

Please Visit our web site at www.thermalgas.com.

Haloguard® III/ IR Refrigerant Monitor FLOW FAILURE ERRATA

This bulletin provides brief troubleshooting information of the **FLOW FAILURE FAULT** in the **Haloguard® III** or **Haloguard® IR** Controller. The **FLOW FAILURE FAULT** results from any restriction in the airflow path inside the **Haloguard® III/ IR** Controllers. Flow failure is detected using an electro/ mechanical pressure switch in the flow path. Whereas the pressure switch is the most likely source of a **FLOW FAILURE**, this fault could be caused from a several things.

Refer to *Figure 2: Haloguard III Printed Circuit Board With 8-Port Scanner.*

1) The pump may have failed.

Check for airflow at the exhaust port. This is a chrome or brass fitting located on the bottom right hand corner of the steel enclosure.

Listen for the pump to run. **Note – the pump in the Haloguard® III/ IR does not run continuously, but rather cycles on and off.**

Check the PUMP connection near the left edge of the printed circuit board for broken or frayed wiring. Make sure it is securely fitted in the connector socket and oriented correctly with the BLACK wire toward the top of the **Haloguard® III/ IR**.

2) The gas sample lines may be crimped or clogged.

Inspect all tubing for crimping. Inspect the end of line filters for dirt or paint, which would clog them.

Unscrew the porous piece and back blow it. Also check the internal **AIR FILTER** for dirt. If it appears dark, replace it.

3) One of the switching valves may have failed or gotten clogged.

On multi-port units only – Observe the LED light on each of the switching valves of the scanner block. If the fault only occurs as the **Haloguard® III/ IR** cycles through a particular port, the valve for that port may need to be replaced. **Note that a clog or a crimped line can also cause this condition.** Remove the inlet tube and repeat the observation.

4) The pressure switch may have failed. (For Location refer to *Figure 2 Haloguard III/ IR Printed Circuit Board With 8-Port Scanner*)

The pressure switch is a small - approximately 1” square – black or gray device located above the display near the top edge of the printed circuit board. It will have 2 wires attached by quick disconnects and 2 small holes visible on the switch surface. A slot screw is visible through one of these holes. The other is a relief port.

Feel the relief port hole while the pump is running. If air is felt, the rubber seal is probably damaged and the switch should be replaced.

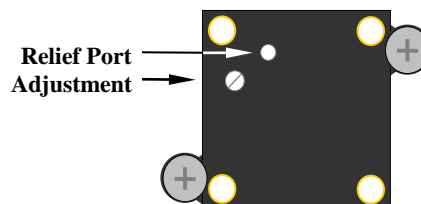


Figure 1 – Pressure Switch

5) The pressure switch may be chattering or not closing consistently.

If the fault appears and disappears repeatedly over a short time period, the switch may be “bouncing” or not closing consistently enough for the detection circuit to reliably detect it. This often indicates an aging of the pump and can often be corrected by a simple adjustment: **NOTE: you will need a dc Volt meter and a jewelers size slot screw driver.**

Please Visit our web site at www.thermalgas.com.

- a. Locate the red **RUN** Jumper. Move it to location **JP5**. This will display the software version number. If the version is **V3.07** dated **06/10/03** or earlier contact Thermal Gas Systems directly to purchase a microprocessor upgrade.
 - b. Place a dc voltmeter across TP16 and GND (located to the left of the pressure switch) and observe the voltages. In normal operation when the pump runs, the meter will read approximately 5Vdc. When the pump stops the meter will read approximately 0Vdc.
To adjust:
 - i. **Stop the pump.** Move the red jumper from RUN to SETUP.
 - ii. **While the pump is not running** – trim the slot screw **clockwise** until the voltage goes to 5Vdc then back off (**counter-clockwise**) until the voltage just collapses (goes to 0V). **NOTE: this is a mechanical adjustment of the contacts in the pressure switch and not adjustment of the voltage.** When the contacts close the voltage will snap up to the *approximately* 5Vdc observed earlier. When they open the voltage drops to 0V.
- NOTE: Measuring directly across the quick disconnects of the pressure switch will show the opposite action to the above - i.e. with the pump running the meter will read 0Vdc. With the pump NOT running the meter will read approximately 5Vdc.**
- iii. Move the red jumper back to **RUN**. The pump will start immediately and the voltage at TP16 will go to approximately 5Vdc. It's always a good idea to re-check the TP16 voltage to see if the adjustment worked. Remember that on multi-channel units the pump will run for approximately 1.5 minutes before turning off. If it is not changing from the approximately 5V to 0V when the pump is on and off, repeat the adjustment. Sometimes this takes a few iterations to get the screw set just right. If the 2 voltages can't be achieved replace the switch.

If this bulletin does not solve the problem, contact Technical Support at **Thermal Gas Systems** for additional assistance. Email at service@thermalgas.com or phone at 770-667-3865.

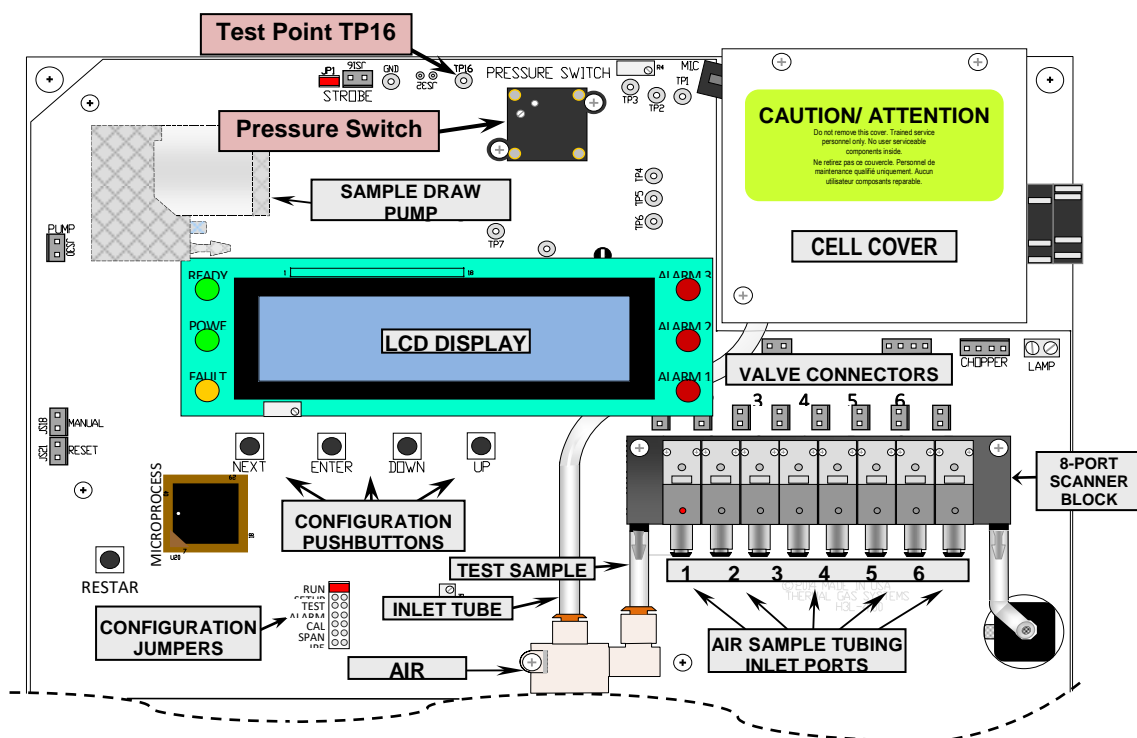


Figure 2 Haloguard III/ IR Printed Circuit Board With 8-Port Scanner
(Top half only shown for clarity)