



INSTALLATION, OPERATION & MAINTENANCE MANUAL

SKG SERIES SHREDDER PUMPS Electric Submersible Pumps

**Three Phase
208V, 230V, 460V & 575V**

CAST IRON

THREE PHASE

SKG15C
SKG22C
SKG37C

Read this manual carefully before installing, operating or servicing these pump models. Observe all safety information. Failure to comply with instructions may result in personal injury and/or property damage. Please retain these instructions.

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INTRODUCTION

This Installation, Operation and Maintenance manual provides important information on safety and the proper inspection, disassembly, assembly and testing of the BJM Pumps® SKG Series submersible pump. This manual also contains information to optimize performance and longevity of your **BJM Pumps®** submersible pump.

The submersible SKG Series pumps are designed to pump wastewater and industrial wastewater that includes up to 10% by volume of solids. The SKG Series pumps are not explosion-proof. They are not designed to pump volatile or flammable liquids.

Note: Consult chemical resistance chart for compatibility between pump materials and liquid before operating pump.

If you have any questions regarding the inspection, disassembly, and assembly or testing please contact your **BJM Pumps®** distributor, or Industrial Flow Solutions Operating, LLC.

Industrial Flow Solutions Operating, LLC
104 John W Murphy Drive
New Haven, CT 06513, USA

Phone: 860-399-5937
Fax: 860-399-7784

Information, including pump data sheets and performance curves, is also available on our web site: www.flowsolutions.com

For assistance with your electric power source, please contact a certified electrician.

Please pay attention to the following alert notifications. They are used to notify operators and maintenance personnel to pay special attention to procedures, to avoid causing damage to the equipment, and to avoid situations that could be dangerous to personnel.

NOTE: Instructions to aid in installation, operation, and maintenance or which clarify a procedure.

⚠ DANGER

Immediate hazards that **WILL** result in severe personal injury or death. These instructions describe the procedure required and the injury which will result from failure to follow the procedure.

⚠ WARNING

Hazards or unsafe practices that **COULD** result in severe personal injury or death. These instructions describe the procedure required, and the injury which could result from failure to follow the procedure.

⚠ CAUTION

Hazards or unsafe practices which **COULD** result in personal injury or product or property damage. These instructions describe the procedure required and the possible damage which could result from failure to follow the procedure.

SAFETY



Pump installations are seldom identical. Each installation and application can vary due to many different factors. It is the owner/service mechanics responsibility to repair, service, and test to ensure that the pump integrity is not compromised according to this manual.

⚠ WARNING Risk of electric shock – this pump has not been investigated for use in swimming pool areas.

⚠ DANGER Do not pump flammable, inflammable or volatile liquids. Death or serious injury will result.

⚠ WARNING Before attempting to open or service the pump:

- 1) Familiarize yourself with this manual.
- 2) Unplug or disconnect the pump power cable to ensure that the pump will remain inoperative.
- 3) Allow the pump to cool if overheated.

⚠ WARNING Do not operate the pump with a worn or damaged electric power cable. Death or serious injury could occur.

⚠ WARNING Never attempt to alter the length or repair any power cable with a splice. The pump motor and pump motor and cable must be completely waterproof. Damage to the pump or personal injury may result from alterations.

⚠ WARNING After the pump has been installed, make sure that the pump and all piping are secure before operation.

⚠ WARNING Do not lift the pump by the power cable piping or discharge hose. Attach proper lifting equipment to the lifting handle (or lifting rings) fitted to the pump. Do not suspend the pump by the power cable.

⚠ WARNING Obtain the services of a qualified electrician to troubleshoot, test and/or service the electrical components of this pump.

⚠ CAUTION Pumps and related equipment must be installed and operated according to all national, local and industry standards.



INSPECTION

Review all safety information before servicing pump.

The following are recommended installation practices/procedures for the pump. If there are questions in regards to your specific application, contact your local **BJM Pumps®** distributor or Industrial Flow Solutions Operating, LLC.

PRE-INSTALLATION INSPECTION

- 1) Check the pump for damage that may have occurred during shipment.
- 2) Inspect the pump for any cracks, dents, damaged threads, etc.
- 3) Check power cable (and Seal Minder® cable, if installed) for any cuts or damage.
- 4) Check for, and tighten any hardware that appears loose.
- 5) Carefully read all tags, decals and markings on the pump.
- 6) Important: Always verify that the pump nameplate amps, voltage, phase, and HP ratings match your control panel and power supply.

Warranty does not cover damage caused by connecting pumps and controls to an incorrect power source (voltage/phase supply).

Record the model numbers and serial numbers from the pumps and control panel on the front of this instruction manual for future reference. Give it to the owner or affix it to the control panel when finished with the installation.

If anything appears to be abnormal, contact your **BJM Pumps®** distributor or Industrial Flow Solutions Operating, LLC. If damaged, the pump may need to be repaired before use. Do not install or use the pump until appropriate action has been taken.

Industrial Flow Solutions Operating, LL Recommended Storage Procedures

Storage Environment

- The storage environment must be between 40°F - 120°F. DO NOT allow the pump to freeze.
- The pump must be stored in a dry location
- Avoid storing the pump in direct sunlight

For Storage Periods of 3 Years or Less

- Rotate the impeller shaft by hand every 6 months and again prior to start up
 - Keeps seal faces from sticking
 - Keeps bearing grease from settling
- Check the oil in seal chambers prior to startup to ensure oil is moisture free and has not broken down.
- Megger the motor prior to startup. The reading should be above 100 MΩ.



- Remove the air check screw on the motor housing. Using an air compressor, pressurize the motor chamber to 13 psi and check for leaks using a spray bottle. Repeat this procedure to check the seal chamber for leaks.
- Inspect the power cable for any damage.

For Storage Periods longer than 3 Years

- Disassemble the pump and replace all of the O-rings, the Mechanical Seal, Seal Chamber Oil, and the Lip Seal. Repack the Bearings.
- Remove the air check screw on the motor housing. Using an air compressor, pressurize the motor chamber to 13 psi and check for leaks using a spray bottle. Repeat this procedure to check the seal chamber for leaks.
- Rotate the impeller shaft by hand prior to startup.

Lubrication:

The shaft seal and bearings are fully lubricated from the factory. Seal oil should be checked once per year. See table: Oil Fill Quantity / Type. Prior to a dry run check, the shredder elements should be coated with a spray lubrication oil or a heavy soapy water solution. Do not run dry! Running dry can damage the shredder cutting elements.

OIL FILL QUANTITY/TYPE

MODEL	OIL IN SEAL CHAMBER		
	U.S. FL. OZ.	CC.	TYPE OF OIL
SKG15	25.0	750	ISO 32 NSF Food Grade Mineral Oil
SKG22	25.0	750	ISO 32 NSF Food Grade Mineral Oil
SKG37	28.3	850	ISO 32 NSF Food Grade Mineral Oil

Note: EPDM seals will use Propylene glycol instead of Shell FM32 oil

PUMP INSTALLATION

SKG Series pumps have been evaluated for use with water or water based solutions with solids. Please contact the manufacturer for additional information.

Lifting:

Attach a rope or lifting chain (not included) to the handle (or lifting rings) on the top of the pump.



Do not lift the pump by the power cable or discharge hose/piping. Proper lifting equipment (rope/chain) must be used.

POSITIONING THE PUMP

BJM Pumps® SKG Series pumps are designed to operate fully or partially submerged. Avoid running the pump dry. Refer to data sheet for minimum submersion depth for your particular model. Data sheets can be obtained online at www.flowsolutions.com or by calling Industrial Flow Solutions Operating, LLC at 860-399-5937. As a general rule, SKG Series SIDE discharge pumps can pump down to the center of the volute case. Pumping lower will permit air to enter the pump and cavitate, lose prime or become air bound, and may also damage the shredder cutting elements.

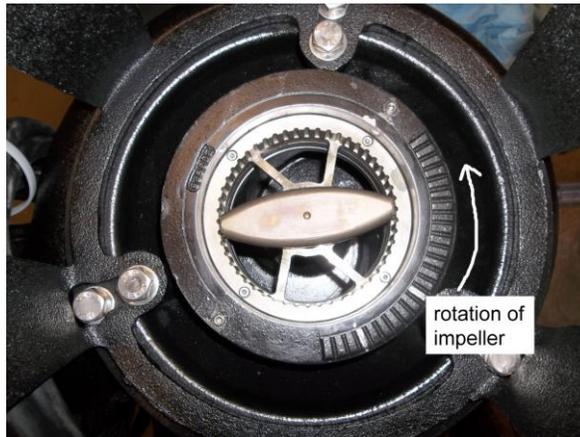
⚠ CAUTION

- Do not run pump dry.
- Pump liquid should not exceed a maximum temperature of 104°F.
- Never place the pump on loose or soft ground. The pump may sink, preventing water from reaching the impeller. Place on a solid surface or suspend the pump with a lifting rope/chain.
- For maximum pumping capacity, use the proper size non-collapsible hose or rigid piping. A check valve may be installed after the discharge to prevent back flow when the pump is shut off.
- Take stand off of pump when using slide rail. Keep stand and reattach when transporting or handling the pump.

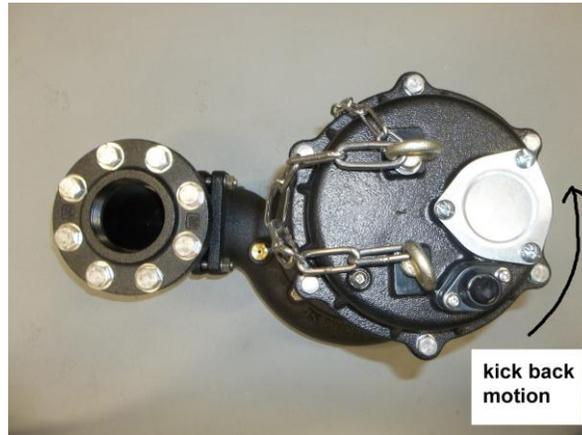
PUMP ROTATION

See lubrication requirements prior to checking pump rotation. There are two ways to check the correct pump rotation:

1. By looking at the shredder cutting bar or the pump impeller; the rotation of the impeller should be counter clockwise as shown in the picture below.



2. Since the impeller cannot be seen, the best way to check the rotation is to check the kick back motion of the pump when the pump just starts. The kick back motions should be viewed from the top. The kick back motion of the pump should be counter clockwise as shown in the picture above. When viewed from the suction side (bottom) the impeller rotation is counter clockwise.



PUMP OPERATION

⚠ WARNING

This pump is designed to handle dirty water that contains some solids. It is not designed to pump volatile or flammable liquids. Do not attempt to pump any liquids which may damage the pump or endanger personnel as a result of pump failure.

⚠ DANGER

Do not operate this pump where explosive vapors or flammable material exist. Death or Serious injury will result.

TYPICAL MUNICIPAL AND INDUSTRIAL WASTEWATER INTALLATION

NOTE: Maximum recommended starts should not exceed 10 times per hour.

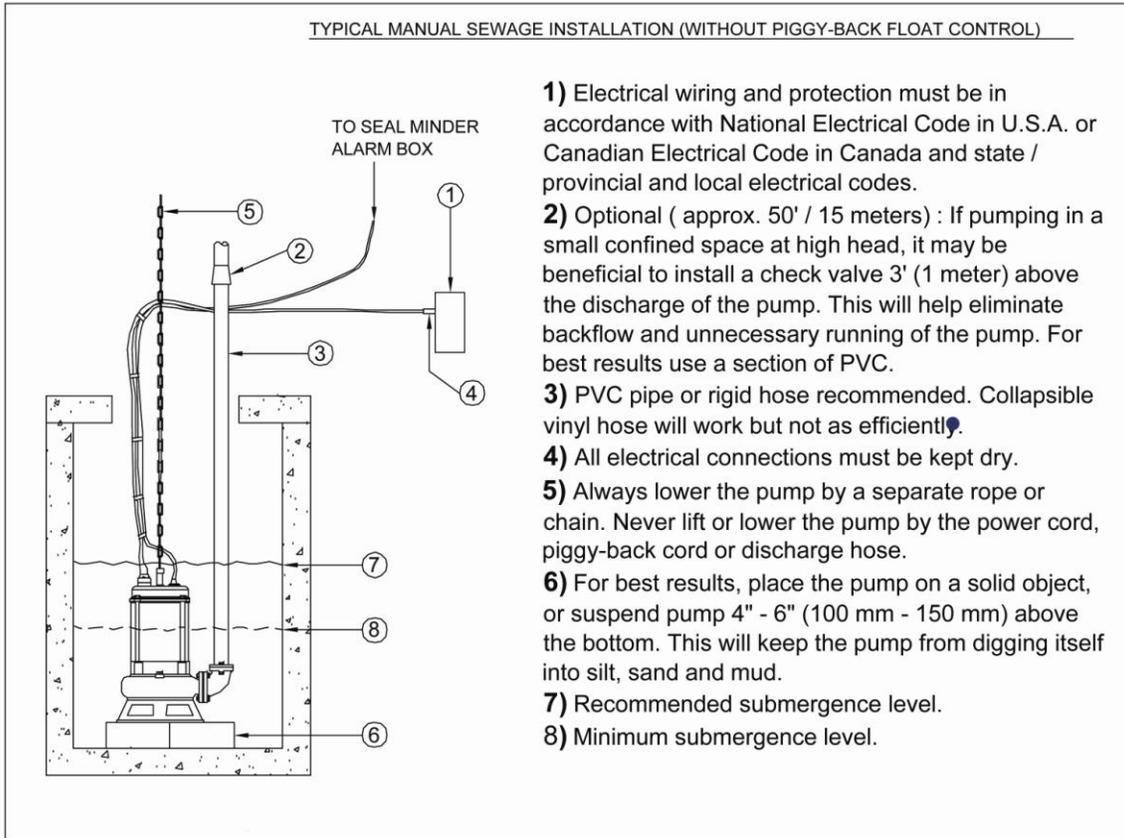
MANUAL OPERATION

⚠ WARNING

Do not alter the length or repair any power cable with a splice. The pump motor and cable must be completely waterproof. Damage to the pump or personal injury may result from alterations.

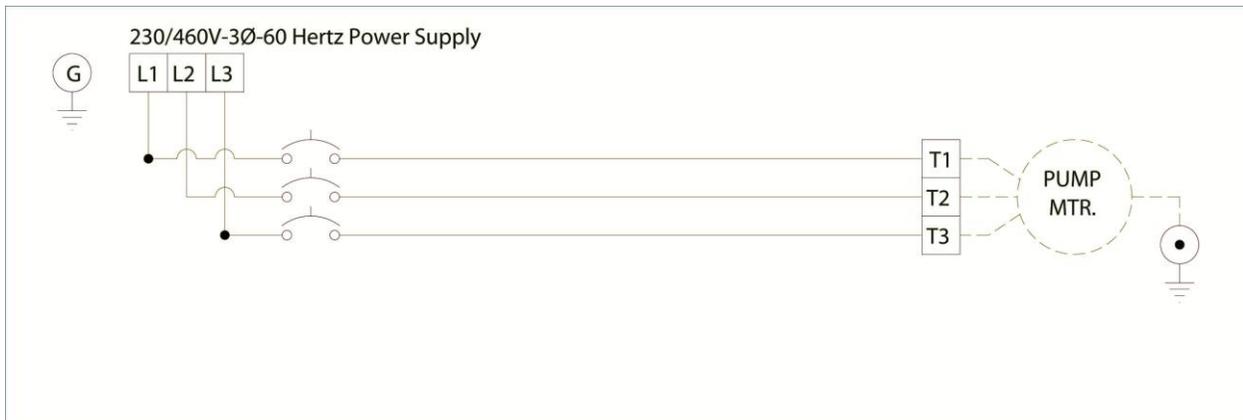
For manual operation: 208, 230, 460 & 575 volt: Attach the proper plug, connect directly to the power source or control box. Check the direction of the rotation. Tilt the pump and

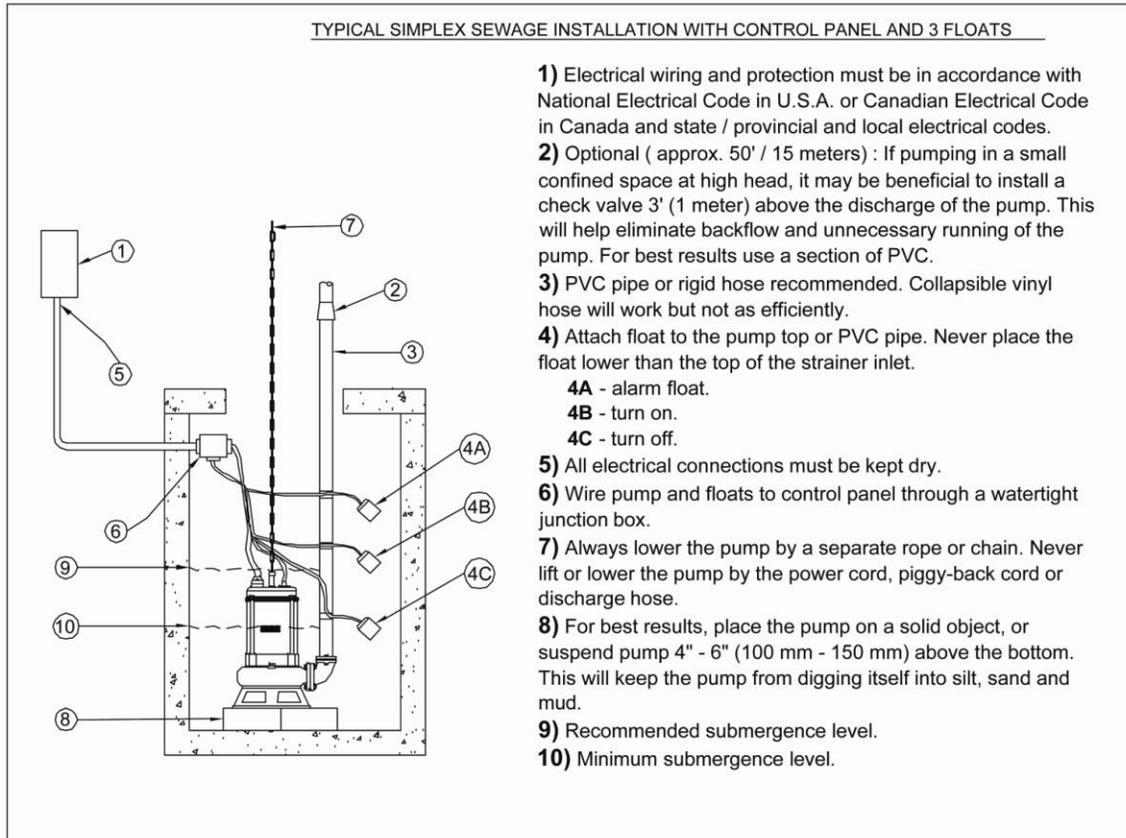
start it. It should twist in the opposite direction of the arrow (on pump). It is recommended that a Ground Fault Interrupter (GFI) type receptacle (or equivalent) be used.



STOPPING

To stop the pump (manual and automatic mode), unplug it from the power source, turn off the breaker, or turn the power source off (generator).





TYPICAL MUNICIPAL OR INDUSTRIAL WASTEWATER INSTALLATION

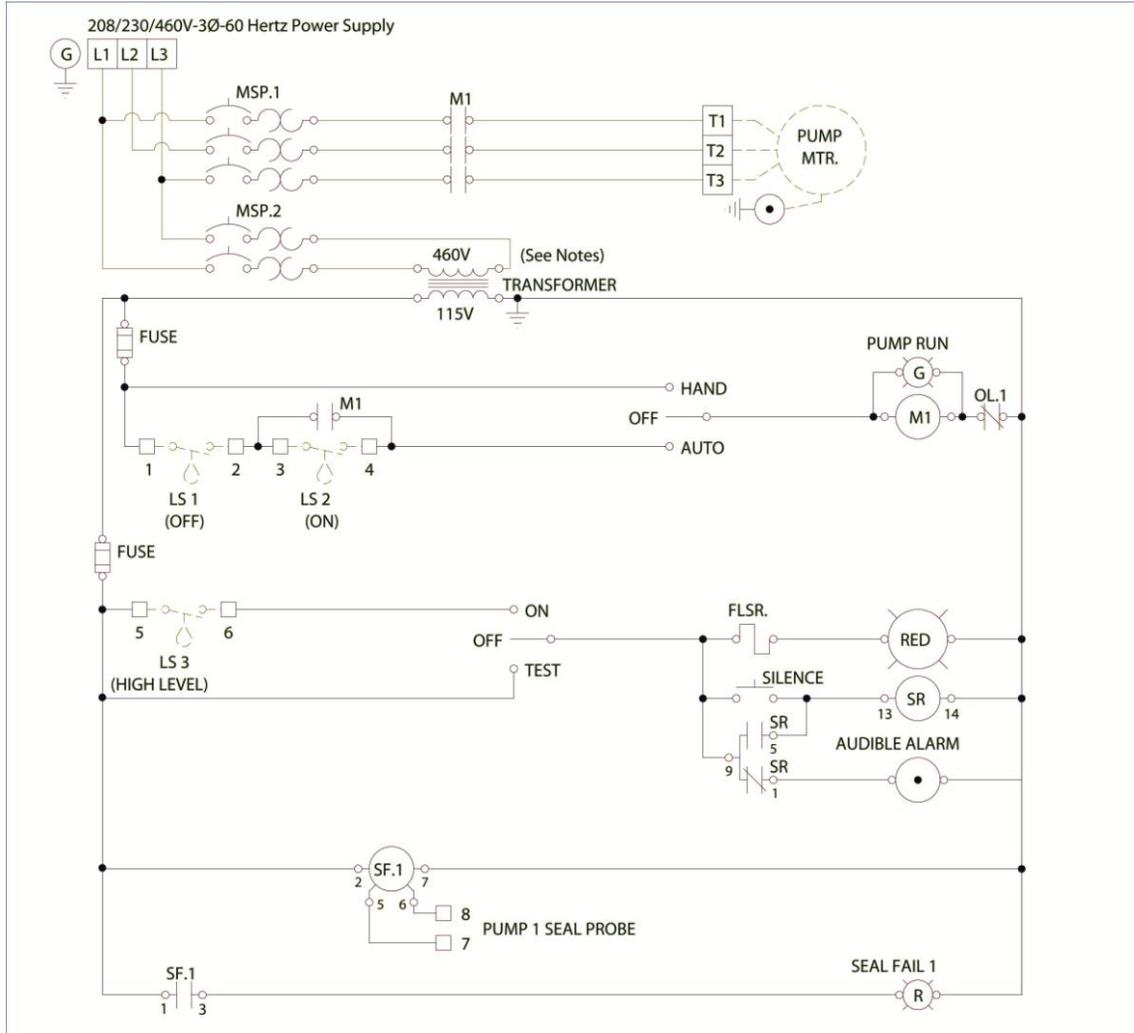
NOTE: Maximum recommended starts should not exceed 10 times per hour.

AUTOMATIC OPERATION

Three phase pumps need a separate control box with float(s) for automatic operation.

STOPPING

To stop the pump (manual and automatic mode), unplug it from the power source, turn off the breaker, or turn the power source off (generator).



Typical 3 phase Auto Control 1

INTENDED METHODS OF CONNECTION

⚠ CAUTION

Use with approved motor control that matches motor input in full load amperes. "UTILISER UN DÉMARREUR APPROUVÉ CONVENANT AU COURANT À PLEINE CHARGE DU MOTEUR."

BJM Pumps has been evaluated for use with water or water based solutions. Please contact the manufacturer for additional information.



THREE PHASE WIRING INSTRUCTIONS

⚠ WARNING FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING.

⚠ CAUTION “Risk of electrical shock” Do not remove power supply cord and strain relief or connect conduit directly to the pump.

⚠ WARNING Installation and checking of electrical circuits and hardware should be performed by a qualified licensed electrician.

To automatically operate a non-automatic three phase pump, a control panel is required. Follow the instructions provided with the panel to wire the system. For automatic three phase pumps see automatic three phase wiring diagram.

Before installing a pump, check the pump rotation to insure that wiring has been connected properly to power source, and that the green lead of power cord (See wiring diagram), is connected to a valid ground, momentarily energize the pump, observing the directions of kick back due to starting torque. Rotation is correct if kick back is in the opposite direction of rotation arrow on the pump casing. If rotation is not correct, switching of any two power leads other than ground will provide the proper rotation.

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

Three phase pumps have integral motor overload protection. It is recommended that all three phase pumps using a motor starting device also incorporate motor overload protection. Pumps **must** be installed in accordance with the National Electrical Code and all applicable local codes and ordinances. Pumps are not to be installed in locations classified as hazardous in accordance with National Electrical Code, ANSI/NFPA 70.

Connect pump to a junction box, outlet box, control box, enclosure with a wiring compartment that meets NEC and local codes. The provision for supply connection shall reduce the risk of water entry during temporary, limited submersion and shall comply with the applicable requirements of the Standard for Enclosures for Electrical Equipment, UL 50, or the standard for Metallic Outlet Boxes, UL 514A, and the standard for Motor-Operated Water Pumps. UL 778.

TROUBLE SHOOTING

⚠ WARNING Disconnect the power source to the pump **BEFORE** attempting any type of trouble shooting, service or repair.

PUMP WILL NOT RUN

1. Check power supply (fuses, breaker). Reset power.
2. Blocked impeller. Check and clean.
3. Defective cable or incorrect wiring.
4. Float switch tangled/obstructed. Clean and free float switch from obstruction.
5. Float switch defective. Replace float switch.
6. Pump overheated or temperature of liquid exceeds pump operating temperature.

Warning: Pump will restart automatically when motor over-heat protection switch cools.

PUMP RUNS BUT DOES NOT DELIVER RATED CAPACITY

1. Discharge line clogged, restricted or hose kinked. Check discharge hose/pipe.
2. Worn impeller and/or suction cover. Inspect and replace as necessary.
3. Pump overloaded due to liquid pumped being too thick.
4. Pumping air. Check liquid level and position of pump.
5. Excessive voltage drops due to long cables.
6. Three phase only; pump running backwards, check rotation.

SERVICING YOUR SUBMERSIBLE PUMP

Pump should be disconnected from the electric power supply before proceeding to do any service or maintenance.

To service or repair your pump, please contact your local **BJM Pumps** distributor. Service should only be performed by a qualified electrician.

MAINTAINING YOUR PUMP

- Pump should be disconnected from the electric power supply before proceeding to do any service or maintenance.
- Pump should be inspected at regular intervals.
- More frequent inspections are required if the pump is used in a harsh environment.
- Preventative maintenance should be performed to reduce the chance of premature failure.
- Worn impellers and lip seals should be replaced.
- Cut or cracked power cords must be replaced. **(Never operate a pump with a cut, cracked or damaged power cord.)**
- Seal oil should be checked once per year.
- Maintenance should always be done when taking a pump out of service before storage.

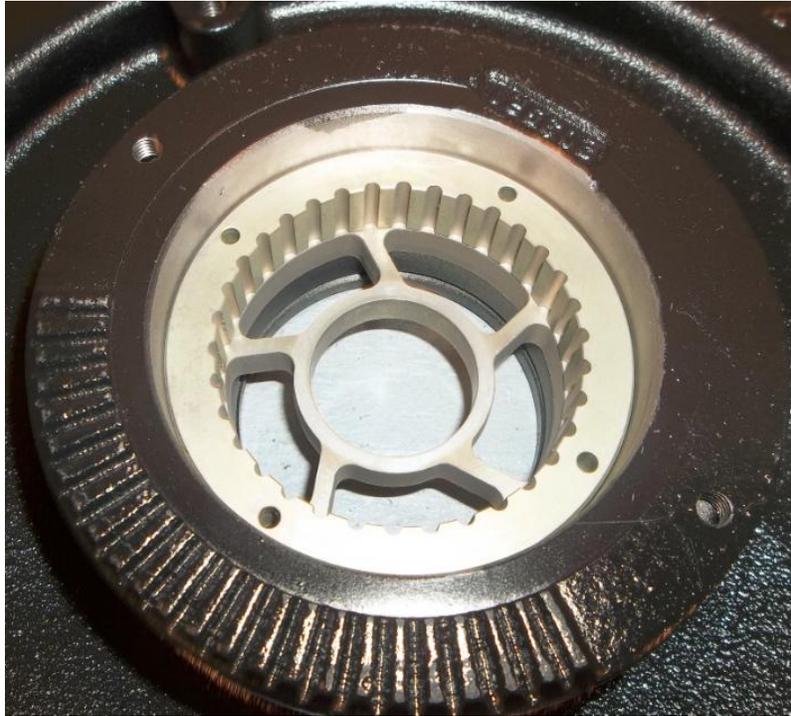
- The impeller to suction cover clearance should be adjusted to between 0.01” to 0.02” for optimal pumping performance. Shim kits are available if adjustment is required.
 - 1) Clean pump of dirt and other build up.
 - 2) Check condition of oil around the shaft seals.
 - 3) Check hydraulic parts: check for wear.
 - 4) Inspect power cable. Make sure that it is free of nicks or cuts.

Shredder Element Assembly and Adjustment

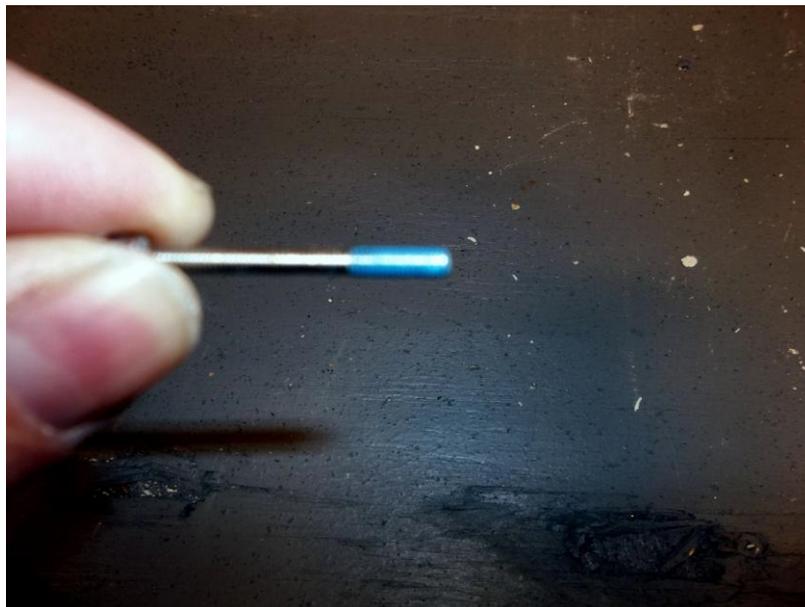
- 1. Installing the Stationary Shredding Elements into Shredder Housing –** Place the axial cutter ring into the shredder housing with the angle of the cutter legs slanting counter clockwise as shown in the picture. Note that this is a tight sliding fit, so the parts must be aligned carefully. A plastic mallet can be used to carefully tap the stationary rings into place. Once the axial shredder ring has been installed, it should be able to be rotated to align the mounting screw holes. The radial cutter ring can be installed in the same manner. Once each ring has been installed, the mounting holes should be aligned with the mounting holes in the shredder housing. With a drop of 242 (blue) Loctite on each of the four M3 retaining screws, these can be added. Tighten carefully these are small screws.



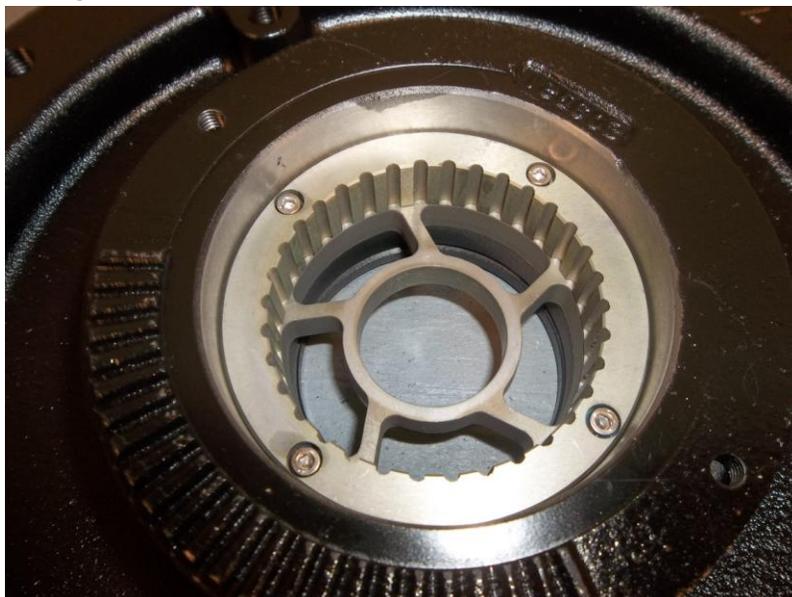
Axial shredding ring with leg slanted counter clockwise.



Radial shredder ring installed.

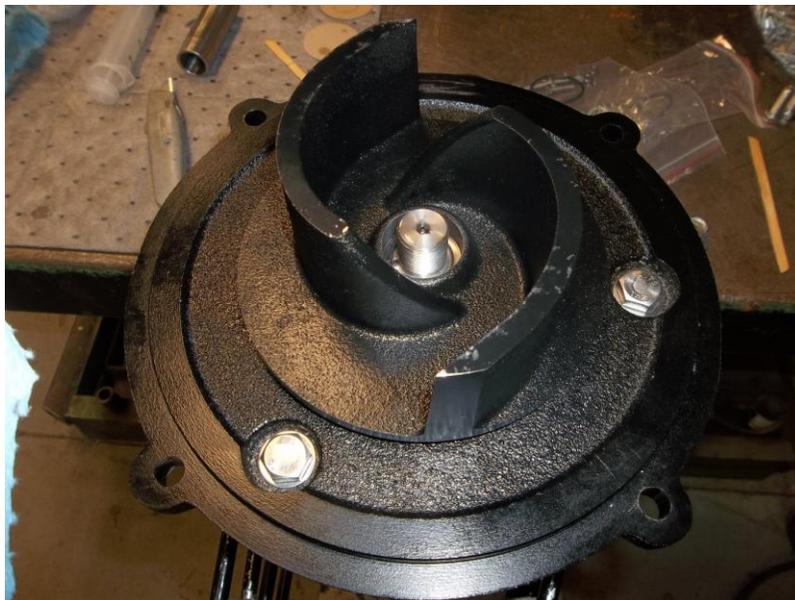


M3 hex socket fastener with 242 (blue) Loctite.



The shredder rings installed in the housing and retained with the four M3 screws.

- 2. Impeller Shimming** – With the volute installed on the motor, the impeller is added to the shaft. The suction cover is then added without the shredder housing in place. An initial reading is taken on the gap between the impeller and the suction cover with the feeler gauges. Shims are added and this step is repeated until the gap is between 0.010” and 0.020”. Once the impeller gap has been set, the suction cover can be mounted to the volute case.



Impeller shown on shaft. Note volute case has not been added to give clearer picture of the impeller on the shaft.



Feeler gauge shown between impeller vane and top of suction cover.

- 3. Installing the Shredder Housing** – First apply a light coating of the Jet Lube Marine Grade Anti-Seize to the shredder housing threads. Next thread the housing into the suction cover until the housing has hit the bottom of the threads. Add a light coating of the Jet Lube Marine Grade Anti-Seize to the inside threads on the shredding cutting bar. Thread the bar onto the shaft and tighten with the proper tools.



With the housing threaded completing into the suction cover, the shredder cutter bar can be threaded onto the shaft to retain the impeller.



The shredder cutting bar should be tightened to the proper torque using the special socket tool on an impact driver.



Once the shredder cutting bar has been tightened to the shaft, verify that it can spin freely. The cutter elements are sharp, so care should be taken not to cut fingers.

- 4. Shredder Cutting Element Adjustment** – With all of the elements installed, the housing should be rotated counter clockwise until the stationary axial cutting ring is tight against the shredding cutter bar (and the housing will not turn any more). Align the center of one of the stand mounting bosses with one of the 5 degree markers cast into the shredding housing. With a paint pen or a light colored Sharpie marker, mark the proper marker point that is aligned with the boss. Next count 6 degree markers counter clockwise and make a paint mark. Rotate the housing clockwise until the second mark is aligned with the boss. Add the 242 (blue) Loctite to the two M6 set screws and run them down until they hit. Once the lock screws have hit the suction cover housing, tighten $\frac{1}{4}$ turn. Carefully check to make sure the shredder cutting bar spins freely.



Mark the point where the stationary axial shredding ring interfaces with the shredding cutter bar.



Rotate the shredder housing clockwise 6 markers.



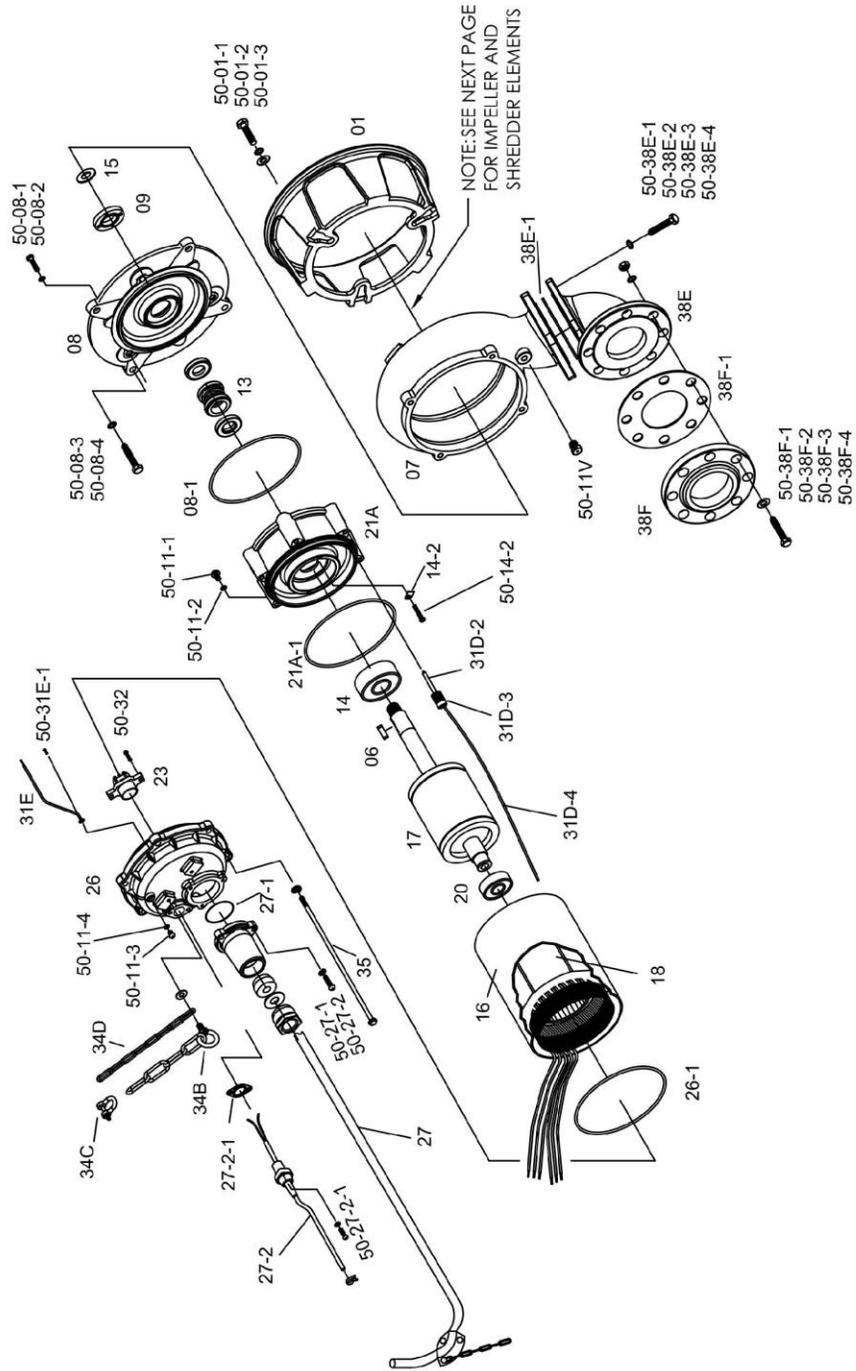
**Thread the locking screws down until contact is made with the suction cover.
Tighten ¼ turn.**

CHANGING SEAL OIL

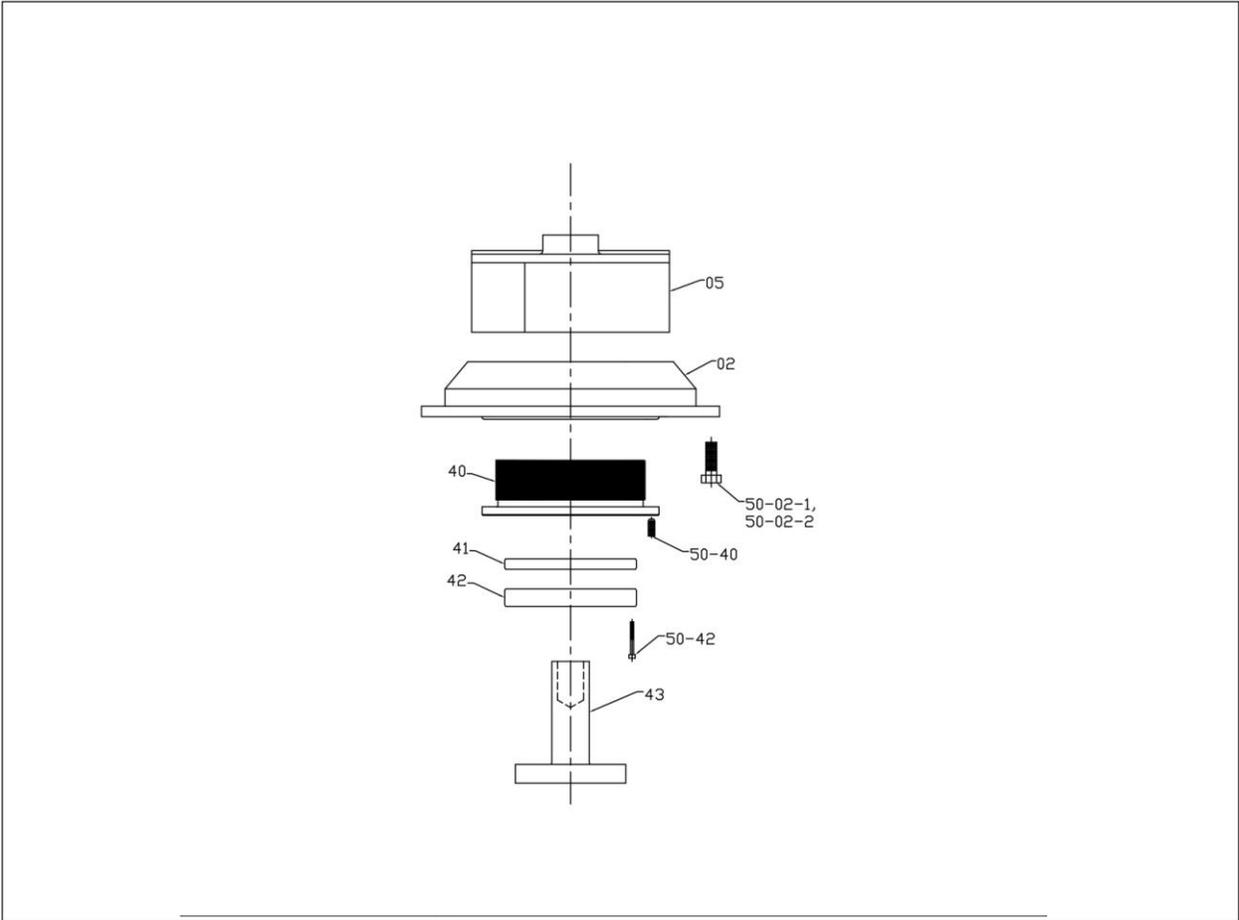
Changing the seal oil in the SKG series pumps is very easy.

- 1) Make sure that the pump cable is disconnected from the power source.
- 2) Lay the pump on its side with the oil inspection bolt facing up.
- 3) Remove the oil inspection bolt.
- 4) Pour out or draw out with a syringe, a small sample of oil. If it's milky white, or contains water/contaminants, then the oil should be changed and the mechanical seal should be checked and changed if needed.
- 5) Replace the oil. See oil fill quantity/type chart for the oil volume and oil type.
- 6) Replace the oil inspection bolt.

SKG15C, SKG22C & SKG37C



EXPLODED VIEW OF SKG 15C, 22C, 37C



IMPELLER & SHREDDER ELEMENTS OF SKG 15C, 22C, 37C

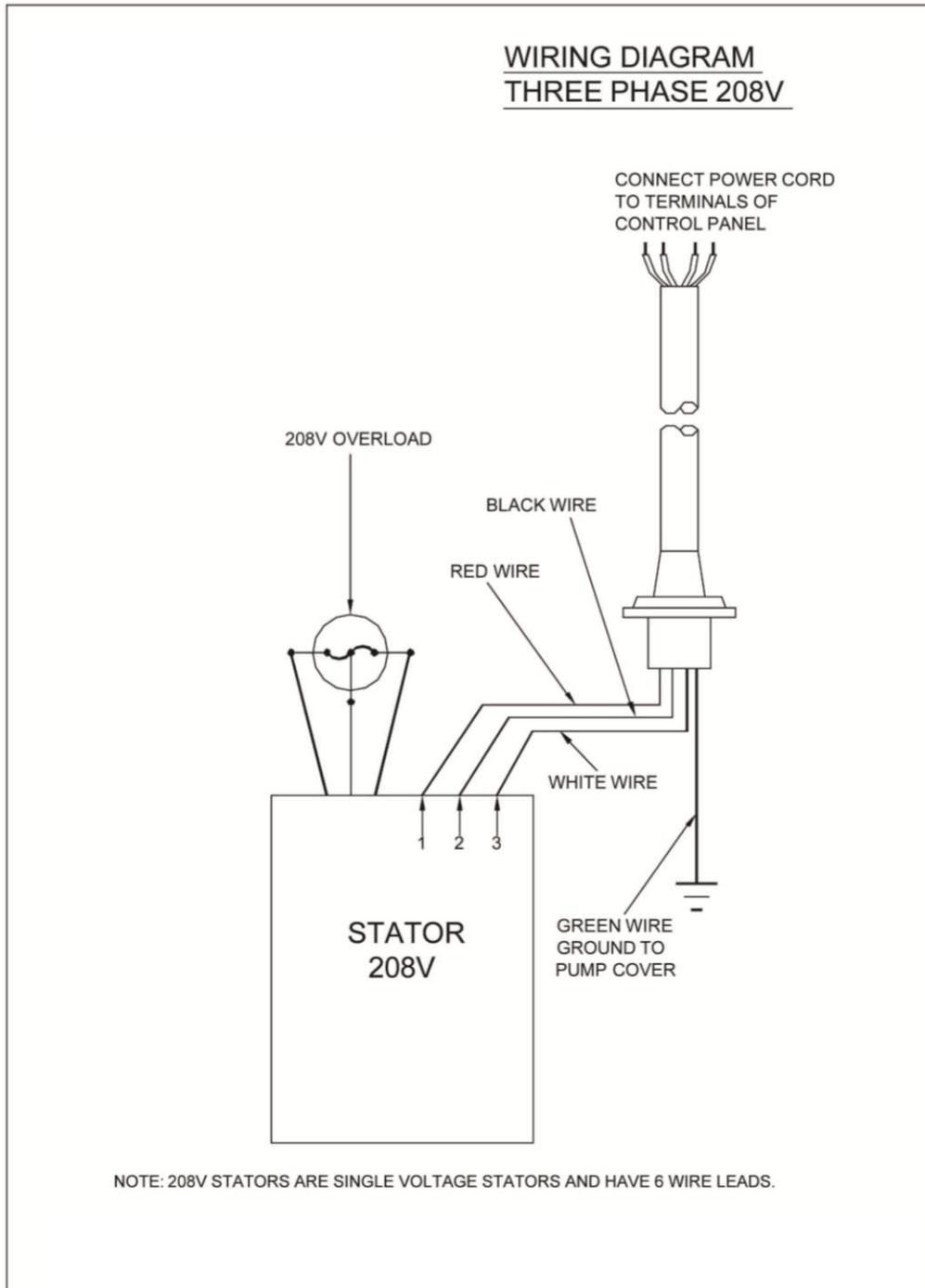
SKG SERIES PARTS LIST

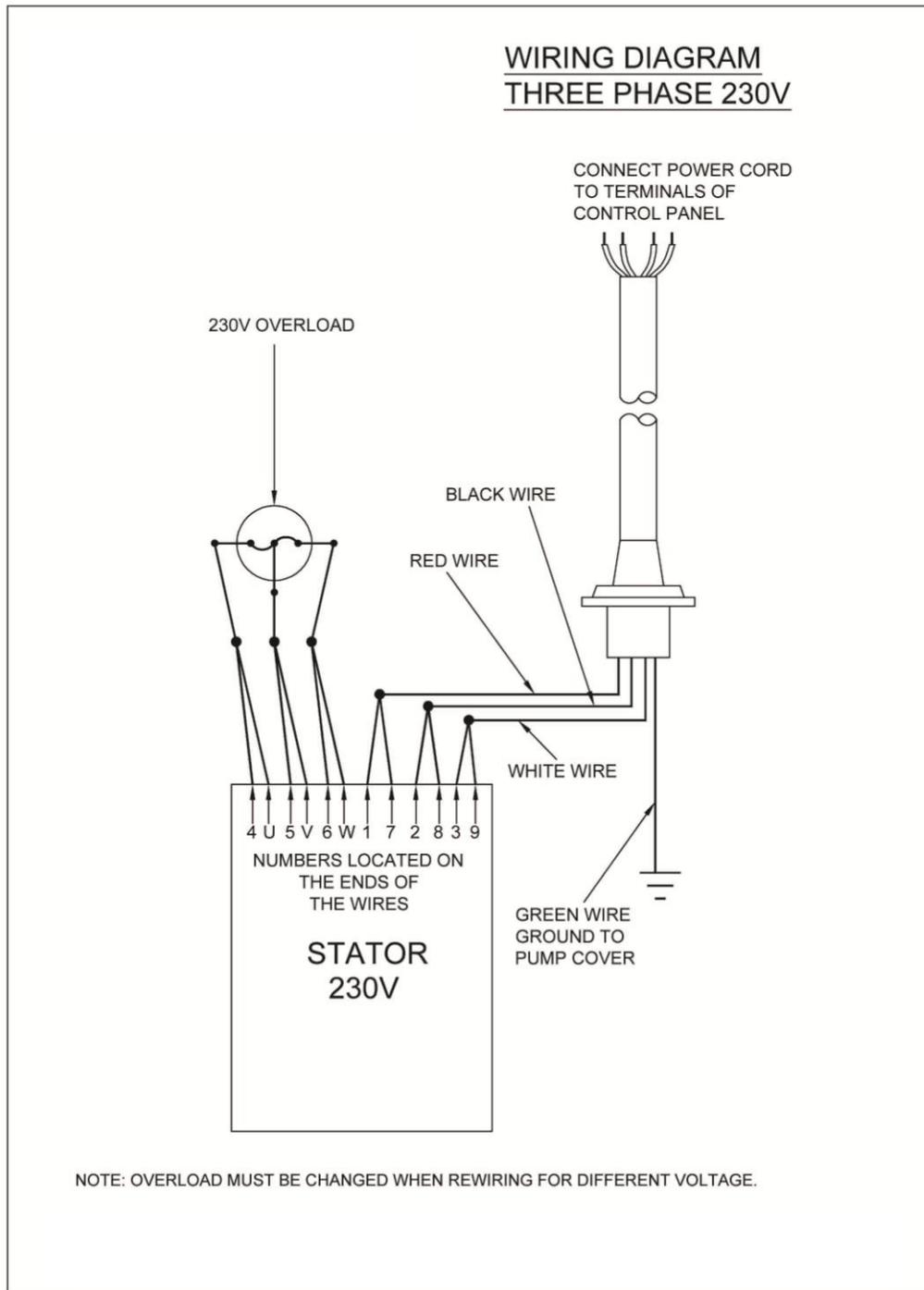
	Pump Model	SKG15	SKG22	SKG37
Item No.	Part Description	Item #	Item #	Item #
01	Stand/Base	204574	204574	204574
02	Suction Cover	203928	203930	203932
05	Impeller - Full Trim	203895	203897	203899
05	Impeller - 5.13" Diameter	204723	204723	-
05	Impeller - 4.38" Diameter	204724	204724	-
05	Impeller - 6.38" Diameter	-	-	204725
05	Impeller - 5.50" Diameter	-	-	204726
06	Impeller Key	202141	202141	204575
07	Pump Housing	204576	204576	204577
08	Seal Housing Cover	204578	204578	204578
08-1	O-Ring (Kit Only)	-	-	-
09	Lip Seal Buna-N	202248	202248	202251
09	Lip Seal FKM (Optional)	202250	202250	202254
09	Lip Seal EPDM (Optional)	204647	204647	204648
13	Mechanical Seal - FKM	200304	200304	200307
13	Mechanical Seal - Buna-N (Optional)	200305	200305	200308
13	Mechanical Seal - EPDM (Optional)	200306	200306	200309
14	Lower Ball Bearing	200961	200961	200962
14-2	Lower Bearing Retainer	202279	202279	202279
15	Impeller Shim Kit (Required)	200479	200479	204580
17	Rotor w/Shaft	204581	204582	204583
18	Stator w/ Casing 208V	204584	204736	204739
18	Stator w/ Casing 230/460V	204585	204737	204740
18	Stator w/ Casing 575V	204586	204738	204741
20	Upper Ball Bearing	200958	200958	200958
20-2	Spring Washer	203755	203755	203755
21A	Seal Housing	204587	204587	204588
21A-1	O-Ring (Kit Only)	-	-	-
23	Overload Protector 208V, 3PH	202388	202390	202392
23	Overload Protector 230V, 3PH	202388	202390	202392
23	Overload Protector 460V, 3PH	202386	202389	202391
23	Overload Protector 575V, 3PH	202387	202386	202389
26	Top Cover	202445	202445	202445
26-1	O-Ring (Kit Only)	-	-	-
27	Power Cable Assembly - 14/4 SOOW	204347	204347	-
27	Power Cable Assembly - 12/4 SOOW	-	-	204348
27-1	O-Ring (Kit Only)	-	-	-
27-2	Seal Minder Cable - 18/2	201711	201711	201711
31D	Seal Minder Probe	202410	202410	202410
31E	Ground Wire w/Ring Terminal	203145	203145	203145
32	Power Cable Strain Relief	204161	204161	202497

31D	Seal Minder Probe	202410	202410	202410
31E	Ground Wire w/Ring Terminal	203145	203145	203145
32	Power Cable Strain Relief	204161	204161	202497
33	Seal Minder Cable Clip	203163	203163	203163
34	Lifting Chain	202509	202509	202509
35	Rod Bolts	202670	202671	202673
38E	Discharge Elbow	202557	202557	202557
38E-1	Gasket, Discharge Elbow	203208	203208	203208
38F	Discharge Flange - 3"	203188	203188	203188
38F	Discharge Flange - 4" (Optional)	202606	202606	202606
38F-1	Discharge Gasket - Buna-N	201564	201564	201564
38F-1	Discharge Gasket - FKM	201565	201565	201565
40	Shredder Housing	203922	203924	203926
41	Axial Shredder Ring	203913	203914	203915
42	Radial Shredder Ring	203916	203917	203918
43	Shredder Bar	203910	203911	203912
50-01-1	Cap Screw, Stand, M10x1.5x30	203262	203262	203262
50-01-2	Split Lock Washer M10	202909	202909	202909
50-01-3	Flat Washer M10	202910	202910	202910
50-02-1	Cap Screw, Suc. Cover, M10x1.5x25	203298	203298	203298
50-02-2	Split Lock Washer M10	202909	202909	202909
50-08-1	Cap Screw, Seal Cover, M10x1.5x30	203262	203262	203262
50-08-2	Flat Washer M10	202910	202910	202910
50-08-3	Cap Screw, Housing, M10x1.5x30	203262	203262	203262
50-08-4	Split Lock Washer M10	202909	202909	202909
50-11-1	Cap Screw, Oil Inspection	203282	203282	203282
50-11-2	O-Ring (Kit Only)	-	-	-
50-11-3	Screw, Inspection	203218	203218	203218
50-11-4	O-Ring (Kit Only)	-	-	-
50-11V	Valve, Air Release	202707	202707	202707
50-14-2	Cap Screw, Lower Bearing Retainer	203219	203219	203219
50-23	Screw, Overload	202700	202700	202700
50-27-1	Screw, Power Cable Housing	203220	203220	203220
50-27-2	Split Lock Washer M6	202900	202900	202900
50-27-2-2	Screw, Seal Minder Cable	203216	203216	203216
50-31E-1	Screw, Ground	202692	202692	202692
50-38E-1	Cap Screw, M12x1.75x55	203255	203255	203255
50-38E-2	Flat Washer M12	202912	202912	202912
50-38E-3	Split Lock Washer M12	202905	202905	202905
50-38E-4	Nut, M12x1.75	202892	202892	202892
50-38F-1	Cap Screw, M16x2x60	203270	203270	203270
50-38F-2	Flat Washer M16	202908	202908	202908
50-38F-3	Split Lock Washer M16	202906	202906	202906
50-38F-4	Nut, M16x2	202893	202893	202893
50-40	Set Screw, M6x1x12MM	204374	204374	204374
50-42	Socket Head Screw, M3x.5x30mm	204375	204375	204375
	O-Ring Kit - Buna	204589	204589	204589
	O-Ring Kit - FKM (Optional)	204590	204590	204590

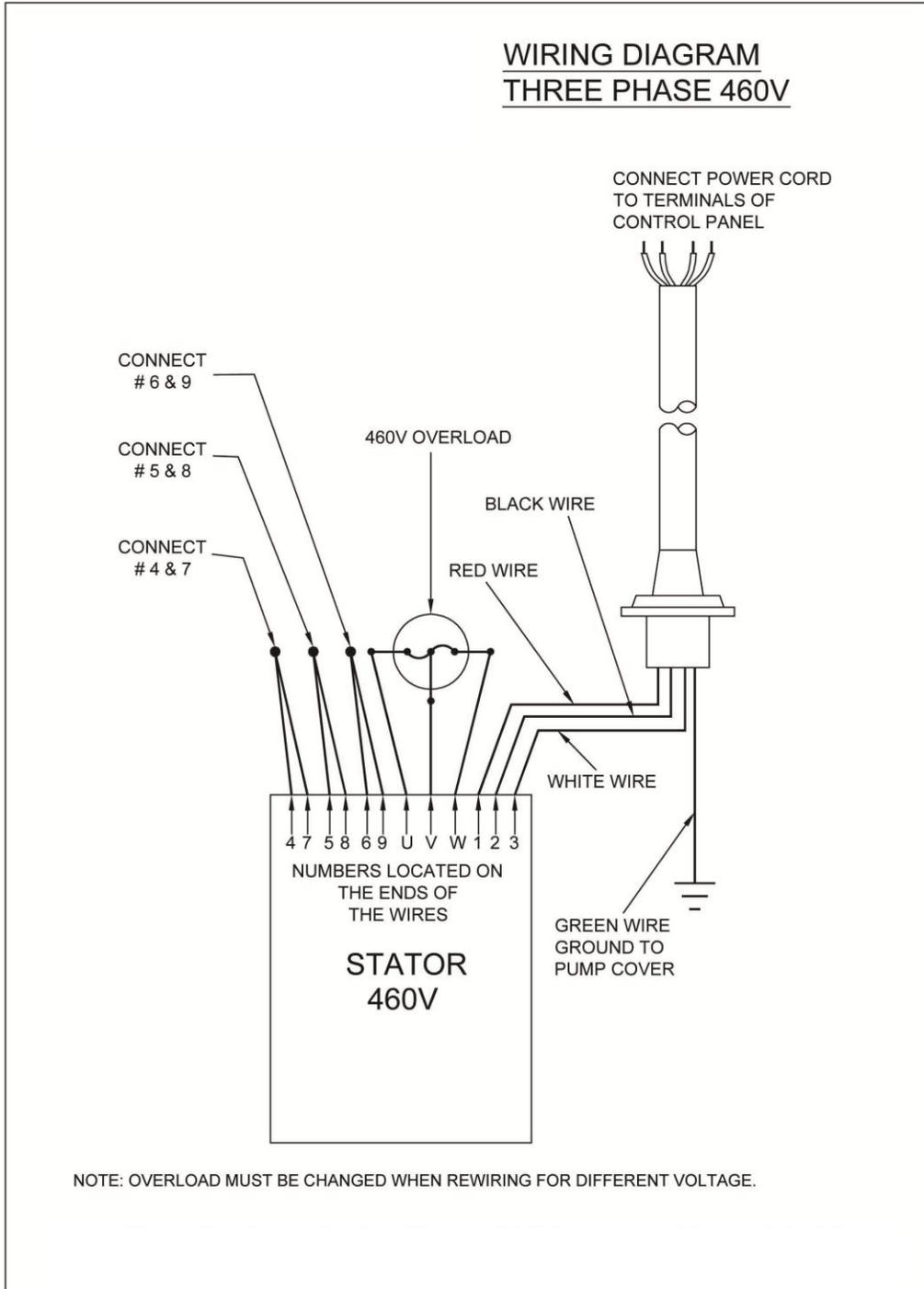
THREE PHASE WIRING DIAGRAMS

208V

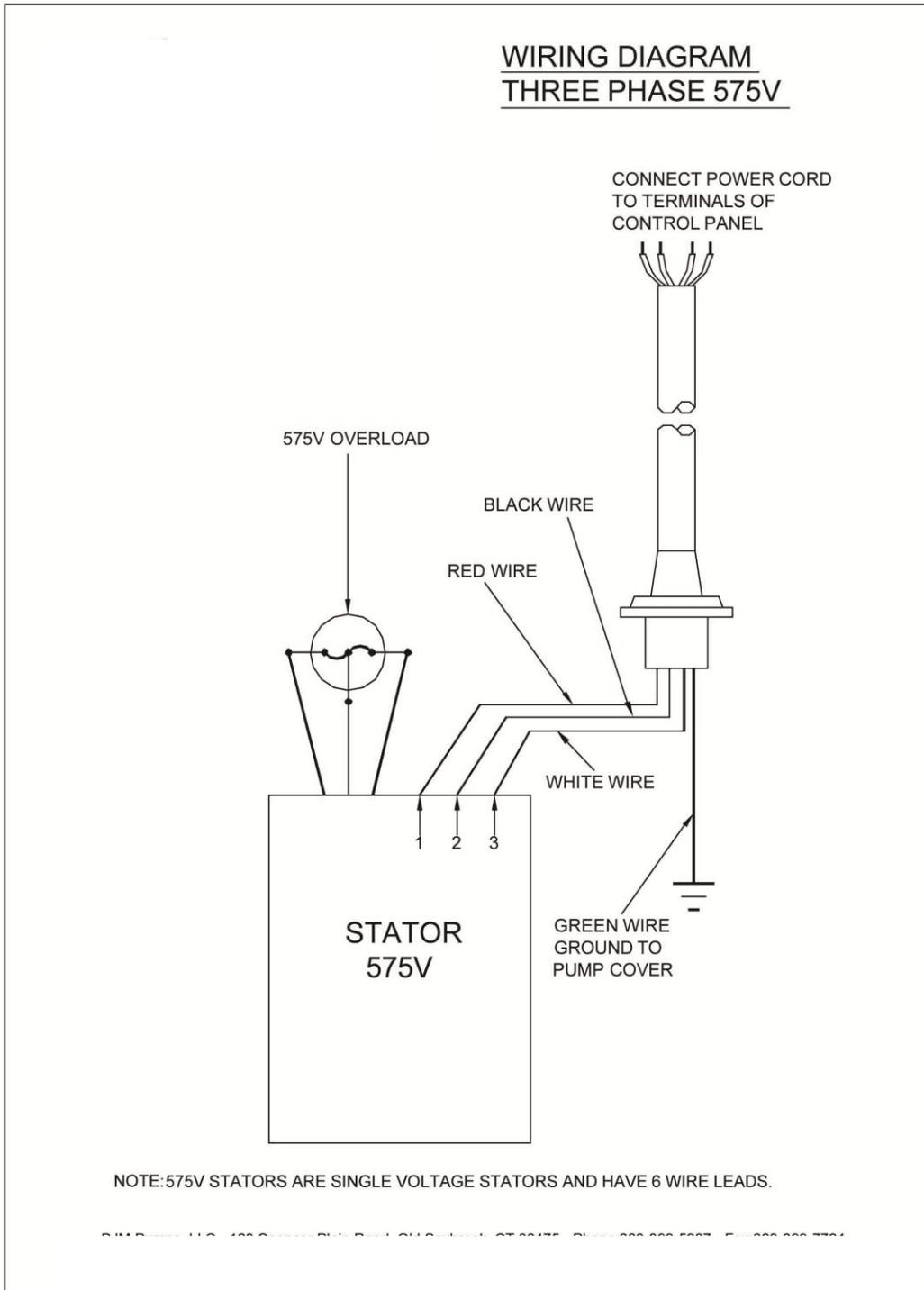




MODELS SKG15C, SKG22C, SKG37C



MODELS SKG15C, SKG22C, SKG37C



MODELS SKG15C, SKG22C, SKG37C

Seal Minder®:

Also known as a seal fail circuitry (or moisture detection circuit) is designed to inform the pump operator that there is moisture within the oil chamber. This early warning can allow the operator to schedule repair & inspection on the pump. The Seal Minder® is a sensor probe inside the oil chamber. (The oil chamber houses the mechanical seals that are cooled & lubricated by oil). The Seal Minder, when properly connect to a control panel, can help indicate seal failure. The Seal Minder cord requires a seal fail circuitry in control panel for warning signal.

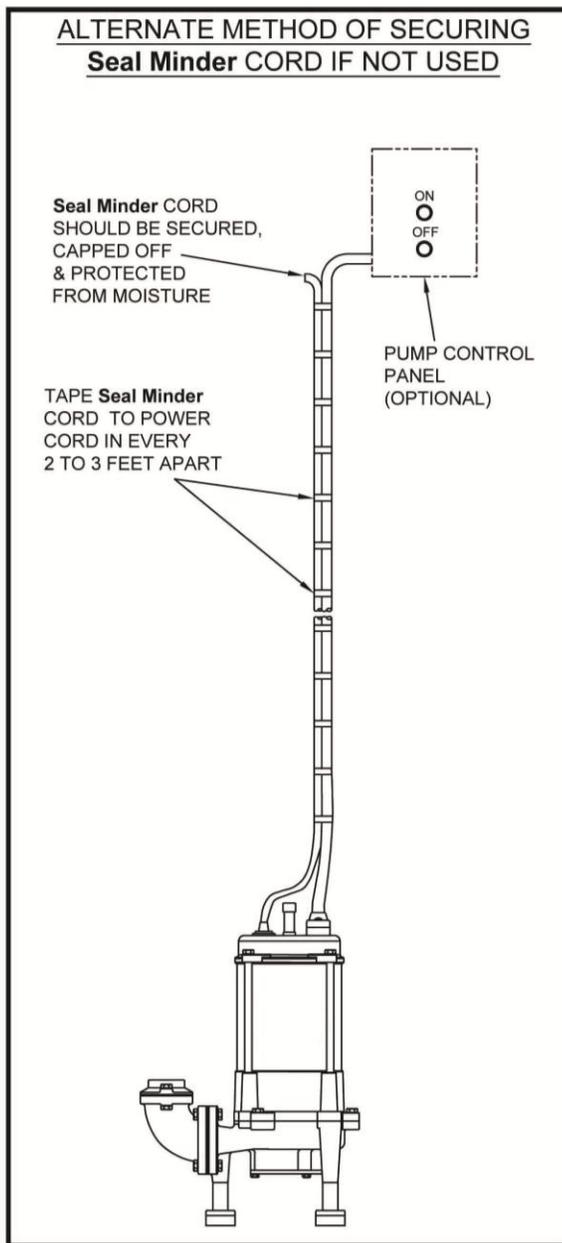
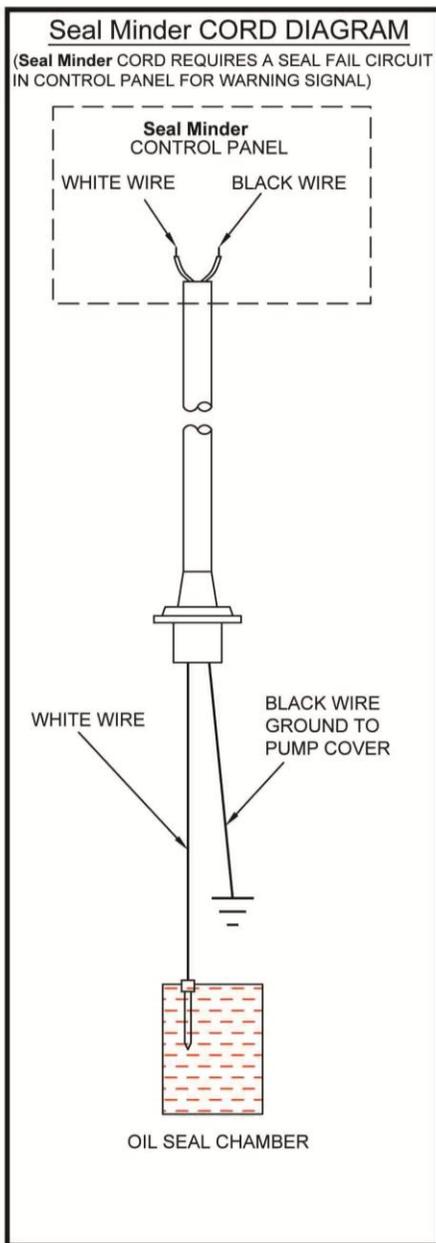
The open end of the Seal Minder circuit cord should be connected to a control panel with an optional seal failure alarm relay circuit or a standalone Seal Minder Panel manufactures can incorporate the Seal Minder cord option. BJM Pumps®, an Industrial Flow Solutions Company, has a standalone, Seal Minder panel for both simplex (P/N MSP8350A) and duplex (P/N MSP8350B) systems. For more information, contact Industrial Flow Solutions Operating, LLC or visit us online at www.flowsolutions.com

The Seal Minder cord has two leads, black and white. Note that the power cable is much larger and has three to five leads, depending on the model. Inside the pump, the black lead is connected to the casing ground, and the white lead is connected to the seal probe that is suspended into the oil chamber. These leads need to be properly connected to the seal failure alarm relay circuit. Most controls that have proceeded this option have a connection terminal point that is clearly marked for these connections. Consult the control panel manual for proper connection instructions.

Although highly recommended, the pump does not need a control box with seal fail relay or standalone seal panel to operate.

If the operator does not use the Seal Minder:

- 1.) The recommended procedure is to take the Seal Minder cord off the pump and seal with a Seal Minder cap (P/N M02738) and gasket (P/N M05121 for Buna, P/N M05121V for FKM). This should be done by an authorized BJM Pumps® service center or distributor as not to void warranty (detailed instruction sheet available for this procedure).
- 2.) Alternate method of securing Seal Minder cable if not being used: Tape the Seal Minder cord to the power cord. Make sure that the cords are taped together in an even run, at about 2' to 3' apart. Use electrical tape to tape off the end of the Seal Minder cable (do not connect to power source). The taped leads should be kept dry and out of the liquid. (See next page for detailed drawing).



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.



WARRANTY AND LIMITATION OF LIABILITY

Unless otherwise expressly authorized in writing, specifying a longer or shorter period, BJM Pumps, LLC warrants for a period of eighteen (18) months from the date of shipment from the Point of Shipment, or one (1) year from the date of installation, whichever occurs first, that all products or parts thereof furnished by BJM Pumps, LLC under the brand name **BJM Pumps**, hereinafter referred to as the "Product" are free from defects in materials and workmanship and conform to the applicable specification.

BJM Pumps, LLC's liability for any breach of this warranty shall be limited solely to replacement or repair, at the sole option of BJM Pumps, LLC, of any part or parts of the Product found to be defective during the warranty period, provided the Product is properly installed and is being used as originally intended. Any breach of this warranty must be reported to BJM Pumps, LLC or BJM Pumps, LLC's authorized service representative within the aforementioned warranty period, and defective Product or parts thereof must be shipped to BJM Pumps, LLC or BJM Pumps, LLC's authorized representative, transportation charges prepaid. Any cost associated with removal or installation of a defective Product or part is excluded.

IT IS EXPRESSLY AGREED THAT THIS SHALL BE THE SOLE AND EXCLUSIVE REMEDY OF BJM PUMPS, LLC'S DISTRIBUTORS AND CUSTOMERS. UNDER NO CIRCUMSTANCES SHALL BJM PUMPS, LLC BE LIABLE FOR ANY COSTS, LOSS, EXPENSE, DAMAGES, SPECIAL DAMAGES, INCIDENTAL DAMAGES OR CONSEQUENTIAL DAMAGES ARISING DIRECTLY OR INDIRECTLY FROM THE DESIGN, MANUFACTURE, SALE, USE OR REPAIR OF THE PRODUCT, WHETHER BASED ON WARRANTY, CONTRACT, NEGLIGENCE, OR STRICT LIABILITY. IN NO EVENT WILL LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT.

THE WARRANTY AND LIMITS OF LIABILITY CONTAINED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES AND LIABILITIES, EXPRESSED OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED BY BJM PUMPS, LLC AND EXCLUDED FROM THIS WARRANTY.

BJM Pumps, LLC neither assumes, nor authorizes any person to assume for it, any other warranty obligation in connection with the sale of the Product. This warranty shall not apply to any Product or parts of Product which have (a) been repaired or altered outside of BJM Pumps, LLC's facilities unless such repair was authorized in advance by BJM Pumps, LLC or by its authorized representative; or (b) have been subject to misuse, negligence or accident; or (c) have been used in a manner contrary to BJM Pumps, LLC's instruction.

In any case of products not manufactured and sold under the BJM Pumps, LLC brand name, there is no warranty from BJM Pumps, LLC; however BJM Pumps, LLC will extend any warranty received from BJM Pumps, LLC's supplier of such products.

START-UP REPORT FORM

This form is designed to record the initial installation, and to serve as a guide for troubleshooting at a later date (if needed).

Industrial Flow Solutions Operating, LLC
 104 John W Murphy Drive
 New Haven, CT 06513, USA

Pump Owner's Name			
Location of Installation		Date of Installation:	
Dealer		Dealer Phone ()	
Date of Purchase			
Model		Serial No	
Voltage	Phase	Hertz	HP
Does impeller turn freely by hand?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
Condition of Equipment		<input type="checkbox"/> New	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor
Condition of Cable Jacket		<input type="checkbox"/> New	<input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor
Rotation: Direction of Impeller Rotation (viewed from bottom) (Use C/W for clockwise, CC/W for counterclockwise): _____			
Resistance of cable and Pump Motor (measured at pump control)			
Red-Black_____ohms		Red-White_____ohms	
		White-Black_____ohms	
Resistance of ground circuit between control panel and outside of pumps _____ Ohms			
MEG OHM CHECK OF INSULATION			
Red to ground_____ White to ground_____ Black to ground_____			
Condition of location at start-up		<input type="checkbox"/> Dry	<input type="checkbox"/> Wet <input type="checkbox"/> Muddy
Was equipment stored		<input type="checkbox"/> Yes	<input type="checkbox"/> No.
If YES, length of storage:			
Liquid being pump			
Debris in bottom of station?		<input type="checkbox"/> Yes	<input type="checkbox"/> No

START-UP REPORT FORM

Are guide rails vertical?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is base elbow installed level?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Liquid level controls: Model _____		
Is control installed away from turbulence?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Float Operation Check		
Tip lowest float (stop float), all pumps should remain off. Tip second float (and stop float), one pump comes on. Tip third float (and stop float), both pumps on (alarm on simplex). Tip fourth float (and stop float), high level alarm on (omit on simplex).		
<input type="checkbox"/> Check here if using manual on/off only.		
Does liquid level ever drop below volute top?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Control Panel MFG & model no.		
Number of pumps operated by control panel		
NOTE: At no time should hole be made in top of control panel, unless proper sealing devices are utilized.		
Short Circuit protection:	Type:	
Number and size of short circuit device(s)	Amp rating:	
Overload type:	Size:	Amp rating:
Do protective devices comply with pump motor amp rating?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are all pump connections tight?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is the interior of the panel dry?	<input type="checkbox"/> Yes	<input type="checkbox"/> No If No, correct moisture problem.
Electrical readings		
SINGLE PHASE		
Voltage supply at panel line connection, pump off	L1	L2
Voltage supply at panel line connection, pump on	L1	L2
Amperage load connection, pump on	L1	L2
THREE PHASE		
Voltage supply at panel line connection, pump off		
L1-L2	L2-L3	L3-L1
Voltage supply at panel line connection, pump on		

START-UP REPORT FORM

L1-L2	L2-L3	L3-L1
Amperage load connection, pump on		
L1	L2	L3
FINAL CHECK		
Is pump secured properly?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Was pump checked for leaks?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Do check valves operate properly?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Flow: Do pumps appear to operate at proper rate?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Noise level:	Acceptable <input type="checkbox"/>	Unacceptable <input type="checkbox"/>
Comments:		
Installed by:		
Company:		
Person:		
Date:		

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