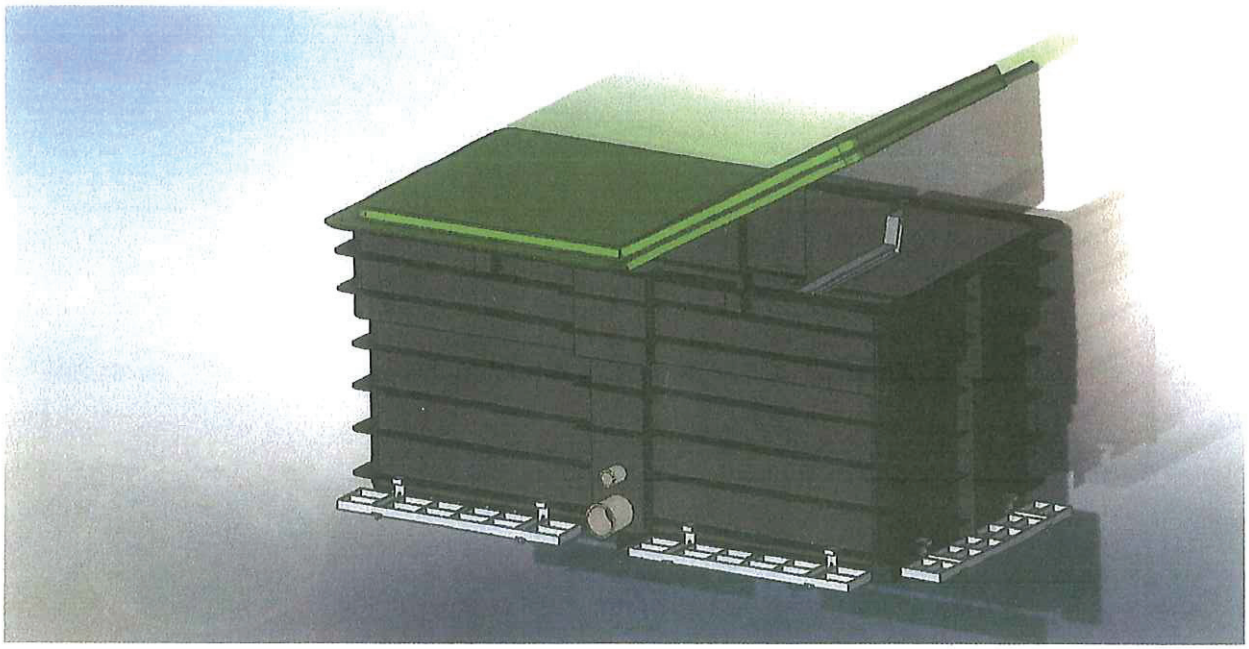
20150119

E-Z TREAT

PO Box 176
Haymarket, Virginia 20168

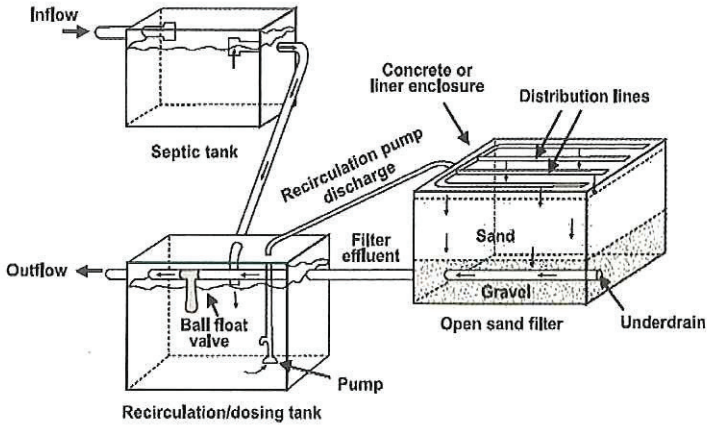


E-Z Treat Synthetic Re-Circulating Sand Filter

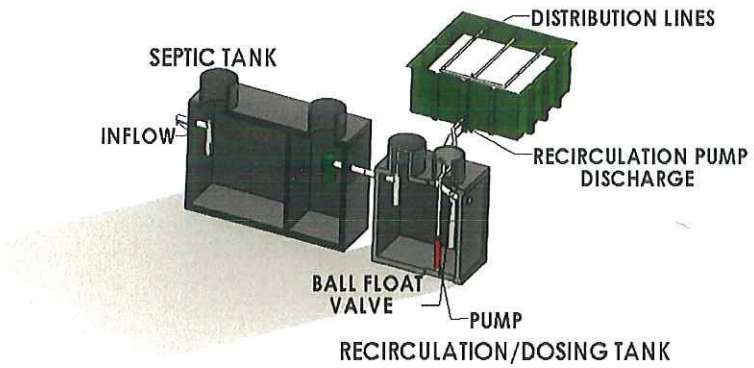
E-Z Treat Re-Circulating Synthetic Sand Filter System Overview

EPA Design Guidelines

Figure 1. Typical Recirculating sand filter system



E-Z TREAT
RECIRCULATION SAND/MEDIA FILTERS



E-Z Treat System Technology

As the U.S. **EPA** document "Technology Assessment of Intermittent Sand Filters" states:

"Intermittent sand filter filtration of wastewater is not new technology" the concept was employed in the U.S. in the mid-1800's. "Intermittent sand filters are ideally suited to rural community clusters, small cluster homes, individual homes and business establishments. They can achieve advanced secondary or even tertiary levels of treatment consistently with a minimum of attention." (Anderson, et al, 1985) The EPA points out that sand filters operate reliably in a trouble free manner and the technology is very "fail safe" in that it is inherently stable. The biology of the system is quite diverse, typically including many trophic levels of microorganisms, and some macro organisms. (Calaw et al, 1952, Calaway, 1957) These characteristics render the process inherently resistant to upset and also allow it to readily accommodate sanitations where loading is highly non-uniform.

Design

Many types of media are used in packed-bed filters. Washed, graded sand **was** the most common. Other granular media used include crushed glass, garnet, anthracite, plastic, expanded clay, expanded shale, open-cell foam, **extruded polystyrene**, and bottom ash from coal-fired power plants.

Media characteristics can limit the number of doses possible. Media re-aeration must occur between doses. As the effective size of the media decreases, the time for drainage and re-aeration of the media increases. The BOD_5 loading should decrease with decreasing effective size of the sand.

Recirculation tank sizing

For single-family home systems, the recirculation tank is typically sized to be equal to .75 to 1 times the design peak daily flow.

Recirculating filter performance

[d] **Single-family** home filters. media: es = **4.0 mm**; uc = <2/5. Design hydraulic loading (forward flow)= **25 gpd/ft^2**. Recirculation ratio = 5:1. Doses per day = 48. Open surface, winter operation.

RSFs are extremely reliable treatment devices and are quite resistant to flow variations.

In general, gravel RSF systems are far less prone to odor production than RSFs. Increased recycle ratios should help minimize such problems. However, power outages will stop the process from treating the wastewater, and prolonged outages would be likely to generate some odors.

Operating Costs

Power costs for pumping at 3 to 4 kWh/day are in the range of $90 to $120

The E-Z Treat System incorporates technology resulting from years of independent research in re-circulation sand bio filtration. Our system applies each area of this technology in a pre-packaged system, insuring consistent in the field performance reducing BOD, TSS and Total Nitrogen. E-Z Treat System addresses media size and composition, drainage and ventilation, optimum dosing cycles per hour, depth of filter media, pre-treatment of effluent, pre-filtering of effluent to insure particle size, even distribution of effluent over the media and piping design that optimize treatment within the system.

E-Z Treat Loading Rates

In accordance with the EPA Design Guidelines and field testing of the E-Z Treat re-circulating sand/media Filter **Model # 600** can be continuously loaded at 750 GPD and 1.75 lb BOD **Model# 1200** can be continuously loaded at 1400 GPD and 3.5 Lb BOD. EPA research and testing has proven that system designs, such as the E-Z Treat System, will produce a high quality effluent at loading rates in excess 25 gal/ft2/day.

System Overview

Prior to entering the re-circulating pump tank the effluent will be treated in an anaerobic chamber fitted with an effluent filter; this filter should remove any solids greater than 1/16 inch. The second chamber will be a re-circulation chamber fitted with a float ball by-pass valve and re-circulation pump. The float ball by-pass valve connects, inside the re-circulation tank, to the 4 inch return line from the sand filter. The float by-pass valve maintains a constant liquid volume in the re-circulation tank. The float by-pass valve allows the effluent to be constantly re-circulated through the sand/media filter discharging only the daily forward flow volume after it has passed through the filter. In designs using an external splitter box the float by-pass valve would be eliminated from the re-circulation chamber.

The following are recommended System & Re-Circulation Chamber sizes and Timer Settings for year round residential properties.

Design Flow GPD	Min. Septic Tank Sizing	Re-Circ Tank Min. Gal.	Number of Units Mod.#600	Number of Units Mod.#1200	Timer Setting Mod.#600 Min./On	Mod.#600 Min./Off	Timer Setting Mod.#1200 Min./On	Mod.#1200 Min./Off
300	750	300	1	1	2.5	24	2.5	39
400	750	400	1	1	2.5	20	2.5	28
500	900	500	1	1	2.5	16	2.5	22
600	900	600	1	1	2.5	14	2.5	18
700	1000	700	1	1	2.5	21	2.5	15
800	1000	800	2	1	2.5	18	2.5	13
900	1500	900	2	1	2.5	15	2.5	11
1000	1500	1000	2	1	2.5	13	2.5	9
1100	1500	1100	2	1	2.5	12	2.5	8
1200	2000	1200	2	1	2.5	10	2.5	7.5
1300	2000	1300	2	1	2.5	9	2.5	7
1400	2000	1400	2	1	2.5	8	2.5	6

Note: Tank sizing are not exact and may vary (+ or – 10%) based on availability of locally produced tanks.

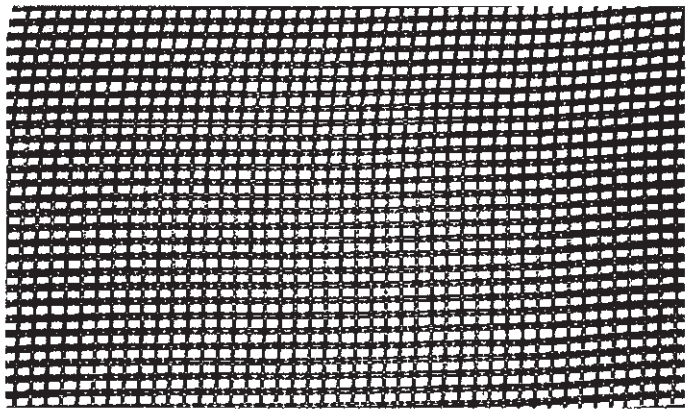
Spray Manifold System

To maximize the effectiveness of every cubic inch of the media material, the E-Z Treat **Model #600** employs a spray manifold with 8 evenly spaced wide-angle spray nozzles and the Model#1200 employs 12 nozzles. The nozzles are brass construction with a free passage of .0625" in diameter; this large free passage helps prevent nozzle clogging while maintaining a consistent misting spray. The manifold is assembled with a pressure gauge and valves allowing for flow rate adjustments.

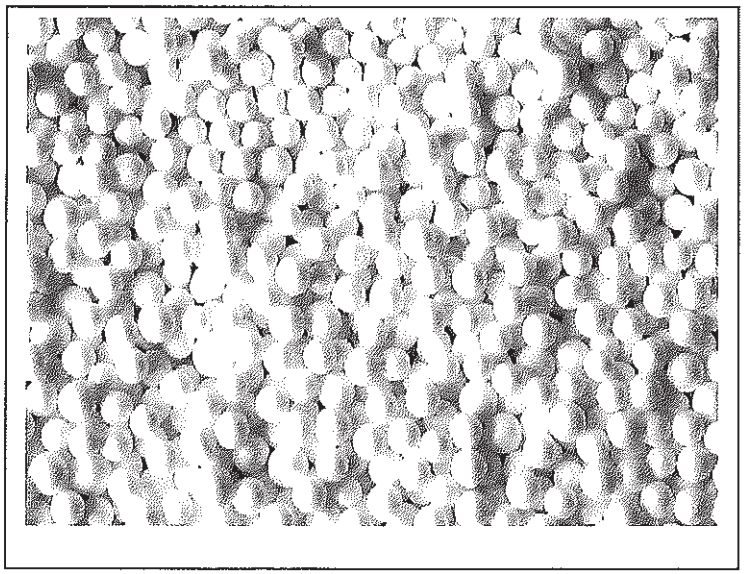
Filter Media Mattress Material

E-Z Treat synthetic sand filter employs a manufactured synthetic media which is encapsulated in a mattress like container. The mattress is fabricated from a non-biodegradable; chemically resistant, loose weave polypropylene material with a weave pattern at 90 degree intersections creating .078 square openings allowing effluent and air to flow freely while containing the media material.

Polypropylene Mattress Material

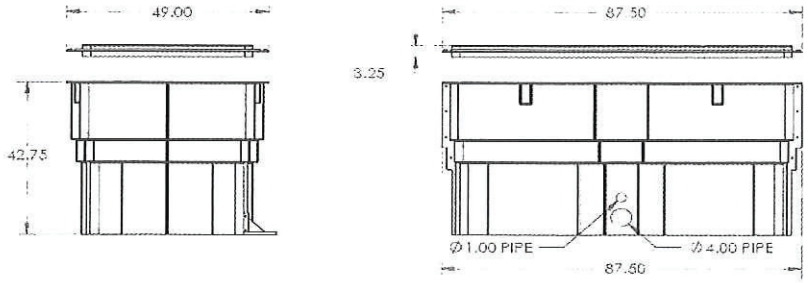


Styrene Media



This media is very uniform and provides ample surface area for biological growth. The media also has enough voids to accommodate good air and liquid flow; these void spaces also allow the passage of very small solids that would clog many filters. The media is very lightweight making it resistant to compaction which can lead to poor air and liquid flows, a problem that plagues many media filters. The media consists of lightweight, non-biodegradable plastic spheres.

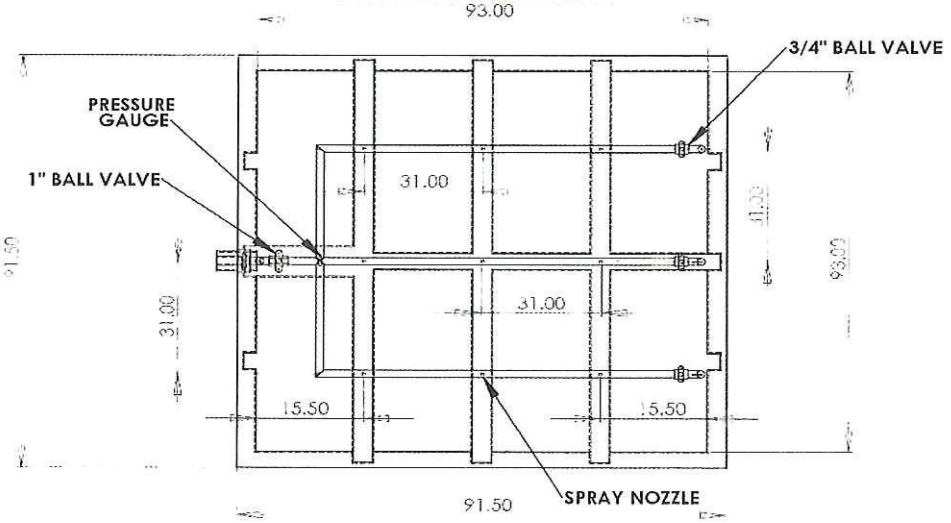
Model # E-Z Treat 600



MODEL - 600

SIZE DWG. NO. REV
A E-Z TREAT MODEL- 600 ASSEMBLY
SCALE: 1:24 WEIGHT: SHEET 1 OF 1

E-Z Treat Model# 1200



SIZE DWG. NO.
A E-Z TREAT-3
SCALE: 1:50 WEIGHT: SHEET 1

Installation

E-Z Treat Installation Instructions

E-Z Treat Company or its representative will conduct on-site training with each installer before they are certified to install E-Z Treat systems. The training will include instruction on proper site prep, locating Pod/Unit, equipment handling, excavation, pod placement, piping, wiring and start up of the E-Z Treat system. Annual classroom training will be a requirement for contractors to maintain their certification. As a condition of E-Z Treat certification, contractors must have proper state and local licenses and insurances. E-Z Treat distributors will only sell or authorize installations by E-Z Treat certified contractors.

The E-Z Treatment pod will ship pre-assembled, requiring only field piping of the Pod/Unit supply line and discharge line, installing the re-circulation pump, four inch float by-pass valve and the re-circulation control. When installing the E-Z Treat system the order of components installation is not critical and each segment can be installed independently.

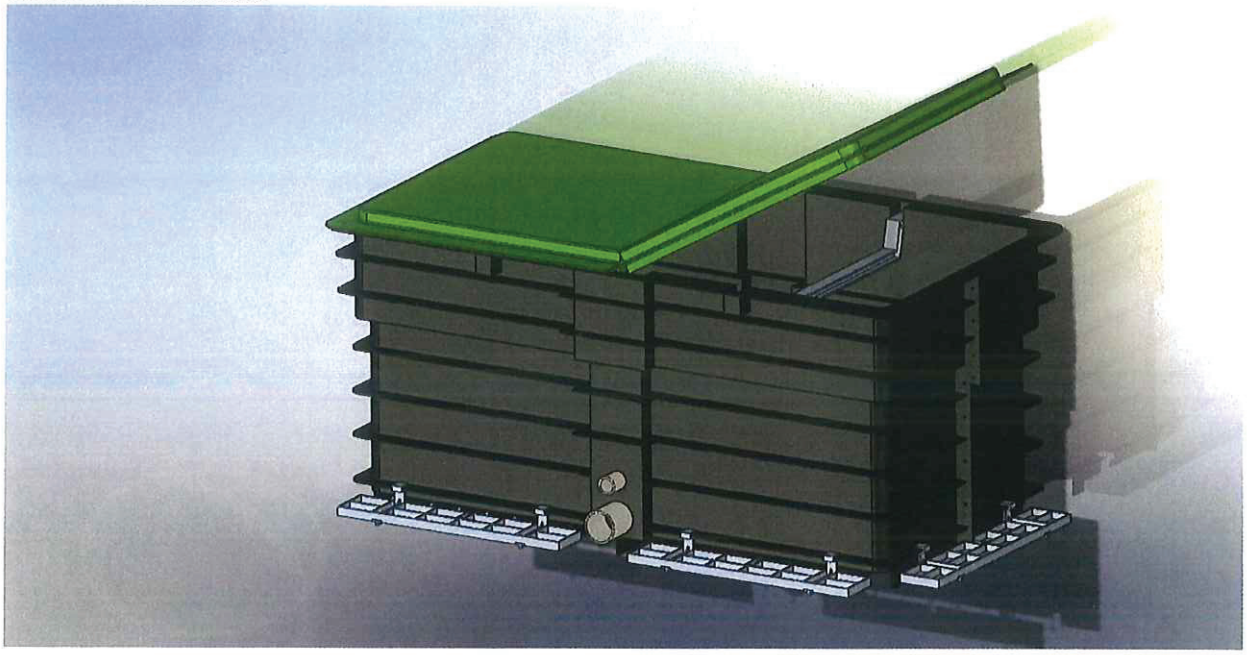
Pre Construction Meeting:
A pre construction meeting is recommended before any construction commences. This meeting is an opportunity for the owner, builder, engineer/designer, local regulatory agencies, service provider and installer to clarify property lines, building location, system location, power sources, drainage areas, final site grading and answer general questions.

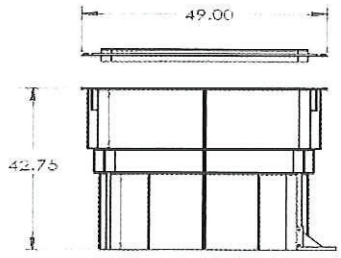
Off Loading Treatment System:
The E-Z Treat re-circulation filter Pod/Unit is injection molded polyethylene weighing about 350 lb. Because of the relative light weight and toughness of the material special handling is not necessary, two men can easily unload the Pod/Unit. If machinery is use to off load the Pod or transport to the excavated hole nylon straps, chains or cables used to lift the Pod should be in good condition and rated for at least 1000 lb. The re-circulation pump and control will be shipped in factory sealed cardboard box, these items are not fragile but should be handled with reasonable care not dropped or thrown.

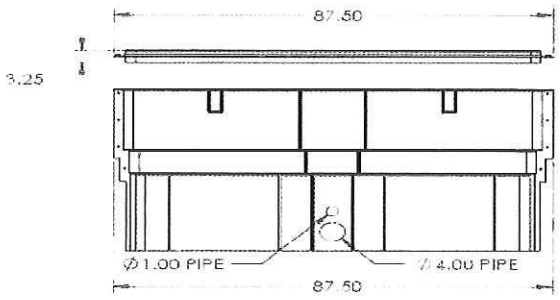
The standard E-Z Treat Model #600 Package Includes:

1. Treatment Unit Pod
2. Re-Circulation Pump
3. Float By-Pass Valve/ Splitter Box
4. Re-Circulation Pump Control

1. The E-Z Treat Pod







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THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF E-Z TREAT INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF E-Z TREAT INC. IS PROHIBITED.

NEXT ASSY USED ON
APPLICATION

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONALS
ANGULAR: MACH± BEND ±
TWO PLACE DECIMAL ±
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COMMENTS:

MODEL - 600

SIZE DWG. NO. REV
A E-Z TREAT MODEL- 600 ASSEMBLY
SCALE: 1:24 WEIGHT: SHEET 1 OF 1

2.STEP-20 Re-Circulation Pump

SPECIFICATIONS

Shell – Stainless steel

Discharge –
10, 20 and 30 GPM models: fiberglass-reinforced thermoplastic; 50 GPM models: stainless steel

Discharge Bearing – Nylatron®

Impellers – Delrin®

Diffusers – Polycarbonate

Suction Caps – Polycarbonate with stainless steel wear ring

Thrust Pads – Proprietary spec.

Shaft and coupling – Stainless steel 300 grade

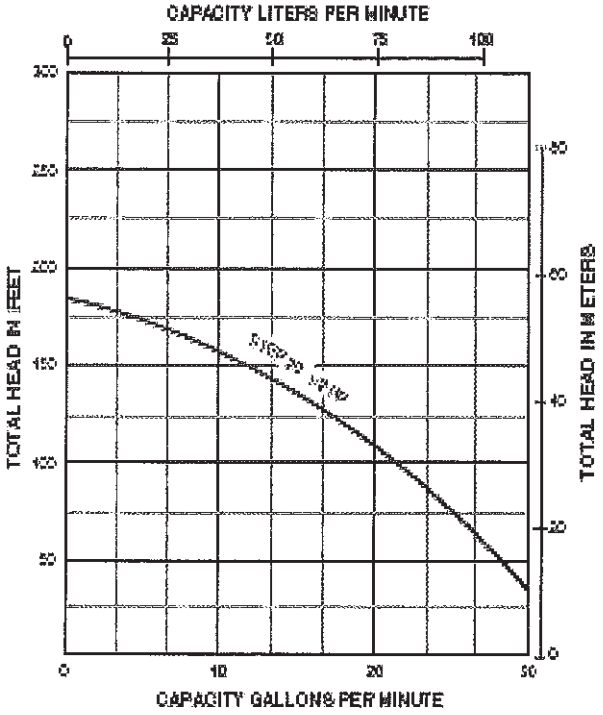
Intake – Fiberglass-reinforced thermoplastic

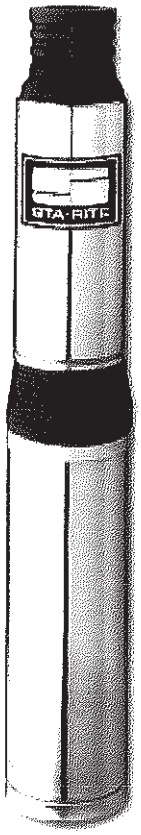
Intake Screen – Polypropylene

Jacketed Cord – 300 Volt "SOOW" jacketed 10' leads (2-wire with ground); optional 20', 30', 50' and 100' lengths available

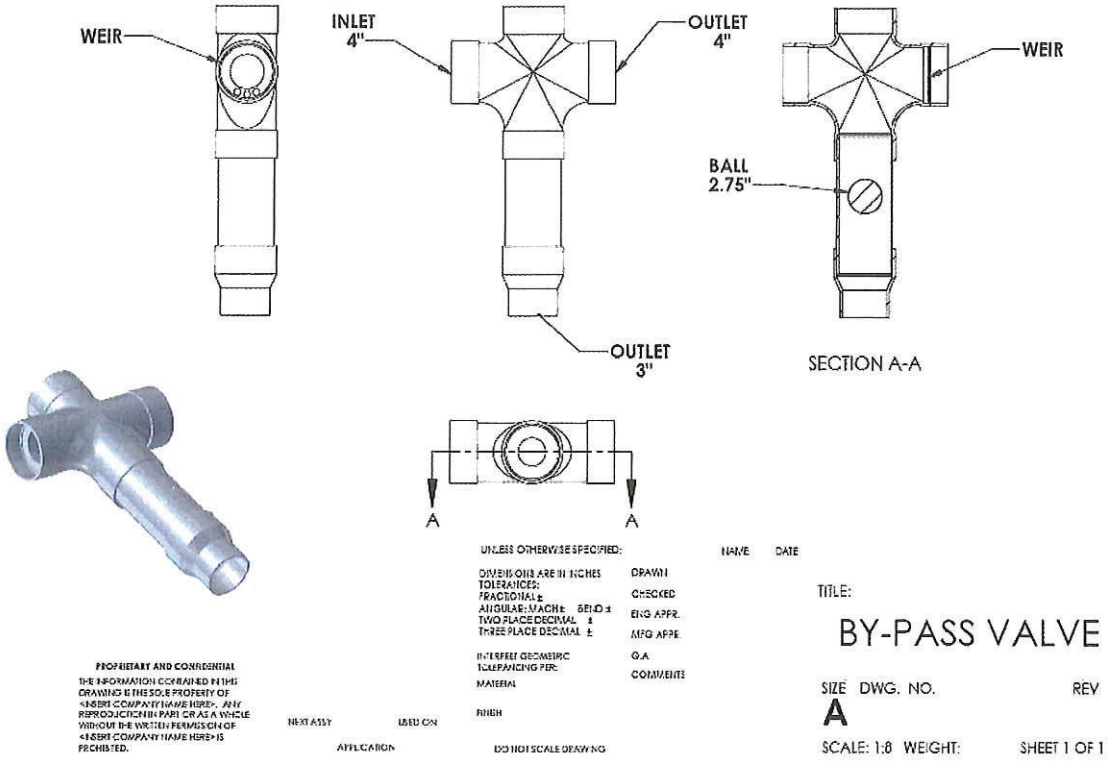
Delrin® is a registered trademark of E.I. DuPont de Nemours and Co. Nylatron® is a registered trademark of Polymer Corp. STE.P. Plus® is a registered trademark of Pentair Water. In order to provide the best products possible, specifications are subject to change.

PUMP PERFORMANCE – 20 GPM



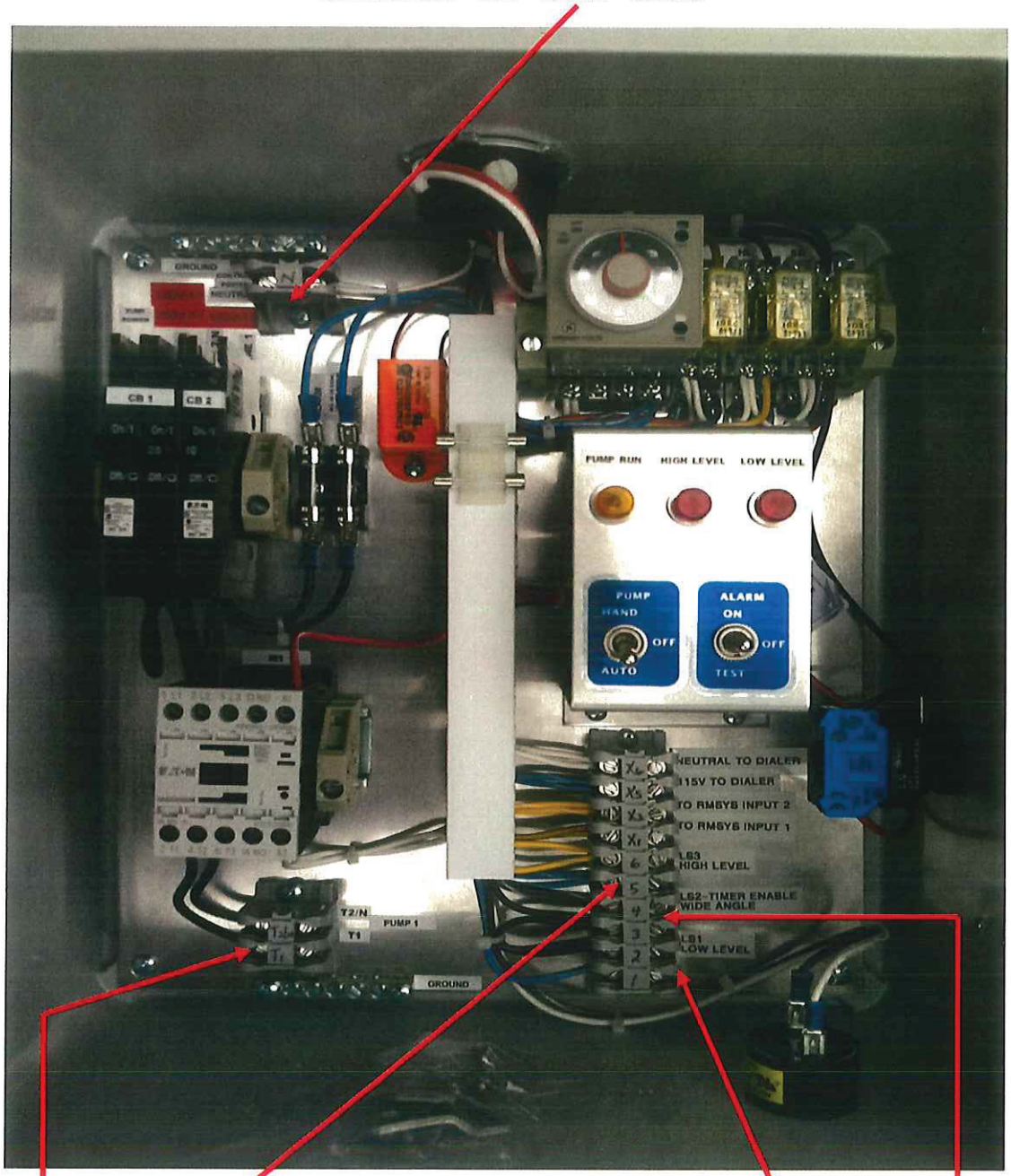


2. E-Z Treat Float Ball By-Pass Valve



3. E-Z Treat Re-Circulation Pump Control Mod# EZ SR-12

Line Voltage Power (115 v or 230v)
Terminals CB1 – CB2 – Netrual – Ground



High Level Alarm (Top Float) Connects to Terminals #5 and 6

Wide Angle Pump "ON" & "OFF" Timer Activation (Middle Float) Terminals #3 and 4

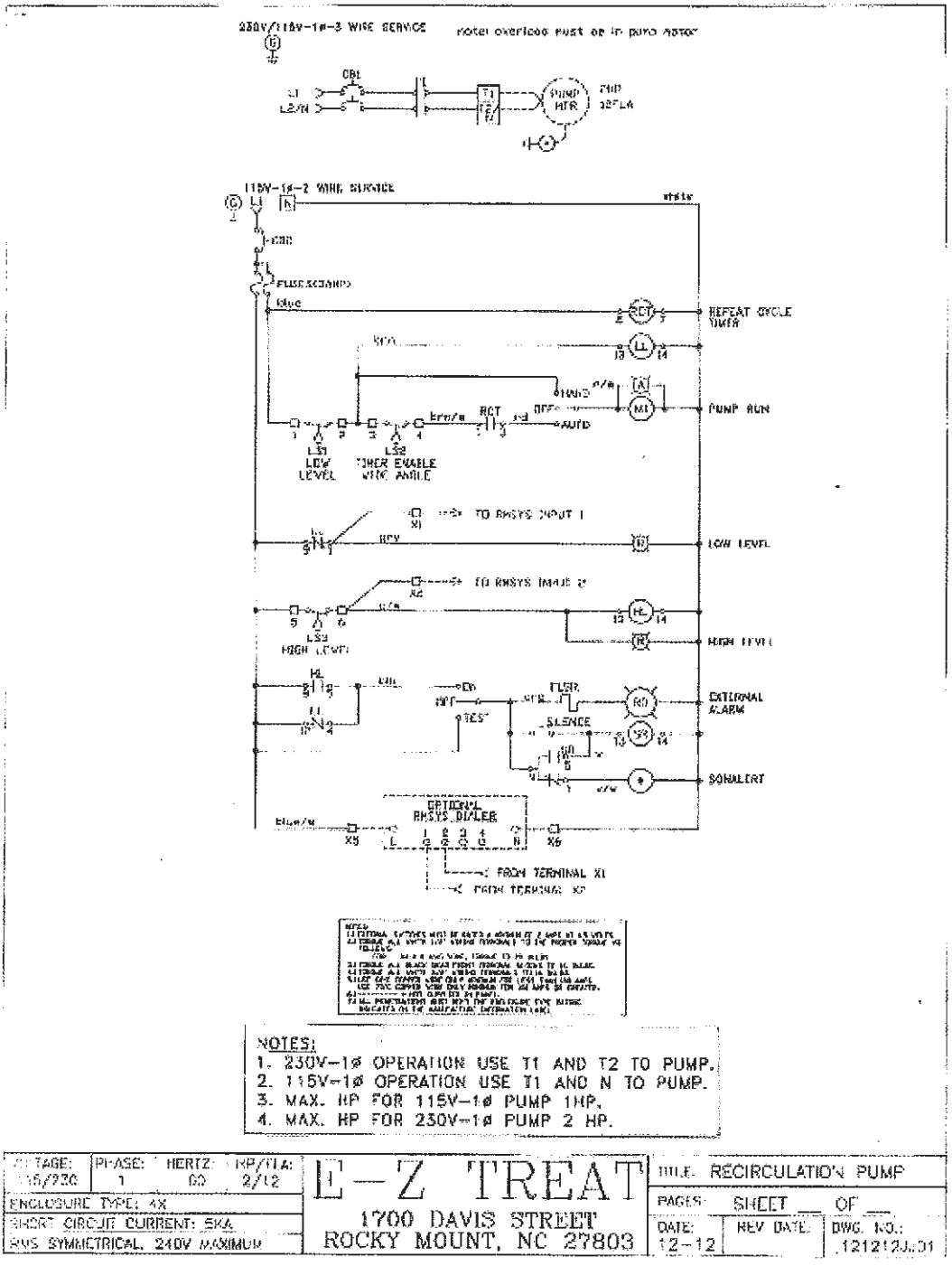
Low level Alarm (Bottom Float) Connects to Terminals #1 and 2

Re-Circulation Pump Power Source Terminals T1 & T2

Note: "Wiring Diagram is Located on the Control Panel Door"

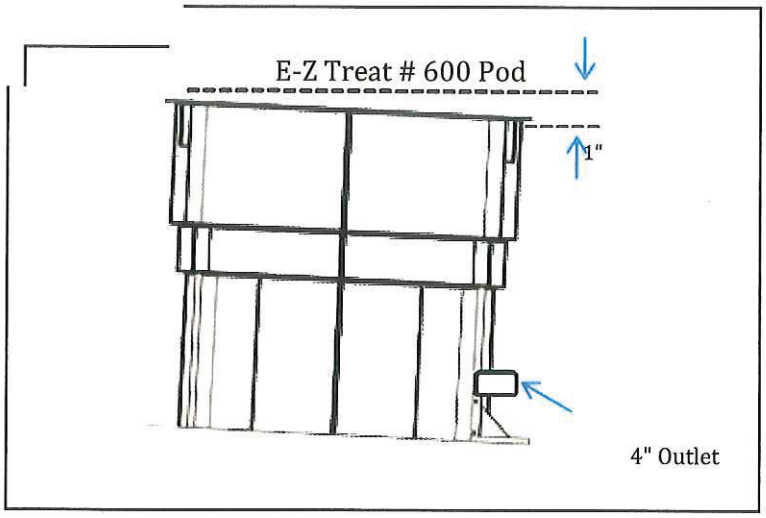
E-Z Treat Installation Instructions

Re-Circulation Pump Control: Mod.# EZ SR-12



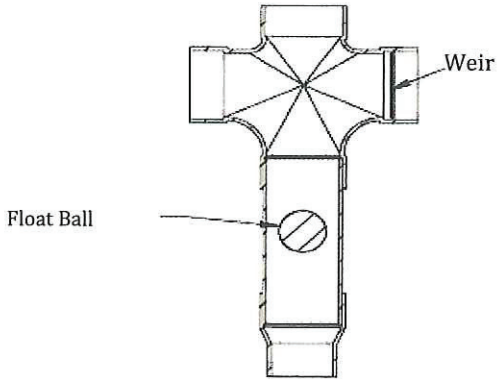
Excavating and Installing the Pod/Unit:
The first consideration when installing the E-Z Treat Pod/Unit is to assure the Pod is not located in a drainage area and the Pod is located above the seasonal high water table, this will protect the Pod from floating and prevent surface water infiltration.

Excavate a hole approximately 6' x 9' x 4'. Place 4" of #57 stone or equal in the bottom of the excavation forming a level base for the Pod to set, this will prevent settling of the Pod and allow for leveling of the Pod. Backfill the Pod with clean fill dirt, free of rocks and foreign material. Do not compact the fill, allow the soil to settle naturally. Once the Pod is placed in the excavation adjust the Pod to slope 1 inch toward the 4" PVC outlet this assure proper drainage.



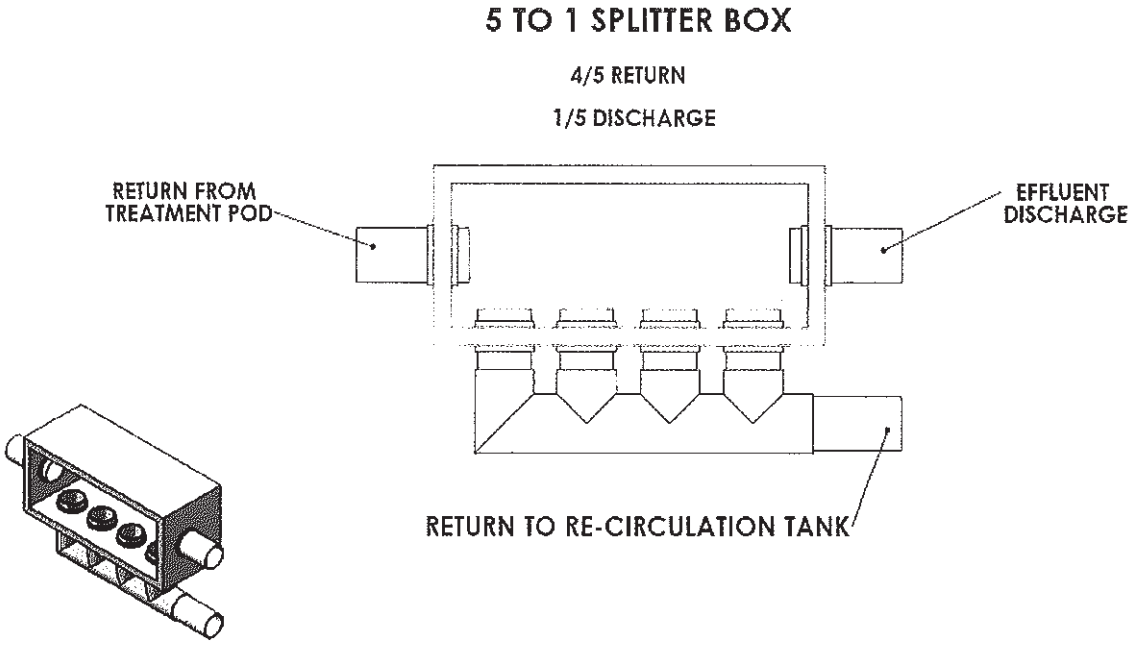
Piping the E-Z Treat Pod/Unit Supply and Return:
Once the Pod is placed and Leveled connect 4" PVC pipe between the outlet of the Pod and the By-Pass valve located in the recirculation tank. Attach 1" PVC supply line between the 1" inlet on the Pod and the recirculation pump.

Installing the By-Pass Valve:
The By-Pass Valve is located in the recirculation tank and one side is connected to the 4" PVC drain line coming from the Pod and the other side is connected to the 4" PVC effluent discharge line or into the effluent pump tank.



Installing Splitter Box.

The splitter box can be constructed of concrete, plastic, stainless steel or aluminum. The box should be placed on a firm level soil. The box should be set as level as possible. Final leveling to insure all effluent discharges equally from each outlet can be accomplished with the use of Dial-A-Flow or Speed Leveler devices.



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COMMENTS:
NAME DATE

TITLE:
ratio box 5 to 1
SIZE A
DWG. NO.
REV
SCALE: 1:20 WEIGHT:
SHEET 1 OF 1

Installing the Re-Circulation Pump:
Connect the 1" PVC pipe between the Inlet of the Pod and the Re-Circulation pump. Always provide a quick disconnect device for removing the pump, this can be accomplished with a Union, Can-Lock or Pittless adapter. DO NOT install a check valve in the pump supply line this will prevent the supply line the Pod spray manifold from draining and may cause freezing. To insure complete drainage of the spray manifold drill an 1/8 inch hole in the PVC pump supply pipe just above the discharge end of the pump.

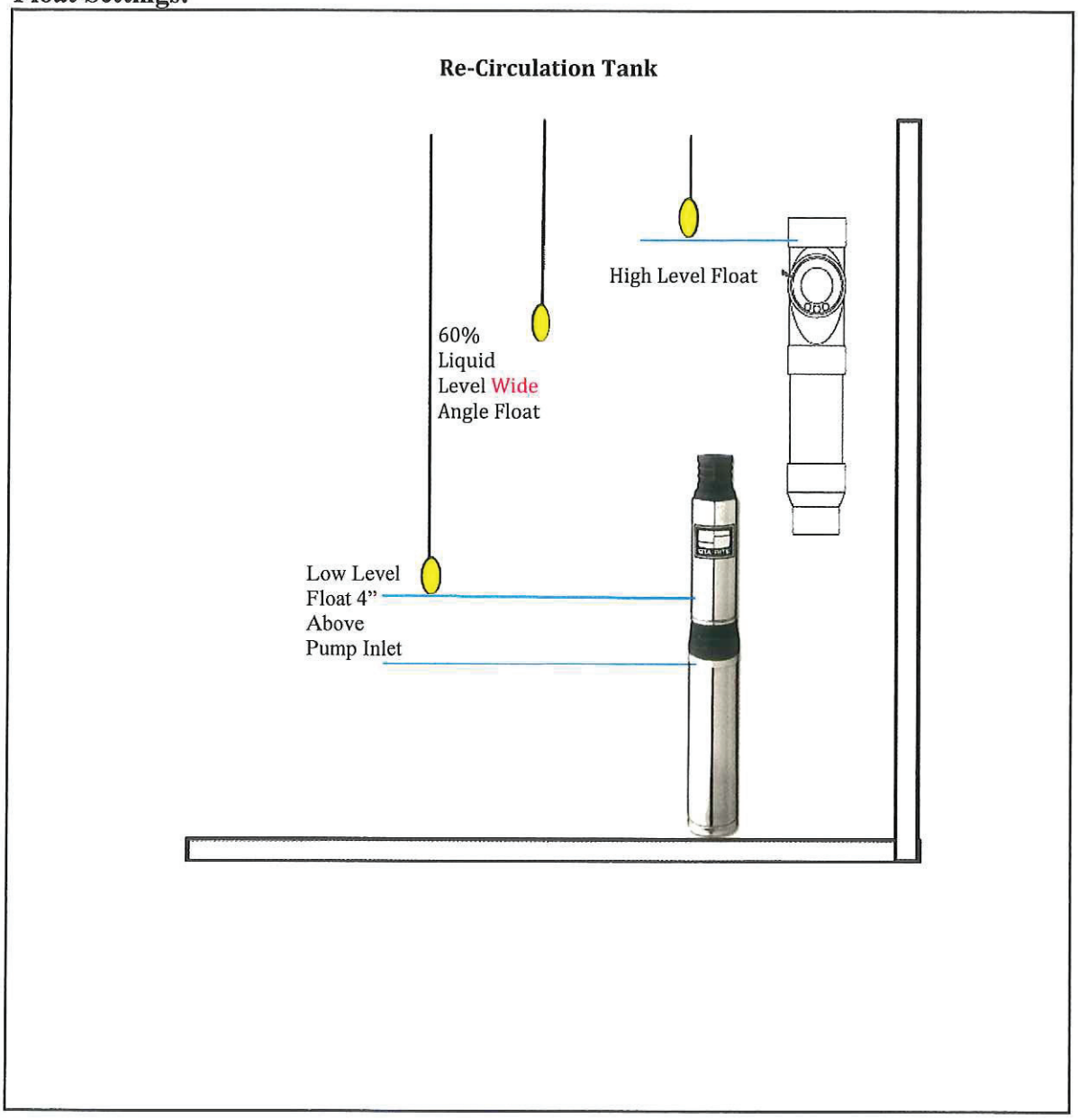
Setting Pump Control Floats: **(SEE Page 4)**
The control panel will come with 3 liquid level floats.

1.Low Level Alarm Float protects the pump from Run Dry damage by turning off the pump and sound an Audio Visual Alarm. Set float to activate if the effluent level drops to 4" above the pump intake.

2. Timer Enable Float activates the pump run time and assures the pump only runs when there is sufficient effluent in the re-circulation tank. Set float to activate when effluent level in the recirculation tank is filled to 50%.

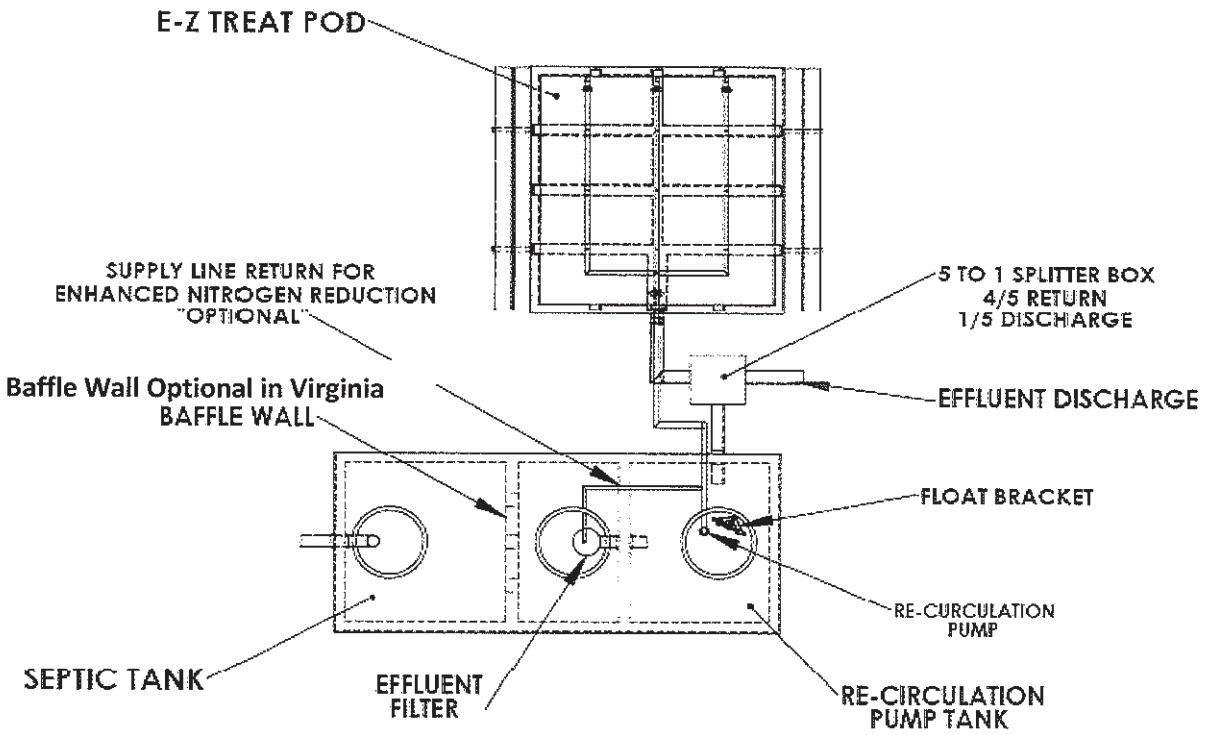
3.High Water Alarm Float will sound an Audio Visual Alarm when the effluent in the re-circulation tank is too high. Set float to activate when the effluent level in the in the recirculation tank is level with the top of the By-Pass Valve.

Float Settings:



Typical Designs

One Tank Gravity Discharge (Splitter Box)



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ANGULAR: MACH ± BEND ±
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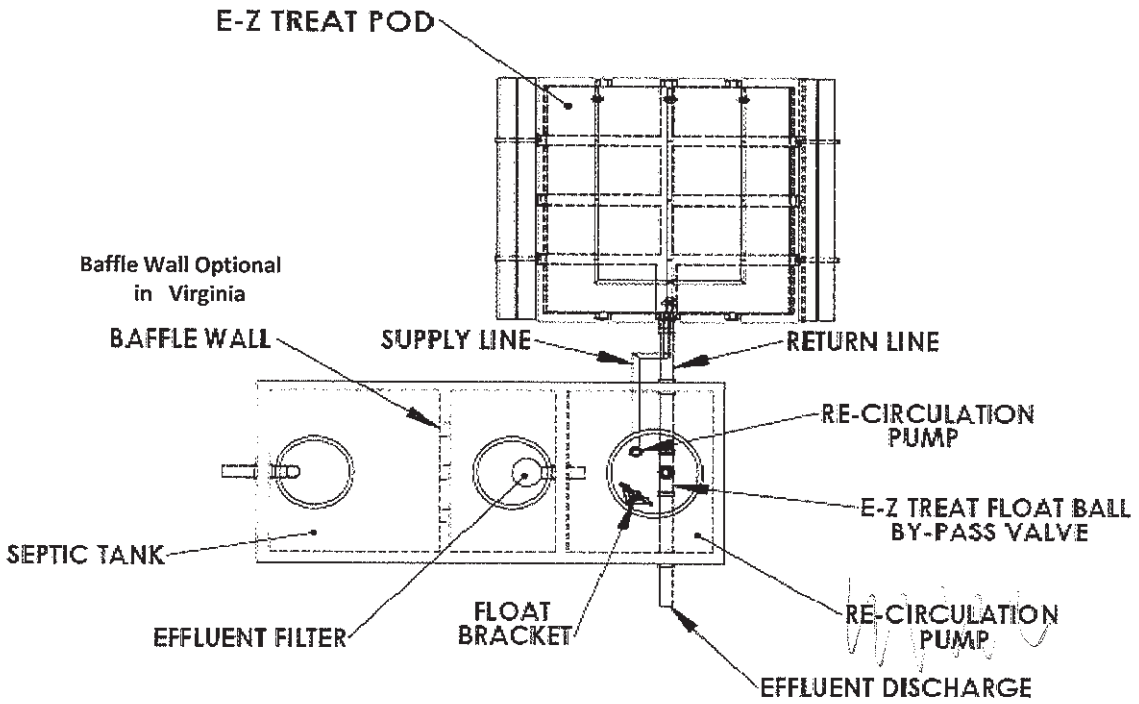
TITLE:
SINGLE TANK GRAVITY
DISCHAGE WITH SPLITTER BOX

Timer Se

Forward Flow GPD	Timer ON	Timer OFF
750	2 Min.	15 Min.
600	2.5 Min	13 Min
450	2.5 Min	17 Min.
300	2 Min	22 Min

Forward Flow GPD	Timer ON	Timer OFF
750	2 Min.	12 Min.
600	2 Min.	15 Min.
450	2 Min.	22 Min.
300	2 Min.	30 Min.

One Tank Gravity Discharge (By-Pass Valve)



UNLESS OTHERWISE SPECIFIED:

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ANGULAR MACH ± BEND ±
TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

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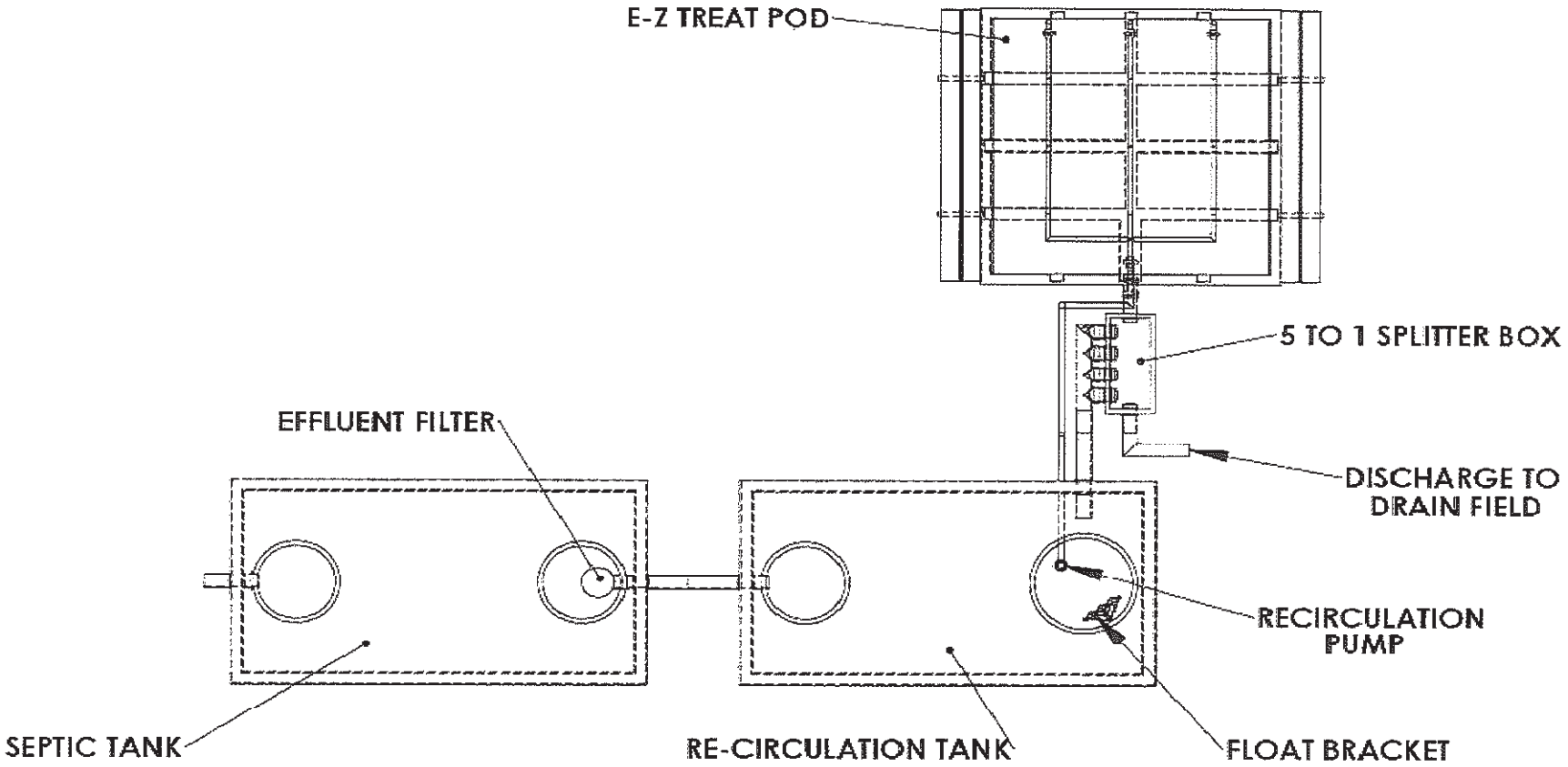
MFG APPR.

NAME DATE

TITLE:

SINGLE TANK GRAVITY
DISCHARGE WITH BY-PASS VALVE

Two Tank with Splitter Box



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TWO PLACE DECIMAL ±
THREE PLACE DECIMAL ±

INTERPRET GEOMETRIC TOLERANCING PER:

MATERIAL

FINISH

NAME DATE

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Q.A.

COMMENTS:

TITLE:

two tank with splitter box

SIZE A DWG. NO. REV

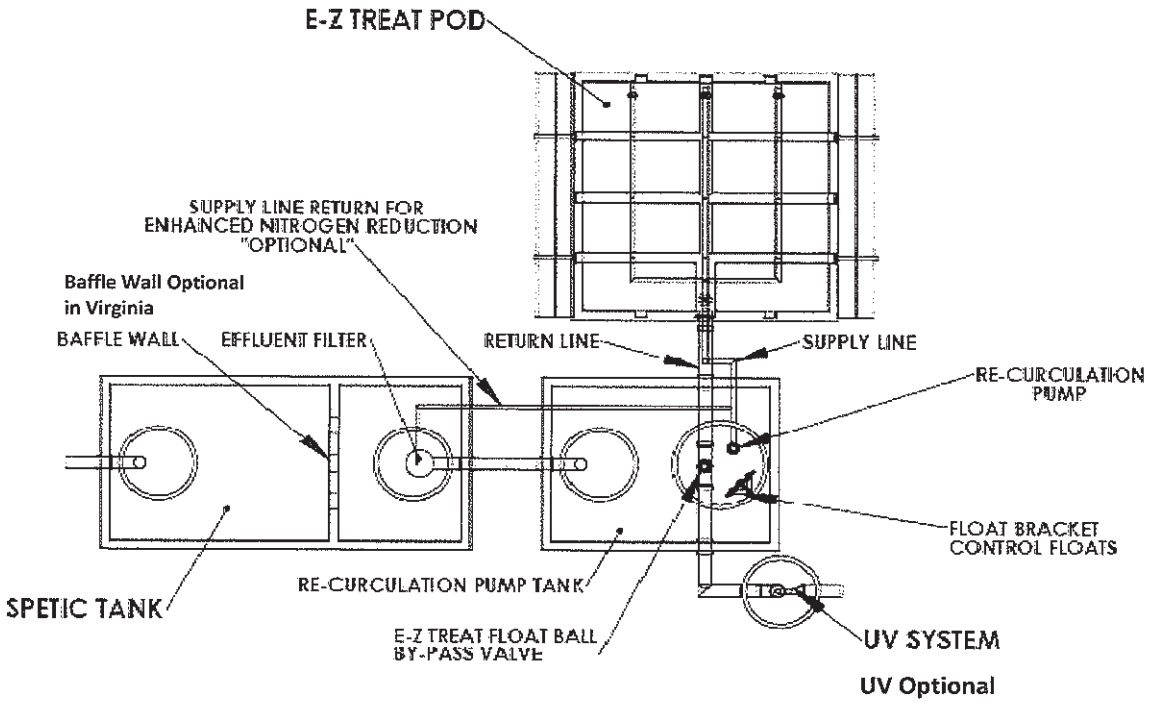
SCALE: 1:10 WEIGHT: SHEET 1 OF 1

NEXT ASSY USED ON

APPLICATION

DO NOT SCALE DRAWING

Two Tank Gravity Discharge (By-Pass Valve)



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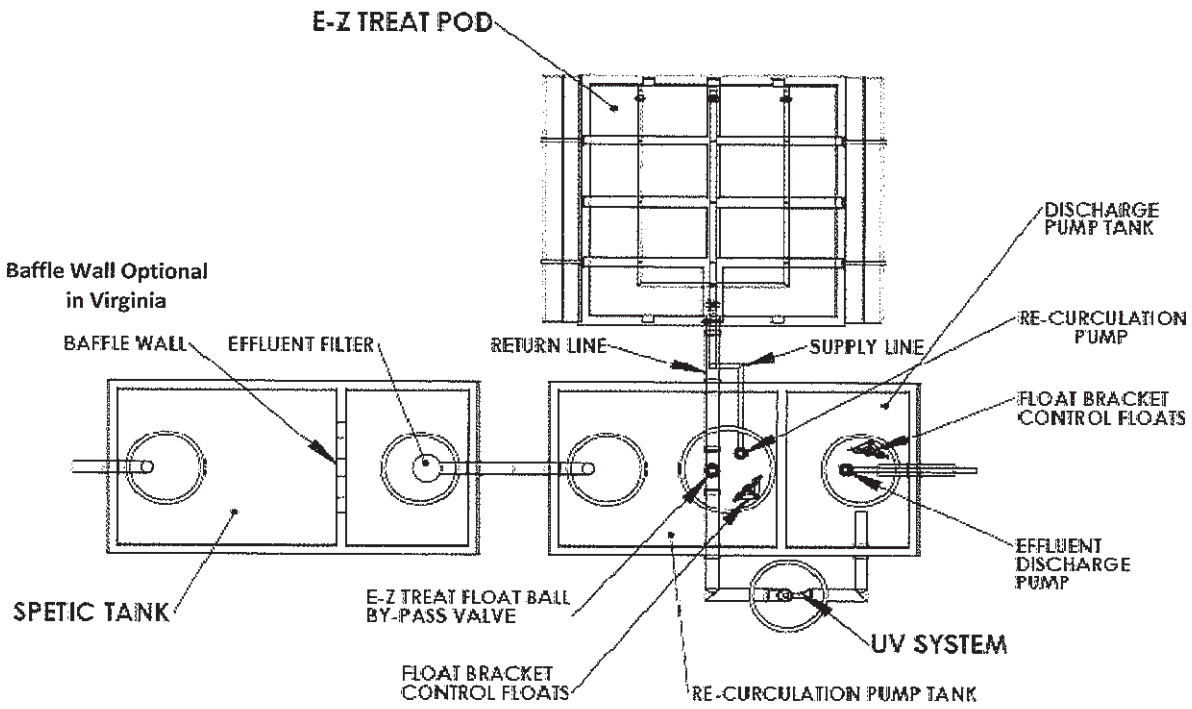
TITLE:

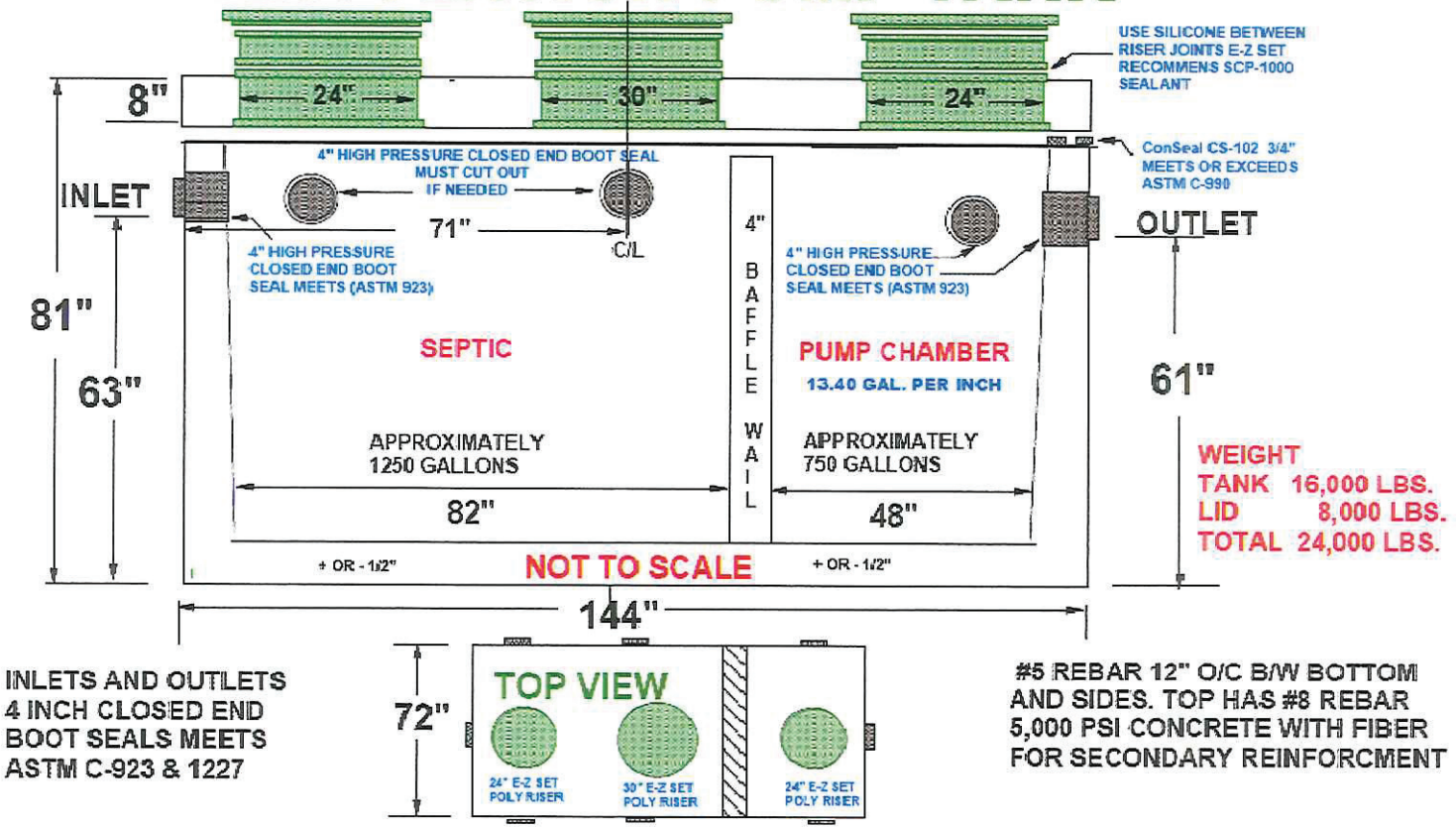
TWO TANK WITH UV AND NITROGEN
REDUCTION LINE "OPTIONAL"

Two Tank Pump Discharge



5 Bedroom (Fairfax Va.) Combo Tank

E-Z TREAT 2000 GALLON RECIRCULATION PUMP TANK



INLETS AND OUTLETS
4 INCH CLOSED END
BOOT SEALS MEETS
ASTM C-923 & 1227

#5 REBAR 12" O/C B/W BOTTOM AND SIDES. TOP HAS #8 REBAR 5,000 PSI CONCRETE WITH FIBER FOR SECONDARY REINFORCMENT

System Start Up

Start UP

Septic Tank and Re-Circulation Tank

The septic and re-circulation tank shall be inspected prior to start up to:

1. Verify the lid and riser assemblies are watertight. Check for any damaged, water weeping marks, holes or cracks. The system must remain watertight to perform properly.
2. Inspect the outlet effluent filter installation to insure it is installed in accordance with the effluent filter manufacturer's specifications.
3. Inspect the liquid level in the recirculation tank, the liquid should be sufficient to activate the Timer Enable Float.
4. Inspect the location of the float controls. They should be securely attached to the float bracket, free to float without obstructions and the location of the floats should correspond with the float diagram on page 14.

Power Supply

1. Verify the main power supply to the Re-Circulation Panel has properly sized breakers, the proper voltage and is installed in protection water tight conduit.

2. Check the voltage and motor amp draw. If the readings are beyond the limits specified on the pump have an electrician check the main service line feeding the system control panel.

By-Pass Valve

1. Inspect the float by-pass valve insure the Ball in the valve moves freely. Manually start the re-circulation pump and observe the float ball valve, the ball should drop as the liquid in the re-circulation tank drops the effluent returning from the filter pod should flow back into the re-circulation tank and should not flow out the discharge pipe.

Flush the Spray Manifold:

1. At initial Starting-Up of the system remove the end caps from the spray manifold. Operate the re-circ pump by turning the pump control to the "Hand- On" position. Let the pump run for 1 (one) minute then turn the pump control to the "Off" position repeat this procedure three times to flush any construction debris such as dirt or pipe shavings from the spray manifold. Replace the end caps "**Hand Tight**" do not use wrenches or pliers. Re-set the pump control selector switch to the "Auto" position.

2. Using the ball valve located in the manifold supply line adjust the manifold pressure to 20 to 25 PSI.

3. Observe the system as it re-circulates. Visually verify all liquids flows freely thru the system.

Setting the Re-Circulation Pump Control

1. Check the functions of the E-Z Treat Sand Filter control panel.
   Control: **Main Control** "On/Off Switch"

   Function: Turns Power ON or OFF

   Control: **System Setting Switch** "Manual ON" and "Auto On"

   Function: "Manual ON" overrides all Float Switches and Time Clock Switches "Auto On" allows for normal operations dictated by the Time Clock and Float Switches.

   Control: **Time Clock** "Minutes On" and "Minutes Off"

Function: Controls run time of re-circulation pump i.e. GPD re-circulated thru media

Control: **High and Low Water Alarm** "Alarm On", "Alarm Auto" and "Alarm Silence".

Function: "Alarm On" will manually turn on the audio/visual alarms. "Alarm Auto" is the normal operational setting and "Alarm Silence" turns off the alarms.

2. Check re-circulation pump. Place the system in the manual mode by turning the re-circulation pump switch to "ON". The re-circulation pump should begin to supply effluent to the spray nozzles in the treatment pod.

Control Panel/Pumps/Alarms

3. Place the system in the normal operating mode by turning the re-circulation pump switch to "AUTO". Verify the Time Clock ON/OFF set the ON/OFF time to match the chart on page 4. SEE: Timer setting instructions below.

4. Verify the accuracy of the system ON/OFF Timer Clock. To accomplish this use a stop watch and verify the length of time the re-circulation pump is OFF then verify the time the re-circulation pump is ON, those times should match the ON/OFF Timer Clock settings in the control panel.

5. Confirm the operation of the visual and audible "HIGH" and "LOW" water alarms. The control has an alarm switch clearly marked Alarm "ON", Alarm "Auto" and Alarm "Silence" Place the Alarm Switch in the "ON" position, you will hear a loud buzzer and see a red flashing light. Move the switch to the Alarm" Silence" position the red light and buzzer will go dormant. Once the alarms have been triggered return all settings to their original position of Alarm "AUTO"

6. Verify the floats are operational by manually raising and lowering the floats to simulate the systems normal operation. Verify proper operation of "High Level Float" by lifting the float while the system Timer Clock is in the "OFF" time mode, the re-circulation pump should turn on over riding the "OFF" timer, the Visual and Audible alarms should activate. Return the float to its normal position the re-circulation pump will turn off. Reset the alarms and manually lower the "Low Water Float" with Timer Clock in the "ON' mode, the re-circulation pump will turn off and the visual/audible alarms will activate. Return the float to the normal position and the re-circulation pump will run. Reset the Alarms.

7. Verify all control breakers are in the ON position and all control switches are in the AUTO position before closing and securing the system.

Timer Settings

Design Flow GPD	Min. Septic Tank Sizing	Re-Circ Tank Min. Gal.	Number of Units Mod.#600	Number of Units Mod.#1200	Timer Setting Mod.#600 Min./On	Mod.#600 Min./Off	Timer Setting Mod.#1200 Min./On	Mod.#1200 Min./Off
300	750	300	1	1	2.5	24	2.5	39
400	750	400	1	1	2.5	20	2.5	28
500	900	500	1	1	2.5	16	2.5	22
600	900	600	1	1	2.5	14	2.5	18
700	1000	700	2	1	2.5	21	2.5	15
800	1000	800	2	1	2.5	18	2.5	13
900	1500	900	2	1	2.5	15	2.5	11
1000	1500	1000	2	1	2.5	13	2.5	9
1100	1500	1100	2	1	2.5	12	2.5	8
1200	2000	1200	2	1	2.5	10	2.5	7.5

Re-Circulation Pump Time Clock

Light Will Burn **Green** to Indicate Re-Circulation Pump is **OFF**

Window Will Display **OFF** Sec., Min. or Hr. Rotate **OFF** **Screw** Until Min. Appears in

Light Will Burn **RED** to Indicate Re-Circulation Pump is **ON**

OFF Screw,Seconds,Minutes,or Hours

Rotate Dial to Desired Minutes **ON**

Window Will Display **ON Sec., Min. or Hr.** Rotate **ON Screw** Until Min. Appears in Window

ON Screw Seconds, Minutes or Hours

Clock Face Screw Will Change the Clock Face From a Maximum Time of 1.5 Units to a Maximum of 30 Units. Always Set the Clock Face to 30

Rotate Dial to Desired Minutes **OFF**

Operation & Maintenance

Operation & Maintenance

E-Z Treat Sand/Media Filter
1-703-753-4770

E-Z Treat Company requires regular life time annual inspection and lifetime annual maintenance of the E-Z Treat Re-Circulating Sand/Media Filter, as a condition of purchase and ongoing operation compliance. The mandatory service contract will include a performance based system inspection. The service provider must be trained and certified by E-Z Treat Company.

All inspection and maintenance reports must be forward, along with any additional documentation, to E-Z Treat Company, the local authorized E-Z Treat Dealer, Property Owner and all required or designated regulatory agencies.

The following is a list of the routine maintenance and cleaning procedures that are required by E-Z Treat Company. Failure to perform the required system maintenance could reduce the desired performance of the system and will void the warranty on the E-Z Treat Sand Filter System.

E-Z Treat Systems should be inspected buy operator at start up and all inspections thereafter.

E-Z Treat Re-Circulating Sand/Media Filter Model # 0600
Residential Strength Influent

Septic Tank

The septic and re-circulation tank shall be inspected annually to ensure they are operating properly. Remove the access covers over the tank openings to perform the inspection.

1. Verify the lid and riser assemblies are watertight. Check for any damaged, water weeping marks, holes or cracks. The system must remain watertight to perform properly.
2. Remove, clean and replace the outlet effluent filter in accordance with the instructions provided by the effluent filter manufacturer.
3. Inspect the liquid level in the septic tank, it should be level with the bottom of the outlet pipe.
4. Inspect the effluent and scum layers in the septic tank. Look for oil or any other contaminants that are not normal.
5. Verify the tank has received its scheduled pumping and cleaning. Check the solids layer in each of the tanks. If the solids layer is excessive have the tank pumped.

Re-Circulation Tank

The re-circulation tank shall be inspected annually to ensure it is operating properly. Remove the access covers over the tank openings to perform the inspection.

Verify that the lid and riser assemblies are watertight. Check for any damaged, water weeping marks, holes or cracks, the system must remain watertight to perform properly.

1. Inspect the liquid level in the re-circulation tank, it should be level with the bottom of the outlet pipe.

2. At initial Starting-Up of the system remove the end caps from the spray manifold. Operate the re-circ pump by turning the pump control to the "Hand- On" position. Let the pump run for 1 (one) minute the turn the pump control to the "Off" position repeat this procedure three times to flush any construction debris such as dirt or pipe shavings from the spray manifold. Replace the end caps "**Hand Tight**" do not use wrenches or pliers. Re-set the pump control selector switch to the "Auto" position.

3. Inspect the float by-pass valve. Manually start the re-circulation pump and observe the float ball valve, the ball should drop as the liquid in the re-circulation tank drops the effluent returning from the sand filter pod should flow back into the re-circulation tank and should not flow out the discharge pipe.

4. Verify that all the re-circulation pump floats are in good condition, properly secured to the float bracket and are able to move freely within the re-circulation tank.

5. Observe the system as it re-circulates. Visually verify all flows thru the system.

Control Panel/Pumps/Alarms

1. Check the functions of the E-Z Treat Sand Filter control panel.

   Control: **Main Control** "On/Off Switch"
   Function: Turns Power ON or OFF

   Control: **System Setting Switch** "Manual ON" and "Auto On"
   Function: "Manual ON" overrides all Float Switches and Time Clock Switches "Auto On" allows for normal operations dictated by the Time Clock and Float Switches.

   Control: **Time Clock "**Minutes On" and "Minutes Off"
   Function: Controls run time of re-circulation pump i.e. GPD re-circulated thru media

   Control: **High and Low Water Alarm** "Alarm On", "Alarm Auto" and "Alarm Silence".
   Function: "Alarm On" will manually turn on the audio/visual alarms. "Alarm Auto" is the normal operational setting and "Alarm Silence" turns off the alarms.

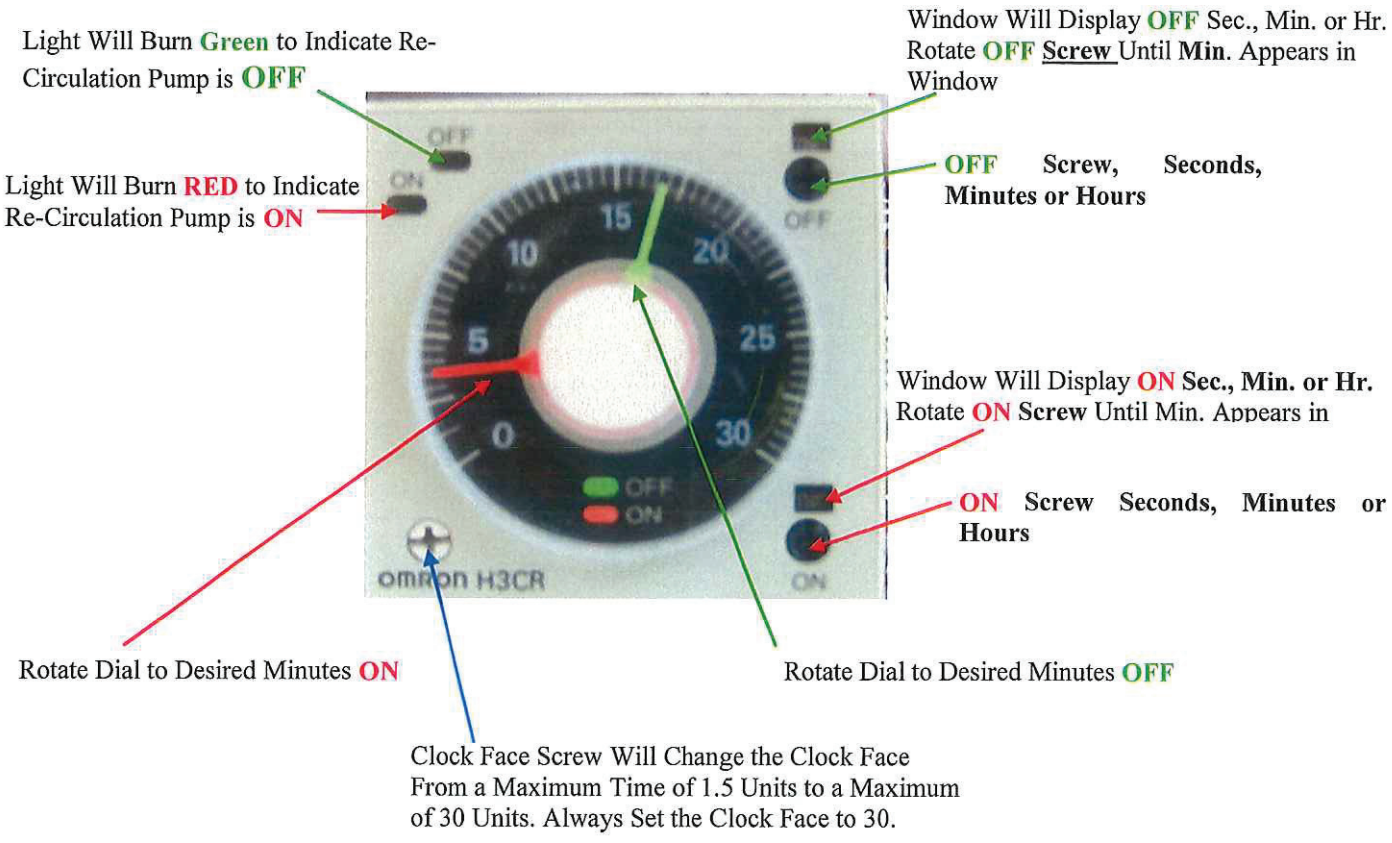
Check re-circulation pump. Place the system in the manual mode by turning the re-circulation pump switch to "ON". The re-circulation pump should begin to supply effluent to the spray nozzles in the treatment pod.

2. Check the voltage and motor amp draw and record the readings. If the readings are beyond the limits of the NEC recommendations, have an electrician check the main service line feeding the system control panel.

3. Place the system in the normal operating mode by turning the re-circulation pump switch to "AUTO". Verify the Time Clock ON/OFF settings are the same as set at system start-up. Record those timer settings in the system log.

4. Verify the accuracy of the system ON/OFF Timer Clock. To accomplish this use a stop watch and verify the length of time the re-circulation pump is OFF then verify the time the re-circulation pump is ON, those times should match the ON/OFF Timer Clock settings in the control panel.

Re-Circulation Pump Time Clock



5. Confirm the operation of the visual and audible "HIGH" and "LOW" water alarms. The control has an alarm switch clearly marked Alarm "ON", Alarm "Auto" and Alarm "Silence" Place the Alarm Switch in the "ON" position, you will hear a loud buzzer and see a red flashing light. Move the switch to the Alarm" Silence" position the red light and buzzer will go dormant.

6. Once the alarms have been triggered return all settings to their original position of Alarm "AUTO" (If applicable, verify the operation of the telemetry unit by checking the alarm notations on the website.)

7. Verify the floats are operational by manually raising and lowering the floats to simulate the systems normal operation. Verify proper operation of "High Level Float" by lifting the float while the system Timer Clock is in the "OFF" time mode, the re-circulation pump should turn on over riding the "OFF" timer, the Visual and Audible alarms should activate. Return the float to its normal position the re-circulation pump will turn off. Reset the alarms and manually lower the "Low Water Float" with Timer Clock in the "ON' mode, the re-circulation pump will turn off and the visual/audible alarms will activate. Return the float to the normal position and the re-circulation pump will run. Reset the Alarms.

8. Properly re-install and secure all tank accesses!

E-Z Treat Sand/Media Filter

The E-Z Treat Sand Filter should be inspected to ensure it is operating properly. Remove the pod cover to perform this inspection. Each E-Z Treat system should be installed with a sample box located on the final discharge side of the treatment system, this sample box is ideal for grab samples. If the installer failed to install a sample box grab samples can be taken from the pump discharge tank. Many state regulations include instructions for taking grab samples those rules and procedures supersede E-Z Treat.

1. Take a grab sample of the effluent check for:
    a. Odor, the effluent may have an earthy or musty smell there should be no strong or offensive odors present.
    b. Color, the effluent should be absent of any color.
    c. Check the Turbidity of the effluent with a Turbidity Meter, it should read 10 or Less.
    d. Solids, there should be no visible suspended solids
    e. Solids, let sample set for 15 minutes, there should be no visible settling of solids.
    f. Test the pH, it should measure 6.9 to 7.5

If there is odor, color or solids:

1. Check the filter media for excess surface solids or standing effluent if present clean the media. If any of these are present clean the media.
2. Check the Spray Manifold Pressure it should be 18 to 25 PSI. If necessary adjust the pressure with the Manifold Ball Valve.
3. Observe the spray distribution nozzles during operation. If a nozzle appears to be clogged or if the spray pattern is not uniform, remove the nozzle and clean the nozzle using a pipe stem cleaning brush.
4. Check the treatment Pod drain for obstructions that could cause standing water in the Pod.

5. Check the Timer "ON" and "OFF" Settings to ensure they correspond to the re-circulation rates prescribed in the table located on page 4.
6. If the Ph is below 6.9 reduce the re-circulation rate by increasing to "Off" time on the Time Clock Control. Recheck the Ph in 90 days.

2. Record the pressure reading on the distribution manifold gauge. Compare that pressure to the pressure recorded at the previous inspection. The pressure should read 18 to 25 PSI.

    a. Verify the pressure gauge on the spray distribution manifold is performing properly.

    b. Verify the flow rate at the spray nozzles (it should be 1.75 to 2 GPM).

    c. Verify the re-circulation pump is the same make and model pump that was specified for the original installation.

    d. Verify the re-circulation pump is performing in accordance to the pump manufacturers' specifications including amp draw and flows at specific pressures.

    e. If the pressure is above the prior recording or above the start up setting, open the ends of the distribution manifold lines, manually start the re-circulation pump and allow it to run for 5 minutes. This should flush out the spray distribution lines. If the pressure remains too high, after cleaning the spray nozzles and flushing the spray distribution lines, adjust the pressure to the desired PSI using the ball valve on the main spray distribution supply line.

    f. If the pressure/flow is too low check for cracks, breaks or obstructions in the main distribution supply line.

3. Verify the treatment pod is properly draining by looking down the pod side wall vents, there should be no standing water, the bottom of the pod should be visible.

4. Visually inspect the surface of the treatment media for:
    a. Holes, tears, loose seams
    b. Foreign material
    c. Black color on media (media should have light brown tint)
    d. Excessive bio mat growth
    e. Ponding
    f. Clumping of the media.

Note: <u>If any of these conditions exist the media needs to be cleaned or replaced.</u>

5. Lift the corners of the media mattress and visually inspect the sides and bottom of the treatment media for:
    a. Holes, tears, loose seams
    b. Black color on media (media should have light brown tint)
    c. Excessive bio mat growth
    d. Clumping of the media.

Note: If any of these conditions exist the media needs to be cleaned or replaced.

Cleaning the Filter Media

Depending upon influent strength and influent volumes, excessive biological growth can accumulate inside and on the surface of the media filter after 7 to 10 years of use. Cleaning of the media is a very simple and easy 10 step process.

Step One: Turn off power to any discharge pump.

Step Two: Remove the treatment pod cover and remove the spray distribution manifold.

Step Three: Connect wash down hose to the main spray distribution supply line.

Step Four: Manually turn on the re-circulation pump.

Step Five: Pressure wash the surface of the media mattress, the wash water will drain into the re-circulation tank and will be re-used as wash water.

Step Six: Roll the media mattress and wash the sides and bottom of the media mattress.

Step Seven: After the media is completely cleaned properly place the media mattress in the treatment pod.

Step Eight: Re-Install the spray distribution manifold.

Step Nine: Pump out and clean the Re-Circulation Tank removing all the wash down water. Pump out the Septic Tank.

Step Ten: Turn on power to discharge system and return the treatment system from Manual mode to Automatic mode.

Replacement of Media Mattress

If the Filter Media is exposed to excessive concentrations of petroleum products, paints, glues, waxes etc. it will become necessary to replace the media. The replacement process it is a very fast and simple. Removing the media mattress should be performed by service agents that are trained and certified by E-Z Treat.

Step One: Turn off power to recirculation pump, discharge pump and controls.

Step Two: Pump the Septic tank and re-circulation tank to assure continued service by residence during the replacement.

Step Three: Remove the spray distribution manifold.

Step Four: Lift the media mattress out of the filter pod.

Step Five: Place the mattress into the fiberglass Transport Container provided by E-Z Set Company. The Transport container is easily hauled in a pickup truck or on a light duty trailer.

Step Six: Install new Filter Media and replace distribution manifold.

Step Seven: Reset all system control settings to "AUTO" and turn the main power switch to the ON position.

Once the mattress is returned to E-Z Treat the material will be sent to the nearest re-cycler to be reprocessed and sold on the open styrene market, disposal of this product is easy and economical. Original replacement and repair items are available from E-Z Treat Company or any authorized E-Z Treat Distributor.

Replacement and repair parts are available at your local distributor or E-Z Treat Company. Contact information is available at www.eztreat.net or by calling 703-753-4479.

E-Z Treat Company, Inc.
Residential Applications
2-Year Limited Warranty

PO Box 176
Haymarket, Virginia 20168

1. Preamble

   E-Z Treat Company (herein referred to as "E-Z Treat) is known for researching, designing, and producing innovative products of high quality for the onsite wastewater industry. We are proud to stand behind our **E-Z Treat Sand/Media Filter**.

   For the purpose of this warranty, "Service Provider" means the legal Certified Operator of the system. This Service Provider shall be currently listed on State and Local records as meeting any applicable requirements required by law and/or Rule. Also, for purposes of this document, "Installer" means the person or company that has installed the system, and "Owner" means the person that has purchased the system or purchased the property serviced by the system.

2. Nature of Warranty

   E-Z Treat warrants to the Owner that the **E-Z Treat Sand/Media Filter** will function within prescribed limits for a period of two years from the date of purchase.

   E-Z Treat also warrants all components of the system against materials, workmanship and manufacturing defects for a period of two (2) years from the date of installation.

   This warranty is in addition to the legal warranties and Owner's rights in accordance to applicable law.

   The conventional warranty of E-Z Treat is expressly limited to the text in this certificate. Owner is responsible for reasonable care and communication with the Certified Operator.

3. Obtaining Warranty Service

   To make a claim on this warranty, the Owner should put the request in writing and mail or deliver to an authorized E-Z Treat Certified Operator. The claim will be processed and sent to E-Z Treat headquarters.

   Any claim must be received no later than two year from the date of purchase of the **E-Z Treat Sand/Media Filter**.

On receipt of this claim, E-Z Treat or their authorized representative will examine the situation at the site and take corrective action where the terms of the warranty apply.

4. Exclusions and Limitations

   E-Z Treat Company Warranty only extends to replacement parts the labor for installing those parts is not part of this warranty. Any electrical device or electrical component is excluded from this warranty including replacement parts and labor.

E-Z Treat is not liable for the dispersal portion of the onsite wastewater system. This portion of the system is evaluated, designed and constructed in accordance with local regulations and is wholly separate from the performance of the **E-Z Treat Sand/Media Filter**.

The following conditions are also excluded from the E-Z Treat warranty:

- This warranty does not cover cosmetic damage or damage due to acts of Nature, misuse, abuse, modification, incorrect design or incorrect installation.
- The warranty is void if any modifications or repairs are made to the system by anyone other than an E-Z Treat approved agent.
- Failure of the Owner to comply with the requirements set forth in the Owner's Manual.
- The warranty is void if any system components are repaired or replaced by parts not supplied or approved by E-Z Treat.
- This warranty is not applicable to systems not receiving domestic, residential sewage.
- The warranty is void if it is found that the Owner has failed to notify E-Z Treat of any change in the use of the property from its original design.

5. Indemnities and Damages

   E-Z Treat's liability and obligations under this warranty for corrective measures or means of correction shall be limited to the replacement of the **E-Z Treat Sand/Media Filter Components**.

6. Limitations of Damages

   E-Z Treat is not liable for any damages sustained by the Owner. E-Z Treat's compensation and indemnification obligations are limited to the provisions of this warranty

7. Transfer of Ownership

   In the event of transfer of ownership within two years of use, this warranty shall transfer to the new Owner for the remainder of the period under the following conditions:

   a. The New Owner has a Certified Operator under contract.
   b. An Inspection of the **E-Z Treat Sand/Media** shall be conducted prior to transfer. Upon a satisfactory inspection, the Owner shall obtain a written report from the Certified Operator

8. Inspection

   The Owner shall allow the Certified Operator access to the property and system components for purposes of necessary monitoring and service.

   If the Owner submits a request of claim under this warranty and it is found to be in error after inspection, a charge for direct expenses will be billed to the customer to cover the cost of the inspection.

9. Priorities of the Warranty

This warranty supersedes any contract or understanding, verbal or written, entered into between the Owner, Certified Operator, Installer, or Representative of E-Z Treat.