

**Beams Division/Cryosystems
Refrigerator Building Leak Hunt Information Sheet**

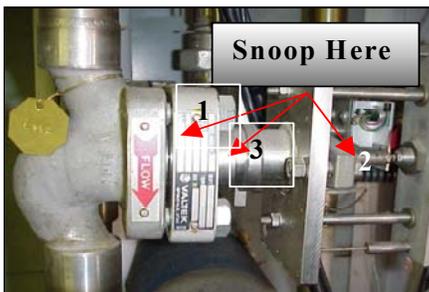
Please read the following before starting Leak Hunt!

Warning!!! Do not Snoop the Following:

- Any conflat flanges with chain clamps.
- Any rupture disks.
- Void Fraction sensor flanges.
- Liquid level and heater probes on valve box.
- Anything associated with the sub atmospheric 2Ø side of the system. When in doubt please ask!

Do Check the Following:

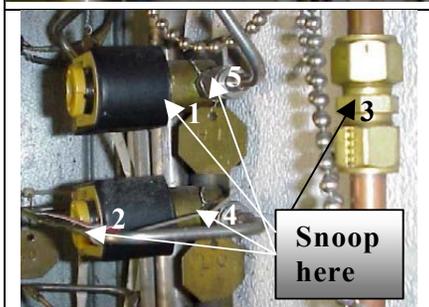
- Piping and Heat Exchanger seals and threaded fittings.
- On butterfly valves check the stem seals and both sides of the gaskets between the valve and the flanges.
- On a circle seal relief, check the threaded ends and the inside poppet by squirting snoop inside the valve.
- On a parallel plate relief, snoop completely around the relief between the two plates.
- On flanges check the gasket between the flanges, if there's a flow orifice plate between the flanges then you have two gaskets to check as well as the pressure taps on the side of the flanges and the packing, threads and stem seal of any isolation valves that may be on it. Also check the nut and threads on any compression fittings or VCO fittings.
- On block and bleeds, snoop vent valve threads, stem seal and check to see if the valve is bleeding through by squirting snoop into the open end of the valve. Also check the nut and threads on any compression fittings or VCO fittings. Snoop the packing on the bypass and isolation valves.
- On solenoids check the body seal that is behind the coil, the threaded fittings and the nut and threads on any compression fittings or VCO fittings.
- On flow meters check around the metal plate on the back where the o-ring seals are, the adjustment valve stem seal on the front and the access plate on the top of the assembly.
- On gauges, check threaded fittings, vent valve stem and body seals and use an HE sniffer to check around the back plate for internal leakage.
- On u-tube Goddard fittings snoop around the top of the nut where the u-tube passes through it.
- On instrumentation transducers use an HE sniffer to check the threaded fitting(s) as you do not want to get snoop or other moisture inside the transducer. For the same reason exercise care when spraying snoop around the instrumentation line vent valves and compression fittings.
- Bare in mind that a large leak will blow away the snoop and you may not see any bubbles. Background noise may prevent you from hearing it so use your sense of feel as you hunt down leaks.
- **Be cautious of were your snoop is dripping!**



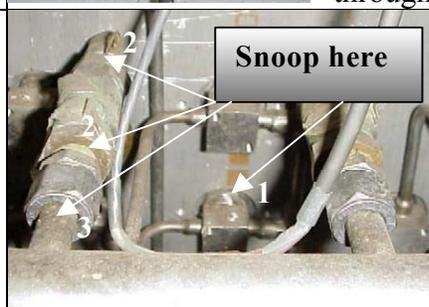
EVX1 & 2, snoop between flanges (1), where the stem body passes through flange (3) and stem packing (2).



The PI4 matrix comes off the PI4 gauge vent valve. Snoop all threaded and compression fittings. All compression and VCO fittings must have caps on them. Check hydraulic /pneumatic fittings for leak through.



Behind the solenoid coil is an o-ring seal (1) to snoop. Also snoop any compression (3), threaded (4) or VCO (5) fittings and solder joints (2).

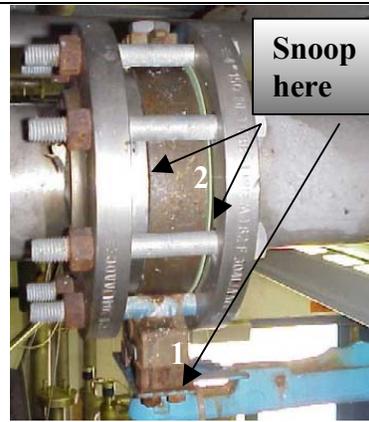


On the back of the valve matrix on the heat exchanger you have valve body seals to snoop (1), threaded fittings (2) and compression fittings (3) to snoop.

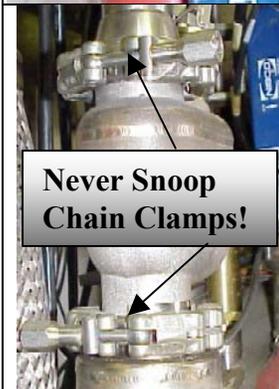
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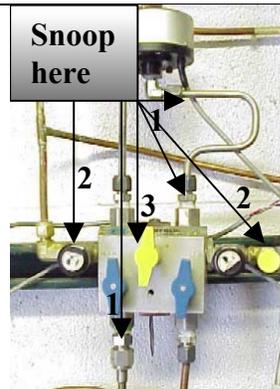
Ball valves - Snoop top of brass nut on Goddard (2), body seals (3), packing nut behind handle (1) and braze joints (4).



Butterfly Valves - Snoop flange to valve body gaskets (2), and valve stem packing (1). Be sure to snoop both sides of the gasket.



Warning!
Never Snoop any devices that have chain clamps and/or use a copper seal while the system is operating sub atmospheric. Check with Cryo Coordinator for system conditions!



Snoop all compression fittings (1) and threads where ever you find them. Snoop the packing on the yellow and blue handle valve on the Block 'N Bleeds (3). On the vent valves (2) snoop the packing, the threads and check to see is they are bleeding through by snooping inside the open end.



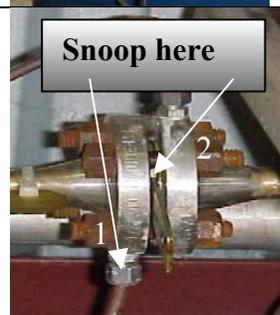
Warning!
These are sub atmospheric devices, do not snoop without checking with the Cryo Coordinator first.



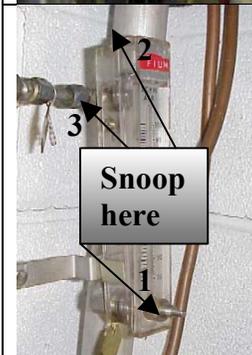
There are two of these gauge assemblies on each expansion engine plus the PI 3 & 4 panel. Snoop all compression fittings, all threaded joints, any soldered joints and use an HE sniffer around the back of the gauge body to detect internal leakage.



This is the FIX1 DP cell. Snoop all threaded joints, vent valve stem packing, check vent valve for bleed through and snoop seams on the cell itself. This device is located on the PI3 & 4 gauge panel.



There are two flow orifice flanges, EVX1 and FI4. Snoop the threaded fittings and compression fittings (1). Snoop between the Flanges on both sides of both gaskets (2).



On the flow meters, snoop the valve stem (1), the threaded and compression fittings (3) and the seal on top of the meter (2). Also where the metal back plate plugs into the plastic body there are o-ring seals to check with an HE sniffer.



On the pressure transducers snoop all threaded and compression fittings, valve stem packing and check for bleed through unless there is a compression cap or threaded pipe cap on it. Then snoop the cap.

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**Leak Hunt Check Sheet - Standard House: _____
(location)**

Leak grading code: √ = no lead detected, 1 = fine foam (looks like shaving cream), 2 = bubbles ≤ 1/4" diameter in < 1 second, 3 = bubbles 1/4" to 1/2" diameter in < 1 second, 4 = bubbles ≥ 1/2" diameter in < 1 second, 5 = blows away snoop.

Piping

_____ EV101H(main shutoff)	_____ MV102H (butterfly valve)	_____ MV104H(A)
_____ MV105H(B)	_____ MV108H	_____ MV109H
_____ MV201H	_____ MV202H(C)	_____ MV203H(D)
_____ MV204H	_____ SV201H(4" PP relief)	_____ SV422H(8" PP relief)
_____ FI-4 (Flanges)	_____ FI-3 (compression fitting)	_____ FIX1 (Flanges)

Heat Exchanger

_____ EVX1	_____ EVX2	_____ SV106H	_____ SV107H
_____ MV136H(A)(HX TO DE HP)		_____ MV247H(B)(DE to HX LP)	
_____ MV152H(W)(HX to VB HP)		_____ MV264H(Z)(VB to HX LP)	

Heat Exchanger Valve Matrix

_____ MV106H	_____ MV107H	_____ MV123H	_____ MV124H	_____ MV125H
_____ MV133H	_____ MV134H	_____ MV135H	_____ MV153H	_____ MV154H
_____ MV155H	_____ MV225H	_____ MV233H	_____ MV234H	_____ MV235H
_____ MV253H	_____ MV254H	_____ MV255H	_____ SV108H	_____ SV123H
_____ SV133H	_____ SV153H	_____ SV225H	_____ SV233H	_____ SV253H

Dry Engine

_____ MV366H(DE to HX LP)	_____ MV351H(HX to DE HP)
_____ MV352(HP Gauge Vent Valve)	_____ MV365H(LP Gauge Vent Valve)
_____ SV351H	_____ SV352H
	_____ SV365H

