

REPORT ON BOILERS.

Received at London Office APR 26 1937

Date of writing Report 19/12/ 19 36 When handed in at Local Office 19/12/ 19 36 Port of **YOKOHAMA**

YOKOHAMA

No. in Survey held at Reg. Book. **YOKOHAMA** Date, First Survey 7/4/36 Last Survey 20th Oct. 19 36.

on the Ship No. 250. **N^o 1.** (Number of Visits 19) Tons { Gross Net **D.W. 3800**

Master Built at **Hikoshima** By whom built **Mitsubishi Jukogyo K.K. Hikoshima Dock.** Yard No. **S250** When built

Engines made at By whom made Engine No. When made

Boilers made at **Yokohama** By whom made **Mitsubishi Jukogyo K.K. Yokohama Dock.** Boiler No. **M584** When made

Nominal Horse Power Owners **U.S.S.R.** Port belonging to

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel **Messrs. Calvilles Id., & Asano S.B. & Co. Ltd.,** (Letter for Record **S**)

Total Heating Surface of Boilers **84.97** square meter. Is forced draught fitted **No.** ✓ Coal or Oil fired **Oil.** ✓

No. and Description of Boilers **One - Marine cylindrical boiler.** **1513** Working Pressure **7 kg/cm²** ✓

Tested by hydraulic pressure to **14kg/cm²** Date of test **20-10-36** No. of Certificate **No.47** ✓ Can each boiler be worked separately **X**

Area of Firegrate in each Boiler **X** No. and Description of safety valves to each boiler **X**

Area of each set of valves per boiler { per Rule **X** as fitted } Pressure to which they are adjusted **X** ✓ Are they fitted with easing gear **X**

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler **X** ✓

Smallest distance between boilers or uptakes and bunkers or woodwork **X** ✓ Is oil fuel carried in the double bottom under boilers **X**

Smallest distance between shell of boiler and tank top plating **X** ✓ Is the bottom of the boiler insulated **X**

Largest internal dia. of boilers **3050 m/m** ✓ Length **3200 m/m** Shell plates: Material **Steel** Tensile strength **44-55kg/mm²** ✓

Thickness **16 m/m** Are the shell plates welded or flanged **flanged** ✓ Description of riveting: circ. seams { end **X** inter. **X**

long. seams **double butt & double rivet.** Diameter of rivet holes in { circ. seams **26.5** ✓ long. seams **23.** ✓ Pitch of rivets { **80** ✓ **95** ✓

Percentage of strength of circ. end seams { plate **66.9%** rivets **66.4%** } Percentage of strength of circ. intermediate seam { plate **X** rivets **X**

Percentage of strength of longitudinal joint { plate **75.7%** rivets **83.9%** } Working pressure of shell by Rules **8.2 kg/cm²**

Thickness of butt straps { outer **16** ✓ inner **16** ✓ } No. and Description of Furnaces in each Boiler **Two plain furnaces with Adamson joints.**

Material **steel** Tensile strength **41-47 kg/mm²** ✓ Smallest outside diameter **924**

Length of plain part { top **730** ✓ bottom **785** ✓ } Thickness of plates { crown **14** ✓ **Plan 12** bottom **14** ✓ } Description of longitudinal joint **welded.** ✓

Dimensions of stiffening rings on furnace or c.c. bottom **two on furnace** Working pressure of furnace by Rules **9.66 kg/cm²**

End plates in steam space: Material **Steel** ✓ Tensile strength **41-47 kg/mm²** Thickness **18** ✓ Pitch of stays **330-350** ✓

How are stays secured **double nuts.** ✓ Working pressure by Rules **8.3 kg/cm²** ✓

Tube plates: Material { front **Steel** ✓ back **steel** ✓ } Tensile strength { **41-47 kg/mm²** ✓ } Thickness { **16** ✓ **14** ✓ }

Mean pitch of stay tubes in nests **204** ✓ Pitch across wide water spaces **224** ✓ Working pressure { front **X** back **7.9 kg/cm²** }

Girders to combustion chamber tops: Material **steel** ✓ Tensile strength **44-55 kg/mm²** ✓ Depth and thickness of girder

at centre **190 x 14** ✓ Length as per Rule **712^{mm}** ✓ Distance apart **285** ✓ No. and pitch of stays

in each **two x 220** ✓ Working pressure by Rules **8.4 kg/cm²** ✓ Combustion chamber plates: Material **steel.** ✓

Tensile strength **41-47 kg/mm²** ✓ Thickness: Sides **14** ✓ Back **14** ✓ Top **14** ✓ Bottom **14** ✓

Pitch of stays to ditto: Sides **250** ✓ Back **250** ✓ Top **220 x 285** ✓ Are stays fitted with nuts or riveted over **nuts.** ✓

Working pressure by Rules **7.26 kg/cm²** ✓ Front plate at bottom: Material **Steel** ✓ Tensile strength **41-47 kg/mm²** ✓

Thickness **16** ✓ Lower back plate: Material **steel** ✓ Tensile strength **41-47 kg/mm²** ✓ Thickness **16** ✓

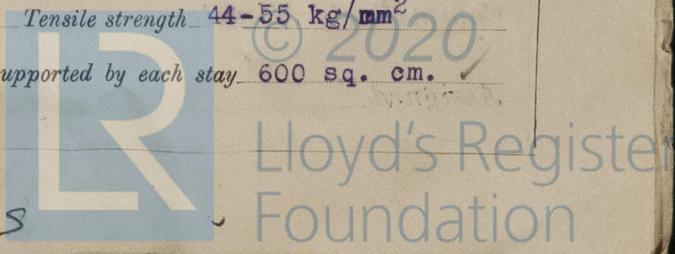
Pitch of stays at wide water space **240** ✓ Are stays fitted with nuts or riveted over **nuts.** ✓

Working Pressure **7.5 kg/cm²** ✓ Main stays: Material **steel** ✓ Tensile strength **44-55 kg/mm²**

Diameter { At body of stay, **44** ✓ or Over threads **X** } No. of threads per inch **6** ✓ Area supported by each stay **1137.5 sq. cm.** ✓

Working pressure by Rules **9.8 kg/cm²** ✓ Screw stays: Material **steel** ✓ Tensile strength **44-55 kg/mm²**

Diameter { At turned off part, **X** or Over threads **1 1/2" x 1 3/8"** } No. of threads per inch **9 per inch** Area supported by each stay **600 sq. cm.** ✓



Working pressure by Rules 7.6 kg/cm^2 Are the stays drilled at the outer ends no Margin stays: Diameter At turned off part, $1\frac{1}{2}"$ & $1\frac{5}{8}"$
 No. of threads per inch 9 per inch Area supported by each stay 725 sq. cm. Working pressure by Rules 7.8 kg/cm^2
 Tubes: Material steel External diameter Plain 3" Thickness 9 L.S.G. No. of threads per inch 9 per inch
 Pitch of tubes 102x112 Working pressure by Rules 7.5 kg/cm^2 Manhole compensation: Size of opening in
 shell plate 305 x 407 Section of compensating ring oval flanged. No. of rivets and diameter of rivet holes 40 rivets. 23φ
 Outer row rivet pitch at ends 140 Depth of flange if manhole flanged 80 Steam Dome: Material
 Tensile strength Thickness of shell Description of longitudinal joint
 Diameter of rivet holes Pitch of rivets Percentage of strength of joint Plate
 Internal diameter Working pressure by Rules Thickness of crown No. and diameter of
 stays Inner radius of crown Working pressure by Rules
 How connected to shell Size of doubling plate under dome Diameter of rivet holes and pitch
 of rivets in outer row in dome connection to shell

Type of Superheater

Manufacturers of

- Tubes
- Steel forgings
- 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 forgings and castings and after assembly in place Are drain cocks
 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,
 (Signed) N. Hattori, Manufacturer

Dates of Survey During progress of work in shops - - 7/4/36 to 20/10/36 (19 visits) Are the approved plans of boiler and superheater forwarded herewith 19-3-36
 while building During erection on board vessel - - - 11-1-37 to 25-3-37 (8) Total No. of visits (If not state date of approval.)

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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been built under special survey in accordance with the Rules and Approved plan. Material and Workmanship good.
 This boiler has now been sent to Hikoshima and will be fitted on board the vessel No.250, now being built by Messrs. Mitsubishi Jukogyo Kaisha, Hikoshima Dock.
 This boiler has now been installed on board, and accumulation test carried out with satisfactory results. The safety valves were adjusted to blow at 7 kg/cm^2 on 16th February 1937.
 Feed water is supplied by a Worthington duplex pump ($5\frac{1}{2}" \times 3\frac{1}{2}" \times 5"$) and a steam injector. Feed pump & Injector tried under working condition and found satisfactory.
 This boiler is oil fired, oil pressure pipes tested in place to 400 lbs/sq.in., and found good and sound.
 All the requirements of Section 20 of the rules (1935-36) have been complied with.

Survey Fee £ 11 : 9 : 0 } When applied for, 21-12- 1936.
 Travelling Expenses (if any) £ : 3.00 } When received, 19
 Telegram ¥ 1.45

N. Hattori
H. Buchanan
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI 30 APR 1937

Assigned *See Log Pg. 2224*



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