

WATERS MANUFACTURING ASSEMBLY PROCEDURE

PAGE 1 OF 36
279001787 REV ALPHA

ITEM NUMBER
279001787

DESCRIPTION

WRITTEN BY
R.A.BERSANI

DATE
JULY 2009

REVISION RECORD

<u>REV</u>	<u>AUTHORITY</u>
ALPHA	BERSANI

NOTES

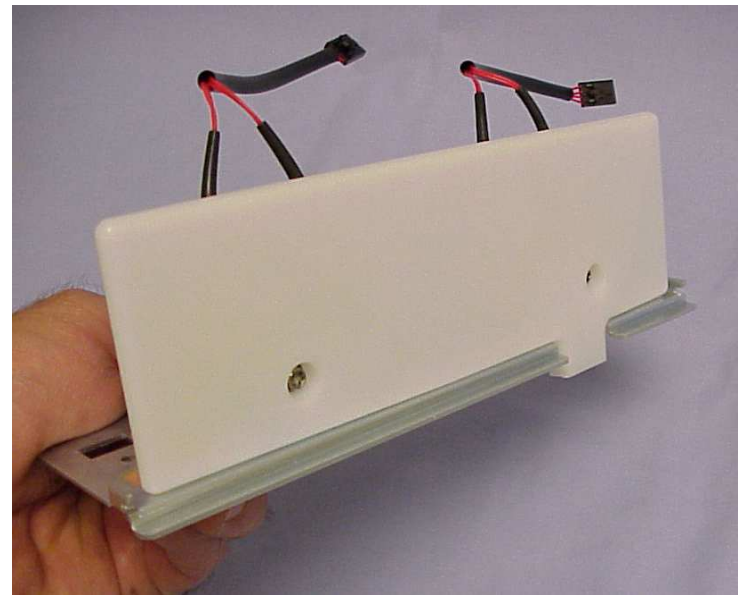
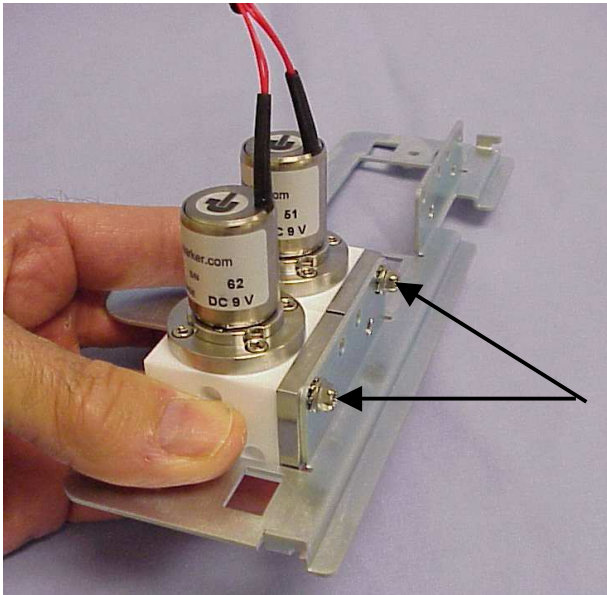
Incomplete instructions, adequate for Alpha build

<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
1.0	PREP GPV TRAY	T20 TORX SCREWDRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
4000003614	1	Fluidics Plate
279001789	4	Single Channel GPV
415001439	1	GPV Drip Tray
WAT034347	6	M4 x 6MM Screws

The GPV are paired up for the Alpha build. Orient and install two pair of GPVs to the Plate using M4 Screws. Notice the location of the M4 Screws, leaving a place to mount the Drip Tray.

Orient and install the Drip Tray using M4 Screws.



OPER
1.2 OPERATION DESCRIPTION
PREP GPV TRAY

TOOL NUMBER/DESCRIPTION
#2 PHILLIPS SCREWDRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289005080	4	Single Channel Degasser 18Inch
WAT046463	4	6-32 Phillips Screws
430002328	24 "	Santoprene Tubing

Orient and install each of four Degassers using the Phillips Head Screws. **DO NOT OVERTIGHTEN THE SCREWS!!**

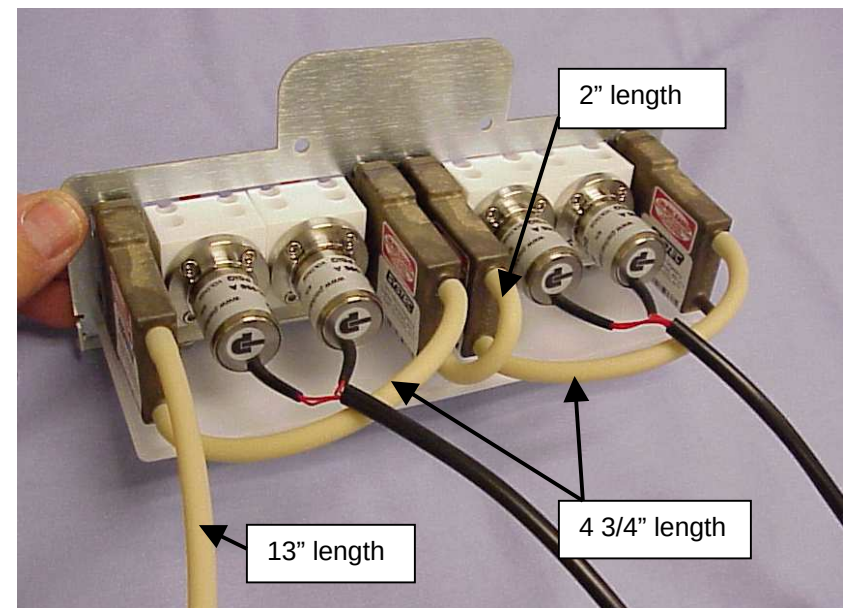
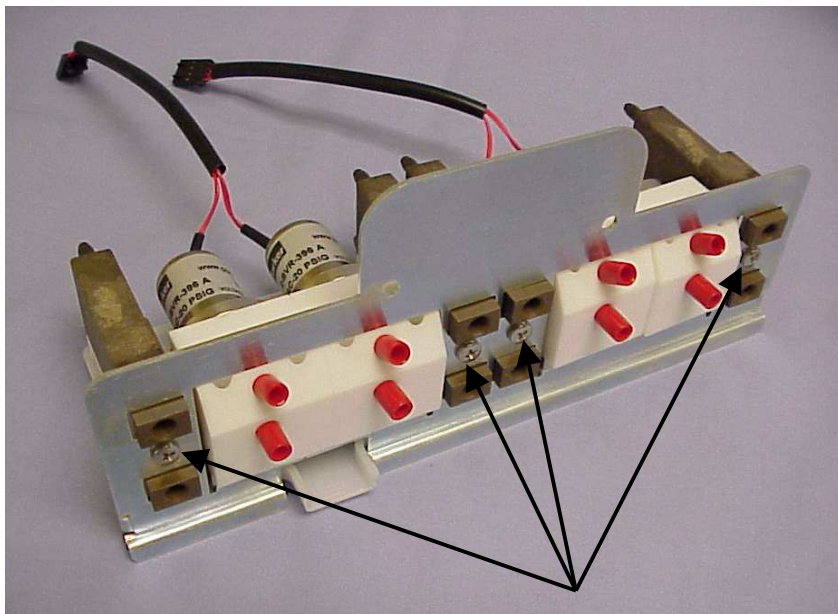
Cut the tubing to the following lengths:

- (1) at 16 inches
- (1) at 4 ¾ inches
- (1) at 2 1/8 inches

Install the tubing as shown



Use the 480uL Degassers here



OPER
1.4 OPERATION DESCRIPTION
PREP GPV TRAY

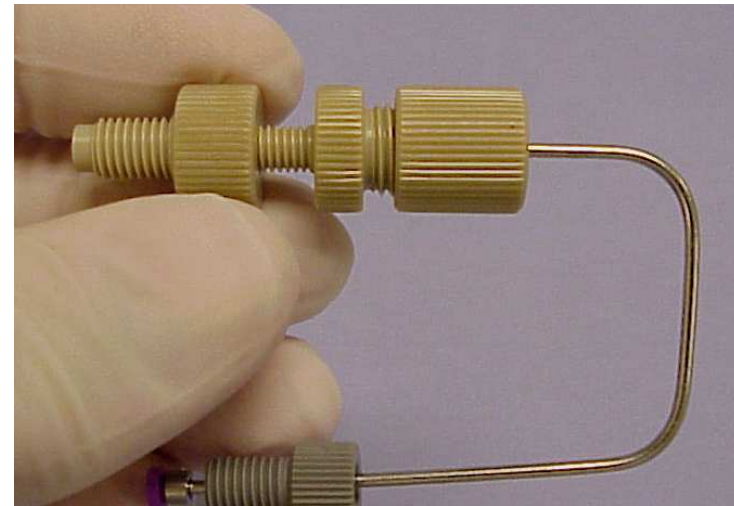
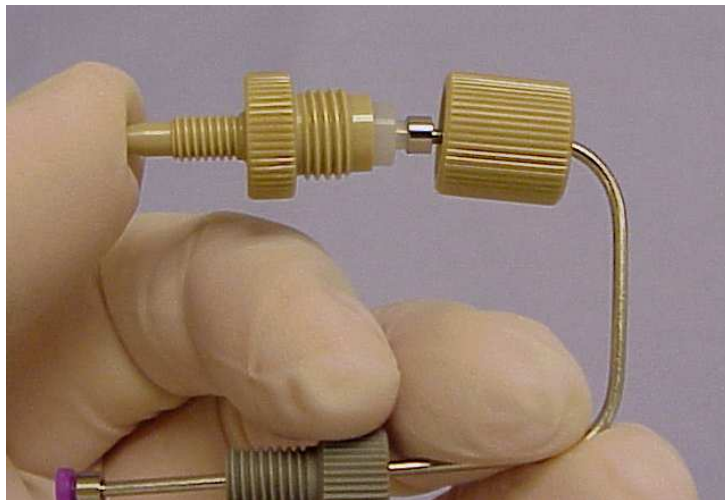
TOOL NUMBER/DESCRIPTION

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
430002320	4	Degasser to GPV Tube
289003547	4	Inline Filter
410003000	4	Adapter

CAUTION: This operation requires a clean work area and requires that cleanroom gloves be worn to limit the amount of contamination passed onto the assembly

WEAR GLOVES to keep the assembly clean. Slide the open end of the Degasser Tube into the Inline Filter, and then unscrew the lock body from the Filter to visually check that the Tube is completely through the lock ring. Re-tighten the lock body and tighten to hold the tube securely into the Inline Filter.

Install the Adapter to the Inline Filter and tighten. (This Adapter should be eliminated before Beta, after the Inline Filter design change)



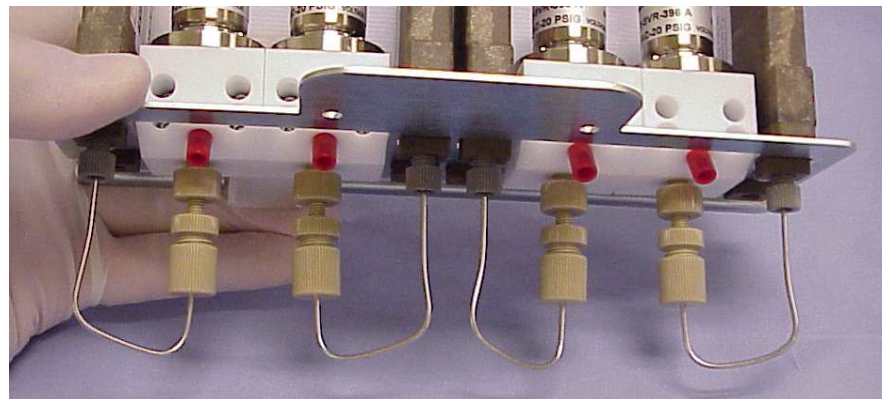
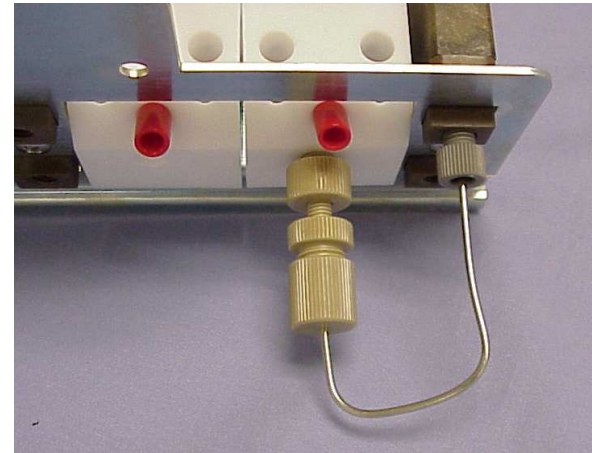
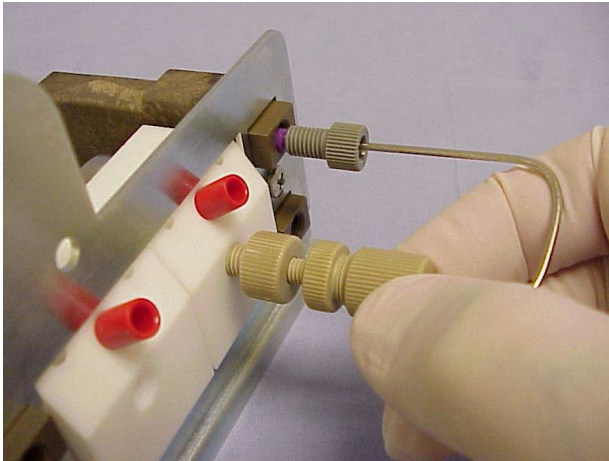
<u>OPER</u>	<u>OPERATION DESCRIPTION</u>
1.6	PREP GPV TRAY

<u>TOOL NUMBER/DESCRIPTION</u>
FITTING TORQUE TOOL #9656

Install the first Filter/ Tube assembly to the GPV bracket assembly. Notice that the assembly is installed into the top port of the GPV manifold, and then the other end of the Tube Assembly is installed into the top port of the Degasser. Slightly bend the steel tubing to assure that it comes straight out of the fittings.

CAUTION: This operation requires a clean work area and requires that cleanroom gloves be worn to limit the amount of contamination passed onto the assembly

Repeat this with three more Filter/ Tube Assemblies, always using the top port of the GPV and the top port of the Degasser. **Tighten the gray fittings to 40 oz-in.**



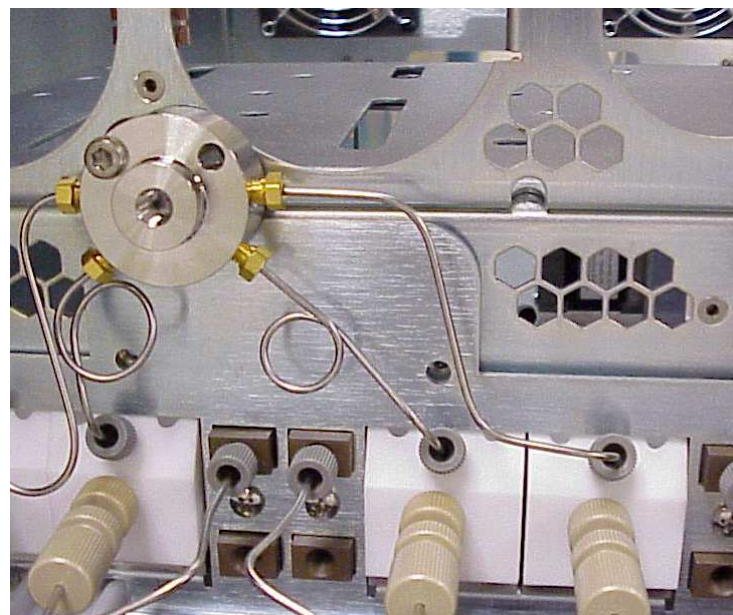
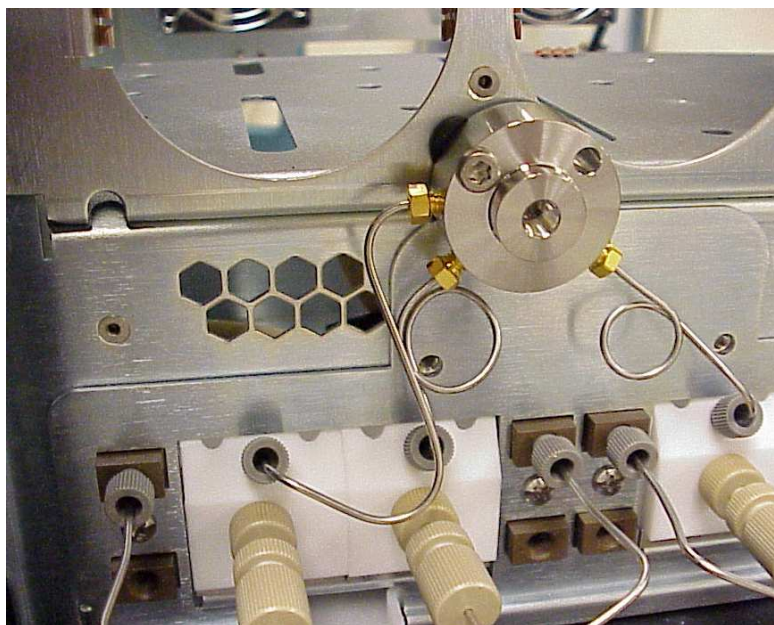
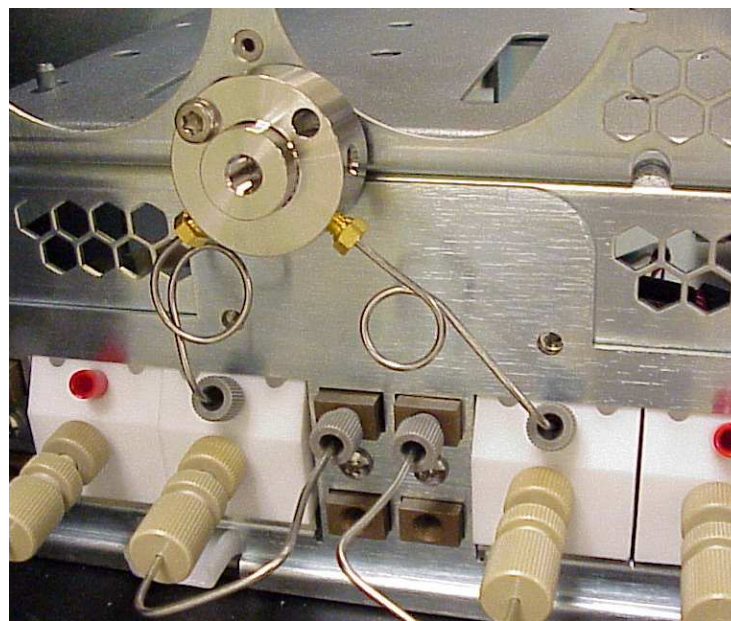
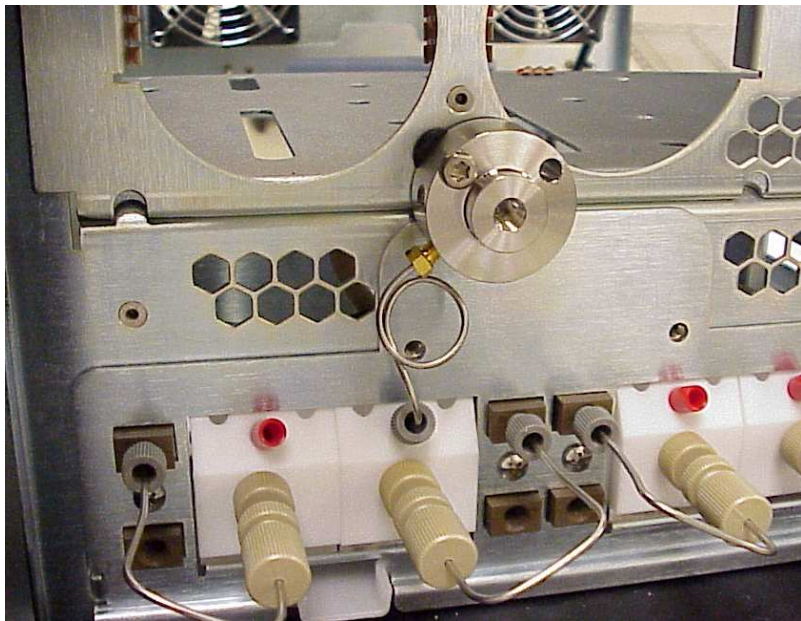
<u>OPER</u>	<u>OPERATION DESCRIPTION</u>			<u>TOOL NUMBER/DESCRIPTION</u>
1.8	PREP GPV TRAY			1/4 x 5/16" WRENCH FITTING TORQUE TOOL #9656
	<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>	
	405010189	1	Mixer Manifold	
	430002306	4	GPV to Mixer Tube (4 preformed shapes)	

Create a set up for the tube installation by using a Chassis, placing one of the GPV Trays into the Chassis, securing a Mixer Manifold to the Chassis using a supplied Well-nut and a M4 x 25 Screw.

The (4) Tube assemblies have been hand made to different shapes for the Alpha build. Place each shape to the GPV Tray based on the photos.

Position each Tube into the Mixer Manifold and **tighten the Gold Screw to finger tight plus 3/4 wrench turn. Mark the fitting at the finger tight position so that the mark will be at the 12 o'clock position after tightening.**

Once the Mixer manifold fitting is tightened, then install the PEEK fitting into the GPV Valve. **Tighten the gray fittings to 40 oz-in.**

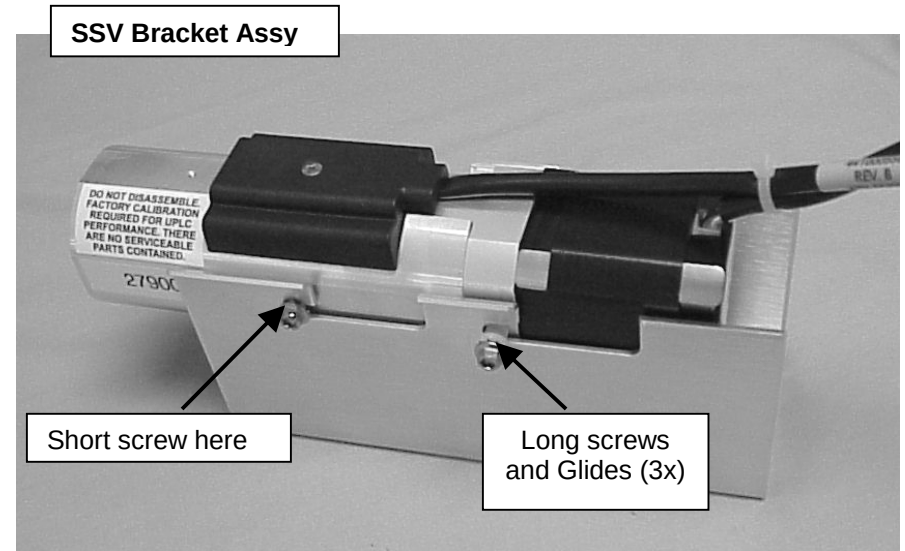
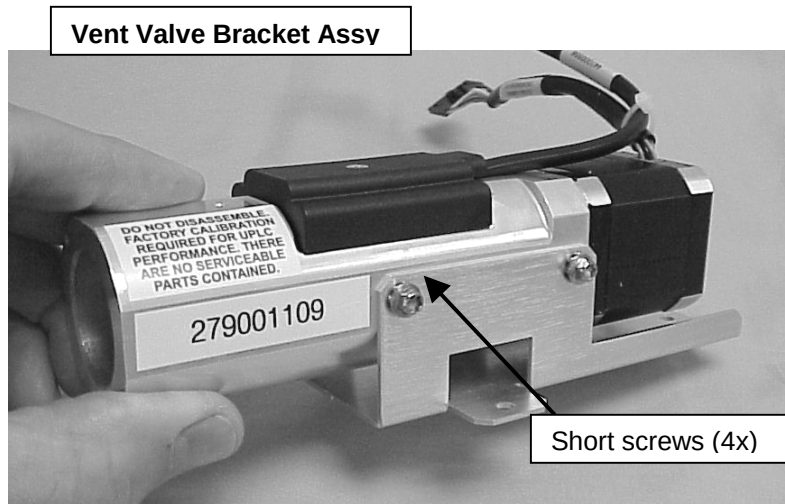


<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
2.0	PREP VALVE ASSEMBLIES	T20 TORX SCREWDRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279001109	1	Vent Valve Assy
400003171	1	VV Mounting Bracket
400003855	1	SSV Mounting Bracket
WAT034347	5	M4 x 6MM Screws
WAT034346	3	M4 x 10MM Screws
???	3	Glides

Orient and install a Valve Motor to the VV Bracket using (4) of the M4 x 6MM Screws.
(This VV Mounting Bracket should be simplified before Beta, eliminating a number of Screws and sheet metal details)

Orient and install (3) Glides in the noted locations on the second Valve Motor using the M4 x 10MM Screws. Place this Valve Motor onto the SSV Bracket and secure with one of the M4 x 6MM Screws. (This SSV Mounting Bracket should be simplified before Beta, and the assembly should be an OPTION for Field Service installation)



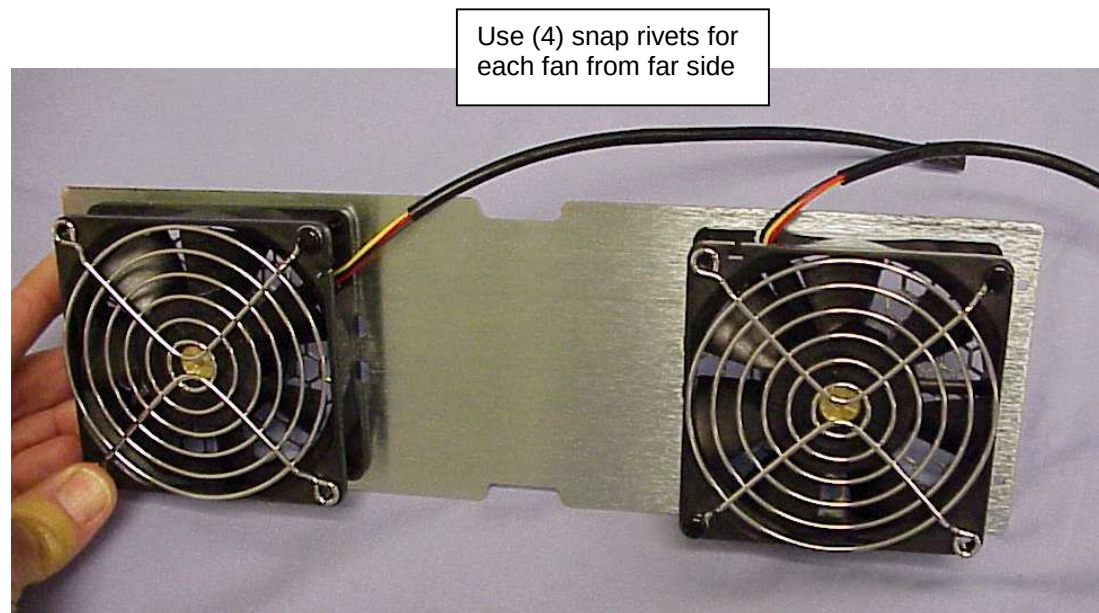
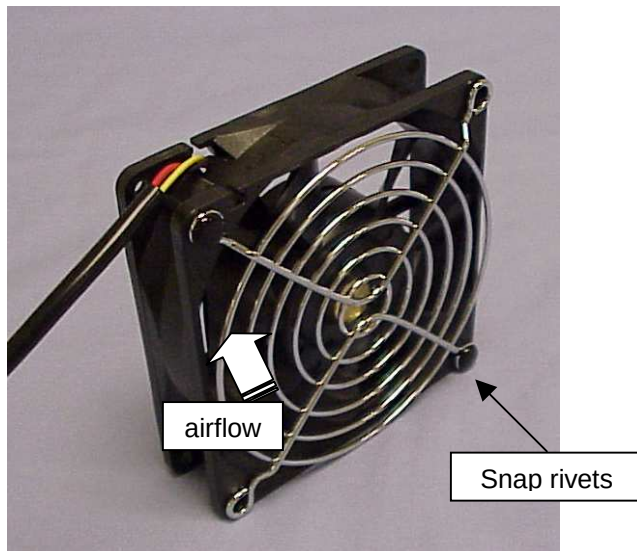
OPER
3.0 OPERATION DESCRIPTION
PREP FAN BRACKET ASSEMBLY

TOOL NUMBER/DESCRIPTION

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279001809	2	Fan Assy
400003810	1	Fan Bracket
WAT270830	2	Fan Guard
WAT025249	16	Snap Rivets

Orient and install a Fan Guard to each Fan using Snap Rivets. Note the Guard gets placed onto the intake side of the Fan.

Orient and install each Fan to the Bracket using four Snap Rivets. **Note the orientation** of the fan wire feed in relation to the Bracket. (This Fan Bracket should be eliminated before Beta, and the Fans should be mounted directly to the Chassis)



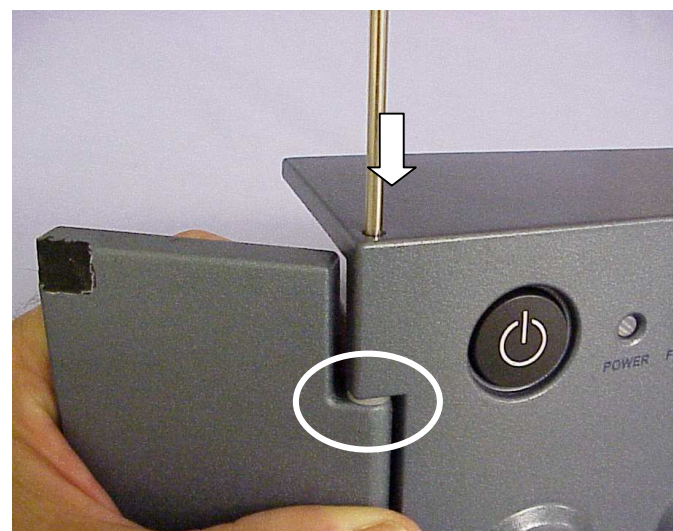
<u>OPER</u> 4.0	<u>OPERATION DESCRIPTION</u> PREP DOOR ASSEMBLY	<u>TOOL NUMBER/DESCRIPTION</u> RUBBER Mallet
--------------------	--	---

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289005301	1	Door Assy modified
415001259	1	Door Hinge
615004075	1	QSM Label
??????	1	Hinge Pin
405002982	2	Plastic Washers

Peel the “Binary Solvent Manager” Label off the Door, and replace with the “Quaternary Solvent Manager” Label”. **Use care to not chip the paint during removal.**

Install the Door Hinge to the Door with the Hinge Pin. **Place 2 of the Washers at the first point of engagement to reduce the interference when closing the Door.**

This operation is for Alpha only.
The Door Assembly will be a
purchased assembly after Beta



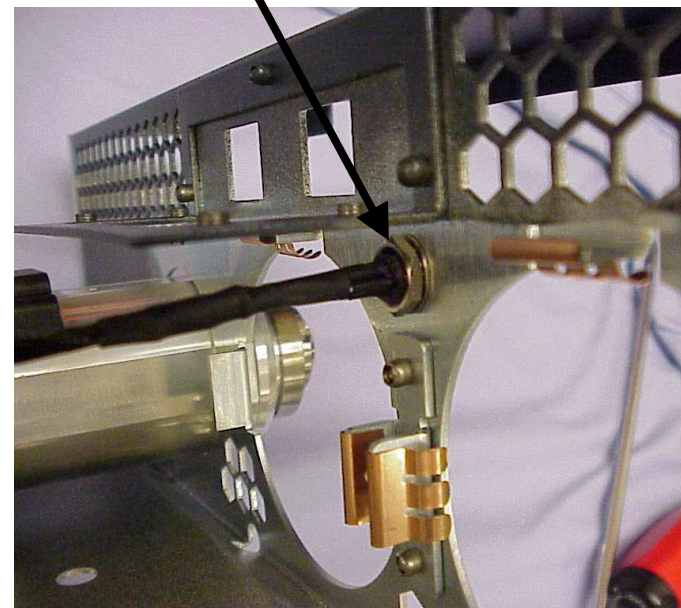
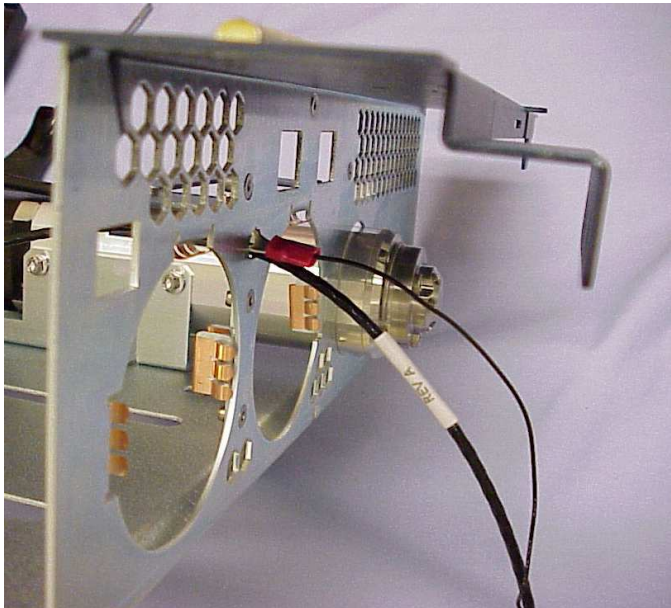
<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
5.0	ACTUATOR TRAY PREP	10MM NUT DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
441000974	1	internal i2V Cable

Remove the 4-pin connector and the nut and lock washer from the internal i2V Cable. Feed the Cable assembly through the front bulkhead.

Reinstall the nut and lock washer. Assure that the connector face is oriented into the sheet metal porthole so that the white arrow on the connector is up. Tighten the nut.

Reinstall the 4-pin connector that was removed earlier.



<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
5.2	PREP ACTUATOR TRAY	T20 TORX SCREWDRIVER PHILLIPS SCREWDRIVER 5/64 ALLEN IN A TORQUE DRIVER
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289003847	1	Upper Tray Bracket
289005282	1	Degasser, 36 inch AF
WAT046463	1	6-32 Phillips Screws
WAT034347	3	M4 x 6MM Screws
289003741	1	VV Cartridge (Alpha only)
410001365	1	M2 x 8MM Screw (Alpha only)

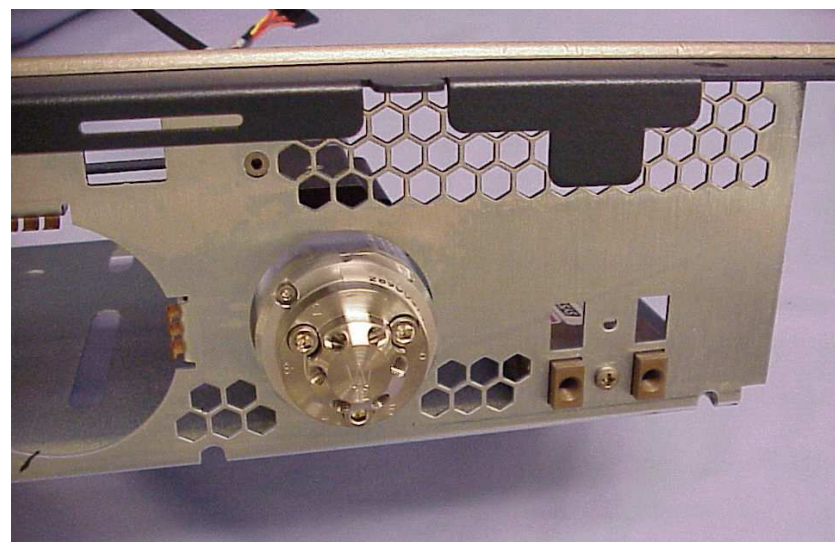
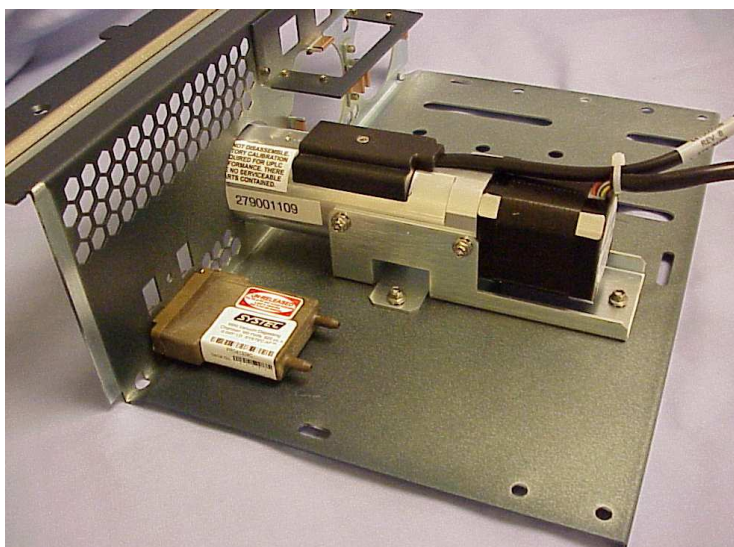
Orient and install the Valve Assembly (assembled earlier) to the Upper Tray Bracket using three Screws.

Install the 925uL Degasser as shown using the Phillips Head Screw. **DO NOT OVERTIGHTEN THE SCREW!!**

Insert the Vent Valve Cartridge into the Vent Valve and secure with the M2.5 Screw. **Tighten to 9in-lbs.**



Use the 925uL Degasser here

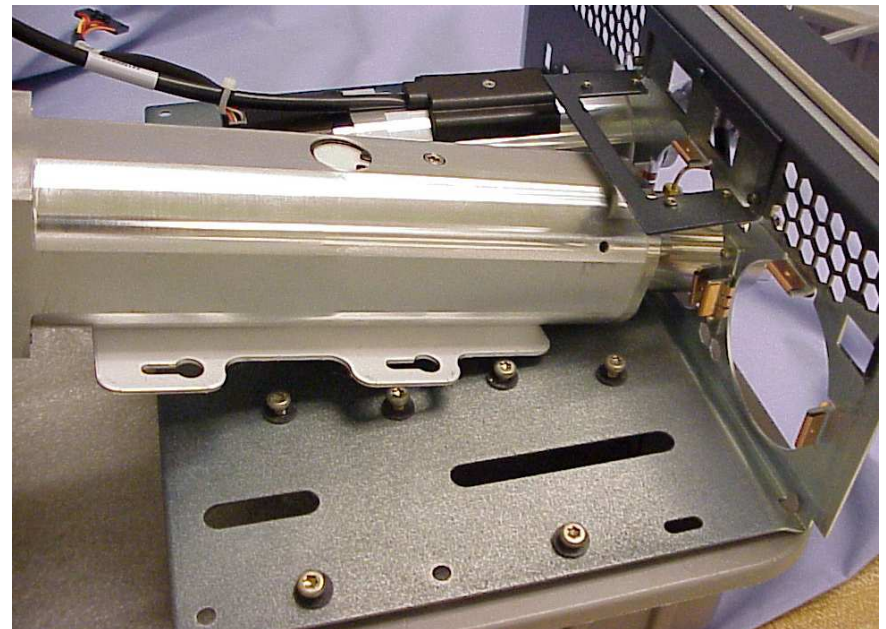
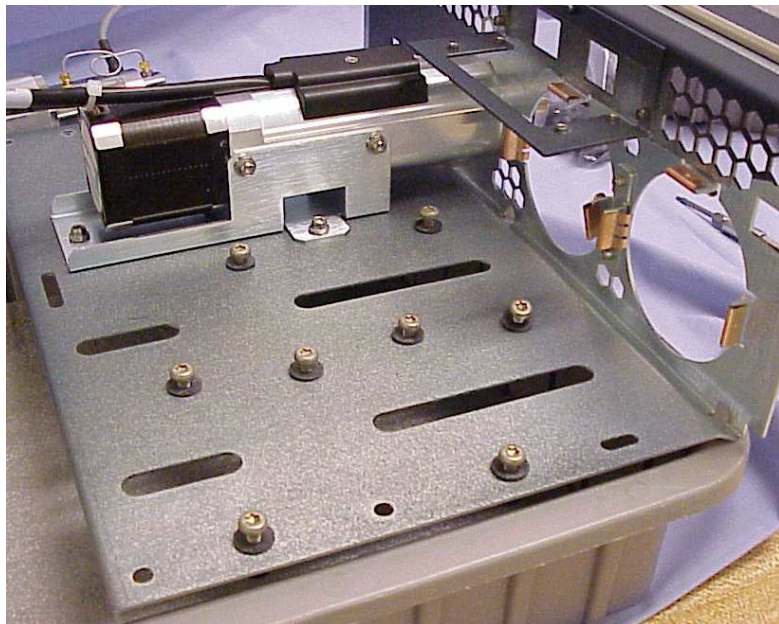


<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
5.4	ACTUATOR TRAY PREP	T20 TORX SCREWDRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279000886	2	Actuator Assembly
WAT078856	8	Well nut Fasteners
WAT411416	8	M4 x 16MM Screws

Insert the Screws into the Well nuts so that the threads are engaged. Place the Well Nuts into the Bracket.

Place each Actuator through the port hole and onto the Well Nuts. Slide the Actuator the forward position. Tighten the screws to hold the Actuator in place.



OPER
5.8**OPERATION DESCRIPTION**
ACTUATOR TRAY PREP**TOOL NUMBER/DESCRIPTION**
T10 TORX SCREWDRIVER
5/16" WRENCH

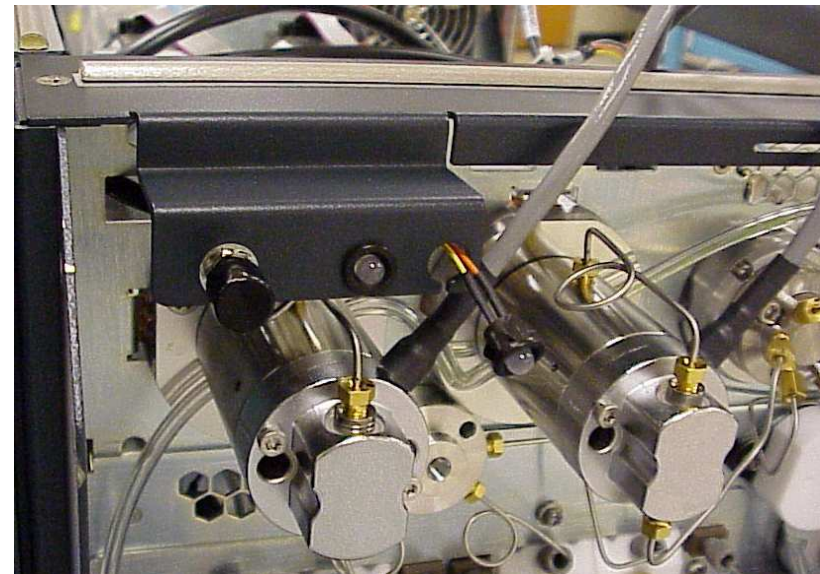
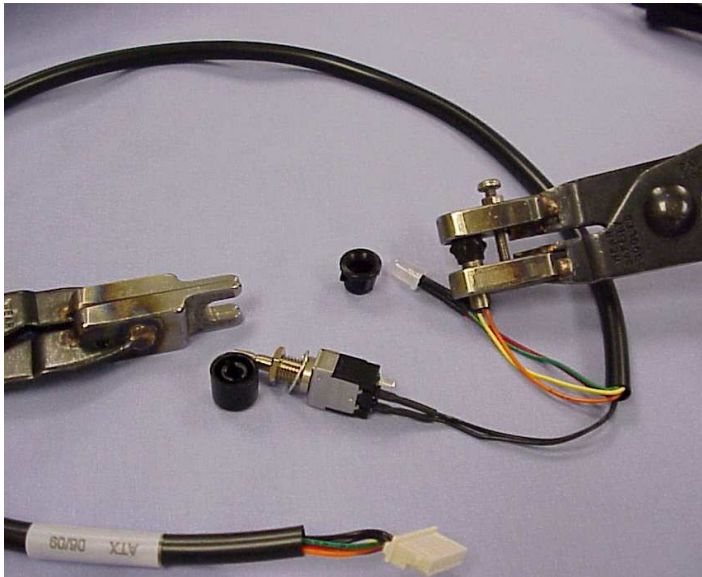
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
441000973	1	Power Status Cable
410000864	2	LED Holders

Disassemble the Power switch cap and hardware.

Install the LED Holders onto the LEDs.

Slide the Cable through the square port hole in the Bracket (from the rear side) and install the Power Switch using the lock washer and (2) Nuts removed earlier. Re-install the Switch Cap.

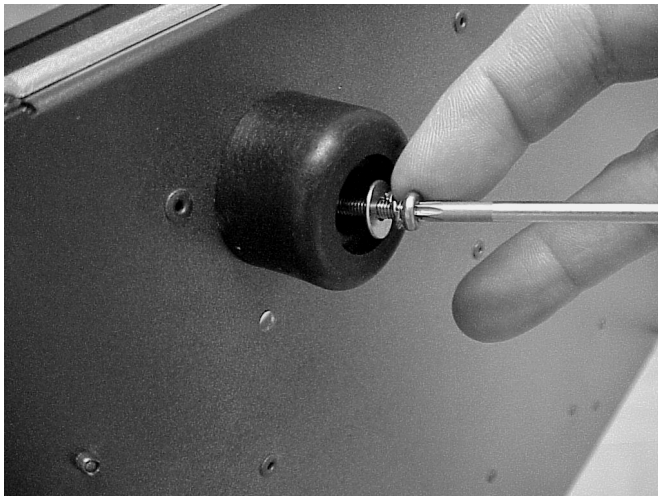
Install the LEDs as shown. ORIENTATION IS IMPORTANT!



OPER
6.0**OPERATION DESCRIPTION**
CHASSIS ASSEMBLY**TOOL NUMBER/DESCRIPTION**
T20 TORX SCREWDRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289005258	1	Chassis Base
WAT212370	4	Plastic Foot
WAT411416	4	M4 x 16MM Screws
WAT410430	4	M4 External Tooth Washer
WAT410450	4	M4 Plain Washer
WAT212369	2	Bumper

Orient and install each Plastic Foot to the Chassis Base as shown. Place a Bumper onto the two Feet at the front of the Chassis.

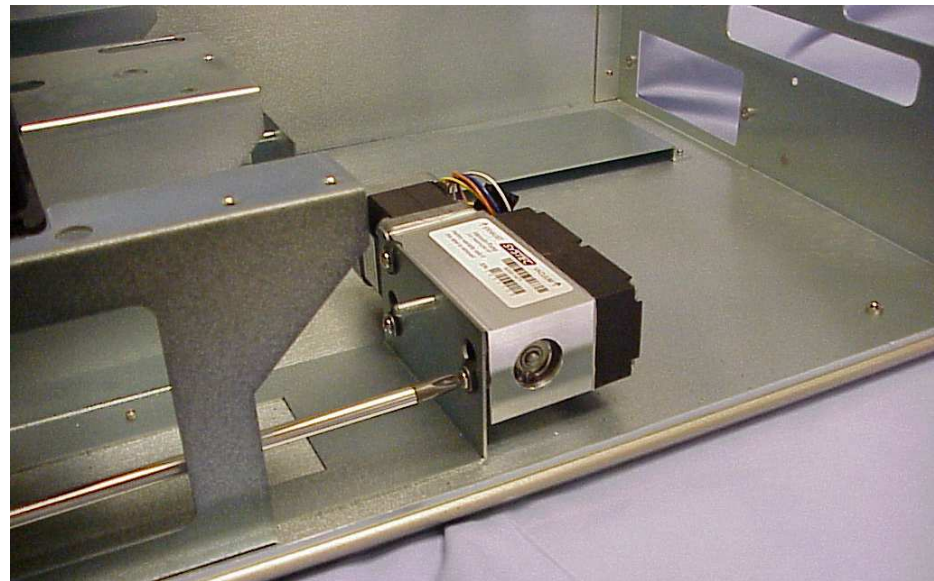
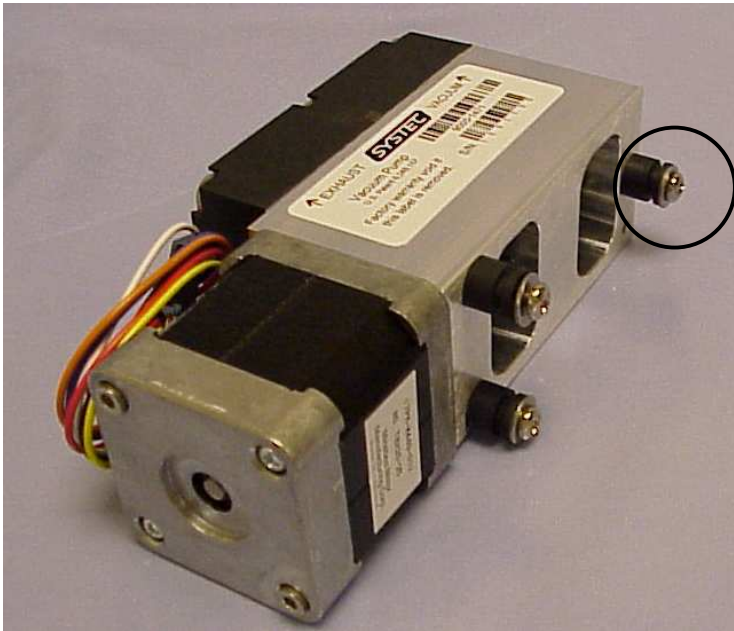


OPER
6.2OPERATION DESCRIPTION
CHASSIS ASSEMBLYTOOL NUMBER/DESCRIPTION
PHILLIPS SCREWDRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279001056	1	Degasser Pump

Orient and install the hardware that is packaged with the Degasser Pump. **Notice** the orientation of the standoff, flat washer, and screw. **Notice** the placement location of the hardware onto the Pump.

Install the Degasser Pump into the chassis as shown. Use a long shaft Screwdriver, through the front bulkhead of the Chassis, to secure the screws.

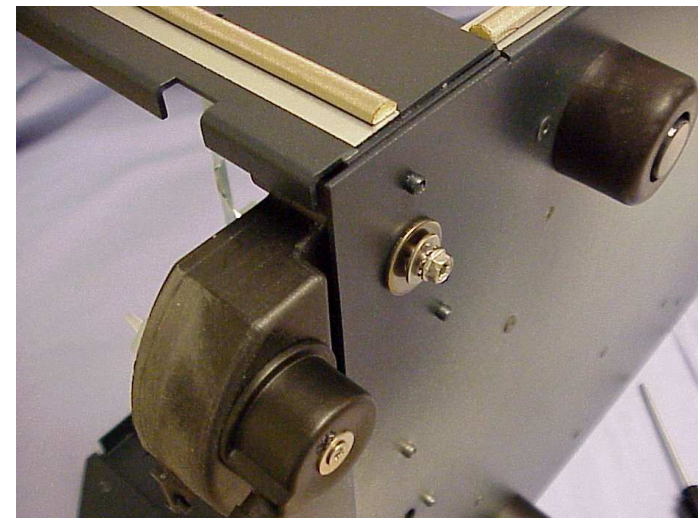


<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
6.4	CHASSIS ASSEMBLY	T20 TORX SCREWDRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289005242	1	Front Drip Tray Assy
?????	14"	Gasket
410000419	2	M4 x 10MM Screws
WAT410340	2	M4 x Washer (delete for Beta)
WAT410530	2	M4 Washer (delete for Beta)

Cut a piece of gasket and apply it to the Drip tray as shown.

Install the Drip Tray to the Chassis Base as shown. Use a stack-up of hardware to accommodate the wrong size hole in the Chassis. **Secure the two ends** of the Drip Tray (the center mount location is not needed).



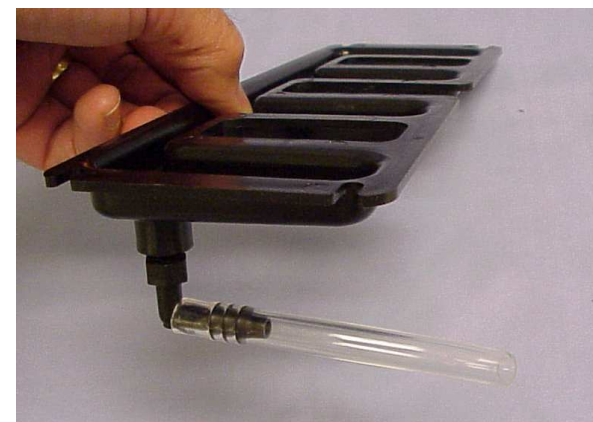
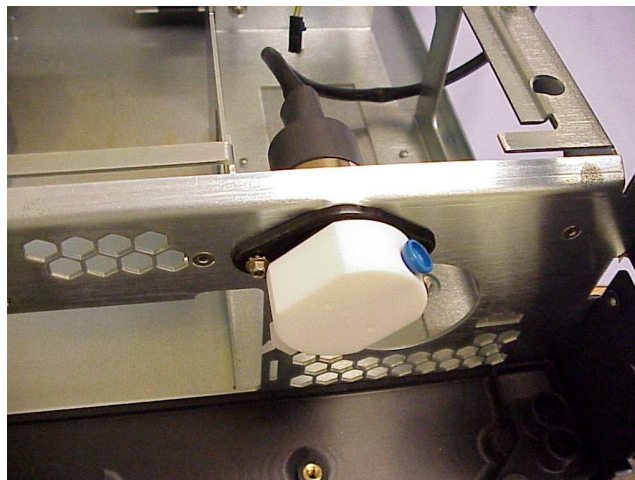
<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
6.6	CHASSIS ASSEMBLY	NUT DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
410001362	1	Barb Fitting
WAT270594	1	Solenoid Pump
415000974	1	Actuator Drain Tray
410000163	1	Tube Fitting
410000604	____ inch	Tubing

Install the Barb Fitting onto the OUTLET port of the Solenoid Pump. Remove the boot from the Pump.

Install the Solenoid Pump into the front right of the Chassis Base, and then reinstall the boot to the cable side of the Pump.

Install an Tube Fitting onto the Drip Tray, and cut and place a ____ inch piece of Tubing onto the fitting.

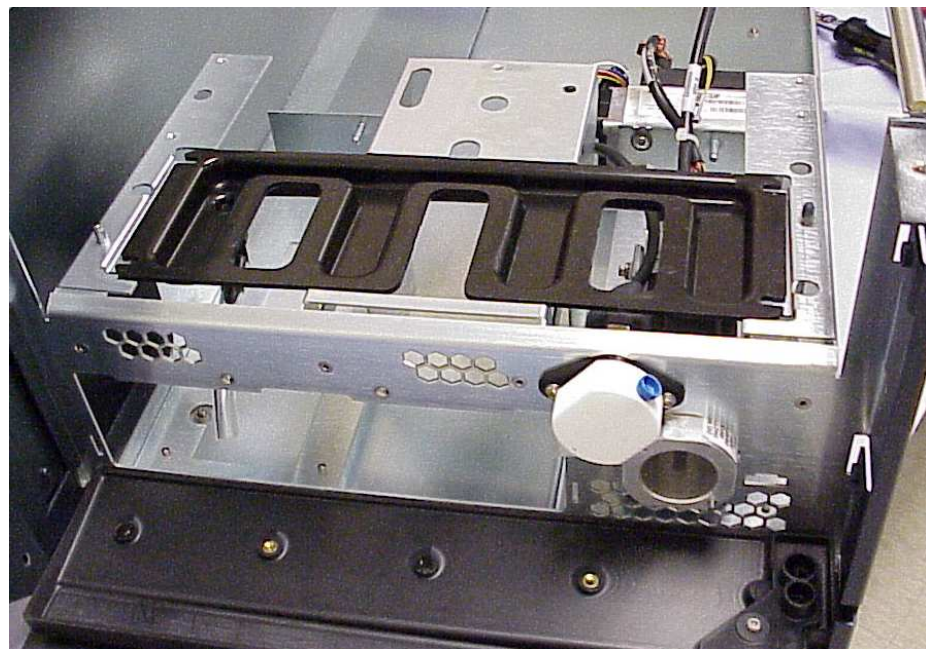


<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
6.8	CHASSIS ASSEMBLY	T-20 TORX

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
?????	1	SSV Assembly (assembled earlier)
WAT034347	2	M4 x 6MM Screws
?????	1	Actuator Tray Assembly (assembled earlier)

Install the SSV assembly (assembled earlier) as shown, and secure with screws inserted from the underside of the Chassis. **This is for Alpha only! This assembly will be field installed as an option in the future.**

Place the drip tray into the recessed area as shown..

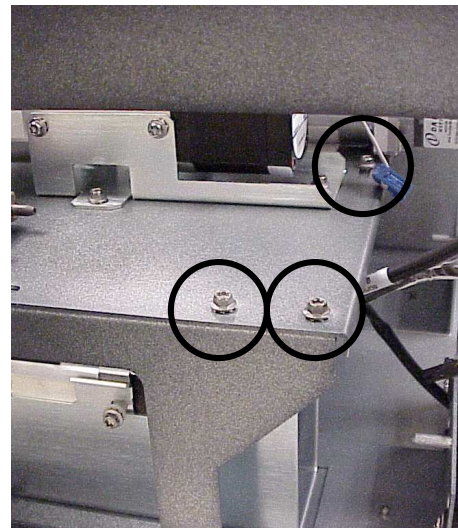
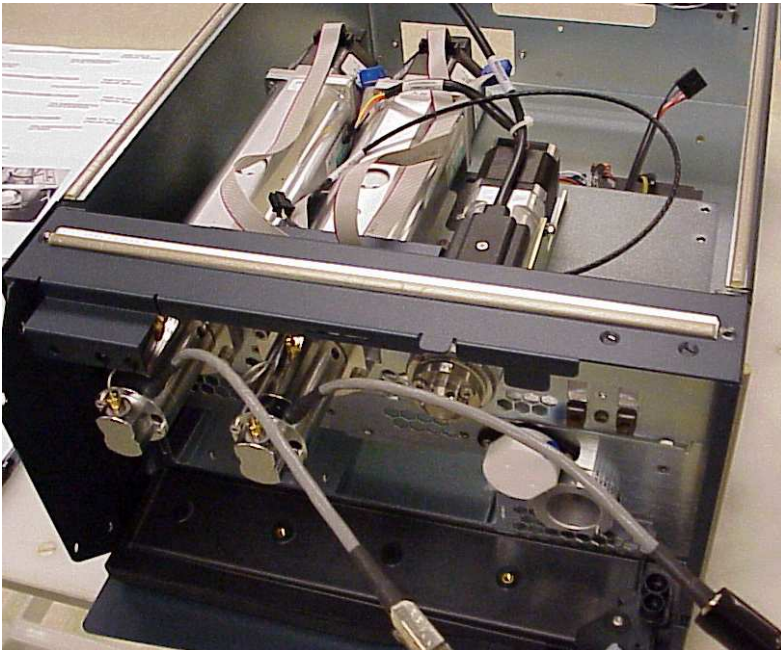


OPER
7.0OPERATION DESCRIPTION
CHASSIS ASSEMBLYTOOL NUMBER/DESCRIPTION
T20 TORX DRIVER
PHILLIPS SCREWDRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
415001454	1	Front Top Drip Tray
WAT034347	4	M4 x 6MM Screws
410001533	4	M4 Flat Head Screws

Install the Actuator Tray assembly as shown, and secure with (4) SEMS Screws at the rear edge of the Tray.

Place the Front Drip Tray as shown, and use (4) Phillips Flat Head Screws to secure the Drip Tray **and** the Front of the Actuator Tray.



OPER
7.2

OPERATION DESCRIPTION
CHASSIS ASSEMBLY

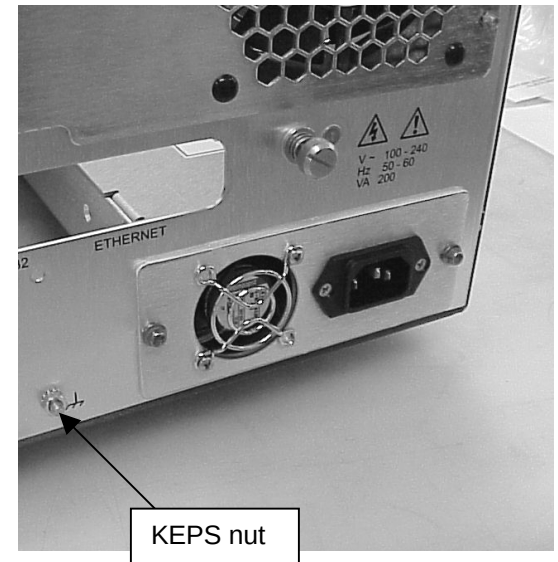
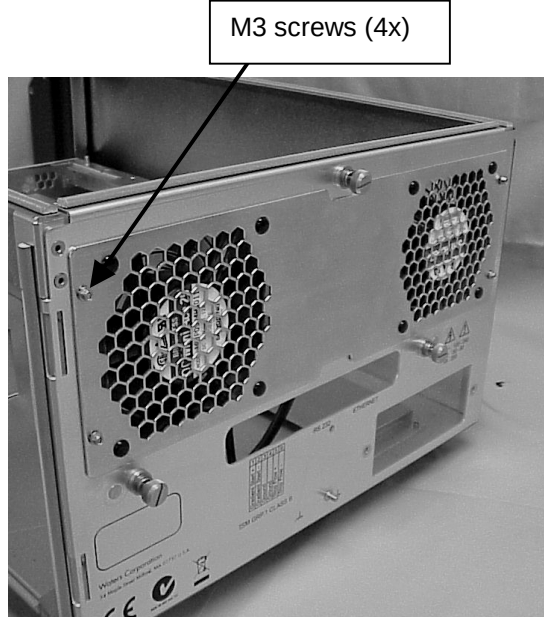
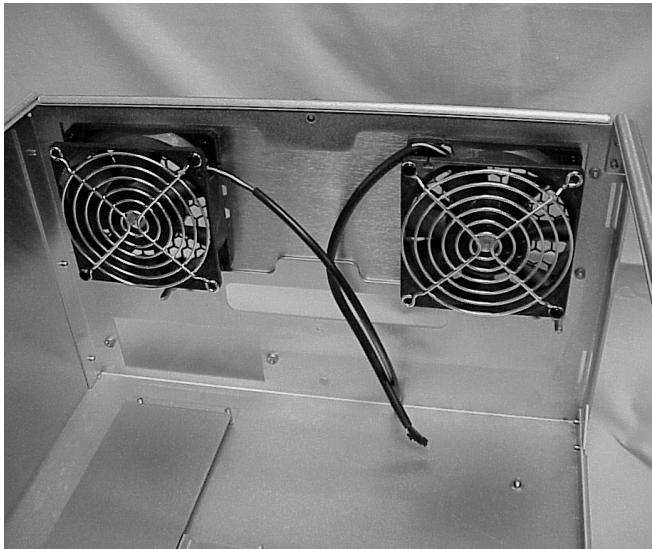
TOOL NUMBER/DESCRIPTION
T10 TORX SCREWDRIVER
T20 TORX SCREWDRIVER
7MM NUT DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
?????	1	Fan Bracket Assembly
279001752	1	Power Supply
WAT271463	4	M3 x 6MM Screws
WAT251620	2	KEPS nuts
WAT034347	2	M4 x 6MM Screws

Orient and place the Fan/ Bracket Assy to the rear of the Chassis Base. Notice the location of the Fan Wires. Secure in place with four M3 Screws.

Slide the Power Supply into the Chassis Base. The leading edge of the Power Supply should engage the locating tab in the Base. Secure with two M4 Screws.

Secure a KEPS Nuts to the Chassis studs as shown.



<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
7.4	CHASSIS ASSEMBLY	T20 TORX

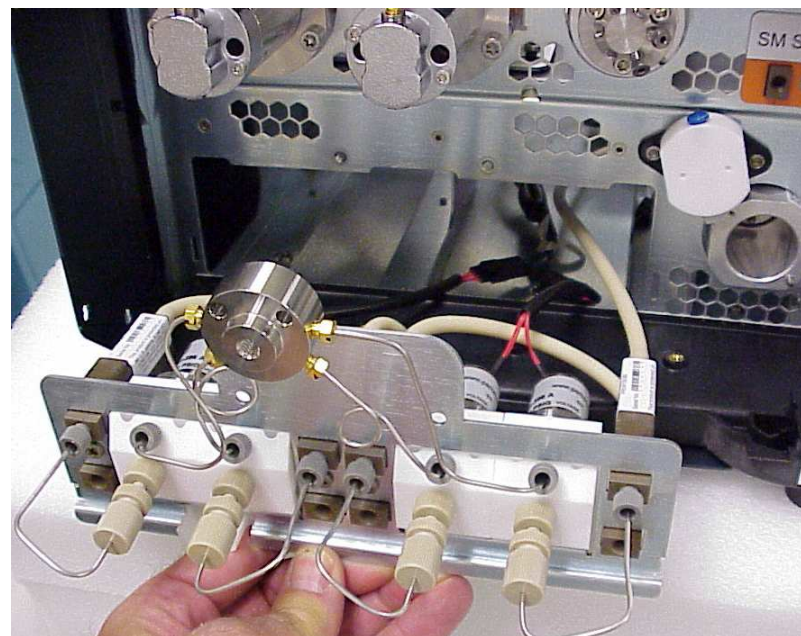
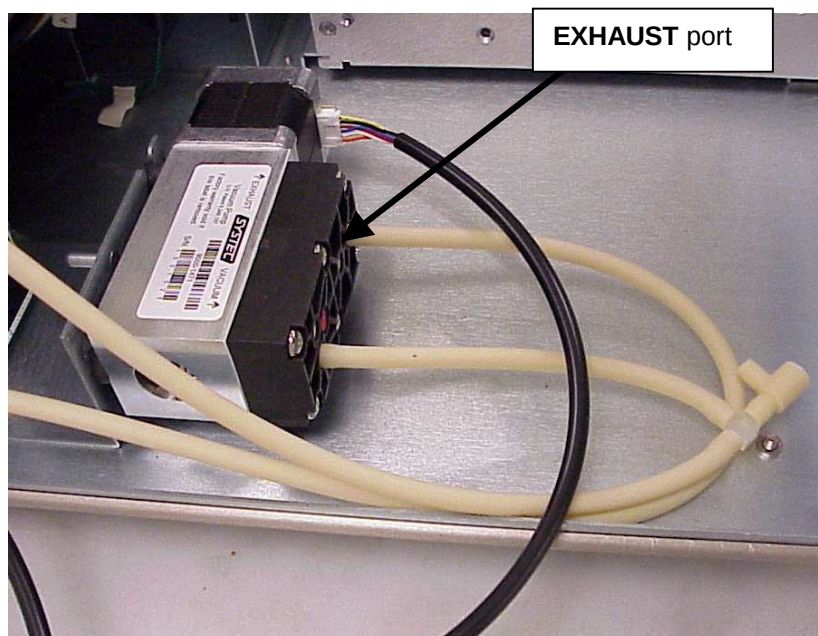
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
430002328	80 "	Santoprene Tubing
441000975	1	Degasser Motor Cable
?????	1	Tubing 'Tee'
?????	1	Degasser Sensor
n/a	1	GPV bracket assy (assembled earlier)
441000967	1	GPV Valve Cable

Cut the tubing to the following lengths:

- (1) at 16 inches (from Autosampler Degasser to 'Tee')
- (1) at 5 inches (from 'Tee' to Pump **VACUUM**)
- (1) at 60 inches (from Pump **EXHAUST** to Front Drip Tray)

Install the Degasser Motor Cable.

Install the GPV Cable, connecting the A-B leads to the A-B GPV's, etc.



OPER
8.0
OPERATION DESCRIPTION
CHASSIS PLUMBING**TOOL NUMBER/DESCRIPTION**
¼ INCH WRENCH
5/8" WRENCH

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289004551	1	Filter, 2 Micron
430001856	31 inch	3/16" Tygon Tubing
410001401	3	Pin Plugs
430002319	1	VV #2 to Filter
430002317	1	P4 to Waste tube

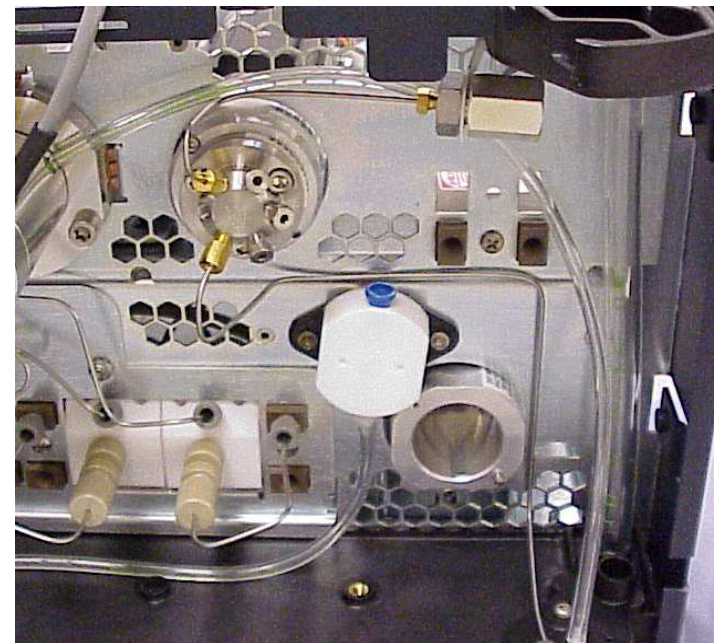
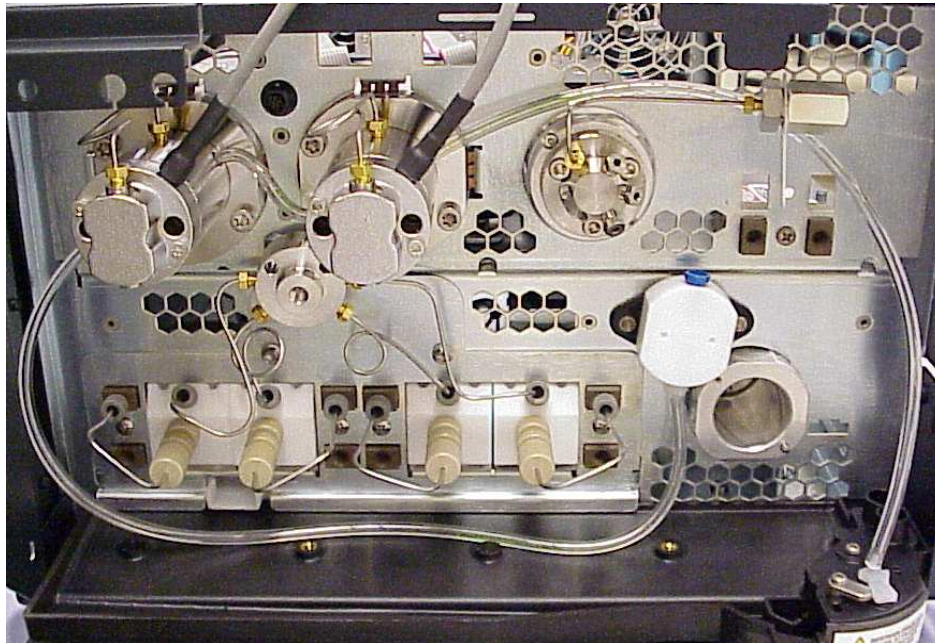
Cut the Tygon Tubing to the following lengths:

- (1) at 16 inches. Install between the Seal Wash outlet and the Primary Actuator inlet
- (1) at 12 inches. Install the short tube between the two Actuators
- (1) at 3 inches. Install between the Accumulator outlet and the Lower Drip Tray.

Install the Pin Plugs to ports 1, 5, and 6.

Install the Waste Tube between port #4 and the Drip Tray.

Install the Filter to the Filter Tube, and then into Port #2 on the Vent Valve.



OPER
8.1
OPERATION DESCRIPTION
CHASSIS PLUMBING

TOOL NUMBER/DESCRIPTION
FITTING TORQUE TOOL #9656
BREAK AWAY TORQUE WRENCH #999026375

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
430002333	1	Solvent Inlet Tubing
?????	1	Cable tie
410000419	1	#4 SEMS Screw

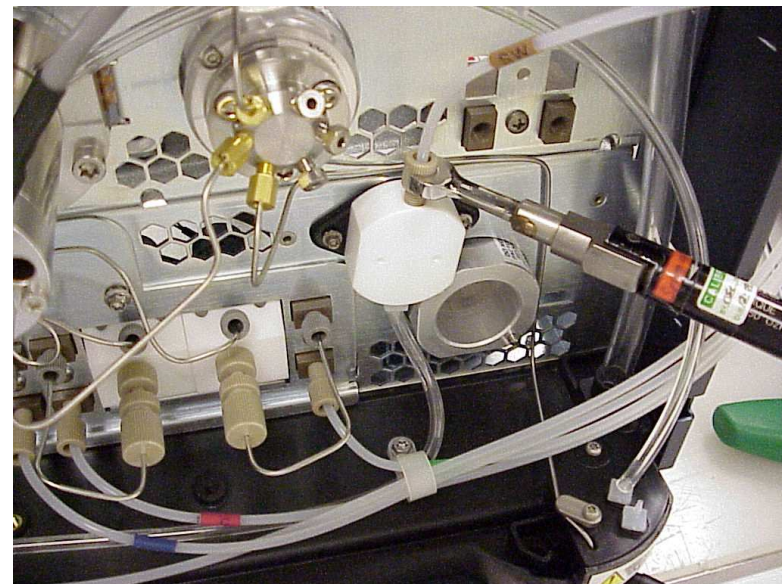
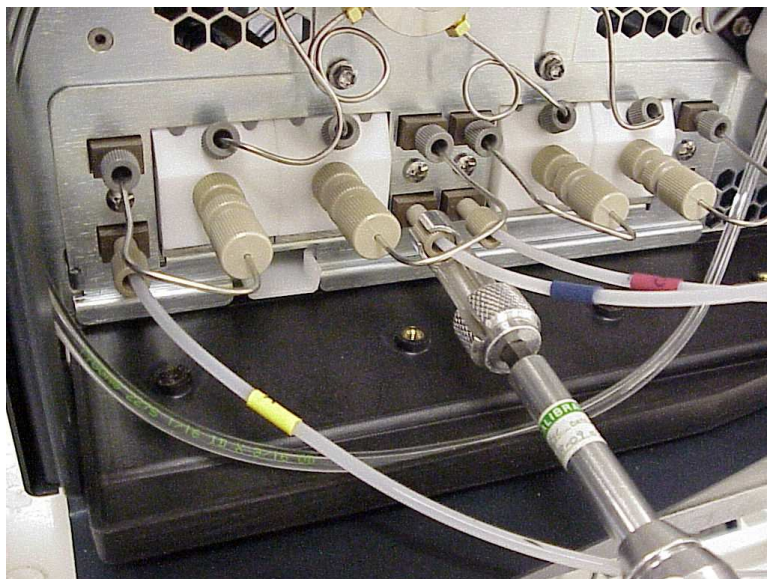
CAUTION: This operation requires that cleanroom gloves be worn to limit the amount of contamination passed onto the assembly

WEAR GLOVES to keep the assembly clean. Remove the Solvent Inlet Tubing and uncoil the assembly. The Filter end should be placed back into the cleanroom bag as soon as possible.

Place and secure the 'A', 'B', 'C', 'D' tubes, in that order to the Degassers as shown. Tighten these fittings with the specified torque wrench (**new tools are on order. Use borrowed tools for Alpha**)

Place and secure the Seal Wash tube as shown, and tighten with the break away wrench.

Wrap and secure the Tubes with a Cable tie and Screw as shown.

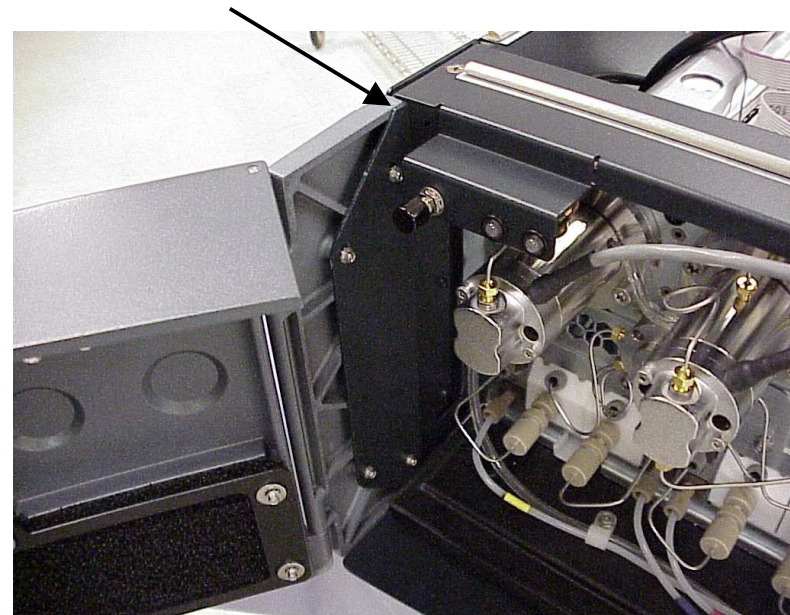
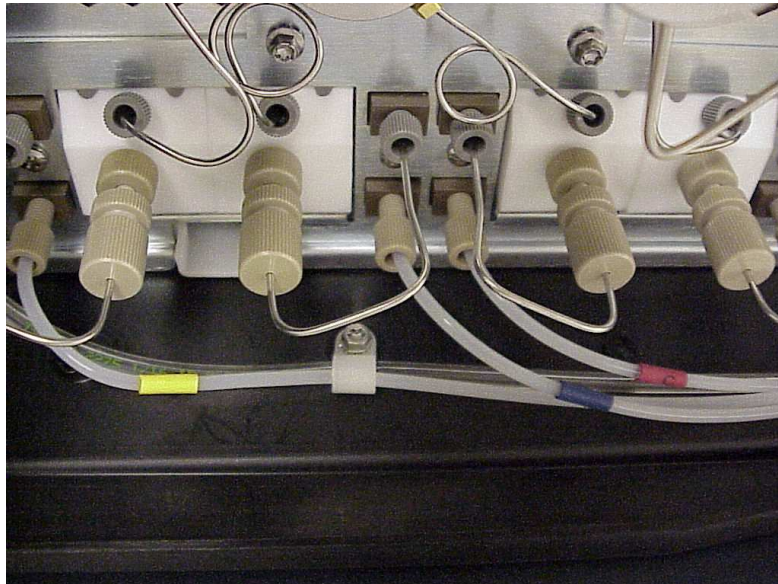


OPER
8.2**OPERATION DESCRIPTION**
CHASSIS PLUMBING**TOOL NUMBER/DESCRIPTION**
¼ INCH WRENCH
T10 TORX

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289005301	1	Modified Door Asm (assembled earlier)
?????	1	Cable tie
410000419	1	M4 SEMS Screw
WAT271463	4	M3 x 8 SEMS Screw

Wrap and secure the Tubes with a Cable tie and Screw as shown.

Install the Door Assembly with (4) M3 Screws. The door should be raised to be even with the door flange of the Chassis.



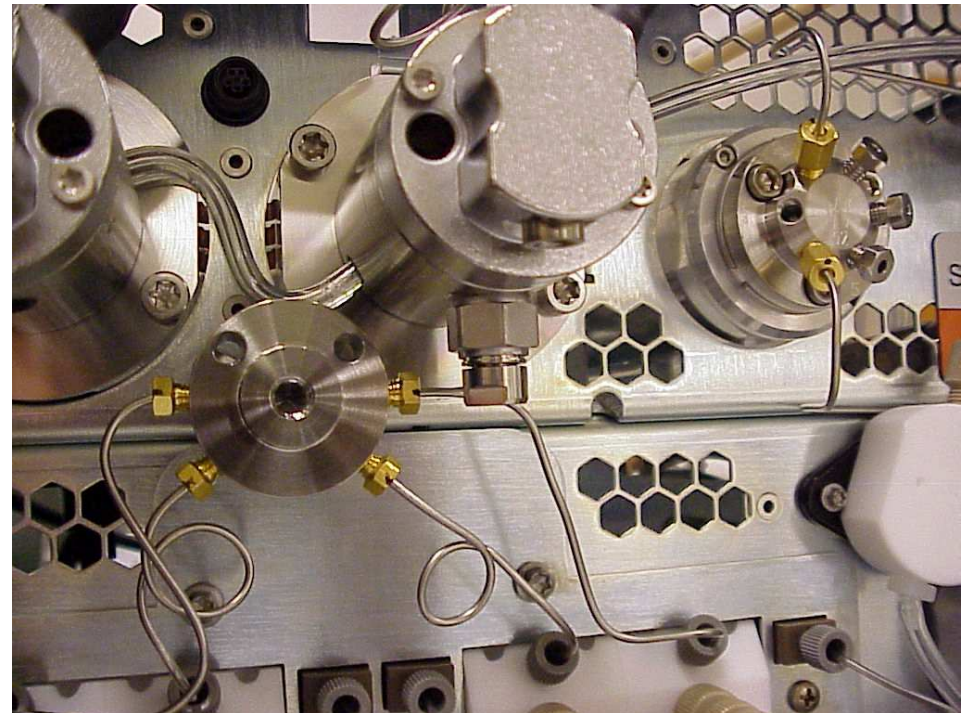
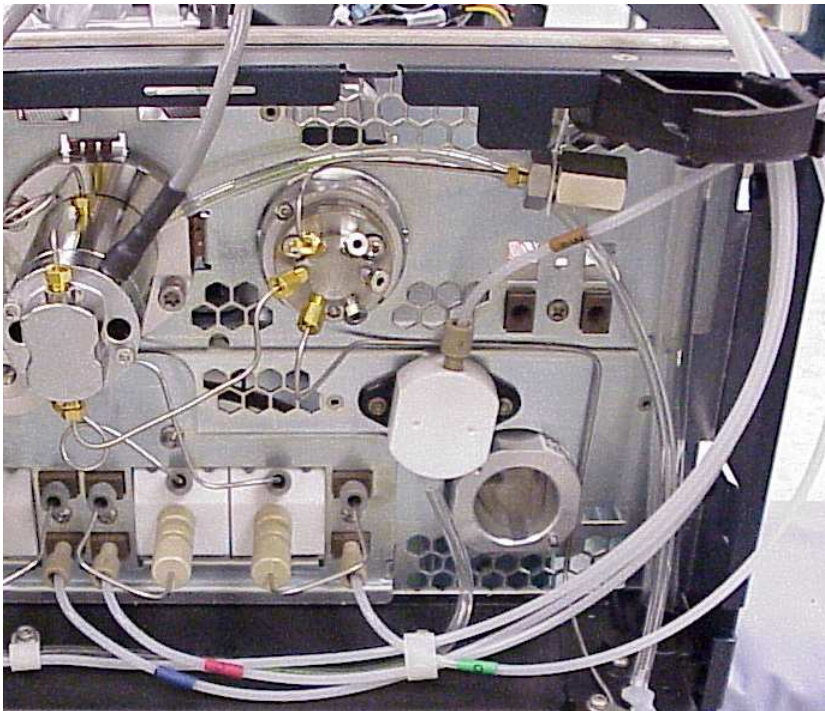
<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>												
8.3	CHASSIS PLUMBING	¼ INCH WRENCH 1/2 INCH WRENCH												
	<table><tr><th><u>PART #</u></th><th><u>QTY</u></th><th><u>DESCRIPTION</u></th></tr><tr><td>430000604</td><td>1</td><td>Tygon Drain Tube (Part of the Tray assy)</td></tr><tr><td>430002316</td><td>1</td><td>Xducer to VV #3</td></tr><tr><td>289001940</td><td>1</td><td>Dbl Ball Check Valve</td></tr></table>	<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>	430000604	1	Tygon Drain Tube (Part of the Tray assy)	430002316	1	Xducer to VV #3	289001940	1	Dbl Ball Check Valve	
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>												
430000604	1	Tygon Drain Tube (Part of the Tray assy)												
430002316	1	Xducer to VV #3												
289001940	1	Dbl Ball Check Valve												

Shorten the Drain Tube as required, and install between the Upper and Lower Drip Trays.

Secure the steel tube between the Accumulator Actuator and the Vent Valve.

- **TIGHTEN the Vent Valve** fitting to finger tight plus $\frac{3}{4}$ turn.
- **TIGHTEN the Actuator Tube** fitting to finger tight plus $\frac{1}{2}$ turn!

Install the Check Valve to the Accumulator Actuator and tighten finger tight plus 1/8 (??) wrench turn.



OPER
8.4

OPERATION DESCRIPTION
CHASSIS PLUMBING

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279001817	1	i2V Actuator
289003207	1	i2V Cartridge
430002318	1	Mixer to i2V Actuator

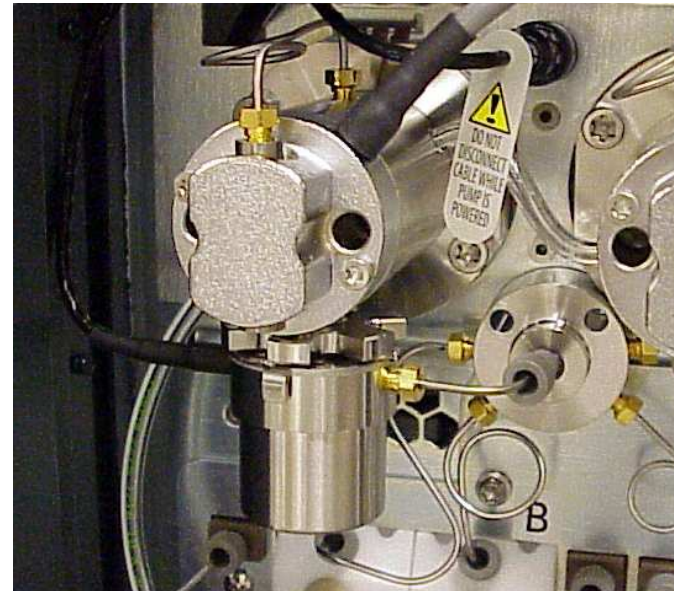
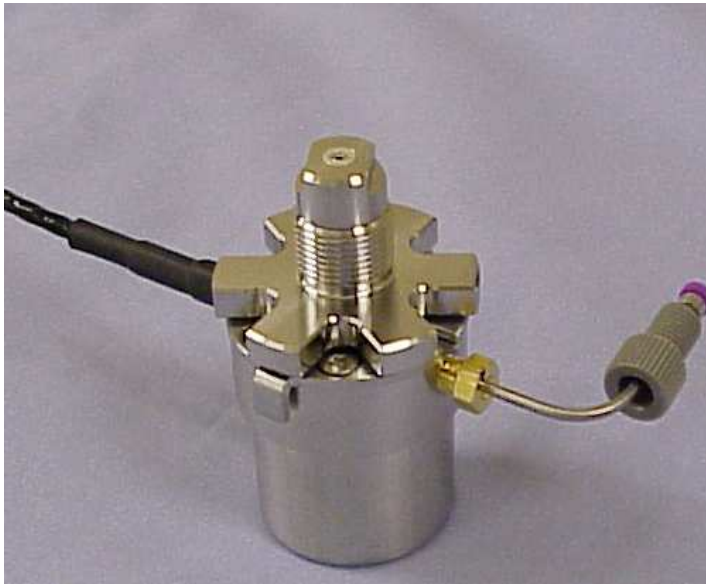
TOOL NUMBER/DESCRIPTION
5/16 INCH WRENCH
¼ INCH WRENCH
T8 TORX

Install the Tube to the i2V Actuator. Make the gold screw finger tight, mark the back side (3 o'clock position) with a marker, and then wrench tighten the fitting ¾ turn.

WEAR GLOVES to keep the assemblies clean. Remove the Cartridge and the PEEK Seat from the bag. ORIENT the Seat CHAMFER SIDE UP, and place it into the face of the Cartridge. Install the Cartridge into the Actuator and tighten the (4) Screws, in random pattern to softly engage the Cartridge. Tighten the screws, in random order, a second and third time to better engage the Cartridge.

Install the assembly onto the left side Actuator and wrench tighten to secure the assembly. Place the Caution Label onto the Cable, and then route the Cable and connect it to the chassis fitting.

CAUTION: This operation requires a clean work area and requires that cleanroom gloves be worn to limit the amount of contamination passed onto the assembly



OPER
8.5 OPERATION DESCRIPTION
CHASSIS PLUMBING

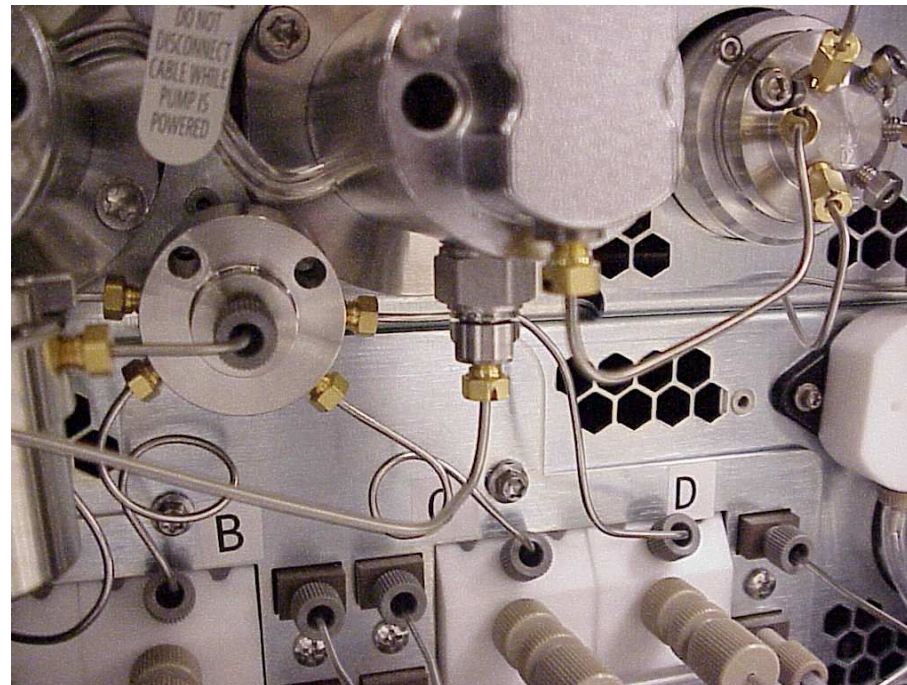
TOOL NUMBER/DESCRIPTION
FITTING TORQUE TOOL #9656
¼ INCH WRENCH

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
430001773	1	Xducer to Check Valve Tube

Install the Tube coming off the i2V Actuator into the Mixer. Tighten with the specified Torque Tool.

Install the Tube assembly into the Check Valve and finger tighten. **Mark the fitting and wrench tighten ¾ turn.** Install the other end of the tube into the transducer of the Left side Actuator. Finger tighten, **mark, and wrench tighten ½ turn**

CAUTION: This operation requires a clean work area and requires that cleanroom gloves be worn to limit the amount of contamination passed onto the assembly



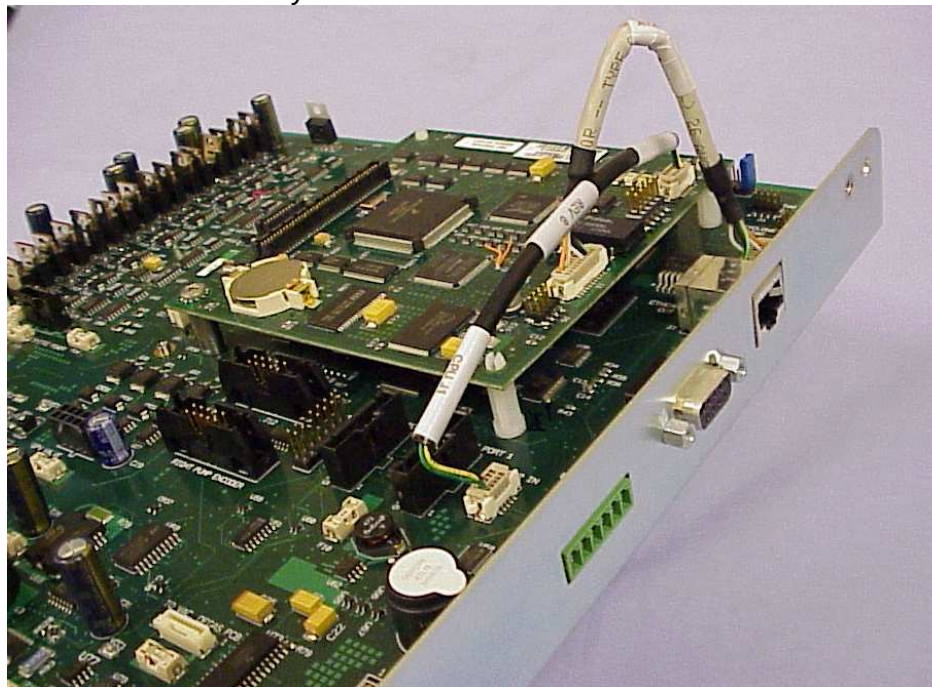
<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
9.0	PCB AND INTERNAL CABLES	5.5MM NUT DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
210000345	1	Personality PCB
210000273	1	CPU
400003863	1	PCB Bracket
WAT089113	2	Standoffs
441000968	1	Ethernet Jumper Cable
441000957	1	RS232 Jumper Cable

The CPU is mounted to the Personality PCB for Alpha. Place this board set onto the Bracket and push/ secure the Board onto (4) standoffs.

Install the Standoffs to the RS232 Connector.

Install the Jumper Cables between the CPU and Personality PCB.



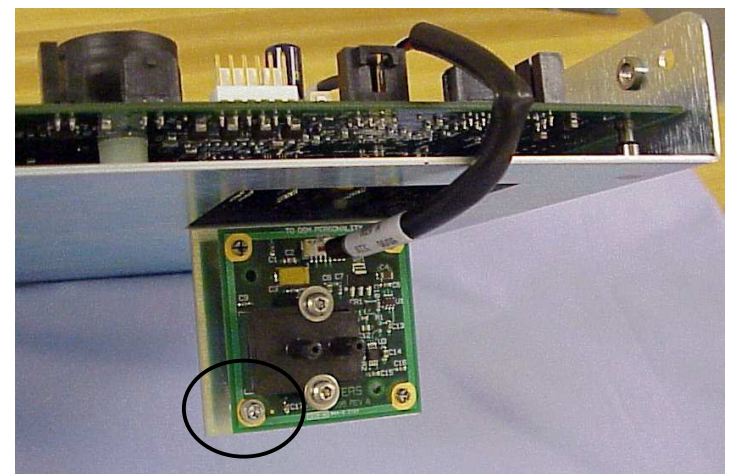
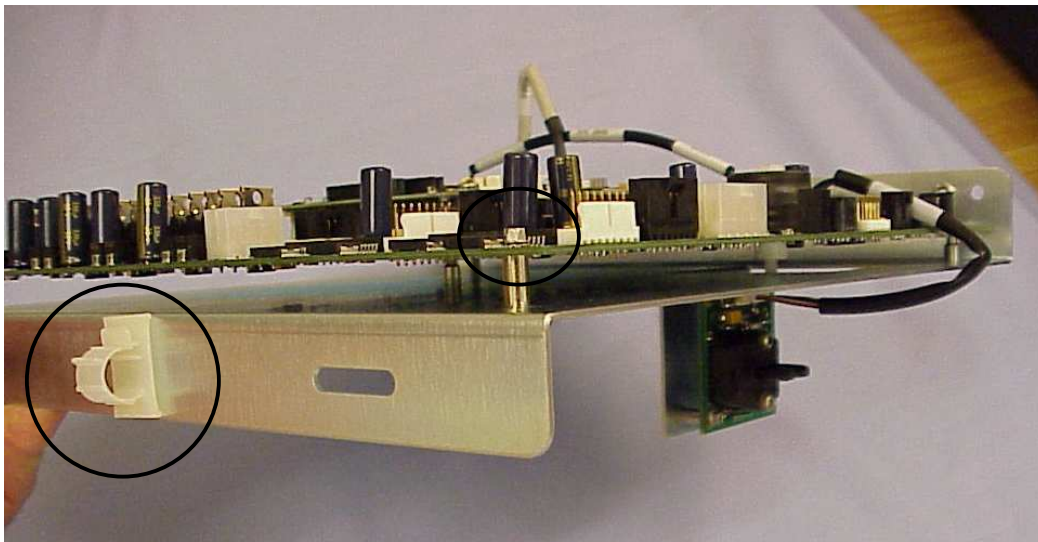
OPER
9.1 **OPERATION DESCRIPTION**
PCB AND INTERNAL CABLES**TOOL NUMBER/DESCRIPTION**
T10 TORX DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
210000396	1	Degasser PCB
410000272	2	M3 x 8 Screw
441000971	1	Vacuum Sensor Cable
410000xxxx	1	Cable Clamp

Install the Degasser PCB, and then connect the Degasser Cable between the Personality and Degasser PCBs.

Use M3 Screws to Ground and secure both the Degasser and the Personality PCB.

Install the Cable Clamp to the Bracket.



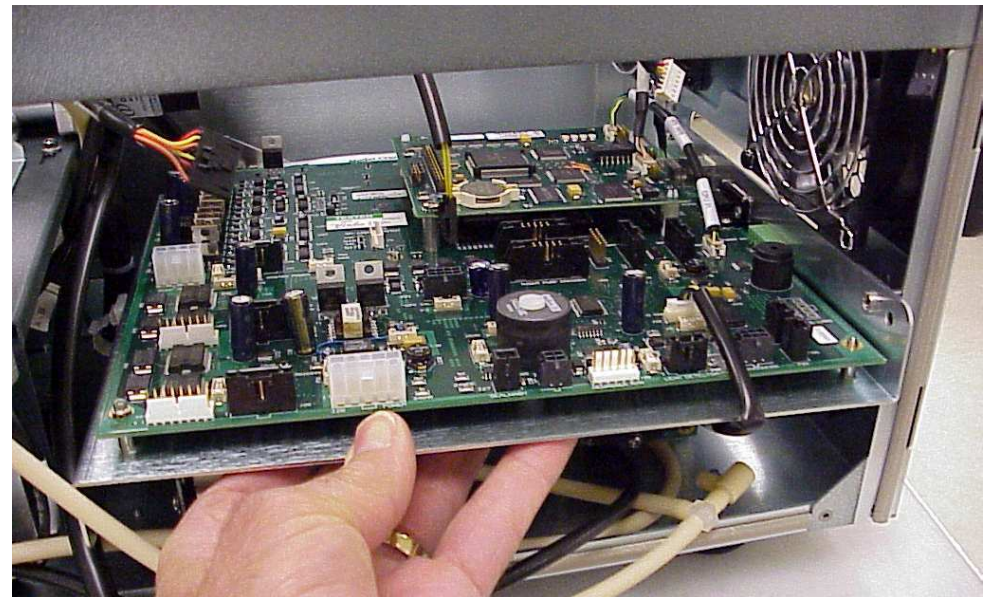
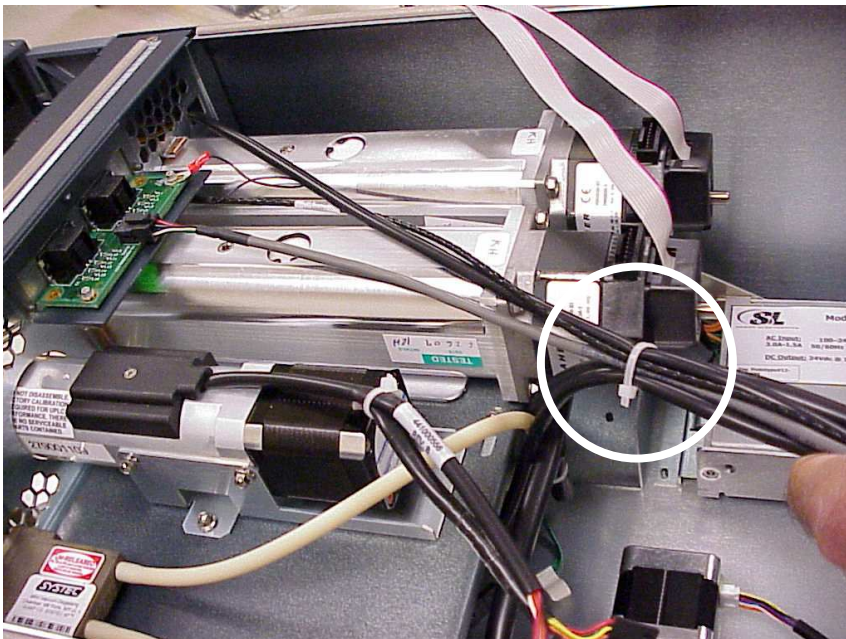
OPER
9.2**OPERATION DESCRIPTION**
PCB AND INTERNAL CABLES**TOOL NUMBER/DESCRIPTION**
T10 TORX

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
210000417	1	Transducer PCB
441000969	1	Transducer Cable
WAT027033	1	Cable Tie
WAT271463	2	M3 x 6 SEMS screws

Install the Transducer Cable to the Transducer PCB.

Gather the Seal Wash Cable and the GPV Cables from the lower shelf, and the i2V Cable, the Power Status Cable, and the Transducer Cable from the top shelf. Loosely Tie Wrap all (5) Cables together as an aid to Serviceability and Manufacturability.

Place the PCB/ Bracket Assembly through the Chassis side opening. Locate on the Chassis Guide pins, and secure with the captive screws on the rear bulkhead of the Chassis.



OPER
9.3

OPERATION DESCRIPTION
PCB AND INTERNAL CABLES

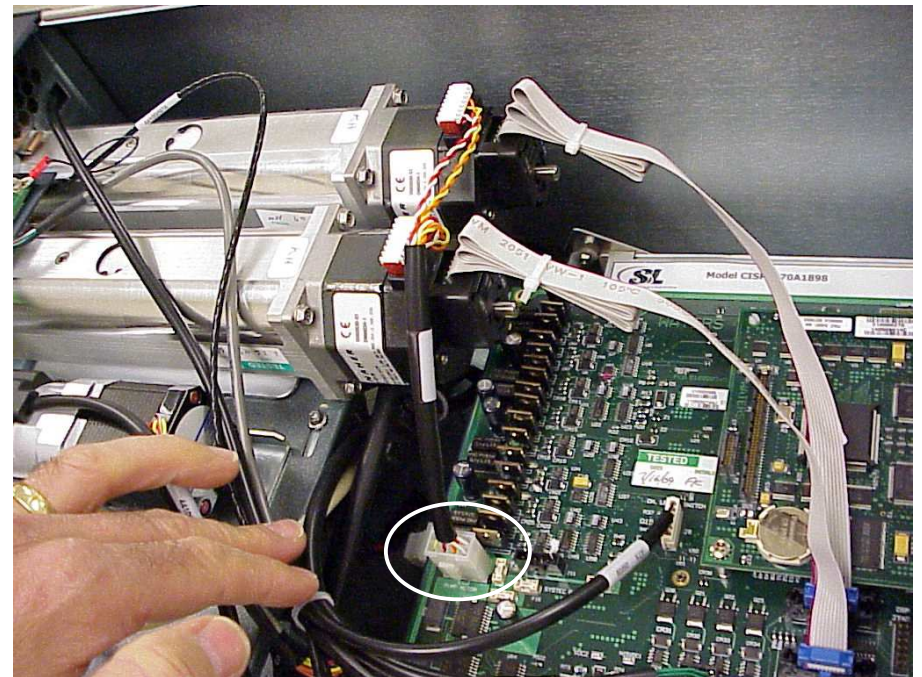
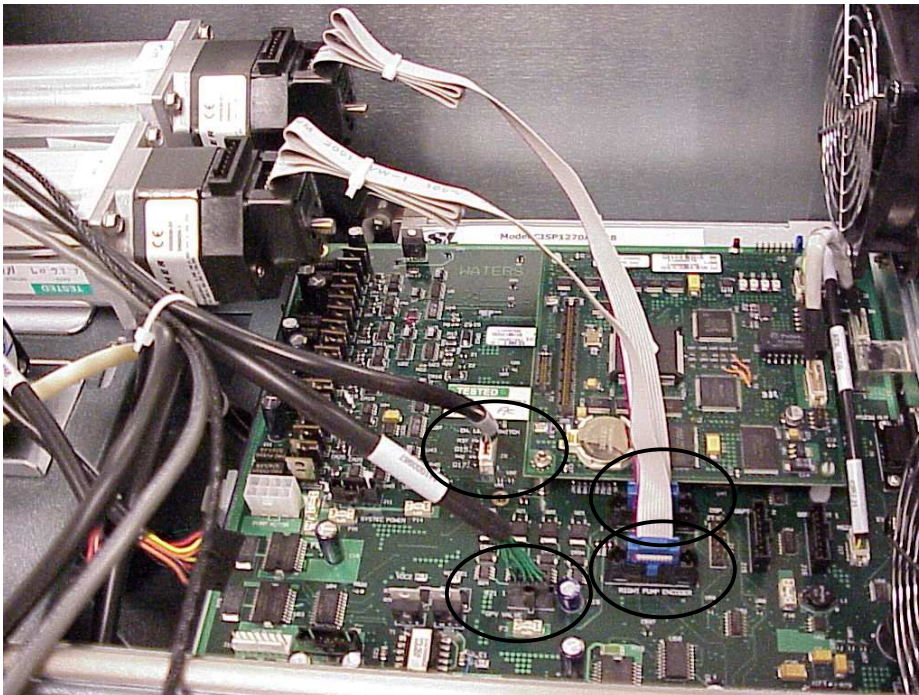
TOOL NUMBER/DESCRIPTION

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
441000972	1	Pump Motor Cable
WAT027033	2	Cable Tie

Fold the excess **Actuator Encoder Cables** and Tie Wrap as shown. Plug each Cable into the PCB.

Plug the **GPV Cable** and the **Power/ Status Cable** (from the tie wrapped bundle of Cables) into the PCB.

Install the **Pump Motor Cable** to the two Actuators, and then plug it into the PCB.



OPER
9.4 OPERATION DESCRIPTION
PCB AND INTERNAL CABLES

TOOL NUMBER/DESCRIPTION

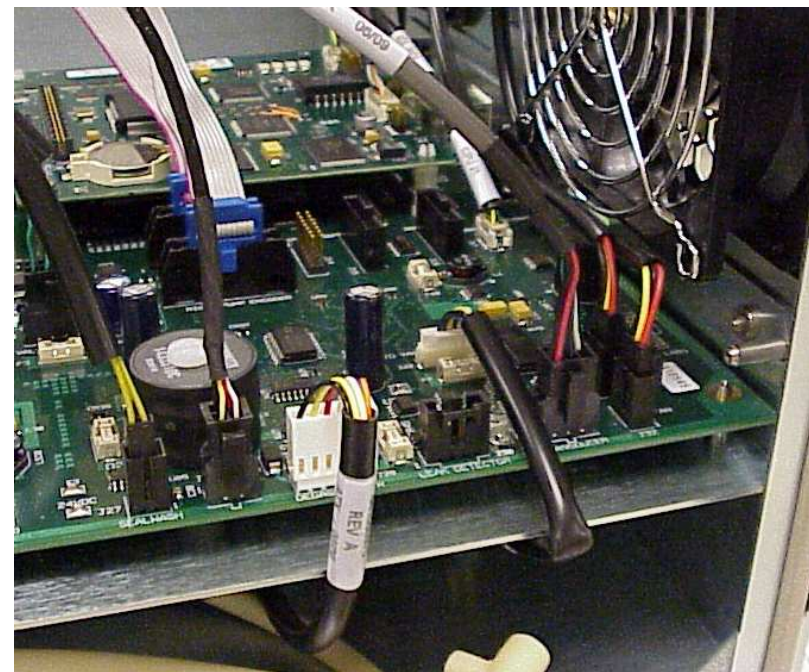
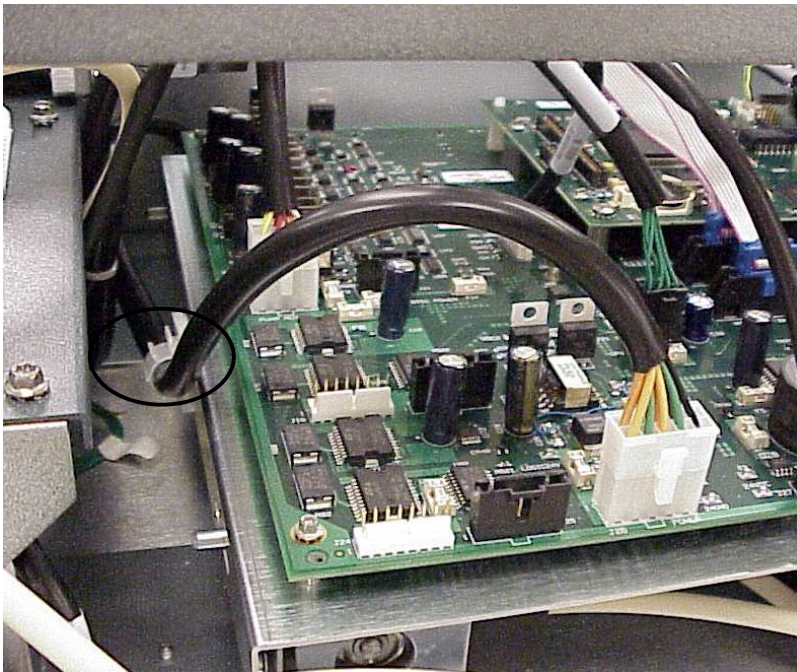
PART # QTY DESCRIPTION

Route the **Power Supply Cable** (from the far side of the Chassis) into the Cable Clamp on the PCB Bracket, secure the Clamp. Plug the Cable into the PCB.

Plug the **Seal Wash Cable**, the **i2V Cable**, and the **Transducer Cable** (from the tie wrapped bundle of Cables) into the near side PCB connectors.

Plug the **Fan Cables** into the near side PCB connectors.

Plug the **Degasser Pump Cable** (from under the Bracket/ PCB assembly) into the near side PCB connectors.

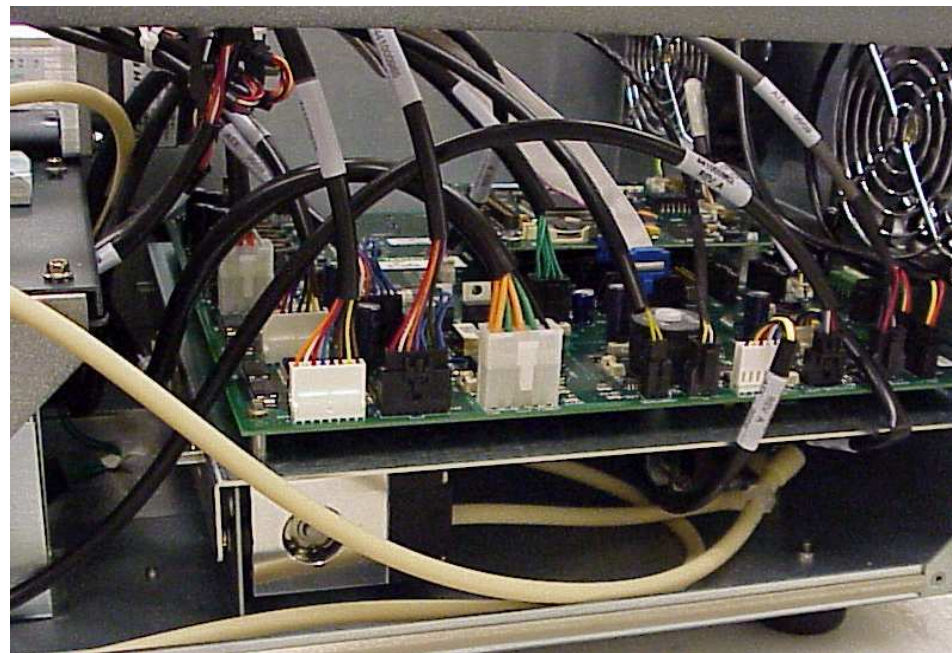
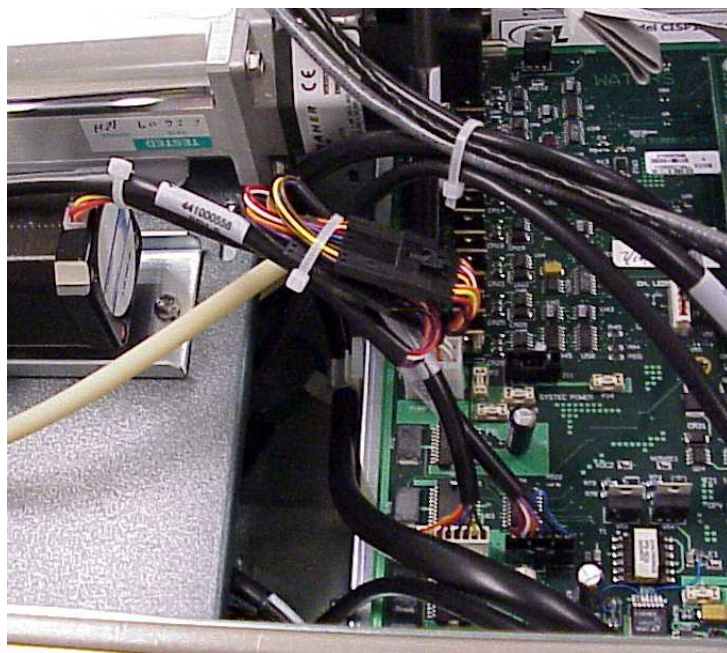


OPER
9.5OPERATION DESCRIPTION
PCB AND INTERNAL CABLESTOOL NUMBER/DESCRIPTION

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
441000965	2	Valve Encoder Extender Cable
441000970	2	Valve Motor Extender Cable
441000862	1	Leak Detector Cable
WAT027033	4	Cable Ties

Connect Extender Cables to the Valve Motor Assemblies, and Tie Wrap the excess Cable lengths. (Both Extender Cables should be eliminated before Beta. The Cables coming off the Valve Motor should be lengthened for the necessary reach. Tie Wraps will still be needed to bundle the excess Cable length caused by length needed for the Autosampler which also uses the same Valve Motor Drive).

Make the PCB connections as shown.



OPER
10.0 OPERATION DESCRIPTION
 FINAL ASSEMBLY

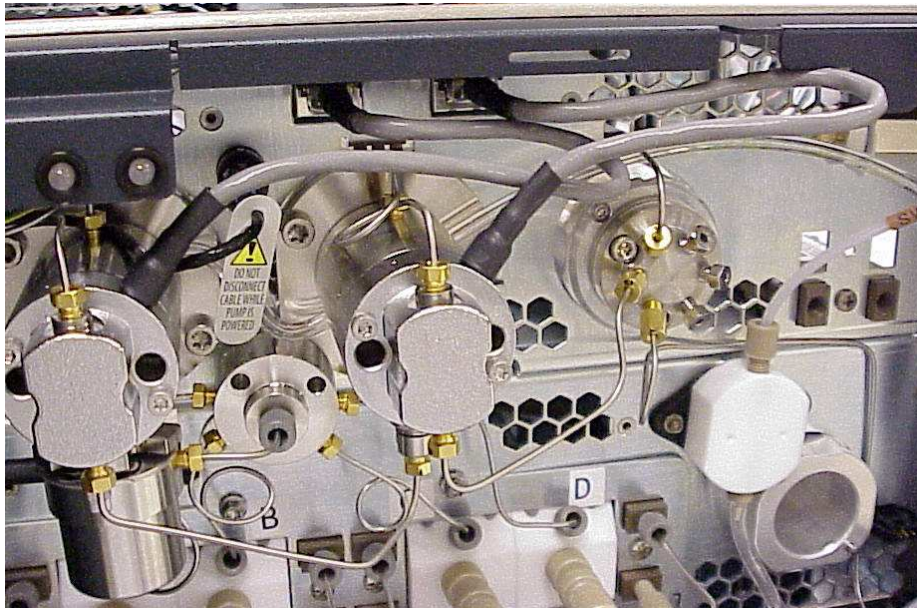
TOOL NUMBER/DESCRIPTION
T20 TORX

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
400003886	1	Cover
400003865	1	Side Cover
410001262	2	Blue Panel Screws

Plug the Transducer Cables into the Transducer PCB.

Install the Cover, and secure with the captive screw on the rear of the instrument.

Install the Side Cover with Panel Screws (not shown).



OPER	OPERATION DESCRIPTION
11.0	REFERENCE (RIGHT HEMISPHERE SNAPSHOT OF GPV ASSEMBLY)

