INSTALLATION, OPERATION & MAINTENANCE MANUAL
FAHRENHEIT®
SVF SERIES
SIDE DISCHARGE
Electric Submersible Pumps

Single Phase
115V & 230V

CAST IRON
SINGLE PHASE
SV400F
SV750CF
SV1500CF

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.

Version 1/24/16

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BJMPumps

INTRODUCTION

This Installation, Operation and Maintenance manual provides important information on safety and the proper inspection, disassembly, reassembly and testing of the BJM Pumps® SVF Series submersible pump. This manual also contains information to optimize performance and longevity of your **BJM Pumps®** submersible pump. The F Series Fahrenheit® pumps are engineered to pump water based liquids up to 200° Fahrenheit (93°C).

The submersible SVF Series pumps are designed to pump municipal and industrial wastewater. The SVF Series pumps are not explosion-proof. They are not designed to pump volatile or flammable liquids.

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

If you have any questions regarding the inspection, disassembly, reassembly 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, LLC 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:

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
SV400F	5.1	150	ISO 32 NSF Food Grade Mineral Oil
SV750CF	9.3	275	ISO 32 NSF Food Grade Mineral Oil
SV1500CF	9.3	275	ISO 32 NSF Food Grade Mineral Oil

Note: The stator on this model is oil filled. This needs to be changed annually when the seal oil is changed. With the power cable entry removed, fill the motor chamber with oil to a level that insures the oil is covering the motor windings by ½", and that will be above the upper bearing. Do not overfill, an air gap of 10-15% must be maintained for heat expansion.

PUMP INSTALLATION

SVF 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; SV400, SV750 (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.

Lifting:

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® SVF 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 www.flowsolutions.com or by calling Industrial Flow Solutions Operating, LLC at 860-399-5937. As a general rule, SVF Series side discharge pumps can pump down to a level above the suction cover. Pumping lower than the cover will permit air to enter the pump and cavitate, lose prime or become air bound.

⚠ CAUTION

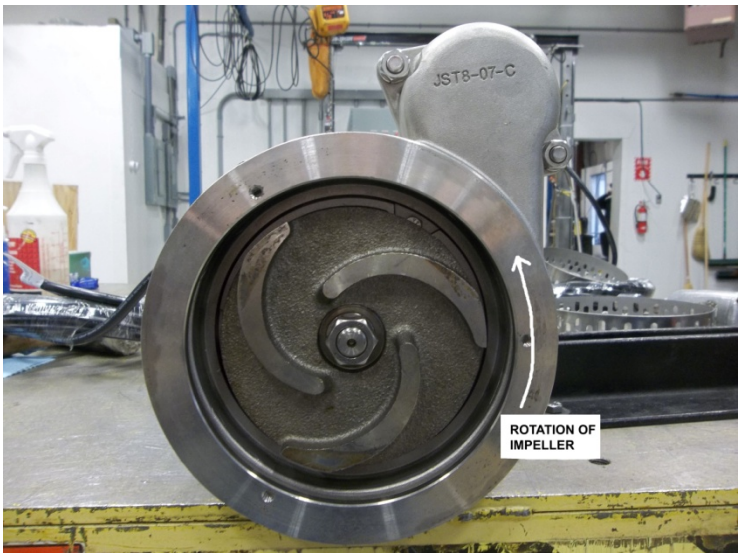
- Do not run the pump dry.
- Pump liquid should not exceed a maximum temperature of 200°F.
- Never place the pump on loose or soft ground. The pump may sink, preventing water from reaching the impeller. Place on a solid surface or suspend the pump with a lifting rope/chain.
- For maximum pumping capacity, 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.

PUMP ROTATION

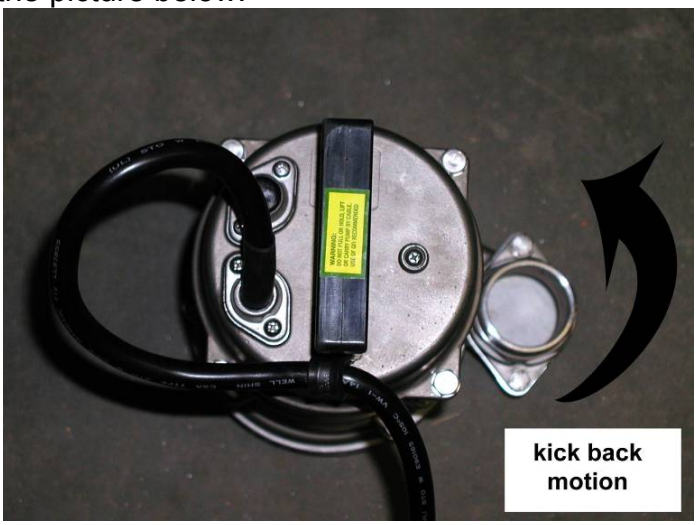
If wired properly to the control, the single phase BJM Pumps® SV-F Series pump should operate with the correct pumping rotation. Verification is recommended prior to installing into the sump basin.

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

⚠ 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 may result.**

TYPICAL MANUAL DEWATERING INSTALLATION

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

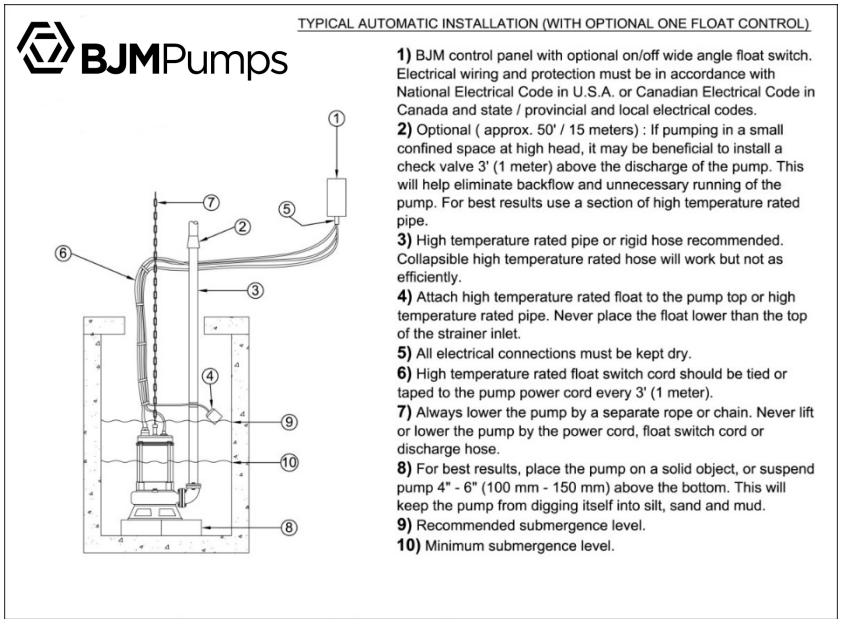
MANUAL OPERATION

All SVF models are provided with a 50' (15 m) power cable. NEVER splice the power cable due to safety and warranty considerations. Always keep the plug end dry.

⚠ 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.

The BJM Pumps® SV-F series pumps require a special control that contains the starting components, thermal sensor and Seal Minder connections. These pumps cannot be directly connected to a power source.

TYPICAL AUTOMATIC DEWATERING INSTALLATION



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

STOPPING

To stop the pump (manual and automatic mode),turn the pump off at the control, turn off the breaker, and/or turn the power source off (generator).

CONTROL PANELS CONNECTION OPTIONS

⚠ CAUTION Use 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

⚠WARNING **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 cable 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.

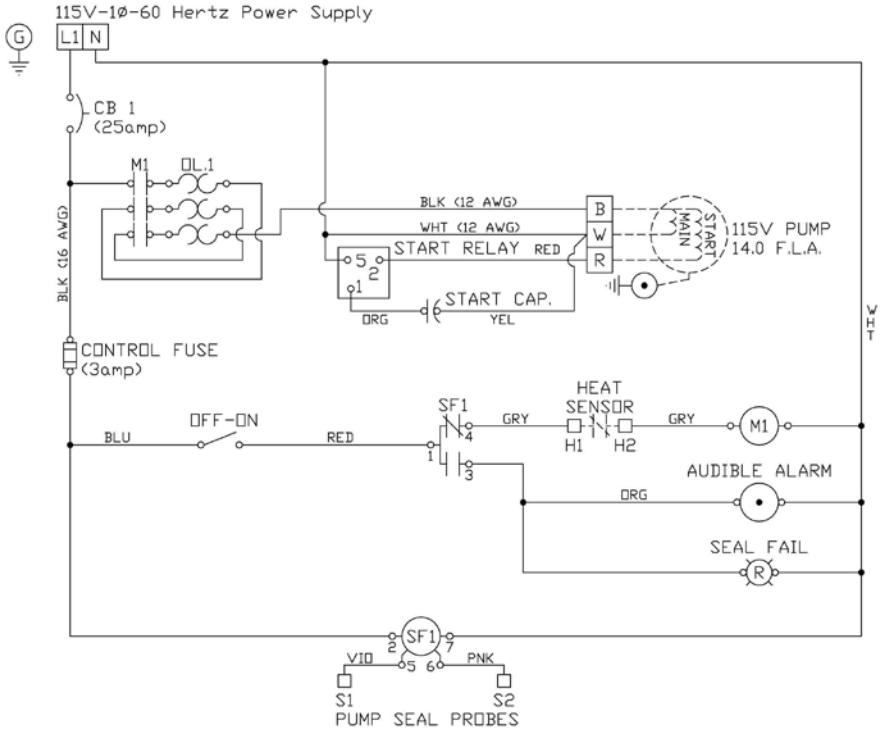


Figure 1 SV400F-115 and SV750F-115 control

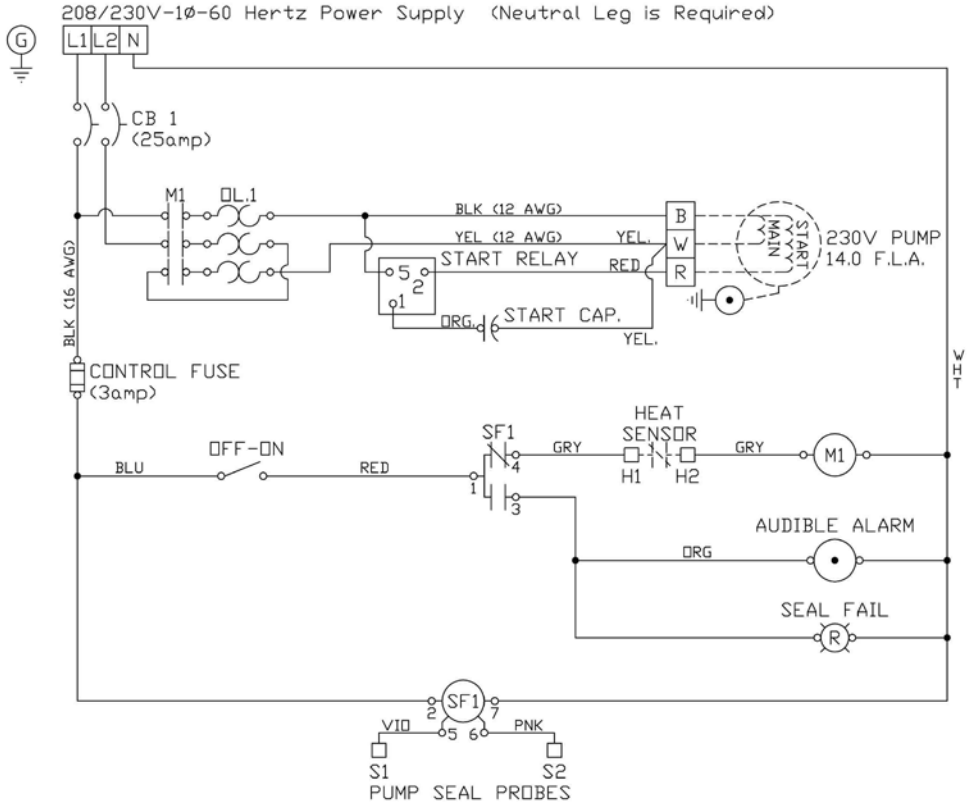


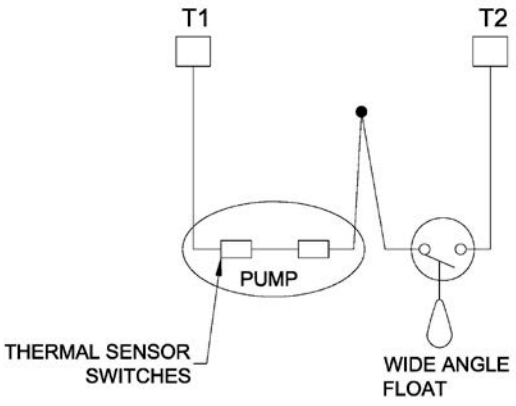
Figure 2 SV 400F-230, SV750F-230 and SV1500F-230 control

OPTIONAL FLOAT CONNECTION

BJM Pumps® utilizes a control for all of the single phase “F” series pumps. The wiring diagram included in this manual (and with the control) should be followed to properly connect the pump power and sensor leads to the control, and the power supply to the control. Care should be taken to make sure all of the connections are proper and that the system is properly grounded. The control can be utilized as a portable control or as a permanently mounted control enclosure. All Connections should be done to meet the National Electric Code and all applicable local codes and ordinances.

The BJM Pumps® control is supplied as a manual ON/OFF control. A wide angle float can be wired in series with the thermal sensors to allow the pumps to operate in an automatic mode. See the wiring diagram provided in this manual for proper connection. A separate alarm control with float is available as an option from BJM Pumps®.

Optional wide angle float connection - wire thermal heat sensor switches in series with wide angle float as shown:



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. 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. Capacitor or start relay in control failed.
8. Thermal sensor switch is open/or failed.

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. 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**.**

The design of the "F" series high temperature pump models is unique and requires specific knowledge to perform the proper assembly. BJM Pumps® recommends that all electrical service work be performed at the factory or by a factory trained and certified repair technician to insure that the materials and assembly methods meet BJM Pumps® standards.

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 (At least 2 times per year).
- 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 cables must be replaced. **(Never operate a pump with a cut, cracked or damaged power cable.)**
- 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 SVF series pumps is very easy.

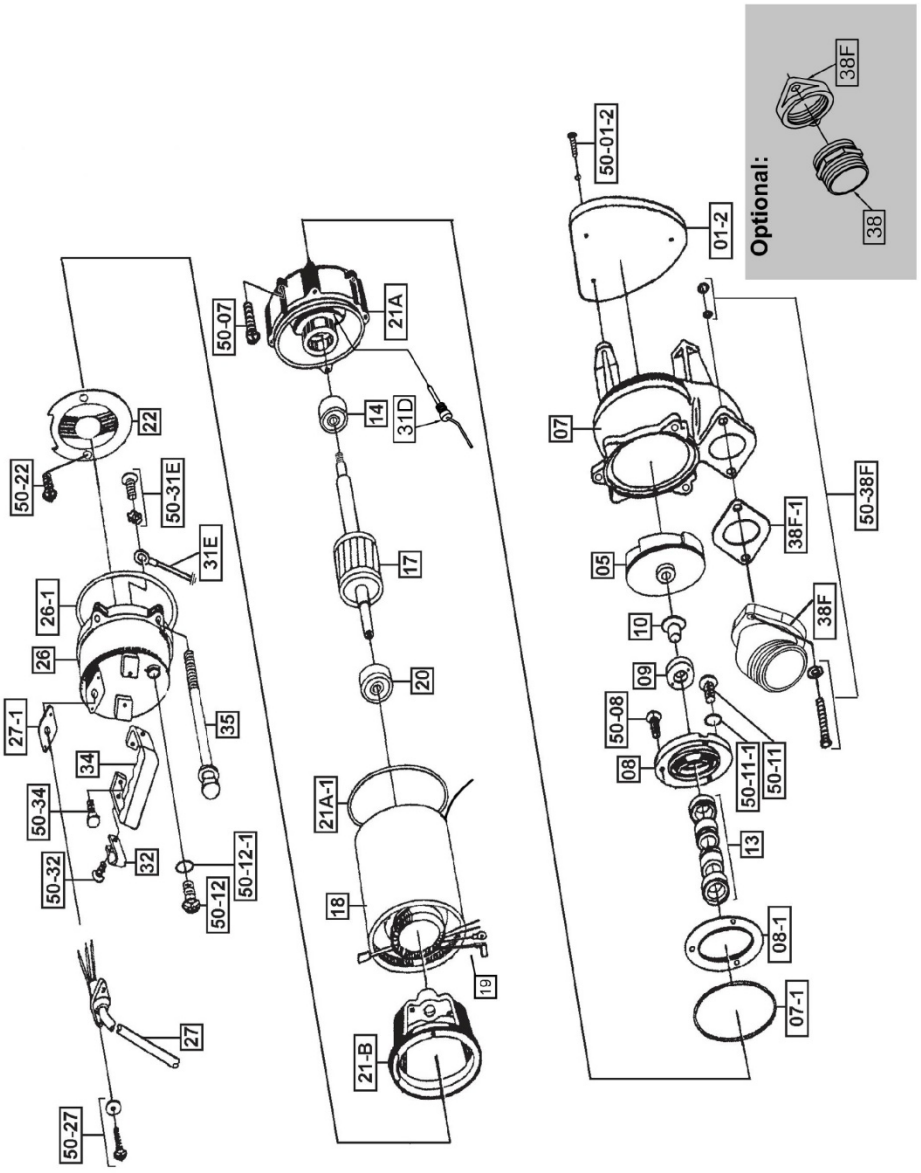
1) Make sure that the pump cable is disconnected from the power source.
2) Lay the pump down on its side.
3) Remove the screws that hold the bottom plate in place.
4) Remove bottom plate.
5) Remove screws holding the suction cover.
6) Remove the suction cover.
7) Remove the impeller.
8) Remove the inspection 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) Reassemble the pump.

STATOR REPLACEMENT OR ELECTRICAL REPAIR

The BJM Pumps® “F” Series designed pumps utilize unique construction methods and materials. The interconnection of all wiring requires the use of a BJM Pumps® wire connection kit. Included in this kit are specific instructions on how a qualified factory trained and certified repair technician can perform this work properly. No other materials or methods should be used on this product.

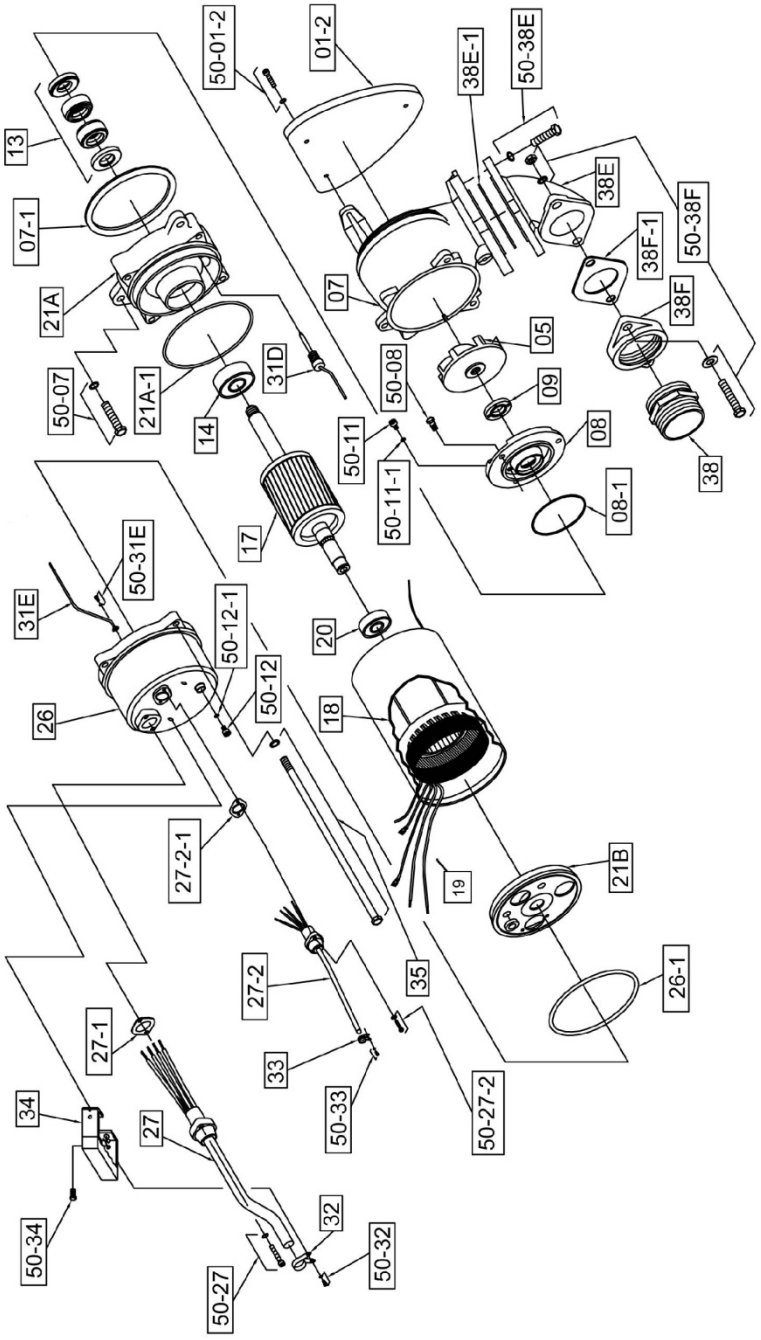
BJMPumps

EXPLODED VIEW OF SV400F



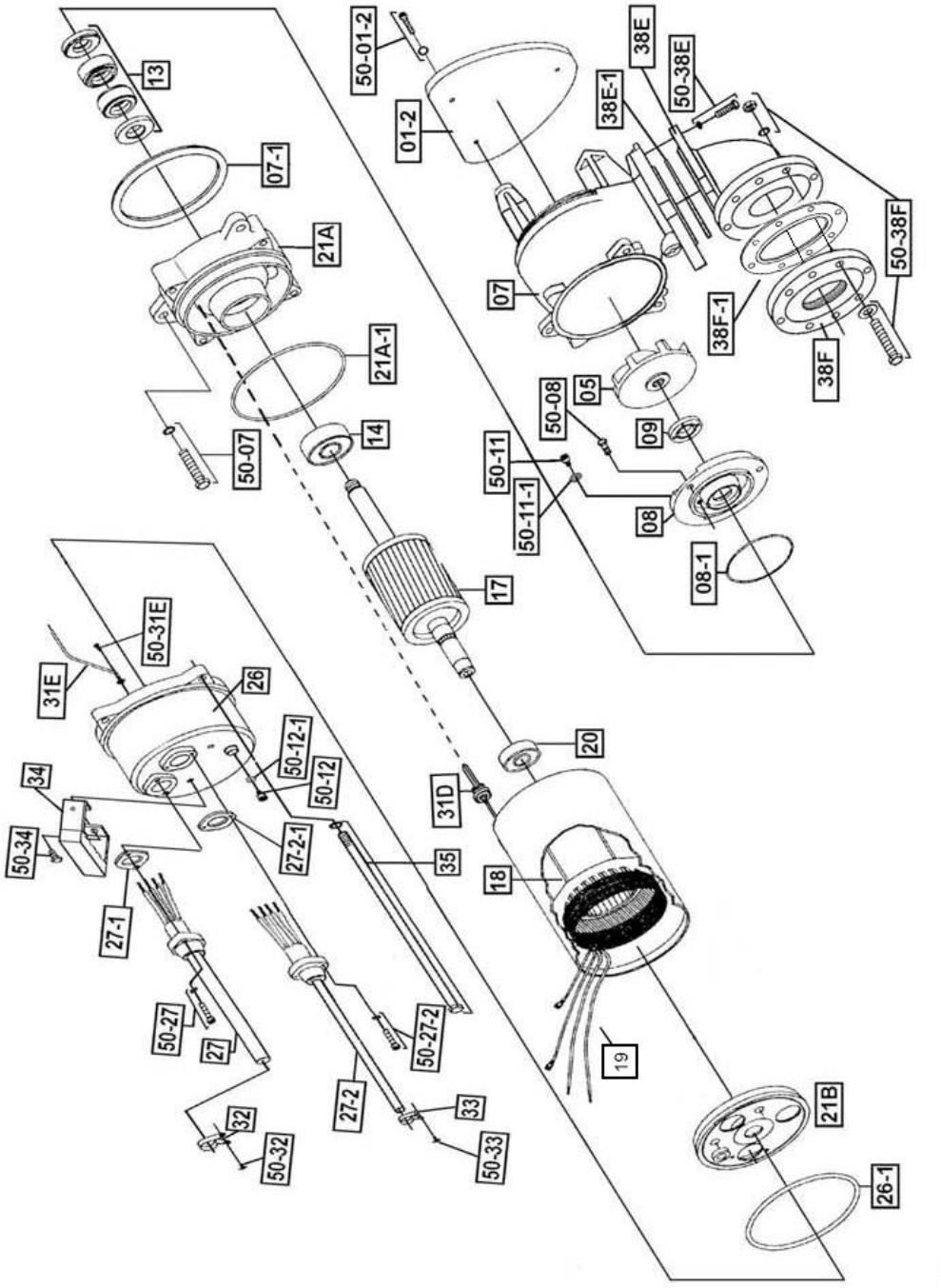
BJMPumps

EXPLODED VIEW OF SV750CF



BJMPumps

EXPLODED VIEW OF SV1500CF

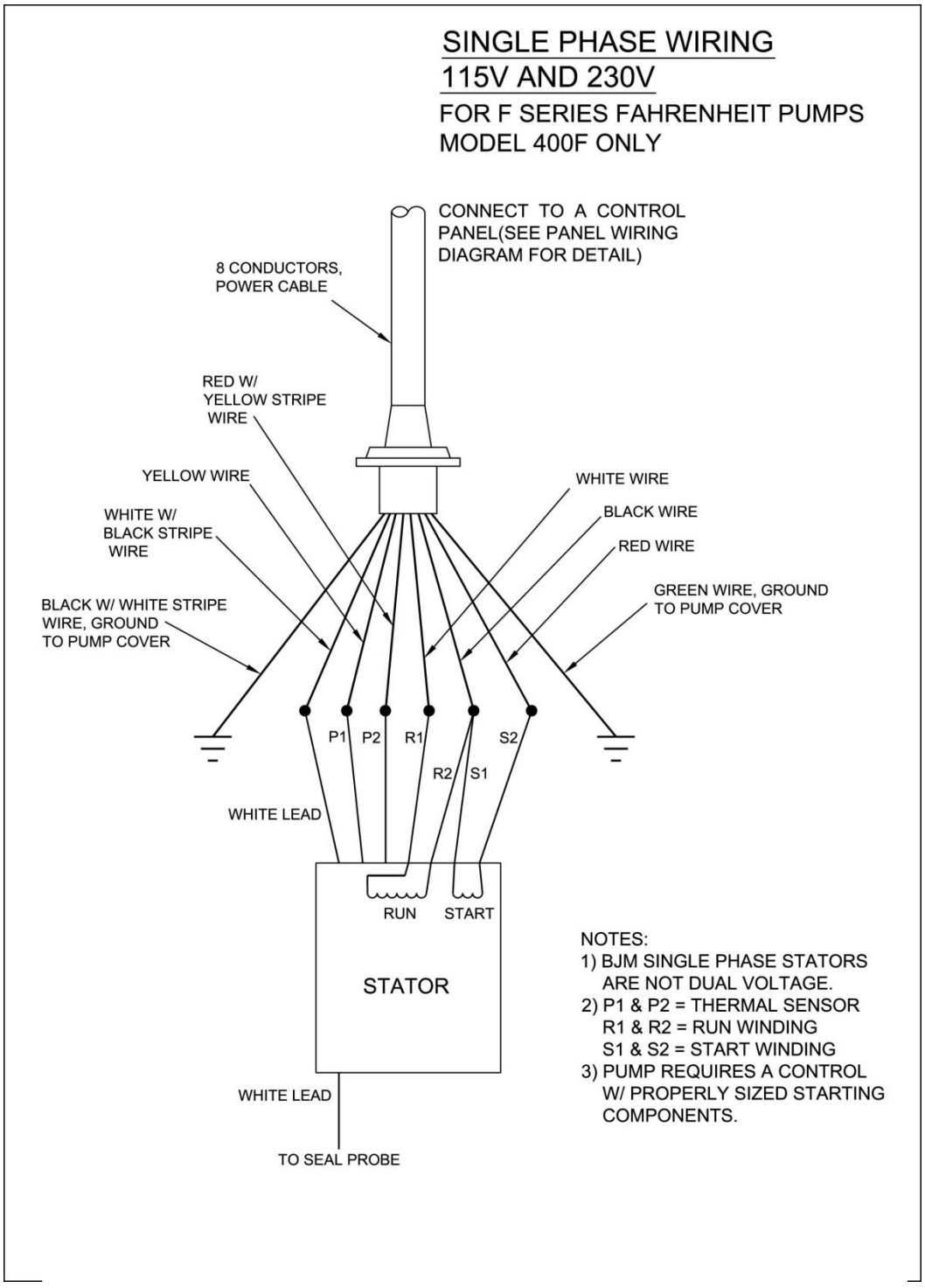


SVF SERIES PARTS LIST

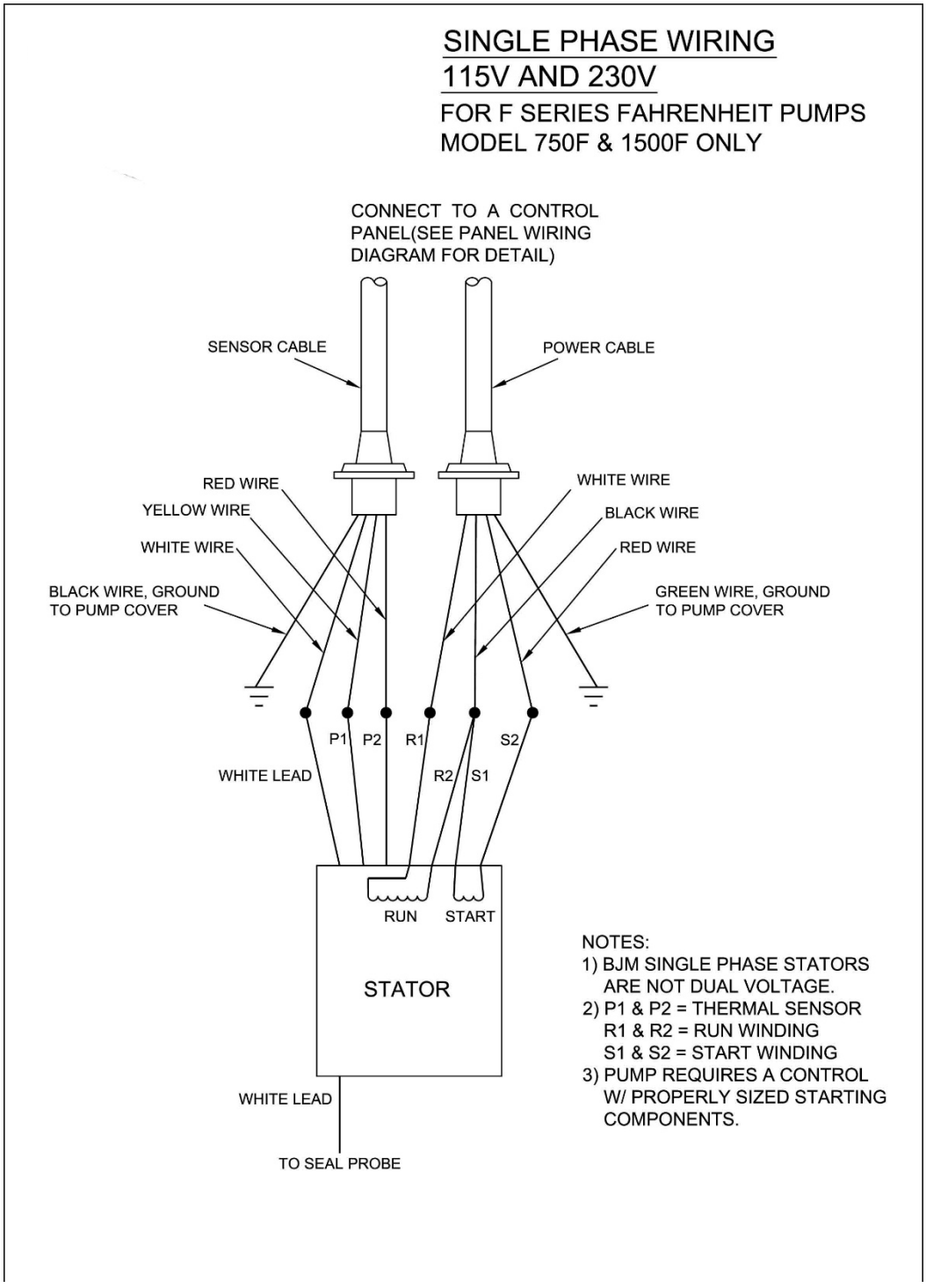
	Pump Model	SV400F	SV750CF	SV1500CF
Pos. No.	Part Description	Item #	Item #	Item #
01-2	Bottom Plate	202868	202037	202035
05	Impeller Vortex	202114	202115	202116
07	Pump Housing w/ Bottom Plate	202185	203016	202187
07-1	O-Ring (Kit Only)	Kit	Kit	Kit
08	Oil Chamber Cover	202207	203045	202211
08-1	O-Ring (Kit Only)	Kit	Kit	Kit
09	Lip Seal FKM	202230	202233	202233
10	Shaft Sleeve	202258	-	-
13	Mechanical Seal FKM	202260	204240	204240
14	Lower Ball Bearing	200493	200958	200958
17	Rotor w/ Shaft 115/ 230V, 1 PH	202302	204060	-
17	Rotor w/ Shaft 230V, 1 PH	-	-	204109
18	Stator Coil w/ Casing 115V, 1PH (High-Temp)	201032	201036	-
18	Stator Coil w/ Casing 230V, 1PH (High-Temp)	201033	201037	201040
19	Wire Connection Kit*	204204	204211	204211
20	Upper Ball Bearing	200957	200967	200967
21A	Oil Chamber Housing	202796	203018	203019
21A-1	O-Ring (Kit Only)	Kit	Kit	Kit
21B	Motor Cover Upper	202365	202368	202368
22	Motor Cover Plate	202380	-	-
26	Pump Top Cover	203120	202433	202433
26-1	O-Ring (Kit Only)	Kit	Kit	Kit
27	Power Cable w/ Gland-115V,1PH (High-Temp)	204457	204454	-
27	Power Cable w/ Gland-230V, 1PH (High-Temp)	204457	204456	204454
27-1	O-Ring (Kit Only)	Kit	Kit	Kit
27-2	Seal Minder Cable (High-Temp)	-	204455	204455
27-2-1	O-Ring (Kit Only)	-	Kit	Kit
31D	Seal Minder Probe	202409	202409	202409
31E	Ground Wire w/ Ring Term.	203145	203145	203145
32	Power Cord Line Clip	203161	203161	203161
33	Seal Minder Cable Line Clip	-	203163	203163
34	Handle	202517	202517	202517
35	Rods Bolts	202665	202666	202668
38	Discharge Nipple 2"	202531	202531	-
38	Discharge Nipple 3"	-	202534	-
38E	Discharge Elbow	-	202558	202557
38E-1	Gasket, Disch. Elbow, FKM	-	203209	203209
38F	Discharge Flange 2", 45°	202569	-	-
38F	Discharge Flange 2"	202562	202543	-
38F	Discharge Flange 3"	-	202545	203188
38F	Discharge Flange 4"	-	-	202606
38F	Discharge Connection, 4" FNPT	-	202552	-
38F-1	Gasket, Disch. Flange, FKM	203207	202660	201565
50-01-2	Screw for Bottom Plate	203216	203216	203216
50-07	Screw for Pump Housing	203238	203283	203283
50-08	Screw for Oil Chamber Cover	203215	203219	203219
50-11	Screw for Oil Fill	203218	203218	203218
50-11-1	O-Ring (Kit Only)	Kit	Kit	Kit
50-12	Screw for Pressure Check	203218	203218	203218
50-12-1	O-Ring (Kit Only)	Kit	Kit	Kit
50-22	Screw for Cover Plate	203214	-	-
50-27	Screw for Power Cord	203295	203216	203216
50-27-2	Screw for Seal Minder Cable	-	203216	203216
50-31E	Screw for Ground Wire	202692	202692	202692
50-32	Screw for Line Clip	203214	203214	203214
50-33	Screw for Line Clip	-	203214	203214
50-34	Bolt for Handle	203219	203219	203219
50-38E	Bolt for Discharge Elbow	-	203267	203267
50-38F	Bolt for Discharge Flange	203230	203253	203277
	O-Ring Kit - FKM	202777	202798	202798

***"F" Series High Temperature Pumps Only**

SINGLE PHASE WIRING DIAGRAMS 115V & 230V



MODELS SV400F



MODELS SV750CF, SV1500CF

SEAL MINDER®

THERMAL MOTOR SENSOR SWITCH

(For high temperature single phase pump models)

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** 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** cable requires a seal fail circuit in control panel for warning signal.

Along, with the **Seal Minder**, the Fahrenheit® Series high temperature pumps also feature thermal temperature sensor switches that are imbedded into the motor stator windings. Two switches are imbedded into the stator windings and wired in series. The leads are connected to the pump control panel through the sensor cable. If the windings would see a temperature above 300 degrees F, then the switch(s) would open and cut power to the pump. Once the temperature dropped below 300 degrees F, the switch(s) would reset, and the pump would be returned to a state of operation. This feature is designed to prevent damage to the stator winding and allow for longer pump life.

The sensor cable consists of four leads, two are connected to the **Seal Minder**, and two are connected to the thermal sensor switches located in the stator windings (Note on 400 models the sensor and power are in a single cable).These four leads run to the pump control panel and connect to the proper connections points for seal alarm and thermal cut off. The black and white wires on 750-1500 models, black with white stripes and white with black stripes on 400 models; are for the **Seal Minder** connections and the thermal sensors will be connected to the yellow and red wires on 750-1500 models, yellow and red with yellow stripes on 400 models (see details on wiring diagram). The single phase wiring diagram shown earlier in the manual will give a guide to the connections in the control panel. The manual for the control panel should be consulted for the exact connections.

The sensor cable with **Seal Minder** and thermal sensor switch connections is standard on all Fahrenheit® Series high temperature pumps (Note the 400 models have a different wire color code in the single cable design). The cable is designed for a high temperature environment. The proper replacement part can be found parts list found in this manual. BJM Pumps® can supply a control with the Seal Minder and Thermal sensor switch option. BJM Pumps® requires the **Seal Minder** and thermal sensor switches be used. Failure to connect or misuse of these devices will **void warranty**.

BJMPumps

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

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?	☐ Yes ☐ No
Condition of Equipment	☐ New ☐ Good ☐ Fair ☐ Poor
Condition of Cable Jacket	☐ New ☐ Good ☐ Fair ☐ 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	☐ Dry ☐ Wet ☐ Muddy
Was equipment stored If YES, length of storage:	☐ Yes ☐ No.
Liquid being pump	
Debris in bottom of station?	☐ 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 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).		
☐ 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 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?	☐ Yes	☐ No
Are all pump connections tight?	☐ Yes	☐ No
Is the interior of the panel dry?	☐ Yes If No, correct moisture problem.	☐ No
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?	☐ Yes	☐ No
Was pump checked for leaks?	☐ Yes	☐ No
Do check valves operate properly?	☐ Yes	☐ No
Flow: Do pumps appear to operate at proper rate?	☐ Yes	☐ No
Noise level:	Acceptable ☐	Unacceptable ☐

Comments:

Installed by:

Company:

Person:

Date:

NOTES:

Industrial Flow Solutions Operating, LLC
104 John W Murphy Drive, New Haven, CT 06513, USA
Phone: (860) 399-5937 • Fax: (860) 399-7784
Email: sales@flowsolutions.com • Web Site: www.flowsolutions.com

INSTALLATION, OPERATION & MAINTENANCE MANUAL
FAHRENHEIT®
SVF SERIES
SIDE DISCHARGE
Electric Submersible Pumps

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

CAST IRON
THREE PHASE
SV08CF
SV15CF
SV22CF
SV37CF
SV55CF
SV75CF

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.

Version 1/24/16

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INTRODUCTION

This Installation, Operation and Maintenance manual provides important information on safety and the proper inspection, disassembly, reassembly and testing of the BJM Pumps® SVF Series submersible pump. This manual also contains information to optimize performance and longevity of your BJM submersible pump. The F Series Fahrenheit® pumps are engineered to pump water based liquids up to 200° Fahrenheit (93°C).

The submersible SVF Series pumps are designed to pump municipal and industrial wastewater. The SVF 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, reassembly 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, LLC 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:

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
SV08CF	9.3	275	ISO 32 NSF Food Grade Mineral Oil
SV15CF	9.3	275	ISO 32 NSF Food Grade Mineral Oil
SV22CF	3.4	100	ISO 32 NSF Food Grade Mineral Oil
SV37CF	3.4	100	ISO 32 NSF Food Grade Mineral Oil
SV55CF	27	800	ISO 32 NSF Food Grade Mineral Oil
SV75CF	27	800	ISO 32 NSF Food Grade Mineral Oil

Note: EPDM seals will use Propylene glycol instead of ISO 32 NSF Food Grade Mineral Oil.

PUMP INSTALLATION

SV 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.** To reduce the risk of electric shock, be certain that the SVF pump is connected only to a properly grounded circuit.

Lifting:

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® SVF 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 www.flowsolutions.com or by calling Industrial Flow Solutions Operating, LLC at 860-399-5937. As a general rule, SVF Series side discharge pumps can pump down to a level above the suction cover. Pumping lower than the cover will permit air to enter the pump and cavitate, lose prime or become air bound.

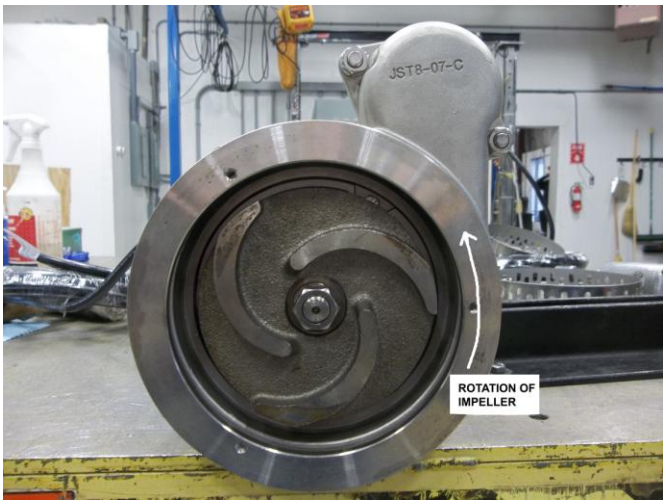
⚠ CAUTION

- Do not run the pump dry.
- Pump liquid should not exceed a maximum temperature of 200°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.

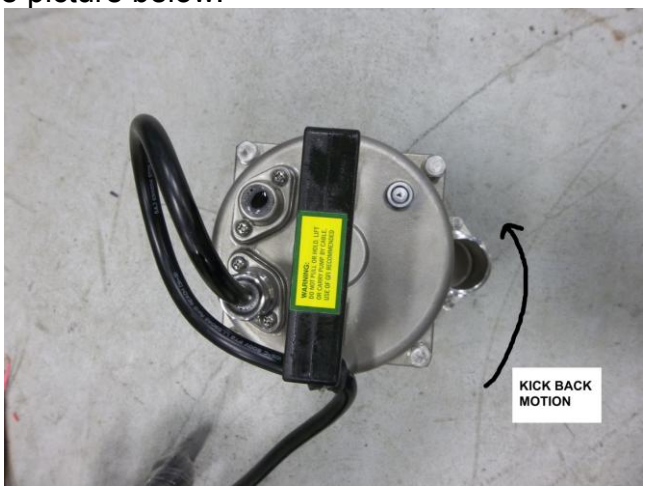
PUMP ROTATION

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

⚠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 MANUAL DEWATERING INSTALLATION

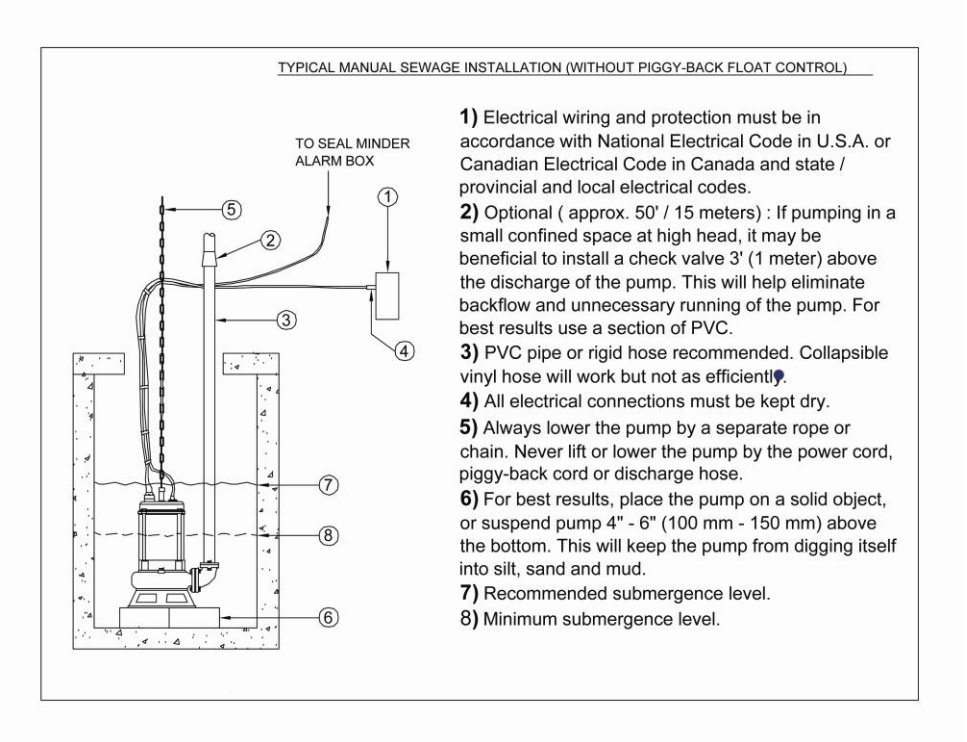
NOTE: Maximum recommended starts should not exceed 10 times per hour.

MANUAL OPERATION

All SVF models are provided with a 33' (10 m) power cable. NEVER splice the power cable due to safety and warranty considerations. Always keep the plug end dry.
Note: 208V, 230V, 460V & 575V three phase units do not have a plug and have to be provided separately.

⚠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.



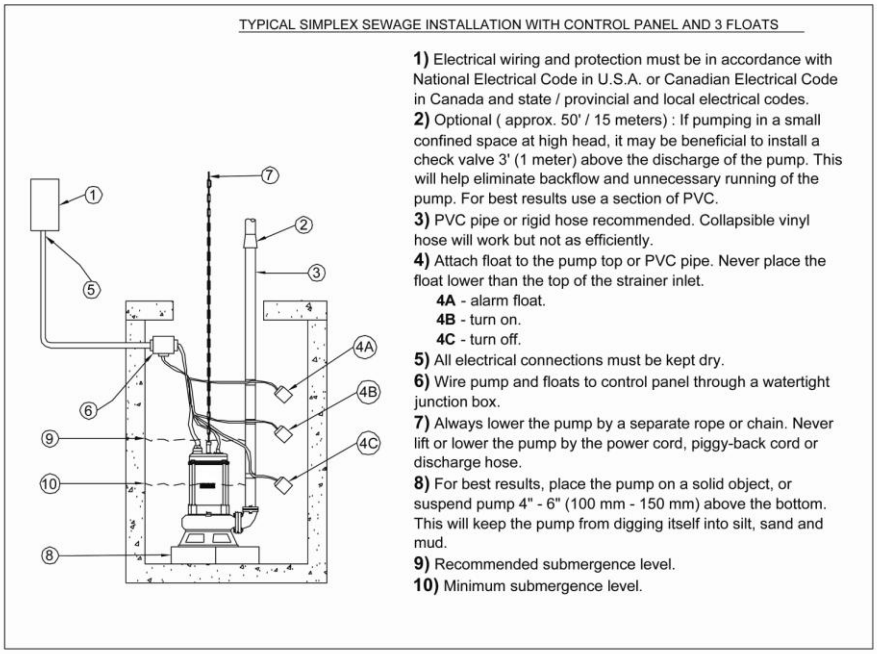
TYPICAL AUTOMATIC DEWATERING INSTALLATION

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

AUTOMATIC OPERATION

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.



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

⚠ CAUTION Use 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.

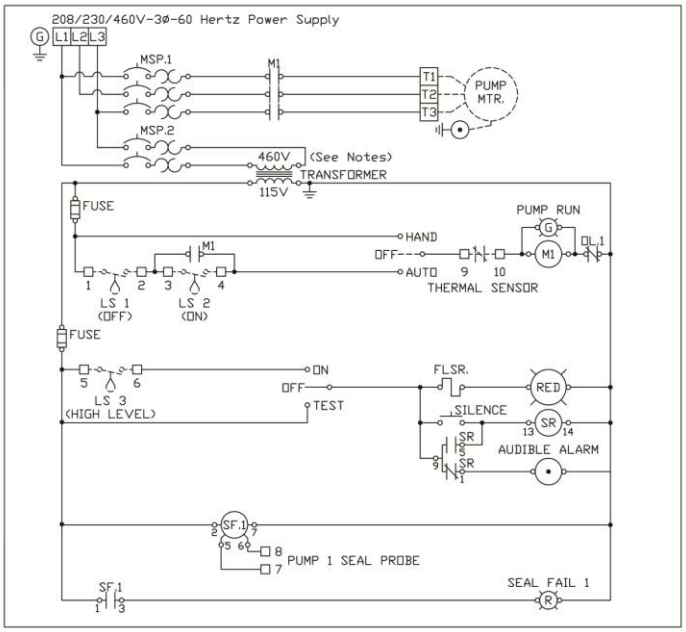
THREE PHASE WIRING INSTRUCTIONS

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

⚠ CAUTION **“Risk of electrical shock”** Do not remove power supply cable 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.



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 cable (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.**

BJM Pumps® three phase pumps have integral motor overload protection. BJM Pumps® recommends 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. 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**.**

The design of the "F" Series high temperature pump models is unique and requires specific knowledge to perform the proper assembly. BJM Pumps® recommends that all electrical service work be performed at the factory or by a factory trained and certified repair technician to insure that the materials and assembly methods meet BJM Pumps® standards.

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 cables must be replaced. **(Never operate a pump with a cut, cracked or damaged power cable.)**
- 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 SV series pumps is very easy.

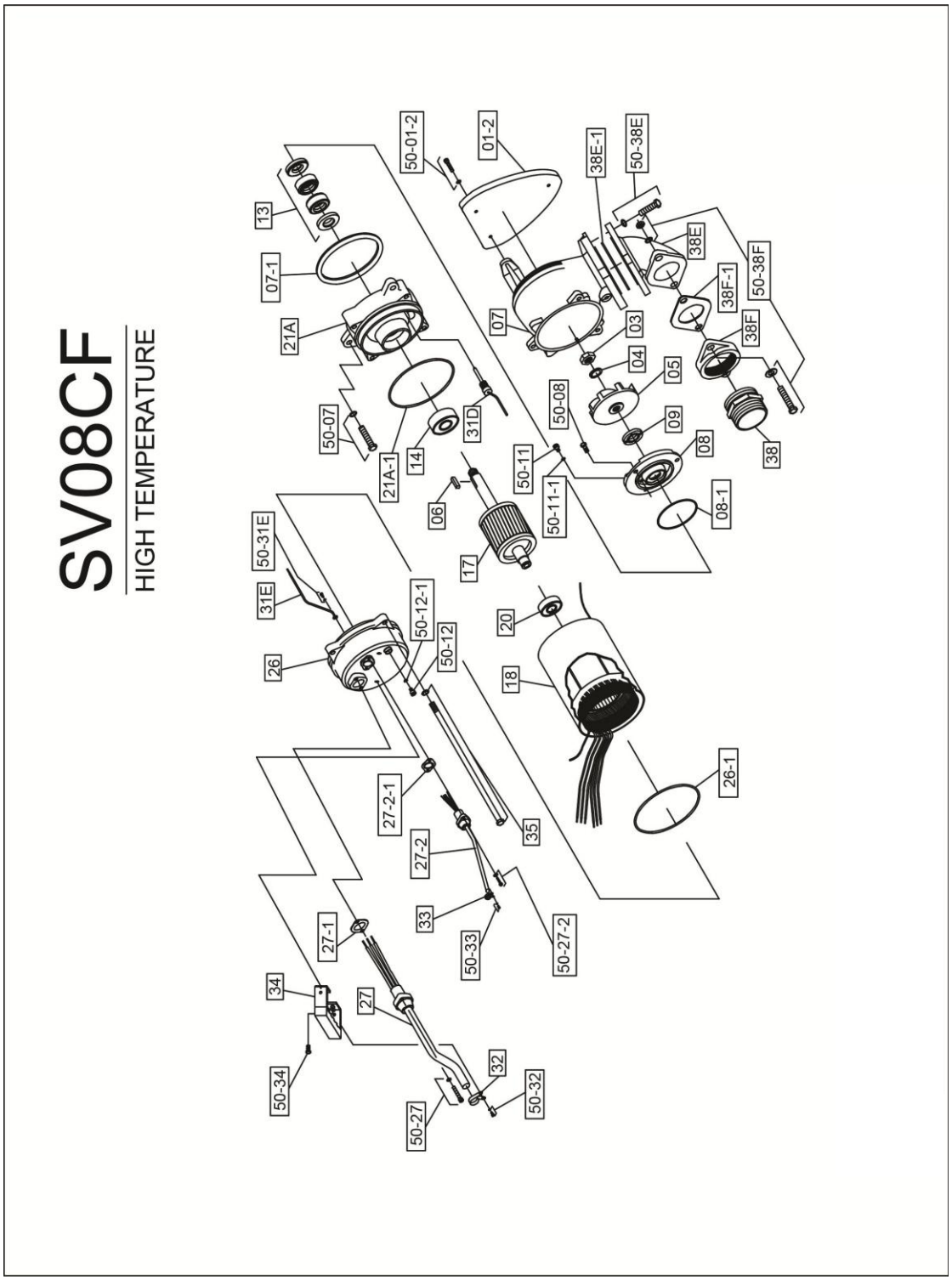
1) Make sure that the pump cable is disconnected from the power source.
2) Lay the pump down on its side.
3) Remove the screws that hold the bottom plate in place.
4) Remove bottom plate.
5) Remove screws holding the suction cover.
6) Remove the suction cover.
7) Remove the impeller.
8) Remove the inspection 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) Reassemble the pump.

STATOR REPLACEMENT OR ELECTRICAL REPAIR

The BJM Pumps® “F” Series designed pumps utilize unique construction methods and materials. The interconnection of all wiring requires the use of a BJM Pumps® wire connection kit. Included in this kit are specific instructions on how a qualified factory trained and certified repair technician can perform this work properly. No other materials or methods should be used on this product.

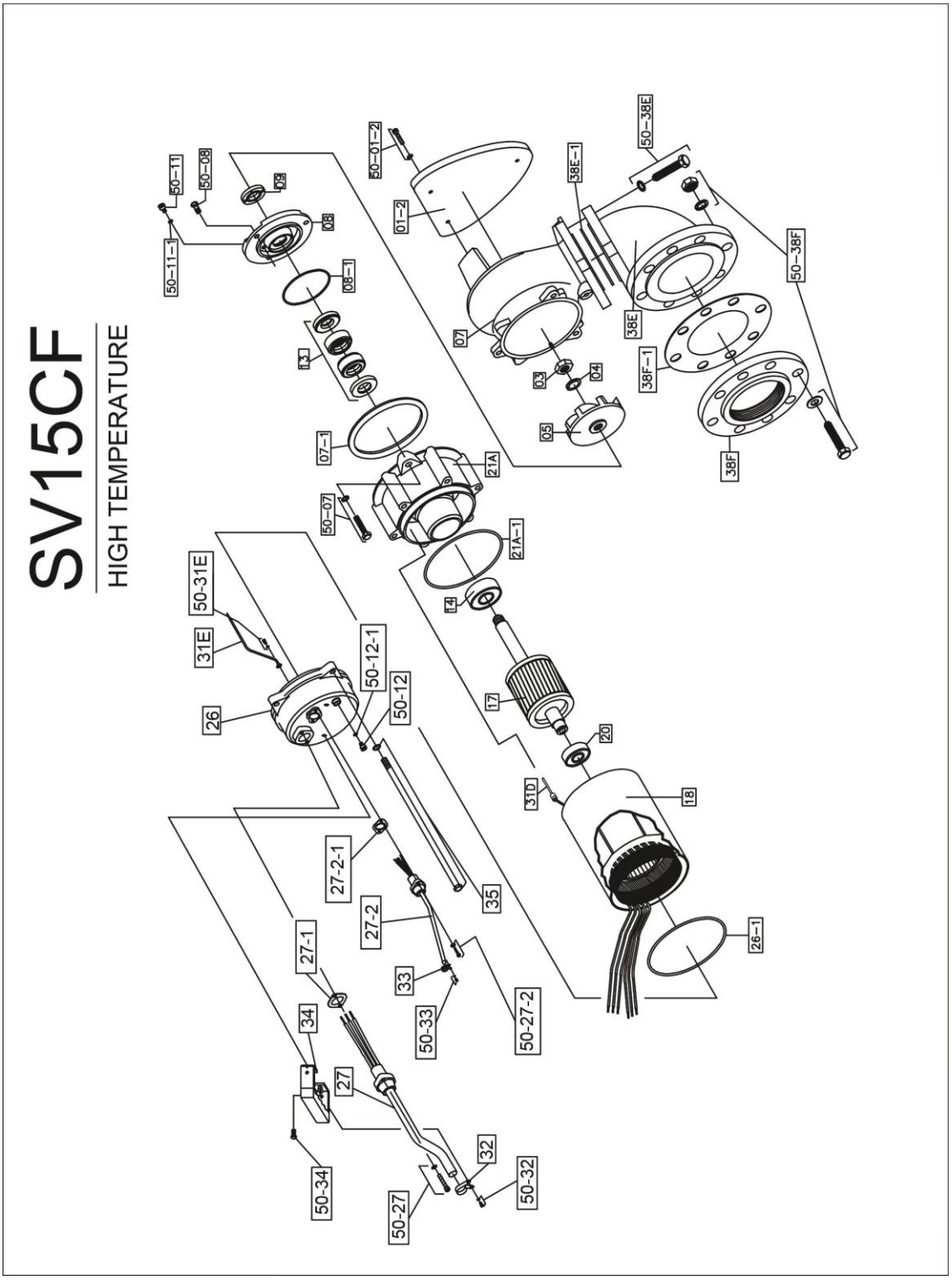
BJMPumps

EXPLODED VIEW OF SV08CF

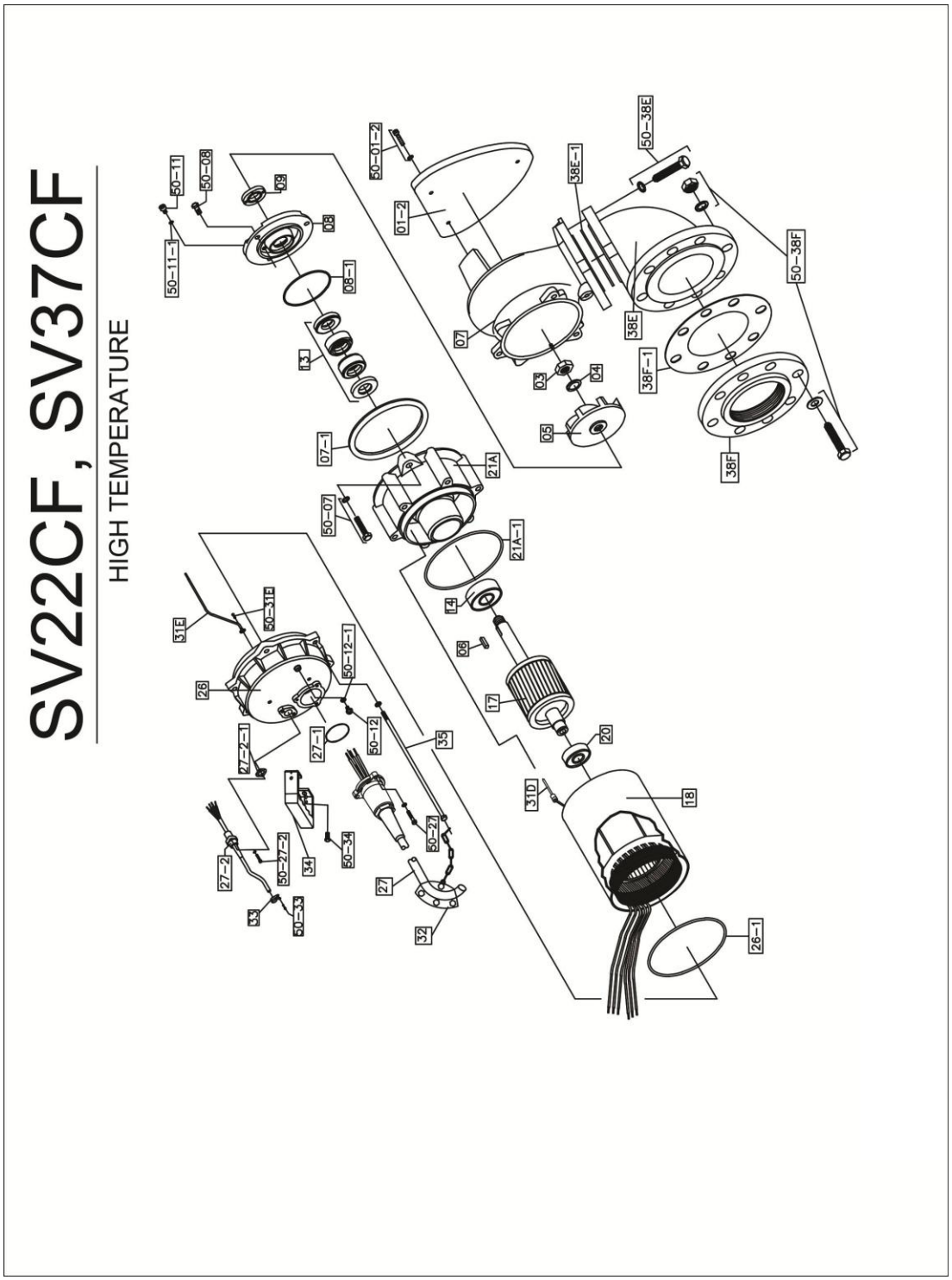


BJMPumps

EXPLODED VIEW OF SV15CF

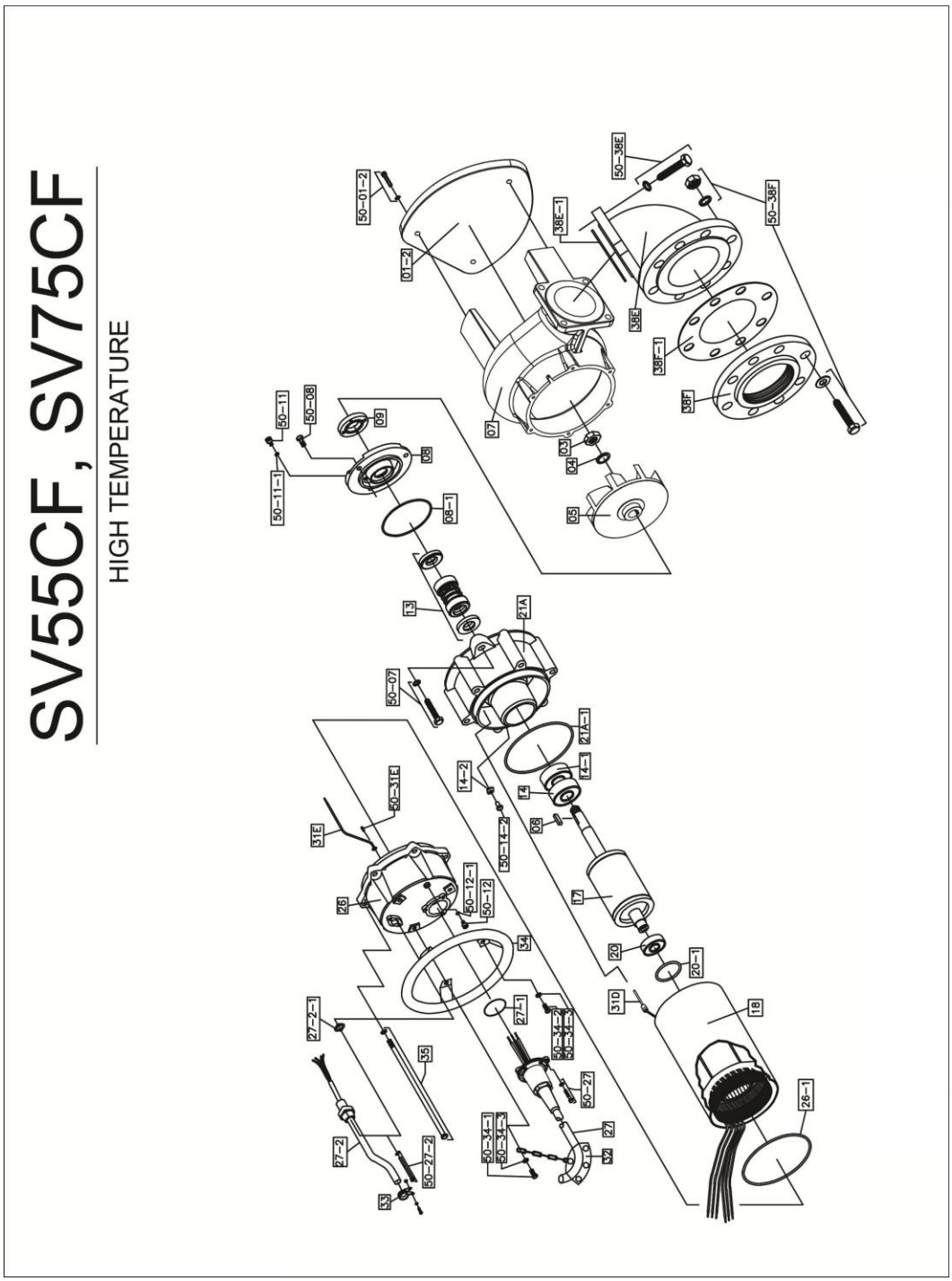


EXPLODED VIEW OF SV22CF, SV37CF



BJMPumps

EXPLODED VIEW OF SV55CF, SV75CF



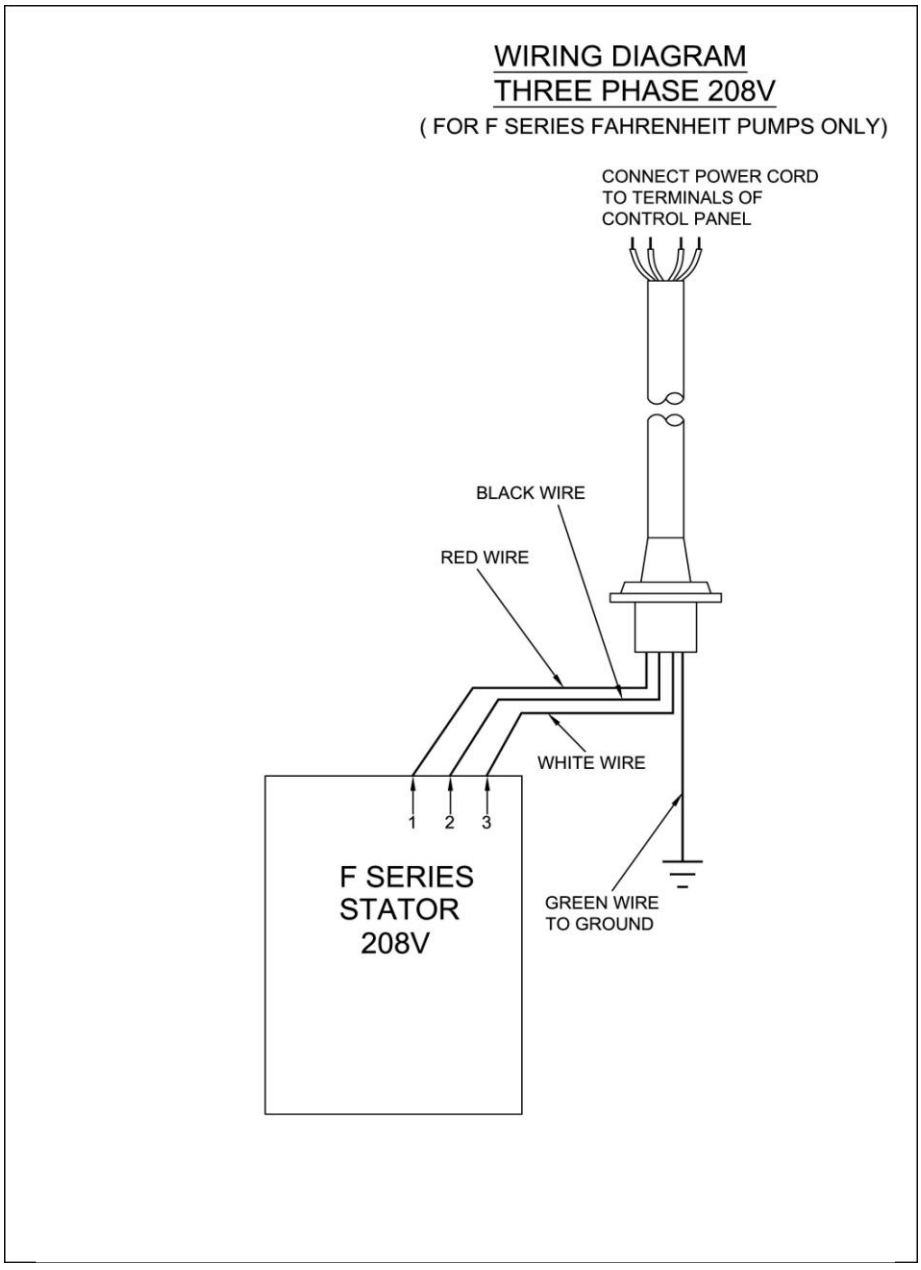
SVF SERIES PARTS LIST

	Pump Model	SV08CF	SV15CF	SV22CF	SV37CF	SV55CF	SV75C
Pos. No.	Part Description	Item #	Item #	Item #	Item #	Item #	Item #
01-2	Bottom Plate	202037	202035	201018	201018	202036	202036
03	Impeller Nut	202894	202894	202894	202894	202895	202895
04	Washer	202907	202907	202907	202907	202904	202904
05	Impeller Vortex	202118	202119	202120	202121	202129	202130
06	Impeller Key	202140	202140	202140	202140	202141	202141
07	Pump Housing w/ Bottom Plate	203016	202187	202188	202188	203023	203023
07-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	-	-
08	Oil Chamber Cover	203045	202211	203046	203046	203048	203048
08-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit
09	Lip Seal FKM	202233	202233	204389	204389	204390	204390
10	Shaft Sleeve	-	-	-	-	-	-
12	Lip Seal FKM	-	-	-	-	202236	202236
13	Mechanical Seal FKM**	204240	204240	204243	204243	200304	200304
14	Lower Ball Bearing	200958	200958	200959	200959	200961	200961
14-1	Lower Ball Bearing	-	-	-	-	200961	200961
14-2	Lower Bearing Retainer	-	-	-	-	202279	202279
17	Rotor w/ Shaft, 3PH	204015	204016	204475	204472	204717	204718
18	Stator w/ Casing 208, 3PH	200525	200529	200541	200543	-	-
18	Stator w/ Casing 230/460V, 3PH	200547	200551	200615	200621	200652	200654
18	Stator w/ Casing 575V, 3PH	200589	200593	200648	200650	200656	200658
20	Upper Ball Bearing	200967	200967	200958	200958	200959	200959
20-1	O-Ring (Kit Only)	-	-	-	-	Kit	Kit
21A	Oil Chamber Housing	203018	203019	203020	203020	203021	203021
21A-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit
21B	Motor Cover Upper	-	-	-	-	-	-
22	Motor Cover Plate	-	-	-	-	-	-
26	Pump Top Cover	202435	202435	202445	202445	202439	202439
26-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit
27	Power Cable w/ Gland- 3PH	204452	204452	203776	203776	203776	203776
27-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit
27-2	Seal Minder Cable	204453	204453	204453	204453	204453	204453
27-2-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit
31D	Seal Minder Probe	202409	202409	203998	203998	204000	204000
32	Power Cord Line Clip	203161	203161	204161	204161	204161	204161
33	Seal Minder Cable Line Clip	203163	203163	203163	203163	203163	203163
34	Handle	202517	202517	202517	202517	203171	203171
35	Rods Bolts	202669	202670	202671	202672	202674	202674
38	Discharge Nipple 2"	202531	-	-	-	-	-

38	Discharge Nipple 3"	202534	202534	202534	202534	-	-
38E	Discharge Elbow	202558	202557	202557	202557	202572	202572
38E-1	Gasket, Disch. Elbow, FKM	203209	203209	203209	203209	203211	203211
38F	Discharge Flange 2", 45°	-	-	-	-	-	-
38F	Discharge Flange 2"	202543	-	-	-	-	-
38F	Discharge Flange 3"	202545	203188	203188	203188	-	202575
38F	Discharge Flange 4"	-	202606	202606	202606	202575	-
38F	Discharge Connection, 4" FNPT	202552	-	-	-	-	202661
38F-1	Gasket, Disch. Flange, FKM	202660	201565	201565	201565	202661	202661
50-01-2	Screw for Bottom Plate	203216	203216	203220	203220	203220	203229
50-07	Screw for Pump Housing	203283	203283	203229	203229	203229	203220
50-08	Screw for Oil Chamber Cover	203219	203219	203219	203219	203220	203218
50-11	Screw for Oil Fill	203218	203218	203218	203218	203218	Kit
50-11-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	203218
50-12	Screw for Pressure Check	203218	203218	203218	203218	203218	Kit
50-12-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	203219
50-14-2	Screw Bearing Retainer	-	-	-	-	203219	-
50-19	Screw for Gov. Switch	-	-	-	-	-	-
50-19B	Screw for Gov. Switch Plate	-	-	-	-	-	-
50-22	Screw for Cover Plate	-	-	-	-	-	-
50-27	Screw for Power Cord	203216	203216	203220	203220	203220	203220
50-27-2	Screw for Seal Minder Cable	203216	203216	203216	203216	203216	203216
50-31E	Screw for Ground Wire	202692	202692	202692	202692	202692	202692
50-32	Screw for Line Clip	203214	203214	-	-	-	-
50-33	Screw for Line Clip	203214	203214	203214	203214	-	-
50-34	Bolt for Handle	203219	203219	203219	203219	-	-
50-34-1	Bolt for Handle w/ Cable Chain	-	-	-	-	203228	203228
50-34-2	Bolt for Handle	-	-	-	-	203288	203288
50-34-3	Lock Washer	-	-	-	-	202902	202902
50-38E	Bolt for Discharge Elbow	203267	203267	203267	203267	203286	203286
50-38F	Bolt for Discharge Flange	203253	203277	203277	203277	203277	203277
	O-Ring Kit	204393	204393	204394	204394	204395	204395

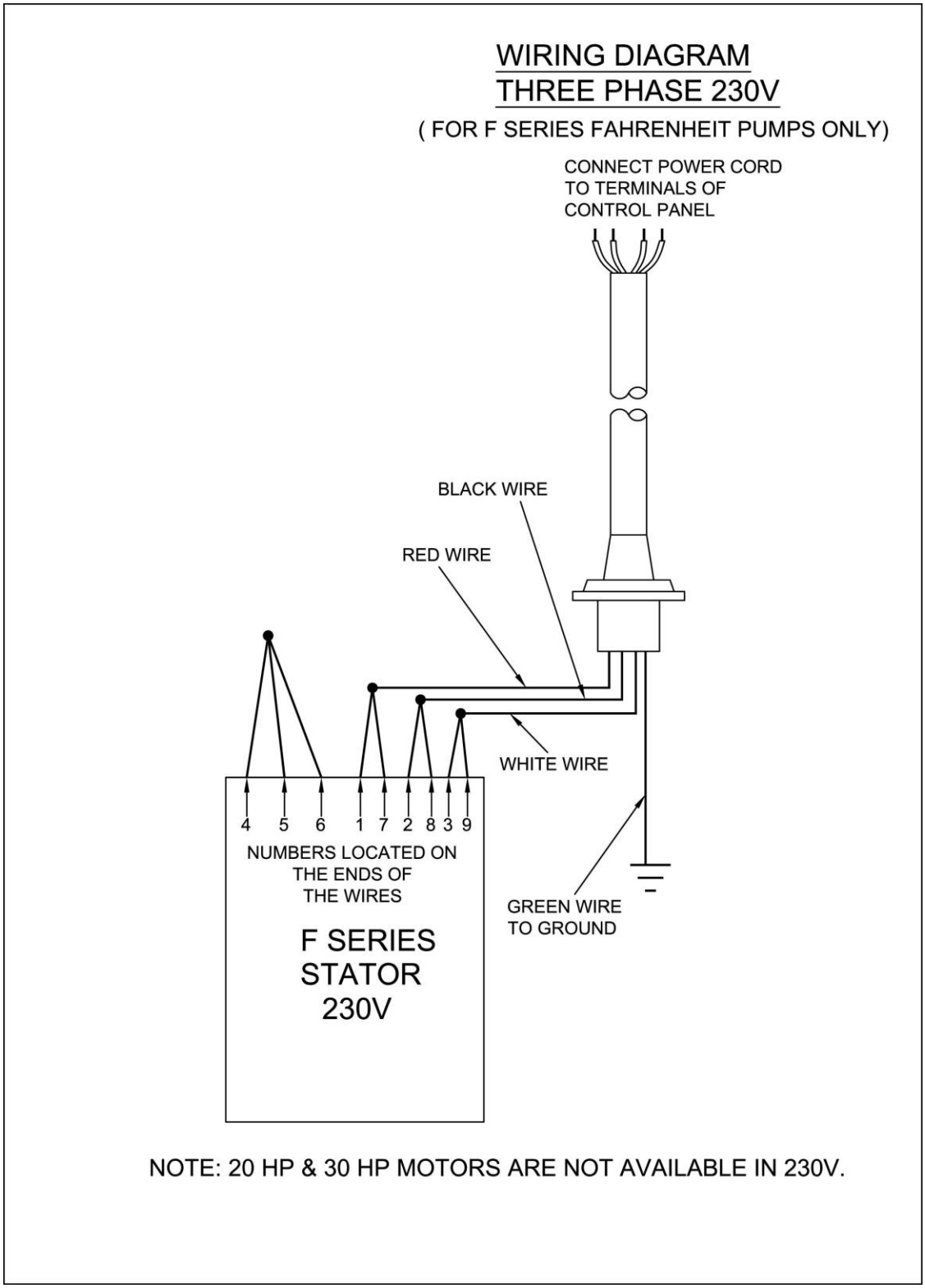
THREE PHASE WIRING DIAGRAMS

208V



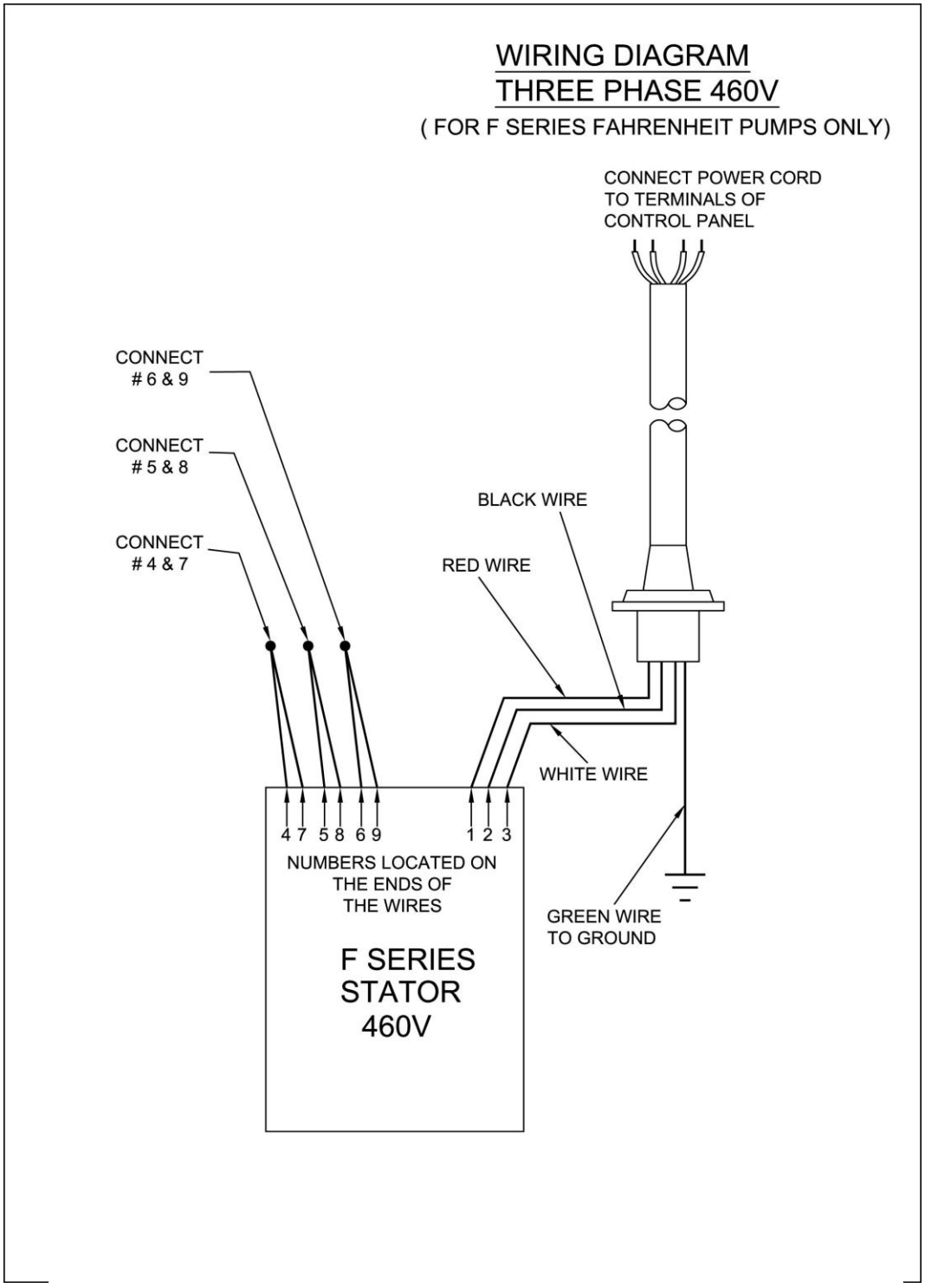
MODELS SV08CF, SV15CF, SV22CF, SV37CF, SV55CF

230V



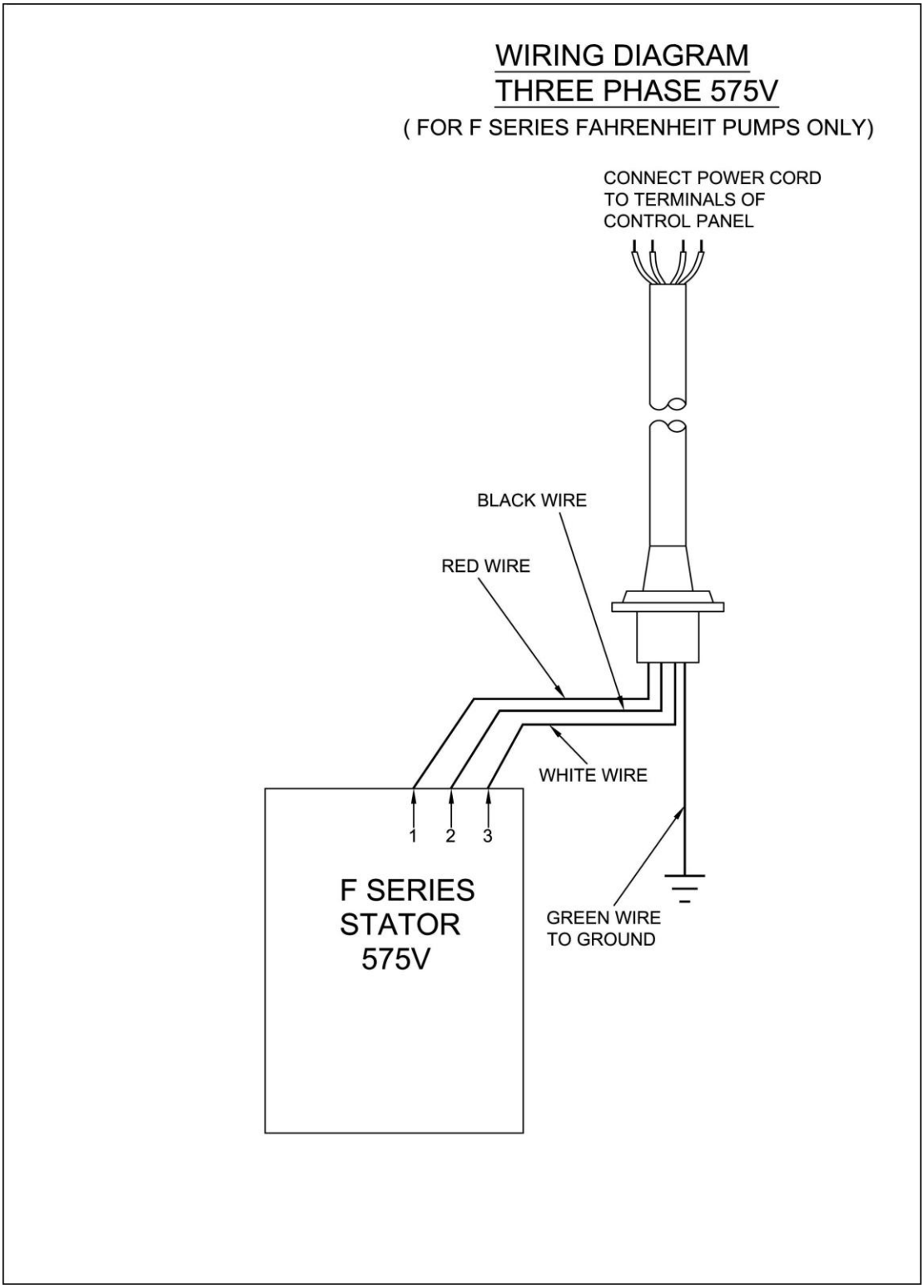
MODELS SV08CF, SV15CF, SV22CF, SV37CF, SV55CF, SV75CF

460V



MODELS SV08CF, SV15CF, SV22CF, SV37CF, SV55CF, SV75CF

575V



MODELS SV08CF, SV15CF, SV22CF, SV37CF, SV55CF, SV75CF

SEAL MINDER® - THERMAL MOTOR SENSOR SWITCH

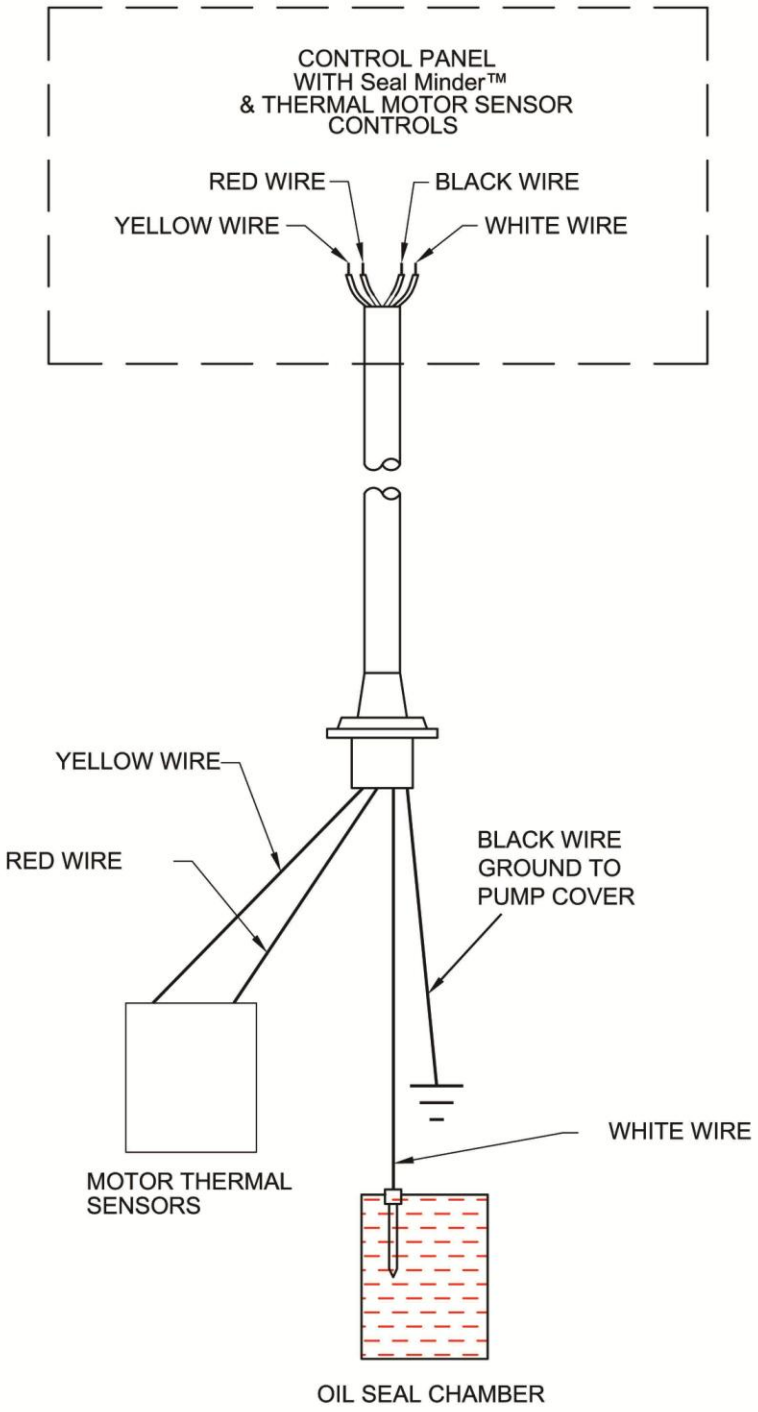
(For high temperature pump models)

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®** 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.

Along, with the **Seal Minder**, the Fahrenheit® Series high temperature pumps also feature thermal temperature sensor switches that are embedded into the motor stator windings. Three switches are embedded into the stator windings and wired in series. The leads are connected to the pump control panel through the sensor cable. If the windings would see a temperature above 300 degrees F, then the switch(s) would open and cut power to the pump. Once the temperature dropped below 300 degrees F, the switch(s) would reset, and the pump would be returned to a state of operation. This feature is designed to prevent damage to the stator winding and allow for longer pump life.

The sensor cable consists of four leads, two are connected to the **Seal Minder**, and two are connected to the thermal sensor switches located in the stator windings. These four leads run to the pump control panel and connect to the proper connections points for seal alarm and thermal cut off. The black and white wires are for the **Seal Minder** connections and the thermal sensors will be connected to the yellow and red wires. The three phase automatic wiring diagram shown earlier in the manual will give a guide to the connections in the control panel. The manual for the control panel should be consulted for the exact connections.

The sensor cable with **Seal Minder** and thermal sensor switch connections is standard on all Fahrenheit® Series high temperature pumps. The cable is designed for a high temperature environment. The proper replacement part can be found parts list found in this manual. BJM Pumps® can supply a control with the **Seal Minder** and Thermal sensor switch option. Separate stand alone Seal Minder alarm panels are also available. Consult your BJM Pumps representative for part numbers and ordering details. BJM Pumps® requires the **Seal Minder** and thermal sensor switches be used. Failure to connect or misuse of these devices will void warranty.



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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

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?	☐ Yes ☐ No
Condition of Equipment	☐ New ☐ Good ☐ Fair ☐ Poor
Condition of Cable Jacket	☐ New ☐ Good ☐ Fair ☐ 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	☐ Dry ☐ Wet ☐ Muddy
Was equipment stored If YES, length of storage:	☐ Yes ☐ No.
Liquid being pump	
Debris in bottom of station?	☐ 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 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).

☐ 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 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?	☐ Yes	☐ No
Are all pump connections tight?	☐ Yes	☐ No
Is the interior of the panel dry?	☐ Yes ☐ 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?	☐ Yes	☐ No
Was pump checked for leaks?	☐ Yes	☐ No
Do check valves operate properly?	☐ Yes	☐ No
Flow: Do pumps appear to operate at proper rate?	☐ Yes	☐ No
Noise level:	Acceptable ☐	Unacceptable ☐

Comments:

Installed by:

Company:

Person:

Date:

NOTES:

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