

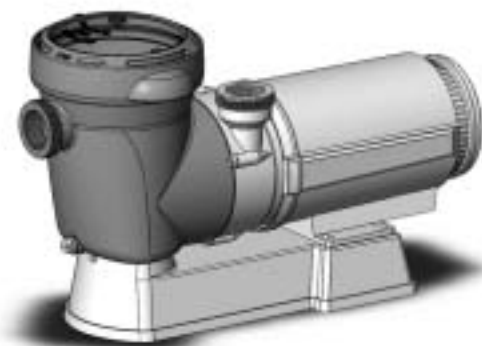


## HAYWARD Hi-Performance SELF-PRIMING PUMPS INSTALLATION AND OPERATING INSTRUCTIONS

# Matrix™

Your Hayward Matrix pump has been quality-built and engineered to give you many years of efficient, dependable service. The non-conductive, corrosion-proof motor housing provides protection from the elements and insulates the electrical motor parts from outside contact.

The advanced design reduces operation and maintenance to simple, common-sense procedures.



### GENERAL TIPS ON PUMP INSTALLATION

For best pump performance, locate the system below the pool water line and as close to the pool as possible. *If you own an above ground pool please see Note: NSPI-4 Article V, for safe and proper installation of the equipment package.* Make sure suction joints are tight. Suction pipe should be as large or larger than discharge pipe.

Damp, non-ventilated locations should be avoided. Motors require free circulation of air to aid in cooling.

Insure that the electrical supply available agrees with the motor's voltage, phase and cycle, and that wire size is adequate for the HP/KW rating and distance from the power source. Motor must always be properly grounded. If cord connected, use only a properly grounded outlet. Electrical circuits should be protected by proper size ground fault circuit interrupter (GFCI). All electrical wiring should be performed by qualified personnel and must conform to local codes and regulations.

### STARTING AND PRIMING INSTRUCTIONS

Fill strainer/housing completely with water. Never operate the pump without water. Water acts as a coolant and lubricant for the mechanical shaft seal.

Open all suction and discharge lines and valves, as well as air bleed (if available) on filter. (The air that is to be displaced from the suction line must have some place to go).

Turn on power and allow a reasonable time for priming. Priming time depends on suction lift and length of suction piping. If pump will not start, or will not prime, see TROUBLE SHOOTING GUIDE on back page.

**Note:** NSPI-4 Article V, standard for above ground and on ground pools, advises that components such as the filtration system, pumps and heater be positioned so as to prevent their being used as a means of access to the pool by young children.

### MAINTENANCE

1. Clean strainer basket regularly. **Do not strike** basket to clean. Inspect strainer cover gasket regularly and replace as necessary.
2. Hayward pumps have self-lubricating motor bearings and shaft seals. No lubrication is necessary.
3. Keep motor housing clean. Insure air vents are free from obstructions, debris, etc.

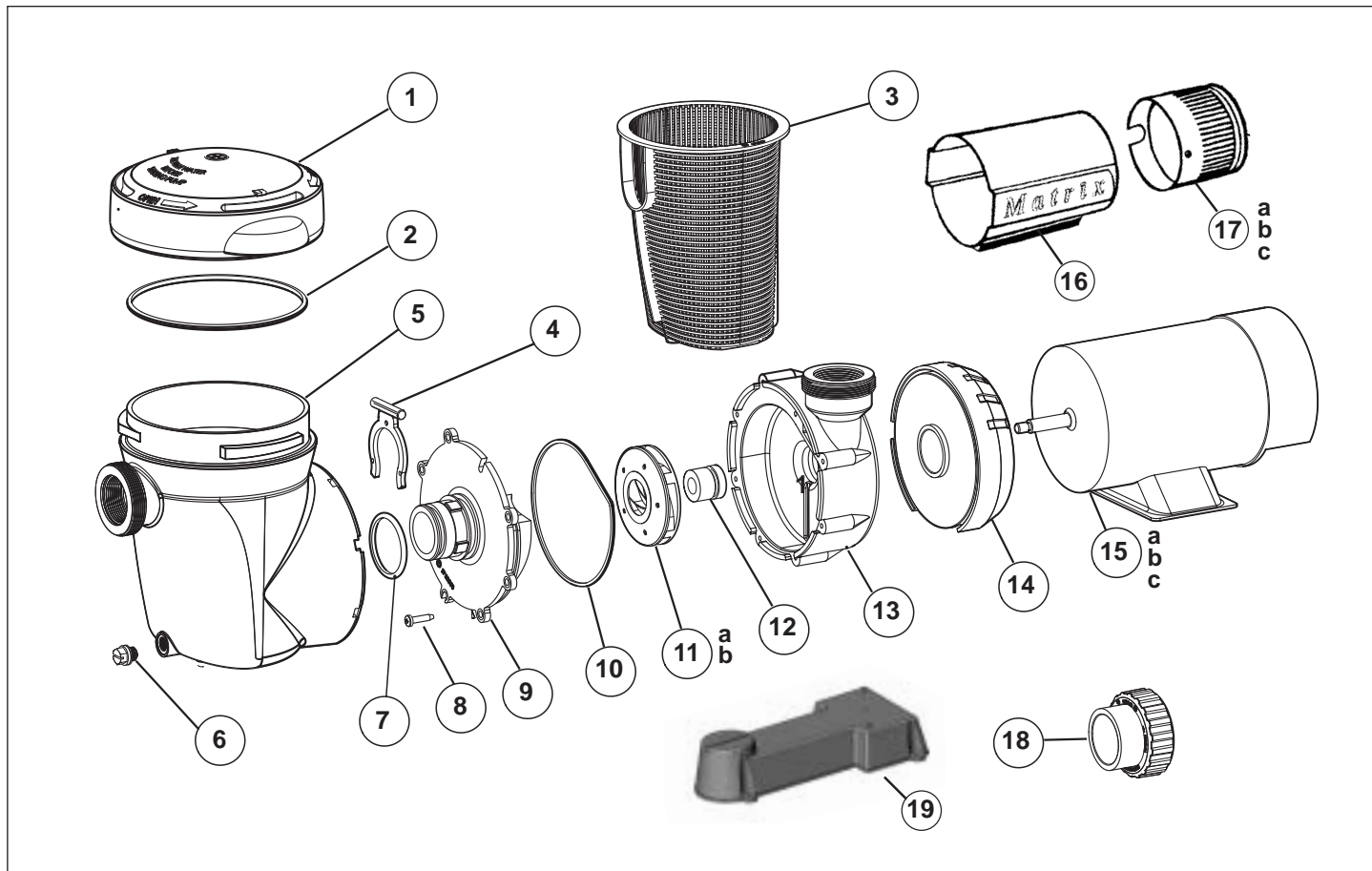
4. Occasionally, shaft seals must be replaced, due to wear or damage. See instructions

### STORAGE/WINTERIZING

Pump and motor must be protected from freezing. Shut off all electric power. Disconnect cord/electrical connections and plumbing connections. Drain thoroughly and clean out any debris. Store pump and motor in a dry, well ventilated room.

## HAYWARD POOL PRODUCTS CANADA, INC.

2880 PLYMOUTH DRIVE, OAKVILLE, ONTARIO L6H 5R4 • (905) 829-2880



## PARTS LISTING

Ref. No.	Part No.	Description	No. Required
1	SPX5500DL	Strainer Cover	1
2	SPX5500H	Strainer Cover 'O' Ring	1
3	SPX5500F	Strainer Basket	1
4	SPX5500G	Strainer 'C' Clip	1
5	SPX5500C	Strainer Housing	1
6	SPX1700FG	Drain Plug w/Gasket	1
7	SPX5500K	Strainer 'O' Ring	1
8	SPX0714Z4	#13-9 x 1" Phillips, Pan Head Screw	8
9	SPX5500B	Pump Cover	1
10	SPX5500J	Housing 'O' Ring	1
11	SPX1591E	1 HP Impeller Assembly	1
12	SPX1250XZ2C	Shaft Seal Assembly	1
13	SPX5500A	Pump Housing	1
14	SPX5500E1	Shroud Assembly	1
15a	SPX1509Z1UF	1 HP Motor	1
15b	SPX1514Z1UF	1.5 HP Motor	1
15c	SPX1514Z2UF	1.5 HP Motor 2 speed	1
16	SPX2090AM	Matrix Motor Hsg.	1
17a	SPX2090CAM	End Cover	1
17b	SPX2090CETM	Timer End Cover	1
17c	SPX2090C2ETM	2 sp Timer End Cover	1
18 (Optional)	SPX1500UNPAK2	Union Connector Assembly	2
19	SPX5500M	Base	1

# Selecting Pump's Discharge Position (4 Steps)

Your Hayward Power-Flo® Matrix™ pump can be easily positioned for horizontal or vertical water discharge.

**Note:** This procedure can be performed while pump is mounted to base.

**Step 1:** Remove **ALL** plumbing attached to pump.

**Step 2:** Remove strainer housing.

- Disengage and lift off strainer cover.
- Remove strainer basket.
- Lift up on strainer 'C' clip and remove.
- Slide strainer housing forward and remove.

**Step 3:** Press positioning button located on pump housing and rotate discharge port to desired position.  
**(NOTE: Discharge port will only rotate 1/4 turn.)**

**Step 4:** Assemble the pump by following the above directions in the reverse manner.

## ELECTRONIC TIMER MODULE INSTRUCTIONS

Your integrated timer module is designed to be programmed to your filtration need, with four (4) possible settings.

### Settings:

Setting 1 - Pump runs 24 hours continuously - (1 beep)

Setting 2 - Pump runs 18 hours and is off for 6 hours - (2 beeps)

Setting 3 - Pump runs 12 hours and is off for 12 hours - (3 beeps)

Setting 4 - Pump runs 6 hours and is off for 18 hours - (4 beeps)

When the pump is switched from position "off" to "program" a beep sound is heard. This allows the pumps to differentiate between settings.

### To Set Timer:

1. Move switch from "off" to "program" to "off" produces 1 beep

2. Move switch from "off" to "run"


3. Repeat above 2 steps according to your choice of setting

**If a power failure occurs:** After the power is restored, the timer will automatically default to the programmed mode, adding the length of time of the power failure.

# SHAFT SEAL CHANGE INSTRUCTIONS

## IMPORTANT SAFETY INSTRUCTIONS PLEASE READ AND FOLLOW ALL INSTRUCTIONS

When servicing electrical equipment, basic safety precautions should always be observed including the following. Failure to follow instructions may result in injury.

- A.  **WARNING** - To reduce the risk of injury, do not permit children to use this product.
- B. Disconnect all electrical power service to pump before beginning shaft seal replacement.
- C. Only qualified personnel should attempt rotary seal replacement. Contact your local authorized Hayward Dealer or service center if you have any questions.
- D. The National Electrical Code requires either a three (3) foot maximum twist-lock cord set with a GFCI protected receptacle or hard wire (conduit) connection for swimming pool pump installation. Do not use extension cords.

## SAVE THESE INSTRUCTIONS

Exercise extreme care in handling both the rotating and the stationary sections of the two-part replacement seal. Foreign matter or improper handling will easily scratch the graphite and ceramic sealing surfaces.

1. Shut off water flow to pump by closing appropriate valves or by plugging both the skimmer outlet port and return port to pool. Disconnect piping or hoses from the motor/pump assembly.
2. Remove the strainer by disengaging and removing the strainer cover. Remove the basket. Lift up on strainer 'C' clip and remove. Finally, slide strainer housing forward and remove.
3. Unscrew eight (8) screws and remove pump cover, exposing the impeller.
4. Remove the canopy or the shaft cover plate from the end of motor opposite the impeller.
5. Hold the motor shaft securely by either inserting a screwdriver in slot at end of shaft or by using an open-end wrench to engage the flat surfaces provided near end of motor shaft. Rotate the impeller in a counterclockwise direction and remove it from the motor shaft.
6. Note how the steel spring section of the old seal is positioned on impeller hub and remove it by pulling from the impeller.
7. Loosen four (4) motor through bolts from the back of motor and remove pump housing/shroud from the front of the motor.
8. Remove the ceramic stationary portion of the old seal by pressing the white ceramic seat out of the pump housing recess. If assembly is tight, tap lightly from the "motor" side.
9. Clean and lubricate the impeller stem and the pump housing recess with a dilute solution of non-granulated liquid-type soap. Do not use petroleum or silicone lubricants as these can contribute to seal leakage.
10. Press the new rotating portion of the seal assembly onto the impeller stem with the polished black graphite surface facing away from the impeller.
11. Carefully press the stationary ceramic portion of the seal into the recess of the pump shroud, with the polished flat surface facing out.
12. Carefully insert the motor shaft through the pump housing and align with white ceramic stationary seal assembly in place and secure the motor to pump housing with four (4) motor through bolts removed in step #7. Be sure motor base and pump discharge port are positioned properly. Alternately tighten the motor through bolts until the pump housing is secure. Make certain motor shaft turns freely before proceeding.
13. Screw the impeller (clockwise) with the rotating portion of seal in place onto the motor shaft. Hand-tighten the impeller in place.
14. Clean (replace if necessary) the O-ring and replace on pump housing. Assemble the pump cover to the pump shroud with the four (4) screws removed in step #3. Tighten screws alternately and evenly.
15. Re-assemble strainer by sliding strainer housing onto pump cover. Install strainer 'C' clip by pushing clip down onto grooved pump cover coupling. Insert basket and fasten strainer cover.
16. Reconnect pump to the piping or hoses provided. Open all valves and make sure that the pump strainer housing is full of water before restarting the pump.

## ELECTRICAL GUIDE – 60 CYCLE MOTORS – SINGLE PHASE

MOTOR HP      KW		VOLTS	Circuit Breaker RATING – AMPS	RECOMMENDED WIRE SIZE 0-50', 0-15m
1	.75	115	20	No. 12
1 1/2	1.12	115	20	No. 12

## TROUBLE SHOOTING GUIDE

### A. MOTOR WON'T START

1. Check for improper or loose connections, open switches or relays, blown circuit breakers or fuses.
2. Manually check rotation of motor shaft for free movement and lack of obstruction.

### B. MOTOR CUTS OUT – Check for:

1. Wiring, loose connections, etc.
2. Low voltage at motor (frequently caused by undersized wiring).
3. Binding and overload. (Amperage reading)

**NOTE:** Your Hayward pump motor is equipped with Automatic Thermal Overload Protection. The motor will automatically shut off, under normal conditions, before heat damage build-up, due to an improper operating condition, can occur. The motor will auto-restart when safe heat level is reached.

### C. MOTOR HUMS BUT DOES NOT START – Check for:

1. Centrifugal switch stuck in open position.
2. Binding of motor shaft.

### D. PUMP WON'T PRIME

1. Make sure pump/strainer housing is filled with water, and that cover O-Ring is clean and properly seated. Make sure strainer cover is locked firmly in position.
2. Make sure all suction and discharge valves are open and unobstructed, and that pool water level is above all suction openings.

- a. If pump develops a vacuum, check for blocked suction line or strainer, or air leak in suction piping.
- b. If pump does not develop a vacuum and pump has sufficient "priming water":
  1. Tighten all bolts and fittings.
  2. Check voltage to make sure pump is up to speed.
  3. Open pump and check for clogging and obstruction.
  4. Remove and replace shaft seal.

### E. LOW FLOW – Generally, Check for:

1. Clogged or restricted strainer or suction line; undersized pool piping.
2. Plugged or restricted discharge line of filter (high discharge gauge reading).
3. Air leak in suction (bubbles issuing from return fittings).
4. Pump operating underspeed (low voltage).
5. Plugged or restricted impeller.

### F. NOISY PUMP – Check for:

1. Air leak in suction causing rumbling in pump.
2. Cavitation due to restricted or undersized suction line and unrestricted discharge lines. Correct suction condition or throttle discharge lines, if practical.
3. Vibration due to improper mounting, etc.
4. Foreign matter in pump housing.
5. Motor bearings made unserviceable by wear, rust, or continual overheating.

## SERVICE AND REPAIRS

Consult your local authorized Hayward dealer or service center.  
No pumps or motors may be returned directly to the factory without the express written authorization of Hayward Pool Products Canada, Inc.