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## Instructions for Installing a Retrofit Carbon Keel Stinger on a T2 or T2c

### Included in the kit:

- 1 Carbon Keel Stinger with plastic screw and threaded bushing installed
- 1 Double button spring

### Tools Required:

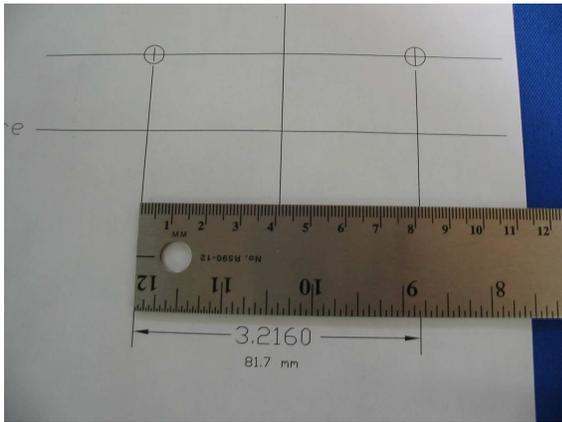
- Flat head screwdriver
  - Needle Nose Pliers
  - Punch and hammer, or spring-loaded punch
  - Drill with 1/8 inch and 1/4 inch bits
  - Ruler
  - Scissors
  - Masking tape
- You will probably need at least one person to assist you in the installation.

### Installation Instructions:

- 1) Set up your glider.
- 2) Disengage the existing keel stinger from the keel.
- 3) Slide your longest bottom surface batten into the front of the existing stinger, and use it to tap the rear plastic cap out of the end of the stinger.



- 4) Remove the bushing securing the bungee inside the rear cap, and release the bungee.
- 5) Remove and set aside the aluminum stinger.
- 6) Inspect the rear of the 52mm portion of your keel (forward of the stinger) and determine if there are two 1/4 inch diameter holes, one inch forward of the end of the keel, in the horizontal plane. If these holes are there, skip to step 11. If not, proceed with step 7.
- 7) Measure the template provided with this document to verify that it has printed full scale – the two circles should be 3.216 inches (three and 14 / 64ths) or 81.7 mm apart, as indicated. If they are not, re-mark the template with marks at the correct spacing from the centerline.



8) Cut the paper template along the line as indicated, and cut down from the top of the page to that line. The cut line represents the back edge of the 52mm portion of the keel.

9) Place the template on top of the keel, aligning the centerline on the template with the center of the button springs and keyhole collar on top of the keel, and aligning the cut edge of the paper with the rear edge of the 52mm portion of the keel. Tape the template in place, taking care to preserve the exact alignment and position.

10) The center of each circle should lie exactly on the side of the keel, one inch forward of the rear end. Use the punch to mark the center of each circle, and then drill first with the 1/8 inch bit, and then with the quarter inch bit, to make a 1/4 inch hole on each side of the keel. Drill each side separately, and take care not to catch or damage the bungee with the drill bit. Remove the paper template. You may have to deburr the edges of these holes for the button spring to work properly after installation of the stinger.

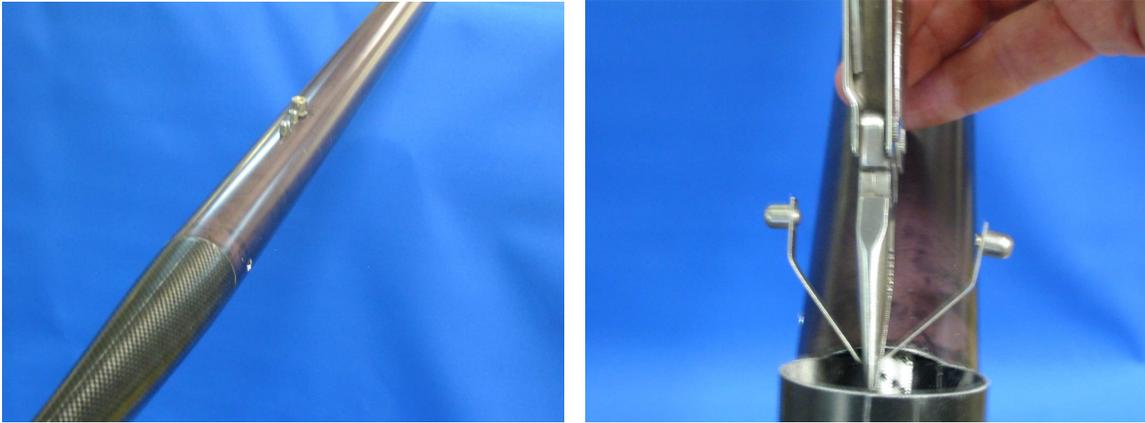
11) Tape one end of the longest bottom surface batten to the bungee as shown, leaving an open loop at the end of the bungee, and applying the tape in such a manner that the batten is secure when stretching the bungee out, but can be pulled loose from the tape after the bungee is secured in the rear of the carbon stinger.



12) Remove the plastic screw and threaded bushing from the rear of the carbon stinger. Carefully push the bungee down into the carbon stinger, until the loop passes the small hole where the plastic screw and bushing were installed. Re-install the threaded bushing and plastic screw into the carbon stinger, capturing the bungee loop. (Note: You will not be able to thread the screw into the bushing if the bushing is not exactly aligned with the screw, and you will not be able to achieve this alignment if the bungee is exerting any force on the plastic bushing.)

13) Pull the batten free from the tape on the bungee and remove it from the stinger and set it aside.

14) Install the stinger into the rear of the keel, and carefully align the long axis of the stinger vertically, by sighting it in reference to the center of the button springs and keyhole collar on top of the keel.



15) Using the holes in the keel as guides and maintaining the stinger alignment, carefully drill into the stinger from each side, first with the 1/8 inch bit and then with the 1/4 inch bit – again, taking care not to damage the bungee. The carbon will tend to leave fibers around the edges of the holes, and this will need to be cleaned up in order for the button spring to operate properly.

16) Disengage the carbon stinger from the keel, and using a pair of needle nose pliers, carefully install the double button spring into the carbon stinger. Re-install the stinger in the keel and check for proper operation of the button spring.

Note that while the carbon stinger is reasonably strong in the vertical axis, it is not as strong in the horizontal axis – avoid applying excessive loads in a sideways direction to the stinger.

Cut here

