

Weight and Balance

November 05, 2006

Calculated Hydrostatic Data

Maximum displacement $2 \times 14,873 \text{ kg} = 29,746 \text{ kg}$
Center of buoyancy (LCB) 7594 mm from aft.

April 4, 2003

The two parts of the catamaran got joined together and weighed.
Net weight about 8,000 kg, plus or minus 200 kg.

December 12, 2004

The PH8 got lifted, weighed and the LCG determined. This was the most important weight and balance check because the basic cat is almost finished and very little additional weight will have to be added to launch it. Of course all the things that make life on board a pleasure are still missing, like anchors, refrigerators, toilets, air conditioning etc., but now I know if we can splurge a little or have to economize with weight.

The verdict is in: The cat is in a very good shape, weight wise.
Net weight 15,700 kg, plus or minus 100 kg.
Center of gravity (LCG) 7710 mm from the aft, plus or minus 100 mm.

The following equipment was already installed:

Engines

Aquadrive, propeller shaft, propeller

Rudders

Electrical wires, all of them

The heating burner has to be detracted from the weight.

June 21, 2005

The cat hit the water for the first time. While lifting the complete boat with a crane, the weight was determined. Unfortunately the LCG could not be determined.

Net weight 16,800 kg, plus or minus 100 kg.

This weight is for a fully functional cat, engine and rudder system.



As can be seen from the picture, the cat is very light up front, but the whole anchoring equipment is missing up front.

To determine the progress (or problems) over time while adding equipment we will continually watch the distance from the water to the DWL. In the front the measurement is made on frame 15, at the back at the stern. To facilitate this operation the light blue antifouling paint was applied to the DWL.

Port hull, bow	740 mm	Stbd hull, bow	640 mm
Port hull, stern	102 mm	Stbd hull, stern	92 mm

July 20, 2005

An old waterbed was put on the front and partially filled with water to see the effect of adding weight. The added weight was removed after having measured the change.

After adding 400 kg:

Port hull, bow	630 mm	Stbd hull, bow	580 mm
Port hull, stern	145 mm	Stbd hull, stern	130 mm

After adding 630 kg:

Port hull, bow	620 mm	Stbd hull, bow	560 mm
Port hull, stern	150 mm	Stbd hull, stern	150 mm

October 26, 2006

This is a list of the various items added since the launch of the cat.

Equipment	Side	Weight	Position from Aft
Completed floors (two layers of 12mm plywood, one added after launch) App. 12 kg/m ² , 50 m ²	-	600 kg	
Steps to boat deck			
Inverter			
WC in guest bathroom			
Bidet in guest bathroom			
Provisional "radar arch"			
Anchor windlasses, two	center	94 kg	

October 27, 2006

Port water tank half, starboard water tank empty. About 200l of fuel in each tank. A good guess would put the weight at about 18,500 kg (fuel and water included). With this weight the "normal" test runs were done.

Distance from the water to the DWL:

Port hull, bow	525 mm	Stbd hull, bow	500 mm
Port hull, stern	50 mm	Stbd hull, stern	70 mm

To do some test runs water was added to the two forward compartments. 588 l of water to the port compartment, 548 l of water to the starboard compartment, for a total added weight of 1136 kg.



Measuring the distance from the water to the DWL.

Distance from the water to the DWL:

Port hull, bow	260 mm	Stbd hull, bow	320 mm
Port hull, stern	130 mm	Stbd hull, stern	160 mm



With the added weight in the front.



At 2000 RPM, approximately 12 knots, on the inside between the hulls the flat part of the stern is almost completely out of the water. Only about 1 meter touches the water. On the picture this point is where the white spray starts.