

Improving Dabber Buoyancy

I wanted a Dabber because of its size and sail plan and, after much searching, Anam Nan Eilean, (Spirit of the Isles) hull number 688 was found on Islay off the West Coast of Scotland.

I was concerned from the start about buoyancy because of various DAN articles on capsizing problems, so, on a cold Sunday afternoon we scuttled her in our local harbour at Stonehaven and found out just how bad things were.

With relatively little water aboard she soon lost floatation and was swamped. In this state the gunnels were only just at the surface and there was barely sufficient buoyancy to float the hull. Recovery was impossible because she rolled like a barrel and in any case could not support crew.



I knew the bow contained intact solid blocks of polystyrene so I set about investigating the side chambers. **Two 6" hatches were fitted both sides (see photo - left) to allow inspection.** The hatches allowed access to fore and aft of the tanks revealing buoyancy consisting of polystyrene blocks on the underside of the seats and polythene bags full of polystyrene chips below. The bags were leaking so the floatation volume was dramatically reduced.

Buoyancy Modifications

After clearing out the old buoyancy, the side chambers were filled with two part polyurethane expanding foam through the inspection hatches.

Filling is not an easy job as it is necessary to angle the boat to get the foam distributed, and it is also necessary to warm the two pack material to achieve proper foaming. It is possible to get a spray pack with a mixer head for the materials and I suspect this would be easier to use but it is much more expensive.

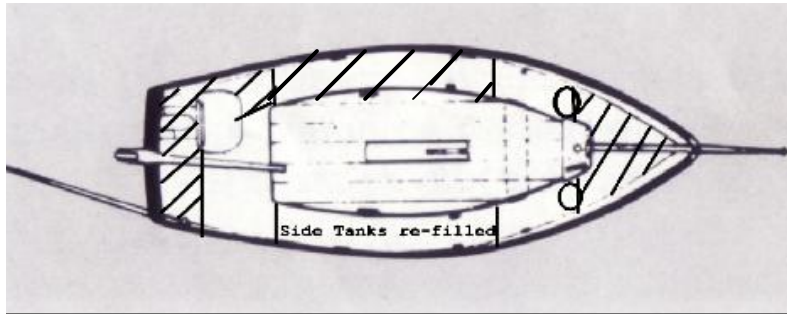
Note: each side chamber required about 5 litres of mixed two part foam material.

Additional polystyrene buoyancy was inserted into the bow behind the bulkhead, then strong plastic garden sacks filled with expanding foam were pushed into the area at the front of the lockers (see photo - right).



Stern locker

With the side chamber and bow modifications I found that the stern would still dip when weight was shifted aft. The solution was to build an internal bulkhead by bonding fibreglass sheet within the rear locker across the transom and on the port side, to form a cavity to contain the buoyancy foam (see illustration below – hatched areas indicate where there is now solid buoyancy).



Re-testing stability

Re-testing with buoyancy added (photo – below left). Full of water it took two of us bouncing on one gunnel to persuade her to capsize. Turning her back was easily accomplished by one person by pulling on the centre plate. (Note testing was without sails)



Freeboard

Swamped (photo - above right) but still with plenty of freeboard. Recovery from this state should be possible depending on conditions. Note both the above pictures were taken during testing prior to the stern improvements.

Conclusion

I often sail in the North Sea which can be a challenging environment and although I have not experienced a knock down or swamping it could happen one day. I make no claim that the modifications I have carried out will make a Dabber safer, and recommend that you seek professional advice unless you feel capable of carrying out the work described. In particular you need to be aware of the potential damage that expanding foam can cause to a hull if the pressure is uncontrolled.

I made the modification because I was highly concerned about my boats bouyancy, based on the limited testing I carried out after the modifications I am now much more confident of her stability when swamped, of being able to bail her out, or at the very least being able to keep out of the cold water until help arrives.

I am happy to discuss my experience with anyone considering the modifications.

Trevor Harvey
Telephone 01224 319461