

## REPORT ON BOILERS.

No. 4694

Received at London Office 1 JUN 1931

Date of writing Report 11<sup>th</sup> May 1931 When handed in at Local Office 11/5/1031 Port of YOKOHAMANo. in Reg. Book. Survey held at YOKOHAMA Date, First Survey 27<sup>th</sup> June 1930 Last Survey 4<sup>th</sup> May 1931  
on the Steeltsc. M.V. TEIYO MARU (Number of Visits 14) Tons {Gross 9849.86 Net 5722Master Built at Yokohama By whom built Yokohama Dock Co. Ltd Yard No. 181 When built 1931  
Engines made at Yokohama By whom made Yokohama Dock Co. Ltd Engine No. 181 When made 1931  
Boilers made at Yokohama By whom made Yokohama Dock Co. Ltd Boiler No. 181 When made 1931  
Nominal Horse Power of 165 N.H.P. Owners NIPPON TANKER KABUSHIKI KAISHA Port belonging to Yokohama  
Combined Boiler.MULTITUBULAR BOILERS ~~MAIN~~ ~~AUXILIARY~~ OR DONKEY.

Manufacturers of Steel Vereinigte Stahlwerke A.G. Dortmund Union, Dortmund, Germany (Letter for Record S.)  
Total Heating Surface of Boilers 2474  $\text{sq ft}$  Is forced draught fitted Yes Coal or Oil fired Oil & Exhaust Gases.  
No. and Description of Boilers One Cylindrical combined Oil fuel & Exhaust gas fired Working Pressure 120 lbs.  
Tested by hydraulic pressure to 230 lbs. Date of test 19-1-31 No. of Certificate 33 Can each boiler be worked separately ✓  
Area of Firegrate in each Boiler ✓ No. and Description of safety valves to each boiler 2 x SPRING FULL BORE TYPE.  
Area of each set of valves per boiler {per Rule 27.50" Pressure to which they are adjusted 120 lbs. Are they fitted with easing gear Yes ✓  
as fitted 75 D.X 12 LIFT.  
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 ✓ Is oil fuel carried in the double bottom under boilers No.  
Smallest distance between shell of boiler and tank top plating ✓ Is the bottom of the boiler insulated Yes.  
Largest internal dia. of boilers 10'-6" Length 8'-1 1/2" Shell plates: Material Steel Tensile strength 28-35 Tons  
Thickness 3/4" Are the shell plates welded or flanged No Description of riveting: circ. seams {end D.R. Lap  
long. seams D.R. D.B. Strap Diameter of rivet holes in {circ. seams 1 3/16" inter. 3/2"  
{long. seams 1 1/16" Pitch of rivets {4 1/4"  
Percentage of strength of circ. end seams {plate 66% rivets 63.6% Percentage of strength of circ. intermediate seam {plate 75% rivets 85.6%  
Percentage of strength of longitudinal joint {plate 75% rivets 85.6% Working pressure of shell by Rules 133 lbs.  
Thickness of butt straps {outer 1 1/2" inner 5/8" No. and Description of Furnaces in each Boiler 1 Deighton Corrugated  
Material Steel Tensile strength 26-30 Tons Smallest outside diameter 2'-9 7/8"  
Length of plain part {top bottom Thickness of plates {crown 7/16" bottom 7/16" Description of longitudinal joint Weld.  
Dimensions of stiffening rings on furnace or c.e. bottom ✓ Working pressure of furnace by Rules 195 lbs.  
End plates in steam space: Material Steel Tensile strength 26-30 Tons Thickness 7/8" Pitch of stays 16"x15 1/4"  
How are stays secured Nuts & washers both sides Working pressure by Rules 160 lbs.  
Tube plates: Material {front back Steel Tensile strength 26/30 Tons Thickness 7/8"  
Mean pitch of stay tubes in nests 12 3/16" x 12 9/16" Pitch across wide water spaces 4" Working pressure {front 175 lbs back 175 lbs.  
Girders to combustion chamber tops: Material ✓ Tensile strength ✓ Depth and thickness of girder  
at centre ✓ Length as per Rule ✓ Distance apart ✓ No. and pitch of stays  
in each ✓ Working pressure by Rules ✓ Combustion chamber plates: Material ✓  
Tensile strength ✓ Thickness: Sides ✓ Back ✓ Top ✓ Bottom ✓  
Pitch of stays to ditto: Sides ✓ Back ✓ Top ✓ Are stays fitted with nuts or riveted over ✓  
Working pressure by Rules ✓ Front plate at bottom: Material Steel Tensile strength 26-30 Tons.  
Thickness 7/8" Lower back plate: Material Steel Tensile strength 26-30 Tons Thickness 7/8"  
Pitch of stays {at wide water space 20.7" Are stays fitted with nuts or riveted over ✓  
Working Pressure 145 lbs Main stays: Material Steel Tensile strength 28-35 Tons  
Diameter {At body of stay, 2" No. of threads per inch 6 Area supported by each stay 231  $\text{sq in}$   
{Over threads 2 1/4"  
Working pressure by Rules 144 lbs Screw stays: Material ✓ Tensile strength  
Diameter {At turned off part, No. of threads per inch Area supported by each stay  
{Over threads

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Working pressure by Rules ☒ Are the stays drilled at the outer ends ☒ Margin stays: Diameter ☒ At turned off part, or Over threads ☒  
No. of threads per inch ☒ Area supported by each stay ☒ Working pressure by Rules ☒  
Tubes: Material Steel External diameter <sup>Plain</sup> 3" Thickness <sup>9 LSA</sup> 3/8" & 5/16" No. of threads per inch 9.  
Pitch of tubes 4 3/16" x 4 1/16" Working pressure by Rules 190 lbs. Manhole compensation: Size of opening in  
shell plate 16" x 12" Section of compensating ring 5 3/8" x 7/8" No. of rivets and diameter of rivet holes 40 @ 1 5/16"  
Outer row rivet pitch at ends ☒ Depth of flange if manhole flanged ☒ Steam Dome: Material Steel  
Tensile strength 26-30 Thickness of shell 1/2" Description of longitudinal joint D.R. Lap.  
Diameter of rivet holes 1 5/16" Pitch of rivets 2 7/8" Percentage of strength of joint <sup>Plate</sup> 67.4%  
Internal diameter 4'-5" Working pressure by Rules 156 lbs. Thickness of crown 3/4" <sup>Rivets</sup> 81.5%  
stays ☒ Inner radius of crown 4'-5" Working pressure by Rules 137 lbs.  
How connected to shell Double riveted Size of doubling plate under dome 4'-5" x 5/8" Diameter of rivet holes and pitch  
of rivets in outer row in dome connection to shell 1 5/16" x 2 7/8"

Water Drum.  
Type of Superheater Material: Steel Manufacturers of Internal Dia. 2'-0 3/8"  
Number of elements Material of tubes Steel castings length 4'-0 1/2"  
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. Trueling Manufacturer.

Dates of Survey <sup>During progress of</sup> 14, 27/10, 11/11, 27/11, 8/12, 17/2, 9/1, 16/1, 19/31 Are the approved plans of boiler and superheater forwarded herewith Kobe. 5/9/30.  
<sup>while</sup> 12/2, 7/4, 20/4, 28/4, 4/5/31 Total No. of visits 14.  
<sup>building</sup> board vessel - - - (If not state date of approval.)

Is this Boiler a duplicate of a previous case No 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. Materials and workmanship good. On completion of fitting onboard boiler examined under full working conditions and found satisfactory.  
The safety valves were adjusted under steam to 120 lbs/sq. in. and accumulation tests carried out with the exhaust gases from the main engine and with the oil fuel burning unit working at the same time and no accumulation found as the pressure dropped as soon as the valves lifted. As the valves were very slow at closing and the pressure dropped from 120 lbs to 90 lbs before they closed, the builders are now preparing a new valve which will be submitted for approval and fitted on the vessel's return from the present voyage to America. The present valves are quite safe as the accumulation tests were carried out on several occasions and valves lifted at 120 each time & pressure dropped. The boiler is eligible in my opinion to be classed with machinery.

Survey Fee YEN #371.00 When applied for, 9-5-1931

Travelling Expenses (if any) £ (see 78. Mich. Rpt.) When received, 7-7-1931 Hub

J. Micholas  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 5 JUN '32

Assigned See 78. Rpt.

FRI. 10 JUL '32



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