

W-SERIES TYPICAL INSTALLATION INSTRUCTIONS & WARRANTY INFORMATION

City of Cookeville

Upon completion, you must contact the City of Cookeville Dept. of Water Quality Control for official startup on pump station.

Please Contact Jeremiah Williams@
931-520-5239.

Your Local Authorized Distributor:

WASCON
SALES & SERVICE

910 East Main Street
Livingston, TN 38570
Phone (931) 823-1388

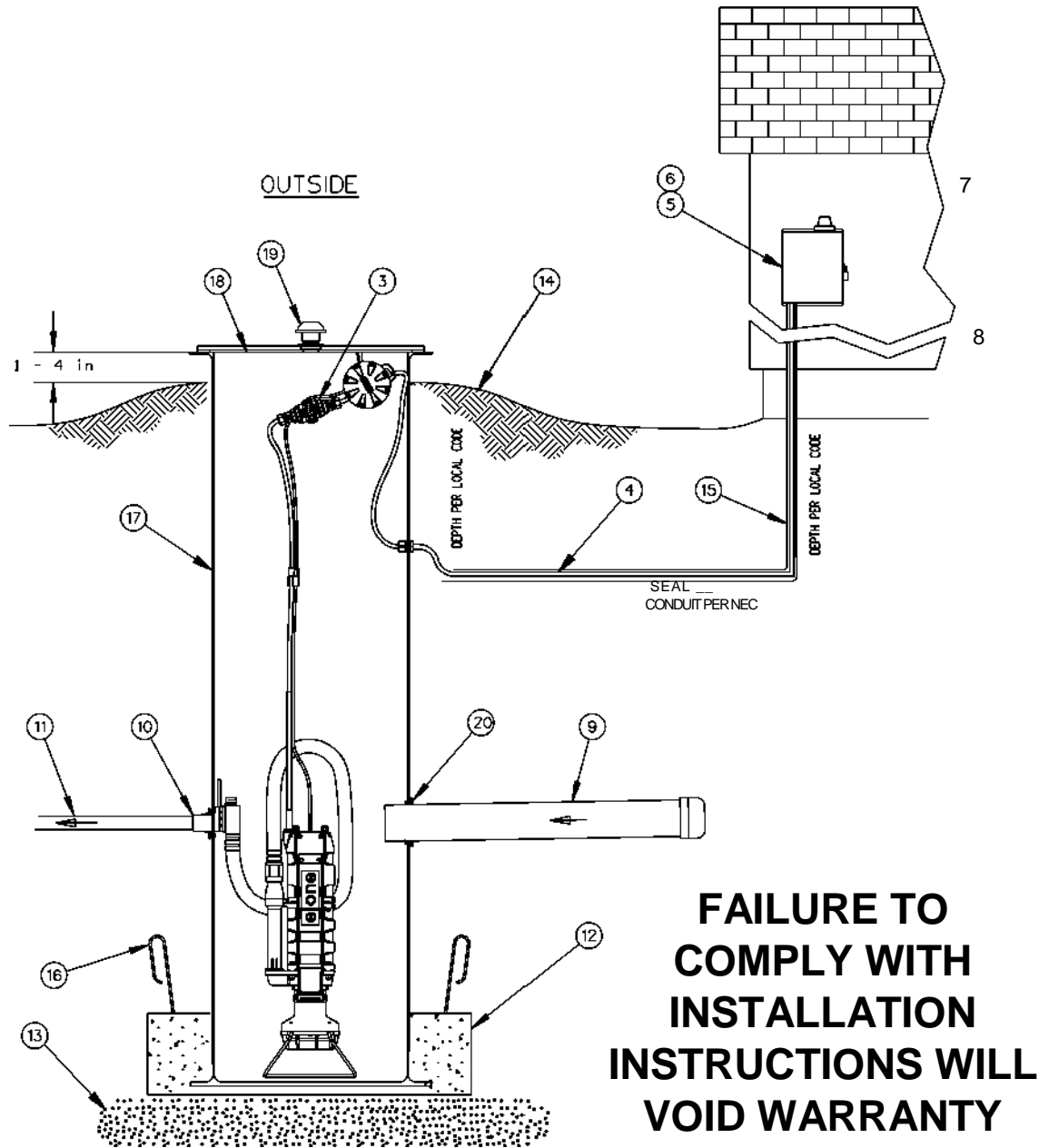
www.wasconinc.com

Environment One Grinder Pump Feature Identification

- 1. Grinder Pump Basin** – High density polyethylene (HDPE)
- 2. Access way Cover** – Station lid with integral vent (non-traffic rated)
- 3. Electrical Quick Disconnect (EQD)** – Electrical lead from pump core terminates here (NEMA 6P).
- 4. Power and Alarm Lead** – Circuits must be installed in accordance with local codes – 10-3 with ground from house to panel is required. No separate circuit from house for alarm.
- 5. Alarm Panel** – Rainproof (NEMA 4X) enclosure. Equipped with circuit breakers. Locate according to local codes.
- 6. Alarm Device** – Every panel is equipped with an alarm device to alert the homeowner of a potential malfunction. Alarm panel should be placed in noticeable locations within sight of the pump station.
- 7. Safety Switch** - 240 Volt, 30 Amp, Non-Fusible, Double Pole, Single Throw, NEMA 3R, or NEMA 4 (approved brands: **Eaton – DG221URB, General Electric – TGN3321R, Siemens – GNF321R & Square D – DU221RB**)
- 8. Conduit**
- 9. Gravity Service Line** – Standard configuration 4-inch DWV (4.5 inches OD). Supplied by others.
- 10. Discharge Outlet** – with 1.25 inch x 12 inch stainless steel flex pipe
- 11. Discharge Line** – 1 1/4-inch nominal pipe size. Supplied by others.
- 12. Concrete Anchor** – See Charts 1 and 2 for correct ballast weight. Supplied by others.
- 13. Bedding Material** – 6-inch minimum depth, rounded aggregate (gravel). Supplied by others.
- 14. Finished Grade** – Grade line should be below the cover and slope away from the access way.
- 15. Conduit** – 1 1/4-inch PVC - supplied by installer. Supply cable conduit needs to be ran from the panel to the basin for maintenance purposes even though this is a direct buried cable.
- 16. Rebar** – Required to lift tank after pre-cast ballast has been attached (4 places, evenly spaced around tank). Supplied by others. This is only required if ballast is attached before placing tank.
- 17. Grinder Pump Basin** – Fiberglass
- 18. Station Lid** – Fiberglass (non-traffic rated)
- 19. Station Vent** – Mushroom vent
- 20. Inlet** – Standard configuration EPDM grommet (4.5" ID). For 4.5" OD DWV pipe.

Figure 1

Plumbing and Electrical Requirements



Notes:

1. No permanent obstructions within 6 feet of pump or discharge line.
2. Cleanout is to be placed immediately upstream from the pump basin.
3. **All conduits must enter the panel box from the bottom. Seal around wire inside conduit per NEC section 300.5 and 300.7. Duct seal is standard - SILICONE IS NOT ACCEPTABLE**
4. Alarm Device — Every installation must have an alarm device to alert the homeowner of a potential malfunction. This is provided by the pump station supplier.
5. Disconnect — NEMA 3R or 4X enclosure with safety switch or disconnect must be located in accordance with local codes.

** Separate wiring requirements for simplex and duplex panels. This drawing is for a simplex unit.**

This is a sewage handling pump and must be vented in accordance with local plumbing codes. Do not install the unit in locations classified as hazardous in accordance with the National Electric Code, ANSI/ NFPA 70. All piping and electrical systems must be in compliance with applicable local and state codes.

1. Remove Packing Material

Give the User Instructions to the homeowner. Hardware supplied with the unit, if required, will be used during installation.

2. Tank Installation Improper handling of the fiberglass tank may result in damage and, ultimately, failure of the station. Care should be taken during lifting and placement to prevent impacting or otherwise damaging the tank. A non-marring sling should be used when lifting the tank by the fiberglass surfaces. Ensure that lifting sling is rated for the load being lifted. Lifting chains or cables should never be placed in direct contact with the fiberglass tank surfaces.

Place the unit on a 6-inch bed of gravel, naturally rounded aggregate, clean and free-flowing, with particle size not less than 1/8 inch or more than 3/4 inch in diameter in the excavated hole. Orient the installed discharge fitting, as required, to align it with the existing or proposed discharge piping path.

Determine and mark the 4" DWV inlet pipe location on the fiberglass tank wall. The inlet pipe location corresponds with the actual or projected point where the 4" building sewer line intersects the tank wall.

The center of the inlet pipe must be a minimum of 30 inches from bottom of the tank.

The slope of the inlet pipe (per national and local code requirements) must be accounted for when determining the inlet location. The supply cable path and cord grip location should be considered when selecting the inlet location (see Section 11 and Figure 5).

Concrete ballast should be cast in place around the tank in the excavation. **Do not pour the concrete ballast above the marked inlet pipe location.** If the ballast must be poured above this level, proceed with installation of the inlet piping

(see Section 5) before pouring the concrete. The inlet pipe must be sleeved with an 8" tube prior to pouring. The tank should be filled with water, to a level above the specified ballast height to prevent shifting during the concrete pour.

Alternatively, precast concrete, around the tank bottom, may be used for ballast (Fig. 1). Do not pour ballast above the intended inlet location. If this ballast method is used, lifting hooks must be anchored in the concrete to support subsequent handling of the tank. The lifting hooks must be adequate to support the combined weight of the tank and concrete ballast, and should be sized and installed in accordance with the site engineer's recommendation.

Place the ballasted tank in the excavated hole using the lifting hooks. **Do not lift the tank by any of the fiberglass surfaces if precast ballast is utilized.**

3. Discharge The use of 1-1/4" PVC pressure pipe Schedule 40 and polyethylene pipe SDR 11 or

SIDR 7 are recommended. If polyethylene is chosen, use compression type fittings to provide a smooth inner passage.

E/One recommends that an E/One Uni-Lateral assembly (E/One part number NB0184PXX or NC0193GXX) or E/One Redundant Check Valve (E/One part number PC0051GXX) be installed in the pipe lateral outside the home between the pump discharge and the street main on all installations. Never use a ball-type valve as a check valve. E/One recommends the valve be installed as close to the public right-of-way as possible. Check local codes for applicable requirements.

CAUTION: *Redundant check valves on station laterals and anti-siphon/check valve assemblies on grinder pump cores should not be used as system isolation valves during line tests.*

4. Inlet Installation The type, size and venting requirements of the inlet pipe must be in accordance with all national and local plumbing codes. The pump is a sewage-handling pump and requires ventilation for proper and safe operation.

The station is supplied with a standard grommet to accept a 4" DWV (4.5" outside diameter) sewer inlet pipe. The grommet is self-sealing and does not require the use of additional sealant or adhesives. Other grommet sizes are available upon request.

Verify that the grommet (see Figure 2) supplied with the station will accommodate the selected inlet piping. Using a 5" hole saw, **drill through the fiberglass tank wall at the marked inlet location.** Install the supplied inlet grommet in the 5" hole.

Place a mark on the inlet pipe 3-1/2" in from the end that will enter the fiberglass tank. A bevel should be ground or filed on the pipe end to aid in installation through the grommet. Clean the grommet and pipe surfaces to remove any debris. Apply a film of pipe soap or dish soap to the outside surface of the inlet pipe end and the inside of the grommet. Insert the pipe end into the grommet and push the inlet pipe into the fiberglass tank until the 3-1/2" mark lines up with the grommet outside edge. Inspect the grommet flange on the outside of the tank. The flange should be flush against the tank wall and completely visible when the pipe and grommet are installed properly.

5. Vent Installation A fiberglass station is supplied with a 2" mushroom vent to be installed in the station cover.

Locate the 3" hole in the station cover. A vent hole may be added to a station cover in the field if it is not existing, using a 3" diameter hole saw. **Consult the factory before installing a vent hole in an existing station cover.**

Install the rubber grommet in the hole in the station. The flange on the grommet should sit flush with the station cover.

Apply soap to the end of the nipple on the vent assembly. Align the nipple on the vent assembly with the grommet in the station cover and press the vent assembly down into the grommet until the vent housing bottoms on the grommet.

6. Backfill Requirements

Proper backfill is essential to the long-term reliability of any underground structure. Several methods of backfill are available and each yields favorable results when done properly.

Clean, compact, native soil that is free from rocks, roots or organic material may be used if compacted in lifts not to exceed one foot. It must be compacted to a final Proctor density between 85 and 90 percent.

Heavy, non-compactible clays are not acceptable backfill for this or any underground structure such as inlet or discharge lines.

Class 1 or Class 2 backfill material as defined by ASTM 2321 may also be used. Crushed stone and gravel backfill materials offer an advantage since they typically reach a compaction level of 90 to 95 percent standard density with minimal compaction.

Another option is flowable fill (i.e., low slump concrete). This is particularly attractive when installing grinder pump stations in augered holes where tight clearances make it difficult to assure proper backfilling and compaction with dry materials. Flowable fills should not be dropped more than four feet from the discharge nozzle to the bottom of the hole since this can cause separation of the constituent materials.

7. Electrical Connection (supply panel to alarm panel)

Before proceeding verify that the service voltage is the same as the motor voltage shown on the name plate. An alarm device is to be installed in a conspicuous location where it can be readily seen by the home owner. An alarm device is required on every installation. There shall be no exceptions.

Wiring of supply panel and alarm panel shall be per Figure, alarm panel wiring diagrams and local codes. **A dedicated 30-amp breaker with ground and separate neutral is required before all alarm panels.**

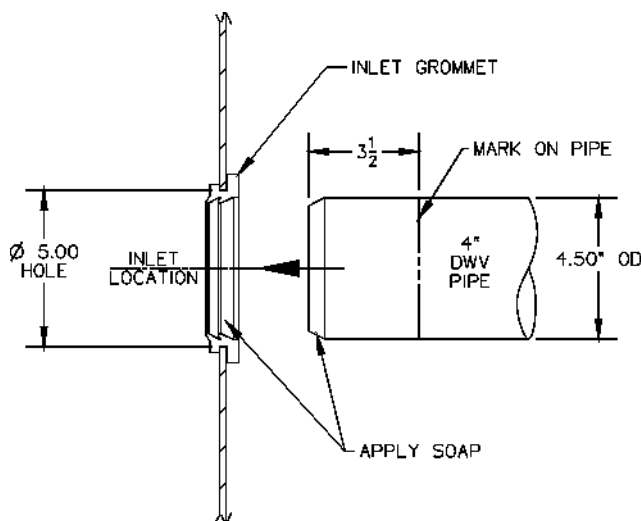


Figure 2

8. Electrical Connection (pump to panel)

The cable provided for connection between the station and alarm panel is a six-conductor tray cable that meets NEC requirements for direct burial, however it shall be installed in conduit.

NOTE: Wiring must be installed per national and local codes. Conduit must enter panel from bottom and be sealed per NEC section 300.5 & 300.7.

9. Installing E/One supply cable with EQD A 32' supply cable and cord grip are provided with the station for electrical connection between the station and the alarm panel. All electrical wiring must be in accordance with local codes. The supply cable shall be installed in a suitable protective conduit. The supply cable terminates in a convenient, electrical quick-disconnect (EQD) plug to support future servicing of the grinder pump. The supply cable cord grip provides a leak tight seal around the power cable as it enters the tank and will prevent movement of the supply cable during burial and subsequent ground settlement. The cord grip should be installed in a position on the tank that will provide convenient, direct routing of the supply cable to the alarm panel.

Loosen the cord nut and slide the supply cable free end through the cord grip as shown in Fig. 4. Continue to slide the entire cable length through the cord grip until the metal cable stop rests against the cord grip face. Tighten the cord nut until snug. Failure to tighten the cord nut will result in groundwater entering the station. Use care when installing and burying the supply cable.

Your panel may differ from the one shown below. Wire your panel per the wiring decal on the inside of the enclosure door.

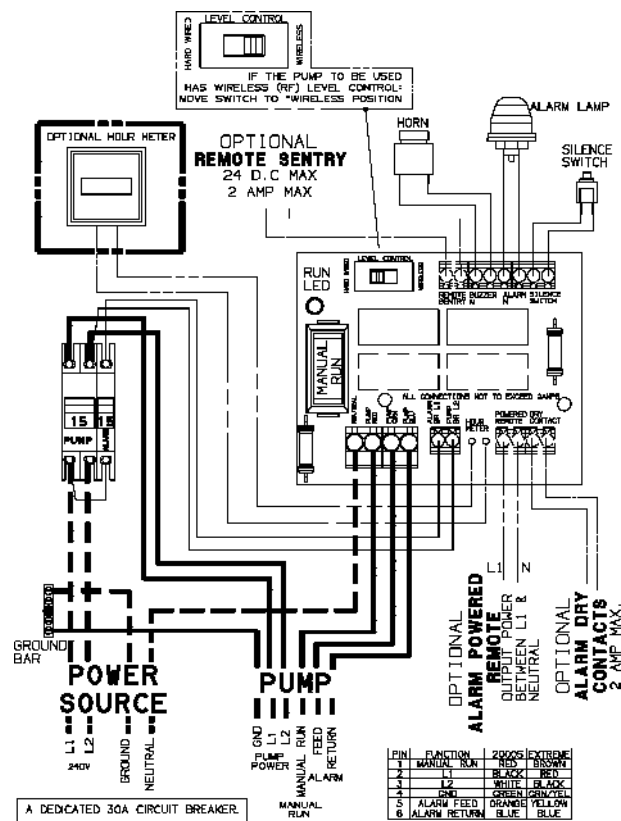


Figure 3 – 240V Simplex

If the cable is cut or otherwise damaged it may result in a pump malfunction. Run the supply cable underground, ensuring 24", minimum, of soil coverage, to the control panel location. A protective conduit must be utilized.

10. Stand Assembly

Temporarily rest the grinder pump on its side. Using a block of wood or similar object, prop up the lower pump end to allow installation of the pump stand. Align the two legs of each pump stand half with two of the holes in the pump lower end.

Push the stand legs into the pump lower end. Using a mallet, ensure that the stand legs bottom into the mounting holes. Repeat for the other stand half. Turn the pump upright on the installed stand.

11. Slide Face Discharge

Install slide face discharge receiver to tank's discharge hub. The slide face has a 1 1/4-inch solvent weld socket. A 1 1/4-inch PVC nipple is supplied if a threaded connection is necessary. Glue nipple to slide face with Schedule 80 primer and glue. Take care not to get glue on slide face surfaces. (Fig. 6)

Refer to any documentation that may have shipped with your discharge. Attach the discharge hose to the anti-siphon check valve. Use pipe sealer on threads to ensure leak tightness (Fig. 7). Check the O-ring on the slideface adapter for adequate lubrication (Fig. 9).

Your panel may differ from the one shown below. Wire your panel per the wiring decal on the inside of the enclosure door.

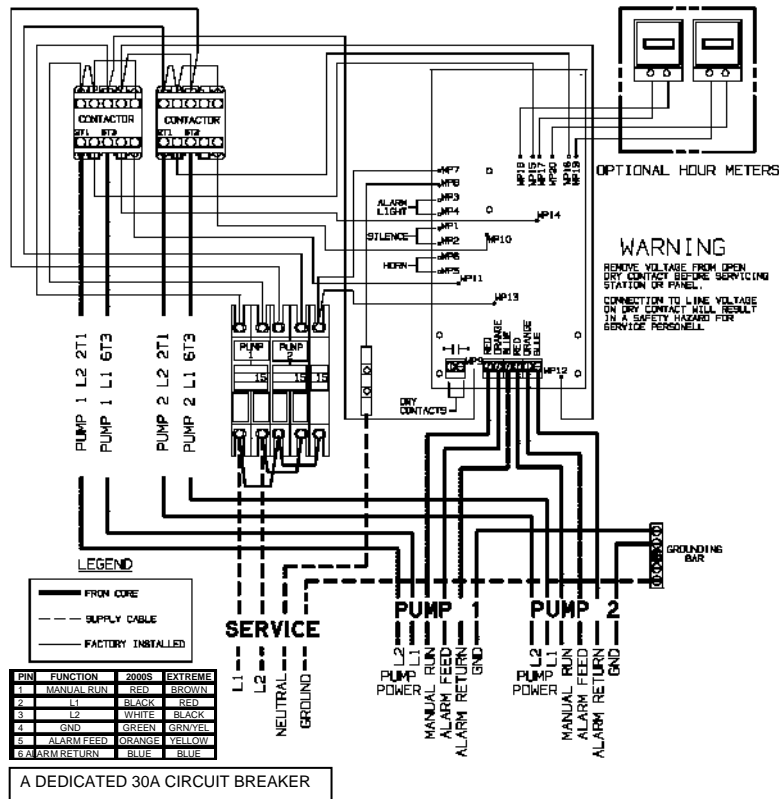


Figure 3a – 240 V Duplex

Attach discharge installation tool on male adapter (Figs. 7 and 8).

12. Pump Installation Carefully lower the pump into the tank. Place pump so anti-siphon check valve is on opposite side of discharge in tank. Refer to “Installation Layout” drawing in the front of this manual.

Rotate discharge hose and male adapter to create a loop or coil. Slide male adapter into slide face receiver until it seats. Push down on slider valve assembly to open. (Fig. 10)

Hang power cable, breather tubing with Equalizer, and lifting rope to prevent them from laying in sewage.

Keep between 18 inches and 24 inches of power supply cable in tank. The Equalizer should be hung as high as possible in the tank. Refer to the “Installation Layout” drawing in the front of this manual.

Install vent assembly in cover assembly. Hole size for vent grommet is 3 inches. The vent must be installed per national and local codes to ensure proper operation. Failure to properly vent tank will result in faulty operation and will void the warranty.

Connect the pump to the alarm panel. New cable should be installed between tank and electrical panel per National Electric Code and local codes. Maximum distance between pump and panel is 100 feet. Note:

Environment One cable should be used to ensure proper operation. When an underground splice is needed, use E/One-approved splice kit, E/One part number PC0606G01. Plug and seal all electrical components (junction box, conduit, etc.) inside tank and control panel to ensure a watertight connection. **Failure to seal all moisture may cause premature pump failure and void warranty.** Waterlogged junction boxes are one of the most common sources of grinder pump problems.

Power source to the panel must be 240 VAC. A dedicated 30-amp breaker with ground and separate neutral is required before all alarm panels.

13. Test Procedure

Make certain that all discharge shutoff valves are fully open (curb stops, slider valve, etc.).

Turn off power at main power supply **and panel**. (Ignore all Trouble indications, LEDs and/ or messages until the panel is reset at the end of this procedure.)

Use an ohmmeter set at the 2 meg scale. Check the continuity between the following leads from the pump (tests should be performed with the pump and alarm breakers inside the panel OFF):

- Green/yellow to red
- Green/yellow to black
- Green/yellow to brown
- Brown to yellow

All of these tests must read an open circuit. A short at any of these test points will cause premature pump failure if not corrected.

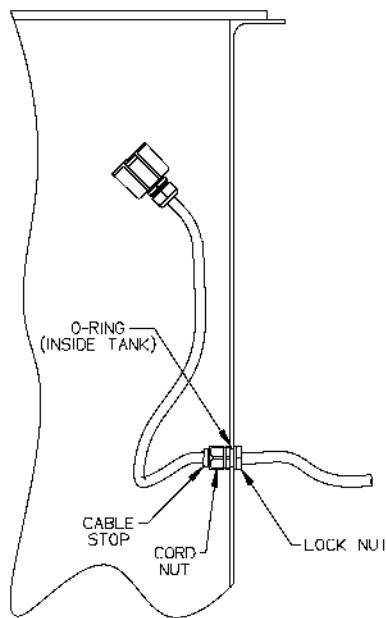


Figure 4

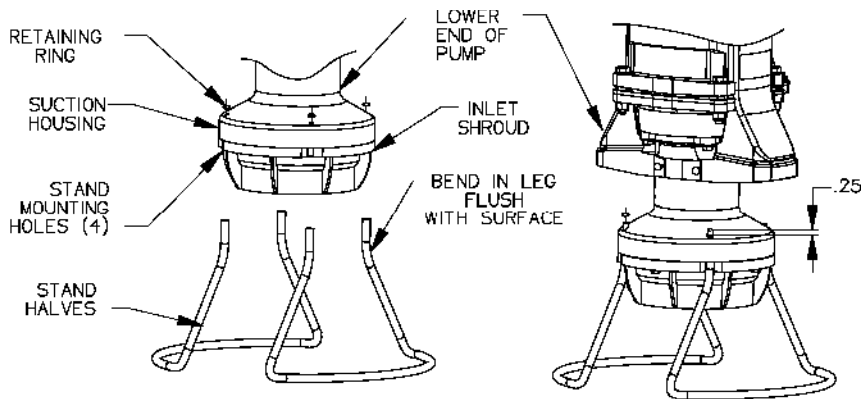


Figure 5

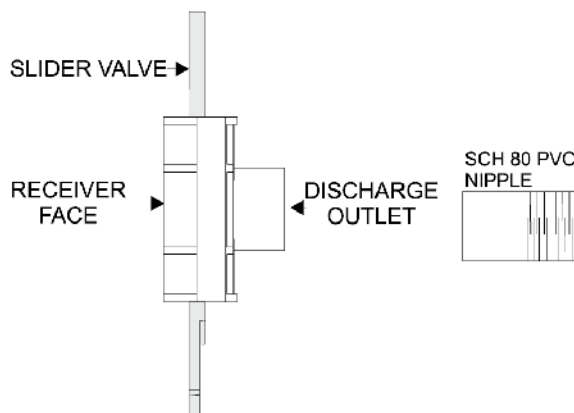


Figure 6

Power at the station must not drop below 10% of nameplate voltage. Maximum Recommended

Length:

240 Volt 150' (min. voltage at pump — 216V) Consult factory for longer lengths

Turn on power at main power supply only. Check voltage from the main power supply. The voltage must be 240 VAC within 10 percent. Note the voltage.

Turn on the alarm power circuit breaker. Leave pump breaker off.

Fill tank with water until alarm turns on. This will be about 30 inches from bottom of tank. Turn off water. Turn on pump power circuit breaker. Pump should immediately turn on. Within one minute the alarm will turn off. Within three minutes the pump will turn off.

Take a current (amperage) reading off the black lead to the pump. The reading should be between 5 and 8 amps for 240 VAC service.

Higher amperage readings equal a higher discharge pressure. If the amperage is greater than 8 check the discharge line for a blockage. Note the amperage.

Within the first 1 to 3 minutes, the alarm will turn off. Within the following 1 to 2 minutes, the pump will turn off (in a 24-inch diameter tank).

If any Trouble or alarm conditions are indicated after the panel is reset, contact your local service provider.

Close and lock the alarm panel.

Inspect the lid gasket and install new gasket material as required. Fasten lid to tank.

Call your local E/One distributor if you experience any problems.

Please have ready the unit serial number, voltage amperage read during startup, type of application, and a description of the problem.

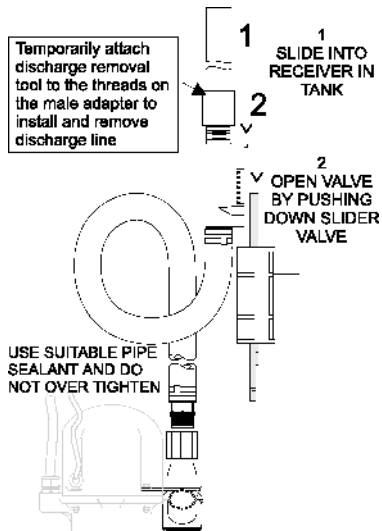


Figure 7

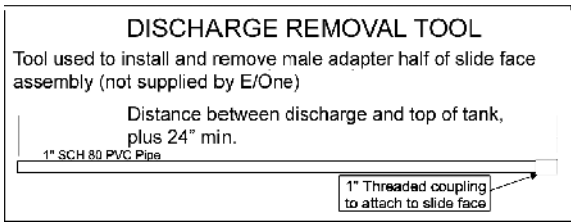


Figure 8

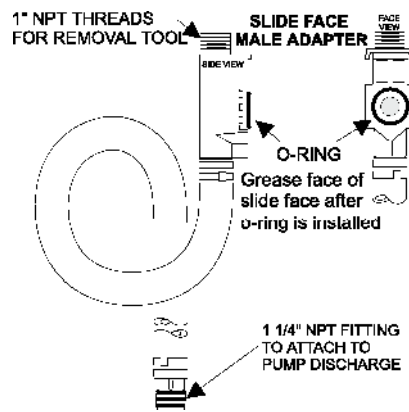


Figure 9

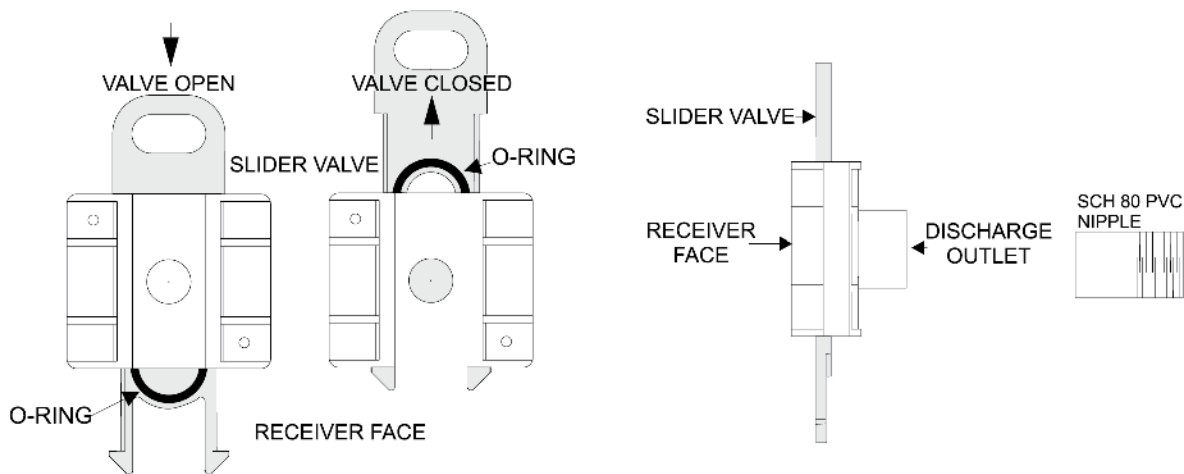


Figure 10

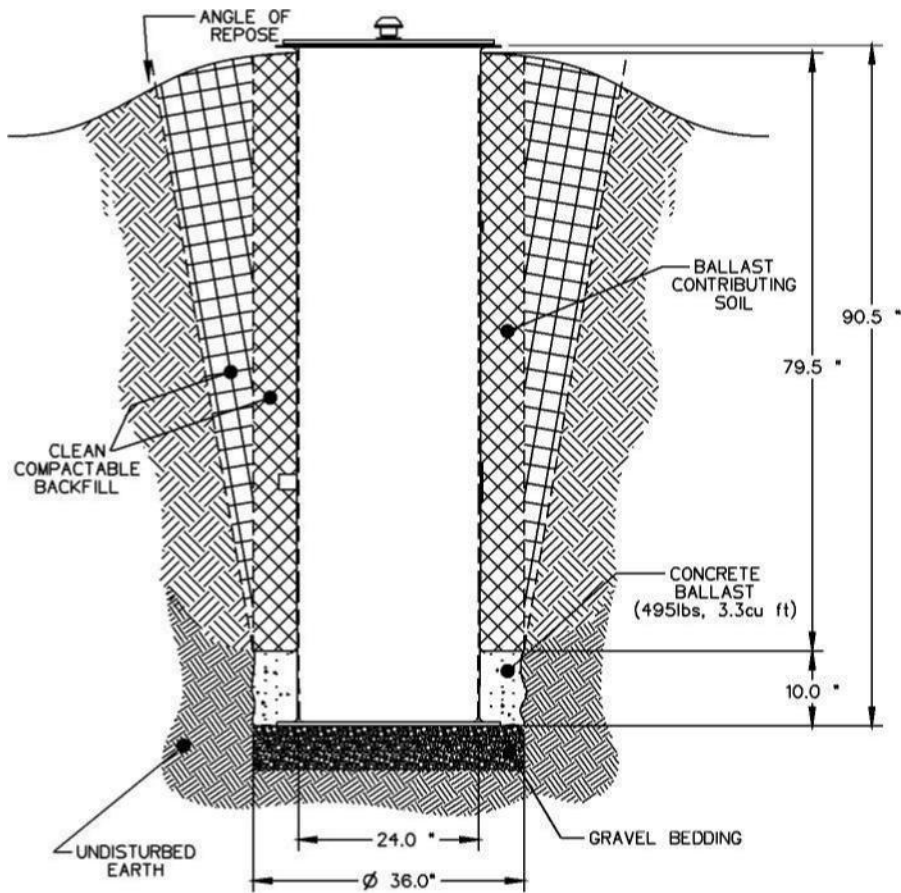


Chart 2

Ballast is calculated with ground water at grade

MODEL	STATION TYPE	MATERIAL	DIAMETER (inches)	STATION HEIGHT (inches)	STATION WEIGHT (pounds) station, cover, core(s)	STATION VOLUME (cubic feet)	NET BUOYANT FORCE (pounds)	NET BALLAST FORCE (pounds)	CONCRETE DIAMETER (inches) (ballast 10" thick)	CONCRETE VOLUME (cubic feet)	CONCRETE WEIGHT (pounds)
60x24	Simplex	Fiberglass	24	60	172	15.71	808	1421	36	3.3	490.9
72x24	Simplex	Fiberglass	24	72	178	18.85	998	1695	36	3.3	490.9
90x24	Simplex	Fiberglass	24	90	210	23.56	1260	2108	36	3.3	490.9
120x24	Simplex	Fiberglass	24	120	232	31.42	1728	2795	36	3.3	490.9
144x24	Simplex	Fiberglass	24	144	250	37.70	2102	3345	36	3.3	490.9
60x30	Simplex	Fiberglass	30	60	195	24.54	1336	1705	42	3.9	589.0
72x30	Simplex	Fiberglass	30	72	234	29.45	1604	2035	42	3.9	589.0
90x30	Simplex	Fiberglass	30	90	255	36.81	2042	2529	42	3.9	589.0
120x30	Simplex	Fiberglass	30	120	339	49.09	2724	3354	42	3.9	589.0
144x30	Simplex	Fiberglass	30	144	378	58.90	3298	4014	42	3.9	589.0
60x36	Simplex	Fiberglass	36	60	240	35.34	1965	2180	49	5.0	753.3
72x36	Simplex	Fiberglass	36	72	257	42.41	2389	2602	49	5.0	753.3
90x36	Simplex	Fiberglass	36	90	282	53.01	3026	3235	49	5.0	753.3
120x36	Simplex	Fiberglass	36	120	378	70.68	4033	4289	49	5.0	753.3
144x36	Simplex	Fiberglass	36	144	489	84.82	4804	5133	49	5.0	753.3
60x42	Duplex	Fiberglass	42	60	296	48.10	2706	2930	57	6.7	1012.4
72x42	Duplex	Fiberglass	42	72	314	57.73	3288	3497	57	6.7	1012.4
90x42	Duplex	Fiberglass	42	90	373	72.16	4130	4347	57	6.7	1012.4
96x42	Duplex	Fiberglass	42	96	373	76.97	4430	4631	57	6.7	1012.4
120x42	Duplex	Fiberglass	42	120	432	96.21	5571	5765	57	6.7	1012.4
126x42	Duplex	Fiberglass	42	126	432	101.02	5872	6048	57	6.7	1012.4
144x42	Duplex	Fiberglass	42	144	546	115.45	6658	6898	57	6.7	1012.4
60x48	Duplex	Fiberglass	48	60	325	62.83	3596	3790	65	8.7	1309.6
72x48	Duplex	Fiberglass	48	72	344	75.40	4361	4523	65	8.7	1309.6
90x48	Duplex	Fiberglass	48	90	424	94.25	5457	5624	65	8.7	1309.6
120x48	Duplex	Fiberglass	48	120	556	125.66	7285	7457	65	8.7	1309.6
144x48	Duplex	Fiberglass	48	144	622	150.79	8787	8924	65	8.7	1309.6
60x60	Quad	Fiberglass	60	60	781	98.17	5345	5842	81	13.5	2018.7
96x60	Quad	Fiberglass	60	96	947	157.08	8854	9233	81	13.5	2018.7
120x60	Quad	Fiberglass	60	120	1108	196.34	11144	11494	81	13.5	2018.7
144x60	Quad	Fiberglass	60	144	1204	235.61	13498	13755	81	13.5	2018.7



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www.eone.com

DRAWING NUMBER

1/16

User Instructions for the Environment One Grinder

Pump General Information

Your home is served by a low pressure sewer system; the key element is an Environment One grinder pump. The tank collects all solid materials and wastewater from the house. The solid materials are then ground to a small size suitable for pumping as a slurry with the wastewater. The grinder pump generates sufficient pressure to pump this slurry from your home to the wastewater treatment receiving line and/or disposal plant.

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference; and 2) this device must accept any interference received, including interference that may cause undesired operation. Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Care and Use of your Grinder Pump

The Environment One grinder pump is capable of accepting and pumping a wide range of materials, and an extensive grind test is required in order to obtain NSF approval. However, regulatory agencies advise that the following items should not be introduced into any sewer, either directly or through a kitchen waste disposal unit:

Glass	Seafood shells	Diapers, socks, rags or cloth	Syringes
Cotton swabs	Personal/cleaning wipes & sponges	Disposable toothbrushes	Latex/vinyl items
Metal	Plastic objects (toys, utensils, etc.)	Kitty litter	Dental floss
Aquarium gravel	Sanitary napkins or tampons	Cigarette butts	

Caution: Kitchen garbage disposals do not keep grease/oil out of the plumbing system

In addition, you must never introduce into any sewer:

Explosives	Strong chemicals	Lubricating oil and/or grease
Flammable material	Gasoline	

Items introduced into the sewer system from your home can potentially impact the water environment. Proper disposal of household wastes such as window cleaners, unused/expired pharmaceuticals, paint thinners, fats, fruit labels, etc. is important. For more information, visit <http://www.wef.org>.

Periods of Disuse

If your home or building is left unoccupied for longer than a couple of weeks, perform the following procedure:

Purge the System. Run clean water into the unit until the pump activates. Immediately turn off the water and allow the grinder pump to run until it shuts off automatically.

Duplex Units. Special attention must be taken to ensure that both pumps turn on when clean water is added to the tank.

Caution: Do not disconnect power to the unit

Power Failure

Your grinder pump cannot dispose of wastewater without electrical power. If electrical power service is interrupted, keep water usage to a minimum.

Pump Failure Alarm

Your Environment One grinder pump has been manufactured to produce an alarm signal (120 volt) in the event of a high water level in the basin. The installer must see that the alarm signal provided is connected to an audible and/or visual alarm in such a manner as to provide adequate warning to the user that service is required. During the interim prior to the arrival of an authorized service technician, water usage must be limited to the reserve capacity of the tank.

For service, please call your local distributor:

**City of Cookeville
Dept of Water Quality Control
1860 S Jefferson Ave
Cookeville, TN 38506
931-520-5227**

City Approved Pump Installation Contractors

D & D Enterprises	2050 Fountain Circle, Cookeville, TN 38506
All American Plumbing	256 E. 13th St., Cookeville, TN 38501
Cunningham Construction	7176 Mt. Herman Rd., Cookeville, TN 38506
Pippin Construction	670 Gainesboro Hwy, Baxter, TN 38544
Ben Franklin Plumbing	649 Horace Lewis Rd., Cookeville TN 38506
Putnam Plumbing	P.O. Box 363, Cookeville, TN 38503
Monty Johnson Construction	2000 Browns Mill Rd., Cookeville, TN 38506
Charles Stone Heating and Cooling	315 Transport Drive, Cookeville, TN 38506
RPM Heating, Cooling, Plumbing	8328 Robert Matthews Hwy., Cookeville, TN 38506
Buck's Plumbing & Sewer Service	P.O. Box 54, Cookeville, TN 38503-0054
Randell Key Electric	1220 Pimlico Dr., Cookeville, TN 38506
Gentry's Plumbing	1536 Gainesboro Grade, Cookeville, TN 38501
Carwile Mechanical Contractors	433 E. 15th St., Cookeville, TN 38501
First Choice Plumbing	P.O. Box 2008, Cookeville, TN 38502
Integrity Homes	3635 Maple Wood Dr., Cookeville, TN 38501
Masters Plumbing	38 Mallard Pt., Crossville, TN 38571
Dee Allison Plumbing & Electrical	4094 Hensley Trail, Cookeville, TN 38501
Brown HVAC	5508 Village Rd, Cookeville, TN 38506
Fishback Plumbing	PO Box 1234, Cookeville, TN 38503
Willard Looper Plumbing	226 Muddy Pond Rd, Monterey, TN 38574
MBM Mechanical	106 W Main, Byrdstown, TN 38549
BA Enterprises	2543 S Bunker Hill Rd, Sparta TN 38583
Madewell Construction	854 Drake and Shockley St, Spencer TN 38585
Schubert Enterprises	266 County Farm Rd, Cookeville, TN 38501 phone (931)200-1057

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