

#6 - Monitor - Test & evaluate the control / systems operation by running the pump through several cycles.

Also check all connections for leaks by applying a solution of soap and water around the control / tank connection and the "C", and control / pressure gauge connection "D". In the event that water leaks, it may be necessary to re-do the connection applying addition layers of PTFE thread sealing tape.

MAINTENANCE / TROUBLE SHOOTING:

◆ Water leaking out through the air inlet port See Fig. 10, indicates one of two conditions.

#1 Most likely foreign material has become lodged in the snifter valve on the pump preventing the valve from closing. To clean the snifter valve, disconnect the plastic tubing from the pump. Remove the snifter valve and clean or replace the valve.

#2 - The rubber seal / rod fulcrum disc See fig. 11, has been compromised, control must be replaced.

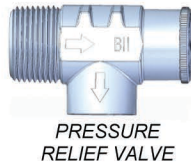
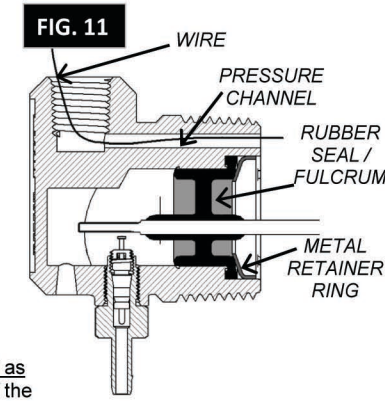
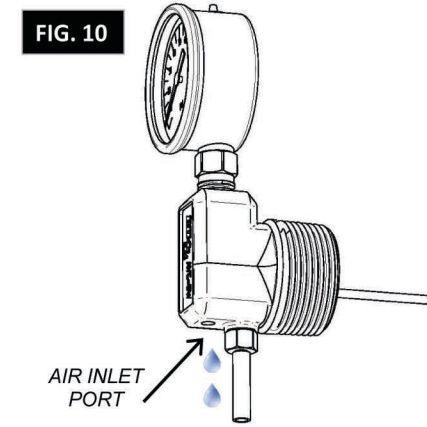
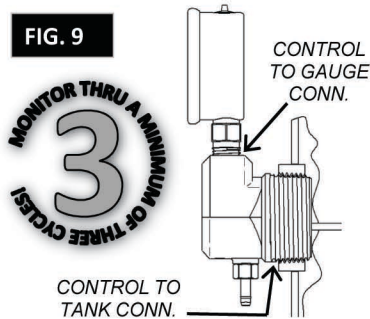
In the event that the pump cycles too often (short cycles) the supply of air in the tank is insufficient, this may be caused by insufficient head (Static level of the water in well is too close to the elevation of the pump), a lift of 8-10 ft. is required for the pump to create vacuum, to allow the control to function properly. In low head installations the water is too easily drawn in from the well to enable the pump to create sufficient vacuum to draw air in thru the control. To rectify this may require that a special snifter valve be installed that has no valve core spring making it easier for the pump to draw air, thus increasing the volume of air being drawn into the system. The AVC-SW controls is supplied with a standard snifter will have low pressure spring rated at 3 PSI which should work in all installations if the pump is creating a normal suction. The Special snifter valve can be ordered separately (Boshart Part No. SV0-NCS)

NOTE: This control, nor any other Shallow well air charging control will function, in either an artesian well installation, or where the pumping head is too low.

◆ In the event that air escapes thru the service lines (air blowing at faucets), foreign material has become lodged in the air inlet valve on the control pump preventing the valve from closing, allowing the pump to draw air even when the float is the upper position. To rectify clean the air inlet valve, disconnect the plastic tubing from the control. Remove the air valve housing and the inner air valve core using a tire air valve driver and clean or replace the air valve core.

WARNING: The AVC-DW-AR control is designed as an operating control only! It is the responsibility of the installer to add safety devices such as a pressure relief valve or pressure limit control, along with alarms and or supervisory systems to the system that will protect and warn of control failure.

IMPORTANT: Pressure relief valves must ALWAYS be plumbed with a discharge pipe no smaller than the discharge outlet of the valve, it must have an air break and be discharged into a suitable floor drain, sump or other safe location that is capable of handling the volume of water from the system in the event of a blow-off.



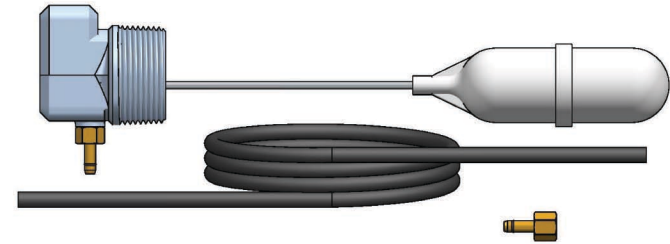
MONITOR THRU A MINIMUM OF THREE CYCLES!



AVC-SW
Shallow Well Air Volume Control
(Air Charger)
Installation / Operational Manual

APPLICATION:

The AVC-SW unit is designed to maintain the proper ratio of air to water in your water storage tank on shallow well water systems when there is not enough air being pumped into the system. The air valve opens on rising water levels in the tank to "charge" air into the tank at pressures up to 80 PSI. With the air valve open extra air is drawn into the pump thru Port "D" and mixes with the water being pumped into the tank. The system works in relation to the position of the float inside the storage tank.



This control includes the following installation accessories:

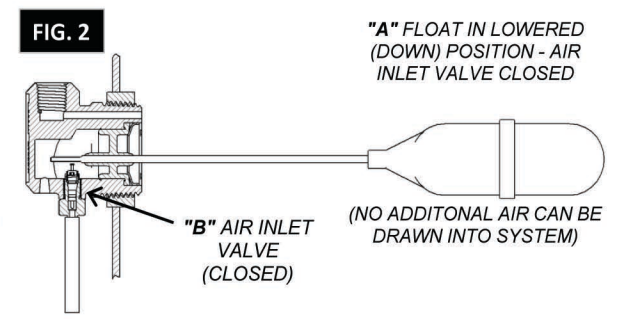
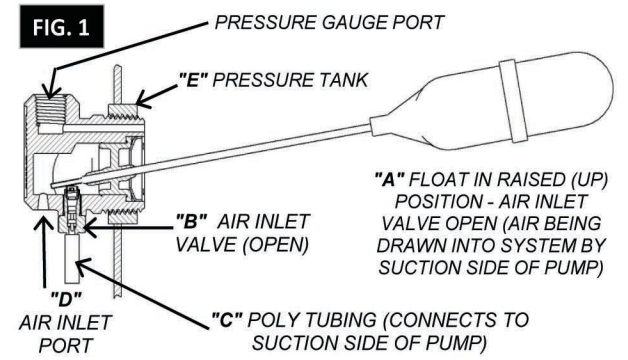
- ◆ Shallow well control unit, complete with rod and float
- ◆ 48" length of 1/4" polyethylene tubing
- ◆ Brass fitting: Female Snifter Valve Thread x Mini Barb (tube conn.)

NOTE: The AVC-SW unit has a 1/4" NPT pressure gauge port on the top of the control housing, to indicate the tank pressure, however the pressure gauge is not included and must be purchased separately.

OPERATION:

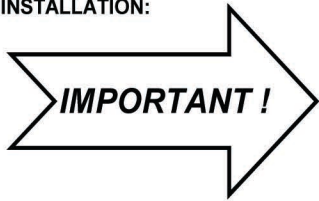
When the water in the tank raises the float (A) to its maximum height, (See Fig. 1) the water level is too high (air volume is getting too low), when this occurs the float, secured to a float rod extending through a flexible rubber dividing wall, opens an air inlet valve (B) in the body of the AVC-SW control. The air inlet valve on control is connected to a snifter valve on the suction side of the pump by a piece of polyethylene tubing (C) and has no direct connection into the tank (E). The air inlet valve (B) allows air to be drawn into the pump through the air inlet valve port (D) on the control, but prevents any water from the pump to escape back through it.

The air that is drawn into the pump mixes with the incoming water and the air / water mixture is compressed by the pump and delivered into the tank (E). This operation continues until the volume of air inside the tank increases to the proper amount, at which time the float drops to its lower limit closing the air inlet valve (B) See Fig. 2, shutting off the supply of air to the pump maintaining the optimum relationship between the volume of air and water in the tank.



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INSTALLATION:

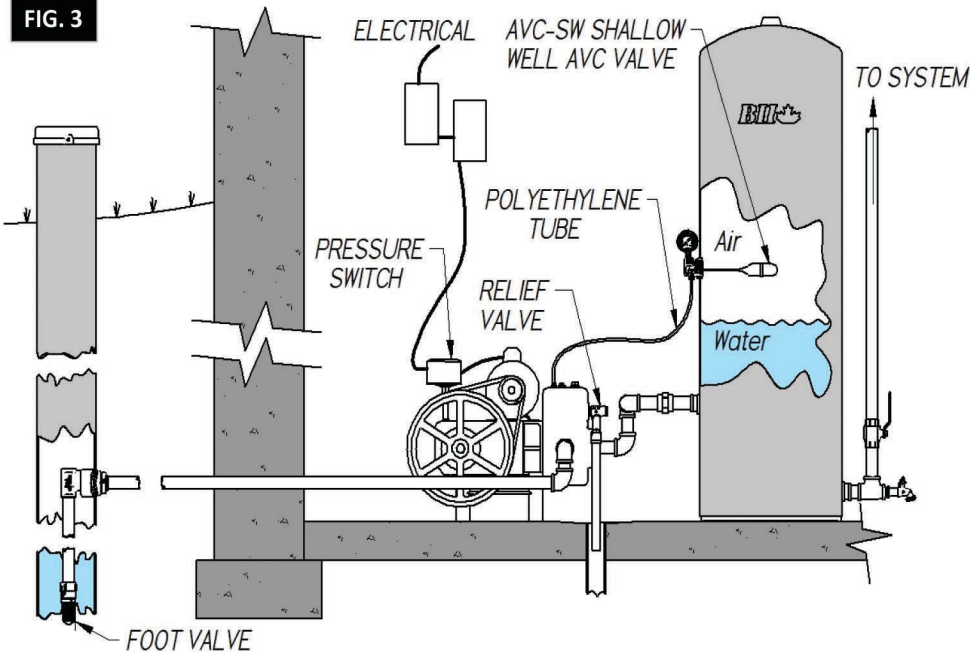


The installation of this control requires that the pump has a 1/8" tapping on the suction side of the pump for installation of a snifter valve. (a means to acquire air) which can be pumped (injected) into the tank with each pump cycle.

#1 – Connect poly tubing. First connect tubing to suction side of the pump. Some pumps are supplied with a snifter type air valve installed in the snifter valve port of the pump, while others are supplied with a 1/8" NPT plug installed in the snifter valve port.

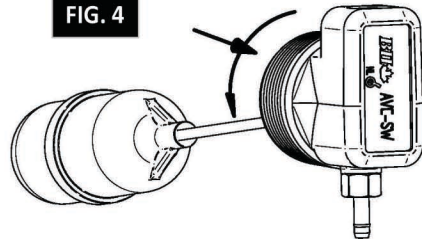
NOTE: In the event your pump does not have a snifter valve, install a proper "low pressure spring snifter valve with a 3 PSI opening pressure or less. They can be purchased separately (Boshart Part No. SV-0) and connect the tubing using the special female snifter valve fitting x mini barb fitting. The installation of the snifter valve ensures that no water can be forced up thru the tube and leak out thru the air intake port under certain conditions that can occur.

Install the snifter valve & brass fitting using a suitable pipe thread sealer, then attach the polyethylene tubing, by pushing the tubing over the barbed end until it is seated firmly against the fitting body. Follow the same procedure to attach the tubing to the Air Volume Control fitting. Any excess length of tubing should be removed by cutting the tubing squarely using a tube cutter or sharp knife.



Install the AVC-SW unit in the tank as follows:

#2 - Apply either B.I.I.'s "Gray Magic" thread sealing compound or a high quality P.T.F.E. thread sealing tape to the 1-1/4" NPT thread on the control (if using P.T.F.E. thread sealing tape, overlap the tape half its width to make two layers and continue to the large end of thread) See Fig. 4



#3 - Inspect the thread on the pressure tank in which the air control is to be installed See Fig. 5 to ensure the threads are clean and free of burrs, zinc or galvanized plating or paint. If any dirt or defect is found clean the thread with a 1-1/4" NPT pipe tap (if not available thread can sometimes be repaired by threading in a 1-1/4" NPT iron pipe plug). Failure to have a clean quality thread can result in damage to the air control thread and result in a leaky connection.

#4 - Tighten by hand, screw the control clockwise into the 1 1/4" NPT port that is approx. 1/2 to 2/3 of the way up the tank, the tank must be a minimum inside diameter of 9 inches to allow the float to operate (See Fig. 5) then using an open end or crescent (adjustable) wrench that fits the flat sides of the control body, tighten an additional 1 to 1-1/2" turns. (See Fig. 6)

IMPORTANT: Make sure the 1/4"-18 port for gauge at "A" is facing up, at top center (See Fig. 6) Caution: Do not over tighten! If the control is getting snug as the gauge port nears the top center position do not attempt to obtain an additional full thread rotation, over tightening may cause damage to the control and or the tank connection.

#5 - Install a pressure gauge (or a 1/4" NPT pipe plug, if there is already a pressure gauge on the system nearby) in the port (See fig. 7) Wrap the 1/4" NPT gauge thread with PTFE tape as detailed in step #2, then screw the gauge clockwise into the 1/4" NPT port on the control

IMPORTANT: Make sure the gauge is facing outwards (See Fig. 7) Caution: Do not over tighten – five ft-lb torque is sufficient to seal the threads. If the gauge is getting snug as the gauge face nears the outward facing position do not attempt to obtain an additional full thread rotation, over tightening may cause damage to the gauge and or the control connection. NEVER use the gauge port to connect the pressure switch controlling the pump. It should only be used for a gauge as there is a risk of the opening becoming clogged with iron / scale build up overtime depending on water quality.

#6 - Start-Up. On the initial start up, the tank is empty (or full of air at atmospheric pressure), therefore the float is in the down (dropped) position, and holding the air valve in the closed position. No air will be drawn into the system until the water level rises and raises the float to open the air inlet valve

NOTE: It is not uncommon for the control to remain closed for many cycles (possibly several days of operation) before the volume of air stabilizes in the tank, unless the excess air trapped in the tank is purged at start up. DO NOT assume the control is not working if you do not detect air being drawn in the air inlet port during this time period.

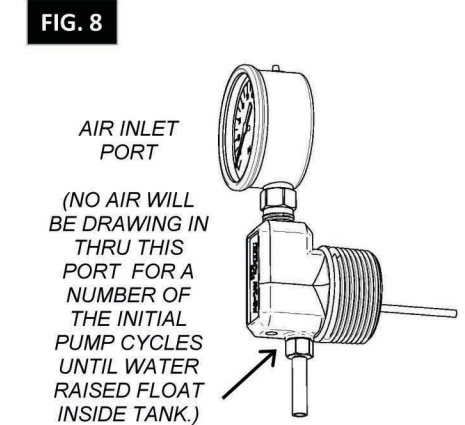
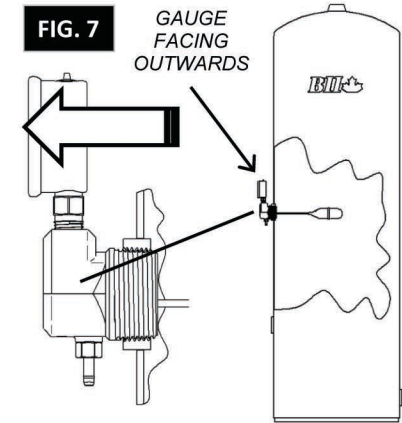
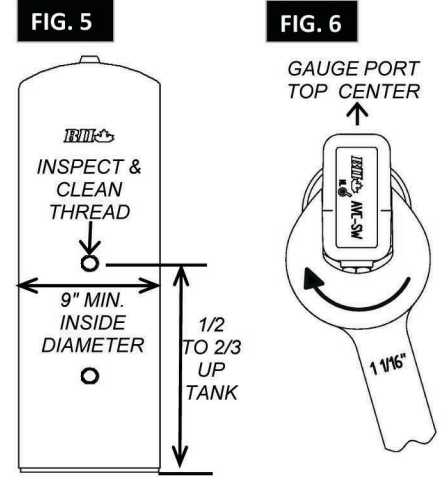


FIG. 5

FIG. 6

FIG. 7

FIG. 8