The Kiss Dinghy

(Keep It Stupid, Simple.)

My friend Caravan had been using the prototype for a year when I asked him how it was going. " It is phenomenally sensible." He replied. "John is crippled with a bad back and can climb into it without it sinking under him and it gives him confidence." He went on to explain how he had ferried some landlubbers out to his yacht, and they had no difficulty or fear in unloading themselves from the dinghy onto the yacht.

John with his stiff back, rows Caravan Leghorn ashore in the KISS dinghy.

The design, building and use of the Mudskipper had got me thinking about a big brother that could be used as a conventional dinghy. So when my good friend Caravan's dinghy was stolen, I offered to build a dinghy with him if he bought most of the materials. So what was wrong with the conventional designs, and why was I doing this?

I would argue that the premise of the conventional dinghy design is quite wrong and results in craft that are too unstable, poor load carriers are often difficult to build and sometimes difficult to row, especially loaded. The desire to make an aesthetically pleasing craft with big boat streamlines is a major part of the problem. The big boat is going large distances but the tender is more of a shuttlecraft. Many dinghies are somewhat unstable, and difficult to board. Furthermore it is only marginally more efficient to row than the Kiss dinghy we have built.

To summarise the advantages and disadvantages of the design:

1. It is extremely stable. It does not frighten landlubbers.
2. It is very easy to maneuver.

3. It can be launched from the beach in shallower water.
4. It is a great load carrier.
5. It is cheap and easy to build.
6. It does not row as well as conventional dinghies.
7. It exploits the characteristics of plywood very well.

The Commander paddles the "Mudskipper" across the mud from his mooring.

So we built the prototype that has been in use for a year. Next step was to evaluate it for improvements and final design. It rowed without difficulty the 2km. across to Dangar Island in 25 minutes. This was close to 5km/hr. which is average walking speed or put it another way 80m/min. Climbing onto a friend's trawler was easy from this stable little craft.

Cav had correctly identified the spine seat as being too low to easily rise from, so it would needed to be raised from 15 to 23 cm. As well the boat could be more easily built if the sides were straight and the hull could be a little narrower. Originally we tried to make it out of 2 sheets of 4mm ply but have since settled on 3 with some left over. The shape of the bow also needed to be brought higher out of the water.

These are important features of the design:

1. The surface grain of the 3 ply must go across the boat and up the sides for rigidity
2. The spine/seat of the boat must go fore and aft to further increase rigidity. It also provides substantial buoyancy and allows the rower any position he chooses.
3. The sides of the boat are parallel for ease of building and stability.

So here is what you will need to build the dinghy.

a) Three sheets of 4mm ply. These do not need to be marine grade but should be waterproof and light. Waterproof ply always has the dark resorcinol formaldehyde glue in the joins.

b) About 15 metres of 20mm x 20mm light pine to be used as cleats.
c) Epoxy resin. You might buy 4 litres to get a good price and then use it for gluing and fibreglassing. Alternately use vinyl ester for fibreglassing.
d) Six metres of 4 oz. woven rovings fibreglass.
e) 50 only 20mm. 6 gauge chipboard screws.
f) 50 only 25mm. 6 gauge chipboard screws.
g) A variety of ss. screws, 304 grade will do.
h) Staple gun and 5/16" (8mm) staples

Before we start, have a look at the picture to get a better idea of what you are building.

Note the spine/seat fore and aft in the centre, the gussets and the gunwales.

Getting started:

1. Join three sheets of ply as shown in the diagram. If space is insufficient then cut the 900 mm wide bottom pieces separately. Glue 100 mm buttstrap to join and hold in place with 5/16" staples till the glue is cured.

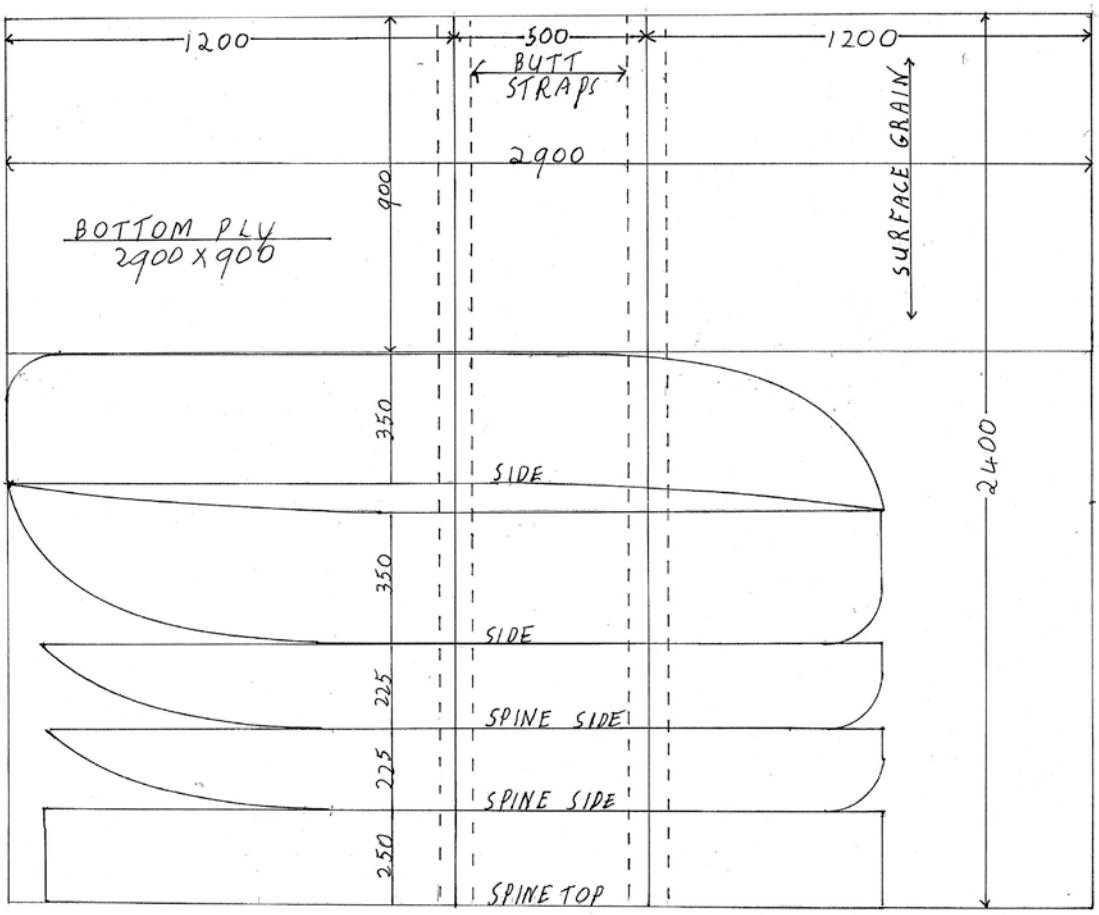


Figure 1

2. Take the shape of the side from figure 2. All curved shapes will derive from this template. Use a flexible batten to get a smooth shape. The top sheer is a rise of 80 mm. and starts about a metre from the front and is designed to stop water slushing over the front. You will need to allow a few mm. here and there for the cut which is best made with a circular saw. The curve at the transom is the same as a four gallon (20 litre) can. If necessary make the spine top from the ply left over.

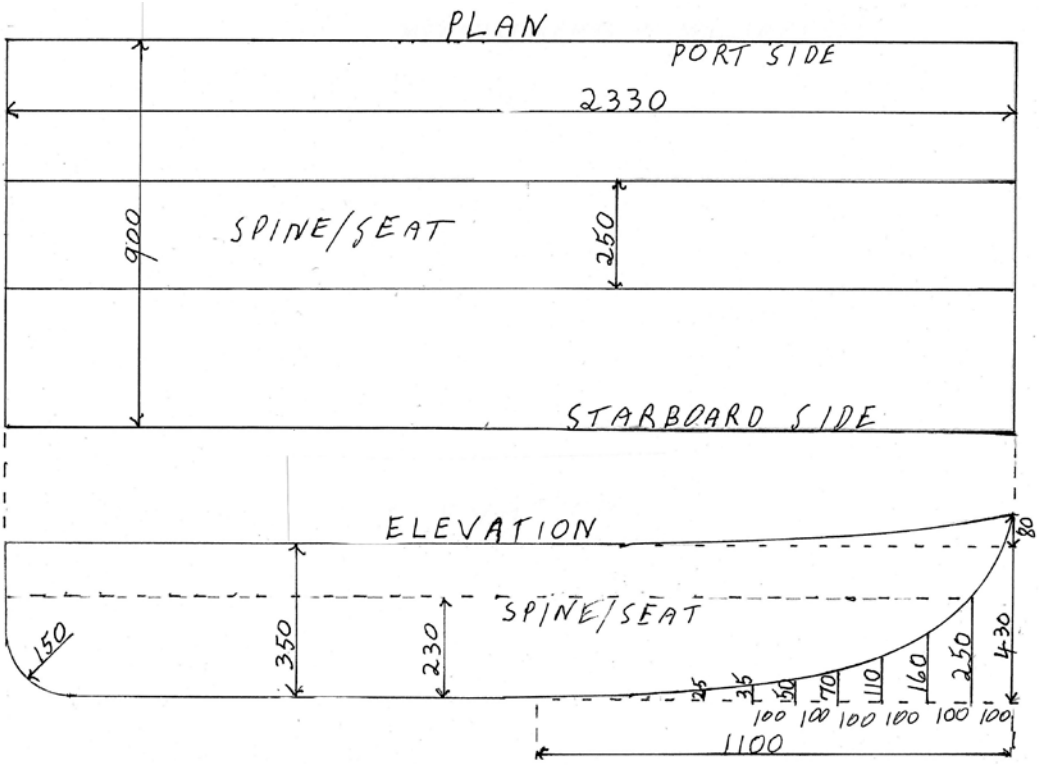


Figure 2.

Prototype sides. Note the alteration in the final design.

Now that you have cut all the shapes out, you will attach the sides and the spine sides to the bottom sheet but first attach cleats as follows:

1. Measuring from the back end of the bottom sheet attach cleats at the sides from 500 to 1500 mm. Do this by first drilling 4mm holes in the cleats. Then glue and screw in place with the 25 mm chipboard screws (no need to drill the ply). Remove the screws when the glue has hardened.
2. Repeat the above process 120mm either side of the centre line for the spine sides.
3. Attach cleats on the curved parts of the spine sides and the boat sides. Mark on these parts where the bottom cleats come to, remembering fairly large gaps are acceptable. Attach cleats where necessary, by screwing and gluing with the 20 mm screws.

   The curve can be accommodated by making regular 15mm cuts across the cleats so they will bend easily or by cutting out of 10 or 12 mm ply. Make sure the cleats are on opposing sides of each sheet.

Assembly

1. Take any side and carefully determine where it will attach onto the bottom. You can do this by placing the tip of the side bow on the front of the bottom sheet and rolling it back till the side and bottom can be marked for positioning. Now make this mark on all 4 sides. You might sit them together and use a set square to mark across all four. Now mark on the four cleats exactly where each mark on the sides will attach.
2. Screw and glue the spine sides onto the cleat on the bottom.
3. Screw and glue the boat sides onto the cleats on the bottom
4. Invert the boat and screw from the bottom into the cleats, gradually working your way across and along as you gradually draw the plywood into the curve. For the more severe curve at the transom paint the outside with water and leave for 20 minutes. Do not allow the water to get onto the glue. If the ply is a bit stiff loop rope around near the sides and pull the ply into shape.
5. When all the sides are screwed into place the dinghy has taken shape. Screw some cleats onto the top of the spine sides and the transom and bow and screw and glue the spine top into place. Now you have a dinghy. Attach gunwales using 20mm by 20mm Oregon or pine either side top of the sides. Add gussets to suit.

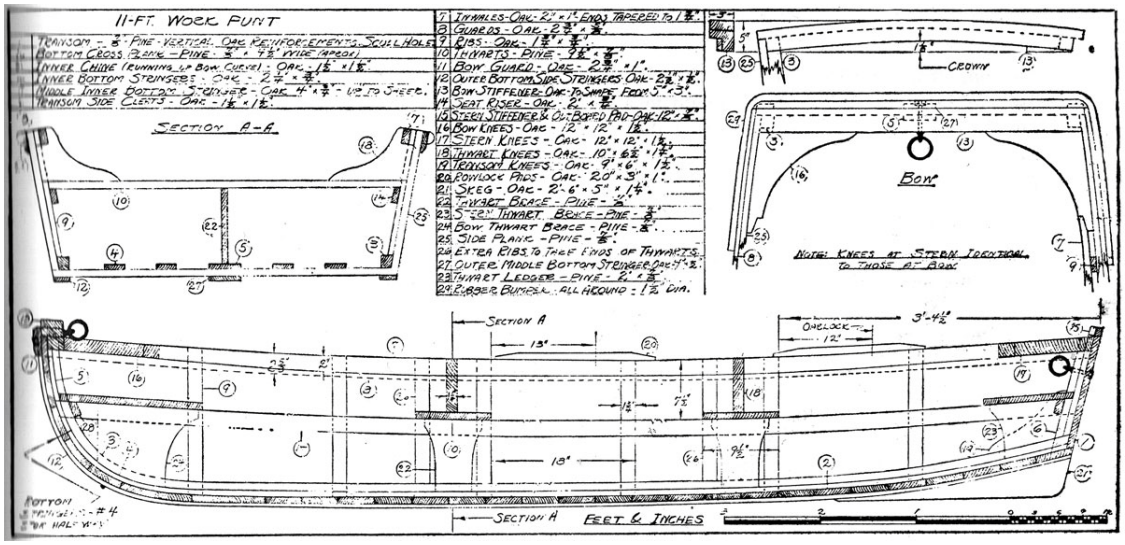
Fibreglassing

1. Fibreglass the top of the spine and overlap the joins. Also tape fibreglass along the bottom of the spine to make it watertight.
2. Fibreglass the bottom of the boat and overlap the sides. Now cut out glass to fit the sides and glass them.
3. Attach 25 mm OD PVC pipe to the bottom 320 mm from the sides to strengthen the bottom for 1500 mm form the rear as shown. This will strengthen the bottom where it gets the most stress. Screw on from the inside and then shape and bog the ends. Fibreglass and remove the screws when the glass has hardened.

Note the strengthening rubbing strips on the bottom.

Design Musings: You may have noticed the straight run aft along the bottom with no spring towards the rear. This is deliberate to increase buoyancy and stability. For a single rower a more forward rowing position will ease the water off the bottom for a smoother row. The upward curve to the transom is an important feature that reduces drag when loaded. With one or two passengers the benefit of the buoyancy and stability of the design will come into play.

Since working up this design I have discovered a rather similar concept, “A Utility Punt”, described in John Gardners “Building Classic Small Craft”. It is a larger and much more heavily built 11-foot craft. He states that: “This punt when properly handled, is surprisingly able in rough water. I witnessed its performance in the big hurricane of 1954, when the punt was used to put out extra dock lines. At the time it was blowing so hard that two men facing each other were required to hold one pair of oars in the water. At times the punt would drop nearly out of sight in the trough and for long spells the boat did not seem to make an inch of headway. But finally the lines were set and secured, and the punt returned completely dry to the float. This was a stiff test for any 12-foot boat, and some good yacht tenders would not have made it. (See image on next page or download here)



The Utility Punt

The Safety Rope. Attached to the transom this rope facilitates standing up without having to cling to the yacht sides.

Utilising the rope ladder to stand up.

In cases where individuals may have fallen over the side the dinghy can be re-entered using the same rope loop hanging over the back. Although this is a little awkward and may be of no use to an overweight person it is a lot better than nothing.

Re-entering the dinghy after falling overboard.

So there you go, if you want to have a little fun building a useful dinghy try the Kiss dingy. The dinghy can easily be made a little longer by enlarging the size of the central piece of ply. You will find it does not row as well as some but a lot better than the rubber duckies that I see being rowed around the place. Good luck with it and let me know how it goes.