

Installation Instructions for the 940-LC Scale Up Module Plumbing kit

The De-bubbler can be ordered as part of the 98-100437-00 (Kit, Filters, Tubes, De-bubblers (HPLC)) kit.

The 98-100437-00 kit contains the parts shown in the table below. There are 2 assemblies within the parts listed in the table below, made up of the De-bubbler lines, and the Solvent lines (*Figure 1*).

Item #	Description	Quantity
1	NUT SHORT 1/8 FLANGELESS NATURAL TFZL	4
2	FERRULE 1/8 FLANGELESS NATURAL TFZL	4
3	Housing Filter 1/4-28 UNF, R007101501	4
4	Plug, HPLC de-bubbler	2
5	Body, HPLC de-bubbler	2
6	Filter 20-40 microns (Porex) R007101502	4
7	O ring, size 010, (ID 6.07 x 1.6) Viton	2
8	Kit, solvent tubes (Scale-up)	1

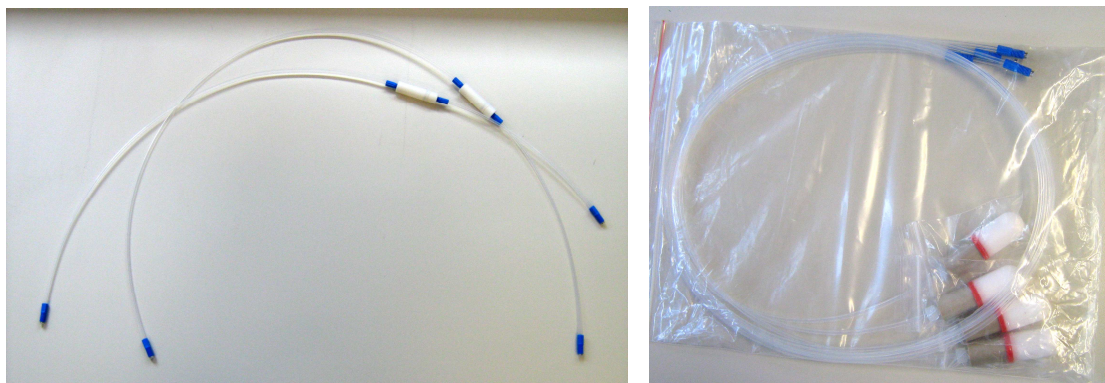


Figure 1: De-bubbler lines and Solvent lines

Procedure:

These instructions will only apply to the installation of the de-bubbler and the Inlet Tubes on the Scale Up Module.

Hardware Upgrade:

1. Measure the two de-bubbler lines (*Figure 2*) and select the shortest one.

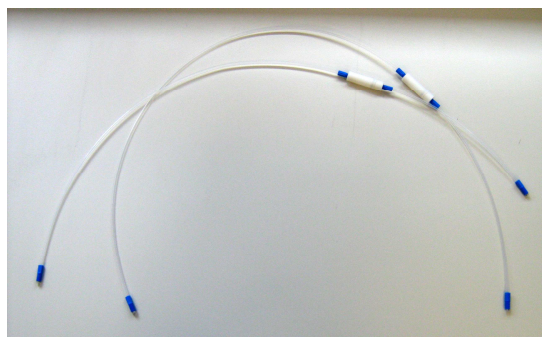


Figure 2: De-bubbler lines

2. When attaching the de-bubblers ensure that the side with the o-ring in the cartridge (there is a ridge (1) in the de-bubbler tube) is on top (Figure 3)

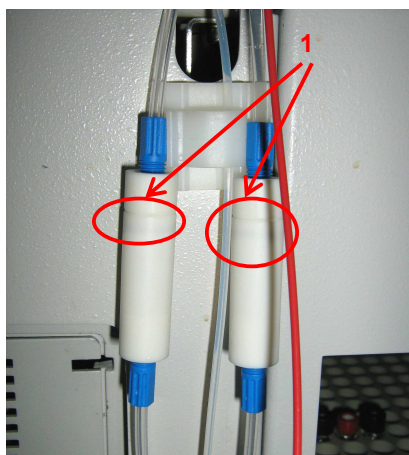


Figure 3: De-bubbler orientation

3. Once the shortest de-bubbler has been selected, disconnect the tubing connecting the SUM selection valve B (2) Figure 4 to the left pump head (Pump B). Replace this line with the shortest de-bubbler line.

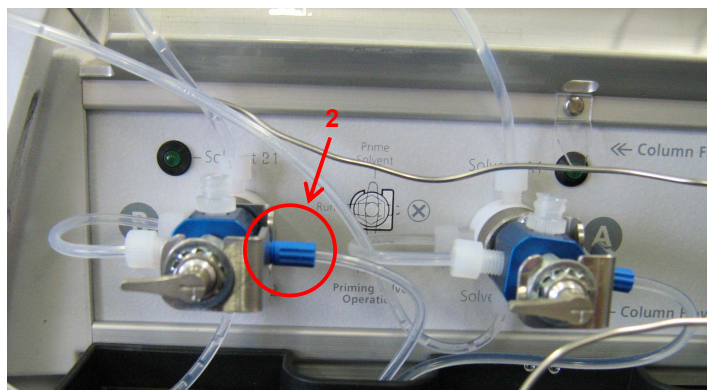


Figure 4: SUM connection to the de-bubbler

4. Attach the bottom end of the de-bubbler tubing to the inlet check valve (3) on Pump B

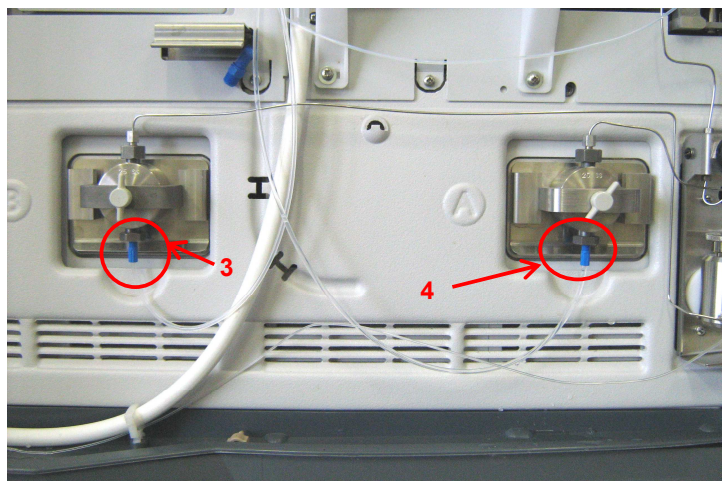


Figure 5: Pump B inlet check valve location

5. Remove the tubing connecting the Pump A inlet check valve (4) to the SUM selection valve A (5) Figure 5 and 6.

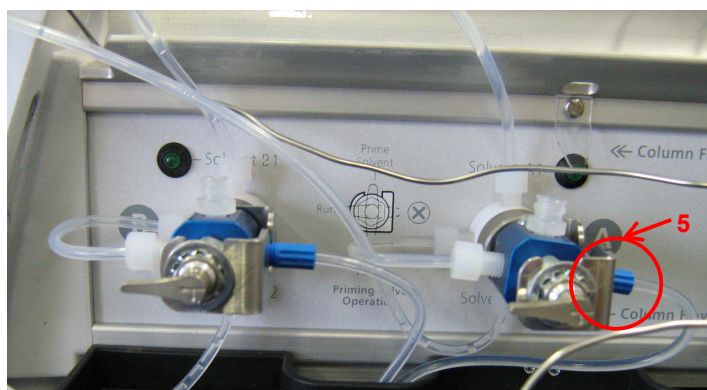


Figure 6: SUM selection valve A

6. Attach the second de-bubbler from the Pump A inlet valve (4) to the SUM selection valve A (5) Figure 5 and 6.
7. Clip the solvent lines behind the clips on the face panel (6) between the pump and the SUM Figure 7. This finishes the de-bubbler installation.

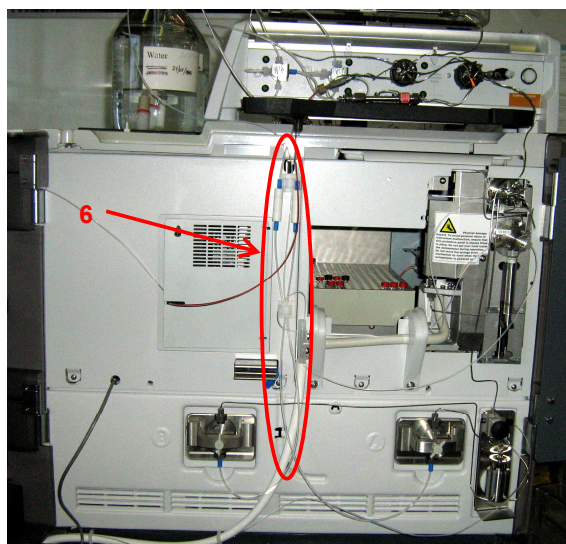


Figure 7: Clips on the front panels of the system

8. Once the new de-bubbler lines have been installed and the fittings have been tightened, the short solvent line that connects the solvent selection valve to the prime valve is ready to be replaced (*Figure 8 and 9*).
9. Remove the 2 short tubes from the kit with the blue fittings for the SUM valve tubing replacement, and using your fingers gently bend the tubes in a shallow curve so that they look like the ones shown in *Figure 8* below. This process can be made easier by slightly warming up the tubes. Take care in not bending the tubes to sharply since this will cause a crease in the tubes and weaken the tube wall at the position of the crease.

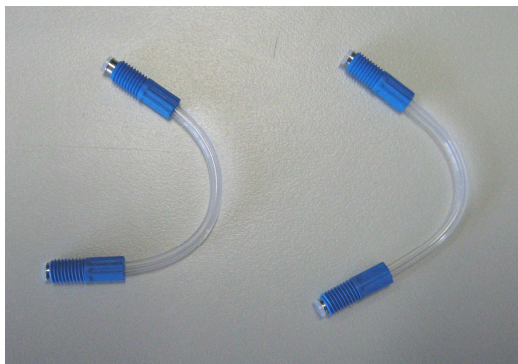


Figure 8: Gentle bend in the SUM tubing

10. Once the tubes have been bent to the shape shown above. The old white fittings on the valve connection can be replaced with the new blue fittings (*Figure 9*).

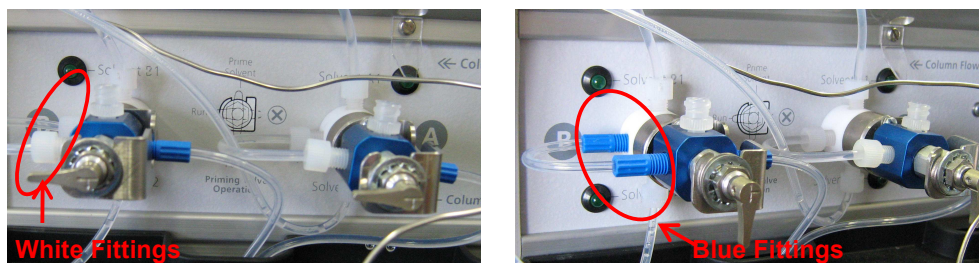


Figure 9: SUM Valve connector fittings (White is left picture, Blue is right picture)

11. Repeat step 10 again to replace the old valve connection on the A side of the SUM.
12. Once both SUM valve connections have been replaced, the new solvent lines need to be plumbed up. Remove the 2 solvent line connections (7) to valve B (*Figure 10*).

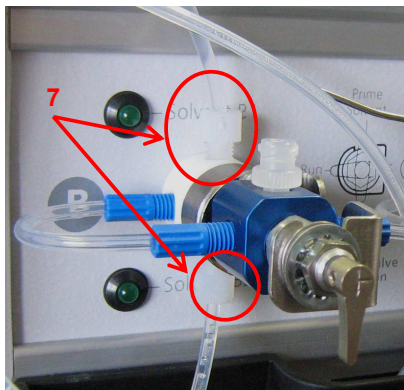


Figure 10: Solvent Line connections to the SUM

13. Unpack the solvent bottle lines *Figure 11*, and make sure that you run the new lines through the side of the SUM frame. You will need to run the line connecting to the top of the valve

through the top of the slot (8) in the SUM, and the one connecting to the bottom of the valve through the bottom of the slot (9) in Figure 12.



Figure 11: Solvent bottle lines

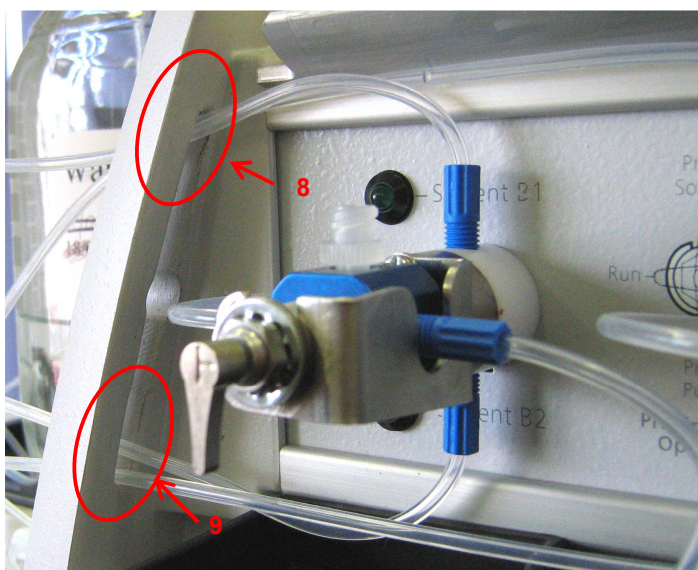


Figure 12: Tubing slot

14. The SUM Leak tray can be removed to create easier access to the lower solvent valve fittings by popping up the 2 black fasteners (10), and sliding out the tray from the tray holder (Figure 13)

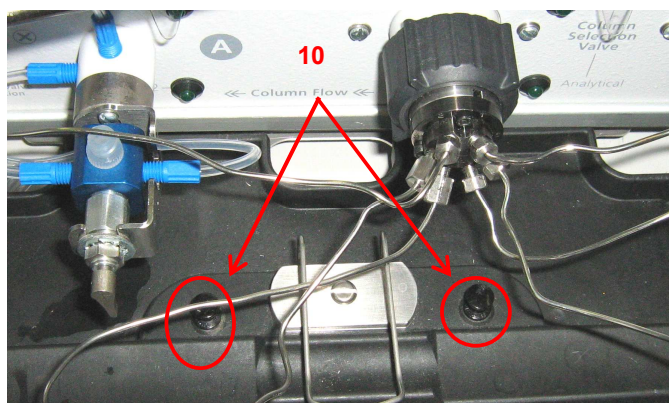


Figure 13: Leak tray holding black fasteners

15. Once the lines for valve B have been replaced, repeat step 12 to replace the ones for the valve A.
16. After replacing all the tubing and inserting the de-bubbler, the lines will need to be purged as described in the section below;

Purging the lines:

1. Attach a syringe (**11**) to the top of the SUM selection valve B *Figure 14*

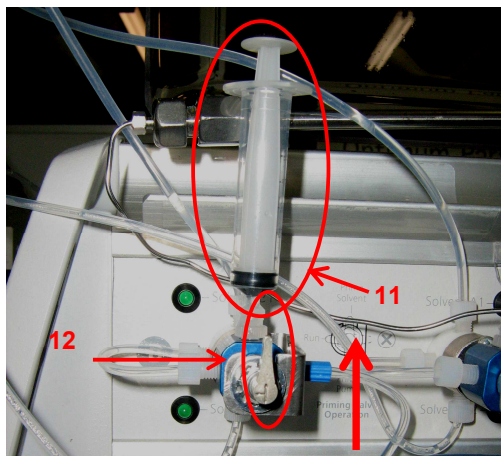


Figure 14: Purging the B valve

2. Turn the valve selection switch until it points straight up (**12**) *Figure 14*, and pull back the plunger in the syringe to fill it with mobile phase.
3. Once the syringe is full, then turn the valve selection switch to the down position (**13**) to flush out the line going to the inlet valve of the pump (*Figure 15*). Loosening the tube end by the check valve allows the bubbles to flush out.

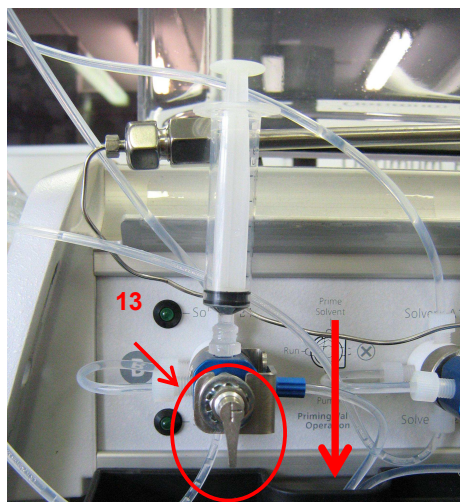


Figure 15: Flushing the pump line

4. Once both lines have been flushed (step 2 and 3) put the valve switch back into the run mode (pointing the left) *Figure 16*

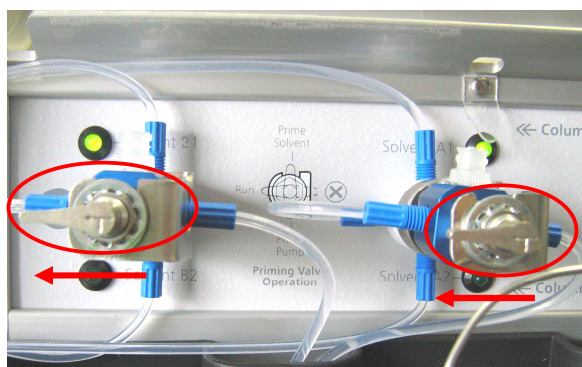


Figure 16: Valve position when in run mode