



## **INSTALLATION, OPERATION & MAINTENANCE MANUAL**

### **LWA SERIES TOP DISCHARGE Electric Submersible Pumps**

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

#### **CAST IRON w/ STAINLESS SHELL**

##### **SINGLE PHASE**

LWA1500  
LWA2200

##### **THREE PHASE**

LWA15  
LWA22  
LWA37  
LWA55  
LWA55H  
LWA75  
LWA75H

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



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## INTRODUCTION

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

**The submersible LWA Series pumps are designed to pump water and light water slurries. The LWA Series pumps are not explosion-proof. They are not designed to pump volatile or flammable liquids.**

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

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

BJM Pumps, LLC  
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](http://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/codes.



## 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 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.

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

Pump Models	Qty. oil in seal chamber		Type of oil
	(U.S. fl. oz.)	Metric C.C.	
LWA1500	21	620	ISO 32 NSF Food Grade Mineral Oil
LWA15	21	620	ISO 32 NSF Food Grade Mineral Oil
LWA2200	21	620	ISO 32 NSF Food Grade Mineral Oil
LWA22	21	620	ISO 32 NSF Food Grade Mineral Oil
LWA37	21	620	ISO 32 NSF Food Grade Mineral Oil
LWA55, LWA55H	28.8	850	ISO 32 NSF Food Grade Mineral Oil
LWA75, LWA75H	28.8	850	ISO 32 NSF Food Grade Mineral Oil



## PUMP INSTALLATION

LWA 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.** All LWA 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 terminal box control.

### **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, LWA 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](http://www.bjmpumps.com) or by calling BJM Pumps, LLC at 860-399-5937. As a general rule, LWA Series top discharge pumps can pump down to a level above the suction screen. Pumping lower than screen will permit air to enter the pump and cavitate, lose prime or become air bound.

### **⚠ CAUTION**

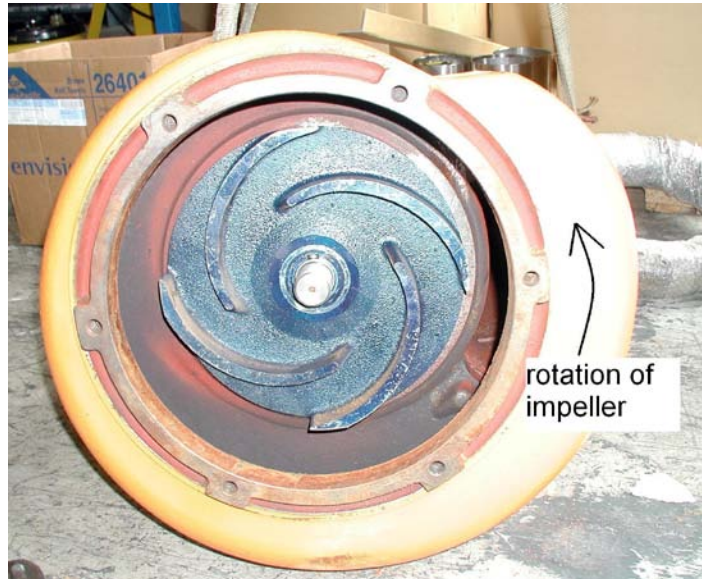
- Do not run the pump dry.
- Pump liquid should not exceed a maximum temperature of 104°F.
- Never place the pump on loose or soft ground. The pump may sink, preventing water from reaching the impeller. Place on a solid surface or suspend the pump with a lifting rope/chain. The LWA Series pumps are provided 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.



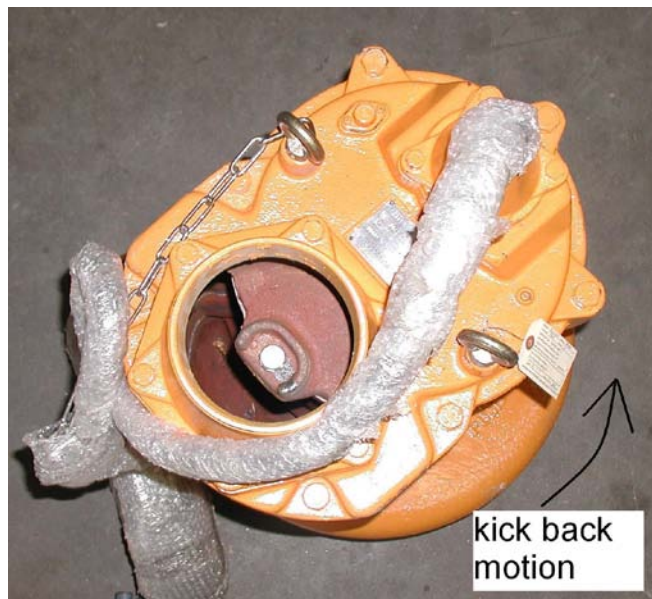
## PUMP ROTATION

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**

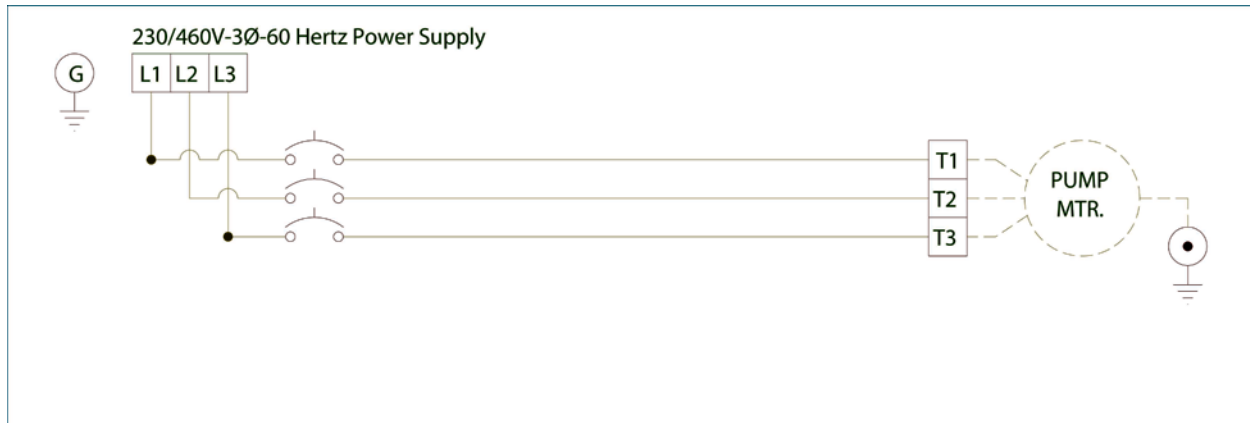
Do not operate this pump where explosive vapors or flammable material exist. Death or Serious injury will result.

## TYPICAL MANUAL DEWATERING INSTALLATION

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

LWA models are provided with a 50' (10 m) power cord. NEVER splice the power cable due to safety and warranty considerations. Always keep the power supply connection end dry.

**Note: 230V, single phase and 230V, 460V & 575V three phase units do not have a plug and have to be provided separately or connection made to a proper termination control box.**



Typical 3 phase manual control 1

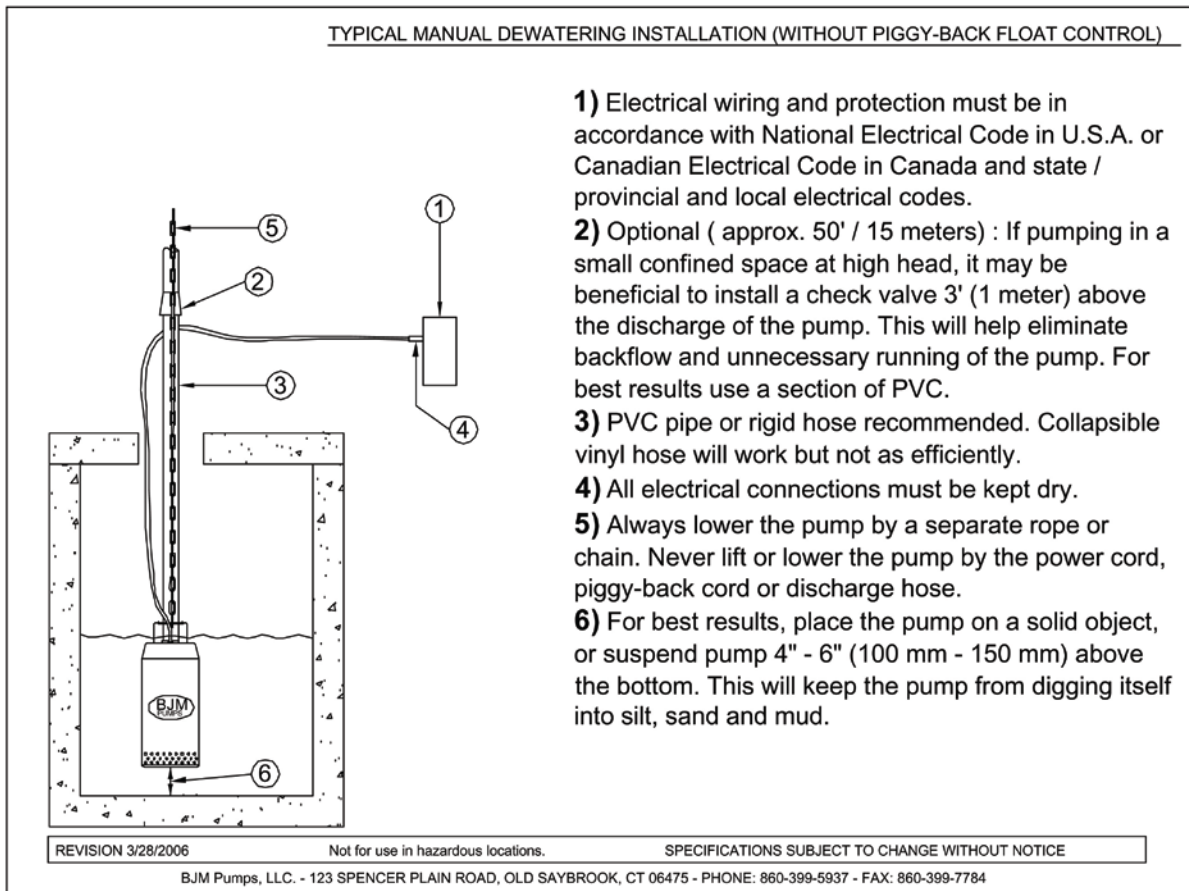
### **⚠ WARNING**

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: Attach the proper plug or connect directly to the power source or control box. Check the direction of the rotation on 3 phase models. 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.



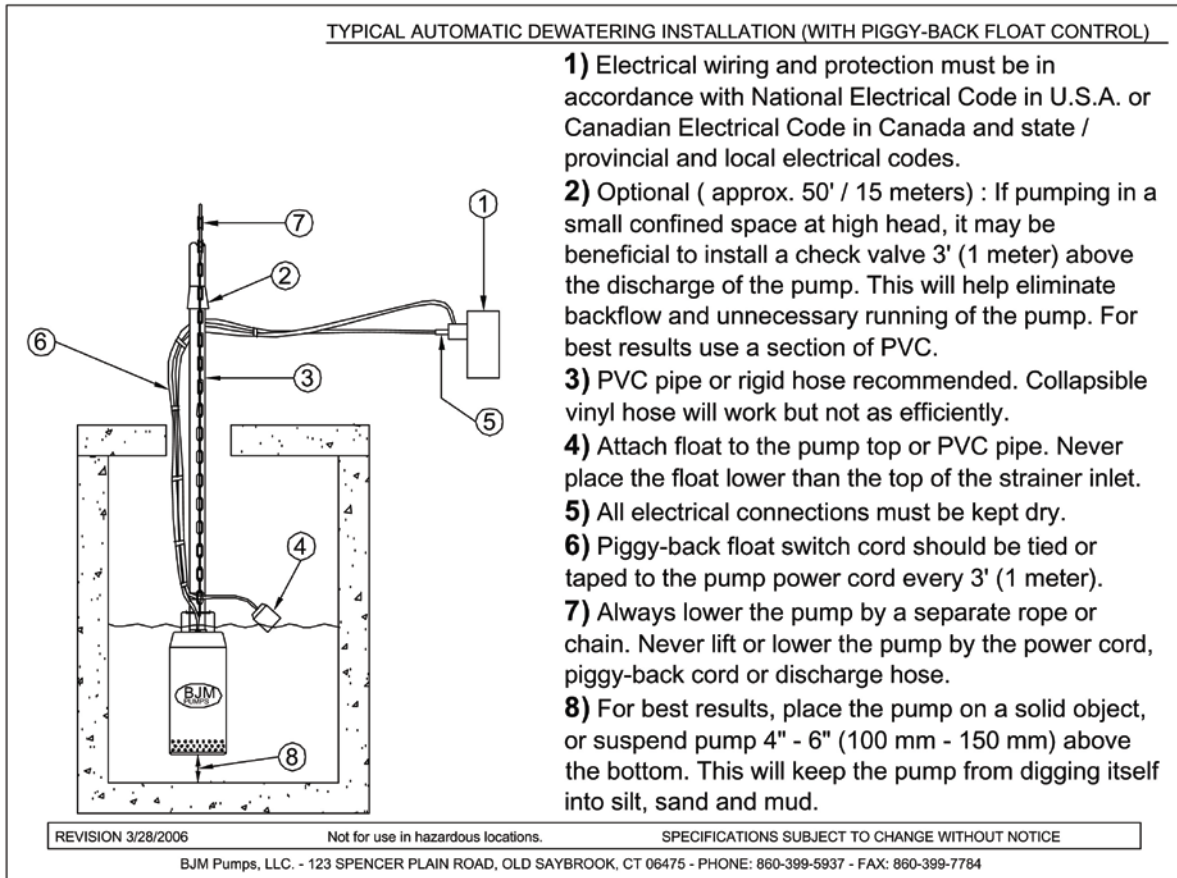
## STOPPING

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

## TYPICAL AUTOMATIC DEWATERING INSTALLATION

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

**All LWA Pumps require 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.

## SINGLE & THREE PHASE WIRING INSTRUCTIONS



**WARNING**

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



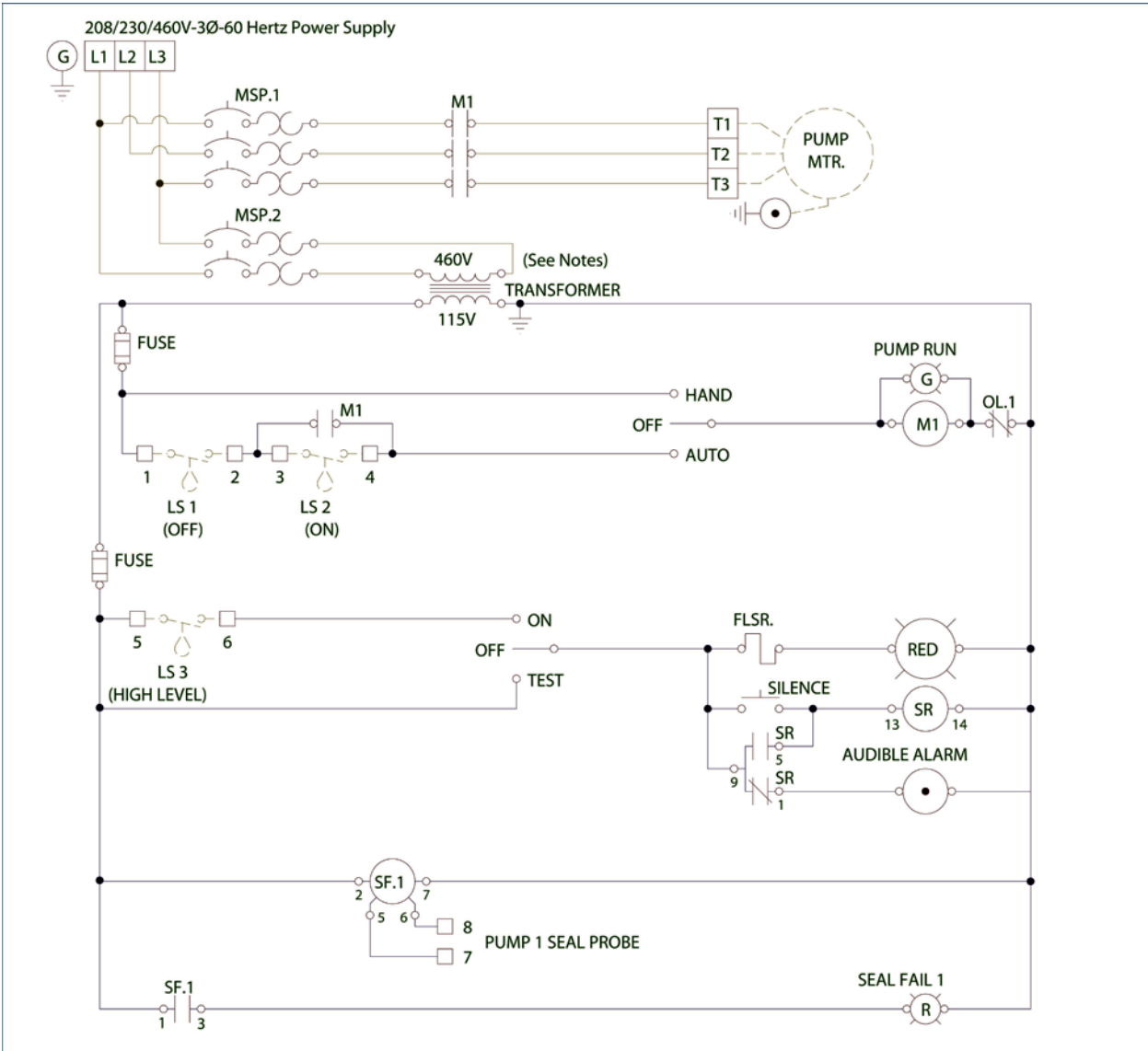
**WARNING**

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



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

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



**Typical 3 phase Auto Control 1**

Before installing a pump, check the pump rotation to insure that wiring has been connected properly to power source; and that the green lead of power cord (See wiring diagram) is connected properly. LWA three phase models 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. Once connections are validated, 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.

LWA pumps have integral motor overload protection. It is recommended that all LWA pumps use 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.

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

## MAINTAINING YOUR PUMP

- Pump should be disconnected from the electric power supply before proceeding to do any service or maintenance.
- Pump should be inspected at regular intervals.
- More frequent inspections are required if the pump is used in a harsh environment.
- Preventative maintenance should be performed to reduce the chance of premature failure.
- Worn impellers and lip seals should be replaced.
- Cut or cracked power cords must be replaced. **(Never operate a pump with a cut, cracked or damaged power cord.)**
- Seal oil should be checked once per year.
- Maintenance should always be done when taking a pump out of service before storage.
  - 1) Clean pump of dirt and other build up.
  - 2) Check condition of oil around the shaft seals.
  - 3) Check hydraulic parts: check for wear.
  - 4) Inspect power cable. Make sure that it is free of nicks or cuts.



## CHANGING SEAL OIL

Checking the seal chamber by following step one of the disassembly/assembly procedures listed below. To change the seal chamber oil, drain the oil by removing drain plug (55). Replace with the proper amount of ISO 32 NSF Food Grade Mineral Oil. Note that a 10-15% air gap should be maintained in the seal chamber to allow for heat expansion.

### DISASSEMBLY/ASSEMBLY PROCEDURE FOR LWA TO REVIEW/REPLACE THE MECHANICAL SEAL

1. Remove drain plug (55) from the seal housing (26) and take a sample of the oil. If the oil is clear and shows no signs of water, then replace the drain plug. No further inspection or disassembly is necessary until the next service period is reached.
2. If the oil is milky and shows signs of water and/or other contaminants, then the mechanical seal should be replaced. Proceed with draining the oil into a catch basin for proper disposal.
3. Remove the suction strainer/stand (31) from the bottom of the pump by removing the four retaining cap screws.
4. Remove the suction/wear plate (28) and O-Ring (47) by removing the four cap screws that retain this.
5. Remove the agitator (39) by turning the agitator counter clockwise to the shaft. If the agitator is difficult to turn, a plastic mallet or hammer and block of wood can be used to strike against the agitator blades to break it loose from the shaft.
6. Remove the retaining nut by holding the impeller or shaft. *Not do not damage the shaft.*
7. Remove the impeller (27) by sliding it off of the shaft with the shaft key (46). Take note of any shims that are placed behind the impeller, these will need to be reinstalled during assembly.
8. Remove the seal housing (26) by removing the four retaining cap screws. Note that some residual oil will be found in the chamber.
9. Once the seal housing has been removed, remove all of the old seal parts. This will require the removal of the stationary seal clamping ring and retaining screws.
10. Clean all parts and inspect for any damage. It is recommended that O-Rings and lip seals be replaced when replacing the mechanical seal assembly (21).
11. Lubricate the cup of the stationary seal with a light amount of the Shell FM32 oil. Using a pushing tool (PVC pipe), press the stationary seal into the pocket. Repeat this step for both the upper and lower stationary seal.

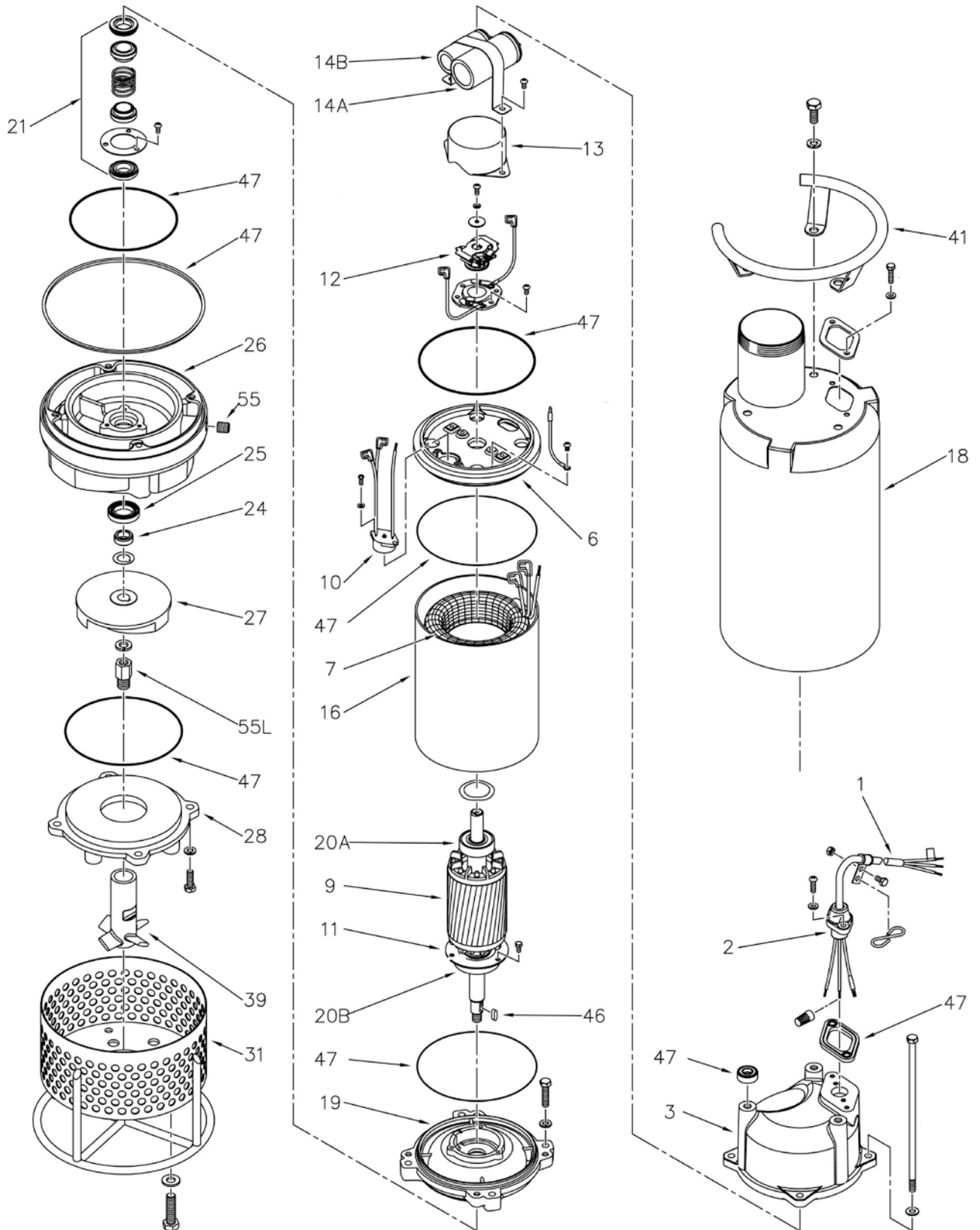


12. Lubricate the lip seal (25) with oil, and press this into the bore on the opposite side of the lower stationary seal, using the proper pressing tool.
13. Lubricate the shaft with a light coating of Shell FM32 oil. Using a pushing tool, press the rotating element for the upper seal onto the shaft and down to the point of contact with the stationary seal. Add the spring. Re-lubricate the shaft with a light amount of oil and install the lower rotating element onto the shaft using a pushing tool.
14. With all O-Rings in place, replace the seal housing and retain with the four cap screws.
15. At this time the seal chamber should be able to be air checked. With the proper gauge set up, apply 10 PSIG (do not add more than 10 PSIG of air pressure). No pressure drop should be seen in five minutes under air pressure. The shaft should be rotated a few times during this testing to insure that the mechanical seals are operating properly.
16. Fill the seal oil chamber with the proper amount of Shell FM 32 NSF approved oil. Note that a 10-15% air gap should be maintained in the seal chamber to allow for heat expansion.
17. The impeller (27) with shims and the shaft key (46) can be placed onto the shaft and secured with the retaining nut and lock washer.
18. The suction wear plate (28), agitator (39) and suction strainer/stand can be replaced and tightened down properly.



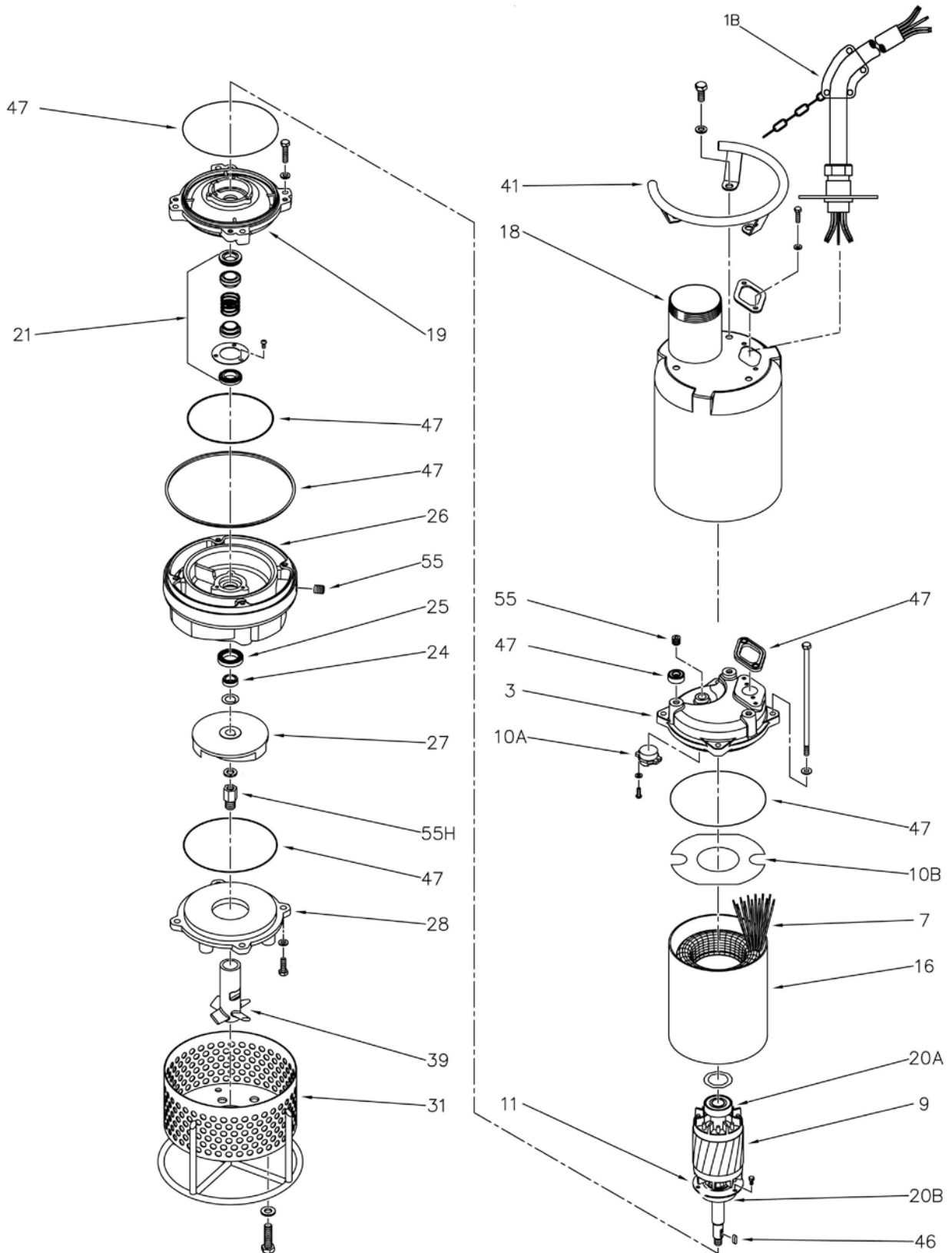


### EXPLODED VIEW LWA1500 & 2200

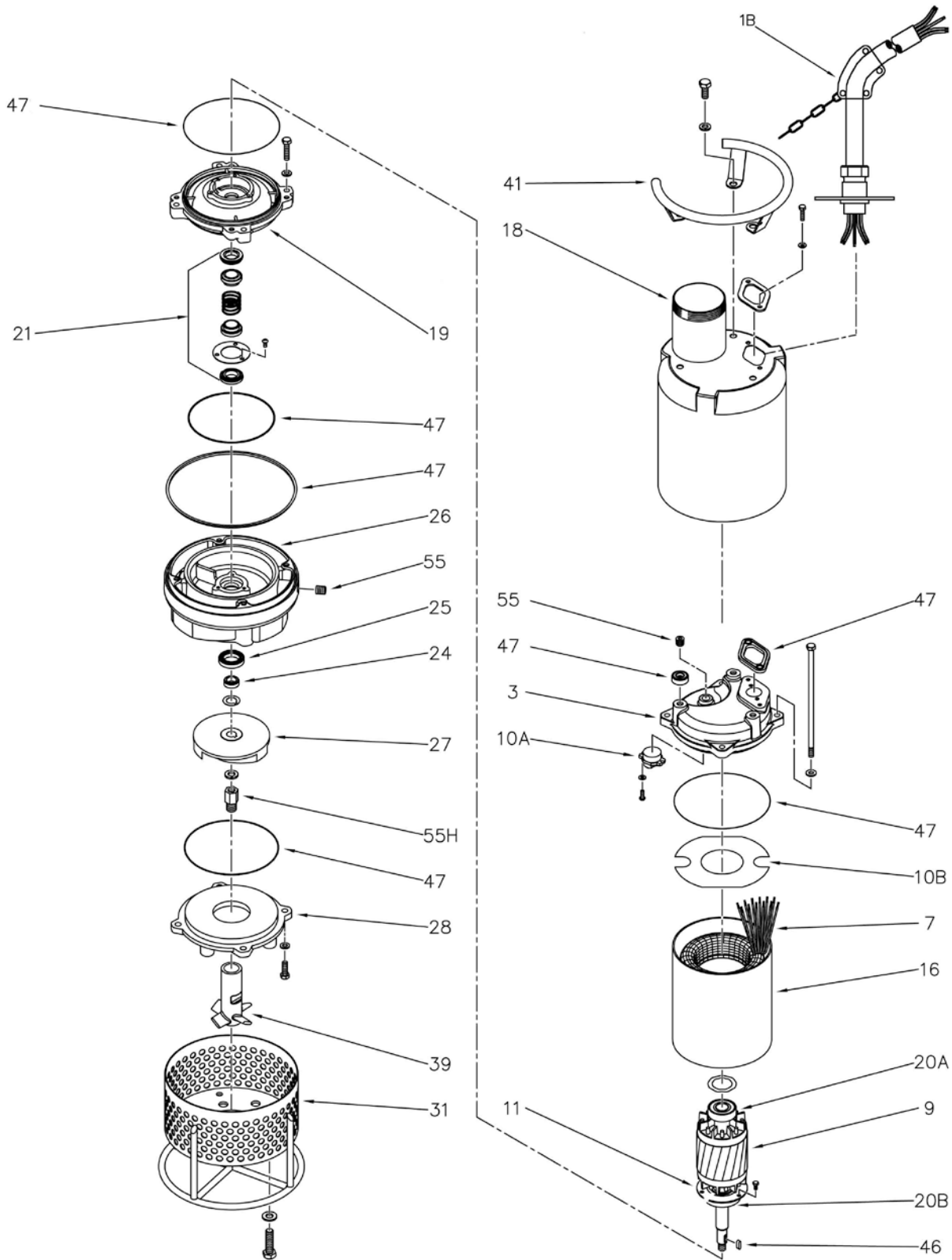




# EXPLODED VIEW LWA15, 22

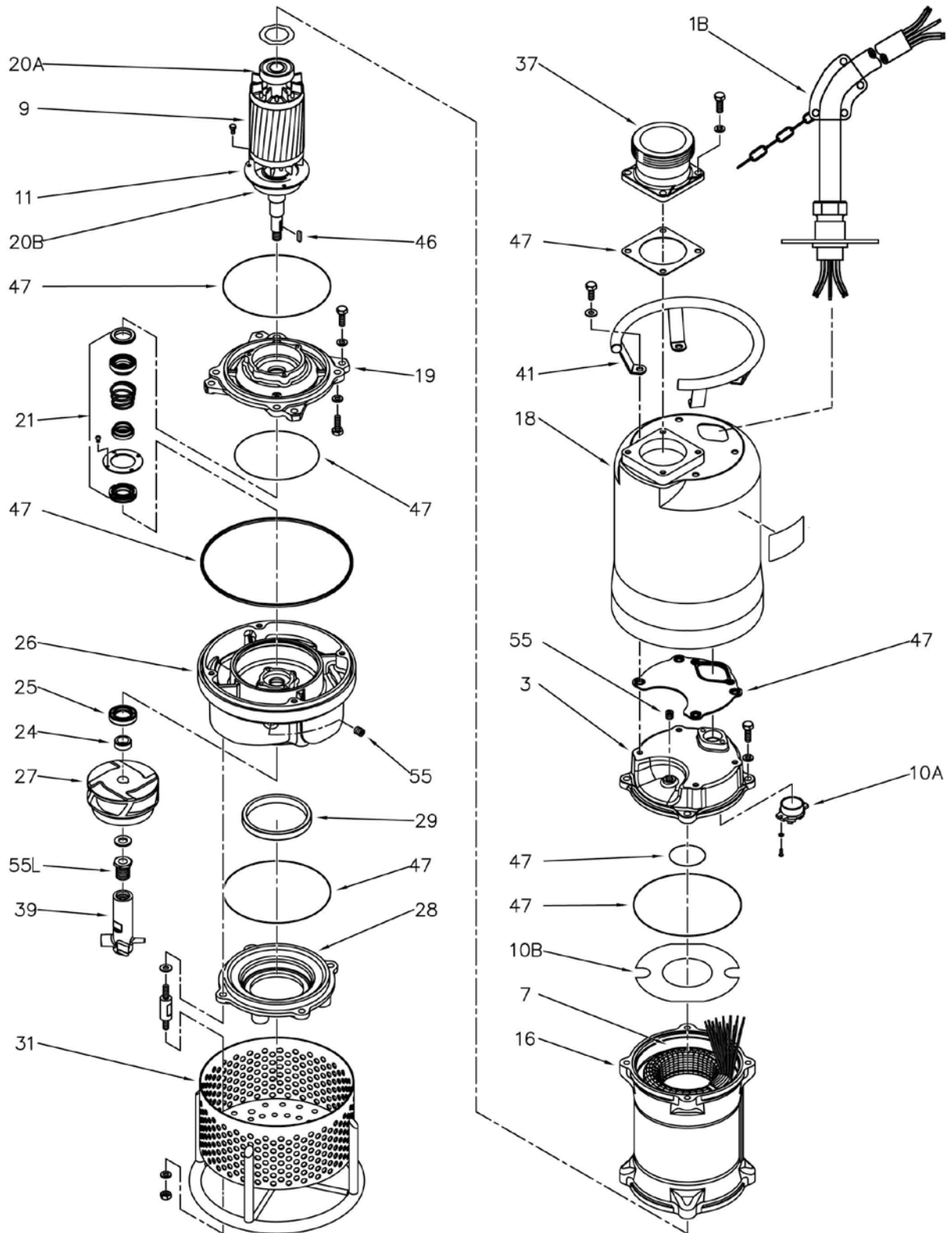


### EXPLODED VIEW LWA37



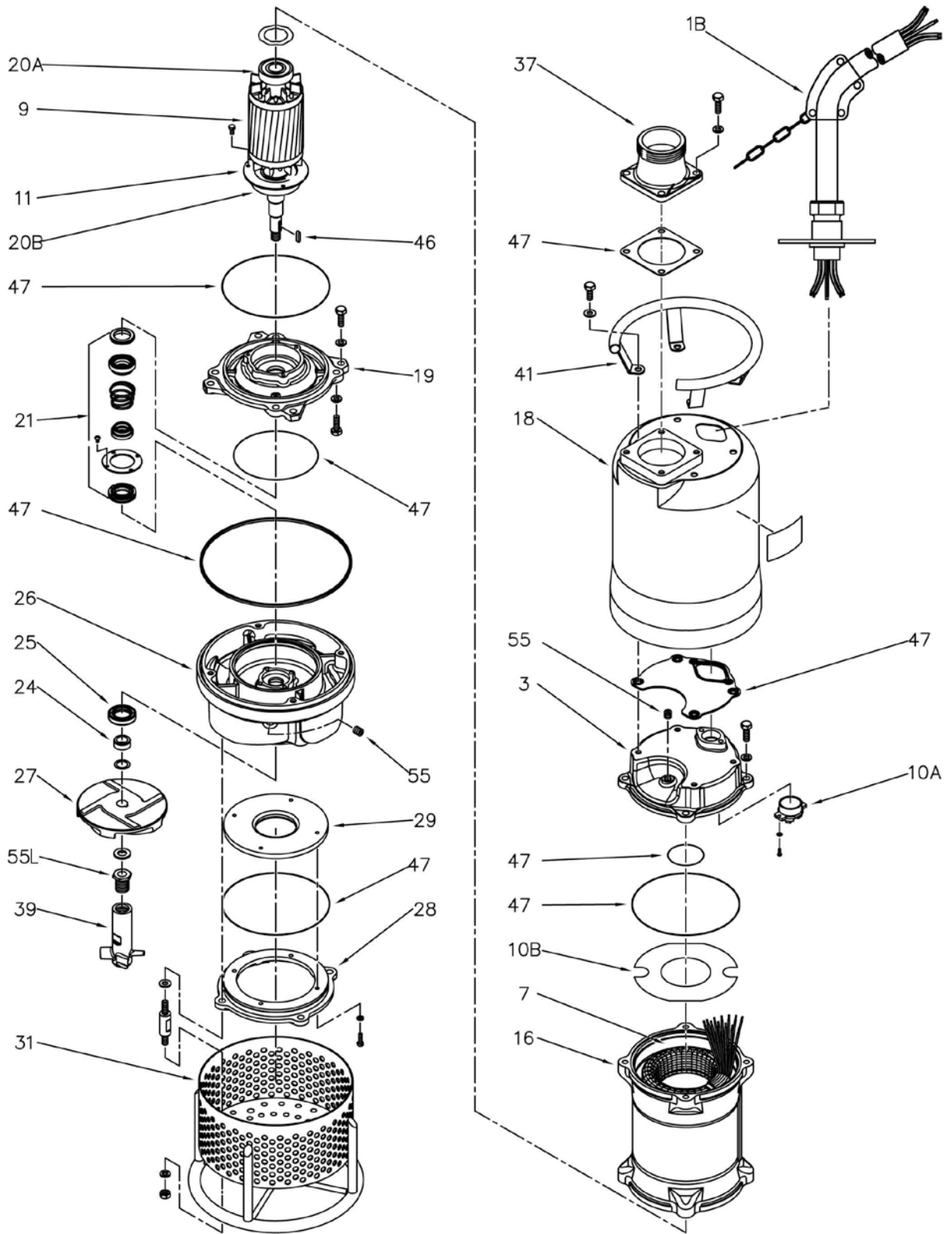


# EXPLODED VIEW LWA55

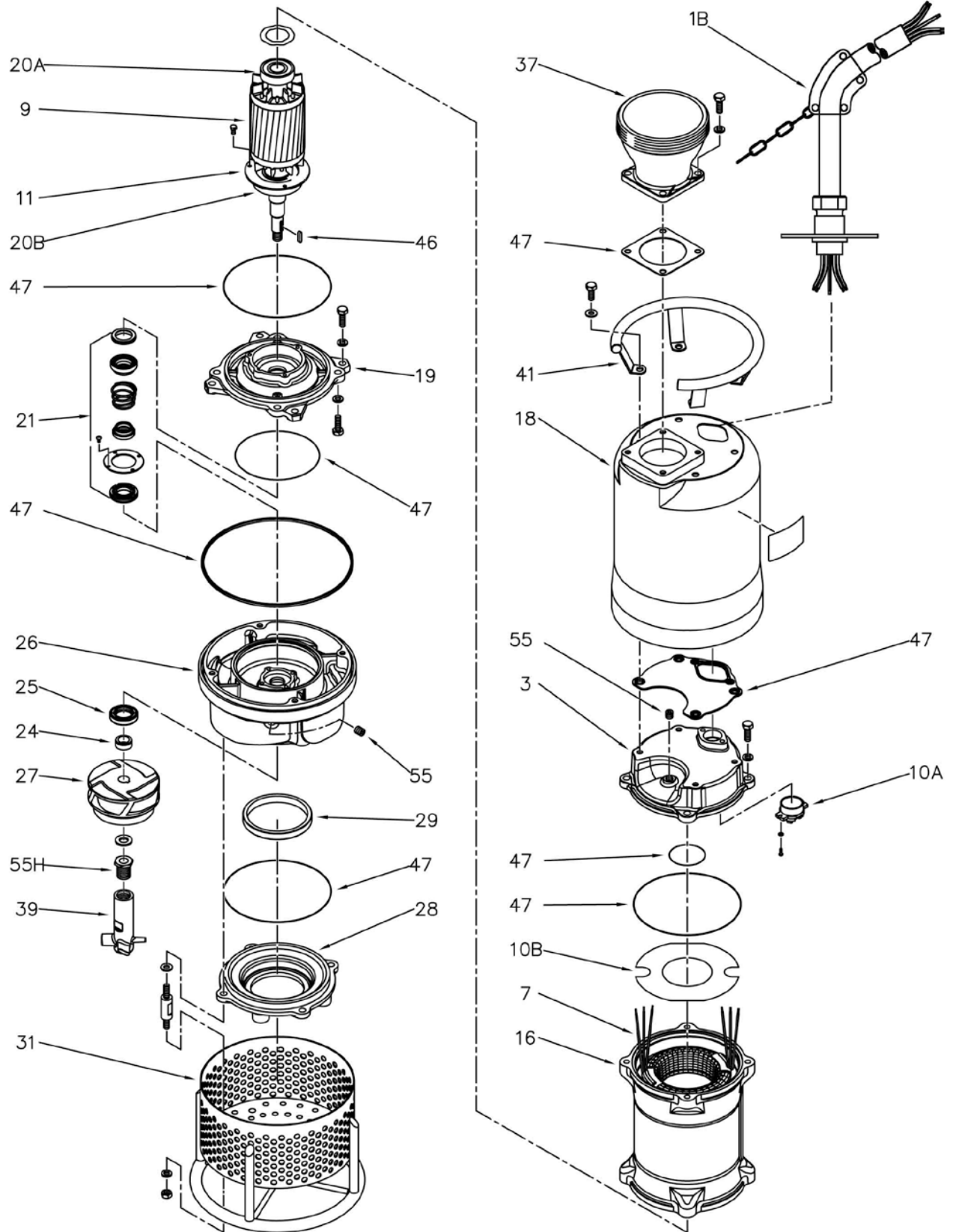




### EXPLODED VIEW LWA55H

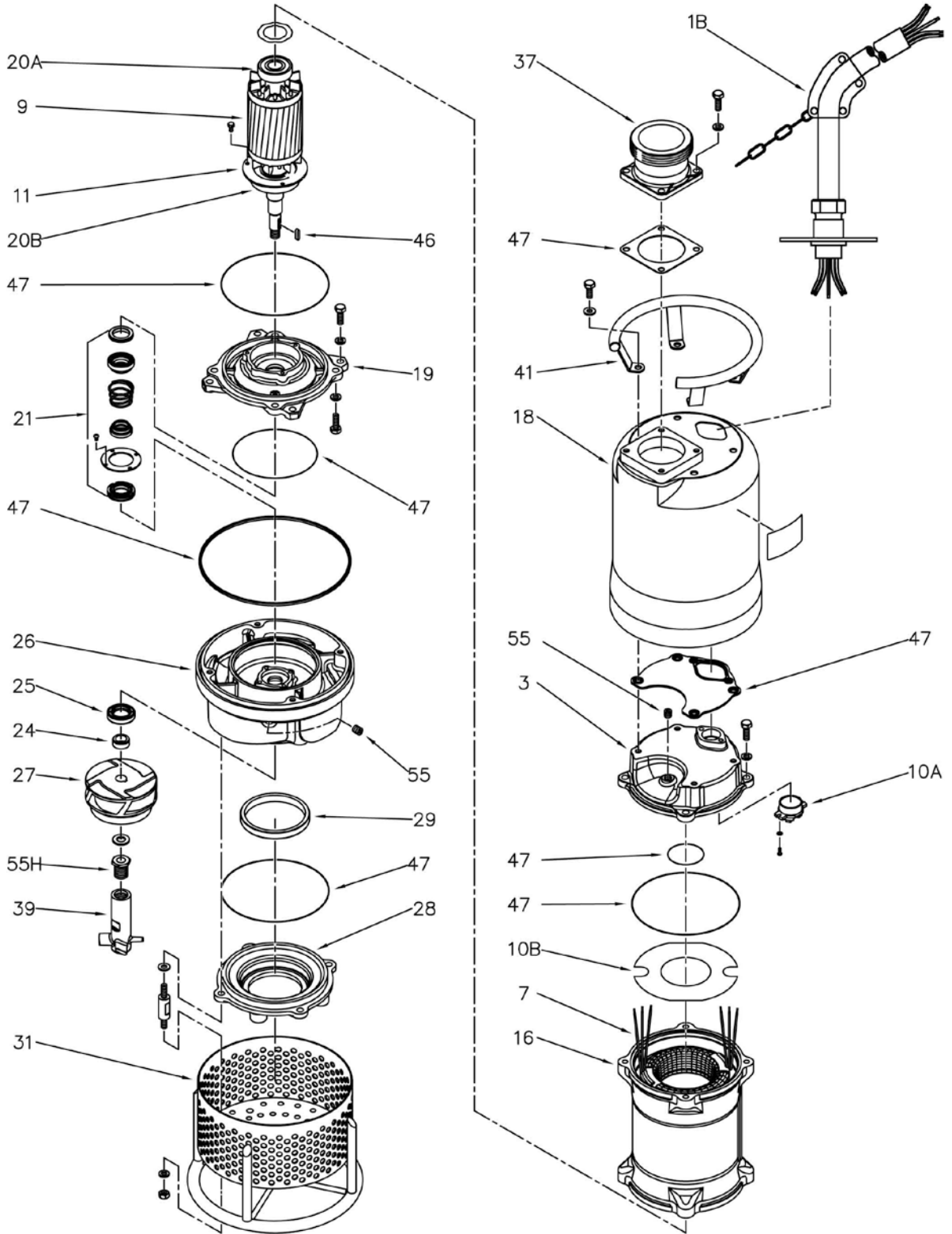


### EXPLODED VIEW LWA75





### EXPLODED VIEW LWA75H



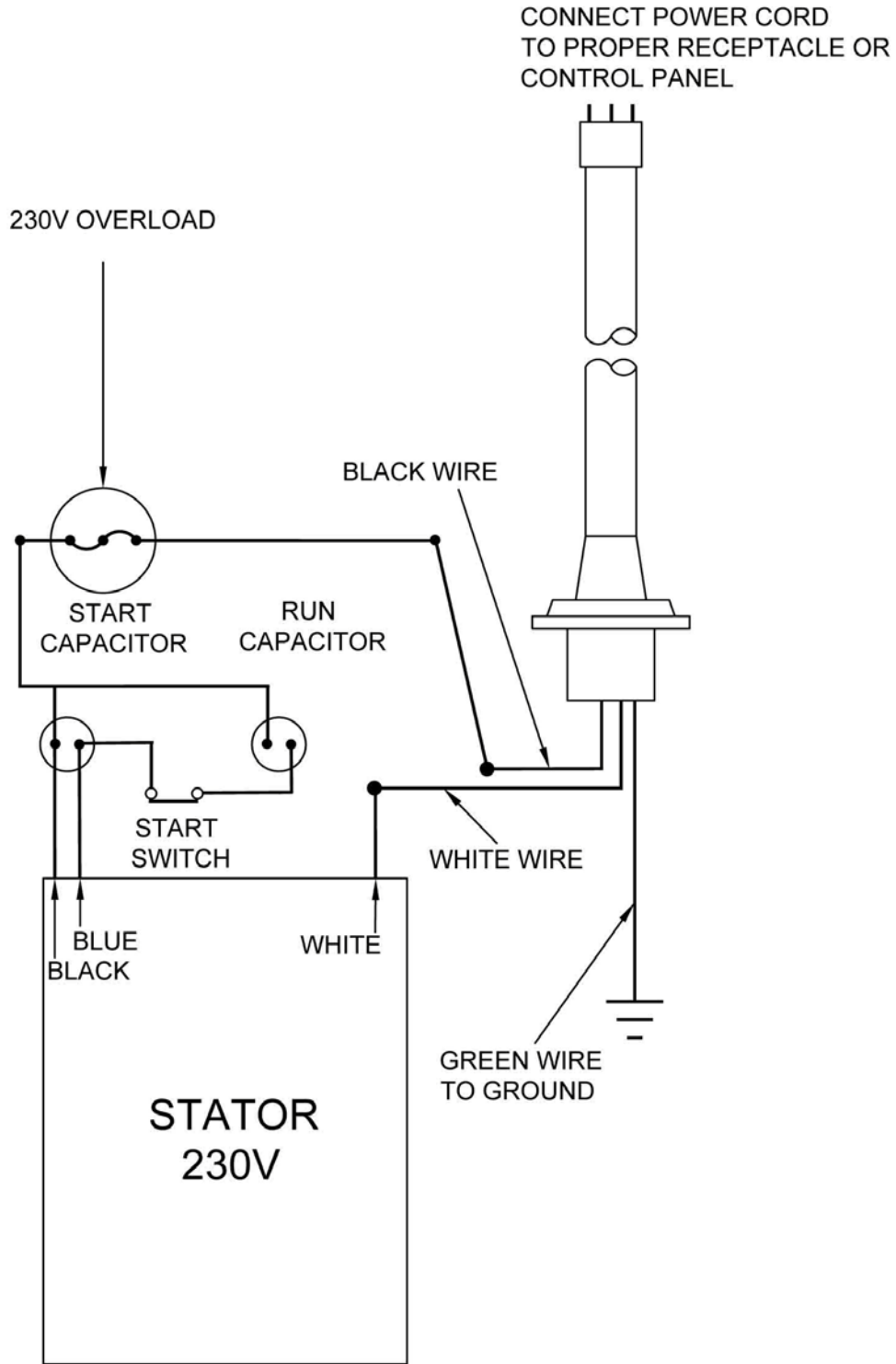
### LWA SERIES PARTS LIST

	Pump Model	LWA1500	LWA2200	LWA15	LWA22	LWA37	LWA55	LWA55H	LWA75	LWA75H
Pos. No.	Part Description	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #
1	CABLE, POWER, SJOW, 12/4 - 15M, LWA 2200	-	200099	-	-	-	-	-	-	-
1	CABLE, POWER, SJOW, 14/4 - 15M, LWA 1500	200100	-	-	-	-	-	-	-	-
1B	CABLE, POWER, ASSY., SOOW 14-5, 230, 460, 575V	-	-	200047	200047	-	-	-	-	-
1B	CABLE, POWER, ASSY., SOOW 12-5, 230, 460, 575V	-	-	-	-	200055	-	-	200055	200055
1B	CABLE, POWER, ASSY., SOOW 10-5, 230, 460, 575V	-	-	-	-	-	200062	200062	-	-
2	BASE, CABLE	200087	200087	-	-	-	-	-	-	-
3	COVER, MOTOR HOUSING, 304SS	200105	200105	200106	200106	200106	200107	200107	200107	200107
6	BRACKET, LWA1500-2200	200095	200095	-	-	-	-	-	-	-
7	STATOR, 10HP, 230/460/3/60, 3600 RPM, CLASS F	-	-	-	-	-	-	-	200154	200154
7	STATOR, 10HP, 575/3/60, 3600 RPM, CLASS F	-	-	-	-	-	-	-	200155	200155
7	STATOR, 2HP, 230/1/60, 3600 RPM, CLASS F	200156	-	-	-	-	-	-	-	-
7	STATOR, 2HP, 230/460/ 3/60, 3600 RPM, CLASS F	-	-	200157	-	-	-	-	-	-
7	STATOR, 2HP, 575/3/60, 3600 RPM, CLASS F	-	-	200158	-	-	-	-	-	-
7	STATOR, 3HP, 230/1/60, 3600 RPM, CLASS F	-	200159	-	-	-	-	-	-	-
7	STATOR, 3HP, 230/460/3/60, 3600 RPM, CLASS F	-	-	-	200160	-	-	-	-	-
7	STATOR, 3HP, 575/3/60, 3600 RPM, CLASS F	-	-	-	200161	-	-	-	-	-
7	STATOR, 5HP, 230/460/3/60, 3600 RPM, CLASS F	-	-	-	-	200162	-	-	-	-
7	STATOR, 5HP, 575/3/60, 3600 RPM, CLASS F	-	-	-	-	200163	-	-	-	-
7	STATOR, 7.5HP, 230/460/3/60, 3600 RPM, CLASS F	-	-	-	-	-	200164	200164	-	-
7	STATOR, 7.5HP, 575/3/60, 3600 RPM, CLASS F	-	-	-	-	-	200165	200165	-	-
9	ROTOR, SHAFT ASSY., 2HP, 1 PHASE, 304 SS	200142	-	-	-	-	-	-	-	-
9	ROTOR, SHAFT ASSY., 2HP, 3 PHASE, 304 SS	-	-	200143	-	-	-	-	-	-
9	ROTOR, SHAFT ASSY., 3HP, 1 PHASE, 304 SS	-	200144	-	-	-	-	-	-	-
9	ROTOR, SHAFT ASSY., 3HP, 3 PHASE, 304 SS	-	-	-	200145	-	-	-	-	-
9	ROTOR, SHAFT ASSY., 5HP, 3 PHASE, 304 SS	-	-	-	-	200146	-	-	-	-
9	ROTOR, SHAFT ASSY., 7.5-10HP, 3 PHASE, 304 SS	-	-	-	-	-	200147	200147	200182	200182
10	SWITCH, OVERLOAD 3HP, 230V, 1PH, LWA2200	-	200132	-	-	-	-	-	-	-
10	SWITCH, OVERLOAD 2HP, 230V, 1PH	200175	-	-	-	-	-	-	-	-
10A	SWITCH, OVERLOAD 10HP, 230V, 3PH	-	-	-	-	-	-	-	200172	200172
10A	SWITCH, OVERLOAD 5HP/230V, 10HP/460V, 3PH	-	-	-	-	200173	-	-	200173	200173
10A	SWITCH, OVERLOAD 10HP, 575V, 3PH	-	-	-	-	-	-	-	200174	200174
10A	SWITCH, OVERLOAD 2HP, 230V, 3PH	-	-	200176	-	-	-	-	-	-
10A	SWITCH, OVERLOAD 3HP/230V, 5HP/460V, 3PH	-	-	-	200177	200177	-	-	-	-



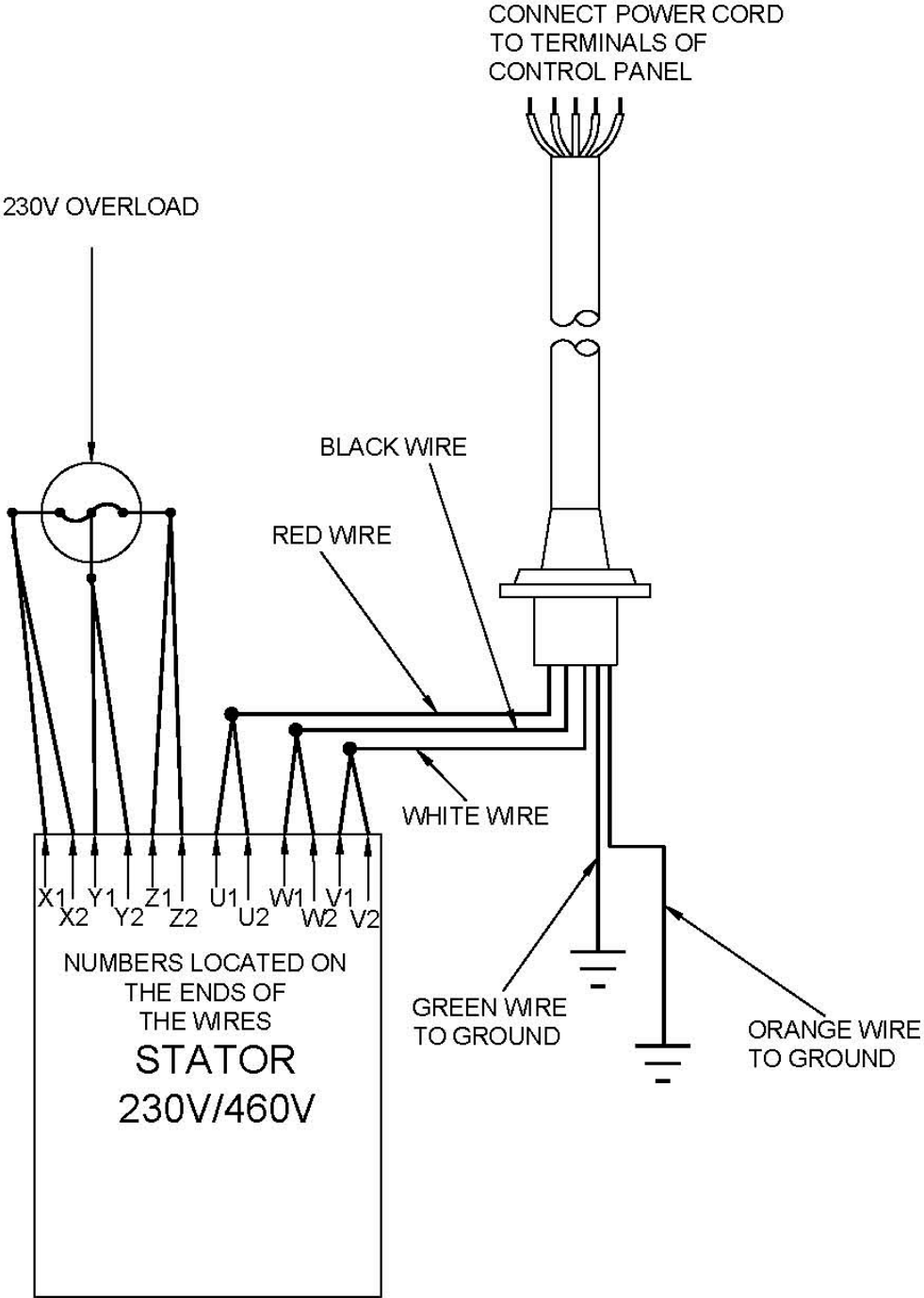
10A	SWITCH, OVERLOAD 2HP, 460V, 3PH	-	-	200178	-	-	-	-	-	-
10A	SWITCH, OVERLOAD 3HP, 460V, 3PH	-	-	-	200179	-	-	-	-	-
10A	SWITCH, OVERLOAD 2HP, 575V, 3PH	-	-	200180	-	-	-	-	-	-
10A	SWITCH, OVERLOAD 3HP, 575V, 3PH	-	-	-	200181	-	-	-	-	-
10A	SWITCH, OVERLOAD 5HP, 575V, 3PH	-	-	-	-	200184	-	-	-	-
10A	SWITCH, OVERLOAD 7.5HP, 230V, 3PH	-	-	-	-	-	200185	200185	-	-
10A	SWITCH, OVERLOAD 7.5HP, 460V, 3PH	-	-	-	-	-	200186	200186	-	-
10A	SWITCH, OVERLOAD 7.5HP, 575V, 3PH	-	-	-	-	-	200187	200187	-	-
10B	PLATE, OVERLOAD SWITCH	-	-	200133	200133	200133	200134	200134	200134	200134
11	RETAINER, BEARING	200139	200139	200139	200139	200140	200141	200141	200141	200141
12	SWITCH, CENTRIFUGAL	200171	200171	-	-	-	-	-	-	-
13	COVER, CENTRIFUGAL SWITCH, LWA 1500-2200	200104	200104	-	-	-	-	-	-	-
14A	CAPACITOR, RUN, LWA 1500-2200	200101	200101	-	-	-	-	-	-	-
14B	CAPACITOR, START	200102	200103	-	-	-	-	-	-	-
16	FRAME, MOTOR	200113	200113	200114	200114	200115	200116	200116	200116	200116
18	HOUSING, OUTER W/ 3" NPT DISCH, 304SS	200120	200120	200121	200121	200119	-	-	-	-
18	HOUSING, OUTER, 304SS	-	-	-	-	-	200122	200122	200122	200122
19	BRACKET, BEARING	200183	200183	200183	200183	200093	200094	200094	200094	200094
20A	BEARING, UPPER, LWA	200088	200088	200088	200088	200088	200089	200089	200089	200089
20B	BEARING, LOWER, LWA	200089	200089	200089	200089	200090	200091	200091	200091	200091
21	SEAL, MECH., SI/SI X CARB/CER	200151	200151	200151	200151	200152	200153	200153	200153	200153
24	BUSHING, LIP SEAL, 304SS	200096	200096	200096	200096	200097	200098	200098	200098	200098
25	SEAL, LIP	200148	200148	200148	200148	200149	200150	200150	200150	200150
26	VOLUTE, HARDENED DI	200188	200188	200188	200188	200189	200190	200190	200190	200190
27	IMPELLER, HI CHROME CI	200123	200124	200123	200124	200125	200128	200127	200129	200126
28	COVER, SUCTION, HARDENED DI	200108	200108	200108	200108	200109	200111	200112	200110	200112
29	PLATE, WEAR HI CHROME CI	-	-	-	-	-	200167	200136	200137	200167
31	STRAINER, BOTTOM COVER	200166	200166	200166	200166	200166	200168	200168	200168	200168
37	ADAPTER, DISCHARG, 4", MALE NPT	-	-	-	-	-	200082	-	-	200082
37	ADAPTER, DISCHARGE, 3" MALE NPT	-	-	-	-	-	-	200083	-	-
37	ADAPTER, DISCHARGE, 6" MALE NPT	-	-	-	-	-	-	-	200084	-
39	AGITATOR, HARDENED DI	200085	200085	200085	200085	200085	200086	200086	200086	200086
41	HANDLE, LIFT	200117	200117	200117	200117	200117	200118	200118	200118	200118
46	KEY, IMPELLER	200130	200130	200130	200130	200131	200131	200131	200131	200131
47	KIT, O-RING	200211	200211	200212	200212	200212	200213	200213	200213	200213
55	PLUG, OIL, LWA	200138	200138	200138	200138	200138	200138	200138	200138	200138
55H	STUB, AGITATOR JOINT	-	-	200169	200169	200169	-	-	200170	200170
55L	STUB, AGITATOR JOINT	200169	200169	-	-	-	200170	200170	-	-

# SINGLE PHASE WIRING DIAGRAM 230V



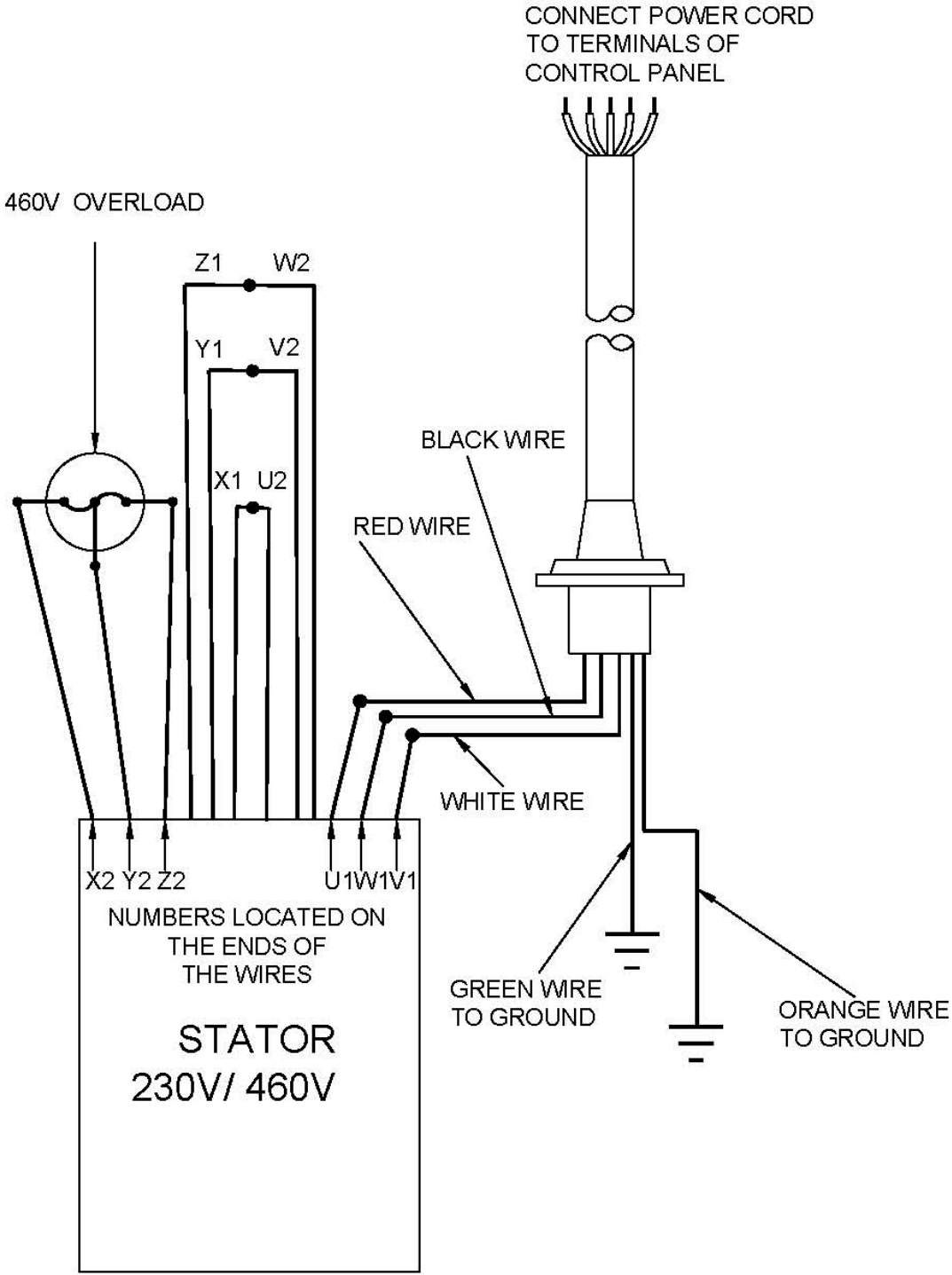
MODELS LWA1500 & LWA2200

**THREE PHASE WIRING DIAGRAM 230V DUAL VOLTAGE**



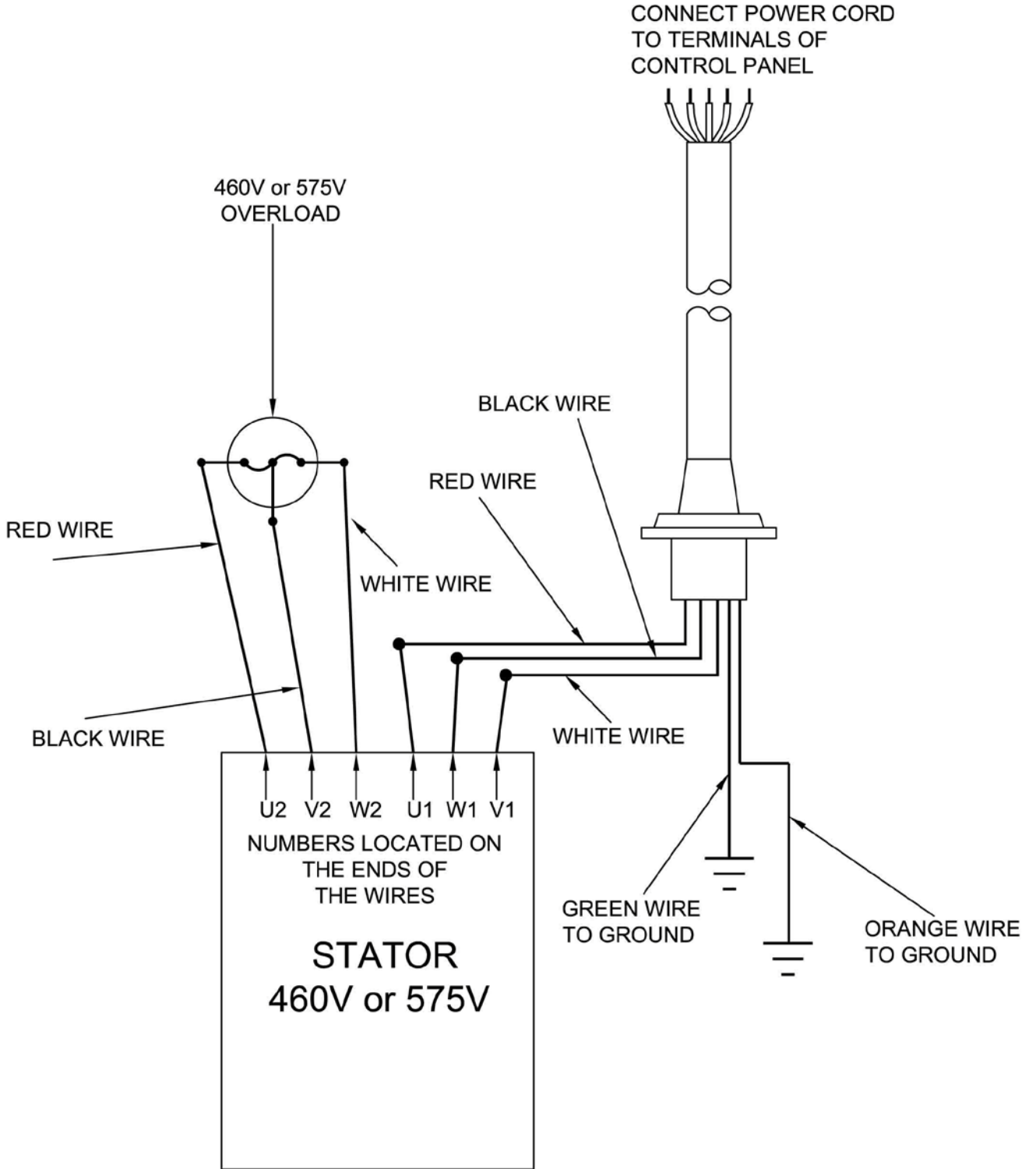
MODELS LWA15-75H

**THREE PHASE WIRING DIAGRAM 460V DUAL VOLTAGE**



MODELS LWA15-75H

### THREE PHASE WIRING DIAGRAM 460/575V SINGLE VOLTAGE



NOTE: OVERLOAD MUST BE CHANGED WHEN REWIRING FOR DIFFERENT VOLTAGE.

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			
<b>MEG OHM CHECK OF INSULATION</b>			
Red to ground_____ White to ground_____ Black to ground_____			
Condition of location at start-up	<input type="checkbox"/> Dry <input type="checkbox"/> Wet <input type="checkbox"/> Muddy		
Was equipment stored	<input type="checkbox"/> Yes <input type="checkbox"/> No.		
If YES, length of storage:			
Liquid being pump			
Debris in bottom of station?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
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
<b>Operation Check</b>		
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		
<b>NOTE: At no time should hole be made in top of control panel, unless proper sealing devices are utilized.</b>		
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		
<b>SINGLE PHASE</b>		
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
<b>THREE PHASE</b>		
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
<b>FINAL CHECK</b>		
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  
123 Spencer Plain Road • PO Box 1138 • Old Saybrook, CT 06475, USA  
• Phone: (860) 399-5937 • Fax: (860) 399-7784  
Email: [sales@bjmpumps.com](mailto:sales@bjmpumps.com) • Web Site: [www.bjmpumps.com](http://www.bjmpumps.com)

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