

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having Complete Superstructure with Tonnage Opening aft & Forecastle Deck over

(Type of Superstructures.)

Port of Survey Hamburg

Date of Survey 13th March 1936

Name of Surveyor R. B. Shephard

Particulars of Classification +100A/ with freeboard (contemplated)

Ship's Name LIBERIAN

Nationality and Port of Registry British Liverpool

Official Number 164284

Gross Tonnage 10690

Date of Build 1936

Moulded Dimensions: Length 400.00' Breadth 57.50' Depth 25.50'

Moulded displacement at moulded draught = 85 per cent. of moulded depth 10690 tons

Coefficient of fineness for use with Tables .750

Depth for Freeboard (D) 25.50

Stringer plate 40

Sheathing on exposed deck T (L-S) =

Depth for Freeboard (D) = 25.53

Depth correction

(a) Where D is greater than Table depth (D-Table depth) R = ✓

(b) Where D is less than Table depth (if allowed) (Table depth-D) R = (26.67-25.53) 3.00 = -3.42"

If restricted by superstructures ✓

Round of Beam correction

Moulded Breadth (B) 57.50

Standard Round of Beam = $\frac{B \times 12}{50} = 13.80"$

Ship's Round of Beam = 14.25"

Difference Excess .45"

Restricted to

Correction = $\frac{\text{Diff}^2}{4} \times (1 - \frac{S_1}{L}) = \frac{.45^2}{4} \times .0064 = \text{Nil}$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	27.59	27.59	11'-9"	✓	27.59
" overhang ...	✓				
R.Q.D. enclosed ...	✓				
" overhang ...	✓				
Bridge enclosed ...	367.36	367.36	11'-9"	✓	367.36
" overhang aft ...	✓				
" overhang forward ...	✓				
Forecastle enclosed ...	✓				
" overhang ...	✓				
Trunk aft ...	✓				
" forward ...	✓				
Tonnage opening aft ...	5.05	2.52	11'-9"	✓	2.52
" forward ...	✓				
Total ...	400.00	397.47			397.47

Standard Height of Superstructure	7.50'
" " R.Q.D.	✓
Deduction for complete superstructure	42.00"
Percentage covered $\frac{S}{L} =$	100%
" " $\frac{S_1}{L} =$	99.36%
" " $\frac{E}{L} =$	99.36%
Percentage from Table, Line A. (corrected for absence of fore-castle (if required))	99.21%
Percentage from Table, Line B. (corrected for absence of fore-castle (if required))	
Interpolation for bridge less than 2L (if required)	
Deduction =	42.00 x .9921 = -41.66"

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate + 51"	Effective Ordinate	S	M	Product
A.P. ...	50.00	1		50.00	59.4"	110.40	1		110.40
$\frac{1}{4}$ L from A.P. ...	22.25	4		89.00	28.1	49.13	4		196.52
$\frac{2}{4}$ L " ...	5.50	2		11.00	8.5	12.14	2		24.28
Amidships ...	✓	4		✓	✓	✓	4		✓
$\frac{2}{4}$ L from F.P. ...	11.00	2		22.00	11.7	18.62	2		37.24
$\frac{1}{4}$ L " ...	44.50	4		178.00	42.6	75.30	4		301.20
F.P. ...	100.00	1		100.00	118.25	169.25	1		169.25
Total ...				450.00	+ 51"				838.89

Mean actual sheer aft = Excess

Mean standard sheer aft = Excess

Mean actual sheer forward = Excess

Mean standard sheer forward = Excess

Length of enclosed superstructure forward of amidships = ✓

" " aft of " = ✓

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left(\frac{.75 - S}{2L} \right) = \frac{388.89}{18} \left(\frac{.75 - .50}{.75} \right) = -5.40"$$

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 = 25.53

Summer freeboard = 2.06

Moulded draught (d) = 23.47

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 5.86 = 5 $\frac{3}{4}$ "

Addition for Winter North Atlantic Freeboard (if required) = ✓

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$$\Delta = 11871$$

Tons per inch immersion at summer load water line

$$T = 47.29$$

Deduction = $\frac{\Delta}{40T}$ inches

$$= \frac{11871}{40 \times 47.29} = 6.27 = 6\frac{1}{4}"$$

23 draft 36 Δ = 11516 TPI = 47.1

24 " " 12071 " 47.4

TABULAR FREEBOARD corrected for Plank Deck (if required)

Correction for coefficient

$$\frac{.75 + .68}{1.36} = \frac{1.43}{1.36}$$

	+	-
Depth Correction ...	-	3.42
Deduction for superstructures ...	-	41.66
Sheer correction ...	-	5.40
Round of Beam correction ...	-	-
Correction for Thickness of Deck amidships (60)	-	-
Other corrections, scantlings, etc. ...	-	-
	-	50.48

Summer Freeboard = 24.70

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

Tropical Fresh Water Line above Centre of Disc ...	12"
Fresh Water Line " " ...	6 $\frac{1}{4}$ "
Tropical Line " " ...	5 $\frac{3}{4}$ "
Winter Line below " " ...	5 $\frac{3}{4}$ "
Winter North Atlantic Line " " ...	✓

Tropical Fresh Water Freeboard ...	2'-0 $\frac{3}{4}$ "
Fresh Water " " ...	1'-0 $\frac{3}{4}$ "
Tropical " " ...	1'-6 $\frac{1}{2}$ "
Winter " " ...	1'-7"
Winter North Atlantic " " ...	2'-6 $\frac{1}{2}$ "

20 MAR 1936

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

[see also page 4]

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
Superstructure Deck					Freeboard Deck					
Description of Hatchway	1	2	4	5	1	2	3	4	5	To Deep Tanks
Dimensions of Hatchway	29'2"x20'	30'3"x20'	40'4"x20'	22'7"x20'	29'2"x20'	30'3"x20'	12'7"x20'	25'25"x20'	22'75"x20'	10'1"x8'5'
COAMINGS	Height above Deck	32"	32"	32"	32"	9"	9"	9"	9"	23"
	Thickness	44"	44"	44"	44"	52"	52"	52"	52"	44"
	Stiffeners	7x3x40 3/4" apart	all round	5x4 1/2" apart	all round	52"	52"	52"	52"	44"
	Brackets, Stays	sea side	3	5	2	✓	✓	✓	✓	✓
HATCH BEAMS	Number	4	4	6	3	4	4	2	3	3
	Spacing	70"	73"	70"	69"	70"	73"	51"	75"	68"
	Scantling and Sketch	A 19 3/4"x38"	16 1/4"x36"	15 1/2"x36"	15 1/2"x36"	26x40	27x40	29x42	27x40	26x40
	Bearing Surface	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"	3 1/2"
FORE AND AFTERS	Number									
	Spacing									
	Unsupported Lengths									
	Scantling* and Sketch				none fitted					
HATCH COVERS	Material	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.	W.P.	steel W.T.
	Thickness	2 3/4"	3 1/4"	2 3/4"	2 3/4"	3	3	3 1/4"	2 3/4"	cover 44"
	How fitted	F+H	F+H	F+H	F+H	F+H	F+H	F+H	F+H	efficiently
	Bearing Surface	3"	3"	3"	3"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	stiffened
Spacing of Cleats	24"	24"	24"	24"	24"	24"	24"	24"	24"	bolts
Number of Tarpaulins	3	3	3	3	1	1	1	1	1	
*Are wood fore and afters steel shod at all bearing surfaces? <input checked="" type="checkbox"/> Yes Are battens and wedges efficient and in good condition? <input checked="" type="checkbox"/> Yes Are tarpaulins in good condition and in accordance with rule requirements? <input checked="" type="checkbox"/> Yes Are lashings provided in accordance with rule requirements? <input checked="" type="checkbox"/> Yes. Hatchways on Superstructure & boat decks fitted with efficient transverse locking bars.										

Particulars of fiddle, funnel and ventilator coamings:—

Holdhold gratings covered by strong steel hinged covers.
 Fiddle, funnel and ventilator coamings efficient.
 Engine skylight of steel strongly constructed.

Particulars of Flush Bunker Scuttles:—

None.

Particulars of Companionways:—

None.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—

On S.S. Dk. 14 Vents, bungs 23" dia x 40, 36" high to holds.
 " " " 2 " " 17" x 40, 36" " " deep tanks.
 On Fore Dk 2 " " 23" x 40, 36" " " holds.
 " " " 1 " " 9" x 32, 36" " " stove.

All vent coamings strongly constructed and fitted with wood plugs and canvas covers.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—

On S.S. Dk. 24" above deck to openings, from double bottom & aft peak tanks.
 Openings closed with hinged covers, secured by butterfly nuts.
 On Fore Dk 18" above deck to openings, from double bottom & fore peak tanks.
 Openings closed by wood plugs and canvas covers.

Particulars of Gangway Cargo and Coaling Ports:—

None.



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Particulars of Scuppers and Sanitary Discharge Pipes — No scuppers led overboard from shelter tween deck spaces. — Drainage of these spaces by one scupper each side led to engine room bulges and fitted with a valve in accessible position at lower end of scupper pipes. One 5" dia. scupper fitted with non return screw down valve operated from the superstructure deck arranged on each side in the tonnage well aft. Sanitary discharges, — all from spaces above S.S. deck — fitted with storm valves at ship's sides.

Particulars of Side Scuttles:

None fitted below S.S. Dk.
Side scuttles in fore-castle strongly constructed & fitted with hinged deadlights.

Particulars of Guard Rails:—

On S.S. Deck efficiently supported plate bulwarks 3'-6" in height
On Fore-castle Deck efficiently constructed guard rails 3'-6" in height with three rod stanchions spaced about 4 ft apart.

Particulars of Gangways, Lifelines, etc.:

None

Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well ... <i>part S.S. Dk.</i>	134'	3'-6"	10'1" x 7'5"	3	22.7 ϕ	13.40 ϕ
Forward Well ... <i>part S.S. Dk.</i>	172'	3'-6"	10'1" x 7'5" 9'25" x 7'5" 2'75" x 1'7"	3	26.7	17.20 ϕ

State position of each freeing port (F. and A. position and height above deck edge) { After Well: *part fore end from aft end of side houses: - 7'5", 43'75"*
Forward Well: *part, aft end from fore end of side houses: - 6'5", 88'5", 104', 134'*

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— *with hinged cover with brass pins also two horizontal bars*

Additional area where sheer is less than standard.

Particulars of Superstructures, Trunks, Casings, Deckhouses.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ...	28	26	5 x 2 1/2 x 32 BH	30"	none	2 @ 48 1/2" x 36 3/4"	23"	11'-9"
Raised Quarter Deck Bulkhead ...	✓							
Bridge, After Bulkhead ...	28	26	5 x 2 1/2 x 32 BH	30"	none	2 @ 48 1/2" x 36 3/4"	23"	11'-9"
Bridge, Forward Bulkhead ...	✓							
Fore-castle Bulkhead ...	✓							
Trunk, Aft ...	✓							
Trunk, Forward ...	✓							
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	✓							
Exposed Machinery Casings on Super-structure Decks ...	34	32	3 x 2 1/2 x 32 BH	30 1/4"	Plat @ top	to BR 65 x 26 3/4 x 45 to ER 65 x 28 3/4 x 45	17"	8'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	50	32	4 1/2 x 2 1/2 x 30 BH	60 1/2"	Plat @ top no plat @ bottom	none	✓	11'-9"
Deckhouses on Flush Deck Ships ...	✓							

Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead ...	Wood shifting boards fitted in riveted channels for full height of openings
Raised Quarter Deck Bulkhead ...	✓
Bridge, After Bulkhead ...	Wood shifting boards fitted in riveted channels for full height of openings
Bridge, Forward Bulkhead ...	✓
Fore-castle Bulkhead ...	✓
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	Strong hinged steel doors, P.S. to Boiler Room
Exposed Machinery Casings on Super-structure Decks ...	Strong hinged hardwood doors P.S. to Engine Room
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	No openings.
Deckhouses on Flush Deck Ships ...	✓

all doors capable of being manipulated from both sides

Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo and coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shewn on the following sketches:—

Plans of the ship are to be shewn on the following sketches:—

6. Plan of 3' x 3' Post to the bunkers from coal shoot, fitted with ~~iron~~ ~~steel~~ covers, efficiently bolted.

Other Hatchways (see p. 2)

Other Hatchways (see p. 2)

to any special features in the construction of the ship:—

On Boat Dk, No 3 bargo 11'5"x20', bungs 30x44, 7" BA honyl stiff @ sides & fore end, one hatch beam [15½"x36", 3½"B.S., 2½"W.P. covers, 3'B.S., 2 tarps.]
" " " Ford Bunkers 7'6"x20' " 30x44 " " " " " " " " " " " "
" " " aft (shoot) 5'6"x18' " 32x44 2½"W.P. covers, 3'B.S., 2 tarps X
" Fore Dk A 3-8"x2-7' " 24x40 2½" " 2½" " 2 " X
" S.S. Dk B under deck 4'3"x4'-1" " 9x40 2½" " 2½" " 2 " X
" " " C in house aft 2-7"x4'-3" " 7x40 efficient lugged steel weathertight cover
" " " D to bunkers 7-5'2"x4' " 30x44 2½"W.P. covers, 3'B.S., 2 tarps X (fore & aft sections trunked to fwd dk.)
" " " Tonnage 6' long 5'x20' 12x60 2½" " 2½" no tarpaulins or battening arrangements.
" " " No 3 bargo, bunker, & coal shoot hatchways trunked between Boat & S.S. Dks.
" Fwd Dk, Bunker E P+S 6'x4' bungs 9x52, 2½"W.P. covers, 2½"B.S., 1 tarp. X
" " " " F P+S 5'x4' " 9x52, 2½" " 2½" " 1 tarp. X
" " " in Tonnage Well G 2-5'x10' " 18x40, 2½" " 3" " 1 tarp. X.

Builder's name and yard number.

Names of sister ships

Owners

Fee £