

Rpt. 5a.

REPORT ON BOILERS.

No. 51681.

17.20.2224

29.30.

032

1/4/42 27/4/42

7/42

1510

27/12/41

11.6.42

ed

under

1

7

ipping.

Date of writing Report

10

When handed in at Local Office

10

Port of

Received at London Office

123 JUL 1942

No. in Survey held at

Reg. Book.

Date, First Survey

27.12.41.

Last Survey

1942

on the

H.M.T. "GRAYLING"

(Number of Visits

40)

Gross

387.

Tons

Net

127.

Built at

SELBY

By whom built

Lockhart & Sons Ltd.

Yard No.

1245

When built

1942

Engines made at

HULL

By whom made

Amos & Smith Ltd.

Engine No.

707

When made

"

Boilers made at

HULL

By whom made

Amos & Smith Ltd.

Boiler No.

707

When made

"

Nominal Horse Power

125.

Owners

The Admiralty

Port belonging to

✓

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Messrs. Appleby, Frodingham Steel Co. Ltd.

(Letter for Record

S

Total Heating Surface of Boilers

1873

Is forced draught fitted

Yes

Coal or Oil fired

Coal

No. and Description of Boilers

One S.B.

Working Pressure

210 lbs/sq. in.

Tested by hydraulic pressure to

365 lbs/sq. in.

Date of test

19.5.42.

No. of Certificate

4144

Can each boiler be worked separately

Area of Firegrate in each Boiler

50 sq. ft.

No. and Description of safety valves to each boiler

2. Spring Loaded

Area of each set of valves per boiler

as fitted

12.5 sq. in.

Pressure to which they are adjusted

210 lbs/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

Smallest distance between boilers or uptakes and bunkers or woodwork

9"

Is oil fuel carried in the double bottom under boilers

No.

Smallest distance between shell of boiler and tank top plating

Is the bottom of the boiler insulated

No.

Largest internal dia. of boilers

14'-3 1/2"

Length

10' 6"

Shell plates: Material

Steel

Tensile strength

31-35 tons/sq. in.

Thickness

1 1/4"

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 5/16"

long. seams

1 1/32"

Pitch of rivets

3 3/4"

9 1/8"

Percentage of strength of circ. end seams

plate

64.9%

rivets

42.8%

Percentage of strength of circ. intermediate seam

plate

85.1%

rivets

85.8%

Percentage of strength of longitudinal joint

plate

85.1%

rivets

85.8%

combined

87.66%

Thickness of butt straps

outer

1 3/32"

inner

1 3/32"

No. and Description of Furnaces in each Boiler

3 of Doughton Section

Material

Steel

Tensile strength

26-30 tons/sq. in.

Smallest outside diameter

3'-6 1/4"

Length of plain part

top

bottom

Thickness of plates

crown

5/8"

Description of longitudinal joint

Weed

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

None

End plates in steam space: Material

Steel

Tensile strength

26-30 tons/sq. in.

Thickness

1 3/32"

Pitch of stays

14" x 14 1/2"

How are stays secured

Rings & washers inside & out

Tube plates: Material

front

Steel

back

Steel

Tensile strength

26-30 tons/sq. in.

Thickness

1 5/16"

Pitch

14" x 14 1/2"

Mean pitch of stay tubes in nests

9 1/4" x 9"

Pitch across wide water spaces

14" x 9"

9 1/4" with 3/4" double

Girders to combustion chamber tops: Material

Steel

Tensile strength

29-33 tons/sq. in.

Depth and thickness of girder

at centre

9" x 7 1/8" Double

Length as per Rule

2' x 10 2 3/32"

Distance apart

8"

No. and pitch of stays

in each

3 @ 8 1/4"

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons/sq. in.

Thickness: Sides

2 3/32"

Back

2 3/32"

Top

2 1/32"

Bottom

2 5/32"

Pitch of stays to ditto: Sides

8 1/2" x 9 1/4"

Back

9 1/4" x 9"

Top

8 1/4" x 8"

Are stays fitted with nuts or riveted over

No

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons/sq. in.

Thickness

1 5/16"

Lower back plate: Material

Steel

Tensile strength

26-30 tons/sq. in.

Thickness

7/8"

Pitch of stays at wide water space

14" x 9"

Are stays fitted with nuts or riveted over

No

Main stays: Material

Steel

Tensile strength

28-32 tons/sq. in.

Diameter

At body of stay,

or

Over threads

3"

No. of threads per inch

6

Screw stays: Material

Steel

Tensile strength

26-30 tons/sq. in.

Diameter

At turned off part,

or

Over threads

1 3/4"

No. of threads per inch

9.

Are the stays drilled at the outer ends *No.*
Margin stays: Diameter { At turned off part, or Over threads *1 1/4", 1 7/8", 2"*
No. of threads per inch *9"*
Tubes: Material *L.W. Iron* External diameter { Plain *3 1/4"* Stay *3 1/4"* Thickness *8 W.G. 3/16", 3/8", 1/2"* No. of threads per inch *9*
Pitch of tubes *4 1/2" x 4 5/8"* Manhole compensation: Size of opening in shell plate *12" (x 16")* Section of compensating ring *35 5/8" x 1 1/4"* No. of rivets and diameter of rivet holes *122 @ 1 3/2"*
Outer row rivet pitch at ends *10.45* Depth of flange if manhole flanged *3 3/8"* Steam Dome: Material *Steel*
Tensile strength *26-30 tons/sq. in.* Thickness of shell *3/4"* Description of longitudinal joint *S.R. Lap.*
Diameter of rivet holes *1 3/2"* Pitch of rivets *2 1/2"* Percentage of strength of joint { Plate *54 1/2%* Rivets *43.8%*
Internal diameter *2'-9"* Thickness of crown *7/8"* No. and diameter of stays *2 @ 2 1/4"* Inner radius of crown *Flat*
How connected to shell *Riveted* Size of doubling plate under dome *4'-9 1/2" x 1 1/4"* Diameter of rivet holes and pitch of rivets in outer row in dome connection to shell *1 3/2" @ 10" Pitch*

Type of Superheater _____ Manufacturers of _____
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 _____
Pressure to which the safety valves are adjusted _____ Hydraulic test pressure: _____
tubes _____ forgings and 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.* For AMOS & SMITH LTD.
The foregoing is a correct description, *Initially* Manufacturer.

Dates of Survey { During progress of work in shops - - } *See machinery report.* 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.)
This Boiler has been constructed under Special Survey in accordance with the approved Steamship plans and the Rules.
The workmanship and Materials are good and, when subjected to a hydraulic test of 380 lbs./sq. in. it was found satisfactory in every respect.

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

Committee's Minute *TUE 28 JUL 1942*
Assigned *See Incl J.C. 51681*

J. P. W.
Engineer Surveyor to Lloyd's Register of Shipping.