

REPORT ON BOILERS.

Received at London Office

Date of writing Report **23rd Apr. 1929.** When handed in at Local Office **23rd Apr. 1929.** Port of **NAGASAKI.**

No. in Reg. Book. Survey held at **NAGASAKI.** Date, First Survey **15th Sept. 1928** Last Survey **29th March 1929.**

92456 on the **Steel Twin Screw Steamer "URAI MARU".** (Number of Visits) Gross **6376.92** Tons Net **3758.45**

Master / Built at **Nagasaki.** By whom built **Mitsubishi Zosen K.** Yard No. **452.** When built **1929-3mo.**

Engines made at **Nagasaki.** By whom made **Mitsubishi Zosen Kaisha, Ltd.** Engine No. **452.** When made **1929-3mo.**

Boilers made at **Nagasaki.** By whom made **Mitsubishi Zosen Kaisha, Ltd.** Boiler No. **452.** When made **1929-3mo.**

Nominal Horse Power **1158.** Owners **Osaka Shosen Kabushiki Kaisha.** Port belonging to **Osaka. Japan.**

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

Manufacturers of Steel **Mannesmannrohrenwerke A.S.K. Gutehoffnungshutte A.G.** (Letter for Record **S.**)

Total Heating Surface of Boilers **12565 sq. ft.** **5 boilers** Is forced draught fitted **Yes** Coal or Oil fired **Coal.**

No. and Description of Boilers **5 Single ended Multitubular Boilers.** Working Pressure **225 lbs.**

Tested by hydraulic pressure to **387.5** Date of test **3.11.13 Dec. 1928.** No. of Certificate **129-130-131** in each boiler be worked separately **Yes.**

Area of Firegrate in each Boiler **63.97 sq. ft.** and Description of safety valves to each boiler **2, Direct spring loaded.**

Area of each set of valves per boiler **per Rule 15.7 sq. in. 13** as fitted **16.592 sq. in.** Pressure to which they are adjusted **230** Are they fitted with easing gear **Yes**

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler **Donkey boiler not fitted.**

Smallest distance between boilers or uptakes and bunkers or woodwork **10"** Is oil fuel carried in the double bottom under boilers **No.**

Smallest distance between shell of boiler and tank top plating **19"** Is the bottom of the boiler insulated **Yes**

Largest internal dia. of boilers **15'-0"** Length **12'-0"** Shell plates: Material **Steel** Tensile strength **28-35 tons.**

Thickness **1 19/32"** Are the shell plates welded or flanged **No** Description of riveting: circ. seams **end D.R.** inter.

long. seams **T.R.D.B.S.** Diameter of rivet holes in **circ. seams 1 1/2"** **long. seams 1 5/8"** Pitch of rivets **4.13** **11 3/16 outer** **5 19/32 inner**

Percentage of strength of circ. end seams **plate 63.7** **rivets 44.1** Percentage of strength of circ. intermediate seam **plate /** **rivets /**

Percentage of strength of longitudinal joint **plate 85.47** **rivets 89.56** **combined 88.9** Working pressure of shell by Rules **237 lbs sq. in.**

Thickness of butt straps **outer 1 1/4** **inner 1 3/8** No. and Description of Furnaces in each Boiler **3- Leeds Forge Bulb. 3. C.f.**

Material **Steel** Tensile strength **26 - 30 tons.** Smallest outside diameter **4 5 7/8"**

Length of plain part **top /** **bottom /** Thickness of plates **crowns 11/16"** **bottom /** Description of longitudinal joint **Welded.**

Dimensions of stiffening rings on furnace or c.c. bottom / Working pressure of furnace by Rules **233.4 lbs sq. in.**

End plates in steam space: Material **Steel** Tensile strength **26 - 30 tons** Thickness **1 9/32"** Pitch of stays **17 1/2" x 18 1/2"**

How are stays secured **Double nuts and washers.** Working pressure by Rules **236.8 lbs sq. in.**

Tube plates: Material **Steel.** Tensile strength **26 - 30 tons.** Thickness **13/16"**

Mean pitch of stay tubes in nests **9.45"** Pitch across wide water spaces **13 3/4"** Working pressure **front 243 (Wide W. space)** **back 265.3**

Girders to combustion chamber tops: Material **Steel** Tensile strength **28 - 35 tons.** Depth and thickness of girder

at centre **2- 10 1/2" x 3/4"** Length as per Rule **34 7/32"** Distance apart **8 3/4"** No. and pitch of stays

in each **3 @ 8 1/2"** Working pressure by Rules **235 lbs.** Combustion chamber plates: Material **Steel.**

Tensile strength **26 - 30 tons.** Thickness: Sides **23/32"** Back **23/32"** Top **23/32"** Bottom **1"**

Pitch of stays to ditto: Sides **8" x 8 3/4"** Back **9" x 8 1/2"** Top **8 1/2" x 8 3/4"** Are stays fitted with nuts or riveted over **Nuts.**

Working pressure by Rules **236.8 lbs** Front plate at bottom: Material **Steel** Tensile strength **26 - 30 tons.**

Thickness **15/16"** Centre back plate: Material **Steel** Tensile strength **26 - 30 tons** Thickness **23/32" + 11/16"** **D.P. in. W.W.S.**

Pitch of stays at wide water space **13 3/4" x 8 1/2"** Are stays fitted with nuts or riveted over **Nuts.**

Working Pressure **341 lbs sq. in.** Main stays: Material **Steel.** Tensile strength **28 - 35 tons.**

Diameter **At body of stay, 3 1/8"** **Over threads /** No. of threads per inch **6** Area supported by each stay **343.4 sq. in.**

Working pressure by Rules **249 lbs** Screw stays: Material **Steel** Tensile strength **26 - 30 tons**

Diameter **At turned off part, /** **Over threads 1 3/4"** No. of threads per inch **9** Area supported by each stay **76.5 sq. in.**

Working pressure by Rules **237.1 lbs** are the stays drilled at the outer ends **No** Margin stays: Diameter ^{At turned off part} **2"** or ^{Over threads} **2"**

No. of threads per inch **9** Area supported by each stay **96.7 sq.in.** Working pressure by Rules **322.5 lbs**

Tubes: Material **S.D. Steel** External diameter ^{Plain} **3 1/4"** ^{Stay} **3 1/4"** Thickness ^{8 L.S.G.} **1/4" & 3/8"** No. of threads per inch **9**

Pitch of tubes **4 1/2" x 3 3/8"** Working pressure by Rules **230 lbs.** Manhole compensation: Size of opening in shell plate **21 1/8" x 17 1/8"** Section of compensating ring **2 x 9" x 1 19/32"** No. of rivets and diameter of rivet holes **36 - 1 5/8" dia.**

Outer row rivet pitch at ends **11 3/16"** Depth of flange if manhole flanged **3 1/2"** ³⁴ **Drawn** 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} **/** ^{Rivets} **/**

Internal diameter **/** Working pressure by Rules **/** Thickness of crown **/** No. and diameter of stays **/**

How connected to shell **/** Inner radius of crown **/** Working pressure by Rules **/**

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 **Esaky's Superheater** Manufacturers of ^{Tubes} **Weldless Steel Tube Co. Wednesfield.** ^{Steel castings} **Press & Walzwerke Co. Dusseldorf.**

Number of elements **385** Material of tubes **S.D. Steel.** Internal diameter and thickness of tubes **5/8 dia. 1/8" thick.**

Material of headers **S.D. Steel tube.** Tensile strength **41 to 48 kg/mm²** Thickness **26 m/m** Can the superheater be shut off and the boiler be worked separately **Yes** Is a safety valve fitted to every part of the superheater which can be shut off from the boiler **Yes**

Area of each safety valve **2" dia.** Are the safety valves fitted with easing gear **Yes** Working pressure as per Rules **Tubes, 471 lbs.** **Headers, 1845 lbs.** Pressure to which the safety valves are adjusted **232 lbs sq.in.** Hydraulic test pressure: tubes **100 kg/cm²** ^{headers} **47.5 kg/cm²** and after assembly in place **47.5 kg/cm²** Are drain cocks or valves fitted to free the superheater from water where necessary **Yes.**

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with **Yes.**

NAGASAKI WORKS, LTD. The foregoing is a correct description, **S. Kawai** Manufacturer.

Dates of Survey ^{During progress of work in shops - -} **See Machinery report.** ^{During erection on board vessel - - -} **See Machinery report.** Are the approved plans of boiler and superheater forwarded herewith **Yes.** (If not state date of approval.)

Total No. of visits **/**

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) **The materials & workmanship are good.**

The boilers have been constructed under special survey in accordance with the Rules and Approved plan, satisfactorily fitted in the vessel and safety valves adjusted under steam to 230 lbs sq.in.

Survey Fee ... £ **See Machy. rept.** When applied for, 192

Travelling Expenses (if any) £ ... When received, 192

George Anderson & K. Kibigawa
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 7 JUN 1929** **FRI. 12 JUL 1929**

Assigned **See Sp. pt. attached**

