

# HADRON Construction Notes

These notes apply to building plans for Hadron singlehander dinghy by Keith Callaghan. They are not intended to be a boat building manual: for techniques to use, see the book 'Gougeon Brothers on Boat Construction' (ISBN 0-87812-166-8).

1. In general, all measurements on the plans are in millimetres. Longitudinal measurements are taken from station 0, which is located at the extreme front end of the designed waterline. Longitudinal measurements are often shown on the plans as +nnn, meaning distance aft from station 0. The extreme front end of the boat is at 50mm forward of station 0.
2. The hull is built, inverted, on 7 temporary building frames plus the apron (otherwise known as 'stem'), and transom. The frame locations are known as stations. The frames are equally spaced at intervals of 525mm (stations 1 to 7). The forward face of frames 1, 2, 3, 4, and 5, and the aft faces of frames 6 and 7 are aligned at the station position.
3. Once the frames are erected, the centreboard case and hog are added and the latter is faired in at the bows. The case has a 6mm ply fillet each side to facilitate precise positioning of the case and hog.
4. The hull is made from 6mm 5-ply Marine Plywood. There are 4 planks or panels each side. The plank shapes are fully defined in the plans. Each plywood plank should be finished as much as possible before assembly on the building frames. This includes 'flow-coating' with epoxy resin, and sanding smooth ready for the glass tape and painting. The Gougeon Brothers book has details of the flow coating method. For planks 1 to 3, each plank is bevelled and edge bonded to the adjacent plank. One layer of 50mm wide glass tape is applied to the outside of each join. It is also advisable to add one layer of 200gsm glass cloth to the garboard plank, from the stem to about sta5. This will provide protection when the boat is beached.
5. The topside plank (plank 4) overlaps plank 3, so plank 3 is bevelled to accept plank 4. Starting 600mm from the bow, the plank3/plank4 land is gradually bevelled away so as to provide a flush surface at the stem.
6. When the planking has been completed, the false stem is added at the bow, and faired in.
7. The first lamination of the gunwhale is added.
8. Holes for self bailers should be cut in plank 2. A centreboard slot gasket should be fitted, and a durable (metal or plastic) keelband fitted.
9. Final external finishing of the hull, including painting, can be done before the hull is taken off the frames. A waterline is shown on plank 3 in the full size drawing – this can be marked on the hull if desired.

10. Once the hull is taken off the building frames and turned right way up, the inside of each plank join should be reinforced with 2 layers of 50mm glass tape, slightly offset. The join should then be filled and faired.
11. The aft bow tank bulkhead is added next, followed by the spaceframes. All these parts should be pre-finished as much as possible before assembly into the hull.
12. Make and fit the main bulkhead and kingpost, ensuring that these items are accurately positioned and that the kingpost is central and vertical.
13. Cut out the bow tank top (which is in 4 parts). Glue 4mm ply reinforcements to underside of the tank top in way of the sub frames (see drawings for each station). Also add any local reinforcement (for example, for the toestraps anchorages and control line blocks on the bow tank top).
14. Before fitting the bow tank top, ensure that all necessary reinforcements are in place for anchorages for the various control line blocks (on apron, king post and bow tank top), toestraps anchorages and the centreboard hoist system. Cut out holes for and trial fit the access hatches. Fit the bow tank top. Finish off the bow area, including painting it. Fit the control line block attachment hardware.
15. Make, pre-finish and fit the components for the central buoyancy tank.
16. Make, pre-finish and fit the foredeck beams and kingplank.
17. Add laminations 2 and 3 of the gunwhale. Add the framing for the carlins. Add the under-deck reinforcement in way of the shroud locations. Make and fit the laminated/curved backing for the forward part of the carlins.
18. Cut out, pre-finish and fit the foredeck and side deck panels. Trim the edges of the decks to accept the carlins and rubbing strakes. Make and fit the carlins and rubbing strakes.
19. Add the face veneer to the forward (curved) part of the carlin. Add the angled pads on the carlin for the control line cleats.