

Rpt. 5a.

## REPORT ON BOILERS.

No. 77693

Received at London Office

WED MAR 26 1924

Date of writing Report

192

When handed in at Local Office

15/3/1924

Port of

NEWCASTLE-ON-TYNE

No. in Survey held at

Newcastle

Date, First Survey

15 March 1923

Last Survey

14 March

1924

400 37 on the

"MARSDEN"

(Number of Visits)

Gross 2875

Tons

Net 1695

Master

Built at Newcastle

By whom built Wood Skinner &amp; Co. Ltd.

Yard No. 232

When built 1924

Engines made at

Newcastle

By whom made North Eastern Marine Eng. Co. Ltd.

Engine No. 2537

When made 1924

Boilers made at

Newcastle

By whom made North Eastern Marine Eng. Co. Ltd.

Boiler No. 2537

When made 1924

Nominal Horse Power

359

Owners

(Burnett &amp; Co. Ingers.)

Port belonging to

Newcastle

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

Manufacturers of Steel

John Spencer &amp; Sons Ltd.

(Letter for Record

S.

Total Heating Surface of Boilers

6120 sq ft

Is forced draught fitted

No.

Coal or Oil fired

Coal

No. and Description of Boilers

2 Single Ended Cylindrical 2SB

Working Pressure

200 lbs

Tested by hydraulic pressure to

350 lbs

Date of test

27.7.23

No. of Certificate

9774

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

84 sq ft

No. and Description of safety valves to each boiler

Two Spring-loaded

Area of each set of valves per boiler

per Rule 17.8

as fitted 19.24

Pressure to which they are adjusted

205 lbs

Are they fitted with easing gear

Yes

In case of donkey boilers, state whether steam from main boilers can enter the donkey boiler

Not fitted with H.R. valve

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

3"

Is the bottom of the boiler insulated

No

Largest internal dia. of boilers

17' 3 1/16"

Length

11' 0"

Shell plates: Material

Steel

Tensile strength

39 3/4 / 33 3/4

Thickness

1 1/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end

Double

long. seams

Double

Diameter of rivet holes in

circ. seams

1 1/32"

long. seams

1 1/32"

Pitch of rivets

4"

10 7/16"

Percentage of strength of circ. end seams

plate 61.6

rivets 48.3

Percentage of strength of circ. intermediate seam

plate

rivets

Percentage of strength of longitudinal joint

plate 85.33

rivets 87.12

combined 88.2

Working pressure of shell by Rules

200 lbs

Thickness of butt straps

outer 1 1/8"

inner 1 1/4"

No. and Description of Furnaces in each Boiler

4 cf

4 Deighton's

Material

Steel

Tensile strength

26/30 2ms

Smallest outside diameter

44 1/2"

Length of plain part

top

bottom

Thickness of plates

crown

bottom

7/8"

Description of longitudinal joint

weld

Dimensions of stiffening rings on furnace or c.c. bottom

✓

Working pressure of furnace by Rules

204 lbs

End plates in steam space: Material

Steel

Tensile strength

26/30 2ms

Thickness

1 9/16"

Pitch of stays 24" x 25"

How are stays secured

Double nuts &amp; washers

Working pressure by Rules

214 lbs

Tube plates: Material

front Steel

back Steel

Tensile strength

26/30 2ms

Thickness

1"

3/4"

Mean pitch of stay tubes in nests

8 7/8"

Pitch across wide water spaces

14 1/2"

Working pressure

front 211 lbs

back 205 lbs

Girders to combustion chamber tops: Material

Steel

Tensile strength

28/30 2ms

Depth and thickness of girder

at centre

9 1/2" x 1 1/2"

Length as per Rule

33"

Distance apart

10"

No. and pitch of stays

in each

Two 9 3/4"

Working pressure by Rules

209 lbs

Combustion chamber plates: Material

Steel

Tensile strength

26/30 2ms

Thickness: Sides

3/4"

Back

23/32"

Top

3/4"

Bottom

1"

Pitch of stays to ditto: Sides

10" x 9 3/4"

Back

10" x 9"

Top

10" x 9 3/4"

Are stays fitted with nuts or riveted over

nuts

Working pressure by Rules

201 lbs

Front plate at bottom: Material

Steel

Tensile strength

26/30 2ms

Thickness

7/8"

Lower back plate: Material

Steel

Tensile strength

26/30 2ms

Thickness

15/16"

Pitch of stays at wide water space

14 1/2" x 10"

Are stays fitted with nuts or riveted over

nuts

Working Pressure

206 lbs

Main stays: Material

Steel

Tensile strength

28/30 2ms

Diameter

At body of stay,

or

Over threads

3 3/4"

No. of threads per inch

6

Area supported by each stay

600 sq in

Working pressure by Rules

208 lbs

Screw stays: Material

Steel

Tensile strength

26/30 2ms

Diameter

At turned off part,

or

Over threads

1 7/8"

1 3/4"

No. of threads per inch

9

Area supported by each stay

90 sq in 97.50"

002449-002456-0058

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Working pressure by Rules 201 lbs Are the stays drilled at the outer ends no Margin stays: Diameter { At turned off part, or Over threads 2"

No. of threads per inch 9 Area supported by each stay 117.5 sq" Working pressure by Rules 210 lbs

Tubes: Material iron ✓ External diameter { Plain 3 1/4" ✓ Stay 3 1/4" ✓ Thickness { no. 8 R.F. ✓ 1/2" - 5/16" - 1/4" No. of threads per inch 9 ✓

Pitch of tubes 1 1/2" x 4 3/8" ✓ Working pressure by Rules plain 230 lbs stay 269 lbs Manhole compensation: Size of opening in shell plate 20" x 16" ✓ Section of compensating ring 9 1/2" x 1 3/4" ✓ No. of rivets and diameter of rivet holes 32 - 1 9/16"

Outer row rivet pitch at ends 10 3/4" ✓ Depth of flange if manhole flanged 1 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 North Eastern ✓ Manufacturers of { Tubes Tubes Ltd. ✓ Steel castings Leyland Motors Ltd. ✓

Number of elements 128 ✓ Material of tubes Steel ✓ Internal diameter and thickness of tubes 17 3/4" 2 1/2" ✓

Material of headers hmsc steel ✓ Tensile strength 16,000 lbs ✓ Thickness 7/8" Can the superheater be shut off and the boiler be worked separately no 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 200 lbs ✓ Pressure to which the safety valves are adjusted 210 lbs ✓ Hydraulic test pressure: tubes 1500 lbs ✓ and after assembly in place 600 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

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 herewith (If not state date of approval.)  
Total No. of visits 1

# 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. They satisfactorily withstood the hydraulic test. They were efficiently installed on board the vessel. The superheaters were tested during construction and after being fitted to the Boilers. The safety valves of the main Boilers & their superheaters were adjusted under steam. In my opinion the Boilers are eligible for classification

Survey Fee ... See Machinery Rpt.  
Travelling Expenses (if any) £ : : When applied for, 192  
When received, 192

R. Lee Amess.

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 1 APR. 1924

Assigned See other rpt  
Nov 77693



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Assigned  
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Foundation

GENERAL RE  
Special Sur  
by hydr

This Boiler was  
Steamer "MAR  
Easing gear is  
105 lbs sq" the

Survey Fee ...  
Travelling Expense