NOTICE TO INSTALLER: Instructions must remain with installation.

Trusted. Tested. Tough.®

Product information presented here reflects conditions at time of publication. Consult factory regarding discrepancies or inconsistencies.

ZOELLER® ENGINEERED PRODUCTS

50/60Hz

ZM2607_Ec
0922
Supersedes
0822

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CE *

Submersible Wastewater Pump Association SWPA MEMBER

OWNER'S MANUAL

SA ** LR40384 LIQUID PUMP

FAMILY OWNED AMERICAN PROUD

* NOTE: Applicable to 50 Hz units only.

** NOTE: Applicable to 60 Hz units only.

MODELS 7020 & 7021 PROGRESSING CAVITY GRINDER PUMPS

Congratulations on the purchase of a Zoeller submersible progressing cavity grinder pump. Since 1939 the name Zoeller has represented the standard for submersible dewatering and sewage pumps. The same high quality workmanship and easy maintenance design has been incorporated into this line of progressing cavity grinder pumps. This Zoeller pump will provide years of trouble-free service when installed according to the manufacturer's recommendations.

This manual incorporates the installation, operation, maintenance, and service instructions into one document to aid in the ownership of a Zoeller submersible wastewater product. Please read and review this manual before installing the product. Follow the steps in this manual for a proper start-up. Many items contained within, when followed correctly, will not only ensure a long and problem-free life for the pump, but also save time and money during installation. Reference ZM2637 and ZM2638 for replacement parts on 7020 and 7021 Series Progressing Cavity Grinder Pumps respectively. Should further assistance be necessary please call our Product Support Department at 1-800-928-PUMP (7867) or +1-502-778-2731.

Table of Contents

Owner's Information

Model Number: _____ **Date Code:** _____

☐ **Simplex** ☐ **Duplex**

☐ **Packaged System** ☐ **Field Assembled System**

Job Name: _____

Distributor: _____

Date of Purchase: _____ **Zoeller S/O No.:** _____

Contractor: _____

Date of Installation: _____

System Readings During Start-up: Voltage _____ **Amps** _____

Safety Instructions

TO AVOID SERIOUS OR FATAL PERSONAL INJURY OR MAJOR PROPERTY DAMAGE, READ AND FOLLOW ALL SAFETY INSTRUCTIONS IN THIS MANUAL AND ON THE PUMP.

THIS MANUAL IS INTENDED TO ASSIST IN THE INSTALLATION AND OPERATION OF THIS UNIT AND MUST BE KEPT WITH THE PUMP.

This is a **SAFETY ALERT SYMBOL**. When you see this symbol on the pump or in the manual, look for one of the following signal words and be alert to the potential for personal injury or property damage.

⚠ DANGER — Warns of hazards that **WILL** cause serious personal injury, death or major property damage.

⚠ WARNING — Warns of hazards that **CAN** cause serious personal injury, death or major property damage.

⚠ CAUTION — Warns of hazards that **CAN** cause personal injury or property damage.

Warns of electrical shock hazards that can cause serious personal injury, death or major property damage.

Identifies any terminal which is intended for connection to and external conductor for protection against electrical shock in case of a fault, or the terminal of a protective earth (ground) electrode.

Read operator's manual.

⚠ NOTICE — INDICATES SPECIAL INSTRUCTIONS WHICH ARE VERY IMPORTANT AND MUST BE FOLLOWED.

THOROUGHLY REVIEW ALL INSTRUCTIONS AND WARNINGS PRIOR TO PERFORMING ANY WORK ON THIS PUMP.
MAINTAIN ALL SAFETY DECALS.

REFER TO WARRANTY ON PAGE 2.

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Limited Warranty

Manufacturer warrants, to the purchaser and subsequent owner during the warranty period, every new product to be free from defects in material and workmanship under normal use and service, when properly used and maintained, for a period of 24 months from date of purchase or from the date of start up when a Zoeller authorized start up report is on file with Zoeller Company. Parts that fail within the warranty period whereas inspection determines defect in material or workmanship will be repaired, replaced or remanufactured at the manufacturer's option. However, the manufacturer will not be obligated to replace the entire assembly, entire mechanism or the complete unit. No allowance will be made for shipping charges, damages, labor or other charges that may occur due to product failure, repair or replacement.

This warranty does not apply to and there shall be no warranty for any material or product that has been disassembled without prior approval of Manufacturer, subjected to misuse, misapplication, neglect, alteration, accident or uncontrollable act of nature; that has not been installed, operated or maintained in accordance with Manufacturer's installation instructions; that has been exposed to outside substances including but not limited to the following: sand, gravel, cement, mud, tar, hydrocarbons, hydrocarbon derivatives (oil, gasoline, solvents, etc.), or other abrasive or corrosive substances, wash towels or feminine sanitary products, etc. in all pumping applications. The warranty set out in the paragraph above is in lieu of all other warranties expressed or implied; and we do not authorize any representative or other person to assume for us any other liability in connection with our products.

Contact Manufacturer at, 3649 Cane Run Road, Louisville, Kentucky 40211, Attention: Customer Support Department to obtain any needed repair or replacement of part(s) or additional information pertaining to our warranty.

MANUFACTURER EXPRESSLY DISCLAIMS LIABILITY FOR SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OR BREACH OF EXPRESSED OR IMPLIED WARRANTY; AND ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND OF MERCHANTABILITY SHALL BE LIMITED TO THE DURATION OF THE EXPRESSED WARRANTY.
Some states do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you. 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.
This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

In instances where property damages are incurred as a result of an alleged product failure, the property owner must retain possession of the product for investigation purpose.

Preinstallation Checklist

1. **Inspect your pump**. Occasionally, products are damaged during shipment. If the unit is damaged, contact your dealer before using. **DO NOT** remove the test plugs in the cover nor the motor housing.
2. **Carefully read the literature** provided to familiarize yourself with specific details regarding installation and use. These materials should be retained for future reference.

⚠ WARNING

SEE BELOW FOR LIST OF WARNINGS

1. To reduce the risk of electrical shock, a properly grounded receptacle or control box must be installed in accordance with the governing codes. Never remove ground pin from plug.
2. Make certain that the receptacle or control box is within reach of the pump's power supply cord. DO NOT USE AN EXTENSION CORD. Extension cords that are too long or too light do not deliver sufficient voltage to the pump motor, and they could present a safety hazard if the insulation were to become damaged or the connection end were to fall into a damp or wet area.
3. Make sure the pump's electrical supply circuit is equipped with fuses or circuit breakers of proper capacity. A separate branch circuit is recommended, sized according to the governing electrical codes for the current shown on the pump name plate. The pump shall be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30mA.
4. Testing for ground. As a safety measure, each electrical outlet should be checked for ground using a circuit analyzer which will indicate if the power, neutral and ground wires are correctly connected to your outlet. If they are not, call a qualified, licensed electrician.
5. FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING. If pump is wired direct, de-energize the circuit at the control box. Wear insulated protective shoes and do not stand in water. Pumps equipped with a grounded plug are designed to help protect against electrical shock. DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE THE GROUND PIN.
6. Installation and servicing of the pump's electrical circuits and hardware should only be performed by a qualified, licensed electrician.
7. Installation and maintenance of this appliance is not intended for persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
8. Risk of electrical shock. Do not remove power supply cord and strain relief or connect conduit directly to the pump. If the supply cable is damaged, it must be replaced by an authorized Zoeller Representative.
9. Pump contains oil which becomes pressurized and hot when operating. Allow 2-1/2 hours after disconnecting before attempting service.
10. Pump is not intended for potable water due to possible contamination by oil contained in the pump.
11. Risk of electric shock. These pumps have not been investigated for use in swimming pools and marine areas.
12. Means for all pole disconnection must be incorporated in the fixed wiring in accordance with the national wiring rules for models that are supplied without an attachment plug.

⚠ WARNING Progressing cavity grinder pumps are designed for pressure sewer applications. A UL listed and CSA certified pressure relief valve must be installed in the system to prevent excessive pressure buildup.

⚠ CAUTION

SEE BELOW FOR LIST OF CAUTIONS

1. Check to be sure your power source is capable of handling the voltage requirements of the motor, as indicated on the pump name plate.
2. The installation of variable level float switches is the responsibility of the installing party, and care should be taken that the tethered float switch will not hang up on the pump apparatus or pit peculiarities and is secured so that the pump will shut off. It is recommended to use rigid piping and fittings and the pit be 45 cm (18") or larger in diameter.
3. Pump should be checked frequently for debris and/or build up which may interfere with the float "on" or "off" position. Repair and service should be performed by an Authorized Zoeller Service Station only.
4. Maximum operating temperature of pumped liquid for standard model pumps must not exceed 54 °C (130 °F) for 60Hz units, 40 °C (104 °F) for 50Hz units.
5. Do not operate a pump in an application where the Total Dynamic Head is less than the minimum Total Dynamic Head listed on the Pump Performance Curves.
6. Do not operate an unsubmerged progressing cavity pump. Dry pump operation may damage the hydraulic stator due to lack of lubrication. Do not run dry.

NOTE: Pumps with the UL mark and the US mark are tested to UL standard UL778. CSA-certified pumps are certified to CSA standard C22.2 No. 108.

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Applications

1. Zoeller Progressing Cavity Grinder Pumps are designed for grinding and pumping sanitary sewage from submersible lift stations. The pump is intended to grind and pump reasonable quantities of items normally found in sanitary sewage applications.
2. Zoeller 7020 and 7021 Progressing Cavity Grinder Pumps can be installed in new applications or as a replacement for another grinder pump of like size and capacity. Some rail system retrofit kits are available.
3. The 7020 and 7021 can be installed in a Prepackaged Job Ready System or may be used in a Field Assembled basin package. Page 5 shows a couple of the Prepackaged Systems. Field Assembled Systems are discussed on page 4.
4. Zoeller 7020 and 7021 Grinder Pumps can be retrofitted to existing positive displacement pump installations.

Recommended Limits of Application for Progressing Cavity Grinder Pumps

These recommended application limits are for pump stations pumping to a gravity main. Low-pressure collection systems should be designed with a pump located at each house. For applications where a lift station would handle more than 2 homes, consider the 7011 or 71 Series grinder pump. For applications where a lift station would handle more than 60 homes, a solids-handling type pump should be considered.

		Simplex Station		Duplex Station	
Model	**HP**	**Homes**	**GPD/LPD**	**Homes**	**GPD/LPD**
7020	1	1	400 / 1,514	2	800 / 3,028
7021	2	1	400 / 1,514	2	800 / 3,028

FIG. 1.1

50 Hz

MODEL		7021	
Feet	Meters	m^3/hr	L/sec
5	1.5	2.45	0.68
10	3.0	2.43	0.68
20	6.1	2.36	0.66
40	12.2	2.27	0.63
60	18.3	2.18	0.61
80	24.4	2.07	0.58
100	30.5	1.98	0.55
120	36.6	1.86	0.52
140	42.7	1.77	0.49
160	48.8	1.66	0.46
180	54.9	1.57	0.44
200	61.0	1.45	0.40
220	67.1	1.36	0.38
240	73.2	1.27	0.35

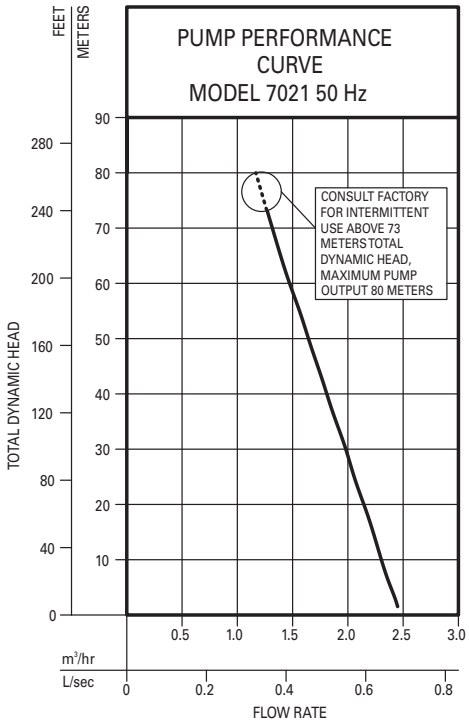
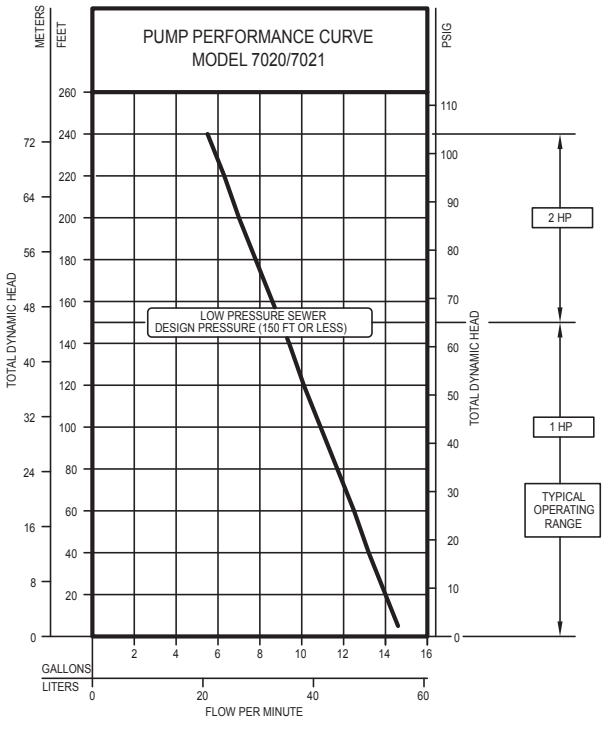


FIG. 1.2

60 Hz

	Feet	Meters	Gal.	Liters
MODEL 7020	5	1.5	14.6	55
	10	3.0	14.4	55
	20	6.1	14.0	53
	40	12.2	13.2	50
	60	18.3	12.5	47
	80	24.4	11.7	44
	100	30.5	10.9	41
	120	36.6	10.1	38
	140	42.7	9.4	36
	150	45.7	9.0	34
MODEL 7021	160	48.8	8.6	33
	180	54.9	7.8	30
	200	61.0	7.0	27
	220	67.1	6.3	24
	240	73.2	5.5	21



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General Information

PROGRESSING CAVITY GRINDER PUMP DESCRIPTION

1. Pumps are constructed of class 30 cast iron protected with powder coated epoxy for long life when pumping sewage in submersible applications. The cutter assembly is comprised of stainless steel components hardened to a value of 55-60 on the Rockwell C scale; a cutter and a precision-ground flat disk. Cutting action takes place with the rotation of the star cutter against the stationary cutter plate (see page 7).
2. The cutter mechanism on the model 7020 & 7021 is single directional.
3. Pump motors are single phase. Single phase motors require a run capacitor, which is mounted in the the upper cap of the pump. The units have an internal thermal overload.
4. The 7020 & 7021 progressing cavity grinder pumps are single seal.
5. The pressure relief valve provides motor protection under inadvertent shut-off head condition.
6. A progressing cavity grinder pump is an intermittent duty pump designed for pumping sanitary sewage. It is not a dewatering or trash pump.

FIELD-ASSEMBLED INSTALLATION

1. Installation and piping instructions are included with the control panel, rail system and basin instructions. If pump is being retrofitted to an existing rail system, accessory parts may be required. Consult the factory and advise make and model of rail system being used.
2. Refer to the appropriate Indoor/Outdoor prepackaged instructions for more information on system installation.
3. All electrical connections including pump to control box and power supply to control panels must comply with the applicable local codes. Conduit and panel enclosure openings must have a gas-tight seal. Installation of electrical panels and connections should be made by a qualified licensed electrician.
4. A properly sized disconnect switch, supplied by others, shall be installed on the service side of the pump and control panel.
5. When used in a pressure sewer, install an anti-siphone valve (see Figure 5A).

Pump Wiring Instructions

⚠ WARNING FOR YOUR PROTECTION, ALWAYS DISCONNECT THE PUMP FROM ITS POWER SOURCE BEFORE HANDLING. All electrical connections
⚠ WARNING must be wired and grounded in accordance with the National Electrical Code and all applicable local codes and ordinances.

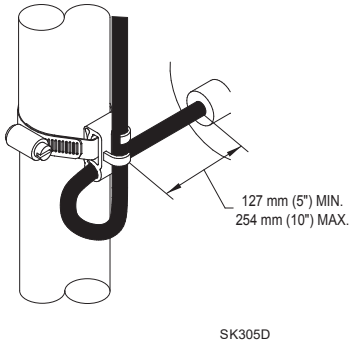
⚠ WARNING **Risk of electrical shock,** Do not remove the power supply cord and strain relief or connect conduit directly to pump.
⚠ WARNING Installation and checking of electrical circuits and hardware should be performed by a qualified licensed electrician.

FIG. 2. Pump Control Switch Installation

Determining Pumping Range (1' - 25 mm)

	127 mm (5")	254 mm (10")
Tether Length		
Pumping Range	22.9 cm (9")	34.3 cm (13.5")

Use only as a guide. Due to weight of cable, pumping range above horizontal is not equal to pumping range below horizontal. Ranges are based on testing in nonturbulent conditions. Range may vary due to water temperature and cord shape. As tether length increases, so does the variance of the pumping range.



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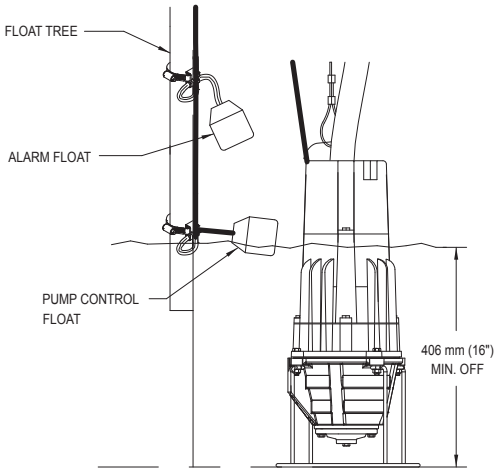
Note: Failure to keep within proper tether limits may prevent reliable switch operation.

Note: Cable must be mounted in horizontal position.



SK2651

Use the diagram above to secure the float switch properly and obtain the proper tether to customize the on-off cycle to each application. Note the minimum off level shown above. On Prepackaged Systems, the tether length is set at 5".

Electrical Data

						Amps			Winding Resistance Line-to-Line
Model	**KW**	**RPM**	**Voltage**	**Phase**	**Hertz**	**Full Load**	**Shut Off**	**Locked Rotor**	
E7020	1.5	1750	230	1	60	7.0	7.0	24.5	2.3 / 2.0*
E7021	2.1	1750	230	1	60	10.5	10.5	44.0	1.80 / 1.60*
RE7020	1.5	1750	230	1	60	7.0	7.0	24.5	**
RE7021	2.1	1750	230	1	60	10.5	10.5	44.0	**
Z7021	2.0	1400	230	1	50	8.5	8.5	24.0	2.6 / 2.2*
RWY	2.0	1400	230	1	60	8.5	8.5	24	**

* Line to line reading from the electrical load will only reflect the run winding resistance. Start winding resistance can only be measured after removing the cover.

** Start and run winding resistance can only be measured after removing the cover and checking at the through wall terminals.

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Electrical Data, continued

FIG. 3A. Model Z7021 CE Wiring Diagram

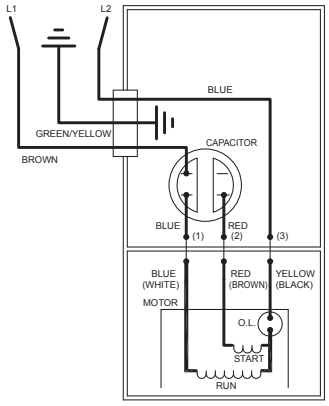

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FIG. 3B. Models E7020 & E7021 Wiring Diagram

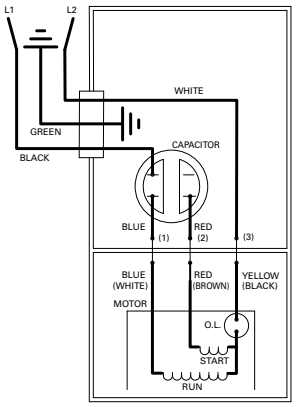

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FIG. 3C. Models RE7020 & RE7021 Wiring Diagram (932 Replacement Grinder Assembly w/ Manual Run)

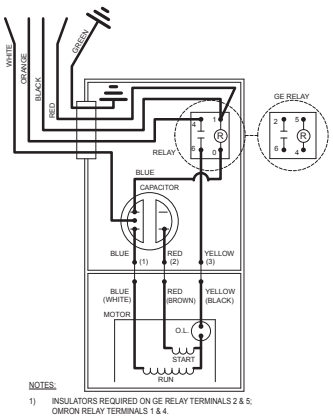

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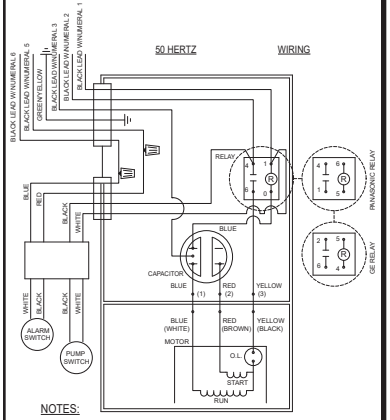
FIG. 3D Models RWY Wiring Diagram



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Typical Outdoor Grinder Pumping System Installations

FIG. 4A - PACKAGED SYSTEM WITH FLEXIBLE HOSE DISCONNECT

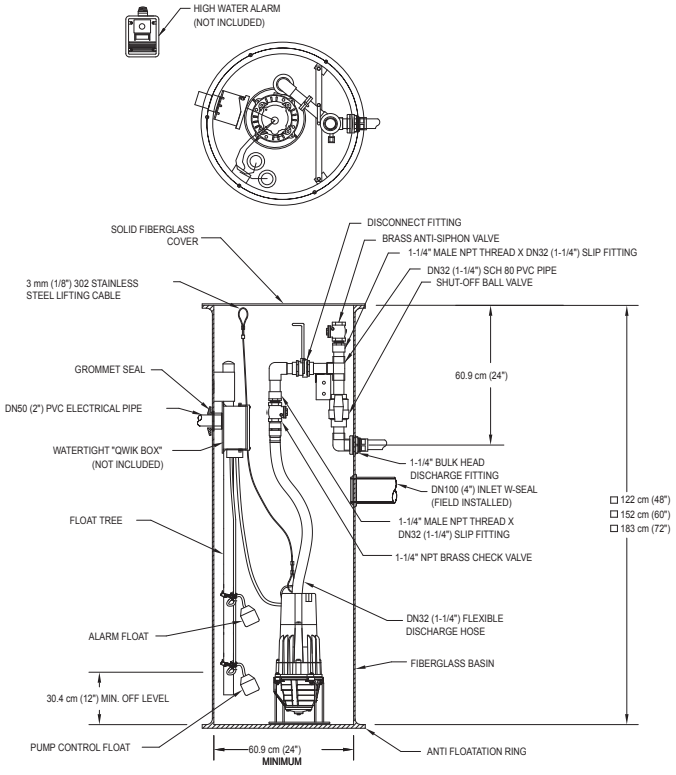

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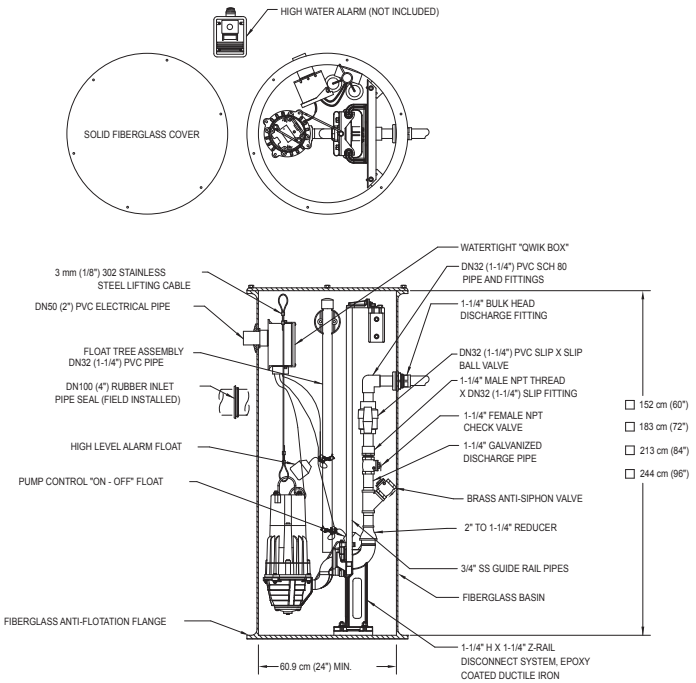
FIG. 4B - PACKAGED SYSTEM WITH Z-RAIL® DISCONNECT SYSTEM



SK3019

NOTE: Rubber pads are included in 39-0152 horizontal rail system w/BSPT threads.

All installations must comply with all applicable electrical and plumbing codes, including but not limited to the National Electrical Code, local, regional and/or state plumbing codes, etc.

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FIG. 5

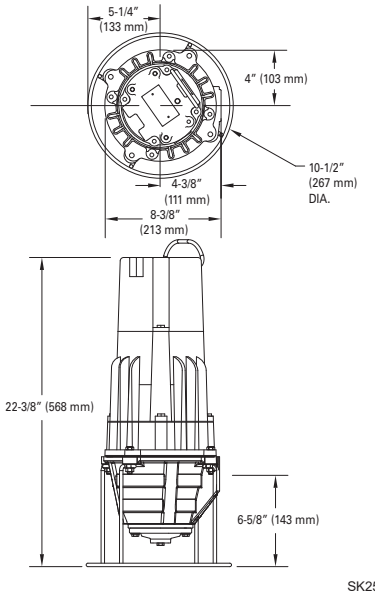
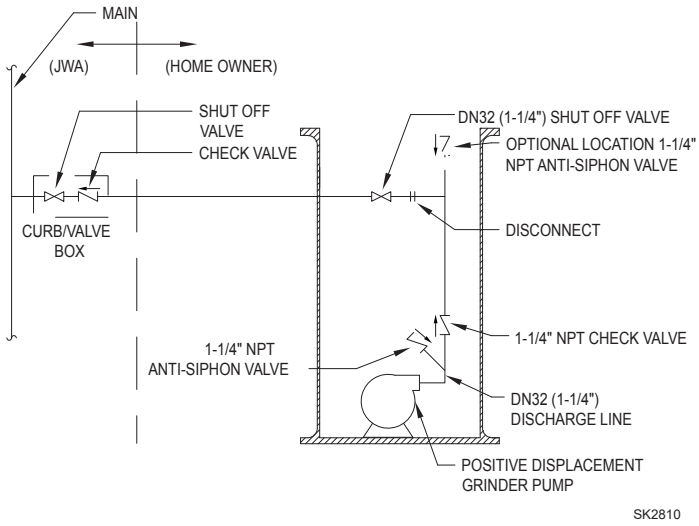


FIG. 5A



Outdoor Prepackaged System Installation Instructions

⚠ NOTICE This set of instructions is for factory prepackaged outdoor progressing cavity grinder systems only. If this is a field assembled outdoor system you can use these instructions as a guideline.

1. Review the drawing in Fig. 4 on page 5 and the actual system to become familiar with the components in the packaged grinder pump system. Review where the unit will be installed. Determine where the power feed, inlet pipe, and discharge pipe will be located.
2. Remove the unit from packing. Prepackaged outdoor systems are preassembled at the Zoeller Company and require a minimum of field assembly work. Float switches are set and tethered for proper operation from the Factory. The alarm switch should be located 5 cm (2") above the pump "on" level.
3. Float switches are tied in place for shipping purposes on all model prepackaged systems. Cut the cable tie around each float switch bulb or the unit will not operate properly. Verify that where the float switches are set will work for your application. **Verifying that the float switches are set properly and will not hang up inside the basin is the responsibility of the installing contractor.**
4. Dig a hole for the basin. The hole should be at least 61 cm (24") larger in diameter than the basin diameter to provide 30 cm (12") of backfill all around and deep enough to provide either 30 cm (12") of compacted backfill or 16 cm (6") when a concrete pad is required. Ensure the removable cover extends above the finished grade line and the grade slopes away from the unit. Backfill and subbase should be 3 mm (1/8") – 19 mm (3/4") pea gravel or 3 mm (1/8") – 13 mm (1/2") crushed stone. (Reference basin installation instructions included with unit)
5. **Note: Care must be taken when excavating in order to avoid underground utilities and disturbance of existing structure foundations. The hole should be located at least ten feet from adjacent structures. Additional distance may be required to sufficiently locate the basin outside of the loading area of the adjacent structures.**
6. The location of the inlet fitting is determined by the depth of the inlet pipe. The inlet fitting must be used with 10 cm (4") pipe. It is best to install the inlet on the side of the basin opposite the float switches. To install, use a 13 cm (5") hole saw to drill into the side of the basin at the correct elevation. Center the hub inner diameter with the hole in the basin. Attach the hub to the side of the basin using the sealant and hardware provided.
7. The bottom of the excavation can now be back filled and compacted. Set basin in hole and connect the 10 cm (4") inlet pipe to the inlet hub.
8. The discharge piping is connected to the 3 cm (1-1/4") threaded fitting located in the basin sidewall.
9. Connect pull rod to Pump assembly. Connect lift cable to top of pump. Lower the pump into basin ensuring the discharge pipe bracket slides into the disconnect fitting.
10. Pouring a concrete anchor around system can now be completed. Basin should be filled with water when pouring concrete to minimize movement of the system. Back fill around basin with specified media. Care should be used to avoid damaging components or leaving voids when back filling. Refer to Basin installation reference guide on more specific requirements.
11. **Note: The progressing cavity grinder basin is a sewage holding tank. Vent connection should be installed in accordance with all national, state and local plumbing codes.**
12. Dig a trench for the electrical conduit. Trench should be located at least 45 cm (18") deep and follow all applicable NEC codes. Connect electrical wiring to Junction box according to wiring instructions included in this manual and wiring diagram in box. Use the potting kit provided with the junction box. Use the included sealant when closing junction box.
13. If used, a control panel is installed within sight of the system. Connect float switches and pump cords according to the "Pump Wiring Instructions" found in this manual and located inside the panel enclosure.
14. Remove any debris from the basin. Using clean water, check the system for proper operation.
15. Seal and secure the lid using the proper bolts and sealant when using a lid without a formed gasket.
16. Add water to the basin and test the system for leaks and proper pump operation.
17. Record system start up data for future reference.

Operation

GENERAL
Zoeller pumps are lubricated and tested at the factory prior to shipment and require minimum pre-start-up maintenance.

Maximum operating temperature for E and RE model pumps must not exceed 54 °C (130 °F). Maximum operating temperature for Z model pumps must not exceed 40 °C (104 °F).

These units are not designed to handle liquids other than sanitary sewage. If pump is used to dewater areas with contaminated liquids with heavy or abrasive materials, the warranty will be voided.

NAMEPLATE DATA
The nameplate, located on the top of the pump, indicates specific information about the construction of the pump. The model number and date code information should be recorded on the front page in the "Owner's Information" section of this manual.

SHORT-TERM STORAGE
When not in use, the pump should be stored and the following is advised:
- Drain pump housing by laying pump horizontal with discharge down. Then stand pump on legs.
- Store pump inside whenever possible or cover with some type of protective covering.
- Tape or seal in plastic bag the terminal ends of wire leads.
- Spray coat unpainted surfaces with rust inhibiting oil.
- The hydraulic rotor should be rotated every six months in order to keep the seal lubricated and not develop a permanent set.

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Operation, continued

If panel is to be stored, the following is advised:
- Store the panel inside whenever possible and leave in the shipping box.
- All openings shall be sealed.
- Store in an upright position.
- Do not stack anything on top of panel.

START-UP PROCEDURE

Before placing the equipment into operation the following should be checked:
- Clean pit.
- Electrical boxes dry and securely installed.
- Floats positioned properly.
- Discharge valves open.
- Adequate water level in basin for pump submersion.

Once the above has been verified proceed with the following checks:
- Pump power cables and control floats properly installed and voltage verified.
- Conduit connections to panel are properly sealed.
- After installing the pump into the containment area, with adequate submergence, open the discharge valve fully. Start the unit using manual controls. If flow is appreciably less than rated performance, pump may be air locked. To expel trapped air, jog the unit several times, using the manual controls.
- Have a qualified electrician take voltage and current measurements with the pump running. Record these readings in the space provided in the **"Owner's Information"** section on page 1 of this manual for future reference.

ADJUSTMENT PROCEDURE

Pumps: No adjustments are required.

Floats: Refer to the system drawing or to the panel wiring schematic for the desired location of each float switch setting. The off switch should deactivate the pump before the water level drops to the mid-point of the pump.

Valves: Discharge valves should be placed in the fully open position. Systems should not be operated for extended periods of time with the discharge valves partially closed due to damaging the valve. Check for an anti-siphon valve when used in a pressure sewer.

SHUT-DOWN PROCEDURES

If a system is shut down for more than six months, the following is recommended:

Pumps: If pit is to remain dry, then the pump can remain in the pit. Do not run dry. If the pit is to remain wet, the pump should be removed and stored as noted above.

Panels: The panel should have all openings sealed to prevent moisture and dust from entering the enclosure. Prior to restarting system, the panel should be inspected for presence of moisture and any loose connections.

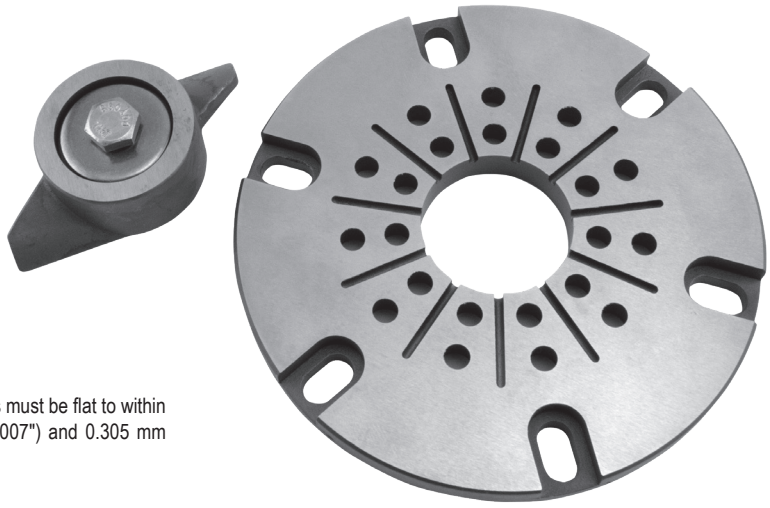
Valves: Consult the valve/actuator supplier for information concerning these systems components.

Cutter Maintenance

1. **All power circuits must be disconnected and locked out before any attempts are made at servicing.** The cutter and disc can be removed and sharpened by grinding the cutting faces. Both cutter and disc must be removed from the pump. Removal of these parts can be accomplished in the field by removing pump from the sump and positioning horizontally to access the intake of the pump. If seals or other repairs are required, the pump must be totally removed and serviced in a shop by a qualified pump technician or authorized service center.
2. Thoroughly clean the cutter and disc assembly. Tilt pump back to the vertical position to make certain the end play has been removed. Check and record the clearance between the cutter and disc with a feeler gage. The correct running clearance is between 0.178 mm (0.007") and 0.305 mm (0.012").
3. With pump in horizontal position, heat the hex head bolt in the center of the cutter with a propane torch. The bolt must be heated to 177 °C (350 °F) to soften the thread lock sealer on the bolt for ease of removal. Remove the bolt by turning in a counterclockwise rotation. It will be necessary to use a wood block to prevent the cutter from turning while removing the bolt. Pull cutter from the shaft and remove the spacer shims located behind the cutter.
4. Remove the six cap screws holding the disc and remove disc from the pump.
5. The disc and cutter can be replaced with new service parts or resurfaced by grinding. Resurfacing is accomplished by surface grinding both disc and cutter to a 32 micro finish. Do not attempt grinding in the field. Send parts to a qualified machine shop or return to the factory for repair. The disc, cutter and shims are a matched set. Keep parts together. Measure disc before and after resurfacing with micrometer and record measurements.
6. After resurfacing, the disc and cutter must be flat within 0.025 mm (0.001"). If the disc has been surface ground, it will be necessary to remove shims to compensate for the material removed from the disc. As a starting point, remove shims of the same thickness as the amount machined from the cutter disc. Final running clearance must be between 0.178 mm (0.007") and 0.305 mm (0.012"). Be sure pump is in vertical position and all end play has been removed before measuring.
7. Clean bottom of pump where disc is located and replace disc and retainer screws. Torque to 28 kg (63 in-lbs) - 30 kg (67 in-lbs). Replace cutter with the correct shims. Install washer and torque hex head bolt to 23 kg (71 in-lbs) - 34 kg (75 in-lbs). apply Loctite 262 thread-lock sealant or equal to bolt threads prior to insertion. Check running clearance with pump in vertical position to remove end play. Clearance must be between 0.178 mm (0.007") and 0.305 mm (0.012") to obtain efficient grinding when pump is put back in service.
8. Check the oil in the motor housing before reinstalling. Contact the factory if the oil has a milky appearance or burnt smell. The level should be even with the fill plug when pump is in the upright position. Add oil if required. Use insulating oil supplied by the factory.

FIG. 6.

To remove cutter: Heat the center bolt to 177 °C (350 °F) to loosen Loctite® thread sealant.



Grind the Cutter and Disc seen here to a 32 microfinish. Surfaces must be flat to within 0.025 mm (0.001") T.I.R. Gap must be between 0.178 mm (0.007") and 0.305 mm (0.012") on these parts.

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General Maintenance

⚠ NOTICE Repair and service should be performed by a Zoeller Authorized Service & Warranty Center or Customer Care Center only.

SAFETY PROCEDURES

⚠ WARNING For your protection, always disconnect pump and panel from its power source before handling.

⚠ WARNING Never enter the basin until it has been properly vented and tested. Any person entering a basin should be wearing a harness with safety rope extending to the surface so that they can be pulled out in case of asphyxiation. Sewage water gives off methane and hydrogen sulfide gases, both of which can be highly poisonous.

Installation and checking of electrical circuits and hardware should be performed by a qualified electrician.

Pump is never to be lifted by power cord.

⚠ WARNING Unit must be cleaned and disinfected, inside the pumping chamber and all exterior surfaces, prior to servicing.

GENERAL SYSTEM INSPECTION

Before the system is placed into operation, it should be inspected by a qualified technician.

⚠ WARNING Wiring and grounding must be in accordance with the National Electrical Code and all applicable local codes and ordinances.

LUBRICATION PROCEDURES

No lubrication is required.
If pumps are to be stored for more than six months, refer to short-term storage procedure in the Operation section.

PREVENTIVE MAINTENANCE

Preventive maintenance is recommended to ensure a long service life from the product. Provided is a suggested maintenance schedule.

Every year:

- Inspect basin, report any sighting of grease accumulation.
- Check for proper and unobstructed float operation.
- Listen for proper check valve operation.

Every 8 years or 2,000 hours of operation:

- Remove pump, inspect and service using a Zoeller rebuild kit.
- Flush and clean basin.

Service Checklist

⚠ WARNING Electrical precautions. Before servicing a grinder pump, always shut off the main power circuit. Make sure you are wearing insulated protective sole shoes and not standing in water. Under flooded conditions, contact your local electric company or a qualified licensed electrician for disconnecting electrical service to the pump prior to removal.

⚠ WARNING Grinder pumps contain oil which becomes pressurized and hot under operating conditions. Allow 2-1/2 hours after shut down before servicing pump.

Condition	Common Causes
A. Pump will not start or run.	Blown panel or circuit breaker fuse, low voltage, thermal overload open, defective capacitor circuit, cutter clogged, damaged hydraulic stator or rotor, float switch held down or defective, incorrect wiring in control panel, water in cap assembly, check valve not installed or malfunctioning.
B. Motor overheats and trips on overload.	Incorrect voltage, hydraulic rotor or cutter blocked, negative head (discharge lower than intake of pump). Defective "off" float. Pump runs continuously at low water level. Low oil level in motor shell. Pump running at shut-off head, check valve not installed or malfunctioning.
C. Pump will not shut off.	Debris under float assembly, defective switch, incoming sewage exceeds capacity of pump.
D. Pump operates but delivers little or no water.	Intake clogged with grease or sludge, damaged hydraulic stator or rotor, low or incorrect voltage, clogged discharge line, operating near shut-off head.
E. Pump starts and stops too often.	Check valve stuck open or defective. Sump pit too small to handle incoming sewage. Level control out of adjustment. Thermal overload tripping.
F. Large red flashing light comes on at control box.	High water in pit. Check pump for clogging, or overload trip.
G. Grease and solids accumulate in pit around pump.	Break up solids and run pump with water running into the pit. Allow level to lower to the pump intake. Continue until solids are cleared from the pit. Do not drain kitchen grease down the sink.

If the above checklist does not reveal the problem, consult the Product Support Department. Do not attempt to service or otherwise disassemble pump. Service must be peformed by a Zoeller Authorized Service Station. Go to www.zoellerpumps.com/servicestations to find the Zoeller Authorized Service & Warranty Center or Customer Care Center in your area.

DECLARATION OF CONFORMITY

NOTE: for CE-rated pumps only.

We, Zoeller, declare under our sole responsibility that the model 7021 to which this declaration relates, are in conformity with the Council Directives on the approximation of the laws of the EC Member States relating to:

-- Machinery Directive (2006/42/EC)
Standards used: EN 809: 1998

-- Electromagnetic Compatibility (2004/108/EC)
Standards used: EN 61000-3-2, EN 61000-3-3 and EN 55014-1

-- Electrical equipment designed for use within certain voltage limits (2006/95/EC)
Standards used: IEC 60335-1:2010 and IEC 60335-2:2012

These are the original installation instructions.

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