

# Lloyd's Register of Shipping.

## SURVEYS FOR FREEBOARD.

GLASGOW REPORT No. 54539

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

(Type of Superstructures.)

|                                  |  |                                  |                                |                              |
|----------------------------------|--|----------------------------------|--------------------------------|------------------------------|
| Ship's Name<br><b>S.S. BROOM</b> | Nationality and Port of Registry<br><b>British Newry</b> | Official Number<br><b>160293</b> | Gross Tonnage<br><b>346.60</b> | Date of Build<br><b>1934</b> |
|----------------------------------|--|----------------------------------|--------------------------------|------------------------------|

Port of Survey Bowling  
Date of Survey 17<sup>th</sup> May 1934  
Name of Surveyor Geo. Webster

Moulded Dimensions: Length 142.5' Breadth 23.5' Depth 11.42'  
Moulded displacement at moulded draught = 85 per cent. of moulded depth 654 tons  
Coefficient of fineness for use with Tables .708

Particulars of Classification +100. A.1.

|  |  |   |
|--|--|---|
| <p>Depth for Freeboard (D)</p> <p>Moulded depth ... .. <u>11.42'</u></p> <p>Stringer plate ... .. <u>.03'</u></p> <p>Sheathing on exposed deck<br/><math>T \left( \frac{L-S}{L} \right) = \checkmark</math></p> <p>Depth for Freeboard (D) = <u>11.45'</u></p> | <p>Depth correction</p> <p>(a) Where D is greater than Table depth<br/>(D-Table depth) R = <u>(11.45-9.59) 1.096</u> <u>+ 2.14'</u></p> <p>(b) Where D is less than Table depth (if allowed)<br/>(Table depth-D) R =</p> <p>If restricted by superstructures</p> | <p>Round of Beam correction</p> <p>Moulded Breadth (B) <u>23.5'</u></p> <p>Standard Round of Beam = <math>\frac{B \times 12}{50} =</math> <u>5.64'</u></p> <p>Ship's Round of Beam = <u>7.5'</u></p> <p>Difference <u>1.86'</u></p> <p>Restricted to</p> <p>Correction = <math>\frac{\text{Diff}^2}{4} \times \left( 1 - \frac{S_1}{L} \right) =</math> <u><math>\frac{1.86^2}{4} \times .2588 = -.12'</math></u></p> |
|--|--|---|

## DEDUCTION FOR SUPERSTRUCTURES.

|                                   | Mean Covered Length (S) | Equivalent Enclosed Length (S <sub>1</sub> ) | Height         | Height Correction | Effective Length (E) |   |
|-----------------------------------|-------------------------|--|----------------|-------------------|----------------------|---|
| Poop enclosed ... ..              |                         |  |                |                   |                      | Standard Height of Superstructure <u>6'-0"</u>      |
| " overhang ... ..                 |                         |  |                |                   |                      | " " R.Q.D. <u>3'-3.4"</u>                           |
| R.Q.D. enclosed ... ..            | <u>81.12'</u>           | <u>81.12'</u>                                | <u>3'-3.5"</u> | <u>8.12'</u>      | <u>81.12'</u>        | Deduction for complete superstructure <u>20.25'</u> |
| " overhang ... ..                 |                         |  |                |                   |                      | Percentage covered $\frac{S}{L} =$ <u>76.29%</u>    |
| Bridge enclosed ... ..            | <u>7.16'</u>            | <u>7.16'</u>                                 | <u>6'-9"</u>   | <u>7.16'</u>      | <u>7.16'</u>         | " " $\frac{S_1}{L} =$ <u>74.12%</u>                 |
| " overhang aft ... ..             |                         |  |                |                   |                      | " " $\frac{E}{L} =$ <u>74.12%</u>                   |
| " overhang forward ... ..         |                         |  |                |                   |                      | Percentage from Table, Line A. <u>68.07%</u>        |
| F'cle enclosed <u>open</u> ... .. | <u>20.43'</u>           | <u>14.25'</u>                                | <u>7'-0"</u>   | <u>14.25'</u>     | <u>14.25'</u>        | (corrected for absence of forecastle (if required)) |
| " overhang ... ..                 |                         | <u>3.09'</u>                                 |                | <u>3.09'</u>      | <u>3.09'</u>         | Percentage from Table, Line B.                      |
| Trunk aft ... ..                  |                         |  |                |                   |                      | (corrected for absence of forecastle (if required)) |
| " forward ... ..                  |                         |  |                |                   |                      | Interpolation for bridge less than 2L (if required) |
| Tonnage opening aft ... ..        |                         |  |                |                   |                      | Deduction = <u>20.25' x .6807 = -13.78'</u>         |
| " " forward ... ..                |                         |  |                |                   |                      |   |
| Total ... ..                      | <u>108.71'</u>          | <u>105.62'</u>                               |                |                   | <u>105.62'</u>       |   |

## SHEER CORRECTION.

| Station                         | Standard Ordinate | S | M | Product       | Actual Ordinate | Effective Ordinate | S | M | Product       |   |
|---------------------------------|-------------------|---|---|---------------|-----------------|--------------------|---|---|---------------|---|
| A.P. ... ..                     | <u>24.25'</u>     | 1 |   | <u>24.25</u>  | <u>26.00</u>    | <u>26.00</u>       | 1 |   | <u>26.00</u>  | Mean actual sheer aft = <u>mean</u>                                   |
| $\frac{1}{8}L$ from A.P. ... .. | <u>10.79'</u>     | 4 |   | <u>43.16</u>  | <u>12.12</u>    | <u>12.12</u>       | 4 |   | <u>48.48</u>  | Mean actual sheer forward = <u>mean</u>                               |
| $\frac{2}{8}L$ " ... ..         | <u>2.67'</u>      | 2 |   | <u>5.34</u>   | <u>3.25</u>     | <u>3.25</u>        | 2 |   | <u>6.50</u>   | Mean standard sheer forward   |
| Amidships ... ..                |                   | 4 |   |               | <u>nil</u>      | <u>nil</u>         | 4 |   |               | Length of enclosed superstructure forward of amidships = <u>.119'</u> |
| $\frac{3}{8}L$ from F.P. ... .. | <u>5.34'</u>      | 2 |   | <u>10.68</u>  | <u>6.00</u>     | <u>6.00</u>        | 2 |   | <u>12.00</u>  | " " aft of " = <u>.500'</u>   |
| $\frac{4}{8}L$ " ... ..         | <u>21.58'</u>     | 4 |   | <u>86.32</u>  | <u>21.50</u>    | <u>21.50</u>       | 4 |   | <u>86.00</u>  |   |
| F.P. ... ..                     | <u>48.50'</u>     | 1 |   | <u>48.50</u>  | <u>49.00</u>    | <u>49.00</u>       | 1 |   | <u>49.00</u>  |   |
| Total ... ..                    |                   |   |   | <u>218.25</u> |                 |                    |   |   | <u>227.98</u> |   |

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left( .75 - \frac{S}{2L} \right) = \frac{9.73}{18} \left( .75 - \frac{3814}{22798} \right) = -.19'$$

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.   | Deduction for Fresh Water.  | TABULAR FREEBOARD corrected for Flush Deck (if required)                    | 14.525 ✓ |
| Addition for Winter and Winter North Atlantic Freeboard.  |   | Correction for coefficient $\frac{702+68}{1.36} = 4.06$ $\frac{1384}{1.36}$ | 14.768 ✓ |
| Depth to Freeboard Deck = Ft. 14.74 ✓   | Displacement in salt water at summer load water line $\Delta = 782$ tons on 11'-2 1/2" med. |   |          |
| Summer freeboard = 3.52 ✓   | Tons per inch immersion at summer load water line T = 6.66                                  | Depth Correction ... .. 2.14 ✓  |          |
| Moulded draught (d) = 11.22 ✓   |   | Deduction for superstructures ... .. 13.78 ✓                                |          |
|   |   | Sheer correction ... .. .49 ✓   |          |
|   |   | Round of Beam correction <u>height R.Q.</u> ... .. .12 ✓                    |          |
|   |   | Correction for Thickness of Deck amidships ... 39.50 ✓                      |          |
|   |   | Other corrections, scantlings, etc. ... .. .10 ✓                            |          |
|   |   | 41.64 14.09 +27.55 ✓  |          |
|   |   | Summer Freeboard = 42.372 ✓   |          |
| Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 2.805 = 2 3/4 ✓ | Deduction = $\frac{\Delta}{40T}$ inches = 2.93 ✓  |   |          |
| Addition for Winter North Atlantic Freeboard (if required) = 4 3/4 ✓  | = 3 ✓   |   |          |

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

|   |  |                                       |                                      |
|---|--|---------------------------------------|--------------------------------------|
| Tropical Fresh Water Line above Centre of Disc ... .. | <u>3<math>\frac{3}{4}</math>' 5<math>\frac{3}{4}</math>'</u> | Tropical Fresh Water Freeboard ... .. | <u>3'-6<math>\frac{1}{4}</math>'</u> |
| Fresh Water Line " " ... ..                           | <u>3'</u>  | Fresh Water " " ... ..                | <u>3'-0<math>\frac{1}{2}</math>'</u> |
| Tropical Line " " ... ..                              | <u>3<math>\frac{1}{4}</math>' 2<math>\frac{3}{4}</math>'</u> | Tropical " " (limited) ... ..         | <u>3'-3<math>\frac{1}{2}</math>'</u> |
| Winter Line below " " ... ..                          | <u>2<math>\frac{3}{4}</math>'</u>                            | Winter " " ... ..                     | <u>3'-9'</u>                         |
| Winter North Atlantic Line " " ... ..                 | <u>4<math>\frac{3}{4}</math>'</u>                            | Winter North Atlantic " " ... ..      | <u>3'-11'</u>                        |



# PARTICULARS OF PROTECTION TO OPENINGS, ETC.

| HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS                                  |   |                              |   |                     |           |                  |  |  |  |  |  |
|--|---|------------------------------|---|---------------------|-----------|------------------|--|--|--|--|--|
| Up. Dk. R.Q. Dk. Casing Top  |   |                              |   |                     |           |                  |  |  |  |  |  |
| Description of Hatchway ... ..   |   |                              |   | No 1.               | No 2.     | Bunker           |  |  |  |  |  |
| Dimensions of Hatchway ... ..  |   |                              |   | 22.29x12.0          | 21.5x12.0 | 3.58x14.0        |  |  |  |  |  |
| COAMINGS   | { | Height above Deck ... ..     |   | 37 ✓                | 29 ✓      | 12 ✓             |  |  |  |  |  |
|  |   | Thickness { Sides ... ..     |   | .40 ✓               | .40 ✓     | .26              |  |  |  |  |  |
|  |   | Ends ... ..                  |   |                     |           |                  |  |  |  |  |  |
|  |   | Stiffeners ... ..            | BA...   | 7x3x.40 ✓           | 7x3x.40 ✓ | 5x3x.30 BA Vant. |  |  |  |  |  |
|  |   | Brackets, Stays ... ..       |   | 2 ✓                 | 2 ✓       | afloat 30" none  |  |  |  |  |  |
| HATCH BEAMS  | { | Number ... ..                |   | 3                   | 3         |                  |  |  |  |  |  |
|  |   | Spacing ... ..               |   | 5'-7"               | 5'-4½"    |                  |  |  |  |  |  |
|  |   | Scantling and Sketch ... ..  |   |                     |           |                  |  |  |  |  |  |
|  |   |                              |  | 11x.30              | 9½x.30    |                  |  |  |  |  |  |
|  |   | Bearing Surface ... ..       |   | 3" ✓                | 3" ✓      |                  |  |  |  |  |  |
| FORE AND AFTERS  | { | Number ... ..                |   | /                   | /         |                  |  |  |  |  |  |
|  |   | Spacing ... ..               |   | /                   | /         |                  |  |  |  |  |  |
|  |   | Unsupported Lengths ... ..   |   | /                   | /         |                  |  |  |  |  |  |
|  |   | Scantling* and Sketch ... .. |   | /                   | /         |                  |  |  |  |  |  |
|  |   | Bearing Surface ... ..       |   | /                   | /         |                  |  |  |  |  |  |
| HATCH COVERS   | { | Material ... ..              |   | W.P.                | W.P.      | W.P.             |  |  |  |  |  |
|  |   | Thickness ... ..             |   | 25/8 ✓              | 2 1/2 ✓   | 2 1/2 ✓          |  |  |  |  |  |
|  |   | How fitted ... ..            |   | F+A                 | F+A       | F+A              |  |  |  |  |  |
|  |   | Bearing Surface ... ..       |   | 3" ✓                | 3" ✓      | 3" ✓             |  |  |  |  |  |
| Spacing of Cleats ... ..   |   |                              |   | not exceeding 24" ✓ |           |                  |  |  |  |  |  |
| Number of Tarpaulins ... ..  |   |                              |   | 2 ✓                 | 2 ✓       | 2 ✓              |  |  |  |  |  |
| *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 ✓                |   |                              |   |                     |           |                  |  |  |  |  |  |

Particulars of fiddle, funnel and ventilator coamings:— Fiddle, funnel & ventilator coamings on top of casing 6'-9" above R.Q. Dk. of strong construction. ✓ Fiddle openings closed by hinged steel covers. ✓

Particulars of Flush Bunker Scuttles:— none ✓

Particulars of Companionways:— On upper deck forward under forecabin to Crew's quarters below Upper Dk. 2'-6" x 4'-0" x 7'-0" high. Solid wood door 1 1/2" P.P. 4'-0" x 2'-0"; 2 1/2" sill above wood deck. On Bridge deck leading to Bridge Access. 1 1/2" solid teak door 4'-6" x 2'-3"; 16 1/2" sill above wood deck.

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

7'le deck: 1-7" d. x 36" x 30 to Crew space below upper deck  
 Upper deck: 2-6" d. mushroom vents " " " " 24" x 26  
 2-7 1/2" d. stove pipes " " " " 30 x 30  
 1-10" d. vent. to hold. 36" x 32  
 R.Q. Dk. 1-10" d. " " 36" x 32  
 Bridge Dk. 2-6" d. mushroom vents to access 18" coamings  
 1-4 3/4" d. stove pipe coaming " " 8 1/2"

all have wood plugs  
 + canvas covers ✓

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

One - 2 3/4" d. to F.P. led to 36" above upper Dk. (under forecabin)  
 " 3" d. to A.P. " " 24" " R.Q. Dk.  
 30" (see 26.2, 26.5, 34)

Supplied with means of closing ✓

Particulars of Gangway Cargo and Coaling Ports:— none.





Particulars of Scuppers and Sanitary Discharge Pipes:—

Crews W.C. for. led overboard above upper dk. no valve fitted ✓  
Officers " aft " " below R.Q. 5th. fitted with N.R. Valve. ✓

Particulars of Side Scuttles:—

In shell under upper deck forward to Crew space  
fitted with hinged steel deadlights. Lowest light sill is 12'-0 1/2" above base

Particulars of Guard Rails:—

On forecabin deck 3'-0" high, with 2 rods, stanchions spaced 4'-6" apart.

Particulars of Gangways, Lifelines, etc.:—

Stanchions fitted on to side of hatch, & lifeline attached. ✓  
Connecting platforms between bridge & hatch & hatch & upper deck forward ✓

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 (R.Q. 5th) ...  | 81-1 1/2          | 3'-0"             | 30" x 16"                      | 5                | 16.66          | 16.22 ✓             |
| Forward Well ...   | 30'-5 1/2"        | 3'-6"             | 1 @ 30" x 18"<br>2 @ 27" x 18" | 3                | 10.50          | 9.55 ✓              |
| State position of each freeing port ...<br>(F. and A. position and height above deck edge) } After Well:— 13'-0", 23'-6", 39'-3", 50'-6", 62'-6" from aft end of bridge; 4" above dk.<br>Forward Well:— 2'-6", 12'-6" & 19'-9" from fwd end of bridge; 8" above deck<br>State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:—<br>all ports have central balanced doors except 30" x 18" opening in fwd well which has no rod. ✓<br>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 ...  |                 |         |   |         |                                      |                                       |                 |                         |
| Bridge, After Bulkhead ...  | .30 ✓           | .30 ✓   | 3 x 2 1/2 x .28   | 30"     | none                                 | none                                  | ✓               | 6'-9"<br>3'-5 1/2" exp. |
| Bridge, Forward Bulkhead ...  | .30 ✓           | .30 ✓   | 5 x 3 x .28 BA<br>1 @ 5 1/2 x 3 x .30 BA<br>clear of hatch on side. | 30"     | hinged at top<br>hinged top & bottom | none                                  | ✓               | 6'-9"                   |
| Forecastle Bulkhead ...   | open forecabin. |         |   |         |                                      |                                       |                 |                         |
| Trunk, Aft ...  |                 |         |   |         |                                      |                                       |                 |                         |
| Trunk, Forward ...  |                 |         |   |         |                                      |                                       |                 |                         |
| Exposed Machinery Casings on Fore-<br>board or Raised Quarter Decks ...                         | 18 x 30         | .26     | 3 x 2 1/2 x .28   | 26/33"  | Brackets at top<br>none at bottom    | 4'-3" x 1'-10"<br>18" x 18" (Bunkers) | 18"<br>39"      | 6'-9"                   |
| Exposed Machinery Casings on Super-<br>structure Decks ...                                      |                 |         |   |         |                                      |                                       |                 |                         |
| Machinery Casings within Superstruc-<br>tures not fitted with Class I Closing<br>Appliances ... |                 |         |   |         |                                      |                                       |                 |                         |
| Deckhouses on Flush Deck Ships ...  |                 |         |   |         |                                      |                                       |                 |                         |

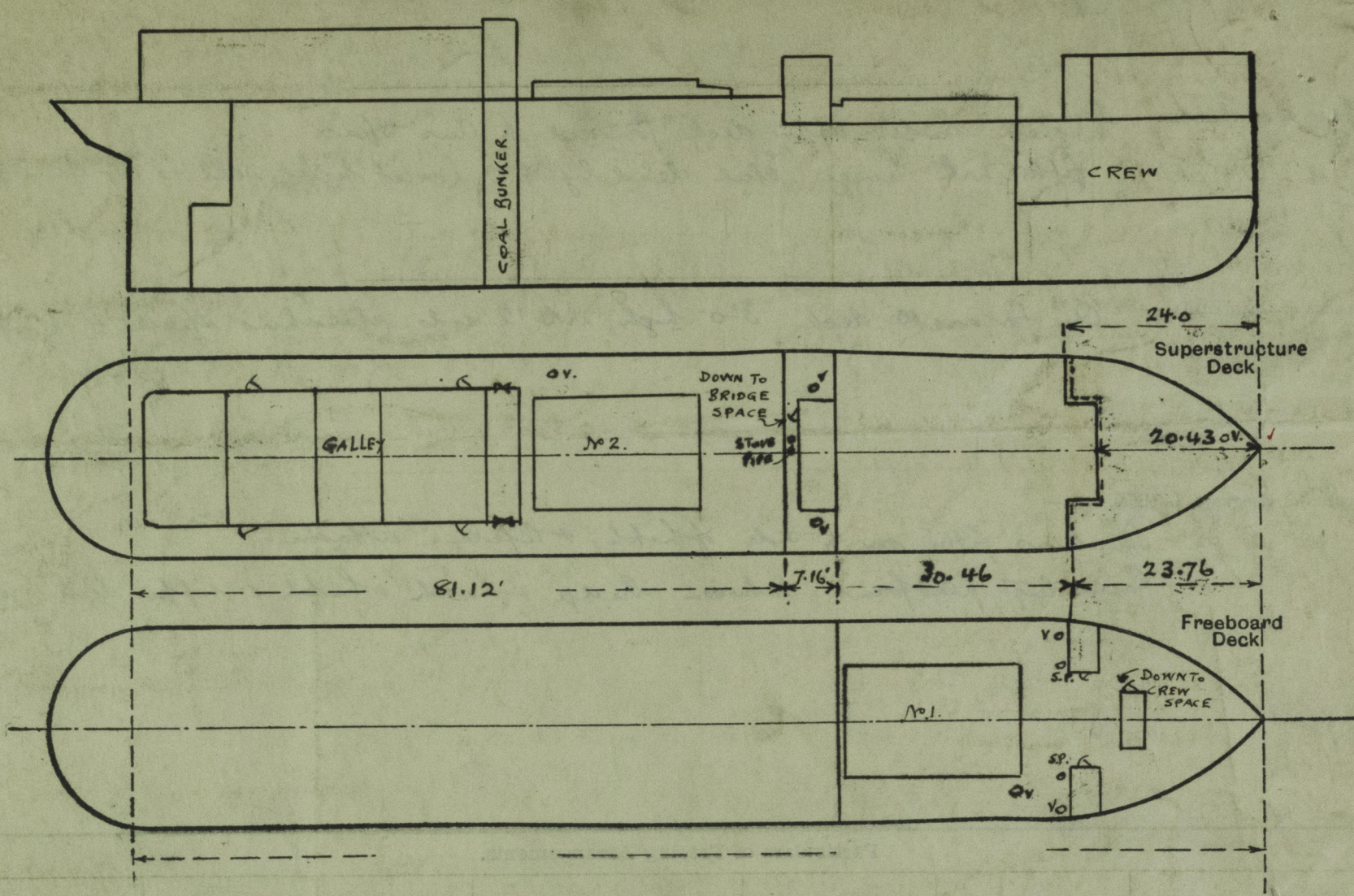
Particulars of Closing Appliances (state if capable of being manipulated from both sides).

|   |   |
|---|---|
| Poop Bulkhead ...   |   |
| Raised Quarter Deck Bulkhead ...  | No openings   |
| Bridge, After Bulkhead ...  | no openings ✓   |
| Bridge, Forward Bulkhead ...  | no openings ✓   |
| Forecastle Bulkhead ...   | open forecabin ✓  |
| Exposed Machinery Casings on Fore-<br>board or Raised Quarter Decks ...                         | 4 steel doors in halves operated from both sides, and hinged steel door to<br>each side of bunkers fastened by means of cleats &<br>battering iron. |
| Exposed Machinery Casings on Super-<br>structure Decks ...                                      |   |
| Machinery Casings within Superstruc-<br>tures not fitted with Class I Closing<br>Appliances ... |   |
| Deckhouses on Flush Deck Ships ...  |   |



Broom

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:—



Fdc. = 20.43.

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

Please see provisional report No 54102  
 Timber freeboard not required ✓  
 Plan of mid. sec of superstructure forwarded (1 plan).

Builder's name and yard number Messrs Scott & Sons, Barling No 325

Names of sister ships S.S. Thom No 326 and similar to S.S. Jasmine No 320

Owners J. Fisher & Sons Ltd.

Fee £ 6 : 0 : 0 Received by me \_\_\_\_\_