



Alliance Diagnostics, Other Tests 1

- Motors and valves
- Sensors
- Static leak test
- Valve leak test
- Head removal & replacement

Diagnostics

<Default> Idle

Serial Number:

Transducers

System: pel

Primary: pel

Sample: pel

Lifetime Counters:

Eluent delivered = L

Injection count =

C/D Ratio:

Prime Seal

Comp Check

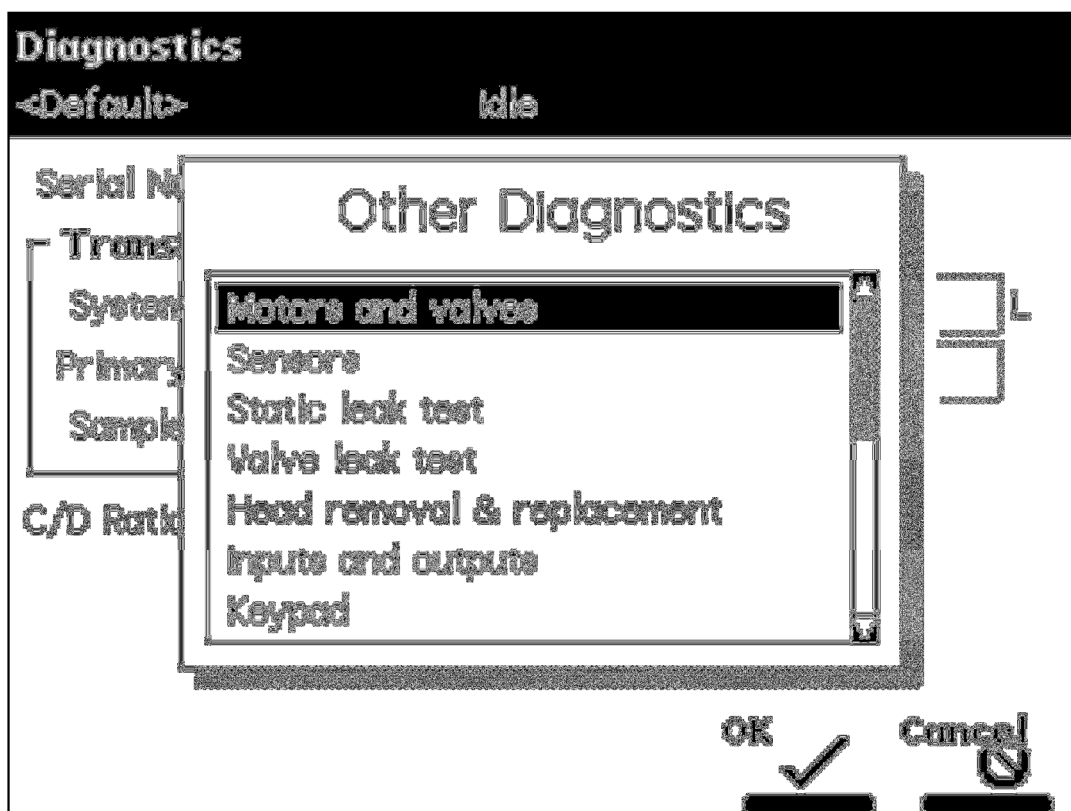
Prime Nd

Adjust Seals

Service Utilities

Other Tests

- Diagnostics screen
- Press **Other Tests** key.



- Other Diagnostics menu screen
- Select **Motors and Valves**
- Press **OK**, the Motors and Valves diagnostic screen is displayed.

Diagnostics		
<Default>		Diag:Start Diagnostics
Flow:	System:	Sample:
1.000 mL/min	1151 psi	1122 psi
Needle Position:	Valves:	Needle Wash Pump:
Stream 0	V1	
Syringe Position:	V2	
Home 0	V3	
GPV:	V4	
Solvent A 0		
	Normal States	Pulse Seal/Wash

- Motors and Valves diagnostic screen
- Place "X", by typing any number, in the Needle Wash Pump block to turn it on. (Valve and Needle Wash Pump states changed by pressing a number key.)

Note: V3 must be open for V2 to open.

Motors and Valves

<Default> Diag.Start Diagnostic

Flow: System: Sample:

0.000 2 psi 0 psi

Stream

Seal 0

Vial 0

Wet 0

Home 0

GPV:

Solvent A 0

Valves: Needle Wash Pump:

V1 ☐

V2 ☐

V3 ☐

V4 ☐

Normal Pulse

States SealWash

☐ ☐

- Needle Position menu
 - Stream - Port in needle is between the two seals in the seal pack. (normal position)
 - Seal - Port in needle is in the middle of the lower seal pack seal.
 - Vial - Needle is in the sample vial.
 - Wet - Needle is in the seal wash position
- Press **Exit** key.

Motors and Valves
<Default> Diag:Start Diagnostics

Flow: mL/min

System: psi

Sample: psi

Needle Position:

Stream 0

Empty 0

Home 0

Full 0

Solvent A 0

Valves:
V1 
V2 
V3 
V4 

Needle Wash Pump:
☐

Normal Pulse
States Seal/ish

- Syringe Position menu
 - Home - Plunger approximately 40 ml's below upper limit switch
 - Empty - Plunger at upper limit switch
 - Full - Plunger at lower limit switch

Motors and Valves
 <Default>

Diag:Start Diagnostics

Flow:
 mL/min

System:
 psi

Sample:
 psi

Needle Position:

Syringe Position:

Solvent A

Solvent B

Solvent C

Solvent D

Valves:

V1

V2

V3

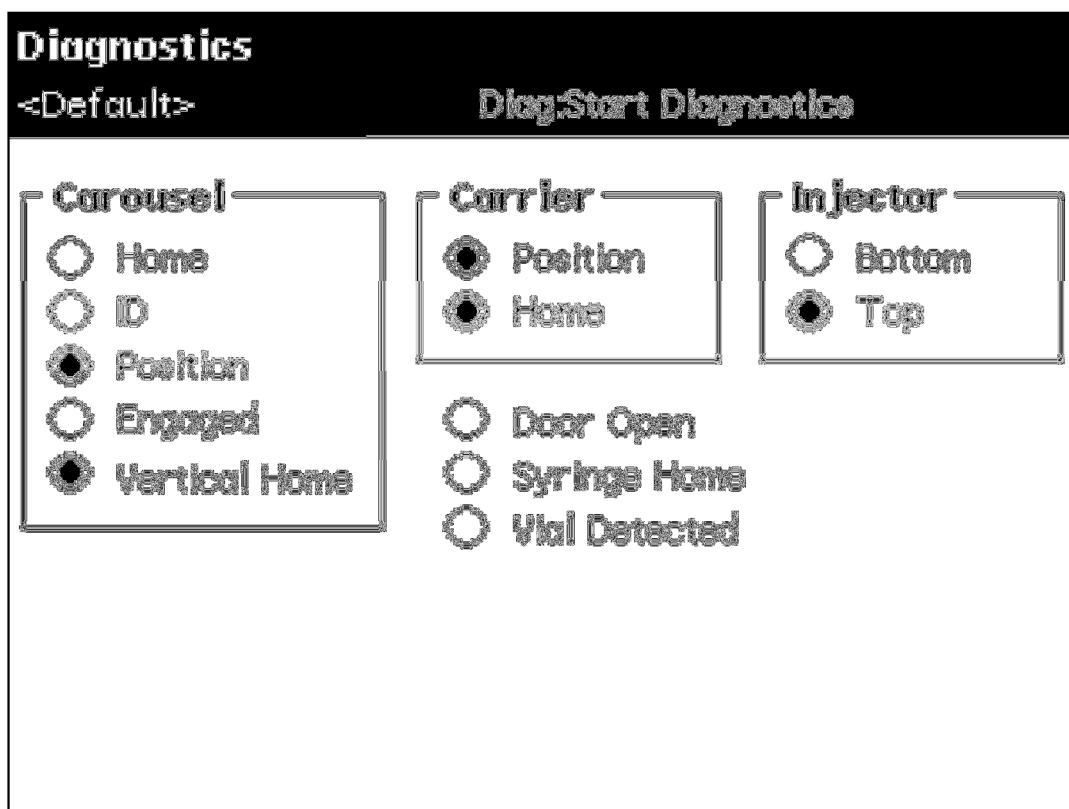
V4

Needle Wash Pump:
 ☐

Normal States

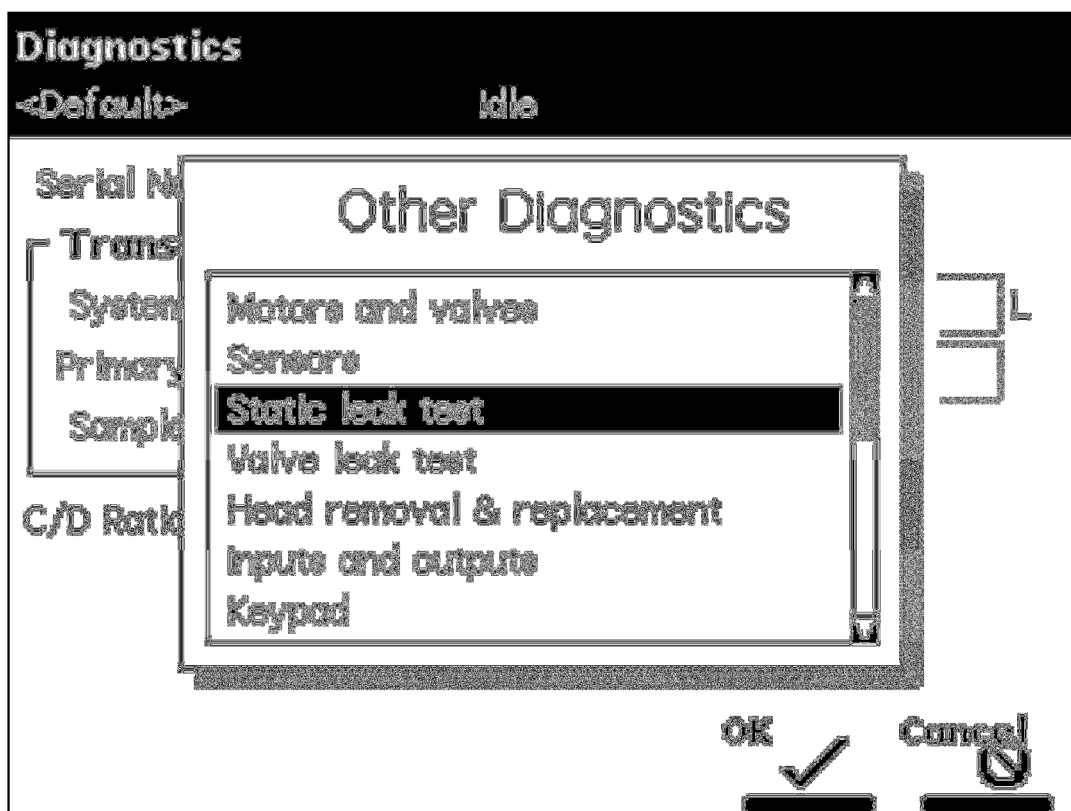
Pulse SealWsh

- GPV menu
 - GPV - Can be set to Solvent A, B, C, or D



- Sensors menu
- If the instrument continually gives a "Missing Vial" error, the vial sensor may be adjusted for greater sensitivity
- To make this adjustment:
 - 1. Remove the top cover.
 - 2. Go to the Sensor Page (Main Page, Diag, Other Tests, Sensors)
 - 3. Observe the two LED's on the encoder box on the Fluidics PCB.
 - The Green LED should be blinking continuously.
 - The Yellow LED should blink when it sees light (no vial) and OFF when the light beam is broken.
 - 4. Remove the carousel and place your hand in the sample compartment to break the light beam.
 - 5. Turn the adjustment pot slowly counter-clockwise until the Yellow LED begins to blink.

Note: This adjustment is effective to increase the vial sensor sensitivity to consistently sense vials, however, the opposite is not true. You cannot decrease the sensitivity so the device will not sense a vial when the unit always sees a vial.



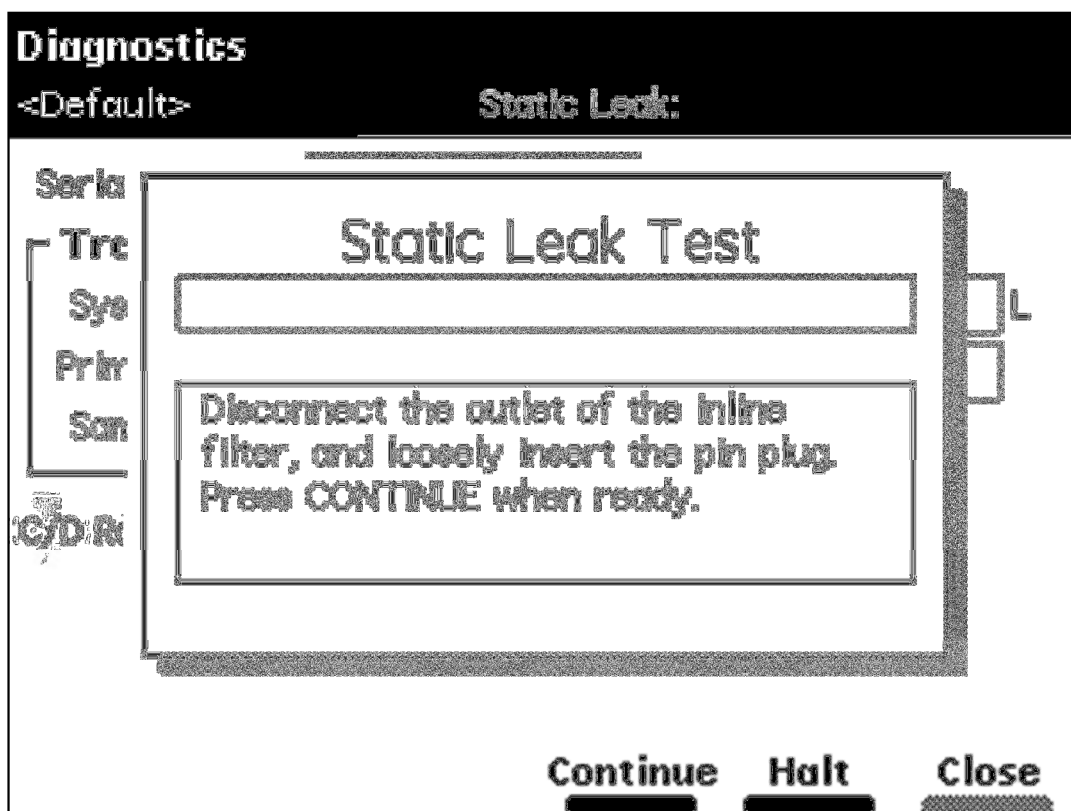
- Select **Static Leak Test**.
- Press **OK**.

Note: Perform the static leak test whenever

- you suspect leakage in the inlet check valves or plunger seals
- you perform maintenance on the solvent management system
- you replace high pressure fluid path fittings internal to the 2690/2695 Solvent Manager System

before doing this test, run the system at 4500 psi for 5 minutes to energize the seals

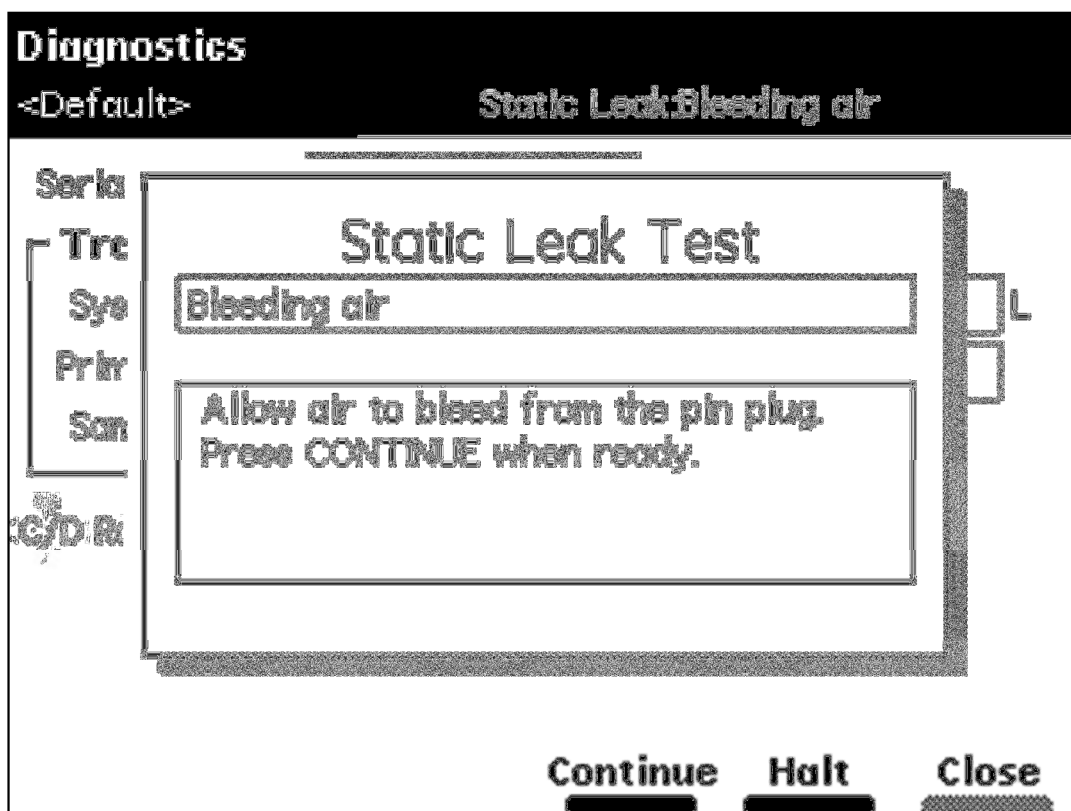
- Required Materials
 - Pin plug (WAT025566)
 - Wrench, 5/16-inch, open end
 - Wrench, 5/8-inch, open end (or adjustable)
 - Waste container



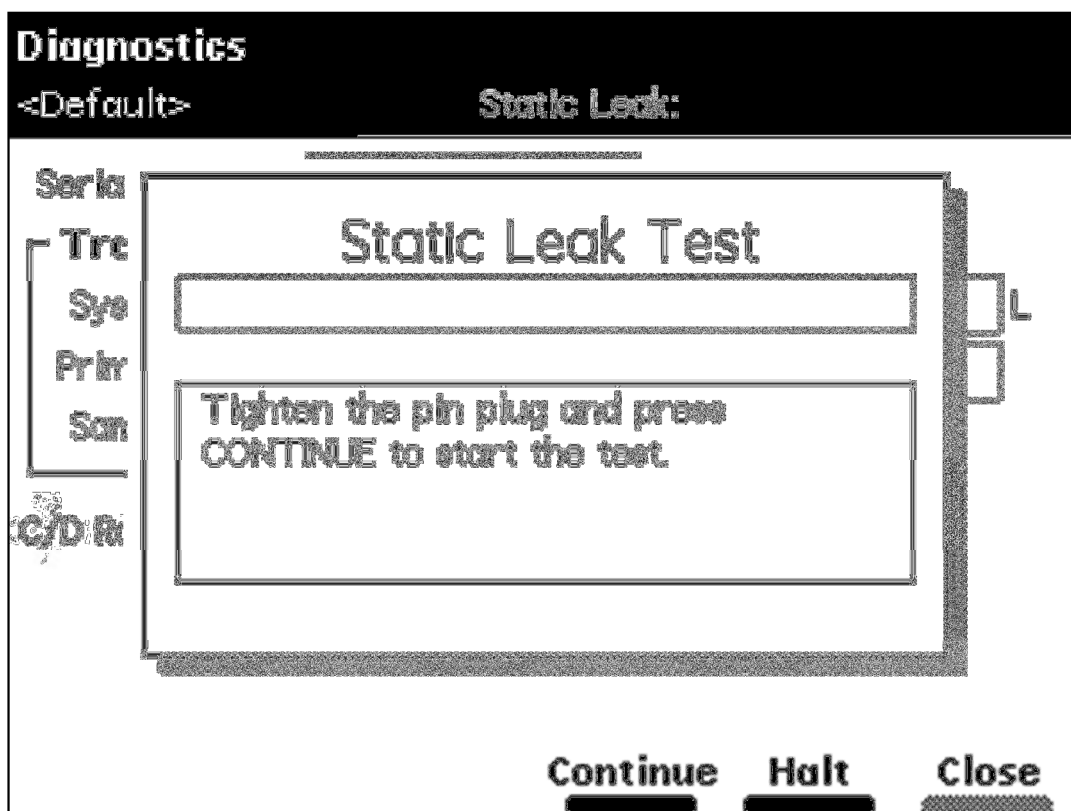
- Step 1 of the Static Leak test

Note: Follow all directions as prompted on the display. DO NOT jump ahead of or lag behind the directions.

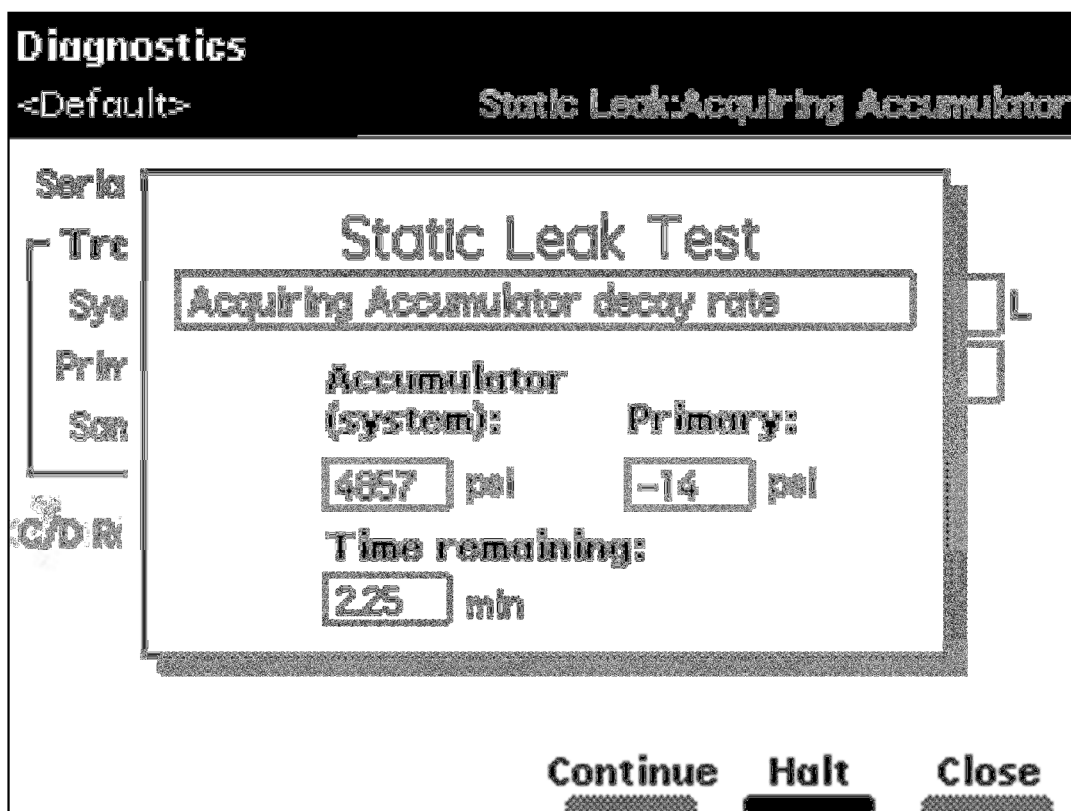
Loosely does not mean finger tight.



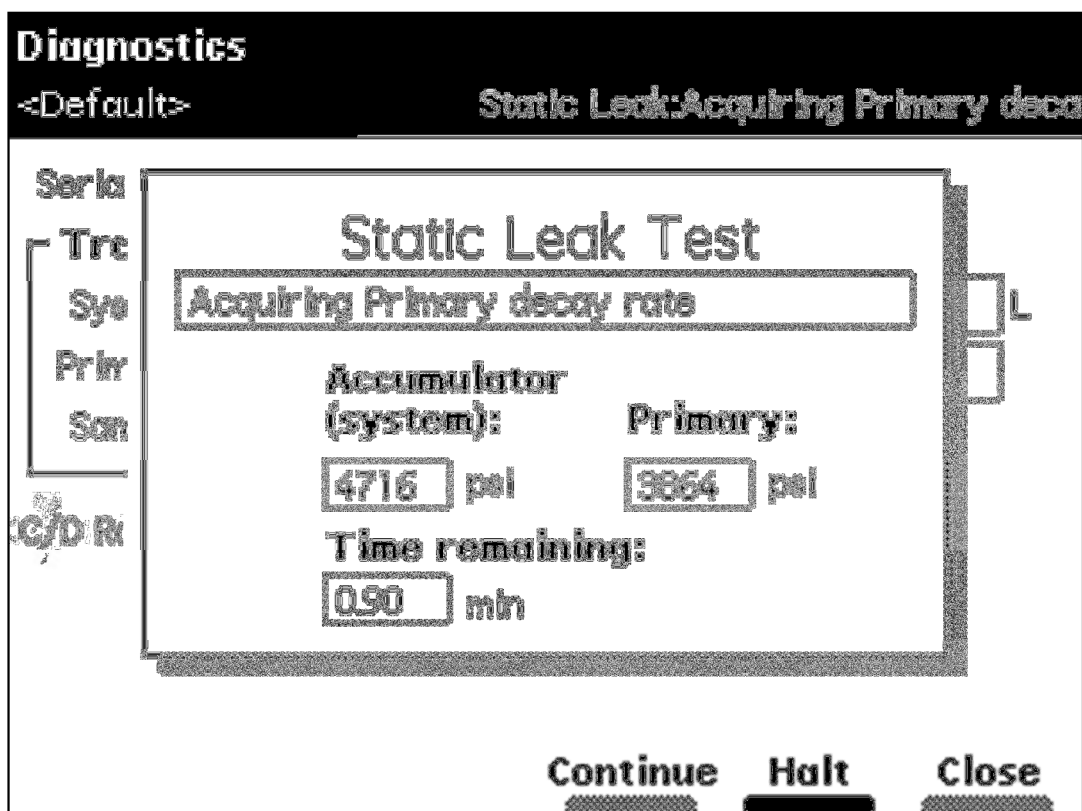
- Step 2 of the Static Leak test
 - Allow solvent to drip from the loose fitting.



- Step 3 of the Static Leak test
 - Tighten using wrenches.



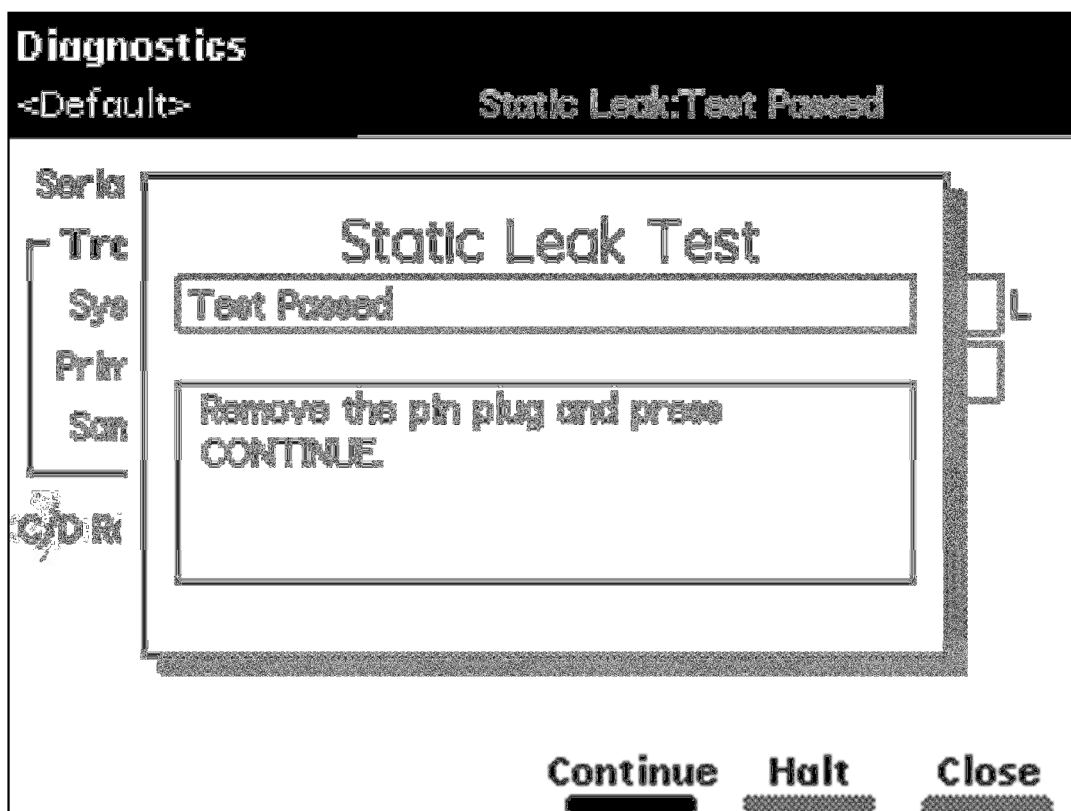
- Accumulator Test screen
- Accumulator pressure ramped to 5000 psi. Pressure must reach this level with 20% of the max stroke length of the plunger.
- Maximum decay rate 300 psi/min (below rev.2.02), 600 psi/min (rev. 2.02 and higher) taken from 1 to 1.4 minutes after the pump arrives at 5000 psi. (Cannot be under 4400 psi at the end of 1.4 min.)
- While acquiring the decay rate the pressure in the primary may not rise above 100 psi. This would indicate a leak in the accumulator check valve.



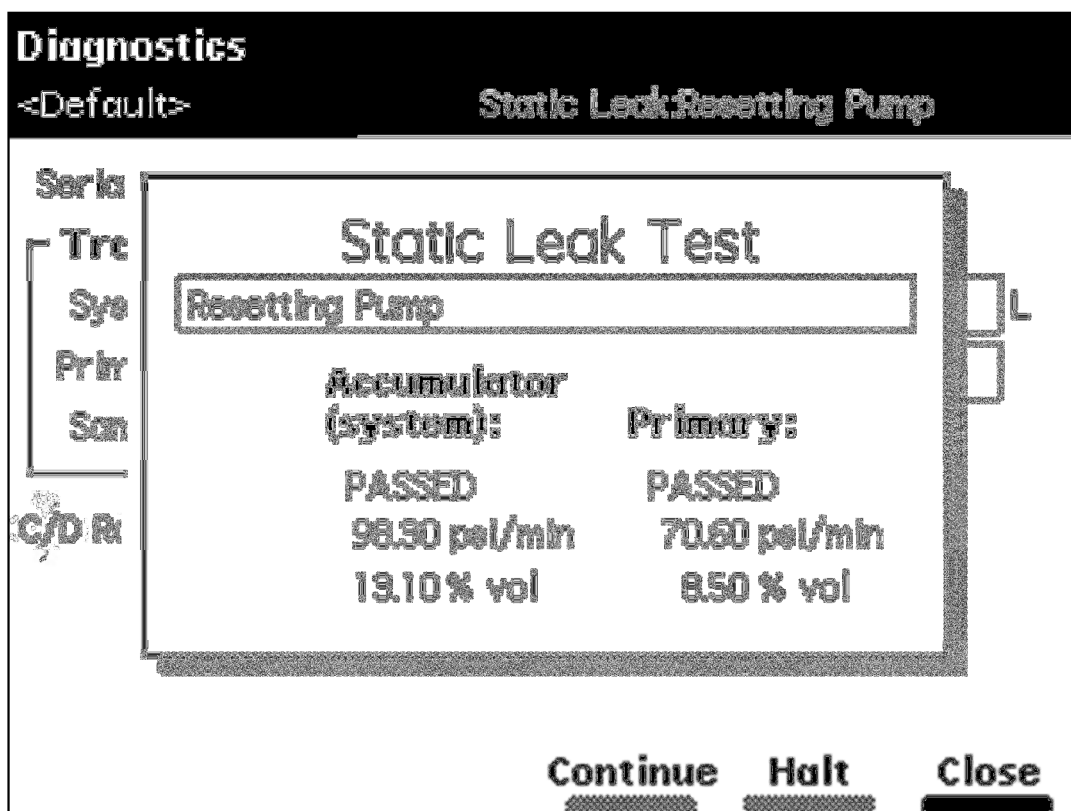
- Primary Test Screen
- At the end of 1.4 minutes, if the accumulator passes, the primary test starts.
- The pressure must reach 4000. Pressure must reach this level using 20% of the max stroke length of the plunger.
- Maximum decay rate 300 psi/min (below rev 2.02), 600 psi/min taken from 2.5 to 2.9 minutes after the pump arrives at 5000 psi. (Can not be under 3400 psi at the end of 2.9 min.)
- During the primary test the pressure in the accumulator may not drop below that in the primary.

Waters

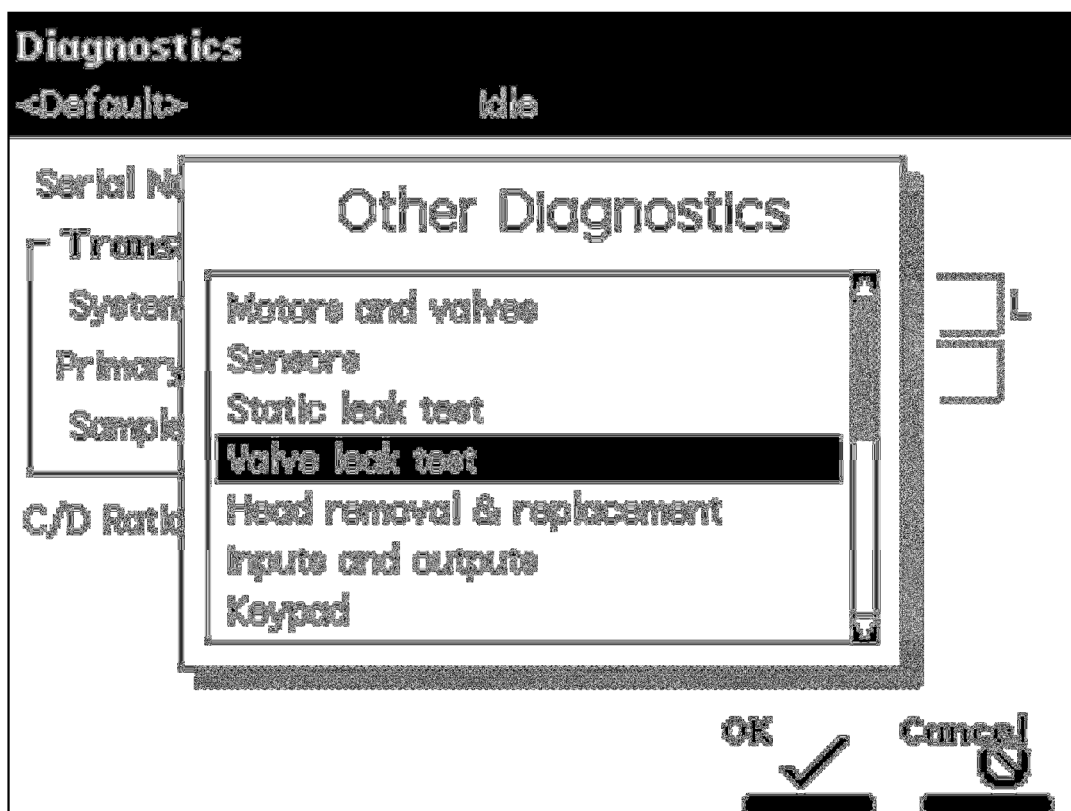
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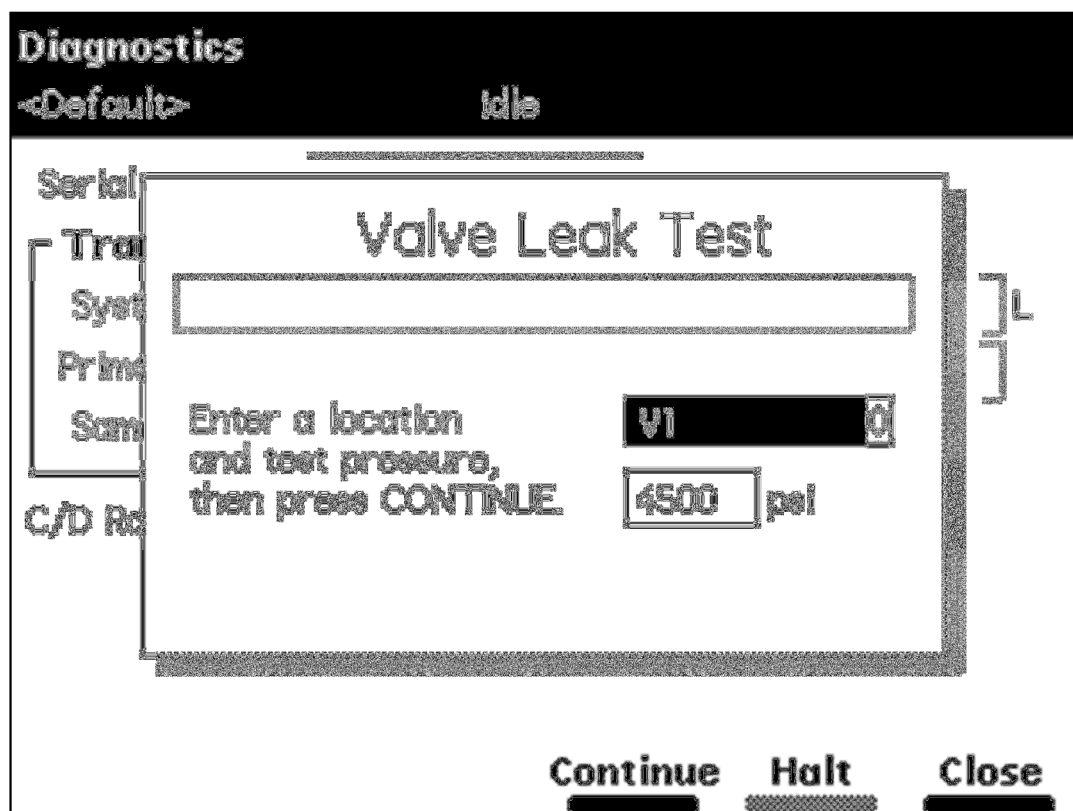
- Test Passed screen
- Remove the pin plug
- Press **Continue**.



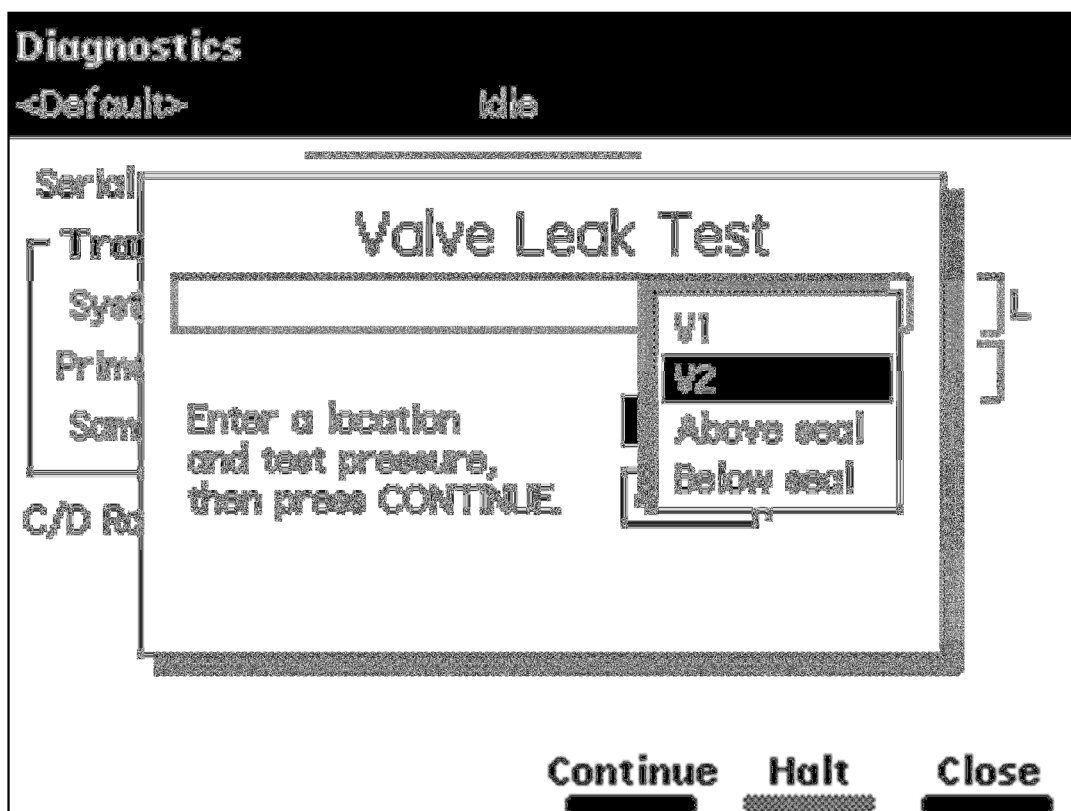
- Test results screen
- Press **Close**, then return to Diagnostics screen.



- Select **Valve Leak Test**
- Perform the valve leak test whenever you suspect leakage in the sample management valves or the seal pack, or you perform maintenance on the valves.
- Required Materials
 - Pin plug (WAT025566)
 - Union (WAT097332)
 - Wrenches, 5/16-inch, open end, two (or one 5/16-inch and one adjustable)
 - Waste container

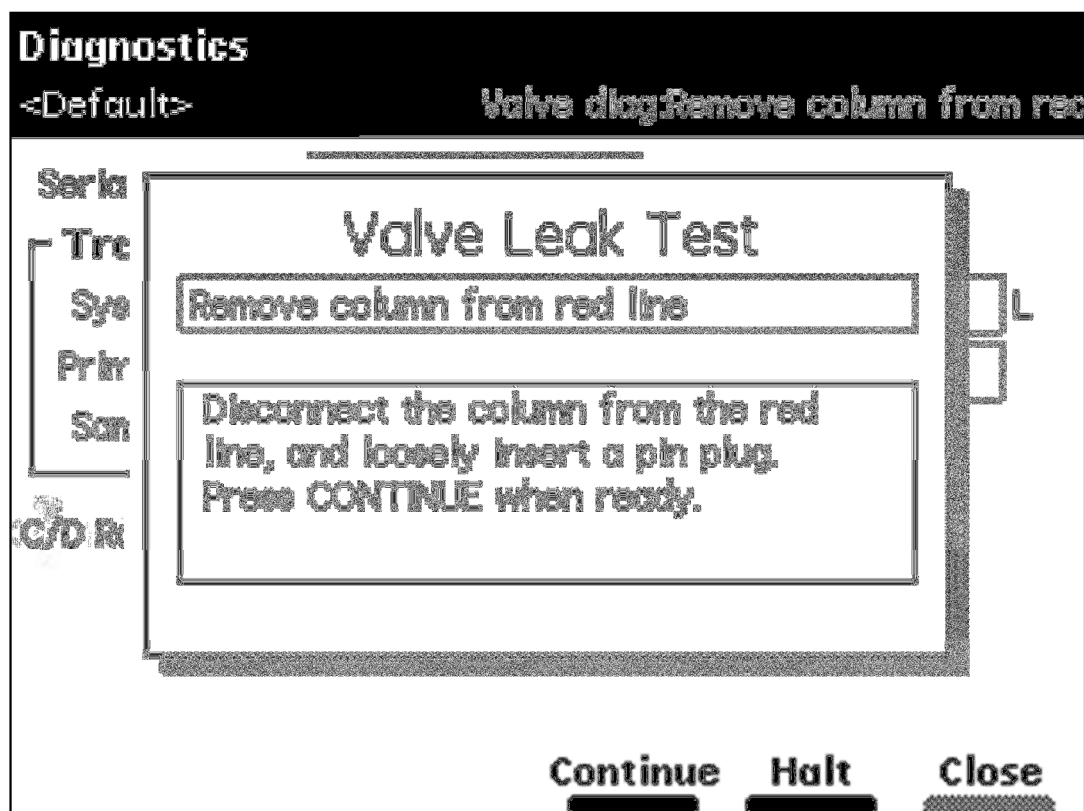


- Valve Leak Test screen, V1, in Other Diagnostics.
- For the Valve Leak tests the pressure limit can be set by the operator.



- Valve Leak Test options menu

<u>Option</u>	<u>Components Tested</u>
V1	Valve 1, the inject valve and the seal pack
V2	Valve 2, the syringe valve and the seal pack
Above seal	Seal Pack, the upper part of the lower seal
Below seal	Seal Pack, the lower part of the lower seal

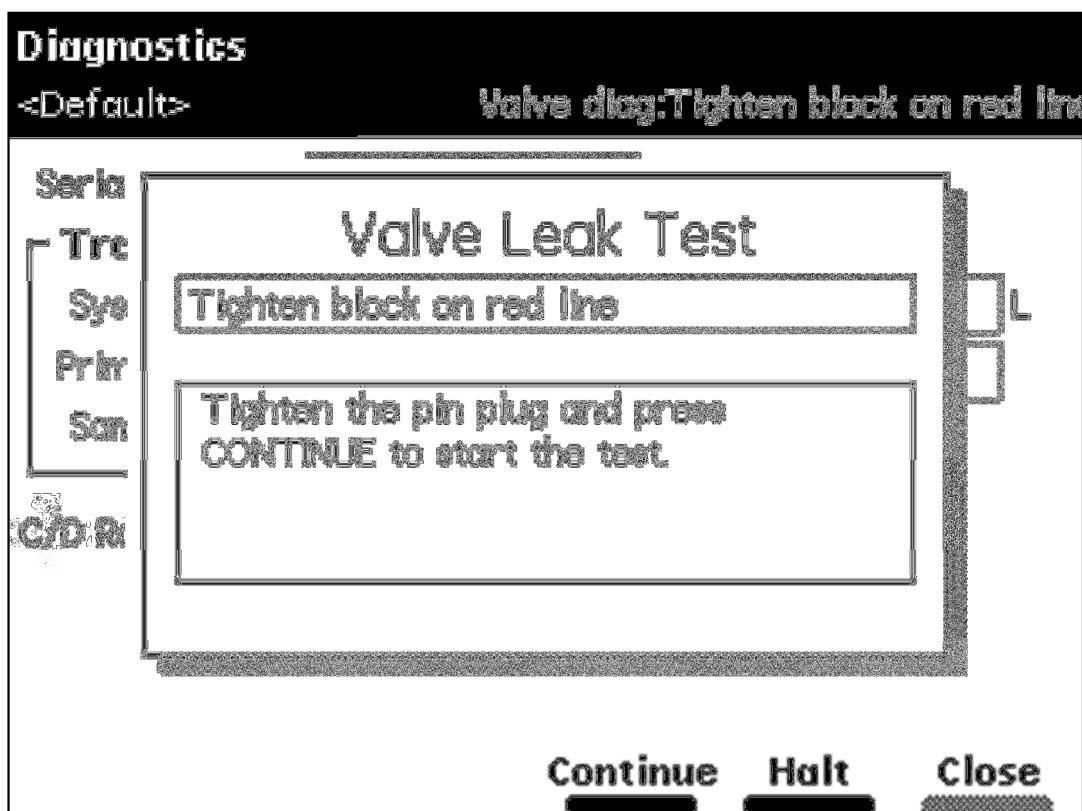


- Step 1 of the Static Leak Test

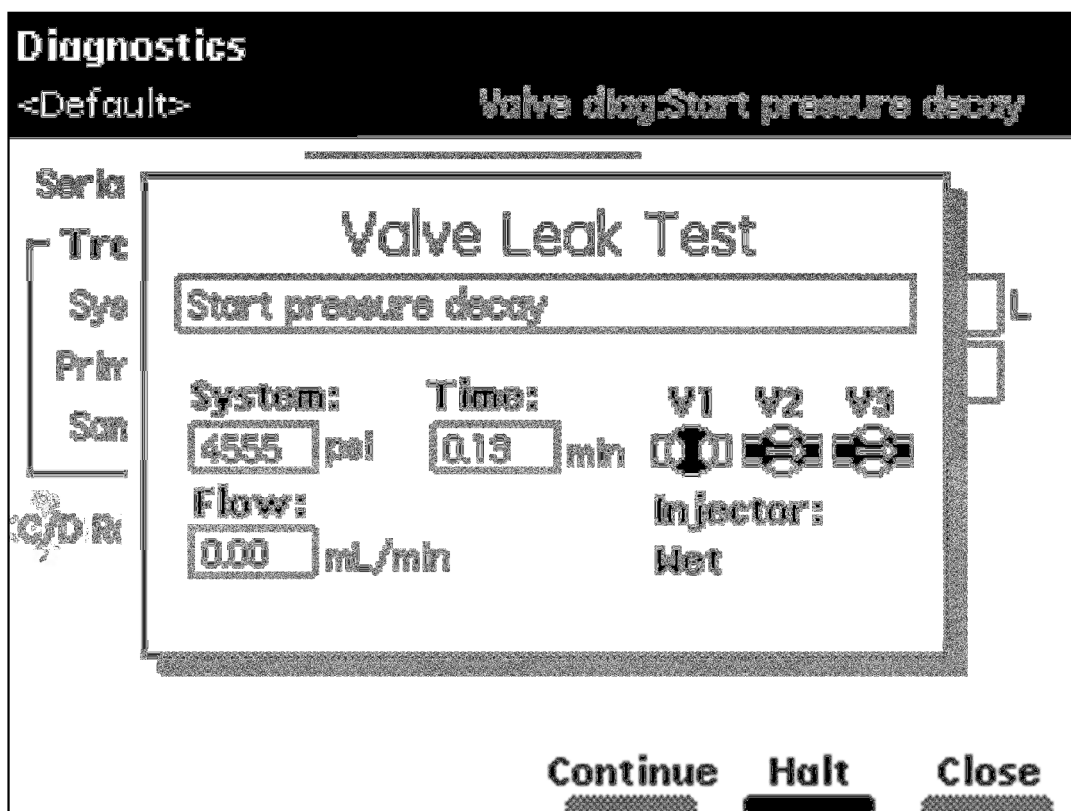
Note: Follow all directions as prompted on the display. DO NOT jump ahead of or lag behind the directions.

Attention: The following information is missing from the instructions on the screen, "attach a union (WAT097332) to the outlet end of the red line".

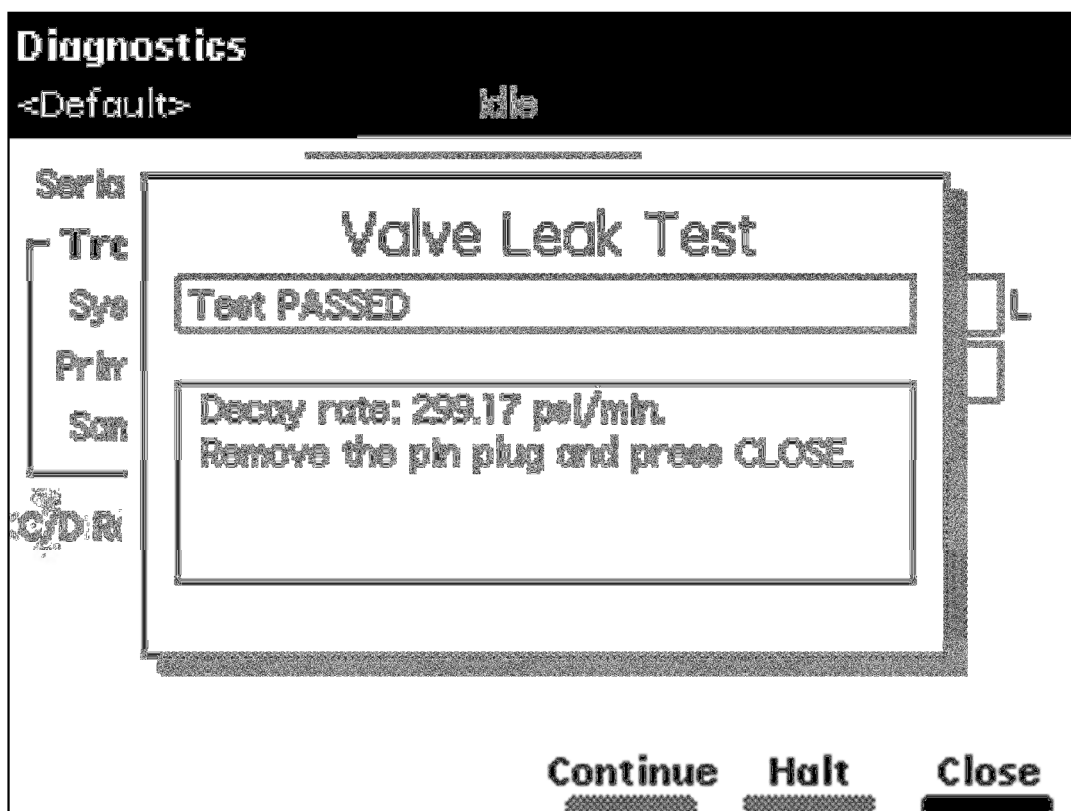
- Loosely does not mean finger tight.
- Press **Continue**.



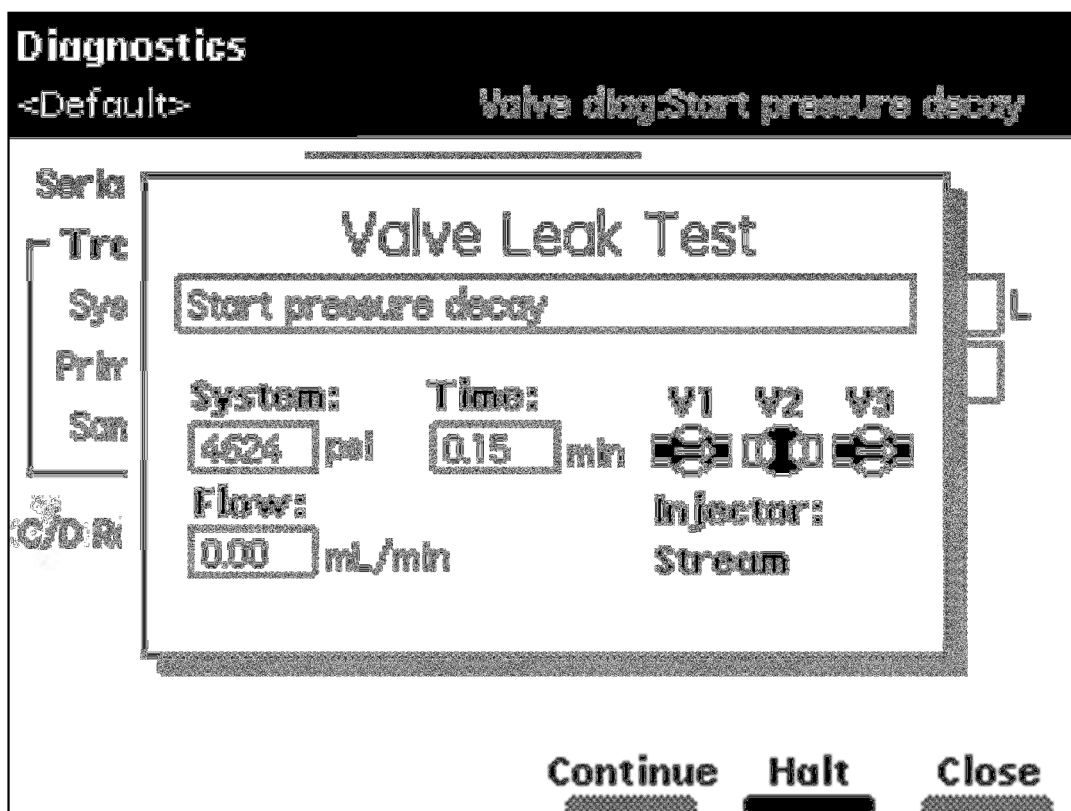
- Step 2 of the Valve Leak Test
 - Tighten the pin plug with wrenches, then press Continue.



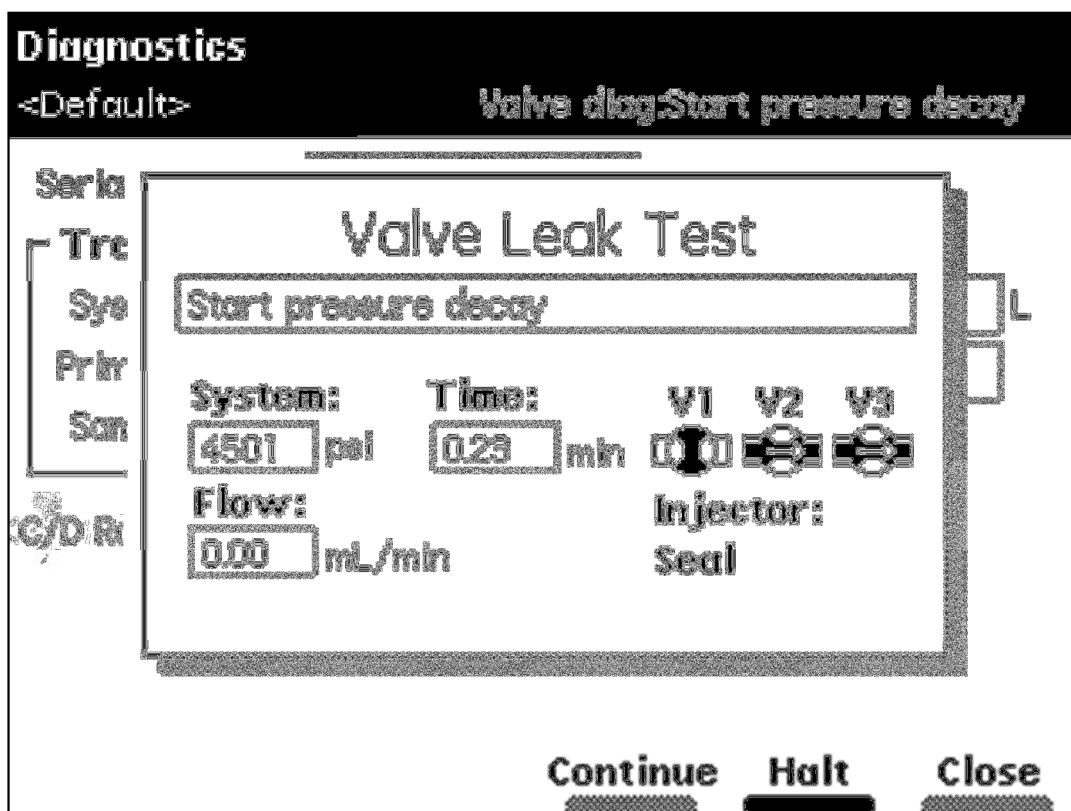
- Valve Leak Test status screen for V1



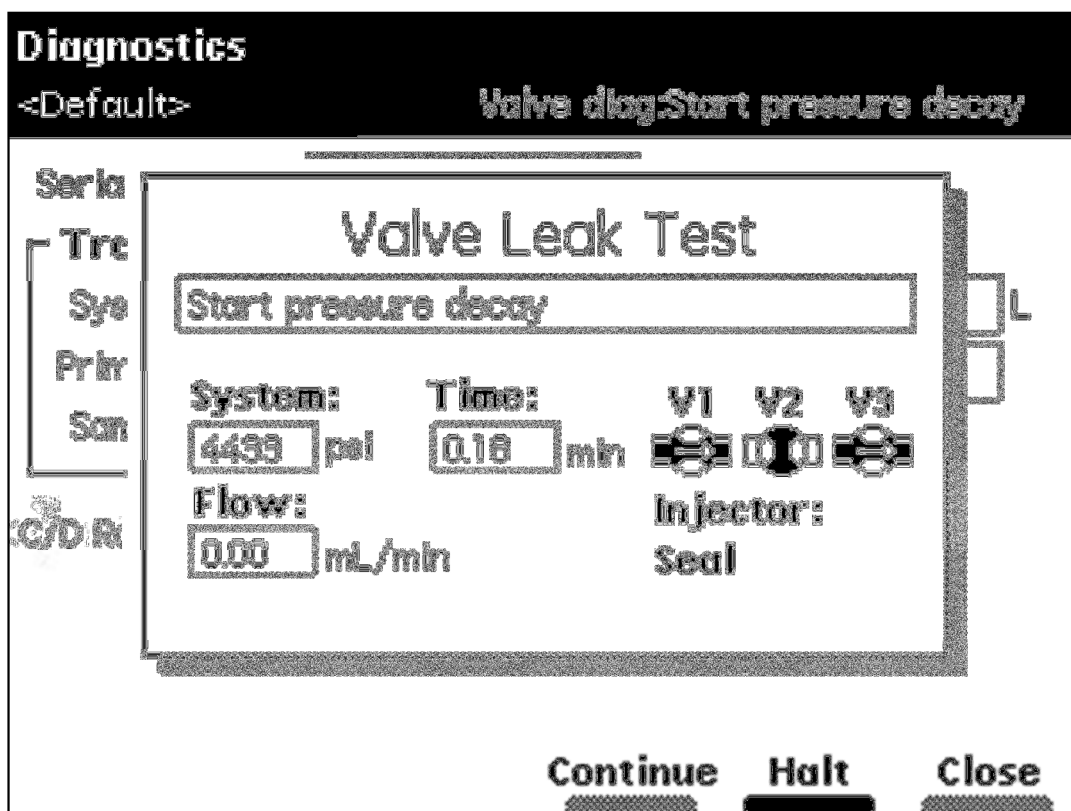
- Valve Leak Test results screen
- Maximum decay rate 600 psi/min



- Valve Leak Test screen for V2



- Valve Leak Test screen for “Above seal”
- This test option checks for solvent leaking by the upper portion of the lower seal of the injector.



- Valve Leak Test screen for "Below seal"
- This test option checks for solvent leaking by the lower portion of the lower seal of the injector.