

Installation Procedure for the AutoBlot Complete Tubing Kit

The Complete Tubing Kits contain pump, dispense, aspirate, and bottle tubing for the AutoBlot Processor. The tubing in these kits is cut to the proper length and marked for proper alignment. **NOTE: Proper tube lengths and installation are critical for proper performance of the arm assembly.** In order for your AutoBlot to perform properly, use only the tubing replacement kits provided by the manufacturer. Do not attempt to change tubing without these kits.

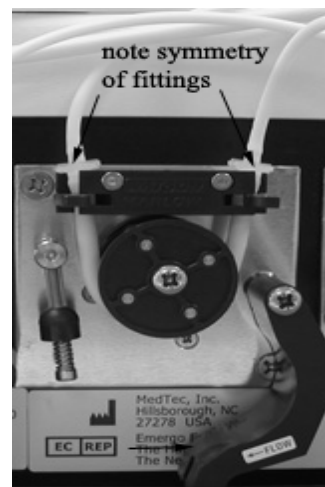
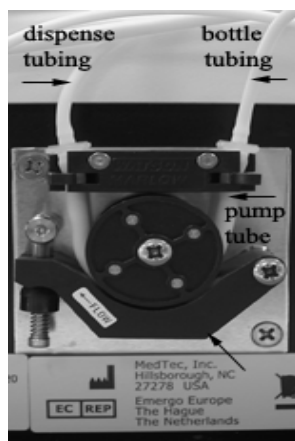
NOTE: The tubing on your AutoBlot should be replaced **one pump at a time**, starting with Pump 1. For each pump you will replace the pump tubing first, then the dispense tubing, then the bottle tubing. The aspirate tubing is replaced last.



Step 1: Replace the Pump 1 Tubing

Replace the Pump Tubing **one pump at a time, starting with Pump 1.** The pump tubing is the short length of tubing that wraps around the pump. Before replacing the pump tubing, remove the aspirate tubing from the aspirate arm **leaving the clear Teflon tube in place on the aspirate arm.** Pull the aspirate tubing through the nylon washer on top of the instrument, through the nylon clips and remove from the aspirate bottle. Removing the aspirate tubing first gives you more room to work with the other tubing pieces. Do not replace with the new aspirate tubing just yet. It will be replaced last.

Disconnect the dispense tubing and the bottle tubing from the fittings on Pump 1. Unlock the pump pressure pad, remove the pump tubing and discard it. Put on the new pump tubing, making sure it is not twisted and the tube fittings are symmetrical. If the tubing is twisted, the pump will not work properly. Lock the pressure pad back in place.

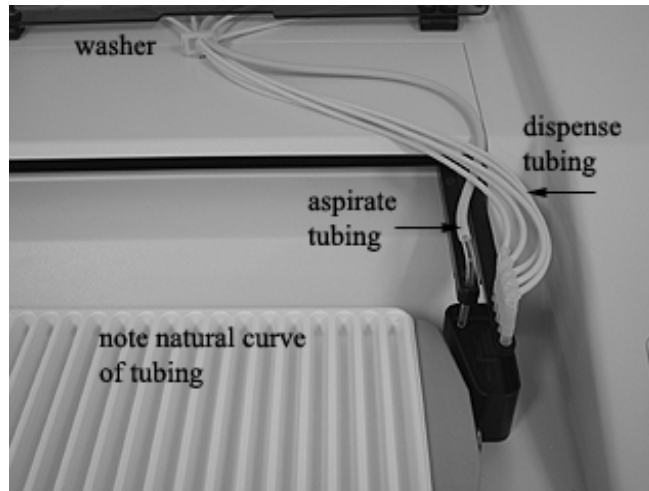


Pressure Pad Locked Pressure Pad Unlocked

Step 2: Replace the Pump 1 Dispense Tubing

Make sure you compare the length of each tube that you replace with the length of the new tube you are installing. Depending on the instrument that you have, the dispense tubing lengths may vary for each pump. **These lengths are critical** in order for the arm mechanism to operate smoothly. Before removing any tube, note carefully the length of the tube and where it is located.

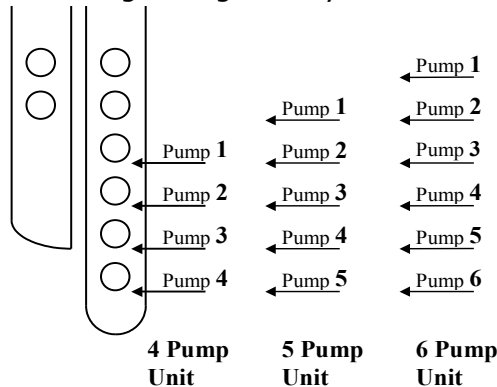
Note the natural curve of the tubing. Lay a piece of tubing over across your hand. Lay the tubing across the top of the instrument so the tubing curves to the right. This curve must be laid out properly so the aspirate/dispense arm to move across the tray smoothly.



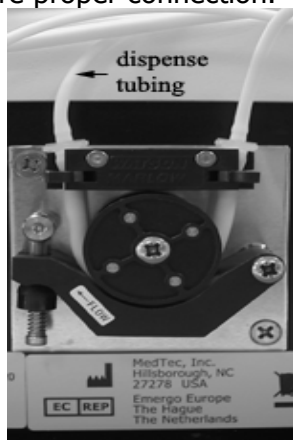
Discard the dispense and bottle tubing that you removed from Pump 1. For unheated units, replace the short dispense tube assembly at the dispense arm.

Attach the new dispense tubing for Pump 1 to the

dispense tip on the arm. Thread the tubing through the nylon washer on top of the instrument.



Attach the other end of the dispense tubing to the fitting on the pump tubing on Pump 1. Note the direction of the pump flow to ensure proper connection.



Step 3: Replace the Pump 1 Bottle Tubing

Attach the new Pump 1 bottle tubing to the fitting on the pump tubing around Pump 1.



Bottle Straws

NOTE: Your kit may include 4-6 clear bottle tubing straws that can be attached to the end of the bottle tubing. These straws help the tubing stay down in the bottle and make it easier to insert the tubing into the small bottles. However, they will increase the priming volume slightly so use the straws as needed. Cut the bottle tubing to the minimum length needed to place the straws in the bottles. The shorter the tubing, the less volume is required when priming the pumps. **NOTE: DO NOT ATTACH** the tubing straws to the waste bottle tubing.



Step 4: Replace the Tubing for the Remaining Pumps

Replace the pump tubing, dispense tubing and bottle tubing for the remaining pumps, one pump at a time, repeating steps #1, #2, and #3 as described previously. After all dispense and bottle tubing is replaced, change the aspirate tubing (step 5).

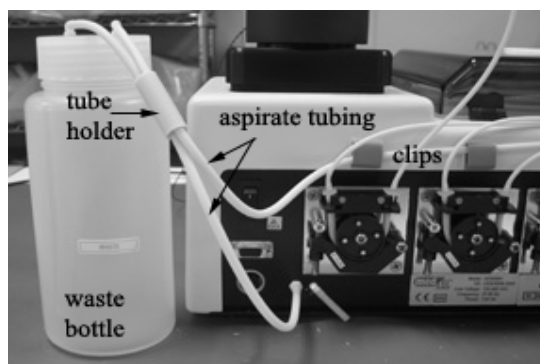
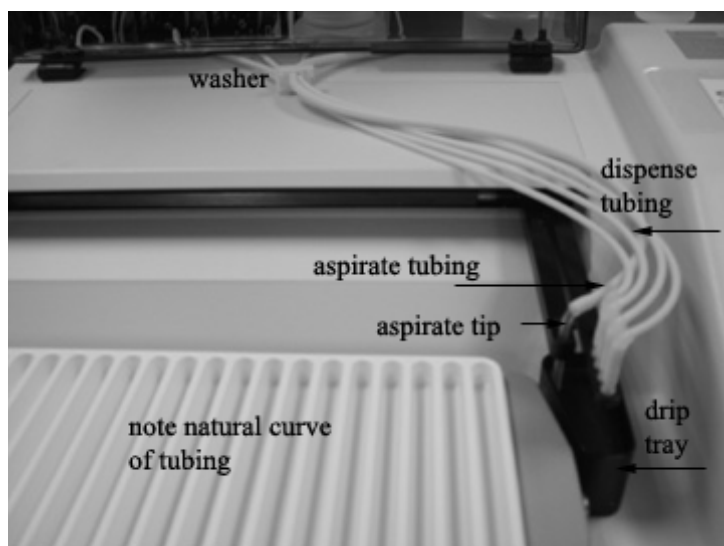
Step 5: Replace the Aspirate Tubing (External)

Disconnect the aspirate tubing from the aspirate tip.

Using the allen wrench provided in your kit, loosen the hex screw on top of the aspirate arm. Remove the old aspirate tip. Install the new aspirate tip in the aspirate arm. Position the aspirate tip so the top portion is at a 45° angle to the arm and the bottom of the tip rests on the drip tray. With your fingertip under the end of the aspirate arm, manually move the arm up and down so there is no more than 1/16" play between the aspirate tip and the drip tray. Tighten the hex screw so it holds the aspirate tip securely in place.

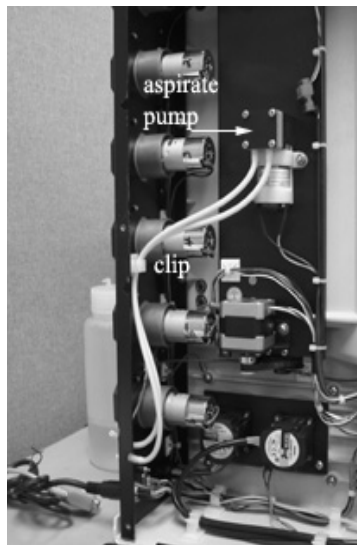


Connect the new aspirate tubing to the aspirate tip on the aspirate arm and guide it through the washers on top of the instrument. Feed the aspirate tubing through the gray nylon clips in the back of the AutoBlot.



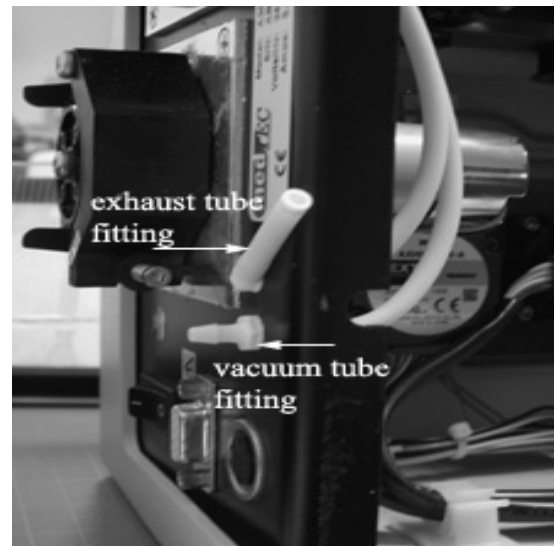
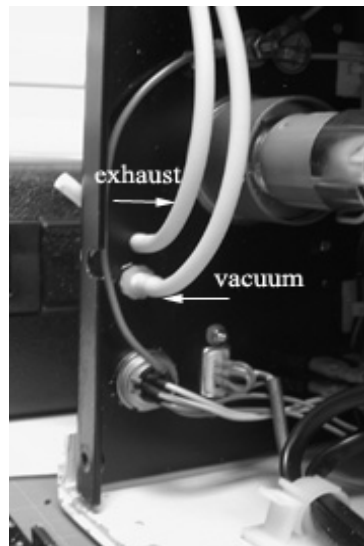
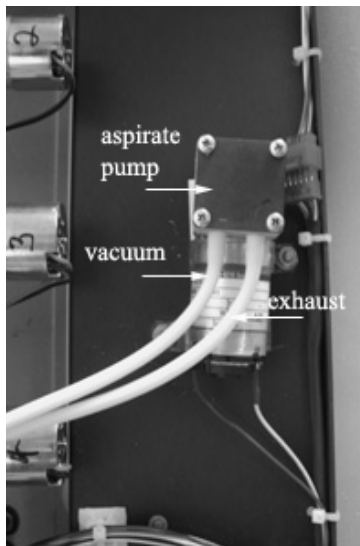
Replace the aspirate tubing that exits from the back of the instrument by pulling the old tubing off of the fitting and replacing it with new tubing. Feed both the long aspirate tube and the short aspirate tube through the 1 1/2" rubber tube holder (included in the kit). Attach both aspirate tubes to the fittings on the lid of the waste bottle.

Step 6: Replace the Aspirate Tubing (Internal)



Tip the AutoBlot on its side. Remove the baseplate.

Holding onto the aspirate pump, remove both the exhaust and the vacuum tubing from the aspirate pump fittings. Save the exhaust tube fittings that exit on the side of the AutoBlot when you remove the exhaust tubing. Install the new tubing. Make sure the new exhaust line is attached to the fitting on the right side of the aspirate pump and the new vacuum line is attached to the fitting on the left side of the aspirate pump. Push the tubing all the way onto the pump fittings so they are snug.



Feed both tubes through the gray clip inside the instrument and out the holes on the side. Slide the vacuum tube onto the vacuum tube fitting. Re-attach the exhaust fitting to the exhaust line.

Step 7: Exercise the Tubing

When new tubing is installed the pump delivery volumes will vary slightly until the tubing has relaxed into its new configuration around the pump rotor. In order to accelerate this process, the instrument has an Exercise Routine that automatically cycles through each pump. This Exercise Routine is accessed through the Pump Calibration Routine as follows:

Press No at *Ready for a New Test?*

Press NO at *Enter Edit Mode?*

Press NO at *Check Heaters* (heated AutoBlots only)

Press YES at *Enter Calibrate Mode?*

Be sure to have the pump pads locked in place and do not use any fluid in the system while exercising the tubing (the aspiration pump is turned off during this routine).

Step 8: Calibrate the pumps

The Pump Calibration Routine is used to adjust the "on" time of each pump. This allows for differences in how the tubing was installed in the pump, pump wear over time, and manufacturing tolerances. It is best to recheck the calibration whenever the pump tubing is replaced.

Prime the pumps before calibrating them. **NOTE:** Before the pumps are calibrated, make sure the pressure pads have been locked for at least one (1) hour in order to approximate real-life operating conditions.

Continue from the Exercise Tubing Routine and follow the prompts to prime Pump 1.

Disconnect the Pump 1 tubing from the dispense arm and place it in a 50ml graduated cylinder. Begin dispensing. The AutoBlot prompts you to enter the amount actually dispensed; it then makes calibrations and the routine continues until exactly 40ml's is dispensed. Press ENTER to complete the calibration routine. Repeat this procedure for each of the remaining pumps.



Pump Calibration