

# **INSTALLATION, OPERATION & MAINTENANCE MANUAL**

# S & SX SERIES SIDE DISCHARGE Electric Submersible Pumps

Single Phase 115V & 230V Three Phase 208V, 230V, 460V & 575V

#### **CAST IRON**

| SINGLE PHASE | THREE PHASE |
|--------------|-------------|
| S750C        | S08C        |
| S1500C       | S15C        |
|              | S22C        |
|              | S37C        |
|              | S55C        |
|              | S75C        |
|              |             |

#### 316 STAINLESS STEEL

| SINGLE PHASE | THREE PHASE |
|--------------|-------------|
| SX750CSS     | SX08CSS     |
| SX1500CSS    | SX15CSS     |
|              | SX22CSS     |
|              | SX37CSS     |
|              | SX55CSS     |
|              | SX75CSS     |

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® S & SX Series submersible pump. This manual also contains information to optimize performance and longevity of your **BJM Pumps** submersible pump.

The submersible S Series pumps are designed to pump water. The SX Series pumps are designed to pump corrosive liquids in concentrations chemically compatible with 316SS and FKM. The S & SX 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, assembly or testing please contact your **BJM Pumps** distributor, or BJM Pumps, LLC.

BJM Pumps, LLC Phone: 877-256-7867 123 Spencer Plain Rd Phone: 860-399-5937 Old Saybrook, CT 06475, USA Fax: 860-399-7784

Information, including pump data sheets and performance curves, is also available on our web site: <a href="https://www.bjmpumps.com">www.bjmpumps.com</a>

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.

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.

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.

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

<u>A DANGER</u> Do not pump flammable, inflammable or volatile liquids. <u>Death</u> 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.

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

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.

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

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.

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 BJM Pumps, 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 cord (and Seal Minder® cord, 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 BJM Pumps, 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.



No additional lubrication is necessary. The shaft seal and bearings are fully lubricated from the factory. Seal oil should be checked once per year. See table below.

#### **OIL FILL QUANTITY/TYPE**

|         |              |      | OIL IN SEAL CHAMBER               |
|---------|--------------|------|-----------------------------------|
| MODEL   | U.S. FL. OZ. | CC.  | TYPE OF OIL                       |
| S750C   | 7.8          | 230  | ISO 32 NSF Food Grade Mineral Oil |
| S750C-3 | 7.8          | 230  | ISO 32 NSF Food Grade Mineral Oil |
| S1500C  | 7.8          | 230  | ISO 32 NSF Food Grade Mineral Oil |
| S08C    | 6.8          | 201  | ISO 32 NSF Food Grade Mineral Oil |
| S08C-3  | 6.8          | 201  | ISO 32 NSF Food Grade Mineral Oil |
| S15C    | 7.8          | 230  | ISO 32 NSF Food Grade Mineral Oil |
| S22C    | 10           | 296  | ISO 32 NSF Food Grade Mineral Oil |
| S37C    | 10           | 296  | ISO 32 NSF Food Grade Mineral Oil |
| S55C    | 35.5         | 1050 | ISO 32 NSF Food Grade Mineral Oil |
| S75C    | 35.5         | 1050 | ISO 32 NSF Food Grade Mineral Oil |

|            |              |      | OIL IN SEAL CHAMBER               |
|------------|--------------|------|-----------------------------------|
| MODEL      | U.S. FL. OZ. | CC.  | TYPE OF OIL                       |
| SX750CSS   | 6.75         | 200  | ISO 32 NSF Food Grade Mineral Oil |
| SX750CSS-3 | 6.75         | 200  | ISO 32 NSF Food Grade Mineral Oil |
| SX1500CSS  | 6.75         | 200  | ISO 32 NSF Food Grade Mineral Oil |
| SX08CSS    | 6.75         | 200  | ISO 32 NSF Food Grade Mineral Oil |
| SX08CSS-3  | 6.75         | 200  | ISO 32 NSF Food Grade Mineral Oil |
| SX15CSS    | 6.75         | 200  | ISO 32 NSF Food Grade Mineral Oil |
| SX22CSS    | 12           | 355  | ISO 32 NSF Food Grade Mineral Oil |
| SX37CSS    | 12           | 355  | ISO 32 NSF Food Grade Mineral Oil |
| SX55CSS    | 35.5         | 1050 | ISO 32 NSF Food Grade Mineral Oil |
| SX75CSS    | 35.5         | 1050 | ISO 32 NSF Food Grade Mineral Oil |

#### **PUMP INSTALLATION**

S & SX Series pumps have been evaluated for use with water or water based solutions. Please contact the manufacturer for additional information.

**WARNING**Risk of electric shock. Pump models; S750C, SX750C, S750C-3, SX750CSS (115v) are supplied with a grounding conductor and grounding-type attachment plug. 230V single phase pumps and all three phase pumps do not come with electric plug connectors. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding-type receptacle.



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

**CAUTION** 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**, S & SX Series pumps are designed to operate fully or partially submerged. Avoid running the pump dry for extended periods of time. Refer to data sheet for minimum submersion depth for your particular model. Data sheets can be obtained online at <a href="https://www.bjmpumps.com">www.bjmpumps.com</a> or by calling BJM Pumps, LLC at 860-399-5937. As a general rule, S and SX Series side discharge pumps can pump down to a level above the suction screen. Pumping lower than screen will permit air to enter the pump and cavitate, lose prime or become air bound.

# **⚠** CAUTION

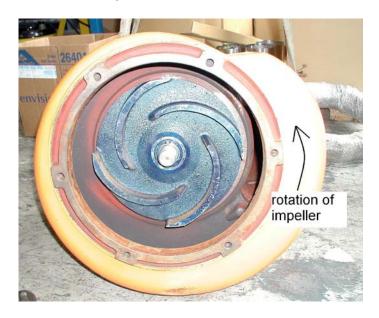
- Do not run the pump dry.
- Pump liquid should not exceed a maximum temperature of 104°F.
- Never place the pump on loose or soft ground. The pump may sink, preventing
  water from reaching the impeller. Place on a solid surface or suspend the pump
  with a lifting rope/chain. The S & SX Series pumps are provided with a suction
  strainer to prevent large solids from clogging the impeller. Any spherical solids
  which pass through the strainer should pass through the pump.
- 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.



#### **PUMP ROTATION**

Two ways to check the correct pump rotation:

1. By looking at the impeller; the rotation of the impeller should be counter clockwise as shown in the picture below.



2. By looking from the top of the pump. 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 motion of the pump should be counter clockwise as shown in the picture below.





#### **PUMP OPERATION**

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.

<u>A DANGER</u> Do not operate this pump where explosive vapors or flammable material exist. Death or Serious injury will result.

#### TYPICAL MANUAL DEWATERING INSTALLATION

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

All S & SX models are provided with a 33' (10 m) power cord. <u>NEVER</u> splice the power cable due to safety and warranty considerations. Always keep the plug end dry.

Note: 230V, single phase and 208V, 230V, 460V & 575V three phase units do not have a plug and have to be provided separately.

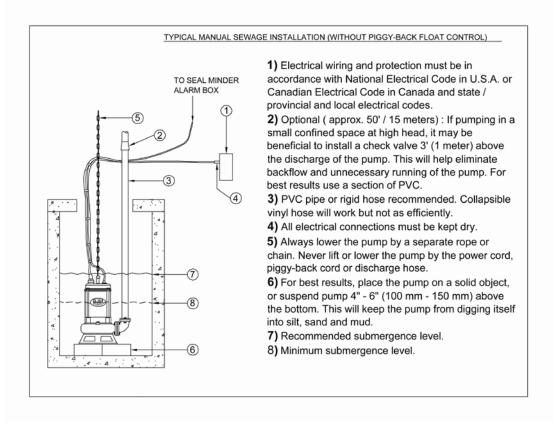
MARNING

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: 115 volt: plug the power cable into any 115 volt grounded receptacle. 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.

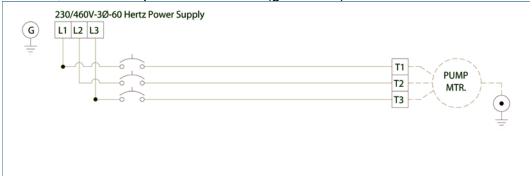
Single phase pumps always use a three-prong grounded receptacle. It is recommended that a Ground Fault Interrupter (GFI) type receptacle (or equivalent) be used.





#### **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 3 phase manual control 1

#### TYPICAL AUTOMATIC DEWATERING INSTALLATION

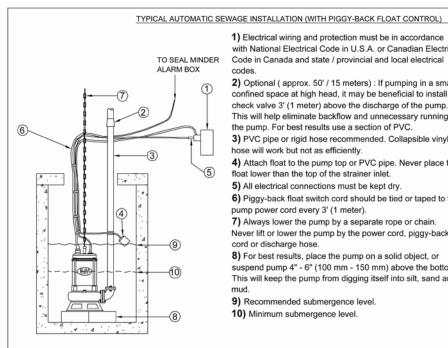
NOTE: Maximum recommended starts should not exceed 10 times per hour.

Float switches (wired into the pump motor or piggy-back style) are available from the factory as an option.

Note: 208V, 230V, 460V & 575V pumps do not have a plug installed.



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



- 1) Electrical wiring and protection must be in accordance with National Electrical Code in U.S.A. or Canadian Electrical Code in Canada and state / provincial and local electrical
- 2) Optional (approx. 50' / 15 meters): If pumping in a small confined space at high head, it may be beneficial to install a check valve 3' (1 meter) above the discharge of the pump. This will help eliminate backflow and unnecessary running of the pump. For best results use a section of PVC.
- 3) PVC pipe or rigid hose recommended. Collapsible vinvl hose will work but not as efficiently.
- 4) Attach float to the pump top or PVC pipe. Never place the float lower than the top of the strainer inlet.
- 5) All electrical connections must be kept dry.
- 6) Piggy-back float switch cord should be tied or taped to the pump power cord every 3' (1 meter).
- 7) Always lower the pump by a separate rope or chain. Never lift or lower the pump by the power cord, piggy-back cord or discharge hose.
- 8) For best results, place the pump on a solid object, or suspend pump 4" - 6" (100 mm - 150 mm) above the bottom. This will keep the pump from digging itself into silt, sand and
- 9) Recommended submergence level.
- 10) Minimum submergence level.

TYPICAL SIMPLEX SEWAGE INSTALLATION WITH CONTROL PANEL AND 3 FLOATS

# 9

- 1) Electrical wiring and protection must be in accordance with National Electrical Code in U.S.A. or Canadian Electrical Code
- in Canada and state / provincial and local electrical codes. 2) Optional (approx. 50' / 15 meters): If pumping in a small confined space at high head, it may be beneficial to install a check valve 3' (1 meter) above the discharge of the pump. This will help eliminate backflow and unnecessary running of the pump. For best results use a section of PVC
- 3) PVC pipe or rigid hose recommended. Collapsible vinyl hose will work but not as efficiently.
- 4) Attach float to the pump top or PVC pipe. Never place the float lower than the top of the strainer inlet.
  - 4A alarm float.
  - 4B turn on.
  - 4C turn off.
- 5) All electrical connections must be kept dry.
- 6) Wire pump and floats to control panel through a watertight junction box.
- 7) Always lower the pump by a separate rope or chain. Never lift or lower the pump by the power cord, piggy-back cord or discharge hose.
- 8) For best results, place the pump on a solid object, or suspend pump 4" - 6" (100 mm - 150 mm) above the bottom. This will keep the pump from digging itself into silt, sand and
- 9) Recommended submergence level.
- 10) Minimum submergence level.



#### **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).

#### INTENDED METHODS OF CONNECTION

Lise with approved motor control that matches motor input in full load amperes. "UTILLISER UN DÉMARREAR APPROUVÉ CONVENANT AU COURANT Á PLEINE CHARGE DU MOTEUR."

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

#### SINGLE PHASE WIRING INSTRUCTIONS

FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING. Single phase pumps are supplied with a three prong grounded plug to help protect you against the possibility of electrical shock. DO NOT UNDER ANY CIRCUMSTANCES REMOVE THE GROUND PIN. The three prong plug must be inserted into a mating three prong grounded receptacle. IF the installation does not have such a receptacle it must be changed to the proper type, wired and grounded in accordance with the National Electrical Code and all applicable local codes and ordinances.

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

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

#### THREE PHASE WIRING INSTRUCTIONS

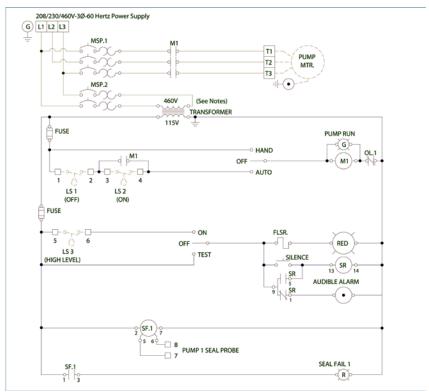
MARNING FOR YOUR PROTECTION, ALWAYS DISCONNECT PUMP FROM ITS POWER SOURCE BEFORE HANDLING.

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

MARNING 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.



Typical 3 phase Auto Control 1

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.

# <u>MOTOR ROTATION.</u> 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



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. Remove strainer, check and clean.
- 3. Defective cable or incorrect wiring.
- 4. Strainer clogged. Check and clean as necessary.
- 5. Float switch tangled/obstructed. Clean and free float switch from obstruction.
- 6. Float switch defective. Replace float switch.
- 7. 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.
  - 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.

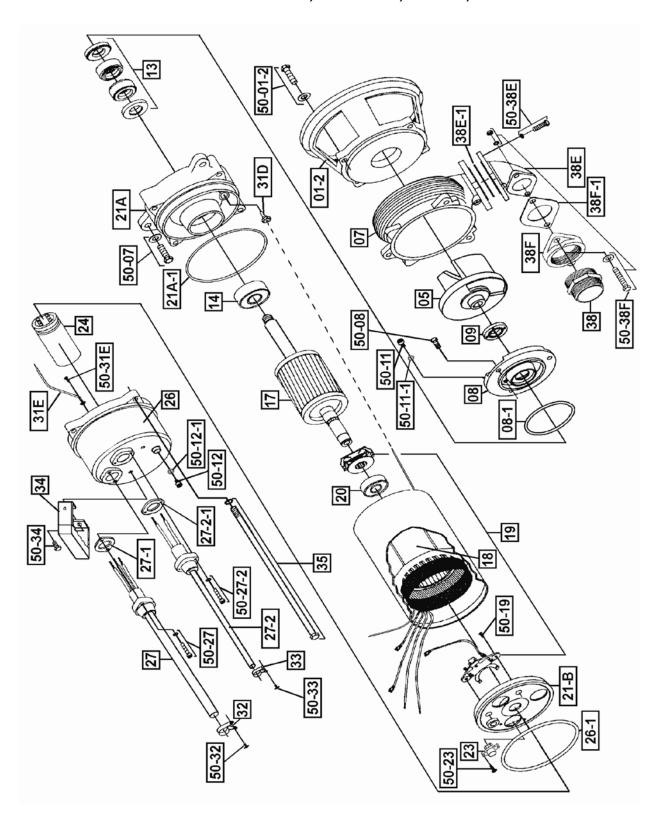
#### **CHANGING SEAL OIL**

Changing the seal oil in the S & SX Series pumps is very easy.

- 1) Make sure that the pump cable is disconnected from the power source.
- 2) Lay the pump down on its side.
- 3) Remove the screws that hold the bottom plate in place.
- 4) Remove bottom plate.
- 5) Remove screws holding the suction cover.
- 6) Remove the suction cover.
- 7) Remove the impeller.
- 8) Remove the inspection screw for the oil chamber (pos#50-08). Pour out a small sample of the oil. If it is milky white, or contains water, then the oil and possible, the mechanical seal, should be changed. If an oil change is needed:
- 9) Remove the screws that hold the oil chamber cover in place & remove the oil.
- 10) Replace the mechanical seal if necessary.
- 11) Replace the oil.
- 12) Assemble the pump.

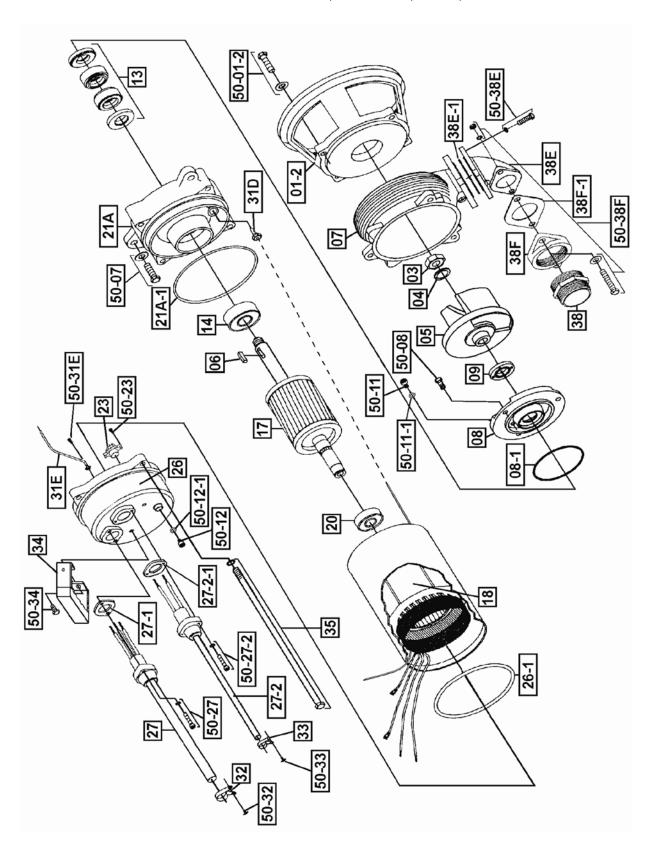


# EXPLODED VIEW OF S750C, SX750CSS, S1500C, SX1500CSS



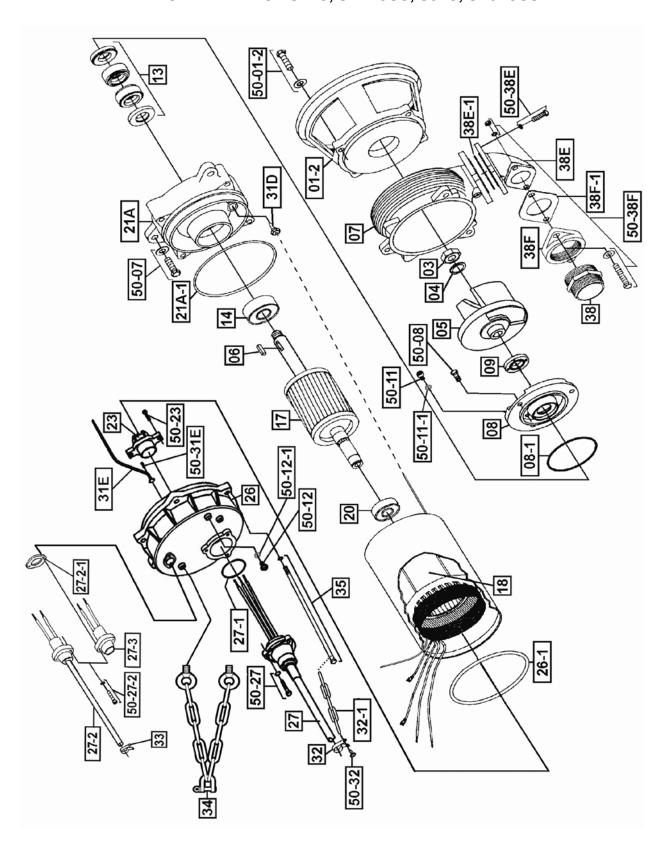


# **EXPLODED VIEW OF S08C, SX08CSS, S15C, SX15CSS**



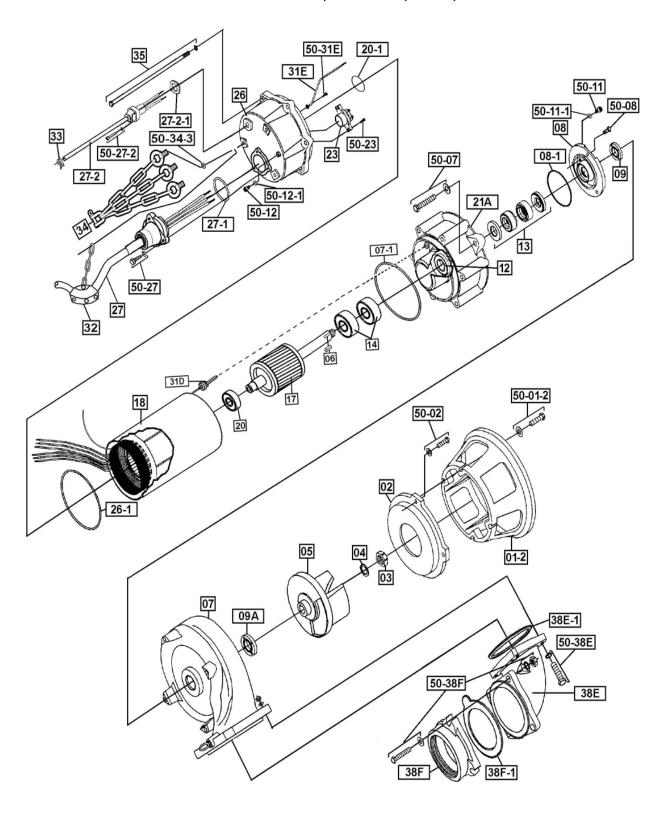


# EXPLODED VIEW OF S22C, SX22CSS, S37C, SX37CSS





# **EXPLODED VIEW OF S55C, SX55CSS, S75C, SX75CSS**



## **S SERIES PARTS LIST**

|          | Pump Model                         | S750C          | S1500C | S08C   | S15C   | S22C   | S37C   | S55C   | S75C   |
|----------|------------------------------------|----------------|--------|--------|--------|--------|--------|--------|--------|
| Pos. No. | Part Description                   | Part #         | Part # | Part # | Part # | Part # | Part # | Part # | Part # |
| 01-2     | Stand                              | 113C           | 114C   | 113C   | 114C   | 117C   | 118C   | 122C   | 122C   |
| 02       | Bottom Plate                       | -              | -      | -      | -      | -      | -      | 137C   | 137C   |
| 03       | Impeller Nut                       | -              | -      | 305    | 305    | 305    | 305    | 308C   | 308C   |
| 04       | Impeller Washer                    | -              | -      | 405C   | 405C   | 405C   | 405C   | 420    | 420    |
| 05       | Impeller                           | 550C           | 551C   | 553C   | 554C   | 555C   | 556C   | 560C   | 561C   |
| 06       | Impeller Key                       | -              | -      | 602    | 602    | 602    | 602    | 603C   | 603C   |
| 07       | Pump Housing                       | 719C           | 718C   | 719C   | 718C   | 721C   | 723C   | 743C   | 743C   |
| 08       | Oil Chamber Cover                  | 810C           | 810C   | 810C   | 810C   | 822C   | 822C   | 812C   | 812C   |
| 08-1     | O-Ring (Kit Only)                  | Kit            | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    |
| 09       | Lip Seal Buna-N                    | 902C           | 902C   | 902C   | 902C   | 904C   | 904C   | 909C   | 909C   |
| 09       | Lip Seal FKM (Optional)            | 903CV          | 903CV  | 903CV  | 903CV  | 905CV  | 905CV  | 912CV  | 912CV  |
| 09       | Lip Seal EPDM (Optional)           | 903CE          | 903CE  | 903CE  | 903CE  | 905E   | 905E   | 912E   | 912E   |
| 09A      | Lower Lip Seal Buna-N              | -              | -      | -      | -      | -      | -      | 909C   | 909C   |
| 09A      | Lower Lip Seal FKM (Optional)      | _              | _      | _      | _      | _      | _      | 912CV  | 912CV  |
| 09A      | Lower Lip Seal EPDM (Optional)     | _              | _      | _      | _      | _      | _      | 912E   | 912E   |
| 12       | Lip Seal for Lower Bearing         | <del>-</del>   | _      | _      | _      | _      | _      | 907C   | 907C   |
| 13       | Mechanical Seal Buna-N             | 200215         | 200215 | 200215 | 200215 | 200302 | 200302 | 200305 | 200305 |
| 13       | Mechanical Seal FKM (Optional)     | 200214         | 200214 | 200214 | 200214 | 200301 | 200301 | 200304 | 200304 |
| 14       | Lower Ball Bearing                 | 1401           | 1401   | 1401   | 1401   | 1402   | 1402   | 1404   | 1405C  |
| 14-1     | Lower Ball Bearing                 | -              | -      | -      | -      | -      | -      | 1404   | 1405C  |
| 14-2     | Lower Bearing Retainer Clip        | 1453           | 1453   | 1453   | 1453   | 1453   | 1453   | 1453   | 1453   |
| 17       | Rotor w/ Shaft 115/230V, 1PH       | 1705C          | 1706C  | -      | - 100  |        |        | -      | -      |
| 17       | Rotor w/ Shaft, 3PH                | -              | -      | 1708C  | 1709C  | 1710C  | 1711C  | 1715C  | 1716C  |
| 18       | Stator w/ Casing 115V, 1PH         | 200511         | _      | -      | -      | -      | -      | -      | -      |
| 18       | Stator w/ Casing 230V, 1PH         | 200570         | 200514 | _      | _      | _      | _      | _      | -      |
| 18       | Stator w/ Casing 208V, 3 PH        | -              | -      | 200524 | 200528 | 200532 | 200536 | 200665 | -      |
| 18       | Stator w/ Casing 230/460V, 3PH     | _              | _      | 200546 | 200550 | 200554 | 200558 | 200562 | 200566 |
| 18       | Stator w/ Casing 575V, 3PH         | -              | -      | 200588 | 200592 | 200596 | 200600 | 200605 | 200609 |
| 19       | Governor Switch w/Switch Plate     | 1904           | 1904   | -      | -      | -      | -      | -      | -      |
| 20       | Upper Ball Bearing                 | 2002           | 2002   | 2002   | 2002   | 2004   | 2004   | 2005   | 2005   |
| 20-1     | O-Ring (Kit Only)                  | -              | -      | -      | -      | -      | -      | Kit    | Kit    |
| 21A      | Oil Chamber/Motor Housing          | 752C           | 752C   | 752C   | 752C   | 753C   | 753C   | 722C   | 714C   |
| 21A-1    | O-Ring (Kit Only)                  | Kit            | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    |
| 21B      | Motor Cover Upper                  | 2104           | 2104   | -      | -      | -      | -      | -      | -      |
| 23       | Overload Protector 115V, 1PH       | 2306           | -      | _      | _      | -      | _      | _      | -      |
| 23       | Overload Protector 230V, 1PH       | 2314           | 2306   | _      | _      | _      | _      | _      | -      |
| 23       | Overload Protector 208V, 3PH       |                | -      | 2308A  | 2310A  | 2311A  | 2312A  | 2313   | -      |
| 23       | Overload Protector 230V, 3PH       | _              | _      | 2308A  | 2310A  | 2311A  | 2312A  | 2313   | 2315   |
| 23       | Overload Protector 460V, 3PH       | <u> </u>       | -      | 2309   | 2308B  | 2310B  | 2311B  | 2312B  | 2313   |
| 23       | Overload Protector 575V, 3PH       | <del> </del> - | -      | 2317   | 2309   | 2308B  | 2310B  | 2311B  | 2312B  |
| 24       | Capacitor 115V                     | 2450           | _      | -      | -      | -      | -      | -      | -      |
| 24       | Capacitor 230V                     | 2451           | 2469   | _      | _      | -      | _      |        | _      |
| 26       | Pump Top Cover (W/ Sensor opening) | 2651B          | 2651B  | 2670B  | 2670B  | 2671B  | 2671B  | 2672B  | 2672B  |
| 26-1     | O-Ring (Kit Only)                  | Kit            | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    |

|             | Pump Model                              | S750C  | S1500C | S08C   | S15C   | S22C   | S37C   | S55C   | S75C   |
|-------------|---|--------|--------|--------|--------|--------|--------|--------|--------|
| Pos. No.    | Part Description                        | Part # |
| 27          | Power Cable w/ Gland-115V,1PH           | 2713   | -      | -      | -      | -      | -      | -      |        |
| 27          | Power Cable w/ Gland-230V,1PH, No Plug  | 2713B  | 2713B  | -      | -      | -      | -      | -      | -      |
| 27          | Power Cable w/ Gland-3PH                | -      | -      | 2722   | 2722   | 2725   | 2726   | 2731   | 2731   |
| 27-1        | O-Ring (Kit Only)                       | Kit    |
| 27-2        | Oil Sensor Cable                        | 2736   | 2736   | 2736   | 2736   | 2736   | 2736   | 2736   | 2736   |
| 27-2-1      | O-Ring Kit Only                         | Kit    |
| 27-3        | Seal Minder Cap                         | 2738   | 2738   | 2738   | 2738   | 2738   | 2738   | 2738   | 2738   |
| 31D         | Oil Sensor w/Wire and Ring Term.        | 2330   | 2330   | 2330   | 2330   | 2330   | 2330   | 2330   | 2330   |
| 31E         | Ground Wire w/Ring Term.                | 2776   | 2776   | 2776   | 2776   | 2776   | 2776   | 2776   | 2776   |
| 32          | Power Cord Line Clip / Strain Relief    | 3200   | 3200   | 3200   | 3200   | 3208   | 3208   | 3208   | 3208   |
| 33          | Oil Sensor Cord Line Clip               | 3203   | 3203   | 3203   | 3203   | 3203   | 3203   | 3203   | 3203   |
| 34          | Handle / Chain Handle                   | 3420   | 3420   | 3420   | 3420   | 3413   | 3413   | 3418   | 3418   |
| 35          | Rod Bolts                               | 4103   | 4104   | 4105   | 4106   | 4107   | 4108   | 4109   | 4110   |
| 38          | Discharge Nippple 2"                    | 3802   | -      | 3802   | -      | -      | -      | -      | -      |
| 38          | Discharge Nipple 3"                     | 3804   | 3804   | 3804   | 3804   | 3804   | 3804   | -      | -      |
| 38E         | Discharge Elbow                         | 3831   | 3820C  | 3831   | 3820C  | 3820C  | 3820C  | 3821C  | 3821C  |
| 38E-1       | Gasket, Discharge Elbow Buna-N          | 4075   | 4072   | 4075   | 4072   | 4072   | 4072   | 4073   | 4073   |
| 38E-1       | Gasket, Discharge Elbow FKM (Optional)  | 4075V  | 4072V  | 4075V  | 4072V  | 4072V  | 4072V  | 4073V  | 4073V  |
| 38F         | Discharge Flange 2"                     | 3822   | -      | 3822   | -      | -      | -      | -      | -      |
| 38F         | Discharge Flange 3"                     | -      | 3810   | -      | 3810   | 3810   | 3810   | -      | _      |
| 38F         | Discharge Flange 4"                     | -      | -      | -      | -      | 3816C  | 3816C  | 3806C  | 3806C  |
| 38F-1       | Gasket, Discharge Flange Buna-N         | 4070   | 4071   | 4070   | 4071   | 4071   | 4071   | 4073   | 4073   |
| 38F-1       | Gasket, Discharge Flange FKM (Optional) | 4070V  | 4071V  | 4070V  | 4071V  | 4071V  | 4071V  | 4073V  | 4073V  |
| 50-01-2     | Bolt for Strainer/Stand                 | 5013   | 5013   | 5013   | 5013   | 5013   | 5013   | 5014   | 5014   |
| 50-02       | Bolt for Suction Cover                  | -      | -      | -      | -      | -      | -      | 5014   | 5014   |
| 50-07       | Screw for Oil Chamber/Motor Housing     | 5013   | 5013   | 5013   | 5013   | 5013   | 5013   | 5014   | 5014   |
| 50-08       | Screw for Oil Chamber Cover             | 5009   | 5009   | 5009   | 5009   | 5009   | 5009   | 5034   | 5034   |
| 50-11       | Screw for Oil Fill                      | 5008   | 5008   | 5008   | 5008   | 5008   | 5008   | 5008   | 5008   |
| 50-11-1     | O-Ring (Kit Only)                       | Kit    |
| 50-12       | Screw for Pressure Check                | 5008   | 5008   | 5008   | 5008   | 5008   | 5008   | 5008   | 5008   |
| 50-12-1     | O-Ring (Kit Only)                       | Kit    |
| 50-14-2     | Screw                                   | 5009   | 5009   | 5009   | 5009   | 5009   | 5009   | 5009   | 5009   |
| 50-19       | Screw for Gov. Switch Plate             | 5002   | 5002   | -      | -      | -      | -      | -      | -      |
| 50-23       | Screw for Overload                      | 5028   | 5028   | 5028   | 5028   | 5028   | 5028   | 5028   | 5028   |
| 50-27       | Screw for Power Cord                    | 5004   | 5004   | 5004   | 5004   | 5034   | 5034   | 5034   | 5034   |
| 50-27-2     | Screw for Oil Sensor Cord               | 5004   | 5004   | 5004   | 5004   | 5004   | 5004   | 5004   | 5004   |
| 50-31E      | Screw for Ground Wire                   | 5000   | 5000   | 5000   | 5000   | 5000   | 5000   | 5000   | 5000   |
| 50-32/50-33 | Screw for Line Clip                     | 5001   | 5001   | 5001   | 5001   | -      | -      | -      | -      |
| 50-34       | Screw for Handle                        | 5009   | 5009   | 5009   | 5009   | -      | -      | -      | -      |
| 50-34-3     | Lock Washer                             | -      | -      | -      | -      | -      | -      | 402    | 402    |
| 50-38E      | Bolt for Discharge Elbow                | 5041   | 5043   | 5041   | 5043   | 5043   | 5043   | 5079   | 5079   |
| 50-38F      | Bolt for Discharge Flange               | 5083   | 5083   | 5083   | 5083   | 5083   | 5041   | 5081   | 5081   |
|             | O-Ring Kit - Buna N                     | 4030C  | 4030C  | 4041C  | 4041C  | 4042C  | 4042C  | 4043C  | 4043C  |
|             | O-Ring Kit - FKM (Optional)             | 4031CV | 4031CV | 4046CV | 4046CV | 4044CV | 4044CV | 4045CV | 4045CV |

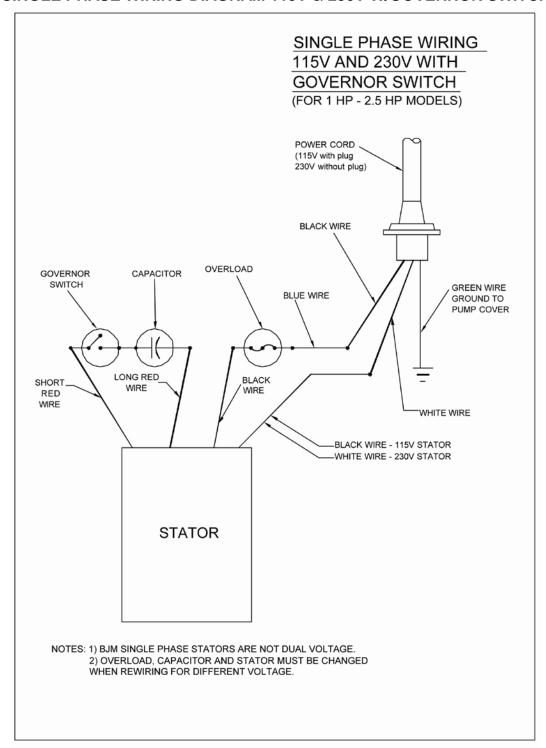
## **SX SERIES PARTS LIST**

|          | Pump Model                         | SX750C  | SX1500C | SX08C        | SX15C        | SX22C    | SX37C  | SX55C  | SX75C  |
|----------|------------------------------------|---------|---------|--------------|--------------|----------|--------|--------|--------|
| Pos. No. | Part Description                   | Part #  | Part #  | Part #       | Part #       | Part #   | Part # | Part # | Part # |
| 01-2     | Stand                              | 113PX   | 114PX   | 113PX        | 114PX        | 117PX    | 118PX  | 122CX  | 122CX  |
| 02       | Bottom Plate                       | -       | -       | -            | -            | -        | -      | 137CX  | 137CX  |
| 03       | Impeller Nut                       | _       | _       | 305          | 305          | 305      | 305    | 308C   | 308C   |
| 04       | Impeller Washer                    | _       |         | 405C         | 405C         | 405C     | 405C   | 420    | 420    |
| 05       | Impeller                           | 550CX   | 551BX   | 553CX        | 554CX        | 555CX    | 556CX  | 560CX  | 561CX  |
| 06       | Impeller Key                       | - 3300X | -       | 602          | 602          | 602      | 602    | 603C   | 603C   |
| 07       | Pump Housing                       | 719PX   | 718PX   | 719PX        | 718PX        | 721PX    | 723PX  | 743CX  | 743CX  |
| 07-1     | O-Ring (Kit Only)                  | Kit     | Kit     | Kit          | Kit          | Kit      | Kit    | -      | 74307  |
| 08       | Oil Chamber Cover                  | 810PX   | 810PX   | 810PX        | 810PX        | 822PX    | 822PX  | 812CX  | 812CX  |
| 08-1     | O-Ring (Kit Only)                  | Kit     | Kit     | Kit          | Kit          | Kit      | Kit    | Kit    | Kit    |
|          |                                    |         |         |              |              |          |        |        |        |
| 09       | Lip Seal FKM                       | 903CV   | 903CV   | 903CV        | 903CV        | 905CV    | 905CV  | 912CV  | 912CV  |
| 09       | Lip Seal Buna-N (Optional)         | 902C    | 902C    | 902C         | 902C         | 904C     | 904C   | 909C   | 909C   |
| 09       | Lip Seal EPDM (Optional)           | 903CE   | 903CE   | 903CE        | 903CE        | 905E     | 905E   | 912E   | 912E   |
| 09A      | Lower Lip Seal FKM                 | -       | -       | -            | -            | -        | -      | 912CV  | 912CV  |
| 09A      | Lower Lip Seal Buna-N (Optional)   | -       | -       | -            | -            | -        | -      | 909C   | 909C   |
| 09A      | Lower Lip Seal EPDM (Optional)     | -       | -       | -            | -            | -        | -      | 912E   | 912E   |
| 12       | Lip Seal for Lower Bearing         | -       | -       | -            | -            | -        | -      | 907C   | 907C   |
| 13       | Mechanical Seal FKM                | 200214  | 200214  | 200214       |              | 200301   | 200301 | 200304 | 200304 |
| 13       | Mechanical Seal Buna-N (Optional)  | 200215  | 200215  | 200215       | 200215       | 200302   | 200302 | 200305 | 200305 |
| 14       | Lower Ball Bearing                 | 1401    | 1401    | 1401         | 1401         | 1402     | 1402   | 1404   | 1405C  |
| 14-1     | Lower Ball Bearing                 | -       | -       | -            | -            | -        | -      | 1404   | 1405C  |
| 14-2     | Lower Bearing Retainer             | 1453    | 1453    | 1453         | 1453         | 1453     | 1453   | 1453   | 1453   |
| 17       | Rotor w/ Shaft 115/230V, 1PH       | 1705CX  | 1706CX  | -            | -            | -        | -      | -      | -      |
| 17       | Rotor w/ Shaft, 3PH                | -       | -       | 1708CX       | 1709CX       | 1710CX   | 1711CX | 1715CX | 1716CX |
| 18       | Stator w/ Casing 115V, 1PH         | 200513  | -       | -            | -            | -        | -      | -      | -      |
| 18       | Stator w/ Casing 230V, 1PH         | 200571  | 200516  | -            | -            | -        | -      | -      | -      |
| 18       | Stator w/ Casing 208V, 3PH         | -       | -       | 200526       | 200530       | 200534   | 200538 | 200667 | -      |
| 18       | Stator w/ Casing 230/460V, 3PH     | _       | _       | 200548       | 200552       | 200556   | 200560 | 200564 | 200568 |
| 18       | Stator w/ Casing 575V, 3PH         | _       | _       | 200590       | 200594       | 200598   | 200600 | 200607 | 200611 |
| 19       | Governor Switch w/Switch Plate     | 1904    | 1904    | -            | -            | -        | -      | -      | -      |
| 20       | Upper Ball Bearing                 | 2002    | 2002    | 2002         | 2002         | 2004     | 2004   | 2005   | 2005   |
| 20-1     | O-Ring (Kit Only)                  | -       | -       | -            | -            | -        | 2007   | Kit    | Kit    |
| 21A      | Oil Chamber/Motor Housing          | 752PX   | 752PX   | 752PX        | 752PX        | 753PX    | 753PX  | 722CX  | 714CX  |
| 21A-1    | O-Ring (Kit Only)                  | Kit     | Kit     | Kit          | Kit          | Kit      | Kit    | Kit    | Kit    |
| 21B      | Motor Cover Upper                  | 2104    | 2104    | -            | -            | IXIL     | -      | -      | TXIL   |
| 23       | Overload Protector 115V, 1PH       | 2306    | 2104    | -            | <del>-</del> | -        | -      | -      | -      |
| 23       | Overload Protector 230V, 1PH       | 2314    | 2306    | <del>-</del> | <del>-</del> | <u> </u> | -      | -      | -      |
| 23       | ,                                  | - 2314  | -       |              |              | -        | -      | 0040   | -      |
|          | Overload Protector 208V, 3PH       |         | ļ       | 2308A        | 2310A        | 2311A    | 2312A  | 2313   | - 0045 |
| 23       | Overload Protector 230V, 3PH       | -       | -       | 2308A        | 2310A        | 2311A    | 2312A  | 2313   | 2315   |
| 23       | Overload Protector 460V, 3PH       |         | -       | 2309         | 2308B        | 2310B    | 2311B  | 2312B  | 2313   |
| 23       | Overload Protector 575V, 3PH       | -       | -       | 2317         | 2309         | 2308B    | 2310B  | 2311B  | 2312B  |
| 24       | Capacitor 115V                     | 2450    | -       | -            | -            | -        | -      | -      | -      |
| 24       | Capacitor 230V                     | 2451    | 2469    | -            | -            | -        | -      | -      | -      |
| 26       | Pump Top Cover (W/ Sensor opening) | 2651BX  | 2651BX  | 2670BX       |              | 2671PX   | 2671PX | 2672BX | 2672BX |
| 26-1     | O-Ring (Kit Only)                  | Kit     | Kit     | Kit          | Kit          | Kit      | Kit    | Kit    | Kit    |

|             | Pump Model                                 | SX750C | SX1500C | SX08C  | SX15C  | SX22C  | SX37C  | SX55C  | SX75C  |
|-------------|--|--------|---------|--------|--------|--------|--------|--------|--------|
| Pos. No.    | Part Description                           | Part # | Part #  | Part # | Part # | Part # | Part # | Part # | Part # |
| 27          | Power Cable w/ Gland- 115V,1PH             | 2713X  | -       | -      | -      | -      | -      | -      | -      |
| 27          | Power Cable w/ Gland-230V, 1PH, No Plug    | 2713BX | 2713BX  | -      | -      | -      | -      | -      | -      |
| 27          | Power Cable w/ Gland- 3PH                  | -      | -       | 2722X  | 2722X  | 2725X  | 2726X  | 2731X  | 2731X  |
| 27-1        | O-Ring (Kit Only)                          | Kit    | Kit     | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    |
| 27-2        | Oil Sensor Cable                           | 2736X  | 2736X   | 2736X  | 2736X  | 2736X  | 2736X  | 2736X  | 2736X  |
| 27-2-1      | O-Ring Kit Only                            | Kit    | Kit     | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    |
| 27-3        | Seal Minder Cap                            | 2738X  | 2738X   | 2738X  | 2738X  | 2738X  | 2738X  | 2738X  | 2738X  |
| 31D         | Oil Sensor w/Wire and Ring Term.           | 2330   | 2330    | 2330   | 2330   | 2330   | 2330   | 2330   | 2330   |
| 31E         | Ground Wire w/Ring Term.                   | 2776   | 2776    | 2776   | 2776   | 2776   | 2776   | 2776   | 2776   |
| 32          | Power Cord Line Clip / Strain Relief       | 3213   | 3213    | 3200   | 3200   | 3216   | 3217   | 3208   | 3208   |
| 33          | Oil Sensor Cord Line Clip                  | 3203   | 3203    | 3203   | 3203   | 3203   | 3203   | 3203   | 3203   |
| 34          | Handle / Chain Handle                      | 3420   | 3420    | 3420   | 3420   | 3413X  | 3413X  | 3418X  | 3418X  |
| 35          | Rod Bolts                                  | 4118   | 4119    | 4120   | 4121   | 4122   | 4123   | 4109   | 4110   |
| 38          | Discharge Nippple 2"                       | 3802X  | -       | 3802X  | -      | -      | -      | -      | -      |
| 38          | Discharge Nipple 3"                        | -      | 3804X   | -      | 3804X  | 3804X  | 3804X  | -      | -      |
| 38E         | Discharge Elbow                            | 3831PX | 3820PX  | 3831PX | 3820PX | 3820PX | 3820PX | 3821CX | 3821CX |
| 38E-1       | O-Ring, Discharge Elbow Viton              | 5127V  | 5128V   | 5127V  | 5128V  | 5128V  | 5128V  | -      | -      |
| 38E-1       | Gasket, Discharge Elbow Viton              | -      | -       | -      | -      | -      | -      | 4073V  | 4073V  |
| 38E-1       | Gasket, Discharge Elbow Buna-N (Optional)  | -      | -       | -      | -      | -      | -      | 4073   | 4073   |
| 38F         | Discharge Flange 2"                        | 3822PX | -       | 3822PX | -      | -      | -      | -      | -      |
| 38F         | Discharge Flange 3"                        | -      | 3810PX  | -      | 3810PX | 3810PX | 3810PX | -      | -      |
| 38F         | Discharge Flange 4"                        | -      | -       | -      | -      | 3816PX | 3816PX | 3806CX | 3806CX |
| 38F-1       | O-Ring, 2" Discharge Flange Viton          | 5125V  | -       | 5125V  | -      | -      | -      | -      | -      |
| 38F-1       | O-Ring, 3" Discharge Flange Viton          | -      | 5126V   | -      | 5126V  | 5126V  | 5126V  | -      | -      |
| 38F-1       | O-Ring, 4" Discharge Flange Viton          | -      | -       | -      | -      | 5129V  | 5129V  | -      | -      |
| 38F-1       | Gasket, 4" Discharge Flange Viton          | -      | -       | -      | -      | -      | -      | 4073V  | 4073V  |
| 38F-1       | Gasket, Discharge Flange Buna-N (Optional) | -      | -       | -      | -      | -      | -      | 4073   | 4073   |
| 50-01-2     | Bolt for Strainer/Stand                    | 5013   | 5013    | 5013   | 5013   | 5013   | 5013   | 5014   | 5014   |
| 50-02       | Bolt for Suction Cover                     | -      | -       | -      | -      | -      | -      | 5014   | 5014   |
| 50-07       | Screw for Oil Chamber/Motor Housing        | 5097   | 5097    | 5097   | 5097   | 5097   | 5097   | 5014   | 5014   |
| 50-08       | Screw for Oil Chamber Cover                | 5009   | 5009    | 5009   | 5009   | 5009   | 5009   | 5034   | 5034   |
| 50-11       | Screw for Oil Fill                         | 5008   | 5008    | 5008   | 5008   | 5008   | 5008   | 5008   | 5008   |
| 50-11-1     | O-Ring (Kit Only)                          | Kit    | Kit     | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    |
| 50-12       | Screw for Pressure Check                   | 5008   | 5008    | 5008   | 5008   | 5008   | 5008   | 5008   | 5008   |
| 50-12-1     | O-Ring (Kit Only)                          | Kit    | Kit     | Kit    | Kit    | Kit    | Kit    | Kit    | Kit    |
| 50-14-2     | Screw for Bearing Retainer                 | 5009   | 5009    | 5009   | 5009   | 5009   | 5009   | 5009   | 5009   |
| 50-19       | Screw for Gov. Switch Plate                | 5002   | 5002    | -      | -      | -      | -      | -      | -      |
| 50-23       | Screw for Overload                         | 5028   | 5028    | 5028   | 5028   | 5028   | 5028   | 5028   | 5028   |
| 50-27       | Screw for Power Cord                       | 5095   | 5095    | 5095   | 5095   | 5034   | 5034   | 5034   | 5034   |
| 50-27-2     | Screw for Oil Sensor Cord                  | 5095   | 5095    | 5095   | 5095   | 5095   | 5095   | 5095   | 5095   |
| 50-31E      | Screw for Ground Wire                      | 5000   | 5000    | 5000   | 5000   | 5000   | 5000   | 5000   | 5000   |
| 50-32/50-33 | Screw for Line Clip                        | 5001   | 5001    | 5001   | 5001   | -      | -      | -      | -      |
| 50-34       | Screw for Handle                           | 5009   | 5009    | 5009   | 5009   | -      | -      | -      | -      |
| 50-34-3     | Lock Washer                                | -      | -       | -      | -      | -      | -      | 402    | 402    |
| 50-38E      | Bolt for Discharge Elbow                   | 5093   | 5061    | 5093   | 5061   | 5061   | 5061   | 5079   | 5079   |
| 50-38F      | Bolt for Discharge Flange                  | 5014   | 5093    | 5014   | 5093   | 5093   | 5093   | 5081   | 5081   |
|             | O-Ring Kit - FKM                           | 4031PV | 4031PV  | 4046PV | 4046PV | 4044PV | 4044PV | 4045CV | 4045CV |
|             | O-Ring Kit - Buna-N (Optional)             |        | -       | -      | -      | -      | -      | -      | -      |



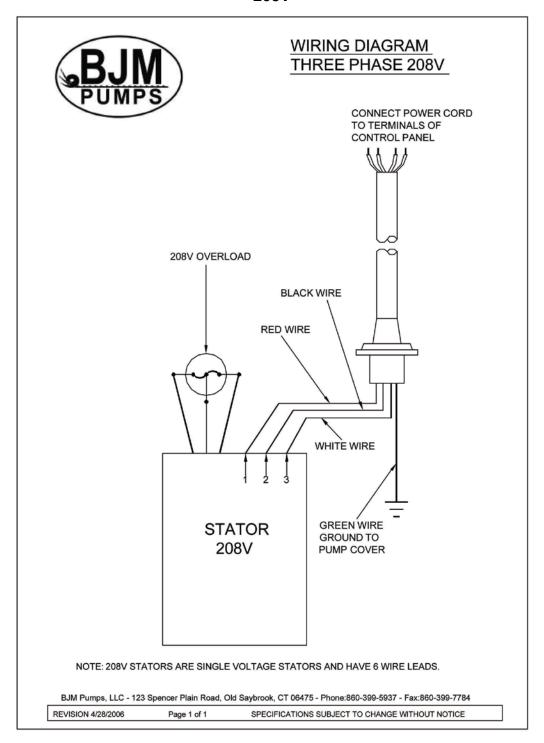
#### SINGLE PHASE WIRING DIAGRAM 115V & 230V W/GOVERNOR SWITCH



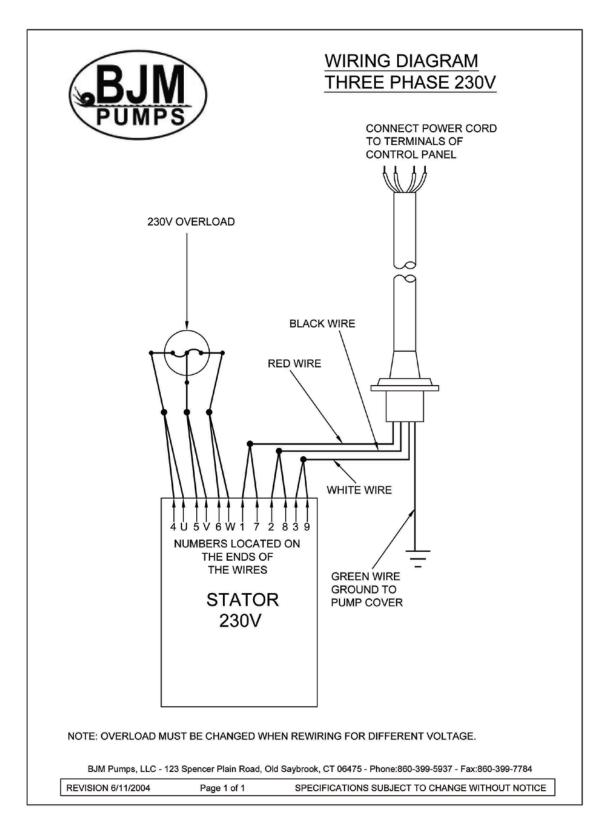
MODELS S750C, SX750CSS, S1500C, SX1500CSS

#### THREE PHASE WIRING DIAGRAMS

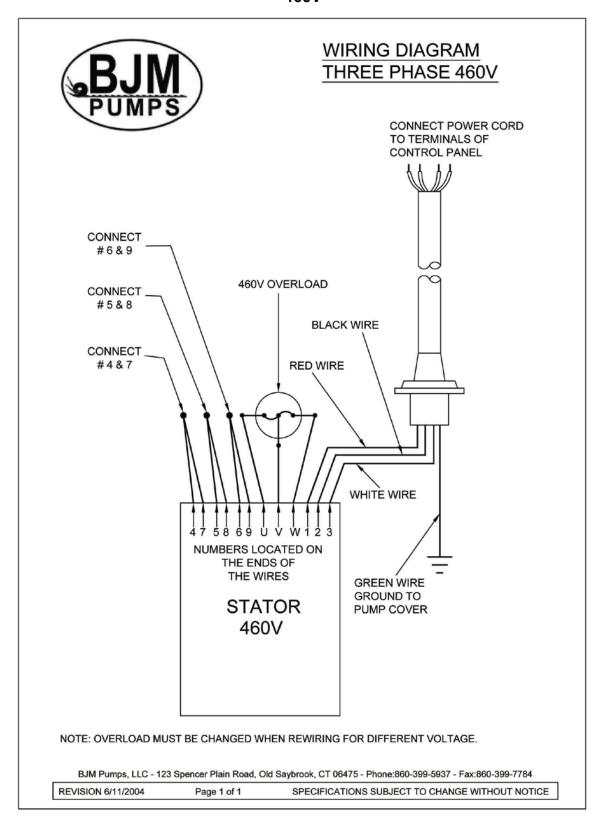
#### 208V



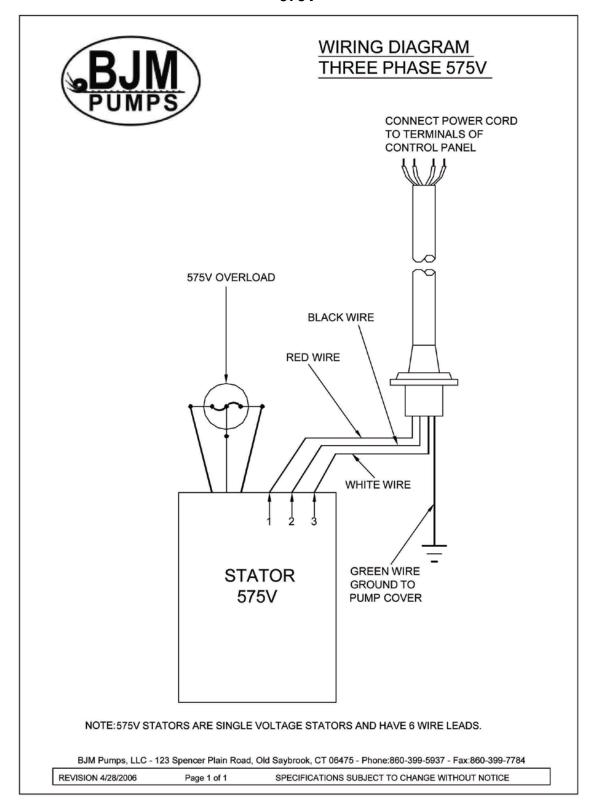
MODELS S08C, SX08CSS, S15C, SX15CSS, S22C, SX22CSS, S37C, SX37CSS, S55C, SX55CSS, S75C, SX75CSS



MODELS S08C, SX08CSS, S15C, SX15CSS, S22C, SX22CSS, S37C, SX37CSS, S55C, SX55CSS, S75C, SX75CSS



MODELS S08C, SX08CSS, S15C, SX15CSS, S22C, SX22CSS, S37C, SX37CSS, S55C, SX55CSS, S75C, SX75CSS



MODELS S08C, SX08CSS, S15C, SX15CSS, S22C, SX22CSS, S37C, SX37CSS, S55C, SX55CSS, S75C, SX75CSS

#### **SEAL MINDER®**



# Seal Minder® INFORMATION

#### Seal Minder:

Also known as a seal failure circuit (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 is inside the oil chamber. (The oil chamber houses the mechanical seals that are cooled & lubricated by oil). The **Seal Minder**, when properly connected to a control panel, can help indicate seal failure. The **Seal Minder** cord requires a seal fail circuit in control panel for warning signal.

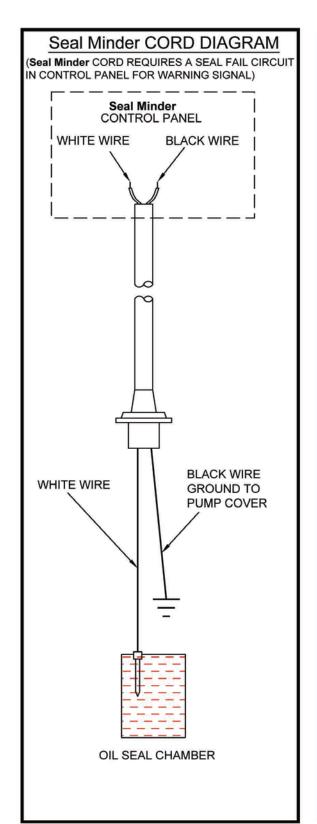
The open end of the **Seal Minder** circuit cord should be connected to a control panel with an optional seal failure alarm relay circuit or a standalone **Seal Minder** Panel manufacturers can incorporate the **Seal Minder** cord option. BJM Pumps, LLC has a stand alone, **Seal Minder** panel for both simplex (P/N MSP8350A) and duplex (P/N MSP8350B) systems. For more information contact BJM Pumps, LLC or visit us online at <a href="https://www.bjmpumps.com">www.bjmpumps.com</a>

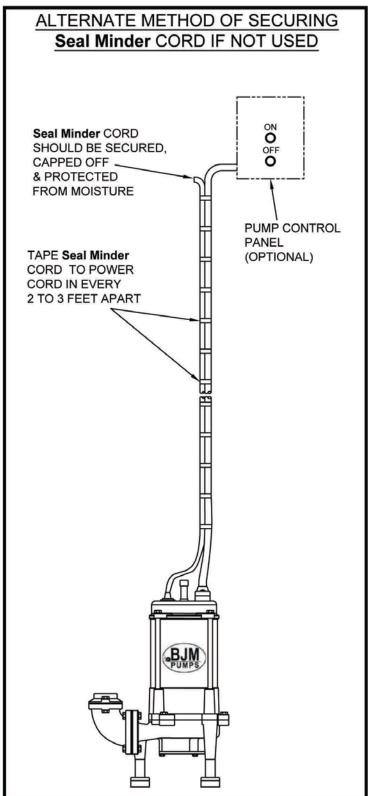
The **Seal Minder** cord has two leads, black and white. Note that the power cable is much larger and has 3 to five leads, depending on the model. Inside the pump, the black lead is connected to the casing ground, and the white lead is connected to the seal probe that is suspended into the oil chamber fluid. These leads need to be properly connected to the seal failure alarm relay circuit. Most controls that have provided for 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 stand alone seal panel to operate.

#### If the operator does not use the Seal Minder:

- 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.

BJM Pumps, LLC - 123 SPENCER PLAIN ROAD, OLD SAYBROOK, CT 06475 - PHONE: 860-399-5937 - FAX: 860-399-7784 BJM Pumps® & Seal Minder® is a registered trademark of BJM Pumps, LLC. Copyright 2006-2009. All rights reserved.

#### BJM PUMPS, LLC 123 Spencer Plain Road Old Saybrook, CT 06475, U.S.A.

#### 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

#### **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).

BJM Pumps, LLC 123 Spencer Plain Road Old Saybrook, CT. 06475

| Pump Owner's Name           |  |              |             |         |        |
|-----------------------------|--|--------------|-------------|---------|--------|
| Location of Installation    |  | Date of In   | stallation: |         |        |
| Dealer                      |  | Dealer Ph    | one ( )     |         |        |
| Date of Purchase            |  |              |             |         |        |
| Model                       |  | Serial No    |             |         |        |
| Voltage                     | Phase  | Hertz        | HP          |         |        |
| Does impeller turn freely   | / by hand?   |              | Yes         | ☐ No    |        |
| Condition of Equipment      |  | New          | Good        | ☐ Fair  | ☐ Poor |
| Condition of Cable Jacke    | et   | New          | Good        | Fair    | ☐ Poor |
|                             | npeller Rotation (viewed from bot<br>CC/W for counterclockwise): | tom)         |             |         |        |
| Resistance of cable and     | Pump Motor (measured at pum                                      | p control)   |             |         |        |
| Red-Blackohr                | ms Red-White   | ohms         | White-      | Black   | ohms   |
| Resistance of ground cir    | rcuit between control panel and                                  | outside of p | umps        |         |        |
|                             |  | Ohms         | -           |         |        |
| MEG OHM CHECK OF INSU       | JLATION  |              |             |         |        |
| Red to ground W             | Vhite to ground Black to   | ground       |             |         |        |
| Condition of location at s  | start-up   |              | Ory 🗌 We    | et []Mu | ddy    |
| Was equipment stored        |  |              | □Voo        |         |        |
| If YES, length of storage   | <del>)</del> :   |              | ☐ Yes       | ∐ No.   |        |
| Liquid being pump           |  |              |             |         |        |
| Debris in bottom of station | on?  |              | Yes         | ☐ No    |        |

#### **START-UP REPORT FORM**

| Are guide rails vertical?   | ☐ Yes ☐ No   |
|---|--|
| Is base elbow installed level?  | ☐ Yes ☐ No   |
| Liquid level controls: Model  |  |
| Is control installed away from turbulence?  | ☐ Yes ☐ No   |
| Float Operation C   | heck   |
| 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 some float), high level alarm on (omit  | • /  |
| ☐ Check here if using manual on/off only.   |  |
| Does liquid level ever drop below volute top?   | ☐ Yes ☐ No   |
| Control Panel MFG & model no.   |  |
| Number of pumps operated by control panel   |  |
| NOTE: At no time should hole be made in top of devices are utilized.  | f control panel, unless proper sealing   |
| Short Circuit protection:   | Type:  |
| Number and size of short circuit device(s)  | Amp rating:  |
| Overload type: Size:  | Amp rating:  |
| ••  | 1 0  |
| Do protective devices comply with pump motor amp rating?  | ☐ Yes ☐ No   |
|   |  |
| rating?   | ☐ Yes ☐ No   |
| rating?  Are all pump connections tight?  | ☐ Yes ☐ No ☐ Yes ☐ No ☐ Yes ☐ No   |
| rating?  Are all pump connections tight?  Is the interior of the panel dry?  Electrical readings  SINGLE PHAS   | ☐ Yes ☐ No ☐ If No, correct moisture problem.          |
| rating?  Are all pump connections tight?  Is the interior of the panel dry?  Electrical readings  | ☐ Yes ☐ No ☐ If No, correct moisture problem.          |
| rating?  Are all pump connections tight?  Is the interior of the panel dry?  Electrical readings  SINGLE PHAS  Voltage supply at panel line connection, pump off L1  Voltage supply at panel line connection, pump on L1  | Yes No  Yes No  Yes No  Yes No  If No, correct moisture problem.                                   |
| rating?  Are all pump connections tight?  Is the interior of the panel dry?  Electrical readings  SINGLE PHAS  Voltage supply at panel line connection, pump off L1  Voltage supply at panel line connection, pump on L1  Amperage load connection, pump on L1              | Yes No     Yes No     Yes No     If No, correct moisture problem.     E L2   L2 L2   L2 L2   L2 L2 |
| rating?  Are all pump connections tight?  Is the interior of the panel dry?  Electrical readings  SINGLE PHAS  Voltage supply at panel line connection, pump off L1  Voltage supply at panel line connection, pump on L1  Amperage load connection, pump on L1  THREE PHASI | Yes No     Yes No     Yes No     If No, correct moisture problem.     E L2   L2 L2   L2 L2   L2 L2 |
| rating?  Are all pump connections tight?  Is the interior of the panel dry?  Electrical readings  SINGLE PHAS  Voltage supply at panel line connection, pump off L1  Voltage supply at panel line connection, pump on L1  Amperage load connection, pump on L1              | Yes No     Yes No     Yes No     If No, correct moisture problem.     E L2   L2 L2   L2 L2   L2 L2 |
| rating?  Are all pump connections tight?  Is the interior of the panel dry?  Electrical readings  SINGLE PHAS  Voltage supply at panel line connection, pump off L1  Voltage supply at panel line connection, pump on L1  Amperage load connection, pump on L1  THREE PHASI | Yes No     Yes No     Yes No     If No, correct moisture problem.     E L2   L2 L2   L2 L2   L2 L2 |

#### **START-UP REPORT FORM**

| L1-L2                            | L2-L3               | L3-L1 |          |
|----------------------------------|---------------------|-------|----------|
| Amperage load connection, pum    | p on                |       |          |
| L1                               | L2                  | L3    |          |
|                                  | FINAL CHECK         |       |          |
| Is pump secured properly?        |                     | ☐ Yes | ☐ No     |
| Was pump checked for leaks?      |                     | Yes   | □ No     |
| Do check valves operate properly | y?                  | Yes   | □No      |
| Flow: Do pumps appear to opera   | ite at proper rate? | ☐ Yes | □ No     |
| Noise level:                     | Acceptable          | Unac  | ceptable |
| Comments:                        |                     |       |          |
| Installed by:                    |                     |       |          |
| Company:                         |                     |       |          |
| Person:                          |                     |       |          |
| Date:                            |                     |       |          |

# NOTES:

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