

City of West Richland

**City of West Richland
Polo Club Sewer Lid Project
2004-01**

Grinder Pumps Operation & Maintenance Manual

**Owner: City of West Richland
General: Vono Construction
Year of Completion: 2004**

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Grinder Pump Installation

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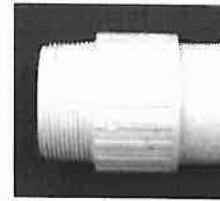
Pressure System Quick Installation

All Pressure Systems Include:



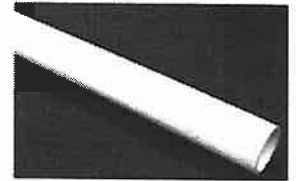
The Installer Will Also Need:

(For mounting bracket installation only)



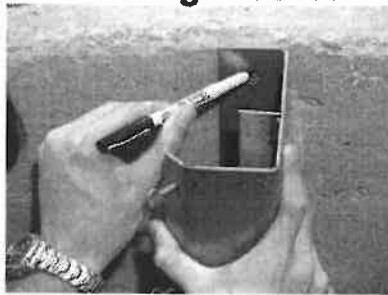
A 2" Male Adaptor

A length of 2" PVC pipe long enough to reach the bottom of the basin



Step 1: Pressure Bell Mounting Options

Mounting Bracket



When using the mounting bracket to install the pressure bell start by placing the bracket against the tank wall and mark the holes for the anchors. Drill the holes in the side of the tank and fasten the bracket to the tank. The bracket should be mounted near the top of the tank with access from the manhole cover.

Tether Kit



When using the tether kit simply slide the 8 lb donut over the top of the pressure bell and thread the nipple into the pressure bell. Then, suspend the bell using the provided poly rope tied on to bolt through the nipple.

Step 2: Preparing the Pressure Bell

Once the mounting bracket is installed, you will need to cut the PVC pipe to the desired length. The length of the PVC pipe = Depth of Basin - 14 inches (for the pressure bell) - an additional 6 to 12 inches (so the pressure bell is off the bottom of the basin). Once the length has been determined and the PVC has been cut attach the 2" male adaptor to the pipe.



If for some reason your factory installed tube has been removed. Firmly attach the 1/4" poly tubing to the fitting at the top of the pressure bell, the tubing will push in 5/8 of an inch. ***IMPORTANT!**



With the tubing securely attached to the Pressure Bell, feed it through the PVC pipe.



Finally, with the tubing securely fastened to the Pressure Bell and all the tubing fed through the pipe, thread the adaptor to the Bell.

Step 3: Connect the Tubing to the Control Panel



With the control panel mounted in a convenient location to the basin, attach the other end of the 1/4" poly tubing to the control panel. To help insure that your system does not leak air it is best to not cut or splice the tubing and leave enough extra length coiled up at the mounting bracket to allow the pressure bell to be removed for maintenance. If your installation requires cutting the tubing to exit a junction box make sure that you use the proper fitting RKCF to insure a proper air seal.

***IMPORTANT!** The tube must be pushed into the fitting 5/8" or the unit will not work correctly!

Step 4: Installing the Pressure Bell



With all the 1/4" tubing connected, you will need to remove the "Do Not Push or Pull the Diaphragm" sticker from the bottom of the pressure bell. Do not push the bottom of the pressure bell, but feel to make sure the rubber is tight against the cup and make sure all tubing is connected between the pressure bell and the control panel before submersing the bell in liquid. Note: Should the tubing become disconnected while the pressure bell is in the liquid you will need to pump the station down manually before reconnecting the pressure tubing. If there is an air leak or the diaphragm is not seated properly the system will not give an accurate measurement. The Pressure Bell can be mounted at any height off of the bottom of the basin that you desire. Remember that the lowest you will be able to measure will be at the top surface of the large union nut on the Pressure Bell.

Step 5: Adjusting the Settings



With all the tubing connected and the pressure bell installed in the basin, you are now ready to adjust your level settings. All settings are made at the control panel not in the confined space. To adjust the on and off settings of the pumps and high water alarms turn the dials to the desired depth in inches on the faceplate. The inches on the dials are measured from the top of the union nut surface on the Pressure Bell upward. You can also turn the pumps on manually by pushing the hand run button once to run and again to stop. The button switches to momentary contact after low level setting is past. When the pumps are running in run mode they will run until they reach the pump off mark. If the pumps need to be run further the hand buttons can be held in until the desired depth is reached. Remember: All settings are relative to the top of the large union nut on the pressure bell in the basin.

Step 6: Installing Battery Backup



The alarm circuitry in the pressure systems are 9-volt battery backed-up. The 9-volt power will sound the audible alarm and light the red alarm light on the front of the Sub-Door. It will not light the flashing red light on the top of the panel. To install the 9-volt battery open the subdoor and insert the 9 volt battery into the clip on the circuit board.

Fine Adjustments



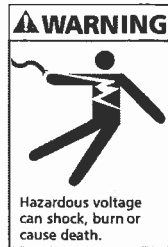
With the pressure units the settings can be adjusted to a precise measurement. By using a digital ohm meter set on DC-Volt setting and placing the negative lead to the screw on the upper right corner of the label and the positive lead to the metal strip on the side of the dials the volt meter will give a reading in inches by moving the decimal to the right one number.



That's how easy it is to install the RK pressure system from CSI.
If you need any additional help please call the factory for technical assistance.

1-800-363-5842

SINGLE PHASE PUMPS



PLUG-CONNECTED UNITS MUST BE CONNECTED TO A PROPERLY GROUNDED, GROUNDING TYPE RECEPTACLE.

ON NON-PLUG UNITS, DO NOT REMOVE CORD AND STRAIN RELIEF. DO NOT CONNECT CONDUIT TO PUMP.

Pumps with bare lead power cords can be hard-wired to a float switch, wired to a 1Ø contactor, a Simplex controller or a Duplex controller. Always verify that the float switch is rated for the maximum run amperage, maximum starting amperage, and the HP rating on the pump. Single-phase wastewater pumps contain on-winding overloads, unless noted on the pump nameplate. See Figure 1.

SINGLE PHASE CONTROL PANELS:

Control panels are available as Simplex (controls 1 pump) or Duplex (controls 2 pumps). Our standard control panels are available with many standard features and can be built with our most popular options. We also custom build panels which offer many more design options than the standard panels. Custom control panels are available in many different configurations. Custom panel quote requests may be forwarded to Customer Service through any authorized distributor.

Our standard duplex panels feature a solid-state printed circuit board design with standard high level alarm circuits. Other standard features are: an auxiliary dry alarm contact for signaling a remote alarm and float switch position indicator lights. Most standard panels are in stock for immediate delivery.

INSTALLATION

STANDARD PUMP INSTALLATION

Connect the pump(s) to the guide rail pump adapters or to the discharge piping. Guide rail bases should be anchored to the wetwell floor.

Complete all wiring per the control panel wiring diagrams and NEC, Canadian, state, provincial and/or local codes.



DO NOT PLACE HANDS IN PUMP SUCTION WHILE CHECKING MOTOR ROTATION. TO DO SO WILL CAUSE SEVERE PERSONAL INJURY.

Lower the pump(s) into the wetwell.

Check to insure that the floats will operate freely and will not contact the piping.

Connect the piping per local codes and the drawings in Typical Drawings Section.

OPERATION

Once the piping connections are made and checked you can run the pumps.

Hard Wired Float Switch Operation – Turn circuit breaker or fused disconnect to On. Test the pump by filling the wetwell until the pump goes On. If the pumps run but fail to pump, they are probably air locked, drill the relief holes per the instructions in the Piping Section.

Check the operating range to insure a minimum two minute run time and that the pump goes Off in the correct position.

Control Panel Operation – Fill the wetwell with clear water.

Use the pump H-O-A (Hand-Off-Automatic) switches in Hand to test the pumps. If they operate well in Hand proceed to test Automatic operation. If the pumps run but fail to pump, they are probably air locked, drill the relief holes per the instructions in the Piping Section.

Place Control Panel switch(es) in Automatic position and thoroughly test the operation of the ON, OFF, and Alarm floats by filling the wetwell with clear water.

Important: Failure to provide a Neutral from the power supply to a 1Ø, 230 volt Control Panel will not allow the panel control circuit to operate. The Neutral is necessary to complete the 115 volt control circuit.

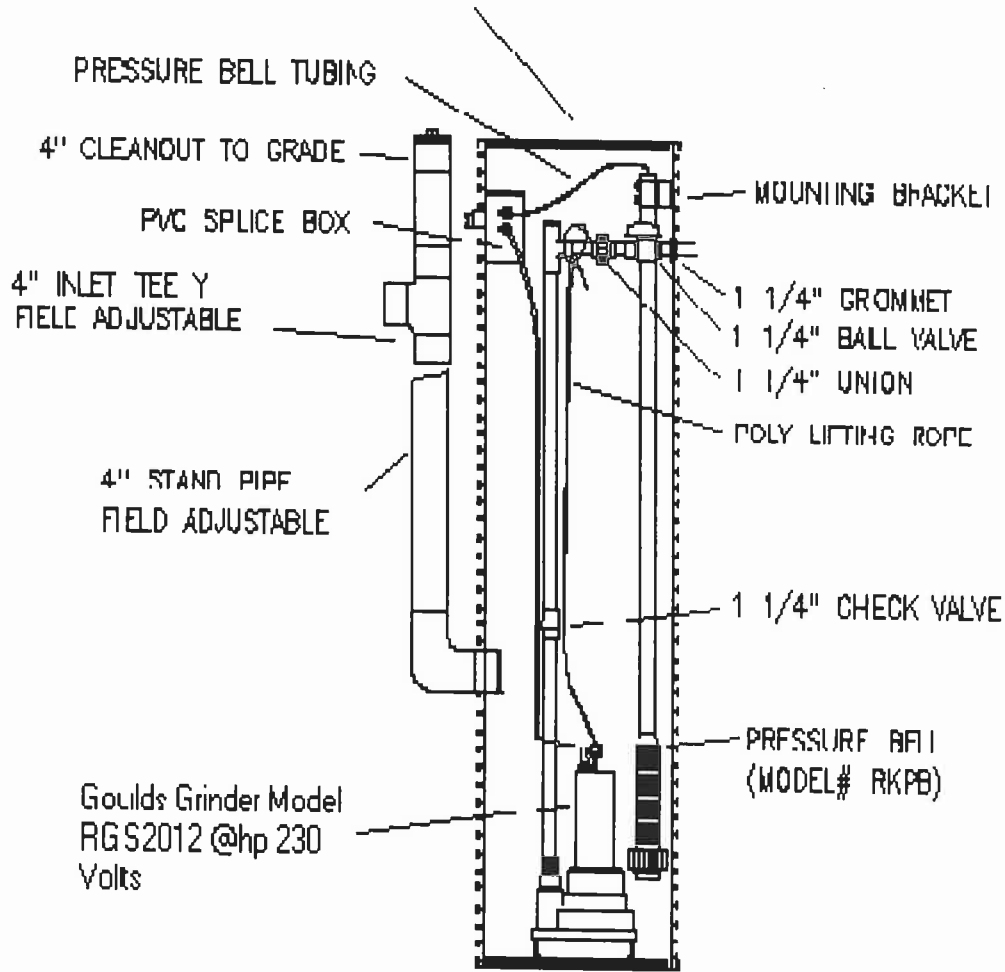
Check voltage and amperage and record the data on the front of this manual for future reference. Compare the amperage readings to the pump nameplate maximum amperage. If higher than nameplate amperage investigate cause. Operating the pump off the curve, i.e. with too little head or with high or low voltage will increase amperage. The motor will operate properly with voltage not more than 10% above or below pump nameplate ratings. Performance within this range will not necessarily be the same as the published performance at the exact rated nameplate frequency and voltage. Correct the problem before proceeding.

Reset the Alarm circuit, place pump switch(es) in the Automatic position and Control Switch in ON position. The system is now ready for automatic operation.

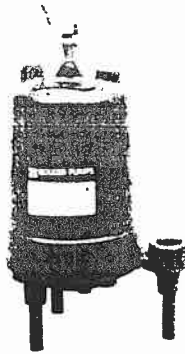
Explain the operation of the pumps, controls and alarms to the end user. Leave the paperwork with the owner or at the control panel if in a dry, secure location.

IID FOWLER COMPANY
GRINDER PUMP BASIN
MODEL # HDFPG 246

24" DIAMETER PUMP BASIN
72" TALL



IID FOWLER COMPANY
4-10-04



Submersible Grinder Pump

MODEL

RGS2012

APPLICATIONS

Designed for high head residential sewage applications where a gravity system is not practical. Ideal for pressure sewage systems.

SPECIFICATIONS

Pump:

- Capacities: to 41 GPM.
- Total heads: to 95' TDH.
- Discharge: 1 1/4" NPT.
- Temperature: 104°F (40°C) max. continuous
140°F (60°C) max. intermittent.
- Single mechanical seal: silicon carbide rotary/silicon carbide stationary, 300 series stainless steel metal parts, BUNA-N elastomers.
- Fasteners: 300 series stainless steel.
- Rotating cutter and cutter ring: 440 C hardened stainless steel.

Motor:

- Single phase: 2 HP, 60 Hz, 3450 RPM, 230 V, capacitor start with on winding thermal protector. **No external capacitor kits required.**
 - Class F insulation.
 - Shaft: 300 series stainless steel threaded design.
 - Bearings: ball bearings upper and lower.
 - Power cord: 20 feet standard 14/3 STOW with bare leads. Optional lengths available.
- Note:** 230 V only, not for 200/208 V systems.

FEATURES

- **Design:** Capable of grinding domestic sewage in individual residential applications.
- **Cutter System:** Anti-roping design. Two blade rotary cutter is threaded to shaft. Stationary cutter ring is reversible for extended service.
- **Impeller:** Silicon bronze, semi-open, non-overloading two-vane design with pump-out vanes for mechanical seal protection. Balanced for smooth operation.
- **Casing:** Cast iron, volute type for high efficiency. Adaptable for slide rail system.
- **Motor:** Fully submerged in oil-filled chamber. High grade turbine oil surrounds motor for more efficient heat dissipation, permanent lubrication of bearings and mechanical seal, and protection against outside environment.
- **Motor Shaft:** 300 series stainless steel, short overhang for minimum shaft deflection.
- **Designed for Continuous Operation:** Pump ratings are within the motor manufacturer's recommended working limits, can be operated continuously without damage when fully submerged.
- **Bearings:** Upper and lower ball bearings for precision positioning of parts and to carry all radial loads and thrust loads.
- **Mechanical Seal:** Hardfaced Silicon carbide for longer life, stainless steel metal parts, BUNA-N elastomers.
- **Power Cable:** Severe duty rated, oil and water resistant. Epoxy seal on motor end provides secondary moisture barrier in case of outer jacket damage and to prevent oil wicking.
- **O-Ring:** Assures positive sealing against contaminants and oil leakage.
- **Paint:** Electro-coat paint process protects all casting surfaces.
- **May be used with optional A10-12 stainless steel slide rail (1 1/4" NPT). Ordered separately.**

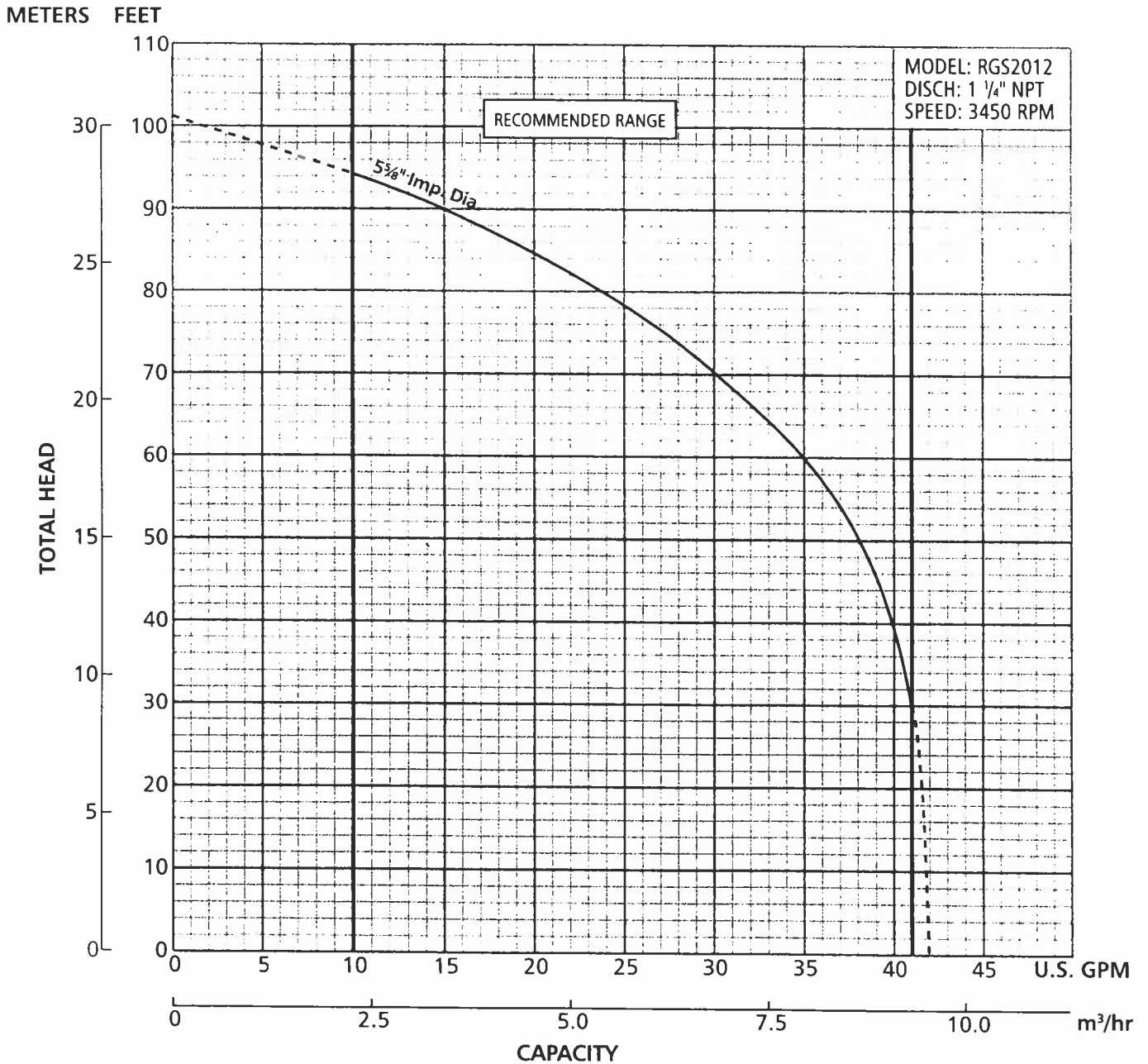
AGENCY LISTINGS



Tested to UL 778 and
CSA 22.2 108 Standards
By Canadian Standards
Association
File #LR38549

Goulds Pumps is ISO 9001 Registered.

RGS2012



OPERATION OUTSIDE RECOMMENDED RANGE COULD AFFECT PUMP LIFE.