

## REPORT ON BOILERS.

No. 51472

Received at London Office

Date of writing Report

19

When handed in at Local Office

27 JAN 1942

Port of HULL

No. in  
Reg. Book

Surrey held at HULL.

Date, First Survey

12.2.41

Last Survey

10.12.41

on the steam tug

EMPIRE BIRCH.

(Number of Visits)

Gross 250

Net -

Built at HESSLE

By whom built Richard Dunstan &amp; Co.

Yard No. 418. When built 1941.12

Engines made at HULL.

By whom made Messrs. Chas. D. Holmes &amp; Co.

Engine No. 1577 When made 1941.12

Boilers made at HULL.

By whom made Messrs. Chas. D. Holmes &amp; Co.

Boiler No. 1577. When made 1941.12

Nominal Horse Power 177 - 366. Owners

Port belonging to

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

Manufacturers of Steel Messrs. the Steel Company of Scotland &amp; Co.

(Letter for Record)

Total Heating Surface of Boilers 2778 sq. ft.

Is forced draught fitted Yes.

Coal or Oil fired Coal

No. and Description of Boilers One S.B.

Working Pressure 210 lb./sq. in.

Tested by hydraulic pressure to 365 lb./sq. in. Date of test 15.9.41 No. of Certificate 4115. Can each boiler be worked separately -

Area of Firegrate in each Boiler 64 sq. ft. No. and Description of safety valves to each boiler 2 Spring loaded

Area of each set of valves per boiler { per Rule 18.6.15.42 as fitted 19.24. Pressure to which they are adjusted 210 lb./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 1'-4 1/2" 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 15'-9 1/2" Length 11'-6" Shell plates: Material Steel Tensile strength 31-35 ton/ft. D.R. 6p.

Thickness 1 3/8" Are the shell plates welded or flanged No Description of riveting: circ. seams 1 13/32" inter. 3 3/8"

long. seams T.R., D.B.S. Diameter of rivet holes in { circ. seams 1 13/32" long. seams 1 13/32" Pitch of rivets 9 1/8"

Percentage of strength of circ. end seams { plate 63.71% rivets 43.33% Percentage of strength of circ. intermediate seam { plate - rivets -

Percentage of strength of longitudinal joint { plate 84.6% rivets 85.5% combined 86.3%

Thickness of butt straps { outer 1 1/16" inner 1 3/16" No. and Description of Furnaces in each Boiler 3 of Leigh Section

Material Steel Tensile strength 26/30 ton/ft. Smallest outside diameter 3'-10"

Length of plain part { top - bottom - Thickness of plates { crown 1 1/16" bottom 1 1/16" Description of longitudinal joint Weld

Dimensions of stiffening rings on furnace or e.c. bottom None

End plates in steam space: Material Steel Tensile strength 26-30 ton/ft. Thickness 1 1/2" Pitch of stays 18 5/8" x 19 1/4"

How are stays secured Nuts &amp; washers inside &amp; out.

Tube plates: Material { front Steel Tensile strength 26/30 ton/ft. Thickness 15/16" 7/8"

Mean pitch of stay tubes in nests 9.8125. Pitch across wide water spaces 13 1/2" x 8 1/2"

Girders to combustion chamber tops: Material Steel Tensile strength 29/33 ton/ft. Depth and thickness of girder

at centre 9 1/4" x 7 1/8" x 2. Length as per Rule 2'-8 29/32". Distance apart 9 1/2". No. and pitch of stays

in each 3 @ 7 1/2". Combustion chamber plates: Material Steel

Tensile strength 26/30 ton/ft. Thickness: Sides 2 3/32" Back 2 3/32" Top 1 1/16" Bottom 7/8"

Pitch of stays to ditto: Sides 8 1/4" x 9 1/2" Back 8 1/2" x 9 1/2" Top 7 1/2" x 9 1/2" Are stays fitted with nuts or riveted over Nuts.

Front plate at bottom: Material Steel Tensile strength 26/30 ton/ft. Thickness 15/16" Lower back plate: Material Steel Tensile strength 26/30 ton/ft. Thickness 7/8"

Pitch of stays at wide water space 13 3/4" x 9 3/8" Are stays fitted with nuts or riveted over Nuts.

Main stays: Material Steel Tensile strength 28/32 ton/ft.

Diameter { At body of stay, or Over threads 3 1/4" No. of threads per inch 8.

Screw stays: Material Steel Tensile strength 26/30 ton/ft.

Diameter { At turned off part, or Over threads 1 3/4" No. of threads per inch 10.



Are the stays drilled at the outer ends No ✓

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

No. of threads per inch 10 ✓

Tubes: Material L.W. Iron ✓ External diameter { Plain 3" ✓ Stay 3" ✓ Thickness { 5/16" ✓ 3/8" ✓ 7/16" ✓ No. of threads per inch 9 ✓

Pitch of tubes 4 1/2" x 4 1/2" ✓

Manhole compensation: Size of opening in shell plate 16" x 12" ✓ Section of compensating ring 12 3/16" x 1 3/8" ✓ No. of rivets and diameter of rivet holes 16 @ 1 3/32" ✓

Outer row rivet pitch at ends 9 1/8" ✓ Depth of flange if manhole flanged 3 3/8" ✓

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 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 ✓

The foregoing is a correct description,  
 FOR CHARLES D. HOLMES & CO., LTD.  
 Manufacturer.

Dates of Survey { During progress of work in shops - - } See machinery report ✓  
 while building { During erection on board vessel - - } ✓

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

Total No. of visits ✓

Is this Boiler a duplicate of a previous case ✓ 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 plans and the Rules.

The Workmanship and materials are good, and when subjected to a hydraulic test of 365 lb/sq in it was found satisfactory in every respect.

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

J. H. Miller  
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute See 18 FEB 1942  
 Assigned See Sub 76. 51472