

# REPORT ON BOILERS.

No. 79233

Received at London Office

Date of writing Report 1925 When handed in at Local Office 14/5/1925 Port of Newcastle-on-Tyne

No. in Reg. Book. 89297 on the INANDA Survey held at Newcastle-on-Tyne Date, First Survey 6<sup>th</sup> Aug 1924 Last Survey 1<sup>st</sup> May 1925

Master Built at Newcastle By whom built <sup>Richardson</sup> Swan Hunter & Wigham Yard No. 1259 When built 1925

Engines made at Newcastle By whom made <sup>Richardson</sup> Wallsend Slipway & Eng. Co. Ltd. Engine No. 856 When made 1925

Boilers made at Newcastle By whom made <sup>Richardson</sup> Wallsend Slipway & Eng. Co. Ltd. Boiler No. 856 When made 1925

Nominal Horse Power 606 606. Owners T. J. Harrison Port belonging to Liverpool

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

Manufacturers of Steel David Colville & Son Ltd. (Letter for Record )

Total Heating Surface of Boilers 8764 sq ft Is forced draught fitted  Coal or Oil fired Coal

No. and Description of Boilers Two Double-ended Cylindrical Working Pressure 220 lbs

Tested by hydraulic pressure to 380 lbs Date of test 16-1-25 No. of Certificate 9885 Can each boiler be worked separately

Area of Firegrate in each Boiler 110 sq ft No. and Description of safety valves to each boiler Two Spring-loaded

Area of each set of valves per boiler { per Rule 22.02 sq in as fitted 25.12 sq in Pressure to which they are adjusted 225 lbs Are they fitted with easing gear Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler none

Smallest distance between boilers or uptakes and bunkers or woodwork 60 in Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 24 1/2 in Is the bottom of the boiler insulated Yes

Largest internal dia. of boilers 189 in Length 17'-9" Shell plates: Material Steel Tensile strength 30-34 Tons

Thickness 1 1/2 in Are the shell plates welded or flanged No  Description of riveting: circ. seams { end Double inter. Treble

long. seams Treble - S.S. Diameter of rivet holes in { circ. seams 1 5/8 in long. seams 1 5/8 in Pitch of rivets { 10 5/8 in

Percentage of strength of circ. end seams { plate 65 rivets 45.6 Percentage of strength of circ. intermediate seam { plate 65 rivets 68.4

Percentage of strength of longitudinal joint { plate 84 rivets 93 combined 88 Working pressure of shell by Rules 223 lbs

Thickness of butt straps { outer 1 5/16 in inner 1 5/16 in No. and Description of Furnaces in each Boiler Six Morrison

Material Steel Tensile strength 26-30 Tons Smallest outside diameter 45 3/8 in

Length of plain part { top bottom Thickness of plates { crown 1 1/16 in bottom 1 1/16 in Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 223 lbs

End plates in steam space: Material Steel Tensile strength 26-30 Tons Thickness 1 3/32 in Pitch of stays 38 1/8 x 16 3/4 in

How are stays secured Double Nuts Working pressure by Rules 229 lbs

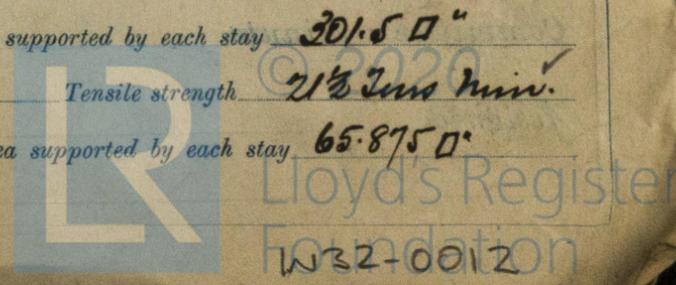
Tube plates: Material { front Steel back Steel Tensile strength { 26-30 Tons Thickness { 1 in

Mean pitch of stay tubes in nests 13 3/16 in Pitch across wide water spaces 14 1/4 in Working pressure { front 232 lbs back 224 lbs

Girders to combustion chamber tops: Material Steel Tensile strength 28-32 Tons Depth and thickness of girder at centre 11 3/4 in - 1 1/2 in Length as per Rule 44 in Distance apart 7 3/4 in No. and pitch of stays in each 3 in 8 1/2 in Working pressure by Rules 227 lbs Combustion chamber plates: Material Steel Tensile strength 26-30 Tons Thickness: Sides 3/32 in Back 2 1/32 in Top 2 1/32 in Bottom 3/32 in Pitch of stays to ditto: Sides 8 1/2 x 7 3/4 in Back Top 8 1/2 x 7 3/4 in Are stays fitted with nuts or riveted over Nuts

Working pressure by Rules 227 lbs Front plate at bottom: Material Steel Tensile strength 26-30 Tons Thickness 1 in Lower back plate: Material Steel Tensile strength 26-30 Tons Thickness 1 in Pitch of stays at wide water space none Are stays fitted with nuts or riveted over

Working Pressure Main stays: Material Steel Tensile strength 28-32 Tons Diameter { At body of stay 3 in No. of threads per inch Six Area supported by each stay 301.5 sq in Over threads Working pressure by Rules 222 lbs Screw stays: Material Iron Tensile strength 21 1/2 Tons min. Diameter { At turned off part 1 3/4 in No. of threads per inch Nine Area supported by each stay 65.875 sq in Over threads



Working pressure by Rules 275 lb Are the stays drilled at the outer ends No ✓ Margin stays: Diameter { At turned off part, or Over threads. None }

No. of threads per inch 11 ✓ Area supported by each stay 3 1/2" ✓ Working pressure by Rules 275 lb ✓

Tubes: Material low ✓ External diameter { Plain 3 1/2" ✓ Stay 3 1/2" ✓ Thickness { no. 7 W.G. ✓ 7/8" - 5/16" ✓ No. of threads per inch 11 ✓

Pitch of tubes 4 3/8" ✓ Working pressure by Rules Plain 260 lb Stay 244 lb ✓ Manhole compensation: Size of opening 36-1 5/8" ✓

shell plate 19" x 15" ✓ Section of compensating ring 35 1/2" - 37 1/8" x 1 1/2" ✓ No. of rivets and diameter of rivet holes 36-1 5/8" ✓

Outer row rivet pitch at ends 10 5/8" ✓ Depth of flange if manhole flanged 3 1/2" ✓ 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 \_\_\_\_\_ 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 Nash Eastern Marine Eng. Co. Ltd. ✓ Manufacturers of { Tubes Weldless Steel Tube Co. Ltd. ✓ Steel castings \_\_\_\_\_ }

Number of elements 196 ✓ Material of tubes S.D. Steel ✓ Internal diameter and thickness of tubes 17 mm. 2 1/2 mm. ✓

Material of headers Angled S.M. Steel ✓ Tensile strength 26-30 tons ✓ Thickness 1 1/8" ✓ 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 sq' ✓ Are the safety valves fitted with easing gear Yes ✓ Working pressure as per Rules 220 lbs ✓ Pressure to which the safety valves are adjusted 230 lbs ✓ Hydraulic test pressure 1500 lb ✓

tubes 1500 lb ✓ Headers 600 lbs ✓ and after assembly in place 440 lbs ✓ Are drain cocks or valves fitted to free the superheater from water where necessary Yes ✓

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

FOR THE WALLSEND SLIPWAY & ENGINEERING CO. LIMITED.  
The foregoing is a correct description,  
A. Lang Manufacturer

Dates of Survey { During progress of work in shops - - } See Machinery Report. Are the approved plans of boiler and superheater forwarded herewith (If not state date of approval.) \_\_\_\_\_

{ During erection on board vessel - - } \_\_\_\_\_ Total No. of visits \_\_\_\_\_

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

*These boilers were constructed under special survey and in accordance with the approved plans. The materials and workmanship are sound and good. They were satisfactorily subjected to a hydraulic pressure test & efficiently fastened on board. The main and superheater safety valves were adjusted under steam. In my opinion the vessel is now eligible for notation - L.M.C. H. 25. C.L.*

Survey Fee ... .. £ See Machinery Report. : When applied for, 192

Travelling Expenses (if any) £ See Machinery Report. : When received, 192

W. Lee Armer  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 29 MAY 1921

Assigned \_\_\_\_\_