

A restoration with Panache – Roger Stephen

I have long been an admirer of the 'Panache' design of model sailing yacht by Vic Smeed having seen several members' models either at our exhibition or on my occasional visits to Verulamium Park. I think what I like is her fine lines, clear deck and, especially, her forward sloping transom – so characteristic of ocean racing yachts (for non-boating types the transom is the flat bit at the back of the hull). I had contemplated building one for some time but things took a leap forward when Roy Verden mentioned that there was a rather battered Panache yacht among the late Allan Hawkes' modelling effects. He thought it was only good for scrapping with just the lead keel weight worth saving. "It would be quicker to build a new one than waste time repairing it", he said. Now I quite like a modelling challenge and so one day in early May saw me driving over to Alan Holt's place to collect it. It so happened Alan had a spare Panache drawing, albeit minus one corner showing the sail plan, which he was kind enough to give me. He later e-mailed a scan of the missing bit so I printed that off and stuck it onto my drawing.



The Panache yacht named 'May B' as received - 3 holes in the bottom, six holes in the deck and looking very tired.



Not a pretty sight: just some of the holes in the deck.

reusing the keel weight and mast. Fortunately the deck was not well fixed to the hull and the glue had become brittle so five minutes of prising with a pallet knife had the whole deck off in just three pieces, and with no damage to the hull. So far so good.

With the deck off I was able to inspect the inside of the hull properly. Dry black mould, a bit like soot, suggested that water had been trapped in the forward half of the hull, but nothing terrible seemed to have happened and it all cleaned up quite well with a fine wire brush in my mini-drill. According to the drawing the fin keel should be built up on a piece of $\frac{1}{8}$ th inch plywood which reaches up through the bottom of the hull to deck level where it is braced to the hull frames. However, the keel of my Panache was hollow and there was just a length of $\frac{3}{16}$ th steel rod poking through the bottom of the hull to deck level, the threaded top end of which was fixed by a nut each side of a plywood panel glued to frame number 4. This was obviously not very stiff and had allowed the fin keel to flex such that there was a big crack all the way round the car body filler used to fair in the keel/hull joint. Not good! To remedy this I decided to add two extra half-frames to stiffen the hull structure around the keel attachment area. These were

At first it looked like Roy was right about her condition. There were six holes in the deck: two poorly patched with thin plywood, one covered with gaffer tape, one a broken access hatch for the radio gear, and two gaping holes broken into the plywood deck. It got worse underneath: there were three holes in the bottom of the hull, and the keel and rudder looked like they had been covered in nylon stocking material and lumpy varnish! The whole hull had a thick coating of what looked like brush applied fibreglass type resin (but no glass fibre), all streaked and knobby. The rig was OK, with carbon fibre mast and booms, although the sails were rather grubby.

It was obvious that the deck needed to be replaced so I decided that if I could get the deck off without damaging the rest of the hull then I would restore her. If not then I would build a whole new hull at a later date



With the deck removed there was chaos inside the hull.



The keel was retained by a 3/16 inch steel rod. A crack all round the hull/keel joint suggested this was not a very stiff mounting arrangement.



One of three holes in the bottom of the hull. These were patched on the inside with thin plywood before the hull was lined with fibreglass mat, tissue and resin.

made of $\frac{1}{8}$ th inch plywood and glued in with epoxy adhesive.

Between the keel and the rudder there were three holes in the hull. Once I had removed the existing radio control servo mountings by “milling” them away with a burr in my mini-drill, creating a fourth hole in the process, these were easily patched using $\frac{1}{32}$ nd inch plywood and epoxy adhesive.



Half frames were inserted to stiffen the keel joint area and the inside of the hull was lined with fibreglass mat, tissue and resin to seal against water and stiffen it.

The hull of the Panache comprises $\frac{1}{8}$ th inch plywood frames with a $\frac{1}{32}$ nd inch plywood hull skin. This makes the hull skin rather thin and flexible – indeed, Allan Hawkes advised Alan Holt to use $\frac{1}{16}$ th inch ply when he built his Panache. Bearing in mind the hull damage repairs and the amount of sanding that would be required I decided to stiffen up the hull skins by applying a layer of fibreglass and resin over the whole of the inside of the hull. This would also seal any remaining small leaks that I could not see. I used chopped strand mat on the hull bottom skins and rather thinner glass tissue on the side skins. The resin was ordinary ‘David’s Fastglass’ polyester resin from a car spares shop. This was effective and easy to use but I did find it hardened very quickly – about five minutes after mixing – so I could only glass two or three small panels at a time. This meant glassing the hull took a whole morning but it was well worth doing because the hull stiffened up nicely. Incidentally, the usual solvent for cleaning tools and brushes when using fibreglass (before the resin hardens!) is acetone, which is hard to find, or expensive

cellulose thinners. I found that cheap nail varnish remover (make sure its the type with acetone in it!) did a reasonable cleaning job and can be bought quite cheaply.

Having dealt with the inside of the hull I turned my attention back to the outside. The first job was to remove the car body filler from the keel/hull joint and from the transom. I took the bulk of this off with a huge old rasp I have with teeth about 2mm high on one side and half that on the other. It looked alarming but was actually quite quick and controllable. I finished removing the remaining filler and smoothing off the knobbles all over the hull with an ordinary file followed by sandpaper. The next job was to apply narrow strips of fibreglass tissue and resin in two layers over the fin keel/hull joint to both add strength and make it water tight. While I was at it I put some tissue and resin over the very bottom of the keel to cover the exposed lead weight and



The hull/keel joint was reinforced and sealed with strips of fibreglass tissue and resin. The keel shape was also improved using car body filler.

seal it. Then it was a case of a lot of sanding down, filling hollows with car body filler (I used 'David's Isopon P38 which is quite tough but sands easily to a smooth finish), more sanding, building up the edges of the keel and transom to improve their shape, more sanding, spraying with yellow car body primer filler from a car spares shop, more sanding, etc. Eventually I had a hull with much stiffer skins and a reasonably smooth shape and finish. I sprayed it with about four coats of cheap grey aerosol cellulose primer (from a £1 shop in Hemel and turned my attention back to the inside and the deck.

Incidentally, when I got my Panache she had a plate on the transom bearing the name "May-B". During the restoration I removed this and in filing and sanding filler from the transom I found the same name in transfers as well, suggesting mine was at least the second restoration she had been through. I plan to slightly rename her, with a nod to her original name, by calling her "Maybe Knot". If anyone knows why Allan Hawkes named her "May-B" perhaps they could let me know?



The hull showing all the areas filled with car body filler before spraying with yellow filler-primer.



The radio gear was reinstalled on a plywood servo tray carried on softwood bearers across the hull. Short pieces of thin aluminium tube were fitted to carry the main sheet and jib sheet through the deck to the sail winch beam.

Having thought about installing the radio control gear I decided to fit a servo tray made of 1/8" plywood, with the receiver and batteries lying either side of it. I fixed two softwood 'battens' across the hull, glued to frames 4 and 5 with epoxy adhesive, to act as bearers for the servo tray. Having made a new rudder I took the opportunity to make a new linkage between the rudder shaft and the rudder servo. This was easier to do before the new deck was fitted. I also fitted a couple of pieces of 3/32" OD aluminium tube to carry the fore sheet and main sheet cords through the deck to the 'sail winch' servo (sheets are the bits of string that pull the sails in).

Originally, the mast on my Panache passed through a hole in the deck into a block in the bottom of the hull. I decided to step the mast on top of the deck in accordance with the Panache drawing. This would allow fine tuning of the rig, if necessary, by moving the bottom of the mast forward or backward, and by adjusting the shrouds and stays the rake angle of the mast could be

adjusted too. To that end I put in a stout balsa wood block to support the deck at the mast step position.

Having satisfied myself that there was nothing else to do inside the hull I set about making and fitting a new deck. This was a simple matter of placing the hull upside down on a piece of 1/16" plywood (£5.95 from a model shop in Hemel), drawing round it, cutting it out with a fine toothed razor saw, drilling two holes for the sheet tubes, and sticking it on. Holding it down while the 'weatherproof' PVA adhesive dried was fun – involving no less than 56 thick rubber bands (3" x 1/4") purchased at reasonable cost from Staples the stationers.

I used PVA adhesive to glue the deck down because it takes a long time to dry, giving me time to put all those elastic bands on and make sure of a good close watertight joint all the way round. When the glue was dry I trimmed the excess plywood from the sides of



Gluing the new deck on with the help of 56 rubber bands and some balsa wood packing.

the deck with a miniature block plane. When sharpened and set properly this is a useful tool for building wooden boats and, sold under the cheap 'Blackspur' brand, cost me all of 80p a couple of years ago from a shop in Barnstaple. I had used the same tool for shaving the new plywood rudder to an aerofoil section, and to trim the top edges of the hull before fitting the deck. It even took off the old adhesive a treat. Made of hardwood bound in brass this tiny tool even looks pretty.

With the deck on it was time to cut out the two hatches: a large one for access to the radio gear and a small one for access to the top of the rudder shaft. I made the hatch covers, to fit flush on the deck, from $\frac{1}{16}$ " plywood with balsa wood fillets to strengthen the joints. I also made up a fitting to fasten the foresail to the foredeck – inspired by the one I had seen on Jim Isaac's Panache 'Finesse'. I cut out two pieces of brass shim, folded them to make them into short lengths of angle, soft soldered them back-to-back and drilled three holes for the sail attachment. After



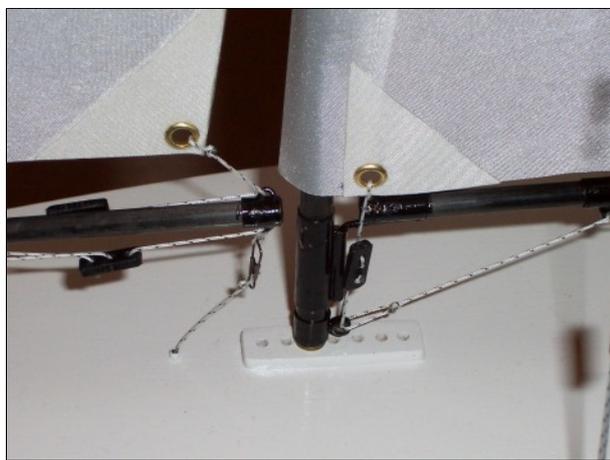
New deck access hatches were made from 1/16th inch plywood. Foam rubber sealing strips, made from ordinary household draughtstrip were added after water got in while sailing in windy weather.

trimming the edges with a flat needle file I cleaned and roughened the base with coarse sandpaper and glued it to the deck with epoxy adhesive. Finally, for the deck, I made a mast step plate from a small strip of $\frac{1}{8}$ " plywood with seven holes drilled in it to allow fore and aft adjustment of the mast position, as indicated on the drawing. I stuck this to the deck with superglue.

Painting the hull was the part I was least looking forward to. Before the deck went on I had painted the outside of the hull using aerosol cellulose primer. I have always found using aerosol paint very disappointing as I usually end up drips and curtains in the paint finish. There are several reasons for this: 1. Holding the can too close to the object when spraying; 2. Trying to spray too thick a coat to get immediate coverage; 3. My own sheer impatience to get the job done! When spraying the hull I had tried to very hard to overcome these problems and was quite pleased with the results. So, having masked off the grey hull with ordinary

masking tape I spray painted the deck with two thin coats of white primer, rubbed down lightly with fine sandpaper, sprayed two more thin coats of primer and finished off with two thin coats of gloss white cellulose. I was pleased with the result and while I let the white paint harden I set about sorting out the mast, rigging and sails.

The mast of my boat is made from 8mm diameter carbon fibre tube and the booms similar but 6mm diameter. The original mast and boom fittings had been made from brass tube with nuts, wire and strip soldered on as necessary for the attachment of sails, shrouds, sheets, etc. These pieces of brass tube had been fixed with glue but most of them were loose and I was able to get them all off without breaking anything. After scraping the old glue off the carbon fibre tubes I re-fixed the fittings with Rite-lok RT38 high strength bearing retainer (like Loctite 603) which seems to be



The sail and rigging attachment fittings on the mast and booms were made from brass tube secured with an anaerobic bearing retainer type adhesive.

OK. Having decided to step the mast on the deck as per the drawing I turned up a little brass insert for the bottom of the mast with a spigot on it to engage with the holes in the plywood mast step plate on the deck.

The sails which came with my Panache were rather dirty and tatty, and whilst they would work OK it seemed a shame not to have nice new white ones. A ready made set of sails from a well known model sail maker costs £36 plus postage but I found a chap on e-bay selling off-cuts of lightweight sail cloth (2oz per sq yard) so I ordered a piece from him. Within two days I had a lovely big piece of white Dacron cloth about 0.8m wide by 2m long for £4.99 including post and packing. It was time to exercise my dressmaking skills!

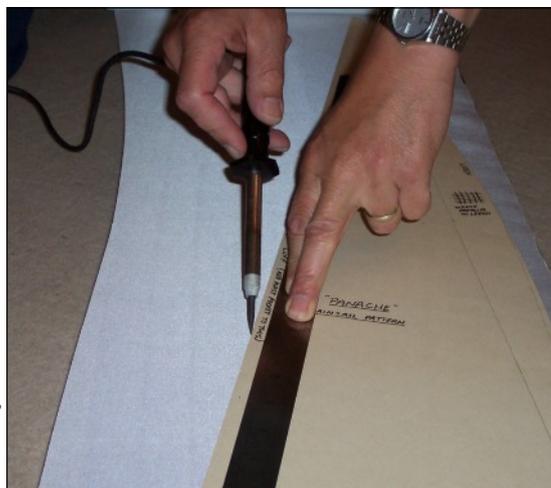
I looked on the internet for information on sail-making for model boats but, surprisingly, found very little. What there was tended to be highly complex stuff about multi-panel sails for racing yachts. However, from the internet and



The new foresail attachment fitting on the foredeck.

from talking to Alan Holt (thanks Alan!) I figured out how I could go about making some simple one-piece sails for my Panache. I started by making some patterns from some old wall lining paper, which is quite thick, using the dimensions given on the Panache drawing and adding an allowance for the luff pockets. I then ran over my sail cloth with a cool iron to get rid of a few creases (very domesticated!) and laid it over an old piece of melamine covered chipboard – ex MFI wardrobe. I then placed my paper patterns over the cloth aligning the weave of the cloth parallel with the leech of the sails (the back edge that is), weighing them down with steel rulers. The cutting out method is interesting: the cloth is made of Dacron which is basically a kind of plastic that melts easily. If you cut it with scissors the edge will fray but if you run round the pattern with a hot pointed soldering iron bit it not only cuts the cloth but seals the edge as well, so you don't have to sew a hem. Simple! In my case I had a spare copper soldering iron bit which I filed into a blunt spear-head shape. You don't have to press hard so I found following round the thick paper pattern with the soldering iron was easy. While I was at it I used waste cloth to make triangular pieces to reinforce the three corners of each sail.

The only sewing I did was the luff pockets – effectively a hem all the way down the front edge of the sail. A piece of cord runs up the pocket of the fore sail to keep it straight and the mast itself runs up the mainsail pocket. I used an ancient 'Jones' manual sewing machine but if you cannot use a sewing machine ask your wife or girlfriend! To fix the reinforcing to the corners I experimented with superglue (very effective but looks messy), UHU (fairly effective and looked messy), and double sided sticky tape. The latter was brilliant because it was quite easy, stuck to the cloth very well, and looked very neat. Only time will tell if it peels off with age. I put brass eyelets in each corner of the sails for attachment to the rigging and spars. I did try to find small eyelets locally but ended up with ordinary DIY/dressmaking eyelets from a local hardware shop (£1.99 for a pair of eyelet pliers and 100 eyelets. Close up they look a bit big but are fine from a few feet away.



The new sails were cut out by running a pointed soldering iron bit round a thick paper template.



The new sails feature a pocket luff and ordinary dressmaking eyelets. Reinforcement in the corners is stuck on with double sided sticky tape. Most of the rigging is made from fishing tackle.

My mast is held up by a forestay, a backstay and a shroud on each side. These and the rest of the rigging I made up from fishing tackle bought from a market stall. I made up the stays and shrouds from plastic coated stainless steel trace wire of 30lb breaking strain (£2 for 8 metres). You just cut it to length and make loops at the ends by crimping on a ferule, supplied with the wire, using pliers. The adjustable bits of rigging I made from some 60lb breaking strain braided nylon fishing line (£7 for 100 metres). I wanted to be able to remove the mast and sails from the hull without having to cut any of the rigging cord or wire so I made extensive use of "snap swivels" (a bit like miniature safety pins attached to a fishing swivel) and some stainless steel wire clips to attach parts of the rig to the hull and mast. These too came from the fishing tackle stall. However, since sailing the boat a couple of times I have cut off the swivels because I found they were not strong enough (they were tiny, size 12) and not really necessary. The safety pin parts and the stainless wire clips are excellent though and remain on the boat.

While working on the rig I was thinking about how to paint the hull. I wanted to use some Crimson Humbrol Enamel (because it looks a bit like LMS Crimson Lake to match my steam locomotive!) but I was not keen on brush painting it because of the brush marks. Some months previously I had bought a cheap airbrush from a cut price shop in Chesham (£5 from the Blackspur range). I had never used one before but decided to be brave and give it a try.

Turning to the internet for advice and wisdom on airbrush painting of models I found that quite a few people recommended spraying Humbrol Enamel using cellulose thinners instead of the usual white spirit. The thinking is that the volatile cellulose thinner mostly

evaporates before the paint hits the model so that you are effectively spraying neat paint and can get good coverage with fewer coats. I am not totally convinced this actually happens but my natural impatience came to the fore and I decided to try it. I set up a make-shift spray booth in my workshop/outhouse/potting shed using a few old dust

sheets (worn out bed sheets and duvet covers!). The airbrush was connected to my compressed air supply (an old refrigerator type compressor pumping into an old camping gas cylinder as an air receiver – it does have a safety valve and pressure gauge) and I was ready to go.

As advised on the internet I diluted the Humbrol Enamel as roughly 2/3 paint to 1/3 cellulose thinners and set my hull up in my spray booth on an upturned flower pot in a carrier bag. This would allow me to turn the hull round to spray the other side! To my total amazement I found using the airbrush to be very easy. It allows you to adjust the paint flow by screwing down a nozzle so I set it to spray on much less paint than an aerosol can does. Spraying from about 150mm (6 inches) away I was able to build up a lovely smooth continuous covering of paint with no sign of runs or curtains and with very little over-spray. In fact I achieved complete and uniform coverage in just one spraying session – not the three or four thin coats other people had advised me to apply. Amazing!

When the paint had dried I found that the finish in places was not as smooth and glossy as I had hoped – but that was nothing to do with my airbrushing but because I had omitted to rub down the final coats of aerosol primer. So, after 24 hours drying I rubbed the hull down with very fine steel wool, removing more than half of my crimson enamel in the process, and prepared to spray it again. I used the same airbrush method, again with cellulose



The hull was painted in a make-shift spray booth in my shed using a £5 airbrush and an old refrigerator type compressor.



The hull after spray painting. The paint used was Humbrol Enamel diluted with cellulose thinners.

thinners, and got a very satisfactory gloss finish in one spraying session. Not a car showroom finish perhaps but I was really pleased.

When the paint had dried I set about fitting the mast and sails, installing the radio gear and rudder, and put the batteries on charge. On Sunday 13th July I went to the lake in Verulamium Park for the maiden voyage. I was concerned that my Panache was now rather overweight at 5lb 10oz (2.55kg) because the drawing specified only 5 to 5½lb (2.27 to 2.38kg). However, I need not have worried because she floated nicely with the bottom of the transom (the back of the hull) just clear of the water. Perfect! In the light and variable wind prevailing that morning she sailed very well, chasing round with Jim Isaac's Panache 'Finesse'. I sailed her again on Sunday 3rd August in a stronger wind and she again performed well. The only snag I found was a tendency to broach when hit by a gust when running downwind, but moving the mast forward a notch seems to have improved that. One weak point may prove to be the

Cheap (£3.99 each) and cheerful Acoms AS-17 servo I am using as a sail winch. It is supposed to have a torque rating of 4.1 kg.cm which is probably a bit weak but has been fine so far; time will tell. Overall I am well pleased with my efforts and look forward to many happy hours sailing. Now when is the next Panache race?



After weeks of work my Panache worked perfectly on her first outing at the lake.