

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

(COMPUTATION FOR STEAMER, SAILING SHIP, TANKER.)

Ship's Name LIBERIAN.	Official Number 164284	Nationality and Port of Registry British, Liverpool	Gross Tonnage 5219	Date of Build 1936	Port of Survey
Moulded Dimensions: Length 400.00' Breadth 57.50' Depth 37'-3"					Date of Survey 8.4.41
Moulded displacement at moulded draught = 85 per cent. of moulded depth					Surveyor's Signature
Coefficient of fineness for use with Tables .782 (estimated)					Particulars of Classification + 100A1 with freeboard.

Depth for Freeboard (D).	Depth correction.	Round of Beam correction.
Moulded depth ... 37.25'	(a) Where D is greater than Table depth	Moulded Breadth (B) 57.50'
Stringer plate62	(b) Where D is less than Table depth (if allowed)	Standard Round of Beam = $\frac{B \times 12}{50} = 13.80'$
Sheathing on exposed deck	(Table depth - D) R =	Ship's Round of Beam = 14.25'
$T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	Difference .45'
Depth for Freeboard (D) = 37.30'		Restricted to
		Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.45}{4} \times .8961 = -.10'$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed ...						Standard Height of Superstructure 7.5'
" overhang ...						" " R.Q.D. ✓
R.Q.D. enclosed ...						Deduction for complete superstructure 42.00'
" overhang ...						Percentage covered $\frac{S}{L} = 10.79$
Bridge enclosed ...						" " $\frac{S_1}{L} = 10.39$
" overhang aft ...						" " $\frac{E}{L} = 10.39$
" overhang forward ...						Percentage from Table, Line A. 5.20
F'cle enclosed open ...	43.17	40.00	7.75'	✓	40.00	(corrected for absence of forecastle (if required)) ✓
" overhang ...		1.58			1.58	Percentage from Table, Line B. ✓
Trunk aft ...						(corrected for absence of forecastle (if required)) ✓
" forward ...						Interpolation for bridge less than .2L (if required) ✓
Tonnage opening aft ...						Deduction = 42.00 x .0520 = -2.18"
" forward ...						
Total ...	43.17	41.58			41.58	

SHEER CORRECTION.

Station	Standard Ordinate	S	Product	Actual Ordinate	Effective Ordinate	S	Product
A.P. ...	50.00	1	50.00	59.4	59.4	1	59.4
$\frac{1}{8}L$ from A.P. ...	22.25	4	89.00	28.1	28.1	4	112.4
$\frac{2}{8}L$ " ...	5.50	2	11.00	8.5	8.5	2	17.0
Amidships ...		4				4	
$\frac{3}{8}L$ from F.P. ...	11.00	2	22.00	11.7	11.7	2	23.4
$\frac{4}{8}L$ " ...	44.50	4	178.00	42.6	42.6	4	170.4
F.P. ...	100.00	1	100.00	118.25	118.25	1	118.25
Total ...			450.00				500.85

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{50.85 - .0540}{18} = \frac{50.80}{18} = 2.82$
 If limited on account of midship superstructure. **Yes, no allowance.** 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 = **37.30'**
 Summer freeboard = **12.83'**
 Moulded draught (d) = **24.47'**

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = **6.12 = 6"**

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

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

TABULAR FREEBOARD corrected for Fresh Deck (if required)

Correction for coefficient

	+	-
Depth Correction ...	31.89	
Deduction for superstructures ...	-2.18	
Sheer correction ...	-10	
Round of Beam correction ...		
Correction for Thickness of Deck amidships ...		
Other corrections, scantlings, etc. Corrected	47.53	
6 x Summer moulded draught	79.42	2.28
of 24'-5 1/2" (24'-5 5/8" actual)		
Summer Freeboard =	154.00	

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Water~~ Steel, Deck:

Tropical Fresh Water Line above Centre of Disc	12 1/2"
Fresh Water Line	6 1/2"
Tropical Line	6"
Winter Line below	6"
Winter North Atlantic Line	✓

Tropical Fresh Water Freeboard	11'-9 1/2"
Fresh Water	12'-11'-3 1/2"
Tropical	12'-4 1/2"
Winter	13'-4"
Winter North Atlantic	✓

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