

# Replacing deck canvas on a single scull

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# 1 Introduction

As a novice sculler in a fairly small club it falls to me to row in one of the older boats: a wooden Raymond Sims with Douglas riggers. A fine boat when it was made but now, like me, it had seen better days. In particular the deck canvas had numerous tears in it, most of them repaired with gaffer tape; plainly something needed to be done.



Figure 1: Damage to the old decking

I searched the web for some information on how to replace the canvas on a wooden single, without finding anything. Having completed the task fairly successfully, I've written this document in the hopes that it will be of help to others.

Two of us worked on the boat, the other being my club-mate Mike Arnold who as well as being chairman of the club is also boatman. That explains why I write in the plural, and why the photographs show two different people at work.

## 1.1 Acknowledgement

We sought advice from Carl Douglas, maker of the loveliest boats in the world <sup>1</sup> and pillar of the rowing newsgroup; with typical generosity of spirit he replied by return of post with detailed instructions. We followed most of them, but not all as you will see; the credit for the successful application of the new canvas is largely down to Carl, but the deficiencies are ours alone.

## 1.2 Layout of the document

First we describe the process in narrative form; then we provide pictures of various stage of the process, repeating some of the narrative. This seemed better than trying to merge the pictures in with the

<sup>1</sup>Carl's web site is at <http://www.carldouglas.co.uk>

narrative.

## 2 Things you need

### 2.1 Tools

Trestles for resting the boat on.

Scissors for cutting the decking material and the tape.

Sharp knife for trimming decking material once stuck down.

Source of gentle heat for warming the double-sided tape. We used an electric paint stripping gun on its lowest setting.

Something rounded and unyielding, for rubbing the tape down firmly. The handle of a screwdriver worked well, as did the handle of the scissors.

A webbing strap (such as a trailer tie-down).

### 2.2 Materials

Terylene decking material.

Double-sided tape.

25mm Tesa 4651 binding tape (it comes in a range of colours).

Some suitable solvent for getting tape glue off your hands would be useful though it's not essential. Whatever you use needs to be suitable for skin cleaning: don't be tempted to use paint-remover or any similar solvents which, as well as being fire hazards, are dangerous to human skin.

You should probably wear rubber gloves for some of these operations, to protect your hands from the adhesives in the tape.

The tape and the decking material were obtained from Eric Sims in Taplow;<sup>2</sup> there are probably other sources of supply, especially outside the UK.

## 3 Preparation

Plainly the boat needs to be clean and dry, and you need somewhere dry and reasonably well-lit to work in. Adhesives don't work so well in low temperatures so if your boathouse is unheated this is a job best done in the summer.

The boat needs to be on trestles. We found the hull rocked sideways on the slings too much for comfort; a webbing strap round the hull and one of the slings added much-needed stability.

Remove the bow ball: this is a good time to make sure it's in good condition, and to attend to the screws that hold it if necessary.

If your boats have any legends, or as in our case registration numbers, which have been applied over the old binding tape now is the time to take them off carefully and set them aside for putting back later.

## 4 Stripping off the old canvas

Nothing to it: just get your nails under the end of the existing binding tape and pull it off. Repeat with the old decking, making sure you get the old double-sided tape completely off.

You could clean off the old adhesive (which in our case was extremely sticky) with some kind of solvent; we decided not to do so and it doesn't seem to have been necessary.

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<sup>2</sup>Eric's web site is <http://www.esrowingservices.co.uk>.

## 5 Things to do when the canvas is off

When the canvas is off it's worth while checking the struts and ribs to make sure that nothing's broken. In our case we found several cracked ribs which needed to be glued with epoxy and clamped for fifteen minutes until they were fairly hard.

(This was the point where we realised that our "wooden" single was in fact a composite boat, GRP on the inside and wood on top).

## 6 Putting on the new canvas

### 6.1 Laying the double-sided tape

Run double-sided tape along the two sides of the deck, about 1mm down from the very top. We found that if the tape is flush it "catches" on the decking material when you come to stretch it over, sticking before you're ready. Lay strips across the ends: we had room for two strips, butted together, at the cockpit end, and at the other (bow or stern) end we laid lots of strips, covering up as much of the flat area as possible. Obviously you can't stretch the decking fabric right to the very point (and in the case of our foredeck the piece of material wouldn't reach); ensure you have as much taped area as practical and look to neaten the gap with the binding tape later.

Lay the decking material loosely over the boat and cut it to shape, leaving about 100mm extra at the sides. Less would do but it makes it harder to grip when you're stretching it later. We found it helpful to tape it down loosely with masking tape while cutting ("think twice, cut once").

### 6.2 Applying the decking material lengthwise

First you have to stick the decking material to one end of the deck - the broad end nearest the cockpit - and then attach it to the other end with some longitudinal tension.

Start at the cockpit end of whichever deck you're doing. Strip the backing off the transverse tapes and off the first 100mm or so of the side tapes on both sides. Leave the backing of the side tapes dangling down as otherwise it's fiddly to lift the ends later. Then gently stretch the decking across this end and press it down at the sides. Rub it down hard, first with the back of your finger nails, and then with the screwdriver or scissors handle. Carl says "*If the decking tends to lift back from the tape, it may pay to pop a 6mm furniture or paper staple through it and the tape and into the boat on each side*", but in our case we tried the bond by pulling it and watching carefully for any "give" and it was fast.

Now go to the tip end and try out the amount of stretch that it will take; we found that 75mm or even 100mm was quite possible without straining either the plastic or the joint at the cockpit end. When you're happy with how much stretch you want, hold the material stretched and have someone make a mark so that you can put the right amount of stretch in "for real". Practice the stretching a couple of times, then strip the backing off the transverse tapes, and on the sides; apply the tension and press the material onto the adhesive. This is the only part which is significantly easier with two people: one to hold the tension and the other to press the material down. Maintain the tension until the joint has been burnished: adhesives like this develop their strength progressively.

### 6.3 Completing the application of the decking

The basic idea is to stick the fabric onto one side completely, then move to the other side and stick it down there, applying some tension to make the deck taut.

Work across the boat: in other words stand on the side opposite to the strip of tape you're peeling off; start once again at the cockpit end. Remove the backing from a convenient section of tape, say 200-300mm, leaving the backing dangling down as before. Move inchwise away from the cockpit, rubbing

the fabric down onto the tape firmly with your fingers. You need to apply a very little cross-tension at this point, despite the fact that the fabric isn't attached on the other side; we eventually got the knack of this: hold the loose side of the fabric against the side of the boat by pressing your legs against it gently. This tiny bit of cross-tension goes to ensure that the material runs more or less straight along the deck: otherwise all the slack would be taken up in one direction when you stretch it onto the second side.

If you think of it, the centreline of the fabric is stretched lengthwise at this point but the edges are not; therefore you need to apply a little tension away from the cockpit as you go, so that the fabric ends up evenly stretched. There's an element of knack to be acquired at this point, although we didn't find it difficult: just try not to pull too hard away from the cockpit: if you do then slack starts to appear and you need to even it out in the next section of tape.

Once one side is done, burnish the joint as before. Carl suggests that mild heat assists the building up of strength on the bond so we used the heat gun (on its very lowest setting) to gently warm the joint while rubbing the material down.

The next stage is where you start to get a sense that you've achieved something. Again working across the boat from the cockpit end, strip off the backing from a section of the side tape then pull the decking reasonably taut and press it onto the exposed adhesive, rubbing firmly with your fingers to make as good a joint as possible. Again some tension needs to be introduced lengthwise as well as laterally.

This is feasible as a one-person job, as shown in the photographs, but later we devised a two-man technique: one person works across the boat stretching the material and pulling it downwards, and the other crouches on the opposite side and presses the joint firmly into place on each section as it's stretched. This made the completion of the second joint a matter of minutes for a whole canvas.

Once the decking is stretched in place, rub the joint down firmly as before; we applied some more gentle heat with the heat gun to build up the strength in the glue joint.

## 6.4 Trimming off the surplus material

The idea here is to remove the extra decking material below the tape joint. If you're confident, and have a knife with a new blade, then you can do this by cutting horizontally into the material just enough that the plastic is cut but the wood of the boat is left untouched: this is the technique we used. It's easier if you steady your cutting hand with fingers running along the edge of the deck itself; your fingers also serve as a guide to ensure the same width of cut.

Alternatively, and with less likelihood of cutting into the wood of the boat in error, with one hand hold the surplus decking material out at right angles to the the surface of the hull and cut downwards with the knife, parallel to the wood.

Trim off the surplus at the two ends in a similar way, again being careful not to cut into the wood.

## 7 Finishing off

To finish the deck it needs to be bound with cloth-based tape, which both protects the joint and neatens everything up. First apply tape to the two ends, covering up the join between the decking material and the wood of the hull. Then put tape around the edges of the deck itself.

After some debate we elected to apply the tape just to the hull, leaving it flush with the top of the deck, on the grounds that it would look better. Carl suggests overlapping the tape onto the deck surface and wrapping it round onto the hull. Thinking about it afterwards this method would definitely protect the edge of the decking and we slightly regret doing it our way. If the decking does get damaged quickly we'll have to apply more tape, wrapping it round.

Carl's instructions for wrapping the tape round run as follows: *“Apply cover tape by first marking in ball-point a constant overlap of the deck edge and applying the tape to this line without attempting to fold it over.. When the tape is there standing out as a frill, rub a thumb all along the edge/corner to turn it*

*down by just a few degrees, and keep repeating this until the tape lies parallel with the hull. At that stage, run a finger nail along at the bottom edge line of the DS tape and decking - to edge the cover tape into that step."*

## **8 Afterthoughts**

As well as fearing that we sacrificed durability of wrapped-over binding tape on the altar of aesthetics, we also slightly regret not re-varnishing the hull at the same time, as it is badly needed. It's not possible to do a proper job re-varnishing without taking the decking off, so that chance is lost for the time being.

You will see from the photographs that the decking material had creases in it from where it had been folded for packing. These creases were still quite obvious when the canvas had been stretched and we wonder in retrospect whether some local application of heat might have smoothed them out better before doing the re-covering.

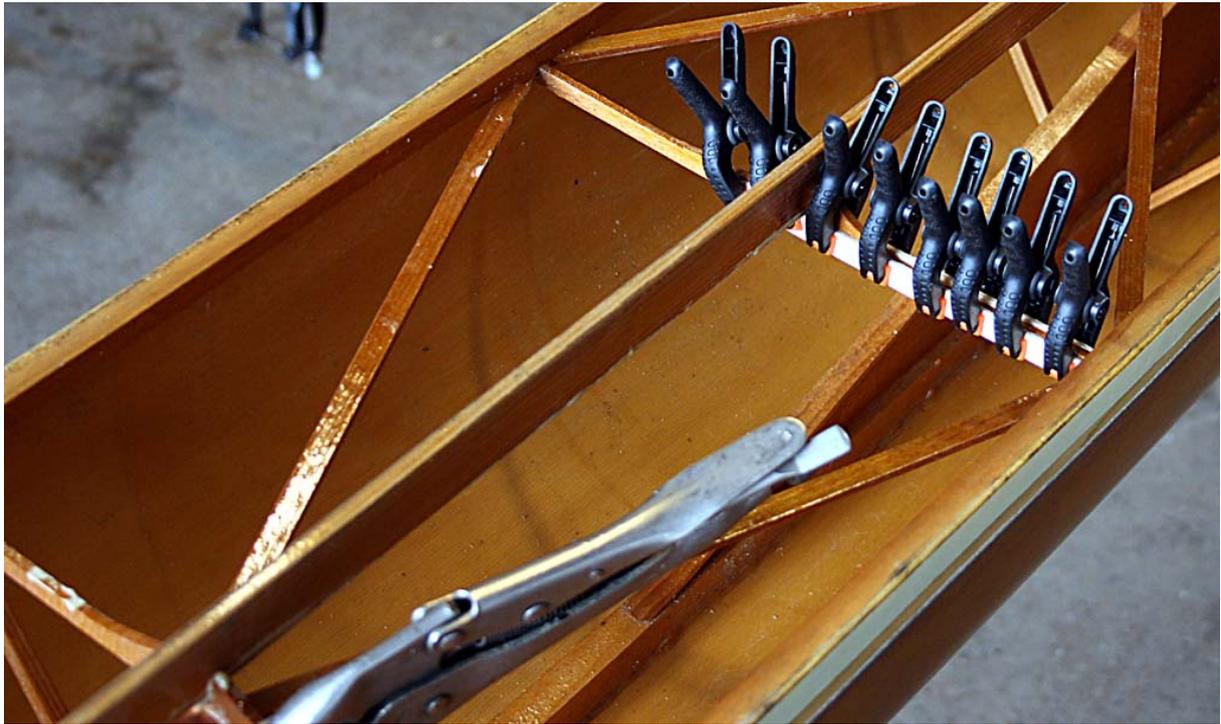


Figure 2: When the decking is off any necessary repairs can be carried out.



Figure 3: Applying double-sided tape to the sides of the hull

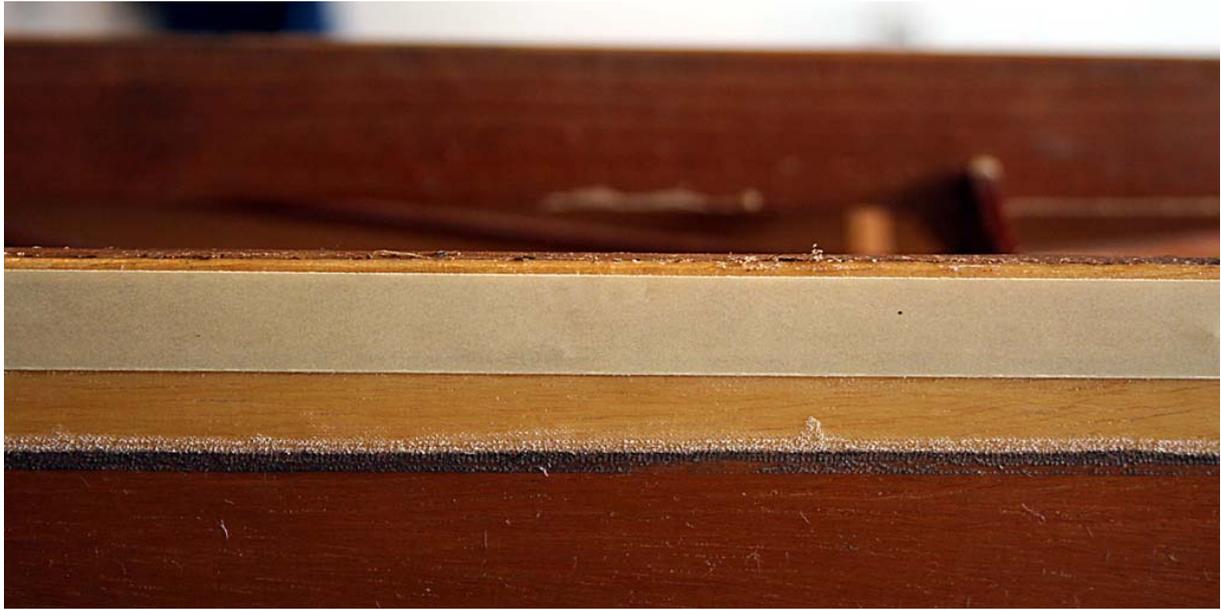


Figure 4: The tape applied, showing the approximately 1mm gap between the tape and the top of the hull. You can also see the residue from the original tape; a purist might try to remove it with a solvent of some kind.

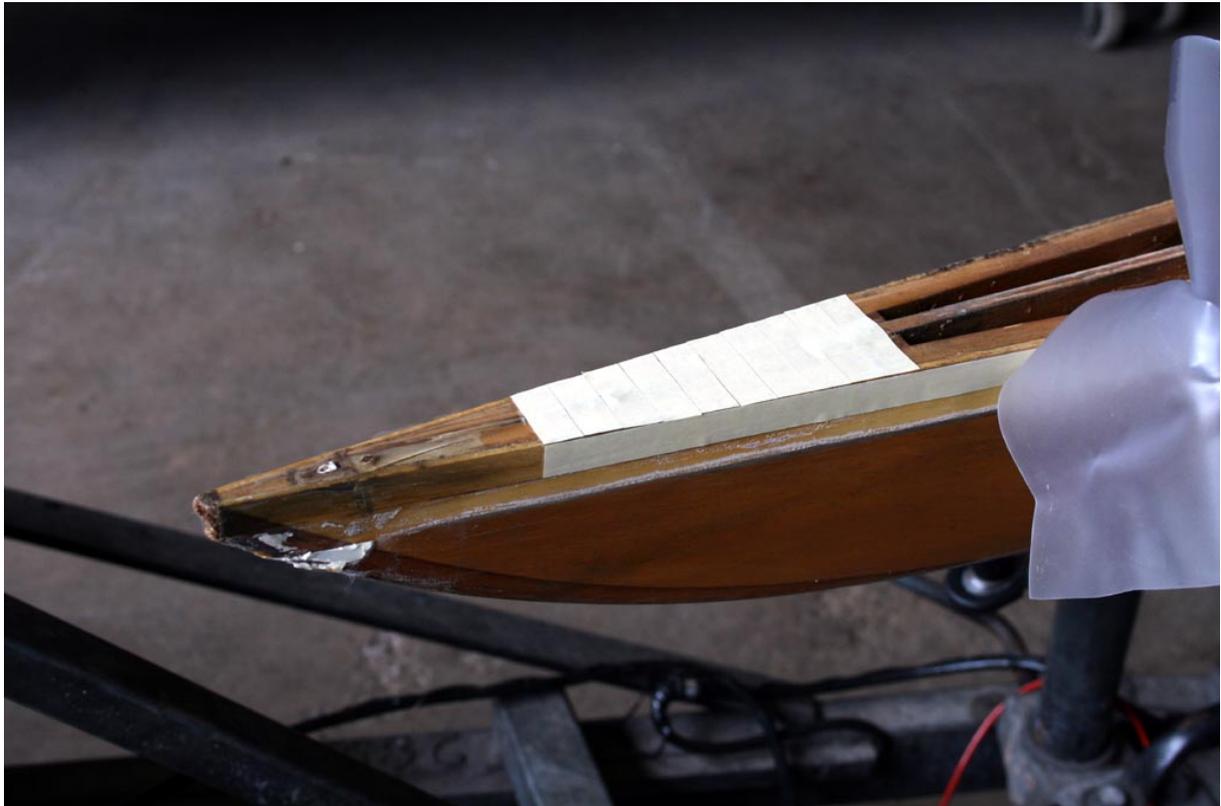


Figure 5: Multiple strips of tape laid crossways across the bow; the arrangement at the stern is similar. See how the side tape is trimmed off flush with the last transverse strip of tape



Figure 6: Laying the decking material over the deck in order to cut it to shape; see also the arrangement of transverse tape strips at the cockpit end of the deck.



Figure 7: Rubbing down the first joint - the cockpit end of the deck - with the handle of the scissors to ensure maximum strength of the joint.



Figure 8: Stretching the decking material lengthwise; draw it out to the point you determined during your “practice” and press it down firmly onto the tape.

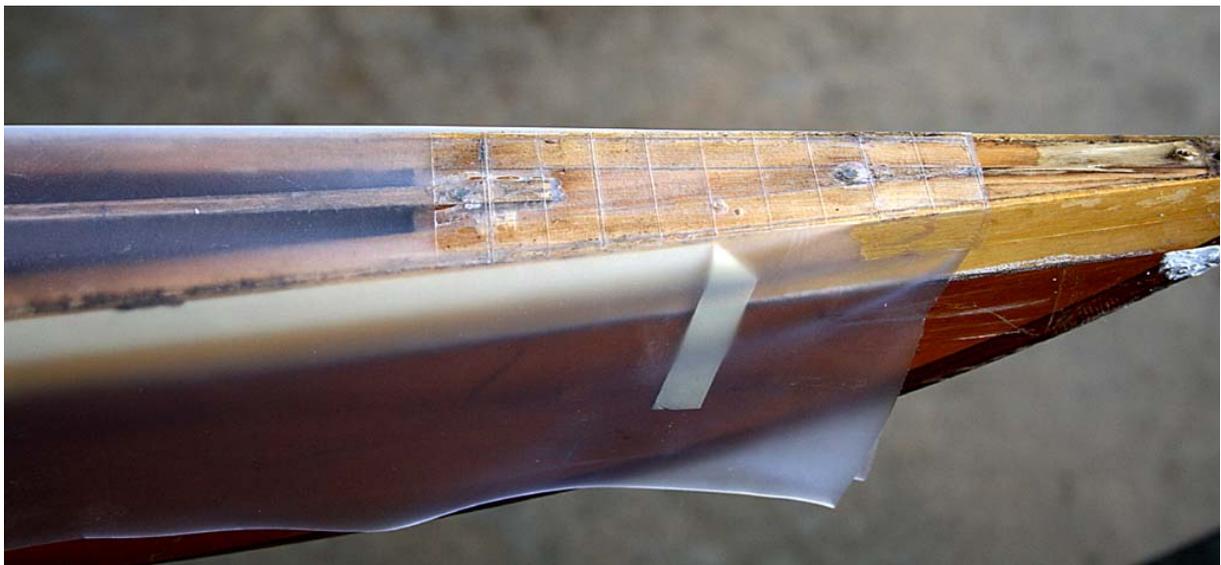


Figure 9: The material safely attached to the top of the bow. Note the backing from the double-sided tape has been left hanging so that it's easy to get hold of it later.



Figure 10: Stretching the first side of the canvas. The near side of the material is anchored by the boatman's body against the hull while slight tension is applied and the material pressed onto the tape.



Figure 11: Using the heat gun, on its lowest setting, to ensure that the adhesive on the first side of the canvas has developed enough strength for the stretching.



Figure 12: Making the second joint. The boatman applies crosswise tension, and a little lengthwise to match the tension in the middle, and then presses the material firmly onto the tape. This is our earlier one-man technique; later we had a second person pressing the material onto the tape while this first one did the stretching.



Figure 13: Another view of the transverse stretching. See the very slight wrinkles in the material beside both the boatman's thumbs, especially his right: this shows that not quite enough longitudinal tension has been applied. At this stage there is usually enough give in the joint to allow these wrinkles to be pulled out when the next section is stretched a moment or two later.



Figure 14: Trimming off the surplus tape along the side of the deck. With a really sharp blade it's possible to cut the plastic just enough that it comes away with a gentle pull, without touching the surface of the wood. The third and fourth fingers of the boatman's hand rest on top of the decking and serve as a guide while he runs the knife smoothly along the joint.



Figure 15: Applying binding tape.



Figure 16: The finished deck. The slight creases in the material, left over from where it was folded for posting, can just be seen.



Figure 17: It might not be perfect, but it's a lot better than it was!