

# PRESSURIZED TANKS

## ARO SERIES

### HYDROPNEUMATIC PRESSURIZED TANK



## PRESSURIZED TANKS

### INSTALLATION MANUAL

NSF  
61



EURO  
CERT  
EN ISO 9001



*INLINE MODELS:  
Models ARO-305I-B10  
through ARO-3810I-B10*

*VERTICAL STAND MODELS:  
Models ARO-5814V-B10  
through ARO-30582V-B114*

*HORIZONTAL MODELS:  
Models ARO-1845H-B10  
through ARO-2080H-B10*

## IMPORTANT NOTICE

### Specific Safety Alerts

Inspect product for shipping damage before installation. Notify freight carrier or store where purchased immediately if any damage is present. To avoid risk of property damage and/or personal injury, if the product appears damaged, appears to be malfunctioning or shows signs of corrosion, call a qualified professional immediately. Always follow these instructions and always use proper safety equipment when installing.



**THIS IS THE SAFETY ALERT SYMBOL. IT IS USED TO ALERT YOU TO POTENTIAL PERSONAL INJURY AND OTHER HAZARDS. OBEY ALL SAFETY MESSAGES THAT FOLLOW THIS SYMBOL TO REDUCE THE RISK OF PERSONAL INJURY AS WELL AS PROPERTY DAMAGE.**



#### **WARNING! READ CAREFULLY THE PRODUCT INSTALLATION & OPERATION INSTRUCTIONS.**

FAILURE TO FOLLOW THE INSTRUCTIONS AND WARNINGS IN THE MANUAL MAY RESULT IN SERIOUS OR FATAL INJURY AND/OR PROPERTY DAMAGE, AND WILL VOID THE PRODUCT WARRANTY. THIS PRODUCT MUST BE INSTALLED BY A QUALIFIED PROFESSIONAL. FOLLOW ALL APPLICABLE LOCAL AND STATE CODES AND REGULATIONS. IN THE ABSENCE OF SUCH CODES, FOLLOW THE CURRENT EDITIONS OF THE NATIONAL PLUMBING CODE AND NATIONAL ELECTRIC CODE, AS APPLICABLE. EXPLOSION OR RUPTURE HAZARD. THE PRESSURIZED TANK MUST BE OPERATED SO THAT THE PRESSURE DOES NOT EXCEED 150 PSIG, THE MAXIMUM WORKING PRESSURE.



**WARNING!** This Product, like most Products under pressure, may over time corrode, weaken and burst or explode, causing serious or fatal injury, leaking or flooding and/or property damage. To minimize risk, a licensed professional must install and periodically inspect and service the Product. A drip pan connected to an adequate drain must be installed if leaking or flooding could cause property damage. DO NOT locate in an area where leakage of the tank or connections could cause property damage to the area adjacent to the appliance or to lower floors of the structure.

#### CALIFORNIA PROPOSITION 65 WARNING!

This product contains a chemical known by the State of California to cause cancer and to cause birth defects or other reproductive harm. (*California Installer/Contractor*)

- California law requires that this notice be given to consumer/end user of this product.)



**WARNING!** Use only with a potable water system. DO NOT operate in a setting with freezing temperatures or where the temperature can exceed 100°F and DO NOT exceed the maximum working pressure specified for this Product in the Manual. MOUNT VERTICALLY ONLY.



#### **DANGER! EXPLOSION HAZARD**

**PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY!**



#### **WARNING! EXPLOSION OR RUPTURE HAZARD.**

A relief valve must be installed to prevent pressure in excess of local code requirement or maximum working pressure designated in the Product Manual, whichever is less.

- DO NOT expose Product to freezing temperatures or temperatures in excess of 100° F.
- DO NOT adjust the pre-charge or re-pressurize this Product except for any adjustments required at the time of initial installation, especially if Product is corroded, damaged or has diminished integrity.
- Adjustments to pre-charge must be done at ambient temperature only.
- Failure to properly size the Product or follow these instructions may result in excessive strain on the system, lead to Product failure, serious or fatal personal injury, leakage and/or property damage.



#### **WARNING! EXPLOSION HAZARD.**

Failure to follow the instructions in the product manual can cause a rupture or explosion; possibly causing serious or fatal injury, leaking or flooding and/or property damage.



#### **CHLORINE & AGGRESSIVE WATER.**

The water quality can significantly influence the life of this Product. You should test for corrosive elements, acidity, total solids and other relevant contaminants, including chlorine and treat your water appropriately to insure satisfactory performance and prevent premature failure.

## Important General Safety Information

*Additional Specific Safety Alerts*



### **DANGER! EXPLOSION HAZARD.**

WHEN THE WELL TANK HAS BEEN IN SERVICE AND A CHANGE TO A HIGHER PRE-CHARGE PRESSURE IS NECESSARY DUE TO A REQUIRED CHANGE IN THE PRESSURE SWITCH SETTING, FAILURE TO FOLLOW INSTRUCTIONS BELOW CAN CAUSE A RUPTURE OR EXPLOSION, POSSIBLY CAUSING SERIOUS OR FATAL PERSONAL INJURY, AND/OR PROPERTY DAMAGE.

- DO NOT ADJUST OR ADD PRESSURE IF THERE HAS BEEN A LOSS OF AIR.
- DO NOT ADJUST THE PRE-CHARGE PRESSURE IF THERE IS VISIBLE EXTERIOR CORROSION.
- DO NOT ADJUST THE PRE-CHARGE PRESSURE IF THERE HAS BEEN A REDUCTION OF THE PUMP CYCLE TIME OR THE PRE-CHARGE PRESSURE COMPARED TO ITS INITIAL SETTING. THIS IS BECAUSE REDUCTION IN PUMP CYCLE TIME CAN RESULT FROM LOSS OF TANK AIR PRESSURE WHICH IN TURN CAN MEAN THERE MAY BE INTERNAL CORROSION AND ANY RE-PRESSURIZATION OR ADDITIONAL PRESSURE COULD RESULT IN RUPTURE OR EXPLOSION.



### **WARNING! MAXIMUM WORKING PRESSURES.**

Every AQT™ Hydropneumatic Pressurized Tank is air tested to 150 PSIG, the maximum working pressure. Should pressures exceed 150 PSIG, proper selection and sizing of an ASME constructed AQT™ Hydropneumatic Pressurized Tank should be made.



### **WARNING! RELIEF VALVE REQUIRED.**

A relief valve should be installed which is set to open at excessive pressures (125 PSIG or more). This will protect the AQT™ Hydropneumatic Pressurized Tank and other system components should the pressure switch malfunction and fail to shut the pump off. The relief valve should be installed at the connection of the AQT™ Hydropneumatic Pressurized Tank to the system piping and have a discharge equal to the pump's capacity at 125 PSIG.



**WARNING!** Do not install in direct sunlight. Excessive sun heat may cause distortion or other damage to non-metallic parts.



### **WARNING! DANGER! EXPLOSION HAZARD.**

IF YOU ADJUST THE PRE-CHARGE PRESSURE OR ADD PRESSURE TO A TANK THAT IS CORRODED OR DAMAGED OR WITH DIMINISHED INTEGRITY, THE TANK CAN BURST OR EXPLODE, POSSIBLY CAUSING SERIOUS OR FATAL PERSONAL INJURY AND/OR PROPERTY DAMAGE.



## **DANGER! EXPLOSION HAZARD**



**PLEASE READ THE FOLLOWING  
INSTRUCTIONS CAREFULLY!**

- ONLY ADJUST THE PRE-CHARGE AS DESCRIBED IN THIS MANUAL WHEN THE TANK IS NEW OR WHEN THE INTEGRITY OF THE TANK AND LACK OF INTERNAL OR EXTERNAL CORROSION IS CONFIRMED.
- ONLY QUALIFIED PROFESSIONALS SHOULD CHECK, ADJUST OR RE-CHARGE THE PRE-CHARGE OF TANKS.



**CAUTION!** as in all plumbing products and water storage vessels, bacteria can grow in your well tank, especially during times of non-use. Consult your local plumbing official regarding any steps you may wish to take to safely disinfect your home's plumbing system.



**WARNING!** A water test must be taken before installation of any water treatment equipment.



**WARNING!** For your safety, the information in this manual must be followed to minimize the risk of electric shock, property damage or personal injury.

- Properly ground to conform with all governing codes and ordinances.



**WARNING!** Use only lead-free solder and flux for all sweat-solder connections, as required by state and federal codes.

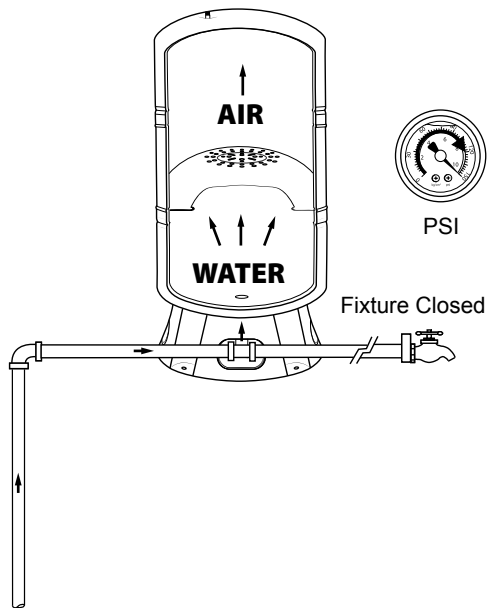


### **WARNING! ELECTROCUTION AND EXPLOSION HAZARD.**

BEFORE WORK IS PERFORMED ON THE TANK, TURN OFF THE POWER TO THE PUMP AND RELEASE ALL WATER PRESSURE IN THE TANK AND PUMPING SYSTEM.

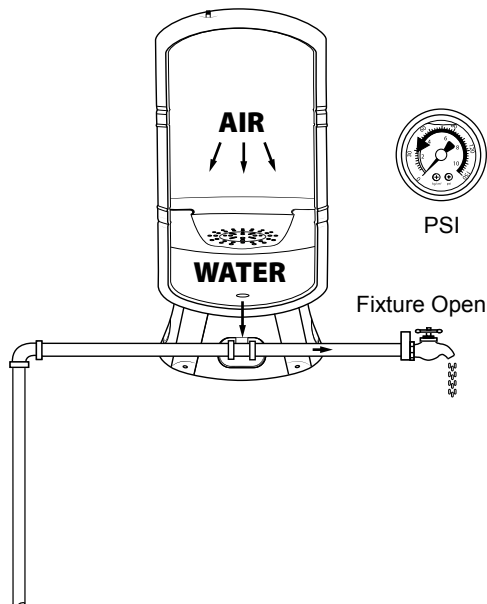
## How a Well Tank Works

Drawdown Schematic



The amount of water delivered between pump cycles is called drawdown. The larger the well tank, the greater the drawdown capacity, the less the pump needs to run. This saves energy and money, and extends pump life. Larger tank sizes also increase the water storage volume to provide more consistent water pressure.

1. As the pump fills the tank with water, the air above the diaphragm is compressed. This increases the pressure in the tank and causes the pressure switch to turn off the pump.



2. When water is used, it is drawn from the tank and the pressure inside the tank decreases. The reduced pressure starts the pump and refills the tank.

**IN-LINE MODELS:**

ARO-305I-B10 through ARO-3810I-B10: 1" NPTM

**VERTICAL STAND MODELS:**

ARO-5814V-B10 through ARO-12032V-B114: 1" NPTF

ARO-13034V-B10 through ARO-30582V-B114: 1¼" NPTF

**HORIZONTAL MODELS:**

ARO-1845H-B10 through ARO-2080H-B10: 1" NPTM

**LOCATION**

The surface which supports the AQT™ Hydropneumatic Pressurized Tank should be capable of supporting its operating weight (including the weight of water). The AQT™ Hydropneumatic Pressurized Tank should be installed as close as possible to the pressure switch. This will reduce the adverse effects of added friction loss and differences in elevation between AQT™ Hydropneumatic Pressurized Tank and/or water supply main and switch.

**Adjacent to pump:** This is the location chosen most often. The AQT™ Hydropneumatic Pressurized Tank can be used whether pumps are above or below the surface. In either case, it protects the pump by reducing surge, dampening pressure spikes, offering a point of pressure control, and providing minimum run time. This location also permits all equipment to be placed in an area that's both serviceable and secure.

**At the end of long pipe runs:** The AQT™ Hydropneumatic Pressurized Tank can be positioned at the end of a long run of pipe so it can provide rapid system response and adequate protection. When this location is chosen, the pressure switch should either be relocated with the AQT™ Hydropneumatic Pressurized Tank or the setting should be adjusted to compensate for any line pressure drop.

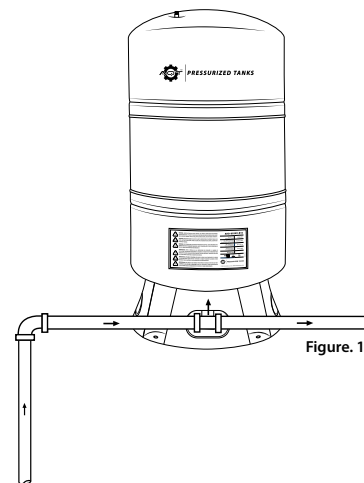


**WARNING** DO NOT LOCATE IN AN AREA WHERE LEAKAGE OF THE TANK OR CONNECTIONS COULD CAUSE PROPERTY DAMAGE TO THE AREA ADJACENT TO THE APPLIANCE OR TO LOWER FLOORS.

**CONNECTING PIPE**

The connecting pipe between the AQT™ Hydropneumatic Pressurized Tank and the system should be as short as possible with a minimum of bends. It should also be as large in diameter as possible, consistent with the system piping.

You should never bush down from the AQT™ Hydropneumatic Pressurized Tank (*Figure. 1*)


**ADJUSTING PRECHARGE BEFORE INSTALLATION**
**Step 1.**

Remove protective air valve cap.

**Step 2.**

Check precharge pressure (pressure should be + or - 10% of the 38 PSIG factory setting).

**Step 3.**

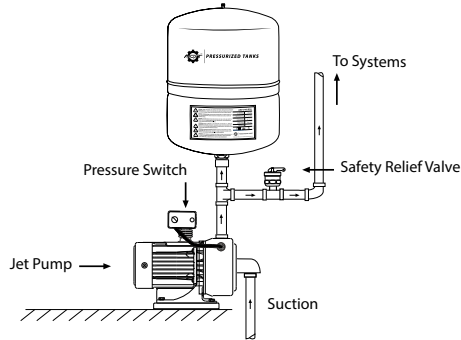
Release or add air as necessary to make the precharge pressure 2 PSIG below the pressure switch pump cut-in setting.

*(Example, if you have a ARO-5814V-B10 with a precharge of 30 PSIG, and you have a pressure switch setting of 30/50 PSIG, adjust precharge of your ARO-5814V-B10 from 30 PSIG to 20 PSIG.)*

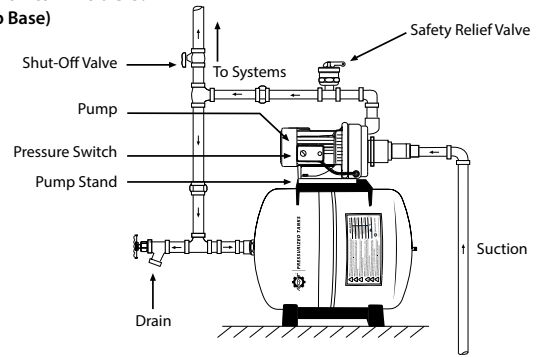
**Step 4.**

Replace protective air valve cap.

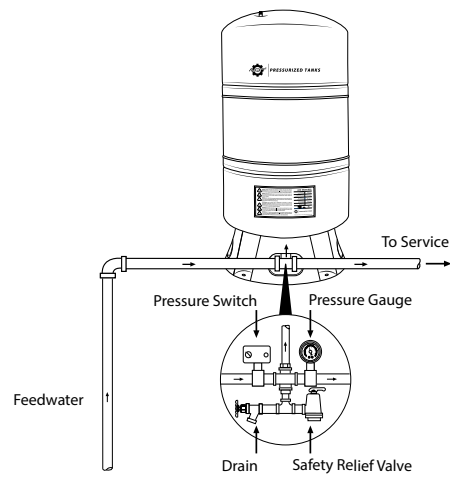
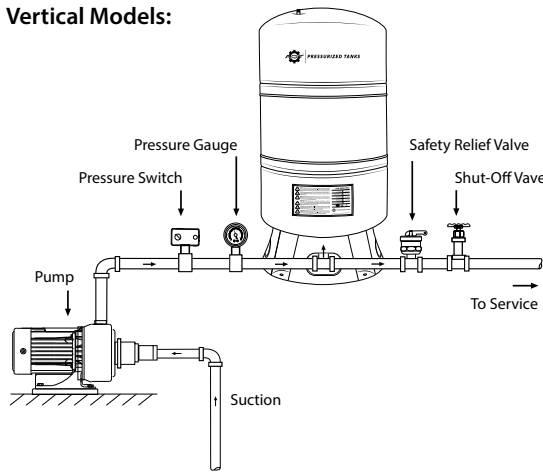
**In-line Models:**



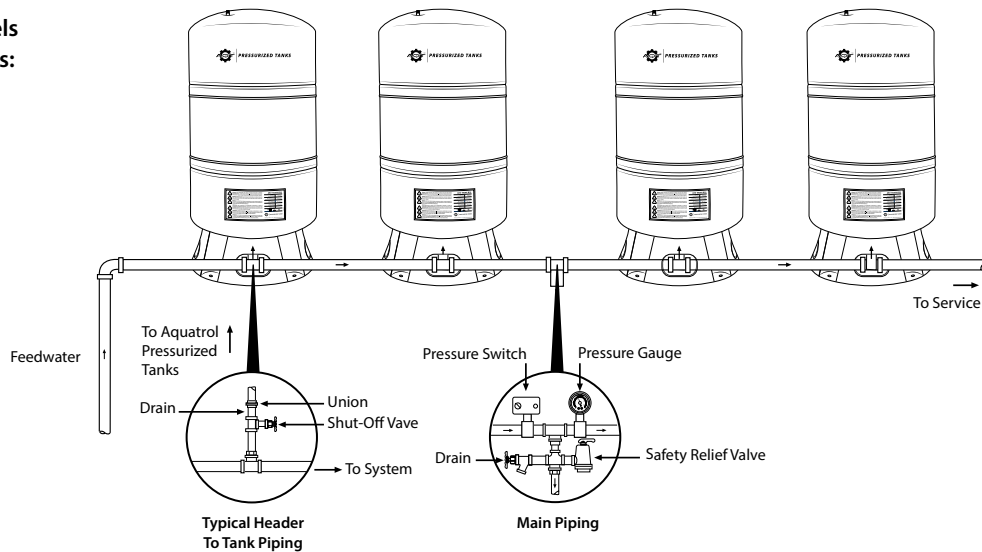
**Horizontal Models:  
(Pump Base)**



**Vertical Models:**



**Vertical Models  
Multiple Tanks:**



**START UP**  
**Fine Tuning Procedures**

Many times the actual pressure switch will vary from the standard pressure range indicated. These variations could cause a momentary lag of water delivery, as the pressure switch is not tuned to the AQT™ Hydropneumatic Pressurized Tank precharge pressure.

1. Fill the system and AQT™ Hydropneumatic Pressurized Tank until pump cuts off.
2. Open one or more fixtures to drain the AQT™ Hydropneumatic Pressurized Tank.
3. If there is a momentary pause in the water flow from the time the AQT™ Hydropneumatic Pressurized Tank is emptied and the pump starts, adjust pump cut-in setting clockwise slightly (*Figure. 2*).

**Pressure Adjustment**

- ↻ Clockwise to increase cut-out pressure
- ↻ Counter-clockwise to decrease cut-out pressure

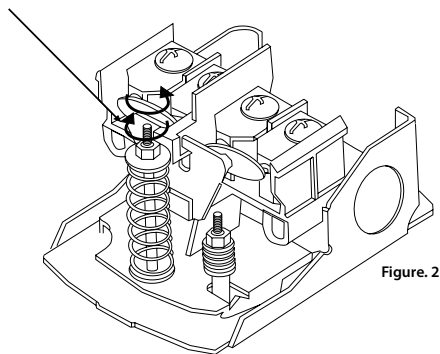


Figure. 2

4. Close fixtures and refill AQT™ Hydropneumatic Pressurized Tank to pump cut off. Check time to fill.
5. Open fixtures and see if pause in water is eliminated. If not, continue adjusting pressure switch.

**ADJUSTING PRECHARGE AFTER INSTALLATION**
**Step 1.**

Drain tank of all water. Check precharge pressure in the AQT™ Hydropneumatic Pressurized Tank.

**Step 2.**

Release or add air as necessary to make the recharge pressure 2 PSIG below the pressure switch pump cut-in setting.

**MAINTENANCE**

A qualified professional should check the complete system, including the AQT™ Hydropneumatic Pressurized Tank, yearly and more frequently as the system ages.

**SPECIFICATIONS**

- Factory pre-charge: 30 PSI ( 2 BAR)
- Max. Working temp: 200 °F ( 93 °C)
- Max. Working pressure: 150 PSI (10 BAR)

**DO NOT EXCEED SPECIFICATIONS**
**MATERIALS OF CONSTRUCTION**

- SHELL: Cold Rolled Carbon Steel
- COATING: Triple Grade Enamel
- LINER: FDA GRADE Polypropylene
- DIAPHRAGM: Heavy-Duty Butyl Rubber
- CONNECTIONS: 304 Stainless Steel

**WARRANTY**

- 5 year Limited Warranty



**WARNING:** BEFORE INSTALLATION, READ CAREFULLY THE PRODUCT INSTALLATION AND OPERATION OF THIS INSTRUCTIONS MANUAL. FAILURE TO FOLLOW THE INSTRUCTIONS MAY RESULT IN SERIOUS OR FATAL INJURY AND/OR PROPERTY DAMAGE. FAILURE TO FOLLOW THE INSTRUCTIONS WILL VOID THE PRODUCT WARRANTY.



**WARNING:** EXPLOSION HAZARD! FAILURE TO FOLLOW THE INSTRUCTIONS IN THE PRODUCT MANUAL CAN CAUSE A RUPTURE OR EXPLOSION, POSSIBLY CAUSING FATAL OR SERIOUS INJURY, LEAKING, FLOODING AND/OR PROPERTY DAMAGE.



**WARNING:** THIS STORAGE TANK IS DESIGNED FOR OPERATION IN COLD WELL SYSTEMS AND LIMITED TO A WORKING PRESSURE OF NO GREATER THEN 125 PSI. INSPECT TANK REGULARLY. IF SIGNS OF CORROSION ARE PRESENT, REMOVE TANK FROM OPERATION IMMEDIATELY.

*AQT™ will not be held responsible for damage deriving from improper use of the Hydropneumatic Pressurized Tanks.*

