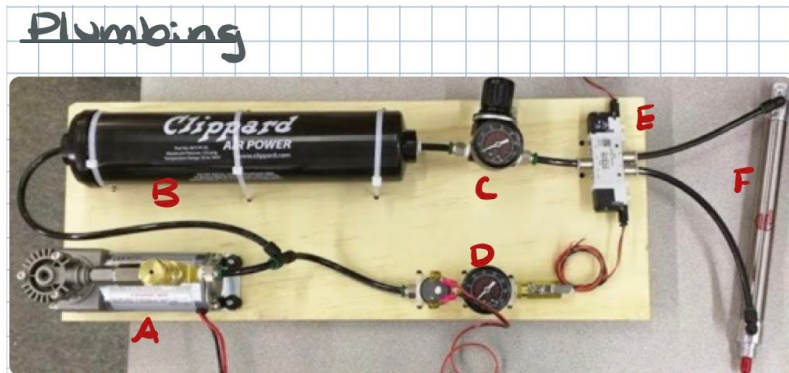


2/4/19

7407 Pneumatics Guide

Isabella Morizio

Tubing System: General Overview

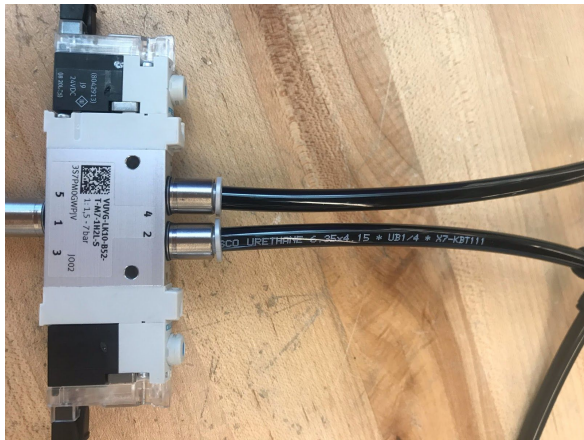


- The air compressor (A.) is used to compress air and pump it into the air tank (B.). The air for the system is stored in this tank.
- The pressure regulator (C.) measures the working pressure of the system. For FRC, the maximum working pressure for a pneumatics system is 60 psi. The regulator must be set using the adjustable knob in order to stop the air compressor at this pressure. While the system is running, pull the knob out and turn it in one direction until the gauge reads 60 psi. Then push the knob back into place. The regulator will now regulate the system so that the working pressure does not exceed 60 psi.
- The regulator is connected to a solenoid (E.). Solenoids are the equivalent of a light switch. They are the 'sensors' that tell the pneumatics pistons (F.) when to move. Using T-junction connectors (figure 1) you may connect several solenoids within one single system.
- Double action solenoids have two outlet fittings (figure 2) that connect to two inputs on the pistons. Air is released by the solenoid into the piston in order to actuate it.
- The compressor is also connected (using a T-junction) to a pressure switch (D.). The gauge on this piece measures the pressure of the entire system, which should read around 115 psi with one connected air tank and the regulated 60 psi working pressure. The handle towards one end of the valve is used to manually release the air in the system. In the off position all air will be contained, and in the one position a valve will open to rapidly release the air in the system.

Figure 1:

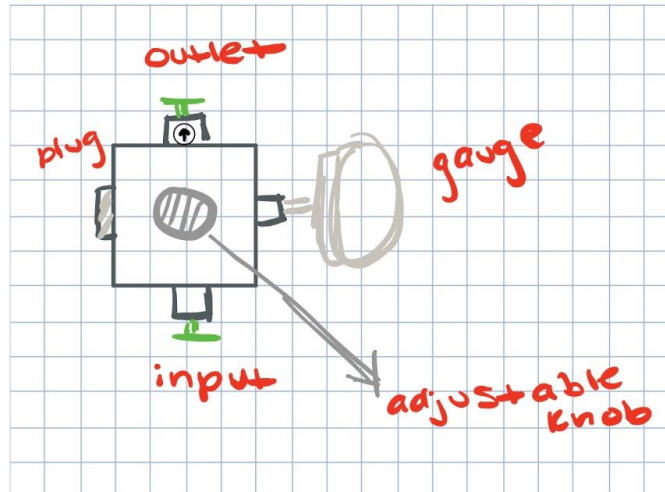


Figure 2:



Tubing System: Step by Step Guide

- Attach pressure release valve piece (figure 3) onto the compressor. On the opposite end of the valve piece, attached a tubing fitting (figure 4). Before attaching fitting, wrap it in teflon tape (figure 5). Insert a tube into this fitting and attach a T-junction connector to the other end. From the T-junction connect two tubes.
- One of these tubes is connected to the air tank. The other tube is connected to the other end of the pressure release valve piece (D.). A fitting with teflon tape will have to be added to the pressure release valve piece in order to connect the tubing.
- The opposite end of the air tank will be connected by a small tube to the pressure regulator piece. Make sure to connect the pressure regulator piece according to the following diagram:



- The outlet tube should be connected to the solenoids while the input tube should be connected to the air tank. The gauge should be connected to one remaining side while the last open connection should be plugged with a bolt.
- Tubing (adjustable according to how many solenoids are required) comes out of the pressure release piece and into the input side (the one with two openings) of the solenoid(s).
- The two outputs on the opposite side of the solenoid should have two tubes connected to it that reach to the pneumatic pistons.

Figure 3:

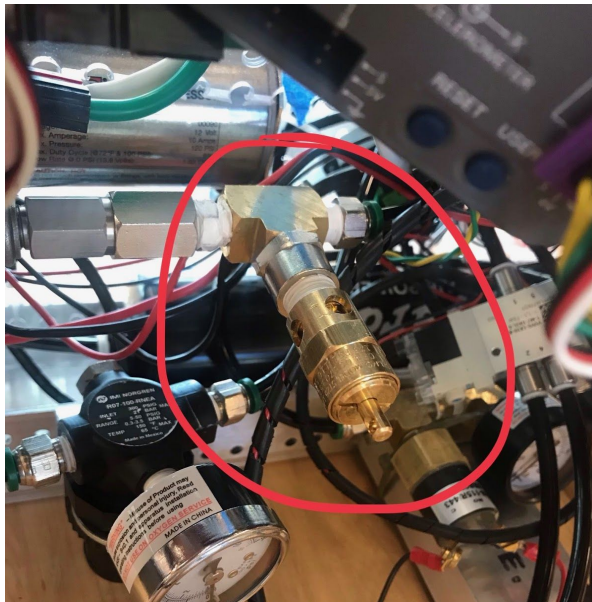


Figure 4:



Figure 5:

