

DISCLOSED SECRET  
Lloyd's Register No. 36.17

LLOYD'S REGISTER OF SHIPPING  
(CLASSIFICATION SOCIETY RECOGNISED BY THE JAPANESE GOVERNMENT)  
SURVEY FOR FREEBOARD.

Ship's Name "SYDNEY MARU"	Port of Registry Osaka	Official No. --	No. in R.E. --	Gross Tonnage About 5300	Tonnage under Fbd. Deck = V 3620.1	Date of Launch 25th Aug. 1929	Date when Built --	Report Number 63
Owners Osaka Shosen Kab. Kaisha.		Builders Yokohama Dock Co.			Yard No. 173	Port of Survey Yokohama		
Type of vessel Complete Superstructure	Particulars of Classification * 100 A. 1. With Freeboard.		Position of Freeboard Deck 2nd Deck.		Date of Survey While Building. Name of Surveyor A. McGlashan and H.J. Cox.			

PRINCIPAL DIMENSIONS.

Length between perpendiculars.....380.0 ft.	Breadth Moulded = B <sub>0</sub> .....54.5 ft.	Depth Moulded to Fbd. deck = D <sub>0</sub> .....26.75 ft.
Length on Load Line.....380.0 ft.	Thickness of Side plating in ins. x 3/12 *......56 + .14 ft.	Round of Beam.....4.00 ft.
Length for Freeboard = L.....380.0 ft.	Breadth for Freeboard = B.....54.64 ft.	Depth from base line to top of inner bottom plating or ordinary floors.....3.54 ft.
		Depth for Tonnage Coef. (Art. 39) = D.....24.21 ft.

CORRECTION TO TONNAGE (Art. 39)

Tonnage between top of ceiling on double bottom or ordinary floors as fitted and standard level of top of ceiling (v) = .....-.50..... tons.

DEPTH OF DOUBLE BOTTOM (Art. 39)

Depth of Actual Double Bottom (including plating) or Ordinary Floors.....	42.5 ins.
Depth of Standard Double Bottom (including plating) or Ordinary Floors.....	42.5 ins.
Difference.....	0
x 1/12 =.....	0 = d.

SHEER (Arts. 39 and 60-63)

Ordinate	Height of Sheer in inches.	S.M.	Products
1	35.38	1	35.38
2	14.88	4	59.52
3	3.63	2	7.26
4	0	4	0
5	7.75	2	15.50
6	29.63	4	118.52
7	62.75	1	62.75
Sum of Products =			298.93

FRAMING (Art. 39)

Between Frames	Length in ft.	Depth of Frame in ins.	Thickness of Sparring in inches	Total depth in inches	Products ft. x inches
0 - 18	40.75	8	2	10	407.5
18 - 65	117.50	9	2	11	1292.5
65 - 83	45.00	9	-	9	405.0
83 - F.P.	176.75	9	2	11	1944.25

Mean Height of Sheer = S =  $\frac{\text{Sum of Products}}{18} = 16.61$  ins.  
Standard Mean Height = S<sub>0</sub> =  $\frac{1}{3}(L/10 + 10) = 16.00$  ins.  
Difference......61 x 1/12 = .05 ft. = d<sub>1</sub>  
Correction (Arts. 60-63) =  $\frac{3}{4}(1 - e)(S_0 - S) =$ .....ins.

Sum of Products = 4049.25  
Sum of Products = Actual Mean Depth of framing.....ins. 10.66  
Length of Ship  
Standard „ „ „ „ 642 ins. 8"  
Difference.....2.66 x 2/12 = .44 = 2b

COEFFICIENT OF FINENESS (Art. 39 or 43)

$$\frac{100(V + v)}{L(B - 2b)(D + d + d_1) + n} = \frac{361960}{380 \times 54.2 \times 24.26} + = .72$$

do = 85% of 26.75 = 22.74  
or  $\frac{35 \times \Delta}{L \times B_0 \times d_0} + 0.04 = \frac{35 \times 9360}{380 \times 54.5 \times 22.74} + 0.04 = .74$

Sketch showing arrangement and height of double bottom or ordinary floors and of superstructures (unless complete plans are submitted).

See Plans.

2 1/2" Ceiling on battens throughout Ex. in Machinery space.  
Standard depth of Cel.dole.bottom = 45.00  
Actual " " " " " 45.50  
380x46.2x.67x.04 = +4.7 tons  
100  
No Ceiling in Engine space.  
45x46.2x.25 = -5.2  
100  
Nett Correction = -.5 Tons.

Sketch of deck erections showing openings in end bulkheads and position and arrangement of closing appliances. Hatchways, and Engine and Boiler openings also to be shown. Extent and thickness of wood deck or composition to be shown in red ink, and extent and thickness of ceiling (and battens) on tank top to be given.

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WOOD DECK (Arts. 5 and 6)			
	Mean Length in ft.	Thickness in ins.	Products
Forecastle			
Bridge	<b>Complete Superstructure.</b>		
Poop or R.Q.D.			
Open Deck, ford.	3.5	40	3.10
" " aft.			
Total length = l = Sum of Products =			
Sum of Products = t = ins.; Sum of Products = t <sub>1</sub> = 3.10 ins.			

**CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.**  
 If no sheathing fitted amidships = t<sub>1</sub> =  $\pm 3.10$  ins. (Arts. 6 and 57 p. 1)  
 If sheathing is fitted amidships = (t - t<sub>1</sub>) =  $\mp$  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	26	ft. 9	ins.
Thickness of Stringer Plate			.40 "
Thickness of Wood Deck Amidships			"
	26	9.40	
Correction for partial wood deck	$\pm$	3.10	
Depth to use in Freeboard Tables	27	ft. 0.50	ins. = D <sub>1</sub> = 27.04 ft.

SUPERSTRUCTURES.					
HEIGHT (Arts. 46-48)					
Standard Height = (0.018 L + 1.2) ft. = 7.5					
	Complete Superstructure	Forecastle	Bridge	Poop or R.Q.D.	
Corrected for mean wood deck and stringer on both decks.	Actual	Standard			
	4.33	.98			
	7.50				
MEANS OF CLOSING APPLIANCES (Arts. 50 and 54)					
	Forecastle	Bridge	Poop or Raised Quarter Deck		
	Forward End.	After End.			
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 ford.				
" " aft.				
Poop closed part				
" open part				

Total Effective Length =  
 $\frac{\text{Total Effective Length}}{\text{Length of Vessel}} = r =$   
 Corresponding Coef. in Table (Art. 49) = e =  
 Reduction for Complete Superstructure = 38.43 x .98 = 37.66 ins.  
 Product = ins.  
 Correction for Superstructures = -37.66 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 D<sub>1</sub> is less than 35 ft. =  $\frac{D_1 + 16}{300} (1 - e/2) (L - 12 D_1)$   
 " " greater than 35 ft. =  $0.17 (1 - e/2) (L - 12 D_1)$   
 [Note e = 1.0 if more than 9/10 covered] =  $\frac{43.04}{300} \times 55.52 = + 3.98$  ins.

Are the Engine and Boiler openings covered by a Bridge, Poop, Raised Quarter Deck or enclosed by a strong steel deck house? **Yes**  
 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? **Yes**  
 State the vertical distance from base line at top of keel to lower edge of lowest side scuttle **Above freeboard deck**  
 State if there are any cargo ports or scuppers through sides of vessel below upper deck **All above freeboard deck.**  
 State any special features in the construction of the vessel **M.T. Bulkheads extend to freeboard deck only.**  
**Cargo Hatch shifting beams as for Complete Superstructure Vessel.**  
 Sister vessels  
 Fee, Yen. Depth of Keel ins.; Draught (btm. keel) ft. ins.

**CORRECTION FOR ROUND OF BEAM (Art. 59)**  
 Standard Round of Beam =  $\frac{\text{Length of Beam in ins.}}{50} = \frac{654}{50} = 13.08$  ins.  
 Correction =  $\frac{1}{2} (\text{Standard Round of Beam} - \text{Actual Round of Beam})$   
 =  $\frac{1}{2} (13.08 - 12) = + 0.27$  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) D<sub>1</sub> = + 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) D<sub>1</sub> or 1.2 (r - 0.5) D<sub>1</sub> = + ins.

SUMMARY.			
Freeboard by Tables	68.58	ins.	
	+	ins.	
Correction for Sheer			
" " Partial Wood Deck	3.10		
" " Superstructures	37.66		
" " Proportions L/D	3.98		
" " Round of Beam	.27		
" " Freeing Ports			
" " Access to Crew's Quarters			
Totals	4.25	40.76	
Net Correction	36.51		
Geometric Freeboard	32.07	ins.	
Corresponding Geometric Draught (mld.)	24.11	ft.	
Moulded Draught limited by form to	24.11	ft.	
Corresponding Freeboard (Summer)	32.1	ins.	

Winter Freeboard (Art. 22) =  $\frac{1}{2} (D_1 - 10) + \frac{1}{45} (59 - D_1)$   
 =  $\frac{1}{2} (17.04 - 10) + \frac{1}{45} (59 - 17.04) = + 4.97$  ins.

Tropical Freeboard (Art. 24) do. do. = - 4.97 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)  
 1" per foot of Summer Draught = 6.02 = - 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) 32.1 ins.  
 Fresh Water Load Line above centre of disc. 6.0 ins.  
 Tropical Load Line above " " 5.0 ins.  
 Winter Load Line below " " 5.0 ins.  
 Winter N.A. Load Line below " " -- ins.  
 Vertical distance from the point of intersection of the extended line of the upper surface of the second 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 0.0 ins.

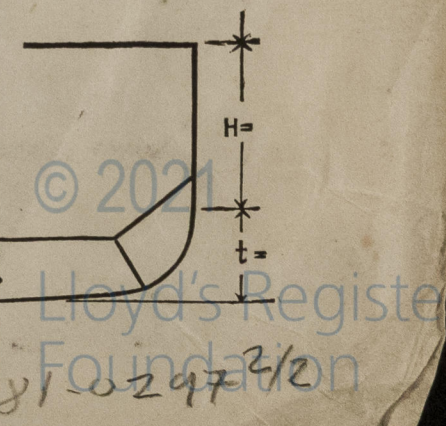
# DETAILS OF CONSTRUCTION OF WEATHER DECK HATCHWAYS.

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Length and Breadth	29'3"x18'0"	35'0"x20'0"	32'6"x20'0"	30'0"x20'0"		
Height above deck and thickness of side and end coaming	24" x .44	24" x .44	24" x .44	24" x .44		
Shifting Beams	Six 14 1/2" x .34 4 x 3 x .44	Six 14 1/2" x .34 4 x 3 x .44	Five 15" x .34 4 x 3 x .44	Five 14 1/2" x .34 4 x 3 x .44		
*Fore and Afters	Number and Material Scantlings		NONE			
Thickness of hatches	3" Wood at all hatches.					
Remarks	Hatch shifting beams of Complete Superstructure type Scantlings.					
* 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 = 13.7' above top of keel.					
Cargo hatch Section at about frame 100					
BELOW ASSUMED AXIS.					
Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Flat Keel	50x.74x(1/2)	18.5	13.7	253	3470
" "					
Centre Girder	42x.54x(1/2)	11.3	12.0	136	1630
C.G. btm. ang.	4x4x.58(1/2)	2.2	13.6	30	410
C.G. top angles	3x3x.52(1/2)	1.7	10.3	18	190
T.T. Cr. Strake	52x.50x(1/2)	13.0	10.2	133	1360
T.T. plating	66 x .42				
" "	65 x .42				
" "	66 x .42	115.5	10.2	1178	12020
" "	68 x .42				
" "	10 x .42				
Margin Plate	36 x .52	18.7	11.6	217	2520
" Angle	5 x 5 x .52	4.9	10.2	50	510
" Angle	3x3x.52	3.4	13.0	44	570
Shell Strake A	75 x .56	42.0	13.7	575	7880
" " B	75 x .56	42.0	13.6	571	7770
" " C	74 1/2 x .56	41.9	13.4	561	7520
" " D	74 1/2 x .56	41.7	13.2	550	7260
" " E	64 1/2 x .56	36.1	10.9	393	4280
" " F	62 1/2 x .56	34.9	6.3	220	1390
" " G	72 x .56	40.3	1.3	52	70
Totals below assumed axis		468.1		4981	58850
" above assumed axis		392.8		5264	85830
Sum or Difference		860.9	.33 up	283	144680
Moment of Inertia about assumed axis = 289360					
289170					
ABOVE ASSUMED AXIS.					
Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Top Deck Str.	57 x .46	26.2	20.7	542	11220
" " "					
" " Plating	62 x .42	26.0	21.0	546	11470
" " "	61 x .42	25.6	21.3	545	11610
" " "	36 x .42	15.1	21.4	323	6910
" " Str. Ang.	6 x 6 x .56	6.4	20.7	132	2730
2nd Deck Str.	40 x .40	16.0	13.2	211	2790
" " Plating	65 x .36	23.4	13.5	316	4270
" " "	65 x .36	23.4	13.7	321	4400
" " "	40 x .36	14.4	13.9	200	2780
" " Str. Ang.					
3rd Deck Str.	40 x .34	13.6	4.7	64	300
" " Plating	65 x .30	19.5	5.0	98	490
" " "	65 x .30	19.5	5.2	101	530
" " "	40 x .30	12.0	5.4	65	350
" " Str. Ang.					
Sheerstrake	50 x .66	33.0	19.3	637	12300
Strake below	62 x .62	38.4	15.2	584	8880
Shell Strake	72 x .56	40.3	10.0	403	4030
" "	71 1/2 x .56	40.0	4.4	176	770
" "					
Totals above assumed axis		392.8		5264	85830
Neutral Axis above assumed axis (x) = .33					
Correction = (Total Area x x <sup>2</sup> x 2) = - 93 x 2 = 186					
Moment of Inertia about Neutral Axis = 289170					
Distance from Neutral Axis to top of Strength deck beam at side = 20.22 ft.					
MODULUS OF SECTION = 14300					
Actual Modulus = 14300					
f. B <sub>o</sub> = 10.35 x 54.5 = 25.35					

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

TRANSVERSE MODULUS.  
 Minimum Side Plating (Art. 77)  $\frac{0.105 \times 380}{100} + 17 = .57$ ; Standard Frame Spacing (Art. 78) =  $.025 \times 380 + 17 = 26.5$  ins.  
 Actual Side Plating = .56"; Actual Frame Spacing = 30  
 If actual frame spacing exceeds the standard  $\sqrt{\frac{\text{Actual frame spacing}}{\text{Standard frame spacing}}} t = \sqrt{\frac{30}{26.5}} \times .57 = .61$   
 Moulded Geometric Draught (d) = 24.04 H = 13.16 f<sub>1</sub> = 17.32  
 t = 5.09 K = 21.00 f<sub>2</sub> = 3.30  
 d - t = 18.95 f<sub>1</sub> + f<sub>2</sub> = 20.62  
 Standard I/y =  $\frac{s(d-t)(f_1 + f_2)}{1000} = \frac{30 \times 18.95 \times 20.62}{1000} = 11.72$  ins.  
 Frame in ship = 9x3 1/2 x .42 B.A. at 30" spacing, I/y = 13.65  
 Revised B.S.  
 DRAUGHT PERMITTED BY TRANSVERSE STRENGTH =  $\frac{I/y \times 1000}{s(f_1 + f_2)} + t = \frac{13.65 \times 1000}{30 \times 20.62} + 5.09 = 27.16$  ft.



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