5.4 Fill Station

5.4.1 Vacuum Chamber

5.4.1.1 Removing the Vacuum Chamber

- T20 torx driver

TASK

1. Remove the fill work surface (see “Removing the Work Surface” on page 5-11).
2. From the front of the system, disconnect the dispense lines from port C on each of the fluid distribution valves. Try to keep the O-ring seated in the valve body.

Figure 5.84: Dispense lines connected to port C on ink valves

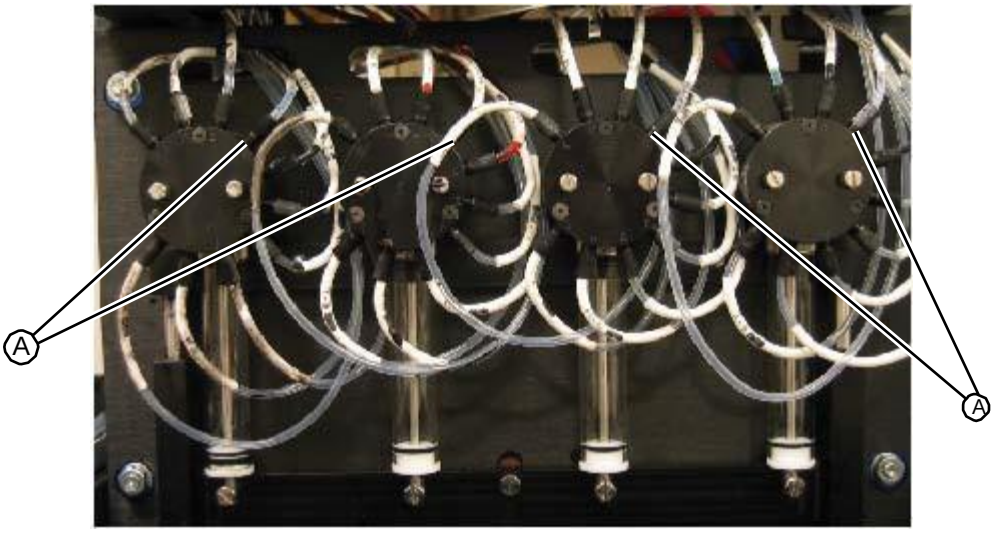
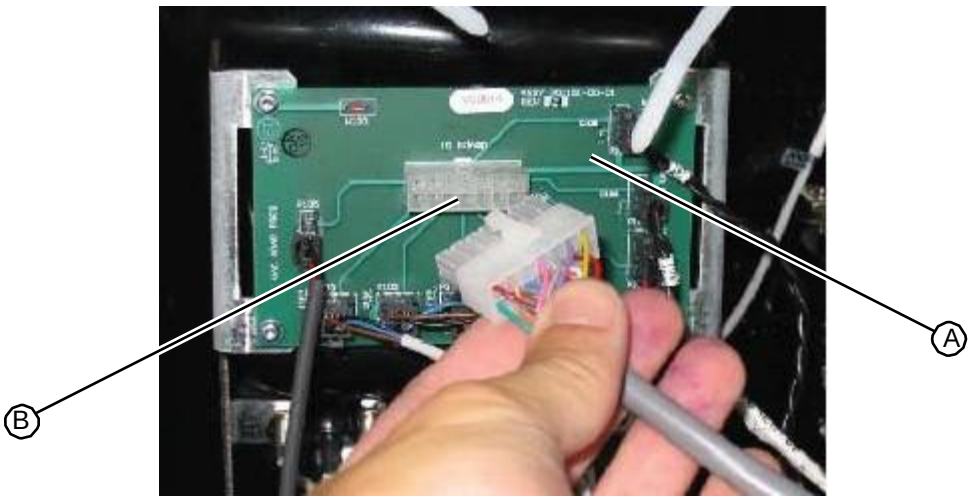


Figure 5.85: Dispense lines disconnected from ink valves

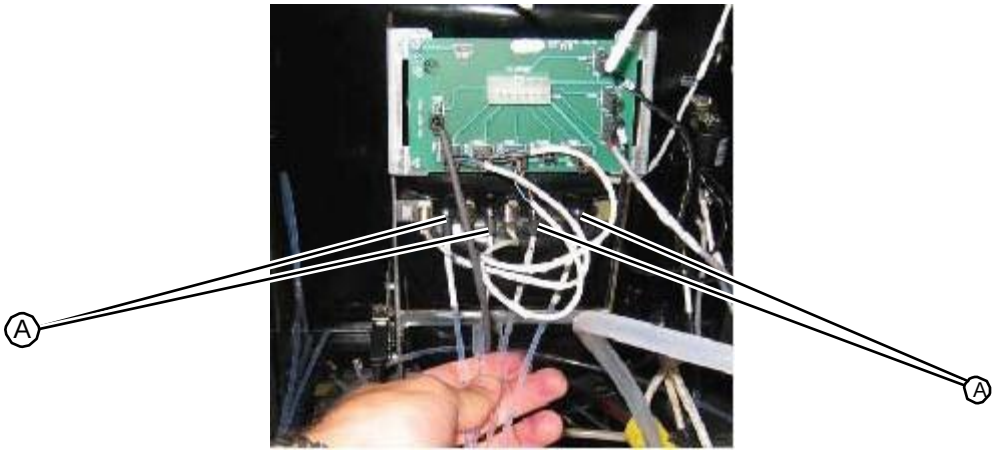
3. Move to the back of the system.
4. Unplug the I/O board connector from the vacuum chamber board.

Figure 5.86: Unplugging the main I/O PC board connection from the vacuum chamber PC board



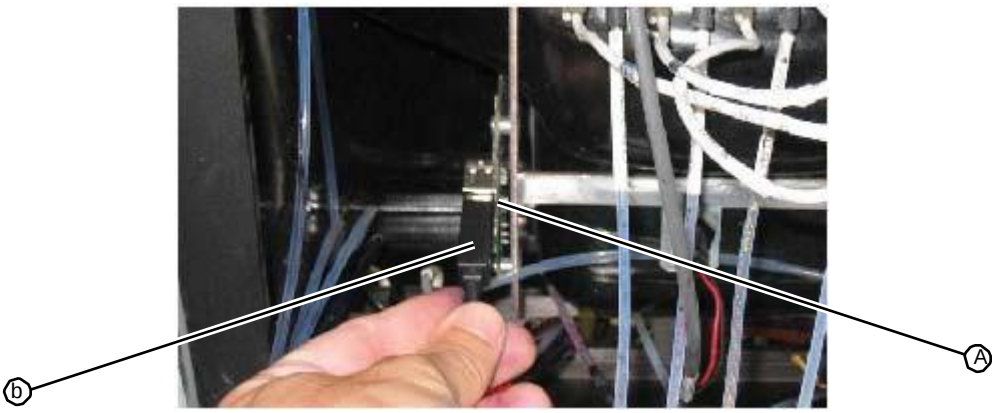
5. Pull the four dispense lines out from the valves into the back of the system so they are loose and unobstructed.

Figure 5.87: Pulling dispense lines into the back of the system



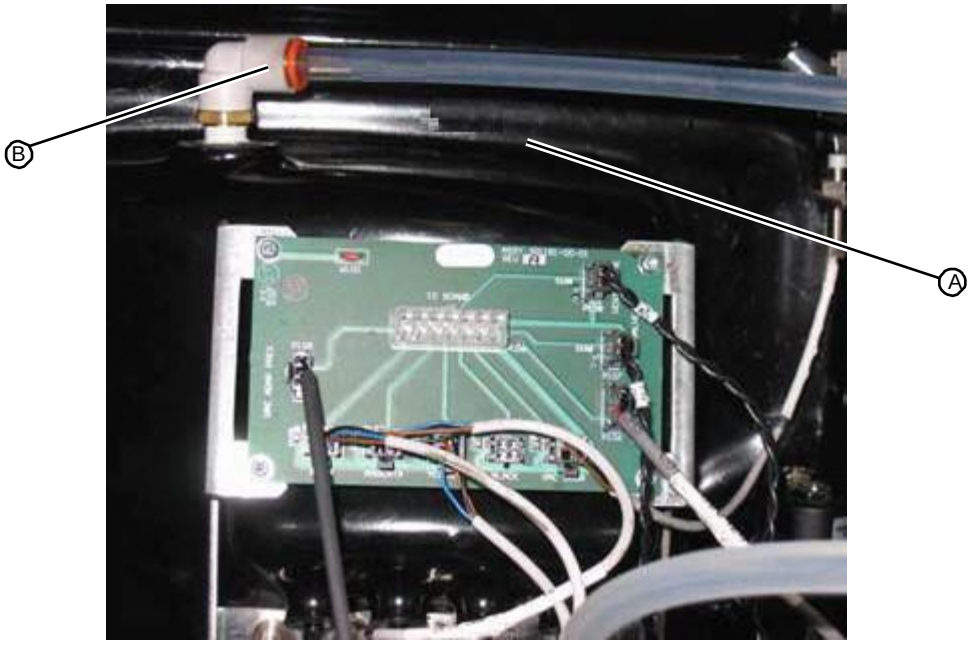
6. Unplug the USB cable from the RFID reader board located on left side of chamber.

Figure 5.88: Unplugging the USB cable from the RFID reader board



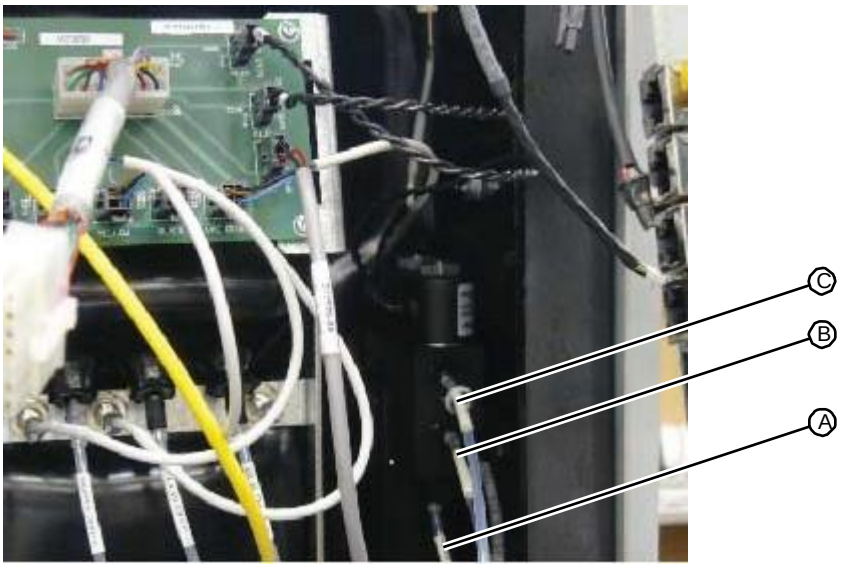
7. Disconnect the vacuum line from the elbow fitting on top of the vacuum chamber.

Figure 5.89: Vacuum tubing fitting on top of the vacuum chamber



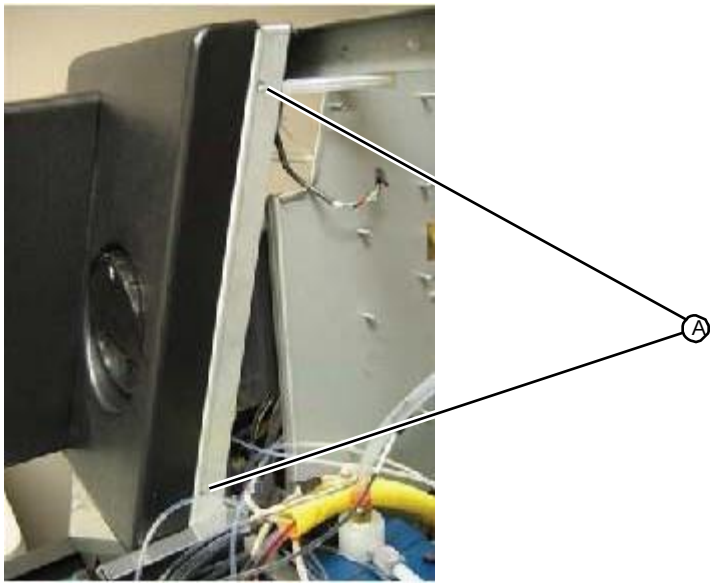
8. Disconnect the rinse, vacuum, and ink lines from the HP45 station. Caution- ink will run out of the line and station, be ready.

Figure 5.90: HP45 tubing connections



9. Move to the front of the system.
10. Using a T20 torx driver, remove the four fasteners (two on each side) that secure the vacuum chamber to the system frame.

Figure 5.91: Location of fasteners that secure the vacuum chamber



11. Carefully remove the chamber assembly from the front of the system.

Figure 5.92: Removing the vacuum chamber from the system

12. Return the vacuum chamber assembly to RIS.

RELATED LINKS:

"Replacing the Vacuum Chamber" on page 5-55
"Fill Station" on page 1-17

5.4.1.2 Replacing the Vacuum Chamber

- T20 torx driver

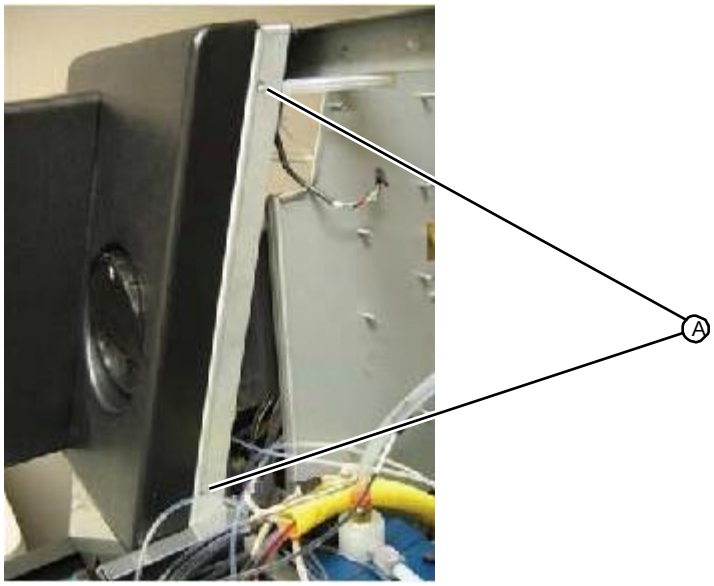
TASK

1. Carefully place the chamber assembly into the front of the system.

Figure 5.93: Placing the vacuum chamber assembly into the system

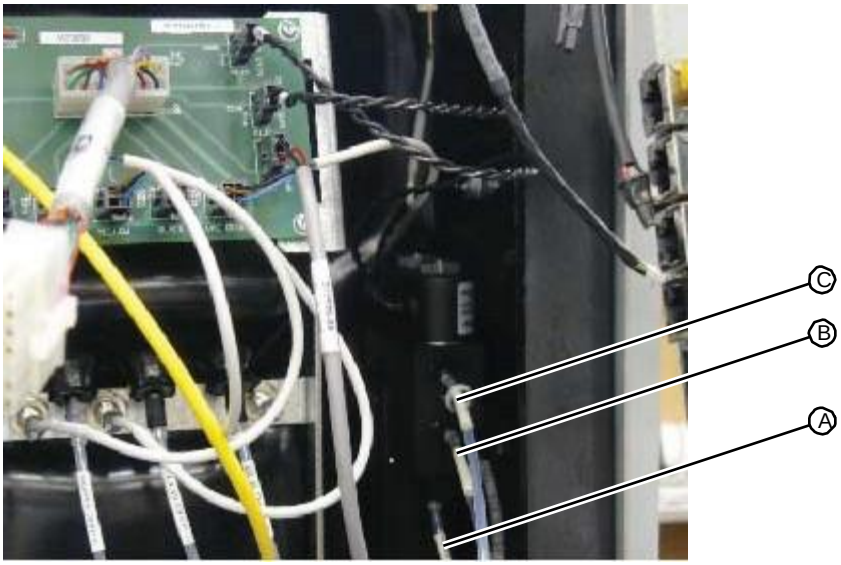
2. Move to the back of the system.
3. Using a T20 torx driver, attach the four fasteners (two on each side) that secure the vacuum chamber to the system frame.

Figure 5.94: Location of fasteners that secure the vacuum chamber



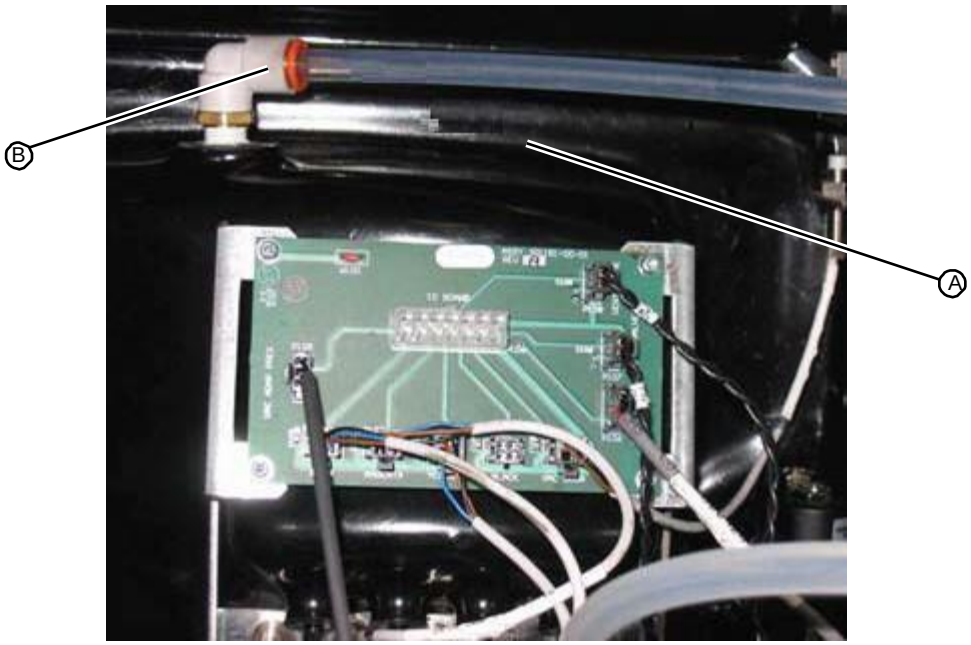
4. Connect the rinse, vacuum, and ink lines into the HP45 station.

Figure 5.95:HP45 tubing connections



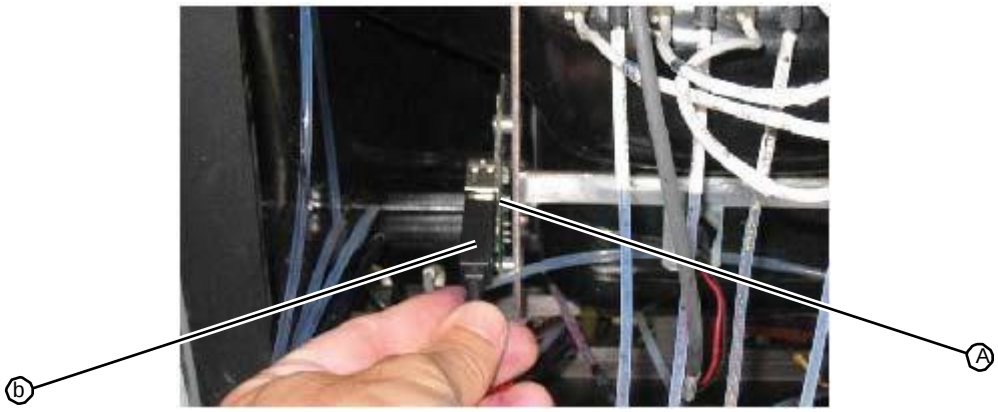
5. Connect the vacuum tubing from the waste Vacuum manifold to the elbow fitting at top of the vacuum chamber.

Figure 5.96: Vacuum tubing fitting on top of the vacuum chamber



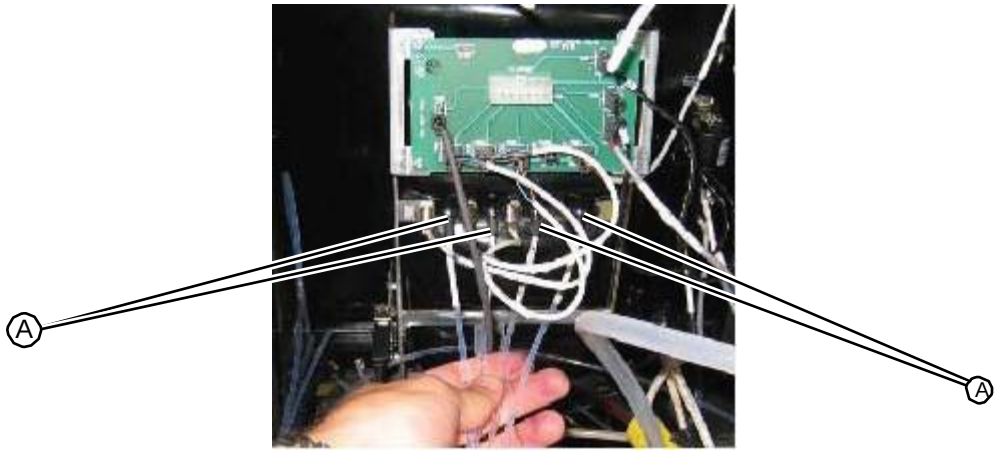
6. Plug the USB cable into the RFID reader board located on left side of chamber.

Figure 5.97: Unplugging the USB cable from the RFID reader board



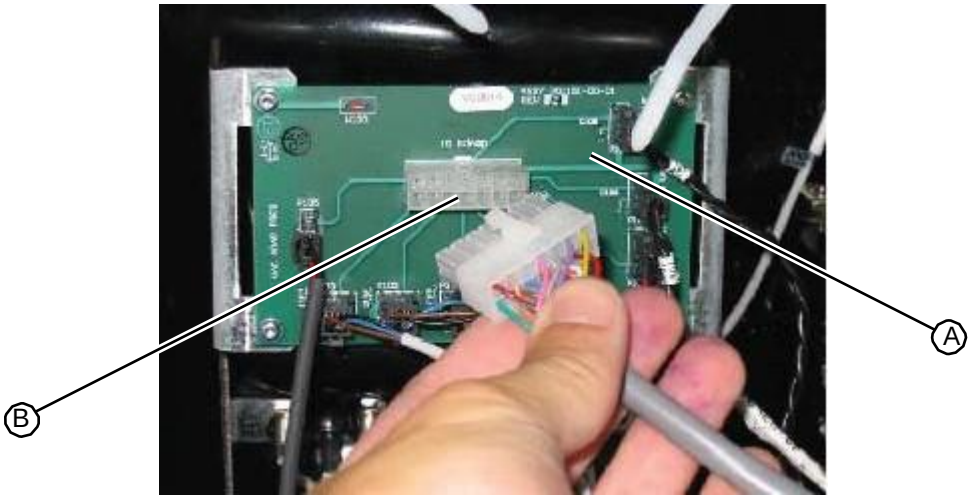
7. Carefully feed the four dispense lines under the chamber toward the ink valves located on the front of the system.

Figure 5.98: Feeding the dispense lines into the front of the system



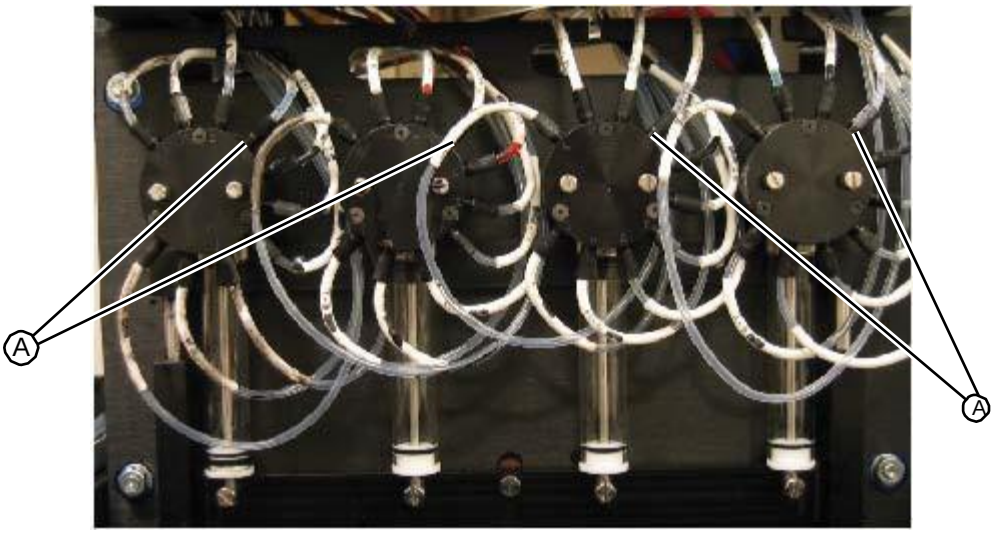
8. Plug the cable from the main I/O board into its connector on the vacuum chamber board.

Figure 5.99: Unplugging the main I/O PC board connection from the vacuum chamber PC board



9. From the front of the system, connect the dispense lines to port C on each of the ink valves.

Figure 5.100: Dispense lines connected to port C on ink valves



10. Verify that the vacuum chamber is properly installed by completing the following steps:
    a Run a vacuum chamber leak test.
    b Run a syringe leak test.
    c Check all needle and door sensors.
    d Fill an HP45 cartridge.
11. After verifying proper installation of the new vacuum chamber assembly, replace the work surface (see "Replacing the Work Surface" on page 5-12).
12. Replace the upper hood (see "Replacing the Upper Hood" on page 5-4).

RELATED LINKS:

"Removing the Vacuum Chamber" on page 5-52
"Fill Station" on page 1-17

5.4.2 Vacuum Chamber Door

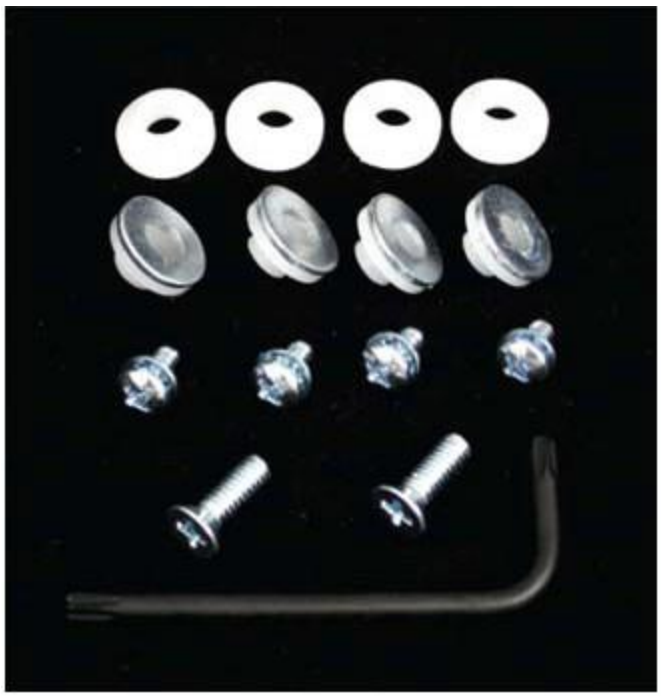
5.4.2.1 Removing the Vacuum Chamber Door

Four T15 screws with washers and bushings secure the vacuum chamber door to its four hinge arms.

- Chamber Door (shown above)
- Plastic Bushings
- Bonded Washer Bushings
- Phillips Screws

- Pan Head screws
- T-15 Torx driver
- Phillips head screwdriver

Figure 5.101: Vacuum chamber door kit



TASK

1. Before removing the old vacuum chamber door, raise the door to the open position (both lower and upper hinge arms are vertical).
2. Use one hand to hold door in this position, and use the other hand to loosen and remove the screw and bushings from the lower left hinge arm using the appropriate driver (T15 Torx). Repeat for the lower right hinge arm.

   Be careful to catch the washer and bushing on each arm as you remove the fasteners.

Figure 5.102: Removing vacuum chamber door fasteners with door in open position

3. Use your finger to push the lower hinge arms inward and drop both hinge arms down to the side of the chamber.

Figure 5.103: Vacuum chamber door rotated to top of machine

4. Rotate the door up and forward, to lay the door on top of the machine.

Figure 5.104: Vacuum door rotated to top of machine

5. Remove the screws and bushings from the upper hinge arms.

   CAUTION: The upper hinge arms are spring loaded. For safety, make sure the door is on top of the machine as shown before releasing the upper hinge arms.

6. Use your finger to push the upper hinge arms inward and remove the old door.
7. Set the handle and fasteners aside and discard the chamber door.

RELATED LINKS:

"Replacing the Vacuum Chamber Door" on page 5-63
"Fill Station" on page 1-17

5.4.2.2 Replacing the Vacuum Chamber Door

Four T15 screws with washers and bushings secure the vacuum chamber door to its four hinge arms.

- T15 torx driver

TASK

1. Using a T15 torx driver, remove the two fasteners that secure the handle to the old chamber door.
2. Re-attach the handle to the new vacuum chamber door using the two pan head screws provided.

Figure 5.106: Chamber door positioned for re-attachment

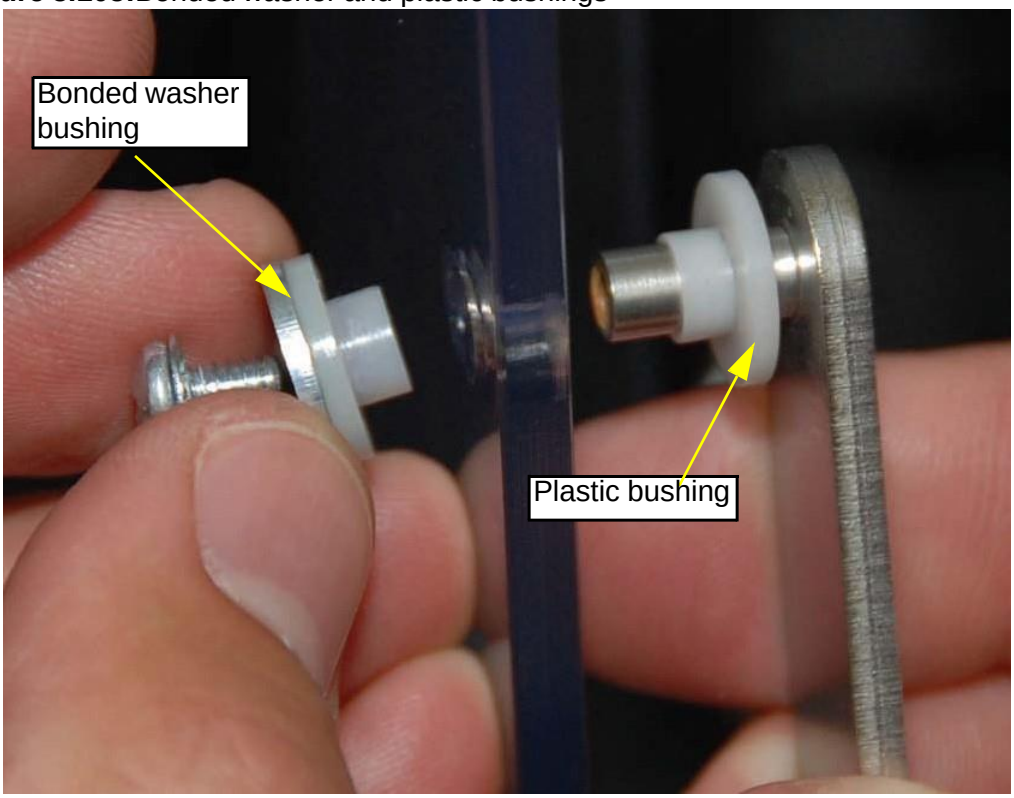
NOTE

Be careful not to over-tighten the screws.

3. Attach new plastic bushings to the inside of both upper hinge arms and slide each hinge arm securely in to place inside the new chamber door. (The old bushings may still be on the shaft and can be discarded).

4. Attach a bonded washer bushing with one of the four supplied screws, and secure it with a Phillips head screwdriver to the outside of each upper hinge arm. (Do not over tighten the screws or they will snap off!)
There will be some side-to-side play once the screws are tightened.

Figure 5.105: Bonded washer and plastic bushings



5. Install new plastic bushings on the inside of each of the lower hinge arms (discard the old bushings). Position the chamber door as shown below to allow the lower hinge arms to be slid into place.

Figure 5.106: Chamber door positioned for re-attachment

6. Attach a bonded washer bushing with one of the four supplied screws, and secure it with a Phillips head screwdriver to the outside of each upper hinge arm.
7. Check the following points to verify the proper installation of the vacuum chamber door:
   - The door opens and closes smoothly
   - The door holds its position in the open (top) position
   - The door does not snag the vacuum chamber door seal when closed
8. Complete the following steps to verify the operation of the vacuum chamber:
   a Open the vacuum chamber door.
   b Open the Tech Pane on the touchscreen.
   c Verify that the vacuum chamber door sensor is off.
   d Close the vacuum chamber door.
   e Verify that the vacuum chamber door sensor turns on.
   f Run the vacuum chamber diagnostic to verify that the door forms a good seal.

RELATED LINKS:
"Removing the Vacuum Chamber Door" on page 5-59
"Fill Station" on page 1-17

5.4.3 Fill Chamber Receiver Latch

Figure 5.108: Removing the fill chamber receiver latch

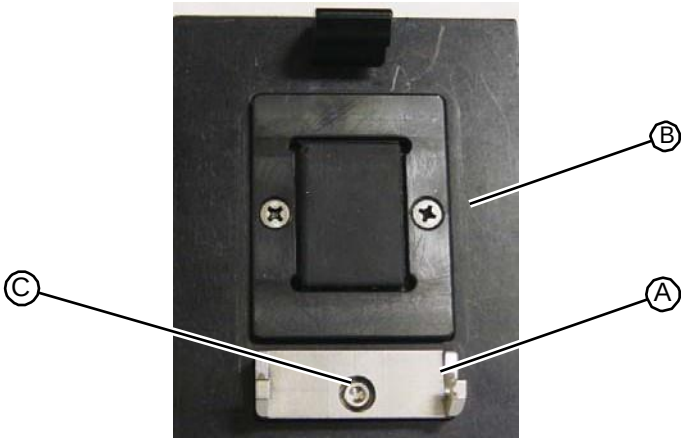
5.4.3.1 Removing the Fill Chamber Receiver Latch

- T15 torx driver
- Gloves

TASK

1. Open the vacuum chamber door.
2. Use a pair of gloves to prevent ink stains.
3. Using a T15 torx driver, remove the fastener that secures the fill chamber receiver latch to the fill chamber receiver plate.

Figure 5.107: Removing the fill chamber receiver latch



4. Remove and discard the receiver latch.

RELATED LINKS:

"Replacing the Fill Chamber Receiver Latch" on page 5-66
"Fill Station" on page 1-17

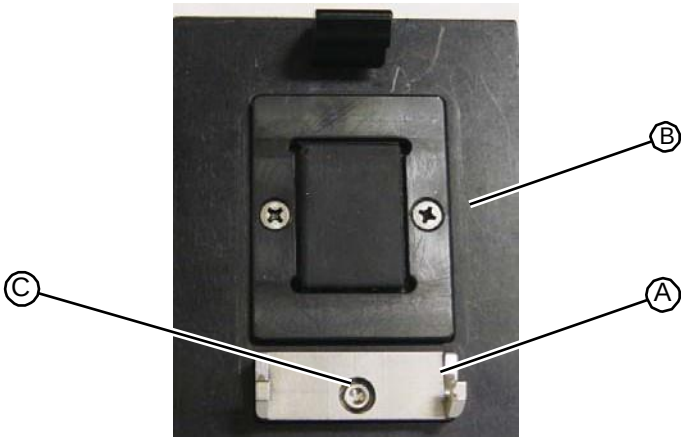
5.4.3.2 Replacing the Fill Chamber Receiver Latch

- T15 torx driver
- Gloves

TASK

1. Use gloves to prevent ink stains.
2. Place the latch into position on the receiver plate assembly.
3. Using a T15 torx driver, insert and secure the fastener. **Do not overtighten the fasteners.**

Figure 5.108: Removing the fill chamber receiver latch



RELATED LINKS:

"Removing the Fill Chamber Receiver Latch" on page 5-66
"Fill Station" on page 1-17

5.4.4 Fill Chamber Receiver Plate

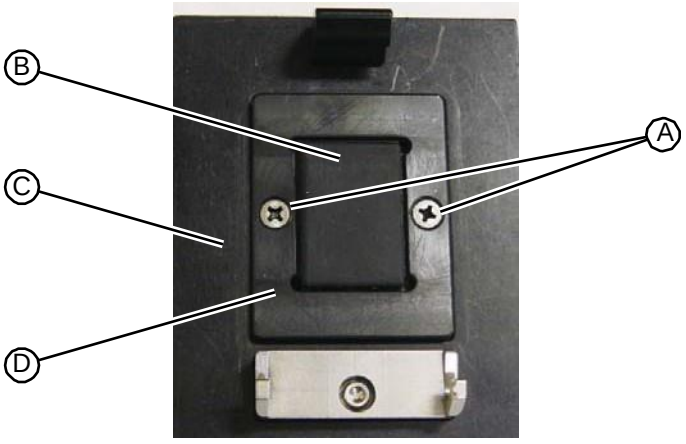
5.4.4.1 Removing the Fill Chamber Receiver Plate

- T20 torx driver
- Phillips head driver
- Gloves

TASK

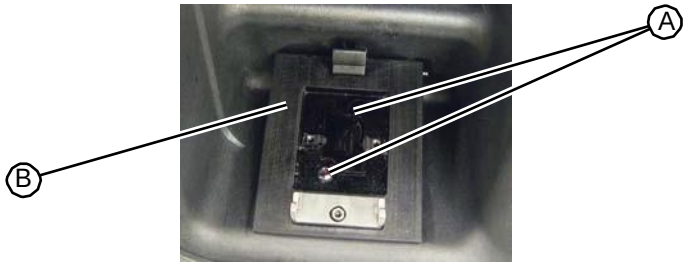
1. Open the vacuum chamber door.
2. Use gloves to prevent ink stains.
3. Using a Phillips driver, remove the two fasteners that secure the seal plate to the fill chamber receiver plate.

Figure 5.109: Removing the seal plate



4. Remove the seal plate, wipe clean, and set aside.
5. Remove the seal pad, wipe clean, and set aside.
6. Using a T20 torx driver, remove the two fasteners that secure the receiver plate assembly to the vacuum chamber floor.

Figure 5.110: Removing the receiver plate



7. Wipe the old assembly clean, and set aside it in the Parts Kit packaging for return shipment to RIS.

RELATED LINKS:

"Replacing the Fill Chamber Receiver Plate" on page 5-68
"Fill Station" on page 1-17

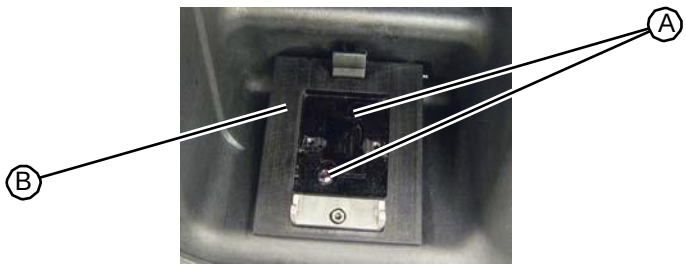
5.4.4.2 Replacing the Fill Chamber Receiver Plate

- T20 torx driver
- Phillips head driver
- Gloves

TASK

1. Use gloves to prevent ink stains.
2. Wipe the old assembly clean, and set aside it in the Parts Kit packaging for return shipment to RIS.
3. Place the new receiver plate into position.
4. Using a T20 torx driver, secure the receiver plate with the fasteners. **Do not overtighten the fasteners.**

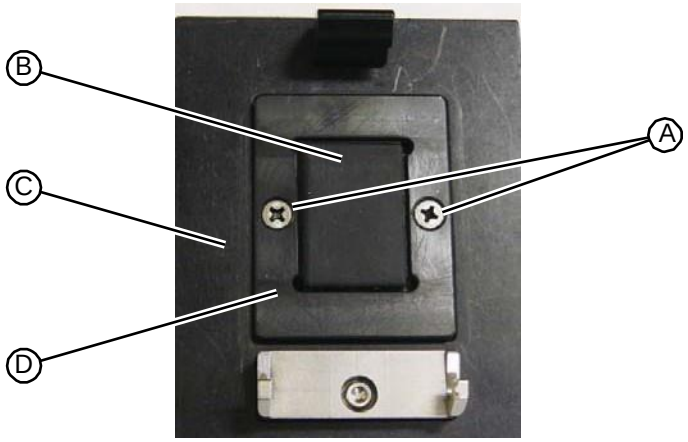
Figure 5.111: Securing the receiver plate



5. Place the rubber fill seal pad on the receiver plate and align the mounting holes on both components.

6. Place the seal plate over the seal pad.
7. Using a Phillips driver, insert and secure the two fasteners. **Do not overtighten the fasteners.**

Figure 5.112: Replacing the seal pad



RELATED LINKS:

"Removing the Fill Chamber Receiver Plate" on page 5-67
"Fill Station" on page 1-17

5.4.5 Fill Chamber Seal Pad

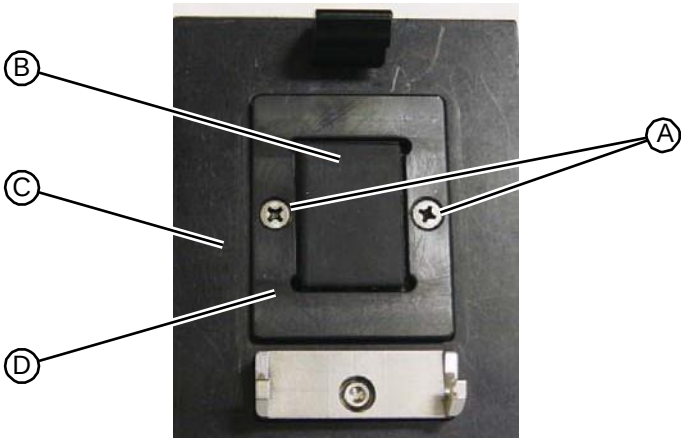
5.4.5.1 Removing the Fill Chamber Seal Pad

- Phillips head driver
- Gloves

TASK

1. Open the vacuum chamber door.
2. Use a pair of gloves to prevent ink stains.
3. Using a Phillips driver, remove the two fasteners that secure the seal plate to the fill chamber receiver plate.

Figure 5.113: Removing the seal pad



4. Remove the seal plate, wipe clean, and set aside.
5. Remove and discard the seal pad.

RELATED LINKS:

"Replacing the Fill Chamber Seal Pad" on page 5-70
"Fill Station" on page 1-17

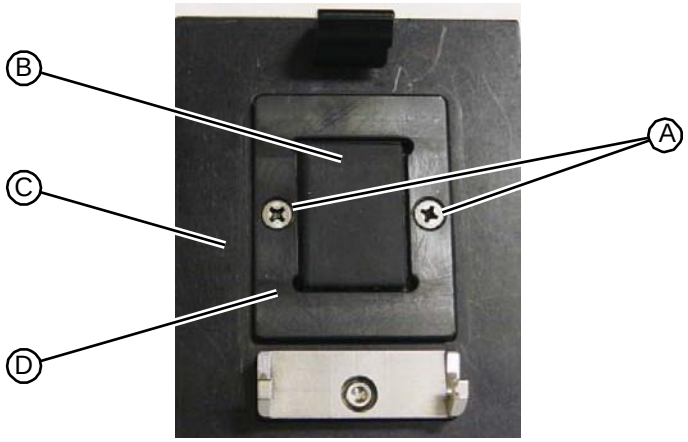
5.4.5.2 Replacing the Fill Chamber Seal Pad

- Phillips head driver
- Gloves

TASK

1. Open the vacuum chamber door.
2. Use gloves to prevent ink stains.
3. Place the rubber fill seal pad on the receiver plate and align the mounting holes on both components.
4. Place the seal plate over the seal pad.
5. Using a Phillips driver, insert and secure the two fasteners. **Do not overtighten the fasteners.**

Figure 5.114: Replacing the seal pad



RELATED LINKS:

"Removing the Fill Chamber Seal Pad" on page 5-69
"Fill Station" on page 1-17

5.4.6 Fill Chamber Seal Plate

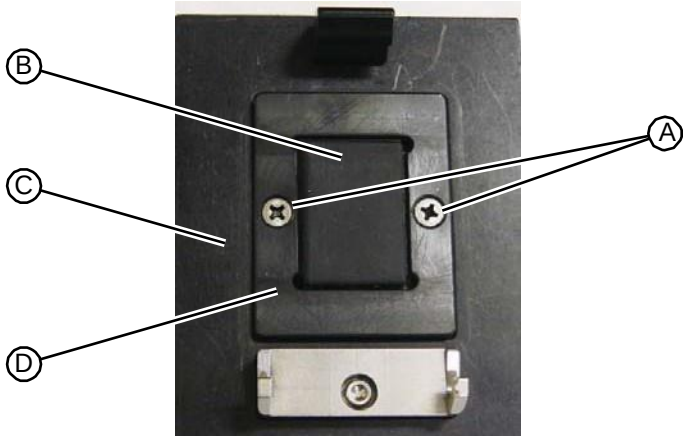
5.4.6.1 Removing the Fill Chamber Seal Plate

- Phillips head driver
- Gloves

TASK

1. Open the vacuum chamber door.
2. Use a pair of gloves to prevent ink stains.
3. Using a Phillips driver, remove the two fasteners that secure the seal plate to the fill chamber receiver plate.

Figure 5.115: Removing the seal plate



4. Remove and discard the seal plate.

RELATED LINKS:

"Replacing the Fill Chamber Receiver Plate" on page 5-68
"Fill Station" on page 1-17

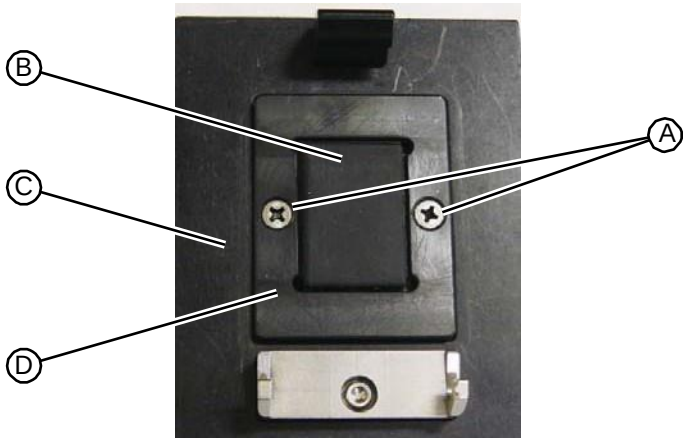
5.4.6.2 Replacing the Fill Chamber Seal Plate

- Phillips head driver
- Gloves

TASK

1. Open the vacuum chamber door.
2. Use gloves to prevent ink stains.
3. Remove, wipe clean, and replace the rubber seal pad.
4. Place the seal plate over the seal pad.
5. Using a Phillips driver, insert and secure the two fasteners. **Do not overtighten the fasteners.**

Figure 5.116: Replacing the seal plate



RELATED LINKS:

"Removing the Fill Chamber Seal Plate" on page 5-71
"Fill Station" on page 1-17

5.4.7 Vacuum Chamber Reed Sensor

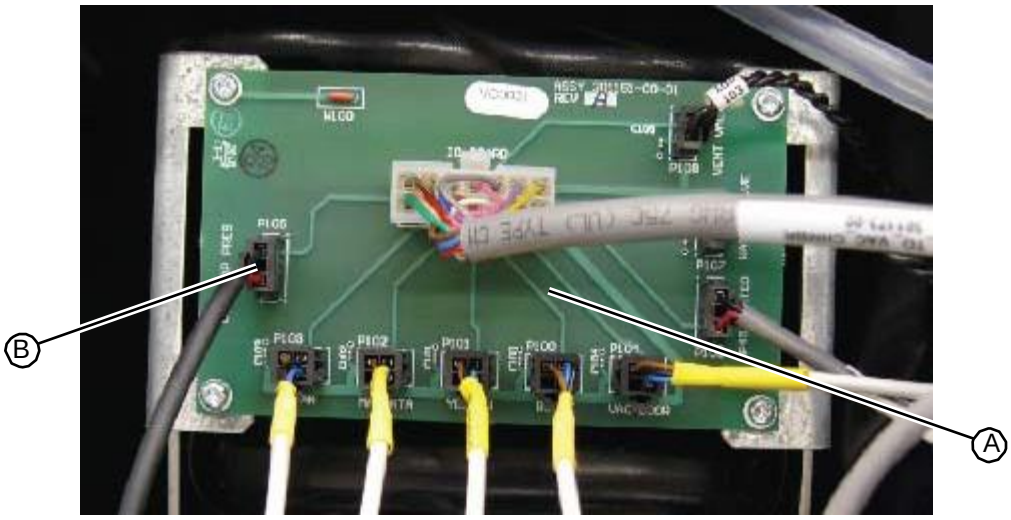
5.4.7.1 Removing the Vacuum Chamber Reed Sensor

- 1/4" open end wrench

TASK

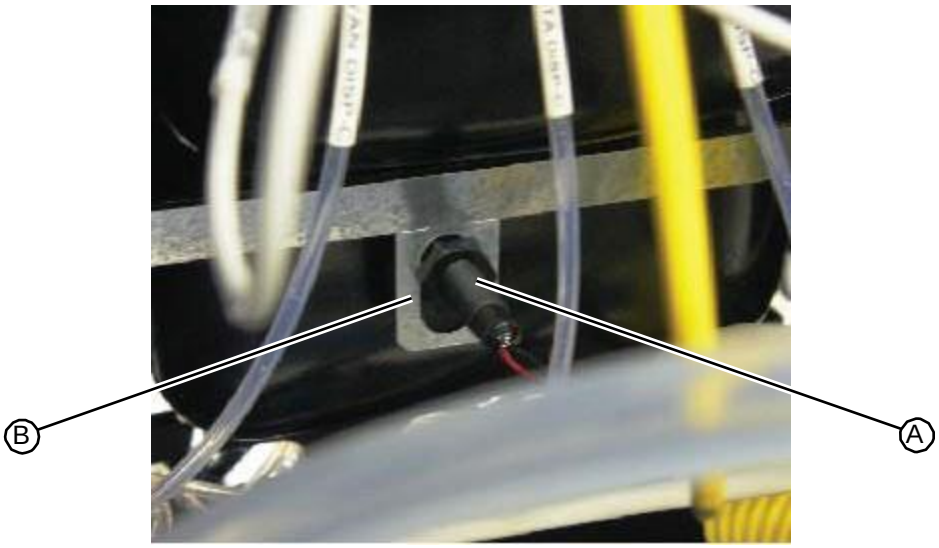
1. Remove the upper hood (see "Removing the Upper Hood" on page 5-3).
2. Unplug the vacuum chamber reed sensor cable at connector P105 on the vacuum chamber PC board.

Figure 5.117: Vacuum chamber reed sensor connection on the vacuum chamber PC board



3. Using a 1/4” open end wrench remove the vacuum chamber reed sensor, attached to the back of the vacuum chamber wall.

Figure 5.118: Vacuum chamber reed sensor



4. Discard the reed sensor.

RELATED LINKS:

“Replacing the Vacuum Chamber Reed Sensor” on page 5-73
“Fill Station” on page 1-17

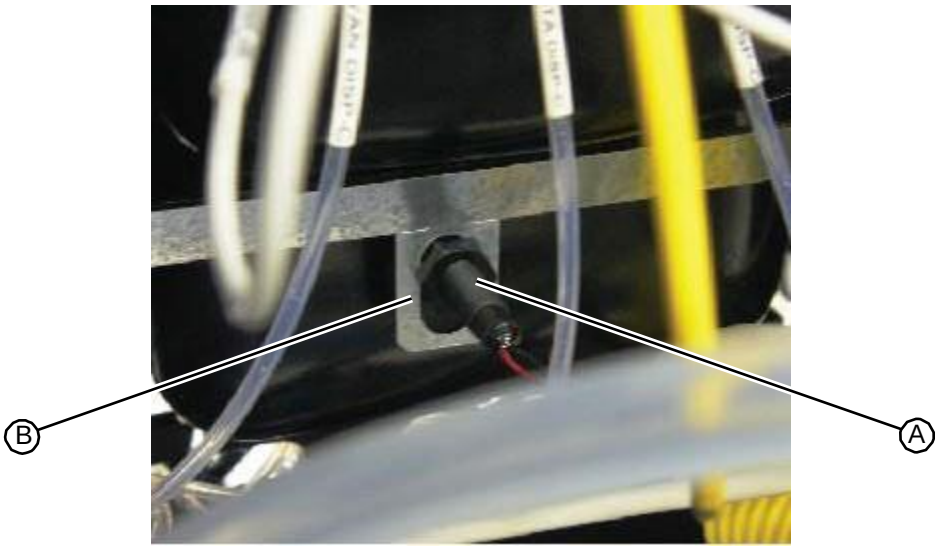
5.4.7.2 Replacing the Vacuum Chamber Reed Sensor

- 1/4” open end wrench

TASK

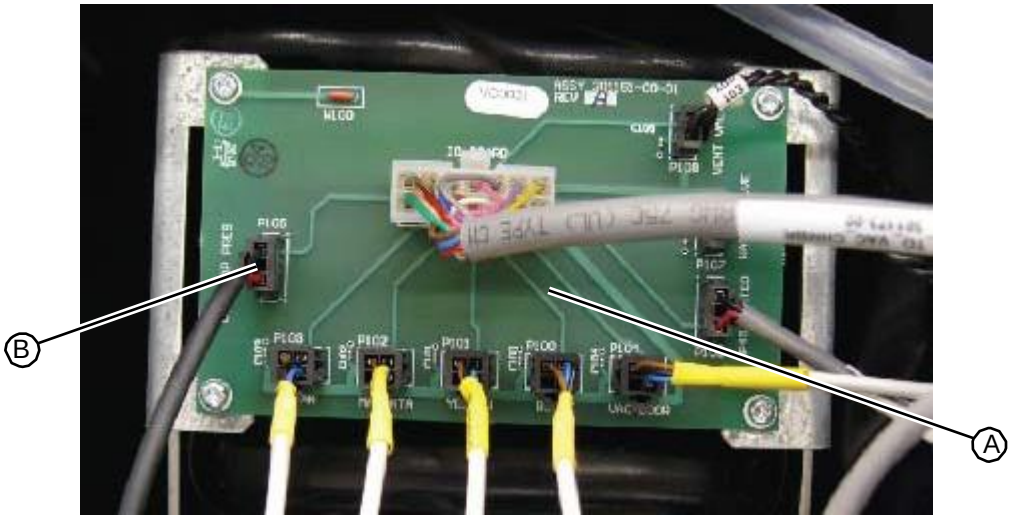
1. Apply a thin layer of teflon tape to the threads of the reed sensor, being careful not to cover the end of the sensor with tape.
2. Using a 1/4" open end wrench, insert the vacuum chamber reed sensor into its mounting bracket and tighten until the unit bottoms out in its mounting hole.

Figure 5.119: Vacuum chamber sensor



3. Plug the vacuum chamber reed sensor cable into connector P105 on the vacuum chamber I/O PC board.

Figure 5.120: Vacuum chamber reed sensor connection on the vacuum chamber PC board



4. Replace the upper hood (see "Replacing the Upper Hood" on page 5-4).

RELATED LINKS:

"Removing the Vacuum Chamber Reed Sensor" on page 5-72
"Fill Station" on page 1-17

5.4.8 HP45 Station Assembly

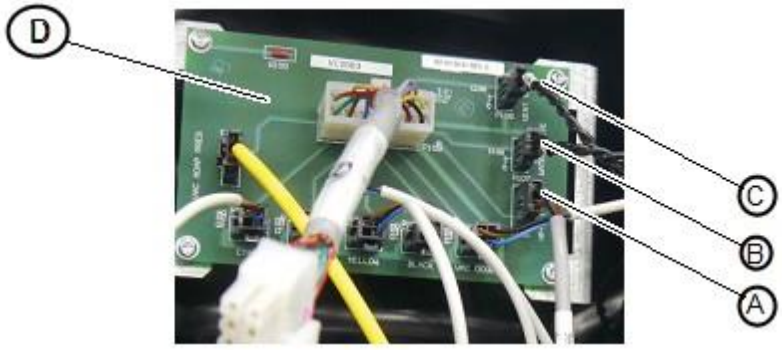
5.4.8.1 Removing the HP45 Station Assembly

- Phillips head driver

TASK

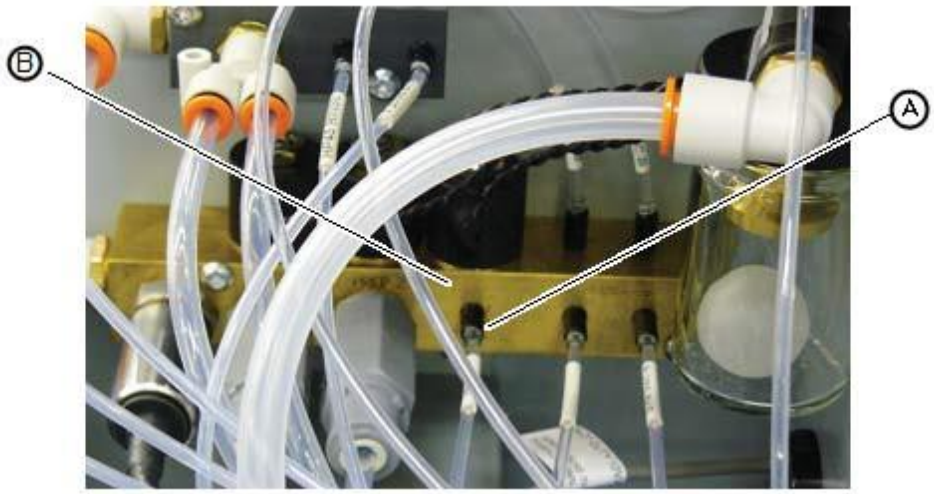
1. Remove the upper hood (see "Removing the Upper Hood" on page 5-3).
2. Remove the drill side fascia (see "Removing the Drill Side Fascia" on page 5-5).
3. Remove the work surface (see "Removing the Work Surface" on page 5-11).
4. From the back of the system, unplug the following cables from the fill chamber I/O PC board:
   - HP45 vent valve cable at connector P108
   - HP45 waste valve cable at connector P107
   - HP45 reed sensor cable at connector P106

Figure 5.121: HP45 connections at the vacuum chamber I/O PC board



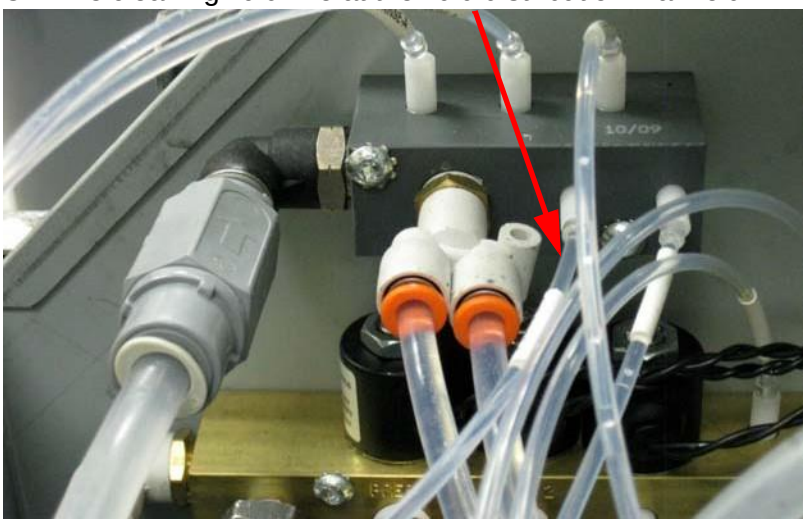
5. Within the plumbing tower, disconnect the HP45 vacuum line connected to the vacuum manifold and route the tubing through the bushing into the area behind the vacuum chamber.

Figure 5.122: HP45 vacuum tubing at waste vacuum manifold



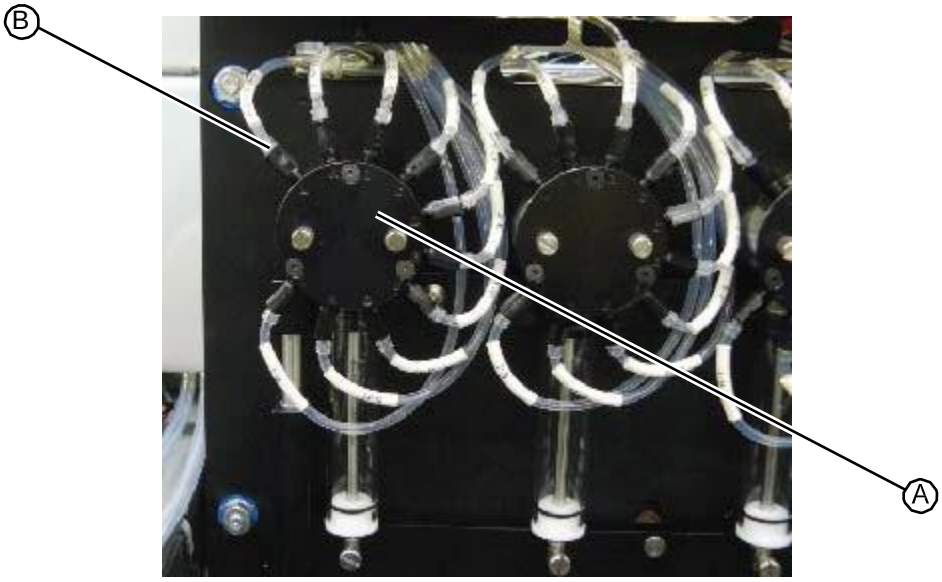
6. Within the plumbing tower, disconnect the HP45 cleaning fluid line connected to the fluid distribution manifold and route the tubing through the bushing into the area behind the vacuum chamber.

Figure 5.123: HP45 cleaning fluid line at the fluid distribution manifold



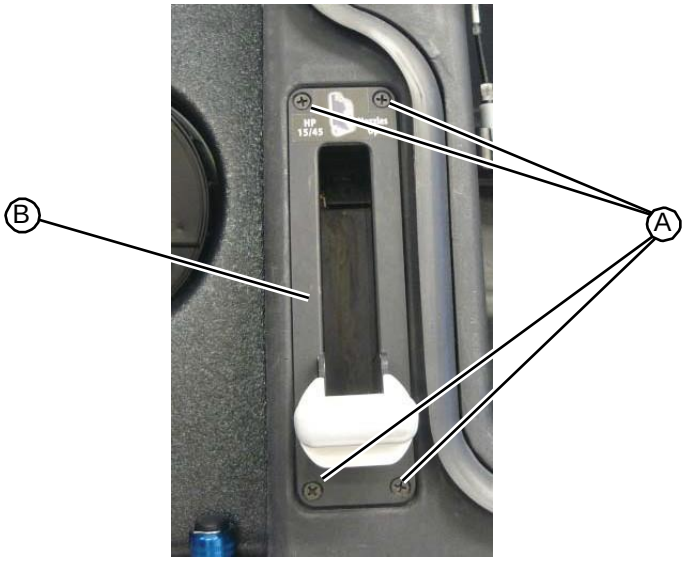
7. From the front of the system, disconnect the HP45 ink dispense line from the fluid distribution valve and route the tubing into the area behind the vacuum chamber.

Figure 5.124: HP45 ink line connected to the valve



8. Using a Phillips screwdriver, remove the four fasteners that secure the HP45 station to the system.

Figure 5.125: Removing the HP45 station fasteners



9. Wiggle the HP45 station loose and gently pull it out of the chamber. Be careful not to strain the tubing or wiring connected to the top of the manifold.
10. Return the HP45 station to RIS.

RELATED LINKS:

"Replacing the HP45 Station Assembly" on page 5-78
"Fill Station" on page 1-17

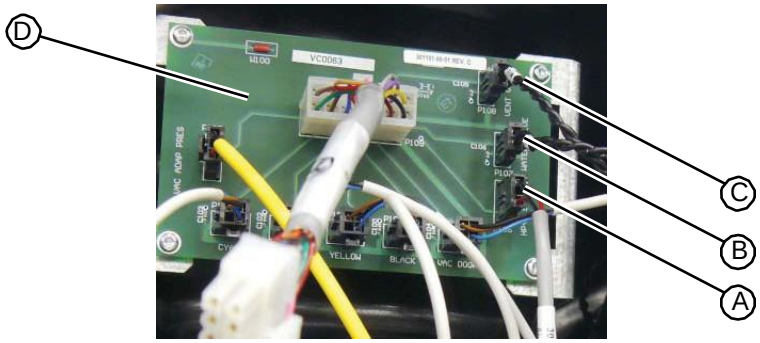
5.4.8.2 Replacing the HP45 Station Assembly

- Phillips head driver

TASK

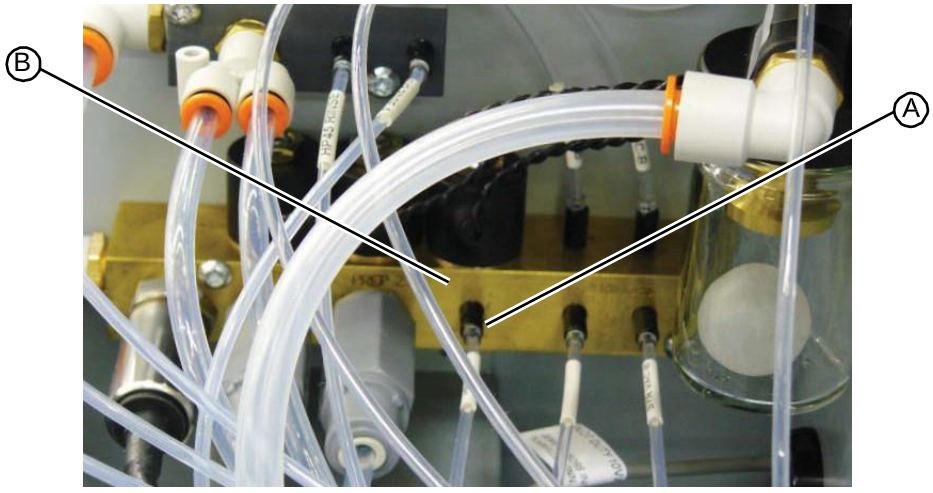
1. Gently insert the HP45 into its chamber. Be careful not to strain the wiring connected to the top of the manifold.
2. From the back of the system, unplug the following cables from the fill chamber I/O PC board:
   - HP45 vent valve cable at connector P108
   - HP45 waste valve cable at connector P107
   - HP45 reed sensor cable at connector P106

Figure 5.126: HP45 connections at the vacuum chamber I/O PC board



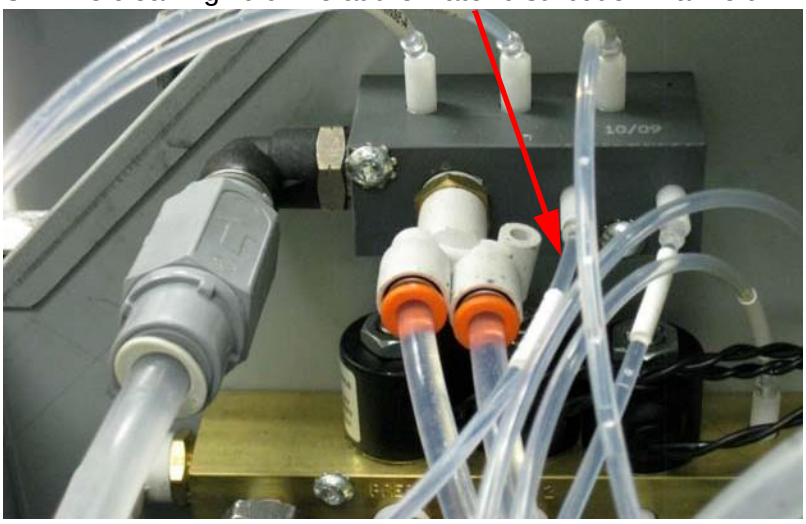
3. Within the plumbing tower, disconnect the HP45 vacuum line connected to the vacuum manifold and route the tubing through the bushing into the area behind the vacuum chamber.

Figure 5.127: HP45 vacuum line at vacuum manifold



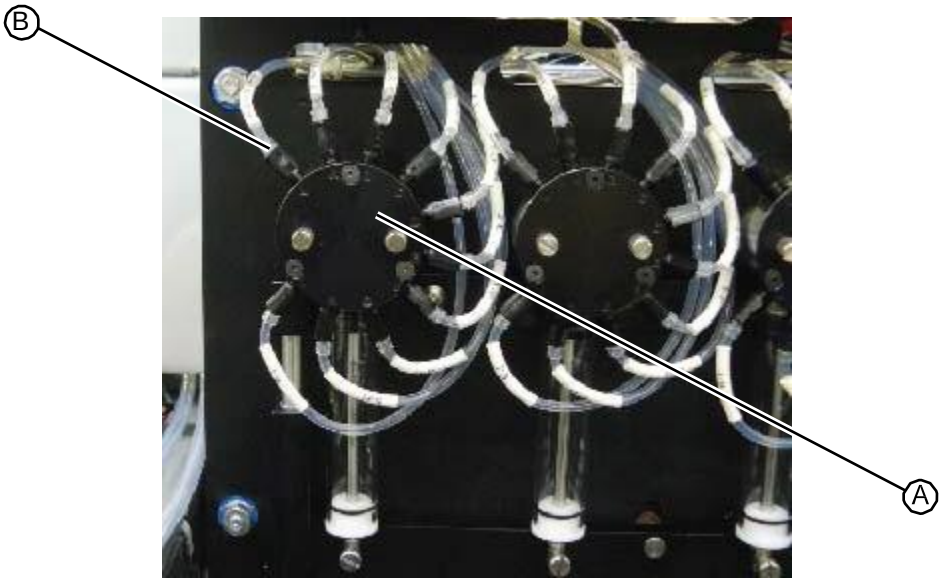
4. Within the plumbing tower, disconnect the HP45 cleaning fluid line connected to the water distribution manifold and route the tubing through the bushing into the area behind the vacuum chamber.

Figure 5.128:HP45 cleaning fluid line at the water distribution manifold



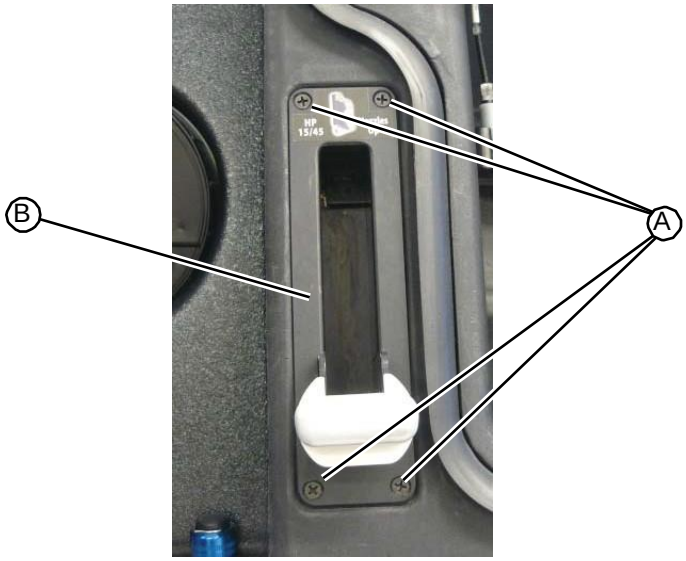
5. From the front of the system, disconnect the HP45 ink dispense line from the valve and route the tubing into the area behind the vacuum chamber.

Figure 5.129:HP45 ink line connected to the valve



6. Using a Phillips screwdriver, insert and tighten the four fasteners that secure the HP45 station to the system.

Figure 5.128:HP45 cleaning fluid line at the water distribution manifold



7. Wiggle the HP45 station loose and gently pull it out of the chamber. Be careful not to strain the tubing or wiring connected to the top of the manifold.
8. Return the HP45 station to RIS.

RELATED LINKS:

"Removing the HP45 Station Assembly" on page 5-75
"Fill Station" on page 1-17

5.4.9 HP45 Station Seal

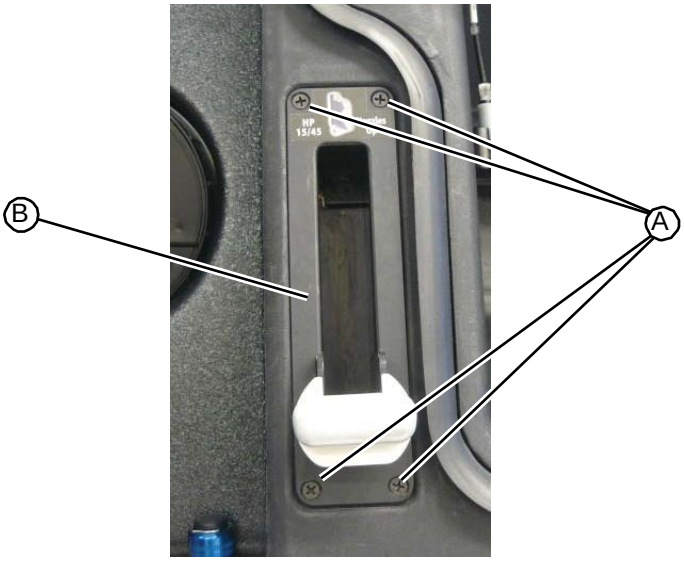
5.4.9.1 Removing the HP45 Seal

- Phillips head driver
- T10 torx driver
- Gloves

TASK

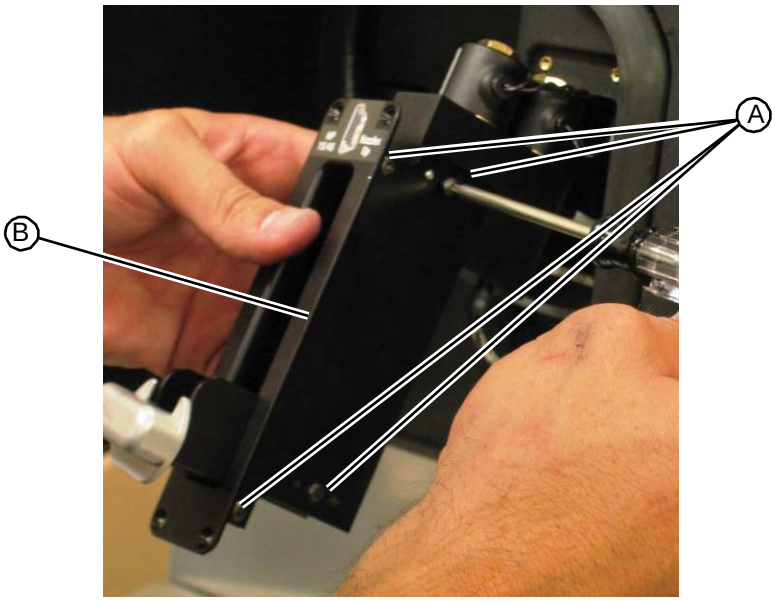
1. Open the vacuum chamber door.
2. Use a pair of gloves to prevent ink stains.
3. Using a Phillips screwdriver, remove the four fasteners that secure the HP45 station to the system.

Figure 5.131: Removing the HP45 station fasteners



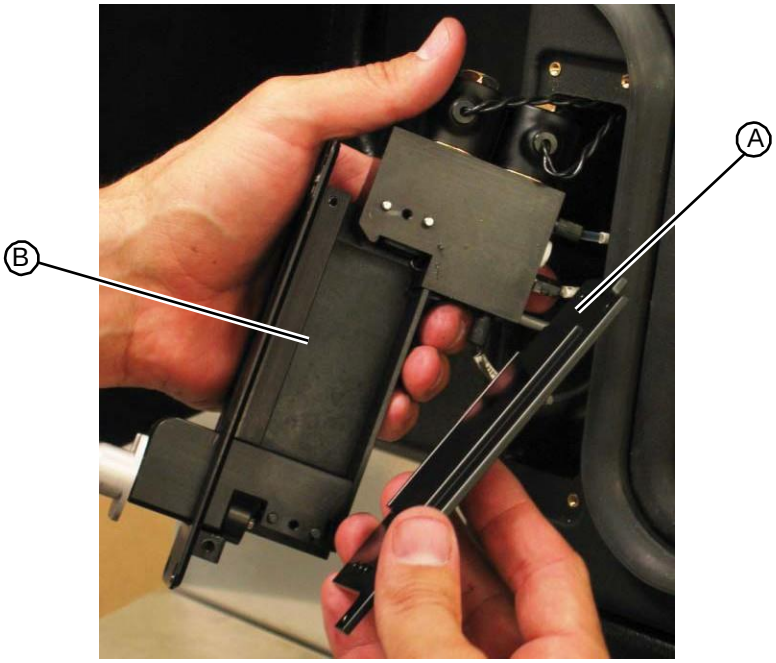
4. Wiggle the HP45 station loose and gently pull it out of the chamber. Be careful not to strain the tubing or wiring connected to the top of the manifold.
5. Using a T10 torx driver, remove the four pan head fasteners on the right side of the station.

Figure 5.132: Removing the HP45 station



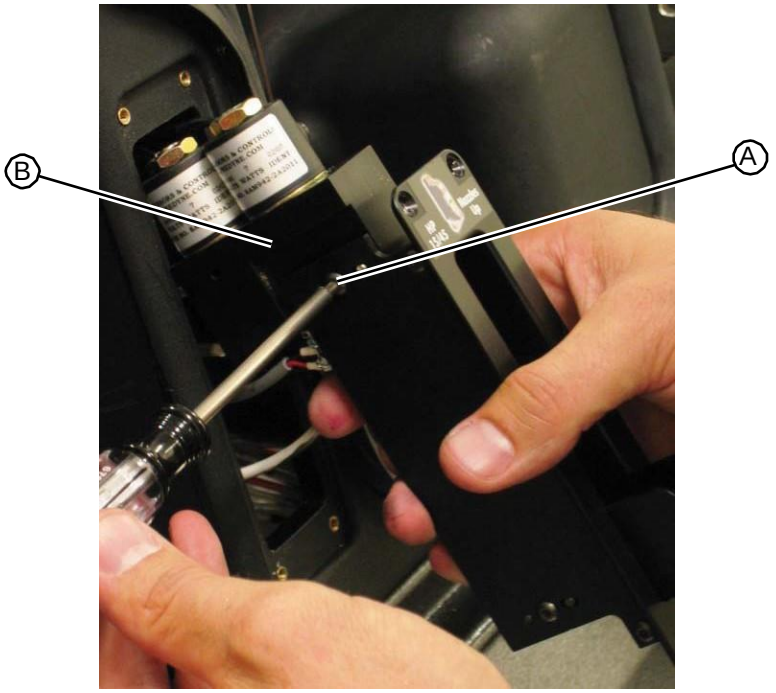
6. Remove the right side plate and the back plate.

Figure 5.133: Removing the HP45 station fasteners and back plates



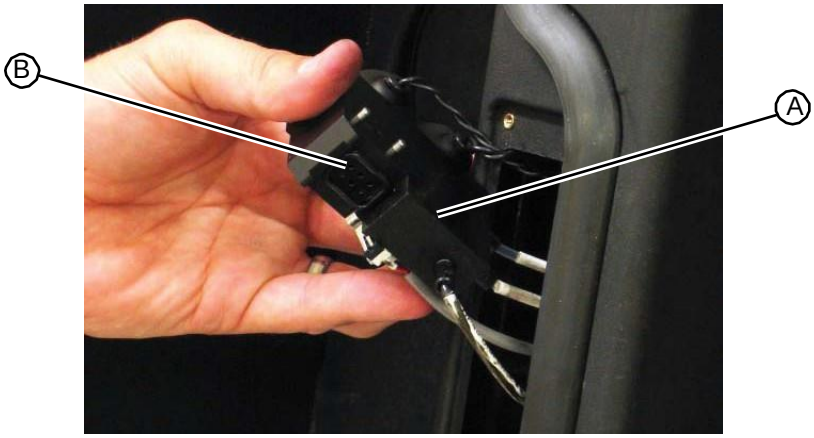
7. On other side of station, use a T10 torx driver to remove the one screw holding the manifold to the rest of the assembly.

Figure 5.134: Removing the HP45 station manifold



8. Separate the assembly and set aside so that the only remaining item is the manifold.

Figure 5.135: Removing the HP station seal



9. Remove and discard the old seal.

RELATED LINKS:

"Replacing the HP45 Seal" on page 5-83
"Fill Station" on page 1-17

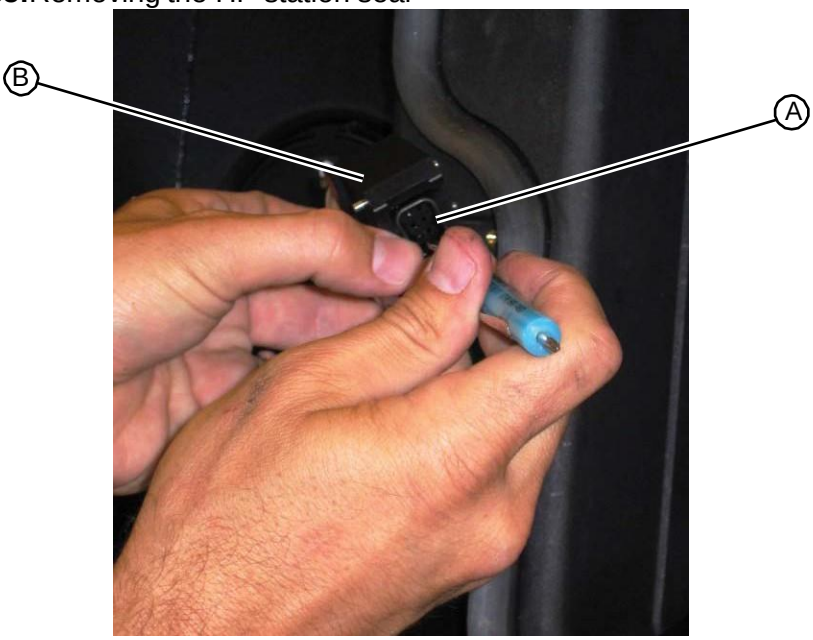
5.4.9.2 Replacing the HP45 Seal

- Phillips head driver
- T10 torx driver
- Gloves

TASK

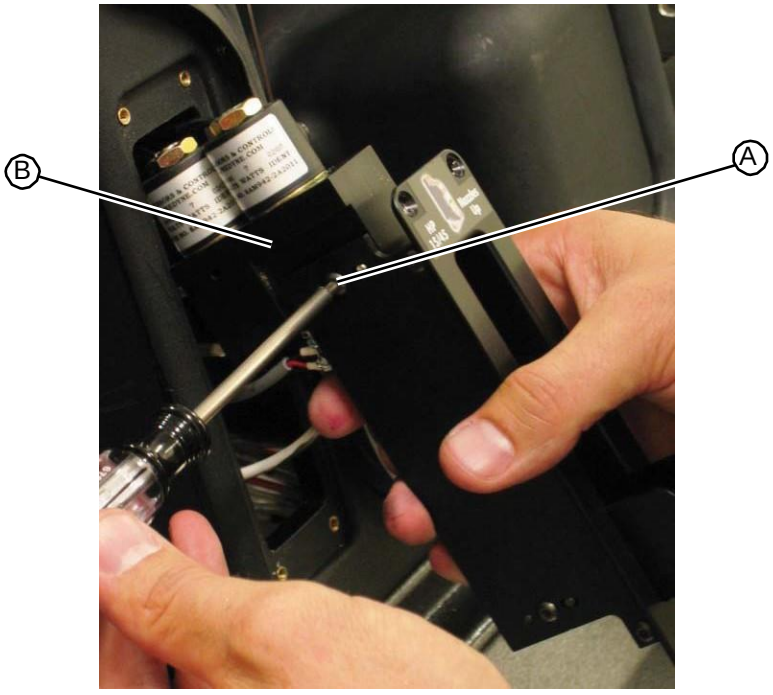
1. Use a pair of gloves to prevent ink stains.
2. Place the new seal on the manifold and, starting at the back of the station near the cartridge present switch, gently work around the profile with a small flat head screwdriver to align it into the groove.

Figure 5.135: Removing the HP station seal



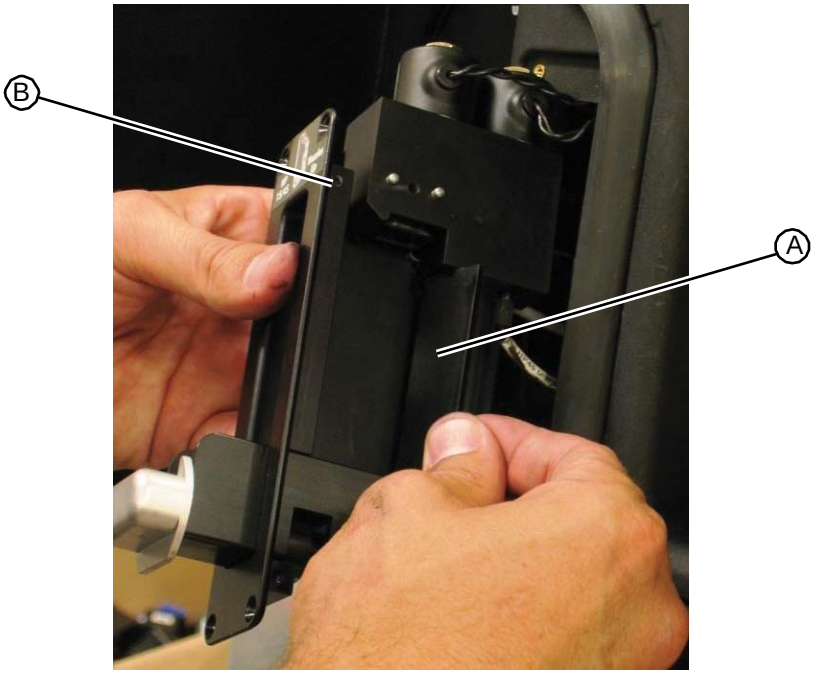
3. Attach the HP45 station chamber to the bottom of the station manifold.
4. Using a T10 torx driver to insert and tighten the fastener that secures the manifold to the rest of the assembly.

Figure 5.136: Securing the HP45 station chamber to the station manifold



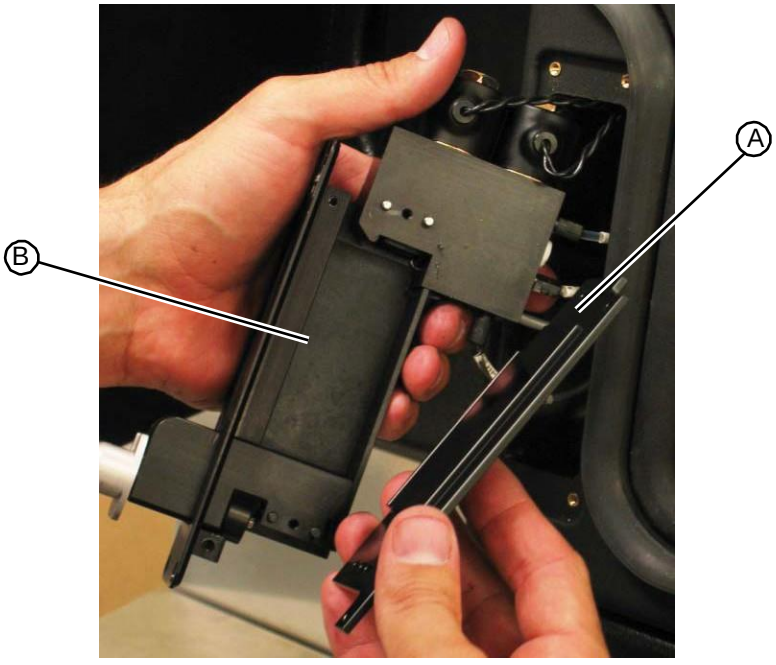
5. Insert the back plate into the HP45 station assembly.

Figure 5.137: Inserting the back plate on the HP45 station assembly



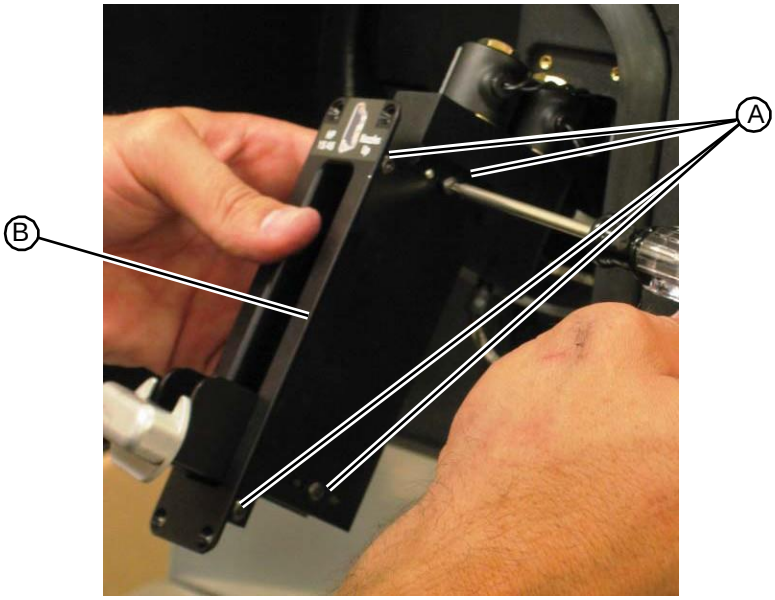
6. Insert the right side plate onto the HP45 station assembly.

Figure 5.138: Inserting the right side plate onto the HP45 station assembly



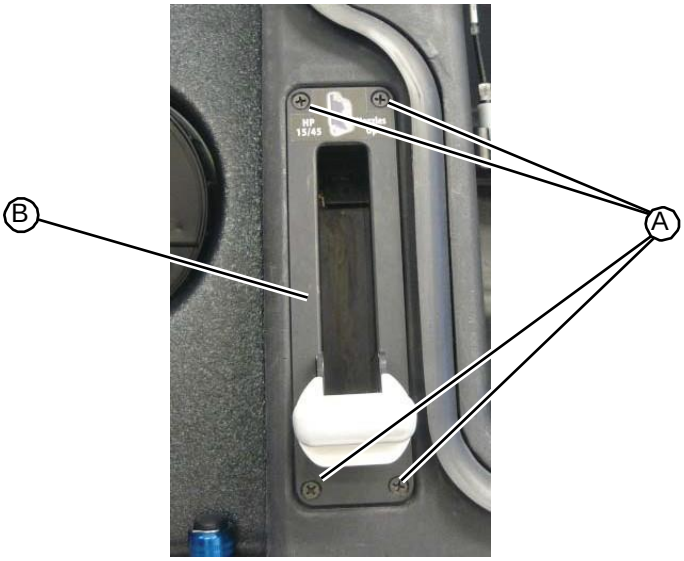
7. Using a T10 torx driver, insert and tighten the four pan head fasteners on the right side of the station.

Figure 5.139: Fasteners on the right side of the HP45 station assembly



8. Gently insert the HP45 station assembly into its chamber. Be careful not to strain the tubing or wiring connected to the top of the manifold.
9. Using a Phillips screwdriver, insert and tighten the four fasteners that secure the HP45 station to the system.

Figure 5.140: Fasteners that secure the HP45 station



10. Run a fill process on an HP45 or HP15 cartridge to verify that the station operates properly with no leaks.

RELATED LINKS:

"Removing the HP45 Seal" on page 5-80
"Fill Station" on page 1-17

5.4.10 Fluid Distribution Valve

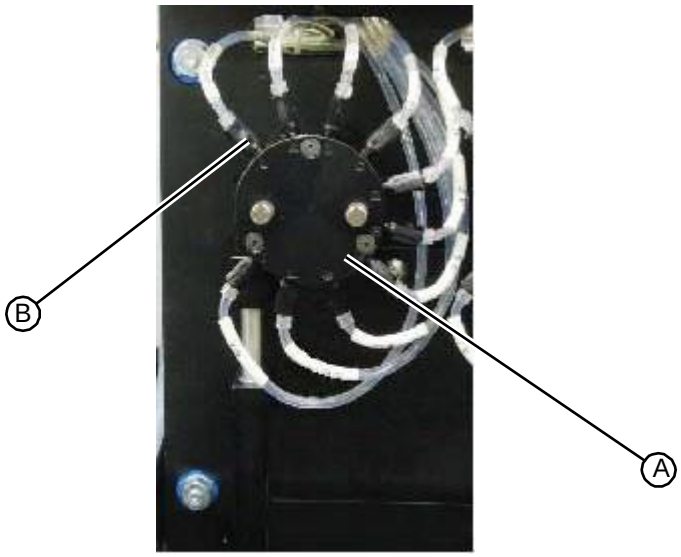
5.4.10.1 Removing the Fluid Distribution Valve

- Flat head screwdriver

TASK

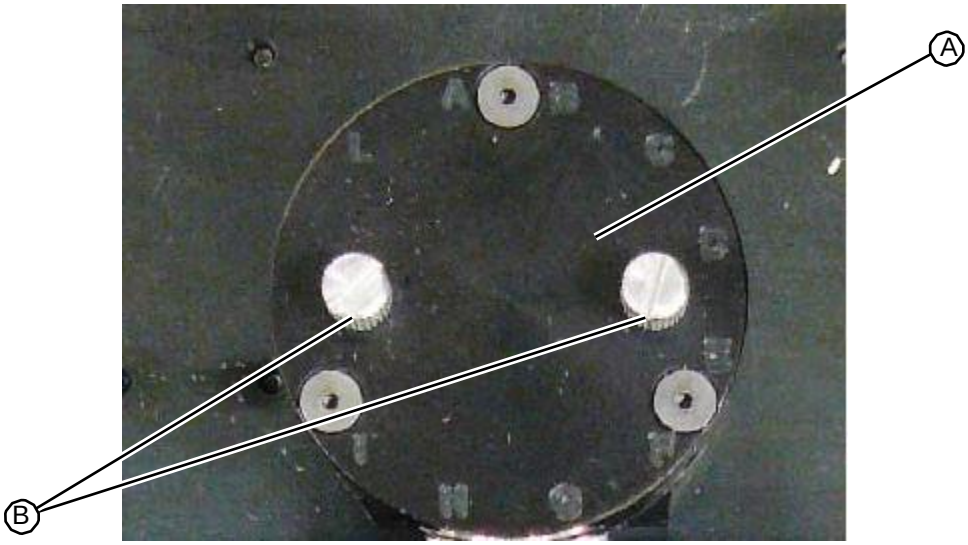
1. **Reboot the system to set all valves to the home position *before* starting.**
2. Enter **Tech Pane** (log in with the technician code: 741963, press the white **T** at the lower right, press the **Tech Pane** button)
3. Remove the upper hood (see "Removing the Upper Hood" on page 5-3).
4. Remove the work surface (see "Removing the Work Surface" on page 5-11).
5. Remove the syringe from the fluid distribution valve you are going to remove (see "Removing a Fill Station Syringe" on page 5-95).
6. Disconnect the dispense lines from the fluid distribution valve.

Figure 5.141: Dispense tubing connected to the fluid distribution valve



7. Using a flat head screwdriver, remove the two fasteners that secure the fluid distribution valve to the infusion pump assembly.

Figure 5.142: Fasteners that secure the fluid distribution valve



8. Remove the fluid distribution valve from the system and return to RIS.

RELATED LINKS:

"Replacing the Fluid Distribution Valve" on page 5-88
"Fill Station" on page 1-17

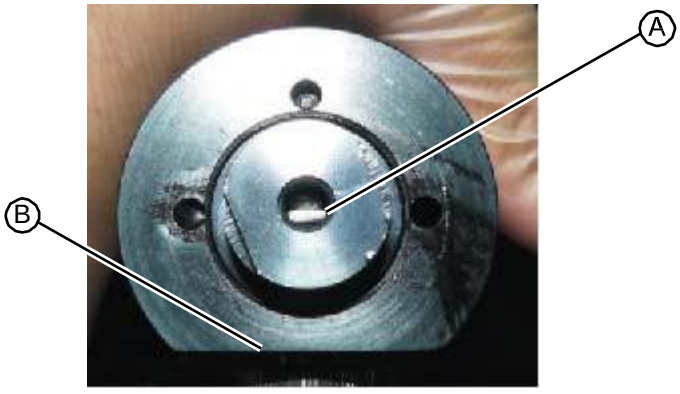
5.4.10.2 Replacing the Fluid Distribution Valve

- Flat head screwdriver

TASK

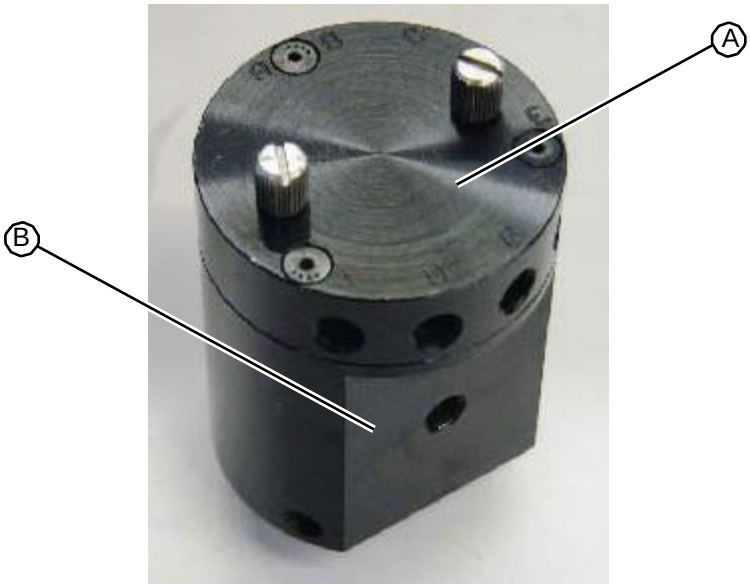
1. Look at the back of the fluid distribution valve to be sure that the valve is set to the correct port: make sure that the blade in the center of the valve is parallel to the flat surface on the bottom of the valve.

Figure 5.143: Slat correctly positioned on the back of the fluid distribution valve



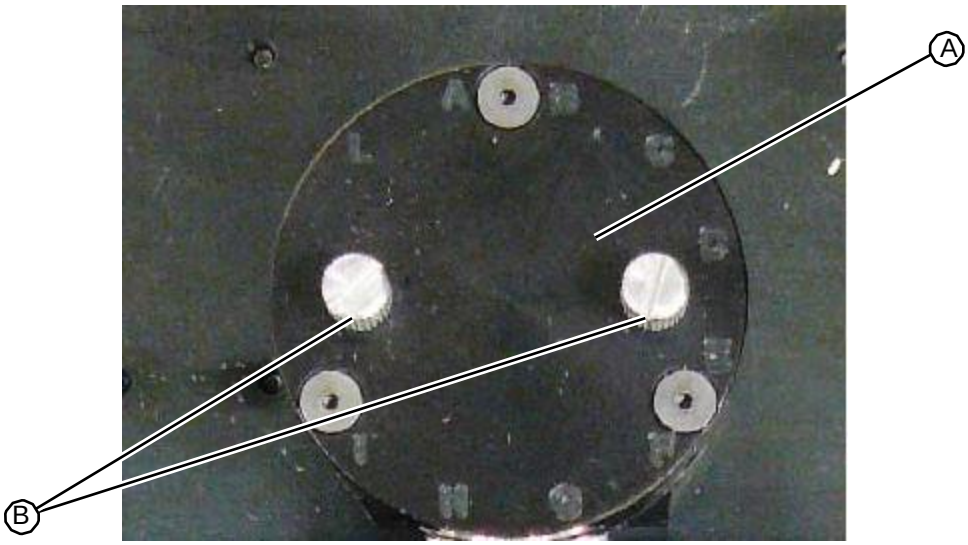
2. Insert the fluid distribution valve into the mounting hole on the infusion pump assembly, with the flat side of the valve facing down.

Figure 5.144: Fluid distribution valve



3. Using a flat head screwdriver, insert and tighten the two fasteners that secure the valve to the infusion pump assembly.

Figure 5.145: Fasteners that secure the fluid distribution valve to the infusion pump assembly

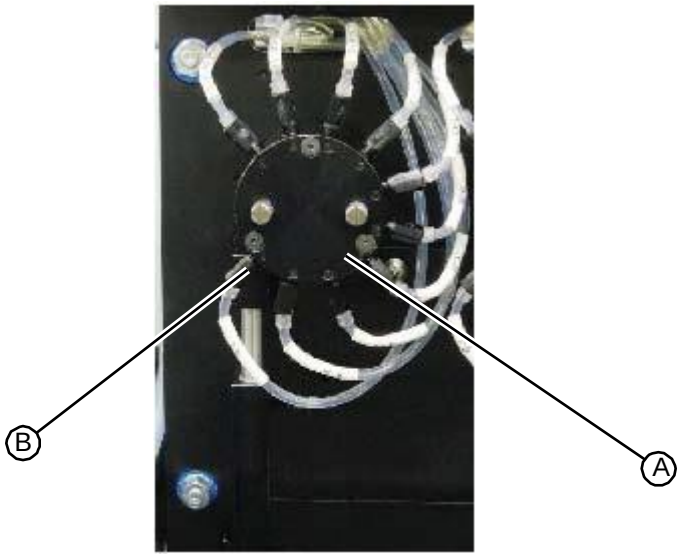


4. Replace the syringe (see "Replacing a Fill Station Syringe" on page 5-96).

Caution—Make sure you follow the instructions in "Calibrating the Ink Syringes" on page 7-6. Failure to follow these instructions can result in damage to the system.

5. Insert tubing into the valve, beginning with the **I** connector and working counterclockwise. Be careful not to kink the tubing. Also, be careful to insert the tubing straight into the openings in the valve. If you feel any resistance when you insert the tubing, you have probably cross-threaded the tubing.

Figure 5.146: Dispense tubing connected to the fluid distribution valve



6. Prime the ink lines (see "Priming Ink Lines (Located in Maintenance Tab)" on page 6-9).
7. Replace the work surface (see "Replacing the Work Surface" on page 5-12)
8. Replace the upper hood (see "Removing the Upper Hood" on page 5-3).

RELATED LINKS:

"Removing the Fluid Distribution Valve" on page 5-87
"Fill Station" on page 1-17

5.4.11 Infusion Pump Drive System Assembly

5.4.11.1 Removing the Infusion Pump Drive System Assembly

- Small flat head screwdriver
- 7/16" hex driver

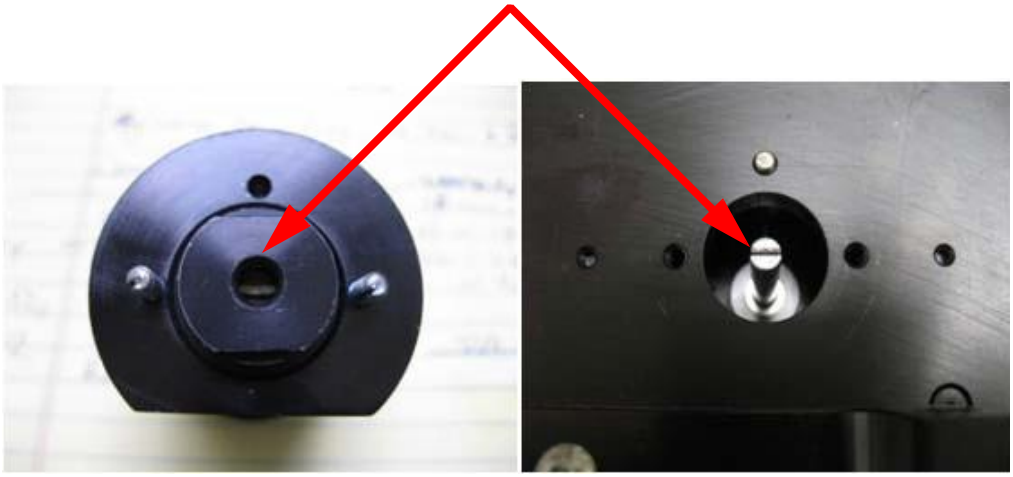
TASK

1. **Reboot the system to set all valves to the home position *before* starting.** This is done by initializing the infusion pump, which occurs during every startup. Reboot the system in Admin mode from the main operator screen to reinitialize the infusion pump. Alternatively, you can perform a shutdown and cycle power instead of rebooting.

   If the system is hanging up during startup due to an error and valve initialization does not occur, then the pump must be initialized manually. Please call RIS service at 858-779-9148.

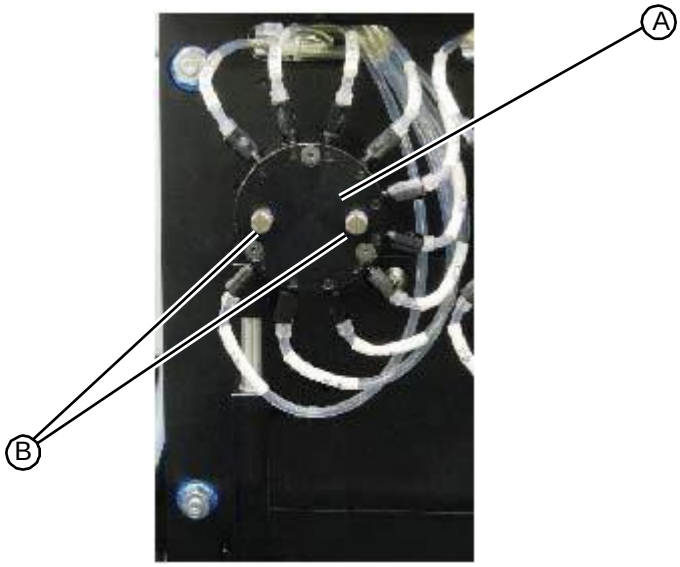
2. Once initialized, remove the valves from the infusion pump to verify that they are in the home position prior to removing the current infusion pump. The home position on the valve and drive post is in the horizontal position as shown below:

Figure 5.147: Home position on valve and drive post



3. Once you verify the valves are in the home position, you can remove the current infusion pump and replace it with the new one.
4. Enter **Tech Pane** (log in with the technician code: 741963, press the white **T** at the lower right, press the **Tech Pane** button).
5. Remove the upper hood (see "Removing the Upper Hood" on page 5-3).
6. Remove the work surface (see "Removing the Work Surface" on page 5-11).
7. Remove the rear access panel (see "Removing the Rear Access Panel" on page 5-10).
8. Remove the syringes from the fluid distribution valves (see "Removing a Fill Station Syringe" on page 5-95).
9. Using a flat head screwdriver, remove the two fasteners that secure each of the four fluid distribution valves to the front of the infusion pump drive system. **Do not disconnect any tubing from the distribution valves.**

Figure 5.148: Fasteners that connect each of the fluid distribution valves to the infusion pump drive system

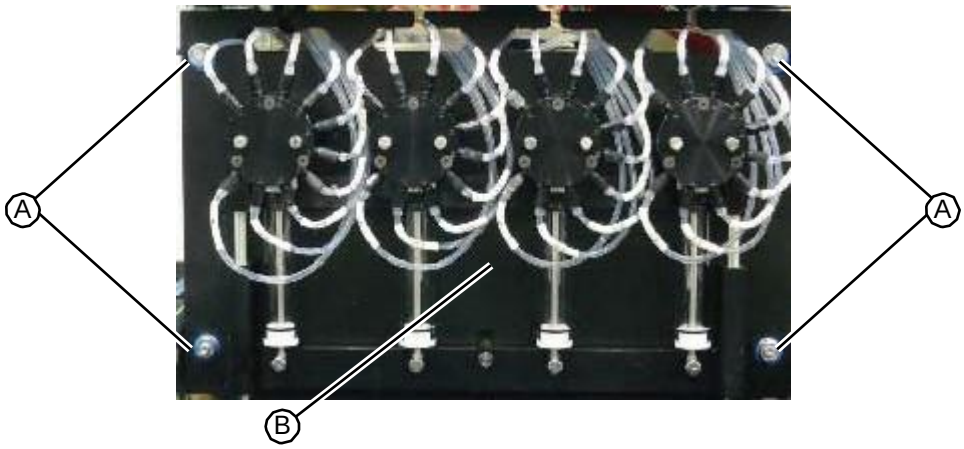


10. From the lower back compartment of the system, us a small flat head screwdriver to loosen the jackscrews on the DB25 connector and unplug the cable from the back of the infusion pump drive system.

Figure 5.149: DB25 connection on the back of the infusion pump drive system

11. Using a 7/16” hex driver, remove the four hex nuts that secure the infusion pump drive system assembly to the station frame.

Figure 5.150: Hex nuts that secure the infusion pump drive system



12. Carefully slide the infusion pump drive system forward off the mounting studs, remove from the system, and return to RIS.

RELATED LINKS:

“Replacing the Infusion Pump Drive System Assembly” on page 5-92
“Fill Station” on page 1-17

5.4.11.2 Replacing the Infusion Pump Drive System Assembly

- Small flat head screwdriver
- 7/16” hex driver

TASK

1. Verify the drive shafts for the valves in the new pump are in the home position before mounting the valves onto the pump body.

2. Place a new (white) o-ring in the syringe port of the new valve if one is not in place. (Remove the syringe to access the port at the bottom of the valve - then run Syringe Cal).
3. Carefully slide the infusion pump drive system assembly onto the four mounting studs located on the front of the system frame.

Figure 5.151: Mounting studs for infusion pump drive system assembly

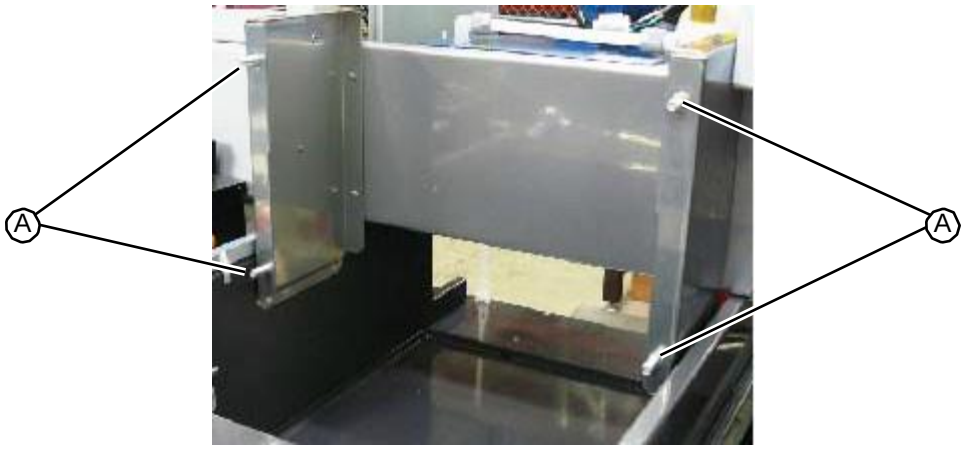
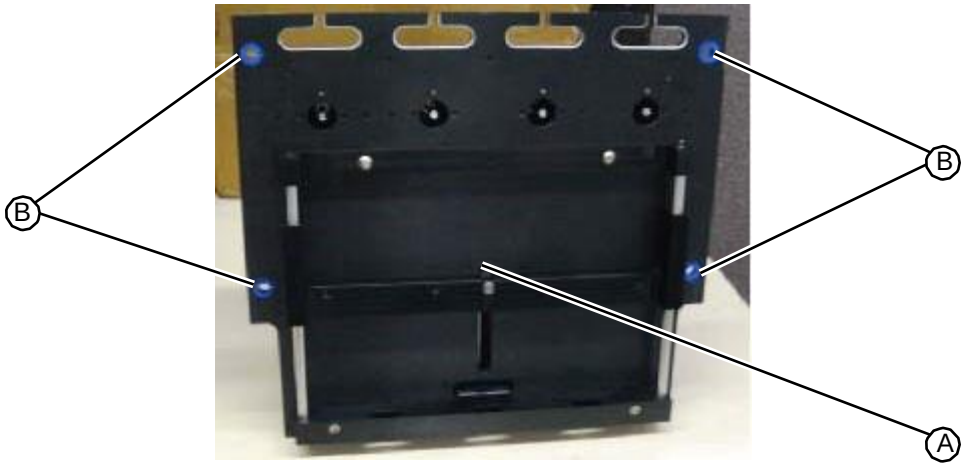


Figure 5.152: Mounting holes on infusion pump drive system

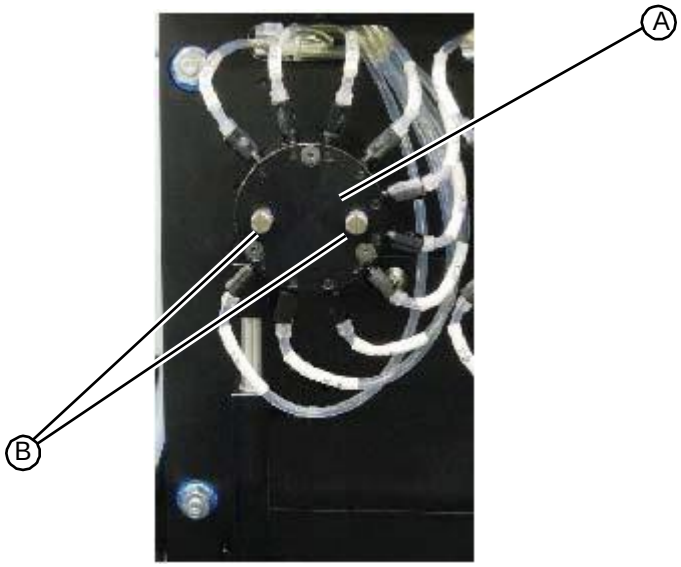


4. Using a 7/16” hex driver, insert and tighten the four hex nuts that secure the infusion pump drive system to the system frame.
5. From the lower back compartment of the system, plug the cable from the main I/O PC board into the DB25 connector on the back of the infusion pump drive system assembly. Using a small flat head screwdriver, tighten the two jackscrews to secure the connection.

Figure 5.153:DB25 connection on the back of the infusion pump drive system

6. Using a flat head screwdriver, insert and tighten the two fasteners that secure each of the four fluid distribution valves to the front of the infusion pump drive system.

Figure 5.154: Fasteners that connect each of the fluid distribution valves to the infusion pump drive system



7. Replace the syringes (see "Replacing a Fill Station Syringe" on page 5-96).

Caution—Make sure you follow the instructions in "Calibrating the Ink Syringes" on page 7-6. ***Failure to follow these instructions can result in damage to the system***.

8. Prime the ink lines (see "Priming Ink Lines (Located in Maintenance Tab)" on page 6-9).
9. Replace the rear panel (see "Replacing the Rear Access Panel" on page 5-10).
10. Replace the work surface (see "Replacing the Work Surface" on page 5-12).
11. Replace the upper hood (see "Replacing the Upper Hood" on page 5-4).

RELATED LINKS:

"Removing the Infusion Pump Drive System Assembly" on page 5-90
"Fill Station" on page 1-17

5.4.12 Fill Station Syringe

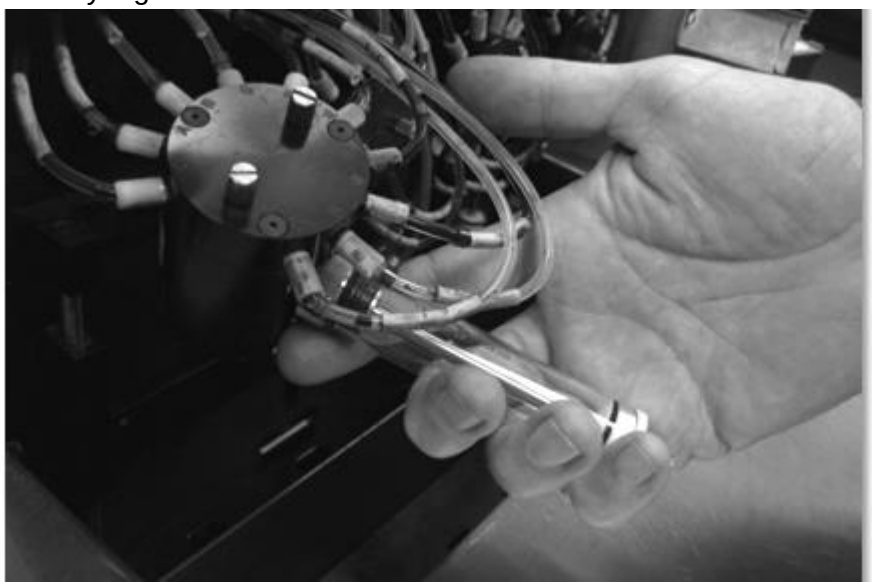
5.4.12.1 Removing a Fill Station Syringe

- Flat head screwdriver

NOTE

When replacing a syringe please remove the syringe and valve as a unit from the infusion pump as shown below. Having the valve off of the pump makes it easier to remove and replace the syringe, and will help prevent cross-threading of the syringe.

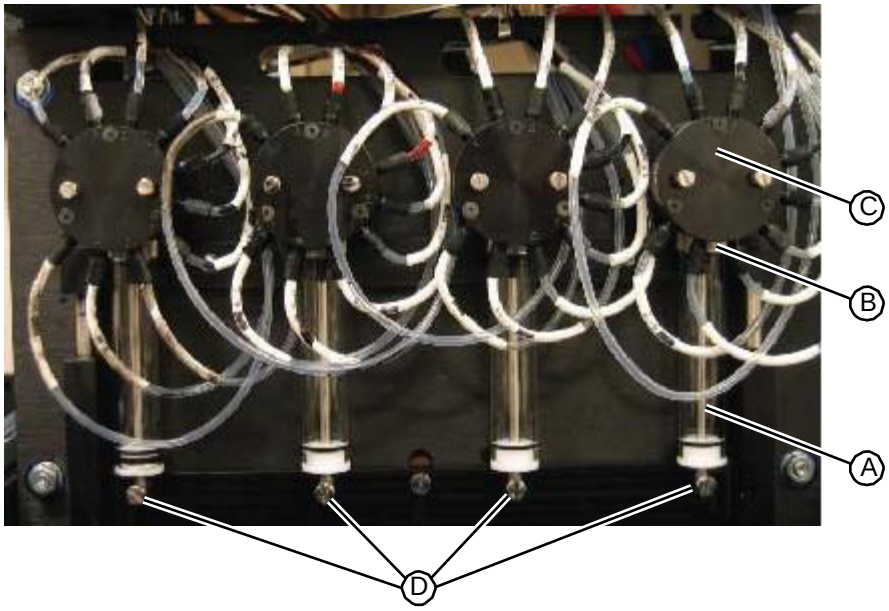
Figure 5.155: Syringe and valve removed as a unit



TASK

1. On the touchscreen, press **T** to enter the Tech Pane.
2. From either the Field Service tab, press **Syringe Cal**.
3. The syringes move to a safe position and the system displays a message instructing you to set the home position. **Do not touch the screen at this point.** Proceed with the next step in this procedure.
4. Remove the fill work surface (see “Removing the Work Surface” on page 5-11).
5. Remove the shoulder screw that holds the syringe plunger button to the drive bar for the syringe you want to replace.

Figure 5.156: Shoulder screws that hold the syringe plunger buttons to the drive bar



6. Unthread the old syringe from its fitting on the fluid distribution valve and make sure to remove any old o-rings out of the valve port.
7. Return the syringe to RIS.

RELATED LINKS:

"Replacing a Fill Station Syringe" on page 5-96
"Fill Station" on page 1-17

5.4.12.2 Replacing a Fill Station Syringe

- Flat head screwdriver

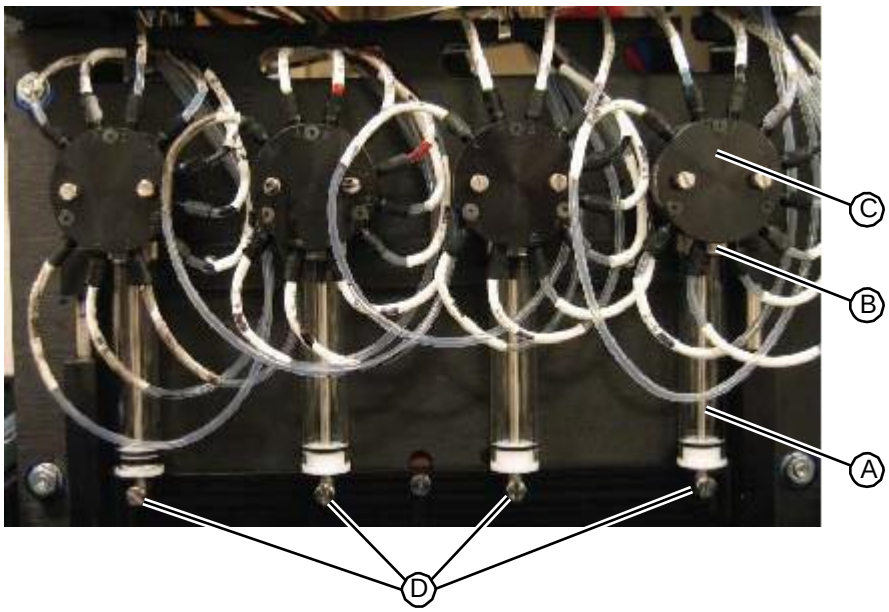
TASK

1. With the fluid distribution valve upside down, place a new (white) o-ring in the syringe port of the valve.
2. Thread the top of the syringe assembly into the threaded mounting hole located on the bottom of the infusion valve.

Figure 5.157: Location of syringe mounting hole on infusion valve

3. Securely tighten the syringe using your fingers. **Do not use any tools to tighten the syringe.**
4. Using a flat head screwdriver, insert and tighten the fastener that secures the syringe plunger button to the drive bar. Be careful not loosen the syringe from the valve.

Figure 5.158: Location of fasteners that secure syringe



5. Check to be sure all syringes are securely tightened into their valves.

6. Calibrate the syringes (see "Calibrating the Ink Syringes" on page 7-6).

   a ***Caution—Failure to properly calibrate the syringes can result in damage to the system***

7. Conduct a **Syringe Leak Test** to verify that the new syringe is properly connected.
8. When the test completes successfully, replace the work surface (see "Replacing the Work Surface" on page 5-12).

Figure 5.160: Releasing the upper hinge arms

RELATED LINKS:

"Removing a Fill Station Syringe" on page 5-95
"Fill Station" on page 1-17

5.4.13 Vacuum Chamber Upper Hinge Arms

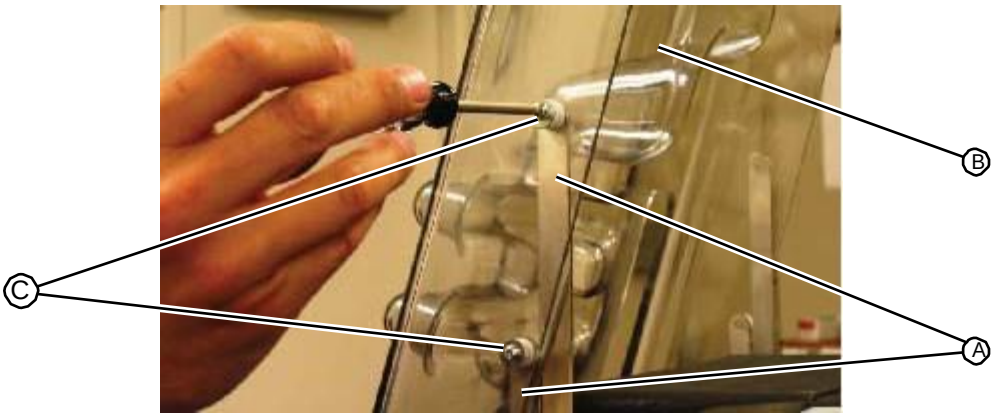
5.4.13.1 Removing the Vacuum Chamber Upper Hinge Arms

- T15 torx driver
- 1/8" hex driver

TASK

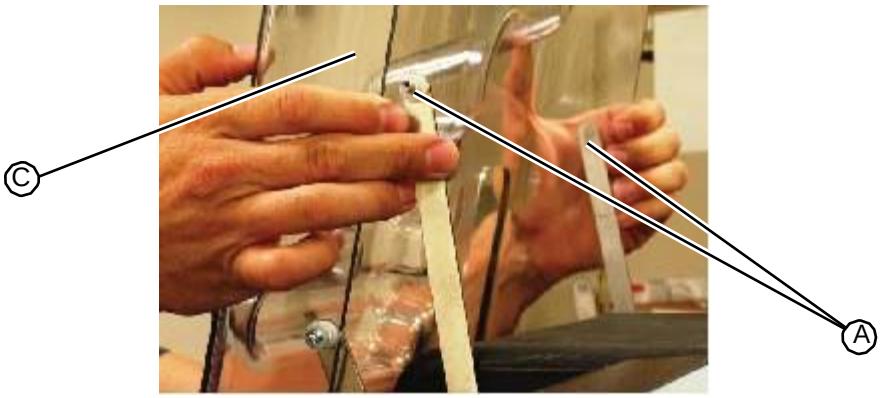
1. Remove the upper hood (see "Removing the Upper Hood" on page 5-3).
2. Raise the chamber door into the open position.
3. Using a T15 torx driver, remove the screws from the two upper hinge arms where they mount to the vacuum chamber door.

Figure 5.159: Removing the fasteners from the upper hinge arms



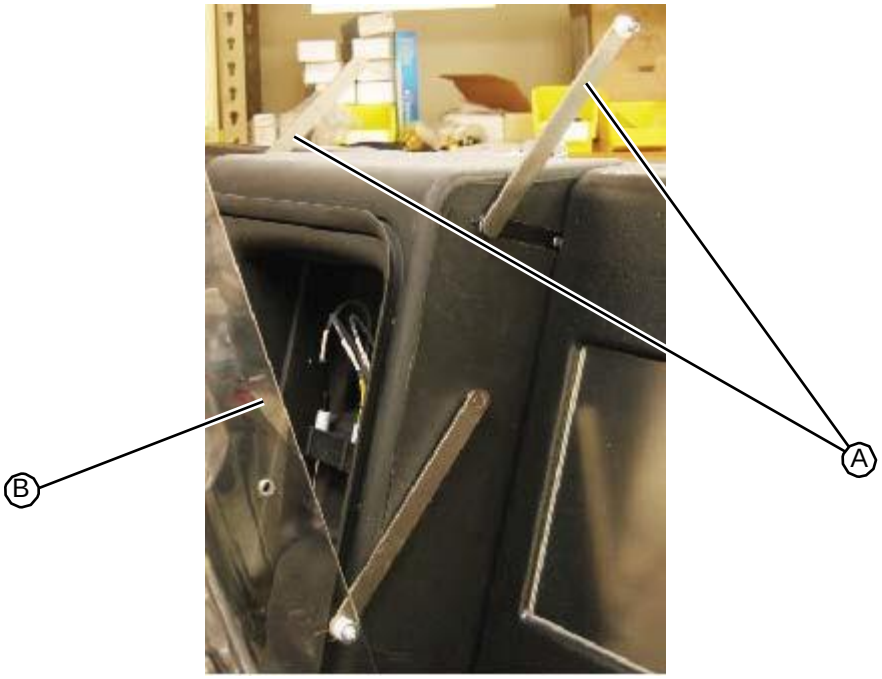
4. Carefully release the door from the upper hinge arms being careful to slowly release the spring pressure of the hinge arms. Save the screws, washers, and round nylon bushings for reinstallation. Leave the bottom hinges attached to the door.

Figure 5.160: Releasing the upper hinge arms



5. Rotate the upper hinge arms so that they are aiming upward/rearward to relieve the spring tension as much as possible. The door can hang on the lower arms, as shown.

Figure 5.161: Hinge arms rotated up

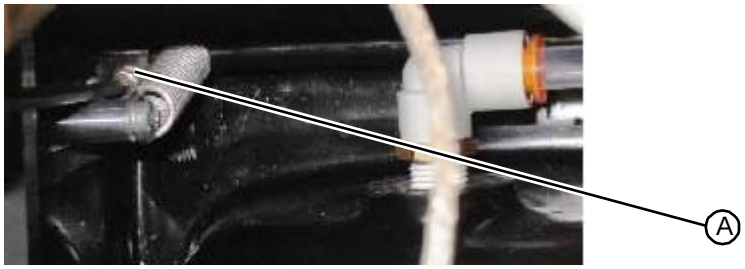


6. Using a 1/8" hex driver, remove the two fasteners holding the extension springs onto each side of the hinge assembly. Ensure that the mounting studs remain tightly fastened as the shoulder screws are removed, tightening them with a wrench, if necessary. Save the shoulder screws for re-assembly.

Figure 5.160: Extension spring fastener Releasing the upper hinge arms

7. Using a long 1/8” hex driver, loosen the fastener on each of the two hex bar clamps.

Figure 5.163: Loosening the fastener on the hex bar clamp



8. Slide the hinge arms out of the chamber and discard.

RELATED LINKS:

“Replacing the Vacuum Chamber Upper Hinge Arms” on page 5-100
“Fill Station” on page 1-17

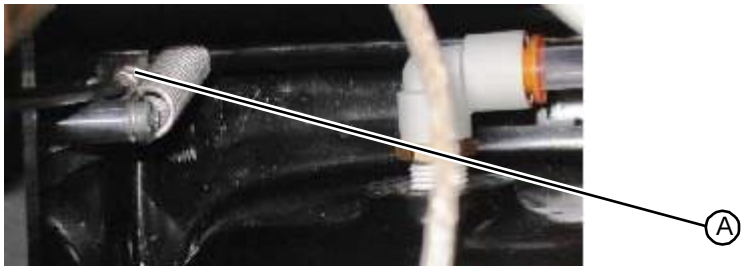
5.4.13.2 Replacing the Vacuum Chamber Upper Hinge Arms

- T15 torx driver
- 1/8” hex driver

TASK

1. Slide the hinge arms into position in the chamber.
2. Using a long 1/8” hex driver provided in the technician kit, insert and tighten the fastener on each of the two hex bar clamps.

Figure 5.164: Tightening the fastener on the hex bar clamp

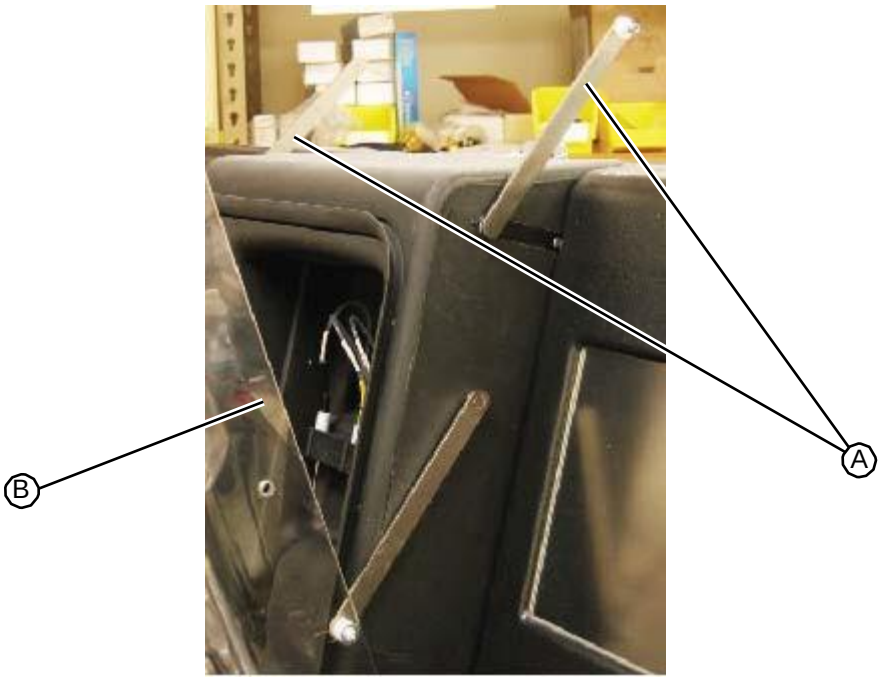


3. Using a 1/8” hex driver, insert and tighten the two fasteners holding the extension springs onto each side of the hinge assembly.

Figure 5.165: Extension spring fastener

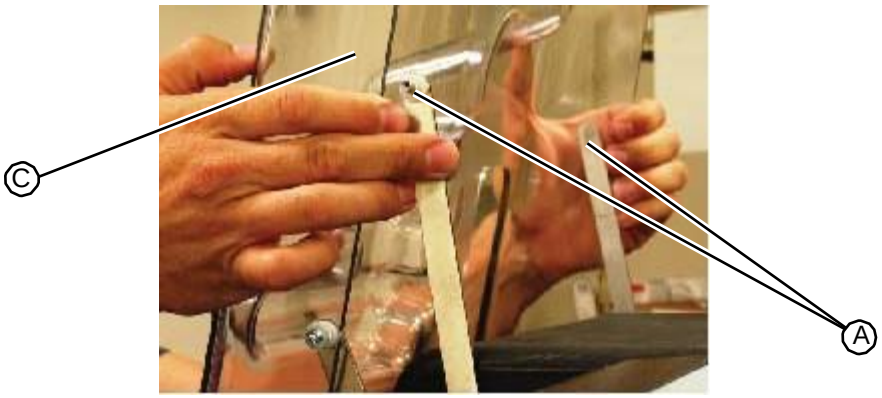
4. Rotate the upper hinge arms so that they are aiming upward/rearward to relieve the spring tension as much as possible. The door can hang on the lower arms, as shown.

Figure 5.166: Hinge arms rotated up



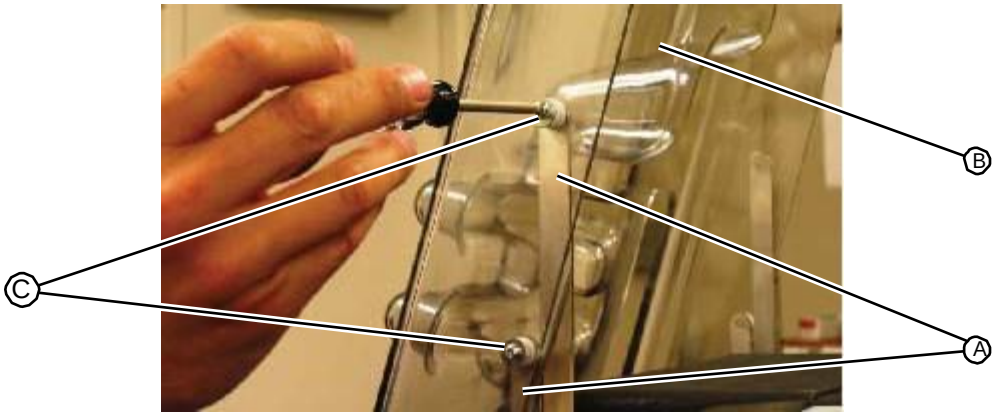
5. Carefully insert the door onto the upper hinge arms.

Figure 5.167: Inserting the upper hinge arms



6. Using a T15 torx driver, insert and tighten the screws into the two upper hinge arms where they mount to the vacuum chamber door.

Figure 5.168: Inserting the fasteners into the upper hinge arms



RELATED LINKS:

"Removing the Vacuum Chamber Upper Hinge Arms" on page 5-98
"Fill Station" on page 1-17

5.4.14 Vacuum Chamber Gasket

5.4.14.1 Removing the Vacuum Chamber Gasket

- #0 Phillips head driver

TASK

1. Open the vacuum chamber door.
2. Using a #0 Phillips driver remove the 11 fasteners that secure the vacuum chamber gasket to the front of the vacuum chamber. The fasteners are located under the gasket flap. Three fasteners are attached along the sides and top of the gasket. Two are attached along the bottom.

Figure 5.169: Location of fasteners under right side vacuum gasket flap

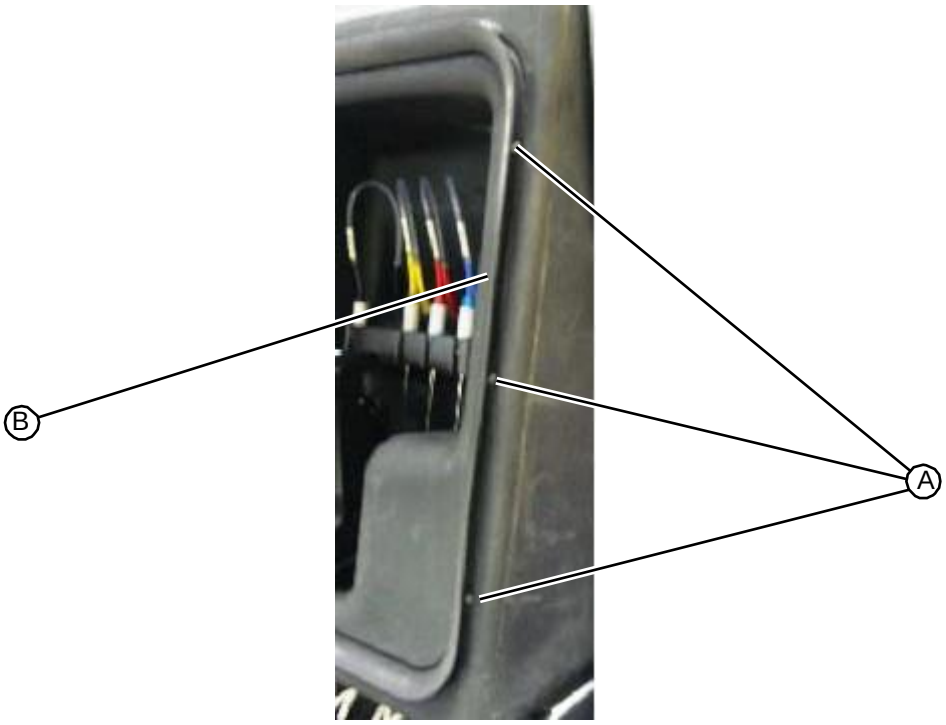
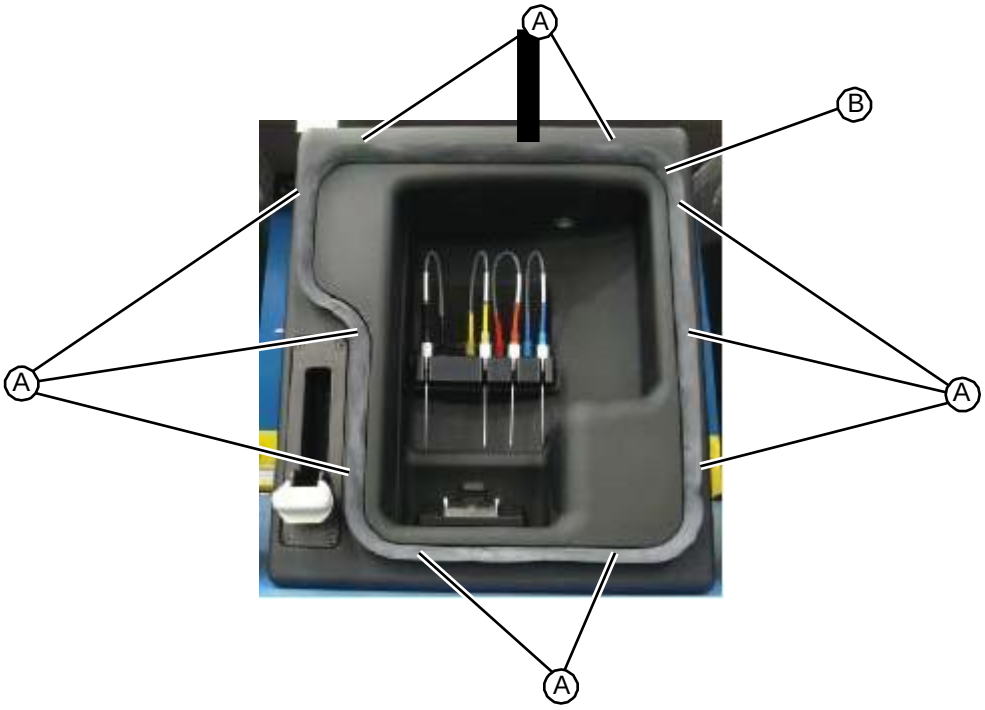


Figure 5.170: Location of all fasteners under vacuum gasket flap



RELATED LINKS:

"Replacing the Vacuum Chamber Gasket" on page 5-104
"Fill Station" on page 1-17

5.4.14.2 Replacing the Vacuum Chamber Gasket

- #0 Phillips head driver

TASK

1. Fit the vacuum chamber gasket into its mounting recess on the front of the vacuum chamber.
2. Using a #0 Phillips driver insert and tighten the 11 fasteners that secure the vacuum chamber gasket to the front of the vacuum chamber. The fasteners are located under the gasket flap. Three fasteners are attached along the sides and top of the gasket. Two are attached along the bottom.

   a Be careful not to overtighten the screws

Figure 5.171: Location of fasteners under right side vacuum gasket flap

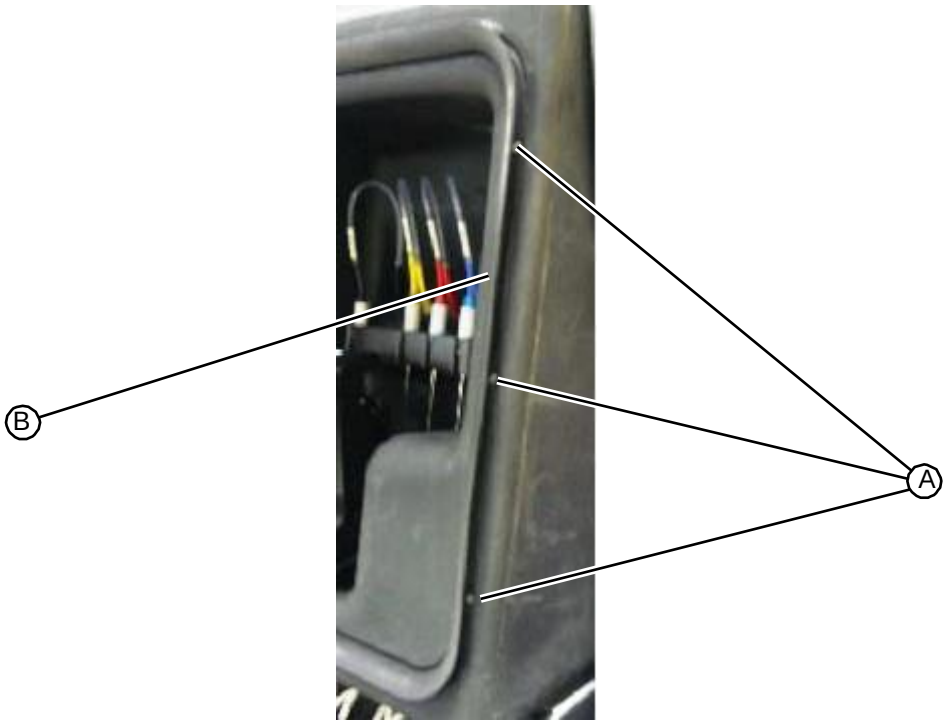
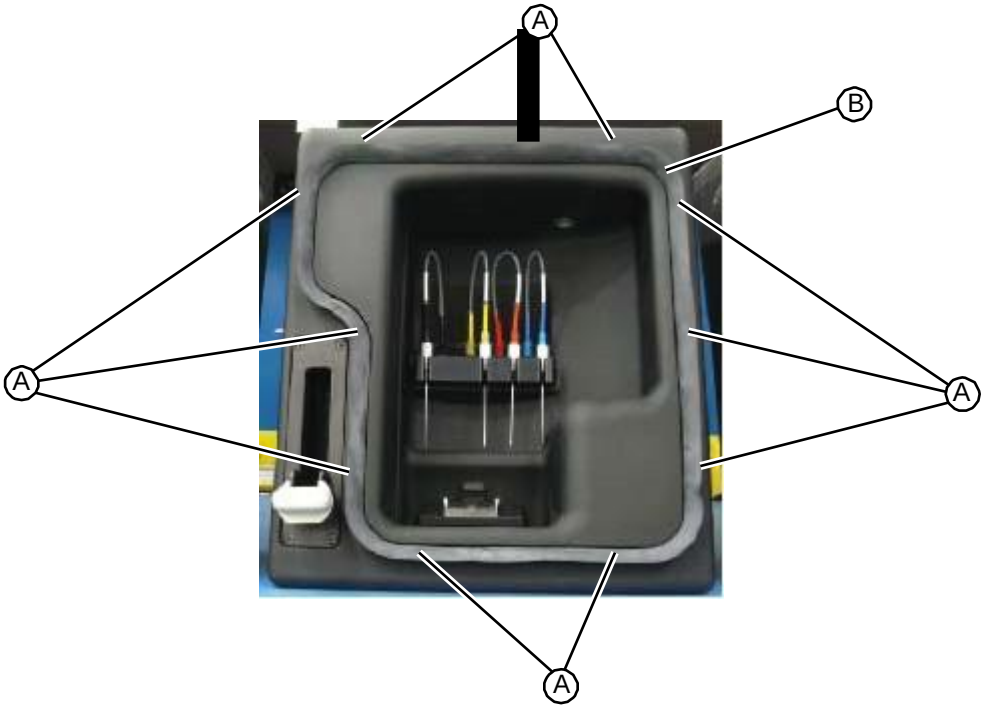


Figure 5.172: Location of all fasteners under vacuum gasket flap



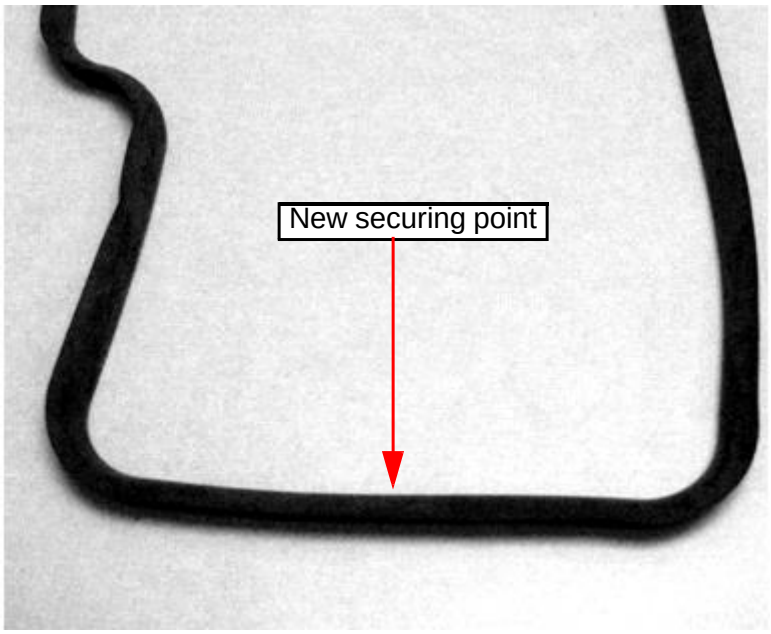
3. Close the vacuum chamber door and run a vacuum chamber leak test.

RELATED LINKS:

"Removing the Vacuum Chamber Gasket" on page 5-102
"Fill Station" on page 1-17

Fill Chamber Gasket Modification

An extra securing screw point has been added to the fill chamber gasket located at the arrow shown below:



Extra screws should have been included with the new gasket you received. Use one of the extra screws to create a new secure point for the gasket in the frame. The hole does not exist in the current fill chamber configuration, but the screws are self tapping and should screw into the frame without a pilot hole or any pre-drilling.

When tightening the screws, make sure they are tight enough that they do not touch the door when the chamber is under vacuum, but not over-tightened.

Please contact RIS service support any problems, questions, or missing parts issues.

5.4.15 Vacuum Chamber Spring Arm Rod

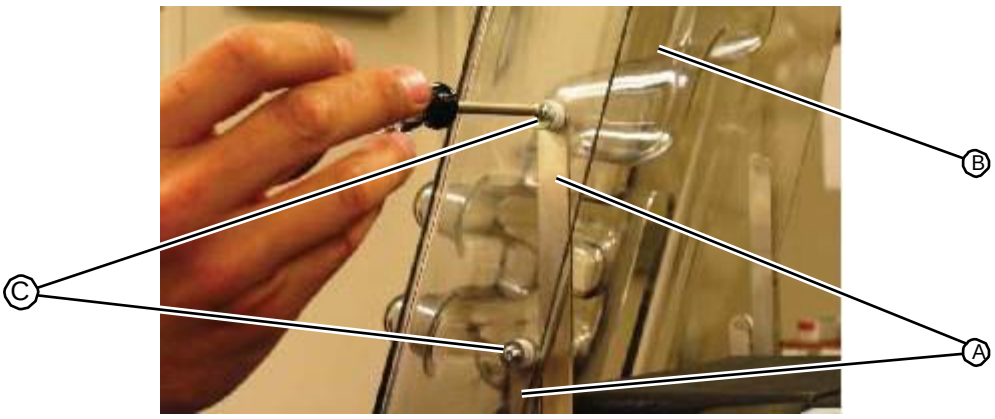
5.4.15.1 Removing the Vacuum Chamber Spring Arm Rod

- T15 torx driver
- 1/8” hex driver

TASK

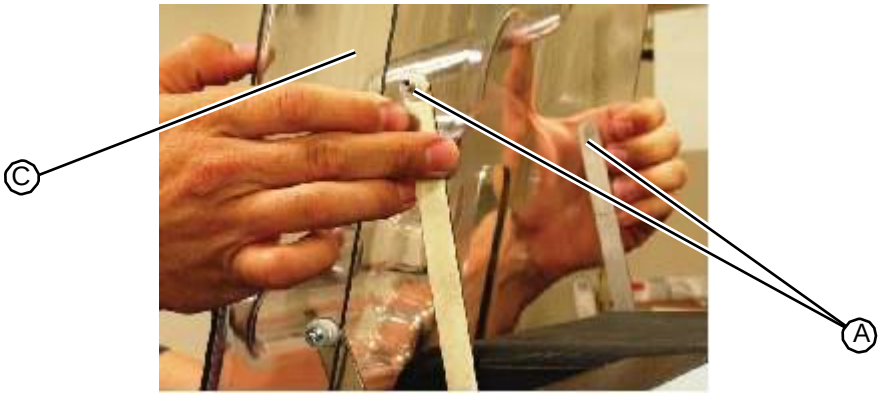
1. Remove the upper hood (see “Removing the Upper Hood” on page 5-3).
2. Raise the chamber door into the open position.
3. Using a T15 torx driver, remove the screws from the two upper hinge arms where they mount to the vacuum chamber door.

Figure 5.174: Removing the fasteners from the upper hinge arms

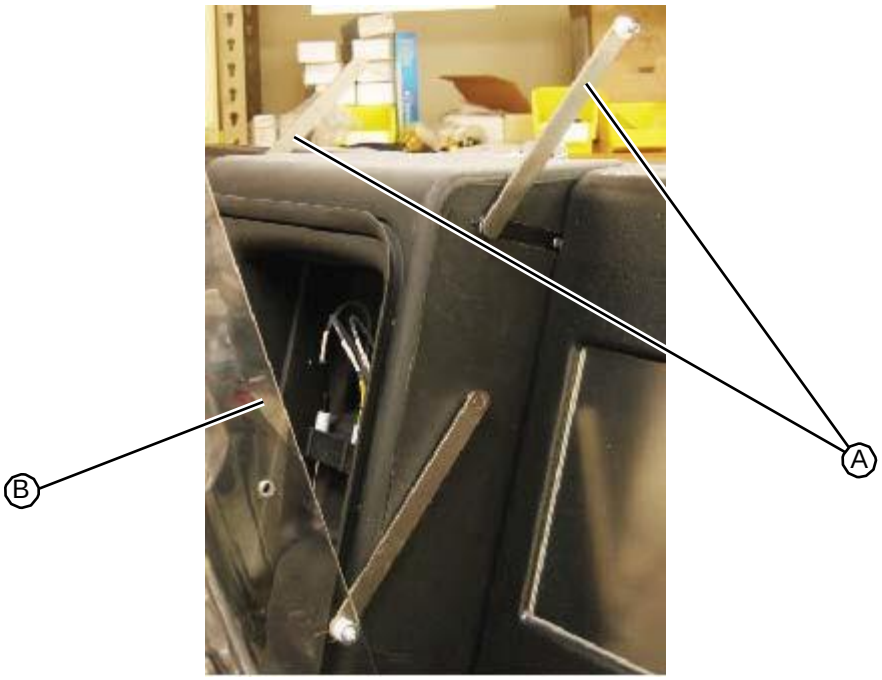


4. Carefully release the door from the upper hinge arms being careful to slowly release the spring pressure of the hinge arms. Save the screws, washers, and round nylon bushings for reinstallation. Leave the bottom hinges attached to the door.

Figure 5.175: Releasing the upper hinge arms



5. Rotate the upper hinge arms so that they are aiming upward/rearward to relieve the spring tension as much as possible. The door can hang on the lower arms, as shown.

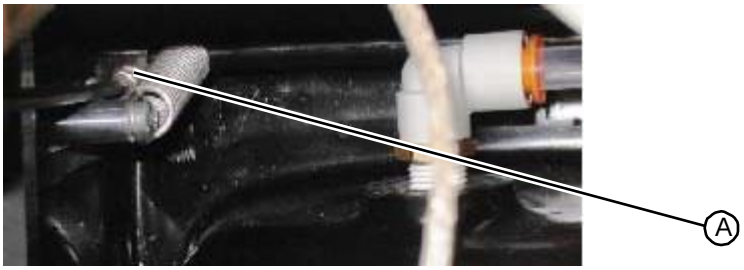


6. Using a 1/8” hex driver, remove the two fasteners holding the extension springs onto each side of the hinge assembly. Ensure that the mounting studs remain tightly fastened as the shoulder screws are removed, tightening them with a wrench, if necessary. Save the shoulder screws for re-assembly.

Figure 5.177: Extension spring fastener

7. Using a long 1/8” hex driver, loosen the fastener on each of the two hex bar clamps.

Figure 5.178: Loosening the fastener on the hex bar clamp



8. Slide the hinge arms out of the chamber slightly until the cross bar is floating free inside the back of the chamber assembly. Be careful to keep the hex bushings in place on the hinge arm hex rods on both sides of each chamber wall.
9. Remove the cross bar from the back of the chamber.
10. Using a 1/8” hex driver, loosen the four set screws on each of the spring arm lever, remove the levers, and set aside.

Figure 5.179: Location of spring arm levers on the spring arm rod

RELATED LINKS:

“Replacing the Vacuum Chamber Spring Arm Rod” on page 5-109
“Fill Station” on page 1-17

5.4.15.2 Replacing the Vacuum Chamber Spring Arm Rod

- T15 torx driver
- 1/8” hex driver

TASK

1. Install the spring arm levers onto the ends of the spring arm rod. Be sure to orient the clamps in the same direction on the rod, as shown below.

Figure 5.180: Location of spring arm levers on the spring arm rod

2. Using a 1/8” hex driver, loosely tighten the set screws against the hex bar so that the clamps can still slide on the bar.
3. Hold the spring arm rod in position inside the chamber and each hinge arm into levers at proper angle as shown in Figure 2 (hinge arm hex in bottom hole of lever with the arm extending in the same direction as the clamp). **Note:** This picture shows the assembly made outside of the chamber for clarity purposes only. Figure 3 shows this step in progress on the chamber.

Figure 5.181: Correct orientation of hinge arm and spring rod assembly

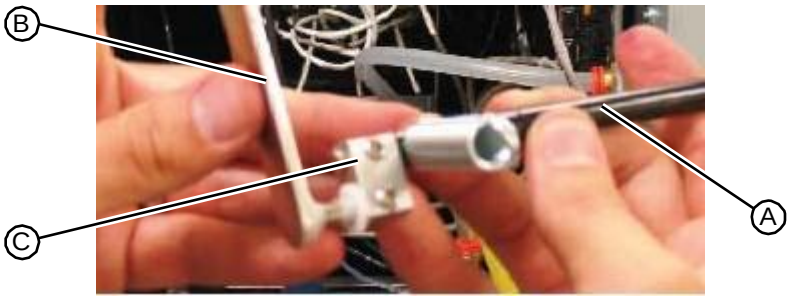
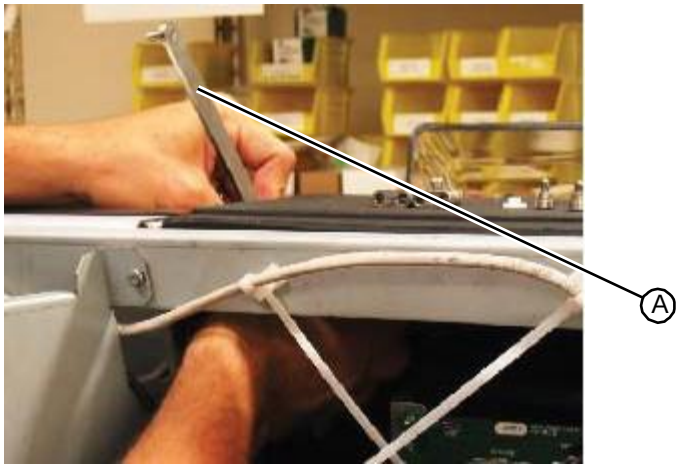
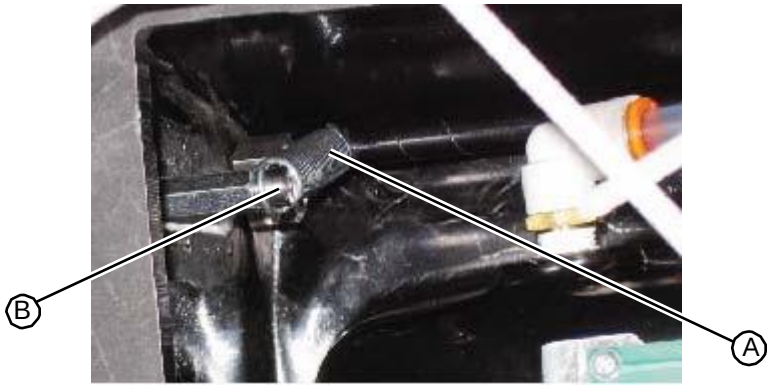


Figure 5.182: Installing the vacuum chamber hinge



4. With the hex arms back in position, rotate the assembly and check for smooth motion. Both arms should travel in parallel and the cross bar should rotate toward the front of the machine as the hinge arms are lowered from the top position downward. Once everything checks out, tighten all four set screws with the 1/8” hex driver, very tight.
5. Reattach the springs using the shoulder screws removed earlier. Tilt the hinge arms back as far as possible to create minimum tension on spring. Push the loop of the end of the spring onto the shoulder portion of screw prior to tightening so it does not get pinched. Check as you tighten to be sure it does not slip off the shoulder.

Figure 5.183: Installing the vacuum chamber hinge



6. Check the operation of the top hinges. You should feel resistance increase as they move forward and downward until roughly horizontal and the arms should move together.
7. Replace the vacuum chamber door (see "Replacing the Vacuum Chamber Door" on page 5-63).

RELATED LINKS:

"Replacing the Vacuum Chamber Spring Arm Rod" on page 5-109
"Fill Station" on page 1-17

5.4.16 Vacuum Chamber Spring Arm Tubing

5.4.16.1 Removing the Vacuum Chamber Spring Arm Tubing

- No tools required

TASK

1. Remove the vacuum chamber spring arm rod (see "Removing the Vacuum Chamber Spring Arm Rod" on page 5-106).
2. Remove the springs from the ends of the spring arm rod.
3. Slide the black nylon tubing off of the spring arm rod and discard.

RELATED LINKS:

"Replacing the Vacuum Chamber Spring Arm Tubing" on page 5-111
"Fill Station" on page 1-17

5.4.16.2 Replacing the Vacuum Chamber Spring Arm Tubing

- No tools required

TASK

1. Slide the vacuum chamber spring arm rod into the black nylon tubing.
2. Insert the springs into the mounting holes on each end of the rod.

3. Replace the vacuum chamber spring arm rod (see "Replacing the Vacuum Chamber Spring Arm Rod" on page 5-109).

RELATED LINKS:

"Removing the Vacuum Chamber Spring Arm Tubing" on page 5-111
"Fill Station" on page 1-17

5.4.17 Vacuum Chamber Spring Lever

5.4.17.1 Removing the Vacuum Chamber Spring Lever

- T15 torx driver
- 1/8" hex driver

TASK

1. Remove the upper hood (see "Removing the Upper Hood" on page 5-3).
2. Remove the vacuum chamber spring arm rod (see "Removing the Vacuum Chamber Spring Arm Rod" on page 5-106).
3. Using a 1/8" hex driver, loosen the four set screws on each of the spring arm lever.

Figure 5.184: Location of spring arm levers on the spring arm rod

4. Remove the spring arm levers and return to RIS.

RELATED LINKS:

"Replacing the Vacuum Chamber Spring Lever" on page 5-112
"Fill Station" on page 1-17

5.4.17.2 Replacing the Vacuum Chamber Spring Lever

- T15 torx driver
- 1/8" hex driver

TASK

1. Apply Loctite 242 to the four set screws in the store parts kit and lightly thread two into each hex clamp, being sure the leave clearance for the spring arm rod to slide into the lever.
2. Install the spring arm levers onto the ends of the spring arm rod. Be sure to orient the clamps in the same direction on the rod, as shown below.

Figure 5.185: Location of spring arm levers on the spring arm rod

3. Using a 1/8" hex driver, tighten the four set screws on each of the spring arm lever.
4. Replace the spring arm rod (see "Replacing the Vacuum Chamber Spring Arm Rod" on page 5-109).
5. Replace the vacuum chamber door (see "Replacing the Vacuum Chamber Door" on page 5-63).

RELATED LINKS:

"Removing the Vacuum Chamber Spring Lever" on page 5-112
"Fill Station" on page 1-17

5.4.18 Ink Drawer PC Board

5.4.18.1 Removing the Ink Drawer PC Board

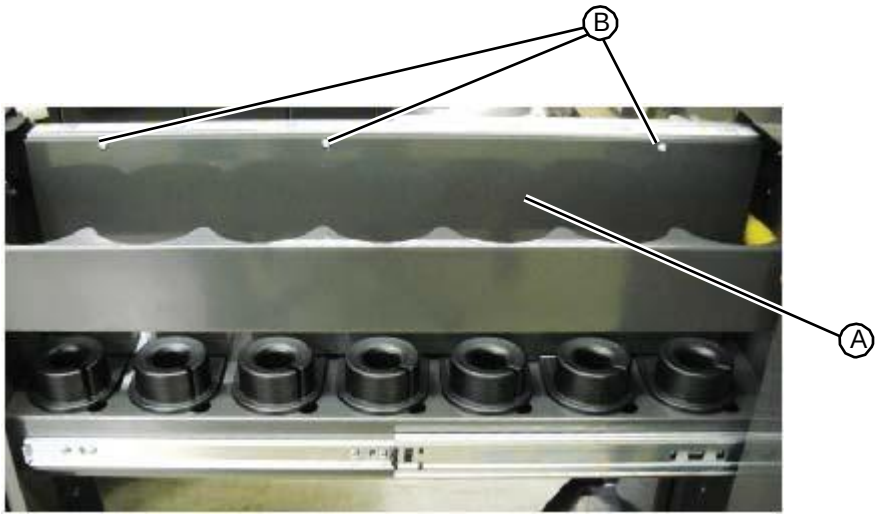
Each ink drawer contains a PC board the is connected to the main I/O PC board by a Cat5 patch cable. The ink drawer PC board contains connectors for each of the ink nests within the drawer and is located on the underside of the top of the ink drawer.

- T15 torx driver

TASK

1. Open the ink drawer.
2. Using a T15 torx driver, remove the three fasteners that secure the panel to the top of the drawer.

Figure 5.186: Fasteners that secure the panel to the top of the ink drawer



3. Remove the plate from the drawer.
4. Looking up under the top of the drawer, unplug the seven ink nest cables connected to the ink drawer PC board.

Figure 5.187: Location of the ink drawer PC board

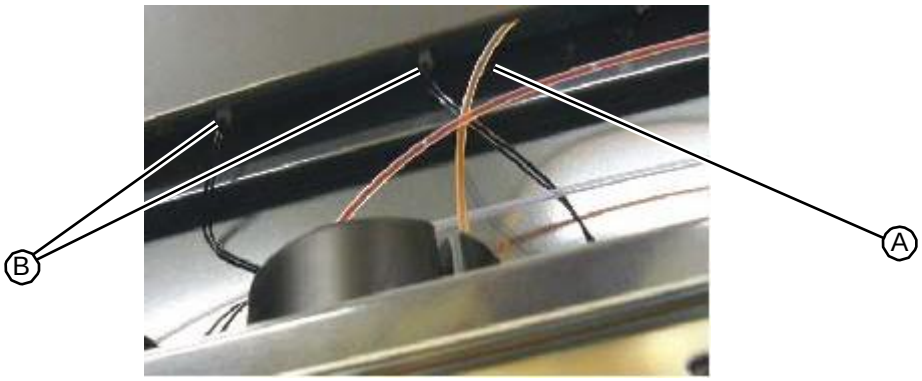
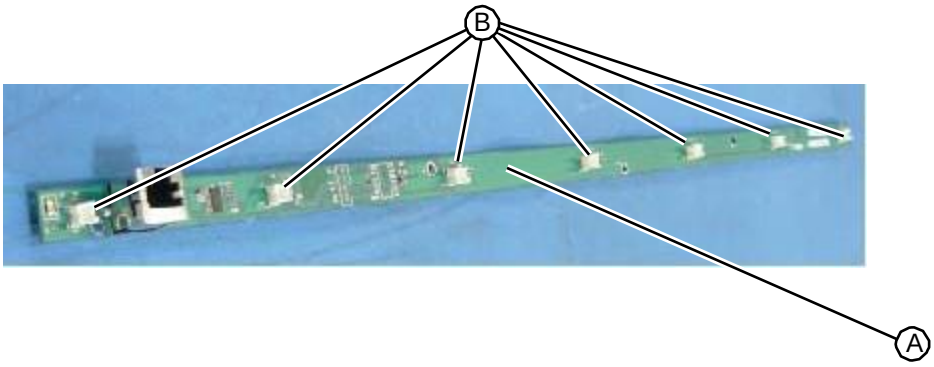
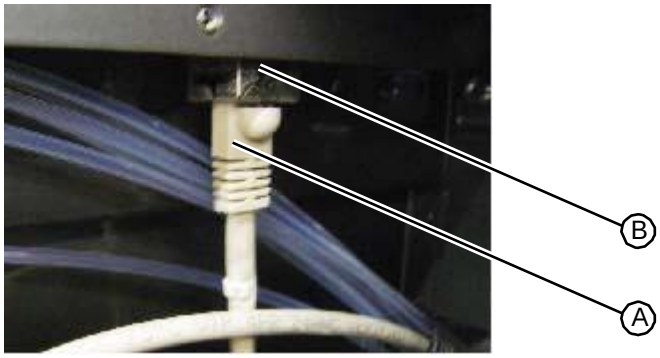


Figure 5.188: Ink nest connectors on the ink drawer PC board



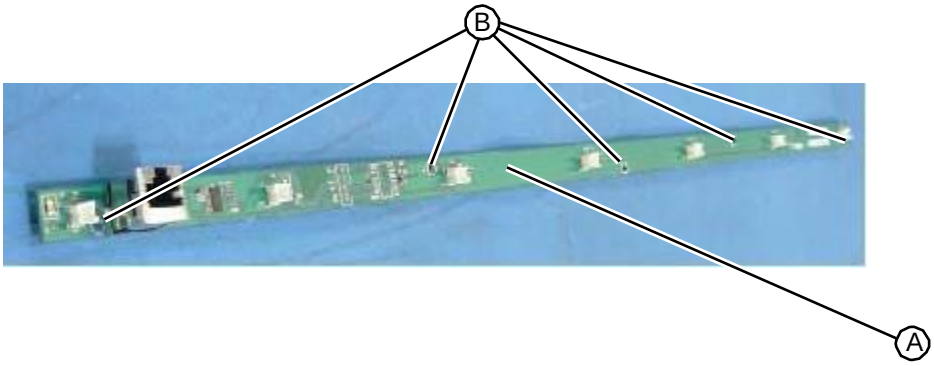
5. At the back of the ink drawer PC board, unplug the CAT5 cable that connects to the main I/O PC board.

Figure 5.189:CAT5 cable connector on the ink drawer PC board



6. The ink drawer PC board is secured to the to top of the ink drawer by posts that snap into grommets on the board. To remove the board, carefully pop the grommets off their mounting pegs.

Figure 5.190: Location of mounting grommets on the ink drawer PC board



7. Remove the ink drawer PC board and return to RIS.

RELATED LINKS:

"Replacing the Ink Drawer PC Board" on page 5-115
"Fill Station" on page 1-17

5.4.18.2 Replacing the Ink Drawer PC Board

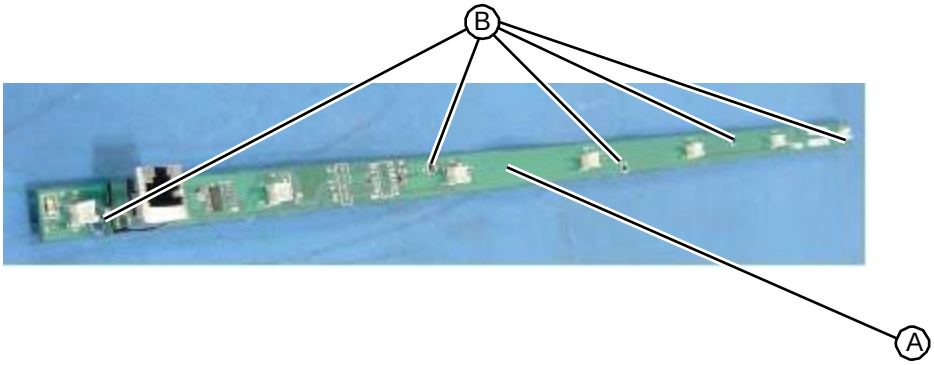
Each ink drawer contains a PC board the is connected to the main I/O PC board by a Cat5 patch cable. The ink drawer PC board contains connectors for each of the ink nests within the drawer and is located on the underside of the top of the ink drawer.

- T15 torx driver

TASK

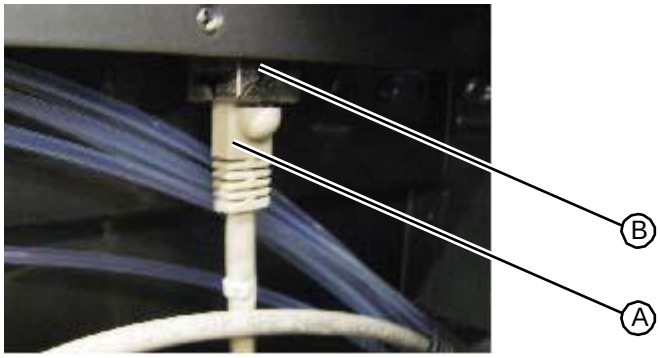
1. Position the ink drawer PC board so that the connectors are facing down and the CAT5 connector is facing the back of the drawer.
2. Carefully pull pop the grommets onto their mounting pegs.

Figure 5.191: Location of mounting grommets on the ink drawer PC board



3. At the back of the ink drawer PC board, plug the CAT5 cable from the main I/O PC board into its connector.

Figure 5.192:CAT5 cable connector on the ink drawer PC board



4. Looking up under the top of the drawer, plug the seven ink nest cables into their connectors on the ink drawer PC board.

Figure 5.193: Location of the ink drawer PC board

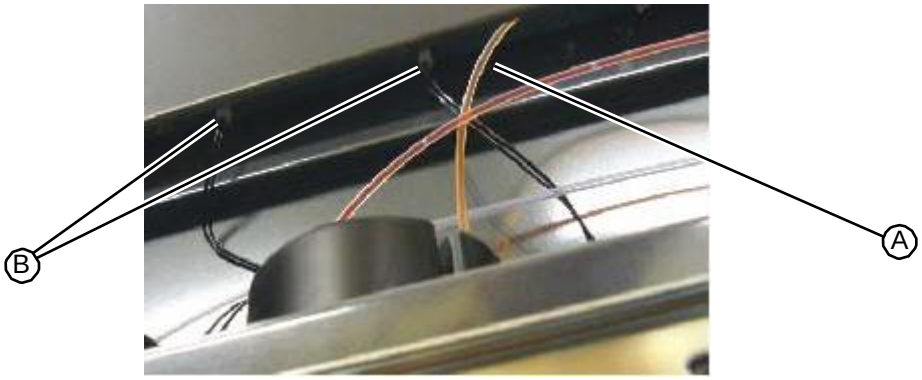
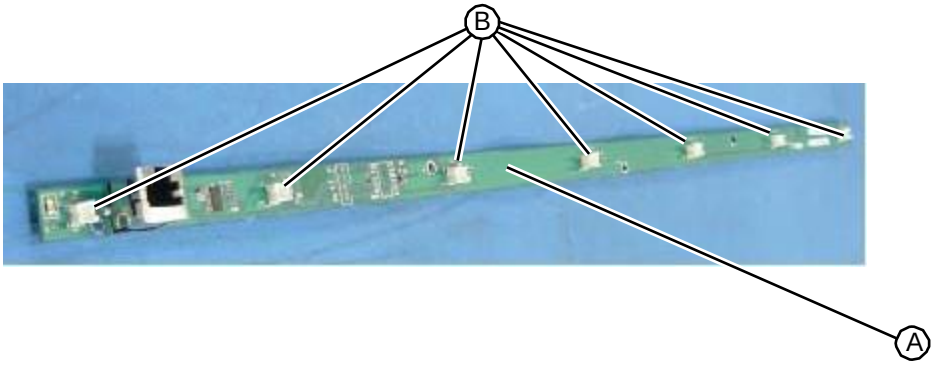
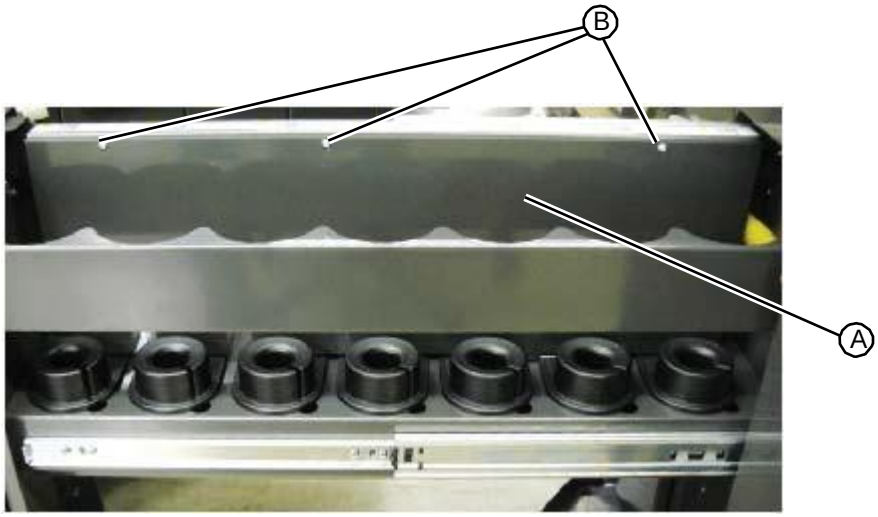


Figure 5.194: Ink nest connectors on the ink drawer PC board



5. Align the mounting holes on the ink drawer housing with the mounting holes in the drawer frame.
6. Using a T15 torx driver, insert and tighten the three fasteners that secure the housing to the top of the drawer.

Figure 5.195: Fasteners that secure the housing to the top of the ink drawer



RELATED LINKS:

"Removing the Ink Drawer PC Board" on page 5-113
"Fill Station" on page 1-17

5.4.19 Vacuum Chamber Injector and Door Sensors

5.4.19.1 Removing the Vacuum Chamber Injector and Door Sensors

Five cylindrical proximity sensors are mounted to the back of the vacuum chamber assembly and connect to the vacuum chamber PC board. Four of the sensors detect the presence of the four ink injectors in their holsters within the vacuum chamber. The fifth sensor detects whether the vacuum chamber door is opened or closed.

NOTE:

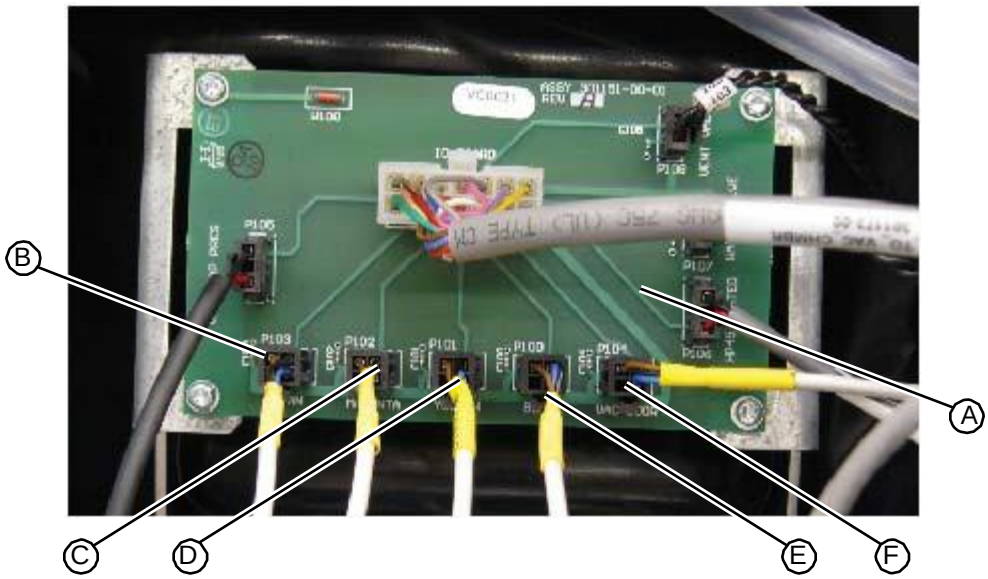
There is only one sensor for the four ink injectors and the latest models of the unit. For upgraded models, the other three sensors can be used to replace a worn out sensor.

- 1/4" open end wrench

TASK

1. Remove the upper hood (see "Removing the Upper Hood" on page 5-3).
2. Unplug the cable for the sensor you want to remove.

Figure 5.196: Vacuum chamber sensor connections on the vacuum chamber PC board



3. Using a 1/4" open end wrench loosen the nut that secures the sensor.

Figure 5.197: Ink sensor locations

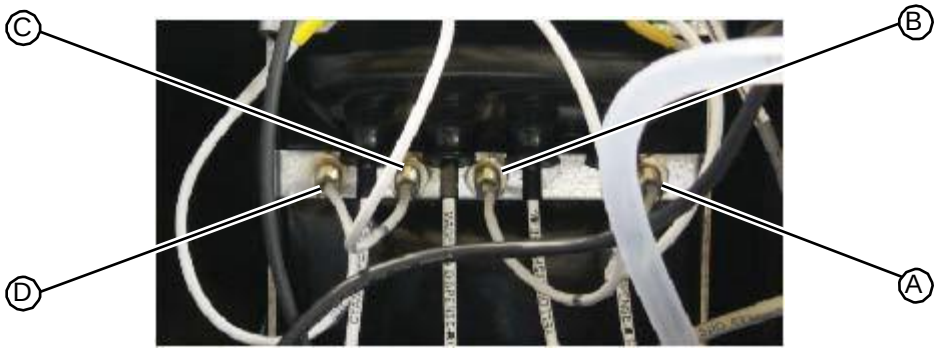
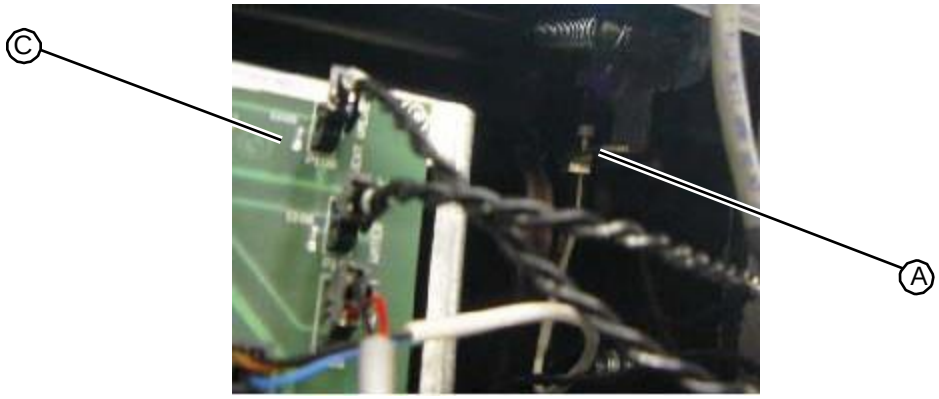


Figure 5.198: Vacuum chamber door sensor location



4. Discard the reed sensor.

RELATED LINKS:

"Replacing the Vacuum Chamber Injector and Door Sensors" on page 5-119
"Fill Station" on page 1-17

5.4.19.2 Replacing the Vacuum Chamber Injector and Door Sensors

Five cylindrical proximity sensors are mounted to the back of the vacuum chamber assembly and connect to the vacuum chamber PC board. Four of the sensors detect the presence of the four ink injectors in their holsters within the vacuum chamber. The fifth sensor detects whether the vacuum chamber door is opened or closed.

NOTE:

On the latest models of the unit, only one sensor is used for the four ink injectors. For upgraded models, the other three sensors can be used to replace a worn out sensor.

- 1/4" open end wrench

TASK

1. Using a 1/4" open end wrench insert the sensor into its mounting hold and tighten the nut that secures it to the vacuum chamber.

Figure 5.199: Ink sensor locations

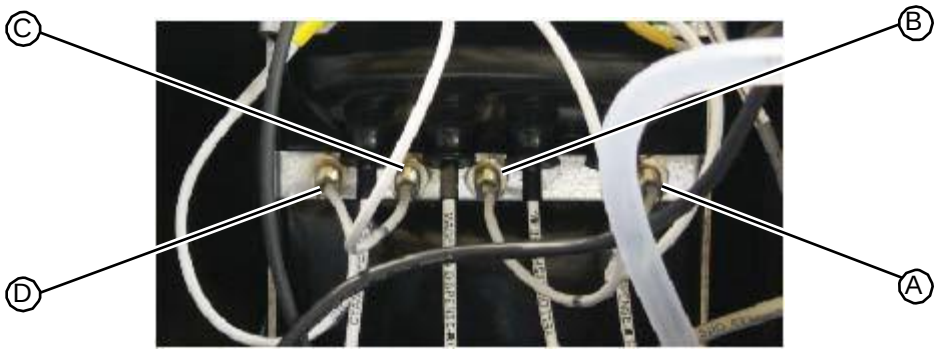
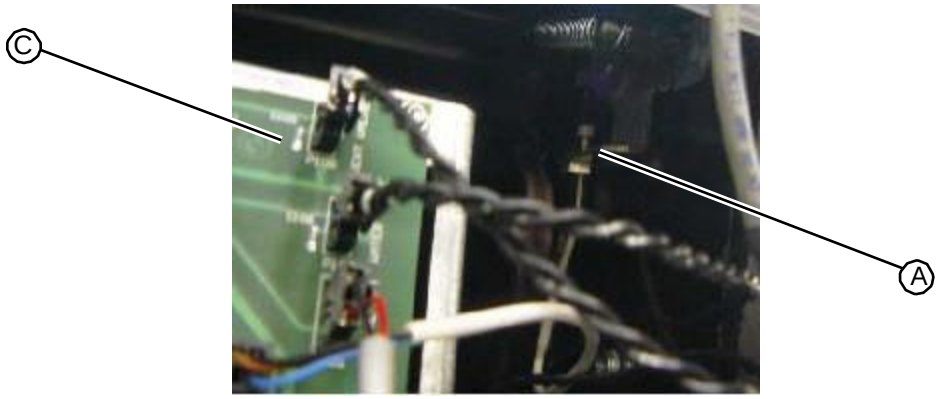
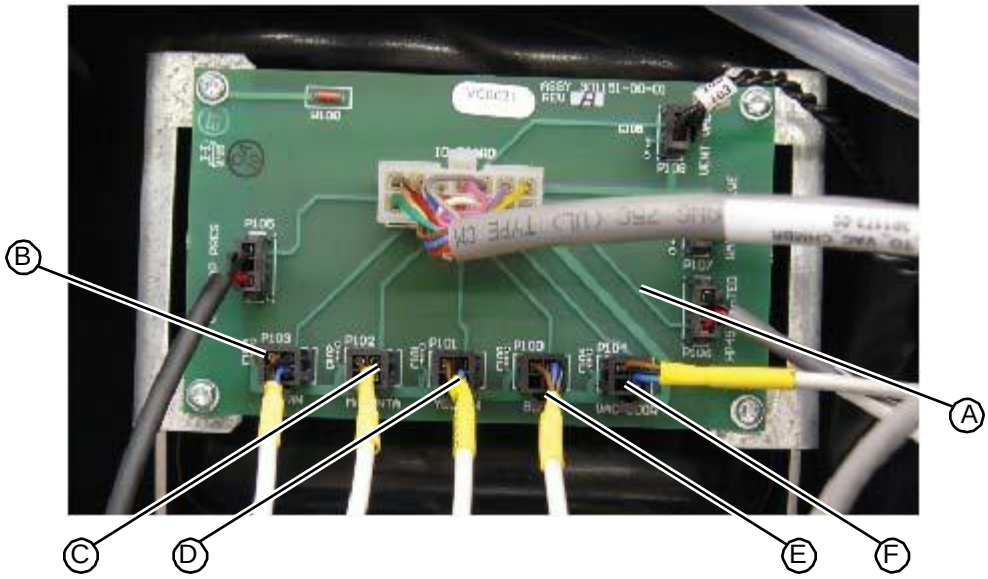


Figure 5.200: Vacuum chamber door sensor location



2. Plug the sensor cable into the appropriate connector on the vacuum chamber PC board.

Figure 5.201: Vacuum chamber sensor connections on the vacuum chamber PC board



3. Replace the upper hood (see "Replacing the Upper Hood" on page 5-4).

RELATED LINKS:

"Removing the Vacuum Chamber Injector and Door Sensors" on page 5-117
"Fill Station" on page 1-17

5.4.19.3 Replacing the Injector Proximity Sensor on Newer Model Units

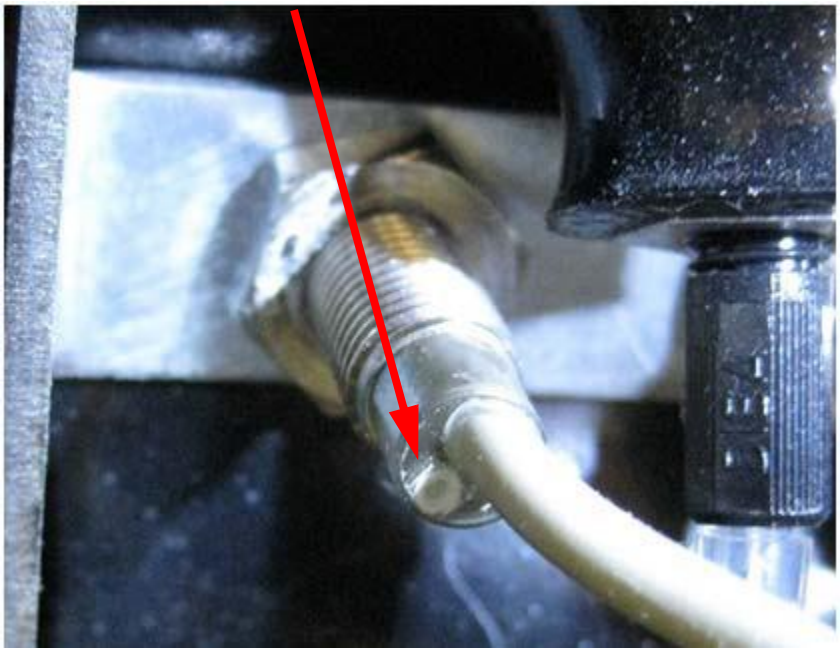
- Make sure the machine is powered ON while performing this procedure.

TASK

1. Remove the existing sensor.

2. Screw the new sensor into place by hand until the sensor head just hits bottom.
3. Plug into the PCA. The light at the back of the sensor should be off.
4. Note the position of the small white circle on the back of the sensor.

Figure 5.202: Small white circle on back of sensor



5. Turn the sensor by hand counter-clockwise about ¾ turn, using the white circle as a guide.
6. Hand tighten the nut while keeping the sensor in place, then use a wrench or pliers to continue tightening until firmly tightened.

NOTE

The light on the back of the sensor should NOT turn on while tightening. If the light does come on, and the injector is not in the holster, the sensor is over tightened - loosen the nut and repeat the procedure.

7. Once the nut is firmly tightened, put the injector back into the holster and confirm that the light comes on as shown below:

8. If the sensor does not turn off when the injector is removed, or does not turn on when the injector is inserted, repeat the adjustment.

NOTE

The injector holster is held in place by the proximity sensors and nuts. The vacuum chamber integrity is affected by the tightness of the proximity sensor nuts, and the ability for the chamber to hold a vacuum must be tested in the Tech Pane (Chamber Leak Test - Field Service tab). If the chamber does not hold a vacuum, check all sensor nuts and tighten if necessary.

5.4.20 Ink Nest Assembly

5.4.20.1 Removing the Ink Nest Assembly

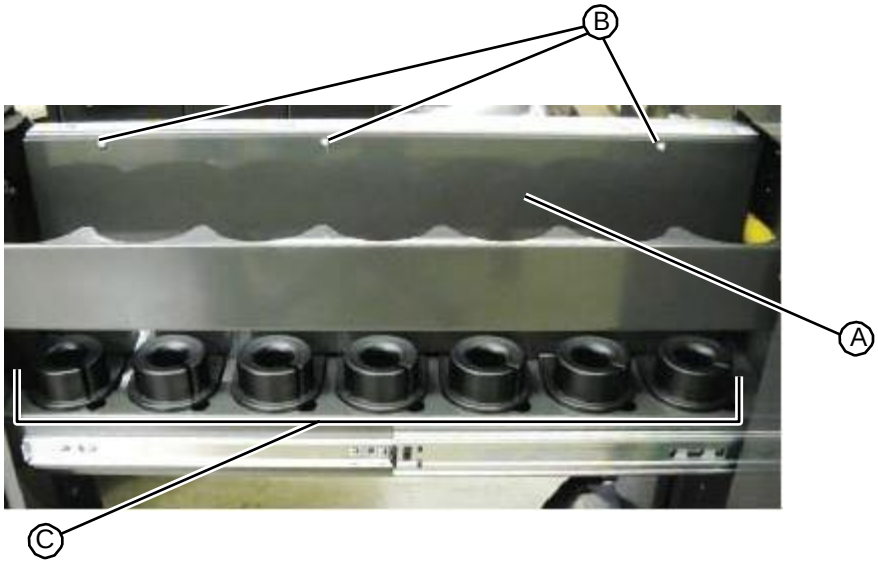
Each ink drawer contains seven ink nests that hold ink bottles used during the fill process. Each ink nest has a cable connection to the ink drawer PC board and an ink tubing connection to the fluid distribution manifold.

- T15 torx driver
- Flat head screwdriver

TASK

1. Open the ink drawer.
2. Using a T15 torx driver, remove the three fasteners that secure the panel to the top of the drawer.

Figure 5.204: Fasteners that secure the panel to the top of the ink drawer



3. Remove the plate from the drawer.
4. Looking up under the top of the drawer, unplug the cable connected to the ink drawer PC board for the ink nest you are going to remove.

Figure 5.205: Ink nest connections on the ink drawer PC board

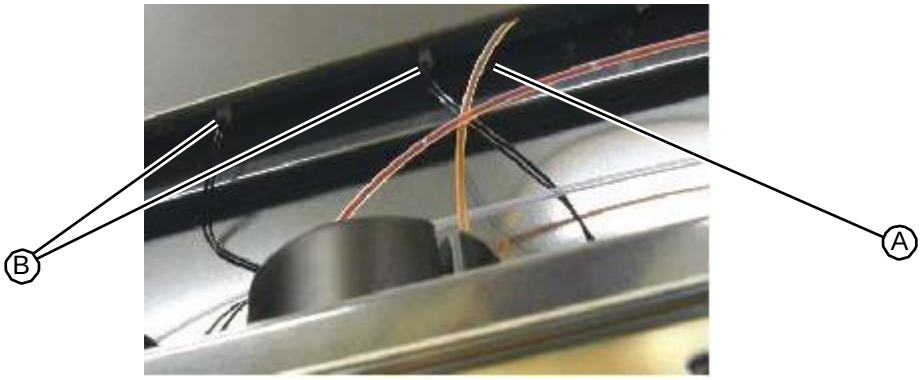
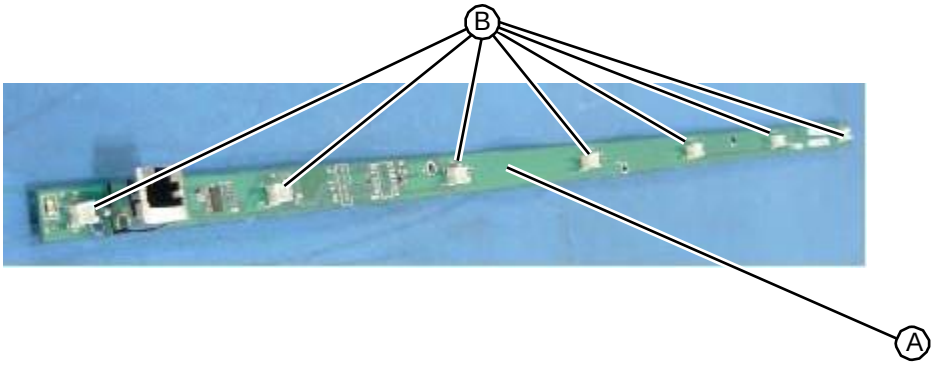
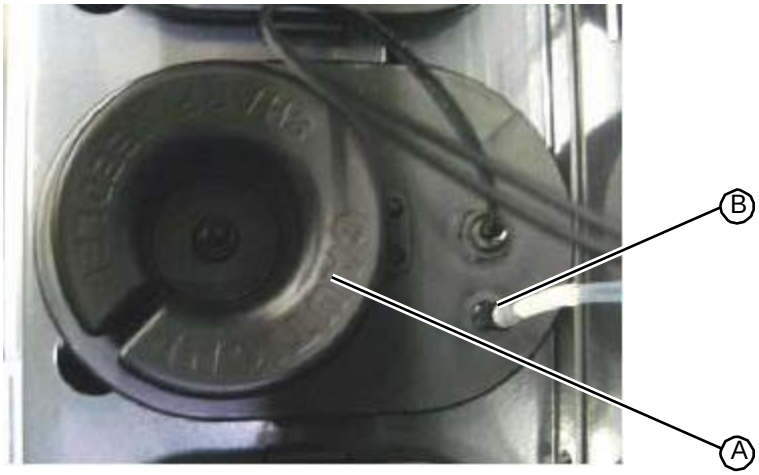


Figure 5.206: Ink nest connectors on the ink drawer PC board

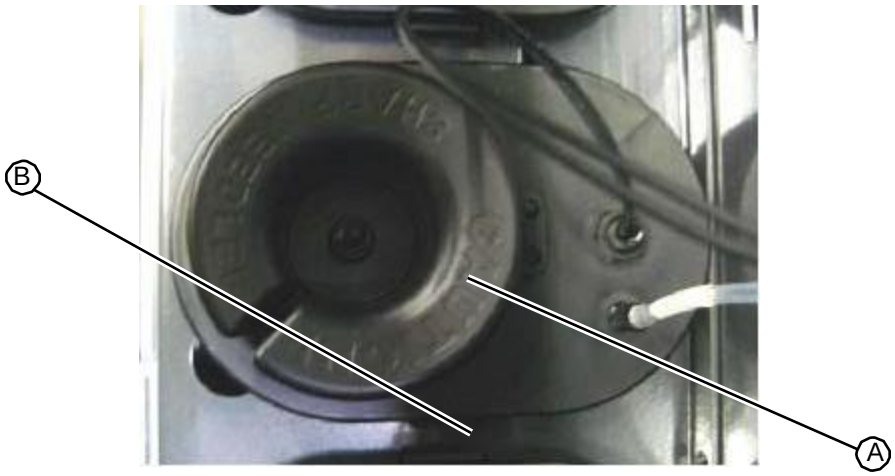


5. Disconnect the ink tubing connected to the top of the ink nest.



6. Using the tip of a flat head screwdriver, gently press in on the mounting tab that secures the ink nest to the drawer.

Figure 5.208: Location of ink nest mounting tab



7. Remove the ink nest from the drawer and discard.

RELATED LINKS:

"Replacing the Ink Nest Assembly" on page 5-124
"Fill Station" on page 1-17

5.4.20.2 Replacing the Ink Nest Assembly

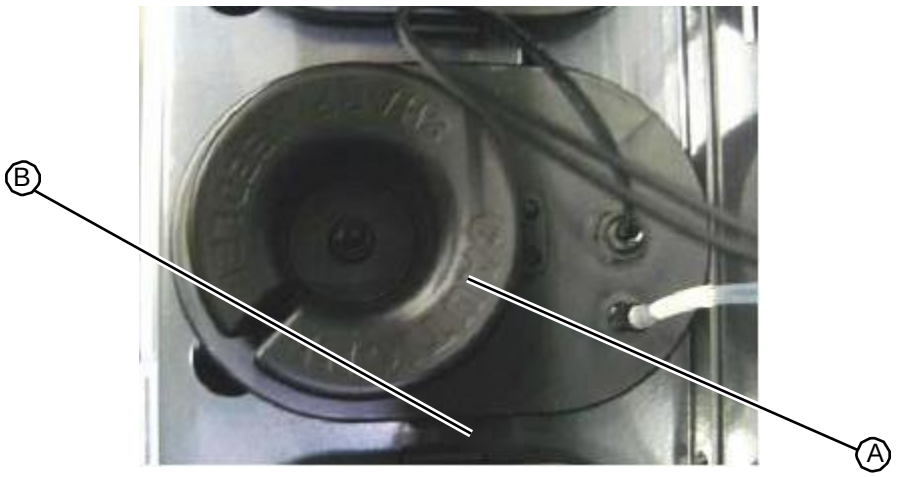
Each ink drawer contains seven ink nests that hold ink bottles used during the fill process. Each ink nest has a cable connection to the ink drawer PC board and an ink tubing connection to the fluid distribution manifold.

- T15 torx driver
- Flat head screwdriver

TASK

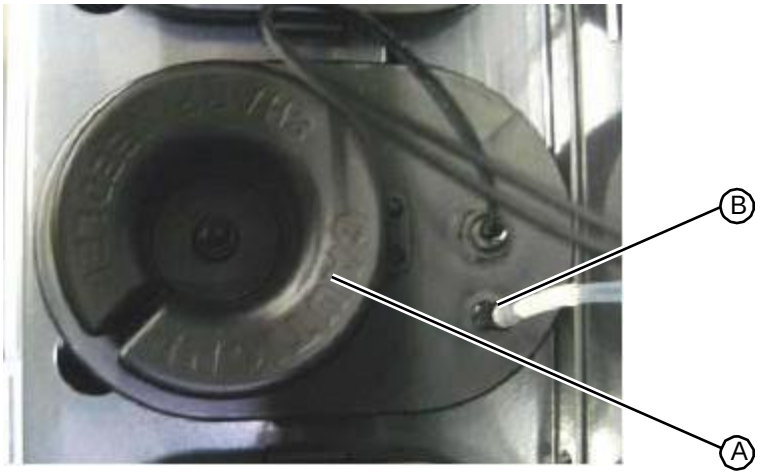
1. Place the ink nest into its drawer slot and press down to engage the mounting tab on the side of the assembly.

Figure 5.209: Location of ink nest mounting tab



2. Connect the ink tubing to the top of the ink nest.

Figure 5.210: Ink tubing connected to the ink nest



3. Looking up under the top of the drawer, plug the ink nest cable into its connector on the ink drawer PC board.

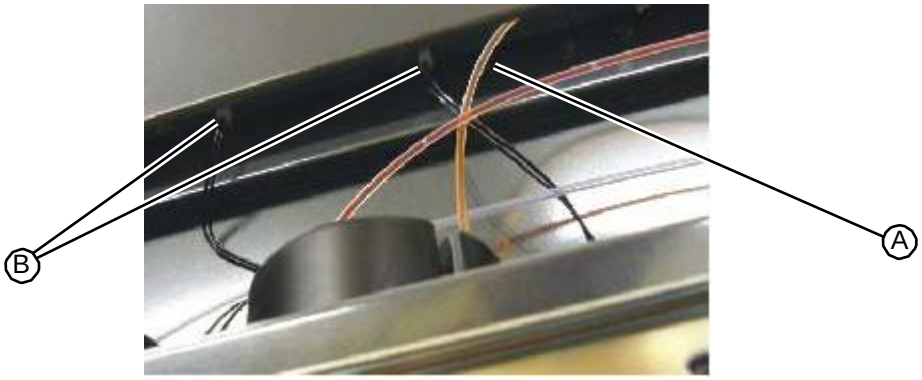
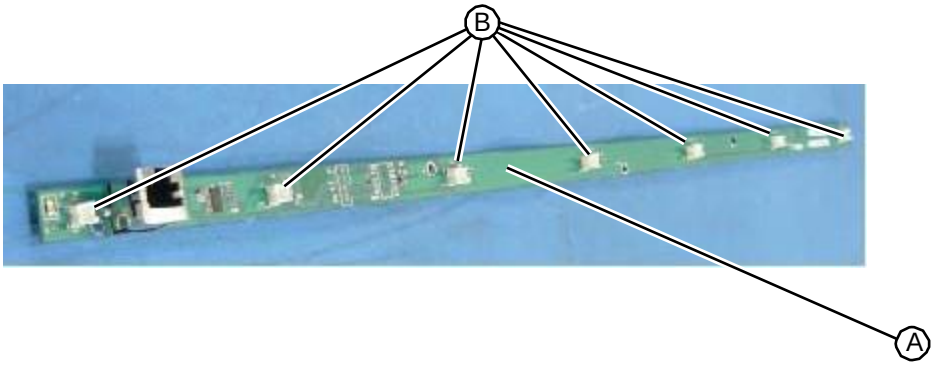
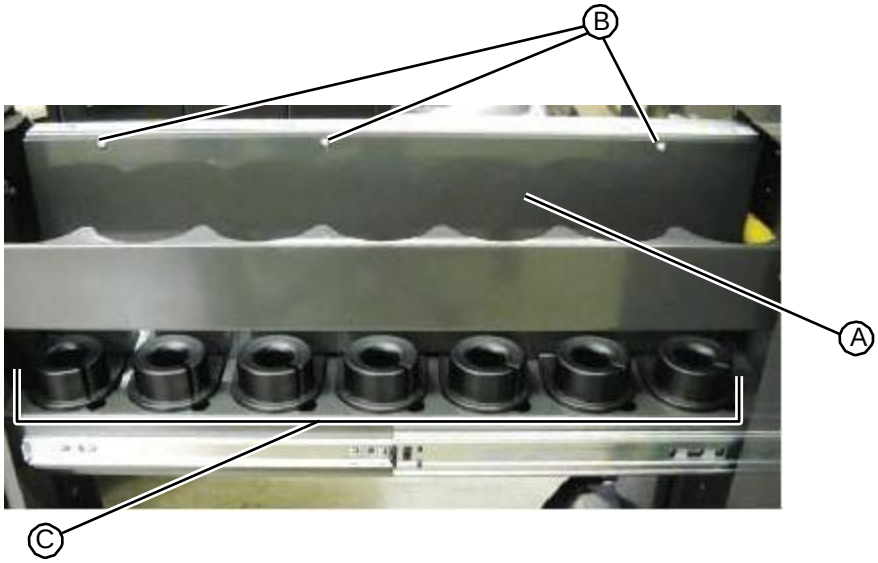


Figure 5.212: Ink nest connectors on the ink drawer PC board



4. Align the mounting holes on the ink drawer housing with the mounting holes in the drawer frame.
5. Using a T15 torx driver, insert and tighten the three fasteners that secure the housing to the top of the drawer.

Figure 5.213: Fasteners that secure the panel to the top of the ink drawer



RELATED LINKS:

"Removing the Ink Nest Assembly" on page 5-122

"Fill Station" on page 1-17

5.4.21 Tubing Connector Replacement

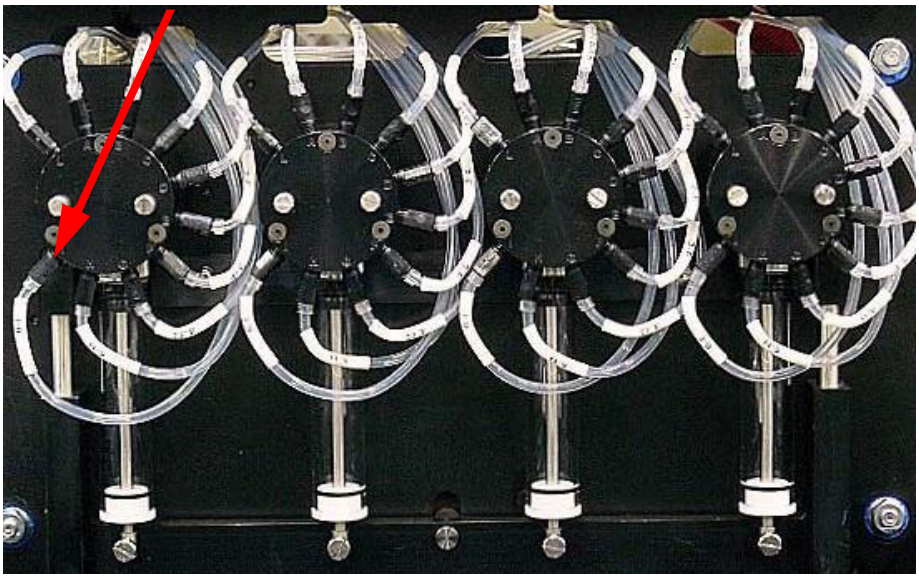
During removal and replacement procedures, or when performing system maintenance, a tubing connector may be damaged or missing parts may be noticed. In these cases, the tubing connector should be replaced using the following procedure.

- Ferrules (small, white, plastic, funnel-shaped)
- Fittings (light-brown, threaded)
- Black plastic cutter

Figure 5.214: Tubing connector required parts

TASK

1. Remove the work surface.
2. Start at the first valve and unscrew an existing fitting from the valve. If the fitting is broken, and parts remain in the valve, use a small scribe, needle nose pliers, etc., to remove the parts.



3. When removing a tubing connector, caution must be taken to prevent damage to the end of the connector. After unscrewing the connector, gently rotate the whole tubing assembly counterclockwise as you pull the tubing out to prevent damage to the flanged end, the washers, and o-ring.

Figure 5.216: Valve flanged end, washers, and o-ring

4. Push fitting back along tube to expose a clean part that has no kinks or damage.

Figure 5.217: Valve fitting pushed back

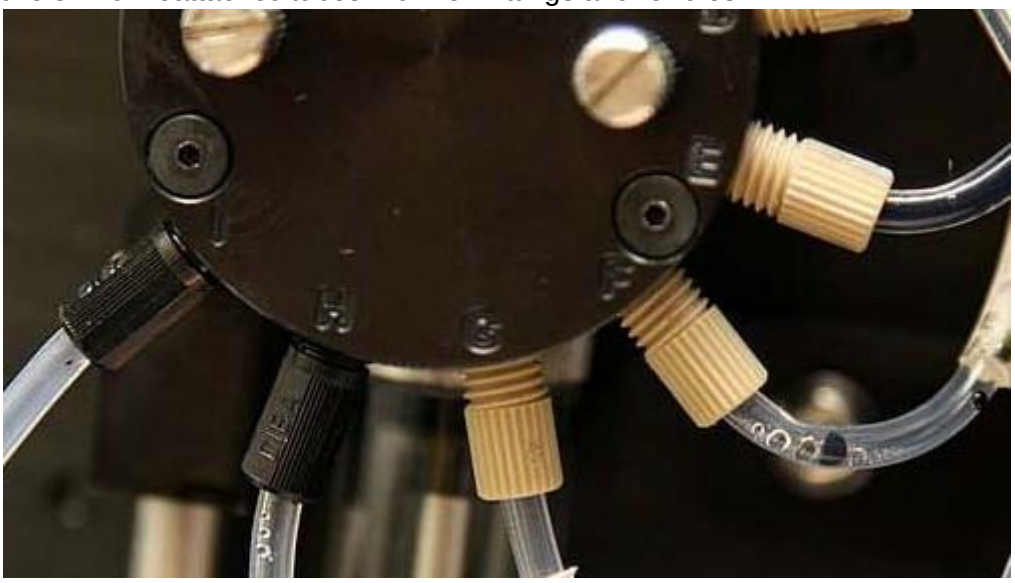
5. Using the plastic cutter, cut tube carefully and as straight as possible.

Figure 5.218: Cutting tube with cutter

6. Remove old fitting and dispose of all old parts.
7. Place new fitting onto tubing, thread side down (toward end).
8. Place ferrule onto end of tube, with the wide end positioned towards the end of the tube. Make sure that the ferrule is flush with the end of the tube.

9. Check to make sure there is an o-ring in place, if required, for that port.
10. Slide tubing back into valve and tighten fitting finger tight; be careful not to cross thread!

Figure 5.220: Reattached tubes with new fittings and ferrules



11. Return cutter and unused fittings and ferrules to RIS.

RELATED LINKS:

"Removing the Work Surface" on page 5-11