

REPORT ON BOILERS.

No. 32723

25 OCT 1939

Received at London Office

20 OCT 1939

Port of

Sunderland.

Date of writing Report

192

When handed in at Local Office

No. in Survey held at
Reg. Book.

Sunderland

Date, First Survey

Last Survey Oct 16 1939

(Number of Visits) Gross 4813
Tons Net 2765

on the Screw Steamer "HERMISTON"

Master

Built at

Sunderland

By whom built

Sunt Bros Ld.

Yard No. 454 When built 1939.

Engines made at

Sunderland

By whom made

G. Clark (1938) Ld.

Engine No. 1214. When made 1939.

Boilers made at

Sunderland

By whom made

G. Clark (1938) Ld.

Boiler No. 1214 When made 1939.

Nominal Horse Power

357.

Owners

R. Chapman & Son

Port belonging to

Newcastle

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Steel Company of Scotland

(Letter for Record S.)

Total Heating Surface of Boilers

4484 sq ft

Is forced draught fitted

Yes.

Coal or Oil fired

Coal.

No. and Description of Boilers

Two single ended multitubular marine

Working Pressure 220

Tested by hydraulic pressure to

380

Date of test

11/8/39

No. of Certificate

4295

Can each boiler be worked separately

Yes.

Area of Firegrate in each Boiler

55 sq ft

No. and Description of safety valves to each boiler

Two backburning Imp. High Lift.

Area of each set of valves per boiler

per Rule
as fitted

4.940

Pressure to which they are adjusted

220

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

2'-0"

Is oil fuel carried in the double bottom under boilers

no.

Smallest distance between shell of boiler and tank top plating

3'-0"

Is the bottom of the boiler insulated

Yes.

Largest internal dia. of boilers

14'-9 1/8"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength

29/33.

Thickness

1 1/16"

Are the shell plates welded or flanged

no.

Description of riveting: circ. seams

inter

D.R. Lap.

long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams

F. 1 1/16" B. 1 1/2"

Pitch of rivets

F. 4 1/16" B. 4 5/16"

9 1/8"

Percentage of strength of circ. end seams

plate

F. 64.6 B. 65.1

Percentage of strength of circ. intermediate seam

plate

✓

Percentage of strength of longitudinal joint

plate

84.81

rivets

92.0

Working pressure of shell by Rules

222.

Thickness of butt straps

outer 1 3/32"

inner 1 1/32"

No. and Description of Furnaces in each Boiler

Three corrugated (Leighton).

Material

Steel

Tensile strength

26/30.

Smallest outside diameter

43 1/16"

Length of plain part

top

bottom

Thickness of plates

crown

2 1/32"

Description of longitudinal joint

welded.

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

Working pressure of furnace by Rules

222.

End plates in steam space: Material

Steel

Tensile strength

26/30

Thickness

1 29/64"

Pitch of stays

19 3/8" x 23"

How are stays secured

Double nuts

Working pressure by Rules

220.

Tube plates: Material

front Steel

back

Tensile strength

26/30.

Thickness

1" 2 1/32"

Working pressure

front 346

back 244.

Mean pitch of stay tubes in nests

12 3/4" x 8 1/4"

Pitch across wide water spaces

14"

Working pressure

front 346

back 244.

Girders to combustion chamber tops: Material

Steel

Tensile strength

29/33

Depth and thickness of girder

at centre

9 3/8" x 1 3/4"

Length as per Rule

3 1/2"

Distance apart

9 1/4"

No. and pitch of stays

in each

3 @ 8"

Working pressure by Rules

223.

Combustion chamber plates: Material

Steel

Tensile strength

26/30.

Thickness: Sides

4 5/16"

Back

1 1/16"

Top

1 1/16"

Bottom

2 1/32"

Pitch of stays to ditto: Sides

8" x 9 3/8"

Back

8" x 9 1/4"

Top

8" x 9 1/4"

Are stays fitted with nuts or riveted over

nuts.

Working pressure by Rules

229, 220, 220

Front plate at bottom: Material

Steel

Tensile strength

26/30.

Thickness

1"

Lower back plate: Material

Steel

Tensile strength

26/30.

Thickness

1"

Pitch of stays at wide water space

14 1/2" x 9 1/4"

Are stays fitted with nuts or riveted over

nuts.

Working Pressure

249.

Main stays: Material

Steel

Tensile strength

28/32.

Diameter

At body of stay, 3 3/8" x 3 3/8"

or

3 3/4" - 3 1/2"

No. of threads per inch

6

Area supported by each stay

21" x 21" 21 1/2" x 14 1/2"

Working pressure by Rules

224 226.

Screw stays: Material

Steel

Tensile strength

26/30

Diameter

At turned off part, 1 3/4"

or

1 3/4"

No. of threads per inch

9.

Area supported by each stay

8" x 9 3/8"

Working pressure by Rules **242** Are the stays drilled at the outer ends **No.** Margin stays: Diameter { At turned off part, **1 7/8"** or Over threads **2" + 2 1/4"**

No. of threads per inch **9** Area supported by each stay **9 1/4" x 1 1/4"; 12 1/6" x 1 1/4"** Working pressure by Rules **236, 232**

Tubes: Material **S.D. Steel** External diameter { Plain **3"** Stay **3"** Thickness { **5/16"** **3/8"** **1/16"** No. of threads per inch **9**

Pitch of tubes **4 1/4" x 4 1/8"** Working pressure by Rules **284, 254, 246** Manhole compensation: Size of opening in shell plate **16" x 12"** Section of compensating ring **9" x 1 1/16"** No. of rivets and diameter of rivet holes **30 @ 1 1/2"**

Outer row rivet pitch at ends **9 1/8"** 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

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 **North Eastern Marine Smoke tube.** Manufacturers of { Tubes **Stewart & Lloyd & Co.** Steel castings **Wideningham Steel Co. Ld.**

Number of elements **116** Material of tubes **S.D. Steel** Internal diameter and thickness of tubes **15 1/4" x 2 1/2"**

Material of headers **Forged Steel** Tensile strength **26/30.** Thickness **1/8"** Can the superheater be shut off and the boiler be worked separately **Yes.** Is a safety valve fitted to every part of the superheater which can be shut off from the boiler **Yes.**

Area of each safety valve **3 1/4"** Are the safety valves fitted with easing gear **Yes.** Working pressure as per Rules **220.** Pressure to which the safety valves are adjusted **220 lbs/sq. in.** Hydraulic test pressure: **1500 lbs/sq. in.** castings **660 lbs/sq. in.** and after assembly in place **440 lbs/sq. in.** Are drain cocks or valves fitted to free the superheater from water where necessary **Yes.**

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with **Yes.**

The foregoing is a correct description,
GEORGE CLARK (1938) LTD. Manufacturer

Dates of Survey { During progress of work in shops - - - **Please see Mech. Rpt.** 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

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) **These boilers have been constructed under Special Survey in accordance with the approved Plans & the rules of the Society.**

The materials & workmanship are good.

On completion the boilers have been tested by hydraulic pressure of 280 lbs/sq. in. & found tight & sound. They have been securely fixed on board the vessel, examined under steam & safety valves of boilers & superheaters adjusted to working pressure in accordance with Rule requirements.

For recommendation please see Mech. Rpt.

Survey Fee ... **See Mech. Rpt.** When applied for, 192

Travelling Expenses (if any) **See Mech. Rpt.** When received, 192

J. T. Fraser.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE 31 OCT 1939**

Assigned **See F.E. machy rpl.**