

Additel 936/937/938

Hydraulic High Pressure Test Pump User's Manual

[Version number:1708V05]

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Warnings and cautions

- Operate the pump in the rated pressure range of 15,000 psi (1,000 bar) and do not exceed the safety pressure of 18,000 psi (1,200 bar).
- When the system pressure is greater than 10,000 psi, you must close the pre–pressurization shut off valve (#7) and then pressurize the system with the high pressure handle.
- Close all valves and handles and tighten the ports when transporting the pump.
- Always keep the reservoir cover vent valve (#4) open during operation.
- Do not over tighten the valves, connectors and handles to avoid damage.
- Change media immediately if it is contaminated.
- Keep media level between 1/4 and 3/4 of the liquid reservoir filled.
- Keep the threads clean and lubricious, and remove any dirt on threads.
- Used by trained personnel only.
- Additel is not liable for any safety problems or damages caused by misuse or incorrect operation.

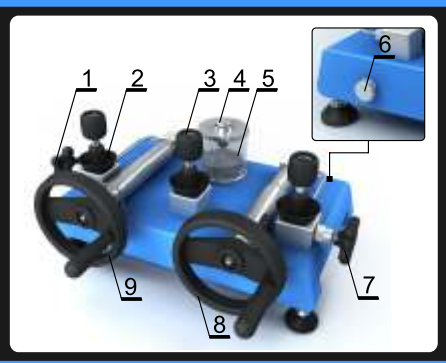
Specification

- **Pressure range:** 12.5 psi (0.85 bar) vacuum to 15,000 psi (1000 bar) positive pressure

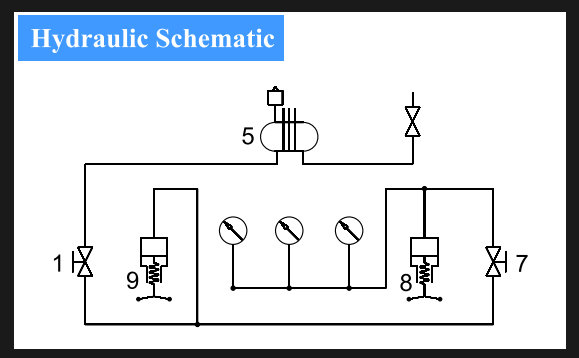
  Remark: *If local atmosphere pressure is 1 bar, the vacuum can reach to 0.85 bar; If local atmosphere pressure is P, the vacuum can reach to (P × 85%) bar.*

- **Temperature:** (5 ~ 50) ℃
- **Adjustment resolution:** 0.015 psi (1 mbar)
- **Safety pressure:** <18,000 psi (1,200 bar)
- **Pressure media:**
  - ADT936: Mineral oil SO–VG22 or compatible oil.
  - ADT937: Oil,compatible to phosphoric acid ester fluid and Skydrol oil.
  - ADT938: Deionized water.
- **Size:** Height: 10.43" (265 mm)
  Base: 20.71" (526 mm) x 9.65" (245 mm)
- **Weight:** 35.5 lb (16 kg)

Views and Hydraulic Schematic



1– Vent valve
2– Over–flow reservoir
3– Quick connector
4– Reservoir cover vent valve
5– Reservoir
6– Liquid drain valve
7– Pre–pressure shut off valve
(Isolates the calibration volume from the pre–pressure side of the pump)
8– High–pressure and fine pressure adjustment handle
9– Pre–pressure handle



Troubleshooting

Problem	Cause	Solution
It is difficult to generate pressure with the pre-pressure handle (#9)	Vent (#1) is not closed	Close vent valve (#1)
	The O–ring in quick connector is missing, misplaced, or broken	Replace with a new O–ring
	Pre–pressure shut off valve (#7) is closed	Open pre–pressure shut off valve (#7). Caution: the pre–pressure side of the pump should not be exposed to more than 10,000 psi (700 bar).
	Not enough media is in the reservoir.	Fill more media, and keep media level between 1/4 and 3/4 of the liquid reservoir filled
	Too much air is in the pump (see purge section of the manual)	Purge the air from the system (see purge section of the manual)
	Max pressure generation (could be as low as 5,000 psi, 350 bar) is achieved with the pre–pressure handle (#9)	Close pre–pressure shut off valve and use high–pressure and handle (#8).
It is difficult to pressurize by turning the high-pressure handle (#8)	The pre–pressure shut off valve (#7) is not closed completely	Close pre–pressurization shut off valve (#7)
	Reference gauge or devices under test (DUTs) are not connected tightly	Check finger–tight connectors, re–tight if necessary
	The O–ring in quick connector is missing, misplaced, or broken	Replace with a new O–ring
	The end surface of the DUT connection thread is not smooth	Use a PTFE washer in finger–tight connector
	The connector of the DUT is not matched to quick connector	Use proper adapter
It is difficult to generate high vacuum	Too much air in the pump	Purge the air from the system (see purge section of the manual)
	#4 valve is not open	Open the #4 valve
Hard to pressurize large-volume DUT	Because of the large volume of the DUT, it will take additional steps to fill the volume to pressurize the DUT	Step 1: Turn pre–pressure handle (#9) all the way in clockwise, close pre–pressure shut off valve (#7), open vent valve (#1). Step 2: Turn pre–pressure handle (#9) all the way counterclockwise, close vent valve (#1). Step 3: Open pre–pressure shut off valve (#7), pressurize the system. Step 4: Repeat step 1 to 3.
Pressure gauges do not reach to zero	#4 valve is not open	Open the #4 valve
Hard to turn the valves or handles	Too much force was previously applied	Do not over tighten
	Hard to turn pre–pressure handle (#9) at high pressure	This is normal. Close the pre–pressure shut off valve (#7) and use the high–pressure handle to adjust the pressure.
	Lack of lubrication on threads	Lubricate the threads

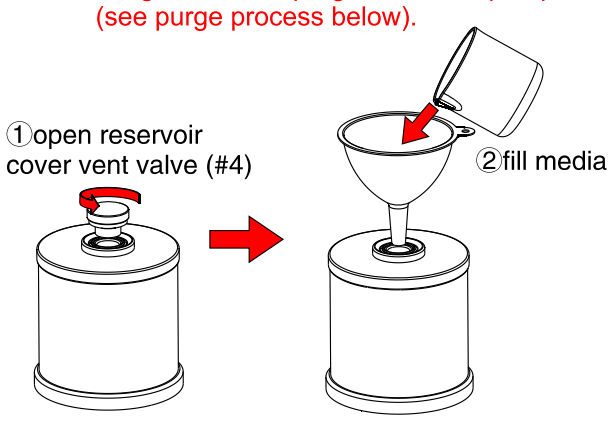
O–Rings for pressure connector

P/N	Size	Connector
1611300004	4X1.5	M10X1, 1/8BSP, 1/8NPT
1611300220	6.5X3	M20X1.5, 1/2BSP, 1/2NPT
1611300024	6X2	M14X1.5, 1/4BSP, 1/4NPT, 3/8BSP
1611300221 (only for ADT937)	6.5X3–EPDM70	M20X1.5, 1/2BSP, 1/2NPT
1611300222 (only for ADT937)	6X2–EPDM70	1/4BSP, 1/4NPT

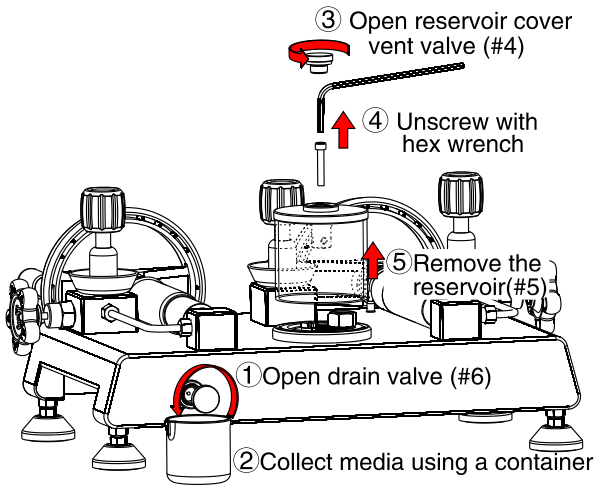
Maintenance

A *Fill media*

Note: In order to properly generate pressure, the gas must be purged from the pump (see purge process below).



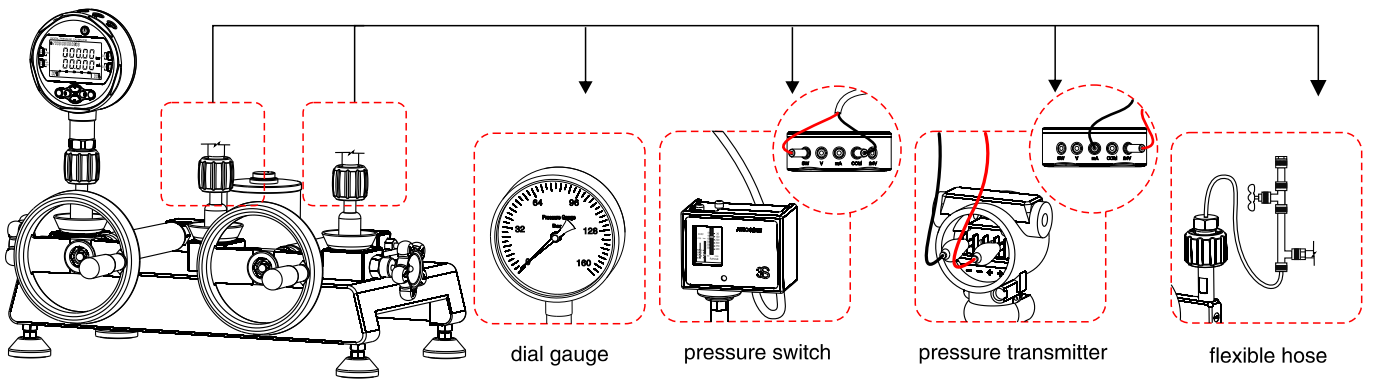
B *Drain and Clean*



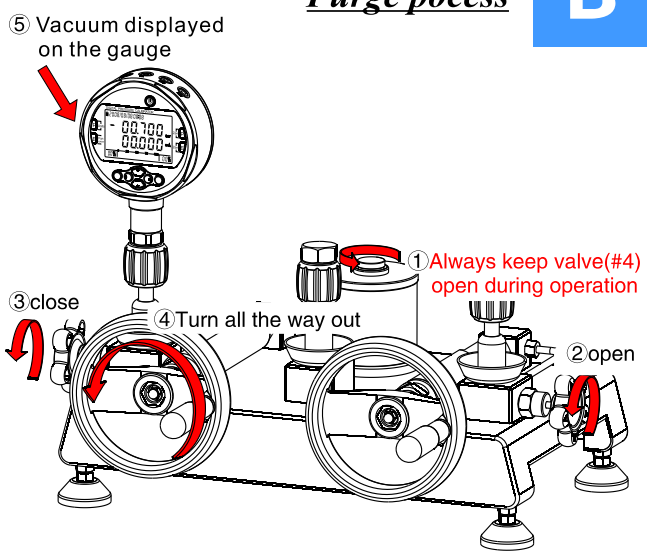
Basic Operation

A *Connection*

Note: Gauge positions are interchangeable. Any open ports should be plugged prior to operation.

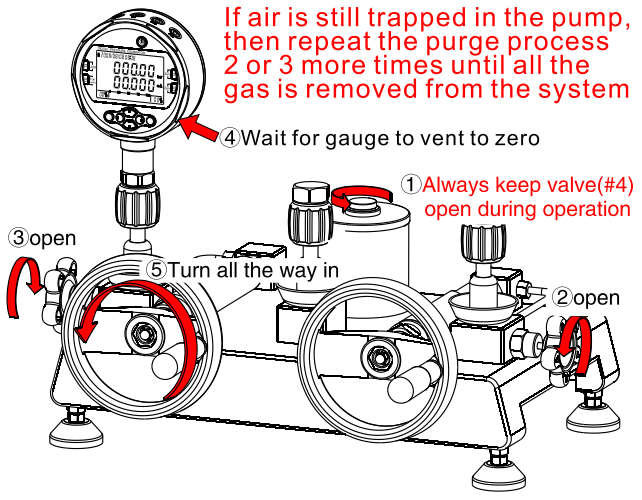


B *Purge pocess*

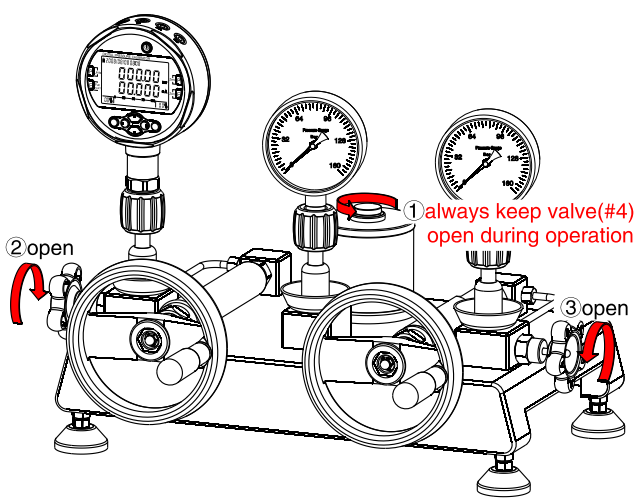


C *Purge process (cont.)*

If air is still trapped in the pump, then repeat the purge process 2 or 3 more times until all the gas is removed from the system

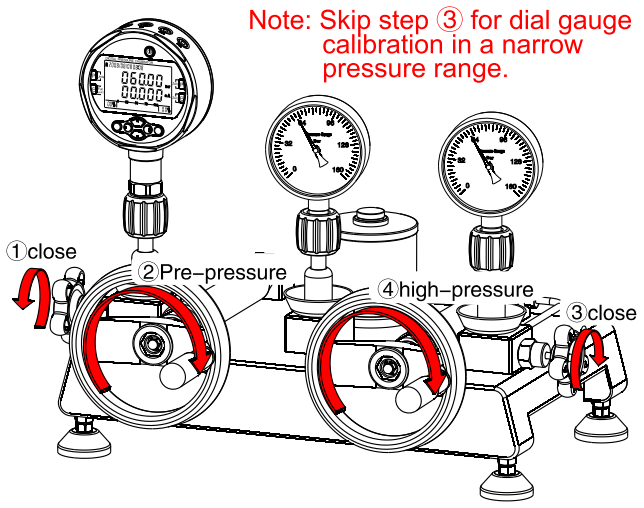


D *Zeroing*

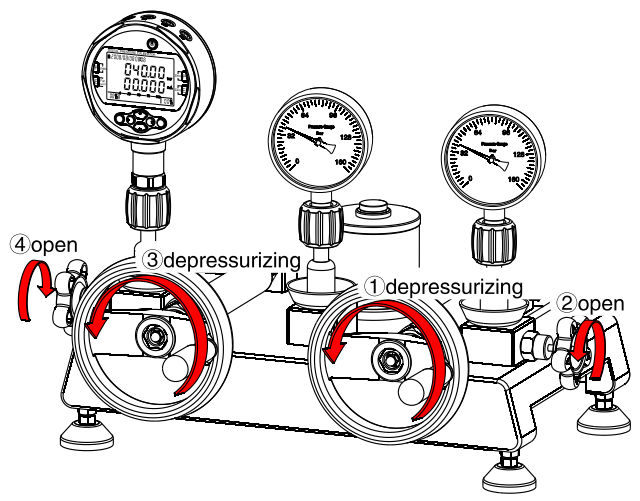


E *Pressurizing process*

Note: Skip step ③ for dial gauge calibration in a narrow pressure range.

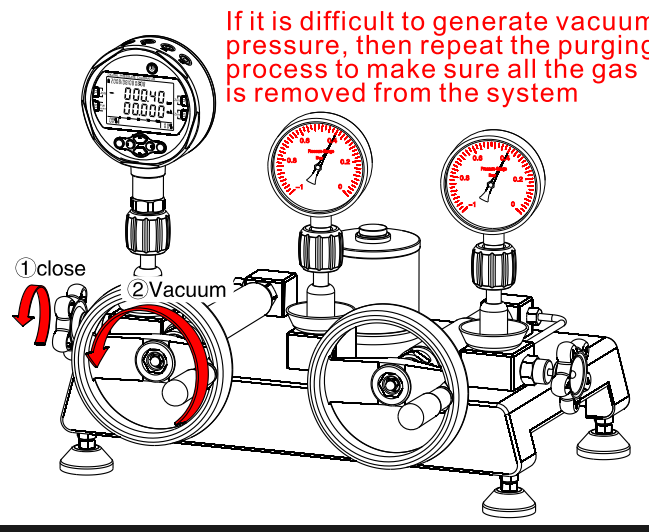


F *Depressurizing process*

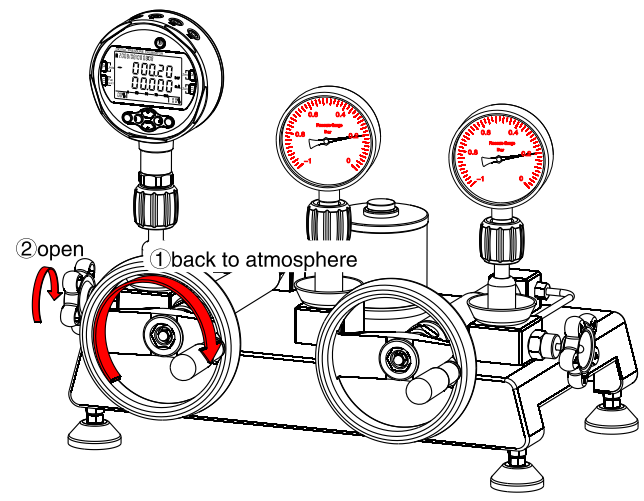


G *Vacuum process*

If it is difficult to generate vacuum pressure, then repeat the purging process to make sure all the gas is removed from the system



H *Vent*



Remark:

A: Additel has made a concerted effort to provide complete and current information for the proper use of the equipment. The product specifications and other information contained this manual are subject to change without notice.

B: Above pictures are just for reference.