

REPORT ON BOILERS.

Wve. No. 77351

THU. 27 DEC. 1923

Received at London Office

Date of writing Report *22nd Dec 1923* When handed in at Local Office *22nd Dec 1923* Port of

NEWCASTLE-ON-TYNE

No. in Survey held at *Newcastle on Tyne* Date, First Survey *18th May* Last Survey *21st Dec 1923*

on the *Donkey Boiler for Messrs Doxford & Sons Ltd Motor Trawl No 578.* Tons { Gross *6304* Net *3849*

Master Built at *Sunderland* By whom built *H. Doxford & Sons Ltd* Yard No. *578* When built *1924*

Engines made at *Sunderland* By whom made *H. Doxford & Sons Ltd* Engine No. When made *1924*

Boilers made at *Newcastle on Tyne* By whom made *Hawthorn Leslie & Co Ltd* Boiler No. *8720* When made *1923*

Nominal Horse Power Owners *Furness Withy & Co. Ltd* Port belonging to *London*

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel *J. Spencer & Sons Ltd* (Letter for Record *S*)

Total Heating Surface of Boilers *1530 sq ft* *1500 for fuel* Is forced draught fitted *NO* Coal or Oil fired *OIL FIRED*

No. and Description of Boilers *One Single Ended Multitubular* Working Pressure *125 lb per sq in*

Tested by hydraulic pressure to *238 lbs* Date of test *21/6/23* No. of Certificate *9771* Can each boiler be worked separately *✓*

Area of Firegrate in each Boiler *OIL FIRED* No. and Description of safety valves to each boiler *Two, direct spring*

Area of each set of valves per boiler { per Rule *19.6 sq in* as fitted *20.64 sq in* Pressure to which they are adjusted *128 lb* 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 *YES*

Smallest distance between shell of boiler and tank top plating *4'-3"* Is the bottom of the boiler insulated *NO*

Largest internal dia. of boilers *13'-6"* Length *11'-0"* Shell plates: Material *Steel* Tensile strength *28/32 tons*

Thickness *27/32"* Are the shell plates welded or flanged *No* Description of riveting: circ. seams { and *S.R.* inter. *✓*

long. seam *Double straps, 3 rivets* Diameter of rivet holes in { circ. seams *1"* long. seams *1 1/16"* Pitch of rivets { *3"* *5 1/2"*

Percentage of strength of circ. end seams { plate *66.6* rivets *50.6* Percentage of strength of circ. intermediate seam { plate *✓* rivets *✓*

Percentage of strength of longitudinal joint { plate *50.7* rivets *55.7* combined *90.9* Working pressure of shell by Rules *126 lb per sq in*

Thickness of butt straps { outer *23/32"* inner *27/32"* No. and Description of Furnaces in each Boiler *Three, Morrison*

Material *Steel* Tensile strength *26 to 30 tons* Smallest outside diameter *38 1/4"*

Length of plain part { top *✓* bottom *✓* Thickness of plates { crown *3/8"* bottom *3/8"* Description of longitudinal joint *Welded*

Dimensions of stiffening rings on furnace or e.c. bottom *✓* Working pressure of furnace by Rules *138 lbs*

End plates in steam space: Material *Steel* Tensile strength *26 to 30 tons* Thickness *1"* Pitch of stays *22" x 16"*

How are stays secured *Double nuts & washers* Working pressure by Rules *129 lbs*

Tube plates: Material { front *Steel* back *✓* Tensile strength { *26 to 30 tons* Thickness { *7/8"* *3/4"*

Mean pitch of stay tubes in nests *11 1/8"* Pitch across wide water spaces *14 1/4"* Working pressure { front *136 lbs* back *✓*

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

at centre *9" x 1 1/2"* Length as per Rule *34"* Distance apart *11 7/8"* No. and pitch of stays

in each *Two, 10 1/2"* Working pressure by Rules *189 lbs* Combustion chamber plates: Material *Steel*

Tensile strength *26 to 30 tons* Thickness: Sides *11/16"* Back *11/16"* Top *11/16"* Bottom *7/8"*

Pitch of stays to ditto: Sides *11 7/8" x 10 1/2"* Back *11" x 10 1/2"* Top *11 7/8" x 10 1/2"* Are stays fitted with nuts or riveted over *Nuts*

Working pressure by Rules *131 lbs* Front plate at bottom: Material *Steel* Tensile strength *26 to 30 tons*

Thickness *7/8"* Lower back plate: Material *Steel* Tensile strength *26 to 30 tons* Thickness *3/4"*

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

Working Pressure *162 lb per sq in* Main stays: Material *Steel* Tensile strength *28 to 32 tons*

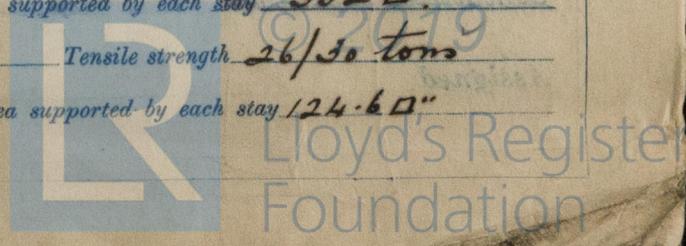
Diameter { At body of stay, *2 1/2"* No. of threads per inch *6* Area supported by each stay *352 sq in*

Working pressure by Rules *164 lbs* Screw stays: Material *Steel* Tensile strength *26 to 30 tons*

Diameter { At turned off part, *1 3/4"* No. of threads per inch *9* Area supported by each stay *124.6 sq in*

THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THE MARGIN.

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Working pressure by Rules 145 lb Are the stays drilled at the outer ends No Margin stays: Diameter { At turned off part, or Over threads 1 3/4"

No. of threads per inch 9 Area supported by each stay 1340" Working pressure by Rules 135 lb

Tubes: Material Iron External diameter { Plain 3 3/4" Stay 3 3/4" Thickness { 5/16" 1/2" No. of threads per inch 9

Pitch of tubes 4 1/2" x 4 3/8" Working pressure by Rules 130 Stay 150 lb Manhole compensation: Size of opening in shell plate 16" x 12" Section of compensating ring 7" x 7/8" No. of rivets and diameter of rivet holes forty, 1"

Outer row rivet pitch at ends 3 3/4" 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 Working pressure by Rules Thickness of crown No. and diameter of stays

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

of rivets in outer row in dome connection to shell Size of doubling plate under dome Diameter of rivet holes and pitch

Type of Superheater Manufacturers of { Tubes 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

Area of each safety valve Are the safety valves fitted with easing gear Working pressure as per Rules

Pressure to which the safety valves are adjusted Hydraulic test pressure: tubes 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 23 inclusive for boilers been complied with

The foregoing is a correct description,
R. A. Armstrong Manufacturer.

Dates of Survey while building { During progress of work in shops - - - 1923 May 18, 28, 29, June 5, 7, 11, 15, 18, 21, 22, July 24, 30 Are the approved plans of boiler and superheater forwarded herewith yes (If not state date of approval.)
 { During erection on board vessel - - - } Total No. of visits 17

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This boiler has been built under special survey, the materials and workmanship are of good quality, and on completion was tested by hydraulic pressure to 238 pounds per square inch and was found tight and sound at that pressure. The mountings were tested to 250 lbs per sq. in.
This boiler is to be forwarded to Sunderland for fitting on board.

The 4 steel test docket flimsies and the report on safety valves, non forwarded with plan of boiler are for two boilers. Messrs Doxford numbers being 577 and 578. NB Valves tested with 577 Report

This boiler has now been fitted & fired on board in a satisfactory manner, the oil burning installation has been tried under working conditions and found satisfactory

Survey Fee ... £ 12 : 0 : 0 When applied for, 24 DEC 1923
 Travelling Expenses (if any) £ ... : - : - When received, 10 JAN 1924

George Murdoch Esq.
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. MAY. 23 1924

Assigned



The Surveyors are requested not to write on or below the space for Committee's Minute.