

REPORT ON BOILERS.

Received at London Office **28 MAY 1935**

Date of writing Report **1935** When handed in at Local Office **27 MAY 1935** Port of **Sunderland.**

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

on the **Sexus Steamer "THORNABY"** (Number of Visits **1**) (Gross Tons **596**) (Net Tons **596**)

Master **[Signature]** Built at **Newcastle** By whom built **Hawthorn Leslie & Co. L^{td}** Card No. **596** When built **1935**

Engines made at **Sunderland** By whom made **North Eastern Mar. Eng. Co. L^{td}** Engine No. **2814** When made **1935**

Boilers made at **Sunderland** By whom made **North Eastern Mar. Eng. Co. L^{td}** Boiler No. **2814** When made **1935**

Nominal Horse Power **148.** Owners **Type Lee Ste. Shipping Co. L^{td}** Port belonging to **Middlesbrough**

MULTITUBULAR BOILERS—MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel **The Steel Company of Scotland L^{td}** (Letter for Record **S.**)

Total Heating Surface of Boilers **2632** 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 1/2** 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** as fitted **4.95**) 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 **Yes.**

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 29/32"** Length **10'-9"** Shell plates: Material **Steel** Tensile strength **29-33.**

Thickness **1 3/64"** Are the shell plates welded or flanged **no.** Description of riveting: circ. seams **3 3/8"** end **D.R. Lap.**

Long. seams **T.R.D.B.S.** Diameter of rivet holes in (circ. seams **1 1/8"** long. seams **1 1/8"**) Pitch of rivets **4 1/8"**

Percentage of strength of circ. end seams (plate **66.6** rivets **43.8**) Percentage of strength of circ. intermediate seam (plate **85.41** rivets **89.6**)

Percentage of strength of longitudinal joint (plate **85.41** rivets **89.6** combined **89.3**) Working pressure of shell by Rules **200.6.**

Thickness of butt straps (outer **13/16"** inner **15/16"**) No. and Description of Furnaces in each Boiler **Two corrugated (Leighton).**

Material **Steel** Tensile strength **26-30.** Smallest outside diameter **3'-4 3/8"**

Length of plain part (top **9/16"** bottom **9/16"**) Thickness of plates (crown **9/16"** bottom **9/16"**) Description of longitudinal joint **welded.**

Dimensions of stiffening rings on furnace or p.c. bottom **no.** Working pressure of furnace by Rules **202.**

End plates in steam space: Material **Steel** Tensile strength **26-30** Thickness **15/32"** Pitch of stays **1'-4 5/8" x 1'-3"**

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

Tube plates: Material (front **Steel** back **Steel**) Tensile strength **26-30** Thickness (front **29/32"** back **25/32"**)

Mean pitch of stay tubes in nests **10.4"** Pitch across wide water spaces **14 1/2" x 9 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 1/4" x 13 1/4"** Length as per Rule **31 7/16"** Distance apart **10"** No. and pitch of stays **2 @ 10"** Working pressure by Rules **208**

Tensile strength **26-30** Thickness: Sides **25/32"** Back **25/32"** Top **25/32"** Bottom **25/32"**

Pitch of stays to ditto: Sides **10 1/4" x 10"** Back **10 1/4" x 9 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 **29/32"** Lower back plate: Material **Steel** Tensile strength **26-30** Thickness **29/32"**

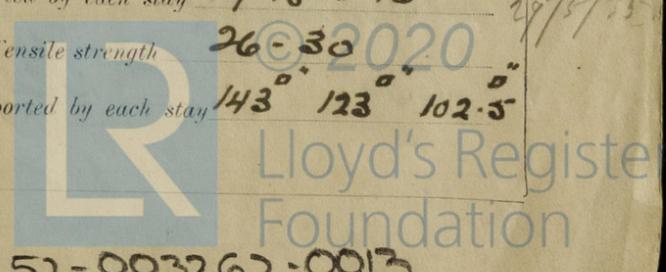
Pitch of stays at wide water space **14 1/2" x 10 1/4"** Are stays fitted with nuts or riveted over **nuts.**

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

Diameter (At body of stay **2 5/8"** or over threads **3"**) No. of threads per inch **6** Area supported by each stay **19 5/8" x 15"**

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

Diameter (At turned off part **2 1/8"** or over threads **2" 1 1/8"**) No. of threads per inch **9** Area supported by each stay **14 3/8" 12 3/8" 10 2 1/8"**



Working pressure by Rules ²⁰⁰ ~~304~~ Are the stays drilled at the outer ends *no.* Margin stays: Diameter ^{At turned off part.} ~~2 1/8"~~ [✓]
 No. of threads per inch *9.* Area supported by each stay *143"* Working pressure by Rules *200.*
 Tubes: Material *Seamless Steel* External diameter ^{Plain} *3 1/4"* Thickness ^{8 WG.} *4 1/16" 5 1/16" 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 ^{Plate}
 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 ^{Tubes}
 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 casing 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 calces 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 ^{During progress of work in shops - -} *Please see Mech. Rpt* Are the approved plans of boiler and superheater forwarded ^(If not state date of approval.) *Geo.*
 while building ^{During erection on board vessel - - -} 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, & anned 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. G.E. 92619*

