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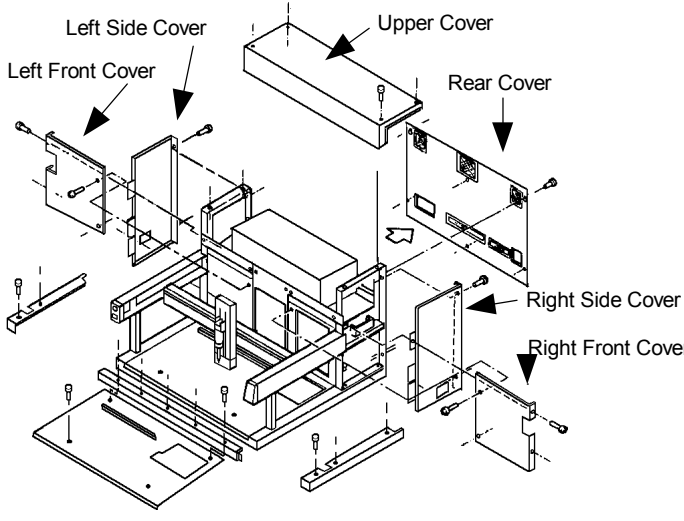


Figure 5-1. FPC Cover Locations

REMOVAL AND REPLACEMENT

AC POWER SUPPLY ASSEMBLY

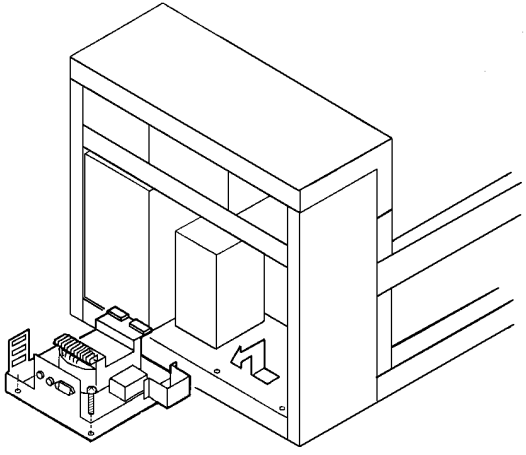


Figure 5-2. AC Power Supply Removal

1. Power off instrument and unplug power cable from wall outlet.
2. Remove F-Link power connection.
3. Remove RS-232 conversion cable from FPC RS-232 port.
4. Remove the Rear Cover by removing the six screws holding it in place. It is not necessary to completely remove the upper right and upper left screw; only loosen them so that the cover may be lifted up and over the two screws. Refer to Figure 5-1.
5. Remove the three connectors from P2, P3, at the left side of the AC Power Supply, and one going to the fan directly above the assembly.
6. Loosen the four screws attaching the Power Supply to the base of the instrument.
7. Remove the AC Power Supply by sliding it to the left and up over the screws. Once the Power Supply is above the screws, move it to the left until the power switch is clear, then straight back.
8. To replace AC Power Supply, perform steps 1 through 7 in reverse order. Refer to Figure 5-2.

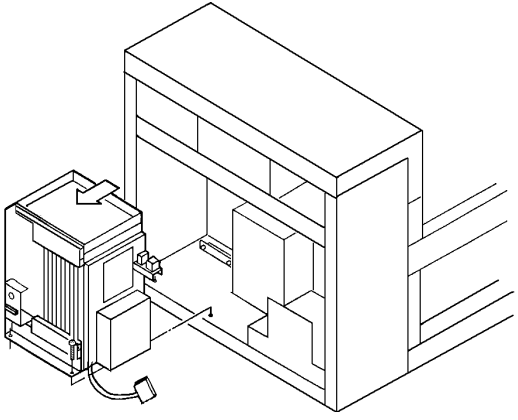


Figure 5-3. Main Control Assembly Removal

MAIN CONTROL ASSEMBLY

1. Power off instrument and unplug power cable from wall outlet.
2. Remove F-Link power connection.
3. Remove RS-232 conversion cable from the FPC RS-232 Port.
4. Remove the Rear Cover by removing the six screws holding it in place. It is not necessary to completely remove the upper right and upper left screw, but only loosen them so the cover may be lifted up and over the two screws.
5. Remove the two screws mounting the Control Unit Assembly to the base of the instrument.
6. Remove the Right Front Cover by removing the two screws.
7. Remove cables from J2, J3, J4, and J5 of the Main Control Assembly Motherboard.
8. Disconnect the connector that goes to the Power Fail Detected Board (P4).
9. Disconnect the connector at the AC Power Supply Assembly coming from the Main Control Unit Assembly (P2). Open the cable clamp to free this cable.
10. Slide the assembly straight back and out of the instrument.

11. To replace Main Control Assembly, follow steps 1 through 10 in reverse order (refer to Figure 5-3).

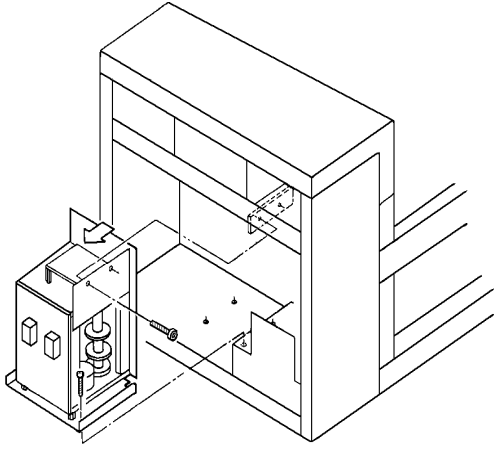


Figure 5-4. Pump Assembly Removal

PUMP ASSEMBLY

1. Power off the instrument and unplug the power cable from the wall outlet.
2. Remove F-Link power connection.
3. Remove RS-232 Conversion Cable from the FPC RS-232 port.
4. Remove the Main Control Assembly from the instrument to gain access to the screws.
5. Disconnect the tubing from the syringes and electromagnetic valve.
6. Remove the syringes (refer to page 5-16).
7. Remove the Valve Assembly.
8. Disconnect the Tip Jamming Switch Cable from the front of the Pump Assembly.
9. Remove the valve cover.

CAUTION
Extreme care should be used so as not to break the ports on the electromagnetic valve or the tubing holder spring when removing the valve.

10. Remove the two, valve mounting screws.

11. Disconnect the cable (P8) going to the valve and remove the valve from the Pump Assembly. Set the valve in a safe place so that the ports cannot be damaged.
12. Disconnect the two connectors (P9 and P10) on the back of the Pump Assembly.
13. Remove P3 from the Pressure Sensor Board.
14. Remove the Valve Connection Tubing (the tubing from the Diluent Syringe to the Valve) from the Pump Assembly.
15. Remove the two mounting screws at the bottom rear of the Pump Assembly.
16. Loosen the two screws at the bottom of the Pump Assembly.
17. Remove the two Allen screws mounting the Pump Assembly to the bracket above the assembly.
18. Slide the Pump Assembly straight back and out of the FPC.
19. To replace the Pump Assembly, follow steps 1 through 18 in reverse order. Refer to Figure 5-4.

PULSE MOTOR DRIVER ASSEMBLY

1. Power off the instrument and unplug the power cable from the wall outlet.
2. Remove F-Link power connection.
3. Remove the RS-232 conversion cable from the FPC RS-232 port.
4. Remove the Rear Cover by removing the six screws holding it in place. It is not necessary to completely remove the upper right and upper left screws, but loosen them so the cover may be lifted up and over the two screws.
5. Remove the Upper Cover by removing the four mounting screws on top.
6. Remove the Pulse Motor Assembly Fan Connector.
7. Remove the Pulse Motor Driver Assembly Cover by removing the six screws.
8. Disconnect the seven connectors (P1 through P7) at the Pulse Motor Driver Assembly.
9. Remove the Pulse Motor Driver Assembly by removing the eight screws mounting it to the instrument.
10. To replace Pulse Motor Driver Assembly, perform steps 1 through 9 in reverse order (refer to Figure 5-5).

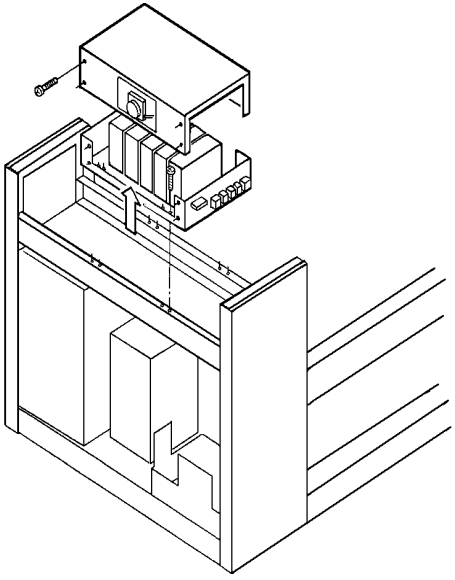


Figure 5-5. Pulse Motor Driver Assembly Removal

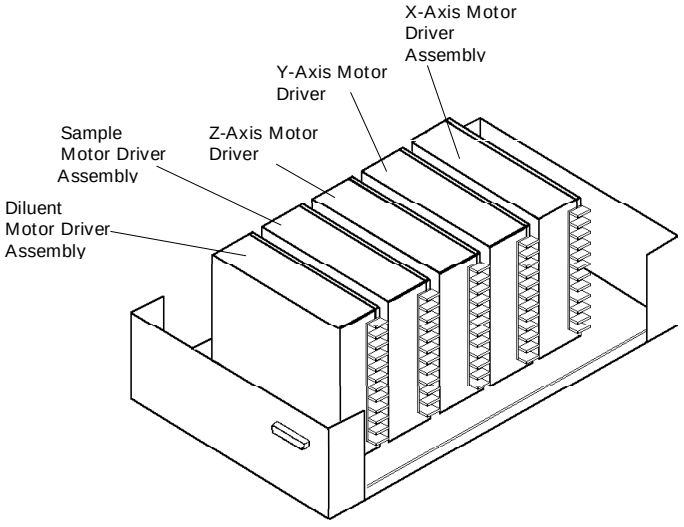
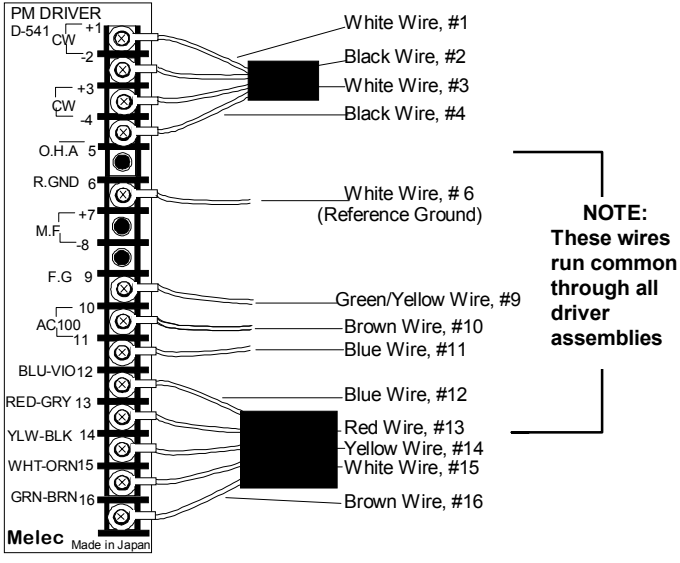


Figure 5-6. Pulse Motor Driver Unit

SINGLE PULSE DRIVER ASSEMBLY

1. Disconnect the wires connected to the Pulse Driver Assembly being replaced. Refer to Figure 5-7.



Back View of a Single Assembly Driver

Figure 5-7. Cable Connections For Pulse Motor Driver

2. Remove three screws securing the individual motor driver assembly to the base plate of the Pulse Motor Driver Unit as shown in Figure 5-8.

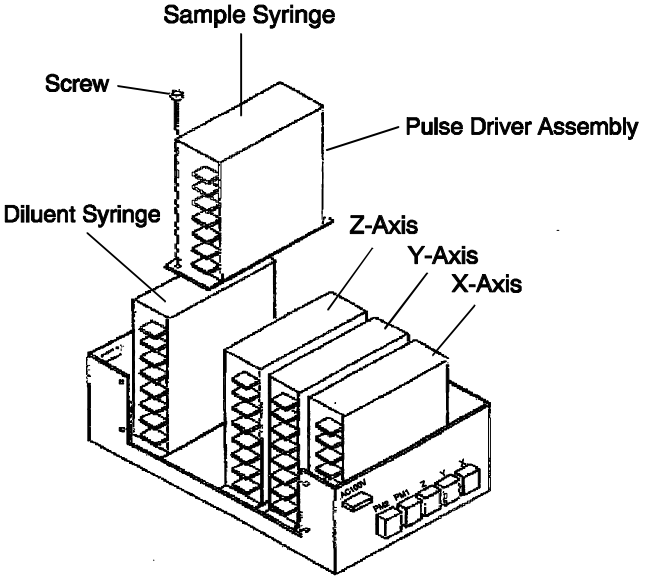


Figure 5-8. Pulse Driver Assembly Removal

3. Set the Drive Select Switch of the motor driver to the positions shown in Figure 5-9.

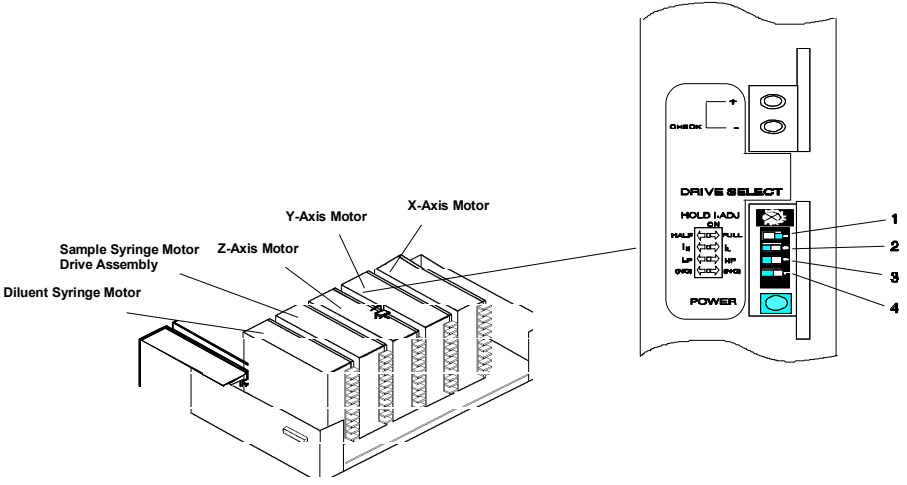


Figure 5-9. Dip Switch Settings

[DRIVE SELECT] Switch Settings

Unit	Axis	1 HALF ←→FULL	2 IH ←→ IL	3 LP ←→HP	4 (NC) ←→(NC)
X-Axis Motor Driver Assembly	X	HALF	IL	HP	NC
Y-Axis Motor Driver Assembly	Y	HALF	IH	HP	NC
Z-Axis Motor Driver Assembly	Z	HALF	IL	HP	NC
Sample Syringe Motor Driver Assembly	PM1	HALF	IL	HP	NC
Diluent Syringe Motor Driver Assembly	PM2	HALF	IL	HP	NC

NOTE:
All switch settings are the same for all five driver assemblies EXCEPT for switch #3 (IH←→IL) on the Y-Axis Motor Driver. Set it to IH instead of IL.

NOTE:
PIPETTORS WITH S/N 76FP11041 AND HIGHER WILL HAVE SEVEN SCREWS ON THE REAR COVER.

4. Replace the Motor Driver Assembly by reattaching it to the base plate with three screws.
5. Rewire the motor driver according to the wiring diagram shown in Figure 5-7.
6. Replace the Pulse Motor Driver Unit into the FPC frame with eight screws.
7. Install Connector P7 using a #1 Phillips screwdriver.
8. Install Connectors P1 - P6.
9. Replace the Pulse Motor Driver Cover using six screws.
10. Reconnect the Pulse Motor Driver Fan Connector.
11. Replace the Upper and Rear Covers.
12. Plug the FPC AC power cord into the power outlet.

System Checkout

1. Turn on the FPC Pipettor power.
2. Perform the XYZ alignments.

   If any of the Tip Rack Z-heights are not in the 0.8 mm to 1.0 mm specification, repeat the Tip Rack Z-Axis Alignment procedure.
3. Reconnect the Jamming Sensor.

DC POWER SUPPLY ASSEMBLY

1. Remove the MAIN CONTROL ASSEMBLY as described in this section (page 5-4).
2. Disconnect the two connectors (J5 and J6) coming from the Main Control Assembly. Then disconnect P2 from Main AC Power Supply.
3. Loosen the four screws mounting the Low Voltage Power Supply Assembly to the Main Control Assembly.
4. Remove the DC Power Supply Assembly as shown in Figure 5-10.
5. To replace DC Power Supply, perform steps 2 through 4 in reverse order. Also replace Main Control Assembly following step 11, page 5-5.

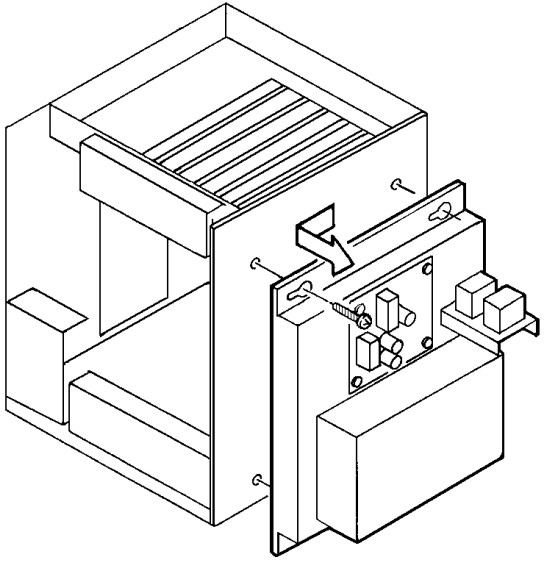


Figure 5-10. DC Power Supply Removal

X-AXIS ORIGIN SWITCH ASSEMBLY

1. Power off the instrument and unplug the power cable from the wall outlet.
2. Remove the F-Link power connection.
3. Remove the RS-232 Cable from the FPC RS-232 Port.
4. Refer to Figures 5-11 and 5-12 for the following steps.
5. Remove the Right Arm End Cover by removing the two mounting screws.
6. Remove the Right Arm Internal Cover by removing the four mounting screws, lowering the cover, and then removing it. BE EXTREMELY CAREFUL TO NOT CATCH A METAL CABLE WHILE REMOVING COVER.
7. Remove the Right Arm External Cover by removing the two, remaining mounting screws. Slide the cover forward then lift up while twisting the bottom to the right. BE EXTREMELY CAREFUL TO NOT CATCH A METAL CABLE WHILE REMOVING COVER.
8. Remove the X-Axis Assembly Top Cover by removing the two mounting screws. To remove the cover, place the Z-Axis Assembly all the way to one side and carefully slide the cover out from the opposite direction. BE EXTREMELY CAREFUL TO NOT CATCH A METAL CABLE WHILE REMOVING COVER.

1. Remove the X-Axis Assembly Front Cover by removing the two mounting screws. To remove the cover, place the Z-Axis Assembly all the way to one side and carefully slide the cover out from the opposite direction. BE EXTREMELY CAREFUL TO NOT CATCH A METAL CABLE WHILE REMOVING COVER.

2. Remove the two screws mounting the X-Axis Switch to the Pipettor. Disconnect the X-Axis Cable Connector and remove the switch.

3. To install the new X-Axis Switch, perform steps 1 through 9 in reverse order.

NOTE:
To perform the alignment on this switch, the covers must be removed. Thus, it may be easier not to install the covers until after the alignment is performed.

12. After installing the new switch, perform the X-Axis Switch Alignment and XYZ Software Positions Alignment procedures.

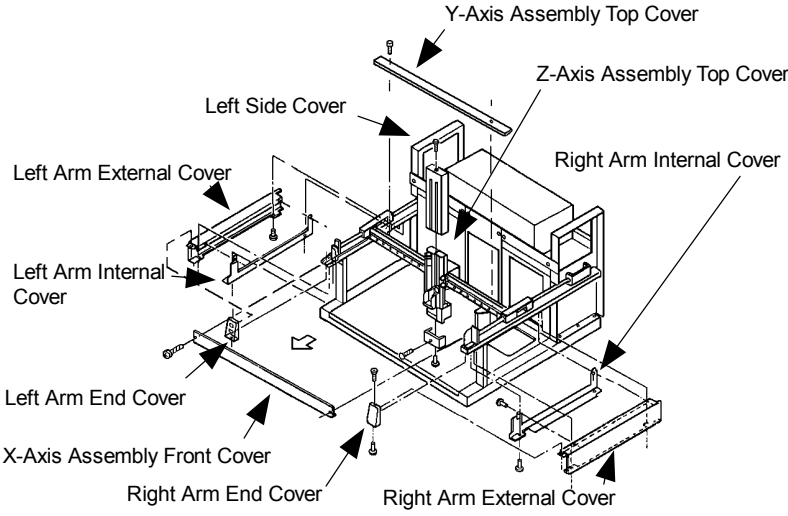


Figure 5-11. X, Y, and Z-Axis Covers

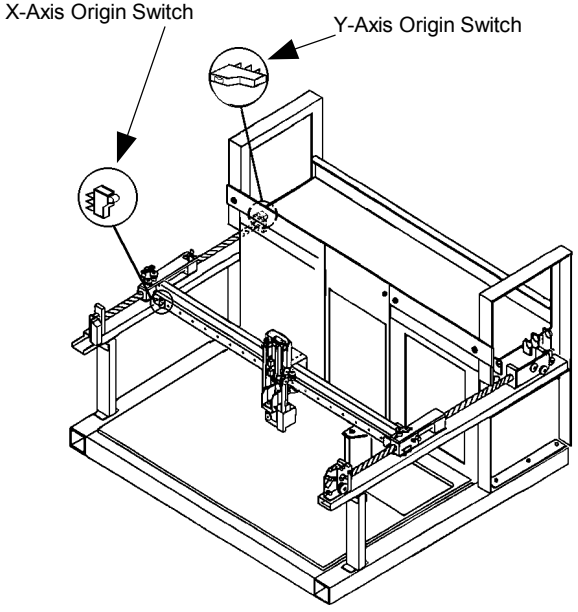


Figure 5-12. X, Y, and Z-Axis Origin Switches (Sensor) Locations

Y-AXIS ORIGIN SWITCH ASSEMBLY

1. Power off the instrument and unplug the power cable from the wall outlet.
2. Remove the F-Link power connection.
3. Remove the RS-232 Cable from the FPC RS-232 Port.
4. Refer to Figures 5-11 and 5-12 for the following steps.
5. Remove the Left Side Cover by removing the four mounting screws.
6. Remove the two screws mounting the switch to the Pipettor.
7. Disconnect the Y-Axis Origin Switch Assembly Cable Connector and remove the switch assembly.
8. Install the new switch assembly by performing steps 1 through 6 in reverse order.

NOTE:
To perform the alignment on this sensor, the cover must be removed. Thus, it may be easier not to install the cover until after the alignment is performed.

9. After the new switch is installed, perform the Y-Axis Origin Switch Alignment and the XYZ Software Positions Alignment procedures.

Z-AXIS ORIGIN SENSOR ASSEMBLY

1. Power off the instrument and unplug the power cable from the wall outlet.
2. Remove the F-Link power connection.
3. Remove the RS-232 Cable from the FPC RS-232 Port.
4. Refer to Figures 5-11 and 5-12 for the following steps.
5. Remove the Z-Axis Assembly Top Cover by removing the top screw and loosen the three side screws (one each in front, left side, and right side).
6. Remove the two screws mounting the sensor to the Pipettor.
7. Disconnect the Sensor Assembly Cable Connector and remove the Sensor Assembly.
8. Install the new sensor by performing steps 1 through 6 in reverse order.
9. After the new switch is installed, perform the XYZ Software Positions Alignment procedure.

PUMP MOTOR ORIGIN SENSORS

1. Remove the Pump Assembly using PUMP ASSEMBLY steps 1 through 17 on pages 5-5 and 5-6.
2. Remove the Pump Assembly Side Panel on the side where the switch is to be replaced.
3. Remove the two screws mounting the sensor to the Pump Assembly.
4. Disconnect the connector of the Sensor Assembly and remove the assembly.
5. Install the new Sensor Assembly by following steps 2 through 4 in reverse order.
6. After the new switch is installed, perform the Pump Motor Origin Sensors Alignment procedure.

NOTE:
To perform the alignment on this sensor, you will need the Pump Assembly out of the Pipettor. Do not perform installation of the Pump Assembly until after the sensor alignment is complete.

7. Replace Pump Assembly using step 19 on page 5-6.

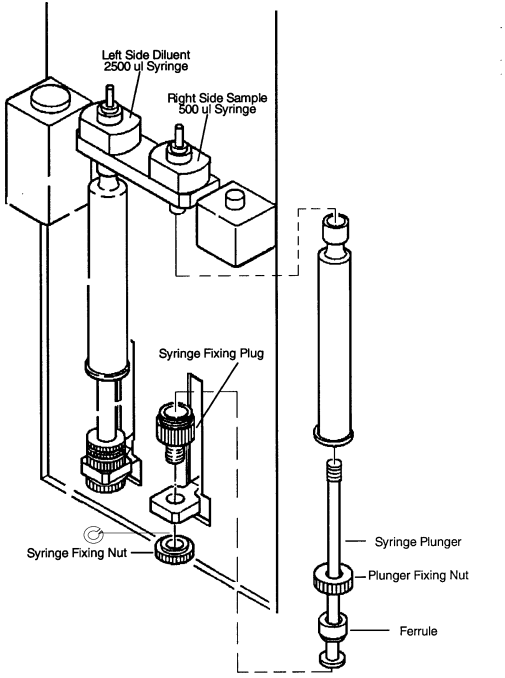


Figure 5-13. Syringe Components

SYRINGE

Syringe Removal

1. If the computer is not at the Main Menu, go to the Main Menu.
2. Verify that power is on at the Pipettor (the green power LED is illuminated).
3. Press "**D**" followed by ↵**Enter** to select Diagnostics Menu.
4. Press "**P**" followed by ↵**Enter** to select Pipettor Diagnostics.
5. Press "**S**" followed by ↵**Enter** to select Syringe Maintenance.
6. Press the "**Y**" key and then ↵**Enter** to Confirm.
7. The Z-Axis and syringe plungers will move to the maintenance positions.
8. Unscrew the syringe fixing nut on the syringe you want to remove (refer to Figure 5-13).
9. Grip the syringe mixing plug and lift to raise the plunger approximately 1 inch.
10. Holding the syringe with both hands, looking from top of syringe, carefully twist the syringe barrel clockwise (turn to the left) to disengage it from the Luer Lock™.

11. The syringe may now be removed from the Pipettor.

12. Remove the syringe fixing plug from the syringe by unscrewing it.

13. Pull the syringe plunger out of the syringe barrel. Remove the plunger fixing nut and ferrule from the syringe plunger.

14. Retain the plunger fixing nut, ferrule, syringe fixing plug, and syringe fixing nut for use when installing the new syringe.

15. Press the **Esc** key twice to return to the Main Menu.

If the replaced syringe is the Sample Syringe (Right Syringe), perform the Tip Threshold as described in the Operators Manual, Section 2.

Syringe Installation

1. Go to the FPC Main Menu.

2. Verify that power is on at the Pipettor (the green Power LED is illuminated).

3. Press "**D**" and then ↵**Enter** to select Diagnostics Menu.

4. Press "**P**" and then ↵**Enter** to select the Pipettor Diagnostics.

5. Press "**S**" and then ↵**Enter** to select Syringe Maintenance.

6. Press "**Y**" and then ↵**Enter** to Confirm.

7. Holding the syringe with both hands, pull the syringe up to the Luer Lock™ on the Pipettor. Carefully twist the syringe barrel counter-clockwise (CCW), looking from the top, to engage the Luer Lock™ as shown in Figure 5-14.

8. Press the **Esc** key twice to return to the Main Menu.

9. If the replaced syringe is the Sample Syringe, (the syringe on the right side), a Tip Threshold will need to be performed as described in Section 2 of the Operator's Manual.

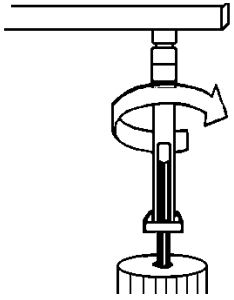


Figure 5-14. Installing Syringe

VALVE

CAUTION
The ports on the valve are easily susceptible to breakage.

Valve Removal

1. Remove the three tubes from the valve ports (refer to Figure 5-17).
2. Remove the valve cover.
3. Remove the two, valve mounting screws (refer to Figure 5-15) with the 7/32 inch open-end wrench from the FPC Kit.
4. Disconnect the J8 connector from P8 and remove the valve.

Valve Installation

1. Connect J8 of the new valve to P8.
2. Mount the new valve using the two, valve mounting screws.
3. Install the valve cover.
4. Connect the Diluent Delivery Tubing (tubing from the Diluent Nozzle Assembly to the valve) to port A of the valve (refer to Figure 5-16).

5. Connect the Valve Connection Tubing Assembly (tubing from the Diluent Syringe to the valve) to port B of the valve (refer to Figure 5-16).

6. Connect the Diluent Suction Tubing (tubing with filter that goes to D0) to port C of the valve (refer to Figure 5-16).

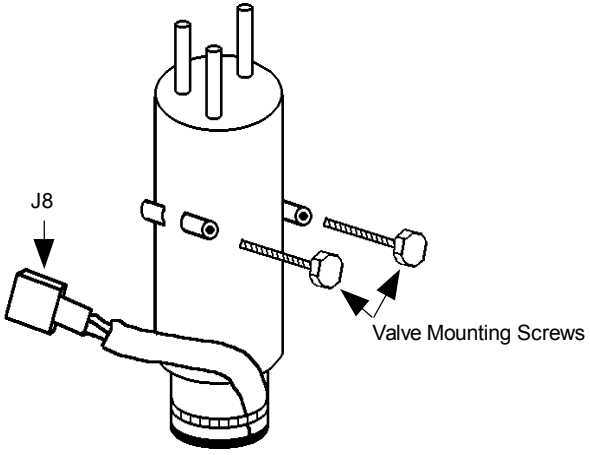


Figure 5-15. Valve and Valve Mounting Screws

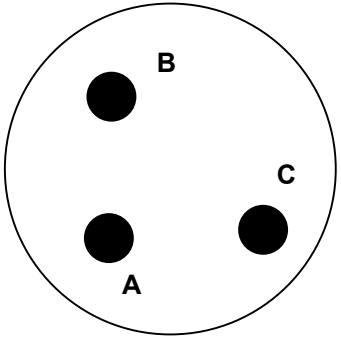


Figure 5-16. Valve Port Locations (Front View)

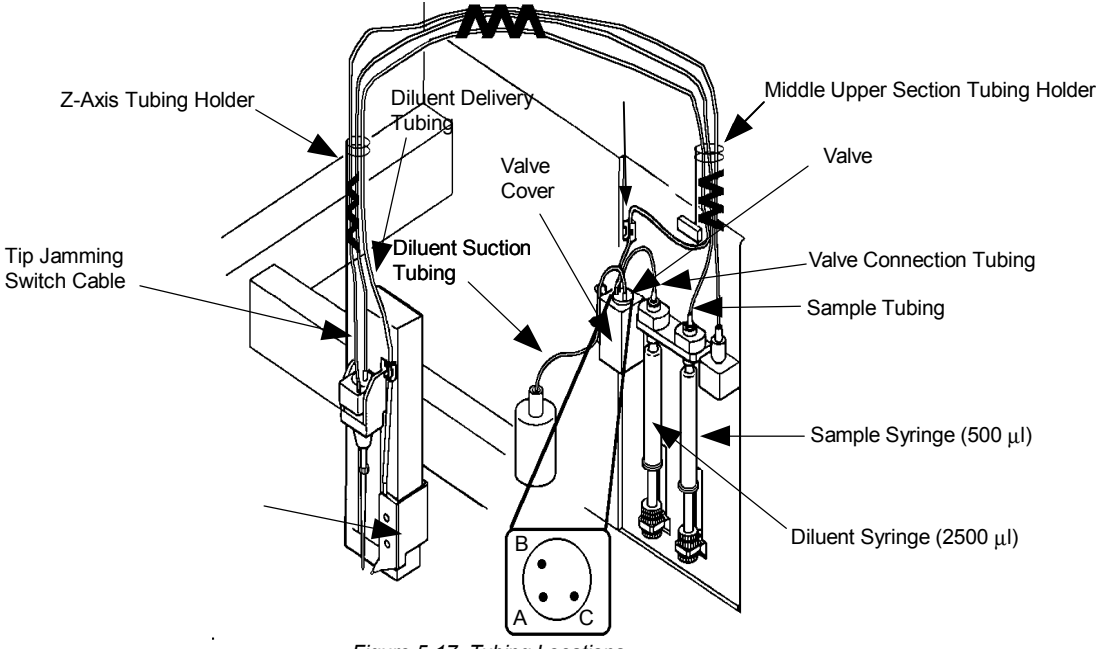


Figure 5-17. Tubing Locations

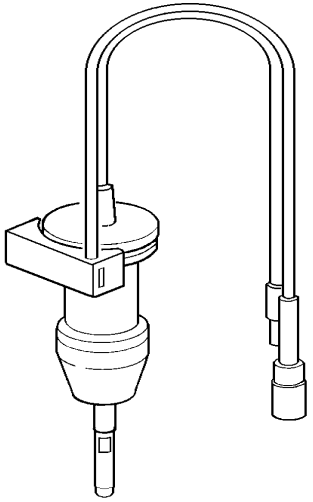


Figure 5-18. Sample Nozzle Assembly

SAMPLE NOZZLE ASSEMBLY

Sample Nozzle Assembly Removal

1. Turn off power to the Pipettor.
2. Remove the Sampling Tubing from the top of Sample Syringe.
3. Disconnect the Tip Jamming Switch Cable from the connector at the front of the Pump Assembly.
4. Remove the two Sampling Tubing Clamps that clamp the Diluent Delivery Tubing to the Sampling Tubing and Tip Jamming Switch Cable.
5. Thread the loose ends of the Sampling Tubing and Tip Jamming Switch Cable up through the Middle Upper Section Tubing Holder and the Z-Axis Tubing Assembly until they are hanging loose.
6. Loosen the hex-head bolt and open the bracket. Remove the Sample Nozzle Assembly (refer to Figure 5-19).

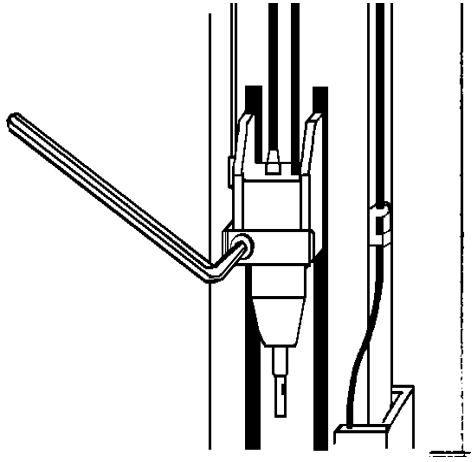


Figure 5-19. Removing and Replacing Sample Nozzle Assembly

Sample Nozzle Assembly Installation

Refer to Figure 5-19 for the following steps:

1. Turn off power to the Pipettor.
2. Loosen the hex-head bolt and open the bracket.
3. Insert and position the Sample Nozzle Assembly and close the bracket.
4. Thread the loose end of the Sampling Tubing and Tip Jamming Switch Cable through the Z-Axis Tubing Holder and Middle Upper Section Tubing Holder.
5. Verify the inner tubing extends past the sleeve approximately 1/16 of an inch at the loose end of the Sampling Tubing.
6. Attach the loose end of the Sampling Tubing to the port on the Sample Syringe so that the tubing goes inside the port and the sleeve goes on the outside of the port.
7. Connect the loose connector of the Tip Jamming Switch Cable to the connector on the Pump Assembly just to the right of the Sample Syringe.
8. Move the Z-Axis Assembly to the right front corner of the instrument (when looking at the Pipettor from the front).
9. Clamp the Sampling Tubing, Tip Jamming Switch Cable, and the Diluent Delivery Tubing together just below where they go through the Middle Upper Section Tubing Holder.

10. Clamp the Sampling Tubing, Tip Jamming Switch Cable, and the Diluent Delivery Tubing together just below the point at which they enter the Z-Axis Tubing Holder.

11. Clamp the Sampling Tubing and the Tip Jamming Switch Guide Cable together just below the point at which they enter the Z-Axis Tubing Holder.

NOTE:
The Sampling Tubing Clamps described in the steps above are the only Sampling Tubing Clamps that should be on the Tubing.

12. Perform a Tip Threshold as described in the Operators Manual, Section 2.

DILUENT SYRINGES PLUNGER TIP REMOVAL & INSTALLATION

1. Completely remove the syringe and plunger from the instrument by following the procedures in the Installation Section of this manual.

2. Make a small, vertical cut in the rubber tip as shown in Figure 5-20. Take care not to cut near the position of the inner O-Ring.

3. Grasp and remove the tip from the plunger as indicated in Figure 5-21. Using needle-nose pliers, turn the tip from side to side to ease removal. Make sure the O-Ring remains in position around the plunger shaft.

4. Place a new rubber tip over the end of the plunger, making sure the tip is aligned.

5. Press the tip against a clean surface or tap it with the palm of your hand to seat it on the plunger.

6. Confirm that the new tip has been installed straight. Refer to Figure 5-22.

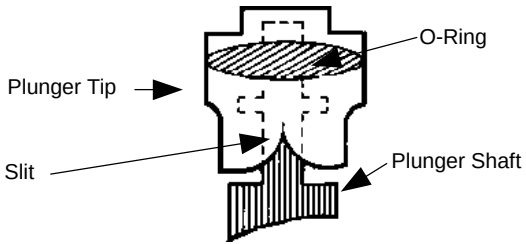


Figure 5-20. Syringe Tip O-Ring

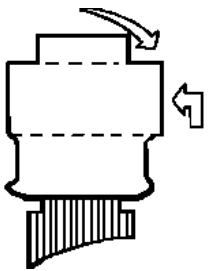


Figure 5-21. Syringe Tip Removal

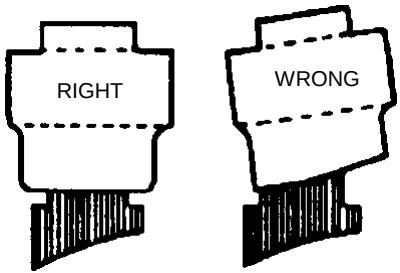


Figure 5-22. Right and Wrong Installation

DILUENT SUCTION TUBING REMOVAL & INSTALLATION

Refer to Figure 5-17 for the following steps:

Diluent Suction Tubing Removal

1. Disconnect tubing from the valve, port C.
2. Thread the tubing through the two Valve Cover Tubing Holders.

Diluent Suction Tubing Installation

1. Thread the non-filter end through the two Valve Cover Tubing Holders and connect it to the valve, port C.

VALVE CONNECTION TUBING

Refer to Figure 5-17 for the following steps:

Valve Connection Tubing Removal

1. Unscrew the threaded end from the Diluent Syringe.
2. Disconnect the other end from the valve, port B.

Valve Connection Tubing Installation

1. Screw the threaded end into the top of the Diluent Syringe.
2. Connect the other end to the valve, port B.

DILUENT DELIVERY TUBING

Refer to Figure 5-17 for the following steps.

Diluent Delivery Tubing Removal

1. Remove the Diluent Delivery Tubing from the Diluent Nozzle.
2. Remove the tubing from the Z-Axis Tubing Snap.
3. Remove the three Sample Tubing Clamps.
4. Thread the Diluent Delivery Tubing through the Z-Axis Tubing Holder, Sampling Tubing Clamp, Middle Upper Section Tubing, Sampling Tubing Clamp, and Middle Upper Section Tubing Snap.
5. Disconnect the tubing from the Valve port A.

Diluent Delivery Tubing Installation

Refer to Figure 5-17 for the following steps.

1. Insert the Diluent Delivery Tubing into the Diluent Nozzle Port so that the tubing goes all the way through the Diluent Nozzle and extends 1/8 inch past the end. Position the sleeve so that it is over the Diluent Nozzle Port.
2. Attach the tubing to the Z-Axis Assembly with the Z-Axis Tubing Snap.
3. Thread the loose end of the tubing through the Z-Axis Tubing Holder and then the Middle Upper Section Tubing Holder.
4. Attach the tubing to the Pump Assembly with the Middle Upper Section Tubing Snap.
5. Connect the loose end of the tubing to port A of the Valve.
6. Clamp the Sampling Tubing, Tip Jamming Switch Cable, and the Diluent Delivery Tubing together just below where they go through the Middle Upper Section Tubing Holder.

7. Clamp the Sampling Tubing, Tip Jamming Switch Cable, and the Diluent Delivery Tubing together, half way between the Middle Upper Section Tubing Holder and the Z-Axis Tubing Holder.

8. Clamp the Sampling Tubing and the Tip Jamming Switch Cable together (NOT the Diluent Delivery Tubing) just below where they go through the Z-Axis Tubing Holder.

NOTE:
The Sampling Tubing Clamps described in the steps above are the only Sampling Tubing Clamps that should be on the Tubing.

9. Perform the Tip Threshold as described in the Operators Manual.

Diluent Suction Tubing Filter Removal & Installation

1. Unscrew the larger part (filter part B) of the Filter Holder from the smaller part (filter part A). Refer to Figure 5-23.

2. Use a screwdriver to pop the filter out of the large part of the Filter Holder.

3. Figure 5-23. Diluent Suction Tubing Filter. Place the new filter flat in the large piece of the Filter Holder.

4. Screw the two halves of the Filter Holder together.

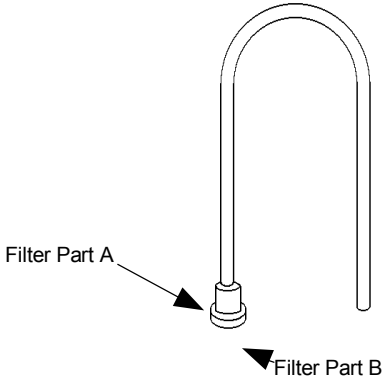


Figure 5-23. Diluent Suction Tubing Filter

DILUENT NOZZLE HOLDER ASSEMBLY

Diluent Nozzle Assembly Removal

1. Extract the Diluent Delivery Tubing from the Diluent Nozzle Assembly (refer to Figures 5-17 and 5-24).

2. Remove the two Diluent Nozzle Holder Mounting Allen Screws.

Diluent Nozzle Assembly Installation

1. Mount the Diluent Nozzle Holder Assembly to the Z-Axis Assembly using the two Diluent Nozzle Holder Mounting Screws (Refer to Figures 5-17 and 5-24).

2. Insert the Diluent Delivery Tubing into the port on the Diluent Nozzle Holder Assembly, so the sleeve fits over the outside of the port and the tubing extends out from the other end approximately 0.5 - 1.0 mm.

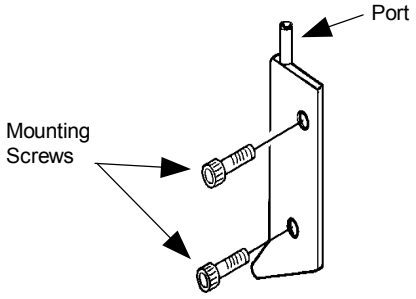


Figure 5-24. Diluent Nozzle Holder Assembly

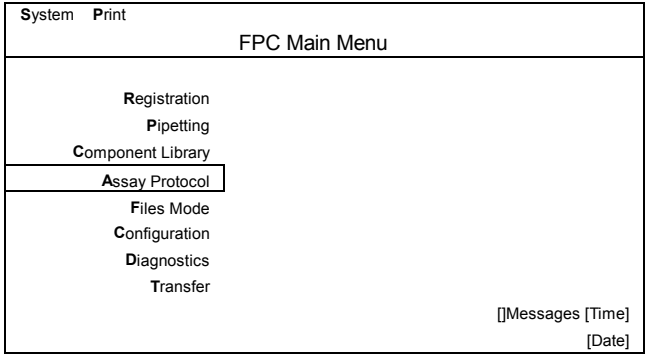
CPU ASSEMBLY

CPU Assembly Removal

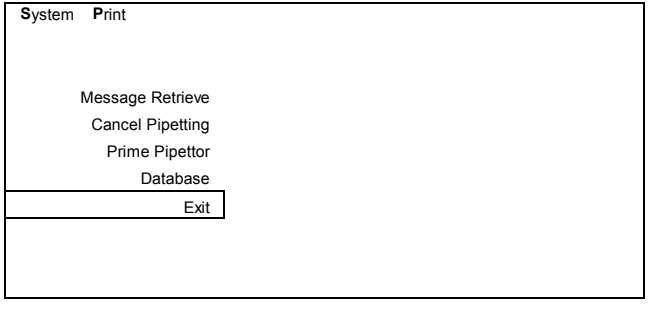
1. Go to the Configuration Menu and record the settings for the following options:

   - Automatic Database Initialization
   - Bar Code Reader Options
   - Tube Confirmation
   - Sample Tube Inner Diameter
   - RS-232 Ports

2. Go to the Assay Protocol option and print out an Assay Protocol Listing for all non-Abbott canned assays. Abbott canned assays are those listed with the **-a** after them. Refer to the Assay Protocol Utilities of the Operator's Manual for instructions for viewing and editing specific assay protocols.



3. Select **F1** (System) and press ↵**Enter**.
4. Select **Exit** and press ↵**Enter**.



Confirm
Really Exit The FPC Application?
Yes No

5. Select **Yes** and press ↵**Enter**.

6. Remove the Printer Cable, Keyboard Cable, Monitor Video Cable, and Digiboard Cable from where they are connected to the CPU.

CPU Assembly Installation

1. Connect the Power, Printer, Digiboard™, Monitor Video and Keyboard Cables up to the CPU as described in the cable connections instructions of this manual's Maintenance Section Installation Guide.

Note:
New computers may not have the voltage autoselect feature. The system voltage must be set manually with the voltage select switch on the back of the CPU unit to the appropriate voltage for your location. The factory setting for the switch is 230V. See Figure 4D-9.

2. Install software as described in the Setting Up The Computer instructions in the Installation Guide.

3. Set the Date and Time as described in the Installation Guide of the Maintenance Section.

4. Load the Assay Update Diskette as described in the Pre-Operating Procedures Section of the Operators Manual.

5. Set the options, as recorded during removal of the old CPU (refer to CPU Removal), in the Configuration Menu as described in the Pre-Operating Procedures Section of the Operators Manual.

6. If edited assays existed during the removal of the CPU, the assays must be recreated from the printouts from the removal process to determine what lines have been edited. Refer to instructions in the Assay Protocol Utilities of the Operator's Manual for instructions on creating a new assay protocol.

PC BOARDS

Card Cage PC Board Removal

Refer to Figure 5-25 for the following steps.

1. Turn the power off on the Pipettor.
2. Disconnect the AC Power, F-Link Power and RS-232 Conversion Cables from where they connect to the Pipettor.
3. Remove Rear Cover by removing the six screws holding it in place. It is not necessary to completely remove the upper right and upper left screws, but loosen them so the cover may be lifted up and over the two screws.
4. Remove the upper and lower PCB Holder Assemblies.
5. Remove the PC Board.

Card Cage PC Board Installation

Refer to Figure 5-25 for the following steps.

1. Install the PC Board, verifying the proper slot for installation by checking Figure 3-11.
2. Install the upper and lower PCB Holder Assemblies.
3. Install the Rear Cover.
4. Connect the AC Power, F-Link Power and RS-232 Conversion Cables to the Pipettor as described in the Cable Connections of the Installation Guide of the Maintenance and Troubleshooting section of this manual.
5. Turn on power to the Pipettor and perform the XYZ Software Positions Alignment procedure as described in the Alignments and Calibrations Section of this manual. Perform the Tip Threshold procedures as described in the Pre-Operating Procedures Section of the Operators Manual.

Pressure Sensor Board Removal

1. Power off the instrument and unplug the power cable from the wall outlet.
2. Remove the F-Link power connection.
3. Remove the RS-232 Cable from the FPC RS-232 Port.
4. Remove the Rear Cover by removing the six screws holding it in place. It is not necessary to completely remove the upper right and upper left screws, but loosen them so the cover may be lifted up and over the two screws.

5. Remove the PUMP ASSEMBLY as described on page 5-5 (refer to Figure 5-4).

6. Disconnect the four connectors (J1, J2, J3, and J4) from the Pressure Sensor Board.

7. Remove the four mounting screws that mount the Pressure Sensor Board to the Pump Assembly.

8. Remove the Pressure Sensor Board.

Pressure Sensor Board Installation

1. Place the board on the Pump Assembly so the small tubing goes inside the white port, the sleeve goes on the outside of the white port, and the screw holes line up on the four standoffs.

2. Secure the board by installing the four mounting screws.

3. Connect P4 to J4, P3 to J3, P2 to J2, and P1 to J1.

4. Replace the Pump Assembly as described in step 18 on page 5-6.

5. Turn on power to the Pipettor.

6. Perform Tip Threshold procedure as described in the Pre-Operation Procedures of the Operators Manual.

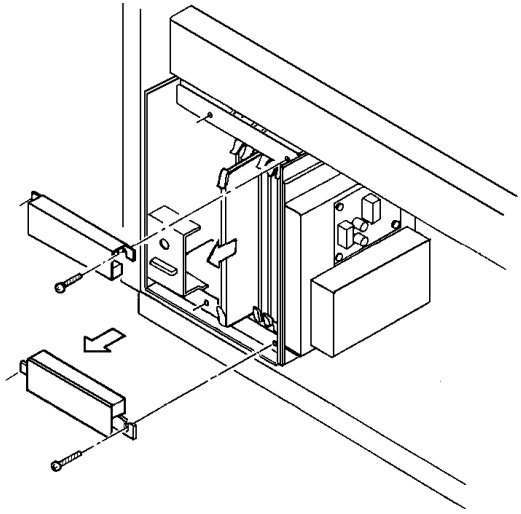


Figure 5-25. Printed Circuit Board Removal

ABC PRISM REPLACEMENT AND INSTALLATION

Perform the following steps:

1. Using a small Philips screwdriver, remove two screws that secure the reader window to the metal frame. (See Figure 5-27.)
2. Clean the window, as specified below, before installing the prism lens.
3. Place the prism lens onto the red, flat plastic window as shown in Figure 5-27 and align the two screws with the holes in the frame.
4. Reinstall the screws securing the prism onto the reader frame.

Cleaning the Prism Lens

1. Remove the accessory tube rack behind the reader box by lifting it vertically from the alignment pins.
2. Loosen (do not remove) the three flathead screws attaching the reader to the surface plate.
3. When the reader box can be lifted free from the surface platform, raise it vertically while tilting the front end to contact the plate.

This process frees the cable and connector beneath the reader box. Unscrew the “multipin”, black-plastic connector counterclockwise until the connector is free.

Note:
It may be necessary to retract some of the wire from the opening in the box to free the connector.

4. Remove the reader box from the ABC. Do not allow the prism to contact other surfaces.
5. Remove the two screws holding the prism in place. Be careful not to scratch the prism or touch the prism surface. See Figure 5-27.

Note:
The lens is made from polished acrylic plastic and highly susceptible to scratching and physical damage if handled improperly. Please use extreme caution when handling the lens.

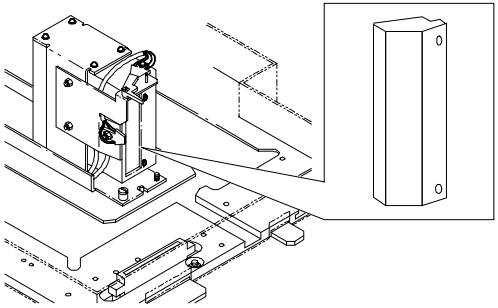


Figure 5-26. ABC Reader Prism Installation

6. Remove the prism for cleaning.

7. Remove any dirt or particulate matter from the prism surface by gently brushing with a lens brush or soft, lint-free cloth. Gently wipe with a lint-free cloth moistened with warm water or acrylic plastic cleaner. Do not scrub.

8. Gently wipe with a dry, lint-free cloth to remove any residual droplets or moisture.

9. Re-inspect the prism and window surfaces. If foreign material is still present between the prism and the window, remove the prism as before. Repeat the cleaning procedure. Always inspect for dirt before and after installation of the prism.

Note:
For ABC alignment see the Automatic Bar Code Reader Service Manual, ABC Alignment Procedure.

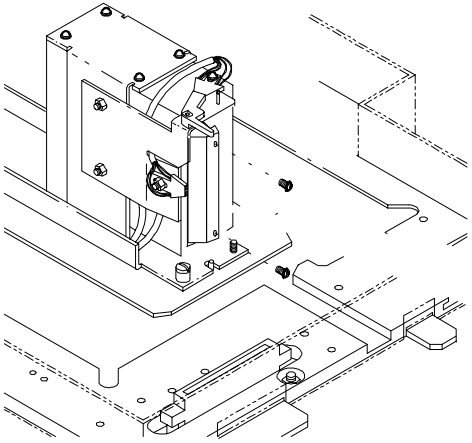


Figure 5-27. ABC Reader Prism Mounting

Reinstallation of Internal Bar Code Reader:

1. Clean the surface plate and the bottom of the reader box if dirt or crystals are found.

2. Hold or rest the reader box on or above the rear tube carriers while positioning and reconnecting the “multipin” black-plastic connector. Several turns are required to securely attach the connector. Return the remaining excess cable into the reader box while holding the reader near the connector.

3. Realign the reader box over the rear and front alignment pins. Lower the box into position. Tighten the three captive screws while holding the reader box securely on the alignment pins. Replace the accessory tube rack.

System Check Out:

Refer to the FPC Service Manual, Section 4 - Diagnostics, ABC Diagnostics, ABC Internal Bar Code Reader.