

# REPORT ON BOILERS.

21 SEP 1927

No. 9771

Date of writing Report

192

When handed in at Local Office

29-6-1927

Port of

Belfast

Received at London Office

30 JUN 1927

No. in Reg. Book

Survey held at

Belfast

Date, First Survey

See meby. report

Last Survey

192

on the

TWIN SS "LAHEJ"

(Number of Visits)

Gross  
Tons  
Net

Master

Built at

Greenock

By whom built

Harland &amp; Wolff Ltd.

Yard No.

796 GK

When built

1927

Engines made at

Belfast

By whom made

Harland &amp; Wolff Ltd.

Engine No.

796 GK

When made

1927

Boilers made at

Belfast

By whom made

Harland &amp; Wolff Ltd.

Boiler No.

796 GK

When made

1927

Nominal Horse Power

145

Owners

P &amp; O Steam Nav Co Ltd

Port belonging to

Aden.

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

Manufacturers of Steel

David Colville &amp; Sons Ltd.

(Letter for Record S. ✓)

Total Heating Surface of Boilers

2470 sq

Is forced draught fitted.

Yes ✓

Coal or Oil fired

Oil ✓

No. and Description of Boilers

Two single-ended cylindrical

Working Pressure 180 lb. ✓

Tested by hydraulic pressure to

320 lb.

Date of test

10.6.27

No. of Certificate

898

Can each boiler be worked separately

Yes ✓

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

Two High-lift spring-loaded ✓

Area of each set of valves per boiler

per Rule 49.5 sq

as fitted 4.80 sq

Pressure to which they are adjusted

185

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

18" ✓

Is oil fuel carried in the double bottom under boilers

None ✓

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

12'6" ✓

Shell plates: Material

Steel ✓

Tensile strength

28-32 tons ✓

Thickness

29/32" ✓

Are the shell plates welded or flanged

No. ✓

Description of riveting: circ. seams

end double ✓

long. seams

heble s.s.s. ✓

Diameter of rivet holes in

circ. seams

15/16" ✓

long. seams

5/16" ✓

Pitch of rivets

2.657" ✓

6 1/16" ✓

Percentage of strength of circ. end seams

plate 64.7

rivets 47.0

Percentage of strength of circ. intermediate seam

plate

✓

Percentage of strength of longitudinal joint

plate 85.9

rivets 87.6

combined 89.4

Working pressure of shell by Rules

187 lb.

Thickness of butt straps

outer

27/32" ✓

inner

27/32" ✓

No. and Description of Furnaces in each Boiler

Two horizontal ✓

Material

Steel

Tensile strength

26-30 tons ✓

Smallest outside diameter

34 7/8" ✓

Length of plain part

top

✓

bottom

✓

Thickness of plates

crown

29/32" ✓

bottom

6/16" ✓

Description of longitudinal joint

welded ✓

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

✓

Working pressure of furnace by Rules

185 lb.

End plates in steam space: Material

Steel ✓

Tensile strength

26-30 tons ✓

Thickness

1 1/16" ✓

Pitch of stays

15" x 20 1/2" ✓

How are stays secured

double nuts and washers ✓

Working pressure by Rules

183 lb.

Tube plates: Material

front

Steel ✓

back

Steel ✓

Tensile strength

26-30 tons ✓

26-30 tons ✓

Thickness

1 1/16" ✓

13/16" ✓

Mean pitch of stay tubes in nests

7 1/2" ✓

Pitch across wide water spaces

13 3/4" ✓

Working pressure

front 279 lb.

back 245 lb.

Girders to combustion chamber tops: Material

Steel ✓

Tensile strength

28-32 tons ✓

Depth and thickness of girder

at centre

10'-1 1/4" ✓

Length as per Rule

37 1/2" ✓

Distance apart

10 3/4" ✓

No. and pitch of stays

in each

Three

9" ✓

Working pressure by Rules

180 lb.

Combustion chamber plates: Material

Steel ✓

Tensile strength

26-30 tons ✓

Thickness: Sides

23/32" ✓

Back

11/16" ✓

Top

23/32" ✓

Bottom

23/32" ✓

Pitch of stays to ditto: Sides

10" x 8" ✓

Back

10 5/8" x 8" ✓

Top

9" x 10 1/4" ✓

Are stays fitted with nuts or riveted over

nuts ✓

Working pressure by Rules

184 lb.

Front plate at bottom: Material

1 1/16" ✓

Tensile strength

26-30 tons ✓

Thickness

1 1/16" ✓

Lower back plate: Material

Steel ✓

Tensile strength

26-30 tons ✓

Thickness

1 1/16" ✓

Pitch of stays at wide water space

12 3/4" x 8" ✓

Are stays fitted with nuts or riveted over

nuts ✓

Working Pressure

400 lb.

Main stays: Material

Steel ✓

Tensile strength

28-32 tons ✓

Diameter

At body of stay,

or

Over threads

3" ✓

No. of threads per inch

Five ✓

Area supported by each stay

307.5 sq

Working pressure by Rules

211 lb.

Screw stays: Material

Steel ✓

Tensile strength

26-30 tons ✓

Diameter

At turned off part,

or

Over threads

1 3/4" ✓

No. of threads per inch

Ten ✓

Area supported by each stay

96.75 sq



Working pressure by Rules *187 lb* Are the stays drilled at the outer ends *No* ✓ Margin stays: Diameter { At turned off part, or Over threads *1 7/8" 2"* ✓

No. of threads per inch *Sen* ✓ Area supported by each stay *116.875 sq"* Working pressure by Rules *182 lb*

Tubes: Material *Iron* ✓ External diameter { Plain *2 1/2"* ✓ Stay *2 1/2"* ✓ Thickness { No. 8 *1/8"* ✓ No. 9 *3/16"* ✓ No. of threads per inch *Sen* ✓

Pitch of tubes *3 3/4"* ✓ Working pressure by Rules *May 299 lb. plain 300 lb* Manhole compensation: Size of opening in shell plate *16" x 12"* ✓ Section of compensating ring *36" x 32" x 3/4" double* No. of rivets and diameter of rivet holes *28 - 15/16"* ✓

Outer row rivet pitch at ends *9"* ✓ Depth of flange if manhole flanged ✓ Steam Dome: Material *None* ✓

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

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 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 23 inclusive for boilers been complied with

The foregoing is a correct description,  
**FOR HARLAND AND WOLFF, LIMITED,**  
*De Kellebeck* Manufacturer.

Dates of Survey { During progress of work in shops - - - while building { During erection on board vessel - - -

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

Total No. of visits

**GENERAL REMARKS** (State quality of workmanship, opinions as to class, &c.)

*These Boilers have been constructed under special survey and to approved design. The materials and workmanship are sound and good. They have been tested by hydraulic pressure in accordance with the rules and are, in my opinion, eligible for installation on a classed vessel. They have been shipped to Greenock.*

Survey Fee ... £ : When applied for, 192

Travelling Expenses (if any) £ : : When received, 192

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

Committee's Minute **GLASGOW 20 SEP 1927**

Assigned *See Grk. Rpt. No. 18762 WYM*

**TUES. 4 OCT 1927**