

REPORT ON BOILERS.

No. 78206

Received at London Office 23 AUG 1924

Date of writing Report 1924 When handed in at Local Office 9/8/1924 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Newcastle Date, First Survey 31st March 1924 Last Survey 8th August 1924

70661 on the Steel Ss. SENTRY (Number of Visits —) Gross 1036 Net 495

Master Built at Newcastle By whom built Tyne Iron Works Co. Ltd. Yard No. 228 When built 1924

Engines made at Newcastle By whom made North Eastern Marine Eng. Co. Ltd. Engine No. 2582 When made 1924

Boilers made at Newcastle By whom made North Eastern Marine Eng. Co. Ltd. Boiler No. 2582 When made 1924

Nominal Horse Power 193 Owners Fish, Remick & Co. Manchester - London Steamers Ltd. Port belonging to Manchester

MULTITUBULAR BOILERS - MAIN, AUXILIARY, OR DONKEY.

Manufacturers of Steel The Steel Company of Scotland Ltd. (Letter for Record S)

Total Heating Surface of Boilers 3560 sq ft Is forced draught fitted No Coal or Oil fired Coal

No. and Description of Boilers Two single ended cylindrical Working Pressure 180 lbs sq in

Tested by hydraulic pressure to 320 lbs Date of test 12.6.24 No. of Certificate 9831 Can each boiler be worked separately Yes

Area of Firegrate in each Boiler 48.5 sq ft No. and Description of safety valves to each boiler Two Spring-loaded

Area of each set of valves per boiler per Rule 11.4 sq in as fitted 11.8 sq in Pressure to which they are adjusted 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 22" Is oil fuel carried in the double bottom under boilers No

Smallest distance between shell of boiler and tank top plating 23 1/2" Is the bottom of the boiler insulated No

Largest internal dia. of boilers 158 3/8" Length 10'9" Shell plates: Material Steel Tensile strength 28 1/2 - 32 1/2 Tons

Thickness 1 7/8" Are the shell plates welded or flanged No Description of riveting: circ. seams end Double inter. Pitch of rivets 3 1/2" 8"

Long. seams Double Rivet D.B.S. Diameter of rivet holes in circ. seams 1 1/8" long. seams 1 1/8" Pitch of rivets 3 1/2" 8"

Percentage of strength of circ. end seams plate 59.2 rivets 44.5 Percentage of strength of circ. intermediate seam plate rivets

Percentage of strength of longitudinal joint plate 85.93 rivets 88.7 combined 89.36 Working pressure of shell by Rules 180 lbs

Thickness of butt straps outer 1 5/8" inner 1 5/16" No. and Description of Furnaces in each Boiler Three Main

Material Steel Tensile strength 26-30 Tons Smallest outside diameter 35 3/16"

Length of plain part top bottom Thickness of plates crown 1 5/8" bottom 3/32" Description of longitudinal joint welded

Dimensions of stiffening rings on furnace or c.c. bottom Working pressure of furnace by Rules 191 lbs

Stays in steam space: Material Steel Tensile strength 26-30 Tons Thickness 1 1/4" Pitch of stays 24" x 18"

How are stays secured Double nuts & washers (320) Working pressure by Rules 182 lbs

End plates: Material front Steel back Steel Tensile strength 26-30 Tons Thickness 1 5/16" 3/4"

Minimum pitch of stay tubes in nests 8 7/8" Pitch across wide water spaces 14 1/2" Working pressure front 185 lbs back 244 lbs

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

Centre 8"-1 1/2" Length as per Rule 30" Distance apart 10" No. and pitch of stays

Each Two 9 1/2" Working pressure by Rules 185 lbs Combustion chamber plates: Material Steel

Tensile strength 26-30 Tons Thickness: Sides 23/32" Back 23/32" Top 23/32" Bottom 7/8"

Pitch of stays to ditto: Sides 10 1/2" x 9 1/2" Back 11 1/4" x 8 1/2" Top 10" x 9 1/2" Are stays fitted with nuts or riveted over nuts

Working pressure by Rules 181 lbs Front plate at bottom: Material Steel Tensile strength 26-30 Tons

Thickness 1 5/16" Lower back plate: Material Steel Tensile strength 26-30 Tons Thickness 7/8"

Pitch of stays at wide water space 14 1/2" Are stays fitted with nuts or riveted over nuts

Working Pressure 187 lbs Main stays: Material Steel Tensile strength 28-32 Tons

At body of stay, or Over threads 3" No. of threads per inch Six Area supported by each stay 432 sq in

Working pressure by Rules 182 lbs Screw stays: Material Steel Tensile strength 26-30 Tons

At turned off part, or Over threads 1 3/4" No. of threads per inch Nine Area supported by each stay 99.75 sq in

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Working pressure by Rules 182 lbs. Are the stays drilled at the outer ends No. Margin stays: Diameter ^{At turned off part,} 1 3/4" _{or} ^{Over threads} 1 3/8"

No. of threads per inch nine Area supported by each stay 109.4375 sq" Working pressure by Rules 195 lbs.

Tubes: Material Iron External diameter ^{Plain} 3 1/4" ^{Stay} 3 1/4" Thickness ^{No. 8. 14. 9.} 1/4" 5/16" No. of threads per inch nine

Pitch of tubes 4 1/2" x 4 3/8" Working pressure by Rules plain 230 lbs Stay 192 lbs. Manhole compensation: Size of opening in steel plate 16" x 12" Section of compensating ring ✓ No. of rivets and diameter of rivet holes ✓

Outer row rivet pitch at ends ✓ Depth of flange if manhole flanged 4 1/4" 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 None 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 Yes.

The foregoing is a correct description,
THE NORTH EASTERN MARINE ENGINEERING Co., LTD. Manufacturer.

Dates of Survey ^{During progress of work in shops - -} _____ _{while building} ^{During erection on board vessel - - -} _____

See Machinery Report

Are the approved plans of boiler and superheater forwarded here with _____ (If not state date of approval.)

Total No. of visits _____

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) These Boilers were constructed under Special Survey. The materials and workmanship are sound and good. The Boilers satisfactorily withstood the hydraulic pressure test. The safety valves were adjusted under steam.

In my opinion the vessel is now eligible for notation T.L.M.C. 8. 24.

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

Travelling Expenses (if any) £ : : When received. 192

R. Lee Arneson.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUES. 26 AUG 1924

Assigned _____

