

DISCLOSED SECTION No. 365

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

Ship's Name "KINAI MARU" "YOKAI MARU" "USAYO MARU" "HOKURONGU MARU"	Port of Registry Osaka.	Official No. --	No. in R.B. --	Gross Tonnage About 8400	Tonnage under Fbd. Deck = V	Date of Launch	Date when Built Building	Report Number 71
Owners Osaka Shosen Kaisha.	Builders Mitsubishi Zosen Kaisha. Nagasaki.		Yard No. 473 471-2 3-4.		Port of Survey Nagasaki.			
Type of vessel Complete Superstructure 'Tween deck height 8' 6"	Particulars of Classification + 100 A. 1. With Freeboard.		Position of Freeboard Deck Assumed at 7' 6" below corrected. C.S. Deck.		Date of Survey While Building.			
					Name of Surveyor G. Anderson & H. J. Cox.			

PRINCIPAL DIMENSIONS.

Length between perpendiculars.....445.....ft.	Breadth Moulded = B ₀60.5.....ft.	Depth for Freeboard = 33.37 See over. Less assumed 3 1/2" wood deck = .29 Depth Moulded to Fbd. deck = D ₀33.08.....ft.
Length on Load Line.....ft.	Thickness of Side plating in ins. x 3/12".....+.....ft.	Round of Beam.....+.....ft.
Length for Freeboard = L.....445.....ft.	* (2/12 if plating is joggled)	Depth from base line to top of inner bottom plating or ordinary floors.....ft.
	Breadth for Freeboard = B.....60.5.....ft.	Depth for Tonnage Coef. (Art. 39) = D.....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) = tons.

DEPTH OF DOUBLE BOTTOM (Art. 39)

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

SHEER (Arts. 39 and 60-63)

Ordinate	Height of Sheer in inches.	S.M.	Products
1		1	
2		4	
3		2	
4		4	
5		2	
6		4	
7		1	

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

Sum of Products =

Mean Height of Sheer = S = $\frac{\text{Sum of Products}}{18}$ = ins.

Standard Mean Height = S₀ = $\frac{1}{3}(L/10 + 10)$ = ins.

Difference x 1/12 = ft. = d₁

Correction (Arts. 60-63) = $\frac{3}{4}(1-e)(S_0-S)$ = ins.

Sum of Products =

Sum of Products = Actual Mean Depth of framing ins.

Length of Ship

Standard .. " " " " .. ins.

Difference x 2/12 = = 2b

COEFFICIENT OF FINENESS (Art. 39 or 43)

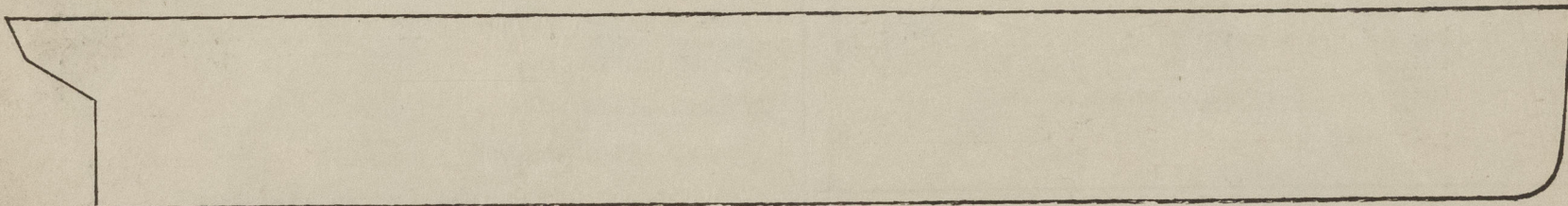
$$\frac{100(V+v)}{L(B-2b)(D+d+d_1)+n}$$

= + =

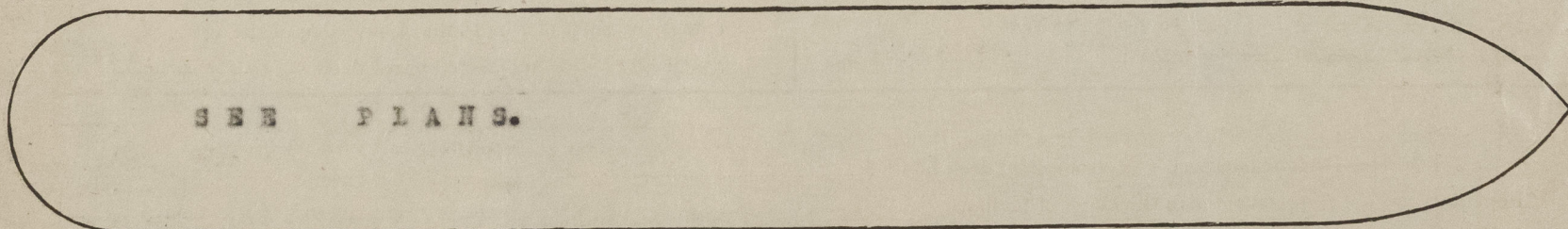
85% of 33.08 = 28.12 above top of keel

$$\text{or } \frac{35 \times \Delta}{L \times B_0 \times d_0} + 0.04$$

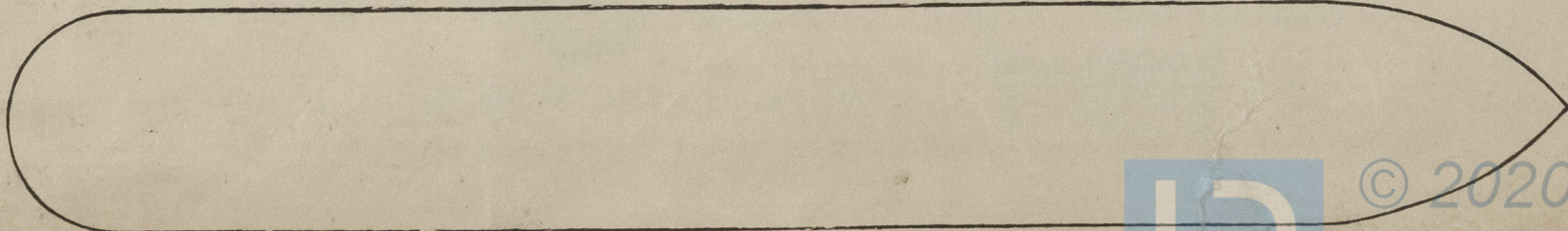
$$= \frac{35 \times 15.460}{445 \times 60.5 \times 28.12} + 0.04 = .75$$



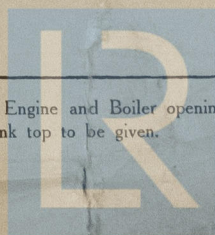
Sketch showing arrangement and height of double bottom or ordinary floors and of superstructures (unless complete plans are submitted).



SEE PLANS.



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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C.S. Deck. WOOD DECK (Arts. 5 and 6) Correction.

	Mean Length in ft.	Thickness in ins.	Products
Forecastle	39.9	$\frac{3}{8} = .66$	
Bridge		$= 2.84$	113.3
Poop or R.Q.D.			
Open Deck, fwd.	79.75	3	239.25
" " aft.			

Total length = $l =$ Sum of Products = **352.55**
 $\frac{\text{Sum of Products}}{l} = t =$ ins.; $\frac{\text{Sum of Products}}{L} = t_1 =$ **.79** ins.
Mean thickness

CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.

If no sheathing fitted amidships $= t_1 = \pm$ ins. (Arts. 6 and 57 p. 1)
 If sheathing is fitted amidships $= (t - t_1) = \mp$ 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 **to C.S. Deck** **40.9** ft. **above top of**
on C.S. DE. **.66** ins. **keel.**
 Thickness of Stringer Plate **"** **"**
Mean Thickness of Wood Deck **amidships** **.79** **"**
Depth to corrected C.S. DE. **40.10.45**
 Correction for actual wood deck **7.6.00**
 Depth to use in Freeboard Tables **33.4.45** ins. = $D_1 =$ **33.37** ft.

SUPERSTRUCTURES.

HEIGHT (Arts. 46-48)

Standard Height = $(0.018 L + 1.2)$ ft. = _____ ft.

	Complete Superstructure	Forecastle	Bridge	Poop or R.Q.D.
Actual	_____	_____	_____	_____
Standard	_____	_____	_____	_____

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 fwd.				
" " 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 _____ ins.

Complete Product _____ ins.

Correction for Superstructures **x** _____ **39.0** 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_1 is less than 35 ft. $= \frac{D_1 + 16}{300} (1 - e/2) (L - 12 D_1)$
 " " " greater than 35 ft. $= \frac{D_1 + 16}{300} (1 - e/2) (L - 12 D_1)$
 [Note $e = 1.0$ if more than $\frac{9}{10}$ covered] $= \frac{49.37}{300} \times \frac{1}{2} \times 44.56 = 3.67$ ins.

CORRECTION FOR ROUND OF BEAM (Art. 59) C.S. Deck.

Standard Round of Beam = $\frac{\text{Length of Beam in ins.}}{50} =$ **14.52** ins.
 Correction = $\frac{1}{4}$ (Standard Round of Beam—Actual Round of Beam)
 $= \frac{1}{4}(14.52 - 12) = + .63$ 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 $1.2 (r - 0.5) D_1 = +$ _____ 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 = $.012 (80 - l) D_1$ or $1.2 (r - 0.5) D_1$ _____
 $= +$ _____ ins.

SUMMARY.

Freeboard by Tables	98.80	ins.
	+	-
Correction for Sheer		
" " Partial Wood Deck		
" " Superstructures		39.00
" " Proportions L/D	3.67	
" " Round of Beam	.63	
" " Freeing Ports	-	
" " Access to Crew's Quarters	-	
Totals	4.30	39.00
Net Correction	34.70	
Geometric Freeboard	64.10	ins.
Corresponding Geometric Draught (mld.)	28.03	ft.
Moulded Draught limited by $\left\{ \begin{array}{l} \text{form} \\ \text{position of side scuttles} \end{array} \right\}$ to	28.03	ft.
Corresponding Freeboard (Summer)	64.10	ins.

Winter Freeboard (Art. 22) = $\frac{1}{4} (D_1 - 11) + r/45 \times (59 - D_1)$
 $= \frac{1}{4} (33.37 - 11) + \frac{1}{45} (59 - 33.37) = +$ **6.40** ins.

Tropical Freeboard (Art. 24) do. do. $= -$ **6.40** 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) **15440**
 $\frac{1}{4}$ " per foot of Summer Draught = $\frac{40 \times 53}{4} = -$ **7.28** 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) **64.1** ins.
 Fresh Water Load Line above centre of disc. **7.3** ins.
 Tropical Load Line above " " " **6.4** ins.
 Winter Load Line below " " " **6.4** 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 **the 3" thick wood sheathing** the C.S. 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 **92.2** ins. (*)

Depth moulded to C.S. Deck **40.9**
Thickness of stringer plate **.66**
Actual thickness wood amide. **3.00**
Ass. Freeboard Dk. above top keel (D) **41.0.66**
33.4.45

Yes **7.8.21**
No scuttle in shell. **(*)=92.2"**

None.

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 _____

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 **W.T. Bulkheads extend to 2nd deck i.e. 32'3" above keel**

Weather deck hatch beams scantlings as per Complet Superstructure deck.

Sister vessels _____

Fee, Yen _____; Depth of Keel _____ ins.; Draught (btm. keel) _____ ft. _____ ins.



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TRANSVERSE STRENGTH.

	IN WAY OF WING F.O. TANK	IN CARGO HOLD	IN ENGINE ROOM
FRAMES Revised British Standard B.A.	10"x3 $\frac{1}{2}$ "x.42"B.A.	11"x3 $\frac{1}{2}$ "x.58" B.A.	11"x3 $\frac{1}{2}$ "x.52"B.A.
I Y OF FRAMES	17.6	26.65	24.65
(H) IN FT.	8.17	17.92	16.88
(K) IN FT. (Depth Mid. to fwd. Dk. = 33.08')	33.58	22.33	22.33
(f 1)	11.13	29.28	26.42
(f 2)	8.29	3.70	3.70
$f_2 \times \frac{20' 3''}{20' 3''} = f_2 \times 1.0125$	--	3.75	--
(f 1 + f 2)	19.42	33.03	30.12
(f 1 + f 2) x S (S = 33")	640.86	1089.99	993.96
1000 M	17.600	26650	24.650
$\frac{1000 M}{S \times (f 1 + f 2)}$	27.48	24.45	24.8
(t) IN FT.	3.83	5.33	6.37
DRAUGHT PERMITTED BY TRANSVERS STRENGTH	31.31	29.78	31.17
REQUIRED DRAUGHT	28.03	28.03	28.03



DETAILS OF CONSTRUCTION OF WEATHER DECK HATCHWAYS.

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Length and Breadth	27 x 20	35'9" x 20	35'9" x 20	24'9" x 20	33'0" x 20	24'9" x 20
Height above deck and thickness of side and end coaming	30 x .44	30" x .44	30" x .44	30" x .44	30" x .44	30" x .44
Shifting Beams { Number and Material Scantlings	Six 15 x .34 4 x 3 x .44	Seven 16 1/2" x .35 4 x 3 x .44	Seven 13 x .34 4 x 3 x .44	Four 13 x .34 4 x 3 x .44	Six 13 x .34 4 x 3 x .44	Four 13 x .34 4 x 3 x .44
*Fore and Afters { Number and Material Scantlings			None			
Thickness of hatches	3" O.P.	3" O.P.	3" O.P.	3" O.P.	3" O.P.	3" O.P.
Remarks shifting beams as for Complete Superstructure Type.						
* When the fore and afters are of wood the depth should be stated from the underside of hatches.						

Least LONGITUDINAL MODULUS.

Height of Assumed Axis above ~~base~~ top of keel = 16.3 feet.

Section at Engine Opening.

BELOW ASSUMED AXIS.						ABOVE ASSUMED AXIS.					
Item	Scantlings	Area	Lever	Moment	Mt. of Inertia	Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Flat Keel	55 x .85	23.4	16.3	381	6210	Top Deck Str.	64 x .66	42.2	24.6	1038	25530
Centre Girder	21 x .62 x 1/2	6.5	15.4	100	1540	" Plate	62.5 x .49	30.6	24.8	759	18820
Centre Girder	21 x .62 x 1/2	6.5	12.2	79	970	" " Plating	62.5 x .49	30.6	25.1	768	19280
C.G. btm. ang.	5x5x6x2	3.1	16.2	50	810	" " "	62.5 x .49	30.6	25.3	774	19580
C.G. top angles	3 1/2 x 3 1/2 x 56	1.8	11.4	21	240	" " "	25.5 x .49	12.5	25.4	318	8060
T.T. Cr. Strake	88 x .56	24.6	11.3	278	3150	" " Str. Ang.	6 x 6 x .66	7.5	24.5	185	4550
T.T. plating	67					2nd Deck Str.	52 x .44	22.9	16.0	366	5860
" "	69					" " Plating	62.5 x .40	25.0	16.0	400	6400
" "	69	.48	11.3	1564	17670	" " "	74.5 x .40	29.8	16.0	477	7630
" "	69					" " "					
" "	14.25					" " Str. Ang.					
Margin Plate	57.5 x .56	32.2	13.2	425	5610	3rd Deck Str.	51.5 x .34	8.8	7.0	61	430
Gusset	6 x .48	2.9	11.0	32	350	" " Plating	63 x .30	9.4	7.0	66	460
" Angle	5x5x.56x2	10.6	13.2	140	1850	" " "	50.5 x .30	7.6	7.0	53	370
Shell Strake A	71.88 x .67	48.2	16.2	782	12650	" 3" flange		.5	7.1	4	30
" " B	72.0 x .67	48.2	16.2	780	12660	" " Str. Ang.					
" " C	71.88 x .67	48.2	16.0	770	12320	Sheerstrake	72.0 x .78	56.2	22.3	1253	27920
" " D	71.75 x .67	48.1	16.0	770	12300	Strake below	71.81 x .65	46.7	16.8	784	13180
" " E	52.5 x .67	35.2	15.8	556	8780	Shell Strake	71.75 x .65	46.6	11.3	527	5960
" " F	56.56 x .67	37.9	13.9	527	7320	" "	72.06 x .65	46.8	5.8	272	1580
" " G	50.63 x .65	32.9	10.1	333	3360	" "	37.53 x .65	24.4	1.6	39	60
" "	71.88 x .65	46.7	5.4	252	1360						
" "	34.35 x .65	22.3	1.4	31	40						
Totals below assumed axis		617.7		7871	109190	Totals above assumed axis		478.7		8144	165700
" above assumed axis		478.7		8144	165700						
Sum or Difference		1096.4	.25 up	273	274890						

Moment of Inertia about assumed axis = 549780

Neutral Axis above assumed axis (x) = .25
Correction = (Total Area x x² x 2) = -140
Moment of Inertia about Neutral Axis = 549640
Distance from Neutral Axis to top of Strength deck beam at side = 24.2 ft.
MODULUS OF SECTION = 22710
Actual Modulus = 13.39 x 60.5 = 28.04 ft.

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

TRANSVERSE MODULUS.

Minimum Side Plating (Art. 77) $\frac{0.105 \times 445 + 17}{100} = .637$; Standard Frame Spacing (Art. 78) = $.025 \times 445 + 17 = 28.125$
Actual Side Plating = 65; Actual Frame Spacing = 33"

If actual frame spacing exceeds the standard $\sqrt{\frac{\text{Actual frame spacing}}{\text{Standard frame spacing}}}$ t =

Moulded Geometric Draught (d) = H = f₁ =
t = K = f₂ =
d - t = f₁ + f₂ =
For particulars of Calculations see attached sheet.

Standard I/y = $\frac{s(d-t)(f_1+f_2)}{1000} = \frac{33 \times 21.61 \times 30.17}{1000} = 21.52$

Frame in ship = at spacing, I/y =

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

