

## PETERSEN® PIPE PLUG WATER INFLATION DEFLATION CONTROLLER GENERAL OPERATING INSTRUCTIONS

*These instructions apply to the Petersen® 50 gpm and 100 gpm Water Inflation Deflation Controllers for a maximum 5.4 meter (18 ft) max lift.*

*Because of the many possible variables these general instructions must be adapted by a competent professional engineer for each specific project. Instructions and training must be provided to all users and workers on the job.*

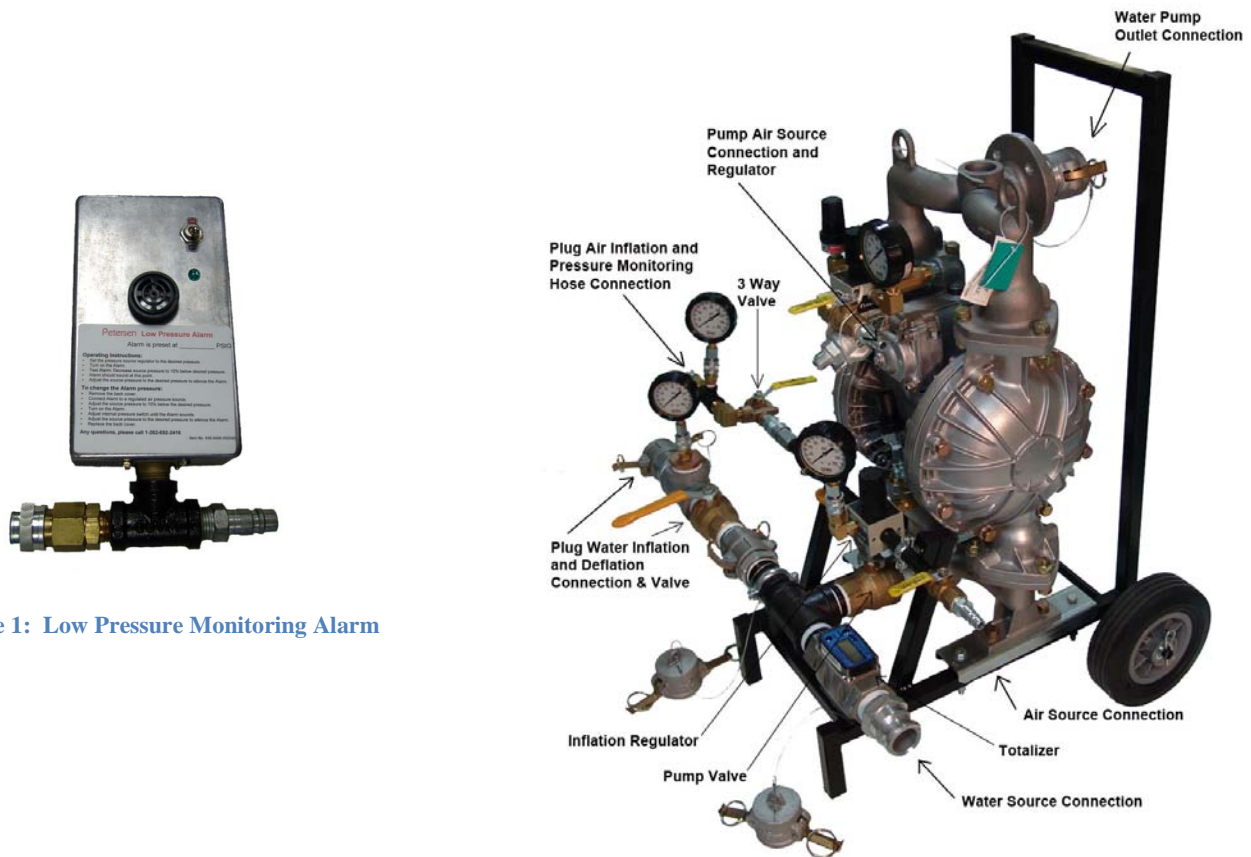


Figure 1: Low Pressure Monitoring Alarm

Figure 2: Petersen® Water Inflation Deflation Controller, 100 GPM @ 100 PSI

- 1) **The Water Section** controls water inflation and deflation. It includes a Water Flow Totalizer to monitor the quantity of water used, a Pressure Gauge, a Diaphragm Pump, and Valves to control the flow to and from the Plug.
- 2) **The Air Section** controls air inflation and inflation pressure monitoring. It includes an Air Regulator, Pressure Gauge, Relief Valve, Source Pressure Valve and a 3 Way Valve to monitor and control the inflation and deflation.
- 3) **An optional Low Pressure Alarm** is available to connect between the Plug and Air Inflation section to alert the operator if inflation pressure drops.

#### **4) Inflation Preparation:**

- a) Turn off the Plug Water Inflation Valve and turn the Air Inflation 3 Way Valve to the deflate position.
- b) Connect an air hose between the air source and the Air Source Connection. This hose may also be used later for operating the Diaphragm Pump to deflate the Plug.
- c) Turn on the Air Source Valve.
- d) Adjust the Air Inflation/Bleed-Off Regulator to the rated Plug inflation pressure, taking into consideration the Plug pressure monitoring calculations in Section 5.
- e) Connect an Air Hose between the Plug and the Air Inflation Hose Connection. Connect through the optional Low Pressure Monitoring Alarm if used.
- f) Connect a Water Hose between the Plug and the Water Inflation Connection.
- g) Connect a Water Hose between the water source and the Water Source Connection.
- h) Connect a Water Hose between the Water Pump Outlet and a water drain for pumping water out of the Plug. This may be the hose used for the water source, after the Plug is filled.

#### **5) Plug Water Inflation:**

- a) Stop the flow in the pipeline.
- b) Turn on the Air Inflation Valve just long enough to fill air hose with air. Periodically add a little air to keep water out of the hose as the air compresses.
- c) Turn on the Water Inflation Valve to begin filling the Plug with water.
- d) To monitor the Inflation pressure with an air hose add to the air pressure gauge reading 1.42 psi per meter (.433 psi/foot) that the air hose connection on the Plug is above the invert. The air hose must be purged of all water.
- e) To monitor the inflation pressure with a water hose add to the water pressure gauge reading 1.42 psi per meter (.433 psi/foot) that the Plug water pressure gauge is above the invert. The water hose and plug must be completely filled with water. Bleed off any air in the hose.
- f) Monitor the Flow Totalizer to know when the Plug is filled to the gallon capacity provided by the factory. The gallon capacity is only an estimate but the maximum pressure must not be exceeded.

#### **6) Deflation and Removal of Plug:**

- a) Equalize the differential head pressure on each side of the Plug.
- b) Deflate the Plug.
  - i) Close the valve on the Plug Water Inflation Hose.
  - ii) Reduce the Plug inflation pressure to zero with the 3 Way Valve.
  - iii) Move the Plug Water Inflation Hose to the Water Source Connection of the Controller.
  - iv) Cap the Water Inflation Connection and open the Pump Valve.
  - v) Connect a discharge hose from the Pump outlet to a drain. This may be the hose used from the water source.
  - vi) Connect the air source to the Air Connection on the Pump Air Regulator.
  - vii) Open the valve on the Plug Water Inflation Hose and begin deflating the Plug.
  - viii) Regulate the deflation pumping rate with the Pump Air Regulator.
  - ix) Complete deflation is indicated by a substantial drop in flow rate (<1 gpm) on the Totalizer and an audible change in the sound of the pumping action.
  - x) It may be necessary to periodically add air to the Plug to help displace the water if the Plug is too deep for the Pump. The Pump will only lift 18'. Never exceed the pressure rating of the Plug when displacing water.
  - xi) Stop adding air when water no longer discharges from Pump outlet. Continue deflating until all air is out of Plug.
  - xii) As the water is displaced with air the Plug may float if submerged and the water and air will be evacuated by the Pump.
  - xiii) Remove the Plug only after it is deflated completely.

**Contact Petersen with any questions or suggestions relating to the use of any Petersen product.**