

REPORT ON BOILERS.

Received at London Office 17 JUN 1929

Date of writing Report 1929 When handed in at Local Office 15-6-1929 Port of Belfast

No. in Reg. Book 89854 Survey held at Belfast Date, First Survey 31st Oct 1928 Last Survey 4th June 1929

on the *Steel hull Steamer* "DEEBANK" (Number of Visits 22) Tons {Gross Net

Master Built at Belfast By whom built *Messrs Workman Clark (1928) Ltd.* Yard No. 506 When built 1929

Engines made at Belfast By whom made *Messrs Workman Clark (1928) Ltd.* Engine No. 506 When made 1929

Boilers made at Belfast By whom made *Messrs Workman Clark (1928) Ltd.* Boiler No. 506 When made 1929

Nominal Horse Power 565 Owners *The Bank Line, Ltd.* Port belonging to *Belfast.*

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel *Messrs David Colville & Sons, Ltd. at S. Dunlop & Co.* (Letter for Record S)

Total Heating Surface of Boilers 8112 sq ft Is forced draught fitted *yes* Coal or Oil fired *oil*

No. and Description of Boilers *3 S.E. Cylindrical* 358. Working Pressure 260 lbs.

Tested by hydraulic pressure to 440 lbs. Date of test 28-3-29 No. of Certificate 929 Can each boiler be worked separately *yes*

Area of Firegrate in each Boiler 71.5 sq ft No. and Description of safety valves to each boiler *2-2 1/4" C. Steel Improved High Lift*

Area of each set of valves per boiler {per Rule 1/2 of 14.74 as fitted 7.952 Pressure to which they are adjusted 260 lbs. Are they fitted with easing gear *yes*

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

Smallest distance between boilers or uptakes and bunkers or woodwork *18" at corner* Is oil fuel carried in the double bottom under boilers *yes*

Smallest distance between shell of boiler and tank top plating *2'-6"* Is the bottom of the boiler insulated *yes*

Largest internal dia. of boilers *15'-6"* Length *11'-9"* Shell plates: Material *Steel* Tensile strength *31-35 tons*

Thickness *1 1/16"* Are the shell plates welded or flanged *no* Description of riveting: circ. seams {end DR inter. ✓} long. seams *FR* Diameter of rivet holes in {circ. seams 1 1/16" long. seams 1 1/16" Pitch of rivets {4.094" 10 7/8"}

Percentage of strength of circ. end seams {plate 58.7 rivets 48.4} Percentage of strength of circ. intermediate seam {plate ✓ rivets ✓}

Percentage of strength of longitudinal joint {plate 54.48 rivets 85.69 combined 86.1} Working pressure of shell by Rules *263.68 lbs.*

Thickness of butt straps {outer 1 7/32" inner 1 13/32" No. and Description of Furnaces in each Boiler *Four Rightton*

Material *Steel* Tensile strength *26-30 tons* Smallest outside diameter *39 13/32"*

Length of plain part {top ✓ bottom ✓} Thickness of plates {crown 4 5/16" bottom ✓} Description of longitudinal joint *weld*

Dimensions of stiffening rings on furnace or c.c. bottom ✓ Working pressure of furnace by Rules *261.8*

End plates in steam space: Material *Steel* Tensile strength *26-30 tons* Thickness *1 3/8"* Pitch of stays *21 3/4" x 16 1/2"*

How are stays secured *DN & W* Working pressure by Rules *290.9 lbs.*

Tube plates: Material {front back} *Steel* Tensile strength { } *26-30 tons* Thickness { } *1 13/16"*

Mean pitch of stay tubes in nests *9 1/4"* Pitch across wide water spaces *13 1/2"* Working pressure {front 294.5 lbs back 277 lbs}

Girders to combustion chamber tops: Material *Steel* Tensile strength *28-32 tons* Depth and thickness of girder

at centre *10 3/4" - 1 1/2"* Length as per Rule *34 17/32"* Distance apart *8 1/4"* No. and pitch of stays

in each *3-8"* Working pressure by Rules *273.6 lbs.* Combustion chamber plates: Material *Steel*

Tensile strength *26-30 tons* Thickness: Sides *23/32"* Back *23/32"* Top *23/32"* Bottom *7/8"*

Pitch of stays to ditto: Sides *8 1/4" x 8 3/8"* Back *8 1/4" x 8 1/4"* Top *8 1/4" x 8"* Are stays fitted with nuts or riveted over *nuts*

Working pressure by Rules *263 lbs.* Front plate at bottom: Material *Steel* Tensile strength *26-30*

Thickness *1"* Lower back plate: Material *Steel* Tensile strength *26-30 tons* Thickness *3/32"*

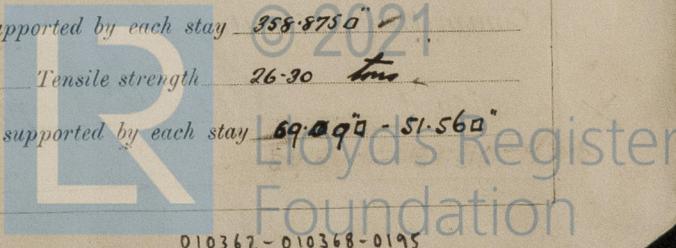
Pitch of stays at wide water space *14" x 8 1/4" to 14 3/4" x 8 1/4"* Are stays fitted with nuts or riveted over *nuts*

Working Pressure *279 lbs.* Main stays: Material *Steel* Tensile strength *28-32 tons*

Diameter {At body of stay or Over threads} *3 1/2"* No. of threads per inch *six* Area supported by each stay *358.875 sq"*

Working pressure by Rules *263.7 lbs.* Screw stays: Material *Steel* Tensile strength *26-30 tons*

Diameter {At turned off part or Over threads} *1 3/4" 1 5/8"* No. of threads per inch *nine* Area supported by each stay *69.090 - 51.560"*



Working pressure by Rules 266 Are the stays drilled at the outer ends no Margin stays: Diameter $\left\{ \begin{array}{l} \text{At turned off part,} \\ \text{or} \\ \text{Over threads } 2 \frac{1}{8} \end{array} \right.$

No. of threads per inch nine Area supported by each stay 98.84 sq. in. Working pressure by Rules 260.7

Tubes: Material Iron External diameter $\left\{ \begin{array}{l} \text{Plain } 2 \frac{1}{2} \\ \text{Stay } 2 \frac{1}{2} \end{array} \right.$ Thickness $\left\{ \begin{array}{l} 11 \frac{1}{8} \\ 3 \frac{1}{8} \frac{3}{16} \end{array} \right.$ No. of threads per inch nine

Pitch of tubes 3 $\frac{3}{4}$ - 3 $\frac{3}{8}$ Working pressure by Rules Plan 300 May 302.3 Manhole compensation: Size of opening in shell plate 15 $\frac{1}{4}$ x 19 $\frac{1}{4}$ Section of compensating ring 36 x 27 $\frac{1}{16}$ x 1 $\frac{1}{8}$ No. of rivets and diameter of rivet holes 36 x 1 $\frac{1}{16}$

Outer row rivet pitch at ends 10 $\frac{7}{8}$ Depth of flange if manhole flanged 3 $\frac{1}{4}$ Steam Dome: Material ✓

Tensile strength Thickness of shell Description of longitudinal joint

Diameter of rivet holes Pitch of rivets Percentage of strength of joint $\left\{ \begin{array}{l} \text{Plate} \\ \text{Rivets} \end{array} \right.$

Internal diameter Working pressure by Rules Thickness of crown No. and diameter of stays

How connected to shell Inner radius of crown Working pressure by Rules

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 Simplex upright Manufacturers of $\left\{ \begin{array}{l} \text{Tubes} \\ \text{Steel castings} \end{array} \right.$

Number of elements 60 each boiler Material of tubes Solid Brown Steel Internal diameter and thickness of tubes 1 $\frac{1}{4}$ Outside 10 WG

Material of headers Mild Steel Tensile strength Thickness 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 3.14 Are the safety valves fitted with easing gear yes Working pressure as per Rules 260 Pressure to which the safety valves are adjusted 260 lb Hydraulic test pressure: tubes castings and after assembly in place 780 lb sq. in. Are drain cocks or valves fitted to free the superheater from water where necessary Valves

Have all the requirements of Sections 14 to 23 inclusive for boilers been complied with Yes.

The foregoing is a correct description,
 PRO WORKMAN CLARK (1928) LIMITED. F. Birmingham Manufacturer.
 SECRETARY.

Dates of Survey $\left\{ \begin{array}{l} \text{During progress of work in shops - } \\ \text{while building } \end{array} \right. \left\{ \begin{array}{l} \text{Oct 31 Nov 2.6.21.30 Dec 17} \\ \text{Feb 13.19 Mar 5.12.13.18.24} \\ \text{Apr 26 May 2.6.8.13.14.23.30} \\ \text{June 4} \end{array} \right.$ Are the approved plans of boiler and superheater forwarded herewith 5.10.28 (If not state date of approval.)

Total No. of visits 22

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

These boilers were constructed under special survey to an approved design. The materials and workmanship are good. They were subjected to hydraulic test in accordance with the rules, and were apparently factored on board the vessel. The safety valves were adjusted to 260 lb sq. in. under steam.

Survey Fee £ See Index Report When applied for, 192

Travelling Expenses (if any) £ : : When received, 192

A. J. Morrison
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 21 JUN 1929

Assigned See P. 6 rpt. attached

