

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
Reg. Book. on the S.S. "RAJAH-ISTAN" (Number of Visits) Gross 6390.59 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 Marine Type. Working Pressure 220 lb/sq in
Tested by hydraulic pressure to 380 lb/sq in Date of test 4.2.29 No. of Certificate 4020 Can each boiler be worked separately Yes

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 as fitted 9.616 sq ft) Pressure to which they are adjusted 225 lb/sq in 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 Yes

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 3/4 tons/sq in

Thickness 1 1/32" Are the shell plates welded or flanged No. Description of riveting: circ. seams end 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) Working pressure of shell by Rules 220.5 lb/sq in
combined 89.2

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

Thickness of butt straps (outer 1 3/16" 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 in

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 1 1/2"
How are stays secured Double Nuts & Washers. Working pressure by Rules 234 lb/sq in

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 in (W.D. SPACES) back 342 lb/sq in)

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 in Combustion chamber plates: Material Steel
Tensile strength 26-30 tons/sq in Thickness: Sides 3/4" Back 2 5/8" 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 in (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 in 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
Over threads)

Working pressure by Rules 228 lb/sq in 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)
Over threads)

Working pressure by Rules ^{233 1/2 0} 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 *106.950"* Working pressure by Rules *232 1/2 0*

Tubes: Material *Wrot Iron* External diameter ^{Plain} *3 1/4"* Thickness ^{W.G.} *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 lbs. 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 ^{Plate} _{Rivets}

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} _{Steel castings}

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* _(If not state date of approval.)

^{while building} _{board vessel} 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 ... £ *Charged on Machinery Report* When applied for, 192

Travelling Expenses (if any) £ When received, 192

Alfred Lee
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute *TUE. 12 NOV 1929*

Assigned *See Mech Rpt. attached*

