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AquaKlear

WASTEWATER TREATMENT SYSTEMS

OWNERS,
INSTALLATION, OPERATION &
MAINTENANCE,
&

TROUBLE SHOOTING & REPAIR MANUAL
CLASS I

RESIDENTIAL
WASTEWATER TREATMENT SYSTEMS

AQUAKLEAR, INC.
876 N. BIERDEMAN ROAD
PEARL, MS 39208
(877) 936-7711



NSF/ANSI Standard 245
NSF/ANSI Standard 40

Revised 11-07-2025

Model Number

AK6S245F

Note: suffix F denotes Fiberglass

PRODUCT DESCRIPTION

The “AquaKlear” Wastewater Treatment system is an economical alternative for use in treating domestic wastewater generated by normal household activities. The system consists of a single tank extended aeration activated sludge system which is capable of producing a clear odorless effluent which meets applicable state discharge standards. This system has been successfully tested and listed by Gulf Coast Testing, LLC in accordance with NSF/ANSI Standard 245 and 40.

Raw wastewater flows into the pretreatment anaerobic tank then into the aeration zone of the extended aeration system. Here, the oxygen supplied by the aeration system, along with the organic matter in the waste stream, creates an ideal environment for the growth of aerobic micro-organisms. These organisms convert the waste organic materials into gases and additional micro-organism cell material. In addition to supplying oxygen, the aeration system keeps the contents of the aeration zone well mixed to provide optimum exposure of the micro-organisms to the waste material. The action of the beneficial micro-organisms also result in a significant reduction in pathogenic bacteria.

After approximately 24 hours of detention in the aeration zone, the mixture enters the clarifier where quiescent conditions enable separation of the micro-organisms which are then returned to pretreatment tank and then to the aeration zone and discharge of clear treated wastewater through the effluent outlet assembly. At the surface of the clarifier there is a skimmer which removes any floating solids and returns them to the pretreatment tank automatically, while not disturbing the quiescent conditions of the clarifier. Effluent may be discharged to an accepted discharge point that is in compliance with all state and local laws and regulations.

The “AquaKlear” Wastewater Treatment system exceeds all effluent water quality requirements for Class 1 designation (25 mg/L CBOD5 and 30 mg/L TSS) as set forth by NSF/ANSI Standard 245 and 40. The six month daily average for the AquaKlear, Inc. system was 7 mg/L CBOD5 and 6 mg/L TSS.

PARTS LIST – MODEL AK6S245F

**Refer to system drawing
(Page 8)**

	ITEM	DRAWING REFERENCE
System Parts	Single Tank (with Access Cover)	A
	Air Diffuser	B
	Inspection Port	C
	Grommets (3)	Not Shown
	4" PVC Effluent Outlet Assembly	D
	Air Pump and Warning Device	Not Shown
	Air Lift Pump and Skimmer Assembly	E
	4" Baffle Tee	F

Notes PVC influent and effluent lines furnished by installer.

Includes control box with warning device.

A data plate with model number, treatment capacity, serial number and manufactures' address, and phone number is installed on the front cover of the control box and on the top of the Access Port Cap. (Less serial # on port).

The warning device is located in the control box. The warning device is also directly wired to the float switch which serves as a high water alarm. A high water condition is indicated by an audible and visual alarm.

SPECIFICATIONS – MODEL AK6S245F

Designation	AquaKlear Wastewater Treatment System System Model AK6S245F
Treatment Capacity/Class	
Volumetric Capacity	600 GPD/Class 1
	Model AK6S245F 424 Gal. Pretreatment, 520 Gal. Aeration Chamber, 188 Gal. Clarification Chamber
BOD Loading	
	Model AK6S245F-1.2-1.8 lbs./day
Electrical Requirements	
	Model AK6S245F-115V/60 HZ/1-phase
COMPONENTS/MATERIALS OF CONSTRUCTION MODEL AK6S245F	
Pre-Treat/Aeration/Clarifier Tank	Fiberglass and concrete tanks will comply with all local, state, and federal standards related to their intended use.
Air Pump	Model AK6S245F Thomas EP-50AK 1.5 SCFM @ 2.5 psi.

INSTALLATION INSTRUCTIONS

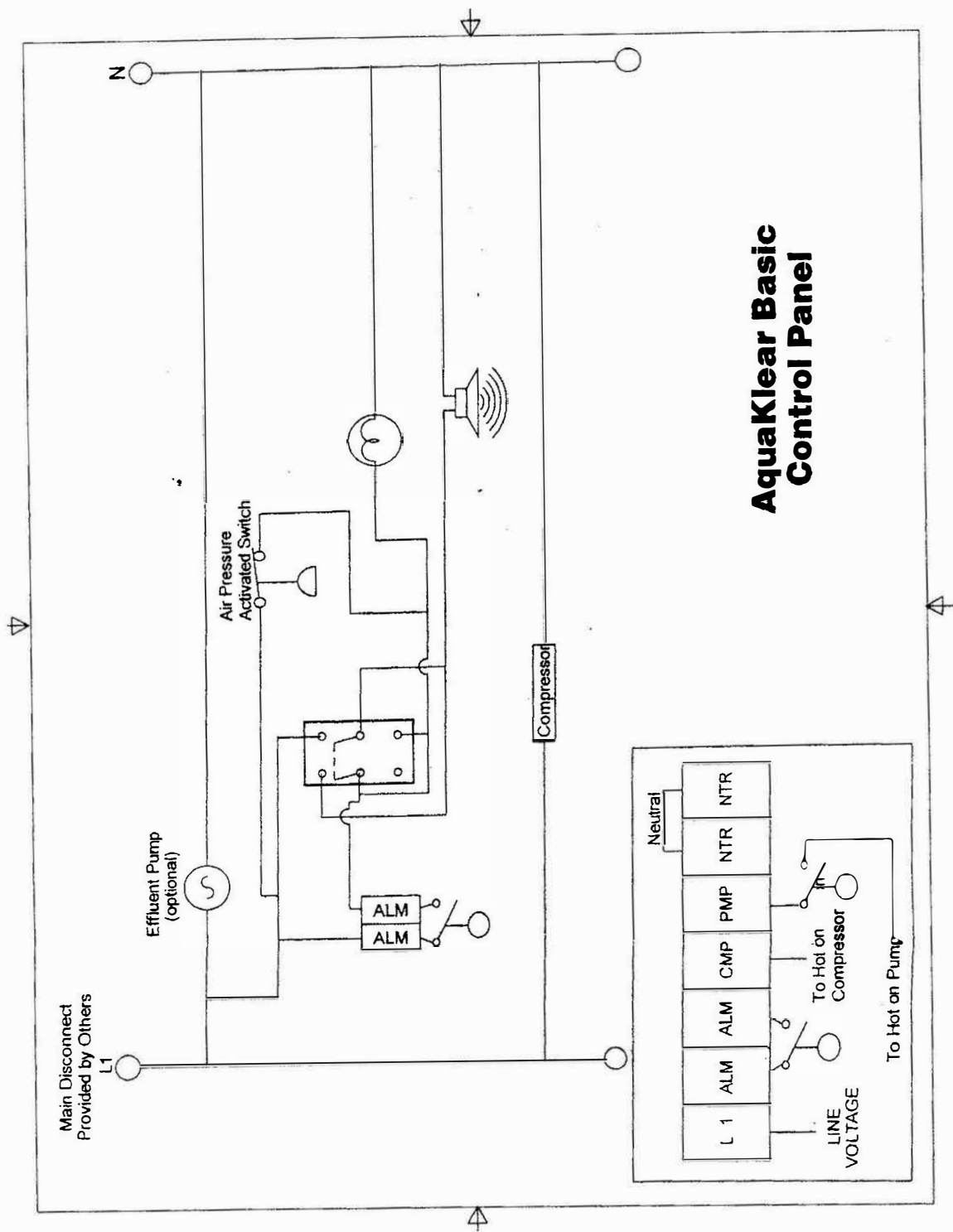
Prior to installation, all state and local laws and regulations must be complied with. For long term, reliable and efficient operation, it is essential that the system be installed in accordance with these instructions. Refer to the system drawing for component arrangement.

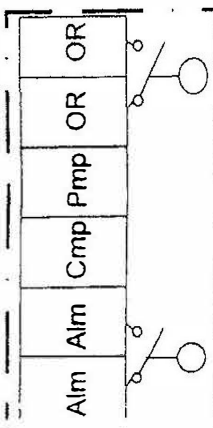
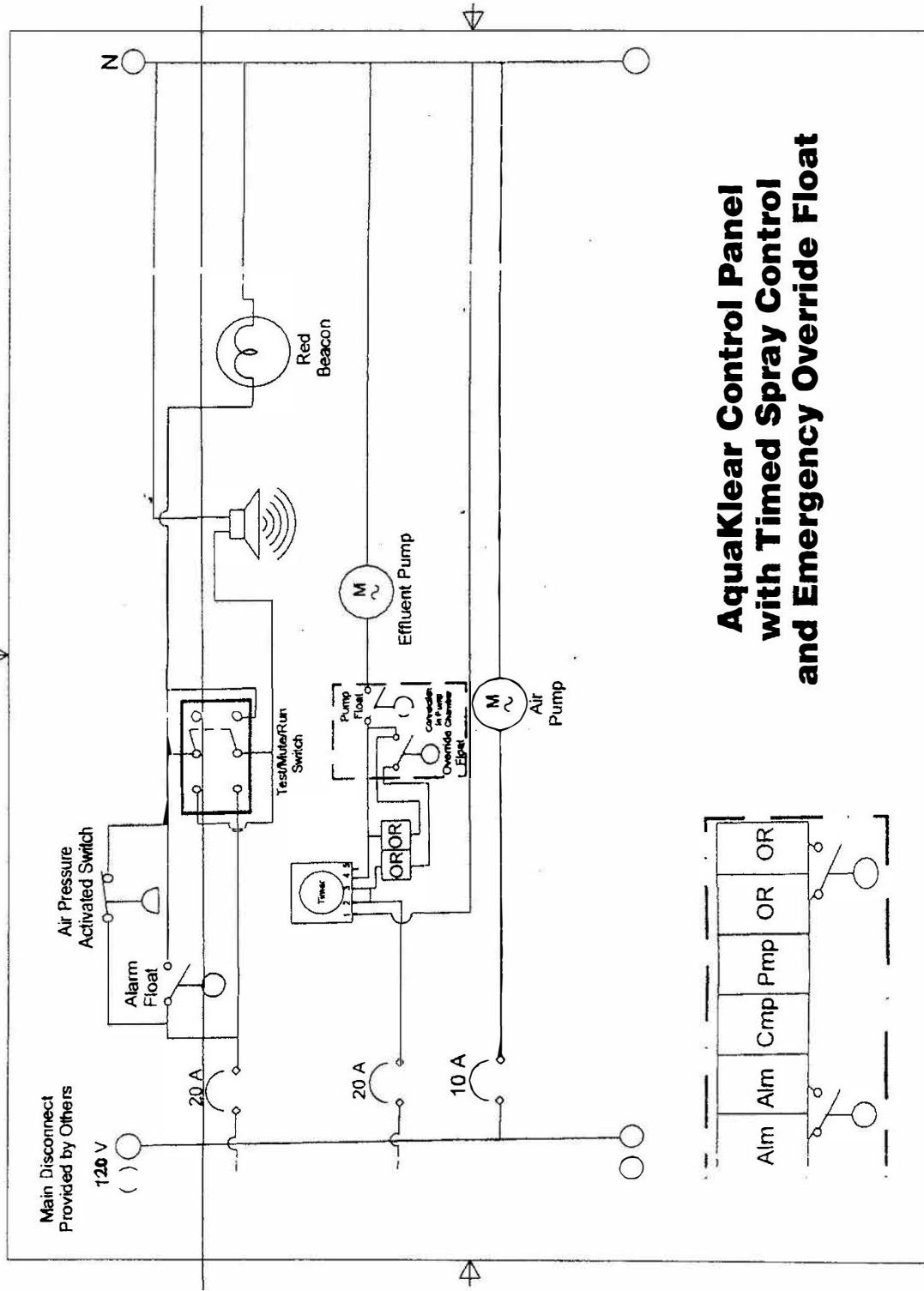
- Step 1** Prepare excavation for the single tank. Depth for the tank is controlled by the depth of the building sewer. Bottom excavation must be smooth and level (a 4" layer of sand may be used if desired).
- Step 2** Install rubber grommets in tank inlet, outlet and access cover (3 total). Grommets should be installed with the fat flange on the exterior of the tank as shown on the drawing. A small amount of grease applied to the inside of the grommets will aid insertion of PVC pipes.
- Step 3** Carefully place tank into excavation with lowest pipe opening on the effluent side. Slide 4" PVC building sewer (furnished by installer) approximately 2 inches through inlet grommet.
- Step 4** Slide 4" PVC effluent pipe (furnished by installer) into grommet on effluent side of the tank. Install 4" PVC launder assembly as shown on the drawing. Attach high water alarm float to the ½" PVC pipe going to the diffuser.
- Step 5** Place air diffuser into tank so that it rests on bottom of the tank with diffuser sitting parallel with baffle, against the front (the influent wall) end of tank, run air line for air lift pump.
- Step 6** Cut a section 4" PVC pipe (furnished by installer) to suitable length for access port. Slide 2 inches through grommet in top cover of tank.
- Step 7** Install air pump in a clean, well ventilated area within 90 feet of the tank. Should 90 feet not be enough length, increase size to ¾" PVC at air Compressor and decrease size back ½" at air inlets to unit.
- Step 8** Install ½" PVC air line (furnished by installer) from air pump to air diffuser assemble. Pipe should run in a trench at a recommended depth of 12 inches of cover. If vehicular traffic or other usual loading is anticipated, air line should be installed in a casing pipe (PVC, cast iron or steel pipe, etc.) for protection. Do not backfill until after step 10 is completed.

- Step 9** Backfill excavation up to top of tank being careful not to dislodge piping. Special care is required around the effluent piping to insure that the effluent outlet assembly remains in proper position.
- Step 10** Fill tank to point of overflowing with water. Operate air pump and check air piping joints for leakage using a soapy water solution. Repair if necessary and then carefully backfill trench and remainder of tank excavation(s). Be sure access cover is properly in place.

While the AquaKlear Wastewater Treatment Systems do not include fragile components, care should always be taken when off-loading and unpacking the components. Rough handling may cause damage to electrical parts and should be avoided. If there is damage or flaws in any component part, notify AquaKlear, Inc. immediately.

Every effort is made by AquaKlear staff to ensure that no defective components leave the AquaKlear factory, although certain incidents occur that are beyond our control. Should an air compressor or control box be found to be defective, they are to be disconnected and returned to AquaKlear for replacement. No field repairs are allowed. There are no moving parts within the AquaKlear tank but should a part need to be replaced the procedure is to cut the PVC line, remove the damaged part and install the new part in exactly the same position and manner as the original.





AquaKlear Control Panel with Timed Spray Control and Emergency Override Float

OPERATING INSTRUCTIONS

Once installed, the blower will run continuously and the system will operate with a minimal amount of attention. It will take from 6 to 12 weeks after startup to develop an optimum population of micro-organisms. To insure proper operation and minimize maintenance requirements, the following materials should not be permitted to enter the system.

Items to Avoid

Strong disinfectant or bleaches (other than small amounts normally used in laundry and house cleaning – be conservative).

Oil, greases and chemical wastes

Disposable diapers, tampons, sanitary napkins, cigarette butts and similar items.

Discharge from water softener.

The AquaKlear Wastewater Treatment System has been designed and tested to treat common and ordinarily expected wastewater and sewage from commercial and residential sources.

ROUTINE SYSTEM CHECKS

Checking Pump

Check air pump daily to be sure it is operating. Once accustomed to the soft humming sound of a properly operating unit, any unusual noise is an indication of a malfunction. If any unusual noise is detected, or if alarm signals, check power source, then call dealer for service.

Checking Access Port

Check access port weekly for sour or “rotten egg” odor. If odor develops, call dealer for service. Always reference the system data plate when calling for service.

Checking Inlet Filter

Check inlet filter on air pump every three months and change or wash, if necessary. Filter should be cleaned or changed more often if conditions warrant.

Checking Effluent	Check effluent pipe weekly. Effluent should be clear and odor free. Effluent samples should be collected after treated wastewater has been discharged from the end of the pipe for several minutes. Care should be taken to insure that there is no algae growing in the pipe end which may be collected in the effluent sample.
Residual Removal	While the accumulation of residuals is largely dependent upon the characteristics of the wastewater treated, it is recommended that residuals be removed every 5 years, by a state certified removal service. The service should be remove the lower (bottom) ½ of the liquor in both chambers and then refill with clear water.
Intermittent Operation	The air pump should always be operating during intermittent use of the treatment system.
Electrical Wiring	An electrical wiring diagram is included in this manual. (Connection to GFI is not accepted by AquaKlear, Inc.)
Effluent Collection	When collecting an effluent sample the sample should be taken at the closest point to the clarifier as possible. The water should have been flowing for two minutes before collecting the sample.

Initial Service Policy

Service Calls

A two-year initial service policy will be furnished to the owner by the original installer or their authorized representative. The cost of the initial service policy is included in the original purchase price. This service policy includes provisions for four inspections/service visits (scheduled once every six months over a two-year period) during which electrical, mechanical, and other applicable component are inspected, adjusted, and serviced including an effluent quality inspection consisting of a visual assessment for color, turbidity, scum overflow and an olfactory assessment for odor.

The owner will be notified, in writing, about improper system operations that cannot be remedied at the time of inspection.

If a mechanical or electrical component must undergo off-site repairs, the authorized representative will maintain a stock of components that may be temporarily installed until repairs are completed.

All installers are required to follow the minimum requirements of inspections set forth by their local and state regulations.

Extended Service Policy

An extended service policy may be made available, for purchase by the owner, from an authorized representative with terms comparable to those of the initial service policy.

TROUBLE SHOOTING INSTRUCTIONS

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DIRECTIONS FOR START UP/SHUT DOWN FOR AQUAKLEAR SYSTEMS

Due to the many different situations which give cause for shut down and start up of AquaKlear Wastewater Treatment Systems, the following addresses a worst case situation for both.

Shut Down Period For Extended Period: (water supply to building shut off)

The air compressor should be disconnected and removed, air line capped and compressor stored in a safe place (for protection from theft). Unit should be left in this condition (all tanks full) until start up.

Start up Procedures After Extended Shut Down:

Replace and reconnect air compressor, pump empty the aeration zone, clarifying zone, and refill with potable water. Turn air compressor on, check for proper air flow, and allow homeowner to begin using system.

For Intermittent Use:

Unit should be in full operational mode at all times.

System failures that may occur will fall into one of two general categories; unacceptable effluent quality or mechanical malfunction. Unacceptable effluent or mechanical malfunction may be indicated by discolored or odorous effluent discharge. Causes are generally due to reduced or no air delivered to the aeration chamber, toxic material in the raw conditions are indicated, the following procedure should be followed.

1. Check the air compressor to insure that it is delivering air to the system. If necessary, perform regular maintenance. If the compressor is not delivering air it should be replaced as soon as possible.
2. Assess from the home-owner if toxic or other inappropriate material have been placed in the system. If toxic material has been introduced to the system, it may be necessary to pump out the contents of the tank and restart the system.
3. Visually inspect the aeration chamber. If there is not a readily apparent “roll” of the aeration chamber liquid in the direction of the effluent line, the aerator bar may be clogged or out of position. Expose the access hatch nearest the influent end of the tank; adjust or remove the aerator bar; clean and unclog and place in the proper position.
4. If solids appear in the system discharge, expose the two access hatches nearest the effluent end of the tank. Clean and unclog in place, the air lift pump and skimmer apparatus at the surface of the clarifier chamber. Clean in place, the effluent outlet assembly

Data Plate with Serial Number



AQUAKLEAR, INC.
876 N. Bierdemen Rd. - Pearl, MS 39208
Model No. AK6S245F
Capacity: 600 g.p.d.
Serial Number: xxxx
Performance Rated: Class 1



Data Plate



AQUAKLEAR, INC.
876 N. Bierdeman Rd. - Pearl, MS 39208
Model No. AK6S245F
Capacity: 600 g.p.d.
Performance Rated: Class 1

