

Accela Pump Dynamic Mixer Installation Guide

Adding the dynamic mixer to the Accela™ Pump ensures mixing of complex or relatively incompatible solvents and reduces the chromatographic baseline noise for applications using proportioned mobile phases. The mixer also increases the accuracy and reproducibility of complex ternary and quaternary gradients. The mixer adds 35 µl of gradient delay volume to the system.



CAUTION The dynamic mixer must be installed by a Thermo Fisher Scientific field service engineer.

Contents

- [Accela Pump Dynamic Mixer Option Kit](#)
- [Required Tools](#)
- [Instructions for Installing the Mixer](#)

Accela Pump Dynamic Mixer Option Kit

Kit contents	Quantity	Part Number
Dynamic mixer	1	00109-99-00037
Bracket	1	60157-10011
Digital cable	1	60157-63018
Socket head cap screw, M3×10, stainless steel	2	00619-01-00028
In-line filter holder with cartridge, stainless steel	1	00109-99-00019
Tubing, stainless steel, 0.005-in. ID×0.0625-in. OD, 20-cm length	1	00301-01-00009
Tubing, stainless steel, 0.005-in. ID×0.0625-in. OD, 10-cm length	1	00301-01-00008
Tubing, stainless steel, 0.005-in. ID×0.0625-in. OD, 5-cm length	1	00301-01-00017
Fitting, swage front ferrule for 1/16-in. tubing, stainless steel	6	00101-08-00001
Fitting, swage back ferrule for 1/16-in. tubing, stainless steel	6	00101-08-00002
Compression nut, 1/16 in., 10-32, stainless steel	6	2522-1880

Required Tools

To install the dynamic mixer, you must have these tools:

- #2 Phillips screwdriver
- 8-mm and 1/4-in.×5/16-in. open-end wrenches
- Needle nose pliers
- 2.5-mm ball driver (supplied in the Accela Pump accessory kit)



CAUTION To prevent instrument damage, use ESD protection when handling electronic boards and components.

Instructions for Installing the Mixer

Step 1: [Removing the Chassis from the Housing](#)

Step 2: [Removing the Drip Tray](#)

Step 3: [Removing the Front Panel](#)

Step 4: [Installing the Mixer](#)

Step 5: [Reassembling the Pump](#)

Step 6: [Reconnecting the Pump to the LC System](#)

Step 1: Removing the Chassis from the Housing

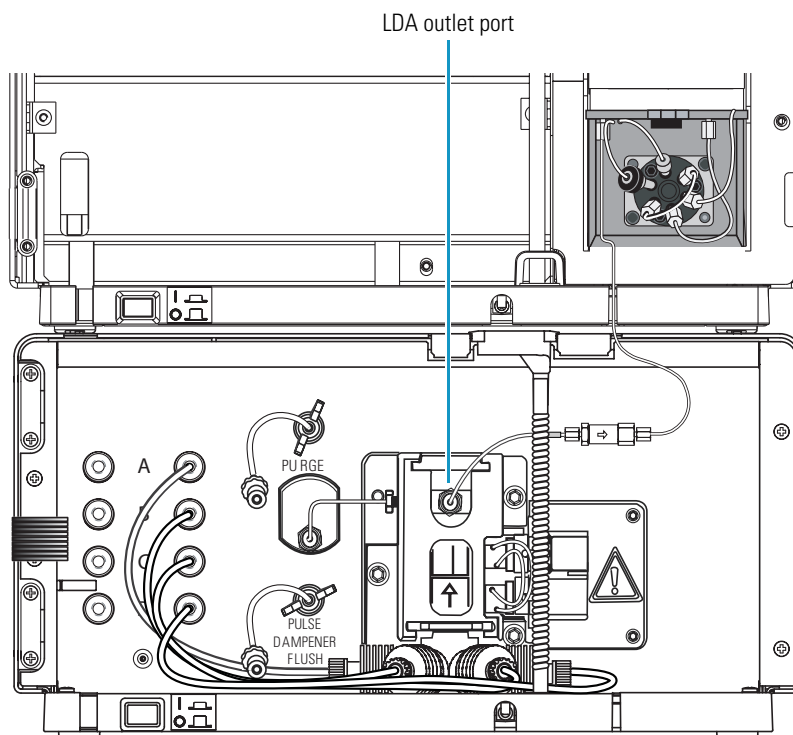
❖ To remove the pump chassis from the housing

1. Turn off the power to the Accela Pump.
2. Disconnect the power cable, USB cable, and system interconnect cable from the back panel of the pump.



CAUTION Make sure the pump power switch is in the Off position and the pump is unplugged from line power.

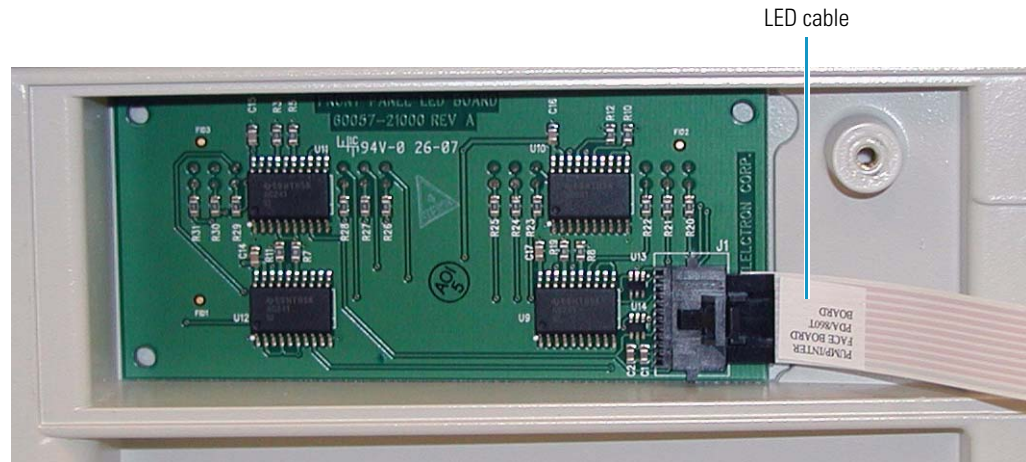
3. Raise the solvent line sinker frits above the solvent levels in the solvent bottles, and then disconnect the solvent lines from the solvent inlet ports of the pump degasser unit.
4. Disconnect the tubing from the outlet port of the liquid displacement assembly (LDA).



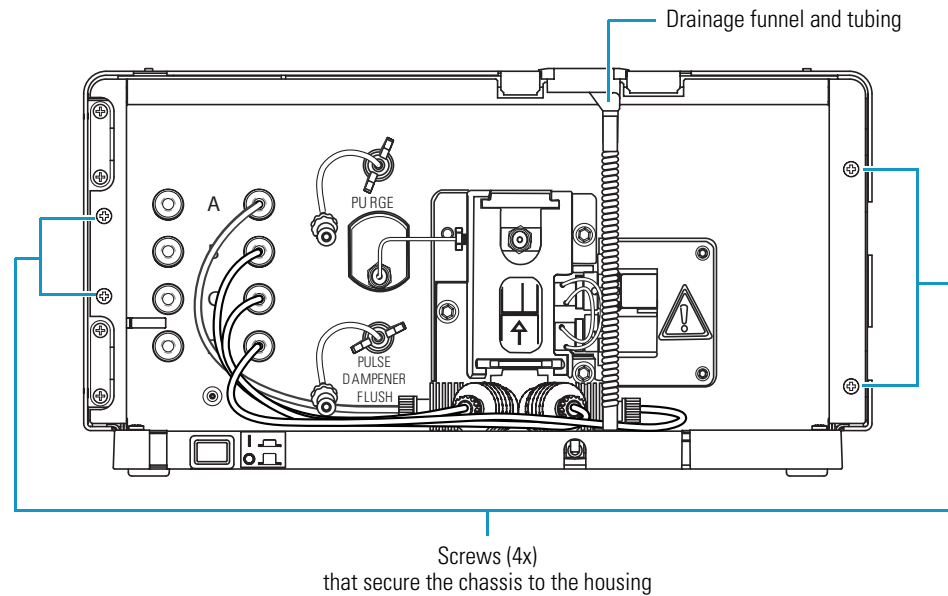
5. Using a #2 Phillips screwdriver, remove the screw that secures the LED cover to the inner-left door, and then remove the cover.



6. Disconnect the LED cable from the door.



7. Remove the convoluted waste tubing and the waste funnel.
8. Using a #2 Phillips screwdriver, remove the four screws that secure the chassis to the housing. Set these screws aside for later use.



Note To remove the pump chassis from the housing, you do not need to remove the pump from the LC stack.

9. Pull the chassis forward out of the housing.

Step 2: Removing the Drip Tray

❖ To remove the drip tray from the chassis

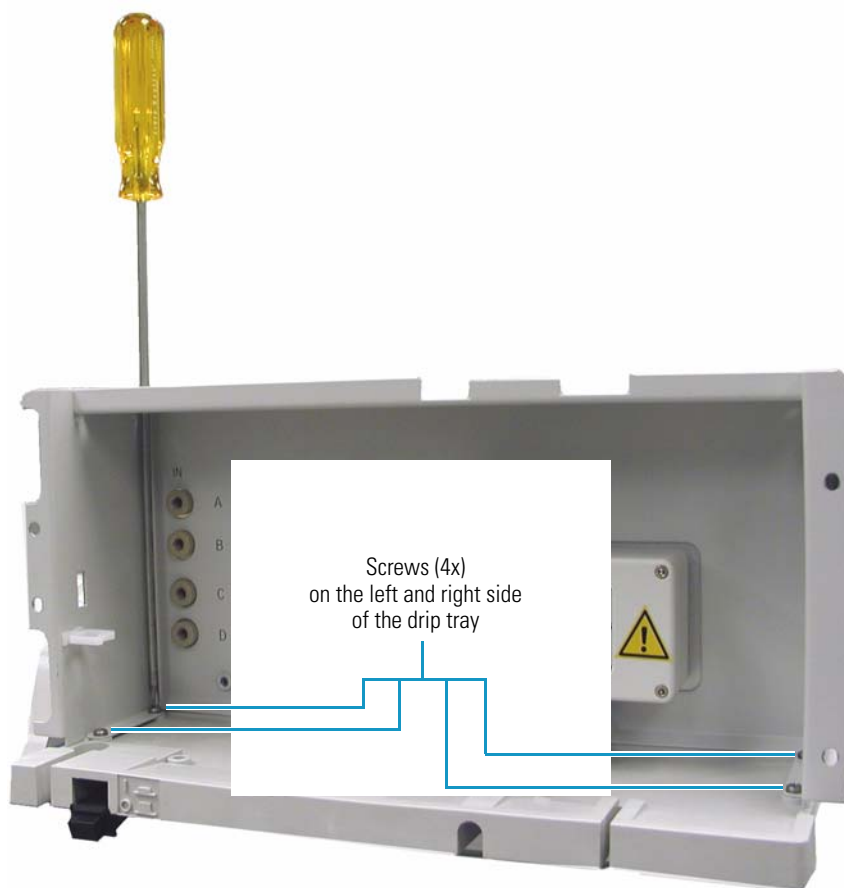
1. Push the power switch down and out of its slot in the drip tray.



Power switch
(removed from drip tray)

2. Using a #2 Phillips screwdriver with a long handle, remove the four screws that secure the drip tray to the chassis, and then remove the solvent drip tray from the chassis.

There are two screws on each side of the drip tray. Set the screws aside. When you reassemble the pump, reuse these screws to secure the drip tray.

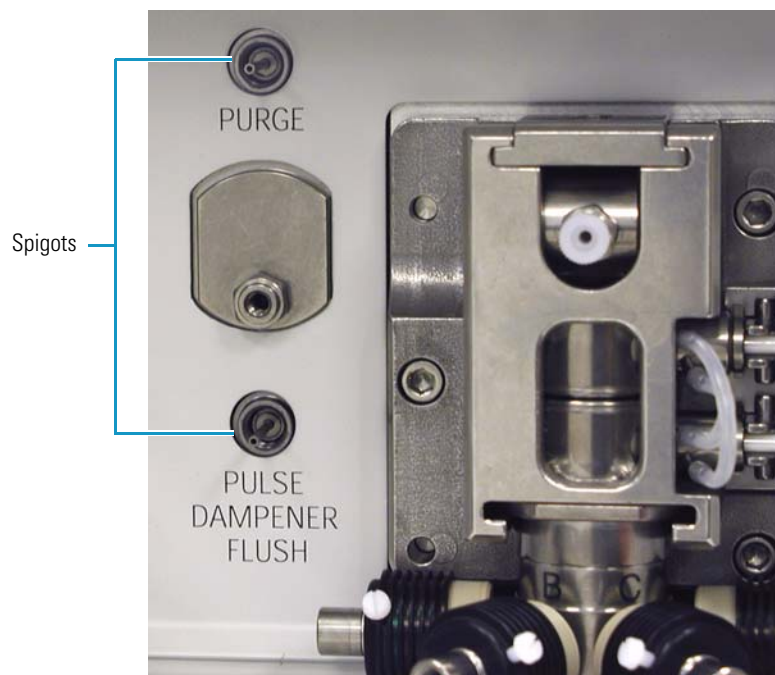


Screws (4x)
on the left and right side
of the drip tray

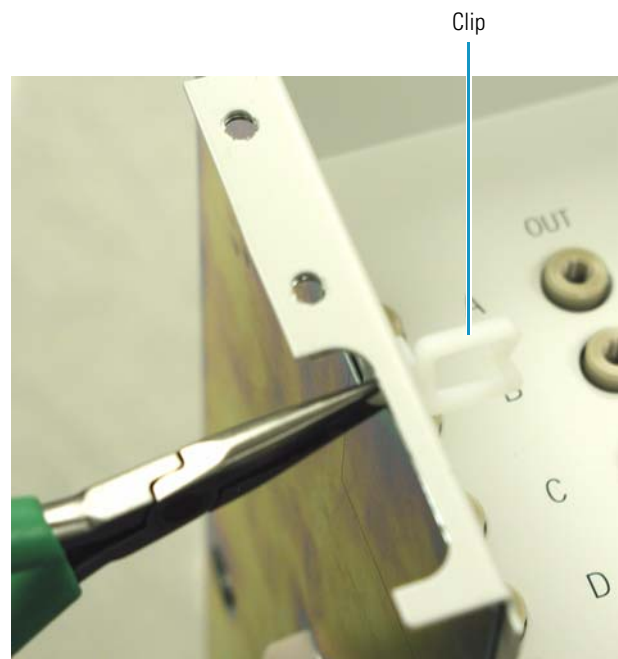
Step 3: Removing the Front Panel

❖ To remove the front panel from the chassis

1. Disconnect the solvent lines from the proportioning valves.
2. Using an 8-mm open-end wrench, disconnect the crossover tube from the purge valve and the left side of the LDA.
3. Pull the tubing off the purge valve and the pulse dampener flush valve.
4. Being careful not to remove the spigots, remove the wingnuts from the purge valve and the pulse dampener flush valve.



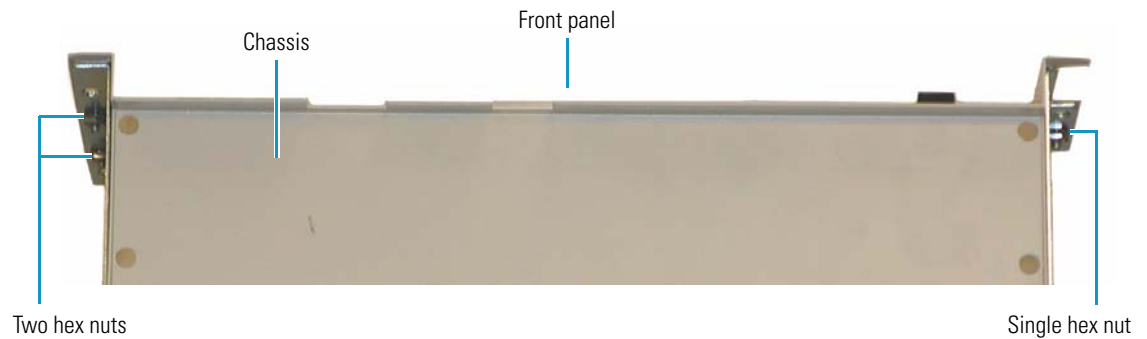
5. Using a needle nose pliers, squeeze the back of the clip that secures the solvent tubing and push the clip forward to remove it from the front panel. As shown below, the clip is located in front of the solvent degassing unit. Set the clip aside. When you reassemble the pump, install the clip in the new front panel.



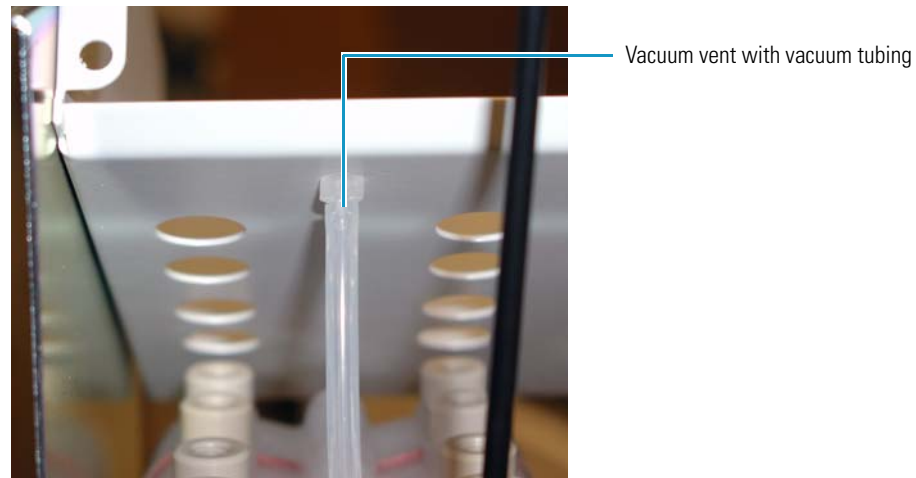
- Using a 1/4-in.×5/16-in. open-end wrench, remove the three hex nuts that secure the front panel to the chassis and set them aside.

The hex nuts are located on the back side of the front panel along the edges. One hex nut secures the front panel to the left side of the chassis and two hex nuts secure the front panel to the right side of the chassis.

When you reassemble the pump, use these hex nuts to secure the new front panel to the chassis.

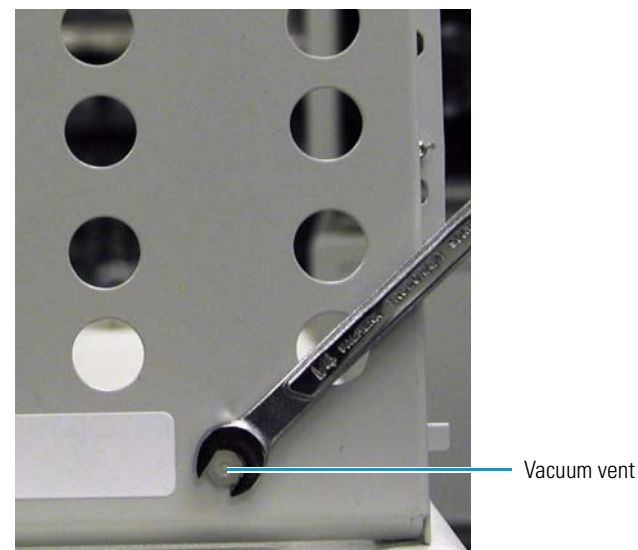


- Lift and rotate the front panel forward so that it clears the proportioning valves.
- Remove the tubing from the vacuum vent.



- Using a 1/4-in.×5/16-in. wrench, remove the vacuum vent and set it aside.

When you reassemble the pump, install the vacuum vent into the new front panel. See [step 1b](#) on [page 9](#).



Step 4: Installing the Mixer

❖ To install the dynamic mixer

1. Insert the dynamic mixer into the slot provided in the new front panel.

The dynamic mixer inlet port must face the LDA outlet port.

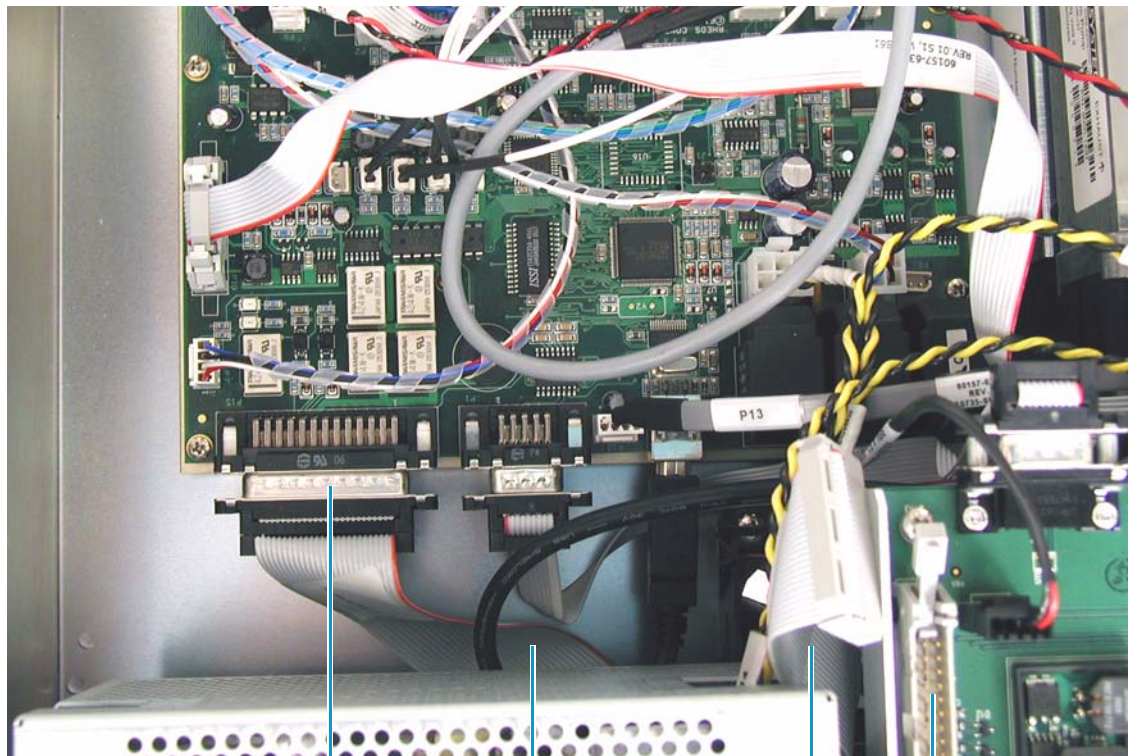
2. Using a 2.5-mm ball driver and two M3 screws (see [Accela Pump Dynamic Mixer Option Kit](#)), secure the dynamic mixer to the front panel.



2.5-mm ball driver

3. Remove the cable that is connected to the digital connector on the main PCB and to the J4 connector on the interface PCB.

For the Accela Pump with mixer, a cable assembly with an additional connector for the mixer replaces this cable. See [step 4](#) on [page 8](#).



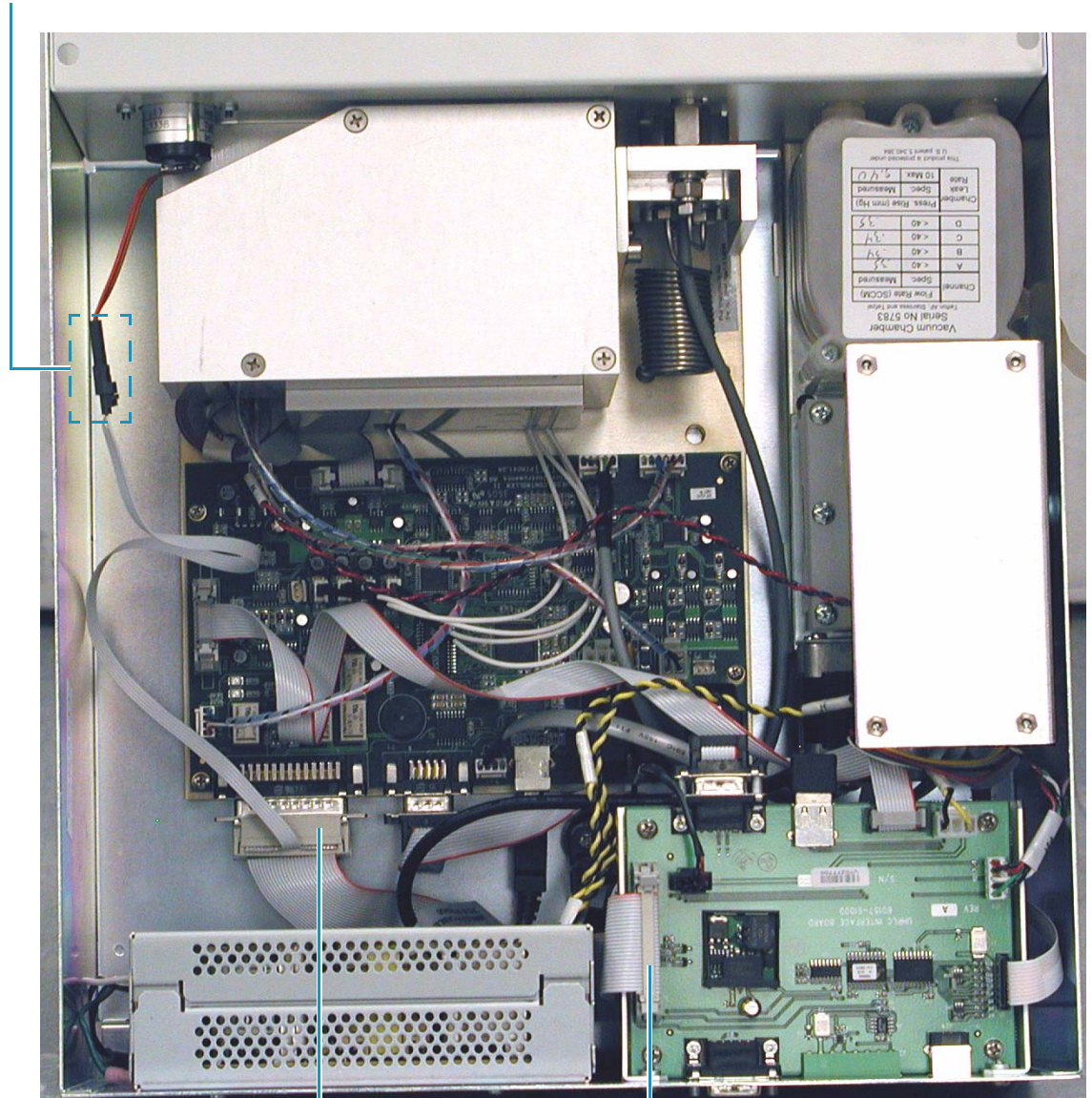
Digital connector
on the main PCB

Cable

J4 connector
on the interface PCB

4. Connect the new cable to the digital connector on the main PCB and the J4 connector on the interface PCB. Connect the pigtail on this cable assembly to the motor pigtail attached to the back of the dynamic mixer.

Connection between the motor pigtail above
and the pigtail on the cable assembly



Digital connector
on the main PCB

J4 connector
on the interface PCB

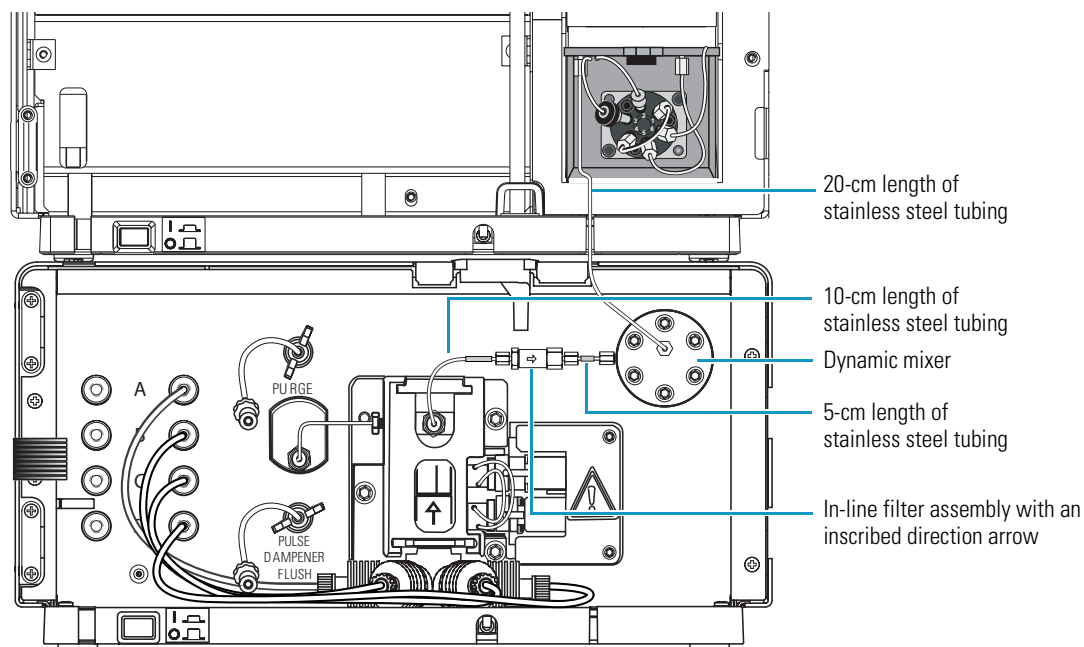
Step 5: Reassembling the Pump

❖ To reassemble the pump

1. Connect the new front panel to the chassis:
 - a. Install the vacuum vent fitting into the new front panel.
 - b. Connect the vacuum vent tubing to the front panel.
 - c. Lift and rotate the front panel over the solvent proportioning valves.
 - d. Attach the new front panel to the chassis with the three hex nuts that secured the original front panel. Using a 1/4-in.×5/16-in. open end wrench, tighten the nuts.
2. Secure the drip tray to the chassis with the 4 screws you set aside when you removed the tray.
3. Reinstall the power switch into the drip tray.
4. Reinstall the wingnuts onto the purge valve and the pulse dampener flush valve.
5. Reinstall the tubing onto the purge valve and pulse dampener valve spigots.
6. Reconnect the crossover tube to the purge valve and left side of the LDA. Using the 8-mm wrench from the Accela Pump accessory kit, tighten the nuts.
7. Reconnect the four solvent lines between the vacuum degasser outlets and the proportioning valves.
8. Plumb the LDA outlet to the mixer inlet (see the figure below):
 - a. Using two high-pressure fittings, connect the 10-cm length of stainless steel tubing between the LDA outlet and the in-line filter assembly inlet.
 - b. Using two high-pressure fittings, connect the 5-cm length of stainless steel tubing between the in-line filter assembly outlet and the mixer inlet.

The in-line filter assembly has an inscribed flow direction arrow.

9. Insert the solvent clip into its slot.
10. Reinstall the chassis into the housing:
 - a. Slide the chassis into the housing until it is fully seated against the rear of the enclosure.
 - b. Secure the chassis to the housing with the original four retaining screws. Using a #2 Phillips screwdriver, tighten the screws.
 - c. Reconnect the LED cable to the left door of the housing.
 - d. Secure the LED cover to the left door with its retaining screw. Using a #2 Phillips screwdriver, tighten the screw.



11. Reinstall the waste funnel and the convoluted waste tubing.

Step 6: Reconnecting the Pump to the LC System

❖ To reconnect the pump to the LC system

1. Reconnect the solvent lines to the vacuum degasser inlets.
2. To connect the pump to the autosampler, do one of the following:
 - Using high-pressure fittings, connect a 20-cm length of stainless steel tubing between the mixer outlet and the column oven inlet of the autosampler.

Tip To decrease the system gradient delay volume, you can bypass the mixer for mobile phases that do not require additional mixing.

- Using high-pressure fittings, connect a 20-cm length of stainless steel tubing between the in-line filter outlet and the column oven inlet of the autosampler or port 5 of the autosampler injection valve.
3. Pump mobile phase through the system to remove air.

Trademarks

Accela is a trademark of Thermo Fisher Scientific Inc.