

16 MAY 1935

Rpt. C.11.

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Index. No. **28645**
(For London Office only.)

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having *Complete superstructure with tonnage opening aft and monkey forecabin.*

(Type of Superstructures.)

Port of Survey *Gothenburg.*

Date of Survey *14 May 1935*

Name of Surveyor *Göteborg*

Particulars of Classification **100 A.1. Heavy. dk. with freeboard.*

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
<i>M/S FORMOSA</i>	<i>Swedish Gothenburg</i>	<i>6722</i>	<i>5554.33</i>	<i>1921-2.</i>

Moulded Dimensions: Length *425.4'* Breadth *55.0'* Depth *30.5'*

Moulded displacement at moulded draught = 85 per cent. of moulded depth *13180* tons

Coefficient of fineness for use with Tables *.761*

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <i>30.5</i>	(a) Where D is greater than Table depth (D - Table depth) R = <i>(30.54 - 28.36) × 3 = +6.54</i>	Moulded Breadth (B) <i>55.0'</i>
Stringer plate <i>0.04</i>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times 12}{50} =$ <i>13.20</i>
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ <i>✓</i>	If restricted by superstructures	Ship's Round of Beam = <i>13.75</i>
Depth for Freeboard (D) = <i>30.54</i>		Difference <i>.55</i>
		Restricted to
		Correction = $\frac{\text{Diff}^*}{4} \times \left(1 - \frac{S_1}{L} \right) =$ <i>$\frac{.55}{4} \times .0056 = .00076$</i>

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	<i>34.54'</i>	<i>34.54</i>	<i>8'-0"</i>		<i>34.54</i>
" overhang	<i>0.4</i>	<i>.20</i>	<i>+ sheathing (3")</i>		<i>.20</i>
R.Q.D. enclosed					
" overhang					
Bridge enclosed	<i>384.24</i>	<i>384.24</i>	<i>8'-0"</i>		<i>384.24</i>
" overhang aft	<i>2.14</i>	<i>1.61</i>	<i>+ sheathing (3")</i>		<i>1.61</i>
" overhang forward					
Forecastle enclosed					
" overhang					
Trunk aft					
" forward					
Tonnage opening aft	<i>4.08</i>	<i>2.40</i>	<i>= 1/2 diff</i>		
" " forward					
Total	<i>425.40</i>	<i>422.99</i>			<i>422.99</i>

Standard Height of Superstructure <i>7.5'</i>
" " R.Q.D. <i>✓</i>
Deduction for complete superstructure <i>42'</i>
Percentage covered $\frac{S}{L} =$ <i>100.00</i>
" " $\frac{S_1}{L} =$ <i>99.44</i>
" " $\frac{E}{L} =$ <i>99.44</i>
Percentage from Table, Line A. <i>99.31</i>
(corrected for absence of forecabin (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 × 99.31 = -41.71</i>

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	<i>52.54</i>	<i>1</i>		<i>52.54</i>	<i>61.00</i>	<i>= 70.00</i>	<i>1</i>		<i>70.00</i>
1/8 L from A.P.	<i>23.38</i>	<i>4</i>		<i>93.52</i>	<i>26.07</i>	<i>31.15</i>	<i>4</i>		<i>124.60</i>
2/8 L "	<i>5.78</i>	<i>2</i>		<i>11.56</i>	<i>6.51</i>	<i>7.70</i>	<i>2</i>		<i>15.40</i>
Amidships	<i>-</i>	<i>4</i>		<i>-</i>	<i>0.00</i>	<i>-</i>	<i>4</i>		<i>-</i>
3/8 L from F.P.	<i>11.56</i>	<i>2</i>		<i>23.12</i>	<i>12.44</i>	<i>13.86</i>	<i>2</i>		<i>27.72</i>
1/8 L "	<i>46.76</i>	<i>4</i>		<i>187.04</i>	<i>49.76</i>	<i>52.06</i>	<i>4</i>		<i>208.24</i>
F.P.	<i>105.08</i>	<i>1</i>		<i>105.08</i>	<i>117.00</i>	<i>126.00</i>	<i>1</i>		<i>126.00</i>
Total				<i>472.86</i>					<i>571.96</i>

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{99.10}{18} (.75 - .50) = -1.38$

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 =	<i>30.54</i>
Summer freeboard =	<i>3.97</i>
Moulded draught (d) =	<i>26.57</i>

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = *6.64 = 169.4*

Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$ *13610*

Tons per inch immersion at summer load water line

$T =$ *45.95*

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

$=$ *7.41*

$=$ *188.4*

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

$\frac{.761 + .68}{1.36} = \frac{1.441}{1.36} =$

	+	-
Depth Correction	<i>6.54</i>	<i>-</i>
Deduction for superstructures	<i>-</i>	<i>41.71</i>
Sheer correction	<i>-</i>	<i>1.38</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>6.54</i>	<i>43.09</i>

Summer Freeboard = *47.66*SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, ~~Wood~~, Steel, Deck:— *1211.4*

Tropical Fresh Water Line above Centre of Disc	<i>357.4</i>	Tropical Fresh Water Freeboard	<i>85.4</i>
Fresh Water Line " "	<i>188</i>	Fresh Water " "	<i>102.3</i>
Tropical Line " "	<i>169</i>	Tropical " "	<i>104.2</i>
Winter Line below " "	<i>169</i>	Winter " "	<i>138.0</i>
Winter North Atlantic Line " "	<i>-</i>	Winter North Atlantic " "	<i>-</i>

510,332

MARKING FORM

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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
		Upper deck		Lower deck		Bunkers			
Description of Hatchway		14' 12 3/4 x 5	14' 12 3/4 x 5	Bunkers					
Dimensions of Hatchway		28' 8 1/2 x 18' 0"	28' 8 1/2 x 18' 0"	8' 10" x 4' 0"					
COAMINGS	Height above Deck	3 1/2"	9"	9"					
	Thickness	4 1/4"	9' 3 1/2" x 40"	9' 3 1/2" x 40"					
	Sides	4 1/4"							
	Stiffeners	200 x 57 x 12 L							
	Brackets, Stays	2							
HATCH BEAMS	Number	5	5						
	Spacing	4' 9 1/2"	4' 9 1/2"						
	Scantling and Sketch								
	Bearing Surface	4"	3"						
FORE AND AFTERS	Number								
	Spacing								
	Unsupported Lengths								
	Scantling* and Sketch								
	Bearing Surface								
HATCH COVERS	Material	Wood	Wood	Wood					
	Thickness	3"	3"	3"					
	How fitted	F. & R.	F. & R.	M. & R.					
	Bearing Surface	3 1/4"	3 1/4"	3"					
Spacing of Cleats		24"	35"	24"					
Number of Tarpaulins		2	1	1					

*Are wood fore and afters steel shod at all bearing surfaces? *None fitted*

Are battens and wedges efficient and in good condition? *yes*

Are tarpaulins in good condition and in accordance with rule requirements? *yes*

Are lashings provided in accordance with rule requirements? *yes*

Particulars of fiddle, funnel and ventilator coamings:— *No fiddle, Funnel and ventilators on top of engine casing 7'-6" high above upper deck in good condition*

Particulars of Flush Bunker Scuttles:—

Particulars of Companionways:—

Side deck to fore peak store. L=3'9" B=2'-6 1/2" H=3'8 1/2" hinged steel door at after end closed reasonably watertight with two turnbuckles till 9"

Poop deck. Access to crew quarter through steel deckhouse having hinged wood doors 4'9" x 2'-0" opened from both side and with 16" sill.

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

All ventilators 36" high above steel deck efficiently constructed and supported and supplied with woodplugs and canvas covers for closing

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

All air pipe of steel, opening 36" above deck and wood plugs or canvas covers supplied for all airpipes.

Particulars of Gangway Cargo and Coaling Ports:—

Particulars of Scuppers and Sanitary Discharge Pipes:— *3 scupper each side from lower deck space and 1 scupper each side in forepeak well, led overboard below freeboard deck and fitted with storm valve. Scupper each side from lower deck space led to engine room bilges. All sanitary discharge pipes are fitted with storm valves and none below freeboard deck.*

Particulars of Side Scuttles:—

Sidelights through ship's side are fitted with hinged, efficient deadlights.

Particulars of Guard Rails:—

Open rails 3'-9" high, with 4 rods and stanchions spaced about 4'-3" apart.

Particulars of Gangways, Lifelines, etc.:—

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						
Forward Well						

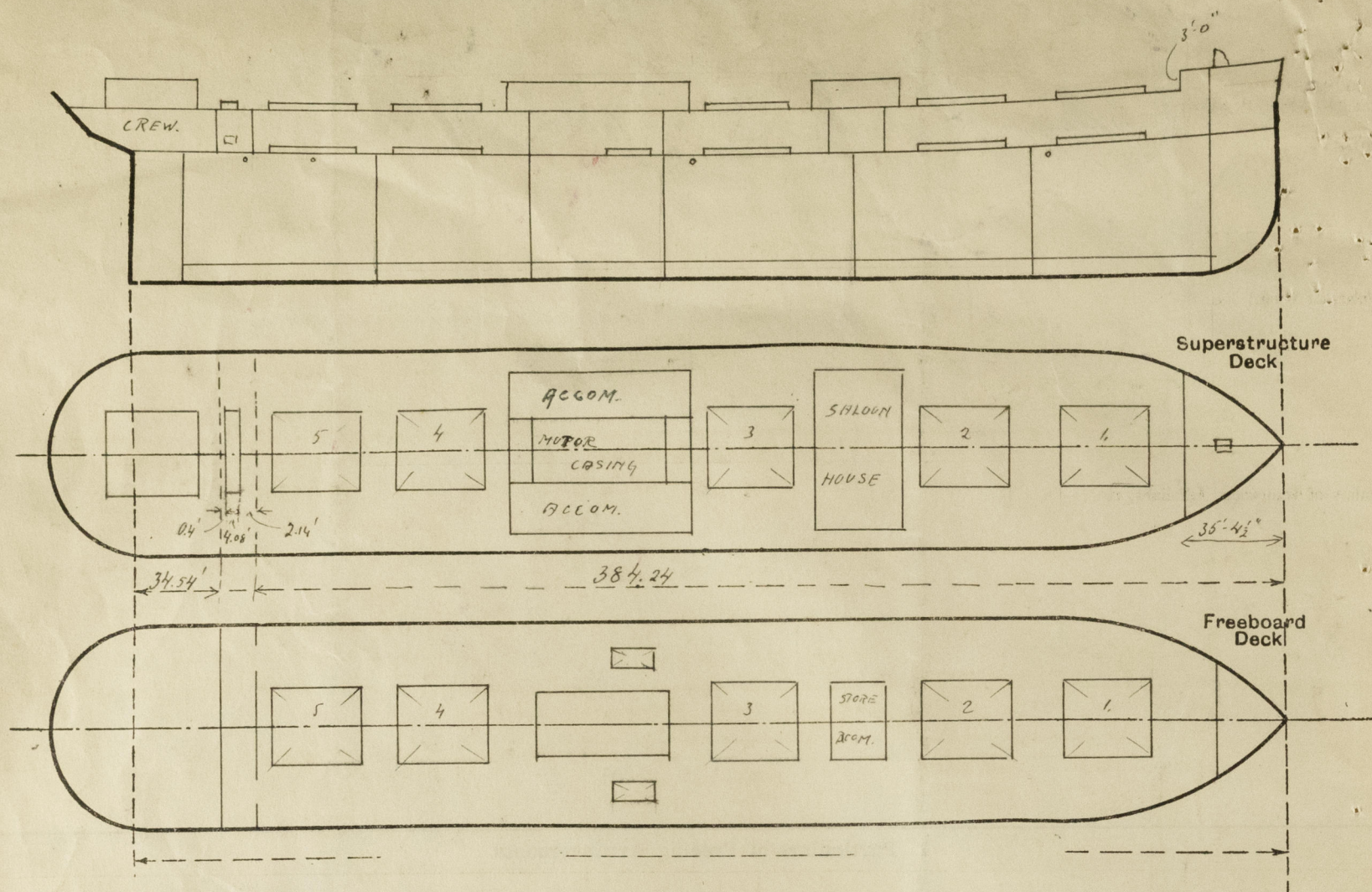
State position of each freeing port ... } After Well:—
(F. and A. position and height above deck edge) } Forward Well:—
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—
Additional area where sheer is less than standard.

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		40	Wood lining					
Raised Quarter Deck Bulkhead		40	150 x 75 x 10 L	28"	None	8'0" x 3'5"	None	8'0"
Bridge, After Bulkhead		40						
Bridge, Forward Bulkhead		38	4'5" x 36"	36"	"	None	"	3'
Forecastle Bulkhead								
Trunk, Aft								
Trunk, Forward								
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								
Deckhouses on Flush Deck Ships								

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

Poop Bulkhead	No opening
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	2 3/4" wood shifting boards in riveted channels full height.
Bridge, Forward Bulkhead	
Forecastle Bulkhead	No opening
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	
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 shewn on the following sketches:—



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

Tonnage opening hatch aft. 1230 x 5490 mm. with 300 x 90 x 13 L coaming and closed by 2 1/2" wood covers with tarpaulins and temporary battening down arrangements. ✓

1 Treeing part in tonnage well each side fitted with hinged steel shutters. ✓

The nupper pipes from the tween decks which were led to the bilges have now been closed by riveted steel plates (with exception of one nupper each side led to the machinery space bilges)

Builder's name and yard number *Akt. Burmeister & Wain, Copenhagen Yard N° 315*

Names of sister ships

Owners *A/S. Svenska Ostasiatiska Komp (G. Borin Mgr) Gothenburg.*

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