

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Index No.

(For London Office only.)

004611-004417-0092 1/2

32645

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having

Steel Deck with Tonnage opening aft.

Port of Survey

London

(Type of Superstructures.)

Date of Survey

9th 10th August 1932

Ship's Name

Nationality and Port of Registry

Official Number

Gross Tonnage

Date of Build

Name of Surveyor

R. Blake.

Moulded Dimensions: Length 481.0' Breadth 64.0' Depth 34.4 1/2'

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

Coefficient of fineness for use with Tables

Particulars of Classification + 100 A.1.

with freeboard.

Depth for Freeboard (D)

Moulded depth ... 34.37

Stringer plate ... 0.04

Sheathing on exposed deck

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

Depth for Freeboard (D) =

34.41

Depth correction

(a) Where D is greater than Table depth

(D - Table depth) R =

$$(34.41 - 32.07) 3 = + 7.02$$

(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)

64.0

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

15.36

Ship's Round of Beam

16.00

Difference

0.64

Restricted to

$$\text{Correction} = \frac{\text{Diff}^2}{4} \times \left(1 - \frac{S_1}{L} \right)$$

0.64

0.0056 = his

DEDUCTION FOR SUPERSTRUCTURES.

| | Mean Covered Length (S) | Equivalent Enclosed Length (S ₁) | Height | Height Correction | Effective Length (E) |
|-------------------------|-------------------------|--|--------|-------------------|----------------------|
| Poop enclosed ... | 24.25 | 24.25 | 8.5 | ✓ | 24.25 |
| „ overhang ... | ✓ | | | | |
| R.Q.D. enclosed ... | ✓ | | | | |
| „ overhang ... | ✓ | | | | |
| Bridge enclosed ... | 451.25 | 451.25 | 8.5 | ✓ | 451.25 |
| „ overhang aft ... | ✓ | | | | |
| „ overhang forward ... | ✓ | | | | |
| F'cle enclosed ... | ✓ | | | | |
| „ overhang ... | ✓ | | | | |
| Trunk aft ... | ✓ | | | | |
| „ forward ... | ✓ | | | | |
| Tonnage opening aft ... | 5.5 | 2.75 | 8.5 | ✓ | 2.75 |
| „ forward ... | ✓ | | | | |
| Total ... | 481.0 | 478.25 | | | 478.25 |

Standard Height of Superstructure

7.5

„ „ R.Q.D.

Deduction for complete superstructure

142

Percentage covered $\frac{S}{L} =$

100%

„ „ $\frac{S_1}{L} =$

99.44

„ „ $\frac{E}{L} =$

99.44

Percentage from Table, Line A.

(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 = $142 \times 99.31 = 141.41$

SHEER CORRECTION.

| Station | Standard Ordinate | S | M | Product | Actual Ordinate | Effective Ordinate | S | M | Product |
|---------------------|-------------------|---|---|---------|-----------------|--------------------|---|---|---------|
| A.P. ... | 58.10 | 1 | ✓ | 58.10 | 54.5 | 66.50 | 1 | ✓ | 66.50 |
| 1/4 L from A.P. ... | 25.85 | 4 | ✓ | 103.40 | 23.5 | 24.54 | 4 | ✓ | 118.36 |
| 3/4 L „ ... | 6.39 | 2 | ✓ | 12.78 | 5.87 | 7.31 | 2 | ✓ | 14.62 |
| Amidships ... | ✓ | 4 | ✓ | ✓ | ✓ | ✓ | 4 | ✓ | ✓ |
| 3/4 L from F.P. ... | 12.78 | 2 | ✓ | 25.56 | 12.05 | 13.26 | 2 | ✓ | 26.52 |
| 1/4 L „ ... | 57.40 | 4 | ✓ | 206.80 | 48.19 | 53.60 | 4 | ✓ | 214.40 |
| F.P. ... | 116.20 | 1 | ✓ | 116.20 | 108.50 | 120.50 | 1 | ✓ | 120.50 |
| Total ... | | | | 522.84 | ✓ | ✓ | | | 560.90 |

Correction = $\frac{\text{Difference between sums of products}}{18}$

$$\left(75 - \frac{S}{2L} \right) =$$

$$\frac{38.06}{18} \left(\frac{25}{2} \right) = -5.3$$

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 = Ft.

Summer freeboard = 5.35

Moulded draught (d) = 29.06

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 7.26 - 7 1/4

Addition for Winter North Atlantic Freeboard (if required) =

Deduction for Fresh Water.

Displacement in salt water at summer load water line

Δ = 185 1/4

Tons per inch immersion at summer load water line

T = 61.1

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

= 7.59 7/8

= 7 1/2

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

$$\frac{721.48}{1.76} \times \frac{1.401}{1.76}$$

Depth Correction ...

Deduction for superstructures ...

Sheer correction ...

Round of Beam correction ...

Correction for Thickness of Deck amidships ...

Other corrections, scantlings, etc. ...

7.02 42.24 - 35.22

Summer Freeboard = 64.28 1/4

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

Tropical Fresh Water Line above Centre of Disc

Fresh Water Line „ „

Tropical Line „ „

Winter Line below „ „

Winter North Atlantic Line „ „

Tropical Fresh Water Freeboard ...

Fresh Water „ „

Tropical „ „

Winter „ „

Winter North Atlantic „ „

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

| HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS | | | | | | | | | | | | | | Bridge | |
|---|-----------------------|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|--------|
| Superstructure Deck | | | | | | | | | | | | | | Freeboard Deck | Bridge |
| Description of Hatchway | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 3 | | |
| Dimensions of Hatchway | 18'-0"x16'-6" | 27'-6"x16'-6" | 16'-6"x16'-6" | 19'-3"x16'-6" | 22'-0"x16'-6" | 16'-6"x16'-6" | 18'-0"x16'-6" | 27'-6"x16'-6" | 16'-6"x16'-6" | 19'-3"x16'-6" | 16'-6"x16'-6" | 16'-6"x16'-6" | 16'-6"x16'-6" | | |
| COAMINGS | Height above Deck | 30" | Same | 9" B.A. | 30" | Same | Same | 10" B.A. | Same | Same | Same | Same | Same | | |
| | Thickness Sides | 4 1/4" | as | | 4 1/4" | as | as | | as | as | as | as | as | | |
| | Stiffeners Ends | 4 1/4" | | | 4 1/4" | | | | as | as | as | as | as | | |
| | Brackets, Stays | 7" B.A. | Nº 1 | | 4 1/4" | Nº 1 | Nº 1 | | Nº 1 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | | |
| HATCH BEAMS | Number | 3 | 5 | 3 | 3 | 4 | 3 | 5 | 3 | 3 | 4 | 3 | 3 | | |
| | Spacing | 4'-6" | 4'-7" | 4'-1 1/2" | 4'-9 1/4" | 4'-5 | 4'-1 1/2" | 4'-6" | 4'-7" | 4'-1 1/2" | 4'-9 3/4" | 4'-5 | 4'-1 1/2" | | |
| | Scantling and Sketch | 4 as A | 5 as A | 3 as A | 3 as A | 4 as A | 3 as B | 5 as B | 3 as B | 3 as B | 4 as B | 3 as B | 3 as A | | |
| | Bearing Surface | 1/4" deep x 33" | 12" x 33" | 13" x 33" | 12" x 35" | 12" x 12" | 24" x 32" | 24" x 32" | 24" x 32" | 24" x 32" | 24" x 32" | 24" x 32" | 12" x 33" | | |
| FORE AND AFTERS | Number | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | 3 1/2" | | |
| | Spacing | | | | | | | | | | | | | | |
| | Unsupported Lengths | | | | | | | | | | | | | | |
| | Scantling* and Sketch | | | | | | | | | | | | | | |
| HATCH COVERS | Material | W. P. | Same | Same | Same | Same | Same | W. P. | Same | Same | Same | Same | Same | | |
| | Thickness | 2 1/2" | as | as | as | as | as | 2 1/2" | as | as | as | as | as | | |
| | How fitted | F & A | Nº 1 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | F & A | Nº 1 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | | |
| | Bearing Surface | 3" | Nº 1 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | 3" | Nº 1 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | | |
| Spacing of Cleats | 24" | Same | Same | Same | Same | Same | 24" | Same | Same | Same | Same | Same | | | |
| Number of Tarpaulins | 3 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | 2 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | Nº 1 | 3 | | |

Sketch of Hatchway 5 (Superstructure Deck):

Dimensions: 22'-0" x 16'-6"

Coamings: 30" height, 4 1/4" thickness sides, 4 1/4" stiffeners ends, 7" B.A. brackets/stays.

Hatch Beams: 4 beams, 4'-5" spacing, 4'-1 1/2" scantling, 4 as A.

Fore and Afters: 3 1/2" number, 4'-1 1/2" spacing, 4'-5" unsupported lengths, 4'-1 1/2" scantling, 4 as A.

Hatch Cover: 2 1/2" material, 3" thickness, F & A fitting, 3" bearing surface, 24" spacing, 2 tarpaulins.

Sketch of Hatchway 6 (Freeboard Deck):

Dimensions: 16'-6" x 16'-6"

Coamings: 30" height, 4 1/4" thickness sides, 4 1/4" stiffeners ends, 7" B.A. brackets/stays.

Hatch Beams: 3 beams, 4'-6" spacing, 4'-1 1/2" scantling, 3 as B.

Fore and Afters: 3 1/2" number, 4'-6" spacing, 4'-1 1/2" unsupported lengths, 4'-1 1/2" scantling, 3 as B.

Hatch Cover: 2 1/2" material, 3" thickness, F & A fitting, 3" bearing surface, 24" spacing, 2 tarpaulins.

Sketch of Hatchway 3 (Bridge):

Dimensions: 16'-6" x 16'-6"

Coamings: 30" height, 4 1/4" thickness sides, 4 1/4" stiffeners ends, 7" B.A. brackets/stays.

Hatch Beams: 3 beams, 4'-6" spacing, 4'-1 1/2" scantling, 3 as B.

Fore and Afters: 3 1/2" number, 4'-6" spacing, 4'-1 1/2" unsupported lengths, 4'-1 1/2" scantling, 3 as B.

Hatch Cover: 2 1/2" material, 3" thickness, F & A fitting, 3" bearing surface, 24" spacing, 2 tarpaulins.

Sketch of Hatchway 4 (Bridge):

Dimensions: 19'-3" x 16'-6"

Coamings: 30" height, 4 1/4" thickness sides, 4 1/4" stiffeners ends, 7" B.A. brackets/stays.

Hatch Beams: 3 beams, 4'-7" spacing, 4'-1 1/2" scantling, 3 as B.

Fore and Afters: 3 1/2" number, 4'-7" spacing, 4'-1 1/2" unsupported lengths, 4'-1 1/2" scantling, 3 as B.

Hatch Cover: 2 1/2" material, 3" thickness, F & A fitting, 3" bearing surface, 24" spacing, 2 tarpaulins.

Sketch of Hatchway 2 (Bridge):

Dimensions: 27'-6" x 16'-6"

Coamings: 30" height, 4 1/4" thickness sides, 4 1/4" stiffeners ends, 7" B.A. brackets/stays.

Hatch Beams: 5 beams, 4'-7" spacing, 4'-1 1/2" scantling, 5 as B.

Fore and Afters: 3 1/2" number, 4'-7" spacing, 4'-1 1/2" unsupported lengths, 4'-1 1/2" scantling, 3 as B.

Hatch Cover: 2 1/2" material, 3" thickness, F & A fitting, 3" bearing surface, 24" spacing, 2 tarpaulins.

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

Are battens and wedges efficient and in good condition? ☒

Are tarpaulins in good condition and in accordance with rule requirements? ☒

Are lashings provided in accordance with rule requirements? ☒

Particulars of fiddley, funnel and ventilator coamings :—

Funnel & Vent coverings in an efficient condition.
Engine Skylight of Steel & substantially constructed.

Particulars of Flush Bunker Scuttles :—

NONE!

Particulars of Companionways :—

| | | | | | | |
|---|-------|---------------|----|----------------|--|---|
| 1 | Steel | Entrance door | on | Freeboard | 6" Tunnel with rill 6" high. operated both sides | - |
| 1 | " | " | " | Bridge | Nº 3 Hold " 24" " " from outside | X |
| 1 | " | " | " | Superstructure | Refrig. machinery Rm. 18 " " both sides | - |
| 1 | wood | " | " | " | Steering Gear 20" " " " " | - |

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

| | | |
|--|----------------|-------------------|
| 1 - 12" dia Vent on Forecastle 5 th Coaming | 2'-10" x 57/6" | led to Fore Pear. |
| 16 - 12" x 18" - - - Superstructure - - - | 2'-6" x 3/8" | Spaces below. |
| 1 - 24" - - - - - - - - - - - - - - - | 2'-6" x 3/8" | Tunnel. |
| 12 - 14" x 18" - - - Bridge - - - | 1'-9" x 3/8" | spaces below. |

all Vent Coamings closed by wood plugs and Canvas Covers. ✓

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

13 - 3" dia C. I. Air Pipes on Superstructure B² 1-6" high led to D.B. Tanks.
2 - 3" - C. I. - - - - Forecastle - 1-6" - - - -
14 - 2 1/2" - C. I. - - - - Bridge - 1-6" - - - - + Fore Peak.
closed by wood plugs or canvas covers.

Particulars of Gangway Cargo and Coaling Ports:—

2 Cargo bays 6'-0" x 4'-0" between Freeboard & Superstructure beams. -
 2 " " 6'-0" x 4'-0" " Bridge " " -
 10 Hatch " 2'-2" x 2'-0" " Freeboard & " " -
 14 " " 2'-2" x 2'-0" " " 2nd beams. -

all doors efficiently constructed & secured watertight.

Particulars of Scuppers and Sanitary Discharge Pipes :—

Best Sumps from Freeboard to fitted with storm valves at ship's sides and wood plugs at inner end. ✓
all sanitary discharges have storm valves at ship's side & efficient traps at inner end. ✓

Particulars of Side Scuttles :—

The Side Scuttles fitted below the Freeboard Deck - ✓

Particulars of Guard Rails :—


| | | | | | | |
|----------------------|------------------|---------|------|------------|--------|-------------|
| Superstructure b^R | 3-6" high having | 3 rods, | with | stanchions | spaced | 5'-4" apart |
| Bridge b^R | 3'-6" " | 3 " | " | " | " | 4'-0" " |
| Forecastle b^R | 2'-6" " | 3 " | " | " | " | 4'-6" " |

Particulars of Gangways, Lifelines, etc. :—

None

Crew² berthed in Forecastle -

| 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 | 5'-6" | 8'-6" | 2'-0" x 1'-0" | 1 | 2.0 ft | |
| Forward Well | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

State position of each freeing port } After Well:— *center of port 16" aft of Bridge End Bld*
(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:— *Shutters*  *Tonnell*
Additional area where sheer is less than standard. *area*

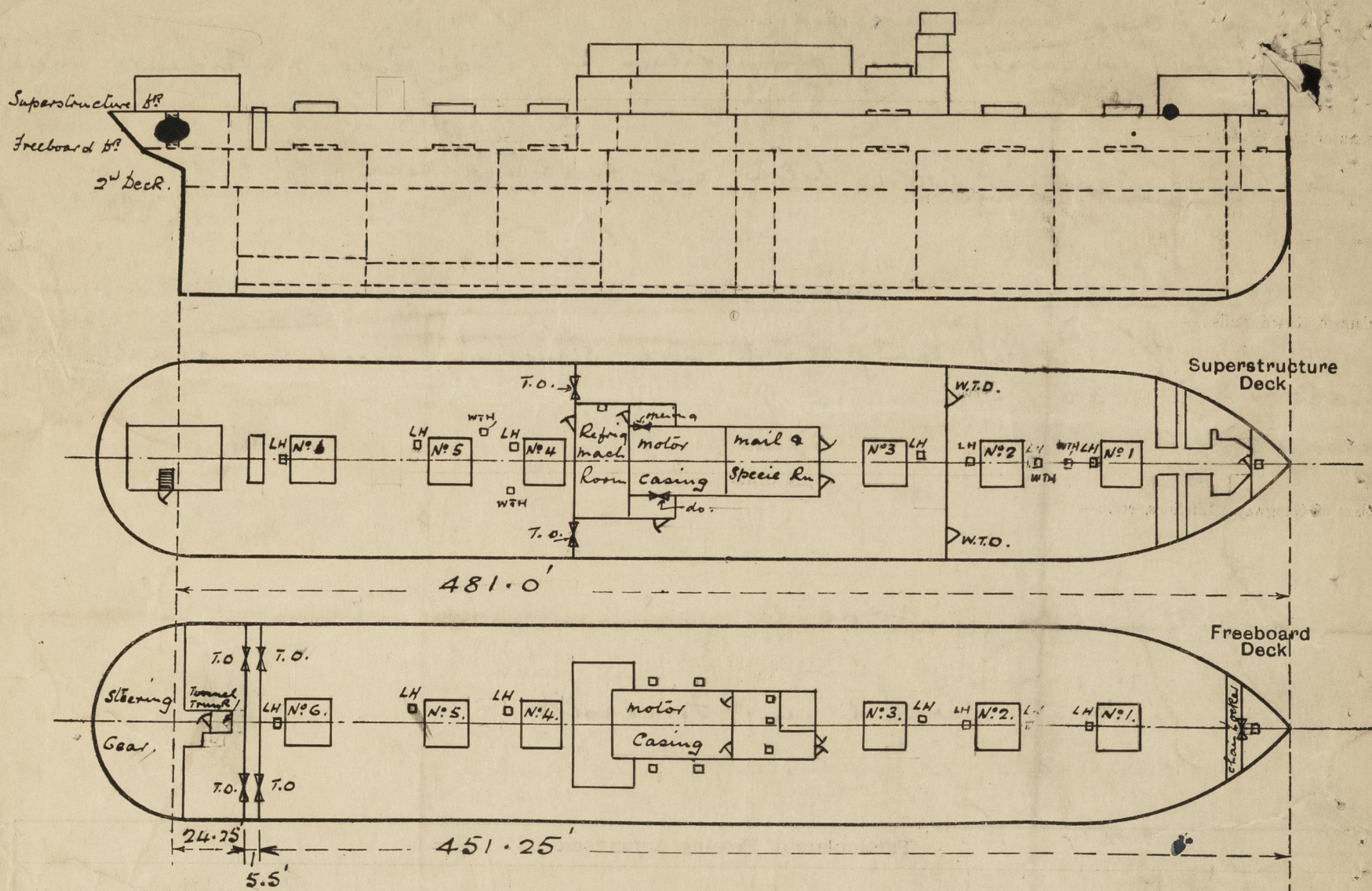
| Particulars of Superstructures, Trunks, Casings, Deckhouses. | | | | | | | | |
|--|---------|---------|------------------|-----------------|-------------------------------|-------------------|-----------------|-------------------|
| | Coaming | Plating | Stiffeners | Spacing | End Attachments of Stiffeners | Size of Openings | Height of Sills | Height of Casings |
| Poop Bulkhead | 30" | 30" | 4 x 3" x 32" | 2'-6" 1/2 3'-0" | none | 2 x 5'-0" x 4'-0" | 16" | 8'-6" |
| Raised Quarter Deck Bulkhead ... | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Bridge, After Bulkhead | 30" | 30" | 4 x 3" x 32" | 33" | none | 2 x 5'-0" x 4'-0" | 16" | 8'-6" |
| Bridge, Forward Bulkhead | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Forecastle Bulkhead | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Trunk, Aft | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Trunk, Forward | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Exposed Machinery Casings on Freeboard or Raised Quarter Decks ... | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Exposed Machinery Casings on Superstructure Decks | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Machinery Casings within Superstructures not fitted with Class I Closing Appliances | 30" | 30" | 3 x 2 1/2" x 30" | 2'-9" | continuous | 1 x 5'-0" x 3'-6" | 18" | 8'-6" |
| Deckhouses on Flush Deck Ships ... | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

| Particulars of Closing Appliances (state if capable of being manipulated from both sides). | |
|--|--|
| Poop Bulkhead | 2 Tonnage openings. Battens carried full height in riveted channels. |
| Raised Quarter Deck Bulkhead ... | ✓ |
| Bridge, After Bulkhead | 2 Tonnage openings. Battens carried full height in riveted channels. |
| Bridge, Forward Bulkhead | ✓ |
| Forecastle Bulkhead | ✓ |
| Exposed Machinery Casings on Freeboard or Raised Quarter Decks ... | ✓ |
| Exposed Machinery Casings on Superstructure Decks | ✓ Enclosed by Steel deckhouse |
| Machinery Casings within Superstructures not fitted with Class I Closing Appliances | Double Hinged steel door operated from both sides. |
| Deckhouses on Flush Deck Ships ... | ✓ |

Steel plates secured by loose bolts
(See 11 (Ann 10) 11/63)

2020

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:—



Forecastle & sheathed with 3" Pitch Pine
 Bridge " " 2 1/2" "
 Superstructure " bare steel

| Draft | Displacement | Tons per Inch |
|--------|--------------|---------------|
| 29'-0" | 18,367 | 61.1 |
| 28'-0" | 17,635 | 60.6 |
| 27'-0" | 16,907 | 60.2 |
| 26'-0" | 16,183 | 59.8 |
| 25'-0" | 15,465 | 59.4 |

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

Small Hatches

Superstructure &

- 5 Ladder Hatches 3'-0" x 2'-2" Coamings 2'-6" x 38" hinged Steel cover, clips, battens, tarpaulins
- 4 Fan Room " 2'-4" x 2'-4" " 2'-6" x 38" hinged Waterlight Steel covers.
- 1 Fore Peak Store " 2'-6" x 2'-6" " 10" B.A. wood cover, clips, locking bar.
- 1 Ladder Hatch 3'-0" x 2'-9" " 10" " " " battens & tarpaulins
- 1 Tonnage Hatch 5'-6" x 16'-6" " 12" " " " no cleats etc.

Freeboard &

- 6 Ladder Hatches 3'-0" x 2'-6" Coamings 9" B.A. wood covers, cleats, battens & tarpaulins
- 7 Oil " 2'-6" x 2'-6" " 6" channels Oillight bolted steel covers.
- 1 Fore Peak " 2'-6" x 2'-6" " 10" B.A. wood cover, cleats.
- 1 aft " Store " 2'-6" x 2'-6" " 9" " " " locking bar.

Builder's name and yard number Swan Hunter & Whigham Richardson N°

Names of sister ships Zealandic

Owners Shaw, Savill & Albion Co Ltd.

Fee £ 16 : 3 : 0 Received by me

(12/8/32)



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