

Lloyd's Register of Shipping.
SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker
having Roop, bridge and forecastle

Port of Survey Newcastle

Date of Survey 20th June '32

Name of Surveyor J. H. L. L.

Particulars of Classification +100A1
Carrying petroleum in

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
<u>ACARDO</u>	<u>British London</u>	<u>146054</u>	<u>5767</u>	<u>1921-6</u>

Moulded Dimensions: Length 411.75 Breadth 53.08 Depth 31.0
Moulded displacement at moulded draught = 85 per cent. of moulded depth 13085 tons
Coefficient of fineness for use with Tables .795

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... <u>31.0</u>	(a) Where D is greater than Table depth (D-Table depth) R = <u>(31.05-27.45) x 3 = 10.80</u>	Moulded Breadth (B) <u>53.08</u> Standard Round of Beam = $\frac{B \times 12}{50} =$ <u>12.74</u> Ship's Round of Beam = <u>12 1/2</u> Difference = <u>.24</u> Restricted to Correction = $\frac{\text{Diff}^e}{4} \times (1 - \frac{S_1}{L}) =$ <u>.24 x .5261 = +.03</u>
Ring plate <u>.94 @ marking</u> ... <u>.05</u>	(b) Where D is less than Table depth (if allowed) (Table depth-D) R =	
Leathen on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructure	
Depth for Freeboard (D) = <u>31.05</u>		

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poep enclosed ...	110.25	110.25	7'-6"		110.25
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...	26'-0" SIDE 34'-9" CENTRE	26.00	7'-6"		26.00
" overhang aft ...	3'-6"	2.62			2.62
" overhang forward ...	3'-0"	1.50			1.50
Fore enclosed ...	52'-9"	52.75	7'-6"		52.75
" overhang ...	4'-0"	2.00			2.00
Trunk aft ...					
" forward ...					
Tonnage opening aft ...					
" forward ...					
Total ...	199.50	195.12			195.12

Standard Height of Superstructure	7.50
" " R.Q.D.	
Deduction for complete superstructure	42.00
Percentage covered $\frac{S}{L} =$	48.46
" " $\frac{S_1}{L} =$	47.39
" " $\frac{E}{L} =$	47.39
Percentage from Table, Line A. (corrected for absence of forecable (if required))	
Percentage from Table, Line B. <u>Tanker</u>	38.39
(corrected for absence of forecable (if required))	
Interpolation for bridge less than 2L (if required)	
Deduction =	42.00 x .3839 = -16.12

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
P. ...	51.17	1		51.17	44	45.00	1		45.00
from A.P. ...	22.77	4		91.08	16 1/2	16.59	4		66.36
" ...	5.63	2		11.26	4	4.15	2		8.30
amidships ...		4			Nil		4		
from F.P. ...	11.26	2		22.52	10	10.37	2		20.74
" ...	45.54	4		182.16	41 1/4	41.47	4		165.88
P. ...	102.35	1		102.35	102	102.00	1		102.00
Total ...				460.54					408.28

Mean actual sheer aft = Deficient
Mean standard sheer aftMean actual sheer forward = Deficient
Mean standard sheer forwardLength of enclosed superstructure forward of amidships = 7 Tanker
" " aft of " =Correction = $\frac{\text{Difference between sums of products}}{18} \left(\frac{75-S}{2L} \right) = \frac{52.26}{18} \left(\frac{75-24.23}{2} \right) = +1.47$

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 = 31.08
Summer freeboard = 5.62
Moulded draught (d) = 25.46Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 6.37 6 1/4Addition for Winter North Atlantic Freeboard (if required) = 4.12 4

Deduction for Fresh Water.

Displacement in salt water at summer load water line

 $\Delta =$ 12660

Tons per inch immersion at summer load water line

T = 44.9Deduction = $\frac{\Delta}{40T}$ inches= 7.05" 7

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	1.36	+	-
Depth Correction ...	10.80		
Deduction for superstructures ...		16.12	
Sheer correction ...	1.47		
Round of Beam correction ...	.03		
Correction for Thickness of Deck amidships ...	.34		
Other corrections, scantlings, etc. ...			
	12.64	16.12	-3.48

Summer Freeboard = 67.38

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

Tropical Fresh Water Line above Centre of Disc ...	13 1/4
Fresh Water Line " " ...	7
Tropical Line " " ...	6 1/4
Winter Line below " " ...	6 1/4
Winter North Atlantic Line " " ...	

Tropical Fresh Water Freeboard ...	5' 7 1/2"
Fresh Water " " ...	4' 6 1/4"
Tropical " " ...	5' 0 1/2"
Winter " " ...	5' 1 1/2"
Winter North Atlantic " " ...	6' 5 1/4"

MARKING FORM

RECEIVED 19 JUN 1935 RECEIVED 29 JUN 1932

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS																			
		← FLE DK →				← POOP DK →				← UPPER DECK →									
		FP	FORE PUMP ROOM	FORE CARGO	BIDGE STORE	COAL COAL	COAL COAL	AP	AP	FIDLEY COAL	FP STORE	MAIN CARGO	SUMMER CARGO	COFFER DAMS	OIL BKR	OIL BKR	COAL HATCH	COAL HATCH	
Description of Hatchway	...	STORE	1 off	1 off	1 off	1 off	1 off	1 off	1 off	1 off	1 off	18 off	10 off	10 off	10 off	10 off	10 off	10 off	
Dimensions of Hatchway	...	2'-6"	2'-6"	4'-6"	8'-6"	2'-2"	4'-0"	2'-6"	2'-6"	4'-4"	2'-6"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	
COAMINGS	Height above Deck	2'1"	18"	30"	3 1/2"	24"	23"	19"	20"	36"	3 1/2"	9"	9"	6"	10"	10 1/2"	10 1/2"	10 1/2"	
	Thickness	3/4"	5/8"	5/8"	3/4"	4/4"	4/4"	3/4"	3/4"	4/4"	3/4"	3 1/2"	3 1/2"	3"	3 1/2"	3/2"	3/2"	4/4"	
	Stiffeners	...	...	...	8x3/4"	...	...	...	...	...	...	...	...	...	...	...	...	...
	Brackets, Stays	...	...	...	4x4"	...	...	...	...	...	...	...	...	...	...	...	...	...
HATCH BEAMS	Number	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Scantling and Sketch	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Bearing Surface	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
FORE AND AFTERS	Number	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Spacing	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Unsupported Lengths	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Scantling and Sketch	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bearing Surface	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
HATCH COVERS	Material	STEEL	STEEL	STEEL	OP	OP	OP	STEEL	STEEL	OP	OP	STEEL	STEEL	STEEL	STEEL	STEEL	OP	OP	
	Thickness	3/8"	1/2"	5/8"	1"	2 1/2"	2 1/2"	3/4"	3/4"	2 1/2"	2 1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	2 1/2"	2 1/2"	
	How fitted	HINGED	HINGED	HINGED	F.A.	F.A.	F.A.	SCUR	SCUR	F.A.	F.A.	HINGED	HINGED	HINGED	HINGED	HINGED	F.A.	F.A.	
	Bearing Surface	3/4"	1/2"	1/2"	1"	2 1/2"	2 1/2"	3/4"	3/4"	2 1/2"	2 1/2"	1"	1"	1"	1"	1"	2 1/2"	2 1/2"	
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?

yes where fitted

yes

Particulars of fiddle, funnel and ventilator coamings:— Stockholm gratings covered by strong steel hinged covers
Fidley and funnel ventilators in efficient condition
The Engine room skylight is of steel strongly constructed

Particulars of Flush Bunker Scuttles:—

None

Particulars of Companionways:— The entrance to pump room on fore hold is through fore-castle bulkhead to trunk hull strongly in plate. Enclosed with 1 1/2" solid teak door entered from upper deck. Door 5'-1 1/2" x 2'-0" x 1 1/2" Sill + operated both sides. The entrance to pump room on fore well deck through substantially built steel deck house 6'-6" x 1'-0" x 7'-0". One steel hinged w.t. door (B.T. 12 lbs) 5'-0" x 2'-0" x 1 1/2" Sill operated both sides. Two steel skylights and steel local hatch on top strongly constructed secured by toggles. On poop deck entrance to Petty Officers quarters. Strongly constructed steel companion (p + s) 4'-6" x 2'-6" x 7'-0". Wood door (teak 1 1/2" solid) 5'-0" x 1'-0" x 1 1/2" Sill operated both sides. Entrance (p + s) to aft peak stores enclosed in after end poop deck house strongly constructed. Doors 5'-0" x 2'-0" x 1 1/2" Sill Doors of solid teak 1 1/2" operated both sides.

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

Particulars	Quantity	Remarks
On deck 10 at 8" DIAM COAMING 12" x 7/20	1	TO CREWS SPACE
" " " 3 at 8" " " 12" x 7/20	3	TO CREWS SPACE
" " " 1 at 15" " " 24" x 7/10	1	TO PUMP ROOM
" " " 2 at 16" " " 33" x 7/20	2	TO LOWER TWIN DECK
" " " 1 " 10" " " 54" x 7/20	1	TO LOWER TWIN DECK

WOOD PLUGS AND CANVAS COVERS FITTED TO RULE REQUIREMENTS

Particulars of Air Pipes in exposed positions of freeboard, raised quarter, or superstructure decks:—						<u>FW + BALLAST TANKS AIR PIPES HAVE OPEN ENDS</u>	
<i>On forecastle deck</i>	3 at 4" DIA	15" h MOUTH	20" to th open ends	To PEAK + DEEP TANKS			
<i>On fore well deck</i>	2 at 4"	15"	" " "	GAUZE TO COFFERDAM			
<i>On after "</i>	" 2 at 4"	66"	" UNSUPPORTED	GAUZE TO COFFERDAM			
<i>On poop deck.</i>	6 off 3½ diam	6" MOUTH	Y HT				
	6 off 3"	" 25"	" 27" HT.				
	2 off 4"	" 3½"	" 6" HT				
			} To tanks in hatch space	4 off 3" diam	26" HT to FW tanks		
				1 off 3½"	26" HT " APT.		
						OIL TANKS GAUZES OF AP. REQUIRE REPAIRS.	

Particulars of Gangway Cargo and Coaling Ports:—

None ✓

Academy

Particulars of Scuppers and Sanitary Discharge Pipes - Upper deck in wells Scuppers open at ship's side discharge about 12" below fld deck w/ 1 pipe
All sanitary discharges from poop + bridge spaces discharge above freeboard deck + have storm valves
Sanitary discharges " fore-castle discharge just below fld deck + have storm valves

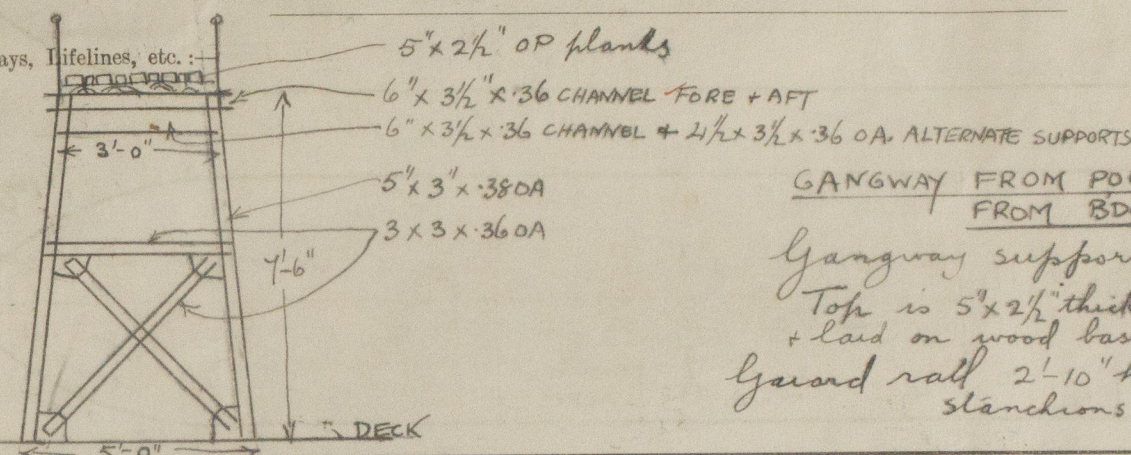
Particulars of Side Scuttles :

of Side Scuttles;
Forecastle Strong deadlight fitted to side scuttles fixed type ✓
Bridge do do do do ✓
Poop Strong fixed deadlights fitted to side scuttles except in a few instances

Particulars of Guard Rails :—

Forecastle Deck		2 Rails Height	3'-6"	Stanchions	4'-6" apart
Bridge deck	3 "	"	3'-6"	"	3'-9" to 4'-9" "
Poop deck	3 "	"	3'-6"	"	4'-6" - "

Particulars of Gangways.



GANGWAY FROM POOP TO BRIDGE AND
FROM BDGE TO FCL'E

Gangway supports 9'-0" to 11'-0" apart
Top is 5" x 2 1/2" thick. O.P. plank spaced 1 1/2" apart
+ laid on wood base pieces (bolted)
Guard rail 2'-10" height one rod
standings - 4 L6" apart

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	96.5 ^{ft}	3'-5"	5'-0" x 1'-9" Semicircular ends 3'-3" x 2'-1"	5 } 2 } 10 85	89.20 ^{sq ft} 25	25% of 360 = 82.5 Defect = 59.5 #
Forward Well	116.0 ^{ft}	3'-5"	3'-0" x 1'-9"	6 } 2 } 12 105	109.24 ^{sq ft} 27.6	25% .396 = 99.0 Defect = 71.4 #
State position of each freeing port	After Well: - 10.9, 33.0, 58.5, 84.9, 58.5, 33.0, 10.9 Forward Well: - 6.0, 44.0, 82.0, 74.0, 6.0 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.	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	21" x 50"	.42	10" x 3 1/4" x 50"	40"	BKts T+B	2" off 49" x 3'0"	23"	7'-6"
Raised Quarter Deck Bulkhead ...	✓	✓	✓	✓	✓	✓	✓	✓
Bridge, After Bulkhead ...	.38	.38	6" x 3 1/2" x 40 OA	40"	BKts T+B	3" off 49" x 2'-6"	22"	7'-6"
Bridge, Forward Bulkhead ...	.44	.44	10" x 3 1/2" x 32 OA CHANNEL	40"	BKts T+B	1" off 50" x 2'-8"	16"	7'-6"
Forecastle Bulkhead ... ..	.40	.40	3 x 3 x 40 OA	30" to 40"	None	6" off 50" x 2'-0"	17"	7'-6"
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Free-board or Raised Quarter Decks ...								
Exposed Machinery Casings on Super-structure Decks ... ..	.44	.34	3 1/2 x 3 1/2 x 38 OA	28"	None	3" P 25 24 1/2" x 2'-1"	18"	7'-6"
Machinery Casings within Superstructures not fitted with Class I Closing Appliances ... ..	.34	.34	3 1/2 x 3 1/2 x 38 OA	28"	None	2" off 4 1/2 x 2 1/4" TO BOILER ROOM 1 1/2" 27" x 2'-0" TO DOWNER BLR	18 1/2"	7'-6"
Deckhouses on Flush Deck Ships ...								

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

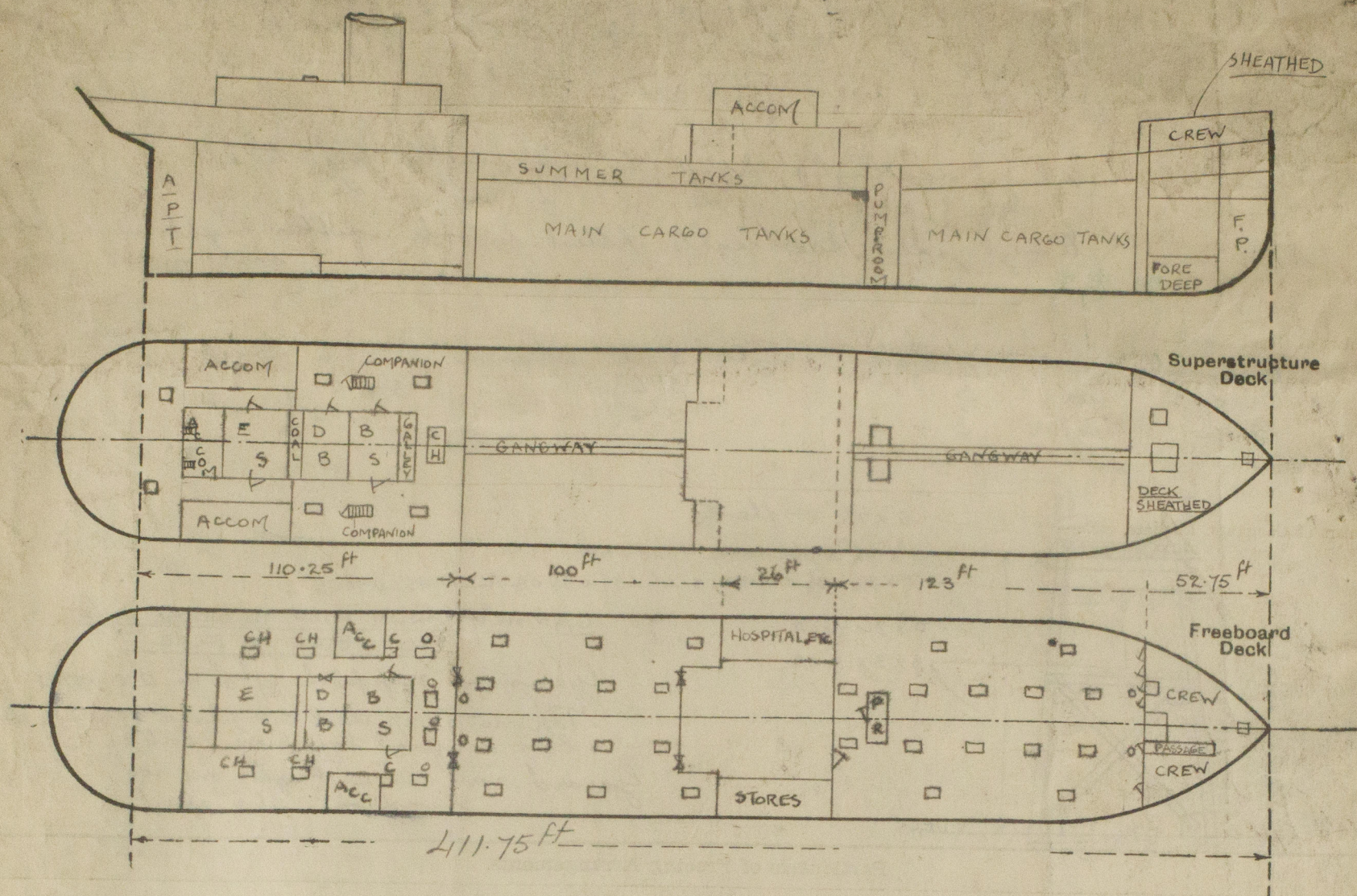
Poop Bulkhead	...	...	Bolted plate (p.s.) secured by bolts not thru bulk ^d toggles 17" apart
Raised Quarter Deck Bulkhead	...	...	Two steel hinged doors operated both sides in frames secured to bulk ^d by hooked bolts 17" not pass ^d thru bulk ^d . One 1/2 solid teak door operated both sides -
Bridge, After Bulkhead	...	...	One hinged steel w/ door operated both sides -
Bridge, Forward Bulkhead	...	...	1/2 solid teak doors operated both sides (one to pump room trunk)
Forecastle Bulkhead	...	...
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	...	...	Five steel hinged ord ^y doors operated both sides.
Exposed Machinery Casings on Superstructure Decks	...	...	Two ordinary steel hinged doors operated both sides.
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	One sliding door into donkey boiler access from poop tank deck. on right slide with stop to prevent door being unlatched & only
Boathouses on Flush Deck Ships	

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off sides
oop turn decks
unshipped p only

2/2 Ws'43-0106

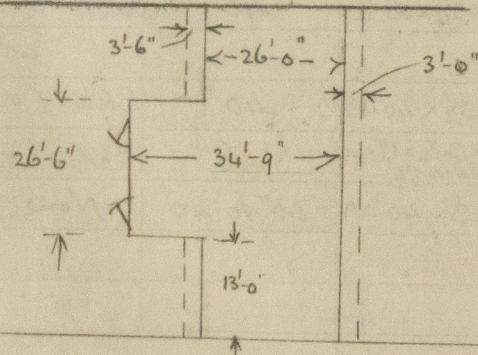
Superstructure bulkheads, trunks, deckhouses, casings, cargo and coaling hatchways, extent and thickness of sheathing on the freeboard deck, gangway, cargo coaling ports, and any other openings, etc., which would affect the seaworthiness of the ship are to be shewn on the following sketches:—



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

Extreme displacement in salt water in tons	Draught from bottom/keel butt straps 2 5/16" above moulded base	Tons per inch
11233	23'-0"	44.4
11775	24'-0"	44.6
12125	24'-8"	44.72
12310	25'-0"	44.8
12850	26'-0"	45.0

PLAN OF
AFT BRIDGE



Vessel under docking su

L

Builder's name and yard number. Union Construction Co Oakland California

Names of sister ships "Achatena" Amalthus, Ampullaria + "Paludina"

Owners Anglo Saxon Petroleum Co Ltd

Fee £ 13 : 12 : — Received by me.



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