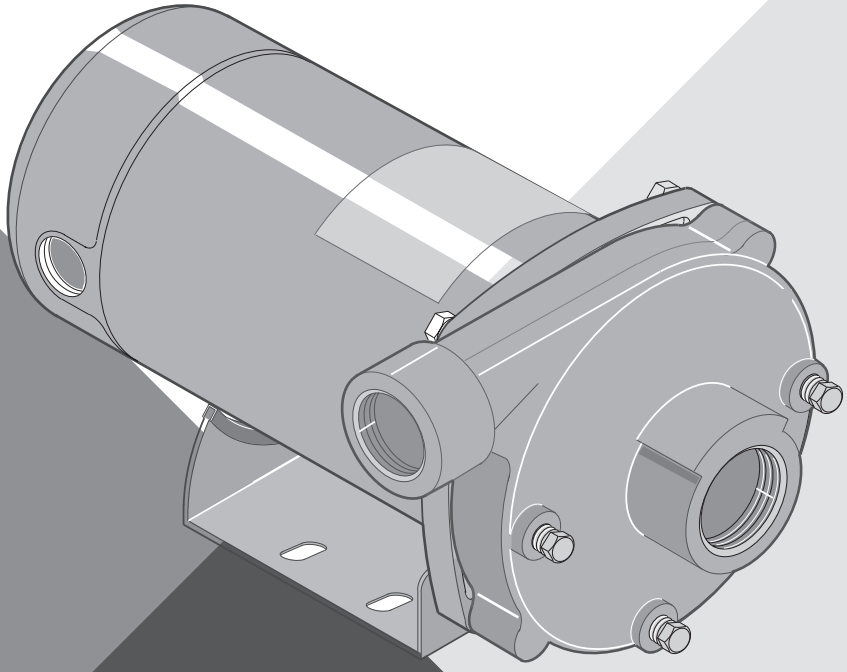
PENTAIR BERKELEY

CENTRIFUGAL PUMP

CP, CB SERIES



INSTALLATION AND OPERATION MANUAL

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SAFETY INFORMATION

IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS: For optimal performance and operation, read these instructions carefully before installing your new pump. This manual provides valuable guidance and instructions that should be followed to perform installation, operation and maintenance procedures for this product. It should be kept near the installation for immediate reference. Record nameplate data from your new pump on the blank template located in "Maintenance" on Page 7 for future reference.

⚠ This is the safety alert symbol. When you see this symbol on your pump or in this manual, look for one of the following signal words and be alert to the potential for personal injury.

⚠ DANGER warns about hazards that will cause serious personal injury, death or major property damage if ignored.

⚠ WARNING warns about hazards that can cause serious personal injury, death or major property damage if ignored.

⚠ CAUTION warns about hazards that will or can cause minor personal injury or property damage if ignored.

NOTICE indicates special instructions which are important but not related to hazards.

The hazards stated in this manual are not all-inclusive. To minimize the risk of hazard, it is strongly recommended that installation, operation and maintenance be performed by a qualified professional in accordance with local codes and standards for safe operation.

CALIFORNIA PROPOSITION 65 WARNING

⚠ WARNING This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

ELECTRICAL SAFETY

⚠ WARNING **Risk of electric shock.** Can shock, burn or kill. All wiring should be done by a qualified electrician.

- Wire motor for correct voltage. See "Installation" section (refer to page 5) of this manual and motor nameplate.
- Ground motor before connecting to power supply.
- Follow wiring instructions in this manual when connecting motor to power lines.
- A complete power disconnect switch must be incorporated in the fixed wiring.
- Install, ground, wire and maintain your pump in compliance with all applicable national and local codes and ordinances. Consult your local building inspector for code information.

GENERAL SAFETY

⚠ WARNING **Risk of explosion.** The pump body may explode if used to boost pressure above the pressures noted on Page 3. Do not use this pump with inlet pressure greater than 70 psi (483 kPa)or less than 3 psi (20.7 kPa). If not already in the piping system, install a pressure relief valve in the pump discharge line capable of passing the full pump flow at maximum rated pressure. If local code requires installation of a pressure relief valve capable of handling the full pump flow at a pressure less than 100 psi (689 kPa), follow the code requirements.

⚠ WARNING **Risk of fire or explosion.** To avoid risk of fire and explosion, pump water only with this pump. Do not pump salt water, flammable liquids or chemicals. Do not use the pump near gas pilot lights or where chemical or gas fumes are present. Use of an electric pump with liquids other than water or in an atmosphere containing chemical or gas fumes may ignite those liquids or gases and cause injury or death due to an explosion and/or fire. Pump approved liquids only with this pump.

⚠ CAUTION **Risk of burns.** If water is trapped in the pump during operation it may turn to steam. Trapped steam may cause an explosion resulting in injury or property damage. Never run the pump with the outlet closed or obstructed.

⚠ CAUTION **Risk of freezing.** Do not allow pump, piping, or any other system component containing water to freeze. Freezing may damage system, leading to injury or flooding. Allowing pump or system components to freeze will void the warranty.

NOTICE only service agent or qualified person should replace power cord to avoid injury.

Periodically inspect pump and system components.

Wear safety glasses at all times when working on pumps.

Keep work area clean, uncluttered and properly lighted; store properly all unused tools and equipment.

ORDERING REPLACEMENT PARTS

Locate the Pentair Sta-Rite* nameplate on pump. This plate is normally on the pump case or bracket (seal plate). To ensure receipt of correct parts, provide all nameplate data when ordering. Catalog number is most important to reference. Write the nameplate information below, as nameplates can become worn or lost.

Model: _____

S.N. or Date: _____

Impeller Dia: _____

Catalog No: _____

Connection diagram for dual voltage, single-phase motors. Your dual-voltage motor's terminal board (under the motor end cover) will match one of the diagrams below. Follow that diagram if necessary to convert motor to 115 Volt power.

Connect power supply wires to L1 and L2. For 3-phase motors, or if motor does not match these pictures, follow the connection diagram on the motor nameplate.

THE MOTOR IS SET FOR 230 VOLTS WHEN SHIPPED.

To change the motor to use 115 volts:

1. Turn off power
2. Remove the back motor cover.
3. Use a screwdriver or 1/2" wrench and turn the voltage selector dial counterclockwise until 115 shows in the dial opening.
4. Reinstall the motor cover.

⚠ WARNING Hazardous voltage. Can shock, burn, or cause death. Disconnect power to motor before working on pump or motor. Ground motor before connecting to power supply.

WIRING

⚠ Ground motor before connecting to electrical power supply. Failure to ground motor can cause severe or fatal electrical shock hazard.

⚠ Do not ground to a gas supply line.

⚠ To avoid dangerous or fatal electrical shock, turn OFF power to motor before working on electrical connections.

⚠ Supply voltage must be within ±10% of nameplate voltage. Incorrect voltage can cause fire or damage motor and voids warranty. If in doubt consult a licensed electrician.

⚠ Use wire size specified in Wiring Chart (Page 3). If possible, connect pump to a separate branch circuit with no other appliances on it.

⚠ Wire motor according to diagram on motor nameplate. If nameplate diagram differs from diagrams above, follow nameplate diagram.

1. Install, ground, wire and maintain your pump in compliance with the National Electrical Code (NEC) in the U.S., or the Canadian Electrical Code (CEC), as applicable, and with all local codes and ordinances that apply. Consult your local building inspector for code information.
2. Provide a correctly fused disconnect switch for protection while working on motor. For switch requirements, consult your local building inspector for information about codes.
3. Disconnect power before servicing motor or pump. If the disconnect switch is out of sight of pump, lock it open and tag it to prevent unexpected power application.
4. Ground the pump permanently using a wire of the same size as that specified in wiring chart (Page 3). Make ground connection to green grounding terminal under motor canopy marked GRD. or ⏚.
5. Connect ground wire to a grounded lead in the service panel or to a metal underground water pipe or well casing at least 10 feet long. Do not connect to plastic pipe or insulated fittings.
6. Protect current carrying and grounding conductors from cuts, grease, heat, oil, and chemicals.
7. Connect current carrying conductors to terminals L1 and L2 under motor canopy. When replacing motor, check wiring diagram on motor nameplate against Figure 3. If the motor wiring diagram does not match either diagram in Figure 3, follow the diagram on the motor.

IMPORTANT: 115/230 Volt single phase models are shipped from factory with motor wired for 230 volts. If power supply is 115 volts, remove motor canopy and reconnect motor as shown in Figure 4. Do not try to run motor as received on 115 volt current.

8. Motor has automatic internal thermal overload protection. If motor has stopped for unknown reasons, thermal overload may restart it unexpectedly, which could cause injury or property damage. Disconnect power before servicing motor.
9. If this procedure or the wiring diagrams are confusing, consult a licensed electrician.

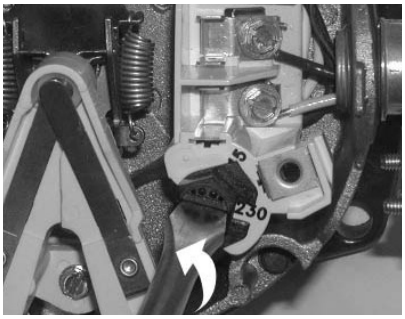

Figure 3: Changing the Voltage Setting

Figure 4: Motor Set for 115 Volt Operation

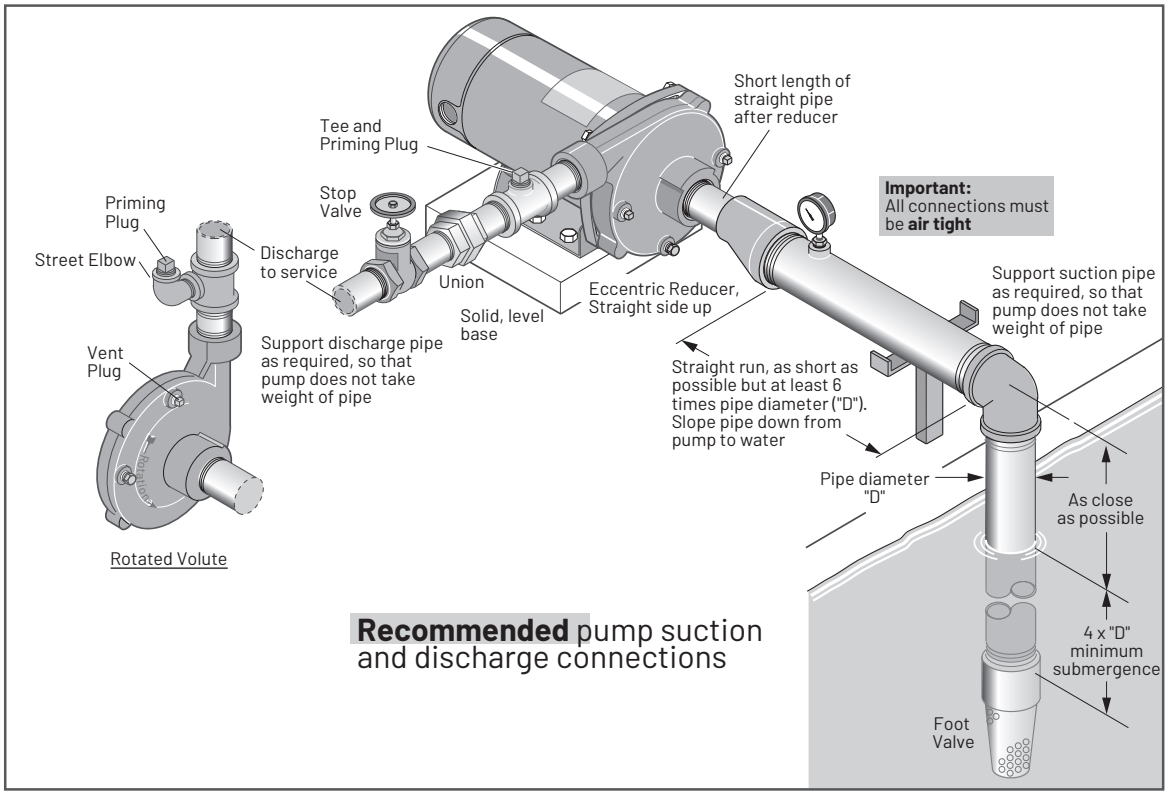

Figure 1: Recommended Connections

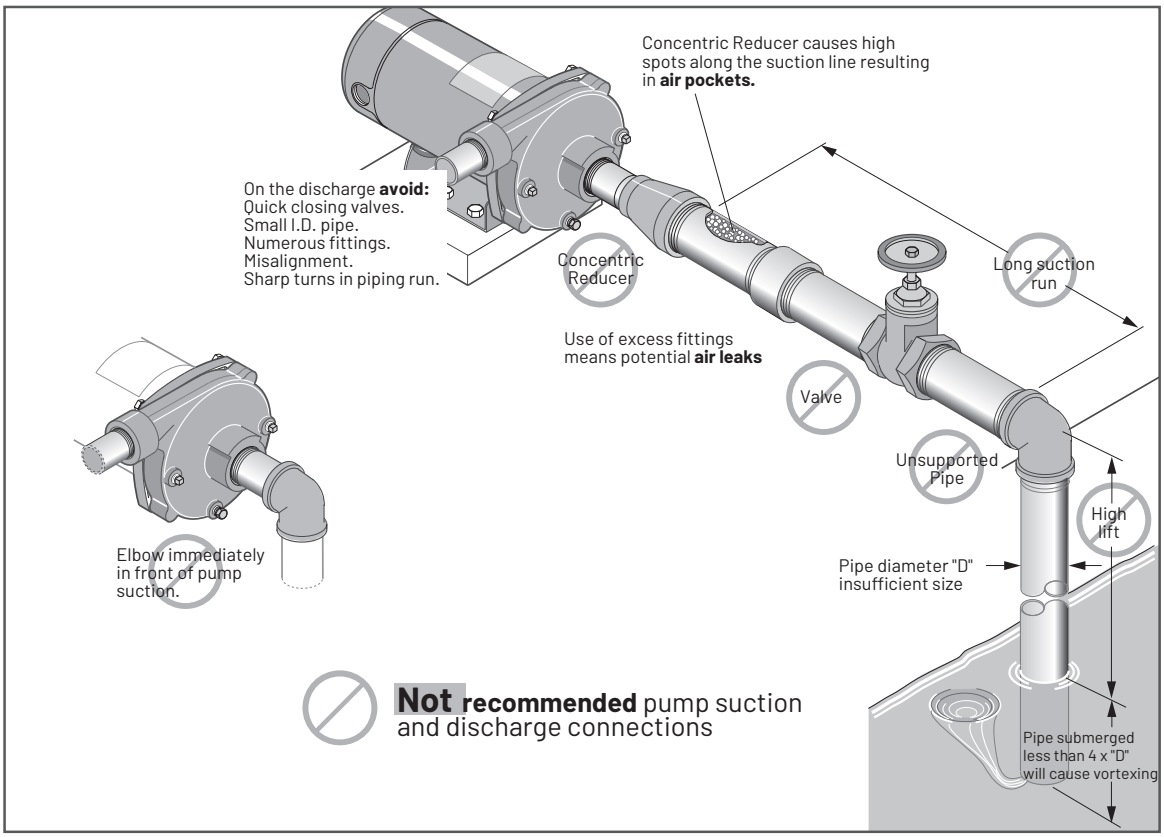

Figure 2: Not Recommended Connections

INSTALLATION

MODEL TYPE

Medium Head – Noryl® Impellers

Medium Head – Brass Impellers

High Head – Noryl® Impellers

High Head – Brass Impellers

1/3 through 2-1/2 H.P.

115/230 Volt Single Phase

230 Volt Single Phase

230/460 Volt Three Phase

PIPING - GENERAL

Support both suction and discharge piping independently at a point near the pump to avoid putting a strain on the pump housing. Start all piping **AT THE PUMP.**

Increase pipe diameter at both the suction and discharge by one (1) standard pipe size (minimum) to obtain desired performance and flow rate. Refer to Table I when sizing pipe for your pumping system.

NOTICE: Do not use pipe with smaller diameter on the suction side of pump.

PUMP PORT SIZE (NPT)		RECOMMENDED PIPE SIZE	
Suction	Discharge	Suction	Discharge
1-1/4	1	1-1/2	1-1/4
1-1/2	1-1/4	2	1-1/2
2	1-1/2	3	2

Table I: Piping

SUCTION PIPE

Increase pipe size from pump suction port as shown in Table I.

Figure 1 (Page 2) depicts a recommended run of pipe and fittings for the suction side of a centrifugal pump. Please refer to this illustration when choosing pipe and fittings for your suction connection.

IMPORTANT: All connections must be air tight!

Figure 2 (Page 2) depicts conditions that are **NOT DESIRABLE** on the suction side of a centrifugal pump and may cause problems in flow rate and priming. Please look this illustration over carefully before choosing pipe and fittings for your suction connection.

DISCHARGE PIPING

Increase pipe size from pump discharge port as shown in Table I. Figure 1 (Page 2) depicts a recommended run of pipe and fittings for the discharge. Install tee with priming plug as close to pump as possible. Figure 2 (Page 2) notes conditions that should be avoided. Please read over carefully before making discharge connection.

PRIMING THE PUMP

A pump is primed when all air in the suction line and pump volute has been evacuated and replaced with water.

TO PRIME:

1. Close valve in discharge line.
2. Remove priming plug from tee and fill pump and suction line with water until water is flowing back out of tee
3. Replace priming plug.
4. Start pump and slowly open valve until desired water flow is achieved.

NOTICE: If water is not being pumped, turn off pump, close valve, and repeat steps 1 thru 4. If pump volute is rotated as shown in Figure 1 (Page 2), loosen vent plug when priming to evacuate air trapped inside volute. Tighten when volute is completely filled with water.

NOTICE: Do not run the pump dry. This will damage mechanical seal and void warranty.

⚠ CAUTION **Burn hazard.** Motor normally operates at high temperature and will be too hot to touch. It is protected from heat damage during operation by an automatic internal cutoff switch. Before handling pump or motor, stop motor and allow it to cool for 20 minutes.

MOTOR HP	MAX.LOAD AMPERES	BRANCH FUSE* RATING AMPS	DIAMETER IN FEET FROM MOTOR TO METER WIRE SIZE					
			0' TO 50'	51' TO 100'	101' TO 200'	201' TO 300'	301' TO 400'	401' TO 500'
SINGLE PHASE - 115 VOLT								
1/3	9.4	15	14	14	12	10	8	8
1/2	9.4	15	14	14	12	10	8	8
3/4	12.2	20	12	12	10	8	6	4
1	14.8	20	12	12	8	6	6	4
1-1/2	19.2	30	10	10	8	6	4	2
2	24.0	30	12	10	6	6	4	4
SINGLE PHASE - 230 VOLT								
1/3	4.7	15	14	14	14	12	12	10
1/2	4.7	15	14	14	14	12	12	10
3/4	6.1	15	14	14	14	14	12	10
1	7.4	15	14	14	14	12	12	10
1-1/2	9.6	15	14	14	14	12	10	10
2	12.0	15	14	14	12	12	10	8
2-1/2	12.0	15	14	14	12	12	10	8
THREE PHASE - 230 VOLT								
1/2	2.3	15	14	14	14	14	14	14
3/4	3.1	15	14	14	14	14	14	14
1	3.6	15	14	14	14	14	14	14
1-1/2	4.7	15	14	14	14	14	14	14
2	6.8	15	14	14	14	14	14	12
2-1/2	8.5	15	14	14	14	14	14	12
THREE PHASE - 460 VOLT								
1/2	1.15	15	14	14	14	14	14	14
3/4	1.55	15	14	14	14	14	14	14
1	1.8	15	14	14	14	14	14	14
1-1/2	2.35	15	14	14	14	14	14	14
2	3.4	15	14	14	14	14	14	14
2-1/2	4.25	15	14	14	14	14	14	14

*A Fusetron is recommended instead of a fuse in any motor circuit.

Table II - Recommended Fusing and Wiring Data - 60 cycle motors

PUMP SERVICE

This centrifugal pump requires little or no service other than reasonable care and periodic cleaning. Occasionally, however, a shaft seal (Key No. 4, Page 6) may become damaged and must be replaced. The procedure as outlined below will enable you to replace the seal.

NOTICE: These mechanical seals are supplied with either a rubber seat ring or a sealing O-Ring. They are completely interchangeable.

NOTICE: The highly polished and lapped faces of this seal are easily damaged. Read instructions and handle the seal with care.

Some models are equipped with an impeller screw, which has a left hand thread. Before unscrewing the impeller, remove the impeller screw.

REMOVAL OF OLD SEAL

1. After unscrewing impeller (Key No. 5, Page 6), carefully remove rotating part of seal by prying up on sealing washer, using two screwdrivers (see Figure 5A). Use care not to scratch motor shaft.
2. Remove seal plate (Key No. 3) from motor and place on flat surface, face down. Use a screwdriver to push ceramic seat out from seal cavity (see Figure 5B).

California Proposition 65 Warning

⚠ WARNING This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

INSTALLATION OF FLOATING SEAT
(FIGURE 5C)

1. Clean polished surface of floating (ceramic) seat with clean cloth.
2. Turn seal plate over so seal cavity is up; clean cavity thoroughly.
3. Lubricate outside rubber surface or O-Ring of ceramic seat with soapy water and press firmly into seal cavity with fingerpressure. If seat will not locate properly in this manner, place cardboard washer over polished face of seat and press into seal cavity using a 3/4" socket or 3/4" piece of standard pipe.
4. Dispose of cardboard washer. Be sure polished surface of seat is free of dirt and has not been damaged by insertion. Remove excess soapy water.

INSTALLATION OF ROTATING PART OF SEAL UNIT
(FIGURE 5D)

1. Reinstall seal plate using extreme caution not to hit ceramic portion of seal on motor shaft.
2. Inspect shaft to make sure that it is clean.
3. Clean face of sealing washer with clean cloth.
4. Lubricate inside diameter and outer face of rubber drive ring (see Figure 5D) with soapy water and slide assembly on motor shaft (sealing face first) until rubber drive ring hits shaft shoulder.
5. Screw impeller on shaft until impeller hub hits shaft shoulder. This will automatically locate seal in place and move the sealing washer face uagainst the facing seat. Reinstall impeller screw (if used).

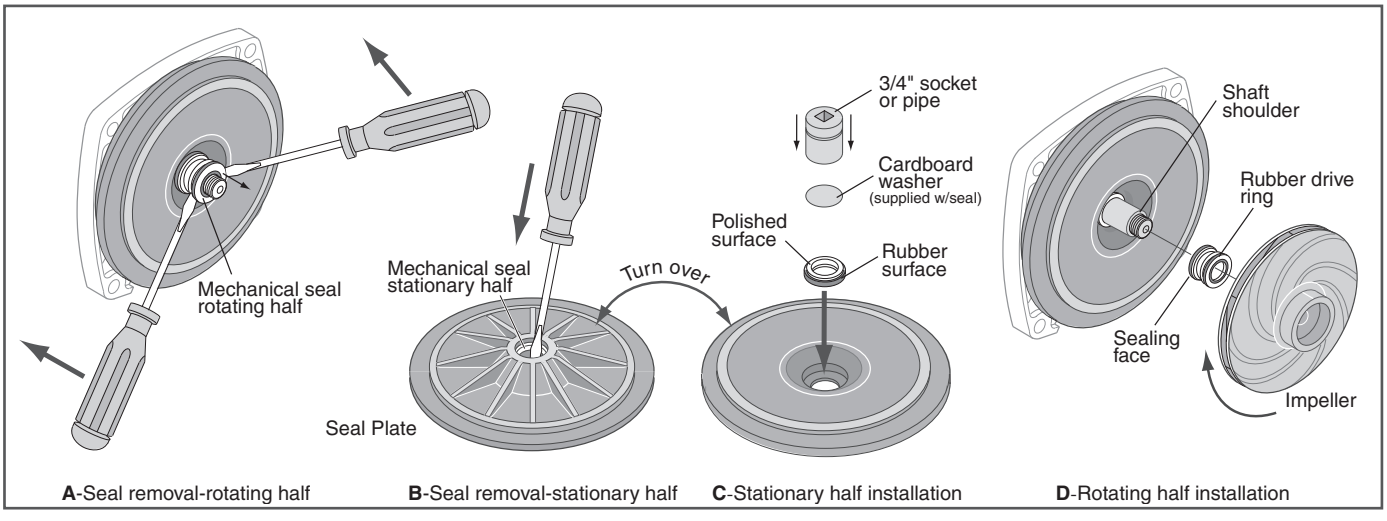

Figure 5: Seal Install

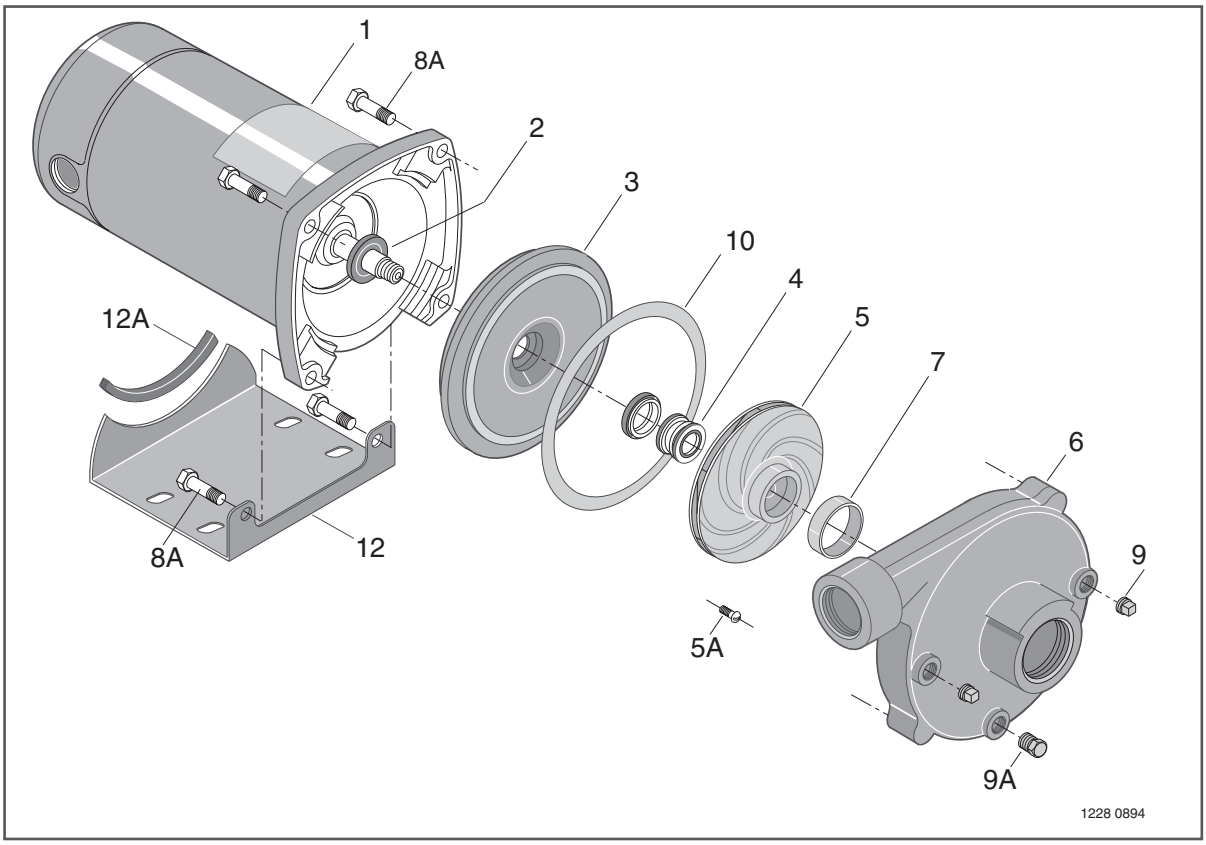

Figure 6: Capscrew Configuration

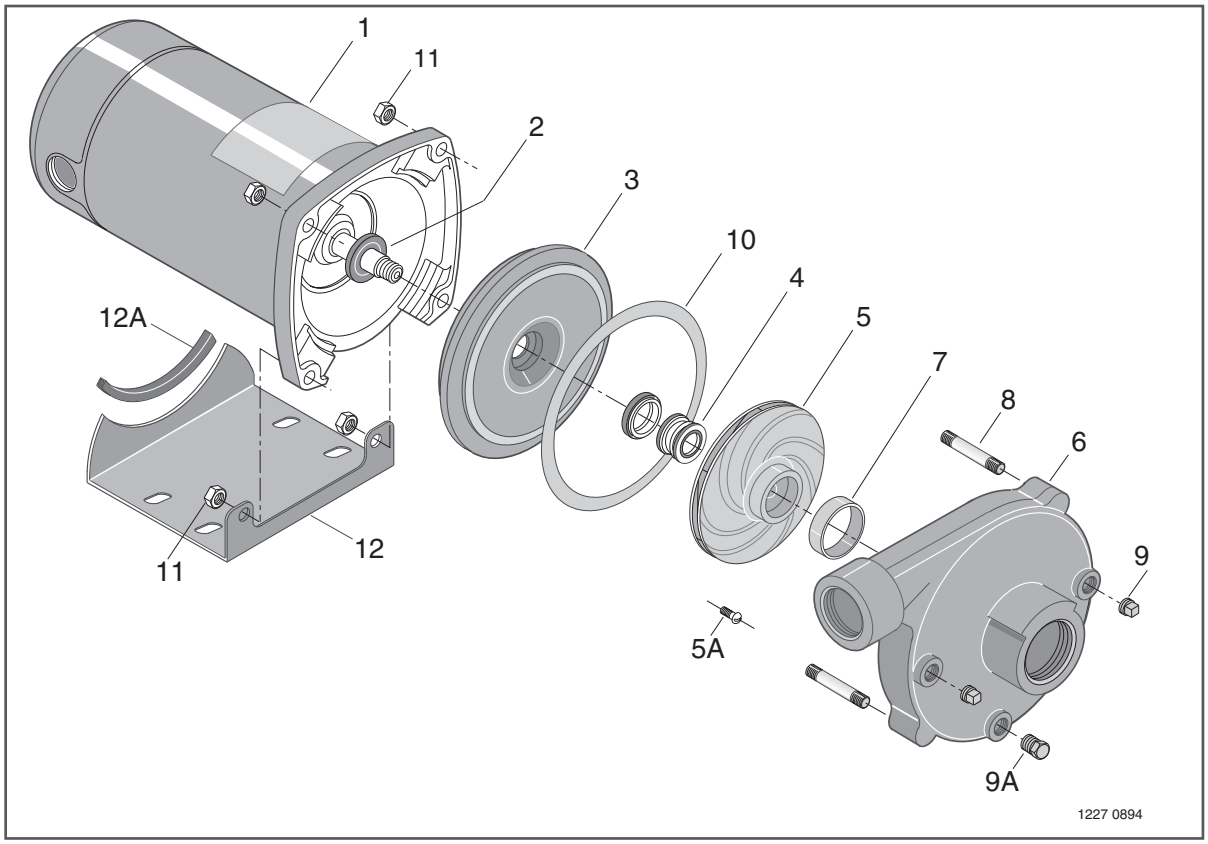

Figure 7: Stud Configuration

PARTS LIST

Medium Head - Noryl® Impeller Repair Parts

KEY NO.	PART DESCRIPTION	NO. USED	MOTOR AND HORSEPOWER					
			CP1MPS			CP1-1/4XPS		
			1/3 HP S39489	1/2 HP S39490 S39491	3/4 HP S39492 S39493	1 HP S39494 S39495	1-1/2 HP S39496 S39497	2 HP S39498 S39499
1*	Motor - 115/230V, 60 Cycle, Single Phase	1	J218-582APKG	J218-582APKG	J218-590PKG	J218-596PKG	J218-601PKG	J218-883APKG
1*	Motor - 230/460V, 60 Cycle, Three Phase	1	–	AP100CL	AP100DL	AP100EL	AP100FL	AP100GL
†2	Water Slinger	1	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009
3	Seal Plate	1	N3-8	N3-8	N3-8	N3-8	C3-52	C3-52
†4	Shaft Seal	1	U9-469	U9-469	U9-469	U9-469	U9-469	U9-469
5	Impeller - Single Phase	1	J105-42PHA	J105-42PHA	J105-42PJA	J105-42P	C105-114PNF	C105-114PNG-A
5	Impeller - Three Phase	1	–	J105-42PHA	J105-42PJA	J105-42PPA	C105-114PNPA	C105-114PNG-A
5A	Impeller Screw - Single Phase	1	–	–	–	–	–	C30-14SS
5A	Impeller Screw - Three Phase	1	–	C30-6SS	C30-6SS	C30-6SS	C30-14SS	C30-14SS
6	Volute Assembly - w/ Wear Ring	1	C101-122E	C101-122E	C101-122E	C101-122	C201-123	C201-123
7	Wear Ring (only)	(1)	N23-7	N23-7	N23-7	N23-7	C23-19	C23-19
8	Studs - 3/8 - 16 x 1-13/16" Lg.	(4)	–	–	–	–	U30-35SS	U30-35SS
9	Pipe Plug - 1/4" NPT	(1)	–	–	–	–	U78-57DT	U78-57DT
9A	Drain Plug - 1/4" NPT	(3)	–	–	–	–	U78-941ZPV	U78-941ZPV
8	Capscrew - 3/8 - 16 x 1-1/2" Lg.	2	U30-76ZP	U30-76ZP	U30-76ZP	U30-76ZP	–	–
8A	Capscrew - 3/8 - 16 x 1-1/4" Lg.	2	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	–	–
9A	Drain Plug - 1/4" NPT	4	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	–	–
†10	Gasket - Volute	1	N20-26N	N20-26N	N20-26N	N20-26N	C20-21N	C20-21N
11	Nuts - 3/8 - 16 Hex	4	–	–	–	–	U36-38ZP	U36-38ZP
12	Base	1	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F
12A	Motor Pad	1	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S

* For repair or service to motors, always give the motor Model Number and any other data found on the Motor Model Plate.

† Included in Seal & Gasket Kit.

PARTS LIST

Medium Head - Brass Impeller Repair Parts

KEY NO.	PART DESCRIPTION	NO. USED	MOTOR AND HORSEPOWER					
			CB1MPS		CB1-1/4XPS			CB1-1/2XPS
			1/2 HP S39503 S39504	3/4 HP S39505 S39506	1 HP S39507 S39508	1-1/2 HP S39509 S39510	2 HP S39511 S39512	2-1/2 HP S39513 S39514
1*	Motor - 115/230V, 60 Cycle, Single Phase	1	J218-582APKG	J218-590PKG	J218-596PKG	J218-601PKG	J218-883APKG	J218-628APKG
1*	Motor - 230/460V, 60 Cycle, Three Phase	1	AP100CL	AP100DL	AP100EL	AP100FL	AP100GL	AP100G5L
†2	Water Slinger	1	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009
3	Seal Plate	1	N3-8	N3-8	N3-8	N3-52	C3-52	C3-52
†4	Shaft Seal	1	U9-469	U9-469	U9-469	U9-469	U9-469	U9-469
5	Impeller - Single Phase	1	J105-42MA	J105-42LA	J105-42NA	J105-79B	C105-73BA	C105-80BA
5	Impeller - Three Phase	1	J105-42MA	J105-42LA	J105-42NA	J105-79BA	C105-73BA	C105-80BA
5A	Impeller Screw - Single Phase	1	–	–	–	–	C30-14SS	C30-14SS
5A	Impeller Screw - Three Phase	1	C30-6SS	C30-6SS	C30-6SS	C30-14SS	C30-14SS	C30-14SS
6	Volute Assembly - Complete	1	-	-	-	C201-123	C201-123	C201-123B
6	Volute Assembly - w/ Wear Ring	1	C101-122E	C101-122E	C101-122	-	-	-
7	Wear Ring (only)	(1)	N23-7	N23-7	N23-7	N23-19	C23-19	C23-19
8	Studs - 3/8 - 16 x 1-13/16" Lg.	(4)	–	–	–	U30-35SS	U30-35SS	U30-35SS
9	Drain Plug - 1/4" NPT	(4)	–	–	–	U78-941ZPV	U78-941ZPV	U78-941ZPV
8	Capscrew - 3/8 - 16 x 1-1/2" Lg.	2	U30-76ZP	U30-76ZP	U30-76ZP	-	–	–
8A	Capscrew - 3/8 - 16 x 1-1/4" Lg.	2	U30-75ZP	U30-75ZP	U30-75ZP	-	–	–
9	Drain Plug - 1/4" NPT	4	U78-941ZPV	U78-941ZPV	U78-941ZPV	-	–	–
†10	Gasket - Volute	1	N20-26N	N20-26N	N20-26N	N20-21N	C20-21N	C20-21N
11	Nuts - 3/8 - 16 Hex	4	–	–	–	U36-38ZP	U36-38ZP	U36-38C
12	Base	1	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F
12A	Motor Pad	1	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S

* For repair or service to motors, always give the motor Model Number and any other data found on the Motor Model Plate.
† Included in Seal & Gasket Kit.

PARTS LIST

High Head - Noryl® Impeller Repair Parts

KEY NO.	PART DESCRIPTION	NO. USED	MOTOR AND HORSEPOWER					
			CP1XPHS			CP1-1/4TPHS		CP1-1/2TPHS
			1/2 HP S39516 S39517	3/4 HP S39518 S39519	1 HP S39520 S39521	1-1/2 HP S39522 S39523	2 HP S39524 S39525	2-1/2 HP S39526 S39527
1*	Motor - 115/230V, 60 Cycle, Single Phase	1	J218-582APKG	J218-590PKG	J218-596PKG	J218-601PKG	J218-883APKG	J218-628APKG
1*	Motor - 230/460V, 60 Cycle, Three Phase	1	AP100CL	AP100DL	AP100EL	AP100FL	AP100GL	AP100G5L
†2	Water Slinger	1	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009
3	Seal Plate	1	C3-178	C3-178	C3-178	C3-178	C3-181	C3-181
†4	Shaft Seal	1	U9-469	U9-469	U9-469	U9-469	U9-469	U9-469
5	Impeller - Single Phase	1	C105-92PNX	C105-92PMX	C105-92PLX	C105-92PBX	C105-214PCA	C105-214PA
5	Impeller - Three Phase	1	C105-92PNXA	C105-92PMXA	C105-92PLXA	C105-92PBXA	C105-214PCA	C105-214PA
5A	Impeller Screw - Single Phase	1	–	–	–	–	C30-14SS	C30-14SS
5A	Impeller Screw - Three Phase	1	C30-14SS	C30-14SS	C30-14SS	C30-14SS	C30-14SS	C30-14SS
6	Volute Assembly - Complete	1	C101-284A	C101-284A	C101-284A	C101-284A	C101-264	C101-264B
7	Wear Ring (only)	(1)	C23-27	C23-27	C23-27	C23-27	C23-19	C23-19
8	Capscrew - 3/8 - 16 x 1"	2	–	–	U30-74ZP	U30-74ZP	U30-74ZP	U30-99SS
8A	Capscrew - 3/8 - 16 x 1-1/4"	(4)	U78-75ZP	U78-75ZP	U78-75ZP	U78-75ZP	U78-75ZP	U78-104ZP
9	Drain Plug - 1/4" NPT	(3)	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV
†10	Gasket - Volute	1	C20-121N	C20-121N	C20-121N	C20-121N	C20-122N	C20-122N
12	Base	1	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F
12A	Motor Pad	1	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S

* For repair or service to motors, always give the motor Model Number and any other data found on the Motor Model Plate.
† Included in Seal & Gasket Kit.

PARTS LIST

High Head - Brass Impeller Repair Parts

KEY NO.	PART DESCRIPTION	NO. USED	MOTOR AND HORSEPOWER					
			CB1XPHS			CB1-1/4TPHS		CB1-1/2TPHS
			1/2 HP S39529 S39530	3/4 HP S39531 S39532	1 HP S39533 S39534	1-1/2 HP S39535 S39536	2 HP S39537 S39538	2-1/2 HP S39539 S39540
1*	Motor - 115/230V, 60 Cycle, Single Phase	1	J218-582APKG	J218-590PKG	J218-596PKG	J218-601PKG	J218-883APKG	J218-628APKG
1*	Motor - 230/460V, 60 Cycle, Three Phase	1	AP100CL	AP100DL	AP100EL	AP100FL	AP100GL	AP100G5L
†2	Water Slinger	1	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009	17351-0009
3	Seal Plate	1	C3-178	C3-178	C3-178	C3-178	C3-181	C3-181
†4	Shaft Seal	1	U9-469	U9-469	U9-469	U9-469	U9-469	U9-469
5	Impeller - Single Phase	1	C5-256BA	C5-256BAA	C5-254BA	C5-254BC	C5-297BB	C5-297B
5	Impeller - Three Phase	1	C5-256BA	C5-256BAA	C5-254BA	C5-254BC	C5-297BB	C5-297B
5A	Impeller Screw - Single Phase	1	–	–	–	–	C30-14SS	C30-14SS
5A	Impeller Screw - Three Phase	1	C30-14SS	C30-14SS	C30-14SS	C30-14SS	C30-14SS	C30-14SS
6	Volute Assembly - Complete	1	C101-284A	C101-284A	C101-284A	C101-284A	C101-264	C101-264B
7	Wear Ring (only)	(1)	C23-27	C23-27	C23-27	C23-27	C23-19	C23-19
8	Capscrew - 3/8 - 16 x 1"	2	–	–	-	-	U30-74ZP	U30-74ZP
8A	Capscrew - 3/8 - 16 x 1-1/4"	2	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP	U30-75ZP
8	Capscrew - 3/8 - 16 x 1"	2	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP	U30-74ZP
9	Drain Plug - 1/4" NPT	(4)	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV	U78-941ZPV
†10	Gasket - Volute	1	C20-121N	C20-121N	C20-121N	C20-121N	C20-122N	C20-122N
12	Base	1	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F	J104-9F
12A	Motor Pad	1	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S	C35-5S

* For repair or service to motors, always give the motor Model Number and any other data found on the Motor Model Plate.

† Included in Seal & Gasket Kit.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Failure to pump:	Pump not properly primed.	Make sure pump casing and suction line are full of water. See priming instructions.
Reduced capacity and/or head:	Air pockets or leaks in suction line.	Check suction piping.
	Clogged impeller.	Remove and clean.
Pump loses prime:	Air leaks in suction line. Check suction piping.	
	Excessive suction lift and operating too near shut-off point.	Move pump neaer to water level.
	Water level drops while pumping, uncovering suction piping.	Check water supply. Add length of pipe to suction to keep submerged end under water.
Mechanical troubles and noise:	Bent shaft and/or damaged bearings.	Take motor to authorized motor repair shop.
	Suction and/or discharge piping not properly supported and anchored.	See that all piping is supported to relieve strain on pump assembly.

Warranty

Pentair BERKELEY® warrants to the original consumer purchaser ("Purchaser" or "You") of the products listed in the table below, that they will be free from defects in material and workmanship for the Warranty Period shown in the table below.

Product	Warranty Period
Water Systems:	
Water Systems Products — jet pumps, small centrifugal pumps, submersible pumps and related accessories	*whichever occurs first:* 12 months from date of original installation, or 18 months from date of manufacture
Pentair Pro-Source® Composite Tanks	5 years from date of original installation
Pentair Pro-Source Steel Pressure Tanks	5 years from date of original installation
Pentair Pro-Source Epoxy-Lined Tanks	3 years from date of original installation
Agricultural/Commercial:	
Centrifugals – close-coupled motor drive, frame mount, SAE mount, engine drive, VMS, SSCX, SSHM	12 months from date of original installation, or 24 months from date of manufacture
Submersible Turbines, 6" diameter and larger	12 months from date of original installation, or 24 months from date of manufacture

Our warranty will not apply to any product that, in our sole judgement, has been subject to negligence, misapplication, improper installation, or improper maintenance. Examples that may result in denial of a warranty claim (this list is not all inclusive):

- Damage caused by careless handling, improper repackaging, or shipping.
- Damage due to misapplication, misuse, abuse, or failure to operate equipment as specified in the owner's manual.
- Damage caused by failure to install products as specified in the owner's manual.
- Damage due to unauthorized product modifications or failure to use Pentair original replacement parts.
- Damage caused by negligence, or failure to properly maintain products as specified in the owner's manual.
- Damage caused by water freezing inside the product.
- Accidental damage, fire, acts of God, or other circumstances outside the control of Pentair.

Without limiting the foregoing, operating a three phase motor with single phase power through a phase converter will void the warranty. Note also that three phase motors must be protected by three-leg, ambient compensated, extra-quick trip overload relays of the recommended size or the warranty is void.

All impeller diameters specified in the BEC2 pump sizing program have been tested and determined to not exceed the service factor of the specified motor. Oversized impeller diameters can be requested, however, use of an oversized impeller will void any warranty claims.

Your only remedy, and BERKELEY's only duty under this warranty, is that BERKELEY repair or replace defective products (at BERKELEY's choice). THE REMEDIES DESCRIBED HERE ARE YOUR SOLE AND EXCLUSIVE REMEDIES AND OUR ENTIRE LIABILITY FOR ANY BREACH OF THIS WARRANTY.

You must pay all labor and shipping charges associated with the warranty and must request warranty service through the installing dealer as soon as a problem is discovered. No request for service will be accepted if received after the Warranty Period has expired. This warranty is not transferable.

BERKELEY'S LIABILITY SHALL UNDER NO CIRCUMSTANCES EXCEED THE ACTUAL AMOUNT PAID BY YOU FOR THE PRODUCT AT ISSUE. BERKELEY SHALL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE, OR CONTINGENT DAMAGES OR LOSSES WHATSOEVER, WHETHER DIRECT OR INDIRECT. THE FOREGOING WARRANTY IS EXCLUSIVE. EXCEPT FOR THE WARRANTY SET FORTH HEREIN, BERKELEY MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO THE PRODUCTS, INCLUDING, BUT NOT TO ANY WARRANTIES OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, WHETHER EXPRESS OR IMPLIED BY LAW, COURSE OF DEALING, COURSE OF PERFORMANCE, USAGE OF TRADE OR OTHERWISE.

THE FOREGOING WARRANTIES SHALL NOT EXTEND BEYOND THE DURATION PROVIDED HEREIN. Some states do not allow the exclusion or limitation of incidental or consequential damages or limitations on the duration of an implied warranty, so the above limitations or exclusions 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.

This Warranty is effective July 14, 2020 and replaces all undated warranties and warranties dated before July 14, 2020.

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