

CONDITIONS OF LOADING M.V. TWOSUCH = LIGHTSHIP + ONE BARREL
DISTANCE x WEIGHT = MOMENT **DISTANCE = MOMENT/DISPLACEMENT**

(Information supplied courtesy Marine Safety, WA Department for Planning and Infrastructure. Extracts by Ranger Hope© 2008).

Item Loaded	Tonnes	V.C.G.	Vert. Moment	L.C.G.	Long. Moment	F.S.N.
<i>An example load</i>	<i>The weight</i>	<i>Tanks & capacities</i>	<i>Calculation of T x VCG</i>	<i>+/- Tanks & capacities</i>	<i>Calculation of T x LCG</i>	<i>Summary of spaces</i>
One barrel of oil of 1 Tonne is loaded . Its CG is at 2 metres above the keel and 10 metres aft of the LCG. It is considered that as it is not a full barrel its virtual centre of gravity will be higher, calculated as a moment of 0.65 (Free Surface Numeral) Checking the curves of limiting KG and LCG quickly show us if the vessel is safely loaded.	1 Tonne	2Mtr	2Mtr/tonne	-10Mtr	-10Mtr/Tonne	0.65
Deadweight <i>Total the Tonnes added</i>	1		2		-10	
Lightship <i>From Stability Book</i>	148.46	3.479	516.61	-0.65	-96	-
Displacement <i>Deadweight + Lightshp</i>	149.46	3.469	518.61	-0.7	-106	0.65

New K.G.= $\frac{\text{New Vert. Moments}}{\text{Displacement}} = \frac{518.61}{149.46} = 3.4699\text{Mtr}$	New L.C.G.= $\frac{\text{New Long. Moments}}{\text{Displacement}} = \frac{-106}{149.46} = -0.7$
F.S.N.= $\frac{\text{New FSN. Moments}}{\text{Displacement}} = \frac{0.65}{149.46} = 0.004$	
Kgf = Corrected KG = 3.474Mtr	

Has the vessel SAFE or UNSAFE K.G.fluid AND L.C.G in this loading condition?
Show me the Curves of limiting KG & LCG.