

REPORT ON BOILERS.

No. 99774

Received at London Office

12 SEP 1941

Date of writing Report

19

When handed in at Local Office

23/8/1941 Port of

NEWCASTLE-ON-TYNE

No. in Survey held at
Reg. Book

Newcastle on Tyne

Date, First Survey

11/12/39

Last Survey

22/8/1941

on the

s/s "EMPIRE FLINT"

(Number of Visits)

Gross 8129
Net 4630

Master

Built at

Newcastle

By whom built

Swan, Hunter &
Wigham Richardson Ltd

Yard No.

1601. When built 1941-

Engines made at

Newcastle

By whom made

ditto

Engine No.

1658 When made 1941

Boilers made at

ditto

By whom made

ditto

Boiler No.

1658 When made 1941

Nominal Horse Power

Owners

Port belonging to

Newcastle.

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

Manufacturers of Steel

Steel Coy of Scotland and Colvilles

(Letter for Record S.)

Total Heating Surface of Boilers

9555 sq ft

Is forced draught fitted

Yes

Coal or Oil fired

oil fired

No. and Description of Boilers

3 Single Ended

Working Pressure

220 lb

Tested by hydraulic pressure to

380 lb

Date of test

12th, 19th & 29th
May 1941

No. of Certificate

894
896

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

oil fired

No. and Description of safety valves to each boiler

Two of 2 1/2" dia Cockburn's Imp High Lift

Area of each set of valves per boiler

per Rule

8.47 sq in

as fitted

9.8

Pressure to which they are adjusted

220 lb

Are they fitted with easing gear

Yes

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

None

Smallest distance between boilers or uptakes and bunkers or woodwork

12"

Is oil fuel carried in the double bottom under boilers

Yes

Smallest distance between shell of boiler and tank top plating

2'-2"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

16'-2 31/32"

Length

11'-9" mean

Shell plates: Material

Steel

Tensile strength

30 to 34 tons

Thickness

1 33/64"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end D.R. overlap
inter. none

long. seams

T.R. dble butt joints

Diameter of rivet holes in

circ. seams

1 9/16"

long. seams

1 9/16"

Pitch of rivets

4'-60"

10 1/2"

Percentage of strength of circ. end seams

plate

66.03

rivets

42.17

Percentage of strength of circ. intermediate seam

plate

none

rivets

Percentage of strength of longitudinal joint

plate

85.11

rivets

86.60

combined

87.55

Working pressure of shell by Rules

221 lb

Thickness of butt straps

outer

1 5/32"

inner

1 9/32"

No. and Description of Furnaces in each Boiler

Three Deighton Corrugated

Material

Steel

Tensile strength

26 to 30 tons

Smallest outside diameter

4'-1 1/8"

Length of plain part

top

abt 4 1/2"

bottom

2'-7 1/2" c.c. bottom

Thickness of plates

crown

3/4"

bottom

Description of longitudinal joint

fire weld

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

none

Working pressure of furnace by Rules

224 lb

End plates in steam space: Material

Steel

Tensile strength

26 to 30 tons

Thickness

1 7/32"

Pitch of stays

15" x 19 1/2"

How are stays secured

Nuts inside & outside

Working pressure by Rules

228 lb

Tube plates: Material

front

Steel

back

Tensile strength

26 to 30 tons

Thickness

27/32"

Mean pitch of stay tubes in nests

10 5/8"

Pitch across wide water spaces

14"

Working pressure

front

257 lb

back

226 lb

Girders to combustion chamber tops: Material

Steel

Tensile strength

28 to 32 tons

Depth and thickness of girder

at centre

9 1/2" x 3/4" x two

Length as per Rule

2'-9 15/16" (33.94")

Distance apart

8 3/4"

No. and pitch of stays

in each

3 @ 8"

Working pressure by Rules

225 lb

Combustion chamber plates: Material

Steel

Tensile strength

26 to 30 tons

Thickness: Sides

23/32"

Back

23/32"

Top

23/32"

Bottom

7/8"

Pitch of stays to ditto: Sides

10 x 8"

Back

9 1/4 x 8 1/2"

Top

8 3/4 x 8"

Are stays fitted with nuts or riveted over

with nuts

Working pressure by Rules

221 lb (min)

Front plate at bottom: Material

Steel

Tensile strength

26 to 30 tons

Thickness

1"

Lower back plate: Material

Steel

Tensile strength

26 to 30 tons

Thickness

1 1/16"

Pitch of stays at wide water space

14" x 9 1/4" (17 1/2" x 8 1/2" max.)

Are stays fitted with nuts or riveted over

with nuts

Working Pressure

256 lb

Main stays: Material

Steel

Tensile strength

28 to 32 tons

Diameter

At body of stay,

3" dia

Over threads

No. of threads per inch

6

Area supported by each stay

286 sq in

Working pressure by Rules

234 lb

Screw stays: Material

Steel

Tensile strength

26 to 30 tons

Diameter

At turned off part,

1 3/4" + 1 5/8"

Over threads

No. of threads per inch

9

Area supported by each stay

78 + 68 sq in

Working pressure by Rules $\frac{p}{8}d = 232 \text{ lbs}$ $\frac{p}{8}d = 222 \text{ lbs}$ Are the stays drilled at the outer ends. No Margin stays: Diameter $\frac{1}{2}$ " 2" Over threads

No. of threads per inch 9 Area supported by each stay 105.3 Working pressure by Rules 234 lbs

Tubes: Material S. D. Steel External diameter 3" Thickness N° 8. W.G. No. of threads per inch 9

Pitch of tubes 4 1/4" x 4 1/4" Working pressure by Rules 224 lbs

shell plate 20" x 16" Section of compensating ring 11 7/8" x 1 3/4" x two No. of rivets and diameter of rivet holes 32 of 1 1/16" dia

Outer row rivet pitch at ends 12" Depth of flange if manhole flanged 3" 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

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

of rivets in outer row in dome connection to shell

Type of Superheater North Eastern Mar. Sucktable Manufacturers of Tubes Talbot Stead
Steel forgings Appleby, Frodingham Steel Coy.
Steel castings

Number of elements 204 Material of tubes S. D. Steel Internal diameter and thickness of tubes 15 mm bore, 2 1/2 mm thick

Material of headers 7. Steel Tensile strength 26 to 30 tons Thickness 1 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 3.97 sq ins (2 1/4" dia) Are the safety valves fitted with easing gear Yes Working pressure as per

Rules 220 lbs Pressure to which the safety valves are adjusted 225 lbs Hydraulic test pressure

tubes 1500 lbs forgings and castings 660 lbs and after assembly in place 440 lbs Are drain cocks

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,
G. J. Denny Manufacturer
31/10/39

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 Yes If so, state Vessel's name and Report No. S/S ENNERDALE
Yard No 1656.
Nov. Rpt No

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

These Boilers have been constructed under special survey in accordance with the Society's Rules and approved plans, and the materials and workmanship are good

The Boilers have been satisfactorily fitted on board the vessel, and tested under steam under working condition.

See also Mch. Rpt. 4.

Survey Fee ... £ See Mch. Rpt. 4. When applied for, 19
 Travelling Expenses (if any) £ See Mch. Rpt. 4. When received, 19

A. Watt.
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 26 SEP 1941

Assigned See J.E. Macky rpt