



# Airwell Owner's Manual





The Airwell system is designed to treat residential groundwater supplies coming from aquifer sources devoid of prior access to atmospheric oxygen. Unable to vent to the atmosphere, gases, such as methane, radon, and other volatiles may accumulate under pressure in such water. Additionally, without contact to the oxygen of the atmosphere, excess oxidizable mineral elements such as iron, manganese, and sulphide may develop towards causing staining and plugging deposits in the user's water system once air access does occur.

The Airwell installation seeks to restore air access to the water for remedying its prior restraints. Basically, a steady source of air is provided in an aeration tube that extends all the way to the bottom of the well. This air injection lifts the water column in the tube to pour an aerated flow of water onto the top of the water level of the well itself. As water is drawn from the bottom of the well and returned onto the top, in a few hours all the water in the well will usually have passed through the aeration cycle several times. The results is that the injected air will have stripped previously trapped gases out of the water and will have done so at the quite depressurized conditions at the top of the well.

Meanwhile, the dissolved oxygen in the aerated water is delivered to the bottom of the well with up to 10 mg/L of dissolved oxygen ending up opposite to the aquifer zone from which the well obtains its water. During quiescent, non-pumping intervals, such as with a nighttime residential cycle, this dissolved oxygen diffuses out into the aquifer to oxidize contaminants before they get access to the well itself. Oxidized contaminants are thus filtered within the aquifer itself, on the basis that water withdrawals at any one time do not exceed several hundred gallons.

Now, aeration can be considered one of the simplest, chemical free procedures that one can imagine; but, any standard aeration of well waters usually plugs severely in a manner of weeks, unless the patented Airwell techniques are applied. Airwell systems entail no over-dosable chemicals and no inconvenient home treatment processes. The water is treated the way that nature would have, if air access to the aquifer would have been available.

## Parts List

- Compressor Driver Box Complete (1)



- Aeration Pipe Section Complete (1)
- Slotted 5' Pipe For The Bottom Of The Well (1)
- Parts Bag
  - Pipe Clamp
  - White Cap
  - 115v Plug
  - 2 Wire Nuts
  - 3 Zip Ties
  - 2 Heat Shrink Connectors
  - Stainless Gear Clamps
  - Brass Compression Fitting
  - Blue 3/8" Tube





## Installation Procedure

**Important Notice:** A two-person team is required for the installation of the Airwell unit to prevent accidental dropping of the pipe into the well.

- 1. Well Record Confirmation:** Secure the well record from the homeowner or well-driller to ascertain the well's depth and the static water level.
- 2. Well Casing Preparation:** Ensure the well casing extends at least 18 inches above the ground level to facilitate proper attachment of the compressor enclosure to the well casing.
- 3. Driver Box Location:** Utilize a metal hole saw to drill a 7/8-inch diameter hole 3 inches below the top of the well casing, marking the location for the driver box.
- 4. Airwell Unit Hole Drilling:** Opposite the 7/8-inch hole, drill a 3/8-inch diameter hole 7 inches below the casing top for the downhole component of the Airwell unit.
- 5. Pipe Length Determination:** Calculate the number of 10-foot pipe sections needed for the well's depth, including the bottom 5-foot slotted Airwell piece.
- 6. Pipe Assembly:** Begin with the slotted 5-foot pipe, inserting it into the well with the male thread facing upwards. Connect the 10-foot pipe sections by hand-tightening to ensure a snug fit without visible O-rings. Avoid using wrenches.
- 7. Pipe Installation:** If the pipe encounters resistance from the pump torque arrestor, navigate past it with twisting, turning, and brief vertical movements.
- 8. Aeration Section Attachment:** Once the pipe reaches the well bottom, retract it to attach the Airwell aeration section, verifying the well record's accuracy.
- 9. Active Section Submersion:** Adjust the pipe length so the top of the Airwell Active section sits 30 feet below the static water level, ensuring proper placement.
- 10. Drop Pipe Adjustment:** Mark the drop pipe level with the well casing top, measure 5 feet below this mark, and cut the pipe to ensure it is 5 feet from the well bottom.
- 11. Cap Installation:** Clean the cut pipe end and a PVC cap with solvent. Apply PVC glue to both surfaces, join them with a twisting motion to create a leak-proof seal.
- 12. Pipe Hanger Installation:** Attach the pipe hanger below the glued cap, using the pre-drilled 3/8-inch hole for support. Secure with a wrench.
- 13. Driver Box Preparation:** Remove the driver box cover plate (9 Phillips screws), insert the stainless banding through the back slots, remove the bulkhead nut and washer.



- 14. Driver Box Mounting:** Insert the brass bulkhead through the 7/8-inch hole and secure. Stabilize the driver box with a stainless gear clamp around the well head.
- 15. Tubing Connection:** Connect the 3/8-inch blue tubing from the driver box to the downhole fittings using the straight compression brass fitting, ensuring no kinks form.
- 16. Electrical Connection:** Locate an external 110v receptacle and mount the supplied transformer nearby, avoiding extension cords. Connect 12/2 wire from the transformer to the well, attaching it to the compressor enclosure. Use orange wire nuts for wire connections.
- 17. Power Activation:** Plug the transformer into the outlet. If the compressor fails to start, adjust the wire polarity.
- 18. Operational Check:** Listen for a bubbling sound from the well shortly after the compressor starts, indicating successful operation.
- 19. Sealing Electrical Entry:** Seal the entry point for well wires into the well cap with plumber's putty or silicone to prevent air flowing back into the home.
- 20. Final Assembly:** Reattach the well cap and the driver box cover to complete the installation.

## For Optimal Performance of the Airwell System

- **Filter Installation:** We recommend that a pleated filter be installed downstream of the pressure system.
- **Aeration Unit Depth:** For effective aeration, the Airwell aeration unit should be positioned no more than 30 feet below the static water level within the well. This placement ensures optimal oxygenation of the water.
- **Electrical Wiring for Distance:** In cases where the distance between the well head and the transformer exceeds 150 feet, it is necessary to use 10-2 low voltage wire. This ensures a reliable electrical connection and efficient



power supply to the Airwell system, minimizing potential voltage drop over distance.

## Care & Maintenance

To ensure optimal performance of your Airwell system, we recommend the following maintenance procedures:

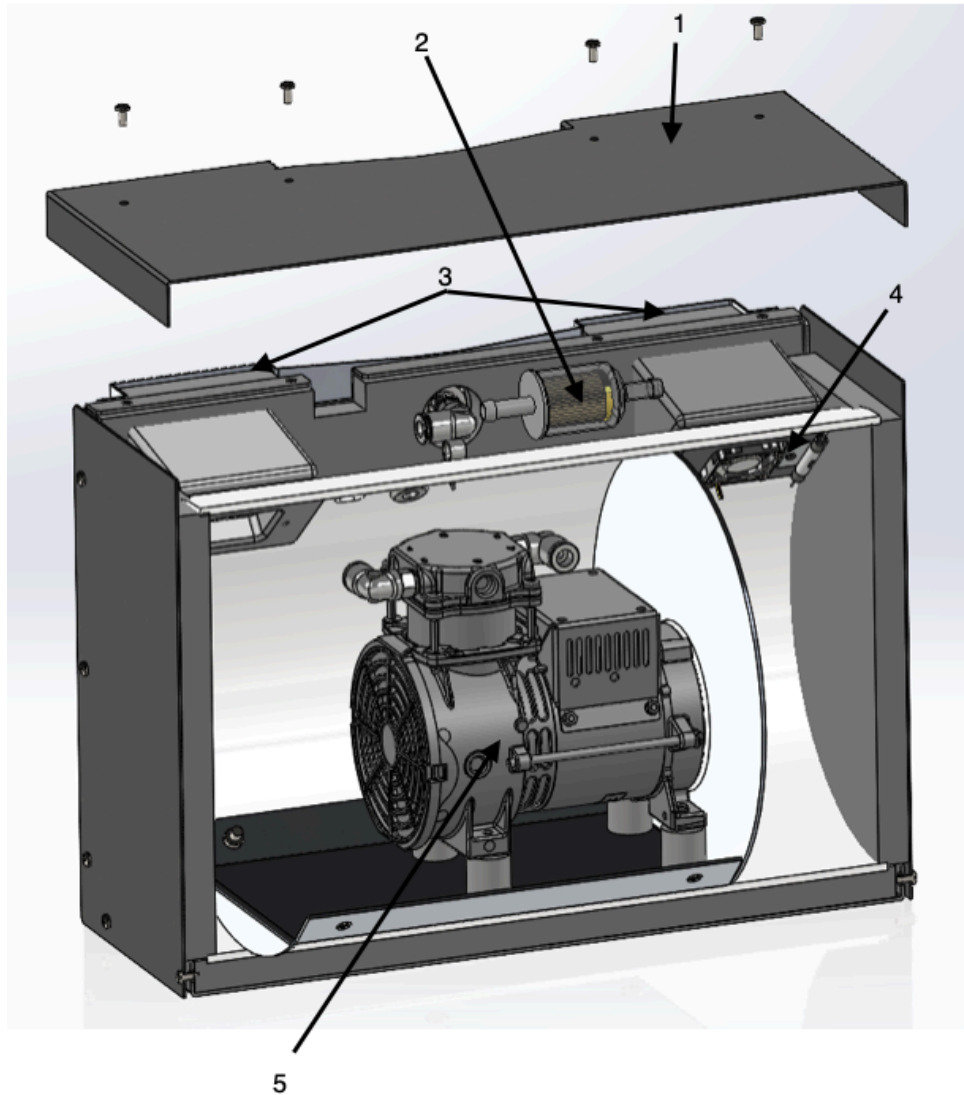
### Annual Maintenance:

1. System Shutdown: Begin by disconnecting the Airwell from the power source.
2. Accessing the Filters: Remove the lid by unscrewing the 9 Phillips screws. This will expose the 2 blue filters.
3. Cleaning the Filters: Submerge the filters in warm, soapy water to loosen and remove debris. Rinse the filters thoroughly under running water to remove any soap residue and remaining debris.
4. Reinstallation: Reinstall the filters and secure the top lid by replacing and tightening the 9 Phillips screws.
5. System Restart: Reconnect the Airwell system to the power source.

### Biennial Maintenance (Every Two Years)

1. System Shutdown: Begin by disconnecting the Airwell from the power source.
1. Accessing the Compressor Muffler: Remove the lid by unscrewing the 9 Phillips screws. Remove the left side panel by unscrewing the 7 Phillips screws to access the compressor muffler.
2. Replacing the Compressor Muffler: Locate the muffler (Part # 86011) attached to a blue 3/8 inch hose. Note the orientation of the muffler for correct reinstallation. Detach the muffler by pulling it off from the hose. Install the new muffler, ensuring it is oriented correctly as noted.
3. Reassembly: Reverse the steps for disassembly to reassemble the driver box, securing all screws tightly.
4. System Restart: Reconnect the Airwell system to its power source.





**Parts List (refer to above image)**

1. Airwell Driver Box Cover Plate
2. Inline Filter (Carquest Part # 86011)
3. Plastic Mesh Air Filters
4. Airwell Cooling Fan (runs when internal temperature above 40C/104F)
5. 24V Oilless/Brushless Compressor





## Troubleshooting the System

If you encounter an issue where the Airwell compressor appears to be non-functional, please follow these steps to diagnose and potentially resolve the problem:

- 1. Verify Power Source:** Confirm that the power source to which the Airwell system is connected provides the correct voltage. This is crucial for the system's operation.
- 2. Power Cycle the System:** Disconnect the Airwell system from the power source. Wait for approximately 10 seconds before reconnecting it. This simple step can often reset and resolve minor operational issues.
- 3. Check for Audible Bubbling:** If you do not hear bubbling, this indicates that the aeration part may not be properly submerged. However, before adjusting the depth of the aeration section—which may vary due to water usage—it is advisable to first check for air leaks. Air leaks can cause the absence of bubbling sounds without necessitating an adjustment in the aeration section's depth.
- 4. Inspect Air Pressure:** To further investigate, disconnect the compressor from the power source. Remove the well cap and detach the 3/8 inch pipe from the downhole pipe to check for any discrepancies in air pressure.
- 5. Milky or Spiriting Taps:** Remove any air venturi's before pressure tank or if one has an iron filter with a air curtain you may want to eliminate the air draw.

By following these troubleshooting steps, you can address common issues that may affect the performance of your Airwell system. If these steps do not resolve the problem, it may be necessary to consult with a professional for further assistance.