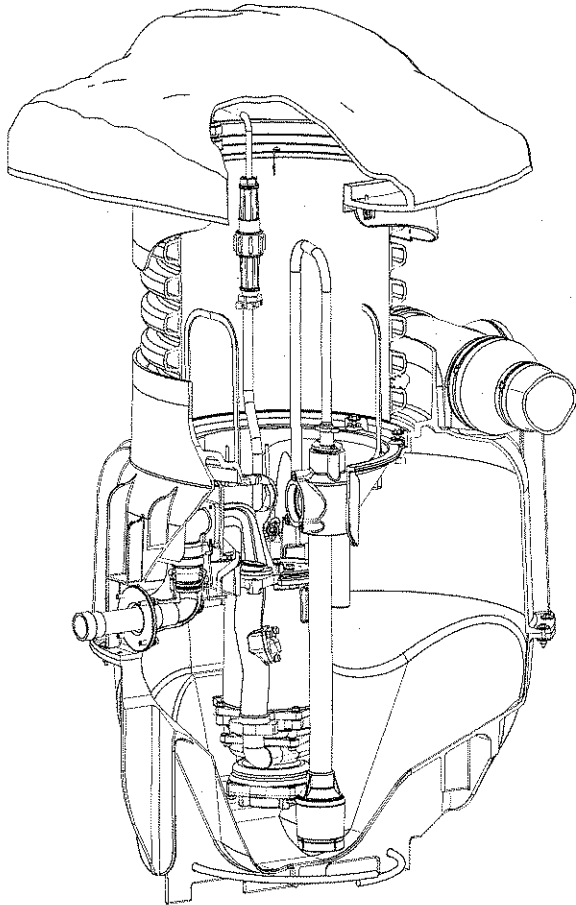




## STATION INSTALLATION & OPERATION MANUAL



## EcoTRAN System

**BARNES®**



**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/ P.O. Box 603  
Piqua, Ohio 45356-0603  
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

Submersible Wastewater  
Pump Association



Form No. 119061-Rev. A

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# 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.*



*Hazardous voltage can shock, burn or cause death.*



*Biohazard can cause serious personal injury.*



*Rotating machinery Amputation or severe laceration can result.*

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



**DO NOT** drop or roll basin. This will damage unit and void the warranty.

Minimize the amount of cooking grease entering the system.



**DO NOT** leave pump cover off the basin, except while servicing, to prevent entrance of foreign materials such as rocks, metal, soil, animals or humans.



Prevent infiltration or direct flow of rain or run-off water into the pump basin to minimize pump cycling. This will prevent overloading the treatment facility, and will facilitate swift transportation of sewage.



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.



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.

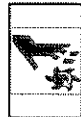
Always keep the shut-off valve completely open when system is in operation (unless advised otherwise by the proper authorities). Before removing the pump from the basin, be sure to close the shut-off valve. (This prevents backflow from the pressure sewer.)

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.



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



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

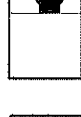
Keep clear of suction and discharge openings. **DO NOT** insert fingers in pump with power connected.



Always wear appropriate safety gear, such as safety glasses, when working on the pump or piping.



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.



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.



**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.

# USER GUIDE

**GENERAL INFORMATION** - In general, your home wastewater disposal service is part of a larger low-pressure sewer system. The key element in this system is the Barnes grinder station. The station collects all wastewater from your house or facility. The solids in the sewage are then ground into a small size by the grinder pump within your station, suitable for pumping in the system. The grinder pump generates sufficient pressure to pump the slurry created from your home to the wastewater treatment plant.

With proper care and by following a few simple guidelines, your station will give you many years of dependable service. The station is designed to handle routine, domestic and light industrial sewage. Solid waste materials should be thrown in the trash. A preventative maintenance schedule should be developed to further increase the longevity of your station.

Regulatory agencies advise that the following items **SHOULD NOT BE** introduced into any sewer either directly or through a drain or waste disposal:

- Glass, metal, or plastic
- Diapers, Sanitary napkins, or tampons
- Socks, rags, or cloth

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

- Explosives or Flammable material
- Lubricating oils or Grease
- Strong Chemicals or Gasoline

**POWER FAILURE** - Your grinder pump station cannot dispose of wastewater or provide an alarm signal without electrical power. If an electrical outage occurs, keep your water usage to a minimum. Your station has reserve capacity available to help avoid alarm or high-level occurrences during power outages.

## STATION START-UP/WARRANTY REGISTRATION

A start-up/warranty registration form is included in the back of this manual. It must be properly completed and sent to the factory for review before a warranty can be activated. Invalid or missing data or failure to return the form will delay or void warranty. If you feel you have a claim under the provisions of your warranty, please contact your local Crane Pumps & Systems, Inc. Distributor. Please be sure to have your station part number and model number along with the pump part number and model number.

### **YOU SHOULD READ THIS MANUAL CAREFULLY BEFORE BEGINNING YOUR INSTALLATION!**

Various references to ballasting, proper backfill procedures, and other steps required to properly install your new basin package are located throughout the manual. You should understand these aspects to avoid installation issues. If you have questions or concerns regarding your particular installation, contact your local Barnes representative or contact the factory at (937) 778-8947.

For future reference, record the following information:

Station Serial No: \_\_\_\_\_

Pump Model No: \_\_\_\_\_

Pump Serial No: \_\_\_\_\_

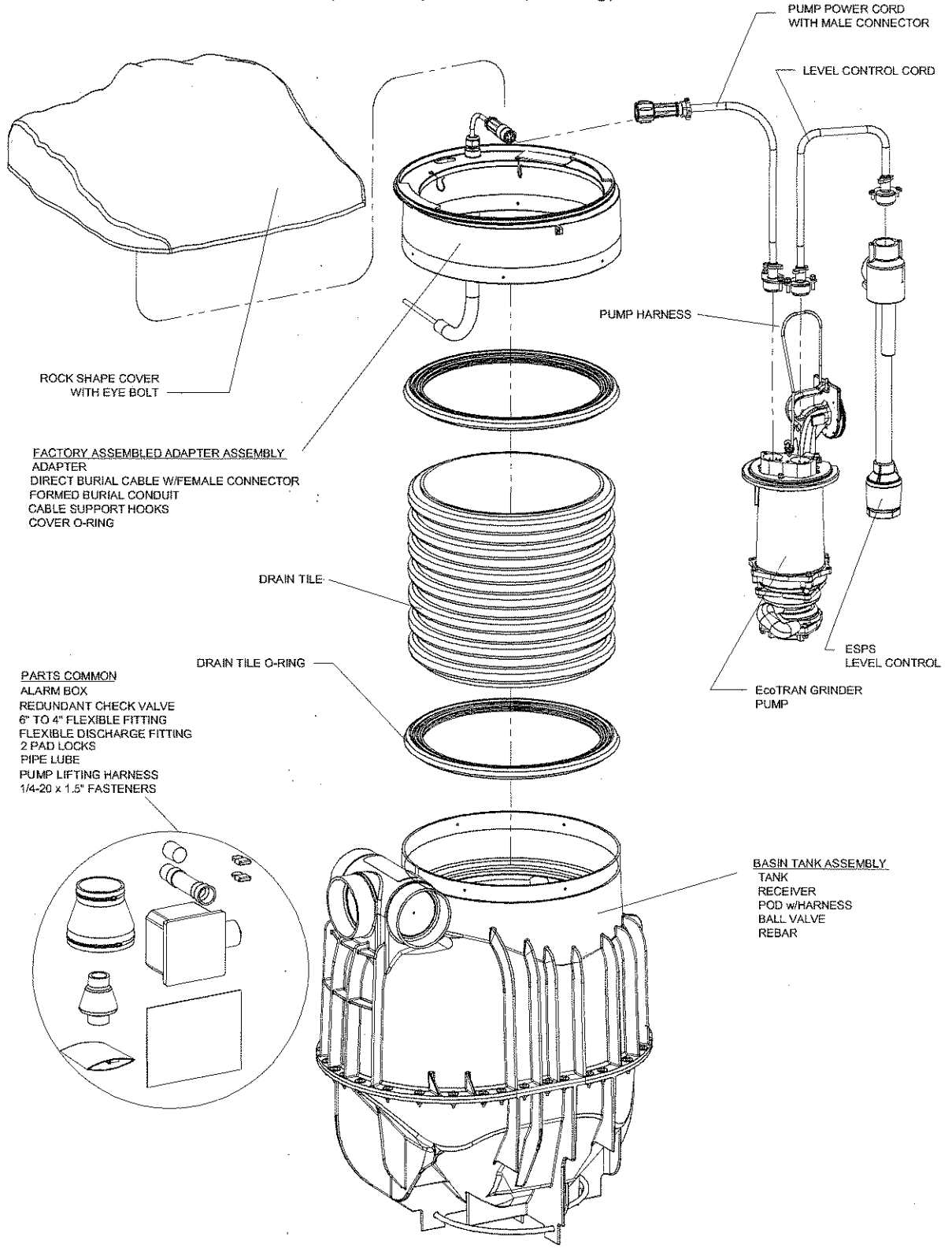
Local Distributor: \_\_\_\_\_

Distributor Telephone: \_\_\_\_\_



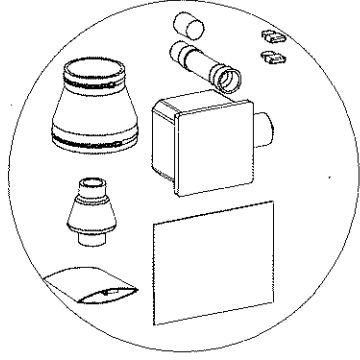
# PACKAGED PARTS AS RECEIVED

Add Inventory note.  
(See Step 3 for Unpacking)



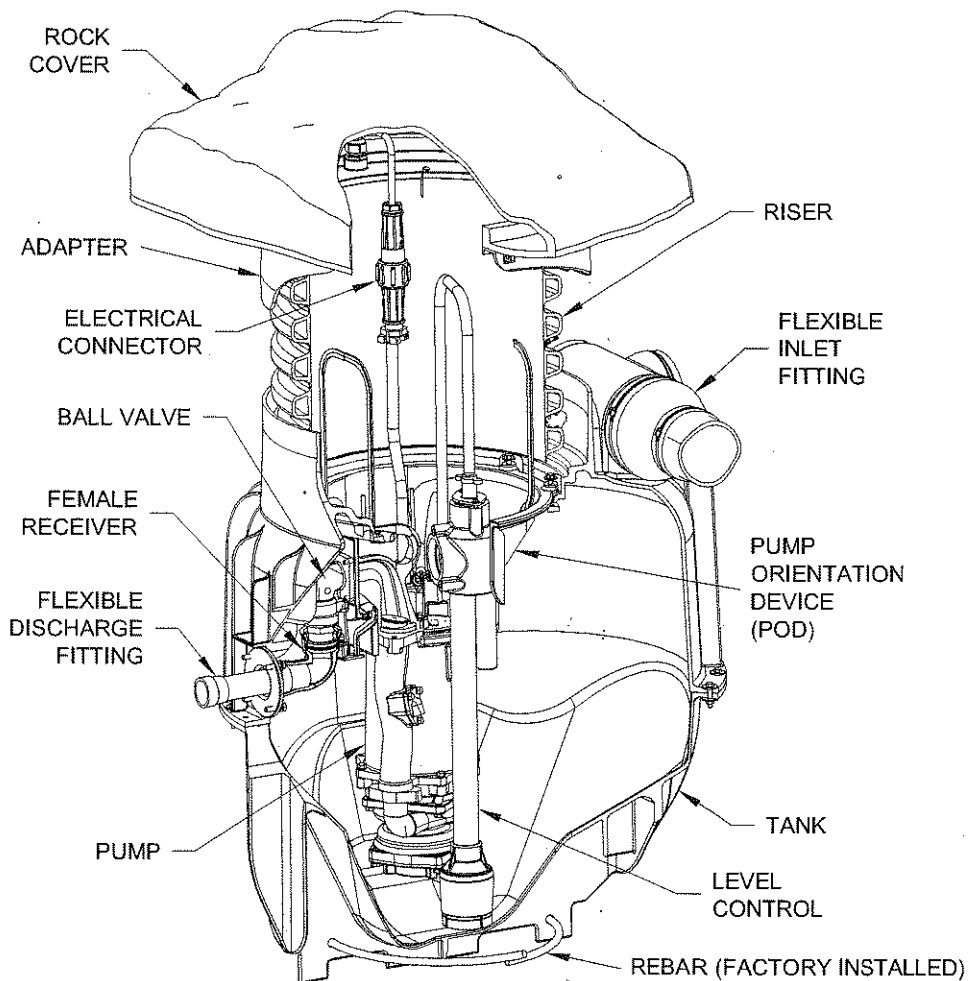
FACTORY ASSEMBLED ADAPTER ASSEMBLY  
ADAPTER  
DIRECT BURIAL CABLE W/FEMALE CONNECTOR  
FORMED BURIAL CONDUIT  
CABLE SUPPORT HOOKS  
COVER O-RING

**PARTS COMMON**  
ALARM BOX  
REDUNDANT CHECK VALVE  
6" TO 4" FLEXIBLE FITTING  
FLEXIBLE DISCHARGE FITTING  
2 PAD LOCKS  
PIPE LUBE  
PUMP LIFTING HARNESS  
1/4-20 x 1.5" FASTENERS



**BASIN TANK ASSEMBLY**  
TANK  
RECEIVER  
POD w/HARNESS  
BALL VALVE  
REBAR

## STEP 1: COMPONENT OVERVIEW



**ROCK COVER** ... Cover basin assembly.

*Material* .... LDPE

**ADAPTER** ..... Adapt from riser to cover.

*Material* .... HDPP

**ELECTRICAL CONNECTOR**

Seal and convert from direct burial cable to pump power cable.

*Material* .... Polyamide

**RISER**..... Provide height adjustment.

*Material* .... HDPE

**INLET FITTING** .. Seal and adapt from inlet pipe to tank.

*Material* .... Rubber

**BALL VALVE**..... Provide means of shutting main sewage line off from individual station.

*Material* .... Bronze body with 300 series stainless steel ball and stem with teflon seats

**FEMALE RECEIVER**

Seal tank and adapt from ball valve.

*Material* .... Bronze

**POD (Pump Orientation Device)**

Orient and support pump and level control.

*Material* .... HDPP

**FLEXIBLE DISCHARGE FITTING**

Provide some flexibility for settling.

*Material* .... 300 series stainless steel

**TANK** ..... Reservoir for pump and sewage

*Material* .... HDPP

**PUMP** ..... Remove sewage from tank.

*Material* .... Cast iron body

**LEVEL CONTROL**

..... Controls pump and alarm to set heights

*Material* .... CPVC body

**REBAR**..... Provide means of anchoring basin to the ballast.

*Material*.... Epoxy coated rebar

**ALARM BOX (Not Shown)**

Provide power to station and houses audible/visual alarm

*Material*.... Non metallic enclosure

## STEP 2: BEFORE YOU BEGIN

- **Read This Manual Completely Before Starting Your Installation.**
- Consult local officials for any applicable codes and regulations. Obtain all necessary permits. Call your local utilities committee before digging to locate all underground lines and cables.
- Determine the best location for your basin and alarm panel (page 10). **DO NOT** drop or roll basin. This will damage unit and void the warranty.
- **When determining the depth of the station, insure a minimum 1/8" per foot drop on the inlet line between the dwelling and pump station** (pages 16-17). Minimize the use of elbows on the inlet line. If required only use 45° elbows.
- Determine where the incoming power will be supplied from and is it properly rated for your station.
- Use only the electric cable specified. (page 18) **DO NOT USE ANY OTHER CABLE. Substitutions may void warranty.**
- Mount Alarm Box In accordance with all national and local electrical codes and where alarm light can be easily seen.
- **Ballast requirement is 1/3 cubic yard.** (page 14)
- Make sure you have the necessary equipment and supplies before starting your installation. (see lists below)

### EQUIPMENT REQUIRED LIST (NOT INCLUDED)

- 3/8" WRENCH
- REGULAR AND PHILLIPS SCREWDRIVERS
- 1/8" FLAT TIP ELECTRICIAN SCREWDRIVER
- BOX KNIFE
- PIPE WRENCH(S)
- CORDED OR CORDLESS DRILL
- NEEDLE NOSE PLIERS
- LEVEL AND TAPE MEASURE
- HACKSAW/PIPECUTTER
- LARGE NYLON LIFTING STRAP(S)
- HOLESAW 5" FOR INLET (PAGE 16)
- WIRE STRIPPERS(10 AWG TO 18AWG) AND CUTTERS
- ELECTRICAL MULTI-METER
- ELECTRICAL MEGGER
- WINCH OR ASSISTED LIFTING DEVICE
- EXCAVATING EQUIPMENT

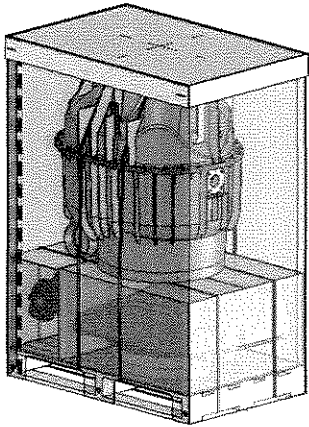
### MATERIAL LIST (NOT INCLUDED)

- BEDDING MATERIAL (PAGE 12)
- BALLAST MATERIAL (PAGE 14)
- EXTERNAL DISCHARGE PIPING AND ISOLATION VALVE. (1-1/4" REDUNDANT CHECK VALVE SUPPLIED WITH STATION)
- INLET PIPING
- 1" CONDUIT AND NEMA 4 COUPLING TO ENTER ALARM BOX
- CONDUIT SEALANT
- GREEN ELECTRICAL TAPE
- (2) CIRCUIT BREAKERS -ALARM & PUMP POWER (PAGE 21)
- WATER
- ALARM BOX MOUNTING HARDWARE
- INK PEN
- PIPE THREAD SEALANT
- PVC PIPE CLEANER AND GLUE

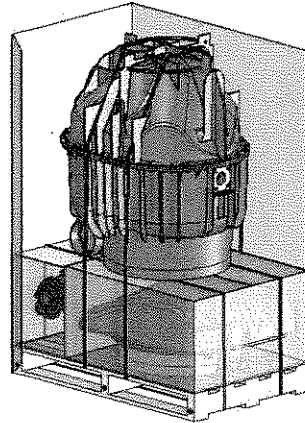
### MATERIAL LIST (INCLUDED)

- ALARM BOX
- BASIN TANK ASSEMBLY
- PUMP ORIENTING DEVICE (POD)
- REBAR (2 PC'S)
- REDUNDANT CHECK VALVE
- DIRECT BURIAL CABLE w/FEMALE CONNECTOR
- RISER/ROCK ADAPTER
- PUMP POWER CORD w/MALE CONNECTOR
- 6" x 4" FLEXIBLE FITTING
- REDUNDANT CHECK VALVE
- PUMP LIFTING HARNES
- PUMP
- FLEXIBLE DISCHARGE FITTING
- LEVEL CONTROL
- ROCK COVER
- RISER (SHIPPED SEPARATELY)
- PIPE LUBE
- PAD LOCKS (2)
- 1/4-10 x 1.50" LG., SCREWS (12)
- RISER SEALS (2)
- LEVEL CONTROL CORD

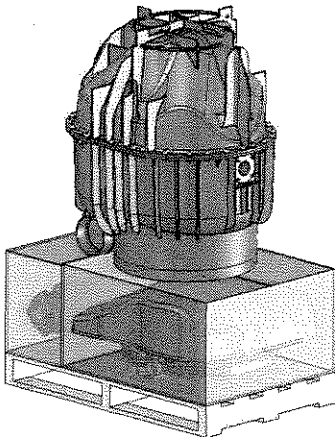
### STEP 3: UNPACK INSTRUCTION



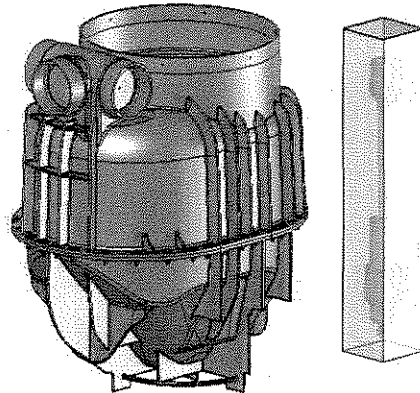
Received EcoTRAN Package



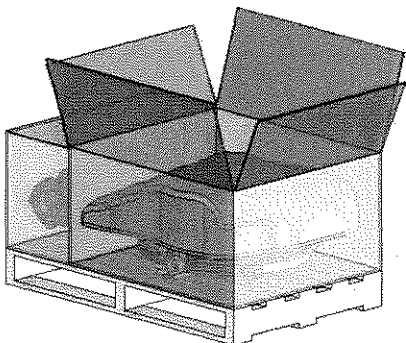
STEP 1: Cut outer cardboard at the designated cut line and remove cover.



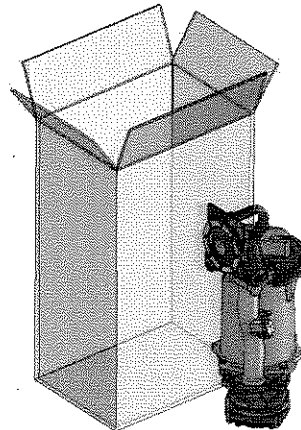
STEP 2: Cut the banding that retains the tank and discard. Cut the banding that hold the two boxes together.



STEP 3: Roll the tank to its right side up position and remove the level control.



STEP 4: Open the "PARTS BOX" and remove enclosed contents.



STEP 5: Open the pump box and remove the enclosed pump.



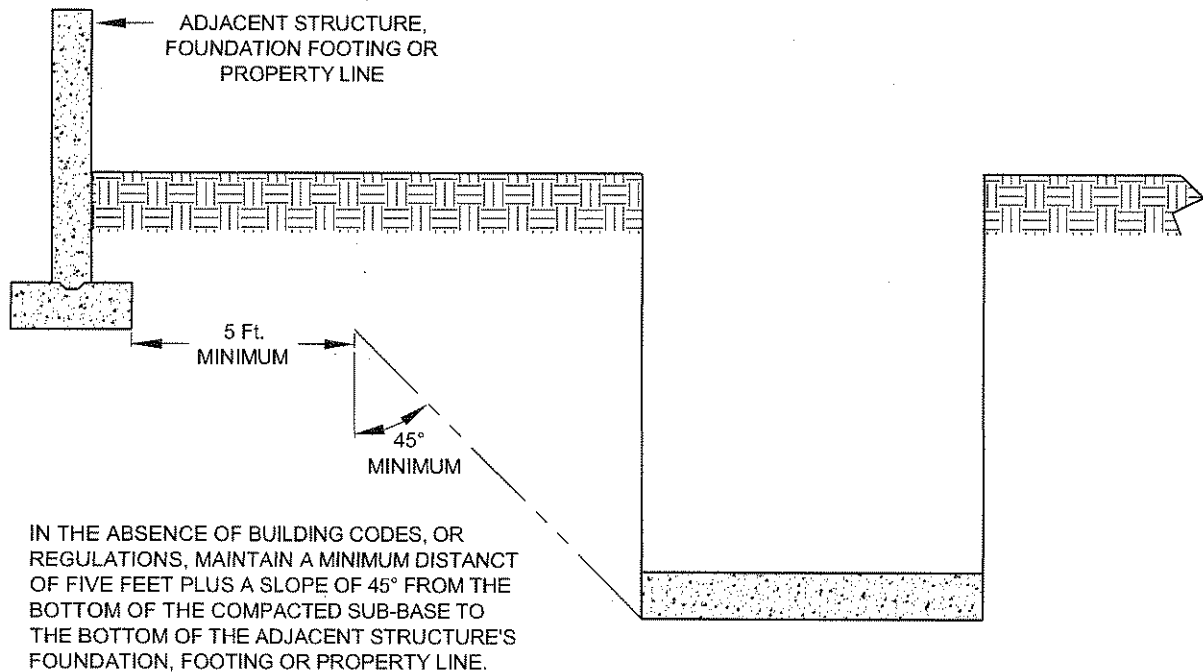
## STEP 4: SETTING THE BASIN: Location Overview

You should have your local utilities committee mark all utility lines to help determine the proper location. You may also call 888-258-0808 which is a national directory to identify your local utility authority. On the Internet you can go to the following website to find your specific states information about One Call information.

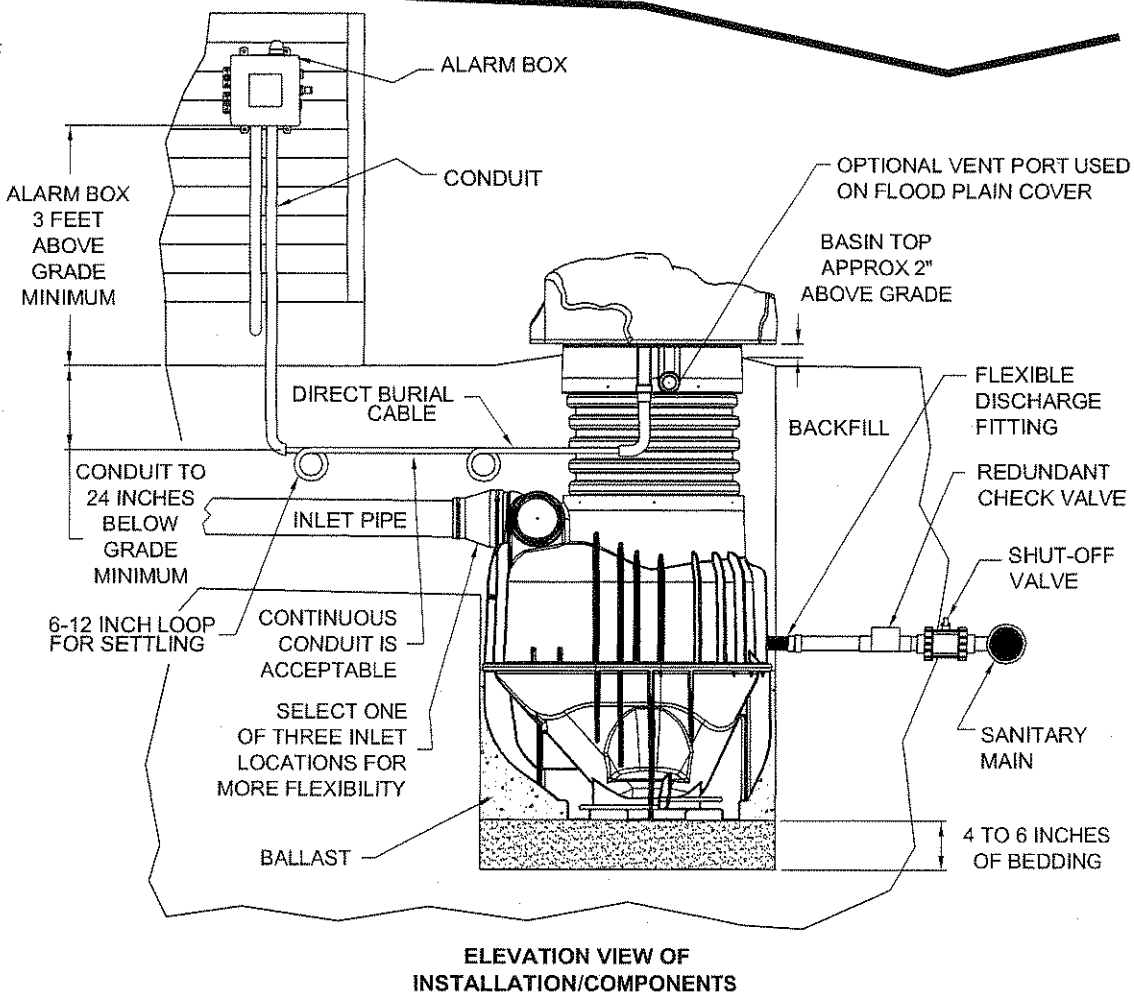
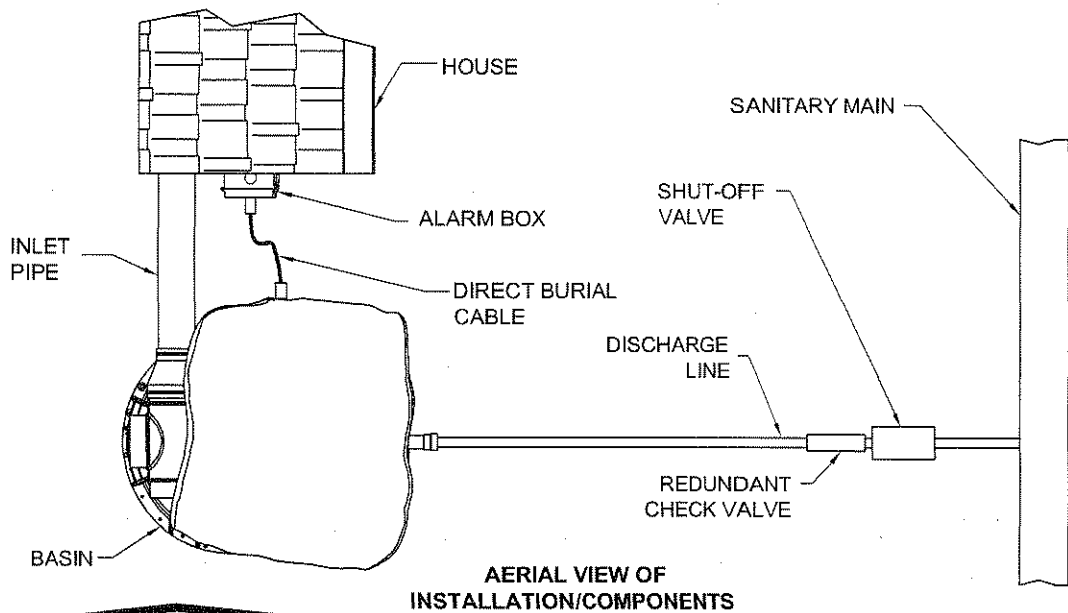
<http://www.undergroundfocus.com/onecalldir.php>

The location of your basin should meet the following conditions:

- Not placed in low lying or frequently flooded areas
- Ground slopes away from the basin
- Have well draining soil
- Removed from normal traffic routes
- Close proximity to the structure sewage is originating from to minimize bends and overall inlet line length.
- Does not damage foundations of structures
- Placed in an area accessible to authorized personnel at all times



## STEP 4: SETTING THE BASIN: Location Overview



## STEP 5: RISER TANK PARTS ASSEMBLY

Orient the adapter as shown so the threaded ports are on the long side of the tank (See Figure 2)

### STEP 5A

INSTALL SEAL INTO THE RISER CORRUGATION WITH THE SEAL LIP AS SHOWN (TO GUIDE INTO THE TANK SEALING CAVITY)

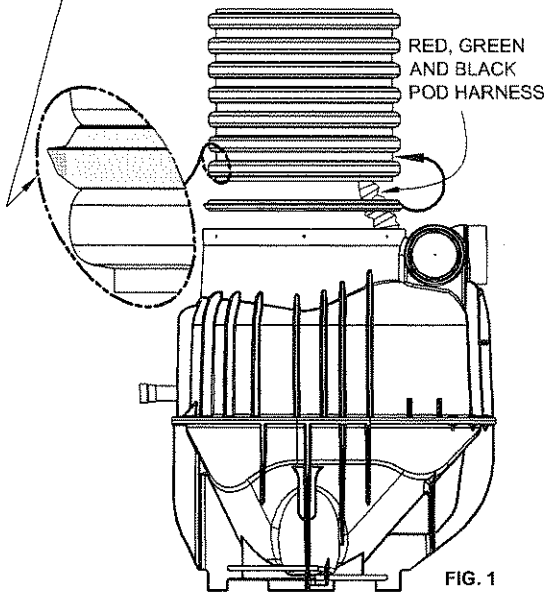


FIG. 1

### STEP 5B

- 1.) LUBE THE SEAL AREA WITH THE PROVIDED LUBE
- 2.) INSTALL THE RISER/SEAL ASSEMBLY INTO THE TANK AS SHOWN.
- 3.) MAKE SURE THE RISER CORRUGATION IS RESTING ON THE RIM OF THE TANK. BEFORE TIGHTENING THE PROVIDED RETAINING FASTENERS.
- 4.) MAKE SURE THE FASTENERS DO NOT ENTER INTO THE CORRUGATIONS. (SEE DETAIL "A" BELOW)
- 5.) IF THE FASTENERS ALIGN WITH THE CORRUGATION, RESEAT THE RISER ASSEMBLY TO ENSURE ENGAGEMENT.
- 6.) REPEAT STEPS 4 AND 5 FOR 6 PLACES.

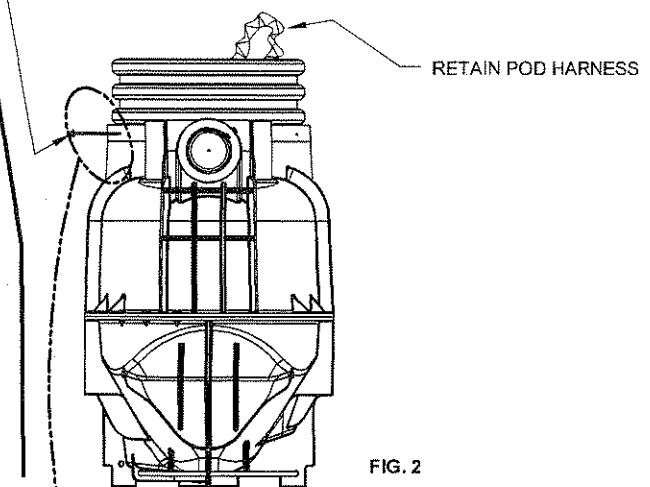
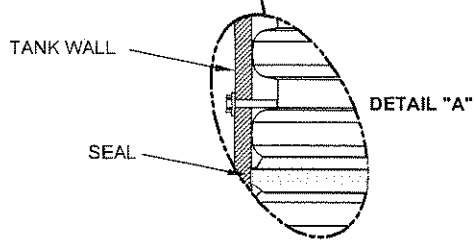


FIG. 2

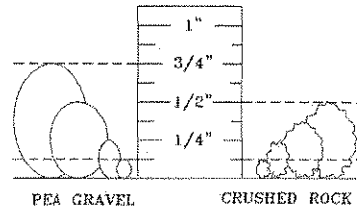


## STEP 6: HOLE DEPTH & BASIN HANDLING

To calculate the hole depth required, add the package depth plus the amount of bedding used under the tank, then subtract 2 inches. **Package depth plus bedding thickness minus two inches = Hole depth required.**

### BEDDING MATERIAL

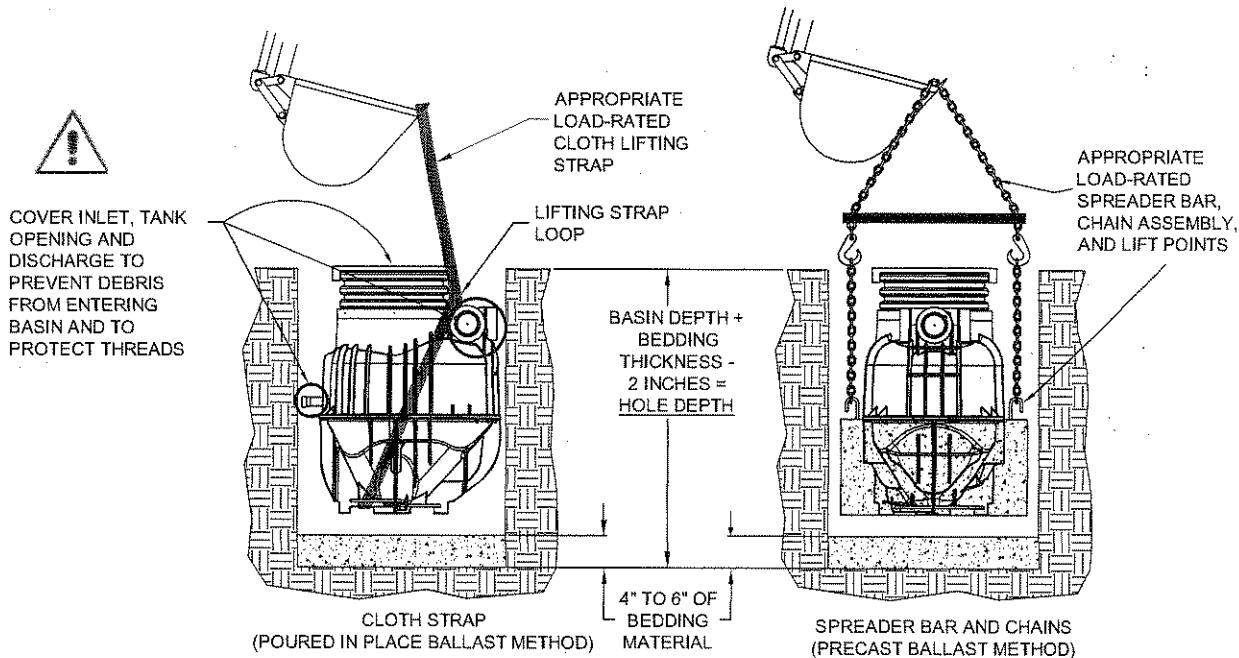
**DESCRIPTION** - The basin should have a 4 to 6 inch compacted bed of round or angular crushed rock with a minimum size of 1/8" and no larger than 3/4". The bedding should be placed and compacted using a hand or vibratory tamper



### HANDLING THE BASIN

Improper handling could result in fractures or permanent structural damage. Handle the tank in a vertical manner whenever possible.

- Never place a chain around the basin when moving the tank.
- Only use a nylon lifting strap or similar device around the tank.
- Never lift the package by the riser or the cover.
- Never drag, drop, or roll package.
- Do not install pump until basin assembly has been backfilled around.



Once the package is installed in the hole, place a level on top of the Adapter flange. The package should be level within half a bubble. If the package is not level, lift tank from hole and level bedding material out.

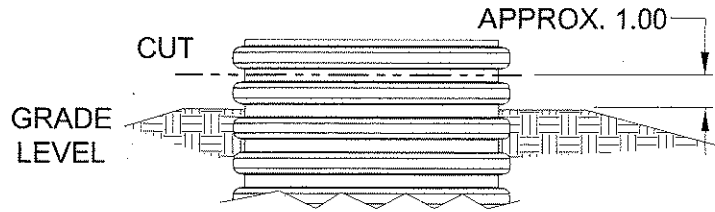


**Never try to level the package out by pushing down on top of package with excavating equipment. Warranty will be voided if attempted.**

## STEP 7: ADAPTER / CONDUIT LAYOUT

### 7A

Cut drain tile to proper elevation  
 • Optional Methods - Miter Saw or Sawzall®

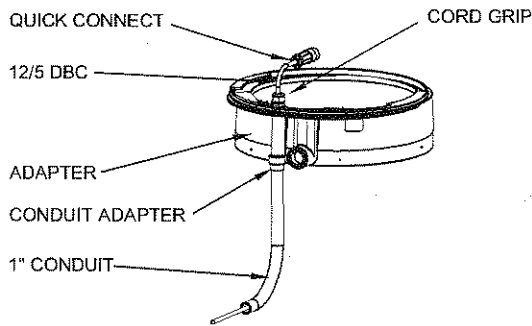


### 7B

Apply thread sealant to the threads of the NPT to SLIP fitting that is on the direct burial cable. Thread and tighten the fitting into the adapter. Apply PVC cleaner to the inside of the SLIP fitting and the end of the "L" bent piece of conduit that will fit into the fitting. Apply PVC cement to the pieces as done with the cleaner and push together orienting it with the tank so it fits and points towards your power supply. Hold for a couple of seconds for initial set-up then resume installation. **Minimize** the amount of cleaner and cement on the Direct Burial Cable.

## ADAPTER/CONDUIT LAYOUT

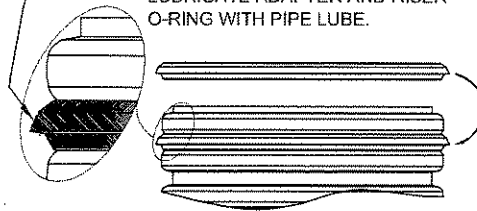
### 7B



### 7C

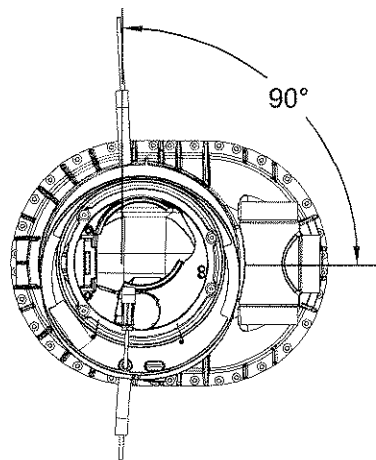
INSTALL SEAL INTO THE RISER CORRUGATION WITH THE SEAL LIP AS SHOWN (TO GUIDE INTO THE ADAPTER OR TANK SEALING CAVITY).

LUBRICATE ADAPTER AND RISER O-RING WITH PIPE LUBE.



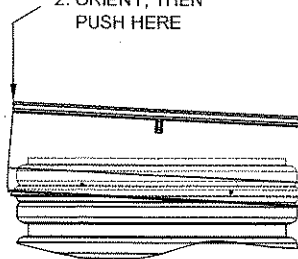
### 7D

ALIGN CONDUIT IN PERPENDICULAR FASHION TO TANK



### 7E

2. ORIENT, THEN PUSH HERE



1. SLIDE ADAPTER SLIGHTLY PAST O-RING. THEN PUSH ON THE OPPOSITE SIDE AS SHOWN IN ITEM 2.

## STEP 8: BALLASTING REQUIREMENTS

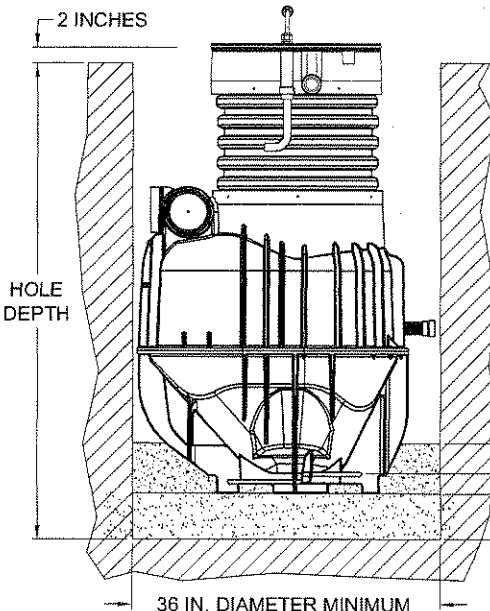
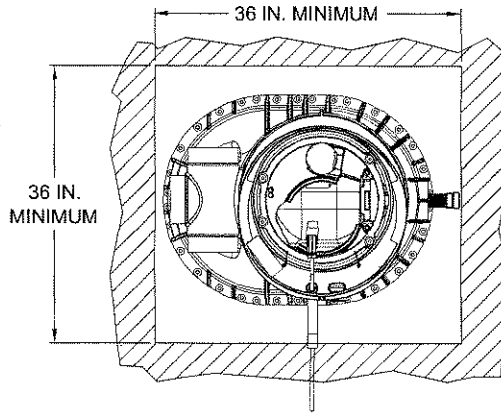
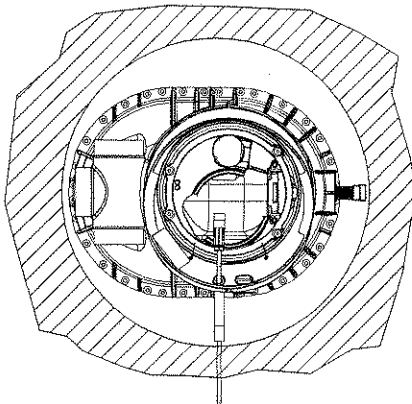
The basin, when installed, has natural buoyant forces acting upon it. Think of this as putting an empty glass, bottom first, into a sink filled with water. Ballast is required to compensate for these forces. Ballasting is accomplished by pouring concrete in place when the tank is set into the hole at the site. **FILL BASIN WITH WATER BEFORE POURING BALLAST.**

Calculating the required ballast weight is not necessary since basins of any depth up to a **maximum of 10 ft.** require the same amount of ballast (1/3 yd<sup>3</sup> of concrete). This assumes the basin is installed without internal components (pump(s), discharge, etc.) being installed. The views below show the hole for the package may be round or rectangular but must have a **minimum of 1/3 cubic yard** of concrete and the specified minimum(s) shown below.

CONCRETE BAGS	
Per Bag Weight (Dry)	Number Bags Required
40 lb	30
50 lb	25
60 lb	20
80 lb	15
90 lb	14

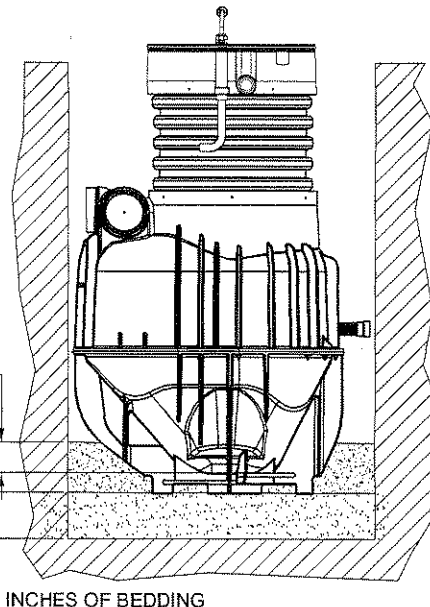


**IMPORTANT!** - Always follow manufactures mixing instructions



MINIMUM  
1/3 CUBIC  
YARD OF  
CONCRETE  
SEE CHART

MINIMUM OF  
4 INCHES OF  
CONCRETE  
ABOVE  
THE REBAR



**IMPORTANT! - FAILURE TO BALLAST STATION WILL VOID WARRANTY AND MAY RESULT IN PERSONAL INJURY AND PROPERTY DAMAGE. AVOID ANY DIRT SPILLAGE INTO TANK DURING BALLAST BACKFILL.**

## STEP 9: DISCHARGE CONNECTIONS

The basin is equipped with a female 1.25 inch NPT discharge connection.

Your discharge **MUST** include the following items:

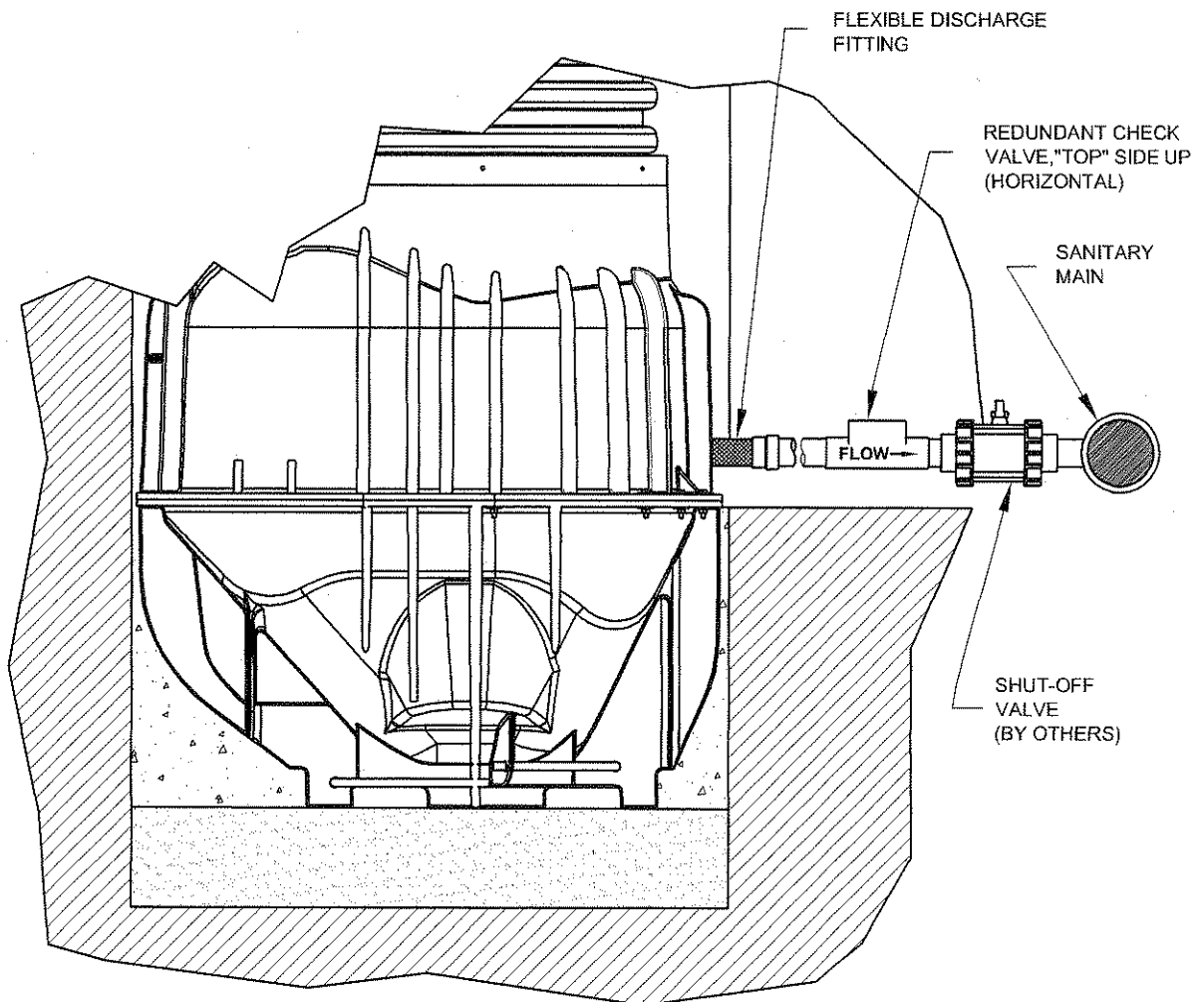
- (1) Flexible pipe coupling –supplied with station to compensate for varied settling rates of backfill materials
- (1) Flap style redundant check valve – supplied with station - to prevent backflow from the main into the lateral.

### CHECK ORIENTATION TO ENSURE PROPER FLOW.

- (1) Shut-off valve – supplied by others - near force main connection for station isolation from main. This valve is to be placed between the force main and redundant check valve
- Pipe of proper size and strength for rated conditions – supplied by others

### Important Notes about the discharge:

- All discharge components should be below frost depth. If above frost depth, all components must be properly insulated to prevent freezing.
- Pressure checking of discharge should not exceed 150 PSI! Prior to checking laterals be sure to close the shut-off valve inside the station to avoid damage to basin components. All components of your discharge should have a pressure rating of 150 PSI at 73° F (23°C) or greater.



## STEP 10: INLET LOCATION: Installing Flexible Inlet Fittings

The majority of basin problems originate from excessive inflow or infiltration. While all aspects of basin installation are critical, the inlet installation should not be deviated from! Make sure to fully read this page before beginning your inlet installation.

Refer to the illustration below for proper inlet installation. The flexible inlet fitting is supplied in the parts box (see pages 5 & 7). Your basin inlet location should meet the following criteria:

### WHAT TO AVOID

- **NEVER** install additional inlets or additional sources of inflow unless approved by project engineers. Excessive amounts of unplanned inflow will change expected system designs, add possible sources of infiltration, and potentially overwork the treatment facilities.

### WHAT TO DO

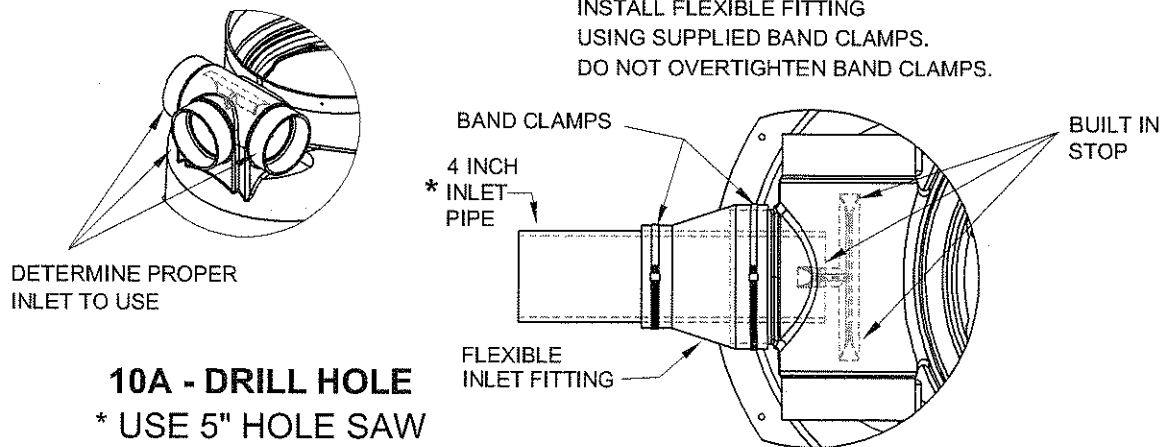
- Verify pipe O.D. The inlet fitting is sized for 4 inch Schedule 40, 80 and SDR 35
- **MUST** have a minimum of 1/8" per foot drop. If required only use 45 degree elbows.

### INSTALLATION NOTES

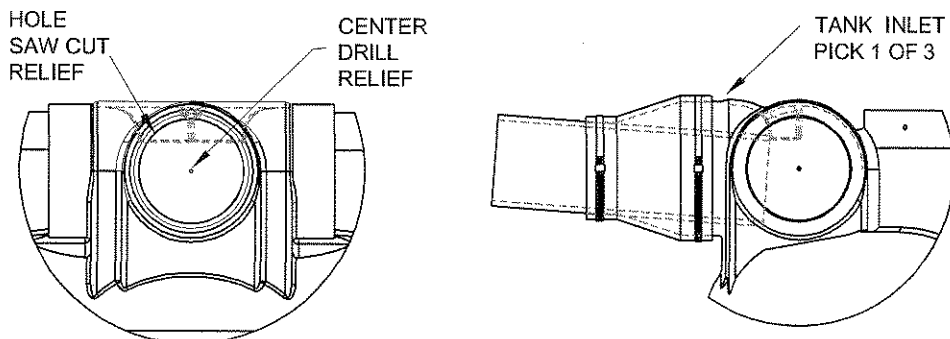
- The hole **MUST** be cut with a 5 inch **HOLE SAW** to ensure proper sealing around inlet flange. (See Fig. 10A). Use of any other tool or method is prohibited!
- The end of the pipe can be chamfered and lubricated with soapy water to aid in installation.
- Make sure the inlet pipe, tank inlet and inlet fitting are clean to provided good sealing areas. Install fitting so the large diameter of the inlet fitting is over the tank inlet. **Slide inlet pipe thru the inlet fitting into the tank until it hits the built in stop.**
- Tighten the inlet fitting band clamps securely.
- **Note: 6" pipefittings are not to be used with basins.**

### 10B - INSERT INLET PIPE

INSTALL FLEXIBLE FITTING  
USING SUPPLIED BAND CLAMPS.  
DO NOT OVERTIGHTEN BAND CLAMPS.



### 10A - DRILL HOLE \* USE 5" HOLE SAW



\* INSERT INLET PIPE INTO TANK UNTIL IT HITS THE BUILT-IN STOP.

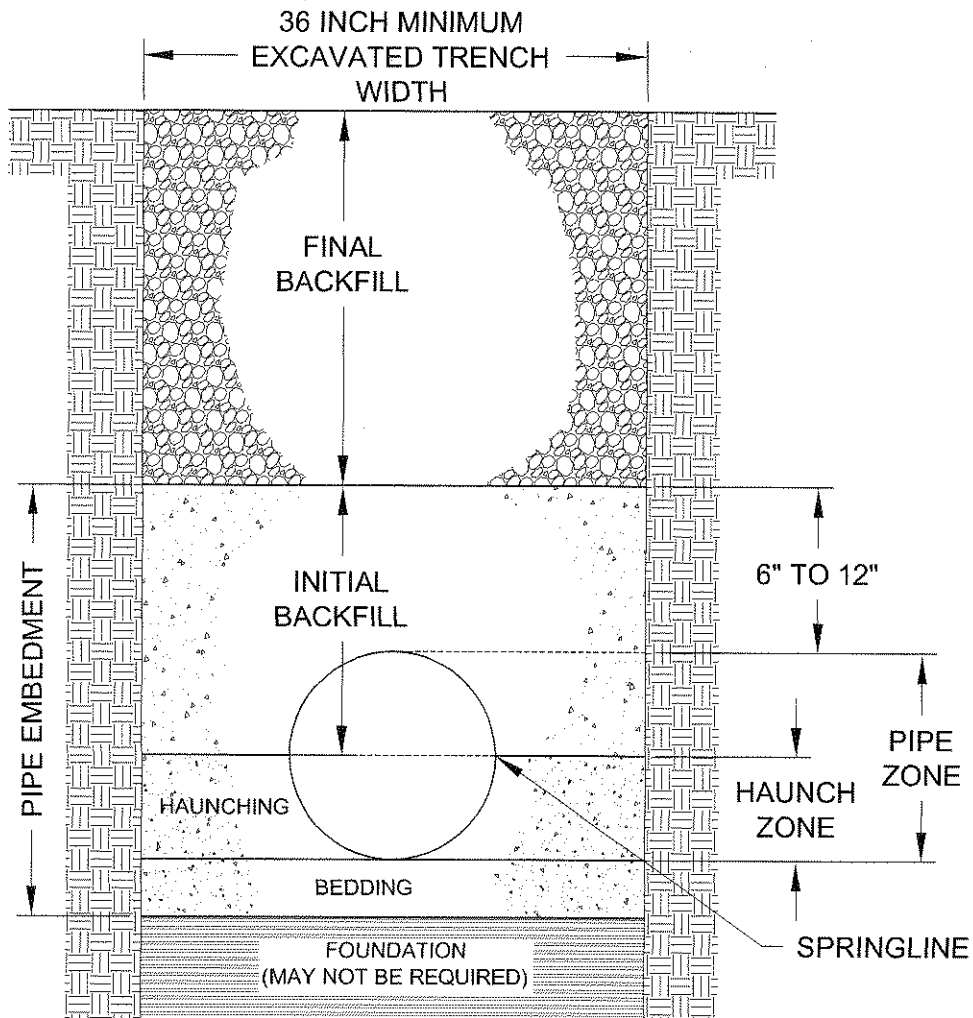


## STEP 10C: INLET INSTALLATION

### BACKFILLING

- Backfill and haunch per the ASTM D 2321 specification to prevent damage or failure of the inlet piping! Work in and compact the material in the haunching area to provide complete contact with the pipe bottom and ensure there are no voids. The material in the haunching area supports the vertical load applied to the pipe. Not compacting the embedment material will allow excessive deflection of the pipe and potential failure. Compact to 70% STANDARD PROCTOR DENSITY or a 700PSI SOIL MODULUS.
- *Note: 6" pipefittings are not to be used with basins.*

SEE PAGE 19 FOR BACKFILL DESCRIPTION.



## STEP 11: INSTALLING DIRECT BURIAL CABLE AND MOUNTING ALARM BOX

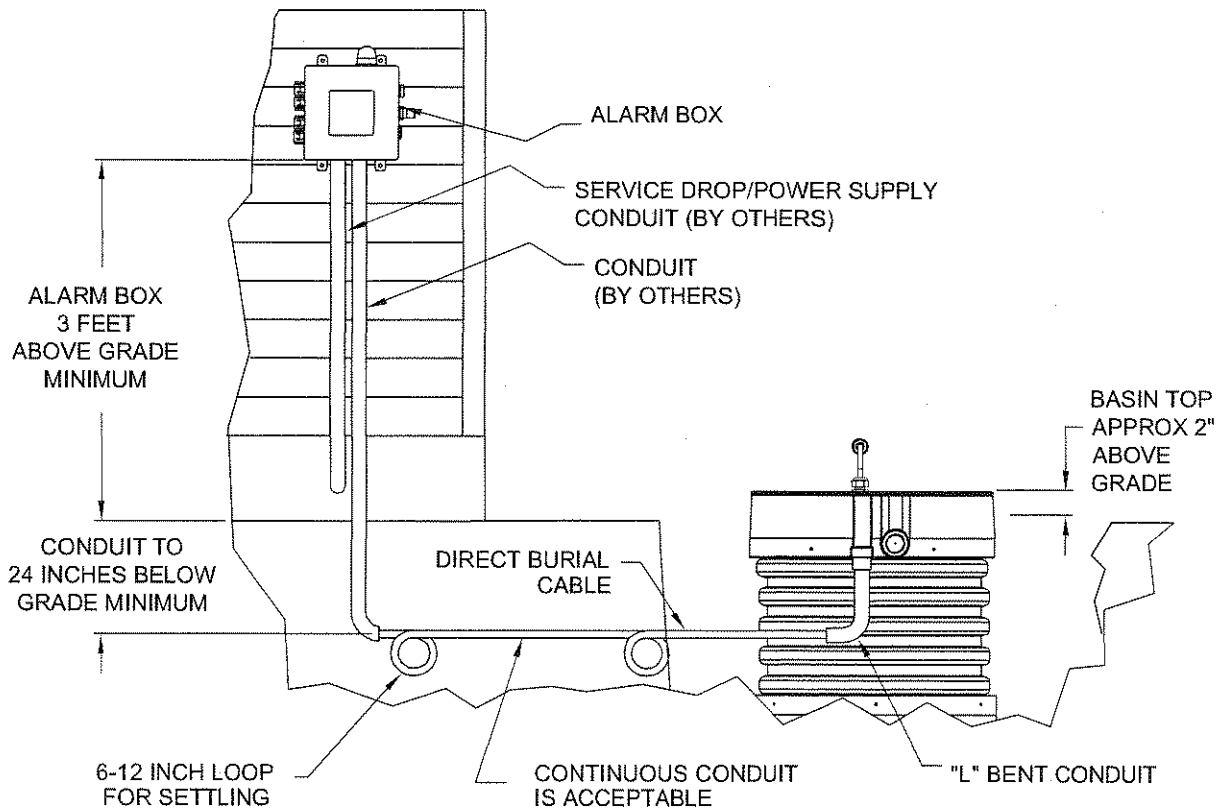
The direct burial cable must be a UL / CSA Approved, type TC round style cable rated for burial use. **FLAT TYPE UF CABLE WILL NOT BE PERMITTED AND WILL VOID WARRANTY!**  
The 12/5 conductor size is based on a maximum length of 150 feet.

When installing the direct burial cable be sure to consider the following points:

- Cable should be a minimum of 24" below grade for residential dwellings or otherwise buried per Table 300-5 of the National Electric Code and/or per local codes
- A coil of 6 to 12 inches of excess cable at conduit ends to allow for settling of backfill
- Cannot have damaged or nicked insulation or conductors
- All cable is ran inside of conduit when going from the control panel to 24" below grade
- All connections made are utilizing Third party listed devices

### MOUNTING ALARM BOX

- Make sure bottom of Alarm Box is a minimum of 36" above grade and level
- All penetrations through the enclosure should be made on the bottom and utilize NEMA 4 fittings to maintain the enclosure rating. Two penetrations will be required. One for "Incoming Service" and one for the "Direct Burial Cable". Recommend 1" conduit.
- Proper style and size of hardware is used to mount to surface
- Alarm devices are audible/visible and in a direct line of sight from the station
- Only use Third party listed devices when connecting to the enclosure



## STEP 12: BACKFILLING

When backfilling around the basin, care should be taken to prevent damage to the installed components. It is imperative that proper backfill materials and methods be used to prevent leaks, cracks and failures. Listed below are materials approved for backfill per the ASTM D 2321 specification.

**Any other material used will void warranty!**

**Angular Aggregate, Open Grade, Class IA Materials** - Class IA materials provide maximum stability and support for a given density due to angular interlock of particles. With minimum effort these materials can be installed at relatively high densities over a wide range of moisture contents. In addition, the high permeability of Class IA materials may aid in the control of water, and these materials are often desirable for embedment in rock cuts where water is frequently encountered. However, when ground water flow is anticipated, consideration should be given to the potential for migration of fines from adjacent materials into the open-graded Class IA materials. **Examples of material types:** *Angular, crushed stone or rock, crushed gravel, broken coral; contain little or no fines.*

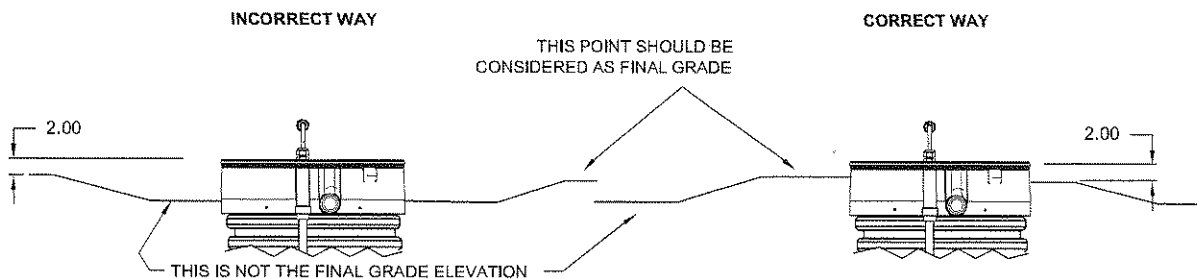
**Aggregates, Dense Grade, Class IB Materials** - Class IB materials are processed by mixing Class IA and sands to produce a particle size distribution that minimizes migration from adjacent materials that contain fines. They are more densely graded than Class IA materials and thus require more compactive effort to achieve the minimum density specified. When properly compacted, Class IB materials offer high stiffness and strength and, depending on the amount of fines, may be relatively free draining. **Examples of material types:** *Angular, crushed stone (or other Class IA materials) and stone/sand mixtures with gradations selected to minimize migration of adjacent soils; contain little or no fines.*

**Gravel and Soils, Class II Materials** - Class II materials, when compacted, provide a relatively high level of pipe support. In most respects, they have all the desirable characteristics of Class IB materials when densely graded. However, open graded groups may allow migration and the sizes should be checked for compatibility with adjacent material. Typically, Class II materials consist of rounded particles and are less stable than angular materials unless they are confined and compacted. **Examples of material types:** *Graded gravels and gravel-sand mixtures with less than 5 % fines; Sands and gravels, which are borderline between clean and with fines varying from 5 to 12 %.* These materials are usually contained with a fabric or other type of liner to provide proper support.

Backfill materials must be free of lumps, clods, boulders, frozen matter, and debris. The presence of such material in the backfill material may prevent uniform compaction and result in cracks, fractures, or deflections.

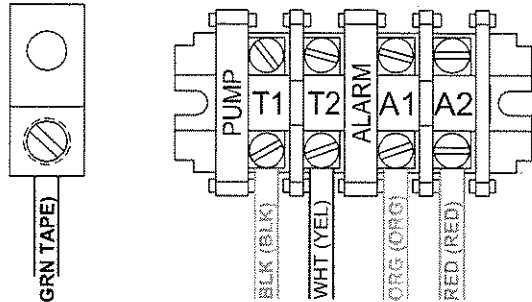
## FINAL GRADING

The final grade should slope away from the basin to avoid collecting ground water around the station. Your final grade should be approximately 2" below the top of the basin flange. Any height taller than this may allow freezing to develop inside the station if not properly insulated. The top of the basin should never be below grade. This will allow ground water and sediment to infiltrate into the basin. See illustration below.

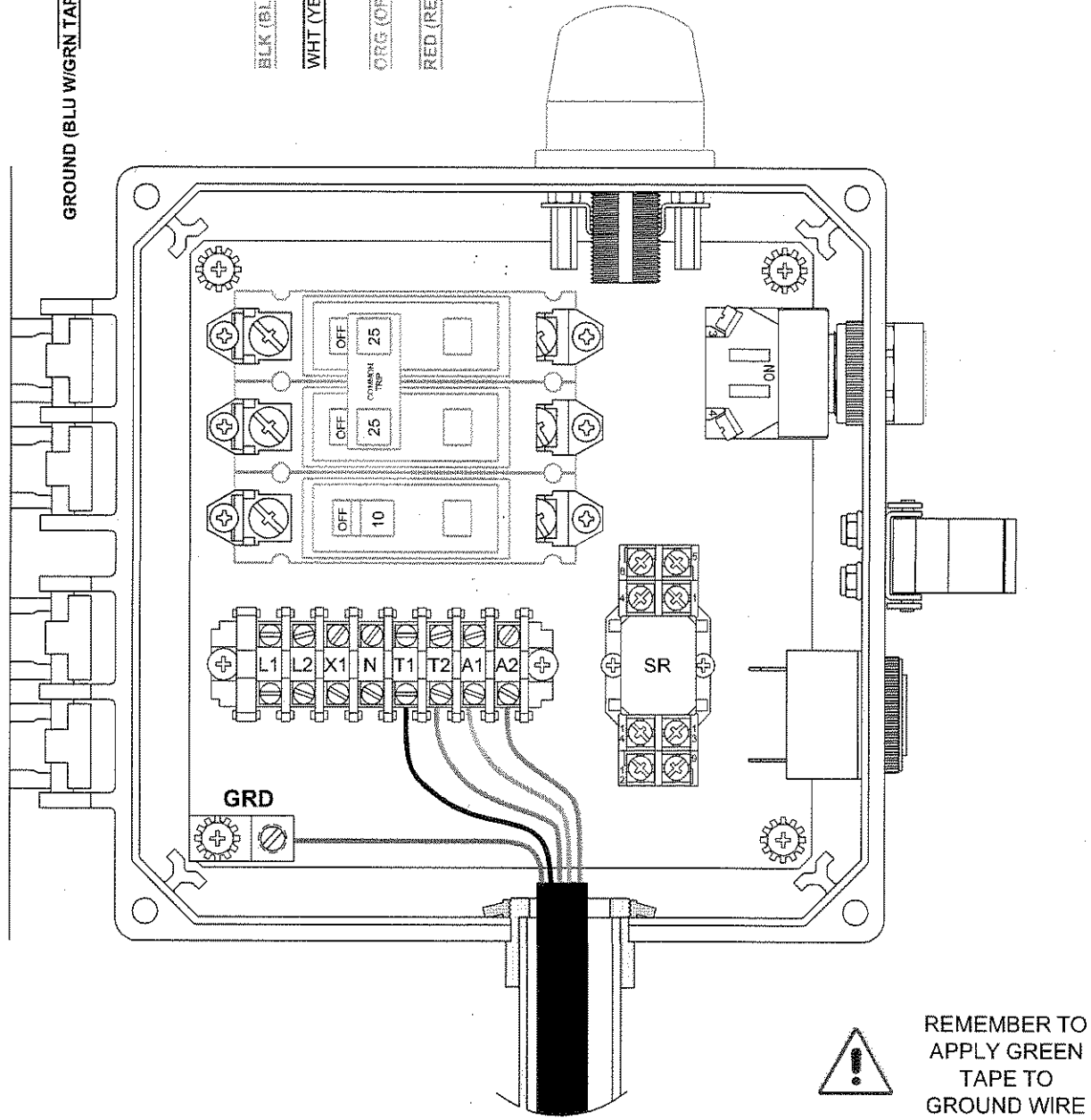


## STEP 13: WIRING THE STATION TO ALARM BOX

Strip the outer jacket of the cord or cable back about six inches making sure not to damage the individual leads. Strip about 1/2" of the insulation off the ends of the individual leads. Wire per the illustration below



CONNECTION POINT	DIRECT BURY CABLE COLORS
T1	(BLACK)
T2	(YELLOW)
A1	(ORANGE)
A2	(RED)
GROUND LUG	(BLUE W/ GRN TAPE)

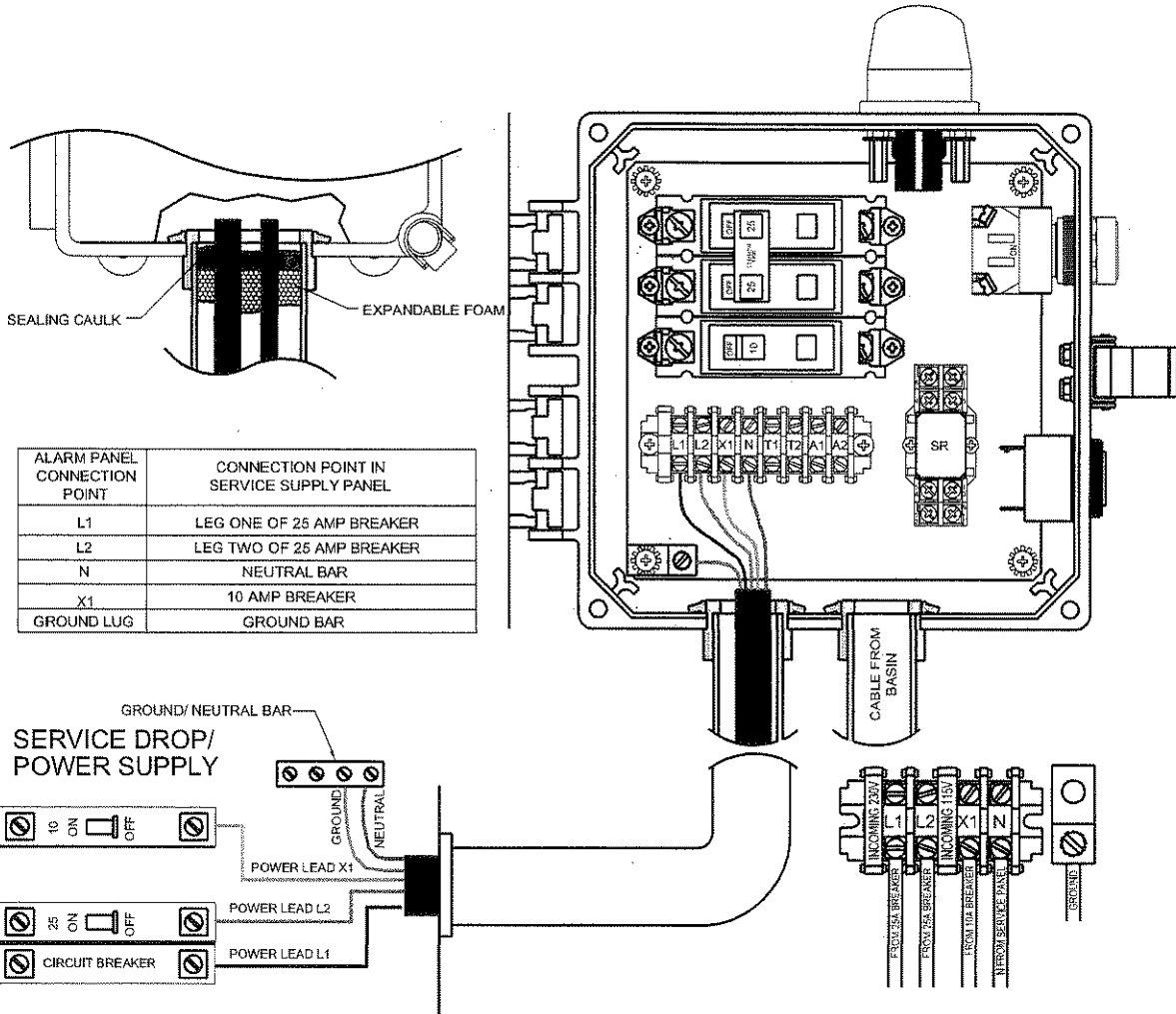


REMEMBER TO APPLY GREEN TAPE TO GROUND WIRE

## STEP 14: WIRING SERVICE DROP TO ALARM BOX

The service supply panel will be required to have a separate 25-amp double pole breaker to supply power to the pump and a separate 10-amp circuit breaker for the alarm circuit in the control panel. The following work is to be performed only by certified, experience personnel. Be sure to consider the following:

- All work is done per the National Electric Code (NEC) and local codes.
- Service supply panel has an opening to fit one double pole breaker and one single pole breaker
- Panel is in good physical condition (free of corrosion and electrically stable)
- Options for running cable from the service supply to the alarm panel:
  - A. (1) 10AWG cable with four conductors plus a ground (5 separate leads)
  - OR
  - B. (1) 10AWG two conductor with ground and (1) 14AWG two conductor with ground properly sized for the rated loads - to be used between the service supply panel and station electrical panel. (6 leads total with two being ground leads)



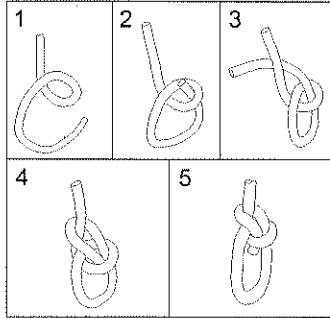
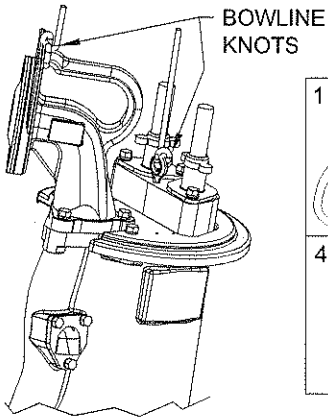
ALARM PANEL CONNECTION POINT	CONNECTION POINT IN SERVICE SUPPLY PANEL
L1	LEG ONE OF 25 AMP BREAKER
L2	LEG TWO OF 25 AMP BREAKER
N	NEUTRAL BAR
X1	10 AMP BREAKER
GROUND LUG	GROUND BAR

**SEALING CONDUIT**  
 All conduit penetrations should be sealed once station performance has been tested and approved. To seal the conduit, use an expandable foam spray in the conduit, allow to skin over, and then cover with a sealing caulk over top of the foam.

VOLTAGE/PHASE	SIMPLEX BREAKER SIZE
240/1	25 AMP DOUBLE POLE
120/1	10 AMP SINGLE POLE (ALARM)

## Step 15: INSTALL PUMP HARNESS

Tie the bowline knot where shown per the directions provided. Tie one bowline knot on the handle of the moveable fitting and one bowline knot in the eyebolt on the pump.

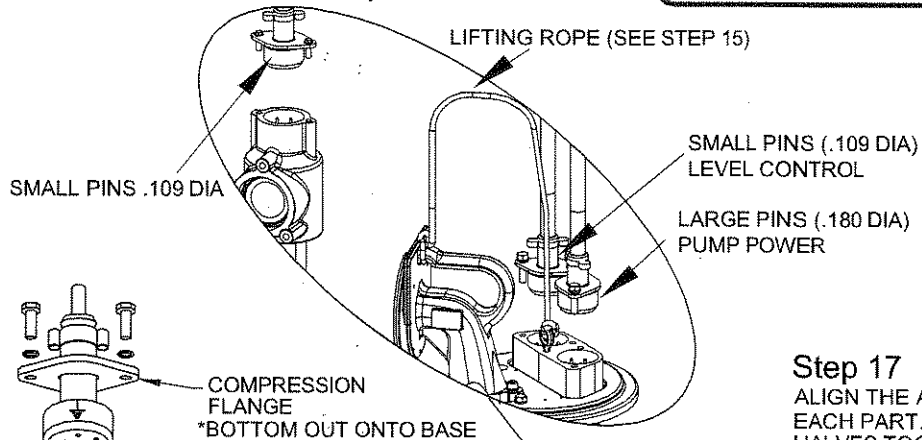


## Step 16: INSTALLING THE PUMP CORD AND LEVEL CONTROL CORD

Insert the end of the cord plug into the housing bore, aligning the alignment mark of the plug with the alignment hole of the terminal block (see below). Tighten bolts on compression flange until it touches the 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.

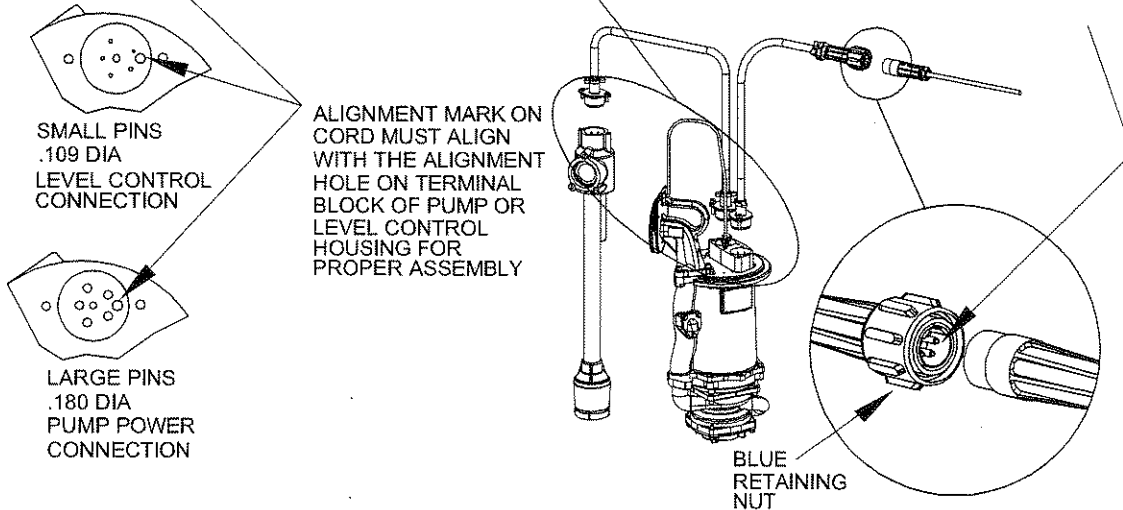
### Step 16



## Step 17: ASSEMBLING THE CORD CONNECTOR

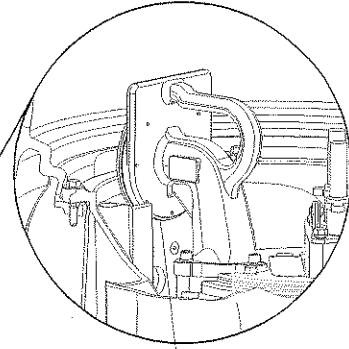
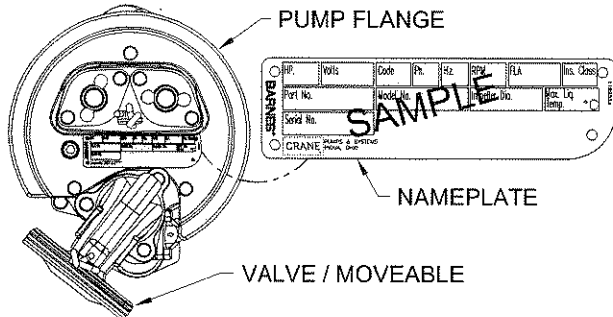
### Step 17

ALIGN THE ALIGNMENT TABS OF EACH PART. FIRMLY PUSH THE TWO HALVES TOGETHER THEN TIGHTEN THE BLUE RETAINING NUT UNTIL SNUG TO LOCK THE UNIT TOGETHER.



## Step 18: RECORDING PUMP NAMEPLATE INFORMATION

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.



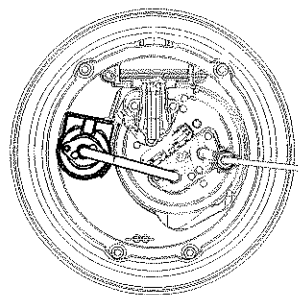
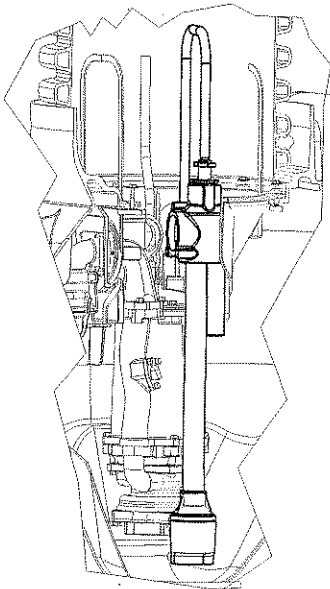
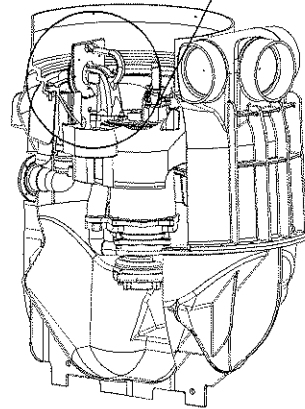
ENSURE THAT THE DONUT PORTION OF CHECK VALVE IS ENGAGED IN POD RAIL BEFORE RELEASING PUMP

## Step 19: INSTALLING THE PUMP

The pump has an integral valve/upper moveable and support flange. This will guide the pump down the guide rail and rest on the stop built into the POD (Pump Orienting Device). Check to make sure the check valve is aligned as shown before lowering into the guide rail. When lowering or lifting the pumps always use the lifting device and appropriate lifting equipment.



**NEVER MOVE THE PUMP BY THE POWER CORD!  
ALWAYS INSTALL PUMP BEFORE LEVEL CONTROL.**



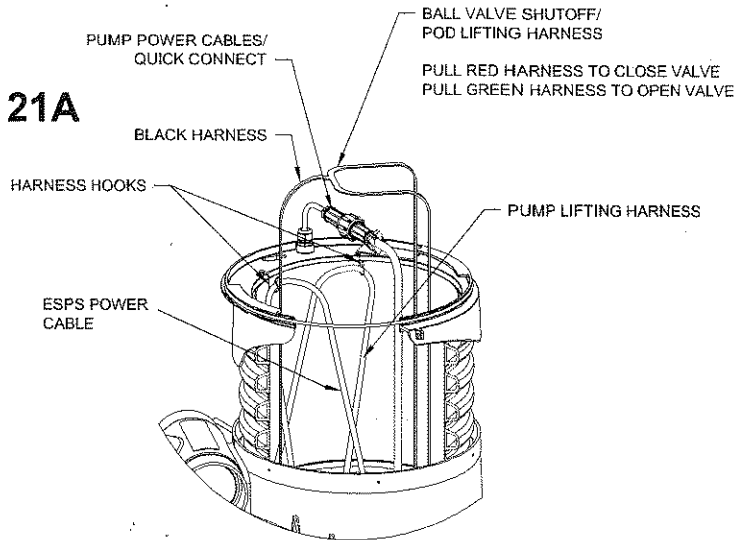
## Step 20: INSTALLING THE LEVEL CONTROL

The level control has a unique shape. This will fit into the pocket shaped to accept it in the POD next to the pump as shown below. Lower the level control into the pocket as shown below which will automatically set the correct height off the basin bottom.

## Step 21: TIDY-UP & COVER INSTALLATION

- Coil, secure and loop the cords and harnesses to the harness hooks
- Fix any ruts or depressions, which may have occurred during installation.
- Check final grade, (page 19) so it does not interfere with station operation

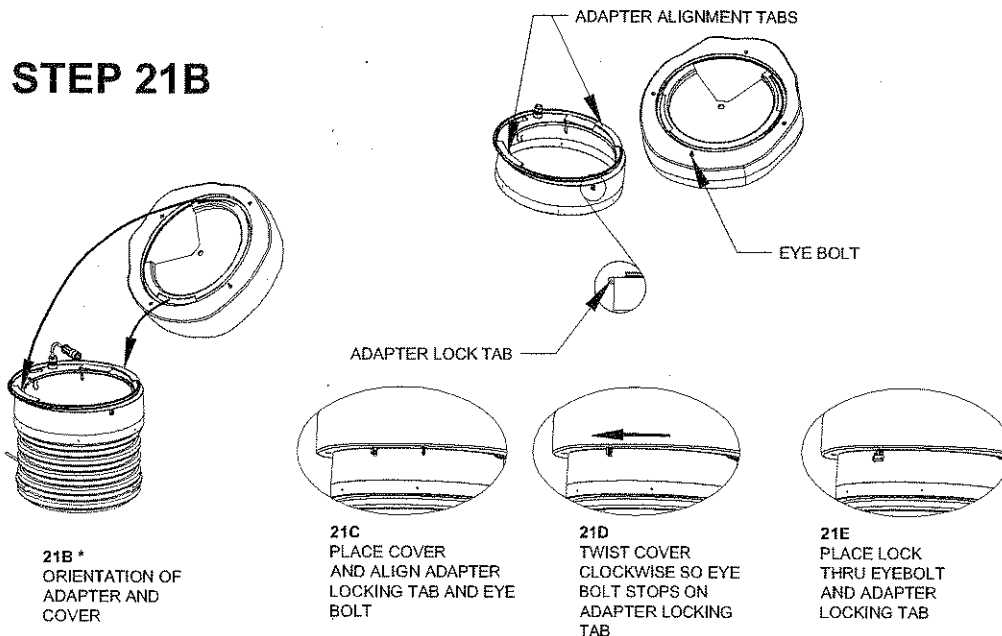
### STEP 21A



### COVER INSTALLATION

The cover gasket is a large soft O-ring. Stretch the O-ring over the adapter and locate in groove provided. Lube the O-ring lightly with the provide lube then you are ready to install the cover. The rock cover is secured with a twist lock mechanism. Rotate the rock cover clockwise (while looking at top of cover). Insert lock thru the adapter lock hub and cover lock eye and lock.

### STEP 21B



\*ASSURE THAT ORING IS PRESENT AND HAS BEEN PROPERLY LUBRICATED WITH SUPPLIED LUBRICATION



## Step 22: START UP PRE-CHECKLIST

Prior to performing an electrical and hydraulic performance check of the complete station, verify all of the following criteria are met:

- The shut-off and redundant check valve at force main are installed in the lateral discharge and are in the open position
- Discharge piping has been pressure tested to 150 PSI max without leakage
- Inlet has a minimum of 1/8" per foot drop
- All penetrations through basin and electrical enclosure sealed water-tight
- Proper backfill and compaction has been done to prevent deflection or possible failure of equipment
- All cords are secured and clear of pump cutter and level control
- Electrical supply is of proper voltage, phase for the pump
- A properly sized double pole circuit breaker has been installed in the service disconnect panel
- Proper gauge and conductor wire installed from service disconnect to house panel
- All terminal connections are secure
- Circuit breakers in the Alarm Box are turned to the "OFF" position
- Circuit breaker in the service disconnect turned to "ON"
- Pump is properly seated on the discharge opening in the rail
- Level control is installed properly
- Final grade slopes away from the basin to avoid runoff water collection/ basin inflow
- All construction and shipping debris has been removed from the basin

## Step 23: START-UP CHECKLIST

- Water has been added to the basin to a level of approximately 1" above the pump support flange
- Valve(s) within the basin and lateral are in the "OPEN" position (Pull on Green Strap in station)
- Record pump and basin nameplate information on the start-up form (Before installing pump)
- All alarm devices are turned to the "ON" position

## TROUBLE SHOOTING - EcoTRAN

**CAUTION !** Always disconnect the pump from the electrical power source before handling.

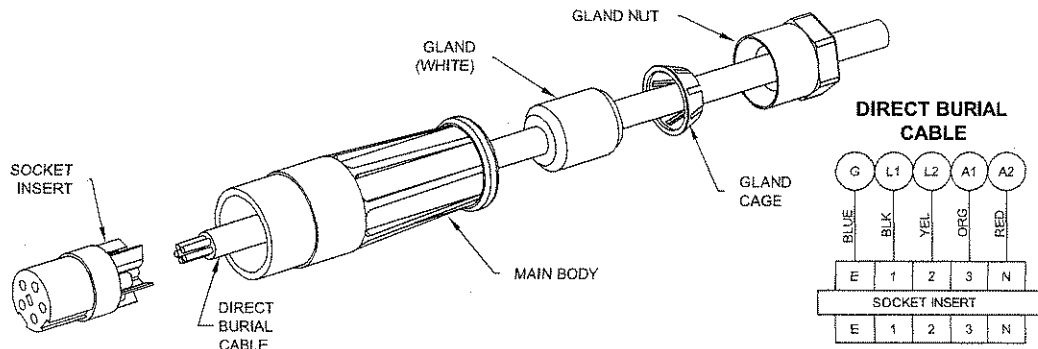
If the system fails to operate properly, carefully read instructions and perform maintenance recommendations.

If operating problems persist, the following chart may be of assistance in identifying and correcting them:

**MATCH "CAUSE" NUMBER WITH CORRELATING "CORRECTION" NUMBER.**

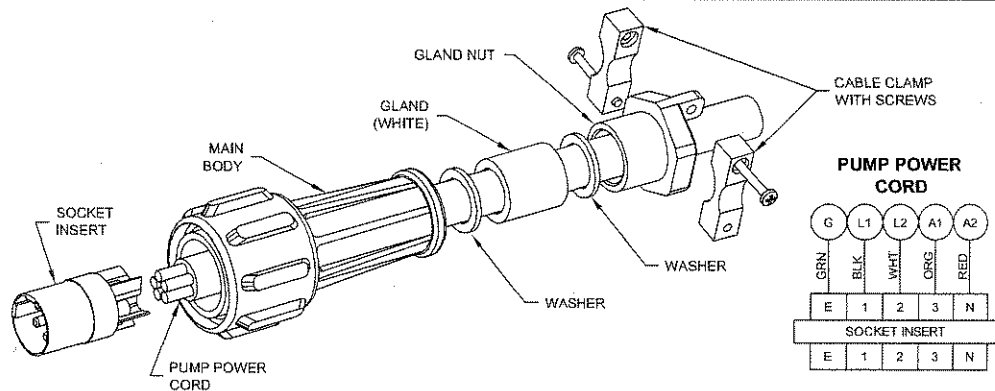
PROBLEM	CAUSE	CORRECTION
Pump will not run	<ol style="list-style-type: none"> <li>1. Poor electrical connection, blown fuse, tripped breaker or other interruption of power, improper power supply.</li> <li>2. Motor inoperative</li> <li>3. Level control inoperative.</li> <li>4. Insufficient liquid level.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check all electrical connections for security. Have electrician measure current in motor leads, if current is within <math>\pm 20\%</math> 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.</li> <li>2. Check winding insulation (Megger Test) and winding resistance. If check is outside of range, dry and recheck. If still defective, replace per service instructions.</li> <li>3. Remove Level control and orient it horizontally. If the pump still does not operate, after rechecking all electrical connections replace the level control.</li> <li>4. Make sure liquid level is at least equal to suggested turn-on point.</li> <li>5. Recheck all sizing calculations to determine pump type.</li> <li>6. Check discharge line for restrictions, including ice if line passes through or is into cold areas.</li> <li>7. Remove and examine check valve for freedom of operation.</li> <li>8. Open valve.</li> <li>9. Check impeller for freedom of operation security and condition. Clean impeller cavity and inlet of any obstruction.</li> <li>10. Check and clean anti-siphon.</li> <li>11. Repair fixtures as required to eliminate leakage.</li> <li>12. Check for leaks.</li> <li>13. Check pump and level control temperature limits and fluid temperature.</li> </ol>
Pump will not turn off	<ol style="list-style-type: none"> <li>2. Motor inoperative</li> <li>3. Level control inoperative.</li> <li>5. Excessive inflow or pump not properly sized for application.</li> <li>10. Pump may be airlocked.</li> </ol>	
Pump hums but does not run	<ol style="list-style-type: none"> <li>1. Incorrect voltage</li> <li>9. Impeller jammed or loose on shaft, worn or damaged, impeller cavity or inlet plugged.</li> </ol>	
Pump delivers insufficient capacity	<ol style="list-style-type: none"> <li>1. Incorrect voltage.</li> <li>5. Excessive inflow or pump not properly sized for application.</li> <li>6. Discharge restricted.</li> <li>7. Check valve stuck closed</li> <li>8. Shut-off valve closed.</li> <li>9. Impeller jammed or loose on shaft, worn or damaged, impeller cavity or inlet plugged.</li> <li>10. Pump may be airlocked.</li> </ol>	
Pump cycles too frequently or runs periodically when fixtures are not in use	<ol style="list-style-type: none"> <li>7. Check valve stuck closed</li> <li>11. Fixtures are leaking.</li> <li>12. Ground water entering basin.</li> </ol>	
Pump shuts off and turns on independent of switch, (trips thermal overload protector). <b>CAUTION!</b> Pump may start unexpectedly. Disconnect power supply.	<ol style="list-style-type: none"> <li>1. Incorrect voltage.</li> <li>5. Excessive inflow or pump not properly sized for application.</li> <li>9. Impeller jammed, loose on shaft, worn or damaged, impeller cavity or inlet plugged.</li> <li>13. Excessive water temperature.</li> </ol>	
Pump operates noisily or vibrates excessively	<ol style="list-style-type: none"> <li>2. Worn bearings or bent shaft</li> <li>8. Debris in impeller cavity or broken impeller</li> </ol>	

## Appendix 1: CORD CONNECTOR ASSEMBLY / WIRING INSTRUCTIONS



### ASSEMBLY / WIRING INSTRUCTIONS - DIRECT BURIAL CABLE

- 1) Remove the socket insert from the main body of the connector. There is a slot for a flat blade screwdriver in the center of the socket insert. **Note:** The socket insert has a **LEFT HANDED THREAD** and should be turned **CLOCKWISE** to remove.
- 2) Remove gland nut, gland cage, and gland from the rear of the main body and slide onto the direct burial cable as shown.
- 3) Attach bare wire ends into the terminals on the back of the socket insert per diagram and fully tighten the wire retention screws.
- 4) After the wires have been connected securely, pull the cable and socket insert back into the main body and tighten with a screwdriver to ensure the socket insert is seated correctly. **Note:** the socket insert has a **LEFT HANDED THREAD** and should be turned **COUNTER-CLOCKWISE** to tighten.
- 5) Slide the gland, gland cage, and gland nut along the cable into the main body and tighten the gland nut to 48 lb/in (5.42Nm).

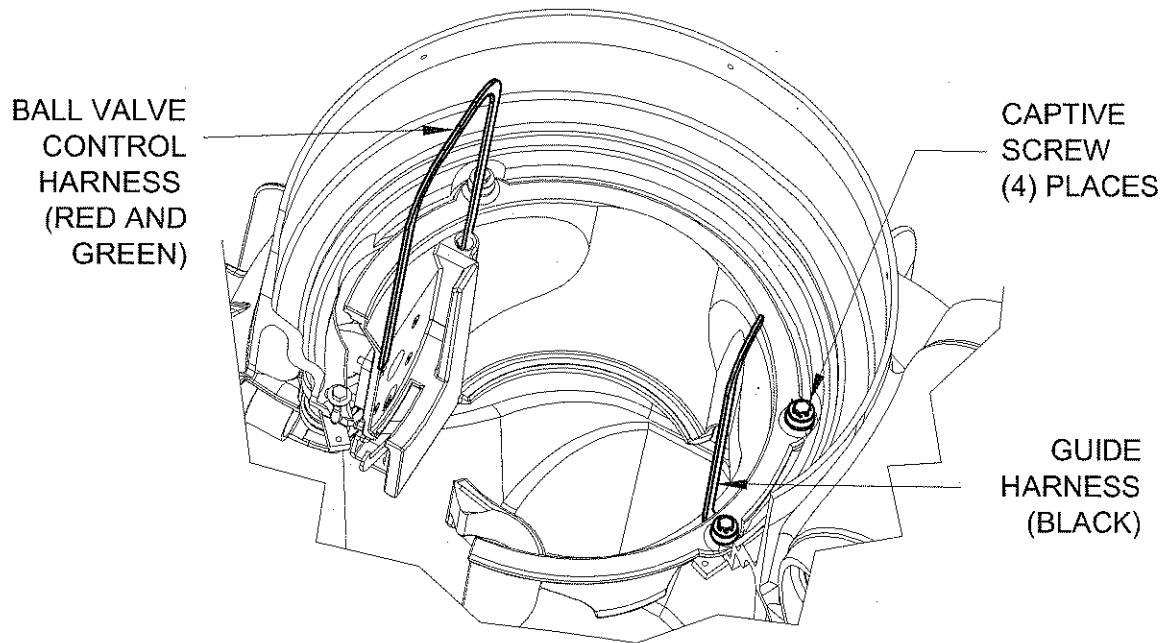


### ASSEMBLY / WIRING INSTRUCTIONS - PUMP POWER CORD

- 1) Remove the socket insert from the main body of the connector. There is a slot for a flat blade screwdriver in the center of the socket insert. **Note:** the socket insert has a **LEFT HANDED THREAD** and should be turned **CLOCKWISE** to remove.
- 2) Remove gland nut, washer, gland, and washer from the rear of the main body and slide onto the pump power cord as shown.
- 3) Attach bare wire ends into the terminals on the back of the socket insert per diagram and fully tighten the wire retention screws.
- 4) After the wires have been connected securely, pull the cord and socket insert back into the main body and tighten with a screwdriver to ensure the socket insert is seated correctly. **Note:** the socket insert has a **LEFT HANDED THREAD** and should be turned **COUNTER-CLOCKWISE** to tighten.
- 5) Slide (1) washer, gland, remaining washer, and gland nut along the cord into the main body and tighten the gland nut to 36 lb.in (4.06Nm).
- 6) Attach cable clamps as shown around cord and tighten screws.

## Appendix 2: POD REMOVAL

To remove the pod you need to **Shut power OFF to station**, **Close the isolation valve at the street**. Remove the level control and pump. Actuate the station ball valve with the red and green ball valve control harness so the valve is between open and closed. Loosen the four captive screws (they are retained on the back side with o-rings) using a long extension with a 5/16" socket. After loosening the screws the only part left engaged is the ball valve. Grasp the ball valve control harness and guide harness then pull to remove the POD assembly. When removing the pod tilt it so the valve side is lower by pulling higher on the black harness

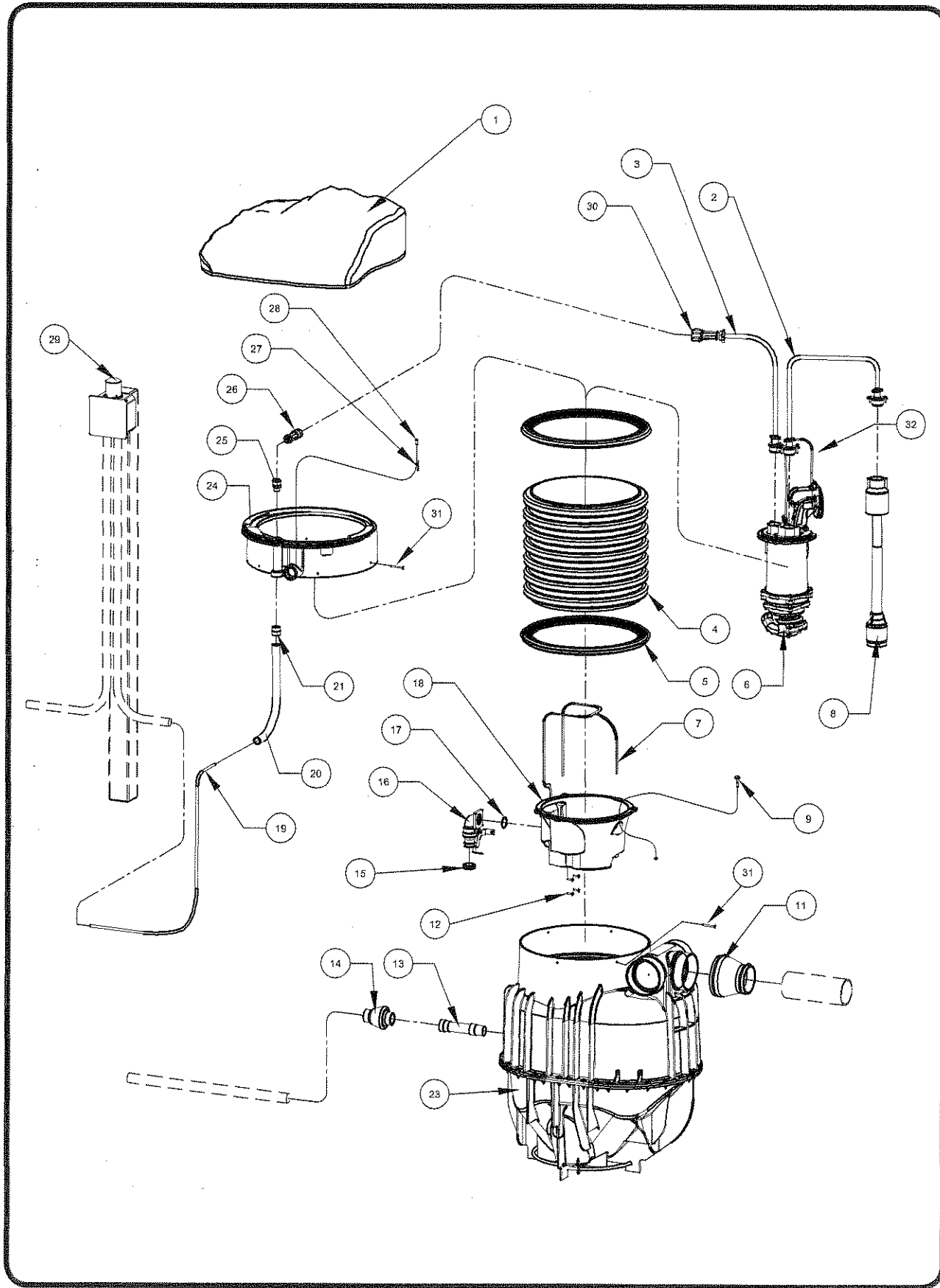


### Appendix 3: WINTERIZATION

If the basin will not be used for an extended period, especially during colder months, proper steps should be taken to ensure uninterrupted use upon restarting the basin.

- Remove the basin cover and check the liquid level.
- Manually pump the station level down to the normal OFF level.
- **DO NOT** pump the liquid level below the suction at the bottom of the pump.
- With the liquid level at the normal OFF level, add fresh water until the pump turns ON by itself and liquid level is reduced to its normal OFF level again.
- Turn the power to the station off in the basin electrical enclosure.
- Add an appropriate amount of propylene glycol (non-toxic) to the basin liquid to achieve a 50/50 solution mixture. You will need 10 gallons of antifreeze added to the basin.
- After the antifreeze has been added, turn the power back on and manually turn the pump on for approximately 10 to 30 seconds to help mix the antifreeze into the pump and discharge.
- Turn the pump off at this time.
- Turn the circuit breaker back to off and reinstall the basin cover.

**TO REACTIVATE THE BASIN, TURN THE CIRCUIT BREAKER ON AND MANUALLY TURN THE PUMP ON FOR 10 SECONDS.**



## PARTS LIST

ITEM	QTY.	PART No.	DESCRIPTION
1	1	118238	Poly Cover, Rock, Cape Cod Gray
		118238A	Poly Cover, Rock, Sandstone
		118238AN	Poly Cover, Rock, Sandstone (Non Vent)
		118238B	Poly Cover, Rock, Sie-Red
2	1	113315	Level Control, Power, 15Ft
		113315A	Level Control, Power, 8Ft
3	1	113274A	Pump Power Cable 8Ft.
		113274B	Pump Power Cable 4Ft
4	1	118241H	Riser 78 inch
		118241C	Riser 40 inch
5	2	118240	Riser Seal
6	1	119969	Pump, OGP
		119973	Pump, OGV
7	1	120247	POD Harness, Long
		120247A	Harness, Short
8	1	119068	ESPS Automatic Level Control
9	4	118262	Hex Hd Cap Screw WH .31-18 x 1.68" Lg
10	4	2-31003-202	O-Ring
11	1	116969	Flexible Inlet Fitting
12	4	119081	FHHS Screw 1/4-20 x 1.00" Lg
13	1	100159	Flexible Discharge Fitting
14	1	085116	Swing Check Valve, 1.25" NPT
15	1	118259	Valve-Receiver Grommet
16	1	118245	Ball Valve
17	1	625-01558	O-Ring
18	1	118267	POD
19	1	118263A	Direct Burial Cable 50Ft.
		118263C	Direct Burial Cable 100Ft
		118263E	Direct Burial Cable 150FT
20	1	119086	"L" Shape Conduit 1 inch
21	1	119085	Conduit Adapter 1" NPT x 1" Slip
23	1	119069	EcoTRAN Tank Assembly
24	1	118239	Adapter
25	1	118950	Cord Grip
26	1	118261	Electrical Connection (Burial Connection)
27	2	119088	Cord Hook
28	2	118249	PH PanHd Screw 1/4-10 x .75" Lg
29	1	111666	Panel, Alarm/Auto with Gen. Recepticle
		116742	Panel, Alarm/Auto
30	1	118260	Electrical Connection (Pump Power Connection)
31	12	118265	Riser Retainer Fasteners HxHd 1/4-20 x 1.50" Lg
32	1	093973	Pump Harness, Short
		099286	Pump Harness, Long









## Limited 2 Year Warranty

We warrant 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 notice of owner's acceptance, but no greater than twenty-seven (27) months after receipt of shipment, 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 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.

**CRANE**

**PUMPS & SYSTEMS**

A Crane Co. Company

420 Third Street/ P.O. Box 603  
Piqua, Ohio 45356-0603  
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

# EcoTRAN BASIN PACKAGE START-UP / WARRANTY REGISTRATION FORM

This form is designed to provide assurance that customer service and a quality product are the number one priority with Crane Pumps & Systems. Please fill out the following questions as completely and accurately as possible.

When complete, mail this form to: **Crane Pumps & Systems, Inc**  
**Warranty Service Group**  
420 Third Street  
Piqua, Ohio 45356-0603

**Before beginning the circuit breaker in the basin control panel should be turned off and the circuit breaker in the home should be turned on.**

## A.) Necessary General Information: (Must Be Completely Filled Out!)

Owner's Name: \_\_\_\_\_  
Address: (Location of unit) \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Basin Part Number: \_\_\_\_\_ Basin Serial Number: \_\_\_\_\_ Basin Model: \_\_\_\_\_  
Panel Part Number: \_\_\_\_\_ Pump Part Number: \_\_\_\_\_ Pump Serial Number: \_\_\_\_\_

## B.) Basin Information: (Do Not Install Below Grade)

Basin Top Relative to Finish Grade:  Above  Even, If Above or Below Grade, How Far: \_\_\_\_\_ Inches.  
Amount of Ballast in Cubic Yards: \_\_\_\_\_ Type of ballast used: \_\_\_\_\_  
Basin installed plumb (level):  Yes  No  
Valve at sewer main: **(REQUIRED)**  Check Valve  Manual Shut-off Valve  
I have inspected and removed debris from the bottom of basin:  Yes  No

## C.) Alarm Box:

Is the interior dry:  Yes  No Are all conduit entries sealed:  Yes  No  
Is the cover tight:  Yes  No Are all connections and grips tight:  Yes  No

## D.) Electrical Check:

Voltage Supply at Panel with Breaker in Panel **Off**: LI-L2 \_\_\_\_\_ Volts, X1 \_\_\_\_\_ Volts  
Resistance of Pump Power Cable Connections at Terminal Strip in Panel with Power **Off**:  
*Consult pump manual for proper values for the pump being used.*  
Meg-Ohm insulation check taken at control panel. (With pump power off) **Readings of 5 or lower are unacceptable.**  
a.) OGV & OGP Model Pumps: Black to Ground \_\_\_\_\_ M-Ohms, White/Ground \_\_\_\_\_ M-Ohm

## E.) Performance Check:

With control panel circuit breaker **OFF**, turn the alarm circuit breaker to the **ON** position. Fill the basin with water until the alarm turns on. Is the high water alarm on:  Yes  No. Turn the pump circuit breaker in the basin control panel to the **"ON"** position. Is the PUMP on:  Yes  No.  
*Consult pump manual for proper values for the pump being used. Amperage reading at line connection with the pump running:*  
a.) OGV and OGP Model Pumps: Line 1 \_\_\_\_\_ AMPS, Line 2 \_\_\_\_\_ AMPS  
Did the alarm shut off:  Yes  No Did the pump shut off:  Yes  No  
Are there any leaks within the basin:  Yes  No

## F.) Final Check:

Has the end user received the User Guide with the pump and basin information filled out:  Yes  No  
Equipment difficulties during start up: \_\_\_\_\_

## G.) Station Require follow-up/corrective action: Yes No

If yes give reason: \_\_\_\_\_

I certify this report to be accurate: (Name of startup person)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Employed By: \_\_\_\_\_

## REPORTS NOT RETURNED CAN DELAY OR VOID WARRANTY

To be filled out by the factory: \_\_\_\_\_  
Start-up form checked by: \_\_\_\_\_ Date warranty registration card mailed: \_\_\_\_\_

FOLD HERE AND TAPE, DO NOT STAPLE

---

PLACE  
STAMP  
HERE

**CRANE PUMPS & SYSTEMS, INC.  
WARRANTY SERVICE GROUP  
420 THIRD STREET  
P.O. BOX 603  
PIQUA, OHIO  
45356-0603 - U.S.A.**