

Materials Needed	Procedure Overview
<ul style="list-style-type: none"> • Prepreg carbon fiber material (and where applicable, prepreg fiberglass on Original construction shafts) • 60 or 80 grit sandpaper • Masking or vinyl tape • Shrinktape • Heat gun • Utility knife • Marker • Philips Head Screwdriver • V-blocks or fixture that allows oar to rotate around while repairing • Clamp • Rubber Gloves • Safety Glasses 	<ul style="list-style-type: none"> • Inspect damage • Sand damaged area • Apply the new material (carbon or carbon and fiberglass) • Wrap with shrink tape • Heat with heat gun to cure carbon

Before you begin this repair, please read the following:

1. Assess the shaft damage.
2. If there are too many cracks around the shaft compromising the shaft hoop strength, the shaft cannot be repaired.
3. If there are multiple punctures in the shaft or some of the material is missing, the shaft may not be repairable. If the crack is too close to the sleeve or travels under it, the sleeve will have to be removed prior to the repair.
4. For original construction shafts the carbon is applied first, then the grey fiberglass. They are cured at the same time.
5. Cracks at the handle end will need something used on the inside of the shaft to keep it from crushing while curing i.e. a used wood handle as shown at right.

If you are unsure about how to proceed on your particular repair, please call Concept2 at 800.245.5676 (U.S. & Canada only) 802.888.6333 Int'l.



Procedure	
<p>CAUTION: Wear safety glasses during this repair.</p> <ol style="list-style-type: none"> 1. To start the repair, mark the area of repair by taping (use masking or vinyl tape) both sides of the damage, making sure to exceed the damage by at least half an inch. 2. Using 60 or 80 grit sand paper, sand the shaft within the taped area all the way around the shaft until the gloss finish is gone. This will aid in proper adhesion. 3. Remove tape from the shaft. 4. This is how the sanded shaft will look. 	

5. Clean the area using acetone or alcohol.
6. Preheat the shaft slightly with a heat gun until the shaft is hot to the touch.
7. Tear or cut the carbon fiber material so that the fibers in the carbon run around the shaft to a width equal to the length of the area you have prepared.
8. The length of carbon fiber material used should result in one layer covering the entire circumference and two layers over the crack itself. Start the material by covering the crack and wrap it around the shaft onto itself until material is wrapped on. (The warm shaft will help to make the material stick to the shaft and to itself.)
9. Apply the shrinktape over the patch. Start the shrinktape on the unsanded area of the shaft one inch from the repair area. The tape should advance about 1/8 - 1/4 of an inch with each shaft revolution. In this way, the tape will wrap onto itself and result in four layers of tape over the patch. The tape should extend 1" on either side of the repair. This operation works best with v-blocks on a table.
10. With the shaft still in the v-blocks, start "cooking" the shaft with the heat gun on HIGH setting holding the heat gun two to three inches away from the shaft. Rotate the shaft around on the v-blocks like a rotisserie for about 15 minutes. The time may vary depending on the heat gun and area of damage.
11. After 15 minutes, check to see if the repair is done by unwinding just enough shrinktape to see the repair area. The repair area should look glossy like the outside of the shaft. Use your fingernail to try to scratch the shaft; if you cannot leave a scratch mark on the shaft, it is done. If it is not done you can rewrap the shrinktape and continue "cooking" until it is cured.



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