

## REPORT ON BOILERS.

No. 31631

Received at London Office 28 MAY 1935

Date of writing Report 192 When landed in at Local Office 27 MAY 1935 Port of Sunderland.

No. in Survey held at Sunderland. Date, First Survey Last Survey May 2 1935

on the Sexus Steamer "THORNABY" (Number of Visits ) (Gross Tons ) (Net Tons )

Master Built at Newcastle By whom built Hawthorn Leslie & Co. Ltd. Card No. 596 When built 1935

Engines made at Sunderland By whom made North Eastern Mar. Eng. Co. Ltd. Engine No. 2814 When made 1935

Boilers made at Sunderland By whom made North Eastern Mar. Eng. Co. Ltd. Boiler No. 2814 When made 1935

Nominal Horse Power 148. Owners Tyne & Wear Shipping Co. Ltd. Port belonging to Middlesbrough

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

Manufacturers of Steel The Steel Company of Scotland Ltd.

Total Heating Surface of Boilers 2632  $\text{sq. ft.}$  Is forced draught fitted no. Coal or Oil fired Coal.

No. and Description of Boilers Two Single Ended multitubular Working Pressure 200.

Tested by hydraulic pressure to 350 Date of test 20.3.35 No. of Certificate 4156 Can each boiler be worked separately Yes.

Area of Firegrate in each Boiler 33  $\frac{1}{2}$   $\text{sq. ft.}$  No. and Description of safety valves to each boiler 2 Lever Spring.

Area of each set of valves per boiler { per Rule 4.48  $\text{sq. in.}$  as fitted 4.95  $\text{sq. in.}$  Pressure to which they are adjusted 200 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 4'-6" Is oil fuel carried in the double bottom under boilers no.

Smallest distance between shell of boiler and tank top plating open floors. Is the bottom of the boiler insulated Yes.

Largest internal dia. of boilers 11'-9  $\frac{29}{32}$ " Length 10'-9" Shell plates: Material Steel Tensile strength 29-33.

Thickness 1  $\frac{3}{64}$ " Are the shell plates welded or flanged no. Description of riveting: circ. seams 3  $\frac{3}{8}$ " end D.R. Lap. inter. 4  $\frac{1}{8}$ "

Long. seams T.R.D.B.S. Diameter of rivet holes in { circ. seams 1  $\frac{1}{8}$ " long. seams 1  $\frac{1}{8}$ " Pitch of rivets 4  $\frac{1}{8}$ "

Percentage of strength of circ. end seams { plate 66.6 rivets 43.8 Percentage of strength of circ. intermediate seam { plate 85.4 rivets 89.6

Percentage of strength of longitudinal joint { plate 85.4 rivets 89.6 combined 89.3 Working pressure of shell by Rules 200.6.

Thickness of butt straps { outer 13  $\frac{1}{16}$ " inner 15  $\frac{1}{16}$ " No. and Description of Furnaces in each Boiler Two Corrugated (Leighton).

Material Steel Tensile strength 26-30. Smallest outside diameter 3'-4  $\frac{3}{8}$ "

Length of plain part { top 9  $\frac{1}{16}$ " bottom Thickness of plates { crown 9  $\frac{1}{16}$ " bottom Description of longitudinal joint welded.

Dimensions of stiffening rings on furnace or p.c. bottom Working pressure of furnace by Rules 202.

End plates in steam space: Material Steel Tensile strength 26-30 Thickness 15  $\frac{1}{32}$ " Pitch of stays 1'-4  $\frac{5}{8}$ " x 1'-3"

How are stays secured double nuts. Working pressure by Rules 204.

Tube plates: Material { front Steel Tensile strength 26-30 Thickness 29  $\frac{1}{32}$ " 25  $\frac{1}{32}$ " 204. back 202.

Mean pitch of stay tubes in nests 10.4" Pitch across wide water spaces 14  $\frac{1}{2}$ " x 9  $\frac{1}{8}$ " Working pressure { front 204. back 202.

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 Depth and thickness of girder at centre 8  $\frac{1}{4}$ " x 13  $\frac{1}{4}$ " Length as per Rule 31  $\frac{7}{16}$ " Distance apart 10" No. and pitch of stays 2 @ 10" Working pressure by Rules 208

Tensile strength 26-30 Thickness: Sides 25  $\frac{1}{32}$ " Back 25  $\frac{1}{32}$ " Top 25  $\frac{1}{32}$ " Bottom 25  $\frac{1}{32}$ "

Pitch of stays to ditto: Sides 10  $\frac{1}{4}$ " x 10" Back 10  $\frac{1}{4}$ " x 9  $\frac{3}{4}$ " Top 10" x 10" Are stays fitted with nuts or riveted over nuts.

Working pressure by Rules 206. 215. 215. Front plate at bottom: Material Steel Tensile strength 26-30 Thickness 29  $\frac{1}{32}$ " Lower back plate: Material Steel Tensile strength 26-30 Thickness 29  $\frac{1}{32}$ "

Pitch of stays at wide water space 14  $\frac{1}{2}$ " x 10  $\frac{1}{4}$ " Are stays fitted with nuts or riveted over nuts.

Working Pressure 214. Main stays: Material Steel Tensile strength 28-32.

Diameter { At body of stay, 2  $\frac{5}{8}$ " or 3" No. of threads per inch 6 Area supported by each stay 19  $\frac{5}{8}$ " x 15"

Working pressure by Rules 201. Screw stays: Material Steel Tensile strength 26-30

Diameter { At turned off part, 2  $\frac{1}{8}$ " or 2" 1  $\frac{1}{8}$ " No. of threads per inch 9 Area supported by each stay 143" 123" 102.5"



Working pressure by Rules <sup>200</sup> ~~304~~ Are the stays drilled at the outer ends *No.* Margin stays: Diameter <sup>At turned off part.</sup> ~~2 1/8"~~ <sup>✓</sup>  
 No. of threads per inch *9.* Area supported by each stay *143 sq"* Working pressure by Rules *200.*  
 Tubes: Material *Seamless Steel* External diameter <sup>Plain</sup> *3 1/4"* Thickness <sup>8 WG.</sup> *1/16" 5/16" 1/4"* No. of threads per inch *9.*  
 Pitch of tubes *4 9/16" - 4 7/16"* Working pressure by Rules *212. 200. 204.* Manhole compensation: Size of opening  
 shell plate *none* Section of compensating ring *✓* No. of rivets and diameter of rivet holes *✓*  
 Outer row rivet pitch at ends *✓* 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 <sup>Plate</sup> <sup>Rivets</sup>  
 Internal diameter Working pressure by Rules Thickness of crown No. and diameter  
 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 Manufacturers of <sup>Tubes</sup> <sup>Steel castings</sup>  
 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 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 22 inclusive for boilers been complied with *Yes.*

The foregoing is a correct description,  
 FOR THE NORTH EASTERN MARINE ENGINEERING CO. LTD. Manufacture

Dates of Survey <sup>During progress of work in shops - -</sup> *Please see Mech. Rpt* Are the approved plans of boiler and superheater forwarded *✓*  
<sup>while building</sup> <sup>During erection on board vessel - - -</sup> *Yes.*  
 Total No. of visits

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

*These boilers have been Constructed under Special Survey in accordance with the approved plan & the Rules of the Society.*

*The materials & workmanship are good.*

*On Completion the boilers have been satisfactorily tested by hydraulic pressure in accordance with the Rules, found tight & sound, securely fixed on board the vessel, & runned under steam, safety valves adjusted to working pressure & accumulation test. Carried out Satisfactorily.*

*For recommendation please see Mech. Rpt.*

Survey Fee ... *Charged on Mech. Rpt.* When applied for, 192  
 Travelling Expenses (if any) £ When received, 192

*J. H. Fraser.*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 18 JUN 1935*

Assigned *See Nav. J.E. 92619*



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