

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

No. 30926

Computation of Freeboard for Steamer, Sailing Ship, Tanker
having *Houcastle, Bridge & Raised Quarter Deck*

Port of Survey *Sunderland*(Type of Superstructures.) *GUERNSEY*Date of Survey *19th May 1932*

Ship's Name *"SARNIA"* Nationality and Port of Registry *BRITISH GUERNSEY* Official Number *145765* Gross Tonnage *711* Date of Build *1923 10th mo.*

Moulded Dimensions: Length *179.83* Breadth *28.00* Depth *14.50*
Moulded displacement at moulded draught = 85 per cent. of moulded depth *1320* tons
Coefficient of fineness for use with Tables *.744*

Name of Surveyor *James Dickie*Particulars of Classification *+100A1.*

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth <i>14.50</i>	(a) Where D is greater than Table depth (D-Table depth) R = <i>(14.54 - 11.99) 1.384 = +3.53</i>	Moulded Breadth (B) <i>28.0</i> Standard Round of Beam = $\frac{B \times 12}{50} = 6.72$ Ship's Round of Beam = <i>7</i> Difference <i>.28</i> Restricted to <i>.2302</i> Correction = $\frac{\text{Diff}^2}{4} \times (1 - \frac{S_1}{L}) = \frac{.28^2}{4} \times (1 - .7698) = .02$
Stringer plate <i>.38</i> <i>.04</i>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =	
Sheathing on exposed deck <i>none</i> $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	
Depth for Freeboard (D) = <i>14.54</i>		

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>104.50</i>	<i>104.50</i>	<i>4.0</i>	✓	<i>104.50</i>
" overhang	✓				
Bridge enclosed	<i>11.00</i>	<i>11.00</i>	<i>7.3</i>	✓	<i>11.00</i>
" overhang aft	✓		<i>+22 wood</i>		
" overhang forward	<i>22.95</i>	<i>22.95</i>	<i>6.9</i>	✓	<i>22.95</i>
Fore enclosed	<i>23.67</i>	<i>22.95</i>	<i>+22 wood</i>		
" overhang					
Trunk aft					
" forward					
Tonnage opening aft					
" forward					
Total	<i>138.45</i>	<i>138.45</i>			<i>138.45</i>

Standard Height of Superstructure *6.0*
" " R.Q.D. *3.53*
Deduction for complete superstructure *23.983*
Percentage covered $\frac{S}{L} = 76.98\%$
" " $\frac{S_1}{L} = 76.98\%$
" " $\frac{E}{L} = 76.98\%$
Percentage from Table, Line A. *71.59%*
(corrected for absence of forecastle (if required))
Percentage from Table, Line B.
(corrected for absence of forecastle (if required))
Interpolation for bridge less than 2L (if required)
Deduction = *23.983 × 71.59 = -17.17*

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P.	<i>27.98</i>	1	<i>27.98</i>	<i>43.00</i>	<i>43.00</i>	1	<i>43.00</i>
$\frac{1}{2}L$ from A.P.	<i>12.45</i>	4	<i>49.80</i>	<i>18.12</i>	<i>18.17</i>	4	<i>72.68</i>
$\frac{2}{2}L$ "	<i>3.08</i>	2	<i>6.16</i>	<i>4.50</i>	<i>4.54</i>	2	<i>9.08</i>
Amidships	✓	4	✓	✓	✓	4	✓
$\frac{2}{2}L$ from F.P.	<i>6.16</i>	2	<i>12.32</i>	<i>7.37</i>	<i>7.31</i>	2	<i>14.62</i>
$\frac{1}{2}L$ "	<i>24.90</i>	4	<i>99.60</i>	<i>29.25</i>	<i>29.23</i>	4	<i>116.92</i>
F.P.	<i>55.96</i>	1	<i>55.96</i>	<i>60.00</i>	<i>60.00</i>	1	<i>60.00</i>
Total			<i>251.82</i>				<i>337.44</i>

Mean actual sheer aft = *Excess*
Mean standard sheer aft

Mean actual sheer forward = *Excess*
Mean standard sheer forward

Length of enclosed superstructure forward of amidships = *.142*

" " aft of " = *.50*

Sheers aft increased by virtue of excess R.Q.D. height
Actual R.Q.D. Deck height = *4.00*
Standard " = *3.53*
Difference = *.47*
= *5.64*

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{85.62}{18} \times (.75 - .3849) = -1.74$

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 = *18.54*
Summer freeboard = *4.44*
Moulded draught (d) = *14.10*

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = *3.52 = 3\frac{1}{2}*
Addition for Winter North Atlantic Freeboard (if required) = *2*

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 1552$

Tons per inch immersion at summer load water line

 $T = 10.25$ Deduction = $\frac{\Delta}{40T}$ inches $= 3.79$ $= 3\frac{3}{4}$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient $\frac{.744 + .68}{1.36} = 1.424$

	+	-
Depth Correction	<i>3.53</i>	✓
Deduction for superstructures	<i>17.17</i>	✓
Sheer correction	<i>1.74</i>	✓
Round of Beam correction	<i>.02</i>	✓
Correction for Thickness of Deck amidships	<i>48.00</i>	
Other corrections, scantlings, etc.		
51.53	18.93	+ 32.60
Summer Freeboard = <i>53.30</i>		

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

Tropical Fresh Water Line above Centre of Disc *7\frac{1}{2}*
Fresh Water Line " *3\frac{3}{4}*
Tropical Line " *3\frac{1}{4}*
Winter Line below " *3\frac{1}{2}*
Winter North Atlantic Line " *5\frac{1}{2}*

Tropical Fresh Water Freeboard *4' - 5\frac{1}{4}"*
Fresh Water " " *3' - 10\frac{1}{4}"*
Tropical " " *4' - 1\frac{1}{2}"*
Winter " " *4' - 8\frac{3}{4}"*
Winter North Atlantic " " *4' - 10\frac{3}{4}"*

26 MAY 1932

MARKING FORM
16 OCT 1935
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PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS			
Description of Hatchway		FORE WALL. Nº 1	RAISED OR DECK. Nº 2
Dimensions of Hatchway		31'2" x 15'6"	38'6" x 15'6"
COAMINGS	Height above Deck	39"	42"
	Thickness	4 1/4"	4 1/4"
	Stiffeners	7 x 3 x 40 Sides & Ends	4 1/4"
	Brackets, Stays	2 1/2" dia. 30 Sides	
HATCH BEAMS	Number	6 1/2	7 3/4
	Spacing	4' 5 1/2"	4' 9 3/4"
	Scantling and Sketch	14" x 3 1/2" x 42"	14" x 3 1/2" x 42"
	Bearing Surface	3"	3"
FORE AND AFTERS	Number		
	Spacing		
	Unsupported Lengths		
	Scantling* and Sketch		
HATCH COVERS	Material	Pl. Pl.	Pl. Pl.
	Thickness	2 1/2"	2 1/2"
	How fitted	F & A	F & A
	Bearing Surface	3"	3"
Spacing of Cleats		24"	24"
Number of Tarpaulins		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.

One hatch inside forecabin to Ross's store 1'8" x 1'6", angle bracing 3 x 3 x 30, 2 wood covers.

One circular hatch on raised quarter deck to after peak tank 17" dia. plate coaming 12 x 25, 4 pl. ale cover 25, secured with clips & bolts.

Particulars of fiddle, funnel and ventilator coamings:—
 Stokerhold gratings covered by strong steel hinged covers.
 Fiddle & funnel ventilators in efficient condition.
 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 :—

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

2 Ventilators on Forecastle-deck	6 dia. coamings	10" x 30"	Lid to crew spaces.	✓
2 — " — "	" — " — "	5" — " — "	10" x 30" — " — "	✓
One — " — "	Upper — " — "	12" — " — "	36" x 34" — " — Hol. hold.	✓
One — " — "	panic quarters — " — "	12" — " — "	36" x 34" — " — No 2 — " — "	✓

All ventilators constructed in accordance with Rules & coamings closed with wood plugs & canvas covers. ✓

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

[illegible]

Particulars of Gangway Cargo and Coaling Ports:—

NONE

Particulars of Scuppers and Sanitary Discharge Pipes:—

no Scuppers. ✓
 One transverse valve from H.C. discharge in crew's side forward ✓
 led out above upper-deck on starboard side.
 One transverse valve from H.C. discharge in Captain's side forward ✓
 on bridge-deck, led out above upper-deck on port side.
 One transverse valve from H.C. discharge in Engineer's deck house ✓
 led out in store room below raised quarter-deck, on starboard side.

Particulars of Side Scuttles:—

Side scuttles to crew spaces in bridge & fore-castle provided with hinged-deadlights. ✓
all scuttles of substantial construction. ✓

Particulars of Guard Rails:—

Guard rails on fore-castle 3'3" high with two rods & stanchions spaced about 4'0" apart. ✓
Bulwarks on upper-deck 3'9" x 28", Bridge-deck 3'4" x 25", & Raised Quarter-deck 3'6" x 25", all efficiently constructed & supported. ✓

Particulars of Gangways, Lifelines, etc.:—

Gangways & lifelines fitted in the forward well.

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 (RAISED QUARTER DECK)	104' 50" ✓	3' 6"	28" x 15 1/2" ✓ 2' 25" x 1' 27" 28" x 16"	2 } 4 } 7 1 }	21 ft ² 11 ft ² 43	20.90
Forward Well	40' 33" ✓	3' 9"	2' 50" x 1' 42"	3	10.65 ✓	10.57

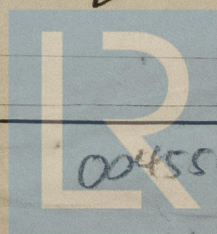
State position of each freeing port *See Sketch*. After Well:— 8 1/2" above (F. and A. position and height above deck edge) Forward Well:— 11" above ✓
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— } After Well:— Fitted with hinged shutters.
 } Fore Well:— Four fitted with hinged shutters, & two with framed bars fore & aft. ✓
 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	None ✓	26	3 x 2 1/2 x 28 + 2 webs 24" wide, 36 plates, double angles 3 x 3 x 30, base angle 3 x 3 x 30.	30" ✓	Brackets at top	None ✓	✓	✓
Bridge, After Bulkhead	✓	✓	✓	✓	✓	✓	✓	✓
Bridge, Forward Bulkhead	36 x 30 ✓	26 ✓	6 x 3 x 40 ✓	30" ✓	Brackets top & bottom.	None ✓	✓	✓
Fore-castle Bulkhead	None ✓	26 ✓	3 x 2 1/2 x 30 ✓	27 x 25 1/2 ✓	None ✓	4' 6" x 2' 0" ✓	15" ✓	✓
Trunk, Aft	✓	✓	✓	✓	✓	✓	✓	✓
Trunk, Forward	✓	✓	✓	✓	✓	✓	✓	✓
Exposed Machinery Casings on Fore-castle or Raised Quarter Decks	32 ✓	26 ✓	3 x 2 1/2 x 28 ✓	30" ✓	Brackets at top & bottom.	4' 6" x 1' 10" ✓	18" ✓	6' 9" ✓
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	✓	✓	✓	✓	✓
Raised Quarter Deck Bulkhead	None ✓				
Bridge, After Bulkhead	None ✓				
Bridge, Forward Bulkhead	None ✓				
Fore-castle Bulkhead	Two steel hinged doors to side-houses, & one wood panel door 1 3/8" thick to crew space, ✓				
Exposed Machinery Casings on Fore-castle or Raised Quarter Decks	Three steel hinged doors each side, manipulated from both sides. ✓				
Exposed Machinery Casings on Superstructure Decks	✓	✓	✓	✓	✓
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	✓	✓	✓	✓	✓
Deckhouses on Flush Deck Ships	✓	✓	✓	✓	✓

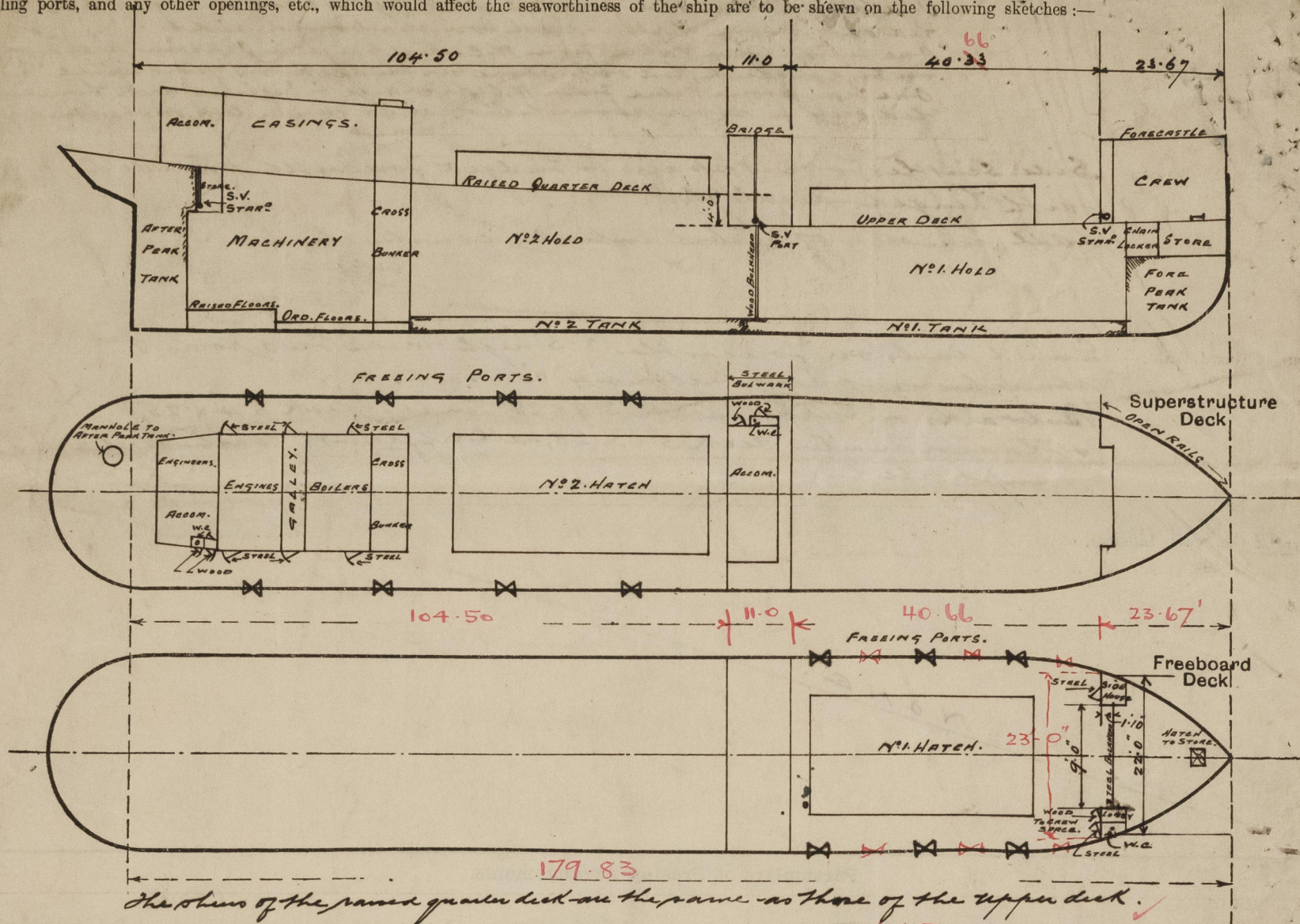


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004556-004563-0252

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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:—



$$\begin{aligned} & \text{F.C.L.S.} \\ & \text{LEN} = 23.67' \\ & \text{DEDUCT } 9.0 \times 1.85 = .72 \\ & \hline & 22.95 = \text{Eqn B} \end{aligned}$$

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

Vessel examined in dry-dock & afloat. ✓
Bottom, rudder, decks, casings, hatches, hatchways, ventilators & coamings, air pipes, bulwarks, & general equipment examined.
The holds have been generally examined & found satisfactory. ✓

Builder's name and yard number *C. R. Rinderson & Co. No 198.*

Names of sister ships *✓*

Owners *C. Dorey & Sons Ltd.*

Fee £ *6 : 16.*

Received by me *[Signature]*



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