now named "KOEI MARU" 13/8/38

J101

LLOYD'S REGISTER OF SHIPPING.

(CLASSIFICATION SOCIETY RECOGNISED BY THE JAPANESE GOVERNMENT)

SURVEY FOR FREEBOARD.

Ship's Name	Port of Registry	Official No.	No. in R.B.	Gross Tonnage	Tonnage under Fbd. Deck=V	Date of Launch	Date when Built	Report Number
"KOYEI MARU"				6800 Approx.	6045.51		1933	94

Owners	Builders	Yard No.
Takachiho Shosen Kaisha.	Mitsubishi Zosen Kaisha Nagasaki Works.	550

Port of Survey: Nagasaki.

Date of Survey: While Building.

Name of Surveyor: H. D. Buchanan & M. M. Parker.

Type of vessel	Particulars of Classification	Position of Freeboard Deck
Full Scantling	* 100 A. 1.	Upper Deck.

PRINCIPAL DIMENSIONS.

Length between perpendiculars 435 ft.

Length on Load Line ft.

Length for Freeboard = L 435 ft.

Breadth Moulded = B_o 58.50 ft.

Thickness of Side plating in ins. x 3/12* 68 x 3/12 + .17 ft.

*(2/12 if plating is joggled)

Breadth for Freeboard = B 58.67 ft.

Depth Moulded to Fbd. deck = D_o 32.83 ft.

Round of Beam + 1.17 ft.

Top of Keel ~~XXXXX~~ 34.00

Depth from base line to top of inner bottom plating or ordinary floors − 3.79 ft.

Depth for Tonnage Coef. (Art. 39) = D 30.21 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) = + 13.01. tons.

DEPTH OF DOUBLE BOTTOM (Art. 39)

Depth of Actual Double Bottom (including plating) or Ordinary Floors 45.51 ins.

Depth of Standard Double Bottom (including plating) or Ordinary Floors 46.54 ins.

Difference -1.03

x 1/12 = - .09 = d.

SHEER (Arts. 39 and 60—63)

Ordinate	Height of Sheer in inches.	S.M.	Products
1	129.0	1	129.00
2	58.28	4	233.12
3	15.50	2	31.00
4	0	4	0.0
5	7.75	2	15.50
6	29.84	4	119.36
7	66.00	1	66.00

Sum of Products = 593.98

Mean Height of Sheer = S = $\frac{\text{Sum of Products}}{18}$ = 33.00 ins.

Standard Mean Height = $S_o = \frac{1}{3}(L/10 + 10)$ = 17.83 ins.

Difference 15.17 x 1/12 = 1.26 ft. = d_1

Correction (Arts. 60-63) = $\frac{3}{4}(1-e)(S_o - S)$ = $\frac{3}{4}$x.712x15.17= 8.10 ins.

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 & 16	35.88	9	2	11.00	394.68
16 - 68	143.00	11.81	2	13.81	1974.83
68 - 85	46.75	11.81	0	11.81	552.12
85 -129	121.00	11.81	2	13.81	1671.01
129 -139	22.50	11.81	2	13.81	310.72
139 -FP	65.87	12.00	2	14.00	922.18

Sum of Products = 5825.54

$\frac{\text{Sum of Products}}{\text{Length of Ship}}$ = Actual Mean Depth of framing 13.39 ins.

Standard " 7"+ 2" " " 9.00 ins.

Difference 4.39 x 2/12 = .73' = 2b

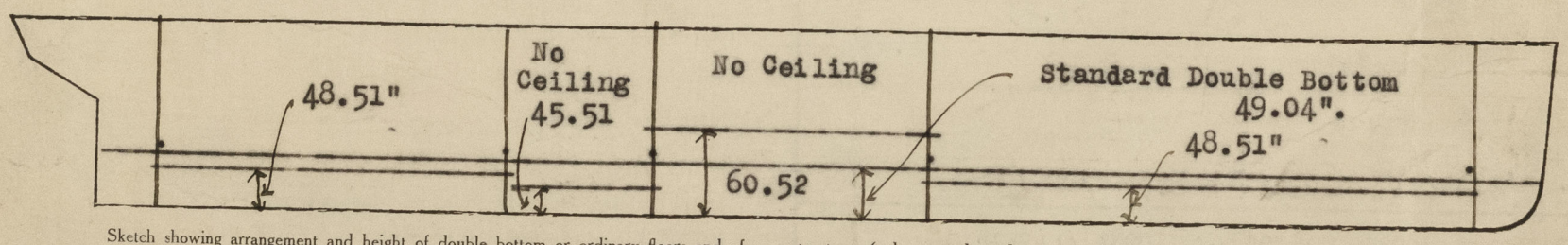
COEFFICIENT OF FINENESS (Art. 39 or 43)

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

$$= \frac{605852}{435 \times 57.94 \times 31.38} + 0 = .77$$

or $\frac{35 \times \Delta}{L \times B_o \times d_o} + 0{\cdot}04$

= ——— + 0·04 =



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

Fore Holds	6715	x	.0442'	= -296.6
After Holds	2530	x	.0442'	= -111.7
Engine Room	2304	x	.9567'	= +2204.0
Deep Tank	1682.5	x	.2942'	= -495.0

Nett Correction + 13.007 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	41.12	3.5-.41	
Bridge	126.50	3.09	611.82
Poop or R.Q.D.	30.38		
Open Deck, ford.			
„ „ aft.			
Total length = l =	198.00	Sum of Products =	611.82

$\frac{\text{Sum of Products}}{l}$ = t = ins. ; $\frac{\text{Sum of Products}}{L}$ = t_1 = 1.41 ins.

CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.

If no sheathing fitted amidships = t_1 = ± 1.41 ins. (Arts. 6 and 57 p. 1)

If sheathing is fitted amidships = $(t - t_1)$ = ∓ * 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 ..... 32 ft. 10 ins.

Thickness of Stringer Plate ..... - .41 „

Thickness of Wood Deck Amidships ..... 32 - 10.41

Correction for partial wood deck ..... x 1.41

Depth to use in Freeboard Tables ..... 32 ft. 11.82 ins. = D_1 = 32.99 ft.

SUPERSTRUCTURES.

HEIGHT (Arts. 46—48)

Standard Height = (0.018 L + 1.2) ft. = ... 7.5 ft.

	Complete Superstructure	Forecastle	Bridge	Poop or R.Q.D.
Actual / Standard	-- / — =	7.38 / 7.5 = .98	7.64 / 7.5 = 1	7.38 / 7.5 = .98

CLOSING APPLIANCES (Arts. 50 and 54)

	Forecastle	Bridge		Poop or R.Q.D.
		Forward End.	After End.	Quarter Deck
Means of Closing openings in bulkhead	Storm Bords in Riveted Channels	Intact Bulkhead	Storm Boards in Riveted Channels	Storm Boards in Riveted Channels
Corresponding Class	II		II	II

EFFECTIVE LENGTH (Arts. 55 and 56)

	Mean Length	Coef. Art. 56	Height Coef.	Products.
Forecastle closed part	41.12	1.0	.98	40.30
„ open part				
Bridge closed part	123.75	1.0	1.0	123.75
„ open part ford.	-	-	-	-
„ „ „ aft.	2.75	.75	1.0	2.06
Poop closed part	30.38	1.0	.98	29.77
„ open part				
		Total Effective Length =		195.88

$\frac{\text{Total Effective Length}}{\text{Length of Vessel}}$ = r = .45

Corresponding Coef. in Table (Art. 49) = e = .288

Reduction for Complete Superstructure ..... 39 ins.

Product ..... 11.23 ins.

Correction for Superstructures ..... 11.23 ins.

EFFECTIVE LENGTH (Shelter Deck Vessels Arts. 87—92)

$l + \frac{e}{2}(1 - p)(L - l)$ = ... 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. = $0.48\,(1 - e/2)(L - 12\,D_1)$

[Note e = 1.0 if more than 6/10 covered] = $\frac{48.99}{300} \times .856 \times 39.12$ = 5.47 ins.

CORRECTION FOR ROUND OF BEAM (Art. 59)

Standard Round of Beam = $\frac{\text{Length of Beam in ins.}}{50}$ = 14.04 ins.

Correction = ¼ (Standard Round of Beam—Actual Round of Beam)

= ¼ (14.04 - 14) = .01 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 ? ..... Bridge.

Height and breadth of gangway .....

Correction = ·012 (80 – l) D_1 or 1.2 (r – 0.5) D_1 ..... = + ... ins.

SUMMARY.

	ins. +	ins. -
Freeboard by Tables	98.35	
Correction for Sheer		8.10
„ „ Partial Wood Deck		1.41
„ „ Superstructures		11.23
„ „ Proportions L/D	5.47	
„ „ Round of Beam	.01	
„ „ Freeing Ports		
„ „ Access to Crew's Quarters		
Totals	5.48	20.74
Net Correction	15.26	
Geometric Freeboard	83.09 ins.	
Corresponding Geometric Draught (mld.)	25.94 ft.	
Moulded Draught limited by {form / length of bridge / portion of side sheathed} to	25.94 ft.	
Corresponding Freeboard (Summer)	83.1 ins.	

Winter Freeboard (Art. 22) = ¼ (D_1 - 10) + r/45 x (59 – D_1)

= ¼x22.99+.45/45x26.01 = + 6.01 ins.

Tropical Freeboard (Art. 24) do. do. = - 6.01 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)

¼″ per foot of Summer Draught = ... = - 6.49 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) ..... 83.1 ins.

Fresh Water Load Line above centre of disc. ..... 6.5 ins.

Tropical Load Line above „ „ „ ..... 6.0 ins.

Winter Load Line below „ „ „ ..... 6.0 ins.

Winter N.A. Load Line below „ „ „ ..... -- ins.

Vertical distance from the point of intersection of the extended line of the upper surface of Stringer Plate 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 ..... 0.0 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 ..... No

State any special features in the construction of the vessel ..... --

Sister vessels ..... M/S "KORYU MARU" & M/S "KOSRI MARU".

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

Hoyei Maru.

DETAILS OF CONSTRUCTION OF WEATHER DECK HATCHWAYS.

	No. 1	No. 2	No. 3 Bridge Deck	No. 4	No. 5	No. 6
Length and Breadth	31'-6" x 21'	38'6" x 21'	27'6" x 21'	19'3" x 21'	38'6" x 21'	33' x 21'
Height above deck and thickness of side and end coaming	30x .50 Side .44" End	30x .60 Side .44" End	30" x .44	30 x .50 Side .44" End	30"x .60 Side .44" End	30"x .50 Side .44" End.
Shifting Beams — Number and Material	Five 19 x .37 Web	Six 19½ x .38	Four 18½ x .36	Two 19½x.38 4x3x.38	Six 19½x.38	Five 19½ x .38
Shifting Beams — Scantlings	4 x 3 x .48 Angles	4 x 3 x .48	4 x 3 x .48	8x.40 Rider Plates	4 x 3 x .48	4 x 3 x .48
*Fore and Afters — Number and Material						
*Fore and Afters — Scantlings						
Thickness of hatches			3" O.P. throughout			
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. Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Flat Keel					
„ „					
Centre Girder					
C.G. btm. ang.					
C.G. top angles					
T.T. Cr. Strake					
T.T. plating					
„ „					
„ „					
„ „					
„ „					
Margin Plate					
„ „					
„ Angle					
Shell Strake A					
„ „ B					
„ „ C					
„ „ D					
„ „ E					
„ „ F					
„ „ G					
Totals below assumed axis					
„ above assumed axis					
Sum or Difference					

Above Assumed Axis. Item	Scantlings	Area	Lever	Moment	Mt. of Inertia
Top Deck Str.					
„ „ „					
„ „ Plating					
„ „ „					
„ „ „					
„ „ Str. Ang.					
2nd Deck Str.					
„ „ Plating					
„ „ „					
„ „ „					
„ „ Str. Ang.					
3rd Deck Str.					
„ „ Plating					
„ „ „					
„ „ „					
„ „ Str. Ang.					
Sheerstrake					
Strake below					
Shell Strake					
„ „					
„ „					
Totals above assumed axis					

FULL SCANTLING VESSEL

Moment of Inertia about assumed axis 2

Neutral Axis above/below assumed axis (x) = ...

Correction = (Total Area x x^2 x 2) = — .....

Moment of Inertia about Neutral Axis .....

Distance from Neutral Axis to top of Strength deck beam at side / Keel = ... ft.

MODULUS OF SECTION = ...

DRAUGHT PERMITTED BY LONGITUDINAL STRENGTH (Arts. 81-86) = $\frac{\text{Actual Modulus}}{\text{f. } B_o}$ = ...

TRANSVERSE MODULUS.

Minimum Side Plating (Art. 77) $\frac{0.105 \times \quad + 17}{100}$ = ... ; Standard Frame Spacing (Art. 78) = ·025 x + 17 = ...

Actual Side Plating ..... = ... ; Actual Frame Spacing ..... = ...

If actual frame spacing exceeds the standard $\sqrt{\left(\frac{\text{Actual frame spacing}}{\text{Standard frame spacing}}\right)}$ t = ...

Moulded Geometric Draught (d) = ... H = ... f_1 = ...

t = ... K = ... f_2 = ...

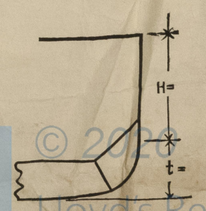
d – t = ... $f_1 + f_2$ = ...

FULL SCANTLING VESSEL

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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