

## REPORT ON BOILERS.

No. 18217

Received at London Office

21 NOV 1941

Date of writing Report 20/11/41

When handed in at Local Office 20/11/41

Port of W. Hartlepool

Where Survey held at Hartlepool

HARTLEPOOL HILL

Date First Survey 5<sup>th</sup> MarchLast Survey 18<sup>th</sup> November 1941.

on the

S/S "EMPIRE CELT"

(Number of Visits 94) Tons { Gross Net

Built at Hartlepool Hill

By whom built Furness Shipbuilding Co. Ltd.

Yard No. 335 When built 1941

Pipes made at Hartlepool

By whom made Rickardson Westgarth Co.

Engine No. 2710 When made 1941

Boilers made at "

By whom made " " "

Boiler No. 2710 When made 1941

Horse Power 674

Owners Ministry of War Transport.

Port belonging to Riddlesburgh.

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

Manufacturers of Steel Steel Co. of Scotland

Total Heating Surface of Boilers 10020 Sq. ft.

and Description of Boilers 3 S.E. Multitubular

Is forced draught fitted Yes

(Letter for Record S

Coal or Oil fired oil

Working Pressure 220 lbs/sq. in.

Tested by hydraulic pressure to 380 lbs/sq. in. Date of test 18/10/41 No. of Certificate 3945

Area of Firegrate in each Boiler

No. and Description of safety valves to each boiler 2-2 1/2" Spring loaded high lift

Area of each set of valves per boiler { per rule 8.65 sq. in. as fitted 9.8 sq. in. Pressure to which they are adjusted 225 lbs/sq. in.

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

Least distance between boilers or uptakes and bunkers or woodwork 3'-9"

Is oil fuel carried in the double bottom under boilers Yes

Least distance between shell of boiler and tank top plating 2'-6"

Least internal dia. of boilers 16'-2 3/32" Length 12'-6"

Is the bottom of the boiler insulated Yes

Thickness 1 33/64" Are the shell plates welded or flanged No

Shell plates: Material steel

Tensile strength 30/34 tons/sq. in.

Seams T.R.D.B.S.

Description of riveting: circ. seams { and D.R.L. inter. none

Percentage of strength of circ. end seams { plate 62.5 rivets 44.7

Percentage of strength of circ. intermediate seam { plate 85.1 rivets 86.7 combined 87.5

Percentage of strength of longitudinal joint { plate 85.1 rivets 86.7 combined 87.5

Thickness of butt straps { outer 15/32" inner 19/32"

No. and Description of Furnaces in each Boiler 3 Dighton (Gourlay neck)

Material steel Tensile strength 26/30 tons/sq. in.

Smallest outside diameter 3'-11 1/2"

Thickness of plates { crown 4 1/4" bottom 4 1/4"

Description of longitudinal joint welded

Plates in steam space: Material steel

Tensile strength 26/30 tons/sq. in. Thickness 1 1/32"

Pitch of stays 22 1/2" x 18 1/2"

Are stays secured double nuts

Plates: Material { front steel back "

Tensile strength 26/30 tons/sq. in.

Thickness 1 5/16"

Pitch of stay tubes in nests 9 5/8"

Pitch across wide water spaces 14 1/2" x 3 1/4"

Access to combustion chamber tops: Material steel

Tensile strength 29/33 tons/sq. in.

Depth and thickness of girder

Centre 2-11 3/4" x 1"

Length as per Rule 3'-10 1/2"

Distance apart 9"

No. and pitch of stays

Pitch 3 @ 11 1/8"

Tensile strength 26/30 tons/sq. in.

Thickness: Sides 13/16"

Back 28/32"

Top 12/16"

Bottom 29/32"

Pitch of stays to ditto: Sides 9" x 11 1/8"

Back 9" x 8"

Top 9" x 11 1/8"

Are stays fitted with nuts or riveted over nuts

Plate at bottom: Material steel

Tensile strength 26/30 tons/sq. in.

Tensile strength 26/30 tons/sq. in.

Thickness 1 5/16"

Pitch of stays at wide water space 15 3/8" x 8"

Are stays fitted with nuts or riveted over nuts

Tensile strength 28/32 tons/sq. in.

Stays: Material steel

No. of threads per inch 6

Tensile strength 26/30 tons/sq. in.

Pitch of stays: Material steel

No. of threads per inch 9

Pitch of stays: Material steel

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Pitch of stays: Material steel

No. of threads per inch 9

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Are the stays drilled at the outer ends

no

Margin stays: Diameter { At turned off part, 2 1/4 1/4"  
Over threads

No. of threads per inch

9

Tubes: Material

Steel

External diameter

{ Plain } 2 1/2"  
{ Stay }

Thickness

89  
5 3/8 7/16

No. of threads per inch

9

Pitch of tubes

4" x 3 5/8"

Manhole compensation: Size of opening

shell plate

16 1/2" x 20 1/2"

Section of compensating ring

18 3/4" x 1 3/4"

No. of rivets and diameter of rivet holes

34 - 1 3/16"

Outer row rivet pitch at ends

10 1/2"

Depth of flange if manhole flanged

3 1/2"

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

Thickness of crown

No. and diameter

stays

Inner radius of crown

How connected to shell

Size of doubling plate under dome

Diameter of rivet holes and

of rivets in outer row in dome connection to shell

Type of Superheater

Combustion Chamber Type  
Supplied N.E. Maine (1938) Ltd.

Manufacturers of

Tubes

Stewart & Lloyd

Steel forgings

Steel castings

Number of elements

36

Material of tubes

S.D. Steel

Internal diameter and thickness of tubes

1.243" x 2/9"

Material of headers

S.D. Steel

Tensile strength

26/28 100/10"

Thickness

1"

Can the superheater be shut off

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

3.416 sq"

Are the safety valves fitted with easing gear

Yes

Pressure to which the safety valves are adjusted

225 lbs/sq"

Hydraulic test press

tubes

1500 18/10"

Headers

660 18/10"

and after assembly in place

660 18/10"

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

W. J. HARRISON, WESTGARTH & Co. LIMITED.

The foregoing is a correct description,

DIRECTOR

Dates of Survey { During progress of work in shops - -  
while building { During erection on board vessel - -

Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.)

16/10

Total No. of visits

Is this Boiler a duplicate of a previous case

Yes

If so, state Vessel's name and Report No.

R.W. 2/04

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

The boilers have been constructed under Special Survey & in accordance with the approved plans for a working pressure of 220 18/10".

The material & workmanship have been found good.

Upon completion the boilers were tested in the presence of the undersigned with hydraulic pressure of 380 18/10" & found sound & tight.

These boilers have been forwarded to Haverton Hill.

Boilers fitted aboard, & found satisfactory under working conditions.

Safety valves adjusted under steam to 225 lbs/sq" on completion & found in order with the Rule Requirements. Oil fuel burning installation examined under working conditions & found satisfactory.

Survey Fee

£ See Rpt 4

When applied for,

10

Travelling Expenses (if any) £

When received,

10

Committee's Minute

TUE. 6 JAN 1942

Assigned

See p.c. machy report

Engineer Surveyor to Lloyd's Register of Shipping



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