

REPORT ON BOILERS.

Std. No. 33265

Mch. No. 17090

Received at London Office

5/9/41

Date of writing Report

23/8/41

When handed in at Local Office

26/8/41

Port of

MIDDLESBROUGH.

No. in Survey held at
Reg. Book.

Stockton on Tees

Date, First Survey

28th

January,

Last Survey

22/8/41

1941

on the

"EMPIRE GRENFELL"

(Number of Visits 13.)

Gross

7238

Tons

Net 5099

Built at

Sunderland

By whom built

W. Dwyer & Sons Ltd. Contract No. 648

Yard No.

648

When built

1941

Engines made at

Sunderland

By whom made

W. Dwyer & Sons Ltd.

Engine No.

648

When made

1941

Boilers made at

Stockton

By whom made

Stockton C. Engos & Riley & Co. Ltd.

Boiler No.

6483

When made

1941

Nominal Horse Power

Owners

Ministry of War Transport.

Port belonging to

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel

Steel Company of Scotland, & Appleby & Roddingham & Co.

(Letter for Record S)

Total Heating Surface of Boilers

1660 sq ft

Is forced draught fitted

No.

Coal or Oil fired

Oil.

No. and Description of Boilers

1 - Single Ended.

Working Pressure

120 lbs

Tested by hydraulic pressure to

230 lbs

Date of test

22/8/41

No. of Certificate

7027.

Can each boiler be worked separately

-

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler

Two direct Spring.

Area of each set of valves per boiler

per Rule 15.4.0.
as fitted 19.20

Pressure to which they are adjusted

120

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

Is oil fuel carried in the double bottom under boilers

No.

Smallest distance between shell of boiler and tank top plating

2'-9"

Is the bottom of the boiler insulated

Yes.

Largest internal dia. of boilers

11'-10 5/8"

Length

11'-6"

Shell plates: Material

Steel

Tensile strength

29-33 tons

Thickness

11/16"

Are the shell plates welded or flanged

No.

Description of riveting: circ. seams

end

DR.

long. seams

T.R.D.B.S.

Diameter of rivet holes in

circ. seams 1 1/16"

long. seams 1 3/16"

Pitch of rivets

3 3/8"

Percentage of strength of circ. end seams

plate 68.51
rivets 45.45

Percentage of strength of circ. intermediate seam

plate 84.88
rivets 83.38

Percentage of strength of longitudinal joint

plate 84.88
rivets 83.38

combined 89.90

Thickness of butt straps

outer 9/16"
inner 1 1/16"

No. and Description of Furnaces in each Boiler

2 - barugated (Beighton)

Material

Steel

Tensile strength

26-30 tons

Smallest outside diameter

3'-8 1/16"

Length of plain part

top
bottom

Thickness of plates

crown 13/32
bottom

Description of longitudinal joint

laced

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

-

End plates in steam space: Material

Steel

Tensile strength

26-30 tons

Thickness

27/32"

Pitch of stays

17" x 16"

How are stays secured

D. Nuts & washers

Tube plates: Material

front Steel
back

Tensile strength

26-30 tons

Thickness

27/32"
13/16"

Mean pitch of stay tubes in nests

9 13/16"

Pitch across wide water spaces

14"

Girders to combustion chamber tops: Material

Steel

Tensile strength

28-32 tons

Depth and thickness of girder

at centre

7" 20 5/8"

Length as per Rule

29 7/16"

Distance apart

9"

No. and pitch of stays

in each

20 9"

Combustion chamber plates: Material

Steel

Tensile strength

26-30 tons

Thickness: Sides

19/32"

Back

9/16"

Top

19/32"

Bottom

7/8"

Pitch of stays to ditto: Sides

9" x 10"

Back

9 1/2" x 8 3/4"

Top

9" x 9"

Are stays fitted with nuts or riveted over

Nuts.

Front plate at bottom: Material

Steel

Tensile strength

26-30 tons

Thickness

27/32"

Lower back plate: Material

Steel

Tensile strength

26-30 tons

Thickness

27/32"

Pitch of stays at wide water space

13 1/2" x 9 1/2"

Are stays fitted with nuts or riveted over

Nuts

Main stays: Material

Steel

Tensile strength

28-32 tons

Diameter

at top of stay 2 1/4"

No. of threads per inch

6

Screw stays: Material

Steel

Tensile strength

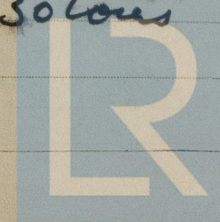
26-30 tons

Diameter

at bottom of part 1 3/8"

No. of threads per inch

9.



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Lloyd's Register
Foundation

Are the stays drilled at the outer ends No. Margin stays: Diameter { At turned off part, or Over threads 15/8"

No. of threads per inch 9

Tubes: Material L.W. Iron External diameter { Plain 2 3/4" Stay 2 3/4" Thickness { 8SWG 5/16" No. of threads per inch 9

Pitch of tubes 3 3/4" x 3 3/4" Manhole compensation: Size of opening in shell plate 16" x 20" Section of compensating ring 7" x 1" No. of rivets and diameter of rivet holes 44 - 15/16"

Outer row rivet pitch at ends 6" 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 _____ Thickness of crown _____ No. and diameter of stays _____ Inner radius of crown _____

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 forgings _____ 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 _____

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 and on behalf of Geo. W. Piles Manufacturer.

Dates of Survey { During progress of work in shops - - 1941. Jan. 28. Feb. 13. 25. Apr. 9. 30. May 20. June 11. July 4. 9. 14. 25. Aug. 22. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) Yes

while building { During erection on board vessel - - - } Total No. of visits 13

Is this Boiler a duplicate of a previous case Yes If so, state Vessel's name and Report No. Hub Rpt No 17078

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been constructed under Special Survey, in accordance with the Rule Requirements, & approved plan. The materials & workmanship are good, & on completion the boiler was tested by hydraulic pressure to 230 lbs/sq. & found tight & satisfactory. This boiler is being forwarded to Sunderland for installation in Messrs Wm Doxford's & Sons Ltd. Contract No 678.

This boiler has been securely fixed on board the vessel & safety valves adjusted to working pressure

In recommendation please see Machinery Rpt. Port. Lascru.

Survey Fee ... £ 11 : 2 : - When applied for, 3/9/1941

Travelling Expenses (if any) £ : : When received, 19

R. J. Hasted
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI, 19 DEC 1941

Assigned See Std. No. 33265

