

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having

Complete superstructure Deck and Tonnage Opening aft

Port of Survey

Stockholm

(Type of Superstructures.)

Date of Survey

4 & 2 1932

Name of Surveyor

R. J. Andersson

Ship's Name

Nationality and Port of Registry

Official Number

Gross Tonnage

Date of Build

"BODEN"

Swedish
Stockholm

5595

4265

1914/5

Moulded Dimensions: Length 384.91' Breadth 53.481' Depth 26.06'

Moulded displacement at moulded draught = 85 per cent. of moulded depth 10109 (at 22.15 draught) tons

Coefficient of fineness for use with Tables

.777

Particulars of Classification

+ 100 A1

S.S. No. 2, 3, 26 Shelter dk with freeboard
S.S. Mms No. 1-30

Depth for Freeboard (D)

Moulded depth ... 26.06'

Striker plate ... 0.048'

Sheathing on exposed deck

 $T \left(\frac{L-S}{L} \right) =$

Depth for Freeboard (D) = 26.108'

Depth correction

(a) Where D is greater than Table depth

(D-Table depth) R =

(26.10 - 25.66) 2.961 = +1.30

(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) 53.481'

Standard Round of Beam = $\frac{B \times 12}{50} = 12.82$

Ship's Round of Beam = 13'

Difference = .18

Restricted to

Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.18}{4} \times .0075 = .001125$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	31.0	31.00	8.0		31.00
" overhang ...	2.812	1.06	8.0		1.06
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...	345.41	345.41	8.0		345.41
" overhang aft ...	2.813	1.60	8.0		1.60
" overhang forward ...					
F'cle enclosed ...					
" overhang ...					
Trunk aft ...					
" forward ...					
Tonnage opening aft ...	4.3225	2.92	8.0		2.92
" forward ...					
Total ...	384.91	381.99			381.99

Standard Height of Superstructure 7.349

" " R.Q.D.

Deduction for complete superstructure 40.99

Percentage covered $\frac{S}{L} = 100\%$ $\frac{S_1}{L} = 99.25\%$ $\frac{E}{L} = 99.25\%$

Percentage from Table, Line A.

(corrected for absence of forecastle (if required)) 99.07

Percentage from Table, Line B.

(corrected for absence of forecastle (if required))

Interpolation for bridge less than 2L (if required)

Deduction = 40.99 x .9907 = - 40.61

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ...	48.49	1	48.49	53	53.00	1	60.81
1/4 L from A.P. ...	21.58	4	86.32	20	21.13	4	108.24
1/2 L " ...	5.34	2	10.68	2	5.28	2	13.38
Amidships ...		4		0		4	
3/4 L from F.P. ...	10.67	2	21.34	16	12.71	2	28.12
3/4 L " ...	43.15	4	172.60	51	50.84	4	227.52
F.P. ...	96.98	1	96.98	120	120.00	1	127.81
Total ...			436.41				565.88

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{129.47}{18} (.75 - .50) = - 1.80$

If limited on account of midship superstructure.

If limited to maximum allowance of 1 1/2 ins. per 100 ft.

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Depth to Freeboard Deck = 26.10

Summer freeboard = 2.54

Moulded draught (d) = 23.56

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 5.89 = 150

Addition for Winter North Atlantic Freeboard (if required =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 10163 \text{ at } 22.15 \text{ draught}$

Tons per inch immersion at summer load water line

 $T = 40.49 \text{ at } 22.15 \text{ draught}$ Deduction = $\frac{40.49}{40} \text{ inches}$ $= 6.66 = 169$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

 $\frac{777 + .68}{1.36} = \frac{1.457}{1.36}$

Depth Correction ... 1.30

Deduction for superstructures ... 40.61

Sheer correction ... 1.80

Round of Beam correction ...

Correction for Thickness of Deck amidships ...

Other corrections, scantlings, etc. ...

Summer Freeboard = 30.53 = 775

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

Tropical Fresh Water Line above Centre of Disc ... 319

Fresh Water Line " " ... 169

Tropical Line " " ... 150

Winter Line below " " ... 150

Winter North Atlantic Line " " ...

Tropical Fresh Water Freeboard ... 456

Fresh Water " " ... 606

Tropical " " ... 625

Winter " " ... 925

Winter North Atlantic " " ...

16 SEP 1932

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS												
Main deck												
Description of Hatchway	18-5	2	3	4	5	6	7	8	9	10	11	12
Dimensions of Hatchway	23'4" x 24'0"	29'10" x 30'0"	8'6" x 18'0"	25'6" x 30'0"	24'0" x 4'4"	23'4" x 26'0"	29'10" x 30'0"	8'6" x 18'0"	25'6" x 30'0"	27'2" x 27'0"	8' x 3'	4'3" x 16'0"
COAMINGS	Height above Deck	32"	32"	32"	32"	32"	32"	32"	32"	32"	32"	32"
	Thickness	48"	48"	48"	48"	48"	48"	48"	48"	48"	48"	48"
	Stiffeners	40"	40"	40"	40"	40"	40"	40"	40"	40"	40"	40"
	Brackets, Stays	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"	6" x 40" 3/4"
HATCH BEAMS	Number	3	5	4	4	3	5	4	4	3	5	4
	Spacing	5'-10"	5'-0"	5'-1"	5'-1"	5'-10"	5'-0"	5'-1"	5'-1"	5'-10"	5'-0"	5'-1"
	Sketch	Plate	34" x 48"	35" x 48"	None	Same as no 2	30" x 48"	Same as no 1	None	Same as no 1	Same as no 1	Same as no 1
	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"	3 1/2"	3 1/2"
FORE AND AFTERS	Number	None	None	3	4	None	None	3	4	None	None	None
	Spacing	None	None	4'-7"	4'-7"	None	None	4'-7"	4'-7"	None	None	None
	Unsupported Lengths	None	None	7'-3" x 3'-4"	7'-3" x 3'-4"	None	None	7'-3" x 3'-4"	7'-3" x 3'-4"	None	None	None
	Sketch	None	None	11" x 48"	11" x 48"	None	None	11" x 48"	11" x 48"	None	None	None
HATCH COVERS	Material	Wood	Same as no 1	Wood	Same as no 1	Wood	Same as no 1	Wood	Same as no 1	Wood	Same as no 1	Wood
	Thickness	2 3/4"	Same as no 1	2 3/4"	Same as no 1	2 3/4"	Same as no 1	2 3/4"	Same as no 1	2 3/4"	Same as no 1	2 3/4"
	How fitted	3"	Same as no 1	3"	Same as no 1	3"	Same as no 1	3"	Same as no 1	3"	Same as no 1	3"
	Bearing Surface	3"	Same as no 1	3"	Same as no 1	3"	Same as no 1	3"	Same as no 1	3"	Same as no 1	3"
Spacing of Cleats	23"	23"	23"	23"	23"	23"	23"	23"	23"	23"	23"	23"
Number of Taraulins	2	2	2	2	2	2	2	2	2	2	2	2

Are wood fore and afters steel shod at all bearing surfaces?
 Are battens and wedges efficient and in good condition?
 Are tarpaulins in good condition and in accordance with rule requirements?
 Are lashings provided in accordance with rule requirements?

Particulars of fiddle, funnel and ventilator coamings:—
 Fiddle covered by strong steel hinged covers. Standing on shell plating deck.
 Funnel and ventilators in good condition.

Particulars of Flush Bunker Scuttles:—
 None

Particulars of Companionways:—
 In poop to crew space: 1 off steel with steel hinged door at aft end 4'4" x 23'5", sill 18" 5'0" x 2'-0" 16"
 In forecabin: 1 off steel with steel hinged door at aft end 4'4" x 23'5", sill 18" 5'0" x 2'-0" 16"
 Handles fitted both sides.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—
 8 off 13" diam. 36" x 36" coaming
 Wood covers and tarpaulins for closing fitted.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—
 Forward and aft: 5 1/2" diam. cast iron goose neck 5' high above deck.
 Amidships: 6 1/2" diam. 15" x 20" coaming.
 Canvas covers are supplied.

Particulars of Gangway Cargo and Coaling Ports:—
 None

Boden

Particulars of Scuppers and Sanitary Discharge Pipes:—
 Main deck scuppers led overboard through ship's side.
 Brass screw plugs fitted. Sanitary discharge pipes are led overboard through ship's side above main deck and fitted with storm valves.

Particulars of Side Scuttles:—
 Side lights through ship's side are fitted with hinged efficient dead lights.

Particulars of Guard Rails:—
 Open rails with three horizontal rods, stanchions 39" high spaced 5'-5" apart.

Particulars of Gangways, Lifelines, etc.:—
 None fitted.
 Subject to opening in forward tonnage in bulkhead be closed by wood boards fixed in channels bolted to the bulkhead height 4'8".

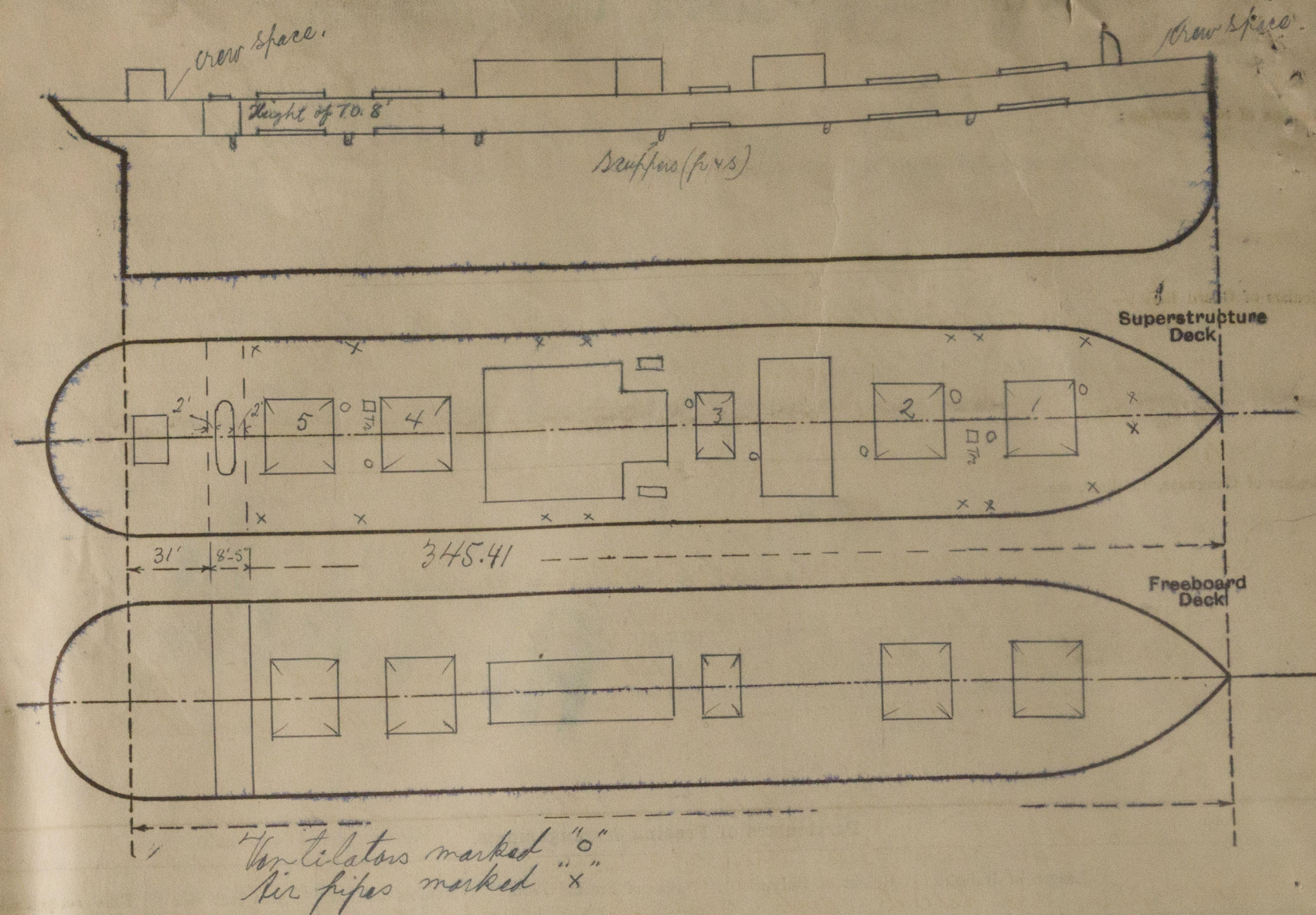
Particulars of Freeing Arrangements.						
	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well	8'-5"	8'0"	23" x 21"	1	3.35 sq ft.	
Forward Well						

State position of each freeing port:—
 (F. and A. position and height above deck edge)
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—
 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	none	28"	3 1/2" x 3" angle	Wood lining inside	none	8'-0" x 3'-10"	none	8'-0"
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	none	28"	3 1/2" x 3" angle	29"	none	8' x 3'	none	8'-0"
Bridge, Forward Bulkhead								
Forecastle Bulkhead								
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	18" x 48"	32"	3 1/2" x 2 1/2" angle	4'-2"	none	4'-0" x 2'-2"	19 1/2"	7'-0"
Exposed Machinery Casings on Superstructure Decks								
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
Deckhouses on Flush Deck Ships								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poop Bulkhead	Temporary wood hinged doors fitted.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	Wood boards in channels, temporary, attached to bulkhead.
Bridge, Forward Bulkhead	Temporary wood doors fitted. No channel bars fitted. Full height.
Forecastle Bulkhead	
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	One steel door (p.s.) to boiler room. Handle both sides.
Deckhouses on Flush Deck Ships	

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 shown on the following sketches:—



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

No timber freeboard required.

Rpt. C. 11 (Contd.)

OCT 19 1938

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Lloyd's Register of Shipping.

Ship's Name *Ss 'BODEN' of Stockholm* Official No. *5595*.

Memorandum of alterations reported since ship was surveyed for assignment of Load Lines in *August, 1932*.

The following alterations have now been effected, viz:—

Bulk angle horizontal stiffeners $200 \times 75 \times 12$ mm fitted to port and starboard side coamings of No. 1 & 5 hatches on shelter deck and connected to existing stays.

The following alterations were noted as having been carried out on some previous occasion, viz:—

Bulk angle horizontal stiffeners $180 \times 75 \times 10$ mm fitted to port and starboard side coamings of No. 2 & 5 hatches on shelter deck.

Twelve trimming hatches fitted in the lower decks size $32" \times 28"$ have now had the coamings increased to $11 \frac{1}{2}"$ high. They are fitted with rest bars, wood covers, battening arrangements and tarpaulins.

Göteborg 17th Oct. 1938
G. Mander

Builder's name and yard number

J. L. Thompson & Son, Sunderland, Yard no 506

Names of sister ships

Ss Narvik no 68201 in R.B.

Owners

Trafikaktieb. Grängsberg-Oxelösund

Fee

Kr. 350.00

Received by me