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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 Fld. Deck = V	Date of Launch	Date when Built	Report Number
LI MARU" CANADIAN SETTLER"	DAIREN	256	65694	3461.56	2866.77	--	1919	41
Owners		Builders			Yard No.	Port of Survey.....Kobe.....		
KISEN KAB.KAISHA		Tidewater Shipbuilders Ltd. Canada.			--	Date of Survey 14th to 31 st March 1927.		
Type of vessel	Particulars of Classification			Position of Freeboard Deck		Name of Surveyor W.Kimber & H.J.Cox.....		
Single Deck Bridge & Focle.	* 100 A.1. Full Scantling			Upper Deck				

PRINCIPAL DIMENSIONS.

Between perpendiculars.....	331.0 ft.	Breadth Moulded = B ₀	46.5 ft.	Depth Moulded to Fbd. deck = D ₀	25.5 ft.
on Load Line.....	330.5 ft.	Thickness of Side plating in ins. x $\frac{3}{12}$60 + .15 ft.	Round of Beam.....	+ .97 ft.
		*(2/12 if plating is jogged)		Depth from base line to top of inner bottom plating or ordinary floors.....	26.47 - 3.28 ft.
for Freeboard = L.....	330.5 ft.	Breadth for Freeboard = B.....	46.65 ft.	Depth for Tonnage Coef. (Art. 39) = D.....	23.19 ft.

CORRECTION TO TONNAGE (Art. 39)

Between top of ceiling on double bottom ordinary floors as fitted and standard level of ceiling (v) =	-17.1 tons.
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DEPTH OF DOUBLE BOTTOM (Art. 39)

Depth of Actual Double Bottom (including plating) or Ordinary Floors	39.44 ins.
Depth of Standard Double Bottom (including plating) or Ordinary Floors	39.44 ins.
Difference	0
x $\frac{1}{12}$ =	0 = d.

SHEER (Arts. 39 and 60-63)

ate	Height of Sheer in inches.	S.M.	Products
	52.0	1	52.0
	20.0	4	80.0
	2.0	2	4.0
	0.0	4	0.0
	11.0	2	22.0
	45.0	4	180.0
	103.0	1	103.0

Sum of Products = **441.00**

Height of Sheer = $S = \frac{\text{Sum of Products}}{18} = \frac{441.00}{18} = \mathbf{24.50}$ ins.
Mean Height = $S_0 = \frac{1}{3}(L/10 + 10) = \frac{1}{3}(330.5/10 + 10) = \mathbf{14.35}$ ins.
Difference $10.15 \times \frac{1}{12} = \mathbf{.85}$ ft. = d,
on (Arts. 60-63) = $\frac{3}{4}(1 - e)(S_0 - S) = \frac{3}{4}(1 - e)(14.35 - 24.50) = \mathbf{4x.699x10.15 = -5.32}$ 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
Peaks less than $\frac{1}{12}$ length					
AP to 61	124.83	10	2	12	1497.96
61 to 87	53.08	10	--	10	530.80
87 to RP	152.59	10	2	12	1831.08

Sum of Products = **3859.84**

Sum of Products = Actual Mean Depth of framing **11.68** ins.
Length of Ship
Standard " " " " **7.50** ins.
Difference **4.18** x $\frac{2}{12} = \mathbf{.70}$ = 2b

COEFFICIENT OF FINENESS (Art. 39 or 43)

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

$$= \frac{100(2866.77 - 17.1)}{330.5 \times 45.95 \times (23.19 + 0.85)} = \mathbf{.78}$$

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

$$= \text{---} + 0.04 =$$

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

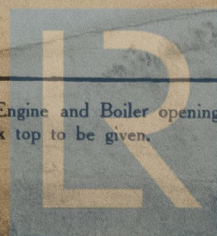
No ceiling on Tank Top.

Standard depth of c.d.b. = $39.44 + 2\frac{1}{2} = \mathbf{41.94}$

Actual " " c.d.b. = $39.44 = \mathbf{39.44}$

Correction = $\frac{330.5 \times 36.75 \times .67 \times .21}{100} = \mathbf{-17.1}$

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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Lloyd's Register
Foundation

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WOOD DECK (Arts. 5 and 6)

	Mean Length in ft.	Thickness in ins.	Products
Forecastle	32.5	3.5-4.6	497.04
Bridge	98.0		
Poop or R.Q.D.	33.0		
Open Deck, ford.			
" " aft.			
Total length = / =	16.35	Sum of Products =	497.04
Sum of Products	/ =	ins. ;	Sum of Products = $t_1 = 1.50$ ins.

CORRECTION FOR DEPTH & CORRECTION FOR FREEBOARD.

If no sheathing fitted amidships = $t_1 = \pm 1.50$ 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 = 25 ft. 6 ins.
 Thickness of Stringer Plate = .46 "
 Thickness of Wood Deck Amidships = 25. 6.46 "
 Correction for partial wood deck = + 1.50 "
 Depth to use in Freeboard Tables = 25 ft. 7.96 ins. = $D_1 = 25.66$ ft.

SUPERSTRUCTURES.

HEIGHT (Arts. 46-48)
 Standard Height = $(0.018 L + 1.2)$ ft. = 7.15 ft.

	Complete Superstructure	Forecastle	Bridge	Poop or R.Q.D.
Actual		7.36	7.36	7.36
Standard		7.15	7.15	7.15

CLOSING APPLIANCES (Arts. 50 and 54)

	Forecastle	Bridge	Poop or Raised Quarter Deck	
		Forward End.	Aft. End.	
Means of Closing openings in bulkhead	Open	Steel Hinged W.R. Doors	Wood Shifting Boards	Steel Hinged W.T. Doors
Corresponding Class	0	I	II	I

EFFECTIVE LENGTH (Arts. 55 and 56)

	Mean Length	Coef. Art. 56	Height Coef.	Products
Forecastle closed part				
" open part	32.5	.75	1.0	24.38
Bridge closed part	98.0	1.00	1.0	98.00
" open part ford.				
" " aft.				
Poop closed part	33.0	1.00	1.00	33.00
" open part				
Total Effective Length =	155.38			
Total Effective Length	/ Length of Vessel =	$r = .47$		
Corresponding Coef. in Table (Art. 49) =	$e = .301$			
Reduction for Complete Superstructure	37.33			ins.
Product	11.24			ins.
Correction for Superstructures	11.24			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. = $\frac{0.17(L - e/2) (L - 12 D_1)}{300}$
 [Note $e = 1.0$ if more than 8/10 covered] = 41.66 x .849 x 22.58 = +2.66 ins.

CORRECTION FOR ROUND OF BEAM (Art. 59)

Standard Round of Beam = Length of Beam in ins. = 558 = 11.16 ins.
 Correction = $\frac{1}{2}(\text{Standard Round of Beam} - \text{Actual Round of Beam})$
 = $\frac{1}{2}(11.16 - 11.63) = -.235$ 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 $1.2 (r - 0.5) D_1 = +$ 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 = 64.80 ins.
 Correction for Sheer = + 5.32
 " " Partial Wood Deck = 1.50
 " " Superstructures = 11.24
 " " Proportions L/D = 2.66
 " " Round of Beam = .12
 " " Freeing Ports = --
 " " Access to Crew's Quarters = --
 Totals = 2.66 18.18
 Net Correction = -15.52
 Geometric Freeboard = 49.28 ins.
 Corresponding Geometric Draught (mld.) = 21.43 ft.
 Moulded Draught limited by $\left\{ \begin{array}{l} \text{form} \\ \text{transverse strength} \\ \text{longitudinal strength} \\ \text{position of side scuttles} \end{array} \right\}$ to 21.43 ft.
 Corresponding Freeboard (Summer) = 49.3 ins.

Winter Freeboard (Art. 22) = $\frac{1}{4} (D_1 - 10) + 1/45 \times (59 - D_1)$
 = + 4.26 ins.

Tropical Freeboard (Art. 24) do. do. = - 4.26 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)
 $1/4$ per foot of Summer Draught = - 5.36 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) = 49.3 ins.
 Fresh Water Load Line above centre of disc. = 5.4 ins.
 Tropical Load Line above " " = 4.3 ins.
 Winter Load Line below " " = 4.3 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/pl. 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 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

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

DETAILS OF CONSTRUCTION OF WEATHER DECK HATCHWAYS.

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6
Length and Breadth	26' 6"x23'	26' 6"x23'	10' 2 1/2"x18' Bridge Deck.	26' 6"x23'	26' 6"x23"	
Height above deck and thickness of side and end coaming	37"x.50 end .44	Same as No.1	30"x.44	Same as No.1		
Shifting Beams { Number and Material Scantlings	Four Steel 24x.38 4x3x.44	do.	One Steel 12"x.31 4x3x.44	do.		
*Fore and Afters { Number and Material Scantlings	None	do.	None	do.		
Thickness of hatches	3"	do.	3"	do.		
Remarks						
* When the fore and afters are of wood the depth should be stated from the underside of hatches.						

LONGITUDINAL MODULUS.

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.						" " "					
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						" " Str. Ang.					
" " B						Sheerstrake					
" " C						Strake below					
" " D						Shell Strake					
" " E						" "					
" " F						" "					
" " G						" "					
Totals below assumed axis						Totals above assumed axis					
" above assumed axis											
Sum or Difference											

Neutral Axis above assumed axis (x) =
 below assumed axis =
 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 = ft.
 Keel

MODULUS OF SECTION =

DRAUGHT PERMITTED BY LONGITUDINAL STRENGTH (Arts. 81-86) = $\frac{\text{Actual Modulus}}{f, B_0} =$

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 $\sqrt{\frac{\text{Actual frame spacing}}{\text{Standard frame spacing}}} t =$

Moulded Geometric Draught (d) = H = Full Scantling Vessel

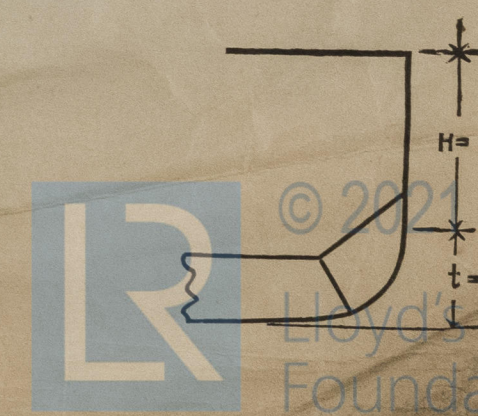
t = K = Old Rules.

d - t =

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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