

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name MONARCH OF BERMUDA	Official Number 162650	Nationality and Port of Registry British London.	Gross Tonnage 22424	Date of Build 1931	Port of Survey 11
Moulded Dimensions: Length 550.0 Breadth 76.5 Depth 43.29					Date of Survey 17.12.43.
Moulded displacement at moulded draught = 85 per cent. of moulded depth 32065 tons					Surveyor's Signature
Coefficient of fineness for use with Tables .725					Particulars of Classification +100M with freeboard.

Depth for Freeboard (D). Moulded depth ... 43.29 Stringer plate03 Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) = .125 \times .1856 = .02$ Depth for Freeboard (D) = 43.34	Depth correction. (a) Where D is greater than Table depth $(D - \text{Table depth}) R = (43.34 - 36.67) \times 3 = +20.01$ (b) Where D is less than Table depth (if allowed) (Table depth - D) R = - If restricted by superstructures	Round of Beam correction. Moulded Breadth (B) 76.5 Standard Round of Beam = $\frac{B \times 12}{50} = 18.36$ Ship's Round of Beam = 5.00 Difference 13.36 Restricted to Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{13.36}{4} \times .1928 = 4.64$
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DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...					
„ overhang ...					
R.Q.D. enclosed ...					
„ overhang ...					
Bridge enclosed...	351.33	351.33	8.25	-	351.33
„ overhang aft ...					
„ overhang forward	2.58	1.29	8.0	-	1.29
F'cle enclosed ...	88.64	88.64	8.0	-	88.64
„ overhang ...	5.36	2.68	8.0	-	2.68
Trunk aft ...					
„ forward ...					
Tonnage opening aft ...					
„ „ forward					
Total ...	447.91	443.94			443.94

Standard Height of Superstructure **7.5**
 „ „ R.Q.D. **42**
 Deduction for complete superstructure
 Percentage covered $\frac{S}{L} = 81.44$
 „ „ $\frac{S_1}{L} = 80.72$
 „ „ $\frac{E}{L} =$
 Percentage from Table, Line A.
 (corrected for absence of forecastle (if required))
 Percentage from Table, Line B. **76.19**
 (corrected for absence of forecastle (if required))
 Interpolation for bridge less than .2L (if required) -
 Deduction = **42 x 76.19 = -32.00**

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	65.00	1	65.00	49.50	49.50	1	49.50		
$\frac{1}{4}L$ from A.P. ...	28.93	4	115.72	21.72	21.72	4	86.88		
$\frac{3}{4}L$ „ ...	7.15	2	14.30	5.43	5.43	2	10.86		
Amidships ...	-	4	-	-	-	4	-		
$\frac{3}{4}L$ from F.P. ...	14.30	2	28.60	13.67	13.67	2	27.34		
$\frac{1}{4}L$ „ ...	57.85	4	231.40	54.70	54.70	4	218.80		
F.P. ...	130.00	1	130.00	107.50	107.50	1	107.50		
Total ...			585.02				500.88		

Mean actual sheer aft =
 Mean standard sheer aft = } *definit*
 Mean actual sheer forward =
 Mean standard sheer forward = }
 Length of enclosed superstructure forward of amidships = } *sheer definit*
 „ „ aft of „ = }
 Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{84.14}{18} (.75 - .4072) = +1.60$
 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 = 43.44 Summer freeboard = 14.21 Moulded draught (d) = 29.23 Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 7.31 = 7 1/4 Addition for Winter North Atlantic Freeboard (if required) = ✓	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 = 7 1/4	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient $\frac{.725 + .68}{1.36}$ <table border="1"> <thead> <tr> <th></th> <th>+</th> <th>-</th> </tr> </thead> <tbody> <tr> <td>Depth Correction ...</td> <td>20.01</td> <td>-</td> </tr> <tr> <td>Deduction for superstructures ...</td> <td>-</td> <td>32.00</td> </tr> <tr> <td>Sheer correction ...</td> <td>1.60</td> <td>-</td> </tr> <tr> <td>Round of Beam correction ...</td> <td>.64</td> <td>-</td> </tr> <tr> <td>Correction for Thickness of Deck amidships ...</td> <td>1.26</td> <td>-</td> </tr> <tr> <td>Other corrections, scantlings, etc. <i>from extreme draught of 29.4</i> (Summer)</td> <td>58.74</td> <td>-</td> </tr> <tr> <td></td> <td>82.25</td> <td>32.00</td> </tr> <tr> <td>Summer Freeboard =</td> <td>170.50</td> <td></td> </tr> </tbody> </table>		+	-	Depth Correction ...	20.01	-	Deduction for superstructures ...	-	32.00	Sheer correction ...	1.60	-	Round of Beam correction64	-	Correction for Thickness of Deck amidships ...	1.26	-	Other corrections, scantlings, etc. <i>from extreme draught of 29.4</i> (Summer)	58.74	-		82.25	32.00	Summer Freeboard =	170.50	
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116.40
120.25
82.8.
17.12.43
+50.25
1 1/2 compensation

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

Tropical Fresh Water Line above Centre of Disc ...	14 1/2	Tropical Fresh Water Freeboard ...	13 1/2
Fresh Water Line „ „ ...	7 1/4	Fresh Water „ „ ...	13 - 7 1/4
Tropical Line „ „ ...	7 1/4	Tropical „ „ ...	13 - 7 1/4
Winter Line below „ „ ...	7 1/4	Winter „ „ ...	14 - 9 3/4
Winter North Atlantic Line „ „ ...	-	Winter North Atlantic „ „ ...	-