

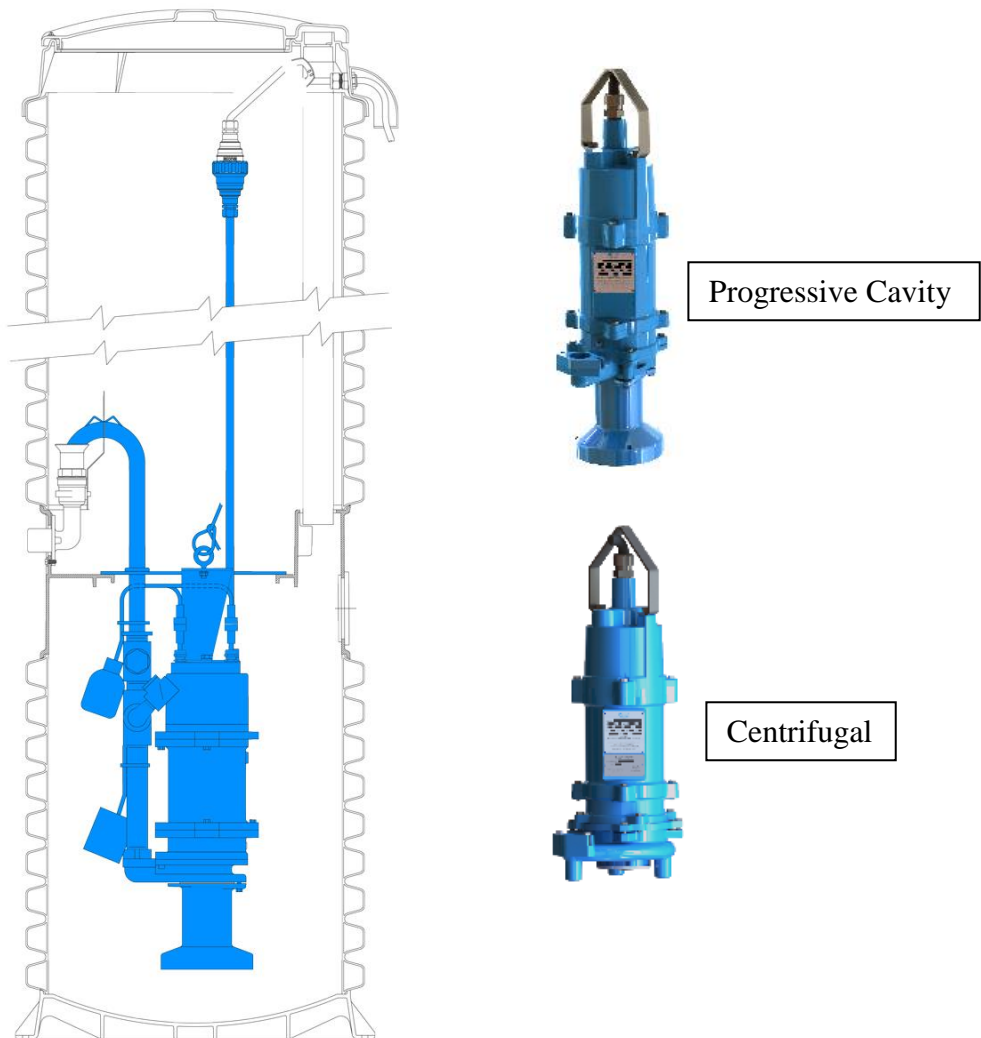


471 US Hwy 250 East, Ashland, Ohio 44805
PH: 419-207-9400 FX: 419-207-8031

INSTALLATION AND SERVICE INSTRUCTIONS

“KER”

KEEN PUMP - e/One ® Replacement



e/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

P/N O&M-KER

Models

Model No.	Pump Model No.	HP	Phase	Volts	Automatic or Manual	Full Load Amps	Replaces Models
KER	KG2-2301CSL	2	1	230	Automatic	12.8	GP2010/2012/2014/2015/2016
KER-0001	KG2-2301CSL	2	1	230	Automatic	12.8	DH/R-071/151/152/272/502
KER-0002	KG2-2301CSL	2	1	230	Automatic	12.8	GP2010/2012/2014/2015/2016
KER-0003	KG2-2301CSL	2	1	230	Automatic	12.8	DH/R-071/151/152/272/502
KER-PC	KPCG-21CTSL	1	1	230	Automatic	8.0	GP2010/2012/2014/2015/2016
KERPC-0001	KPCG-21CTSL	1	1	230	Automatic	8.0	DH/R-071/151/152/272/502
KERPC-0002	KPCG-21CTSL	1	1	230	Automatic	8.0	GP2010/2012/2014/2015/2016
KERPC-0007	KPCGSL-21CT	1	1	230	Automatic	8.0	GATORGRINDER GH091
KERPC-0008	KPCGSL-21CT	1	1	230	Automatic	8.0	WH/R101/231/471/472/482/483/484 W-FIBERGLASS

Safety Instructions

Read all instructions in this manual before operating pump.

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.

Most accidents can be avoided by using COMMON SENSE.

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.

Safety Instructions (cont'd)

WARNING!

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

DANGER!

HAZARDOUS MOVING PARTS. To reduce risk of injury, disconnect power before servicing. Never put fingers near grinder impeller (slicer) 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.

General Information

Thank you for purchasing your Keen Pump. To help ensure years of trouble-free operation, please read the following manual carefully.

Attention:

This manual contains important information for the safe use of this product. Read this manual completely before using this product and refer to it often for continued safe product use. **DO NOT THROW AWAY OR LOSE THIS MANUAL.**

Pump Warning

IMPORTANT: Read all directions before replacing any parts.

WARNING: Before handling these pumps and controls, always disconnect the power first. Do not smoke or use sparkable electrical devices or flames in a septic (gaseous) possible septic sump.

Application: These pumps are designed for on-site residential sewage discharge applications with a pH ranging from 6 to 9, specific gravities from 0.9 to 1.1, viscosities ranging from 28 to 35 S.S.U., and temperatures up to 140°F.

Receiving Pump: Pump should be checked on arrival for possible concealed shipping damages. Any damage should be reported immediately to delivery carrier. Claims for damage must originate at the receiving end. Claims for shipping damage cannot be processed by the factory.

Codes:

All local wiring codes must be observed. Consult the local inspector before installation to avoid delays that can occur due to rejection after job is finished.

Heat Sensors:

All motors in this family have heat sensors on or embedded in the motor winding to detect excessive heat. This prevents damage to the motor. If the sensor trips due to excessive winding temperature, the starter in the panel breaks power to the pump. Once the sensor resets, the starter is to be reset for continued operation of the pump. This circuitry is supplied in a Keen Pump control panel. The sensors are set to trip at 120°C.

Power Cords:

The power cord and heat sensor seal failure cord are potted into the connection box cap. The cords must not be spliced.

NOTE: Each cable has a green lead. This is the ground wire and must be grounded properly per N.E.C. and/or local codes. During normal maintenance procedures power cords should be inspected for abnormal wear and replaced accordingly.

NOTE: Red lead is always the start winding of the single phase pump.

Installing Pump in Sump:

Before installing pump in sump, lay it on its side and rotate grinding/slicer impeller. Impeller may be slightly stuck due to factory test water so it must be broken loose with a small bar or screwdriver. The impeller should turn freely. Do not connect the power until after this test.

Clean all trash and sticks from sump and connect pump to piping. A check valve must be installed on each pump.

Making Electrical Connections:

All electrical wiring must be in accordance with local code, and only qualified electricians should make the installations. All wires should be checked for shorts to ground with an ohmmeter or megger after the connections are made. This is important, as one grounded wire can cause considerable trouble.

IMPORTANT: If equipment is not properly wired and protected as recommended, Keen Pump warranty is void. See wiring diagrams below.

Level Controls:

The KEEN PUMP replacement shall be provided with level control floats. (2) controls are provided. (1) On-Off mechanical, wide-angle switch and (1) High Water Alarm, narrow-angle switch is included.

The KEEN PUMP unit DOES NOT include a junction box. Both floats are wired into pump cord cap and are both equipped with a Quick-Disconnect fitting. Exiting the pump cord cap is a single cable that has an EQD Electrical Quick Disconnect with mating connection to existing EQD (coming from panel).

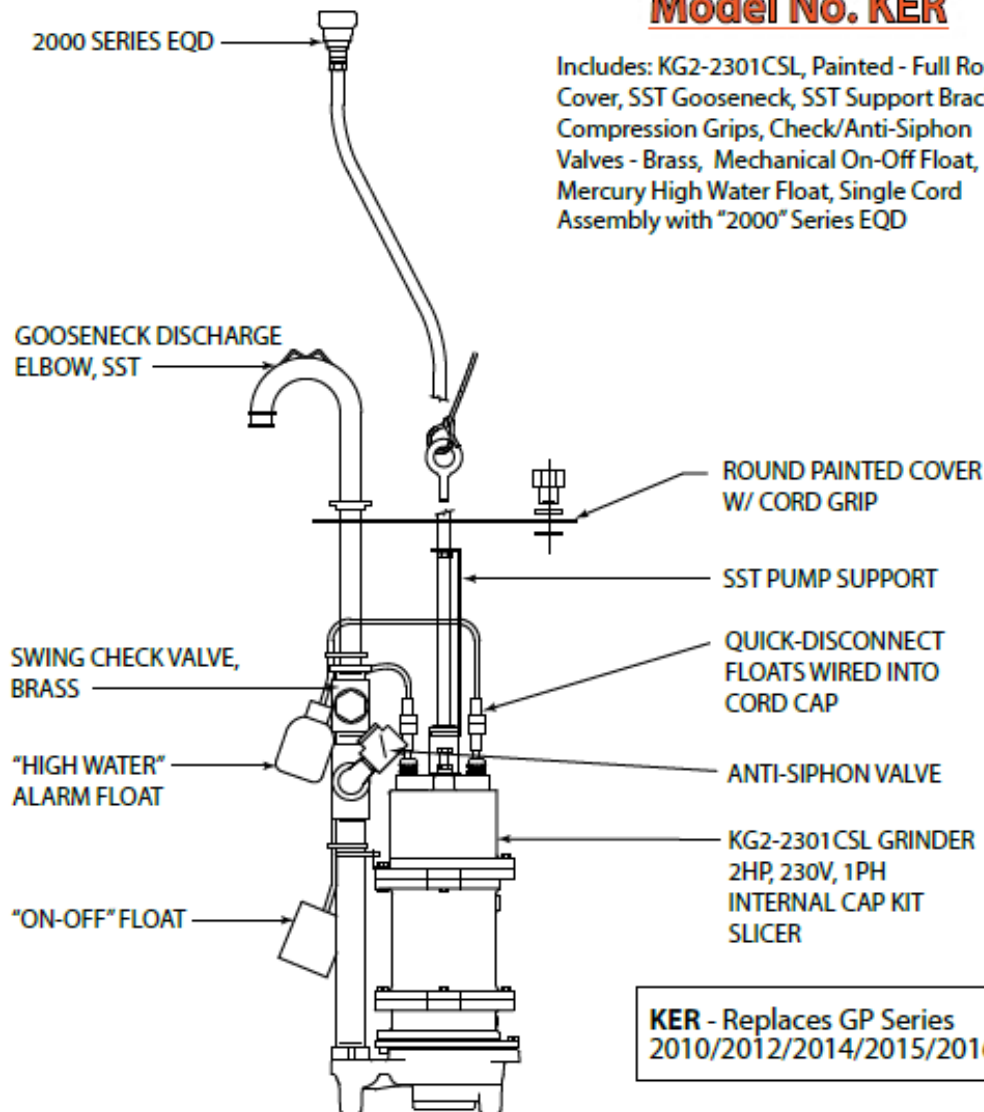
SPECS All Replacement Options pp 7-15



KEEN e/One® Replacement

Model No. KER

Includes: KG2-2301CSL, Painted - Full Round Cover, SST Gooseneck, SST Support Brackets, Compression Grips, Check/Anti-Siphon Valves - Brass, Mechanical On-Off Float, Mercury High Water Float, Single Cord Assembly with "2000" Series EQD



KER - Replaces GP Series 2010/2012/2014/2015/2016

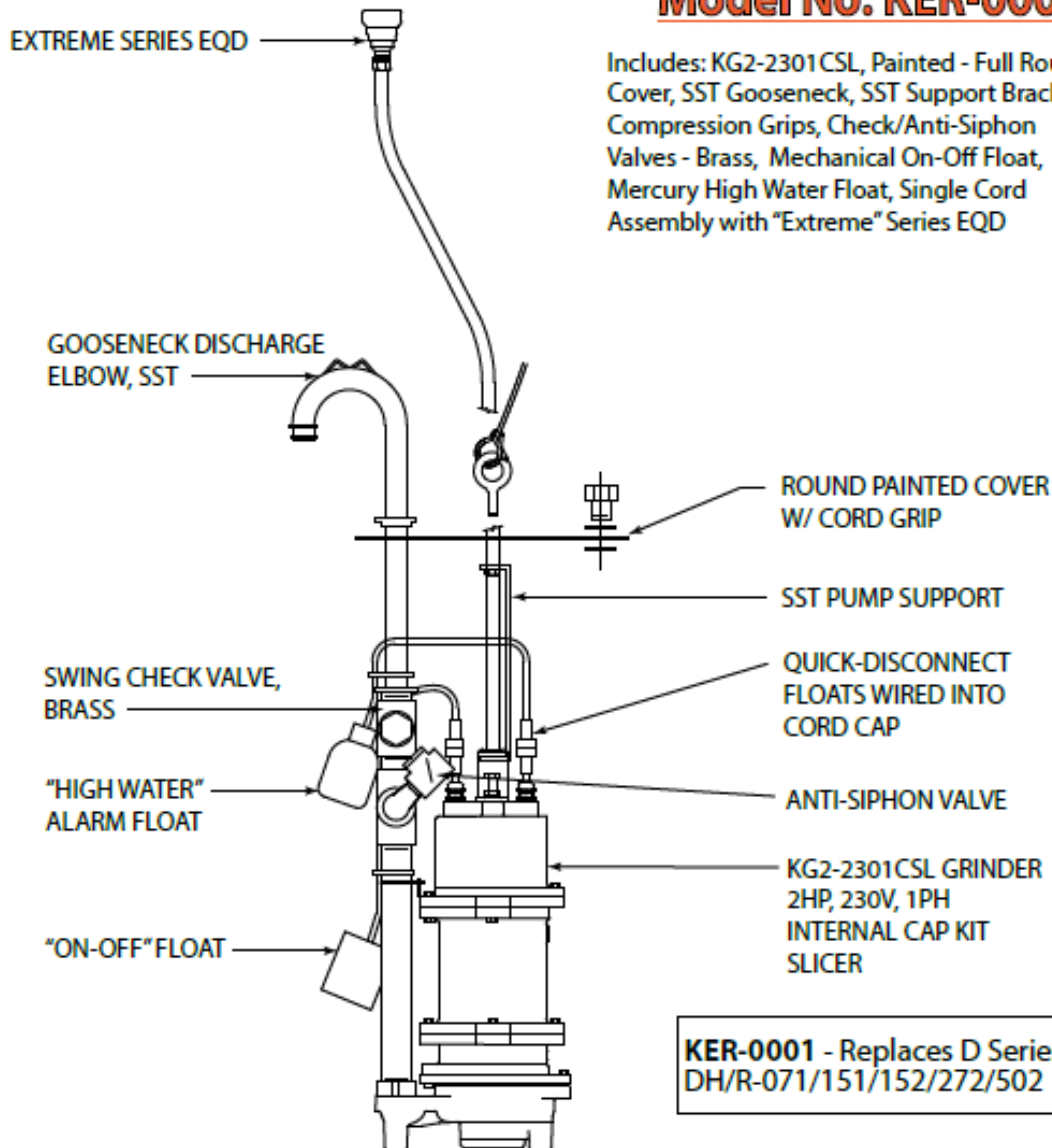
E/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

KC0066 08/18

KEEN e/One® Replacement

Model No. KER-0001

Includes: KG2-2301 CSL, Painted - Full Round Cover, SST Gooseneck, SST Support Brackets, Compression Grips, Check/Anti-Siphon Valves - Brass, Mechanical On-Off Float, Mercury High Water Float, Single Cord Assembly with "Extreme" Series EQD



**KER-0001 - Replaces D Series
DH/R-071/151/152/272/502**

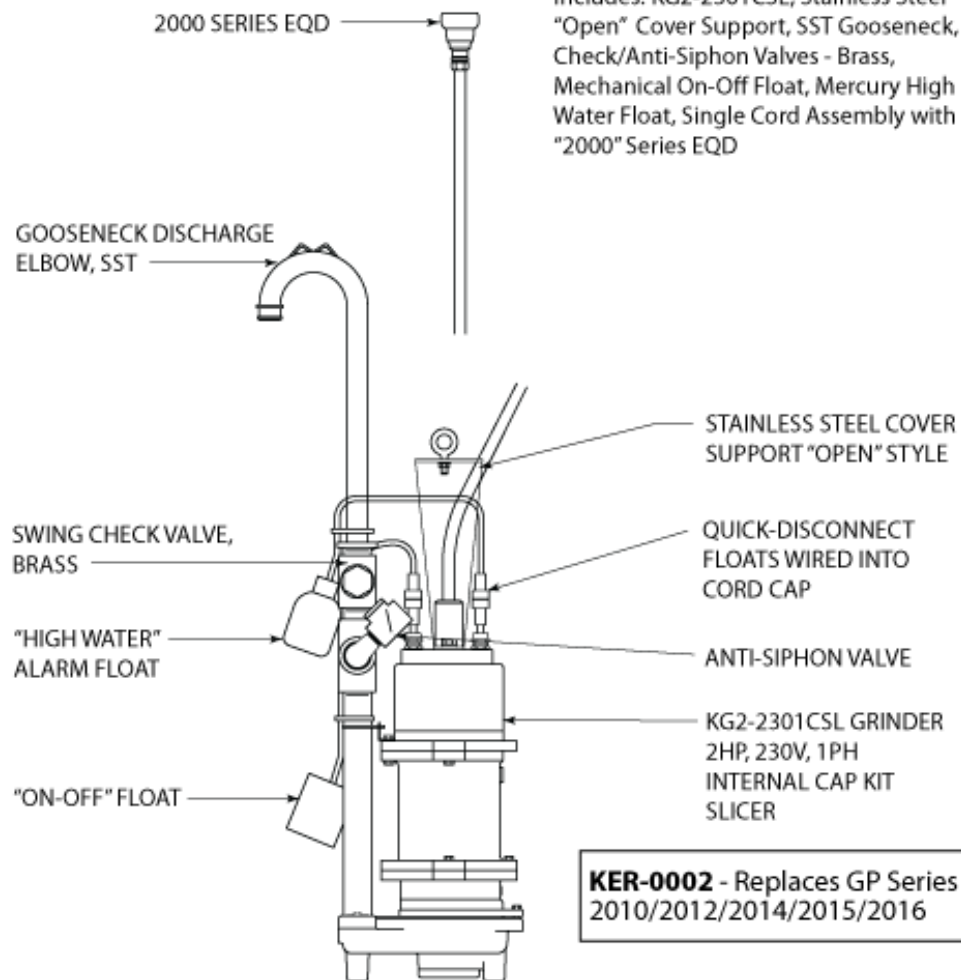
E/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

KC0067 08/18

KEEN e/One® Replacement

Model No. KER-0002

Includes: KG2-2301 CSL, Stainless Steel "Open" Cover Support, SST Gooseneck, Check/Anti-Siphon Valves - Brass, Mechanical On-Off Float, Mercury High Water Float, Single Cord Assembly with "2000" Series EQD



E/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

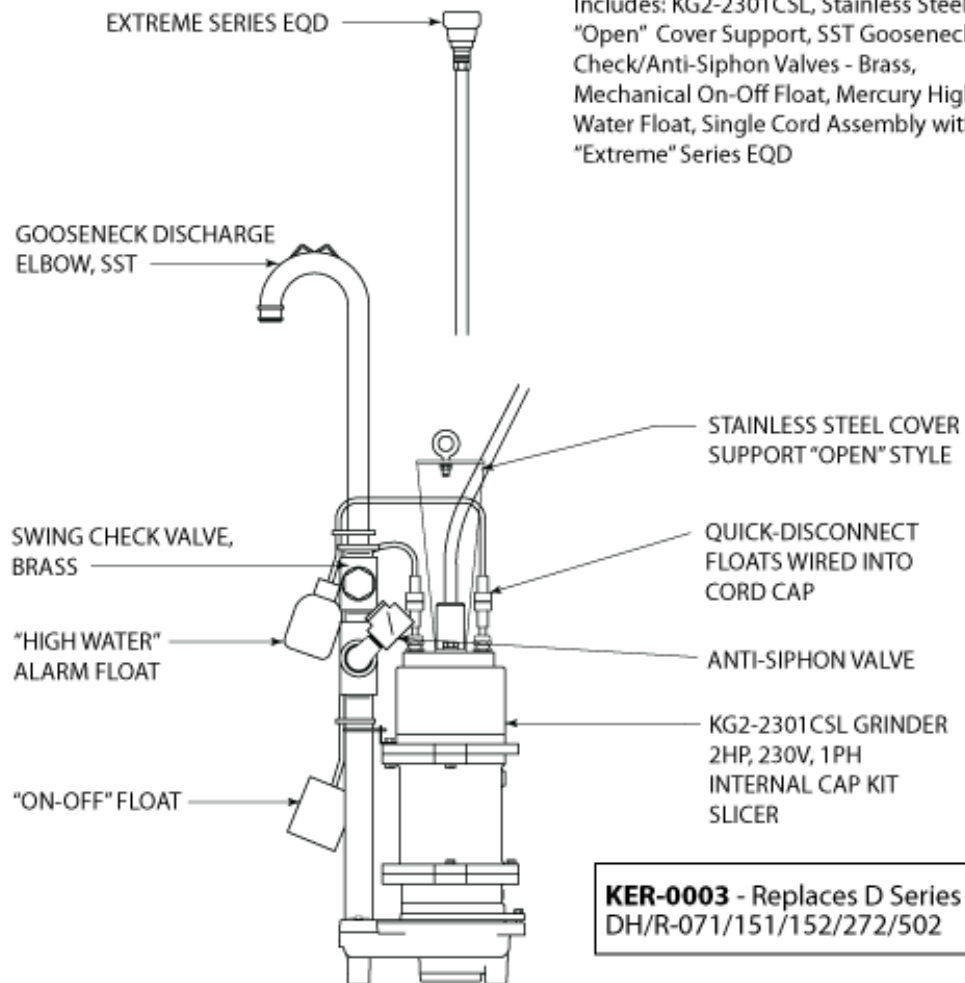
KC0068 08/18



KEEN e/One® Replacement

Model No. KER-0003

Includes: KG2-2301CSL, Stainless Steel "Open" Cover Support, SST Gooseneck, Check/Anti-Siphon Valves - Brass, Mechanical On-Off Float, Mercury High Water Float, Single Cord Assembly with "Extreme" Series EQD



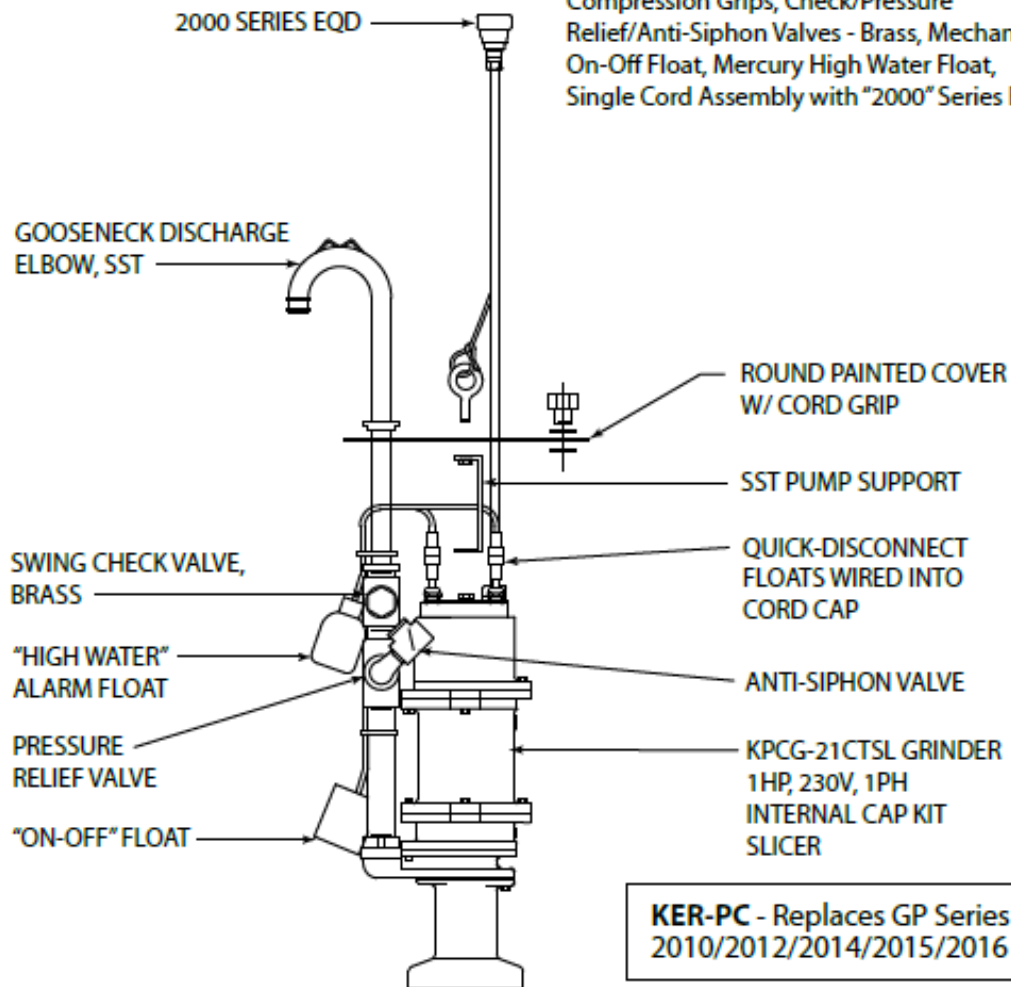
E/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

KC0069 05/18

KEEN e/One® Replacement

Model No. KER-PC

Includes: KPCG-21CTSL, Painted - Full Round Cover, SST Gooseneck, SST Support Brackets, Compression Grips, Check/Pressure Relief/Anti-Siphon Valves - Brass, Mechanical On-Off Float, Mercury High Water Float, Single Cord Assembly with "2000" Series EQD

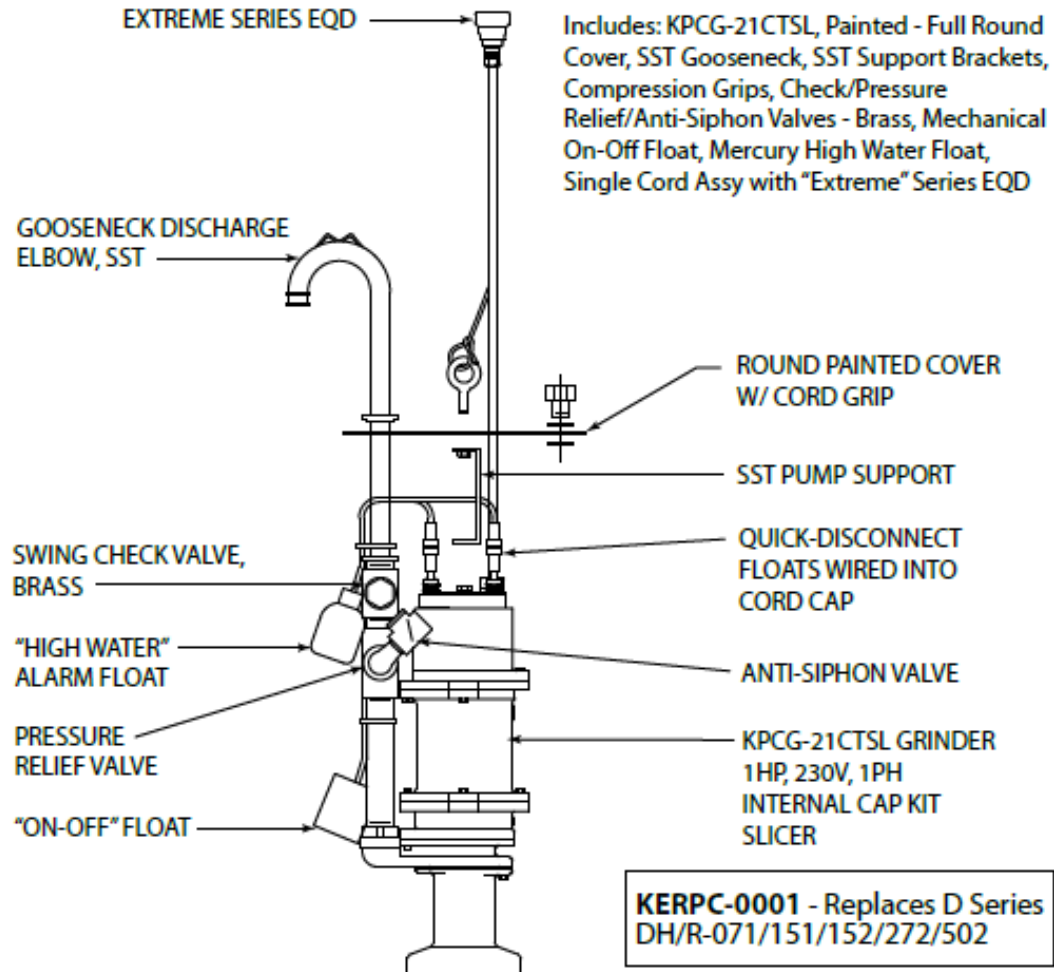


E/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

KC0071 08/18

KEEN e/One® Replacement

Model No. KERPC-0001

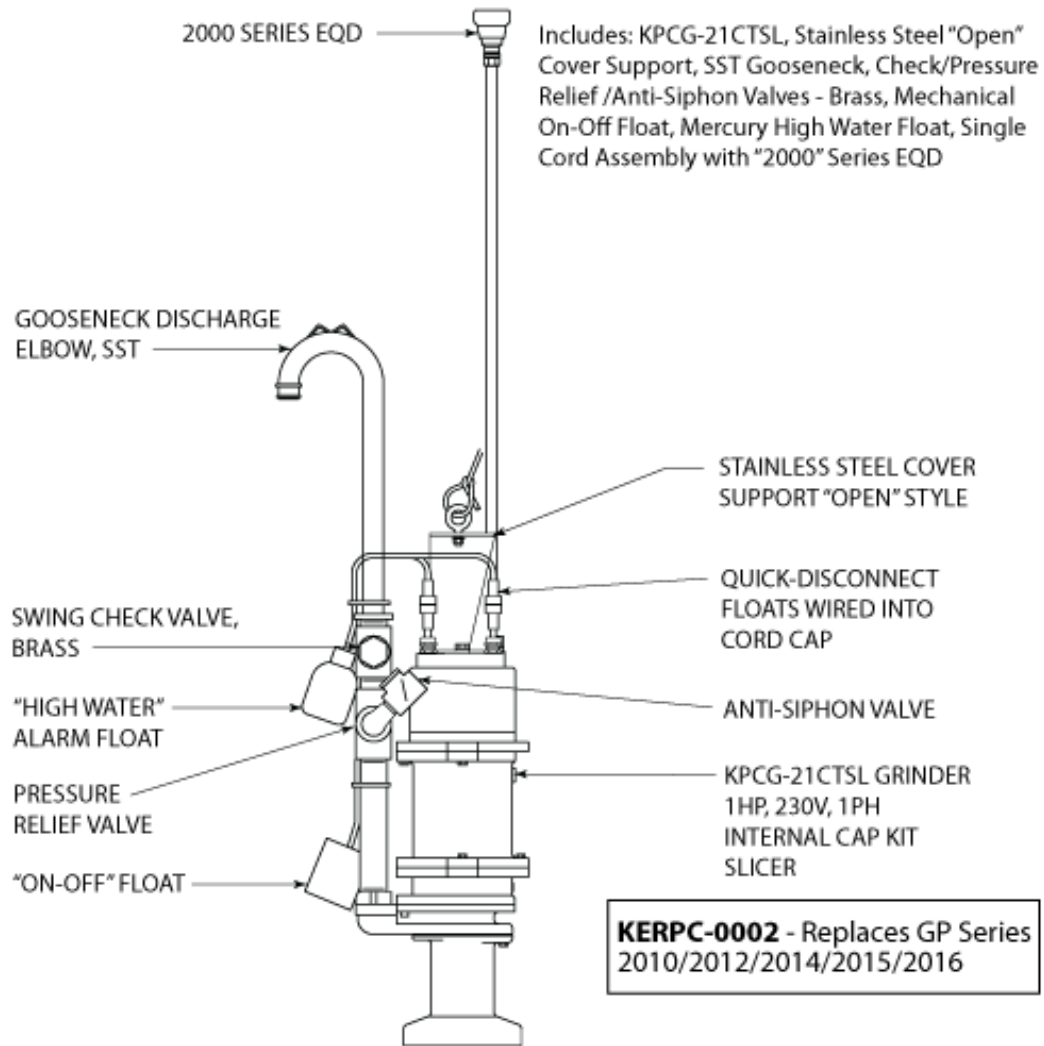


E/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

KC0072 08/18

KEEN e/One® Replacement

Model No. KERPC-0002



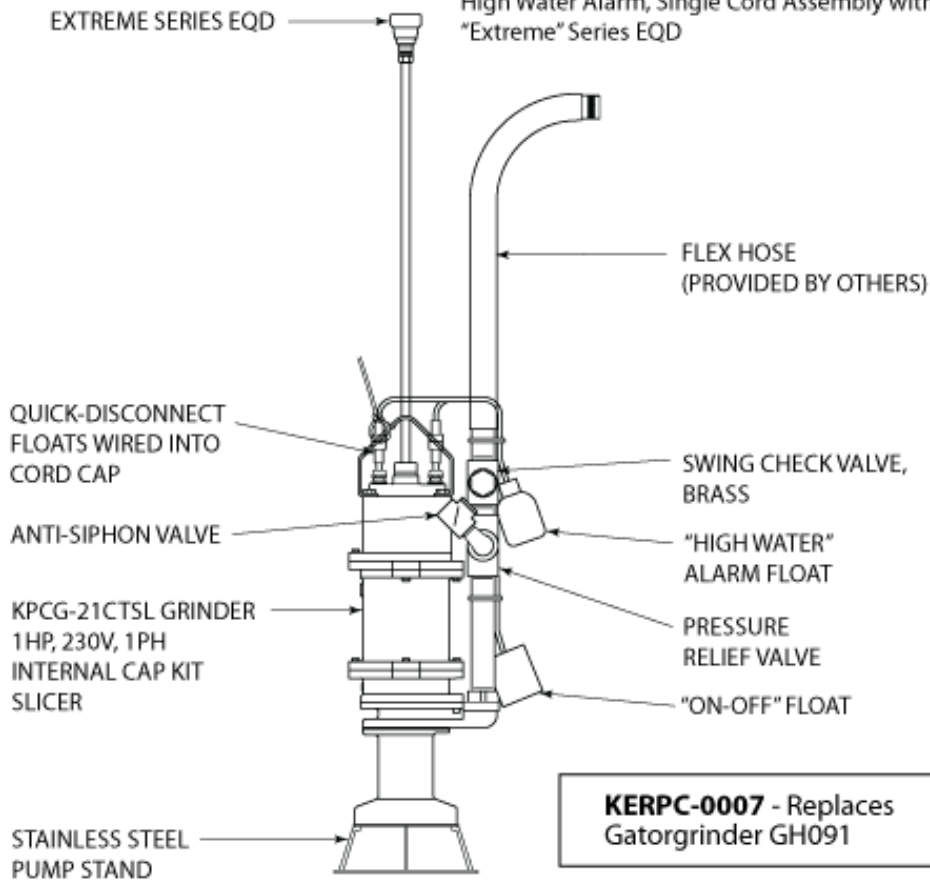
E/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

KC0073 08/18

KEEN e/One® Replacement

Model No. KERPC-0007

Includes: KPCG-21CTSL, Stainless Pump Stand, Check/Pressure Relief/Anti-Siphon Valves- Brass, Flex Hose, Mechanical On-Off Float, Mercury High Water Alarm, Single Cord Assembly with "Extreme" Series EQD



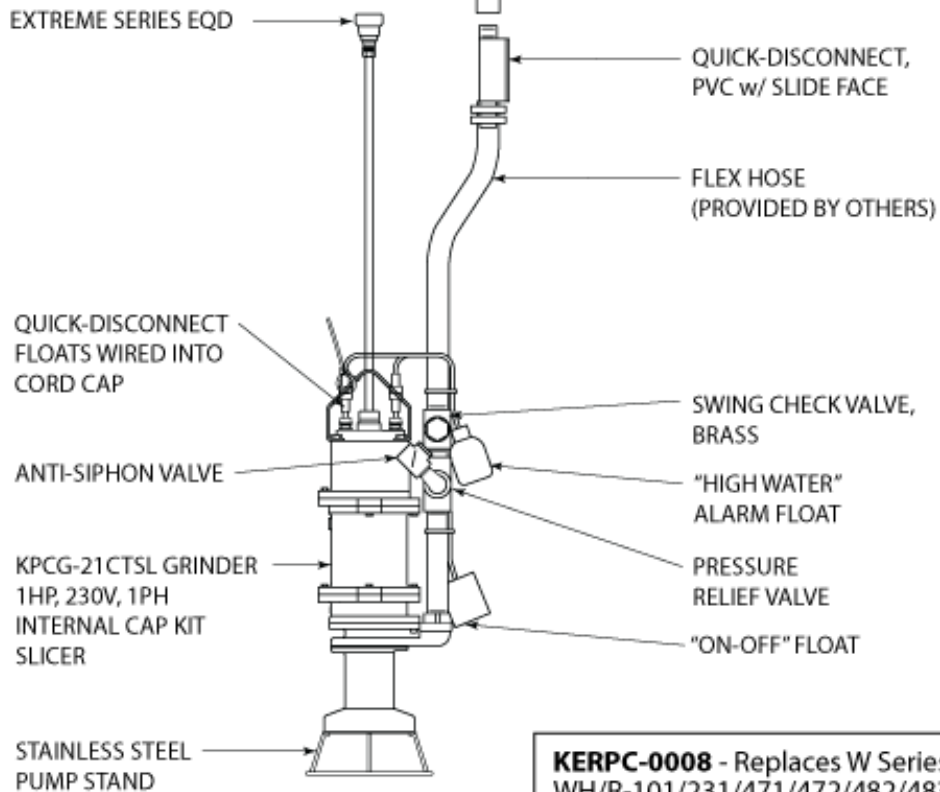
E/One® is a registered trademark of Environment One Corporation and is not affiliated with Keen Pump Company, Inc.

KC0078 08/18

KEEN e/One® Replacement

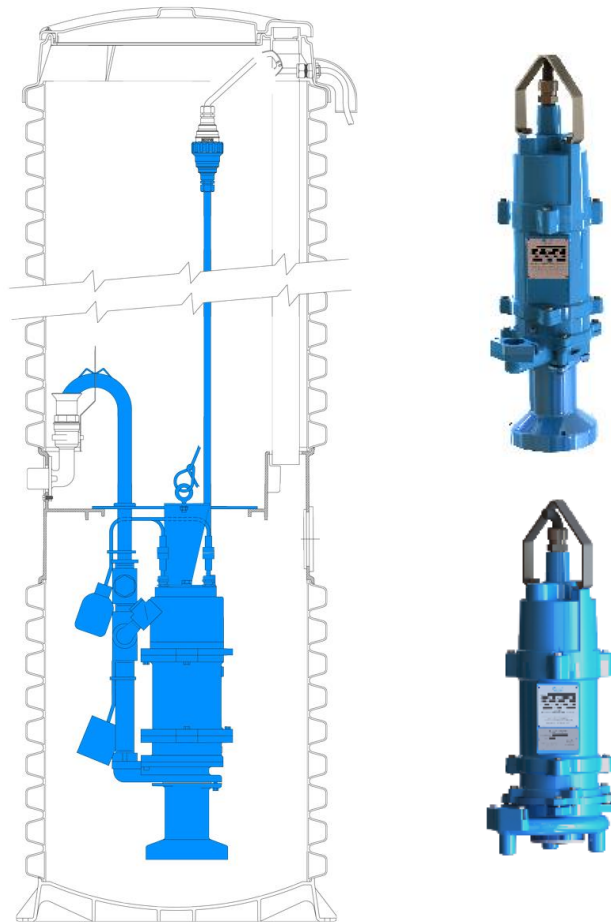
Model No. KERPC-0008

Includes: KPCG-21CTSL, Stainless Pump Stand, Check/Pressure Relief/Anti-Siphon Valves - Brass, Flex Hose, PVC Quick-Disconnect w/ Slide Face, Mechanical On-Off Float, Mercury High Water Alarm, Single Cord Assembly with "Extreme" Series EQD



KERPC-0008 - Replaces W Series WH/R-101/231/471/472/482/483 484/W-FIBERGLASS

STEPS TO INSTALL A KEEN FACTORY-BUILT REPLACEMENT



1. Shut power **OFF** to station.
2. **CLOSE** shutoff valve at the street.
3. Locate riser and remove station cover from existing unit.
4. If basin is flooded, remove water with separate pump or vacuum. Dispose of discharged wastewater in accordance with local, state and national codes.
5. Disconnect (EQD) Electrical quick-disconnect plug – typically found inside station.
6. Remove existing cover bolts (installed for shipping purposes).
7. **CLOSE** shutoff valve on existing unit.
8. **REMOVE** existing grinder pump and existing level control.
9. Station is now ready to accept Keen replacement.(SEE ILLUSTRATIONS PP 19-20)

10. Keen Replacement ships complete with level controls affixed to assembly. All switches must be positioned to be free of any station obstruction. If adjustments are necessary, be certain floats/switches will activate properly.
11. Attach end of POWER CORD w/ EQD to existing hook near top of basin.
12. Confirm high water alarm (float style) activates before reaching underside of cover.
13. All electrical connections for EQD made at factory. Please refer to table below for any troubleshooting necessary.



“2000” Series



”EXTREME” Series

PIN	KEEN WIRE COLOR (2000 Series) Gray Connector	KEEN WIRE COLOR (Extreme Series) Black Connector	FUNCTION
1	Blue	Blue	Manual Run
2	Black	Black	L1
3	White	White	L2
4	Green	Green	Ground
5	Orange	Orange	Alarm
6	Red	Red	Alarm

14. **NOTE: Discharge elbow O-Ring GROMMET may require lube to ensure ease of installation.**
15. Lower Keen pump assembly into station using supplied lifting rope. Make certain to align cover tabs with station slots, while lining up discharge elbow into valve socket. Keen assembly should rest flush (underside of cover bracket) with top of station wetwell.
16. Open valve handle (rotate upwards 90 degrees) until handle surrounds discharge elbow.
17. Match up Keen electrical connector (6-pin) with existing (6-pin) plug. Make certain to push pins into sockets fully, using mechanical means of unit to fasten completely.
18. Pump is now ready for operation.

STARTING PUMP

1. Apply rated power to pump at control panel.
2. All Keen pumps come equipped with “manual run” feature. If existing control panel is included with “push to run” option, attempt to run pump after filling basin with water.
3. Set pump switches at control panel to “auto” position and turn on power. Fill basin with water until controls start pump. Allow pump to operate until level drops, stopping pump.
4. Leave switch in “auto” position and pump is ready for automatic operation.
5. A small weep hole may need to be drilled in the pump volute case or discharge pipe to prevent air-lock, so some water will flow from this hole when pump is operating.

TROUBLESHOOTING

1. Pump runs but does not deliver water.
 - a. May be air-locked. Lift pump and reseal onto valve socket.
 - b. Discharge shutoff valve may be closed.
2. Proper setting of level controls. Controls should be set so that pump stops when level is minimum 6 inches above pump inlet. If controls are set too high, trash and grease may accumulate on the surface and may cause clogging.
3. For more detailed troubleshooting, please refer to pump instruction manual.

CAUTION: NEVER WORK ON PUMPS OR CONTROLS UNLESS POWER IS TURNED OFF. IF PUMP IS REMOTE FROM CONTROL PANEL, DISCONNECT WIRES TO PUMPS TO BE CERTAIN POWER CANNOT BE TURNED ON. THIS MEANS ALL WIRES INCLUDING CONTROL WIRES. NEVER PUT HANDS NEAR GRINDER IMPELLER/SLICER ON ANY RUN CHECKS.



• Existing “Empty” Station



• Discharge Valve “CLOSED”



• Keen Replacement “Drop In”



• Discharge Elbow “Seated”



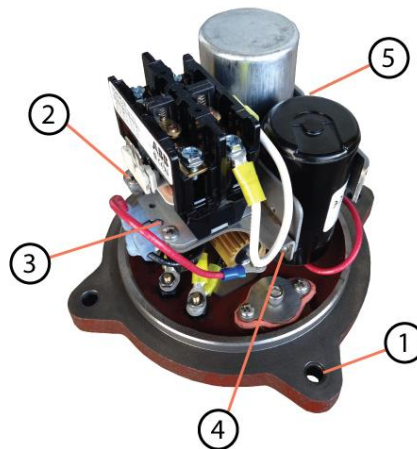
• Valve “OPEN”



• “KER” Installed

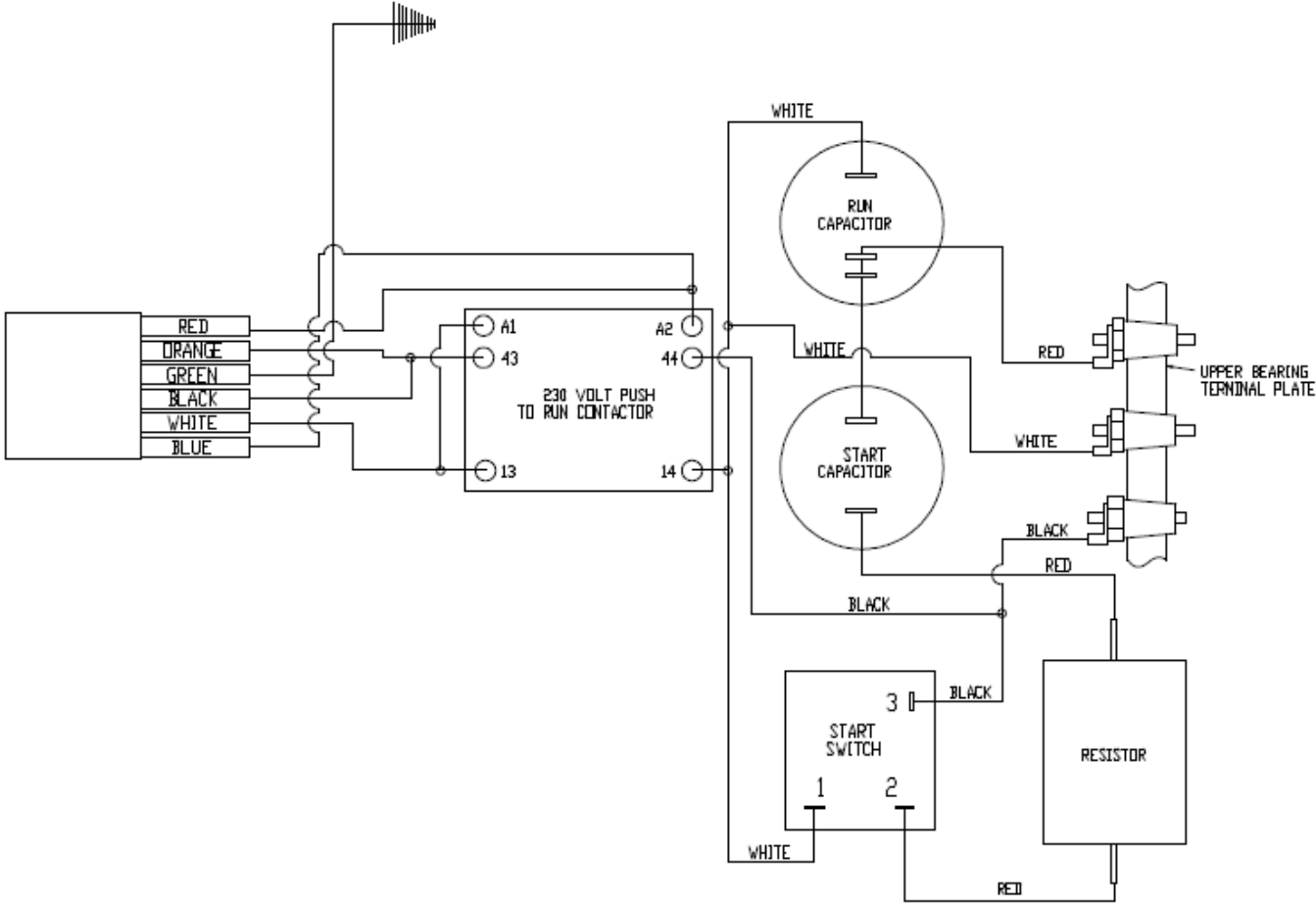
START KIT REPLACEMENT

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 contactor mounting bracket screws (2) and replace contactor 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 screws (4) to gain access to resistor. Remove resistor and replace as required. Wire per attached diagram and reinstall.
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.



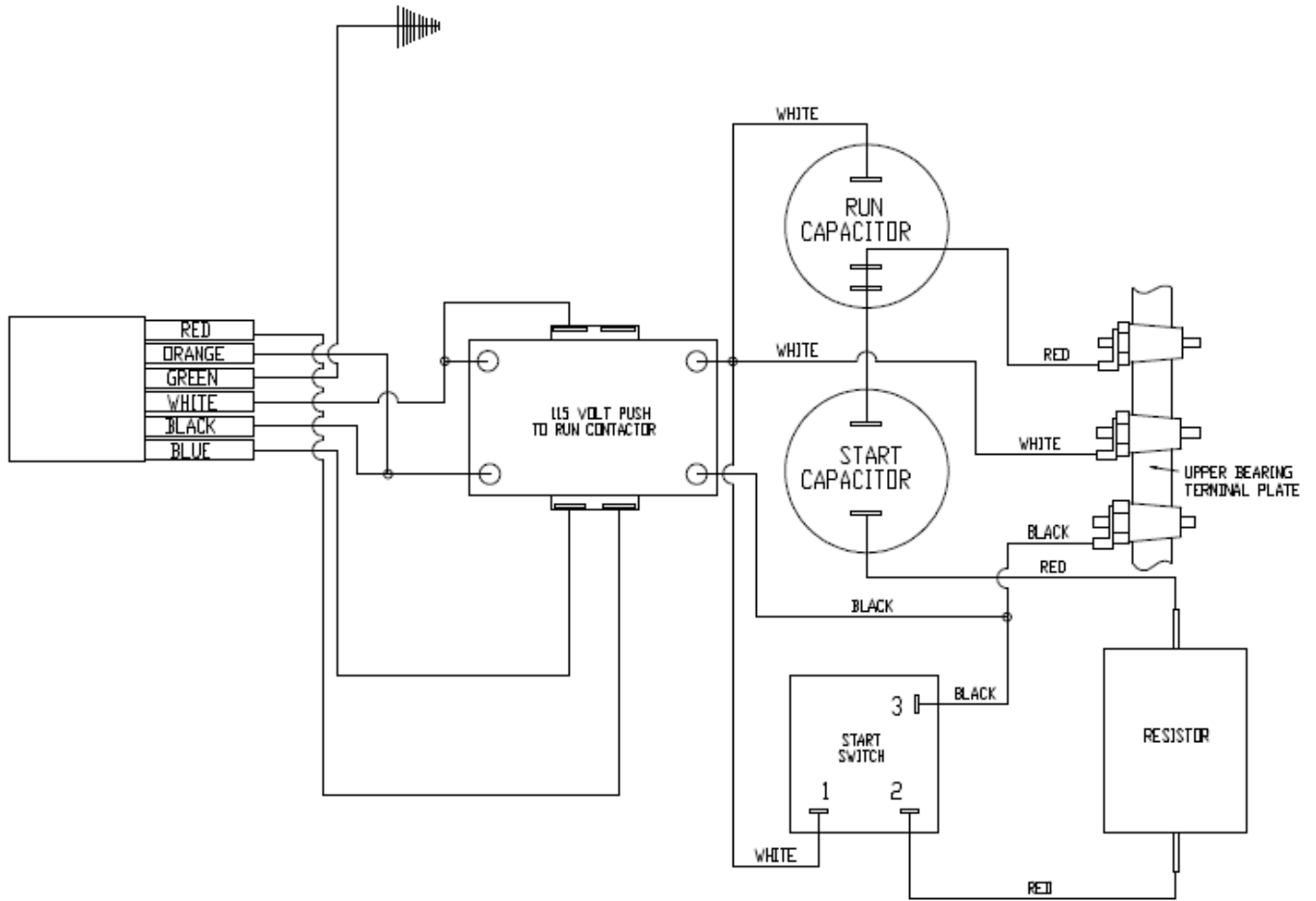
WIRING DIAGRAMS

1HP, 230 Volt, Push-to-Run Contactor



WIRES 208/230 VOLT		OHM
WHITE (1)	BLACK (3)	1.4

1HP, 115 Volt, Push-to-Run Contactor



WIRES 115 VOLT		OHM
WHITE (1)	BLACK (3)	1.2

BLANK



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: 1501 = Year-Month = 2015, January

Keen Pump Grinder Recommended Limits of Application

Model	HP	Max. Flow	Max. Head	Simplex		Duplex	
				Homes (EDUs)	Gallons/Day	Homes (EDUs)	Gallons/Day
KPCG	1	15	*	2	800	4	1600
KG2	2	43	108	4	1600	8	3200
KHG2	2	20	130	3	1200	6	2400
KHHG2	2	30	160	3	1200	6	2400
KHHG2H	2	28	225	3	1200	6	2400
KG3	3	183	65	12	4800	25	10000
KG5	5	190	87	25	10000	50	20000
KHG3	3	100	105	6	2400	12	4800
KHG5	5	100	140	8	4000	16	8000
KHG7	7.5	100	170	10	4800	20	10000
KG10	10	185	160	25	10000	50	20000

* KPCG 1hp Progressive Cavity pump Max Head based on Minimum Flow requirements
 Minimum Flow = 6 GPM
 Maximum Head = 225 TDH



