

REPORT ON BOILERS.

No. 85624

Received at London Office 25 APR 1930
NEWCASTLE-ON-TYNE

Date of writing Report 1930 When handed in at Local Office 24/4/1930 Port of

No. in Reg. Book Survey held at St. Peter's, Hebburn. Date, First Survey 25 Oct 29 Last Survey 15 April 1930.

on the two cylindrical boilers for the ferry "NORTHUMBRIAN" (Number of Visits 4) (Gross Tons 344) (Net Tons 154)

Master Built at Hebburn. By whom built Hawthorn Leslie & Co. Ltd. Yard No. 543 When built 1930.

Engines made at St. Peter's By whom made Hawthorn Leslie & Co. Ltd. Engine No. 3464 When made 1930.

Boilers made at - do - By whom made - do - Boiler No. 3464 When made 1930.

Nominal Horse Power Owners Type Improvements Laminating Port belonging to J. Shields

MULTITUBULAR BOILERS MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel D. Colville & Sons. (Letter for Record 8)

Total Heating Surface of Boilers 1902 sq ft Is forced draught fitted No Coal or Oil fired Coal.

No. and Description of Boilers 2 single ended marine Working Pressure 180 lbs sq

Tested by hydraulic pressure to 360 lbs Date of test 13.4.30 No. of Certificate 421 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 34.5 sq ft No. and Description of safety valves to each boiler 1 pair Lockburn high lift

Area of each set of valves per boiler (per Rule 6.2.3) (as fitted 3.52) Pressure to which they are adjusted 180 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 12 1/2" FROM BOILER TOP TO DECK (DECK INSULATED) Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 6" open floor Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 10'-0" Length 11'-6" Shell plates: Material Steel Tensile strength 28/32 Tons.

Thickness 24/32 Are the shell plates welded or flanged No Description of riveting: circ. seams (end 0, R. Lap) (inter. -)

long. seams J, R, D, B, S. Diameter of rivet holes in (circ. seams 1 15/16) (long. seams 3) Pitch of rivets (3" 6 1/2")

Percentage of strength of circ. end seams (plate 66% rivets 46%) Percentage of strength of circ. intermediate seam (plate 88.5% rivets 94%) } Yes.

Percentage of strength of longitudinal joint (plate 94% rivets 90.4%) Working pressure of shell by Rules 181 lbs sq

Thickness of butt straps (outer 21/32 inner 25/32) No. and Description of Furnaces in each Boiler 2 Horizontal. 2 of

Material Steel Tensile strength 26/30 Tons Smallest outside diameter 2'-10 1/16"

Length of plain part (top - bottom -) Thickness of plates (crown 15/32 bottom 15/32) Description of longitudinal joint Weld.

Dimensions of stiffening rings on furnace or c.c. bottom Yes. Working pressure of furnace by Rules 198 lbs sq

End plates in steam space: Material Steel Tensile strength 26/30 Tons Thickness 1 1/16" Pitch of stays 14" x 14"

How are stays secured Double Nuts. Working pressure by Rules 191 lbs

Tube plates: Material (front Steel back Steel) Tensile strength } 26/30 Tons Thickness (1 1/16" 1 3/16")

Mean pitch of stay tubes in nests 10" Pitch across wide water spaces 15" Working pressure (front 224 lbs back 234 lbs)

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

at centre 9" x 3 1/4" D. Length as per Rule 26" Distance apart 9" No. and pitch of stays

in each 3 @ 8" Working pressure by Rules 182 lbs Combustion chamber plates: Material Steel

Tensile strength 26/30 Tons Thickness: Sides 5/8" Back 5/8" Top 5/8" Bottom 4/8"

Pitch of stays to ditto: Sides 9" x 8" Back 9" x 8" Top 9" x 8" Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 211 lbs Front plate at bottom: Material Steel Tensile strength 26/30 Tons.

Thickness 1 1/16" Lower back plate: Material Steel Tensile strength 26/30 Tons Thickness 1 1/16"

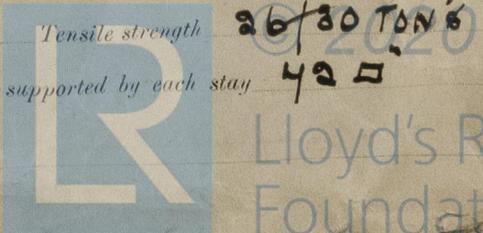
Pitch of stays at wide water space 15 3/4" Are stays fitted with nuts or riveted over NUTS.

Working Pressure 283 lbs Main stays: Material Steel Tensile strength 28/32 Tons

Diameter (At body of stay, or Over threads) 2 7/8" No. of threads per inch 6 Area supported by each stay 289 sq

Working pressure by Rules 210 lbs Screw stays: Material Steel Tensile strength 26/30 TONS

Diameter (At turned off part, or Over threads) 1 5/8" No. of threads per inch 9 Area supported by each stay 42 sq



Working pressure by Rules 211 Are the stays drilled at the outer ends Yes Margin stays: Diameter ^{At turned off part.} 1 7/8"
 No. of threads per inch 9 Area supported by each stay 99 5/8" Working pressure by Rules 215 lbs
 Tubes: Material Iron External diameter ^{Plain} 3 1/4" Thickness ^{S.W.A.} 3/8" - 5/16" No. of threads per inch 9
 Pitch of tubes 4 1/2" - 4 3/8" Working pressure by Rules 205 lbs Manhole compensation: Size of opening in
 shell plate 21" x 14" Section of compensating ring 8 1/2" x 7/8" No. of rivets and diameter of rivet holes 42 @ 1 1/2"
 Outer row rivet pitch at ends 4" Depth of flange if manhole flanged 4" Steam Dome: Material Iron
 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 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 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

The foregoing is a correct description.
 FOR R. & W. FENTON, LESLIE & CO. LD.
R. J. Armstrong Manufacturer.

Dates of Survey ^{During progress of} work in shops -- Are the approved plans of boiler and superheater forwarded herewith Yes.
^{while} building ^{During erection on} board vessel -- (If not state date of approval.)
See Mchly Report Total No. of visits

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) The Boilers have been
built under special survey in accordance with the
approved plans + the Rules of the Society, have
been securely fitted in the vessel + their safety
valves adjusted under steam to working
pressure.
The workmanship + materials are of good
quality throughout

Survey Fee £ : / When applied for, 192
 Travelling Expenses (if any) £ : / When received, 192

Wm. A. Ferguson
 Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute TUE. 29 APR 1930
 Assigned See attached &c.

