Finishing a Zephyr Hull
Don Currie

Don Currie has completed or refurbished a number of hulls and repaired countless others. This represents his accumulated wisdom. If you have any ideas or experience to add please let us know!

This article looks at what needs to be considered in finishing off a new hull. If you haven't undertaken a job like this before consider a trip to the local library or bookshop for a book on modern wooden boat construction – John Welsford's book on boatbuilding or "The Gougeon Brothers on Boat Construction" (these are the dudes behind the WEST epoxy system) are worth reading and provide you a more reliable approach than old "Bert" at the yacht club bar - who will tell you about how he finished off a ferro-cement boat back in 1960 using nothing more than galvanised 4" nails and demolition timber.

Class Rules

Make yourself familiar with the class rules before starting work on your new hull, particularly the section on finishing off hulls.

Hull Weight

The minimum weight of a Zephyr was established from a survey of finished boats some years after the class was established. The minimum weight of a Zephyr hull including all permanently attached fittings is 57kg. (Reference class rules 2.1 Hulls). Most boats are in the low 60kgs region. Getting a new boat down to class minimum weight is not difficult, but it is a good test of the builder's discipline and ability to ensure that the head rules the heart! It sounds obvious, but the weight that goes into your boat is cumulative. A little bit here and there soon starts to add kilos to the completed hull. "Think light" throughout the building process. Think about buying a set of 100 kg hanging spring scales – completing a Zephyr is a project that will soak up something more than $9000. Purchasing a set of scales for around $100 is a good investment allowing you to check the weight build up as the project progresses.

Leave the outside hull finishing 'till last – it is easy to add a bit of weight at this stage by fibreglassing the hull and/or a fancy paint job if the completed boat looks like it will come out under weight. There are only a couple of areas in which the Zephyr has shown a few weaknesses – if you are disciplined about adding weight, and only "beef up" the hull in known areas of weakness then you should be able to achieve a near minimum weight completed hull.

The "as received" weight of your hull will be around 44 kgs. A deck and trim will add around 9kg, leaving 4kgs for paint and fittings.

Pre Decking

Prior to sealing the interior areas of the hull, backing pads (a couple of layers of 4mm ply from deck off cuts) should be fitted inside for reinforcement of chainplate fastenings (reference class rules for positioning). Inspection ports should be fitted in each individual bulkhead and side tank to provide access and air circulation inside the enclosed areas when not sailing. The side tank ports should be of a suitable size and location to allow access for fitting chainplates and deck control fittings. Cut the holes out before the decks go on, and glue a 20mm wide doubler ring (off cuts of 4 mm decking material) to the inside of each cut out to take the inspection port screws – much easier than using machine screws and nuts on the inside). Many people fit an inspection port to the forward bulkhead – it is important to allow this area to dry out during periods of storage, but in practice an inspection port in the forward bulkhead is very difficult to reach – if you can live with the visual aspect, an inspection port in the fore deck is much more practical.

If you are planning to fit transom scuppers, non standard bow fitting incorporating under deck forestay adjustment, or any other clever ideas, make sure you think the whole thing through, and test fit everything before the deck goes on.

Sealing of Enclosed Areas

There are many products and systems available for sealing the inside of bulkheads, side tanks and the enclosed hull surfaces. Interlux's Everdure has been successfully used and should be applied as recommended, i.e. application of preliminary thinned coats, followed by a full strength coats wet on wet to give maximum penetration of timber surface. The Zephyr is a classic, and experience has shown that the hulls can last over 50 years if moisture content is controlled properly. Don't skimp on protection of concealed areas – go for the full 3 to 4 coats if using Everdure. Alternatively these areas can be coated with unthickened epoxy resin – if this course is followed ensure that a low viscosity resin is used, and do the job on a very warm day (the resin will be thinner) to ensure that not too much weight is added. You will probably need 2 coats, so weight is an issue. All resin and paint manufacturers provide good reference material – read it! This may sound heavy, but remember that the sealing on the original boats was red lead and several coats of enamel!

Decking

The deck framing will have been faired ready to fit deck – this should be checked before fixing the deck to ensure that you will achieve even contact of deck plywood over the whole area. The minimum deck thickness is 4mm and can be the plywood of your choice. Decorative ply such as mahogany will be heavier, so check how much the sheet weighs first!!

The undersides of the deck should be sealed using the same method as the enclosed areas of the hull. Note that epoxy glue will adhere well to epoxy coatings so long as the coatings are cleaned and sanded prior to glueing. Thus there is no need to mask glue contact areas, but you should mark these areas ready for glue application prior to finally fastening the decks in place. 4 mm ply is just fine everywhere on the deck except the area of the side decks from the transom through to approximately 400 mm forward of the centrethwart (just forward of the centre thwart to just aft of the aft deck beam) which should be reinforced (suggest double thickness plywood with lightening holes) in order to provide strength where your butt drops down after each tack. Some form of doubler also needs to be added to the areas where sail control fittings will be attached. Before you put the decks on have a clear idea of what sort of cleat layout you will use, and where necessary add doublers under the deck to hold attachment screws.

Cockpit Floor

Zephyrs traditionally have a bit of a problem with cracking where the bottom of the side tanks join the hull, just aft of the centre thwart. This is the "high traffic" area of the cockpit where footwork tends to be rather heavy during those less than elegant tacks and gybes in fresh weather. Consider an epoxy "cove" in this area and a reasonably heavy (400grm/sq M) double bias fibreglass tape bandage to protect this area. Easier to prevent the cracking than it is to repair it later.

Floor battens are supplied but not fitted so that the floor can be easily sanded and filled accordingly. The cockpit area will require filling and sanding prior to painting.

Finishing Trim

Remember here the head must rule the heart! Great big pieces of mahogany and kauri trim equals a heavy boat. If the weight is starting to creep up you can use cedar, but be aware that it is very soft and damages easily. Gunwale and carlin trim can be any timber of choice – reference class rules for minimum sizes.

Coamings (splashboards) can be fitted either in front or behind the mast (the original Zephyrs had them fitted behind the mast, however most new Zephyrs or those being refurbished tend to choose to fit the coamings in front of the mast). Reference class rules for minimum heights and positioning limits. There are no hard and fast design for the coamings, however we suggest you check out existing boats to establish shape and positioning of your choice. In most cases 10mm solid timber is used in the construction of the coamings. If you taper them from about 10mm at the base to 5 to 6 mm at the top you save a bit of weight and they look better too. 4-6 mm ply is a lighter alternative.

Masthole Collar

This must be a minimum height of 20mm and can be incorporated as part of the cowling support and fixing – don't get too "arty" without thinking about the weight.

Preparation of Outer Shell

The outer shell as received will be pretty much as it has come off the mould. The builder recommends that the surface initially be planed fair using a number 5 plane (or larger) to remove high spots. This should be followed with sanding using a long board. Talk to someone who has done this job before to find out how to build the board, and what the necessary techniques are. Most of the major marine paint companies put out good brochures explaining the technique. Some filling and further sanding may be required.

There is then the option of sealing and finishing the surface directly or glassing the hull to provide a long lasting durable surface.

If the hull is to be glassed a 6 oz (200 gram per sq M) cloth is typically used. The absolute minimum extra weight added will be about 2 kg and could go as high as 3 kg depending on how much resin is absorbed by the timber. Lighter cloths can be used in order to minimise weight, but the protection afforded by the lighter cloths is minimal. Once again, the resin companies all put out good documentation on fibreglassing – read it before you start pouring expensive sticky stuff all over your new boat! Resin mixed with microspheres should be used to fill the fibreglass weave – don't use neat resin as it is too heavy and sands badly anyway. Products that absorb excess resin, such as Peel Ply, may help, but make sure you know how to use them properly.

When dry sand and apply several undercoats (perfection undercoat two pot system) and sand to a smooth finish. Follow this with a two pot polyurethane finish system of your choice.