



## Polaris® Booster Pump PB4-60 Replacement Kits

### **WARNING**

**FOR YOUR SAFETY** - This product must be installed and serviced by a contractor who is licensed and qualified in pool equipment by the jurisdiction in which the product will be installed where such state or local requirements exist. In the event no such state or local requirement exists, the maintainer must be a professional with sufficient experience in pool equipment installation and maintenance so that all of the instructions in this manual can be followed exactly. Improper installation and/or operation can create dangerous electrical hazards, which can cause high voltages to run through the electrical system. Before installing this product, read and follow all warning notices and instructions that accompany this product. Failure to follow warning notices and instructions may result in property damage, personal injury, or death. Improper installation and/or operation will void the warranty.

**These instructions are to be used with the following Installation/Replacement Kits:**

**P17 -- Softube® Quick Connect Installation Kit**  
**P19 -- 6' Flexible Reinforced Pump Hose Installation Kit**  
**P21 -- Pump Quick Connect Retainer**  
**P61 -- 60 Hz, 3/4 HP Motor**  
**P133 -- Softube Quick Connect with Retainers**  
**R0445500 -- PB4-60 Ceramic Seal and Spring Replacement Kit**  
**R0536300 -- PB4-60 Volute Replacement Kit**  
**R0536400 -- PB4-60 Impeller Replacement Kit**  
**R0536600 -- PB4-60 Backplate O-Ring Replacement Kit**  
**R0536700 -- PB4-60 Backplate Replacement Kit**  
**R0536800 -- PB4-60 Motor Bolts and Washers Replacement Kit**  
**R0536900 -- PB4-60 Bolts, Washers, and Nuts Replacement Kit**  
**R0537100 -- PB4-60 Booster Pump Base Replacement Kit**

### **WARNING**

If the information in these instructions is not followed exactly, an electrical fire or shock hazard may result causing property damage, personal injury or death.

This document gives instructions for replacing the Volute, Impeller, Backplate, Base, Ceramic Seal, Hose, O-Rings and Hardware on the PB4-60 Booster Pump. The instructions must be followed exactly. These instructions were written with safety as the priority. Not following this procedure or taking shortcuts may result in personal injury. Read through the instructions completely before starting the procedure.

Before starting the procedure, use the parts list at the back of these instructions to identify the parts that are in your kit. If any parts are missing from the kit please call your local Zodiac distributor for assistance. For technical assistance please contact our Technical Support Department at 800.822.7933.

### **1. Replace the Volute, Backplate O-Ring and Drain Plug**

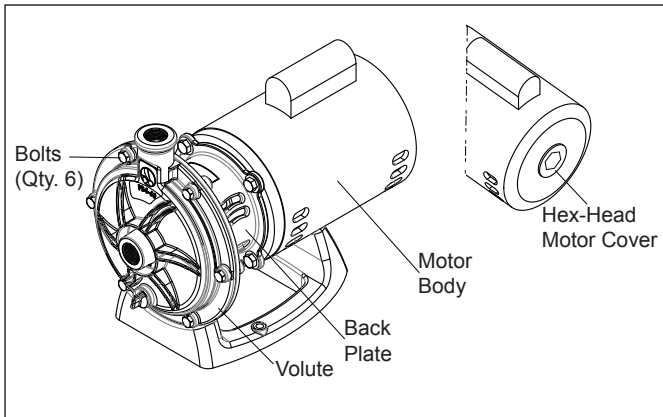
#### **WARNING**

While servicing the pump, switch off the circuit breakers at the power source. Severe personal injury or death may occur if the pump starts while your hand is inside the pump.

1. Turn off the pump. Switch off the circuit breaker to the pump motor. If you are not replacing the motor, do not disconnect the electrical wiring.

**NOTE** If you are replacing the motor, Zodiac Pool Systems, Inc. strongly recommends that a qualified service technician or electrician properly disconnect the electrical wiring at the pump motor.

2. Turn off any valves to prevent pool water from reaching the pump. Drain the water from the pump by removing the drain plug.
3. Using a 1/2" wrench, loosen the six (6) bolts connecting the pump volute to the motor backplate. Remove the bolts and washers and either set aside to use in reassembly or use new ones from the kit. See Figure 1.



**Figure 1. Remove the Volute**

4. Pull the volute from the backplate.

**NOTE** At this point you have access to the inlet and outlet of the impeller to remove any debris.

5. Remove the backplate o-ring and replace it with the new o-ring making sure it is seated properly.
6. Install the new volute using six (6) bolts with six (6) washers and six (6) nuts. Torque the bolts to  $7 \pm 0.3$  ft-lbs
7. If required, install the new drain plug. Torque to 8 to 10 in-lbs.
8. Turn on the filter pump and turn on the circuit breaker to booster pump motor.
9. Once all the air has left the filter, close the air release valve. (Follow the manufacturer's instructions for your filter.)
10. Turn on the booster pump and check the system for proper normal operation.

## 2. Replace the Impeller and Mechanical Ceramic/Spring Seal

1. To access the impeller and mechanical seal, follow steps 1 through 4 of Section 1.
2. Remove the motor shaft cover on the back of the motor by twisting the hex-head motor cover with an adjustable wrench. See Figure 1. The motor shaft will be exposed.
3. The impeller is connected to the motor shaft. Hold the motor shaft with a 1/2" wrench while unscrewing the impeller from the motor shaft with your hand.

**NOTE** The impeller is a right-handed thread, therefore turn the impeller counter-clockwise to unscrew.

4. Inspect the impeller for signs of rubbing and/or damage and replace if necessary.
5. If you are replacing the mechanical seal do steps 6 through 10, if not, skip to step 11.

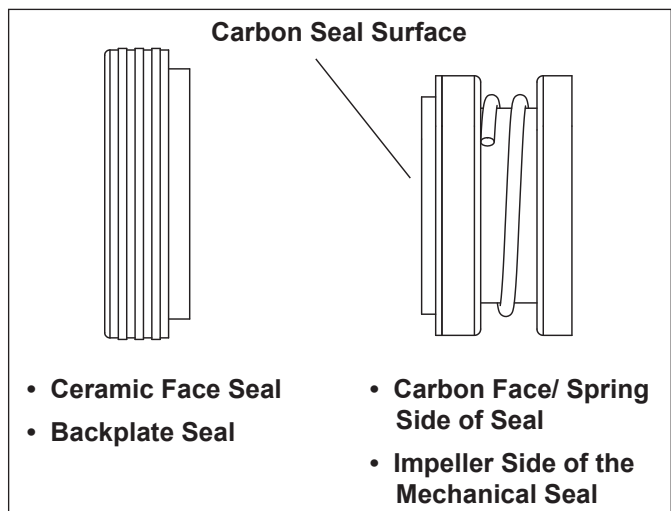
### CAUTION

Do not damage the ceramic or carbon surfaces of the seals. If surfaces are damaged, leaks will occur.

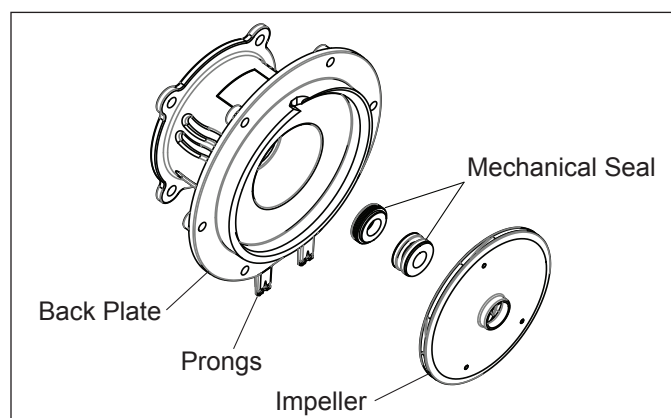
6. Remove the carbon face seal half from the impeller. Refer to Figure 2 and 3. This is a spring-loaded seal. Grasp the portion of the seal closest to the impeller body and pull the seal off using a twisting motion.

**NOTE** This is a two (2) part replacement process. **The mechanical seal must be replaced as a set.**

7. Remove the four (4) 9/16" screws that secure the backplate to the motor and remove the motor.
8. Place the backplate o-ring side down and force the ceramic seal out using a screwdriver or drift pin.



**Figure 2. Replace the Mechanical Seal**



**Figure 3. Backplate, Impeller and Mechanical Seal Location**

**CAUTION**

**VERY IMPORTANT!** Do not touch the face of the seal. The oil from your hands will result in damage to the seal.

9. Turn the backplate o-ring side up and insert the new ceramic seal side into the backplate. Use great care to press the seal in squarely with your fingers. The ceramic is easily damaged and must be pressed in using only your fingers or soft tools. Do not use any lubricant other than water and soap solution.

**CAUTION**

**VERY IMPORTANT!** Grasp the lower portion of the seal (opposite the carbon face) when installing the seal, or it will be damaged.

10. Press the new carbon face seal half (see Figure 2) on the impeller using a twisting motion. Make sure the carbon surface is facing toward the ceramic ring in the backplate.

**NOTE** To assist assembly, *only* use water and soap solution as a lubricant. Any other lubricant will destroy the seal after a short period of time.

**NOTE** Exercise great care to keep the seal and mating parts clean.

11. Install and tighten the screws lightly in a crossing "X" pattern using a 9/16" wrench then tighten the four (4) to draw the backplate to the motor body in an even manner and torque in the same order to  $14 \pm 0.3$  ft-lbs.
12. While holding the motor shaft with a 1/2" wrench, thread the impeller onto the motor shaft. Hand-tighten the impeller until it is secure. ***Do not overtighten.***
13. Replace the hex-head cover over the motor shaft by inserting the cover tabs into the slots and rotating the cover 90° clockwise.
14. Remove the backplate o-ring and replace it with the new o-ring making sure it is seated properly.
15. Install the volute using six (6) bolts with six (6) washers and six (6) nuts. Torque the bolts to  $7 \pm 0.3$  ft-lbs
16. If required, install the new drain plug. Torque to 8 to 10 in-lbs.
17. Turn on the filter pump and turn on the circuit breaker to booster pump motor.
18. Once all the air has left the filter, close the air release valve.
19. Turn on the booster pump and check the system for normal operation.

**3. Replace the Motor****⚠ WARNING**

To ensure continued safety and reliable operation, Zodiac Pool Systems, Inc. requires that you replace the motor with a motor that has the identical HP rating and service factor (Zodiac Pool Systems, Inc. approved only). Using an improper motor can create a safety hazard which could cause serious injury.

**⚠ WARNING**

To avoid the risk of property damage, severe personal injury, or death, turn off the pump and switch off the circuit breaker to the pump motor before beginning this procedure.

1. Have a qualified service technician or electrician properly disconnect the electrical wiring at the pump motor.
2. To disassemble the pump volute from the motor, follow steps 1 through 4 in Section 2.
3. Remove the four (4) 9/16" screws and remove the motor.

**NOTE** Before removing the backplate, note the alignment of the backplate to the motor. Label is facing upward.

4. If installing a new motor, remove the protective plastic cap from the motor shaft. Place the motor on the backplate. The label should be facing upward. The starting capacitor on the motor should be at the 12 o'clock position.
5. Replace the four (4) bolts and washers holding the backplate to the motor.
6. To reassemble the pump after replacing the motor, follow steps 10 through 16 of Section 2.
7. Have a qualified service technician or electrician properly connect the electrical wiring at the pump motor.

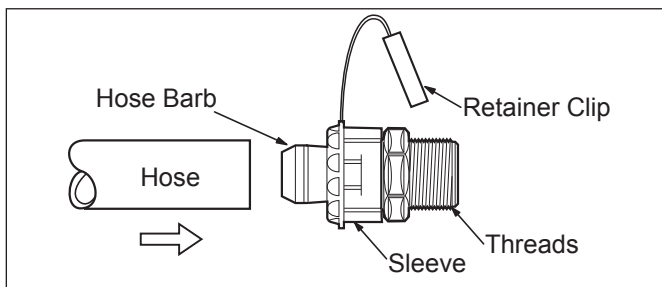
**NOTE** Zodiac Pool Systems, Inc. recommends that the mechanical seals be replaced at the same time the motor is replaced. See Section 2, for the mechanical seal replacement instructions.

**4. Replace the Pump Base**

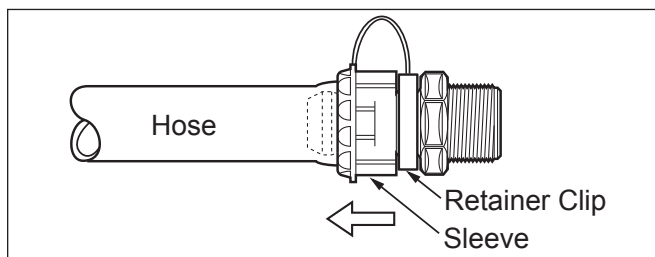
1. Remove the pump base by pressing the release tabs on the base.
2. Install the new base by placing the backplate prongs into the base slots to secure.

## 5. Install the Softube® Quick Disconnect, Retainer and Hose

1. Slide the quick connect retainer ring over the Softube quick connect threads. Install quick connects onto pump discharge and supply ports. See Figures 4 and 5.
2. Measure and cut reinforced hose ensuring cut is clean, with no more than a 30° off straight edge. Avoid unnecessary loops or bends in the hose.



**Figure 4. Install the Hose onto the Quick Disconnect**



**Figure 5. Install the Retainer Clip**

3. Push the hose onto the quick connect until it is flush against the hose barb base. See Figure 4
4. Holding the hose in place, **pull and twist** the sleeve on the quick connect over the hose as far as possible. Snap the clip into place. See Figure 5.

## 6. Parts List

The following table is for your reference. To order additional parts, please contact your local Zodiac® distributor.

DESCRIPTION	P17	P19	P21	P61	P133	R0536400	R0536300	R0536400	R0536600	R0536700	R0536800	R0536900	R0537100
6' Flexible Reinforced Pump Hose	1	1	--	--	--	--	--	--	--	--	--	--	--
Softube Quick Disconnect	4	--	--	--	4	--	--	--	--	--	--	--	--
Pump Quick Connect Retainer	4	--	4	--	--	--	--	--	--	--	--	--	--
3/4 HP 60 Hz Motor	--	--	--	1	--	--	--	--	--	--	--	--	--
Volute	--	--	--	--	--	--	1	--	--	--	--	--	--
O-Ring	--	--	--	--	--	--	1	--	--	--	--	--	--
Drain Pump Seal	--	--	--	--	--	--	1	--	--	--	--	--	--
Drain Plug	--	--	--	--	--	--	1	--	--	--	--	--	--
Impeller Assembly	--	--	--	--	--	1	--	1	--	--	--	--	--
Carbon Mechanical Seal	--	--	--	--	--	--	--	--	--	1	--	--	--
Ceramic Mechanical Seal	--	--	--	--	--	--	--	--	--	1	--	--	--
Backplate O-Ring	--	--	--	--	--	--	--	--	1	1	--	--	--
Backplate	--	--	--	--	--	--	--	--	--	1	--	--	--
Motor Bolt	--	--	--	--	--	--	--	--	--	--	4	--	--
Motor Washer	--	--	--	--	--	--	--	--	--	--	4	--	--
Hex Head Bolt	--	--	--	--	--	--	--	--	--	--	--	6	--
Hex Nut	--	--	--	--	--	--	--	--	--	--	--	6	--
5/16 Washer	--	--	--	--	--	--	--	--	--	--	--	6	--
Motor Base	--	--	--	--	--	--	--	--	--	--	--	--	1
Instructions	1	1	1	1	1	1	1	1	1	1	1	1	1

**Zodiac Pool Systems, Inc.**  
 2620 Commerce Way, Vista, CA 92081  
 1.800.822.7933 | [www.ZodiacPoolSystems.com](http://www.ZodiacPoolSystems.com)

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