

REPORT ON BOILERS.

No. 30186

Received at London Office

8 NOV 1929

Date of writing Report 5th Nov. 1929 When handed in at Local Office 6th Nov. 1929 Port of Sunderland.

No. in Survey held at Sunderland.

Date, First Survey

Last Survey

4th Nov 1929

on the S.S. "RAJA-ISTAN"

(Number of Visits) Gross 6390.89
Tons Net 3875.45

Master Built at Sunderland By whom built Bartram & Sons Ltd. Yard No. 267 When built 1929

Engines made at Sunderland By whom made J. Dickinson & Sons Ltd. Engine No. 900 When made 1929

Boilers made at Sunderland By whom made J. Dickinson & Sons Ltd. Boiler No. 1103 When made 1929

Nominal Horse Power 442 Owners Hindustan Steam Shipping Co. Ltd. Port belonging to Newcastle-on-Tyne

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Company of Scotland, Limited. (Letter for Record (S))

Total Heating Surface of Boilers 1071 sq ft Is forced draught fitted No Coal or Oil fired Coal

No. and Description of Boilers One Single Ended Fairlie Type. Working Pressure 220 lb/sq in

Tested by hydraulic pressure to 380 lb/sq Date of test 4.2.29 No. of Certificate 4020 Can each boiler be worked separately

Area of Firegrate in each Boiler 30.5 sq ft No. and Description of safety valves to each boiler Two direct Spring loaded.

Area of each set of valves per boiler (per Rule 5.696 sq ft) Pressure to which they are adjusted 228 lb/sq Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler No. non-return valve fitted.

Smallest distance between boilers or uptakes and bunkers or woodwork Fitted in 'tween deck Is oil fuel carried in the double bottom under boilers

Smallest distance between shell of boiler and tank top plating Fitted in 'tween deck Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 10'-9 1/2" Length 10'-6" (FULL) Shell plates: Material Steel Tensile strength 29 3/4 - 33 1/2 lb/sq

Thickness 1 1/32" Are the shell plates welded or flanged No. Description of riveting: circ. seams and D.R. LAP

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

Percentage of strength of circ. end seams (plate 64.0 rivets 50.8 Percentage of strength of circ. intermediate seam (plate 85.6 rivets 89.4

Percentage of strength of longitudinal joint (plate 85.6 rivets 89.4 combined 89.2 Working pressure of shell by Rules 220.5 lb/sq

Thickness of butt straps (outer 1 3/8" inner 1 5/16" No. and Description of Furnaces in each Boiler Two Corrugated Deighton Section

Material Steel Tensile strength 26-30 tons/sq in Smallest outside diameter 2'-10 5/8"

Length of plain part (top bottom Thickness of plates (crown 1 1/32" (bottom 1 1/32" Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or c.e. bottom Working pressure of furnace by Rules 224 lb/sq

End plates in steam space: Material Steel Tensile strength 26-30 tons/sq in Thickness FRONT - 3/32" BACK - 1/32" Pitch of stays 15" x 14 1/2"

How are stays secured Double Nuts & Washers. Working pressure by Rules 234 lb/sq

Tube plates: Material (front Steel (back Steel Tensile strength 26-30 tons/sq in Thickness 3/32" 1/8"

Mean pitch of stay tubes in nests 9" Pitch across wide water spaces 13 3/4" Working pressure (front 226 lb/sq (back 342 lb/sq

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 tons/sq in Depth and thickness of girder

at centre 6 1/4" x 3 1/4" Length as per Rule 30" Distance apart 7 1/2" No. and pitch of stays

in each 2 @ 10" Working pressure by Rules 231 lb/sq Combustion chamber plates: Material Steel

Tensile strength 26-30 tons/sq in Thickness: Sides 3/4" Back 2 5/32" Top 3/4" Bottom 3/4"

Pitch of stays to ditto: Sides 9 7/8" x 9" Back 10" x 9 7/8" Top 10" x 7 1/2" Are stays fitted with nuts or riveted over Fitted with nuts

Working pressure by Rules 220 lb/sq (SIDES) (LEAST) Front plate at bottom: Material Steel Tensile strength 26-30 tons/sq in

Thickness 3/32" Lower back plate: Material Steel Tensile strength 26-30 tons/sq in Thickness 1 3/32"

Pitch of stays at wide water space 14" x 9" Are stays fitted with nuts or riveted over Fitted with nuts.

Working Pressure 345 lb/sq Main stays: Material Steel Tensile strength 28-32 tons/sq in

Diameter (At body of stay, 2 5/8" No. of threads per inch 6 Area supported by each stay 217.5 sq in

Working pressure by Rules 228 lb/sq Screw stays: Material Steel Tensile strength 26-30 tons/sq in

Diameter (At turned off part, 1 7/8" No. of threads per inch 9 Area supported by each stay 91.25 sq in (BACKS)

009702-009710-0250

Lloyd's Register
Foundation

Working pressure by Rules 233 1/2 Are the stays drilled at the outer ends no Margin stays: Diameter 2" (At turned off part, or Over threads)
 No. of threads per inch 9 Area supported by each stay 106.95 Working pressure by Rules 232 1/2
Tubes: Material Wrot Iron External diameter 3 1/4" Thickness 5/16" + 3/8" No. of threads per inch 9
 Pitch of tubes 4 1/2" x 4 1/2" Working pressure by Rules PLAIN: 280 1/2 Stay 242 + 259 Manhole compensation: Size of opening 16" x 12"
 Section of compensating ring 8 1/4" x 1 1/32" No. of rivets and diameter of rivet holes 30 @ 1 1/8" DIA
 Outer row rivet pitch at ends 4 13/16" 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 ✓
 Internal diameter ✓ Working pressure by Rules ✓ Thickness of crown ✓ No. and diam stays ✓
 Inner radius of crown ✓ Working pressure by Rules ✓
 How connected to shell ✓ Size of doubling plate under dome ✓ Diameter of rivet holes and 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 from the boiler ✓
 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 ✓
 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,
John D. [Signature]
 Director

Dates of Survey During progress of work in shops - - Please see Mech. Rpt. Are the approved plans of boiler and superheater forwarded herewith Yes
 while building During erection on board vessel (If not state date of approval.)
 Total No. of visits ✓

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The Donkey Boiler has been built under Special Survey and Satisfactorily fitted in the Vessel. The Materials and Workmanship are good.
For notation please see Machinery Report.

Survey Fee ... £ 192 When applied for, 192
 Travelling Expenses (if any) £ 192 When received, 192

Charged on Machinery Report.

Alfred Lee
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute TUE. 12 NOV 1929

Assigned See Mech. Rpt. attached