

REPORT ON BOILERS.

No. 2028

-7 MAY 5

Received at London Office

Date of writing Report 9th Apr. 19 35 When handed in at Local Office 8th Apr. 19 35 Port of NAGASAKI.

No. in Survey held at NAGASAKI. Date, First Survey 19th March 34. Last Survey 30th March 19 35

Reg. Book. 90527 on the Steel Twin Screw Steamer "NEKKA MARU". (Number of Visits See Machy. Rpt.) Tons {Gross 6783.97 Net 3911.40

Master / Built at Nagasaki. By whom built Mitsubishi Jukogyo K. Yard No. 594 When built 1935

Engines made at Nagasaki. By whom made Mitsubishi Jukogyo Kaisha, Ltd. Engine No. 594 When made 1935

Boilers made at Nagasaki By whom made Mitsubishi Jukogyo Kaisha, Ltd. Boiler No. 594 When made 1935

Nominal Horse Power 1225 Owners Osaka Shosen Kabushiki Kaisha. Port belonging to Osaka.

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

Manufacturers of Steel Colvilles Ltd. Vereingte Stahlwerke A.G. Dortmund Union of Dortmund. (Letter for Record S.)

Total Heating Surface of Boilers 15078 sq.ft. Is forced draught fitted Yes Coal or Oil fired Coal.

No. and Description of Boilers 6- Cylindrical Single Ended. Working Pressure 225 lbs

Tested by hydraulic pressure to 387.5 lbs. Date of test 15.19.34. Dec. 34. No. of Certificate 165, 166 & 167. Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 63.97 sq.ft. No. and Description of safety valves to each boiler Twin spring loaded.

Area of each set of valves per boiler {per Rule 13.09 sq.in. as fitted 16.59 sq.in. Pressure to which they are adjusted 230 lbs Are they fitted with easing gear Yes

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 10" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 18 1/2" 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 sq.in.

Thickness 1 19/32" Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R.L. 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 {4.134" 11 3/16"

Percentage of strength of circ. end seams {plate 63.71 rivets 44.06 Percentage of strength of circ. intermediate seam {plate / rivets /

Percentage of strength of longitudinal joint {plate 85.50 rivets 89.57 combined 88.86 Working pressure of shell by Rules 237 lbs/sq.in.

Thickness of butt straps {outer 1 1/2" inner 1 3/8" No. and Description of Furnaces in each Boiler 6- Leeds forged built furnaces.

Material Steel Tensile strength 26 to 30 tons/sq.in. Smallest outside diameter 3'-9 7/8"

Length of plain part {top / bottom / Thickness of plates {crown 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 sq.in. Thickness 1 9/32" Pitch of stays 17 1/2" x 18 1/2"

How are stays secured Fitted with double nuts with washer outside Working pressure by Rules 236.9 lbs/sq.in.

Tube plates: Material {front Steel. back / Tensile strength {26-30 tons/sq.in. Thickness {13/16" 27/32"

Mean pitch of stay tubes in nests 9.42" Pitch across wide water spaces 13 3/4" Working pressure {front 243 lbs/sq.in. back 289.5 "

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

at centre & forg. 11 3/16" x 3/4" thick double 7 1/2" x 3" Length as per Rule 2'-11 3/16" Distance apart 8 3/4" No. and pitch of stays

in each 3 @ 8 1/2" Working pressure by Rules 271.4 & 244 lbs sq.in. Combustion chamber plates: Material Steel

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

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

Working pressure by Rules 237 lbs/sq.in. Front plate at bottom: Material Steel Tensile strength 26-30 tons/sq.in.

Thickness 15/16" Lower back plate: Material Steel Tensile strength 26-30 tons/sq.in. Thickness 13/16" with 11/16" doubling

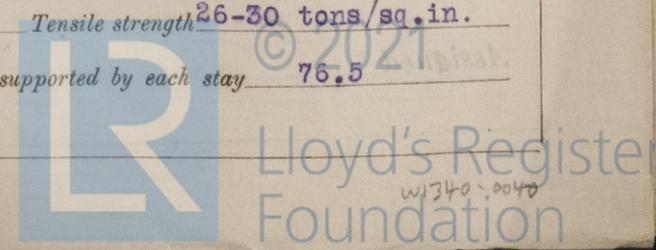
Pitch of stays at wide water space 13 3/4" x 8 1/2" Are stays fitted with nuts or riveted over Nuts

Working Pressure 246.8 lbs/sq.in. Main stays: Material Steel Tensile strength 26-35 tons/sq.in.

Diameter {At body of stay, 3 1/8" or 3 3/8" No. of threads per inch 6 Area supported by each stay 343.2 sq.in.

Working pressure by Rules 249.1 lbs/sq.in. Screw stays: Material Steel Tensile strength 26-30 tons/sq.in.

Diameter {At turned off part, 1 3/4" or 1 1/2" No. of threads per inch 9 Area supported by each stay 76.5



Working pressure by Rules **237.1** Are the stays drilled at the outer ends **No** Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads} \end{array} \right. 2"$

No. of threads per inch **9** Area supported by each stay **96.7 sq.in.** Working pressure by Rules **256.2 lbs/sq.in.**

Tubes: Material **Steel** External diameter $\left\{ \begin{array}{l} \text{Plain} \\ \text{Stay} \end{array} \right. 3\frac{1}{2}"$ Thickness $\left\{ \begin{array}{l} \text{No. 8 L.G.S.} \\ \text{5/16" \& 3/8"} \end{array} \right. No. of threads per inch **9**$

Pitch of tubes **4\frac{3}{8}" x 4\frac{1}{2}"** Working pressure by Rules **230 lbs/sq.in.** Manhole compensation: Size of opening shell plate **17\frac{1}{2}" x 21\frac{1}{2}" oval** Section of compensating ring **3"-7" x 2'-11\frac{1}{2}" x 1-19/32"** No. of rivets and diameter of rivet holes **36'-1 5/8"**

Outer row rivet pitch at ends **11 3/16"** Depth of flange if manhole flanged **3\frac{1}{2}"** Steam Dome: Material /

Tensile strength / Thickness of shell / Description of longitudinal joint /

Diameter of rivet holes / Pitch of rivets / Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right. /$

Internal diameter / Working pressure by Rules / Thickness of crown / No. and diameter 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 **Schmidt Type.** Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right. **Sumitomo Steel Tube & Copper Works, Ltd**$

Number of elements **77** Material of tubes **S.D. Steel** Internal diameter and thickness of tubes **5/8" x 1/8"**

Material of headers **Steel plate E.W.** Tensile strength **26-30 tons sq.in.** Thickness **26 m/m** Can the superheater be shut off or 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 **3.14 sq.in.** Are the safety valves fitted with easing gear **Yes** Working pressure as per Rules **345.7 lbs/sq.in.** Pressure to which the safety valves are adjusted **235 lbs** Hydraulic test pressure tubes **100 Kg/cm²** Headers, **47.5 Kg/cm²** and after assembly in place **450 lbs/sq.in.** Are drain cocks or valves fitted to free the superheater from water where necessary **Yes**

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

NAGASAKI WORKS, MITSUBISHI TANKEN KAIYAKU KANSHA
The foregoing is a correct description,
G. Inagaki Manufacturer
GENERAL MANAGER.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of} \\ \text{work in shops - -} \\ \text{while} \\ \text{building} \end{array} \right. \left\{ \begin{array}{l} \text{During erection on} \\ \text{board vessel - - -} \end{array} \right.$

Are the approved plans of boiler and superheater forwarded herewith **12-12-34**
See Machinery Report. (If not state date of approval.) **15-3-34**

Total No. of visits

Is this Boiler a duplicate of a previous case **Yes** If so, state Vessel's name and Report No. **"Kitsurin Maru" Nag. Rpt No. 20**

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

The Boilers described herein have been constructed under special survey in accordance with the Rules and Approved plan.

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

These Boilers have been satisfactorily installed on board and the safety valves adjusted under steam to 230 lbs/sq.in.

Eligible in our opinion to have the notation of **LMC in the Register Book.**

Survey Fee £ : : When applied for, 19

Travelling Expenses (if any) £ : : See Machinery Report. When received, 19

H. Buchanan & T. Kurishina
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 10 MAY 1935**

Assigned **See J.E. Machy Report.**



Cert.

This Certificate is to be understood as being subject to any inaccuracies in the publication of the Register of Shipping, and the Surveyors, or any other cause.

Sept. 10.) 10m.7.33.