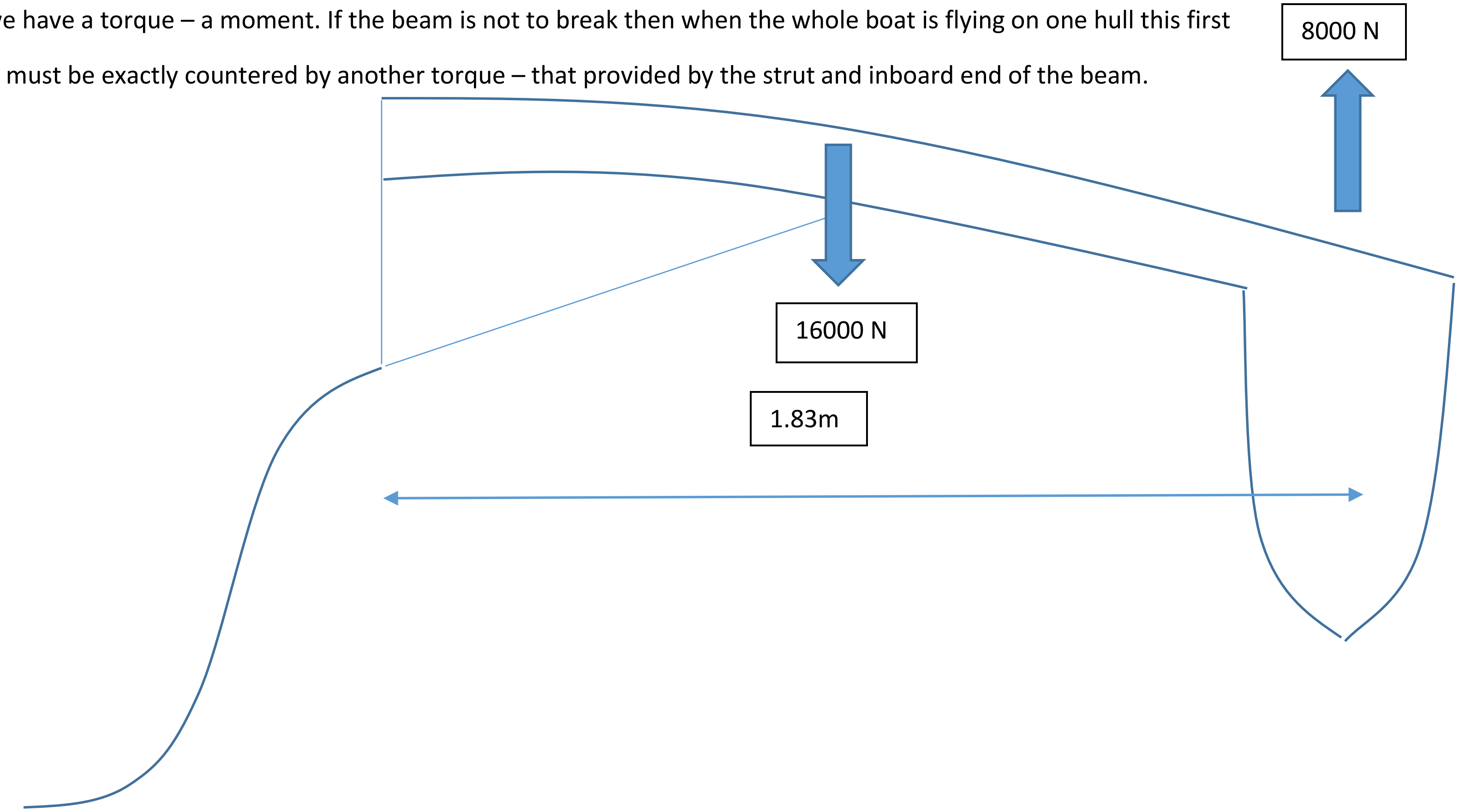
If we say the boat weighs 800kgs sailing (An F22 with two crew) then when flying a hull the float has to push upwards with this weight. This really is a force so we should convert it to Newtons (multiply by 10 for shorthand)

Force upwards = 8000N

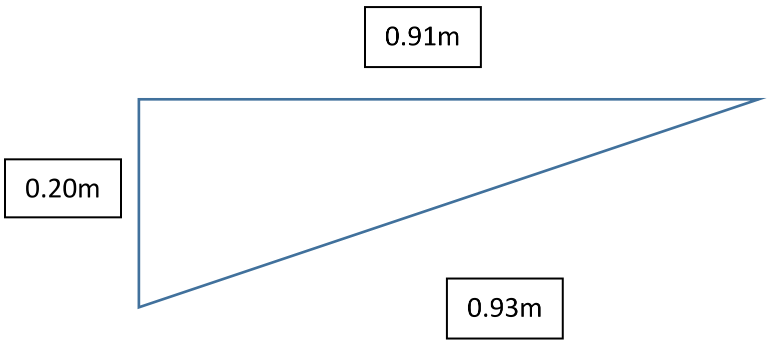
If the beam of the whole boat = 5.5 metres and we estimate each beam to be one third of the beam then beam length = 1.83m

Now we have a torque – a moment. If the beam is not to break then when the whole boat is flying on one hull this first couple must be exactly countered by another torque – that provided by the strut and inboard end of the beam.



If we estimate that the strut is attached halfway along the beam we can use similar triangles to calculate the different components. First off we have to remember that the strut has to pull down vertically TWICE the weight of the boat as it is only half as far along the beam as the float. This is why my old Twiggy had its underwires attached to the end of the beam.

Similar triangles using rough dimensions. First we measure the boat and get (Estimates here)



We know from the drawings above that the left hand side of the triangle is actually experiencing a force of 16000N. So we can multiply all the dimensions on the triangle by a factor to get 16000 on the left side.

16000 = k x 0.2

k= 16000/0.2

k= 80 000

So we multiply ALL of the dimensions by 80 000 to get the load on the triangle in Newtons. The load beam pushing in is 72 800N. Around 7 tonnes and pretty much the same load on the strut. Then you have to add extra for the fact that the boat heels ADDING load inwards and the boat falling off a wave will increase the load as well. Then add extra to cope with fatigue. I guess around 200 000N minimum. Around 20 tonnes load or 25 times the weight of the boat if the thing is not to fall apart quickly. Also you REALLY want to get the strut set as low as possible. Even a slight increase in angle will reduce load significantly.