

REPORT ON BOILERS.

No. 93815

Date of writing Report 29th May, 1936 When handed in at Local Office 29th May, 1936 Port of NEWCASTLE-ON-TYNE

Received at London Office - 2 JUN 1936

No. in Reg. Book. Survey held at Newcastle-on-Tyne Date, First Survey 30th June Last Survey 29th May, 1936

on the "BLACKHEATH" (Number of Visits) Tons {Gross Net }

Master Built at Dundee By whom built Caledon S.B. Co. Ltd. Yard No. 353 When built 1936

Engines made at Wallsend-on-Tyne By whom made R. E. Marine Eng. Co. Ltd. Engine No. 2844 When made 1936

Boilers made at Wallsend-on-Tyne By whom made R. E. Marine Eng. Co. Ltd. Boiler No. 2844 When made 1936

Nominal Horse Power 404 Owners Britain S.S. Co. Ltd. Port belonging to London
(Watts, Watts & Co. Ltd., Impo.)

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

Manufacturers of Steel The Steel Company of Scotland, Ltd. (Letter for Record S)

Total Heating Surface of Boilers 4340 sq ft Is forced draught fitted yes Coal or Oil fired Coal

No. and Description of Boilers Two Single Ended Working Pressure 220 lbs/sq in

Tested by hydraulic pressure to 380 lbs/sq in Date of test 22.4.36 No. of Certificate 664 Can each boiler be worked separately yes

Area of Firegrate in each Boiler 46 sq ft No. and Description of safety valves to each boiler two direct spring loaded

Area of each set of valves per boiler {per Rule 11.54 sq in as fitted 11.88 sq in} Pressure to which they are adjusted 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 7'-6" Is oil fuel carried in the double bottom under boilers no

Smallest distance between shell of boiler and tank top plating 2'-0" Is the bottom of the boiler insulated yes

Largest internal dia. of boilers 14'-3 1/4" Length 11'-6" Shell plates: Material Steel Tensile strength 29/33 tons/sq in

Thickness 1 3/8" Are the shell plates welded or flanged no Description of riveting: circ. seams {end D.R. Lap inter. }

Long. seams T.R.D.B.S. Diameter of rivet holes in {circ. seams 17/16" long. seams 17/16"} Pitch of rivets {4" 9 7/8"}

Percentage of strength of circ. end seams {plate 64 rivets 46.8} Percentage of strength of circ. intermediate seam {plate rivets }

Percentage of strength of longitudinal joint {plate 85.4 rivets 88.8 combined 88.5} Working pressure of shell by Rules 221 lbs/sq in

Thickness of butt straps {outer 1 1/8" inner 1 3/16"} No. and Description of Furnaces in each Boiler Three Brighton

Material Steel Tensile strength 26/30 tons/sq in Smallest outside diameter 3'-5 9/16"

Length of plain part {top bottom } Thickness of plates {crown 2 1/8" bottom 2 1/8"} Description of longitudinal joint weld

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 230 lbs/sq in

End plates in steam space: Material Steel Tensile strength 26/30 tons/sq in Thickness 1 3/8" Pitch of stays 21" x 19"

How are stays secured D. Nuts Working pressure by Rules 221 lbs/sq in

Tube plates: Material {front Steel back } Tensile strength {26/30 tons/sq in } Thickness {2 1/32" 2 5/32" 2 5/32" 2 5/32"}

Lean pitch of stay tubes in nests 9.5° Pitch across wide water spaces 14 3/4" Working pressure {front 226 lbs/sq in back 236 lbs/sq in}

Orders to combustion chamber tops: Material Steel Tensile strength 29/33 tons/sq in Depth and thickness of girder

Centre 10" x 2 @ 25/32" Length as per Rule 34" Distance apart 9 1/2" No. and pitch of stays

each 2 @ 10 3/16" Working pressure by Rules 250 lbs/sq in Combustion chamber plates: Material Steel

Tensile strength 26/30 tons/sq in Thickness: Sides 25/32" Back 23/32" Top 25/32" Bottom 25/32"

Pitch of stays to ditto: Sides 10 3/16" x 9 1/2" Back 9" x 9" Top 10 3/16" x 9 1/2" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 223 lbs/sq in Front plate at bottom: Material Steel Tensile strength 26/30 tons/sq in

Thickness 3 1/32" Lower back plate: Material Steel Tensile strength 26/30 tons/sq in Thickness 15/16"

Pitch of stays at wide water space 15 1/2" x 9" Are stays fitted with nuts or riveted over Nuts

Working Pressure 225 lbs/sq in Main stays: Material Steel Tensile strength 28/32 tons/sq in

Diameter {At body of stay 3 1/4" or Over threads } No. of threads per inch 6 Area supported by each stay 399 sq in

Working pressure by Rules 232 lbs/sq in Screw stays: Material Steel Tensile strength 26/30 tons/sq in

Diameter {At turned off part or Over threads 1 7/8" x 2"} No. of threads per inch 9 Area supported by each stay 81 sq in = 96.78 sq in

Working pressure by Rules 256 lbs./sq. in. Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, 1 1/8 or Over threads 2 1/8 }
 No. of threads per inch 9 Area supported by each stay 110.25 sq. in. Working pressure by Rules 258 lbs./sq. in.
 Tubes: Material 40 Steel External diameter { Plain 3" Stay 3" } Thickness { 3/8" 5/16" } No. of threads per inch 9
 Pitch of tubes 4 1/2" x 4 3/8" Working pressure by Rules plain 250 lbs./sq. in. stay 235 lbs./sq. in. Manhole compensation: Size of opening in 16" x 12"
 Section of compensating ring - No. of rivets and diameter of rivet holes -
 Outer row rivet pitch at ends - Depth of flange if manhole flanged 4" 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 - Inner radius of crown - Working pressure by Rules -
 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 North Eastern Marine Engine Makers Manufacturers of { Tubes Palbot Head Headers Frodingham Steel Co. Steel castings }
 Number of elements 98 Material of tubes 40 Steel Internal diameter and thickness of tubes 1 5/8" x 2 1/2 mm.
 Material of headers Forged Steel Tensile strength 26/30 tons/sq. in. Thickness 1 1/8" Can the superheater be shut off and the boiler be worked separately no 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 3.14 sq. in. Are the safety valves fitted with easing gear yes Working pressure as per Rules 220 lbs./sq. in. Pressure to which the safety valves are adjusted 220 lbs./sq. in. Hydraulic test pressure 330 lbs./sq. in.
 tubes 1500 lbs./sq. in. Headers 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,
James Dean Manufacture

Dates of Survey { During progress of work in shops - - } Are the approved plans of boiler and superheater forwarded herewith yes (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 no If so, state Vessel's name and Report No. -

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.)
These boilers have been constructed under special survey in accordance with the Rules and approved plan; the materials and workmanship are good.
The boilers are being forwarded to Dundee to be installed in the vessel.

Survey Fee ... £ See Report on Machinery When applied for, 10
 Travelling Expenses (if any) £ See Report on Machinery When received, 10

H. B. Forster
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute GLASGOW 14 JUL 1936
 Assigned SEE ACCOMPANYING MACHINERY REPORT.

