Installing a PTV Inlet

Agilent 6850 Series II Network GC System

Accessories G3345B (Septumless) and G3346B (Septum)

These instructions are divided into two parts:

- **Part 1** to prepare the Electronic Pressure Control ("EPC") module for later installation into the Agilent 6850 Gas Chromatograph ("GC")
- **Part 2** to perform the actual Accessory installation into the GC

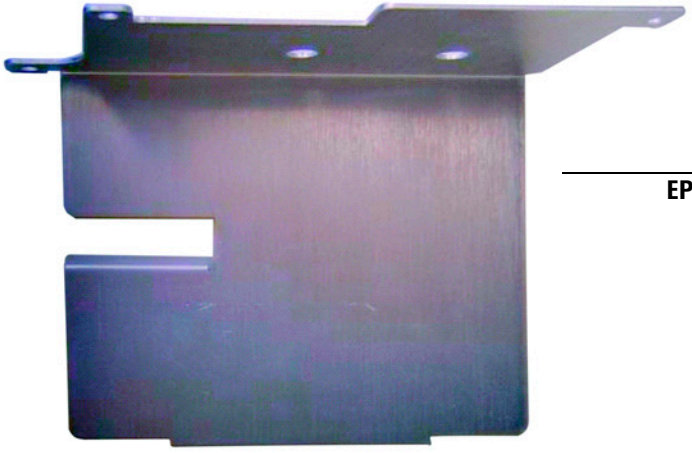
Part 1: Preparation of the PTV EPC module

Locate the following item found in your Accessory kit:

Cover Kit G2630-60081 consisting of:	Qty.
EPC cover	1
Hex nuts, 7/16-inch	2
Tube, stainless steel (pictured where used)	1
Nut & ferrule set, 1/8-inch (pictured where used)	1
Reducing union, 1/8- to 1/16-inch (pictured where used)	1

Agilent Technologies

5/16-inch hex nuts



EPC module cover

Caution Some of these assemblies contain printed circuit boards so standard ESD precautions must be followed: use a static control wrist strap (supplied) connected to a suitable ground in handling the assemblies.

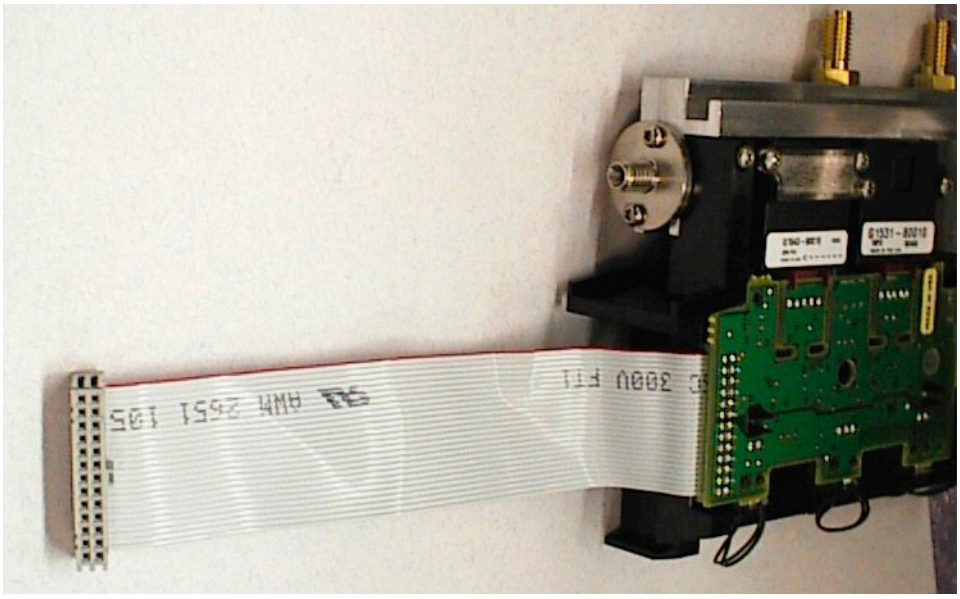
The following tools are required for this assembly:

Tools Required

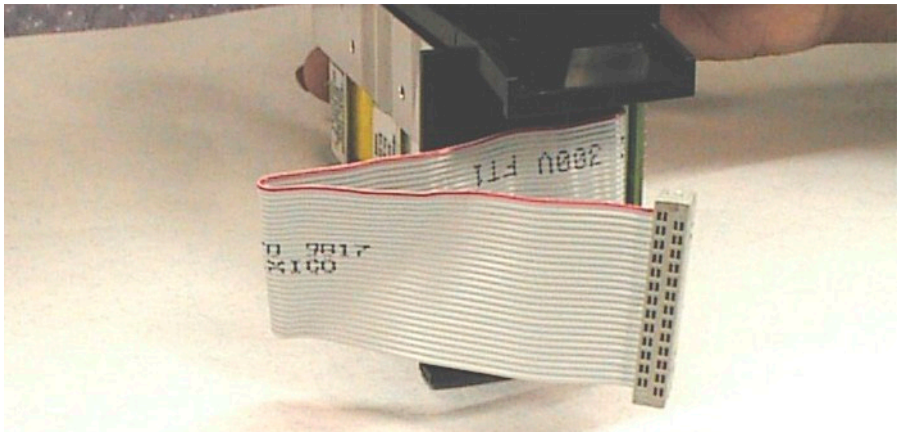
7/16-inch open end wrench or nut driver

Procedure

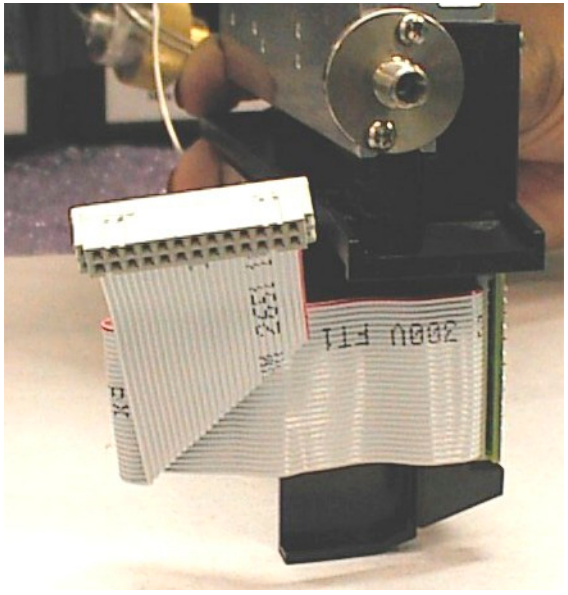
1. Prepare a suitable clean, dry, static-free work area.
2. Place the inlet system assembly such that its EPC module is centered in your work area with its ribbon cable extending to the right.



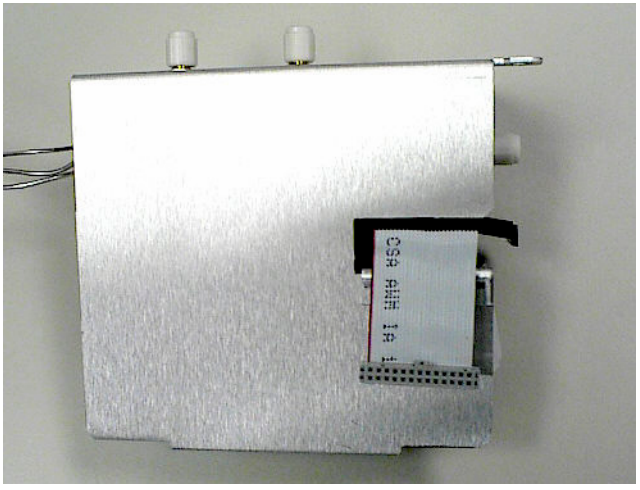
3. Remove any dust caps from gas connection fittings.
4. Fold the cable back on itself and gently crease it about midway along its length.



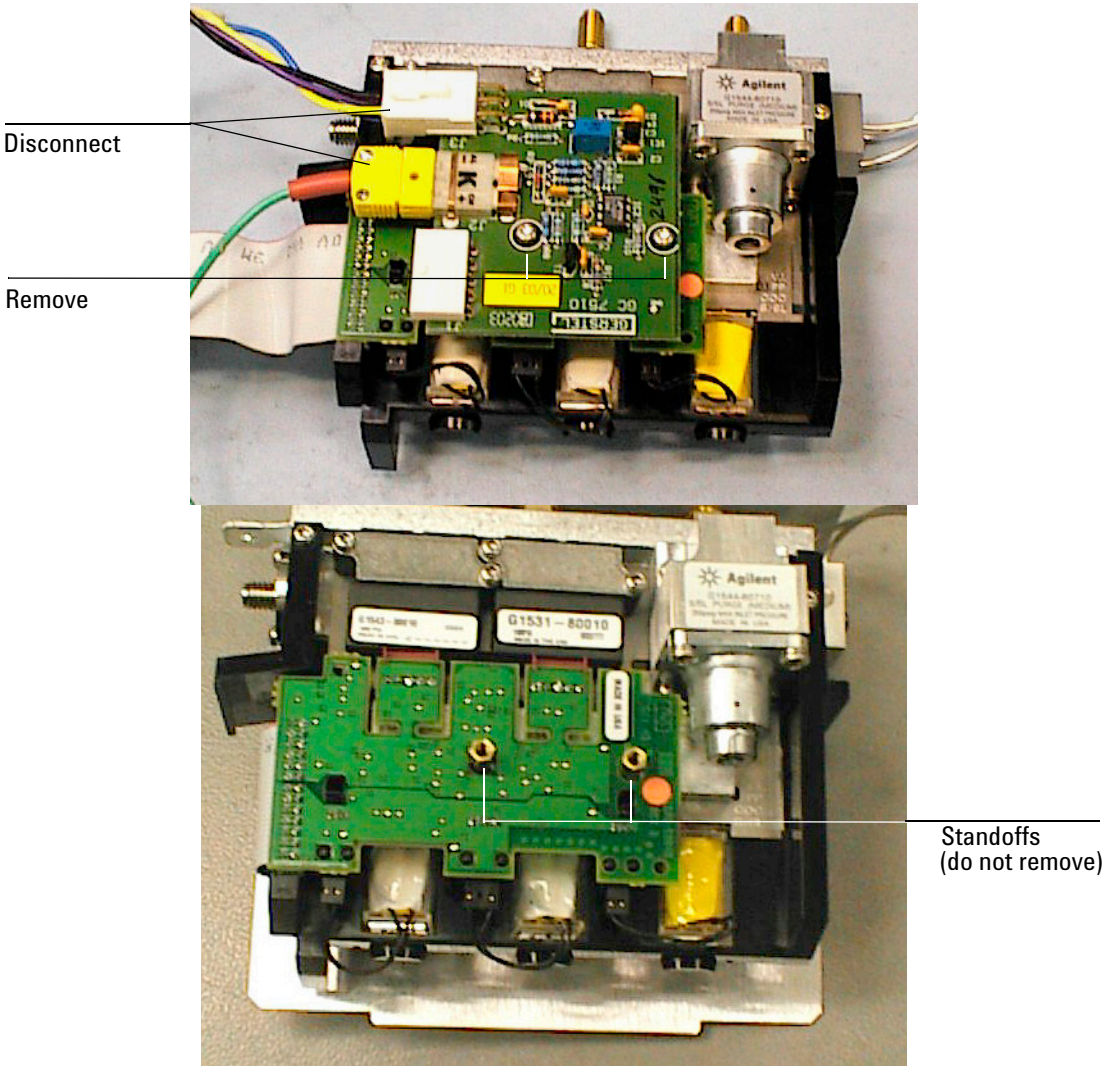
5. Next, fold the cable back on itself again, but at an angle such that it now extends at 90-degrees in the direction of the gas connection fitting. Again, gently crease the cable at the fold.



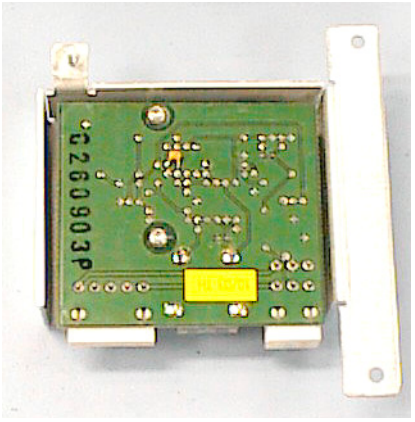
6. Install the cover onto the two gas fittings making sure the ribbon cable and its connector exit through the slot provided. Secure the cover using 7/16-inch hex nuts, one onto each fitting.



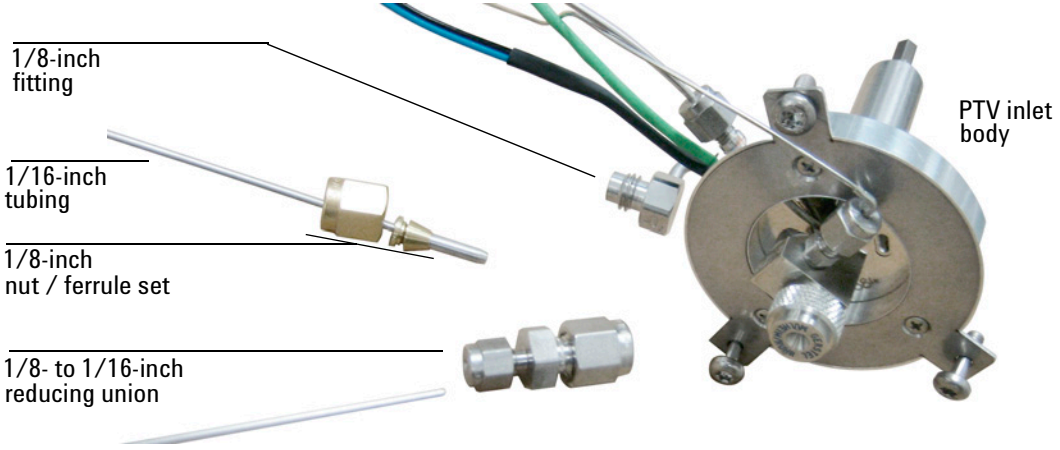
7. Replace protective dust caps onto gas connection fittings to maintain cleanliness.
8. Orient the module with its PC boards face-up and remove the two connectors (one yellow, one white) from the small thermocouple board.
9. Then remove two screws to remove the thermocouple board from the EPC module. Do NOT remove the indicated brass standoffs.



10. Install the thermocouple board into its own cover using the screws removed in Step 9.



Caution For the next steps, to prevent twisting of tubing and/or connected fittings, it is best to perform tightening using two wrenches against each other.



11. Finally, at the inlet body, swage the 1/8-inch end of the tube supplied onto the inlet body fitting using the supplied 1/8-inch nut and ferrule set. If present on the inlet body fitting, remove and discard its dust cap.

12. At the opposite end of the now-installed tube, swage on the 1/16-inch end of the supplied 1/8- to 1/16-inch reducing union.

This completes EPC module and inlet body preparation for this Accessory.

Part 2: Installation of the PTV Accessory

There are kits for installing both septum and septumless PTV inlets. This document describes both installations.

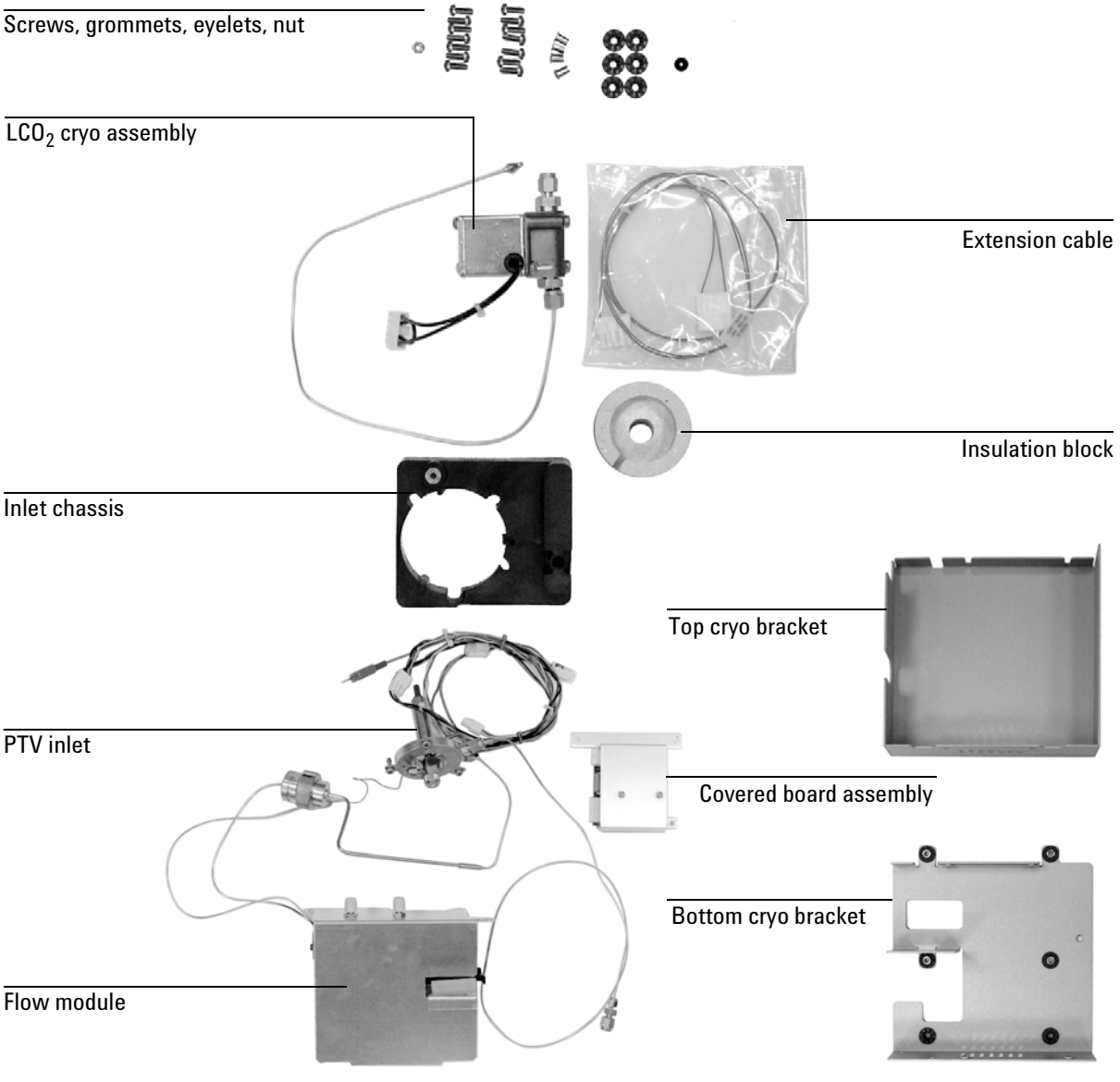
Each kit contains:

Description	Quantity
Round grommet, small black	1
Round grommet, large blue	6
M4 machine screw, 12 mm	16
M4 hex nut w/lockwasher, 3.2 mm	1
Cable ties	6
Antistatic pouch	1
Disposable wrist strap	1
Insulation block	1
Extension cable	1
Top cryo bracket	1
Bottom cryo bracket	1
Eyelet	4
Inlet chassis	1
$LC0_2$ cryo assembly	1
EPC septumless head PTV inlet assembly (G3345B)* or EPC septum head PTV inlet assembly (G3346B)*	1
Ship kit	1
• Lowbld septa 5, 11-mm	1
• Open-end wrench, 6-mm	1
• Open-end wrench, 5-mm	1
• 1/4 Brass union	1
• OEM ship kit	1

Description	Quantity
Installation sheet (this document)	1

*The inlet is factory-assembled. Do not disassemble it during installation.

Kit Contents



Required Tools

- T-20 Torx® screwdriver
- 7/16-inch open end wrench

Overview

Caution Before starting, review the safety information listed at the end of this document.

13. Prepare the GC.
14. Remove the existing inlet.
15. Install the new inlet.
16. Restore the GC to operating condition.

Prepare the GC

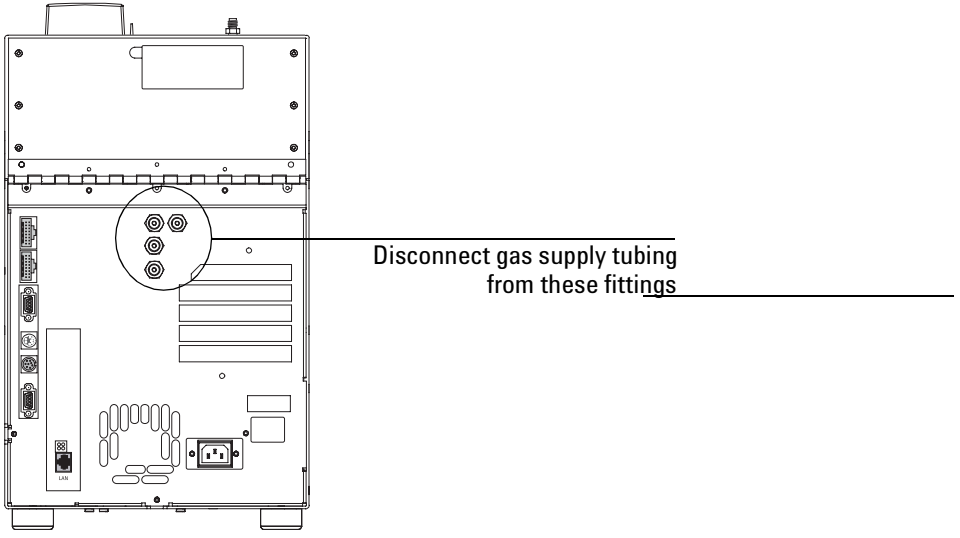
WARNING Note the following warnings:

- Use extreme caution when working with cryogenic liquids. They can cause very serious burns requiring emergency medical attention. Before separating fittings, always bleed lines containing cryogenic fluids to atmospheric pressure. Wear safety glasses and cover the fittings with a towel when separating them.
- Before working on an instrument, disconnect the power cord to avoid a potentially dangerous shock hazard. Hazardous voltages are present in the instrument whenever the power cord is connected.
- Pressurized liquid CO_2 is a hazardous material. Take precautions to protect personnel from high pressures and low temperatures. CO_2 in high concentrations is toxic to humans; take precautions to prevent hazardous concentrations. Do not use copper tubing or thin-wall stainless steel tubing with liquid CO_2. Both harden at stress points and may explode. Consult your local supplier for recommended safety precautions and delivery system design.

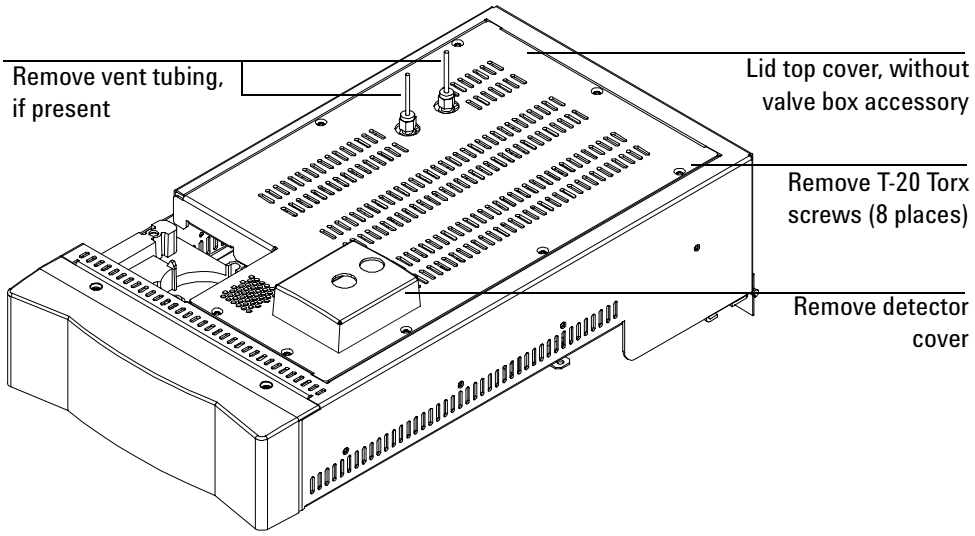
Caution Do not use liquid CO_2 as a coolant for temperatures below –40 °C. The expanding liquid may form solid CO_2–dry ice—in the GC oven. If dry ice builds up in the oven, it can seriously damage the GC.

To prepare the GC:

1. Turn off the GC and unplug the power cord. Allow time for all heated zones to cool.
2. Open the lid. If a column is installed, disconnect it at the detector end. Remove the nut warmer, insulation, and capillary adapter, if present. Close the lid.
3. Turn all gases off at their sources. Disconnect the carrier and detector gas tubing from the back panel of the instrument.



4. Remove the lid top cover.



Remove the existing inlet

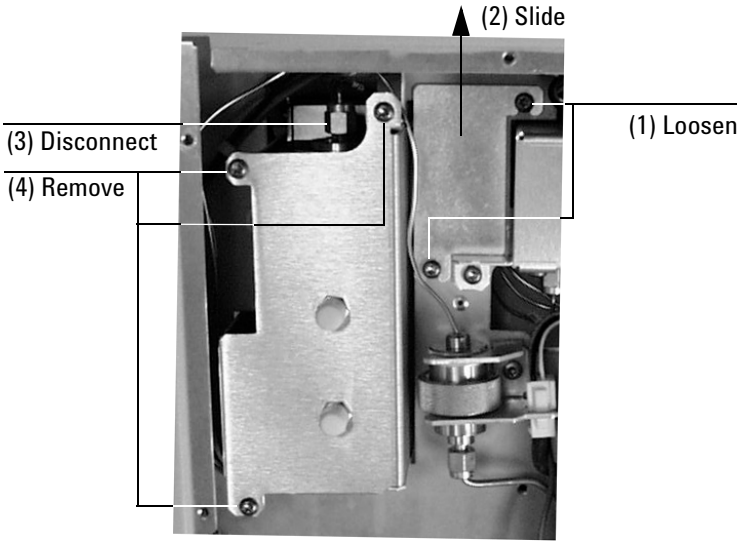
Caution As part of this step and those that follow, you must bend various sections of tubing. Make the bends gradual and avoid kinks.

Caution It is neither necessary nor advisable to separate the inlet from its pneumatics module. Doing so can create leaks. Although handling the inlet and pneumatics module as a unit is awkward, it can be managed.

Caution This procedure requires precautions against electrostatic discharge. Use the grounded wrist strap (part number 9300-1408) and connect it to a bare metal surface of the GC. Failure to heed this caution may result in damage to the instrument or to the PTV assembly.

1. Loosen the screws holding the connector cover plate next to the inlet flow module.
2. Slide the cover plate off and disconnect the cable from the flow module.
3. Disconnect the gas fitting on the rear of the flow module.

4. Remove the three screws on top of the flow module.



5. Complete the appropriate following steps (based on the type of inlet you are removing) to finish removing the inlet.

Cool On-Column inlet

a. Use a T-20 Torx screwdriver to loosen the three captive screws that attach the inlet weldment to the top of the inlet carrier.

b. Slide the inlet up and out of the carrier. If necessary, you can also slide the insulation sleeve off of the bottom of the inlet.

Purged Packed inlet

a. Trace the heater/sensor cable from the inlet to the wiring harness connector. Disconnect it.

b. Remove the three screws holding the inlet.

c. Lift the inlet and flow module out of the lid. Remove the insulation from the hole under the inlet.

Programmable Temperature Vaporization inlet

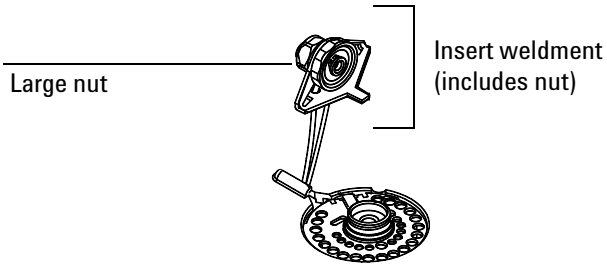
a. Lift up the PTV inlet.

b. Disconnect the power cable, thermocouple connector, and cryo connector from the flow module and board. Disconnect the module ribbon cable from the pneumatics board.

c. Slide the flow module out of the chassis, remove the chemical trap assembly from the mounting bracket, and remove the PTV assembly from the GC.

Split/Splitless inlet

a. Use the inlet wrench to release the large nut on top of the inlet.

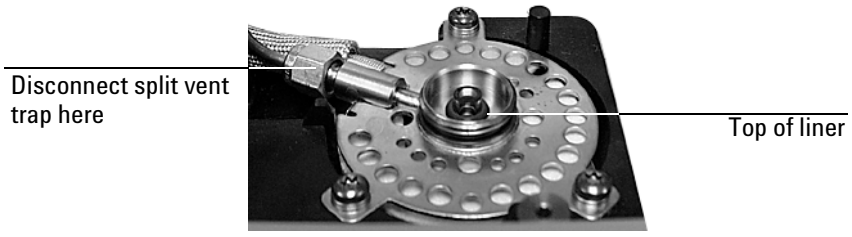


b. **If you *do not* have a gas or liquid sample valve**—Remove the insert weldment and the flow module.

c. **If you *do* have a gas or liquid sample valve**—The insert weldment is part of the valve assembly. Move it out of the way. Disconnect the gang block fitting (also part of the valve assembly), from the flow module. Remove the flow module.

d. Use forceps to remove the liner and O-ring.

e. Disconnect the split vent trap.



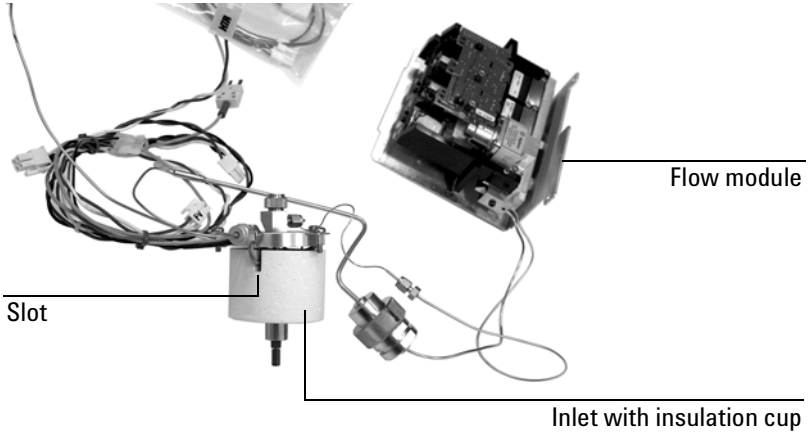
f. Trace the heater/sensor cable to the wiring harness connector. Disconnect it.

g. Remove the three screws holding the inlet body.

h. Lift the inlet assembly out of the lid. Remove the insulation from the hole under the inlet.

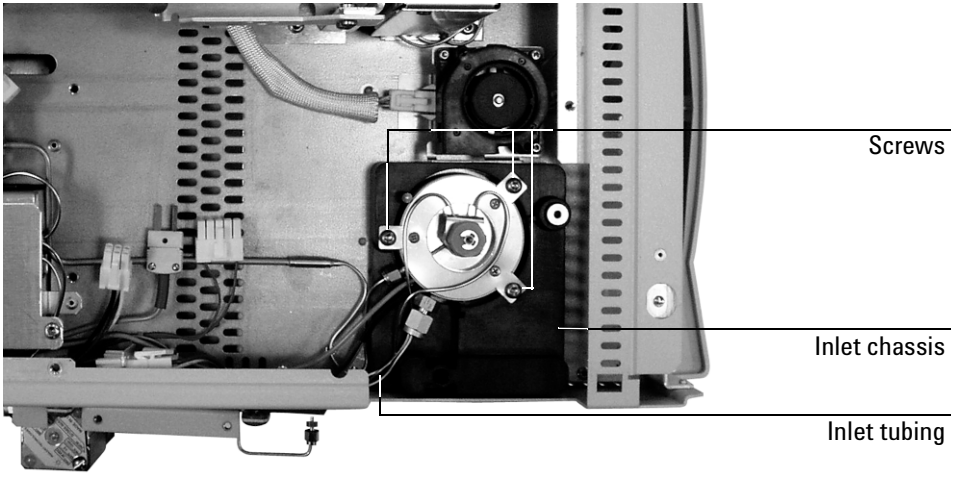
Install the new inlet

1. Insert the inlet chassis into the inlet opening in the top of the GC. As you face the front of the GC, the raised edge of the chassis is on the left.
2. Fit the insulation cup into position on the inlet body. Be sure the slot in the insulation cup is properly fitted with the inlet.

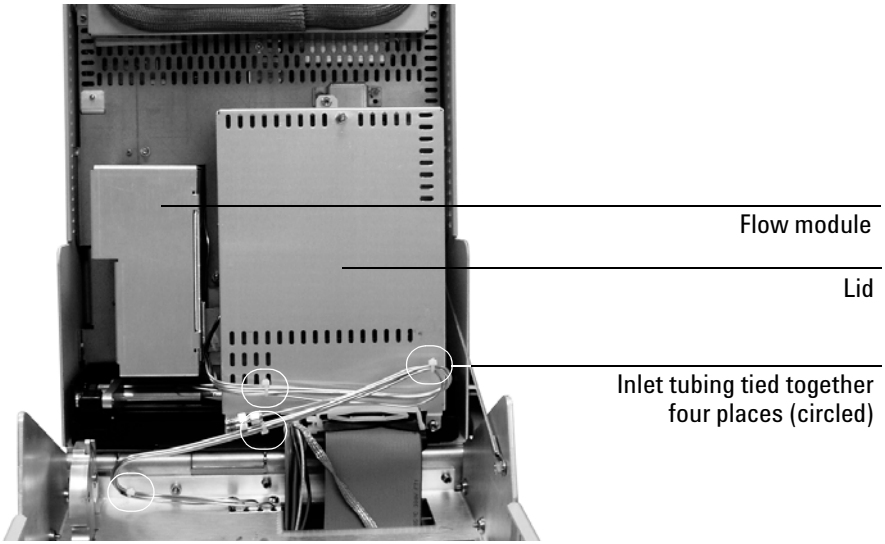


3. Place the inlet flow module into position. Be sure that the lip at the bottom of the flow module fits into the slot in the bottom of the flow module opening. See the picture with Step 5.

4. With the flow module in place, insert the inlet and insulation cup into the inlet chassis. Fasten the inlet and chassis into position with three T-20 Torx screws.

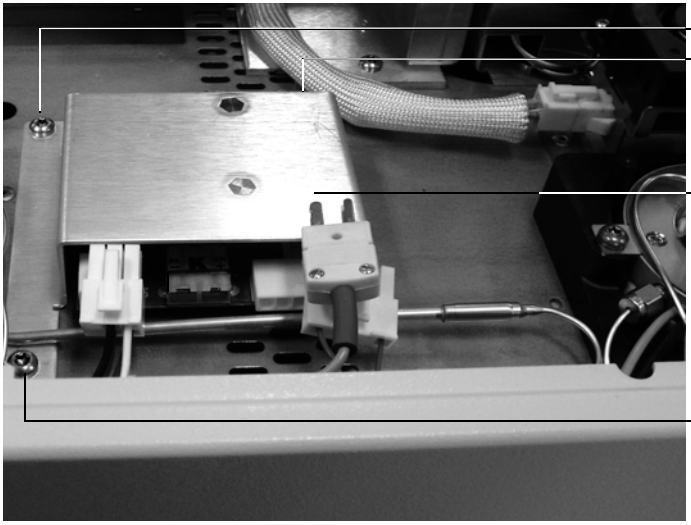


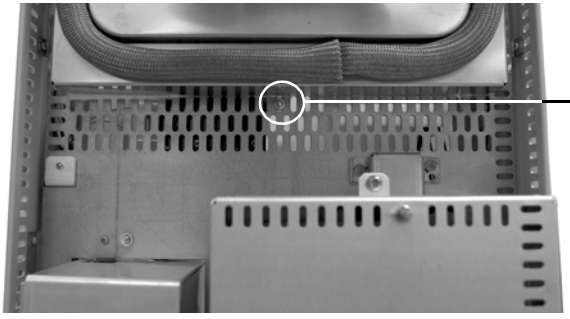
5. Route the inlet tubing as shown. At the rear of the GC, follow the "C" (carrier) tubing. Using three or four cable ties, tie the inlet tubing with the other tubing found under the lid at evenly spaced intervals. Be careful to avoid bending the tubing sharply. Close the lid.



6. Place the covered board assembly into position as shown. Fasten the assembly down with two screws.

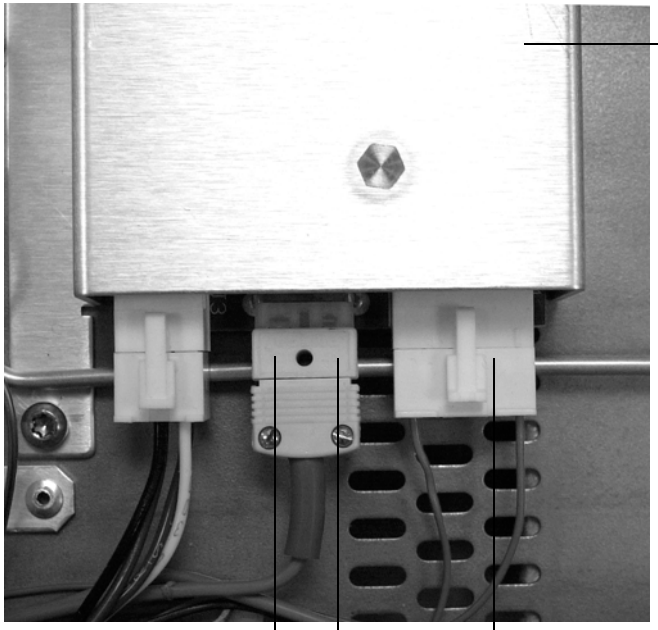
   On top of the lid, insert the captive screw into one of the vent holes in the covered board assembly. Beneath the lid, fasten the hex nut onto the captive screw.



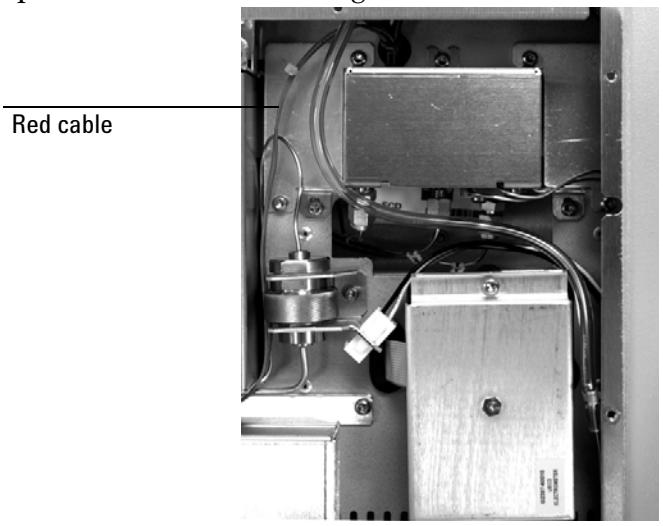


7. Close the lid.

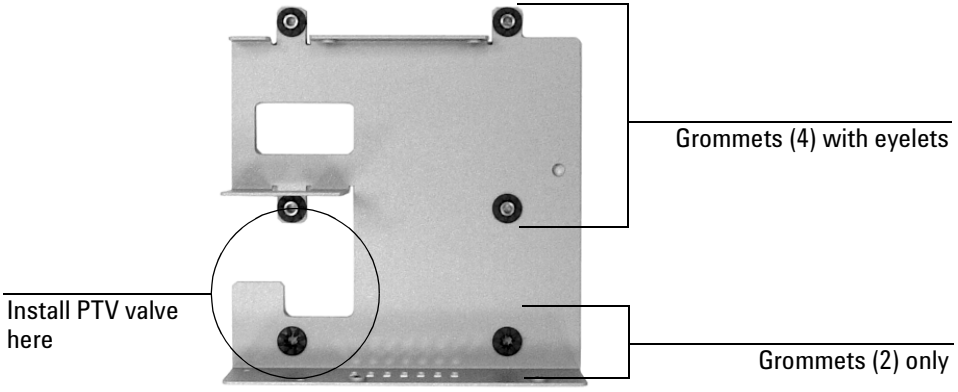
8. Attach the red cryo extension cable connector to the covered board assembly as shown. Run the loose end of the cabling behind the inlet flow module and to the rear of the inlet flow module. Be sure to plug the center connector's positive and negative sides correctly.



9. Loosen the screws on the detector module and move it forward far enough to lower the cryo extension cable connector through the top of the lid. Tie the red cable in with the other wiring, leaving as much slack as possible to avoid straining the soon-to-be-made connection.

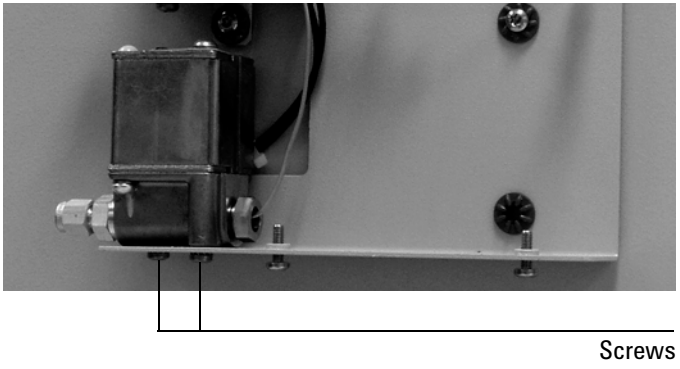


10. If you **WILL NOT** be installing the Cryo kit, prepare the bottom bracket by inserting the six blue grommets into the holes. Insert the four brass eyelets into the top four grommets as shown.

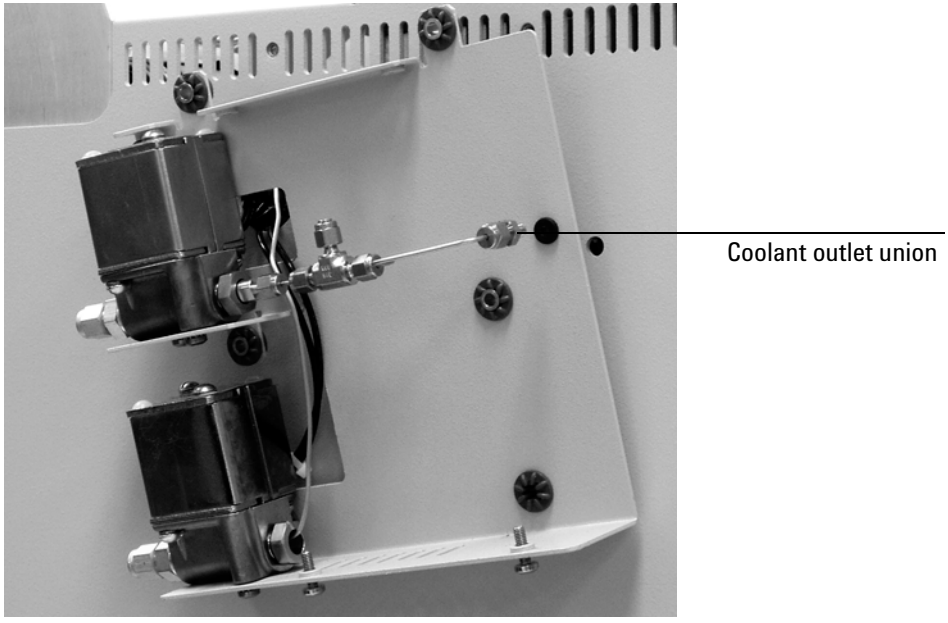


If you **ALREADY** have installed the Cryo kit, disconnect the coolant outlet union (see the picture with Step 12) and remove the screws on the bracket to pull it far enough away from the GC to proceed with Step 11.

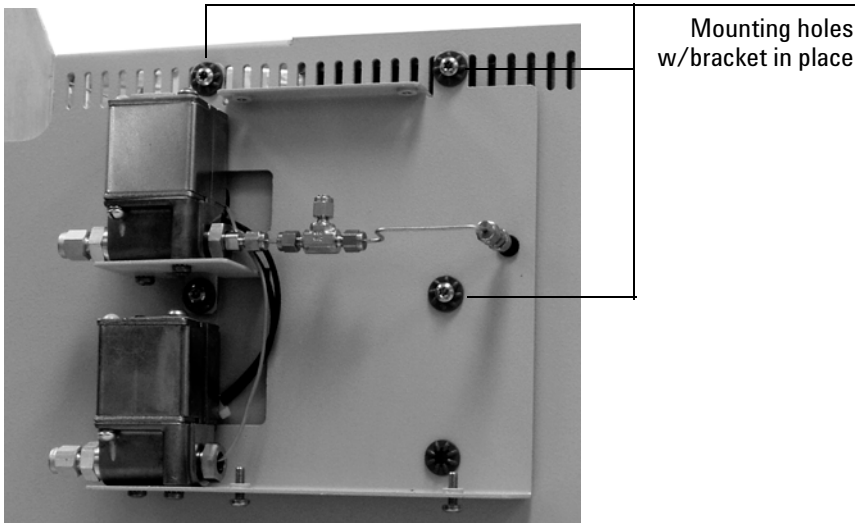
11. Attach the cryo valve onto the lower-left position of the cryo bracket, including the screws to hold it in place.



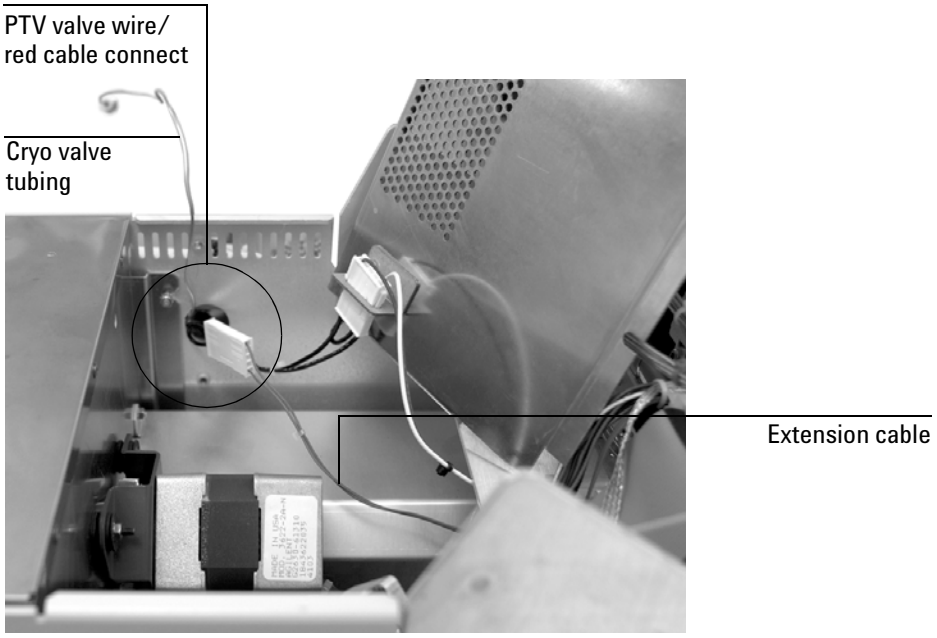
12. Prepare to fasten the cryo bracket into place by first pulling the cryo valve tubing and wires through the hole on the side of the GC. You may not have the upper valve pictured below if you do not have the Cryo kit installed.



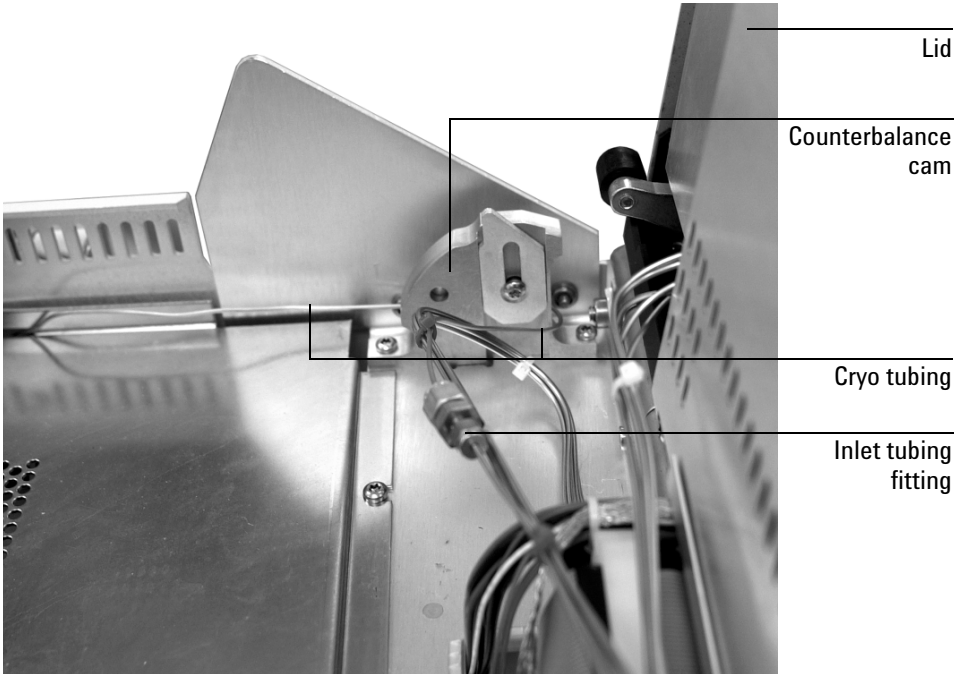
13. Place the cryo bracket over the four mounting holes on the left side of the GC. Insert screws through the brass eyelets and secure them loosely. Reattach the coolant outlet union.



14. Open the lid and connect the valve wiring to the previously-routed red cryo extension cable connector inside the left panel of the GC.



15. Route the cryo valve tubing around the counterbalance cam to the back of the GC to meet the inlet tubing you routed in Step 5. Use a couple of cable ties to tie the tubing together. Connect the tubing.



16. Continue installing the Cryo kit, if applicable. See the documentation that came with that kit for more information.
17. Close the lid and put the top cryo bracket on.

Restore the GC to operating condition

1. Install the capillary adapter, if used.
2. Restore the column connection.
3. Install the lid top cover.
4. Restore carrier and other gases to the instrument.
5. Restore power.
6. Apply your normal operating pressures. Leak-check the manifold, back panel, and column fittings.

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Acknowledgements
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Safety Symbols
Warnings in the manual or on the instrument must be observed during all phases of operation, service, and repair of this instrument. Failure to comply with these precautions violates safety standards of design and the intended use of the instrument. Agilent Technologies assumes no liability for the customer's failure to comply with these requirements.

In the manual
A warning calls attention to a condition or possible situation that could cause injury to the user.

A caution calls attention to a condition or possible situation that could damage or destroy the product or the user's work.

On the instrument


See accompanying instructions for more information.


Indicates a hot surface.


Indicates hazardous voltages.


Indicates earth (ground) terminal.


Indicates explosion hazard.


Indicates radioactivity hazard.


Indicates electrostatic discharge hazard.


Pinch hazard.

G3345-90008