MDX-40
and
ProtoWizard
Set Up

This tutorial will guide you through the various steps required for setting up the MDX-40 for use with the ProtoWizard software and hardware.

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Materials Required:

•6mm Pin
•6mm Collet (not 1/4” collet supplied with machine)
•PW-40 ProtoWizard Calibration Rod
•3mm Hex Tool
•Dropout.exe program (firmware zip file)

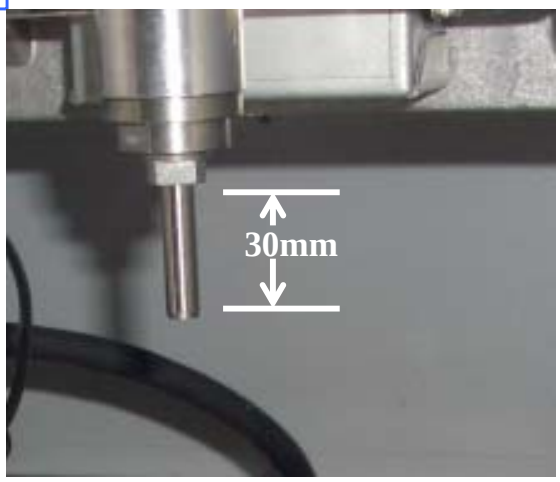
PW-40 Calibration Rod

Steps involved:

•Install 6mm pin used for sensing
•Install PW-40 calibration rod
•Perform 4th axis centering
•Install ProtoWizard Software
•Install ProtoWizard Hardware

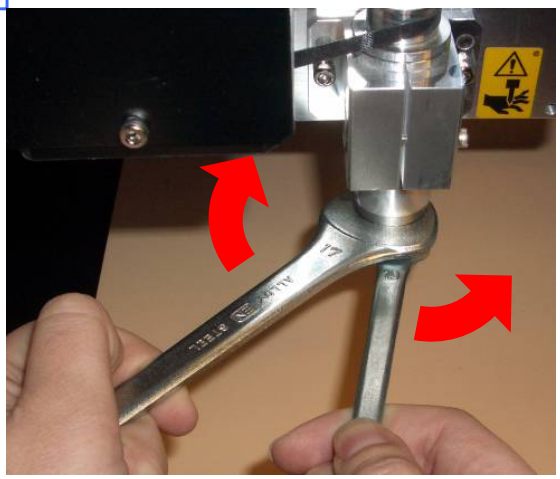
Performing Y-Center

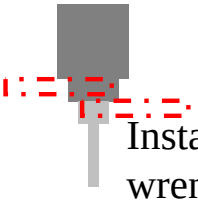
1



Install 6mm collet and 6mm pin. Leave at least 30mm of the pin exposed. **Please note that the MDX-40 comes with a 1/4" collet and 6mm collet. Please use only the 6mm collet for this procedure.**

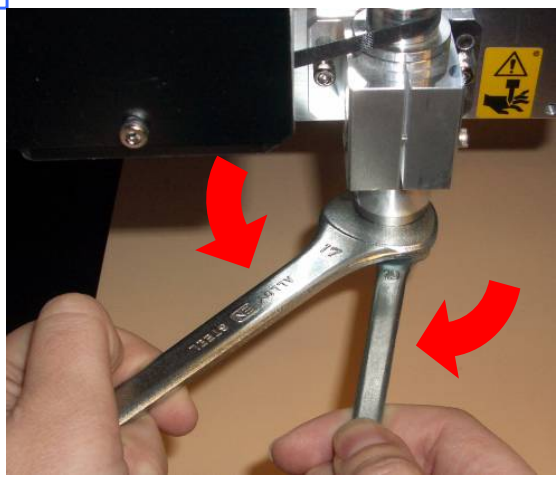
2

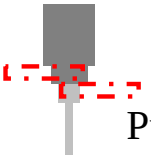




Install the collet using the 2 wrenches supplied with the machine. Place the 17mm tool in your left hand 1st and over the spindle nut as shown. Place the 10mm tool in your right hand and over the collet. To tighten, pull the wrenches away from each other.

3





Pull the wrenches toward each other to loosen the collet.

Performing Y-Center

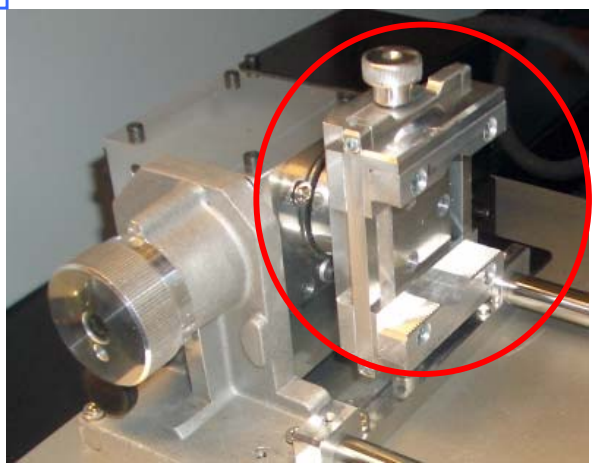
4

Disassemble the Z-Origin Sensor.

5

Install orange base to PW-40 Sensor. The orange base will be snug, use the screw to draw the orange base towards the sensor.

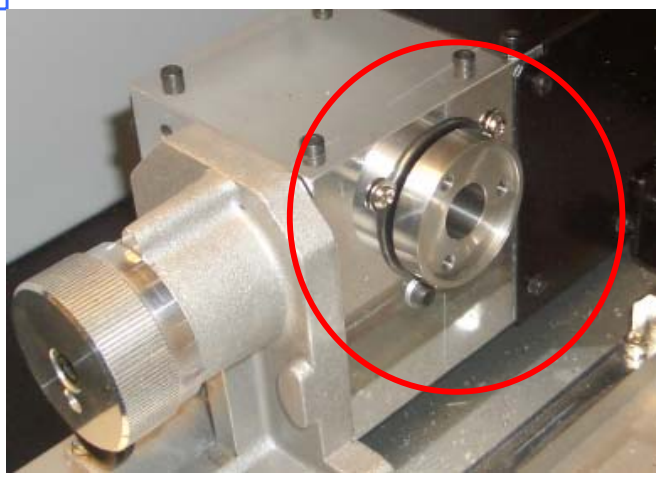
6



Remove self centering clamp from the Rotary Axis by removing 3 hex screws.

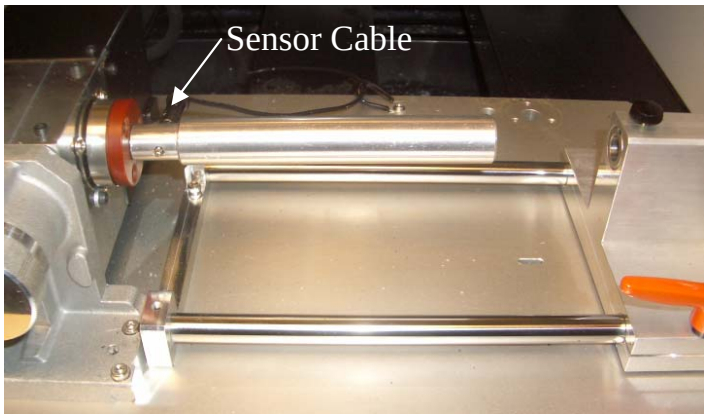
Performing Y-Center

4



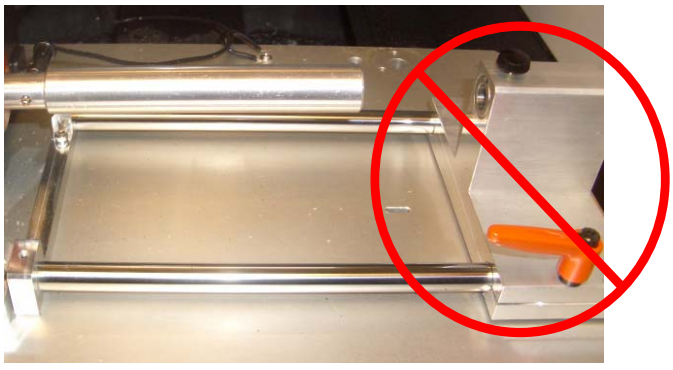
Rotary Axis without self centering clamp.

5



Install PW-40 sensor and base to the Rotary Axis. Connect sensor cable to the back of the sensor.

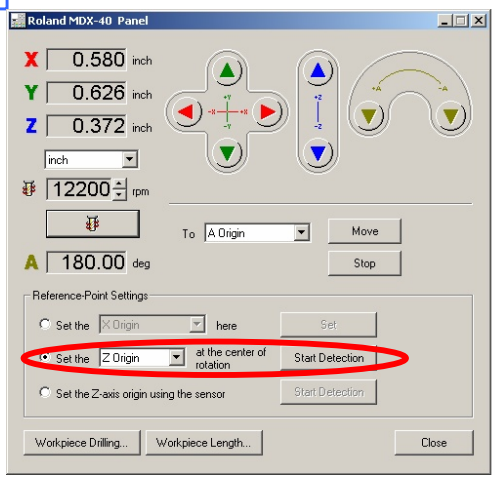
6



NOTE: DO NOT USE LIVE CENTER HOLDER.

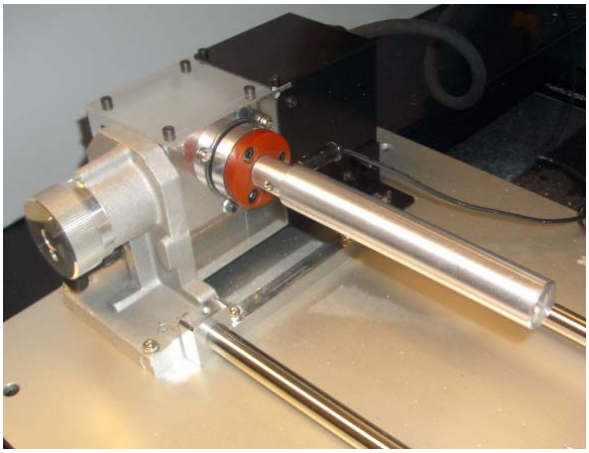
Performing Y-Center

4



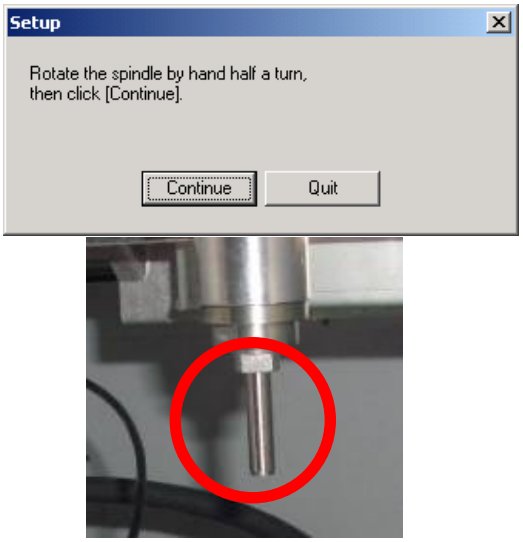
Open the MDX-40 Control Panel and select the “Set the **Y-Origin** at the center of rotation” and press “Start Detection” to start the process.

5



The V Panel will ask you to install the small and large sensor. Use only the PW-40 for the Y-Origin procedure.

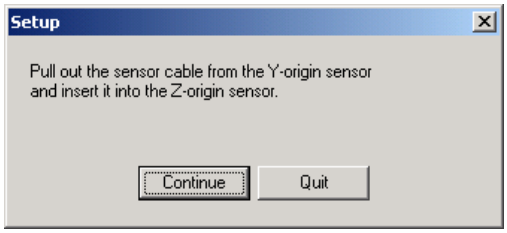
6



When this window appears, turn the pin ½ a turn and press “Continue” when finished.

Performing Y-Center

4



When instructed to install the sensor cable onto the Z-Origin Sensor, remove the PW-40 sensor from the rotary unit. Remove orange base from the PW-40 calibration rod.

5

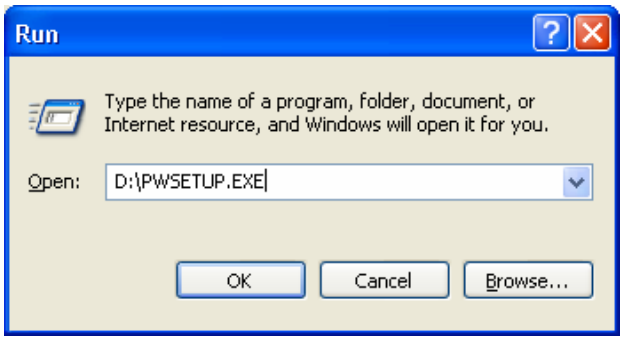
Reinstall orange base onto the original small Z-Origin sensor.

6

Install Z-Origin Sensor onto it's designated location and plug the sensor cable in. Press continue to complete the Z-Origin procedure. When completed, leave the sensor and cable in this location. This sensor will be used for setting the Z-Origin.

ProtoWizard Software

1

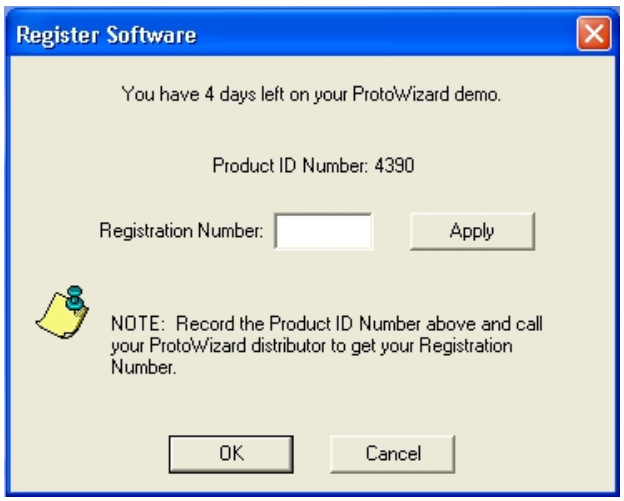


Before inserting the ProtoWizard CD, close all programs. Insert the ProtoWizard CD in your computer, wait for the set up menu to appear. If the set up menu does not appear, install ProtoWizard manually by selecting the windows START button and then RUN. Press the BROWSE button and select the PWSETUP.EXE from the CD. Press OK to run the installation and follow the instructions.

2

To register ProtoWizard, you must first obtain a registration number from your dealer. You must provide the dealer with the Product ID Number as shown in ProtoWizard's startup screen. You may also get this fromCEAT directly by emailing your Product ID Number and proof of purchase to support@protowizard.com.

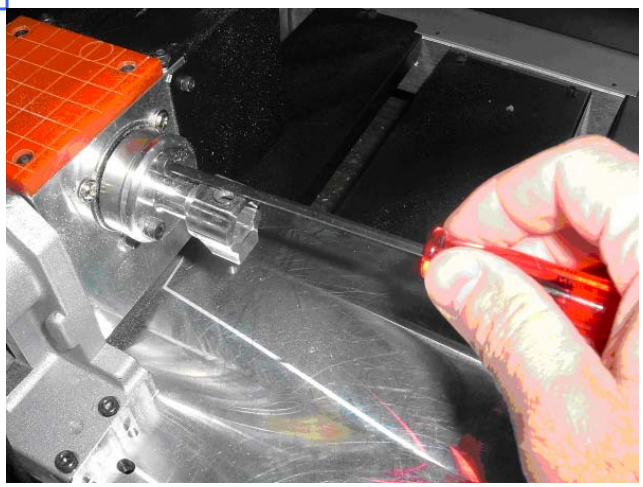
3



Using the Product ID Number, the dealer will obtain a Registration Number on your behalf. You may continue using ProtoWizard for 10 days before you MUST put in the correct Registration Number. Enter the Registration Number and press Apply, then OK to continue. You will not see this screen again provided the Registration Number is correct. If you have any problems, please call your dealer. If you dealer cannot assist you, contact support@protowizard.com.

ProtoWizard Hardware

1

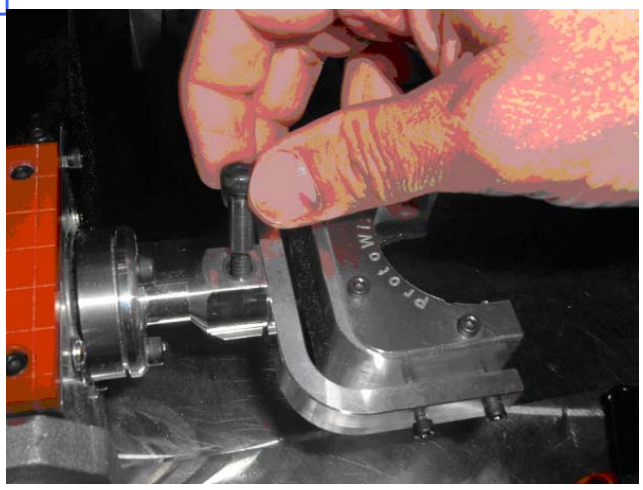


Using the three screws provided, carefully install the Rotary Adapter into the rotary table face.
This should be a snug fit. Caution should be taken to not have this crooked. Gently rotating the adapter in the counter bore of the rotary table will help.
Insert all three screw finger tight before tightening with the provided allen wrench.

2

Carefully insert the 3-Sided Flip Fixture into the Rotary adapter making sure the holes align in the center of the 2 parts.

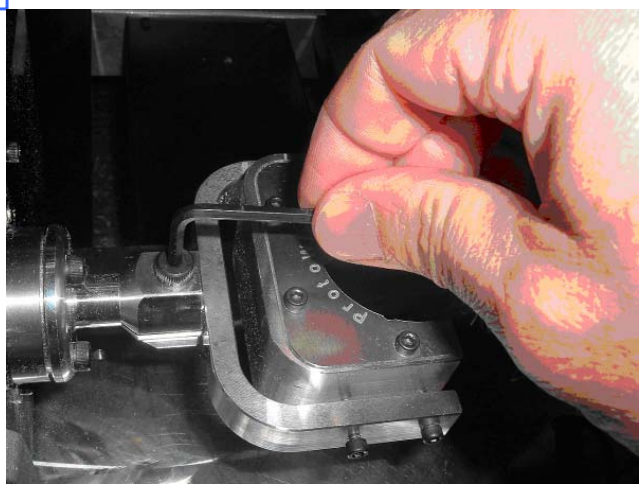
3



Next insert the shoulder bolt provided into the top hole of the adapter and though the hole in the flip fixture. Then thread the bolt into the bottom of the adapter.

ProtoWizard Hardware

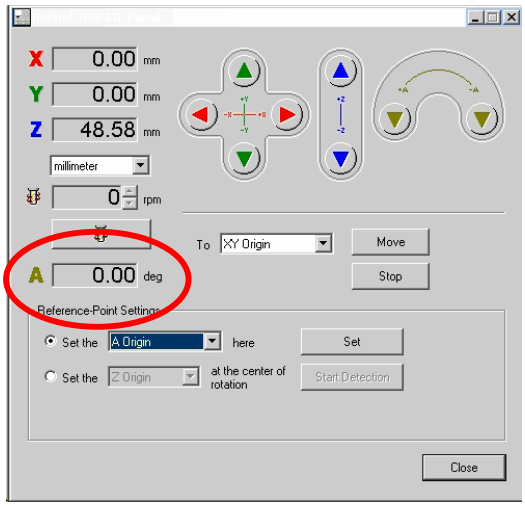
4



Finally, tighten the bolt with the allen wrench provided.
CAUTION: Do not over tighten the bolt. A gentle “snug turn” is all that is required.

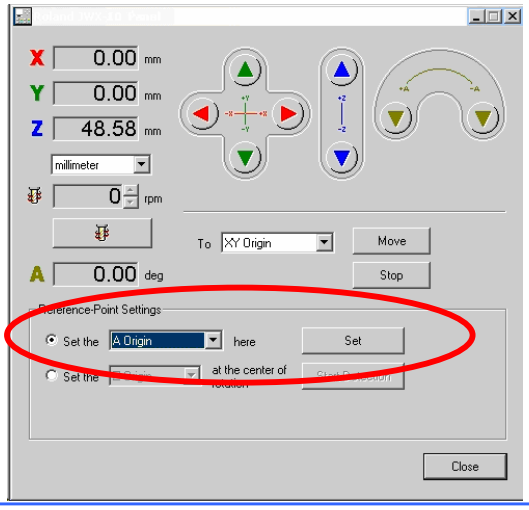
Roughly Align A-Origin

1



The object of this procedure is to set the fixture horizontally. If the fixture is set horizontally, then indicating Z on either edge should yield the same Z number. Therefore, what we will do is touch both edges of the fixture and then rotate the A axis a little until the Z values are the same on both sides.

2

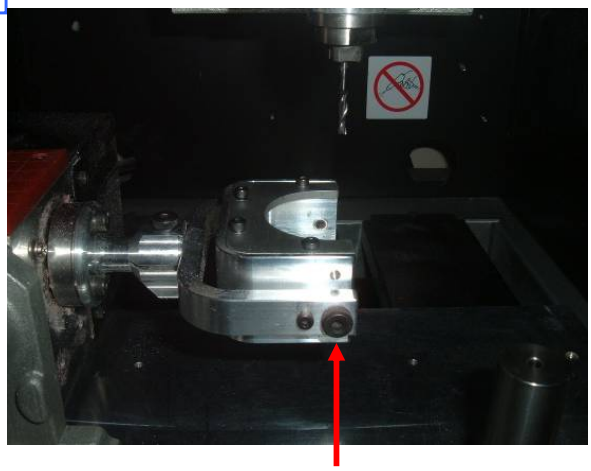


At this time, it is not totally necessary to perfectly align the rotary table. We mostly want to simply set the A Origin so the ProtoWizard Flip Fixtures in n the horizontal position. This can be achieved by simply visually setting the A Origin horizontally.

Set the A Origin as shown.

Roughly Align X-Origin

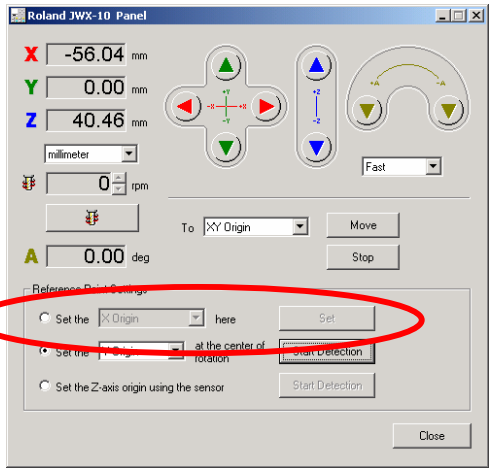
1



The objective of this step is to roughly setup the X Origin so we can run a test part. This test part will be used for the final calibration.

Jog the X axis out so that the tool is located between the two outer pivot screw heads as shown. Estimating this location is close enough.

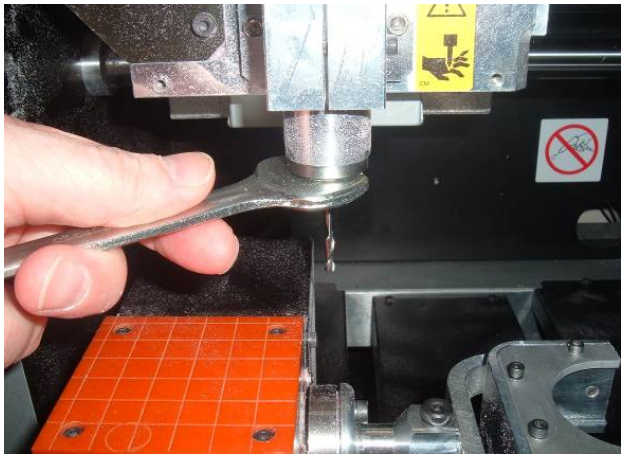
2



Set the X Origin as shown.

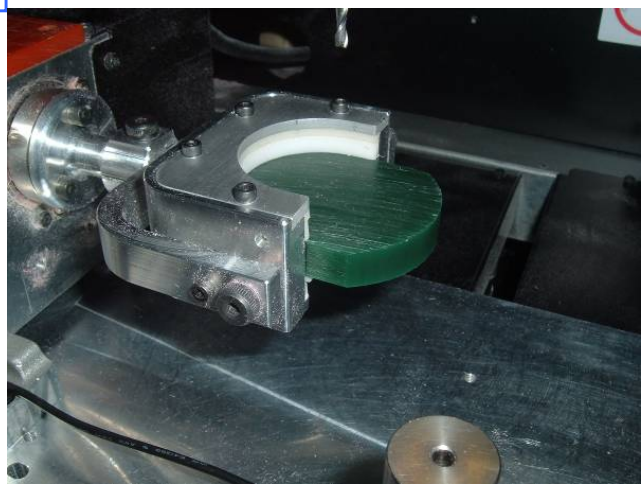
Running the Test Program

1



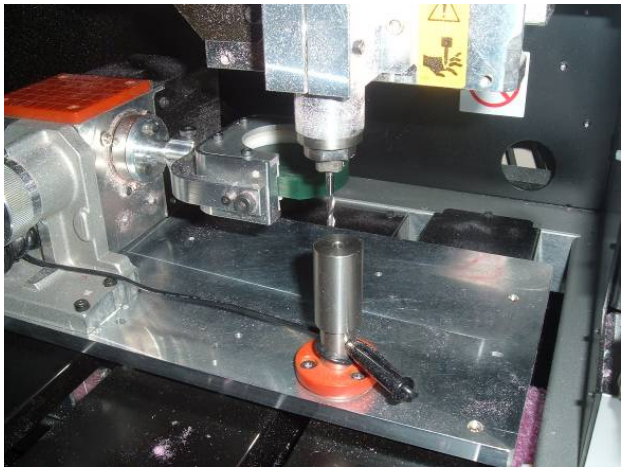
Insert the 1/8” Flat End Mill into the spindle. Always leave approximately 20mm of the tool exposed.

2



Insert a 10mm wax blank. Use both a thick and thin spacer on both sides to center the blank.

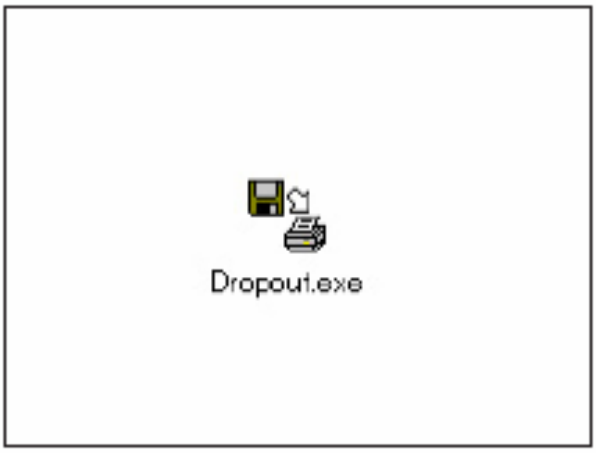
3



With the machine out of View mode (the View light should be off), start the Z Origin detection

Running the Test Program

4



Start the Dropout.exe program.

Open the RotaryAlignment.prn file. Press Output to run the program.

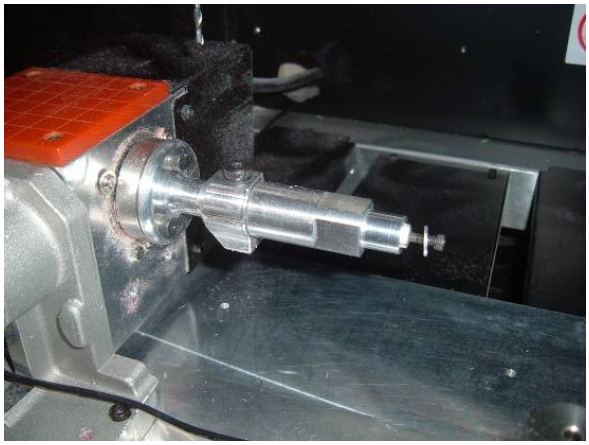
5

Once the program has completed and the spindle has stopped, remove the part from the wax by breaking it from the supports holding it in the blank wax

NOTE:
This program is used to setup the 8mm Core file. Therefore, you should be able to measure the thickness of this part after it has been removed from the wax blank. The thickness should be 8mm +/- 0.05. If you are not in this range, the Z Origin calibration has not been set properly. Contact Roland immediately and do not proceed until this problem has been corrected.

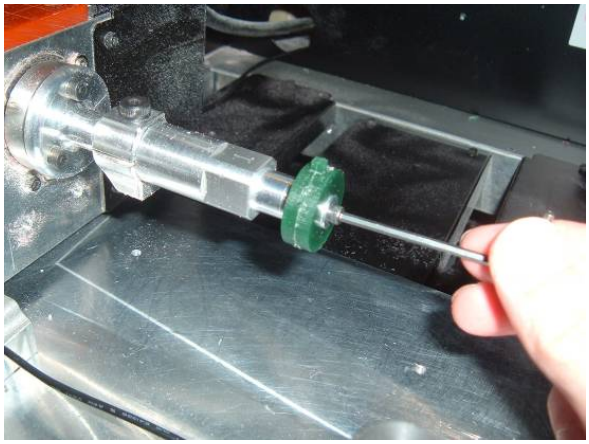
Align X and A Origins

1



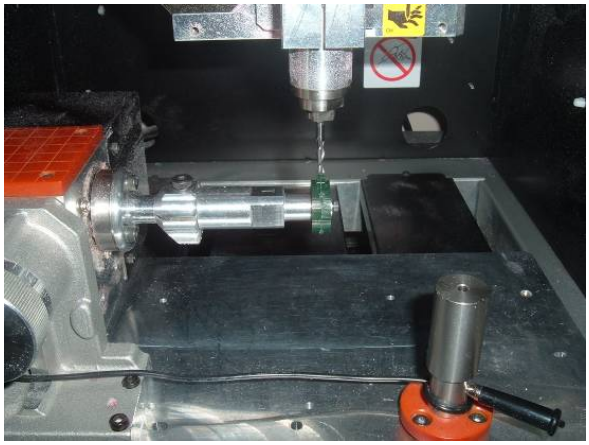
Remove the ProtoWizard Flip Fixture and install the ProtoWizard Ring Arbor.

2



Place the triangle cutout of the test part on the Ring Arbor's triangular nose and secure it with the washer and screw provided. Lightly tighten the screw with the hex wrench provided.

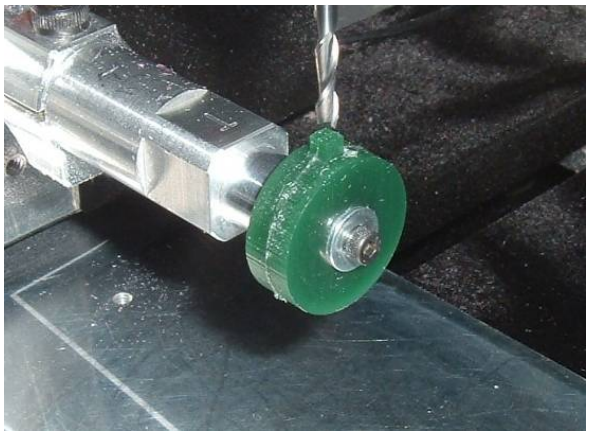
3



With the Y and A axis at 0.000, jog the X axis directly over the 1/8" square head on the sample part.

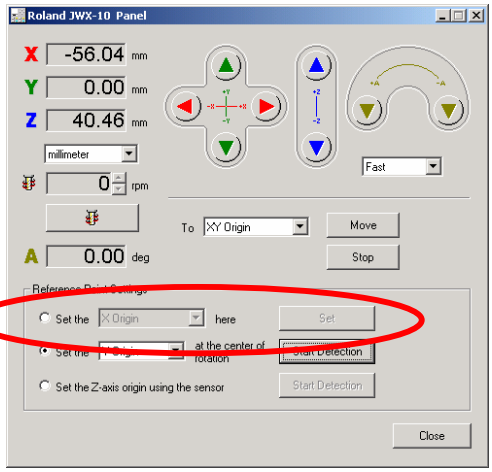
Align X and A Origins

4



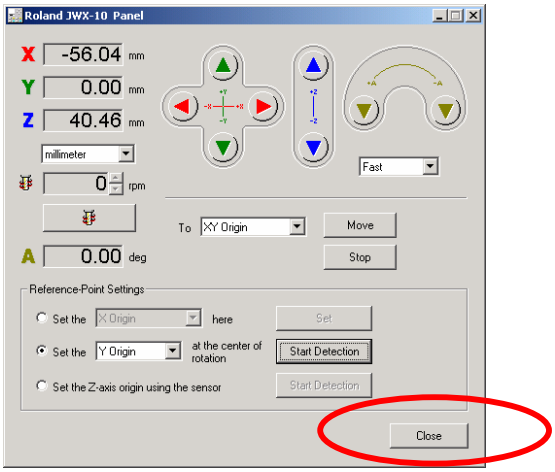
Jog the A axis to rotate the part to align the 1/8” square under the 1/8” tool.

5



With both the X and the A axis perfectly aligning the 1/8” tool over the 1/8” square, set the origins of both X and A as shown.

6

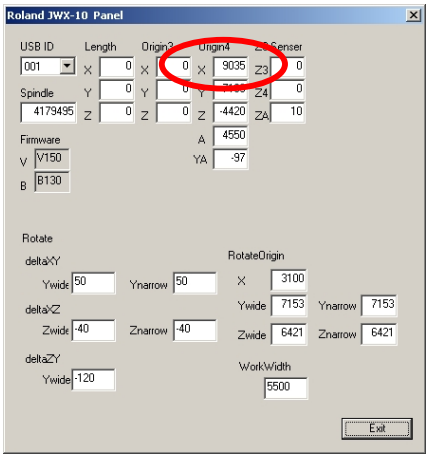


While holding down the ALT key on your keyboard, press the CLOSE button on the Panel.

A new window will popup on the screen.

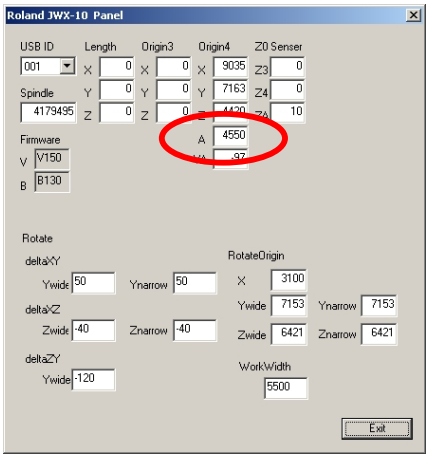
Align X and A Origins

7



This hidden panel contains all of the offsets stored on the machine's internal memory. The Column labeled "Origin4" contains our "X" origin number. Write this number down or printout this screen for safe keeping. This "X" origin is for the Ring Arbor when using a 8mm core.

8



Note the "A" origin as well so you can return to it at a later time if needed.

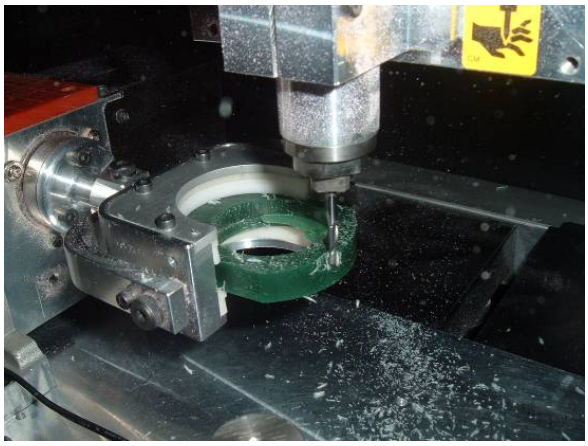
Now you are ready to make a full 3 sided ring.

NOTE:
If you remove the ProtoWizard Rotary Adapter for any reason, the alignment procedure should be redone from the start to insure proper alignment as the Rotary Adapter may have shifted from its original position.

Also, this alignment MUST be used only with 8mm core files. Although ProtoWizard supplies other core file sizes, the 8mm core is the most versatile and can be used for all ring applications. Should you switch to another core thickness, for example 10mm, an adjustment in the X origin will be required.

Align X for 90° Flip

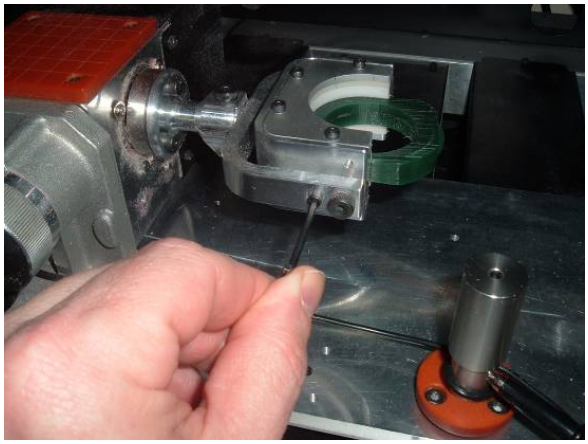
1



Using the 10mm piece from the previous alignment procedure or a new piece, load the XAlignmentTest.prn file in the dropout program.

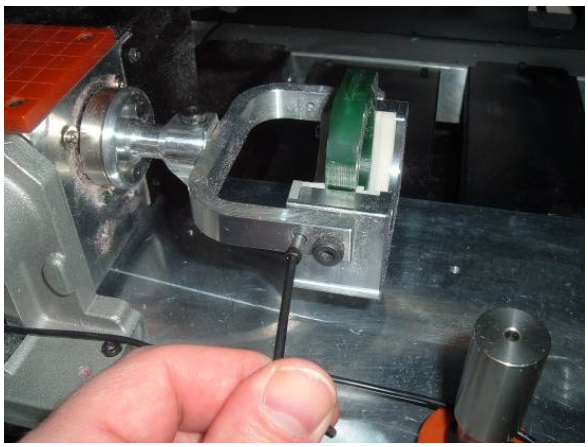
Using the 1/8” End mill, this program will mill a channel on both sides of the wax leaving a 1/8” thick web.

2



Using the hex wrench provided, loosen the small screw on the left of the pivot bolt. Back this out until the inside fixture can be pulled toward you and flipped vertical.

3



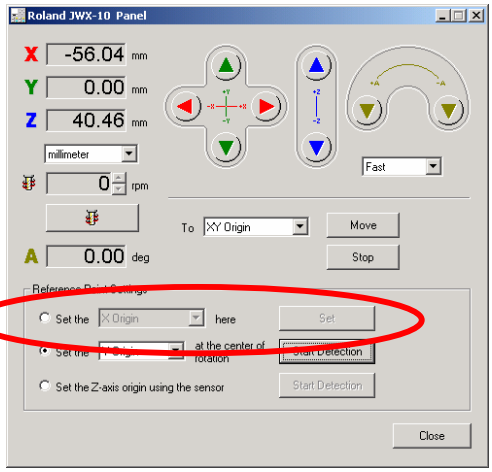
Push the inside fixture toward the back until it seats and re tighten the screw.

Align X for 90° Flip

3

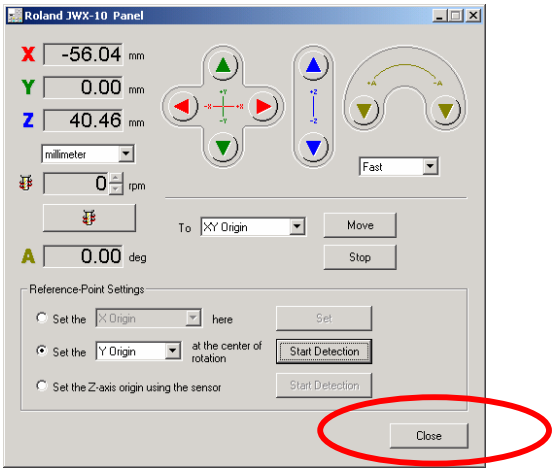
Jog the X axis over the center of the 1/8” channel. Center the 1/8” Tool directly over the 1/8” channel by jogging only the X axis.

4



With the X perfectly aligning the 1/8” tool over the 1/8” channel, set the origins of the X.

5

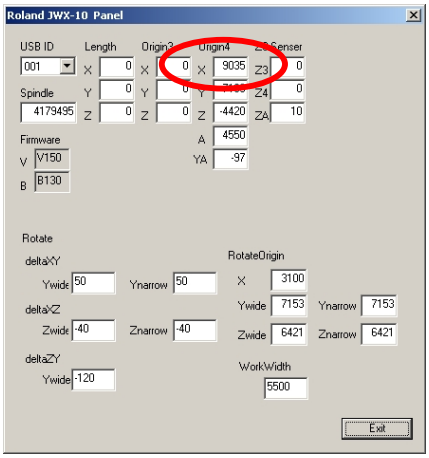


While holding down the ALT key on your keyboard, press the CLOSE button on the Panel.

A new window will popup on the screen.

Align X for 90° Flip

6



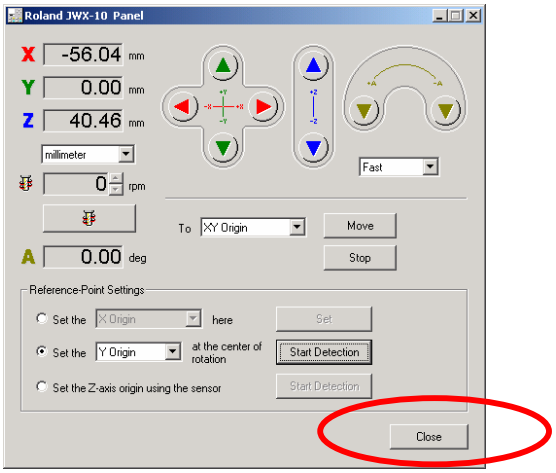
This hidden panel contains all of the offsets stored on the machine's internal memory. The Column labeled "Origin4" contains our "X" origin number. Write this number down or printout this screen for safe keeping. This "X" origin is for the 90 Flip when cutting Heads or Partial Rotary Rings.

NOTE:

The "X" Origin for the 90° Flip is a different number than that of the Ring Arbor set previously. You must save both of these numbers so that you can return to them easily. See the next section on how to reset or adjust an offset.

Resetting the X Offset

1

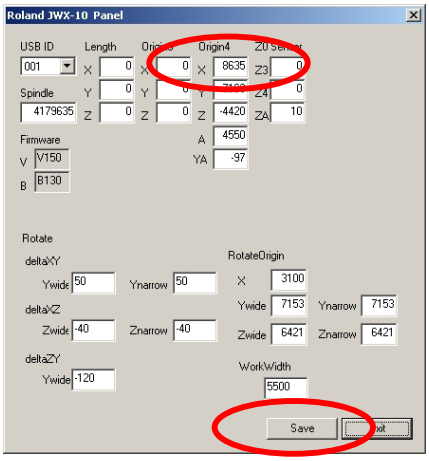


While holding down the CTL, ALT and SHIFT keys on your keyboard, press the CLOSE button on the Panel.

A new window will popup on the screen.

NOTE: You MUST hold down all three keys simultaneously.

2

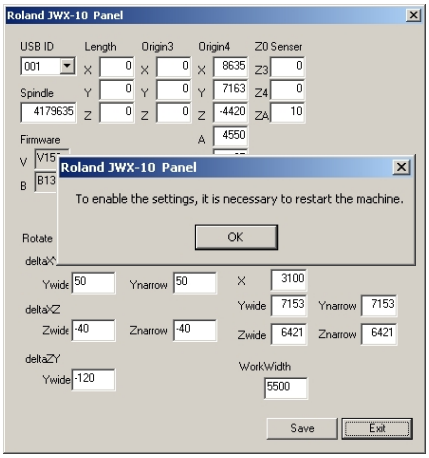


Now you can SAVE any changes made to the offsets.

Normally, changing the “X” offset in the Origin4 column allows you to switch to a different X offset.

Press the SAVE button to save your changes.

3



You must power off the machine for the new settings to be loaded and take effect.