

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ELECTRONIC APPLICATION OF)	
MCCREARY COUNTY WATER DISTRICT)	
PURSUANT TO 807 KAR 5:071, SECTION 7(4))	CASE NO. 2017-00246
FOR APPROVAL OF PROPOSED)	
INSPECTION PROCEDURES)	

RESPONSE OF MCCREARY COUNTY WATER DISTRICT
TO
COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION
DATED OCTOBER 10, 2017

FILED: NOVEMBER 10, 2017

QUESTION 1

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 1

Witness: Stephen Whitaker

- Q-1.** State whether McCreary County Water District's wastewater facilities are a pressure system.
- A-1.** With the exception of two locations, McCreary County Water District's wastewater collection system is a pressurized system. Approximately 120 customers are served through a gravity system. Approximately 925 customers are served through the pressurized system.

QUESTION 2

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 2

Witness: Stephen Whitaker

Q-2. For McCreary County Water District's grinding pump stations:

- a. Explain whether there is a check valve or other valve assembly to prevent backflow installed for each grinding pump station in the McCreary County Water District system. If there is not a check valve or other valve assembly to prevent backflow installed at each grinding pump station, provide the following:
 - (1) The number of grinding pump stations that do not have a check valve or other valve assembly to prevent backflow.
 - (2) An explanation for why a check valve or other valve assembly is not installed at these grinding pump stations.
- b. Explain whether each grinding pump station has a collection or storage tank for holding wastewater.
 - (1) If there is a collection or storage tank for holding wastewater, provide the capacity of the tank in gallons.
 - (2) If there is not a collection or storage tank for holding wastewater at each grinding pump station, provide the number of grinding pump stations that do not have a collection or storage tank for holding wastewater and explain why a collection or storage tank facility is not installed at these grinding pump stations.
- c. Explain whether each grinding pump station has a sewer relief valve.
 - (1) If there is not a sewer relief valve at each grinding pump station, provide the number of grinding pump stations that do not have a sewer relief valve and explain why a sewer relief valve is not installed at these grinding pump stations.
- d. Explain whether each grinding pump station is designed to bypass water to the area surrounding the station in the event of an overflow. If there are grinding pump stations that are not designed to bypass water to the area surrounding the station in the event of an overflow, provide the following:

- (1) The number of grinding pump stations that do not have the design.
- (2) The design for such stations in the event of an overflow.

- A-2.**
- a.** Each grinder/pumping station is equipped with an in-line check (ball or flapper) and either a gate valve or mechanical ball valve on the discharge side of the check.
 - b.** Each grinder/pump station has a collection or storage tank for holding wastewater. The capacity of the tank will vary with the type of grinder/pumping station. The size of the collection tanks for simplex and duplex grinder/pumping stations will vary with the model. The collection tanks in the simplex grinder/pumping stations, which serve residential customers, have a minimum storage capacity of 264 gallons. The minimum storage capacity of the collection tanks in duplex grinder/pumping stations is 748 gallons.
 - c.** Each grinder/pumping station is equipped with a sewer relief valve.
 - d.** Each grinder/pumping station is designed to bypass water to the area surrounding the station in the event of an overflow. McCreary County Water District has located each grinder/pumping station below the ground level of the serviced residence to prevent any backflow into the residence.

QUESTION 3

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 3

Witness: Stephen Whitaker

Q-3. Describe what happens at a grinding pump station when the grinding pump fails.

A-3. If a grinder/pumping station fails, the wastewater level in the storage tank is likely to rise until it reaches a high water level. All grinder/pumping stations have been equipped with a red alarm light that activates when high water levels are reached in the storage tank. Most grinder/pumping stations are also equipped with an audio alarm. When activated, these alarms can easily be seen and heard by persons a considerable distance away from the grinder/pump station. Generally, the property owner, an adjoining property owner, or local law enforcement will notify McCreary County Water District of the alarm and a service employee will be dispatched to examine the station and make appropriate repairs.

In the event of overflow, the grinder/pumping station will retain any solid waste in the tank and will bypass water to the area surrounding the station. Furthermore, McCreary County Water District has placed sewer relief valves on the sewer cleanout of each station. If the water level rises within the station's tank and the station's bypass system is not sufficient to prevent water from backing up into the pipe running from the structure to the station, these relief valves will automatically open and allow water to bypass through the cleanout. Very few grinder/pumping station failures have resulted in an overflow or bypass event. In most instances, service personnel reach the troubled grinder/pumping station in adequate time to resolve the problem without an overflow event.

QUESTION 4

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

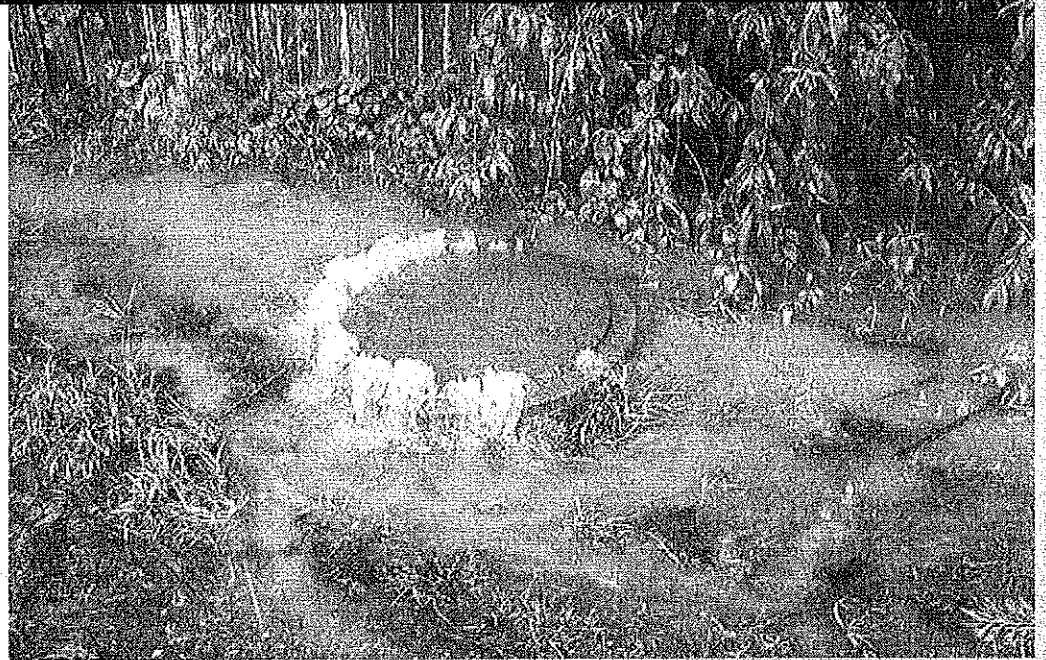
Question No. 4

Witness: Stephen Whitaker

- Q-4.** Provide McCreary County Water District's response policy and procedures for a failure of a grinding pump station.
- A-4.** A copy of McCreary County Water District's Sewer Overflow Response Plan is attached to this Response.

2017

SEWER OVERFLOW RESPONSE PLAN (SORP)



McCreary County Wastewater SORP Procedures

1. Communications

- Maintain emergency customer service contact number (606-376-1739) that can be reached 24 hrs/day 7 days/week. Contact Stephen Whitaker (606-310-9604), Rick Waters (606-310-9611), or Derrick Taylor (606-310-6475) in event that the emergency contact number can not be reached.
- Determine and record essential details (i.e. date, time, location, observations) provided by the reporting party.
- At least one certified collections/maintenance personnel is on call at all times that stay within 30 minutes & able to respond promptly to any potential issues.

2. Assessment/Cause of Impact

- Determine whether issues are related to O&M or wet weather infiltration
- Report findings to supervisor if additional assistance is needed
- Take appropriate photos/videos of the overflow issues for documentation purposes
- If suspicious substance is found on site, contact supervisor to dispatch HAZMAT team

3. Corrective Procedures

- Eliminate overflow or divert to containment (i.e. vacuum truck, mobile bypass pump)
- Take appropriate action to repair damaged/malfunctioning pump station or line break once the spill has been contained.

4. Clean Up/Post Spill

- Secure area once repairs are completed to prevent public contact
- Clean & remove debris from site
- Remove contaminated soil
- Contract clean up team if overflow is deemed too substantial for maintenance personnel
- Disinfect using hydrated lime on contaminated area
- Additional measures may be determined by spill supervisor

5. Reporting Overflow/Spill

- Report location and actions taken to supervisor
- Report overflow to Division of Water (DOW) with DOW spill report via fax. Report must include time, date, location, person(s) who reported the spill, & actions taken to resolve the issue.
- Report issues & actions taken to customer/public as needed
- Conduct follow up inspection of overflow site within 24 hours of cleanup

QUESTION 5

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 5

Witness: Stephen Whitaker

- Q-5.** Provide the instructions that McCreary County Water District provided to its customers in the event of a grinding pump station failure. Provide a copy of the instructions given to its customers.

- A-5.** McCreary County Water District customers are provided the attached sheet at the time of applying for service. This sheet contains McCreary County Water District's office telephone number and a 24-hour emergency telephone number.

**McCreary County Water District
P.O. Box 488
Whitley City, Kentucky 42653
(606) 376-2540**

SEWER CUSTOMER INFORMATION

Sewer Rates:

Residential & Non-Residential

First 2,000 Gallons (\$19.35 Minimum Bill)
Next 18,000 Gallons (\$6.75 Per 1,000 Gallons)
All over 20,000 Gallons (\$6.00 Per 1,000 Gallons)

P.S.C. 2015-00053 March 6,2015

For all sewer related problems, please contact:

**McCreary County Water District
Main Office 606-376-2540
Monday – Friday 8:00 AM to 4:30 PM**

**24 Hour Emergency Number
606-376-1739**

Thank you,

McCreary County Water District

QUESTION 6

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 6

Witness: Stephen Whitaker

- Q-6.** For McCreary County Water District's wastewater system, provide the following:
- a. The name(s) of the manufacturer(s) of the grinding pumps used by McCreary County Water District;
 - b. The model(s) of the grinding pumps used by McCreary County Water District;
 - c. For each model identified in the response to sub-part b. of this request:
 - (1) Explain whether the grinding pump is a simple or duplex model;
 - (2) Provide a description of the alarm(s) that are activated when a high water level is reached in the storage tank;
 - (3) Provide a copy of the manufacturer's technical specifications or any equipment specifications supplied with the grinding pump;
 - (4) Provide the service life of the grinding pump, per the manufacturer's recommendation;
 - (5) Provide the manufacturer's recommended routine maintenance for the grinding pump station;
 - (6) Provide the depreciable life assigned to the grinding pump; and
 - (7) Provide the number of this type of grinding pump used by McCreary County Water District in its system.
- A-6.**
- a. See table below.
 - b. See table below.
 - c.
 - (1) See table below.
 - (2) See table below.

- (3) See the Attachments to this Response.
- (4) See table below. While preparing its responses to this Request for Information, McCreary County Water District contacted each manufacturer and requested the recommended service life for its product. No grinder/pumping station manufacturer provided a recommended service life. The length of the manufacturer's warranty is provided instead in the table below.
- (5) While preparing its responses to this Request for Information, McCreary County Water District contacted each manufacturer and requested its recommended maintenance practices for its product. Each manufacturer stated that that it does not provide such information.
- (6) See table below.
- (7) See table below.

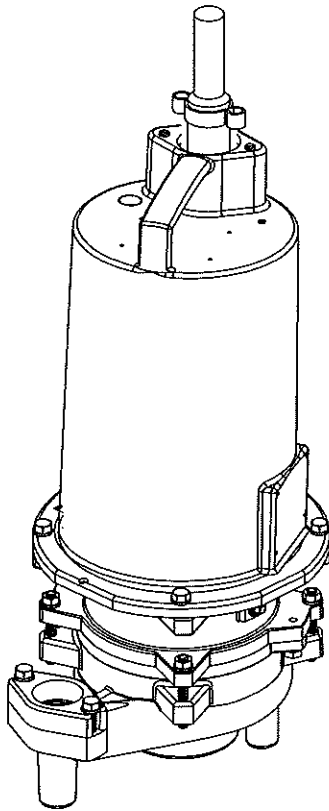
Manufacturer	Barnes	Barnes	Keen	E-One	E-One
Model No.	SGV	OGP	K(H)GS2	AMGP	Extreme
Type (Simplex/Duplex)	Both	Simplex	Both	Both	Both
Description of Alarm	Flashing Light & High Level Float	Flashing Light & High Level Float	Flashing Light, High Level Float & Buzzer	Air Pressure Switch, Buzzer & Red Light	Air Pressure Switch, Buzzer & Red Light
Length of Warranty Months	24	24	36	27	27
Number of Stations	340	8	60	252	265
Technical Specifications (Attachment to Response)	A	B	C	D	E
Assigned Depreciable Life	8	8	8	8	8

ATTACHMENT A

BARNES®

INSTALLATION MANUAL Submersible Grinder Pump

Series: SGVF & SGVH
2 HP, 3450 RPM, 60 Hz.
1.1HP (.9kW) 2850 RPM, 50 Hz
High-Flow and High-Head



SGV³
 CENTRIFUGAL GRINDER PUMPS

IMPORTANT!

Read all instructions in this manual before operating pump.

As a result of Crane Pumps & Systems, Inc., constant product improvement program, product changes may occur. As such Crane Pumps & Systems reserves the right to change product without prior written notification.

CRANE

A Crane Co. Company

PUMPS & SYSTEMS

420 Third Street
 Piqua, Ohio 45356
 Phone: (937) 778-8947
 Fax: (937) 773-7157
 www.cranepumps.com

83 West Drive, Bramton
 Ontario, Canada L6T 2J6
 Phone: (905) 457-6223
 Fax: (905) 457-2650



Form No. 110629-Rev. Y

ATTENTION SAFETY FIRST!

Please Read This Before Installing Or Operating Pump. This information is provided for **SAFETY and to PREVENT EQUIPMENT PROBLEMS**. To help recognize this information, observe the following symbols:



IMPORTANT! Warns about hazards that can result in personal injury or indicates factors concerned with assembly, installation, operation, or maintenance which could result in damage to the machine or equipment if ignored.

CAUTION ! Warns about hazards that can or will cause minor personal injury or property damage if ignored. Used with symbols below.

WARNING ! Warns about hazards that can or will cause serious personal injury, death, or major property damage if ignored. Used with symbols below.



Hazardous fluids can cause fire or explosions, burns or death could result.



Extremely hot - Severe burns can occur on contact.



Biohazard can cause serious personal injury.



Hazardous fluids can cause hazardous pressure, eruptions or explosions could cause personal injury or property damage.



Rotating machinery Amputation or severe laceration can result.



Hazardous voltage can shock, burn or cause death.

Only qualified personnel should install, operate and repair pump. Any wiring of pumps should be performed by a qualified electrician.



WARNING ! - To reduce risk of electrical shock, pumps and control panels must be properly grounded in accordance with the National Electric Code (NEC) or the Canadian Electrical Code (CEC) and all applicable state, province, local codes and ordinances.



WARNING! - To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing. Lock out power and tag.

Prevent large articles of clothing, large amounts of chemicals, other materials or substances such as are uncommon in domestic sewage from entering the system.

During power black-outs, minimize water consumption at the home(s) to prevent sewage from backing up into the house.

Always keep the shut-off valve completely open when system is in operation (unless advised otherwise by the proper authorities). Before removing the pump from the basin, be sure to close the shut-off valve. (This prevents backflow from the pressure sewer.)

Keep the control panel locked or confined to prevent unauthorized access to it.

If the pump is idle for long periods of time, it is advisable to start the pump occasionally by adding water to the basin.



CAUTION! Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.



WARNING! - **DO NOT** pump hazardous materials (flammable, caustic, etc.) unless the pump is specifically designed and designated to handle them.

Do not block or restrict discharge hose, as discharge hose may whip under pressure.



WARNING! - **DO NOT** wear loose clothing that may become entangled in the impeller or other moving parts.



WARNING! - Keep clear of suction and discharge openings. **DO NOT** insert fingers in pump with power connected.

Make sure lifting handles are securely fastened each time before lifting. Do not operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair.

Do not exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.

Secure the pump in its operating position so it can not tip over, fall or slide.

Cable should be protected at all times to avoid punctures, cut, bruises and abrasions - inspect frequently.



Never handle connected power cords with wet hands.

To reduce risk of electrical shock, all wiring and junction connections should be made per the NEC or CEC and applicable state or province and local codes. Requirements may vary depending on usage and location.



Submersible Pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common.

Do not remove cord and strain relief. Do not connect conduit to pump.



Products Returned Must Be Cleaned, Sanitized, Or Decontaminated As Necessary Prior To Shipment, To Insure That Employees Will Not Be Exposed To Health Hazards In Handling Said Material. All Applicable Laws And Regulations Shall Apply.



Bronze/brass and bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. Lead is known to cause cancer and birth defects or other reproductive harm. Various government agencies have determined that leaded copper alloys should not be used in potable water applications. For non-leaded copper alloy materials of construction, please contact factory.



IMPORTANT! - Crane Pumps & Systems, Inc. is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.



A pump that is intended to pump sewage or effluent shall be installed in a tank that is vented in accordance with local plumbing codes and is not classified as hazardous in accordance with the National Electrical Code, ANSI/NFPA 70 unless it is specifically marked for such use.

Other brand and product names are trademarks or registered trademarks of their respective holders.

© Barnes is a registered trademark of Barnes Pumps
2001, 2002, 2003, 11/04, 7/05, 4/06, 9/06, 11/06, 2/07

Alteration Rights Reserved

USER GUIDE

USER GUIDE

Congratulations on your purchase of a Barnes *UltraGRIND*™ grinder pump system. With proper care and by following a few simple guidelines your grinder pump will give you many years of dependable service.

Use and Care

The *UltraGRIND* grinder pump station is designed to handle routine, domestic sewage. Solid waste materials should be thrown in the trash. While your station is capable of accepting and pumping a wide range of materials, regulatory agencies advise that the following items should not be introduced into any sewer either directly or through a kitchen waste disposal:

- Glass
- Metal
- Diapers
- Socks, rags or cloth
- Plastic objects (e.g., toys, utensils, etc.)
- Sanitary napkins or tampons

In addition you must **NEVER** introduce into any sewer:

- Explosives
- Flammable Material
- Lubricating Oil and/or Grease
- Strong Chemicals
- Gasoline

General Information

Your home wastewater disposal service is part of a low pressure sewer system. The key element in this system is the Barnes *UltraGRIND* grinder pump station. The basin collects all wastewater from the house. The solids in the sewage are then ground to a small size suitable for pumping in the slurry.

The grinder pump generates sufficient pressure to pump this slurry from your home to the wastewater plant.

Power Failure

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

Warranty

Your grinder pump is furnished with a warranty against defects in material or workmanship. A properly completed Start-Up/Warranty Registration form must be on file at the Barnes factory in order to activate your warranty. In addition your pump must be installed in accordance with the installation instructions.

If you have a claim under the provisions of the warranty, contact your local Barnes Pumps, Inc. Distributor.

When contacting your representative for service, please include your station serial number, pump model number, and pump serial number.

For future reference, record the following information:

Station Serial No: _____

Pump Model No: _____

Pump Serial No: _____

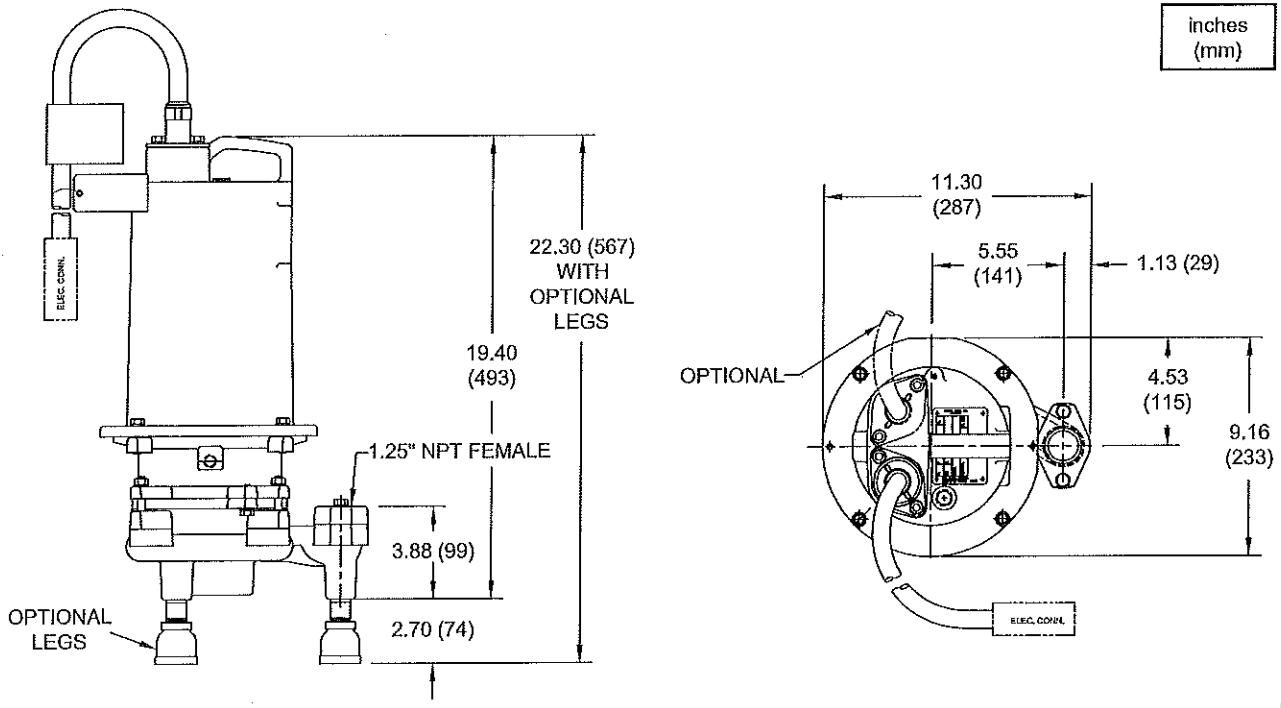
Local Distributor: _____

Distributor Telephone: _____

PUMP SPECIFICATIONS:

DISCHARGE 1½" NPT, Vertical, Bolt-on Flange
 LIQUID TEMPERATURE 104°F (40°C) Continuous
 MOTOR HOUSING Cast Iron ASTM A-48, Class 30
 VOLUTE Cast Iron ASTM A-48, Class 30
 SEAL PLATE Cast Iron ASTM A-48, Class 30
IMPELLER:
 Design 12 vane, vortex, with pump out vanes on back side. Dynamically balanced, ISO G6.3
 Material Cast Iron
SHREDDING RING Hardened 440C Stainless Steel
 Rockwell C-55
CUTTER Hardened 440C Stainless Steel
 Rockwell C-55
SHAFT 416 Stainless Steel
SQUARE RINGS Buna-N
HARDWARE 300 Series Stainless Steel
PAINT Air dry enamel, top coat
SEAL *Design* Tandem Mechanical, oil filled reservoir
 Material Rotating Faces - Carbon
 Stationary Faces - Ceramic
 Elastomer - Buna-N
 Hardware - 300 series stainless steel
CORD ENTRY 30 Ft. (9.1M) Cord, Custom Molded Quick Connected for sealing and strain relief. Other lengths available, include 8FT. (2.4M), 50FT. (15M), 75FT. (23M), and 100FT. (30.5M)
CORD CSA/UL Approved 12/4 Type SOW
SPEED 3450 RPM, 60Hz (nominal)
 2850 RPM, 50Hz

UPPER BEARING:
 Design Single Row, Ball, Oil Lubricated
 Load Radial
INTERMEDIATE BEARING:
 Design Single Row, Ball, Oil Lubricated
 Load Radial & Thrust
LOWER BEARING:
 Design Sleeve, Oil Lubricated
 Load Radial
MOTOR: *Design* NEMA L, Single phase, (SGVF2022L or SGVH2022L includes overload protection in the motor).
 NEMA B, Three Phase Torque Curve, Oil Filled, Squirrel Cage Induction
 Insulation Class B
SINGLE PHASE Capacitor start/capacitor run.
 Requires overload protection to be included in control panel, except SGVF2022L & SGVH2022L.
 Requires Barnes Starter or Control panel, which includes capacitors, or capacitor pack.
THREE PHASE Dual voltage 240/480 60Hz, 380-415 50Hz. Requires overload protection to be included in control panel
NOISE EMISSION Max. in Air 20dB-A, Submerged 14dB-A
SUBMERGENCE Max Depth 30Ft. (9m)
OPTIONAL EQUIPMENT Seal Material, Additional Cable, Impeller trims, Moisture sensors (requires relay in panel), Leg Kit P/N: 108339



MODEL NO	PUMP WEIGHT lbs (kg)	HP (kW)	VOLT	PH/Hz	RPM (Nom)	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD SIZE	CODE TYPE	CORD O.D. ± .02 (.5) in (mm)	WINDING RESISTANCE MAIN -- START
SGV*2002L	100 (45.4)	2	200	1 / 60	3450	F	17.0	53.0	12/4	SOW	.67 (17)	0.9 -- 7.2
SGV*2022L	100 (45.4)	2	240	1 / 60	3450	H	15.0	53.8	12/4	SOW	.67 (17)	1.5 -- 5.1
SGV*2062L	100 (45.4)	2	200	3 / 60	3450	J	11.0	42.0	12/4	SOW	.67 (17)	2.4
SGV*2032L	100 (45.4)	2	240	3 / 60	3450	J	9.0	36.0	12/4	SOW	.67 (17)	3.1
SGV*2042L	100 (45.4)	2	480	3 / 60	3450	J	4.0	18.0	12/4	SOW	.67 (17)	12.4
SGV*2052L	100 (45.4)	2	600	3 / 60	3450	J	3.2	14.4	12/4	SOW	.67 (17)	16.1
SGV*20Z2L	100 (45.4)	1.1 (.9)	380-415	3 / 50	2850	G	3.3	15.0	12/4	SOW	.67 (17)	12.4

Winding Resistance ± 5%, measured from terminal block. Pump rated for operation at ± 10% voltage at motor.

Optional - Temperature sensor cable for all models is 14/3 SOW, 0.55 ± .02 O.D. (Not used on SGV2022L).

Optional - Moisture and Temperature sensor cable for all models is 18/5 SOW, 0.49 ± .02 O.D., replaces Temperature sensor cable.

Recommended Breaker & Heater Sizes

Pump Model	HP	Phase	Volts	Breaker Size	Heater Size	Voltage Relay	Start Capacitor	Run Capacitor
SGV*2002L	2	1	200	30 AMP	K-60	MARS 67	143 mfd - 220 volts	45 mfd - 450 volts
SGV*2022L	2	1	240	30 AMP	K-57	MARS 68	143 mfd - 220 volts	45 mfd - 450 volts
SGV*2062L	2	3	200	20 AMP	K-53	N/R	N/R	N/R
SGV*2032L	2	3	240	20 AMP	K-50	N/R	N/R	N/R
SGV*2042L	2	3	480	15 AMP	K-33	N/R	N/R	N/R
SGV*2052L	2	3	600	15 AMP	K-31	N/R	N/R	N/R
SGV*20Z2L	1.1	3	380-415	15 AMP	K-31	N/R	N/R	N/R

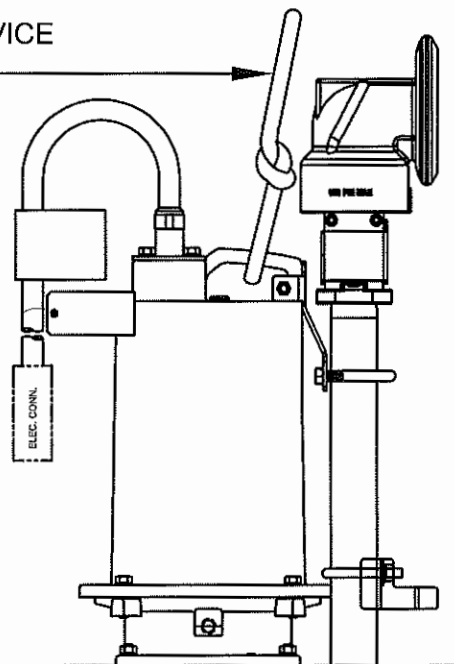
NOTE: Factory recommended heater sizes may vary depending on pump station requirements.

N/R = Not Required.

(*) = F for High-Flow or H for High-Head.

LIFTING DEVICE-ATTACH LIFTING DEVICE

CAUTION: NEVER LOWER OR RAISE PUMP BY CORD!



RECEIVING/UNPACKING:

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump. Unpack pump and record pump serial and model number before installing. If the manual is removed from the packaging, do not lose or misplace.

STORAGE:

Short Term- For best results, pumps can be retained in storage, as factory assembled, in a dry atmosphere with constant temperatures for up to six (6) months.

Long Term- Any length of time exceeding six (6) months, but not more than twenty-four (24) months. The units should be stored in a temperature controlled area, a roofed over walled enclosure that provides protection from the elements (rain, snow, wind-blown dust, etc.), and whose temperature can be maintained between +40 deg. F and +120 deg. F. If extended high humidity is expected to be a problem, all exposed parts should be inspected before storage and all surfaces that have the paint scratched, damaged, or worn should be recoated with a air dry enamel paint. All surfaces should then be sprayed with a rust-inhibiting oil.

Pump should be stored in its original shipping container. On initial start up, rotate shaft by hand to assure seal and motor rotate freely. If it is required that the pump be installed and tested before the long term storage begins, such installation will be allowed provided:

- 1.) The pump is not installed under water for more than one (1) month.
- 2.) Immediately upon satisfactory completion of the test, the pump is removed, thoroughly dried, repacked in the original shipping container, and placed in a temperature controlled storage area.

SERVICE CENTERS:

For the location of the nearest Barnes Service Center, check your Barnes representative or Crane Pumps & Systems, Inc. Service Department in Piqua, Ohio, telephone (937) 778-8947 or Crane Pumps & Systems Canada in Brampton, Ontario, Canada (905) 457-6223.

INSTALLATION:

Location - The pump is designed to fit into your basin either by sliding down the rail assembly, suspended from the cover or by being mounted on a pump base. **THIS PUMP MUST BE INSTALLED WITH A MINIMUM OF 3 INCHES AND A MAXIMUM OF 4.5 INCHES OF CLEARANCE UNDER THE PUMP FOR THE ENTRANCE OF SEWAGE SOLIDS.**

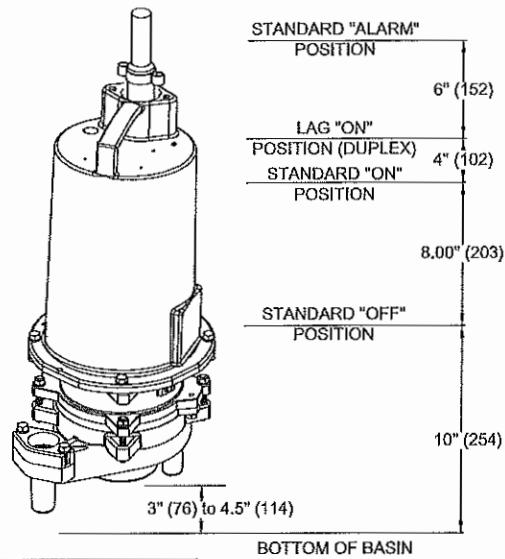


FIGURE 1 - L Series

Discharge - Assemble discharge piping or hose assembly (whichever is required by your application), to the pump. Discharge piping should be as short as possible. Both a check valve and a shut-off valve are required for each pump being used. The check valve is used to prevent backflow into the sump. Excessive backflow can cause flooding and/or damage to the pump. The shut-off valve is used to stop system flow during pump or check valve servicing.

Package Systems- Refer to manual supplied with basin package system.

ELECTRICAL CONNECTIONS:

Pump Cords - The quick connect cord assembly mounted to the pump must **NOT** be modified in any way except for shortening to a specific application. Any supply cables connections between the pump and the control panel must be made in accordance with the National Electric Code or the Canadian Electric Code and all applicable state, province and local electric codes. It is recommended that a junction box, be mounted outside the sump or be of at least Nema 4 (EEMAC-4) construction if located within the wet well. **DO NOT USE THE POWER OR CONTROL CABLES TO LIFT PUMP!**

Thermal Protection (All Pumps Except SGV*2022L) The normally closed (N/C) over temperature sensor is embedded in the motor windings and will detect excessive heat in the event an overload condition occurs. The thermal sensor will trip when the windings become too hot and will automatically reset itself when the pump motor cools to a safe temperature. It is recommended that the thermal sensor be connected in series to an alarm device to alert the operator of an overtemperature condition and/or motor starter coil to stop pump.

In the event of an overtemperature, the source of this condition should be determined and rectified immediately. Thermal protection shall not be used as a motor overload device. A separate motor overload device must be provided in accordance with NEC codes. **DO NOT LET THE PUMP CYCLE OR RUN IF AN OVERLOAD CONDITION OCCURS!**

Thermal Protection (SGV*2022L) - The normally closed (N/C) thermal overload is embedded and wired in series with the motor windings. It monitors for excessive heat and/or current draw in the event an overload condition occurs. The thermal overload will trip when the windings become too hot causing the pump to stop, and will automatically reset itself when the pump motor cools to a safe temperature. In the event of an overload, the source of this condition should be determined and rectified immediately. The thermal protection provided in the pump can be used as a motor overload device. A separate motor overload device is not required. **DO NOT LET THE PUMP CYCLE OR RUN IF AN OVERLOAD CONDITION OCCURS !**

Moisture Sensors: (Optional) - A normally open (N/O) detector is installed in the pump seal chamber which will detect any moisture present. It is recommended that this detector be connected in series to an alarm device or the motor starter coil to alert the operator that a moisture detect has occurred. In the event of a moisture detect, check the individual moisture sensor probe leads for continuity, (∞ resistance = no moisture) and the junction box/control box for moisture content. This situations may induce a false signal in the moisture detecting circuit. If none of the above tests prove conclusive, the pump(s) should be pulled and the source of the failure identified and repaired. **IF A MOISTURE DETECT HAS OCCURRED SCHEDULE MAINTENANCE AS SOON AS POSSIBLE.**

Wire Size - If additional cord is required consult a qualified electrician for proper wire size.

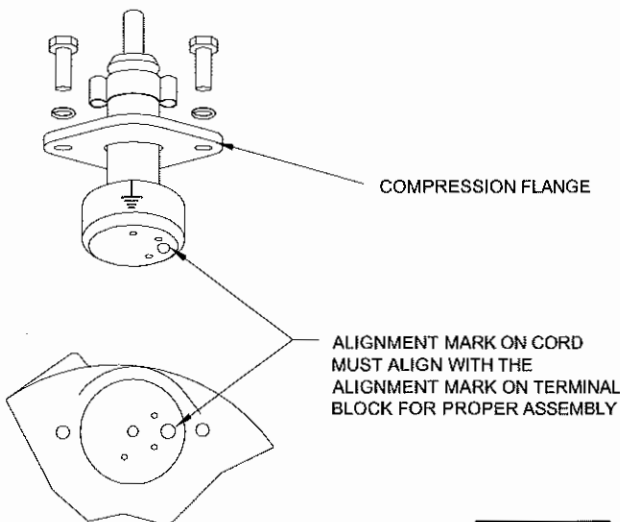


FIGURE 2

CORD CONNECTIONS:

Power/Control Cord- Insert female end of cord plug into housing bore aligning alignment mark with hole in terminal block see Figure 2. Tighten bolts on compression flange until flush with motor housing.

SERVICE:

Lubrication:

Anytime the pump is removed from operation, the cooling oil in the motor housing (4) should be checked visually for oil level and contamination.

Checking Oil:

Motor Housing - To check oil, set unit upright. Remove pipe plug (38) from motor housing (4). With a flashlight, visually inspect the oil in the motor housing (4) to make sure it is clean and clear, light amber in color and free from suspended particles. Milky white oil indicates the presence of water. Oil level should be just above the motor when pump is in vertical position.

Testing Oil:

- 1.) Place pump on it's side, remove pipe plug (38), from motor housing (4) and drain oil into a clean, dry container.
- 2.) Check oil for contamination using an oil tester with a range to 30 Kilovolts breakdown.
- 3.) If oil is found to be clean and uncontaminated (measuring above 15 KV. breakdown), refill the motor housing as per section "Replacing Oil".
- 4.) If oil is found to be dirty or contaminated (or measures below 15 KV. breakdown), the pump must be carefully inspected for leaks at the shaft seals (20) (27), cord assemblies (37) and (49 if used), square rings (13), (27) and pipe plugs, (21), (38) before refilling with oil. To locate the leak, perform a pressure test as per section "Pressure Test". After leak is repaired, dispose of old oil properly, and refill with new oil as per section "Replacing Oil".

Replacing Oil:

Motor Housing - Drain all oil from motor housing and dispose of properly per Local and Environmental Standards. Set unit upright and refill with new cooling oil as per Table 1 (see parts list for amount). Fill to just above motor as an air space must remain in the top of the motor housing to compensate for oil expansion. Apply pipe thread compound to threads of pipe plug (38) then assemble to motor housing (4).

Seal Chamber - Drain all oil from seal chamber and dispose of properly per Local and Environmental Standards. Set unit on its side, with plug (21) upward, and refill with new oil as per Table 1 (see parts list for amount). Apply pipe thread compound to threads of pipe plug (21) and assemble to seal plate (3).



Warning ! - Do not overfill oil. Overfilling of motor housing with oil can create excessive and dangerous hydraulic pressure which can destroy the pump and create a hazard. Overfilling oil voids warranty.

TABLE 1 - COOLING OIL - Dielectric	
SUPPLIER	GRADE
BP	Enerpar SE100
Conoco	Pale Paraffin 22
Mobile	D.T.E. Oil Light
G & G Oil	Circulating 22
Imperial Oil	Voltesso-35
Shell Canada	Transformer-10
Texaco	Diala-Oil-AX
Woco	Premium 100

Pressure Test:

Pumps that have been disassembled, Motor Housing - If the pump has been disassembled, the oil should be drained before a pressure test, as described in section "Checking Oil". Remove pipe plug (38) from motor housing (4). Apply pipe sealant to pressure gauge assembly and tighten into hole (See Figure 3). Pressurize motor housing to 10 P.S.I. Use soap solution around the sealed areas and inspect joints for "air bubbles". If, after five minutes, the pressure is still holding constant, and no "bubbles" are observed, slowly bleed the pressure and remove the gauge assembly. Replace oil as described in section "Replacing Oil". If the pressure does not hold, then the leak must be located and repaired.

Pumps that have NOT been disassembled, Motor Housing - The pressure test may be done with the oil at its normal level. Remove pipe plug (38) from motor housing (4). Apply pipe sealant to pressure gauge assembly and tighten into hole (See Figure 3). Pressurize motor housing to 10 P.S.I. Use soap solution around the sealed areas above the oil level and inspect joints for "air bubbles". For sealed areas below the oil level, leaks will seep oil. If, after five minutes, the pressure is still holding constant, and no "bubbles"/oil seepage is observed, slowly bleed the pressure and remove the gauge assembly. If the pressure does not hold, then the leak must be located and repaired.

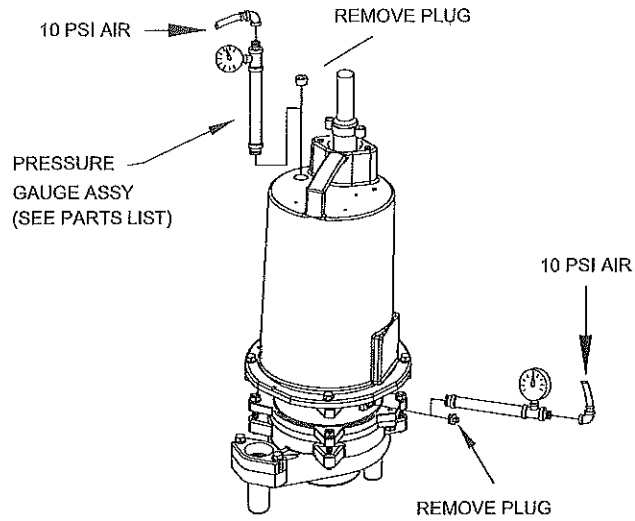
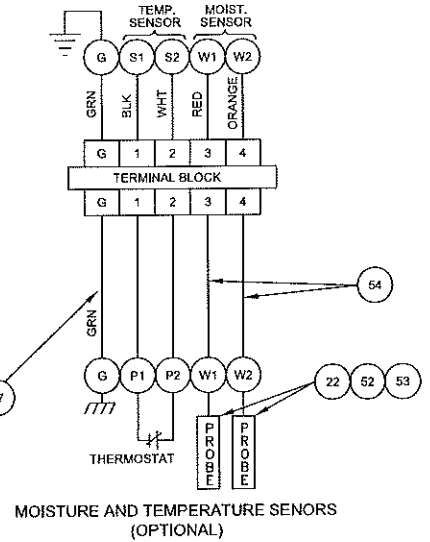
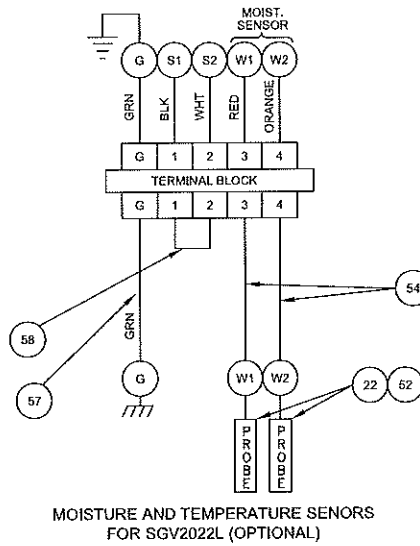
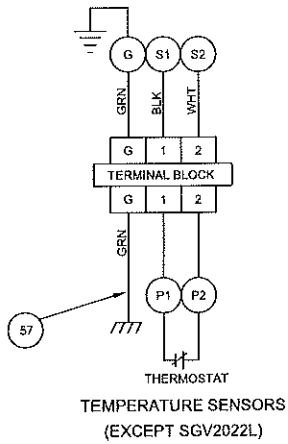
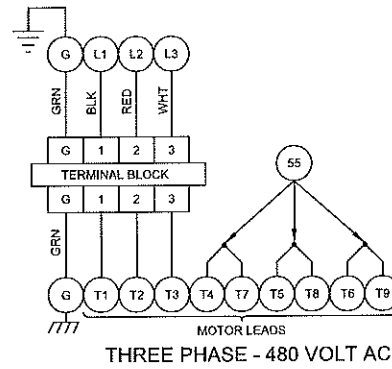
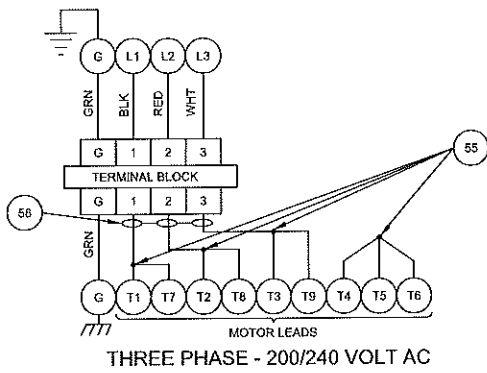
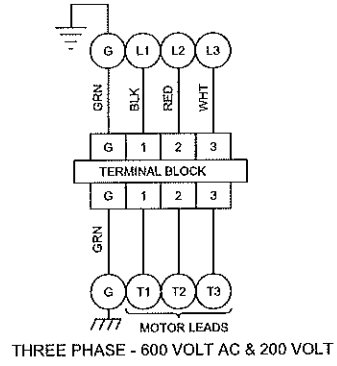
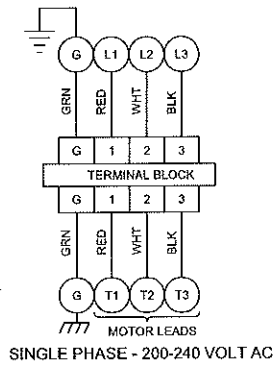


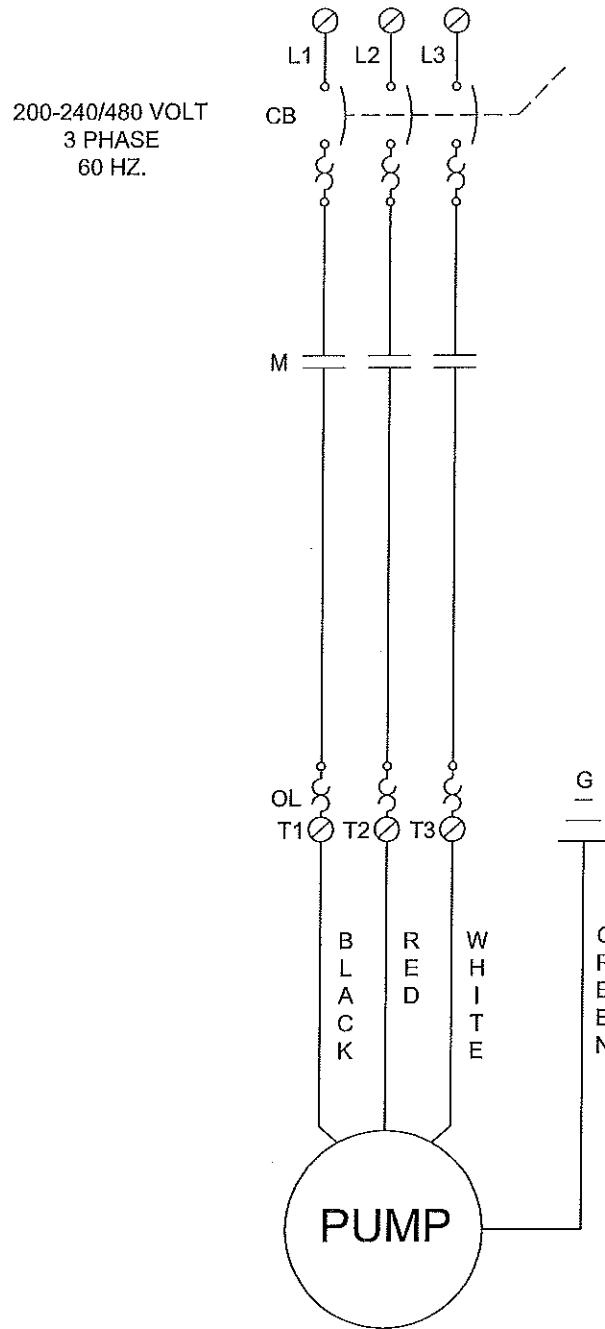
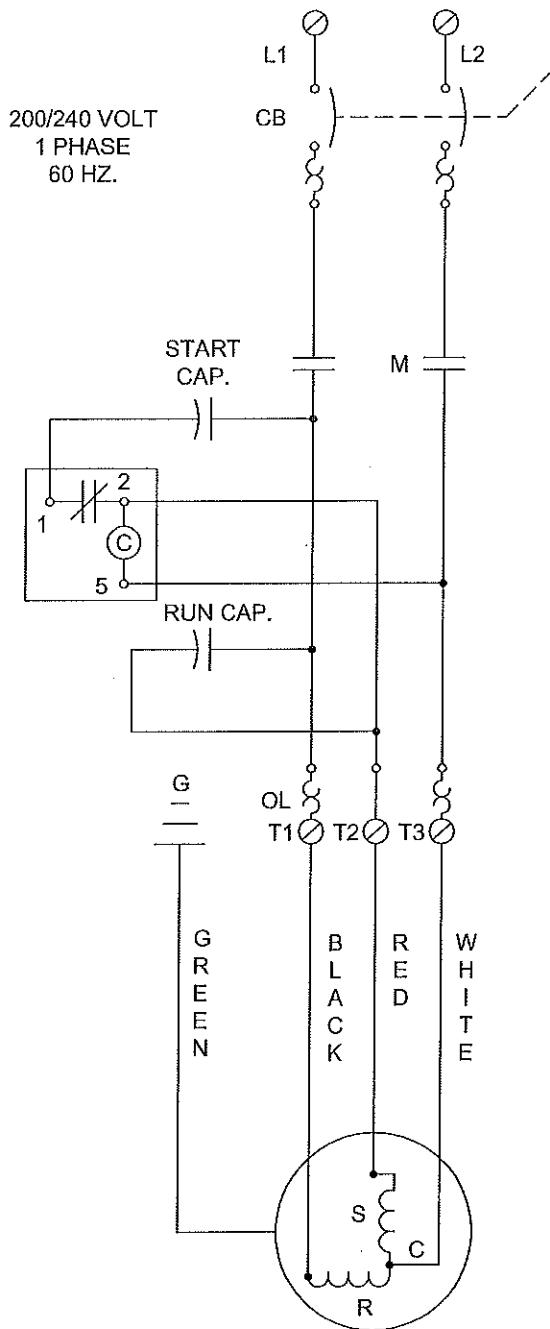
FIGURE 3



CAUTION ! Pressure builds up extremely fast, increase pressure by "tapping" air nozzle. Too much pressure will damage seal. DO NOT exceed 10 P.S.I.

Seal Chamber - Set unit on its side with fill plug (21) downward, remove plug (21) and drain all oil from seal chamber. Apply pipe sealant to pressure gauge assembly and tighten into hole in seal plate (3). Pressurize seal chamber to 10 P.S.I. and check for leaks as outlined above.





TROUBLE SHOOTING

CAUTION ! Always disconnect the pump from the electrical power source before handling.
 If the system fails to operate properly, carefully read instructions and perform maintenance recommendations.
 If operating problems persist, the following chart may be of assistance in identifying and correcting them:
MATCH "CAUSE" NUMBER WITH CORRELATING "CORRECTION" NUMBER.

NOTE: Not all problems and corrections will apply to each pump model.

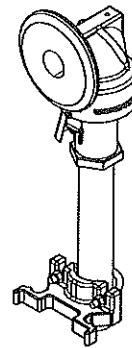
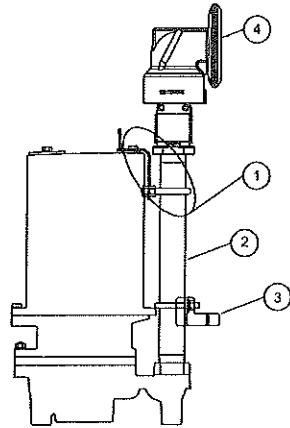
PROBLEM	CAUSE	CORRECTION
Pump will not run	1. Poor electrical connection; blown fuse, tripped breaker or other interruption of power, improper power supply. 2. Motor or switch inoperative (to isolate cause, go to manual operation of pump). 2a. Float movement restricted. 2b. Switch will not activate pump or is defective. 3. Insufficient liquid level.	1. Check all electrical connections for security. Have electrician measure current in motor leads, if current is within $\pm 20\%$ of locked rotor Amps, impeller is probably locked. If current is 0, overload may be tripped. Remove power, allow pump to cool, then recheck current. 2a. Reposition pump or clean basin as required to provide adequate clearance for float.
Pump will not turn off	2a. Float movement restricted. 2b. Switch will not activate pump or is defective. 4. Excessive inflow or pump not properly sized for application. 9. Pump may be airlocked. 14. H-O-A switch on panel is in "HAND" position	2b. Disconnect level control. Set ohmmeter for a low range, such as 100 ohms full scale and connect to level control leads. Actuate level control manually and check to see that ohmmeter shows zero ohms for closed switch and full scale for open switch. (Float Switch). 3. Make sure liquid level is at least equal to suggested turn-on point.
Pump hums but does not run	1. Incorrect voltage 8. Cutter jammed or loose on shaft, worn or damaged, inlet plugged.	4. Recheck all sizing calculations to determine proper pump size.
Pump delivers insufficient capacity	1. Incorrect voltage. 4. Excessive inflow or pump not properly sized for application. 5. Discharge restricted. 6. Check valve stuck closed or installed backwards. 7. Shut-off valve closed. 8. Cutter jammed or loose on shaft, worn or damaged, inlet plugged. 9. Pump may be airlocked. 10. Pump stator damaged/torn.	5. Check discharge line for restrictions, including ice if line passes through or into cold areas. 6. Remove and examine check valve for proper installation and freedom of operation. 7. Open valve. 8. Check cutter for freedom of operation, security and condition. Clean cutter and inlet of any obstruction. 9. Loosen union slightly to allow trapped air to escape. Verify that turn-off level of switch is set so that the suction is always flooded. Clean vent hole.
Pump cycles too frequently or runs periodically when fixtures are not in use	6. Check valve stuck closed or installed backwards. 11. Fixtures are leaking. 15. Ground water entering basin.	10. Remove & examine for damage. Replace pump stator if required. 11. Repair fixtures as required to eliminate leakage.
Pump shuts off and turns on independent of switch, (trips thermal overload protector). CAUTION! Pump may start unexpectedly. Disconnect power supply.	1. Incorrect voltage. 4. Excessive inflow or pump not properly sized for application. 8. Cutter jammed, loose on shaft, worn or damaged, inlet plugged. 12. Excessive water temperature.	12. Check pump temperature limits & fluid temperature. 13. Replace portion of discharge pipe with flexible connector. 14. Turn to automatic position. 15. Check for leaks around basin inlet and outlets.
Pump operates noisily or vibrates excessively	4. Operating at too high a pressure. 5. Discharge restricted. 8. Cutter broken. 13. Piping attachments to building structure too rigid or too loose.	

OLD STYLE MOTOR HOUSING WITH S.S. HANDLE

MOVEABLE ASSEMBLY P/N: 116593* PARTS LIST
For 2HP SGV Grinder, "C" Channel Basin Package

ITEM	QTY.	PART No.	DESCRIPTION
1	1	116602	Upper Bracket Kit
2	1	075589	Pipe Nipple
3	1	107360	Lower Guide Bracket Assy
4	1	112354	Check Valve/Upper Moveable

(*) Pump **NOT** included under this part number. The Moveable Assembly will be factory assembled to pump when a Basin Package System is ordered.



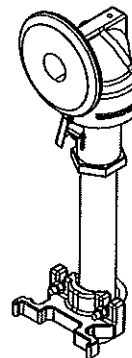
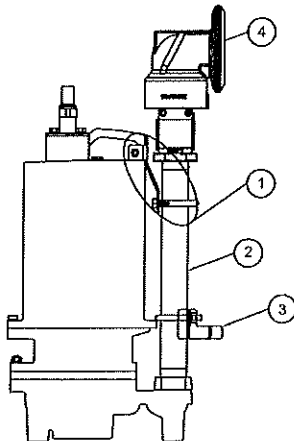
inches
(mm)

NEW STYLE MOTOR HOUSING WITH CAST HANDLE

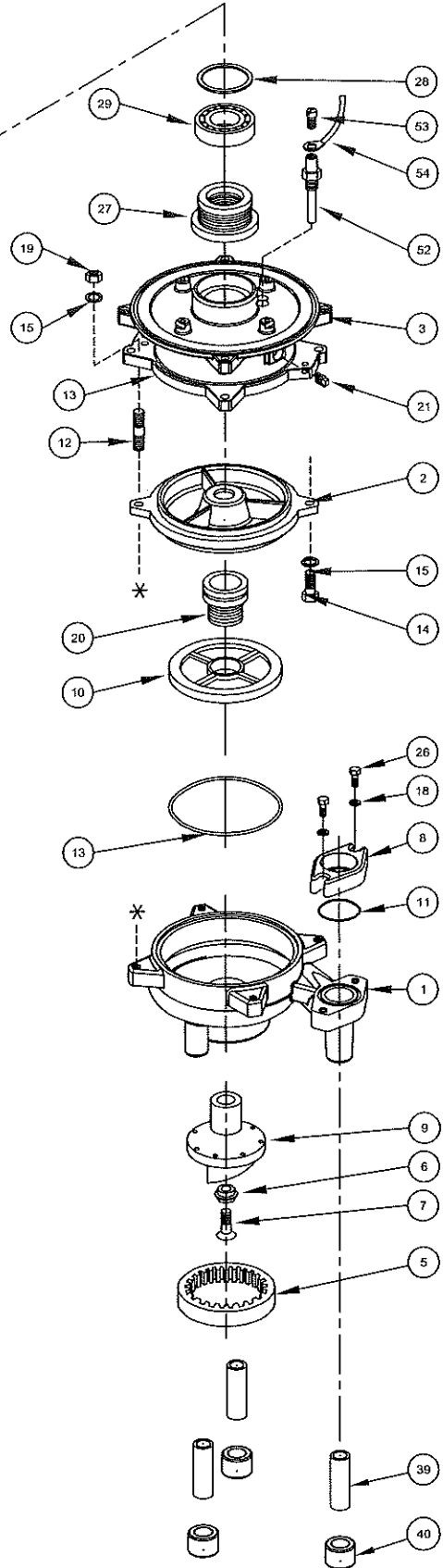
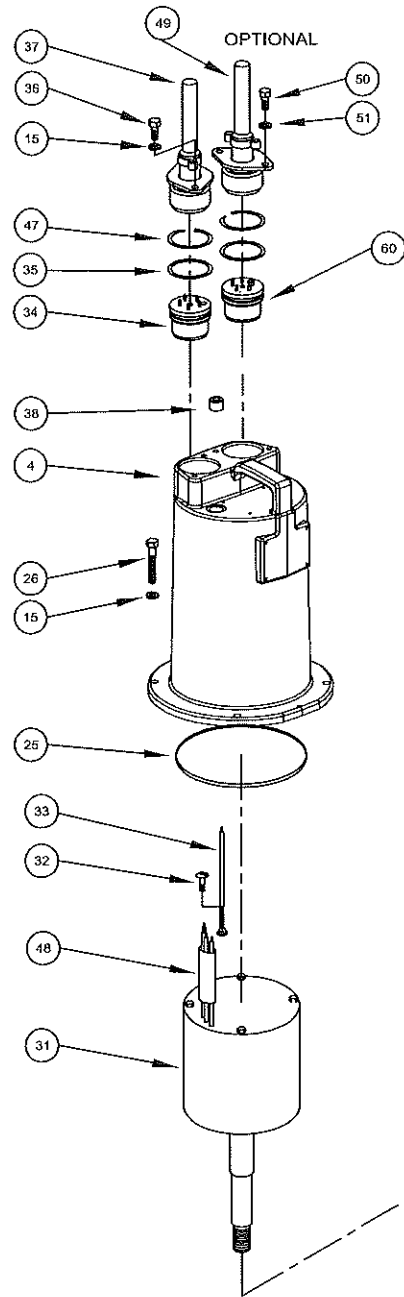
MOVEABLE ASSEMBLY P/N: 116593* PARTS LIST
For 2HP SGV Grinder, "C" Channel Basin Package

ITEM	QTY.	PART No.	DESCRIPTION
1	1	116607	Upper Bracket Kit
2	1	075589	Pipe Nipple
3	1	107360	Lower Guide Bracket Assy
4	1	112354	Check Valve/Upper Moveable

(*) Pump **NOT** included under this part number. The Moveable Assembly will be factory assembled to pump when a Basin Package System is ordered.



inches
(mm)



PARTS KITS

Seal Repair KitP/N: 113299

Overhaul Kit P/N: 115946

Cutter Kit - SGVFP/N: 113300

Cutter Kit - SGVHP/N: 113300B

Item #'s 6,7,13,14,15,19,20,21,25,26,27,32,35,47

113229 & Item #'s 28, 29, 55

Item #'s 5,6,7,9,15,19

Item #'s 5,6,7,9,15,19

PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION
1	1	108344	Volute
2	1	108880	Seal Plate
3	1	108879	Intermediate Coupling
4	1	108342A 110328B	Motor Housing (STD) Motor Housing (Option)
5	1	082085A 082085B	Shredding Ring (SGVF) Shredding Ring (SGVH)
6	1	067556	Washer
7	1	070704	Skhd Screw, 1/4-20 x .75" SS
8	1	108369	Discharge Flange 1-1/4" NPT
9	1	082088	Radial Cutter
10	1	109026 109026TD	Impeller, 5.62" Dia. (SGVH) Impeller, 5.18" Dia. (SGVF)
11	1	625-01558	O-Ring (-223)
12	4	108886	Stud, 5/16-18 x 2.25" SS
13	2	067564	Square Ring
14	2	1-156-1	Screw, 5/16-18 x 1" SS
15	12	026322	Lockwasher, 5/16" SS
16	A/R	-----	LOCTITE™ RC609
17	A/R	-----	LOCTITE 242
18	2	062941	5/16" Flatwasher
19	4	15-19-1	Hex Nut 5/16-18, SS
20	1	110395	Seal, outer C\C\B (STD)
21	3	003217	Pipe Plug, .25" NPT
22	A/R	-----	Permatex Sealent 2C
24	3 3/4 Qts. 1 Qts	029034	Cooling Oil - Mtr. Housing Cooling Oil - Seal Cavity
25	1	027269	Square Ring
26	6	1-131-1	Screw, 5/16-18 x 1.25", SS
27	1	111131	Seal, inner C\C\B (STD)
28	1	061143	Retaining Ring
29	1	Q10-36-E4	Ball Bearing
31	1	110397BG 067571BG 067572BG 085700BG	Motor: 2HP, 200/240 Volt, 1 Phase 2HP, 200 Volt, 3 Phase 2HP, 240/480 Volt, 3 Phase 2HP, 600 Volt, 3 Phase
32	1	016660	Self Tapping Screw

ITEM	QTY.	PART NO.	DESCRIPTION
33	1	105111A	Ground Wire Assy, 10GA.
34	1	103586	Terminal Block
35	1 or 2	2-31051-224	O-Ring
37	1	109492XC	Cord Set, Power 30Ft. (STD)
38	1	014270	Pipe Plug, C'sunk, 3/8" NPT
39	3	110660	1/2" x 2-1/2" Nipple
40	3	105814	1/2" PVC Pipe Cap
47	1 or 2	105197	Retaining Ring
48	1 or 2	625-02117	Sleeving
55	4	105150	Terminal Conn., 200/240V, 3P
	3	625-00163	Terminal Conn., 480V, 3P
56	3	105149A	Jumper Wire, 200/240, 3PH
OPTIONAL			
49	1	103741XC 113288XC	Cord Set, Temp, 30FT. Cord Set, Moist & Temp, 30FT.
50	2	1-156-1	Screw, 5/16-18 x .75" SS
51	2	026322	Lockwasher, 5/16" SS
52	2	087115	Moisture Sensor Probe
53	2	038156	Pan Hd Screw #6-32 x .38"
54	2	105106	Wire Assy, Moist. Sensor
57	1	105111	Ground Wire
60	1	103584 113272	Terminal Block, Temp Sensor Terminal Block, Moist & Temp

Contact your local Distributor or the Factory for other impeller sizes, seal materials, cord lengths and other optional equipment.

BARNES®

BARNES®
PRESSURE PS SYSTEMS

CROWN

burks®

WEINMAN®

DEMING®

PROSSER®

Limited 24 Month Warranty

Crane Pumps & Systems warrants that products of our manufacture will be free of defects in material and workmanship under normal use and service for twenty-four (24) months after manufacture date, when installed and maintained in accordance with our instructions. This warranty gives you specific legal rights, and there may also be other rights which vary from state to state. In the event the product is covered by the Federal Consumer Product Warranties Law (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, (2) this warranty is a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against us, until the ultimate consumer, his successor, or assigns, notifies us in writing of the defect, and delivers the product and/or defective part(s) freight prepaid to our factory or nearest authorized service station. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, F.O.B. POINT OF MANUFACTURE OR AUTHORIZED REPAIR STATION, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.** Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by us, if any, are subject to laboratory tests corrected for field performance. Any additional guarantees, in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. **RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSES AND EVALUATIONS WE CONDUCT WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.**

This warranty shall not apply when damage is caused by (a) improper installation, (b) improper voltage (c) lightning (d) excessive sand or other abrasive material (e) scale or corrosion build-up due to excessive chemical content. Any modification of the original equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts. Neither will we accept charges incurred by others without our prior written approval.

This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. **UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO TRAVEL EXPENSES, RENTED EQUIPMENT, OUTSIDE CONTRACTOR FEES, UNAUTHORIZED REPAIR SHOP EXPENSES, LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

No rights extended under this warranty shall be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.



A Crane Co. Company

PUMPS & SYSTEMS

420 Third Street
Piqua, Ohio 45356
(937) 778-8947
Fax (937) 773-7157
www.cranepumps.com

83 West Drive
Brampton, Ont. Canada L6T 2J6
(905) 457-6223
Fax (905) 457-2650

**IMPORTANT!
WARRANTY REGISTRATION**

Your product is covered by the enclosed Warranty.
To complete the Warranty Registration Form go to:

<http://www.cranepumps.com/ProductRegistration/>

If you have a claim under the provision of the warranty, contact your local
Crane Pumps & Systems, Inc. Distributor.

RETURNED GOODS

**RETURN OF MERCHANDISE REQUIRES A "RETURNED GOODS AUTHORIZATION".
CONTACT YOUR LOCAL CRANE PUMPS & SYSTEMS, INC. DISTRIBUTOR.**



**Products Returned Must Be Cleaned, Sanitized,
Or Decontaminated As Necessary Prior To Shipment,
To Insure That Employees Will Not Be Exposed To Health
Hazards In Handling Said Material. All Applicable Laws
And Regulations Shall Apply.**



A Crane Co. Company

PUMPS & SYSTEMS

START-UP REPORT**General Information**

Pump Owner's Name: _____
 Address: _____
 Location of Installation: _____
 Contact Person: _____ Phone: _____
 Purchased From: _____

Nameplate Data

Pump Model #: _____ Serial #: _____
 Part #: _____ Impeller Diameter: _____
 Voltage: _____ Phase: _____ \emptyset Hertz: _____ Horsepower: _____
 Full Load Amps: _____ Service Factor Amps: _____
 Motor Manufacturer: _____

Controls

Control panel manufacturer: _____
 Model/Part number: _____
 Number of pumps operated by control panel: _____
 Short circuit protection? YES___ NO___ Type: _____
 Number and size of short circuit device(s): _____ Amp rating: _____
 Overload Type: _____ Size: _____ Amp rating: _____
 Do protection devices comply with pump and motor Amp rating? YES___ NO___
 Are all electrical and panel entry connections tight? YES___ NO___
 Is the interior of the panel dry? YES___ NO___
 Liquid level Control Brand and Model: _____

Pre-Startup**All Pumps**

Type of equipment: NEW___ REBUILT___ USED___
 Condition of equipment at Start-Up: DRY___ WET___ MUDDY___
 Was Equipment Stored? YES___ NO___ Length of Storage: _____
 Liquid being pumped: _____ Liquid Temperature: _____
 Supply Voltage/Phase/Frequency matches nameplate? YES___ NO___
 Shaft turns freely? YES___ NO___
 Direction of rotation verified for 3 \emptyset motors? YES___ NO___
 Debris in piping or wet well? YES___ NO___
 Debris removed in your presence? YES___ NO___
 Pump case/wet well filled with liquid before startup? YES___ NO___
 Is piping properly supported? YES___ NO___

Non-Submersible Pumps

Is base plate properly installed / grouted? YES___ NO___ N/A___
 Coupling Alignment Verified per I&O Manual? YES___ NO___ N/A___
 Grease Cup/Oil Reservoir Level checked? YES___ NO___ N/A___

Submersible Pumps

Resistance of cable and pump motor (measured at pump control):

Red-Black: _____ Ohms(Ω) Red-White: _____ Ohms(Ω) White-Black: _____ Ohms(Ω)

Resistance of Ground Circuit between Control Panel and outside of pump: _____ Ohms(Ω)

MEG Ohms check of insulation:

Red to Ground: _____ White to Ground: _____ Black to Ground: _____

Operational Checks

Is there noise or vibration present? YES ___ NO ___ Source of noise/vibration: _____

Does check valve operate properly? YES ___ NO ___ N/A ___

Is system free of leaks? YES ___ NO ___ Leaks at: _____

Does system appear to operate at design flow rate? YES ___ NO ___

Nominal Voltage: _____ Phase: 1Ø 3Ø (select one)

Voltage Reading at panel connection, Pump OFF: L1, L2 _____ L2, L3 _____ L1, L3 _____

Voltage Reading at panel connection, Pump ON: L1, L2 _____ L2, L3 _____ L1, L3 _____

Amperage Draw, Pump ON: L1 _____ L2 _____ L3 _____

Submersible Pumps

Are BAF and guide rails level / plumb? YES ___ NO ___

Is pump seated on discharge properly? YES ___ NO ___

Are level controls installed away from turbulence? YES ___ NO ___

Is level control operating properly? YES ___ NO ___

Is pump fully submerged during operation? YES ___ NO ___

Follow up/Corrective Action Required

YES ___ NO ___

Additional Comments:

Startup performed by: _____ Date: _____

Present at Start-Up

() Engineer: _____ () Operator: _____

() Contactor: _____ () Other: _____

All parties should retain a copy of this report for future trouble shooting/reference



A Crane Co. Company

PUMPS & SYSTEMS

420 Third Street
Piqua, Ohio 45356
(937) 778-8947
Fax (937) 773-7157
www.cranepumps.com

83 West Drive
Brampton, Ont. Canada L6T 2J6
(905) 457-6223
Fax (905) 457-2650

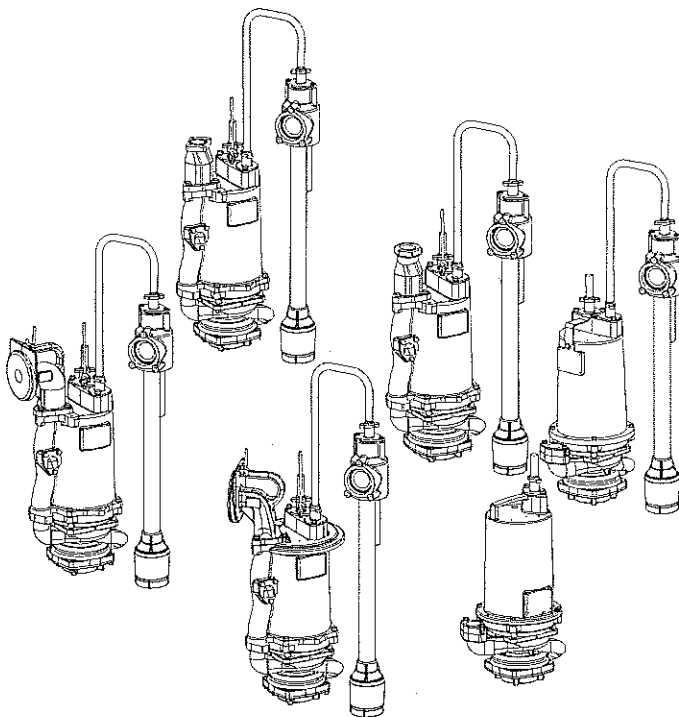
ATTACHMENT B



INSTALLATION MANUAL

Submersible Two-Stage Grinder Pump

Series: OGP
2 HP, 3450 RPM,
60 Hz.



**Upgrade
 Core**

**omni
 GRIND™**
 GRINDER PUMPS *plus*⁺

This product may be covered by one or more of the following patents and other patent(s) pending:
 US Patent 7,357,341

IMPORTANT!

*Read all instructions in this manual before operating pump.
 As a result of Crane Pumps & Systems, Inc., constant product improvement program,
 product changes may occur. As such Crane Pumps & Systems reserves the right to
 change product without prior written notification.*

CRANE

A Crane Co. Company

PUMPS & SYSTEMS

420 Third Street
 Piqua, Ohio 45356
 Phone: (937) 778-8947
 Fax: (937) 773-7157
 www.cranepumps.com

83 West Drive, Bramton
 Ontario, Canada L6T 2J6
 Phone: (905) 457-6223
 Fax: (905) 457-2650



Form No. 119972-Rev. V

SAFETY FIRST!

Please Read This Before Installing Or Operating Pump. This information is provided for **SAFETY** and to **PREVENT EQUIPMENT PROBLEMS**. To help recognize this information, observe the following symbols:



IMPORTANT! Warns about hazards that can result in personal injury or Indicates factors concerned with assembly, installation, operation, or maintenance which could result in damage to the machine or equipment if ignored.

CAUTION ! Warns about hazards that can or will cause minor personal injury or property damage if ignored. Used with symbols below.

WARNING ! Warns about hazards that can or will cause serious personal injury, death, or major property damage if ignored. Used with symbols below.



Hazardous fluids can cause fire or explosions, burns or death could result.



Extremely hot - Severe burns can occur on contact.



Biohazard can cause serious personal injury.



Hazardous fluids can Hazardous pressure, eruptions or explosions could cause personal injury or property damage.



Rotating machinery Amputation or severe laceration can result.



Hazardous voltage can shock, burn or cause death.

Only qualified personnel should install, operate and repair pump. Any wiring of pumps should be performed by a qualified electrician.



WARNING ! - To reduce risk of electrical shock, pumps and control panels must be properly grounded in accordance with the National Electric Code (NEC) or the Canadian Electrical Code (CEC) and all applicable state, province, local codes and ordinances.



WARNING! - To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing. Lock out power and tag.

Prevent large articles of clothing, large amounts of chemicals, other materials or substances such as are uncommon in domestic sewage from entering the system.

During power black-outs, minimize water consumption at the home(s) to prevent sewage from backing up into the house.

Always keep the shut-off valve completely open when system is in operation (unless advised otherwise by the proper authorities). Before removing the pump from the basin, be sure to close the shut-off valve. (This prevents backflow from the pressure sewer.)

Keep the control panel locked or confined to prevent unauthorized access to it.

If the pump is idle for long periods of time, it is advisable to start the pump occasionally by adding water to the basin.



CAUTION! Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.



WARNING! - DO NOT pump hazardous materials (flammable, caustic, etc.) unless the pump is specifically designed and designated to handle them.

Do not block or restrict discharge hose, as discharge hose may whip under pressure.



WARNING! - DO NOT wear loose clothing that may become entangled in the impeller or other moving parts.

WARNING! - Keep clear of suction and discharge openings. DO NOT insert fingers in pump with power connected.

Make sure lifting handles are securely fastened each time before lifting. Do not operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair.

Do not exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.

Secure the pump in its operating position so it can not tip over, fall or slide.

Cable should be protected at all times to avoid punctures, cut, bruises and abrasions - inspect frequently.



Never handle connected power cords with wet hands.

To reduce risk of electrical shock, all wiring and junction connections should be made per the NEC or CEC and applicable state or province and local codes. Requirements may vary depending on usage and location.



Submersible Pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common.

Do not remove cord and strain relief. Do not connect conduit to pump.



Products Returned Must Be Cleaned, Sanitized, Or Decontaminated As Necessary Prior To Shipment, To Insure That Employees Will Not Be Exposed To Health Hazards In Handling Said Material. All Applicable Laws And Regulations Shall Apply.



Bronze/brass and bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. Lead is known to cause cancer and birth defects or other reproductive harm. Various government agencies have determined that leaded copper alloys should not be used in potable water applications. For non-leaded copper alloy materials of construction, please contact factory.



IMPORTANT! - Crane Pumps & Systems, Inc. is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.



A pump that is intended to pump sewage or effluent shall be installed in a tank that is vented in accordance with local plumbing codes and is not classified as hazardous in accordance with the National Electrical Code, ANSI/NFPA 70 unless it is specifically marked for such use.

Other brand and product names are trademarks or registered trademarks of their respective holders.

© Barnes is a registered trademark of Crane Pumps & Systems Inc. 2003, 5/04, 4/05, 12/05, 1/06, 9/06, 11/06, 2/07, 4/07

Alteration Rights Reserved

Replacement Core Unit

200/2000 Series Basins

BARNES®



USER GUIDE

Congratulations on your purchase of a Barnes grinder pump system. With proper care and by following a few simple guidelines your grinder pump will give you many years of dependable service.

Use and Care

The grinder pump station is designed to handle routine, domestic sewage. Solid waste materials should be thrown in the trash. While your station is capable of accepting and pumping a wide range of materials, regulatory agencies advise that the following items should not be introduced into any sewer either directly or through a kitchen waste disposal:

- Glass
- Metal
- Diapers
- Socks, rags or cloth
- Plastic objects (e.g., toys, utensils, etc.)
- Sanitary napkins or tampons

In addition you must **NEVER** introduce into any sewer:

- Explosives
- Flammable Material
- Lubricating Oil and/or Grease
- Strong Chemicals
- Gasoline

General Information

Your home wastewater disposal service is part of a low pressure sewer system. The key element in this system is the Barnes grinder pump station. The basin collects all wastewater from the house. The solids in the sewage are then ground to a small size suitable for pumping in the slurry.

GRINDER PUMP SYSTEMS

The grinder pump generates sufficient pressure to pump this slurry from your home to the wastewater plant.

Power Failure

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

Warranty

Your grinder pump is furnished with a warranty against defects in material or workmanship. A properly completed Start-Up/Warranty Registration form must be on file at the Barnes factory in order to activate your warranty. In addition your pump must be installed in accordance with the installation instructions.

If you have a claim under the provisions of the warranty, contact your local Barnes Distributor.

When contacting your representative for service, please include your station serial number, pump model number, and pump serial number.

For future reference, record the following information:

Station Serial No: _____

Pump Model No: _____

Pump Serial No: _____

Local Distributor: _____

Distributor Telephone: _____

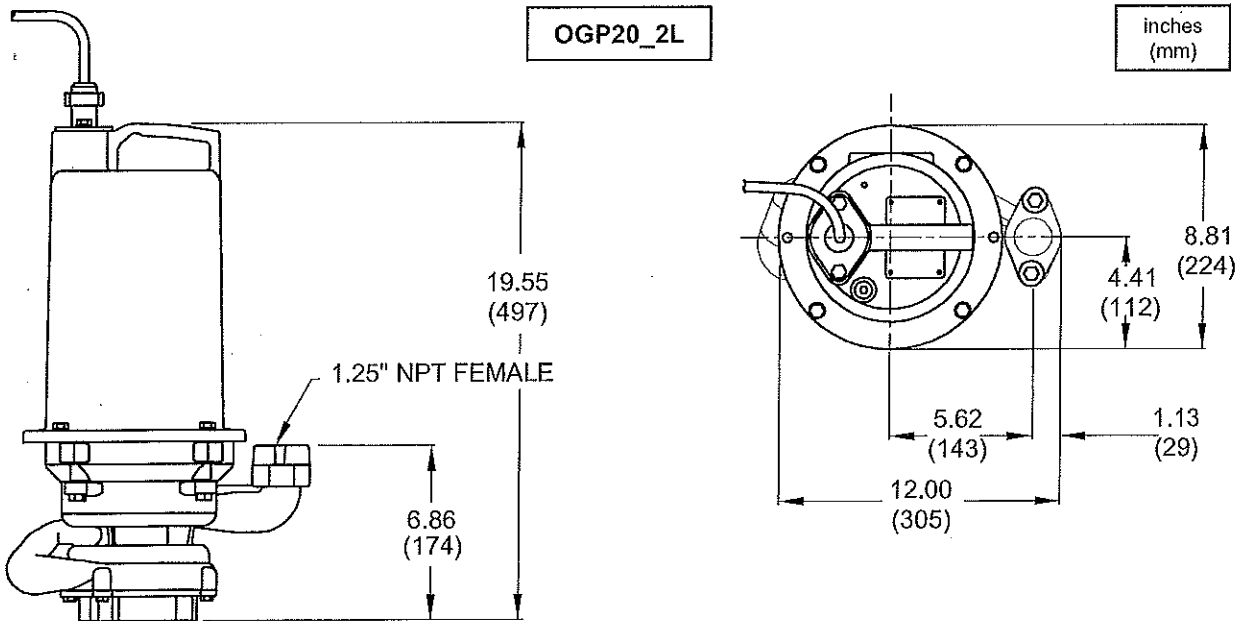


PUMP SPECIFICATIONS:

DISCHARGE 1½" NPT, Vertical, Bolt-on Flange
 LIQUID TEMPERATURE 104°F (40°C) Continuous
 MOTOR HOUSING Cast Iron ASTM A-48, Class 30
 VOLUTE Cast Iron ASTM A-48, Class 30
 SEAL PLATE Cast Iron ASTM A-48, Class 30
IMPELLERS
 Design 12 vane, vortex, with pump out vanes on back side. Dynamically balanced, ISO G6.3
 Material 85-5-5-5 Bronze
SHREDDING RING Hardened 440C Stainless Steel
 Rockwell® C-55
CUTTER Hardened 440C Stainless Steel
 Rockwell® C-55
SHAFT 416 Stainless Steel
SQUARE RING Buna-N
HARDWARE 300 Series Stainless Steel
PAINT Air dry enamel, top coat
SEAL *Design* Single Mechanical, oil filled reservoir
 Material Rotating Faces - Silicon-Carbide
 Stationary Faces - Silicon-Carbide
 Elastomer - Buna-N
 Hardware - 300 series stainless steel
CORD ENTRY 30 Ft. (9.1m); 15 Ft. (4.5m) Cord on, Compact series (CC, CE, CO, CT)
 Custom Molded Quick Connected for sealing and strain relief
CORD CSA/UL Approved, 12/3, 12/4, or 12/5 Type SOW
SPEED 3450 RPM, 60Hz

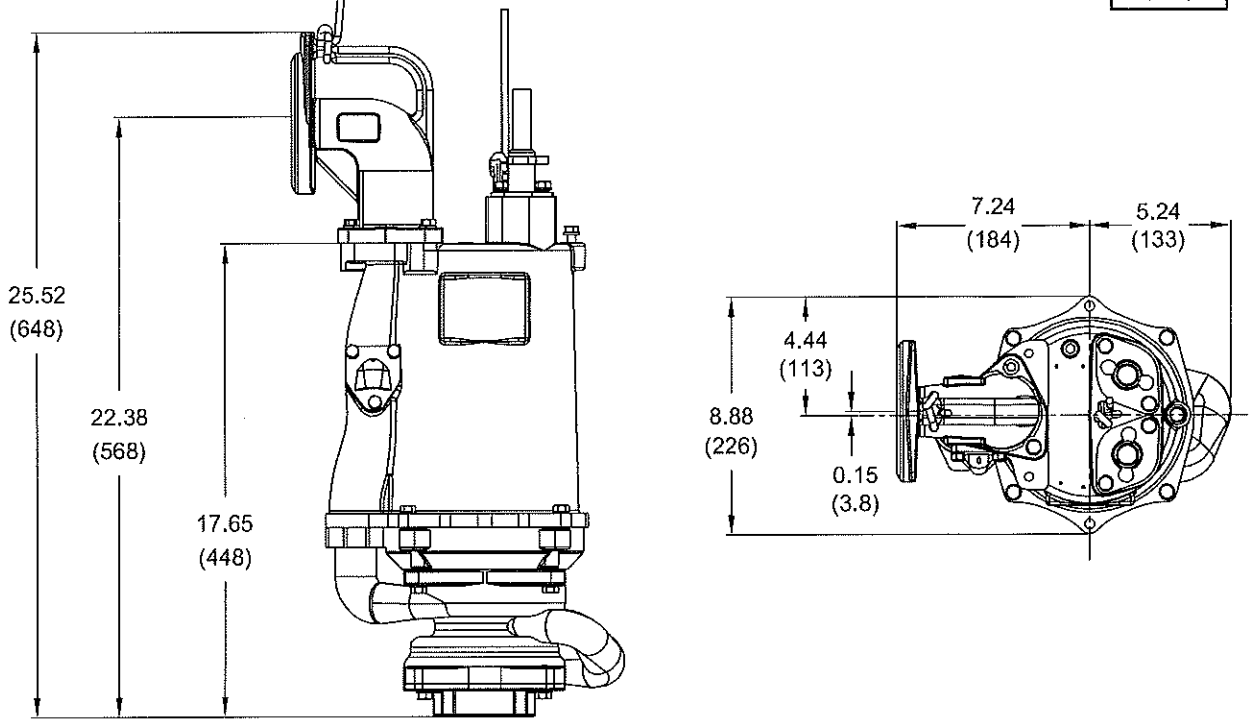
UPPER BEARING:
 Design Single Row, Angular Contact Ball
 Lubrication Oil
 Load Radial & Thrust
LOWER BEARING
 Design Single Row, Angular Contact Ball
 Lubrication Oil
 Load Radia & Thrust
MOTOR *Design* NEMA L-Single Phase Torque Curve, Oil Filled, Squirrel Cage Induction (includes overload protection in the motor), NEMA B-Three Phase Torque Curve.
 Insulation Class F
SINGLE PHASE Capacitor start/capacitor run
THREE PHASE Tri-Voltage 200/240-480, requires overload protection to be included in control panel.
LEVEL CONTROLS: AUE, CE, CO, CC & CT
 Series **SOLD SEPARATELY**, Model ESPS-150™ or ESPS-150ε™, Environmentally sealed pressure switch with CPVC housing, Buna diaphragm, Custom Molded Quick Connect for Sealing and Strain Relief
OPTIONAL EQUIPMENT Additional Cord, Moveable Fitting

**Automatic ESPS Level Control
 Sold Separately (Single Phase ONLY)**

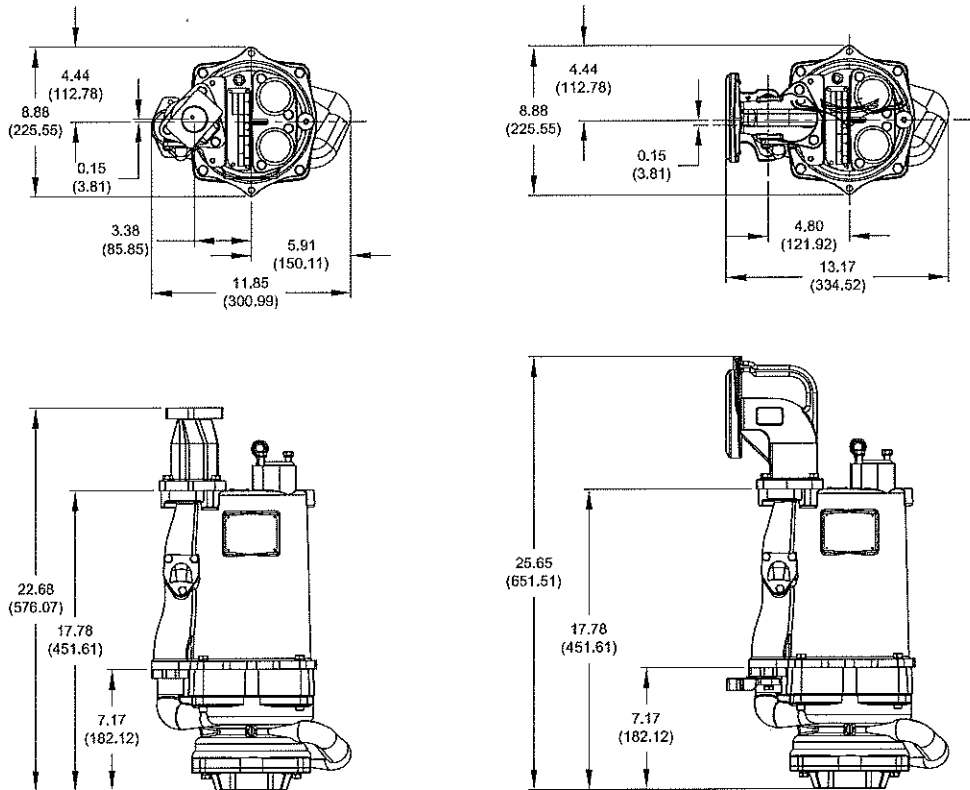


OGP20_2CC - For "C" Channel

inches
(mm)

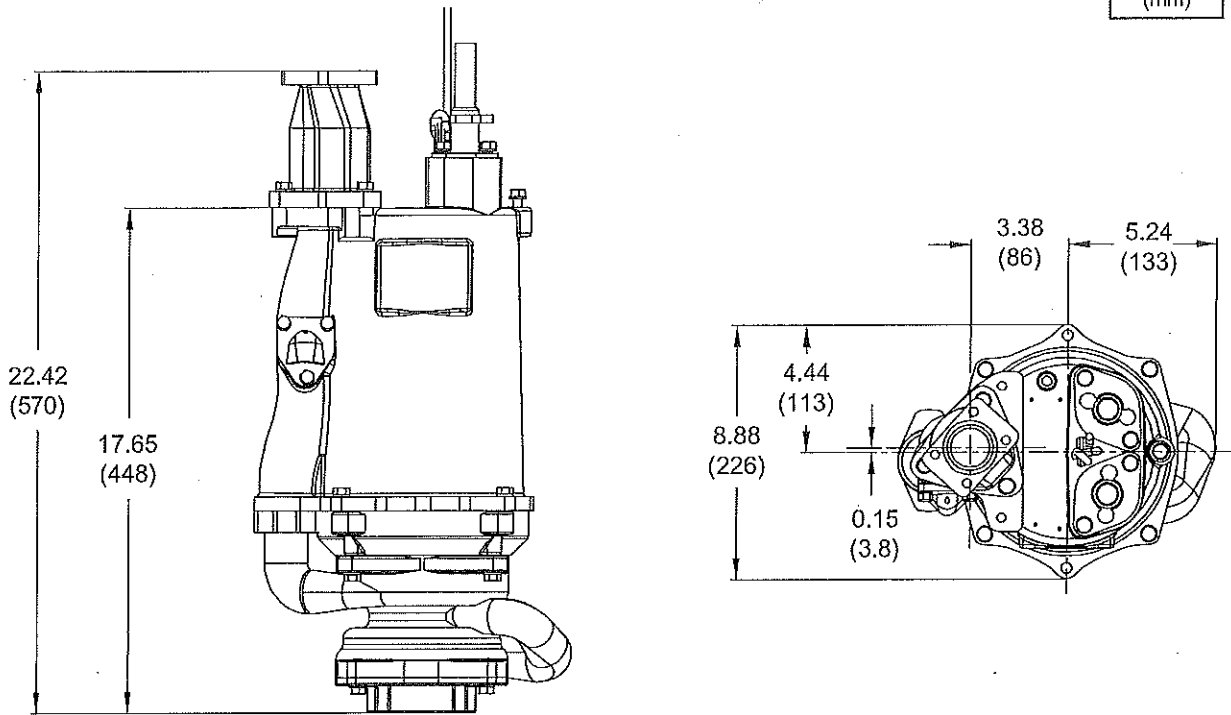


OGP2022CE - For EcoTRAN™

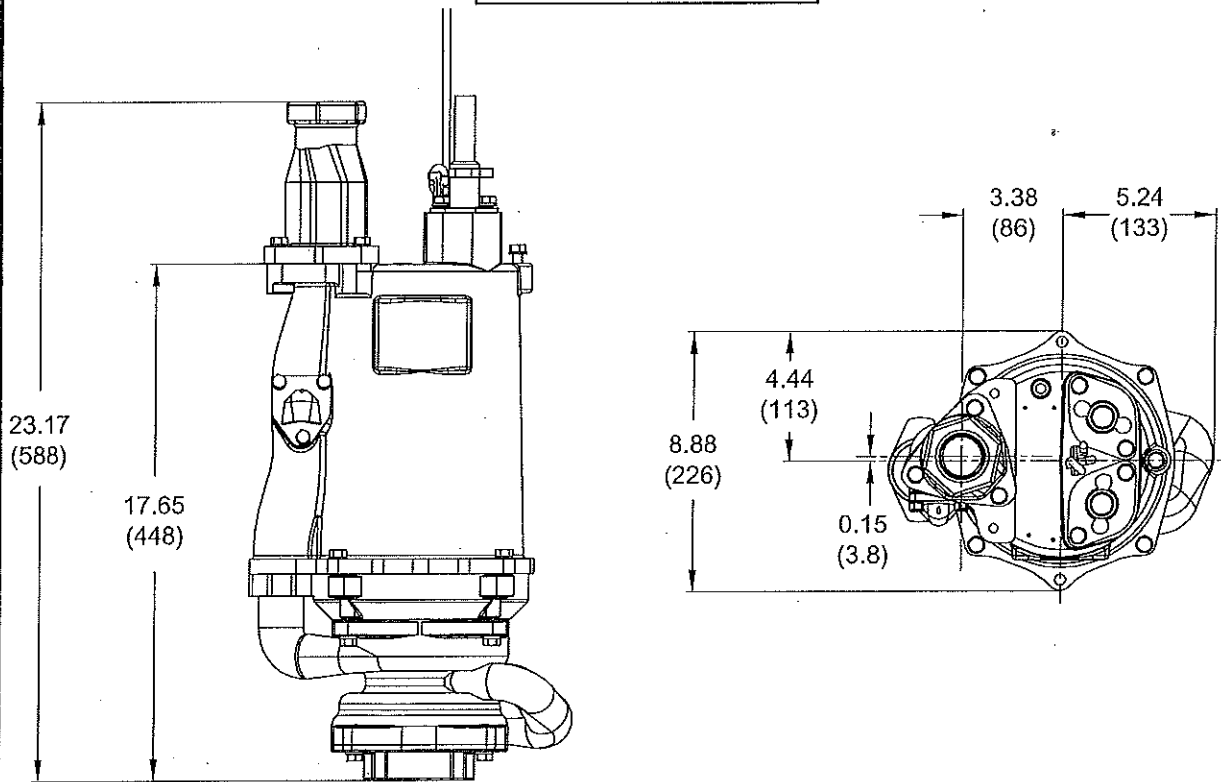


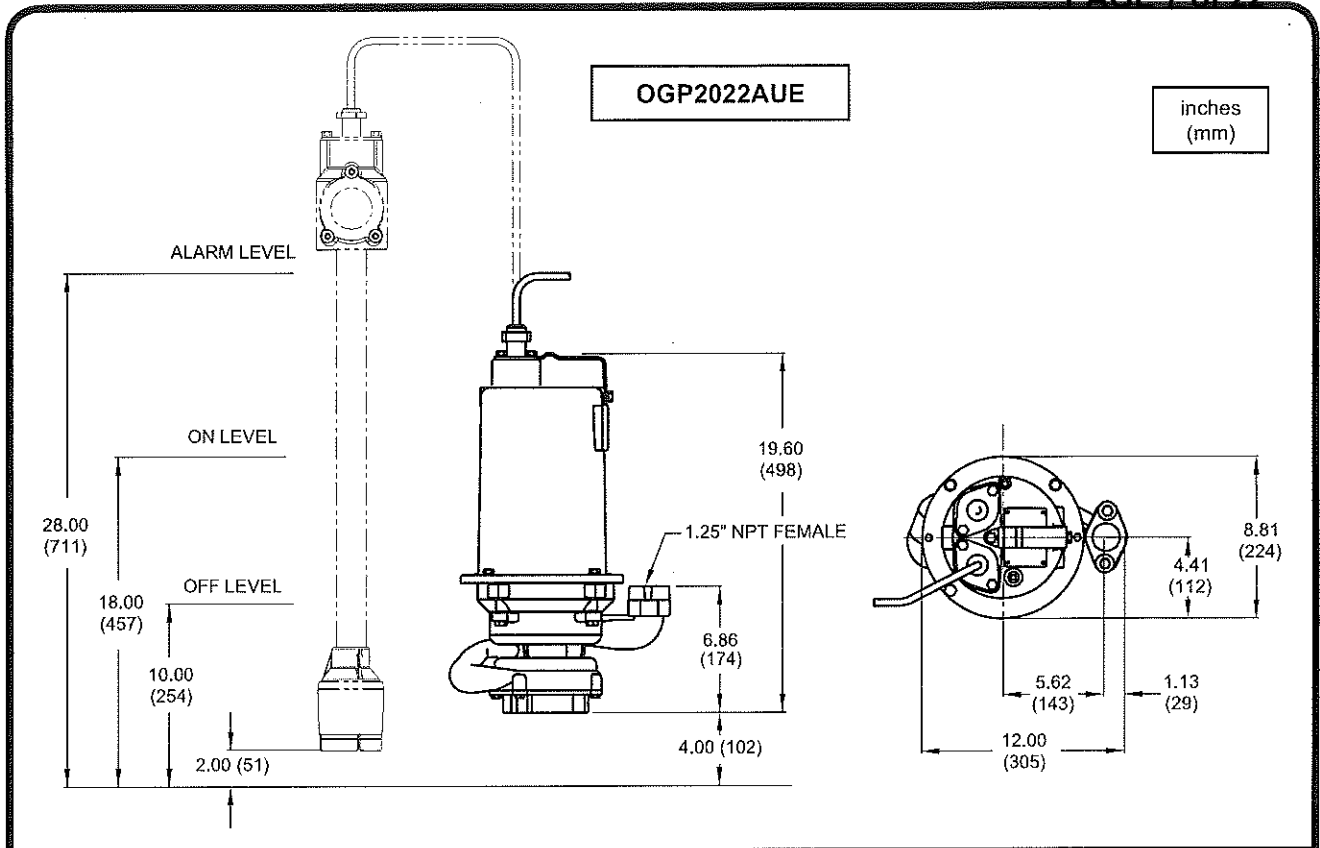
OGP2022CO - For Upgrade Core

inches
(mm)



OGP20_2CT - Threaded



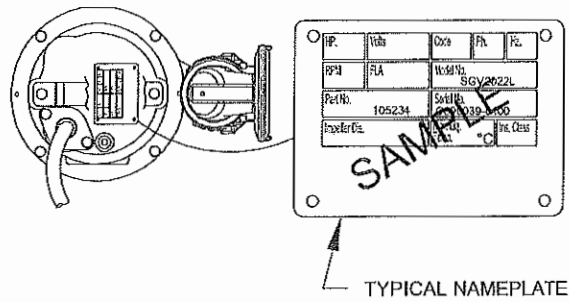
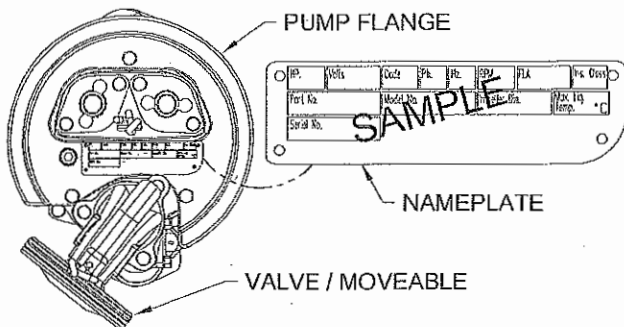


MODEL NO	HP	VOLT	PH	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD SIZE	CODE TYPE	CORD O.D. ± .02 (.5) in (mm)	CORD LENGTH Ft. (m)	WINDING RESISTANCE MAIN -- START
OGP2022L	2	240	1	H	16.5	53.8	12/3	SOW	.61 (15.5)	15 (4.6)	1.06 -- 3.60
OGP2022AUE	2	240	1	H	16.5	53.8	12/5	SOW	.71 (15.5)	15 (4.6)	1.06 -- 3.60
OGP2022CC	2	240	1	H	16.5	53.8	12/5	SOW	.71 (15.5)	15 (4.6)	1.06 -- 3.60
OGP2022CE	2	240	1	H	16.5	53.8	12/5	SOW	.71 (15.5)	15 (4.6)	1.06 -- 3.60
OGP2022CO	2	240	1	H	16.5	53.8	12/5	SOW	.71 (15.5)	15 (4.6)	1.06 -- 3.60
OGP2022CT	2	240	1	H	16.5	53.8	12/5	SOW	.71 (15.5)	15 (4.6)	1.06 -- 3.60
OGP2062L	2	200	3	L	10.8	52.7	12/4	SOW	.67 (17.0)	.55 (14.0)	2.08
OGP2032L	2	240	3	L	8.9	43.9	12/4	SOW	.67 (17.0)	.55 (14.0)	2.08
OGP2042L	2	480	3	L	4.5	22.0	12/4	SOW	.67 (17.0)	.55 (14.0)	6.24
OGP2022L Ext. Cap.	2	240	1	H	16.5	53.8	12/4	SOW	.67 (17.0)	.55 (14.0)	1.06 -- 3.60

Winding Resistance ± 5%, measured from terminal block.
 Pump rated for operation at ± 10% voltage at motor.
 For 3 Phase models: Temperature Sensor Cord is 14/3 SOW, 0.55 (14mm) ± .02 (.51mm) O.D.

Recommended Breaker Sizes				
Pump Model	HP	Phase	Volts	Breaker Size
OGP2022	2	1	240	25 AMP
OGP2062	2	3	200	15 AMP
OGP2032	2	3	240	15 AMP
OGP2042	2	3	480	10 AMP

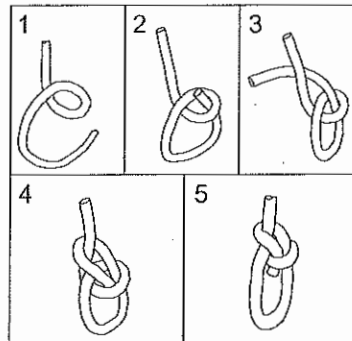
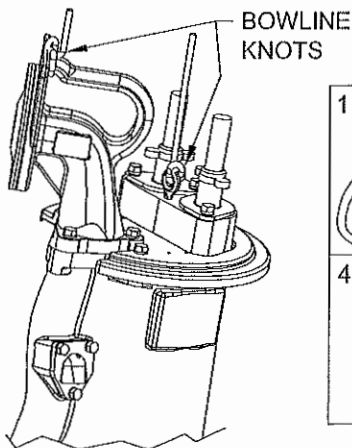
The nameplate is located on top of the pump. This contains the pumps part number, horsepower voltage, phase, and serial number, as well as other information. The start-up form located in the back of this manual contains a place to record this data. The information should be recorded now so the pump does not have to be pulled again later. The start-up form can be left in the control panel until station start-up is completed later.



OGP2022CC, CE, CO, CT

OGP20_2L

NOTE: For any reason the Flange Support on the OGP2022CE units is removed or replaced, be shure not to loose Name plate, or re-attached to new support.



Tie the bowline knot where shown per the directions provided (Steps 1 through 5).

On the CC and CE series, tie one bowline knot on the handle of the moveable fitting and one bowline knot in the eyebolt on the pump (See Fig 1).

On the CO and CT (Not Shown) series tie bowline knot on the eyebolt.

On the L series tie bowline knot on the lifting handle. (See Fig 2).

FIGURE 1

ATTACH LIFTING DEVICE
CAUTION: NEVER LOWER OR RAISE PUMP BY CORD!

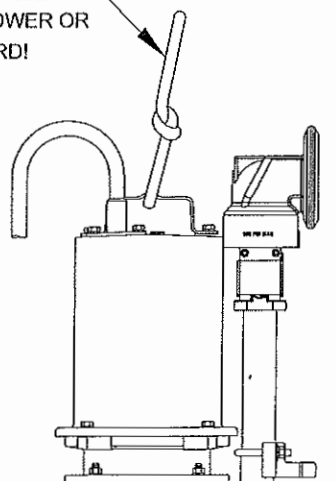


FIGURE 2

RECEIVING/UNPACKING:

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump. Unpack pump and record pump serial and model number before installing. If the manual is removed from the packaging, do not lose or misplace.

STORAGE:

Short Term- For best results, pumps can be retained in storage, as factory assembled, in a dry atmosphere with constant temperatures for up to six (6) months.

Long Term- Any length of time exceeding six (6) months, but not more than twenty-four (24) months. The units should be stored in a temperature controlled area, a roofed over walled enclosure that provides protection from the elements (rain, snow, wind-blown dust, etc.), and whose temperature can be maintained between +40 deg. F and +120 deg. F. If extended high humidity is expected to be a problem, all exposed parts should be inspected before storage and all surfaces that have the paint scratched, damaged, or worn should be recoated with a air dry enamel paint. All surfaces should then be sprayed with a rust-inhibiting oil.

Pump should be stored in its original shipping container. On initial start up, rotate impeller by hand to assure seal and impeller rotate freely. If it is required that the pump be installed and tested before the long term storage begins, such installation will be allowed provided:

- 1.) The pump is not installed under water for more than one (1) month.
- 2.) Immediately upon satisfactory completion of the test, the pump is removed, thoroughly dried, repacked in the original shipping container, and placed in a temperature controlled storage area.
- 3.) Before placing pump into service, pump should be brought to operational temperature range. Excessive or direct heating or cooling should **NOT** be used.

OPERATION TEMPERATURE RANGE: +35°F (2°C) to 104°F (40°C).

SERVICE CENTERS:

For the location of the nearest Barnes Service Center, check your Barnes representative or Crane Pumps & Systems, Inc., Service Department in Piqua, Ohio, telephone (937) 778-8947 or in Brampton, Ontario, Canada (905) 457-6223.

INSTALLATION:

Location - The pump is designed to fit into your basin either by sliding down the rail assembly, suspended from the cover or by being mounted on a pump base.

THIS PUMP MUST BE INSTALLED WITH A MINIMUM OF 3 INCHES AND A MAXIMUM OF 4.5 INCHES OF CLEARANCE UNDER THE PUMP FOR THE ENTRANCE OF SEWAGE SOLIDS.

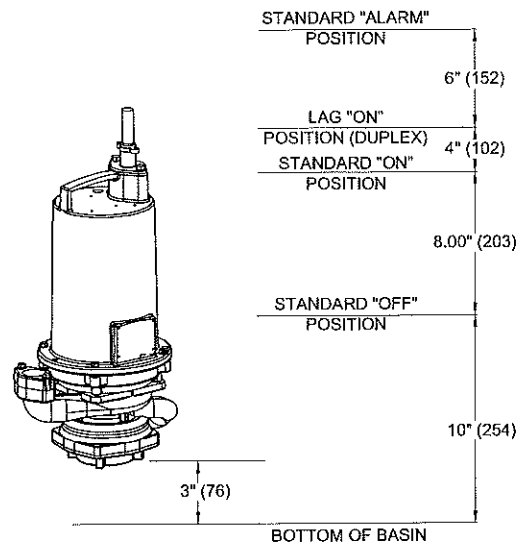


FIGURE 3 - L Series (For Automatic see Level Control manual)

Discharge - Assemble discharge piping or hose assembly (whichever is required by your application), to the pump. Discharge piping should be as short as possible. Both a check valve and a shut-off valve are required for each pump being used. The check valve is used to prevent backflow into the sump. Excessive backflow can cause flooding and/or damage to the pump. The shut-off valve is used to stop system flow during pump or check valve servicing.

Package Systems- Refer to manual supplied with basin package system.

ELECTRICAL CONNECTIONS:

Pump Cables - The cord assembly mounted to the pump must **NOT** be modified in any way except for shortening to a specific application. Any splice between the pump and the control panel must be made in accordance with the National Electric Code or the Canadian Electric Code and all applicable state, province and local electric codes. It is recommended that a junction box, be mounted outside the sump or be of at least Nema 4 (EEMAC-4) construction if located within the wet well. **DO NOT USE THE POWER OR CONTROL CABLES TO LIFT PUMP!**

Thermal Protection The normally closed (N/C) over temperature sensor is embedded in the motor windings and will detect excessive heat in the event an overload condition occurs. The thermal sensor will trip when the windings become too hot and will automatically reset itself when the pump motor cools to a safe temperature. It is recommended that the thermal sensor be connected in series to an alarm device to alert the operator of an overtemperature condition and/or motor starter coil to stop pump.

Wire Size - If additional cable is required consult a qualified electrician for proper wire size.

CABLE CONNECTIONS:

Power/Control Cable- Insert female end of cable plug into housing bore aligning alignment mark with hole in terminal block see Figures 4 & 5. Tighten bolts on compression flange until flush with motor housing.

Pump Power - Large Pin
Level/Control - Small Pin

Level control cord has molded fitting at both ends of the cord. Install one end to the Pump and the other end to the Level Control.

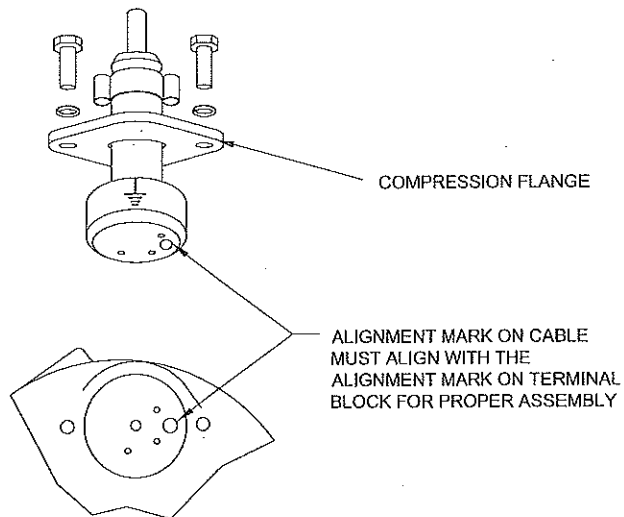


FIGURE 4 -OGP2022L

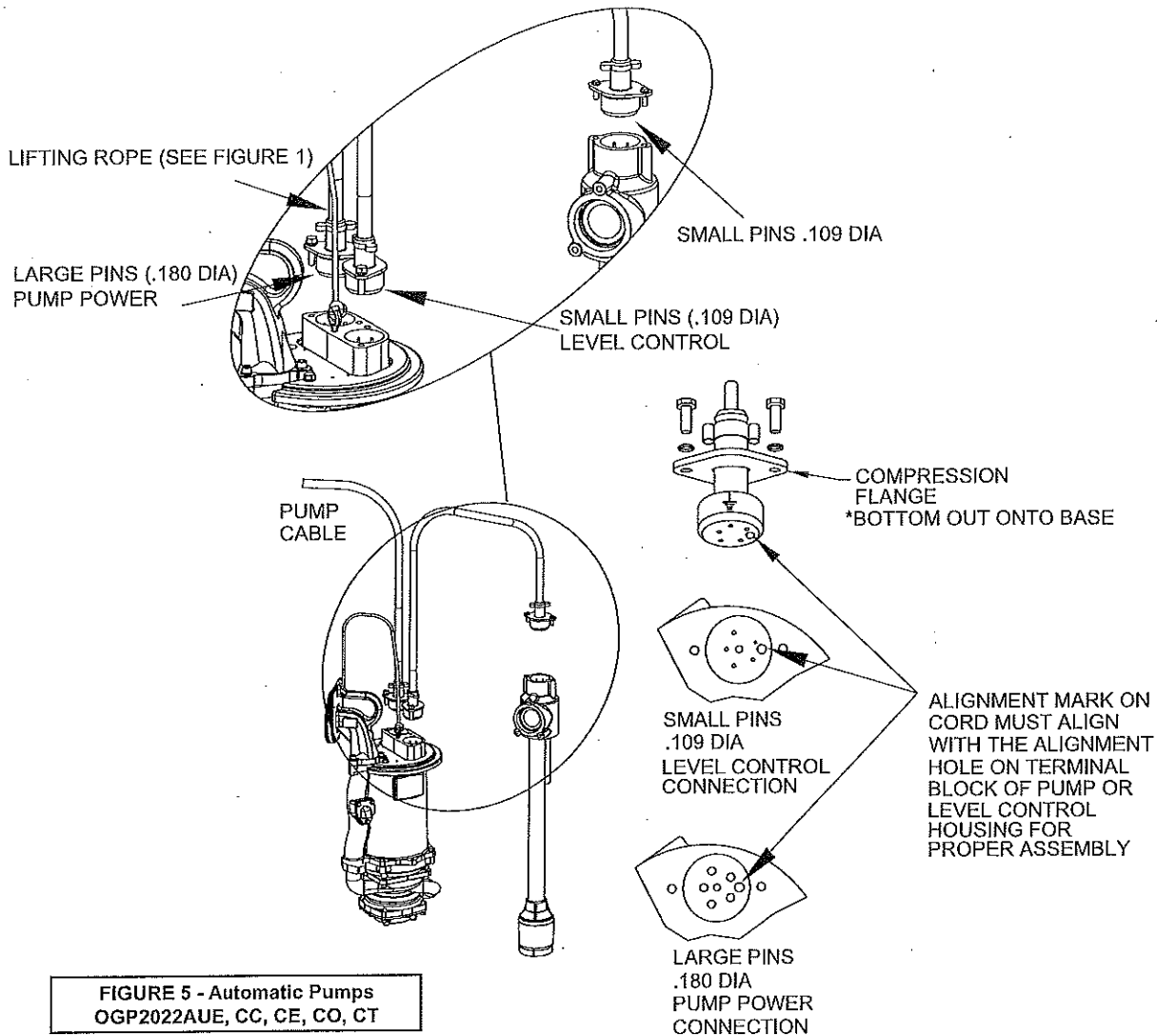
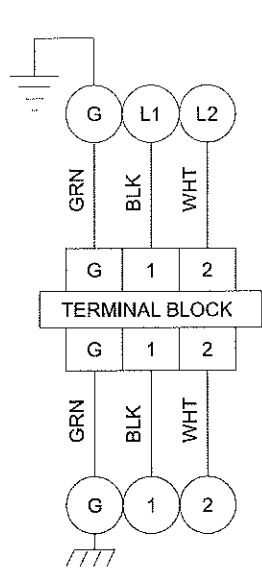
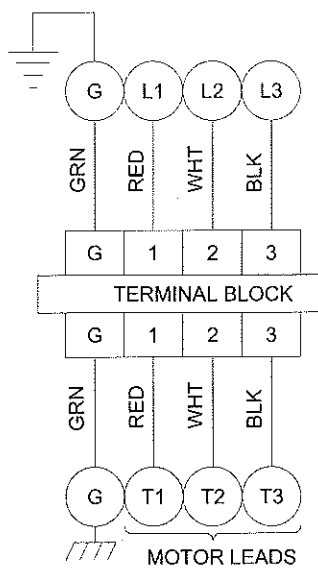


FIGURE 5 - Automatic Pumps
OGP2022AUE, CC, CE, CO, CT



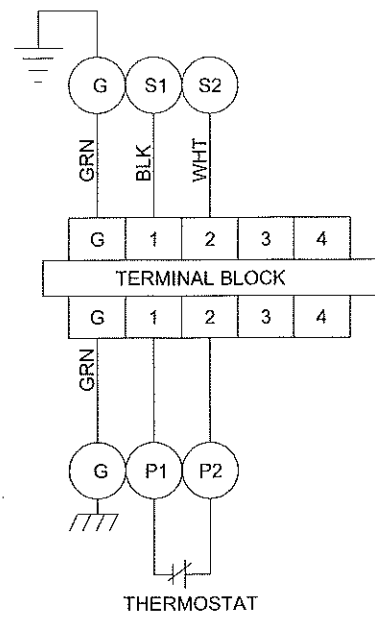
Single phase 240 Volt AC, 60Hz
"L" Series, 12/3 SOW

FIGURE 6



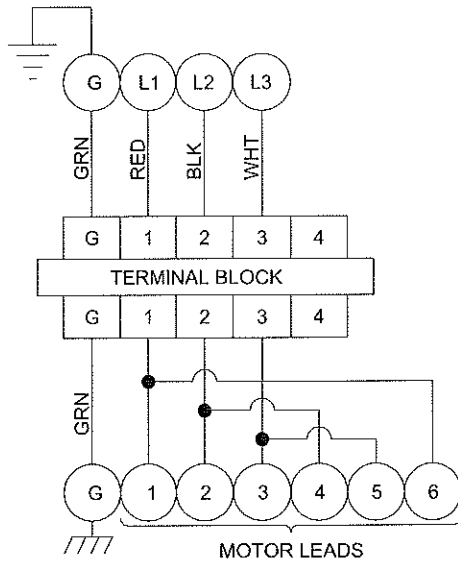
Single phase 240 Volt AC,
External Capacitor

FIGURE 6a



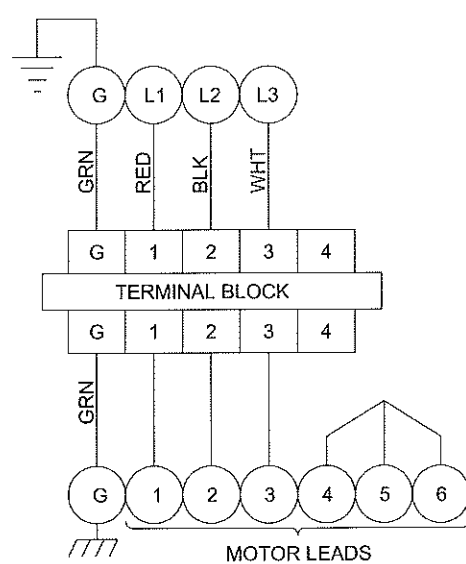
Temperature Sensors

FIGURE 6b



Three Phase, 200-240 Volt AC

FIGURE 6c



Three Phase, 460 Volt AC

FIGURE 6d

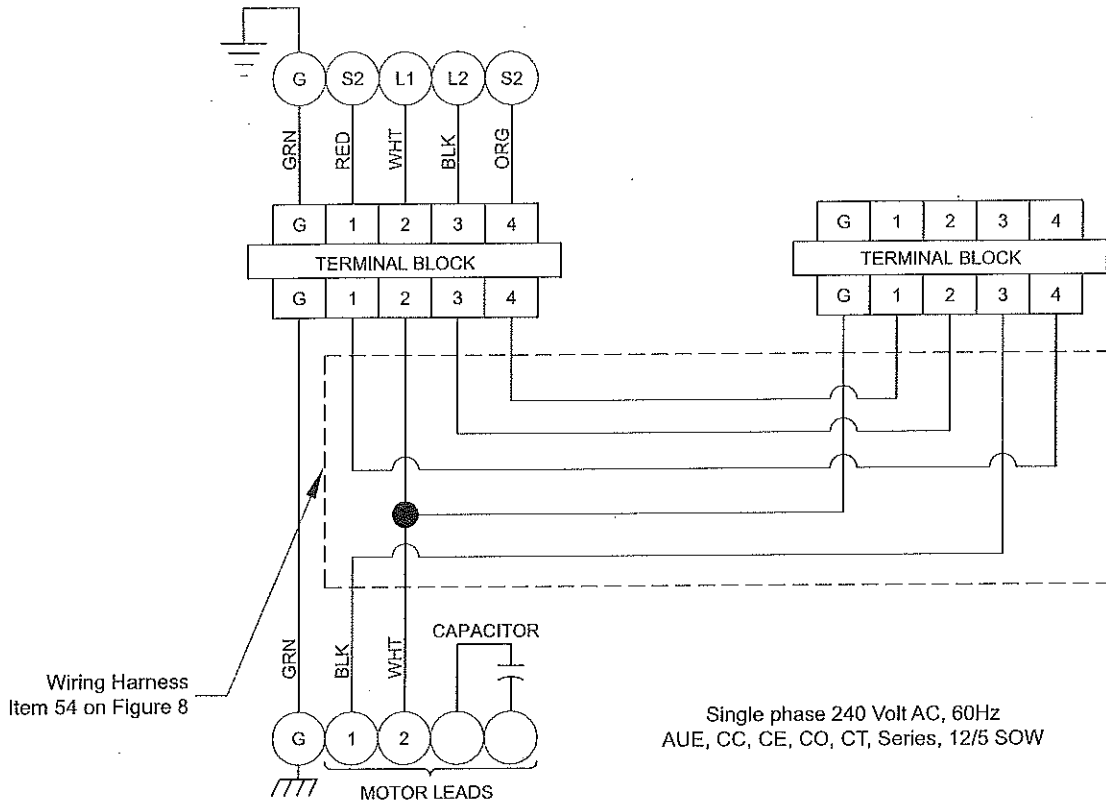


FIGURE 7

TROUBLE SHOOTING

CAUTION ! Always disconnect the pump from the electrical power source before handling.
 If the system fails to operate properly, carefully read instructions and perform maintenance recommendations.
 If operating problems persist, the following chart may be of assistance in identifying and correcting them:
MATCH "CAUSE" NUMBER WITH CORRELATING "CORRECTION" NUMBER.

NOTE: Not all problems and corrections will apply to each pump model.

PROBLEM	CAUSE	CORRECTION
Pump will not run	1. Poor electrical connection, blown fuse, tripped breaker or other interruption of power, improper power supply. 2. Motor or switch inoperative (to isolate cause, go to manual operation of pump). 2a. Float movement restricted. 2b. Switch will not activate pump or is defective. 3a. Insufficient liquid level. 3b. Switch is unable to activate	1. Check all electrical connections for security. Have electrician measure current in motor leads, if current is within $\pm 20\%$ of locked rotor Amps, impeller is probably locked. If current is 0, overload may be tripped. Remove power, allow pump to cool, then recheck current. 2a. Reposition pump or clean basin as required to provide adequate clearance for float. 2b. Disconnect level control. Set ohmmeter for a low range, such as 100 ohms full scale and connect to level control leads. Actuate level control manually and check to see that ohmmeter shows zero ohms for closed switch and full scale for open switch. (Float Switch). 3a. Make sure liquid level is at least equal to suggested turn-on point. 3b. Rotate ESPS level control in horizontal position.
Pump will not turn off	2a. Float movement restricted. 2b. Switch will not activate pump or is defective. 4. Excessive inflow or pump not properly sized for application. 9. Pump may be airlocked. 14. H-O-A switch on panel is in "HAND" position	2b. Disconnect level control. Set ohmmeter for a low range, such as 100 ohms full scale and connect to level control leads. Actuate level control manually and check to see that ohmmeter shows zero ohms for closed switch and full scale for open switch. (Float Switch). 3a. Make sure liquid level is at least equal to suggested turn-on point. 3b. Rotate ESPS level control in horizontal position.
Pump hums but does not run	1. Incorrect voltage 8. Cutter jammed or loose on shaft, worn or damaged, inlet plugged.	4. Recheck all sizing calculations to determine proper pump size.
Pump delivers insufficient capacity	1. Incorrect voltage. 4. Excessive inflow or pump not properly sized for application. 5. Discharge restricted. 6. Check valve stuck closed or installed backwards. 7. Shut-off valve closed. 8. Cutter jammed or loose on shaft, worn or damaged, inlet plugged. 9. Pump may be airlocked. 10. Pump stator damaged/torn.	5. Check discharge line for restrictions, including ice if line passes through or into cold areas. 6. Remove and examine check valve for proper installation and freedom of operation. 7. Open valve. 8. Check cutter for freedom of operation, security and condition. Clean cutter and inlet of any obstruction. 9. Loosen union slightly to allow trapped air to escape. Verify that turn-off level of switch is set so that the suction is always flooded. Clean vent hole.
Pump cycles too frequently or runs periodically when fixtures are not in use	6. Check valve stuck closed or installed backwards. 11. Fixtures are leaking. 15. Ground water entering basin.	10. Remove & examine for damage. Replace pump stator if required. 11. Repair fixtures as required to eliminate leakage.
Pump shuts off and turns on independent of switch, (trips thermal overload protector). CAUTION! Pump may start unexpectedly. Disconnect power supply.	1. Incorrect voltage. 4. Excessive inflow or pump not properly sized for application. 8. Cutter jammed, loose on shaft, worn or damaged, inlet plugged. 12. Excessive water temperature.	12. Check pump temperature limits & fluid temperature. 13. Replace portion of discharge pipe with flexible connector. 14. Turn to automatic position.
Pump operates noisily or vibrates excessively	4. Operating at too high a pressure. 5. Discharge restricted. 8. Cutter broken. 13. Piping attachments to building structure too rigid or too loose.	15. Check for leaks around basin inlet and outlets.

Compact Series - CC, CE, CO, CT

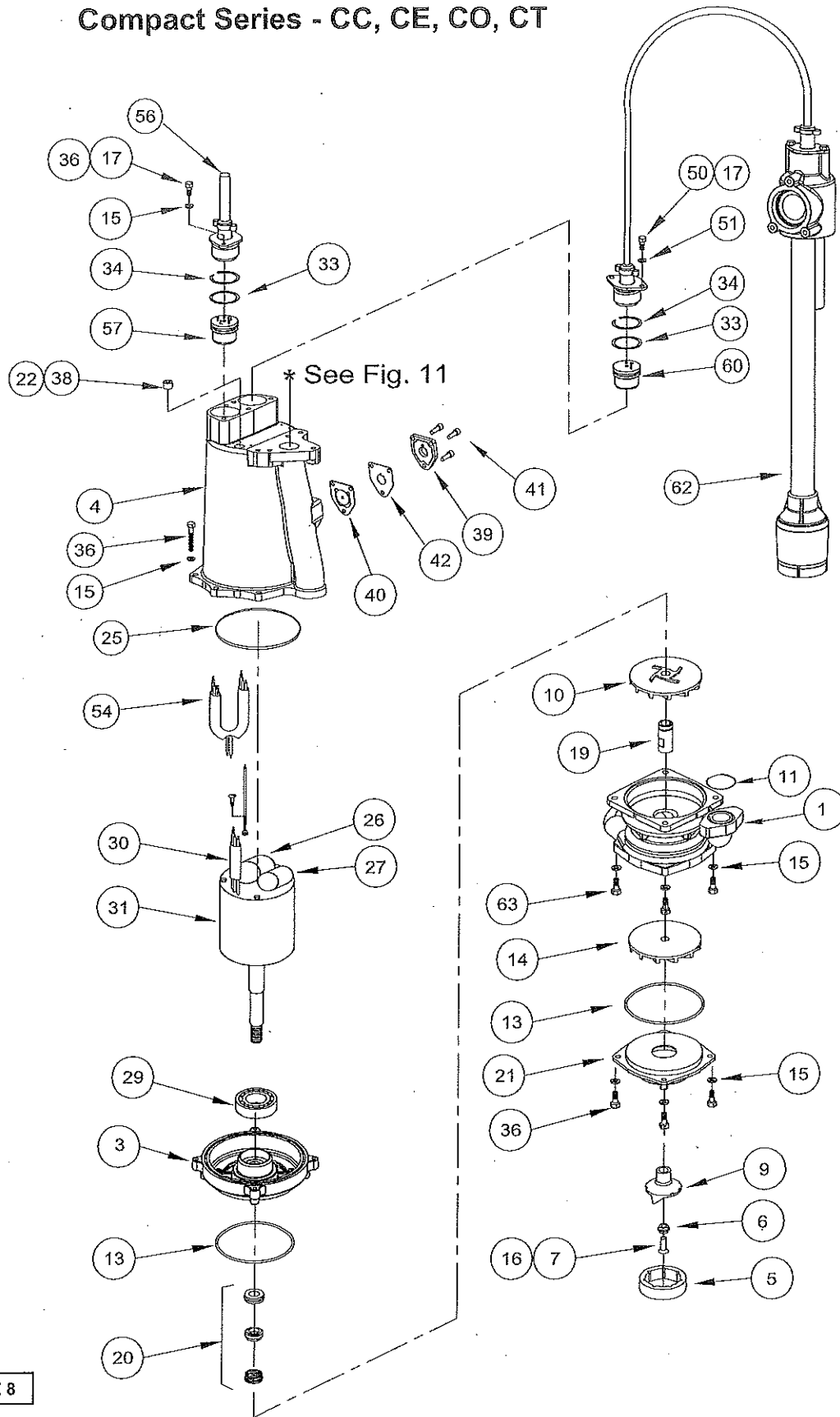


FIGURE 8

Standard Series - L & AUE

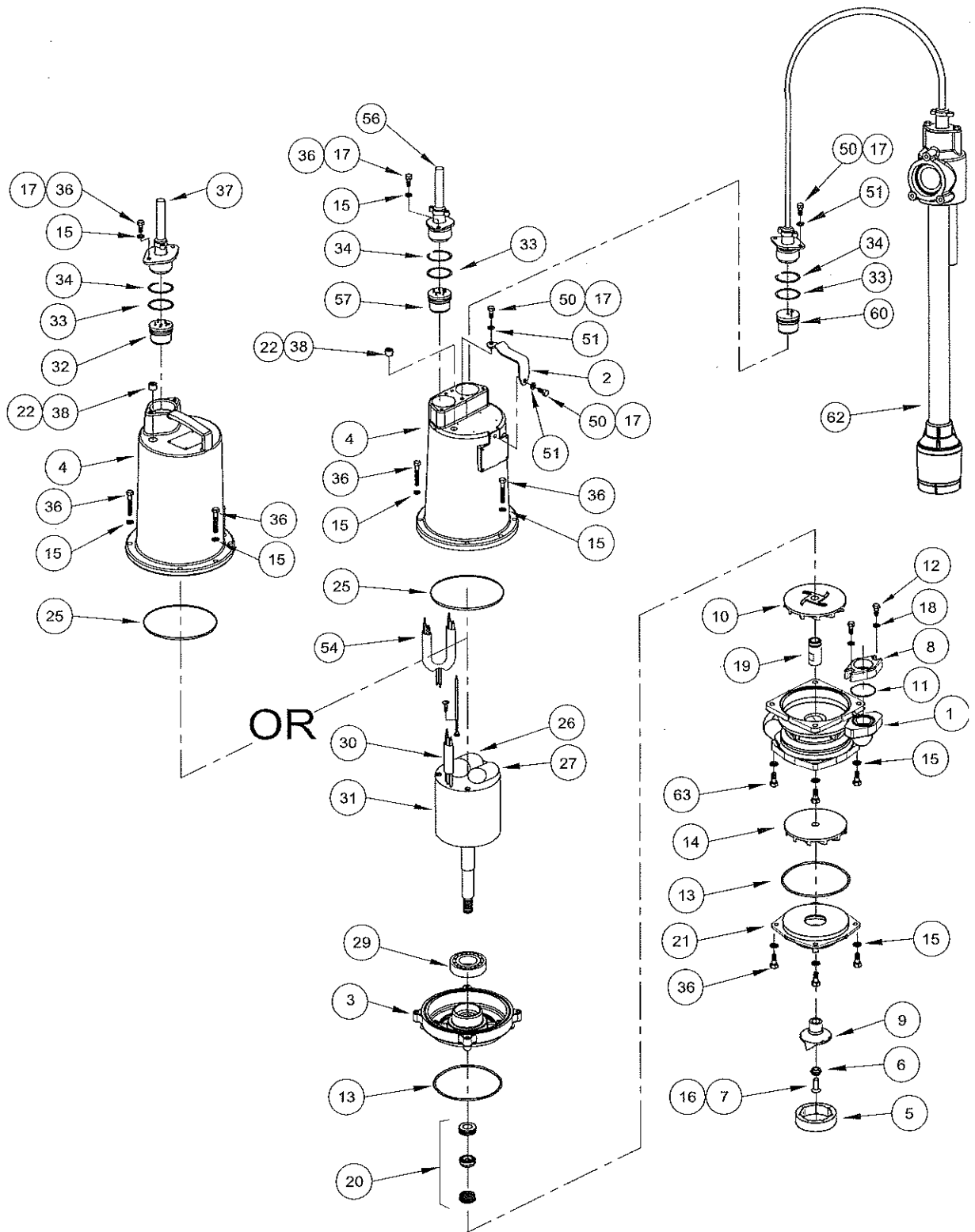


FIGURE 9

PARTS KITS

Seal Repair KitP/N: **116664** Item #'s: 6, 7, 13, 15, 20, 25, 33, 36, 38

Overhaul Kit P/N: **116665** 116664 Item #'s: 9, 26, 27, 28, 29, 34

Cutter KitP/N: **116666** Item #'s: 5, 6, 7, 9, 13, 15, 36

PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION
1	1	115321 115321A	Volute (L & AU) Volute (CC, CE, CO, CT)
2	1	110331	Handle (AUE)
3	1	115322	Seal Plate
4	1	108342 110328 118256	Motor Housing (L) Motor Housing (AUE)(3PH-L) Motor Housing (CC, CE, CO, CT)
5	1	082085B	Shredding Ring
6	1	067556	Washer
7	1	070704	Skhd Screw, 1/4-20 x .75" SS
8	1	108369 †	Discharge Flange 1-1/4" NPT
9	1	082088	Radial Cutter
10	1	115324	Impeller, Second Stage
11	1	625-01558	O-Ring (-223)
12	2	1-131-1 †	Screw, 5/16-18 x 1.25" SS
13	2	067567	Square Ring
14	1	115323	Impeller, First Stage
15	14	026322	Lockwasher, 5/16" SS
16	A/R	-----	LOCTITE™ RC609
17	A/R	-----	LOCTITE 242
18	2	062941 †	5/16" Flatwasher
19	1	115325	Spacer Sleeve
20	1	110395SD	Seal, Silicon-Carbide (STD)
21	1	115326	Suction Cover
22	A/R	-----	Permatex Sealent 2C
24	90 oz	029034	Cooling Oil - Mtr. Housing
25	1	095368	Square Ring
26	1	115327A-RC	Capacitor, Run
27	1	115327A-SC	Capacitor, Start
27A	1	115327A-SSR	Solid State Relay (Not Shown)
28	1	116658	Ball Bearing, Upper (Not Shown)
29	1	116659	Ball Bearing, Lower
30	1 or 2	625-02117	Sleeve
31	1	115327A	Motor, 2HP, 240 Volt, 1 Phase (Includes items 26 thru 29)
		115327B	Motor, 2HP, 240 Volt, 1 Phase External Cap
		125375	Motor, 2HP, 3PH, OGP, 50/60Hz
32	1	103760	Terminal Block, Power, Manual
33	1 or 2	2-31051-224	O-Ring
34	1 or 2	105197	Retaining Ring
36	14	1-156-1	Screw, 5/16-18 x 1.00" SS

ITEM	QTY	PART NO.	DESCRIPTION
37	1	109498XC	12/3 Cord Set, 30Ft (STD)
		109498	12/3 Cord Set, 15Ft (Compact)
		109492XC	12/4 Cord Set, 30Ft (STD) (For 3PH or Ext. Cap 1PH)
		103741XC	14/3 Cord Set, 30Ft (STD) (For Temperature Sensors)
38	1	014270	Pipe Plug, C'sunk, 3/8" NPT
39	1	119104B	Anti-Siphon Cover
40	1	112422	Gasket
41	3	03121-B	HXHD Screw 1/4-20 x .75" SS
42	1	105377B	Anti-Siphon Cover Plate
* Models with ESPS Level Control			
50	4	1-156-1	Screw, 5/16-18 x .1" SS
51	4	026322	Lockwasher, 5/16" SS
54	2	113287A	Wiring Harness Assy
56	1	113274XC	Cord Set (AUE), 30 Ft
		113274	Cord Set (CC, CT, CE), 15 Ft
		EcoTRAN	Cord Set (CE-See man.119061)
57	1	113271	Terminal Block, Power
60	1	134127	Terminal Block, Level Control (AU - series)
62	1	121676-M 119068	ESPS-150 Level Control CE Only
63	4	2-23030-50	SkHd Screw 5/16-18 x 1.25"

Contact your local Distributor or the Factory for other cord lengths and other optional equipment.

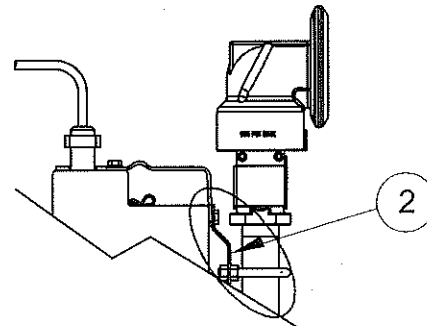
(*) Automatic - ESPS Level Control

(†) L Series ONLY. NOT USED ON CC, CE, CO, CT

**MOVEABLE ASSEMBLY P/N: 116596* (OGP-L) & 116597* (OGP-AU) PARTS LIST
For Grinder, "C" Channel Basin Package**

ITEM	QTY.	PART No.	DESCRIPTION
1	1	112354	Check Valve/Upper Moveable
2	1	116605 116606	Upper Pump Bracket Assy - OGP Upper Pump Bracket Assy - OGP-AU, OGP 3-Phase
3	1	102174	Pipe Nipple
4	1	107360	Lower Guide Bracket Assy

(*) Pump **NOT** included under this part number. The Moveable Assembly will be factory assembled to pump when a Basin Package System is ordered.



AUF, AUE & 3-PHASE PUMPS

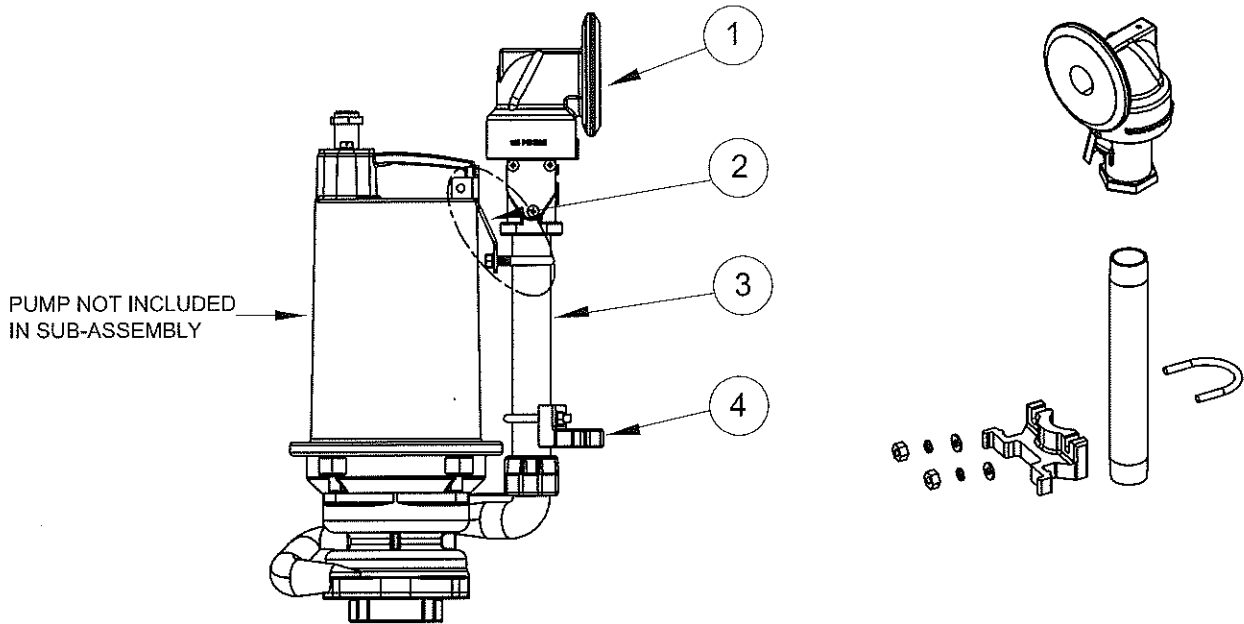


FIGURE 10

DISCHARGE ASSEMBLIES for CC, CE, CO & CT Grinder Pumps

ITEM	QTY.	PART No.	DESCRIPTION
1	1	121225	O-ring, 4mm
2	1	122891	Valve Seat Flapper, Valox
3	1	118252	Gasket
4	1	124538	Lower Guide Bracket
5	2	027113	HXHD Screw, 5/16-18 x .875"
6	3 or 5	026322	Lock Washer 5/16 SS
7A	1	120896	Valve Body (CC)
7B	1	118250	Valve Body (CE)
7C	1	118794	Valve Body (CO)
7D	1	118794 NPT	Valve Body (CT)
8	1	625-01558	O-Ring, -.223, 1.609"
9	1	119854	Diaphragm
10	1	118248	Diaphragm Retaining Plate
11	8	118267	FHHS Screw #10-32 x .75" SS
12	3	2-23030-50	SkHd Screw 5/16-18 x 1.25"

The Discharge Assembly will be factory assembled to pump.

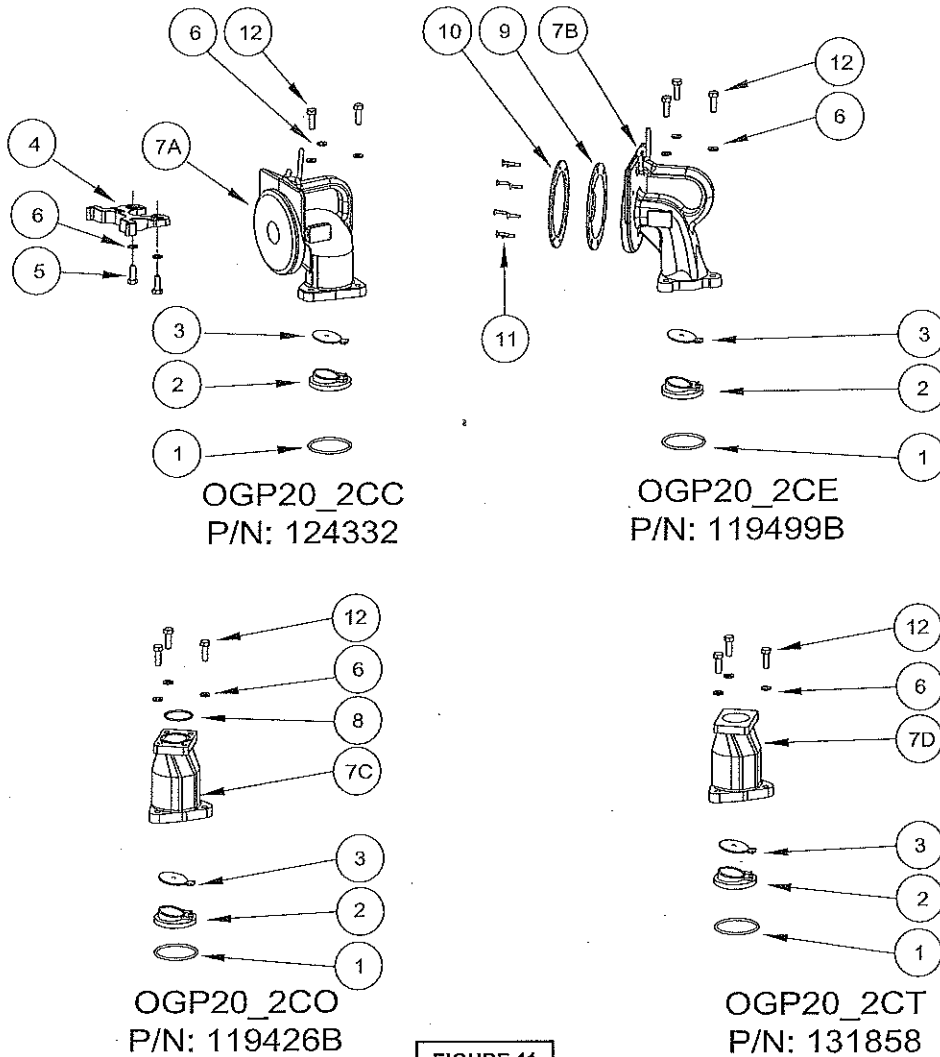


FIGURE 11

BARNES®

BARNES®
PRESSURE **PS** SYSTEMS®

CROWN

burks®

WEINMAN®

DEMING®

PROSSER®

Limited 24 Month Warranty

Crane Pumps & Systems warrants that products of our manufacture will be free of defects in material and workmanship under normal use and service for twenty-four (24) months after manufacture date, when installed and maintained in accordance with our instructions. This warranty gives you specific legal rights, and there may also be other rights which vary from state to state. In the event the product is covered by the Federal Consumer Product Warranties Law (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, (2) this warranty is a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against us, until the ultimate consumer, his successor, or assigns, notifies us in writing of the defect, and delivers the product and/or defective part(s) freight prepaid to our factory or nearest authorized service station. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, F.O.B. POINT OF MANUFACTURE OR AUTHORIZED REPAIR STATION, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.** Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by us, if any, are subject to laboratory tests corrected for field performance. Any additional guarantees, in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. **RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSES AND EVALUATIONS WE CONDUCT WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.**

This warranty shall not apply when damage is caused by (a) improper installation, (b) improper voltage (c) lightning (d) excessive sand or other abrasive material (e) scale or corrosion build-up due to excessive chemical content. Any modification of the original equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts. Neither will we accept charges incurred by others without our prior written approval.

This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. **UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO TRAVEL EXPENSES, RENTED EQUIPMENT, OUTSIDE CONTRACTOR FEES, UNAUTHORIZED REPAIR SHOP EXPENSES, LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

No rights extended under this warranty shall be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.



A Crane Co. Company

PUMPS & SYSTEMS

420 Third Street
Piqua, Ohio 45356
(937) 778-8947
Fax (937) 773-7157
www.cranepumps.com

83 West Drive
Brampton, Ont. Canada L6T 2J6
(905) 457-6223
Fax (905) 457-2650

**IMPORTANT!
WARRANTY REGISTRATION**

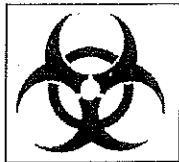
Your product is covered by the enclosed Warranty.
To complete the Warranty Registration Form go to:

<http://www.cranepumps.com/ProductRegistration/>

If you have a claim under the provision of the warranty, contact your local
Crane Pumps & Systems, Inc. Distributor.

RETURNED GOODS

**RETURN OF MERCHANDISE REQUIRES A "RETURNED GOODS AUTHORIZATION".
CONTACT YOUR LOCAL CRANE PUMPS & SYSTEMS, INC. DISTRIBUTOR.**



**Products Returned Must Be Cleaned, Sanitized,
Or Decontaminated As Necessary Prior To Shipment,
To Insure That Employees Will Not Be Exposed To Health
Hazards In Handling Said Material. All Applicable Laws
And Regulations Shall Apply.**



A Crane Co. Company

PUMPS & SYSTEMS

START-UP REPORT**General Information**

Pump Owner's Name: _____
 Address: _____
 Location of Installation: _____
 Contact Person: _____ Phone: _____
 Purchased From: _____

Nameplate Data

Pump Model #: _____ Serial #: _____
 Part #: _____ Impeller Diameter: _____
 Voltage: _____ Phase: _____ \emptyset Hertz: _____ Horsepower: _____
 Full Load Amps: _____ Service Factor Amps: _____
 Motor Manufacturer: _____

Controls

Control panel manufacturer: _____
 Model/Part number: _____
 Number of pumps operated by control panel: _____
 Short circuit protection? YES___ NO___ Type: _____
 Number and size of short circuit device(s): _____ Amp rating: _____
 Overload Type: _____ Size: _____ Amp rating: _____
 Do protection devices comply with pump and motor Amp rating? YES___ NO___
 Are all electrical and panel entry connections tight? YES___ NO___
 Is the interior of the panel dry? YES___ NO___
 Liquid level Control Brand and Model: _____

Pre-Startup**All Pumps**

Type of equipment: NEW___ REBUILT___ USED___
 Condition of equipment at Start-Up: DRY___ WET___ MUDDY___
 Was Equipment Stored? YES___ NO___ Length of Storage: _____
 Liquid being pumped: _____ Liquid Temperature: _____
 Supply Voltage/Phase/Frequency matches nameplate? YES___ NO___
 Shaft turns freely? YES___ NO___
 Direction of rotation verified for 3 \emptyset motors? YES___ NO___
 Debris in piping or wet well? YES___ NO___
 Debris removed in your presence? YES___ NO___
 Pump case/wet well filled with liquid before startup? YES___ NO___
 Is piping properly supported? YES___ NO___

Non-Submersible Pumps

Is base plate properly installed / grouted? YES___ NO___ N/A___
 Coupling Alignment Verified per I&O Manual? YES___ NO___ N/A___
 Grease Cup/Oil Reservoir Level checked? YES___ NO___ N/A___

Submersible Pumps

Resistance of cable and pump motor (measured at pump control):

Red-Black: _____ Ohms(Ω) Red-White: _____ Ohms(Ω) White-Black: _____ Ohms(Ω)

Resistance of Ground Circuit between Control Panel and outside of pump: _____ Ohms(Ω)

MEG Ohms check of insulation:

Red to Ground: _____ White to Ground: _____ Black to Ground: _____

Operational Checks

Is there noise or vibration present? YES___ NO___ Source of noise/vibration: _____

Does check valve operate properly? YES___ NO___ N/A___

Is system free of leaks? YES___ NO___ Leaks at: _____

Does system appear to operate at design flow rate? YES___ NO___

Nominal Voltage: _____ Phase: 1Ø 3Ø (select one)

Voltage Reading at panel connection, Pump OFF: L1, L2 _____ L2, L3 _____ L1, L3 _____

Voltage Reading at panel connection, Pump ON: L1, L2 _____ L2, L3 _____ L1, L3 _____

Amperage Draw, Pump ON: L1 _____ L2 _____ L3 _____

Submersible Pumps

Are BAF and guide rails level / plumb? YES___ NO___

Is pump seated on discharge properly? YES___ NO___

Are level controls installed away from turbulence? YES___ NO___

Is level control operating properly? YES___ NO___

Is pump fully submerged during operation? YES___ NO___

Follow up/Corrective Action Required

YES___ NO___

Additional Comments:

Startup performed by: _____ Date: _____

Present at Start-Up

() Engineer: _____ () Operator: _____

() Contactor: _____ () Other: _____

All parties should retain a copy of this report for future trouble shooting/reference



PUMPS & SYSTEMS

A Crane Co. Company

420 Third Street
Piqua, Ohio 45356
(937) 778-8947
Fax (937) 773-7157
www.cranepumps.com

83 West Drive
Brampton, Ont. Canada L6T 2J6
(905) 457-6223
Fax (905) 457-2650

ATTACHMENT C



**INSTALLATION AND SERVICE INSTRUCTIONS AND
REPAIR PARTS LIST FOR 2HP "SEMI-OPEN"
K(H)GS2 CENTRIFUGAL SUBMERSIBLE
GRINDER SEWAGE PUMPS**



P/N O&M-K(H)GS2

MODELS

Standard Flow w/ Radial Cutters					
CATALOG NO.	HP	PH	VOLTS	CORD	DISCH
KGS2-2001	2	1	208	10-5	1.25
KGS2-2401	2	1	240	10-5	1.25
KGS2-2003	2	3	208	14-7	1.25
KGS2-2303	2	3	230	14-7	1.25
KGS2-4603	2	3	460	14-7	1.25

High Head w/ Radial Cutters					
CATALOG NO.	HP	PH	VOLTS	CORD	DISCH
KHGS2-2001	2	1	208	10-5	1.25
KHGS2-2401	2	1	240	10-5	1.25
KHGS2-2003	2	3	208	14-7	1.25
KHGS2-2303	2	3	230	14-7	1.25
KHGS2-4603	2	3	460	14-7	1.25

Standard Flow & High Head w/ Radial Cutters INTERNAL CAPACITORS					
CATALOG NO.	HP	PH	VOLTS	CORD	DISCH
KGS2-2001C	2	1	208	10-3	1.25
KGS2-2401C	2	1	240	10-3	1.25
KHGS2-2001C	2	1	208	10-3	1.25
KHGS2-2401C	2	1	240	10-3	1.25

Standard Flow w/ Axial Slicers					
CATALOG NO.	HP	PH	VOLTS	CORD	DISCH
KGSL2-2001	2	1	208	10-5	1.25
KGSL2-2401	2	1	240	10-5	1.25
KGSL2-2003	2	3	208	14-7	1.25
KGSL2-2303	2	3	230	14-7	1.25
KGSL2-4603	2	3	460	14-7	1.25

High Head w/ Axial Slicers					
CATALOG NO.	HP	PH	VOLTS	CORD	DISCH
KHGSL2-2001	2	1	208	10-5	1.25
KHGSL2-2401	2	1	240	10-5	1.25
KHGSL2-2003	2	3	208	14-7	1.25
KHGSL2-2303	2	3	230	14-7	1.25
KHGSL2-4603	2	3	460	14-7	1.25

KEEN PUMP is not responsible for losses, injury or death resulting from a failure to observe these safety precautions, misuse, abuse or misapplication of pumps or equipment.

WARNING!

THE PUMP MUST BE WIRED BY A QUALIFIED ELECTRICIAN, USING AN APPROVED STARTER BOX AND SWITCHING DEVICE.

On 3 phase pumps only, "Motor Protection" must be provided by the installer. All 3 phase pumps must be installed with magnetic starters having 3 leg overload protection in accordance with the NEC (National Electric Code). For duplex installations, both pump motors must have separate overload protection.

Pumps with seal leak detectors must be connected to the proper control circuitry.

DANGER!

HAZARDOUS MOVING PARTS. To reduce risk of injury, disconnect power before servicing. Never put fingers near grinder impeller or in pump inlet when pump cord is connected or pump is operating.

For use with maximum 140 degrees F liquid.

DANGER!

In the initial installation, before sewage is admitted to the basin, there is no danger on entering the basin. **AFTER SEWAGE HAS BEEN IN THE BASIN, THERE IS DANGER.** Sewage water produces methane and hydrogen sulfide gasses, both of which are highly poisonous. A breathing device may be required. Never enter the basin unless cover is open and outside blower is used to force fresh air into the basin. Also the worker in the basin must wear a harness attached to the surface so he can be pulled out in case of asphyxiation. **NEVER WORK ALONE!**

WARNING!

Do not exceed working load limit of lifting chain, cable or rope. Do not use lifting chain, cable or rope where failure could result in loss of life.

Examine all lifting devices, chain, cable or rope for damage before and after each lift. Do not use any lifting devices that are not rated for and designed to lift the weights involved with these pumps. **DO NOT LIFT PUMP BY POWER CORD.**

Do not install or remove pump with person(s) in the basin.

This pump is designed to handle materials which could cause illness or disease through direct exposure. Wear and use protective clothing when working on the pump or piping.

WARNING !

Any wiring to be done on pumps should be done by a qualified electrician.

NEVER operate a pump with a power cord that has frayed or brittle insulation.

NEVER let cords or plugs lay in water.

NEVER handle connected power cords with wet hands.

NEVER be in contact with the liquid being pumped while pump cord is connected to electrical supply.

Only qualified personnel should install, operate or repair pump.

***** **USE AND CARE** *****

DO NOT pump hazardous material not recommended for pump. **NEVER** introduce:

- Explosives
- Flammable Material
- Lubricating Oil and/or Grease
- Chemicals, Solvents, etc.
- Gasoline
- Any Petroleum Product

Regulatory agencies advise that the following items should not be introduced into any sewer:

- Glass
- Metal
- Diapers
- Clothing, socks, rags, etc.
- Plastic objects (toys, utensils, etc.)
- Sanitary napkins or tampons

DO NOT pump without safety devices in place.

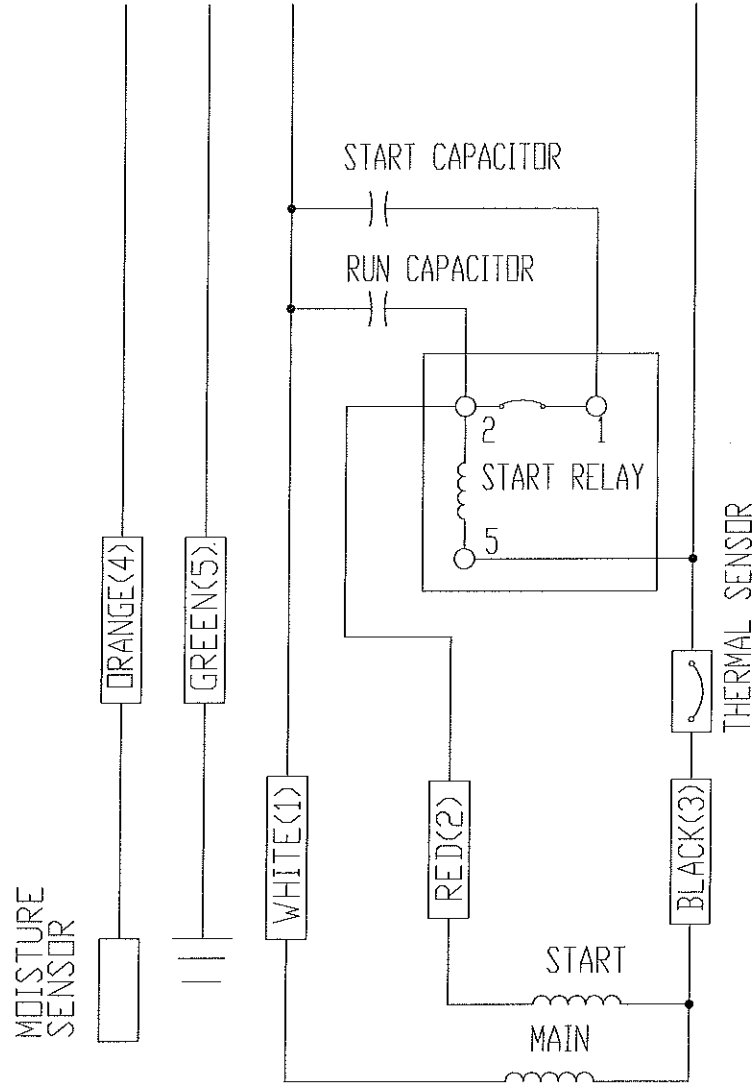
For hazardous locations, use pumps listed and classified for such locations.

DO NOT use non-explosion rated pumps in locations considered hazardous in accordance with the National Electric Code, ANSI/NFPA 70-1993.

IMPORTANT!

KEEN PUMP is not responsible for losses, injury or death resulting from failure to observe these safety precautions.

SINGLE PHASE, 208/240V, 10/5 CABLE



WIRES		OHM 208V	OHM 240V
WHITE (1)	BLACK (3)	1.0	1.6
WHITE (1)	RED (2)	6.2	6.8
BLACK (3)	RED (2)	5.2	5.2

PUMP SPECIFICATIONS

DISCHARGE.....	1-1/4" NPT OR 2-Bolt Flange, Vertical	
LIQUID TEMPERATURE.....	120 degrees F (Continuous) 140 degrees F. (Intermittent)	
MOTOR HOUSING.....	Cast Iron, ASTM A-48, Class 30	
CORD CAP.....	Cast Iron, ASTM A-48, Class 30	
VOLUTE.....	Cast Iron, ASTM A-48, Class 30	
SEAL PLATE.....	Cast Iron, ASTM A-48, Class 30	
IMPELLER.....	440C StainlessSteel (Hardened Available) 10 vane, Semi-Open with Pump-out Vanes, Dynamically Balanced	
SHREDDING RING (Cutter).....	Hardened 440C Stainless Steel 56-60 Rockwell C	
GRINDER IMPELLER (Cutter).....	Hardened 440C Stainless Steel 56-60 Rockwell C	
RETAINER PLATE (Slicer).....	Hardened 440C Stainless Steel 56-60 Rockwell C	
SLICER IMPELLER (Slicer).....	Hardened 440C Stainless Steel 56-60 Rockwell C	
SHAFT.....	416 Stainless Steel	
SHAFT SEAL.....	Mechanical Main (Motor) Silicon Carbide – Rotating Face Silicon Carbide – Stationary Face Nitrile - Elastomer 300 Series Stainless Steel - Hardware	Secondary (Pump) Silicon Carbide – Rotating Face Silicon Carbide – Stationary Face
BEARING (UPPER).....	Single Row, Ball, Oil Lubricated	
BEARING (LOWER).....	Single Row, Ball, Oil Lubricated	
SLEEVE BEARING	Bronze with Oil Groove	
HARDWARE.....	300 Series Stainless Steel	
O-RINGS.....	Buna-N	
CORD.....	10-3 AWG, Type SOOW ("C" Model) 10-5 AWG, Type SOOW (Single Phase) 14-7 AWG, Type SOOW (Three Phase) 30' Length Standard. Other Lengths Available.	
CORD ENTRY.....	Watertight Sealed Design Agency-Approved, Watertight Strain Relief Cord Grip – Outer Jacket Seal Epoxy Potted – Inner Conductor Seal	
MOTOR (SINGLE PHASE).....	2 HP, 3450 RPM, 60 Hz 208 or 240 volts Available Includes Overload Protection in the Motor. Oil Filled, Class F Capacitor Start / Capacitor Run	

Installation

USAGE:

The 2 HP grinder pumps are for pumping domestic sewage. One pump can handle the sewage from a maximum of 2 homes.

These pumps are not to be used for pumping commercial or industrial sewage from factories, schools, motels, apartments, etc..

This pump is intended to grind and pump all normal sewage for home use. It will handle reasonable quantities of disposable diapers, sanitary napkins, paper towels, rubber material, wood, cigarette butts, string, plastic and other material not normally found in sewage.

CAUTION!

Pump is not to be disassembled in the field except at certified service stations or at the factory. Warranty is void if pump is taken apart for any reason other than to replace grinder impeller and grinder ring, which is covered in these instructions.

PACKAGING

Each pump is packaged with 30 feet of power cord in a carton that is marked with the Model Number. Longer cords are available – consult factory.

INSPECTING PUMP

Before making any piping or electrical connections, check pump for any shipping damage. Turn grinder impeller to be sure it is free. **DO NOT TURN IMPELLER WITH FINGERS AS EDGES ARE SHARP.** Use allen wrench in the impeller screw to turn the impeller.

CAUTION!

No persons should be in the basin when pump is lowered into position! **DO NOT** lift pump in a manner where failure could result in loss of life.

After pump is installed in basin, **NEVER WORK ON MOTOR OR GRINDER UNIT WITHOUT DISCONNECTING MOTOR LEAD WIRES FROM CONTROL PANEL. DO NOT RELY UPON OPENING THE CIRCUIT BREAKER ONLY!**

ELECTRICAL:

MOTOR OVERLOAD PROTECTION

Single phase motors are provided with an on-winding thermal overload switch. If motor overloads or overheats for any reason, the switch opens, stopping motor. As soon as the motor cools to normal temperature, the switch automatically closes and restarts motor.

MOISTURE DETECTION

All 2 HP, dual seal grinder pumps with external start kit or 3-phase, contain an electrode for detecting water within the unit. The electrode is housed within the secondary seal chamber, isolated from the motor chamber. If the electrode detects water within the oil-filled housing, it will close the circuit to the red alarm light in the control panel, indicating the pump must be serviced before the upper seal fails.

MOTOR POWER CORDS

Pump models with seal leak detector, single phase use a 10AWG-5C cord, three phase use a 14AWG-7C cord. Models without seal leak use a 10AWG-3C cord. The three power conductors are **BLACK, WHITE** and **RED**. The **ORANGE** conductor connects to the seal leak probe and **GREEN** conductor connects to the ground screw inside the cord cap.

For single phase,

BLACK is “Common”

WHITE is “Run”

RED is “Start”.

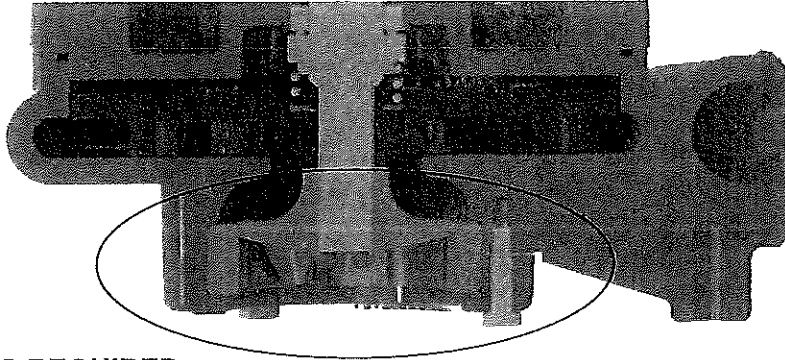
IMPORTANT!

Ground wires must be connected in the control box to grounding bar, which is connected to a good suitable ground. **MOTOR IS NOT SAFE UNLESS PROPERLY GROUNDED.**

IMPELLER ROTATION: When looking at the bottom of the pump and through the inlet of the volute, rotation of the impeller is **COUNTER-CLOCKWISE.**

REPLACING GRINDER IMPELLER AND SHREDDING RING “RADIAL CUTTERS”

Note: This is the only disassembly operation permitted in the field.
All other repairs must be performed at an authorized service center or the factory.



STANDARD TOOLS REQUIRED:

- Standard socket wrench set.
- Standard set of open end wrenches.
- Hammer.
- Vise grip pliers.
- Allen head socket set.
- Screwdrivers.
- Wire brush.

CAUTION – Disconnect all power and control wires to motor at the control panel before starting the disassembly operations. Do not rely upon opening the circuit breaker only.

IMPORTANT – Pump should be sanitized with bleach before starting work.

Pump should be thoroughly cleaned of trash and deposits before starting disassembly operations.

Wear protective gloves and clothing.

Always use a rag on the impeller when turning to prevent cutting hands on the sharp edges of the shredding ring.

DISASSEMBLY OF SHREDDING RING AND GRINDER IMPELLER

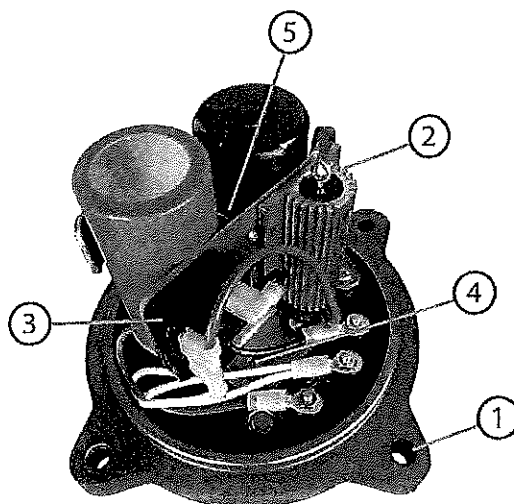
1. Hold the grinder impeller by prying against the impeller cutting bar and remove the allen head cap screw from the end of the shaft.
2. Use a large screwdriver in the slot end of the shaft and tap (counterclockwise) on one of the large cutter vanes with a hammer. Tap in a counterclockwise direction (thread is right hand).
3. If the impeller removes easily, clean and replace if worn.
4. Make sure the pump impeller has not loosened when the grinder impeller was removed. This can be checked on reassembly of grinder impeller and shredding ring. The tips of the impeller cutter vanes should extend 1/8" below the bottom of the shredding ring. If the distance is greater, the pump impeller has loosened. If the distance is less, the shredding ring is not properly seated.
5. After the volute case has been removed, insert screwdriver in slot end of shaft and tap hammer against the outer vane of the ductile iron pump impeller (clockwise) to ensure it is threaded tight against shoulder on shaft.
6. Use large screwdriver to tap stainless steel cutter ring from cast iron volute.
7. Clean all threads with a wire brush and file smooth any nicked threads. Use NEVER-SEEZE or other graphite compound on threads before replacing grinder impeller.

DISASSEMBLY OR REPLACING OF SLICER PLATE AND SLICER IMPELLER

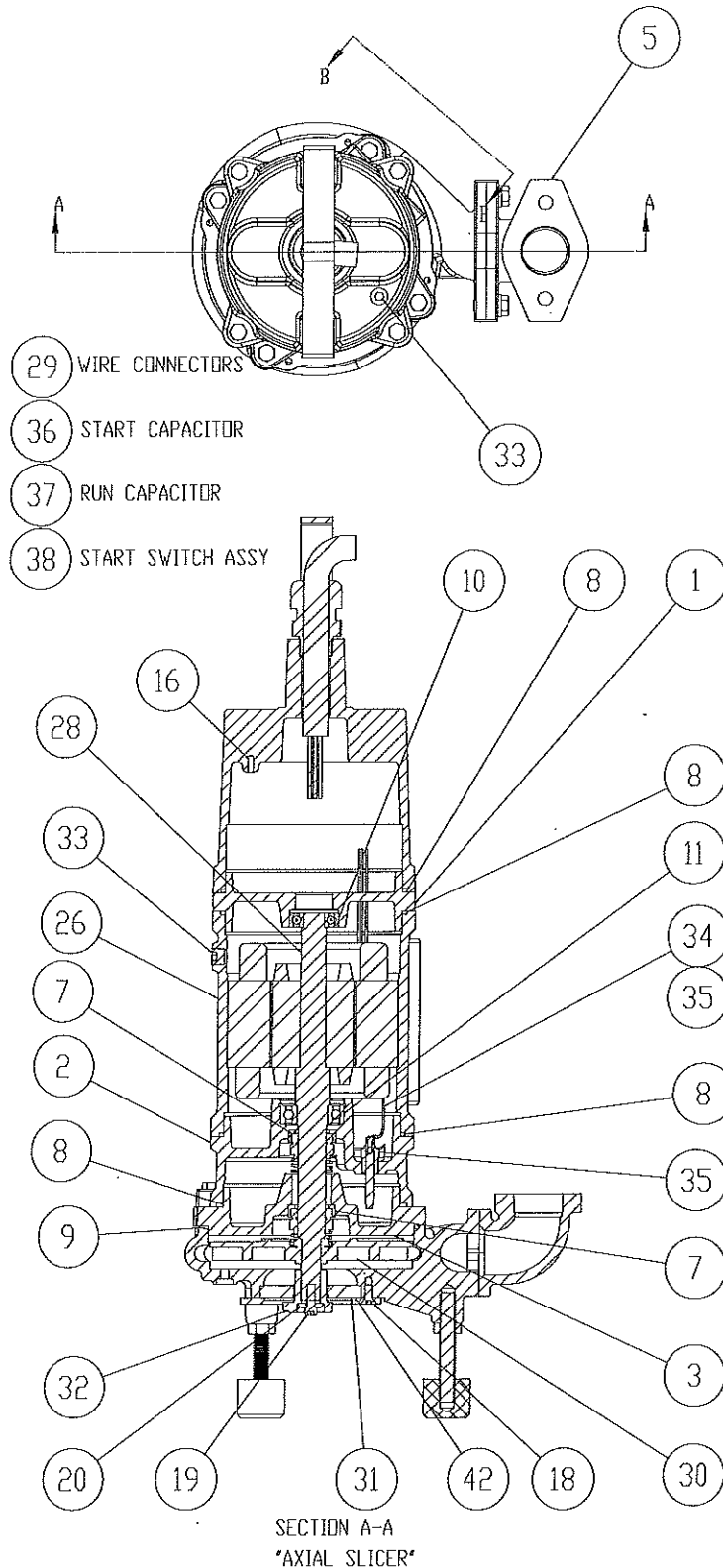
1. Remove Slicer retainer (3 bolts).
2. Use a ball-peen hammer to tap onto (3 blade) rotary slicer impeller. Tap in a counterclockwise direction (thread is right hand).
3. Remove "disk-shaped" slicer plate. May have to pry with screwdriver.
4. Once slicer plate is removed, shims will be visible on threaded shaft.
5. Slicer parts can now be cleaned and reassembled or replaced.
6. If discarding all shims, you must use new shims from shim kit.
7. Place (Qty:2) .01 inch shims onto threaded shaft, making certain to align keyway of stock with shaft.
8. Place new or cleaned slicer plate onto threaded shaft, making sure shims stay in place along keyway.
9. Place new or cleaned rotary (3 blade) slicer impeller onto threaded shaft, turning (Clockwise).
10. Rotate onto shaft with hands until snug. Use ball-peen hammer to lock onto shaft.
11. **IMPORTANT: USING FEELER GAUGES, CHECK DISTANCE BETWEEN SLICER PLATE AND SLICER IMPELLER. DISTANCE TOLERANCE (.008-.012 INCHES).**
12. If tolerance is satisfactory, go to step 13. If tolerance is beyond or under range, go back to step 7.
13. Place new or cleaned slicer retainer onto volute bottom.
14. Make sure the impeller turns freely by hand after reassembly. Some drag will be present due to the shaft seals. There should not be any binding or tight spots when turning the slicer impeller.

START KIT REPLACEMENT "C" MODEL

1. Place pump in upright position.
2. Loosen cord cap retaining bolts (1). Keen recommends that a rag or towel be wrapped around the joint where the cord cap and bearing housing meet.
3. Slowly move cord cap upward until any pressure that may be present is released, remove the retaining bolts and lift off cord cap.
4. Remove resistor mounting screws (2) and replace resistor as required. Wire per attached diagram and reinstall.
5. Remove start switch (3) mounting screw and replace start switch as required. Wire per attached diagram and reinstall.
6. Remove bracket mounting screws (4) as required, to lift entire assembly from casting.
7. Remove capacitor screw from backside of dual bracket (5) and replace start/run capacitors as required.
8. Clean mating surfaces and inspect O-Ring for cuts or damage (replace if necessary). Reinstall cord cap.
9. Check power cord at plug with ohm meter for shorts to ground.



REPAIR PARTS LIST



- 29 WIRE CONNECTORS
- 36 START CAPACITOR
- 37 RUN CAPACITOR
- 38 START SWITCH ASSY

	Pump Model Numbers w/ Axial Slicers	KGSL2-2001/2301/2401(C) KHGSL2-2001/2301/2401(C)		KGSL2-2003/2303/4603 KHGSL2-2003/2303/4603	
REF. #	DESCRIPTION	QTY.	PART NUMBER	QTY.	PART NUMBER
	Castings				
1	Bearing Plate, Upper, Cast Iron	1	KGX2004	1	KGX2004
1	Assembly, Upper Bearing Plate "C" Models	1	KGA2070-5-03	-	-
2	Housing, Lower Bearing, Cast Iron	1	K0467-2-01X	1	K0467-2-01X
3	Seal Plate, Lower, Cast Iron (w/ bushing)	1	K0447-5-01X	1	K0447-5-01X
4	Volute Case, Cast Iron	1	K0444-2-01	1	K0444-2-01
5	Adapter, Discharge, Vertical, 1-1/4" NPT, Cast iron	1	K0448-2-01	1	K0448-2-01
	Repair parts				
7	Seal, Shaft, Lower and Upper, Sil. Carbide, Type 21	2	KG2172	2	KG2172
8	O-Ring, Buna-N, Motor, Cord Cap, Brg. Hsg., 5-7/8 OD	4	KG2010	4	KG2010
9	O-Ring, volute adapter, Buna-N, 6.234 ID	1	K0166-1-08	1	K0166-1-08
10	Bearing, Ball, Upper Ball, 1.575OD	1	KG2003	1	KG2003
11	Bearing, Ball, LOWER, 2.047OD	1	KG2009	1	KG2009
	Hardware & Miscellanies parts				
12	Screw, Cap, 1/2-13UNC x 1" LG, SST	2	CS1/2X1SS	2	CS1/2X1SS
13	Screw, Cap, 5/16-18UNC x 1-3/4" LG, SST	4	CS5/16X1-3/4SS	4	CS5/16X1-3/4SS
14	Screw, Cap, 5/16-18UNC x 1-1/4" LG, SST	4	CS5/16X1-1/4SS	4	CS5/16X1-1/4SS
15	Screw, Cap, 5/16-18UNC x 1-1/2" LG, SST	4	CS5/16X1-1/2SS	4	CS5/16X1-1/2SS
16	Screw, Cap, 10-32UNC x 5/8" LG, SST	1	CS10X5/8SS	1	CS10X5/8SS
17	Screw, RD Head, Drive, #4-7UNC x 1/4 " LG, SST	4	DS4X1/4SS	4	DS4X1/4SS
18	Screw, Cap, C-sunk, 1/4-20UNC x 5/8" LG, SST	3	K0317-1-02	3	K0317-1-02
19	Screw, Skt Hd, (Allen) 1/4 -20UNC x 3/4 " LG, SST	1	SCS1/4X3/4SS	1	SCS1/4X3/4SS
20	Washer, Impeller, KGS series	1	K0451-1-01	1	K0451-1-01
22	Shim, 5/8" ID x 1.00" OD x .005, SST	2	K0458-1-01	2	K0458-1-01
23	Nameplate, FM	1	KNP0001	1	KNP0001
24	Handle, Lifting, SST	1	KG2017	1	KG2017
25	Oil, KEEN I.C.E. Dielectric	68 oz	K0181-1-01	68 oz	K0181-1-01
26	Assembly, Housing & Stator 208 Volt 1 ph	1	KGA2097-5-200	-	-
26	Assembly, Housing & Stator 240 Volt 1 ph	1	KGA2097-5-100	-	-
26	Assembly, Housing & Stator 208/230/460 Volt 3 ph	-	-	1	KGX2098
	Housing, motor, Cast iron	1	KGX2006	1	KGX2006
	Stator 208 Volt 1 ph	1	KG2007	-	-
	Stator 240 Volt 1 ph	1	K0477-1	-	-
	Stator 208/230/460 Volt 3 ph	-	-	1	KG2013
27	Assy, Cord Cap, 30 ft. length cord. 10/6	1	KGX2099-10630	-	-
27	Assy, Cord Cap, 30 ft. length cord. 10/3 "C" Model	1	KGX2099-103	-	-
27	Assy, Cord Cap, 30 ft. length cord. 14/8	1	-	1	K0133-5-30
28	Rotor and shaft assembly, 1 & 3 phase, Hazloc	1	KGX2096	1	KGX2096
29	Pre-insulated Crimp Wire Connector 6LU61	6	WC2-10	8	WC2-10
30	Impeller, SST, High Flow, 5.50" Dia.	1	K0464-2-02	1	K0464-2-02
30	Impeller, SST, High Head, 6.50" Dia.	1	K0464-2-01	1	K0464-2-01
31	Plate, Slicer, SST, High Flow	1	K0452-2-01	1	K0452-2-01
31	Plate, Slicer, SST, High Head	1	K0452-2-200	1	K0452-2-200
32	Impeller, Slicer, 3-Blade, SST	1	K0454-2-100	1	K0454-2-100
33	Plug, 1/4" NPT pipe, SST	3	PLUG1/4	3	PLUG1/4
34	Assy, Wire, Moisture Detector w/ resistor	1	K0138-1-01	1	K0138-1-01
35	Resistor, 330k ohm	1	K0381-1-01	1	K0381-1-01
35	Sensor, Moisture	1	KG2160	1	KG2160
36	Capacitor, Start, 216-259 Mfd, 250 VAC	1	K0408-1-02	-	-
37	Capacitor, Run, 50 Mfd, 370 VAC	1	K0341-1-01	-	-

QUESTION 6_ATTACHMENT C

PAGE 11 of 25

31	Ring, Grinder, SST, High Head	1	KG2072-2-01	1	KG2072-2-01
32	Impeller, Grinding, SST	1	KG2150-2-01	1	KG2150-2-01
33	Plug, 1/4" NPT pipe, SST	3	PLUG1/4	3	PLUG1/4
34	Assy, Wire, Moisture Detector w/ resistor	1	K0138-1-01	1	K0138-1-01
35	Resistor, 330k ohm	1	K0381-1-01	1	K0381-1-01
35	Sensor, Moisture	1	KG2160	1	KG2160
36	Capacitor, Start, 216-259 Mfd, 250 VAC	1	K0408-1-02	-	-
37	Capacitor, Run, 50 Mfd, 370 VAC	1	K0341-1-01	-	-
38	Assembly, Start switch (230V)	1	K0653-5-01	-	-
40	Washer, Lock, 3/8" SST	2	LWASH3/8SS	2	LWASH3/8SS
41	Screw, Cap, 3/8-16UNC x 1" LG, SST	2	CS3/8X1SS	2	CS3/8X1SS

REPORT MUST BE COMPLETED PAGE 12 of 25 AND RETURNED FOR WARRANTY

START-UP REPORT FOR SUBMERSIBLE PUMPS

This form is designed to provide assurance that customer service and a quality product are the number one priority with Keen Pump Company, Inc. Please fill out the following questions as completely and accurate as possible. When complete, mail this form to:

Keen Pump Company, Inc.
471 US HWY 250 East
Ashland, Ohio 44805
419-207-9400

Date of Installation: _____

Pump Owner's Name: _____

Address: _____

Location of Installation: _____

Person in Charge: _____ Phone: (____) _____

Purchased From (Keen Pump Company, Inc. Representative/Distributor): _____

Pump Model: _____ Serial No. _____

Voltage: _____ Phase: _____ Hertz: _____ Horsepower: _____

Rotation: Direction of impeller rotation (Use C/W for clockwise, CC/W for counter-clockwise): _____

Method used to check rotation (viewed from bottom): _____

Does impeller turn freely by hand: Yes _____ No _____

Condition of equipment Good _____ Fair _____ Poor _____

Condition of cable jacket Good _____ Fair _____ Poor _____

Resistance of cable jacket Good _____ Fair _____ Poor _____

Resistance of cable and pump motor (measured at pump control)

Red-Black _____ Ohms, Red-White _____ Ohms, White-Black _____ Ohms

Resistance of Ground Circuit between Control Panel and outside of pump _____ Ohms

MEG Ohms check of insulation:

Red to Ground _____ White to Ground _____ Black to Ground _____

Condition of equipment at Start-UP: Dry _____ Wet _____ Muddy _____

Was Equipment Stored? _____ Length of Storage _____

Describe station layout _____

Liquid being pumped _____

Debris in bottom of station? _____

Was debris removed in your presence? _____

Are guide rails exactly vertical? _____

REPORT MUST BE COMPLETED AND RETURNED FOR WARRANTY

Is Base Elbow Assembly installed level? _____

Liquid level controls: Type/Brand _____

Are level controls installed away from turbulence? _____

Operation Check:

Tip Lowest float (Stop Float), All pumps should remain off.

Tip second float (and Stop Float), one pump comes On.

Tip third float (and Stop Float), both pumps on (alarm on simplex).

Tip fourth float (and Stop Float), high level alarm on (omit on simplex).

If not Keen Pump level controls, describe type of controls _____

Does liquid level ever drop below volute top? _____

Keen Pump control panel part number and brand _____

Number of pumps operated by control panel _____

NOTE: At no time should holes be made in top of control panel, unless proper sealing devices are utilized.

Control panel manufactured by others _____

Company Name _____

Model Number _____

Short circuit protection _____ Type _____

Number and size of short circuit device(s) _____ Amp rating _____

Overload type _____ Size _____ Amp rating _____

Do protection devices comply with pump and motor Amp rating? _____

Are all connections tight? _____

Is the interior of the panel dry: _____

ELECTRICAL READINGS:

Single Phase:

Voltage supply at panel line connection, Pump Off, L1, L2 _____

Voltage supply at panel line connection, Pump On, L1, L2 _____

Amperage: Load connection, Pump On L1 _____ L2 _____

Three Phase:

Voltage supply at panel line connection, Pump Off, L1-L2 _____ L2-L3 _____ L3-L1 _____

Voltage supply at panel line connection, Pump On, L1-L2 _____ L2-L3 _____ L3-L1 _____

Amperage: Load connection, Pump On, L1 _____ L2 _____ L3 _____

FINAL CHECK:

Is pump seated on discharge properly? _____ Check for leaks? _____

Does check valve(s) operate properly? _____

Flow, Does station appear to operate at proper rate? _____ Pump down time _____

Noise level: High _____ Medium _____ Low _____

Comments: _____

REPORT MUST BE COMPLETED AND RETURNED FOR WARRANTY

Equipment difficulties during start-up: _____

MANUALS:

Has operator received pump instructions and parts manual? _____

Has operator received electrical control panel diagram? _____

Has operator been briefed on Warranty? _____

Address of local Keen Pump Company, Inc Representative /Distributor: _____

I have received the above information (Name of Operator) _____

Name of Company _____

Date: _____

I Certify this report to be accurate (Name of Start-Up person) _____

Employed By: _____ Date: _____

Date and time of Start-Up _____

Present at Start-Up

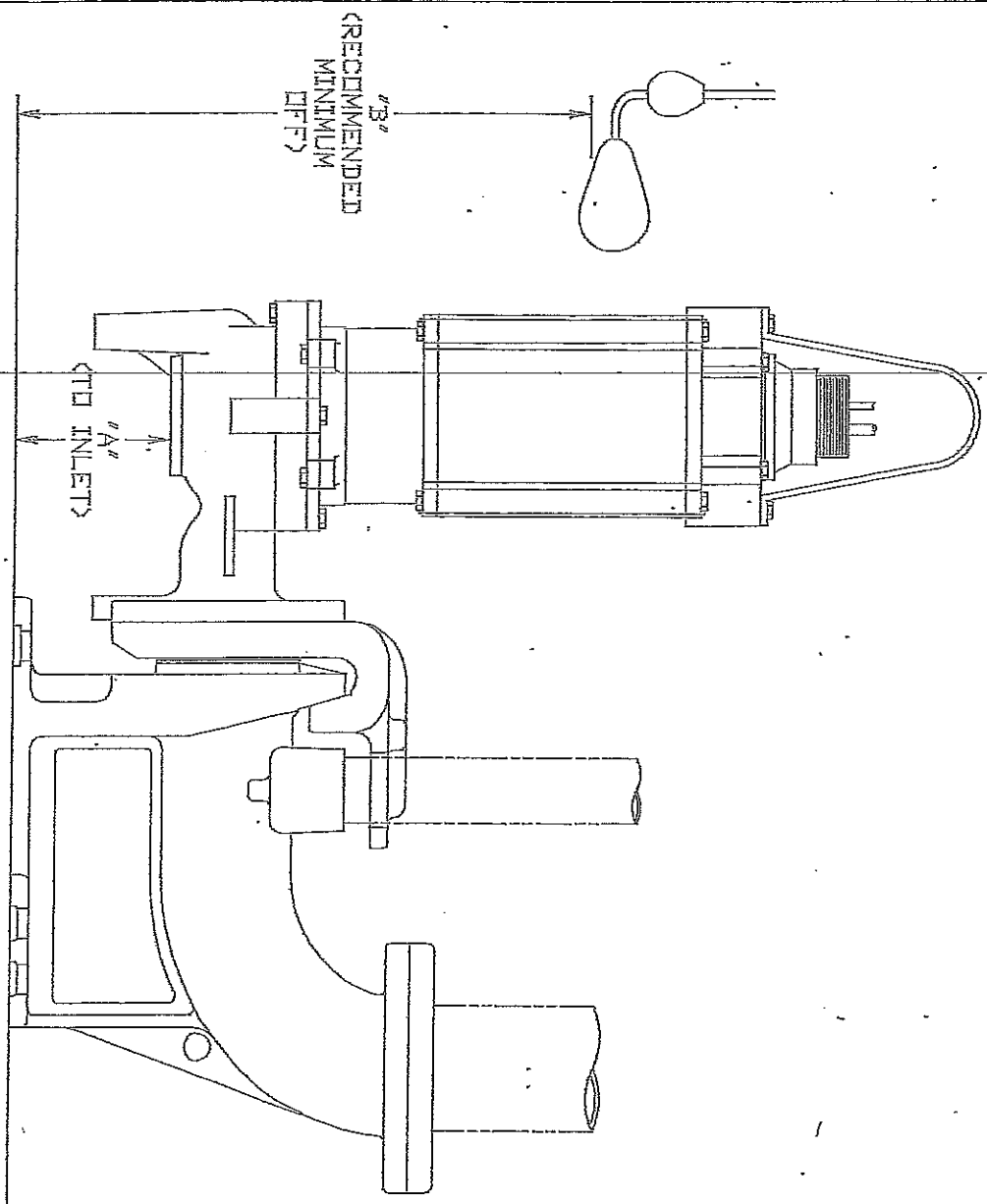
() Engineer: _____ () Operator: _____

() Contractor: _____ () Other : _____

To be filled out by factory:

Start-Up form checked by: _____

Date warranty registration mailed: _____



NOTE: ALL DIMENSIONS FOR REFERENCE ONLY

REV	DATE
B	10/09/2013
A	03/10/2013
INITIALS	DATE

SUBMERGENCE LEVELS - RAIL MOUNTED PUMP

PUMP	LIFT/OUT MODEL	A BOTTOM OF WHEEL TO INLET	B RECOMMENDED MINIMUM SUBMERGENCE L.
KE102/103	KL2	3-1/2"	15"
KPF/HY2E	KL1(CV)	3-1/2"	15"
KPCG	KL1(CV)	3-3/4"	19"
KHHGS2	KL1(CV)	3-3/8"	15"
KHG2S	KL1(CV)	3-1/2"	21"
KHHG2S	KL1(CV)	3-1/2"	21"
KG3,5,7,103	KL3H	4-3/4"	22"
KHG3,5,7	KL3H	5-3/4"	22"
KGP75-150	KL3H	4-3/4"	28"
K3RN	KL3H	5-3/4"	28"
K3VN	KL3H	4-1/2"	27"
K3RH	KL3H	5-3/4"	23"
K4RH	KL4	5-1/4"	24"
K4RN (3450)	KL4	5-1/4"	28"
K4RN (1150/1750)	KL4	5-1/8"	28"
K4VN	KL4	5-1/8"	27"
K4RP (3450)	KL4	5-1/2"	28"
K4RP (1150/1750)	KL4	7-1/2"	32"
K4VP	KL4	7-1/2"	30"
K4RB (3450)	KL4	9-1/8"	35"
K4RB (1750)	KL4	8-1/2"	35"
K4VB	KL4	7-1/2"	35"
K4VK	KL4	6-1/2"	42"
K6VB	KL6	8-3/8"	38"
K8VK	KL8	16"	52"
K12VK	KL12	15-1/2"	64"
K14VK	KL14	15-1/2"	61"

471 US HWY 250 EAST
ASHLAND, OHIO 44805

PHONE: 419-207
FAX: 419-207

TITLE
SUBMERGENCE LEVELS - WASTEWATER PUMPS

SCALE	NTS	DWG. BY	DATE	DWG. #
		SE	9/24/2014	KN-903

Standard Flow & High Head w/ Axial Slicers INTERNAL CAPACITORS					
CATALOG NO.	HP	PH	VOLTS	CORD	DISCH
KGSL2-2001C	2	1	208	10-3	1.25
KGSL2-2401C	2	1	240	10-3	1.25
KHGSL2-2001C	2	1	208	10-3	1.25
KHGSL2-2401C	2	1	240	10-3	1.25

**Read all instructions in this manual before operating pump.
Most accidents can be avoided by using COMMON SENSE.**

Please Read This Before Installing Or Operating Pump. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols:



IMPORTANT! Warns about hazards that can result in personal injury or indicates factors concerned with assembly, installation, operation, or maintenance which could result in damage to the machine or equipment if ignored.

CAUTION! Warns about hazards that can or will cause minor personal injury or property damage if ignored. Used with symbols below.

WARNING! Warns about hazards that can or will cause serious personal injury, death, or major property damage if ignored. Used with symbols below.



Hazardous fluids can cause fire or explosions, burns or death could result.



Extremely hot - Severe burns can occur on contact.



Biohazard can cause serious personal injury.



Hazardous fluids can Hazardous pressure, eruptions or explosions could cause personal injury or property damage.



Rotating machinery Amputation or severe laceration can result.



Hazardous voltage can shock, burn or cause death.

Only qualified personnel should install, operate and repair pump. Any wiring of pumps should be performed by a qualified electrician.



WARNING! - To reduce risk of electrical shock, pumps and control panels must be properly grounded in accordance with the National Electric Code (NEC) or the Canadian Electrical Code (CEC) and all applicable state, province, local codes and ordinances.

WARNING! - To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing. Lock out power and tag.

Prevent large articles of clothing, large amounts of chemicals, other materials or substances such as are uncommon in domestic sewage from entering the system.

During power black-outs, minimize water consumption at the home(s) to prevent sewage from backing up into the house.

Always keep the shut-off valve completely open when system is in operation (unless advised otherwise by the proper authorities). Before removing the pump from the basin, be sure to close the shut-off valve. (This prevents backflow from the pressure sewer.)

Keep the control panel locked or confined to prevent unauthorized access to it.

If the pump is idle for long periods of time, it is advisable to start the pump occasionally by adding water to the basin.



CAUTION! Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.



WARNING! - DO NOT pump hazardous materials (flammable, caustic, etc.) unless the pump is specifically designed and designated to handle them.

Do not block or restrict discharge hose, as discharge hose may whip under pressure.



WARNING! - DO NOT wear loose clothing that may become entangled in the impeller or other moving parts.

WARNING! - Keep clear of suction and discharge openings. DO NOT insert fingers in pump with power connected.

Make sure lifting handles are securely fastened each time before lifting. Do not operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair.

Do not exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.

Secure the pump in its operating position so it can not tip over, fall or slide.

Cable should be protected at all times to avoid punctures, cut, bruises and abrasions - inspect frequently.



Never handle connected power cords with wet hands.

To reduce risk of electrical shock, all wiring and junction connections should be made per the NEC or CEC and applicable state or province and local codes. Requirements may vary depending on usage and location.



Submersible Pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common.

Do not remove cord and strain relief. Do not connect conduit to pump.

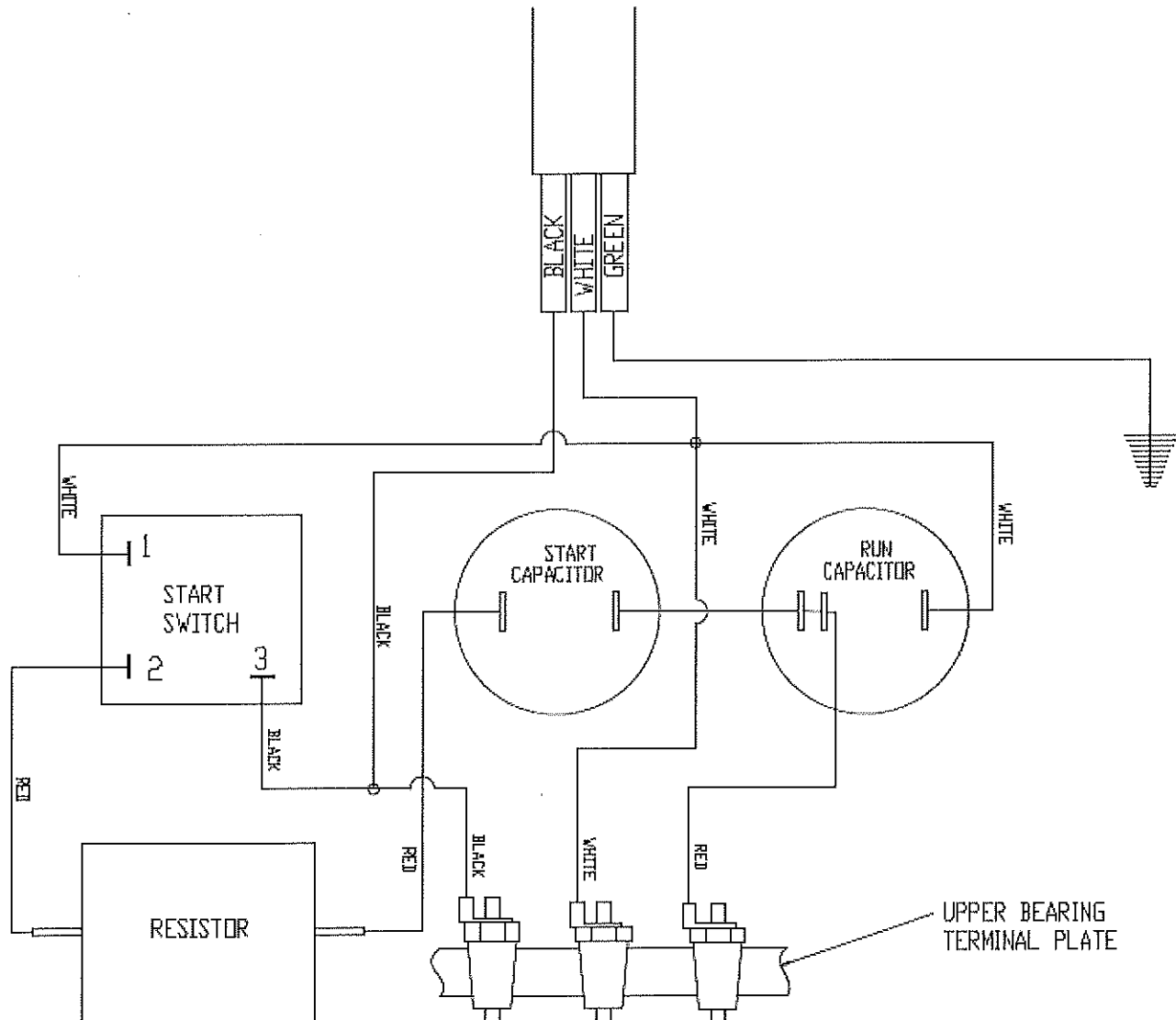


Products Returned Must Be Cleaned, Sanitized, Or Decontaminated As Necessary Prior To Shipment, To Insure That Employees Will Not Be Exposed To Health Hazards In Handling Said Material. All Applicable Laws And Regulations Shall Apply.

Bronze/brass and bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. Various government agencies have determined that leaded copper alloys should not be used in potable water applications. For non-leaded copper alloy materials of construction, please contact factory.

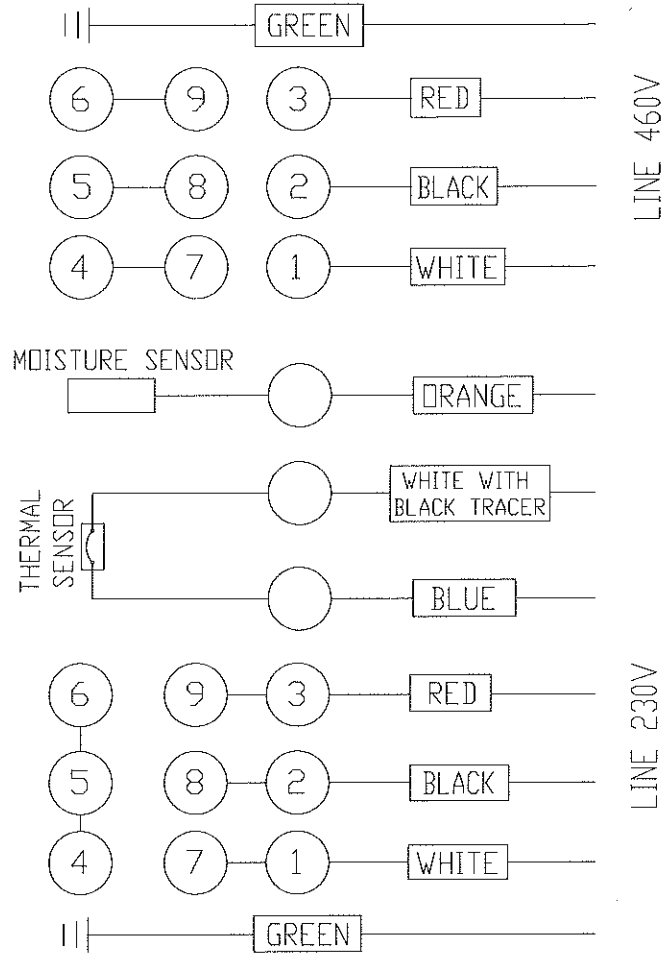
WIRING DIAGRAMS

(Internal Capacitors) SINGLE PHASE, 208/240V, 10/3 CABLE



WIRES		OHM 208V	OHM 240V
WHITE (1)	BLACK (3)	1.0	1.6

3-PHASE, 208/230/460V, 14/7 CABLE



WIRES 230 VOLT		OHM
WHITE	BLACK	
WHITE	RED	
BLACK	RED	
WIRES 460 VOLT		
WHITE	BLACK	
WHITE	RED	
BLACK	RED	

	Start Capacitor	Run Capacitor
208 & 240 Volt Models.....	216-259 mfd, 250 VAC	50 mfd, 370 VAC
MOTOR (THREE PHASE).....	2 HP, 3450 RPM, 60 Hz Tri-voltage, 208 / 230 / 460 volts On-Winding temperature sensor, requires temperature sensor circuitry in control panel Oil Filled, Class F	
OPTIONAL EQUIPMENT.....	Seal Materials Additional Cable Lengths Impeller Trims	

TROUBLESHOOTING

The troubles listed below are potential problems involving the pump. Other troubles can occur from faulty control box operation. Consult control box instructions for troubleshooting list involving the control box.

PROBLEM

Pump will not run.

PROBABLE CAUSE

Tripped breaker, blown fuse, poor electrical connection, interruption of power, improper power supply.
Float switch defective or restricted.
On single phase pumps, electronic start switch or capacitors blown.
Overload in motor tripped.
Solid material lodged in pump inlet.

Pump runs, but does not pump liquid from basin.

Pump impeller may be air locked. Start and stop pump several times to purge air. Check to ensure vent hole in volute is open and clean.
Lower "OFF" float may be set too low, allowing air into pump.
Pump inlet or valves in discharge pipe may be clogged.
Discharge valve may be closed.

Pump hums, but does not run.

Incorrect voltage.
Pump inlet plugged.
Cutter jammed or loose on shaft, worn or damaged.

Pump delivers low volume of water.

Low voltage.
On three phase pumps, motor running backwards.
Discharge restricted.
Check valve stuck closed or installed backwards.
Pump motor damaged / worn.
Pump may be air locked.
Cutter loose or jammed on shaft, worn or damaged.

Pump is noisy.

Grinder impeller may be rubbing against grinder ring due to misalignment, bent shaft or object stuck in impeller.
Grinder assembly may be partially clogged.
Pump cavitation due to low discharge pressure.

Pump cycles frequently.

Check valve stuck closed or installed backwards.
Ground water entering basin.
Fixtures are leaking.

Pump will not turn off.

Float switch defective or movement restricted.
H-O-A switch in panel is in "HAND" position.
Pump may be air locked.
Excessive inflow / pump not sized for the application.

Grease and solids accumulated in basin and will not pump out.

Pump "ON" switch may be set too high.
Debris may have accumulated around lower float weight causing pump to turn off too soon. Clean debris away from weight and cord.

Red light illuminated at control box.

Moisture detection in double seal pumps indicating service is required.
Lower seal has failed. Secondary seal still functioning.

Circuit breaker trips.

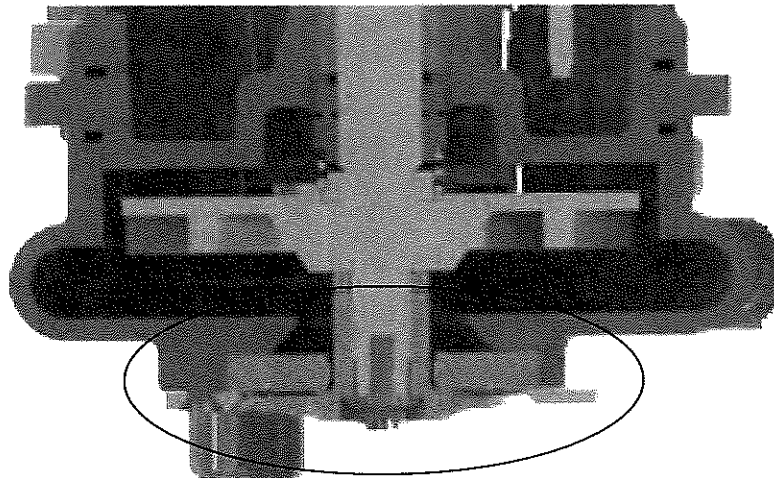
Electrical short to ground.
Check troubleshooting in control panel before pulling pump.
Check all electrical cords for damage.
Pull pump and take resistance readings of motor to determine if problem is in the pump or control box.

8. Make sure allen head cap screw in bottom of pump shaft is tight. Make sure the impeller turns freely by hand after reassembly. Some drag will be present due to the shaft seals. There should not be any binding or tight spots when turning the grinder impeller.

REPLACING IMPELLER AND RETAINER PLATE “AXIAL SLICERS”

Note: This is the only disassembly operation permitted in the field.

All other repairs must be performed at an authorized service center or the factory.



STANDARD TOOLS REQUIRED:

- Standard socket wrench set.
- Ball-peen Hammer.
- Feeler Gauges (minimum range .008-.012 inches)
- Vise grip pliers.
- Allen head socket set.
- Screwdrivers.
- Wire brush.

CAUTION – Disconnect all power and control wires to motor at the control panel before starting the disassembly operations. Do not rely upon opening the circuit breaker only.

IMPORTANT – Pump should be sanitized with bleach before starting work.

Pump should be thoroughly cleaned of trash and deposits before starting disassembly operations.

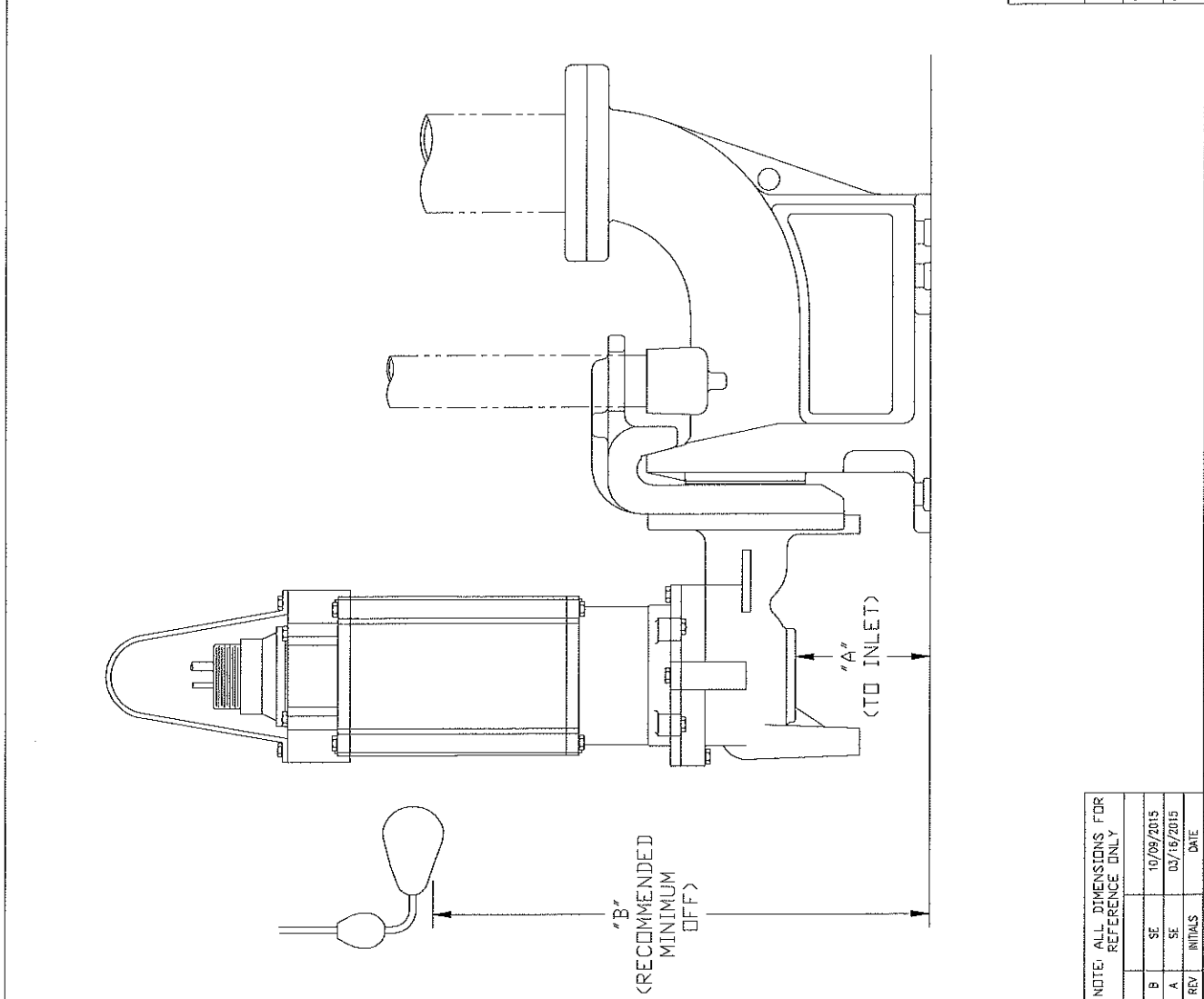
Wear protective gloves and clothing.

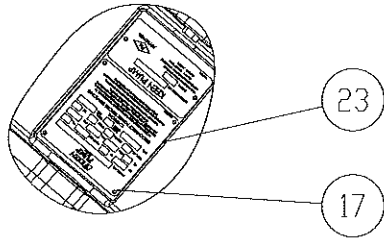
Always use a rag on the impeller when turning to prevent cutting hands on the sharp edges of the impeller and slicer plate.

SUBMERGENCE LEVELS - RAIL MOUNTED PUMPS			
PUMP	LIFT/OUT MODEL	A BOTTOM OF WELL TO INLET	B "KEEN" RECOMMENDED MINIMUM SUBMERGENCE LEVEL
KE102/103	KL2	3-1/2"	15"
K(F/H)G2	KL1(CV)	3-1/2"	15"
KPCG	KL1(CV)	3-3/4"	19"
K(H)GS2	KL1(CV)	3-3/8"	15"
KHHG2	KL1(CV)	3-1/2"	21"
KHHG2H	KL1(CV)	3-1/2"	21"
KG3,5,7,103	KL3H	4-3/4"	22"
KHG3,5,7	KL3H	5-3/4"	22"
KGP75-150	KL3H	4-3/4"	28"
K3RN	KL3H	5-3/4"	28"
K3VN	KL3H	4-1/2"	27"
K3RH	KL3H	5-3/4"	23"
K4RH	KL4	6-1/4"	24"
K4RN (3450)	KL4	6-1/4"	28"
K4RN (1150/1750)	KL4	5-1/8"	28"
K4VN	KL4	5-1/8"	27"
K4RP (3450)	KL4	5-1/2"	28"
K4RP (1150/1750)	KL4	7-1/2"	32"
K4VP	KL4	7-1/2"	30"
K4RB (3450)	KL4	9-1/8"	36"
K4RB (1750)	KL4	8-1/2"	36"
K4VB	KL4	7-1/2"	35"
K4VK	KL4	6-1/2"	42"
K6VB	KL6	8-3/8"	38"
K8VK	KL8	16"	52"
K12VK	KL12	15-1/2"	61"
K14VK	KL14	15-1/2"	61"

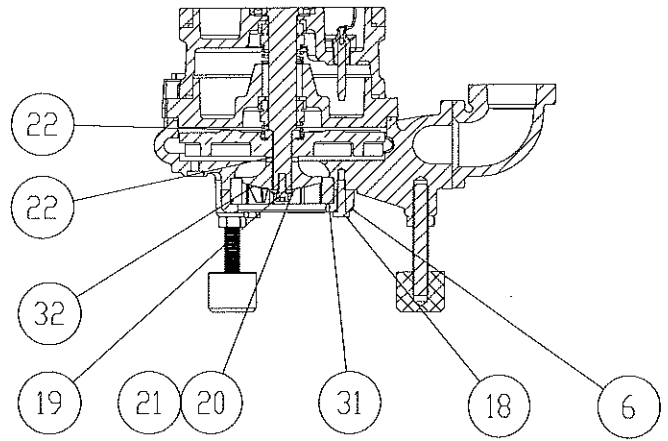
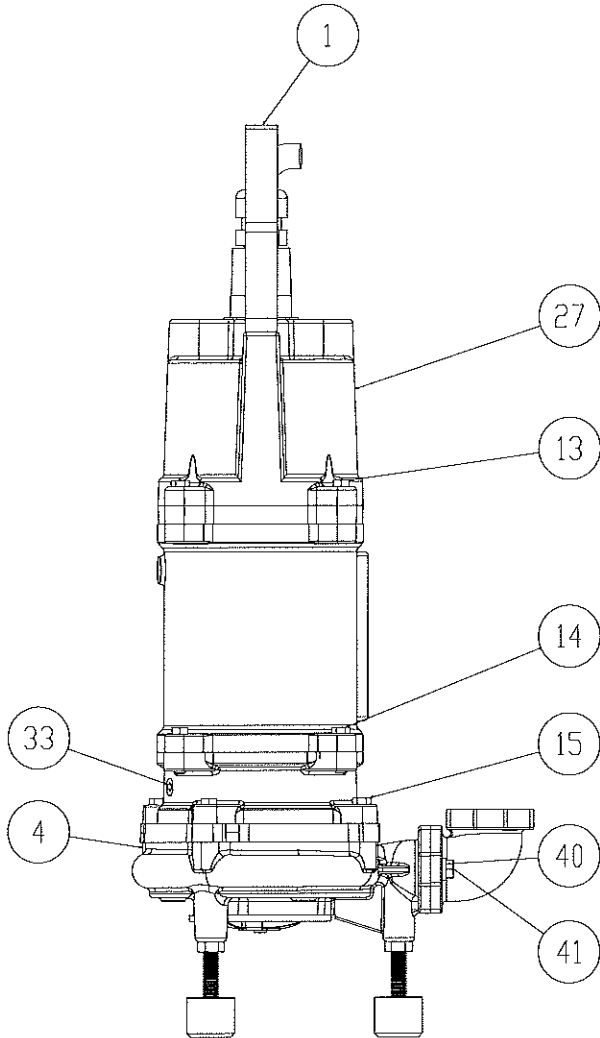
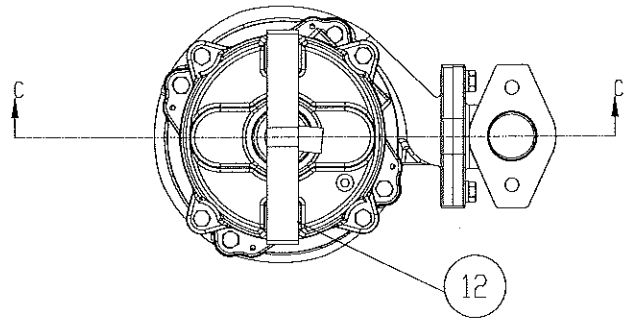
471 US HWY 250 EAST
ASHLAND, OHIO 44805
PHONE: 419-207-9400
FAX: 419-207-9031

TITLE: SUBMERGENCE LEVELS - WASTEWATER PUMPS
SCALE: NTS
DWG. BY: SE
DATE: 9/24/2014
REV. B





SECTION B-B



SECTION C-C
'RADIAL CUTTER'

38	Assembly, Start switch (230V)	1	K0653-5-01	-	-
40	Washer, Lock, 3/8" SST	2	LWASH3/8SS	2	LWASH3/8SS
41	Screw, Cap, 3/8-16UNC x 1" LG, SST	2	CS3/8X1SS	2	CS3/8X1SS
42	Plate, Slicer retainer, SST	1	K0453-1-01	1	K0453-1-01

REF. #	Pump Model Numbers w/ Radial Cutters DESCRIPTION	KGS2-2001/2301/2401(C) KHGS2-2001/2301/2401(C)		KGS2-2003/2303/4603 KHGS2-2003/2303/4603	
		QTY.	PART NUMBER	QTY.	PART NUMBER
Castings					
1	Bearing Plate, Upper, Cast Iron	1	KGX2004	1	KGX2004
1	Assembly, Upper Bearing Plate "C" Models	1	KGA2070-5-03	-	-
2	Housing, Lower Bearing, Cast Iron	1	K0467-2-01X	1	K0467-2-01X
3	Seal Plate, Lower, w/ Bushing, Cast Iron	1	K0447-5-01X	1	K0447-5-01X
4	Volute Case, Cast Iron	1	K0444-2-01	1	K0444-2-01
5	Adapter, Discharge, Vertical, 1-1/4" NPT, Cast iron	1	K0448-2-01	1	K0448-2-01
Repair parts					
7	Seal, Shaft, Lower and Upper, Sil. Carbide, Type 21	2	KG2172	2	KG2172
8	O-Ring, Buna-N, Motor, Cord Cap, Brg. Hsg., 5-7/8 OD	4	KG2010	4	KG2010
9	O-Ring, volute adapter, Buna-N, 6.234 ID	1	K0166-1-08	1	K0166-1-08
10	Bearing, Ball, Upper Ball, 1.575OD	1	KG2003	1	KG2003
11	Bearing, Ball, LOWER, 2.047OD	1	KG2009	1	KG2009
Hardware & Miscellanies parts					
12	Screw, Cap, 1/2-13UNC x 1" LG, SST	2	CS1/2X1SS	2	CS1/2X1SS
13	Screw, Cap, 5/16-18UNC x 1-3/4" LG, SST	4	CS5/16X1-3/4SS	4	CS5/16X1-3/4SS
14	Screw, Cap, 5/16-18UNC x 1-1/4" LG, SST	4	CS5/16X1-1/4SS	4	CS5/16X1-1/4SS
15	Screw, Cap, 5/16-18UNC x 1-1/2" LG, SST	4	CS5/16X1-1/2SS	4	CS5/16X1-1/2SS
16	Screw, Cap, 10-32UNC x 5/8" LG, SST	1	CS10X5/8SS	1	CS10X5/8SS
17	Screw, RD Head, Drive, #4-7UNC x 1/4" LG, SST	4	DS4X1/4SS	4	DS4X1/4SS
18	Screw, Cap, 1/4-20UNC x 1" LG, SST	3	CS1/4X1SS	3	CS1/4X1SS
19	Screw, Skt Hd, (Allen) 1/4 -20UNC x 3/4" LG, SST	1	SCS1/4X3/4SS	1	SCS1/4X3/4SS
20	Washer, Impeller, KGS series	1	K0451-1-01	1	K0451-1-01
21	Retaining Ring, Disc, 2hp slicer impeller, SST	1	K0558-3-01	1	K0558-3-01
22	Shim, 5/8" ID x 1.00" OD x .005, SST	2	K0458-1-01	2	K0458-1-01
23	Nameplate, FM	1	KNP0001	1	KNP0001
24	Handle, Lifting, SST	1	KG2017	1	KG2017
25	Oil, KEEN I.C.E. Dielectric	68 oz	K0181-1-01	68 oz	K0181-1-01
26	Assembly, Housing & Stator 208 Volt 1 ph	1	KGA2097-5-200	-	-
26	Assembly, Housing & Stator 240 Volt 1 ph	1	KGA2097-5-100	-	-
26	Assembly, Housing & Stator 208/230/460 Volt 3 ph	-	-	1	KGX2098
	Housing, motor, Cast iron	1	KGX2006	1	KGX2006
	Stator 208 Volt 1 ph	1	KG2007	-	-
	Stator 240 Volt 1 ph	1	K0477-1	-	-
	Stator 208/230/460 Volt 3 ph	-	-	1	KG2013
27	Assy, Cord Cap, 30 ft. length cord. 10/6	1	KGX2099-10630	-	-
27	Assy, Cord Cap, 30 ft. length cord. 10/3 "C" Model	1	KGX2099-103	-	-
27	Assy, Cord Cap, 30 ft. length cord. 14/8	1	-	1	K0133-5-30
28	Rotor and shaft assembly, 1 & 3 phase, Hazloc	1	KGX2096	1	KGX2096
29	Pre-insulated Crimp Wire Connector 6LU61	6	WC2-10	8	WC2-10
30	Impeller, SST, High Flow, 5.50" Dia.	1	K0464-2-02	1	K0464-2-02
30	Impeller, SST, High Head, 6.50" Dia.	1	K0464-2-01	1	K0464-2-01
31	Ring, Grinder, SST, High Flow	1	KG2149-2-01	1	KG2149-2-01



471 US Hwy 250 East, Ashland, Ohio 44805
PH: 419-207-9400 FX: 419-207-8031

Limited Warranty

During the time periods and subject to the conditions hereinafter set forth, Keen Pump will repair or replace to the original user or consumer, any portion of your new Keen product which proves defective due to defective materials or workmanship of Keen Pump. Contact your closest authorized Keen Pump representative or distributor for warranty service. At all times, Keen Pump shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts or components. Damage caused by acts of GOD or conditions beyond the control of Keen Pump is not covered by this warranty.

WARRANTY PERIOD:

36 months from date of manufacture.

Start-up reports are required to support warranty claims. Warranty effective only if Keen Pump supplied or authorized control panels are used. Single phase pumps must utilize Keen Pump supplied start components.

THIS WARRANTY WILL NOT APPLY:

- (1) To defects or malfunctions resulting from failure to properly install, operate or maintained the product in accordance with printed instructions provided.
- (2) To failures resulting from abuse, accident or negligence.
- (3) To normal maintenance services and the parts used in conjunction with such service.
- (4) To products which are not installed in accordance with applicable local codes, ordinances and good trade practices.
- (5) The product is used for purposes other than for what is was designed and manufactured.
- (6) If 3 phase motors are installed on a single phase power supply using a phase converter or if 3 phase power is supplied by only two transformers, making an open Delta system.

WARRANTY EXCLUSIONS:

Keen Pump specifically disclaims the implied warranties of merchantability and fitness for a particular purpose after the termination of the warranty period set forth herein. No warranties or representations at any time made by any representatives of Keen Pump shall vary or expand the provision hereof.

LIABILITY LIMITATION:

In no event shall Keen Pump be liable or responsible for consequential, incidental or special damages resulting from or related in any manner to any Keen Pump product or parts thereof. Personal injury and/or property damage may result from improper installation. Keen Pump disclaims all liability, including liability under this warranty, for improper installation. Keen Pump recommends following the instructions in the installation manual. When in doubt, consult a professional. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

LABOR, ETC., COSTS:

Keen Pump shall in no event be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or reaffixing any Keen Pump product, part or component thereof or any temporary pumping of other equipment.

RETURNED OR REPLACED COMPONENTS:

Any item to be replaced under this Warranty must be returned to Keen Pump, or such other place as Keen Pump may designate, freight prepaid.

This warranty gives you specific legal rights and other rights which may vary from state to state.

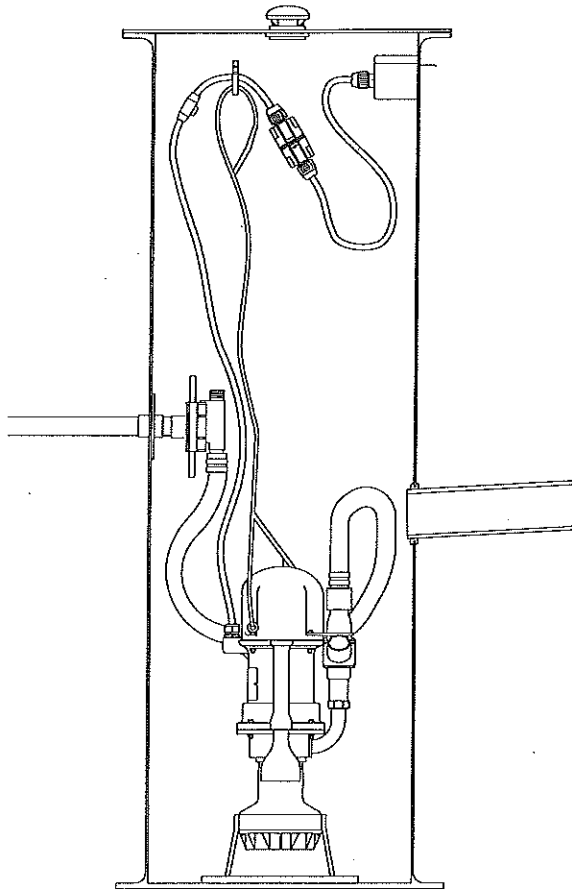
In the absence of suitable proof of this purchase date, the effective date of this warranty will be based upon the date of manufacture. Example: 1605 = Year-Month = 2016, May.

P/N O&M-K(H)GS2

ATTACHMENT D

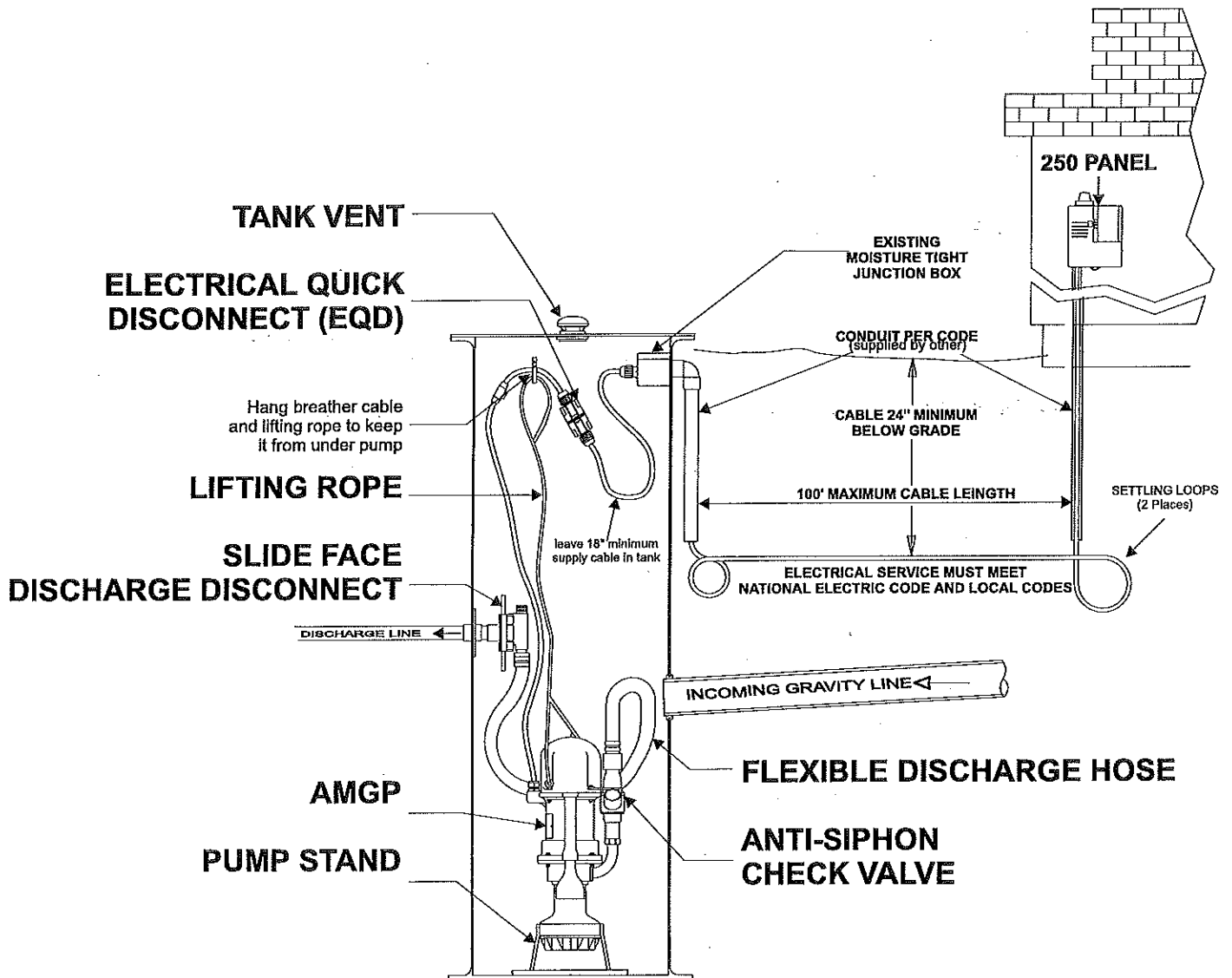
AMGP

Installation Instructions



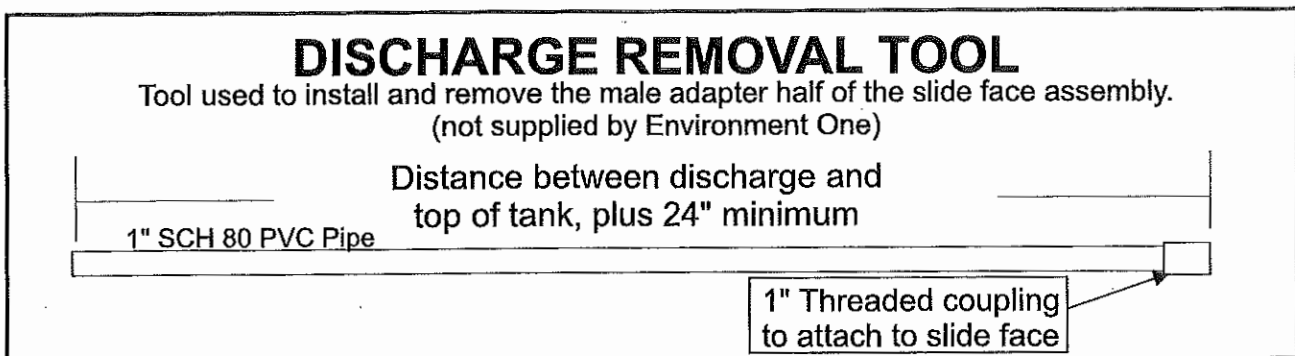
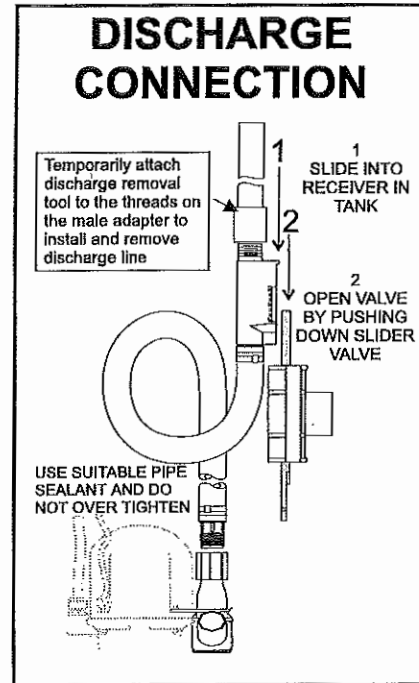
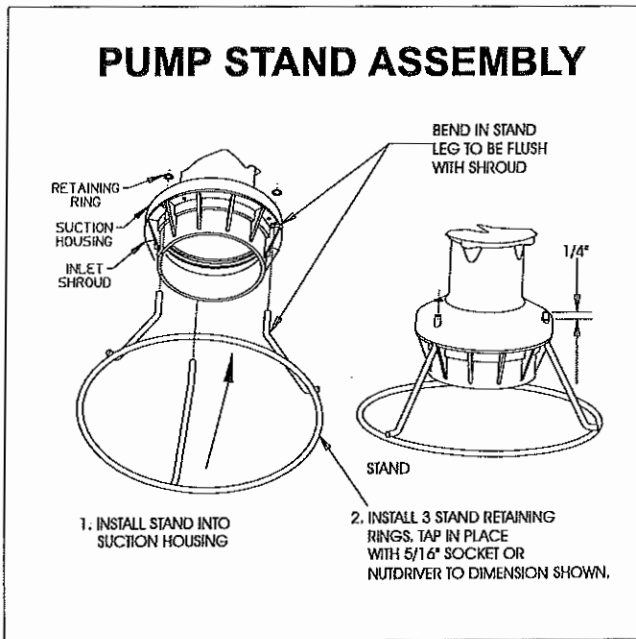
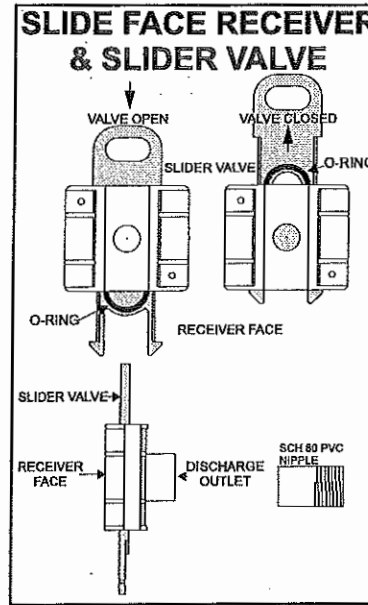
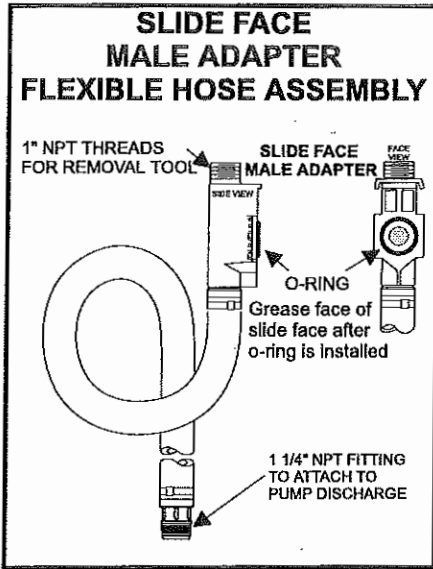
Read all instructions before
proceeding with installation.

AMGP INSTALLATION LAYOUT SHEET



 Must be installed and serviced by **QUALIFIED PERSONNEL ONLY!**

 **WARNING** • HAZARDOUS VOLTAGE CAN CAUSE SEVERE OR FATAL INJURY
Unit must be installed per National Electrical Code and Local Codes.



After Market Grinder Pump (AMGP)

Installation Instructions

The Environment One AMGP is a well-engineered, reliable and proven product; proper installation will ensure years of trouble-free service. The AMGP is designed to replace a 2HP centrifugal grinder pump in a residential or light commercial sewage handling application.

The following instructions define recommended procedures for installing the AMGP.



Read all instructions before starting unit replacement. If you have any questions, call your local distributor or Environment One for assistance, (518) 346-6161.

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

Note: Occupational Safety and Health Standard (OSHA) mandates that anyone entering a confined space (such as sewage tank, manhole, septic tank, etc.) must follow the confined spaces rules and regulations. This can be found in Code of Federal Regulations Book 29, Section 1910.146, distributed by OSHA. This gives guidelines on how to safely enter tanks to make

needed changes or repairs. **If possible, make all changes without entering the tank.**

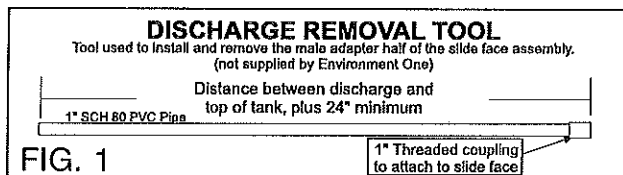
Before starting unit replacement, unpack hardware to ensure all items needed to complete the installation are accounted for. Inspect station to see if additional items not supplied by Environment One will be needed to complete the job, such as plumbing hardware kit, replacement tank, special tools, electrical hardware, etc. Refer to the packing list to see what Environment One shipped.

Preparation of Tank

1. Instruct homeowner to cease water usage.
2. Remove tank lid.
3. Inspect lid integrity:
 - Clean all debris from lid
 - Inspect lid to ensure it is capable of supporting loads it may encounter (people, lawn tractor, trailer, etc.).
 - Inspect to ensure that lid can be sealed to prevent ground water infiltration. Note: If tank lid is deficient in any way, replace it.
4. Wash tank wall, rail assembly, pump and tank floor using a high-pressure water line.
5. Use existing grinder unit to pump down to "off" level. If manual-run is available, use it to pump tank down to lowest level possible.

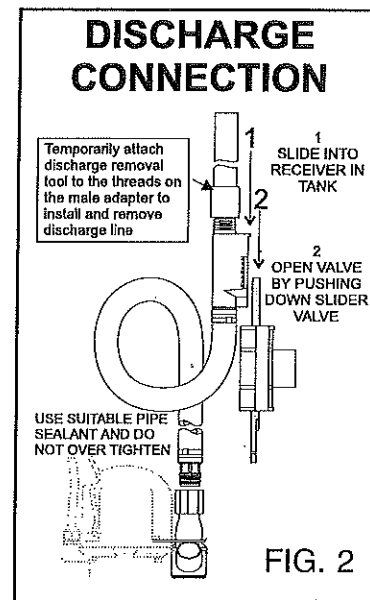
Installing the AMGP

6. Turn off all electrical power to old control panel at main house supply. Test with voltmeter, at panel, to ensure all power is off.
7. Close curb stop or discharge valve at street.
8. Disconnect and remove float assembly from tank.
9. Remove existing pump from tank.
10. Remove rail assembly and discharge assembly.
11. Remove all remaining brackets in tank that are not pertinent to tank structure. This can be accomplished by making an extension wrench out of a metal rod that is long enough to reach the bottom of the tank. (Fig. 1)

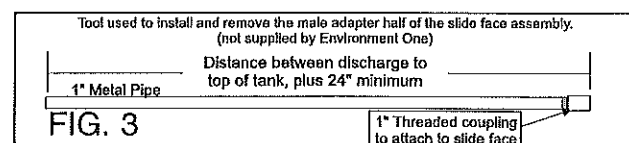


12. Pump out remaining sewage and debris from tank.
13. Clean tank floor.
14. Seal all holes in tank interior left by the removal of hardware in the tank.
15. Inspect tank interior for structural integrity and leaktightness. **Failure to prevent all infiltration may cause premature pump failure and void warranty.**
16. Disconnect the power and remove the existing alarm/disconnect panel.
17. Grade around the tank to prevent ground water infiltration during heavy rain.

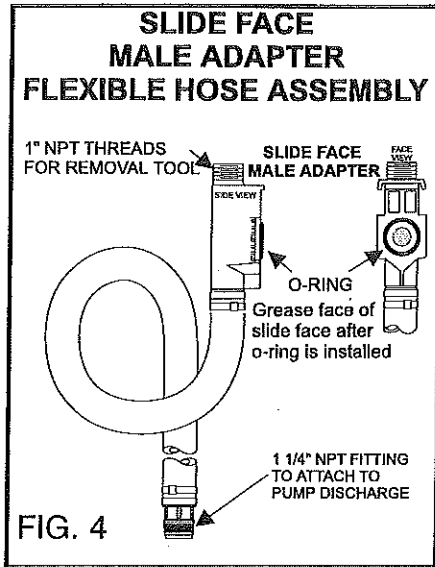
1. Unpack all materials. **Warranty registration and user instructions must be given to the owner.** Hardware packed with the unit will be used during installation.
2. Do not drop, roll or impact pump. Lift using the rope and lifting eyes on the pump.
3. Attach the discharge hose to the anti-siphon check valve. Use pipe sealer on threads to ensure leaktightness. (Fig. 2)



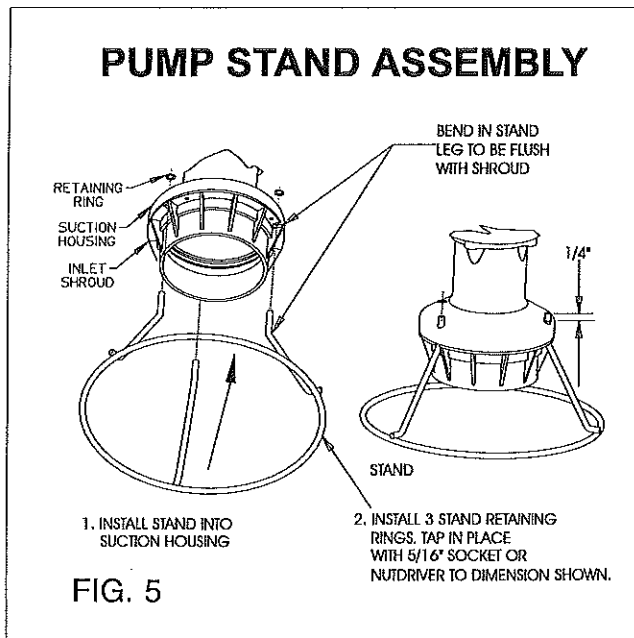
4. Attach discharge installation tool on male adapter. (Fig. 3)



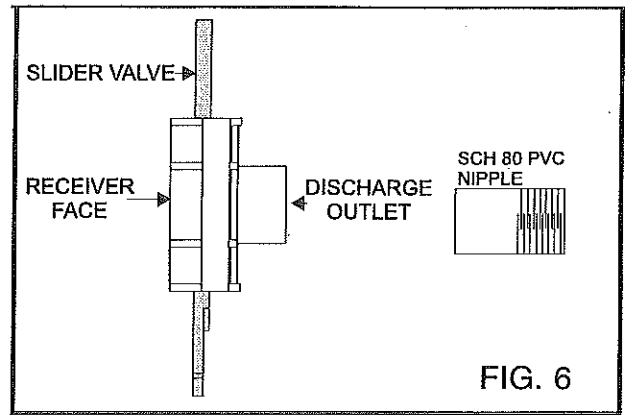
5. Insert O-ring into groove on male adapter; grease face of O-ring. (Fig. 4)



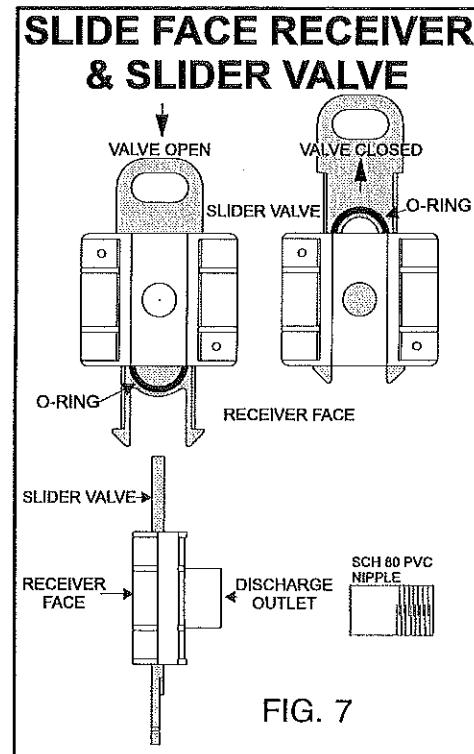
6. Attach pump stand. (Fig. 5)



7. 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)



8. Carefully lower AMGP into tank. Place pump so anti-siphon check valve is on opposite side of discharge in tank. Refer to "Installation Layout Sheet" in the front of this manual.
9. 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. See figure 7.



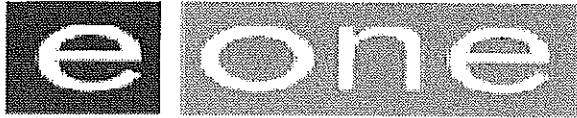
10. **Hang power/ breather cable and lifting rope to prevent them from laying in sewage.** Keep between 18 inches and 24 inches of power supply cable in tank. Refer to "Installation Layout Sheet" in the front of this manual.
11. Install vent assembly in cover assembly. Hole size for vent grommet is 2.75 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 warranty.
12. Connect AMGP to alarm/disconnect panel per instructions found in 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. Minimum burial depth without conduit is 24 inches. Note: Environment One cable should be used to ensure proper operation. When an underground splice is needed, use Environment One part number PC0606P01 splice kit. If existing cable is used, test for ground short (results from damaged cable underground). Replace if a short is found. Plug and seal all remaining electrical components (junction box, conduit, etc.) inside tank 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.
13. Power source to the panel must be 240 VAC (a dedicated 30-amp breaker) with ground and a separate neutral.
2. Turn off power at main power supply and panel. Use an ohmmeter set at the 2 meg scale. Check the continuity between the following leads from the AMGP:
 - Green to black
 - Green to white
 - Green to red
 - Red to orange

All these tests must read an open circuit. A short at any of these test points will cause premature pump failure if not corrected.
3. Turn on the alarm power circuit breaker. Leave pump breaker off.
4. Fill tank with water until alarm turns on. This will be about 25 inches from bottom of tank. Turn off water.
5. Turn on pump power circuit breaker. Pump should immediately turn on.
6. Check voltage between black and white leads from the AMGP while it is running. The voltage must be 240 volt (within 10 percent). Note voltage.
7. Take an amp reading off the white lead to the AMGP. The reading should be between 5 and 8 amps. Higher amperage readings equal a higher discharge pressure. If amperage is greater than 8, check discharge line for a blockage. Note amperage.
8. Within two minutes, the alarm will turn off. Within three minutes, the pump will turn off (in a 24-inch diameter tank).
9. Close and lock the alarm/disconnect panel.
10. Fasten lid to tank.

Test Procedure

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

Call your local E/One distributor if you have any problems. Please have ready the unit serial number, voltage, amperage read during startup, type of application, and a description of the problem.



LPS Systems Design

Low Pressure Sewer Systems Using Environment One Grinder Pumps

GP 2010

Table of Contents

Introduction

Advantages of a Low Pressure Sewer System

Description and Operation

Pump Operation

Pump Type

Motor Selection

Power Outages

Power Consumption

System Design

Information Required

Grinder Pump Selection

Grinder Pump Placement

Pipe Selection

System Layout

Branch Designations

Completion of Pipe Schedule and Branch Analysis

Review

Bibliography

Appendices

A. Manufacturer Evaluation Checklist

B. Pipe Schedule and Branch Analysis Forms

List of Tables

I. Pipe Water Capacity

II. PVC Comparisons

III. Maximum number of Grinder Pump Cores operating daily

IV. LPSS Pipe Schedule and Branch Analysis

V. Flow Velocity and Friction Head Loss - SDR 21 PVC Pipe

VI. Flow Velocity and Friction Head Loss - SDR 26 PVC Pipe

VII. Flow Velocity and Friction Head Loss - Sch 40 PVC Pipe

VIII. Flow Velocity and Friction Head Loss - SDR 11 HDPE Pipe

Introduction

Low pressure sewer systems offer the designer a new degree of freedom in solving a large number of problem situations which have heretofore defied reasonably economical solutions using the conventional approach.

Each low pressure system design should be considered on the basis of its own unique circumstances. On such a basis, a sound choice between gravity and low pressure can be made.

There are broad general criteria which will aid the engineer in making a preliminary choice between several alternative systems: all low pressure, all gravity or a mixture of both. These broad criteria will be presented here and are intended to serve as a general guide. Beyond this, a final choice and design will be the choice of the project consulting engineer whose knowledge of the local conditions including construction costs, regulatory requirements, and the client's particular needs become vital to the preparation of the final designs and specifications.

NOTE: Grinder pumps (GP) referred to in this handbook are Environment One Grinder Pumps, and the calculations shown apply to Environment One Grinder Pumps only

Advantages of Low Pressure Sewer (LPS) Systems

Low pressure sewer systems have a low initial (front end) cost as compared with gravity systems which have nearly all the total investment allocated to the first stage. With the low pressure system, the Grinder Pump costs are incurred only as the construction progresses. These costs will be deferred for many years in certain types of development programs.

A low pressure sewer system is not subject to infiltration from groundwater or from surface stormwater entering through leaking pipe joints and manholes. With zero infiltration, treatment plants need not be sized to handle the peak flow rates caused by infiltration. Treatment efficiencies can be more consistent. Treatment plant operating costs decrease.

A low pressure sewer system may become the critical factor in determining whether "marginal" land can be economically developed. Many attractive sites have been considered unsuitable for development because of the excessive costs usually associated with conventional sewer systems -- sites with hilly terrain, land with negligible slope, high water tables, poor percolation characteristics, rock, seasonal occupancy, or low population density.

Many communities are planning to convert from septic tanks to central sewage collection and treatment systems to minimize health hazards and/or environmental deterioration. The major reduction in cost and the simplicity of installation of a low pressure system has strong appeal for such community improvement programs. Small diameter pipe mains can be laid along existing roadways with minimum damage to streets, sidewalks, lawns, driveways and underground utilities. Surface restoration costs are similarly minimized. Sewage delivered to the treatment plant (because it contains no infiltration) is more uniform in "strength", the volume is smaller, and peaks are greatly reduced.

Description and Operation

All the pumping and sewage conditioning processes for small diameter low pressure sewer systems are

accomplished by Grinder Pumps of approved design.

A building's plumbing system consists of drain, waste, and vent piping, commonly referred to as DWV piping. The plumbing from the building flows into the Grinder Pump Station basin. The Grinder Pump Station may be installed indoors or outdoors and may serve one or more buildings.

Grinder Pumps discharge a finely ground slurry into small diameter pressure piping. In a completely pressurized collection system, all the piping down stream of the Grinder Pump (including lateral and mains) will normally be under low pressure - 60 psig or less. Pipe sizes will start at 1 - 1/4 inch (discharge from Grinder Pump Station) as compared to 4 inch or 6 inch required for gravity systems. Low pressure system main piping sizes typically range from 2 inch to 6 inch as compared to the 8 inch to 20 inch sizes required for gravity systems. All LPS lines are arranged as branched networks without loops.

Depending on topography, size of the system, and planned rate of build out, appurtenances may include valve boxes for access, flushing arrangements, air release valves at significant high points, check valves, and curb stops at the junction of each low pressure lateral with the LPS main.

Pump Operation

Low pressure sewer systems have become feasible with the availability of the Environment One Grinder Pump. This Grinder Pump Station provides holding capacity, reliable grinding and pressure transport of a fine slurry to an existing gravity sewer or directly to a wastewater treatment plant.

In operation, the Grinder Pump Station will handle sewage and many items which should not, but often do, appear in domestic wastewater. For example, plastic, wood, rubber and light metal objects can be routinely handled without jamming the grinder or clogging the pump or piping system. The Grinder Pump will discharge this slurry at a maximum rate of 15 gpm. It is possible to transport sewage several thousand feet to a discharge point at a higher elevation, so long as the sum of the static and friction losses does not become excessive.

The Grinder Pump is actuated when the depth of the sewage in the tank reaches a predetermined "Turn On" level, and pumping is continued until the "Turn Off" level is reached. The pump running time is short, power consumption is low, and long pump life is assured. The unit is protected against backflow from the discharge lines. Several Grinder Pump Station models are available to satisfy various total and peak-demand conditions.

Pump Type

The semi-positive displacement pump in the Grinder Pump Station has a nearly vertical H-Q curve. This type of pump is best suited for successful parallel operation of many pumps into a system of common low pressure mains. Since each pump will be located at a different point along the common low pressure mains and at various elevations, it is essential that each pump operate in an efficient and predictable manner -- whether just one pump or numerous pumps are operating at a given moment. Stated another way, the pumps in such a system do not have a single fixed "operating point", but must operate consistently over a very wide range of heads which are continually and often rapidly changing.

System designs with calculated heads approaching the upper limits of recommended heads should be reviewed by Environment One applications specialists. Contact your local Environment One District Sales Office for a no cost, computerized review of your design.

QUESTION 6_ATTACHMENT D

PAGE 11 of 20

On occasion, during "normal" operation there will be short periods when higher than design pressures will be experienced. These can result from a variety of causes including solids build up (obstructions), air bubbles, or simultaneous operation by more than the design number of pumps.

Deposits of solids or air accumulation will be purged from the line since the pump continues to produce an essentially constant flow, even though the cross section of the pipeline has temporarily been reduced. Higher velocities through the reduced cross section will provide the scouring action needed to correct such conditions as soon as they start to appear.

These higher than expected pressure conditions are transitory occurrences. The only requirement is that no damage be done to the pumping equipment, pipelines or appurtenances during these occasional short periods. Environment One Grinder Pumps are driven by motors rated for continuous operation at 40° C above ambient temperature. They can operate at 50% above rated pressure for at least 5 minutes without excessive temperature rise. Based on the Albany, New York demonstration project (4) it would be very rare for this type of overload to last even as long as one minute. The highest pressure the pumps can generate is 150 psi. This is not dependent on any pressure protection devices, but is limited by the motor torque. As the piping and appurtenances are rated at a minimum operating pressure of 160 psi, there is no possibility of damage occurring to them.

Motor Selection

A Grinder Pump Station is an electromechanical system which depends on electric power from the building served for its operating, control and alarm functions. The design and selection of Environment One's pump, motor, grinder and level sensing controls were accomplished by optimizing the wastewater transport function of the unit within the necessary constraints for unattended, trouble free operation in a residential environment.

A single Grinder Pump core is common to all models of Environment One Grinder Pump Stations (GP 2000 series stations). This central core contains all of the working and control elements of the unit and is powered by a 1 HP, 240V (or 120V), 1725 RPM, capacitor start, thermally protected induction motor. Each of these motor features were carefully considered in the design of the Grinder Pump Station.

The pump can be considered as a residential appliance. For this reason it is desirable to perform the grinding and pumping functions using no more than one horsepower to permit occasional use at 120V in older homes, not wired for 240 V.

In order to achieve the high heads desired and provide constant flow at varying heads the 1 HP motor is coupled to a pump of semi-positive displacement design. The pump performance can be seen in [Figure 1](#).

At a rating of one horsepower and 1725 RPM the Environment One Grinder Pump develops over three foot pounds of full load torque, with a locked rotor torque of over 8 foot pounds. Motors used to drive centrifugal pumps are often rated at 1.5 horsepower at 3450 rpm and produce only 36.5 ounce feet of torque - 25% less. In handling residential sewage, grinding torque may be demanded during any portion of the starting or running cycle. When the pump stops (controlled by level) in the midst of grinding hard objects (e.g. tongue depressors, plastic items, etc.) it must, upon restarting, be able to provide high torque to the grinder to overcome the resistance of any object remaining from the previous cycle.

Power Outages

Environment One Grinder Pump Stations have adequate excess holding capacity to provide wastewater

QUESTION 6_ATTACHMENT D

PAGE 12 of 20

storage during most electrical power outages. Refer to Figure 2. This excess holding capacity is shown on curve "A". Data from the Federal Power Commission on national electrical power outages has been plotted as a cumulative distribution function (curve "B"). It is important to note that only volume above the normal "turn-on" level was counted as available storage. Therefore, it is likely that most Grinder Pump Stations would have additional storage capacity since they would be at varying levels between "turn-on" and "turn-off". The average flow is 1.54 gallons/hour/person is based on the actual measured flow, over a period of one year, at the Albany Demonstration Project (4).

It is suggested that the local electrical power utility be contacted to obtain a history on the power interruptions of the feeder(s) scheduled to serve the low pressure sewer site. From this data, curve "B" should be replotted to reflect local conditions. In those rare local areas where the frequency and/or the duration's of outages exceed 7.5 hours, the use of Model GP 2012 with its greater holding capacity will very often be an acceptable solution.

After the occurrence of a power outage, it's likely that nearly all the pumps in the system will try to operate simultaneously when power is restored. Under these conditions the dynamic head loss component of the total head will rise significantly. A number of pumps in the system would see a total backpressure high enough to cause the thermal overload protectors to automatically trip in a few seconds. Operation under conditions which could cause damage to the pumps or the system would be avoided. While these pumps are "off-line", other pumps in the system would be able to empty their tanks. After a period of approximately 3-5 minutes the group that tripped off on thermal overload would cool down and restart. The system backpressure would have been reduced and the group would be able to pump down normally. This process repeats itself automatically under the influence of each unit's own thermal protector, reliably restoring the system to normal operation.

Power Consumption

Monthly power consumption of a residential Grinder Pump Station is substantially less than that of other major appliances. At 250 gpd per residence, power cost of \$0.08 per kWh and a 1 hp, 75% efficient motor, pumping at 15 GPM, the cost per month may be calculated:

$$\text{Cost} = (1 \times 746 \times 0.08 \times 250 \times 30) / (0.75 \times 1000 \times 15 \times 60) = \$0.66 \text{ per month}$$

To this is added the cost of running a 12 watt condensation heater:

$$\text{Cost} = (30 \times 24 \times 0.08 \times 12) / (1000) = \$0.69 \text{ per month}$$

Low Pressure Sewer (LPS) System Design

Once the initial analysis of a project has confirmed the feasibility of using the low pressure approach, the completion of a preliminary system design is straightforward. This is primarily due to two characteristics of the Environment One semi-positive displacement Pump: near-constant flow over the entire range of operating pressures, and the ability of the pump to handle transient overpressures.

The balance of this section outlines a systematic approach to LPS system design, leading from pump model and pipe selection to a detailed branch and system analysis.

Information Required

QUESTION 6_ATTACHMENT D**PAGE 13 of 20**

The information which should be assembled prior to initiation of the low pressure sewer system design includes:

- Topography Map
- Soil Conditions
- Climatic conditions (frost depth, low temperature and duration)
- Water Table
- Applicable Codes
- Location of Sewage Treatment Plant (existing or proposed)
- Type of Development
- Lot Layout (with structures shown if available)
- Total Number of Lots
- Dwelling Type(s)
- Use and Flow Factors (occupancy-seasonal or year-round, appliances, water supply sources, etc.)
- Area Development Sequence and Timetable

Grinder Pump Selection

Considerations Include:

- Wet well and discharge piping must be protected from freezing.
- Model and basin size must be appropriate for incoming flows.
- Appropriate alarm device must be used.
- Suitable location.

Grinder Pump Placement

The most economical location for installation of the Grinder Pump Station is in the basement of the building it will serve. Due consideration must be given when choosing an indoor location. All mechanical equipment will fail at some point in time. It is possible that sewage could spill at various times during the life of the installation. If there is a risk of damage to items located in the basement level, an outdoor unit should be used.

Considerations such as ownership of the pumps by a municipality or private organization and/or the need for outdoor accessibility frequently dictate outside in-ground installations. For outdoor installations all GP models are available with integral accessways ranging in height from 18 inches to ten feet. By keeping the unit as close as possible to the building, the lengths of gravity sewer and wiring will be minimized, thus keeping installation costs lower and reducing the chances of infiltration in the gravity flow section.

Power from the building being served should always be used for the Grinder Pump Station. Separate power sources add greatly to the installation and O&M costs, decrease overall reliability and frequently create an aesthetic problem.

When two dwellings are to be served by a single unit, the Station is usually placed in a position requiring the shortest gravity drains. With multi-family buildings, more than one Grinder Pump may be required.

Pipe Selection

The final determination of the type of pipe to be used is the responsibility of the consulting engineer. In addition to the requirements of local codes; the soil, terrain, water and weather conditions which prevail

QUESTION 6_ATTACHMENT D**PAGE 14 of 20**

will guide this decision.

Although pipe fabricated from any approved material may be used, most low pressure sewer systems have been built with PVC pipe. High density polyethylene is also used, especially in Europe and Canada. Continuous coils of small diameter, high density polyethylene pipe can be installed with automatic trenching machines to sewer low population density areas at least cost.

Table I compares the water capacity of three types of PVC pipe commonly used: SDR 21, SDR 26 and Sch 40, and one type of high density polyethylene, SDR 11. All four have adequate pressure ratings for low pressure sewer service; however, SDR 26 is not recommended.

Although all three types of PVC pipes are suitable, the three parameters compared in Table II illustrate why SDR 21 is suggested as a good compromise between capacity, strength, friction loss characteristics and cost.

System Layout

A preliminary sketch of the entire pressures system should be prepared (Figure 3). Pump models should be selected and their location (elevation) should be noted. The location and direction of flow of each lateral, branch and main, and the point of discharge should be shown.

The system should be designed to give the shortest runs and the fewest abrupt changes in direction. "Loops" in the system must be avoided as they lead to unpredictable and uneven distribution of flow.

A profile of the branches and mains should be prepared (Figure 4). Although not shown in Figure 3, the elevation of the shutoff valve of the lowest lying pump in each branch should be recorded and used in the final determination of static head loss.

Since Environment One Grinder Pumps are semi-positive displacement and relatively insensitive to changes in head, precisely surveyed profiles are unnecessary.

Air relief valves should be installed at the beginning of each downward leg in the system which exhibits substantial drop. Trapped pockets of air in the system not only add static head but increase friction losses by reducing the cross sectional area available for flow. Air will accumulate in downhill runs followed by an uphill run.

The system profile will indicate the potential for trapped air pockets. Air relief valves at high points may be necessary, depending on total system head, flow velocity and the particular profile. The engineer should consult Environment One in cases where trapped air is a potential problem.

Cleanout and flushing stations should be incorporated into the pipe layout. In general, cleanouts should be installed at the terminal end of each main, every 1000 feet on straight runs of pipe, and whenever two or more mains come together and feed into another main.

Branch Designations

The low pressure sewer system illustrated in Figure 3 contains 72 pumps and is divided into 20 individually numbered branches. Division into branches facilitates final selection of pipe sizes which are appropriate in relation to the requirements that flow velocity in the system is adequate and that both static and dynamic head losses are within design criteria. Assignment of individual branches follows from the

QUESTION 6_ATTACHMENT D**PAGE 15 of 20**

relationship between the accumulating total number of pumps in a system to the predicted number which will periodically operate simultaneously. This data is given in Table III.

Table III was initially developed after careful analysis of more than 58,000 pump events in a 307 day period during the Albany project (4). It was extended for larger systems by application of probability theory. The validity of this Table has since been confirmed by actual operating experience with hundreds of large and small low pressure systems over a twenty year period.

Using Table III, the actual exercise of assigning branches is largely mechanical. The single pump farthest from the outfall in any main or lateral constitutes a branch. This and downstream pumps along the main are accumulated until their aggregate number is sufficient to increase the number of pump in simultaneous operation by one; i.e. until the predicted maximum flow increases by 11 gpm.

Referring to Figure 3, it is seen that branches 1,2,3,4 and 7 end when the number of pumps connected total 1,3,9,18 and 30 and the number of pumps in daily simultaneous operation are 1,2,3,4 and 5 respectively.

Any place where two or more sections of main join, or the outfall is reached, also determines the end of a branch. This design rule takes precedence over the procedure stated above, as seen in branches 8,11,12,15,16,19 and 20 (Figure 3).

Completion of Pipe Schedule and Branch Analysis

The data recorded on the System Flow Diagram (Figure 3) and Plan Profile (Figure 4) is next transferred to Table IV.

Table IV

Column No. Designation

- | | |
|---|--------------------------------|
| 1 | Branch Number |
| 2 | Number of Pumps in Branch |
| 3 | Total number of Upstream Pumps |
| 8 | Length of each Branch in Feet |

Column 4 is completed by referring to Table III, where the maximum number of pumps in simultaneous operation is given as a function of the number of pumps upstream of the end of the particular branch. The output of each branch will vary slightly with head requirements, but under the most severe conditions the flow is approximately 11 gpm. Calculate the maximum anticipated flow for each branch by multiplying the number of pumps in Column 4 by 11 gpm and record the results in Column 5.

To complete columns 6, 7, 9 and 10 refer to Flow Velocity and Friction Head Loss table for the type of pipe selected; in this case Table V for SDR 21. It will be seen that the engineer will frequently be presented with more than one option when selecting pipe size. Sometimes a compromise in pipe size will be required to meet present needs as well as planned future development. As a general rule, pipe sizes should be selected to minimize friction losses while keeping velocity near or above 2 feet per second.

For example, branch 2 has a maximum of two pumps running (Column 4). Table V offers a choice of 1.25 inch, 1.50 inch or 2 inch pipe. Two inch pipe is selected since flow velocity equals 1.95 ft/sec and friction loss equals 0.73 ft/100 ft. Since the branch is 80 feet in length (Column 8), the total friction loss (Column 10) is:

$$H_F = (0.73 \text{ ft}/100 \text{ ft})(80 \text{ ft}) = 0.58 \text{ ft.}$$

QUESTION 6_ATTACHMENT D**PAGE 16 of 20**

For Branch 20, with 72 upstream pumps, it is seen that a maximum of 7 pumps can be running simultaneously. Table V provides options of:

3 inch pipe - ($V = 3.14$ ft/sec; $H_F = 1.12$ ft/100 ft), or

4 inch pipe - ($V = 1.90$ ft/sec; $H_F = 0.33$ ft/100 ft).

Although the velocity is incrementally below 2.0 the larger diameter 4 inch pipe is selected because of the reduced friction loss, especially in this long branch.

$$H_F = (0.33 \text{ ft/100 ft}) (2200 \text{ ft}) = 7.3 \text{ ft.}$$

A choice of 3 inch pipe would have led to a friction loss in this branch of:

$$H_F = (1.12 \text{ ft/100 ft}) (2200 \text{ ft}) = 24.6 \text{ ft}$$

Accumulated friction loss (Column 11) for each branch is next determined by adding the friction loss for each branch from the system outfall (Column 20) to the branch in question. Thus, from Figure 3 it is seen that the accumulated friction loss for Branch 1 is:

Branch Number Friction Loss, ft.

20	7.27
16	2.70
12	5.85
8	10.15
7	3.02
4	6.54
3	2.32
2	0.58
1	1.44

39.87 ft = Accumulated Friction loss, Branch 1

The same summation is completed for each branch.

To complete the hydraulic analysis, refer to the Plan Profile (Figure 4) and record in column 12 the maximum line elevation between the point of discharge and the branch under consideration. In Column 13 record the elevation of the lowest pump in the branch. Subtract the values in Column 13 from those in Column 12 and record only positive elevation differentials in Column 14. Add the values in Column 11 to those in Column 14 and record the total in Column 15 to show the maximum combination of friction and static head a pump will experience at any given point in the system.

Review

The accumulated data in Table IV should finally be reviewed for conformity with the criteria of flow velocity greater than or equal to 2.0 ft/sec and total design head less than or equal to 138 feet.

QUESTION 6_ATTACHMENT D

PAGE 17 of 20

Data should be reviewed to determine whether system improvements could result from construction modifications. As an example, deeper burial of pipe in one or two critical high elevation branches might bring the entire system into compliance with design criteria. Environment One should be consulted in marginal cases and/or concerning the following:

1. Odor control issues
2. Frost protection issues
3. Excessive static head conditions
4. Excessive total dynamic head conditions
5. Unusual applications

Bibliography

1. Hicks, T. G. and Edwards, T. W., "Pump Application Engineering", McGraw Hill, NY, 1971.
2. Stepanoff, A. J., "Centrifugal and Axial Flow Pumps", John Wiley and Sons, NY, 1948.
3. Tucker, L. S., "Hydraulics of a Pressurized Sewerage System and Use of Centrifugal Pumps", TM-6, American Society of Civil Engineers, 1967.
4. Carcich, I., Hetling, L. J. and Farrell, R. P., "A Pressure Sewer System Demonstration", EPA-R2-72-091, Office of Research and Monitoring, US Environmental Protection Agency, Washington, DC, November, 1972.
5. "Handbook of PVC Pipe - Design and Construction", Uni-Bell PVC Pipe Association, Dallas, TX, Second Edition, 1982.
6. Waller, D. H., "Peak Flow of Sewage from Individual Homes", TM-9, American Society of Civil Engineers, January, 1968.
7. Farrell, R. P., "Long Term Observation of Wastewater Observation Stations", TM-2, American Society of Civil Engineers, April, 1968.
8. Tucker, L. S., "Sewage Flow Variations in Individual Homes", TM-2, American Society of Civil Engineers, February, 1967.

Appendices

Manufacturer Evaluation Checklist

Service and Maintenance Check List

General Requirements of Low Pressure Sewer System

- Local fast-response service and maintenance organization has been designated.
- Manufacturers of all equipment specified for the system have supplied all installation details.
- Warranties for all equipment specified for the system have been evaluated.
- Fast replacement parts availability for all equipment in the system has been assured by each equipment manufacturer.

QUESTION 6_ATTACHMENT D**PAGE 18 of 20**

- User instructions have been supplied to homeowners.

The Grinder Pump

- Is designated for the specific purpose of grinding and pumping domestic wastewater.
- Is suitable for parallel operation in a system of many pumps connected to a common discharge line.
- Has a history of reliable operation
- Is compatible with existing power sources and provides economical operation.
- Is simple to service and troubleshoot, easily accessible for removal of grinder pump core; designed with simple wiring and controls; easily disassembled and reassembled.
- Has a warranty covering parts and labor for a reasonable length of time.
- Is supported by a thoroughly detailed installation manual, service manual, and facilities for service training.

Certifications

- Canadian Standards Association
- Underwriters Laboratories, Inc.
- National Sanitation Foundation

Required features

- Non-clogging pump.
- Non-jamming grinder.
- Anti-siphon valve integral with Grinder Pump.
- All valves of non-clogging design: integral check valve, anti-siphon valve, and redundant check valve.
- High level warning alarm.

Motor

- Low RPM - 1725.
- Overload protection, built-in, automatic reset.
- High torque, low starting current.

Tank

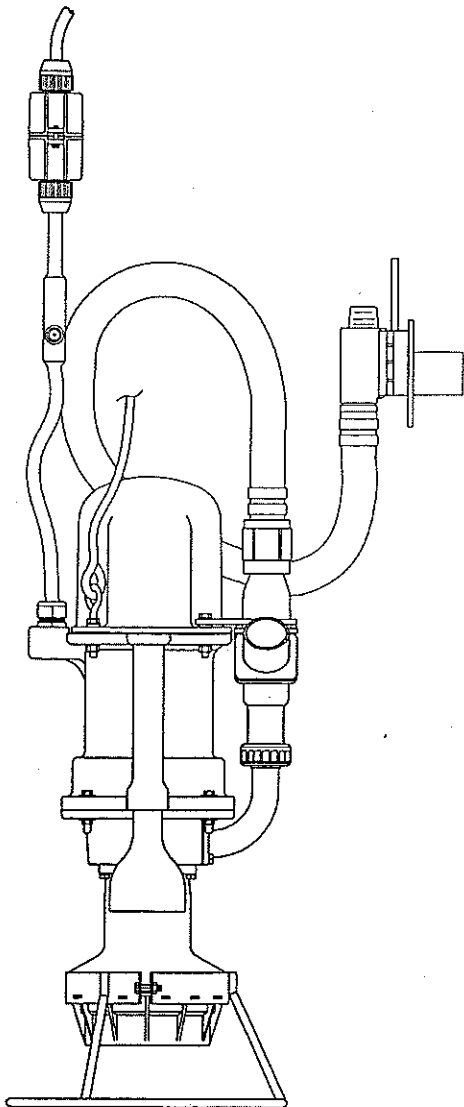
- Self-scouring.
- Completely sealed.
- Non-corroding material.

Level Sensing Control

- Non-fouling type.
- No moving parts in contact with sewage.

Motor Controls

- Completely protected.
- Simple to service or replace.



AMGP

General Applications

The environment one After Market Grinder Pump, AMGP, is engineered to fit into virtually any grinder pump wet well. Universal design allows easy drop-in conversion; ready to connect. The environment one AMGP is a complete replacement for all of the troublesome components of a centrifugal including slide rails, pump/motor, float switches, piping and motor control devices.

Features

All solids are ground into fine particles, allowing them to pass easily through the pump, check valve, and small diameter pipe lines. Even objects that are not normally found in sewage, such as plastic, rubber, fiber, wood, etc. are ground into fine particles.

The grinder is designed not to jam and for minimum wear to the grinding mechanism.

The AMGP comes complete with a self-contained level control system, eliminating troublesome float switches. The Grinder Pump is automatically activated. It runs infrequently for very short periods. The annual energy consumption is typically that of a 40 watt light bulb.

The 1-1/4" inch slide face discharge connection is adaptable to any existing discharge piping.

The internal check valve assembly, located on the Grinder Pump, is custom designed for non-clog, trouble-free operation.

Units are available with a number of discharge hose lengths to accommodate a wide range of existing tank depths.

Operational Information

Motor

1 HP, 1,725 RPM, high torque, capacitor start, thermally protected, 120/240 V / 60 Hz, one phase

Discharge Connections

Pump discharge terminates in 1-1/4" female solvent weld fitting, threaded adapter is supplied and discharge can easily be adapted to 1-1/4" MPT.

Discharge*

15 gpm at 0 psig (0 TDH)
11 gpm at 40 psig (92 TDH)
9 gpm at 60 psig (138 TDH)

Overload Capacity

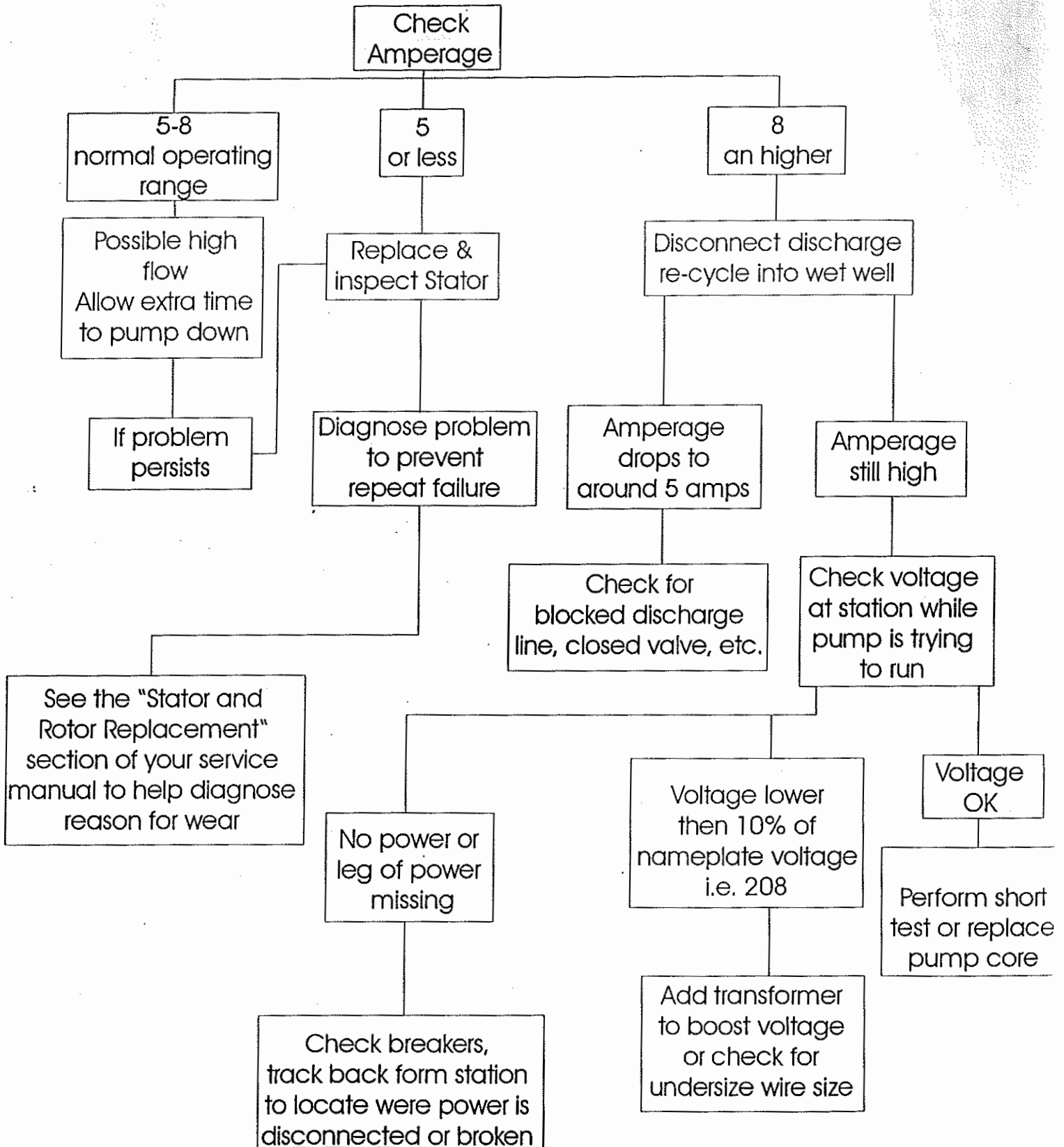
The maximum pressure that the pump can generate is limited by the motor characteristics. The motor generates a pressure well below the rating of the piping and appurtenances. The automatic reset feature does not require manual operation following overload.

U.S. Pat. 5,439,180

* Discharge data includes loss through check valve, which is minimal.

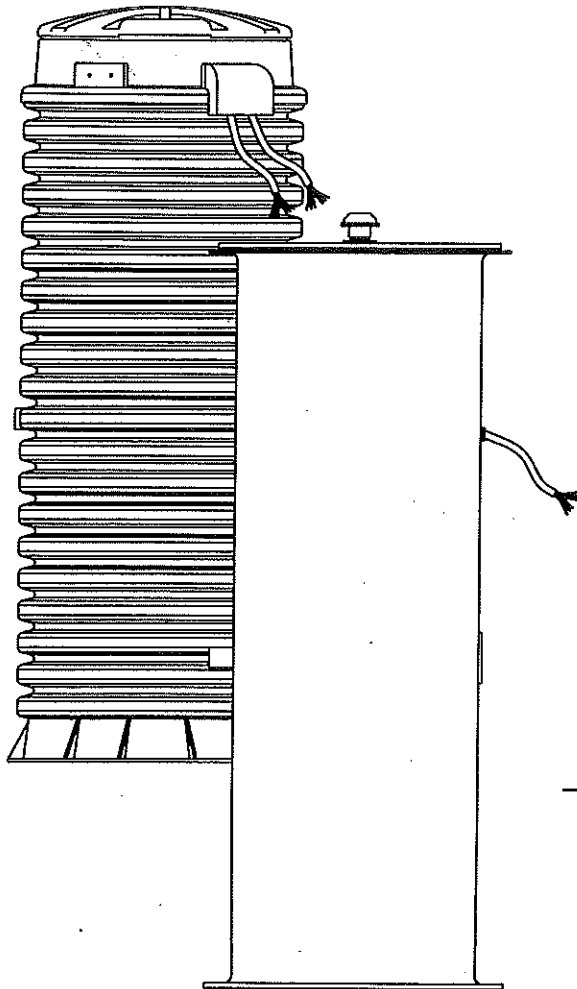
Printed in USA, on Recycled Paper
LM000100 Rev. A, 2/99

Running not pumping



ATTACHMENT E

E/ONE
EXTREME
S E R I E S

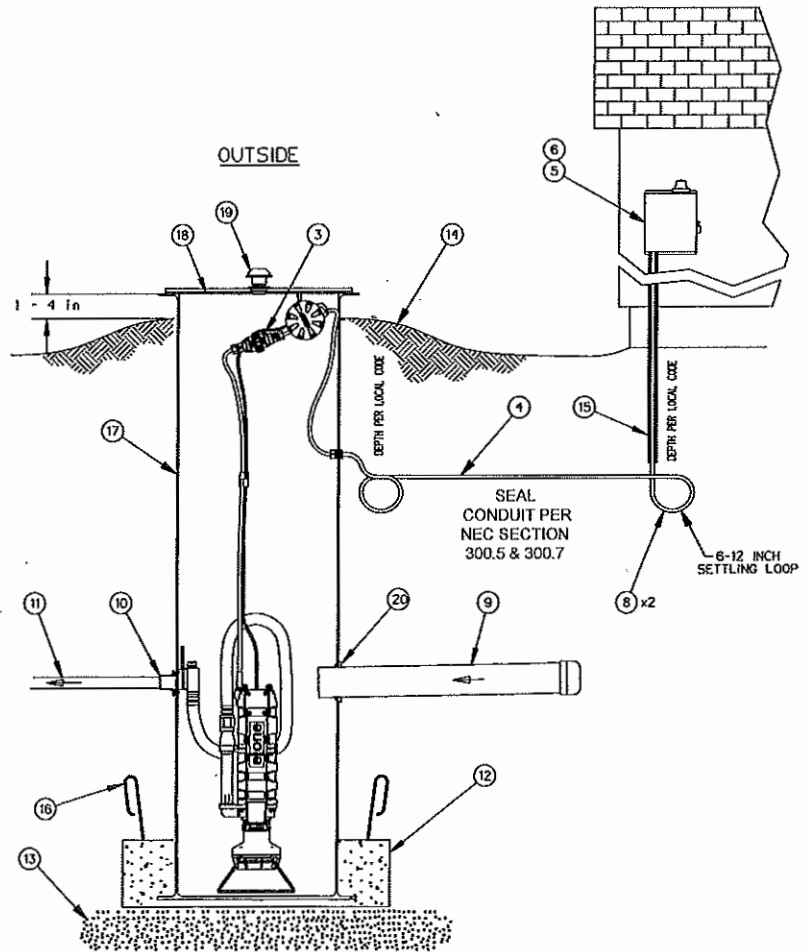
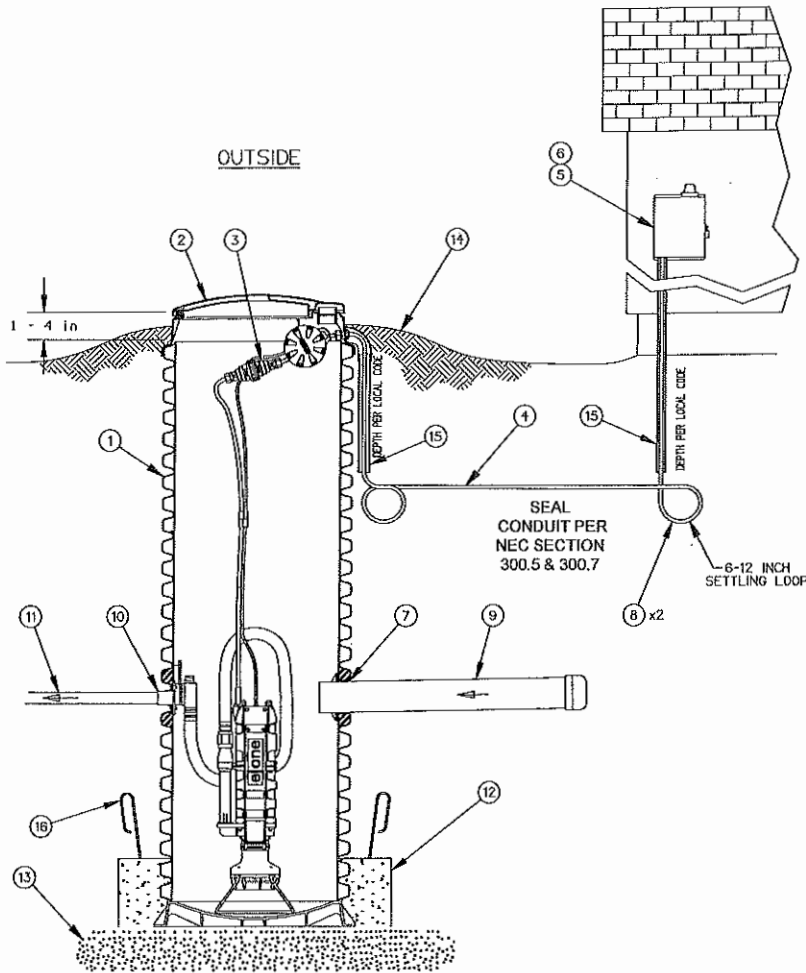


W-SERIES
TYPICAL
INSTALLATION
INSTRUCTIONS
& WARRANTY
INFORMATION

**SIMPLEX, DUPLEX, TRIPLEX &
QUADPLEX STATIONS**

Environment One Grinder Pump Feature Identification

1. **Grinder Pump Basin** – High density polyethylene (HDPE)
2. **Accessway 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 to be installed in accordance with local codes.
5. **Alarm Panel** – Rainproof (NEMA 4X) enclosure. Equipped with circuit breakers. Locate according to local codes.
6. **Alarm Device** – Every installation is to have an alarm device to alert the homeowner of a potential malfunction. Visual devices should be placed in conspicuous locations.
7. **Inlet** – Standard configuration 4-inch PVC socket (4.5 inches ID). For solvent cementing DWV pipe.
8. **Settling Loop** – Coil wire to protect against soil settling.
9. **Gravity Service Line** – Standard configuration 4-inch DWV (4.5 inches OD). Supplied by others.
10. **Discharge Outlet** – Standard configuration 1 ¼-inch solvent weld
11. **Discharge Line** – 1 ¼-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 accessway.
15. **Conduit** – 1 ¼-inch PVC to burial depth required by local code. Supplied by others.
16. **Rebar** – Required to lift tank after pre-cast ballast has been attached (4 places, evenly spaced around tank). Supplied by others.
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.

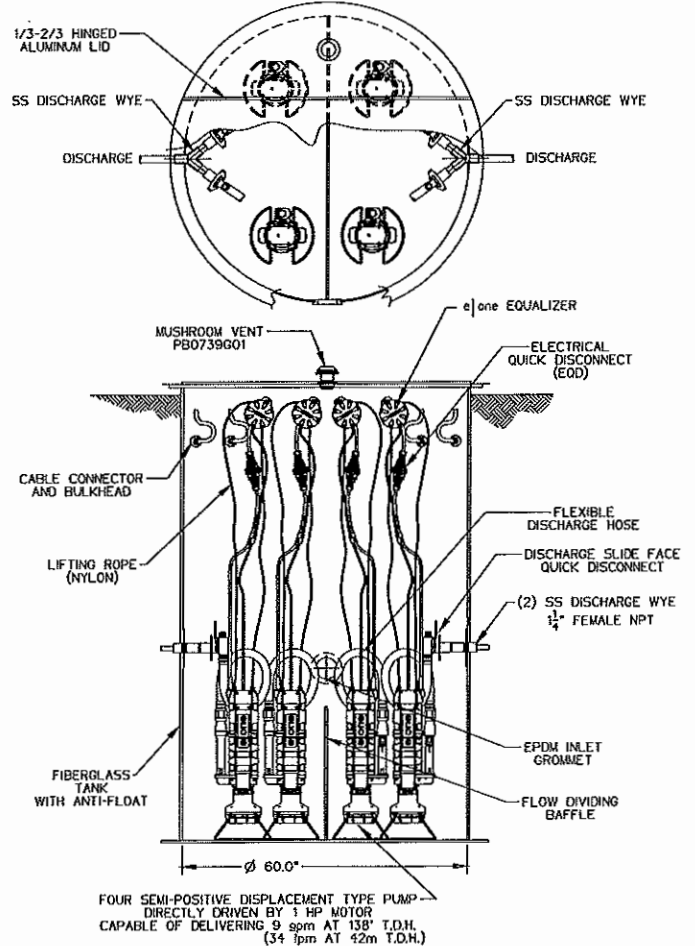
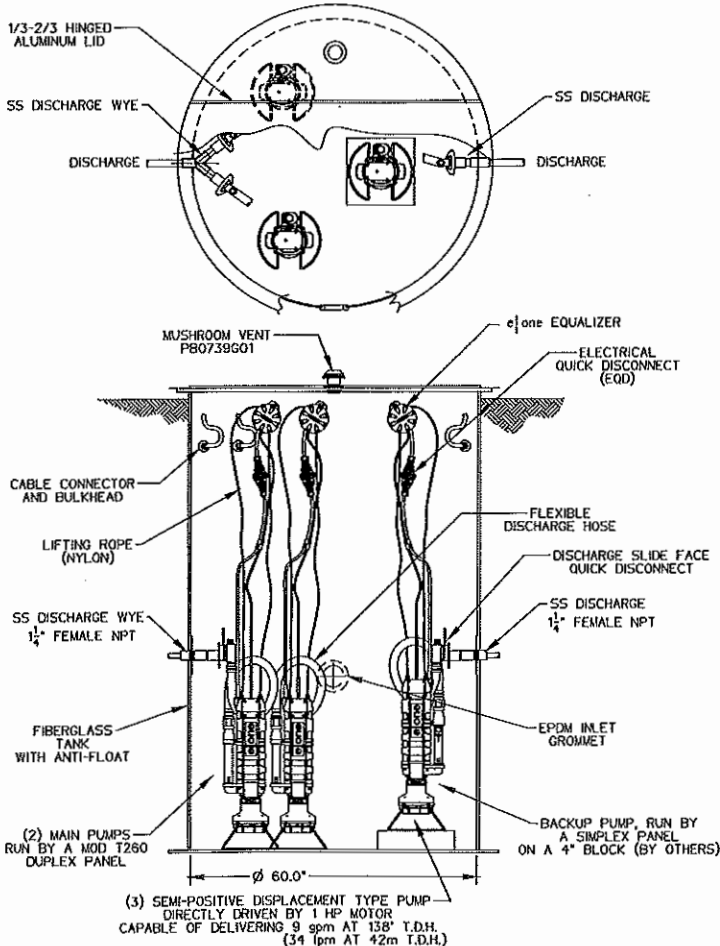
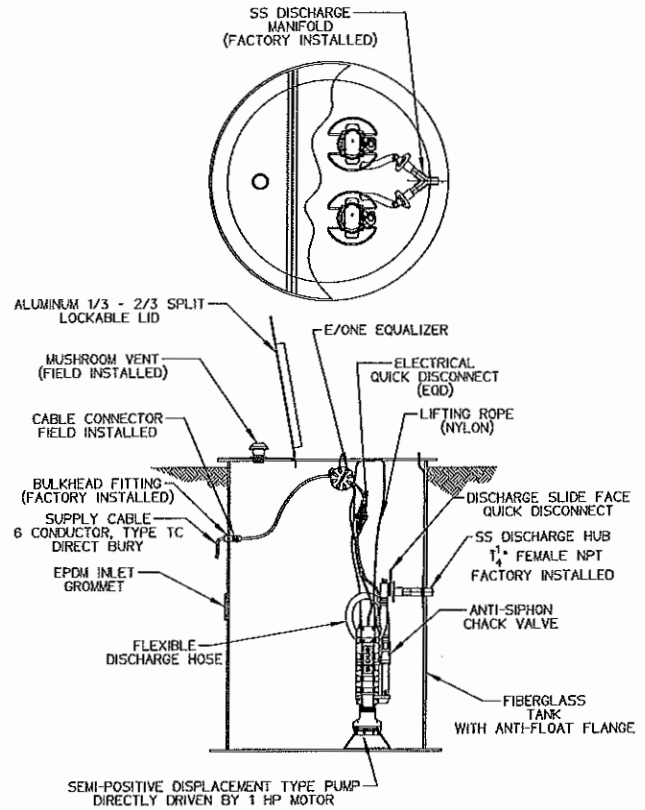


**FAILURE TO
COMPLY WITH
INSTALLATION
INSTRUCTIONS
WILL VOID
WARRANTY**

Figure 1

TYPICAL MULTI-PUMP STATIONS: DUPLEX, TRIPLEX & QUADPLEX

Simplex	1 Simplex Panel
Duplex	1 Duplex Panel
Triplex	1 Simplex Panel, 1 Duplex Panel
Quadplex	2 Duplex Panels



The Environment One grinder pump is a well-engineered, reliable and proven product; proper installation ensures years of trouble-free service. The following instructions define the recommended procedure for installing the grinder pump station.

The W-Series 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 (HDPE tank)

The tank is supplied with a standard 4-inch PVC DWV (4.5 inches inside dia.) inlet for connecting the incoming sewer drain. Other inlet types and sizes are optional (caution 4" DR-35 pipe is of smaller diameter and won't create a water tight joint with the standard grommet). Confirm that you have the correct inlet before continuing with installation. If a concrete ballast is attached to the tank, lift only by the lifting eyes embedded in concrete. Do not drop, roll or lay the tank on its side. Doing so may damage the unit and void the warranty. Excavate a hole to a depth so the removable cover extends 2 inches above the finished grade line; the grade should

slope away from the unit. The diameter of the hole must be large enough to allow a concrete anchor. 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. The concrete anchor is required to keep the unit from floating as a result of high groundwater levels. The amount of concrete required varies for each unit (see station detail sheet for the correct ballast weight).

The unit should be leveled and filled with water to the bottom of the inlet; doing so prevents the unit from shifting when pouring the cement. The cement must be manually vibrated to eliminate any voids. If pouring the cement to a level higher than the inlet piping is necessary, place an 8-inch sleeve over the inlet prior to pouring the cement.

3. Tank Installation (Fiberglass tank)

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).

If the site conditions require concrete tank ballast to prevent flotation, ensure that the volume of concrete used complies with the site Engineer's recommendation. Concrete ballast, if required, 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.**

4. Discharge

The use of 1-1/4" PVC pressure pipe Schedule 40 and polyethylene pipe SDR 11 or SDR 7 are recommended. If polyethylene is chosen, use compression type fittings to provide a smooth inner passage. It is recommended that a Redundant Check Valve Assembly (E/One part no. PC0051GXX) be installed

between the pump discharge and the street main on all installations. Never use a ball type valve as a check valve. We recommend 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.*

5. 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.

An HDPE station is supplied with 4-inch PVC socket (4.5 inches ID) for solvent cementing DWV pipe.

A fiberglass 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 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.

6. 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**

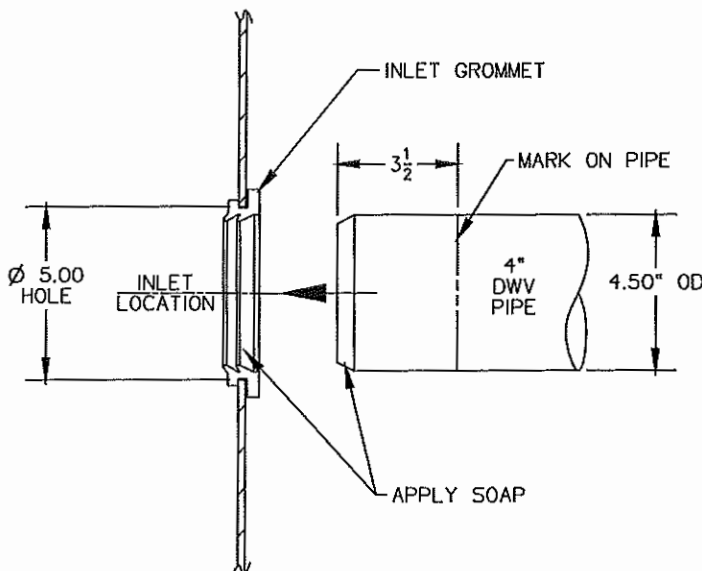


Figure 2

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.

7. 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-compactable 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

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

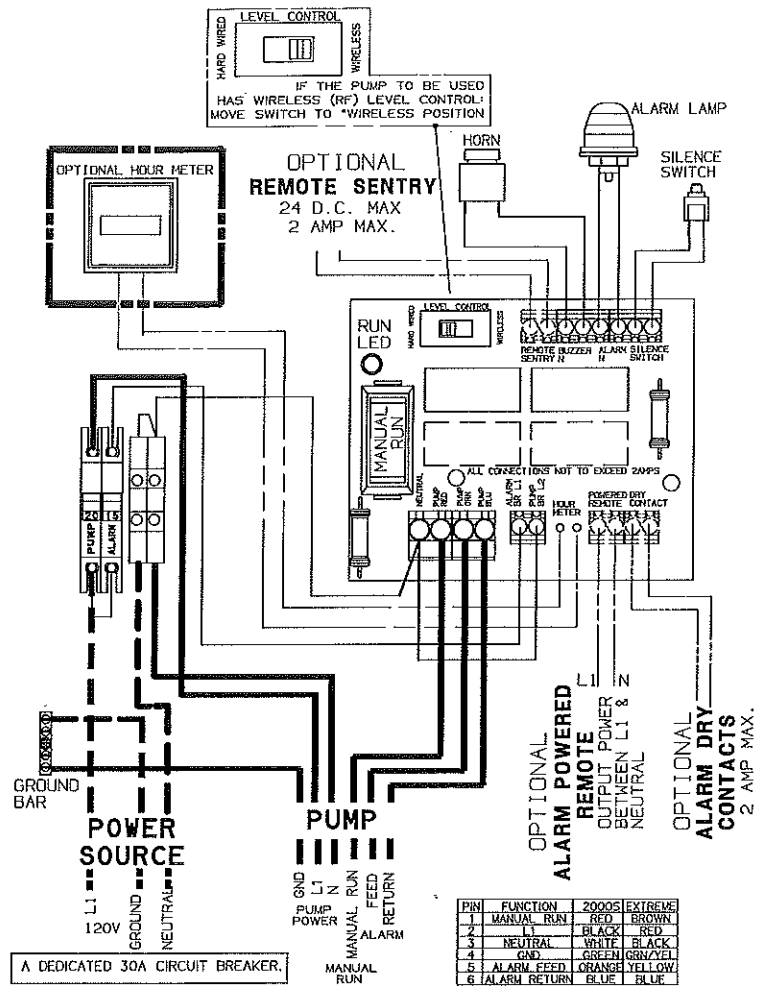


Figure 3 – 120V Simplex

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.

8. 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 figures 3 and 4, alarm panel wiring diagrams and local codes.

9. 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 as long as a minimum of 24 inches of cover is maintained.

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

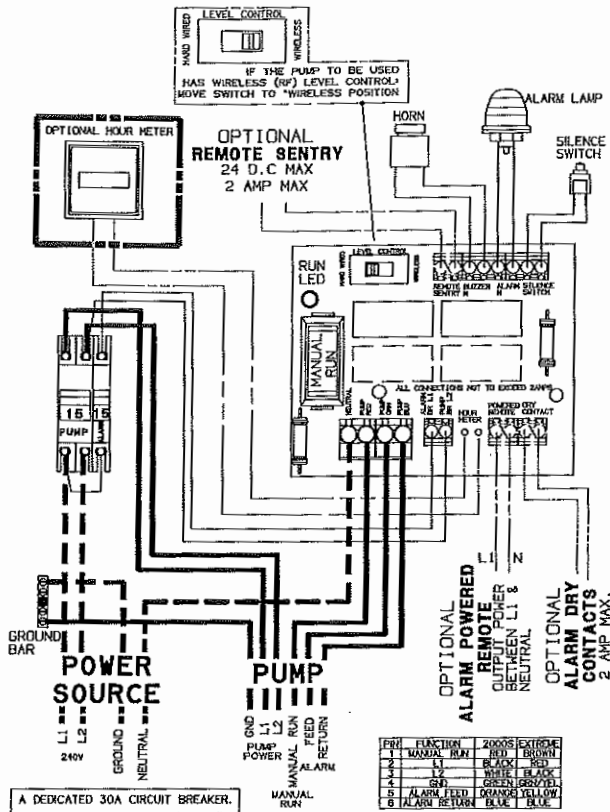


Figure 4 – 240V Simplex

Those portions of cable that have less than 24 inches of cover must be contained within suitable conduit. This includes the vertical section that drops to a 24-inch depth at the station and the length exiting out of the ground at the control panel. Note: Wiring must be installed in compliance with local codes (which may vary from above). **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.**

10. Installing E/One supply cable with EQD (HDPE)

a. Open the lid of the station, locate the cable and the feed-thru connector on the wall of the tank. Loosen the nut on the connector and pull

the supply cable out through the connector until it hits the crimped on stop feature on the cable, approximately 24" from the EQD.

****IMPORTANT: All but 24" of the cable must be pulled out of the station, and the portion of the cable between the EQD and the molded in cable breather should be secured in the hook provided to ensure that the pump functions properly. Do not leave the excess cable in the station.**

b. Retighten the nut. *This connection must be tight or ground water will enter the station.*

c. Feed the wire through the length of conduit (contractor provided) which will protect it until it is below the 24" burial depth.

d. Position the conduit vertically below the cable connector along side of the station reaching down into the burial depth.

e. Run the cable underground, in a trench or tunnel, to the location of the E/One panel. Leave a 6- to 12-inch loop of cable at each end to allow for shifting and settling. Connections made at the panel are shown in the panel wiring diagram (Figs. 3 and 4).

11. Installing E/One supply cable with EQD (Fiberglass)

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 is rated under the National Electric Code (NEC) for direct burial as long as a minimum of 24" of ground cover is maintained. Those portions of the cable with less than 24" of cover must be housed 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. **(Exception: On 48" tall tanks the cord grip should penetrate the tank 18" below the top of the tank; the portion of the cable with less**

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

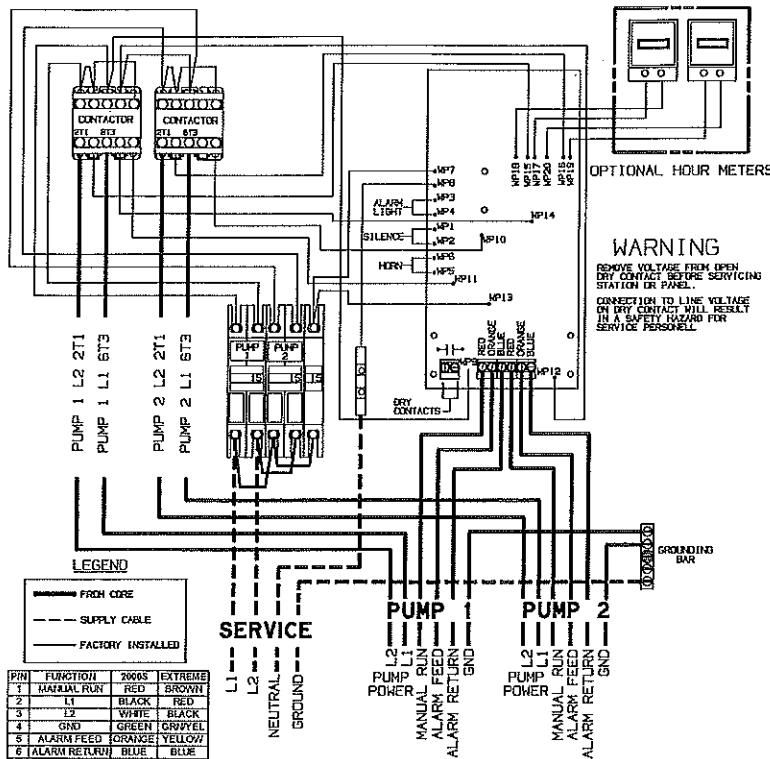


Figure 4a – 240 V Duplex

then 24" of soil cover shall be installed in suitable protective conduit.) Locate and mark the location of the cord grip on the fiberglass tank wall. Using a 1-1/16" hole saw, drill through the tank wall at this location. Install the cord grip and O-ring seal as shown. Tighten the cord grip locknut until snug.

Loosen the cord nut and slide the supply cable free end through the cord grip as shown in Fig. 5. 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. 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. Leave a 6- to 12-inch loop of supply cable near the station and the control panel to accommodate settlement of the soil. A protective conduit must be utilized where 24" of soil cover cannot be maintained.

12. 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.

13. Slide Face Discharge (Fiberglass Tanks)

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. 7)

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 leaktightness (Fig. 8). Check the O-ring on the

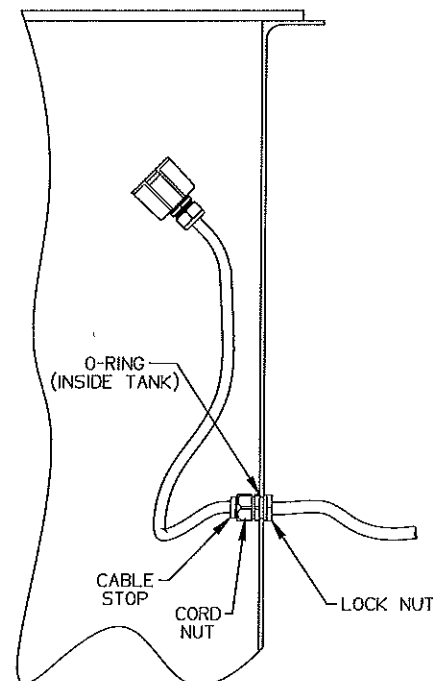


Figure 5

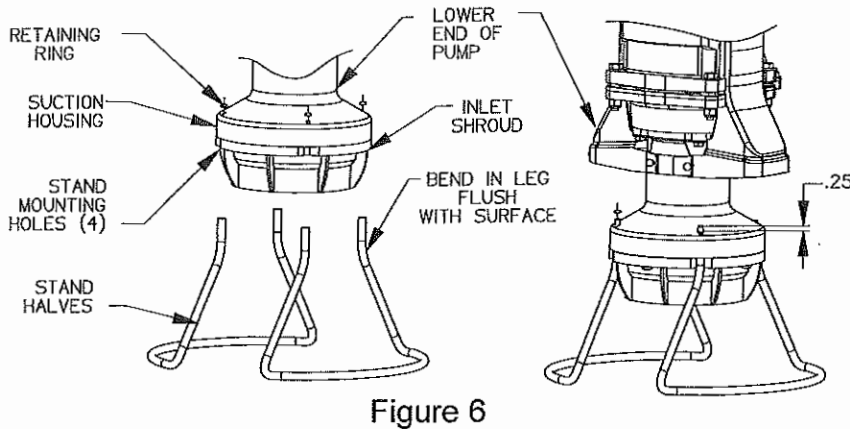


Figure 6

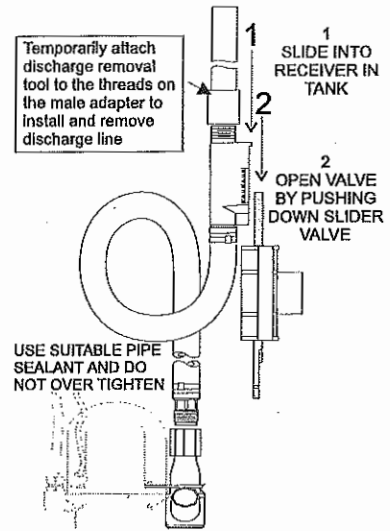


Figure 8

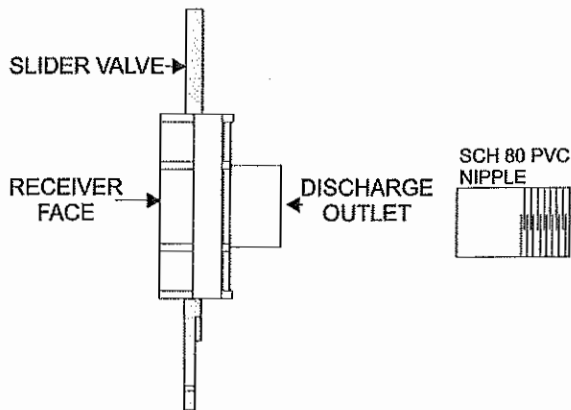


Figure 7

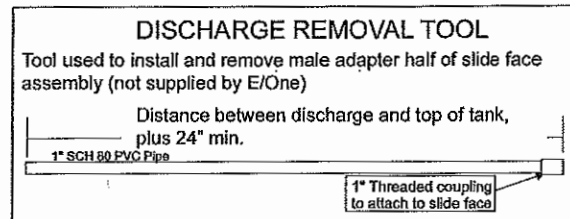


Figure 9

slideface adapter for adequate lubrication (Fig. 10). Attach discharge installation tool on male adapter (Figs. 8 and 9).

14. 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. 13)

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 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. Maxi-

imum distance between pump and panel is 100 feet. Minimum burial depth without conduit is 24 inches. 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. If existing cable is used, test for ground short (results from damaged cable underground). Replace if a short is found. 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.** Water-logged junction boxes are one of the most common sources of grinder pump problems.

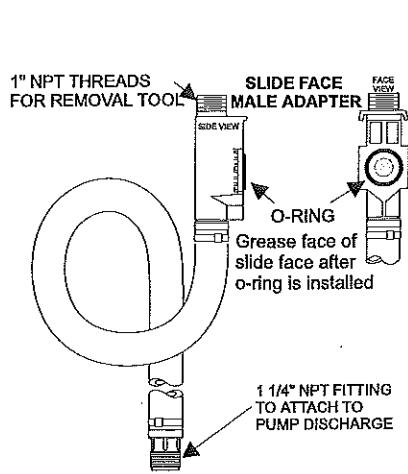


Figure 10

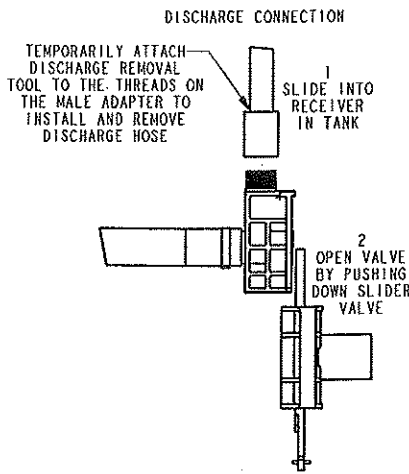


Figure 11

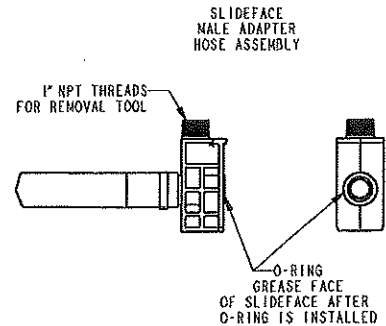


Figure 12

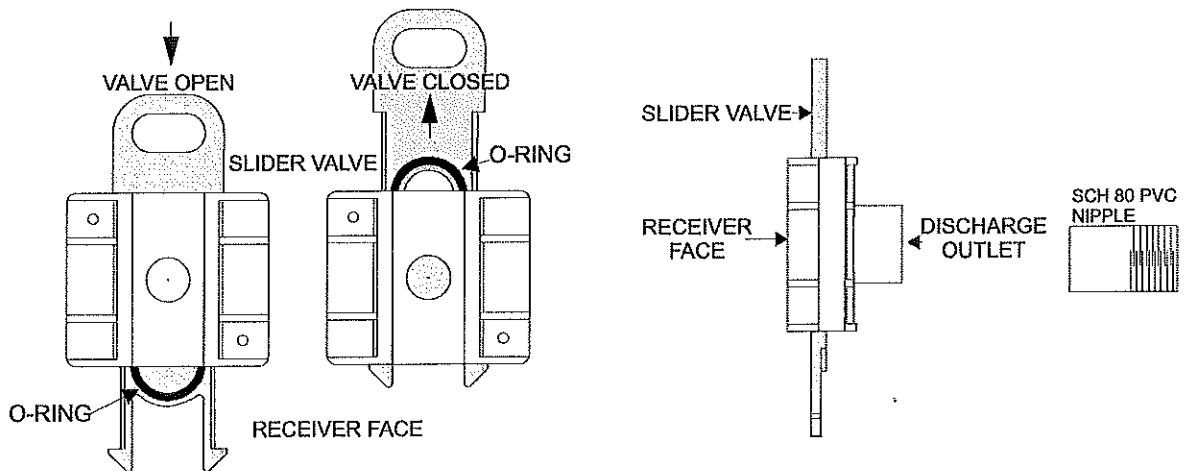


Figure 13

Power source to the panel must be 240 VAC (or 120 VAC for a 120V model). A dedicated 30-amp breaker with ground and separate neutral is required.

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

Turn on power at main power supply only. Check voltage from the main power supply.

The voltage must be 240 VAC (or 120 VAC for a 120V model) 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.

Take a current (amperage) reading off the black lead to the

Upgrade. The reading should be between 5 and 8 amps for 240 VAC service (10 to 16 amps for 120 VAC service). Higher amperage readings equal a higher discharge pressure. If the amperage is greater than 8 (16 for 120 VAC service) 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).

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.

Grinder Pump Station Ballast Calculations

Any buried vessel that is submerged, or partially submerged, in water will be acted on by an upward buoyant force that attempts to return the vessel to a non-submerged state. The magnitude of this buoyant force is equal to the volume of the vessel that is submerged multiplied by the density of water. On most in-ground installations a ballast, or concrete anchor, of proper volume and weight is required to resist the buoyant force.

The amount of ballast needed is equal to the weight it would take to counterbalance the buoyant forces that are exerted on the station. The total ballast is a combination of the concrete poured to create a ring around the bottom of the station and the soil above that ring which act as a weight. The ballast force, the force holding the station down, must be greater than the buoyant force, the force pushing the station up, in order to have an acceptable installation.

Calculate the Buoyant Force:

STATION VOLUME X THE WEIGHT OF WATER PER CUBIC FOOT (62.4 LBS/CU FT) =
BUOYANT FORCES

BUOYANT FORCES – STATION WEIGHT =
NET BUOYANT FORCE

Example: WH101-92,
28.53 cu ft X 62.4 lbs/cu ft = 1780.3 lbs
1780.3 lbs – 270 lbs = 1510.3lbs

Calculate the Ballast Force:

VOLUME OF CONCRETE X WEIGHT OF CONCRETE WATER (87.6 LBS/CU FT) =
BALLAST FROM CONCRETE

VOLUME OF CONTRIBUTING SOIL X WEIGHT OF SATURATED SOIL (70 LBS/CU FT) =
BALLAST FROM SOIL

BALLAST FROM CONCRETE + BALLAST FROM SOIL = NET BALLAST FORCE

Example: WH101-92,
concrete: 2.7 cu ft X 87.6 lbs/cu ft = 236.5 lbs
soil: 20.4 cu ft X 70 lbs.cu ft = 1430.0 lbs
236.5 lbs + 1430.0 lbs = 1665.5 lbs

Net Ballast Force @ 1665.5lbs > Net Buoyant Force @ 1510.3 lbs

Acceptable

Example, WH101-92:
Station Volume = 28.5 cu ft
Station Weight = 270 lbs
Contributing Soil Volume = 20.4 cu ft
Recommended Concrete Volume = 2.7 cu ft (O.D. = 36")

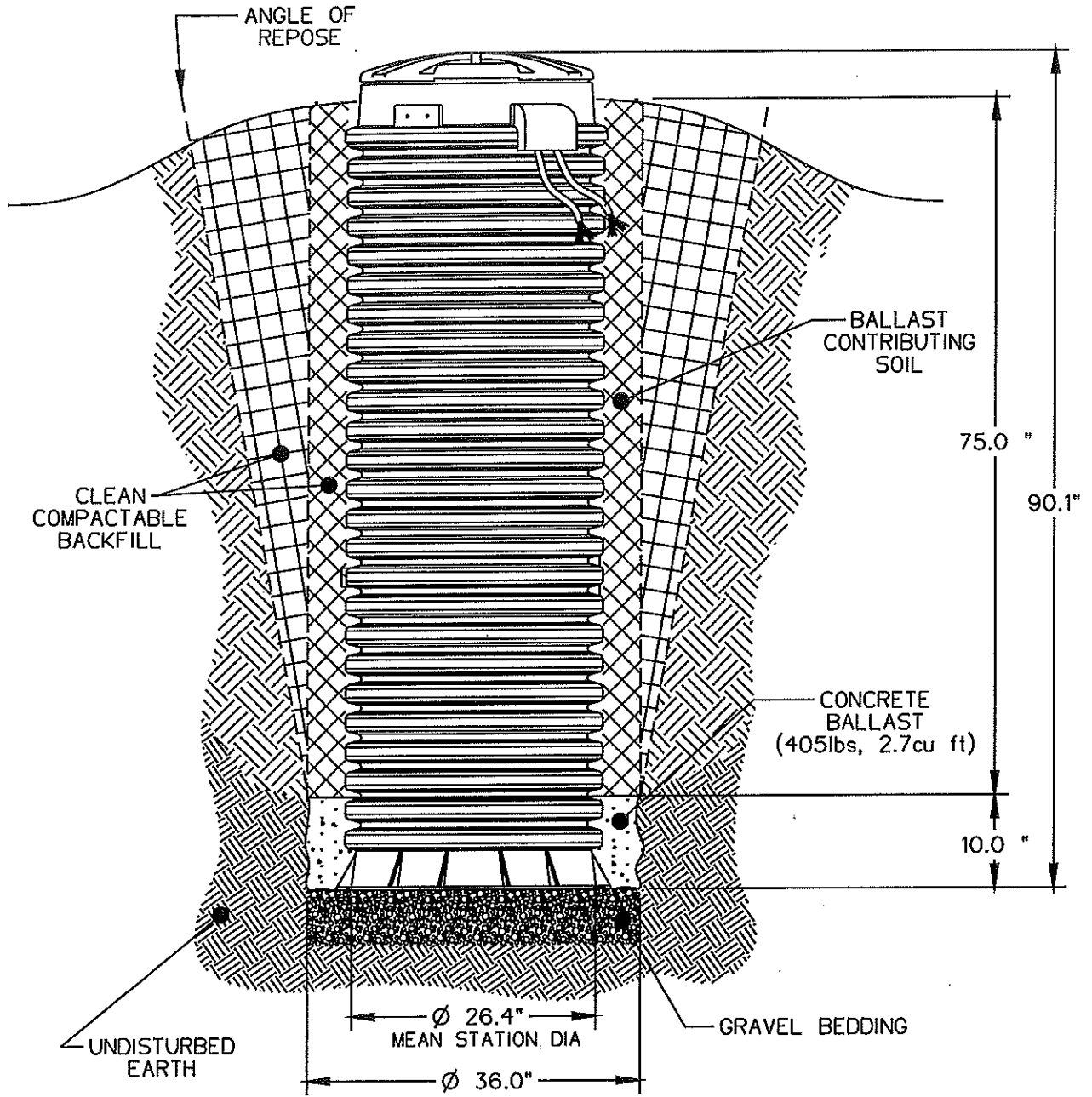


Chart 1

MODEL	MATERIAL	STATION HEIGHT (inches)	STATION WEIGHT (pounds)	STATION VOLUME (cubic feet)	NET BUOYANT FORCE (pounds)	NET BALLAST FORCE (pounds)	CONCRETE VOLUME (cubic feet)	CONCRETE WEIGHT (pounds)
WH101-60	HDPE	60.8	238	19.27	964.45	1108.72	2.7	405
WH101-74	HDPE	73.4	254	23.26	1197.42	1348.82	2.7	405
WH101-92	HDPE	90.1	270	28.53	1510.27	1667.15	2.7	405
WH101-124	HDPE	130.3	280	41.27	2295.25	2433.82	2.7	405
WH101-159	HDPE	158.6	307	50.24	2827.98	2974.22	2.7	405

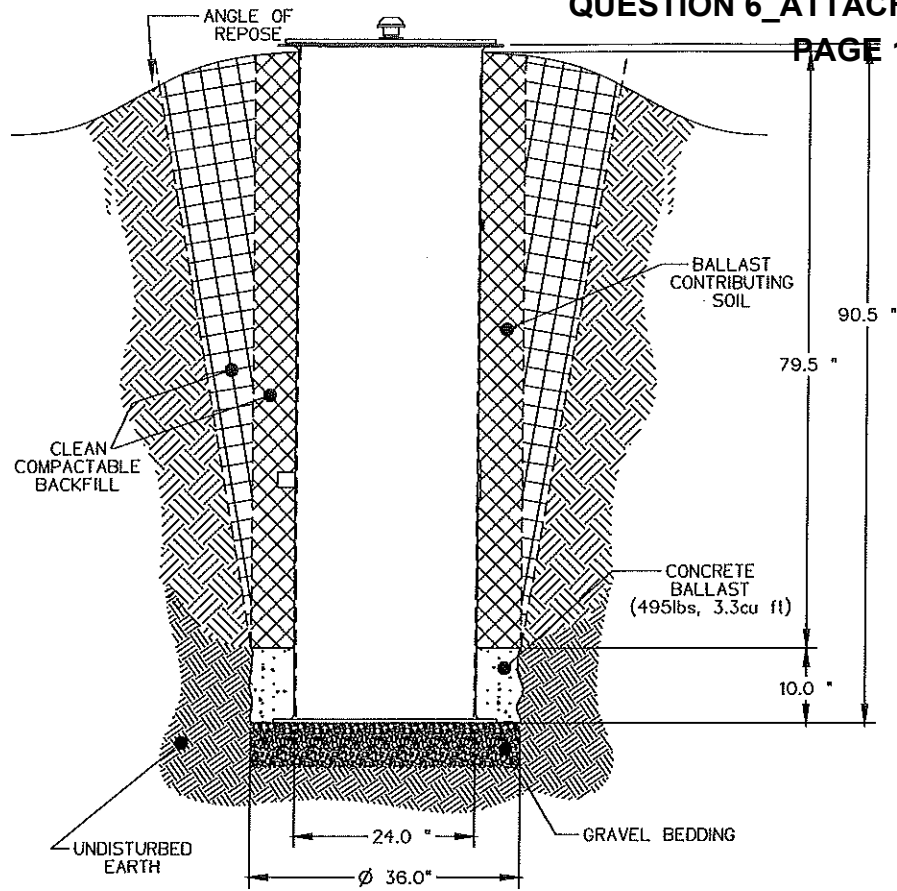


Chart 2

*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

User Instructions for the Environment One Grinder Pump

Congratulations on your Environment One grinder pump investment. With proper care and by following a few guidelines, your grinder pump will give you years of dependable service.

General Information

In order to provide you with suitable wastewater disposal, your home is served by a low pressure sewer system. The key element in this system is an Environment One grinder pump. The tank collects all solid materials and effluent from the house. The solid materials are then ground to a small size suitable for pumping as a slurry with the effluent water. 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. 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
Metal	Plastic objects (toys, utensils, etc.)	Kitty litter
Goldfish stone	Sanitary napkins or tampons	

In addition, you must **never** introduce into any sewer:

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

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:

QUESTION 7

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 7

Witness: Stephen Whitaker

- Q-7.** Describe the current system inspection procedures that McCreary County Water District has in place to detect a poorly functioning or nonfunctioning grinding pump station.
- A-7.** Between July 2014 and November 2015, McCreary County Water District conducted a one-time inspection of all grinder/pumping stations using one of its sewer operations employees and a contractor. It has not attempted another system-wide inspection of all grinder/pump stations since then. McCreary District will inspect individual grinder/pumping stations upon receiving notice that the station's visual/audio alarms have activated.

When inspecting a grinder/pumping stations, McCreary County Water District personnel will perform the following actions:

- Inspect the grinder/pumping station's control panel
- Check the incoming voltage
- Check function and amperage by performing a manual pump operation
- Perform float test
- Visually inspect the wet well
- Check for any debris, greases, and or solids
- Check for interference with float controls, rails, or plumbing damage
- Visually inspect surrounding area (such as grass, fences, gates, locks, door latches, and hinges)

QUESTION 8

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 8

Witness: Stephen Whitaker

- Q-8.** McCreary County Water District has included in its application a proposed alternative inspection schedule designed to ensure that McCreary County Water District is inspecting its grinding pump stations as often as necessary. State the minimum inspection interval for grinding pump stations recommended by the manufacturer.
- A-8.** None of the manufacturers of the grinder/pumping stations used by McCreary County Water District have a recommended minimum inspection interval.

QUESTION 9

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 9

Witness: Stephen Whitaker

Q-9. For the years 2010 to present, by year, provide the number of grinding pump station failures.

A-9.

Year	Number of Failures
2010	170
2011	180
2012	273
2013	245
2014	184
2015	142
2016	175
2017	165

QUESTION 10

MCCREARY COUNTY WATER DISTRICT

**Response to Commission Staff's First Request for Information
October 10, 2017**

Case No. 2017-00246

Question No. 10

Witness: Stephen Whitaker

- Q-10.** For the years 2010 to present, by year, provide the number of customer complaints regarding grinding pump stations. For each complaint, provide the resolution of the complaint.
- A-10.** McCreary County Water District is not aware of any formal complaint regarding its grinder/pumping stations that has been filed against it with the Public Service Commission during the period in question.

McCreary County Water District records do not reflect any “customer complaints” regarding the operation of its grinder/pumping stations. Any report to the water district of a non-working grinder/pumping station, however, would result in the creation of a work order for the inspection of that station. The source of the report could be a customer, law enforcement officer, public official or member of the public who witnessed or heard an activated grinder/pumping station alarm. McCreary County Water District considers any report of an activated alarm as a system pump failure. Please note that very few system pump failures have resulted in an overflow or bypass event. In most instances, service personnel reach the troubled grinder/pumping station in adequate time to resolve the problem without an overflow event.

McCreary County Water District reviewed its work orders for the period from 2010 to the present for system pump failures. For a count of system pump failures by year, see the Response to Question 9. For details of each failure, see the Attachment to this Response.



System Pump Failures

2010-2017

System Pump Failures 2010

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
1/9/2010	101-0620-00	Dawn Kidd	Float malfunction	Adjusted float tree	Barnes
1/14/2010	105-08300-00	Fannie Morgan	Cutter assembly malfunction	Cleaned cutter ring	Barnes
1/15/2010	105-01615-00	Superior Support Services	System not pumping	Changed pump from Barnes to E-One	Barnes
1/18/2010	101-11100-00	Karen Singleton	Pump failure	Changed pump	Barnes
1/20/2010	105-11400-00	Brenda Ball	Pump failure	Changed pump	Barnes
1/21/2010	101-01800-00	Wayne West	Pump failure	Changed pump	Barnes
1/21/2010	101-06220-00	Edlene King	Pump failure	Changed pump/240v breaker	Barnes
2/7/2010	105-02240-00	Jack King	Float malfunction	Changed float	Barnes
2/8/2010	105-04500-00	Robert Perry	Pump failure	Changed Pump	E-One
2/9/2010	105-01720-00	Elsie Thompson	Electrical Issue	Rewired panel	Barnes
2/13/2010	101-08520-00	Ernest Stephens	Float malfunction	Changed float	Barnes
2/22/2010	104-11800-00	Jeremy Walters	Pump failure	Changed pump	E-One
3/3/2010	105-08740-00	Old Cook Building	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
3/8/2010	101-11320-00	Arby's	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
3/10/2010	105-12260-00	Alene Inman	Pump failure	Changed pump	E-One
3/11/2010	105-08260-00	Whitley City Fire Dept.	Airlocked pump	Pulled pump & released air in line	Barnes
3/13/2010	105-08900-00	Hoyt Gibson	Pump check malfunction	Changed pump check. Adjusted float tree.	Barnes
3/13/2010	101-08400-00	Jim Miller	Start capacitor failure	Changed start capacitor	Barnes
3/15/2010	101-04980-00	Gloria Jones	Pump failure	Changed pump	E-One
3/16/2010	101-04980-00	Gloria Jones	Pump failure	Changed pump. Cleaned grease buildup.	E-One
3/22/2010	101-11200-00	Burger King	Cutter assembly malfunction	Dislodged material from cutter assembly	Barnes
3/25/2010	101-11200-00	Burger King	Pump failure	Changed pump	Barnes
3/30/2010	101-11260-00	KFC	Pump failure/start capacitor failure	Changed pump & start capacitor	Barnes
3/31/2010	105-02620-00	First Baptist Church	Electrical issue	Rewired junction box	Barnes
4/1/2010	105-05060-00	Todd Stephens	Disconnect fuse blown	Replaced fuse	E-One
4/1/2010	105-08740-00	Old Cook Building	Float wire broken	Rewired float	Barnes
4/2/2010	101-00370-00	Darrell Loudermilk	Pump failure	Changed pump	E-One
4/5/2010	105-08900-00	Hoyt Gibson	Broken valve/Pump check malfunction	Changed valve & pump check	Barnes
4/6/2010	105-02620-00	First Baptist Church	Pump failure/start capacitor failure	Changed pump & start capacitor	Barnes
4/6/2010	105-02040-00	Charles Honeycutt	Pump failure/start capacitor failure	Changed pump & start capacitor	Barnes
4/7/2010	101-07440-00	Wilma Sumner	Power loss	Breaker was turned off. Turned power back on.	Barnes
4/7/2010	102-07220-00	Rx Pharmacy	Float wire broken	Rewired float	Barnes
4/9/2010	101-06360-00	Hurstle Daughtery	Pump failure	Changed pump	Barnes
4/9/2010	105-02620-00	First Baptist Church	Pump failure	Changed pump	Barnes
4/9/2010	102-07220-00	Rx Pharmacy	Float wire broken	Changed float	Barnes
4/19/2010	101-11260-00	KFC	Cutter assembly malfunction/Relay failure	Cleaned cutter ring & changed relay	Barnes
4/21/2010	101-06220-00	Edlene King	Float malfunction	Changed float	Barnes
4/22/2010	101-04300-00	Clarence West	Power loss	Disconnect was turned off. Turned back on.	Barnes
4/22/2010	105-02080-00	Maxine Loudermilk	Float malfunction	Cleaned grease buildup on floats	Barnes
4/23/2010	101-04740-00	Brenda Lynch	Pump failure	Changed pump	E-One
4/26/2010	105-11260-01	John Strunk	Float malfunction	Float hung. Adjusted float tree.	Barnes
4/26/2010	105-11080-00	Mike Cowan	Power loss	Breaker was turned off. Turned power back on.	Barnes
4/28/2010	105-11260-01	John Strunk	Float malfunction	Float hung. Adjusted float tree.	Barnes
4/29/2010	104-12800-00	Zora Cotton	Pump failure	Changed pump	E-One
5/5/2010	103-04400-00	Sandra Roberts	Pump failure	Changed pump	E-One
5/5/2010	101-11200-00	Burger King	Pump failure	Changed pump	Barnes
5/7/2010	101-07440-00	Wilma Sumner	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
5/9/2010	101-11200-00	Burger King	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes

System Pump Failures 2010

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
5/10/2010	101-04020-00	Gerald Bryant	Pump failure	Changed pump	E-One
5/13/2010	101-06280-00	Hursile Daughtery	Pump failure	Changed pump	Barnes
5/16/2010	101-07420-00	Justin Sims	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
5/16/2010	101-05960-00	Geoff Bruce	Cutter assembly malfunction/Start capacitor failure	Cleaned cutter ring & changed start capacitor	Barnes
5/16/2010	105-03060-00	Jimmy Duncan	Disconnect fuse blown	Replaced fuse	E-One
5/17/2010	105-04680-00	Stewart Jones	Pump failure	Changed pump	E-One
5/24/2010	103-06180-00	Leroy McKee	Start capacitor failure	Changed start capacitor	Barnes
5/26/2010	103-05780-00	Scott Solid Waste	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
5/26/2010	107-22920-00	Teresa Davis	Pump failure	Changed pump	E-One
5/29/2010	105-08880-00	Regina Gibson	System airlocked	Pulled pump & released air in line	Barnes
5/29/2010	105-05020-00	Rusty Sumner	Pump failure	Changed pump	E-One
6/5/2010	101-01180-00	Jonathan Wells	Pump failure	Changed pump	E-One
6/7/2010	105-08980-00	David Stephens	Float malfunction	Float hung. Adjusted float tree.	Barnes
6/7/2010	101-06400-00	Barbara Nicholas	Pump failure	Changed pump	E-One
6/10/2010	101-06960-00	Ninnie Watson	Pump failure	Changed pump	E-One
6/10/2017	101-04240-00	Josh Morrow	Pump failure	Changed pump	E-One
6/11/2010	105-00780-00	Lisa Foreman	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
6/17/2010	101-11320-00	Arby's	Pump failure	Changed pump	Barnes
6/17/2010	105-02060-00	Larry Perry Apartments	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
6/17/2010	101-11100-00	Karen Singleton	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
6/17/2010	107-13135-00	Barbara Littrell	Main power issue	Contacted power company to resolve issue	E-One
6/18/2010	105-00780-00	Lisa Foreman	System airlocked	Pulled pump & released air in line	Barnes
6/22/2010	105-00780-00	Lisa Foreman	Pump check malfunction	Cleaned pump check	Barnes
6/23/2010	105-00780-00	Lisa Foreman	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
6/25/2010	105-01400-00	Carroll Howlin	Pump failure	Changed pump	Barnes
6/25/2010	105-08280-00	First Baptist Church	Cutter assembly malfunction	Cleaned cutter ring	Barnes
6/28/2010	105-11820-00	Edward Bryant	Pump failure	Changed pump	E-One
6/28/2010	105-00780-00	Lisa Foreman	Pump failure	Changed pump	Barnes
6/28/2010	105-00760-00	Brenda Ball	Cutter assembly malfunction	Cleaned cutter ring	Barnes
6/29/2010	104-12680-00	Mary White	Pump failure	Changed pump	E-One
7/5/2010	105-00180-00	Nada Young	Pump malfunction (air switch)	Changed pump	E-One
7/7/2010	101-01460-00	Shirley Helton	Pump check malfunction	Replaced pump check	Barnes
7/12/2010	105-00760-00	Brenda Ball	Pump failure	Changed pump	Barnes
7/12/2010	105-02040-00	Charles Honeycutt	Pump failure	Changed pump	Barnes
7/14/2010	101-06500-00	Ronald Jones	Panel circuit board malfunction	Wire loose in terminal. Reconnected wire.	E-One
7/15/2010	101-06500-00	Ronald Jones	Pump failure	Changed pump	E-One
7/17/2010	101-07520-00	Ralph Sumner	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
7/19/2010	105-10180-00	Deborah Price	Float wire broken	Reconnected float	Barnes
7/19/2010	101-00340-00	Larry Cox	Panel & pump failure (lightning strike)	Replace panel & pump	E-One
7/21/2010	101-05920-02	Glen Tucker	System airlocked	Pulled pump & released air in line	Barnes
7/26/2010	105-00760-00	Brenda Ball	Pump failure	Changed pump	Barnes
7/29/2010	101-08660-01	Scott Coffey	Start capacitor/Relay failure	Replaced start capacitor & relay	Barnes
7/30/2010	105-08900-00	Regina Gibson	Float malfunction	Changed float	Barnes
7/30/2010	107-22900-00	Grace McCarty	Pump failure	Changed pump	E-One
8/3/2010	101-11320-00	Arby's	Pump failure	Changed pump	Barnes
8/3/2010	101-04160-00	Brenda West	Pump failure	Changed pump	E-One
8/6/2010	105-08260-00	Whitley City Fire Dept.	System airlocked	Pulled pump & released air in line	Barnes
8/6/2010	105-08760-00	Agnes Fabric Shop	System airlocked	Pulled pump & released air in line	Barnes

System Pump Failures 2010

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
8/14/2010	101-11320-00	Arby's	Cutter assembly malfunction	Cleaned cutter ring	Barnes
8/16/2010	101-07580-00	Vanessa Smith	Float wire broken	Reconnected float	Barnes
8/16/2010	101-11320-00	Arby's	Float malfunction	Replaced float	Barnes
8/17/2010	101-02000-00	Ernest Perkins	Cutter assembly malfunction	Cleaned cutter ring	Barnes
8/17/2010	105-02060-00	Larry Perry Apartments	Float wire broken	Reconnected float	Barnes
8/19/2010	105-02060-00	Larry Perry Apartments	Float malfunction	Replaced float	Barnes
8/19/2010	105-02880-00	Pauline Sumner	Disconnect fuse blown	Replaced fuse	E-One
8/23/2010	105-10180-00	Deborah Price	Pump failure	Changed pump	Barnes
8/24/2010	105-10120-00	Raymond Taylor	Float wire broken	Reconnected float	Barnes
8/24/2010	101-07600-00	Tessa McClendon	Power loss (breaker failure)	Replaced breaker	Barnes
8/25/2010	101-11100-00	Karen Singleton	Pump check malfunction	Replaced pump check	Barnes
8/25/2010	105-03120-00	Rosa Coffey	Disconnect fuse blown	Replaced fuse	E-One
8/26/2010	105-02040-00	Charles Honeycutt	Panel contactor wire disconnected	Rewired contactor	Barnes
8/27/2010	105-10400-00	Dairy Bar	Float malfunction (grease buildup)	Cleaned float free & pumped grease	Barnes
8/30/2010	105-11440-00	School Bus Garage	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
8/30/2010	101-01200-00	Ross Howard	Disconnect fuse blown	Replaced fuse	E-One
8/30/2010	101-01340-00	Zada Black	Disconnect fuse blown	Replaced fuse	E-One
9/3/2010	105-07800-00	Lloyd Strunk	Pump failure	Changed pump	E-One
9/4/2010	102-07220-00	Rx Pharmacy	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
9/4/2010	101-07520-00	Ralph Sumner	Float malfunction (grease buildup)	Adjusted & cleaned float free	Barnes
9/5/2010	101-05560-00	Quest	Disconnect fuse blown	Replaced fuse	E-One
9/5/2010	101-07580-00	Vanessa Smith	Pump failure	Changed pump	Barnes
9/7/2010	101-06980-00	Margaret Murphy	Pump failure	Changed pump	E-One
9/8/2010	105-03170-00	Rosa Coffey	Pump failure	Changed pump	E-One
9/12/2010	105-02240-00	Jack King	Float malfunction	Replaced float	Barnes
9/14/2010	101-04200-00	Kathy Troxell	Panel circuit board malfunction	Circuit board bypass	E-One
9/14/2010	101-04820-00	David Kidd	Pump failure	Changed pump	E-One
9/15/2010	101-06560-00	Robert Hatfield	Pump failure	Changed pump	E-One
9/18/2010	101-07460-00	William Sumner	Start capacitor failure	Replaced start capacitor	Barnes
9/21/2010	105-09660-00	Cowan Properties	Pump thermal overload malfunction	Thermal overload bypass	Barnes
9/23/2010	105-10240-01	Tim Lavender	Tank electrical line broken	Replaced tank electrical line	Barnes
10/4/2010	101-06380-00	Hurttle Daughtery	Power loss (breaker turned off)	Turned breaker on	Barnes
10/5/2010	107-18800-00	Wilma Anderson	Pump failure	Changed pump	E-One
10/6/2010	105-02080-00	Maxine Loudermilk	Float malfunction	Float hung. Adjusted float free.	Barnes
10/11/2010	105-08920-00	Mary Powell	Float malfunction	Float hung. Adjusted float free.	Barnes
10/13/2010	101-08960-00	Lary's Somerset Oil	Float malfunction	Float hung. Adjusted float free.	Barnes
10/18/2010	101-05540-00	Sheila Tucker	Power loss (breaker tripped)	Reset breaker	E-One
10/18/2010	105-02620-00	Domino's	Pump failure	Changed pump	E-One
10/23/2010	105-09680-00	Marie McTaggart	Power loss (breaker turned off)	Turned breaker on	E-One
10/26/2010	101-01260-00	Robert Meadows	Pump failure	Changed pump	E-One
10/27/2010	101-01860-00	Arliss Bryant	Pump rail seal failure	Replaced rail seal	Barnes
10/28/2010	101-01260-00	Ricky Perry	Pump failure	Changed pump	E-One
10/29/2010	101-05540-00	Sheila Tucker	Pump failure	Changed pump	E-One
10/29/2010	101-09400-00	Financial Plaza	Start capacitor failure	Replaced start capacitor	Barnes
11/4/2010	105-05680-00	Terry Delaughter	Pump failure	Changed pump	E-One
11/8/2010	105-02360-00	Elizabeth Ross	Float wire broken	Reconnected float	Barnes
11/12/2010	101-00840-00	Linda Keith	Pump failure	Changed pump	E-One
11/12/2010	101-11260-00	KFC	Float malfunction (grease buildup)	Pumped out grease in tank	Barnes

System Pump Failures 2010

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
11/16/2010	107-17440-01	Larry Campbell	System airlocked	Pulled pump & released air in line	Barnes
11/16/2010	105-09980-00	Rescue Squad	Pump thermal overload malfunction	Thermal overload bypass	Barnes
11/17/2010	101-07440-03	Bobby Bryant	Float malfunction	Float hung. Adjusted float free.	Barnes
11/18/2010	101-07500-01	Michelle Wilson	Start capacitor failure	Replaced start capacitor	Barnes
11/20/2010	105-08980-00	David Stephens	Pump thermal overload malfunction	Thermal overload bypass	Barnes
11/22/2010	101-06480-00	Linda Taylor	Power issue (main breaker on pole)	Changed breaker	Barnes
11/23/2010	105-00540-01	Vince Dixon	Pump failure	Changed pump	E-One
11/25/2010	105-02400-00	Shane Tucker	Float malfunction	Float hung. Adjusted float free.	Barnes
11/27/2010	105-08980-00	David Stephens	Float malfunction (grease buildup)	Cleaned grease buildup on floats	Barnes
11/30/2010	101-01800-00	Wayne West	Pump failure	Changed pump	Barnes
12/1/2010	101-06700-01	Karen Bryant	Pump failure	Changed pump	E-One
12/1/2010	105-11060-00	Rick Stephens	Start capacitor failure	Replaced start capacitor	Barnes
12/2/2010	105-01780-00	Nona Nevels	Panel contactor failure	Changed contactor	Barnes
12/8/2010	105-09760-00	Michelle Matthews	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
12/8/2010	101-05040-00	Eddie Bartley	Pump failure	Changed pump	E-One
12/10/2010	105-05400-00	Alton Cartwright	Pump failure	Changed pump	E-One
12/10/2010	106-01800-00	American Legion	Pump failure	Changed pump	E-One
12/10/2010	101-04040-00	Gerald Bryant	Pump failure	Changed pump	E-One
12/13/2010	105-10480-00	Melissa Jones	Float malfunction	Adjusted float free	Barnes
12/17/2010	103-02080-00	Betsy Phillips	Pump failure	Changed pump	E-One
12/21/2010	105-08900-00	Regina Gibson	System airlocked	Pulled pump & released air in line	Barnes
12/22/2010	101-06280-00	Hurstle Daughtery	Pump check malfunction	Cleaned pump check	Barnes
12/24/2010	107-24000-00	Johnny Foster	Pump failure	Changed pump	E-One
12/26/2010	101-07780-00	McCreary Funeral Home	Float malfunction	Float hung. Adjusted float free.	Barnes
12/26/2010	105-01760-00	Norma Boyatt	Panel contactor malfunction	Contactork stuck. Used electrical lubricant.	Barnes
12/28/2010	105-01760-00	Norma Boyatt	Panel contactor malfunction	Changed contactor	Barnes

System Pump Failures 2011

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
1/3/2011	105-02080-00	Maxine Loudermilk	Float malfunction	Float hung. Adjusted float free.	Barnes
1/5/2011	102-07220-00	Rx Pharmacy	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
1/13/2011	101-06480-00	Diana Tucker	Disconnect fuse blown	Replaced fuse	E-One
1/14/2011	101-00620-00	Russell Cox	Float malfunction	Float hung. Adjusted float free.	Barnes
1/14/2011	105-08900-00	Regina Gibson	Float malfunction	Float hung. Adjusted float free.	Barnes
1/20/2011	105-01380-00	Greg Vanover	Start capacitor failure	Replaced start capacitor	Barnes
1/20/2011	105-08220-00	First Baptist Church	Pump failure	Changed pump	Barnes
1/24/2011	105-12240-00	Margie Adkins	Pump failure	Changed pump	E-One
1/24/2011	101-06640-00	Sherry Griffith	Pump failure	Changed pump	E-One
1/27/2011	108-14840-00	Lesley Byrd	Pump failure	Changed pump	E-One
1/28/2011	105-12560-00	Raymond Griffith	Pump failure	Changed pump	E-One
1/31/2011	105-09700-00	Evelyn Shepherd	Start capacitor failure	Replaced start capacitor	Barnes
2/1/2011	105-00020-00	Robbie Adkins	Pump failure	Changed pump	E-One
2/1/2011	101-06220-00	Edlene King	Pump failure	Changed pump	Barnes
2/4/2011	101-06220-00	Edlene King	Pump rail seal leak	Replaced rail seal	Barnes
2/7/2011	101-06220-00	Edlene King	Float malfunction	Float hung. Adjusted float free.	Barnes
2/14/2011	104-11680-00	Mike Elam	Pump failure	Changed pump	E-One
2/14/2011	105-11080-00	Mike Cowan	Pump failure	Changed pump	Barnes
2/14/2011	105-08220-00	First Baptist Church	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
2/14/2011	101-06220-00	Edlene King	Float failure	Replaced float	Barnes
2/21/2011	105-08220-00	First Baptist Church	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
2/22/2011	105-12920-00	Kay Roberts	Pump failure	Changed pump	E-One
2/22/2011	105-09650-00	Scotty Morris	Start capacitor failure	Replaced start capacitor	Barnes
3/8/2011	105-12060-00	David Wilson	Pump failure	Changed pump	E-One
3/9/2011	105-02060-00	Larry Perry Apartments	Float malfunction	Float hung. Adjusted float free.	Barnes
3/13/2011	105-04620-00	Danny Neal	Pump failure	Changed pump	E-One
3/14/2011	107-01580-00	Giovanni's Pizza	Pump failure	Changed pump	E-One
3/23/2011	101-05860-00	Chester Stephens	Pump failure	Changed pump	E-One
3/23/2011	101-03720-00	Curtis Garland	Pump/start capacitor failure	Changed pump & start capacitor	Barnes
3/24/2011	101-06620-00	Gary Tucker	Pump failure	Changed pump	E-One
3/25/2011	105-02120-00	Hurstie Upchurch	Pump failure	Changed pump	Barnes
3/25/2011	101-04320-02	Superior Support Services	Power loss (breaker turned off)	Turned breaker back on	Barnes
3/28/2011	105-10750-02	George Daniels	Float malfunction	Float hung. Adjusted float free.	Barnes
3/28/2011	103-01900-00	Paul Redman	Pump failure	Changed pump	E-One
4/1/2011	105-10300-00	Sherry Slavey	Float wire broken	Rewired float	Barnes
4/4/2011	101-06500-00	Ronald Jones	Power loss (breaker turned off)	Turned breaker back on	E-One
4/7/2011	101-01020-00	Jerry Grant	Pump failure	Changed pump	E-One
4/8/2011	105-08900-00	Regina Gibson	System airlocked	Pulled pump & released air from line	Barnes
4/15/2011	101-04320-00	Superior Support Services	Pump failure	Changed pump	E-One
4/15/2011	105-10400-00	Dairy Bar	Float malfunction	Float hung. Adjusted float free.	Barnes
4/19/2011	101-01800-00	Wayne West	Pump failure	Changed pump	Barnes
4/18/2011	101-00420-00	Betty Hatfield	Power loss (loose wire)	Reconnected wire	Barnes
4/22/2011	101-05980-02	Anthony Cooper	Float malfunction	Float hung. Adjusted float free.	Barnes
4/23/2011	105-10680-00	Richard Kidd	Start capacitor failure	Replaced start capacitor	Barnes
5/2/2011	105-03300-00	Todd Ross	Pump failure	Changed pump	E-One
5/3/2011	105-09640-00	Clifton Strunk	System airlocked	Pulled pump & released air from line	Barnes
5/4/2011	105-04380-00	Ernie Frye	Pump malfunction (grease buildup)	Cleaned grease off air switch	E-One
5/4/2011	105-10220-00	Tim Lavender	Start capacitor failure	Replaced start capacitor	Barnes

System Pump Failures 2011

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
5/5/2011	101-04220-00	Lena Spradlin	Pump failure	Changed pump	E-One
5/5/2011	101-08960-00	Larry's Somerset Oil	Pump failure	Changed pump	Barnes
5/6/2011	101-04180-00	Tammy King	Pump malfunction (grease buildup)	Cleaned grease off air switch	E-One
5/6/2011	107-18620-00	Kenneth Turner	Pump failure	Changed pump	E-One
5/6/2011	101-11360-00	State Farm	System airlocked	Pulled pump & released air from line	Barnes
5/8/2011	105-05020-00	Faron Genoe	Pump failure	Changed pump	E-One
5/9/2011	101-06480-00	Diana Tucker	Power loss (breaker turned off)	Turned breaker back on	E-One
5/10/2011	103-05180-00	Anna Dobbs	Pump failure	Changed pump	E-One
5/13/2011	105-02080-00	Maxine Loudermilk	Float malfunction (grease buildup)	Cleaned grease off floats	Barnes
5/23/2011	101-04180-00	Tammy King	Pump failure	Changed pump	E-One
5/24/2011	105-03480-00	Donald Powell	Power loss (breaker turned off)	Turned breaker back on	E-One
5/25/2011	105-05020-00	Faron Genoe	Panel control board failure	Replaced control board	E-One
6/1/2011	101-06480-00	Diana Tucker	Power loss (breaker turned off)	Turned breaker back on	E-One
6/2/2011	101-06120-00	Dawn Kidd	Float malfunction	Float hung. Adjusted float free.	Barnes
6/6/2011	101-04360-00	Stephen Smith	Pump thermal overload tripped	Reset thermal overload	Barnes
6/7/2011	105-10740-00	Carol Creekmore	Start capacitor failure	Replaced start capacitor	Barnes
6/9/2011	105-09540-00	Donna King	Pump thermal overload malfunction	Thermal overload bypass	Barnes
6/10/2011	105-08900-00	Regina Gibson	Tank plumbing break	Repaired tank plumbing	Barnes
6/14/2011	101-04460-00	Tracy Phillips	Pump check malfunction	Replaced pump check	Barnes
6/15/2011	101-01240-00	Edward Meadows	Pump failure	Changed pump	E-One
6/16/2011	103-05800-00	County Garage	Start capacitor failure	Replaced start capacitor	Barnes
6/16/2011	101-00900-00	Steve Chilwood	Pump failure	Changed pump	E-One
6/16/2011	105-03280-00	Chad Dobbs	Pump failure	Changed pump	E-One
6/17/2011	107-22680-01	Boyd Roberts	Pump failure	Changed pump	E-One
6/22/2011	105-10680-00	Richard Kidd	Float malfunction	Float hung. Adjusted float free.	Barnes
6/28/2011	101-01800-00	Wayne West	Pump/start capacitor failure	Changed pump & start capacitor	Barnes
6/28/2011	103-02200-00	Flora Perkins	Pump failure	Changed pump	E-One
6/29/2011	101-11360-00	State Farm	System airlocked	Pulled pump & released air from line	Barnes
6/29/2011	105-01600-00	Lora Bradley	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
6/30/2011	105-02460-00	Kristi Riddle	Pump failure	Changed pump	Barnes
6/30/2011	105-8900-00	Regina Gibson	Tank plumbing break	Repaired tank plumbing	Barnes
7/5/2011	105-08900-00	Hoyl Gibson	Float malfunction	Changed float	Barnes
7/11/2011	105-08900-00	Regina Gibson	Pump failure	Changed pump to E-One system	Barnes
7/11/2011	107-22880-00	Debbie Wilson	Pump failure	Changed pump	E-One
7/11/2011	107-02060-00	Willie Davenport	Disconnect fuse blown	Replaced fuse	E-One
7/11/2011	105-04680-00	Stewart Jones	Pump hose leak	Replaced pump hose	E-One
7/12/2011	101-07780-00	McCreary Funeral Home	Pump failure	Changed pump	Barnes
7/13/2011	101-11360-00	State Farm	Pump failure	Changed pump to E-One system	Barnes
7/15/2011	105-05560-00	Quest	Pump failure	Changed pump	E-One
7/15/2011	101-04040-00	Gerald Bryant	Power loss (breaker turned off)	Turned breaker back on	E-One
7/16/2011	101-08240-00	Huddle House	Pump rail seal leak	Replaced rail seal	Barnes
7/17/2011	101-00900-00	Steve Chilwood	Pump failure	Changed pump	E-One
7/19/2011	103-04000-00	Jerry Dixon	Pump failure	Changed pump	E-One
7/23/2011	107-22680-01	Boyd Roberts	Disconnect fuse blown	Replaced fuse	E-One
7/24/2011	101-07360-00	Donald Sims	Pump/start capacitor failure	Replaced pump & start capacitor	Barnes
7/26/2011	101-07780-00	McCreary Funeral Home	Float wire broken	Rewired float	Barnes
7/26/2011	101-08260-00	Don Warren	System airlocked	Pulled pump & released air from line	Barnes
7/27/2011	101-06840-00	Bill Dixon	Pump malfunction (grease buildup)	Cleaned grease off air switch	E-One

System Pump Failures 2011

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
7/30/2011	105-05520-00	Curtis Littrell	Pump failure	Changed pump	E-One
8/1/2011	101-05460-00	Jerry Wilson	Pump failure	Changed pump	E-One
8/1/2011	105-10180-00	Deborah Price	Float wire broken	Rewired float	Barnes
8/4/2011	107-13135-00	Barbara Littrell	Power loss (breaker tripped)	Reset breaker	E-One
8/5/2011	105-12095-00	Bingo Hall	Pump failure	Changed pump	E-One
8/6/2011	101-00020-00	Deborah Frandle	Power loss (main power failure)	Contacted power company for resolution	Barnes
8/8/2011	101-06280-00	Betty Daughtery	Power loss (breaker failure)	Replaced breaker	Barnes
8/8/2011	101-05800-02	Megan Jones	Pump failure	Changed pump	E-One
8/9/2011	105-07000-00	Cathy Ross	Pump failure	Changed pump	E-One
8/12/2011	101-11320-00	Arby's	Float malfunction	Float hung. Adjusted float free.	Barnes
8/14/2011	105-07000-00	Cathy Ross	Pump hose leak	Replaced pump hose	E-One
8/15/2011	102-06665-00	Greg Watson	Pump failure	Changed pump	E-One
8/16/2011	101-03720-00	Curtis Garland	Pump failure	Changed pump	Barnes
8/17/2011	101-01480-00	Gary Perry	Pump failure	Changed pump	Barnes
8/17/2011	101-07310-00	Gary Strunk	Pump failure	Changed pump	E-One
8/17/2011	101-06840-00	Bill Dixon	Pump failure	Changed pump	E-One
8/22/2011	101-05800-00	Megan Jones	Pump failure	Changed pump	E-One
8/22/2011	101-04480-00	Richard Koger	Float failure	Changed float	Barnes
8/22/2011	101-08220-00	IGA Fuel Center	Pump failure	Changed float	E-One
8/23/2011	101-04680-00	Donna Astario	Power loss (breaker turned off)	Turned breaker back on	Barnes
8/23/2011	107-13135-00	Barbara Littrell	Pump failure	Changed pump	E-One
8/23/2011	105-08960-00	Susan Miller	Pump/start capacitor failure	Changed pump & start capacitor	Barnes
8/26/2011	101-08260-00	Randy Chilwood	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
8/31/2011	105-02100-00	Joe Horne	Start capacitor failure	Replaced start capacitor	Barnes
9/1/2011	101-04040-00	Bryan's Jewelry	Tank plumbing break	Repaired tank plumbing	Barnes
9/1/2011	101-06560-00	Robert Hatfield	Pump failure	Changed pump	E-One
9/1/2011	103-05800-00	County Garage	Power loss (breaker tripped)	Reset breaker	Barnes
9/2/2011	101-04320-00	Superior Support Services	Power loss (breaker turned off)	Turned breaker back on	Barnes
9/6/2011	103-05740-00	Soil Conservation	Pump failure	Changed pump	E-One
9/6/2011	105-10180-00	Deborah Price	Float wire broken	Rewired float	Barnes
9/7/2011	107-01660-00	Milford Creekmore	Disconnect fuse blown	Replaced fuse	E-One
9/11/2011	105-08420-00	Ky. Farm Bureau	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
9/12/2011	101-06480-00	Diana Tucker	Pump failure	Changed pump	E-One
9/12/2011	105-03800-00	Dana Privett	Pump failure	Changed pump	E-One
9/14/2011	105-11420-01	Kalie Lay	Start capacitor failure	Replaced start capacitor	Barnes
9/14/2011	105-10180-00	Deborah Price	Float failure	Changed float	Barnes
9/16/2011	105-05160-00	Carl Wright	Disconnect fuse blown	Replaced fuse	E-One
9/16/2011	107-23840-00	S. McCreary Fire Dept.	Disconnect fuse blown	Replaced fuse	E-One
9/19/2011	101-06500-00	Ronald Jones	Pump failure	Changed pump	E-One
9/19/2011	105-06640-00	Linda Waters	Disconnect fuse blown	Replaced fuse	E-One
9/20/2011	101-04680-00	Donna Astario	Pump failure	Changed pump	E-One
9/23/2011	101-00620-00	Russell Cox	Electrical issue (main meter base)	Replaced electrical tap lugs in meter base	Barnes
9/24/2011	105-06640-00	Linda Waters	Power loss (breaker tripped)	Reset breaker	E-One
9/29/2011	107-01920-00	Eunice King	Disconnect fuse blown	Replaced fuse	E-One
9/30/2011	105-09980-00	Rescue Squad	Float malfunction	Float hung. Adjusted float free.	Barnes
10/2/2011	105-02240-00	Jack King	System airlocked	Pulled pump & released air from line	Barnes
10/3/2011	105-08920-00	Mary Powell	Start capacitor failure	Replaced start capacitor	Barnes
10/4/2011	101-06240-01	Greg Smith	Pump failure	Changed pump	Barnes

System Pump Failures 2011

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
10/5/2011	103-04160-00	Dale Vaughn	Pump failure	Changed pump	E-One
10/6/2011	105-10740-00	Carol Creekmore	Float malfunction (grease buildup)	Cleaned grease buildup on floats	Barnes
10/9/2011	105-04820-00	Amy Heath	Pump failure	Changed pump	E-One
10/11/2011	103-05720-00	Fast Lane Mart	Pump failure	Changed pump	E-One
10/14/2011	101-01920-00	Rufus Hughes	Cutter assembly malfunction	Cleaned cutter ring	Barnes
10/24/2011	101-01800-00	Wayne West	Start capacitor/relay failure	Replaced relay & start capacitor	Barnes
10/25/2011	101-06460-00	Wanda New	Pump failure	Changed pump	E-One
10/26/2011	101-03840-01	Tyler Troxell	Pump failure	Changed pump	E-One
10/27/2011	101-03840-01	Tyler Troxell	Pumpe EQD cord malfunction	Changed EQD	E-One
10/28/2011	101-04180-00	Tammy King	Pump failure	Changed pump	E-One
10/31/2011	105-05800-00	Jerry Burk	Pump failure	Changed pump	E-One
11/3/2011	101-08240-00	Huddle House	Pump failure	Changed pump	Barnes
11/13/2011	101-08240-00	Huddle House	System airlocked	Pulled pump & released air from line	Barnes
11/15/2011	101-08660-03	Jaan Marlow	Pump failure	Changed pump	Barnes
11/20/2011	101-00020-00	Methodist Church	Start capacitor failure	Replaced start capacitor	Barnes
11/20/2011	101-08240-00	Huddle House	System airlocked	Pulled pump & released air from line	Barnes
11/22/2011	103-02760-01	Imogene Coffey	Power loss (snap-in breaker malfunction)	Reconnected breaker	Barnes
11/24/2011	101-11100-00	Karen Singleton	Pump failure	Changed pump	Barnes
11/28/2011	107-22680-00	Boyd Roberts	Pump failure	Changed pump	E-One
12/4/2011	101-07820-00	Marathon	Float malfunction	Float hung. Adjusted float tree.	Barnes
12/9/2011	101-06420-00	Ronald Davis	Pump failure	Changed pump	E-One
12/12/2011	101-01220-00	Reba Meadows	Pump failure	Changed pump	E-One
12/14/2011	101-06980-00	Margaret Murphy	Pump failure	Changed pump	E-One
12/19/2011	105-06640-00	Kenneth Waters	Pump failure	Changed pump	E-One
12/19/2011	101-09380-00	First Financial Plaza	Cutter assembly malfunction	Cleaned cutter ring	Barnes
12/19/2011	101-07660-00	Marie Barnett	Float malfunction (grease buildup)	Cleaned grease off floats	Barnes
12/21/2011	105-06500-00	Doug Corder	Power loss (break turned off)	Turned breaker back on	E-One
12/22/2011	105-05560-00	Quest	Pump failure	Changed pump	E-One
12/24/2011	105-04500-00	Robert Perry	Pump failure	Changed pump	E-One
12/27/2011	105-02120-00	Hurstle Upchurch	Float malfunction	Float hung. Adjusted float tree.	Barnes
12/27/2011	105-10220-00	Tim Lavender	Float malfunction	Float hung. Adjusted float tree.	Barnes
12/27/2011	101-09380-00	First Financial Plaza	Pump failure	Changed pump	Barnes
12/25/2011	105-08300-00	Fannie Morgan	Start capacitor failure	Replaced start capacitor	Barnes
12/28/2011	101-03900-00	Marshes Church of God	Pump failure	Changed pump	E-One
12/28/2011	101-05980-00	Anthony Cooper	Float malfunction	Float hung. Adjusted float tree.	Barnes
12/30/2011	105-11360-00	Linda Slaven	Float malfunction	Float hung. Adjusted float tree.	Barnes

System Pump Failures 2012

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
1/2/2012	101-09380-00	First Financial Plaza	Material in cutter ring	Pulled pump & cleaned rag out of cutter	Barnes
1/2/2012	101-05920-00	Louise Lyons	Start capacitor failure	Replaced start capacitor	Barnes
1/3/2012	105-02020-00	Dept of Highways	Pump failure	Changed pump	E-One
1/4/2012	105-10800-00	Max Warman	Start capacitor failure	Replaced start capacitor	Barnes
1/4/2012	101-05980-02	Anthony Cooper	Material in cutter ring	Cleaned cutter ring out	Barnes
1/9/2012	101-09380-00	First Financial Plaza	Material in cutter ring	Pulled pump & cleaned rag out of cutter	Barnes
1/9/2012	101-08660-00	Vivian Marlow	Float malfunction	Float hung. Adjusted float tree	Barnes
1/11/2012	101-06020-01	Bo King	Float wire broken	Rewired float	Barnes
1/17/2012	105-01780-00	Nona Nevels	Panel contactor malfunction	Contactor bad. Changed contactor	Barnes
1/17/2012	107-00620-00	Eddie & Julia Grundy	Pump failure	Changed pump	E-One
1/18/2012	101-04860-00	James Goodan	Power loss (breaker turned off)	Turned breaker on	E-One
1/20/2012	101-09380-00	First Financial Plaza	Material in cutter ring	Pulled pump & cleaned rag out of cutter	Barnes
1/23/2012	101-09380-00	First Financial Plaza	Material in cutter ring	Pulled pump & cleaned rag out of cutter	Barnes
1/25/2012	101-08240-00	Huddle House	System airlocked	Pulled pump & released air in line	Barnes
1/26/2012	101-09380-00	First Financial Plaza	Material in cutter ring	Pulled pump & cleaned rag out of cutter	Barnes
1/30/2012	105-05660-00	Roger Spradlin	Power loss (breaker tripped)	Reset breaker	E-One
1/31/2012	101-08240-00	Huddle House	System airlocked	Pulled pump & released air in line	Barnes
1/31/2012	101-07320-02	Debra Childers	Float malfunction	Float hung. Adjusted float tree	Barnes
2/2/2012	101-08240-00	Huddle House	Cutter assembly was worn, causing airlock	Changed pump	Barnes
2/2/2012	101-09380-00	First Financial Plaza	Material in cutter ring	Pulled pump & cleaned rag out of cutter	Barnes
2/2/2012	101-06100-01	Roberta West	Pump failure	Changed pump	Barnes
2/4/2012	101-04380-00	Larry King	Float malfunction	Float hung. Adjusted float tree	Barnes
2/5/2012	101-08260-00	Don Warren	System airlocked	Pulled pump & released air in line	Barnes
2/6/2012	101-11260-00	KFC	Float malfunction	Float hung. Adjusted float tree	Barnes
2/8/2012	101-09380-00	First Financial Plaza	Material in cutter ring	Pulled pump & cleaned rag out of cutter	Barnes
2/10/2012	101-01800-00	Wayne West	Pump failure	Changed pump	Barnes
2/12/2012	107-22399-00	Lesley Byrd	Red Light	No red light upon arrival, system checked out fine	E-One
2/13/2012	101-05980-02	Anthony Cooper	Float malfunction	Float hung. Adjusted float tree	Barnes
2/13/2012	101-11260-00	KFC	Odor	System checked out ok	Barnes
2/16/2012	101-04120-00	Geneva King	Disconnect fuse blown	Replaced fuse	E-One
2/17/2012	101-07680-00	Marie Barnett	Float wire broken	Rewired float	Barnes
2/17/2012	101-05980-00	Cooper	Relay in panel was bad	Changed relay	Barnes
2/17/2012	101-00580-00	Jay Strunk	Float malfunction	Float hung. Adjusted float tree	Barnes
2/18/2012	101-08240-00	Huddle House	System airlocked	Pulled pump & released air in line	Barnes
2/20/2012	107-22399-00	Lesley Byrd	Pump failure	Changed pump	E-One
2/21/2012	101-00580-00	Jay Strunk	Follow-up	Rewired junction box	Barnes
2/23/2012	105-02240-00	Jack King	Wire came off relay	Put wire back	Barnes
2/26/2012	101-11260-00	KFC	System airlocked	Pulled pump & released air in line	Barnes
2/27/2012	101-11260-00	KFC	Follow-up	Rewired junction box & adjusted float tree	Barnes
2/27/2012	101-07310-00	Gary Strunk	Pump failure	Changed pump	E-One
2/28/2012	101-07820-01	One Stop Chevron	Float malfunction (grease buildup)	Float hung. Cleaned out tank of grease & adjusted floats	Barnes
2/28/2012	103-05780-00	Scott Solid Waste	Breaker came loose	Put breaker back in & tightened up	Barnes
2/28/2012	107-14000-00	Ole' Country Café	Pump failure	Changed pump	E-One
2/29/2012	105-01340-00	Herbert Ross	Float malfunction	Float hung. Adjusted float tree	Barnes
3/1/2012	103-04340-00	Perk Coffey	Pump failure	Changed pump	E-One
3/4/2012	105-10740-00	Carol Creekmore	Breaker came loose	Put breaker back in & tightened up	Barnes
3/6/2012	101-07660-00	Marie Barnett	Pump failure	Changed pump & start capacitor	Barnes
3/6/2012	105-11340-00	Somerset Mental Health	Pump failure	Changed pump	Barnes

System Pump Failures 2012

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
3/6/2012	105-00600-00	SDA Church	Pump failure	Changed pump	E-One
3/7/2012	105-10740-00	Carol Creekmore	Float malfunction	Float stuck in off position. Adjusted float tree & put cleaner in for grease	Barnes
3/7/2012	105-09760-00	Michelle Matthews	Pump failure	Changed pump	Barnes
3/8/2012	101-	Coffey	Pump failure	Changed pump	E-One
3/13/2012	101-04120-00	Geneva King	Pump failure	Changed pump	E-One
3/15/2012	105-11460-00	Gloria Carter	Material in cutter ring	Pulled pump & cleaned rag out of cutter	Barnes
3/15/2012	101-00370-00	Darrell Loudermilk	Pump failure	Changed pump	E-One
3/15/2012	105-02600-00	Whitley City 1st Baptist Church	Pump failure	Changed pump	Barnes
3/15/2012	105-11420-01	Faith Sizemore	Pump failure	Changed pump & start capacitor	Barnes
3/16/2012	101-11260-00	KFC	Breaker came loose	Put breaker back in & tightened up	Barnes
3/18/2012	105-09560-00	Sisters St Joseph	Pump failure	Changed pump	Barnes
3/19/2012	101-11140-00	William Alcorn	Start capacitor failure	Replaced start capacitor	Barnes
3/19/2012	105-05260-00	Lindon Vanover	Pump failure	Changed pump	E-One
3/19/2012	105-11460-00	Gloria Carter	Pump failure	Changed pump	Barnes
3/19/2012	107-22840-00	Patricia Nixon	Pump failure	Changed pump	E-One
3/21/2012	105-08980-00	David Stephens	Float malfunction	Float was stuck on. Cleaned floats & adjusted float tree	Barnes
3/23/2012	101-06240-01	Greg Smith	Pump failure	Changed pump	Barnes
3/23/2012	107-22800-01	Joe Duncan	Plumbing stopped up	System checked out ok	E-One
3/24/2012	101-01440-01	Jimmy Bryant	Panel tore up	Changed relay & start capacitor & pulled pump was air locked	Barnes
3/25/2012	101-01340-00	Mrs Zada Black	Plumbing stopped up	System checked out ok	E-One
3/26/2012	105-02060-00	Larry Perry Apts	On float was stuck & grease buildup	Adjusted float tree & cleaned grease off	Barnes
3/29/2012	101-11260-00	KFC	Breaker came loose	Put breaker back in & tightened up	Barnes
3/29/2012	105-00240-00	Newport Inman	Running off red light switch	Checked panel & tank system empty running off red light switch	E-One
4/3/2012	104-12500-00	Eddie Cordell	Pump failure	Changed pump	E-One
4/4/2012	101-05320-00	Larry King	Pump failure	Changed pump	E-One
4/6/2012	101-08240-00	Huddle House	Had to pull pump & take out rail	Changed seal	
4/7/2012	105-09360-00	Dora Waters	Start capacitor/relay failure	Replaced start capacitor & relay	Barnes
4/11/2012	105-02240-00	Jack King	System airlocked	Pulled pump & released air in line	Barnes
4/13/2012	101-06280-00	Hurstle Daugherly	Float malfunction	Float was hung. Adjusted float tree	Barnes
4/13/2012	101-00640-00	Stephanie New	System airlocked	Pulled pump & released air in line	Barnes
4/13/2012	101-06280-00	Hurstle Daugherly	110 breaker was off	Turned breaker on	Barnes
4/14/2012	101-05560-01	Cassandra Corder	Pump failure	Changed pump	E-One
4/16/2012	101-04860-00	James Goodan	Pump failure	Changed pump & pumped tank	
4/16/2012	105-02760-00	McCreary Co Water		Replaced both start capacitors	
4/16/2012	101-06280-00	Hurstle Daugherly	Check was hung in the pump		
4/16/2012	105-02240-00	Jack King		System checked out ok	
4/19/2012	101-07060-00	Scotty Slaven	Pump failure	Changed pump	E-One
4/24/2012	101-04340-01	Tim Morrow	Material in cutter ring		Barnes
4/25/2012	105-12780-01	Stanley Patton, Jr	No power coming to the panel		E-One
4/25/2012	103-05780-00	Scott Solid Waste	Breaker fell out		
4/25/2012	105-12780-01	Stanley Patton, Jr	Turned breakers back on		
4/26/2012	105-00420-00	Rosalie Wright	Pump failure	Changed pump	E-One
4/29/2012	101-07420-00	Justin Sims	Handswitch went out in pump	Put in a jumper wire	
4/30/2012	105-05780-00	Michael Shepherd	Pump failure	Changed pump	E-One
5/1/2012	105-12780-01	Stanley Patton, Jr	Breakers turned off		E-One
5/1/2012	105-05780-01	Michael Shepherd	Pump failure	Changed pump	E-One
5/1/2012	105-12780-01	Stanley Patton, Jr	Incoming power lost on one leg		
5/3/2012	101-08860-00	Lake Cumberland Health Department		System checked out ok	

System Pump Failures 2012

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
5/5/2012	101-01920-00	Rufus Hughes		Changed start capacitor & relay	
5/7/2012	101-05320-00	Larry King	Pump failure	Changed pump	E-One
5/8/2012	105-04640-00	Tony Loudermilk	Reset breakers in panel		E-One
5/8/2012	103-06180-00	Leroy McKee	Float malfunction	Float was hung. Adjusted float free	
5/9/2012	103-06180-00	Leroy McKee	Float malfunction	Float was hung. Adjusted float free	
5/10/2012	103-06180-00	Leroy McKee	Float malfunction	Changed on float	
5/10/2012	102-07220-01	Betty Crawhorn	Pump failure	Changed pump & pumped & cleaned tank	E-One
5/11/2012	105-10250-00	Brandy Gilreath	Float malfunction	Float was hung. Adjusted float free	Barnes
5/11/2012	101-00740-00	Linda Cowell	Pump failure	Changed pump	E-One
5/14/2012	105-10460-00	Cowan Properties	Pump failure	Changed pump & start capacitor	Barnes
5/14/2012	105-05440-00	Steve Garcia	Running off red light switch		
5/14/2012	105-08340-00	Shella Philpot	Plumbing problem	System checked out ok	
5/14/2012	107-00900-00	Denisa Losey	Pump failure	Changed pump	E-One
5/17/2012	105-11080-00	Mike Cowan		Replaced start capacitor	Barnes
5/18/2012	105-11080-00	Mike Cowan	Start capacitor failure	Replaced start capacitor & breaker	Barnes
5/21/2012	101-06480-00	Diana Tucker	Pump failure	Changed pump	E-One
5/21/2012	107-22780-00	Randy Stephens	Pump failure	Changed pump	E-One
5/22/2012	101-06360-00	Marshes Corner Market	Discharge was broken		Barnes
5/23/2012	101-06120-00	Dawn Kidd	Float malfunction	Float was hung. Adjusted float free	
5/29/2012	101-06120-00	Dawn Kidd	Pump failure	Changed pump	Barnes
5/30/2012	101-11320-00	Arby's	Pump failure	Changed pump & 30 amp breaker & start capacitor	Barnes
5/30/2012	101-09600-00	H & R Block		Changed alternator & start capacitor & pulled nut & cleaned cutter ring	
5/30/2012	107-23260-00	Pine Knot Elementary School	Pump failure	Changed pump & contactor	Barnes
5/30/2012	104-11890-01	Rebecca Ives	Pump failure	Changed pump & pumped & cleaned tank	E-One
6/5/2012	101-09180-01	Big M Plaza	Pump failure	Changed pump & 30 amp breaker & start capacitor	Barnes
6/5/2012	101-09580-00	Millton's Burger Hut	Pump failure	Changed pump	Barnes
6/5/2012	105-08460-01	Medical Billing	Pump failure	Changed pump	Barnes
6/6/2012	105-10800-01	The Landing Apts	Pump failure	Changed pump	E-One
6/6/2012	105-02340-00	Newtown Apts		Changed 30 amp breaker & pumped tank	
6/6/2012	105-09920-00	McCreary Co Jail	Pump failure	Changed pump & pumped & cleaned tank	E-One
6/7/2012	102-06620-00	Charles Strunk		Turned breaker on	
6/8/2012	107-01660-03	Lola Nash	Pump failure	Changed pump & pumped tank	E-One
6/8/2012	105-02780-00	Somerset Community College		Pumped & cleaned tank	
6/8/2012	105-08520-02	Santa Fe		Pumped & cleaned tank	
6/8/2012	107-01640-01	Kathy Prichard	Pump failure	Changed pump & pumped tank	E-One
6/10/2012	105-07780-00	Marie Logan	Customer plumbing	System checked out ok	
6/14/2012	101-09380-00	First Financial Plaza	Breaker fell out		
6/14/2012	105-04640-00	Tony Loudermilk	Pump failure	Changed pump	E-One
6/15/2012	101-05540-00	Brenda Bartley	Pump failure	Changed pump	E-One
6/17/2012	101-08240-00	Huddle House	System airtlocked		Barnes
6/17/2012	101-04160-00	Dora Strunk	Pump failure	Changed pump	
6/18/2012	101-08240-00	Huddle House	Seal out	Pumped tank down	
6/18/2012	101-06480-00	Diana Tucker	Pump failure	Changed pump	E-One
6/18/2012	105-06060-01	Sarah Clark	Running on red light switch		
6/18/2012	103-05780-00	Scott Solid Waste		System checked out ok	
6/19/2012	101-08240-00	Huddle House	Seal out	Pumped tank out	Barnes
6/20/2012	105-09460-04	Madeline Thomas	Material in cutter ring		
6/21/2012	105-08960-00	Susan Miller	Pump failure	Changed pump & 2 30 amp fuses	Barnes

System Pump Failures 2012

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
6/22/2012	101-06080-00	Sula Lynch	Pump failure	Changed pump	Barnes
6/25/2012	105-02860-00	Bob Sumner	Pump failure	Changed pump	E-One
6/26/2012	101-08240-00	Huddle House	Hard to pull pump and change check and bleed		Barnes
6/26/2012	105-	Doris Slavey	Checked running on red light		
6/26/2012	101-08240-00	Huddle House	System airlocked		
6/29/2012	105-07200-02	Mildred Genoe		System checked out ok	
7/1/2012	101-00640-00	Stephanie New	Pump failure	Changed pump	Barnes
7/3/2012	101-11260-00	KFC	Float malfunction	Float was hung. Adjusted float free	
7/4/2012	101-08240-00	Huddle House	System airlocked		
7/4/2012	101-11260-00	Justin Sims	Pump failure (was grounded on one leg)	Changed pump	Barnes
7/5/2012	101-11260-00	KFC	Float malfunction	Float was hung. Adjusted float free	
7/5/2012	105-08260-00	MCC Fire Dept	System airlocked		
7/5/2012	101-08240-00	Huddle House	System airlocked		
7/13/2012	101-06080-00	Sula Lynch	Pump failed	Changed pump. Pump grounded on 2 legs	Barnes
7/14/2012	105-10000-00	Tim Lavender Apts	Pump failed	Changed pump	E-One
7/16/2012	102-00040-00	2nd Baptist Church	Pump failed	Changed pump. Relayed EQD cord	E-One
7/16/2012	107-01120-00	Pernia Lewis		Changed 30 amp fuse	
7/16/2012	101-04240-00	Amanda Morrow		System checked out ok	
7/17/2012	105-04900-00	Kenneth Tapley	Fuse blown	Changed 30 amp fuse	
7/18/2012	101-11100-00	Karen Singleton		Changed union 1 1/4 valve in bottom of tank	
7/24/2012	105-08980-00	David Stephens	Breaker fell out		
7/25/2012	101-11260-00	KFC	System airlocked		
7/26/2012	101-11100-00	Karen Singleton	System airlocked		
7/30/2012	105-05260-00	Lindon Vanover	Power flash reset		
8/1/2012	101-11100-00	Karen Singleton	Pump failed	Changed pump	Barnes
8/2/2012	105-04040-00	Randy Garland	Odor	System checked out ok	
8/3/2012	105-04040-00	Randy Garland	Odor	System checked out ok	
8/5/2012	101-09380-00	First Financial Plaza	Material in cutter ring	Pulled pump & cleaned rag out of cutter	
8/6/2012	103-05800-00	MCCR Fiscal Court	Union broke in tank	Pumped & cleaned tank & put in 1/2 valve & 1 1/4 union in tank	
8/7/2012	101-07480-00	Rick Stills	Breakers turned off		
8/9/2012	101-04040-00	Gerald Bryant		Pumped tank	E-One
8/9/2012	105-08940-00	James Conroy	Check hung	Pulled pump & cleaned check	
8/10/2012	105-08260-00	MCC Fire Dept	Handswitch went out & start capacitor		
8/10/2012	101-04040-00	Gerald Bryant		Changed pump	E-One
8/10/2012	101-05840-00	Robert E Perry		Changed pump	E-One
8/12/2012	101-11100-00	Karen Singleton	Breaker tripped	System checked out ok	
8/14/2012	105-03700-00	Lou Ann Walker		Changed pump	E-One
8/14/2012	105-02220-01	Jack King		System checked out ok	
8/15/2012	105-05740-00	Betty Taylor	Running off the red light		
8/15/2012	102-07220-03	Randy Kidd		Pumped & cleaned tank & changed pump	E-One
8/16/2012	101-05080-00	Danyel Kiser		Changed pump	E-One
8/16/2012	103-05740-00	McCreary Co Soil Con	Breakers turned off		
8/16/2012	105-02220-01	Jack King		Changed 30 snap in breaker	
8/17/2012	101-07600-00	Tessa McClendon	Start capacitor failure & hand switch		
8/17/2012	105-02220-01	Jack King	Breaker fell out		
8/18/2012	105-05740-00	Betty Taylor	Pump out		
8/19/2012	101-05080-00	Danyel Kiser		Changed pump	E-One
8/19/2012	105-11080-00	Mike Cowan	Breaker fell out	Strapped in	

System Pump Failures 2012

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
8/19/2012	105-06280-01	Macie Neal	Pump failure	Changed pump	E-One
8/19/2012	105-02220-01	Jack King		Strapped breaker in	
8/22/2012	105-08960-00	Susan Miller		Changed pump	Barnes
8/25/2012	105-02220-01	Jack King		Changed float & pulled float free & changed start capacitor & relay & breaker	
8/26/2012	101-03720-00	Todd Hansford	Tank running over & pump would not work on auto	Pump down by hand	
8/29/2012	105-11080-00	Mike Cowan	Float malfunction	Pump down on hand	
8/29/2012	101-11100-00	Karen Singleton	Float malfunction		
8/30/2012	105-11080-00	Mike Cowan		Changed on & off float & rewired junction box	
8/31/2012	101-08720-00	Lumber King		Changed pump	E-One
9/4/2012	101-05980-02	Anthony Cooper	Pump failure	Changed pump	Barnes
9/5/2012	101-05080-00	Danyel Kiser		Changed pump	E-One
9/5/2012	105-08260-00	MCC Fire Dept		System checked out ok	
9/7/2012	101-06360-00	Marshes Corner Market		Changed union valve in bottom of tank	
9/10/2012	101-07500-02	Michael Williams		Reconnected EQD	
9/11/2012	103-05800-00	MCCR Fiscal Court		Changed check	Barnes
9/13/2012	101-01460-00	Shirley Helton		Changed pump & pumped & cleaned tank	E-One
9/14/2012	105-05660-00	Roger Spradlin		Changed pump	E-One
9/18/2012	105-04840-00	Gary Norfleel		Changed 30 amp fuse	
9/18/2012	101-05800-02	Megan Jones	Pump failure	Changed pump	E-One
9/22/2012	101-05920-01	Kevin Davis	Valve was busted	Had to replace valve end	
9/23/2012	105-02220-01	Jack King	System airlocked	Had to pull pump several times to get air out	
9/24/2012	101-05920-01	Kevin Davis	System airlocked	Had to pull pump several times to get air out	
9/24/2012	105-02220-01	Jack King	System airlocked		
9/24/2012	101-09380-00	First Financial Plaza	System airlocked		
9/25/2012	101-11260-00	KFC	System airlocked	Pulled pump	
9/26/2012	105-12160-00	Lois Clark	Pump failure	Changed pump	
9/26/2012	101-09380-00	First Financial Plaza	System airlocked	Had to pull pump several times to get air out	
9/27/2012	104-11810-01	Stanley Taylor		Pumped tank & changed 30 amp breaker	
9/27/2012	101-09380-00	First Financial Plaza		Changed pump & start capacitor	Barnes
9/27/2012	105-12160-00	Lois Clark		Changed pump	E-One
9/28/2012	105-11460-01	Ashley Waters	Threw on thermal	Reset ran fine	
10/1/2012	105-09760-00	Michelle Matthews	Float malfunction		
10/1/2012	105-02220-01	Jack King	System airlocked		
10/3/2012	101-09380-00	First Financial Plaza		Pumped tank & dug up discharge line & laped off whale	
10/3/2012	101-07800-00	McCreary Flower Shop	Off float hung by grease		
10/3/2012	101-06080-00	Sula Lynch	Red light float getting power with float not made		
10/3/2012	105-02220-01	Jack King	System airlocked		
10/3/2012	105-10180-00	Deborah Price		Changed seal in the bottom of the tank	
10/5/2012	105-02240-00	Jack King		Changed system from Barnes to E-One pump panel are EQD	Barnes
10/6/2012	101-09380-00	First Financial Plaza		Pumped tank	
10/6/2012	105-10750-02	George Daniels, Jr		Changed on & off floats & start capacitor & relay contactor & pump	Barnes
10/8/2012	105-08980-00	David Stephens		Pulled float free & cleaned grease from floats	
10/8/2012	105-10750-02	George Daniels, Jr		Changed pump & start capacitor & contactor due to hair in cutter ring	
10/10/2012	107-01840-01	Edward Johnson		Replaced 30 amp fuse in disconnect	
10/17/2012	101-07800-00	McCreary Flower Shop		Changed off float & rewired on float in junction box	
10/17/2012	101-06720-00	Little Lambs Day Care		Changed pump	E-One
10/22/2012	101-06080-00	Sula Lynch	Float malfunction	Float was hung. Adjusted float free	
10/23/2012	101-05920-01	Kevin Davis	System airlocked	Had to pull pump several times to get air out	

System Pump Failures 2012

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
10/25/2012	101-05920-01	Kevin Davis	System airlocked	Drained air back off the line	
10/30/2012	107-22399-00	Lesley Byrd	Pump failure, amps low, not pumping water	Changed pump	E-One
11/2/2012	101-07640-00	Martha Barnett		Changed 30 amp breaker	
11/3/2012	101-05920-01	Kevin Davis	System airlocked	Had to pull pump several times to get air out	
11/4/2012	107-01880-00	Kelly & Emily Genoe	Pump failure	Changed pump	E-One
11/6/2012	101-11100-00	Karen Singleton	Union broke in tank	New union valve installed & pumped & cleaned tank	
11/9/2012	105-12600-00	Olhel King	Pump failure	Changed pump	E-One
11/12/2012	101-00640-00	Stephanie New	Material in cutter ring		
11/13/2012	101-11100-00	Karen Singleton	System airlocked		
11/14/2012	101-03840-01	Tyler Troxell	Breaker off		
11/15/2012	105-09600-02	Valerie Cooper	Float malfunction		
11/19/2012	105-09535-00	V F W		Changed pump	E-One
11/22/2012	105-04680-00	Stewart Jones		Changed pump	E-One
11/25/2012	101-04880-01	Nadean Lewis		Turned breakers on in system. System pumped down & shut-off	
11/27/2012	105-05740-00	Betty Taylor		Changed pump	E-One
11/29/2012	105-02400-00	Jackie Stephens	Material in cutter ring	Pulled pump & cleaned rag out of cutter	
11/29/2012	101-08360-00	Chip Stephens	Pump hung	Pulled pump & cleaned cutter ring of rags	Barnes
12/1/2012	101-08360-00	Chip Stephens		Pulled pump & cleaned cutter ring of rags	Barnes
12/3/2012	105-06480-02	Stephanie Sumner		Pulled pump & pul new hose on pump & cleaned discharge line	
12/11/2012	101-11100-00	Karen Singleton	On float hung		
12/13/2012	101-06080-00	Sula Lynch	Off float stuck on system	Pump system down	
12/15/2012	101-01800-00	Wayne West		Changed breaker & start capacitor & rewired float	
12/15/2012	107-22399-00	Lesley Byrd	Pump failure	Changed pump	E-One
12/17/2012	101-01800-00	Wayne West		Changed on & off float	
12/17/2012	105-02260-01	Jack King		Changed pump	E-One
12/18/2012	105-02260-01	Jack King	Terminal overload out in pump	By-passed pump run 15.6 amps	
12/19/2012	105-09540-00	Donna King		Changed pump & start capacitor & relay	Barnes
12/19/2012	101-11260-00	KFC		Changed pump	Barnes
12/22/2012	101-06080-00	Sula Lynch	On float hung		Barnes
12/26/2012	101-00880-00	Darrell Chilwood		Changed pump	E-One
12/26/2012	101-07360-00	Don Sims		Changed pump & start capacitor	Barnes
12/26/2012	101-11260-00	KFC	Off float hung		
12/26/2012	105-02900-00	Zora Pritchard		Changed 30 amp fuse in disconnect	

System Pump Failures 2013

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
1/2/2013	105-10180-00	Rodney Price	Float wire broken	Reconnected float	Barnes
1/2/2013	105-10610-02	Jerry Spradlin	Float wire broken	Reconnected float	Barnes
1/7/2013	101-11260-00	KFC	Pump failure	Changed pump	Barnes
1/10/2013	101-11070-01	Michael Flint	Pump seal leak	Changed seal	Barnes
1/11/2013		Lisa Jones	Float malfunction	Float hung. Adjusted float free	Barnes
1/12/2013	105-09540-00	Donna King	Pump failure	Changed pump	Barnes
1/12/2013	101-04320-04	Kevin Bryant	Power failure (breaker turned off)	Turned breaker on	Barnes
1/15/2013	108-14840-00	Leslie Byrd	Pump failure	Changed pump	E-One
1/31/2013	101-01200-00	Howard Ross	Pump failure	Changed pump	E-One
1/31/2013	101-07800-00	McCreary Flower Shop	Pump failure	Changed pump	Barnes
2/1/2013	105-02320-00	Joyce White	Float malfunction	Float hung. Adjusted float free	Barnes
2/5/2013	105-02060-00	Larry Perry Apartments	Float malfunction	Float hung. Adjusted float free	Barnes
2/5/2013	105-02320-00	Joyce White	Pump failure	Changed pump	Barnes
2/7/2013	101-06640-00	Sheryn Griffiths	Pump failure	Changed pump	E-One
2/7/2013	101-06080-00	Sula Lynch	Float failure	Changed float	Barnes
2/9/2013	105-09660-01	Jenny Lynch	Pump failure	Changed pump	Barnes
2/9/2013		Lisa Jones	Power failure (breaker turned off)	Turned breaker on	Barnes
2/10/2013	101-08360-00	Chip Stephens	Cutter Assembly malfunction	Dislodged object from cutter ring	Barnes
2/13/2013	105-02060-00	Larry Perry Apartments	Power failure (Breaker failure)	Replaced breaker	Barnes
2/14/2013	105-02480-06	Kelly Tucker	Float wire broken	Reconnected float	Barnes
2/16/2013	105-09540-00	Tommy King	Power failure (snap-in breaker fell out)	Reconnected breaker	Barnes
2/19/2013	101-06360-00	Betty Daugherty	Power failure (breaker turned off)	Turned breaker on	Barnes
2/20/2013	105-09540-00	Tommy King	Power failure (snap-in breaker fell out)	Reconnected breaker	Barnes
2/21/2013	101-04660-00	Barbara Strunk	Pump failure	Changed pump	E-One
2/22/2013	101-11100-00	Karen Singleton	Float failure	Changed float	Barnes
2/21/2013	101-00640-00	Stephanie New	Power failure (snap-in breaker fell out)	Reconnected breaker	Barnes
2/25/2013		Alene Stephens	Power failure (snap-in breaker fell out)	Reconnected breaker	Barnes
2/25/2013	101-06100-01	Lisa Winchester	Float failure	Changed float	Barnes
2/26/2013	101-11260-00	KFC	Pump failure	Changed pump	Barnes
2/27/2013	101-11260-00	KFC	Float failure	Changed float	Barnes
3/1/2013	105-05500-01	Lori Johnson	Disconnect fuse blown	Replaced fuse	E-One
3/5/2013	101-07460-00	William Sumner	Start capacitor failure	Replaced start capacitor	Barnes
3/8/2013	101-05480-00	Joe Jones	Pump failure	Changed pump	E-One
3/13/2013	107-18620-00	Kenneth Turner	Pump failure	Changed pump	E-One
3/14/2013	101-07460-00	William Sumner	Pump failure	Changed pump	Barnes
3/15/2013	101-11100-00	Karen Singleton	System airlocked	Pulled pum & released air from line	Barnes
3/15/2013	101-08520-00	Ernest Stephens	Float malfunction	Float hung. Adjusted float free	Barnes
3/26/2013	103-05800-00	County Garage	Pump failure	Changed pump	Barnes
2/26/2013	101-03080-00	Daniel Kiser	Disconnect fuse blown	Replaced fuse	E-One
3/28/2013	101-07420-00	Justin Sims	Power failure (snap-in breaker fell out)	Reconnected breaker	Barnes
3/28/2013	101-06240-01	Greg Smith	Pump failure	Changed pump	Barnes
3/29/2013	101-07360-00	Donald Sims	Pump failure	Changed pump	Barnes
3/29/2013	101-07420-00	Justin Sims	Float malfunction	Float hung. Adjusted float free	Barnes
4/1/2013	103-05780-00	Scott Solid Waste	Tank plumbing broken	Repaired plumbing	Barnes
4/1/2013	101-06080-00	Sula Lynch	Float malfunction	Float hung. Adjusted float free	Barnes
4/1/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes
4/4/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes
4/4/2013	105-11080-00	Mike Cowan	Float wire broken	Reconnected float	Barnes

System Pump Failures 2013

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
4/4/2013	101-06080-00	Sula Lynch	Float malfunction	Float hung. Adjusted float tree	Barnes
4/5/2013	101-00640-00	Stephanie New	Power failure (snap-in breaker fell out)	Reconnected breaker	Barnes
4/8/2013	101-03940-00	Harold Lawson	Disconnect fuse blown	Replaced fuse	Barnes
4/9/2013	101-05700-00	Kenny Gilreath	Pump failure	Changed pump	E-One
4/13/2013	104-10600-02	Leroy McKee	Pump failure	Changed pump	Barnes
4/13/2013	101-08360-00	Chip Stephens	Pump failure	Changed pump	Barnes
4/14/2013	101-11320-00	Arby's	Pump failure	Changed pump	Barnes
4/15/2013	105-09660-01	Jenny Lynch	Float malfunction	Float hung. Adjusted float tree	Barnes
4/15/2013	101-07820-01	Marathon	Pump failure	Changed pump	Barnes
4/17/2013	101-06080-00	Sula Lynch	Float malfunction	Float hung. Adjusted float tree	Barnes
4/17/2013	105-10610-02	Jerry Spradlin	Pump failure	Changed pump	Barnes
4/18/2013	104-12400-00	Janel Hover	Pump failure	Changed pump	E-One
4/19/2013	101-01800-00	Jennifer West	Pump failure	Changed pump	Barnes
4/20/2013	101-11100-00	Karen Singleton	System airlocked	Pulled pum & released air from line	Barnes
4/20/2013	101-06360-00	Betty Daughtery	Power failure (breaker turned off)	Turned breaker on	Barnes
4/20/2013	101-01800-00	Jennifer West	Pump failure	Changed pump	Barnes
4/20/2013	101-03720-02	Todd Hansford	Power failure (breaker turned off)	Turned breaker on	Barnes
4/22/2013	101-00760-00	Bob Worley	Pump failure	Changed pump	E-One
4/23/2013	101-05080-00	James Kiser	Pump failure	Changed pump	E-One
4/29/2013	101-07320-03	Donald Sims	Pump failure	Changed pump	Barnes
5/2/2013	103-05780-00	Scott Solid Waste	Tank plumbing broken	Repaired plumbing	Barnes
5/3/2013	103-05780-00	Scott Solid Waste	Float wire broken	Reconnected float	Barnes
5/4/2013	101-07780-00	McCreary Funeral Home	Pump failure	Changed pump	Barnes
5/5/2013	105-02350-00	Diana Dolin	Culter Assembly malfunction	Cleaned culter ring	Barnes
5/9/2013	101-03720-02	Daily Taylor	Pump failure	Changed pump	Barnes
5/10/2013	101-11100-00	Karen Singleton	Pump seal leak	Changed seal	Barnes
5/11/2013	101-11100-00	Karen Singleton	System airlocked	Pulled pum & released air from line	Barnes
5/12/2013	101-00460-01	Brian Lyons	Start capacitor failure	Changed start capacitor	Barnes
5/13/2013	101-01500-00	Wayne West	Pump failure	Changed pump	Barnes
5/14/2013	105-08220-00	First Baptist Church	Float malfunction (grease build-up)	Cleaned floats	Barnes
5/14/2013	101-01500-00	Wayne West	Pump failure	Changed pump	Barnes
5/14/2013	105-06610-00	Becky Walters	Pump failure	Changed pump	E-One
5/20/2013	101-03720-02	Daily Taylor	Pump failure	Changed pump	Barnes
5/28/2013	105-02360-04	Kristina Baker	Float malfunction	Float hung. Adjusted float tree	Barnes
5/29/2013	103-05780-00	Scott Solid Waste	Pressure problem	Replaced pump with two-stage pump	Barnes
5/29/2013	101-07440-08	Jessica Utley	Float malfunction	Float hung. Adjusted float tree	Barnes
5/29/2013		Gene Bryant	Pump failure	Changed pump	E-One
5/30/2013	103-05780-00	Scott Solid Waste	Contactlor failure	Changed contactlor	Barnes
6/7/2013	101-07780-00	McCreary Funeral Home	Pump failure	Changed pump	Barnes
6/10/2013	103-05800-00	County Garage	Pump failure	Changed pump	Barnes
6/11/2013	105-02045-00	Larry Perry Apartments	Float malfunction (grease build-up)	Cleaned floats	Barnes
6/12/2013	105-02045-00	Larry Perry Apartments	Float malfunction (grease build-up)	Pumped tank	Barnes
6/13/2013	107-18570-04	Melissa Richardson	Pump failure	Changed pump	E-One
6/14/2013	105-06060-01	Sarah Clark	Pump failure	Changed pump	E-One
6/17/2013	105-03780-00	Henry Stephens	Power failure (breaker turned off)	Turned breaker on	E-One
6/17/2013	101-05560-01	Tucker Stephens	Pump failure	Changed pump	E-One
6/18/2013	105-02100-00	Joe Horne	Float wire broken	Reconnected float	Barnes
6/18/2013	105-00200-00	Ronnie Meadows	Pump failure	Changed pump	E-One

System Pump Failures 2013

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
6/20/2013	105-02920-02	Joseph Vaughn	Pump failure	Changed pump	E-One
6/20/2013	105-02500-00	Martha Thomas	Power loss (main power supply)	Contacted power company	Barnes
6/23/2013	105-05420-00	Rhonda Watters	Pump failure	Changed pump	E-One
6/26/2013	101-06480-00	Diana Tucker	Pump failure	Changed pump	E-One
6/26/2013	105-05420-00	Rhonda Watters	Pump failure	Changed pump	E-One
6/26/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes
6/30/2013	107-19020-00	Bill Daughtery	Power loss (breaker tripped)	Reset breaker	E-One
7/1/2013	105-05180-00	Carl White	Pump failure	Changed pump	E-One
7/7/2013	101-07340-03	Don Sims Apartments	Float wire broken	Reconnected float	Barnes
7/10/2013	101-07360-00	Donald Sims	Pump failure	Changed pump	Barnes
7/10/2013	105-02420-00	Newtown Apartments	Cutter Assembly malfunction	Cleaned cutter ring	Barnes
7/11/2013	101-01400-01	Leo Lynch	Panel switch failure	Changed switch	Barnes
7/15/2013	107-22830-03	Don Cox	Pump failure	Changed pump	E-One
7/16/2013	107-01660-05	Arthur Taylor	Pump failure	Changed pump	E-One
7/16/2013	107-13835-00	Barbara Littrell	Pump failure	Changed pump	E-One
7/17/2013	105-05780-00	Henry Stephens	Pump failure	Changed pump	Barnes
7/18/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes
7/18/2013	101-07320-03	Olivia Sargent	Float malfunction	Float hung. Adjusted float tree	Barnes
7/18/2013	105-00780-01	Gary Tucker	Power loss (breaker turned off)	Turned breaker on	Barnes
7/20/2013	105-00780-01	Jean Miller	Float malfunction	Float hung. Adjusted float tree	Barnes
7/23/2013	103-05780-00	Scott Solid Waste	Start capacitor failure	Replaced start capacitor	Barnes
7/24/2013	101-11100-00	Karen Singleton	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
7/26/2013	105-05560-04	Todd Stephens	Disconnect fuse blown	Replaced fuse	E-One
8/4/2013	101-07360-00	Donald Sims	Pump failure	Changed pump	Barnes
8/5/2013	101-11100-00	Karen Singleton	System airlocked	Pulled pum & released air from line	Barnes
8/6/2013	101-04460-01	Kendall Clark	Pump failure	Changed pump	Barnes
8/6/2013	105-03800-02	Kim Schrock	Pump failure	Changed pump	E-One
8/6/2013	101-07280-05	Don Sims Apartments	Float malfunction	Float hung. Adjusted float tree	Barnes
8/6/2013	101-04460-01	Kendall Clark	Pump failure	Changed pump	Barnes
8/8/2013	101-07340-03	Shiela Stringer	Start capacitor failure	Replaced start capacitor	Barnes
8/14/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes
8/14/2013	101-05180-05	Tina Coffey	Pump failure	Changed pump	E-One
8/16/2013	101-00580-00	Jay Strunk	Float failure	Replaced float	Barnes
8/19/2013	101-11260-00	KFC	Cutter Assembly malfunction	Cleaned cutter ring	Barnes
8/19/2013	101-11260-00	KFC	Pump seal leak	Replaced seal	Barnes
8/19/2013	105-10460-00	Cowan Properties	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
8/21/2013	101-11260-00	KFC	Pump rail/seal failure	Replaced rail system	Barnes
8/22/2013	107-01660-05	Palricia Strunk	Disconnect fuse blown	Replaced fuse	E-One
8/23/2013	105-10220-00	Tim Lavender	Pump failure	Changed pump	Barnes
8/26/2013	101-01340-00	Zada Black	Pump failure (pressure switch)	Changed pressure switch	E-One
8/27/2013	101-01120-00	Roy Watters	Pump failure (pressure switch)	Changed pressure switch	E-One
8/27/2013	101-01720-02	Sunny Lovell	Tank plumbing broken	Repaired plumbing	E-One
8/27/2013	101-06900-00	Barbara Nickels	Pump failure	Changed pump	E-One
8/27/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes
8/29/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes
8/29/2013	101-01870-00	Mike Ross	Run capacitor failure	Replaced run capacitor	Barnes
8/30/2013	105-02640-00	Hometown Furniture	Pump failure	Changed pump	E-One
9/1/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes

System Pump Failures 2013

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
9/2/2013	101-02080-00	Marlo Sumner	Power loss (breaker out)	Replaced breaker	Barnes
9/3/2013	105-03800-02	Kim Schrock	Pump failure (pressure switch)	Changed pressure switch	E-One
9/3/2013	103-05780-00	Scott Solid Waste	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
9/4/2013	105-00760-01	Brenda Ball	Culter Assembly malfunction	Cleaned culter ring	Barnes
9/4/2013	101-03760-02	Roger Cordell	Float failure	Changed float	Barnes
9/4/2013	101-06080-00	Sula Lynch	Float malfunction	Float hung. Adjusted float tree	Barnes
9/6/2013	101-05400-00	J.A. Lawson	Pump failure	Changed pump	Barnes
9/16/2013	105-08800-00	Phyllis Lynch Rent House	Float malfunction	Float hung. Adjusted float tree	Barnes
9/20/2013	101-04300-00	Clarence West	Pump failure	Changed pump	Barnes
9/24/2013	101-06440-00	Boyce Hill	Pump failure	Changed pump	Barnes
9/27/2013	101-11260-00	KFC	System airlocked	Pulled pum & released air from line	Barnes
9/30/2013	103-06270-02	Larry Perry	Pump failure	Changed pump	E-One
9/30/2013	101-07420-00	Justin Sims	Float wire broken	Reconnected float wire	Barnes
10/1/2013	105-10460-00	Cowan Properties	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
10/2/2013	105-09600-01	Jenny Lynch	Pump failure	Changed pump	Barnes
10/2/2013	101-07580-00	Vanessa Smith	Pump failure	Changed pump	Barnes
10/3/2013	101-01420-01	Barry Perry	Start capacitor failure	Replaced start capacitor	Barnes
10/4/2013	101-01440-02	Cody King	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
10/8/2013	103-05780-00	Scott Solid Waste	Pump failure	Changed pump	Barnes
10/8/2013	101-08400-00	James Miller	Power loss (breaker tripped)	Reset breaker	Barnes
10/9/2013	105-02080-01	Larry Perry	Float malfunction (grease build-up)	Cleaned grease off float	Barnes
10/10/2013	103-05780-00	Scott Solid Waste	Float wire broken	Reconnected float wire	Barnes
10/11/2013	105-09760-00	Michelle Matthews	Float malfunction	Float hung. Adjusted float tree	Barnes
10/11/2013	101-11320-00	Arby's	Float failure	Changed float	Barnes
10/11/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
10/12/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
10/16/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
10/17/2013	101-06840-00	Bill Dixon	Pump failure	Changed pump	E-One
10/17/2013	101-00540-00	Carrie Thompson	Disconnect fuse blown	Replaced fuse	E-One
10/18/2013	101-04300-00	Clarence West	Pump failure (pressure switch)	Changed pressure switch	E-One
10/18/2013	103-05780-00	Scott Solid Waste	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
10/18/2013	105-09700-00	Evelyn Shepherd	Start capacitor failure	Replaced start capacitor	Barnes
10/19/2013	101-11100-00	Karen Singleton	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
10/23/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
10/25/2013	101-06540-00	Terry Thompson	Pump failure	Changed pump	E-One
10/25/2013	101-01540-00	Roger Pierce	Pump failure	Changed pump	E-One
10/30/2013	101-04380-00	Larry King	System airlocked	Pulled pum & released air from line	Barnes
11/4/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
11/4/2013		Don Taylor	Float malfunction	Float hung. Adjusted float tree	Barnes
11/5/2013	107-19560-00	Honey Café	Pump failure	Changed pump	E-One
11/5/2013	103-05800-00	County Garage	System airlocked	Pulled pum & released air from line	Barnes
11/5/2013	105-09560-00	Good Shepherd Church	Start capacitor failure	Changed start capacitor	Barnes
11/7/2013	105-06480-02	Stephanie Sumner	Pump failure (stator)	Replaced pump stator	E-One
11/13/2013		Rescue Squad	Float malfunction	Float hung. Adjusted float tree	Barnes
11/14/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
11/14/2013	105-12260-00	Alene Inman	Pump failure (stator)	Replaced pump stator	E-One
11/16/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
11/16/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes

System Pump Failures 2013

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
11/22/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
11/25/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
11/26/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
12/9/2013	101-11320-00	Arby's	System airlocked	Pulled pum & released air from line	Barnes
12/11/2013	107-01820-00	Lillian Johnson	Pump failure	Changed pump	E-One

System Pump Failures 2014

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
5/17/2014		Kevin Davis	System airlocked	Pulled pump & released air from line	barnes
5/28/2014		Jerry Spradlin	Run capacitor failure	changed run capacitor	barnes
5/19/2014		Sherry Griffis	pump failure	changed pump	e- one
6/4/2014	1010742000	Justin Sims	Float failure	Installed on float rewired off float	barnes
5/29/2014		Justin Sims	float failure	rewired float wires	barnes
5/26/2014		susan martinez	air switch failure	unclocked air switch	e-one
7/6/1905	1050976000	Michelle Mathews	slow plumbing	customer plumbing problem	barnes
5/25/2014	1011132000	Arbys	airlocked or pressure	pulled pump released air	barnes
5/29/2014		Todd Hansford	capacitor failure	changed start capacitor	barnes
5/7/2014	1010084000	Linda Keith	stator problem	changed pump	e-one
5/5/2014	1011132000	Arbys	station not pumping	pulled pump released air	barnes
7/3/2014	1030212000	First Baptist Church	pump out	changed pump	e-one
7/9/2014	1030572002	Raider One Stop	pump out	changed pump	e-one
6/29/2014	1010826000	Don Warn	pump out	changed pump	e-one
7/10/2014	1010182000	David Ross	Float failure	changed float	barnes
7/14/2014	101114000	Stanley Alcorn	pump windings burnt	changed pump	barnes
7/11/2014	1010182000	David Ross	float failure	changed on and off	barnes
7/17/2014	1010498000	Gloria Jones	pump failure	changed pump	e-one
7/14/2014	1010402000	Gerald Bryant	pump failure	changed pump	e-one
7/12/2014	1011114000	Stanley Alcorn	pump failure	pulled pump cleaned cutter ring	barnes
7/15/2014		Arbys	air locked	pulled pump released air	barnes
7/9/2014	1050888003	Scott Creekmore	pump windings to ground	changed pump	barnes
7/4/2014	1010146000	Shirley Helton	pump was out	pumped tank	barnes
7/7/2014	1050956000	Good Shepherd Church	start capacitor failure	changed start capacitor	barnes
3/10/2014	1050902000	Willa Walker	float failure	rewired float wires	barnes
7/21/2014	1010016001	Christopher Ruley	start capacitor failure	changed start capacitor	barnes
6/9/2014	1010600000	Gwen Bryant	pump failure and start capacitor	changed pump and start capacitor	barnes
6/9/2014	1010608000	Sula Lynch	float failure	adjusted floats	barnes
6/23/2014	1010592000	Kevin Davis	discharge leak in tank	changed slid gate in tank	e-one
6/21/2014	1010376002	Todd Hansford	slow plumbing	no problem found	barnes
6/30/2014		Don Warren	pump failure	changed pump	barnes
5/31/2014	1010472001	Suzan Martine	pump failure	changed pump	e-one
5/30/2014	1010164003	Irene Watson	pump failure	changed pump	e-one
6/2/2014	1010472001	Susan Martinez	no power	turned breaker back on	barnes
5/26/2014	1010380000	Patricia Smith	pump failure	changed pump	e-one
6/11/2014	1010160000	Don Gloria Jones	seal failure	changed seal in rail	barnes
6/8/2014	1011132000	Arbys	float failure	rewired floats	barnes
6/7/2014	1011132000	Arbys	air locked	pulled pump released air	barnes
10/4/2014	1010142001	Barry Perry	pump fail	cleaned rags from cutter ring	barnes
6/23/2014	1011132000	Arbys	airlocked or pressure	pulled pump released air	barnes
5/11/2014	1011136001	Randy Kidd	pump failure	changed pump	e-one
3/4/2014	1070140001	Faye Halfeild	water around tank	ground water around tank	e-one
5/16/2014	1010024000	Ralph Burke	water around tank	water leak out from tank	barnes
3/4/2014	1010778000	McCreary Funeral Home	contactor failure	changed contactor	barnes
3/4/2014	1050694000	Edgar Stephens	pump failure	changed pump	e-one
6/10/2014	1070164001	Cathy Prichard	sewer odor	no problem found	barnes
2/11/2014	1050408000	Maxwell Dawson	pump fail	changed on and off air switch in pump	e-one
2/11/2014	1054450001	Natasha Owens	pump failure	changed pump	e-one

System Pump Failures 2014

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
2/10/2014	1010180000	wayne west	pump and capcitor failure	changed pump and start capacitor	barnes
2/10/2014	1010764000	martha barnett	pump failure	changed pump	e-one
1/30/2014	1010540000	aj lawson	pump failure	changed pump	e-one
2/3/2014	1030580000	county garage	pump failure	changed check on pump	barnes
8/18/2014	1050870000	frank luttrell	odder complant	no problem found	barnes
2/4/2014	1050902000	wilba walker	float failure	changed off float	barnes
8/18/2014	1050264000	millon blankinship	no power	breaker turned off inside	barnes
8/29/2014	1051144000	bus garage	pump and capcitor failure	changed pump and start capacitor	barnes
1/30/2014	1050734000	neal allen	pump failure	changed pump	e-one
8/13/2014	1050332000	greg owens	pump failure	changed pump	e-one
1/29/2014	1051276002	jamie mobley	slow plumbing	no problem found	e-one
1/28/2014	1050976000	michelle mathews	float failure	floats hung from grease	barnes
7/29/2014	1050706000	daniel meadows	pump failure	changed pump	barnes
1/27/2014	1030578000	scott solid waste	air locked	pulled pump released air	barnes
7/21/2014	1051206000	david wilson jr	pump failure	changed pump	e-one
1/27/2014	1050550001	laurie johanson	pump failure	changed pump	e-one
7/21/2014	1050544000	steve garcia	pump failure	changed pump	e-one
1/28/2014	1010880000	wendy duncan	pump failure	changed pump	e-one
6/9/2014	1050520001	glen helton	pump failure	changed pump	e-one
3/6/2014	1071970000	James anderson	slow plumbing	no problem found	e-one
5/30/2014	1051061002	jerry spradlin	float failure	rewired float wires	barnes
3/6/2014	1050250000	martha thomas	float failure	rewired floats	barnes
7/2/2014	1050898000	david stevens	float failure	adjusted floats	barnes
3/4/2014	1010426000	ellamae bybee	slow plumbing	no problem found	barnes
6/10/2014	1051244001	tony ridner	water around tank	no problem found	barnes
6/30/2014	1030180001	dennis meadows	pump failure	changed pump	e-one
3/11/2014	1050896000	susan miller	pump and capcitor failure	changed pump and start capacitor	barnes
6/10/2014	1041208000	paula crowley	pump failure	changed on and off switch	e-one
7/31/2014	1050160001	christopher king	pump failure	changed pump	e-one
6/9/2014	1041208000	paula crowley	slow plumbing	no problem found	e-one
5/14/2014		mike cowan	pump failure	pulled pump clean cuter ring	barnes
5/10/2014		whitley city first baptist	float failure	adjusted floats	barnes
5/10/2014		larry taylor	capacitor failure	changed capacitor	barnes
8/9/2014	1010944002	first finacall	pump failure	changed check on pump	barnes
8/9/2014	1010372005	lodd hansford	contactor failure	changed contactor	barnes
13/17/2014	1011132000	arbys	float failure	adjusted floats	barnes
12/8/2014	1011132000	arbys	pump failure	changed pump	barnes
12/18/2014	1050898000	david stevens	float failure	adjusted floats	barnes
12/19/2014	1010532000	larry king	power failure	changed fuses in disconnect	e-one
12/19/2014	1050516000	carl wright	pump failure	changed pump	e-one
12/22/2014	1010446001	tracy phillips	float failure	adjusted floats	barnes
12/5/2014	1051128001	clinton gay	pump failure	pulled pump cleaned cutter ring	barnes
12/11/2014	1050838000	russel jones	float failure	adjusted floats	barnes
12/9/2014	1050838000	michelle wilson	float failure	adjusted floats	barnes
12/8/2014	1050898000	david stevens	float failure	adjusted floats	barnes
12/11/2014	1051154000	jimmy stafey	pump failure	changed pump	e-one
12/29/2014	1010402000	gerald bryant	pump failure	changed pump	e-one
12/28/2014	1011132000	arbys	airlocked or presure	pulled pump released air	barnes

System Pump Failures 2014

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
12/24/2014		jim miller rent house	air locked	pulled pump released air	barnes
1/13/2014	1010780001	mcceary flower shop	float failure	adjusted floats	barnes
1/15/2014	1050170001	kathy thomas	capacitor failure	changed start capacitor	barnes
4/1/2014	1010142001	barry perry	float failure	changed onand off float	barnes
4/1/2014	1010784000	state farm	capacitor failure	changed start capacitor	barnes
4/1/2014	1050076001	angela brown	power failure	reset breaker	barnes
3/31/2014	1020672000	tommy strunk	pump failure	pulled pump changed stator	e-one
4/3/2014	1030578000	scott solid waste	airlocked or presure	pulled pump released air	barnes
4/2/2014	1010601000	vacant	broken lid	changed lid	barnes
4/3/2014	1030580000	county garage	airlocked or presure	pulled pump released air	barnes
4/1/2014	1041174002	mike casada	pump failure	changed pump	e-one
4/6/2014	1050330009	greg owens	power failure	changed fuses in disconnect	e-one
3/24/2014	1030578000	scott solid waste	airlocked or presure	pulled pump released air	barnes
4/6/2014	1010594002	charles chesnute	power failure	reset breaker	barnes
4/6/2014	1010372004	todd hansford	pump failure	pulled pump cleaned rags from cutter ring	barnes
4/7/2014	1050330009	luster bryant	cord failure	changed eqd cord	e-one
4/7/2014	1051146001	brandy jones	float failure	adjusted floats	barnes
4/8/2014	1030578000	scott solid waste	airlocked or presure	pulled pump released air	barnes
3/22/2014	1011132000	arbys	float failure	adjusted floats	barnes
3/21/2014	1010192000	rufus hughes	float failure	adjusted floats	barnes
4/16/2014	1051040001	dairy bar	pump failure	changed pump	barnes
4/10/2014	1020684300	county park	power failure	reset breaker	e-one
3/30/2014	1050640000	pam douglas	pump failure	changed pump	e-one
3/31/2014	1041111002	mike casada	pump failure	changed pump	e-one
4/17/2014	1050504000	dwayne wright	sewer odder	no problem found	e-one
4/17/2014	1050956000	good shepherd church	pump failure	changed pump	barnes
9/11/2014	1050554002	labiltha bryant	power failure	changed fuses in disconnect	e-one
9/16/2014	1051144000	school bus garage	float failure	rewired floats	barnes
9/14/2014	1010120000	howard ross	pump failure	changed pump	e-one
9/10/2014	1010868000	joan marlow	float failure	rewired floats	barnes
9/18/2014	1010210000	jim rector	pump failure	pulled pump clean cuter ring	barnes
9/9/2014	1050870000	frank lultrel	float failure	adjusted floats	barnes
9/19/2014	1030542001	barbra gibson	pump failure	changed pump	e-one
9/22/2014	1050563000	james labonte	pump failure	changed pump	e-one
9/25/2014	1010604000	roy lake	capacitor failure	changed start capacitor	barnes
9/19/2014	1010210000	jim rector	pump failure	pulled pump ceaned cutter ring	barnes
9/22/2014	1050554002	labiltha bryant	pump failure	changed pump	e-one
10/1/2014	1050328370	karen singleton	power failure	changed breaker	barnes
10/21/2014		pine knot fire house	pump failure	changed pump	e-one
4/11/2014	1010666000	ruby hamblin	pump failure	changed pump	e-one
4/11/2014	1050948005	elbert phillips	capacitor failure	changed start capacitor	barnes
4/14/2014	1051206000	david wilson jr	pump failure	changed pump	e-one
4/13/2014	1011110000	karen singleton	slow plumbing	no problem found	barnes
1/24/2014	1050563000	james labonte	pump failure	changed pump	e-one
4/19/2014	1010160000	donald and gloria jones	capacitor failure	changed start capacitor	barnes
10/29/2014	1030630001	anila braden	pump failure	changed pump	e-one
4/23/2014	1050563000	donald and gloria jones	pump failure	pulled pump and cleaned cutter ring	barnes
4/21/2014	1010600000	gwen bryant	capacitor failure	changed start capacitor	barnes

System Pump Failures 2014

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
10/30/2014	1071862000	kennth turner	pump failure	changed pump	e-one
4/18/2014	1050956000	good shepherd church	float failure	rewired floats	barnes
10/4/2014	1050964000	clifton strunk	capacitor failure	changed start capacitor	barnes
11/6/2014		ranger station	pump failure	changed pump	e-one
11/2/2014	1010404000	gerald bryant	pump failure	changed pump	e-one
5/1/2014	1051066600	phills auto	power failure	changed fuses in disconnect	e-one
11/25/2014		leroy mckee	float failure	rewired floats	barnes
11/1/2014	1050780000	loyed strunk	slow plumbing	no problem found	e-one
8/25/2014	1010590000	wamda worley	power failure	reset breaker	e-one
9/17/2014		eza taylor rent house	slow plumbing	no problem found	e-one
4/27/2014	1050898000	david stevens	slow plumbing	no problem found	barnes
10/9/2014	1011132000	arbys	airlocked or presure	installed new high pressure pump	barnes
10/17/2014	1050563000	james labonte	pump failure	pulled pump and cleaned cutter ring	barnes
5/2/2014	1011132000	arbys	airlocked or presure	pulled pump released air	barnes
8/7/2014	1010742000	Justin Sims	panel failure	changed panel	barnes
11/17/2014	1010742000	Justin Sims	air locked	pulled pump released air	barnes
11/17/2014	1010744008	Jessica utley	air locked	pulled pump released air	barnes
8/5/2014	1011112000	jw perry	float failure	rewired floats	barnes
8/1/2014	1010064000	stephanie new	pump failure	pulled pump cleaned cutter ring	barnes
11/17/2014	1051146001	Jim miller rent house	air locked	pulled pump released air	barnes
11/17/2014	1051144000	school bus garage	air locked	pulled pemp released air	barnes
1/9/2014	1020474000	soil conservation office	pump failure	changed pump	e-one
11/31/2014	1051146001	vacant	air locked	pulled pump released air	barnes
11/30/2014	1010594002	barney barnet	air locked	pulled pump elease air	barnes
12/3/2014	1051144000	school bus garage	air locked	pulled pump released air	barnes
12/3/2014	1051146001	ashley walters	air locked	pulled pump released air	barnes
12/1/2014	1051032005	James ball rent house	float failure	rewired floats	barnes
3/14/2014	1041268000	april white	pump failure	changed pump	e-one
3/14/2014	1050902000	wilba walker	float failure	changed off float	barnes
3/18/2014	1010112000	roy waters	pump failure	chang pump	e-one
3/15/2014	1010192000	rufus hugh	float failure	adjusted floats	barnes
3/20/2014	1050976000	michelle mathews	slow plumbing	no problem found	barnes
8/11/2014	1010600000	gwen bryant	capacitor failure	changed start capacitor	barnes
3/19/2014	1030578000	scott solid waste	air locked	pulled pump released air	barnes
8/11/2014	1010938000	first financial plaza	pump failure	Installed ne wcheck on pump	barnes
3/19/2014	1030368000	pul worthington	slow plumbing	no problem found	e-one
9/4/2014	1010180000	waynie west	float failure	rewired floats	barnes
9/2/2014	1010656000	robert halfeld	pump failure	changed pump	e-one
7/28/2014	1010736000	donald sims	pump failure	changed pump	barnes
7/19/2014	1010938000	first ficial plaza	pump failure	changed check on pump	barnes

System Pump Failures 2015

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
1/3/2015	101-04320-04	Kevin Bryant	Power loss (breaker tripped)	Reset breaker	E-One
1/3/2015	101-11320-00	Arby's	System airlocked	Pulled pump & released air from line	Barnes
1/4/2015	101-04320-04	Kevin Bryant	Pump failure	Changed pump	E-One
1/4/2015	101-00520-00	Adam West	Pump thermal overload failure	Thermal overload bypass	Barnes
1/4/2015	101-11320-00	Arby's	System airlocked	Pulled pump & released air from line	Barnes
1/5/2015	101-11320-00	Arby's	System airlocked	Pulled pump & released air from line	Barnes
1/9/2015	101-05620-00	Elijah Parriman	Power loss (breaker tripped)	Reset breaker	E-One
1/10/2015	101-11320-00	Arby's	System airlocked	Pulled pump & released air from line	Barnes
1/15/2015	105-08980-00	David Stephens	Float malfunction	Float hung. Adjusted float tree.	Barnes
1/16/2015	101-05620-00	Elijah Parriman	Pump failure	Changed pump	E-One
1/19/2015	105-08980-00	David Stephens	System airlocked	Pulled pump & released air from line	Barnes
1/19/2015	101-06000-00	Gwen Bryant	Start capacitor failure	Replaced start capacitor	Barnes
1/20/2015	107-01660-05	Patricia Strunk	Pump failure	Changed pump	E-One
1/20/2015	105-08980-00	David Stephens	Float malfunction	Float hung. Adjusted float tree.	Barnes
1/28/2015	105-08700-00	Frank Lillrell	Float wire broken	Reconnected float	Barnes
2/2/2015	105-02280-03	Virginia Mavily	Float wire broken	Reconnected float	Barnes
2/2/2015	105-10300-06	Edgar Salgado	Float malfunction	Float hung. Adjusted float tree.	Barnes
2/3/2015	105-06750-05	Cardyn Morgan	Pump failure	Changed pump	E-One
2/3/2015	105-12120-00	Donald Ross	Pump failure	Changed pump	E-One
2/3/2015	101-07780-00	McCreary Funeral Home	Float malfunction	Float hung. Adjusted float tree.	Barnes
2/5/2015	101-08960-00	Larry's Somerset Oil	System airlocked	Pulled pump & released air from line	Barnes
2/12/2015	105-10750-02	George Daniels	Panel wire loose	Reconnected wire	Barnes
2/19/2015	105-11080-00	Mike Cowan	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
2/22/2015	101-11100-00	Karen Singleton	Start capacitor failure	Replaced start capacitor	Barnes
2/24/2015	101-05560-03	Chris Ferguson	Disconnect fuse blown	Replaced fuse	E-One
2/24/2015	101-11360-01	Slate Farm	Float malfunction	Float hung. Adjusted float tree.	Barnes
2/26/2015	101-06140-00	Paul Hunt	Float malfunction	Float hung. Adjusted float tree.	Barnes
3/6/2015	101-03820-00	Patricia Smith	System airlocked	Pulled pump & released air from line	Barnes
3/9/2015	101-06280-00	Hurstle Daughlery	Pump thermal overload tripped	Reset thermal overload	Barnes
3/9/2015	105-09760-00	Michelle Matthews	Float wire broken	Reconnected float	Barnes
3/11/2015	103-02820-00	Sweet Creations	Float failure	Changed float	Barnes
3/16/2015	104-12660-00	Roxie Ball	Main power supply malfunction	Home owner restored power supply	E-One
3/18/2015	105-07120-00	Wanda Sims	Pump failure	Changed pump	E-One
3/18/2015	103-04360-00	Vanessa Bryant	Pump failure	Changed pump	E-One
3/25/2015	103-05780-00	Scott Solid Waste	Tank plumbing leak	Repaired leak	Barnes
3/27/2015	101-08400-00	Jim Miller	Float malfunction (grease build-up)	Cleaned grease off floats	Barnes
3/29/2015	105-03480-00	Donald Powell	Pump failure	Changed pump	E-One
3/30/2015	101-08400-00	Jim Miller	Float failure	Replaced float	Barnes
4/1/2015	105-02300-00	Mainstreet Barber Shop	Tank plumbing leak	Repaired leak	Barnes
4/6/2015	101-06360-00	Marshes Corner Market	Power loss (breaker failure)	Replaced breaker	Barnes
4/15/2015	105-10320-05	James Ball Rent House	Float malfunction (grease build-up)	Cleaned grease off floats	Barnes
4/15/2015	105-05525-01	David Collins	Pump failure	Changed pump	E-One
4/20/2015	105-05780-00	Mike Shepherd	Pump failure	Changed pump	E-One
4/20/2015	105-05535-01	Carol Arente	Pump failure	Changed pump	E-One
4/27/2015	105-10220-00	Tim Lavender Law Office	Pump failure	Changed pump	Barnes
4/29/2015	107-00760-00	Ashley West	Pump failure	Changed pump	E-One
4/29/2015	105-05780-00	Mike Shepherd	Pump failure	Changed pump	E-One
4/29/2015	105-11440-00	Bus Garage	Power loss (breaker failure)	Replaced breaker	Barnes

System Pump Failures 2015

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
4/29/2015	105-08360-00	Brown's Carpet	Start capacitor failure	Replaced start capacitor	Barnes
4/30/2015	107-19920-02	Christian Barnett	Pump failure	Changed pump	E-One
5/1/2015	107-01085-00	Harold Jones Subdivision	Pump failure	Changed pump	E-One
5/1/2015	101-07800-00	Mel's Diner	Pump failure	Changed pump	Barnes
5/3/2015	105-02240-00	Jack King's Rent House	Float malfunction	Float hung. Adjusted float free.	Barnes
5/5/2015	103-02160-00	Stearns First Baptist	Disconnect fuse blown	Replaced fuse	E-One
5/5/2015	105-02240-01	Jack King	Float wire broken	Reconnected float	Barnes
5/5/2015	105-04800-00	Edward Jones	Power loss (breaker turned off)	Turned breaker on	E-One
5/6/2015	105-07120-00	Wanda Sims	Pump failure	Changed pump	E-One
5/13/2015	105-05620-00	Alene King	Pump failure	Changed pump	E-One
5/13/2015	105-11080-00	Mike Cowan	Panel wire broken	Repaired broken wire	Barnes
5/18/2015	105-06480-02	Stephanie Johns	Pump failure	Changed pump	E-One
5/22/2015	105-02440-01	Randy Meadows	Tank plumbing leak	Repaired plumbing	E-One
5/23/2015	103-03220-01	Rose Braden	Tank plumbing leak	Repaired plumbing	E-One
5/23/2015	101-03760-02	Larry Cordell Rent House	Float malfunction (grease build-up)	Cleaned grease off floats	Barnes
5/28/2015	107-22660-00	Virginia Jones	Pump failure	Changed pump	E-One
5/29/2015	101-00520-00	Adam West	Pump failure	Changed pump	E-One
5/29/2015	101-01480-01	Lisa Kidd	Pump failure	Changed pump	Barnes
6/3/2015	101-01480-01	Lisa Kidd	Pump failure	Changed pump	Barnes
6/4/2015	101-05400-00	J.A. Lawson	Pump failure	Changed pump	E-One
6/4/2015	103-02200-02	Jeanine Burke	Pump failure	Changed pump	E-One
6/4/2015	105-02500-00	Martha Thomas	Start capacitor failure	Replaced start capacitor	Barnes
6/16/2015	105-11460-06	Sarah Walker	Float failure	Replaced float	Barnes
6/16/2015	107-01400-01	Faye Hatfield	Power loss (breaker tripped)	Reset breaker	Barnes
6/17/2015	101-04340-01	Timmy Morrow	Float malfunction	Float hung. Adjusted float free.	Barnes
6/17/2015	105-03740-02	Michelle Dunn	Pump failure	Changed pump	E-One
6/19/2015	101-03720-06	Anthony Crabtree	Power loss (breaker tripped)	Reset breaker	Barnes
6/19/2015	101-03760-02	Roger Cordell	Power loss (breaker tripped)	Reset breaker	E-One
6/22/2015	105-11440-00	Bus Garage	System airlocked	Pulled pump & released air from line	Barnes
6/22/2015	105-10380-00	Hickman-Strunk Funeral Home	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
6/22/2015	101-11100-00	Karen Singleton	Pump wires malfunction	Replaced pump wires	Barnes
6/23/2015	101-04680-00	Donna Astacio	Main power supply malfunction	Contacted power company for fix	Barnes
6/23/2015	105-02620-01	Ace's Pizza	Pump failure	Changed pump	E-One
6/24/2015	105-09660-01	Jeanine Lynch	Pump failure	Changed pump	Barnes
6/25/2015	105-08980-00	David Stephens	Float malfunction (grease build-up)	Cleaned grease off floats	Barnes
6/29/2015	105-12560-01	Lisa Sumner	Pump failure	Changed pump	E-One
6/29/2015	101-06000-00	Gwen Bryant	Pump failure	Changed pump	Barnes
6/30/2015	102-06560-01	Ashley Garland	Power loss (breaker failure)	Replaced breaker	E-One
7/1/2015	101-05060-00	Robin Shelton	Pump failure	Changed pump	E-One
7/9/2015	107-18800-01	Wilma Anderson	Disconnect fuse blown	Replaced fuse	E-One
7/13/2015	104-04680-00	Donna Astacio	Main power supply malfunction	Contacted power company for fix	Barnes
7/14/2015	101-02140-00	Mark Sumner	Pump failure	Changed pump	E-One
7/16/2015	105-07790-00	Olis Kidd	Pump failure	Changed pump	E-One
7/19/2015	101-00640-00	Stephanie New	Start capacitor failure	Replaced start capacitor	Barnes
7/19/2015	105-06560-00	Kenneth King	Pump failure	Changed pump	E-One
7/20/2015	103-05160-00	Makinley Bryant	Pump failure	Changed pump	E-One
7/21/2015	105-04800-02	Leslie Rose	Pump failure	Changed pump	E-One
7/23/2015	101-00640-00	Stephanie New	Pump failure	Changed pump	Barnes

System Pump Failures 2015

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
7/27/2015	101-08500-01	Judy Stephens	Float malfunction	Float hung. Adjusted float tree.	Barnes
7/24/2015	105-00400-00	Donald Douglas	Pump failure	Changed pump	E-One
7/28/2015	105-00240-00	Frances Brooks	Disconnect fuse blown	Replaced fuse	E-One
7/29/2015	101-05940-03	Catherine Morgan	System airlocked	Pulled pump & released air from line	Barnes
7/30/2015	105-08260-00	Whitley City Fire Dept.	System airlocked	Pulled pump & released air from line.	Barnes
7/31/2015	101-05940-00	Catherine Morgan	Pump check stuck open	Repaired pump check	Barnes
7/31/2015	101-01820-00	David Ross	Pump failure	Changed pump	Barnes
7/31/2015	105-07380-00	Bill Stephens	Pump failure	Changed pump	E-One
8/3/2015	101-00460-01	Brian Lyons	Start capacitor failure	Replaced start capacitor	Barnes
8/5/2015	101-06020-01	Bo King	Pump failure	Changed pump	Barnes
8/5/2015	101-06000-00	Gwen Bryant	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
8/6/2015	105-08980-00	David Stephens	Float malfunction (grease build-up)	Cleaned grease off floats	Barnes
8/18/2015	107-01880-00	Kelly Genoe	Pump failure	Changed pump	Barnes
8/19/2015	101-04140-00	Kenny Clark	Power loss (breaker tripped)	Reset breaker	Barnes
8/21/2015	105-09530-00	Emmanuel Fellowship	Start capacitor failure	Replaced start capacitor	Barnes
8/21/2015	105-10300-07	James Boll	Float malfunction	Float hung. Adjusted float tree.	Barnes
8/24/2015	101-05720-03	Kim Genoe	Disconnect fuse blown	Replaced fuse	Barnes
8/24/2015	101-11260-00	KFC	Float malfunction (grease build-up)	Cleaned grease off floats	Barnes
8/25/2015	105-00400-00	Donald Douglas	Pump failure	Changed pump	E-One
8/25/2015	105-10010-02	Jerry Spradlin	Float malfunction	Float hung. Adjusted float tree.	Barnes
8/25/2015	102-06560-02	Eddie Davis	Pump failure	Changed pump	E-One
8/26/2015	105-11480-00	Christy Lewis	Power loss (breaker tripped)	Reset breaker	Barnes
9/1/2015	101-11100-00	Karen Singleton	Tank plumbing leak	Repaired leak	Barnes
9/1/2015	103-02536-00	Michelle Matthews	Float malfunction	Float hung. Adjusted float tree.	Barnes
9/2/2015	105-06400-00	Donald Douglas	Pump failure	Changed pump	E-One
9/2/2015	101-01680-00	Irene Watson	Main power supply malfunction	Contacted power company for fix	Barnes
9/3/2015	105-10610-02	Jerry Spradlin	Float malfunction	Float hung. Adjusted float tree.	Barnes
9/3/2015	105-00600-00	Wiley Spradlin	Pump failure	Changed pump	E-One
10/12/2015	105-12850-13	Deborah Cox	Disconnect fuse blown	Replaced fuse	E-One
10/13/2015	101-00640-00	Stephanie New	Pump failure	Changed pump	Barnes
10/13/2015	101-11100-00	Karen Singleton	Power loss (breaker failure)	Replaced breaker	Barnes
10/17/2015	101-05940-03	Catherine Morgan	Pump check stuck open	Repaired pump check	Barnes
10/17/2015	107-01820-00	Lillian Johnson	Pump failure	Changed pump	E-One
10/19/2015	101-02100-00	Jim Rector	Cutter assembly malfunction	Cleaned cutter ring	Barnes
10/21/2015	101-00640-00	Stephanie New	Float failure	Replaced float	Barnes
10/22/2015	104-12650-00	Holbert Corder	System airlocked	Pulled pump & released air from line	Barnes
10/26/2015	101-05940-03	Catherine Morgan	Pump check stuck open	Repaired pump check	Barnes
10/29/2015	101-02100-00	Jim Rector	System airlocked	Pulled pump & released air from line	Barnes
10/30/2015	101-05520-02	Karl Jones	Disconnect fuse blown	Replaced fuse	E-One
10/30/2015	101-06240-01	Greg Smith	Pump failure	Changed pump	Barnes
10/31/2015	101-05520-02	Karl Jones	Pump failure	Changed pump	E-One
11/1/2015	101-00080-00	Jeremy Troxell	Pump failure	Changed pump	E-One
11/3/2015	105-08960-00	Susan Miller	Start capacitor failure	Replaced start capacitor	Barnes
11/3/2015	101-00540-01	Wiley King	Float malfunction	Float hung. Adjusted float tree.	Barnes
11/5/2015	107-14000-02	Country Café	Pump failure	Changed pump	E-One
11/5/2015	105-11160-02	Good Shepherd Church	Tank plumbing leak	Repaired leak	Barnes

System Pump Failures 2016

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
2/21/2016	105-03280-09	Pamela G King	Stator not working	Changed pump	E-One
2/29/2016	105-09480-08	Lawrence Vanover	Red light	Pulled pump, had cutter ring stuck, adjusted float system	Barnes
2/29/2016	105-08120-01	Nichole Bryant	EQD end burnt & pump failure	Pumped & cleaned tank	E-One
3/2/2016	107-22860-06	Robert Specht	Red light	Changed cable end & changed pump	E-One
3/3/2016	101-03720-06	Linda M Crabtree	Crushed lid	Changed lid	Barnes
3/4/2016	101-11260-00	KFC	Red light	Changed pump, put float's back together, changed breaker, changed contactor	
3/5/2016	101-11100-00	Karen Singleton	Red light	Pulled pump & let the air off of it	
3/6/2016	101-00370-00	Darrell Loudermilk	Red light & alarm	Pump was working fine but the alarm switch was stuck in the pump	E-One
3/7/2016	101-00370-00	Darrell Loudermilk	Grease clogging air switches	Cleaned pump	E-One
3/7/2016	101-06240-01	Greg Smith	Breaker fell out	Pushed breaker back in, pumped down, & shut off	
3/8/2016	105-03020-00	Joshua Terry	Power failure	Reset panel	E-One
3/9/2016	101-11260-00	KFC	Off float bad	Changed off float	
3/10/2016	105-11100-00	Leland & Midge Slaven	Start capacitor blown	Changed start capacitor	
3/10/2016	101-09380-00	First Financial	Check was blown out of pump	Put metal check in it	
3/11/2016	107-01395-00	Teresa Burchfield		Changed pump	E-One
3/11/2016	105-03020-00	Joshua Terry	Pump not shutting off	Changed pump & EQD end	E-One
3/11/2016	101-07460-00	William Ray Sumner	Off float hung		
3/11/2016	105-11100-00	Leland & Midge Slaven	Red light	Changed pump & relay	Barnes
3/11/2016	105-05680-00	Terry DeLaughter	Red light & alarm	Changed pump	
3/16/2016	105-02100-00	Joseph Horne	Float wire came loose		
3/18/2016	105-05020-00	Jeff & Cassonia Kidd	Pump failure	Changed pump & laid 15' of line for an overflow line	
3/25/2016	105-11100-00	Leland & Midge Slaven	Red light	Changed start capacitor	Barnes
3/28/2016	101-08680-00	Joan Marlow	On float hung		Barnes
3/29/2016	104-11690-02	Belinda & Jeremy Waters	Power failure	Reset panel	E-One
3/30/2016	105-09460-07	Daniel Ridner	Start capacitor blown & thermal blown	Fixed all	Barnes
4/7/2016	105-08640-00	McCreary Co Public Library	Tank not working	Changed start capacitor & pump & cleaned tank	Barnes
4/7/2016	105-05020-00	Jeff & Cassonia Kidd	Red light	Changed pump	E-One
4/11/2016	101-11360-01	Randy Kidd	Red light	Pumped & cleaned tank	
4/11/2016	107-18800-01	Wilma Anderson	Red light	Pumped & cleaned tank	
4/11/2016	101-11260-00	KFC	Red light	Air locked	Barnes
4/14/2016	101-11360-01	Randy Kidd		Changed pump	E-One
4/16/2016	105-09600-02	Valerie Cooper	Red light	Changed start capacitor	
4/16/2016	105-09760-00	Michelle Matthews	On float hung	Unhung float	
4/17/2016	105-02260-01	Jack King	Red light & alarm	Changed off float	
4/17/2016	105-11080-00	Mike Cowan	Pump failure & start capacitor		
4/23/2016	101-11240-01	Old Lighthouse Lift Station	Pump check ball stuck	Pulled pump & dislodged pump check ball	
4/23/2016	101-11260-00	KFC	Off float hung against side of tank	Dislodged float & adjusted float tree	
5/6/2016	105-10360-00	MCCR Ambulance	Red light & alarm	Changed pump	E-One
5/6/2016	101-09580-00	Burger Hut	Pumps were pulled out, floats not working	Installed pumps, changed all floats, & rewired	

System Pump Failures 2016

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
5/11/2016	101-07080-04	Terry Thompson	Pump failure	Changed pump	E-One
5/11/2016	105-08460-01	McCreary Family Medical	High head pressure	Changed pump	Barnes
5/11/2016	104-11690-02	Jeremy & Belinda Waters		Changed pump	E-One
5/16/2016	101-06580-00	James Jones		Changed pump	
5/16/2016	101-07460-00	William Ray Sumner	Start capacitor failed, breaker bad, pump had something hung in it	Changed start capacitor, 30 amp breaker, pulled pump, cleaned pump, washed floats	Barnes
5/17/2016	101-11180-00	Red Roof Inn	System airlocked		
5/17/2016	105-10750-02	George Daniels, Jr	Trouble shot control panel, was on top of house, hard to work on	Moved control panel, disconnect for power to ground level, replaced pump & floats	
5/23/2016	101-09080-00	Outdoor Venture	Had a wiring issue from install hand switch, lugs was supposed to be jumpered		Keen
5/24/2016	103-05420-04	Shaun P Ferguson	Pump failure	Changed pump	E-One
5/25/2016	103-05720-04	Tony Peters	Pump failure	Changed pump	E-One
5/25/2016	105-04500-01	Natasha Owens	Pump failure	Changed pump	E-One
5/25/2016	105-05570-00	D A Ranco, Inc	Pump failure	Pulled pump & sent to be repaired	
6/4/2016	101-11100-00	Karen Singleton	System airlocked	Pulled pump & released pressure, pump down & shut-off	Barnes
6/6/2016	105-04620-03	Kasi Hastings	Breaker tripped	Reset breaker & pumped station down	E-One
6/6/2016	105-08640-00	McCreary Co Public Library	Seal leak & float failure	Pumped down on hand, emptied tank & scheduled seal change	Barnes
6/8/2016	101-11070-03	Mega Deals	System airlocked	Pulled pump & let the air off & adjusted the floats	
6/8/2016	107-01410-01	David Decker	Pump failure	Changed pump	E-One
6/8/2016	101-06120-02	Dawn Kidd	Float wire came loose		
6/8/2016	103-03940-01	Merrell Wilson	Pump failure	Changed pump	E-One
6/9/2016	101-11320-00	Arby's	System airlocked	Pulled pump, released air, if pumped down & shut-off on auto	
6/9/2016	105-06400-00	Donald Douglas	Stator was out in pump	Pulled pump & put new one in	
6/10/2016	101-11140-00	Stanley Alcorn	Start capacitor failure	Changed start capacitor, relay, & jumped thermal, pulled pump & removed rags	
6/17/2016	105-05030-00	Koby Trammell	Power failure	Replaced power	E-One
6/19/2016	105-01240-00	Carlos Taylor	Power failure	Replaced power	Keen
6/20/2016	107-20000-00	Landon Sexton	Pump failure	Changed pump	E-One
6/21/2016	105-00880-00	Erlinda Murphy	Switch was turned off	Started up, & pumped down & shut off	
6/22/2016	103-00900-02	OVC		Replaced station, start capacitor	
6/22/2016	105-08960-00	Susan Miller	Pump failure	Changed pump, start capacitor, & fuse	Barnes
6/22/2016	105-10660-00	Phil's Auto	Pump failure	Changed pump	E-One
6/24/2016	101-00080-00	Jeremy Troxell	Stator was going out		
6/26/2016	105-01200-00	Anna Six	Valve was off in tank	Turned valve back on	
6/27/2016	101-00080-00	Jeremy Troxell	Pump failure	Changed pump	E-One
6/28/2016	105-10300-08	Steven Ridner	Breaker fell out, had something hung in pump	Fixed the breaker & got the pump working	
6/29/2016	101-03720-06	Linda M Crabtree	Connector & relay bad	Repair new connector relay	Barnes
6/29/2016	101-01980-01	Barry Sumner	On float bad	Replaced 3 floats	Barnes
6/30/2016	101-06000-00	Gwen Bryant	Seal broken on rail	Replaced the seal on the rail	Barnes
6/30/2016	105-12280-00	Thelma Shepherd	Pump failure	Changed pump	
7/1/2016	105-05800-00	Jerry Burk	Pump failure	Changed pump	
7/1/2016	103-05720-04	Tony Peters	Pump failure	Changed pump	

System Pump Failures 2016

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
7/1/2016	101-06040-00	Roy Lake	System airlocked	Pulled pump, released air, pumped down & shut off	Barnes
7/3/2016	105-02360-05	Gary Perry	Float hung	Pumped down by hand, dislodged float, adjusted float free	Barnes
7/5/2016	105-02360-05	Gary Perry	"On" float not working	Pumped tank empty, scheduled float changed for next morning	Barnes
7/6/2016	101-05870-00	Wanda Worley	Pump ramping up to 12 amps & kicking out on overload	Scheduled pump change for next morning	E-One
7/6/2016	105-02360-05	Gary Perry	Float's trouble	Off floats, on floats, high water floats	Barnes
7/7/2016	105-02240-00	Jack King	Stator was out	Changed pump	E-One
7/7/2016	101-06260-08	Bryan Lay	System airlocked	Changed pump & let the air off the line at the house & turned it back on & pumped it down	E-One
7/9/2016	101-05870-00	Wanda Worley	Pump failure	Changed pump	E-One
7/12/2016	103-01000-03	Fastway Fuel Mart	Pump failure	Changed pump	E-One
7/15/2016	103-01000-03	Fastway Fuel Mart	Pump failure	Changed pump	E-One
7/15/2016	103-02760-00	Imogene Coffey	Said sewer tank was not working	Plumbing issue on customer's side	Barnes
7/19/2016	107-23840-00	Pine Knot Fire Dept	Pump failure	Changed pump, pumped & cleaned tank	E-One
7/19/2016	101-05950-05	Catherine Morgan	Breaker fell out	Put new breaker in	Barnes
7/19/2016	101-07380-08	Benny Gregory	Sewer not working	System checked out fine, plumbing issues inside house	E-One
7/19/2016	101-08480-00	Brent Stephens	Off float was out	Changed the inside of the tank	Barnes
7/19/2016	101-05920-01	Kevin Davis	Said sewer tank was not working	System checked out fine, plumbing issues inside house	E-One
7/21/2016	105-02060-00	Larry Perry Apts	Floats out & pump failure	Replaced floats & rewired pump	
7/21/2016	101-11070-03	Mega Deals		Replaced pumping inside tank, pulled pump, man went inside tank	Barnes
7/21/2016	101-07780-01	McCreary Co Funeral Home		Pulled new wire, changed floats, changed pump	Barnes
7/23/2016	105-06860-01	Randy Swain	Stator in pump was out	Changed pump	E-One
7/26/2016	105-06280-03	Judy Corder	Blown fuse	Changed fuse	E-One
7/27/2016	101-07600-00	Tessa McClendon	Pump failure, all 3 floats out, plumbing was broke in tank	Repaired the plumbing, changed breaker, & start capacitor	Barnes
7/29/2016	105-02060-08	Chylan Stephens	Red light	System checked out fine	Barnes
7/29/2016	101-06240-01	Greg Smith	Breaker fell out		Barnes
7/29/2016	101-05540-00	Bruce Bartley	Pump failure	Changed pump	E-One
7/29/2016	106-00500-00	American Legion	Said sewer tank was not working	System checked out fine, plumbing issues inside	E-One
7/29/2016	101-04620-10	William Rosa	Pump failure & fuse blown	Changed pump & fuse	E-One
7/30/2016	101-05870-00	Wanda Worley	EQD was out	Changed EQD end	E-One
7/30/2016	101-11070-03	Mega Deals	Breaker fell out	Put a strap on the breaker	Barnes
8/1/2016	105-10240-01	Tim Lavender	On float was burnt in the tank	Fixed the wires	Barnes
8/1/2016	101-08480-00	Brent Stephens	Float malfunction	Replaced floats	Barnes
8/3/2016	105-10660-00	Phil's Auto	Pump failure	Changed pump	E-One
8/3/2016	105-03740-02	Michelle Strunk	Stator was out	Changed pump	E-One
8/3/2016	101-04814-00	Kendale Clark	Pump failure	Changed pump, pumped & cleaned tank	E-One
8/3/2016	101-04120-00		Tank lid was buried	Put on a new vent cap, pumped & cleaned tank	E-One
8/4/2016	107-00860-05	Anthony G Day	Pump failure	Changed pump	E-One
8/5/2016	105-08880-03	Scott Creekmore	On float not working	Replaced on float	Barnes
8/6/2016	105-07190-11	Ramona Reardon	Pump failure	Changed pump	E-One
8/9/2016	101-04360-00	Stephen Smith	Bad fuse	Replaced fuse	E-One

System Pump Failures 2016

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
8/12/2016	103-00100-00	Jimmy Stephens	Breaker was left off	Turned on	
8/12/2016			Bad sewer smell	System checked out ok	
8/14/2016	103-08180-00	Carl Jones	Check valve in tank was installed wrong	Fixed check valve	Keen
8/15/2016	101-05960-00	Geoff Bruce	Start capacitor blown & pump failure	Changed capacitor & pump	Barnes
8/16/2016	105-12780-01	Stanley Patton	Pump failure	Changed pump	E-One
8/17/2016		Cory Clark	Stator out	Replaced stator	E-One
8/19/2016	101-04460-01	Tracey Phillips	Float malfunction	Replaced floats	Barnes
8/19/2016	107-01820-00	Lillian Johnson	Pump failure	Changed pump	E-One
8/22/2016	107-01120-00	Pernia Lewis	Valve cap missing	Replaced valve cap	
8/23/2016	103-03980-00	Fred Murphy	Power failure		E-One
8/23/2016	101-11320-00	Arby's	Air locked	Relived air pressure	Barnes
8/23/2016	105-00960-00	Ralph Blevins	Breaker tripped	Reset breaker	Keen
8/24/2016	103-01580-00	Mike Cash	Float malfunction	Replaced floats	Keen
8/27/2016	106-00050-00	American Legion	Power failure	Replaced fuse	
8/27/2016	105-05420-00	Willis Garcia	EQD was out	Replaced EQD	E-One
8/27/2016	103-00300-00	Robert Halfield	Power failure	Replaced breaker	Keen
8/27/2016	107-23170-01	Rachel & Edward Jones	Pump failure	Replaced pump	E-One
8/30/2016	105-01760-00	Norma Boyalt	Odor complaint	System checked out ok	Barnes
9/1/2016	105-02060-08	Chylan Stephens	Air locked	Bled air off	Barnes
9/1/2016	105-02730-01	J D Woods	Breaker failed	Replaced breaker	E-One
9/7/2016	101-00540-01	Wiley King	Power failure	Fixed problem	Barnes
9/9/2016	103-04020-00	Rudy Hamlin	Pump failure	Changed pump	E-One
9/9/2016	103-02080-01	Carolyn Jones	Bad on float	Replaced on float	E-One
9/10/2016	101-08230-00	IGA	Pump failure	Changed pump	E-One
9/12/2016	101-07820-01	One Stop Chevron	Pump failure	Changed pump	Barnes
9/12/2016	105-12640-00	Donald Bowman	Bad mat in tank	Cleaned tank	E-One
9/13/2016	107-01880-00	Kelly & Emily Genoe	Pump failure	Changed pump	E-One
9/16/2016	105-02090-01	Crandall King	Float malfunction	Adjusted floats	Barnes
9/22/2016	101-05980-09	Kay Bruce	Bad relay in panel	Replaced relay	Barnes
9/26/2016	105-08960-00	Susan Miller	Pump failure	Changed pump	Barnes
9/27/2016	105-10060-00	Auslin Price	Power failure	Replaced breaker	Barnes
9/29/2016	105-10140-02	Jeremy Young	Float malfunction	Replaced floats	Barnes
9/29/2016	105-10750-02	George Daniels, Jr	Float malfunction	Cleaned floats	Barnes
9/29/2016	105-02560-00	Alma Koger	Float malfunction	Readjusted floats	Barnes
9/29/2016	105-09700-00	Evelyn Shepherd	Float malfunction	Readjusted floats	Barnes
10/7/2016	102-06840-00	Whitley City Elementary	Pump failure	Changed pump	
10/9/2016	101-11180-00	Red Roof Inn	Air locked	Released air	Barnes
10/11/2016	107-18620-00	Louvena Turner	Pump failure	Changed pump	E-One
10/13/2016	104-12880-00	Earl Chitwood	Pump failure	Changed pump	E-One

System Pump Failures 2016

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
10/17/2016	101-11180-00	Red Roof Inn	Air locked	Released air	Barnes
10/17/2016	101-11120-00	J W Perry	Float malfunction	Freed float	Barnes
10/17/2016	105-05780-00	Michael Shepherd	Pump failure	Changed pump	E-One
10/18/2016	105-09560-00	Good Shepherd Chapel	Pump failure	Changed pump	Barnes
10/18/2016	105-08600-05	Southern Petroleum	Pump failure	Changed pump	E-One
10/19/2016	103-05260-00	Jeanine Burke	Said we had a sewer leak	System checked out ok	Barnes
11/7/2016	105-08600-06	Southern Petroleum	Bad EQD	Replaced EQD	E-One
11/7/2016	103-02170-00	Alice Wilson	Sewer line clogged	Unclogged	Barnes
11/18/2016	105-00100-00	Tony Kidd	Float malfunction	Adjusted floats	Barnes
11/18/2016	101-08680-00	Joan Marlow	Float malfunction	Adjusted floats	Barnes
11/18/2016	105-12640-00	Donald Bowman	Pump failure	Changed pump	E-One
11/28/2016	101-	KFC	Pump failure	Changed pump	Barnes
12/5/2016	107-00800-00	Helen Miller	Pump failure	Changed pump	Barnes
12/5/2016	101-04540-01	Jeremy King	Pump failure	Changed pump	Barnes
12/19/2016	105-	Dairy Bar	Pump failure	Rewired pump	Barnes
12/23/2016	105-03740-02	Michael Strunk	Pump failure	Changed pump	E-One
12/26/2016	103-00100-00	Jimmy Stephens	Start capacitor blown	Replaced start capacitor	Barnes
12/27/2016	102-	USFS Ranger District	Pump failure	Changed pump	E-One
12/27/2016	103-00100-00	Jimmy Stephens	Start capacitor blown	Replaced start capacitor	Barnes

System Pump Failures 2017

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
1/10/2017	103-00300-00	Robert Halfeld	Panel contactor failure	Replaced contactor	Barnes
1/10/2017	104-1170-01	Blaine Phillips	Pump failure	Changed pump	E-One
1/11/2017	101-11100-00	Karen Singleton	Pump wires broken	Repaired pump wires	Barnes
1/11-17	105-07920-01	Jessica Pery	Pump failure	Changed pump	E-One
1/15/2017	104-11770-01	Blaine Phillips	Pump failure	Changed pump	E-One
1/17/2017	101-11260-00	KFC	Disconnect breaker failure	Replaced disconnect	Barnes
1/18/2017	105-00420-00	Rosalie Wright	Pump failure	Changed pump	E-One
1/18/2017	105-02047-08	Larry Pery	System airlocked	Pulled pump & released air from line	Barnes
1/18/2017	101-05700-00	Kenny Gilreath	Pump failure	Changed pump	Barnes
1/20/2017	105-11460-06	Shara Walker	Pump failure	Changed pump	Barnes
1/25/2017	101-11260-00	KFC	Pump failure	Changed pump	Barnes
1/30/2017	105-02480-06	Kellie Tucker	Start capacitor failure	Replaced start capacitor	Barnes
1/31/2017	101-06980-03	Noia Morrow	Pump failure	Changed pump	E-One
2/2/2017	101-07280-06	Shella Stringer	Float failure	Changed float	Barnes
2/2/2017	106-00050-00	American Legion	Disconnect fuse blown	Replaced fuse	E-One
2/2/2017	105-08220-00	First Baptist Church	Float malfunction	Float hung. Adjusted float free.	Barnes
2/3/2017	105-10060-00	Auslin Price	Float malfunction	Float hung. Adjusted float free.	Barnes
2/4/2017	105-09760-00	Michelle Matthews	Float malfunction (grease build-up)	Cleaned grease off floats	Barnes
2/8/2017	105-08980-00	David Stephens	Float malfunction	Float hung. Adjusted float free.	Barnes
2/8/2017	105-05030-00	Koby Trammell	Pump failure	Changed pump	E-One
2/9/2017	105-02100-00	Joe Horne	Float malfunction (grease build-up)	Cleaned grease off floats	Barnes
2/10/2017	101-07280-06	Shiela Stringer	Float malfunction	Float hung. Adjusted float free.	Barnes
2/10/2017	101-07440-14	Krissa Parsley	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
2/13/2017	105-06020-00	Todd Hansford	Pump failure	Changed pump	Barnes
2/13/2017	103-03750-01	Stearns Residence Center	Cutter assembly malfunction	Cleaned cutter ring	Barnes
2/16/2017	101-11100-00	Karen Singleton	Pump failure	Changed pump	Barnes
2/21/2017	101-08460-00	Larry Loudermilk	Start capacitor failure	Replaced start capacitor	Barnes
2/21/2017	101-07820-01	Marathon	Float failure	Changed float	Barnes
2/21/2017	101-00520-00	David West	Pump failure	Changed pump	Barnes
2/21/2017	105-07300-00	Ronnie Waters	Pump failure	Changed pump	E-One
2/21/2017	105-11480-00	Christy Lewis	System airlocked	Pulled pump & released air from line	Barnes
2/21/2017	105-10750-02	George Daniels	Pump obstruction in tank	Removed piece of wood from tank	Barnes
2/23/2017	107-23210-03	Heather Tucker	Pump failure	Changed pump	E-One
2/23/2017	105-11480-00	Christy Lewis	Disconnect fuse blown	Replaced fuse	E-One
2/24/2017	105-02100-00	Joe Horne	Float malfunction	Float hung. Adjusted float free.	Barnes
2/28/2017	104-11770-01	Blaine Phillips	Power loss (breaker tripped)	Reset breaker	Barnes
3/2/2017	105-06080-00	Sherry Branscum	Pump failure	Changed pump	E-One
3/5/2017	105-11480-00	Christy Lewis	Pump failure	Changed pump	E-One
3/7/2017	105-09560-00	Good Shepherd Church	Pump rail seal failure	Replaced pump seal	Barnes
3/8/2017	105-11480-00	Christy Lewis	Pump failure	Changed pump	E-One
3/8/2017	105-08980-00	David Stephens	Pump failure	Changed pump	Barnes
3/9/2017	105-07300-00	Ronnie Waters	Pump failure	Changed pump	E-One
3/9/2017	105-12220-00	Tammy Masesals	Pump failure	Changed pump	E-One
3/10/2017	105-10140-02	Jeremy Young	System airlocked	Pulled pump & released air from line	Barnes
3/11/2017	101-07200-18	Harold Hansford	System airlocked	Pulled pump & released air from line	Keen
3/12/2017	105-04000-00	Ricky Garland	Pump failure	Changed pump	E-One
3/14/2017	105-10140-02	Jeremy Young	Power loss (breaker turned off)	Turned breaker on	Keen
3/14/2017	105-10140-02	Water/Sewer Shop	Pump check malfunction	Changed pump check	Keen

System Pump Failures 2017

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
3/22/2017	107-23920-00	Vester Lewis	Pump failure	Changed pump	E-One
3/27/2017	103-10080-05	Larry Simmons	Pump failure	Changed pump	Keen
3/27/2017	101-07820-01	One Stop Marathon	Run capacitor failure	Replaced run capacitor	Barnes
4/7/2017	107-01300-00	Angela Trammell	Pump failure	Changed pump	E-One
4/10/2017	103-05720-04	Tony Peters	Pump failure	Changed pump	E-One
4/10/2017	101-04340-01	Timothy Morrow	Pump failure	Changed pump	Barnes
4/10/2017	105-02360-05	Gary Perry	Float malfunction	Float hung. Adjusted float tree.	Barnes
4/12/2017	101-05970-00	Josh Shepherd	System airlocked	Pulled pump & released air from line	Barnes
4/12/2017	105-09600-02	Valerie Jones	Start capacitor failure	Replaced start capacitor	Barnes
4/12/2017	101-11100-00	Karen Singleton	Pump check malfunction	Replaced pump check	Barnes
4/13/2017	105-10060-00	Austin Price	Float malfunction	Float hung. Adjusted float tree.	Barnes
4/13/2017	105-02360-05	Gary Perry	Tank plumbing leak	Repaired leak	Barnes
4/14/2017	105-01340-03	Donna Brown	Float malfunction	Float hung. Adjusted float tree.	Barnes
4/14/2017	101-04480-00	Richard Koger	Tank plumbing leak	Repaired leak	Barnes
4/17/2017	105-10230-00	Tim Lavender	Float failure	Replaced float	Barnes
4/18/2017	101-08680-00	Joan Marlow	Float failure	Replaced float	Barnes
4/19/2017	105-11260-01	John Strunk	Cutter assembly malfunction	Cleaned cutter ring	Barnes
4/21/2017	101-04740-01	Whitney Tucker	Pump failure	Changed pump	E-One
4/21/2017	105-06600-00	Lois Taylor	Pump failure	Changed pump	E-One
4/24/2017	105-11260-01	John Strunk	Float failure	Changed float	Barnes
4/28/2017	102-06560-03	Jerrica Ballimore	Pump failure	Changed pump	E-One
4/29/2017	105-02380-00	Paul Smith	Float failure	Changed float	Barnes
4/26/2017	109-07920-02	Bruce Butler	Power loss (breaker tripped)	Reset breaker	E-One
4/27/2017	105-11260-01	John Strunk	Float malfunction	Float hung. Adjusted float tree.	Barnes
4/28/2017	105-11260-01	John Strunk	Float malfunction	Float hung. Adjusted float tree.	Barnes
4/28/2017	105-00760-02	Sherry Raleigh	Power loss (breaker failure)	Replaced breaker	Barnes
5/3/2017	102-06560-03	Jerrica Ballimore	Panel circuit board failure	Replaced circuit board	E-One
5/3/2017	101-06100-02	Shauntella Gibson	Float malfunction	Float hung. Adjusted float tree.	Barnes
5/3/2017	103-00250-04	Lindsey Gilreath	Power loss (breaker tripped)	Reset breaker	Keen
5/4/2017	101-01520-01	Allen Taylor	Float malfunction	Float hung. Adjusted float tree.	Barnes
5/9/2017	103-01300-00	Sue Blevins	Power loss (breaker turned off)	Turned breaker on	Barnes
5/13/2017	101-11320-00	Arby's	System airlocked	Pulled pump & released air from line	Barnes
5/16/2017	101-01620-07	Delph Melopy	Power loss (breaker turned off)	Turned breaker on	E-One
5/19/2017	101-04160-00	Kenneth West	Disconnect fuse blown	Replaced fuse	E-One
5/22/2017	101-01420-01	Barry Perry	Cutter assembly malfunction	Cleaned cutter ring	Barnes
5/22/2017	101-08260-00	Don Warren	Float malfunction	Float hung. Adjusted float tree.	Barnes
5/22/2017	101-06620-01	Michola Phillips	Pump failure	Changed pump	E-One
5/22/2017	101-07820-01	One Stop Chevron	Power loss (breaker tripped)	Reset breaker	Barnes
5/22/2017	105-00760-02	Sherry Raleigh	Electrical relay failure	Replaced relay	Barnes
5/23/2017	105-00760-02	Sherry Raleigh	Pump check malfunction	Replaced pump check	Barnes
5/23/2017	101-08260-00	Don Warren	Float wire broken	Reconnected float	Barnes
5/23/2017	105-10060-00	Austin Price	Float malfunction	Float hung. Adjusted float tree.	Barnes
5/25/2017	107-00760-05	Michael Taylor	Pump failure	Changed pump	E-One
5/30/2017	101-04740-01	Whitney Tucker	Pump failure	Changed pump	E-One
5/30/2017	106-00030-00	Whitney Spradlin	Pump failure	Changed pump	E-One
5/31/2017	107-01300-00	Angela Trammell	Pump failure	Changed pump	E-One
6/1/2017	105-06860-01	Randy Swain	Pump failure	Changed pump	E-One
6/2/2017	103-04180-02	Dewayne Morrow	Pump failure	Changed pump	E-One

System Pump Failures 2017

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
6/3/2017	101-014200-01	Barry Perry	Cutter assembly malfunction	Cleaned cutter ring	Barnes
6/6/2017	101-11770-01	Blaine Phillips	Power loss (breaker failure)	Replaced breaker	Barnes
6/6/2017	101-07820-01	One Stop Chevron	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
6/6/2017	105-03740-02	Michelle Strunk	Pump failure	Changed pump	E-One
6/6/2017	107-01300-00	Angela Trammell	Pump failure	Changed pump	Barnes
6/12/2017	101-11100-00	Karen Singleton	System airlocked	Pulled pump & released air from line	Barnes
6/12/2017	107-17140-00	Outdoor Venture	Pump failure	Changed pump	E-One
6/13/2017	105-02120-01	Eric Stewart	Pump check malfunction	Replaced pump check	Barnes
6/14/2017	101-11070-03	Mega Deals	Pump check malfunction	Replaced pump check	Barnes
6/25/2017	101-05520-02	Karen Jones	Power loss (breaker turned off)	Turned breaker on	E-One
6/26/2017	105-08320-00	Debbie Nolan	Cutter assembly malfunction	Cleaned cutter ring	Barnes
6/26/2017	105-05040-01	Paige Herberl	Pump failure	Changed pump	E-One
6/27/2017	105-10140-02	Water/Sewer Shop	Pump failure	Replaced stator in pump	E-One
6/27/2017	105-05040-01	Paige Herberl	Pump cord failure	Replaced pump cord	E-One
6/27/2017	101-00160-01	Christopher Ruley	Power loss (breaker turned off)	Turned breaker on	Barnes
6/28/2017	105-08380-00	Main Street Flower Shop	Pump failure	Changed pump	Barnes
6/28/2017	105-02047-09	Larry Perry Apartments	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
6/29/2017	101-11320-00	Arby's	System airlocked	Pulled pump & released air from line	Barnes
6/29/2017	101-03760-02	Chris Newman	Power loss (breaker tripped)	Reset breaker	Barnes
7/9/2017		Tim Jones	Pump failure	Changed pump	Barnes
7/9/2017		Janice Taylor	Pump failure	Changed pump	E-One
7/10/2017	105-08980-00	David Stephens	Float malfunction	Float hung. Adjusted float free.	Barnes
7/17/2017	105-02700-00	Highland Telephone	Start capacitor failure	Replaced start capacitor	Barnes
7/17/2017	101-00160-01	Christopher Ruley	Power loss (breaker failure)	Replaced breaker	Barnes
7/21/2017	105-04280-00	Maxwell Dawson	Pump failure	Changed pump	E-One
7/21/2017	105-07180-00	Regal Bruner	Pump failure	Changed pump	E-One
7/22/2017	101-03760-02	Chris Newman	Start capacitor failure	Replaced start capacitor	Barnes
7/24/2017	101-00540-01	Wiley King	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
7/24/2017	105-00900-00	Lois Stephens	Power loss (breaker turned off)	Turned breaker on	Barnes
7/29/2017		Rober Bowling	Pump failure	Changed pump	E-One
7/29/2017	101-11260-00	KFC	Float failure	Changed float	Barnes
7/31/2017	104-12080-00	Paula Crowley	Pump failure	Changed pump	E-One
7/31/2017	105-10380-00	Strunk Funeral Home	Panel relay failure	Replaced relay	Barnes
8/2/2017	105-02700-00	Highland Telephone	Power loss (snap-in breaker fell out)	Reconnected breaker	Barnes
8/3/2017	105-11480-00	Christy Lewis	Pump failure	Changed pump	E-One
8/4/2017	105-02700-00	Highland Telephone	Float failure	Replaced float	Barnes
8/4/2017	105-08840-00	Leroy Griffis	Pump failure	Changed pump	E-One
8/4/2017	101-01120-00	Roy Walters	Pump failure	Changed pump	E-One
8/6/2017		Hurstle Daughtery	Float malfunction	Float hung. Adjusted float free.	Barnes
8/7/2017	101-11120-00	J.W. Perry	Pump failure	Changed pump	Barnes
8/7/2017	101-06080-00	Donald Lynch	Cutter assembly malfunction	Cleaned cutter ring	Barnes
8/8/2017	105-08840-00	Leroy Griffis	Float failure	Changed float	Barnes
8/9/2017	105-02090-02	Crandall King	Panel relay failure	Replaced relay	Barnes
8/14/2017	101-04480-00	Richard Koger	Float wire broken	Reconnected float	Barnes
8/16/2017	101-00160-01	Christopher Ruley	Pump rail seal failure	Replaced seal	Barnes
8/18/2017	105-10750-02	George Daniels	Disconnect fuse blown	Replaced fuse	Barnes
8/23/2017	105-03940-00	Keegan Tucker	Pump failure	Changed pump	E-One
8/28/2017	101-06080-00	Sula Lynch	Cutter assembly malfunction	Cleaned cutter ring	Barnes

System Pump Failures 2017

McCreary County Water District

Date	Account #	Customer	Problem	Resolution	Pump Type
8/28/2017	101-11320-00	Arby's	System airlocked	Pulled pump & released air from line	Barnes
8/29/2017	101-11320-00	Arby's	Power loss (breaker failure)	Replaced breaker	Barnes
8/30/2017	105-02240-00	Jack King	Pump failure	Changed pump	Barnes
8/31/2017	101-06220-00	Idalene King	Start capacitor failure	Replaced start capacitor	Barnes
9/7/2017	101-11320-00	Arby's	Float malfunction	Float hung, Adjusted float free.	Barnes
9/8/2017	107-17140-00	Outdoor Venture	Pump failure	Changed pump	E-One
9/8/2017		Hurstle Daughtery	Pump failure	Changed pump	Barnes
9/15/2017	105-11460-07	Nathan Lackey	Float failure	Changed float	Barnes
9/19/2017		911 Office	Pump failure	Changed pump	E-One
9/19/2017	101-08400-00	James Miller	Float failure	Changed float	Barnes
9/20/2017	105-11460-07	Nathan Lackey	Float malfunction	Float hung, Adjusted float free.	Barnes
9/29/2017		First Baptist Staff House	Pump failure	Changed pump	E-One
10/5/2017	107-00620-01	Eddie Grundy	Pump failure	Changed pump	E-One
10/7/2017	107-24040-00	David Mason	Pump failure	Changed pump	E-One
10/10/2017	101-05180-01	Harold Hansford	Panel contactor failure	Replaced contactor	Barnes
10/17/2017	103-05260-00	Jeanine Burke	Pump failure	Changed pump	E-One
10/17/2017	105-10750-02	George Daniels	Pump failure	Changed pump	Barnes
10/17/2017	101-11070-03	Mega Deals	System airlocked	Pulled pump & released air from line	Barnes
10/18/2017	105-10750-02	George Daniels	Pump check malfunction	Replaced pump check	Barnes
10/18/2017	101-11070-03	Mega Deals	Pump check malfunction	Replaced pump check	Barnes
10/19/2017	101-08400-00	Pam Miller	Float wire broken	Reconnected float	Barnes