



Presenting the fourth instalment of F&B's resident DIY (Do-It-Yourselfer) Tony Ravenscroft's 7 Part Series rebuilding a Mako 20 from little more than scrap.

Rebuilding The GRP Mako 20 - Part 4

It does take a little vision to see the potential in a boat when all the internal structure has been removed and you are left with an empty hull. There was of course supposed to be the floor and the unseen structures below it. So what should have been in the hull and why was it missing?

Under the floor or deck of every boat are the components that give the boat its strength. It is here that you find things like the transom and bearers. A shipwright friend of mine once said that the transom and the bearers are the boat, everything else just keeps the water out. I admit that it is an extreme

statement but it serves well to remind me that the transom and the bearers need to be very strong. The motor transfers its power to the transom, which in turn transfers it to the bearers. So it is the bearers that are in effect being driven through the water. First of course you may want to know exactly what a Bearer is. In fact if you own a second hand boat in particular you really need to know a bit about them because sometimes they can need replacement. Let's start with a few definitions.

In the fast fading days of the traditional timber trained Shipwright

almost every piece of wood in the boat had its own name. Technically nothing has changed the names still exist but a simpler set of common names has emerged. Anything that runs from one end of the boat to the other is a longitudinal member and those running across the boat are transverse members. In the case of the Mako, I ended up with stringers and bearers running longitudinally and bulkheads running transversely. The bulkheads were both full bulkheads, those that went all the way up to the deck and partial bulkheads that only go part of the way. So that is how we will approach things and talk about only bearers, stringers and full or partial bulkheads the only addition to that list is the transom.

So what do they do? Bearers and stringers are beams that run through the middle of the boat and provide the hull with longitudinal strength - in other words, basically they stop the boat from breaking in the middle. The bearers also transfer the engine's power to the hull so they are generally bigger than the stringers that are only required to provide stiffness to the hull skin. Bulkheads also are mainly there to provide stiffness to the hull skin however they also are load bearing, providing support for floors and decks. The transom is the flat section across the stern of the boat that the outboard motor or stern drive leg attaches to. If the power from the motor was not transferred to the rest of the boat then it would not have to be particularly strong. This is the case in shaft driven boats. However for most of us, those with outboard power in particular, not only does the transom itself have to be strong but it needs to be attached to the rest of the boat, generally via the bearers, with great strength as well.

This should be where the story ends,



I have talked a lot about wood being a good construction material as long as it is encapsulated in fibreglass correctly. Both these samples above actually come from the same piece of wood. The brown piece on the top although I estimate that it was in the boat for about thirty years, was still in "as new" condition. The lower piece being basically black was rotten and as soft as paper. All this wood had been encapsulated in 'glass but the seal had been broken at one end and water had gotten in and was trapped. The thing to note in this picture is that rotten wood really is very easy to pick apart from good wood.



Above Right: This was the transom before I added something to reinforce it. I talked above about the importance of strength in the transom to support the motor and the thrust it generates. At this stage this is just a skin and there is not enough strength in it yet to support a motor. There are a number of ways to provide that strength, in this type of situation the most common is a plywood core. The plywood itself provides a lot of strength but a great deal of strength is provided by the plywood acting as a core between the inner and outer skins of fibreglass. You can take that one step further and use a non-wood material like closed cell foam. That is my preferred solution but for this series of articles the decision was made to use home handy man friendly plywood in all structural situations. If you were replacing a rotten transom in an old boat you need to get the transom looking something like this. Note however that in my case I was missing the entire back end so this skin is new. In your case you may not want to grind out (generally grinding is the only way) all the transom wood. You can cut and grind out just the rotten bits and replace them with patches. However I believe that if more than about one quarter of the wood back there is rotten then cut out the lot and put new wood in the entire transom. Because the back had already been cut off you can see the remains of the old transom skin around the outside edge. My new transom will have to be shaped to accommodate that.

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