



INSTALLATION, OPERATION & MAINTENANCE MANUAL

FARHENHEIT™

KZN(R)-F SERIES HEAVY DUTY AGITATOR TOP DISCHARGE Electric Submersible Pumps

CAST IRON

Three Phase

208V, 230V, 460V, & 575V

KZN37-F
KZN37R-F
KZN55-F

KZN55CH-F
KZN55R-F
KZN55CHR-F

Three Phase

230V, 460V & 575V

KZN75-F
KZN75R-F
KZN110-F

KZN110H-F
KZN110R-F
KZN110HR-F

Three Phase

460V & 575V

KZN150-F
KZN150L-F
KZN150LR-F
KZN150R-F

KZN220-F
KZN220L-F
KZN220LR-F
KZN220R-F

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, reassembly and testing of the BJM Pumps® KZN-F Series submersible pump. This manual also contains information to optimize performance and longevity of your **BJM Pumps** submersible pump. The F Series **FARHRENHEIT™** pumps are engineered to pump water based liquids up to 200° Fahrenheit (93°C).

The submersible KZN-F Series pumps are designed to pump water and water based slurries. The KZN-F 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. Consult BJM Engineering if there is a question on chemical compatibility.

If you have any questions regarding the inspection, disassembly, assembly or testing please contact your **BJM Pumps** distributor, or BJM Pumps, LLC.

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123 Spencer Plain Rd.
Old Saybrook, CT 06475, USA

Fax: 860-399-7784
Phone: 877-256-7867
Phone: 860-399-5937

Information, including pump data sheets and performance curves, is also available on our web site: www.bjmpumps.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 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 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 sensor cable 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.

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

Models	Qty. oil in seal chamber		
	U.S. fl. oz.	C.C.	Type of oil
KZN37-F, 37R-F, 55-F, 55CH-F, 55R-F, 55CHR-F, 75-F, 75R-F	49	1450	ISO 32 Food Grade Mineral Oil
KZN110-F, 110H-F, 110R-F, 110HR-F, 150-F, 150L-F, 150LR-F, 150R-F	125	3700	ISO 32 Food Grade Mineral Oil
KZN220-F, 220L-F, 220LR-F, 220R-F	213	6300	ISO 32 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



1/2", 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

KZN-F 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. KZN-F Series pump models 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 or control panels.

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, KZN-F Series pumps are designed to operate fully or partially submerged. Do not run the pump dry. Refer to data sheet for minimum submersion depth for your particular model. Data sheets can be obtained online at www.bjmpumps.com or by calling BJM Pumps, LLC at 860-399-5937. As a general rule, KZN Series top discharge pumps can pump down to a level above the suction screen. Pumping lower than the screen will permit air to enter the pump and cavitate, lose prime or become air bound.

⚠ CAUTION

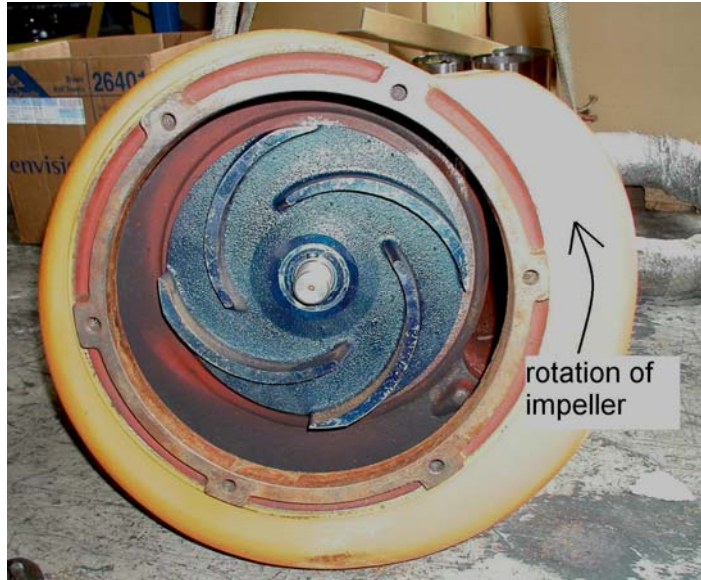
- Do not run pumps dry.
- Pump liquid should not exceed a maximum temperature of 200°F (93°C).
- Never place the pump on loose or soft ground. The pump may sink, preventing water from reaching the impeller. Place on a solid surface or suspend the pump with a lifting rope/chain. The KZN-F Series pumps 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

⚠ 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.

All KZN-F models are provided with a 50' (10m) power cord. NEVER splice the power cable due to safety and warranty considerations. Always keep the lead end dry.

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

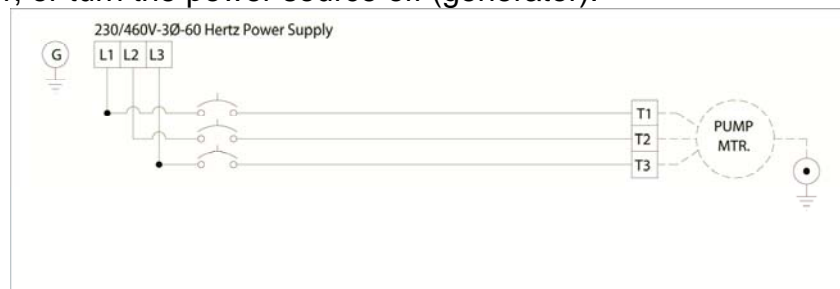
⚠ WARNING

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 or connect directly to the power source or control box. KZN-F model pumps are supplied with two grounding wires; one green for grounding to the panel; the other is orange and is to be used for grounding check systems or can be also connected to the grounding point on the control. Check the direction of the rotation. Tilt the pump and start it. It should twist in the opposite direction of the arrow (on pump). It is recommended that a Ground Fault Interrupter (GFI) type receptacle (or equivalent) be used.

STOPPING

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



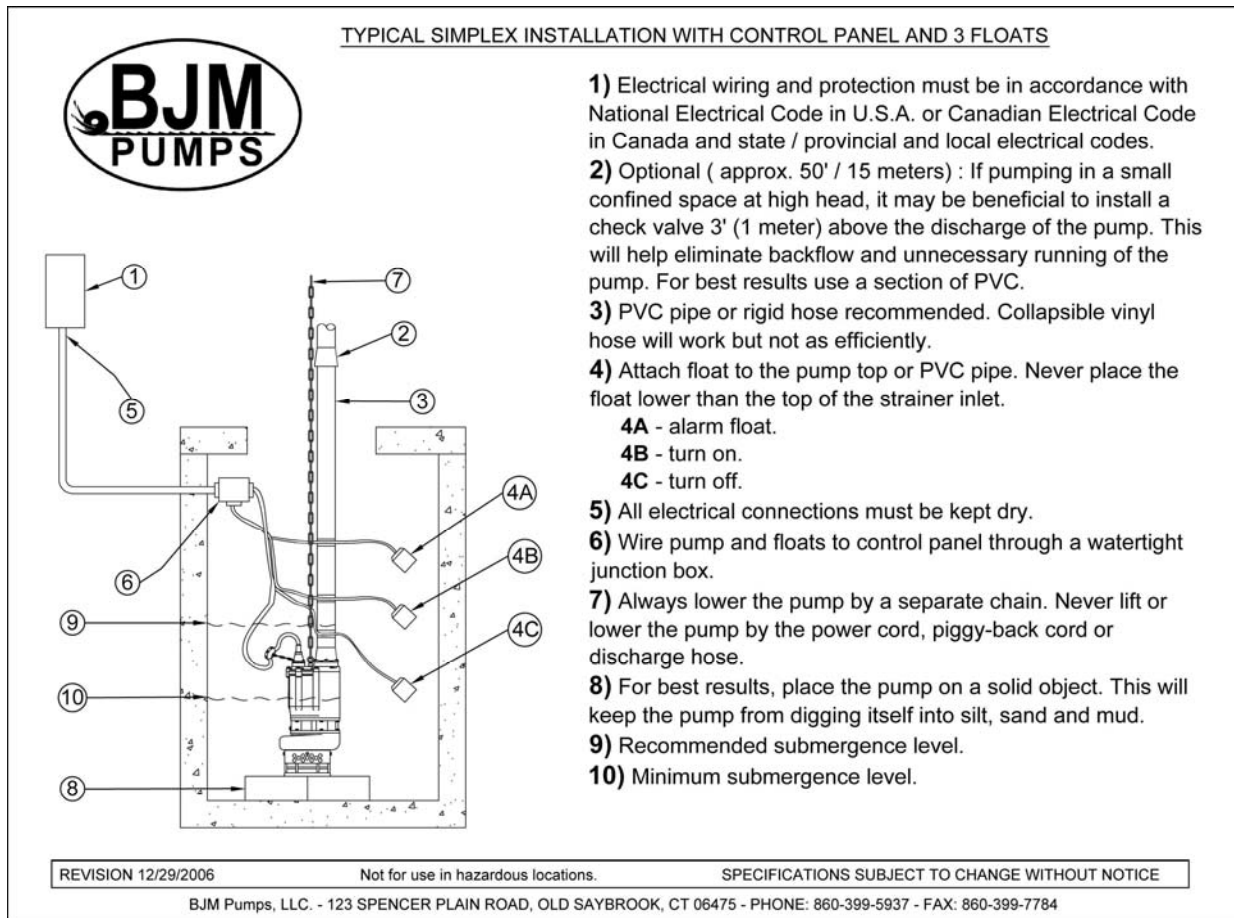
Typical 3 phase manual control 1



TYPICAL AUTOMATIC DEWATERING INSTALLATION

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

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



STOPPING

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



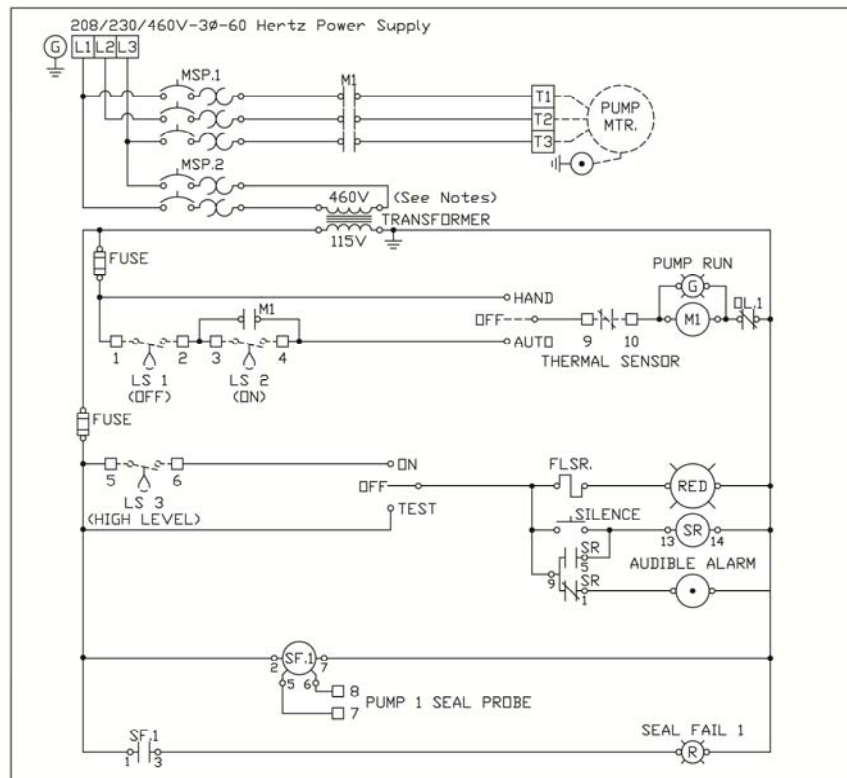
INTENDED METHODS OF CONNECTION

⚠ CAUTION Use with approved motor control that matches motor input in full load amperes. “UTILISER UN DÉMARREUR APPROUVÉ CONVARIANT AU COURANT À PLEINE CHARGE DU MOTEUR.”

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

THREE PHASE WIRING INSTRUCTION

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



Typical 3 Phase Auto Control 1

⚠ WARNING “Risk of electrical shock” Do not remove power supply cord and strain relief.

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



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

Before installing a pump, make sure both of the ground leads and the power leads have been connected properly. Once the power connections have been confirmed, then check the pump rotation. 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.

Three phase pumps DO NOT have integral 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.

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. 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 to insure that the materials and assembly methods meet BJM 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 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 KZN-F Series pumps is very easy.

- 1) Make sure that the pump is de-energized and locked out for service.
- 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.

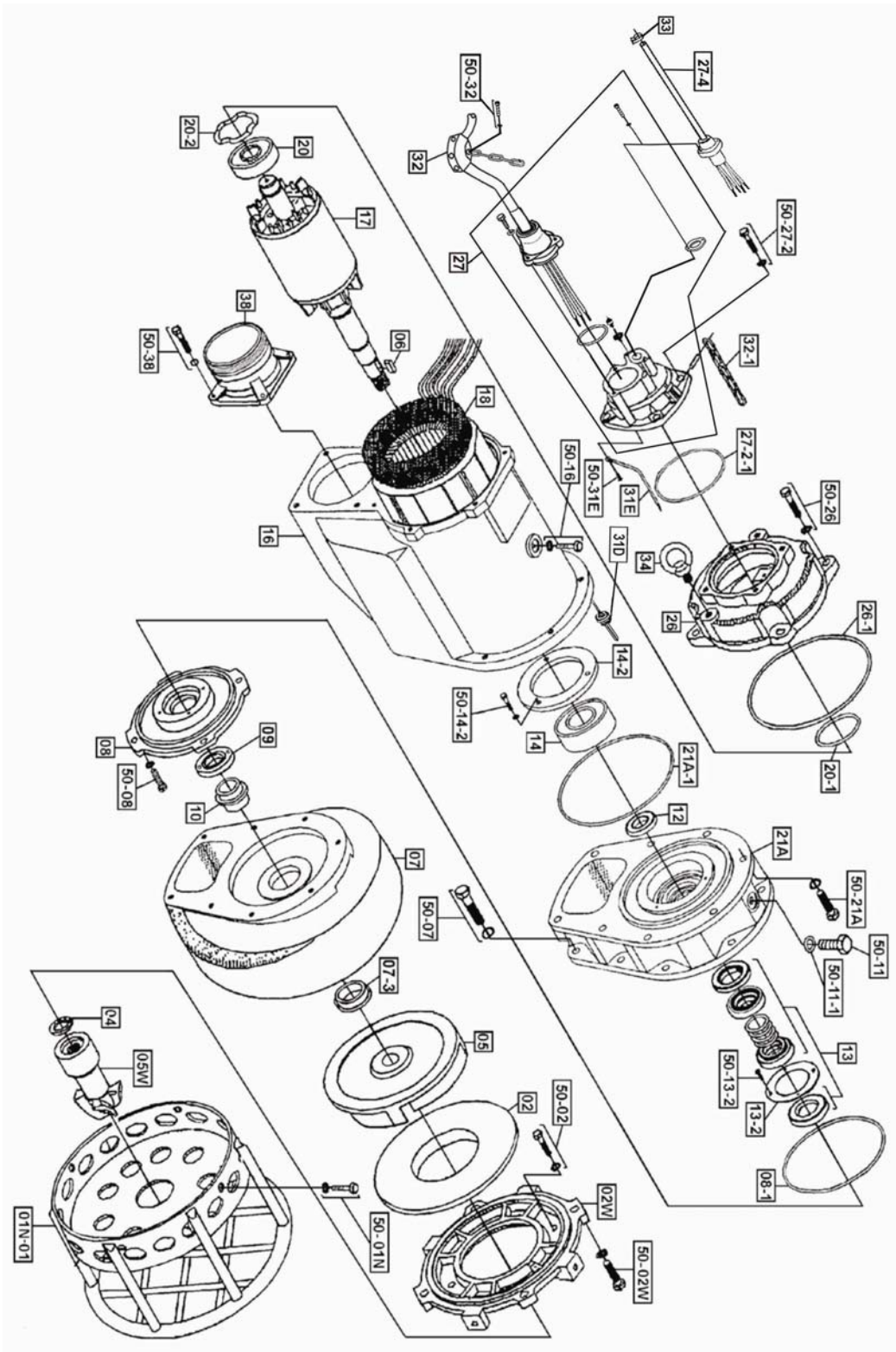
CHANGING SEALS*

- 1) Make sure that the pump cable is disconnected from the power source.
- 2) Lay the pump down on its side.
- 3) Remove the oil inspection bolt (pos#50-11) from the oil seal chamber.
- 4) Drain out all the inside the oil seal chamber.
- 5) Remove the bolts holding the stand.
- 6) Remove the stand.
- 7) Remove the bolts holding the suction cover.
- 8) Remove the suction cover.
- 9) Remove the agitator.
- 10) Remove the impeller, impeller key and shims.
- 11) Remove the bolts holding the pump housing.
- 12) Remove the pump housing.
- 13) Remove the shaft sleeve. Note the shaft sleeve direction.
- 14) Remove the bolts holding the oil cover.
- 15) Remove the oil cover.
- 16) Remove the screws holding the seal retainer.
- 17) Remove the seal retainer.
- 18) Remove the mechanical seal.
- 19) Replace the mechanical seal, lip seal and o-rings.
- 20) Assemble the pump.
- 21) Fill with recommended new oil.
- 22) Replace the oil inspection bolt o-ring.
- 23) Secure the oil inspection bolt.
- 24) Reassemble the remainder of pump in reverse order of disassembly.

*Note: If there is excessive liquid found in the oil or mechanical seal damaged, please contact **BJM Pumps** authorized service centers.

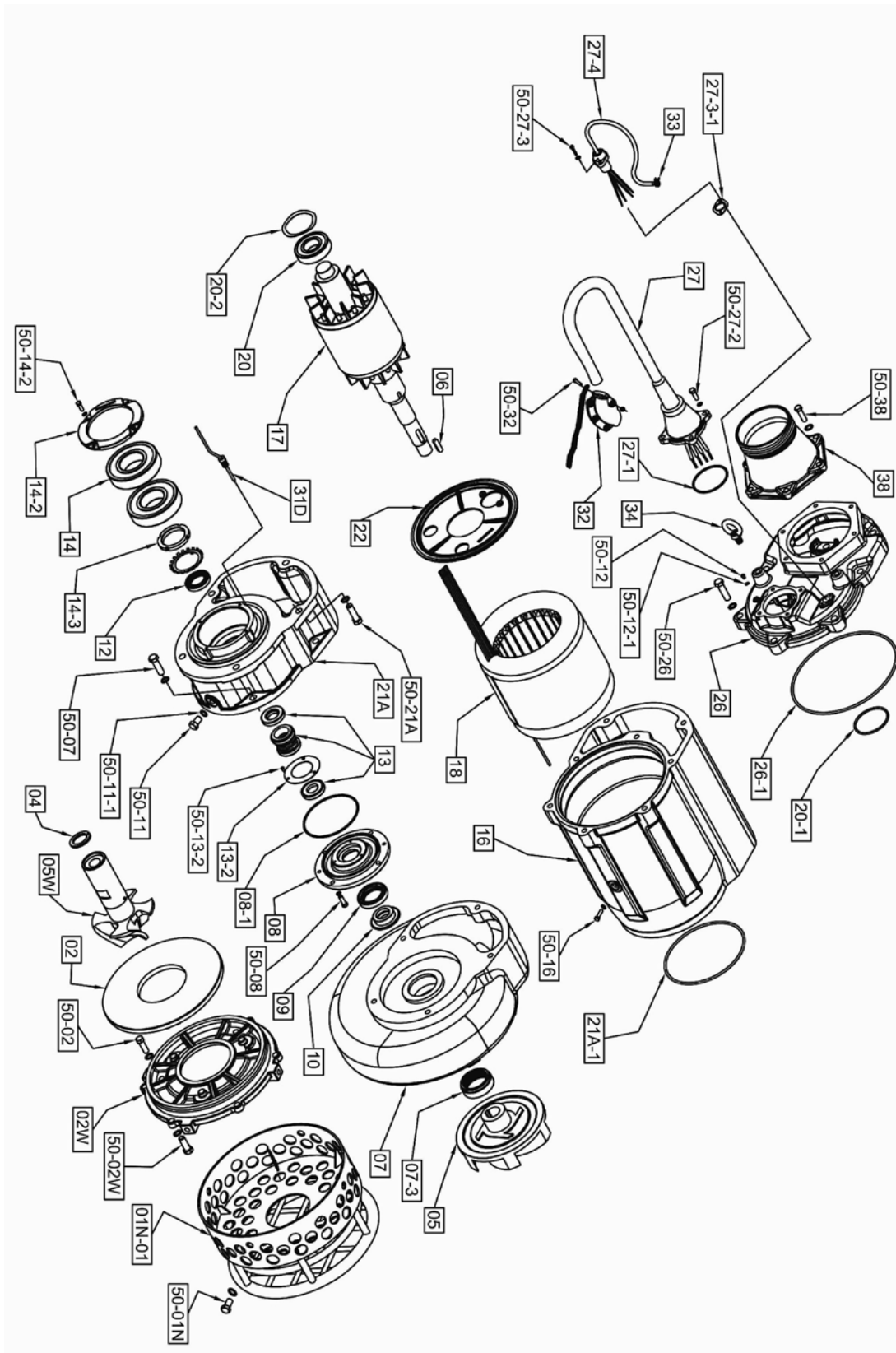


EXPLODED VIEW OF KZN110-F, 110R-F, 110H-F, 110HR-F, 150-F, 150R-F, 150L-F, 150LR-F





EXPLODED VIEW OF KZN220-F, 220R-F, 220L-F, 220LR-F



KZN-F SERIES PARTS LIST

	Pump Model	KZN37F	KZN55F	KZN55CHF	KZN75F	KZN110F	KZN110HF	KZN150F	KZN150LF	KZN220F	KZN220LF
Pos. No.	Part Description	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #
01N-01	Stand w/ Strainer Plate	111B	111B	111BH	111B	109B	109B	109B	109B	112B	112B
02	Wear Plate	136	136	136H	138	144	134	144	144L	145	145
02W	Suction Cover	210	210	210CH	211	212	212	212	212L	213	213L
04	Lock Washer	420	420	420	420	421	421	421	421	422	422
05	Impeller	591	592	592CH	593	594	594H	589	589L	590	590L
05W	Agitator	596	596	596	596	597	597	597	597	598	598
06	Impeller Key	610	610	610	610	611	611	611	611	612	612
07	Pump Housing	746	746	746CH	746	767	767	767	767	768	768
07-3	Pump Housing Sleeve	725	725	725	725	726	726	726	726	727	727
08	Oil Chamber Cover	830	830	830	830	831	831	831	831	832	832
08 -1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
09	Lip Seal FKM	921V	921V	921V	921V	922V	922V	922V	922V	919V	919V
10	Shaft Sleeve	1010	1010	1010	1010	1011	1011	1011	1011	1012	1012
12	Upper Lip Seal FKM	-	-	-	-	922BV	922BV	922BV	922BV	919BV	919BV
13	Mech. Seals - Set FKM	200419	200419	200419	200419	200433	200433	200433	200433	200433	200433
13-2	Mech. Seal Retainer	-	-	-	-	1376	1376	1376	1376	1376	1376
14	Lower Ball Bearing	1410	1410	1410	1410	1411	1411	1411	1411	1412 (x 2)	1412 (x 2)
14-2	Lower Bearing Retainer	1450	1450	1450	1450	1451	1451	1451	1451	1452	1452
16	Motor Housing.	1615	1615	1615	1616	1617	1617	1617	1617	1618	1618
17	Rotor w/ Shaft, 3 phase	1740	1741	1741	1742	1743	1743	1744	1744	1745	1745
18	Stator 230V/460V 3 phase	200682	200684	200684	200686	200688	200688	-	-	-	-
18	Stator 460V 3 phase	-	-	-	-	-	-	200690	200690	200692	200692
18	Stator 575V, 3 phase	200696	200698	200698	200700	200694	200694	200702	200702	200704	200704
20	Upper Ball Bearing	2010	2010	2010	2010	2010	2010	2010	2010	2012	2012
20-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
20-2	Spring Washer	2040	2040	2040	2040	2041	2041	2041	2041	2042	2042
21A	Lower Bearing Housing	2130	2130	2130	2130	-	-	-	-	-	-
21A	Oil Chamber	-	-	-	-	2115	2115	2115	2115	2116	2116
21A-1	O-Ring (Kit Only)	-	-	-	-	Kit	Kit	Kit	Kit	Kit	Kit
21A-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	-	-	-	-	-	-
22	Cover Plate Upper	-	-	-	-	-	-	-	-	2201	2201
26	Pump Top Cover	2690	2690	2690	2690	2691	2691	2691	2691	2692	2692
26-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
27	Power Cord Set (4 lead)(High Temp)	2732F	2732F	2732F	2732F	2734F	2734F	2734F	2734F	2735F	2735F
27-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
27-2	Power Cord Housing	2900	2900	2900	2900	2910	2910	2910	2910	2920	2920
27-2-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit

27-3-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
27-4	Seal Minder/Temp. Sensor Cord (High Temp)	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF
31D	Seal Minder Sensor w/ wire	2331	2331	2331	2331	2331	2331	2331	2331	2331	2331
31E	Ground Wire w/ Ring Term.	2776	2776	2776	2776	2776	2776	2776	2776	2776	2776
32	Power Cable Strain Relief	3218	3218	3218	3218	3219	3219	3219	3219	3205	3205
33	Seal Minder Cord Line Clip	3203	3203	3203	3203	3203	3203	3203	3203	3203	3203
34	Lift Ring	3423	3423	3423	3423	3424	3424	3424	3424	3424	3424
38	3" NPT Male Coupling Flange	3839	3839	3839	-	-	-	-	-	-	-
38	4" NPT Male Coupling Flange	3840	3840	3840	3840	-	3841H	-	-	-	-
38	6" NPT Male Coupling Flange	-	-	-	-	3841	-	3841	3841	3843	3843
38	8" Coupling Flange	-	-	-	-	-	-	-	-	3842	3842
50-01N	Bolt - Stand	5048	5048	5048	5048	5048	5048	5048	5048	5056	5056
50-02	Bolt - Wear Plate	5041	5041	5041	5041	5041	5041	5041	5041	5062	5062
50-02W	Bolt - Suction Cover	5022	5022	5022	5022	5022	5022	5022	5022	5022	5022
50-07	Bolt - Pump Housing	5061	5061	5061	5061	5050	5050	5050	5050	5063	5063
50-08	Bolt - Oil Chamber Cover	5014	5014	5014	5014	5014	5014	5014	5014	5052	5052
50-11	Bolt - Oil Inspection	5051	5051	5051	5051	5051	5051	5051	5051	5058	5058
50-11-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
50-12	Screw - Pressure Test	5008	5008	5008	5008	5008	5008	5008	5008	5008	5008
50-12-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
50-13-2	Screw - Seal Retainer	-	-	-	-	5001	5001	5001	5001	5001	5001
50-14-2	Bolt - Bearing Retainer	5010	5010	5010	5010	5010	5010	5010	5010	5010	5010
50-16	Bolt - Stator Locking	-	-	-	-	5050	5050	5050	5050	5061	5061
50-21A	Bolt - Bearing Housing	5014	5014	5014	5014	-	-	-	-	-	-
50-21A	Bolt - Oil Housing	-	-	-	-	5050	5050	5050	5050	5059	5059
50-26	Bolt-Top Cover	5031	5031	5031	5031	5031	5031	5031	5031	5060	5060
50-27	Bolt - Power Cord	5045	5045	5045	5045	5045	5045	5045	5045	-	-
50-27-2	Bolt - Power Cord Housing	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052
50-27-3	Screw	5004	5004	5004	5004	5004	5004	5004	5004	5004	5004
50-31E	Screw - Ground Wire	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
50-32	Bolt- Cable Strain Relief	5034	5034	5034	5034	5045	5045	5045	5045	5054	5054
50-38	Bolt - Discharge Flange	5052	5052	5052	5052	5050	5050	5050	5050	5055	5055
O-Ring Kit - FKM		4057V	4057V	4057V	4057V	4058V	4058V	4058V	4058V	4059V	4059V

KZNR PARTS LIST

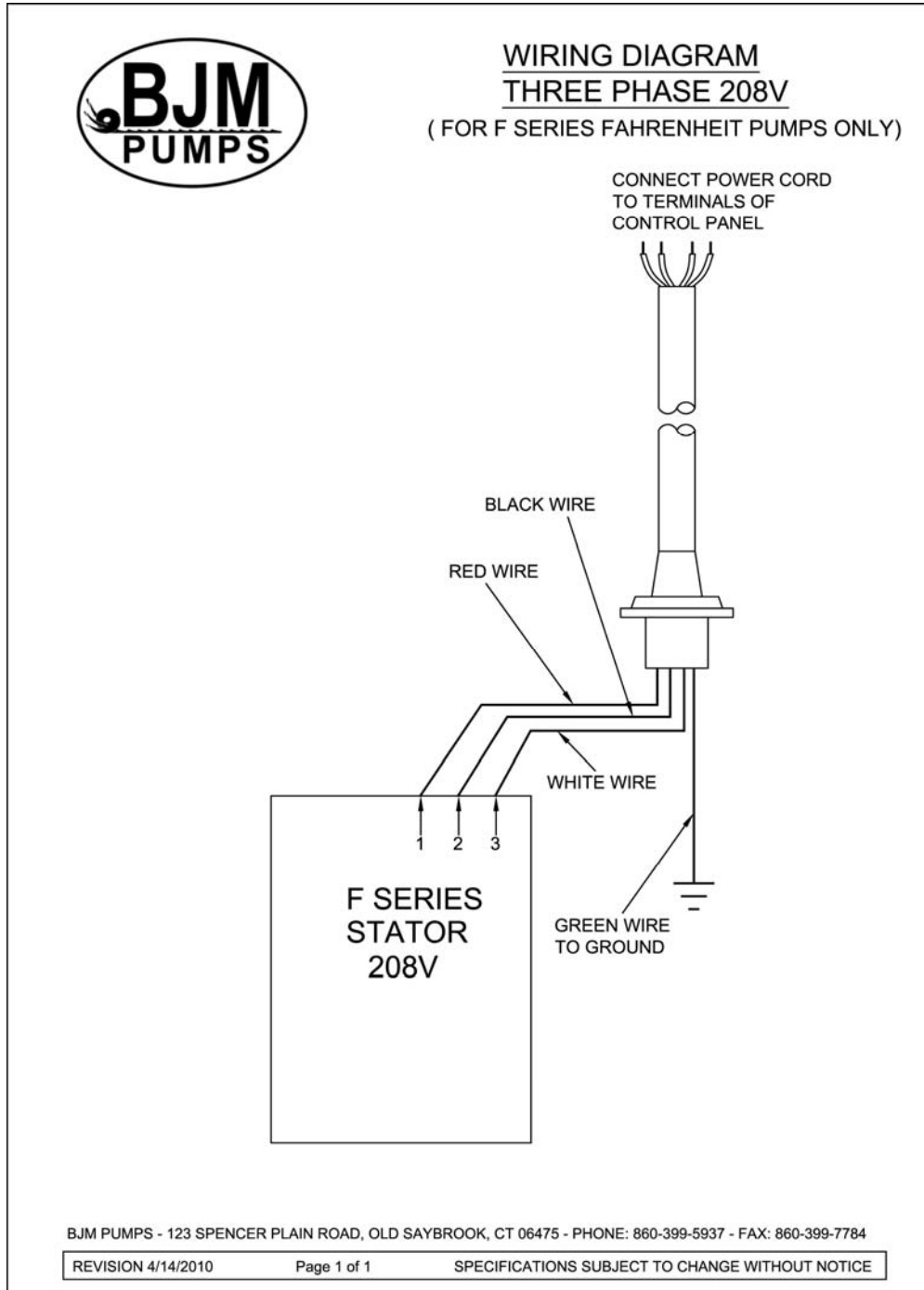
	Pump Model	KZN37RF	KZN55RF	KZN55CHRF	KZN75RF	KZN110RF	KZN110HRF	KZN150RF	KZN150LRF	KZN220RF	KZN220LRF
Pos. No.	Part Description	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #
01N-01	Stand w/ Strainer Plate	111B	111B	111BH	111B	109B	109B	109B	109B	112B	112B
02	Wear Plate	136	136	136H	138	144	134	144	144L	145	145
02W	Suction Cover	210	210	210CH	211	212	212	212	212L	213	213L
04	Lock Washer	420	420	420	420	421	421	421	421	422	422
05	Impeller	591	592	592CH	593	594	594H	589	589L	590	590L
05W	Agitator	596	596	596	596	597	597	597	597	598	598
06	Impeller Key	610	610	610	610	611	611	611	611	612	612
07	Pump Housing	746R	746R	746CHR	746R	767R	767R	767R	767R	768R	768R
07-3	Pump Housing Sleeve	725	725	725	725	726	726	726	726	727	727
08	Oil Chamber Cover	830	830	830	830	831	831	831	831	832	832
08 -1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
09	Lip Seal FKM	921V	921V	921V	921V	922V	922V	922V	922V	919V	919V
10	Shaft Sleeve	1010	1010	1010	1010	1011	1011	1011	1011	1012	1012
12	Upper Lip Seal FKM	-	-	-	-	922BV	922BV	922BV	922BV	919BV	919BV
13	Mech. Seals - Set FKM	200419	200419	200419	200419	200433	200433	200433	200433	200433	200433
13-2	Mech. Seal Retainer	-	-	-	-	1376	1376	1376	1376	1376	1376
14	Lower Ball Bearing	1410	1410	1410	1410	1411	1411	1411	1411	1412 (x 2)	1412 (x 2)
14-2	Lower Bearing Retainer	1450	1450	1450	1450	1451	1451	1451	1451	1452	1452
16	Motor Housing.	1615	1615	1615	1616	1617	1617	1617	1617	1618	1618
17	Rotor w/ Shaft, 3 phase	1740	1741	1741	1742	1743	1743	1744	1744	1745	1745
18	Stator 230V/460V 3 phase	200682	200684	200684	200686	200688	200688	-	-	-	-
18	Stator 460V 3 phase	-	-	-	-	-	-	200690	200690	200692	200692
18	Stator 575V, 3 phase	200696	200698	200698	200700	200694	200694	200702	200702	200704	200704
20	Upper Ball Bearing	2010	2010	2010	2010	2010	2010	2010	2010	2012	2012
20-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
20-2	Spring Washer	2040	2040	2040	2040	2041	2041	2041	2041	2042	2042
21A	Lower Bearing Housing	2130	2130	2130	2130	-	-	-	-	-	-
21A	Oil Chamber	-	-	-	-	2115	2115	2115	2115	2116	2116
21A-1	O-Ring (Kit Only)	-	-	-	-	Kit	Kit	Kit	Kit	Kit	Kit
21A-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	-	-	-	-	-	-
22	Cover Plate Upper	-	-	-	-	-	-	-	-	2201	2201
26	Pump Top Cover	2690	2690	2690	2690	2691	2691	2691	2691	2692	2692
26-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
27	Power Cord Set (4 lead)(high temp)	2732F	2732F	2732F	2732F	2734F	2734F	2734F	2734F	2735F	2735F
27-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
27-2	Power Cord Housing	2900	2900	2900	2900	2910	2910	2910	2910	2920	2920
27-2-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit

27-3-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
27-4	Seal Minder/Temp. Sensor Cord (high temp)	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF	2737BF
31D	Seal Minder Sensor w/ wire	2331	2331	2331	2331	2331	2331	2331	2331	2331	2331
31E	Ground Wire w/ Ring Term.	2776	2776	2776	2776	2776	2776	2776	2776	2776	2776
32	Power Cable Strain Relief	3218	3218	3218	3218	3219	3219	3219	3219	3205	3205
33	Seal Minder Cord Line Clip	3203	3203	3203	3203	3203	3203	3203	3203	3203	3203
34	Lift Ring	3423	3423	3423	3423	3424	3424	3424	3424	3424	3424
38	3" NPT Male Coupling Flange	3839	3839	3839	-	-	-	-	-	-	-
38	4" NPT Male Coupling Flange	3840	3840	3840	3840	-	3841H	-	-	-	-
38	6" NPT Male Coupling Flange	-	-	-	-	3841	-	3841	3841	3843	3843
38	8" Coupling Flange	-	-	-	-	-	-	-	-	3842	3842
50-01N	Bolt - Stand	5048	5048	5048	5048	5048	5048	5048	5048	5056	5056
50-02	Bolt - Wear Plate	5041	5041	5041	5041	5041	5041	5041	5041	5062	5062
50-02W	Bolt - Suction Cover	5022	5022	5022	5022	5022	5022	5022	5022	5022	5022
50-07	Bolt - Pump Housing	5061	5061	5061	5061	5050	5050	5050	5050	5063	5063
50-08	Bolt - Oil Chamber Cover	5014	5014	5014	5014	5014	5014	5014	5014	5052	5052
50-11	Bolt - Oil Inspection	5051	5051	5051	5051	5051	5051	5051	5051	5058	5058
50-11-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
50-12	Screw - Pressure Test	5008	5008	5008	5008	5008	5008	5008	5008	5008	5008
50-12-1	O-Ring (Kit Only)	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit	Kit
50-13-2	Screw - Seal Retainer	-	-	-	-	5001	5001	5001	5001	5001	5001
50-14-2	Bolt - Bearing Retainer	5010	5010	5010	5010	5010	5010	5010	5010	5010	5010
50-16	Bolt - Stator Locking	-	-	-	-	5050	5050	5050	5050	5061	5061
50-21A	Bolt - Bearing Housing	5014	5014	5014	5014	-	-	-	-	-	-
50-21A	Bolt - Oil Housing	-	-	-	-	5050	5050	5050	5050	5059	5059
50-26	Bolt-Top Cover	5031	5031	5031	5031	5031	5031	5031	5031	5060	5060
50-27	Bolt - Power Cord	5045	5045	5045	5045	5045	5045	5045	5045	-	-
50-27-2	Bolt - Power Cord Housing	5052	5052	5052	5052	5052	5052	5052	5052	5052	5052
50-27-3	Screw	5004	5004	5004	5004	5004	5004	5004	5004	5004	5004
50-31E	Screw - Ground Wire	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
50-32	Bolt- Cable Strain Relief	5034	5034	5034	5034	5045	5045	5045	5045	5054	5054
50-38	Bolt - Discharge Flange	5052	5052	5052	5052	5050	5050	5050	5050	5055	5055
O-Ring Kit - FKM		4057V	4057V	4057V	4057V	4058V	4058V	4058V	4058V	4059V	4059V



THREE PHASE WIRING DIAGRAMS

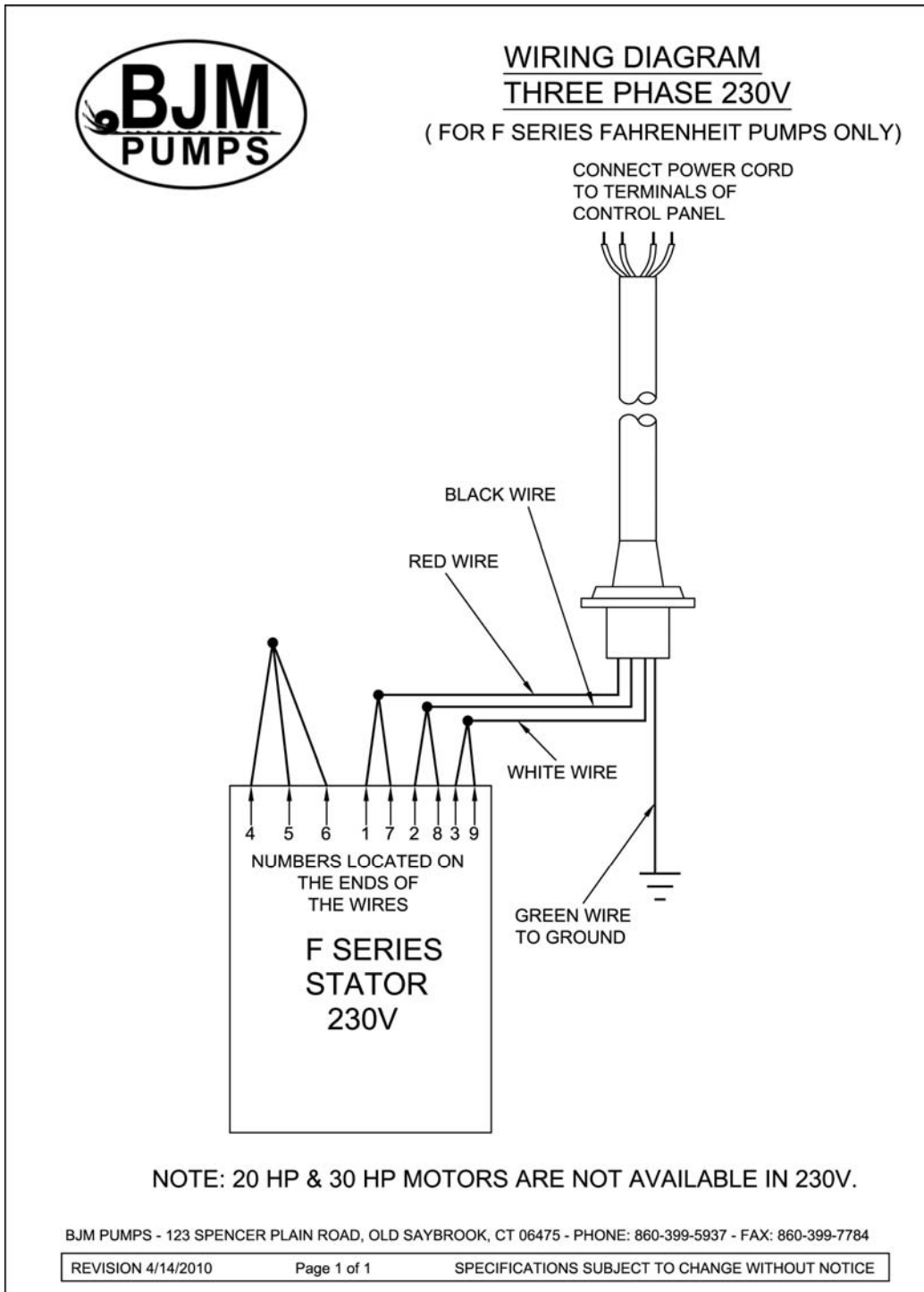
208V



MODELS KZN37-F, 37R-F, 55-F, 55CH-F, 55R-F, 55CHR-F



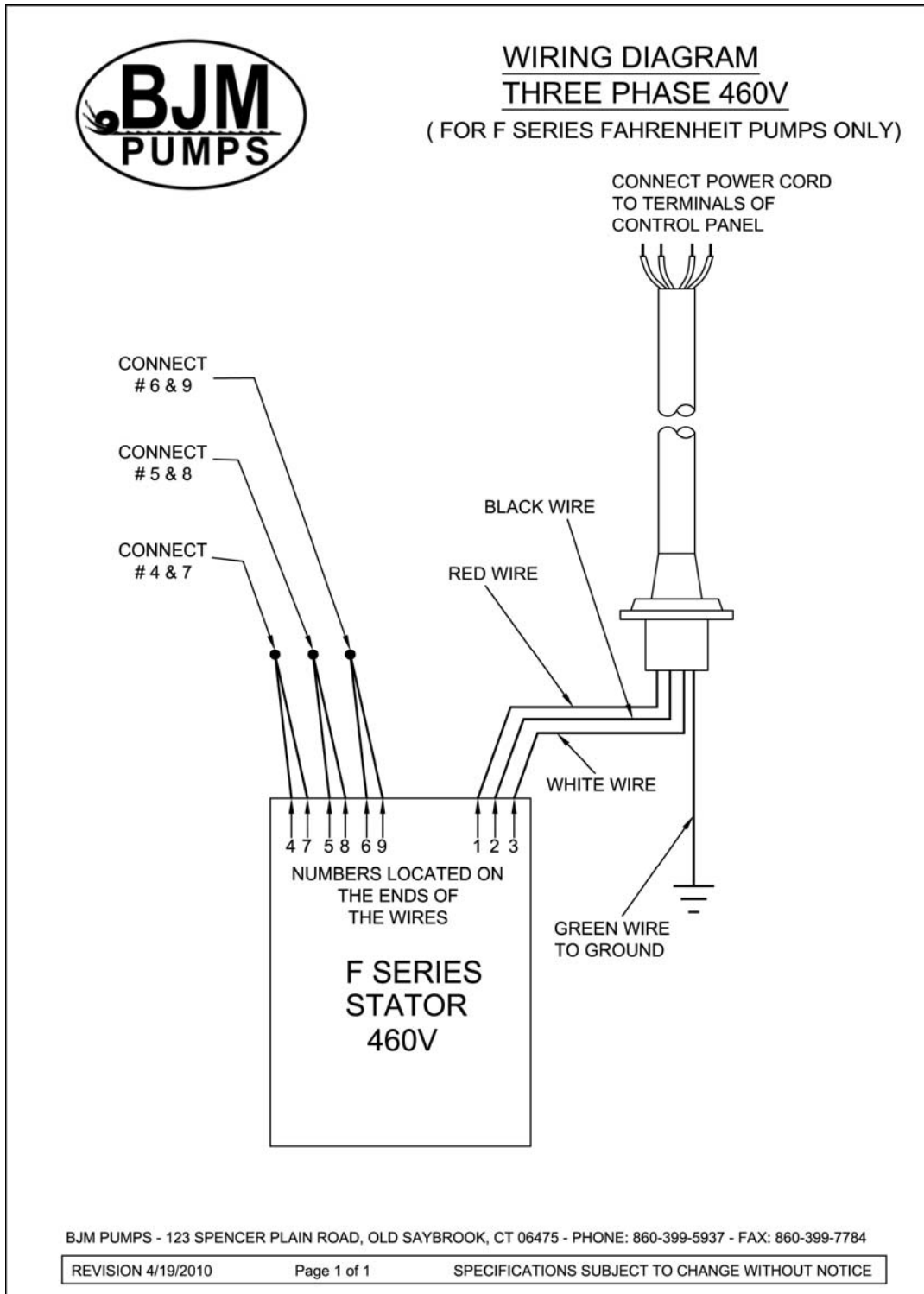
230V



MODELS KZN37-F, 37R-F, 55-F, 55CH-F, 55R-F, 55CHR-F, 75-F, 75R-F, 110-F,
110H-F, 110R-F, 110HR-F



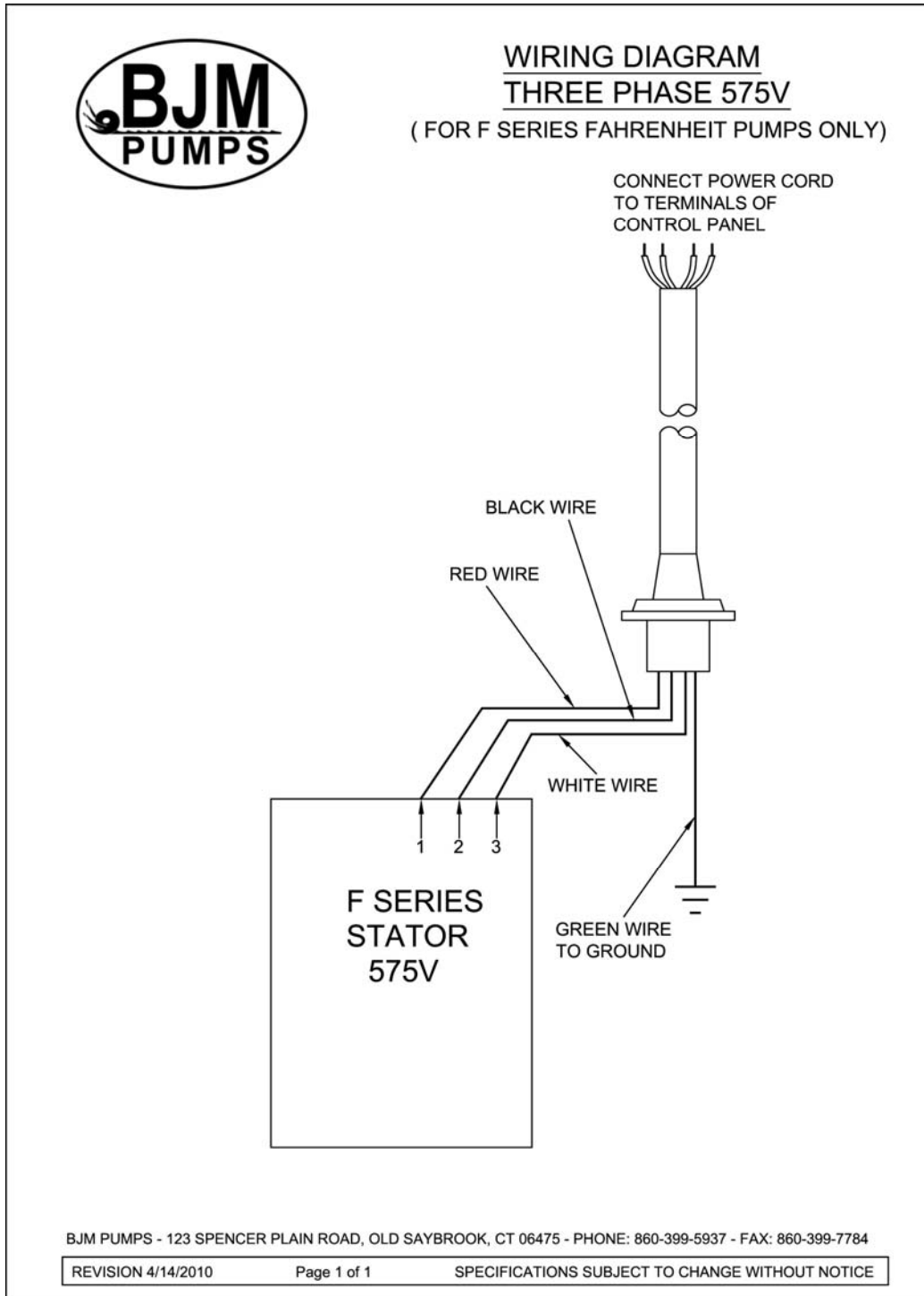
460V



MODELS KZN37-F, 37R-F, 55-F, 55R-F, 55CHR-F, 75-F, 75R-F, 110-F, 110H-F, 110HR-F, 150-F, 150L-F, 150LR-F, 150R-F, 220-F, 220L-F, 220LRF, 220R-F



575V



MODELS KZN37-F, 37R-F, 55-F, 55R-F, 55CHR-F, 75-F, 75R-F, 110-F, 110H-F, 110HR-F, 150-F, 150L-F, 150L-F, 150LR-F, 150R-F, 220-F, 220L-F, 220LR-F, 220R-F



SEAL MINDER® - THERMAL MOTOR SENSOR SWITCH

(For high temperature pump models)

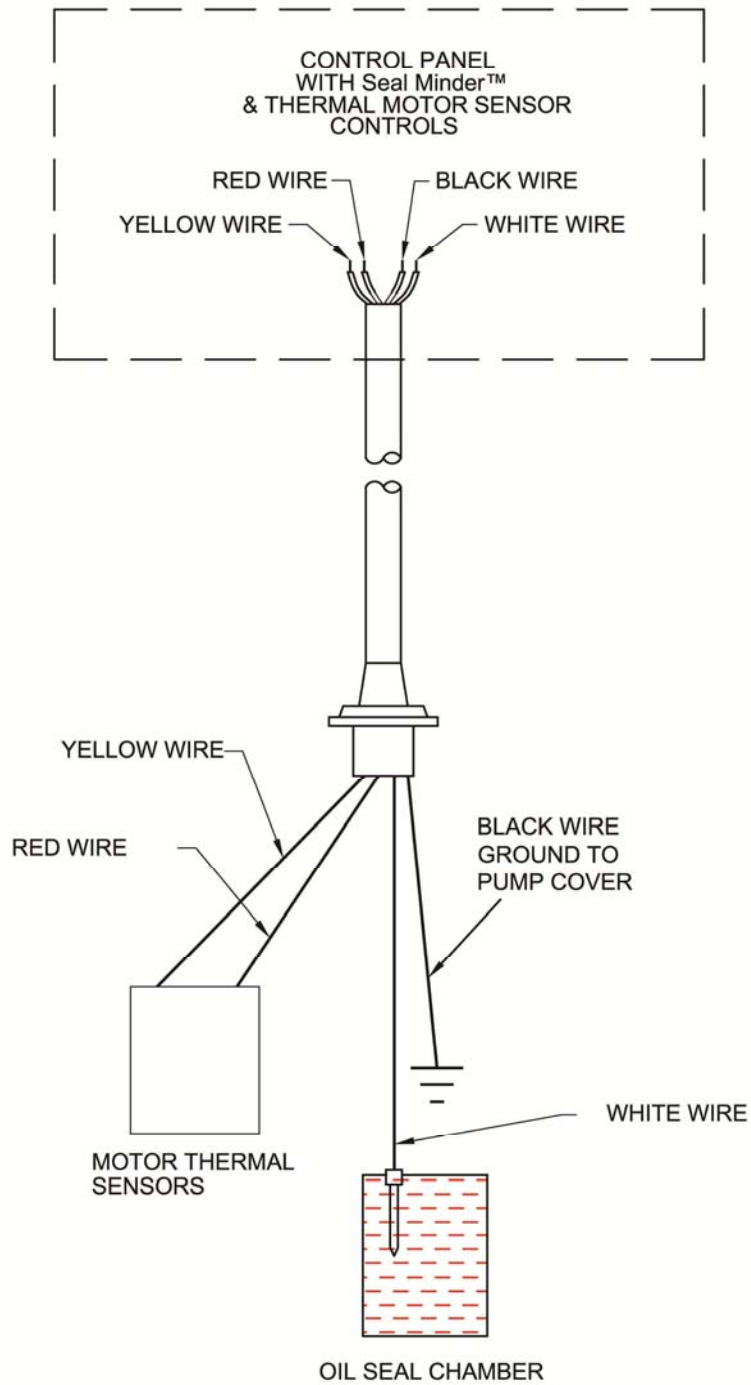
Seal Minder:

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 imbedded into the motor stator windings. Three 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. 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 seal 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.

BJM Pumps, LLC - 123 SPENCER PLAIN ROAD, OLD SAYBROOK, CT 06475 - PHONE: 860-399-5937 - FAX: 860-399-7784



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			
Person in Charge			Phone()
Purchased From			
Model		Serial No	
Voltage	Phase	Hertz	HP
Does impeller turn freely by hand?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Condition of Equipment	<input type="checkbox"/> New <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor		
Condition of Cable Jacket	<input type="checkbox"/> New <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor		
Rotation: Direction of Impeller Rotation (Use C/W for clockwise, CC/W for counterclockwise):			
Method used to check rotation (viewed from bottom) _____			
Resistance of cable and Pump Motor (measured at pump control)			
Red-Black_____ ohms	Red-White_____ ohms	White-Black____ohms	
Resistance of ground circuit between control panel and outside of pumps _____ Ohms			
MEG OHM CHECK OF INSULATION			
Red to ground_____ White to ground_____ Black to ground_____			
Condition of location at start-up	<input type="checkbox"/> Dry <input type="checkbox"/> Wet <input type="checkbox"/> Muddy		
Was equipment stored If YES, length of storage:	<input type="checkbox"/> Yes <input type="checkbox"/> No.		
Liquid being pump			
Debris in bottom of station?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Was debris removed in your	<input type="checkbox"/> Yes <input type="checkbox"/> No		

START-UP REPORT FORM

presence?		
Are guide rails exactly vertical?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is base elbow installed level?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Liquid level controls: Model _____		
Is control installed away from turbulence?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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).		
If not on levels controls, describe type of controls		
Does liquid level ever drop below volute top?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Control Panel MFG & model no.		
Number of pumps operated by control panel		
NOTE: At no time should hole be made in top of control panel, unless proper sealing devices are utilized.		
Short Circuit protection:	Type:	
Number and size of short circuit device(s)	Amp rating:	
Overload type:	Size:	Amp rating:
Do protective devices comply with pump motor amp rating?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Are all pump connections tight?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Is the interior of the panel dry?	<input type="checkbox"/> Yes	<input type="checkbox"/> No If No, correct moisture problem.
Electrical readings		
SINGLE PHASE		
Voltage supply at panel line connection, pump off	L1	L2
Voltage supply at panel line connection, pump on	L1	L2
Amperage load connection, pump on	L1	L2
THREE PHASE		
Voltage supply at panel line connection, pump off		
L1-L2	L2-L3	L3-L1

START-UP REPORT FORM

Voltage supply at panel line connection, pump on		
L1-L2	L2-L3	L3-L1
Amperage load connection, pump on		
L1	L2	L3
FINAL CHECK		
Is pump secured properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Was pump checked for leaks?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Do check valves operate properly?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Flow: Does station appear to operate at proper rate?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Noise level:	Acceptable <input type="checkbox"/>	Unacceptable <input type="checkbox"/>
Comments:		
Describe and equipment difficulties during start-up		
Installed by: Company: _____ Person: _____ Date: _____		
Maintained by: Company: _____ Person: _____		
Date and time of start-up _____ Present at start-up: () Engineer's name _____ () Contractor's name _____ () Operator's name _____ () others _____		

BJM Pumps, LLC
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