

# REPORT ON MACHINERY.

No. 3225

Date of writing Report July 6<sup>th</sup> 1921 When handed in at Local Office 29/6/21 19 21 Port of Kobe. Received at London Office MON 12 SEP 1921

No. in Survey held at Oh. Hamma. Date, First Survey Nov. 24<sup>th</sup> 1920 Last Survey June 7<sup>th</sup> 1921

Reg. Book. on the Steel Single Screw "TACHIBANA MARU" (Number of Visits 71)

Master Tanno Built at Oh. Hamma By whom built Kobe Steel Works When built 1921-6

Engines made at Kobe Steel Works By whom made Kobe Steel Works when made 1921-6

Boilers made at Oh. Hamma By whom made Kobe Steel Works when made 1921-6

Registered Horse Power Owners Seikoku Kaisha Port belonging to Kobe Tokayama

Nom. Horse Power as per Section 28 560 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple expansion surface Condensing No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 27", 45", 75" Length of Stroke 51" Revs. per minute 70-80 Dia. of Screw shaft as per rule 15.496 Material of screw shaft O.H. Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned Yes If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive Yes If two liners are fitted, is the shaft lapped or protected between the liners Yes Length of stern bush 5'-8 1/4"

Dia. of Tunnel shaft as per rule 14.2 Dia. of Crank shaft journals as per rule 14.88 Dia. of Crank pin 15 1/4" Size of Crank webs 28x22" Dia. of thrust shaft under collars 15" Dia. of screw 18-3" Pitch of Screw 19'-9" No. of Blades 4 State whether moceable Yes Total surface 96.8 sq ft

No. of Feed pumps 2 Diameter of ditto 5" Stroke 25 1/2" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 5" Stroke 25 1/2" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 3 Sizes of Pumps 2-10 1/2" x 8" x 24" 1-12" x 8" x 19" 1-7 1/2" x 9" 1-6 x 4 x 6" No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two - 3 1/2" dia. In Bilge Room Two - 3 1/2" dia. In Holds, &c. 2 - 3 1/2" dia in fore hold. 1 - 3 1/2" Bilge

Suction in fore pump room. 2 - 3 1/2" Bilge suction in aft pump room.

No. of Bilge Injections 1 sizes 9" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 3 1/2" dia.

Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible Yes

Are all connections with the sea direct on the skin of the ship Yes Are they Valves or Cocks Both

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Discharge Pipes above or below the deep water line above

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off Cocks fitted with a spigot and brass covering plate Yes

What pipes are carried through the bunkers None How are they protected Yes

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes

Is the Screw Shaft Tunnel watertight Machy. Off Is it fitted with a watertight door Yes worked from Yes

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Carnegie & Illinois Steel Co's Furnaces by Continental Iron Works

Total Heating Surface of Boilers 7956 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 Scotch Marine type

Working Pressure 200 lbs Tested by hydraulic pressure to 400 lbs Date of test 4/3/21 & 11/9/21 No. of Certificate HP 200-1058, R.H. 04/10/21 04/13/21

Can each boiler be worked separately Yes Area of fire grate in each boiler 64 sq ft No. and Description of Safety Valves to each boiler 4" Lewis Spring loaded Area of each valve 25.1328 sq in Pressure to which they are adjusted 200 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 30" Inside dia. of boilers 15'-6" Length 11'-9" Material of shell plates Steel

Thickness 1 1/16" Range of tensile strength 28/32 Tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams O.R. Lap.

Di. seams T.R. D.B.S. Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 10 1/8" Lap of plates or width of butt straps 22 1/4"

Percentages of strength of longitudinal joint 90-97% Working pressure of shell by rules 211.6 lbs Size of manhole in shell 16x12"

of compensating ring 35 1/4" x 31 1/4" x 1 1/16" No. and Description of Furnaces in each boiler 3 Morrison's Material Steel Outside diameter 49 3/4"

Length of plain part 9" Thickness of plates 9/8" Description of longitudinal joint Welded No. of strengthening rings Yes

Working pressure of furnace by the rules 227 lbs Combustion chamber plates: Material Steel Thickness: Sides 1/16" Back 23/32" Top 1/16" Bottom 7/8"

No. of stays to ditto: Sides 9 3/8" x 8 1/4" Back 9 x 9 1/4" Top 9 x 8 1/4" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 202 lbs

Material of stays Steel Area at smallest part 210 Area supported by each stay 88 sq in Working pressure by rules 214 lbs End plates in steam space: Material Steel Thickness 1 3/32" Pitch of stays 21 1/4" x 16 1/2" How are stays secured D.Nuts & Washers Working pressure by rules 214 lbs Material of stays Steel

Area at smallest part 8.26 sq in Area supported by each stay 361.9 sq in Working pressure by rules 238 lbs Material of Front plates at bottom Steel

Thickness 1 1/2" Material of Lower back plate Steel Thickness 1 5/16" Greatest pitch of stays 16" x 11" Working pressure of plate by rules 208 lbs

Diameter of tubes 3" Pitch of tubes 4 1/2" x 4 1/2" Material of tube plates Steel Thickness: Front 1 1/32" Back 3/8" Mean pitch of stays 10 5/8"

Distance across wide water spaces 14" Working pressures by rules 361 lbs Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 10 1/2" x 1 1/2" Length as per rule 34 13/32" Distance apart 9" Number and pitch of stays in each 3 @ 8 1/4"

Working pressure by rules 217 lbs Steam dome: description of joint to shell Yes % of strength of joint -

Material Steel Thickness of shell plates - Material Steel Description of longitudinal joint - Diam. of rivet holes -

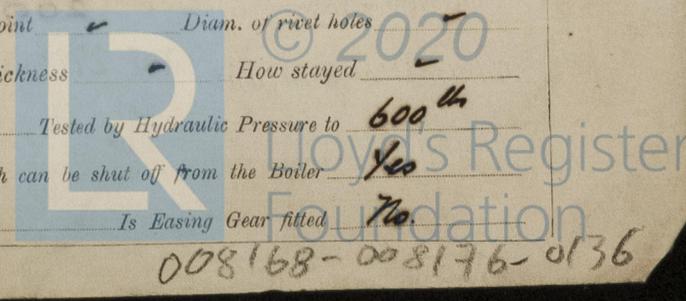
No. of rivets - Working pressure of shell by rules - Crown plates - Thickness - How stayed -

SUPERHEATER. Type Foster Date of Approval of Plan 1920 Tested by Hydraulic Pressure to 600 lbs

Date of Test 9<sup>th</sup> Feb 1921 Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler Yes

Diameter of Safety Valve 2" Pressure to which each is adjusted 215 lbs Is Easing Gear fitted No

DO NOT WRITE ACROSS THE MARGIN.



IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded?

SPARE GEAR. State the articles supplied:— *4 Connecting rod top end bolts nuts, 2 conn: rod bottom end bolts & nuts, 2 main bearing bolts, 1 set coupling bolts nuts, 1 set of feed & bilge pump valves, 1 set of piston rings & springs, 1 pair connecting rod brasses, 1 set top end brasses; 1 set link brasses, 1 set valve spindles & 2 eccentrics, 1 set safety valves & 1 set relief valve springs, 3rdry condenser & 2 dngn Boiler tubes, a considerable quantity of spare gear for aux: machinery, hand tools, iron of various size & bolts nuts of various size*

The foregoing is a correct description,

Manufacturer.

*H. Mikanis*

Dates of Survey while building: *1920*  
During progress of work in shops: *Mar. 12, 13; Apr. 9, 14, 21, 23, 24, 27, 30; May 3, 5, 7, 10, 12, 15, 17, 21, 24, 28; June 4, 6, 7, 12, 17, 23, 25, 29; July 3, 19*  
During erection on board vessel: *July 12, 15, 17, 20, 22, 29, 31; Aug. 3, 7, 8, 11, 12, 18, 19, 26; Sept. 1, 6, 7, 8; Nov. 15; Dec. 15, 22, 24; 1921 Jan. 6, 11, 17, 21, 24, 26, 29, 30; Mar. 4, 11, 22; Apr. 13, 18, 22; May 4, 11, 13, 18; June 7.*  
Total No. of visits: *71*

Is the approved plan of main boiler forwarded herewith

Dates of Examination of principal parts—Cylinders *23/6/20* Slides *25/6/20* Covers *25/6/20* Pistons *29/6/20* Rods *7/9/20*  
Connecting rods *7/9/20* Crank shaft *29/6/20* Thrust shaft *19/8/20* Tunnel shafts  Screw shaft *1/9/20* Propeller *1/9/20*  
Stern tube *7/9/20* Steam pipes tested *22/4/21* Engine and boiler seatings *1/4/21* Engines holding down bolts *1/4/21*  
Completion of pumping arrangements *20/5/21* Boilers fixed *22/4/21* Engines tried under steam *20/5/21*  
Completion of fitting sea connections *4/4/21* Stern tube *4/4/21* Screw shaft and propeller *4/4/21*  
Main boiler safety valves adjusted *4/5/21* Thickness of adjusting washers *Lock nuts fitted*  
Material of Crank shaft *Steel* Identification Mark on Do. *LLOYDS 29/6/20 R.O.S. R* Material of Thrust shaft *Steel* Identification Mark on Do. *LLOYDS 1-9-20 R.O.S. R*  
Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts *Steel* Identification Marks on Do.  
Material of Steam Pipes *Steel* Test pressure *600<sup>th</sup>*  
Is an installation fitted for burning oil fuel *Yes* Is the flash point of the oil to be used over 150°F. *Yes*  
Have the requirements of Section 49 of the Rules been complied with *Yes*  
Is this machinery duplicate of a previous case *No* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*The machinery & boilers of this vessel are as stated in this report, the materials have been tested, found efficient, & the workmanship is good. They have now been efficiently fitted on board & tested under steam with satisfactory results. This case is respectfully submitted for the committee consideration & eligible in my opinion to have record of + L.M.C. 6-21 & notation fitted for oil fuel F.P. above 150° F. in Register Book.  
Boilers & machinery have been constructed under special survey according to Rules and approved plans.*

NOTE! This vessel left before completion of fuel oil installation & workmen were placed on board to finish work before vessel arrived at Darwin. Darwin Surveyor notified by letter of 10 June 1921 stating what remained to be done  
Unfinished work to be done returning run to Darwin:— (1) Extension rods for operating fuel oil sections in (2) Extension rod to F.O. transfer pump steam. (3) Stop smothering pipe to R.R. Pan tank top. (4) Heating coil drain inspection & the rearranged (5) Valve alk. & drip trap where near

The amount of Entry Fee ... *Yes 60.-* When applied for, *June 9<sup>th</sup> 1921*  
Special ... *£ 1545.-*  
ELECTRIC LIGHT INSTN SURVEY FEE ... *195.-*  
Travelling Expenses (if any) *£ 200.-* When received, *27.7.19*

*H.D. Buchanan*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 27 SEP. 1921*  
Assigned *+ L.M.C. 6-21 F.D.C.L.*

*Fitted for oil fuel 6-21 F.P. above 150°F*



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Certificate (if required) to be sent to...  
The Surveyors are requested not to write on or below the space for Committee's Minute.