

WATERS MANUFACTURING ASSEMBLY PROCEDURE

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279001625 REV. C

ITEM NUMBER

279001625

DESCRIPTION

ASSY, BASIC UNIT e2796

WRITTEN BY

R. DUCHARME

DATE

06-16-08

REVISION RECORD

REV

DATE

AUTHORITY

NOTES

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C	07/08/11	B. DEGUIRE	ECR 9163265

<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
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NOTE: ALWAYS USE STATIC PROTECTION EQUIPMENT WHEN HANDLING PCB ASSEMBLIES

- | | | |
|-----|--|---|
| 1.0 | Turn on ionizer blower so that the air flow is across your work area.
This neutralizes the air to help eliminate static charges when removing the protective coverings on the keypad and the LCD's, always pull these protective covers off slowly because the friction creates static charges.
Note: There is a heater option if needed. | IONIZER BLOWER
IONIZING AIR GUN
LINT FREE WIPES |
| 1.1 | Remove protective film from keypad glass. | LINT FREE WIPES
IONIZER WAND |

NOTE: Inspect glass on keypad and clean with clean air source (i.e. ionized).
Use only lint free wipes on the display. Press lightly on the glass to make sure it is secure.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
420000123	1	KEYPAD E2796

- 1.2 Center keypad gasket assembly onto the keypad. Assemble the display onto the keypad.
Make sure the keypad glass and display are clean.

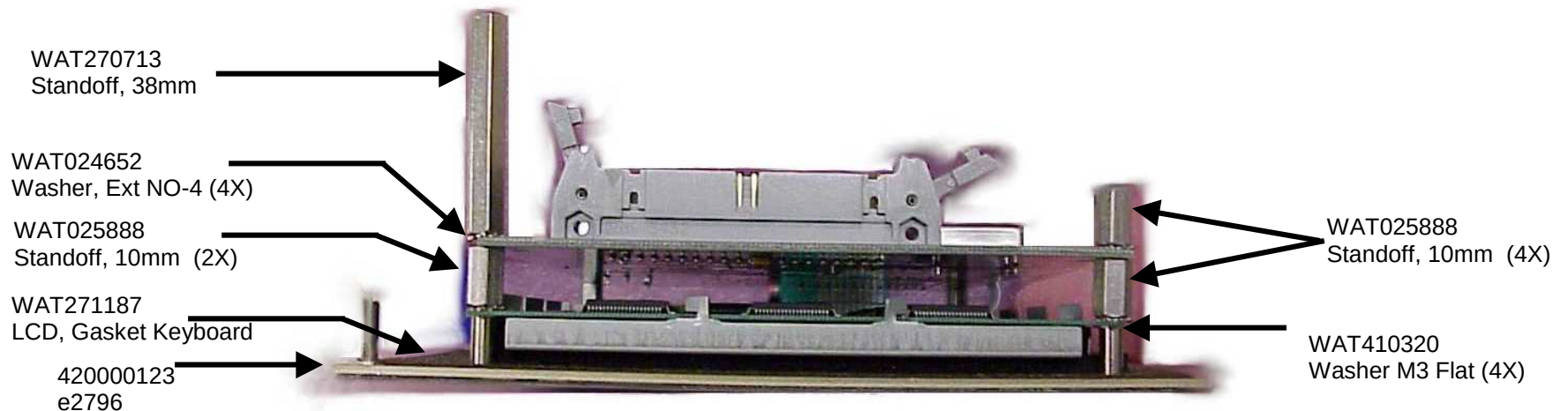
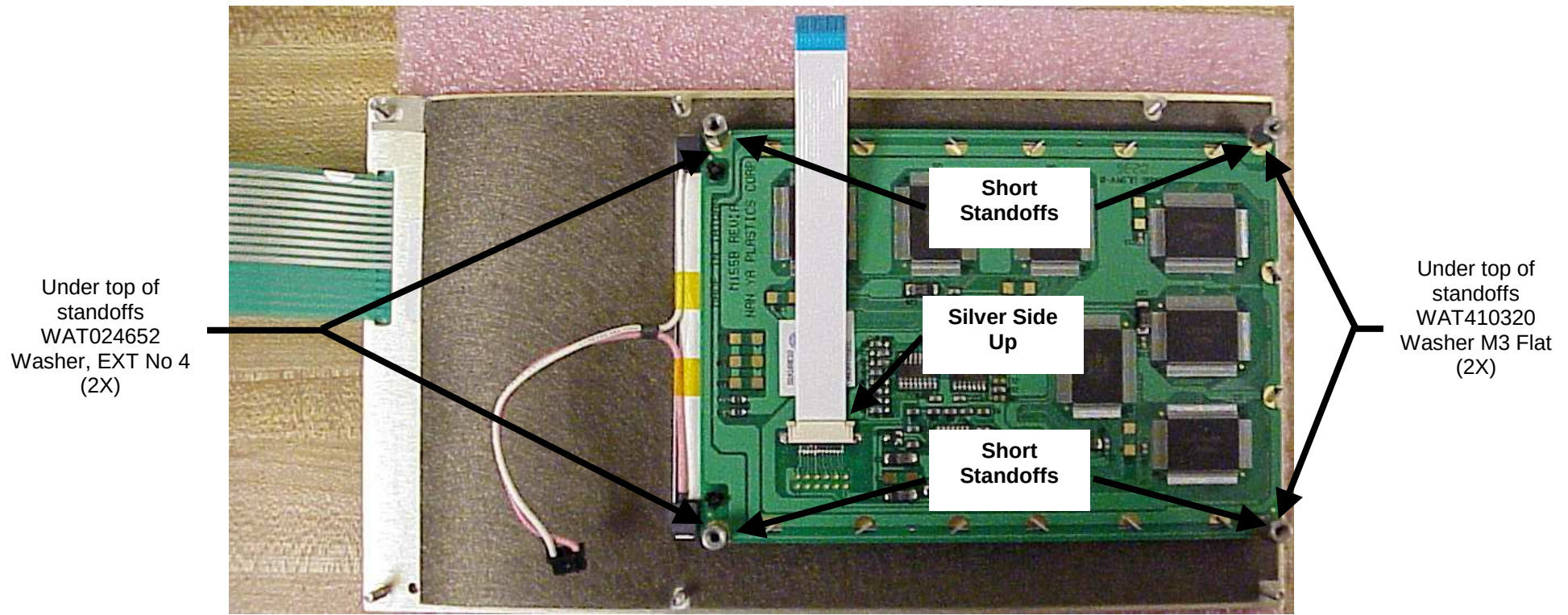
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT271187	1	ASSY, GASKETS, KEYPAD
326000104	1	LCD DISPLAY

- 1.3 Slide (4) metric washers (WAT410320) under the display mounting holes.
Next place a metric washer (WAT410320), on each of the (2) right side mounting holes on the display.
Place (2) star washers (WAT024652) on the display left side holes.
Secure the display with (4) standoffs.

NOTE: Be sure display is even in the glass of keypad before tightening the standoffs.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT410320	6	WASHER, METRIC PL/MED M3
WAT024652	2	WASHER STAR EX NO-4
WAT025888	4	M/F HEX STAND OFF 10MM LG

Refer to the next page for assembly pictures.



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1.4 **Record the serial number of the PC Board onto the System Prep Check off Sheet 735000293 and place in a folder.**

1.5 Attach cable to display, shiny side up, and to the J4 connection on the PCB.
Place the PCB board onto the standoffs.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270562	1	CABLE LCD 12 CIRCUIT FFC
210000384	1	ASSY, PCB FRONT PANEL SUPERMODL

1.6 Assemble (2) large standoffs with (2) star washers on the bottom holes of the PCB.
Place (2) small standoffs with (2) star washers on the top holes of the PCB.
(Refer to picture on page 3.)

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270713	2	STANDOFF, HEX, M/F M3 X38MM LG
WAT024652	4	WASHER STAR EX NO-4
WAT025888	2	M/F HEX STAND OFF 10MM LG

1.7 Attach the CPU ribbon cable to J1, the keypad cable to J5
and the display wires to J6 connectors on the PCB.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270084	1	ASSY, CABLE TO CPU

1.8 Test display and keypad assembly using test specification and procedure
#WAT242102. Verify display alignment during test.

1.9 Mount the keypad onto the face of the front panel assembly and secure using
(6) flat washers and (6) hex nuts.

5.5 NUT DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289004452	1	KIT, FRONT PANEL ASSY, 2795
420000123	1	KEYPAD, 2796
WAT410330	6	M3 FLAT WASHER
WAT025817	6	NUT, HEX W/LOCKWASHER, M3

NOTE: Remove and discard bubble wrap
from the front panel away from the PCB's or
displays.
The bubble wrap holds large amounts of static
that may damage the components.

<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
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- 2.0 Slide the grommet onto the door switch wires. Plug the door switch cable into the J2 connection on the PCB. Place shield over display assembly aligning the grommet onto the shield. (Feed ribbon cable through the opening.)

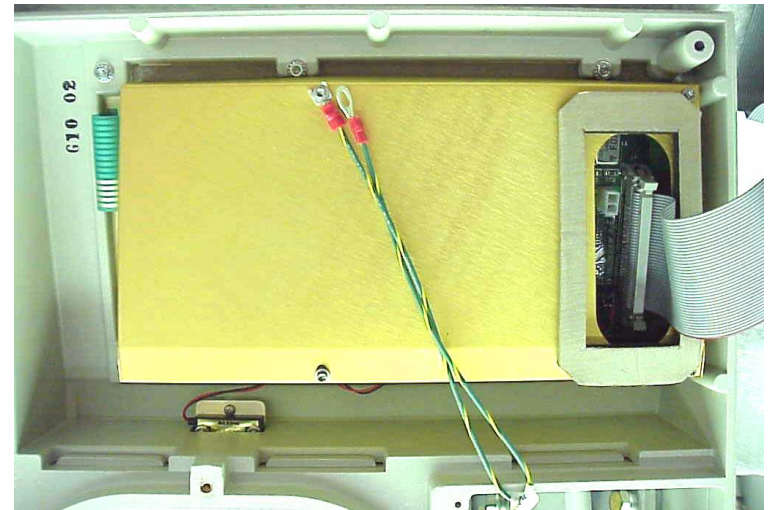
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT038161	1	GROMMET, SILICONE
WAT270639	1	SHIELD, LCD

- 2.1 Secure the ground wire to the shield placing a star washer, then the ground wire and secure with the M3 Sem screw.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT024652	1	WASHER STAR EX NO-4
WAT270560	1	GROUND WIRE ASSY 15" 1
410000272	1	M3X8 SEMS, SCREW

- 3.0 Secure the shield using screws 410000272.
Press adhesive side of shield gasket around the oval opening.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270767	1	GASKET SHIELD LCD
410000272	3	M3X8 SEMS, SCREW



<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
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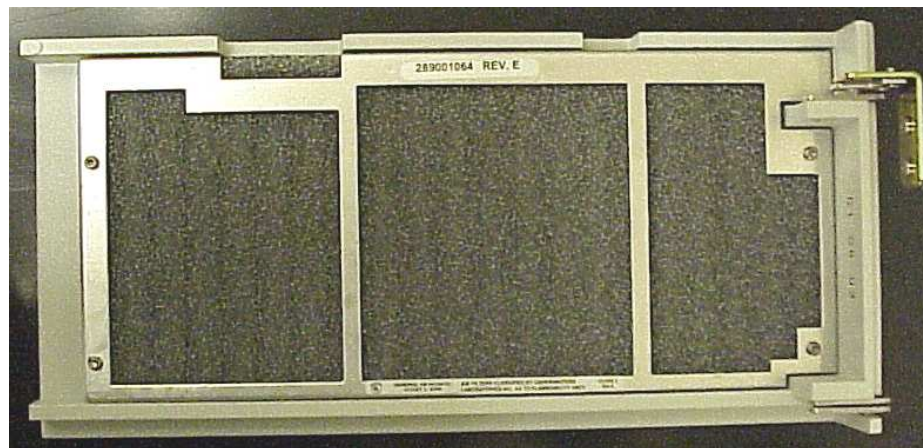
- | | | |
|-----|--|---------------------------------|
| 4.0 | Remove the cross member from the front panel assembly and rivet the valve mounting bracket to the two holes. Reassemble and re-wrap completed front panel assembly and folder with foam sheets provided. | # 2.5 ALLEN WRENCH
RIVET GUN |
|-----|--|---------------------------------|

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270786	2	RIVET, 1/8" SS CHERRY "N" CCP-43
400001042	1	BRACKET, CROSS MEMBER, VALVE MOUNTING



- 4.1 Assemble the door filter to the pump door.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289001064	1	ASSY, AIR FILTER BEZEL DOOR
WAT416308	4	MET, SCR, PN HD 3.12 X 1.27 X 8



OPER **OPERATION DESCRIPTION**

TOOL NUMBER/DESCRIPTION

INJECTOR ASSEMBLY

5.0 Assemble the injector bracket to the injector assembly.

T20 TORX DRIVER
T10 TORX DRIVER
#009025454 - FIXTURE

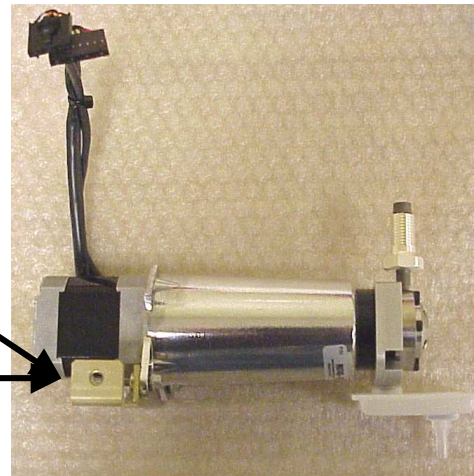
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
400001041	1	BRACKET, INJECT VALVE MOUNTING
WAT034346	2	SCREW, METRIC, M4X12MM
279000590	1	VALVE, TITANIUM, 7 PORT, 3 POS., INJECTOR

4000001041

Inject Valve Bracket

WAT034346

Screw, Metric M4 X12
2X



5.1 Insert the (425000120) washer seal into the bottom of the injector port

Verify the seal is seated down in the port.

Press the inject port seal (415000181) into the inject port.

Slide the retaining nut over the inject port and assemble to the injector assembly.

Use torque wrench # 999027793.

3/16" WRENCH
999027793 TORQUE WRENCH

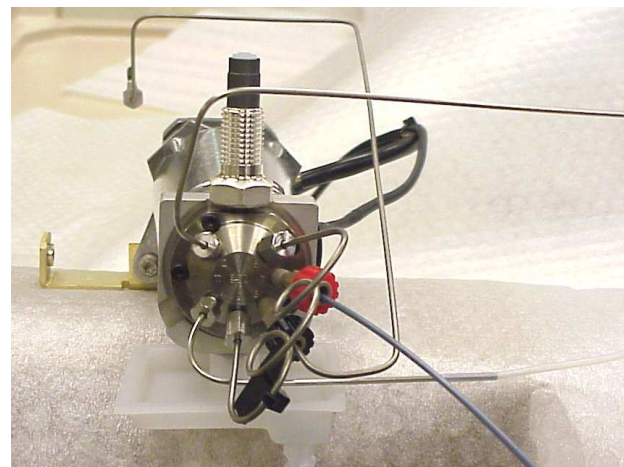
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
425000120	1	SEAL, WASHER, INJECT PORT
415000181	1	SEAL, INJECT PORT (MOLDED)
WAT271511	1	NUT, RETAINING WASH HOUSING
289001114	1	ASSY, INJECT PORT, TI,

<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
5.2	Assemble the tubing assemblies to the inject valve. Slide the unwrapped end of the 16" piece of teflon tubing (from the tubing kit) over the sample loop waste tubing (#430000248) and assemble this tubing to port 2. Slide the 22" piece of teflon tubing over injector waste tubing (#430000907) and assemble this tubing to port 4. Note: Rotate 430000248 90° Use torque wrench to fasten all 1/4" tubing on rocket valve. <u>* Note: Send remaining tubing kit to the chassis build line.</u>	SANDPAPER #009026163 #119625 FLARE TOOL # 999027840 TORQUE WRENCH

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>	<u>TUBING CONNECTIONS</u>
*430000173	1	KIT, TUBING 2795	
430000248	1	TUBE ASSY, SAMPLE LOOP WASTE	(FROM PORT 2 TO COMM)
430000907	1	ASSY, TUBE, INJECTOR WASTE	(PORT 4 TO WASTE
430000788	1	SAMPLE LOOP, 50 UI, TITANIUM	(PORT 5 AND 8)
430000734	1	ASSY, TUBE, IN-LINE FILTER TO INJECTOR VALVE	(PORT 6 TO PUMP FILTER)
430000820	1	TUBE ASSY, COLUMN OUT	(PORT 7 OF INJECTOR)

5.3	Assemble the thread fitting, nut and convoluted tubing to the drip tray. Assemble drip tray to the injector assembly	5/16" WRENCH
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<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
205000214	6.5"	KIT, CONVOLUTED TUBING, 2795
WAT270503	1	FITTING, THREAD TO PORT S240-6
WAT050596	1	NUT, HEX 1/4-28 3/8 ST
415000129	1	DRIP TRAY, INJECT VALVE
WAT271463	1	SCREW, M3X6 LONG SEM
WAT410330	1	M3, FLAT WASHER



OPER **OPERATION DESCRIPTION**

TOOL NUMBER/DESCRIPTION

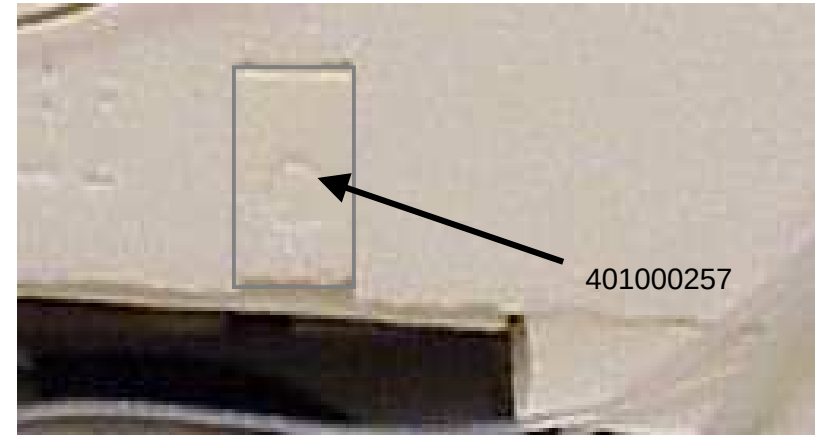
CHASSIS BUILD

6.0 Visually inspect the chassis for PEMS, cables holders, panel clips, etc

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289001407	1	ASSY., CHASSIS e2796

7.0 Apply the foam on the cutout of the sample compartment.
NOTE: Unlike the 2795 the foam will be installed at this step due to the different rocket valve orientation.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
401000257	1	INSULATION VALVE BRACKET

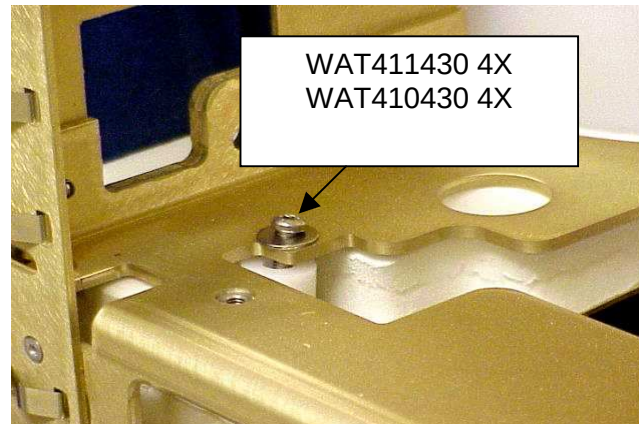
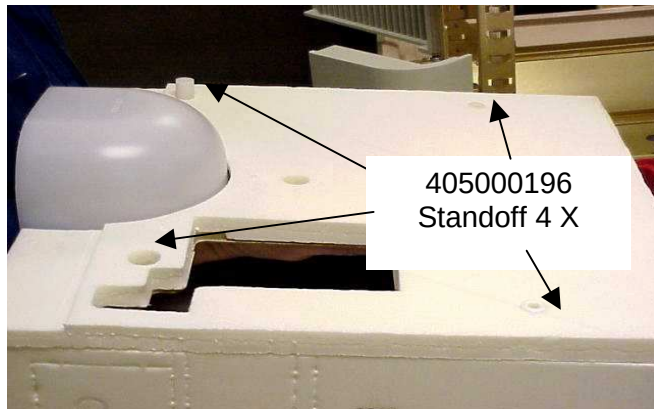


7.1 Place the sample compartment standoffs into the circular cutouts located on the top of the sample compartment foam. Slide the sample compartment assembly into the chassis. Secure the compartment.

T20 TORX DRIVER

NOTE: LOAD THE SAMPLE COMPARTMENT TO THE RIGHT.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT411430	4	SCREW, M4 X 30 MM PH
WAT410430	4	WASHER, M4 FLAT, MED
405000196	4	STANDOFF, SAMPLE COMPARTMENT
289000167	1	ASSY, SAMPLE COMPARTMENT



OPER **OPERATION DESCRIPTION**

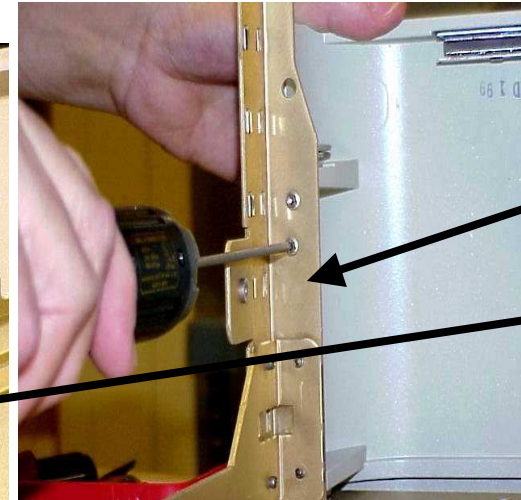
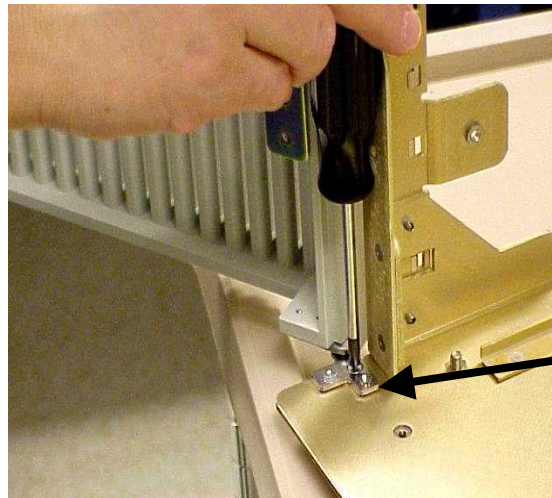
TOOL NUMBER/DESCRIPTION

8.0 Attach the pump and solvent doors (#289000173) to the chassis.

PHILLIPS BIT
T10 TORX DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270501	6	SCREW, M3X6MM FLAT HD. PHIL ZNC
WAT081265	4	SCREW, M3 X 10 SEMS

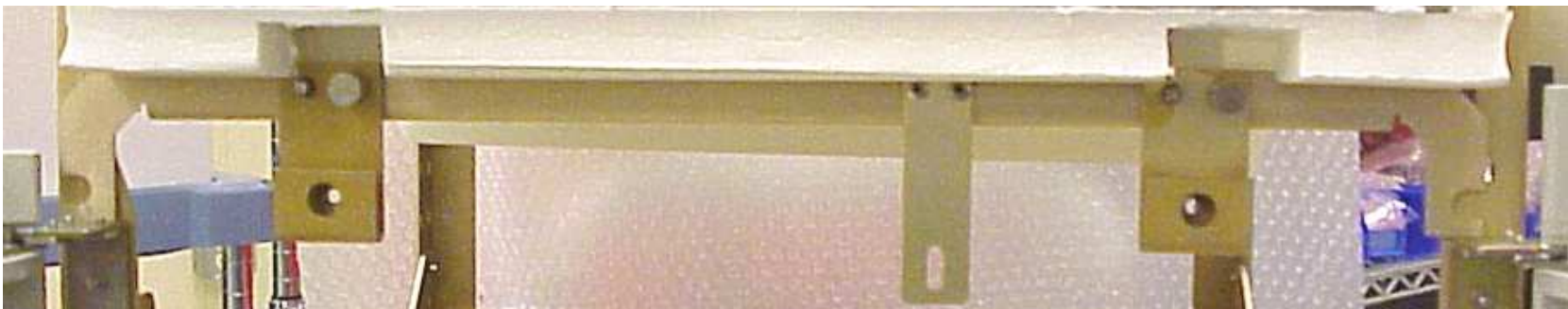
Note: Verify doors do not drag when closed, adjust as needed.



WAT081265
2X for each
door
WAT270501
3X for each
door

Note: Remove the sample compartment door and crossbar from the front panel assembly.
Set the sample door aside to be assembled later.

9.0 Place crossbar as shown to the front of the chassis.



OPER **OPERATION DESCRIPTION**

TOOL NUMBER/DESCRIPTION

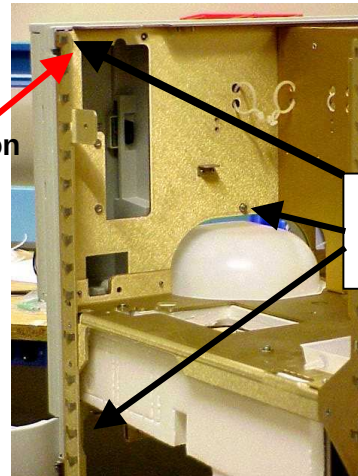
10.0 Mount the front display panel assembly to the chassis.

T20 TORX DRIVER
3MM ALLEN WRENCH

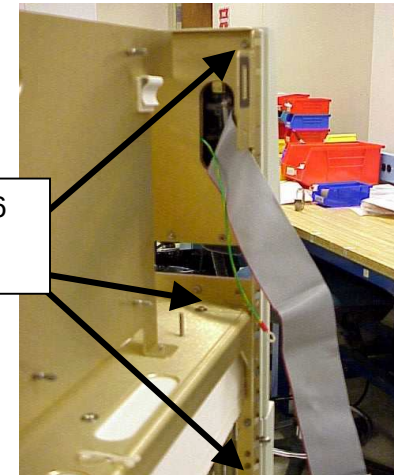
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT034346	6	SCREW, METRIC, M4X12MM



Drip Tray location
405000672



WAT034346
6X



10.1 Assemble fitting to the syringe drip tray, secure with nut..
Attach tubing to fitting Press **loop** velcro onto the underside
of the drip tray and add hook piece.
Press into place inside the syringe drive compartment.

TOOL# 999027834 TUBING

STRETCHER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270345	1	DRIP TRAY, SYRINGE
WAT270503	1	FITTING, STHEAD TO PORT S2406
WAT050596	1	NUT, HEX ¼ .28 3/8 S
205000256	10"	TUBING, 2795/2796 FLUIDICS WASTE LINE
WAT212335	1	VELCRO .75 SQ X .12 HOOK
WAT212336	1	VELCRO .75 SQ X .12 LOOPS

OPER **OPERATION DESCRIPTION**

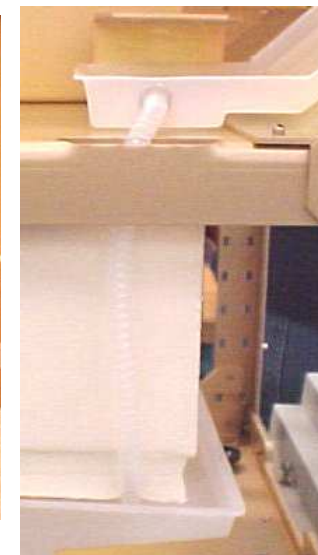
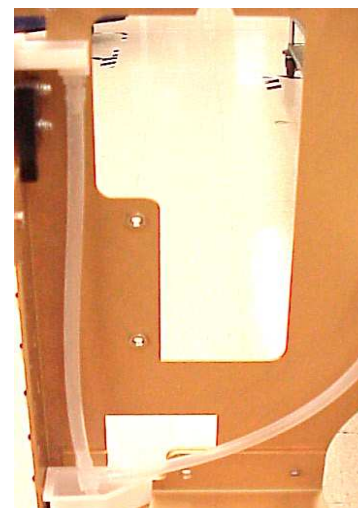
TOOL NUMBER/DESCRIPTION

10.2 Assemble fitting to the drip tray, use stretcher tool on both end of the 7.5" tubing and attach to the tee fitting. Stretch both ends of the 6.5" tubing and attach it to the tee fitting as shown. Tape the loose end to the chassis until after the XYZ is installed. Secure drip tray to the chassis. **Note location above.**

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
205000256	7.5" & 6.5	TUBING, 2795/2796 FLUIDICS WASTE LINE
410000158	1	SCREW 4-40 X ¼ FLAT HEAD
WAT270503	1	FITTING, STHREAD TO PORT S2406
405000672	1	TRAY DRIP
WAT270543	1	TEE CONNECTOR, TUBE TO WASTE

10.3 Install 7" piece of drain tubing to the rear drip tray and route through the chassis slot.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
205000214	7"	KIT, CONVOLUTED TUBING, 2795



<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
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NOTE: Use care with the cables when sliding the pump tray into the chassis.

Record the serial number of the PC Board onto the System Prep Check off Sheet 735000293 in the folder.

- 11.2 Slide the pump tray into the chassis. Place the pump tray test data record into the instrument file folder. The pump tray connections will be done later in the process.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279000524	1	ASSY, PUMP INERT

NOTE: ALWAYS USE STATIC PROTECTION EQUIPMENT WHEN HANDLING PCB ASSEMBLIES

***Record the serial number of the PC Board onto the System Prep Check off Sheet 735000293 and place in a folder.**

- | | | |
|------|--|-----------------|
| 12.0 | Connect the ribbon cable to J10 and power supply cable (POWER) onto the
*Fluidic PC. Install the fluidics driver board into the middle chassis compartment.
Secure with a screw. | T10 TORX DRIVER |
|------|--|-----------------|

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
210000114	1	FLUIDICS DRIVER BOARD 2795
WAT081265	1	SCREW, M3 X 10 SEMS
WAT270617	1	CABLE DC POWER
WAT270084	1	ASSY, CABLE TO PUMP DRIVER

- | | | |
|------|---|------------------------------------|
| 12.1 | Install the CPU assembly into the chassis using (2) M4 screws to secure to the rear of the chassis and (1) M3 screw for the PCB side. | T10 TORX DRIVER
T20 TORX DRIVER |
|------|---|------------------------------------|

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
210000411	1	ASSY, PCB CPU
WAT081265	1	SCREW, M3 X 10 SEMS
WAT034347	2	SCREW, METRIC M4X6MM

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<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
13.0	Use tool #09025109 to secure the washer and barbed fitting to the vacuum	TOOL #09025109 (48 IN/OZ)

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT078540	1	VACUUM PUMP M717
WAT060284	2	WASH.335X.196X.027 TFE 510
WAT035124	2	FITTING, TUBE

- 13.1 Assemble the plate to the vacuum pump. Assemble the cable assembly to the vacuum pump. Connect the positive terminal to the red wire and negative terminal to the black wire.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT416308	2	MET, SCR, PN HD 3.12X1.27X8
WAT270218	1	PLATE, MOUNTING WASH PUMP
WAT078785	1	ASSY, CABLE, WASHPUMP, M717



- 13.2 Attach the 12" piece of tubing to the outlet (→) barbed fitting on the vacuum pump. Attach a 6" piece of tubing to the inlet (←) barbed fitting on the vacuum pump.

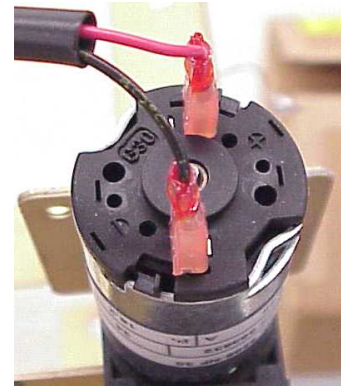
#119625 – FIXTURE

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
430000173	REF	KIT, TUBING 2795

- 13.3 Place well nuts into the 3 holes of the valve mounting bracket. Assemble the vacuum pump to the chassis mounting bracket. Connect cable to "Drain" (J8) on fluidics driver board.

T20 TORX DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT078856	3	WELL-NUT M4 X 0.7
WAT413416	3	SCR, METRIC SKT CAP M4X16



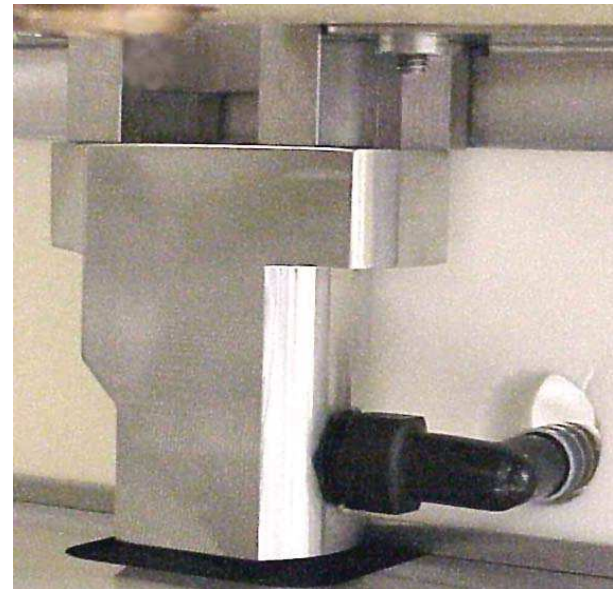
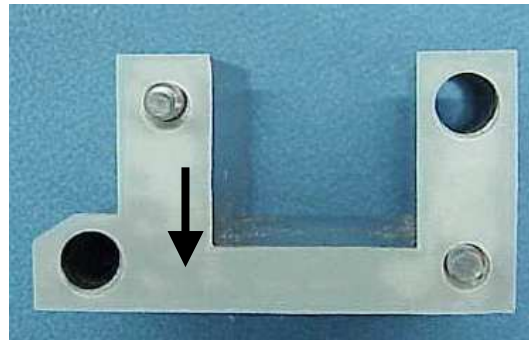
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14.0	Assemble the barbed port to the needle wash housing. Slide 3" piece of convoluted tubing to the barb fitting. Place the insulator around the round end of the needle wash housing. Apply the wash station insulator to the top of the housing riser. Fit the riser to the XYZ mechanism pins and attach the wash housing to the riser.	4MM ALLEN WRENCH
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<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
410000163	1	FITTING, PLASTIC, 1/4 HOSE X 1/8 PIPE
430000279	1	TUBING, CONV., PTFE .25 ID X 3.0L
401000203	1	INSULATOR, WASH STATION
WAT271509	1	HOUSING, NEEDLE WASH
405000552	1	RISER, WASH HOUSING
401000158	1	GASKET, INSULATOR



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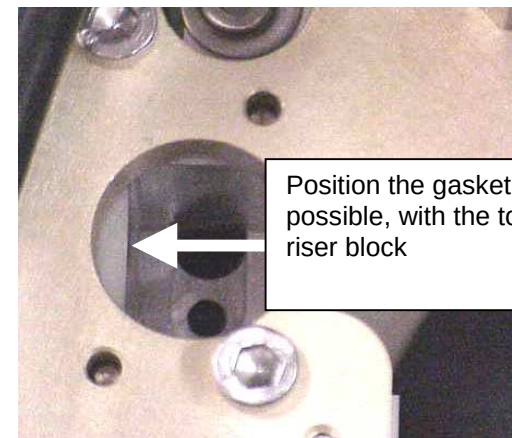
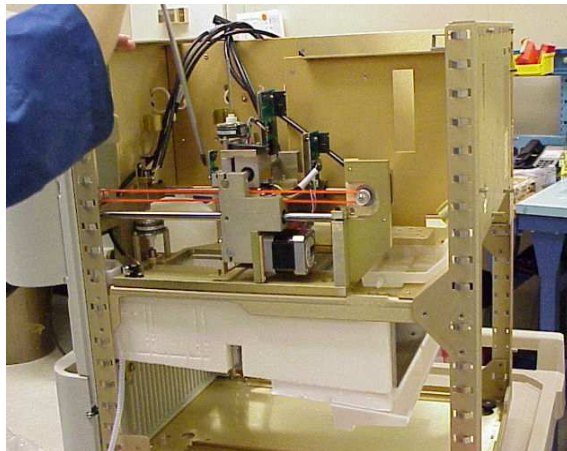
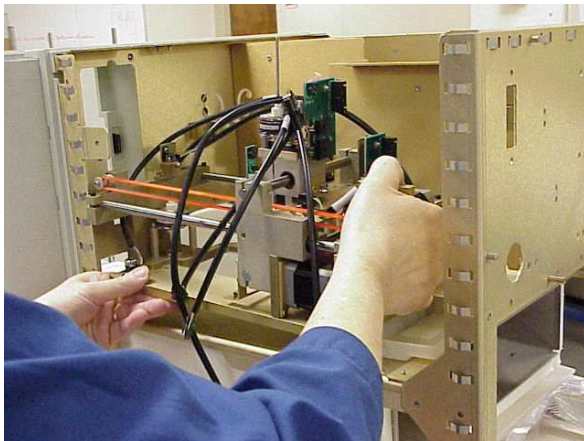
- 14.1 Place the XYZ mechanism into the chassis.
Secure with (3) M4 x12MM screws

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289001292	1	XYZ 2796 DRIVE MECHANISM
WAT034346	3	SCREW, METRIC, M4X12MM

- 14.2 Secure wash housing riser to the XYZ mechanism with two hex screws.

T20 TORX DRIVER
5/32 ALLEN WRENCH

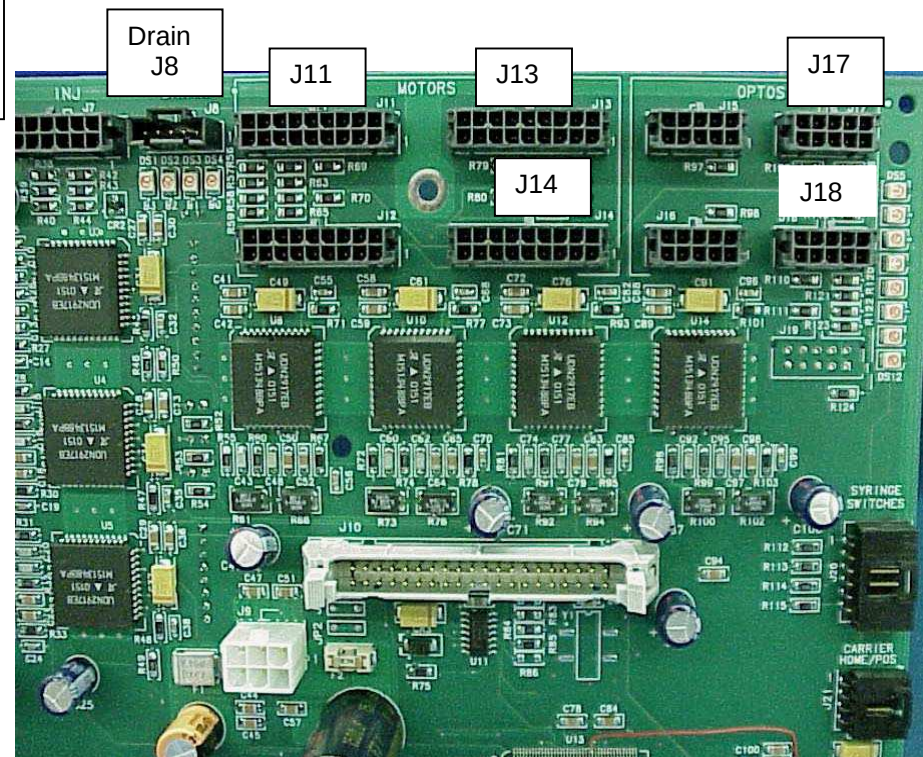
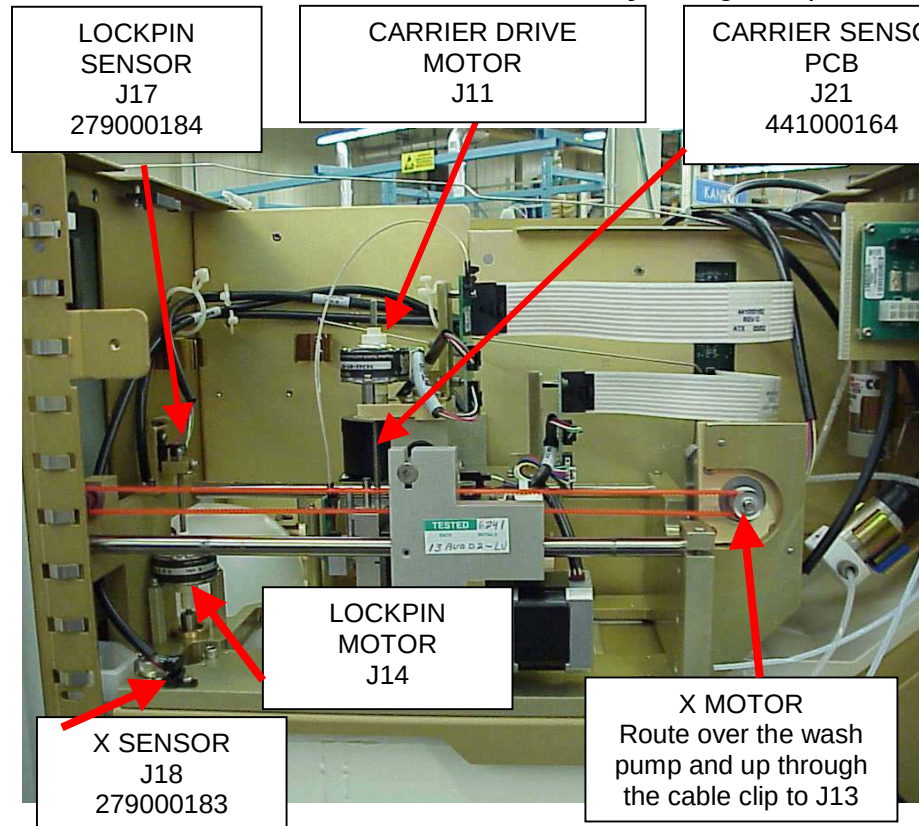
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT082751	2	SCREW, HEX SOC 10-32 X 36



NOTE: MAKE SURE REAR SOLVENT TRAY IS NOT CAUGHT UNDER XYZ MECHANISM

OPER OPERATION DESCRIPTIONTOOL NUMBER/DESCRIPTION

- 14.3 Connect cables to the fluidics driver board. Run the cables shown on the left side in front of the XYZ mechanism **neatly** through the purse ties, as shown.



- 14.4 Assemble the syringe to the chassis. Run the cables through the purse ties and make a loop on the last tie. Connect cables to J12 and J20 of the fluidics driver board.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279000626	1	ASSY, FAST SYRINGE DRIVE
WAT034346	2	SCREW, METRIC M4X M12MM

OPER OPERATION DESCRIPTION

TOOL NUMBER/DESCRIPTION

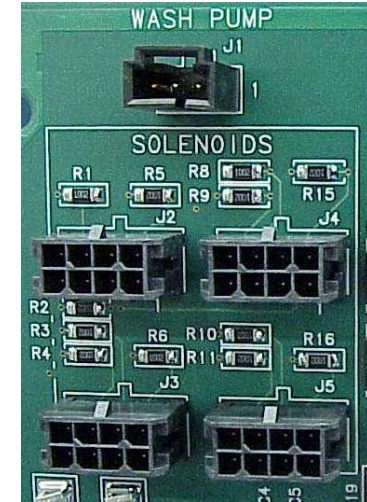
Note: In the following steps the teflon tubings are from the 2795 tubing kit 430000173.

009025290 48 IN OZ WRENCH

- 15.0 Holding the wash solenoid facing you, (arrow facing left.) assemble tubing 430000822 to the left side port, Feed the compression screw end of tubing 430000905 up through the side hole of the chassis, attach to the wash solenoid. Torque fittings to 48 in oz. Press into lower clip and connect the cable to J1 on the fluidics PCB.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279000174	1	PUMP SOLENOID, WASH
430000822	1	ASSY, NEEDLE WASH PUMP TO WASH VALVE
430000905	1	ASSY, TUBE, NEEDLE WASH/PUMP WASH SOLVENT

See Figure 23 & 24 for the valves and their connector locations.

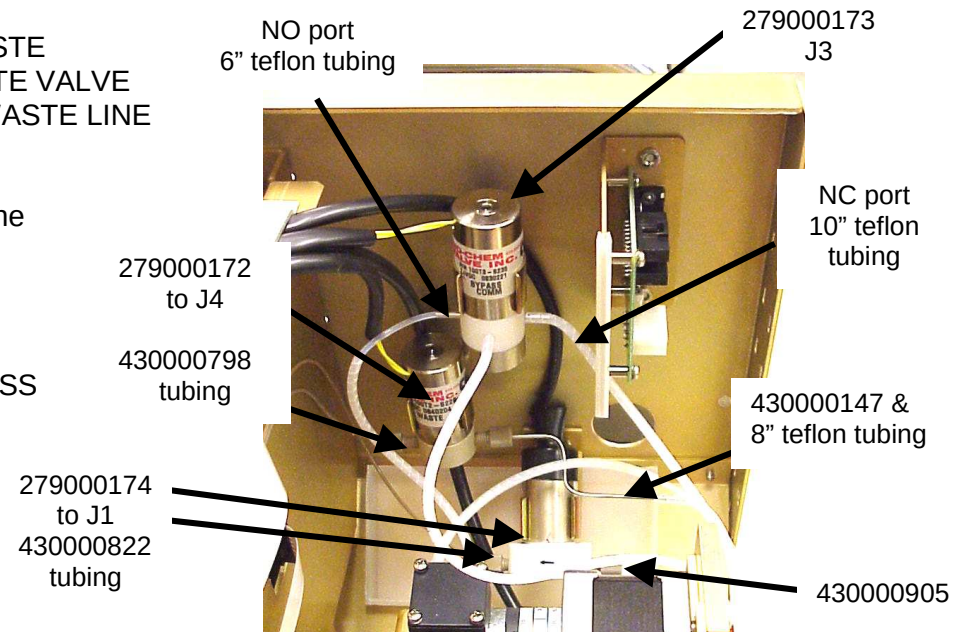


- 15.1 Slide 8" piece of teflon tubing over the waste valve tubing (430000147). Holding the waste solenoid facing you, attach to the tubing to the right side to the waste valve. Attach the syringe tubing (430000798) into the left side port. Torque both fittings to 48 in oz. Press into clip above the wash pump and connect the cable to J4 on the fluidics PCB.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279000172	1	VALVE, 2- WAY SOLENOID, WASTE
430000798	1	TUBE ASSY, SYRINGE TO WASTE VALVE
430000147	1	TUBE ASSY, WASTE VALVE – WASTE LINE

- 15.2 Attach 10" piece of tubing to the bypass NC port. Attach the 6" piece from the inlet side of the vacuum pump to the (NO) port of the bypass valve. Press into the upper clip position and connect the cable to J3 on the fluidics PCB

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
279000173	1	ASSY, SOLENOID WASTE BYPASS



OPER **OPERATION DESCRIPTION**

TOOL NUMBER/DESCRIPTION

16.0 Press the power switch cable onto the chassis.

#9025160 – FIXTURE

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270614	1	CABLE ASSY REMOTE PWR SWITCH

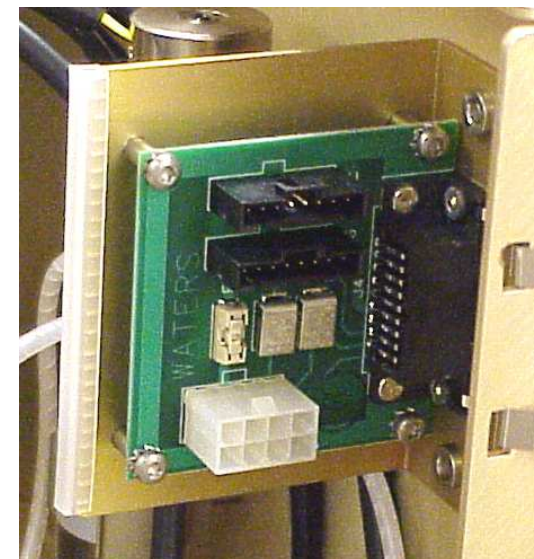
17.0 Slide 3" of flexible guide along the edge of the column heater PCB bracket.
Assemble the column heater PCB and bracket to the rear of the chassis.

T20 TORX DRIVER

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT034375	3"	GUIDE, FLEXIBLE
279000597	1	ASSY, C/H INTERCONNECT PCB W/BRKT
WAT034347	2	SCREW, METRIC M4X6MM

18.0 Secure fitting and nut to drip tray, attach 6.5" drain tubing from step 10.2 to fitting.
Assemble the valve drip tray to the chassis above the XYZ mechanism.
Locate the tee in the syringe drive drip tray.

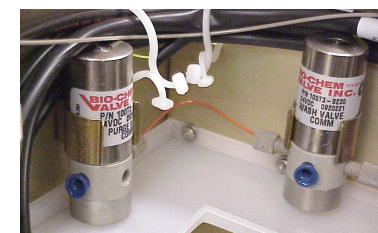
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
415000141	1	DRIP TRAY, WASH VALVES, 2795
WAT027503	1	FITTING STHREAD TO PORT
WAT050596	1	NUT HEX ¼ - 28 3/8 ST
43000878	6.5"	TUBING, POLYETHYLENE, .187 I.DX.025 WALL
WAT271463	2	SCREW, M3 X 6 LONG SEMS
WAT410330	2	M3 FLAT WASHER
WAT0270543	1	TEE CONNECTOR, TUBE TO TUBE



19.0 Add the tubing to the (NO) ports of wash and to the purge valve before installing into clips. Torque to 48 in oz. Connect the purge valve to J2 and the wash valve to J5 on the fluidic PCB.

009025290 48 IN OZ WRENCH

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
430000796	1	ASSY, TUBE, WASH VALVE TO PURGE
279000175	1	VALVE, 3-WAY SOLENOID, WASH 1
279000176	1	VALVE, 3-WAY SOLENOID, PURGE



WATERS MANUFACTURING ASSEMBLY PROCEDURE

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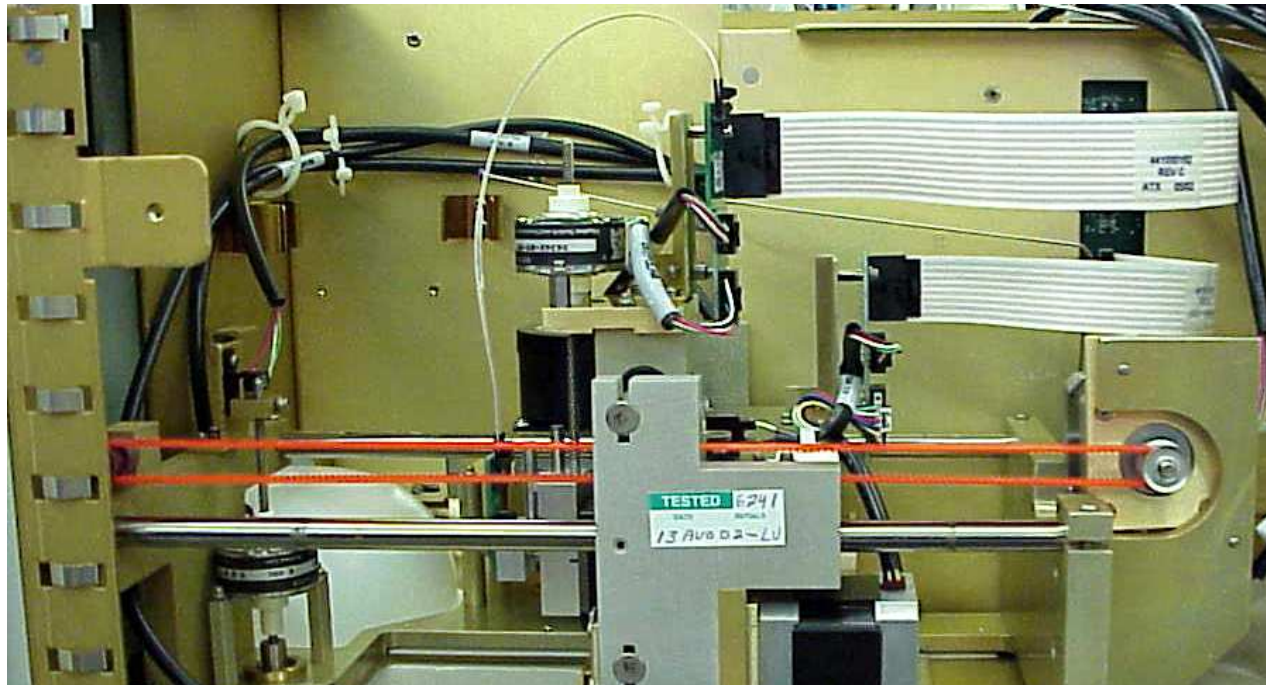
<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
20.0	Attach the end of tubing assembly 430000822 from step 15.0 to the right side of the wash valve, and torque to 48 in/oz.	009025290 48 IN OZ WRENCH

21.0	Slide the carrier into the sample compartment and engage the pin onto the shaft. Attach the front sample compartment door.	3MM ALLEN WRENCH
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<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
289000148	1	ASSY, CARRIER 2795

22.0 Connect the ribbon cables from the XYZ mechanism to the backside of the fluidics PCB.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
441000161	1	CABLE, FLEX, "Y" MODULE (J5 to J22 Fluidic pcb)
441000162	1	CABLE, FLEX, "Z" MODULE (J1 to J23 Fluidic pcb)
441000163	1	CABLE, FLEX, NEEDLE BOTTOM MODULE



23.0 Attach the front sample compartment door.

WATERS MANUFACTURING ASSEMBLY PROCEDURE

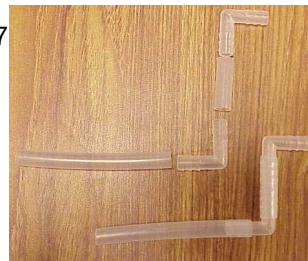
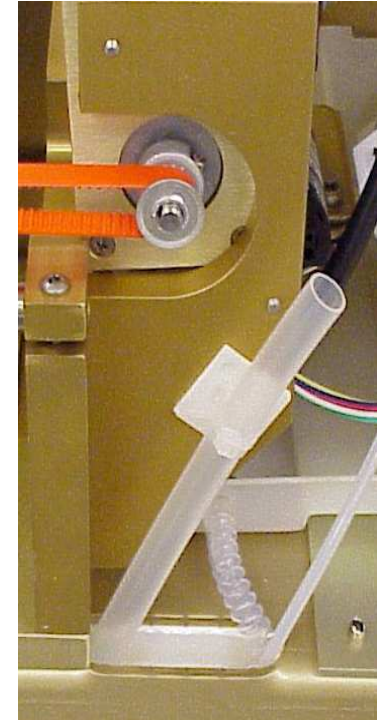
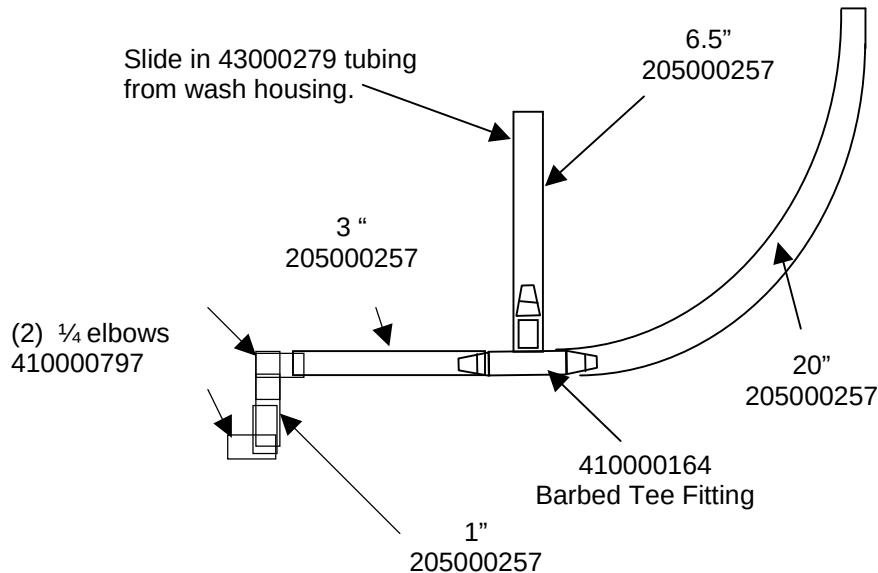
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OPER OPERATION DESCRIPTION

TOOL NUMBER/DESCRIPTION

- 24.0 Attach a cable mount to the side of the XYZ mechanism below and at a slight angle below the pulley on the motor.
Make the drain system using tubing supplied in the 205000257 waste line kit as shown below.
Route 20" drain line and secure with cable tie. The tube should not extend more than 2.00 inches above the cable mount. Place the retainer onto the 3" piece with the tab facing the left side. Route 20" drain line and secure with cable tie.
The tube should not extend more than 2.00 inches above the cable mount.
Place the retainer onto the 3" piece with the tab facing the left side.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
410000164	1	FITTING, PLASTIC 1/4 BARBED TEE
410000767	1	RETAINER
410000797	2	FITTING, BARBED, ELBOW, 1/4 ID
WAT027033	1	CABLE TIE MINIATURE
WAT042173	1	MOUNT, CABLE, ADHESIVE
205000257	1	TUBING, 2795/2796 WASTE LINE KIT (20" & 6.5")



OPER **OPERATION DESCRIPTION**

- 25.0 Mount the injector assembly under the sample compartment with a screw and by tightening the retaining nut to the needle wash housing. Connect the inject valve cable to the injector and J7 of the fluidics driver board.

NOTE: The retaining nut is a left-hand thread therefore should be turned clockwise.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
441000325	1	ASSY, CABLE INJECT VALVE, 2796
WAT034346	1	SCREW, METRIC, M4X12MM

- 25.1 Route the (4) clear waste lines from the bypass solenoid, waste solenoid, wash pump, and the injector seal wash waste tube into the opening top of the drain tubing.

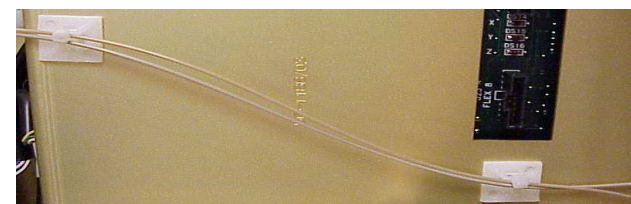
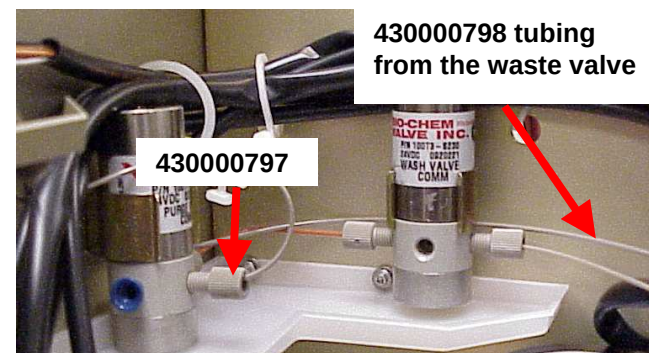
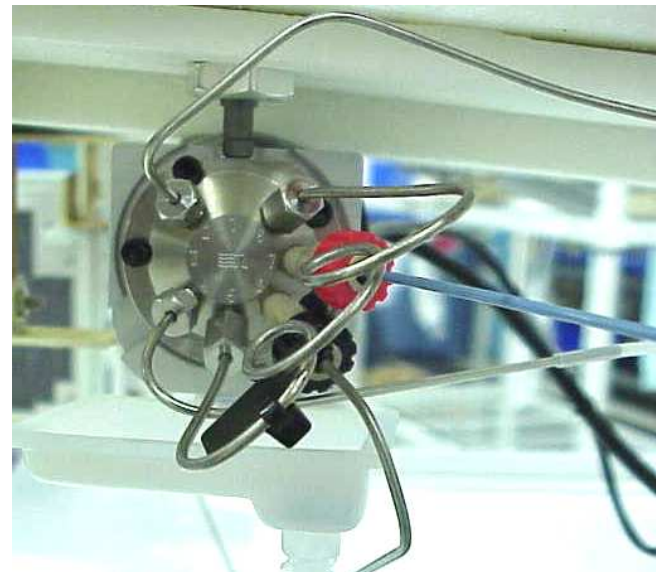
- 25.2 Connect the clear tube from injector valve fitting Port 2 to the COMM port on bypass solenoid.

- 25.3 Connect tubing 430000797 from the purge valve COMM port to the front syringe block cone hole position. Route the 430000798 tubing behind the purge and wash valves and connect the tubing from the waste valve to left rear position on the syringe block. Leave fittings slightly loose. Press two cable mounts as shown and capture the lines with cable ties.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
430000797	1	ASSY, PURGE VALVE TO SYRINGE
430000798	REF	ASSY, SYRINGE TO WASTE VALVE
WAT027033	2	CABLE TIE MINIATURE
WAT042173	2	MOUNT, CABLE, ADHESIVE

TOOL NUMBER/DESCRIPTION

T20 TORX DRIVER
5/8" WRENCH



WATERS MANUFACTURING ASSEMBLY PROCEDURE

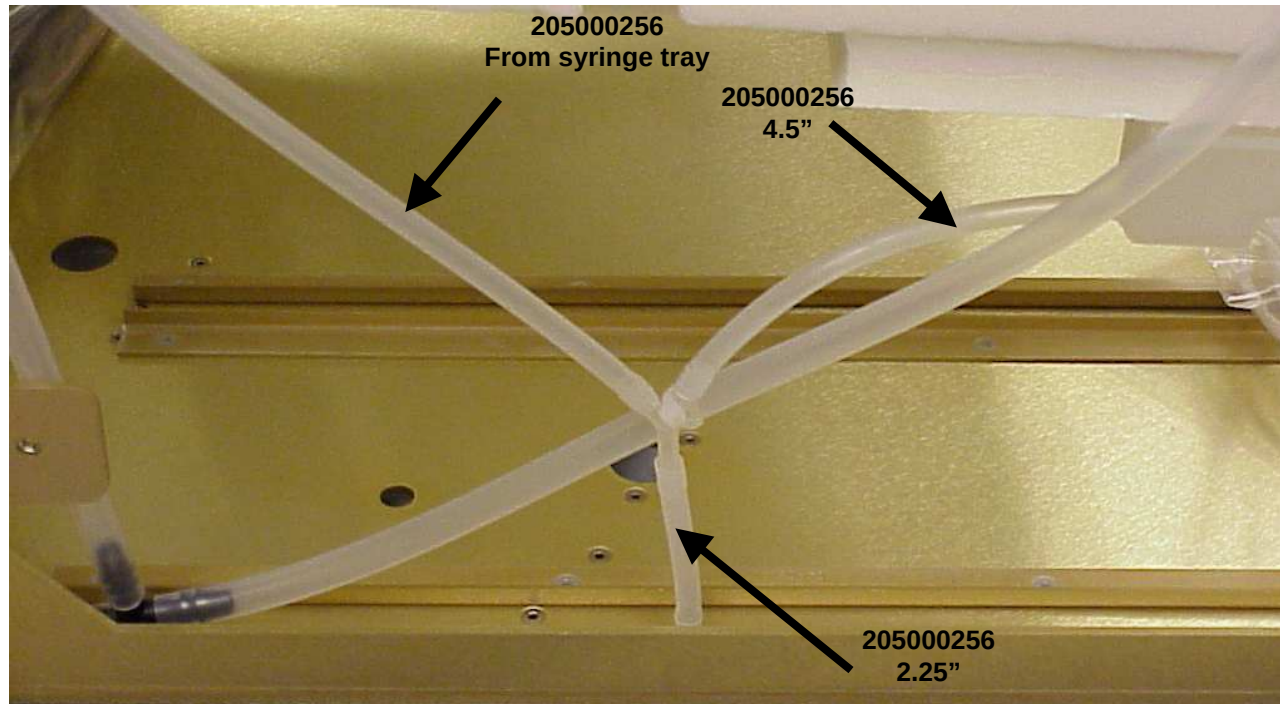
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<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
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26.0	Stretch both ends of the tubings and assemble as shown connect to the 10.0" piece from the syringe drive drip tray.	
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Note: Leave the connection to the rear drip tray tube to the Y connector loose, it will be connected after installation of the degasser at the next level for ease access to cables.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
415000404	1	Y CONNECTOR, POLYPROPYLENE
205000256	2.25", 4.5"	KIT, 2795/2796 FLUIDICS WASTE LINE



<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
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27.0	Holding Loop to Needle Assembly	
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28.1	Place Needle Assembly into the cradle of fixture #009026484, by first making sure the retaining pin is located in it's outermost position from the cradle slot. This is done by pulling the "Orange" handle to the left, and rotate 90 degrees to a locked position.	FIXTURE # 009026484
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Note:

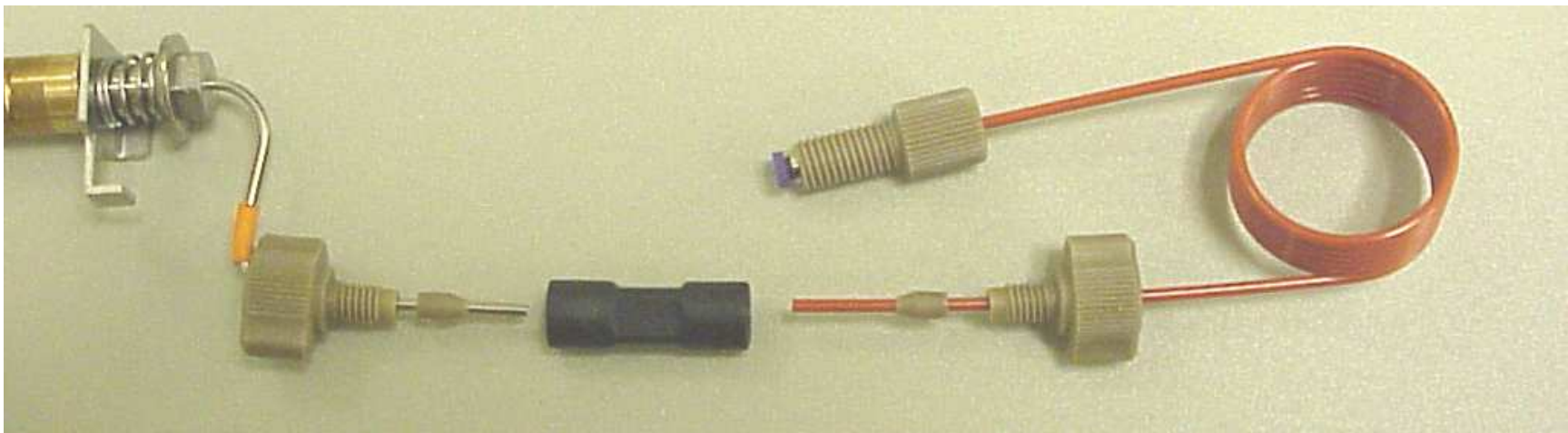
Do not force needle into cradle, damage to needle could occur.

28.2	After Needle Assembly is positioned into the cradle of fixture, release the retaining pin from it's outermost position to the locking position (into the cradle area). This will hold the Needle Assembly in the fixture while the assembly of the Holding Loop is performed.	
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28.3	Assemble the Holding Loop to the Needle Assembly with the union and compression fittings, orient the coil of the Holding Loop.	
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Note:

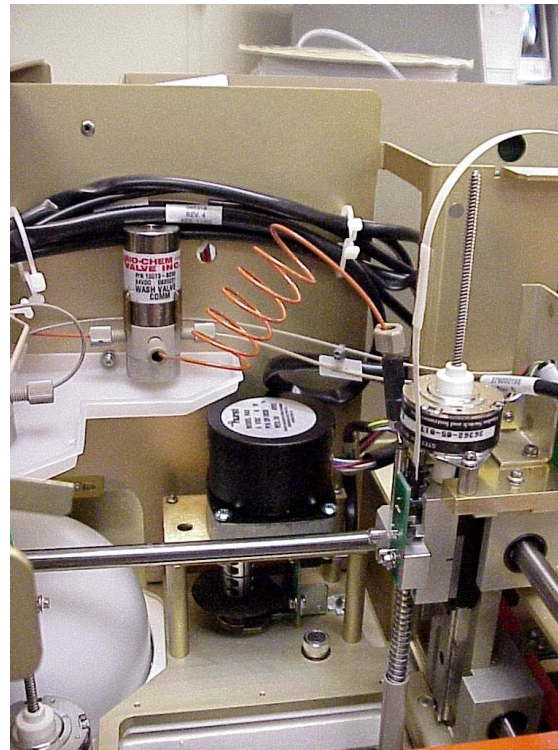
**Do not move the lower portion of the Needle Assembly when it is installed in the fixture!
This will change a critical dimension of the needle itself.**



WATERS MANUFACTURING ASSEMBLY PROCEDURE

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<u>OPER</u>	<u>OPERATION DESCRIPTION</u>	<u>TOOL NUMBER/DESCRIPTION</u>
28.4	Plumb tubing assemblies and holding loop. Assemble needle into the needle housing on the XYZ mechanism. Connect tube to wash solenoid, and torque all peek fittings to 48 in oz. Adjust needle so there is no interference with the fittings as the needle moves up and down.	5/16" WRENCH 009025290 48 IN OZ WRENCH
<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
430000724	1	TUBE ASSY, 128UL HOLDING LOOP
410000872	1	UNION, , PEEK .020ID, 10-32 THREADS
289001136	REF	NEEDLE, 2796 ASSEMBLY



NOTE: ORIENTATION OF SAMPLE LOOP

OPER OPERATION DESCRIPTION**TOOL NUMBER/DESCRIPTION**

- 29.0 Mount the power supply bracket to the power supply.
Slide a M4 star washer, and ground wire to the stud on the power supply
secure with lock nut. Apply electronics assembly label onto the top of the
power supply.

#9119906 POWER SUPPLY
HOLDING FIXTURE
T20 TORX DRIVER

Note:

**If included, remove the nut (supplied by the vendor) from the
ground stud before assembling the ground cable and hardware.**

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270068	1	BRACKET, MOUNTING POWER SUPPLY
WAT097542	1	LABEL, ELECTRONICS ASSEMBLY
WAT411510	2	SCR, METRIC PAN HEAD M5 X 10
WAT270561	1	GROUND WIRE ASSEMBLY
WAT410540	2	WASHER, METRIC LK/SPL M5
WAT251620	1	LOCK NUT M4
WAT270471	1	*POWER SUPPLY 600W TESTED
WAT410450	1	WASHER, M4 STAR

- 29.1 Slide the power supply into the chassis aligning the bracket slot with the
chassis tab. Tighten the power supply screws.

- 29.2 Assemble the ground wires from the power supply to the chassis ground stud.
As follows: Star washer, power supply ground wire, star washer, and front panel
ground wire. Secure with nut.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT410450	2	WASHR METRIC EXT TOOTHM4
WAT251620	1	LOCK NUT M4

***Record the PC Board serial number on the System Prep Check off Sheet 735000293.**



REGULAR SCREWDRIVER

OPER OPERATION DESCRIPTION

TOOL NUMBER/DESCRIPTION

29.3 Lock in the large gray cable to the CPU and route cable down through the back slot of the chassis.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270438	1	ASSY, CABLE CPU TO PUMP DRIVER (large gray cable)

POWER SUPPLY CONNECTIONS

NOTE: Bottom, Middle, and Top reference the connector positions on the power supply.

Bottom Connector- WAT270617 connect cable to the Disk Drive and the Fluidics Driver PCB

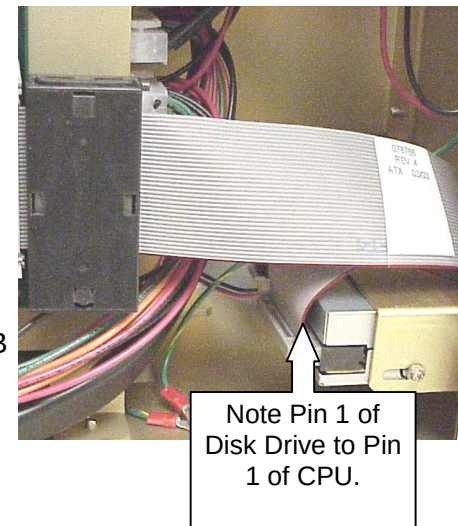
Middle Connector- WAT270089 connect cable to the Front Panel, CPU and the Pump Driver PCB

Top Connector- WAT270618 connect cable to the Column Heater and the Degasser

2 Pin Connector- WAT270614 Power Switch

29.4 Press and lock the ribbon cables into the CPU from the fluidics drive board, the disk drive, and the front panel. Attach (3) ferrite beads onto the 3 (ribbon) cables close to the CPU board.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270089	1	CABLE DC POWER
WAT270618	1	ASSY, CABLE POWER DEGAS + COL HTR
WAT290504	3	FERRITE BEAD FLAT CABLE
WAT078786	1	717 INTER CBL F/P TO CPU (DISK DRIVE CPU)



OPER **OPERATION DESCRIPTION**

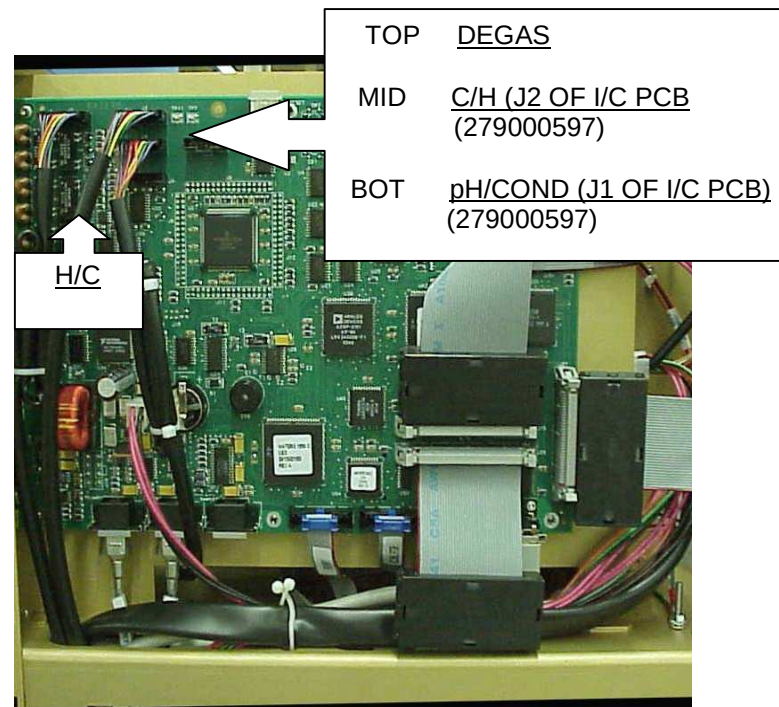
TOOL NUMBER/DESCRIPTION

29.5 Connect the option cables to the CPU and route the degasser and heater cooler cables to the lower compartment. Route with the heater cooler and degasser power cables in the purse ties located underneath the sample compartment. Route the column heater and pH/Cond. Cable under the power supply over through cable clamp. Tie-wrap the extra option cables as shown.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
WAT270354	4	ASSY, CABLE CPU TO DEGAS
WAT027033	6	TIE MINIATURE CABLE

30.0 Assemble the lock-out switch cable to the chassis. Connect the cable to J16 on the fluidics driver board.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
441000212	1	CABLE ASSY, LOCKOUT



OPER OPERATION DESCRIPTION

TOOL NUMBER/DESCRIPTION

31.0 Secure the pump tray captive screws.

- Route the encoder cables from the pump tray up through the middle slot of the chassis and connect to the CPU board.
- Route transducer cables through the rear slot, connect to the CPU board.
- Lock the large gray cable onto the pump board by sliding the tab over the pins, verify the cable is secure.

32.0 Add black plug to the rear of the chassis.

<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
41000975	1	PLUG, RECESSED BUTTON HEAD, 1.125 HOLE



33.0 Continue onto the next level.

**Note Primary and Accumulator positions
when installing the encoder and transducer
cables.**

