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› [Pentair](#) /

› [Pentair 354545S 5/8-Inch Mechanical Seal Replacement Pool and Spa Pump Instruction Manual](#)

Pentair 354545S

Pentair 354545S 5/8-Inch Mechanical Seal Replacement Manual

For Pool and Spa Pumps

[Introduction](#)

[Product Overview](#)

[Safety Information](#)

[Installation](#)

[Post-Installation](#)

[Maintenance](#)

[Troubleshooting](#)

[Specifications](#)

[Warranty & Support](#)

1. INTRODUCTION

This manual provides essential information for the proper installation and maintenance of the Pentair 354545S 5/8-inch Mechanical Seal. This seal is a critical component for maintaining the efficiency and leak-free operation of various Pentair pool and spa pumps. Please read these instructions thoroughly before proceeding with installation to ensure safety and optimal performance.

2. PRODUCT OVERVIEW

The Pentair 354545S is a high-quality mechanical seal designed for specific Pentair pump models. Its primary function is to prevent water from leaking out of the pump housing where the motor shaft enters the wet end of the pump. A properly installed mechanical seal is crucial for the longevity and efficient operation of your pool or spa pump.

Key Features:

- 5/8-inch shaft size compatibility.
- Designed for replacement in compatible Pentair pump models.
- Ensures a watertight seal between the pump motor and wet end.

Compatibility:

This mechanical seal is compatible with the following Pentair pump models:

- Pentair Pinnacle high flow and Challenger high pressure inground pump model PS 200.
- Pentair Sta-Rite OptiFlo and Dynamo aboveground pool/spa pumps.
- Pentair SuperFlo, WaterFall, and SuperMax pool/spa pumps.



Figure 1: Pentair 354545S 5/8-Inch Mechanical Seal. This image displays the mechanical seal component, which consists of a spring-loaded rotating face and a stationary ceramic seat, designed to prevent water leakage from the pump shaft.

3. SAFETY INFORMATION

WARNING: Always disconnect power to the pump at the circuit breaker before performing any service or maintenance. Failure to do so can result in serious injury or death.

- Ensure the pump is completely powered off and locked out before beginning work.
- Wear appropriate personal protective equipment (PPE), such as safety glasses and gloves.
- Handle the ceramic and carbon faces of the mechanical seal with extreme care. Oils from your skin can damage the seal faces, leading to premature failure.
- Do not use petroleum-based lubricants on the rubber components of the seal, as this can cause them to swell and fail. Use only water or a silicone-based lubricant if necessary.
- If you are unsure about any step, consult a qualified pool professional.

4. INSTALLATION (MECHANICAL SEAL REPLACEMENT)

Follow these steps carefully to replace the mechanical seal in your Pentair pump. Specific pump disassembly may vary slightly, but the general procedure for seal replacement remains consistent.

Required Tools:

- Screwdrivers (Phillips and flathead)
- Wrenches or socket set
- Impeller wrench or strap wrench (if needed)
- Small pry tool or flathead screwdriver (for old seal removal)
- Clean cloths
- Water or silicone-based lubricant

Procedure:

1. **Disconnect Power:** Turn off the power to the pump at the circuit breaker and verify it is off.

2. **Drain Pump:** Close any necessary valves to isolate the pump and remove the drain plugs to drain all water from the pump housing.
3. **Remove Motor:** Disconnect the electrical wiring from the motor (note wiring configuration for reassembly). Unbolt the motor from the pump housing.
4. **Remove Diffuser and Impeller:** Carefully remove the diffuser (if present) and then unscrew the impeller from the motor shaft. You may need to hold the motor shaft stationary from the rear of the motor.
5. **Remove Old Seal:** The mechanical seal consists of two parts: a spring-loaded rotating part attached to the impeller and a stationary ceramic seat pressed into the seal plate. Carefully pry out the stationary ceramic seat from the seal plate. Remove the rotating part from the motor shaft/impeller assembly. Dispose of the old seal.
6. **Clean Components:** Thoroughly clean the seal plate and motor shaft area, removing any debris, rust, or old gasket material. Ensure surfaces are smooth and free of imperfections.
7. **Install New Stationary Seat:** Lightly lubricate the rubber outside diameter of the new ceramic seat with water or a silicone-based lubricant. Press the ceramic seat firmly and evenly into the seal plate, ensuring the polished ceramic face is oriented towards the impeller. **Do not touch the polished ceramic face with your fingers.**
8. **Install New Rotating Part:** Lightly lubricate the rubber boot of the new rotating seal part with water or a silicone-based lubricant. Slide the rotating part onto the motor shaft, ensuring the carbon face is oriented towards the ceramic seat. The spring should be facing away from the ceramic seat. **Do not touch the carbon face with your fingers.**
9. **Reassemble Pump:** Reattach the impeller to the motor shaft, then reinstall the diffuser (if applicable). Mount the motor back onto the pump housing, ensuring all bolts are tightened securely. Reconnect the electrical wiring as noted during disassembly.
10. **Prime and Test:** Open all necessary valves, fill the pump with water (prime it), and then restore power. Check for leaks immediately upon startup.

5. POST-INSTALLATION CHECKS

After installing the new mechanical seal and reassembling the pump, perform the following checks:

- **Leak Detection:** Observe the pump for any signs of water leakage around the motor shaft area. A properly installed seal should not leak.
- **Pump Operation:** Ensure the pump starts and runs smoothly without unusual noises or vibrations.
- **Water Flow:** Verify that the pump is moving water effectively and that the system is operating at its expected flow rate.

If any leaks or operational issues are detected, immediately shut off power to the pump and re-evaluate the installation steps.

6. MAINTENANCE

While the mechanical seal itself is a wear item and not typically maintained, proper pump maintenance can extend its lifespan and prevent premature failure.

- **Keep Pump Area Clean:** Regularly clean the area around the pump to prevent debris from entering the pump or interfering with its operation.
- **Inspect for Leaks:** Periodically check for any signs of water leakage around the pump shaft. Early

detection of a failing seal can prevent further damage to the pump motor.

- **Maintain Water Chemistry:** Proper pool/spa water chemistry helps prevent corrosion and scaling that can affect pump components, including the seal.
- **Avoid Dry Running:** Never allow the pump to run dry, as this can quickly overheat and damage the mechanical seal.

7. TROUBLESHOOTING

Problem: Water Leakage from Pump Shaft

If you observe water leaking from the area where the motor shaft enters the pump housing after seal replacement:

- **Incorrect Installation:** Review the installation steps. Ensure the ceramic and carbon faces were not touched by bare hands and were installed in the correct orientation.
- **Damaged Seal:** The new seal may have been damaged during installation or was defective. Carefully disassemble and inspect the seal for cracks or imperfections on the sealing faces.
- **Improper Seating:** Ensure the stationary ceramic seat is fully and evenly pressed into the seal plate.
- **Shaft or Housing Damage:** Inspect the motor shaft for pitting or scoring, and the seal plate for damage that could prevent a proper seal.

If troubleshooting steps do not resolve the issue, it may be necessary to replace the seal again or consult a professional.

8. SPECIFICATIONS

Model Number	354545S
Shaft Size	5/8-inch
Manufacturer	Pentair
Item Weight	1.6 ounces
Package Dimensions	3.3 x 2.6 x 1.7 inches

9. WARRANTY AND SUPPORT

For specific warranty information regarding the Pentair 354545S mechanical seal, please refer to the documentation provided with your original pump or contact Pentair customer support directly. Warranty terms typically cover manufacturing defects.

For technical assistance or further inquiries, please visit the official Pentair website or contact their customer service department. Ensure you have your product model number (354545S) and pump model information available when seeking support.

