

DISCLOSED SECTION

## LLOYD'S REGISTER OF SHIPPING.

(CLASSIFICATION SOCIETY RECOGNISED BY THE JAPANESE GOVERNMENT)

## SURVEY FOR FREEBOARD.

Ship's Name <b>"TAKAMISAN MARU"</b>	Port of Registry <b>KOBE</b>	Official No. <b>--</b>	No. in R.B. <b>--</b>	Gross Tonnage <b>--</b>	Tonnage under Fbd. Deck = V <b>1650.61</b>	Date of Launch <b>8-2-28.</b>	Date when Built <b>1928.</b>	Report Number <b>48</b>
Owners <b>Mitsui Bussan Kaisha Ltd.</b>		Builders <b>Mitsui Bussan Kaisha Ltd.</b>		Yard No. <b>133</b>		Port of Survey <b>Kobe</b>		
Type of vessel <b>Full Seantling</b>	Particulars of Classification <b>* 100 A-1.</b>		Position of Freeboard Deck <b>Upper Deck</b>		Date of Survey <b>Whilst building</b>			
Poop, Bridge & Fo'cle.						Name of Surveyor <b>W. Kimber &amp; R. Crawford</b>		

## PRINCIPAL DIMENSIONS.

Length between perpendiculars	275.0	ft.	Breadth Moulded = B <sub>0</sub>	40.75	ft.	Depth Moulded to Fbd. deck = D <sub>0</sub>	21.04	ft.
Length on Load Line	275.0	ft.	Thickness of Side plating	3		Round of Beam	10.25/12	+ 0.85
			in ins. x 3/12	52 x 12	+ 0.13	ft.	Depth from base line to top of inner	21.89
			* (2/12 if plating is jogged)			bottom plating or ordinary floors	- 2.95	ft.
Length for Freeboard = L	275.0	ft.	Breadth for Freeboard = B	40.88	ft.	Depth for Tonnage Coef. (Art. 39) = D	18.94	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) = **-4.23** tons.

## DEPTH OF DOUBLE BOTTOM (Art. 39)

Depth of Actual Double Bottom (including plating) or Ordinary Floors	35.40	ins.
Depth of Standard Double Bottom (including plating) or Ordinary Floors	36.42	ins.
Difference	-1.02	
x 1/12 =	-0.09	= d.

## SHEER (Arts. 39 and 60-63)

Ordinate	Height of Sheer in inches.	S.M.	Products
1	69.00	1	69.00
2	29.63	4	118.52
3	7.31	2	14.62
4	0.00	4	0.00
5	3.19	2	6.38
6	15.13	4	52.52
7	35.00	1	35.00
Sum of Products =			296.04

## 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
AP - 7	14.0	9	2	11	154.0
7 - 27	50.0	9	0	9	450.0
27 - FP	211.0	9	2	11	2321.0
Sum of Products =					2925.0

Mean Height of Sheer =  $S = \frac{\text{Sum of Products}}{18} = \frac{296.04}{18} = 16.45$  ins.  
Standard Mean Height =  $S_0 = \frac{1}{3}(L/10 + 10) = \frac{1}{3}(27.5 + 10) = 12.50$  ins.  
Difference =  $3.95$  ins.  $\times \frac{1}{12} = 0.33$  ft. = d,  
Correction (Arts. 60-63) =  $\frac{3}{4}(1-e)(S_0-S) = \frac{3}{4}(1-.288)(12.50-16.45) = -2.11$

Sum of Products = 2925.0  
Sum of Products = Actual Mean Depth of framing =  $\frac{2925.0}{275} = 10.64$  ins.  
Length of Ship  
Standard " " " " = 6.50 ins.  
Difference =  $4.14$  ins.  $\times \frac{2}{12} = .69$  = 2b

## COEFFICIENT OF FINENESS (Art. 39 or 43)

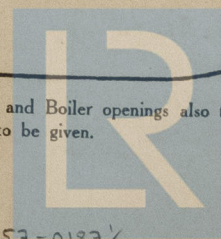
$$\frac{100(V+v)}{L(B-2b)(D+d+d_1)+n}$$
$$\frac{100(1650.61-4.23)}{275(40.88-.69)(18.94-.09+.33)} = .78$$

$$\text{or } \frac{35 \times \Delta}{L \times B_0 \times d_0} + 0.04$$
$$= \frac{35 \times 10.64}{275 \times 40.88 \times 18.94} + 0.04 = .78$$

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

2 1/2" Ceiling on 2" battens throughout except in Machinery space.  
Standard depth of double bottom = 38.92  
Actual depth " " " = 38.40 No ceiling in Mach. Sp.  
 $\frac{6430 \times .04}{100} = -2.57$  tons.  $-0.52 = -0.04$   $\frac{26.6 \times 50 \times .25}{2 \times 100} = -1.66$  tons  
Nett correction = **-4.23 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	33.50		
Bridge	27.50	2.80	350.00
Poop or R.Q.D.	64.00		
Open Deck, ford.			
.. .. aft.			
Total length = l =	Sum of Products = 350.00		
Sum of Products = t =	ins. : Sum of Products = t <sub>1</sub> = 1.25 ins.		

**CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.**

If no sheathing fitted amidships = t<sub>1</sub> = ± 1.25 ins. (Arts. 6 and 57 p. 1)  
 If sheathing is fitted amidships = (t - t<sub>1</sub>) = ± 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 21 ft. 0.52 ins.  
 Thickness of Stringer Plate 0.70 (Amidships)  
 Thickness of Wood Deck Amidships 21 . 1.22 "  
 Correction for partial wood deck + 1.25 "  
 Depth to use in Freeboard Tables 21 . ft. 2.47 ins. = D<sub>1</sub> = 21.21

**SUPERSTRUCTURES.**

HEIGHT (Arts. 46-48)  
 Standard Height = (0.018 L + 1.2) ft. = 6.15 ft.

	Complete Superstructure	Forecastle	Bridge	Poop or R.Q.D.
Actual		6.87	7.12	7.37
Standard		6.15	6.15	6.15

**CLOSING APPLIANCES** (Arts. 50 and 54)

	Forecastle	Bridge	Poop or R.Q.D.
Means of Closing openings in bulkhead	Hinged Steel Door	W.T. Steel Doors	Hinged Steel Doors
Corresponding Class	II	I	I

**EFFECTIVE LENGTH** (Arts. 55 and 56)

	Mean Length	Coef. Art. 56	Height Coef.	Products.
Forecastle closed part	33.50	1.00	1.00	33.50
.. open part				
Bridge closed part	27.50	1.00	1.00	27.50
.. open part ford.				
.. .. aft.				
Poop closed part	64.00	1.00	1.00	64.00
.. open part				

Total Effective Length = 125.00  
 Total Effective Length = r =  $\frac{125.00}{275.00} = .45$   
 Corresponding Coef. in Table (Art. 49) = e = .288  
 Reduction for Complete Superstructure =  $32.85 \times .288 = 9.46$  ins.  
 Product = 9.46 ins.  
 Correction for Superstructures = 9.46 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. =  $0.11 (1 - e/2) (L - 12 D_1)$   
 [Note e = 1.0 if more than 6/10 covered] =  $\frac{21.21 + 16}{300} (1 - .288) (275 - 12 \times 21.21) = 2.17$

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  
 Sister vessels  
 Fee. Yen. : Depth of Keel **1.16** ins. : Draught (btm. keel) **18** ft. **1.95** ins.

**CORRECTION FOR ROUND OF BEAM** (Art. 59)  
 Standard Round of Beam =  $\frac{\text{Length of Beam in ins.}}{50} = \frac{489}{50} = 9.78$  ins.  
 Correction =  $\frac{1}{2} (\text{Standard Round of Beam} - \text{Actual Round of Beam}) = \frac{1}{2} (9.78 - 10.25) = -.235$  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	47.20	ins.
Correction for Sheer	2.11	ins.
.. .. Partial Wood Deck	1.25	
.. .. Superstructures	9.46	
.. .. Proportions L/D	2.17	
.. .. Round of Beam	0.12	
.. .. Freeing Ports		
.. .. Access to Crew's Quarters		
Totals	2.17	12.94
Net Correction	-10.77	
Geometric Freeboard	36.43	ins.
Corresponding Geometric Draught (mld.)	18.07	ft.
Moulded Draught limited by (form transverse strength longitudinal strength position of side scuttles) to	18.07	ft.
Corresponding Freeboard (Summer)	36.43	ins.
Winter Freeboard (Art. 22) = $\frac{1}{2} (D_1 - 10) + r/45 \times (59 - D_1)$ = $\frac{1}{2} (21.21 - 10) + .45/45 \times (59 - 21.21) = 13.18$ ins.		
Tropical Freeboard (Art. 24) do. do. =	3.18	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 =	4.52	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) 36.4 ins.  
 Fresh Water Load Line above centre of disc. 4.5 ins.  
 Tropical Load Line above " " " 3.2 ins.  
 Winter Load Line below " " " 3.2 ins.  
 Winter N.A. Load Line below " " " -- ins.  
 Vertical distance from the point of intersection of the extended line of the upper surface of **Steel Stringer** of the **Upper** 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 Nil ins.

DETAILS OF CONSTRUCTION OF WEATHER DECK HATCHWAYS.

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Length and Breadth	30'6"x18'0"	30'0"x18'0"	30'0"x18'0"	30'0"x18'0"		
Height above deck and thickness of side and end coaming	35" x .44"	35" x .44"	35" x .44"	35" x .44"		
Shifting Beams	5 Steel 16" x .36" 4"x 3"x.50"	5 Steel 16" x .36" 4"x 3"x.50"	5 Steel 16" x .36" 4"x 3"x.50"	5 Steel 16" x .36" 4"x 3"x.50"		
* Fore and Afters	None	None	None	None		
Thickness of hatches	3"	3"	3"	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 = Section at

BELOW ASSUMED AXIS.						ABOVE ASSUMED AXIS.					
Item	Scantlings	Area	Lever	Moment	Mt. of Inertia	Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Flat Keel						Top Deck Str.					
" "						" " "					
Centre Girder						" .. Plating					
C.G. btm. ang.	FULL SCANTLING VESSEL										
C.G. top angles						" " "					
T.T. Cr. Strake						" .. Str. Ang.					
T.T. plating						2nd Deck Str.					
" "						" .. Plating					
" "						" " "					
" "						" .. Str. Ang.					
Margin Plate						3rd Deck Str.					
" "						" .. Plating					
" Angle						" " "					
Shell Strake A						" " "					
" " B						" .. Str. Ang.					
" " C						Sheerstrake					
" " D						Strake below					
" " E						Shell Strake					
" " F						" "					
" " G						" "					
Totals below assumed axis						Totals above assumed axis					
" above assumed axis											
Sum or Difference											

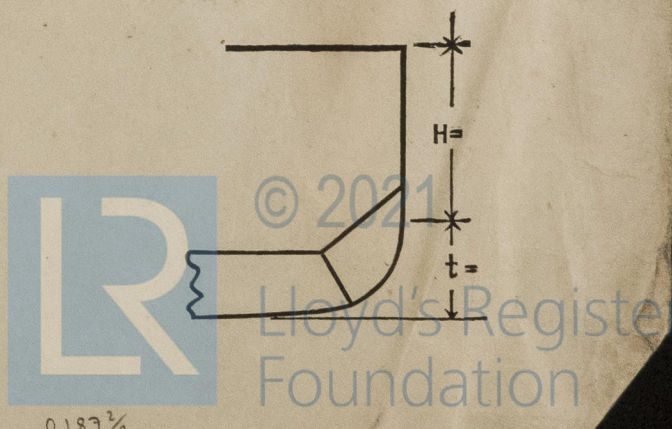
Moment of Inertia about assumed axis 2

Neutral Axis above assumed axis (x) =  
 Correction = (Total Area x x<sup>2</sup> x 2) = --  
 Moment of Inertia about Neutral Axis  
 Distance from Neutral Axis to top of Strength deck beam at side = ft.  
 MODULUS OF SECTION =  
 Actual Modulus = f. B<sub>0</sub> =

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

TRANSVERSE MODULUS.

Minimum Side Plating (Art. 77)  $\frac{0.105 \times +17}{100} =$  ; Standard Frame Spacing (Art. 78) = .025 X +17 =  
 Actual Side Plating = ; Actual Frame Spacing =  
 If actual frame spacing exceeds the standard  $\sqrt{\frac{\text{Actual frame spacing}}{\text{Standard frame spacing}}}$  t = **Full Scantling Vessel.**  
 Moulded Geometric Draught (d) = H = f<sub>1</sub> =  
 t = K = f<sub>2</sub> =  
 d - t = f<sub>1</sub> + f<sub>2</sub> =  
 Standard I/y =  $\frac{s(d-t)(f_1 + f_2)}{1000} =$   
 Frame in ship = at spacing, I/y =  
**DRAUGHT PERMITTED BY TRANSVERSE STRENGTH** =  $\frac{I/y \times 1000}{s(f_1 + f_2)} + t =$





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