



# **TECHNICAL BULLETIN**

May 4, 2018

## **HGM-MZ Hydrophobic Filter Testing and Replacement**

The <1800> Fault, (No Flow on Zone and No Flow on Purge), is very commonly caused by a clogged / restricted hydrophobic filter, PN 0007-1650, (see next page for image).

To diagnose if the Hydrophobic Filter is clogged, remove the filter, recouple both ends of the tubing where the filter was installed and watch as the zones cycle. If the filter was restricted, the proper flow will be re-established and the Zone Flow Faults, <0800> will clear, zone by zone as the HGM MZ cycles through the zones. The <1000> Purge Flow Fault will clear upon the next Purge Cycle.

You can also monitor the zone pressure, (PRES) from the diagnostic (DIAG) screen; the zone pressure is a live reading and the normal operating range is approximately 1PSI below the ambient, (AMB) pressure.

Once the hydrophobic filter is replaced, it is advised to force a new pressure check by depressing the Enter Key 2 times from the main screen, highlighting Service Entry Mode on the SETUP screen and depressing the Enter Key 4 times; ESC back to the main screen, the STATUS will display Pressure Check then Purge for a few moments and resume normal sampling thereafter.

"NOFLO" faults will clear once the HGM MZ has cycled through each zone and the Zone Pressure is back to normal operating values. This may take up to 30 minutes, depending on the number of zones installed and the distance of each zone.



## HGM-MZ Sample Pump Flow and Manifold Testing

This procedure describes the correct method for testing the sampling pump and manifolds in order to determine its proper sample flow and vacuum.

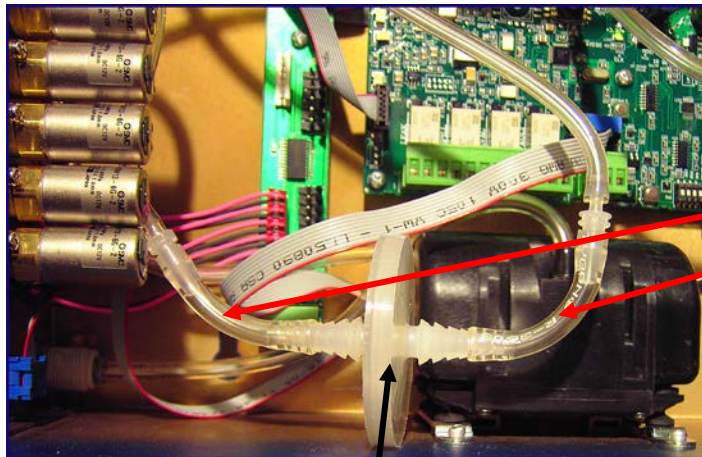
### HGM-MZ Pump Testing

If the HGM- MZ is unable to pull a vacuum it will generally be due to one of two things, either the pump is not running or failed, or there is a leak in a valve or valve stuck open in the manifold.

Flow detection is based on a minimum drop from ambient pressure and a minimum value above vacuum, so a vacuum failure will generally result in a NO flow indication on all zones.

The pinch test can isolate the problem quickly. In the diagnostic screen observe the live pressure "PRES", then pinch the tube on one side of the white disc (Hydrophobic filter) pinching either side is OK. This will dead head the pump, a good pump will drop the pressure to approximately 3 psia below the Ambient reading. If you get no change, the pump is not working, the "EXHAUST" port is restricted, or there is a leak between the pinch point and the pump.

If the pinch yields a good vacuum number, the problem is before the pinch in the valve manifolds. One or more manifold valves are either stuck open or a failed valve driver board is electrically holding it open. (See below information on Manifold testing procedure)



Pinch at either point to dead head the pump for testing

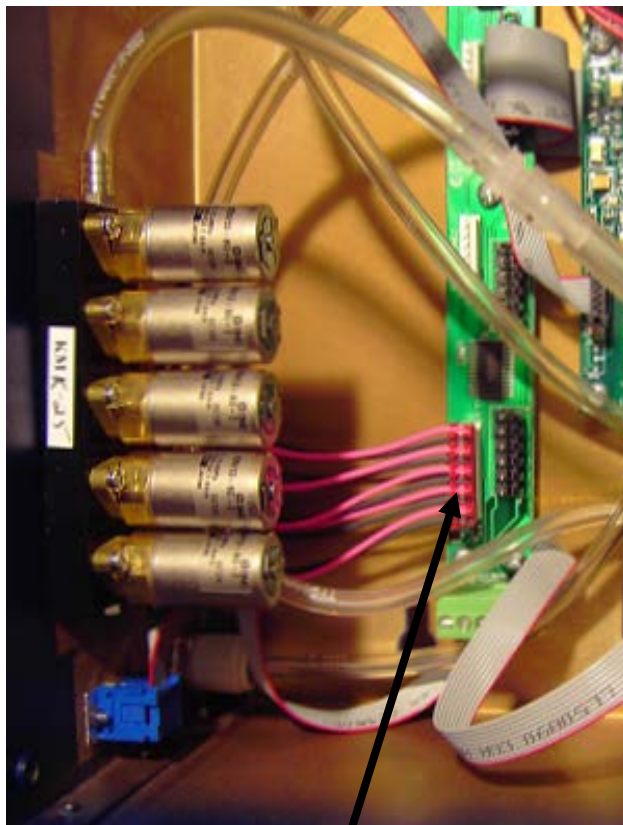
Hydrophobic Filter



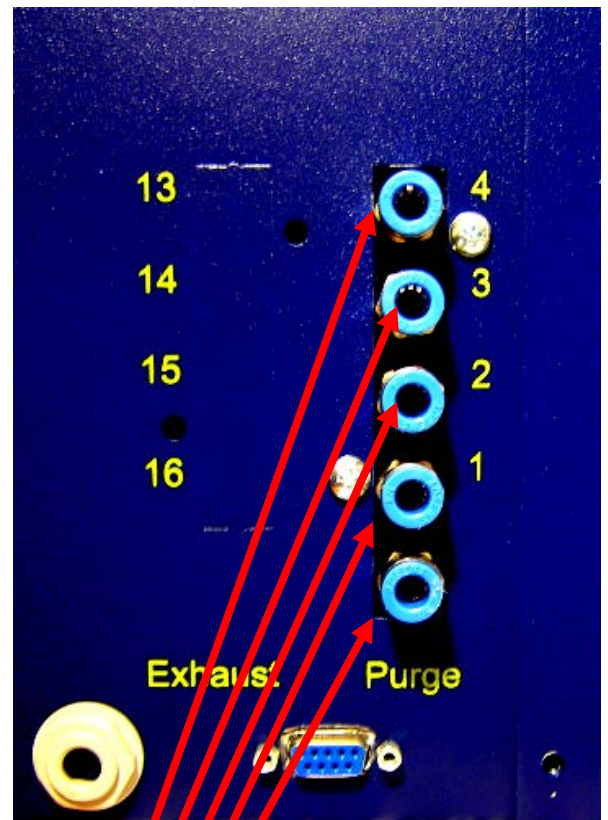
## Manifold / Solenoid Testing

Disconnecting the manifold from the manifold control board will reveal if the problem is in the valves or the control board. First turn off the power and touch a bare metal section of the chassis to drain any static charge on your body. With the power off, **(unplugging or plugging in the control board with the power on will damage it so always turn off the power first)** unplug all the manifolds from the control board (keep track of where they go) re-apply power and go to the diagnostic screen and observe the live pressure. If you get a normal vacuum then it was the manifold control board holding open a valve (remedy is to replace the manifold control board) if you still don't get vacuum the problem lies with a stuck solenoid valve. This can be isolated by plugging the purge port and placing the unit in service mode. In service mode only the purge port should be open and plugging it should produce a vacuum on the live pressure and a second plug can be used alternately on the manifold sample ports to isolate the problem valve.

In the case of a solenoid not closing due to contamination or failure; this can be checked by unplugging the solenoids from the manifold control board (same procedure and cautions as above), and observing the pressure if it does not go to the same level as when the hose is pinched then one or more valves are not closed. Next install a ¼" OD plug in each zone until the live pressure drops to the pinch value, then you have found the bad valve. At that point you could remove and dis-assemble the valve and blow it out with compressed air and retest. If it is still bad you will need to replace that manifold block.



Solenoid manifold plug to control board



Insert plugs into these ports for testing



# Major Parts List with Part Numbers

