

# FISHING POLE REPAIR GUIDE

## Step By Step Guide

### Introduction

Despite the strength and durability of carbon fibre fishing poles and fishing rods, fractures or complete breaks in the pole do happen from time to time.

The kit includes all of the necessary materials and equipment to repair a carbon fibre fishing pole. Requiring only competent practical skills and a couple of hours of your time to repair your broken or fractured fishing pole or rod so that it is as strong as it was before the damage occurred.

The kit can be used for the following cases:

- Add strength to a fractured or weakened section of pole or rod
- Re-join a pole or rod that has been completely broken in two
- Patch over a hole in a pole

### Kit Contents

- 150mm x 1000mm 90g Plain Weave Pro Finish Carbon Fibre fabric
- 200g EL2 Epoxy Resin with AT30 Fast Hardener
- 10m Roll Composites Shrink Tape
- 120, 240, 400, 800 Mirka Abrasive Paper
- 2x Laminating Brushes, Mixing Cups and Sticks
- NW1 Black Polishing Compound
- x4 Alcohol Wipes

### Using a 'Jig' for poles that are broken in two

Where a pole has been completely broken in two, it will probably be necessary to 'jig' the pole or rod to hold the two sections of pole together whilst the repair is made. Supporting the pole in this way, so as to allow access all around the pole, is best done using a simple 'Jig'. This will need to be constructed following the plans at the end of this guide **before** you start the repair.

#### Step 1. Prepare the area to be repaired

Use a small piece of the 120grit abrasive paper to roughen up the surface of the rod or pole around the area where the carbon fibre 'bandage' will be wrapped. This provides a good 'key' for the repair to bond to. Typically, the repair will extend about 60mm (2.5") beyond the edge of any damage. This allows the repair to transfer the load to an area of good material. Make sure you do this to both halves of a pole that is broken in two.

Once keyed use one of the small alcohol wipes to wipe down the whole of the repair area. This ensures that any contaminants that would prevent the resin from bonding properly to the rod or pole are removed.

#### Step 2. Align pole (if necessary) using jig



If repairing a pole that has been broken in two, align and support the two halves of the pole either side of where the repair will be made.

To do this we suggest constructing a 'jig' as shown in the plans at the end of this guide. Having made a

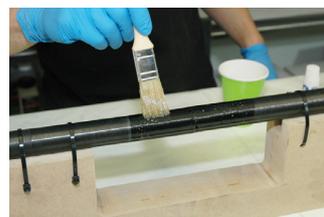
simple jig, secure the two halves of the pole and ensure they are correctly aligned.

#### Step 3. Mix resin for 'tack' layer

Next, apply a thin layer of resin to the pole and allow it to cure to a tack stage. This will provide a sticky surface to hold the carbon in position whilst the repair is being done.

Using one of the cups provided, accurately mix a small amount of resin with hardener at the ration printed on the bottles. It is very important that this ratio is adhered to as closely as possible. Around 30g should be enough for most repairs. Ensure that the resin and hardener are thoroughly combined, any unmixed resin will not cure and remain sticky.

#### Step 4. Apply thin 'tack' layer of resin



Using one of the supplied brushes, paint a thin coat of the mixed resin all over the repair area. Try to apply the resin as thinly as possible, ensuring it is worked well into any cracks or fractures.

After the resin is applied, look carefully at the underside of the repair area. If any 'runs' of resin are forming, remove them using the brush.

This layer of resin should then be left to cure for around 4 hours, this will depend on the temperature and should be monitored. Warmer temperatures will cause the resin to cure faster and it will take longer in cooler conditions. The ideal point is when the resin is firm but still has

a tackiness to the surface, soft enough to mark with a finger nail but no longer wet enough to leave residue on a gloved finger.

## Step 5. Cut the Carbon Fibre for the repair bandage

Using a pair of sharp scissors, cut a section of carbon fibre fabric in a patch that extends about 60mm past either side of the damaged area. You need to allow sufficient fabric to run approximately x3 times round the tube or rod. This will result in a repair that has a wall thickness roughly 0.3mm thick.

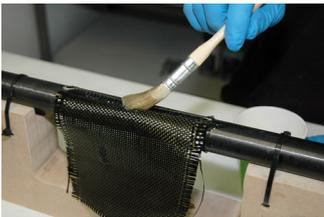
## Step 6. Wrap Carbon Fibre around the pole



Taking the piece of cut carbon fibre fabric, align the fabric along the pole and press the leading edge of it onto the tacking resin.

Press it down with your fingers so that it grips firmly. Wrap the carbon once around the pole and leave the excess hanging down.

## Step 7. Wet out fabric with a new mix of resin



Using a new cup, accurately mix a slightly larger amount of resin and appropriate amount of hardener at the correct mix ratio. Again, the ratio must be exactly right.

It is a good practice to transfer the mixed resin to another container before using it and stir for another

couple of minutes. This helps to avoid the risk of applying unmixed resin or hardener from the sides of the mixing cup to the repair, unmixed resin will not cure.

Brush a thin layer of resin onto the dry fabric, just enough to wet it out. Next, wrap the carbon fibre around the pole and dab the fabric with your brush to wet it out again, applying a little more resin if necessary. Complete the process for the remaining number of revolutions around the pole.

## Step 8. Wrap the repair with shrink tape



The next step is to apply the heat shrink tape over the repair in a spiral pattern.

To start, stick one end of the tape to a dry part of the pole a little way out from the repair using masking tape or similar. Then wrap the tape over the repair in a spiral pattern

overlapping the tape until the opposite end of the repair is reached. Once complete, secure the remaining end to the pole with more tape.

## Step 9. Wrap the repair with shrink tape

Use a heat gun, or a hair dryer with a very high heat setting to gently heat the tape so that it starts to contract. This special shrink tape will contract by up to 20% at 80°C. This will compress the new reinforcement to the original pole, squeezing out any excess resin and resulting in a very strong repair. Then leave to fully cure until the surface of the resin has hardened sufficiently for sanding. 8-12 hours would be a good estimate.

## Step 10. Remove tape and finish repair

Once cured, the shrink tape can be removed. At this point the repair could be left as is, for a more aesthetic repair however, the ridges from the shrink tape can be sanded smooth.

Starting with 120 grit and moving through the grades of abrasive papers, sand the repair until the surface is smooth and it blends in with the resin of the tube. When sanding, be careful not to sand the original surface as this will remove material from the wall and weaken it in these areas. When sanding the repaired area, try and avoid sanding in to the carbon fibres, you should only need to smooth off the top surface. The kit also includes polishing compound so that the repair can be finished to a smooth shiny gloss.

## Disclaimer

This data is not to be used for specifications. Values listed are for typical properties and should not be considered minimum or maximum.

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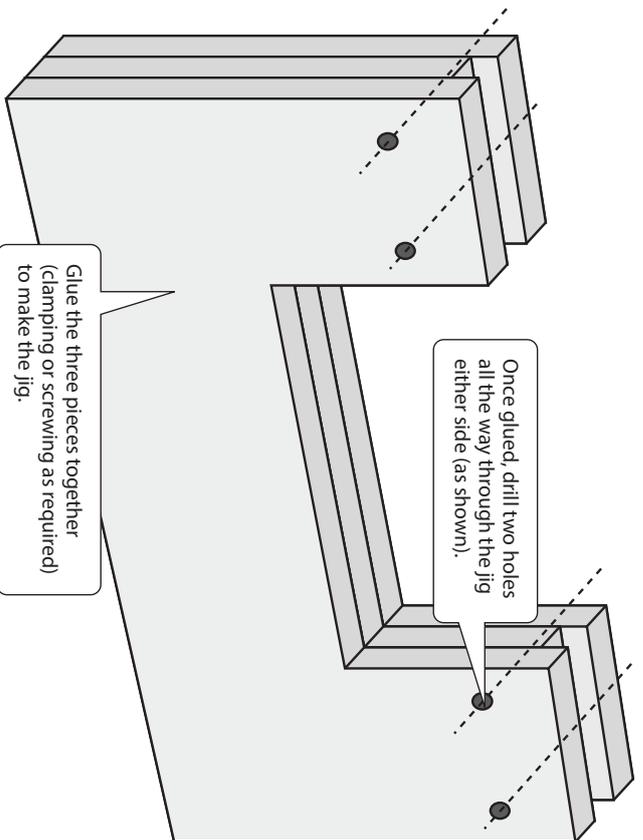
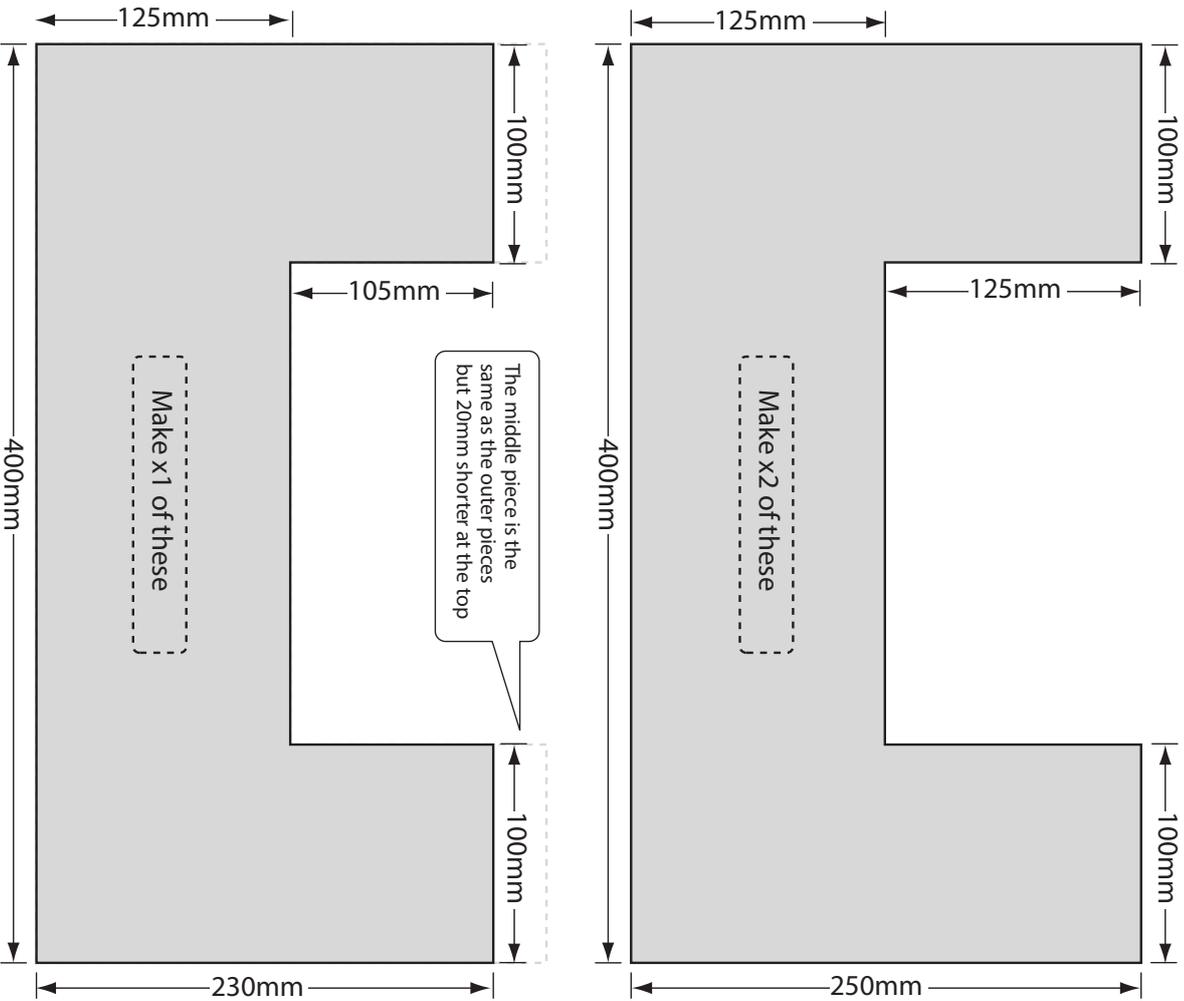
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Easy Composites Fishing Pole Repair Kit

## Fishing Pole Repair Jig Plans // Not to scale



### Description

Where a fishing rod or pole has been completely broken in two or heavily damaged it is necessary to support both pieces of the pole in a jig. The jig keeps the two pieces of pole in contact with each other and correctly aligned whilst a repair is undertaken.

If your pole repair needs to be supported for the repair there are a number of ways to do so, as long as it supports the pole and keeps it aligned. These simple jig plans are easy to make and suitable for any number of pole repairs using only basic tools and a sheet of plywood or MDF.

### Instructions:

1. Starting with a sheet of plywood, MDF or similar of around 10-15mm mark out two copies of the shape shown in Figure (1) and one copy of the shape shown in Figure (2).
2. Using a hacksaw or jigsaw cut out all three shapes.
3. Glue the three sheets together, aligned at the bottom, as shown in Figure (3). Screw the sheets or clamp them whilst the glue dries.
4. Drill four 5mm holes through the jig.
5. Secure the jig by clamping it into a bench-top vice.
6. For each repair, pass plastic 'zip ties' through the holes in the jig and around the sections of pole. Tighten all four zip ties to hold the pole firmly in place.