

Lloyd's Register of Shipping.

SURVEYS FOR FREEBOARD.

Computation of Freeboard for Steamer, Sailing Ship, Tanker

having Poop Bridge + Forecastle

(Type of Superstructures.) R.F.T.W. 3.11.38

Port of Survey Newcastle-upon-Tyne

Date of Survey under construction

Name of Surveyor W. J. Craig

Ship's Name "UMTALI"

Nationality and Port of Registry British London

Official Number 1646611

Gross Tonnage 8158 11

Date of Build 1936

Moulded Dimensions: Length 445.0 Breadth 61.0 Depth 35.5

Moulded displacement at moulded draught = 85 per cent. of moulded depth 16774 tons

Coefficient of fineness for use with Tables .717

Particulars of Classification +100 A.1. with freeboard

Depth for Freeboard (D)		Depth correction		Round of Beam correction	
Moulded depth	35.50	(a) Where D is greater than Table depth (D - Table depth) R = (35.62 - 29.67) 3.00		Moulded Breadth (B)	61.0
Stringer plate	42"	= + 17.85"		Standard Round of Beam = $\frac{B \times 12}{50}$	14.64
Sheathing on exposed deck	2.50"	(b) Where D is less than Table depth (if allowed) (Table depth - D) R =		Ship's Round of Beam	6"
$T \left(\frac{L-S}{L} \right) = 208 \times 3859$.08			Difference	8.64"
Depth for Freeboard (D) =	35.62	If restricted by superstructures ✓		Restricted to	
				Correction = $\frac{\text{Diff}^{\circ}}{4} \times \left(1 - \frac{S_1}{L} \right)$	$= \frac{8.64}{4} \times 3859 = + 83"$

DEDUCTION FOR SUPERSTRUCTURES.

	Mean Covered Length (S)	Equivalent Enclosed Length (S ₁)	Height	Height Correction	Effective Length (E)
Poop enclosed	44.67	44.67	7.5	✓	44.67
" overhang	✓		+ sheathing		
R.Q.D. enclosed	✓				
" overhang	✓				
Bridge enclosed	196.53	196.53	8.5	✓	196.53
" overhang aft	✓				
" overhang forward	✓				
F'cle enclosed	32.08	32.08	7.5	✓	32.08
" overhang	✓		+ sheathing		
Trunk aft	✓				
" forward	✓				
Tonnage opening aft	✓				
" forward	✓				
Total	273.28	273.28			273.28

Standard Height of Superstructure	7.50
" " R.Q.D.	✓
Deduction for complete superstructure	42.00
Percentage covered $\frac{S}{L} =$	61.41%
" " $\frac{S_1}{L} =$	61.41%
" " $\frac{E}{L} =$	61.41%
Percentage from Table, Line A. (corrected for absence of forecastle (if required))	
Percentage from Table, Line B. (corrected for absence of forecastle (if required))	48.40%
Interpolation for bridge less than 2L (if required)	
Deduction =	42.00 × 48.40 = - 20.33"

SHEER CORRECTION.

Drop of sheer abaft amidships 1 7/8"
Lowest point of sheer aft of " = 38'0"

Station	Standard Ordinate	S M	Product	Actual Ordinate	Effective Ordinate	S M	Product
A.P.	54.50	1	54.50	+ 43.75	43.75	1	43.75
1/4 L from A.P.	24.25	4	97.00	+ 13.75	13.75	4	55.00
3/4 L "	5.995	2	11.99	- .62	-.62	2	- 1.24
Amidships	✓	4	✓	-		4	✓
3/4 L from F.P.	11.99	2	23.98	+ 16.25	12.06	2	24.12
1/4 L "	48.50	4	194.00	+ 49.12	48.08	4	192.32
F.P.	109.00	1	109.00	+ 100.50	109.65	1	109.65
Total			490.47				423.60

Mean actual sheer aft = Deficient 57.24% standard.
Mean standard sheer aft

Mean actual sheer forward = Excess
Mean standard sheer forward

Length of enclosed superstructure forward of amidships = } Sheers
" " aft of " = } deficient.

Standard	54.50	1	54.50	43.75	1	43.75
	24.25	3	72.75	13.75	3	41.25
	5.995	2	11.99	-.62	2	- 1.86
			145.23			83.14

Correction = $\frac{\text{Difference between sums of products}}{18} \left(.75 - \frac{S}{2L} \right) = \frac{66.87}{18} (.75 - .3070) = 1.64"$

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.

Ft.
Depth to Freeboard Deck = 35.54
Summer freeboard = 10.19
Moulded draught (d) = 25.35

Deduction for Tropical freeboard and addition for Winter freeboard = $\frac{d}{4}$ inches = 6.34 = 6 1/4"
Addition for Winter North Atlantic Freeboard (if required) = ✓

Deduction for Fresh Water.

Displacement in salt water at summer load water line

$\Delta = 13790$

Tons per inch immersion at summer load water line

$T = 52.91$

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

= 6.52

= 6 1/2"

TABULAR FREEBOARD corrected for Flush Deck (if required)

Correction for coefficient

	+	-
Depth Correction	17.85	-
Deduction for superstructures	-	20.33
Sheer correction	1.64	-
Round of Beam correction	.83	-
Correction for Thickness of Deck amidships	-	.96
Other corrections, scantlings, etc. to correspond to approved summer moulded draught of 25'4" (25'4 1/4" actual)	35.35	-
Summer Freeboard =	55.67	21.29
	34.38	
	122.25	

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

Tropical Fresh Water Line above Centre of Disc	12 3/4"
Fresh Water Line	6 1/2"
Tropical Line	6 1/2"
Winter Line below	6 1/4"
Winter North Atlantic Line	✓

Tropical Fresh Water Freeboard	9' - 1 1/2"
Fresh Water	9' - 7 3/4"
Tropical	9' - 8"
Winter	10' - 8 1/2"
Winter North Atlantic	✓

20 MAY 1936

PARTICULARS OF PROTECTION TO OPENINGS, ETC.

Description of Hatchway	HATCHWAYS ON FREEBOARD AND SUPERSTRUCTURE DECKS										BRIDGE DECK	BOAT DECK
	N°1	N°2	No 4	No 5	No 6	No 7	No 8	No 9	No 10	No 11	N°3	Burden
Dimensions of Hatchway	27'0" x 18'0"	34'6" x 20'0"	24'0" x 20'0"	4'0" x 3'0"	5'0" x 3'0"	8'9" x 3'0"	5'14" x 3'0"	2'6" x 3'0"	2'0" x 3'0"	2'0" x 3'0"	24'0" x 15'0"	6'0" x 15'0"
COAMINGS	Height above Deck ... 24"	24"	24"	18" above side of peak	9" above side of peak	18"	18"	18"	18"	18"	24" L	15"
Thickness Sides	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"
Stiffeners	7" BA	7" BA	7" BA	7" BA	7" BA	7" BA	7" BA	7" BA	7" BA	7" BA	7" BA	7" BA
Brackets, Stays	2	2	2	2	2	2	2	2	2	2	2	2
HATCH BEAMS	Number ... 5"	6"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"
Spacing	4'6"	5'0"	4'9"	4'9"	4'9"	4'9"	4'9"	4'9"	4'9"	4'9"	4'9"	4'9"
Scantling and Sketch	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles	3" x 35' 3" x 140' angles
Bearing Surface	3"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"	4"
FORE AND AFTERS	Number ... none	none	none	none	none	none	none	none	none	none	none	none
Spacing	none	none	none	none	none	none	none	none	none	none	none	none
Unsupported Lengths	none	none	none	none	none	none	none	none	none	none	none	none
Scantling and Sketch	none	none	none	none	none	none	none	none	none	none	none	none
Bearing Surface	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers	Insulated hatch covers
HATCH COVERS	Material ... wood	wood	wood	wood	wood	wood	wood	wood	wood	wood	wood	wood
Thickness	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"	2 1/2"
How fitted	F+A	F+A	F+A	F+A	F+A	F+A	F+A	F+A	F+A	F+A	F+A	F+A
Bearing Surface	3"	3"	3"	3"	3"	3"	3"	3"	3"	3"	3"	3"
Spacing of Cleats	24"	24"	24"	16" x 23"	10" Joggles	4" Joggles	10" Joggles	2" Joggles	2" Joggles	2" Joggles	24" x 2 1/2"	22"
Number of Tarpaulins	2	2	2	2	2	2	2	2	2	2	2	2

Particulars of fiddle, funnel and ventilator coamings :-

Fiddle & funnel & vent coamings good.
Engine skylight of steel strongly constructed.
Stokehold flaps permanently attached.
8 x 13 casings 2'10" above wood sheathing on Boat deck.

Particulars of Flush Bunker Scuttles :-

None.

Particulars of Companionways :-

Upper deck Forward Entrance to Mast house hinged steel door 4'3" x 2'0" operated from both sides coaming 24" x 30".

Bridge deckhouse Entrance 2'10" (1" hank) hinged wood door port & starboard = (4) operated from both sides coaming 9" x 26" x 25" 1'10" hinged wood door with 1" lower panel & upper panel 7'9" at aft end of deck house protected by verandah rails. 9'8" x 26" and sides. Coaming 9'8" x 26" and double.

Upper deck aft Entrance to deck house on aft well deck hinged steel door 5'0" x 2'0" operated from both sides coaming 18" x 30".

Poof deck Deckhouse Entrance to Stairway 1'10" solid hinged wood door operated from both sides coaming 13" x 24".

2 Tunnel escape in Poof Space hinged steel door 4'8" x 2'0" operated from both sides coaming 9" x 20".

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

UPPER D¹:- 2-18" dia. vent. coaming 18" x 40" stayed.
4-18" " " " 18" x 40" " "
2-18" " " " 18" x 40" " "
2-9" " " " 18" x 20" above mast house.
1-12" " " " 18" x 20" " "
POOF D²:- 1-6" " " " 18" x 30" " "
6-6" " " " 18" x 30" " "
2-6" " " " 18" x 30" " "
FORECASTLE 4-5" " " " 18" x 30" " "

Bridge deck 2-18" dia. vents coaming 30" x 40" / 2-18" " " " 30" x 36" / 2-12" " " " 30" x 32" / 1-10 1/2" " " " 30" x 32" / 1-10 1/2" " " " 30" x 32" / 1-8" " " " 30" x 32" / 1-6" " " " 30" x 30" / 4-5" " " " 18" x 30" / 1-6" dia. vent 24" high screw down top.

Bridge deck to Bridge Turn deck 4-18" dia. vents coaming 30" x 40" / 2-12" " " " 30" x 34" / 2-12" " " " 30" x 34" / 3-9" " " " 30" x 32" / 1-8" " " " 30" x 32" / 1-6" " " " 30" x 30" / 17-5" " " " 18" x 30" / 8-6" x 24" Swan Neck Vents 18" to opening.

efficient means of closing provided

efficient means of closing provided

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

FORECASTLE:- 1-2 1/2" air pipe to No. 1 O.B. tank 18" high.
UPPER D¹:- 2-2 1/2" " " " 30" high.
FORD:- 1-2 1/2" " " " 30" high.
BRIDGE:- 4-3" " " " 30" high.
4-3" " " " 30" high.
4-3" " " " 30" high.
2-2 1/2" " " " 30" high.

UPPER deck 2-2 1/2" air pipes to No. 5 O.B. tank 36" high.
POOF deck 2-2 1/2" " " " 36" high.
POOF deck 2-3" air pipes to A.P. Tank 18" high.

efficient means of closing provided

efficient means of closing provided

Particulars of Gangway Cargo and Coaling Ports :-

None.

Particulars of Scuppers and Sanitary Discharge Pipes :-

Scuppers & discharges from Poof, Bridge & Forecastle spaces discharging below freeboard & second decks are fitted with balanced brass storm valves at shell. 7-2 1/2" scupper from cold stores on 2nd deck port discharges below 2nd deck with brass storm valve geared from Bridge deck & with secured plug at inner end. Ash shoot hoppers have W.T. covers.

Particulars of Side Scuttles :-

Forecastle, Bridge & Poof side lights fitted with strong hinged deadlights.

Particulars of Guard Rails :-

Forecastle:- 3 tier rails 3'6 1/2" high with stanchions 4'6" apart.
Bridge:- 4 " " " " " " 4'0" " "
Poof:- 3 " " " " " " 4'0" " "

Particulars of Gangways, Lifelines, etc. :-

Provision made for fitting lifelines in forward & after wells port & starboard.

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	64.0	3'6 1/2"	3.0 x 1.5	3	13.5	12.90 ft
Forward Well	112.25	3'6 1/2"	2.75 x 1.5 4.25 x 1.5	1 3	23.25	22.40 ft

State position of each freeing port ... } After Well:- 5'10", 25'6", 56'6" from Bridge end.
(F. and A. position and height above deck edge) } Forward Well:- 5'10", 16'6", 44'6", 70'6" from Bridge front. } 11" above deck.
State whether the freeing ports are fitted with shutters, bars, or rails, and give particulars of such:- 1 for a bar & hinged shutters.
Additional area where sheer is less than standard. correct optimum freeing port in after well, where 3 gate bars fitted and hinged shutters.

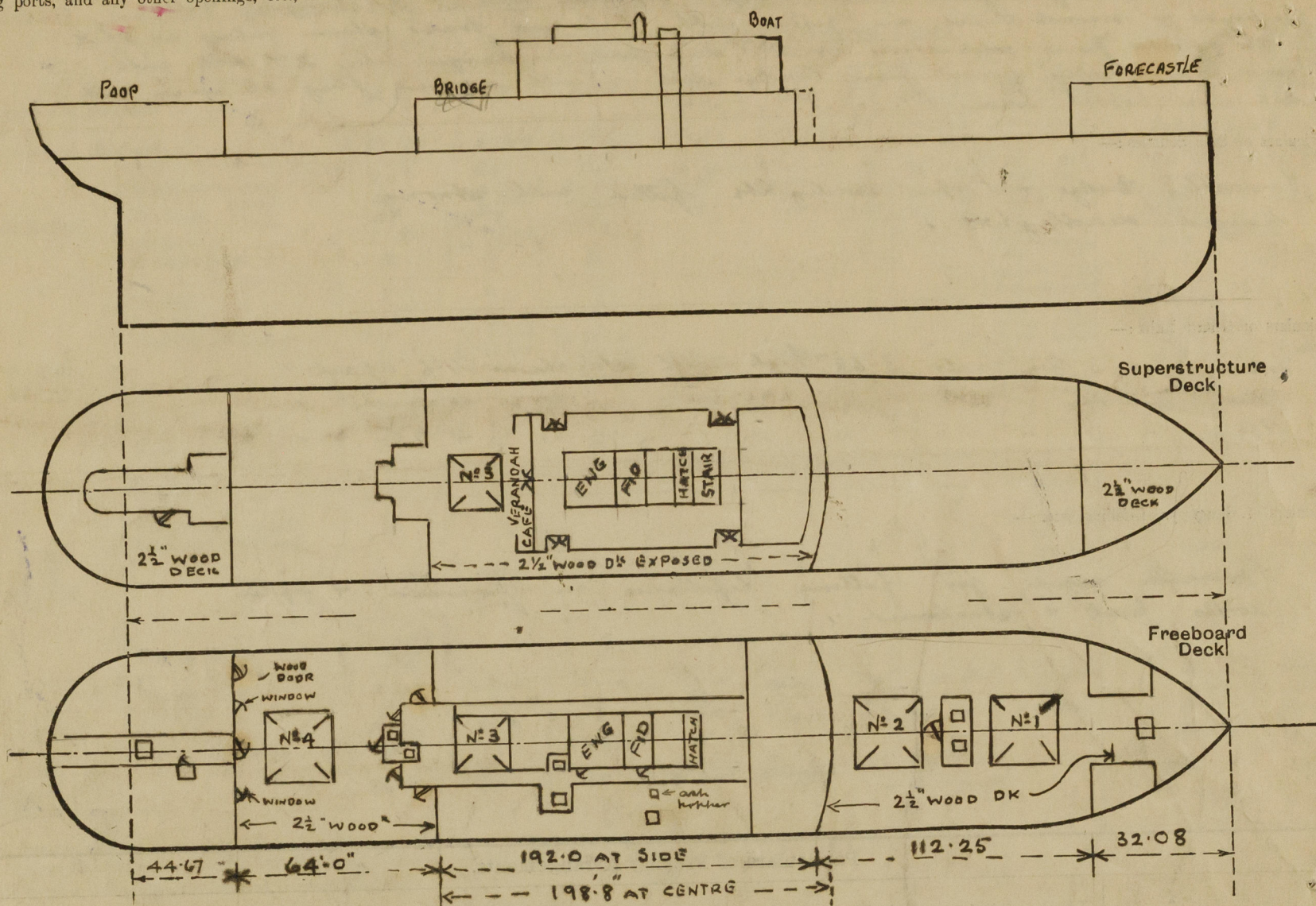
Particulars of Superstructures, Trunks, Casings, Deckhouses.

	Coaming	Plating	Stiffeners	Spacing	End Attachments of Stiffeners	Size of Openings	Height of Sills	Height of Casings
Poof Bulkhead	✓	38	6 x 3 x 32	25'30"	lugged	16'0" x 2'6"	16"	7'6" steel to steel
Raised Quarter Deck Bulkhead						24'30" x 2'6"	16"	4" steel
Bridge, After Bulkhead	✓	30 x 32	4 x 3 x 36	26'02"	none	24'5'4" x 2'8"	16"	8'6" steel to steel
Bridge, Forward Bulkhead	✓	40	9 x 3 x 46	20'30"	lugged	26'5'4" x 2'8"	✓	"
Forecastle Bulkhead				open		none		
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	✓	24	3 x 3 x 30 L	32"	none	24'5'8" x 2'0"	10"	8'6" steel to steel
Deckhouses on Flush Deck Ships								

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

Poof Bulkhead	hinged steel door operated from both sides, 2 hinged steel window covers operated from outside.
Raised Quarter Deck Bulkhead	1-2" solid hinged steel door operated from both sides.
Bridge, After Bulkhead	4-2" solid hinged steel door operated from both sides.
Bridge, Forward Bulkhead	no openings.
Forecastle Bulkhead	open.
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	hinged steel door operated from 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 shown on the following sketches:—



$\frac{1}{4}$ " cement on deck at
amidships starboard side
1" deck covering on freeboard
deck at amidships port side

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

The class of this vessel is +100 A.I. with freeboard corresponding
to a moulded draft of $25'4\frac{1}{4}"$
Kul = $1\frac{3}{8}"$
Draft to bottom of Kul = $25'6"$

The watertight subdivision is stated to have been approved
by the Board of Trade for a moulded draft of $25'4\frac{1}{4}"$

85% moulded depth = $30'2" = 30'3\frac{3}{4}"$ to bottom of Kul.

moulded displacement at $30'3\frac{3}{4}"$ to bottom of Kul	= 16444 tons	(ex bowing and curving stern)
overshell displacement at $25'0"$	= 13444 "	do
" " at $26'0"$	= 14106 "	do

Tons per inch moulded at $35'0"$	= 52.42 tons
" " " at $26'0"$	= 53.11 "

Bridge 198.8
192.0
 $\frac{6.8 \times 2}{3} = \frac{4.53}{192.0}$
196.53 equivalent.

Builder's name and yard number. Swan Hunter & Wigham Richardson Ltd. Walker-on-Tyne No 1492.

Names of sister ships. T.S. "UMTATA" S.H.W.R. N° 1480.

Owners. Messrs Bullard King & Co. Ltd.

Fee £ 19 - - - Received by me

To charge with J.B.



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Foundation