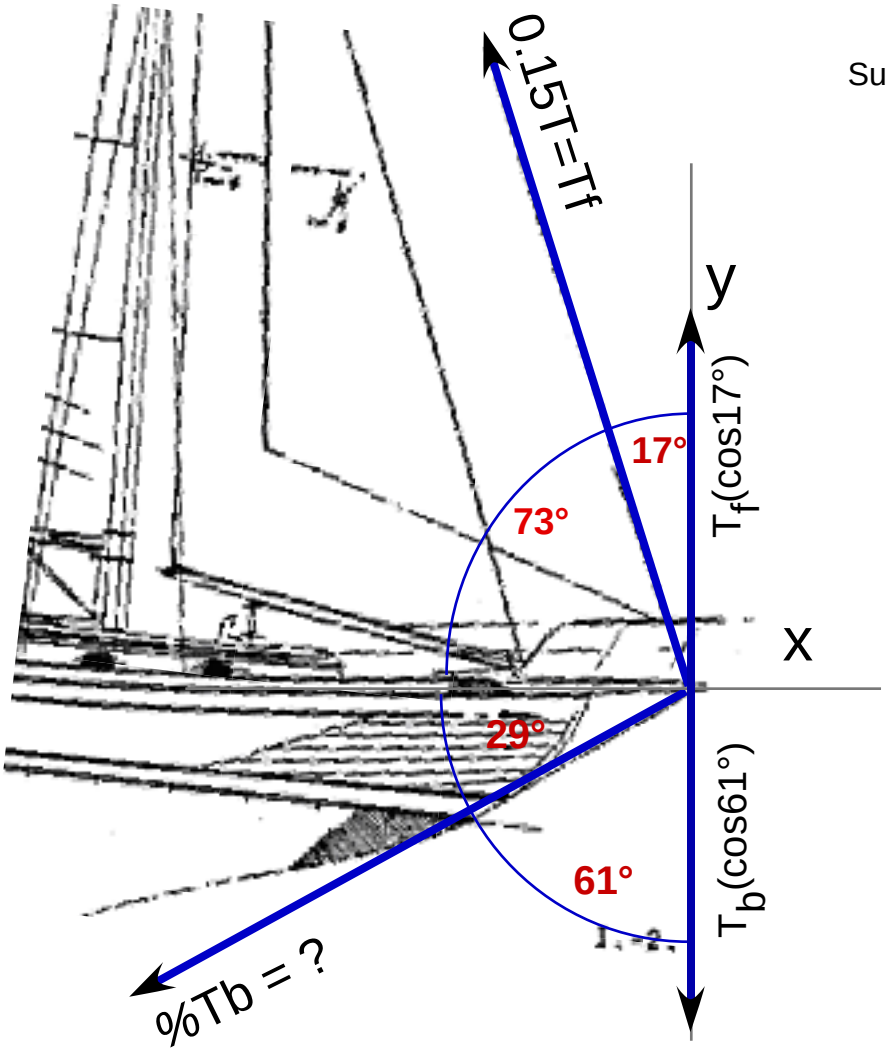
Setting Reactance Tension in Bobstay

Forestay intersects with Bowsprit @ 73 degrees
Bobstay intersects with Bowsprit @ 29 degrees
Normal Forestay tension @ 15% load. Forestay & bobstay diameter are same.
Question: what is proper Bobstay tension % to **equilibrate** reaction to forestay @ 15%
Note: *this method should prevent/attenuate the tendancy of the bowsprit to separate at its laminate structure ... and lessen water intrusion into the laminate joints / and subsequential internal rot of the bowsprit.*



Sum of Forces(x) = 0; Sum of Forces(y) = 0

Calculation:
Sum of Forces (y) = 0
0 = (Tf)cos17° - (Tb)cos61°
= {(Tf).95} - {(Tb).485}
{(Tf).95} / .485 = Tb
1.95Tf = Tb

therefore if Tf = 15% uts,
then Tb = 1.95 (.15) = 30%

Tension %	
Forestay	Bobstay
8%	15.6%
10%	19.5%
12%	23.4%
14%	27.3%
16%	31.2%

Therefore if T_f (forestay tension %) is 15%, then T_b (bobstay tension %) must be set to 29.5%; otherwise the bowsprit will be forced to either bend or deflect due to the unbalanced load applied to the bowsprit. Setting the bobstay at twice the % tension of the forestay may seem a bit scarey ..... but this will BALANCE the loads (in vertical direction) at the cranse; compressional loading induced into the bowsprit is ignored. If so balanced, then if greater loads are born by the forestay (due to heeling, genoa sheet winches, etc.) the bowsprit will begin to also bear a reactance load vs. the forestay, etc. If this "Twice Load" recommendation intimidates you, then consider to add a 'dolphin striker' to change (increase) the intercept angle of the bobstay to the cranse. One must be aware that wire (and all solids) are elastic and they must work in correct proportion when reacting to one another to keep the system 'in balance'. THE ABOVE CALCULATIONS APPLY FOR BOBSTAY AND FORESTAY THAT ARE OF EQUAL / SAME WIRE DIAMETER.