

OXY-MAX SYSTEM

INSTALLATION INSTRUCTIONS

We have assembled some items from you - following each assembly step will not be required
CAI OXY-MAX systems include double aeration and Maxi-Vent - follow procedures for installation of these items.
FB system also require Birm filter installation instructions, F & FC systems require Carbon filter
installation instructions. Download at www.caitechnologies.com

IMPORTANT: PLEASE READ ALL INSTRUCTIONS BEFORE ASSEMBLING AND INSTALLING THE OXY-MAX SYSTEM. CONSULT LOCAL PLUMBING & ELECTRICAL CODES. IDENTIFY ALL PARTS BEFORE ASSEMBLING.

Section 1....ASSEMBLY & INSTALLATION OF THE AIR PUMP
Section 2....SETTING & CHECKING HEAD PRESSURE
Section 3....INSTALLATION OF VENT TANK AND HEAD
Section 4....INSTALLATION OF DOUBLE AERATION
Section 5....ELECTRIC CONNECTION FOR AIR PUMP & MAXIVENT
Section 6....INSTALLATION OF MAXIVENT SYSTEM
Section 7....INSTALLATION OF THE AIR PUMP & MAXIVENT WITH WELL PUMP PRESSURE SWITCH AS POWER SOURCE
Section 8....INSTALLATION OF THE FILTER TANK(S)
Section 9....REGULATING AIRFLOW - ARV SETTINGS
Section 10..OZONE APPLICATIONS
Section 11..WARRANTIES
Section 12..TROUBLE SHOOTING GUIDE

SECTION 1 ASSEMBLY AND INSTALLATION OF THE AIR PUMP

PARTS LIST: The following parts are needed for pump installation.

- | | |
|---|-----------------------|
| (1) Air Pump w/ Air Filter | (1) Pressure Gauge |
| (2) 1/4" Check Valve | (2) Tubing connectors |
| (1) Air Regulator Valve (ARV) | (1) Poly Tubing |
| (3) Rubber feet or Shelf w/(3) vibration mounts | |

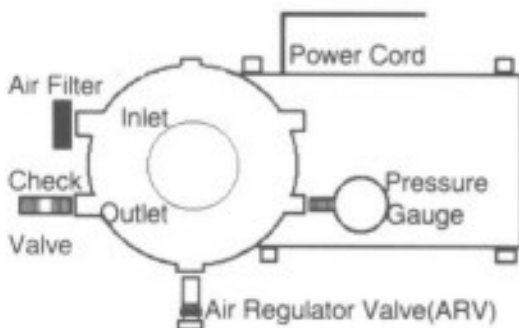


DIAGRAM 1 AIR PUMP ASSEMBLED

CAUTION: Do not over-tighten fitting. Pump head will crack!

1. Use Teflon tape on male thread connections.
2. Remove side plug and back plug on outlet side of pump head. Use a 1/4" Allen wrench or channel locks.
3. Install pressure gauge in back port. (Opposite outlet)
4. Install Air Regulator Valve (ARV) into side port.
5. Install first check valve into front outlet port. Arrow and flow should point away from Air Pump toward injection point. Reserve second check valve and tube connectors for installation explained in Section 7.
6. Air Pump assembly is complete. It can now be tested for head pressure.
7. Thread the three vibration isolators or rubber feet into base of pump when ready to mount and install. (SECTION 7)

SECTION 2 SETTING AND CHECKING HEAD PRESSURE

NOTE: Air Pump should be assembled before continuing.

Checking Head Pressure:

1. Loosen lock nut (counter-clockwise) on Air Regulator Valve (ARV).
2. Turn adjustment nut counter clockwise. Back out at least half way. This will relieve the tension on the ball and spring allowing air to flow freely out the ARV. This will prevent excess pressure from building up when you close off outlet port. **DO NOT LET PSI EXCEED 100 PSI.**
3. Plug Air Pump into an appropriate voltage outlet.
4. Slowly close off outlet port (This will simulate line pressure). To close outlet use:
 - A. 1/4" ball valve threaded on check valve. (Not included)
 - B. 1/4" cap threaded on check valve.
 - C. Temporarily remove check valve and use extra plug.
 - D. For lower psi settings, hold thumb over check valve.
5. Continue to gradually seal off outlet port. Air should be free flowing from ARV and the pressure gauge reading should be zero. If not, continue to turn adjustment nut counter-clockwise to release pressure.
6. With Air Pump on, outlet port completely closed, and pressure gauge reading at 0 psi, air should be flowing from ARV.
7. You are now ready to test the ability of the Air Pump to build head pressure. You can also set ARV at a desired pressure. (Explained at the end of this section).

8. To build up head pressure, gradually rotate clockwise the adjustment nut on ARV. The pressure will begin to rise as you increase the tension on the ball and spring. Do not exceed 100 psi.
9. When the desired pressure is reached and air is releasing out the ARV, the Air Pump is set at the proper head pressure to introduce air into the water line pressure.
10. Do not set ARV above 75 pounds because this could cause the standard water pressure relief valve (usually located on pressure tank) to possibly discharge water in the event of excess pressure build up. When using the Maxi-Vent the recommended setting for the ARV is at the cut out pressure on the pressure switch.

Setting and securing ARV setting:

1. Use adjustment nut to set desired pressure, then thread lock nut clockwise and secure it against the ARV body. Snug lock nut with wrench. This will lock adjustment at the desired pressure setting.
2. If pressure does not build while turning in adjustment nut, check the 3 ports on the outlet side of Air Pump for leaks (Pressure gauge, ARV, and outlet port).
3. When pressure builds up to the desired pressure and ARV is secure, the Air Pump assembly is complete. (See Section 9 for REGULATING AIRFLOW of the ARV.)

SECTION 3 INSTALLATION OF VENT TANK AND HEAD

PARTS LIST:

- (1) PVC Head with o-rings
- (1) 1/2" cpvc vent distributor tube
- (1) Inlet diffuser
- (1) Riser tube

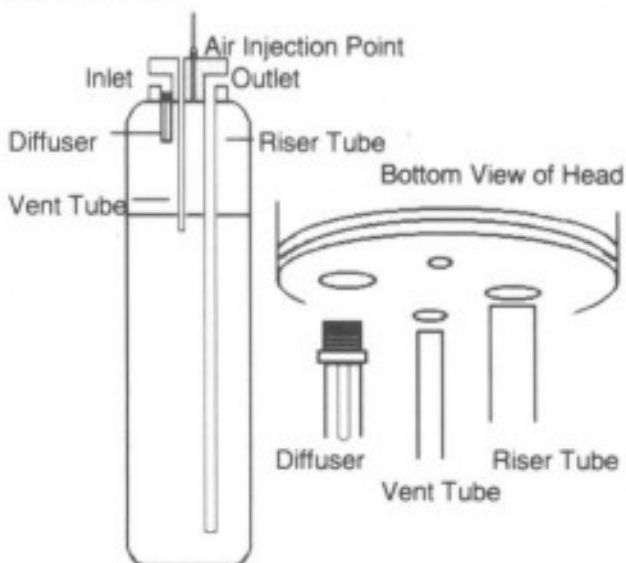


DIAGRAM 2 – VENT TANK ASSEMBLED

SETTING UP THE SYSTEM:

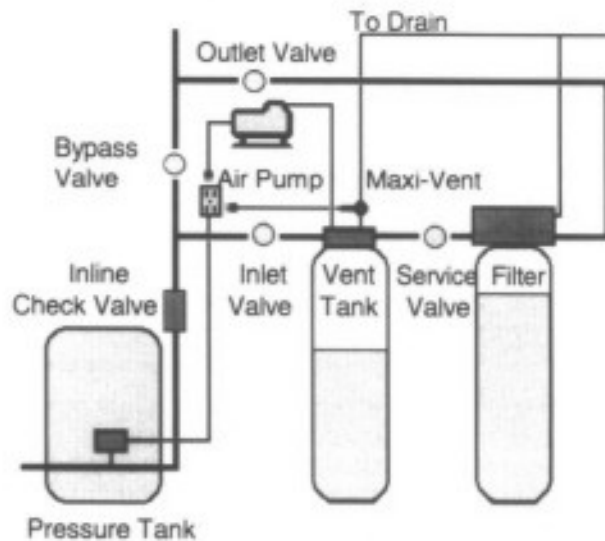


DIAGRAM 3 – TYPICAL INSTALLATION

1. Please note the diagram above. **An inline check valve is required, but not supplied with this equipment.** The check valve needs to be installed in a vertical position prior to the vent tank but after any untreated lines, if any. It is best to have a vertical column of water at least 12 inches on top of the check valve before the vent tank. The inline check valve prevents air from back flowing from the vent tank.
2. Position systems close to power source. Please note that the A/P should be installed above the injection point located on the PVC head or before 4" the inlet of the head
3. Glue 1/2" cpvc vent tube into the bottom 1/2" hole of the PVC Head. This is where the air will vent.

NOTE: IF USING THE DOUBLE AERATION OPTION, PLEASE SKIP TO SECTION 4.

4. Thread inlet diffuser hand tight into bottom 3/4" hole of PVC Head and note "inlet" mark on the top of the Head.
5. Lube and install 1.05" riser tube in the Outlet and cut the length to 4" from the bottom of the tank.

NOTE: IF THE DOUBLE AERATION KIT WAS NOT ORDERED SKIP TO SECTION 5.

SECTION 4 INSTALLATION OF DOUBLE AERATION (OPTIONAL)

PARTS LIST:

- | | |
|--|--------------------|
| (1) PVC Head with o-rings | (1) Inlet diffuser |
| (1) 1/2" cpvc vent tube | (1) Riser tube |
| (1) fishstone w/1/4" fitting | (1) nylon tie |
| (1) 1/4" m-thread x 3/8" compression fitting | |
| (1) length of 3/8" o.d. poly tubing | |



DIAGRAM 4 – DOUBLE AERATION ASSEMBLY

NOTE: DUE TO THE SIZE AND SHAPE OF THE FITTINGS ON THE BOTTOM OF THE HEAD, ASSEMBLY MUST BE DONE IN THE EXACT ORDER LISTED BELOW.

1. Wrap the 1/4" male compression fitting with Teflon tape
2. Thread fitting into bottom 1/4" hole of PVC Head. Line up the hex nut on the compression fitting to allow clearance for air diffuser. The fitting cannot protrude into the area of the 3/4" air inlet diffuser hole.
3. Connect one end of the poly tubing into the compression end of the compression fitting. Secure by hand tightening.
4. Lube and install 1.05" riser tube in the Outlet and cut the length to 4" from the bottom of the tank.
5. Extend poly tubing along riser tube and cut a 7" clearance from bottom of riser tube. Attach tubing to distributor tube with nylon ties.
6. Insert barbed fitting of fishstone into poly tubing.
7. Thread inlet diffuser (hand tight) into 3/4" hole in bottom of PVC Head.

SECTION 5 ELECTRICAL CONNECTION FOR AIR PUMP AND MAXI VENT

NOTE: The electrical power source will normally be from the load side of the pressure switch. Be sure to match Air Pump and MAXI-VENT voltage to well pump voltage. It will be necessary to install a double receptacle for 115volt or two single receptacles for 230volt applications. One receptacle is needed for the Air Pump and one for the MAXI-VENT (Section 6)

1. Electrical connection: Install appropriate 115 volt or 230-volt receptacle and connect wire from receptacle to pump (load) side of pressure switch. This will allow the Air Pump and **MAXI-VENT** to turn on and off with the well pump.

SECTION 6 INSTALLATION OF MAXI-VENT SYSTEM

PARTS LIST:

- | | |
|---|---------------------|
| (1) 3/8" tube x 3/8" mip connector | (1) solenoid |
| (1) 3/8"x 1-1/4" brass nipple | (1) 3/8" ball valve |
| (1) 3/8"tube x 1/2" mip connector | |
| (1) 1/2" barbed x 1/2" female thread poly tee | |

3/8" poly tubing is not included for MAXI-VENT drain connection.

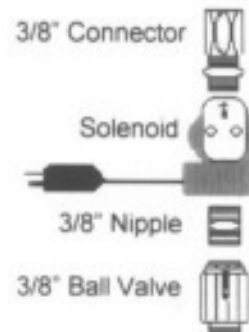


DIAGRAM 5 – MAXI-VENT ASSEMBLY

1. Assemble fittings according to DIAGRAM 5 Use Teflon tape and/or Teflon pipe dope for threaded fittings.

NOTE: The solenoid is marked with a directional arrow. Please install solenoid as shown in the diagram below.

2. Thread assembled **MAXI-VENT** into Vent Head.
3. Run poly tubing (not provided) from 3/8" male connector at top of **MAXI-VENT** and tee into the drain line of filter tank(s) or to any other acceptable discharge point.

4. Connect poly tubing to the drain line using the 3/8" tube x 1/2" male connector and the 1/2" barbed x 1/2" female thread tee.

NOTE: Secure poly tubing and filter drain line to prevent dislodging during discharge of air and water. Be sure to install appropriate air gap.

5. Plug power cord into outlet where Air pump is connected.

NOTE: DO NOT PLUG MAXI-VENT INTO CONSTANT HOT ELECTRICAL SOURCE. The **MAXI-VENT** will release water and any excess air/gas while the Air Pump is introducing air. Once the air reaches the base of the vent distributor tube in the vent tank, the air pocket is full. Air will begin to enter the vent distributor tube and exit the **MAXI-VENT** to drain. This will continue until the Air Pump and **MAXI-VENT** are deactivated.

Using the ball valve on the MAXI-VENT

The brass ball valve will be used as a shut-off for cleaning and servicing. It is also used to regulate the flow of air and water. Recommended flow regulation is usually between .5 gpm and 2.0 gpm.

Using a flow switch with the MAXI-VENT

When using a flow switch to activate the air pump and **MAXI-VENT**, install after the vent tank and **MAXI-VENT**. If the flow switch is installed before the **MAXI-VENT**, there will be a constant stream of water to drain as the demand for water keeps the flow switch and air pump activated.

SECTION 7 INSTALLATION OF THE AIR PUMP AND MAXI-VENT WITH WELL PUMP PRESSURE SWITCH AS THE POWER SOURCE.

1. Position close to electric source and injection point. Installer may choose to:
 - A) Secure Air Pump with feet.
 - B) Mount on a shelf.
 - C) Suspend with straps.

NOTE: Pump should be installed above the injection point. Compressed air will create condensate. Mounting above the injection point allows condensate to flow down toward injection point. This will help reduce moisture build-up from back flowing into Air Pump.

2. Install second 1/4" check valve into Vent Head. Be sure the arrow and flow are pointing into injection point and away from Air Pump.
3. Install a tubing connector on each check valve (located on vent head and Air Pump)

4. Connect tubing from Air Pump to injection point.
5. Tighten all fittings making sure not to over-tighten.
6. Turn water on. Check for leaks.
7. Plug Air Pump and **MAXI-VENT** into receptacle. Run well pump through a few cycles during the backwash and rinse cycles (Section 8).
8. Fine tune or adjust Air Pump as needed.(See Section 9). Increasing the size of the holes in plastic cover can eliminate excessive noise from the air filter. (Please remove cover before drilling existing holes larger.)

SECTION 8 INSTALLATION OF THE FILTER TANK:

1. Insert distributor tube into the tank. Locate center of distributor on bottom of tank. Top of the tube should be flush with tank top.
2. Place wide mouth funnel on to tank. Add gravel under-bedding to tank, covering distributor barrel.

NOTE: Use caution; do not allow media to enter distributor tube.

3. Pour media into tank. Approximate media levels. Calcite-2/3 full, allow 1/3 of tank for backwash expansion Carbon& Birm-1/2 full, 1/2 of tank for backwash expansion
4. Clean tank, lip and top of distributor of dust and debris.
5. Apply silicone lube to top one inch of distributor tube, to o-rings on control base and in the distributor pilot.
6. Install control to tank. Thread into tank hand tight only.
7. Install bypass or yoke to the back of the filter control.
8. Connect piping and drain line.
9. With water supply off, place the bypass valve(s) into the service position. Advance control into backwash cycle.
10. Open water supply valve very slowly to approximately the 1/4 position. In this position, you should hear air escaping slowly from the drain line.
CAUTION: If opened too rapidly or too far, mineral may be lost.
11. When all of the air has been purged from the tank (water begins to flow steadily from the drain), open the main supply valve slowly. Increase flow to remove fines from media but use caution to prevent from blowing media out to drain.
12. Allow water to run to drain until clear.
13. Advance to rinse cycle and run water until clear.

Repeat steps 11-13 to clear fines. Gently tapping sides of tank will help clear fines. Tap tank with rubber mallet while in backwash cycle. Monitor drain line to be sure mineral is not being backwashed out.

14. Set the time of day and the frequency of backwash.
15. Check for leaks and turn system on.

16. Run water downstream from the system for several well pump cycles. **BE SURE YOU HEAR WATER SPLASHING IN THE VENT TANK. IF NO SPLASHING, CHECK TROUBLE SHOOTING GUIDE.**
17. Adjust **MAXI-VENT** (Refer to 6 Section)
18. Regulate airflow on air regulator valve (Section 9).

SECTION 9 REGULATING AIRFLOW-ARVS SETTINGS

NOTE: When using MAXI-VENT with the AER-MAX SYSTEM, higher ARV settings can be used. The MAXI-VENT expels air at a faster rate than a mechanical vent.

To adjust the Air Regulator Valve loosen lock nut (thin nut in middle of fitting). Now the outer adjustment nut can be turned clockwise to increase pressure and airflow; or counter clockwise to reduce pressure and air flow during well pump cycle. If threaded out too far, air will flow freely out of regulator valve instead of pumping air into water line. Furthermore, if adjustment nut is removed, the check-ball and spring will fall out. If this happens, simply insert ball and spring and thread nut back in.

While the well pump and Air Pump are running you can set the Air Regulator Valve (ARV) to desired pressure. Start with ARV halfway open. As you turn adjustment nut clockwise, pressure will build in pump head. When pressure at head meets line pressure, air will be pushed into water line. When using the Maxi-Vent the recommended setting for the ARV is at the cut out pressure of the pressure switch.

To decrease or limit the introduction of air, set the ARV 5-10 pounds above the start up pressure of well pump. When the well pump starts up, the air pump also turns on, adding air during the beginning of pump cycle. Once the line pressure exceeds the setting on Air Pump ARV, no more air will be introduced into water line. The Air Pump will continue to run during the rest of the pump cycle but the excess air will be released out the ARV. (You should be able to hear or feel the air escaping.) If more air is desired, gradually set ARV to a higher pressure.

EXAMPLES

Air Input	Well pump setting	ARV Setting
Minimum	30-50 psi	35 psi
Medium	30-50 psi	40 psi
Maximum*	30-50 psi	50 psi

***MAXI-VENT** may allow for maximum ARV setting due to the high rate of air discharge.

After setting ARV adjustment nut, secure lock nut to regulator body by rotating clockwise. This will lock the setting of the ARV. To re-adjust, loosen lock nut, reset adjustment nut, and secure lock nut. Follow up visits may be required to fine tune ARV.

SECTION 10 OZONE APPLICATIONS

1. Consult Ozone manufacturer when using Air Pump for Ozone application.
2. Ozone voids the Air Pump warranty.

SECTION 11 WARRANTIES

We design **AER-MAX SYSTEMS** based on accurate water analysis and flow rates. Because we are unable to verify this information and we are unable to determine proper installation of equipment, we assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligations for us.

Air Pump Water Solutions, Inc. warranties it's **AER-MAX SYSTEM** as follows:

Fleck Controls: 3 year limited warranty

Structural Fiber Tanks: 10 years against rust and corrosion

MAXI-VENT: 1 year unlimited against manufacturer defects

Air Pump: 1 year from the date of manufacture unlimited warranty for defective materials or workmanship in manufacturing. This warranty covers replacement parts for the AP1 and AP2, as well as the cost of the labor to replace them when, proven to our satisfaction, that these parts are defective. Users of ozone may receive full warranty on the Air Pump only when the compressor is "pushing" air into an ozone generator. The warranty is void when ozone is drawn through the Air Pump. This warranty is extended to the original purchaser at the original installation address when the pump is purchased from an authorized Air Pump Water Solutions, Inc. dealer.

Air Pump Water Solutions, Inc. assumes no responsibility for consequential damages, labor or expense as a result of any defect or failure due to circumstances beyond our control. Air Pump Water Solutions, Inc. will not be held liable for any fire damage, water damage, or damage to other water treatment equipment and plumbing due to malfunction of the **AER-MAX SYSTEM**. Air Pump Water Solutions, Inc. has no control over misapplication or improper installation of the **AER-MAX SYSTEMS**, or improper installation of other water treatment devices.

The laws in your state may not allow limitation for responsibility for consequential damages, and this warranty may give you other legal rights that vary from state to state. Product improvements and design changes subject to change without notice.

SECTION 12 TROUBLE SHOOTING GUIDE

After trying these possible solutions and your problem continues, you may call us toll free in USA and Canada at 1-800-580-3033

Air spits and sputters from untreated lines. Possible cause is air is escaping from the aeration tank and is back flowing through the check valve, which may be installed in a horizontal position or has debris-preventing check from sealing.

SOLUTION: Install check valve in a vertical position so that there is a column of water standing about a foot or more before the vent tank. See page 2, section 3, step 1.

Air spits and sputters from treated lines. Possible cause is the air is not maintained in vent tank.

SOLUTION: Run water in the house and listen for splashing in vent tank and in filter tank. If no splashing in the vent tank, riser tube in vent tank may be leaking at o ring or riser tube may have fallen out. It may be necessary to glue the riser into the PVC head.

No air bubbles in water and discoloration returns. The cause may be a water logged vent tank or a malfunctioning A/P or no primary check valve...see solution #1 above.

SOLUTION: Run water in house and listen for splashing in vent tank, check #1 above and a/p. Plug a/p in alternate power source and observe pressure gauge on pump. ARV may have "drifted" to a lower pressure. Go to page 1, section 2, step 10, setting head pressure to the cut out pressure.

Water problems were initially solved but returned a few days later. Possible solution is a restriction in the backwash system.

SOLUTION: Make sure there is no kink in backwash line. Also, advance filter control to backwash and measure water flow from drain. A 5 gallon bucket will fill in one minute if there is no restriction. The flow may be restricted due to media lodged in the backwash chamber and/or backwash flow control button (washer). With water completely shut off, advance filter into backwash position. Use caution, unit may be still under pressure and may spray out water when drain line is removed. Remove locking pin where drain line is connected to filter. Remove fitting and clean out media. Re-connect and gradually open inlet valve to flush out excess mineral. Re-check flow rate from end of drain line.

Low flow of water. Possible causes are a) a valve not opened fully. b) If the problem occurs a few weeks after initial installation, the filter media may be fouled with iron or sulfur bacteria. Examine bed, it may need to be stirred and backwashed again to remove fines.

SOLUTION: If bacteria is present, it will be necessary to modify the equipment. A chlorinator or other modification will solve the problem.

No odor but discoloration is present. Possible causes are a) presence of tannins or colloidal iron or b) the filtering tanks are undersized.

SOLUTION: Aeration does not solve tannins and colloidal iron problems. Most filter media require twice the flow rate for backwashing then filtering. Higher flow rates may require two filter tanks in parallel in order for proper filtration. Well flow rate is determined by counting the gallons drawn down and the time between cut in and cut off cycle of the well pump. The formula for determining the flow rate is to measure the number of gallons drawn down, divided by the seconds required for recovery. Then, multiply result times 60 seconds.

A/P does not build up pressure. Possible causes are a) the A/P may have been damaged during shipping and/or has a manufactures defect, b) check valves leaked water to the compressor, c) error performed in installation.

SOLUTION: Plug off the outlet of the compressor and plug into an alternate power source and observe pressure gauge. If the pressure does not come up to desired level, go to page 1, section 1 and make certain that the fittings are installed in the exact ports shown in diagram 1.

Except for small droplets on the poly tubing, there should be no water present. Test the 1/4 inch check valves if water is present in the tubing. They may need replacement. Be sure the A/P is mounted above the level of the injection point.

A damaged or defective A/P is rare. Please explore solutions above before calling for a return authorization number.

Sulfur odor is reduced, but not eliminated. Possible cause is that there is not enough turnover of air.

SOLUTION: Generally, hydrogen sulfide requires more air turnover than iron. Be certain that the ARV on the A/P is set at the maximum cut out level of the well pump.

INSTALL INSTRUCTIONS

AERMAX WITH SMART VENT

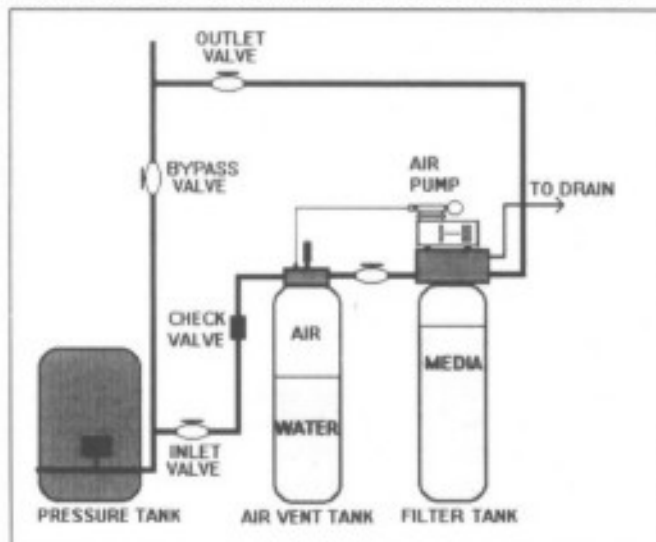
Congratulations on selecting this quality **AERMAX SYSTEM** for iron and hydrogen sulfide reduction. The following installation instructions should be read carefully before beginning assembly and installing. Consult local plumbing and electrical codes. Please identify all parts before assembling.

- Section 1... SETTING UP SYSTEM
- Section 2... ASSEMBLING VENT TANK
- Section 3... INSTALLING SMART VENT
- Section 4... INSTALLING FILTER TANK
- Section 5... INSTALLING AIR PUMP
- Section 6... STARTING UP SYSTEM
- Section 7... WARRANTIES AND LIMITATIONS
- Section 8... TROUBLE SHOOTING GUIDE

SECTION 1 SETTING UP SYSTEM

1. Please note the diagram below. An inline check valve is required but not supplied with this equipment and it needs to be installed in a vertical position prior to the vent tank but after any untreated lines, if any. It is best to have a vertical column of water at least 12 inches on top of the check valve before the vent tank. The inline check valve prevents air from back flowing from the vent tank.

DIAGRAM 1-TYPICAL INSTALLATION COMPLETED



2. Position system close to power source. Please note that the A/P should be installed above the injection point on the PVC head.

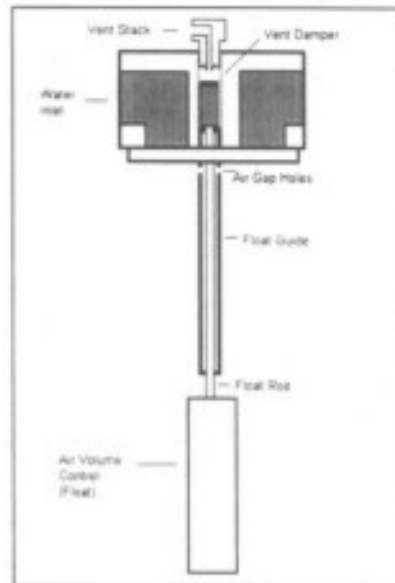
SECTION 2 ASSEMBLING VENT TANK

1. Locate the vent tank as shown in diagram 1.
2. Thread inlet diffuser hand tight into bottom $\frac{3}{4}$ " hole of PVC Head and note "inlet" mark on the top of the Head.

3. Lube and install 1.05" riser tube in the Outlet and cut the length 4" from the bottom of the tank.

SECTION 3 INSTALLING THE SMART VENT

DIAGRAM 2- SMART VENT ASSEMBLED



1. Clean and glue CPVC pipe (end with holes) into bottom of PVC head. This is the float guide.
2. Glue rubber stopper sleeve onto PVC float rod. Use one end of cotton swab to clean and the other to glue.
3. Insert Float Rod down through the top of the PVC head and attach Float Rod to the Float. Be sure top of stopper is horizontal.
4. Wrap Teflon on threads of the Vent Stack and connect to top of PVC head.
5. Wrap Teflon on threads of $\frac{1}{4}$ " X $\frac{3}{8}$ " compression fitting and connect to Vent Stack.
6. Thread PVC head on aeration tank. **USE CAUTION WHEN THREADING INTO ANY PVC OR PLASTIC THREADS. DO NOT OVER TIGHTEN FITTINGS.**
7. Run $\frac{3}{8}$ " tubing to appropriate drain (tubing not included).
8. On high levels of iron or hydrogen sulfide, it may be necessary to install two (2) $\frac{3}{4}$ " 45 elbows on the riser tube to allow movement of flotation device. See Trouble Shooting, Section 7.

SECTION 4 INSTALLATION OF FILTER TANK (S)

1. Insert distributor tube into the tank. Locate center of distributor on bottom of tank. Top of the tube should be flush with tank top.
2. Place wide mouth funnel on to tank. Cover distributor with cap and add gravel underbedding to tank.

NOTE: Use caution; do not allow media to enter distributor tube

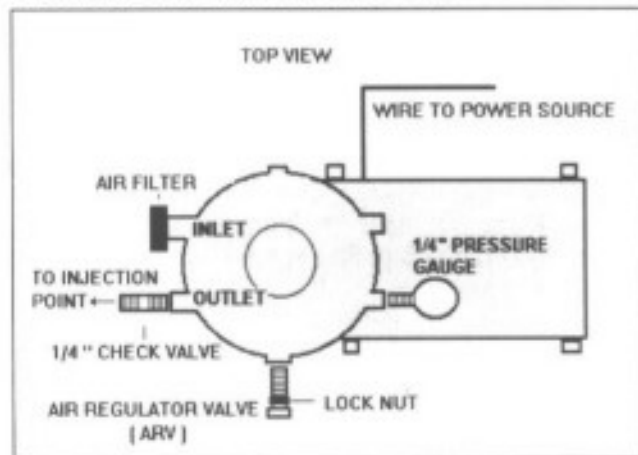
3. Pour media into tank.
4. Clean tank threads and top of distributor of dust and debris.
5. Apply silicone lube to top one inch of distributor tube, to O-rings on control base and in the distributor pilot.
6. Install control onto tank. Thread into tank hand tight only.
7. Install bypass to the back of the filter control.
8. Connect piping and drain line.
9. Install A/P shelf on the wall or onto back of Fleck 2510 control. (1/2-inch #6 bolt, lock washer and nut recommended to mount shelf onto control).

SECTION 5 INSTALL AIR-PUMP

1. PARTS LIST

- (1) Air Pump w/ Air Filter
- (1) Pressure gauge
- (2) 1/4" check Valve
- (1) Air Regulator Valve (ARV)
- (1) Length of Poly Tubing
- (2) Tubing connectors
- (1) Shelf w/ (3) vibration mounts.

DIAGRAM 3-ASSEMBLED AIR PUMP



2. ASSEMBLING AIR PUMP. Even before the installation, you may assemble compressor with its parts and adjust the head pressure and fine-tune that adjustment during installation.

- a. Use Teflon tape on male thread connections.
- b. Remove side plug and back plug on outlet side of pump head. Use a 1/4" Allen wrench or channel locks. Save plug. See 5b below.
- c. Install pressure gauge in back port. (Opposite outlet)
- d. Install Air Regulator Valve (ARV) into side port.
- e. Thread the three-rubber vibration mounts into feet of A/P. Lock washers and nuts provided to secure A/P shelf.

- f. Remove plug from "outlet" after head pressure is set and install first check valve into front outlet port. Arrow and flow should point away from Air Pump toward PVC head. Install first white tubing connector.
- g. Install second 1/4-inch check valve and tube connector into the top of PVC head. Be sure the arrow and flow are pointing down.
- h. Connect tubing from A/P to PVC head.
- i. Tighten all fittings making sure not to over-tighten.

3. SETTING HEAD PRESSURE.

- a. Loosen (counter clockwise), lock nut and air adjustment control on Air Regulator Valve (ARV). The outer adjustment control can be turned clockwise to increase pressure and airflow or counter clockwise to reduce pressure and air flow. If threaded out too far, air will flow freely out the adjustment control instead of into vent tank. If adjustment control is removed, the check ball and spring will fall out. If this happens, insert ball and spring and thread back in.
- b. Thread a plug (see 2b above), into A/P opening marked "outlet". Plug A/P in any 115-volt outlet. Note that the pressure on the A/P will read 0 when the adjustment is loosened.
- c. Slowly, close off outlet port (This will simulate line pressure) by turning adjustment control clockwise.
- d. While A/P is running, gradually rotate control adjustment on ARV. The pressure will begin to rise as tension on the ball and spring are increased. Continue to turn adjustment control to the cut off pressure of well system. For example, if the well pump reaches maximum pressure at 60 psi, then set ARV about 60 psi.
- e. DO NOT EXCEED 75 PSI ON THE ARV.
- f. Set the locking nut firmly against adjustment control with a wrench. After completing A/P setting and head pressure test, continue with installation. Remove plug installed in outlet of A/P and go to page 2, section 5, number 2, step f.

SECTION 6 STARTING UP SYSTEM

1. With water supply off and the A/P unplugged, place the bypass valve(s) into the service position; advance the filter control to the rinse position.
2. Open water supply valve very slowly to approximately the 1/4 position. In this position, you should hear air escaping slowly from the drain line.
3. When all of the air has been purged from the tank (water begins to flow steadily from the drain line), open the main supply valve slowly. Increase flow to remove fines from media and trapped air.
4. Allow water to run to drain until it is clear.
5. Close water supply valve to approximately the 1/4 position again and advance the filter control to backwash. Allow trapped air to escape. **CAUTION: If valve is opened too rapidly or too far, mineral may be lost.**

SECTION 8 TROUBLE SHOOTING GUIDE

After trying these possible solutions and your problem continues, you may call us toll free in USA and CANADA at 1-800-580-3033

Air spits and sputters from untreated lines. Possible cause is air is escaping from the aeration tank and is back flowing through the check valve, which may be installed in a horizontal position or has debris-preventing check from sealing.

SOLUTION: Install check valve in a vertical position so that there is a column of water standing about a foot or more before the vent tank. See page 1, section 1.

No air bubbles in water and discoloration returns. The cause may be a water logged vent tank or a malfunctioning A/P or no primary check valve...see solution #1 above.

SOLUTION: Run water in house and listen for splashing in vent tank, check #1 above and a/p. plug a/p in alternate power source and observe pressure gauge on pump. ARV may have "drifted" to a lower pressure. Go to page 3, section 4, to re-set ARV to 2 or 3 psi above cut out pressure.

Water problems were initially solved but returned a few days later. Possible solution is a restriction in the backwash system.

SOLUTION: Make sure there is no kink in backwash line. Also, advance filter control to backwash and measure water flow from drain. A 5 gallon bucket will fill in one minute if there is no restriction. The flow may be restricted due to media lodged in the backwash chamber and/or backwash flow control button (washer). With water completely shut off, advance filter into backwash position. Use caution, unit may be still under pressure and may spray out water when drain line is removed. Remove locking pin where drain line is connected to filter. Remove fitting and clean out media. Re-connect and gradually open inlet valve to flush out excess mineral. Re-check flow rate from end of drain line.

Low flow of water. Possible causes are a) a valve not opened fully. b) If the problem occurs a few weeks after initial installation, the filter media may be fouled with iron or sulfur bacteria. Examine bed, it may need to be stirred and backwashed again to remove fines.

SOLUTION: If bacteria is present, it will be necessary to modify the equipment. A feeder may be installed to inject chlorine and connected to the receptacle on the back of the filter control. However, if the filter media is birm, another solution will need to be implemented. Call for possible solutions.

No odor but discoloration is present. Possible causes are a) presence of tannins or colloidal iron or b) the filtering tanks are undersized.

SOLUTION: Aeration does not solve tannins and colloidal iron problems. Most filter media require twice the flow rate for backwashing then filtering. Higher flow-rates may require two filter tanks in parallel in order for proper filtration. Well flow rate is determined by counting the gallons drawn down and the time between cut in and cut off cycle of the well pump. The formula for determining the flow rate is to measure the number of gallons drawn down, divided by the seconds required for recovery. Then, multiply result times 60 seconds.

A/P does not build up pressure. Possible causes are a) the A/P may have been damaged during shipping and/or has a manufactures defect, b) check valves leaked water to the compressor, c) error performed in installation.

SOLUTION: Plug off the outlet of the compressor and plug into an alternate power source and observe pressure gauge. If the pressure does not come up to desired level, go to page 2, section 4 and make certain that the fittings are installed in the exact ports shown in diagram 3.

Except for small droplets on the poly tubing, there should be no water present. Test the ¼ inch check valves if water is present in the tubing. They may need replacement. Be sure the A/P is mounted above the level of the injection point.

A damaged or defective A/P is rare. Please explore solutions above before calling for a return authorization number.

Sulfur odor is reduced, but not eliminated. Possible cause is that there is not enough turnover of air.

SOLUTION: Generally, sulfur requires more air turnover than iron. Be certain that the ARV on the a/p is set at the maximum cut out level of the well pump.

Air spits and sputters from treated lines. Possible cause is the air is not maintained in vent tank.

SOLUTION: Run water in the house and listen for splashing in vent tank and in filter tank. If no splashing in vent tank and there is splashing in filter tank, the riser tube may be leaking at o-ring or riser tube may have fallen out. It may be necessary to glue the riser into the PVC head.

6. Run water to drain until it runs clear and gradually open valve, checking to make certain water is clear before advancing valve.
7. Gently tapping sides of Tank will help clear fines. Tap tank with rubber mallet while in backwash position. Monitor drain line to be sure mineral is not being backwashed out.
8. Set filter control to service when water finally runs clear.
9. Set the time of day and the frequency of backwash. Normally, set to backwash once every three days.
10. Check system for leaks and open outlet valve.
11. Run water downstream from the system for several minutes. Be sure you hear water splashing in the vent tank. **If no splashing, check Trouble Shooting Guide, Section 8.**
12. Plug A/P into receptacle. Advance filter control into backwash position. Be sure A/P activates and pressure builds as shown on the pressure gauge of the A/P. The A/P will fluctuate at the same pressures as the well pressure gauge if the ARV is set properly. Advance backwash control to service. Note that the A/P pressure gauge gradually drops to 0 when A/P stops running.
13. With outlet valve open, run water in sink until water runs clear. Air bubbles should always be present in the water and may appear "milky" in a glass for a moment as the air rises to the surface.

SECTION 7 WARRANTIES AND LIMITATIONS

1. WARRANTIES

We design **AERMAX SYSTEMS** based on accurate water analysis and flow rates. Because we are unable to verify this information and we are unable to determine proper installation of equipment, we assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligations for us.

Air Pump: 1 year from the date of manufacture unlimited warranty for defective materials or workmanship in manufacturing. This warranty covers replacement parts for the AP1 and AP2, as well as the cost of the labor to replace them when, proven to our satisfaction, that these parts are defective. The warranty is void when A/P is used in anyway with ozone applications. This warranty is extended to the original purchaser at the original installation address when the pump is purchased from an authorized Air Pump Systems Inc. dealer.

Air Pump Systems, Inc. assumes no responsibility for consequential damages, labor or expense as a result of any defect or failure due to circumstances beyond our control. Air Pump Systems, Inc. will not be held liable for any fire damage, water damage, or damage to other Water treatment equipment and plumbing due to malfunction of the **AERMAX SYSTEM**. Air Pump Systems, Inc. has no control over misapplication or improper installation of the **AERMAX SYSTEM** or improper installation of other water treatment devices. The laws in your state may not allow

limitation for responsibility for consequential damages, and this warranty may give you other legal rights that vary from state to state.

Product improvements and design changes subject to change without notice.

2. LIMITATIONS

1. Consult Ozone manufacturer when using Air Pump for Ozone application.
2. Ozone voids the Air Pump warranty.

