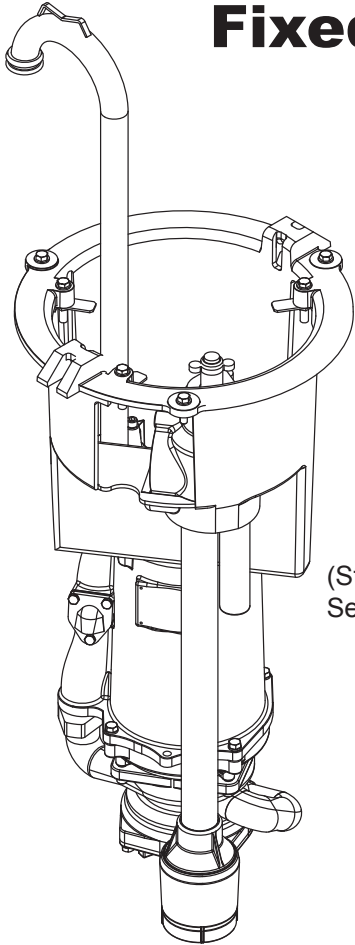




INSTALLATION MANUAL

Fixed Discharge Upgrade Core



(Standard ESPS shown,
SensaPRO optional)

Series: OGP2022CO
2 HP, 3450 RPM, 60 Hz.

OGVH2022CO
2 HP, 3450 RPM, 60 Hz.

OGVF2022CO
2 HP, 3450 RPM, 60 Hz.

**Fits into E-One 200;
2000 Series Basin,
Extreme D Series Basin**

omni
GRINDTM
GRINDER PUMPS *plus*⁺

**Upgrade
Core**[®]

This product may be covered by one or more of the following patents and other patent(s) pending: US Patent 7,357,341 & 7,578,657

IMPORTANT!

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

CRANE[®]

A Crane Co. Company

PUMPS & SYSTEMS

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

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



Form No. 131783-Rev. K

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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.



Extremely hot - Severe burns can occur on contact.



Biohazard can cause serious personal injury.



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



Rotating machinery Amputation or severe laceration can result.



Hazardous voltage can shock, burn or cause death.

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



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

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

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

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.

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

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.

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.)



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



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



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



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



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

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

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



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.



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



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

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



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

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

® Barnes is a registered trademark of Crane Pumps & Systems Inc.

1/2005, 8/05, 12/05, 1/06, 9/06



USER GUIDE

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

Use and Care

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

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

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

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

General Information

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

GRINDER PUMP SYSTEMS The grinder pump generates sufficient

pressure to pump this slurry from your home to the wastewater plant.

Power Failure

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

Warranty

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

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

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

For future reference, record the following information:

Station Serial No: _____

Pump Model No: _____

Pump Serial No: _____

Local Distributor: _____

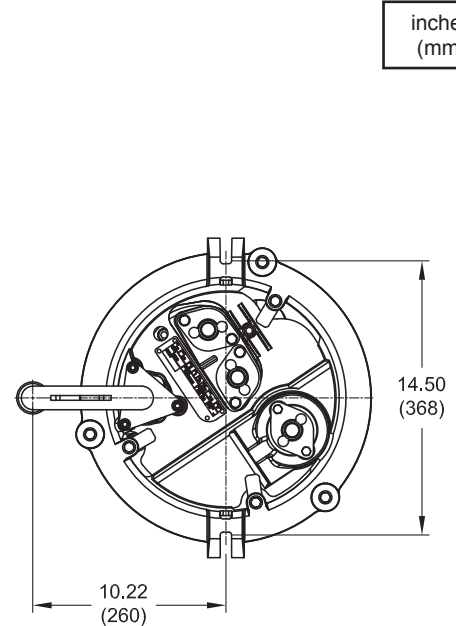
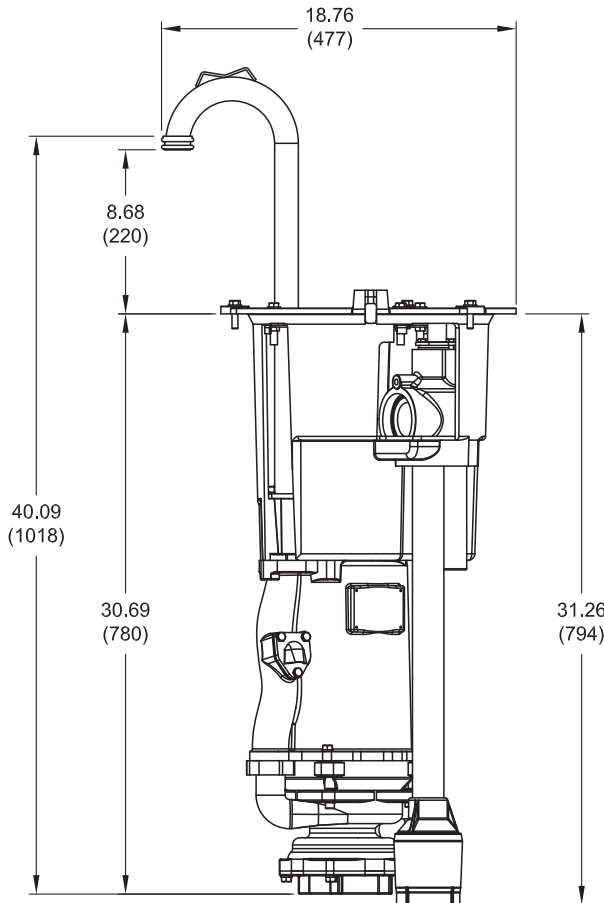
Distributor Telephone: _____



PUMP SPECIFICATIONS: Fixed Discharge Upgrade Core

DISCHARGE 1¼" Vertical, Bolt-on Flange
LIQUID TEMPERATURE 104°F (40°C) Continuous
MOTOR HOUSING Cast Iron ASTM A-48, Class 30
VOLUTE Cast Iron ASTM A-48, Class 30
SEAL PLATE Cast Iron ASTM A-48, Class 30
IMPELLERS
 Design 12 vane, vortex, with pump out vanes on back side. Dynamically balanced, ISO G6.3
 Material 85-5-5-5 Bronze
SHREDDING RING Hardened 440C Stainless Steel Rockwell@ C-55
CUTTER Hardened 440C Stainless Steel Rockwell@ C-55
SHAFT 416 Stainless Steel
SQUARE RING Buna-N
HARDWARE 300 Series Stainless Steel
PAINT Air dry enamel, top coat
SEAL *Design* Single Mechanical, oil filled reservoir
 Material Rotating Faces - Silicon-Carbide
 Stationary Faces - Silicon-Carbide
 Elastomer - Buna-N
 Hardware - 300 series stainless steel
CORD ENTRY 15' (4.5M) or 30' (9M) Cord, Custom Molded Quick Connected for sealing and strain relief
CORD CSA/UL Approved 12/5, Type SOW
SPEED 3450 RPM, 60Hz

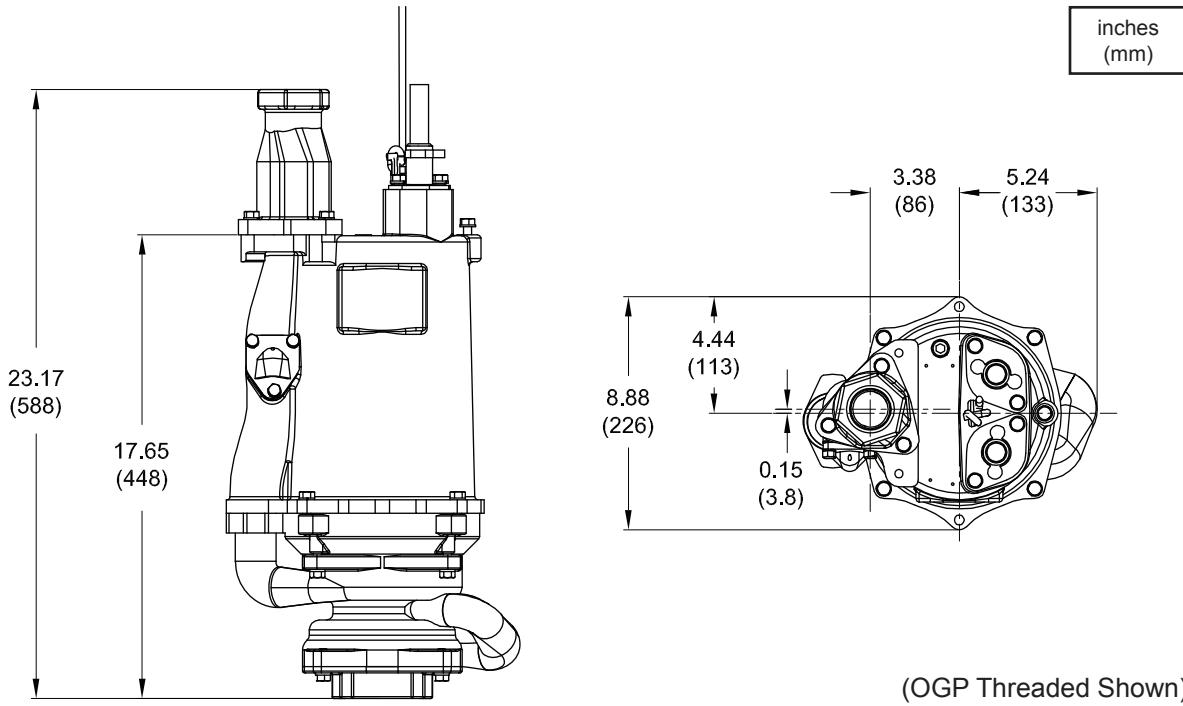
UPPER BEARING:
 Design Single Row, Angular Contact Ball
 Lubrication Oil
 Load Radial & Thrust
LOWER BEARING
 Design Single Row, Angular Contact Ball
 Lubrication Oil
 Load Radia & Thrust
MOTOR: *Design* NEMA L, Oil Filled, Squirrel Cage Induction
 Insulation Class F
SINGLE PHASE Capacitor start/capacitor run
SUPPORT POD Engineered Polyamide pod, Stainless Hardware and Polypropylene Rope
LEVEL CONTROL:
 Standard Model ESPS-150E, Environmentally sealed pressure switch with CPVC housing, HNBR diaphragm, Custom Molded Quick Connect for Sealing and Strain Relief
 Optional SensaPRO, Mechanical Level Control with custom molded quick connect for sealing and strain relief.
CHECK VALVE:
 Body Integrated PA Composite
 Seat ASTM C836
 Flap Fiber Reinforced Buna
OPTIONAL EQUIPMENT Cord lengths, Rope lengths
 EQD (2000 Series)
 EQD (Extreme)



inches (mm)

(Standard ESPS shown, SensaPRO optional)

PUMP SPECIFICATIONS: OGP



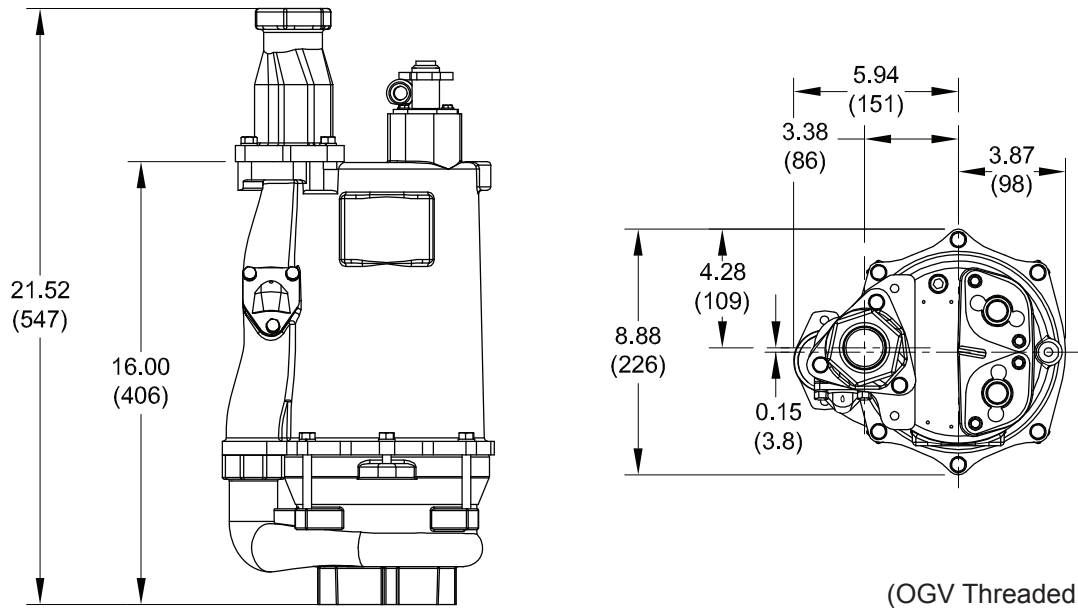
MODEL NO	HP	VOLT	PH	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD SIZE	CODE TYPE	CORD O.D. ± .02 (.5) in (mm)	CORD LENGTH Ft. (m)	WINDING RESISTANCE MAIN -- START
OGP2022CO	2	240	1	H	16.5	53.8	12/5	SOW	.71 (15.5)	15 (4.6)	1.06 -- 3.60

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

Recommended Breaker Sizes				
Pump Model	HP	Phase	Volts	Breaker Size
OGP2022	2	1	240	25 AMP

PUMP SPECIFICATIONS: OGV

inches
(mm)



(OGV Threaded Shown)

MODEL NO	HP	VOLT	PH/Hz	NEMA START CODE	FULL LOAD AMPS	LOCKED ROTOR AMPS	CORD SIZE	CODE TYPE	CORD O.D. ± .02 (.5) in (mm)	WINDING RESISTANCE MAIN -- START
OGVH2022CO	2	240	1 / 60	H	15.0	53.8	12/3	SOW	.61 (15.5)	1.5 -- 5.1
OGVF2022CO	2	240	1 / 60	H	15.0	53.8	12/3	SOW	.61 (15.5)	1.5 -- 5.1

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

Recommended Breaker Sizes				
Pump Model	HP	Phase	Volts	Breaker Size
All OGV Series Pumps	2	1	240	25 AMP

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

BEFORE YOU BEGIN

- Read this manual completely before starting your installation
- Consult local officials for any applicable codes and regulations.
- Make sure you have the necessary equipment and supplies before starting your installation (see tool and material lists).

TOOL AND MATERIAL LIST (NOT INCLUDED)

- 1/2" Socket
- Ratchet
- Long Extension
- Wire Strippers (12 AWG to 18 AWG)
- Wire Cutters
- Multi-Meter
- Cable Lube
- Small Slotted Screw Driver

RECEIVING/UNPACKING:

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

STORAGE:

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

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

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

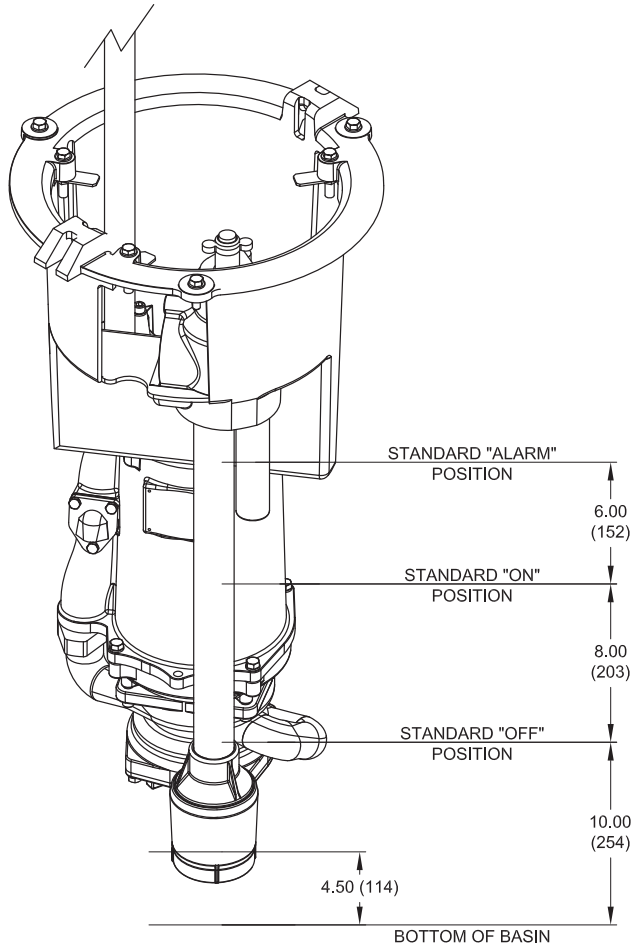
- 1.) The pump is not installed under water for more than one (1) month.
- 2.) Immediately upon satisfactory completion of the test, the pump is removed, thoroughly dried, repacked in the original shipping container, and placed in a temperature controlled storage area.

SERVICE CENTERS:

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

INSTALLATION:

Location - The pump is designed to fit into your basin suspended from the support pod.



(Standard ESPS shown, SensaPRO optional)

FIGURE 1

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

ELECTRICAL CONNECTIONS:

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

Overload Protection - The type of in-winding overload protector used is referred to as an inherent overheating protector and operates on the combined effect of temperature and current. This means that the overload protector will trip out and shut the pump off if the windings become too hot, or the load current becomes too high. It will then automatically reset and start the pump after the motor cools to a safe temperature. In the event of an overload, the source of this condition should be determined and rectified immediately. **DO NOT LET THE PUMP CYCLE OR RUN IF AN OVERLOAD CONDITION OCCURS !**

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

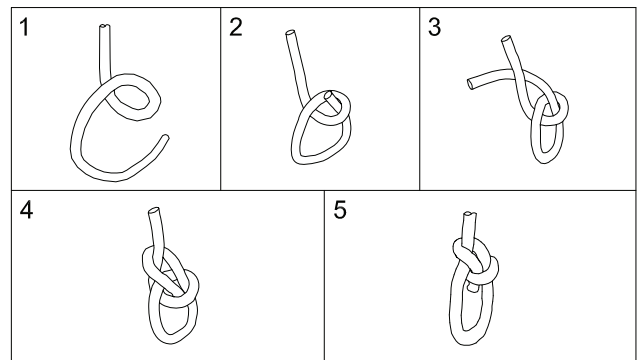


FIGURE 2

STEPS & TIPS:

Attach lifting device to pump.

1. Make a small overhand loop in the rope.
2. Bring the short end through the overhand loop.
3. Place short end behind the fixed part of the rope.
4. Bring end around and back into the loop.
5. Pull on the fixed end of the rope away from the loop to tighten the knot.

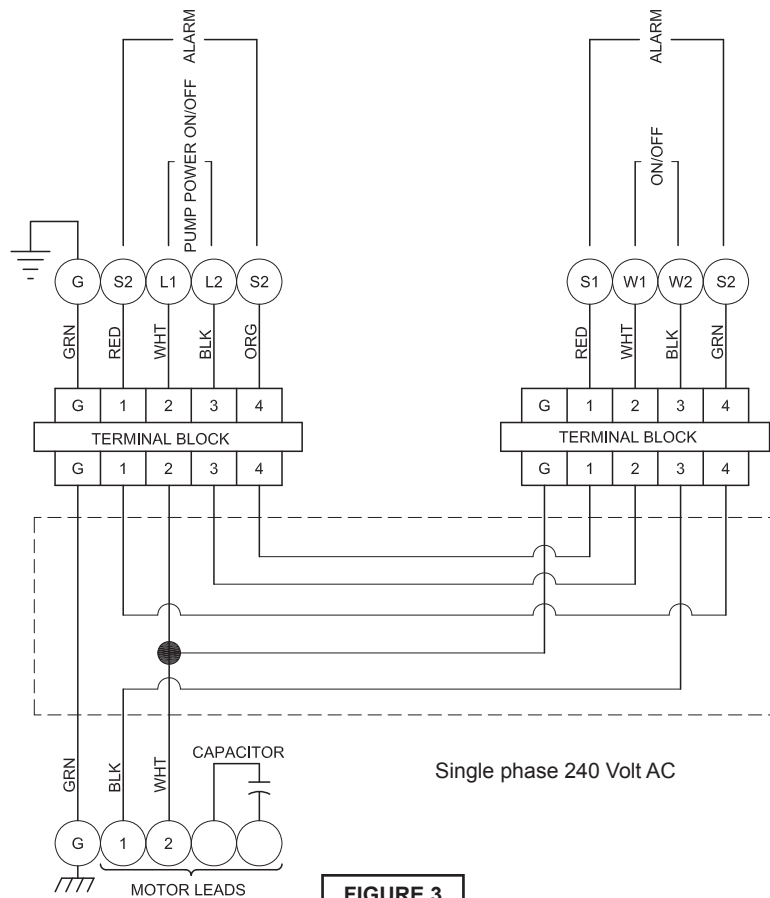


FIGURE 3

CABLE CONNECTIONS:

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

Pump Power - Large Pin
Level/Control - Small Pin

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

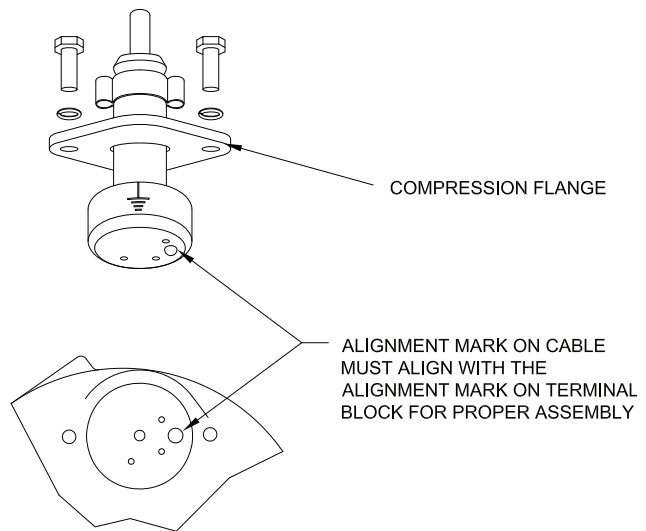


FIGURE 4

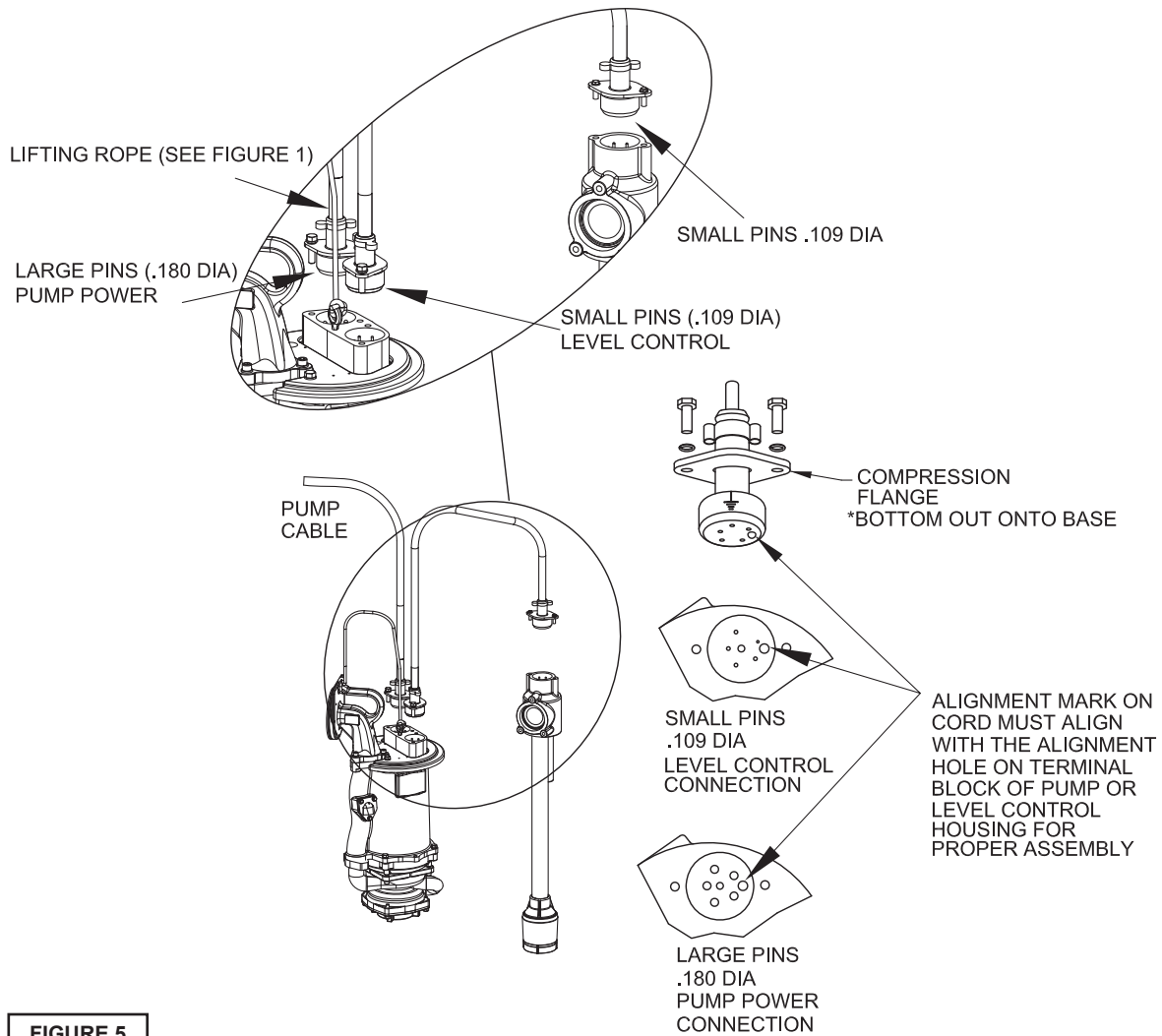


FIGURE 5

(Standard ESPS shown, SensaPRO optional)

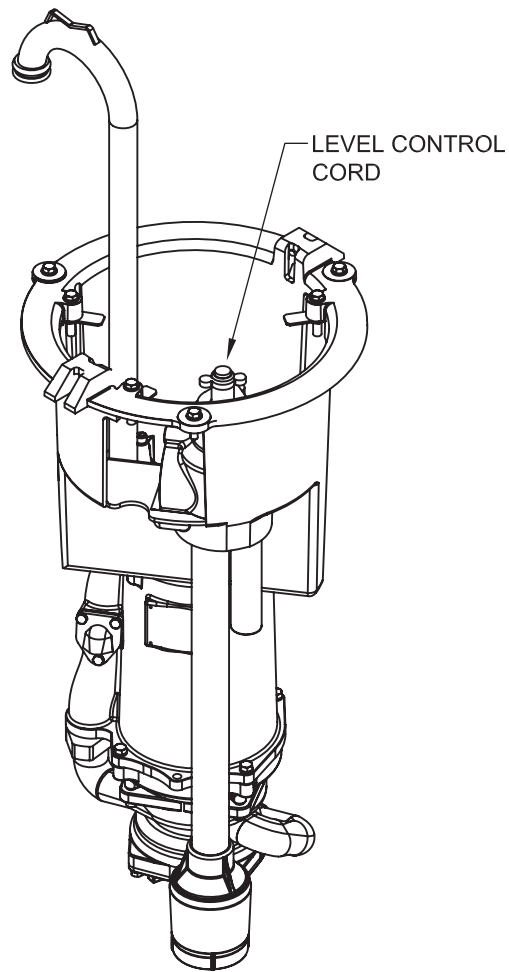
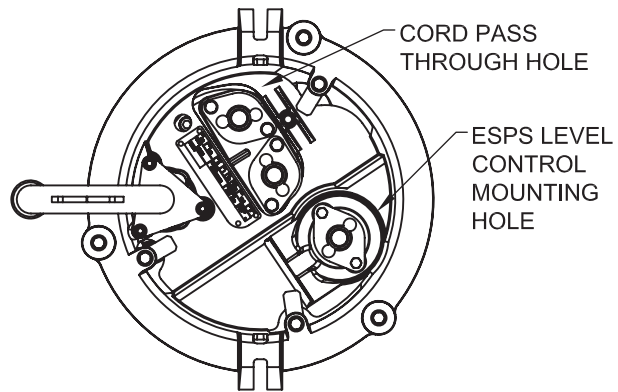


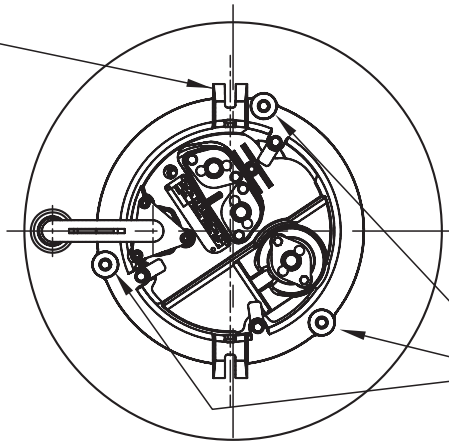
FIGURE 6

(Standard ESPS shown, SensaPRO optional)

STEPS & TIPS:

- Install power cord and level control cord to pump. Make sure alignment mark on cord aligns with alignment mark on terminal block. Use hardware provided to mount cord flange to pump. Note that one connection has small pins and one as large pins. Install the proper cord into the proper socket (See Figure 4).
- Bowline knot lifting device (rope) to handles. See Bowline knot detail (See Figure 2).

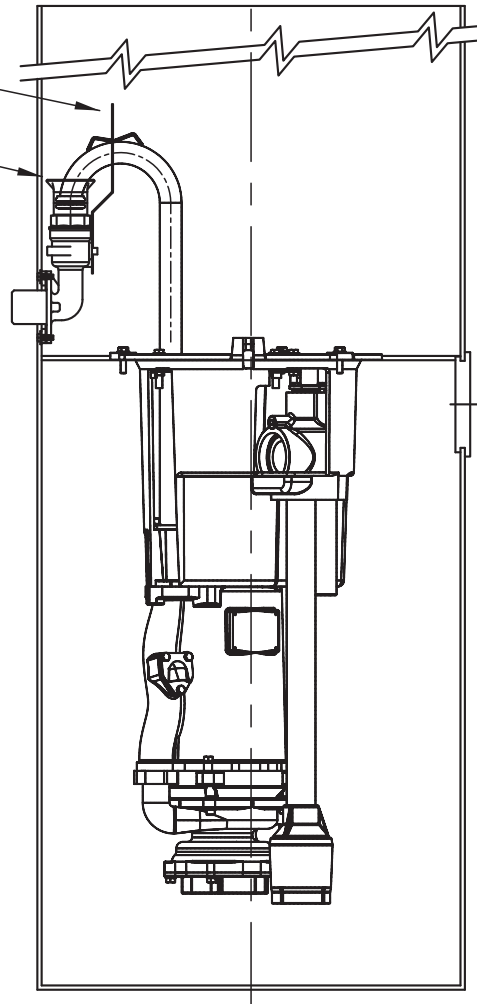
ALIGNMENT HANDLES



TIGHTEN 3 BOLTS TO THE BASIN OR TIGHTEN 3 LOCKING TABS TO THE BASIN (BY TURNING CLOCKWISE) TO SECURE THE PUMP ASSEMBLY ONTO THE BASIN

VALVE HANDLE

ALIGN PLUMBING



STEPS & TIPS:

Keep pump cord and level control up out of the way.

Apply lubricant to O-Ring on discharge pipe. Lower pump assembly into basin with lifting ropes, aligning discharge plumbing as shown.

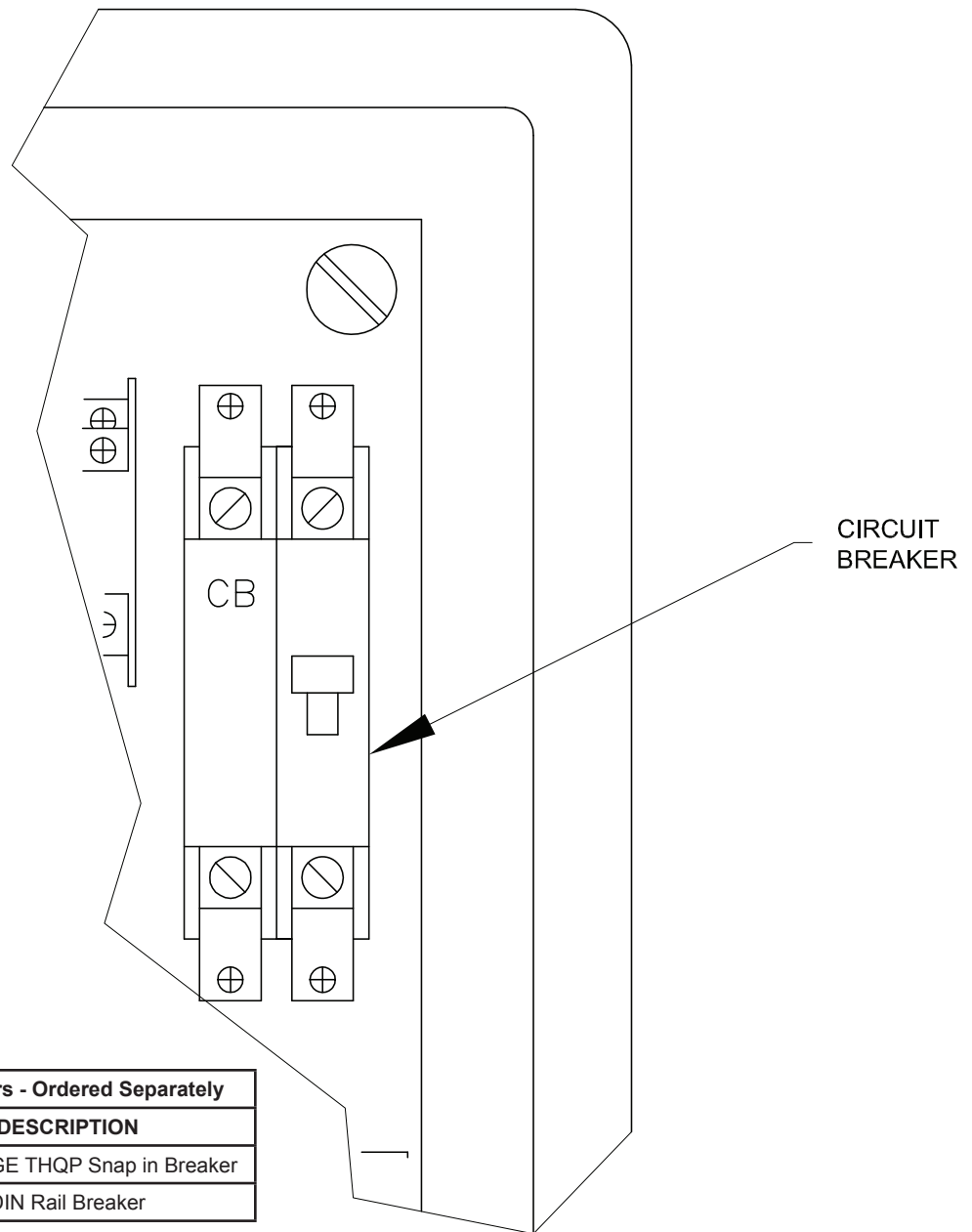
Be sure discharge piping assembly is fully engaged.

Next lower level control into basin with lifting rope aligning level control as shown.

Hang cords and ropes from existing hooks in tank. Use zip ties as needed. After unit and level control is lowered, the valve handle will slide over piping assembly as shown.

(Standard ESPS shown, SensaPRO optional)

FIGURE 7



Optional Cicuit Breakers - Ordered Separately	
PART NO.	DESCRIPTION
113291B	20 AMP, GE THQP Snap in Breaker
105476	20 AMP, DIN Rail Breaker

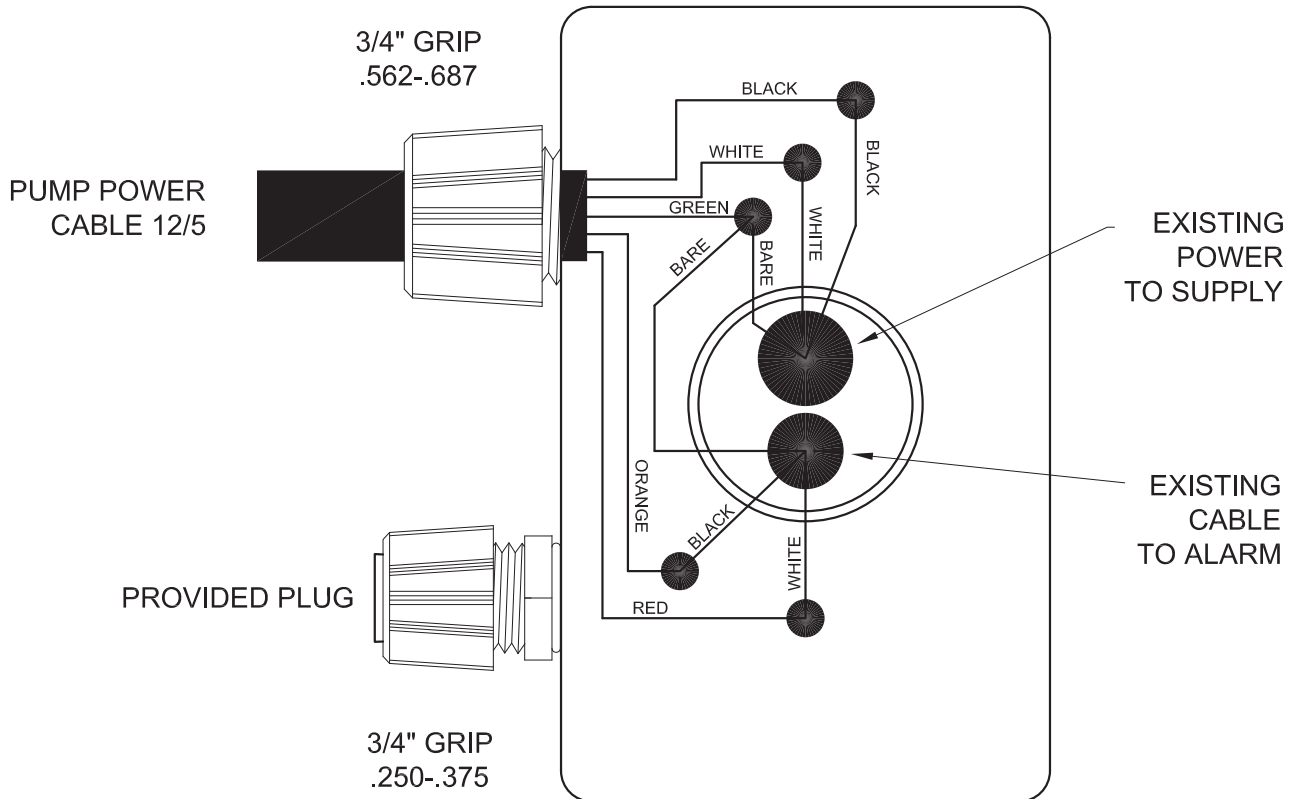
STEPS & TIPS:

- Disconnect all power supplied to panel prior to servicing.
- Remove existing circuit breaker from control panel if rating is less than 20 AMPS.
- Install 20 AMP circuit breaker to control panel (Ordered separately)
- Rewire existing power supplied to control panel if required.
WIRE FEEDING THE PANEL NEEDS TO BE AT LEAST 12 GAUGE. (MAY NEED TO BE LARGER DEPENDING UPON LENGTH OF RUN. CONSULT QUALIFIED ELECTRICIAN FOR PROPER APPLICATION.)

FIGURE 8

200 SERIES PACKAGE WIRING

INCOMING 12 GA. CABLE	PUMP CABLE
WHITE	WHITE
BLACK	BLACK
* BARE	GREEN
INCOMING 14 GA. CABLE	
BLACK	ORANGE
WHITE	RED
* BARE	GREEN

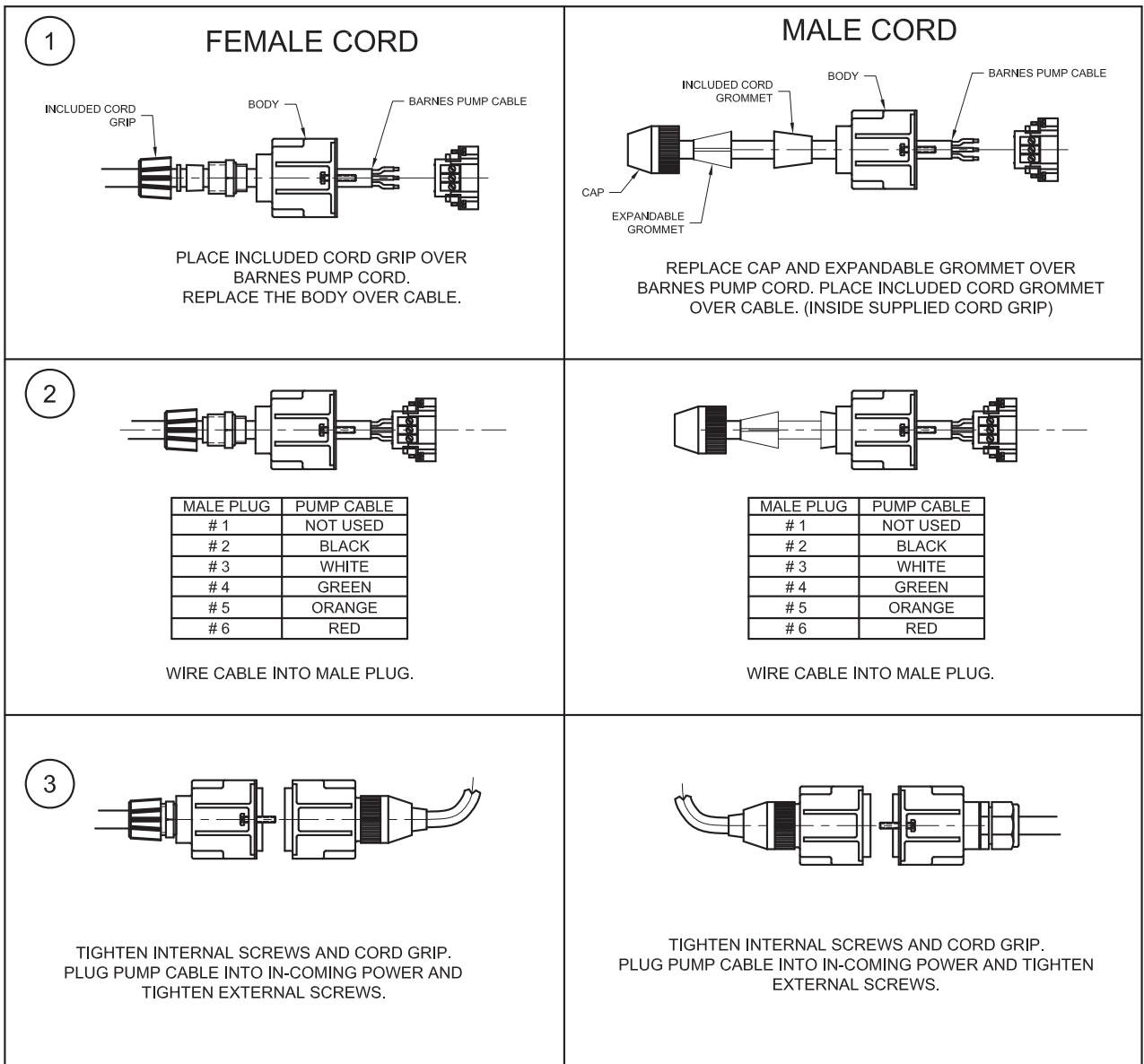


NOTE: DETERMINE IF THE PACKAGE CONTAINS A EQD (QUICK DISCONNECT) IF SO GO TO PAGE 12, FIGURE 9.

* TIE BOTH BARE GROUND WIRES W/ GREEN PUMP GROUND

FIGURE 9

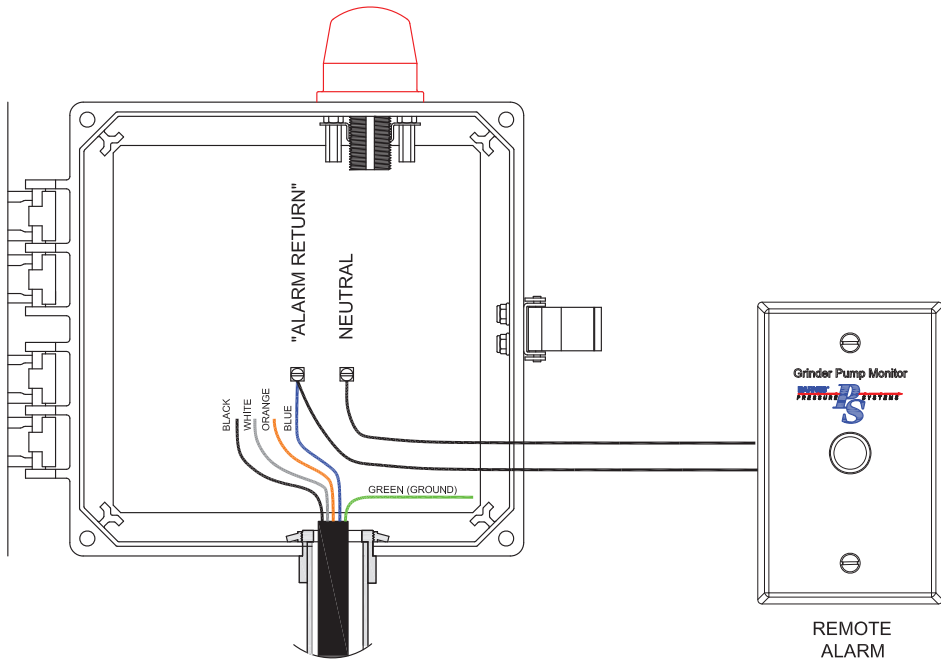
Wiring for units not supplied with Factory Installed EQD



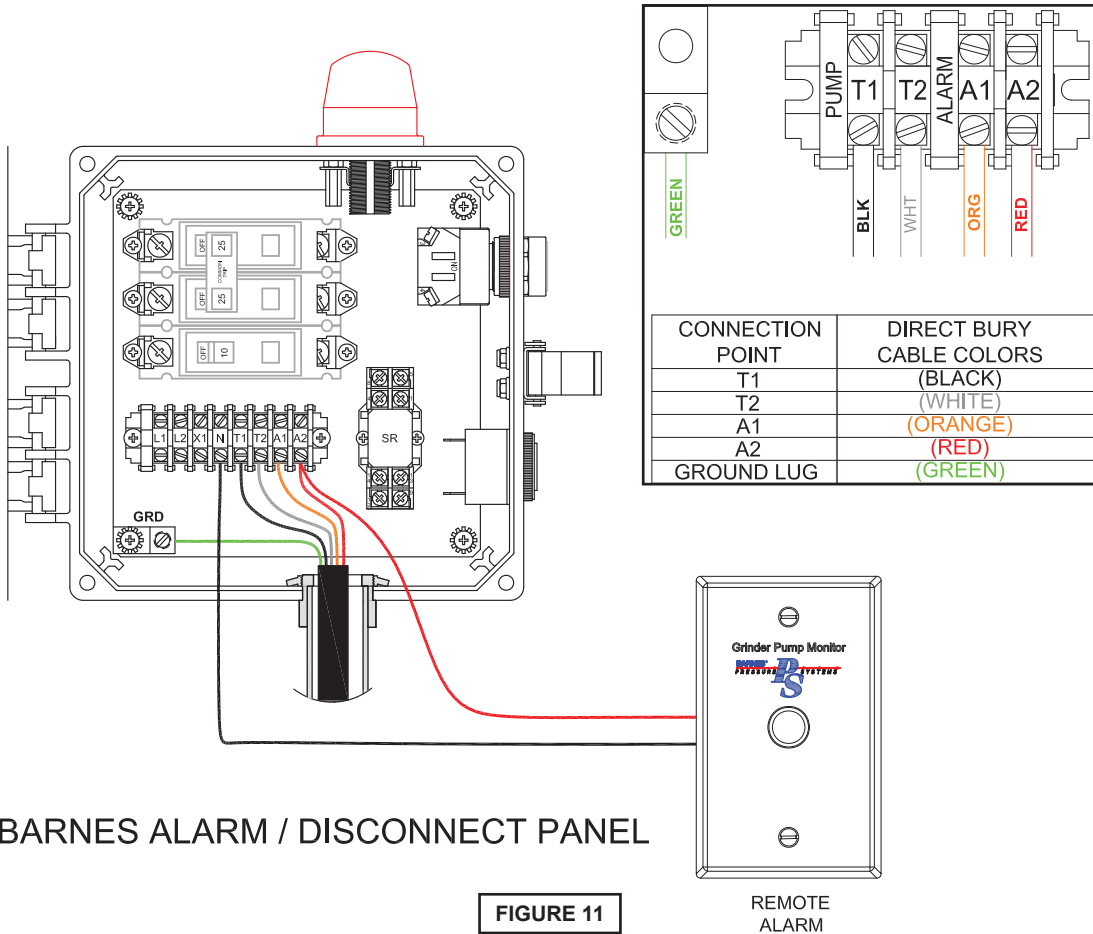
NOTE: EQD (2000 Series) shown, EQD (Extreme) wired in same manner.

FIGURE 10

Wiring for Optional Remote Alarm Light



E-ONE ALARM / DISCONNECT PANEL



BARNES ALARM / DISCONNECT PANEL

FIGURE 11

REMOTE ALARM

INTRODUCTION

Thank you for purchasing your new Barnes brand level control. The ESPS-150E level control switch has been designed to provide years of reliable service when properly used with Barnes brand automatic pumps and packages. Please completely read this manual and follow all installation instructions to insure your level control provides the best service possible.



This switch is designed to be a "Non-Serviceable" item. If a switch is suspected to be inoperative, contact your local service center for service replacement options.

The level control contains pressure sensitive components and diaphragms. Care should be taken when handling the unit to insure damage does not occur. Damage may result in improper function or undesirable performance. All actuation points are factory set and cannot be changed. Any attempt to change the actuation points will void the warranty.

Before placing switch into service, switch should be brought to operational temperature range. Excessive or direct heating or cooling should NOT be used.

OPERATION TEMPERATURE RANGE:
+35°F (2°C) to +120°F (49°C)

SHIPPING / STORAGE TEMPERATURE:
-20°F (-29°C) to +150°F (66°C)

FUNDAMENTALS OF OPERATION

The ESPS-150E Level control is designed to plug directly into the top of a Barnes brand OGV or OGP Automatic Series grinder pump. It will turn the pump "On" at a point below the alarm bell as the liquid level rises in the basin. The pump will then run until the liquid level drops to a point above the lower switch housing. In the event the pump does not turn on or the pump cannot keep up with the inflow, the alarm circuit will be activated once the liquid level submerges the Alarm Air Bell Tube. It will stay activated until the condition is corrected and the liquid level drops below the Alarm Air Bell Tube.

SWITCH COMPONENT DESCRIPTION

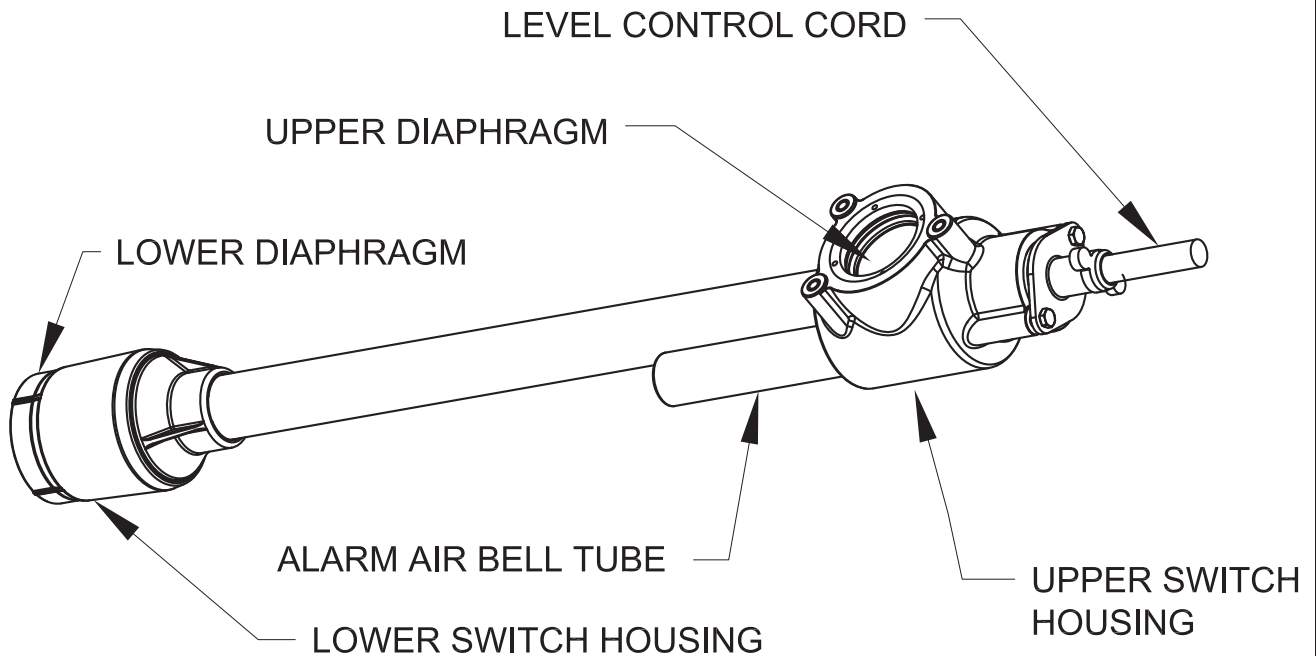
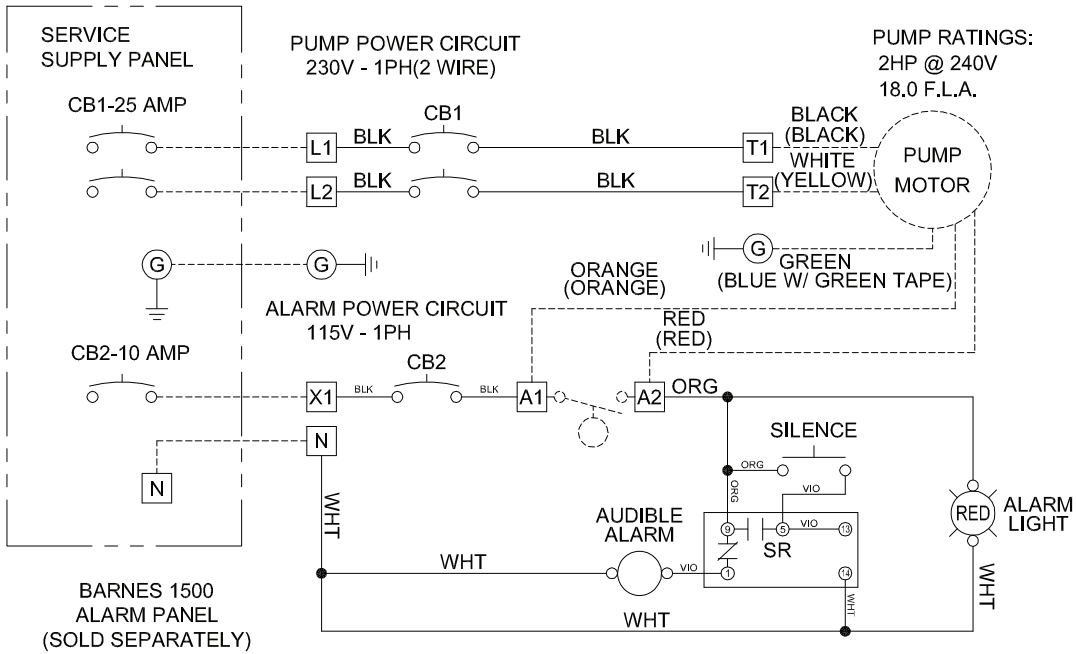


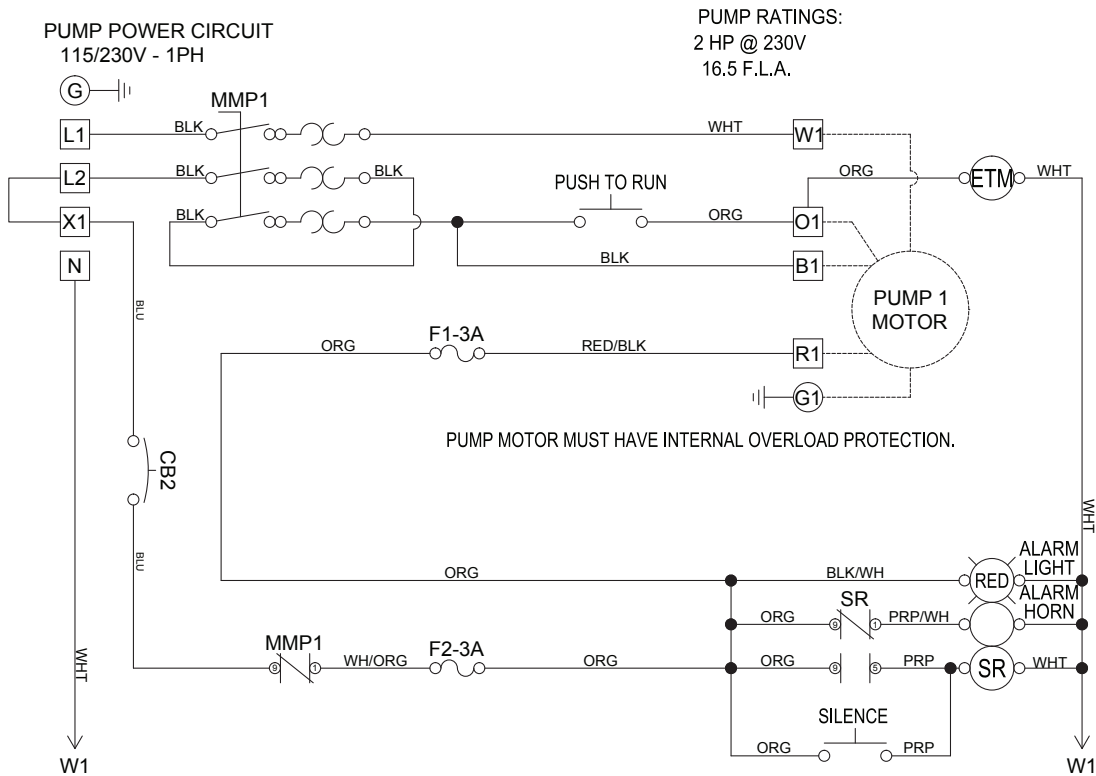
FIGURE 12

STATION WIRING SCHEMATIC

SIMPLEX (AUTOMATIC SCHEMATIC ESPS-150E)



ESPS-150 & 150e SIMPLEX AUTOMATIC WIRING DIAGRAM



ELECTRICAL CORD CONNECTIONS

SWITCH CORD - The cord assembly mounted to the switch must **NOT** be modified in any way. Any modifications to the switch cord will void the warranty.

OVER-TEMPERATURE PROTECTION - The type of in-line over-temperature protector used in this level control is referred to as an inherent overheating protector and operates on the affect of temperature rise. This means that the over-temperature protector will trip out and shut the pump off if the switch becomes too hot. It will then automatically reset after the switch cools to a

safe temperature. In the event of an over-temperature, the source of this condition should be determined and rectified immediately.

DO NOT LET THE PUMP CYCLE OR RUN IF AN OVER-TEMPERATURE CONDITION OCCURS!

CORD CONNECTION - Insert female end of cord plug into housing bore aligning, alignment mark with detent in terminal block, See Figure 14.

Tighten bolts until the corners of the compression flange are drawn down to the top of the level control.

DO NOT OVER TORQUE.

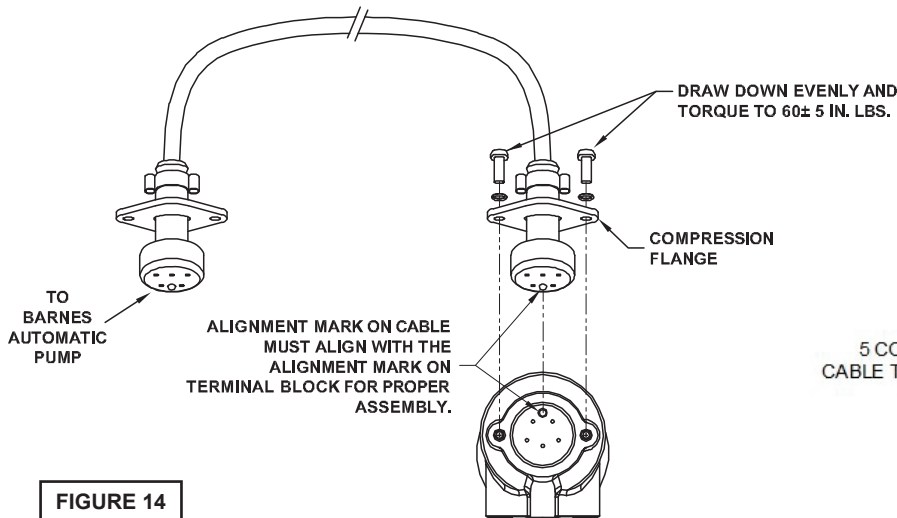


FIGURE 14

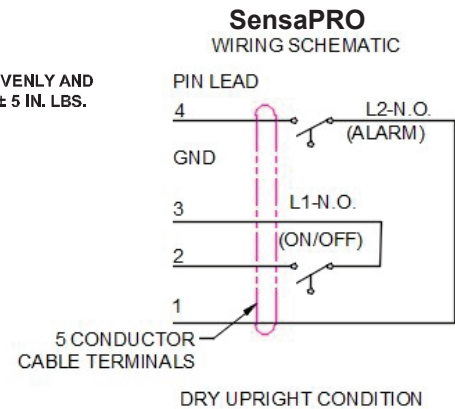


FIGURE 15

INSTALLATION INSTRUCTIONS: SENSAPRO LEVEL CONTROL FOR ECOTRAN AND UPGRADE CORE PUMP STATIONS

Step 1: REMOVING EXISTING LEVEL CONTROL

Remove ESPS Switch assembly from basin.

Step 2: REMOVING EXISTING LEVEL CONTROL POWER CABLE

Disconnect level control power cable from ESPS Switch by removing two retaining screws and lock washers.

Step 3: INSPECTING EXISTING LEVEL CONTROL POWER CABLE

Inspect level control power cable for damage on the cord jacket or pin connection areas. Replace level control power cable if damage is found.

Step 4: ATTACH LEVEL CONTROL POWER CABLE

Insert female end of cord plug into housing bore aligning, alignment mark with detent in terminal block, See Figure 14. Install the two retaining screws and lock washers. Tighten bolts until the corners of the compression flange are drawn down to the top of the level control. **DO NOT OVER TORQUE**

Step 5: INSTALLING THE MECHANICAL LEVEL CONTROL

The mechanical level control has a unique shape. This will fit into the pocket shaped to accept it in the POD next to the pump. Lower the mechanical level control into the pocket which will automatically set the correct height off the basin bottom. **DO NOT DROP**

TYPICAL INSTALLATION COMMENTS:

1. Never work in sump with power on.
2. Level Controls are factory set for the necessary pumping differential.

3. One cycle of operation should be observed, so that any potential problems can be corrected.

IMPORTANT NOTE: Do not use the Level Control in gasoline, volatiles, or other combustibles.

EXPLODED VIEW FIXED DISCHARGE UPGRADE CORE

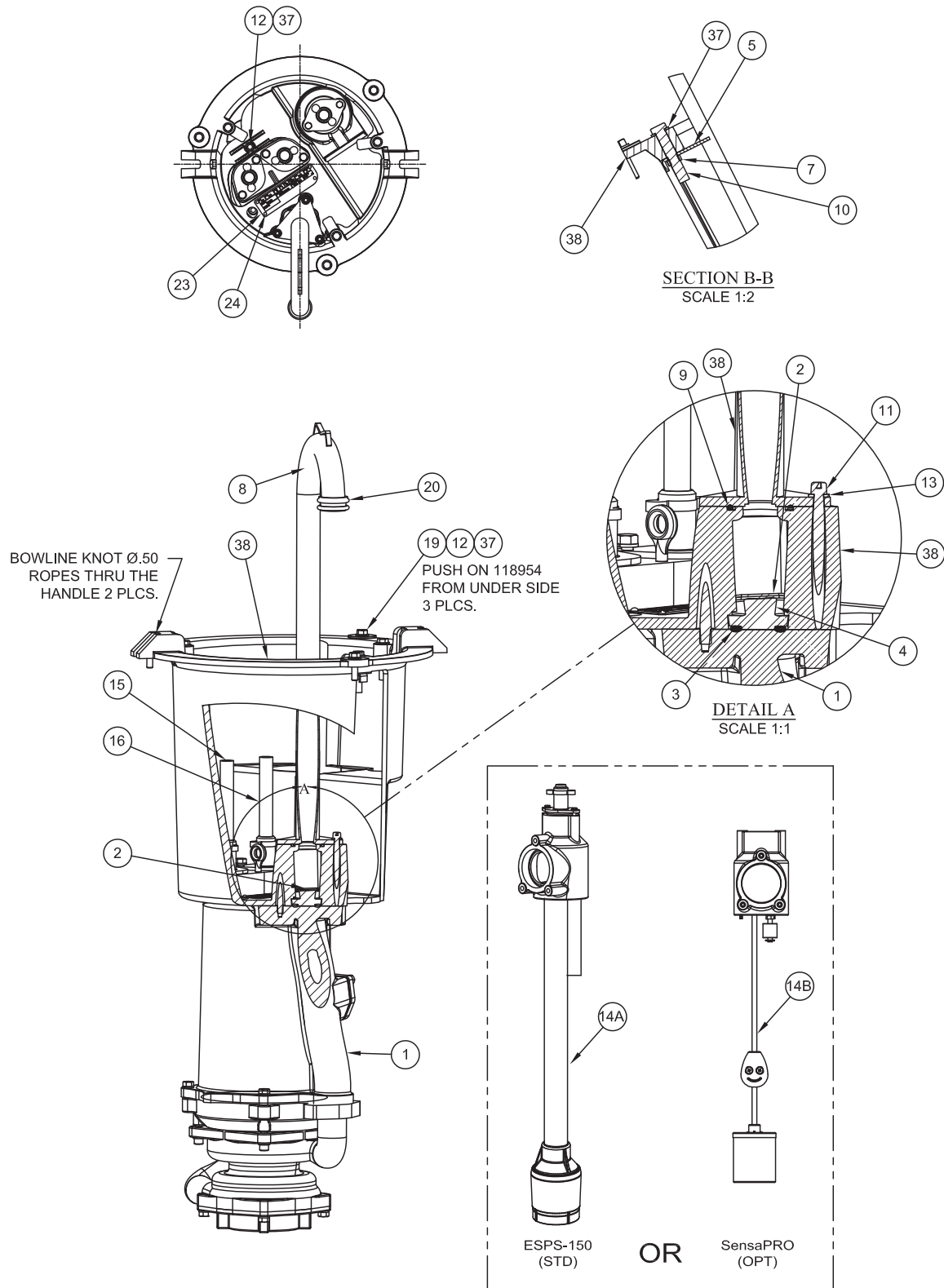


FIGURE 16

PARTS LIST

FIXED DISCHARGE UPGRADE CORE

ITEM	QTY	PART NO.	DESCRIPTION
1	1	See BOM	Pump, OGP2022CO, OGVF2022CO
2	1	118252	Check Valve, Main Flapper
3	1	121225	O-Ring, 4MMX55MMID
4	1	122891	Flapper Base
5	3	131040	Locking Tab, SS
8	1	131381	Fitting, Elbow, E-One, 1.25"
9	1	2-31051-224	O-Ring
10	3	1-140-1	Screw, HXHD, 5/16-18, 2.00", 316 SS
11	3	131382	Screw, SKHD, 5/16-18, 1.25"
12	4	1-131-1	Screw, HXHD, 5/16-18, 1.25"
13	3	026322	Washer, Lock, 5/16"
14A	1	119068	ESPS-150E (STD)
14B	1	142571	SensaPRO (OPT)
15	1	See Chart	Pump Power Cord
16	1	113315 113315XC	Cord Set, 15' for ESPS Cord Set, 30' for ESPS
17	1	094270	Cord Grip
18	1	069054V	Cord Grip
19	3	118954	Retaining Ring, Nylon
20	1	118339	Grommet, Black, Nitrile
21	2	See BOM	Rope, Lift, PP, Dia. 1/2"
22	1	See BOM	Rope, ESPS, Dia. 1/4", 3 Strands
23	1	133551	Serial Name Plate
25	1	055844	Connector Wire (Not Shown)
28	1	105714	Plug (Not Shown)
37	7	20-21-1	Washer, 5/16" Passivated
38	1	131039	Support Pod

PUMP POWER CORD CHART			
ITEM	QTY	PART NO.	DESCRIPTION
15	1	113274	Cord Set, 12/5, 15', No EQD
	1	113274XC	Cord Set, 12/5, 30', No EQD
	1	131960	Cord Set, 12/5, 15', 2000 Series EQD
	1	131960XC	Cord Set, 12/5, 30', 2000 Series EQD
	1	131960T	Cord Set, 12/5, 15', Extreme D Series EQD
	1	131960TXC	Cord Set, 12/5, 30', Extreme D Series EQD

EXPLODED VIEW OGP SERIES

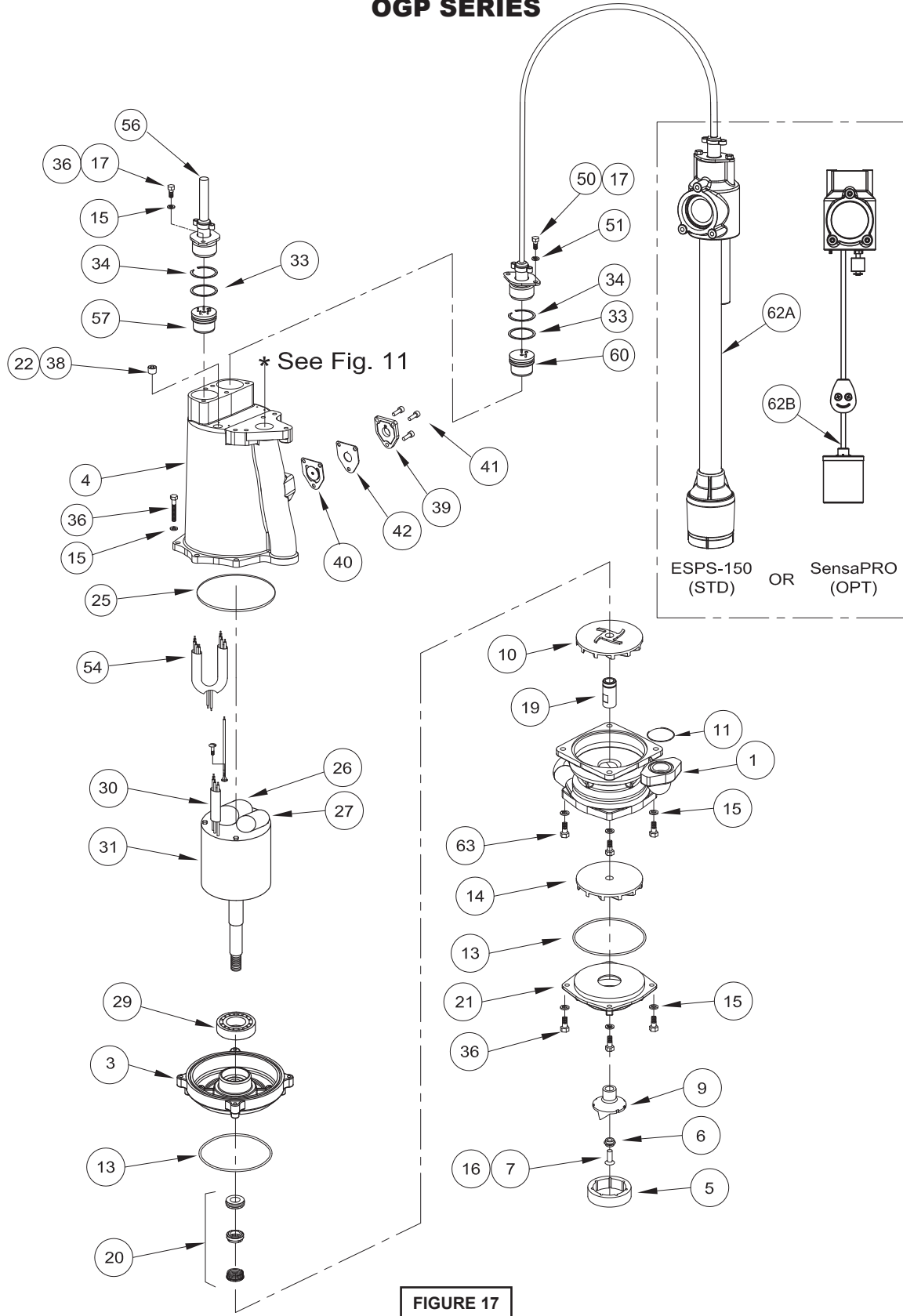


FIGURE 17

PARTS KITS OGP SERIES

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

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

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

PARTS LIST

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

ITEM	QTY	PART NO.	DESCRIPTION
33	1 or 2	2-31051-224	O-Ring
34	1 or 2	105197	Retaining Ring
36	14	1-156-1	Screw, 5/16-18 x 1.00" SS
37	1	109498XC	12/3 Cord Set, 30Ft (STD)
		109498	12/3 Cord Set, 15Ft (Compact)
		109492XC	12/4 Cord Set, 30Ft (STD) (For 3PH or Ext. Cap 1PH)
		103741XC	14/3 Cord Set, 30Ft (STD) (For Temperature Sensors)
38	1	014270	Pipe Plug, C'sunk, 3/8" NPT
39	1	119104B	Anti-Siphon Cover
40	1	112422	Gasket
41	3	03121-B	HXHD Screw 1/4-20 x .75" SS
42	1	105377B	Anti-Siphon Cover Plate
* Models with ESPS Level Control			
50	4	1-156-1	Screw, 5/16-18 x .1" SS
51	4	026322	Lockwasher, 5/16" SS
54	2	113287A	Wiring Harness Assy
56	1	113274XC	Cord Set (AUE), 30 Ft
		113274 EcoTRAN	Cord Set (CC, CT, CE), 15 Ft Cord Set (CE-See man.119061)
57	1	113271	Terminal Block, Power
60	1	134127	Terminal Block, Level Control (AU - series)
62A	1	121676-M 119068	ESPS-150 (STD) Level Control CE Only
62B	1	142571	SensaPRO (OPT) CE & CO Only
63	4	2-23030-50	SkHd Screw 5/16-18 x 1.25"

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

(*) Automatic - ESPS Level Control

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

EXPLODED VIEW OGV SERIES

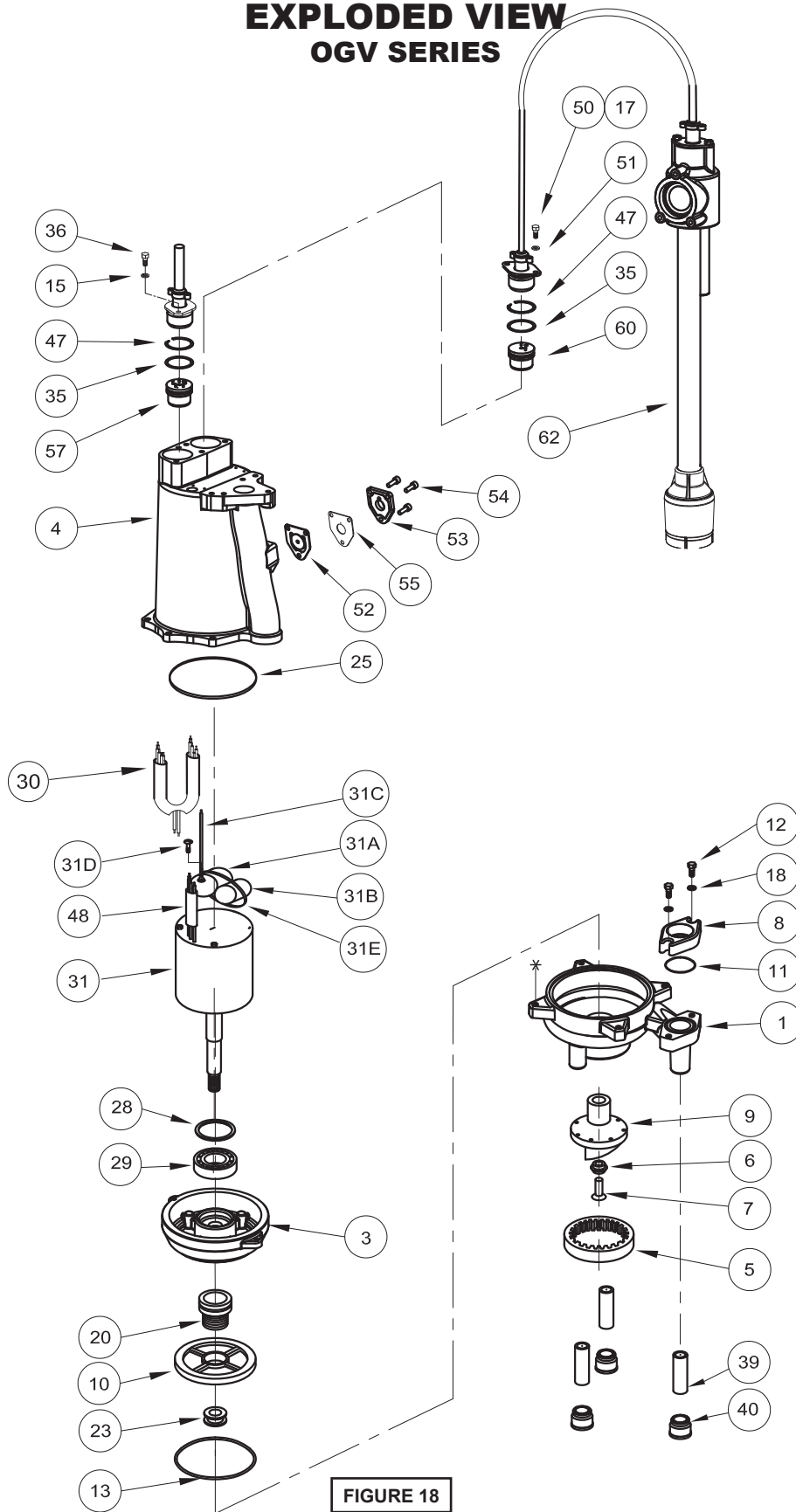


FIGURE 18

PARTS KITS OGV SERIES

Seal Repair Kit.....P/N: 108303
Overhaul Kit P/N: 127238
Cutter Kit - OGVFP/N: 108330
Cutter Kit - OGVH.....P/N: 108330A

Item #'s 6,7,12,13,15,20,25,26,35,36,47
 108303 & Item #'s 9, 18, 28, 29, 31A, 31B, 31C, 31D, 38
 Item #'s 5, 6, 7, 9, 15, 23, 26
 Item #'s 5, 6, 7, 9, 15, 23, 26

PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION
1	1	108344 118246	Volute Volute (CE, CC, CT)
2	1	110331	Handle (AU model)
3	1	108343	Seal Plate
4	1	108342 110328 118256	Motor Housing (STD) Motor Housing (AU model) Motor Housing (CE, CC, CT)
5	1	082085A 082085B	Shredding Ring (OGVF) Shredding Ring (OGVH)
6	1	067556	Washer
7	1	070704	Skhd Screw, 1/4-20 x .75" SS
8	1	108369 †	Discharge Flange 1-1/4" NPT
9	1	082088	Radial Cutter
10	1	109026 109026TD	Impeller, 5.62" Dia. (OGVH) Impeller, 5.13" Dia. (OGVF)
11	1	625-01558	O-Ring (-223)
12	4	1-131-1 †	Screw, 5/16-18 x 1.25" SS
13	1	067564	Square Ring
15	14	026322	Lockwasher, 5/16" SS
16	A/R	-----	LOCTITE™ RC609
17	A/R	-----	LOCTITE 242
18	2	062941 †	5/16" Flatwasher
20	1	110395SD	Seal, outer Silicon-Carbide (STD)
22	A/R	-----	Permatex Sealent 2C
23	1	016079	Shim set
24	3 Qts.	029034	Cooling Oil - Mtr. Housing
25	1	095368	Square Ring
26	4	1-300-1	Screw, 5/16-18 x 1.25", SS
28	1	061143	Retaining Ring
29	1	Q10-36-E4	Ball Bearing, Lower
30	1	113287	Wiring Harnes (Automatic)
31	1	108368A	Motor, 2HP, 240 Volt, 1 Phase w/capacitors & Ground wire (Supplied with Upper Bearing)
31A	1	115327A-RC	Capacitor, Run
31B	1	115327A-SC	Capacitor, Start
31C	1	105111B	Ground wire
31D	1	016660	Screw, Self-Tap #8-32 x .31"
31E	6	039462	Cable tie strap
34	1	103760	Terminal Block, Power, Manual

ITEM	QTY	PART NO.	DESCRIPTION
35	1 or 2	2-31051-224	O-Ring
36	2	1-156-1	Screw, 5/16-18 x 1.00" SS
37	1	109498XC 109498	12/3 Cord Set, 30 Ft 15Ft Cord on CC, CE,CT
38	1	014270	Pipe Plug, C'sunk, 3/8" NPT
39	3	110660	1/2" x 2-1/2" Nipple
40	3	111328	1/2" x 1" Reducer
47	1 or 2	105197	Retaining Ring
48	1 or 2	625-02117	Sleeving
* Models with ESPS Level Control			
50	4	1-156-1	Screw, 5/16-18 x .1" SS
51	4	026322	Lockwasher, 5/16" SS
52	1	119104B	Gasket
53	1	112422	Anti-Siphon Cover
54	3	03121-B	HxHd Screw 1/4-20 x .75" SS
55	1	105377B	Anti-Siphon Cover Plate
56	1	113274XC 113274 EcoTRAN	12/5 Cord Set 30Ft.- (AU) 15 FT on CC, CE, CT Cord Set (CE - See manual 119061)
57	1	113271	Terminal Block, Power
60	1	113272	Terminal Block, Level Control
62	1	121676-M 119068	ESPS-150 Level Control (AUE) CE Only

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

(*) AUE - ESPS Level Control

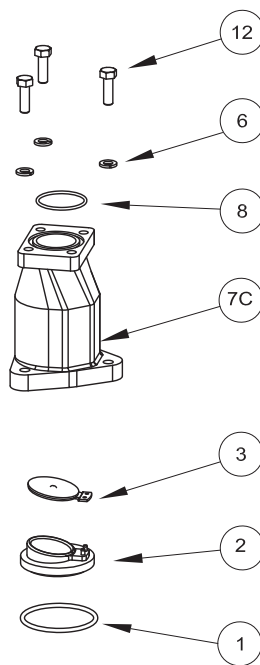
(**) Items 31A thru 31E are included with item 31 motor.

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

DISCHARGE ASSEMBLIES for OGP Series

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

The Discharge Assembly will be factory assembled to pump.



P/N: 119426B

FIGURE 19

BARNES®



burks®

WEINMAN®

DEMING®

PROSSER®

Limited 24 Month Warranty

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

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

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

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



A Crane Co. Company

PUMPS & SYSTEMS

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

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

**IMPORTANT!
WARRANTY REGISTRATION**

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

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

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

RETURNED GOODS

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



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



START-UP REPORT

General Information

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

Nameplate Data

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

Controls

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

Pre-Startup

All Pumps

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

Non-Submersible Pumps

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

Submersible Pumps

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

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

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

MEG Ohms check of insulation:

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

Operational Checks

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

Does check valve operate properly? YES___ NO___ N/A___

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

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

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

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

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

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

Submersible Pumps

Are BAF and guide rails level / plumb? YES___ NO___

Is pump seated on discharge properly? YES___ NO___

Are level controls installed away from turbulence? YES___ NO___

Is level control operating properly? YES___ NO___

Is pump fully submerged during operation? YES___ NO___

Follow up/Corrective Action Required

YES___ NO___

Additional Comments:

Startup performed by: _____ Date: _____

Present at Start-Up

() Engineer: _____ () Operator: _____

() Contactor: _____ () Other: _____

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



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A Crane Co. Company

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

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