

	2.28
Mean Difference in Camber	.19
Thickness of layer	2.09

and Engine and Boiler open
tank top to be given.

007658-007667-0309 1/2

WOOD DECK (Arts. 5 and 6)			
	Mean Length in ft.	Thickness in ins.	Products
Forecastle	33.25	3.5	94.43
Bridge		2.84	
Poop or R.Q.D.			
Open Deck, fwd.			
.. aft.			
Total length = l =	Sum of Products = 94.43		
Sum of Products = t =	ins.;	Sum of Products = t ₁ = .21" ins.	

CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.
 If no sheathing fitted amidships = t₁ = ± ° ins. (Arts. 6 and 57 p. 1)
 If sheathing is fitted amidships = (t - t₁) = ± ° ins. (Arts. 6 and 57 p. 2)
 * Note: Use the upper sign in correction for depth and the lower sign in correction for freeboard.

DEPTH TO USE IN FREEBOARD TABLE.
 Depth moulded to C.S. Deck 40 ft. 0.69 ins.
 Thickness of Stringer Plate .66
 Mean Depth to Corrected C.S. Deck 40.156"
 Less Standard W. Deck 7.6
 Correction for partial wood deck ±
 Depth to use in Freeboard Tables 32 ft. 7.56 ins. = D₁ = 32.63 ft.

SUPERSTRUCTURES.				
HEIGHT (Arts. 46-48)				
Standard Height = (0.018 L + 1.2) ft. =				
	Complete Superstructure	Forecastle	Bridge	Poop or R.Q.D.
Actual				
Standard				

CLOSING APPLIANCES (Arts. 50 and 54)				
	Forecastle	Bridge Forward End.	Bridge After End.	Poop or Raised Quarter Deck
Means of Closing openings in bulkhead				
Corresponding Class				

EFFECTIVE LENGTH (Arts. 55 and 56)				
	Mean Length	Coef. Art. 56	Height Coef.	Products.
Forecastle closed part				
.. open part				
Bridge closed part				
.. open part fwd.				
.. .. aft.				
Poop closed part				
.. open part				

Total Effective Length =
 Length of Vessel = r =
 Corresponding Coef. in Table (Art. 49) = e =
 Reduction for Complete Superstructure .. ins.
 Complete product .. ins.
 Correction for Superstructures 39 .. ins.

EFFECTIVE LENGTH (Shelter Deck Vessels Arts. 87-92)
 $l + \frac{1}{2}(1-p)(L-l) =$.. ft.
 (* See Art. 90)

CORRECTION FOR PROPORTIONS L/D (Art. 58)
 When D₁ is less than 35 ft. = $\frac{D_1 + 16}{300} (1 - e/2) (L - 12 D_1)$
 $\frac{32.63 + 16}{300} (1 - .21/2) (40 - 12 \times 32.63) = 3.93$.. ins.
 [Note e = 1.0 if more than 4/10 covered]

Are the Engine and Boiler openings covered by a Bridge, Poop, Raised Quarter Deck or enclosed by a strong steel deck house?
 If openings are not so protected give thickness of plating and scantlings and spacing of stiffeners of Casings.
 Are suitable means provided for closing all openings in them in bad weather?
 State the vertical distance from base line at top of keel to lower edge of lowest side scuttle.
 State if there are any cargo ports or scuppers through sides of vessel below upper deck.
 State any special features in the construction of the vessel.
 See previous page.
 Sister vessels
 Fee. Yen.; Depth of Keel .. ins.; Draught (btm. keel) .. ft. ins.

CORRECTION FOR ROUND OF BEAM (Art. 59) at C.S. Deck.
 Standard Round of Beam = Length of Beam in ins. = 14.4 .. ins.
 Correction = $\frac{1}{2} (\text{Standard Round of Beam} - \text{Actual Round of Beam})$
 $= \frac{1}{2} (14.4 - 14.5) = -.05$.. ins.

CORRECTION FOR FREEING PORTS
 (in vessels less than 15 ft. Depth Art. 64)
 Length of bulwark in feet each side .. ft.
 Area of Freeing ports each side .. sq. ft.
 Area of Freeing ports required by Table .. sq. ft.
 Correction 1.2 (r - 0.5) D₁ = + .. ins.

CORRECTION FOR ACCESS TO CREW'S QUARTERS (Arts. 65-67)
 Are Crew berthed in Bridge House or Forecastle? ..
 Height and breadth of gangway ..
 Correction = .012 (80 - l) D₁ or 1.2 (r - 0.5) D₁ .. ins.

SUMMARY.		
Freeboard by Tables	94.27	ins.
Correction for Sheer	+	-
.. Partial Wood Deck	-	-
.. Superstructures	3.93	39.0
.. Proportions L/D		.03
.. Round of Beam		
.. Freeing Ports		
.. Access to Crew's Quarters		
Totals	3.93	39.03
Net Correction	-35.10	
Geometric Freeboard	59.17	ins.
Corresponding Geometric Draught (mld.)	27.70	ft.
Moulded Draught limited by $\frac{1}{2} \sqrt{L}$ to	27.70	ft.
Corresponding Freeboard (Summer)	59.2	ins.
Winter Freeboard (Art. 22) = $\frac{1}{2} (D_1 - 10) + \frac{1}{45} (59 - D_1)$		
= $\frac{1}{2} (32.63 - 10) + \frac{1}{45} (59 - 32.63)$		6.24 ins.
Tropical Freeboard (Art. 24) do. do.		6.24 ins.
Winter North Atlantic Fbd. (Art. 23) Vessels 330 ft. and below.		
Ratio of effective length of superstructures to length of vessel		
Additional Freeboard		ins.
Fresh Water Freeboard (Art. 27)		
$\frac{1}{4}$ " per foot of Summer Draught =		6.93 ins.

FREEBOARD TO BE ASSIGNED.
 Vertical distance from upper edge of horizontal line indicating the freeboard deck to the centre of the disc. (Summer Line) 59.2 ins.
 Fresh Water Load Line above centre of disc. 6.9 ins.
 Tropical Load Line above 6.2 ins.
 Winter Load Line below 6.2 ins.
 Winter N.A. Load Line below ins.
 Vertical distance from the point of intersection of the extended line of the upper surface of C. superstructure of the deck at mid length of the vessel with the outside of shell plating to the upper edge of the horizontal line indicating the freeboard deck 89.8 ins. below

Depth Moulded to C.S. Deck 40-0.69
 Thickness of C.S. Stringer .66
 Depth for Freeboard 40-1.35
 32-7.56
 7-7.56
 = 89.79"

DETAILS OF CONSTRUCTION OF WEATHER DECK HATCHWAYS.

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Length and Breadth	29'-3" x 18'	36 x 20	30 x 20	30 x 20	36 x 20	29'-3" x 20
Height above deck and thickness of side and end coaming		All 30" x .44				
Shifting Beams	Number and Material 7/1 15 1/2 x .36	6 18 1/2 x .36	5 13 x .34	5 13 x .34	6 13 1/2 x .34	5 13 x .34
*Fore and Afters	Number and Material		None			
Thickness of hatches		All 3"				
Remarks	* When the fore and afters are of wood the depth should be stated from the underside of hatches.					

LONGITUDINAL MODULUS.

Height of Assumed Axis above base = 16'

Minimum Section at From 93 with opening as in Engine Room.

BELOW ASSUMED AXIS.						ABOVE ASSUMED AXIS.					
Item	Scantlings	Area	Lever	Moment	Mt. of Inertia	Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Flat Keel	54 x .84 x 1/2	22.7	16.1	365	5880	Top Deck Str.	78 x .66	51.5	24.2	1246	30160
" "						" " "					
Centre Girder	46.19 x .62 x 1/2	14.3	14.1	202	2840	" " Plating	84 x .58	48.7	24.7	1203	29700
C.G. btm. ang.	5 x 5 x .66 x 1/2	3.1	16.0	50	790	" " "	84 x .58	48.7	25.0	1218	30430
C.G. top angles	3 1/2 x 3 1/2 x .56 x 1/2	1.8	12.3	22	270	" " "					
T.T. Cr. Strake	55" x .56 x 1/2	15.4	12.2	188	2290	" " Str. Ang.	6 x 6 x .70	7.9	23.8	188	4470
T.T. plating	85 x .49	41.7	12.2	509	6200	2nd Deck Str.	45" x .44	19.8	14.2	281	3990
" "	83 x .49	40.7	12.3	501	6160	" " Plating	91 x .42	38.2	14.5	554	8030
" "	81 x .49	39.7	12.3	488	6010	" " "	80 x .42	33.6	15.0	504	7560
" "	44 x .49	21.6	12.4	268	3320	" " "					
" Flange	5 1/2 x .49	2.6	12.2	32	390	" " Str. Ang.					
Margin Plate	40 x .58	23.2	14.1	327	4620	3rd Deck Str.	45" x .34	15.3	5.6	86	480
" Flange	5 1/2 x .58	3.0	12.3	37	450	" " Plating	85.25 x .30	25.6	5.6	143	800
" Angle	3 1/2 x 3 1/2 x .56	3.6	15.7	57	890	" " "	85.25 x .30	25.6	5.6	143	800
Shell Strake A	86 x .69	59.4	16.0	950	15210	" " "					
" " B	75 x .69	51.8	16.0	829	13260	" " Str. Ang.					
" " C	74 x .69	51.1	15.9	812	12920	Sheerstrake	77" x .80	61.6	20.7	1275	26400
" " D	74 x .69	51.1	15.8	807	12750	Strake below	72 x .67	48.2	15.1	728	10990
" " E	83 x .69	57.3	14.3	819	11720	Shell Strake J	72 x .67	48.2	9.5	458	4350
" " F	70 x .67	46.9	9.0	422	3800	" " H	84 x .67	56.3	3.5	197	690
" " G	84 x .67	56.3	3.0	169	510	" " "					
Totals below assumed axis		607.3		7854	116280	Totals above assumed axis		529.2		8224	158850
" above assumed axis		529.2		8224	158850						
Sum or Difference		1136.5		16078	275130						

Moment of Inertia about assumed axis 538260

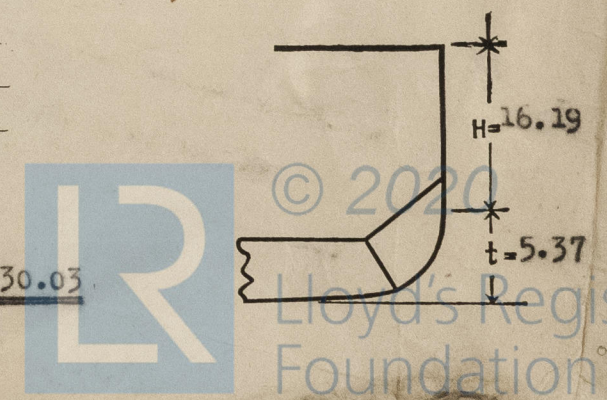
Neutral Axis above assumed axis (x) = .326'
 Correction = (Total Area x x² x 2) = - 240
 538260
 Moment of Inertia about Neutral Axis
 Distance from Neutral Axis to top of Strength deck beam at side = 23.67 ft.
 22740

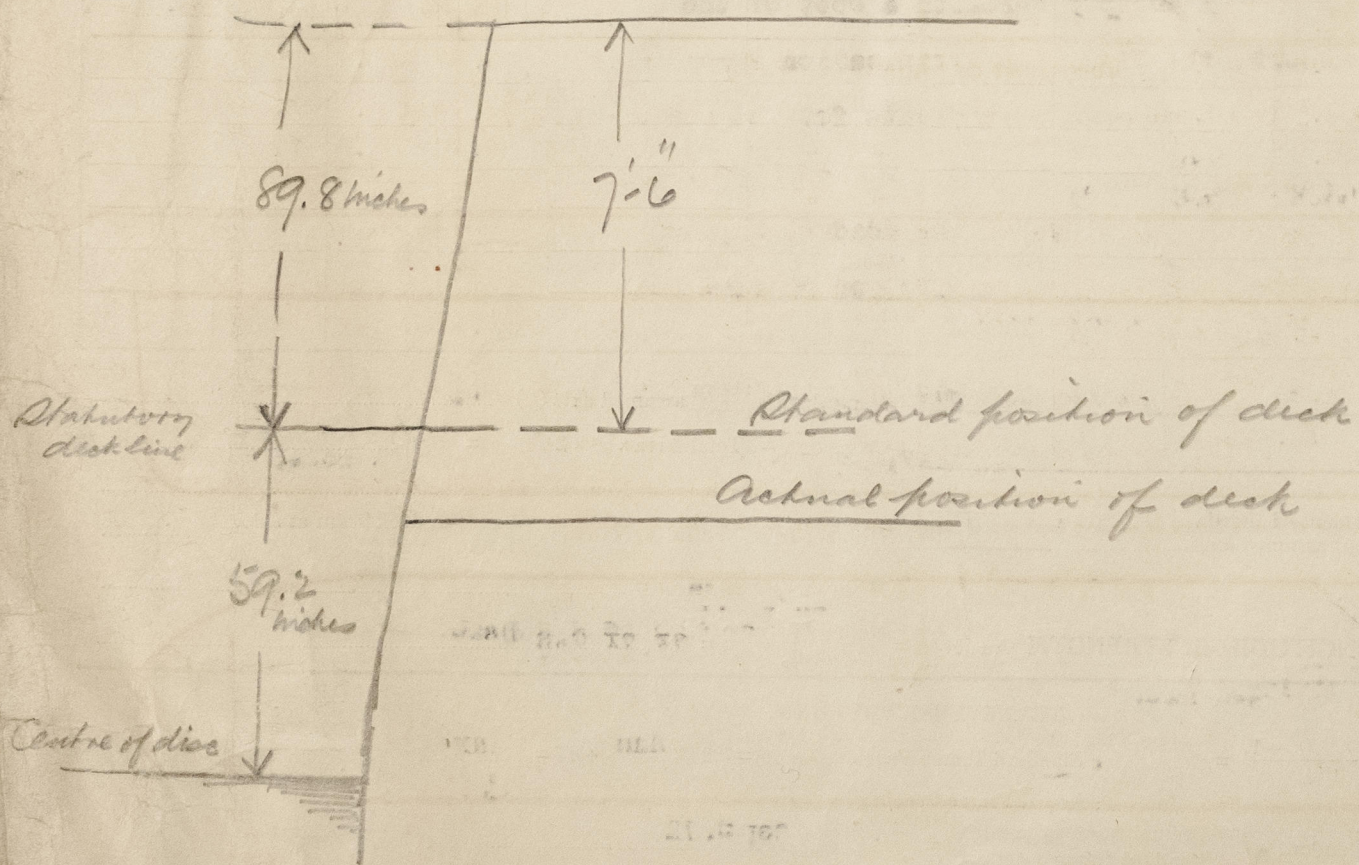
MODULUS OF SECTION =
 Actual Modulus = $\frac{22740}{13.14 \times 60} = 28.84'$
 f. B.

DRAUGHT PERMITTED BY LONGITUDINAL STRENGTH (Arts. 81-86) =

TRANSVERSE MODULUS. i.e. in Holds.
 Minimum Side Plating (Art. 77) $\frac{0.105 \times 440}{100} + 17 = .63$; Standard Frame Spacing (Art. 78) = $.025 \times 440 + 17 = .28$ "
 Actual Side Plating = .67; Actual Frame Spacing = .36
 If actual frame spacing exceeds the standard $\sqrt{\frac{\text{Actual frame spacing}}{\text{Standard frame spacing}}} t = .63 \times \sqrt{\frac{.36}{.28}} = .71$
 Moulded Geometric Draught (d) = 27.70 H = 16.19 f₁ = 24.52
 t = 5.37 K = 23.28 f₂ = 3.98
 d - t = 22.33 f₁ + f₂ = 28.50
 $\frac{36 \times 22.33 \times 28.5}{1000} = 22.9$
 Standard I/y = $\frac{s(d-t)(f_1+f_2)}{1000} = \frac{11 \times 54 \times 28.5}{1000} = 17.1$
 Frame in ship = 11 x 54 H.B.A. at 36" spacing, I/y = 25.3

DRAUGHT PERMITTED BY TRANSVERSE STRENGTH = $\frac{I/y \times 1000}{s(f_1+f_2)} + t = \frac{25300}{36 \times 28.5} + 5.37 = 30.03$





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