

REPORT ON BOILERS.

No. 16451

-7 FEB 1931

Received at London Office

Date of writing Report 6-2-

1931

When handed in at Local Office

6-2-

1931

Port of

Aberdeen

No. in Survey held at

Aberdeen

Date, First Survey 15-9-30

Last Survey 30-1-

1931

Book.

(Number of Visits 14)

Gross 221.20

on the

S.S.

"EARL SIGURD."

Tons Net 83.34

Master

Built at Aberdeen

By whom built

Hall, Russell & Co. Ltd. Yard No. 718 When built 1931

Engines made at

Aberdeen

By whom made

Hall, Russell & Co. Ltd.

Engine No. 718 When made 1931

Boiler made at

Aberdeen

By whom made

Hall, Russell & Co. Ltd.

Boiler No. 718 When made 1931

Nominal Horse Power

76

Owners Orkney Steam Navigation Co. Ltd.

Port belonging to Kirkwall

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

The Steel Co. of Scotland, Ltd.

(Letter for Record Y)

Total Heating Surface of Boilers

1387 sq. ft.

Is forced draught fitted

no

Coal or Oil fired coal

No. and Description of Boilers

One S.E. Main

Working Pressure 180 lb.

Tested by hydraulic pressure to

320 lb.

Date of test 9-12-30

No. of Certificate 1101

Can each boiler be worked separately

Area of Firegrate in each Boiler

36.5 sq. ft.

No. and Description of safety valves to each boiler

2 spring loaded

Area of each set of valves per boiler

per Rule 8.9 sq. ft.

as fitted 9.8 sq. ft.

Pressure to which they are adjusted

180 lb.

Are they fitted with easing gear

yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

yes

Smallest distance between boilers or uptakes and bunkers or woodwork

20"

Is oil fuel carried in the double bottom under boilers

no

Smallest distance between shell of boiler and tank top plating

no tank

Is the bottom of the boiler insulated

no

Largest internal dia. of boilers

12'-6"

Length 10'-2"

Shell plates: Material

Steel

Tensile strength

29/33 tons

Are the shell plates welded or flanged

no

Description of riveting: circ. seams

end

D.R.

Long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams

1 1/16"

long. seams

Pitch of rivets

3 1/8"

7 5/8"

Percentage of strength of circ. end seams

plate

66

rivets

45

Percentage of strength of circ. intermediate seam

plate

✓

Percentage of strength of longitudinal joint

plate

86.06

rivets

86.45

combined

89.5

Working pressure of shell by Rules

181.7 lb.

Thickness of butt straps

outer

3/4"

inner

2/8"

No. and Description of Furnaces in each Boiler

2 plain

Material

Steel

Tensile strength

26/30 tons

Smallest outside diameter

3-9 1/2"

Length of plain part

top

74"

bottom

67.25"

Thickness of plates

crown

13/16"

bottom

1/16"

Description of longitudinal joint

welded

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

✓

Working pressure of furnace by Rules

193.3 lb.

End plates in steam space: Material

Steel

Tensile strength

26/30

Thickness

1 1/16"

Pitch of stays

18 x 15 7/8"

How are stays secured

Double nuts

Working pressure by Rules

181.2 lb.

Tube plates: Material

front

Steel

back

Steel

Tensile strength

26/30 tons

Thickness

29/32"

13/16"

Lean pitch of stay tubes in nests

10.96"

Pitch across wide water spaces

14 1/2" x 9 1/2"

Working pressure

front

187.8 lb.

back

197.5 lb.

Girders to combustion chamber tops: Material

Steel

Tensile strength

29/33 tons

Depth and thickness of girder

Distance between centres

7 1/4" x 1 3/4"

Length as per Rule

30.53"

Distance apart

9 1/4"

No. and pitch of stays

Working pressure by Rules

190.5 lb.

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

9 1/2" x 9 1/2"

Back

8 1/2" x 9 5/8"

Top

9 1/4" x 9 1/2"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

182 lb.

Front plate at bottom: Material

Steel

Tensile strength

26/30 tons

Thickness

29/32"

Lower back plate: Material

Steel

Tensile strength

26/30 tons

Thickness

7/8"

Pitch of stays at wide water space

14 1/2" x 9 7/8"

Are stays fitted with nuts or riveted over

nuts

Working Pressure 207 lb.

under bottom stay 180.5 lb.

Main stays: Material

Steel

Tensile strength 28/32 tons

Diameter

At body of stay,

2 3/4" dia.

Over threads

2 1/4"

No. of threads per inch

6

Area supported by each stay

285.75 sq. in.

Working pressure by Rules

191.5 lb.

Screw stays: Material

Iron

Tensile strength

21 1/2 tons

Diameter

At turned off part,

1 5/8" + 1 3/4"

Over threads

1 5/8" + 1 3/4"

No. of threads per inch

9

Area supported by each stay

81.8 + 90.25 sq. in.

009986-009993-0064

Lloyd's Register
Foundation

Working pressure by Rules 185 lb. Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 1 7/8" or Over threads 1 7/8" No. of threads per inch 9 Area supported by each stay 110.7 sq. in. Working pressure by Rules 192 lb. Tubes: Material Iron External diameter { Plain 3 1/2" Stay 3 1/2" Thickness { 8 W.G. 1/4, 5/16 + 3/8 No. of threads per inch 9 Pitch of tubes 4 3/4 Working pressure by Rules 215 lb. Manhole compensation: Size of opening shell plate 16 x 12 Section of compensating ring 2-4 dia x 7/8 No. of rivets and diameter of rivet holes 34 @ 1 1/4 Outer row rivet pitch at ends 7 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 Rivets Internal diameter Working pressure by Rules Thickness of crown No. and diameter 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 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 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 yes.

The foregoing is a correct description,
FOR HALL, RUSSELL & CO., LTD.
James J. Hunter DIRECTOR.
the approved plans of boiler and superheater forwarded herewith yes.
(If not state date of approval.)

Dates of Survey { During progress of work in shops - - 1930. Sep. 15. 25. Oct. 2. 16. 21. Nov. 14. 18. Dec. 1. 6. 9. 14. the approved plans of boiler and superheater forwarded herewith yes. (If not state date of approval.) while building { During erection on board vessel - - - 1931 Dec. 24. Jan. 15. 22. 30 Total No. of visits 14

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
This boiler has been constructed under special survey in accordance with the approved plan and the Rules of this Society.
The materials and workmanship are good.
The boiler has been satisfactorily fitted on board the vessel, the safety valves adjusted under steam and tried for accumulation, and the boiler examined under working conditions and found satisfactory.

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

P. Fitzgerald.
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute FRI. 13 FEB. 1931
Assigned See other 2 E Rpt