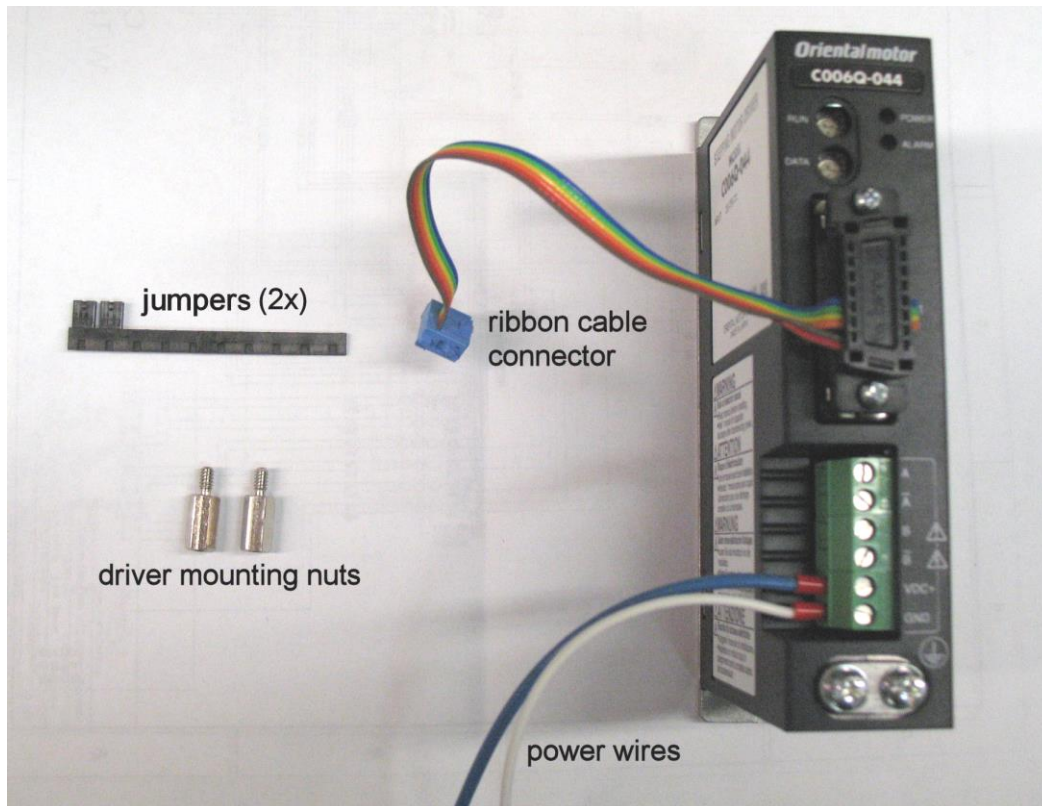


# Installing the 6" indexer: PRS Standard tools



## Before you start

**Note:** If you purchased the indexer as part of a new machine, the following wiring steps will have already been completed at ShopBot. Skip to page 5.

**RISK OF ELECTRIC SHOCK:** Unplug the power to your ShopBot before you start. Failure to do this can result in electric shock and/or damage to your ShopBot.

Tools you'll need:

- #2 Phillips-head screwdriver
- Small flat-head screwdriver suitable for electronics
- Standard sized flat-head screwdriver
- ½" wrench or socket (or adjustable wrench)

## Route the cable into the box



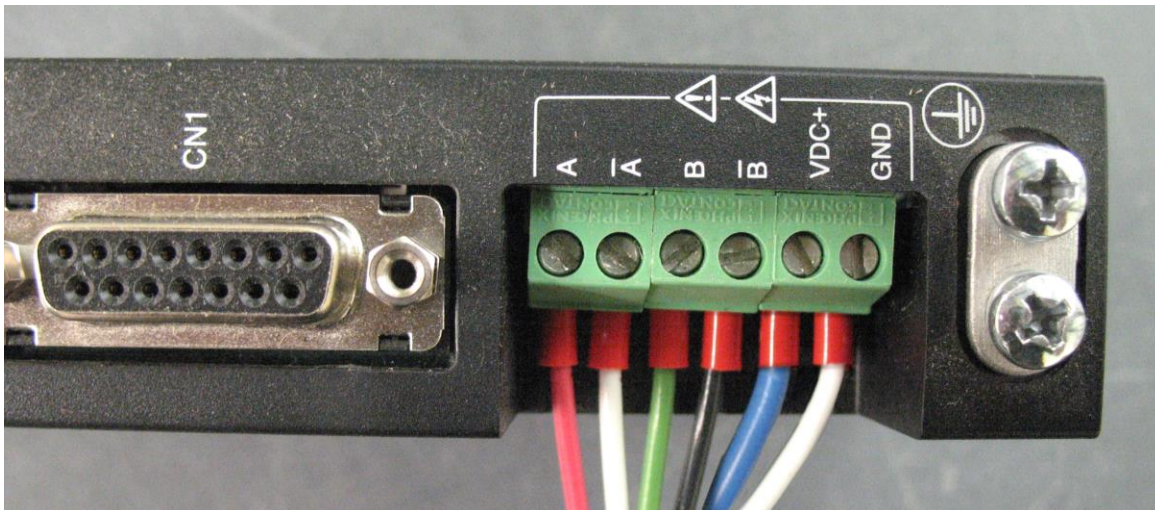
Open the Rextec cord fixture on the side of your control box. Depending on the age and model of your Shopbot, the fixture is closed either with a bolt on the inside of the box (shown in the photo), or a plastic clamp.

If your box has a bolt, loosen it several turns from the inside of the box with an adjustable wrench or a pair of pliers.

If your box has the plastic clamp, insert a screwdriver underneath it and gently lift upwards.

Now, gently pull upwards on the wires to loosen the rubber pieces that hold the cables in place. Route the indexer cable through any available opening. Pull it into the box so that it can reach the driver with a little slack left over, then tighten the fixture back down onto the cables.

## Wire the indexer cable to the driver



Take your small screwdriver and loosen the screws on the green terminal blocks. Insert the wires from the indexer motor cable as shown in the photo (from left to right):

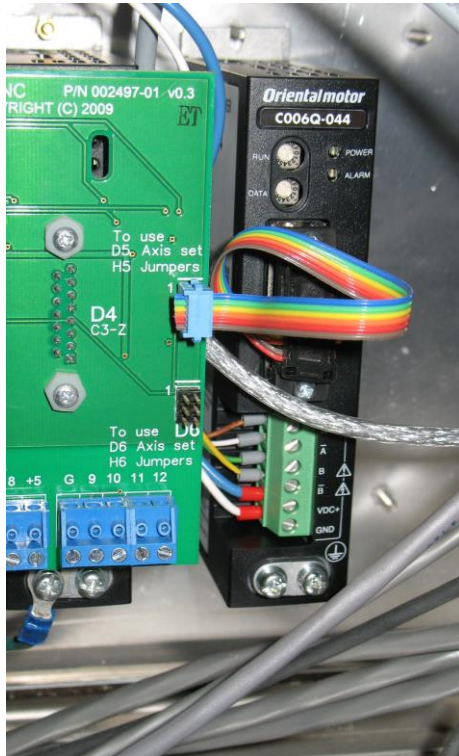
**RED – WHITE – GREEN – BLACK.**

Tighten the screws over each wire, then pull on each wire to make sure it is secure. If the blue and white power wires have not already been attached, you will need to put the blue wire to VDC+ and the white wire to GND.

**It is extremely important that you wire all of these in correct order. Failure to do so can damage the driver. Double-check your work before proceeding.**



## Mount the driver and connect the remaining wires

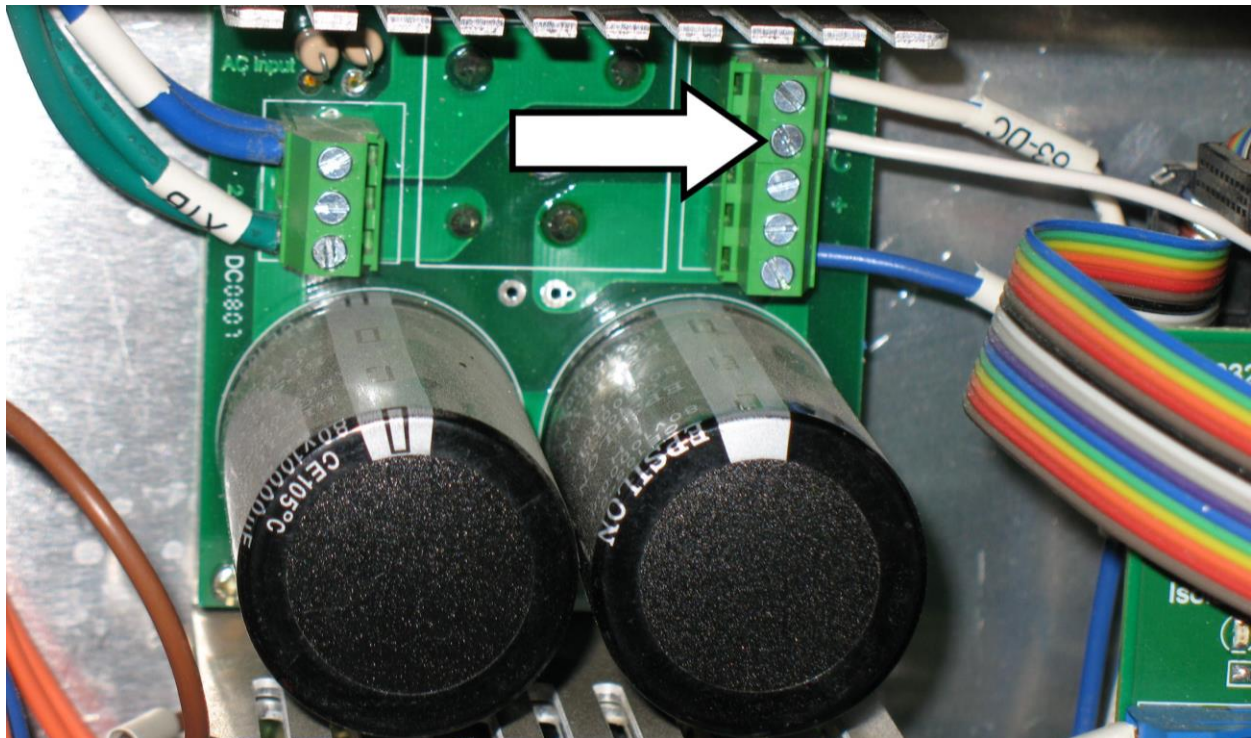


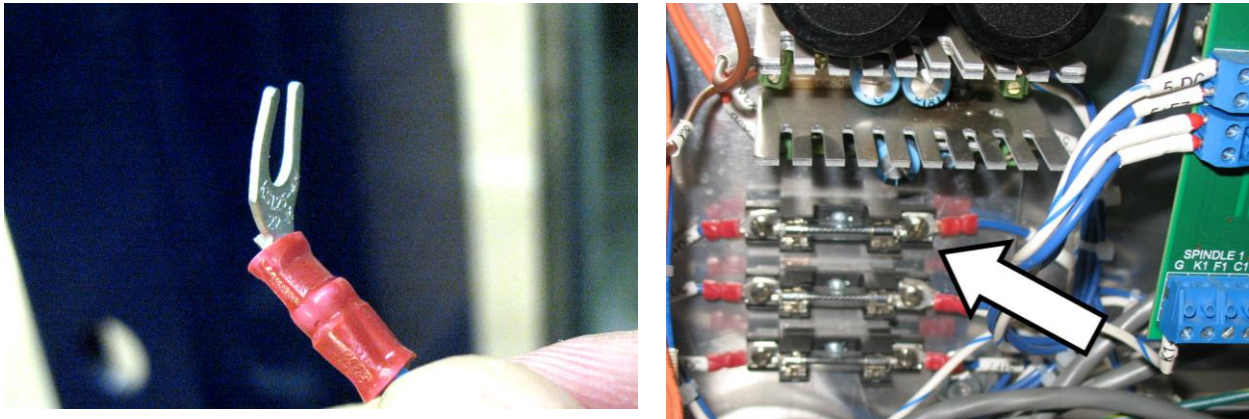
Notice the way that the other drivers are mounted into the box. Fit the new driver onto the extra set of screw posts to the right of the control board, and secure it using the mounting nuts included with your kit. You can tighten it with your fingers, it's not necessary to use a wrench or socket.

Connect the ribbon cable to the upper set of pins as shown in the photo.

Now take the end of the white power wire (neutral) coming from the driver, and locate the power supply to the left of the control board.

On the right side of the power supply board, loosen the terminal screw directly under the existing white wire. Use your fingers to twist the wire strands together, and then insert it into the terminal block. Then tighten the screw and double-check that the wire is secure.

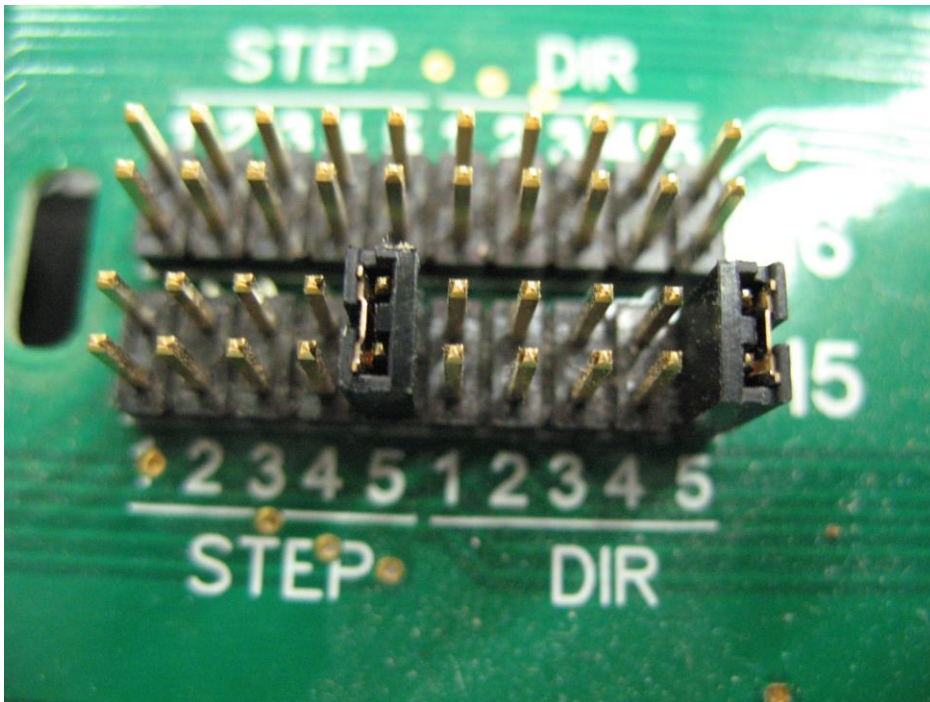




Take the spade connector on the end of the blue wire and bend it slightly, as shown above. Now locate the glass fuses to the right side of the board. The one on top is the 63v fuse, which is marked by a white label on the incoming wire. On the outgoing (right) side of the fuse, loosen the screw that holds the existing spade connector on. Fit the end of the new spade connector underneath the screw head and tighten it down, making sure that the old wire still has a good connection. Pull on both wires to make sure they are tight.

## Add the jumpers

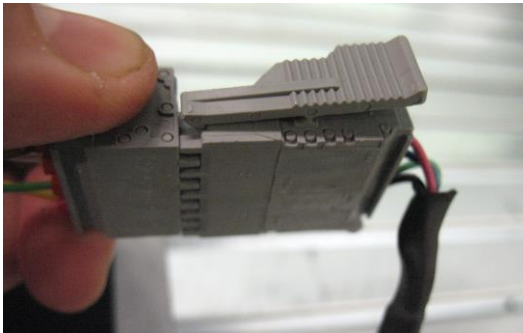
To complete the installation, locate the set of pins on the control board marked H5. Snap the two black jumper pieces off of the plastic handle that came with your kit. Then align each jumper with the set of pins on STEP 5 and DIR 5. Press the jumpers fully onto the pins so that they are seated against the base. You are now finished with the installation.



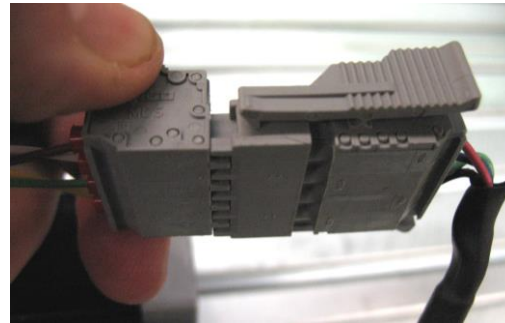


## Plug in the motor cable

The gray Wago connector is the indexer's link to the machine for data and power. Clip these together and make sure that the two sides of the connector are fully pressed together.



**RIGHT: both ends tightly connected**



**WRONG: notice the gap on the right side**

## Making changes to your ShopBot software

There are just a couple of changes you need to make to your software settings before you are ready to use the indexer. Start by opening the control software and click to Values > Display Values on the top menu bar. A yellow fill-in sheet will appear, as shown in the picture below. Change **Display units B axis** to **degrees**, and change **Number of Axes** to **5**. Then click OK at the bottom of this sheet to save your changes.

Then click to Values > Unit values. Change the **B Axis Unit Value** to **33.3333** (go to four decimal places). Do not make changes to any of the other values. Now click OK to save these changes.

Fill-In Sheet for [VD] Command			
[VD] [D]isplay values			
Parameter Name:	Value:	Required	
Display Units	0 - inches		
Display Units A Axis	0 - inches		
→ Display Units B Axis	2 - degrees		
→ Number of Axes	5		
Auto-Entry	1 - ON		
Show Control Console	1 - Show		
Display File Comments	0 - Off		
KeyPad Fixed Distance	.1		
KeyPad Remote	0 - Mouse		
KeyPad Switch AutoOff	0 - Off		
Write Part File Logs	1 - Write		
Write System Log	1 - Write		
Message Screen Loc X	-735		
Message Screen Loc Y	-7500		
Message Screen Size X	8800		
Message Screen Size Y	4600		

Reset  Display

Fill-In Sheet for [VU] Command			
[VU] [U]nit values			
Parameter Name:	Value:	Required	
X Unit Value	2482.8171	*	
Y Unit Value	2482.8171	*	
Z Unit Value	2979.3805	*	
A Unit Value	2979.3805	*	
→ B Unit Value	33.3333	*	
Circle Resolution	.05		
Small Circle Def (OBS)	.25		
Resolution Multiples for alphaStep Drives:			
X Resolution Multiple	5	*	
Y Resolution Multiple	5	*	
Z Resolution Multiple	5	*	
A Resolution Multiple	5	*	
B Resolution Multiple	1	*	
Slow Speed Generation for Unusual Requirements			

Display

## Testing the indexer

**WARNING: Avoid rotating the motor with your hand when the power is off.** Doing so can generate an electric charge which may damage the driver and/or control board.

Turn your Shopbot back on and switch your software to move/cut mode if you have not already done so.

You can move the indexer just like any other axis by giving it a move command. Type an **MB** command (for Move B Axis) into the command box, followed by a degree value. Degrees are absolute, meaning that they are all referenced from zero. For example, if the screen reads that you are currently at 10 degrees and you command the software to move to 15 degrees (type command MB 15), your total distance of travel will be 5 degrees.

## Zeroing the tool before a cut

**Zeroing in B:** If you are turning the stock to a finished shape, generally you won't need to zero the B axis before cutting. However, if you are using it to make cuts in a very specific location, rotate the axis using move commands until the desired face or point is pointing straight up (perpendicular to the table surface), then type a **ZB** command for Zero B Axis.

**Zeroing in XY:** As with any other cut file, you will need to zero the XY axis before beginning. You can use the **C3** command to run the XY homing routine, and/or move the tool to the desired start location on the table and type a **Z2** command to zero it in that location.

**Zeroing in Z:** You have the option of either zeroing to the center point, or the top of the material (outer diameter). Whichever location you choose, make sure that your chosen z-zero setting in the software matches what you do at the machine.

If you zero to the center point, you will need to move the Z axis to that point using the keypad. First use the arrow keys to get it close, then click the button marked "**Fixed**" within the keypad move window. This will allow you to move the axis in very small increments. Enter a small value (such as .05) and continue to move the Z axis down until the bottom of the bit is on the same level as the centerpoint. Then exit the keypad and type a **ZZ** command to zero the Z axis in that location.

If you prefer to zero to the top of the material, you can use the z-zero plate as usual.