



IR-1150/1151

Sample Conditioner

IR-1150/1151 SAMPLE CONDITIONER

(optionally supplied with IR-8400D)

INTRODUCTION

The IR-1150/1151 sample conditioner provides a clean, dry sample to the analyzer at a constant flow rate, for sample pressures greater than 15 psig. The sample conditioner consists of:

- a) A particulate filter and liquids trap with input valve and auto-drain.
- b) A pressure regulator with safety relief valve.
- c) A second particulate filter and liquids trap with manual drain.
- d) A gas selector valve for zero, span and sample gases.
- e) A flow indicator with valve for adjusting the sample flow.
- f) All stainless steel construction (the IR-1151 is all 316SS; the IR-1153 contains some 304SS).

The plate, on which the sample conditioner components are mounted, provides space and mounting hardware for installing the IR-8400. Refer to figure 3.3 *IR-1150-1150 Sample Conditioner*.

The sample-in and sample-out connections are made through 3/8-inch compression tube fittings, while the span and zero gas inputs are made at the selector valve through 1/4-inch compression tube fittings. To install tubing to these fittings, cut the tubing square, and deburr as necessary. Insert the tubing into the fitting cap (cap in place) as far as it will go. Use one open-end wrench to hold the body of the fitting, and another to rotate the cap 1 1/4 turns past finger-tight. **DO NOT OVERTIGHTEN.** When reinstalling the tubing, rotate the cap no more than 1/8 turn past finger-tight.

In operation, the sample conditioner is designed to remove particulates and condensed vapors from the sample gas. The pressure regulator reduces the sample pressure to approximately 8 psig while the pressure relief valve limits the pressure to the flow meter to approximately 15 psig in case of regulator failure. The flow meter monitors and is used to adjust the flow of gas to the analyzer to approximately 1 scfh.

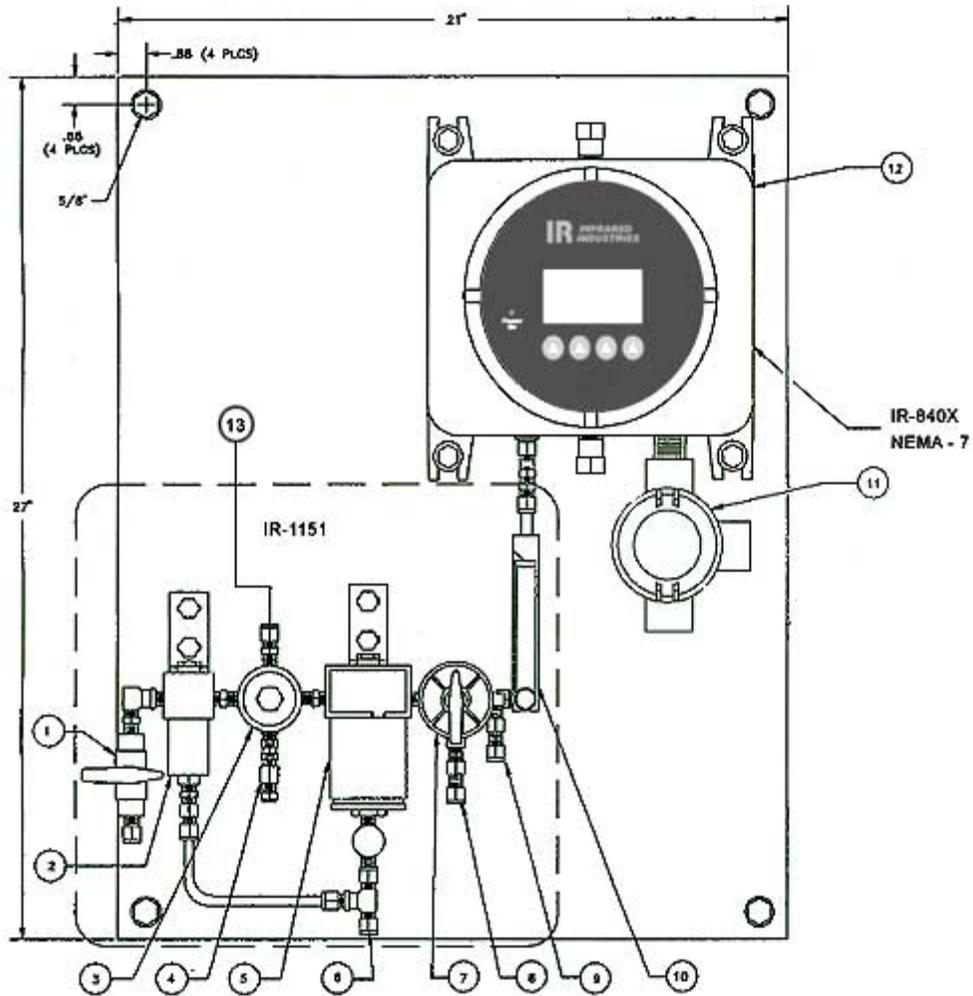


Figure 3.3

IR-8400D series gas analyzer with the
IR-1150/1151 Sample Conditioner

- 1) Input gas shutoff valve
- 2) High-pressure filter
- 3) Pressure regulator, 5-15psi, set at 10psi
- 4) Pressure relief valve, set at 20psi
- 5) Low-pressure filter
- 6) Water drain
- 7) 4-way Sample/Cal/Zero valve
- 8) Zero gas input, 5-10psi, set at 10psi
- 9) Cal gas input, 5-10psi, set at 10psi
- 10) Flow regulator, 0-5 SCFH set at 2SCFH
- 11) Junction box for line power/signals out
- 12) 8400 NDIR gas analyzer
- 13) Plug

INSTALLATION

Mount the analyzer to the conditioner, using the SS hardware attached to the mounting plate. Mount the conditioner and analyzer to a firm, flat, vertical surface, protected from direct radiation by the sun. Use a sun shield, if necessary. Attach the tubing from the flow meter to the analyzer inlet, and tighten the compression fitting 1/8 turn past finger-tight. Install the zero and span gas lines to the selector valve at the appropriate fittings. Attach the bypass, drain, and sample-out gas lines and route to an area away from the analyzer.

NOTE

Both the zero and span gases should have regulators set for approximately 8 psig. With the sample inlet valve closed, attach the sample line to the sample inlet valve attached to the small filter holder.

INITIAL SETUP

Slowly open the sample inlet valve. With the selector valve in the SAMPLE position, as the flow increases, adjust the valve on the flow meter as necessary to maintain an indicated flow of 1 scfh. Rotate the gas selector valve to the ZERO position and adjust the pressure regulator on the zero gas bottle for an indicated flow of 1 scfh. Rotate the gas selector valve to the SPAN position, and adjust the pressure regulator on the span gas bottle for an indicated flow of 1 scfh. Return the selector valve to the ZERO or OFF position. The system is now ready to operate.

OPERATION

Follow the CALIBRATION AND OPERATION instructions provided earlier in this manual. Use the gas selector valve to select the various gases. Open the drain valve located below the larger filter holder (if supplied) when liquid accumulates in the bowl.

FILTER REPLACEMENT

CAUTION

The gases and liquids in contact with the filter elements may be corrosive and toxic. Care should be taken while handling the elements or when venting off the residual gas left in the filter holders.

If the flow to the analyzer drops significantly, indicating a clogged particulate filter, both the filter elements need to be replaced. To replace the element in the smaller filter holder, first turn off the sample inlet valve and remove the compression tube fitting attached at the bottom of the filter holder to free the filter bowl. Rotate the filter bowl clockwise (as viewed from the top) and remove the filter bowl and element. Check the condition of the automatic drain orifice, and clean if necessary, using .010 to .012 inch wire. Replace the filter element with a new one (Infrared Industries part no. 273-947) and reinstall the filter bowl in the reverse order as above.

To replace the larger filter element, remove the compression fitting attached at the bottom of the filter holder to free the filter bowl. Remove the nut attached to the bottom and remove the filter bowl and element. If supplied, clean the automatic drain orifice as above. Replace the filter element with a new one (Infrared Industries part no. 273-943) and reinstall the filter bowl in the reverse order as above.