



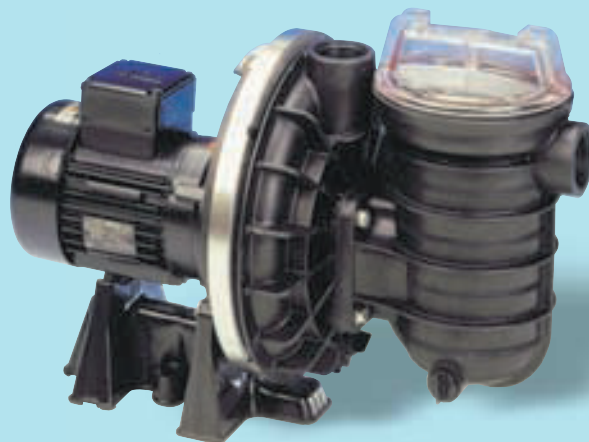
# Swimming Pool Pumps Series 5P2R



**STA-RITE®**



**STA-RITE Industries**



# The 5P2R Swimming Pool Pump

## Heavy Duty Motor

50 Hz motors are designed for continuous, quiet operation - feature stainless steel onepiece shaft, sealed and permanently lubricated bearings - runs cooler for prolonged life under high ambient conditions

Single and three phase models are offered according to, European CE standard and to IP 55 protection.

## Self-priming diffuser

design makes this our fastest priming pool pump... incomparable!

## "See Thru" trap lid

eliminates all the guesswork - you see when the basket needs cleaning ... designed to withstand 4 bar test pressure as well as high vacuum conditions ...

Exclusive "lock-in" 5" basket prevents large debris from clogging impeller ... incomparable!

## The Difference is Incomparable Performance

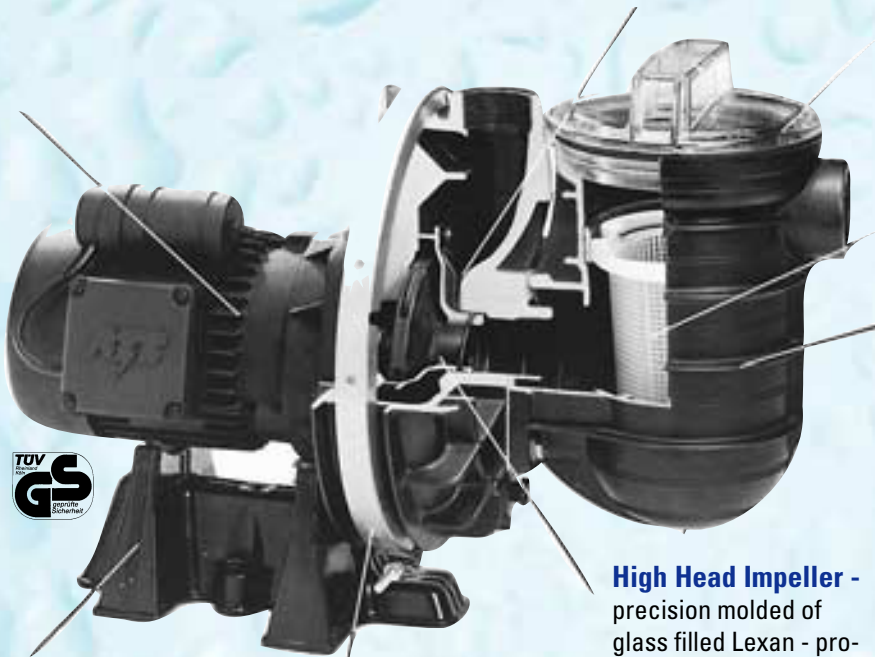
Sta-Rite 5P2R Series pumps are precision molded of fiberglass reinforced, temperature and corrosion resistant. This lightweight exceptionally strong thermoplastic is designed for much higher pressure operation than all the rest ... incomparable!

## Unequaled performance

means higher heads to, 22,5 meters- flow rates up to 22m<sup>3</sup>/h ... incomparable!

## S5P2R Series

This serie is suitable for water with a salt content up to 0,4% and for water with ph fluctuations (corrosion). The capacity and dimensions are identical to the serie 5P2R.



## "Hi-Rise" Mounting Base -

provides stable, balanced, stress free support for motor and pump. Elevates motor for added protection from ground moisture and Cher contaminants

## Stainless Steel Pump Champ -

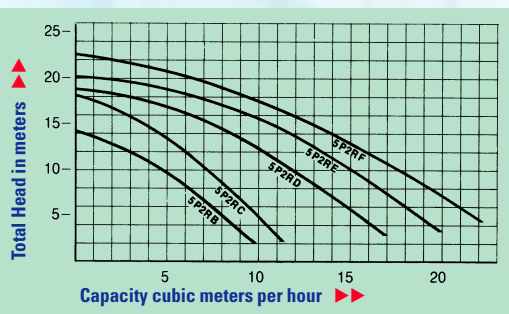
Polished 300 series stainless with exclusive bottoming process. Easily removed for quick access to all servicable components.

## High Head Impeller -

precision molded of glass filled Lexan - provides unusually smooth water passages for outstanding performance and efficiency.

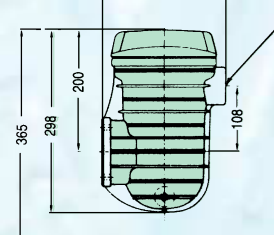
## Mechanical Seal -

precision lapped and highly polished carbon ceramic stainless steel construction - assures maximum drip proof corrosion free protection.

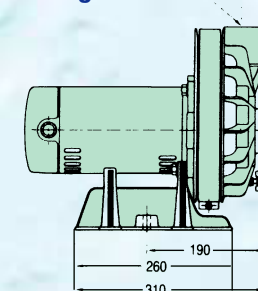
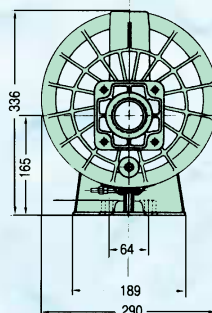


Model	kW	Motor Volt	Suction	Discharge	Trap Size
5 P2R B1	0,25	220-240	1 1/2"	1 1/2"	5"
5 P2R B3	0,25	380-420	1 1/2"	1 1/2"	5"
5 P2R C1	0,37	220-240	1 1/2"	1 1/2"	5"
5 P2R C3	0,37	380-420	1 1/2"	1 1/2"	5"
5 P2R D1	0,55	220-240	1 1/2"	1 1/2"	5"
5 P2R D3	0,55	380-420	1 1/2"	1 1/2"	5"
5 P2R E1	0,75	220-240	1 1/2"	1 1/2"	5"
5 P2R E3	0,75	380-420	1 1/2"	1 1/2"	5"
5 P2R F1	1,10	220-240	1 1/2"	1 1/2"	5"
5 P2R F3	1,10	380-420	1 1/2"	1 1/2"	5"

Suction 1 1/2" BSP



Discharge 1 1/2" BSP 40



# READ AND FOLLOW SAFETY INSTRUCTIONS!



## **THIS IS THE SAFETY-ALERT SYMBOL**

When you see this symbol on your pump or in this manual, look for one of the following signals words and be alert to the potential for personal injury:

## **CAUTION**

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

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

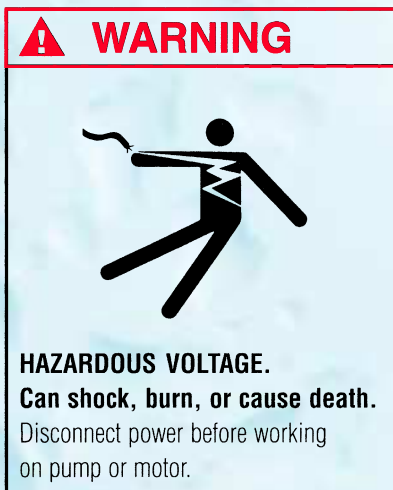
**Carefully read and follow all safety instructions in this manual on pump.**



## **DANGER**

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

Keep safety labels in good condition. Replace missing or damaged safety labels.



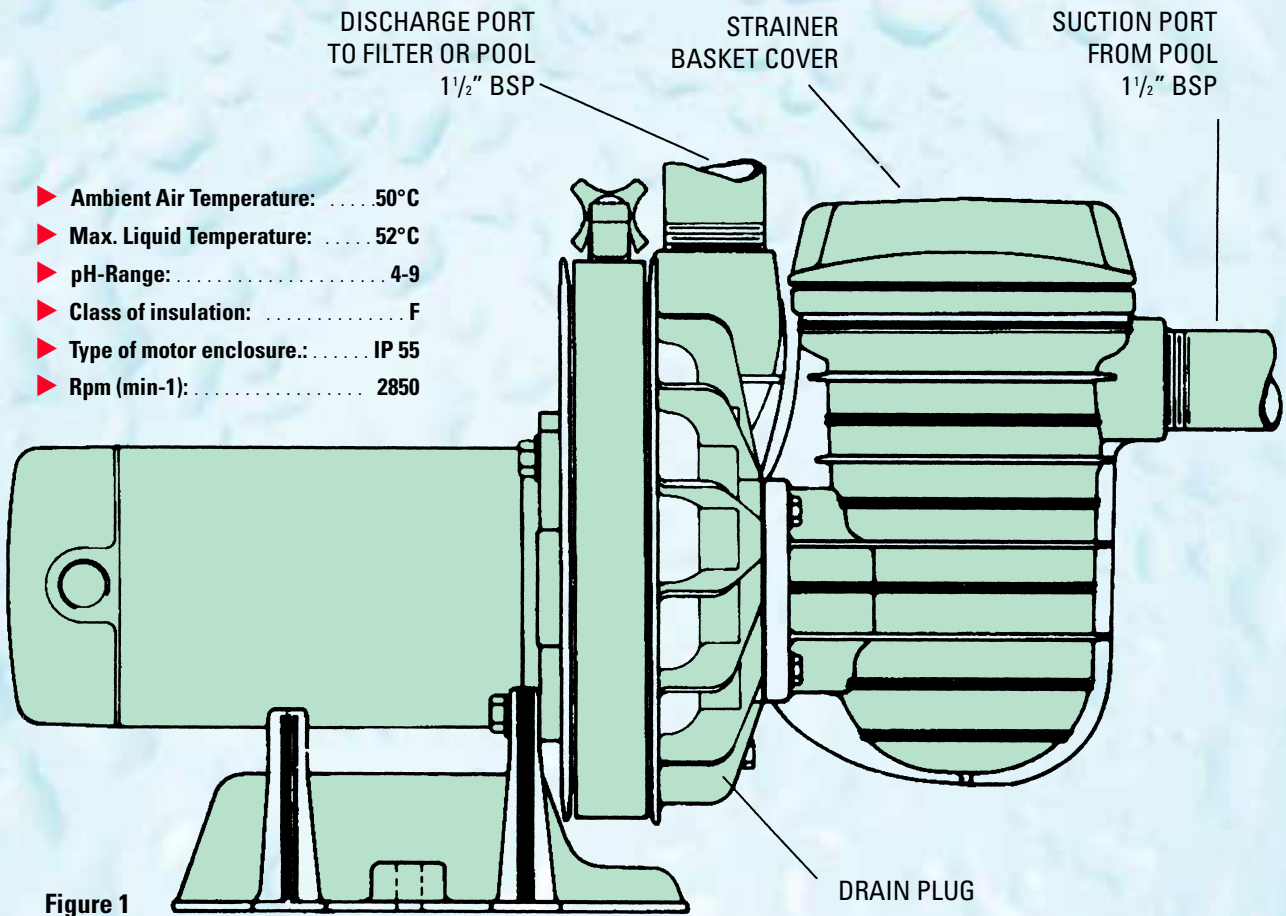
## **WARNING**

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





# Installation and general informations



- ▶ Ambient Air Temperature: ..... 50°C
- ▶ Max. Liquid Temperature: ..... 52°C
- ▶ pH-Range: ..... 4-9
- ▶ Class of insulation: ..... F
- ▶ Type of motor enclosure: ..... IP 55
- ▶ Rpm (min-1): ..... 2850

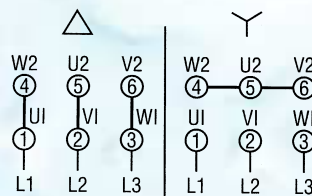
Figure 1

220-240 V	P1	P2
5P2RB-1	400 W	250 W
5P2RC-1	640 W	370 W
5P2RD-1	880 W	550 W
5P2RE-1	1180 W	750 W
5P2RF-1	1430 W	1100 W

380-420 V	P1	P2
5P2RB-3	380 W	250 W
5P2RC-3	560 W	370 W
5P2RD-3	860 W	550 W
5P2RE-3	1080 W	750 W
5P2RF-3	1370 W	1100 W

## Electrical schematic 380-420 V / 50Hz

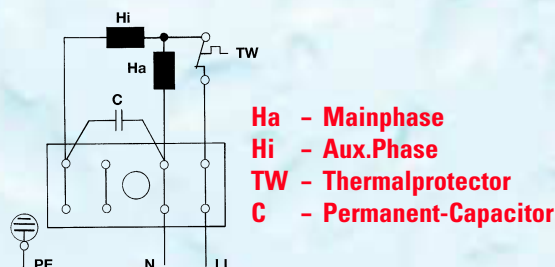


## TECHNICAL NOTICE:

5P2R series pumps are centrifugal pumps which are in most applications being combined with swimming pool filters on swimming pool's. In some cases are the pumps installed without filter.

This installation instruction is being made up for the later application.

## Electrical schematic 220-240 V / 50Hz



- Ha - Mainphase
- Hi - Aux.Phase
- TW - Thermalprotector
- C - Permanent-Capacitor

# Installation

**Only qualified, licensed personnel should install pump and wiring.**

## PUMP MOUNT MUST:

- ▶ Be solid - Level - Rigid - Vibration free. (To reduce vibration and pipe stress, bolt pump to mount.)
- ▶ Allow pump suction inlet height to be as close to water level as possible.
- ▶ Allow use of short, direct suction pipe (To reduce friction losses).
- ▶ Allow for gate valves in suction and discharge piping.
- ▶ Have adequate floor drainage to prevent flooding.
- ▶ Be protected from excess moisture.
- ▶ Allow adequate access for servicing pump and piping.

## NOTICE

Use Teflon tape for making all threaded connections to the pump. Do not use pipe dope; pipe dope will cause stress cracking in the pump.

## NOTICE

Pump suction and discharge connections have molded in thread stops. Do not try to screw pipe in beyond these stops.

## TEFLON TAPING INSTRUCTIONS:

- ▶ Use only new or clean PVC pipe fittings.
- ▶ Wrap male pipe threads with one to two layers of Teflon tape. Cover entire threaded portion of pipe.

- ▶ Do not overtighten or tighten past thread stop in pump port!
- ▶ If leaks occur, remove pipe, clean off old tape, rewrap with one to two additional layers of tape and remake the connection.

## NOTICE

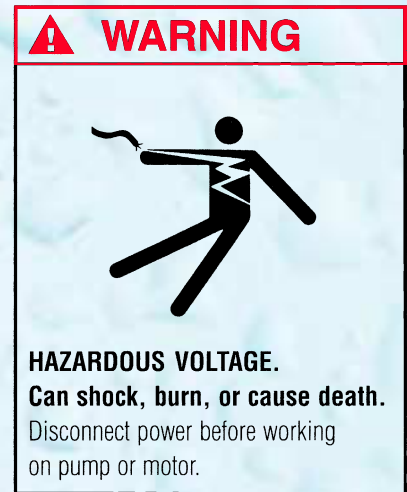
Support all piping connected with pump!

## PIPING

- ▶ Use at least 1 1/2" PVC pipe with 5" trap. Increase size if a long run is needed.
- ▶ To avoid strains on the pump, support both suction and discharge pipes independently. Place these supports near the pump.
- ▶ To avoid a strain left by a gap at the last connection, start all piping at the pump and run pipe away from the pump.
- ▶ Never use a suction pipe smaller than pump suction connection.
- ▶ To avoid airlocking, slope suction pipe slightly upward toward the pump.

## NOTICE

To prevent flooding when removing pump for service, all flooded suction systems must have gate valves in suction and discharge pipes.



# ELECTRICAL

- ⚠ Have the pump connected by a licensed electrician according to the national standards.
- ⚠ Three phase models must be protected by a control box.
- ⚠ 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.
- ⚠ Ground Fault Circuit Interrupter (GFCI) tripping indicates an electrical problem. GFCI trips and will not reset, have a qualified electrician inspect and repair electrical system.
- ⚠ Exactly match supply voltage to nameplate voltage! Incorrect voltage can cause fire or seriously damage motor and voids warranty! If in doubt consult a licensed electrician.

# Installation

## VOLTAGE

▶ Voltage at motor must be not more than 5% above or below motor nameplate rated voltage or motor may overheat, causing overload tripping and reduced component life. If voltage is less than 90% or more than 110% of rated voltage when motor is running at full load, consult power company.

## GROUNDING/BONDING

▶ Install, ground, bond and wire motor according to local or National Electrical Code requirements.

▶ Permanently ground motor. Use ground terminal, use size and type wire required by code. Connect motor ground terminal to electrical service ground.

## WIRING

▶ Pump must be permanently connected to circuit; be sure no other lights or appliances are on the same circuit.

## NOTICE

To prevent dirt, rain, bugs, etc., from entering motor when not wiring with conduit, be sure to seal wire opening on end of motor.

▶ Use Ground Fault Circuit Interrupter (GFCI) as master on-off switch; it will sense a short circuit to ground and disconnect power before it becomes dangerous to pool users. Test according to maker's instructions.

▶ In case of power outage, check GVDCI for tripping (which will prevent normal water circulation). Reset if necessary.

## FITTINGS

▶ Fittings restrict flow; for best efficiency use fewest possible fittings.

▶ Avoid fittings which could cause an air trap.

▶ Pool fittings must conform to International Association of Plumbing and Mechanical Officials standards.

▶ Use only non-entrapping suction fitting or double suction.

# Operation

**⚠ DANGER**



**HAZARDOUS SUCTION.**  
Can trap hair or body parts,  
causing severe injury or death.  
Do not block suction.

## CAUTION

**⚠** NEVER run pump dry! Running pump dry may damage seals, causing leakage and flooding! Fill pump with water before starting motor.

**⚠** Before removing trap cover:

**1. STOP PUMP**  
before proceeding.

**2. CLOSE GATE VALVES**  
in suction and discharge pipes.

**3. RELEASE ALL PRESSURE**  
from pump and piping system.

**4. NEVER tighten or loosen**  
clamp while pump is operating!

**⚠** If pump is being pressure tested, be sure pressure has been released before removing trap cover!

**⚠** Do not block pump suction! To do so with body may cause severe or fatal injury. Small children using pool must always have close adult supervision!



# Operation

## PRIMING PUMP

- ▶ Release all air from filter and piping system: see filter owner's manual.
- ▶ In a flooded suction system (water source higher than pump), pump will prime itself when suction and discharge valves are opened.
- ▶ If pump is not in a flooded suction system, unscrew and remove trap cover; fill trap and pump with water.
- ▶ Lubricate trap cover "O" Ring with petroleum jelly each time it is removed.
- ▶ Clean and inspect "O" Ring; reinstall on trap cover.
- ▶ Replace trap cover on trap; turn clockwise to tighten cover.

## NOTICE

Tighten trap cover by hand only (no wrenches)! Use a wrench only if necessary to remove lid!

Pump should prime now. Priming time will depend on vertical length of suction lift and horizontal length of suction piping.

- ▶ If pump does not prime, make sure that all valves are open, suction pipe end is under water and that there are no leaks in suction pipe. See Troubleshooting Guide, Page 10.

## STORAGE/WINTERIZING

### NOTICE

Allowing pump to freeze will damage pump and void warranty! NOTICE: Do not use anti-freeze solutions (except propylene glycol) in your pool/spa system. Propylene glycol is non-toxic and will not damage plastic system components; other anti-freezes are highly toxic and may damage plastic components in the system.

- ▶ Drain all water from pump and piping when expecting freezing temperatures or when storing pump for a long time (see instructions below).

- ▶ Keep motor dry and covered during storage.
- ▶ To avoid condensation/corrosion problems, do not cover pump with plastic.
- ▶ For outdoor/unprotected installations:
  1. Enclose entire system in a weatherproof enclosure.
  2. To avoid condensation/corrosion damage, allow ventilation; do not wrap system in plastic.

## DRAINING PUMP

1. Pump down water level below all inlets to the pool.



To avoid dangerous or fatal electrical shock hazard, turn OFF power to motor before draining pump.


2. Remove trap cover and use low pressure air to blow accumulated water from the piping system. Use a STARRITE U79-11 Lid Wrench to remove trap covers that have been over-tightened or have taken a set and cannot be removed by hand.
3. Cap inlet piping after draining to keep water out of the pipes.
4. To prevent pump from freezing, remove trap cover and drain the tank body through the drain plug (Key No. 18, Page 11). Clean pump thoroughly; replace trap cover.

### NOTICE

Tighten trap cover by hand only (no wrenches)! Use a wrench only if necessary to remove cover!

5. Be sure motor is kept dry and covered.

**⚠ WARNING**




**HAZARDOUS VOLTAGE.**  
**Can shock, burn, or cause death.**  
Disconnect power before working on pump or motor.

## STARTUP FOR WINTERIZED EQUIPMENT

1. Remove any temporary weather protection placed around system for shutdown.
2. Follow filter manufacturer's instructions for reactivation of the filter.
3. Inspect all electrical wiring for damage or deterioration over the shutdown period. Have a qualified serviceman repair wiring as needed.
4. Inspect and tighten all watertight connections.
5. Open all valves in suction and return piping.
6. Remove any winterizing plugs in piping system.
7. Drain all antifreeze from system.
8. Close all drain valves and replace all drain plugs in piping system.
9. Prime pump according to instructions on Page 7.

# Pump Service

**⚠ WARNING**



**HAZARDOUS VOLTAGE.**  
Can shock, burn, or cause death.  
Disconnect power before working on pump or motor.

## CAUTION

**⚠ Pump should only be serviced by qualified personnel. Be sure to prime pump (Page 7) before starting.**

**⚠ Before removing clamp or trap cover:**

**1. STOP PUMP** before proceeding.

**2. CLOSE GATE VALVES** in suction and discharge pipes.

**3. RELEASE ALL PRESSURE** from pump and piping system.

**4. NEVER** tighten or loosen clamp while pump is operating!

**⚠ To avoid dangerous or fatal electrical shock hazard, turn OFF power to motor before working on pump or motor!**

▶ Aside from lubricating trap cover O-Ring, no lubrication or regular maintenance is needed beyond reasonable care and periodic cleaning.

▶ If shaft seal is worn or damaged, repair as follows:

### Pump Disassembly/ Removing Old Seal:

**⚠ Disconnect power to pump motor. Release all pressure by opening all vents before starting work. Be sure gate valves on suction and return piping are closed before starting work.**

- 1.** Drain pump by removing drain plugs on bottom of pump body and trap body.
- 2.** Be sure there is no pressure in trap body; remove cover (unscrew by turning counterclockwise).
- 3.** Remove clamp holding pump halves together.
- 4.** Remove pump base mounting bolts, if used. Motor and seal plate assembly can now be pulled away from pump body.
- 5.** Remove five screws and washers holding diffuser to seal plate. Remove diffuser.

**6.** Remove motor canopy. Being careful not to touch capacitor terminals, loosen capacitor clamp and move capacitor to one side.

**7.** Hold shaft with 1/4" allen wrench or screw driver on motor shaft end.

**8.** Unscrew impeller from shaft (turn counterclockwise when facing it).

**9.** Remove four screws holding seal plate to motor.

**10.** Place seal plate face down on flat surface and tap out ceramic seat (Fig. 2).

### NOTICE

Do not force out heat sink insert (Key No. 7, Page 11). If insert has moved, pump will leak; see "Installing Insert", Page 9.

**11.** Clean seal cavity in seal plate and clean motor shaft.

Fig. 2

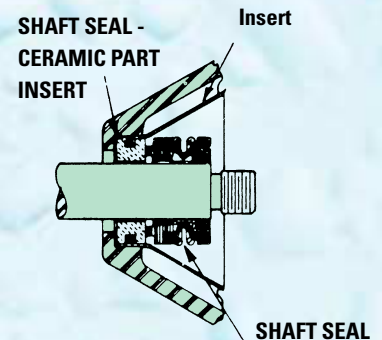


Fig. 3

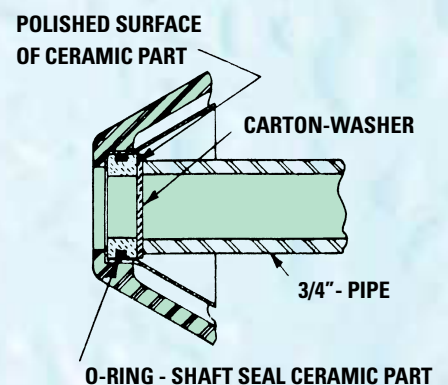
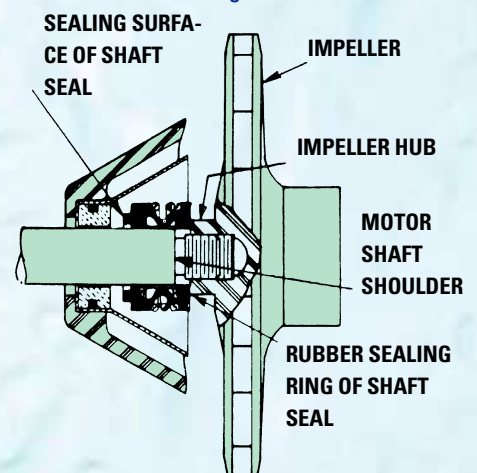


Fig. 4





## PUMP REASSEMBLY/ INSTALLING NEW SEAL:

**1.** Ceramic seat must be clean and free of dirt, grease, dust, etc. Wet outer edge of "O" Ring with small amount of liquid detergent; press ceramic seat into seal plate cavity firmly and squarely with finger pressure.

**2.** If ceramic seat will not locate properly, remove it, place face up on bench and reclean cavity. Ceramic seat should now locate.

**3.** If seat still will not locate properly, place a cardboard washer over the polished face and use a piece of 3/4" standard pipe for pressing purposes (Fig. 3).

### NOTICE

Be sure not to scratch or mar polished surface or seal will leak.

**4.** Remount seal plate on motor. Tighten bolts to 60-80 inch-lbs. torque.

**5.** Apply a small amount of liquid detergent to inside diameter of rotating half of seal.

**6.** Slide rotating member, polished face first, over threaded shaft end and shaft shoulder until rubber drive ring hits shaft shoulder (Fig. 4).

### NOTICE

Be sure not to nick or scratch polished seal face; seal will leak if face is damaged.

**7.** Screw impeller onto shaft (clockwise); this will automatically locate seal in seal plate.

**8.** Mount diffuser on seal plate; tighten screws to 10-14 inch-ibs. torque.

**9.** Assemble motor and seal plate to volute; be sure clamp is properly seated.

### NOTICE

Clamp knob can be located in any position around volute; if it is moved after assembly, tighten knob while tapping around clamp to assist sealing. Do not move clamp while pump is full of water.

**10.** Reinstall pump base mounting bolts (if used) and prime pump according to instructions on Page 7.

## INSTALLING HEAT SINK INSERT:

If the heat sink insert moves or shifts during seal removal, remove and reinstall it to prevent leakage.

**1.** To remove heat sink insert, grasp with fingers at the large end and move back and forth. Do not deform.

**2.** Replace heat sink insert as follows:

**A.** Clean off old sealant and foreign material; clean out insert cavity.

**B.** Apply a small amount of nonhardening silicone FITV on surface of insert (see Figure 6).

**C.** Pull insert into cavity (see Figure 7).

**D.** Remove surplus silicone FITV from insert cavity (see Fig. 8).

**WIPE ON SMALL  
AMOUNT OF  
NON-HARDENING  
SILICONE ON THIS  
SURFACE**

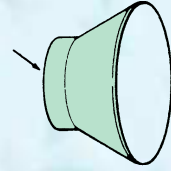


Fig. 6

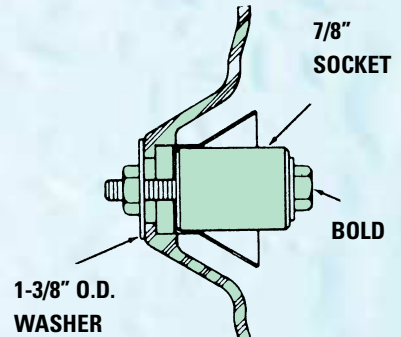


Fig. 7

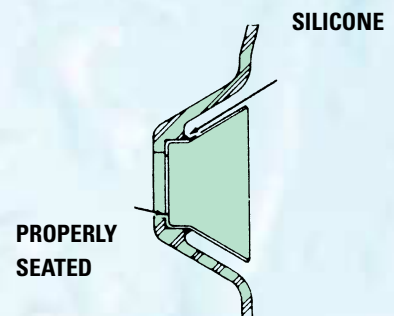


Fig. 8

# TROUBLESHOOTING GUIDE



**Read and understand safety and operating instructions in this manual before doing any work on pump!**

**Only qualified personnel should electrically test pump motor!**

## Failure To Pump; Reduced Capacity Or Discharge Pressure

### Suction leaks/lost prime

1. Pump must be primed; make sure that pump volute and trap are full of water. See priming instructions, Page 7.
2. Make sure there are no leaks in suction piping.
3. Make sure suction pipe inlet is well below the water level to prevent pump from sucking air.
4. If suction trap gasket is defective, replace it.
5. Suction lift of 15 to 25 feet will reduce performance. Suction lift of more than 25 feet will prevent pumping and cause pump to lose prime. In either case, move pump closer (vertically) to water source. Make sure suction pipe is large enough.

### Clogged pipe/trap/impeller, worn impeller

6. Make sure suction trap is not clogged; if it is, clean trap and strainer.
7. Make sure impeller is not clogged (follow steps 1 through 7 under "Removing Old Seal", Page 8; check impeller for clogging; follow steps 7 through 11 under "Installing New Seal", Page 9, for reassembly).

8. Impeller and diffuser may be worn. If so, order replacement parts from Repair Parts List, Pages 11-12.

9. Pump may be trying to push too high a column of water. If so, a "higher head" pump is needed.

### Electrical

10. Pump may be running too slowly; check voltage at motor terminals and at meter while pump is running. If low, see wiring instructions or consult power company. Check for loose connections.

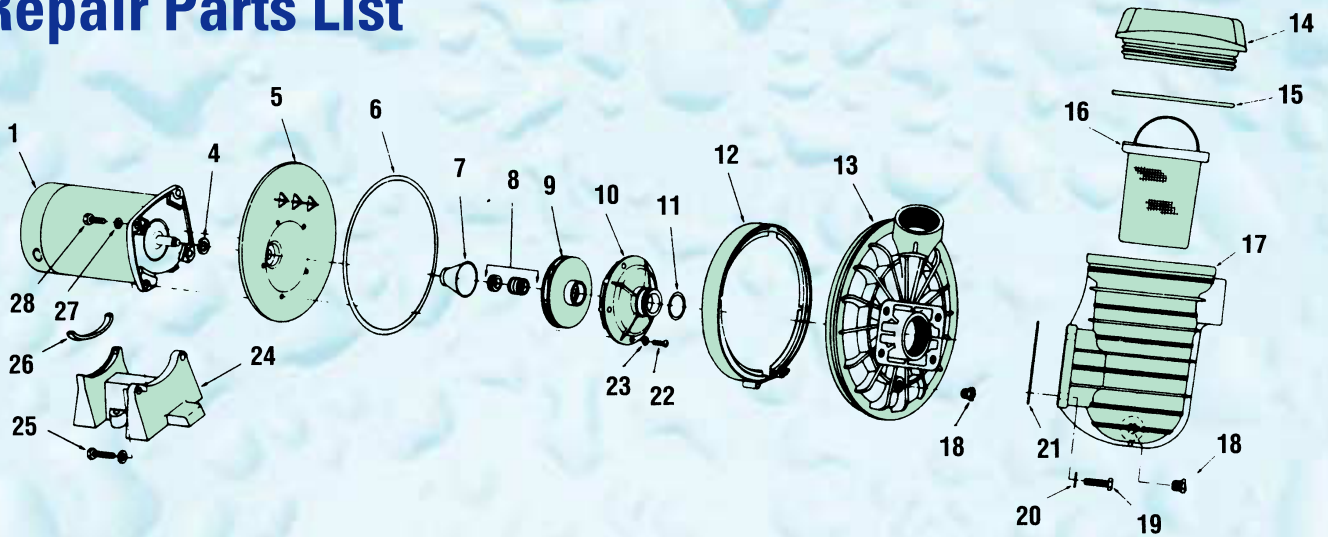
11. Pump may be too hot.
- A. Check line voltage; if less than 90% or more than 110% of rated voltage consult a licensed electrician.
  - B. Increase ventilation.
  - C. Reduce ambient temperature.
  - D. Tighten any loose connections.

### Mechanical Troubles And Noise

1. If suction and discharge piping are not adequately supported, pump assembly will be strained. See "Installation", Page 5.
2. Do not mount pump on a wooden platform! Securely mount on concrete platform for quietest performance.



# Repair Parts List



Model No.	Voltage	Motor No.	Impeller No.	Diffuser No.
5P2RB-1	220 - 240 V	0,25kW-1	C105-92PRB	C1-216P
5P2RB-3	380 - 420 V	0,25kW-3	C105-92PRBA	C1-216P
5P2RC-1	220 - 240 V	0,37kW-1	C105-92PS	C1-216P
5P2RC-3	380 - 420 V	0,37kW-3	C105-92PSA	C1-216P
5P2RD-1	220 - 240 V	0,55kW-1	C105-138PF	C1-200PA
5P2RD-3	380 - 420 V	0,55kW-3	C105-138PFA	C1-200PA
5P2RE-1	220 - 240 V	0,75kW-1	C105-137PF	C1-200PA
5P2RE-3	380 - 420 V	0,75kW-3	C105-137PFA	C1-200PA
5P2RF-1	220 - 240 V	1,10kW-1	C105-137PD	C1-200PA
5P2RF-3	380 - 420 V	1,10kW-3	C105-137PDA	C1-200PA

Key No.	Part Description	Qty.	Part No.
1	Motor IP 55	1	See Table
4	WaterSlinger	1	-
5	Seal Plate	1	C203-137P1
6	O-Ring	1	U9-228
7	Insert	1	J3-2
8	Shaft Seal	1	U9-93SS
9	Impeller	1	See Table
•*	Screw Impeller	1	C30-12
10	Diffuser	1	See Table
11	O-Ring-Diffuser	1	U9-226
12	Clamp	1	C19-37A
•	Clamp Knob	1	WC36-22
13	Tank Body	1	C176-47P1W
14	Cover	1	C3-139P
15	O-Ring Cover	1	U9-229
16	Strainer Basket	1	C108-33P
17	Trap Body	1	C153-53P1
18	Pipe Plug with O-Ring	2	U178-920P
19	Capscrew 5/16"-18 x 11/4"	4	U30-64SS
20	Washer	4	U43-41SS
21	Gasket	1	C20-123
22	Capscrew 8/32 x 7/8"	5	U30-542SS
23	Lockwasher	5	U43-21SS
24**	Base	1	C4-42P/C4-41P
25	Screw 3/8" - 16 x 1 3/4"	2	U30-77SS
26**	Motor Pad	1	C35-11/C35-12D
27	Washer-Plain	2	U43-42SS
28	Capscrew - 3/8" - 16 x 1"	2	U30-74SS

## 5P2R Series Pool Pump

• Not illustrated

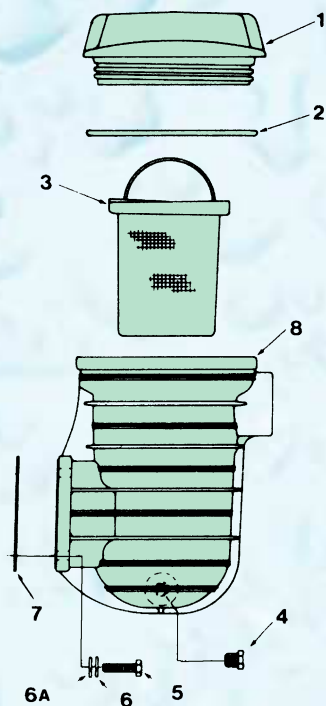
\* Impeller screw C30-12 is for all 3 phase models necessary.

\*\* With **ATB**-Motors 0,75kW and 1,10 kW is pump base C4-41P and motor pad C35-12D necessary.

# Repair Parts List

## 5" Trap/Adapter Assembly

PKG. 115W



KEY NO.	PART DESCRIPTION	PART NO. PKG. 115W 5" Trap
1	Trap Cover	C3-139P1
2	"O" Ring-Cover	U9-229
3	Strainer Basket	C108-33P
4	Pipe Plug - 1/4" NPT	U178-920P
5	Capscrew 5/16" - 18 x 1/4"	U30-64SS(4)
6	Washer, Lock 5/16"	U43-11SS(4)
6 A	Washer, Flat 5/16"	U43-41SS(4)
7	Gasket	C20-123
8	Trap Body	C153-53P1W

\* Quantity one unless otherwise indicated, ( ).

### Seal/Gasket Kit

Kit includes Shaft Seal, Gaskets and O-Rings. For all horsepower 5P2R series pumps. Parts-Pak No. PP 1000.

