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(For London Office only.)

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

11. 1122.

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

Port of Survey *Belfast*

Date of Survey *during construction*

Name of Surveyor *Wm Balfour*

Particulars of Classification *+100 A-1 (comp'd)
Carrying petroleum in bulk
long framing at bottom and deck*

Ship's Name	Nationality and Port of Registry	Official Number	Gross Tonnage	Date of Build
<i>Acavus</i>	<i>British London</i>			<i>1935</i>

Moulded Dimensions: Length *460* ✓ Breadth *59.04* ✓ Depth *34.01* ✓
Moulded displacement at moulded draught = 85 per cent. of moulded depth *17680* tons
Coefficient of fineness for use with Tables *.788*

Depth for Freeboard (D)	Depth correction	Round of Beam correction
Moulded depth ... <i>34.01</i> ✓	(a) Where D is greater than Table depth (D - Table depth) R = <i>(34.01 - 30.67) 3 = 10.20</i> ✓	Moulded Breadth (B) <i>59.04</i> ✓
Stringer plate <i>.75</i> ... <i>.06</i> ✓	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =	Standard Round of Beam = $\frac{B \times 12}{50} = \frac{59.04 \times 12}{50} = 14.17$ ✓
Sheathing on exposed deck $T \left(\frac{L-S}{L} \right) =$	If restricted by superstructures	Ship's Round of Beam = <i>14.75</i> ✓
Depth for Freeboard (D) = <i>34.07</i> ✓		Difference <i>excess .58</i> ✓
		Restricted to <i>.5938</i> ✓
		Correction = $\frac{\text{Diff}^{\circ}}{4} \times \left(1 - \frac{S_1}{L} \right) = \frac{.58}{4} \times \left(1 - \frac{.09}{.75} \right) = .09$ ✓

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed ...	<i>92.75</i> ✓	<i>92.75</i> ✓	<i>7.5</i> ✓	✓	<i>92.75</i> ✓
" overhang ...					
R.Q.D. enclosed ...					
" overhang ...					
Bridge enclosed ...	<i>46.12</i> ✓	<i>46.12</i> ✓	<i>7.5</i> ✓	✓	<i>46.12</i> ✓
" overhang aft ...					
" overhang forward ...					
F'cle enclosed ...	<i>48.00</i> ✓	<i>48.00</i> ✓	<i>7.5</i> ✓	✓	<i>48.00</i> ✓
" overhang ...					
Trunk ...					
forward ...					
Tonnage opening aft ...					
" forward ...					
Total ...	<i>186.87</i> ✓	<i>186.87</i> ✓			<i>186.87</i> ✓

Standard Height of Superstructure *7.5* ✓
" " R.Q.D. *42* ✓
Deduction for complete superstructure *42* ✓
Percentage covered $\frac{S}{L} = \frac{40.56}{62} = .654$ ✓
" " $\frac{S_1}{L} = \frac{40.56}{62} = .654$ ✓
" " $\frac{E}{L} = \frac{40.56}{62} = .654$ ✓
Percentage from Table, Line A. *Tanker 30.56* ✓
(corrected for absence of forecastle (if required)) *31.62* ✓
Percentage from Table, Line B. *✓*
(corrected for absence of forecastle (if required)) *✓*
Interpolation for bridge less than .2L (if required) *13.28* ✓
Deduction = *42 × .3162 = 13.28* ✓

SHEER CORRECTION.

Station	Standard Ordinate	S	M	Product	Actual Ordinate	Effective Ordinate	S	M	Product
A.P. ...	<i>56.00</i>	1		<i>56.00</i>	<i>56.0</i>	<i>56.00</i>	1		<i>56.00</i>
$\frac{1}{2}$ L from A.P. ...	<i>24.92</i>	4		<i>99.68</i>	<i>25.0</i>	<i>25.00</i>	4		<i>100.00</i>
$\frac{2}{3}$ L " ...	<i>6.16</i>	2		<i>12.32</i>	<i>6</i>	<i>6.00</i>	2		<i>12.00</i>
Amidships ...		4					4		
$\frac{2}{3}$ L from F.P. ...	<i>12.32</i>	2		<i>24.64</i>	<i>12.5</i>	<i>12.50</i>	2		<i>25.00</i>
$\frac{1}{2}$ L " ...	<i>49.84</i>	4		<i>199.36</i>	<i>49.0</i>	<i>49.00</i>	4		<i>196.00</i>
F.P. ...	<i>112.00</i>	1		<i>112.00</i>	<i>112.0</i>	<i>112.00</i>	1		<i>112.00</i>
Total ...				<i>504.00</i>					<i>501.00</i>

Mean actual sheer aft = *Defec*
Mean standard sheer aft = *Defec*
Mean actual sheer forward = *Defec Excess*
Mean standard sheer forward = *Defec Excess*
Length of enclosed superstructure forward of amidships = *Yankee*
" " aft of " = *Yankee*

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{3}{18} \left(.75 - \frac{.2031}{.75} \right) = +.03$ ✓
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.	Deduction for Fresh Water.	TABULAR FREEBOARD corrected for Flush Deck (if required)
Addition for Winter and Winter North Atlantic Freeboard.	Displacement in salt water at summer load water line	Correction for coefficient $\frac{.788 + .68}{1.36} = \frac{1.468}{1.36} = 1.08$
Depth to Freeboard Deck = <i>34.07</i> Ft.	$\Delta = 16.855$ ✓	Depth Correction ... <i>10.20</i> ✓
Summer freeboard = <i>6.73</i>	Tons per inch immersion at summer load water line	Deduction for superstructures ... <i>.09</i> ✓
Moulded draught (d) = <i>27.34</i>	T = <i>56.6</i>	Sheer correction ... <i>.03</i> ✓
Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = <i>6.83 = 6\frac{3}{4}</i>	Deduction = $\frac{\Delta}{40T}$ inches = $\frac{16.855}{40 \times 56.6} = .745 = 7\frac{1}{2}$ ✓	Round of Beam correction ... <i>.09</i> ✓
Addition for Winter North Atlantic Freeboard (if required) = $4.60 + 6.83 = 11.43 = 11\frac{1}{2}$		Correction for Thickness of Deck amidships ... <i>.09</i> ✓
		Other corrections, scantlings, etc. ... <i>.09</i> ✓
		Summer Freeboard = <i>80.79</i>

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

Tropical Fresh Water Line above Centre of Disc ...	<i>14\frac{1}{2}</i> "	Tropical Fresh Water Freeboard ...	<i>5\frac{1}{2}</i> "
Fresh Water Line " " ...	<i>7\frac{1}{2}</i> "	Fresh Water " " ...	<i>6\frac{1}{2}</i> "
Tropical Line " " ...	<i>6\frac{3}{4}</i> "	Tropical " " ...	<i>6\frac{1}{2}</i> "
Winter Line " " ...	<i>6\frac{3}{4}</i> "	Winter " " ...	<i>7\frac{1}{2}</i> "
Winter North Atlantic Line " " ...	<i>11\frac{1}{2}</i> "	Winter North Atlantic " " ...	<i>7\frac{1}{2}</i> "

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS									
Description of Hatchway		FORECASTLE		freeboard dk				POOP	
Dimensions of Hatchway		fore peak	fore hold	fore well	after well	fore well	after well	to store	to peak
COAMINGS	Height above Deck	30" x 30"	8' x 10'	5'1" x 3'10"	5'1" x 3'10"	3' off	3' off	33" x 42"	27' x 25"
	Thickness	7 1/2"	32 1/2"	30"	30"	24" x 18"	24" x 18"	6"	6"
	Sides	46	46	46	46	manholes	manholes	46	46
	Stiffeners	✓	✓	✓	✓	channel coam	channel coam	✓	✓
	Brackets, Stays	✓	✓	✓	✓	6 x 3 1/2 x 3 1/2 x 46	6 x 3 1/2 x 3 1/2 x 46	✓	✓
HATCH BEAMS	Number	✓	✓	✓	✓	✓	✓	✓	✓
	Spacing	✓	✓	✓	✓	✓	✓	✓	✓
	Scantling and Sketch	✓	✓	✓	✓	✓	✓	✓	✓
FORE AND AFTERS	Bearing Surface	✓	✓	✓	✓	✓	✓	✓	✓
	Number	✓	✓	✓	✓	✓	✓	✓	✓
	Spacing	✓	✓	✓	✓	✓	✓	✓	✓
HATCH COVERS	Material	Steel	1/2" steel	5/8" steel	as	Steel covers	Steel covers	Steel covers	Steel covers
	Thickness	W.T.	cover	O.T.	for	bolted	bolted	bolted	bolted
	How fitted	cover	stiffened	covers	fore	✓	✓	✓	✓
Spacing of Cleats		loggels	loggels 1"	loggels 1"	well	O.T. pitch	O.T. pitch	loggels	loggels
Number of Tarpaulins		2 each	spaced	spaced	well	O.T. pitch	O.T. pitch	loggels	loggels
		Side	24" x 30"	15"	well	O.T. pitch	O.T. pitch	15" x 24"	15" x 15"
*Are wood fore and afters steel shod at all bearing surfaces?		none fitted							
Are battens and wedges efficient and in good condition?		Ditto							
Are tarpaulins in good condition and in accordance with rule requirements?		Ditto							
Are lashings provided in accordance with rule requirements?		Ditto							

Particulars of fiddle, funnel and ventilator coamings:— *hinged steel covers fitted to gratings over donkey boiler*
Engine Rm skylight 1 steel
two 18" dia ventilators to donkey boiler space
five 18" x 24" dia " to motor space } *all of substantial construction and fitted in casing top*

Particulars of Flush Bunker Scuttles:— *none fitted*

Particulars of Companionways:— *Two doors in forecastle bulkhead lead to spaces below the freeboard deck*
Sills 18" doors 24" x 60" hinged steel W.T. toggles operated from both sides
Access to pump rooms, one in fore well, one in after well
Steel house of substantial construction (see drawings page 3)
Sills 18" doors 30" x 60" hinged steel W.T. toggles operated from both sides
On poop two stairways within deckhouse lead to freeboard deck
after entrance sill 18" forward sill 15" doors one 27" x 60", one 30" x 60" hinged steel W.T. oper both S.

Particulars of Ventilators in exposed positions on freeboard and superstructure decks:—
Ventilators on exposed freeboard dk, 2 fore well, 2 after well 24" diameter vent to pump rooms eff. supported.
On side to spaces below freeboard deck 11" dia coam 36" x 34" to spaces above freeboard dk coam vents 6" to 9" dia
edam 36" x 34", also S.N.V 15" x 4" height 30" cast iron.
On bridge to spaces below freeboard dk None. above freeboard dk 6" dia coam 30" x 32"
On poop to spaces below freeboard dk 10" dia coam 30" x 34", to spaces above freeboard dk coam vents 6" to 14"
coam 30" x 34" with thickness ca. 30" x 36", or tube of substantial thickness carried in exposed position to above boat platform
also S.N.V 12" x 4" 30" cast iron. Efficient closing appliances provided for all ventilators

Particulars of Air Pipes in exposed positions on freeboard, raised quarter, or superstructure decks:—
on side dk 4" dia to peak; 4" dia to deep tank height 24"
on freeboard dk fore well. 3" dia PIS to upper coam 36"
after well 3 PIS, 4" to 3" carried well up poop front bulkhead and efficiently supported
on poop deck to double bottom tanks 4 PIS, 2 1/2" to 3" dia carried up to under side of boat platform
and efficiently attached to casing. 4" dia air pipe to after peak height 24"
all air pipes have efficient closing appliances

Particulars of Gangway Cargo and Coaling Ports:—

none fitted



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Foundation

Particulars of Scuppers and Sanitary Discharge Pipes:—

Scupper pipes from exposed superstructure decks led overboard above or below freeboard dk.
 Scupper from exposed freeboard dk. formed by slotting gunwale angle.
 Scupper from freeboard dk. within side led overboard below freeboard dk. with 2" gunmetal storm valve at ship's side.
 Bridge deck space is drained into after well.
 Scupper from freeboard dk. within poop led overboard with storm valve (gunmetal) at ship's side.
 Scupper from freeboard dk. within side led overboard below freeboard dk. with gunmetal storm valve at ship's side.
 Sanitary discharges from poop space led overboard below freeboard dk. with gunmetal storm valve at ship's side.
 Sanitary discharges from poop space led overboard below freeboard dk. with gunmetal storm valve at ship's side.

Particulars of Side Scuttles:—

none below freeboard deck.
 in side 8" dia, bridge 8" dia, in poop 8" x 10"
 all fitted with dead lights.

Particulars of Guard Rails:—

3 Rails 46" height stanchion about 14" 6" apart.
 with 42" " "

Particulars of Gangways, Lifelines, etc.:—

Gangway fitted in both wells providing fore and aft passageway for full length at superstructure level.
 The gangway platform consists of 6" x 3" x 3/8" B.A. stringer P.B. connected by 4" x 4" x 3/8" angle supported by bracing spaced 7' 8" apart, with wood spanned deck planking with efficient hand rails (2 rails) on both sides.
 The thwartship bracing has a spread of 6' 6" at the deck and consists of single 4" x 4" x 3/8" angle P.B. with lateral bracing 3" x 3" x 3/8" efficiently connected by brackets and a cross tie at top leaving a space under the platform for pipelines.
 The thwartship bracing is connected at every 3' bay by a fore and aft diagonal tie 3 1/2" x 3 1/2" x 3/8", the port star diagonals being fitted in opposite directions.

Particulars of Freeing Arrangements.

length	Length of Bulwark	Height of Bulwark	Size of Freeing Ports	Number each side	Area each side	Rule area each side
After Well 158' 75"	for 66 aft 12' 75"	3' 6"	open rails for 80 ft. f.p. 36" x 15"	2 aft 1 near poop 1 near bridge	-	
Forward Well 114' 38"	for 41 aft 15' 38"	3' 6"	open rails for 58 ft. f.p. 36" x 15"	2 aft 1 near bridge 1 near side	-	

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	44 ✓	44 ✓	Cr 7 x 3 1/2 x 3/8 + 4 x 3/8 with riv 3 1/2 x 3/8 + 44 Sides 10 x 3 1/2 x 3/8	30"	lap TTB	60" x 24"	18	7' 6"
Raised Quarter Deck Bulkhead								
Bridge, After Bulkhead	32 ✓	32 ✓	2 St L.B.H. 5 x 3 x 30 ✓	31 to 36	none	10 60" x 27" 20 60" x 42"	18	7' 6"
Bridge, Forward Bulkhead	44 ✓	44 ✓	2 St L.B.H. 9 x 3 1/2 x 38	24" to 30"	lap TTB	30 x 60	18	7' 6"
Forecastle Bulkhead	30 ✓	30 ✓	5 x 3 x 30 ✓	28" to 33	none	(1) 60 x 27 (2) 60 x 24 (2) 60 x 30	18	7' 6"
Trunk, Aft								
Trunk, Forward								
Exposed Machinery Casings on Freeboard or Raised Quarter Decks								
Exposed Machinery Casings on Superstructure Decks	30 ✓	26	4 x 3 x 30 ✓	31	none	no openings		
Machinery Casings within Superstructures not fitted with Class I Closing Appliances								
pump room forward side	30 ✓	26	6 x 3 x 30 B.A.	27" to 30"	lap TTB			
Deckhouses on Flush Deck Ships	30	26	4 x 3 x 36	"	none	60 x 30	18	7' 6"

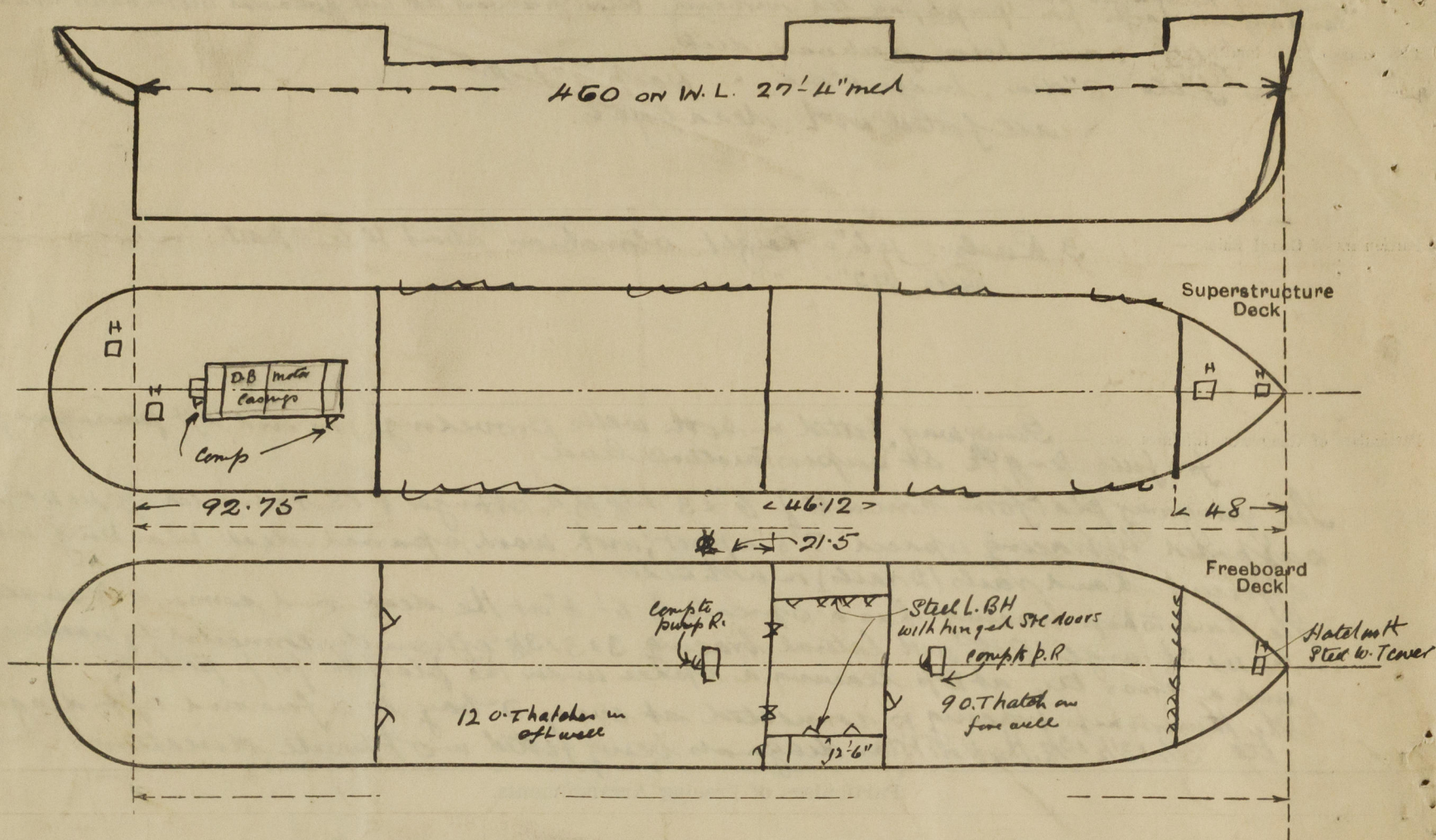
Particulars of Closing Appliances (state if capable of being manipulated from both sides).

Poop Bulkhead	two hinged steel W.T. doors ✓
Raised Quarter Deck Bulkhead	
Bridge, After Bulkhead	one hinged steel W.T. door: two portable steel stiffened plates secured by hark bolts ✓
Bridge, Forward Bulkhead	one (star side only) hinged steel W.T. door ✓
Forecastle Bulkhead	two hinged steel W.T. doors (compartment way); one hinged solid teak door 1 5/8"
Exposed Machinery Casings on Freeboard or Raised Quarter Decks	
Exposed Machinery Casings on Superstructure Decks	no openings
Machinery Casings within Superstructures not fitted with Class I Closing Appliances	
pump room	hinged steel W.T. door ✓
Deckhouses on Flush Deck Ships	

(All hinged doors can be operated from both sides) ✓

Acarus

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:—



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

See also letter, & sketch for scupper & discharges from poop space.

omit

Builder's name and yard number *Meson Workman Clark (1928) Ltd No 536*
 Names of sister ships *The vessel is for the Anglo Saxon and may be a sister to those building by other Builders.*
 Owners *Anglo Saxon Petroleum Co*

Fee £ : : Received by me

*which charged later
 Not known whether gross
 tonnage would be above or
 below 8000*