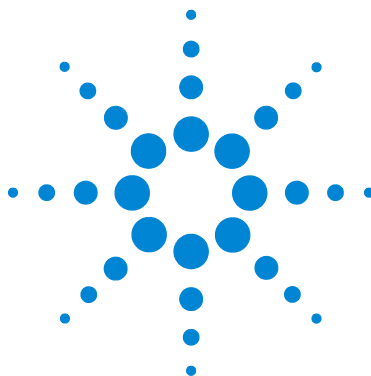




Agilent 6850 GC Sampling Valves

**G2654A - G2659A
G2667A - G2672A**

Installation



Agilent Technologies

Notices

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Agilent 6850 GC Sampling Valves Installation

Installing Sampling Valves on an Agilent 6850 Gas Chromatograph

G2654A - G2659A
G2667A - G2672A

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This document describes installation of a gas or liquid sampling valve on an Agilent 6850 gas chromatograph already equipped with either a packed or capillary inlet.



Installation Kits

Six installation kits are available ([Table 1](#)).

Table 1 Valve installation kits

Description	Inlet	Assessory number rotary	Accessory number diaphragm
Gas sampling valve, 6-port	Packed	G2667A	G2654A
Gas sampling valve, 6-port	Capillary	G2668A	G2655A
Liquid sampling valve, 4-port, 0.5 µL	Capillary	G2669A	G2656A
Liquid sampling valve, 4-port, 1.0 µL	Capillary	G2670A	G2657A
Liquid sampling valve, 4-port, 0.5 µL	Packed	G2671A	G2658A
Liquid sampling valve, 4-port, 1.0 µL	Packed	G2672A	G2659A

Except for the sampling valve itself, which is different for each kit, all kits contain the same items ([Table 2](#)).

Table 2 Kit contents

Description	Qty
Gas or liquid sampling valve and heated valve box	1
Modified lid top cover	1
Lid cam, valve box version	1
Air control valve assembly	1
Air control valve cover plate (diaphragm only)	1
Air control valve torque plate (diaphragm only)	1
10-feet plastic actuator tubing	1
Screw, M4 x 0.7, 12 mm length, pan head	9 (diaphragm) 5 (rotary)
Screw, M4 x 12, T-20 Torx	8
Installation sheet (this document)	1

Tools required

- Torx T-10 driver
- Torx T-20 driver
- Open-end wrenches
- Inlet wrench (for capillary inlet)

Safety information

Before continuing, read the safety information on your *Agilent 6850 Gas Chromatograph User Information* CD-ROM.

WARNING

Before proceeding, turn off the oven and any heated zones and let them cool down. Turn off all gases at their source, then turn off the main power switch and unplug the power cord.

Part Identification

Common parts

These are parts that are used with all gas and liquid sampling valves ([Figure 1](#)).

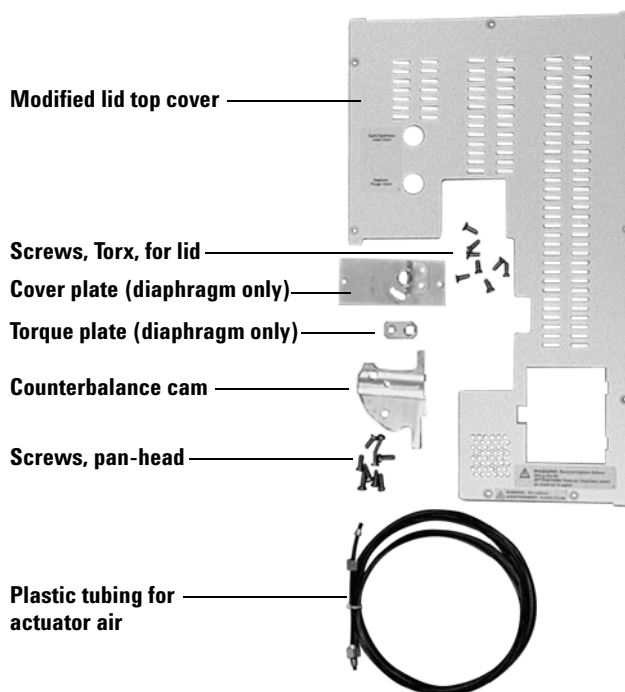


Figure 1 Common parts

Sampling valves

Parts for liquid and gas sampling valves are shown below.
See [Figure 2](#) and [Figure 3](#).

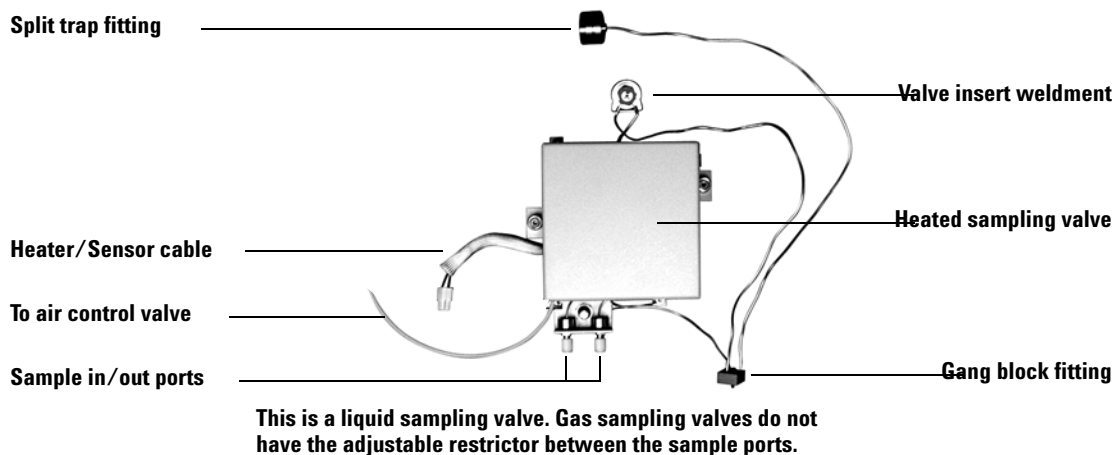


Figure 2 Valves with capillary inlet

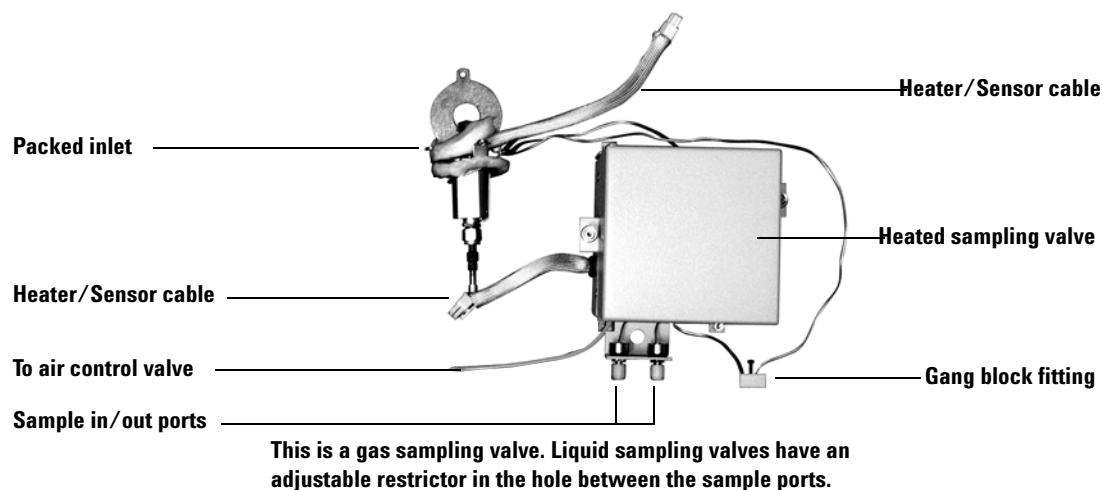


Figure 3 Valves with packed inlet

Air control valves

Parts for the air control valves are show below. See [Figure 4](#) and [Figure 5](#).

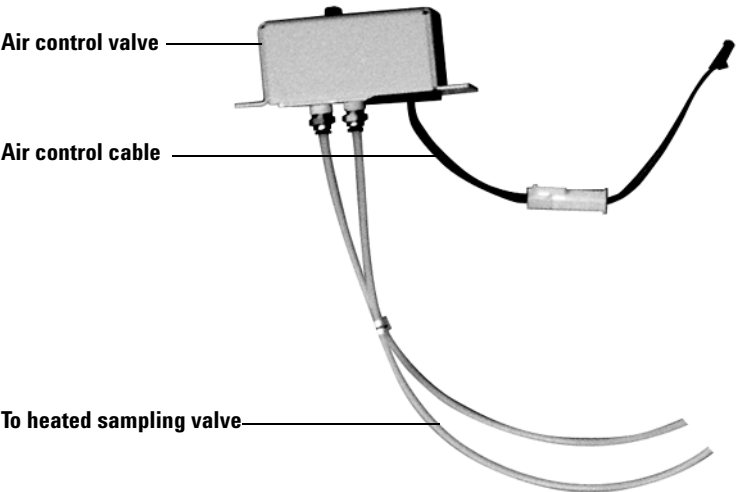


Figure 4 Air control valve for a rotary sampling valve

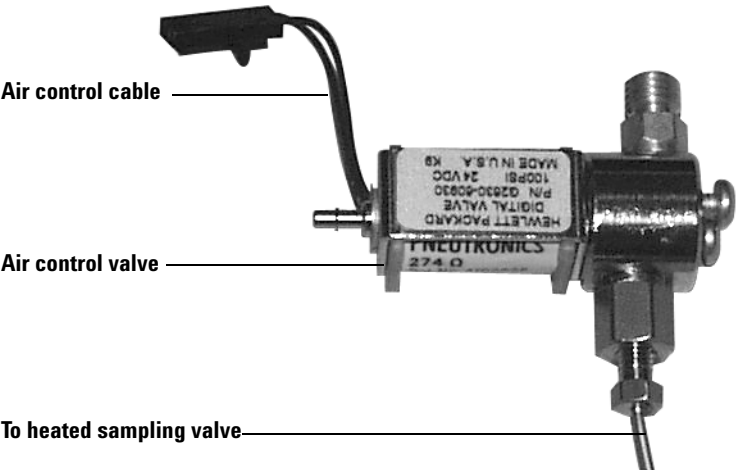


Figure 5 Air control valve for a diaphragm sampling valve

Installing a Sampling Valve

The sampling valve is installed in a heated valve box on top of the GC. See Table 3. The box and valve is a factory-assembled and leak-tested unit. Installation does not require any disassembly of the unit. See the *6850 Gas Chromatograph User Information* CD-ROM.

The valve is plumbed through an existing inlet, either capillary or packed.

Table 3 Installing a sampling valve

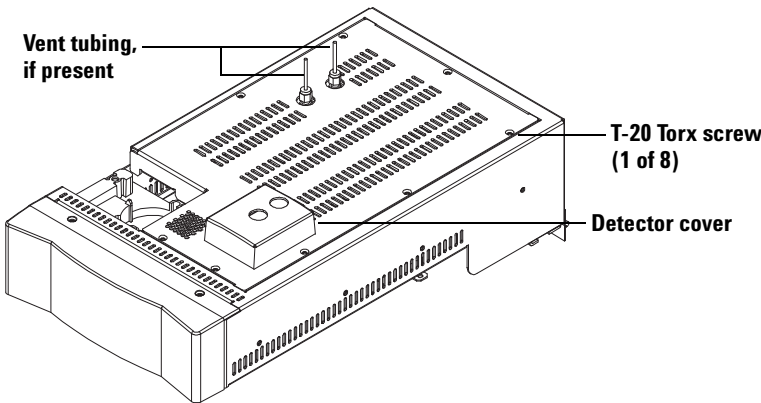
Step	Action	Notes
1 Remove the lid top cover.	a Remove vent tubing, if present. b Remove detector cover. c Remove 8 T-20 Torx screws. d Remove top cover.	
		
2 If the valve is to replace a <i>capillary inlet</i> , remove the insert weldment and split vent trap. If the valve is to replace a <i>packed inlet</i> , continue at Step 3.	a Use the inlet wrench to release the large nut on the inlet insert weldment. b Lift the inlet insert weldment clear of the inlet.	

Table 3 Installing a sampling valve (continued)

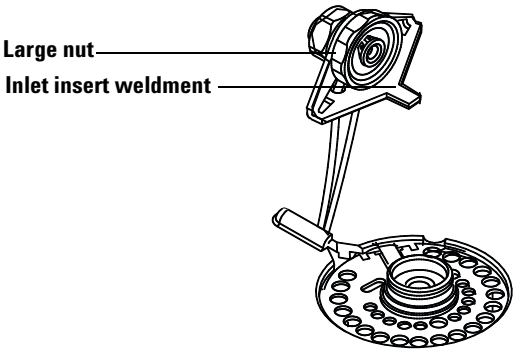
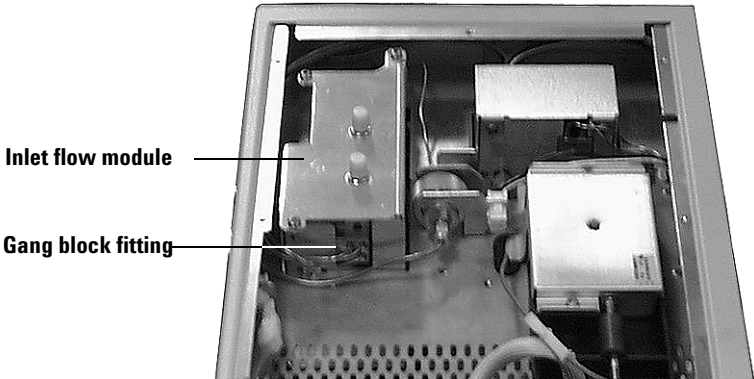
Step	Action	Notes
	 Large nut Inlet insert weldment	
c	Remove the gang block fitting from the inlet flow module.	• Be very careful not to lose the small O-rings.
	 Inlet flow module Gang block fitting	
d	Remove the split vent trap bracket using a T-20 Torx driver.	

Table 3 Installing a sampling valve (continued)

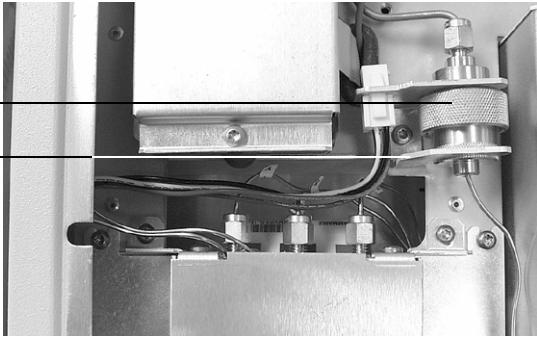
Step	Action	Notes
		
	e Disassemble the split vent trap. f Remove the inlet insert weldment and attached parts from the instrument. g Continue at Step 4.	
3 If the valve is to replace a <i>packed inlet</i> , remove the existing inlet.	a Open the lid. Disconnect the column from the inlet. b Remove the insulation cup and insulation from the inlet column fitting. c Close the lid. d Trace the heater/sensor cable from the inlet to the wiring harness. Disconnect it. e Trace the gas lines from the inlet to the gang fitting on the flow module. Disconnect the gang fitting. f Remove the three screws holding the inlet. g Remove the inlet. h Continue at Step 4.	• Note where the heater/sensor cable plugs into the wiring harness. You will use this location later. • Do not remove the insulation in the hole under the inlet.
4 Lock the lid in the service position.	a Open the lid. Locate the counterbalance cam. b Loosen the screw on the right side of the cam and lower the stop plate.	The cam is under the lid, in the left rear corner.

Table 3 Installing a sampling valve (continued)

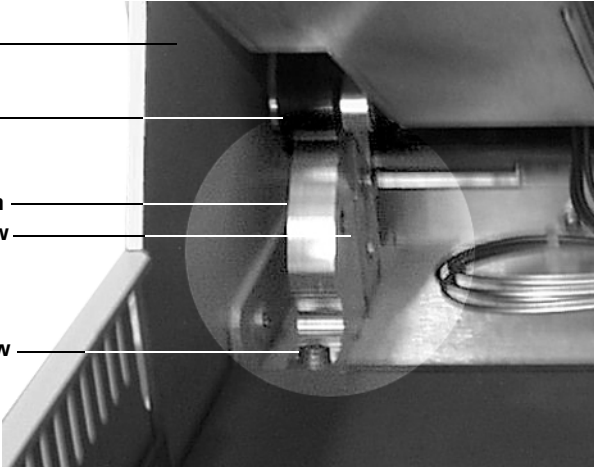
Step	Action	Notes
		
	c Raise the lid until it is stopped by the safety cable. d Raise the stop plate and tighten the screw to lock the lid in the upright service position.	• The lid is heavy. Always lock the lid when it is in the service position.
5 Replace the lid counterbalance cam.	a Locate the two cam mounting screws. (one in front, one in back). b While an assistant supports the lid, remove the two mounting screws and the cam. c Remove the stop plate and screw from the cam. Install them on the new cam from the kit. d Install the new cam. Lower the stop plate. e Pull the lid forward until the cam follower rests on the curved surface of the cam in front of the stop plate. f Raise the stop plate and tighten the screw. Close the lid.	• Do not try to change the cam alone. Obtain help to hold the lid in the upright position while the cam is changed, since the lid is unsupported while doing this. • The pointed end of the top plate is up and the side with the screw recess is visible when installed.

Table 3 Installing a sampling valve (continued)

Step	Action	Notes
6	Install the valve and valve box.	
	a Connect the valve gang block fitting to the inlet flow module. b Place the valve box on the lid between the inlet assembly and the inlet flow module. c Bend the heater/sensor cable to the rear. d Attach the valve box tabs to the lid using four pan-head screws.	• Be sure that the small O-rings are in place and that the hole patterns in the fitting and the flow module are aligned. • Orient the valve box so that the sample connections point to the rear of the GC. • Be sure that no tubing or wiring is trapped under the valve box. • The metering valve shown below is not present on gas sampling valves.

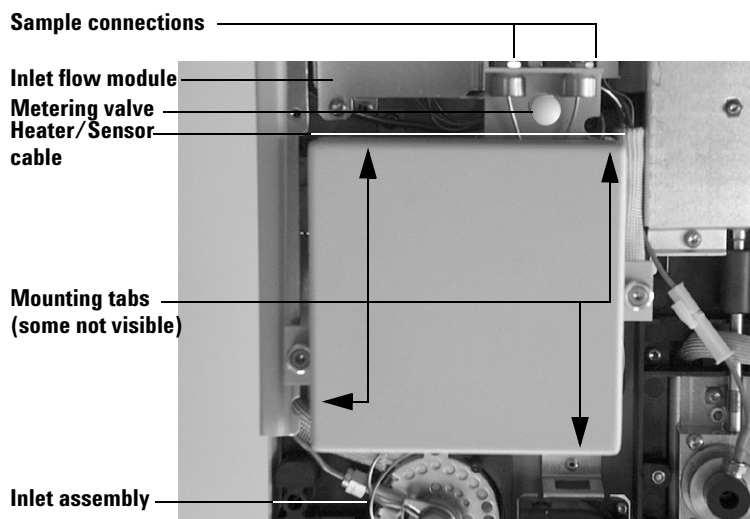
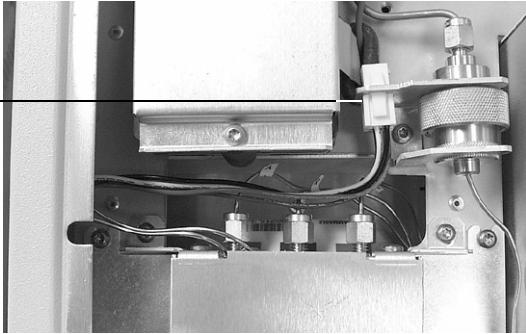


Table 3 Installing a sampling valve (continued)

Step	Action	Notes
7 Connect the plumbing.	a Capillary inlet only. - Place the valve insert weldment attached to the valve box on the inlet and tighten the large nut. b Packed inlet only. - Place the new inlet attached to the valve box in the opening where the old one was. Secure the inlet with three screws. - Slide the insulation and insulation cup up over the inlet fitting and secure it to the oven top.	
8 Connect the valve box heater/sensor cable.	a Locate the connector marked A on the main wiring harness. b Connect the valve box heater/sensor cable.	
		
9 Complete the inlet installation.	a Capillary inlet only. - Reassemble the split vent trap using the trap fitting attached to the valve box. - Secure the split vent trap bracket and the trap. b Packed inlet only. - Connect the inlet heater/sensor cable where the original inlet cable was connected.	

Installing an Air Control Valve for a Diaphragm-Type Control Valve

Follow the procedure in [Table 4](#) to install a diaphragm air control valve.

Table 4 Installing an air control valve for a diaphragm-type control valve

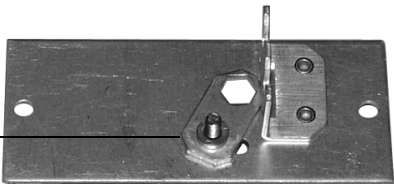
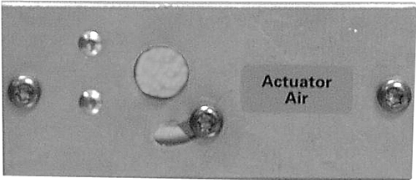
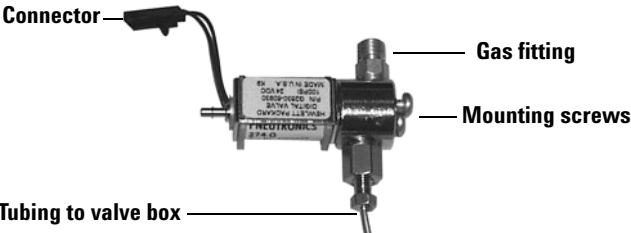
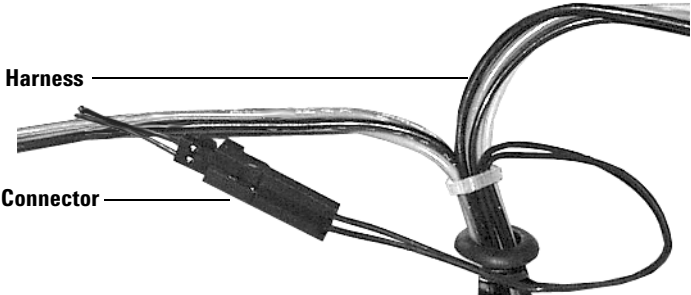
Step	Action	Notes
1	Install the air control valve.	
	a If present, remove the rectangular cover plate on the back of the lid. b Attach the torque plate to the inside of the cover plate with one screw. Do not tighten.	
		
	c Mount the cover plate/torque plate assembly on the outside of the lid with two screws.	
		
	d Loosen the two screws on the base of the air control valve.	
		

Table 4 Installing an air control valve for a diaphragm-type control valve (continued)

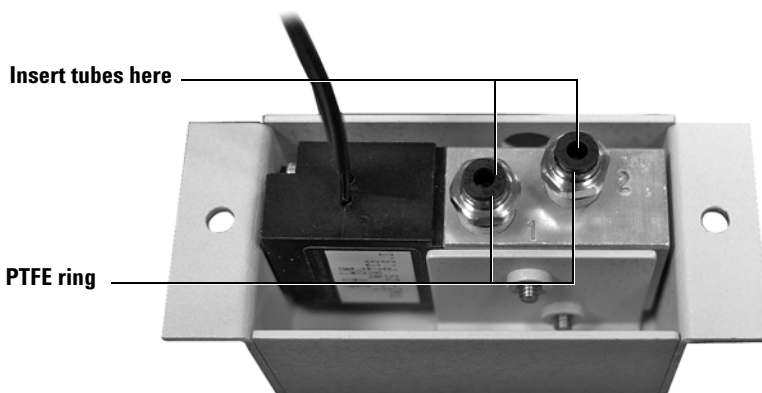
Step	Action	Notes
	e Slide the valve onto the bracket on the inside of the cover plate. Tighten the valve base screws and the torque plate screw. f Connect the cable from the air control valve to the wiring harness.	• Move the valve and torque plate as needed to pass the gas fitting through the opening in the torque plate.
		
2 Install the modified top cover.	a Place the modified lid top cover supplied in this kit on top of the lid. b Secure with eight screws.	
3 Connect the actuator air.	a Connect the air source to the fitting on the back of the lid (their control valve). b Set the source delivery pressure at 310 to 345 kPa (45 to 50 psi).	• Valves are gas-driven, usually by compressed air. There is no high purity requirement for this gas. The supply pressure may surge as the valve operates, so the actuator gas must not come from the FID air.
4 Finishing up.	a Restore carrier and other gases to the instrument. b Restore power. c Apply your normal operating procedures. Leak-check all new connections.	

Installing an Air Control Valve for a Rotary-Type Sampling Valve

Follow the procedure in [Table 5](#) to install a rotary air control valve.

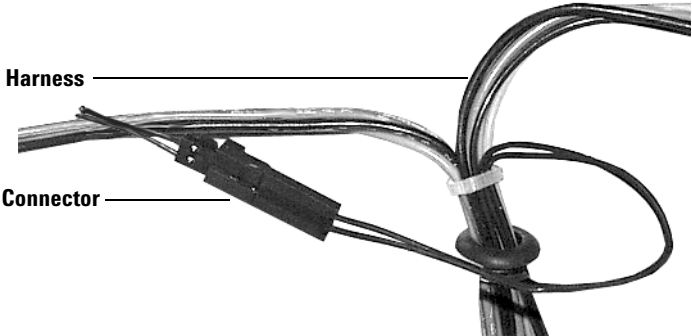
Table 5 Installing an air control valve for a rotary-type sampling valve

Step	Action	Notes
1	Install the air control valve.	
	a If present, remove the rectangular cover plate on the back of the lid. b Locate the two tubes from the heated sampling valve. Run them through the hole on the back of the lid. c Insert the tubes in the numbered holes on the air control valve. Press firmly into place. Tug on the tube to verify it is connected.	- The tubes are labeled "1" and "2". Connect each tube to the hole on the air control valve with the corresponding number. - Press in the black PTFE ring to release the tube if you need to remove it.



- d** Mount the valve assembly on the outside of the lid with two screws.
- Install the air control valve with the holes facing down.

Table 5 Installing an air control valve for a rotary-type sampling valve (continued)

Step	Action	Notes
2	Connect the control cable. • Connect the cable from the control valve to the wiring harness.	
		
3	Install the modified top cover. - a Place the modified lid top cover supplied in this kit on top of the lid. - b Secure with eight screws.	
4	Connect the external actuator air supply tubing. - a Connect the air source to the fitting on the back of the lid (the control valve). - b Set the source delivery pressure at 310 to 345 kPa (45 to 50 psi).	• Valves are gas-driven, usually by compressed air. There is no high purity requirement for this gas. The supply pressure may surge as the valve operates, so the actuator gas must not come from the FID air.
5	Finishing up. - a Restore carrier and other gases to the instrument. - b Restore power. - c Apply your normal operating procedures. Leak-check all new connections.	



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