

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

14692

Computation of Freeboard for ~~Steamer, Sailing Ship, Tanker~~  
having POOP & FORECASTLE

(Type of Superstructures.)

Ship's Name <b>SIR JAMES CLARK ROSS</b> <i>T.S. OIL ENG. VESSEL</i>	Nationality and Port of Registry <b>NORWEGIAN</b> <i>SANDEFJORD</i>	Official Number <b>14362</b>	Gross Tonnage <b>1930</b> <i>870.</i>	Date of Build <b>1930</b>
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Port of Survey MIDDLESBROUGH

Date of Survey 1932 July 19, 20, 21, 22.

Name of Surveyor J. E. Brighton

Particulars of Classification +100 A1 XNH FREE  
"HYALINE SERVICE"  
"CARRYING PETROLEUM IN BULK."

Moulded Dimensions: Length 535.25 Breadth 74 Depth 48.75  
Moulded displacement at moulded draught = 85 per cent. of moulded depth 39700 tons  
Coefficient of fineness for use with Tables .846 *EX. DISP. 402.8 K. 38290 T.P.I. 87.6*  
*39.6 B.K. 37230 " 87.4*  
*38.0 B.K. 36180 " 87.2*

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... .. <u>48.75</u>	(a) Where D is greater than Table depth (D - Table depth) R = <u>(49.01 - 35.68) × 3 = 39.99</u>	Moulded Breadth (B) <u>74</u>
Stringer plate ... .. <u>.72</u>	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times 12}{50} =$ <u>17.76</u>
Sheathing on exposed deck <u>3" THICK</u> <u>(SEE SKETCH)</u> $T \left( \frac{L-S}{L} \right) = .25 \times .7936 =$ <u>.20</u>	If restricted by superstructures	Ship's Round of Beam = <u>6</u>
Depth for Freeboard (D) = <u>49.01</u>		Difference <u>11.76</u>
		Restricted to
		Correction = $\frac{\text{Diff}^2}{4} \times \left( 1 - \frac{S_1}{L} \right) = \frac{11.76^2}{4} \times .7964 =$ <u>2.34</u>

## DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	
Poop enclosed ... ..	<u>120'</u>		<u>8'-0"</u>			Standard Height of Superstructure <u>7.50</u>
" overhang ... ..	<u>18'</u>					" " R.Q.D. ... ..
R.Q.D. enclosed ... ..						Deduction for complete superstructure <u>42.00</u>
" overhang ... ..						Percentage covered $\frac{S}{L} =$ <u>20.64</u>
Bridge enclosed ... ..						" " $\frac{S_1}{L} =$ <u>20.36</u>
" overhang aft ... ..						" " $\frac{E}{L} =$ <u>20.36</u>
" overhang forward ... ..						Percentage from Table, Line A. (corrected for absence of forecastle (if required))
Fore enclosed ... ..	<u>107.5</u>	<u>107.50</u>	<u>8'-0"</u>	<u>1.50</u>	<u>107.50</u>	Percentage from Table, Line B. <u>Tanker</u> <u>14.25</u> (corrected for absence of forecastle (if required))
" overhang ... ..	<u>3'-0"</u>	<u>1.50</u>				Interpolation for bridge less than .2L (if required)
Trunk aft ... ..						Deduction = <u>- 5.98</u>
" forward ... ..						
Tonnage opening aft ... ..						
" " forward ... ..						
Total ... ..	<u>110.50</u>	<u>109.00</u>			<u>109.00</u>	

## SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ... ..	<u>63.52</u>	1		<u>63.52</u>	<u>3.75</u>	<u>3.75</u>	1		<u>3.75</u>	Mean actual sheer aft =
1/4 L from A.P. ... ..	<u>28.27</u>	4		<u>113.08</u>	<u>0</u>	<u>-</u>	4		<u>-</u>	Mean standard sheer aft =
" ... ..	<u>6.98</u>	2		<u>13.96</u>	<u>0</u>	<u>-</u>	2		<u>-</u>	Mean actual sheer forward =
Amidships ... ..		4		<u>0</u>	<u>0</u>	<u>-</u>	4		<u>-</u>	Mean standard sheer forward =
3/4 L from F.P. ... ..	<u>13.97</u>	2		<u>27.94</u>	<u>0</u>	<u>-</u>	2		<u>-</u>	Length of enclosed superstructure forward of amidships =
1/4 L " ... ..	<u>56.53</u>	4		<u>226.12</u>	<u>.125</u>	<u>-</u>	4		<u>-</u>	" " aft of " =
F.P. ... ..	<u>127.04</u>	1		<u>127.04</u>	<u>35.75</u>	<u>35.75</u>	1		<u>35.75</u>	
Total ... ..				<u>571.66</u>					<u>39.50</u>	

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{532.16}{18} \left( .75 - \frac{1.032}{64.68} \right) = + 19.12$

If limited on account of midship superstructure. If limited to maximum allowance of 1 1/2 ins. per 100 ft.

Deduction for Tropical Freeboard.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)	95.45
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient $\frac{.846 + .68}{1.36} = 1.526$	107.10
Depth to Freeboard Deck = <u>49.06</u>	$\Delta =$ <u>30920</u>	Depth Correction ... .. <u>39.99</u>	
Summer freeboard = <u>16.52</u>	Tons per inch immersion at summer load water line	Deduction for superstructures ... .. <u>5.98</u>	
Moulded draught (d) = <u>32.54</u>	$T =$ <u>85.8</u>	Sheer correction ... .. <u>19.12</u>	
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <u>8.13</u> = <u>206 mm</u>	Deduction = $\frac{\Delta}{40 T}$ inches = <u>8.95</u>	Round of Beam correction ... .. <u>2.34</u>	
Addition for Winter North Atlantic Freeboard (if required) = <u>53.35</u> = <u>136 mm</u>	<u>= 227 mm</u>	Correction for Thickness of Deck amidships <u>1.50</u>	
		Other corrections, scantlings, etc. ... .. <u>33.58</u>	
		<u>97.13</u> <u>5.98</u>	<u>91.15</u>
		Summer Freeboard = <u>198.25</u> = <u>5036</u>	

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

Tropical Fresh Water Line above Centre of Disc	<u>17.08</u> = <u>433 mm</u>	Tropical Fresh Water Freeboard ... ..	<u>181.17</u> = <u>4603</u>
Fresh Water Line " "	<u>8.95</u> = <u>227</u>	Fresh Water " "	<u>189.30</u> = <u>4809</u>
Tropical Line " "	<u>8.13</u> = <u>206</u>	Tropical " "	<u>190.12</u> = <u>4830</u>
Winter Line below " "	<u>8.13</u> = <u>206</u>	Winter " "	<u>206.38</u> = <u>5242</u>
Winter North Atlantic Line " "	<u>13.48</u> = <u>342</u>	Winter North Atlantic " "	<u>211.22</u> = <u>5328</u>

89 AUG 1932

MARKING FORM

8 AUG 1932

RECEIVED 8 AUG 1932

2/ 910-2840-0196 1/2



Sir James Clark Ross

Particulars of fiddley, funnel and ventilator coamings :—

Particulars of Flush Bunker Scuttles:—

NONE FITTED.

Particulars of Companionways :—

1 STEEL COMPANION 6'-0" x 4'-11" x 7'-6" HIGH ON FORECASTLE DK. LEADING TO  
ENCLOSED FORECASTLE. DOUBLE STEEL DOOR WITH 15" SILL  
DOOR OPERATED FROM BOTH SIDES.

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

1	VENT. ON FLE DK. 10 DIA. CORR.	36"x. 32	LED TO LONETWEEN DKS.
1	" " " " " "	36"x. 34	LED TO PUMP ROOM
2	VENTS " " " " " "	36"x. 4	LED TO STORE ROOMS BELOW FREE <sup>8</sup> DK
11	" " FREE <sup>8</sup> DK. 18 " " "	36"x. 4	LED TO FACTORY
2	" " " " " "	36"x. 44	" " " "
2	" " " " " "	36"x. 4	" " PUMP ROOM
1	" " " " " "	36"x. 34	" " " "
2	" " POOP DK. 19 " " "	36"x. 4	" " STEERING GEAR HOUSE.

ALL VENTILATORS  
CONSTRUCTED IN ACCORDANCE  
WITH THE RULES &  
COVERINGS CLOSED WITH  
WOOD PLUGS & CANVAS  
COVERS.

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

1	W.I. AIR PIPE	ON F'C'LE DN.	26	"	3	DIA. FROM FORE PEAK TANK
1	"	"	24	"	3	COFFERDAM
2	"	PIPES	24	"	3	"
1	"	PIPE	24	"	3	DEEP TANK
2	C.I.	PIPES	26	"	4	COFFERDAM (CEN)
2	W.I.	"	24	"	3	" (SIDES)
2	"	POOP	24	"	3	DOUBLE BOTTOM TANKS
2	"	"	24	"	3	"
2	"	FREE BO	24	"	3	COFFERDAM (SIDES)
2	"	"	24	"	4	" (CEN)
2	"	"	24	"	4	DOUBLE BOTTOM TANKS

ALL AIR PIPES  
CLOSED WITH  
WOOD PLUGS

Particulars of Gangway Cargo and Coaling Ports :—

ONE WATERTIGHT DOOR P.S. BETWEEN FREE<sup>RD</sup> & 2<sup>ND</sup> DECK TO FACTORY. 4'-6" x 2'-6" 1'-2" SILL  
 SIX " DOORS 3P3S. " " " " " 3'-0" x 1'-8" 5'-2" " " " " " 5'-6" x 3'-6" 1'-14" " " " " " 2'-6" x 3'-0" 9'-6" "

ALL DOORS EFFICIENTLY CONSTRUCTED  
 and can be closed watertight.

Particulars of Scoopers and Sanitary Discharge Pipes —

SCUPPERS FROM 2<sup>ND</sup> DX. FITTED WITH STORM VALVE ON SHIPS SIDE, & SCREW DOWN VALVE ON INNER END.  
SANITARY DISCHARGE PIPES FITTED WITH GUNMETAL STORM VALVE ON SHIPS SIDE & EFFICIENT TRAP ON INNER END.  
*Scuppers from space below foreboard deck can be closed and controlled from deck.*

Particulars of Side Scuttles:

ALL SIDE SCUTTLES BELOW FREE<sup>BOARD</sup> DK. FITTED WITH HINGED DEADLIGHTS.  
" " " TO CREW SPACES IN POOP & FORECASTLE FITTED WITH  
HINGED DEADLIGHTS



Particulars of Guard Rails :—

STEEL BULWARK ON FREEBOARD DK. 3'-6" HIGH EFFICIENTLY CONSTRUCTED & SUPPORTED.  
STEEL BULWARK ON FORECASTLE DK. 3'-6" HIGH " " "  
GUARD RAIL ON POOP 3'-6" HIGH WITH 3 ROPS & STANCHIONS SPACED 5'-0" APART

Particulars of Gangways, Lifelines, etc. :—

NOHE FITTED.

ACCESS TO CREWS ACCOMMODATION IN FORECASTLE & POOP SPACES  
ON 2<sup>ND</sup> DK (FACTORY DECK.)

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 ... ..	125'-6" PORT 133'-6" STAR.	3'-6"	110 3'-6" x 9" 20 2'-0" x 9" 	13	30.24.	- PORT. 25'-1 3/4 FT. STAR. 26'-6 "
Forward Well ... ..	152	3'-6"	110 3'-6" x 9" 20 2'-0" x 9" 	13	30.24.	30.4

State position of each freeing port ... .. } After Well:— 10 7/8 ABOVE DECK.  
(F. and A. position and height above deck edge) } Forward Well:— 10 7/8 " " SEE SKETCH FOR F & A POSITION

State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— NONE

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 ' ... ..	42" x 44	40	10 x 3 1/2 x 4 B.A.	28" to 34"	LUGS TOP & BOTTOM.	5'-3" x 2'-0"	18"	8'-0"
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead ... ..								
Bridge, Forward Bulkhead ... ..								
Forecastle Bulkhead ... ..	18" x 3	3	4 x 3 x 3	3 1/2"	NONE	3 AT 5'-3" x 2'-0" 3 AT 5'-3" x 2'-3" 1 AT 5'-3" x 2'-4"	18"	8'-0"
Trunk, Aft ... ..								
Trunk, Forward ... ..								
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	45" x 4	36" x 1	5 1/2 x 3 x 8 1/2 3 x 2 1/2 x 3 1/4	30"	BRACKETS TOP & BOTTOM	NONE	NONE	16'-0" (SUPPLY)
Exposed Machinery Casings on Super-structure Decks ... ..	42" x 34	30	3 1/2 x 3 x 6	30"	BRACKETS ON TOP	5'-0" x 2'-0"	18"	8'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... ..	18" x 3	30	3 1/2 x 3 x 6	30"	BRACKETS ON TOP	5'-0" x 2'-0"	18"	8'-0"
BRIDGE Deckhouses on Flush Deck Ships ...	42" x 34	30	7 x 3 x 36 B.A.	31" to 36"	BRACKETS TOP LUGS BOTTOM	5'-3" x 2'-3"	18"	15'-6"

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

Particulars of Closing Appliances (State in capsule of being manipulated from both sides).	
Poop Bulkhead ... ..	2 HINGED WOOD DOORS 1 " STEEL DOOR ALL OPERATED FROM BOTH SIDES.
Raised Quarter Deck Bulkhead ...	✓
Bridge, After Bulkhead ... ..	✓
Bridge, Forward Bulkhead ... ..	✓
Forecastle Bulkhead ... ..	4 HINGED WOOD DOORS 3 " STEEL DOORS ALL OPERATED FROM BOTH SIDES.
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...	
Exposed Machinery Casings on Super-structure Decks ... ..	3 HINGED STEEL DOORS TO STOREHOLD I.P.S.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... ..	2 " " " " ENGINE ROOM I.P.S. ALL OPERATED FROM BOTH SIDES. 2 " " " " ENGINE ROOM I.P.S. 2 " " " " STOREHOLD I.P.S. ALL OPERATED FROM BOTH SIDES.
BRIDGE	2 STEEL HINGED DOORS P.S.
Dockhouses on Flush Deck Ships ...	2 " " " " S.S. ALL OPERATED FROM BOTH SIDES.



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Foundation