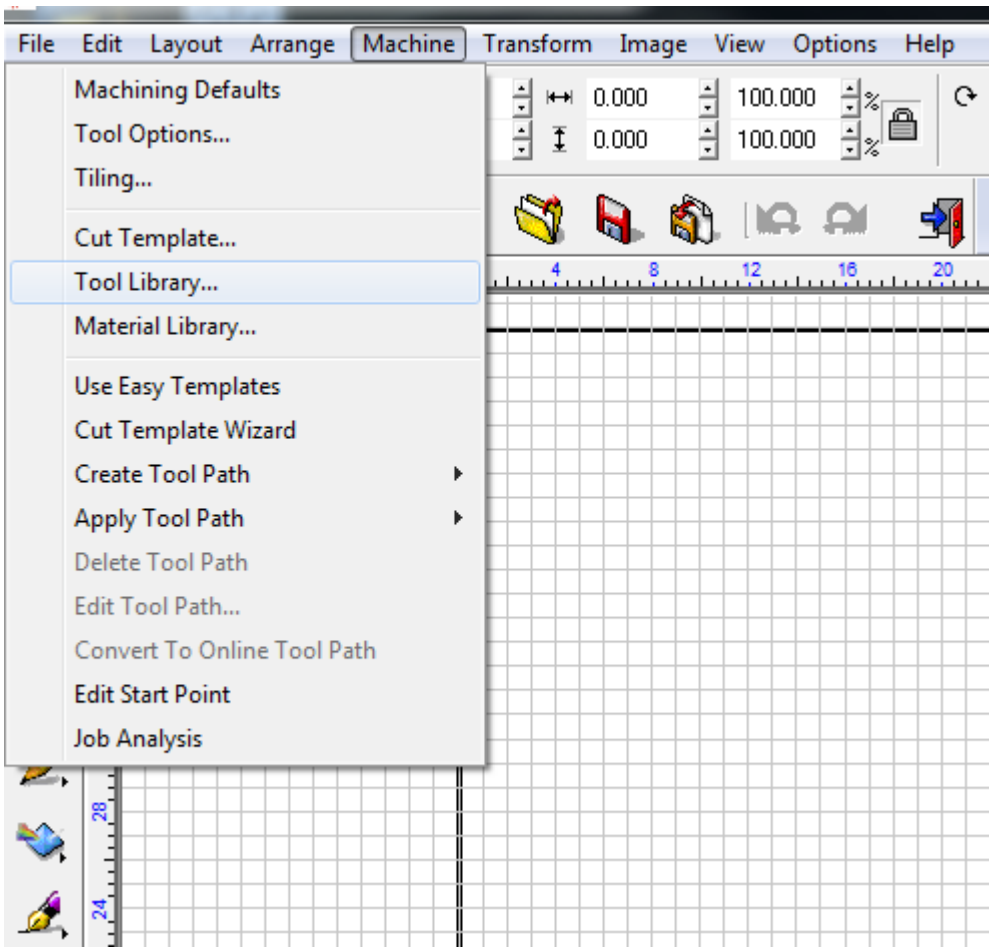
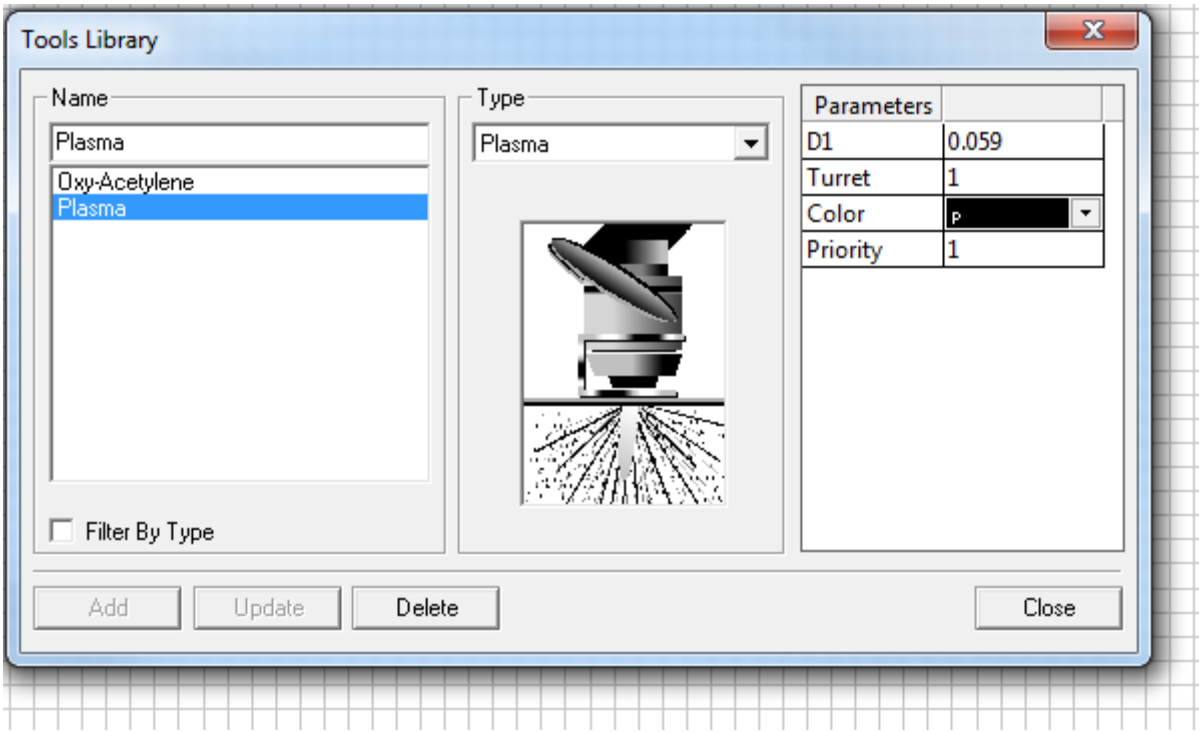
Torchmate Version 4 Multi-Tool Set up Guide

This guide will walk you through how to properly set up your software for multiple tool actions during a single program.

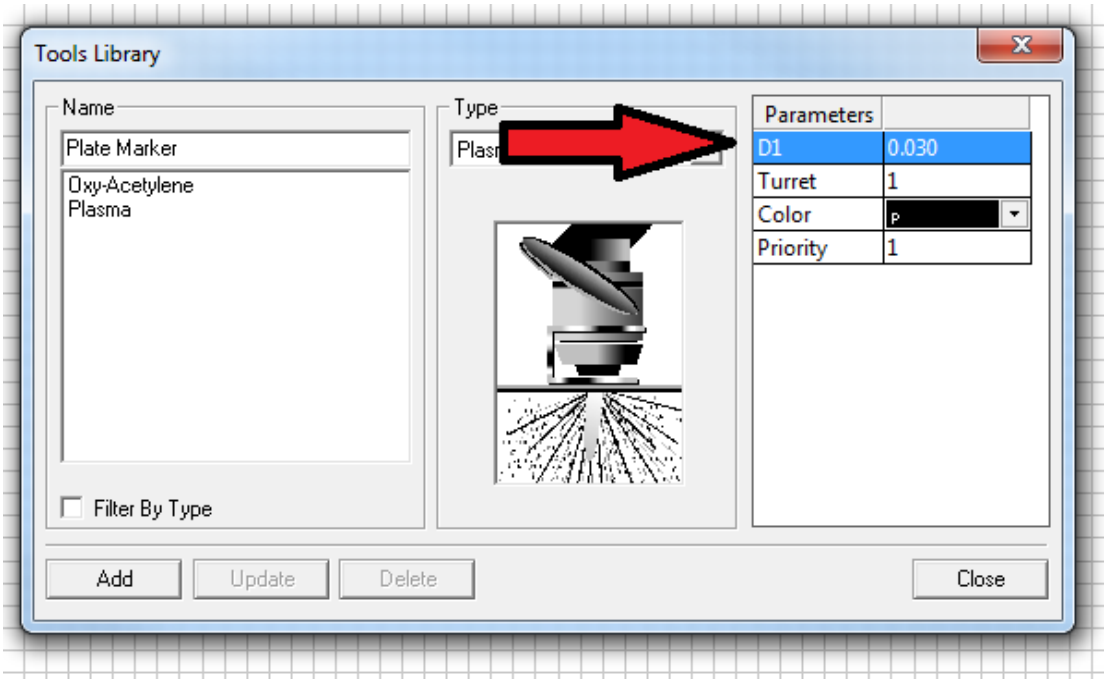
First, you will want to open up Torchmate CAD (Version 7.1.1, 8.1, or EDU is compatible). Go to **[Machine > Tool Library]**



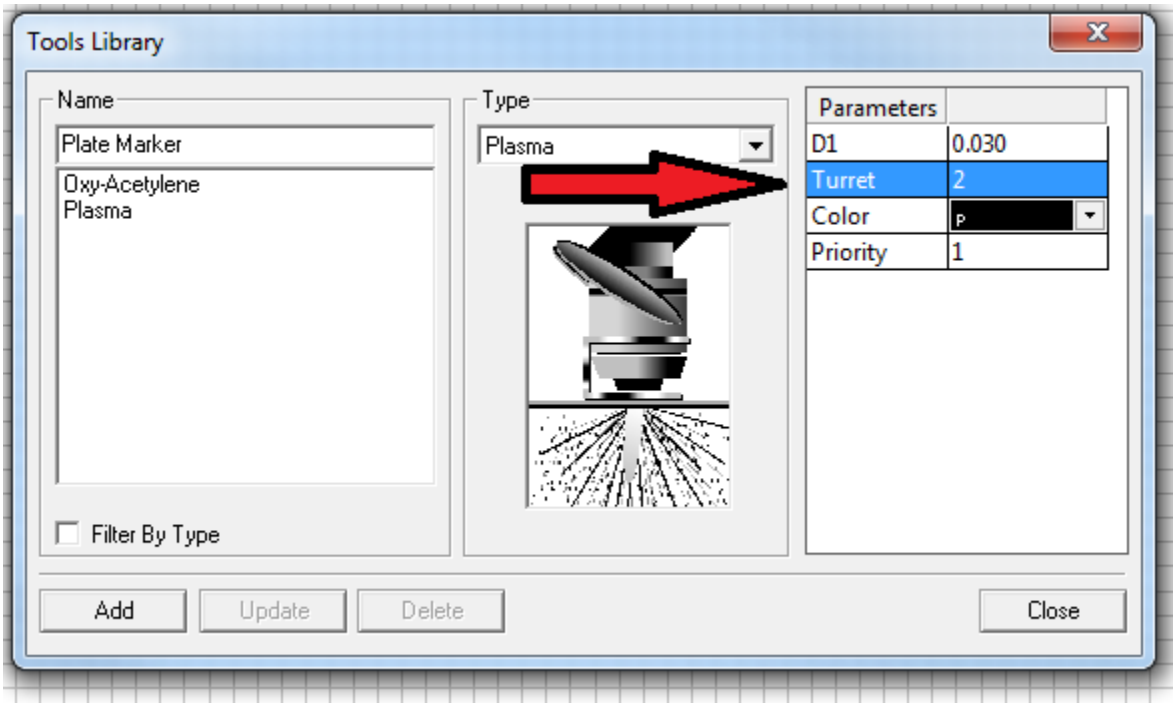
Next you will notice the current tools you have in your library.



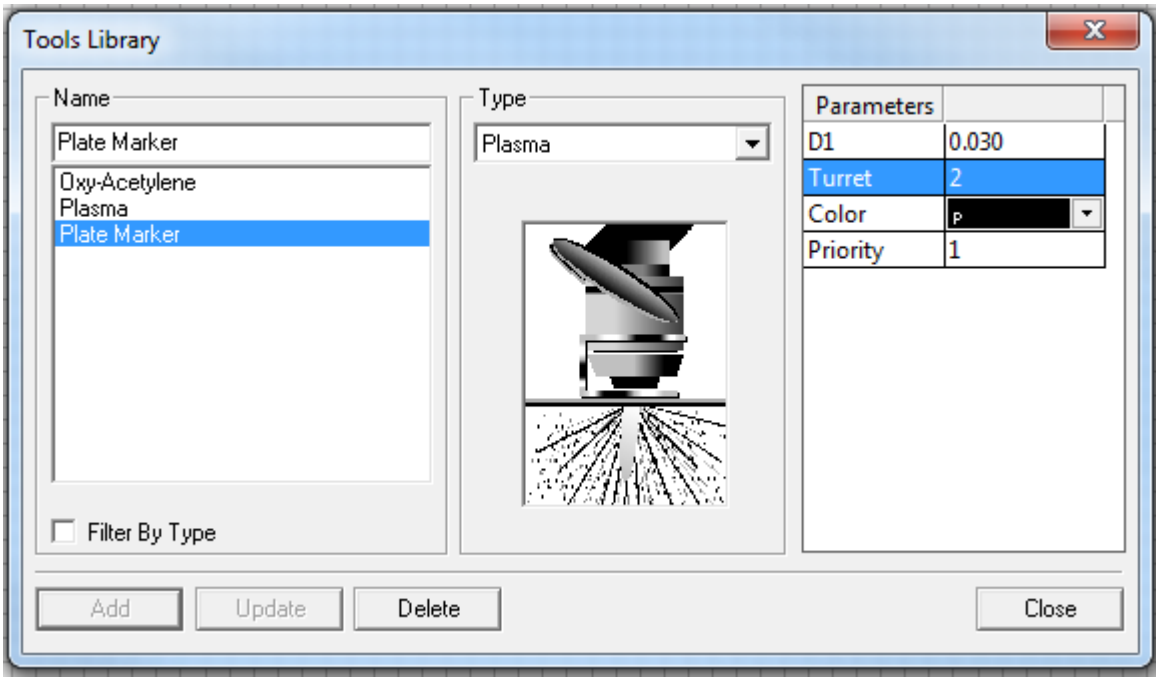
This is where you will add your Plate Marker tool. To create a new tool, simply start typing in the “Name” box. After typing in Plate Marker, click on “D1” which is highlighted below. Change “D1” to “0.030”.



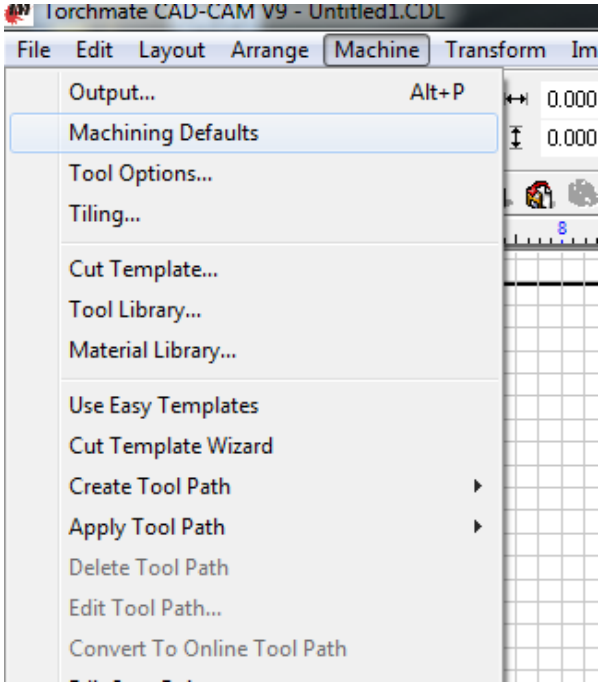
Hit the “Enter” key on the keyboard and it will turn blue. Now click on “Turret” and change it to “2” and hit “Enter” on the keyboard.



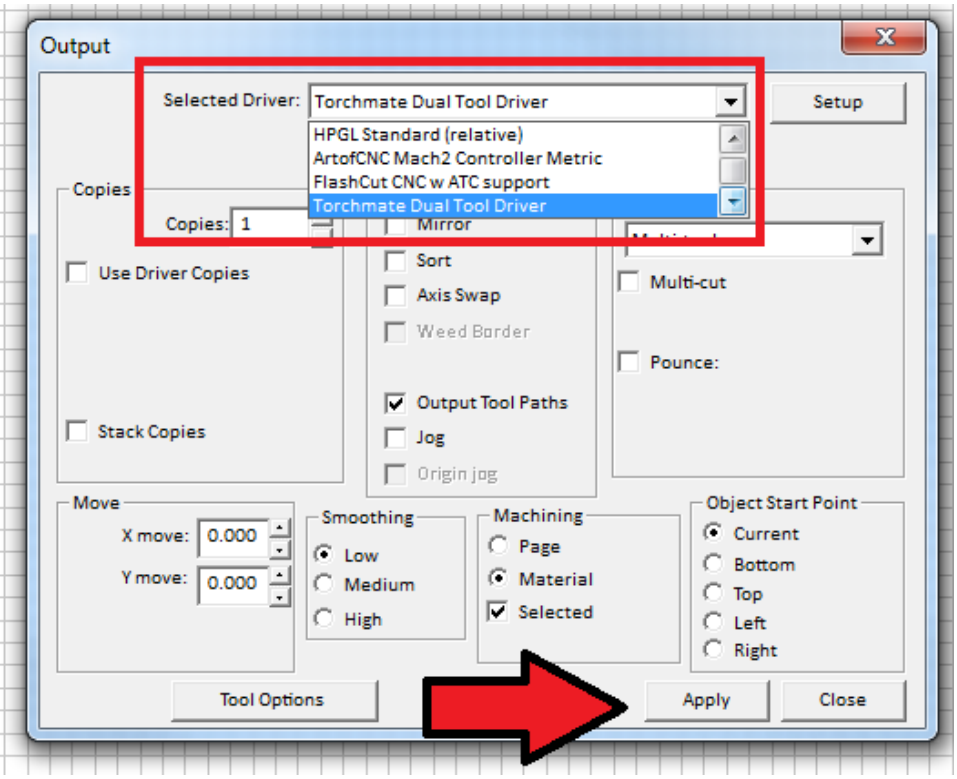
Finally, click on “Add” and you will notice the Plate Marker will be added to the list.



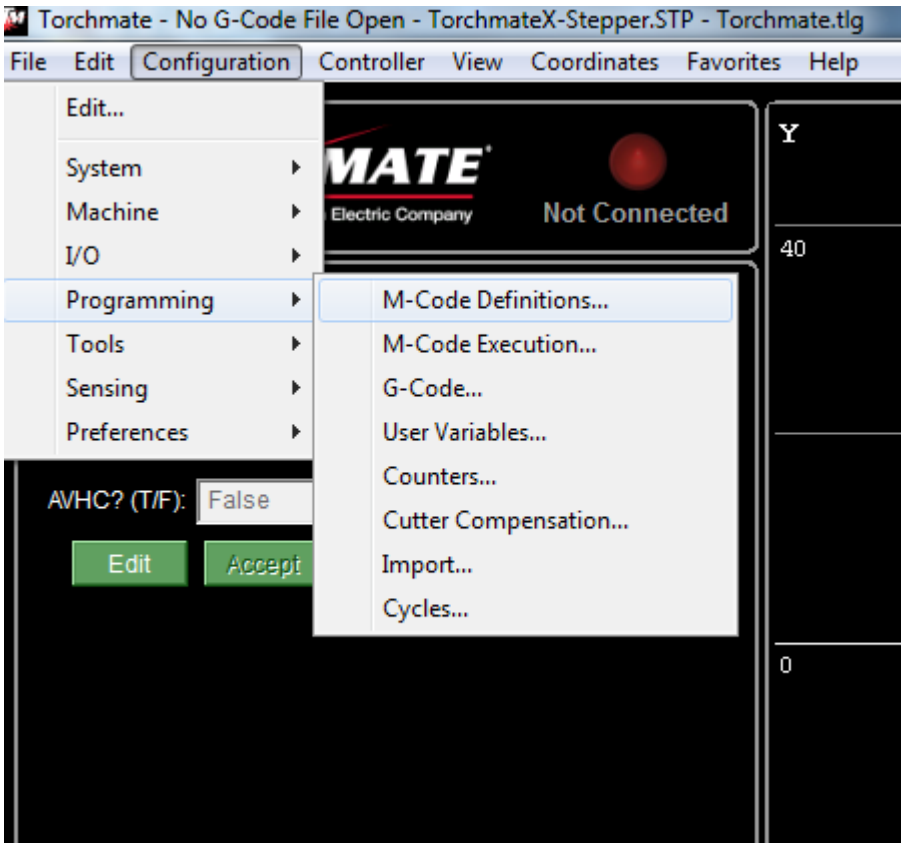
Now go to **[Machine > Machining Defaults]**



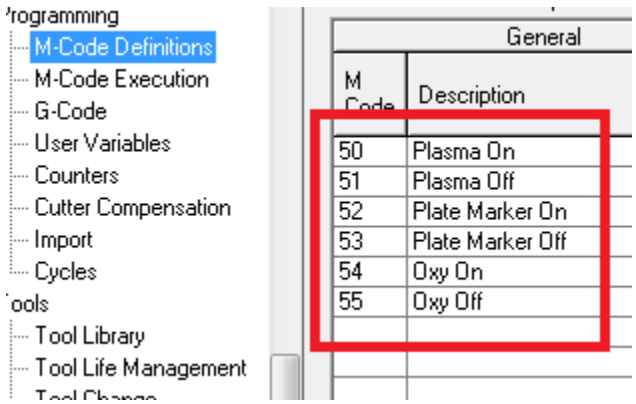
Click the arrow on “Selected Driver” and scroll down to “Torchmate Dual Tool Driver” and select it. Now click “Apply” and you’re done!



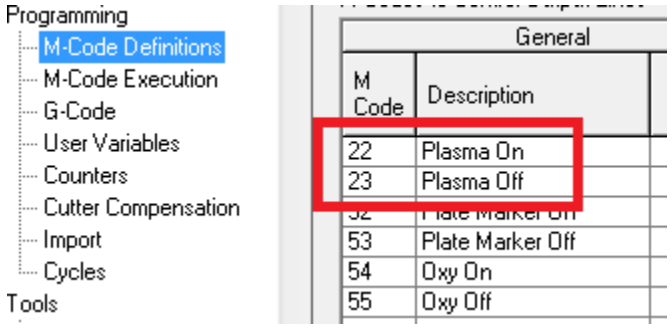
For the next phase of the setup, you will work in the **Torchmate 4 Driver Software**. Navigate to **[Configuration > Programming > M-Code Definitions].**



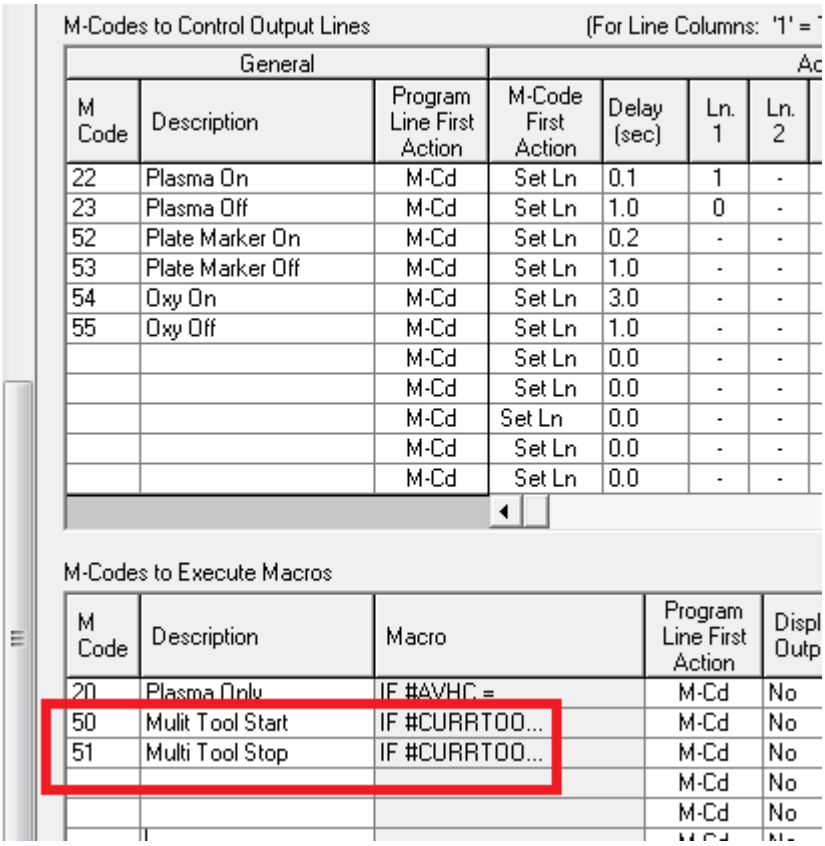
On the next screen you will notice a list of M-Codes and their descriptions.



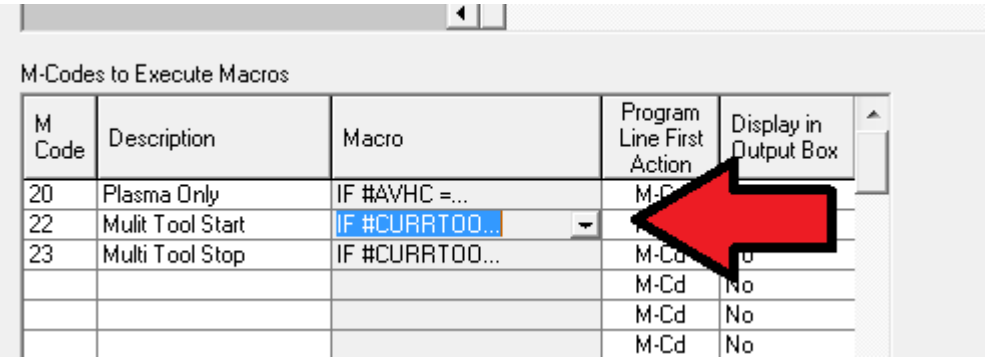
You will need to change the “50” to “22” and “51” to “23” so that it looks like the picture below:



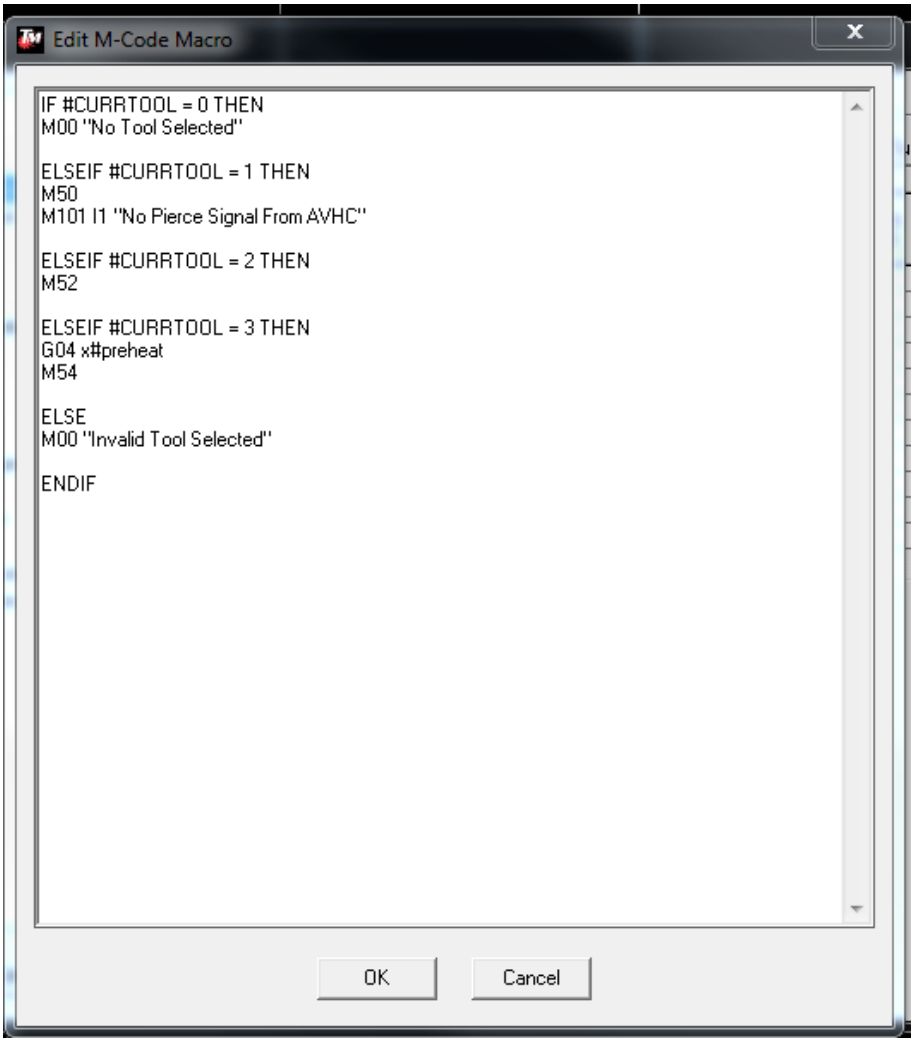
Next you will move down that same screen and change the “22” to “50” and “23” to “51” so that it looks like the picture below:



Now you will need to edit the macro associated with those M-Codes (50 and 51). If you click on the text that says, “IF #CURRTOO…” then a pop up arrow will appear.



Click on that arrow and an “Edit M-Code Macro” window will pop up.



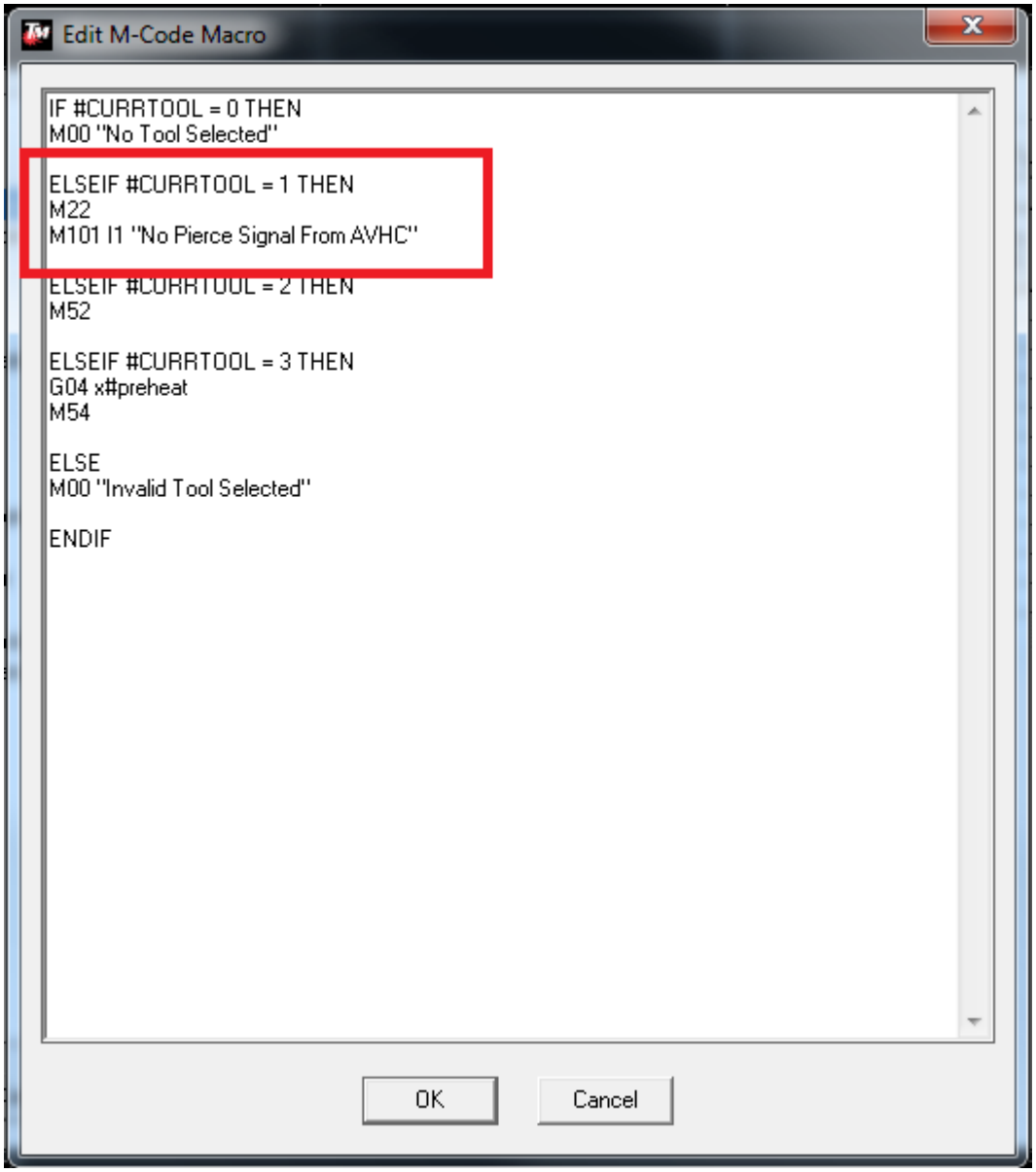
Where it says,

ELSEIF #CURRTOOL = 1 THEN

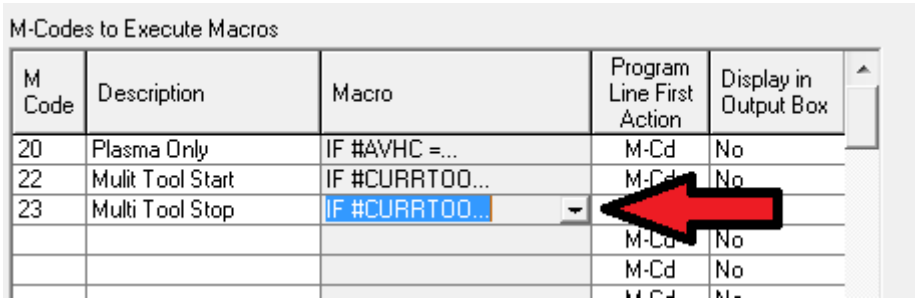
M50

M101 I1 “No Pierce Signal From AVHC”

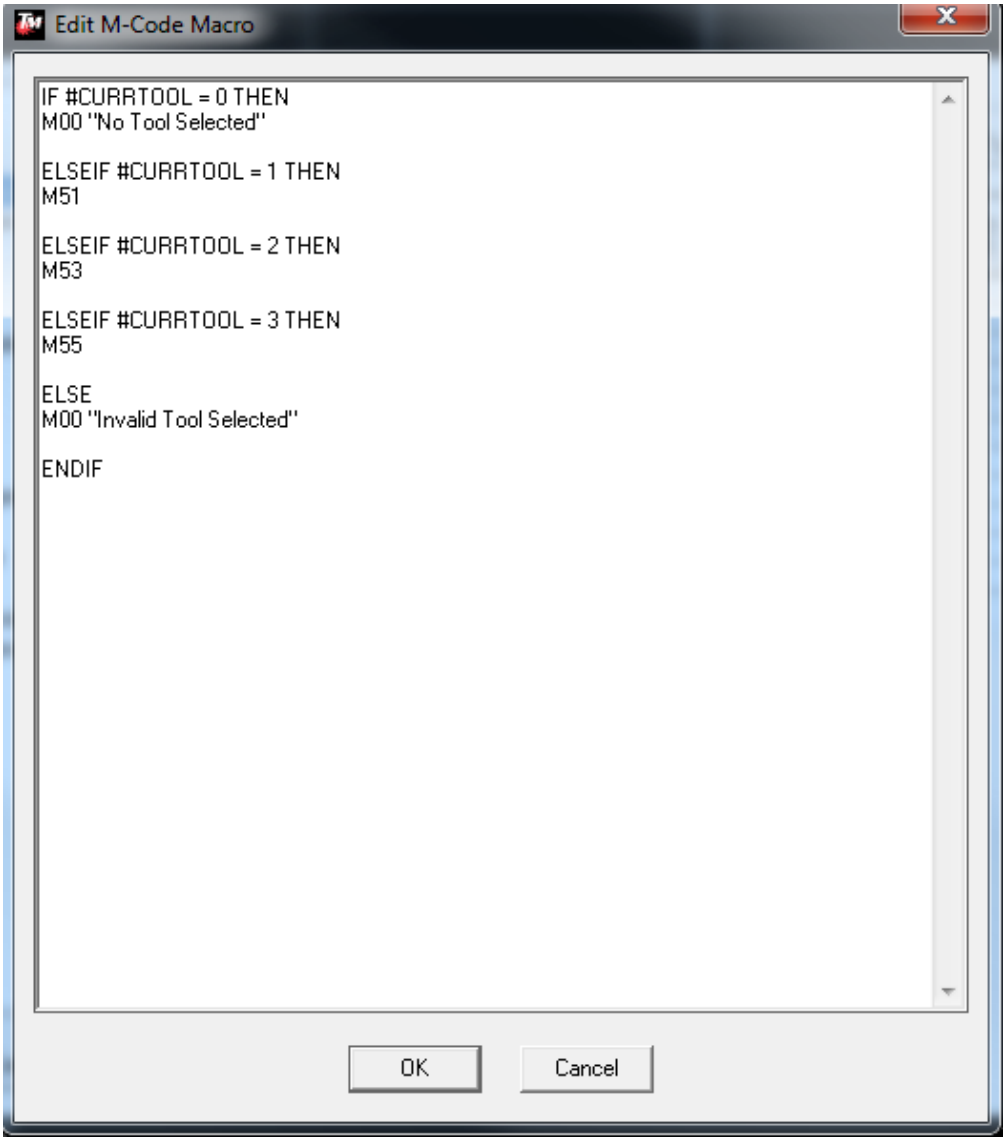
Change the “50” to “22” so it looks like the picture below:



Click “OK” and then open the “Edit M-Code Macro” window for M-Code 23.



You should see this:

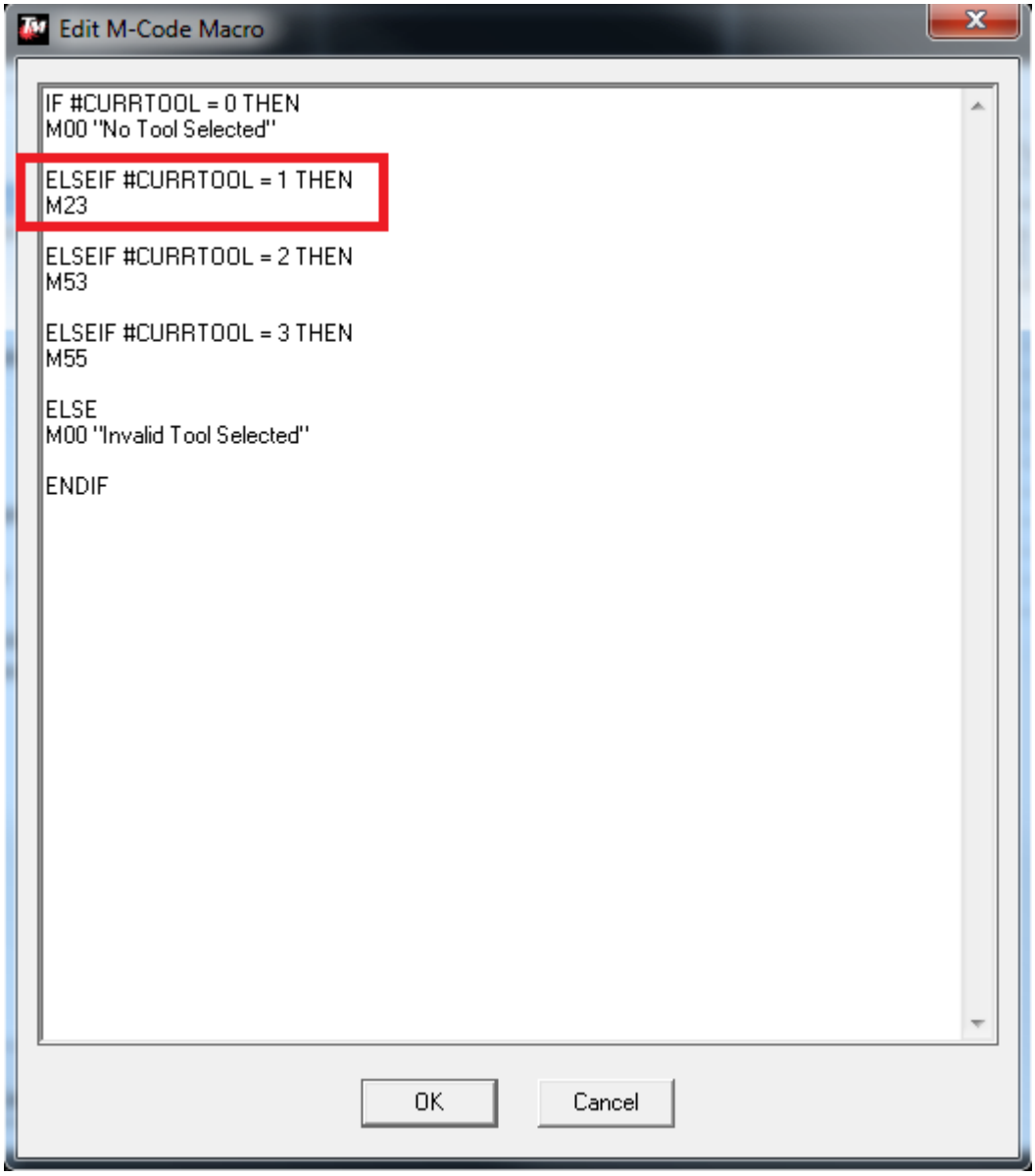


Where it says,

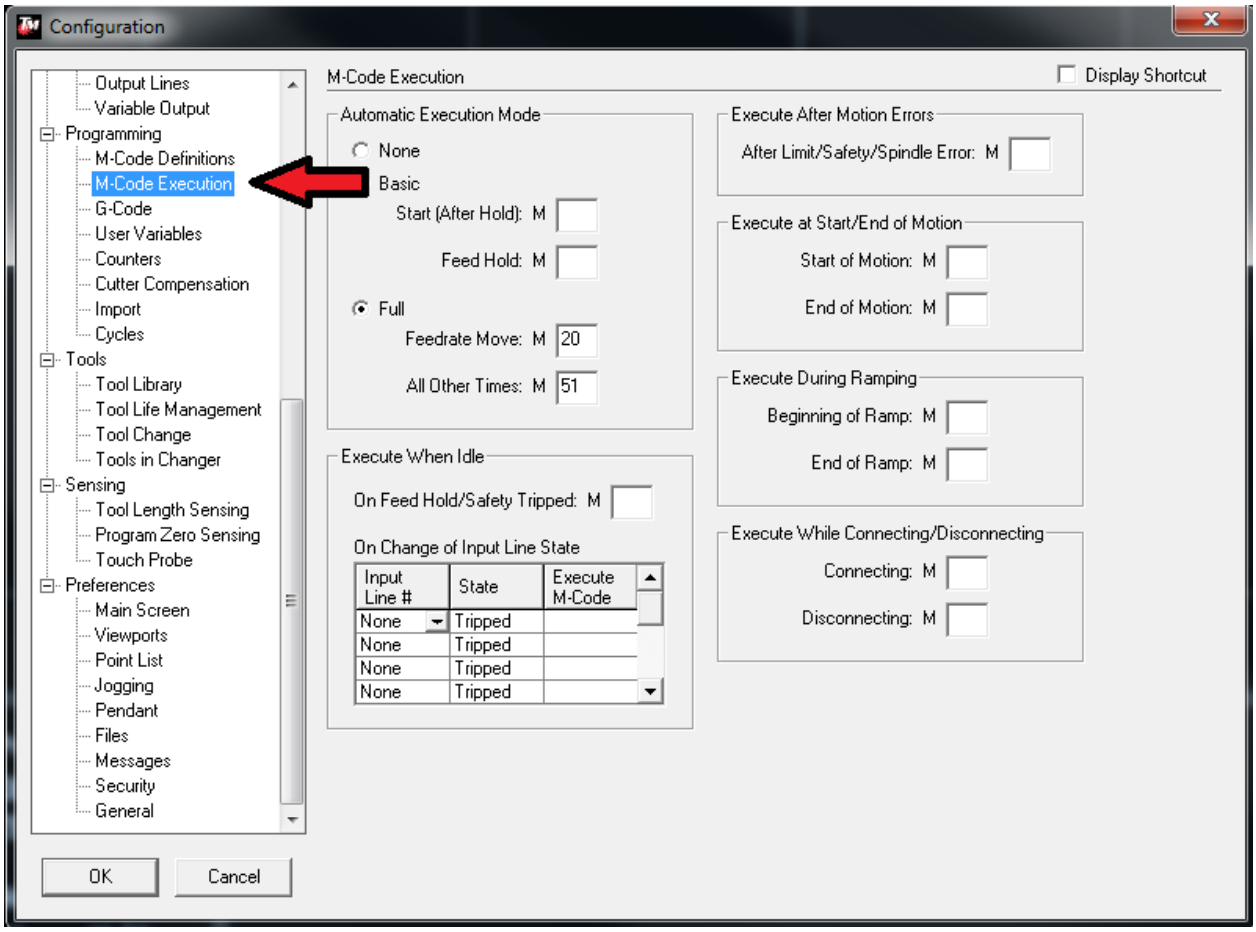
ELSEIF #CURRTOOL = 1 THEN

M51

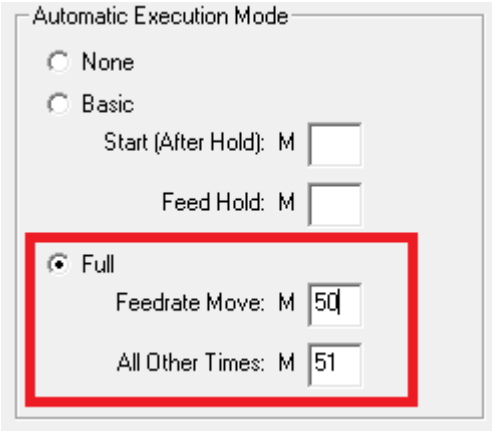
Change the “51” to “23” so it looks like the picture below:



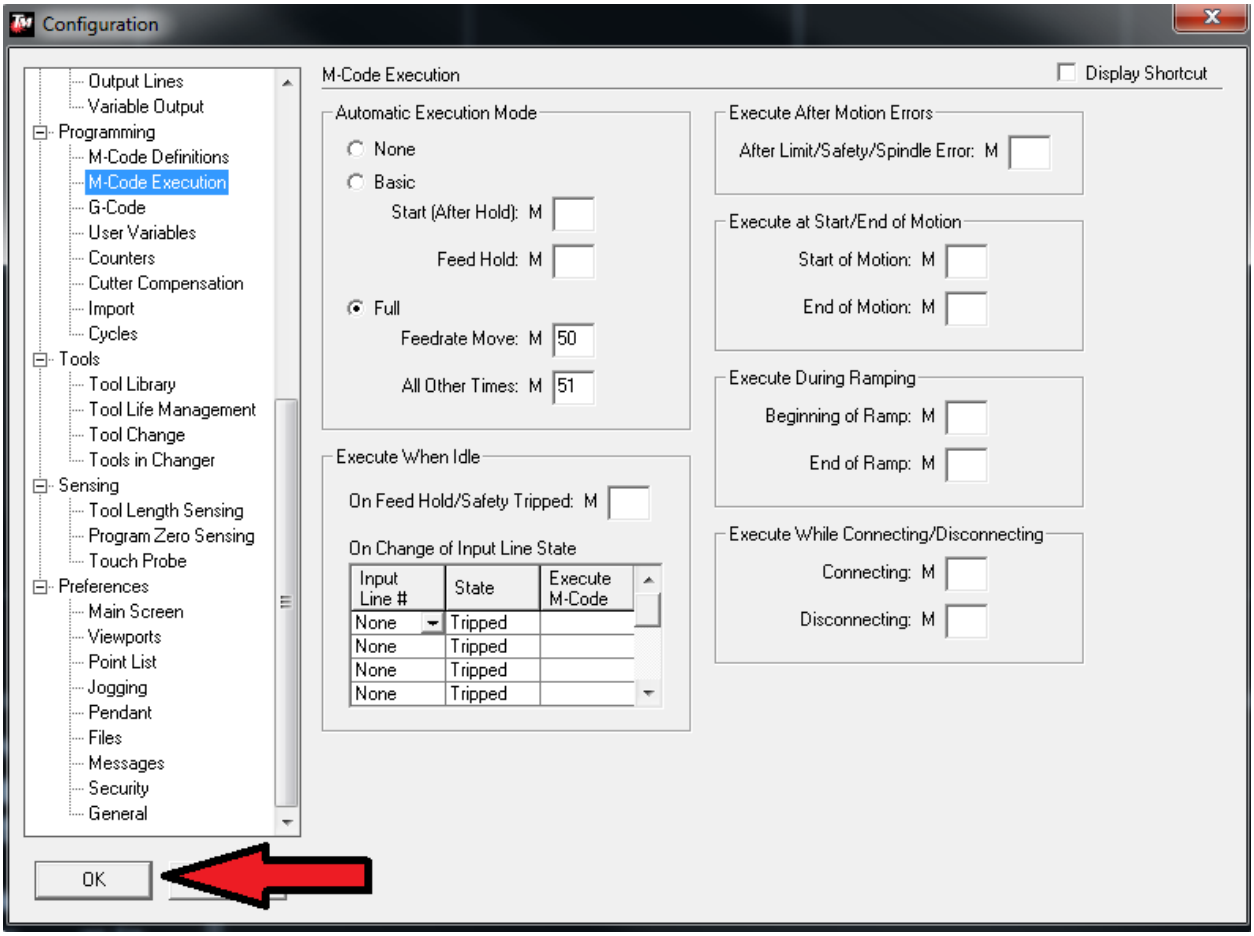
Click “OK” and then navigate to the “M-Code Execution” screen show here:



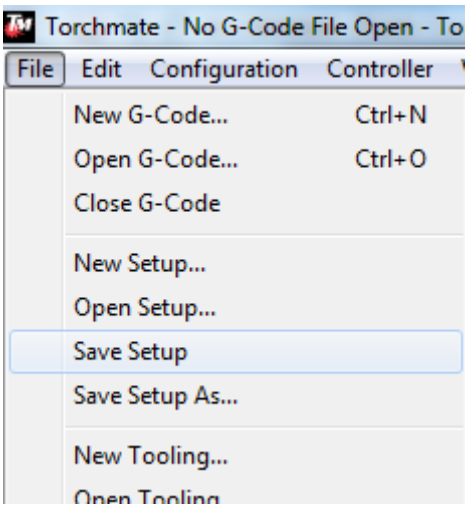
Notice where it says “Full” and change “Feedrate Move” from “20” to “50”.



Click “OK” in the bottom left of the screen

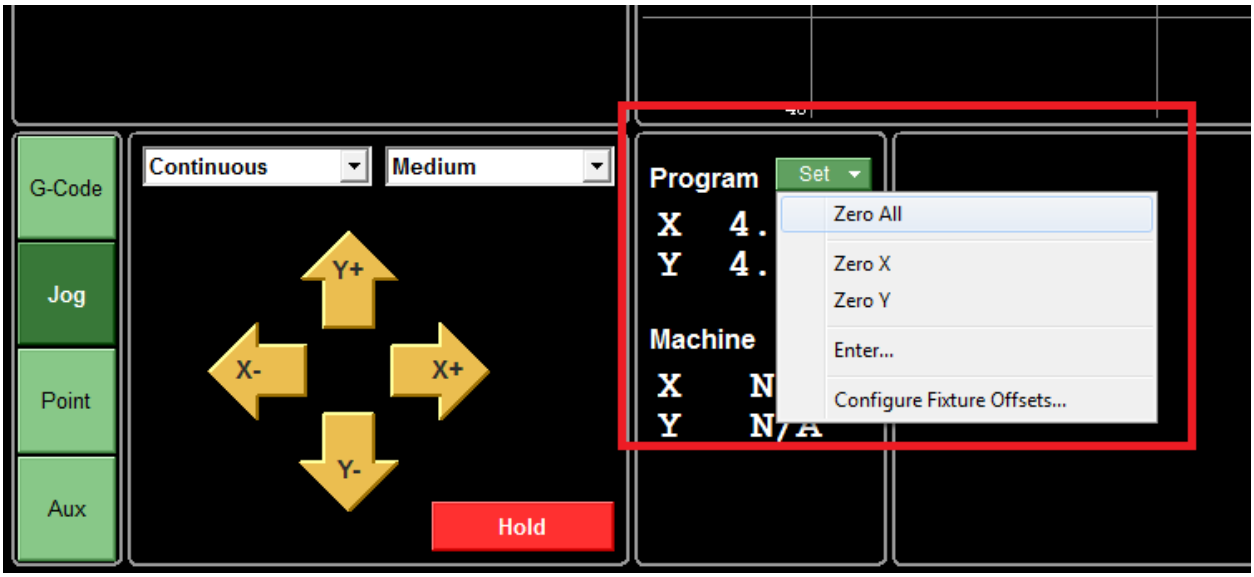


You will want to save your setup at this point so that you won’t have to make this change again. To do this, go to **[File > Save Setup]**.

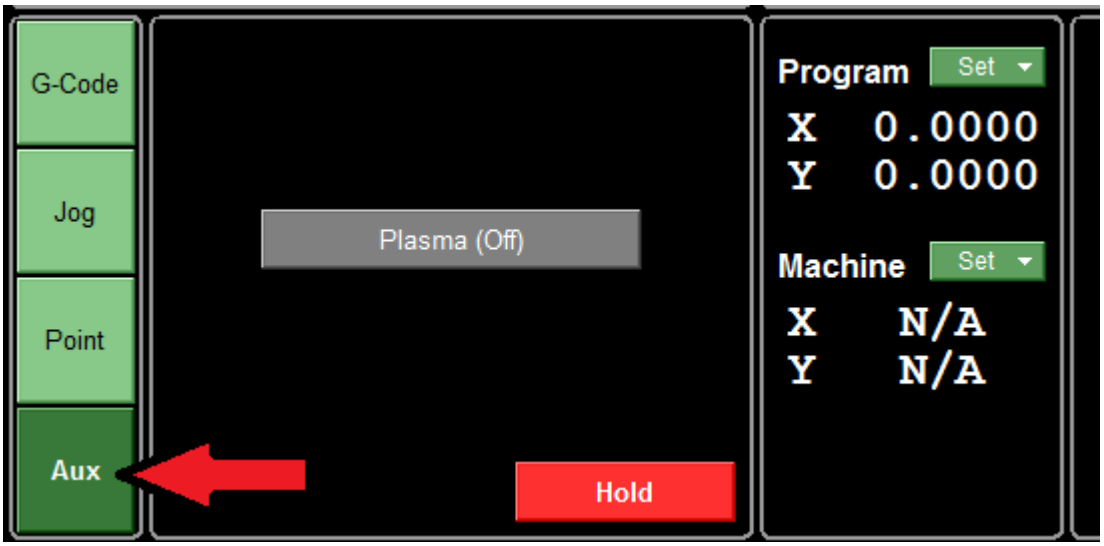


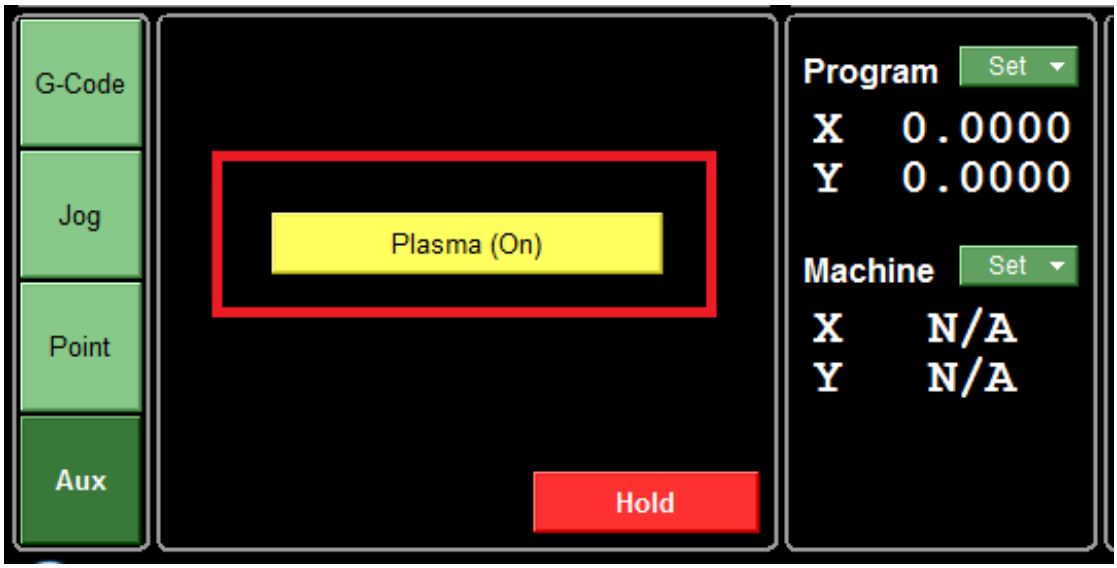
As a precaution, we also recommend making a backup file of this setup. To do this, go to **[File > Save Setup As]**. When naming the file, just add "BACKUP" to the end and save it. Then to go **[File > Open Setup]** and open up your original setup file. Now in case something happens to the original, you can always load the backup and be okay. Additionally, we recommend you save these two setup files to a USB flash drive or external hard drive. This way you will be covered if your computer crashes or is otherwise not operational.

Now, if you haven't setup your tool offset yet, I will explain how to do that now. Jog your torch over a piece of material and zero your program coordinates (Click on "SET" and then click "Zero All")

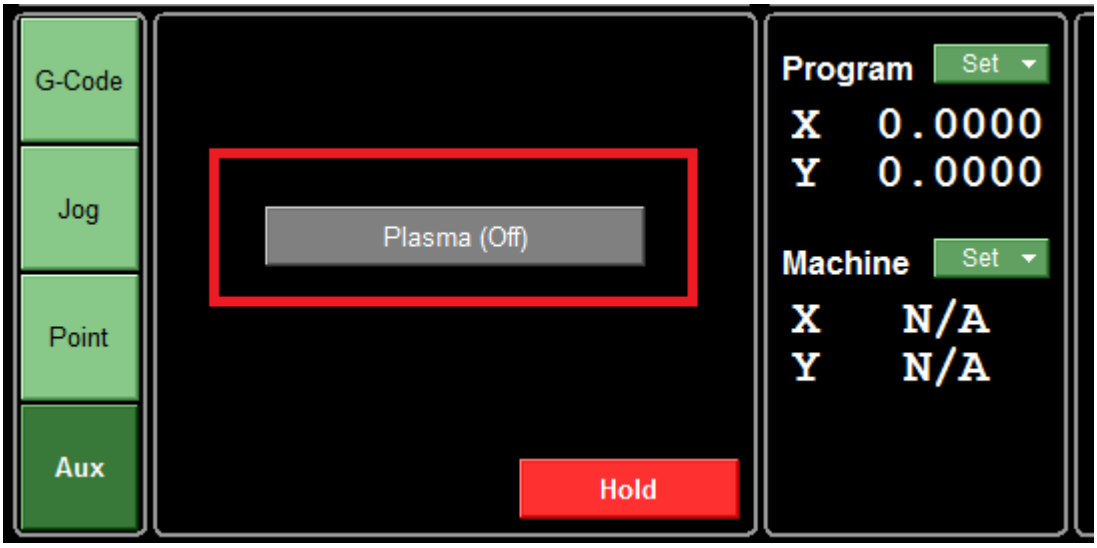


Go to the “AUX” menu and turn your plasma from OFF to ON





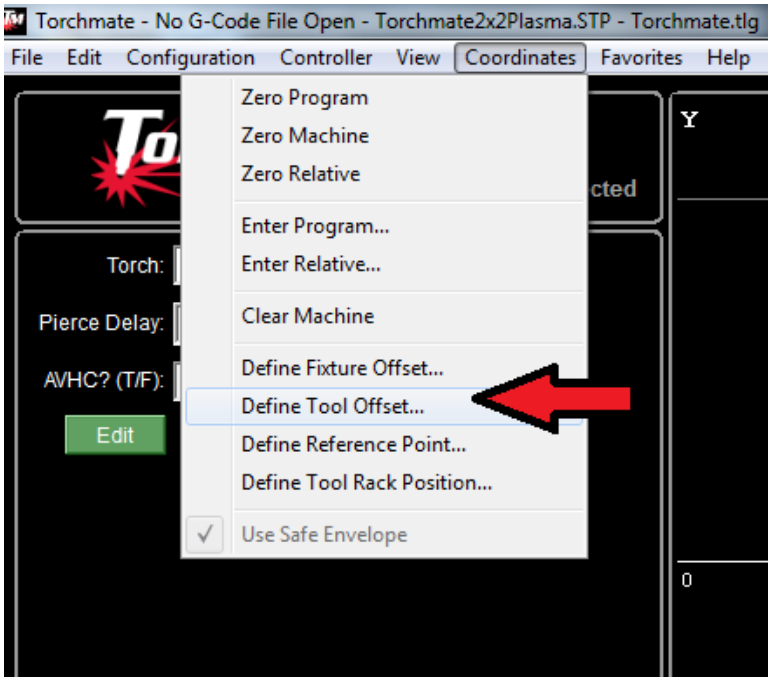
Once you see sparks, turn the plasma off.



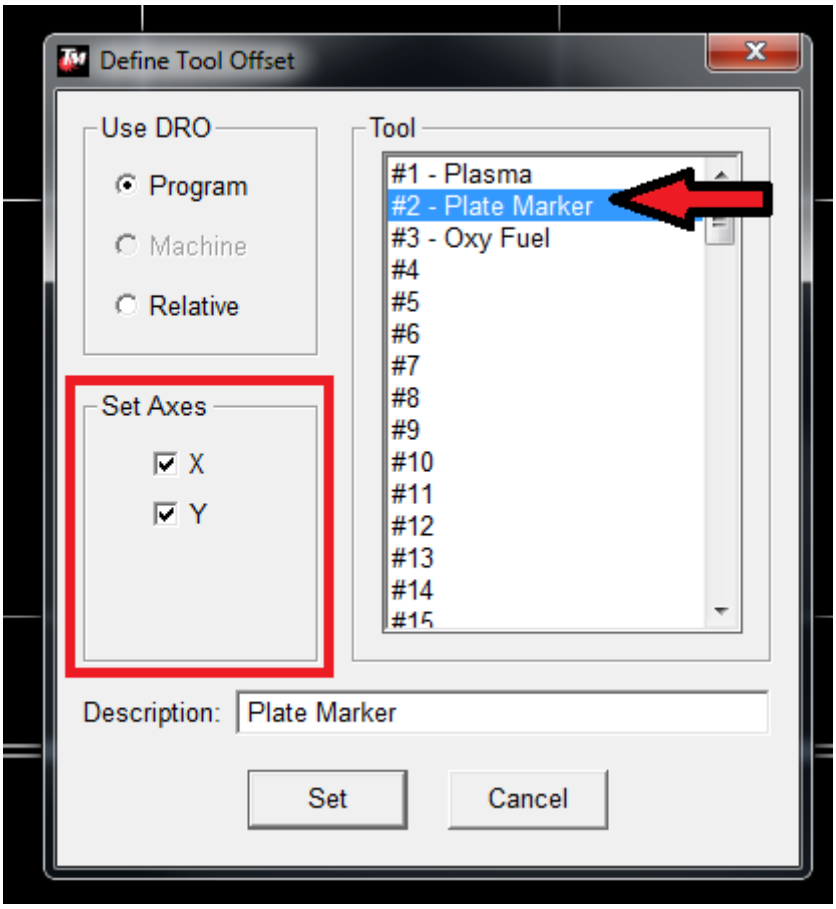
You should now have a pierce mark on the material as shown below:

Now jog the machine until your plate marker is exactly over the pierce hole. You may want to bring the plate marker down physically and see if it dives exactly into the middle of that hole as shown below:

Once the plate marker fits in the pierce mark, go to **[Coordinates > Define Tool Offset]**

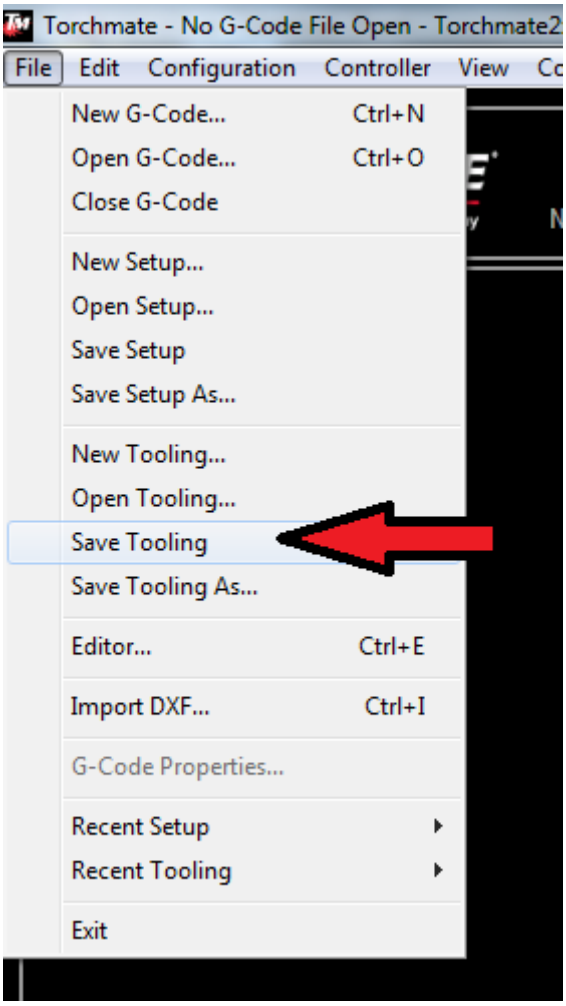


Make sure to click on “Plate Marker” and that X and Y are checked as shown below:



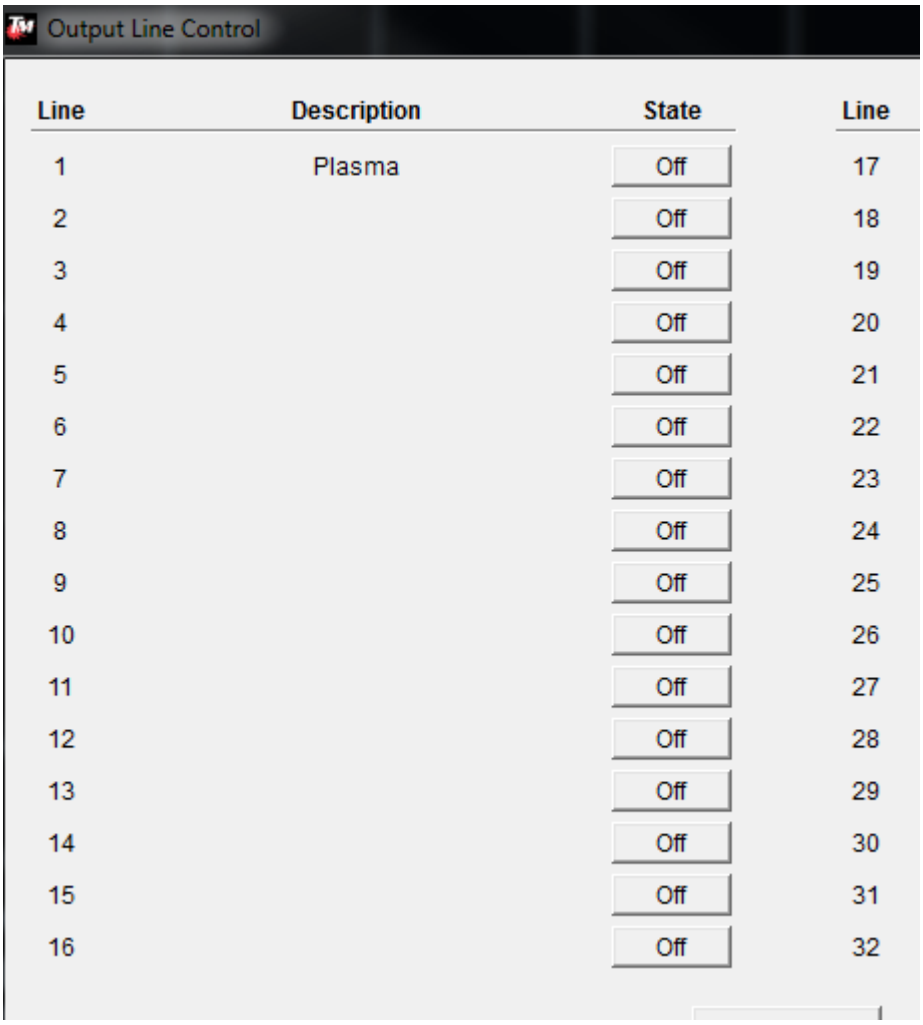
If the “Define Tool Offset” window looks like what is pictured before, click on “Set”.

Finally, go to **[File > Save Tooling]**



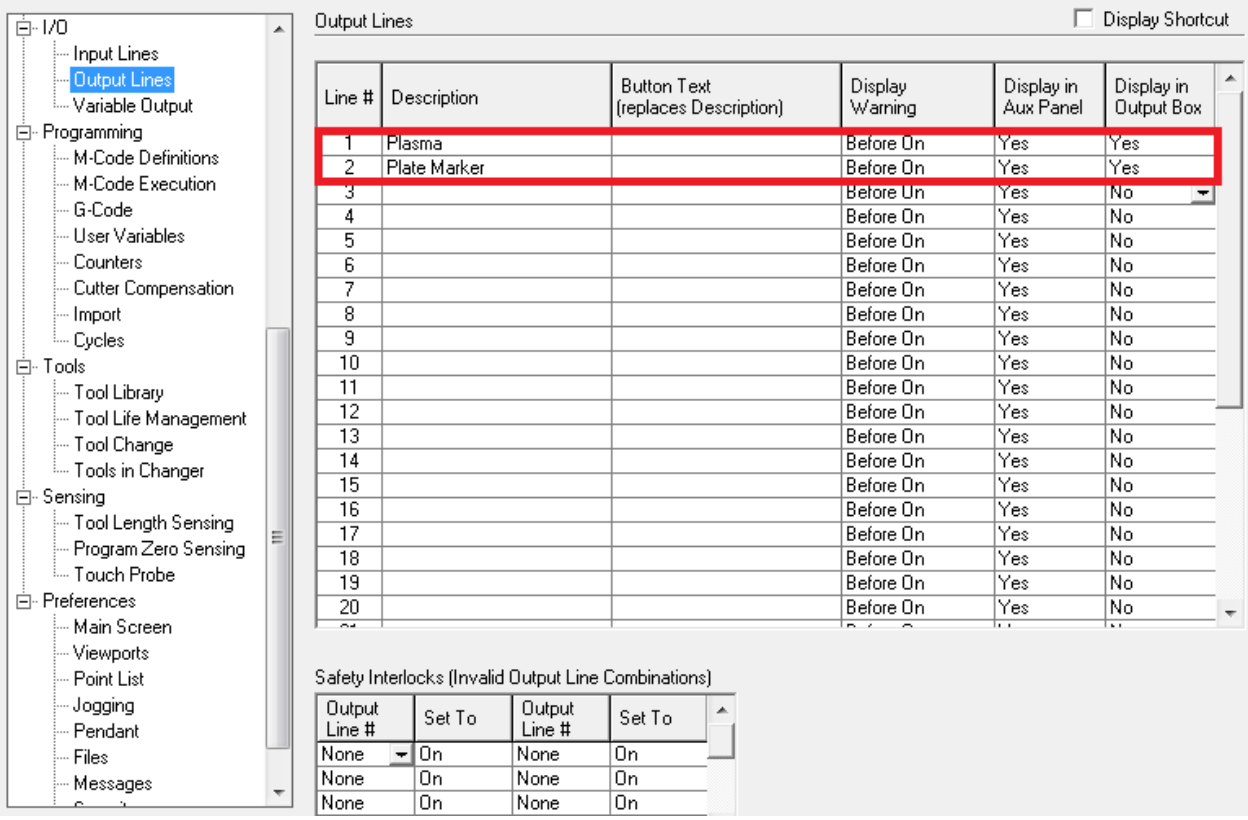
It is also important to create a backup of that file as well. You are now ready to create multi-tool files and run them inside Torchmate 4.

Now to actually add the Plate Marker to your tool set. Go to **[Controller > Output Line Control]**

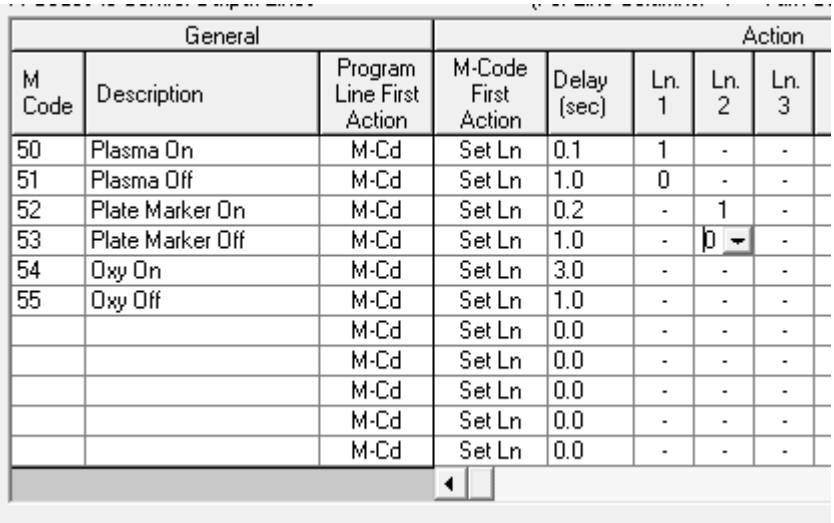


From here, start clicking the “Off” buttons starting at “2” one at a time. If you already have your Plate Marker set up with air, it will activate the Plate Marker. If not, then you should hear the click coming from the Torchmate Universal Relay. If you do not hear a click or your Plate Marker does not fire, then just move to the next line and activate it.

Now that we know which line it's on. Go to [Configuration > I/O > Output Lines]. Type in "Plate Marker" on the line it was activated on. For the sake of this guide, I'm going to say it was on line two. It should look like this:



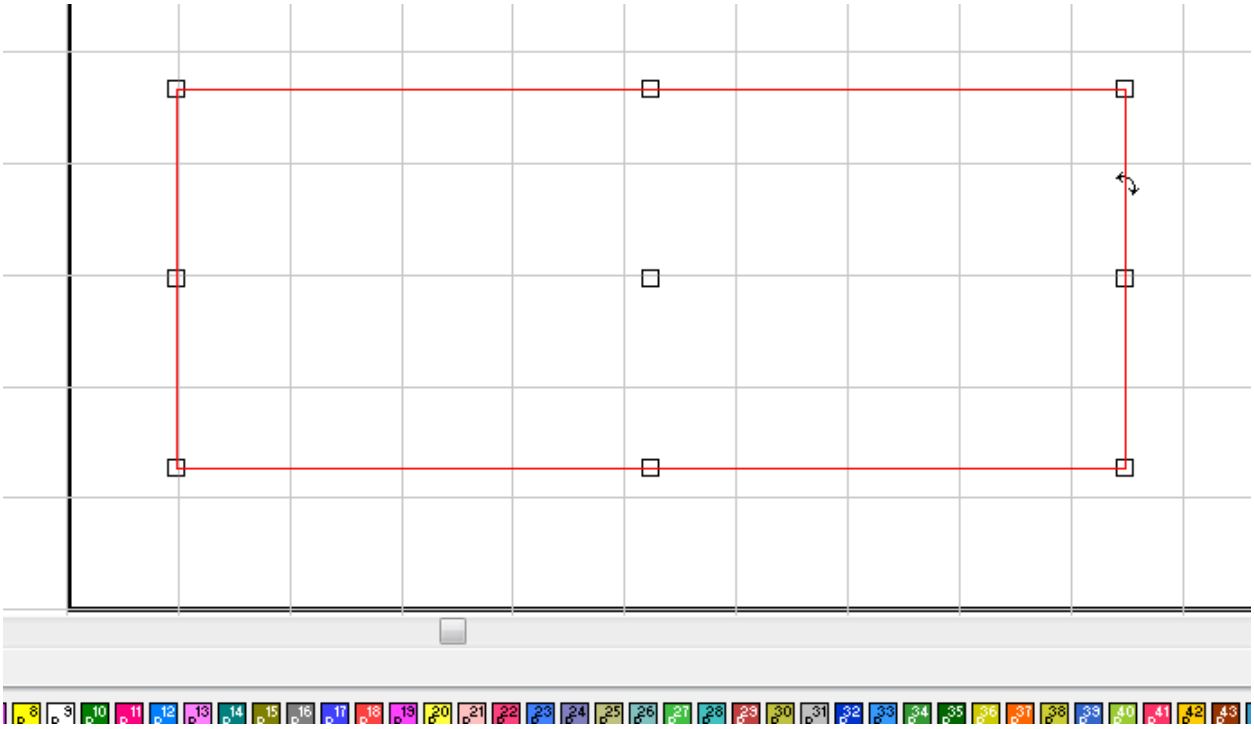
Now make your way down to your M-Code Definitions one last time. You'll need to add on/off commands on the appropriate line. If your Plate Marker is on Line 2, then it should look like this:



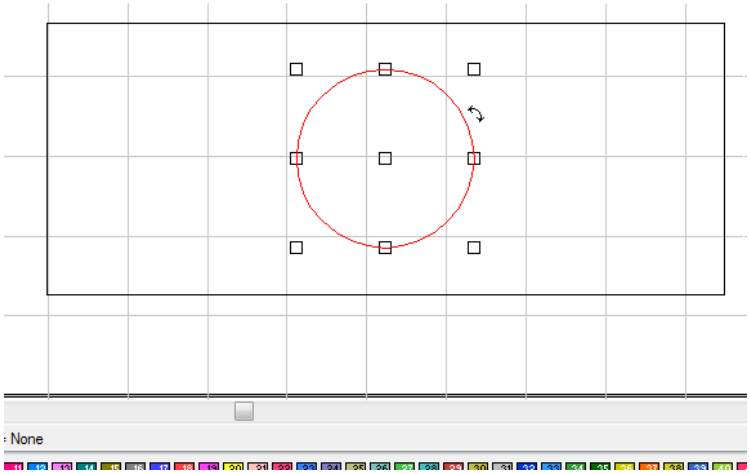
General			Action				
M Code	Description	Program Line First Action	M-Code First Action	Delay (sec)	Ln. 1	Ln. 2	Ln. 3
50	Plasma On	M-Cd	Set Ln	0.1	1	-	-
51	Plasma Off	M-Cd	Set Ln	1.0	0	-	-
52	Plate Marker On	M-Cd	Set Ln	0.2	-	1	-
53	Plate Marker Off	M-Cd	Set Ln	1.0	-	0	-
54	Oxy On	M-Cd	Set Ln	3.0	-	-	-
55	Oxy Off	M-Cd	Set Ln	1.0	-	-	-
		M-Cd	Set Ln	0.0	-	-	-
		M-Cd	Set Ln	0.0	-	-	-
		M-Cd	Set Ln	0.0	-	-	-
		M-Cd	Set Ln	0.0	-	-	-
		M-Cd	Set Ln	0.0	-	-	-

Once that is done, click OK in the bottom left and then go to **[File > Save Setup]**. You should be all done here in the Driver Software for now.

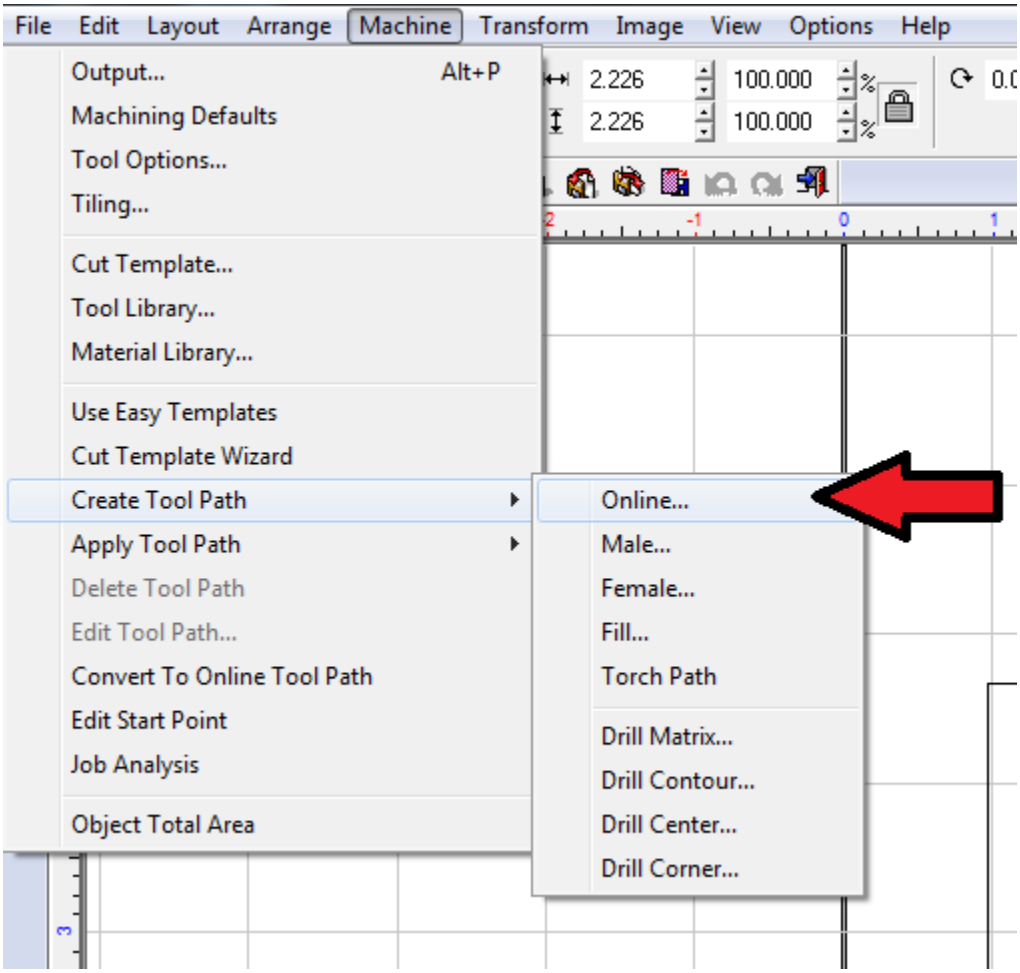
Now we need to create a Multi-Tool file. The part you will be making is going to be very basic, but will help you understand the fundamentals of multi-tool programs. First, start by creating a rectangle. Any size will do.



Now create a circle inside of that rectangle. Again, any size (as long as it fits inside the rectangle) will do.

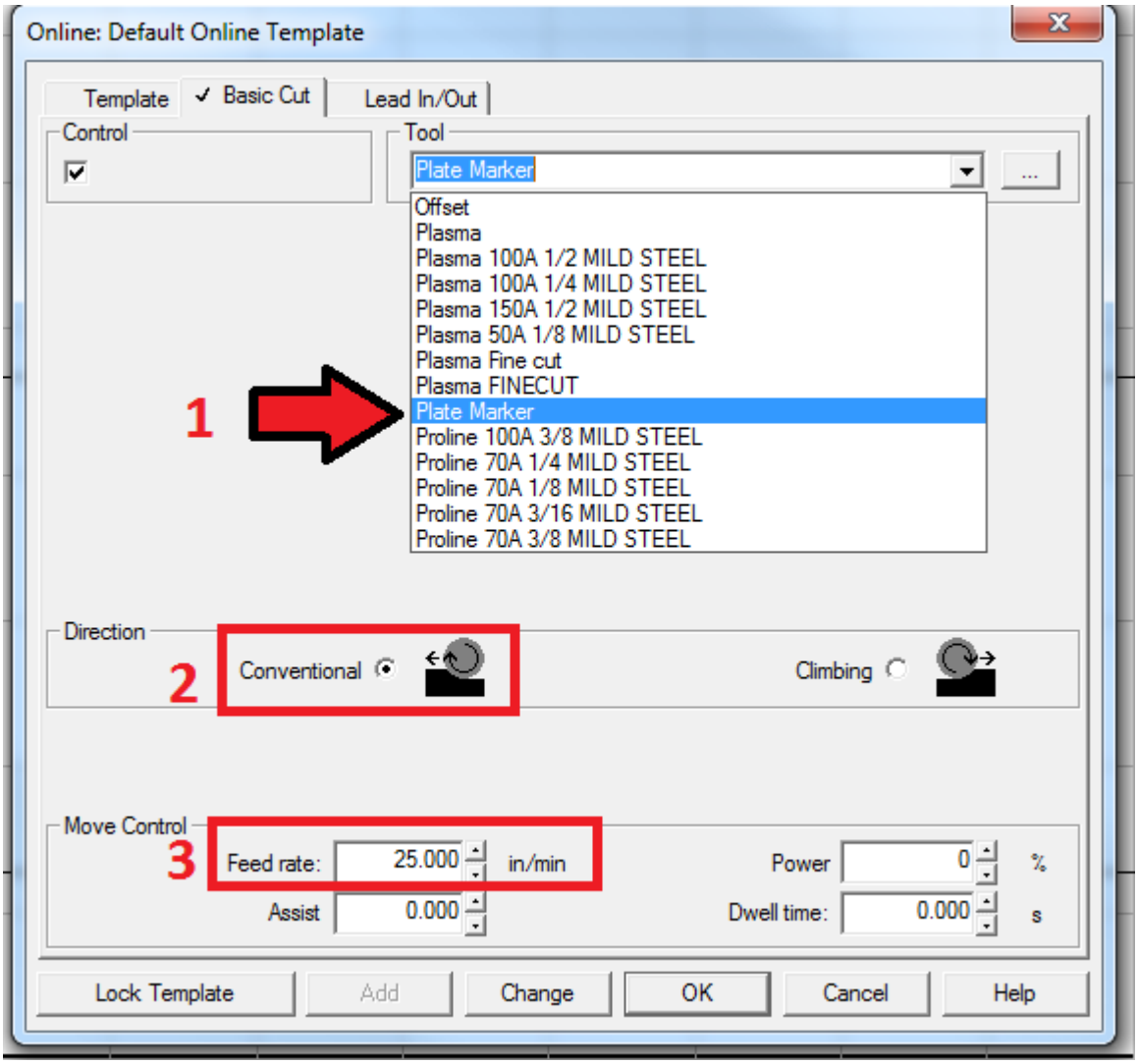


With the circle selected, go to **[Machine > Create Tool Path > Online]**.

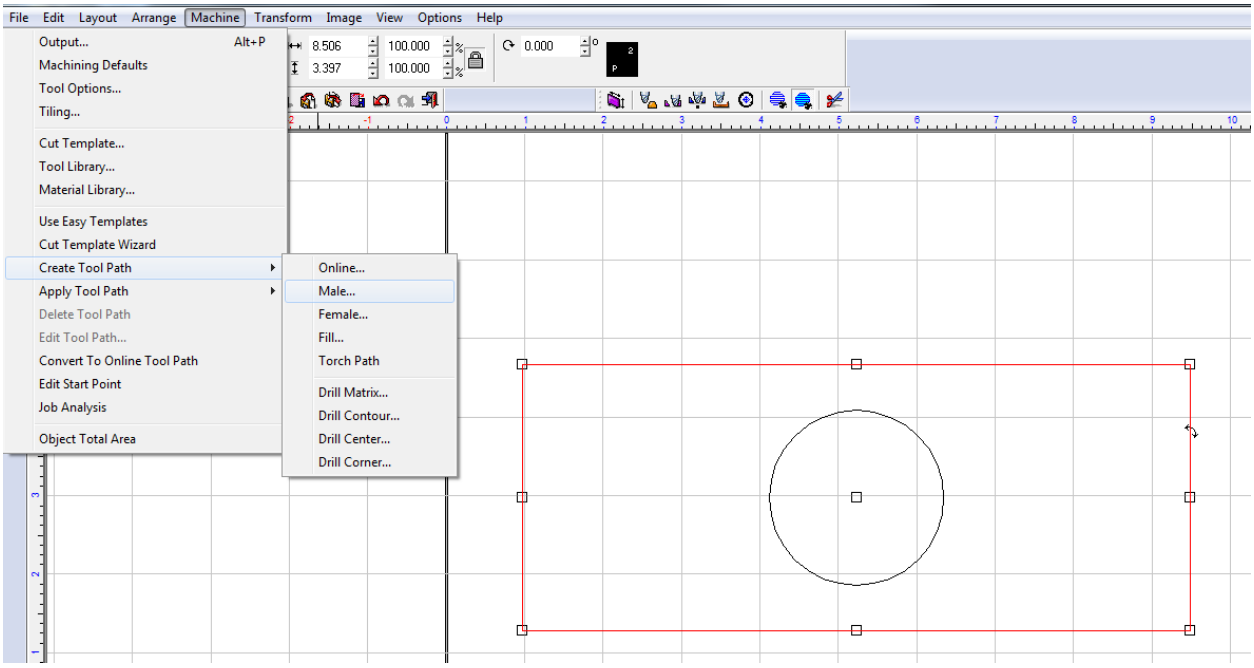


*****Please note, if you do not see "Create Tool Path", uncheck "Use Easy Templates"*****

(1) Select “Plate Marker”. **(2)**Make sure your direction is set to “Conventional”. **(3)**Enter in your feed rate. It is important to remember that your feed rate **MUST** be entered in at this screen. Otherwise the program will not work when opened inside the Torchmate software. A feed rate anywhere between 25 and 35 is acceptable. I prefer 25 inches per minute because it helps reduce the dot matrix effect that may happen at higher speeds. Once you’ve entered in your feed rate, click “OK”.

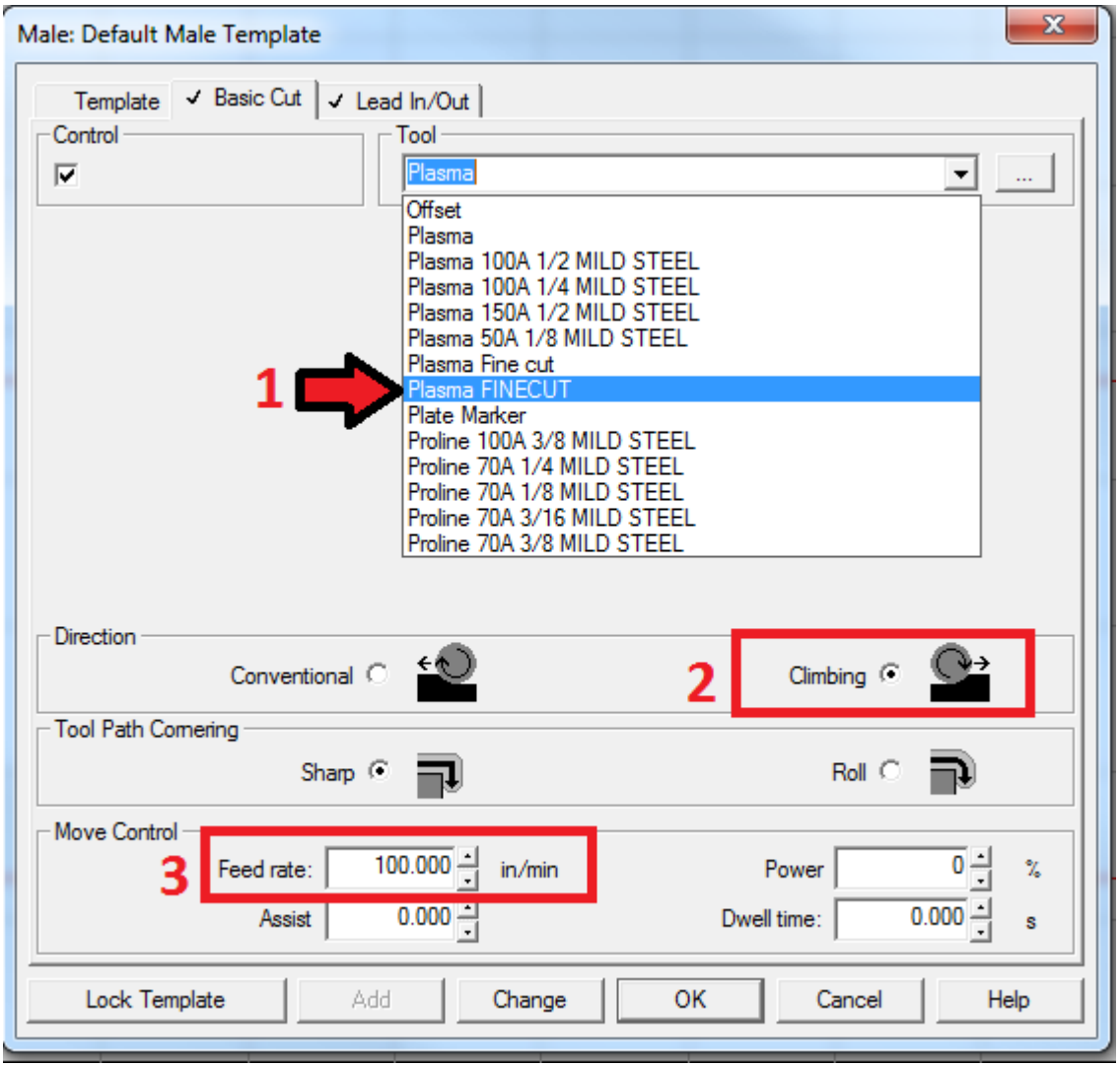


Select the rectangle and go to **[Machine > Create Tool Path > Male]**.



Pretty much the same rules apply in this tool path creation as they did when you created an online path. You'll need to choose your tool, set your direction, and choose your feed rate. All of these things are important to make sure your file works properly when you open it up inside of the Torchmate software.

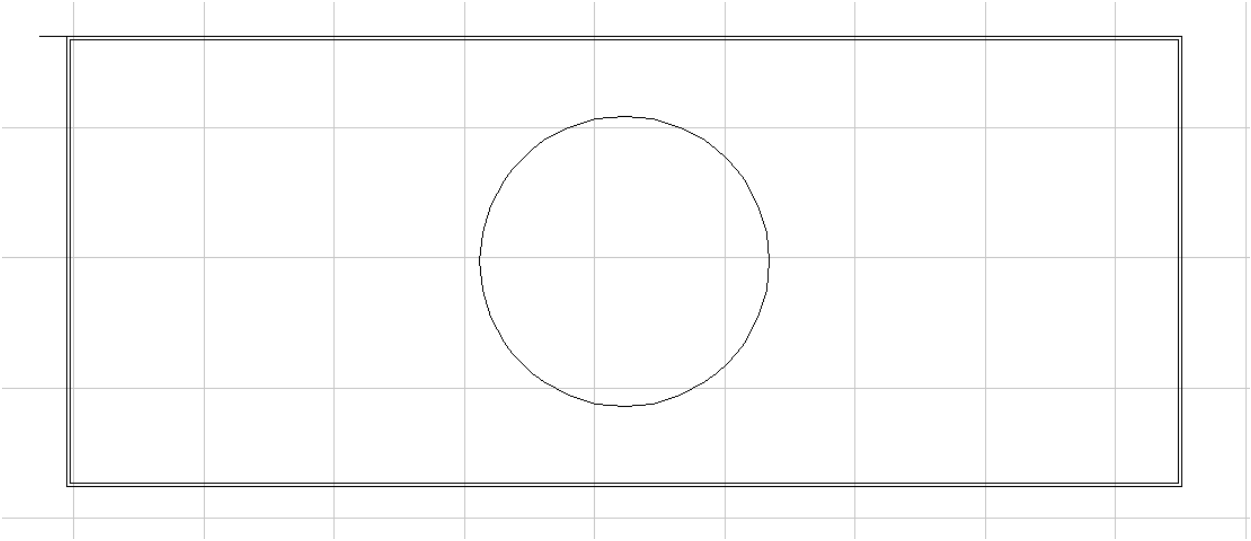
(1) Select your plasma tool. **(2)**Select “Climbing” for your direction. **(3)**Enter in your feed rate.



Now move on to your “Lead In/Out” tab and adjust your lead ins as you see fit. Afterwards, click “OK”.

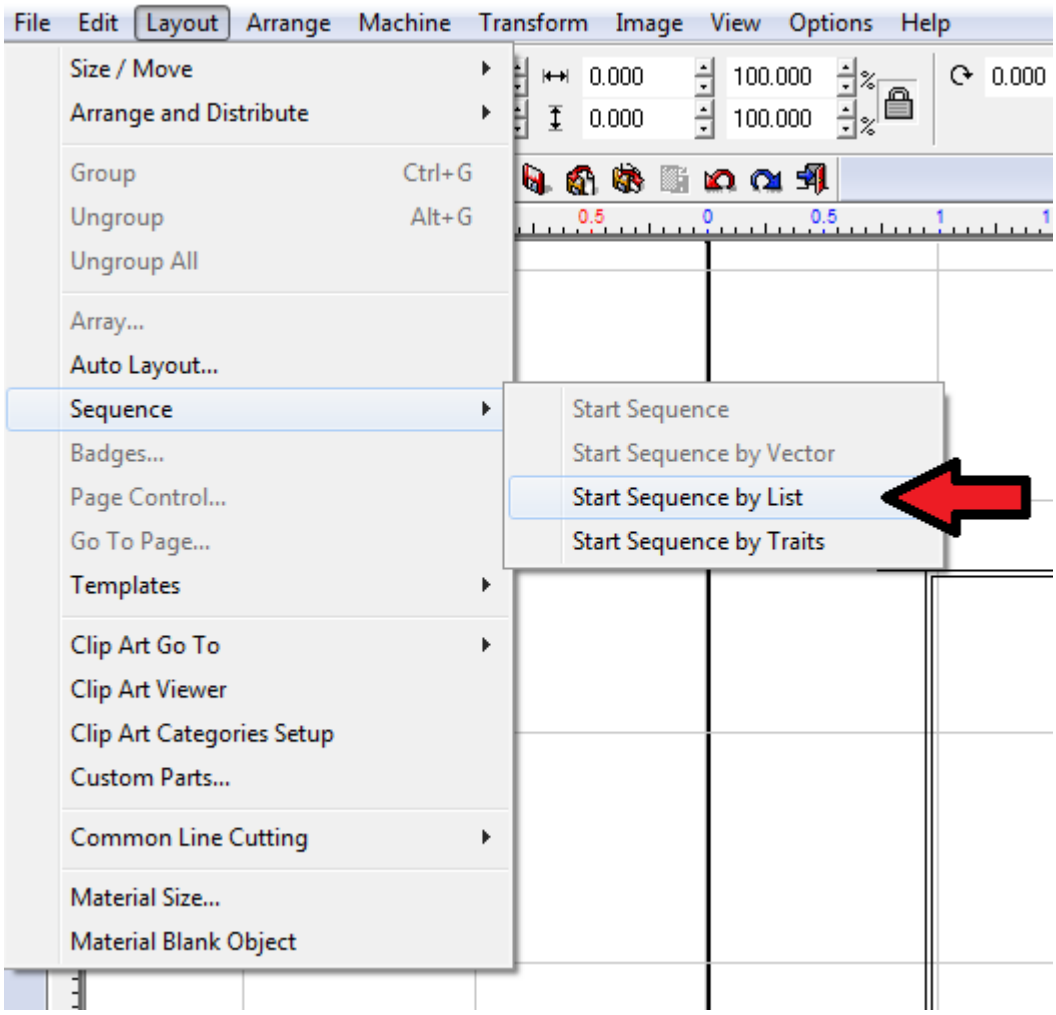
Now would be a good time to save your progress **[File > Save]**. That way if you have any problems, you can always open up your saved file and make adjustments.

By now you should have your original drawing and your tool path on the screen.



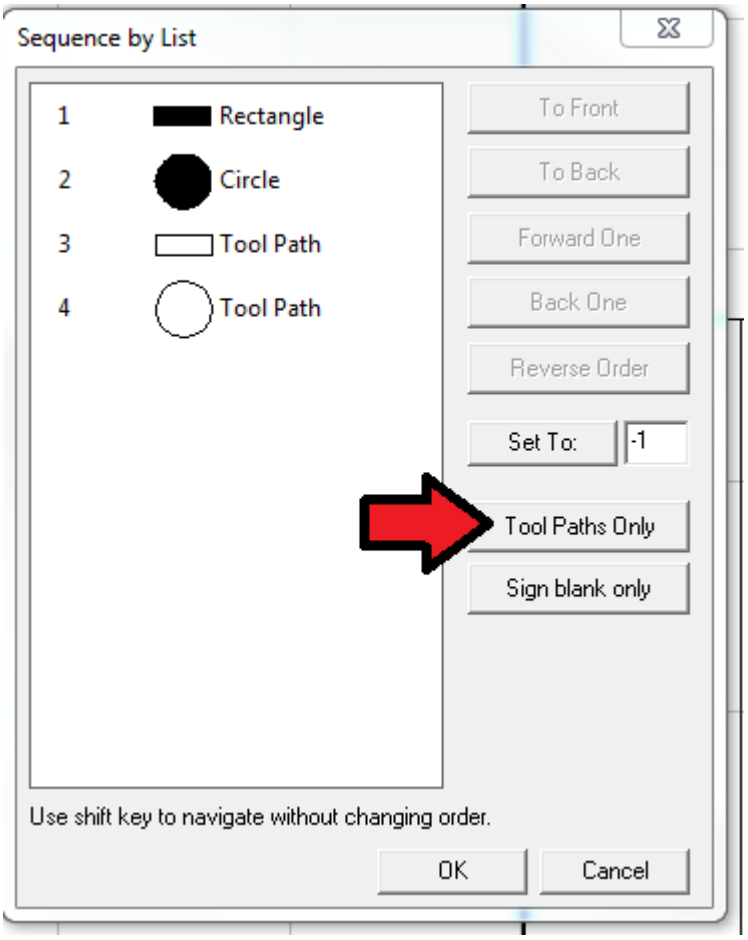
At this point, getting the file in the right order is crucial. Even though we made the tool path on the circle first, that doesn't necessarily mean it will start at the circle.

To check and correct this, we need to go to the sequence manager. To go **[Layout > Sequence > Start Sequence By List]**.

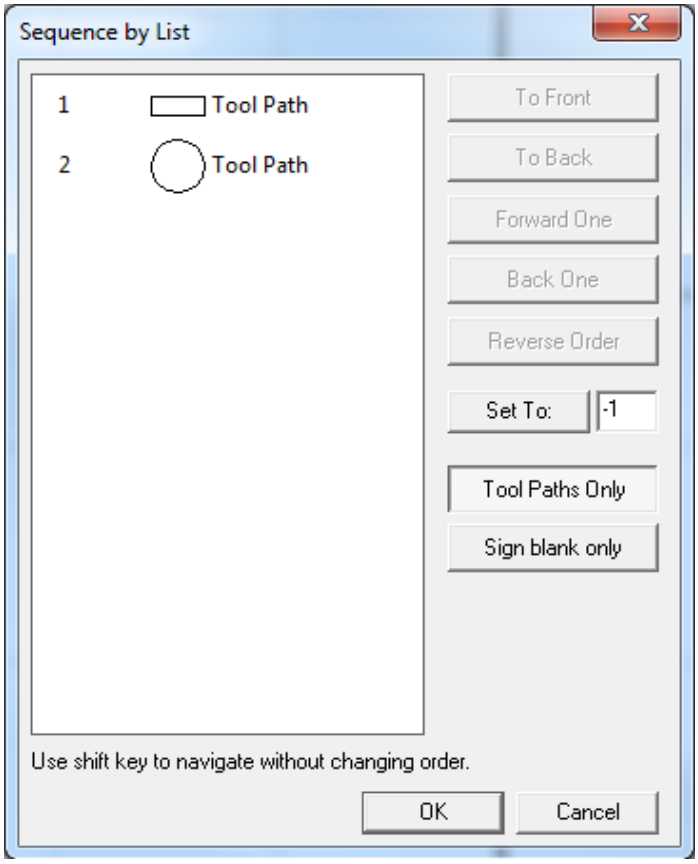


It will show you the objects you currently have in the program and list them in their cut order.

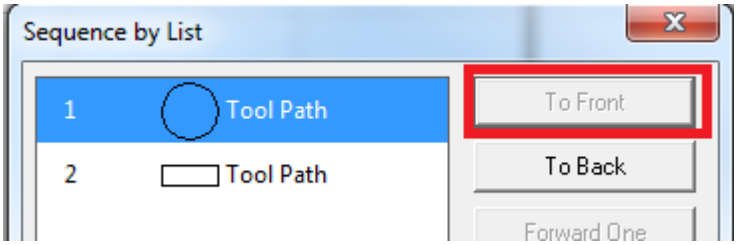
We won’t be concerned with regular objects, so click on “Tool Paths Only”



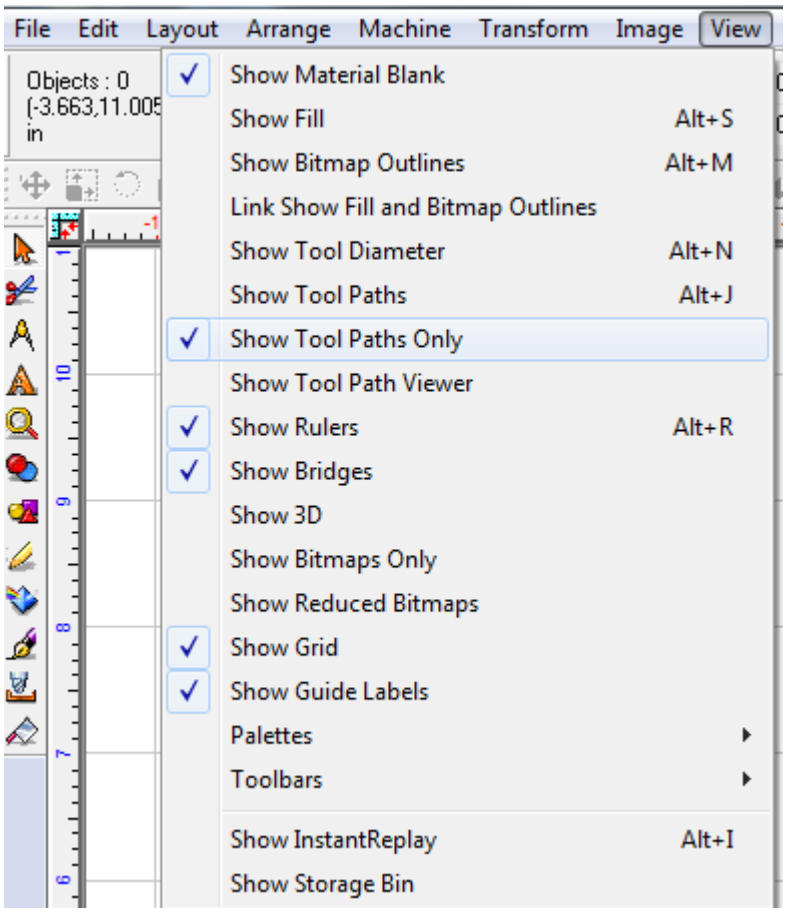
You should see something like this after click that button:



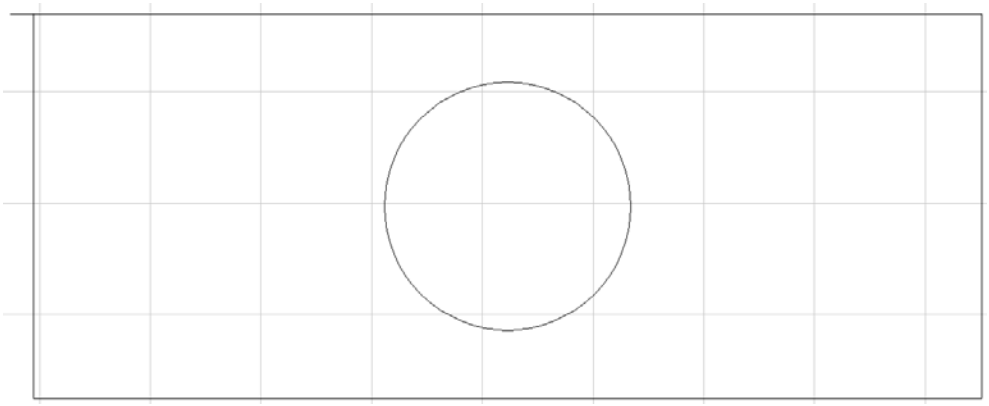
To alter the cut order, click on the object you want to move and then use the buttons to the right to move it in a direction. In this case, we want to take the circle and move it “To Front”.



After that, click “OK”. Now we need to export this file to G-Code. Go to **[View > Show Tool Paths Only]**.

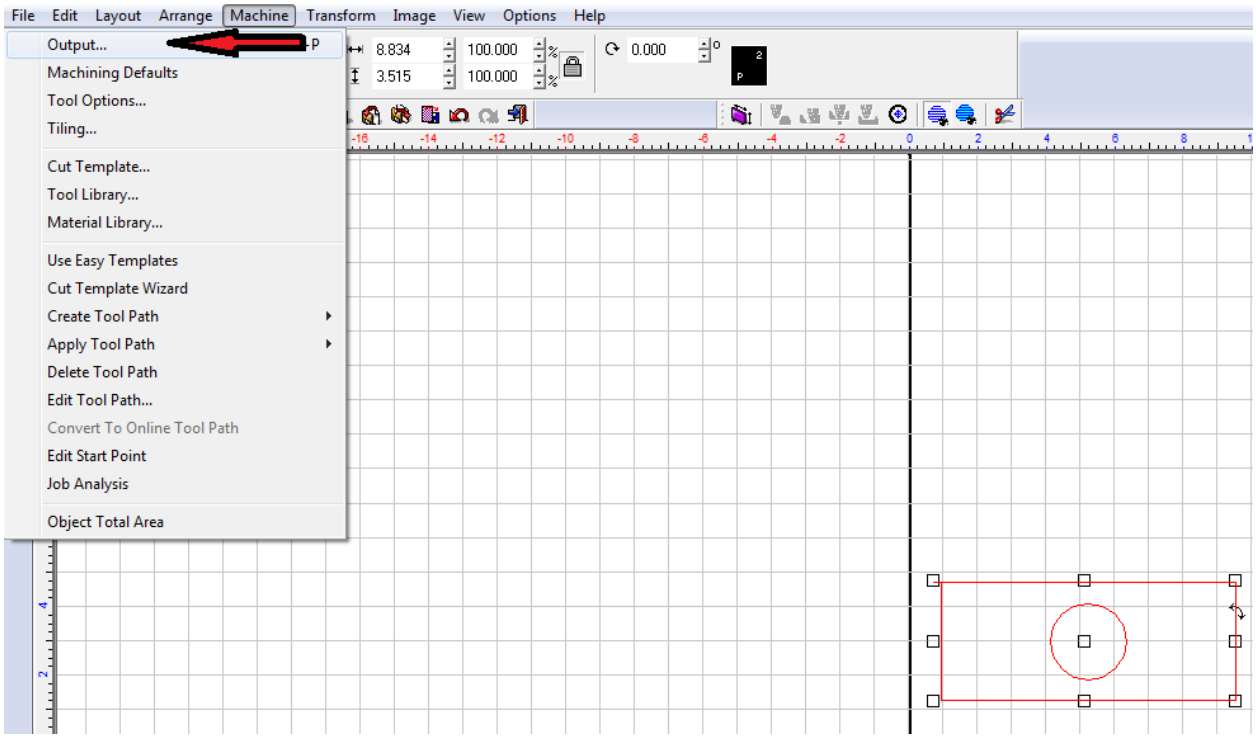


So now all that should be visible is your tool path.

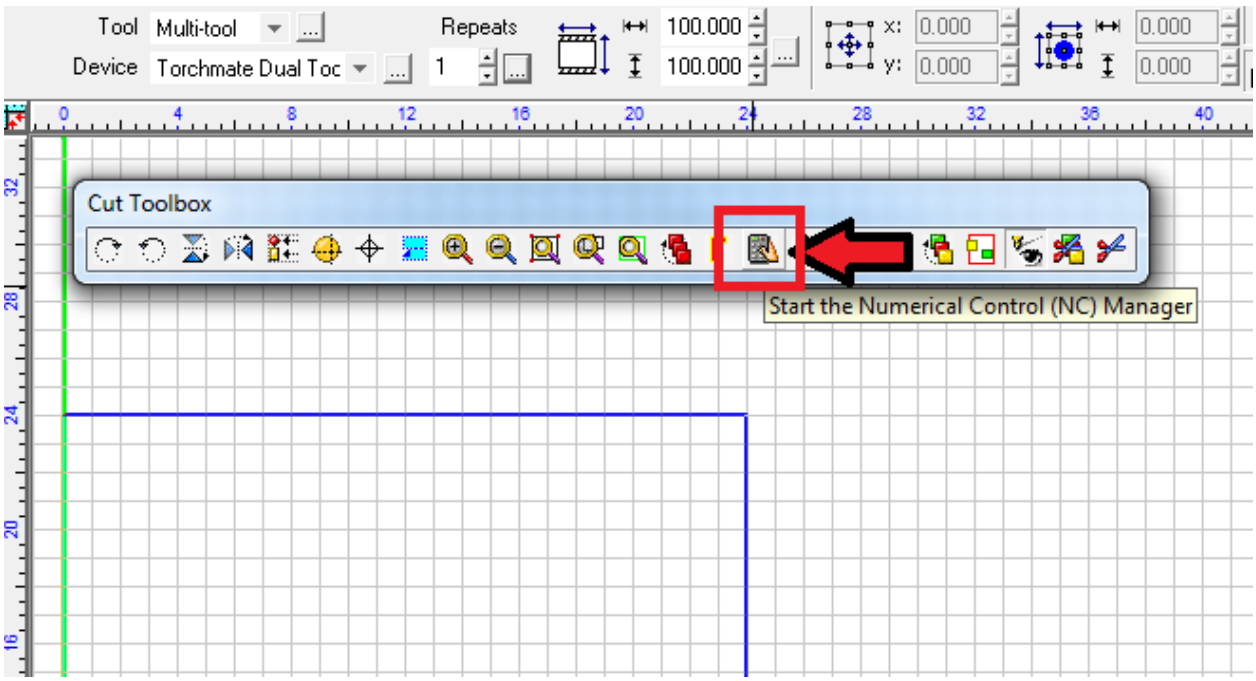


It is important that you now take the tool paths and move them to the zero location on the grid space.

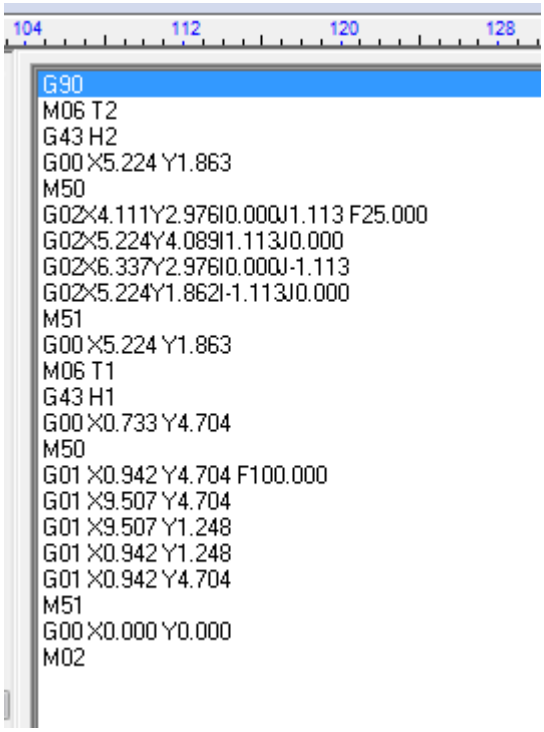
Now select both the circle and rectangle and go to **[Machine > Output]**.



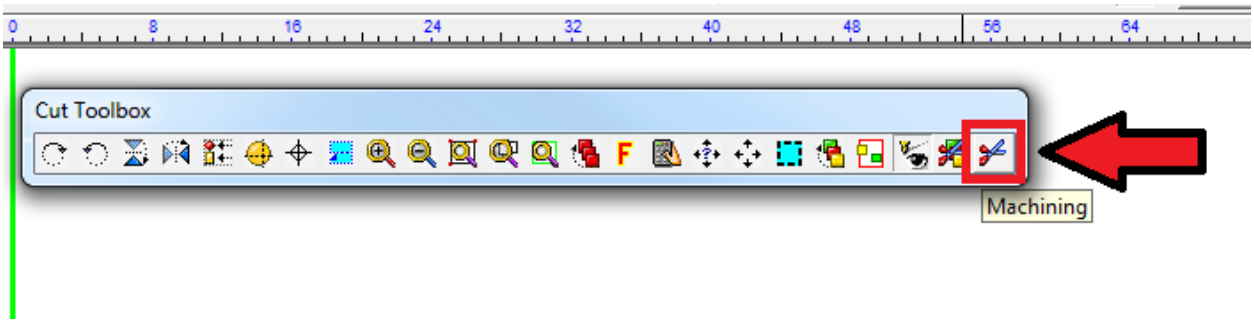
At this point, a bar will pop up with a whole lot of icons on it. For this guide, we will only be concerned with two of them. Click the calculator icon to generate the G-Code.



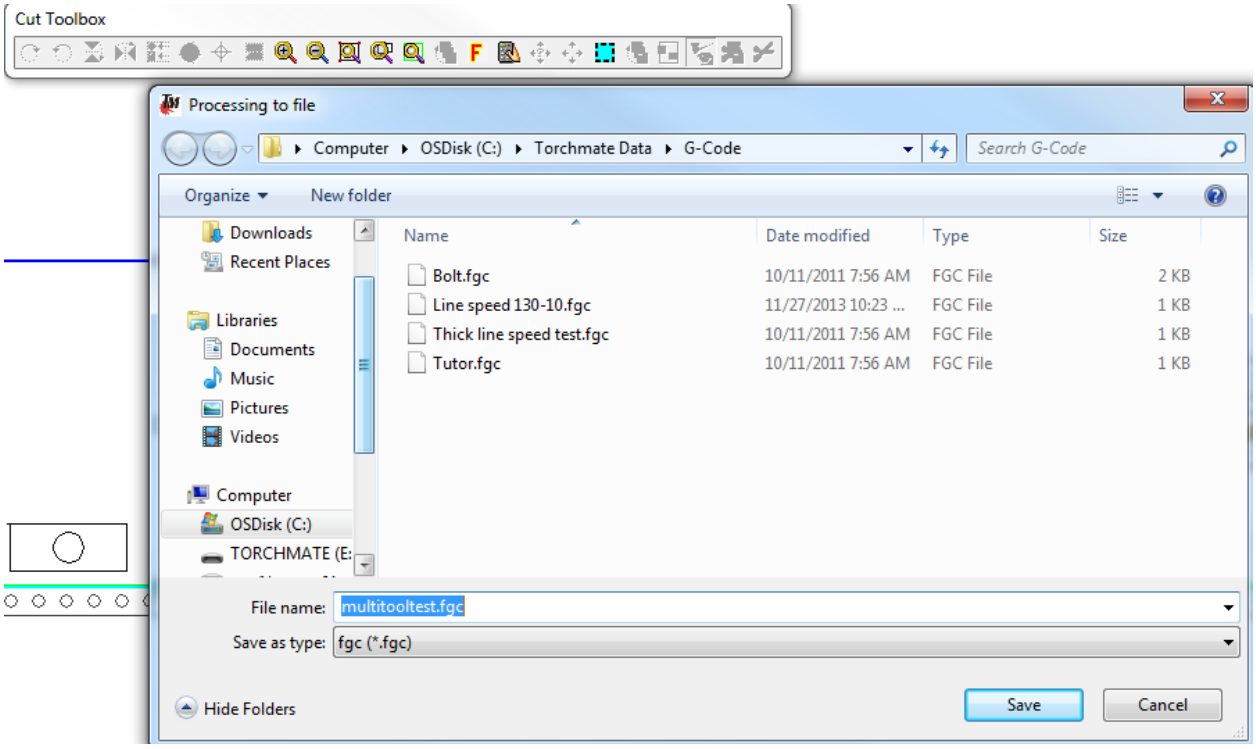
This will generate the G-Code on the right hand of the screen. It should look like this:



After that, click on the scissor icon on the same bar the calculator icon is on.

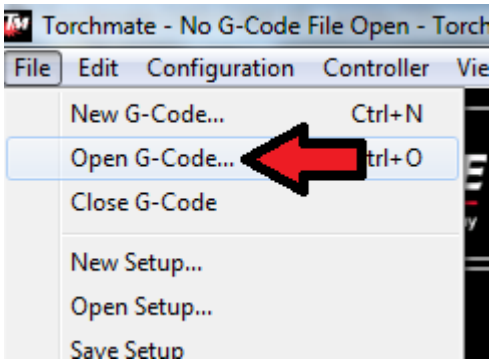


At this point, you will need to name your file and save it. It will automatically select FGC as an extension. This is the native G-Code that opens inside of the Torchmate software.

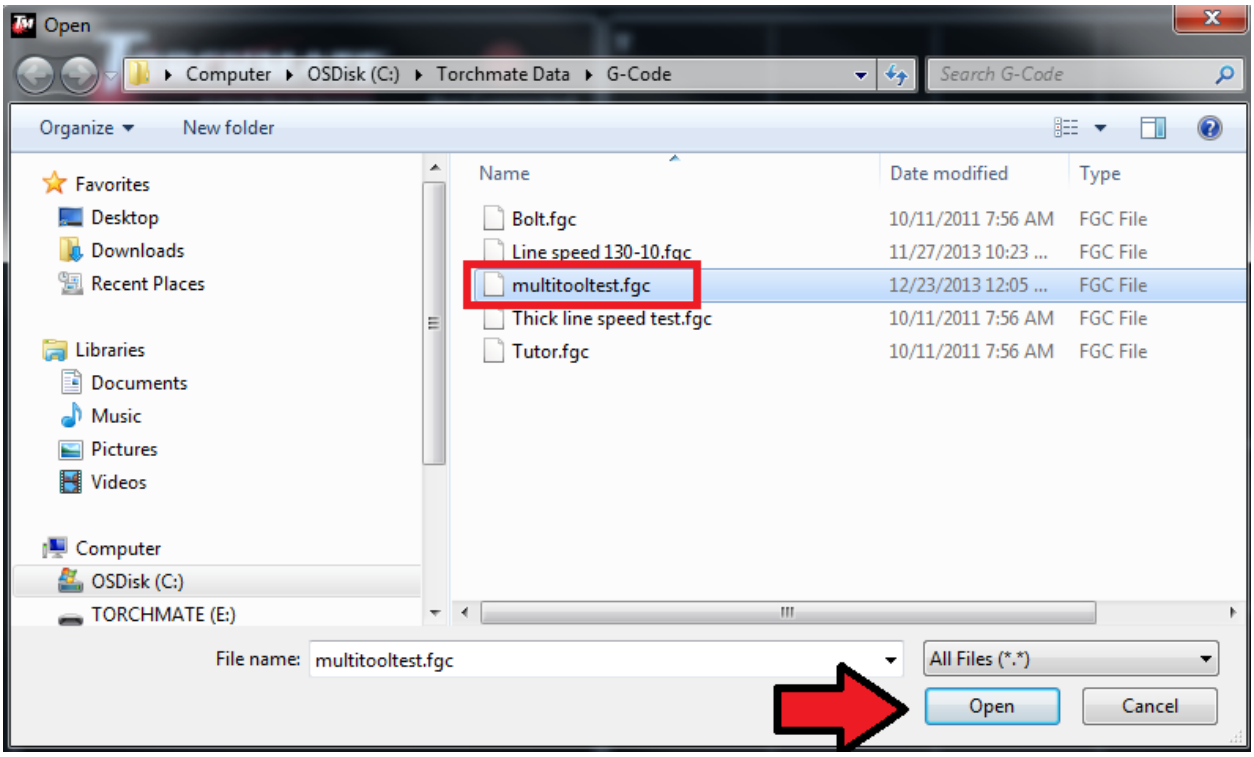


After you save the file, open up your Torchmate software. Go to

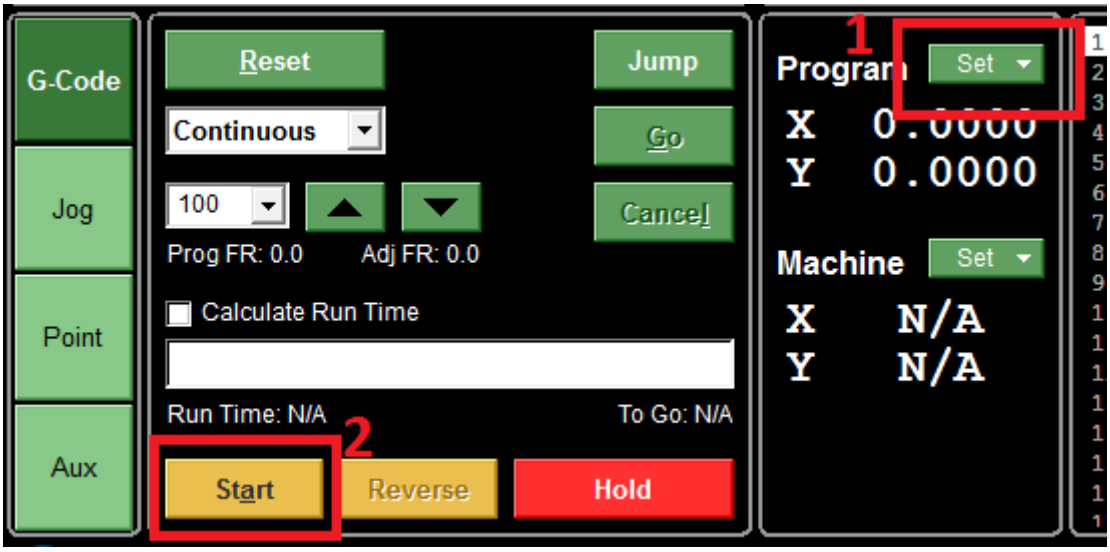
[File > Open G-Code].



Now just navigate to the file you just saved. Select it and then click “Open”.



This will bring your file into the Torchmate software with all of the tool changes and feed rates already entered in for you. All you need to do is **(1)**zero out your program coordinates and **(2)**hit Start.



Call, Fax, or Email

- When building the table if a question or concern arises or a part is missing, please contact Torchmate technical support.
- Technical support will also help you with operating the CNC system, and troubleshooting problems.
- Torchmate Technical support is available Monday through Friday from 6 AM to 4 PM (06:00 to 16:00) Pacific Time Zone.

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Fax: 775-673-2206
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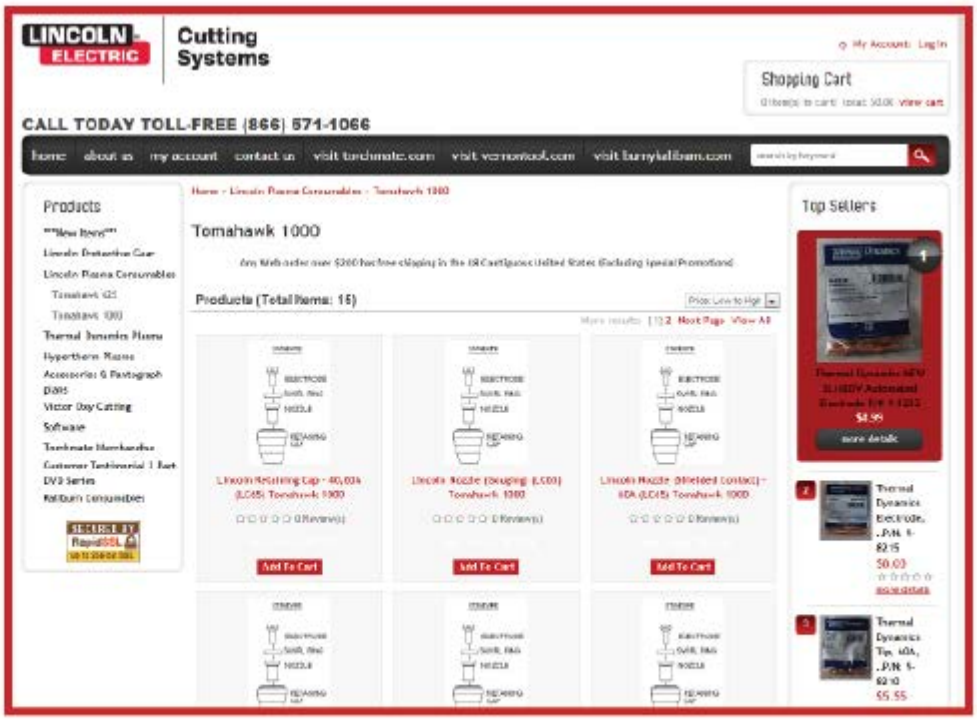

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