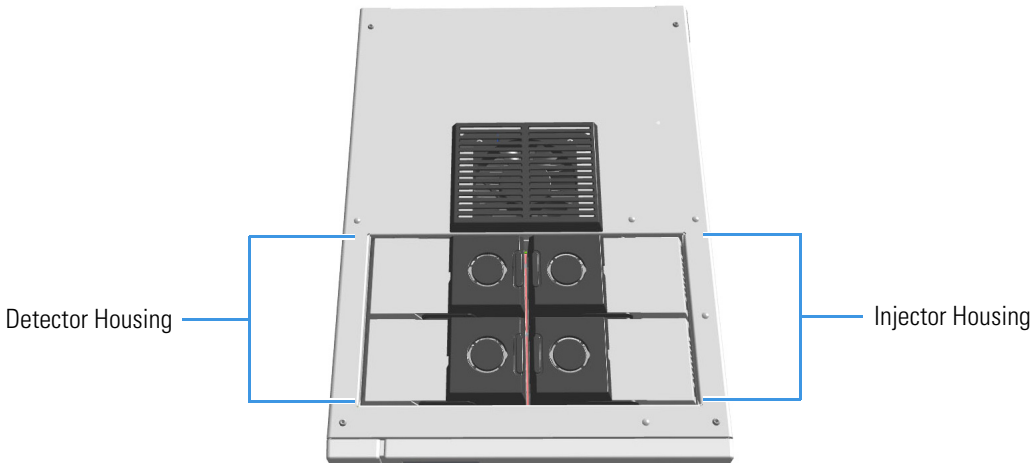
Thermo Scientific™ GC Module Installation Note

This document provides the instructions for installing your front/back injector and detector modules in the relevant housing.

Installing the Injector and Detector Modules

The GC is shipped with dummy modules installed in the injector/detector housings. See Figure 1.

Figure 1. Injector and Detector Housings and Dummy Modules



Note Installed dummy modules have gas connections blocked by a plug.

The dummy modules must be removed and replaced by the injector and detector modules as required by the configuration of your TRACE 1300/TRACE 1310.

CAUTION Each housing must always be occupied by both modules. If the GC is configured with a single injector/detector module, a dummy module must remain inserted instead of the missing injector/detector module.

The injector and detector modules are shipped with a plug. Before you install the column, remove the plug.

To install the injector and detector modules, see the following procedures:

- Installing an Injector Module
- Installing a Detector Module

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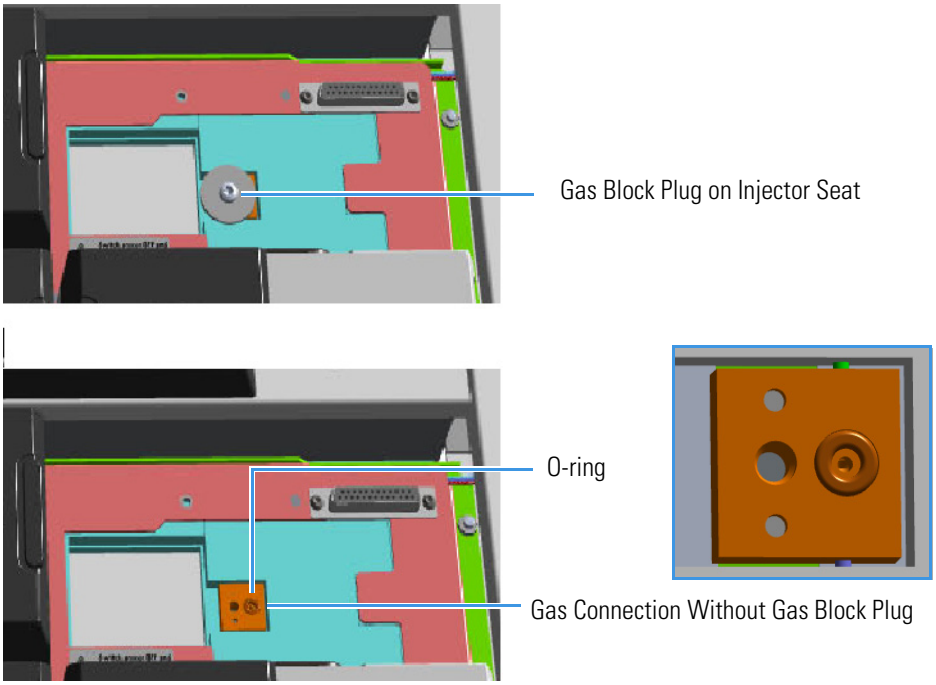
Installing an Injector Module

❖ To install an injector module

1. Remove the dummy module from the position where the injector module will be installed.
   a. Open the module flap cover.
   b. Using a T20 Torxhead screwdriver, unscrew the two captive fixing screws.
   c. Keeping the dummy module flap cover open, lift up the module from its seat in the injector housing. Place the dummy module on a clean surface.
   d. Remove the gas block plug from the gas connection by unscrewing its fixing screw using a T20 Torxhead screwdriver.

Figure 2. Injector Gas Block Plug



WARNING Make sure the O-ring is placed into its seat on the gas connection. See Figure 2. **Do not install the module if the O-ring is missing**.

2. Plug the injector module into the main frame.
   a. Open the module flap cover.
   b. Keeping the module flap cover open, place it in its seat. Be sure to insert the 25-pin male connector on the bottom of the module into the 25-pin female connector on the injector seat of the injector housing.
   c. Use a T20 Torxhead screwdriver to tighten the three captive fixing screws evenly and carefully - without overtightening.

CAUTION To maintain the correct alignment the screws must be tightened in turn, and each screw must be tightened only a small amount before moving to the next screw. Repeat until all are secure.

   d. Close the module flap cover.

3. Continue the installation by following the instructions in the section "Making the Gas Supply Plumbing Connections" on page 4.

Installing a Detector Module

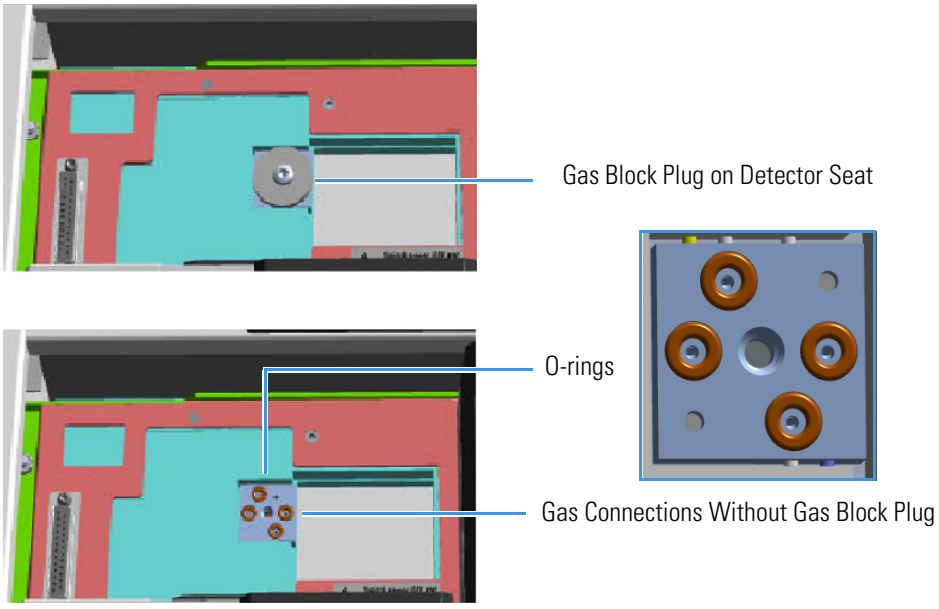
CAUTION If you are installing a **NPD detector module**, a NPD Thermionic Source Power Module is required. For the installation details see the "Adding a NPD Detector Module" section of the *TRACE 1300 and TRACE 1310 Hardware Manual*.

If you are installing a **Generic Detector Interface** see the "Adding a Generic Detector Interface" section of the *TRACE 1300 and TRACE 1310 Hardware Manual*.

❖ To install a detector module

1. Remove the dummy module from the position where the detector module will be installed.
   a. Open the module flap cover.
   b. Using a T20 Torxhead screwdriver, unscrew the two captive fixing screws.
   c. Keeping the dummy module flap cover open, lift up the module from its seat in the injector/detector housing. Place the dummy module on a clean surface.
   d. Remove the gas block plug from the gas connections by unscrewing its fixing screw using a T20 Torxhead screwdriver.

Figure 3. Detector Gas Block Plug



WARNING Make sure all four O-rings are placed into their seats on the gas connection. See Figure 3. **Do not install the module if the O-rings are missing**.

2. Plug the detector module into the main frame.
   a. Open the module flap cover.
   b. Keeping the module flap cover open, place the module in its seat. Be sure to insert the 25-pin male connector on the bottom of the module into the 25-pin female connector on the detector seat of the detector housing.
   c. Use a T20 Torxhead screwdriver to tighten the three captive fixing screws evenly and carefully - without overtightening.

CAUTION To maintain correct alignment, the screws must be tightened in turn and each screw must be tightened only a small amount before moving to the next screw. Repeat this process until all the screws are secure.

d. Close the module flap cover.

3. Continue the installation following the instructions in the section "Making the Gas Supply Plumbing Connections" on page 4.

Making the Gas Supply Plumbing Connections

This section contains instructions to make plumbing connections between the gas supply lines and the GC gas inlets on the rear of the instrument.

CAUTION DO NOT loosen or remove caps from the TRACE 1300/TRACE 1310 until you have purged gas lines, and you are ready to connect them. Loosening or removing caps early will contaminate instruments and filters.

WARNING Before using gases, carefully read the hazard indications and information reported in the Safety Sheet supplied by the manufacturer referring to the CAS (Chemical Abstract Service) number. It is the user's responsibility to see that all local safety regulations for the use of gases are obeyed.

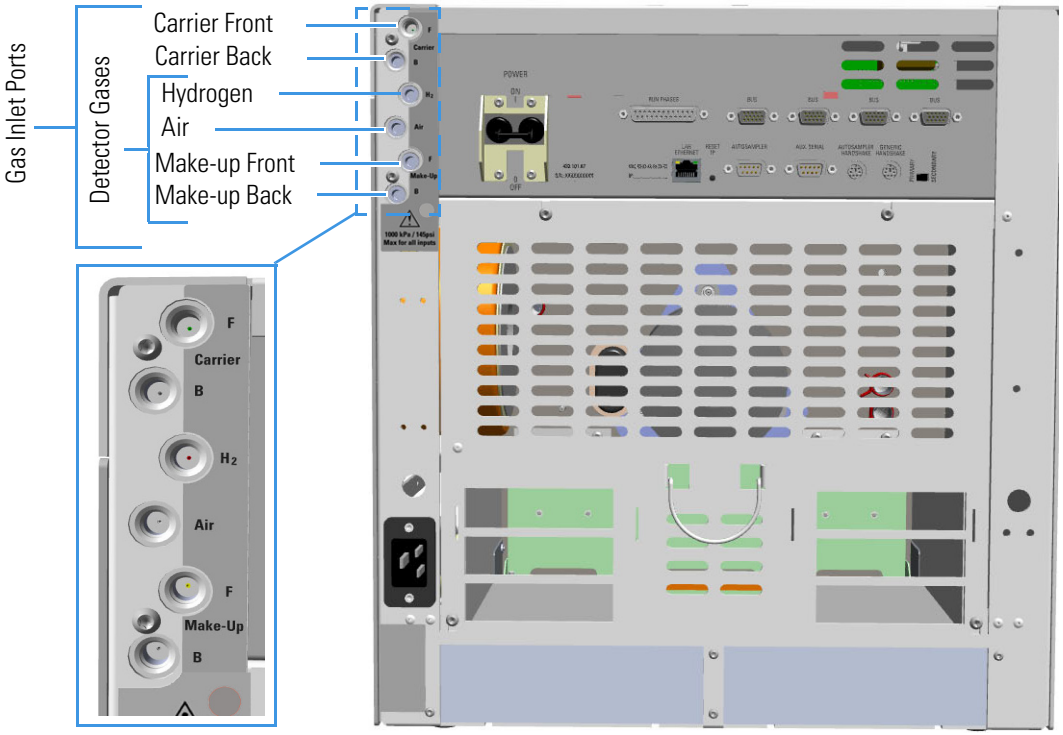
All Thermo Fisher Scientific gas chromatographs use an inert gas as the carrier gas. If you wish to use hydrogen as a carrier gas, you must install a hydrogen sensor. Contact a Thermo Fisher Scientific sales representative if you plan to use hydrogen as the carrier gas in your new TRACE 1300/TRACE 1310. If you don't have the hydrogen sensor, you **must** use an inert carrier gas.

Thermo Fisher Scientific FSEs are not authorized to install or repair any instrument using hydrogen as a carrier gas unless the instrument is equipped with the appropriate sensor.

❖ To plumb the gas supply

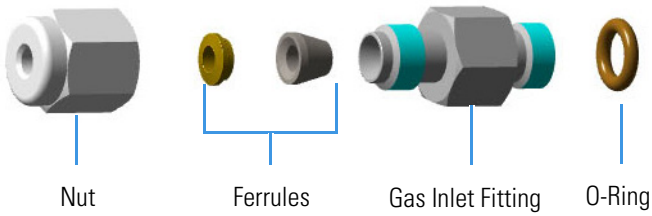
1. By now you must have done the following:
   a. Completely built your gas supply lines including any traps, tees, and extra tubing to allow about 40 cm (16 in.) of slack in the line.
   b. Purged the gas line after every tube cut to remove any debris or contaminants.
   c. Ensure that the gas supply is turned off.
2. Connect the gas lines.
   a. TRACE 1300/TRACE 1310 is provided with six gas inlet ports for the connection of carrier and detector gases. See Figure 4.

Figure 4. Gases Inlet Connections



Note Use the 1/8-in. Swagelok fittings provided on the gas inlet ports (see Figure 5) to connect the gas lines.

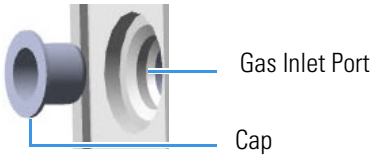
Figure 5. Fittings for Gas Inlets Connection



CAUTION Inside each 1/8-in. inlet manifold is a fritted filter. To keep the gas line from touching, and possibly damaging the filter, extend the tubing 5 mm past the front ferrule. This ensures the tubing does not touch the filter.

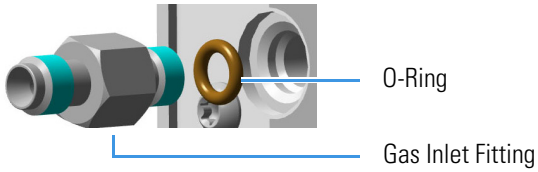
b. If present, remove the cap from the gas inlet port to connect. See Figure 6.

Figure 6. Cap Removal



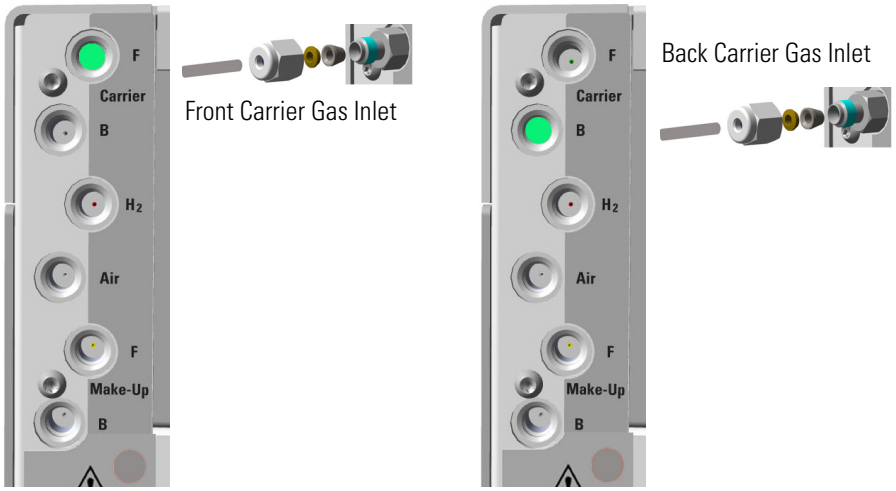
c. If not already installed, screw the provided gas inlet fitting into the gas inlet port interposing the O-ring. See Figure 7.

Figure 7. Gas Inlet Fitting Installation



d. Connect the gas line to the front/back carrier gas inlet. Use a 7/16-in. wrench to tighten the fittings. See Figure 8.

Figure 8. Carrier Gas Line Connection



e. Connect the gas line to the front/back detector gas inlet. Use a 7/16-in. wrench to tighten the fittings. See Figure 9, Figure 10, Figure 11, and Figure 12 to properly connect each detector.

Figure 9. FID/NPD Detector Gas Lines Connection

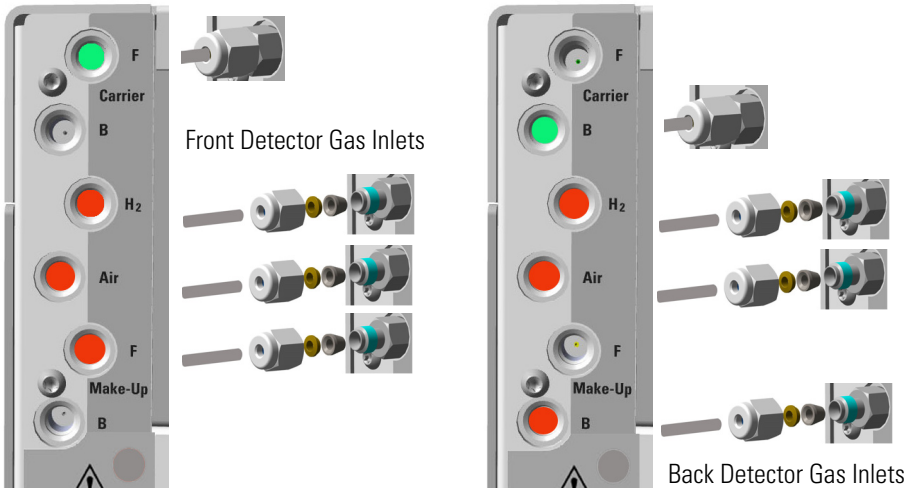


Figure 10. ECD Detector Gas Lines Connection

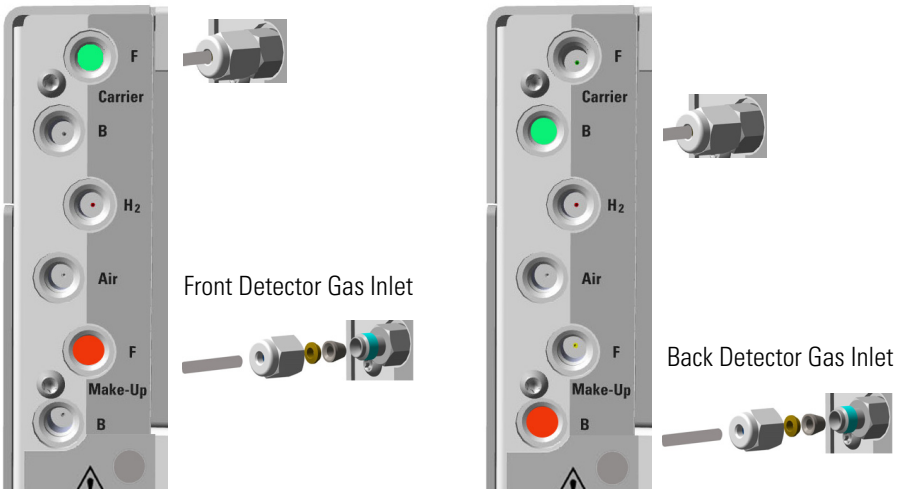


Figure 11. TCD Detector Gas Lines Connection

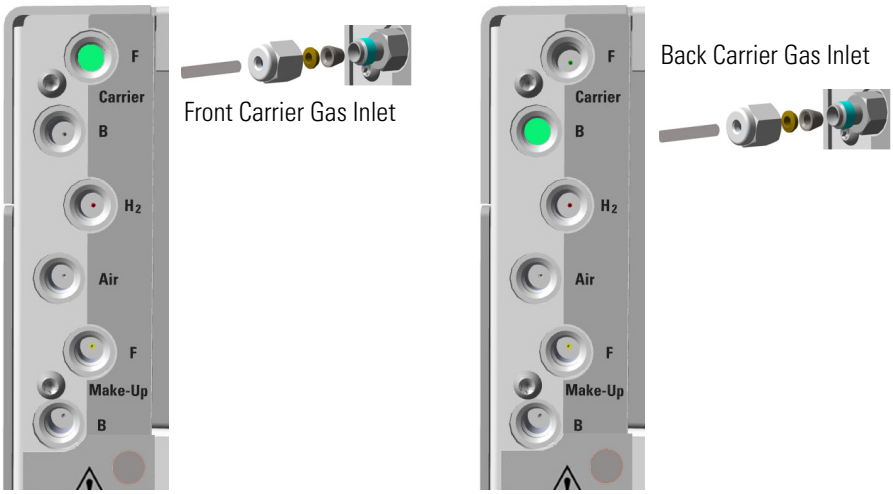
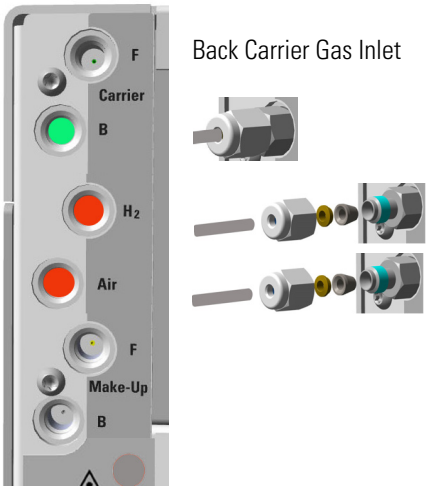


Figure 12. FPD Detector Gas Lines Connection



f. Complete all inlet and detector connections before turning on the gas supply.

3. Supply the gas lines.

IMPORTANT The maximum nominal inlet pressure for all the inputs is 1000 kPa (145 psig), as indicated on the label under the gas inlets ports on the back of the GC. The working inlet pressure range is from 400 kPa (58 psig) to 1000 kPa (145 psig).

Note If auxiliary carrier gases are used, an **Auxiliary Gas** module is required. For the installation details, see the "Adding an Auxiliary Gas System" section of the *TRACE 1300 and TRACE 1310 Hardware Manual*.

Testing for Leaks

Once you have connected the gas supplies to the GC, you need to test the gas supply lines for leaks.

CAUTION Before performing a leak test make sure that the GC is powered off and the power cable is unplugged from the AC Input connector (Mains socket) and from the wall outlet.

❖ To perform a leak test

1. Ensure the GC is powered off.
2. Open and set the gas supply.
   a. Open the gas supply.
   b. Set the carrier gas pressure to approximately 50 kPa (7 psi) higher than the maximum pressure of the GC regulator.
   c. Set the detector gas pressures to approximately 1000 kPa (145 psig) if available, otherwise set the maximum pressure allowed, for example 500 kPa (72.5 psi).
3. Check for leaks.
   a. Use a handheld electronic leak detector (Thermo Scientific GLD Pro leak detector or equivalent) to check each fitting for leaks.
   b. If you detect a leak, tighten the connection and retest it.
   c. Repeat this process until all connections are leak free.