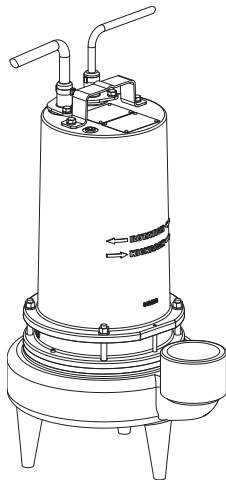


BARNES®

SEAL KIT P/N 130178
SERVICE KIT P/N 130174
Submersible Pump

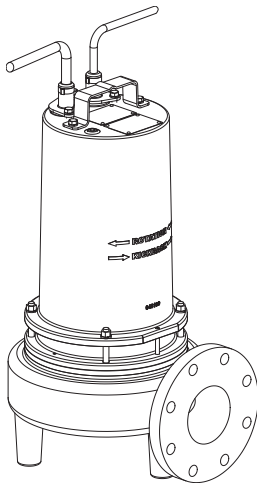


Series: 3SE-DS
1750 RPM, 60 Hz.

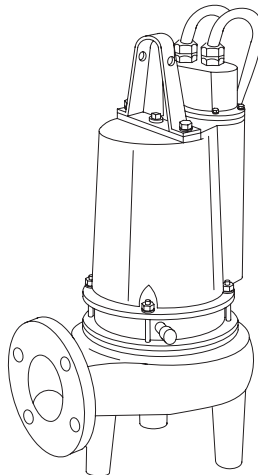


Series: 4SE-L
1.9 & 2.8HP,
1150 RPM, 60 Hz.

Series: 4SE-L
2.8, 3.7 & 5HP,
1750 RPM, 60 Hz.



Series: 4SE-L
5HP, 3450 RPM, 60 Hz.



Series: 4SE-L
1.6, 2.1 & 2.8HP
(1.2, 1.6 & 2.1kW),
1450 RPM, 50 Hz.

Double Seal

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

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Form No. 130185-Rev. C

TABLE OF CONTENTS

SAFETY FIRST 3

A. SERVICE and REPAIR4 - 11

- SPECIAL TOOLS AND EQUIPMENT**
INSULATION TESTER (MEGGER)
DIELECTRIC TESTER
SEAL TOOL KIT (107271)
PRESSURE GAUGE KIT (085343)

This manual covers the following models, there may be extra parts not needed for your specific model. If additional parts not included in this kit are required, please consult the explicit manual for your pump at:

http://www.cranepumps.com/downloadables/CATALOGS_OIPMs/PARTBOOK/BARNES.pdf

Series: 3SE-DS - Manual 088743, 133408

Series: 4SE-DS - Manual 084830, 133406

Seal Repair Kits P/N - 130178 (†)
Service Kits P/N - 130174 (♦)

PARTS INCLUDED IN KIT

QTY	PART NO.		DESCRIPTION
1	017026	†♦	Square Ring
1	022873	†♦	Diaphragm
2	033730	†♦	O-Ring
1	064434	†♦	Mech Seal
1	062435	†♦	Mech Seal
1	062641	†♦	Pull Washer
6	052990	♦	Wire Connector
1	057554	♦	Shaft Key
1	066130	♦	Retaining Ring
1	057882	♦	Retaining Ring
1	059186	♦	Shaft Key
1	038132	♦	Jam Nut
1	053746	♦	Ball Bearing
1	035589	♦	Woodruff Key
6	055844	♦	Wire Connector
1	20-24-1	♦	Split Lock Washer
4	074449	♦	Wire Connector
4	079318	♦	Terminal Connector
1	070320	♦	Impeller Washer
1	061829	♦	"V"-Ring
1	105149A	♦	Jumper Wire
1	105150	♦	Wire Crimp Connector
1	111951	♦	Barrel Crimp Terminal
2	2-31051-224	†♦	O-Ring
2	105197	♦	Retaining Ring

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 1999, 2002, 11/03, 6/05, 4/06, 9/06, 2/07

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

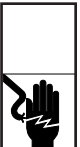


Rotating machinery Amputation or severe laceration can result.



Hazardous voltage can shock, burn or cause death.

Only qualified personnel should install, operate and repair the 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.



WARNING! Operation against a closed discharge valve will cause premature bearing and seal failure on any pump, and on end suction and self priming pump the heat build may cause the generation of steam with resulting dangerous pressures. It is recommended that a high case temperature switch or pressure relief valve be installed on the pump body.



CAUTION ! Never operate a pump with a plug-in type power cord without a ground fault circuit interrupter.



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.

Always wear eye protection when working on pumps.



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

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

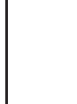
DO NOT remove cord and strain relief. Do not connect conduit to pump.



WARNING! Cable should be protected at all times to avoid punctures, cut, bruises and abrasions - inspect frequently. Never handle connected power cords with wet hands.



WARNING! 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.



WARNING! 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.



WARNING! 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.

SECTION: SERVICE AND REPAIR

1) Lubrication:

Anytime the pump is removed from operation, the cooling oil in the motor housing should be checked visually for oil level and contamination.

1.1) Checking Oil:

Motor Housing - To check oil, set unit upright. Remove pipe plug from motor housing. With a flashlight, visually inspect the oil in the motor housing to make sure it is clean and clear, light amber in color and free from suspended particles. Milky white oil indicates the presence of water. Oil level should be just above the motor when pump is in vertical position.

1.2) Testing Oil:

- 1.) Place pump on it's side, remove pipe plug, from motor housing and drain oil into a clean, dry container.
- 2.) Check oil for contamination using an oil tester with a range to 30 Kilovolts breakdown.
- 3.) If oil is found to be clean and uncontaminated (measuring above 15 KV. breakdown), refill the motor housing as per paragraph 1.4.
- 4.) If oil is found to be dirty or contaminated (or measures below 15 KV. breakdown), the pump must be carefully inspected for leaks at the shaft seal, cord assemblies, square ring and pipe plug, before refilling with oil. To locate the leak, perform a pressure test as per paragraph 1.3. After leak is repaired, dispose of old oil properly, and refill with new oil as per paragraph 1.4.

1.3) Pressure Test:

Pumps that have been disassembled, Motor Housing - If the pump has been disassembled, the oil should be drained before a pressure test, as described in paragraph 1.2. Remove pipe plug from motor housing. Apply pipe sealant to pressure gauge assembly and tighten into hole (See Figure 1). Pressurize motor housing to 10 P.S.I. Use soap solution around the sealed areas and inspect joints for "air bubbles". If, after five minutes, the pressure is still holding constant, and no "bubbles" are observed, slowly bleed the pressure and remove the gauge assembly. Replace oil as described in paragraph 1.4. If the pressure does not hold, then the leak must be located and repaired.

Pumps that have NOT been disassembled, Motor Housing- The pressure test may be done with the oil at its normal level. Remove pipe plug from motor housing. Apply pipe sealant to pressure gauge assembly and tighten into hole (See Figure 1). Pressurize motor housing to 10 P.S.I. Use soap solution around the sealed areas above the oil level and inspect joints for "air bubbles".

For sealed areas below the oil level, leaks will seep oil. If, after five minutes, the pressure is still holding constant, and no "bubbles"/oil seepage is observed, slowly bleed the pressure and remove the gauge assembly. If the pressure does not hold, then the leak must be located and repaired.

Seal Chamber (DS Units Only)- Set unit on its side with fill plug downward, remove plug and drain all oil from seal chamber. Apply pipe sealant to pressure gauge assembly and tighten into hole in outer seal plate. Pressurize seal chamber to 10 P.S.I. and check for leaks as outlined above.

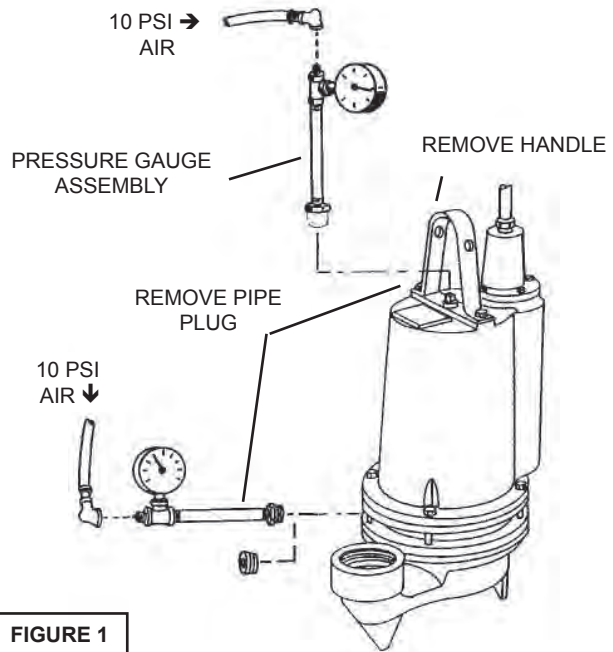


FIGURE 1



CAUTION ! Pressure builds up extremely fast, increase pressure by "tapping" air nozzle. Too much pressure will damage seal. **DO NOT** exceed 10 P.S.I.

1.4) Replacing Oil:

Motor Housing- Set unit upright and refill with new cooling oil as per Table 1. Fill to just 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 then assemble to motor housing.



Important ! - For single phase units, oil level should be below capacitor

Seal Chamber (DS Units Only)- Set unit on its side, with plug upward, and refill with new oil as per Table 1 (see parts list for amount). Apply pipe thread compound to threads of pipe plug and assemble to outer seal plate.



Warning ! - Do not overfill oil. Overfilling of motor housing with oil can create excessive and dangerous hydraulic pressure which can destroy the pump and create a hazard. Overfilling oil voids warranty.

TABLE 1 - COOLING OIL - Dielectric	
SUPPLIER	GRADE
Sohio / Standard	SE 40, Energol HL22 or HL32
Shell	Turbo Oil 32
Texaco	Rando HD32, 522
Sun Petroleum	Supar 110, Sunvis 816WR, 911 or 916
Mobile	D.T.E. Oil Light or Rubrex 200
G&G	Circu Oil 22
Allegheny Petroleum	Altrapar 22
Woco	Premium 100

2) Impeller and Volute Service:

2.1) Disassembly and Inspection:

To clean out volute, disconnect power, remove hex nuts, lockwashers and socket head cap screws, vertically lift motor and seal assembly from body. Clean out body if necessary. Clean and examine impeller for pitting or wear, replace if required. Inspect Square Ring and replace if cut or damaged.

If impeller requires replacing, remove cap screw and washer. The impeller is keyed onto the shaft with a square key and to remove, pull impeller straight off the shaft using a wheel puller, if required. Before reinstalling, check the motor shaft and impeller bore for damage.

2.2) Reassembly:

To install impeller, apply a thin film of oil to motor shaft and slide impeller straight onto shaft, keeping keyways lined up. Drive key into keyway. Locate washer, apply Loctite to shaft threads, thread hex nut to shaft and torque to 40 ft. lbs. Rotate impeller to check for binding.

Position square ring on volute flange and install impeller and motor housing over studs and onto volute. Apply thread locking compound to threads of each stud and socket head cap screw. Thread nut onto stud and thread socket head cap screw into volute, torque to 30 ft. lbs. Check for free rotation of motor and impeller.

3) Motor and Bearing Service:

3.1) Disassembly and Inspection:

To examine or replace the motor and bearing, disassemble pump, volute and impeller (as outlined in paragraph 2.1) and disassemble seal plate and shaft seal (as outlined in paragraph 4.1). Drain oil from motor as outlined in paragraph 1.2.

Position unit upright, using blocks to avoid resting unit on shaft. After removal of cable and box assembly from motor housing, remove cable lead wires from motor lead wires and moisture and temperature sensors wires (if equipped) from control cable by unscrewing connectors. The wiring connections should be noted to insure correct connections when reassembling. Vertically lift the outside motor housing from bearing bracket with lifting strap. Inspect square ring for damage or cuts. Remove the upper motor bolts and lift upper end bell from motor.

Vertically lift stator. Inspect winding for shorts and resistance. To test the temperature sensor (if equipped), check for continuity between the black and white wires. If found to be defective contact a motor service station or Barnes Pumps service department. Remove retaining ring from bearing bracket and pull motor rotor and lower bearing vertically from bearing bracket. Examine bearing and replace if required. If replacement is required, remove retaining ring from motor shaft and remove bearing from motor shaft using a wheel puller. Check rotor for wear. If rotor or the stator windings are defective, the complete motor must be replaced. Check motor capacitor on single phase units and replace if defective. While disassembled, check moisture sensor wires (if equipped), that they are secured to electrodes with screws.



Important ! - ALL parts must be clean before reassembly.

3.2) Reassembly:

Bearing - When replacing bearing, be careful not to damage the rotor or shaft threads. Clean the shaft thoroughly. Insert retaining ring onto motor shaft. Apply adhesive compound to the shaft and press bearing on the motor shaft, position squarely onto the shaft applying force to the inner race of the bearing only, until bearing seats against retaining ring.

Motor - Slide lower bearing and motor rotor squarely into the bearing bracket until bearing seats on the bottom. Insert retaining ring into bearing bracket.

Position motor housing and stator into pilot, aligning holes in bearing bracket. Apply thread locking compound on motor bolts and tighten. Torque motor bolts to 22 in-lbs. Place all motor leads above the motor. Position square ring on bearing bracket and lower housing over motor and into pilot. Make wire connections per paragraph 3.3.

3.3) Wiring Connections:

Check power cable and sensor cord for cracks or damage and replace if required.

Conduit Box Design:

Bring motor wires through wire opening in top of motor housing, position square ring in conduit housing and reconnect motor leads to power cord and moisture and temperature sensor leads to sensor cord (if equipped) using connectors as shown in Figure 3.

Terminal Block Design:

Make internal wiring connections which are independent of the terminal block as shown in Figure 3 using connectors and wire assemblies as required. Do not use wire nuts. Slip motor leads and ground wire into fiberglass sleeve. Lower motor housing down onto bearing bracket while aligning holes and stringing motor leads through the cord entry bore(s). (Slipping cords inside a 1 ft. length of .5" conduit makes this easier). Place socket head cap screws through seal plate into motor housing and torque to 75 in-lbs. Install inner seal assembly as outlined in paragraph 4.2. Install square ring, bearing bracket and square ring in position on pump. Place socket head cap screws through seal plate and torque to 75 in-lbs.

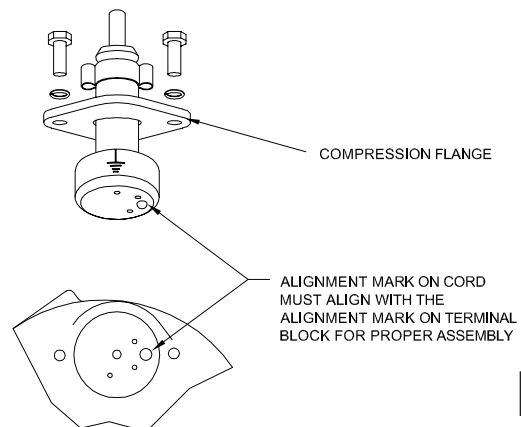


FIGURE 2

Reconnect motor and sensor leads to the underside of the terminal blocks, as shown in Figure 2. Note that the pins are numbered underneath the terminal block. Place o-ring into groove in terminal block and lubricate with dielectric oil. Press the terminal block into the housing so it seats completely below the retaining ring groove. Place retaining ring into groove in cord entry bore of housing. repeat terminal block installation for control cord, if equipped.

3.4) Conduit Box Design:

Refill with cooling oil as outlined in paragraph 1.4. Position conduit box and square ring over opening. Place lockwashers on cap screws, apply Loctite to cap screws threads and torque to 16 ft lbs. Remove gland nuts and friction rings, and grommets from conduit box inspect and replace if required (see Figure 4). Insert one friction ring, grommet, one friction ring and gland nut into conduit box for power cable. For sensor cable (if used), insert grommet, friction ring and gland nut Torque gland nuts to 15 ft. lbs to prevent water leakage.

Terminal Block Design:

Power/Control Cord - Refill the cooling oil as outlined in paragraph 1.4. Make wire connections as outlined in paragraph 3.3. Insert female end of cord plug into housing bore aligning timing mark with hole in terminal block, (See Figure 2). Compress cord plug with compression flange by tightening hex bolts into the motor housing. Torque to 132 in-lbs.

4) Shaft Seal and Diaphragm Service:



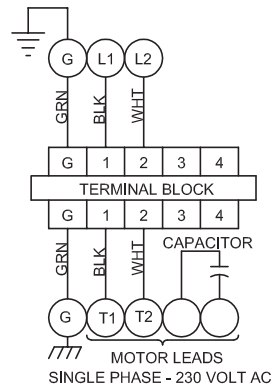
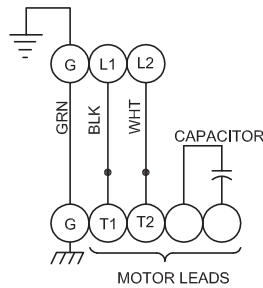
Important ! - Handle seal parts with extreme care. DO NOT scratch or mar lapped surfaces.

4.1) Disassembly and Inspection:

Diaphragm - To examine or replace the diaphragm or shaft seal, remove impeller as outlined in paragraph 2.1. Drain oil from seal chamber as outlined in paragraph 1.2. Remove cap screws and lifting strap or handle, power cord assembly and sensor cord assembly on terminal block design. Set unit upside down on blocks to avoid damaging conduit box cords. Remove socket head cap screws and lift seal plate vertically, being cautious to avoid seal damage, together with diaphragm, clamp and outboard stationary member of shaft seal, from bearing bracket. Examine diaphragm, if it is ruptured, cracked or damaged, replace by removing screws, lockwashers and diaphragm clamp. Also, clean out vent holes in seal plate. Check moisture sensor probes (if equipped) for damage. Replace by disconnecting wires by removing screws. Then

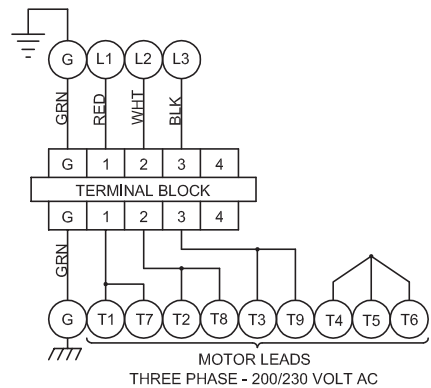
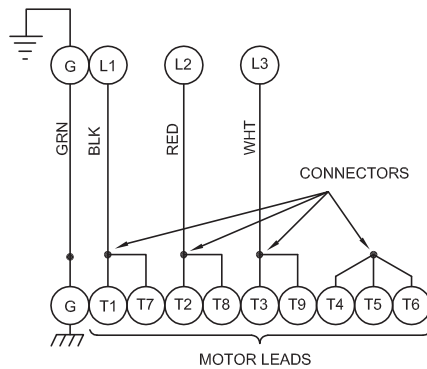
SINGLE PHASE, 230 VOLT AC

POWER CABLE	MOTOR LEAD NUMBER
GREEN (GROUND)	GREEN
BLACK	1
WHITE	2
FLAG TERMINAL	CAPACITOR
FLAG TERMINAL	CAPACITOR



THREE PHASE, 200/230 VOLT AC

POWER CABLE	MOTOR LEAD NUMBER
GREEN (GROUND)	GREEN
BLACK	1 & 7
RED	2 & 8
WHITE	3 & 9
	4, 5 & 6 TOGETHER



SINGLE PHASE, 460/575 VOLT AC

POWER CABLE	MOTOR LEAD NUMBER
GREEN (GROUND)	GREEN
BLACK	1
RED	2
WHITE	3
	4 & 7 TOGETHER (460V)
	5 & 8 TOGETHER (460V)
	6 & 9 TOGETHER (460V)

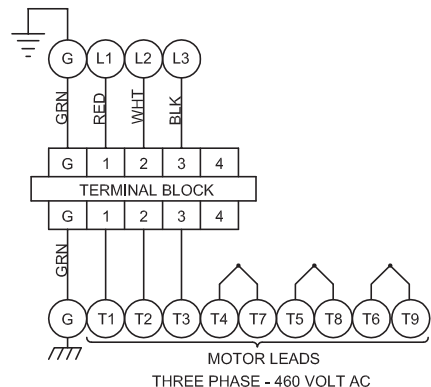
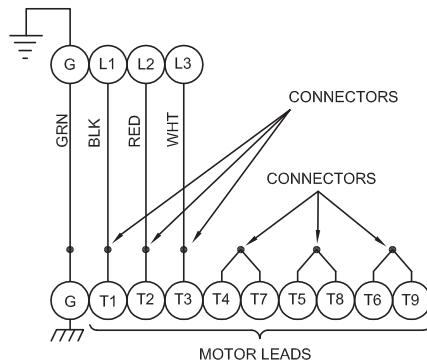
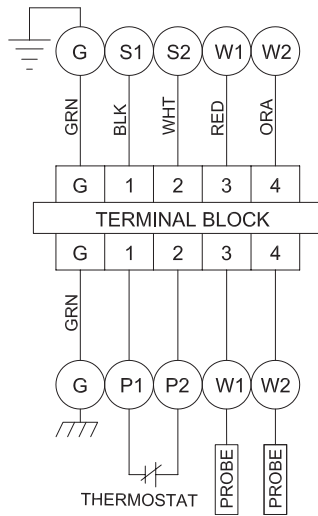
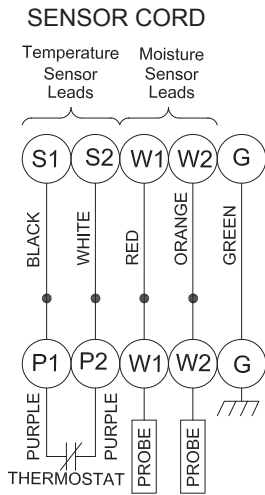


FIGURE 3



remove probe from bearing bracket. Pipe plugs replace sensor probes when pump is supplied without moisture sensors.

Seal - To expose shaft seal for examination, complete above procedure and slide off outboard rotating member (See Figure 6). Remove inboard rotating member, from shaft. Examine all seal parts and especially contact faces. Inspect seal for signs of wear such as uneven wear pattern on stationary members, chips and scratches on either seal face. **DO NOT** interchange seal components, replace the entire shaft seal.

4.2) Reassembly:

Diaphragm- At reassembly, make sure the bulge and molded-in part number of diaphragm is facing the seal plate. With diaphragm in place, lay diaphragm clamp in place on seal plate and insert the four cap screws and lockwashers and tighten. Apply pipe thread compound to moisture sensor electrode, if equipped (or pipe plugs), and insert in bearing bracket. Attach wires with screws to moisture electrodes.

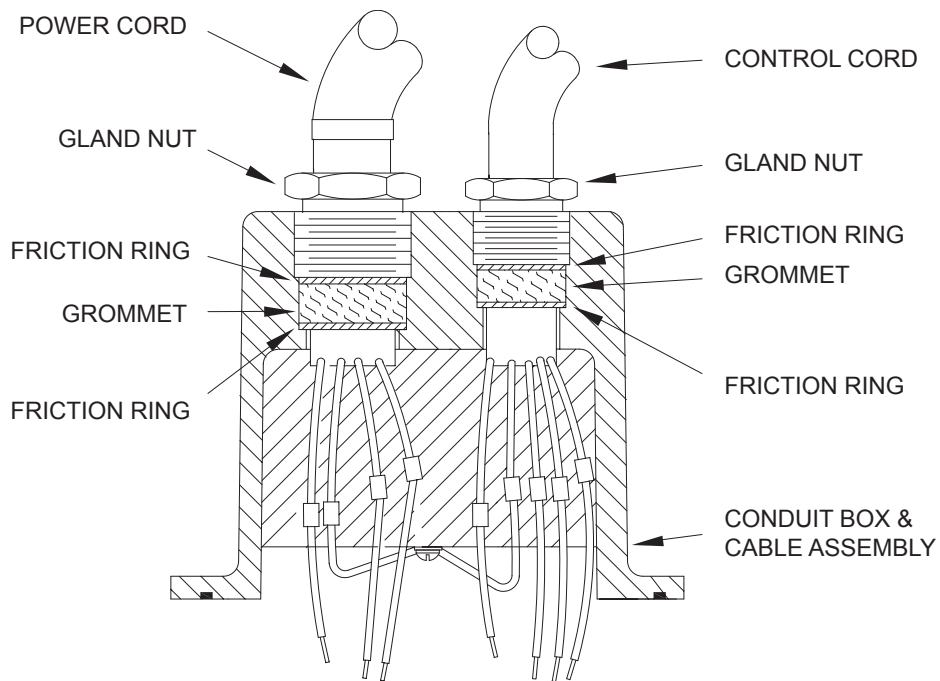


FIGURE 4

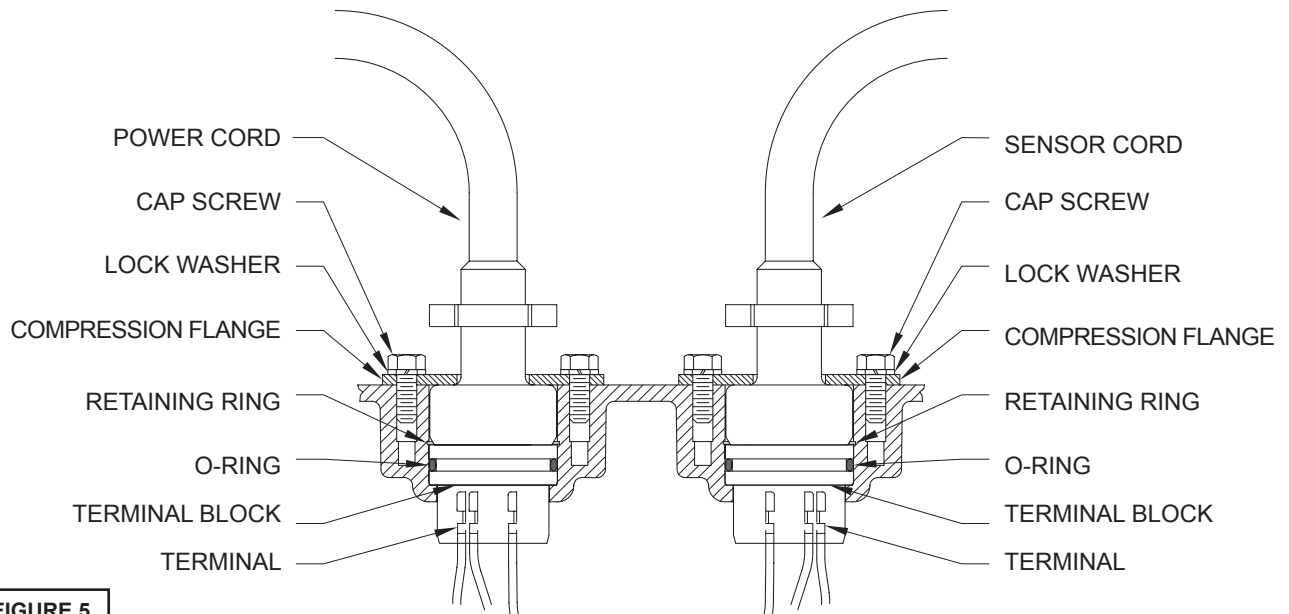


FIGURE 5

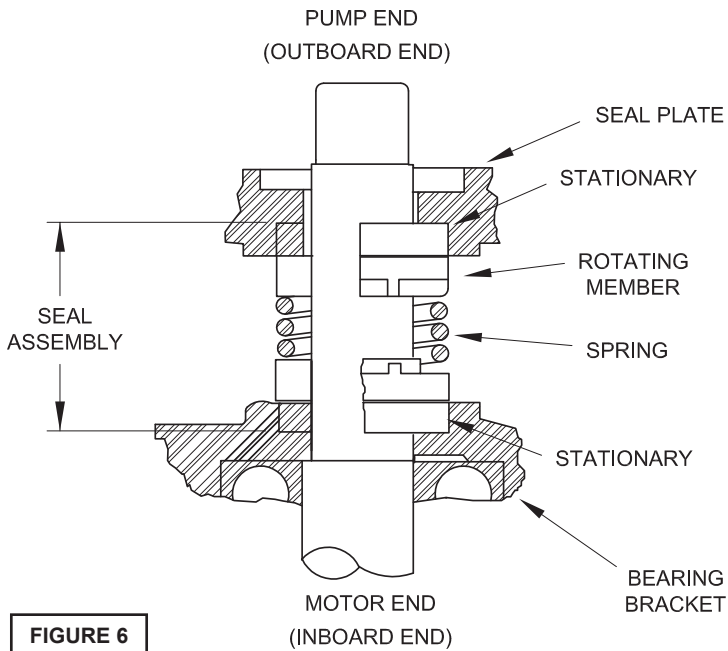


FIGURE 6

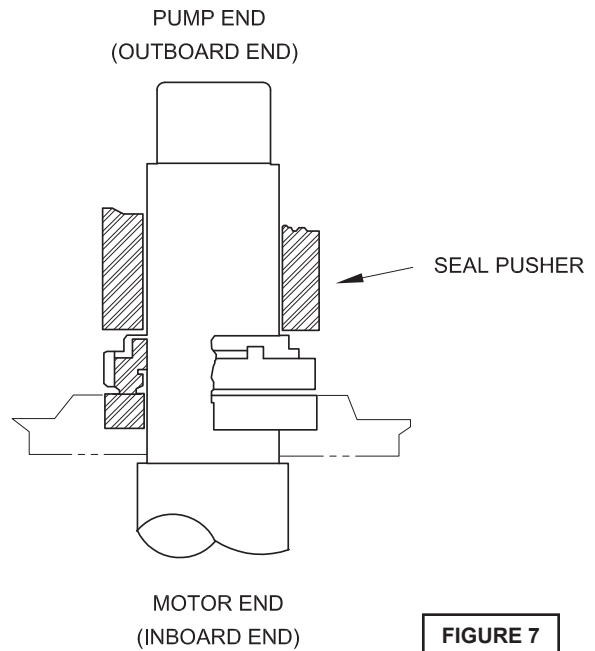


FIGURE 7

Seal - Clean and oil seal cavities in bearing bracket and seal plate. Lightly oil (**DO NOT use grease**) outer surface of inboard stationary member and outboard stationary member. Press inboard stationary member firmly into bearing bracket and outboard stationary into seal plate, using a seal pusher nothing but the seal pusher is to come in contact with seal face (See Figure 8).

Important ! - DO NOT hammer on the seal pusher- it will damage the seal face.

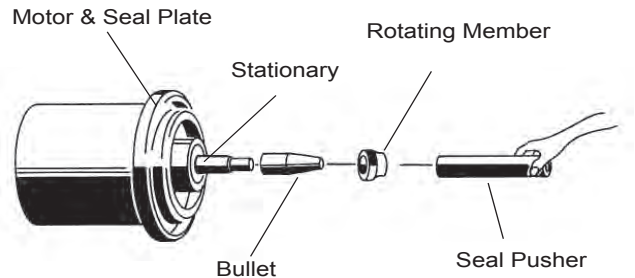


FIGURE 9

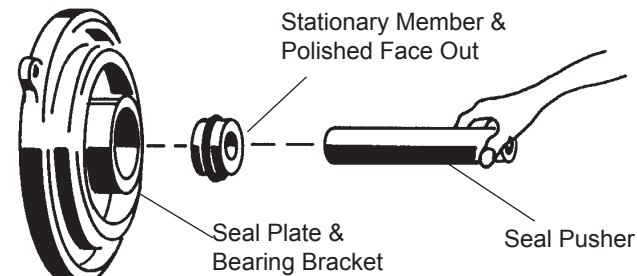


FIGURE 8

Make sure the stationary members are in straight and that the rubber ring is not out of its groove. Slide a bullet over motor shaft. Lightly oil (**DO NOT use grease**) shaft, bullet and inner surface of bellows on rotating member (See Figure 9). With lapped surface facing bearing bracket, slide rotating member over bullet and onto shaft, using seal pusher, until lapped faces of and are together (See Figure 7).

Important ! - It is extremely important to keep seal faces clean during assembly. Dirt particles lodged between these faces will cause the seal to leak.

Make sure driving lugs in retainer are matched in rotating member. Place spring over shaft and in place on rotating member, making sure it is seated in retainer and not cocked or resting on bellows tail. Re-oil shaft and lightly oil inner surface of outboard rotating member. With tail section toward bearing bracket, slide rotating member over bullet onto shaft with seal pusher until retainer engages spring and spring is compressed slightly. Make sure spring is properly engaged in both retainers. Insert O-ring onto bearing bracket. Slide seal plate over shaft onto bearing bracket, being careful not to damage outboard stationary member and align holes for socket head cap screws. Thread socket head cap screws into bearing bracket and tighten. Assemble impeller and volute per paragraph 2.2. Fill seal chamber with oil as outlined in paragraph 1.4.

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.

CRANE®

A Crane Co. Company

PUMPS & SYSTEMS

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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.**