

DISCLOSED SECTION

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Index. No. **24455**
(For London Office only.)

367

Computation of Freeboard for ~~Steamer~~ Sailing Ship, Tanker
having Poop, Bridge and Forecastle.

(Type of Superstructures.)

Ship's Name S.S. "S O L I".	Nationality and Port of Registry Oslo. Norwegian.	Official Number 53.08	Gross Tonnage 5,834.	Date of Build 1915-12.
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Moulded Dimensions: Length **411.6** Breadth **53.4** Depth **31.0**
Moulded displacement at moulded draught = 85 per cent. of moulded depth **12,890** tons
Coefficient of fineness for use with Tables **.783**

Port of Survey Nagasaki.
Date of Survey 22nd Nov. 1932.
Name of Surveyor H.D. Buchanan.
Particulars of Classification *100 A.I.
Carrying Petroleum in Bulk.
S.S. No. 3. 9. 28.

Depth for Freeboard (D) Moulded depth 31.00 Stringer plate64 Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$ Depth for Freeboard (D) = 31.05	Depth correction (a) Where D is greater than Table depth (D - Table depth) R = (31.05 - 27.47) 3 = +10.74 (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) 53.4 53.08 Standard Round of Beam = $\frac{B \times 12}{50} =$ 12.74 Ship's Round of Beam = 12.75" - 13.00 Difference .26 Restricted to Correction = $\frac{\text{Diff}^\circ}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.26}{4} \times .5695 = -.04$
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DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	110.0	110.00	7'-6"	✓	110.00
" overhang					
R.Q.D. enclosed					
" overhang					
Bridge enclosed... ..	26.0	26.00	7'-6"	✓	26.00
" overhang aft					
" overhang forward	3.0	1.50			1.50
Fore enclosed	37.0	37.00	7'-6"	✓	37.00
" overhang	3.0	2.88			2.88
Trunk aft					
" forward					
Tonnage opening aft					
" forward					
Total	179.00	177.38			177.38

Standard Height of Superstructure **7.50**
R.Q.D. ✓
Deduction for complete superstructure **42.00**
Percentage covered $\frac{S}{L} =$ **43.45 %**
" $\frac{S_1}{L} =$ **43.05 %**
" $\frac{E}{L} =$ **43.05 %**
Percentage from Table, Line A.
(corrected for absence of forecastle (if required))
Percentage from Table, Line B. **TANKER.** **34.05 %**
(corrected for absence of forecastle (if required))
Interpolation for bridge less than 2L (if required)
Deduction = **42.00 × .3405 = -14.30**

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	51.20	1	51.20	46.00	46.00	1	46.00		
$\frac{1}{8}L$ from A.P.	22.78	4	91.12	18.96	18.96	4	75.84		
$\frac{2}{8}L$ "	5.63	2	11.26	4.74	4.74	2	9.48		
Amidships	✓	4	✓	-	✓	4	✓		
$\frac{2}{8}L$ from F.P.	11.26	2	22.52	10.66	10.66	2	21.32		
$\frac{1}{8}L$ "	45.56	4	182.24	42.64	42.64	4	170.56		
F.P.	102.40	1	102.40	102.00	102.00	1	102.00		
Total			460.74				425.20		

Mean actual sheer aft = **Deficient**
Mean standard sheer aft
Mean actual sheer forward = **Deficient**
Mean standard sheer forward
Length of enclosed superstructure forward of amidships =
" " aft of " = } **Tankers**
5328
Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{35.54}{18} \times (.75 - .2172) = +1.05"$
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. Ft. Depth to Freeboard Deck = 31.05 Summer freeboard = 5.64 Moulded draught (d) = 25.41 Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 6.35 Addition for Winter North Atlantic Freeboard (if required) = 4.12 = 4" = 102.7	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 = $6\frac{1}{4} = 159\%$ = $6\frac{1}{4}$" = 159%	TABULAR FREEBOARD corrected for Flush Deck (if required) Correction for coefficient $\frac{.783 + .68}{1.36} = \frac{1.463}{1.36}$ <table border="1"> <tr> <th></th> <th>+</th> <th>-</th> </tr> <tr> <td>Depth Correction</td> <td>10.74</td> <td>✓</td> </tr> <tr> <td>Deduction for superstructures</td> <td>14.30</td> <td>✓</td> </tr> <tr> <td>Sheer correction</td> <td>1.05</td> <td>✓</td> </tr> <tr> <td>Round of Beam correction</td> <td>.04</td> <td>✓</td> </tr> <tr> <td>Correction for Thickness of Deck amidships</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Other corrections, scantlings, etc.</td> <td>✓</td> <td>✓</td> </tr> <tr> <td></td> <td>11.79</td> <td>14.34</td> </tr> <tr> <td>Summer Freeboard =</td> <td>67.81</td> <td></td> </tr> </table>		+	-	Depth Correction	10.74	✓	Deduction for superstructures	14.30	✓	Sheer correction	1.05	✓	Round of Beam correction04	✓	Correction for Thickness of Deck amidships	✓	✓	Other corrections, scantlings, etc.	✓	✓		11.79	14.34	Summer Freeboard =	67.81	
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SUMMER FREEBOARD amidships from Centre of Disc to top of Deck Line, Wood, Steel, Deck:-

Tropical Fresh Water Line above Centre of Disc	12 1/2" = 31.8"	Tropical Fresh Water Freeboard	4' - 7 1/4" = 1403
Fresh Water Line " "	6 1/4" = 159	Fresh Water " "	5' - 1 1/2" = 1562
Tropical Line " "	6 1/4" = 159	Tropical " "	5' - 1 1/2" = 1562
Winter Line below " "	6 1/4" = 159	Winter " "	6' - 2" = 1880
Winter North Atlantic Line " "	10 1/4" = 261	Winter North Atlantic " "	6' - 6" = 1980

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										
Description of Hatchway	No. of Hatches	28 O.T. Hatches	Coal Hatch on Poop	Coal Hatch on Fore	Coal Hatch on Mid	Coal Hatch on Poop	Coal Hatch on Fore	Coal Hatch on Mid	Coal Hatch on Poop	Coal Hatch on Fore
Dimensions of Hatchway	12'0" x 10'0"	6'0" x 4'0"	6'0" x 2'8"	6'0" x 2'8"	6'0" x 3'0"	6'0" x 3'0"	6'0" x 3'0"	6'0" x 3'0"	6'0" x 3'0"	6'0" x 3'0"
COAMINGS	Height above Deck ... Thickness ... Stiffeners ... Brackets, Stays ...	32" ... .45 ....45 ... 7x3x.40	9x3x.50 ... BA ....40 ....40	24" ... .42 ....42 ... 2x3x.38	24" ... .42 ....42 ... 2x3x.38	12" ... .44 ....44 ... 2x3x.38	8" ... .44 ....44 ... 2x3x.38	9x3x.50 ... BA ....40 ....40	2'17" ... .40 ....40 ... 5x5x.5A	5x5x.5A ... BA ....40 ....40
HATCH BEAMS	Number ... Spacing ... Scantling and Sketch ...	None	None	None	None	None	None	None	None	None
Bearing Surface	Number ... Spacing ... Unsupported Lengths ... Scantling and Sketch ...	None	None	None	None	None	None	None	None	None
FORE AND AFTERS	Material ... Thickness ... How fitted ... Bearing Surface ...	Steel ....50 ... Efficiently ... Stiff'd & W.T.	Steel ....50 ... Efficiently ... Stiff'd & W.T.	P. Pine. ... 3" ... Fore & Aft. ... 2" ...	3" ... Fore & Aft. ... 2" ... 2"	Wood ... 3" ... Fore & Aft. ... 2" ...	Wood ... 3" ... Fore & Aft. ... 2" ...	Steel ....40 ... W.T. ... Stiff'd & W.T.	Stl. WT. ... .40 ... Riveted ... Stiff'd & W.T.	Steel ....40 ... Hinged ... W.T. cover
HATCH COVERS	Material ... Thickness ... How fitted ... Bearing Surface ...	Steel ....50 ... Efficiently ... Stiff'd & W.T.	Steel ....50 ... Efficiently ... Stiff'd & W.T.	P. Pine. ... 3" ... Fore & Aft. ... 2" ...	3" ... Fore & Aft. ... 2" ... 2"	Wood ... 3" ... Fore & Aft. ... 2" ...	Wood ... 3" ... Fore & Aft. ... 2" ...	Steel ....40 ... W.T. ... Stiff'd & W.T.	Stl. WT. ... .40 ... Riveted ... Stiff'd & W.T.	Steel ....40 ... Hinged ... W.T. cover
Spacing of Cleats	Number of Tarpaulins	24	24	24	24	27	27	27	27	27

*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?

Particulars of fiddle, funnel and ventilator coamings:—
 Stockhold gratings covered by strong steel hinged covers.
 Fidler and funnel ventilators in efficient condition.
 Engine skylight steel strongly constructed.

Particulars of Flush Bunker Scuttles:—

None.

Particulars of Companionways:—

Two steel doors at aft end of engine casing on poop deck 4'-6"x 3'-0" leading to accommodations and steering engine room on upper deck, (steering engine room is common with Main engine room) doors operated from both sides, sills 18" high.

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

Bridge Deck:—

Poop Deck:—
 6-15" vents to main dk & bunkers Coamings 36"x.30
 2-24" " " aft end Eng. room " 12'-1 1/2"x.50
 1 W.T. mushroom ventilator to Stokers mess Coaming 10"x8"
 4-9" vents to accommodation spaces Coaming 10"x8"
 Forward Well Deck:—
 2-15 1/2" vents to hold & tween decks Coamings 36"x.30
 1-15 1/2" vents to pump Rm in hold, Coamings 24" above trunk top x.30 (4'7" above deck)
 2-24" vents to pump room, Coamings 36" above casing top x.30
 All ventilators constructed in accordance with the Rules and closed with wood plugs & canvas covers.

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

Poop Deck. 1- 3" dia to aft peak tank. 36" above poop dk. Forecastle Dk:— 1- 4" dia to F.P. tank 21" above F. Dk.
 2- 3" " " Eng. F.W. tank. 3'26" " " Ford. well Dk:— 4- 5" dia to Deep tank 3'16" above Dk.
 2- 4" " " oil fuel double bottom tank in boiler room 18" above poop deck.
 2- 5" " " " bunker tank 12" above poop deck.
 2- 2 1/2" " " cofferdam between engine & boiler room tanks 16" above poop deck.
 2- 3" " " drinking water tank 3'-4" above poop deck. Closed by means of canvas covers and wood plugs.

Particulars of Gangway Cargo and Coaling Ports:—

None.

Particulars of Scuppers and Sanitary Discharge Pipes:—

2" discharge pipes from wash basins baths &c, Poop, Bridge & Forecastle.
 4" soil " " W.O.

Only soil pipes fitted with cast steel storm valves on the ships side and efficient traps at inner end. All in good & efficient condition.

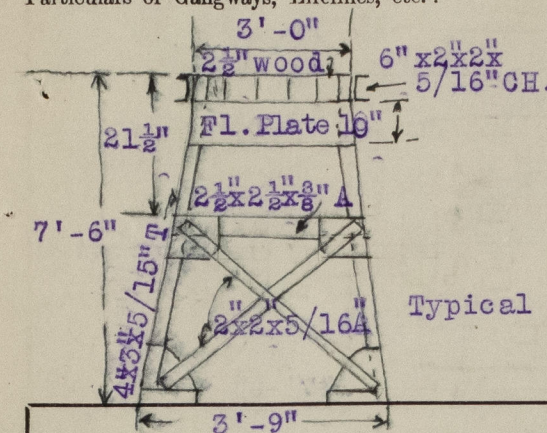
Particulars of Side Scuttles:—

No sidelights fitted below freeboard deck. Sidelights to crew spaced in poop and forecandle & stores in Bridge space provided with hinged deadlights.
 All scuttles of substantial construction.

Particulars of Guard Rails:—

Guard rails on poop, bridge & forecandle, 3'-7" high with 3 rods, and stanchions spaced about 4'-3" apart.
 Steel bulwark on freeboard deck for full length in wells 3'-6" high, efficiently constructed and supported.

Particulars of Gangways, Lifelines, etc.:—



Gangway fitted from poop to bridge & from bridge to forecandle efficiently supported, having stanchions with single rail 3'-0" high.

2 sets longitudinal diagonal bracing fitted to supports of gangway in forward well and one set about middle of gangway in aft well.

Typical sketch.

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 ...	99'-3 1/2"	3'-6"	38 x 18	4	13.07	199
Forward Well ...	139'-4"	3'-6"	38 x 18	5	16.335	279

State position of each freeing port ... (F. and A. position and height above deck edge) } After Well:—
 } Forward Well:—
 State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:— 2, vertical 1" dia Bar
 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"	.40"	6"x3 1/2"x3 1/2"	30"	Brackets	4'8"x 3'10"	22 1/2"	-
Raised Quarter Deck Bulkhead ...								
Bridge, After Bulkhead ...	.40"	.40"	6"x2 1/2"x2 1/2"	30"	Brackets	5'1"x 3'11"	21 1/2"	-
Bridge, Forward Bulkhead ...	.40"	.40"	6"x3 1/2"x3 1/2"	30"	Brackets	5'1"x 2'18"	18 1/2"	-
Forecastle Bulkhead ...	.40"	.40"	6"x3"x3"x3"	39 1/2"	Top riveted to beam Bottom free	5'1"x2'12"	17 1/2"	
Trunk, Aft ...								
Trunk, Forward ...								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...								
Exposed Machinery Casings on Superstructure Decks ...	.40"	.40"	4"x3"x3"	30"	Brackets	5'-1"x2'-1"	18"	
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	.40"	.40"	4"x3"x3"	30"	Brackets	5'-0"x2'-2"	18"	7'-6"
Deckhouses on Flush Deck Ships ...								

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

Poop Bulkhead ...	Steel plates attached to bulkhead by hold fast head bolts
Raised Quarter Deck Bulkhead ...	
Bridge, After Bulkhead ...	Steel plates attached to bulkhead by hold fast head bolts
Bridge, Forward Bulkhead ...	Hinged W.T. steel door operated from both sides.
Forecastle Bulkhead ...	Wood doors 1 5/8" thick operated from both sides.
Exposed Machinery Casings on Freeboard or Raised Quarter Decks ...	Hinged W.T. steel door in pump room casing operated from both sides.
Exposed Machinery Casings on Superstructure Decks ...	Hinged steel doors operated from both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ...	Hinged steel doors operated from both sides.
Deckhouses on Flush Deck Ships ...	

Hand-drawn plan of the lower deck of the ship 'H.M.S. 'Albatross''. The plan shows a long, narrow hull with various compartments labeled. At the bow (left), there is a 'F.W.' (Fresh Water) tank and an 'Oil Bunker'. Moving aft, there is a 'CORR. DAM' (Corrosion Dam) and a series of numbered compartments (1 through 9). Compartment 1 is labeled 'Oil Bunker'. Compartment 2 is labeled 'CORR. DAM'. Compartment 3 is labeled 'Pump Rm.'. Compartment 4 is labeled 'Pump Rm.'. Compartment 5 is labeled 'Pump Rm.'. Compartment 6 is labeled 'Pump Rm.'. Compartment 7 is labeled 'Pump Rm.'. Compartment 8 is labeled 'Pump Rm.'. Compartment 9 is labeled 'Pump Rm.'. At the stern (right), there is a 'CORR. DAM', a 'Deep tank', and a 'Store' (Storage) area. The plan is drawn on a grid of lines representing the hull structure.

The diagram illustrates the layout of the upper and lower decks of a ship's hull. The upper deck features an escape hatch, engine rooms (Eng), coal hatches, and a hinged WT cover. The lower deck includes a coat shoot, bunker tank, E.R., B.R., and various hatches and doors. Dimensions are provided for different sections of the hull.

Upper Deck Labels:

- Escape Hatch
- Eng. Coal Hatch
- Rs.
- Eng
- Blr.
- Cas ing
- Cas ing
- Eng. Coal Hatch
- Rs.
- Overhang-- 3'-0" --overhang
- Hinged WT cover
- WT Hatch steel cover.
- Superstructure Deck

Lower Deck Labels:

- Coat shoot
- Bunker tank
- UNDER
- E.R.
- B.R.
- Bolted stl cover
- 21" dia Hinged WT door
- Access trunk to Pmp Rm.
- Pmp Rm
- Wood doors
- Coff. manhole
- WT stl operated from both sides.
- Coff. manhole
- Freeboard Deck

Dimensions:

- 26'-0"
- 110'-0"
- 26'-0"
- 37'-0"

V. - $5\frac{1}{2}$ " below centre of disc.

(to Buchanan.) Forward to Lloyd's Register.