

## INSTALLATION, SERVICE & PARTS MANUAL



**Series: CP4SE**

**CP4SE203DS, CP4SE204DS**

**CP4SE303DS, CP4SE304DS**

**CP4SE503DS, CP4SE504DS**

**CP4SE753DS, CP4SE754DS**

**1750RPM, 60Hz**

# General Safety Information

Before installation, read the following instructions carefully. Failure to follow instruction and Safety information could cause serious bodily injury, death and/or property damage. Each Champion pump is individually factory tested to insure proper performance. Closely following these instructions will eliminate potential operating problems, assuring years of trouble-free service.

**▲ DANGER** "Danger" indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.

**▲ WARNING** "Warning" indicates a hazardous situation which, if not avoided, MAY result in death or serious injury.

**▲ CAUTION** "Caution" indicates a hazardous situation which, if not avoided, MAY result in minor or moderate injury.

**IMPORTANT - Champion Pump Company is not responsible for losses, injury or death resulting from failure to observe these safety precautions, misuse, abuse or misapplication of pumps or equipment.**

**ALL RETURNED PRODUCTS MUST BE CLEANED, SANITIZED, OR RECONTAMINATED PRIOR TO SHIPMENT, TO INSURE EMPLOYEES WILL NOT BE EXPOSED TO HEALTH HAZARDS IN HANDLING SAID MATERIAL. ALL APPLICABLE LAWS AND REGULATIONS SHALL APPLY.**

**▲ WARNING** Installation, wiring, and junction connections must be in accordance with the National Electric Code and all applicable state and local codes. Requirements may vary depending on usage and location.

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**▲ WARNING** Installation and servicing is to be conducted by qualified personnel only.

**▲ DANGER** Keep clear of suction and discharge openings. **Do not** insert fingers in pump with power connected.

**▲ WARNING** Always wear eye protection when working on pumps. Do not wear loose clothing that may become entangled in moving parts

**▲ DANGER** Pumps build up heat and pressure during operation. Allow time for pumps to cool before handling or servicing.

**▲ DANGER** This pump is **not** intended for use in swimming pools or water installations where human contact with pumped fluid.

**▲ DANGER** Risk of electric shock. To reduce risk of electric shock, always disconnect pump from power source before handling. **Lock out power & tag.**

**▲ WARNING** Do not use these pumps in water over 104°F. High temperature units PFSE51HT 200°F. **Do not** exceed manufactures recommended maximum performance, as this could cause the motor to overheat.

**▲ DANGER** Do not lift, carry or hang pump by the electrical cables. Damage to the electrical cables can cause shock, burnes or death. **Never** handle connected power cords with wet hands. Use appropriate lifting device.

**▲ WARNING** Ground Fault Circuit Interrupter (GFCI) to be used with plug-in type power cord.

**▲ WARNING** Sump and sewage pumps often handle materials which could cause illness or disease. wear adequate protective clothing when working on a used pump or piping. Never enter a basin after it has been used.

**▲ DANGER** Failure to permanently ground the pump, motor and controls before connecting to power can cause shock, burns or death.

**▲ WARNING** These pumps are NOT to be installed in locations classified as hazardous in accordance with the National Electric Code, ANSI/NFPA 70.

**▲ WARNING** The Uniform Plumbing Code (UPC) states that sewage systems shall have an audio and visual alarm that signals a malfunction of the systems that is required to reduce the potential for property damage.

**IMPORTANT!** Prior to installation, record Model Number, MFG Date, Amps, Voltage, Phase and HP, from pump name plate for future reference. Also record the Voltage and Current Readings at Startup:

1 Phase Models	
Amps:	Volts:
3 Phase Models	
Amps L1-2:	Volts L1-2:
Amps L2-3:	Volts L2-3:
Amps L3-1:	Volts L3-1:

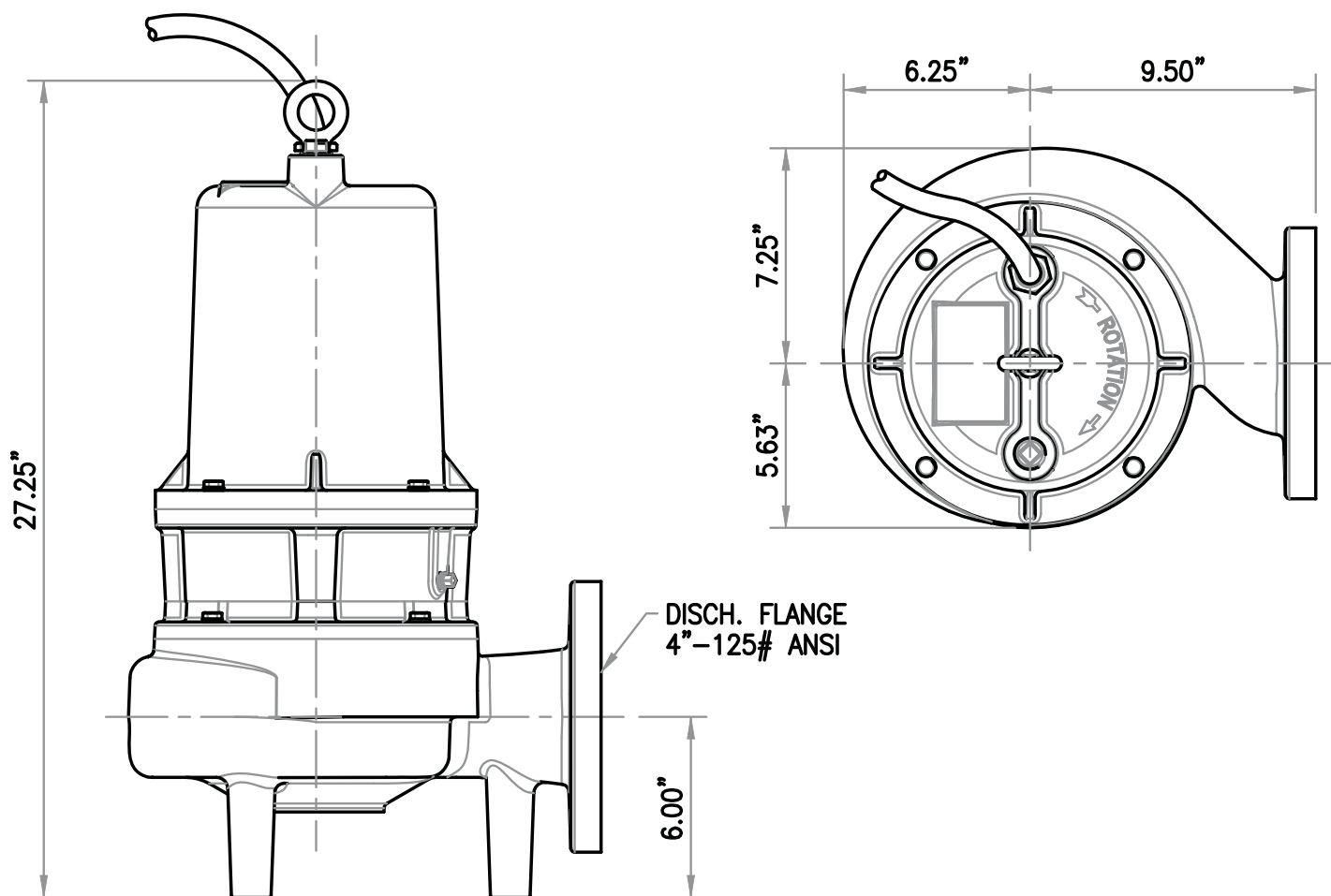
Model Number: \_\_\_\_\_

MFG Date: \_\_\_\_\_

PHASE: \_\_\_\_\_ HP: \_\_\_\_\_

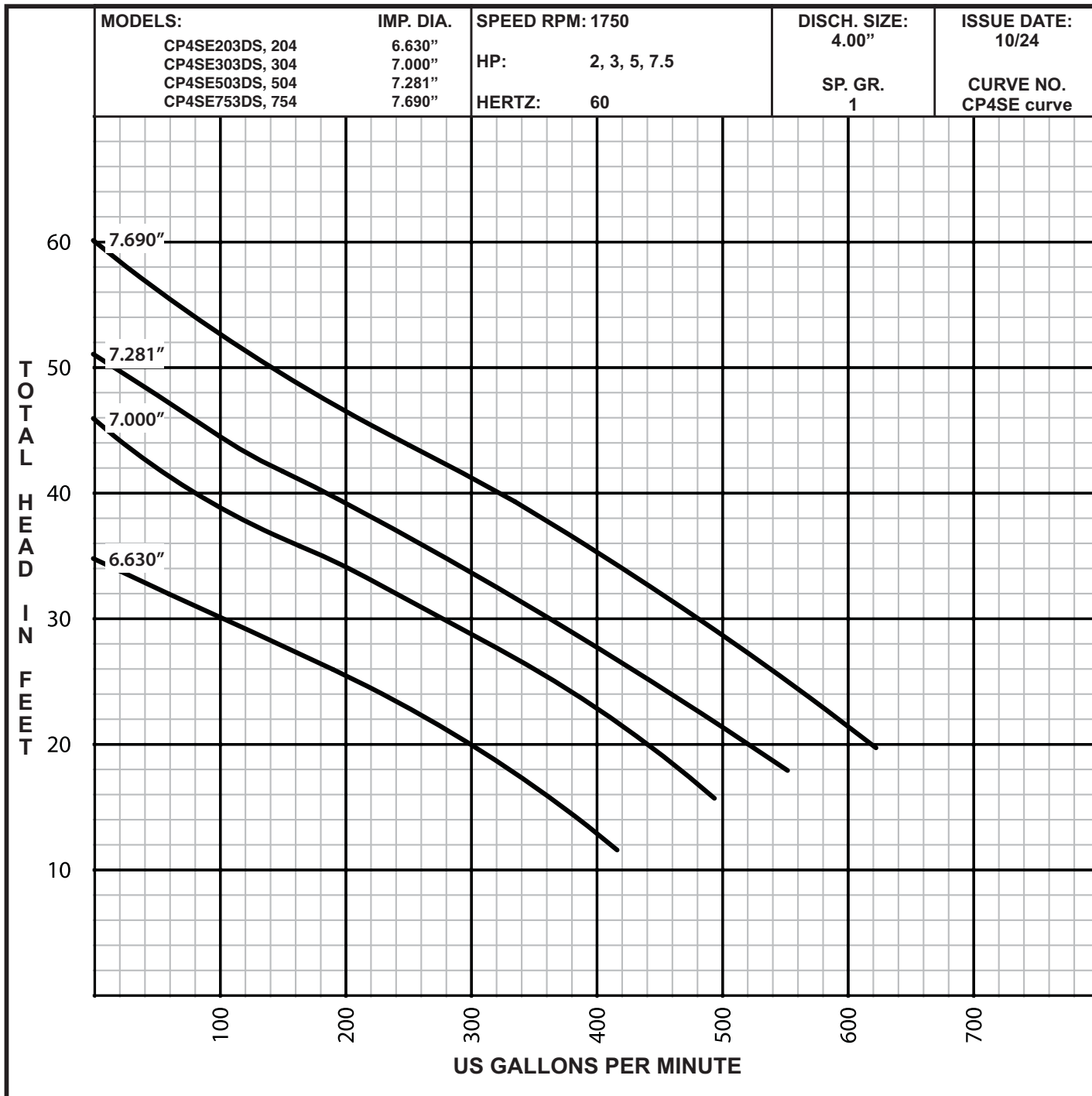
<b>DISCHARGE</b>	4", 125lb, flange horizontal
<b>LIQUID TEMPERATURE</b>	104 °F (40 °C) continuous, 140 °F (60 °C) intermittent operation.
<b>MOTOR HOUSING</b>	Cast iron ASTM A-48 class 30
<b>VOLUTE</b>	Cast iron ASTM A-48 class 30
<b>IMPELLER</b>	Design: 2 vane, semi-open, with vanes on back side Material: cast iron ASTM A-48 class 30
<b>SHAFT</b>	416 series stainless steel
<b>SQUARE RINGS</b>	Buna-N
<b>HARDWARE</b>	300 series stainless steel
<b>PAINT</b>	Air dry enamel, water based
<b>SEAL</b>	Design: dual, mechanical, oil filled chamber Material: silicon carbide with Viton type 21 outer seal, carbon ceramic with Buna-N type 21 inner seal, with stainless steel hardware.
<b>CORD</b>	40 ft cord. Pressure grommet for sealing and strain relief.
<b>MOTOR</b>	NEMA B, three phase, 200/230 & 460 volts, 60 Hz, 1750 RPM, oil filled, with class F insulation.





MODEL	HP	VOLTS	PHASE	RPM (Nominal)	MAX AMPS	LOCKED ROTOR AMPS	NEMA CODE	CORD SIZE	CORD TYPE	WEIGHT (pounds)
CP4SE203DS	2	230	3	1750	11.6	40	F	14/4	STOW	200
CP4SE204DS	2	460	3	1750	5.8	20	F	14/4	STOW	200
CP4SE303DS	3	230	3	1750	14.4	49.5	H	14/4	STOW	205
CP4SE304DS	3	460	3	1750	7.2	24.8	H	14/4	STOW	205
CP4SE503DS	5	230	3	1750	16.6	63.6	E	14/4	STOW	210
CP4SE504DS	5	460	3	1750	8.3	31.8	E	14/4	STOW	210
CP4SE753DS	7.5	230	3	1750	23	105	G	10/4	STOW	225
CP4SE754DS	7.5	460	3	1750	11.5	52.5	G	10/4	STOW	225

Winding resistance  $\pm$  5% at terminal block. Rated operation at  $\pm$  10% voltage at motor.



## Receiving Inspection

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump. If the manual is removed from the packaging, do not lose or misplace.

## Storage

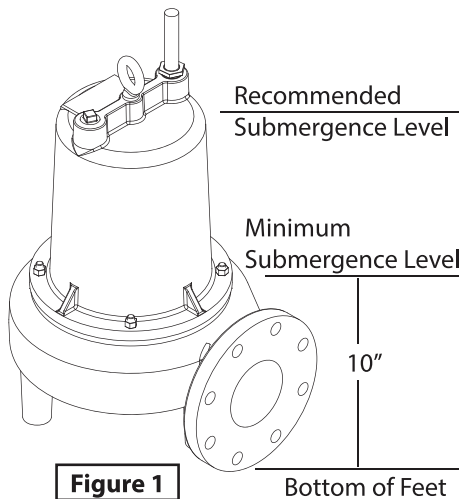
Any product that is stored for a period longer than six (6) months from the date of purchase should be bench tested prior to installation. A bench test consists of, checking the impeller to assure it is free turning and a run test to assure the motor (and switch if provided) operate properly. Do not pump out of liquid.

## Controls

Manual models require a separate approved pump control device or panel for automatic operation. Be sure the electrical specification of the control selected properly match the electrical specifications of the pump.

## Submergence

The pump should always be operated in the submerged condition. The minimum sump liquid level should never be less than above the pump's volute (See Figure 1).



**Figure 1**

## Installation

These pumps are recommended for use in a sump, basin or lift station. The sump, basin or lift station shall be sealed and vented in accordance with local plumbing codes. **This pump is designed to pump sewage, effluent or wastewater, nonexplosive and noncorrosive liquids and shall NOT be installed in locations classified as hazardous in accordance with the National Electrical Code (NEC) ANSI/NFPA 70 or Canadian Electric Code (CEC).** The pump should never be installed in a trench, ditch, or hole with a dirt bottom. The legs will sink into the dirt and the suction will become plugged.

The installation should be at a sufficient depth to ensure that all plumbing is below the frost line. If this is not feasible, remove the check valve and size the basin to accommodate the additional backflow volume.

Pumps are most commonly installed in simplex or duplex stations or basins with a slide rail system, which allows the pump(s) to be installed or removed without requiring personnel to enter the station, or resting on the basin floor.

## Discharge Piping

Discharge piping should be as short as possible and sized no smaller than the pump discharge. **Do not reduce the discharge pipe size below that which is provided on the pump.** Both a check valve and a shut-off valve are recommended for each pump. The check valve is used to prevent backflow into the sump. The shut-off valve is used to manually stop system flow during pump servicing.

## Liquid Level Controls

The level control(s) should be mounted on the discharge piping, a cable rack or float pole. The level control should have adequate clearance so it cannot hang up in it's swing and that the pump is completely submerged when the level control is in the "Off" mode. By adjusting the cord tether the control level can be changed. One cycle of operation should be observed, so that any potential problems can be corrected.

It is recommended that the level control float should be set to insure that the liquid in the sump never drops below the top of the motor housing or a minimum level of 10 inches above the basin floor.

## Electrical Connections

### Power cable:

The power cable mounted to the pump must not be modified in any way except for shortening to a specific application. Any splice between the pump and the control panel must be made in accordance with the electric codes. It is recommended that a junction box, if used, be mounted outside the sump or be of at a minimum Nema 4 construction if located within the wet well. **DO NOT USE THE POWER CABLE TO LIFT PUMP.**

Always rely upon a Certified Electrician for installation.

### Overload Protection:

**Single Phase** - The stator in-winding overload protector used is referred to as an inherent overheating protector and operates on the combined effect of temperature and current. This means that the overload protector will trip out and shut the pump off if the windings become too hot, or the load current passing through them becomes too high.

**IMPORTANT!** - The overload will then automatically reset and start the pump up after the motor cools to a safe temperature. In the event of an overload, the source of this condition should be determined and corrected immediately.



**WARNING! - DO NOT LET THE PUMP CYCLE OR RUN IF AN OVERLOAD CONDITION OCCURS!**

If current through the temperature sensor exceeds the values listed, an intermediate control circuit relay must be used to reduce the current or the sensor will not work properly.

TEMPERATURE SENSOR ELECTRICAL RATINGS		
Volts	Continuous Amperes	Inrush Amperes
110-120	3.00	30.0
220-240	1.50	15.0
440-480	0.75	7.5
600	0.60	6.0

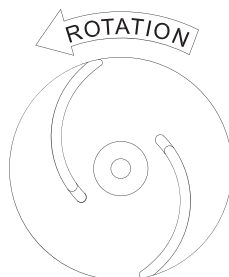
### Wire Size:

If longer power cable is required consult a qualified electrician for proper wire size.

### Pre-Operation

1. **Check Voltage and Phase** - Compare the voltage and phase information stamped on the pump name plate.
2. **Check Pump Rotation** - Improper motor rotation can result in poor pump performance and can damage the motor and/or pump. Check rotation on three phase units by momentarily applying power and observe the "kickback".

Kickback should always be in a counter-clockwise direction as viewed from **motor end** or **opposite** to impeller rotation. Impeller rotation is counter-clockwise as viewed from bottom of pump.



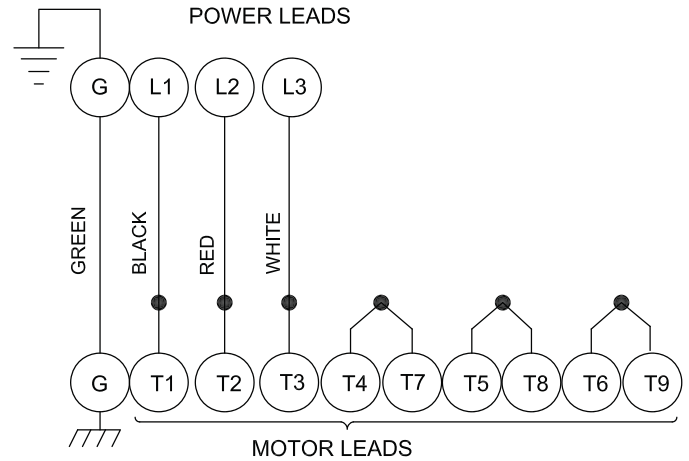
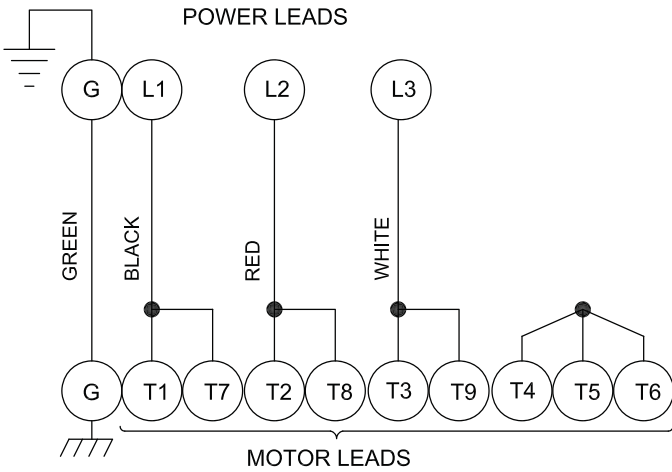
Bottom of Pump

- a). Inspect motor chamber for oil level and contamination.
- b). Inspect impeller and body for excessive build-up or clogging.
- c). Inspect motor, bearings and shaft seal for wear or leakage.

3. **Name Plate** - Record the information from the pump name plate to drawing in front of manual for future reference.
4. **Insulation Test** - An insulation (megger) test should be performed on the motor. Before the pump is put into service. The resistance values (ohms) as well as the voltage (volts) and current (amps) should be recorded.
5. **Pump-Down Test** - Be sure pump has been properly wired, lowered into the basin, sump or lift station, check the system by filling with liquid and allowing the pump to operate through its pumping cycle. The time needed to empty the system, or pump-down time along with the volume of water, should be recorded.

### Maintenance

No lubrication or maintenance is required. Perform the following checks when pump is removed from operation or when pump performance deteriorates:



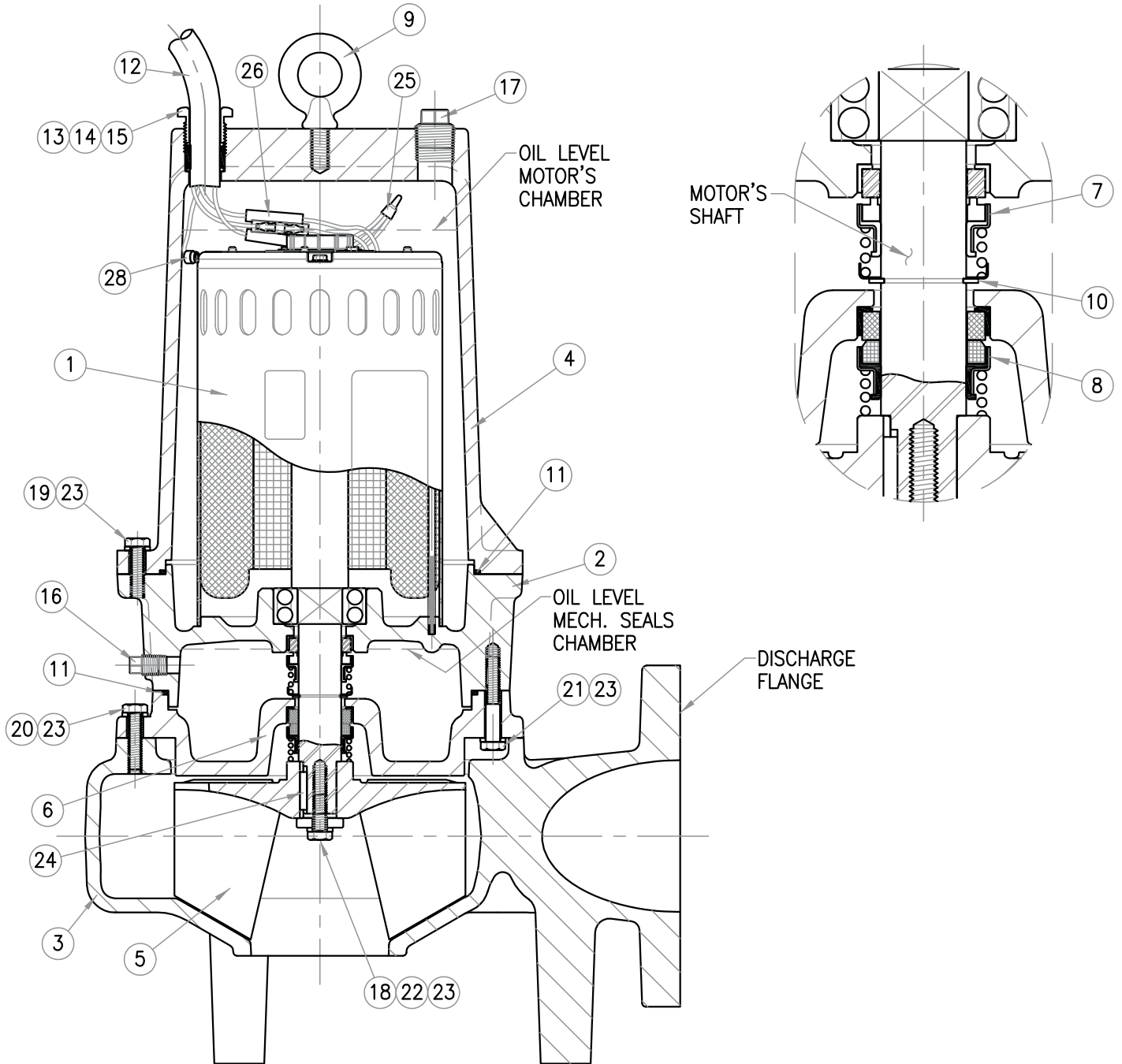
**208/230 Volt AC, 3Ph**

**460 Volt AC, 3Ph**

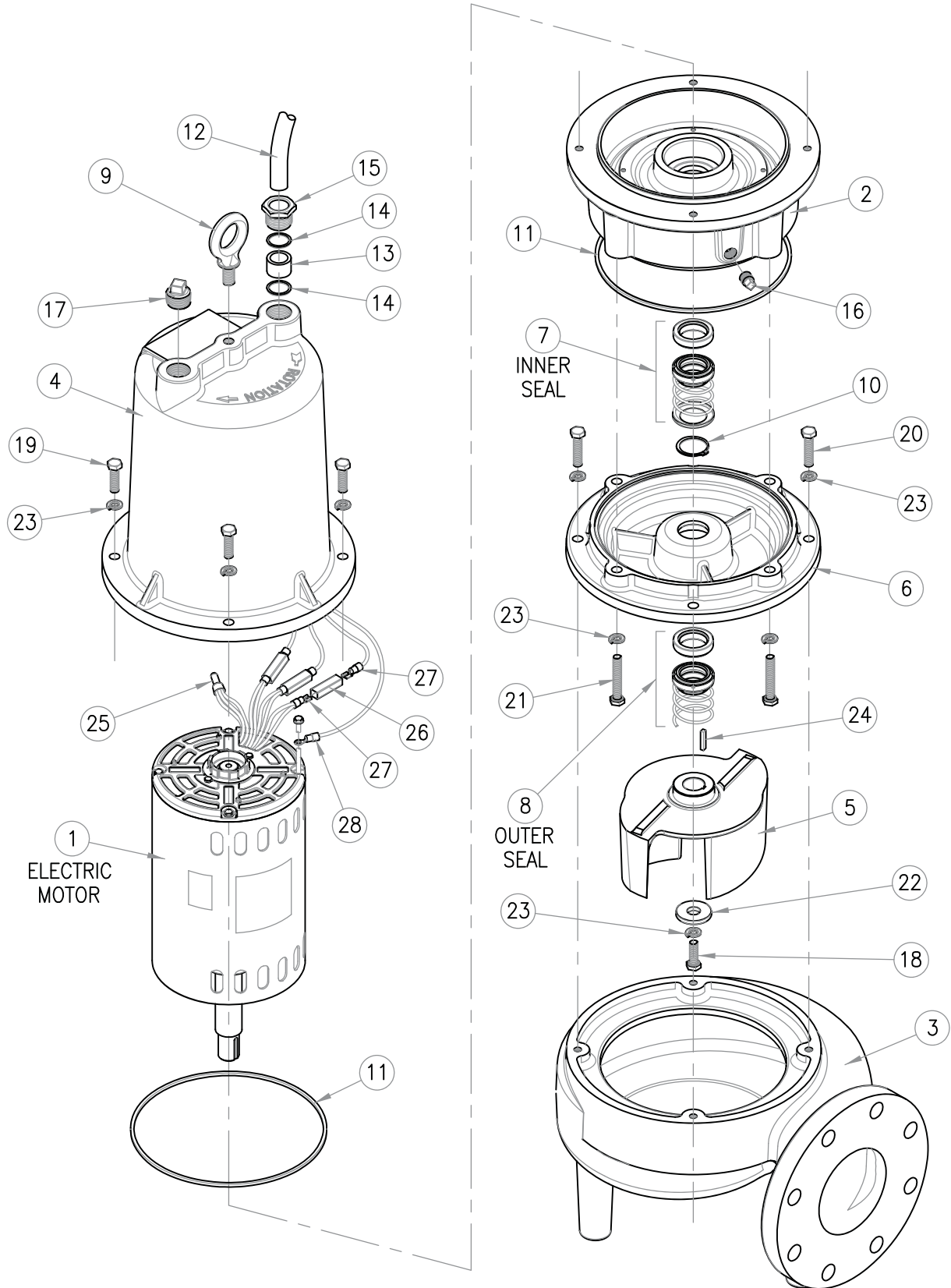
Power Cable	Motor Lead Number
Green (Ground)	Green
Black	1 & 7
Red	2 & 8
White	3 & 9
	4, 5 & 6 Together

Power Cable	Motor Lead Number
Green (Ground)	Green
Black	1
Red	2
White	3
	4 & 7 Together
	5 & 8 Together
	6 & 9 Together





For repair part please supply: Model Number and Serial as shown on Name Plate, and Part Description and Part Number as shown on Parts List.



For repair part please supply: Model Number and Serial as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

ITEM	PART #	DESCRIPTION	QTY.
1		Electric motor	1
	40040068	7.5 HP, 3 ph, 230/460 V, frame 56Z	
	40040066	3 HP, 3 ph, 230/460 V, frame 56Z	
2	03040027	Bearing housing	1
3	03090095	Body	1
4	03100002	Motor housing	1
5		Impeller	1
	03140088	Diameter 7.690", for 7.5 HP	
	03140088B	Diameter 7.280", for 5 HP	
	03140088C	Diameter 7.000", for 3 HP	
	03140088D	Diameter 6.630", for 2 HP	
6	03180029	Seal plate	1
7	31030211	Mechanical seal Ø1 <sup>1</sup> / <sub>8</sub> " (Carbon/Ceramic/Buna/SS)	1
8	31030137	Mechanical seal Ø1 <sup>1</sup> / <sub>8</sub> " (Silicon/Silicon/Viton/SS)	1
9	91010406	Handle	1
10	31010017	Retaining ring # 5100-112	1
11	92010083	Gasket # 33730	2
12	31030003	Power cable 4 x10" (12.40 meters)	1
13	92010001	Grommet # 514	1
14	91010055	Washer # 54746	2
15	30400903	Hex head plug SE103-203-4SE	1
16	93010143	Pipe plug 1/4"	1
17	93010148	Pipe plug 3/4"	1
18	91010345C	Screw 3/8" x 1 <sup>1</sup> / <sub>4</sub> " SS	1
19	91010345C	Screw 3/8" x 1 <sup>1</sup> / <sub>4</sub> " SS	4
20	91010346	Screw 3/8" x 1 <sup>1</sup> / <sub>2</sub> " SS	4
21	91010347C	Screw 3/8" x 2 <sup>1</sup> / <sub>4</sub> " SS	4
22	30400426B	Impeller washer	1
23	91010061	Spring washer 3/8" SS	13
24	30400631	Keyway 3/16"x1-1/8"	1
25		Wire connector # 55044	1
	94010012	For 230 volts	
		For 460 volts	
26	94010027	Connector	3
27	94010041	Female terminal	6
28	94010043	Terminal	1
	31010031	DTE. Oil light	12 L
	99210007	Data plate	1
	99230102	Rivet SS # 001628	4

For repair part please supply: Model Number and Serial as shown on Name Plate, and Part Description and Part Number as shown on Parts List.

 **Risk of electric shock. Always disconnect the pump from the power source before handling inspections or repairs.**

SYMPTOM	POSSIBLE CAUSE(s)	CORRECTIVE ACTION
<p><b>Motor not running.</b>  <b>Note:</b> If circuit breaker "OPENS" repeatedly, <b>DO NOT</b> reset. Call qualified electrician.</p> <p>Note: Check the pump in manual mode first to confirm operation. If pump operates, the automatic control or wiring is at fault. If pump does not operate, see above.</p>	Pump impeller binding or jammed.	Allow motor to cool. Insure minimum pump submergence. Clear debris from casing and impeller.
	Motor thermal protector tripped.	Determine cause, call a qualified electrician.
	Open circuit breaker or blown fuse.	
	Power cable is damaged.	Check motor amp draw. If two or more times higher than listed on pump nameplate, impeller is locked, motor bearings or shaft is damaged. Clear debris from casing and impeller, consult with dealer. Resistance between power leads and ground should read infinity. If any reading is incorrect, call a qualified electrician.
	No neutral wire connected to control panel.	Inspect control panel wiring. Call a qualified electrician.
	Inadequate electrical connection in control panel.	With switch disconnected, check continuity while activating liquid level switch. Replace switch, as required.
	Defective liquid level switch.	Allow liquid level to rise 3" to 4" (76 mm - 101 mm) above turn-on level.
	Insufficient liquid level to activate controls.	Untangle cords and insure free operation.
<p><b>Pump will not turn off.</b></p>	Liquid level cords tangled.	Untangle cords and insure free operation.
	Pump is air locked.	Shut off pump for approximately one minute, then restart. Repeat until air lock clears. If air locking persists in a system with a check valve, a 3/16" (4.8 mm) hole may be drilled in the discharge pipe approximately 2" (51 mm) above the discharge connection.
	Influent flow is matching pump's discharge capacity.	Larger pump may be required.
<p><b>Little or no liquid delivered by pump.</b></p>	Check valve installed backwards, plugged or stuck closed.	Check flow arrow on valve and check valve operation.
	Excessive system head.	Consult with dealer.
	Pump inlet plugged.	Inspect and clear as required.
	Improper voltage or wired incorrectly.	Check pump rotation, voltage and wiring. Consult with qualified electrician.
	Pump is air locked.	See recommended action, above.
	Impeller is worn or damaged.	Inspect impeller, replace as required.
<p><b>Little or no liquid delivered by pump.</b></p>	Liquid level controls defective or improperly positioned.	Inspect, readjust or replace as required.
	Discharge check valve inoperative.	Inspect, repair or replace as required.
	Sewage containment area too small.	Consult with dealer.
	Liquid level controls defective or improperly positioned.	Inspect, readjust or replace as required.
Influent excessive for this size pump.	Consult with dealer.	

**NOTE: Champion Pump assumes no responsibility for damage or injury due to disassembly in the field. Disassembly of the pumps or supplied accessories other than at Champion Pump or its authorized service centers, automatically voids warranty.**

Manufacturer warrants, to the immediate purchaser and subsequent initial owner during the warranty period, every new pump to be free from defects in material and workmanship under normal use and service, when properly used and maintained, for a period of eighteen (18) months from date of manufacture or twelve (12) months from date of installation (which ever comes first). Failure due to wear due to excessive abrasives is not covered. The initial owner is the purchaser who first uses the pump after its initial installation, or for non-permanent installation, the first owner who uses the pump. The date of installation shall be determined by a dated sales receipt noting the model and serial number of the pump. The dated sales receipt must accompany the returned pump. Product will be repaired, replaced or remanufactured at Manufacturer's option. No allowance will be made for shipping charges, damages, labor or other charges that may occur due to product failure, repair or replacement. This warranty does not apply to and there shall be no warranty for any material or product that has been disassembled without prior approval of Manufacturer, subjected to misuse, misapplication, neglect, alteration, accident or act of God; that has not been installed, operated or maintained in accordance with Manufacturer's installation instructions; that has been exposed to outside substances including but not limited to the following: sand, gravel, cement, mud, tar, hydrocarbons, hydrocarbon derivatives (oil, gasoline, solvents, etc.), or other abrasive or corrosive substances, wash towels or feminine sanitary products, etc. in all pumping applications. The warranty set out in the paragraph above is in lieu of all other warranties expressed or implied; and we do not authorize any representative or other person to assume for us any other liability in connection with our products. Contact Manufacturer to obtain any needed repair or replacement of part(s) or additional information pertaining to our warranty.

**MANUFACTURER EXPRESSLY DISCLAIMS LIABILITY FOR SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES OR BREACH OF EXPRESSED OR IMPLIED WARRANTY; AND ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND OF MERCHANTABILITY SHALL BE LIMITED TO THE DURATION OF THE EXPRESSED WARRANTY.**

Some states do not allow limitations on the duration of an implied warranty, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

# Start-Up Report / Warranty Registration

Please fill out the following questions as completely and accurate as possible. Please mail to Champion Pump Company, Inc.– P. O. Box 528 – Ashland, OH 44805.

REPORTS THAT ARE NOT RETURNED CAN DELAY OR VOID WARRANTY .

Pump Owner's

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Location of installation: \_\_\_\_\_

Phone: \_\_\_\_\_

Purchased from: \_\_\_\_\_

Pump Model \_\_\_\_\_ Serial # \_\_\_\_\_ Date Code: \_\_\_\_\_

NOTE: PUMPS REQUIRING CAPACITORS IN THE PANELS MUST HAVE PROPER CAPACITOR KIT OR WARRANTY IS VOID .

Date Installed: \_\_\_\_\_

Does impeller turn freely by hand? YES \_\_\_\_\_ NO \_\_\_\_\_

Condition of cord jacket? Good \_\_\_\_\_ Fair \_\_\_\_\_ Poor \_\_\_\_\_

Was equipment stored? \_\_\_\_\_ How long? \_\_\_\_\_

Liquid being pumped \_\_\_\_\_

Debris in bottom of station? \_\_\_\_\_ Was debris removed in your presence? \_\_\_\_\_

Discharge pipe size? \_\_\_\_\_ Length of pipe? \_\_\_\_\_ Static lift? \_\_\_\_\_

Does station appear to operate at the proper rate? \_\_\_\_\_ Pump down time? \_\_\_\_\_

Voltage At Wiring Terminal L1 -L2 \_\_\_\_\_ L2-L3 \_\_\_\_\_ L1-L3 \_\_\_\_\_

Run Amps L1 \_\_\_\_\_ L2 \_\_\_\_\_ L3 \_\_\_\_\_

3 Phase Models – Check Proper Rotation? Yes / NO

Difficulties during start up: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

I certify this report to be accurate (start up person) \_\_\_\_\_

Employed by \_\_\_\_\_ Date: \_\_\_\_\_