

WAVELENGTH 780

Newsletter - No.7

December 2009

An occasional newsletter for interested followers of the Wavelength 780

The last couple of months have been fairly quiet on the 'Wavelength' front, apart from considerable time spent on the Wavelength 'Building Manual'.

I did note with interest however, recent chat on a Yahoo Trailertri Forum online, where the Wavelength 780 became a subject of conjecture and discussion. A few of the participants have since contacted me off-line for further information. I thank those concerned for their interest.

Despite my own extensive background with Trailertris, I have refrained from direct comment in the forum as I considered it obviously inappropriate to discuss the virtues of the Wavelength on a site devoted to the older Farrier Designs. As I mentioned to a couple of correspondents, my passing contribution to the forum is on the 'Home Page' showing a TT 720 being sailed in full flight, two up, leeward float submerged & rudder on the point of losing traction!



'Potboiler' on Moreton Bay - 1988

This was my old TT 720, "Potboiler", being sailed by myself and one intrepid crew in a Trailerable Multihull Regatta over twenty years ago.

A boat, I might add, that gave me immense pleasure to build & sail over the years.

The forum did raise the question however, of "Why ply in a modern design?" I have answered this question in the Study Plan pack in more detail, essentially because it is a cheap and easy material to work with for home building.

In the right structural context, ply can build a relatively light boat. However, I'll try to answer the same question in a different way with a comparison.

In my days working at OSTAC Yachts, producing the then vacuum bagged F-24 trailable trimaran (now Corsair 24's), I retained an off cut panel from the window cut-out from an F-24 deck, as a vacuum bagging sample. This panel was gelcoated outside and vacuum bagged with 12mm contour foam (80Kg/CuM) and polyester resin, with a light chopped strand mat on the gelcoat to prevent "print through". A heavy 600gm Bi-Ax cloth was used for stiffness and "Ding" resistance externally, while a relatively lighter layup of 400gm DB sufficed internally. The finished thickness of the deck (cabin side) was 15mm.

The outside is faired and painted with 2-Pack polyurethane to a finished paint surface. Finished thickness of the deck (cabin side) is 10mm.

Both cut out samples were cut and trimmed to identical panels of 140 x 190mm and weighed on accurate gram scales. Both panels have more than adequate stiffness for their purpose.

Which is heavier?

The thicker factory vacuum bagged panel with the light foam core and heavier glass skins and gelcoat, or the denser, but thinner, laminated ply core panel with relatively lightweight glass skins?

The answer, which will surprise some of you, but not others, is that the vacuum bagged foam core panel is heavier by the small amount of 2.75%.

Without going into a long dissertation on relative weights and strengths of laminated panels, this little test illustrates that 'factory vacuum bagged foam sandwich' is not necessarily a guarantee that a boat is as light and strong as might be achieved by other structural approaches. For example, Gelcoat adds appreciable weight to the hull in factory production. Carefully fairing the same hull with lightweight filler and painting will generally be lighter, but is not economically viable in production. Contour foam also, is easy to use in production, but tends to take up more resin in gaps in the foam which contributes to more weight.

In the Wavelength 780, a substantial area of the hull above the waterline up to the sheerline is actually single layer

4mm ply under strong curvature and laminated between light unidirectional glass skins, reinforced by lightweight stringers incorporated in the laminate. In engineering terms, this creates a very strong light structure over a significant area of the hull of the boat.

Below the waterline, where the maximum hull loads are found, either during sailing, dried out on a beach, or bouncing on a trailer on the highway, there is no room to compromise strength in this area for the sake of saving a few kilos in weight. Over the years I have observed various causes of failure in some foam tri hulls causing leakage, or at worst, de-lamination requiring extensive repairs around the bottom of hulls.

The Wavelength 780, below the waterline, has a double thickness laminated ply hull, double thickness glass skin, reinforced with an internal keelson and an external grounding skeg. This provides a massively strong backbone to support the anticipated loads on the hull.

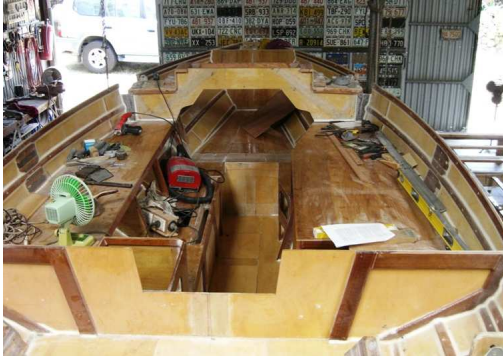
After that little diversion:-

Building:

I am pleased to advise that another 'Wavelength' is set to commence construction in Queensland. Professional boatbuilder, Alan McNamee, has opted to downsize from a large cruising catamaran to the flexibility, convenience and easier maintenance of a trailerable tri.

Meanwhile Neil, building hull No. 3, has just installed the Beam Box Frames in

the main hull and is nearing completion of the job of laminating the decks.



Forward Beam Box Frame fitted



Aft Beam Box Frame fitted

Neil is not one to become totally driven by the building process to the exclusion of other pleasures. As of now, he is on a three week cruise from Sydney to Perth 'Over the Top' on something a little larger than Wavelength – one of the "Princess" cruise liners. Back in the nineties, Neil sailed the Brisbane to Broome and return component of this cruise singlehanded in a small 30' plywood cat over an eighteen month period.



Laminating the half deck



Deck stringers fitted



Half deck laminated and glassed

Wavelength 780 Plans

I can now report at last that the 'Building Manual' for the Wavelength 780 is now complete. All of the construction detail, up to and including the final joining of the floats and beams to the main hull, is now done. It is a very comprehensive document, set out in 'bullet point' form to make it easy to build the boat in easy to follow logical stages. Simply tick off the jobs as they are finished.

The last supplementary drawings on the rig and trailer details are still only in "working drawing" format, but are available if needed. These are currently being edited and should be finished after Xmas.

Plan supply:

In view of the current economic circumstances, the cost of plans will remain the same as advertised earlier in the year.

I.e. \$20.00 for a study package (The package has now been expanded to include a sample section on 'joining the main hull halves' from the building manual, plus additional building and sailing images).

The cost of the study package is deductible from the cost of the plans for clients who then go on to purchase a full set of plans.

Full Plans, \$900.00 plus \$180.00 for printing and postage of full size drawings & templates

(Reasonable consultation by phone, mail or email during construction is included.)

Further enquiries:

Email: forster305@ozemail.com.au

Web site:

A website for the Wavelength 780 is planned for 2010.

Wishing you all the best for the Xmas Season,

With Kind Regards,

Bob Forster

(P.S. Keep an eye out for the Jan/Feb edition of Australian Multihull World!)