

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

16 AUG 1932

Computation of Freeboard for Steamer, *Shell and Combined Propeller*.Having *Shell and Combined Propeller*.Port of Survey *Tanconar*.Date of Survey *May 25-26-27 June 1, July 22*.Name of Surveyor *Admiral R. R. R. R.*Particulars of Classification *+100 A1 min*
*structure.**EMPERESS OF SCOTLAND (20/11/22)*

Ship's Name *EMPERESS OF JAPAN* Nationality and Port of Registry *British London* Official Number *161430* Gross Tonnage *26032* Date of Build *1930*

Moulded Dimensions: Length *640* Breadth *83.8 83.5* Depth *48.5* *44.50*
Moulded displacement at moulded draught = 85 per cent. of moulded depth *230 moulded = 30750* tons
Coefficient of fineness for use with Tables *1.67 1.68 1.68 1.68*

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	48.5	(a) Where D is greater than Table depth (D - Table depth) R =		Moulded Breadth (B)	83.8 83.50
Stringer plate	0.4	(48.55 - 42.67) / 3 = 1.64		Standard Round of Beam = $\frac{B \times 12}{50}$	20.11 20.04
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) = .15 \times .0966 =$.01	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Ship's Round of Beam	6 6
				Difference	14.11
Depth for Freeboard (D) =	48.55	If restricted by superstructures		Restricted to	14.04
				Correction = $\frac{\text{Diff}}{4} \times (1 - \frac{S}{L})$	$\frac{14.04}{4} \times (1 - \frac{100}{100}) = 3.51$

DEDUCTION FOR SUPERSTRUCTURES.

Mean Covered Length (S)	Equivalent Enclosed Length (S _i)	Height	Height Correction	Effective Length (E)	Standard Height of Superstructure
Poop enclosed ...					7.6
" overhang ...					R.Q.D.
B.Q.D. enclosed ...					Deduction for complete superstructure 42.00
" overhang ...					Percentage covered $\frac{S}{L} = \frac{578.25}{640} = 90.34$
Bridge enclosed ...					" $\frac{S_i}{L} = \frac{575.62}{640} = 89.94$
" overhang aft ...					" $\frac{E}{L} = \frac{575.62}{640} = 89.94$
" overhang forward ...					Percentage from Table, Line A.
4 Fore enclosed ...	567.75	8.25		575.62	(corrected for absence of forecastle (if required)) $\frac{575.62 \times 42}{100} = 24.26$
" overhang ...	10.50	8.0 at End		7.87	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 = .8762 x 42 = 36.80
" forward ...					
Total ...	578.25			575.62	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	Mean actual sheer aft	Mean standard sheer aft
A.P. ...	74	1	74	50.5	50.5	50.5	1	50.5	50.5	26.04	38.356
1/2 L from A.P. ...	32.93	4	131.72	22.12	22.12	22.12	4	88.48	88.48	70.4	76.71
2/2 L " ...	8.14	2	16.28	5.5	5.5	5.5	2	11	11		
Amidships ...	0	4	0	0	0	0	4	0	0		
2/2 L from F.P. ...	16.28	2	32.56	15.2	15.2	15.2	2	30.4	30.4		
1/2 L " ...	65.86	4	263.44	61	61	61	4	244	244		
F.P. ...	148	1	148	135	135	135	1	135	135		
Total ...			666.0					557.39			

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{5.923(75 - \frac{578.25}{1280})}{18} = 1.768$

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 = 48.69
Summer freeboard = 18.21
Moulded draught (d) = 30.48

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 7.62
Addition for Winter North Atlantic Freeboard (if required) = 4 1/2

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 31302$

Tons per inch immersion at summer load water line

 $T = 100.55$ Deduction = $\frac{\Delta}{40T}$ inches $= 4.78$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

 $\frac{706 + 68}{136} = 5.36$

Depth Correction ...

Deduction for superstructures ...

Sheer correction ...

Round of Beam correction ...

Correction for Thickness of Deck amidships ...

Other corrections, scantlings, etc. ...

TO AN APPR. WINTER MOULDED DRAUGHT OF 29'-10"

Summer Freeboard = 218.50

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line.

Tropical Fresh Water Line above Centre of Disc ... 15 1/2 ...
Fresh Water Line " " ... 4 1/2 ...
Tropical Line " " ... 4 1/2 ...
Winter Line below " " ... 4 1/2 ...

Tropical Fresh Water Freeboard ... 16'-11 1/2"
Fresh Water Freeboard ... 17'-6 1/2"
Tropical ... 14'-4"
Winter ... 18'-10"

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MARKING FORM
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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

		HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS						
		Bridge	Prom Deck	Raised Boat	PROM	Bridge		
Description of Hatchway		No 1	No 2	No 3	No 4	No 5	No 6	
Dimensions of Hatchway		15.75 x 14	17.75 x 20	16.25 x 20	2 ABREAST 16.25 x 12	2 ABREAST 16.25 x 12	2 abreast 16.25 x 12	
COAMINGS	Height above Deck	30	30	30	30	FLUSH	30	
	Thickness	.44	.52	.52	.44		.52	
	Sides	.44	.44	.44	.44		.44	
	Ends	.44	.44	.44	.44		.44	
Stiffeners		7x3.5x5 bulk	7x3.5x5 Bulk	7x3.5x5 Bulk	7x3.5x5		7x3.5x5	
Brackets		6x5 bulk	6x5 bulk	6x5 bulk	6x5		6x5	
HATCH BEAMS	Number	2	2	2	2	2	Same as	
	Spacing	5.3	5.11	5.5	5.5	5.5	5.5	
	Scantling and Sketch	angle 3x3x4	angle 3x3x4	angle 3x3x4	angle 3x3x4	angle 3x3x4	angle 3x3x4	
	Bearing Surface	6.5	6.5	6.5	6.5	6.5	6.5	
FORE AND AFTERS	Number	None	None	None	None	None	None	
	Spacing	None	None	None	None	None	None	
	Unsupported Lengths	None	None	None	None	None	None	
	Scantling and Sketch	None	None	None	None	None	None	
Bearing Surface		None	None	None	None	None	None	
HATCH COVERS	Material	Steel	Wood	Same as 2	Same as 2	Same as 2	Same as 2	
	Thickness	3	3	3	3	3	3	
	How fitted	JOINTED & BOLTED	F.A.	3	3	3	3	
	Bearing Surface	3	3	3	3	3	3	
Spacing of Cleats		16	22.5	22.5	22.5	18" bolts	22.5	
Number of Tarpaulins		3	3	3	3	3	3	

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

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

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Particulars of fiddle, funnel and ventilator coamings: — Machinery Space Funnels to top. No open fiddle. Funnel trunks to angles on steel deck. Ventilators trunks to angles on steel deck.

Particulars of Flush Bunker Scuttles: — None. One hatch to store forward of midline. 3' x 3' 8" Coaming of steel 3/8 plate cover jointed & secured by eight 3/4 dia hinged bolts.

Particulars of Companionways: — Companion forward to Seaman Quarter 6'9" x 3' 1/2" plate 3/8 opening 6' x 2'0" over 13" steel deck, fitted with 5/16 plate hinged door opening from both sides.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks: — Coaming 35" plate 3/8 riveted to angle on steel deck. have wood plugs and canvas covers.

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks: — All air pipes lead overboard above 10' deck

Particulars of Gangway Cargo and Coaling Ports: — Space above D deck 6 cargo ports & 2 fueling ports. C — one gangway — one provision and one baggage port. B — one gangway port. All ship side ports of heavy steel construction with 11" T steel hinges down & steel fitting into slots and secured by heavy secured bolts. Space above A deck 2 gangway ports.

Empress of Japan

Particulars of Scuppers and Sanitary Discharge Pipes — All W.C.s are above C deck — fitted with brass storm valves on Ship's Side discharging above D deck, and provided closing controlled from C deck and marked open & shut.
 All scuppers above D deck are fitted with brass storm valves on Ship's Side
 Scuppers on D deck & below lead to bilges.

Particulars of Side Scuttles: All side Scuttles in crew & storage accommodation fitted with attached deadlights, and in 1st class accommodation, dining room etc with deadlights in racks.
 All side scuttles are of strong brass construction with heavy glass.
 The lowest scuttle is in storage quarters 80 feet from stem. and is 2'-4" below D deck and 3'-8" above base line.

Particulars of Guard Rails: — Bulwark for forward 36 feet on bridge deck
 Open rails for rest 50 feet
 Bulwark for after 72 feet on shellin deck

Particulars of Gangways, Lifelines, etc.: — Ample protection for full length in enclosed spaces.

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 ... Shellin deck	72	4'8"	16x12 to 20x108. in way of fairleads	3	22.38	16
Forward Well ... Bridge deck	36	4'8"	60x18 and 108x20 in way of fairleads	2	22.5	10.5

State position of each freeing port ... } After Well: — } 12' above deck
 (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: — hinged doors opening out.
 Additional area where sheer is less than standard.

Particulars of Superstructures, Trunks, Casings, Deckhouses.

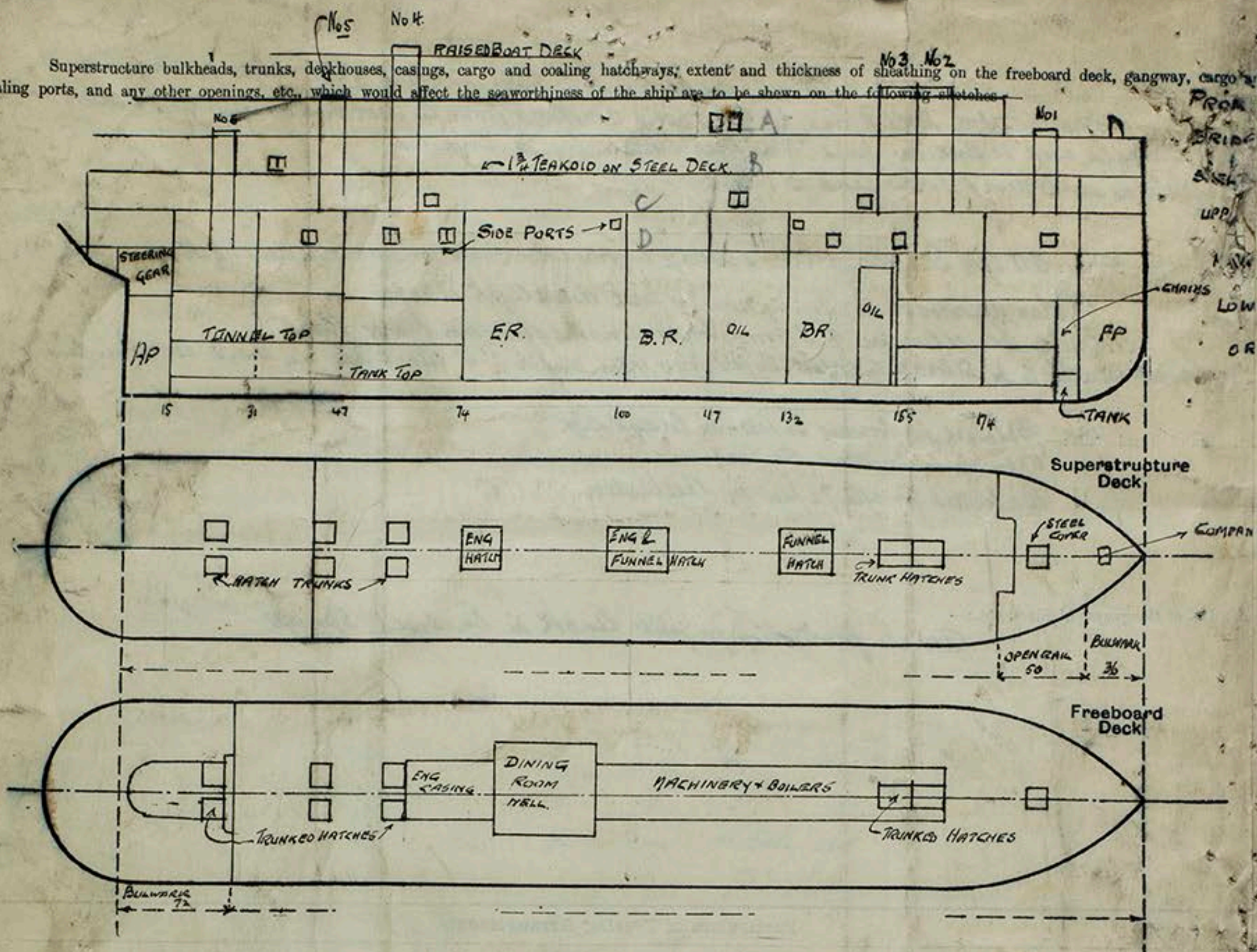
	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead ...								
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead ...	3/8	3/8	3x3x3/8 A	24"	not bracketed	5'6" in outside casing	15"	8'0"
Bridge, Forward Bulkhead ...								
Forecastle Bulkhead ...								
Trunk, Aft ...								
Trunk, Forward ...								
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 (Bridge deck space)	3/8	3/8	4x3x3/8	24"	Continuous in frame	P.S. 30" x 5'6"	13"	8'0"
Deckhouses on Flush Deck Ships ...								

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

Poop Bulkhead ...	
Raised Quarter Deck Bulkhead ...	
Bridge, After Bulkhead ...	4 hard wood hinged doors in bulkhead, which are covered by an outside casing having doors operated from both sides
Bridge, Forward Bulkhead ...	
Forecastle Bulkhead ...	
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	P.S. iron door 30" x 5'6" 1 3/4" thick Coaming 13" Hinged - Operated 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 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:—

Vessel examined afloat at Vancouver B.C. and on dry dock at Esquimalt, B.C.
 Bottom and rudder, cleaned, examined & coated.
 Decks, coamings and openings examined.
 Hatches, coamings & fastenings, hold trunks, bulkheads & H.T. doors examined.
 Examined, scuppers, sanitary discharges, scuttles, cargo, gangway and fueling ports and companions.
 Examined, ventilators & coamings, air & sounding pipes.
 Guard rails, bulwarks & openings.
 Draft marks checked on dry dock.

Builder's name and yard number *Harjuts Co La Glasgow. Yard No. 634.*

Names of sister ships

Owners *Canadian Pacific Rly Co. (managed Canadian Pacific Steamships Co.)*

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