

## REPORT ON BOILERS.

No. 102835

Received at London Office

Date of writing Report

19

When handed in at Local Office

3. 5. 1945

Port of NEWCASTLE ON TYNE.

No. in Survey held at

Newcastle

Date, First Survey

(1944) Apr. 29<sup>th</sup>

Last Survey

18-4-

1945

Reg. Book.

(Number of Visits)

78

Gross

Tons

Net

on the

s/s "EMPIRE NAIROBI"

Built at

Sunderland

By whom built

Short Bros.

Yard No

484

When built

1945

Engines made at

Newcastle on Tyne

By whom made

North Eastern Mar. Co (1938) Ltd

Engine No

3108

When made

1945

Boilers made at

ditto

By whom made

ditto

Boiler No

3070

When made

Nominal Horse Power

Owners

Min. of War Transport

Port belonging to

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

Manufacturers of Steel

Colvilles Ltd.

(Letter for Record)

S.

Total Heating Surface of Boilers

7248 sq. ft.

Is forced draught fitted

Yes

Coal or Oil fired

Coal.

No. and Description of Boilers

3. Single Ended Boilers

Working Pressure

220 lb/sq. in.

Tested by hydraulic pressure to

380 lb/sq. in.

Date of test

Port. 21-4-44

No. of Certificate

1106.

Can each boiler be worked separately

Yes

Area of Firegrate in each Boiler

55 sq. ft.

No. and Description of safety valves to each boiler

Two of 2 1/2" dia. Cockburn's Impr. High Lift.

Area of each set of valves per boiler

(per Rule)

6.68 sq. in.

Pressure to which they are adjusted

225 lb/sq. in.

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

1'-6"

Is oil fuel carried in the double bottom under boilers

No

Smallest distance between shell of boiler and tank top plating

2'-1"

Is the bottom of the boiler insulated

Yes

Largest internal dia. of boilers

15'-0 1/2"

Length

11'-7 1/2"

Shell plates: Material

Stl.

Tensile strength

29 to 33 tons

Thickness

1 1/32"

Are the shell plates welded or flanged

No

Description of riveting: circ. seams

end D.R.

inter. nil.

long. seams

T.R. Butt Straps

Diameter of rivet holes in

(circ. seams)

1 1/2"

Pitch of rivets

4 1/8"

10 3/8"

Percentage of strength of circ. end seams

(plate)

63.5.

(rivets)

46.2

Percentage of strength of circ. intermediate seam

(plate)

nil

Percentage of strength of longitudinal joint

(plate)

85.5

(rivets)

86.2

(combined)

88.3

Thickness of butt straps

(outer)

1 1/8"

(inner)

1 1/4"

No. and Description of Furnaces in each Boiler

3 Corrugated (Deighton type)

Material

Stl.

Tensile strength

26 to 30 tons

Smallest outside diameter

3'-9 3/4"

Length of plain part

(top)

nil

(bottom)

Thickness of plates

(crown)

1 1/16"

(bottom)

Description of longitudinal joint

Fibre weld.

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

nil

End plates in steam space: Material

Stl.

Tensile strength

26 to 30 tons

Thickness

1 1/32"

Pitch of stays

19 3/4" x 19 5/8"

How are stays secured

Nuttled inside &amp; outside.

Tube plates: Material

(front)

Stl.

(back)

Tensile strength

26 to 30 tons

Thickness

15/16"

25/32"

Mean pitch of stay tubes in nests

9 3/4"

Pitch across wide water spaces

14" x 4 1/8"

Girders to combustion chamber tops: Material

Stl.

Tensile strength

28 to 32 tons

Depth and thickness of girder

at centre

10 1/2" x 11" dble

Length as per Rule

2'-9 17/32"

Distance apart

9 1/4"

No. and pitch of stays

in each

3 @ 8"

Combustion chamber plates: Material

Stl.

Tensile strength

26 to 30 tons

Thickness: Sides

1 1/16"

Back

1 1/16"

Top

1 1/16"

Bottom

7/8"

Pitch of stays to ditto: Sides

8" x 9 1/4"

Back

8" x 9 1/4"

Top

8" x 9 1/4"

Are stays fitted with nuts or riveted over

with nuts

Front plate at bottom: Material

Stl.

Tensile strength

26 to 30 tons

Thickness

15/16"

Lower back plate: Material

Stl.

Tensile strength

26 to 30

Thickness

27/32"

Pitch of stays at wide water space

14" x 8"

Are stays fitted with nuts or riveted over

with nuts

Main stays: Material

Stl.

Tensile strength

28 to 32 tons

Screw stays: Material

S.

Tensile strength

26 to 30 tons

Diameter

(At body of stay, or Over threads)

3 1/4"

3 1/2"

No. of threads per inch

6.

Diameter

(At turned off part, or Over threads)

1 3/4"

No. of threads per inch

9.

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Are the stays drilled at the outer ends No

Margin stays: Diameter { At turned off part, 1 7/8"  
or  
Over threads

No. of threads per inch 9.

Tubes: Material S.D. Stl External diameter { Plain 3"  
Stay

Thickness { 8 W.G.  
5/16, 3/8" No. of threads per inch 9.

Pitch of tubes 4 1/4 x 4 1/8"

Manhole compensation: Size of opening

shell plate Nil.

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 Nil.

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

Thickness of crown

No. and diameter

stays

Inner radius of crown

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 N.E.M. Smoketube

Manufacturers of { Tubes Galbot Stead Co.  
Steel forgings Appleby & Frodingham Steel Coy.  
Steel castings ✓

Number of elements 177. Material of tubes S.D. Stl

Internal diameter and thickness of tubes 15 7/8" + 2 1/2 7/8"

Material of headers 2 Stl.

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 2 1/4 sq (one of 2" dia)

Are the safety valves fitted with easing gear Yes

Pressure to which the safety valves are adjusted 230 lbs. for 220 H.P.

Hydraulic test pressure

tubes 1500 lbs.

for forgings and castings 660 lbs.

and after assembly in place 440 lbs

Are drain cocks

valves fitted to free the superheater from water where necessary Yes

Have all the requirements of Sections 14 to 22 inclusive for boilers been complied with Yes

The foregoing is a correct description,  
THE NORTH EASTERN MARINE ENGINEERING CO. (1935) LTD.

John Neill

Manufacturers

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

See Machy report

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

DIRECTOR 17/11/43

Total No. of visits ✓

Superheater - N.E.M. Standard Type.

Is this Boiler a duplicate of a previous case Yes

If so, state Vessel's name and Report No. Empire Mandarin  
NEM Reg 3069.

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

These Boilers have been constructed under Special Survey in accordance with the approved plans, Specification & the Society's Rules, and the materials and workmanship are good.

The Boilers have been efficiently fitted on board and tested under steam under working conditions with satisfactory results

See also Machy Rpt H

Survey Fee ... £ See Rpt 4

When applied for, 19

Travelling Expenses (if any) £ :

When received, 19

A. Watt

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 18 MAY 1945

Assigned See F.E. machy. rpt.



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