

REPORT ON BOILERS.

No. 9370

AUG - 2 1938

Received at London Office

Date of writing Report 15th June 38 When handed in at Local Office 15th June 1938 Port of SHIMONOSEKI

No. in Survey held at NAGASAKI Date, First Survey 2nd April 36. Last Survey 24th May 19 38
 Reg. Book. 38883 (See Machy. rpt) (Number of Visits) 2,194.59
10259 on the Single Screw Steamer "MINRYO MARU" Tons { Gross 2,194.59
 Net 1,162.42

Master Om Built at Nagasaki By whom built Kawaminami Kogyo K.K. Koyagijima Zosensho. Yard No. 108 When built 1938
 Engines made at Nagasaki By whom made Kawaminami Kogyo K.K. Koyagijima Zosensho. Engine No. 108 When made 1938
 Boilers made at " By whom made " Boiler No. 108 When made 1938
 Nominal Horse Power 294 Owners Kawaminami Kogyo Kabushiki Kaisha Port belonging to Osaka

MULTITUBULAR BOILERS—MAIN, ~~AUXILIARY, OR DONKEY.~~

Manufacturers of Steel Bethlehem Steel Co. Sparow point Maryland. (Letter for Record S ✓)
 Total Heating Surface of Boilers 429.08 M² 46170 Is forced draught fitted Yes ✓ Coal or Oil fired Coal ✓
 No. and Description of Boilers Two- Single ended Multitubular. Working Pressure 14 Kg/cm² 25B
 Tested by hydraulic pressure to 24.5 Kg. Date of test 29-10-37 No. of Certificate 1920 & 1921 Can each boiler be worked separately Yes ✓
 Area of Firegrate in each Boiler 5.49 M² No. and Description of safety valves to each boiler Two, Spring loaded. ✓
 Area of each set of valves per boiler { per Rule 8646 MM² Pressure to which they are adjusted 14 Kg/cm² Are they fitted with easing gear Yes ✓
 as fitted 11617 MM²
 In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler /
 Smallest distance between boilers or uptakes and bunkers or woodwork 500 m/m ✓ Is oil fuel carried in the double bottom under boilers /
 Smallest distance between shell of boiler and tank top plating 460 m/m ✓ Is the bottom of the boiler insulated Yes ✓
 Largest internal dia. of boilers 4340 m/m ✓ Length 3500 m/m ✓ Shell plates: Material Steel ✓ Tensile strength 44-50 Kg/cm² ✓
 Thickness 34 ✓ Are the shell plates welded or flanged / Description of riveting: circ. seams { end D.R. Lapped. ✓
 inter. 99.55 ✓
 long. seams T.R.D.B.S. ✓ Diameter of rivet holes in { circ. seams 36.5 ✓ Pitch of rivets { 241 ✓
 long. seams 36.5 ✓
 Percentage of strength of circ. end seams { plate 63.3 % Percentage of strength of circ. intermediate seam { plate /
 rivets 49.4 %
 Percentage of strength of longitudinal joint { plate 84.9 % Working pressure of shell by Rules 14.53 Kg/cm²
 rivets 97.9 %
 combined 89.2 %
 Thickness of butt straps { outer 29 ✓ No. and Description of Furnaces in each Boiler 3 Morison's Type Corrugated. 3el
 inner 32 ✓
 Material Steel ✓ Tensile strength 41-47 Kg/cm² Smallest outside diameter 1048 ✓
 Length of plain part { top / Thickness of plates { crown 16 m/m ✓ Description of longitudinal joint Welded
 bottom / bottom 16 m/m ✓
 Dimensions of stiffening rings on furnace or c.c. bottom / Working pressure of furnace by Rules 15.66 Kg/cm²
 End plates in steam space: Material Steel Tensile strength 41-47 Kg/cm² Thickness 32 ✓ Pitch of stays 430 x 465 ✓
 How are stays secured Double nuts & washers ✓ Working pressure by Rules 16.745 Kg/cm²
 Tube plates: Material { front Steel. Tensile strength { 41-47 Kg/cm² ✓ Thickness { 20 ✓
 back Steel.
 Mean pitch of stay tubes in nests 232 m/m Pitch across wide water spaces 350 m/m ✓ Working pressure { front 15.4 Kgs
 back 16.7 Kgs
 Girders to combustion chamber tops: Material Steel Tensile strength 40-50 Kg/cm² Depth and thickness of girder
 at centre 230 x 40 ✓ Length as per Rule 805 m/m ✓ Distance apart 207 ✓ No. and pitch of stays
 in each 3 x 180 ✓ Working pressure by Rules 18.91 Kg/cm² Combustion chamber plates: Material Steel
 Tensile strength 41-47 Kg/cm² Thickness: Sides 18 ✓ Back 18 ✓ Top 18 ✓ Bottom 25 ✓
 Pitch of stays to ditto: Sides 205 x 255 ✓ Back 220 x 230 ✓ Top 180 x 207 ✓ Are stays fitted with nuts or riveted over Nuts
 Working pressure by Rules 14.92 Kg/cm² Front plate at bottom: Material Steel Tensile strength 41-47 Kg/cm²
 Thickness 20 Lower back plate: Material Steel Tensile strength 41-47 Kg/cm² Thickness 18 ✓
 Pitch of stays at wide water space 350 x 220 ✓ Are stays fitted with nuts or riveted over Nuts
 Working Pressure 19.18 Kg/cm² Main stays: Material Steel Tensile strength 44-50 Kg/cm²
 Diameter { At body of stay, at B dy, 80 ✓ No. of threads per inch 6 thread Area supported by each stay 430 x 465 m/m
 or Over threads, 86 ✓ per 25.4
 Working pressure by Rules 19.18 Kg/cm² Screw stays: Material Steel Tensile strength 41-47 Kg/cm²
 Diameter { At turned off part, / No. of threads per inch 9 thread Area supported by each stay 205 x 255 m/m
 or Over threads, 1 7/8" ✓ per 25.4

Working pressure by Rules **18.46 Kg/cm²** the stays drilled at the outer ends **No** Margin stays: Diameter { At turned off part, / or Over threads **2 3/8" & 2 1/2"** ✓
 No. of threads per inch **9** ✓ Area supported by each stay **350 x 220 m/m** Working pressure by Rules **16.6 Kg/cm²** ✓
 Tubes: Material **Steel** External diameter { Plain **89** ✓ Stay Thickness { **4.1 m/m** ✓ No. of threads per inch **9 thread per 25.4** ✓
 Pitch of tubes **116 x 120 m/m** ✓ Working pressure by Rules **18.05 Kg/cm²** ✓ Manhole compensation: Size of opening in shell plate **305 x 405 m/m** ✓ Section of compensating ring **Flange** No. of rivets and diameter of rivet holes **36-36.5**
 Outer row rivet pitch at ends **about 120** Depth of flange if manhole flanged **90** ✓ Steam Dome: Material **Steel**
 Tensile strength **4-47 Kg/cm²** Thickness of shell **18** ✓ Description of longitudinal joint **D.R.D.B.S.** ✓
 Diameter of rivet holes **26.5** ✓ Pitch of rivets **102** ✓ See plan Percentage of strength of joint { Plate **74 %** Rivets **92.3 %**
 Internal diameter **900** Working pressure by Rules **28.79 Kg/cm²** Thickness of crown **18** ✓ No. and diameter of stays / Inner radius of crown **825** ✓ Working pressure by Rules **28.79 Kg/cm²**
 How connected to shell **D.R. Lapped** ✓ Size of doubling plate under dome **1490 m/m Dia. x 34m/m** ✓ P. ✓ Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell **26.5 m/m - 863 m/m.** ✓ See plan

Type of Superheater / Manufacturers of { Tubes / Steel castings /
 Number of elements / Material of tubes ***** Internal diameter and thickness of tubes /
 Material of headers / Tensile strength / Thickness / Can the superheater be shut off and the boiler be worked separately /
 Is a safety valve fitted to every part of the superheater which can be shut off from the boiler /
 Area of each safety valve / Are the safety valves fitted with easing gear / Working pressure as per Rules / Pressure to which the safety valves are adjusted / Hydraulic test pressure: tubes / , castings / and after assembly in place / Are drain cocks or valves fitted to free the superheater from water where necessary /

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with **Yes.**

The foregoing is a correct description,

J. Shimidzu Manufacturer.

Dates of Survey { During progress of work in shops - - } **See Machinery Report.** General Manager r. **1-4-37** &
 while building { During erection on board vessel - - - } Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)
 Total No. of visits

Is this Boiler a duplicate of a previous case **Yes** If so, state Vessel's name and Report No. **"TENRYO MARU"**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)

The Boilers of this vessel were constructed under Special survey in accordance with the Rules and Approved plans.

The materials have been tested found efficient and the workmanship is good.

This case is eligible in our opinion to have the record of B.S. 5-'38, in the Register Book.

Survey Fee ... £ : : When applied for, 19
 Travelling Expenses (if any) £ : : When received, 19
See Machinery report.

J. H. D. Buchanan
Self. R. Lochart
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUE, 9 AUG 1938

Assigned *See F12 mchy rpt.*

