

WRECK SECTION

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

No. 576.
14 SEP 1932

Computation of Freeboard for Steamer, Sailing Ship, Tanker

Having POOP, BRIDGE & FORECASTLE. SHELTER DECK

NOVA LISBOA (Type of Superstructures.)

Ship's Name ANGOLA Nationality and Port of Registry PORTUGUESE LISBON Official Number 7884 Gross Tonnage 3519 Date of Build 1912

Moulded Dimensions: Length 440 Breadth 55.5 Depth 28.5 37.00 ✓

Moulded displacement at moulded draught = 85 per cent. of moulded depth 16240 tons

Coefficient of fineness for use with Tables .740

Port of Survey LISBON

Date of Survey 6th & 7th SEPT. 1932

Name of Surveyor G. T. B. SCULLARD

Particulars of Classification +100 A1
Shelter deck with fld.
2nd N: 3. - 3.30. ✓

| Depth for Freeboard (D) | | Depth correction | | Round of Beam correction | |
|---|-------|---|--|--|--|
| Moulded depth | 37.00 | (a) Where D is greater than Table depth (D - Table depth) R = (37.19 - 29.33) 3.00 | | Moulded Breadth (B) | 55.5 |
| Stringer plate | .05 | (b) Where D is less than Table depth (if allowed) (Table depth - D) R = - | | Standard Round of Beam = $\frac{B \times 12}{50}$ | 13.32 |
| Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) = .21 \left(\frac{1-3193}{440} \right)$ | .14 | If restricted by superstructures - | | Ship's Round of Beam | 13.87 |
| Depth for Freeboard (D) = | 37.19 | | | Difference | Green .55 |
| | | | | Restricted to | |
| | | | | Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right)$ | $\frac{.55}{4} \left(1 - \frac{28.29}{440} \right) = .10$ |

DEDUCTION FOR SUPERSTRUCTURES.

| | Mean Covered Length (S) | Equivalent Enclosed Length (S ₁) | Height | Height Correction | Effective Length (E) |
|---------------------|-------------------------|--|--------|-------------------|----------------------|
| Poop enclosed | 54.98 | 54.98 | 7' 9" | | 54.98 |
| " overhang | 2.02 | 1.01 | | | 1.01 |
| R.Q.D. enclosed | | | | | |
| " overhang | | | 8' 0" | | |
| Bridge enclosed | 83.6 | 55.26 | 8' 0" | | 55.26 |
| " overhang aft | | | | | |
| " overhang forward | | | | | |
| " enclosed open | | | | | |
| " overhang | | | | | |
| Trunk aft | | | | | |
| " forward | | | | | |
| Tonnage opening aft | | | | | |
| " forward | | | | | |
| Total | 140.50 | 111.25 | | | 111.25 |

Standard Height of Superstructure 7.50

" " R.Q.D. ✓

Deduction for complete superstructure 42.00

Percentage covered $\frac{S}{L} = 31.93$

" " $\frac{S_1}{L} = 25.29$

" " $\frac{E}{L} = 25.29$

Percentage from Table, Line A. 12.14
(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 = $42.00 \times 12.14 = 5.10$

SHEER CORRECTION.

| Station | Standard Ordinate | S | M | Product | Actual Ordinate | Effective Ordinate | S | M | Product |
|-----------------|-------------------|---|---|---------|-----------------|--------------------|---|---|---------|
| A.P. | 54.00 | 1 | | 54.00 | 33 | 33.00 | 1 | | 33.00 |
| 1/4 L from A.P. | 24.03 | 4 | | 96.12 | 12 | 8.29 | 4 | | 33.16 |
| 1/2 L | 5.94 | 2 | | 11.88 | 1 | 2.07 | 2 | | 4.14 |
| Amidships | — | 4 | | — | 0 | — | 4 | | — |
| 3/4 L from F.P. | 11.88 | 2 | | 23.76 | 10 | 8.89 | 2 | | 17.78 |
| 1/4 L | 48.06 | 4 | | 192.24 | 39 | 35.58 | 4 | | 142.20 |
| F.P. | 108.00 | 1 | | 108.00 | 99 | 99.00 | 1 | | 99.00 |
| Total | | | | 486.00 | | | | | 329.28 |

Mean actual sheer aft = Deficient

Mean standard sheer aft

Mean actual sheer forward = Deficient (80.7% stand)

Mean standard sheer forward

Length of enclosed superstructure forward of amidships = —

" " aft of " = —

Stand. Sheer fixed Actual

| | | | |
|--------|---------|-------|--------|
| 11.88 | 33.64 | 8.89 | 32.67 |
| 48.06 | 314.18 | 25.58 | 310.65 |
| 108.00 | 1108.00 | 99.00 | 199.00 |
| | 287.82 | | 232.32 |
| | | | 287.82 |

$\frac{232.32}{287.82} = 80.7\%$

Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) = \text{Deficient } \frac{156.72}{18} \left(\frac{75-1596}{2 \times 440} \right) = + 5.14$

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 = 37.26 Ft.

Summer freeboard = 12.42

Moulded draught (d) = 24.84

Deduction for Tropical freeboard and addition for

Winter freeboard = $\frac{d}{4}$ inches = 6.21Addition for Winter North Atlantic Freeboard (if required) = ✓

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta = 12400$

Tons per inch immersion at summer load water line

 $T = 47.7$ Deduction = $\frac{\Delta}{40T}$ inches $6.50 = 165 \text{ mm.}$

TABULAR FREEBOARD corrected for Fresh Deck (if required)

Correction for coefficient $\frac{74+68}{1.36} = \frac{142}{1.36}$

| | + | - |
|--|-------|------|
| Depth Correction | 23.58 | — |
| Deduction for superstructures | — | 5.10 |
| Sheer correction | 5.14 | — |
| Round of Beam correction | — | .10 |
| Correction for Thickness of Deck amidships | .84 | — |
| Other corrections | 30.93 | — |
| | 66.49 | 5.20 |

Summer Freeboard = 149.00

SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line

Tropical Fresh Water Line above Centre of Disc

Fresh Water Line

Tropical Line

Winter Line

Winter North Atlantic Line

Wood, Shelter Deck: 149.00 = 3785 mm

Tropical Fresh Water Freeboard

Fresh Water

Tropical

Winter

Winter North Atlantic

142.50 = 3620142.50 = 3620149.00 = 3785149.00 = 3785149.00 = 3785149.00 = 3785

19 SEP 1932

MARKING FORM

MARKING FORM

MARKING FORM

RECEIVED 31 JAN 1933

RECEIVED 27 MAR 1933

RECEIVED DEC 1932

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

| HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECK | | | | | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|
| Description of Hatchway | FREEBOARD | | | | DECK | | | | Boat deck | Fidley |
| | N° 1 | N° 2 | N° 3 | N° 4 | N° 1 | N° 2 | N° 3 | N° 4 | | |
| Dimensions of Hatchway | 18' x 14' | 22' x 14' | 22' x 14' | 18' x 14' | 18' x 14' | 22' x 14' | 22' x 14' | 18' x 14' | 31" | 31" |
| COAMINGS | | | | | | | | | | |
| Height above Deck | 30" | 30" | 30" | 30" | 30" | 30" | 30" | 30" | 30" | 30" |
| Thickness | 4" | 4" | 4" | 4" | 4" | 4" | 4" | 4" | 4" | 4" |
| Stiffeners | 5" | 6" | 6" | 6" | 6" | 6" | 6" | 6" | 6" | 6" |
| Brackets, Stays | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE | NONE |
| HATCH BEAMS | | | | | | | | | | |
| Number | 3 | 4 | 4 | 3 | 3 | 4 | 4 | 3 | 3 | 3 |
| Spacing | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" |
| Scantling and Sketch | 2A | 2A | 2A | 1A | 1A | 2A | 2A | 2A | 2A | 2A |
| Bearing Surface | 2" | 2" | 2" | 2" | 2" | 2" | 2" | 2" | 2" | 2" |
| FORE AND AFTERS | | | | | | | | | | |
| Number | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Spacing | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" | 4' 6" |
| Unsupported Lengths | 11' 6" | 11' 6" | 11' 6" | 11' 6" | 11' 6" | 11' 6" | 11' 6" | 11' 6" | 11' 6" | 11' 6" |
| Scantling and Sketch | 2A | 2A | 2A | 1A | 1A | 2A | 2A | 2A | 2A | 2A |
| Bearing Surface | 2" | 2" | 2" | 2" | 2" | 2" | 2" | 2" | 2" | 2" |
| HATCH COVERS | | | | | | | | | | |
| Material | W.P. | W.P. | W.P. | W.P. | W.P. | W.P. | W.P. | W.P. | W.P. | W.P. |
| Thickness | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" |
| How fitted | F.A. | F.A. | F.A. | F.A. | F.A. | F.A. | F.A. | F.A. | F.A. | F.A. |
| Bearing Surface | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" | 3" |
| Spacing of Cleats | 23" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" | 24" |
| Number of Tarpaulins | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |

Particulars of fiddle, funnel and ventilator coamings:— Fiddle about 23' 6" above shelter deck. No openings on fiddle to stokehold. Ventilation through vents only. Fiddle ventilators in efficient condition. Engine Room skylight of steel strongly constructed. Two coaling hatches A & B. Trunked to main deck. These two hatches are bellmouthed at coamings. Length at top of coaming A. 8' 11"; B. 9' length at deck level (foot of coaming) A. 4' 6"; B. 4' 6".

Particulars of Flush Bunker Scuttles:—

On Port & Starboard sides, shelter deck, each 6 scuttles; cast iron covers of substantial construction. Bayonet fastenings. It is the practice after coaling to cement over the cover. Two chains fitted as it is stated that chutes are placed in the scuttles for coaling.

Particulars of Companionways:—

NONE.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:— all ventilators in good condition + Cowl + T-headed ventilators have a permanent screwed spindle, on a bridge across coaming, on spindle is fitted a hinged steel plate for closing ventilator. Canvas covers for all vents. hood plugs for all goose-neck vents. Fitted to N° 2 hold 2 T-headed vents 18" x 9' 3" coaming stayed to forecastle deck + aft to N° 3 hold 2 cowl vents 12" x 10' 4" stayed to bridge deck. aft to main room 1 cowl ventilator 6" x 18" coaming with wood plug canvas cover.

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

All air pipes have flush screwed caps.

Particulars of Gangway Cargo and Coaling Ports:—

On Port & Starboard sides, shelter deck, each side 3 bulwark cargo doors, 15' 9" in height, strongly stayed to deck; also each side 2 gangway doors 5' 0" in height with two bolts each for closing. All hinges of substantial construction + in good condition. Coaling ports above freeboard deck each 8' 1" high, 23" x 30 1/2" high, hinged to ship's side, fastened by 2 forged steel dogs 34" x 2" x 2 1/4" deep. Two 1" bolts each dog which are 3" dia. in way of bolt holes. Each door opens into a trunk between shelter & upper decks, limits 26 1/2" F.A. + 42 1/2" P.S.

Particulars of Scuppers and Sanitary Discharge Pipes:—

Scuppers from ^{freeboard} shelter deck 3" steel pipes, discharge above ^{second} freeboard deck. No valves. All W.C. bath, lavatory & discharge pipes on vessel's sides fitted with non-return valves. In N° 1 hold discharging at Main Deck P. & S. 5" steel pipes from shelter deck, with brass cone on deck, for rigging temporary W.C.'s for native labourers. No valves.

Particulars of Side Scuttles:—

All side scuttles have hinged steel deadlights + are of substantial construction.

Particulars of Guard Rails:—

Forecastle:— at 18', 27', 36' + 45' spacing of stanchions 4' 0" + 4' 6"
Roof:— at 19', 28', 36' + 46' " " " 4' 6"

Particulars of Gangways, Lifelines, etc.:—

NONE.

Particulars of Freeing Arrangements.

| | Length of Bulwark | Height of Bulwark | Size of Freeing Ports | Number each side | Area each side | Rule area each side |
|--------------|-------------------|-------------------|-----------------------|------------------|----------------|---------------------|
| Shelter Deck | 301' | 42" | 3' 6" x 1' 5" | 7 | 34.7 | 40 |
| Forward Well | | | | | | |

State position of each freeing port (F. and A. position and height above deck edge):— Shelter Deck, from forecastle bulkhead:— 17' 8"; 48'; 66'; 133' 5"; 180' 3"; 264' 5"; 276' 3". 9 1/2" above deck.
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— Hinged steel shutters.
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 | 7/16" | 7/16" | B.A. 9" x 3 1/2" x 1/2" | 28 1/2" | — | 5' 6" x 2' 8" | 14" | 7' 9" |
| Raised Quarter Deck Bulkhead | | | | | | | | |
| Bridge, After Bulkhead | 3/8" | 5/16" | 4 1/2" x 3" x 3/8" | 35" | Brackets T. & B. | 5' 6" x 2' 8" | 13 1/2" | 8' 0" |
| Bridge, Forward Bulkhead | 3/8" | 5/16" | 4 1/2" x 3" x 3/8" | 24 1/2" | " " | " " | " " | 8' 0" |
| Forecastle Bulkhead | 3/8" | 5/16" | 3 1/2" x 3" x 3/8" | 34" | — | open | — | 8' 0" |
| 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 | 3/8" | 1/4" | 3 1/2" x 3" x 3/8" | 31" | — | 5' 10" x 2' 8" | 9" | 8' 0" |
| Deckhouses on Flush Deck Ships | | | | | | | | |

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

| | | | |
|---|---|--|----------------------|
| Poop Bulkhead | 4 | Teak doors 1 3/4" frames; 3/4" panels. | Operated both sides. |
| Raised Quarter Deck Bulkhead | | | |
| Bridge, After Bulkhead | 3 | Teak doors 1 3/4" frames; 3/4" panels. | Operated both sides. |
| Bridge, Forward Bulkhead | | closed, open sides. | |
| Forecastle Bulkhead | | open. | |
| 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 | 1 | Teak door 1 3/4" frame; 3/4" panels. | Operated both sides. |
| Deckhouses on Flush Deck Ships | | | |

Hand-drawn plan view of a ship's hull and deck layout. The drawing shows the hull profile with various internal compartments and structural elements. Key dimensions are marked: 57' 1" (loop), 71' 7 1/2", 181' 5 1/8", 46' 16 1/2", and 83' 5". A calculation for 'loop' is shown: $\frac{11.0 \times 4.58}{25.0} = \frac{2.02}{54.98}$. A note 'overhang & equiv.' is present. A 'File open' label is also visible. The drawing is labeled 'Freeboard Superstructure Deck' and 'Freeboard Deck'.

- A & B cooling hatches
- C steel skylight to B's suns room. 4'2" x 4'7" x 1'0" -
- D " " " Trimmers quarters 2'2" x 4'8" x 1'0" -
- E " " " 4th class passenger entrance 6'2" x 4'11" x 1'0" -

All skylights strongly constructed + in good condition.

- F Hatch trunked to main deck refrigerating spaces
- J & G Funnel Casing.

Vessel examined in dry dock.

Received by me