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Another Model Boat - 1

This document was written by Paul Naylor and is published here for FMES online viewing, and was written during 2026.

Having completed *Sundowner* as a reasonably scale one-inch-to-the-foot model of a 'little ship' that saw action at Dunkirk, I was casting around for something else to build. *Sundowner* was a satisfying model to make and it works well within the expected limitations of the design. That is to say, since the real thing topped out at 11 knots and was a very seaworthy but hardly 'sporty' design, the model is no different and sailing it around a boating lake is a pleasant but somewhat docile experience.



To liven things up then, I wanted to make something to the same sort of scale but with aspirations of 'sportiness', that was reasonably unusual and not available in kit form (so it was unlikely that there would be many more like it!), that required me to design it and decide the construction, and that used traditional methods at least in appearance to make. I was drawn to very obvious 'wooden' boats with much highly finished and varnished wood and other 'ornaments' in evidence then I do not make something that, when painted, looked like a mass-produced (moulded) hull. I toyed with designs by Chris-craft and Riva, but these are well known in kit form (and some excellent models have been made of them). I was browsing websites and came across a boat that was famous in its limited way and that has been preserved in the US, with recent films for viewing (see link, below). This is an 'over-the-top' boat designed and made in 1929 to participate in the 'Grapefruit' series of unlimited hydroplane races named *Miss Daytona*. These races were centred in Florida as a continuation of the 'unlimited' class followed its cessation as a recognised class in 1922 across the US (subsequently re-invented in 1946). It has a single step 17' (5.18m) long hull (beam 5'10"/1.78m: ratio 34%) with a very obvious four-cylinder Miller supercharged engine mounted just rear seated much else! It wooden has a interesting details such the engine, drive via a 'V' transom



in front of the driver – and not is clearly of construction and number of engineering as the hull step, the propellor drive and a mounted rudder.



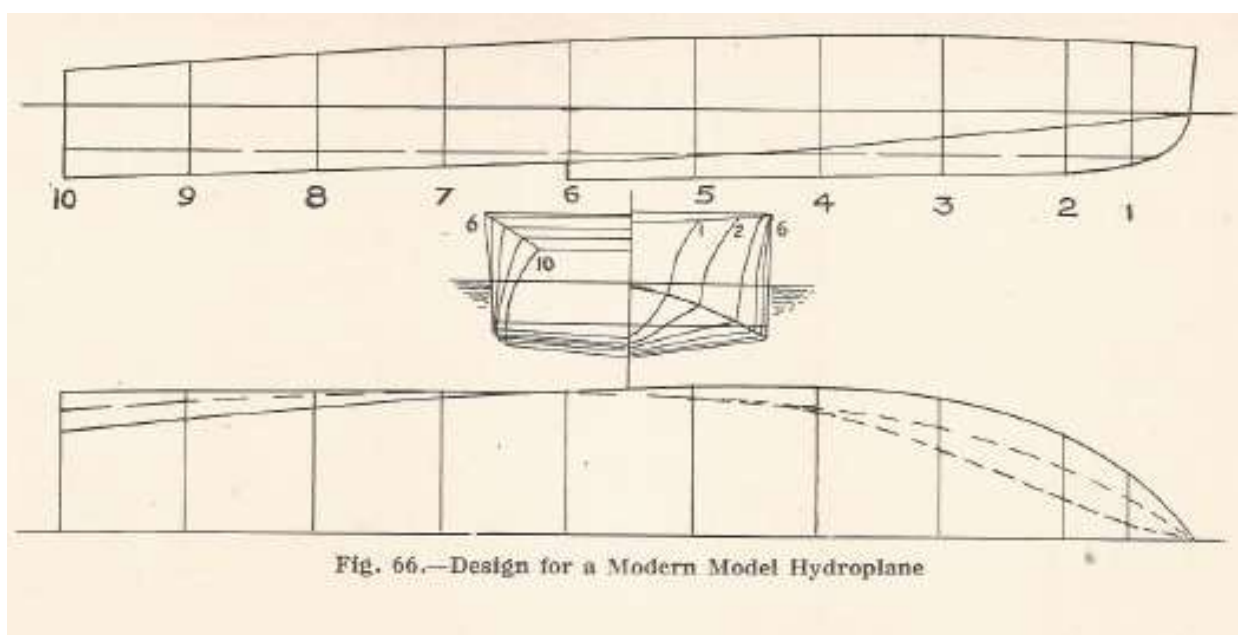
Pictures from <https://bangshift.com/general-news/videos/watch-the-1929-miss-daytona-hydroplane-come-back-to-life-and-roar-miller-engine-perfection-video/>

Not apparent on these stills (or in the on-line video in general) is the detail in the construction of the planking that ought to add challenge to reproduce it! It also has a large expanse of integrated front decking to cover internals: OK on the real thing, but I cannot crawl inside to make and fix things, so part of the deck will need to be removeable with nearly 'invisible' joints... there is evidence on the video of a real hatch for access forward of the cockpit coaming, so maybe this will be OK for access, mainly to the gearbox and shaft couplings and any 'non-prototypical' control systems that will not fit under the drivers seat!



From the same source, as is most of my material used in the reproduction.

I do not have any drawings of this and will need to, as for *Sundowner*, scale details from photos, so the aim is not to make an absolute scale model but a representative model. The hull design is a lot simpler to make in many ways to *Sundowner* as it is a planing hull, and I was able to find, in an elderly book I have (also 1929: 'Model Power Boats' by Edward Hobbs, Cassell), a set of 'modern' lines for a single step hydroplane hull that bears some resemblance to *Miss Daytona* apart from the upper works, so I will use these as the conceptual basis for this model.

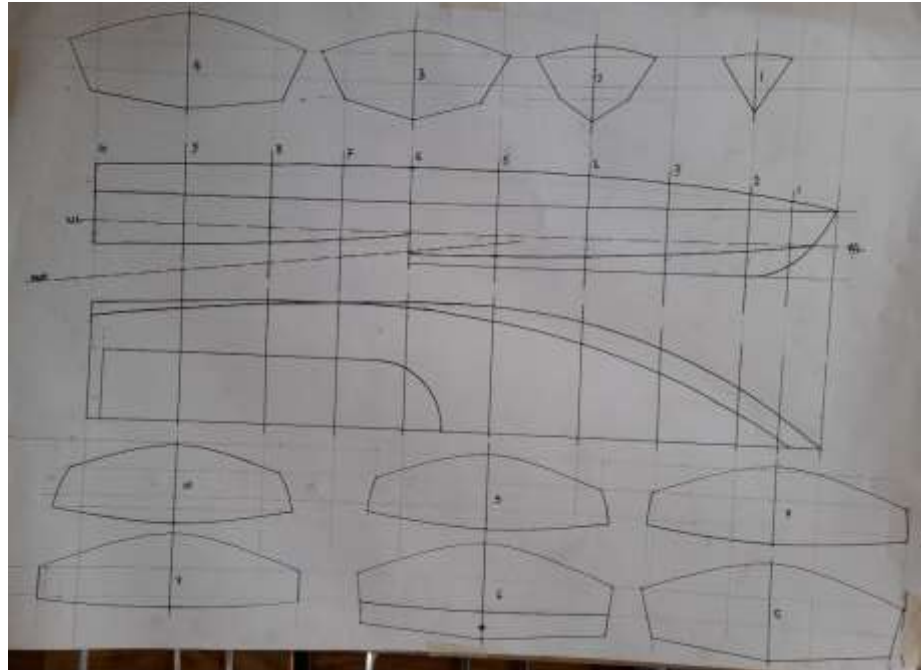


Modelling *Miss Daytona* at 1/12th scale results in a quite compact boat, obviously 17" long, and this, I think, is a little small, so I will model it at 1/8th scale: 25.5" (648mm) long with a beam of 220mm. The only additional challenge that this might present is finding a suitable driver to this scale: it seems that 1/12th and then 1/6th scales are the readily available doll type figures (other than mad looking carton type characters!). There will need to be some alterations to the above lines for this model: notably that the beam ratio needs increasing from c25% in the drawing to 34% in the real thing, the location of the step (slightly), the part of the hull aft of the step is apparently slightly convex on the real thing but only where the hull is largely out of the water when planing, and the upperworks and freeboard need amendment for appearance. Since I am not expecting to challenge the absolute performance of this hull as long as it planes, I don't think these changes will be critical. The beam increase is the most impactful on performance, and this will make the boat plane easier but with slightly more resistance (and buoyancy). The position of the step is recommended (by the book, above) to be around 66% of the length from the bows, however the drawing in the same book is c56% (is '66%' a misprint?). As far as I can make out from a few photos, *Miss Daytona's* step is around 58% from the bow: the determining factor is the centre of gravity of the boat and the angle of plane required (which will only be a few degrees, say 2 to 4 degrees). I can always add ballast to trim the boat as long as it does not compromise the waterline (and power required). I *think* that the model engine will not be as heavy as the scaled real thing and the driver will be lighter, however he might have to 'sit' on batteries for easy access (probably Lithium-Polymers -LiPos - for this boat for lightness). As a result, this should give me a little leeway for weight: adding it afterwards is easy, but taking it away isn't! I think that I will make a 'motor' to represent the appearance of the real thing, but containing a brushless electric motor where the crankshaft would be. A performance boat like this is more critical in hull construction than *Sundowner*: and this cannot be as heavy, so will need to rely on light frames and skins. *Sundowner*, when finished, floated bang on the waterline without ballast (fortunately), so I need to take care over this aspect. It is difficult to spot the water line on this boat: there is a white stripe along the hull with green colour below, and this does not correspond to the chine, but as you can see in the photos it does not obviously sit on this 'waterline' either at slow speed loaded or planing: it is probably an 'average' waterline since it looks like if the driver was smeared out over the whole length, it would float on the white line!

After much thinking, I put pen to paper for the hull line drawings based on the information I have read. It is easier for me to use a pen and paper for this rather than a computer, especially since, once completed, the main use will be to create model sized components and tracing paper etc is going to be the easiest way to do that. I suppose you *could* send CAD drawings off to a laser cutting company to cut from plywood, but I want to do this a more traditional way.

On the right is a photo of the resulting drawings, full 'model' size, but distorted by the camera angle. At this stage, I have not

decided how to make frames and keel, other than they need to be light. There are complications compared to 'standard' hard chine speedboat type designs in that there is very little freeboard and hence space internally, so frames need to be slender, the prop shaft pierces the hull low down internally with little room (eventually to accommodate a Vee drive gearbox to connect



it to the engine) and the step and stiffening required around it compromises space too.

A lot of the stiffness and strength of this boat will come (as it presumably does in real life) from the hull skin, the frames being mainly to hold major components and secure the skin in the right place! The skin will need to have integrity therefore: I contemplated a 1mm birch ply 'inner skin' with 1.5mm teak veneer (cut in 'planks') glued on top, at least on the hull upperworks, the underside can be just plywood as it is painted. The alternative, that I think I will go for at least for the visible upper works, is to add stringers all around the frames under the prospective plank joints and then just rely on one layer of thicker hardwood planking, as I think is prototypical. The latter is probably easier to assemble (ie easier to clamp planks in place for glue to set one by one) but more time consuming, less stiff and more prone to cracking – there are a couple of filled cracks in the skin visible in photos of the real thing (that I will not deliberately model...). I can use just 1.5mm plywood for the bottom of the hull to make it easier to make and stiffer: this bit is painted anyway. The brass 'screw' fixings will be decorative and applied afterwards: bits of brass or copper wire epoxied into holes in the planks and filed flush (that looks time consuming). Watch this space for how it all pans out in subsequent articles: I have written this account as I went along, so they contain initial ideas that were not appropriate, errors made and some other aspects!