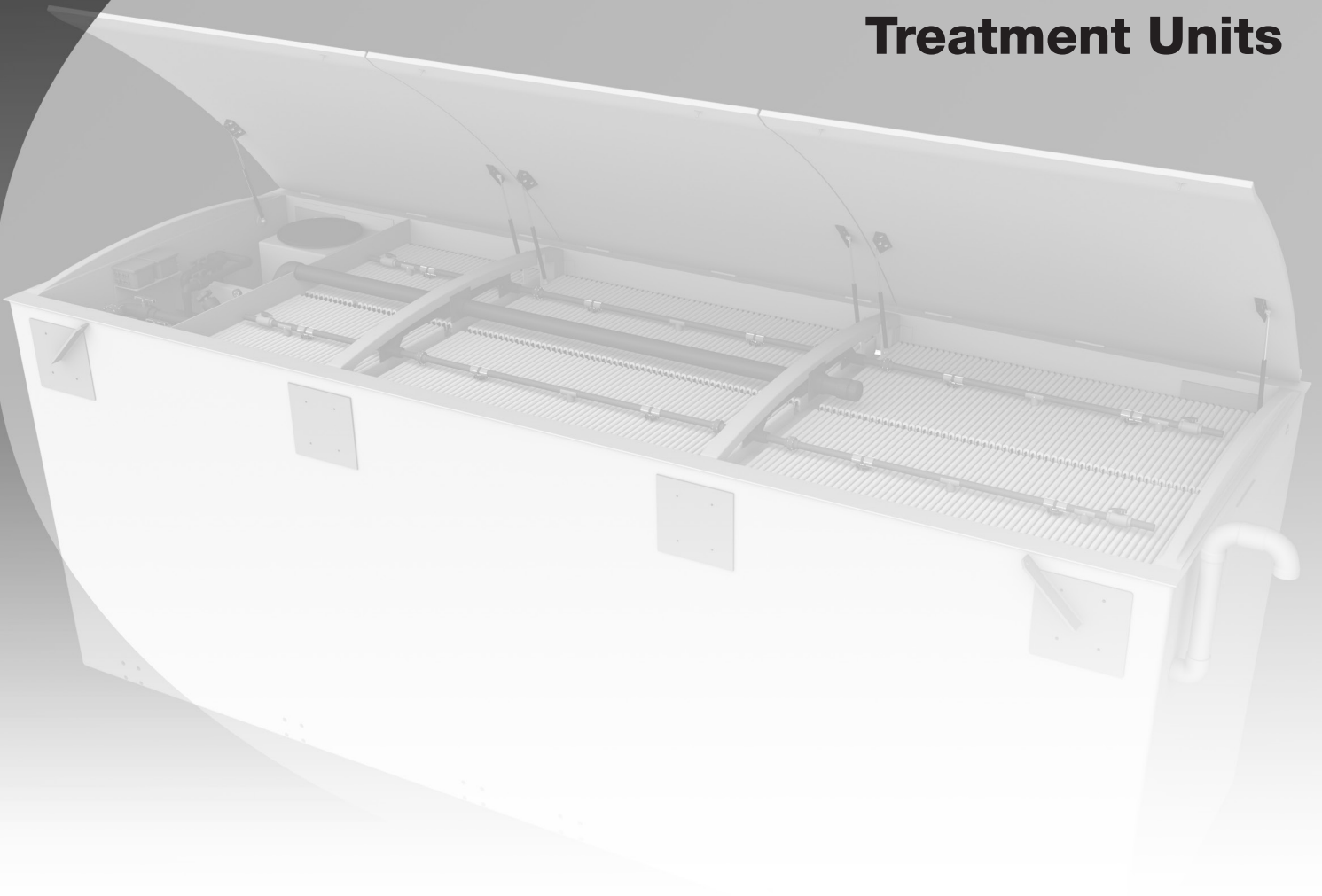


Installation Manual

AdvanTex[®] AX-Mobile[™] **Treatment Units**



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How To Use This Manual

This manual contains an Installation Overview and a set of Installation Steps.

- **Installation Overview** — This is a simple overview of the installation steps. It is a reference only; complete instructions are found in the installation steps that follow.
- **Installation Steps** — These provide general instructions for each installation step, along with references to installation documents for specific components. Many Orenco products come with installation instructions. All of these instructions are also provided in hard-copy form in our Orenco Installer Binder. Contact your Dealer or Orenco for a copy of the binder, or find individual instructions online in the Orenco Document Library at www.orenco.com.

You will find *IMPORTANT* information, *Key Points*, and *Notes* in this manual, marked with easy-to-see visuals:



IMPORTANT — These point out potential hazards to equipment or people during and after the installation.



Key Points — These are critical for a quality installation and are necessary for your installation to be successful.



Notes — These cover useful information and tips that can help make your installation simpler or easier. They may also provide information on variations in components or methods.

Before You Begin

Before you begin the installation, read this manual and any documents referenced in it. Also, be sure that the instructions for these products are the most current ones available. Please note that **you must perform the installation according to the current manual or the AdvanTex® Treatment Systems Limited Warranty will be void**. You can make sure your instructions are current by checking our online Document Library at www.orenco.com. You'll save time and money on installation day, and you'll get fewer call-backs.

This manual provides basic information for installing AdvanTex® AX-Mobile™ treatment units above-ground. These instructions do not replace training or engineering plans.

Before beginning the installation, schedule a pre-construction meeting with the project engineer, electrician, operator, inspector/regulator, and your Orenco representative. Any inconsistencies in the plans, specifications, or regulatory issues identified during the pre-construction meeting should be completely addressed prior to installation. If there are differences between your engineering plans and the instructions in this manual, contact your project engineer.

Before You Begin, cont.



IMPORTANT: Failure to follow the instructions in this manual will void the system's warranty.



Key Points:

- Inspect your order for completeness and inspect each component for shipping damage. If any of the order is incomplete or damaged, contact your Dealer or Orenco.
- Contact your engineer if you have questions about your installation.
- All tankage, components, and plumbing used in conjunction with AdvanTex® Treatment Systems must be installed properly according to their manufacturer's instructions and all tankage, components, and plumbing used in conjunction with AdvanTex® Treatment Systems must be watertight.
- Make sure these instructions and the items supplied comply with all applicable government regulations.
- If you are not an authorized AdvanTex Installer, contact your local Dealer for training and authorization before installing this system.
- Failure to follow these instructions may cause difficulties in system performance, as well as operation and maintenance issues.



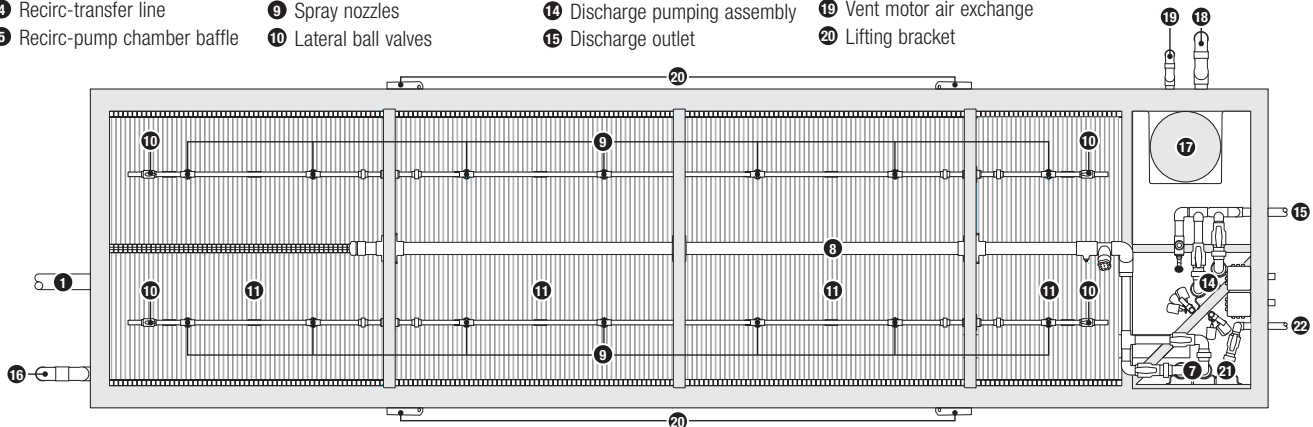
Note: All pipe diameters provided are U.S. nominal IPS pipe sizes. If you are using metric pipe, you may need adapters to connect to the U.S. fittings supplied with AdvanTex Treatment Systems.

Standard Unit Components

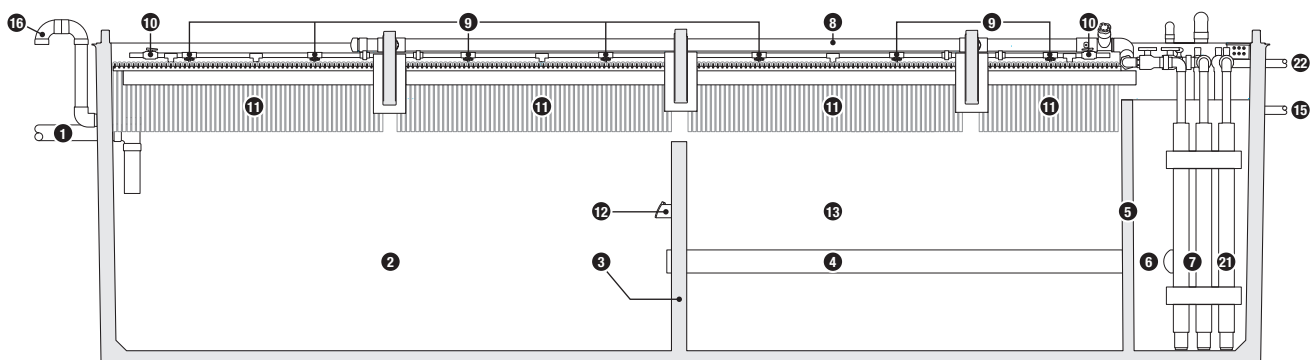
Example AdvanTex AX-Mobile™ Treatment Unit

The configuration and components shown in this diagram are not intended to match the specific configuration of your unit(s).

- | | | | | |
|------------------------------|---------------------------|-------------------------------|----------------------------|--------------------------------|
| 1 AX-Mobile™ inlet | 6 Recirc-pump chamber | 11 AdvanTex® textile media | 16 Vent inlet | 21 Pre-anoxic pumping assembly |
| 2 Recirc-blend chamber | 7 Recirc pumping assembly | 12 Recirc-return valve | 17 Vent fan assembly | 22 Pre-anoxic outlet |
| 3 Tank baffle | 8 Distribution manifold | 13 Recirc-filtrate chamber | 18 Vent outlet | |
| 4 Recirc-transfer line | 9 Spray nozzles | 14 Discharge pumping assembly | 19 Vent motor air exchange | |
| 5 Recirc-pump chamber baffle | 10 Lateral ball valves | 15 Discharge outlet | 20 Lifting bracket | |



Example AX-Mobile Treatment Unit (top view, without lids)



Example AX-Mobile Treatment Unit (side cutaway view, without lids)

Installation Overview

Step 1: Review and compare the plan set to the actual site.

Step 2: Prepare the site and the pads for the AX-Mobile unit(s).

Step 3: Set the AX-Mobile unit(s) into position on the pad(s).

Step 4: Install platforms and railings on the AX-Mobile unit(s).

Step 5: Plumb the connections between the AX-Mobile unit(s) and other treatment components according to the plan set.

Step 6: Connect main power to the control panel.

Step 7: Prep the AX-Mobile unit(s) for start-up.

Installation Steps

Step 1: Review and Compare Plan Set

Review the plan set and compare it with the actual physical site.

- Make sure there are no obstructions on the site that could interfere with the installation.
- Check that all locations and elevations match the plan set.
- Discuss any differences between the plan set, the site, and these instructions with the engineer before continuing.



Key Points:

- Follow the plan set for specific spacing distances between AX-Mobile units and between AX-Mobile units and other system components. Contact your Dealer for more information.
- If the transport line from primary tankage or the sewer inlet uses gravity discharge, maintain a minimum slope of 1/8 in. per ft (10 mm per meter or 1%) in the transport piping from the primary tankage.



Lay a smooth, level pad for each unit.
(Compacted aggregate pad shown.)

Step 2: Prepare AX-Mobile Unit Pad(s)

Step 2a: Mark the location of each AX-Mobile's pad site.

Step 2b: Make sure the pad site for each AX-Mobile unit is level and free of debris, rocks, and sharp objects.

- The pad site has to be stable and uniform to ensure equal bearing across the tank bottom.

Step 2c: Lay a level, compacted bedding of $\leq 3/4$ -in. (19-mm) aggregate, pea gravel, or approved granule overlying a firm, uniform base.

- Compact the bed to 95% compaction.
- Lay the pad at least 7.5 ft (2.3 m) wide and at least as long as the unit.



Key Point: Completely level pads are critical for correct installation and operation.

Installation Steps

Step 3: Set AX-Mobile Unit(s)



IMPORTANT:

- ALWAYS bolt the lids before lifting, moving, or backfilling an AX-Mobile unit!
- Know the weight of the specific unit and use the proper lifting equipment.
- AX-Mobile units can weigh more than 12,000 lbs (5440 kg). If you are unsure of a unit's weight, contact Orenco before attempting to lift it.



Key Point: When installing multiple units, confirm the location and direction of each unit before off-loading and placing it.

Step 3a: Position the transport and lifting equipment as close to the pad as possible.

- If the unit has been transported to the site in a shipping container, see NIN-ATX-MAX-1, *Removing Units from Shipping Containers*.

Step 3b: Attach the provided lifting cables to the four lifting brackets on the unit and raise the lifting equipment until all of the cables are tight.



IMPORTANT: Make sure the cables are properly attached!

Step 3c: Lift and move the AX-Mobile unit into position over the bed.



IMPORTANT: Keep nonessential personnel clear when placing units!

Step 3d: Lower the unit onto the pad, making sure that the unit is centered.

Step 4: Install Platforms And Railings

If your AX-Mobile components include platforms and railings, install them now.



Note: Before installing the platforms and railings, make sure that all of the parts and hardware have been received.

Step 4a: Fold the platforms out into the horizontal position, install the platform posts, and secure them to the unit(s) with the supplied hardware.

Step 4b: Place and secure the railings to the unit(s) with the supplied hardware.

Step 4c: Install the ladder(s) and secure them with the supplied hardware.

Step 5: Plumb AX-Mobile Unit Connections

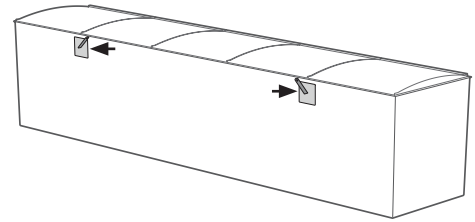
Step 5a: Use the plan set to identify the location of all connections between the AX-Mobile unit(s) and other treatment train components and transport lines.

Step 5b: Route and connect any external recirculation transfer, recirculation return, and filtrate transfer lines.

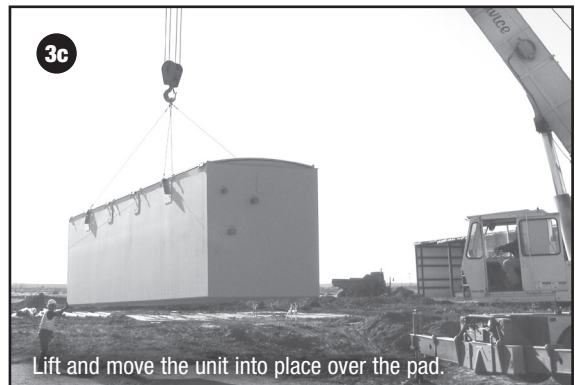
- External connections on AX-Mobile units are clearly marked.
- If necessary, support the transport lines to prevent sagging.
- If the unit(s) do not use these external lines, go to Step 5d.

3b

Lifting bracket locations (two per side, four total)

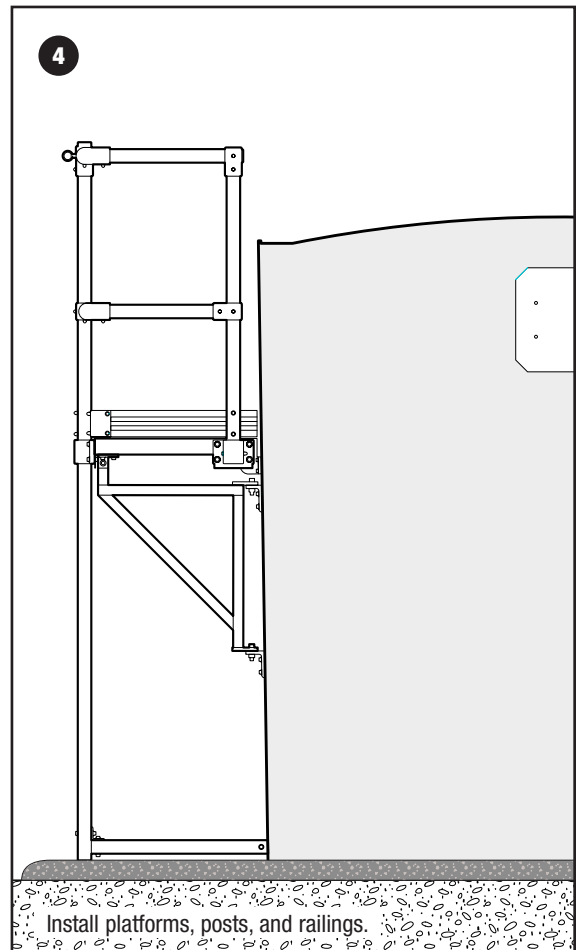


3c



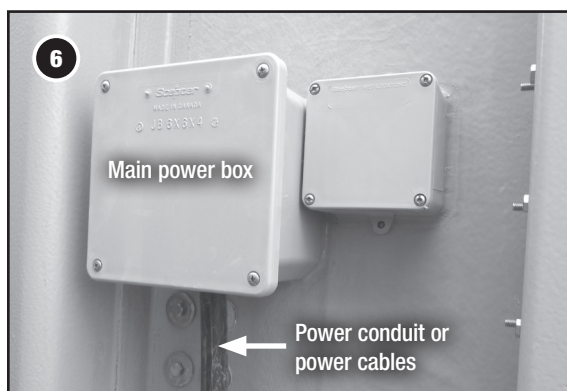
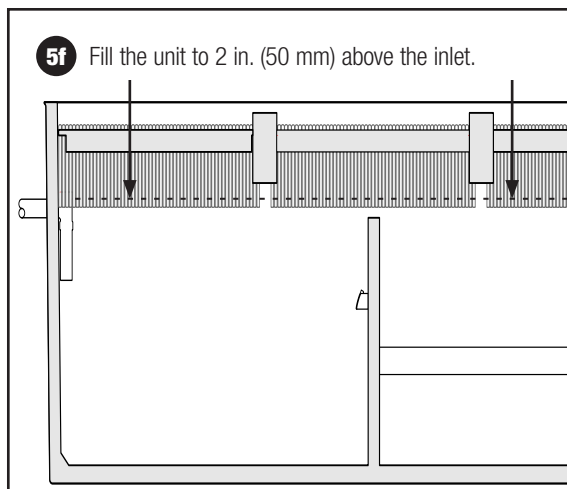
Lift and move the unit into place over the pad.

4



Install platforms, posts, and railings.

Installation Steps



Step 5: Plumb AX-Mobile Unit Connections, cont.

Step 5c: Fill each AX-Mobile unit with water to 6 inches (150 mm) above the external recirc transfer, recirc return, and filtrate transfer connections.

- Wait 10 minutes; then check for leaks around the penetrations and lines, as well as for changes in the liquid level inside the unit(s).
 - ~ Repair any leaks in the lines and connections.
 - ~ Contact Orenco for any leakage around plumbing penetrations in the unit(s) or if the liquid level inside the unit(s) decreases.

Step 5d: Connect the inlet and outlet piping to the AX-Mobile unit(s).

- If necessary, support the inlet and outlet piping to prevent sagging.

Step 5e: Temporarily plug the inlet(s) on the AX-Mobile unit(s). Plug the outlets in units with gravity discharge.

Step 5f: Fill each AX-Mobile unit with water to 2 inches (50 mm) above the inlet to test for watertightness.



IMPORTANT: NEVER submerge electrical conduit penetrations or junction boxes inside an AX-Mobile unit!

- Do not fill the unit more than 2 inches (50 mm) above the inlet.
- Wait 10 minutes; then check for leaks around the penetrations and lines, as well as for changes in the liquid level inside the unit(s).
- Repair any leaks in the lines and connections.
- Contact Orenco for any leakage around plumbing penetrations in the unit(s) or for changes in the liquid level inside the unit(s).
- After the unit(s) pass the test, remove all temporary plugs and allow the liquid level in the unit(s) to normalize.

Step 5g: Install vent inlets, vent outlets, and vent motor air exchanges.

Step 6: Connect Power to Control Panel



Note: These steps should be performed by a licensed and qualified electrician.

Step 6a: Route the power conduit from the power source to the main power box(es) on the outside of each AX-Mobile unit.

Step 6b: Route the power cables through the main power box on the outside of each AX-Mobile unit and into the control panel.



Note: Installation instructions, schematics, and wiring diagrams that are specific to the panel and float switch configuration are included with each panel. If any of these are missing, contact your Dealer for a replacement.

Step 6c: Connect the power lines to the control panel.

Installation Steps

Step 7: Prep AX-Mobile Unit(s) for Start-Up

- See AIM-OM-ATX-4, AdvanTex O&M Manual, AX-Max and AX-Mobile Treatment Systems for specific start-up information.



IMPORTANT: Be sure there's enough water in the unit to run the pumps.

Step 7a: Switch the circuit breakers in the control panel to "ON."

Step 7b: Flush the laterals in each of the AX-Mobile unit(s).

- Open the valve on the manifold and on the ends of the laterals.
- Turn the laterals to point the spray nozzles up and away from the textile.
- Toggle the recirc pump switches to "MAN" or "HAND."
- Use the pumps to flush debris out of the pod's manifold and laterals.
- Toggle the recirc pump switches to "OFF."
- Turn the laterals to point the spray nozzles down and close the valves on the ends of the laterals.

Step 7c: Check the nozzles' spray patterns in each AX-Mobile unit.

- Toggle the recirc pump switches to "MAN" or "HAND."
- Check the nozzles for square spray patterns with edges overlapping the splash guard edges.
~ Adjust the manifold pressure for good spray patterns, if needed.
- Toggle the switches to "OFF" when finished.

Step 7d: Check the AX-Mobile unit(s) for the components listed below, and perform function checks on all of these components included in the unit(s).

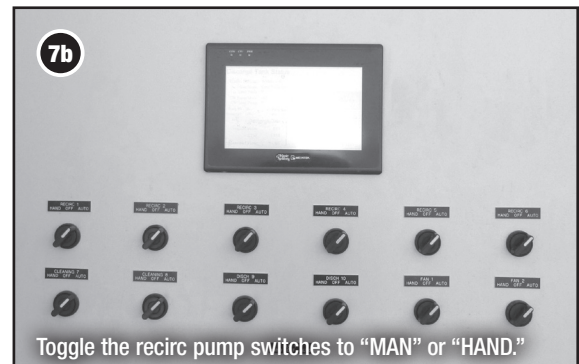
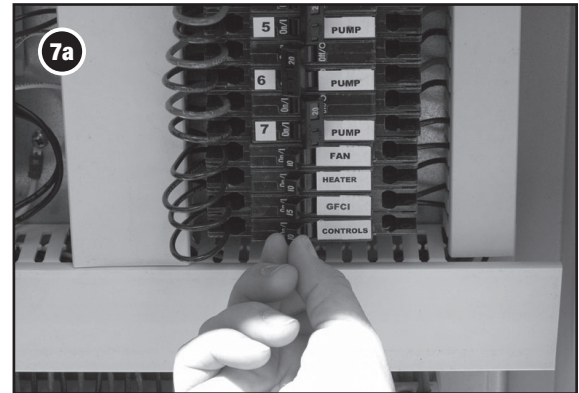


Note: Each set of floats is in the same chamber as their respective pump(s).

- Recirc float switches:** Toggle the pump control switches to "AUTO" and then lift the low-, mid-, and high-level switches in turn and verify their signals in the control panel.
- Discharge pump(s):** Verify that the discharge pumps and float switches (if applicable) are operating correctly.
~ **For pumps with timed-dose controls,** toggle the discharge pump switches to "MAN" or "HAND" and verify that the pumps run.
~ **For pumps with demand-dose controls,** toggle the pump control switches to "AUTO;" then lift the low-, mid-, and high-level switches in turn and verify their signals in the control panel.
- Ventilation system:** Verify that the vent fan is operational, with air flow at the vent inlet and at the vent exhaust.
- Control panel touchscreen:** Verify that the touchscreen is operational.

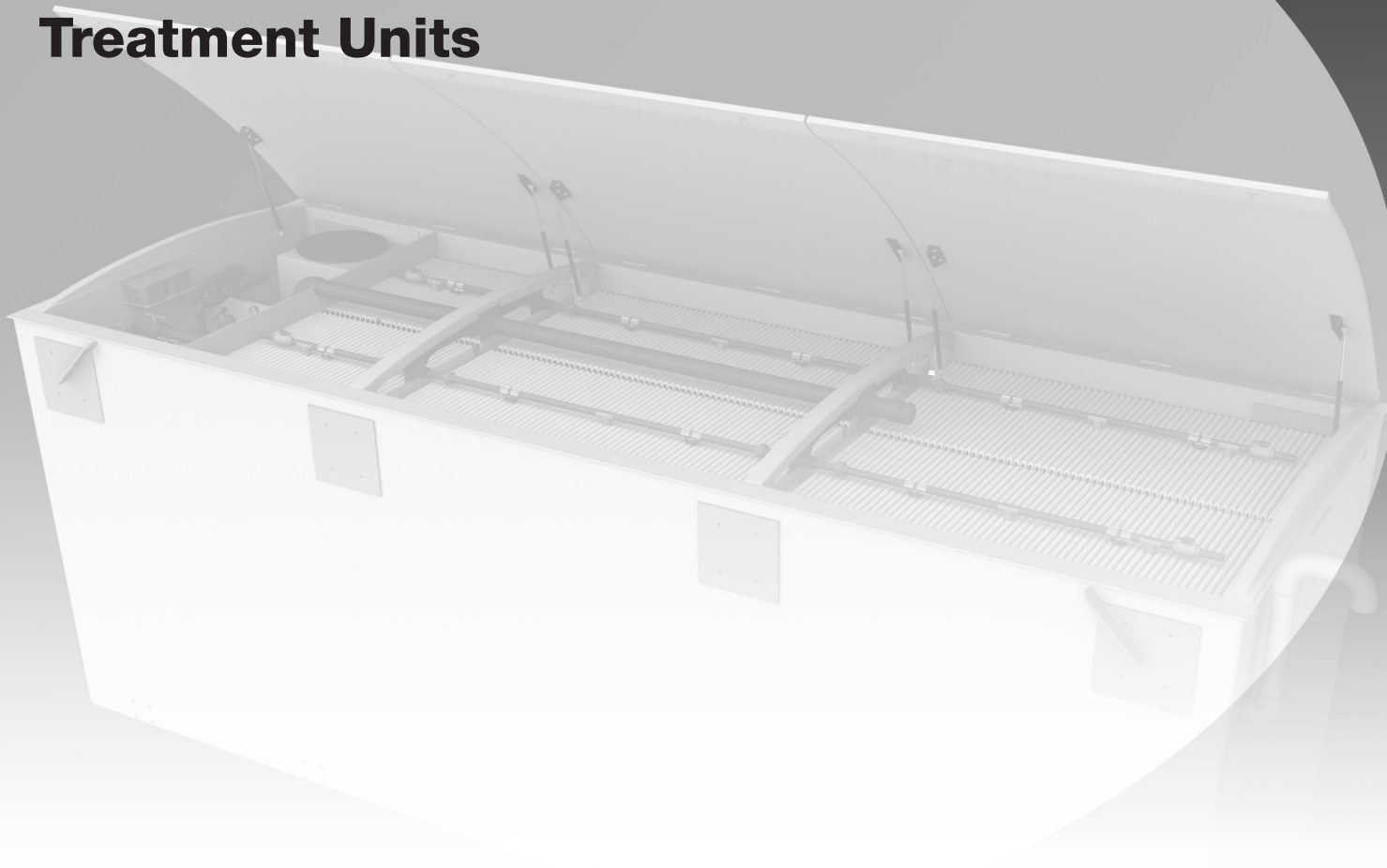
Step 7e: After making sure that the AX-Mobile unit(s) are functional and operating properly, close and secure all unit lids.

Step 7f: Schedule a system start-up with the project engineer, AdvanTex Dealer, and system operator.



Installation Manual

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