

## StingRay Stinger Hydrofoil NO-Drill Installation Instructions:

**WARNING:** WITH ALL ENGINE INSTALLATIONS, ENSURE BOAT ENGINE IS OFF, KILL SWITCH IS DISENGAGED, AND GEAR SHIFT IS IN NEUTRAL POSITION.

### **TOOLS NEEDED:**

- Hex Key Wrench (included)

### **INSTALLATION HARDWARE:**

- (2) Stainless Steel Set Screws

### **INSTALLATION STEPS:**

*Proceed with these installation steps if you have an outboard or sterndrive engine 40HP and above and wish to use the NO-Drill Installation method:*

1. If your engine has a torque tab installed, remove the torque tab at this time.

***PRO TIP:** If your engine uses a flat, sacrificial anode you don't need to remove it for installation!*

2. Slide the Stinger Hydrofoil onto the cavitation plate as far forward as possible. Make sure there is no gap between the end of the cavitation plate and the hydrofoil.

3. If your engine has a torque tab, re-install the torque tab at this time.

***PRO TIP:** Some engine models may require you to slip one edge of the torque tab underneath the Stinger's built-in performance bracket before snapping the rest of the torque tab back into place. Using a flat-head screwdriver to maneuver the Stinger's built-in performance bracket plastic slightly may be helpful if the fitment is tight.*

4. **Using ONLY the Hex Key Wrench and HAND STRENGTH**, insert the Stainless Steel Set Screws into the brass threads on each side of the hydrofoil, and tighten the set screws making sure the set screws engage the edge of the cavitation plate.

***PRO TIP:** The set screws are installed correctly when your hand becomes uncomfortable when tightening the set screws. However, there is NO NEED TO OVERTIGHTEN the hydrofoil!*

**NOTE:** Before and after each boat outing, be sure to check that the StingRay Stinger still has a snug fit on the cavitation plate. It may be necessary to re-tighten the set screws if the hydrofoil does not have a snug fit.

## StingRay Stinger Hydrofoil OPTIONAL-Drill Installation Instructions:

**WARNING:** WITH ALL ENGINE INSTALLATIONS, ENSURE BOAT ENGINE IS OFF, KILL SWITCH IS DISENGAGED, AND GEAR SHIFT IS IN NEUTRAL POSITION.

### **TOOLS NEEDED:**

- Electric Drill and 1/4" Drill Bit
- Phillips Head Screwdriver
- Hex Key Wrench
- Saw

### **INSTALLATION HARDWARE:**

- (2) Nylon Lock Hex Nuts
- (2) Stainless Steel Washers
- (2) 1/4-20 x 1.5" Stainless Steel Bolts

### **INSTALLATION STEPS:**

*Proceed with these installation steps if you have an outboard or sterndrive engine 4HP – 300HP and wish to use the OPTIONAL-DRILL Installation method (engines under 40HP must use this installation method):*

1. If your engine is 40HP and above and has a torque tab installed, remove the torque tab at this time. If your engine is under 40HP the torque tab does not need to be removed.

***PRO TIP:** If your engine (of any size) uses a flat, sacrificial anode you don't need to remove it for installation!*

2. If your engine is 40HP and above, please skip ahead to STEP 4 now! If your engine is less than 40HP, please flip the Stinger Hydrofoil over so that you are looking at the underneath side of the hydrofoil. Locate the two pre-drilled holes, two drill-point template dots, and two raised vertical lines on the built-in performance bracket that bridges each side of the hydrofoil nose together.

3. Using a saw, cut along the raised vertical lines that are located on the built-in performance bracket bridging each side of the hydrofoil nose so that the center piece of the performance bracket is removed. This creates a clearance gap for the StingRay Stinger Hydrofoil to slide completely on to the cavitation plate. Discard the performance bracket piece that was just removed from the hydrofoil.

4. Slide the Stinger Hydrofoil onto the cavitation plate as far forward as possible. Make sure there is no gap between the end of the cavitation plate and the hydrofoil.

***PRO TIP:** If you skipped STEP 3 and are unable to slide the StingRay Stinger Hydrofoil completely on to the cavitation plate due to interference caused by the built-in performance bracket hitting the vertical portion of the engine, please go back and complete STEP 3. This will give the hydrofoil proper clearance to be slid completely on to the cavitation plate.*

5. Based on the width of your engine's cavitation plate, decide which set of hole templates located on the underneath side of the hydrofoil should be used to drill and attach the hydrofoil to the cavitation plate.

***PRO TIP:** Smaller engines such as 4, 6, 8, and 9.9HP may require the inner drill-point template dots to be drilled, while larger engines can utilize the pre-drilled outer holes as a template for drilling. The holes should be at least 3/8" away from the outer edge of the cavitation plate.*

6. Remove the Stinger Hydrofoil from the cavitation plate. Use the correct set of pilot holes on the underside of the hydrofoil, along with an Electric Drill and a 1/4" Drill Bit, to drill up through pilot holes on the bottom side of the hydrofoil and through the top side of the hydrofoil - making sure to drill perpendicularly through the hydrofoil to ensure the best mounting installation.

**7.** Slide the drilled-out Stinger Hydrofoil back on to the cavitation plate as far forward as possible. Make sure there is no gap between the end of the cavitation plate and the hydrofoil.

**8.** If your engine had the torque tab removed in STEP 1, re-install the torque tab at this time.

***PRO TIP:** Some engine models may require you to slip one edge of the torque tab underneath the Stinger's built-in performance bracket before snapping the rest of the torque tab back into place. Using a flat-head screwdriver to maneuver the Stinger's built-in performance bracket plastic slightly may be helpful if the fitment is tight.*

**9. Using ONLY the Hex Key Wrench and HAND STRENGTH,** insert the Stainless Steel Set Screws into the brass threads on each side of the hydrofoil, and tighten the set screws making sure the set screws engage the edge of the cavitation plate.

***PRO TIP:** The set screws are installed correctly when your hand becomes uncomfortable when tightening the set screws. However, there is NO NEED TO OVERTIGHTEN the hydrofoil!*

**10.** Using an Electric Drill and a ¼" Drill Bit, drill up through the bottom of the hydrofoil (using the correct pilot holes), up through the cavitation plate, and through the top side of the hydrofoil.

***PRO TIP:** If you used the outer holes on the bottom side of the hydrofoil, you will drill through the top surface of the hydrofoil in STEP 10. If you used the inner set of dots as your pilot holes on the bottom of the hydrofoil, your drill will not go through the top side of the hydrofoil.*

**11.** Place the (2) ¼-20 x 1.5" Stainless Steel Bolts in the holes on the top side of the Stinger Hydrofoil so that they are flush with the top side of the Stinger Hydrofoil, pass through the cavitation plate, and pass through the pre-drilled holes on the underside of the Stinger Hydrofoil.

***PRO TIP:** If you used the inner set of dots as your pilot holes on the bottom of the hydrofoil, your bolts should rest flush with the cavitation plate and NOT the top surface of the hydrofoil!*

**12.** Slide the (2) Stainless Steel Washers onto the bolts, and then place the (2) Nylon Lock Hex Nuts onto the threads of each bolt.

**13.** Tighten the bolts using a Phillips Head Screwdriver.

***PRO TIP:** While tightening, keep the Nylon Lock Hex Nuts from spinning by holding on to them with your hand or a wrench.*