

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having Complete Superstructure deck with tonnage opening
(Type of Superstructures.)

Port of Survey Dundee

Date of Survey 30th June 1933

Name of Surveyor J. Thomson

Particulars of Classification 100 A1 with freeboard contemplated

Ship's Name <u>The Calson S. E. Co. Ltd.</u> <u>Yard No 345</u>	Nationality and Port of Registry <u>British</u>	Official Number <u>-</u>	Gross Tonnage <u>1665</u>	Date of Build <u>1933</u>
---	--	-----------------------------	------------------------------	------------------------------

Moulded Dimensions: Length 280' Breadth 42' Depth 14'

Moulded displacement at moulded draught = 85 per cent. of moulded depth 3060 tons

Coefficient of fineness for use with Tables .630 (.68 lowest in Tables)

<p>Depth for Freeboard (D)</p> <p>Moulded depth <u>17.00</u></p> <p>Stringer plate <u>38"</u> <u>.03</u></p> <p>Sheathing on exposed deck <u>Shells etc.</u> $T \left(\frac{L-S}{L} \right) =$</p> <p>Depth for Freeboard (D) = <u>17.03</u></p>	<p>Depth correction</p> <p>(a) Where D is greater than Table depth (D-Table depth) R =</p> <p>(b) Where D is less than Table depth (if allowed) (Table depth-D) R = $(18.67-17.03) \times 2.154 = -3.53$ <u>1.64</u> If restricted by superstructures</p>	<p>Round of Beam correction</p> <p>Moulded Breadth (B) <u>42.0</u></p> <p>Standard Round of Beam = $\frac{B \times 12}{50} = 10.08$</p> <p>Ship's Round of Beam = <u>10.5</u></p> <p>Difference <u>.42</u></p> <p>Restricted to</p> <p>Correction = $\frac{\text{Diff}^a}{4} \times \left(1 - \frac{S_1}{L}\right) = \frac{.42}{4} \times .0074 = \text{Nil}$</p>
--	---	--

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	<u>21.13</u>	<u>21.13</u>	<u>8.5'</u>	<u>-</u>	<u>21.13</u>
" overhang					
R.Q.D. enclosed					
" overhang					
Bridge enclosed... ..	<u>254.54</u>	<u>254.54</u>	<u>8.5'</u>	<u>-</u>	<u>254.54</u>
" overhang aft	<u>.25</u>	<u>.19</u>			<u>.19</u>
" overhang forward					
" enclosed					
" overhang					
Trunk aft					
" forward					
Tonnage opening aft	<u>4.08</u>	<u>2.07</u>	<u>= 2 diff.</u>		<u>2.07</u>
" forward					
Total	<u>280.00</u>	<u>277.93</u>			<u>277.93</u>

Standard Height of Superstructure 6.30

 " " R.Q.D. -

Deduction for complete superstructure 34"

Percentage covered $\frac{S}{L} = 100.00$

 " $\frac{S_1}{L} = 99.26$

 " $\frac{E}{L} = 99.26$

Percentage from Table, Line A. 99.09
(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 = $34 \times .9909 = -33.69$

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	<u>38.00</u>	<u>1</u>		<u>38.00</u>	<u>+26.4</u>	<u>30.00</u>	<u>1</u>		<u>56.40</u>
$\frac{1}{8}$ L from A.P.	<u>16.91</u>	<u>4</u>		<u>67.64</u>	<u>13.35</u>	<u>25.09</u>	<u>4</u>		<u>100.36</u>
$\frac{2}{8}$ L "	<u>4.18</u>	<u>2</u>		<u>8.36</u>	<u>3.30</u>	<u>6.20</u>	<u>2</u>		<u>12.40</u>
Amidships	<u>-</u>	<u>4</u>		<u>-</u>	<u>5</u>	<u>-</u>	<u>4</u>		<u>-</u>
$\frac{3}{8}$ L from F.P.	<u>8.36</u>	<u>2</u>		<u>16.72</u>	<u>7.92</u>	<u>10.82</u>	<u>2</u>		<u>21.64</u>
$\frac{1}{8}$ L "	<u>33.82</u>	<u>4</u>		<u>135.28</u>	<u>32.04</u>	<u>43.78</u>	<u>4</u>		<u>175.12</u>
F.P.	<u>76.00</u>	<u>1</u>		<u>76.00</u>	<u>72.00</u>	<u>98.40</u>	<u>1</u>		<u>98.40</u>
Total				<u>342.00</u>	<u>+26.4</u>				<u>464.32</u>

Mean actual sheer aft = Even

Mean standard sheer aft = Even

Mean actual sheer forward = Even

Mean standard sheer forward = Even

Length of enclosed superstructure forward of amidships = .5L

 " " aft of " = -

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{122.32}{18} \times (.75 - .50) = -1.56$
1.70

If limited on account of midship superstructure.

If limited to maximum allowance of $1\frac{1}{2}$ ins. per 100 ft.

<p>Deduction for Tropical Freeboard.</p> <p>Addition for Winter and Winter North Atlantic Freeboard.</p> <p><u>Flat plate keel 54</u> <u>fillet with rubbing</u> <u>bar 8" x 3/4"</u></p> <p>Depth to Freeboard Deck = <u>17.03</u></p> <p>Summer freeboard = <u>.17</u></p> <p>Moulded draught (d) = <u>16.86</u></p> <p>Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <u>4.21</u></p> <p>Addition for Winter North Atlantic Freeboard (if required) =</p>	<p>Deduction for Fresh Water.</p> <p>Displacement in salt water at summer load water line</p> <p>$\Delta =$</p> <p>Tons per inch immersion at summer load water line</p> <p>$T =$</p> <p>Deduction = $\frac{\Delta}{40T}$ inches = <u>4 1/4</u></p>	<p>TABULAR FREEBOARD corrected for Flush Deck (if required)</p> <p>Correction for coefficient <u>Nil.</u></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>+</th> <th>-</th> </tr> </thead> <tbody> <tr> <td>Depth Correction</td> <td><u>-</u></td> <td><u>3.53</u></td> </tr> <tr> <td>Deduction for superstructures</td> <td><u>-</u></td> <td><u>33.69</u></td> </tr> <tr> <td>Sheer correction</td> <td><u>-</u></td> <td><u>+56</u></td> </tr> <tr> <td>Round of Beam correction</td> <td><u>-</u></td> <td><u>1.70</u></td> </tr> <tr> <td>Correction for Thickness of Deck amidships</td> <td><u>-</u></td> <td><u>-</u></td> </tr> <tr> <td>Other corrections, scantlings, etc.</td> <td><u>-</u></td> <td><u>-</u></td> </tr> <tr> <td></td> <td><u>38.92</u></td> <td><u>-38.78</u></td> </tr> <tr> <td></td> <td><u>38.70</u></td> <td><u>-38.78</u></td> </tr> </tbody> </table> <p>Summer Freeboard = <u>minus .08.22</u></p>		+	-	Depth Correction	<u>-</u>	<u>3.53</u>	Deduction for superstructures	<u>-</u>	<u>33.69</u>	Sheer correction	<u>-</u>	<u>+56</u>	Round of Beam correction	<u>-</u>	<u>1.70</u>	Correction for Thickness of Deck amidships	<u>-</u>	<u>-</u>	Other corrections, scantlings, etc.	<u>-</u>	<u>-</u>		<u>38.92</u>	<u>-38.78</u>		<u>38.70</u>	<u>-38.78</u>
	+	-																											
Depth Correction	<u>-</u>	<u>3.53</u>																											
Deduction for superstructures	<u>-</u>	<u>33.69</u>																											
Sheer correction	<u>-</u>	<u>+56</u>																											
Round of Beam correction	<u>-</u>	<u>1.70</u>																											
Correction for Thickness of Deck amidships	<u>-</u>	<u>-</u>																											
Other corrections, scantlings, etc.	<u>-</u>	<u>-</u>																											
	<u>38.92</u>	<u>-38.78</u>																											
	<u>38.70</u>	<u>-38.78</u>																											

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

Tropical Fresh Water Line above Centre of Disc <u>4 1/4"</u>	Tropical Fresh Water Freeboard <u>Minus</u> <u>0'-2" (limited)</u>
Fresh Water Line " " <u>4 1/4"</u>	Fresh Water " <u>Minus</u> <u>0'-2 1/4"</u>
Tropical Line " " <u>Nil.</u>	Tropical " " <u>0'-2" (limited)</u>
Winter Line below " " <u>4 1/4"</u>	Winter " " <u>0'-6 1/4"</u>
Winter North Atlantic Line " " <u>6 1/4"</u>	Winter North Atlantic " " <u>0'-8 1/4"</u>

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway	...	...	...	...	...	...	...	...	...
Dimensions of Hatchway	...	...	...	...	...	...	...	...	...
COAMINGS	Height above Deck	...	...	...	...	...	...	...	...
	Thickness	...	...	...	...	...	...	...	...
	Sides	...	...	...	...	...	...	...	...
	Ends	...	...	...	...	...	...	...	...
HATCH BEAMS	Stiffeners	...	...	...	...	...	...	...	...
	Brackets, Stays	...	...	...	...	...	...	...	...
	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
FORE AND AFTERS	Scantling and Sketch	...	...	...	...	...	...	...	...
	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
	Unsupported Lengths	...	...	...	...	...	...	...	...
HATCH COVERS	Scantling* and Sketch	...	...	...	...	...	...	...	...
	Number	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...
	Unsupported Lengths	...	...	...	...	...	...	...	...
Bearing Surface		...	...	...	...	...	...	...	...
Material		...	...	...	...	...	...	...	...
Thickness		...	...	...	...	...	...	...	...
How fitted		...	...	...	...	...	...	...	...
Bearing Surface		...	...	...	...	...	...	...	...
Spacing of Cleats		...	...	...	...	...	...	...	...
Number of 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 fiddle, funnel and ventilator coamings:—

Particulars of Flush Bunker Scuttles:—

Particulars of Companionways:—

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

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

Particulars of Gangway Cargo and Coaling Ports:—

Particulars of Scuppers and Sanitary Discharge Pipes:—

5" down from valves in fore and aft P.B.
 operated from the upper deck.

Particulars of Side Scuttles:—

Particulars of Guard Rails:—

Particulars of Gangways, Lifelines, etc.:—

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 ...			no freeing port in fore and aft well.			
Forward Well ...						

State position of each freeing port ... After Well:—
 (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:—
 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 ...								
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 ...								
Deckhouses on Flush Deck Ships ...								

Particulars of Closing Appliances (state if capable of being manipulated from both sides).	
Poop Bulkhead ...	Outlet
Raised Quarter Deck Bulkhead ...	
Bridge, After Bulkhead ...	Weather boards full height closing openings and fitted into channels riveted to the bulkhead to conform with rule.
Bridge, Forward Bulkhead ...	
Forecastle Bulkhead ...	
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 ...	
Deckhouses on Flush Deck Ships ...	

The diagram is a hand-drawn plan view of the hull of the USS Albatross (SSN-581), showing three decks: Upper Deck, Superstructure Deck, and Freeboard Deck. The hull is elongated with a rounded bow and a pointed stern.

Upper Deck: This deck is the topmost level shown. It features a central section labeled "UPPER DX" with a downward arrow. To the left of this section is a "5' beam down down" note, with a sub-note "Below P.O.S. in Tunnels 8.50 beam to beam 1925 DX." and "will operate from the upper deck." Below this section are two "Dup Tank for oil" compartments. To the right of these tanks is a "Fore Peak Tank." The deck is also labeled "open deck" at the stern. Other labels include "Aft Peak Tank", "Recirc", "Tunnel", "Thrust", "DB", "open floor", and "RTB".

Superstructure Deck: This deck is located below the Upper Deck. It features a central section labeled "E.T.B. CASINGS". To the left of this section are two "N°4" and "N°3" compartments, each labeled "H". To the right of the casings are two "N°2" and "N°1" compartments, each labeled "H". The deck is labeled "Superstructure Deck" at the stern. Dimensions include "21-13'", "4-33'", and "254-54'". A "25' overhang" is noted at the bow.

Freeboard Deck: This deck is the bottommost level shown. It features a central section labeled "E.T.B. CASINGS". To the left of this section are two "N°4" and "N°3" compartments, each labeled "H". To the right of the casings are two "N°2" and "N°1" compartments, each labeled "H". The deck is labeled "Freeboard Deck" at the stern. Dimensions include "4-33'". A note indicates "openings and weather boards in channels must be built per 3 rule requirements."

Builder's name and yard number *The Galson B. & C. Co. Ltd. Yard No. 345.*

OWNERS *Dundee, Perth, and London Shipp. Co.*

Fee £ Received by me