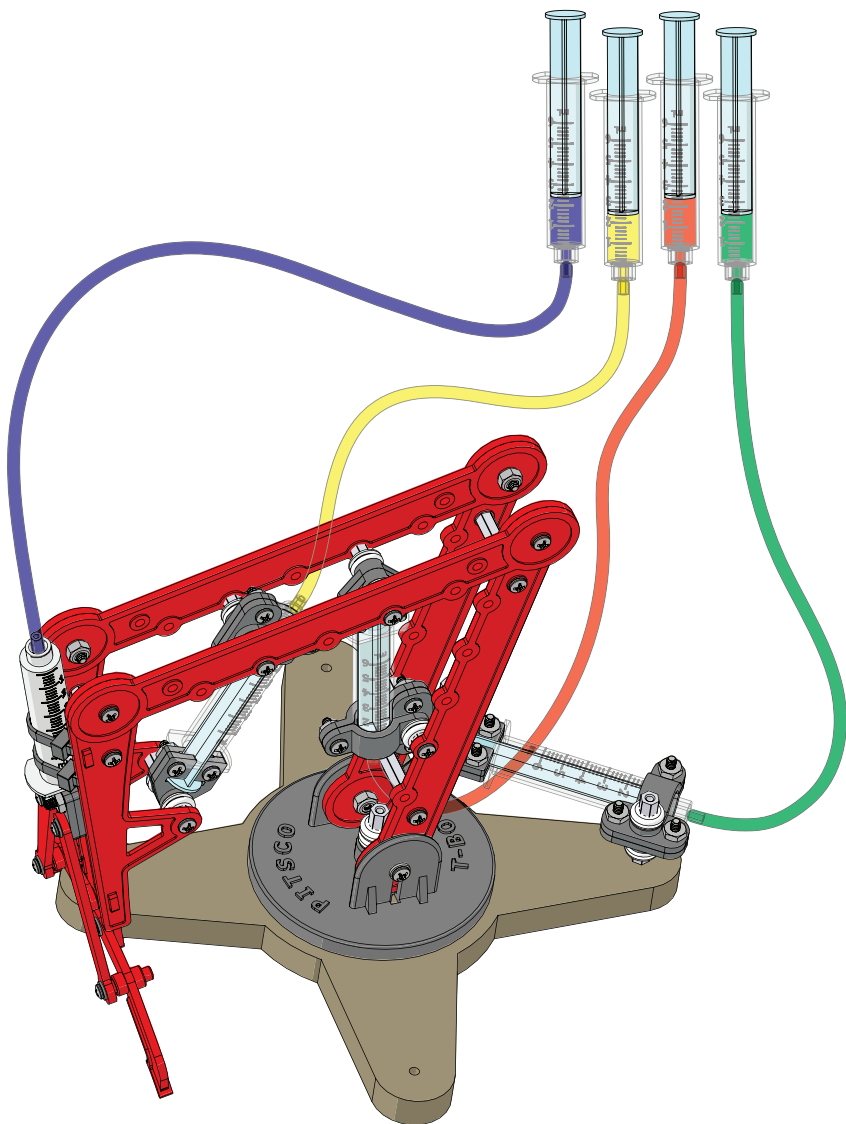


T-BOT ASSEMBLY

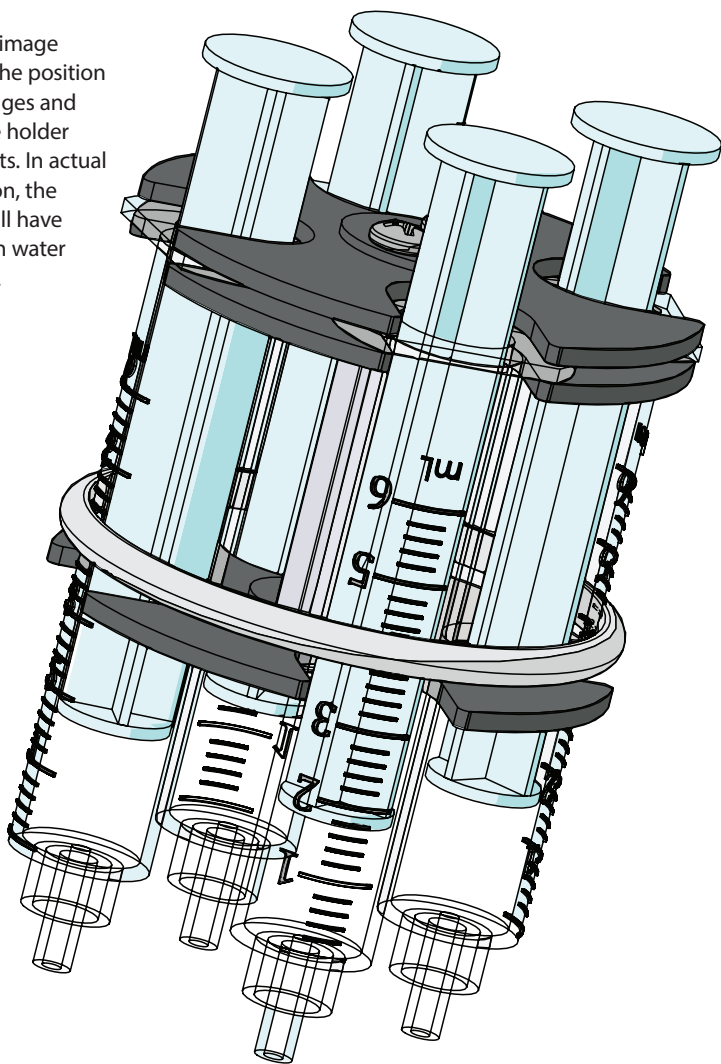
Step 11 – Repeat the process of filling and attaching the remaining syringes (one at a time) to the syringe assemblies on the T-Bot.



T-BOT ASSEMBLY

Now you will build the syringe holder. Completed syringe holder should look like this.

Note: This image illustrates the position of the syringes and the syringe holder components. In actual construction, the syringes will have tubing with water connected.



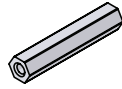
Syringe Holder Assembly Step 1 Parts Needed



1x
Syringe Holder

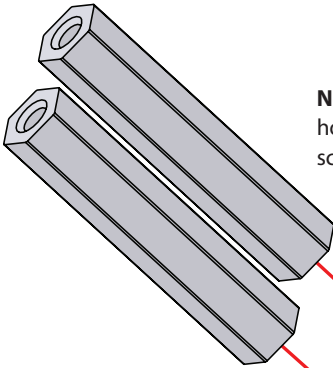


2x
Pan Head Machine Screw

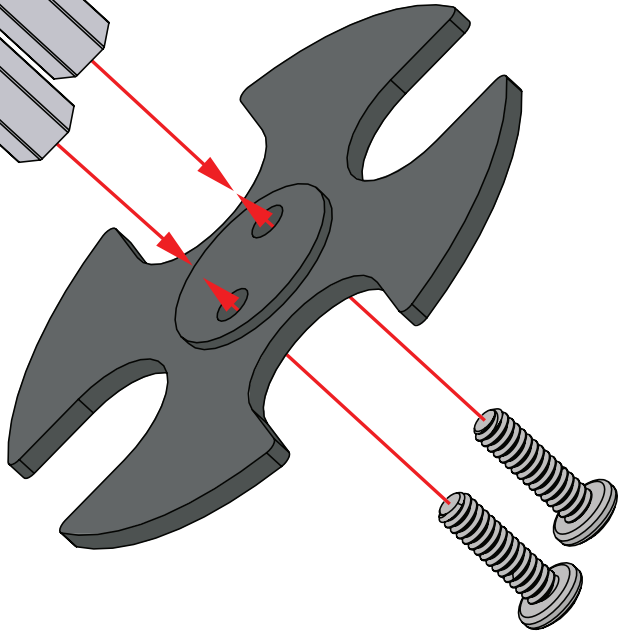


2x
Stand-Off (32 mm)

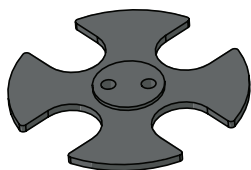
Step 1.0



Note: Insert the screws through the syringe holder then into the stand-offs. Use the screwdriver to tighten screws firmly.



Syringe Holder Assembly Step 2 Parts Needed

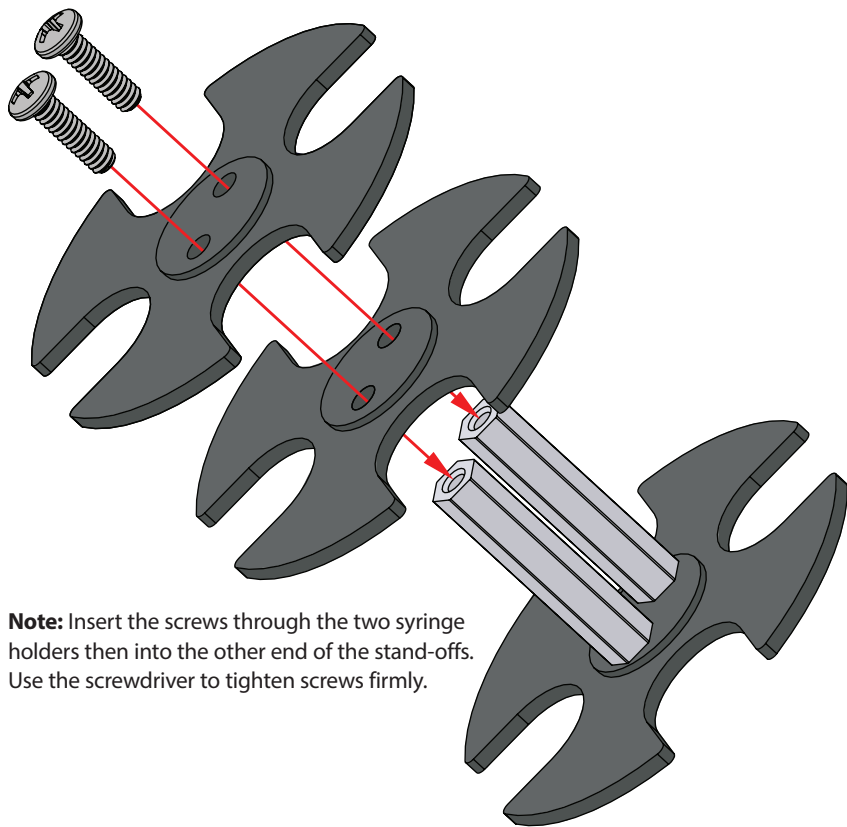


2x
Syringe Holder



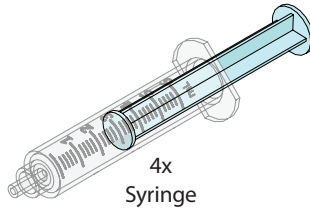
2x
Pan Head Machine Screw

Step 2.0



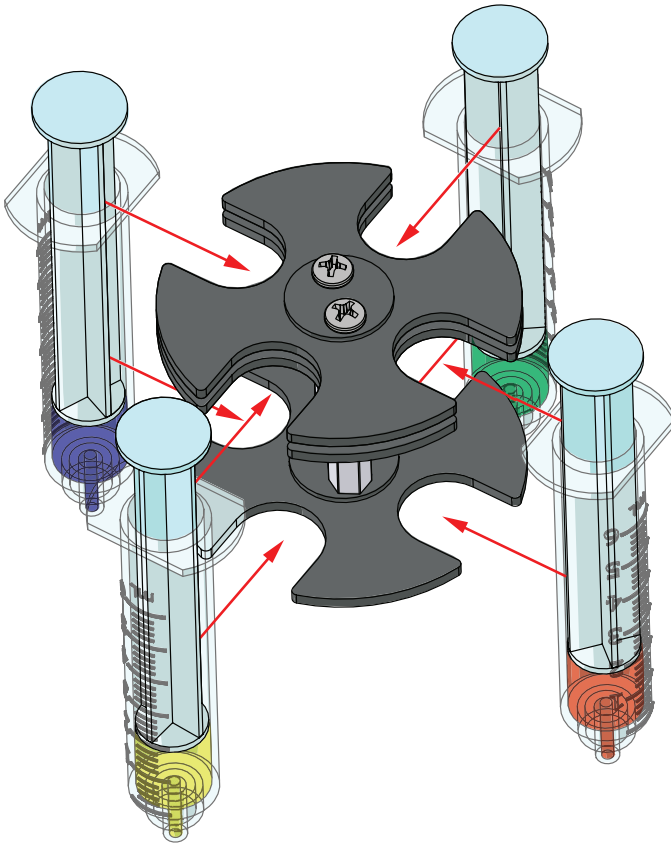
Note: Insert the screws through the two syringe holders then into the other end of the stand-offs. Use the screwdriver to tighten screws firmly.

Syringe Holder Assembly Step 3 Parts Needed

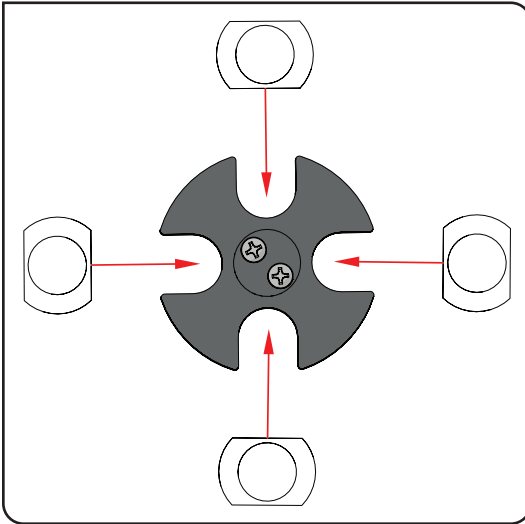


Note: These syringes and tubing will contain water and be attached to the T-Bot during this assembly process.

Step 3.0

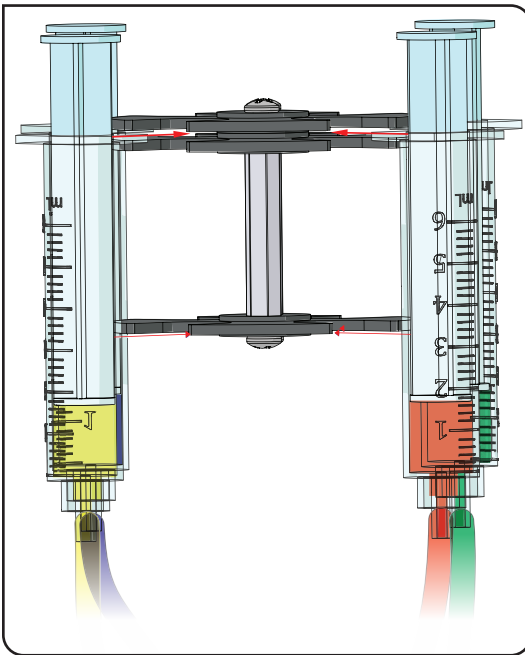


Detail Top View



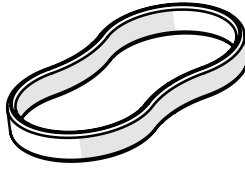
Note: As syringes are added to the syringe holder, orient the printed scale of each syringe so it faces away from the holder and will be readable when the holder is completely assembled.

Detail Side View



Note: The flat flange on the syringe body will slip in between the two layers of syringe holders.

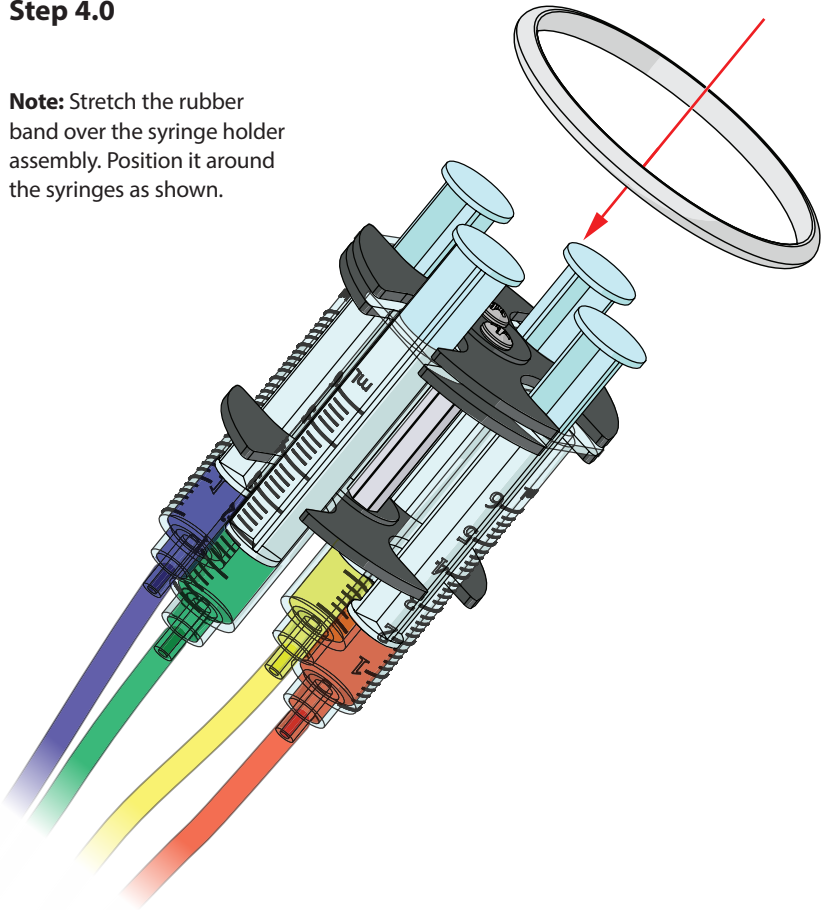
Syringe Holder Assembly Step 4 Parts Needed



1x
Rubber Band

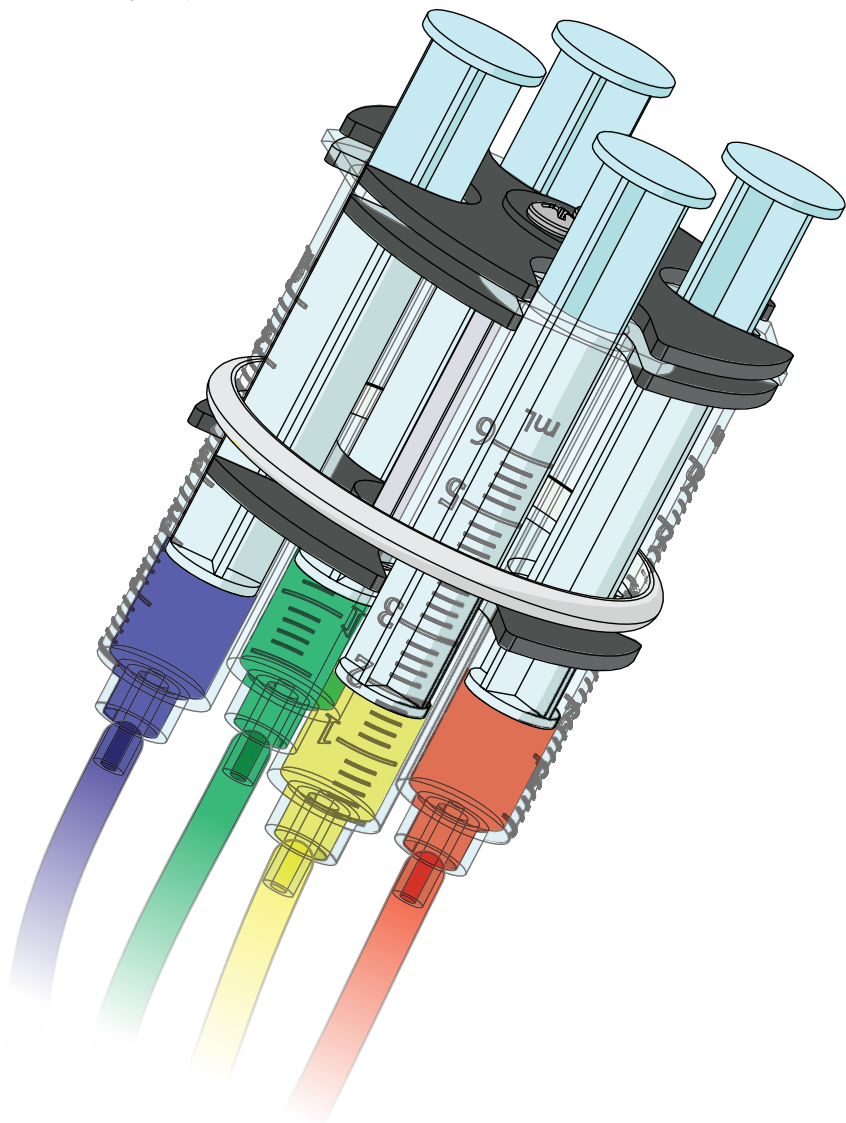
Step 4.0

Note: Stretch the rubber band over the syringe holder assembly. Position it around the syringes as shown.



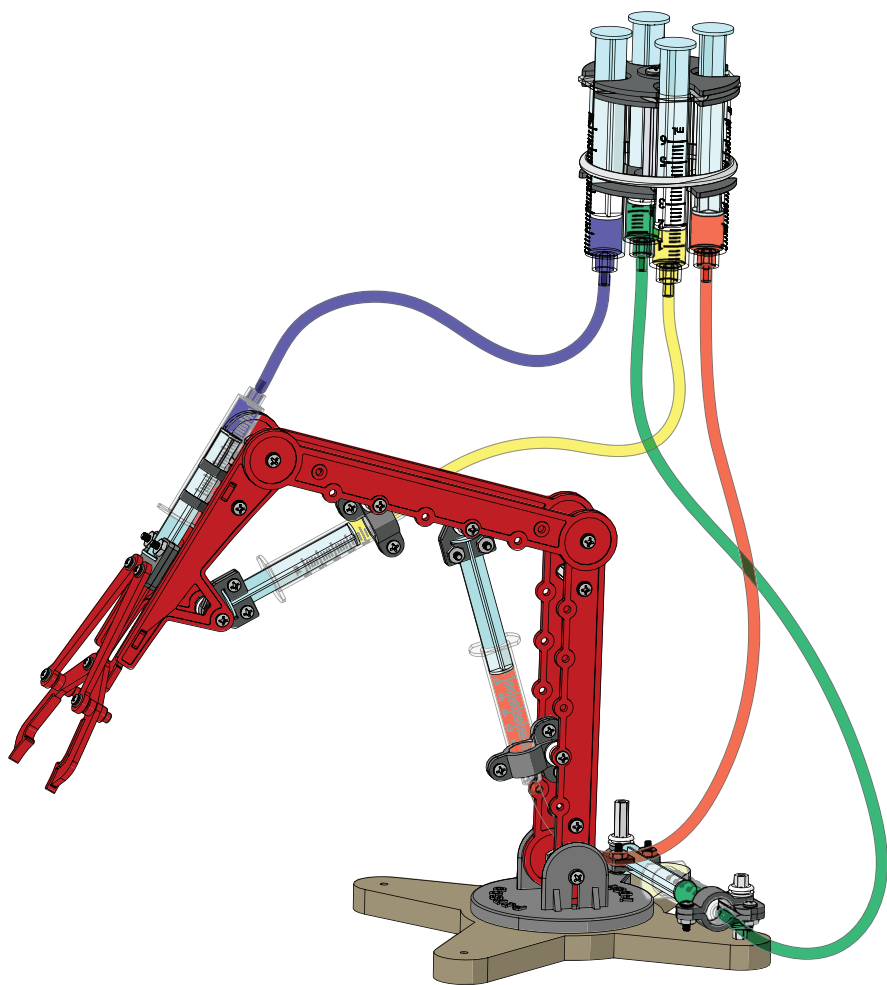
T-BOT ASSEMBLY

Finished syringe holder should look like this.



T-BOT ASSEMBLY

Finished T-Bot with syringe holder should look like this.



TROUBLESHOOTING

Your T-Bot is complete at this point! Try each syringe to see if it will move a part on the T-Bot. Try pushing in and pulling out to see the resulting motion of each syringe.

Note: Do not force any the syringe plungers in or out. You might damage the syringe or cause a leak in the system by doing so.

Troubleshooting Tips

- If the lower arm does not remain in a fixed position as you operate the T-Bot, use the screwdriver and wrench to further tighten the machine screw and nylon nut. Hold the machine screw head in position using the screwdriver as you tighten the nut using the wrench. Make sure both machine screws are fully tightened to hold the lower arm firmly in position.
- If the machine screw on the syringe plunger pivot catches on the base pivot as it rotates, remove the syringe assembly and twist the plunger 180 degrees while holding the syringe body in place. This will orient the heads of the machine screws in the down position when the syringe assembly is reinstalled on the T-Bot. Be certain the syringe body pivot is still oriented correctly when you place it back on the T-Bot base.
- Check syringes on the syringe assemblies to be sure they do not drag when the plunger reaches the point when the syringe body pivot is holding the syringe. If the plunger drags (resists normal motion), loosen one or more of the machine screws until the plunger moves without hesitation. Check to be sure the syringe body pivot is still tight enough on the syringe to keep it from moving back and forth as the syringe is being operated.
- Do a visual check of the water in the syringes and tubing to be sure there is no air in the system. Unlike water, air is compressible, so it can cause hesitation or a complete lack of movement when trying to operate the syringes. If any air is in the lines, refill the syringe and tubing as directed in the instructions on pages 42-47.
- Check for any cracks or splits in the tubing – especially at the attachment point of the syringes. If the tubing is cracked or split at the attachment point, cut off 1/2" of the tubing and reinstall it over the syringe after filling the tubing with water as directed in the instructions on pages 42-47.

Adjustments

- The T-Bot may be adjusted for different activities by changing the location of the syringe assemblies on the lower and upper arms. Simply unscrew the screws from the stand-offs, change the location, and re-insert and tighten screws at the new location.
- For some activities, the T-Bot might work better with the lower arms angled back slightly by about 10-15 degrees from vertical. To accomplish this, loosen the two screws holding the lower arms to the pivot base and position the lower arms as desired. Tighten the screws again using the screwdriver and wrench.
- If desired, the T-Bot may be attached to a wood platform using appropriate screws through the three free holes in the base.
- The T-Bot may be used with Pitsco's T-Bot Challenge Set. For best performance, the lower arms will need to be adjusted back by 10-15 degrees from vertical.

