

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

GLASGOW REPORT No. 55847

Computation of Freeboard for ~~Steamer, Sailing Ship, Tanker~~ *M.V.*
having *Raised in S.R. Bridge & Forecastle*

(Type of Superstructures.)

Ship's Name <i>"KARU"</i> <i>Alas. Stephens & Sons Ltd</i> <i>No. 546</i>	Nationality and Port of Registry <i>New Zealand</i> <i>Wellington</i>	Official Number <i>157649</i>	Gross Tonnage <i>1044</i>	Date of Build <i>1935</i>
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Port of Survey *Glasgow*

Date of Survey *While building*

Name of Surveyor *A.W. Gatenon*

Particulars of Classification *+100 A1*
Contemplated

Moulded Dimensions: Length *220'* Breadth *35'* Depth *16'-7" as measured.*

Moulded displacement at moulded draught = 85 per cent. of moulded depth *1985* tons

Coefficient of fineness for use with Tables *.64* (*.68 lowest in Tables*)

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... <i>16.58</i>	(a) Where D is greater than Table depth (D-Table depth) R = $(16.62 - 14.67) / 1.95 = +3.30"$ ✓	Moulded Breadth (B) <i>35'</i>
Stringer plate <i>.50</i> ... <i>.04</i>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R = ✓	Standard Round of Beam = $\frac{B \times 12}{50} = 8.40"$
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ ✓	If restricted by superstructures ✓	Ship's Round of Beam = <i>9"</i>
Depth for Freeboard (D) = <i>16.62</i>		Difference <i>Excess .60"</i>
		Restricted to ✓
		Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L}\right) = \frac{.60}{4} \times .3485 = -.05"$ ✓

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 ...	<i>65.66</i>	<i>65.66</i>	<i>3'-10 1/2"</i>	✓	<i>65.66</i>
" overhang ...	✓				
Bridge enclosed ...	<i>53.66</i>	<i>53.66</i>	<i>7'-5"</i>	✓	<i>53.66</i>
" overhang aft ...	✓				
" overhang forward ...	✓				
F'cle enclosed ...	<i>24.00</i>	<i>24.00</i>	<i>7'-3"</i>	✓	<i>24.00</i>
" overhang ...	✓				
Trunk aft ...	✓				
forward ...	✓				
Tonnage opening aft ...	✓				
" forward ...	✓				
Total ...	<i>143.32</i>	<i>143.32</i>			<i>143.22</i>

Standard Height of Superstructure	<i>6.00'</i>
" " R.Q.D.	<i>3.80'</i>
Deduction for complete superstructure	<i>28.00</i>
Percentage covered $\frac{S}{L} =$	<i>65.15%</i>
" " $\frac{S_1}{L} =$	<i>65.15%</i>
" " $\frac{E}{L} =$	<i>65.15%</i>
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	<i>54.75%</i>
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	
Interpolation for bridge less than 2L (if required)	
Deduction = $28.00 \times .5475 =$	<i>-15.33"</i>

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P. ...	<i>32.00</i>	1	<i>32.00</i>	<i>33</i>	<i>33.90</i>	1	<i>33.90</i>
1/8 L from A.P. ...	<i>14.24</i>	4	<i>56.96</i>	<i>14</i>	<i>15.08</i>	4	<i>60.32</i>
2/8 L " ...	<i>3.52</i>	2	<i>7.04</i>	<i>3</i>	<i>3.73</i>	2	<i>7.46</i>
Amidships ...	✓	4	✓	—	✓	4	
3/8 L from F.P. ...	<i>7.04</i>	2	<i>14.08</i>	<i>7</i>	<i>7.00</i>	2	<i>14.00</i>
1/2 L " ...	<i>25.48</i>	4	<i>113.92</i>	<i>29</i>	<i>29.00</i>	4	<i>116.00</i>
F.P. ...	<i>64.00</i>	1	<i>64.00</i>	<i>66</i>	<i>66.00</i>	1	<i>66.00</i>
Total ...			<i>288.00</i>				<i>297.68</i>

Correction = $\frac{\text{Difference between sums of products}}{18} = \frac{9.68}{18} = .5377$ (if limited on account of midship superstructure. $\frac{142}{200} \times .23 = -.16"$ ✓)

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 = *.042 L*
" " aft of " = *>.1 L*

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>16.72</i>
Summer freeboard =	<i>1.29</i>
Moulded draught (d) =	<i>15.43</i>

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = $3.86 = 3 \frac{3}{4}"$

Addition for Winter North Atlantic Freeboard (if required) = $3 \frac{3}{4} + 2 = 5 \frac{3}{4}"$

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 2253$

Tons per inch immersion at summer load water line

$T = 15.10$

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

= $3.73"$

= $3 \frac{3}{4}"$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	+	-
Depth Correction ...	<i>3.30</i>	—
Deduction for superstructures ...	—	<i>15.33</i>
Sheer correction ...	—	<i>.16</i>
Round of Beam correction ...	—	<i>.05</i>
Correction for Thickness of Deck amidships ...	<i>1.25</i>	—
Other corrections, scantlings, etc. ...	—	—
	<i>4.55</i>	<i>15.54</i>
Summer Freeboard =	<i>15.61</i>	

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

Tropical Fresh Water Line above Centre of Disc ...	<i>7 1/2"</i>
Fresh Water Line " " ...	<i>3 3/4"</i>
Tropical Line " " ...	<i>3 3/4"</i>
Winter Line below " " ...	<i>3 3/4"</i>
Winter North Atlantic Line " " ...	<i>5 3/4"</i>

Tropical Fresh Water Freeboard ...

Fresh Water ...

Tropical ...

Winter ...

Winter North Atlantic ...

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS												
Description of Hatchway			No. 1 U. S. S.	No. 2 U. S. S.	No. 3 O. R. S. S.							
Dimensions of Hatchway			23' x 14'	23' x 14'	23' x 16'							
COAMINGS	{	Height above Deck	30"	30"	30"							
		Thickness	Sides	48"	48"	46"						
			Ends	44"	44"	44"						
		Stiffeners	7" B.P.	7" B.P.	7" B.P.							
Brackets, Stays		2-6" Bulk Plates	2-6" Bulk plates	2-6" Bulk plates								
HATCH BEAMS	{	Number	3	3	3							
		Spacing	5'-7 1/4"	5'-7 1/4"	5'-7 1/4"							
		Scantling and Sketch	5'-10 1/2"	5'-10 1/2"	5'-10 1/2"							
			14" x 3 1/2"	Same as No. 1.	14 1/2" x 3 1/2"							
Bearing Surface		LS 4 x 3 x 4 1/2"	3 1/2"	3 1/2"	LS 3 1/2 x 3 x 4 1/2"	3 1/2"						
FORE AND AFTERS	{	Number										
		Spacing										
		Unsupported Lengths										
		Scantling* and Sketch	✓	✓	✓							
Bearing Surface												
HATCH COVERS	{	Material	3"	3"	3"							
		Thickness	W. P.	W. P.	W. P.							
		How fitted	8 x 2	8 x 2	8 x 2							
		Bearing Surface	X 3"	X 3"	X 3"							
Spacing of Cleats			24"	24"	24"							
Number of Tarpaulins			3	3	3							

*Are wood fore and afters steel shod at all bearing surfaces? yes

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 fiddley, funnel and ventilator coamings :—

Ventilators on casing top in efficient condition. ✓
 Skylight of steel strongly constructed. ✓

Particulars of Flush Bunker Scuttles:—

None!

Particulars of Companionways :—

Steel houses of substantial construction leading to crew space & bridge space. For position & details of doors see sketch on last page.

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

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

<u>On fore-castle</u> :-	2 @ 18" diams.	coaming	36"x40"	to hold
	1 @ 9" "	"	36"x32"	to store
<u>On bridge</u> :-	2 @ 15" "	"	30"x36"	to hold
	15 @ 6" "	"	30"x30"	to bridge space
<u>On Quarter-deck</u> :-	5 @ 9" "	"	30"x32"	to crew space

Ventilators constructed in accordance with the Rules.
Coatings closed with wood plugs and canvas covers. ✓

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

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

<u>On forecastle</u> :-	1 air pipe	2 1/2" diam.	19" high	to D.B.	} On Bridge:- 2 air pipes 3" diam. to D.B.	} 31" high	
1 "	"	3" "	" "	to fore peak			2 " " 2" " " cofferdams
							2 " " 2 1/2 " " D.B.
<u>On upper deck</u> :-	2 air pipes	3 1/2 " "	36 " "	to D.B.	} On Quarter deck:- 1 " " 3" " " aft peak	} 18" high	
2 "	"	3 " "	" "	" "			1 " " 3 1/2 " " D.B.
2 "	"	2 " "	" "	" "			
1 "	"	2 1/2 " "	" "	" D.B.			

air pipes fitted with canvas covers.

Particulars of Gangway Cargo and Coaling Ports :—

none.

Particulars of Scuppers and Sanitary Discharge Pipes:—

From upper & lower decks:— Discharges from W.C.s, W.B.s & pantry sink led through ship's side 28" below upper deck & fitted with storm valve on shell. Discharges from two sinks on lower deck led through ship's side above lower deck & fitted with storm valve on shell & cocks on W.B. & pantry discharges. Upper deck scuppers & show drains led through ship's side 28" below upper deck, seven down comers fitted on top above deck & storm valves on shell. From Bridge & Rd 2 & 3:— Discharges from all W.C.s, W.B.s & sinks as above. Scuppers & show drains led through ship's side at same line as other discharges, gratings fitted on top above deck & storm valves at shell. All storm valves of gunmetal. All arrangements as already approved.

Particulars of Side Scuttles:—

All side scuttles in forecabin, bridge space & crew space aft fitted with hinged deadlights. All scuttles of substantial construction.

Particulars of Guard Rails:—

Guard rails on fore 3'-6" high with three rails & stanchions spaced 4'-3" apart. Steel bulwark in well & in way of In deck 3'-6" high efficiently constructed and supported. Steel bulwark on bridge at fore end 3'-6" high efficiently constructed & supported. Guard rails 3'-6" high with three rails & stanchions spaced 4'-3" apart elsewhere.

Particulars of Gangways, Lifelines, etc.:—

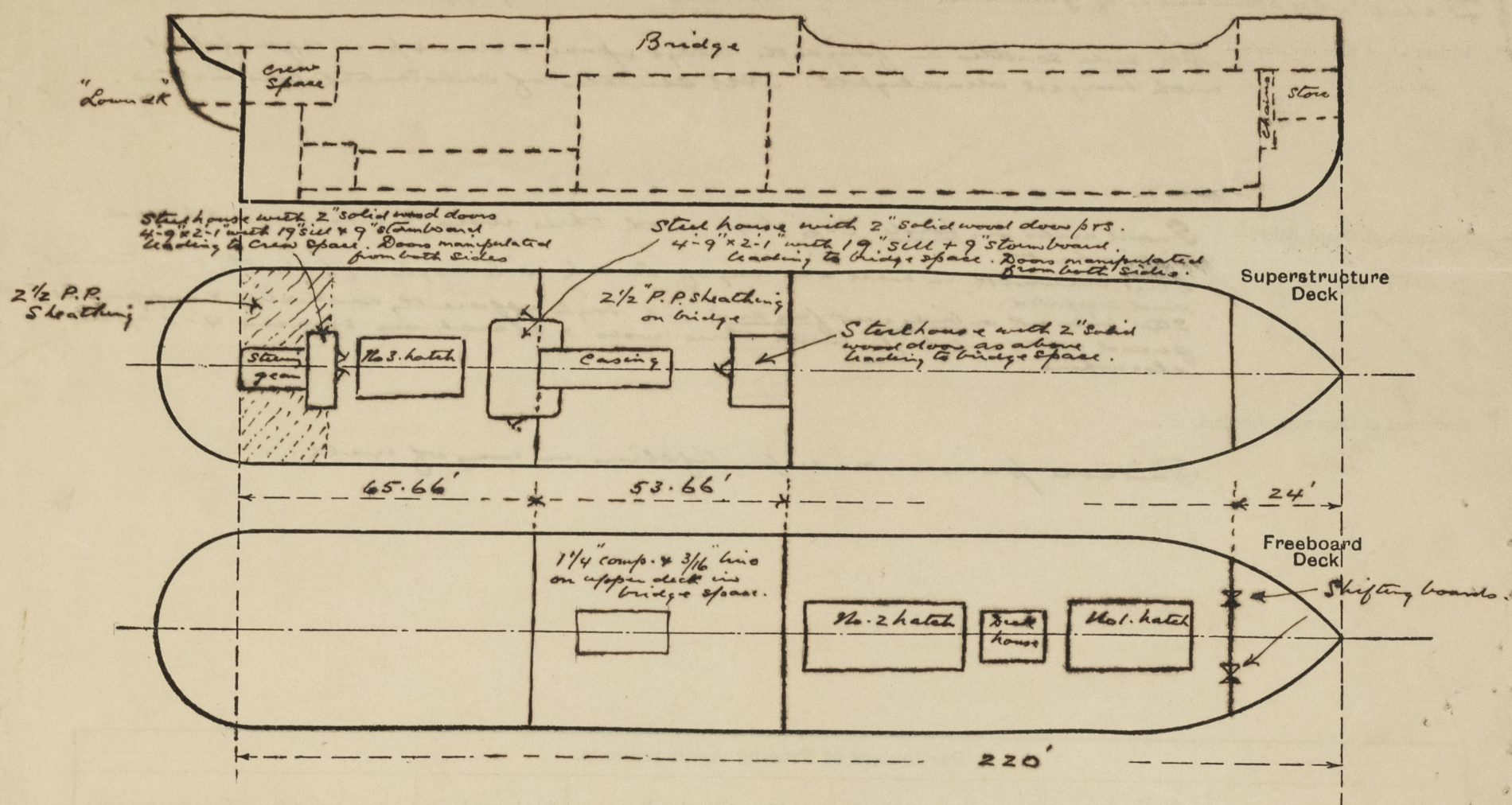
Suitable provision made for lifeline in way of well.

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	65.16	3'-6"	4'-0" x 18" 4'-9" x 9" slots	1 5	23.20	13.03 ✓
Forward Well	76.68	3-6	4'-0" x 18" 4'-6" x 9" slots 4'-10" x 9" slots	1 4 1	22.50	15.33 ✓
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	✓							
Raised Quarter Deck Bulkhead	✓	.32 ✓	3 x 3 x 10	36	✓	—	✓	3'-6 1/2" (exposed)
Bridge, After Bulkhead								
Bridge, Forward Bulkhead ... ..	.32 ✓	.32 ✓	7 x 3 x 10 L	30 ✓	Lug & rod	✓	✓	7'-5"
Forecastle Bulkhead ... ..	.23 ✓	.23 ✓	3 1/2 x 3 x 28	30 ✓	✓	5'-0" x 3'-1"	18 1/2	7'-3"
Trunk, Aft	✓							
Trunk, Forward	✓							
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	✓							
Exposed Machinery Casings on Super-structure Decks	✓	.37	3 1/2 x 3 x 34	30 ✓	✓	✓	✓	2'-6" above water
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	✓
Raised Quarter Deck Bulkhead ...	✓ No openings
Bridge, After Bulkhead	✓ No openings
Bridge, Forward Bulkhead	✓ No openings
Forecastle Bulkhead ... ..	.27 7/8" W.P. Shifting boards in vertical channels full height. ✓
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	✓
Exposed Machinery Casings on Super-structure 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:— *New Vessel to be employed in New Zealand Coastal trade.*

Approved profile & midship section plans forwarded for reference. Also freeboard request forms.

<u>Draught</u>	<u>Est. Displ.</u>	<u>Tons per inch.</u>
13'	1795	14.4
15'	2155	15.0

Preliminary freeboard assigned. Please see G.O. Rpt. No. 55089.

Builder's name and yard number *Alexander Stephens & Sons Ltd.* No. 546

Names of sister ships ☒

Owners *Union S.S. Co. of New Zealand Ltd.*

Fee £ 10 0 0

Received by me



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