

Installing the TCD to FID Series Connector

4890, 5890, 6890 Gas Chromatographs

Accessory 19232C

The TCD to FID Series Connector, Accessory 19232C, is used to connect the output flow of a Thermal Conductivity Detector (TCD) to the inlet of a Flame Ionization Detector (FID) for a second analysis.

- This accessory is not compatible with the FID Capillary-only units.
- It is important to read this booklet **before** installing a new TCD. The instructions in this booklet modify some of the installation steps.
- One TCD and one FID are required to use this accessory. If there is another detector besides a TCD or FID installed, remove it.
- If you need to install a new FID, refer to the installation booklet included with your new detector. Do not turn on the GC or test the detector until after the TCD to FID series connector is installed.
- If you need to install a new TCD, refer to the installation booklet included with your new detector. When ready to insert the TCD detector assembly into the oven, follow the instructions under "Adjust your vent tubing and install the TCD" below. Complete TCD hardware installation through all of the wiring connections, then return to the instructions in this book. Do not turn on the GC or test the detector until after the TCD to FID series connector is installed.



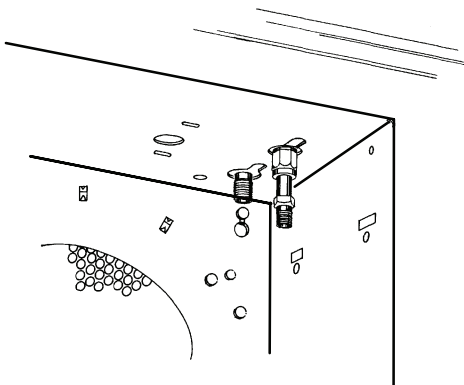
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Prepare the GC

WARNING

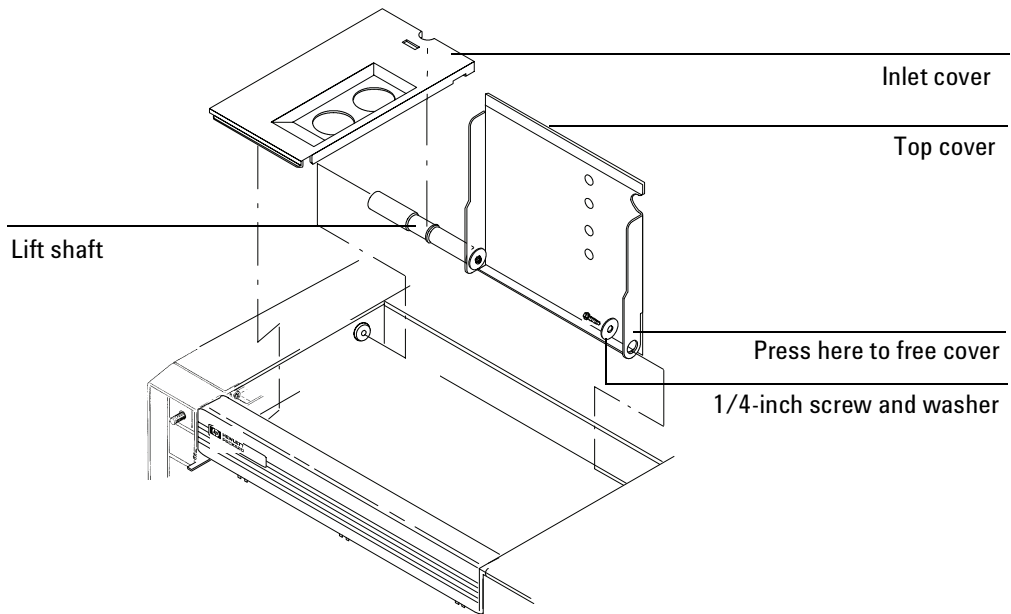
Hazardous voltages are present in the instrument whenever the power cord is connected. Avoid a potentially dangerous shock hazard by disconnecting the power cord before working on the instrument. On the 4890 and 5890 the power switch is located on the right side of the instrument. On the 6890 it is located on the front of the instrument.

1. Set the main power line switch to the off position.
2. Disconnect the power cable from its receptacle.
3. Allow time for the oven and heated zones to cool.
4. When the heated zones are cool, turn off all gas supplies at the source.
5. At the bottom of the detectors, inside the column oven, remove the column and hardware associated with the inlet or detector (liner, column/liner nuts, ferrules, makeup gas adapter, etc.).



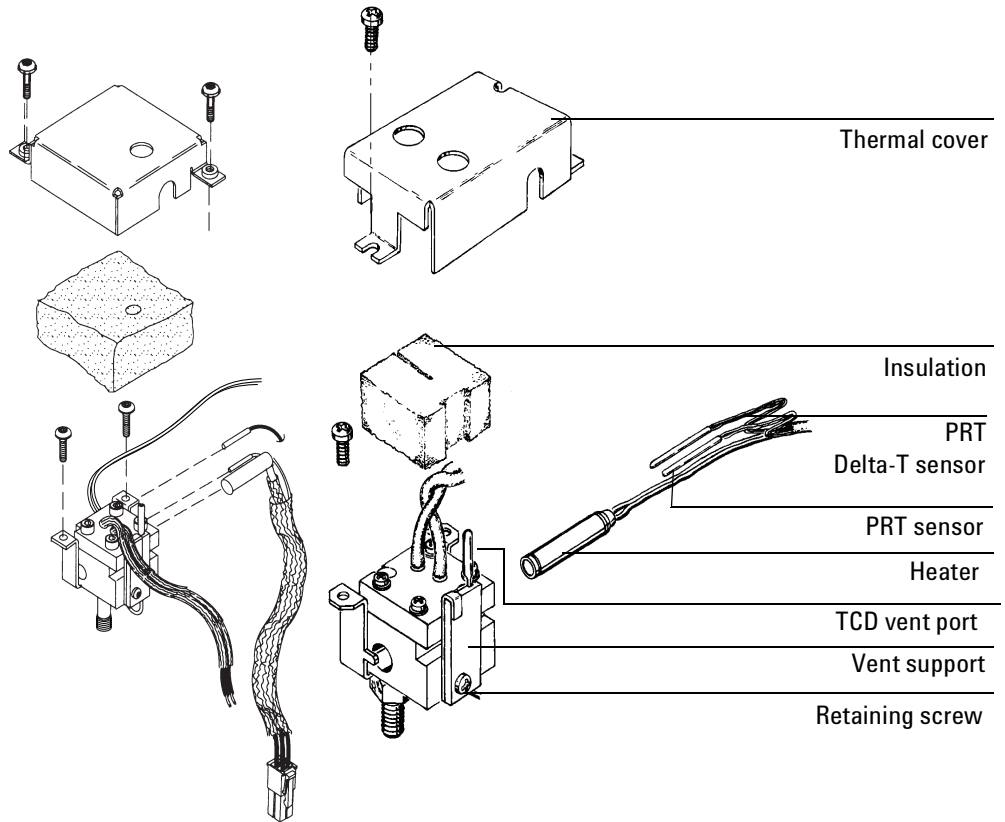
6. Lift the hinged top cover of the 4890 or 5890 at its front edge, exposing the detector area. On the 6890, lift the detector cover to expose this area.

4890/5890



Remove the TCD detector weldment

1. Cap the detector base.
2. Remove the TCD detector cover by removing two screws, one from each side of the detector cover.
3. Cap the TCD vent port on the top of the detector.



Caution

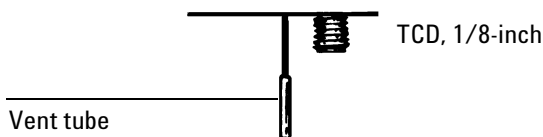
The insulation on the GC is made of refractory ceramic fibers. Ventilate your work area. Wear long sleeves, gloves, safety glasses, and a disposable dust/mist respirator. Dispose of insulation in a sealed plastic bag.

4. Remove the preformed thermal insulation from around the detector to expose the two screws securing the detector to the instrument mainframe.
5. Remove the two screws securing the detector to the instrument and raise the block enough to expose the retaining screw on the vent support.

If needed, slide the heater and sensor cartridges out of the block. The two smaller cartridges are the sensors and must be handled gently to prevent breakage.

Adjust your vent tubing and install the TCD

1. Once the TCD assembly is removed from the oven enough to expose the mounting screw on the vent support, or before a new TCD assembly is installed, remove the retaining screw in the vent support and remove the vent support.
2. Bend the vent tubing down so that it is alongside the detector column fitting. Align the tube so that it will fit in the slot in the oven liner.



3. If installing a new TCD, continue with the instructions in the installation booklet for your TCD through all of the wiring connections. When finished, continue with the instructions under "Install the TCD to FID Series Connector" in this booklet.
4. If they were removed, install the heater, temperature sensor, and delta-T sensor cartridges in the heated block.
5. Carefully install the detector, securing it to the instrument with two screws.
6. Remove the caps from the detector base and the vent port.

Caution

When installing insulation, use care not to plug the vent port. If flow is interrupted while the TCD is on, it will shorten its life dramatically.

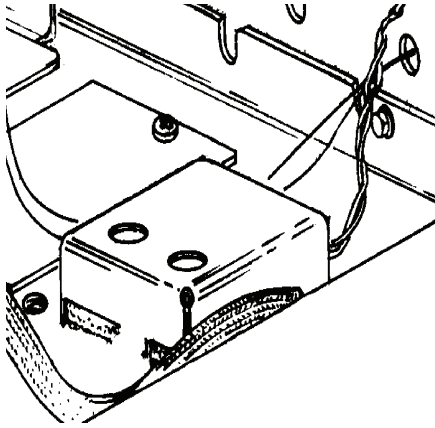
7. Taking care not to block the vent port, install insulation around the detector block.

Caution

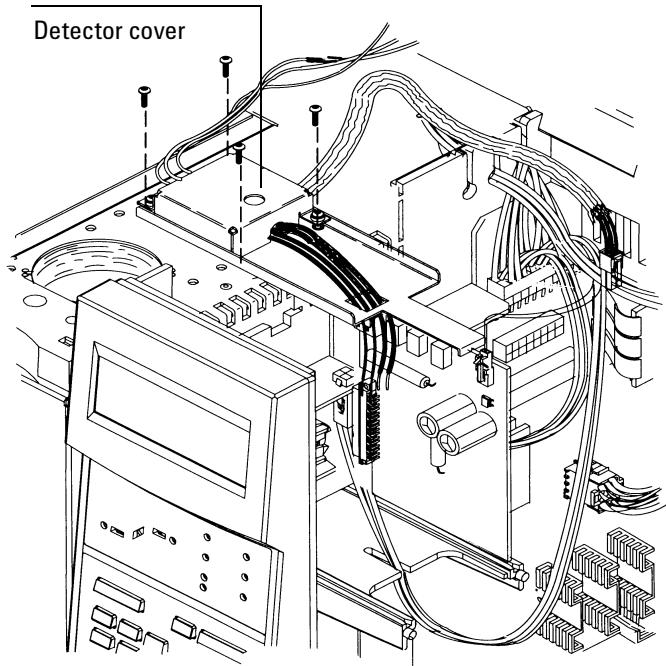
Avoid crimping the filament and delta-T sensor leads when installing the TCD detector cover.

8. Install the TCD detector cover and secure using two screws.

4890/5890



6890

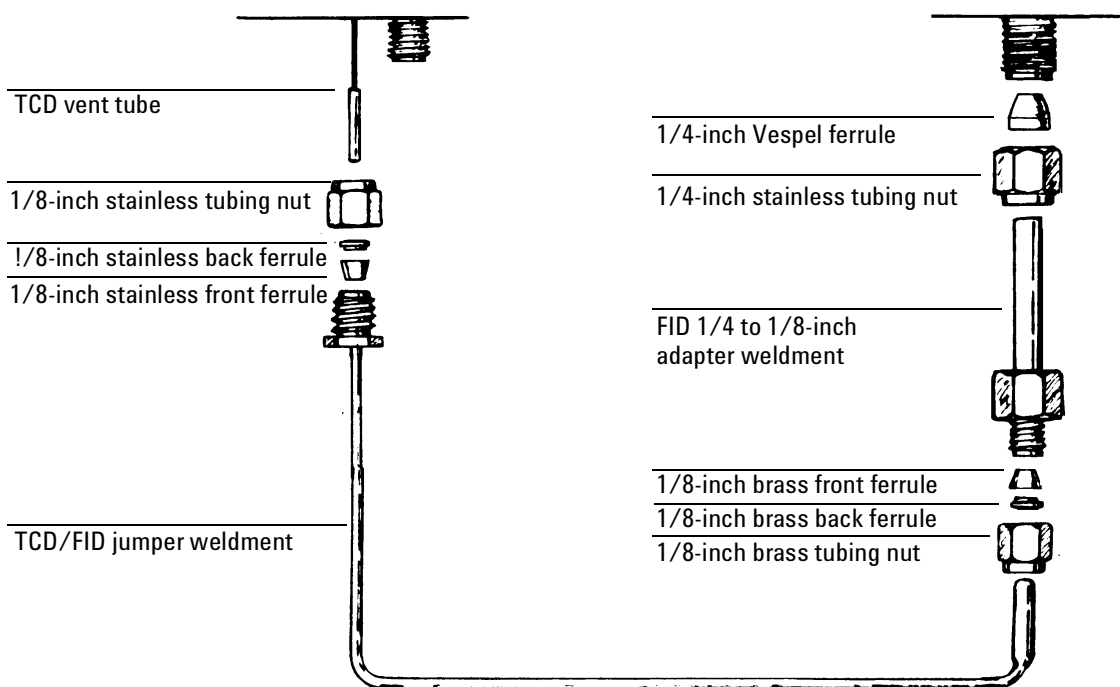


Install the TCD to FID Series Connector

1. Use the 1/8-inch stainless tubing nut, 1/8-inch stainless back ferrule and 1/8-inch stainless front ferrule to connect the TCD/FID jumper tube weldment to the TCD vent tubing.

Install the 1/4-inch brass tubing nut, 1/8-inch brass back ferrule, 1/8-inch brass front ferrule between the TCD/FID jumper tubing and the 1/4 to 1/8-inch adapter.

2. Use the 1/4-inch stainless tubing nut and 1/4-inch Vespel ferrule to connect the adapter to the FID. A diagram of the installation is shown below.



Return your GC to operating condition

1. If any covers were removed to install a detector, replace them.
2. If a new detector was installed, make sure its gas supplies are properly connected.
3. Plug in the GC power cord and restore power to the GC.
4. Restore all gas flows and establish them as described in your GC's Getting Started or Site Prep and Installation manuals.
5. Check for leaks.
6. Run the checkout chromatogram(s) as described in your GC's Operating Manual.
 - Because of the series connection, it may be necessary to re-adjust the gas flows on your FID to optimize test results.
 - It may be necessary to change the standard FID jet for the 0.030-inch jet (part no. 18789-80070) if you experience flame ignition problems. See your GC's Operating Manual.

Table 1. Parts Provided

Description	Part number
Front ferrule, 1/8-inch, brass	5180-4109 (10/pk)
Back ferrule, 1/8-inch, brass	5180-4115 (10/pk)
Tubing nut, 1/8-inch, brass	0100-0058
Front ferrule, 1/8-inch, stainless	5180-4110 (10/pk)
Back ferrule, 1/8-inch, stainless	5180-4116 (10/pk)
Tubing nut, 1/8-inch, stainless	0100-0057
Tubing nut, 1/4-inch, stainless	5180-4106 (10/pk)
Vespel ferrule, 1/4-inch	5080-8774 (10/pk)
FID 1/4 to 1/8-inch Adapter weldment	19231-80520
TCD/FID Jumper tube weldment	19302-80600

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