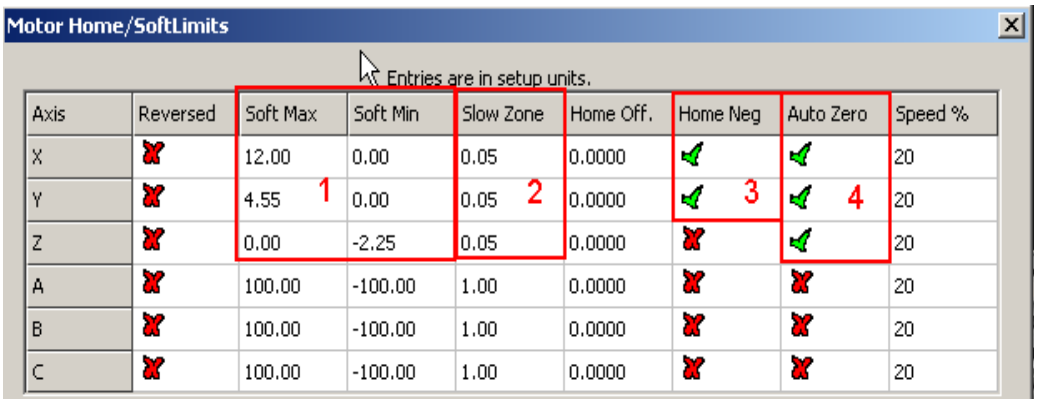


Figure 1.0

2. With the table so located, go to CONFIG> HOMING/LIMITS and add values shown in figure 2.0.
   1- defines the working table surface in the X & Y and note that Z is negative and min.
   2- A value is given for a distance from the home location where deceleration of the table movement should occur.
   3. Checking this box defines that table movement from any location will negative towards the home Position of 0,0,0. ie; The tables always move home in a negative direction.
   4. Checking the axis’s will allow for changing the DRO to the defined home position.



Axis	Reversed	Soft Max	Soft Min	Slow Zone	Home Off.	Home Neg	Auto Zero	Speed %
X	✗	12.00	0.00	0.05	0.0000	✓	✓	20
Y	✗	4.55	0.00	0.05	0.0000	✓	✓	20
Z	✗	0.00	-2.25	0.05	0.0000	✗	✓	20
A	✗	100.00	-100.00	1.00	0.0000	✗	✗	20
B	✗	100.00	-100.00	1.00	0.0000	✗	✗	20
C	✗	100.00	-100.00	1.00	0.0000	✗	✗	20

Figure 2.0

3. With the table located as in figure 1.0 and your values inputted into the table click OK. As shown in Figure 3.0 below click the REF ALL HOME button and all the axis's will zero and should be highlighted indicating the machine was successfully homed. If you click Machine Coord's button the value will be the same and will highlight red. *Machine coordinates are only concerned with how big the table is and the limits of table travel all relative to the machine.* The above done, go out of Mach, and come back thus saving the settings.

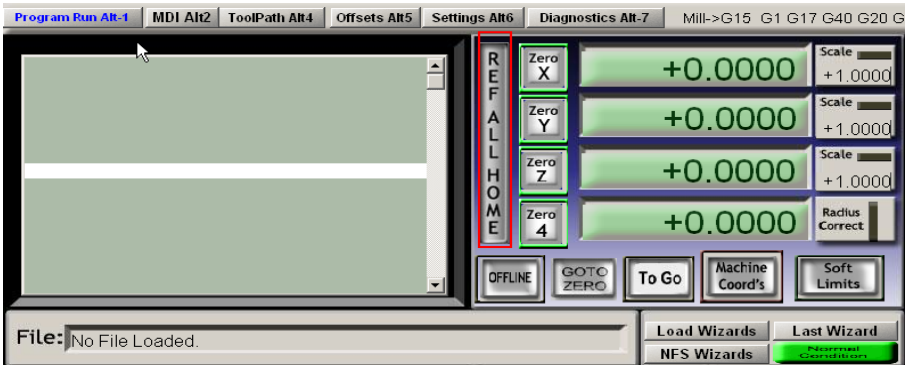


Figure 3.0

4. Mach saves your settings on exit and if the axis's were left as they were your screen will appear as shown in figure 4.0 below. The "abnormal condition" button will probably flash warning that the machine was not homed, just click the REF ALL HOME button which defines to Mach that the machine is now homed. The screen will change as shown in figure 3.0. Note that if you were to now move the axis some distance and go out of Mach, the moved distance shown in the DRO's would be saved and shown upon entering the program. If you click the Machine Coord's button you will see the same values displayed as the program is telling you how far from home you are .

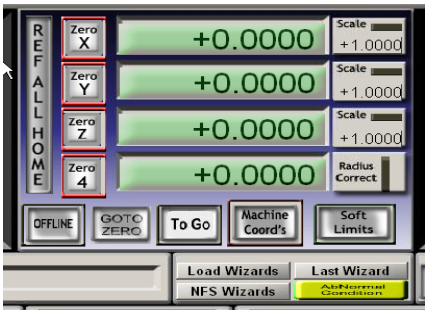


Figure 4.0

5.0 Soft Limits (toggled by clicking the button), when active, will limit the distance an axis can move. Note that Y was jogged a step distance of 5.000" but the limit of Y travel, as defined in Mach via Homing / Limits and shown in figure 2.0 electronically stopped movement at 4.5500" (Soft Max). Remember that this is "soft" and not "hard" like an electronic switch telling Mach to stop motion.

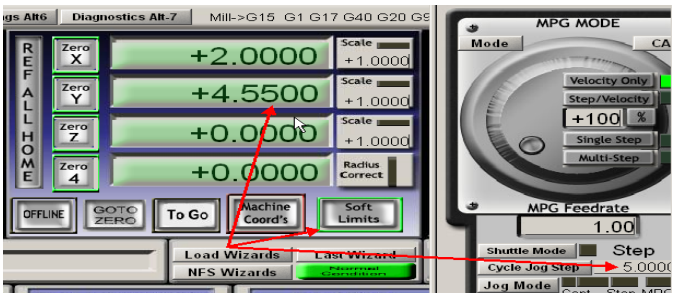


Figure 5.0