

REPORT ON BOILERS.

No. 4694

Received at London Office 1 JUN 1931

Date of writing Report 11th May 1931 When handed in at Local Office 11/5/31 Port of YOKOHAMA.

No. in Reg. Book Survey held at YOKOHAMA Date, First Survey 27th June 1930 Last Survey 4th May 1931

on the Twin Sc. M.V. "TEIYO MARU" (Number of Visits 21) Gross 9849.86 Tons Net 5722

Master 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 Boilers 2451 HP Owners Nippon Yusen Kaisha Port belonging to Yokohama

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 1,835 x 2 = 3670 sq ft Is forced draught fitted yes Coal or Oil fired Oil

No. and Description of Boilers Two, cylindrical marine type boilers. Working Pressure 180 lbs.

Tested by hydraulic pressure to 320 lbs Date of test 14th 21st Jan. No. of Certificate 31932. Can each boiler be worked separately yes.

Area of Firegrate in each Boiler No. and Description of safety valves to each boiler 2 x SPRING TYPES.

Area of each set of valves per boiler (per Rule 14.20 as fitted 19.20) Pressure to which they are adjusted 180 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 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 13'-0" Length 11'-6" Shell plates: Material steel Tensile strength 28-35 tons.

Thickness 1 1/8" Are the shell plates welded or flanged Description of riveting: circ. seams (end DR inter. 11)

long. seams T.R.D.B.S. Diameter of rivet holes in (circ. seams 1 7/16" long. seams 1 3/16" Pitch of rivets (3 3/4" 8 1/16")

Percentage of strength of circ. end seams (plate 65% rivets 52%) Percentage of strength of circ. intermediate seam (plate 85% rivets 93.9%)

Percentage of strength of longitudinal joint (plate 85% rivets 93.9% combined) Working pressure of shell by Rules 187 lbs.

Thickness of butt straps (outer 7/8" inner 1") No. and Description of Furnaces in each Boiler 3 Dighton Corrugated.

Material steel Tensile strength 26-30 tons Smallest outside diameter 3'-3 1/4"

Length of plain part (top bottom) Thickness of plates (crown 9/16" bottom 7/16" Description of longitudinal joint weld.

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 225 lbs.

End plates in steam space: Material steel Tensile strength 26-30 tons Thickness 1 1/8" Pitch of stays 1 6 3/4" x 1 18"

How are stays secured Nuts & washers inside & outside Working pressure by Rules 194 lbs.

Tube plates: Material (front back) steel Tensile strength (36/30 tons) Thickness (7/8" 13/16")

Mean pitch of stay tubes in nests 8 3/4" x 12 3/4" Pitch across wide water spaces 14 1/2" x 8 3/4" Working pressure (front 195 lbs back 207 lbs)

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

at centre 2 @ 8 1/2" x 3 1/4" Length as per Rule 9'-4 7/16" Distance apart 10" No. and pitch of stays

in each 3 @ 6 3/4" Working pressure by Rules 208 lbs. Combustion chamber plates: Material steel

Tensile strength 26-30 Thickness: Sides 1 1/16" Back 5/8" Top 1 1/16" Bottom 1 3/16"

Pitch of stays to ditto: Sides 7 3/4" x 10" Back 7 3/4" x 8 1/2" Top 6 3/4" x 10" Are stays fitted with nuts or riveted over nuts.

Working pressure by Rules 200 lbs. Front plate at bottom: Material steel Tensile strength 26-30 tons

Thickness 7/8" Lower back plate: Material steel Tensile strength 26-30 Thickness 7/8"

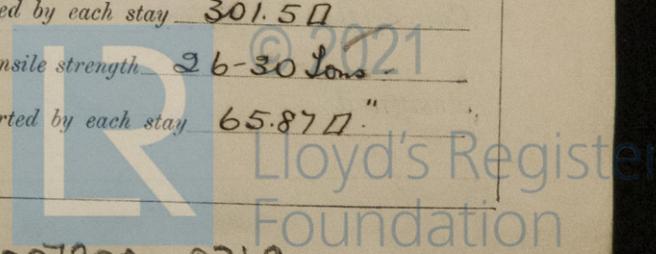
Pitch of stays at wide water space 14 1/4" x 8 1/2" Are stays fitted with nuts or riveted over nuts

Working Pressure 195 lbs. Main stays: Material steel Tensile strength 28-35 tons

Diameter (At body of stay, 2 3/4" Over threads, 3" No. of threads per inch 6 Area supported by each stay 301.50"

Working pressure by Rules 233 lbs. Screw stays: Material steel Tensile strength 26-30 tons

Diameter (At turned off part, 1 3/4" Over threads, 1 3/4" No. of threads per inch 9 Area supported by each stay 65.870"



Working pressure by Rules 275 lb Are the stays drilled at the outer ends no Margin stays: Diameter ^{At turned off part,} 1 7/8"
 No. of threads per inch 9 Area supported by each stay 1.047" Working pressure by Rules 304 lb
 Tubes: Material Steel External diameter ^{Plain} 3" Thickness ^{8 LSG.} 3/8" x 5/16" No. of threads per inch 9
 Pitch of tubes 4 1/8" x 4 3/8" Working pressure by Rules 250 lb. Manhole compensation: Size of opening in
 shell plate 22" x 14 1/2" Section of compensating ring 4" x 1 1/4" No. of rivets and diameter of rivet holes 73 @ 1 5/16"
 Outer row rivet pitch at ends 9 5/8" Depth of flange if manhole flanged 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} _____
 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 _____

The foregoing is a correct description,
J. Michol Manufacturer.

Dates of Survey ^{During progress of} 27 June, 5/9, 19/9, 16/10, 27/10, 11/11, 11/11, 23/11, 4/12, 15/12 Are the approved plans of boiler and superheater forwarded herewith 11/7/30 (K)
^{work in shops - -} 17/12, 26/12/30, 9/1, 14/1, 17/1/31 (If not state date of approval.)
^{During erection on} 12/2, 7/4, 16/4, 20/4, 20/4, 4/5/31 Total No. of visits 21
^{board vessel - - -}

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.) These boilers have been built under special survey in accordance with the Rules & approved plan. Materials and workmanship good. On completion of fitting onboard, the boilers were examined under full working conditions with satisfactory results. Accumulation trials carried out and with all burners working under full condition the pressure dropped as soon as the valves lifted at 180 lbs. Safety valves adjusted to 180 lbs/17"

The boilers of this vessel are eligible in my opinion to be classed with the machinery of LMC. 5-31.

Survey Fee ... yen 551.00 : When applied for, 9-5-1931
 Travelling Expenses (if any) £ 7.7 : When received, 7.7 1931
 (see F.B. 9th July 1931)

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

Committee's Minute FRI. 5 JUN '31
 Assigned See F.B. Rpt. FRI. 10 JUL '31

