Installing the Flame Ionization Detector
EPC Flow Control Manifold

The FID EPC Flow Control Manifold kit can be used to replace any HP 6890 Series FID EPC flow control manifold.

This kit contains:

<table>
<thead>
<tr>
<th>Kit G1531-60720</th>
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<tbody>
<tr>
<td>FID EPC flow control manifold</td>
<td>1</td>
</tr>
<tr>
<td>Mounting bracket, HP 6890</td>
<td>1</td>
</tr>
<tr>
<td>Top rear panel</td>
<td>1</td>
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<tr>
<td>Installation sheet (this document)</td>
<td>1</td>
</tr>
<tr>
<td>Blank label</td>
<td>1</td>
</tr>
<tr>
<td>Hex nut, 7/16 inch</td>
<td>3</td>
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Figure 1  FID EPC flow control manifold replacement kit
Tools required

7/16 inch open-ended wrench
T-20 Torx driver
Needle-nosed pliers

Safety information

Before continuing, read the safety information in your GC Operating Manual.

Removing the existing manifold

WARNING Hydrogen gas is flammable and potentially explosive. Before replacing the manifold, turn off the hydrogen gas at the source.

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

1. Remove the pneumatics cover and the RFI shield under it. See Figure 2.

Figure 2 Back view of HP 6890
2. Remove the gas supply tubing from the present manifold. See Figure 3.

**Figure 3** Remove the gas connections
3. Remove the detector cover and the top rear panel.
4. Remove the Torx T-20 mounting screw from the front of the manifold. See Figure 4.

**Figure 4** Removing the detector flow manifold
5. Disengage the detector tubing from the slots in the chassis so that the gang fitting on the manifold can be removed easily. See Figure 4.
6. Unlock the detector manifold’s ribbon cable from the pneumatics control board and detach the connector. The adjacent ribbon cable may have to be removed as well.

7. If you are removing a manifold that was installed before May 1998, slide it a few centimeters out of its slot in the pneumatics carrier. See Figure 5.

8. Remove the one Torx T-20 screw holding the gang fitting on the manifold. See Figure 5.

Caution

Make sure you are properly grounded with an ESD strap before continuing.

Caution

Do not lose the O-rings under the gang fitting.

Figure 5  Removing the gang fitting
Installing the new manifold

**Caution** Always hold the manifold by its support bracket to avoid damaging board components.

1. Slip the ID tag on the new manifold through the slot in the mounting bracket, then align the bracket holes over the gas fittings. Secure the bracket with three 7/16 inch hex nuts. See Figure 6.

![Diagram of bracket mounted onto the manifold](image)

**Figure 6** Bracket mounted onto the manifold

2. Peel the blank label from its backing and paste it on the mounting bracket over the screw heads. See Figure 7.

3. If the tubing from the gang fitting bends to the left, reshape it so that it bends up and back from the block as shown in Figure 8.
4. Insert the gang fitting through the cutout in the manifold bracket and install it onto the new manifold assembly so that the tubing runs back and away from the fitting.
   - Be sure the left tube clears the inner edge of the bracket. See Figure 8.
   - Be sure that the O-rings are in place.

Tighten the gang fitting screw firmly to compress the O-rings.

5. Route the ribbon cable behind the manifold assembly as shown in Figure 7. Then, slide the manifold and bracket assembly into the slot until the bracket seats flush against the end of the rails. See Figure 8.

Figure 7  Routing the ribbon cable

Back view of manifold

Manifold installed with cable routed to left
6. Route the gas tubing behind the manifold, over the top of the chassis, and through the slots as shown in Figure 4 and Figure 8.

7. Connect the ribbon cable to the mating connector on the pneumatics board. Arrange the cable to keep it away from the valves and keep it from being pinched against the manifold.

   For the back detector, you may want to loosen the manifold and slide it out of the carrier a few centimeters to connect the cable to the pneumatics board. Then, reinstall the manifold.

8. Secure the manifold in place using the Torx T-20 screw. See Figure 4.

9. Using a pair of needle-nosed pliers, remove the appropriate top rear panel detector cutout for the FID. Also remove any cutouts needed to access other manifolds or accessories installed in the GC. See Figure 9.
10. Place the new top rear panel on its left-most mounting screw. Use the screw as a hinge and angle the panel while sliding each manifold ID tag through its cutout in the panel, working from left to right. When all the tags are through the panel, finish installing the panel on the GC.

11. Install the RFI shield, the pneumatics cover, and the detector top cover.

12. Connect the source gas lines to the manifold. See Figure 10.

13. Restore gas pressures and check all fittings for leaks.