

## REPORT ON BOILERS.

No. 10,892

Received at London Office

Date of writing Report

19

When handed in at Local Office

6 July 1932

Port of Belfast

No. in Reg. Book

Survey held at

Belfast

Date, First Survey

see machinery report

Last Survey

19

on the

S.S. BHADRAVATI

(Number of Visits)

Gross

1307

Tons

Net

553

Master

Built at

Glasgow

By whom built

Harland &amp; Wolff Ltd.

Yard No. 9259.

When built 1932

Engines made at

Belfast

By whom made

Harland &amp; Wolff Ltd.

Engine No. 9259. When made 1932

Boilers made at

Belfast

By whom made

Harland &amp; Wolff Ltd.

Boiler No. 9259. When made 1932

Nominal Horse Power

269

Owners

Bombay Str. Nav. Co. Ltd.

Port belonging to

Bombay

## MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Bolville's Ltd.

(Letter for Record S.)

Total Heating Surface of Boilers

4546 sq ft

Is forced draught fitted

Yes

Coal or Oil fired

both

No. and Description of Boilers

Two single-ended cylindrical

Working Pressure 200 lbs

Tested by hydraulic pressure to

250 lbs

Date of test

31.5.32

No. of Certificate

967

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

65.7 sq ft

No. and Description of safety valves to each boiler

Two spring-loaded unjacketed high lift

Area of each set of valves per boiler

per Rule 15.85 sq ft

Pressure to which they are adjusted

Are they fitted with easing gear

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

Smallest distance between shell of boiler and tank top plating

Is the bottom of the boiler insulated

Largest internal dia. of boilers

14'-6"

mean Length 11'-9"

Shell plates: Material

Steel

Tensile strength 29.33 sq ft

Thickness

1 1/8"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end double

long. seams

Kettle d.b.s.

Diameter of rivet holes in

circ. seams 1 3/8"

long. seams 1 3/8"

Pitch of rivets

3.278"

Percentage of strength of circ. end seams

plate 88.1

rivets 85.2

Percentage of strength of circ. intermediate seam

plate

rivets

Percentage of strength of longitudinal joint

plate 85.23

rivets 91.1

combined 88.7

Working pressure of shell by Rules

204 lbs

Thickness of butt straps

outer 1 3/2"

inner 1 3/2"

No. and Description of Furnaces in each Boiler

Three Deighton 3 ft

Material

Steel

Tensile strength

26.30 tons

Smallest outside diameter

3'-9"

Length of plain part

top

bottom

Thickness of plates

crown 5/8"

bottom 5/8"

Description of longitudinal joint

Weld

Dimensions of stiffening rings on furnace or c.c. bottom

Working pressure of furnace by Rules

202 lbs

End plates in steam space: Material

Steel

Tensile strength

26.30 tons

Thickness

1 3/2"

Pitch of stays 16 1/2" x 18 1/2"

How are stays secured double nuts secured into end plates and washers

Working pressure by Rules

207 lbs

Tube plates: Material

front Steel

back Steel

Tensile strength

26.30 tons

Thickness

25/32"

Mean pitch of stay tubes in nests

8"

Pitch across wide water spaces

13 3/4" x 7 3/4"

Working pressure

front 210 lbs

back 260 lbs

Girders to combustion chamber tops: Material

Steel

Tensile strength

28.32 tons

Depth and thickness of girder

at centre

10" x 1 5/8"

Length as per Rule

34 7/16"

Distance apart

10 1/4"

No. and pitch of stays

in each

Three 8 1/2"

Working pressure by Rules

209 lbs

Combustion chamber plates: Material

Steel

Tensile strength

26.30 tons

Thickness: Sides

23/32"

Back

21/32"

Top

23/32"

Bottom

23/32"

Pitch of stays to ditto: Sides

8 1/2" x 10 1/4"

Back

8 1/2" x 8 3/8"

Top

8 1/2" x 10 1/4"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

204 lbs

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

13 1/2" x 8 1/2"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

217 lbs

Main stays: Material

Steel

Tensile strength

28.32 tons

Diameter

At body of stay, 2 3/4"

or

Over threads 3 1/4" front 3" back

No. of threads per inch

Five

Area supported by each stay

26.21"

Working pressure by Rules

250 lbs

Screw stays: Material

Steel

Tensile strength

26.30 tons

Diameter

At turned off part, 1 5/8"

or

Over threads 1 3/4"

No. of threads per inch

Ten

Area supported by each stay

68" 87.125"

Working pressure by Rules 20646 Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, or Over threads 1 3/8" 2" }  
No. of threads per inch 2en Area supported by each stay 1010" Working pressure by Rules 21146  
Tubes: Material wrought iron External diameter { Plain 2 3/4" Stay 2 3/4" } Thickness { No. 8 W.G. 7/8" 7/16" 1/2" } No. of threads per inch 2en  
Pitch of tubes 4 3/8" x 3 3/8" Working pressure by Rules plain 275 1/2 Stay 351 1/2 Manhole compensation: Size of opening in shell plate 16" x 12" Section of compensating ring 36" x 32" x 1 25/64" No. of rivets and diameter of rivet holes 28 - 1 1/2"  
Outer row rivet pitch at ends 10 1/4" Depth of flange if manhole flanged thickened 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 { Plate Rivets }  
Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays  
How connected to shell Inner radius of crown Working pressure by Rules  
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 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 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,  
For HARLAND AND WOLFF, LIMITED,  
Assistant Secretary.

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

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 constructed under Special Survey. The materials and workmanship are sound and good. They have been tested by hydraulic pressure in accordance with the rules, with satisfactory results.

Survey Fee ... £  
Travelling Expenses (if any) £  
When applied for, 19  
When received, 19

R. Lee Amess.  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 13 SEP 1932

Assigned SEE ACCOMPANYING MACHINERY REPORT.



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