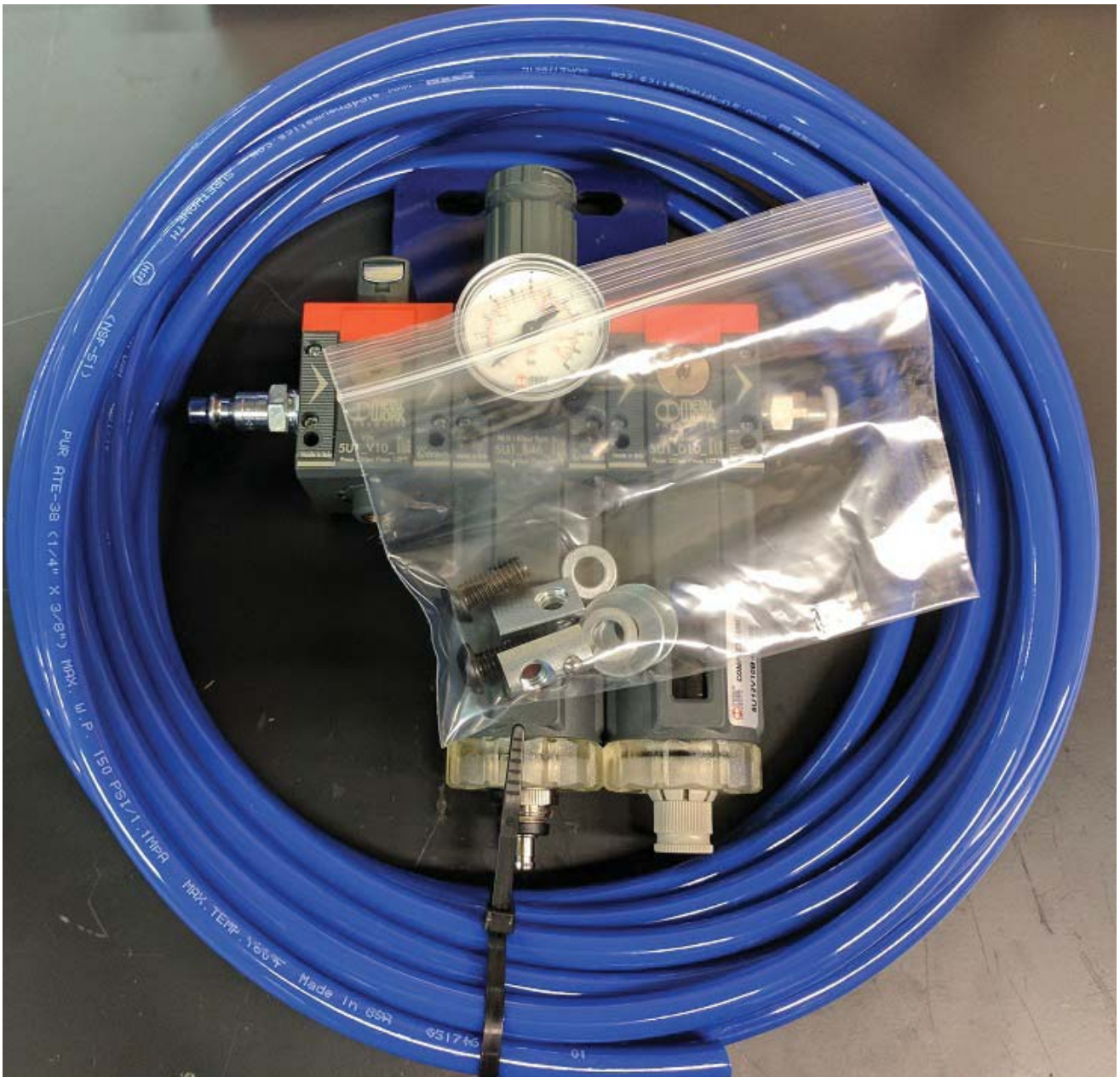




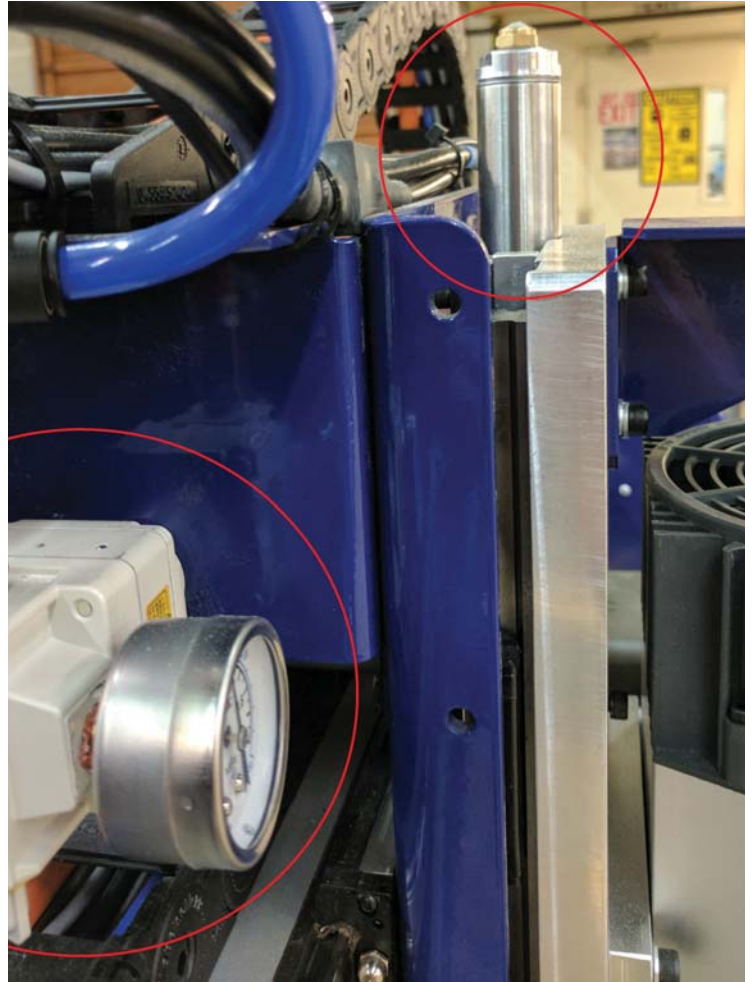
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Pneumatic Assist Installation For PRSalpha Tools



This document will describe how to install a pneumatic assist on a ShopBot PRSAlpha machine purchased on or after June 2017. This generation of machines is referred to as the PRS4. On PRS4 tools that were purchased with a pneumatic assist kit, the majority of the pneumatic assist kit is pre-installed. The precision regulator and air cylinder should already be mounted as shown in the picture.

If you are adding a pneumatic assist as an accessory to a tool it was not originally purchased with, contact ShopBot Support for information on how to mount the air cylinder and precision regulator assembly, as that is not covered in this document.



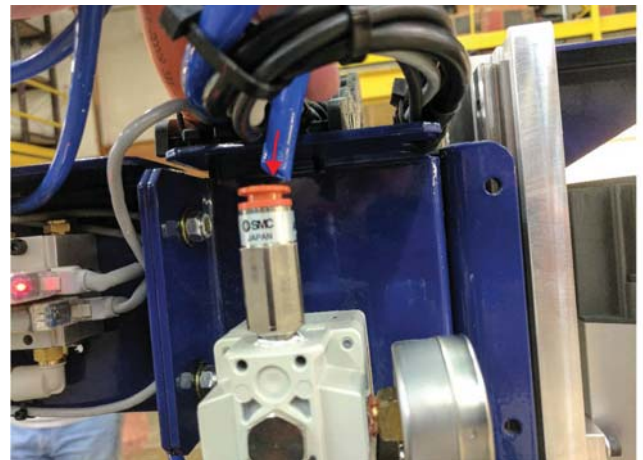
First, install the filter regulator assembly. Using the supplied 5/16" Drop-in T-nuts and 5/16" Button head bolts and washers, install the filter regulator assembly in the bottom t-slot of the table side, about 12" from the end of the cable carrier trough.

It is very important that the filter regulator is installed in the bottom t-slot, otherwise the tool may hit it under normal operation.

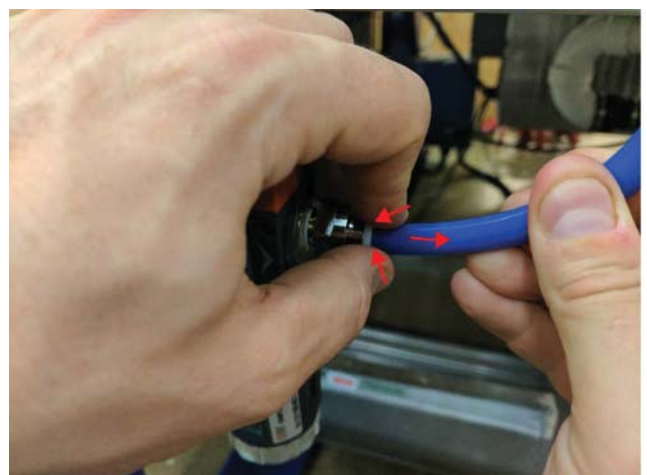
The filter regulator in the picture shows a pressure switch for ATC tools. This is only included for ATC applications.



The supplied 3/8" blue tubing runs from the filter regulator assembly on the table side, through the X-axis cable carrier, up the side of the gantry, and through the Y-axis cable carrier. For information on how this is done, see Section 8- Wire and Cable Routing in the PRS assembly guide.



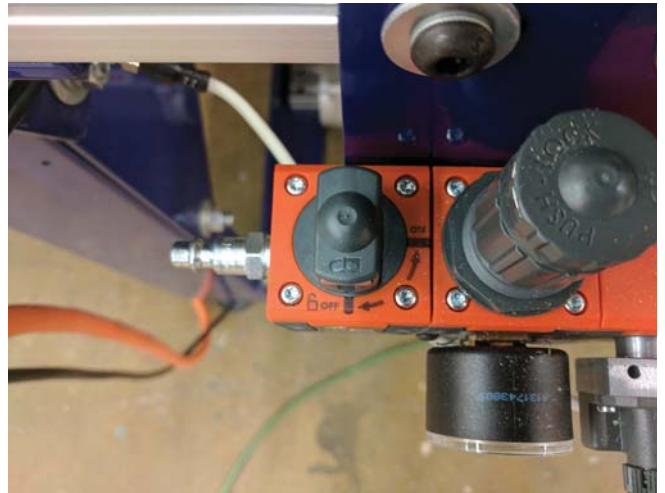
Note that the tubing is longer than it needs to be for most machines and will need to be cut to length with a razor knife or pair of scissors. To connect it to the filter regulator or precision regulator, it simply pushes into the fittings. If the tubing needs to be removed from the fitting, press in on the plunger of the fitting then pull the tubing out.



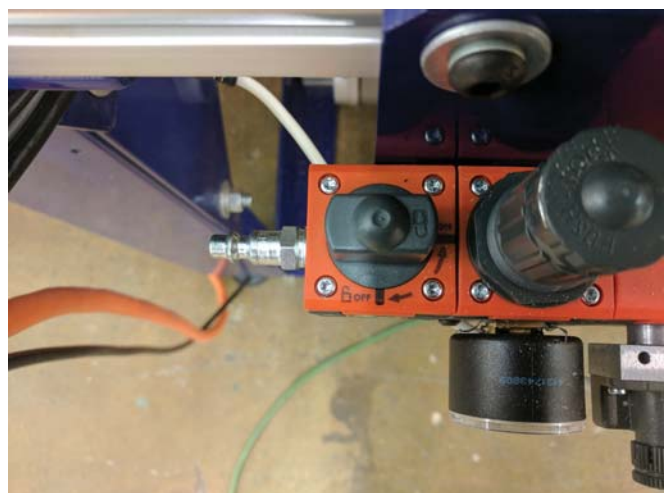
Connect an air line to the filter regulator assembly now. Air source must be at least 100psi with a minimum flow of 3cfm for the pneumatic assist. Note that other accessories such as the ATC and air drill will use more air. Refer to the manuals for those accessories for air requirements. All pneumatic accessories require the pneumatic assist and use the same filter regulator.



Before proceeding, make sure that the shutoff switch is in the ON position, indicated in the photos to the right.



Above: Shutoff switch in OFF position

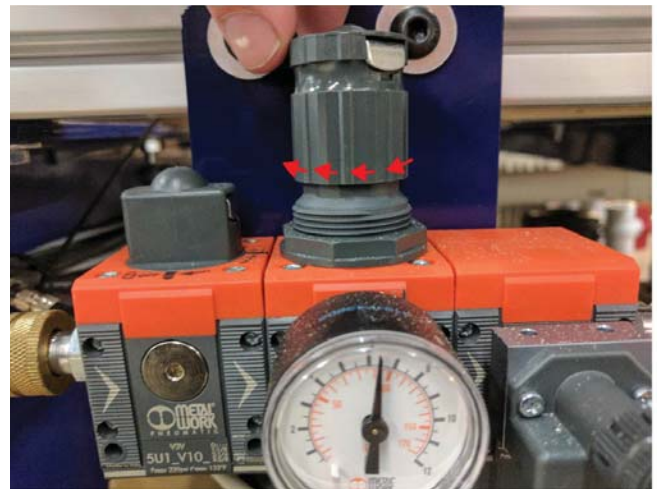


Above: Shutoff switch in ON position

Now, unlock the regulator adjustment knob by pulling up on it. It should click and move up about 1/4"



Turn the knob clockwise to increase the regulated pressure. Turn counter-clockwise to decrease pressure. Note that when reducing pressure, the gauge may not move immediately down until the air already in the lines is bled off. Be careful not to over-correct.



Set regulated pressure to between 90 and 100 psi (6-7 bar)

Push down on adjustment knob to re-lock and prevent accidental adjustment.



The final step is to adjust the precision regulator on the Z cylinder. The purpose of the precision regulator is to keep a constant pressure in the cylinder as the Z moves up and down, thereby offsetting the weight of the Z axis and spindle and reducing wear on the Z motor and pinion.

Note that there is a check valve in line with the air hose to the Z cylinder. In the event of sudden air pressure loss or power loss to the machine, this will prevent the Z from crashing into the table, destroying a bit, a workpiece, or causing injury.

To adjust the pressure on the regulator, turn the adjustment screw clockwise. The knob is located next to the Z motor on the back of the YZ car.



Adjust the pressure until the Z axis can be moved easily up by hand with the power to the machine turned off. It should stay wherever it is put. If it falls back down, the pressure is too low. If it pulls itself up, the pressure is too high.

A good starting point is around 60psi.

