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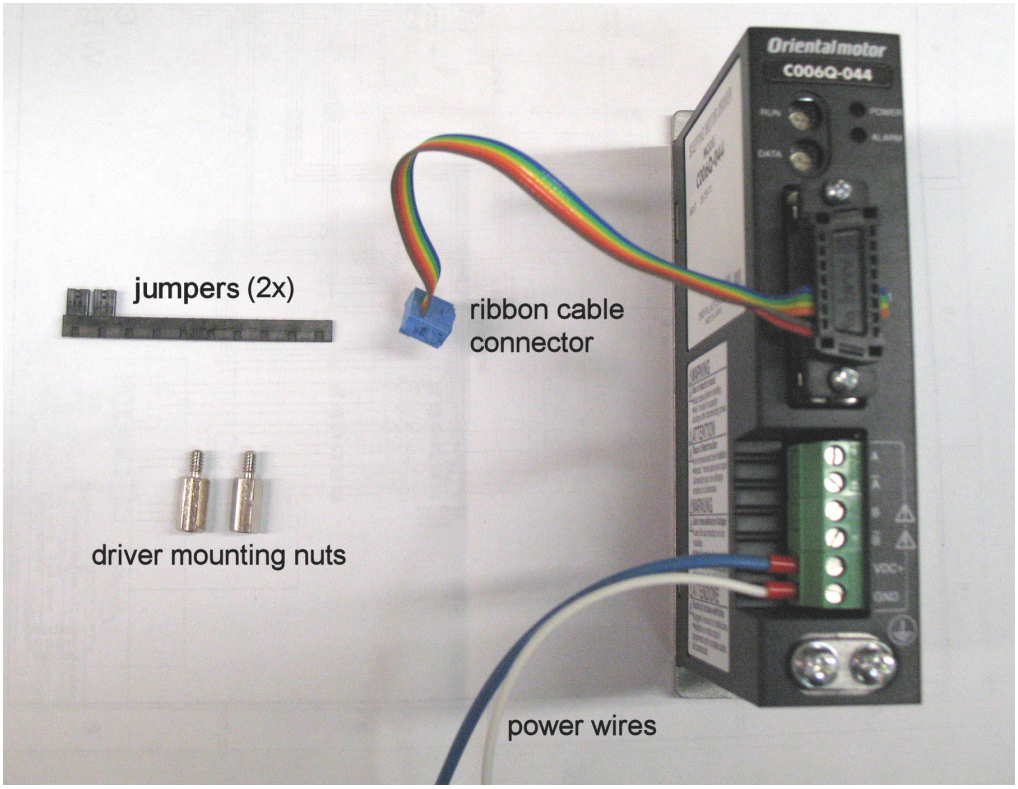
Installing the 3” Indexer: PRS Standard Tools



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Note: If the indexer was purchased as part of a new machine, the following wiring steps have already been completed - please skip to "Make Changes to ShopBot Software".

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

Route Cable into Box

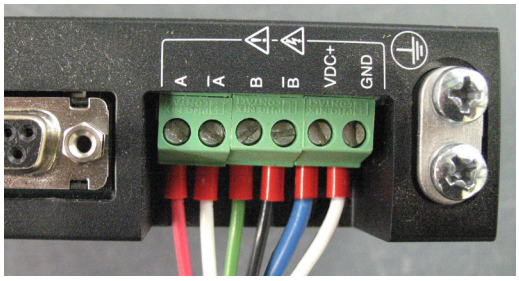
Open the Roxtec cord fixture on the side of the control box. Depending on the age and model of the tool, the fixture is closed either with a bolt on the inside of the box (shown in the photo), or a plastic clamp.

If the box has a bolt, loosen it from the inside of the box.

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

Pull upwards on the wires to loosen the rubber pieces that hold the cables in place. Route the indexer cable through any available opening, and pull it into the box far enough to reach the driver with a little slack left over. Tighten the fixture back down onto the cables.

Wire Indexer Cable to Driver

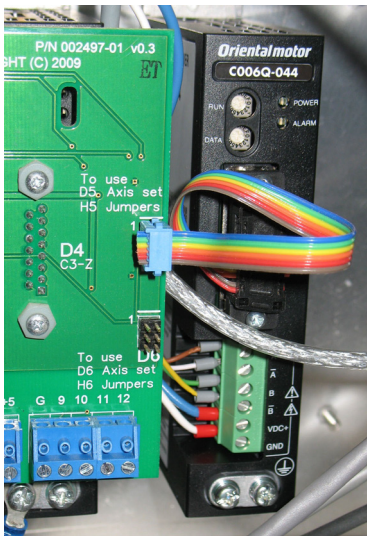


Loosen the screws on the green terminal blocks. Insert wires from indexer motor cable as shown in the photo (from left to right): **RED – WHITE – GREEN – BLACK**

Tighten 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, connect the blue wire to VDC+ and the white wire to GND.

It is extremely important that these are wired in the correct order. FAILURE TO DO SO CAN DAMAGE THE DRIVER.

Mount Driver and Connect Remaining Wires



Insert new driver onto the extra set of screw posts to the right of the control board, and secure it with the mounting nuts included with the kit.

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

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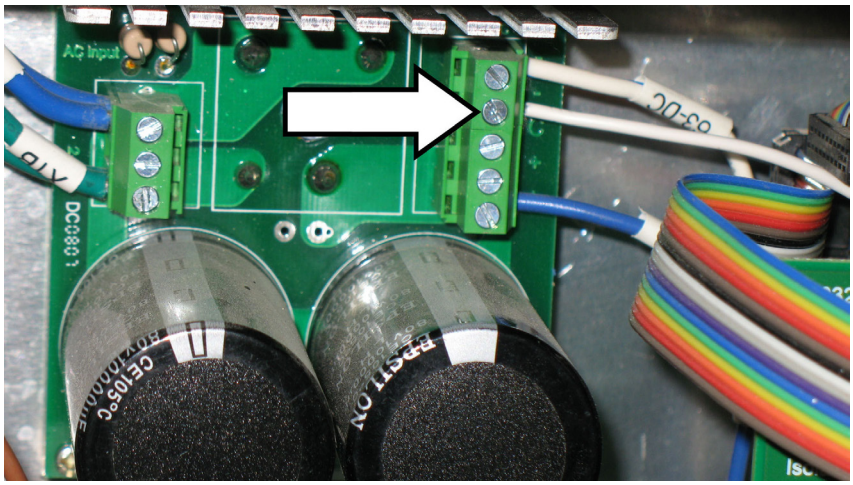
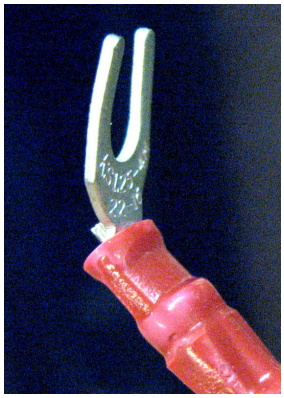
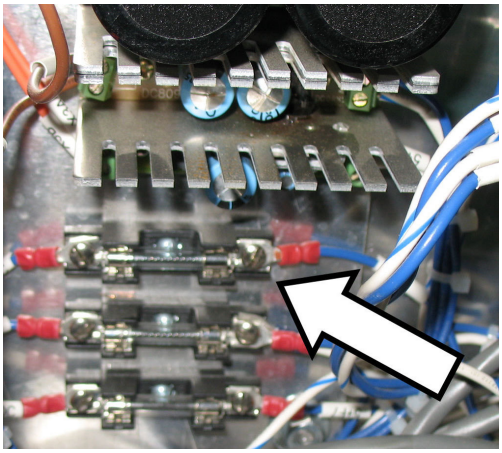
Loosen the terminal screw directly under the existing power supply (white wire). Take the end of the white power wire (neutral) from the driver, and twist the wire strands together. Insert the combination white wire into the terminal block and tighten the screw. Double-check that the wire is secure.

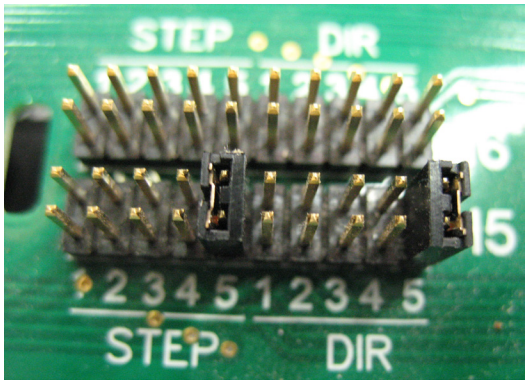




Slightly bend the spade connector on the end of the blue wire, as shown left.

Locate the 63v fuse on the right side of the board, marked by a white label on the incoming wire. On the outgoing (right) side of this fuse, loosen the screw that holds the existing spade connector. Insert the new spade connector underneath the screw head and tighten, making sure the both wires have a good connection. Pull on both wires to make sure they are tight.





Add Jumpers

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 the kit. 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.

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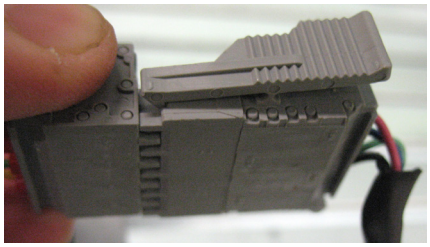
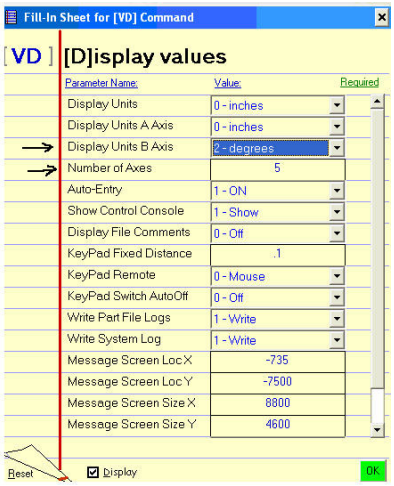
Plug In Motor Cable

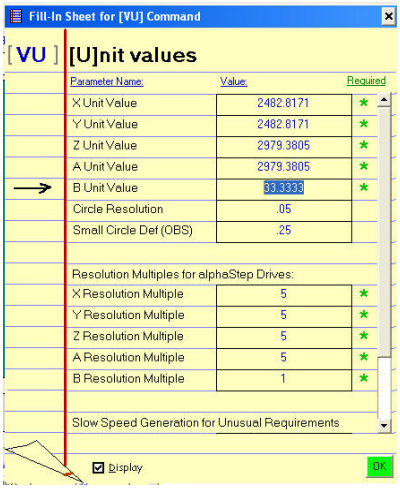
Clip together the gray Wago connector and make sure that the two sides of the connector are fully pressed together.



Make Changes to ShopBot Software

Open the control software and type **VD** into the yellow command box (or click **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. Click **OK** at the bottom of the sheet to save the changes.



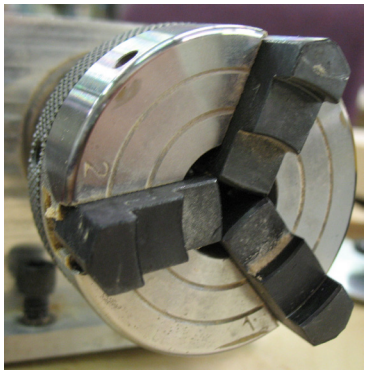


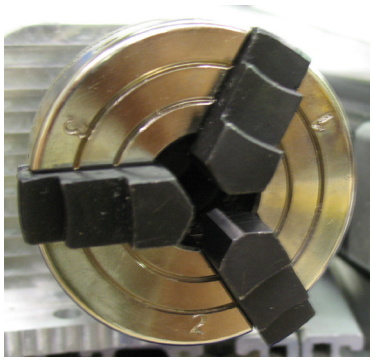
Type a **VU** command or click **Values** > **Unit values**. Change the **B Axis Unit Value** to 33.3333 (go to four decimal places). Do not make changes to any of the other values. Click **OK** to save changes.

Using the Chuck

The chuck jaws can be reversed for gripping the inside of a surface (for example, a hole created with a forstner bit). This is useful for working on large-diameter stock. Rotate the knurled ring behind the chuck body to open and close the chuck jaws. Rough adjustments can be made by hand, but for better leverage, insert the black rods ("tommy bars") into the holes on the chuck body and knurled ring. Looking at the face of the chuck, rotate the ring clockwise to tighten the jaws, counter-clockwise to loosen them.

Chuck jaw gripping inwards





Chuck jaw gripping outwards

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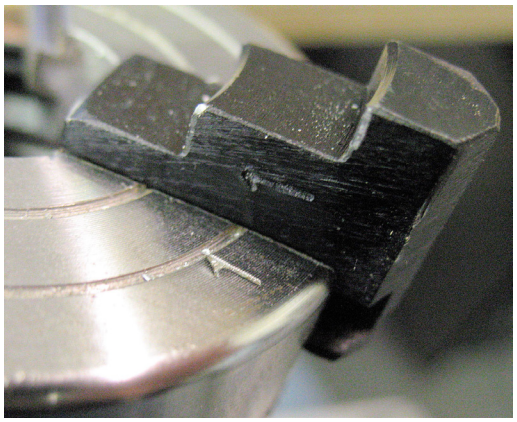
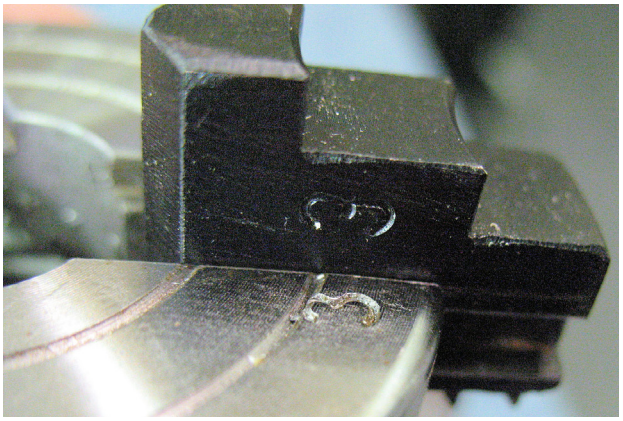
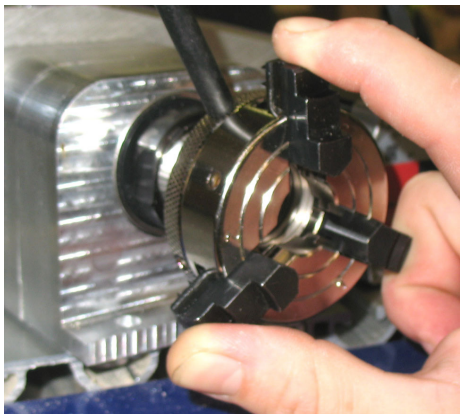
To remove the chuck jaws, open the chuck as wide as it will go and pull the jaws out one at a time. Wiggle the knurled ring back and forth if necessary while pulling outwards on the jaw until it comes free.

To put the jaws back in, seat them in the correct slot. Slots are numbered 1 through 3 on the chuck face, which corresponds to the number stamped on the chuck jaw. Jaw #2 always sits in the same slot, but jaws 1 and 3 will have to switch places when switching from inwards-gripping to outwards-gripping.





Once the jaws are in the correct slots, maintain even pressure on each jaw while rotating the knurled ring clockwise. Be sure that the jaws are moving evenly towards the center of the chuck. If they seem uneven, reverse direction to remove the jaws and start over.



Testing the Indexer

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

Turn on the Shopbot and switch the software to move/cut mode.

The indexer moves just like any other axis via the move command. Type an **MB** command (for Move B Axis) into the command box, followed by a degree value. Degrees are all referenced from zero. For example, if the screen curently reads at 10 degrees and the software is commanded to move to 15 degrees (type command MB 15), the total distance of travel will be 5 degrees.

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Zeroing the Tool Before a Cut

Zeroing in B: If turning the stock to a finished shape, it generally won't be necessary to zero the B axis before cutting. However, if 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). Type a **ZB** command for Zero B Axis.

Zeroing in XY: As with any other cut file, it will be necessary to zero the XY axis before beginning. Either 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: There is an option to either zero to the center point, or the top of the material (outer diameter). Whichever option is chosen, make sure that the z-zero setting in the software matches what is done at the machine.

If zeroed to the center point, it will be necessary to move the Z-axis to that point using the keypad. Use the arrow keys to get it close, then click the button marked "**Fixed**" within the keypad move window. This will allow the axis to move 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. Exit the keypad and type a **ZZ** command to zero the Z-axis in that location.

If zeroing to the top of the material is preferred, use the z-zero plate as usual.

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