

COPY WRITTEN.

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Index No. 21970
(For London Office only.)

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having POOP, BRIDGE and FORECASTLE

EISYO MARU

(Type of Superstructures.)

Ship's Name RAISDALE Nationality and Port of Official Number British Japanese 132811 Gross Tonnage 4346 Date of Build 1911-12

Moulded Dimensions: Length 379.5 Breadth 48.66 Depth 29.0

Moulded displacement at moulded draught = 85 per cent. of moulded depth 10246 tons

Coefficient of fineness for use with Tables 788

Port of Survey Barry

Date of Survey June 6th 1932

Name of Surveyor W. Middlemiss

Particulars of Classification 100 A.I.

Depth for Freeboard (D)

Moulded depth ... 29.0

Stringer plate ... 40

Sheathing on exposed deck 2" composition

$T \left(\frac{L-S}{L} \right) =$

Depth for Freeboard (D) = 29.03

Depth correction

(a) Where D is greater than Table depth
(D-Table depth) R = 29.03 - 25.30 = 3.73
3.73 x 2.919 = 10.89

(b) Where D is less than Table depth (if allowed)
(Table depth-D) R =

If restricted by superstructures

Round of Beam correction

Moulded Breadth (B) 48.66

Standard Round of Beam = $\frac{B \times 12}{50} = \frac{11.63}{50}$

Ship's Round of Beam = 11.5

Difference .13

Restricted to

Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.13}{4} \times .5844 = .03$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed ...	<u>30.5</u>	<u>30.50</u>	<u>7.0</u>	<u>7.13</u>	<u>29.98</u>	Standard Height of Superstructure <u>7.295</u>
" overhang ...						" " R.Q.D.
R.Q.D. enclosed ...						Deduction for complete superstructure <u>40.635</u>
" overhang ...						Percentage covered $\frac{S}{L} = \frac{41.56}{41.56}$
Bridge enclosed ...	<u>93.75</u>	<u>93.75</u>	<u>7.0</u>	<u>7.0</u>	<u>89.96</u>	" " $\frac{S_1}{L} = \frac{41.56}{41.56}$
" overhang aft ...						" " $\frac{E}{L} = \frac{40.27}{40.27}$
" overhang forward ...	<u>33.47</u>	<u>33.47</u>	<u>7.0</u>	<u>7.13</u>	<u>32.89</u>	Percentage from Table, Line A. (corrected for absence of forecastle (if required))
W/cle enclosed ...	<u>33.47</u>	<u>33.47</u>	<u>7.0</u>	<u>7.13</u>	<u>32.89</u>	Percentage from Table, Line B. (corrected for absence of forecastle (if required))
" overhang ...						Interpolation for bridge less than .2L (if required)
Trunk aft ...						Deduction = <u>11.27</u>
" forward ...						
Tonnage opening aft ...						
" " forward ...						
Total ...	<u>157.72</u>	<u>157.72</u>			<u>152.83</u>	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product	
A.P. ...	<u>47.95</u>	1		<u>47.95</u>	<u>60.5</u>	<u>60.50</u>	1		<u>60.50</u>	Mean actual sheer aft = <u>Excess</u>
$\frac{1}{2}$ L from A.P. ...	<u>21.34</u>	4		<u>85.36</u>	<u>26.25</u>	<u>26.27</u>	4		<u>105.08</u>	Mean actual sheer forward = <u>Excess</u>
$\frac{2}{3}$ L " ...	<u>5.27</u>	2		<u>10.54</u>	<u>6.55</u>	<u>6.57</u>	2		<u>13.14</u>	Mean standard sheer aft
Amidships ...		4					4			Mean standard sheer forward
$\frac{2}{3}$ L from F.P. ...	<u>10.54</u>	2		<u>21.08</u>	<u>11.92</u>	<u>11.95</u>	2		<u>23.90</u>	Length of enclosed superstructure forward of amidships = <u>.12</u>
$\frac{1}{2}$ L " ...	<u>42.68</u>	4		<u>170.72</u>	<u>47.75</u>	<u>47.80</u>	4		<u>191.20</u>	" " aft of " = <u>.13</u>
F.P. ...	<u>95.90</u>	1		<u>95.90</u>	<u>108.0</u>	<u>108.00</u>	1		<u>108.00</u>	
Total ...				<u>431.55</u>					<u>501.82</u>	

Correction = $\frac{\text{Difference between sums of products}}{18} \left(75 - \frac{S}{2L} \right) = \frac{431.55 - 501.82}{18} \left(75 - \frac{207.2}{2} \right) = 2.12$

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 = 29.03

Summer freeboard = 5.67

Moulded draught (d) = 23.36

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 5.84

Addition for Winter North Atlantic Freeboard (if required =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta =$

Tons per inch immersion at summer load water line

$T =$

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

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	+	-
Depth Correction ...	<u>10.89</u>	
Deduction for superstructures ...		<u>11.27</u>
Sheer correction ...		<u>2.12</u>
Round of Beam correction ...		<u>.03</u>
Correction for Thickness of Deck amidships ...		
Other corrections, scantlings, etc. ...		
	<u>10.89</u>	<u>13.42</u>

Summer Freeboard = 67.91

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

Tropical Fresh Water Line above Centre of Disc ...		Tropical Fresh Water Freeboard ...	
Fresh Water Line " " ...		Fresh Water " " ...	
Tropical Line " " ...		Tropical " " ...	
Winter Line below " " ...	<u>5.34</u>	Winter " " ...	
Winter North Atlantic Line " " ...		Winter North Atlantic " " ...	

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

		HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
		< Freeboard Deck. x Bridge >									
Description of Hatchway		No 1 + 5	No 2 + 4	No 3. In Bridge	No 3						
Dimensions of Hatchway		29'2" x 22'0"	33'3" x 22'0"	10'4" x 22'2"	9'3" x 17'3"						
COAMINGS	Height above Deck	32"	32"	32"	17"						
	Thickness	.45	.50	.45	.44						
	Sides	.37	.40	.37	.32						
	Stiffeners	none.									
	Brackets, Stays										
HATCH BEAMS	Number	5	6	1	none.						
	Spacing	4'-10"	4'-9"	5'-2"							
	Scantling and Sketch										
		4x3x.38		5x3x.40							
		25x.38		22x.36							
FORE AND AFTERS	Bearing Surface	6x3 Flange 3"		6" Flange 3"							
HATCH COVERS	Material	Wood		2 1/2"	2 1/2"						
	Thickness	2 3/4"									
	How fitted	F + F.		Thwartship							
	Bearing Surface	3" x 14"		3" x 5"	2" x 3"						
Spacing of Cleats		24"									
Number of Tarpaulins		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:— *Engine skylight of steel, strongly constructed, having hinged steel flaps and bulls eyes. Funnel and ventilators in good condition. Fiddley gratings have hinged steel covers fitted.*

Particulars of Flush Bunker Scuttles:—

none.

Particulars of Companionways:—

Strong steel deckhouse on poop with 2 entrance doors to poop crewspace each 4'-10" x 24" x 1 1/2" thick x 13" sill. Doors secured by locks and handles manipulated both sides.

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

Fore well deck: 4 @ 20" dia x 32 x 36" high to holds. ditto aft. 4 @ 11" dia x 28 x 17" high to bunks. Bridge deck: 2 @ 14 1/2" x 24 x 33" wood plugs & canvas covers supplied for all ventilators.

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

Air pipes are all flush with deck and fitted with screwed deck caps.

Particulars of Gangway Cargo and Coaling Ports:—

none.



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Particulars of Scuppers and Sanitary Discharge Pipes —

In Bridge space, 2P + 2S.
upper ends.

3" Scuppers to bilges with rose plates at clear of machinery space closed with riveted plates.

1P + 1S, - 3" scuppers to bilges of machinery space fitted with accessible cocks

Particulars of Side Scuttles:

In forecastle and poop crewspaces, of good construction and fitted with hinged deadlights.

Particulars of Guard Rails:—

on Bridge + Poop - 3'-0" high - 3 Rails + stanchions 4' apart.
on Forecastle - 3'-0" high - 2 " " "

Particulars of Gangways, Lifelines, etc.:—

None.

Efficient lifelines fitted in forward & after wells

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 ...	110'-5"	4'-0"	3'-2" x 24"; 3'-0" x 22"; 3'-4" x 26"; 2'-10" x 20"	4	23.7 sq ft	22.0 sq ft
Forward Well ...	108'-4"	4'-0"	3'-3" x 27"; 3'-2" x 24"; 3'-0" x 22"; 2'-10" x 20"	4	23.83 sq ft	21.6 sq ft
State position of each freeing port ... (F. and A. position and height above deck edge) { After Well:— 15'-0", 39'-6"; 71'-6"; 100'-6"; from poop bulkhead to centre of ports. Forward Well:— 14'-6"; 37'-6"; 65'-0"; 94'-0"; bridge State whether the freeing ports are fitted with shutters, bars, rails , and give particulars of such:— Shutters and 1 bar. Height of sill 16".						
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 ...	24" x .42	.42	5 1/2 x 3 1/2 x .40 A	30"	none	4'-6" x 21"	18"	7'-0"
Raised Quarter Deck Bulkhead ...	✓							
Bridge, After Bulkhead ...	22" x .35	.32	3 1/2 x 3 x .32 A	39"	none	1 @ 4'-6" x 24" 2 @ 4'-1" x 3'-2"	21"	7'-0"
Bridge, Forward Bulkhead ...	24" x .42	.40	8 x 3 x .40 J	27"	Brackets at top lugs at bottoms.	none	✓	7'-0"
Forecastle Bulkhead26	.26	3" Flange	48"	none	See sketch	20"	7'-0"
Trunk, Aft ...	✓							
Trunk, Forward ...	✓							
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	✓							
Exposed Machinery Casings on Superstructure Decks ...	18" x .30	.28	4 1/2 x 3 x .34 A	39"	Brackets at top carried down.	1 @ 4'-6" x 15" 4'-6" x 24"	18"	7'-0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances30	.30	4 1/2 x 3 x .34 A	39"	none. carried up	1. aft end. 22 1/2" x 18"	36"	7'-0"
Deckhouses on Flush Deck Ships ...	✓							

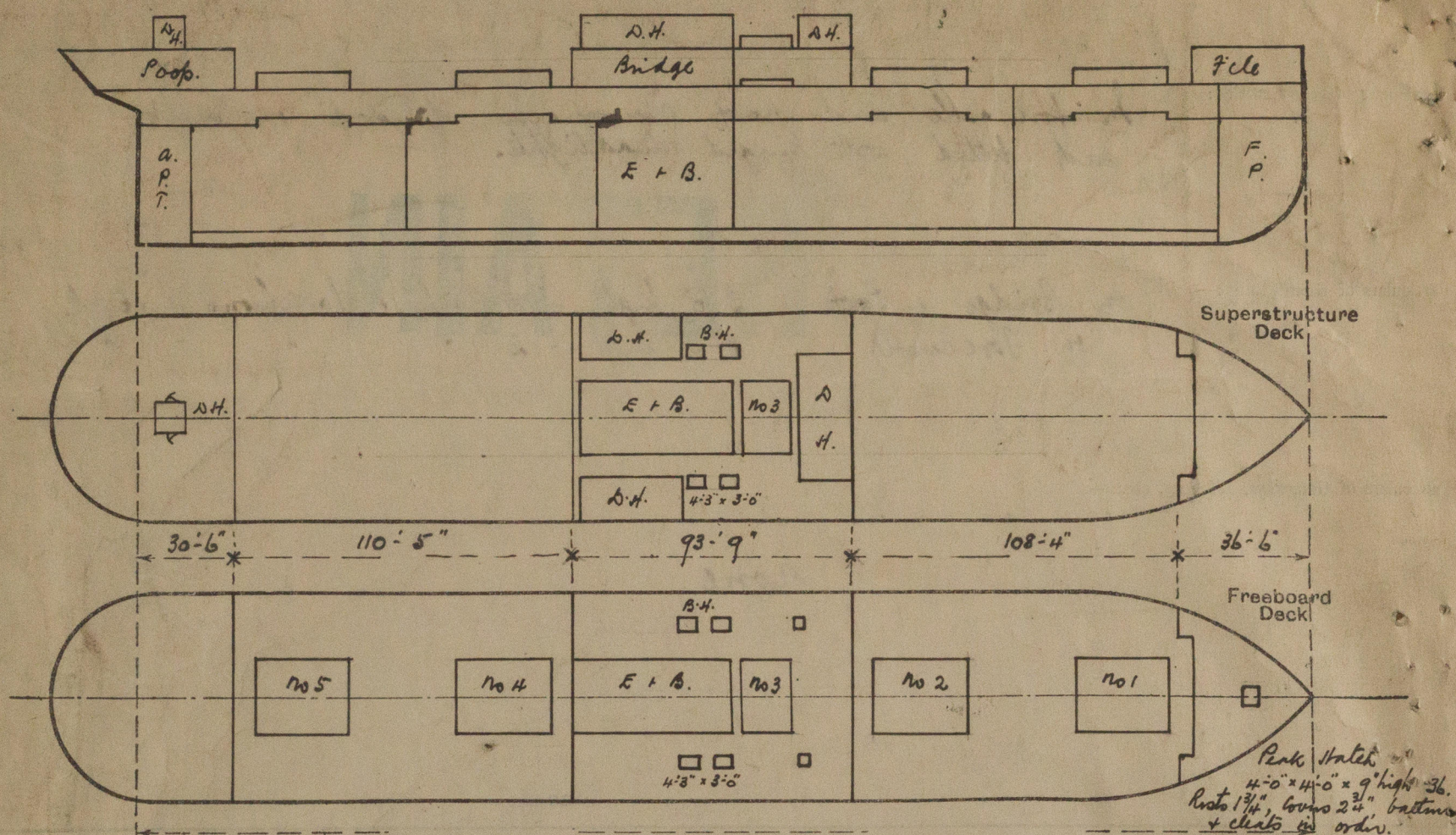
Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead ...	One hinged steel door to crewspace, fitted with locks + handle manipulated both sides.
Raised Quarter Deck Bulkhead ...	✓
Bridge, After Bulkhead ...	1. hinged steel door to steering gear - 4'-6" x 24" fitted with lock, handle manipulated both sides. 2. Steel bolted doors, secured by 12-1" Hook bolts through door plate, and hooked to stiffeners.
Bridge, Forward Bulkhead ...	none. No opening
Forecastle Bulkhead ...	Four hinged steel doors each 4'-6" x 24" x 20" sill. fitted with locks + handles manipulated both sides.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	✓
Exposed Machinery Casings on Superstructure Decks ...	Two hinged steel doors, fitted with locks and handles manipulated both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	one bolted plate, with bolts 9" apart.
Deckhouses on Flush Deck Ships ...	✓

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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 shewn on the following sketches:—

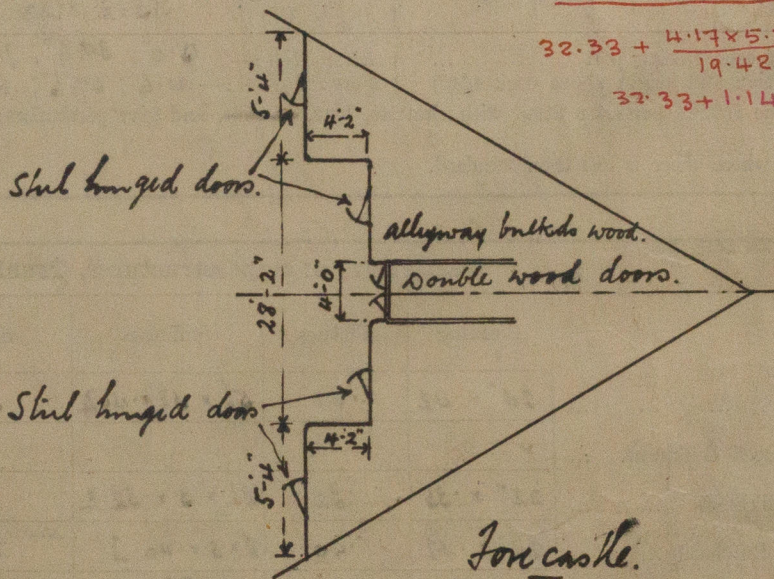


B.H. \square = Bunker hatches having coamings 9" x 3" 1 on both decks. Ribs 2", Coir 2 1/2" and fitted complete with cleats, battens and tarpaulins. Steel gratings below coir.
 \square = Trimmers escape hatches 22" x 21" x 8" 1 coaming; Ribs 2" Coir 2 1/2".
 Barring arrangements in order.

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

measured afloat.

Draft	Deadweight
23'-8 1/2"	7500
22'-8 1/2"	7000
20'-4"	6000
18'-2"	5000
16'-0"	4000



Equis Fore-castle

$$32.33 + \frac{4.17 \times 5.33}{19.42} =$$

$$32.33 + 1.14 = 33.47$$

Builder's name and yard number Northumberland S.B. Co Ltd. Newcastle.

Names of sister ships

Owners Turnbull Coal & Shipping Co. - Turnbull & Co. Ltd.

Fee £ 12 : 15 : 0

Received by me



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