

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

16 JUN 1932

Index. No. 30573
(For London Office only.)

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

(Type of Superstructures.)

Ship's Name BRITISH DUCHESS Nationality and Port of Registry British London Official Number 147647 Gross Tonnage 5973 Date of Build 1924-5

Moulded Dimensions: Length 405.25 Breadth 54.5 Depth 33
Moulded displacement at moulded draught = 85 per cent. of moulded depth 13,790 tons
Coefficient of fineness for use with Tables .781

Port of Survey Falmouth
Date of Survey 13/6/32. 14/6/32. 15/6/32
Name of Surveyor R. Clifton
Particulars of Classification +100A1
Carrying Petroleum in bulk

Depth for Freeboard (D)
Moulded depth 33.0
Stringer plate062
Sheathing on exposed deck
 $T \left(\frac{L-S}{L} \right) =$
Depth for Freeboard (D) = 33.06

Depth correction
(a) Where D is greater than Table depth
(D-Table depth) R = $(33.06 - 26.95) 3.00 = 6.11 \times 3 = 18.33$
(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) 54.5
Standard Round of Beam = $\frac{B \times 12}{50} = \frac{54.5 \times 12}{50} = 13.08$
Ship's Round of Beam = 13.2
Difference .12
Restricted to
Correction = $\frac{\text{Diff}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.12}{4} \times \left(1 - \frac{50.11}{192.39} \right) = .0302$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)	
Poop enclosed	104.0	104.00	8'-0"		104.00	Standard Height of Superstructure <u>7.5</u>
" overhang						" R.Q.D.
R.Q.D. enclosed						Deduction for complete superstructure <u>42.00</u>
" overhang						Percentage covered $\frac{S}{L} = \frac{47.59}{54.5}$
Bridge enclosed	32.83	32.83	8'-0"		32.83	" $\frac{S_1}{L} = \frac{46.98}{54.5}$
" overhang aft	4".92	.69			.69	" $\frac{E}{L} = \frac{46.98}{54.5}$
" overhang forward	4".92	.46			.46	Percentage from Table, Line A.
F'cle enclosed	50.11	50.11	8'-0"		50.11	(corrected for absence of forecastle (if required))
" overhang	3.64	1.82			1.82	Percentage from Table, Line B. <u>37.98</u>
Trunk aft						(corrected for absence of forecastle (if required))
" forward						Interpolation for bridge less than 2L (if required)
Tonnage opening aft						Deduction = <u>15.95</u>
" forward						
Total	192.39	189.91			189.91	

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P.	50.42	1		50.42	49	51.0	1		51.00
$\frac{1}{2}$ L from A.P.	22.42	4		89.68	20.87	21.2	4		86.88
$\frac{3}{8}$ L "	5.55	2		11.10	5.25	5.43	2		10.86
Amidships		4					4		
$\frac{3}{8}$ L from F.P.	11.10	2		22.20	10.125	11.06	2		22.12
$\frac{1}{2}$ L "	44.85	4		179.40	43.87	44.24	4		176.96
F.P.	100.84	1		100.84	101	102.0	1		102.00
Total				453.64					449.82

$$\text{Correction} = \frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{453.64}{18} \left(.75 - \frac{238}{192} \right) = .11$$

If limited on account of midship superstructure.

Mean actual sheer aft = Deficient
Mean standard sheer aftMean actual sheer forward = Deficient
Mean standard sheer forwardLength of enclosed superstructure forward of amidships =
L" " aft of " = Tanker

Deduction for Tropical Freeboard.

Addition for Winter and Winter North Atlantic Freeboard.

Ft.
Depth to Freeboard Deck = 33.06
Summer freeboard = 5.89
Moulded draught (d) = 27.17

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 6.79 6.24Addition for Winter North Atlantic Freeboard (if required) = 4.04 4"

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$$\Delta = 13,430$$

Tons per inch immersion at summer load water line

$$T = 44.15$$

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

$$= \frac{13,430}{40 \times 44.15} = 7.60$$

$$7\frac{1}{2}$$

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	+	-
Depth Correction	18.33	
Deduction for superstructures		15.95
Sheer correction	11	
Round of Beam correction05
Correction for Thickness of Deck amidships		
Other corrections, scantlings, etc.		
	18.44	16.00

Summer Freeboard = 70.63

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

Tropical Fresh Water Line above Centre of Disc	14 1/4
Fresh Water Line " "	7 1/2
Tropical Line " "	6 3/4
Winter Line below " "	6 3/4
Winter North Atlantic Line " "	10 1/4

Tropical Fresh Water Freeboard	4-8 1/2
Fresh Water " "	5-3 1/4
Tropical " "	5-1 1/4
Winter " "	6-5 1/2
Winter North Atlantic " "	10-1 1/4

MARKING FORM

RECEIVED 31 MAY 1932 RECEIVED 21 JUN 1932

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS

Description of Hatchway	F. HOLD.	MAIN	SUMMER.	OFFICERS' F.C.	F. Pk.	Fore Deep P. Room	4 IN POOP	ON POOP
Dimensions of Hatchway	9'0" x 12'0"	6'0" x 4'0"	4'0" x 5'0"	6'0" x 4'0"	1'3" x 1'3"	2'10" x 2'10"	2'5" x 2'0"	4'0" x 4'0"
COAMINGS	Height above Deck ... 30" 24"	13	13	19"	13"	15	30"	22"
	Thickness ... 44	5	5	5	5	5	5	5
	Sides ...							
	Stiffeners ...							
	Brackets, Stays ...							
HATCH BEAMS	Number ... 1							2 1/2 wood covers
	Spacing ...							18" cleats
	Scantling and Sketch ...							1 3/4 bars
	10 1/2" 7 1/2" 3							2 Tarpsaulins
	Angles 3 x 3 x 40							
	Bearing Surface ...							
FORE AND AFTERS	Number ...							
	Spacing ...							
	Unsupported Lengths ...							
	Scantling and Sketch ...							
	Bearing Surface ...							
HATCH COVERS	Material ...	Steel	Steel	Steel	Steel	Steel	Steel	Steel
	Thickness ...	1/2"	1/2"	3/8"	1/2"	1/2"	1/2"	1/2"
	How fitted ...	See Note	See Note	See Note	See Note	See Note	See Note	See Note
	Bearing Surface ...	See Note	See Note	See Note	See Note	See Note	See Note	See Note
Spacing of Cleats	page 4							
Number of Tarpaulins	page 4							

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? *yes*

Particulars of fiddle, funnel and ventilator coamings:—
 Skylight to Seamen's mess room on F.C. deck and
 skylights to Engine Room & Pump Room of Steel strongly constructed
 stokehold gratings covered with hinged steel plates
 Funnel & fiddle ventilators efficient

Particulars of Flush Bunker Scuttles:—
 1 deck scuttle on poop 24" dia with bayonet
 fastening, access to meat room.

Particulars of Companionways:—
 1 in P.T.S. alleyways in F.C. companionways to Seamen's
 messrooms in lower F.C. *hinged steel doors capable of manipulation*
 Engine Room, Stokehold & donkey Boiler house hinged steel
 doors manipulated both sides 19" sills
 Pump Room w.t. hinged steel door manipulated both sides 18" sill

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—
 F.C. Dk. 7 @ 9" dia 36" high } To F.C. } aft Dk. 2 @ 18" 36" high to P. Room
 13 @ 7" " 36" " } & fore } Poop. 2 @ 12" 30" " } to Poop Space
 4 @ 18" " 36" " } hold. } 2 @ 9" 30" " } Eng. Room
 Fore Dk. 1 @ 9" " 36" " } To F. Deep P. Room } 4 @ 15" 30" " } Steering House
 10 @ 7" 30" " } & Accommod. }
all ventilators have wood plug & canvas covers

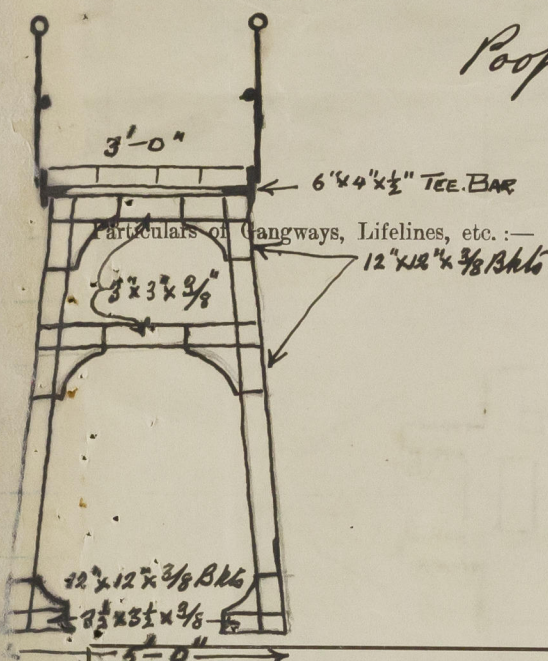
Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—
 F.C. 1. 4" dia 6" high no cover to F. Peak. Poop. 4. 4 1/2" dia 8" high to Bunker DB
 2. 4 1/2" " 6" " covered gauge to F. deep. 4. 3 1/2" " 8" " to Bunker DB
 3. 3 1/2" " 40" " " " " " 4. 3 1/2" " 7" " to DB tanks no cover
 4. 3 1/2" " 40" " " " " " 3. 3" " 14" " " " "
 5. 3 1/2" " 40" " " " " " Efficient canvas covers provided for closing air pipes.

Particulars of Gangway Cargo and Coaling Ports:—
 NONE

Particulars of Scuppers and Sanitary Discharge Pipes — Sanitary Discharges:—

7 P.T.S. deck scuppers through gunwale bar
 2 P.T.S. " " 2 ft below poop deck
 P.T.S. F.C. 3 P.T.S. Midships above deck. Single valves fitted
 aft. 2 P.T.S. 4' 6" below Poop deck.
 2 P.T.S. 2' 6" " Fresh Dk. } Single valves fitted
 1.3 at stern above " " }
 Particulars of Side Scuttles:
 F.C. 6 P.T.S. 10" dia 2' 0" below F.C. Dk. } Hinged glasses & hinged dead lights
 4 P.T.S. 10" " 2' 6" " Fresh Dk. } of substantial construction
 3 P.T.S. 10" 7 1/4 S 12" dia 2' 6" " Bridge Dk. }
 Poop. 6 P.T.S. 10" dia 2' 0" " Poop Dk. }

Particulars of Guard Rails:—



F.C. 3 Rails & Stanchions 4' high 5' 0" apart
 Poop. 3 Rails & " 4 1/2" " 5' 0" "

F.A. gangway Poop to Bridge with 12 supports 8' 0" apart
 " " Bridge to F.C. " 9' 0" supports 8' 0" "

Guards. 2 wires & Stanchions 36" high 5' 6" apart.
 Canvas bracing fitted at Cal Oct '42

Particulars of Freeing Arrangements.

	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
Forward Well	119' 8"	4' 0"	3' 0" x 1' 9"	5	58' 6" of area	117' 6"
Forward Well	95' 8"	4' 0"	3' 0" x 1' 9"	4	See sketch on p. 4	alterations in progress 94' 6"

State position of each freeing port (F. and A. position and height above deck edge) } After 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. height above deck 12"

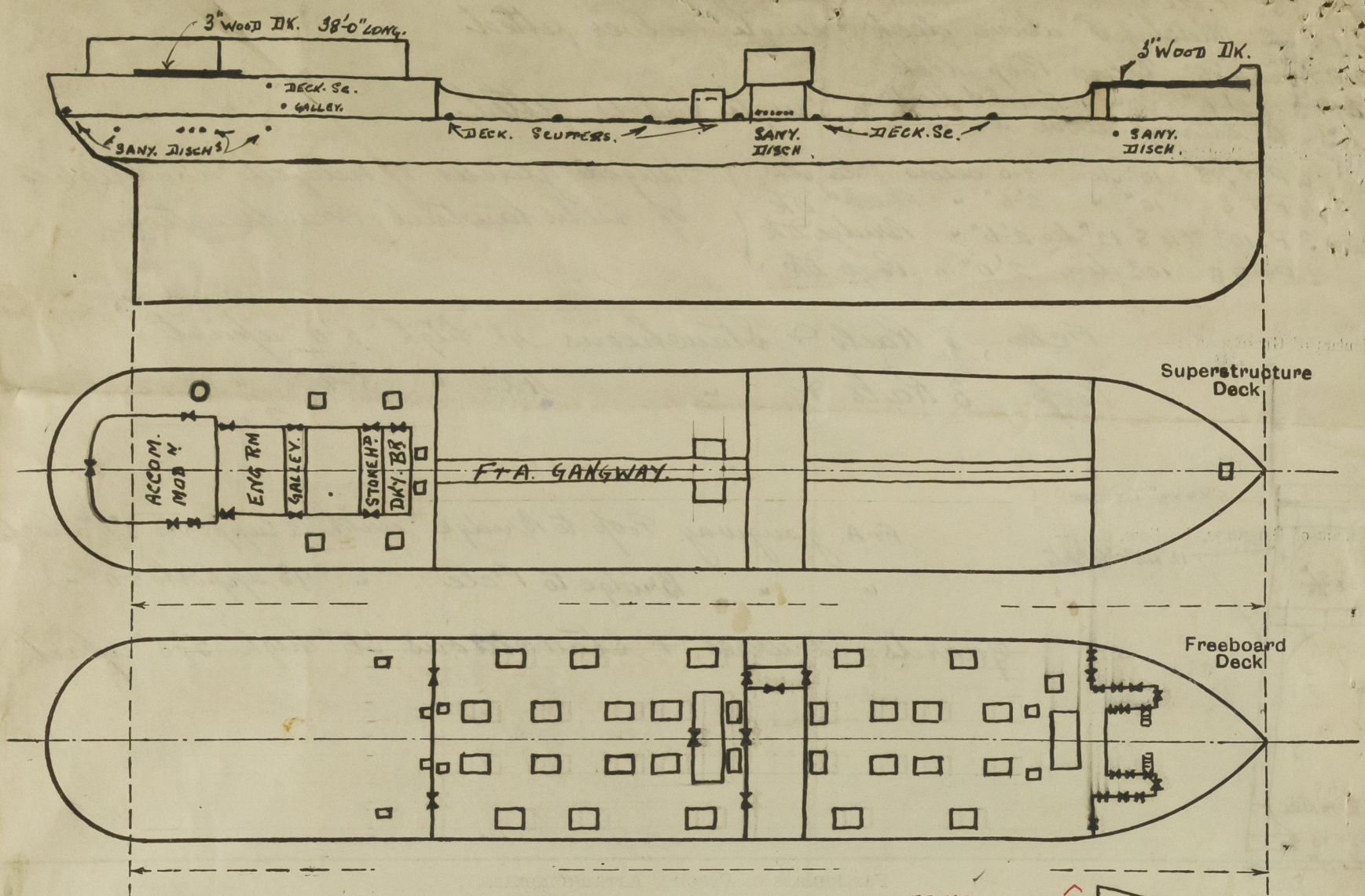
Particulars of Superstructures, Trunks, Casings, Deckhouses.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poop Bulkhead	✓	1/2"	10" x 3 1/2" RA.	34"	Brackets			8' 0"
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	✓	7/16"	6" x 3" x 3/8"	39"	Skts	2 @ 5' 0" x 2' 6"	18 1/2"	8' 0"
Bridge, Forward Bulkhead	✓	1/2"	11" x 3 1/2" RA.	36"	Skts	1 @ 4' 0" x 3' 3"	24"	8' 0"
Forecastle Bulkhead	✓	7/16"	5" x 3" x 3/8"	36"	Skts	1 @ 5' 0" x 2' 6"	18 1/2"	8' 0"
Trunk, Aft	✓					See sketch	20"	8' 0"
Trunk, Forward	✓							
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	P. Room	7/16"	3 1/2" x 3 1/2" x 3/8"	28"	Skts top	4' 0" x 2' 6"	18"	6' 3"
Exposed Machinery Casings on Superstructure Decks	7/16"	7/16"	3" x 3" x 3/8"	31"	none	5' 0" x 2' 0"	19"	8' 0"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	7/16"		Horizontal 3 1/2" x 3 1/2" x 3/8"	36"				8' 0"
Deckhouses on Flush Deck Ships	Vertical	13" x 3/4" flanged		about 12 feet	Skts top & bottom			

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

Poop Bulkhead	Steel plates with hook bolts passing thro' plate only manipulated outside.
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	2 w.t. hinged steel doors manipulated both sides
Bridge, Forward Bulkhead	2 1/2" wood shifting boards in riveted channels full height
Forecastle Bulkhead	w.t. hinged steel door manipulated both sides
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	See sketch page 4.
Exposed Machinery Casings on Superstructure Decks	P. Room. w.t. hinged steel door manipulated both sides
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	Hinged steel doors manipulated both sides
Deckhouses on Flush Deck Ships	

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:—



$$\begin{array}{r} \text{F.C.L.E. } 53.75 - \\ 3(24 + 7.5) = 53.75 \\ \hline 23.5 \\ 3.64 \\ \hline 50.11 \\ 3.64 \end{array}$$

overhang

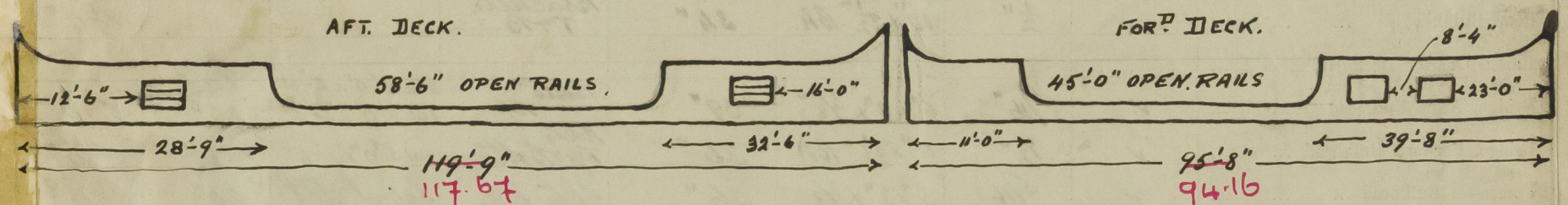
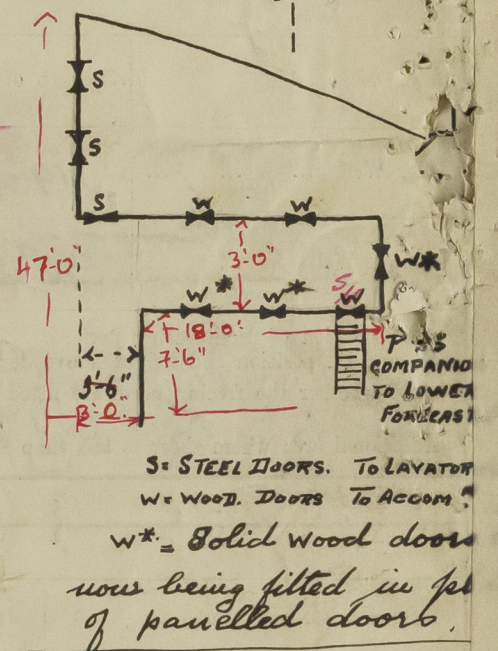
State any special features in the construction of the ship:— *Vessel examined in Dry Dock.*

SS No 2 now being held
The following alterations are in progress:—

Steel cover to fore hold hatch in accordance with plan approved for British Tanker Co's vessels.

Hinged steel covers $\frac{1}{2}$ " thick in place of wood covers on Fore Peak hatch and hatch to Fore Deep Pump room.

Hinged steel doors manipulated both sides in place of wood doors to companions leading to lower files
alterations to Bulwarks:—



Builder's name and yard number *J. L. Thompson & Sons Ltd. Sunderland.*

Names of sister ships

Owners *British Tanker Co Ltd*

For £ *13 : 12 : 0.*

Received by me



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