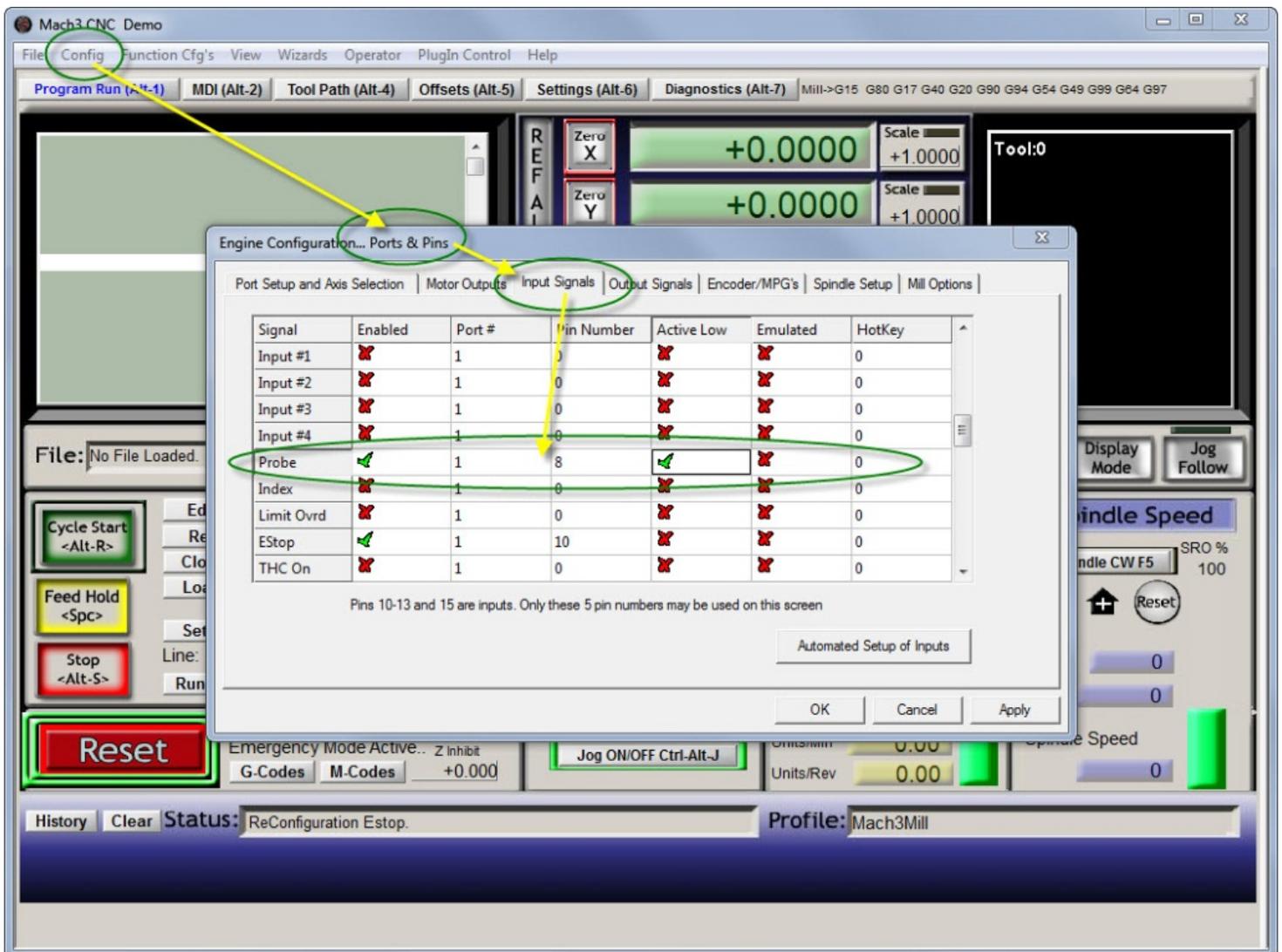


# SETUP for installing Edge Finder on a Mach3 system

You will need to activate the Digitizing probe in order to use the edge finder. First thing is to configure the probe input as follows. You will need to select an available port and pin to connect to the probe and edge finder. Below is an example on how to set up the port.

**CAUTION: Because the edge finder is used very near the tool and spindle, Always make sure the spindle cannot spin while using the Edge Finder.**

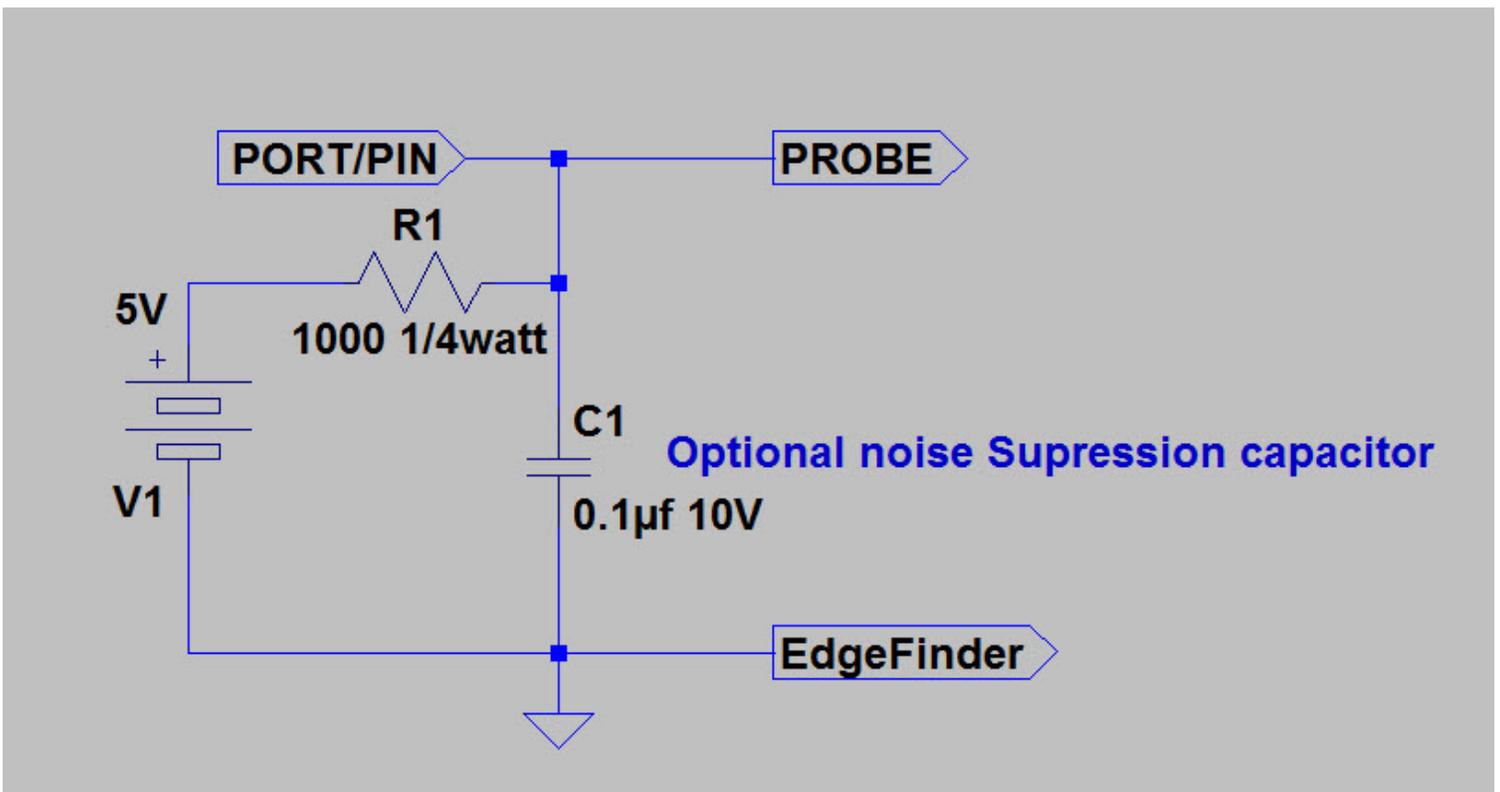


## Probe Wiring diagram:

The CNC probe sensing circuit must be wired correctly for proper operation. The usual way to do this is to wire a ground wire to the edge finder and apply a 5 volt source to the probe and port input. Fairly reliable results can be had by using a 1000 ohm resistor and a small filter capacitor. The resistor makes the power supply short circuit proof, and the capacitor will minimize the possibility that external electrical noise will interfere with the operation. On the rare occasion that the probe happens to be grounded to electrical ground, the probe and edge finder connections will be reversed.

The probe connection is best done with an alligator clip that will allow you to easily connect and disconnect the voltage to the probe.

I recommend that you use a two wire zip cord (lamp cord) to connect between the port input & ground and the probe alligator clip & Edge Finder. Make the length long enough that you can reach all possible starting points and a little more in case it needs repair.



## Configuration testing:

The probe wiring is verified by switching to the diagnostic screen and observing that grounding the probe to the Edge Finder activates the Digitize light and one of the port pin lights. This operation is essential for operation.

**Mach3 CNC Demo**

File Config Function Cfg's View Wizards Operator PlugIn Control Help

Program Run (Alt-1) MDI (Alt-2) Tool Path (Alt-4) Offsets (Alt-5) Settings (Alt-6) **Diagnostics (Alt-7)** Mill->G15 G1 G17 G40 G20 G90 G94 G54 G49 G99 G64 G97

Zero All	Current Position	Machine Coord	WorkOffset	G92 Offset	Tool Offset	abs max x,y,z
Ref X X Pos	+0.0000	= +16.1020	- +16.1020	- +0.0000	- +0.0000	+0.0000
Ref Y Y Pos	+0.0000	= +7.2510	- +7.2510	- +0.0000	- +0.0000	+0.0000
Ref Z Z Pos	+0.0000	= +0.0000	- +0.0000	- +0.0000	- +0.0000	+0.0000
Ref A A Pos	+0.0000	= +0.0000	- +0.0000	- +0.0000	- +0.0000	Min
Ref B B Pos	+0.0000	= +0.0000	- +0.0000	- +0.0000	- +0.0000	+0.0000
Ref C C Pos	+0.0000	= +0.0000	- +0.0000	- +0.0000	- +0.0000	+0.0000

Brain Time (ms) +0

Jog ON/OFF Ctrl-Alt-J

Time in Int. +0.0  
Blended Spd 0.00  
Buffer Load 0 %  
Queue Depth +0  
Worst Case +0.000000  
PWM Base +5  
Time Scale +1.0000  
Reduced   
LookAhead 20  
CPU Speed +2600.0000  
Servo Freq. Generator

Port 1 Pins current State

Input Signals current State

<input type="checkbox"/> EJogX++	<input type="checkbox"/> EJogY+	<input type="checkbox"/> EJogZ+	<input type="checkbox"/> EJogA+
<input type="checkbox"/> EJogX--	<input type="checkbox"/> EJogY-	<input type="checkbox"/> EJogZ-	<input type="checkbox"/> EJogA-
<input type="checkbox"/> Input 1	<input type="checkbox"/> M1++Limit	<input type="checkbox"/> M1--Limit	<input type="checkbox"/> M1Home
<input type="checkbox"/> Input 2	<input type="checkbox"/> M2++Limit	<input type="checkbox"/> M2--Limit	<input type="checkbox"/> M2Home
<input type="checkbox"/> Input 3	<input type="checkbox"/> M3++Limit	<input type="checkbox"/> M3--Limit	<input type="checkbox"/> M3Home
<input type="checkbox"/> Input 4	<input type="checkbox"/> M4++Limit	<input type="checkbox"/> M4--Limit	<input type="checkbox"/> M4Home
<input type="checkbox"/> Digitize	<input type="checkbox"/> M5++Limit	<input type="checkbox"/> M5--Limit	<input type="checkbox"/> M5Home
<input type="checkbox"/> Index	<input type="checkbox"/> M6++Limit	<input type="checkbox"/> M6--Limit	<input type="checkbox"/> M6Home
<input type="checkbox"/> LimitOV	<input type="checkbox"/> Torch On	<input type="checkbox"/> Torch UP	<input type="checkbox"/> Torch Dn
<input type="checkbox"/> Emergency			

Output Signals current State

<input type="checkbox"/> Enable 1	<input type="checkbox"/> Enable 2	<input type="checkbox"/> Enable 3	<input type="checkbox"/> Enable 4
<input type="checkbox"/> Enable 5	<input type="checkbox"/> Enable 6		
<input type="checkbox"/> Output 1	<input type="checkbox"/> Output 2	<input type="checkbox"/> Output 3	<input type="checkbox"/> Output 4
<input type="checkbox"/> Output 5	<input type="checkbox"/> Output 6	<input type="checkbox"/> Digitize	

Mach3Mill

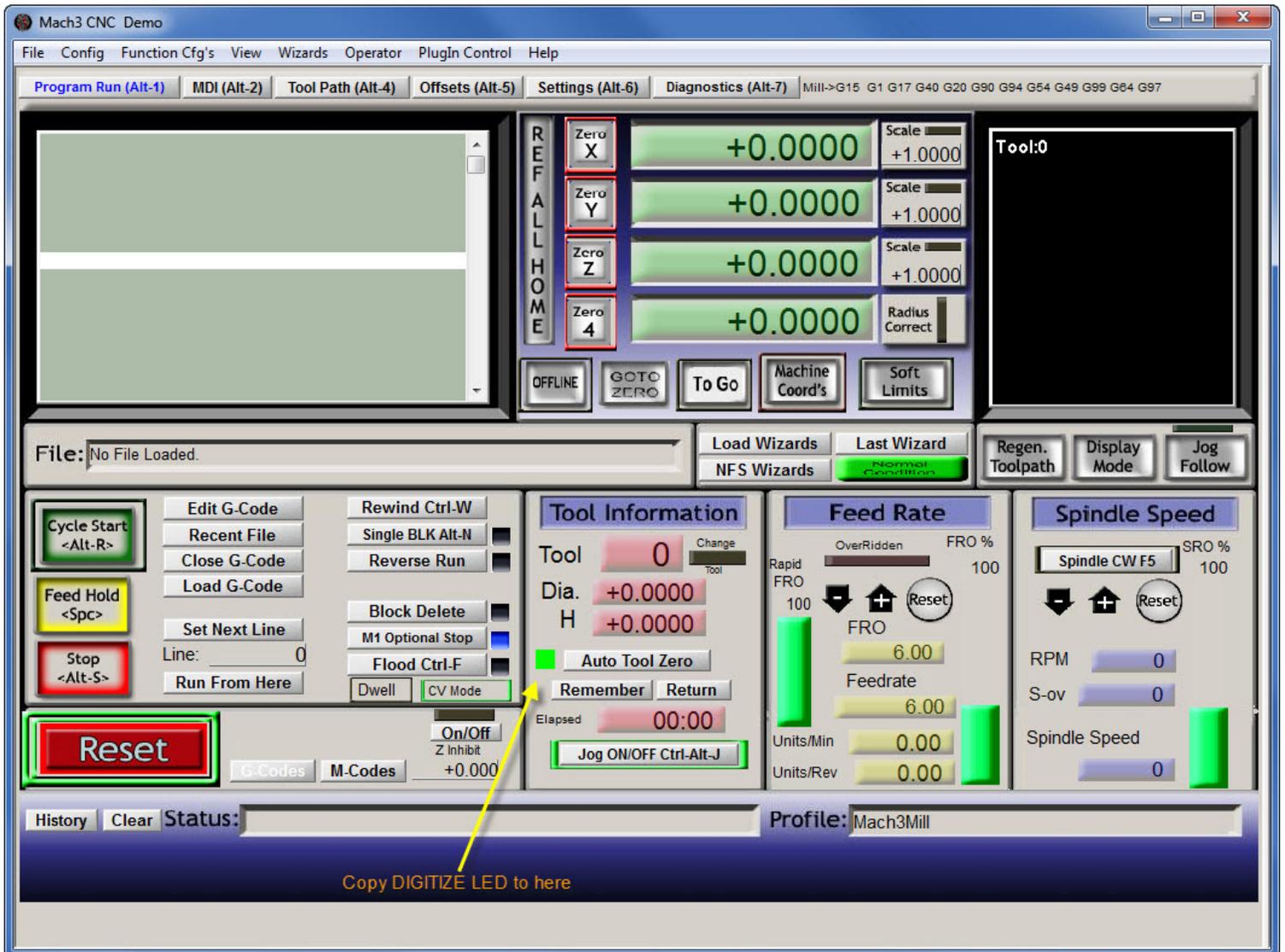
Reset

One of these will light when the probe is grounded. Copy the LED to the main screen using the editor.

The file 1024B.set is identical to the standard Mach3 main screen except that it has a light next to the **Auto Tool Zero** button.

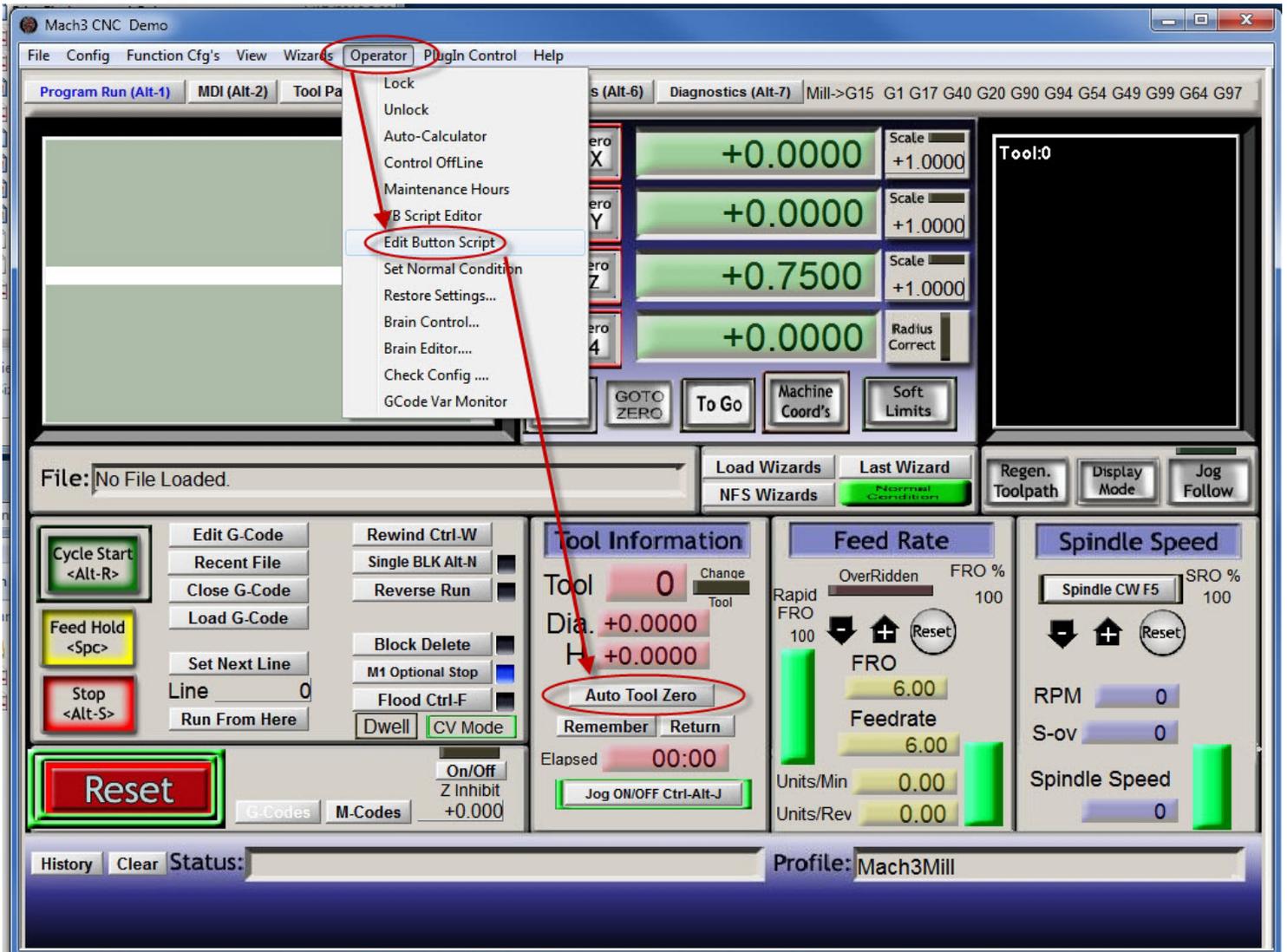
Copy the 1024B.set file into the Mach3 root directory. In the mach3 program, go to tab View/ Load Screen and select the 1024B.set and touch enter.

This will permit you to easily test the probe before each time you use the Edge finder.



## Opening the Auto Tool Zero Script editor:

The edge finding script must be loaded into the Mach3 **Auto Tool Zero** button. This is accomplished as shown below. Cut and paste the entire script file (as a text document) into the editor and save it.



You may need to modify the script file to meet your specific dimension needs. The file supports seven different ways to find an edge or center.

## Edge Finder basic script file

The following file is an example on how to set up a basic script to perform a variety of probe tasks. Note that the operator must input a number to perform a task. A blank entry or a zero will abort the task. This file is available at my web page [cnc.vancouvera.biz](http://cnc.vancouvera.biz) or [cnc.vancouvera-innovations.com](http://cnc.vancouvera-innovations.com).

The following section of the script allows you to configure the parameters to meet the actual dimensions of your edge finder.

```
' =====
' ===== CHANGE HERE to set METRIC mode parameters =====
' =====
Code "(Operating in mm mode.)"
tool_1      = 2.380      ' 3/32" = 2.380mm      Favorite tool #1 size
tool_2      = 3.175      ' 1/8" = 3.175mm      Favorite tool #2 size
tool_3      = 6.35       ' 1/4" = 6.350mm      Favorite tool #3 size
SIDE_X      = 7.720      ' 0.300" = 7.720mm    finder side width both X
SIDE_Y      = 7.720      ' 0.300" = 7.720mm    finder side width both Y
CENTER_X    = 00.000     ' mm              Center of hole offset X
CENTER_Y    = 00.000     ' mm              Center of hole offset Y
Z_TOP1      = 3.81       ' mm              Top of edgefinder to workpiece
surface
Z_TOP2      = 6.35       ' mm              Top of edgefinder to workpiece
surface
BigMove     = 25.4       ' 1.000" = 25.400mm    move probe this distance
looking for edge
SmallMove   = 2.54       ' 0.100" = 2.540mm    clearance over material
FeedSlow    = 100       ' 4in/min or 100mm/min Faster sacrifices accuracy,
slower
max_error   = 0.025     ' 0.001" = 0.025mm
,
ElseIf UnitsMode = 1 Then      ' === set INCH mode parameters ===
' =====
' ===== CHANGE HERE to set INCH mode parameters =====
' =====
Code "(Operating in INCH mode.)"
tool_1      = 0.0937     ' 3/32" = 2.380mm      Favorite tool #1 size
tool_2      = 1/8        ' 1/8" = 3.175mm      Favorite tool #2 size
tool_3      = 1/4        ' 1/4" = 6.350mm      Favorite tool #3 size
SIDE_X      = 0.300      ' 0.300" = 7.720mm    finder side width both X
SIDE_Y      = 0.300      ' 0.300" = 7.720mm    finder side width both Y
CENTER_X    = 0.000     ' inches           Center hole offset X
CENTER_Y    = 0.000     ' inches           Center hole offset Y
Z_TOP1      = 0.150     ' inches           Top of edgefinder to workpiece
surface
Z_TOP2      = 0.250     ' inches           Top of edgefinder to workpiece
surface
BigMove     = 1.000     ' 1.000" = 25.400mm    move probe this distance
looking for edge
SmallMove   = 0.100     ' 0.100" = 2.540mm    clearance over material
```

```
FeedSlow      = 4.000      ' 4in/min or 100mm/min Faster sacrifices accuracy,  
slower  
max_error     = 0.001      ' 0.001" = 0.025mm  
,
```

**Note:** Do not change any of the comment lines marked with REM or '.

There are seven basic functions.

- 1) Find Center X0 Y0
- 2) Find X0
- 3) Find Y0
- 4) Find X max
- 5) Find Y max
- 6) Find Z0
- 7) Find Z0, then X0, and Y0.