

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker  
having Poop centre castle & fore castle.  
(Type of Superstructures.)  
Ship's Name: WARINA. Nationality and Port of Registry: British London. Official Number: 142433. Gross Tonnage: 3120. Date of Build: 1918-5.  
Moulded Dimensions: Length 330.73. Breadth 46.50. Depth 25.50. Moulded displacement at moulded draught = 85 per cent. of moulded depth 7194 tons. Coefficient of fineness for use with Tables: .755.  
Port of Survey: Colombo. Date of Survey: 8th, 10th Feb. 1933. Name of Surveyor: H. S. Melton. Particulars of Classification: L.R. 100 A1. S.S. Cal No 3-4.20

Depth for Freeboard (D)				Depth correction		Round of Beam correction	
Moulded depth	...	...	25.50	(a) Where D is greater than Table depth (D-Table depth) R =	(25.55-22.05) 2543 18.90	Moulded Breadth (B)	46.5
Stringer plate	...	...	5.05	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =		Standard Round of Beam = $\frac{B \times 12}{50}$	11.16
Sheathing on exposed deck	...	...	nil			Ship's Round of Beam	12
T $\left(\frac{L-S}{L}\right) =$						Difference	.84
Depth for Freeboard (D) =			25.55	If restricted by superstructures		Restricted to	
						Correction = $\frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L}\right)$	$\frac{.84}{4} (.5095) = .11$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S <sub>1</sub> )	Height	Height Correction	Effective Length (E)	
Poop enclosed ...	32.92	32.92	7.6"		32.92	Standard Height of Superstructure 6.81
" overhang ...	1.25	.62			.62	" " R.Q.D. ✓
R.Q.D. enclosed ...						Deduction for complete superstructure 37.38
" overhang ...						Percentage covered $\frac{S}{L} = 49.49$
Bridge enclosed ...	98.23	98.23			98.23	" $\frac{S_1}{L} = 49.05$
" overhang aft ...	2.0"	1.50			1.50	" $\frac{E}{L} = 49.05$
" overhang forward ...	.75	.37			.37	Percentage from Table, Line A. (corrected for absence of forecastle (if required))
Fore enclosed ...	28.58	28.58			28.58	Percentage from Table, Line B. (corrected for absence of forecastle (if required))
" overhang ...						Interpolation for bridge less than .2L (if required)
Trunk aft ...						Deduction = 37.38 + 35.19 = 72.57
" forward ...						
Tonnage opening aft ...						
" forward ...						
Total ...	163.73	162.22			162.22	

SHEER CORRECTION.

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product	
A.P. ...	43.07	1	43.07	55	55.00	1	55.00	Mean actual sheer aft = Excess
1/4 L from A.P. ...	19.17	4	76.68	22.51	22.51	4	90.04	Mean actual sheer forward = Excess
2/4 L " ...	4.74	2	9.48	5.62	5.62	2	11.24	Mean standard sheer aft = Excess
Amidships ...		4				4		Mean standard sheer forward = Excess
3/4 L from F.P. ...	9.48	2	18.96	11.23	11.26	2	22.52	Length of enclosed superstructure forward of amidships = 7.1
1/4 L " ...	38.34	4	153.36	45.03	45.03	4	180.12	" " aft of " = 7.1
F.P. ...	86.15	1	86.15	102	102.00	1	102.00	
Total ...			387.70				460.92	

Correction =  $\frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{73.22}{18} (.75 - .2474) = -2.04$

If limited on account of midship superstructure.

If limited to maximum allowance of 1 1/2 ins. per 100 ft.

<b>Deduction for Tropical Freeboard.</b> Addition for Winter and Winter North Atlantic Freeboard. Depth to Freeboard Deck = 25.55 Summer freeboard = 3.96 Moulded draught (d) = 21.59 Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 5.39 5 1/2 Addition for Winter North Atlantic Freeboard (if required) =	<b>Deduction for Fresh Water.</b> Displacement in salt water at summer load water line $\Delta =$ Tons per inch immersion at summer load water line T = Deduction = $\frac{\Delta}{40 T}$ inches =	<b>TABULAR FREEBOARD</b> corrected for Flush Deck (if required) Correction for coefficient 1.36 Depth Correction ... 8.90 Deduction for superstructures ... 13.15 Sheer correction ... 2.04 Round of Beam correction ... .11 Correction for Thickness of Deck amidships ... Other corrections, scantlings, etc. ... Summer Freeboard = 47.62	51.20 54.02
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:—

Exposed structure	Tropical Fresh Water Line above Centre of Disc ...	Tropical Fresh Water Freeboard ...
Free Cal	Fresh Water Line " " ...	Fresh Water " " ...
Not fitted	Tropical Line " " ...	Tropical " " ...
Lines	Winter Line below " " ...	Winter " " ...
on Fl	Winter North Atlantic " " ...	Winter North Atlantic " " ...



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
Description of Hatchway	No 1	No 2	No 3	No 4	SUPERSTRUCTURE DECK		FREE BOARD DECK			
					Bunker Hatch	EMERGENCY HATCH PORT SIDE	SIDE BUNKER HATCHES	CENTRE HATCH	2 TRIMMING HATCHES	
Dimensions of Hatchway	26.5 x 23	26.5 x 23	26.5 x 23	26.5 x 23	18.15 x 10.25	2.7 x 1.75	8.7 x 3.75	18.15 x 10.25	2.7 x 1.9	
COAMINGS	Height above Deck	2.6"	DITTO	"	2.6"	1.75	2.6"	1.3"	9"	
	Thickness	7/16"								
	Sides									
	Ends									
HATCH BEAMS	Stiffeners	9 x 3.5 BULB								
	Brackets, Stays	2.175 ROUND IRON								
	Number	4	DITTO	DITTO	DITTO					
	Spacing	5.3"								
FORE AND AFTERS	Scantling and Sketch									
	Bearing Surface	3.7"	DITTO	DITTO	DITTO					
	Number	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	
	Spacing	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	
HATCH COVERS	Material	ALL PINE OR COUNTRY TEAK								
	Thickness	ALL 2 3/4" INCHES								
	How fitted	FORE & AFT								
	Bearing Surface	3 1/2" ANGLES ON HATCH COAMINGS								
Spacing of Cleats	ALL 2.0"									
Number of Tarpaulins	TWO PER HATCH									

Particulars of fiddle, funnel and ventilator coamings:—  
ON CENTRE CASTLE

Fiddle Top fitted by BATS and covers, funnel and guys in good order, Ventilator coamings on superstructure deck to Engine Room & Storehole & Bunkers all in good condition

Particulars of Flush Bunker Scuttles:—

NIL

Particulars of Companionways:—

NIL

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

FORE WELL				FORE CASTLE			
No	dia	COAMINGS THICKNESS		No	dia	COAMINGS THICKNESS	
1	8 1/2"	2.10"	30	3	1.5"	3.3"	3/8"
2	9 1/2"	2.10"	"	1	1.3"	3.0"	5/16"
2	10"	2.6"	"				
1	6"	9" to accommodate	25				
2	11"	6"	"				
3	6"	9"	"				

Ventilators closed by steel plate covers

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

FORE WELL				FORE CASTLE			
No	dia	COAMINGS THICKNESS		No	dia	COAMINGS THICKNESS	
1	12 1/2"	3.3"	3/8"	1	1.3"	3.0"	5/16"
3	1.3"	3.3"	"				
1	15 1/2"	3.0"	"				

wood plugs provided

Particulars of Gangway Cargo and Coaling Ports:—

NIL



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## Particulars of Scuppers and Sanitary Discharge Pipes —

3 = 2 1/2" dia soil pipes MidSHIP WITH STORM VALVES DISCHARGE ABOVE F. B. DECK  
2 = 2" drain pipes " " NO " " " "  
2 = SOIL discharges on F.B. Deck Level from native latrines.

## Particulars of Side Scuttles :

Height of Bulwarks in wells	3'-9"
" " " midships	3'-6"
Rails ON POOP	3'-2" stanchion PITCH 5'-2" Average 1 1/4" Dia
" " FORE CASTLE	3'-2" " " " "

## Particulars of Gangways, Lifelines, etc.:—

No gang ways or lifelines - Temporary line fitted  
in rough weather from poop to midships

### 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 ... ..	85'-10"	3'-9"	3'-0" x 1'-6"	4	18 sq ft	17.0
Forward Well ... ..	86'-0"	3'-9"	3'-0" x 1'-6"	4	18 sq ft.	17.2

State position of each freeing port ... { After Well:— from Poop 13'-6" - centre 18'-2" 20'-9" 18'-2 1/2" 15'-2 1/2" } openings all 1'-1" above deck.  
(F. and A. position and height above deck edge) { Forward Well:— " C. Castle 15'-2" 18'-2" 20'-9" 18'-2" 10'-9" }  
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— ~~no shutters~~, 2 = 7/8" Bars GFT HORIZONTAL AND 3 1 1/2" x 3/8" Flat VERTICAL Bars FORWARD  
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	.375	6" x 3 1/2"	2'-4"	Bracketted	2' x 4'-4"	1'-7"	7'-6"
Raised Quarter Deck Bulkhead ...	—	—	—	—	—	—	—	—
Bridge, After Bulkhead ... ..	NIL	.30	Plate flanged 4 1/2"	3'-6"	NIL	3'-6" x 5'-0"	1'-6"	7'-6"
Bridge, Forward Bulkhead ... ..	1'-8"	.375 ✓	8" x 3 1/2" BULB Plate flanged 5"	2'-10"	BRACKETTED ✓	2'-6" x 4'-3" ✓	1'-6" ✓	7'-6" ✓
Forecastle Bulkhead ... ..	NIL	.35 ✓	—	2'-6 1/2"	BRACKETTED AT CASINGS ONLY.	TWO 4'-3" x 2'-0" ONE 5'-9" x 4'-0"	1'-6"	7'-6"
Trunk, Aft ... ..								
Trunk, Forward ... ..								
Exposed Machinery Casings on Free- board or Raised Quarter Decks ...								
Exposed Machinery Casings on Super- structure Decks ... ..								
Machinery Casings within Superstruc- tures not fitted with Class I Closing Appliances ... ..								
Deckhouses on Flush Deck Ships ...								

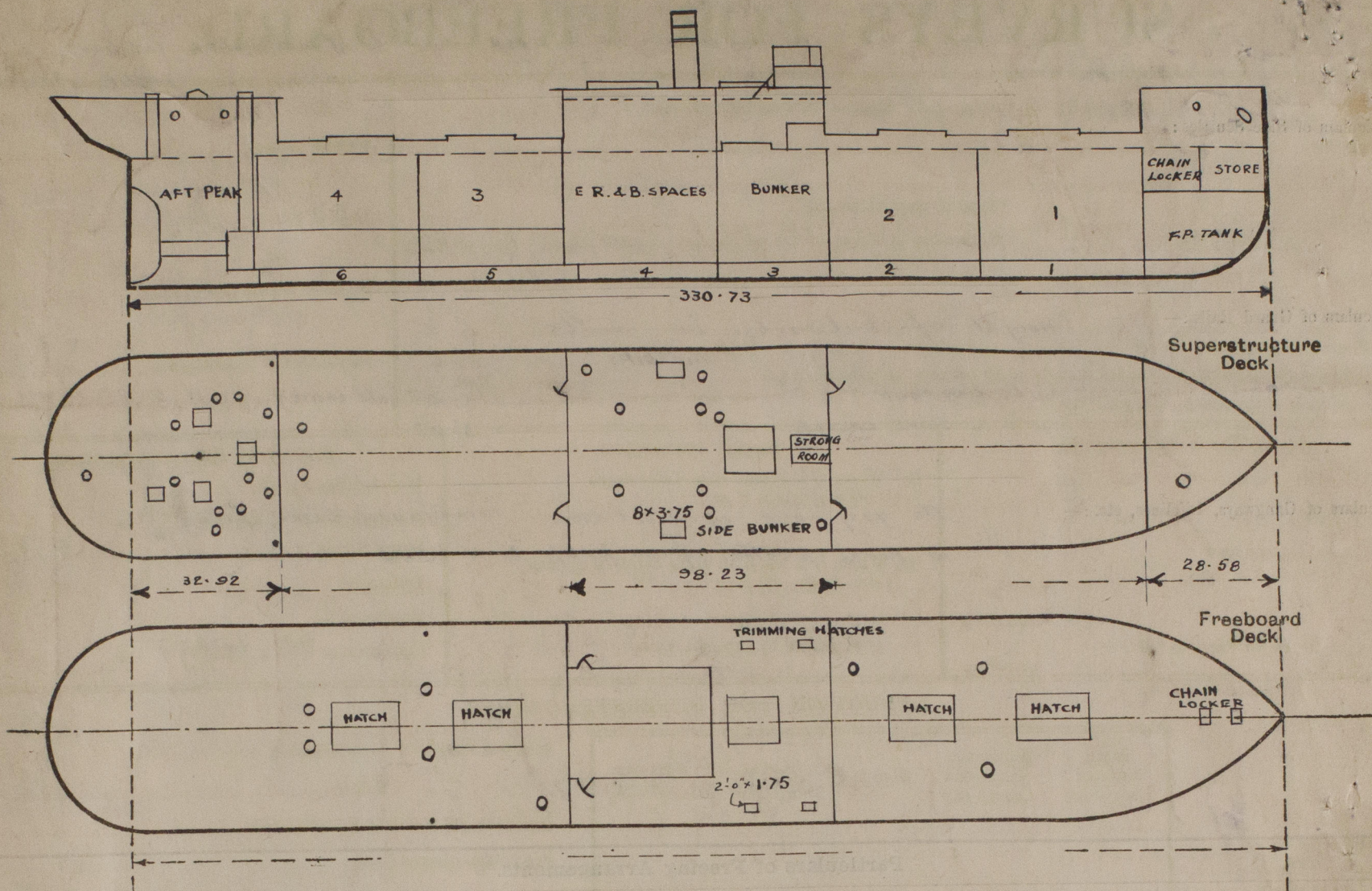
## Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	...	...	...	<sup>steel</sup> Hinged doors Port and starboard - ordinary locks ( <del>defective</del> ) <del>door plating wasted</del>
Raised Quarter Deck Bulkhead	...	...	...	—
Bridge, After Bulkhead	...	...	...	<sup>with</sup> 2 Passage ways each protected by <sup>storm boards full height in riveted channels</sup> battens fitted in channels & one Hinged door TO STORE.
Bridge, Forward Bulkhead	...	...	...	<sup>Steel</sup> 2 Hinged doors secured by clamps on inside and swing bolts out side
Forecastle Bulkhead	...	...	...	Steel doors PORT AND STARBOARD centre door of wood 2 3/4" THICK
Exposed Machinery Casings on Free-board or Raised Quarter Decks	...	...	...	nil
Exposed Machinery Casings on Super-structure Decks	...	...	...	
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	...	...	...	<sup>Entered with</sup> 2 steel doors capable of being securely closed
Deck doors on Flush Deck Ships	...	...	...	—



Warina

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:—

Builder's name and yard number. CRAIG TAYLOR & CO LTD

Names of sister ships. NIL

Owners. BRITISH INDIA STEAM NAV. CO LTD

Fee £R 30/-

Received by me

H. Melton Turner



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