

# BARNES®

## SERVICE MANUAL

### SGV 2 HP Pump



# SGV<sup>3</sup>

THREE BEARING DOUBLE SEAL  
CENTRIFUGAL GRINDER PUMPS

#### 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](http://www.cranepumps.com)

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



Form No. SM108091-Rev. B

## TABLE OF CONTENTS

|                                                            |         |
|------------------------------------------------------------|---------|
| SAFETY FIRST .....                                         | 3       |
| TOOL LIST .....                                            | 4       |
| <b>SGV 2HP Disassembly</b> .....                           | 5       |
| Visual Inspection of Pump .....                            | 5       |
| Cut Cords .....                                            | 5       |
| Megger the Pump Leads - (Megohmmeter) .....                | 5       |
| Hi-Pot (High Potential) Insulator Test (if required) ..... | 5       |
| Check the Resistance - (Multi-Meter) .....                 | 5 - 6   |
| Jammed or Worn Cutter .....                                | 6       |
| Check Valve Evaluation .....                               | 6       |
| Moveable Alignment .....                                   | 6       |
| Cutter Removal .....                                       | 7       |
| Volute .....                                               | 8       |
| Seal Chamber .....                                         | 9       |
| Perform Pressure Check .....                               | 9       |
| Impeller .....                                             | 10      |
| Outer Shaft Seal .....                                     | 11      |
| Seal Plate .....                                           | 12      |
| Motor, Bearing, Inner Seal .....                           | 13      |
| Motor Housing .....                                        | 14 - 15 |
| Motor .....                                                | 16      |
| Bearings .....                                             | 17      |
| Inner Seal .....                                           | 18      |
| <b>SGV 2 HP Assembly</b> .....                             | 19      |
| Bearings to Pump Rotor .....                               | 19      |
| Intermediate Coupling Component Parts .....                | 19      |
| Inner Seal .....                                           | 20      |
| Motor .....                                                | 21      |
| Motor Housing .....                                        | 22      |
| Wiring Schematic/Pin Placement .....                       | 23      |
| Seal Plate .....                                           | 24      |
| Outer Seal .....                                           | 25      |
| Impeller .....                                             | 26      |
| Valute, Shredding Ring, & Cutter .....                     | 27      |
| Replacing Oil .....                                        | 28      |
| Seal Chamber .....                                         | 28      |
| Pump Exploded View .....                                   | 29      |
| Parts Kits /Parts List .....                               | 30      |

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

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

© Crane Pumps & Systems, Inc. 2004, 7/06

Alteration Rights Reserved

# 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 cause hazardous pressure, eruptions or explosions could cause personal injury or property damage.*



*Rotating machinery Amputation or severe laceration can result.*



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

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



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



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

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

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

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

Keep the control panel locked or confined to prevent unauthorized access to it.

If the pump is idle for long periods of time, it is advisable to start the pump occasionally by adding water to the basin.



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



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

Do not block or restrict discharge hose, as discharge hose may whip under pressure.



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



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

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

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

Secure the pump in its operating position so it can not tip over, fall or slide.

Cable should be protected at all times to avoid punctures, cut, bruises and abrasions - inspect frequently.



Never handle connected power cords with wet hands.



To reduce risk of electrical shock, all wiring and junction connections should be made per the NEC or CEC and applicable state or province and local codes. Requirements may vary depending on usage and location.



Submersible Pumps are not approved for use in swimming pools, recreational water installations, decorative fountains or any installation where human contact with the pumped fluid is common.

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



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



Bronze/brass and bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. 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.

## TOOL LIST



- Crescent Wrench
- Torque Wrench
- Hammer
- Brass Flat Punch
- 3/8" Ratchet
- 3/8" Short Extension
- 1/2" Wrench Open End
- 2 - 3/16" Flat Blade Screwdrivers
- 1/4" Nut Driver
- 1/8" Allen Wrench
- 5/32" Allen Wrench
- 5/16" Allen Wrench
- Needle-Nose Pliers
- Inside & Outside Snap Ring Pliers
- 4" PVC Coupler
- 1/4-20 Bolt
- Seal Pushers - Part No: TL-21357-1
- "Bullets"-Thread Protectors - Part No: TL-21381 / TL-21375
- Seal Lubricant (P-80)
- Dielectric Cooling Oil (Check Chart)
- Blue 242, Green 609, Loctite
- Pressure Gauge Kit - Part No: 085343
- Megohmmeter & Multi-Meter w/Clamp

## SGV 2HP Disassembly

### Visual Inspection of Pump

Quick visual inspections can save time. A visual Examination of the pump for damage to cords, controls, or cutter, and a thorough electrical check should be performed to determine a pumps condition.

### Cut Cords

Check the cord(s) for any cuts or gouges. If there is any noticeable damage, do not use the cord, remove, and install a new cord if applicable.

### Megger the Pump Leads - (Megohmmeter)

This test is to determine the strength resistance of the cord insulation. The meter will test zero  $\Omega$  if the cord insulation is damaged or breaking down thus allowing current to flow through the insulation.

This test can best be performed if the pump leads are disconnected from the control panel, or the junction box. To perform this test, touch one lead to the green ground. Touch the other lead to the red wire. Repeat this test with ground to black and ground to white. To pass this test, a cord set must have a reading of 5m $\Omega$  or higher on all leads. Note that a "0" reading indicates a dead short.



**CAUTION:** After performing a megger test ALWAYS discharge cord set leads to ground.

### Hi-Pot (High Potential) Insulator Test (if required)

A Hi-Pot test of pump leads is more accurate than a megger test, either method will indicate the condition of cord insulation. In most cases, it is not necessary to do both.

This test detects non-visible insulator failures. To perform the HiPot test, a 500 VOC Megohmmeter is needed. Touch the green ground lead from the pump to one of the meter leads, and the other meter lead to one of the power leads. Repeat this test with all of the power leads. A resistance reading no less than 20m $\Omega$  **IS ACCEPTABLE.**



**CAUTION:** After performing a Hi-Pot test, ALWAYS discharge cord set leads to ground.

### Check the Resistance - (Multi-Meter)

**CAUTION:** Perform this test with the pump off.

This test is to check for open circuits or loose connections and also to determine if the motor windings are good.

To perform this test, touch one meter lead to the red pump lead, touch the other meter lead to the black pump lead, record the reading. Then compare the readings to the readings found on motor winding resistance charts (Table 1). Readings should be within  $\pm 5\%$  of nameplate.

Readings should be as follows:

(1 Phase motor)(Approximate)

Red to Black = 7.7 to 8.3 ← Start & Run Resistance

Red to White = 6.3 to 7.2 ← Start Resistance

Black to White = 1.1 to 1.7 ← Run Resistance

(All figures are approximate, variances may occur as results of pump motor manufacturer specs, and or, direct burial cable of varying lengths.)

The totals of the two low figures (red to white and black to white should equal the red to black.)

Example:

Red to Black = 8.0 ← This figure should total the other two readings.

Red to White = 6.6

Black to White = 1.4

Total: = 8.0

If these readings do not correlate, then the motor windings or wiring is faulty.

**TABLE 1: Motor Winding Resistance**

| MODEL No. | HP | VOLTS | PH | RPM<br>(Nom) | NEMA<br>START<br>CODE | FULL<br>LOAD<br>AMPS | LOCKED<br>ROTOR<br>AMPS | CORD<br>SIZE | CORD<br>TYPE | CORD<br>O.D. | WINDING<br>RESISTANCE<br>MAIN-START |
|-----------|----|-------|----|--------------|-----------------------|----------------------|-------------------------|--------------|--------------|--------------|-------------------------------------|
| SGV2002L  | 2  | 200   | 1  | 3450         | F                     | 17.0                 | 53.0                    | 12/4         | SOW          | 0.67±.02     | 0.9 - 7.2                           |
| SGV2022L  | 2  | 240   | 1  | 3450         | F                     | 16.0                 | 46.0                    | 12/4         | SOW          | 0.67±.02     | 1.4 - 7.2                           |
| SGV2062L  | 2  | 200   | 3  | 3450         | J                     | 11.0                 | 42.0                    | 12/4         | SOW          | 0.67±.02     | 2.4                                 |
| SGV2032L  | 2  | 240   | 3  | 3450         | H                     | 9.0                  | 36.0                    | 12/4         | SOW          | 0.67±.02     | 3.1                                 |
| SGV2042L  | 2  | 480   | 3  | 3450         | H                     | 4.0                  | 18.0                    | 12/4         | SOW          | 0.67±.02     | 12.4                                |
| SGV2052L  | 2  | 600   | 3  | 3450         | H                     | 3.2                  | 14.4                    | 12/4         | SOW          | 0.67±.02     | 16.1                                |

Winding Resistance ±5%. Pump Rated For Operation at ±10% Voltage at Motor.

### Jammed or Worn Cutter

Check the cutter for freedom of movement, the cutter should move by hand. Also check for excessive wear, if there is evidence of this, then the worn piece(s) must be replaced.

**NOTE:** If the cutter is excessively worn, the shredding ring may be reversed.

### Check Valve Evaluation

To check the performance of the check valve, remove the white PVC cap on the top of the valve. Perform a visual inspection of the ball to determine that the ball is not grooved, pitted, or distorted. In addition, look in the valve to make certain it is free of obstructions that may cause the valve ball to not seat properly.

### Moveable Alignment

To prevent the moveable from leaking, make a visual check from the face of the moveable to the lower pump bracket. The face of the moveable needs to be parallel to the lower pump bracket. When assembled on the pump, the moveable face will be perpendicular to the centerline of the pump discharge.

## Cutter Removal



**CAUTION:** Sharp edges, use caution when removing cutter.

**NOTE:** Prior to disassembly, mark castings with a permanent marker on all joints to assist in realignment.

With the pump lying on its side, remove the cutter retaining screw and washer. The screw has green loctite so apply heat to the screw, wedge a flat blade screwdriver between cutter and shredding ring and remove screw. Using a flat punch and hammer, tap the cutter in the counterclockwise direction and remove.

**DO NOT attempt to remove the volute before removing the radial cutter.**

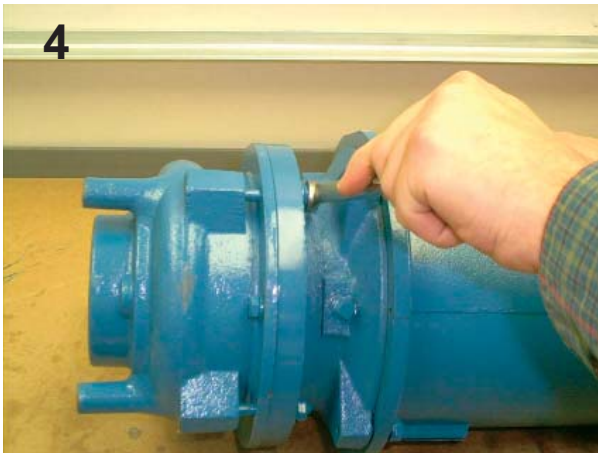


**NOTE: DO NOT USE EXCESSIVE HEAT, IT WILL DAMAGE THE PUMP.**

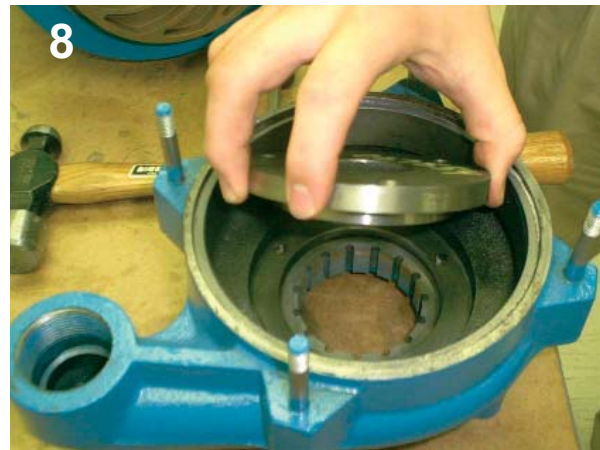


## Volute

Remove the four nuts and lock washers from the volute studs. Remove volute and square ring from pump.



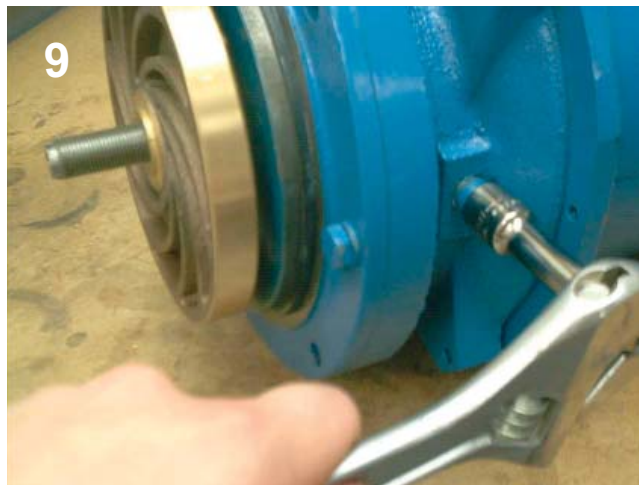
To remove or reverse the shredding ring, first remove the three flat head allen screws. The screws are installed with loctite so apply heat to screws before removing, and lift the throat out of the body. The shredding ring is press fitted to the volute and must be removed with an arbor press.



**NOTE:** After a number of years of service or if the shredding ring cutting edges dull, the ring can be pressed out of the volute and reversed to utilize the opposite cutting edges. To maintain efficient grinder pump operation, care should be taken to keep both the radial cutter and shredding ring cutting edges sharp. Neither part can be sharpened to renew the cutting ability. The radial cutter must be replaced and the shredding ring either reversed or replaced.

## Seal Chamber

Place unit on its side with oil fill plug downward, remove plug (a 3/8" drive socket extension works well) and drain all oil from seal chamber, checking oil for contamination (milky white oil indicates the presence of water.)



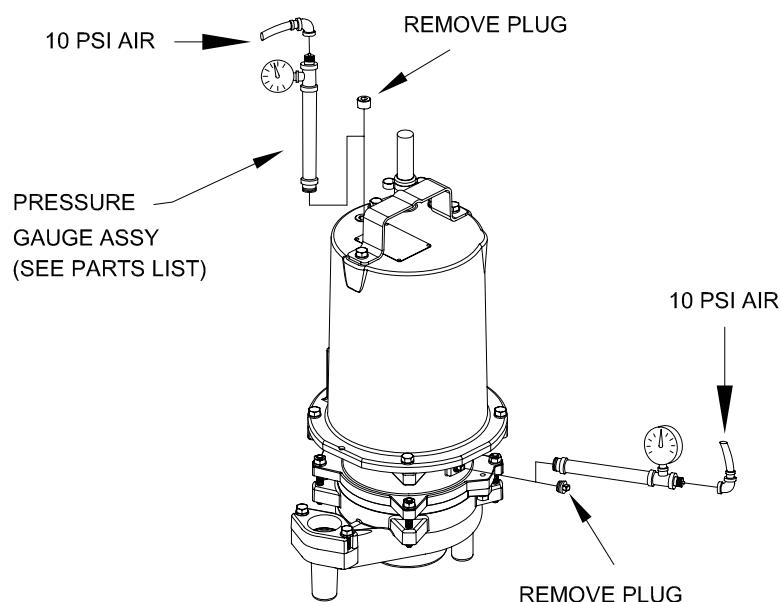
## Perform Pressure Check

**NOTE:** This test is to be performed with **NO** oil in the housing.

**CAUTION:** Make certain the cord set is attached to pump. Performing the pressure check without the cord set on may cause the terminal block to blow out.

To check the pump for any seal leaks, attach the pressure gauge assembly using pipe sealant. Tighten the fitting into the hole. Pressurize the gauge to 8 to 10 psi. Use a soap solution around the sealed areas and inspect joints for air bubbles.

If, after 5 minutes the pressure is still holding constant, and no bubbles are observed, slowly bleed the pressure and remove the gauge assembly. Replace the pipe plug using sealant. If the pressure does not hold, then the leak must be located and repaired.



**Figure A**

## Impeller

The impeller can be removed by turning it counterclockwise while holding the motor shaft stationary with a screwdriver.

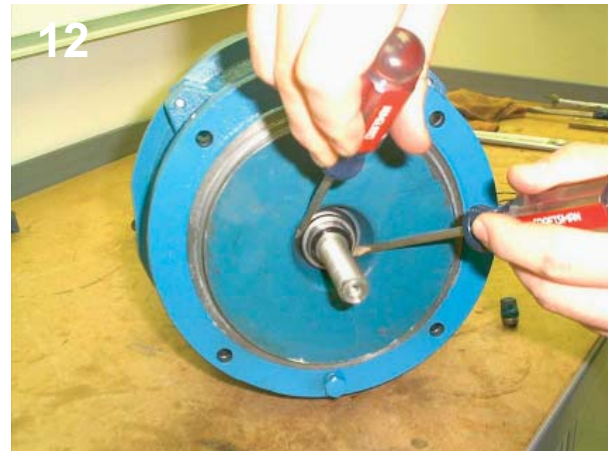


**CAUTION:** Use Caution to not damage threads on shaft.

**NOTE:** With impeller removed, the seal spring is relaxed and some oil may seep from the seal chamber. **Do not** store this pump without the impeller in place to hold pressure on the seal spring. **Do not** pressure check seal chamber at this time.

## Outer Shaft Seal

**CAUTION:** Handle seal parts and shaft with extreme care.  
**Do not** scratch or mar lapped or machined surfaces.  
Remove spring and rotating member from shaft.



Examine all seal parts and especially contact faces. Inspect seal for signs of wear, such as uneven wear tracks on stationary members, chips, and scratches on either seal face.

**DO NOT** interchange seal components, replace the complete seal assembly if replacing seal.

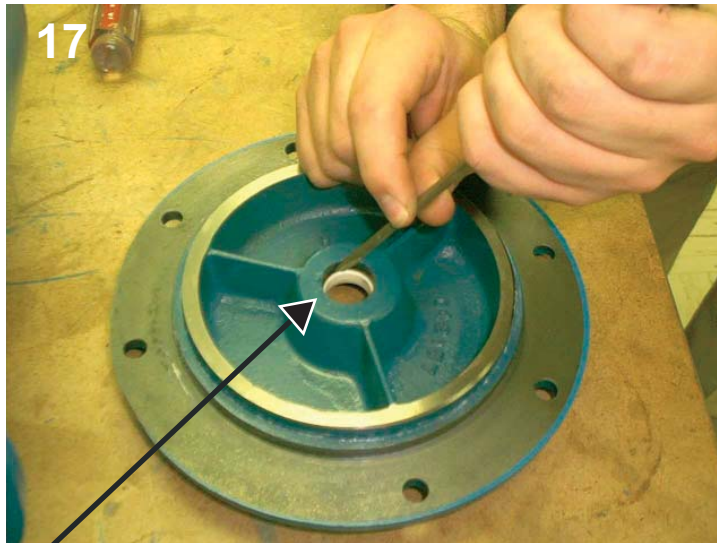


## Seal Plate

Remove two bolts and washers from seal plate. Remove seal plate and square ring from intermediate coupling. Remove stationary seal by pressing out with flat screwdriver.



Inspect square-ring for signs of wear and abrasion.



Press out stationary seal using care to not damage seal surfaces.

## Motor, Bearing, Inner Seal

Set unit on its side and remove plug from motor housing, drain all oil from motor chamber.

18



**CAUTION:** *Oil can be under pressure and hot!*

**NOTE:** Perform pressure check on motor housing, reference back to page 10.

## Motor Housing

**NOTE:** Position unit upright, using 4" pvc coupler to avoid resting unit on the lower shaft.

Loosen cable clamp bolts and lock washers from motor housing. Remove cord from motor housing by pulling straight up while using a rocking motion.

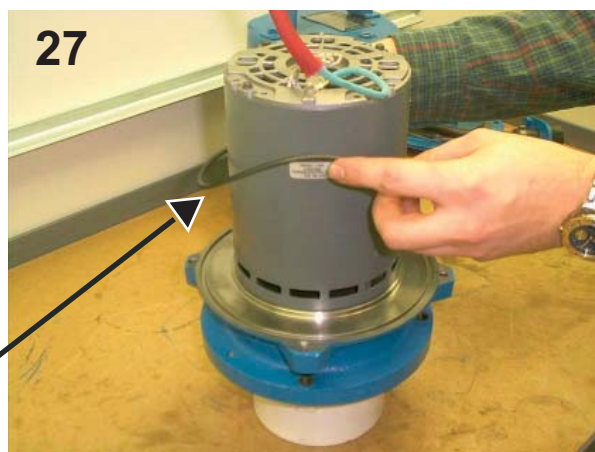


Remove retaining snap ring with a medium flat tip screwdriver. Using a 1/4-20 bolt, thread it into the center of the terminal block. Pull straight up with a rocking motion to remove the terminal block. Disconnect all wire connections noting where each wire is connected. The bottom of the block has a number located next to each pin for reference. If pump is equipped with temperature-moisture sensors, remove in same manner as the power cord.



## Motor Housing (con't)

Remove motor housing bolts and washers and vertically lift motor housing from intermediate coupling. Remove square ring from intermediate coupling.

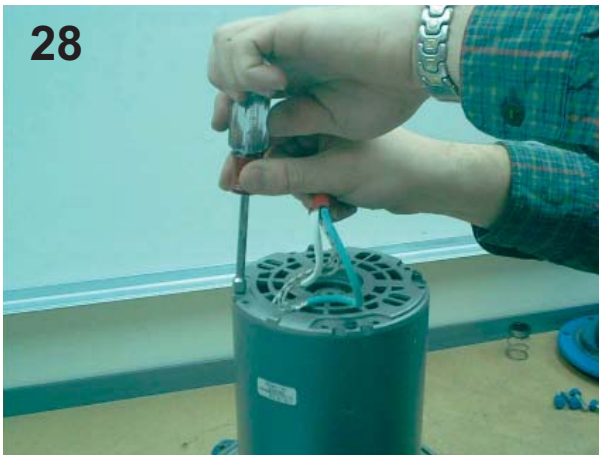


Inspect square ring  
for signs of wear and  
abrasion

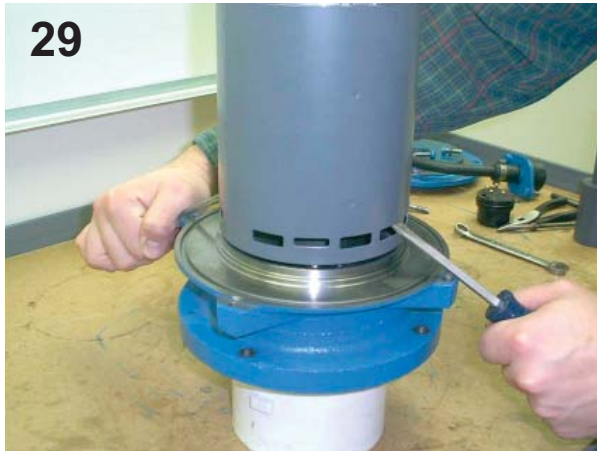
## Motor

Remove stator bolts and carefully remove stator housing from rotor.

28



29



Remove snap ring from intermediate coupling, rotor will pull out of intermediate coupling with bearing and rotating member of inner seal attached.

30



31



## Bearings

From rotor shaft remove rotating member and spring. Now bearing can be removed from rotor shaft by removing snap rings from shaft and using a wheel puller or arbor press. Upper rotor bearing may be removed from rotor shaft with a bearing puller.



## Inner Seal

From intermediate coupling, press out stationary seal with a flat screwdriver.

**34**



## **SGV 2 HP Assembly**

### **Bearings to Pump Rotor**

When replacing bearings, be careful not to damage the rotor or shaft threads. Using an arbor press, hold the rotor and press the upper bearing on the rotor shaft, applying force to the inner race of the bearing only. Install top retaining ring on rotor shaft. Using an arbor press, hold the rotor and press the lower bearing on the rotor shaft, apply force to the inner race of the bearing only. Install bottom-retaining ring on rotor shaft. The bearing will be positioned between the retaining rings.

### **Intermediate Coupling Component Parts**

If pump is equipped with optional moisture sensors, apply thread compound (Permatex) to threads on probes and install in intermediate coupling. Connect wires to probes with machine screw. Note: If pumps are not equipped with moisture sensors, probes will be replaced by pipe plugs, install with permatex.

## Inner Seal



**CAUTION:** Handle seal parts and shaft with extreme care! Do not scratch or mar lapped surfaces.

Clean and oil seal cavities in intermediate coupling. Lightly oil (**DO NOT grease**) outer surface of stationary member. Press stationary member firmly into intermediate coupling, using a seal pusher (see parts list - Seal Tool Kit). Nothing but the seal pusher is to come in contact with the seal face. Make sure the stationary member is straight.

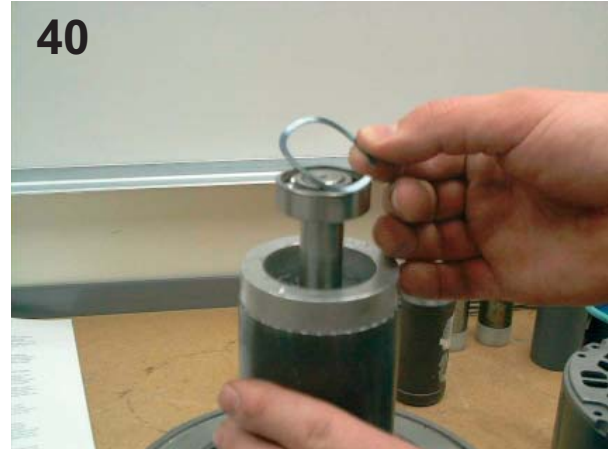


Place retaining ring and spring over shaft until seated on shaft shoulder. Slide a bullet (from tool kit) over rotor shaft threads. Lightly oil (**DO NOT grease**) shaft, bullet, and inner surface of bellows on rotating member, with finished end away from motor, slide rotating member over bullet and onto shaft until it engages spring. Make sure spring is seated on retainer and not cocked or resting on bellows tail.

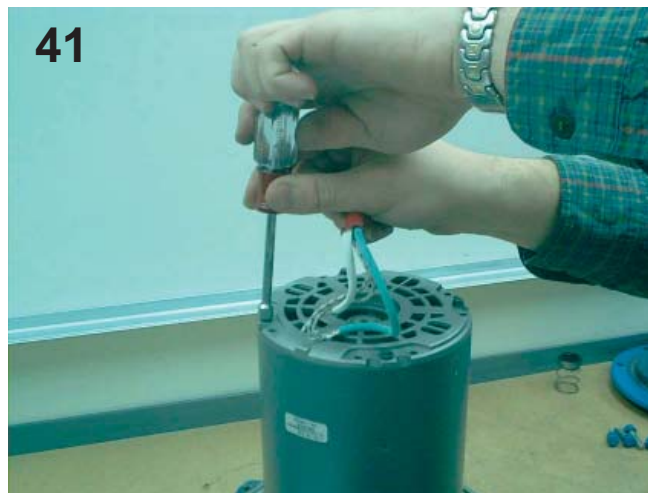


## Motor

Slide motor rotor, with bearings and inner seal into intermediate coupling. Insert bearing retaining ring into intermediate coupling. Set wave spring on top of upper bearing, hold in place with small amount of grease.



Set motor stator over rotor being sure that stator drops flat against register in coupling. Place end bell on top of motor and insert motor bolts in motor and torque to 17 in/lb.



## Motor Housing

Lubricate and set square ring into bore on intermediate coupling.



Install ground wire in end bell if removed (Use proper bolt to secure ground lug). Place fiberglass sleeve over motor and ground leads if removed. Pull wires through opening in top of motor housing while lowering motor housing onto intermediate coupling. Connect wires to pins on the bottom of the terminal block.

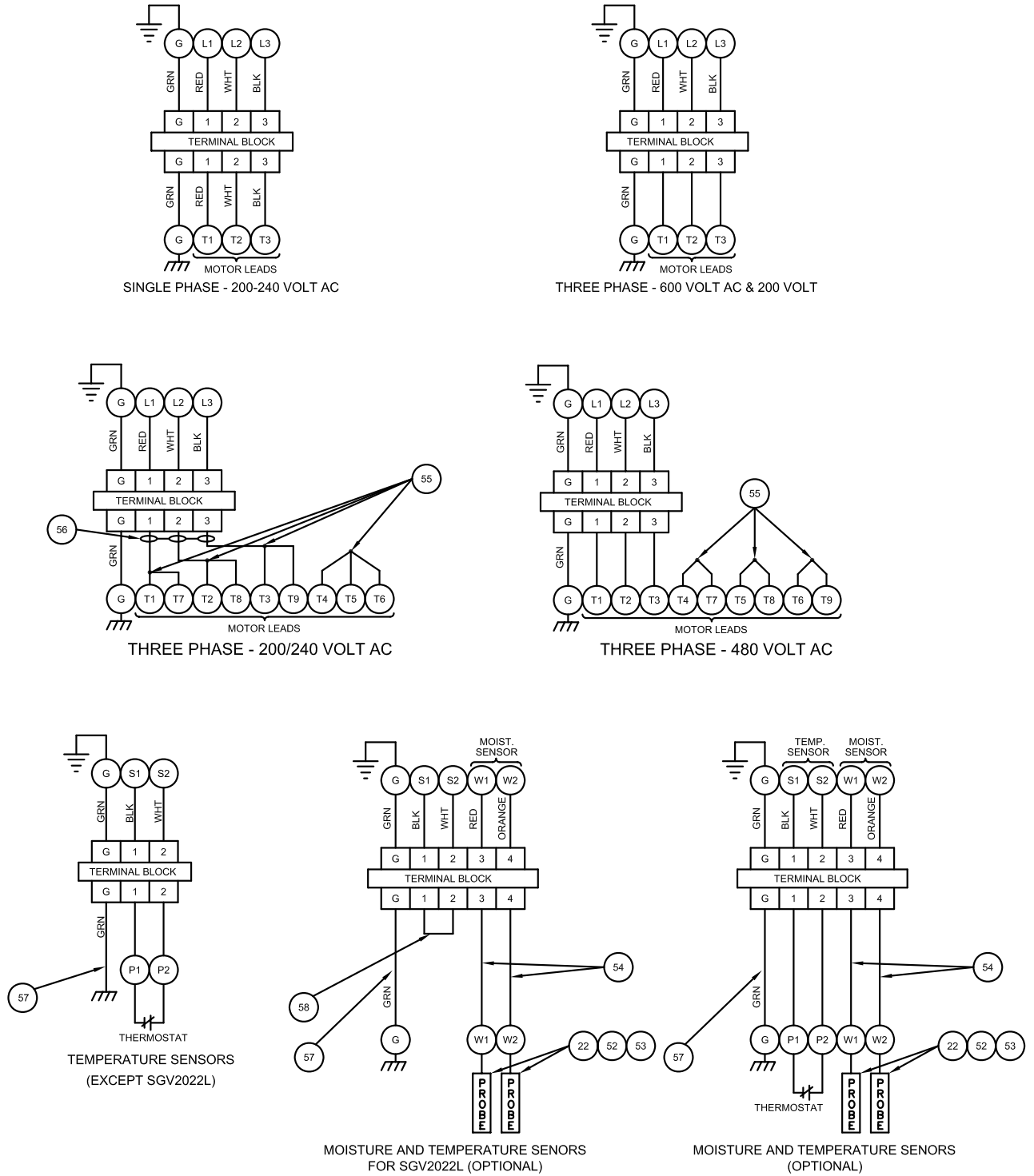


**NOTE:** Wiring Diagram on next page.

Lubricate o-ring and slide terminal block back into housing. Make sure terminal block is engaged and install snap ring to retain terminal block. Tighten bolts and lock washers into motor housing.



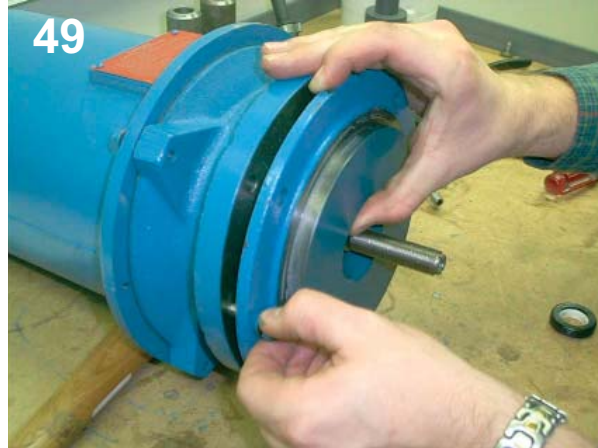
## Pin Placement Diagram



**Figure B**

## Seal Plate

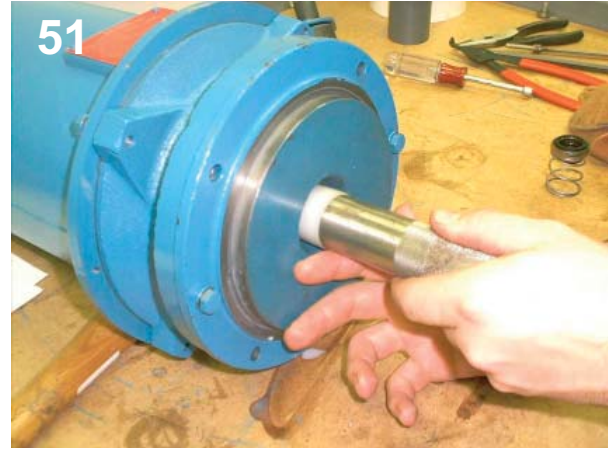
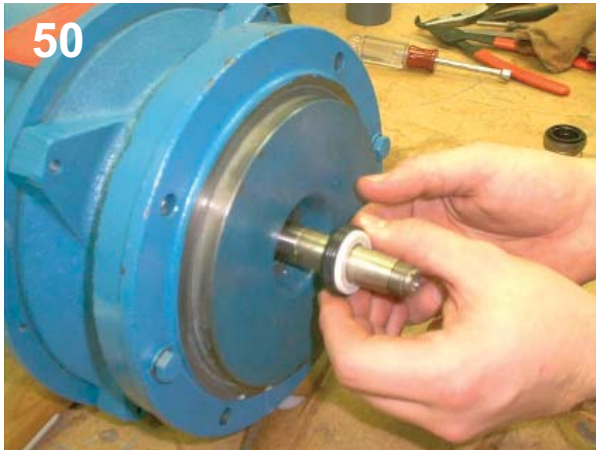
Lubricate and set square ring in bottom groove of seal plate. Guide seal plate over end of rotor shaft, install and tighten two washers and bolts to 6.5 ft/lbs. Be sure square ring is in groove on coupling and not twisted.



## Outer Seal

Clean and oil stationary seal cavity in seal plate. Slide seal guide (see parts list - Seal Tool Kit) over motor shaft. Lightly oil (do not grease) outer surface of stationary seal. Press stationary seal firmly into seal plate using a seal pusher. Make sure the stationary member is in straight. Nothing but the seal pusher is to come in contact with seal face.

**CAUTION: DO NOT HAMMER ON THE SEAL PUSHER - IT WILL DAMAGE THE SEAL FACE.**



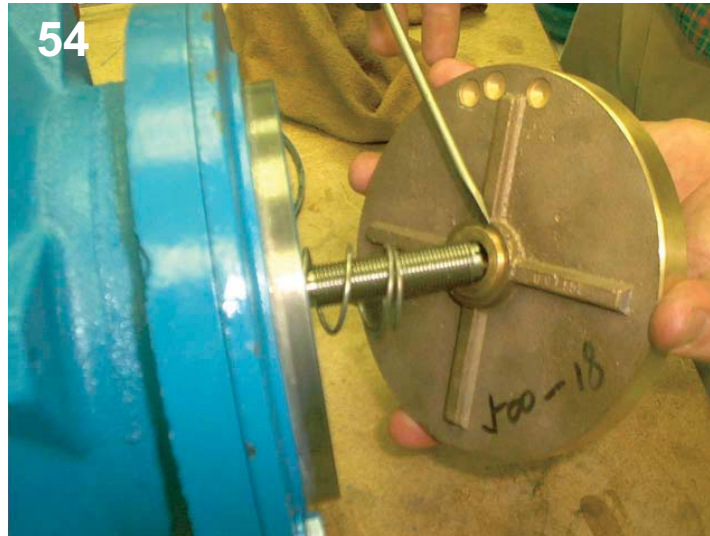
With seal guide over motor shaft, lightly oil (**DO NOT grease**) guide, shaft, and inner surface of bellows on rotating seal. With lapped surface of rotating member facing inward toward stationary member, slide rotating member over guide and onto shaft, using seal pusher, until lapped faces of the stationary and rotating seal are together. Place spring over shaft and the rotating member. Make sure it is seated on the retainer and not cocked or resting on bellows tail.

**NOTE: Discard seal spring cap (Included in Rebuild Kit)**



## Impeller

Assemble impeller on motor shaft, with machined step fitting inside I.D. of seal spring, by turning clockwise while holding shaft stationary with a screwdriver.



## Valute, Shredding Ring, & Cutter

Next install shredding ring into the volute body with the use of an arbor press. Insert throat into body with three flat head Allen screws, use green loctite on threads.



Lubricate square ring and place on groove in bottom seal plate. Place volute on seal plate being careful not to damage square ring. Place washers and nuts on studs and tighten equally to 11 ft/lbs.

**NOTE: Discharge must line up with notch in motor housing.**



Screw radial cutter on shaft turning clockwise, holding motor shaft stationary with a screwdriver. Radial cutter should be flush with shredding ring on suction side to within  $\pm 0.020$ . Replace washer and screw and tighten. Use green loctite on threads.



**NOTE:** Repeat all electrical checks & pressure tests prior to replacing oil.

## Replacing Oil

Motor housing - Set unit upright and refill with (see chart for type and amount) new cooling oil. Fill to 1" above motor as an air space must remain in the top of the motor housing to compensate for oil expansion. Apply pipe thread compound to threads of pipe plug and assemble to motor housing.

**NOTE:** Reference oil chart for suitable replacement oils.

| SUPPLIER     | GRADE            |
|--------------|------------------|
| BP           | Enerpar SE100    |
| Conoco       | Pale Paraffin 22 |
| Mobile       | D.T.E. Oil Light |
| G & G Oil    | Circulating 22   |
| Imperial Oil | Voltesso-35      |
| Shell Canada | Transformer-10   |
| Texaco       | Diala0 Oil-AX    |

## Seal Chamber

Set unit on its side with plug opening upward and fill completely with (see chart for type and amount) new oil. Apply pipe thread compound to threads of pipe plug and assemble to intermediate coupling.

# SGV 2HP Exploded View

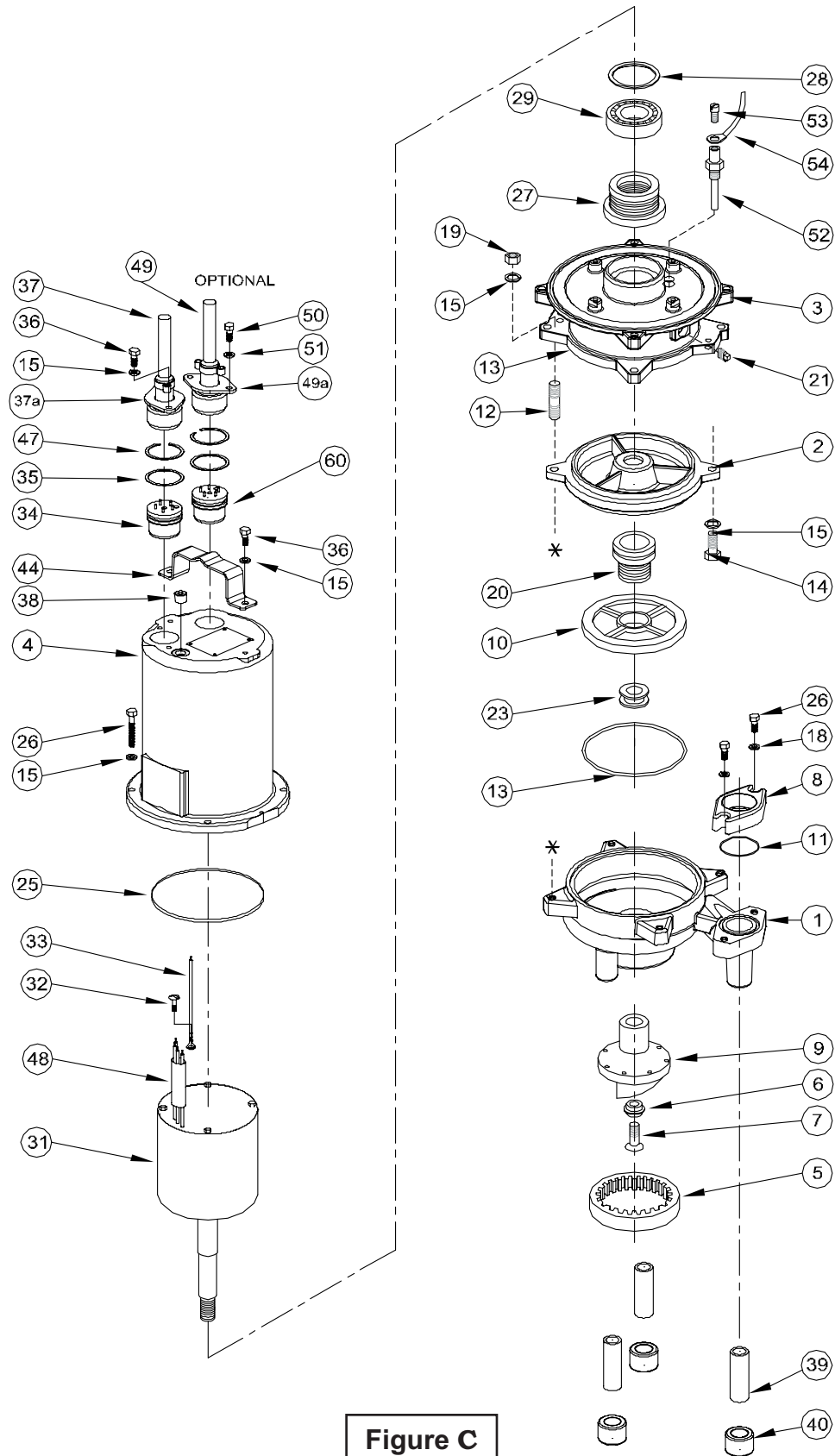


Figure C

## PARTS KITS

**Seal Repair Kit.....P/N: 113299**

Item #'s 6,7,13,14,15,19,20,21,25,26,27,32,35,47

**Overhaul Kit ..... P/N: 115946**

Item #'s 6,7,13,14,15,19,20,21,23,25,26,27,28,29,32,35,47,55

**Cutter Kit - SGVF .....P/N: 113300**

Item #'s 5,6,7,9,15,19,23

**Cutter Kit - SGVH.....P/N: 113300B**

Item #'s 5,6,7,9,15,19,23

## PARTS LIST

| ITEM | QTY              | PART NO.                                     | DESCRIPTION                                                                                                            |
|------|------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| 1    | 1                | 108344                                       | Volute                                                                                                                 |
| 2    | 1                | 108880                                       | Seal Plate                                                                                                             |
| 3    | 1                | 108879                                       | Intermediate Coupling                                                                                                  |
| 4    | 1                | 105196<br>105196HA                           | Motor Housing (STD)<br>Motor Housing (Option)                                                                          |
| 5    | 1                | 082085A<br>082085B                           | Shredding Ring (SGVF)<br>Shredding Ring (SGVH)                                                                         |
| 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                | 109026B<br>109026BTD                         | Impeller, 5.62" Dia. (SGVH)<br>Impeller, 5.18" Dia. (SGVF)                                                             |
| 11   | 1                | 625-01558                                    | O-Ring (-223)                                                                                                          |
| 12   | 4                | 108886                                       | Stud, 5/16-18 x 2.25" SS                                                                                               |
| 13   | 2                | 067564                                       | Square Ring                                                                                                            |
| 14   | 2                | 1-156-1                                      | Screw, 5/16-18 x 1" SS                                                                                                 |
| 15   | 14               | 026322                                       | Lockwasher, 5/16" SS                                                                                                   |
| 16   | A/R              | -----                                        | LOCTITE™ RC609                                                                                                         |
| 17   | A/R              | -----                                        | LOCTITE 242                                                                                                            |
| 18   | 2                | 062941                                       | 5/16" Flatwasher                                                                                                       |
| 19   | 4                | 15-19-1                                      | Hex Nut 5/16-18, SS                                                                                                    |
| 20   | 1                | 110395                                       | Seal, outer C\C\B (STD)                                                                                                |
| 21   | 3                | 003217                                       | Pipe Plug, .25" NPT                                                                                                    |
| 22   | A/R              | -----                                        | Permatex Sealent 2C                                                                                                    |
| 23   | 1                | 016079                                       | Shim set                                                                                                               |
| 24   | 3¼ Qts.<br>1 Qts | 029034                                       | Cooling Oil - Mtr. Housing<br>Cooling Oil - Seal Cavity                                                                |
| 25   | 1                | 027269                                       | Square Ring                                                                                                            |
| 26   | 6                | 1-131-1                                      | Screw, 5/16-18 x 1.25", SS                                                                                             |
| 27   | 1                | 111131                                       | Seal, inner C\C\B (STD)                                                                                                |
| 28   | 1                | 061143                                       | Retaining Ring                                                                                                         |
| 29   | 1                | Q10-36-E4                                    | Ball Bearing                                                                                                           |
| 31   | 1                | 110397BG<br>067571BG<br>067572BG<br>085700BG | Motor:<br>2HP, 200/240 Volt, 1 Phase<br>2HP, 200 Volt, 3 Phase<br>2HP, 240/480 Volt, 3 Phase<br>2HP, 600 Volt, 3 Phase |
| 32   | 1                | 016660                                       | Self Tapping Screw                                                                                                     |

| ITEM            | QTY.   | PART NO.            | DESCRIPTION                                                 |
|-----------------|--------|---------------------|-------------------------------------------------------------|
| 33              | 1      | 105111A             | Ground Wire Assy, 10GA.                                     |
| 34              | 1      | 103586              | Terminal Block                                              |
| 35              | 1 or 2 | 2-31051-224         | O-Ring                                                      |
| 36              | 2      | 1-156-1             | Screw, 5/16-18 x .75" SS                                    |
| 37              | 1      | 109492              | Cord Set, Power 15Ft. (STD)                                 |
| 37A             | 1      | 103582              | Compression Flange                                          |
| 38              | 1      | 014270              | Pipe Plug, C'sunk, 3/8" NPT                                 |
| 39              | 3      | 110660              | 1/2" x 2-1/2" Nipple                                        |
| 40              | 3      | 105814              | 1/2" PVC Pipe Cap                                           |
| 44              | 1      | 103503              | Lifting Handle                                              |
| 47              | 1 or 2 | 105197              | Retaining Ring                                              |
| 48              | 1 or 2 | 625-02117           | Sleeving                                                    |
| 55              | 4<br>3 | 105150<br>625-00163 | Terminal Conn., 200/240V, 3P<br>Terminal Conn., 480V, 3P    |
| 56              | 3      | 105149A             | Jumper Wire, 200/240, 3PH                                   |
| <b>OPTIONAL</b> |        |                     |                                                             |
| 49              | 1      | 103741<br>113288    | Cord Set, Temp, 15FT.<br>Cord Set, Moist & Temp, 15Ft.      |
| 49A             | 1      | 103582              | Compression Flange                                          |
| 50              | 2      | 1-156-1             | Screw, 5/16-18 x .75" SS                                    |
| 51              | 2      | 026322              | Lockwasher, 5/16" SS                                        |
| 52              | 2      | 087115              | Moisture Sensor Probe                                       |
| 53              | 2      | 038156              | Pan Hd Screw #6-32 x .38"                                   |
| 54              | 2      | 105106              | Wire Assy, Moist. Sensor                                    |
| 57              | 1      | 105111              | Ground Wire                                                 |
| 60              | 1      | 103584<br>113272    | Terminal Block, Temp Sensor<br>Terminal Block, Moist & Temp |

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

## Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

---

**CRANE PUMPS & SYSTEMS, INC.  
420 THIRD STREET  
PIQUA, OHIO  
45356 - U.S.A.**