

Preliminary Computation.

[Including bridge, (Class 2 closing appliances on hatch bulkhead openings)]

Lloyd's Register of Shipping.

Index. No.

(For London Office only).

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <i>Messrs Swan Hunter & Wigham</i> <i>Yard No. 1708</i> <i>[In the African Eastern Co.]</i>	Official Number	Nationality and Port of Registry	Gross Tonnage	Date of Build	Port of Survey
Moulded Dimensions: Length <i>410.67'</i> Breadth <i>56.5'</i> Depth <i>29.5'</i>					Date of Survey <i>20.3.41</i>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <i>12330</i> tons					Surveyor's Signature
Coefficient of fineness for use with Tables <i>742.</i>					Particulars of Classification <i>+ 100A1</i> <i>carrying bulkhead in bulk</i> <i>(can be completed)</i>

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... <i>29.50</i>	(a) Where D is greater than Table depth (D - Table depth) R = <i>(29.55 - 27.38) x 3 = +6.51"</i>	Moulded Breadth (B) <i>56.5'</i>
Stringer plate ... <i>.65</i>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times 12}{50} = 13.56"$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	Ship's Round of Beam = <i>13.50"</i>
Depth for Freeboard (D) = <i>29.55</i>		Difference <i>Deficiency</i> <i>.06"</i>
		Restricted to
		Correction = $\frac{\text{Diff}^*}{4} \times (1 - \frac{S_1}{L}) = .06 \times .2176 = \text{Nil}$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed ...	<i>151.62</i>	<i>151.62</i>	<i>7.5'</i>	<i>x .9</i>	<i>136.46</i>	Standard Height of Superstructure <i>7.5'</i>
" overhang ...						" " R.Q.D. <i>✓</i>
R.Q.D. enclosed ...						Deduction for complete superstructure <i>42.00"</i>
" overhang ...						Percentage covered $\frac{S}{L} = 58.42$
Bridge enclosed <i>open</i> ...	<i>39.50</i>	<i>19.75</i>	<i>7.5'</i>		<i>19.75</i>	" $\frac{S_1}{L} = 78.24$
" overhang aft ...						" $\frac{E}{L} = 72.09$
" overhang forward ...						Percentage from Table, Line A <i>Tanker</i> <i>65.66</i>
F'cle enclosed ...	<i>48.79</i>	<i>48.79</i>	<i>7.5'</i>		<i>48.79</i>	(corrected for absence of forecastle (if required)) <i>✓</i>
" overhang ...						Percentage from Table, Line B.
Trunk aft <i>(110.15 - 19.75)</i> <i>x 30/56.5</i> ...	<i>✓</i>	<i>101.15</i>	<i>7.5'</i>	<i>x .9</i>	<i>91.04</i>	(corrected for absence of forecastle (if required)) <i>✓</i>
" forward ...						Interpolation for bridge less than .2L (if required) <i>✓</i>
Tonnage opening aft ...						Deduction = <i>42.00 x .6566 = -27.58"</i>
" forward ...						
Total ...	<i>239.91</i>	<i>321.31</i>			<i>296.04</i>	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>51.07</i>	1		<i>51.07</i>	<i>51.00</i>	<i>51.00</i>	1		<i>51.00</i>
$\frac{1}{4}$ L from A.P. ...	<i>12.725</i>	4		<i>90.90</i>	<i>12.50</i>	<i>12.50</i>	4		<i>90.00</i>
$\frac{2}{4}$ L " ...	<i>5.62</i>	2		<i>11.24</i>	<i>5.5</i>	<i>5.50</i>	2		<i>11.00</i>
Amidships ...	-	4		-	-	-	4		-
$\frac{3}{4}$ L from F.P. ...	<i>11.235</i>	2		<i>22.47</i>	<i>13.00</i>	<i>13.00</i>	2		<i>26.00</i>
$\frac{1}{4}$ L " ...	<i>45.45</i>	4		<i>181.80</i>	<i>45.00</i>	<i>45.00</i>	4		<i>180.00</i>
F.P. ...	<i>102.13</i>	1		<i>102.13</i>	<i>102.00</i>	<i>102.00</i>	1		<i>102.00</i>
Total ...				<i>459.61</i>					<i>460.00</i>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{39}{18} \times (.75 - \frac{2921}{4579}) = -.01"$

If limited on account of midship superstructure. *✓*Mean actual sheer aft = *Deficient but > .75*Mean actual sheer forward = *Excess*Length of enclosed superstructure forward of amidships = *Tanker.*

aft of " =

Deduction for Tropical Freeboard.
Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = *29.55'*
Summer freeboard = *3.92'*
Moulded draught (d) = *25.63'*

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = *6.41 = 6 1/2"*
Addition for Winter North Atlantic Freeboard (if required) = *6.41 + 4.11 = 10.52 = 10 1/2"*

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Tons per inch immersion at summer load water line

Deduction = $\frac{\Delta}{40T}$ inches
 $\frac{d}{4} = 6 1/2"$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{742 + .68}{1.36} = 1.422/1.36$

Depth Correction ... *6.51*
Deduction for superstructures ... *27.58*
Sheer correction ... *.01*
Round of Beam correction ...
Correction for Thickness of Deck amidships ...
Other corrections, scantlings, etc. ...

+	-
<i>6.51</i>	<i>27.58</i>
<i>27.58</i>	<i>6.51</i>
<i>6.51</i>	<i>27.58</i>
<i>27.58</i>	<i>6.51</i>

Summer Freeboard = *46.76* *47.00*

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck

Tropical Fresh Water Line above Centre of Disc ... *13"*
Fresh Water Line " " ... *6 1/2"*
Tropical Line " " ... *6 1/2"*
Winter Line below " " ... *6 1/2"*
Winter North Atlantic Line " " ... *10 1/2"*

Tropical Fresh Water Freeboard ... *2' - 10"*
Fresh Water " " ... *3' - 4 1/2"*
Tropical " " ... *3' - 4 1/2"*
Winter " " ... *4' - 5 1/2"*
Winter North Atlantic " " ... *4' - 9 1/2"*