

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name <i>Massis Harland & Wolff Ltd</i> <i>Yard N° 1436 G.</i>	Official Number	Nationality and Port of Registry	Gross Tonnage	Date of Build	Port of Survey
Moulded Dimensions: Length <i>516.75'</i> Breadth <i>70.00'</i> Depth <i>37.75'</i> <i>To centre of R.S.</i>					Date of Survey <i>4.10.50.</i>
Moulded displacement at moulded draught = 85 per cent. of moulded depth <i>24850</i> tons					Surveyor's Signature
Coefficient of fineness for use with Tables <i>.749.</i>					Particulars of Classification <i>100 A1</i> <i>Carrying Petroleum in Bulk.</i>

DEPTH FOR FREEBOARD (D).				
Moulded depth	<i>37.75</i>
Stringer plate	<i>.08</i>
Sheathing on exposed deck	$T \left(\frac{L-S}{L} \right) =$			
Depth for Freeboard (D)	<i>37.83</i>			

DEPTH CORRECTION.	
(a) Where D is greater than Table depth (D-Table depth) R =	<i>(37.83-34.45)3 = +10.14"</i>
(b) Where D is less than Table depth (if allowed) (Table depth-D) R =	<i>3.38</i>
If restricted by superstructures	<i>✓</i>

ROUND OF BEAM CORRECTION.	
Moulded Breadth (B)	<i>70.00</i>
Standard Round of Beam = $\frac{B \times 12}{50}$	<i>16.80</i>
Ship's Round of Beam	<i>17.00</i>
Difference	<i>+ .20</i>
Restricted to	
Correction = $\frac{\text{Diff}^c}{4} \times \left(1 - \frac{S_1}{L}\right)$	<i>= \frac{.20}{4} \times .5364 = -.03"</i>

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed <i>Equivalent</i>	<i>131.83</i>	<i>131.83</i>	<i>8.00</i>	<i>✓</i>	<i>131.83</i>
" overhang					
R.Q.D. enclosed					
" overhang					
Bridge enclosed <i>Equivalent</i>	<i>40.97</i>	<i>40.97</i>	<i>7.50</i>	<i>✓</i>	<i>40.97</i>
" overhang aft					
" overhang forward					
Fore enclosed	<i>66.75</i>	<i>66.75</i>	<i>7.50</i>	<i>✓</i>	<i>66.75</i>
" overhang					
Trunk aft					
" forward					
Tonnage opening aft					
" forward					
Total	<i>239.55</i>	<i>239.55</i>			<i>239.55</i>

Standard Height of Superstructure	<i>7.50'</i>
" " R.Q.D.	<i>42.00"</i>
Deduction for complete superstructure	
Percentage covered $\frac{S}{L} =$	<i>46.36</i>
" $\frac{S_1}{L} =$	
" $\frac{E}{L} =$	
Percentage from Table, Line A <i>Tanker</i>	<i>37.36</i>
(corrected for absence of forecastle (if required))	
Percentage from Table, Line B.	
(corrected for absence of forecastle (if required))	
Interpolation for bridge less than .2L (if required)	
Deduction =	<i>42.00 \times .3736 = 15.69"</i>

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P.	<i>61.675</i>	1	<i>61.68</i>	<i>60.00</i>	<i>60.00</i>	1	<i>60.00</i>
$\frac{1}{2}$ L from A.P.	<i>27.445</i>	4	<i>109.78</i>	<i>18.70</i>	<i>18.70</i>	4	<i>74.80</i>
$\frac{2}{3}$ L	<i>6.785</i>	2	<i>13.57</i>	—	—	2	—
Amidships	—	4	—	—	—	4	—
$\frac{2}{3}$ L from F.P.	<i>13.57</i>	2	<i>27.14</i>	—	—	2	—
$\frac{1}{2}$ L	<i>54.89</i>	4	<i>219.56</i>	<i>49.00</i>	<i>49.00</i>	4	<i>196.00</i>
F.P.	<i>123.35</i>	1	<i>123.35</i>	<i>120.00</i>	<i>120.00</i>	1	<i>120.00</i>
Total			<i>555.08</i>				<i>450.80</i>

Mean actual sheer aft = *Deficient*
Mean standard sheer aft =

Mean actual sheer forward = *Deficient*
Mean standard sheer forward =

Length of enclosed superstructure forward of amidships = *Deficient*
" " aft of " = *Sho.*

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{104.28(.75 - .2318)}{18} = +3.00"$
If limited on account of midship superstructure. *✓* If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft. *✓*

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = *37.83*
Summer freeboard = *7.79*
Moulded draught (d) = *30.04*

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = *7.51 = 7\frac{1}{2}"*

Addition for Winter North Atlantic Freeboard (if required) = *7.51 + 5.17 = 12.68 = 12\frac{3}{4}"*

Deduction for Fresh Water.

Displacement in salt water at summer load water line
 $\Delta =$
Tons per inch immersion at summer load water line
T =

Deduction = $\frac{\Delta}{40 T}$ inches
= \frac{4}{4} = 1"

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	+	-
Depth Correction	<i>10.14</i>	<i>15.69</i>
Deduction for superstructures	<i>3.00</i>	<i>—</i>
Sheer correction	<i>—</i>	<i>.03</i>
Round of Beam correction	<i>—</i>	<i>—</i>
Correction for Thickness of Deck amidships	<i>—</i>	<i>—</i>
Other corrections, scantlings, etc.	<i>—</i>	<i>—</i>
	<i>13.14</i>	<i>15.72</i>

Summer Freeboard = *93.41*

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

Tropical Fresh Water Line above Centre of Disc	<i>15"</i>
Fresh Water Line	<i>7\frac{1}{2}"</i>
Tropical Line	<i>7\frac{1}{2}"</i>
Winter Line below	<i>7\frac{1}{2}"</i>
Winter North Atlantic Line	<i>12\frac{3}{4}"</i>

Tropical Fresh Water Freeboard	<i>6'-6\frac{1}{2}"</i>
Fresh Water	<i>7'-2"</i>
Tropical	<i>7'-2"</i>
Winter	<i>8'-5"</i>
Winter North Atlantic	<i>8'-10\frac{1}{4}"</i>